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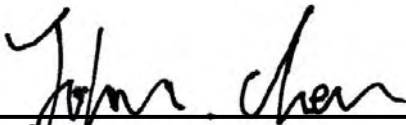
Part 15 C Measurement Report



Report No.	:	0807FR13
Applicant	:	Applied Wireless Identifications Group Inc.
Trade Mark	:	AWID
Product Model	:	MPR-1712
Product Type	:	Multi-Protocol RFID (MPR) Module
FCC ID	:	OGSMPR1712
Dates of Test	:	Jun. 23 ~ Jul. 09, 2008
Test Specification	:	47 CFR §15.247 (2007) RSS-210 Issue 7(2007)
Location of Test Lab.	:	Chang-An

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full.


Country Huang 20080804
Measurement Center Manager


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Testing Engineer



CERTIFICATION

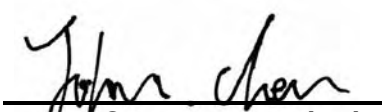
We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2001. All test were conducted by *A Test Lab Techno Corp. No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)* Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247) & RSS-210 Issue 7(2007).

EUT : **Multi-Protocol RFID (MPR) Module**
Applicant : **Applied Wireless Identifications Group Inc.**
18300 Sutter Blvd, Morgan Hill, CA 95037 USA
Trade Mark : **AWID**
Model No : **MPR-1712**
FCC ID : **OGSMPR1712**

Approved by : 
Country Huang 2008/08/04

Prepared by : 
John Cheng 2008/08/04

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1. GENERAL

1.1 Description of Equipment under Test (EUT)

Applicant :

Applied Wireless Identifications Group Inc.
18300 Sutter Blvd, Morgan Hill, CA 95037 USA

Trade Mark : AWID
Product Model : MPR-1712
Product Type : Multi-Protocol RFID (MPR) Module
FCC ID : OGSMMPR1712
Hardware Version : 10.11.00
Software Version : 2_11c3
Type of Modulation : Spread Spectrum
RF Operating Frequency : 902 MHz to 928 MHz
Number of Channels : 50
Type of Antenna : List below

Antenna Model Name	Type	Max Gain (dBi)
ANT-915CPS-A	Circularly Polarized (RHCP) Patch Antenna	5.70
ANT-2010CP	Circular Polarized UHF Antenna	5.59
ANT-915CPS-C	Circularly Polarized (RHCP) Patch Antenna	4.70

During testing the EUT was operated at Tx or Rx mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.



1.2 Introduction

The following measurement report is submitted on behalf of **Applied Wireless Identifications Group Inc.** In support of a Class B Digital Device certification in accordance with Part2 Subpart J and Part 15 Subpart A And B&C & RSS 210 Issue7(2007) of the Commission's and Regulations.

1.3 Summary of Tests

47 CFR Part 15 Subpart C & RSS 210 Issue7				
Reference		Test	Results	Section
CFR 47 Part 15.247	RSS 210 Issue7			
15.205	RSS 210(A8.5)	Restricted Band of Operation	PASS	----
15.207(a)	RSS Gen(7.2.2)	Conducted Emissions Voltage	PASS	2.6
15.209; 15.247(d)	RSS 210(A8.5)	Radiated Spurious Emissions	PASS	3.6 & 9.5
15.247(b)	RSS 210(A8.4)	Output Power	PASS	4.4
15.247(a)(1)	RSS 210(A8.1)	Occupied Bandwidth	PASS	5.4
15.247(a)(1)	RSS 210(A8.1)	Channel Separation	PASS	6.4
15.247(a)(1)	RSS 210(A8.1)	Number of Hopping Channels	PASS	7.4
15.247(a)(1)	RSS 210(A8.1)	Time of Occupancy	PASS	8.4
15.247(d)	RSS 210(A8.5)	Conducted Spurious Emissions	PASS	10.5
15.203		Antenna Requirement	PASS	11.2
15.247(i)	RSS Gen(5.5)	Maximum Permissible Exposure	PASS	12.2
15.247(c)	RSS 210(A8.4)	Antenna Gain < 6 dBi	PASS	----
15.247(e)	RSS 210(A8.3)	Power Spectral Density	N/A	----
15.247(f)	RSS 210(A8.3)	Hybrid System Requirement	N/A	----
CFR 47 Part 15.247 (2007) / RSS 210 Issue7 (2007) / ANSI C63.4: 2003 / RSS-Gen Issue 2: 2007				

1.4 Description of Support Equipment

The EUT itself forms a system. No support equipment is required for its normal operation.

1.5 Configuration of System under Test

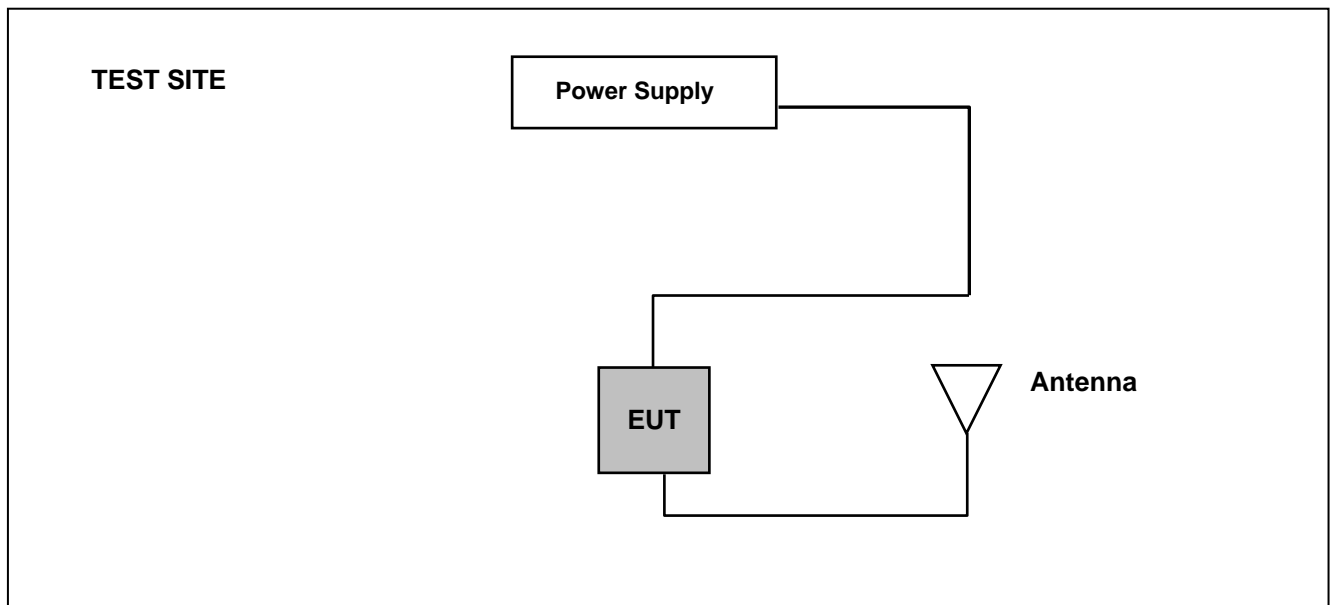


Figure 1. Configuration of System Under Test for PC USB Link

During EMI testing (LINK) the EUT (Multi-Protocol RFID (MPR) Module)'s Power port was connected to DC power supply. EUT (Multi-Protocol RFID (MPR) Module)'s Antenna port was connected to Antenna.



1.6 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 "Measurement of un-Intentional Radiators."

1.7 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated. The systems radiated and conducted emissions were investigated while the computer alternately transferred data to the EUT as well as to the monitor and printer. Using a test program which sent a continuous data and transferred data to and from the EUT was proven to worst case emissions. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.



2. Conducted Emissions Requirements

2.1 General & Setup:

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

2.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Advantest	R3132	160300103	Mar. 06, 2008	Mar. 06, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
LISN	EMCO	3816/2 SH	00060110	Jun. 04, 2008	Jun. 04, 2009
LISN	EMCO	3816/2 SH	00060111	Jun. 13, 2008	Jun. 13, 2009
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Jun. 26, 2008	Jun. 26, 2009

2.3 Test Configuration:

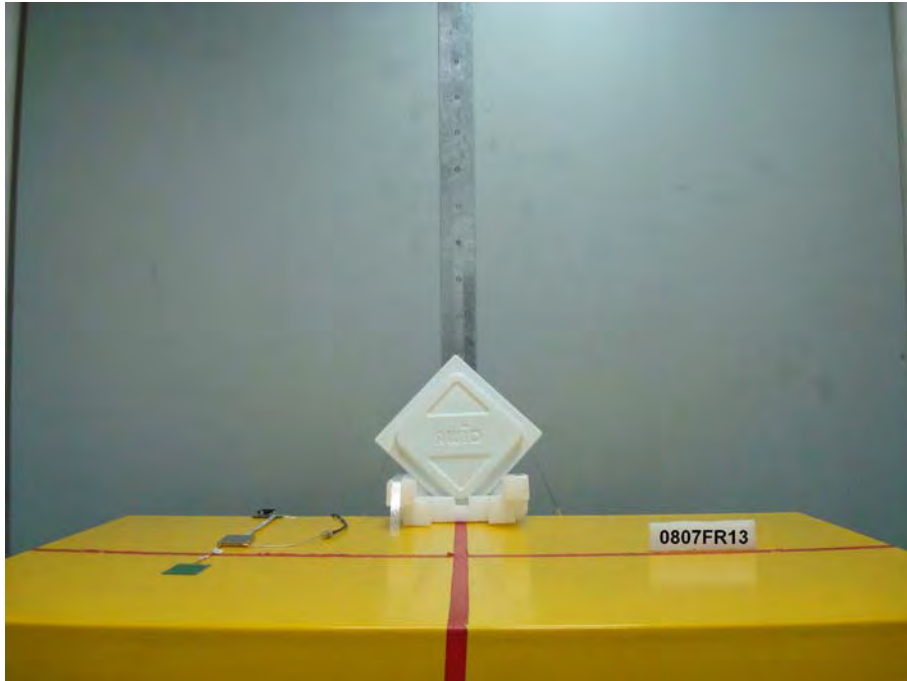


Figure 2. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)



Figure 3. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)

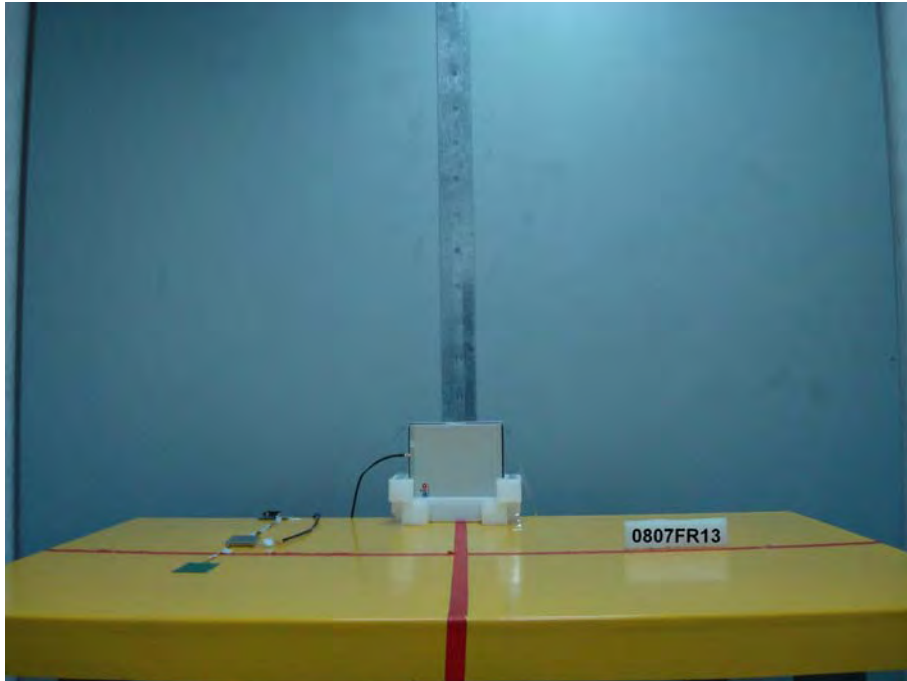


Figure 4. Front View of the Test Configuration _ EUT with Antenna (ANT-2010CP)

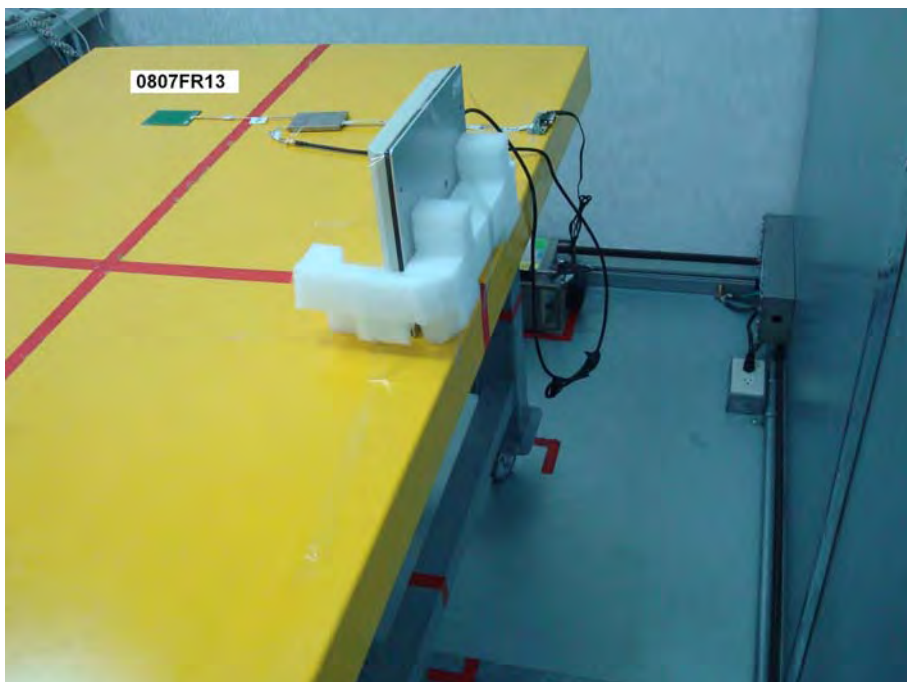


Figure 5. Rear View of the Test Configuration _ EUT with Antenna (ANT-2010CP)



Figure 6. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)



Figure 7. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)



2.4 Test condition:

EUT tested in accordance with the specifications given by the Manufacturer, and exercised in the most unfavorable manner.

2.5 Conducted Emissions Limits:

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

2.6 Measurement Data of Conducted Emissions:

2.6.1 Conducted Emissions (Subpart C)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

Applicant : Applied Wireless Identifications Group Inc.
Model No : MPR-1712
EUT : Multi-Protocol RFID (MPR) Module
Test Mode : Stand By
Test Date : 07/09/2008

Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.



2.6.2 Conducted Emissions (Subpart C)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

Applicant : Applied Wireless Identifications Group Inc.
Model No : MPR-1712
EUT : Multi-Protocol RFID (MPR) Module
Test Mode : Link Mode _ EUT with Antenna (ANT-915CPS-A)
Test Date : 07/09/2008

Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.
5. The test results are the worse case.



3. Radiated Emissions Requirements

3.1 Final radiation measurements were made on a three-meter:

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (model VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 - 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post - detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.



The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency :

Transmitter Output < +30dBm

(b) For spurious frequency :

Spurious emission limits = fundamental emission limit /10

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).



3.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 05, 2008	Jun. 05, 2009
Pre Amplifier	Agilent	8449B	3008A02237	Jun. 03, 2008	Jun. 03, 2009
Pre Amplifier	Agilent	8447D	2944A10961	Jun. 10, 2008	Jun. 10, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 09, 2008	Jun. 09, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120E	0899	Jun. 26, 2008	Jun. 26, 2009

3.3 Test Configuration:

Below 1GHz



Figure 8. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)



Figure 9. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)

Above 1GHz



Figure 10. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)

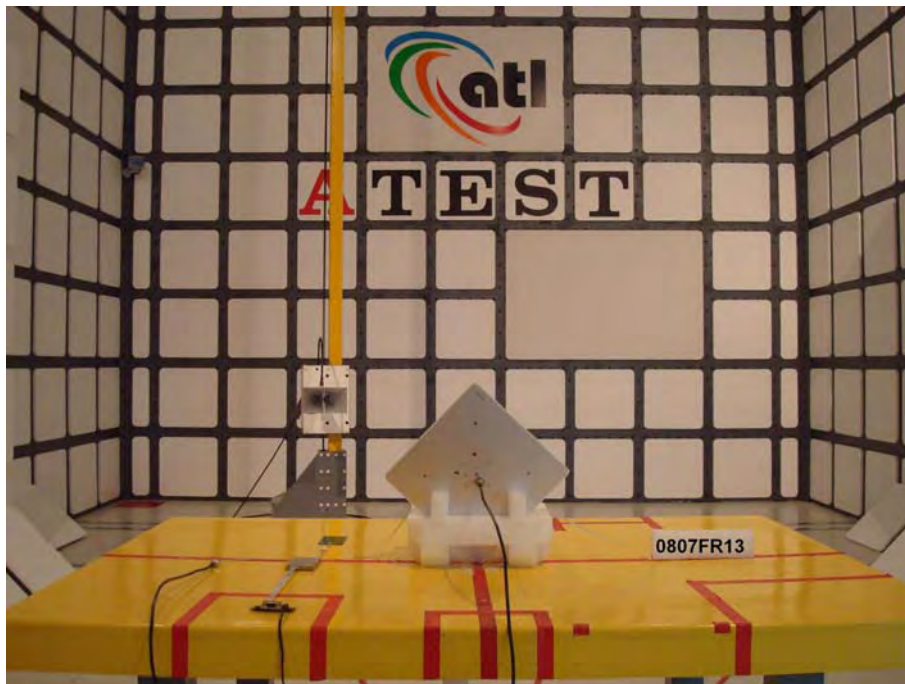


Figure 11. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-A)

Below 1GHz



Figure 12. Front View of the Test Configuration _ EUT with Antenna (ANT-2010CP)



Figure 13. Rear View of the Test Configuration _ EUT with Antenna (ANT-2010CP)

Above 1GHz

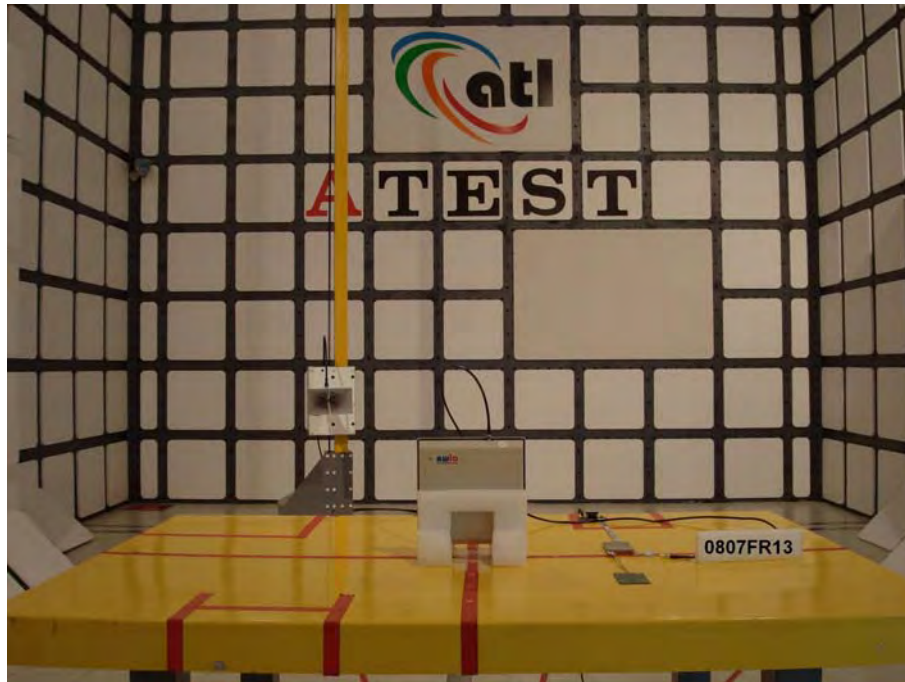


Figure 14. Front View of the Test Configuration _ EUT with Antenna (ANT-2010CP)



Figure 15. Rear View of the Test Configuration _ EUT with Antenna (ANT-2010CP)

Below 1GHz



Figure 16. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)



Figure 17. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)

Above 1GHz



Figure 18. Front View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)



Figure 19. Rear View of the Test Configuration _ EUT with Antenna (ANT-915CPS-C)



3.4 Test condition:

EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

3.5 Radiated Emissions Limits:

Frequency range (MHz)	Limited (dBuV)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54



3.6 Measurement Data of Radiated Emissions:

3.6.1 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-A)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Stand By
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
36.48	37.26	-12.80	24.46	40.00	-15.54	peak
115.32	36.38	-13.40	22.98	40.00	-17.02	peak
143.94	40.24	-16.22	24.02	40.00	-15.98	peak
198.48	33.64	-13.15	20.49	40.00	-19.51	peak
268.14	33.06	-10.97	22.09	47.00	-24.91	peak
302.80	45.72	-10.06	35.66	47.00	-11.34	peak
462.40	40.62	-7.85	32.77	47.00	-14.23	peak
578.60	34.69	-5.30	29.39	47.00	-17.61	peak
644.40	34.94	-4.52	30.42	47.00	-16.58	peak
787.20	33.43	-2.37	31.06	47.00	-15.94	peak
907.60	34.10	-0.12	33.98	47.00	-13.02	peak



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
47.82	48.52	-12.02	36.50	40.00	-3.50	peak
95.88	49.02	-11.99	37.03	40.00	-2.97	peak
151.50	47.19	-15.98	31.21	40.00	-8.79	peak
202.80	51.49	-13.11	38.38	40.00	-1.62	peak
252.48	40.42	-10.98	29.44	47.00	-17.56	peak
298.92	49.41	-10.03	39.38	47.00	-7.62	peak
300.00	47.95	-9.98	37.97	47.00	-9.03	peak
351.80	46.26	-8.90	37.36	47.00	-9.64	peak
462.40	39.01	-7.85	31.16	47.00	-15.84	peak
665.40	33.59	-4.45	29.14	47.00	-17.86	peak
806.80	32.79	-1.91	30.88	47.00	-16.12	peak
927.20	34.25	-0.32	33.93	47.00	-13.07	peak

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambient noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.2 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-A)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 902.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	115.98	-0.30	115.68	N/A	N/A	peak
47.82	44.90	-12.02	32.88	40.00	-7.12	peak
100.74	45.73	-11.81	33.92	43.50	-9.58	peak
124.50	48.61	-14.95	33.66	43.50	-9.84	peak
202.80	52.80	-13.11	39.69	43.50	-3.81	peak
255.72	49.79	-11.16	38.63	46.00	-7.37	peak
298.92	52.14	-10.03	42.11	46.00	-3.89	QP
300.00	50.98	-9.98	41.00	46.00	-5.00	peak
350.40	46.94	-8.94	38.00	46.00	-8.00	peak
564.60	35.18	-5.65	29.53	46.00	-16.47	peak
729.80	35.00	-3.55	31.45	46.00	-14.55	peak
806.50	54.95	-1.93	53.02	85.68	-32.66	peak
951.00	44.28	0.21	44.49	46.00	-1.51	peak
1000.00	44.05	0.62	44.67	54.00	-9.33	peak
1400.00	43.25	3.82	47.07	74.00	-26.93	peak
2709.00	43.02	1.27	44.29	74.00	-29.71	peak
8146.00	39.07	15.75	54.82	74.00	-19.18	peak
8146.00	27.84	15.75	43.59	54.00	-10.41	AVG
9964.00	38.79	17.96	56.75	74.00	-17.25	peak
9964.00	27.63	17.96	45.59	54.00	-8.41	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	121.07	-0.30	120.77	N/A	N/A	peak
43.50	49.33	-11.85	37.48	40.00	-2.52	QP
95.88	47.31	-11.99	35.32	43.50	-8.18	peak
150.42	44.73	-16.00	28.73	43.50	-14.77	peak
201.72	51.16	-13.14	38.02	43.50	-5.48	peak
255.18	48.06	-11.15	36.91	46.00	-9.09	peak
292.98	51.89	-10.13	41.76	46.00	-4.24	peak
353.20	45.46	-8.87	36.59	46.00	-9.41	peak
462.40	38.58	-7.85	30.73	46.00	-15.27	peak
508.60	37.14	-6.78	30.36	46.00	-15.64	peak
630.40	33.46	-4.36	29.10	46.00	-16.90	peak
788.60	40.01	-2.31	37.70	46.00	-8.30	peak
854.50	50.76	-1.32	49.44	90.77	-41.33	peak
980.40	44.50	0.45	44.95	54.00	-9.05	peak
1012.00	48.36	0.49	48.85	74.00	-25.15	peak
2647.25	42.47	1.28	43.75	74.00	-30.25	peak
8092.00	39.75	15.81	55.56	74.00	-18.44	peak
8092.00	28.45	15.81	44.26	54.00	-9.74	AVG
9856.00	38.38	18.30	56.68	74.00	-17.32	peak
9856.00	27.51	18.30	45.81	54.00	-8.19	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.3 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-A)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 914.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	113.11	-0.30	112.81	N/A	N/A	peak
47.82	45.11	-12.02	33.09	40.00	-6.91	peak
100.74	50.51	-11.81	38.70	43.50	-4.80	peak
151.50	50.59	-15.98	34.61	43.50	-8.89	peak
210.36	47.33	-12.77	34.56	43.50	-8.94	peak
263.82	49.68	-11.08	38.60	46.00	-7.40	peak
289.74	51.69	-10.03	41.66	46.00	-4.34	peak
347.60	52.60	-9.01	43.59	46.00	-2.41	QP
454.00	45.81	-8.07	37.74	46.00	-8.26	peak
630.40	34.31	-4.36	29.95	46.00	-16.05	peak
766.20	39.22	-2.78	36.44	46.00	-9.56	peak
801.20	39.33	-2.25	37.08	46.00	-8.92	peak
818.50	55.25	-1.90	53.35	82.81	-29.46	peak
963.60	44.07	0.61	44.68	54.00	-9.32	peak
1010.00	44.25	0.53	44.78	74.00	-29.22	peak
2624.50	42.68	1.21	43.89	74.00	-30.11	peak
8020.00	40.01	15.22	55.23	74.00	-18.77	peak
8020.00	30.16	15.22	45.38	54.00	-8.62	AVG
9352.00	39.63	17.12	56.75	74.00	-17.25	peak
9352.00	28.00	17.12	45.12	54.00	-8.88	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	120.03	-0.30	119.73	N/A	N/A	peak
43.50	48.84	-11.85	36.99	40.00	-3.01	QP
75.90	52.51	-17.05	35.46	40.00	-4.54	peak
100.74	49.67	-11.81	37.86	43.50	-5.64	peak
152.04	47.68	-15.97	31.71	43.50	-11.79	peak
211.44	44.97	-12.76	32.21	43.50	-11.29	peak
290.82	48.27	-10.05	38.22	46.00	-7.78	peak
307.00	54.68	-10.02	44.66	46.00	-1.34	peak
351.80	48.60	-8.90	39.70	46.00	-6.30	peak
452.60	43.61	-8.10	35.51	46.00	-10.49	peak
630.40	33.96	-4.36	29.60	46.00	-16.40	peak
784.40	37.15	-2.44	34.71	46.00	-11.29	peak
866.50	51.45	-0.63	50.82	89.73	-38.91	peak
963.60	49.01	0.61	49.62	54.00	-4.38	peak
1010.00	51.91	0.53	52.44	74.00	-21.56	peak
2634.25	42.32	1.29	43.61	74.00	-30.39	peak
8074.00	39.63	15.67	55.30	74.00	-18.70	peak
8074.00	30.30	15.67	45.97	54.00	-8.03	AVG
9838.00	38.71	18.24	56.95	74.00	-17.05	peak
9838.00	27.47	18.24	45.71	54.00	-8.29	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambient noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.4 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-A)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 927.25 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	114.02	-0.32	113.7	N/A	N/A	peak
47.82	44.26	-12.02	32.24	40.00	-7.76	peak
100.74	49.91	-11.81	38.10	43.50	-5.40	peak
152.04	47.60	-15.97	31.63	43.50	-11.87	peak
211.44	45.99	-12.76	33.23	43.50	-10.27	peak
261.66	48.76	-11.17	37.59	46.00	-8.41	peak
299.46	51.77	-10.00	41.77	46.00	-4.23	peak
312.60	54.87	-9.79	45.08	46.00	-0.92	peak
351.80	52.86	-8.90	43.96	46.00	-2.04	QP
452.60	42.01	-8.10	33.91	46.00	-12.09	peak
753.60	38.49	-3.16	35.33	46.00	-10.67	peak
801.20	43.64	-2.25	41.39	46.00	-4.61	peak
831.00	50.45	-1.58	48.87	83.70	-34.83	peak
976.20	38.44	0.59	39.03	54.00	-14.97	peak
1426.00	41.23	4.27	45.50	74.00	-28.50	peak
2624.50	42.96	1.21	44.17	74.00	-29.83	peak
8128.00	39.12	15.80	54.92	74.00	-19.08	peak
8128.00	27.05	15.80	42.85	54.00	-11.15	AVG
9334.00	39.63	17.11	56.74	74.00	-17.26	peak
9334.00	28.09	17.11	45.20	54.00	-8.80	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	120.54	-0.32	120.22	N/A	N/A	peak
43.50	47.66	-11.85	35.81	40.00	-4.19	QP
75.90	52.58	-17.05	35.53	40.00	-4.47	peak
100.74	50.13	-11.81	38.32	43.50	-5.18	peak
152.04	46.15	-15.97	30.18	43.50	-13.32	peak
215.22	44.40	-12.69	31.71	43.50	-11.79	peak
287.58	47.39	-10.15	37.24	46.00	-8.76	peak
307.00	52.62	-10.02	42.60	46.00	-3.40	peak
353.20	52.23	-8.87	43.36	46.00	-2.64	peak
451.20	44.47	-8.13	36.34	46.00	-9.66	peak
753.60	36.27	-3.16	33.11	46.00	-12.89	peak
777.40	38.07	-2.47	35.60	46.00	-10.40	peak
831.00	51.10	-1.58	49.52	90.22	-40.70	peak
976.20	47.12	0.59	47.71	54.00	-6.29	peak
1376.00	41.86	3.79	45.65	74.00	-28.35	peak
2634.25	42.88	1.29	44.17	74.00	-29.83	peak
8146.00	39.62	15.75	55.37	74.00	-18.63	peak
8146.00	27.53	15.75	43.28	54.00	-10.72	AVG
10000.00	38.05	18.43	56.48	74.00	-17.52	peak
10000.00	27.56	18.43	45.99	54.00	-8.01	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambient noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.5 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-2010CP)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Stand By
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
36.48	39.26	-12.80	26.46	40.00	-13.54	peak
95.88	39.60	-11.99	27.61	40.00	-12.39	peak
116.40	41.19	-13.58	27.61	40.00	-12.39	peak
143.94	44.24	-16.22	28.02	40.00	-11.98	peak
253.02	36.40	-11.02	25.38	47.00	-21.62	peak
289.20	35.03	-10.06	24.97	47.00	-22.03	peak
302.80	46.22	-10.06	36.16	47.00	-10.84	peak
462.40	41.62	-7.85	33.77	47.00	-13.23	peak
605.20	34.74	-4.58	30.16	47.00	-16.84	peak
787.20	33.43	-2.37	31.06	47.00	-15.94	peak
907.60	34.60	-0.12	34.48	47.00	-12.52	peak
995.80	32.59	0.75	33.34	47.00	-13.66	peak



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
47.82	47.02	-12.02	35.00	40.00	-5.00	peak
99.66	47.73	-11.78	35.95	40.00	-4.05	peak
151.50	47.19	-15.98	31.21	40.00	-8.79	peak
202.80	50.99	-13.11	37.88	40.00	-2.12	peak
252.48	40.42	-10.98	29.44	47.00	-17.56	peak
298.92	48.91	-10.03	38.88	47.00	-8.12	peak
300.00	48.45	-9.98	38.47	47.00	-8.53	peak
351.80	46.76	-8.90	37.86	47.00	-9.14	peak
462.40	39.51	-7.85	31.66	47.00	-15.34	peak
715.80	33.74	-3.59	30.15	47.00	-16.85	peak
864.20	33.40	-0.60	32.80	47.00	-14.20	peak
927.20	33.75	-0.32	33.43	47.00	-13.57	peak

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.6 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-2010CP)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 902.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	113.48	-0.30	113.18	N/A	N/A	peak
47.82	46.46	-12.02	34.44	40.00	-5.56	peak
73.20	54.24	-16.95	37.29	40.00	-2.71	peak
95.88	48.36	-11.99	36.37	43.50	-7.13	peak
151.50	56.62	-15.98	40.64	43.50	-2.86	peak
203.88	53.17	-13.08	40.09	43.50	-3.41	peak
267.60	46.89	-10.98	35.91	46.00	-10.09	peak
300.00	53.55	-9.98	43.57	46.00	-2.43	QP
353.20	47.56	-8.87	38.69	46.00	-7.31	peak
455.40	43.49	-8.03	35.46	46.00	-10.54	peak
631.80	33.96	-4.37	29.59	46.00	-16.41	peak
788.60	40.52	-2.31	38.21	46.00	-7.79	peak
854.50	49.97	-1.32	48.65	83.18	-34.53	peak
1000.00	47.24	0.62	47.86	54.00	-6.14	peak
1321.00	37.78	3.73	41.51	74.00	-32.49	peak
2709.00	43.21	1.27	44.48	74.00	-29.52	peak
8074.00	39.99	15.67	55.66	74.00	-18.34	peak
8074.00	28.01	15.67	43.68	54.00	-10.32	AVG
9406.00	39.44	17.34	56.78	74.00	-17.22	peak
9406.00	28.21	17.34	45.55	54.00	-8.45	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	118.57	-0.30	118.27	N/A	N/A	peak
45.66	47.00	-11.87	35.13	40.00	-4.87	QP
73.20	52.51	-16.95	35.56	40.00	-4.44	peak
150.96	53.00	-15.99	37.01	43.50	-6.49	peak
203.88	51.16	-13.08	38.08	43.50	-5.42	peak
251.40	46.82	-10.91	35.91	46.00	-10.09	peak
298.92	46.66	-10.03	36.63	46.00	-9.37	peak
302.80	53.80	-10.06	43.74	46.00	-2.26	QP
350.40	45.71	-8.94	36.77	46.00	-9.23	peak
455.40	43.41	-8.03	35.38	46.00	-10.62	peak
556.20	35.86	-5.78	30.08	46.00	-15.92	peak
788.60	37.07	-2.31	34.76	46.00	-11.24	peak
854.50	50.76	-1.32	49.44	88.27	-38.83	peak
1000.00	51.95	0.62	52.57	54.00	-1.43	peak
1001.00	47.81	0.66	48.47	74.00	-25.53	peak
2572.50	43.43	0.95	44.38	74.00	-29.62	peak
8074.00	39.24	15.67	54.91	74.00	-19.09	peak
8074.00	30.02	15.67	45.69	54.00	-8.31	AVG
9838.00	38.32	18.24	56.56	74.00	-17.44	peak
9838.00	27.75	18.24	45.99	54.00	-8.01	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.7 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-2010CP)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 914.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	111.11	-0.30	110.81	N/A	N/A	peak
73.20	51.29	-16.95	34.34	40.00	-5.66	peak
150.96	54.15	-15.99	38.16	43.50	-5.34	peak
195.24	50.02	-13.09	36.93	43.50	-6.57	peak
203.34	49.44	-13.09	36.35	43.50	-7.15	peak
267.60	47.38	-10.98	36.40	46.00	-9.60	peak
300.00	52.11	-9.98	42.13	46.00	-3.87	peak
302.80	53.85	-10.06	43.79	46.00	-2.21	QP
353.20	48.67	-8.87	39.80	46.00	-6.20	peak
454.00	44.21	-8.07	36.14	46.00	-9.86	peak
717.20	35.07	-3.58	31.49	46.00	-14.51	peak
766.20	38.88	-2.78	36.10	46.00	-9.90	peak
818.50	51.25	-1.90	49.35	80.81	-31.45	peak
963.60	42.13	0.61	42.74	54.00	-11.26	peak
1379.00	36.97	3.79	40.76	74.00	-33.24	peak
2657.00	42.73	1.25	43.98	74.00	-30.02	peak
8092.00	38.97	15.81	54.78	74.00	-19.22	peak
8092.00	27.36	15.81	43.17	54.00	-10.83	AVG
10000.00	38.61	18.43	57.04	74.00	-16.96	peak
10000.00	27.61	18.43	46.04	54.00	-7.96	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	116.53	-0.30	116.23	N/A	N/A	peak
45.12	47.08	-11.84	35.24	40.00	-4.76	QP
73.20	54.67	-16.95	37.72	40.00	-2.28	peak
95.88	45.52	-11.99	33.53	43.50	-9.97	peak
152.04	54.80	-15.97	38.83	43.50	-4.67	peak
203.88	47.28	-13.08	34.20	43.50	-9.30	peak
267.60	43.20	-10.98	32.22	46.00	-13.78	peak
307.00	50.34	-10.02	40.32	46.00	-5.68	peak
351.80	49.38	-8.90	40.48	46.00	-5.52	peak
455.40	41.95	-8.03	33.92	46.00	-12.08	peak
568.80	34.93	-5.54	29.39	46.00	-16.61	peak
654.20	43.79	-4.43	39.36	46.00	-6.64	peak
867.00	49.90	-0.66	49.24	86.23	-36.99	peak
963.60	44.72	0.61	45.33	54.00	-8.67	peak
1010.00	45.14	0.53	45.67	74.00	-28.33	peak
2540.00	43.48	0.86	44.34	74.00	-29.66	peak
8128.00	39.20	15.80	55.00	74.00	-19.00	peak
8128.00	26.59	15.80	42.39	54.00	-11.61	AVG
10000.00	38.13	18.43	56.56	74.00	-17.44	peak
10000.00	27.70	18.43	46.13	54.00	-7.87	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.8 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-2010CP)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 927.25 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	110.52	-0.32	110.20	N/A	N/A	peak
45.12	40.38	-11.84	28.54	40.00	-11.46	peak
73.20	52.86	-16.95	35.91	40.00	-4.09	QP
100.74	46.73	-11.81	34.92	43.50	-8.58	peak
150.96	54.63	-15.99	38.64	43.50	-4.86	peak
204.42	52.38	-13.07	39.31	43.50	-4.19	peak
265.44	49.75	-11.02	38.73	46.00	-7.27	peak
332.20	54.09	-9.35	44.74	46.00	-1.26	peak
454.00	41.21	-8.07	33.14	46.00	-12.86	peak
626.20	32.97	-4.59	28.38	46.00	-17.62	peak
801.20	46.70	-2.25	44.45	46.00	-1.55	peak
958.00	40.70	0.36	41.06	46.00	-4.94	peak
831.00	48.45	-1.58	46.87	80.20	-33.33	peak
976.20	39.79	0.60	40.39	54.00	-13.61	peak
1258.00	38.58	2.73	41.31	74.00	-32.69	peak
2637.50	42.94	1.29	44.23	74.00	-29.77	peak
8128.00	39.50	15.80	55.30	74.00	-18.70	peak
8128.00	26.81	15.80	42.61	54.00	-11.39	AVG
9352.00	39.72	17.12	56.84	74.00	-17.16	peak
9352.00	27.65	17.12	44.77	54.00	-9.23	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	117.54	-0.32	117.22	N/A	N/A	peak
45.12	47.56	-11.84	35.72	40.00	-4.28	QP
73.20	54.06	-16.95	37.11	40.00	-2.89	peak
95.88	46.72	-11.99	34.73	43.50	-8.77	peak
150.96	54.38	-15.99	38.39	43.50	-5.11	peak
203.88	51.45	-13.08	38.37	43.50	-5.13	peak
300.00	48.75	-9.98	38.77	46.00	-7.23	peak
301.40	53.57	-10.02	43.55	46.00	-2.45	peak
337.80	46.57	-9.09	37.48	46.00	-8.52	peak
455.40	39.45	-8.03	31.42	46.00	-14.58	peak
659.80	32.68	-4.32	28.36	46.00	-17.64	peak
813.80	40.12	-1.97	38.15	46.00	-7.85	peak
879.50	48.84	-0.71	48.13	87.22	-39.09	peak
976.20	45.27	0.59	45.86	54.00	-8.14	peak
1023.00	47.33	0.32	47.65	74.00	-26.35	peak
2601.75	42.61	1.04	43.65	74.00	-30.35	peak
8128.00	39.12	15.80	54.92	74.00	-19.08	peak
8128.00	27.05	15.80	42.85	54.00	-11.15	AVG
9334.00	39.63	17.11	56.74	74.00	-17.26	peak
9334.00	28.09	17.11	45.20	54.00	-8.80	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.9 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Stand By
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
35.40	38.56	-13.09	25.47	40.00	-14.53	peak
95.88	36.10	-11.99	24.11	40.00	-15.89	peak
119.10	39.33	-14.05	25.28	40.00	-14.72	peak
143.94	41.74	-16.22	25.52	40.00	-14.48	peak
186.60	35.32	-13.67	21.65	40.00	-18.35	peak
289.20	33.03	-10.06	22.97	47.00	-24.03	peak
302.80	46.22	-10.06	36.16	47.00	-10.84	peak
462.40	42.12	-7.85	34.27	47.00	-12.73	peak
644.40	34.94	-4.52	30.42	47.00	-16.58	peak
787.20	34.43	-2.37	32.06	47.00	-14.94	peak
907.60	35.10	-0.12	34.98	47.00	-12.02	peak
995.80	33.09	0.75	33.84	47.00	-13.16	peak



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
47.82	48.02	-12.02	36.00	40.00	-4.00	peak
95.88	49.52	-11.99	37.53	40.00	-2.47	peak
151.50	47.69	-15.98	31.71	40.00	-8.29	peak
202.80	51.49	-13.11	38.38	40.00	-1.62	peak
252.48	40.92	-10.98	29.94	47.00	-17.06	peak
298.92	48.91	-10.03	38.88	47.00	-8.12	peak
300.00	47.95	-9.98	37.97	47.00	-9.03	peak
351.80	46.26	-8.90	37.36	47.00	-9.64	peak
462.40	40.01	-7.85	32.16	47.00	-14.84	peak
715.80	34.74	-3.59	31.15	47.00	-15.85	peak
806.80	34.79	-1.91	32.88	47.00	-14.12	peak
927.20	35.25	-0.32	34.93	47.00	-12.07	peak

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.10 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 902.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	109.48	-0.30	109.18	N/A	N/A	peak
47.82	43.82	-12.02	31.80	40.00	-8.20	peak
88.32	45.84	-13.70	32.14	43.50	-11.36	peak
116.94	50.65	-13.68	36.97	43.50	-6.53	peak
155.28	52.30	-15.88	36.42	43.50	-7.08	peak
207.66	48.28	-12.91	35.37	43.50	-8.13	peak
296.22	51.71	-10.14	41.57	46.00	-4.43	peak
304.20	53.48	-10.10	43.38	46.00	-2.62	peak
353.20	49.00	-8.87	40.13	46.00	-5.87	peak
455.40	42.05	-8.03	34.02	46.00	-11.98	peak
567.40	36.69	-5.59	31.10	46.00	-14.90	peak
951.00	42.62	0.21	42.83	46.00	-3.17	peak
999.00	47.82	0.65	48.47	79.18	-30.71	peak
1000.00	43.98	0.62	44.60	54.00	-9.40	peak
1407.00	37.71	3.96	41.67	74.00	-32.33	peak
2588.75	43.18	0.92	44.10	74.00	-29.90	peak
8128.00	39.74	15.80	55.54	74.00	-18.46	peak
8128.00	26.56	15.80	42.36	54.00	-11.64	AVG
9820.00	38.93	18.08	57.01	74.00	-16.99	peak
9820.00	27.78	18.08	45.86	54.00	-8.14	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
903.00	114.57	-0.30	114.27	N/A	N/A	peak
34.86	51.41	-13.19	38.22	40.00	-1.78	QP
47.82	47.45	-12.02	35.43	40.00	-4.57	peak
95.88	47.66	-11.99	35.67	43.50	-7.83	peak
119.64	48.91	-14.14	34.77	43.50	-8.73	peak
208.20	47.18	-12.87	34.31	43.50	-9.19	peak
292.98	49.83	-10.13	39.70	46.00	-6.30	peak
302.80	50.22	-10.06	40.16	46.00	-5.84	peak
353.20	46.99	-8.87	38.12	46.00	-7.88	peak
448.40	39.71	-8.12	31.59	46.00	-14.41	peak
561.80	35.12	-5.65	29.47	46.00	-16.53	peak
806.80	45.55	-1.91	43.64	46.00	-2.36	peak
980.40	40.10	0.45	40.55	54.00	-13.45	peak
999.00	48.94	0.65	49.59	84.27	-34.68	peak
1000.00	42.31	0.68	42.99	74.00	-31.01	peak
2569.25	42.87	0.92	43.79	74.00	-30.21	peak
8146.00	39.37	15.75	55.12	74.00	-18.88	peak
8146.00	27.79	15.75	43.54	54.00	-10.46	AVG
9874.00	38.55	18.17	56.72	74.00	-17.28	peak
9874.00	27.90	18.17	46.07	54.00	-7.93	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.11 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 914.75 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	109.61	-0.30	109.31	N/A	N/A	peak
47.82	46.00	-12.02	33.98	40.00	-6.02	peak
88.32	44.22	-13.70	30.52	43.50	-12.98	peak
123.42	49.18	-14.77	34.41	43.50	-9.09	peak
155.82	51.49	-15.84	35.65	43.50	-7.85	peak
208.74	47.81	-12.84	34.97	43.50	-8.53	peak
296.22	52.37	-10.14	42.23	46.00	-3.77	peak
314.00	51.08	-9.77	41.31	46.00	-4.69	peak
346.20	50.81	-9.05	41.76	46.00	-4.24	peak
454.00	41.62	-8.07	33.55	46.00	-12.45	peak
564.60	36.23	-5.65	30.58	46.00	-15.42	peak
766.20	34.96	-2.78	32.18	46.00	-13.82	peak
818.50	49.75	-1.90	47.85	79.31	-31.46	peak
963.60	41.37	0.61	41.98	54.00	-12.02	peak
1315.00	37.41	3.70	41.11	74.00	-32.89	peak
2644.00	42.88	1.29	44.17	74.00	-29.83	peak
8128.00	39.32	15.80	55.12	74.00	-18.88	peak
8128.00	30.27	15.80	46.07	54.00	-7.93	AVG
9406.00	39.84	17.34	57.18	74.00	-16.82	peak
9406.00	28.39	17.34	45.73	54.00	-8.27	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
915.00	115.03	-0.30	114.73	N/A	N/A	peak
34.86	51.86	-13.19	38.67	40.00	-1.33	QP
95.88	45.34	-11.99	33.35	43.50	-10.15	peak
150.96	48.02	-15.99	32.03	43.50	-11.47	peak
209.28	46.70	-12.82	33.88	43.50	-9.62	peak
251.40	43.82	-10.91	32.91	46.00	-13.09	peak
292.44	49.43	-10.11	39.32	46.00	-6.68	peak
307.00	50.34	-10.02	40.32	46.00	-5.68	peak
351.80	49.38	-8.90	40.48	46.00	-5.52	peak
455.40	41.95	-8.03	33.92	46.00	-12.08	peak
568.80	34.93	-5.54	29.39	46.00	-16.61	peak
654.20	43.79	-4.43	39.36	46.00	-6.64	peak
963.00	49.57	0.58	50.15	84.73	-34.58	peak
963.60	44.72	0.61	45.33	54.00	-8.67	peak
1010.00	43.37	0.53	43.90	74.00	-30.10	peak
2676.50	42.68	1.37	44.05	74.00	-29.95	peak
7876.00	39.81	14.95	54.76	74.00	-19.24	peak
7876.00	31.30	14.95	46.25	54.00	-7.75	AVG
9334.00	39.73	17.11	56.84	74.00	-17.16	peak
9334.00	28.02	17.11	45.13	54.00	-8.87	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambient noise.
7. All frequencies from 30MHz to 26.5GHz have been tested



3.6.12 Open Field Radiated Emissions (Subpart C) _ EUT with Antenna (ANT-915CPS-C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Applied Wireless Identifications Group Inc.
 Model No : MPR-1712
 EUT : Multi-Protocol RFID (MPR) Module
 Test Mode : Link Mode _ 927.25 MHz
 Test Date : 06/25/2008

Radiated Emissions _ H Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	109.52	-0.32	109.20	N/A	N/A	peak
37.02	40.66	-12.66	28.00	40.00	-12.00	peak
87.24	44.08	-14.04	30.04	40.00	-9.96	peak
124.50	48.45	-14.95	33.50	43.50	-10.00	peak
155.28	51.65	-15.88	35.77	43.50	-7.73	peak
207.66	48.63	-12.91	35.72	43.50	-7.78	peak
296.22	52.71	-10.14	42.57	46.00	-3.43	peak
304.20	51.82	-10.10	41.72	46.00	-4.28	peak
351.80	48.70	-8.90	39.80	46.00	-6.20	peak
452.60	41.55	-8.10	33.45	46.00	-12.55	peak
567.40	35.51	-5.59	29.92	46.00	-16.08	peak
801.20	41.27	-2.25	39.02	46.00	-6.98	peak
879.50	45.70	-0.71	44.99	79.20	-34.21	peak
976.20	40.06	0.60	40.66	54.00	-13.34	peak
1023.00	40.95	0.32	41.27	74.00	-32.73	peak
2595.25	42.64	0.97	43.61	74.00	-30.39	peak
8074.00	39.56	15.67	55.23	74.00	-18.77	peak
8074.00	29.05	15.67	44.72	54.00	-9.28	AVG
9874.00	38.42	18.17	56.59	74.00	-17.41	peak
9874.00	27.87	18.17	46.04	54.00	-7.96	AVG



Radiated Emissions _ V Polarization						
Frequency (MHz)	Read level	Factor	Amplitude (dBuV/m)	Limits(Class B) (dBuV/m)	Margin (dB)	Detector
927.50	113.54	-0.32	113.22	N/A	N/A	peak
37.02	50.71	-12.66	38.05	40.00	-1.95	QP
87.24	44.79	-14.04	30.75	40.00	-9.25	peak
152.04	47.69	-15.97	31.72	43.50	-11.78	peak
210.36	46.90	-12.77	34.13	43.50	-9.37	peak
253.56	42.65	-11.06	31.59	46.00	-14.41	peak
300.00	44.99	-9.98	35.01	46.00	-10.99	peak
304.20	51.62	-10.10	41.52	46.00	-4.48	peak
353.20	44.79	-8.87	35.92	46.00	-10.08	peak
454.00	39.79	-8.07	31.72	46.00	-14.28	peak
560.40	34.34	-5.66	28.68	46.00	-17.32	peak
801.20	36.59	-2.25	34.34	46.00	-11.66	peak
879.50	45.34	-0.71	44.63	83.22	-38.59	peak
976.20	43.24	0.60	43.84	54.00	-10.16	peak
1023.00	44.83	0.32	45.15	74.00	-28.85	peak
2614.75	43.06	1.13	44.19	74.00	-29.81	peak
7930.00	39.29	15.10	54.39	74.00	-19.61	peak
7930.00	30.63	15.10	45.73	54.00	-8.27	AVG
10000.00	38.45	18.43	56.88	74.00	-17.12	peak
10000.00	27.85	18.43	46.28	54.00	-7.72	AVG

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
6. The testing data only show below 18GHz's data because measure data above 18GHz was only ambit noise.
7. All frequencies from 30MHz to 26.5GHz have been tested

4. Maximum Conducted Output Power Requirements

4.1 Test Condition & Setup:

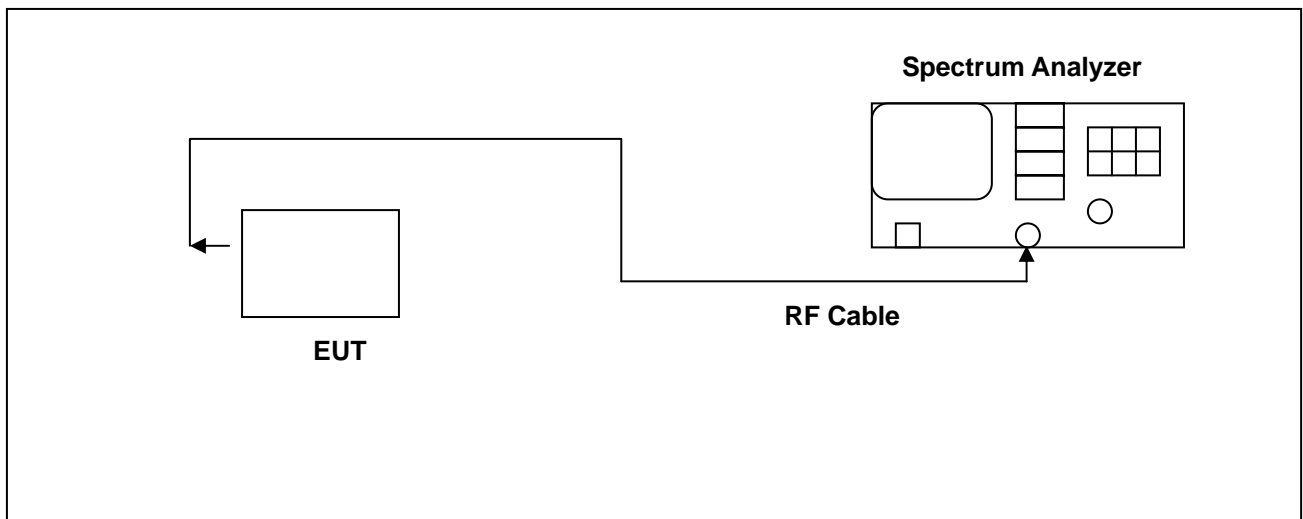
The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the spectrum Analyzer, for prevent the spectrum analyzer input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to $(\text{GAIN} - 6)/3$ dBm.

The antenna port of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

4.2 Test Instruments Configuration:





4.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009

4.4 Test Result

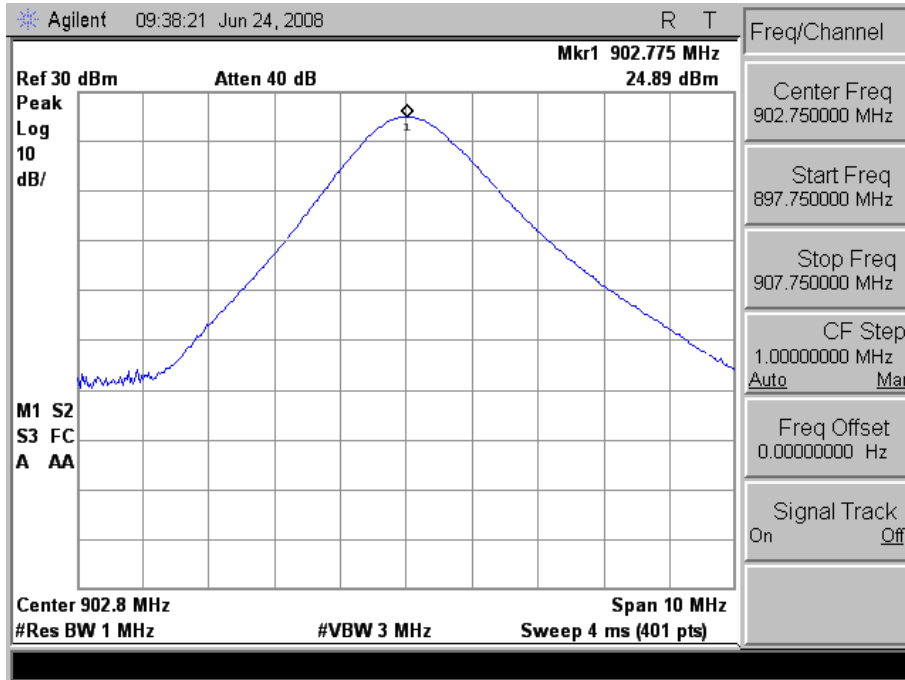
Frequency (MHz)	Output (dBm)	Required Limit
902.75	24.89	<30dBm
914.75	24.75	<30dBm
927.25	24.25	<30dBm

Note: Test Graphs See next page.

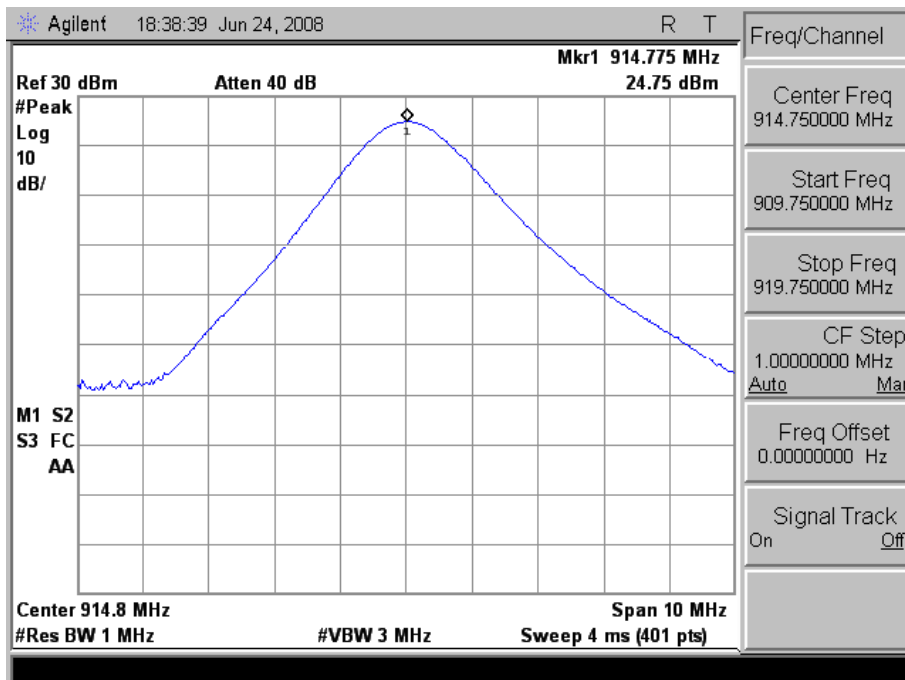


4.5 Test Graphs

902.75MHz

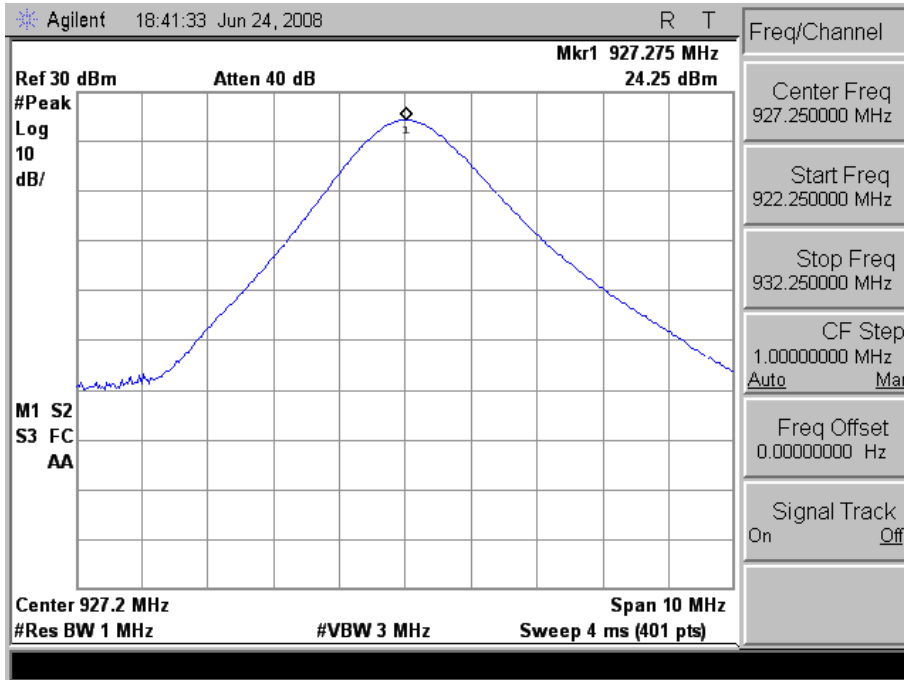


914.75MHz





927.25MHz



5. Occupied Bandwidth Requirements

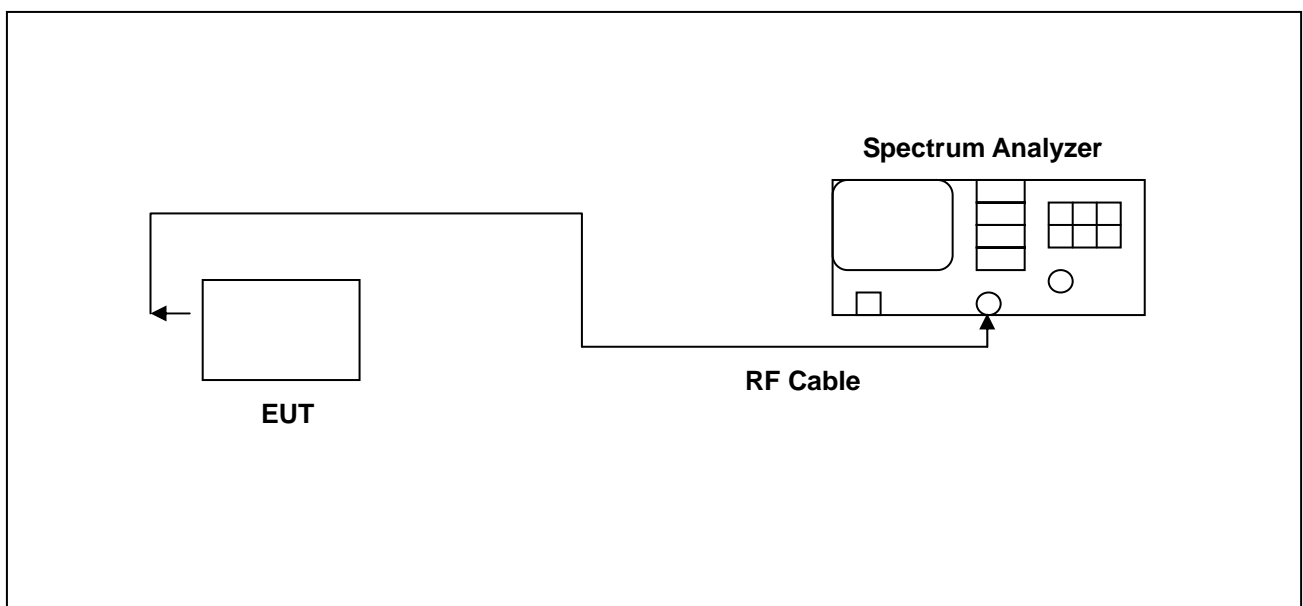
5.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW \geq 1% of the 20dB span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

5.2 Test Instruments Configuration:





5.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009

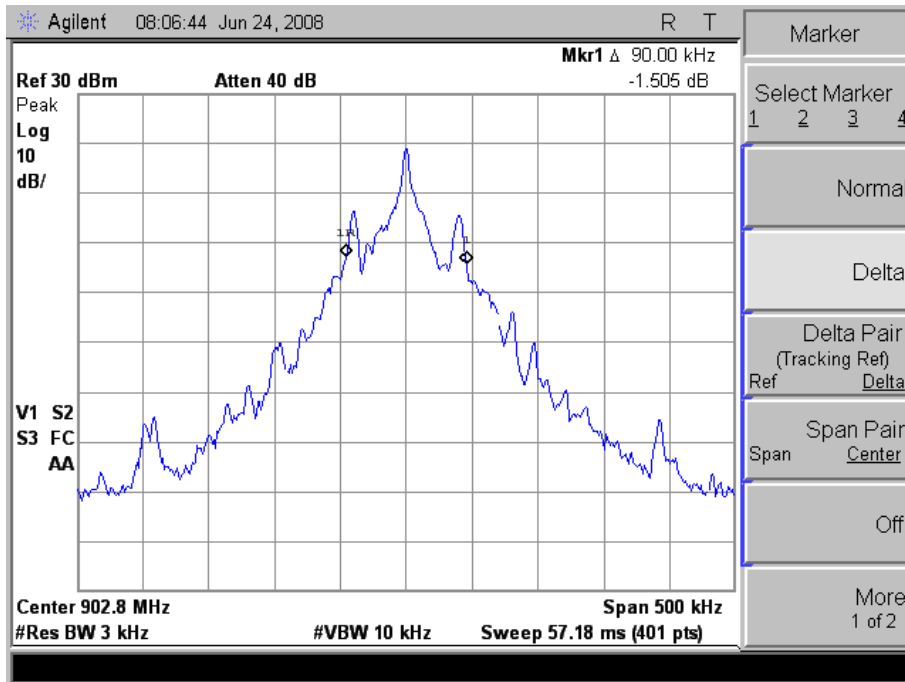
5.4 Test Result

Frequency (MHz)	20dB Bandwidth (KHz)	99 % Bandwidth (KHz)	Required Limit
902.75	90.00	90.3792	<500 kHz
914.75	88.75	89.0257	<500 kHz
927.25	90.00	89.4086	< 500 kHz

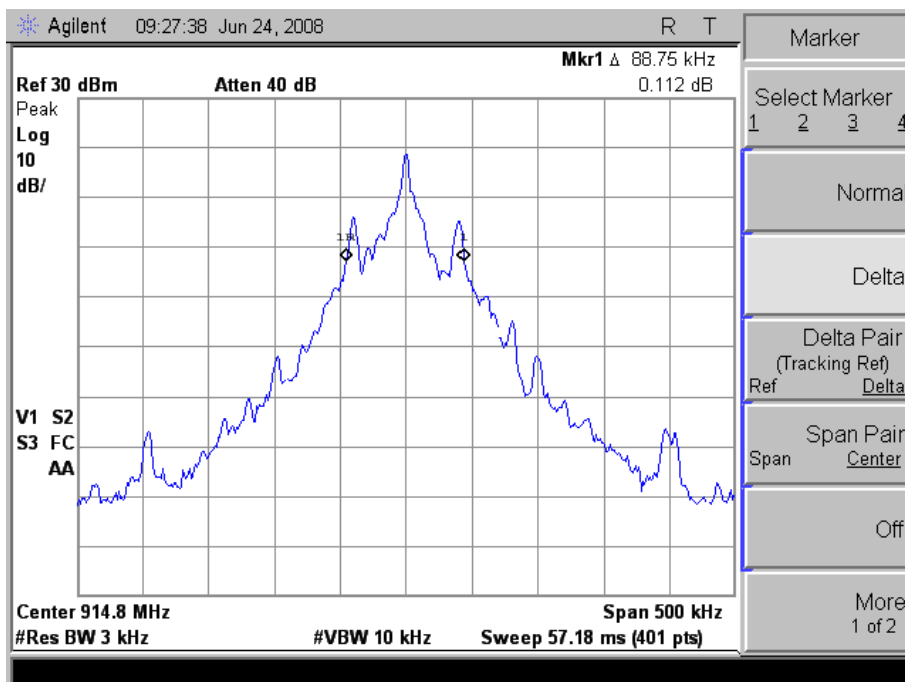


5.5 Test Graphs

20 dB Bandwidth _ 902.75MHz

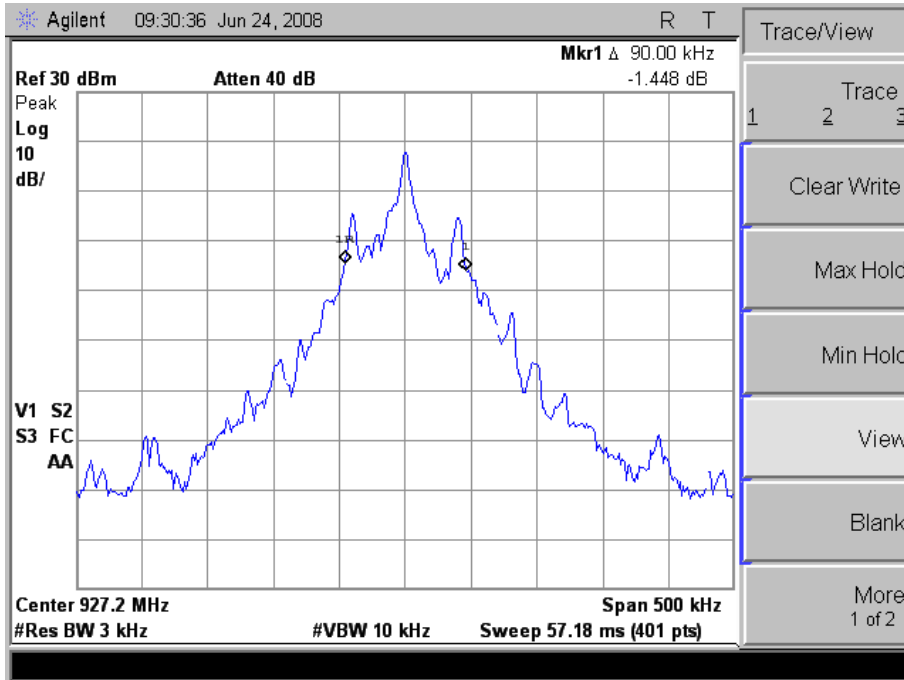


20 dB Bandwidth _ 914.75MHz



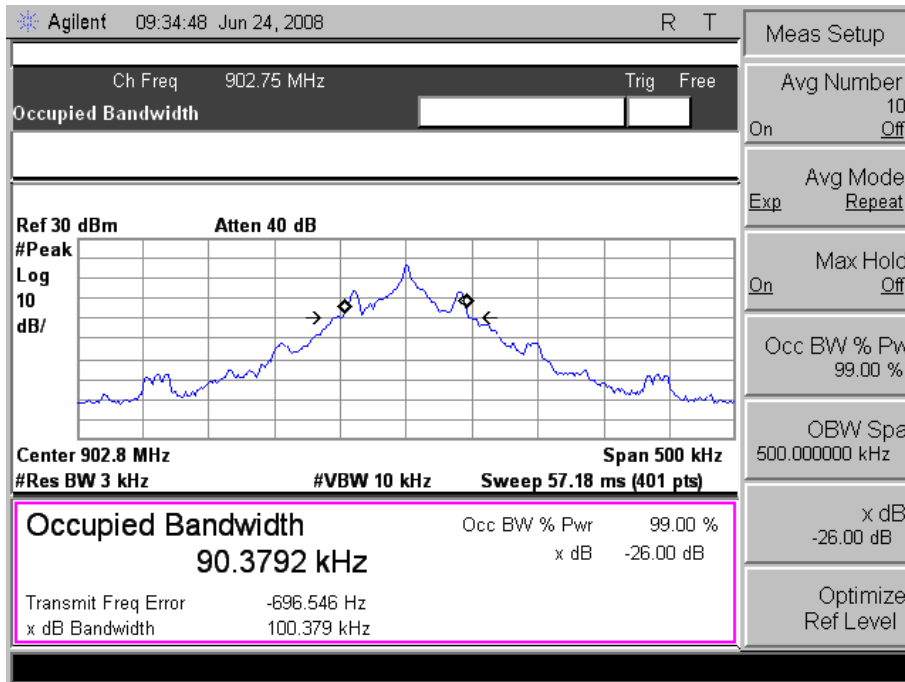


20 dB Bandwidth _ 927.25MHz

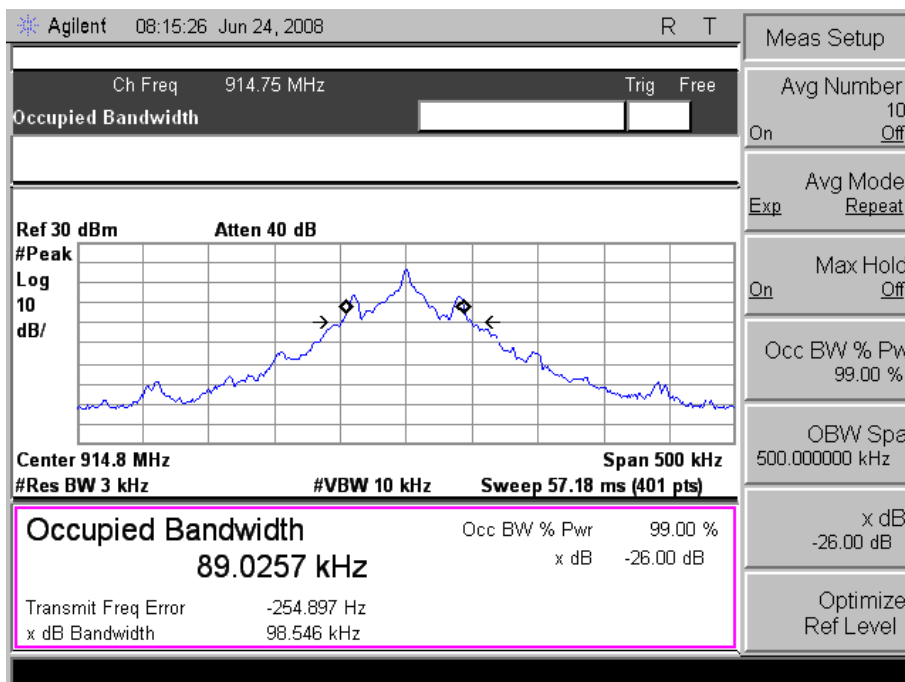




99% Bandwidth _ 902.75MHz

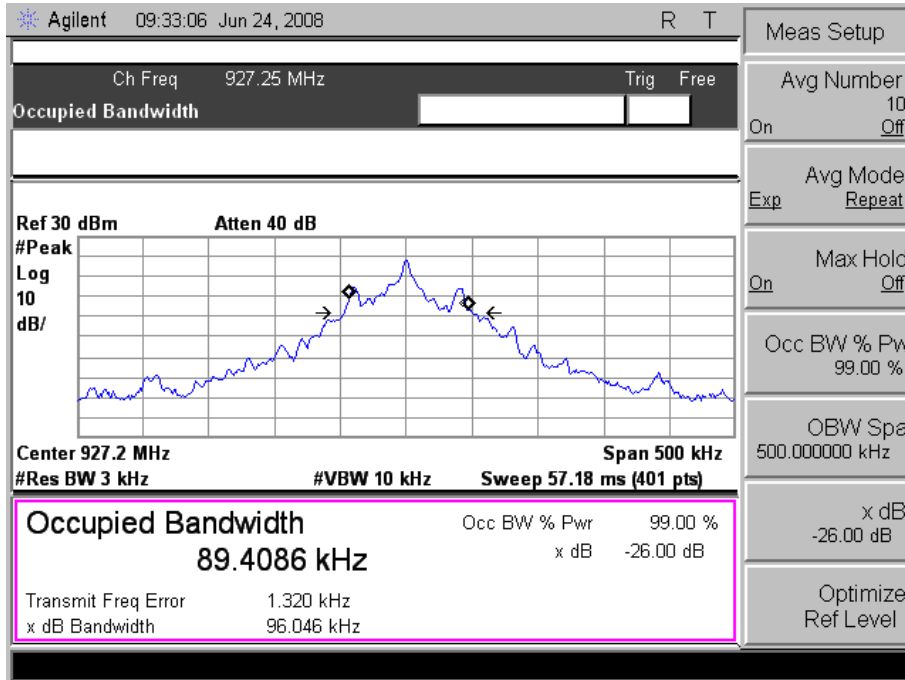


99% Bandwidth _ 914.75MHz





99% Bandwidth _ 927.25MHz



6. Carrier Frequency Separation Requirements

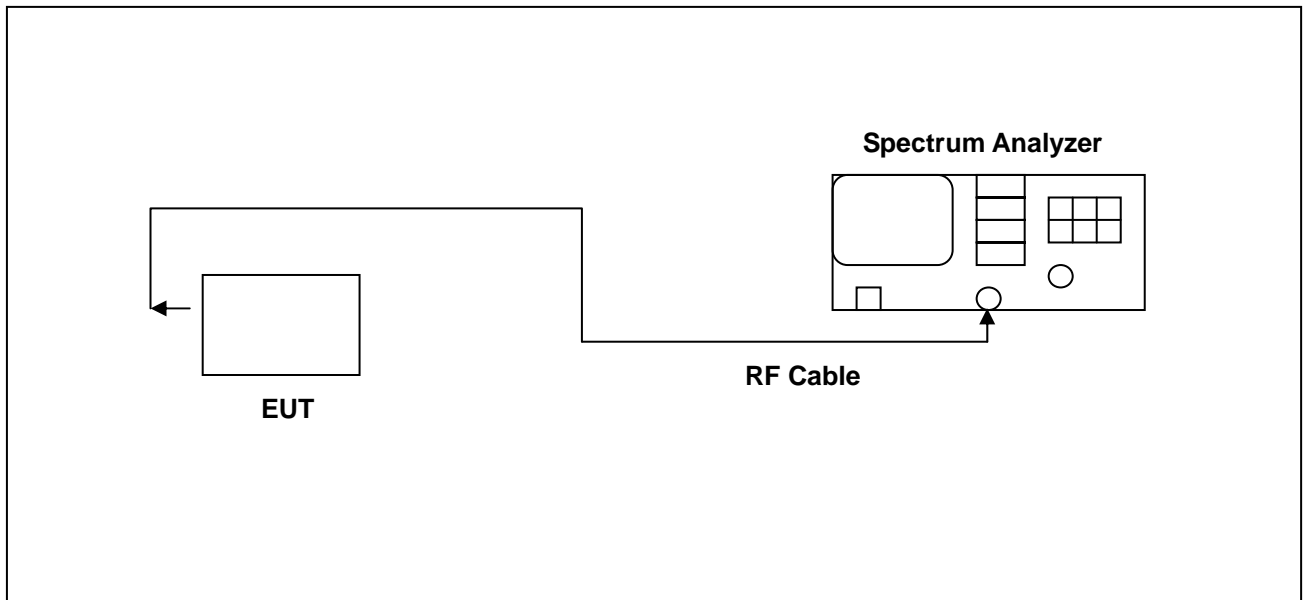
6.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) \geq 1% of the span
3. Video (or Average) Bandwidth (VBW) \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

6.2 Test Instruments Configuration:





6.3 Test Equipment List:

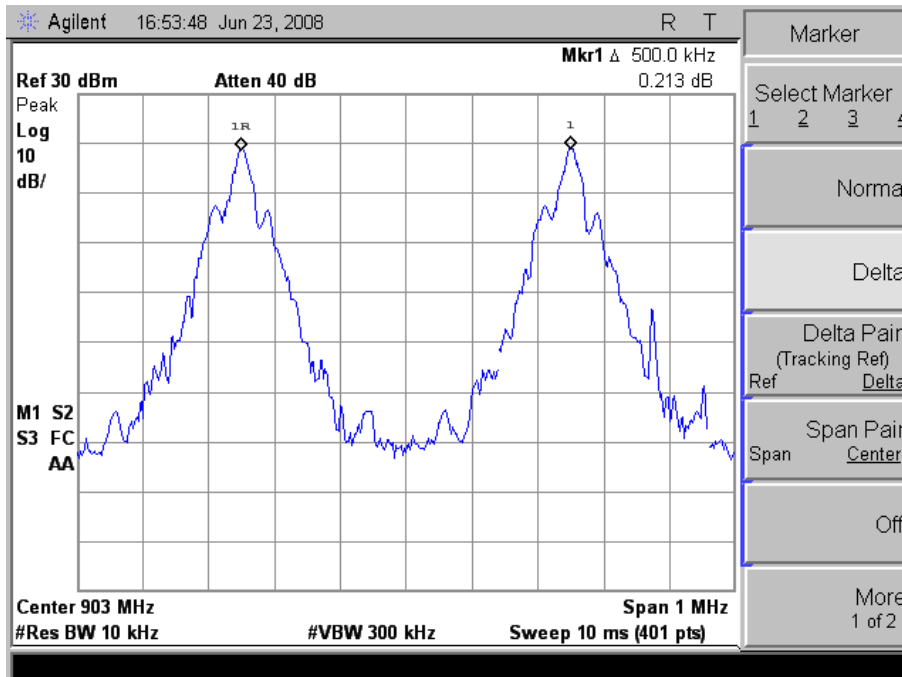
Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

6.4 Test Result:

Carrier Frequency Separation Measure:	200 kHz
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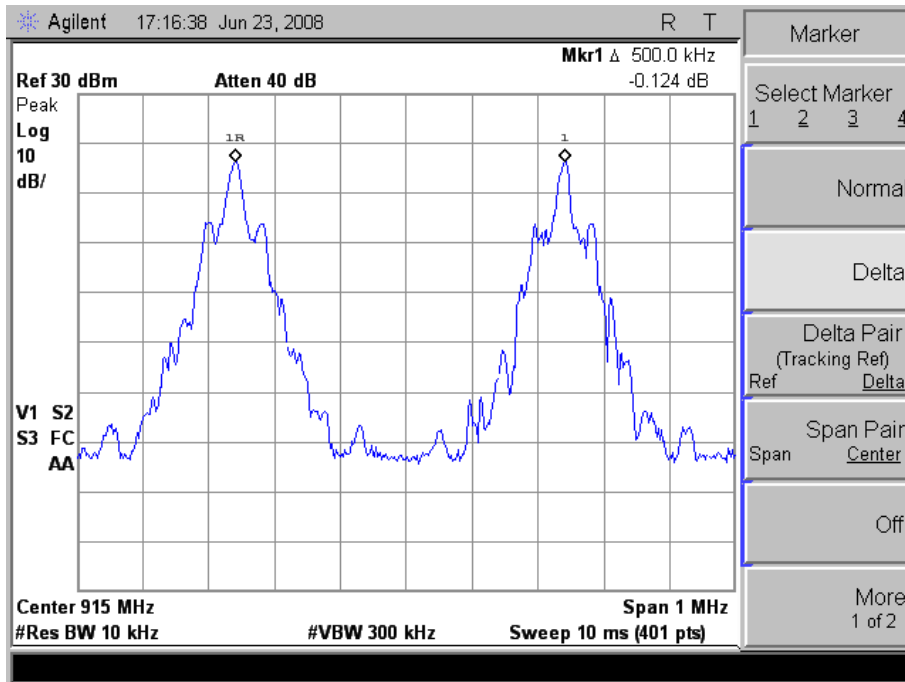
6.5 Test Graphs

902.75MHz

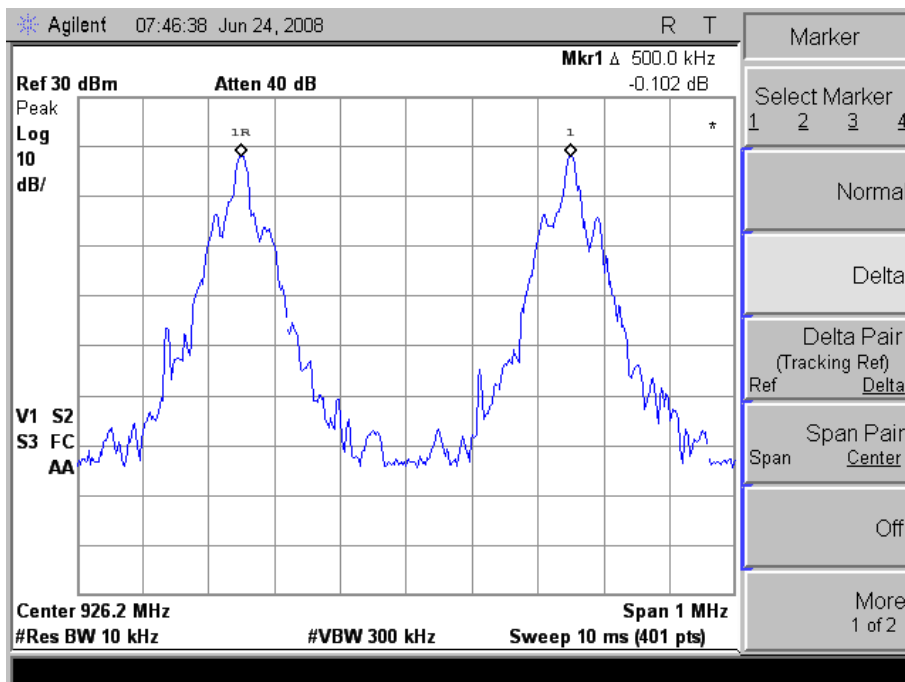




914.75MHz



927.25MHz



7. Number of Hopping Requirements

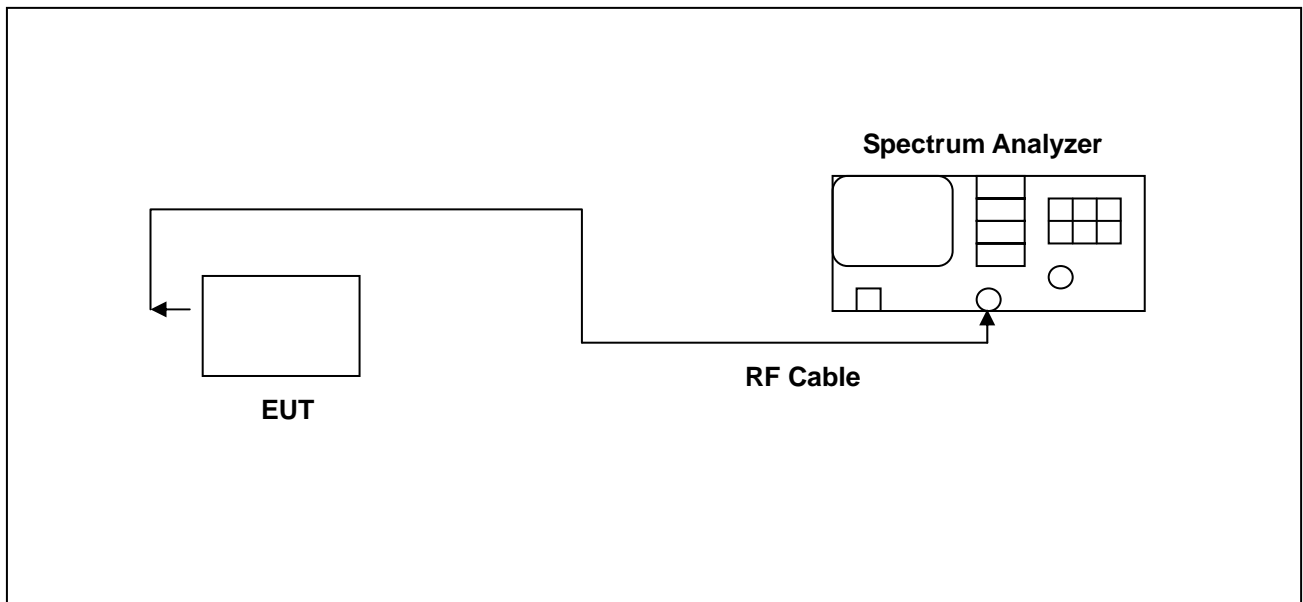
7.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW \geq 1% of the span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize.

7.2 Test Instruments Configuration:





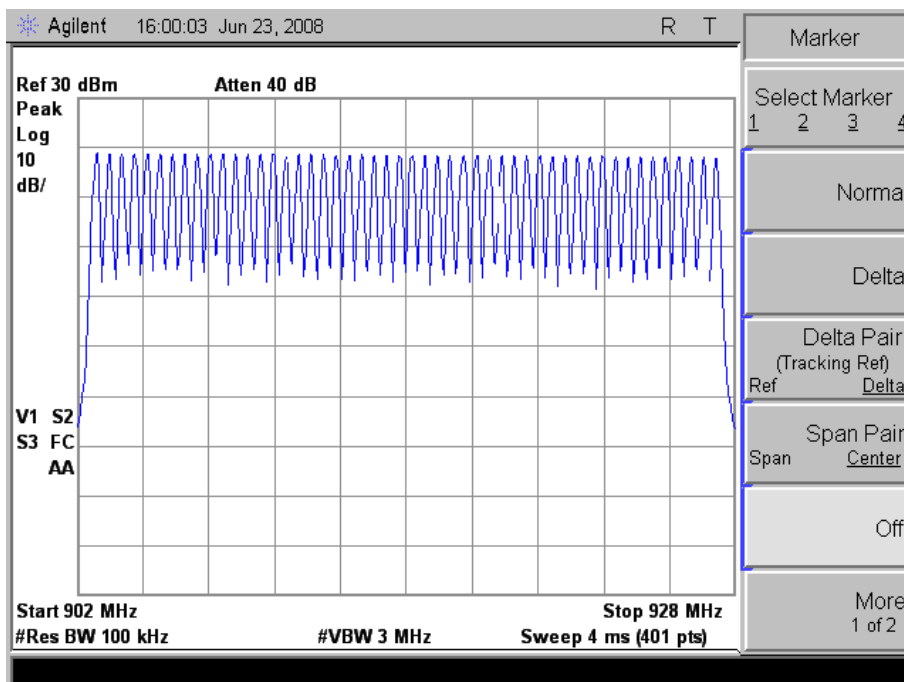
7.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

7.4 Test Result:

Number of Hopping Measure:	50 CH
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7.5 Test Graphs



8. Time of Occupancy (Dwell Time) Requirements

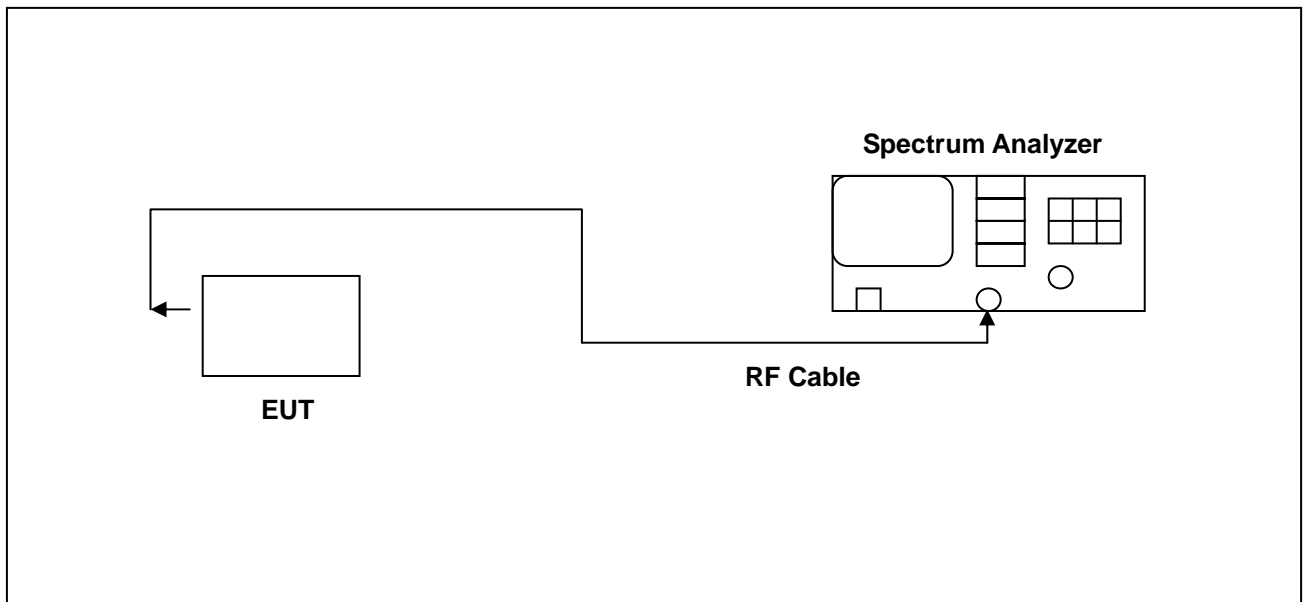
8.1 Test Condition & Setup:

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 3 kHz
3. VBW \geq RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

The marker-delta function was used to determine the dwell time.

8.2 Test Instruments Configuration:





8.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

8.4 Test Result

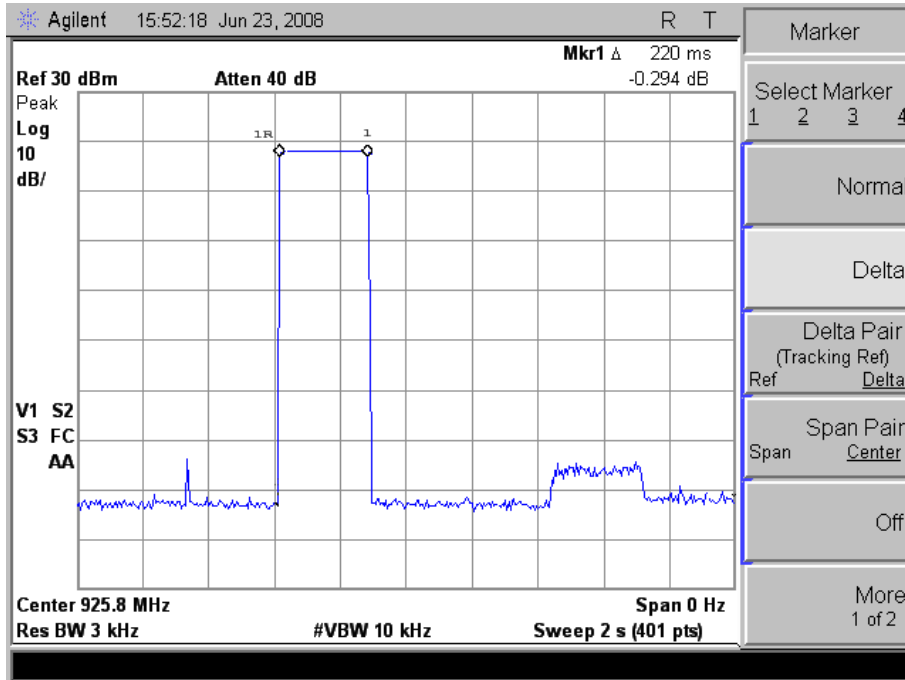
Dwell time	0.22 s
Time between occupancy	14.1 s
Time Of Occupancy=Period/time occupancy*dwell time	0.312 s
LIMIT(msec)	<=400
The average time of occupancy shall not be greater than 0.4 second within a 20 second period.	

Note: RB=3KHz; VB=10kHz; SPAN=0MHz; Sweep Time=2 sec

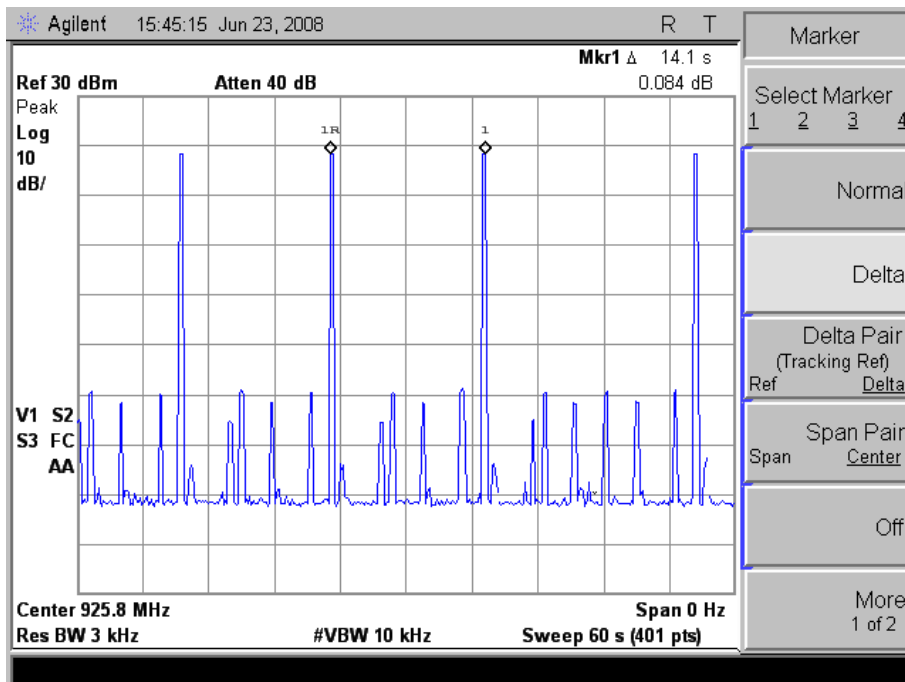


8.5 Test Graphs

Dwell time



Time between occupancy



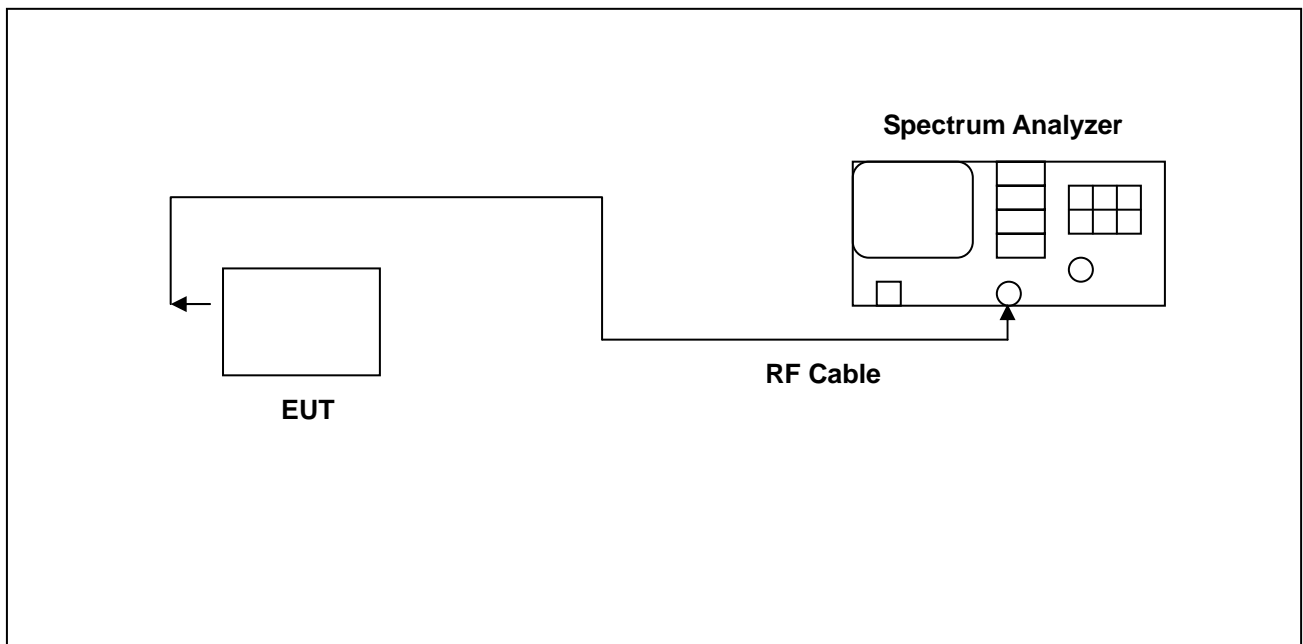
9. Out of Band Conducted Emissions Requirements

9.1 Test Condition & Setup:

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 1, 6, 11)

9.2 Test Instruments Configuration:





9.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2008	Nov. 29, 2009

9.4 Test Result:

Refer to attached data sheets. Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules.

9.5 Test Graphs

Applicant : Applied Wireless Identifications Group Inc.
Model No : MPR-1712
EUT : Multi-Protocol RFID (MPR) Module
Test Mode : Low CH / Middle CH / High CH
Test Date : 06/24/2008

Please refer to next pager of detail testing data.

10. Band Edges Requirements

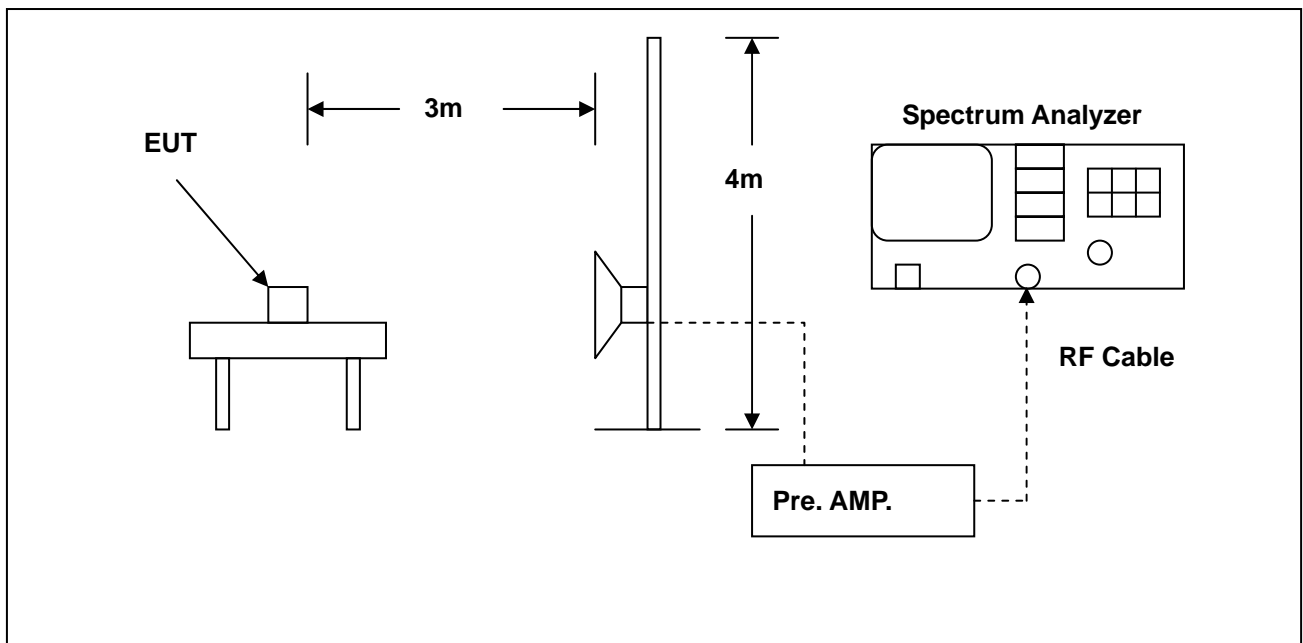
10.1 Test Condition & Setup:

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 902 MHz and up to 928 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 928 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 902 MHz.

10.2 Test Instruments Configuration:





10.3 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 05, 2008	Jun. 05, 2009
Pre Amplifier	Agilent	8449B	3008A02237	Jun. 03, 2008	Jun. 03, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009

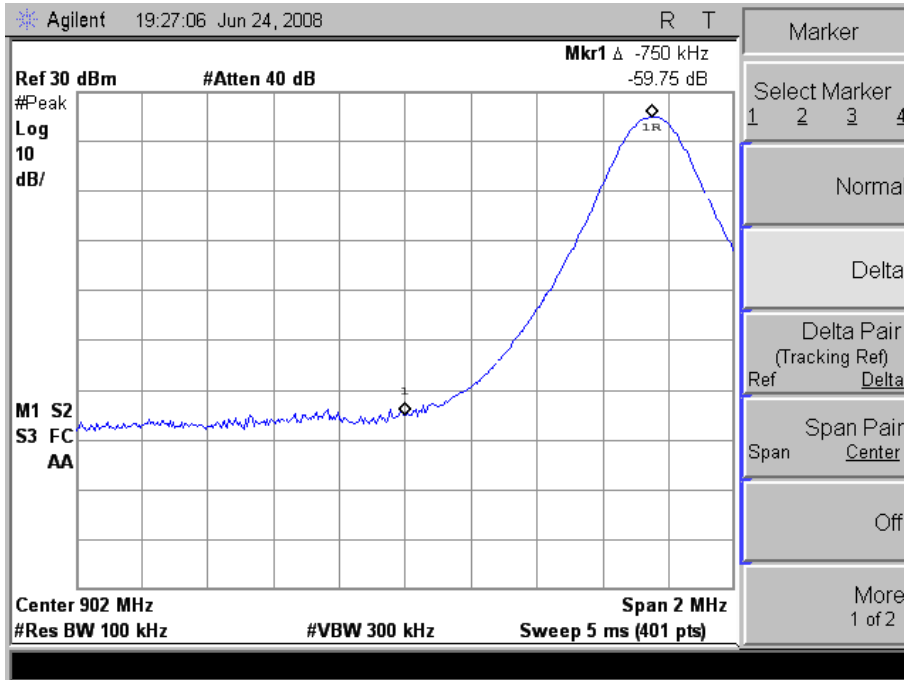
10.4 Test Result

Frequency (MHz)	Band Edges (dB)	Required Limit (dB)
902.75	59.75	> 20
927.25	57.20	> 20

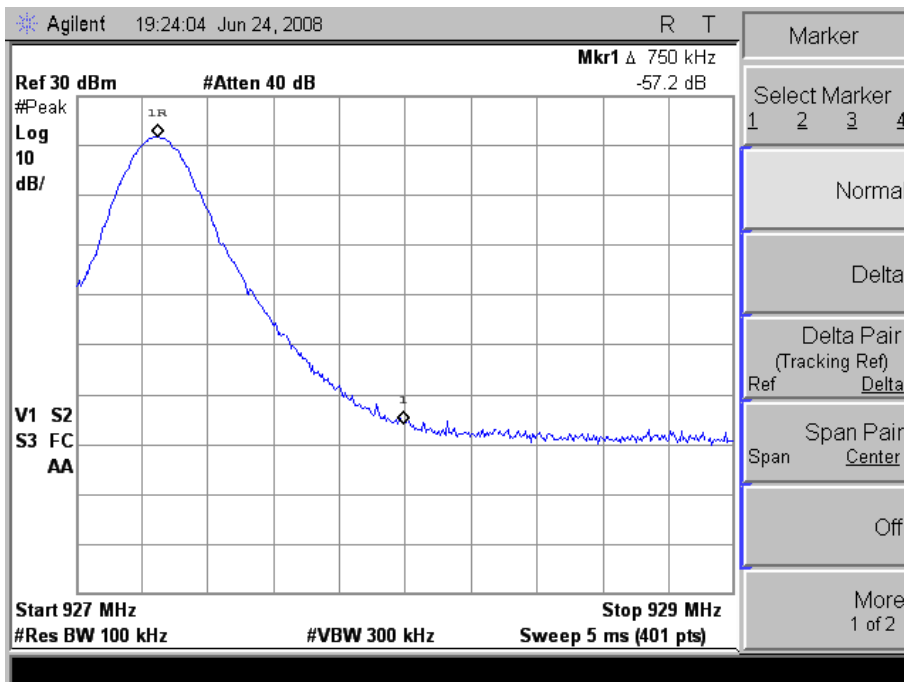


10.5 Test Graphs

Lowest Channel



Highest Channel





11. Antenna Requirements

11.1 Standard Applicable:

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2 Antenna Connector Construction

The antenna used in this product is internal antenna. And the maximum Gain of these antennas is list below.

Antenna Model Name	Type	Gain (dBi)
ANT-915CPS-A	Circularly Polarized (RHCP) Patch Antenna	5.70
ANT-2010CP	Circular Polarized UHF Antenna	5.59
ANT-915CPS-C	Circularly Polarized (RHCP) Patch Antenna	4.70



12. Maximum Permissible Exposure

12.1 Test Procedure

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR §1.1310 titled “Radiofrequency radiation exposure limits”, generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as “a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter’s radiating structure(s) and the body of the user or nearby persons. ” This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: “IMPORTANT: To meet the FCC’s RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna”. Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a “mobile device” as defined in section § 2.1091 paragraph (b).



12.2 Test Result

EUT parameter (data from the separate report)	
Antenna gain (G)	ANT-915CPS-A 5.70 dBi
	ANT-2010CP 5.59 dBi
	ANT-915CPS-C 4.70 dBi

Exposure evaluation
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S = \frac{PG}{4\pi R^2}$
Where
S: power density
P: power input to the antenna
G: power gain of the antenna in the direction of interest relative to an isotropic radiator.
R: distance to the center of radiation of the antenna.

ANT-915CPS-A

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density (mw) [S]	Min. distance (cm)
902.75	0.602	20	24.89	5.7	1.146	0.228	20

ANT-2010CP

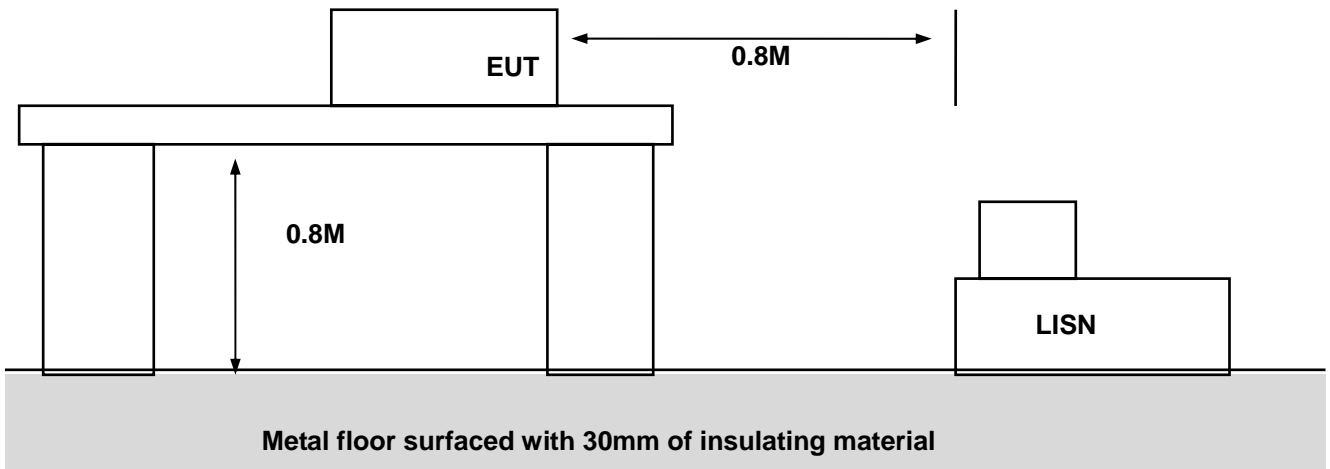
Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density (mw) [S]	Min. distance (cm)
902.75	0.602	20	24.89	5.59	1.117	0.222	20

ANT-915CPS-C

Frequency (MHz)	Limit (mw)	Distance (cm) [R]	Power (dBm) [P]	ANT Gain (dBi) [G]	Power+Ant Gain (W) [TP]	Power Density (mw) [S]	Min. distance (cm)
902.75	0.602	20	24.89	4.70	0.910	0.181	20

Appendix A - EUT Test SETUP

MEASUREMENT OF POWER LINE CONDUCTED RFI VOLTAGE



MEASUREMENT OF RADIATED EMISSION

