



## **FCC 47 CFR PART 15 SUBPART C**

### **TEST REPORT**

**For**

**Wireless Microphone**

**Model: GWD910T**

**Trade Name: GOMET**

*Issued to*

**Taiwan Gomet Technology Co., Ltd.  
No. 8-1, Lane 212, Sec. 1, Chung-Shan N. Road Tamsui,  
Taipei, Taiwan 251**

*Issued by*

**Compliance Certification Services Inc.  
No. 81-1, Lane 210, Pa-De 2nd Rd., Luchu Hsiang,  
Taoyuan Shien, (338) Taiwan, R.O.C.  
TEL: 886-3-324-0332  
FAX: 886-3-324-5235  
<http://www.ccsrf.com>  
[service@ccsrf.com](mailto:service@ccsrf.com)**



**Note:** This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document.



**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	Sep. 10, 2010	Initial Issue	ALL	Jill Shiau



## **TABLE OF CONTENTS**

<b>1. TEST RESULT CERTIFICATION .....</b>	<b>4</b>
<b>2. EUT DESCRIPTION.....</b>	<b>5</b>
<b>3. TEST METHODOLOGY.....</b>	<b>6</b>
3.1 EUT CONFIGURATION.....	6
3.2 EUT EXERCISE.....	6
3.3 GENERAL TEST PROCEDURES .....	6
3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS .....	7
3.5 DESCRIPTION OF TEST MODES .....	7
<b>4. INSTRUMENT CALIBRATION .....</b>	<b>8</b>
4.1 MEASURING INSTRUMENT CALIBRATION.....	8
4.2 MEASUREMENT EQUIPMENT USED.....	8
4.3 MEASUREMENT UNCERTAINTY.....	9
<b>5. FACILITIES AND ACCREDITATIONS .....</b>	<b>10</b>
5.1 FACILITIES .....	10
5.2 EQUIPMENT .....	10
5.3 TABLE OF ACCREDITATIONS AND LISTINGS .....	11
<b>6. SETUP OF EQUIPMENT UNDER TEST .....</b>	<b>12</b>
6.1 SETUP CONFIGURATION OF EUT .....	12
6.2 SUPPORT EQUIPMENT .....	12
<b>7. FCC PART 15.247 REQUIREMENTS .....</b>	<b>13</b>
7.1 6dB BANDWIDTH.....	13
7.2 PEAK POWER.....	16
7.3 AVERAGE POWER .....	19
7.4 BAND EDGES MEASUREMENT.....	22
7.5 PEAK POWER SPECTRAL DENSITY .....	24
7.6 SPURIOUS EMISSIONS .....	27
7.7 POWERLINE CONDUCTED EMISSIONS.....	48
<b>8. APPENDIX I RADIO FREQUENCY EXPOSURE .....</b>	<b>51</b>
<b>9. APPENDIX II PHOTOGRAPHS OF TEST SETUP.....</b>	<b>52</b>



## 1. TEST RESULT CERTIFICATION

**Applicant:** **Taiwan Gomet Technology Co., Ltd.**  
No. 8-1, Lane 212, Sec. 1, Chung-Shan N. Road Tamsui, Taipei,  
Taiwan 251

**Manufacturer:** **Taiwan Gomet Technology Co., Ltd.**  
No. 8-1, Lane 212, Sec. 1, Chung-Shan N. Road Tamsui, Taipei,  
Taiwan 251

**Equipment Under Test:** Wireless Microphone

**Trade Name:** GOMET

**Model:** GWD910T

**Date of Test:** August 11 ~Oct. 6, 2010


APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

### We hereby certify that:

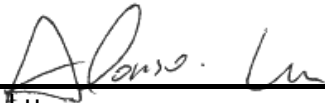
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

**Approved by:**

  
\_\_\_\_\_  
Stan Lin  
Supervisor

**Reviewed by:**

  
\_\_\_\_\_  
Alonso Lu  
Engineer



## 2. EUT DESCRIPTION

Product	Wireless Microphone
Trade Name	GOMET
Model Number	GWD910T
Model Discrepancy	N/A
EUT Power Rating	3.6V, 1300mA
Operating Frequency Range	904~925MHz
Transmit Power	21.69dBm (0.14757W) (Peak) 14.90dBm (0.03090W) (Average)
Modulation Technique	DSSS
Number of Channels	8 Channels
Antenna Specification	Dipole Antenna / Gain: -6.0dBi Monopole Antenna / Gain: 0dBi

**Remark:**

1. The sample selected for test was production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **QS6-GWD910T** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



### **3. TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI C63.4: 2003 and FCC CFR 47 Part 2, Part 15.207, 15.209 and 15.247.

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.



### 3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41	322 - 335.4		

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 3.5 DESCRIPTION OF TEST MODES

Software used to control the EUT(Model: GWD910T) for staying in continuous transmitting mode was programmed.

The worst case data rate is determined as the data rate with highest output power.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

Channel Low (904.5MHz), Channel Mid (916.5MHz) and Channel High (925.5MHz) were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.



## 4. INSTRUMENT CALIBRATION

### 4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

*Remark: Each piece of equipment is scheduled for calibration once a year.*

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY48250064	11/05/2010
Spectrum Analyzer	R&S	FSEB	825829/011	11/02/2010
Power meter	Anritsu	MA2411B	917221	08/24/2011

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY48250064	11/05/2010
Spectrum Analyzer	R&S	FSEB	825829/011	11/02/2010
Pre-Amplifier	HP	8447D	2944A06530	01/02/2011
Pre-Amplifier	HP	8449B	3008A01738	04/17/2011
EMI Test Receiver	SCHAFFNER	SCR 3501	436	01/26/2011
Loop Antenna	EMCO	6502	2356	05/28/2011
Bilog Antenna	SCHWAZBECK	VULB9160	3084	09/11/2011
Horn Antenna	EMCO	3115	00022250	05/09/2011
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Test S/W	LabVIEW 6.1 (Wugu Chamber EMI Test V1_4.5.3)			

Powerline Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	845552/030	05/27/2011
LISN	R&S	ENV216	100069	01/27/2011
LISN	FCC	FCC-LISN-50/2 50-16-2-07	06013	10/13/2010
Test S/W	CCS-3A1-CE			





### 4.3 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Powerline Conducted Emission	$\pm 1.78026$
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	$\pm 3.8856$
3M Semi Anechoic Chamber / Above 1GHz	$\pm 3.8721$

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .



## **5. FACILITIES AND ACCREDITATIONS**

### **5.1 FACILITIES**

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☐ No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No. 81-1, Lane 210, Pa-De 2nd Rd., Luchu Hsiang, Taoyuan Shien, (338) Taiwan, R.O.C.

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4: 2003 and CISPR Publication 22.

### **5.2 EQUIPMENT**

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.





Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."



### 5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	CFR 47, FCC Part15/18, CISPR 22, EN 55022, ICES-003, AS/NZS CISPR 22, VCCI V-3, EN 55011, CISPR 11, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 61000-6-1/2/3/4, EN 55024, CISPR 24, AS/NZS CISPR 24, AS/NZS 61000.6.2, EN 55014-1/-2, ETSI EN 300 386 v1.3.2/v1.3.3, IEC/EN 61000-3-2, AS/NZS 61000.3.2, IEC/EN 61000-3-3, AS/NZS 61000.3.3	 No. 0824-01
USA	FCC MRA	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 TW1026
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	<b>VCCI</b> R-2882/2541/2798/725/1868 C-402/747/912 T-321/1646
Taiwan	TAF	EN 55014-1, CISPR 14, CNS 13781-1, EN 55013, CISPR 13, CNS 13439, EN 55011, CISPR 11, CNS 13803, PLMN09, IS2045-0, LP0002 FCC Part 27/90, Part 15B/C/D/E, RSS-192/193/210/310 ETSI EN 300 328/ 300 220-1/ 300 220-2/ 301 893/ 301 489-01/ 301 489-03/ 301 489-07 / 301 489-17/ 300 440-1/ 300 440-2 AS/NZS 4268, AS/NZS 4771 CISPR 22, EN 55022, CNS 13438, AS/NZS CISPR 22, VCCI, IEC/EN 61000-4-2/3/4/5/6/8/11, CNS 14676-2/3/4/5/6/8, CNS 14934-2/3, CNS 13783-1, CNS 13439, CNS 13803	 Testing Laboratory 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS212, Issue 1	 IC 2324C-3 IC 2324C-5

**Note:** No part of this report may be used to claim or imply product endorsement by A2LA, TAF or other government agency.



## **6. SETUP OF EQUIPMENT UNDER TEST**

### **6.1 SETUP CONFIGURATION OF EUT**

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### **6.2 SUPPORT EQUIPMENT**

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
	N/A						

**\*\*No any support equipment during the test.**

***Remark:** Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



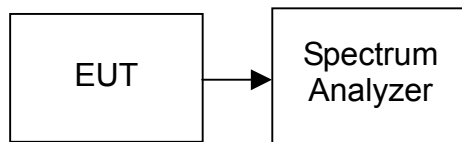
## 7. FCC PART 15.247 REQUIREMENTS

### 7.1 6dB BANDWIDTH

#### LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 10kHz, VBW = 30kHz, Span = 5MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

#### TEST RESULTS

*No non-compliance noted*

#### TEST DATA

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	904.5	1.458	>500	PASS
Mid	916.5	1.525		PASS
High	925.5	1.525		PASS



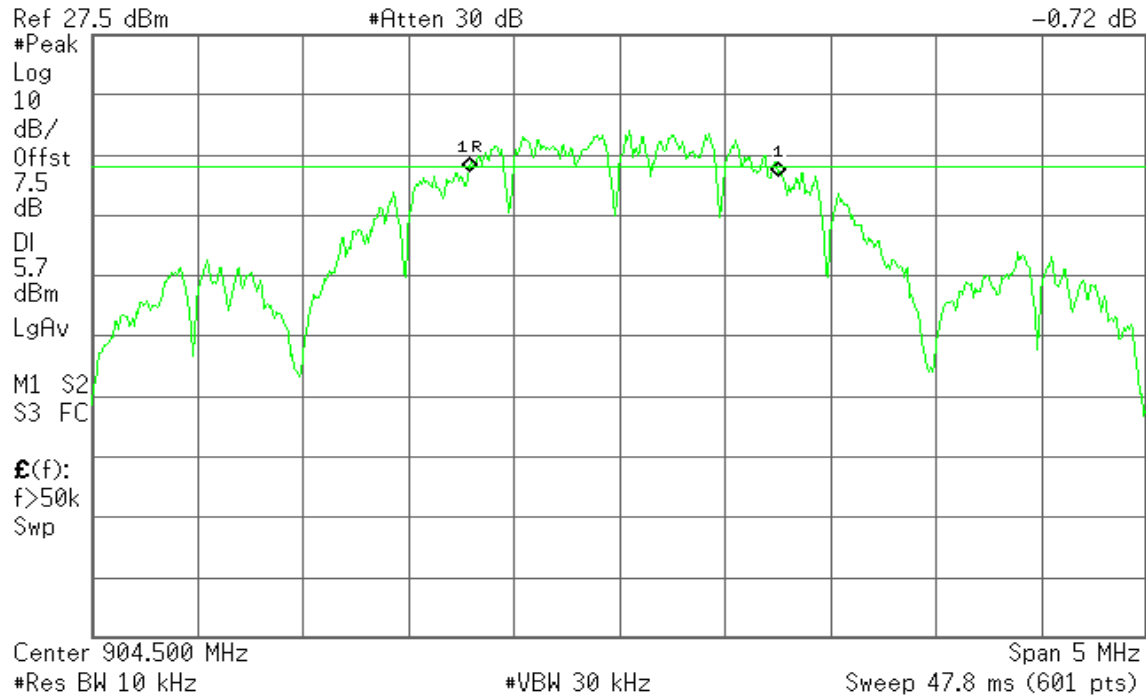
## Test Plot

### 6dB Bandwidth (CH Low)

Agilent 16:55:43 Aug 14, 2010

R L

Mkr1 1.458 MHz  
-0.72 dB

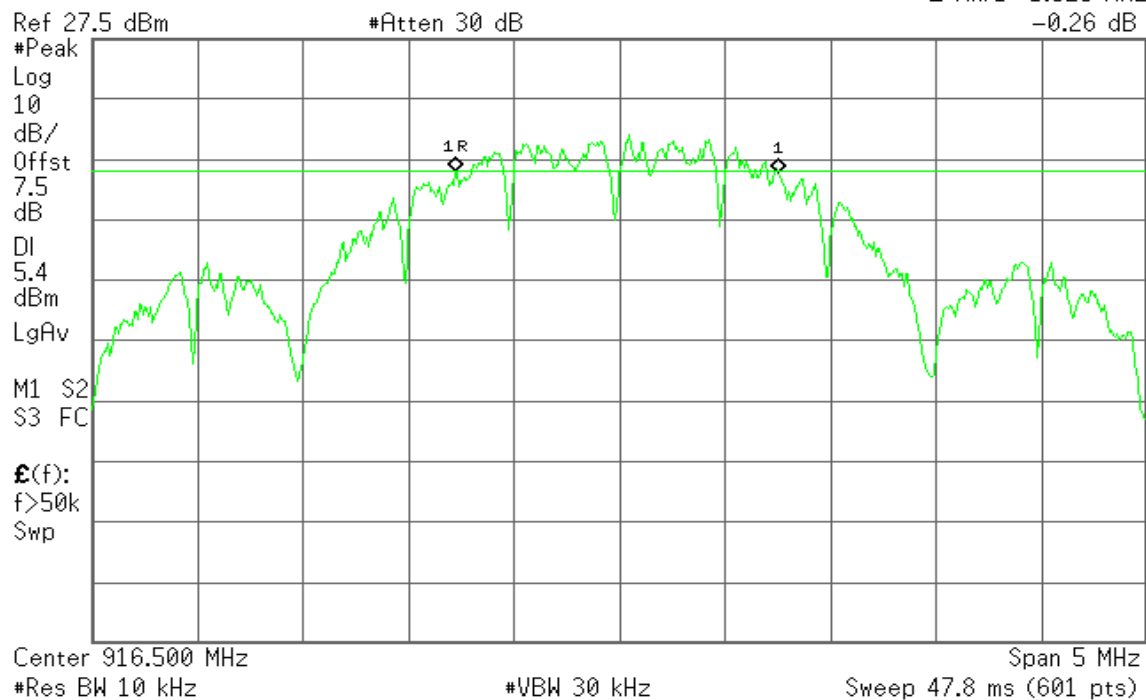


### 6dB Bandwidth (CH Mid)

Agilent 16:51:14 Aug 14, 2010

R L

Mkr1 1.525 MHz  
-0.26 dB





## 6dB Bandwidth (CH High)

Agilent 16:53:33 Aug 14, 2010

R L

▲ Mkr1 1.525 MHz  
-1.47 dB

Ref 27.5 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

7.5

dB

DI

4.9

dBm

LgAv

M1 S2

S3 FC

£(f):

f>50k

Swp

Center 925.500 MHz

#Res BW 10 kHz

#VBW 30 kHz

Span 5 MHz

Sweep 47.8 ms (601 pts)



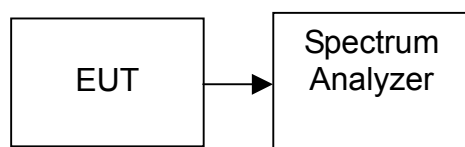
## 7.2 PEAK POWER

### LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### TEST CONFIGURATION



### TEST PROCEDURE

According the FCC KDB558074 (Measurement of Digital Transmission Systems requirement Operating under Section 15.247 March 23, 2005, Power Output Option 1) as the following step:

1. Set the RBW greater than 6 dB bandwidth of the emission (RBW = 2MHz, VBW = 2MHz).

### TEST RESULTS

*No non-compliance noted*

### TEST DATA

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	904.5	21.69	0.14757	1.00	PASS
Mid	916.5	21.35	0.13646		PASS
High	925.5	20.28	0.10666		PASS





## Test Plot

### Peak Power (CH Low)

Agilent 09:40:56 Oct 6, 2010

R L

Mkr1 905.000 MHz  
21.69 dBm

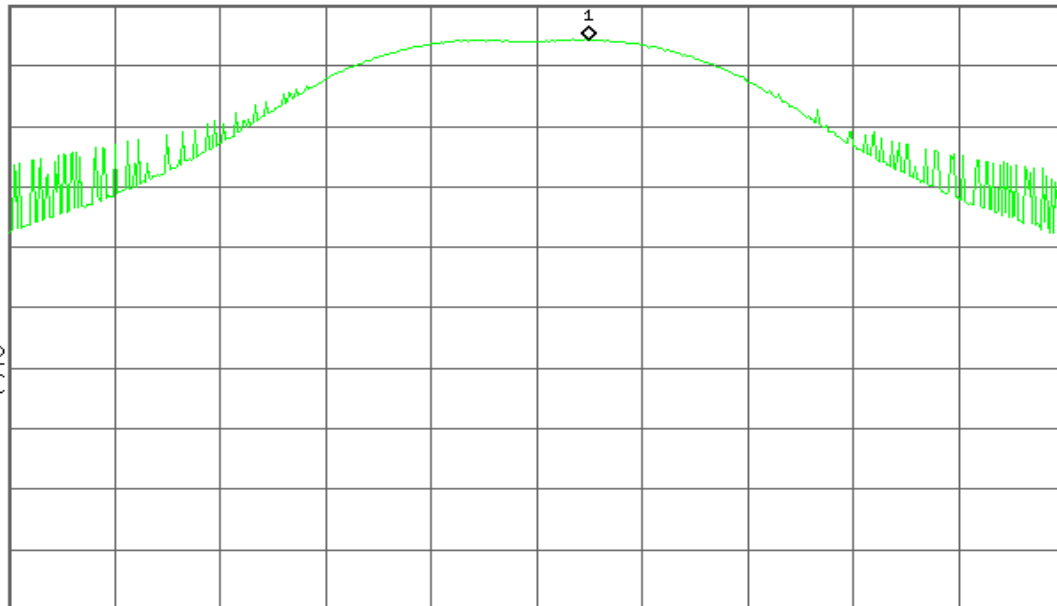
Ref 27.5 dBm

#Atten 30 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

M1 S2  
S3 FC

£(f):  
FTun  
Swp



Center 904.500 MHz

#Res BW 2 MHz

#VBW 2 MHz

Span 10 MHz  
Sweep 1 ms (601 pts)

### Peak Power (CH Mid)

Agilent 09:43:32 Oct 6, 2010

R L

Mkr1 916.033 MHz  
21.35 dBm

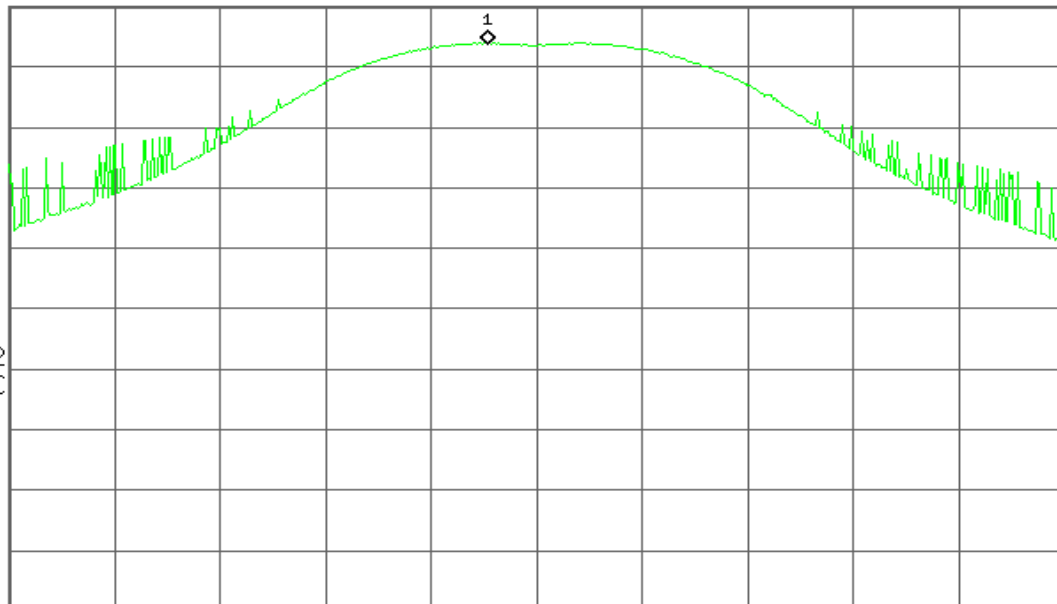
Ref 27.5 dBm

#Atten 30 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

M1 S2  
S3 FC

£(f):  
FTun  
Swp



Center 916.500 MHz

#Res BW 2 MHz

#VBW 2 MHz

Span 10 MHz  
Sweep 1 ms (601 pts)



## Peak Power (CH High)

Agilent 09:46:51 Oct 6, 2010

R L

Mkr1 925.017 MHz  
20.28 dBm

Ref 27.5 dBm

#Atten 30 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

M1 S2  
S3 FC

£(f):  
FTun  
Swp

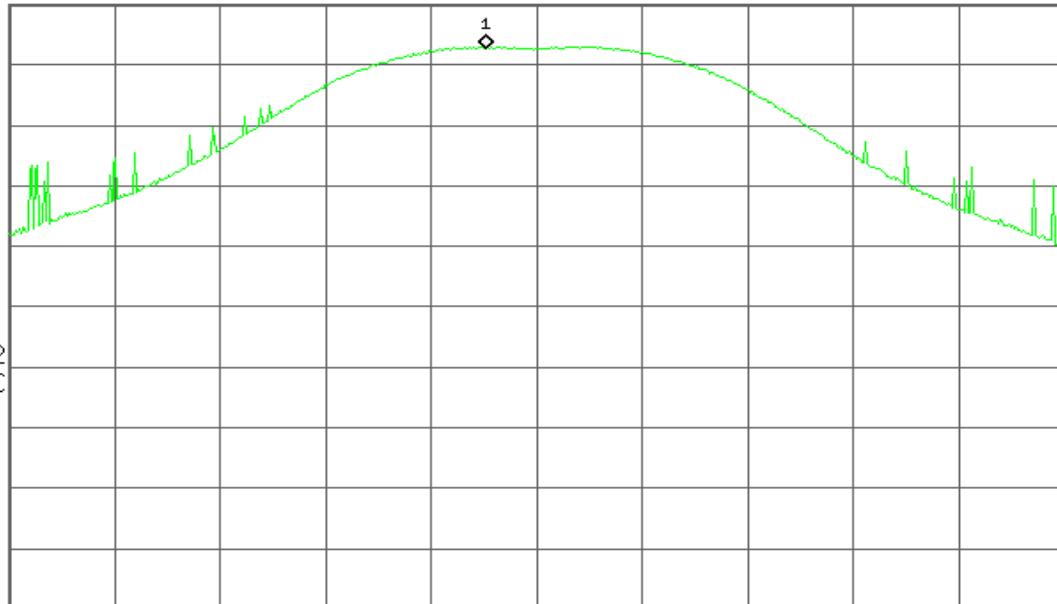
Center 925.500 MHz

#Res BW 2 MHz

#VBW 2 MHz

Span 10 MHz

Sweep 1 ms (601 pts)



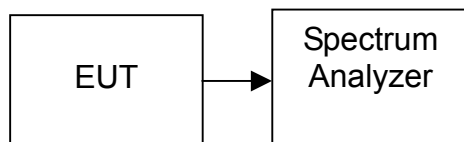


## 7.3 AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST CONFIGURATION



### TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to the Samp detection.

### TEST RESULTS

*No non-compliance noted*

### TEST DATA

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	904.5	14.90	0.03090
Mid	916.5	14.46	0.02793
High	925.5	14.39	0.02748

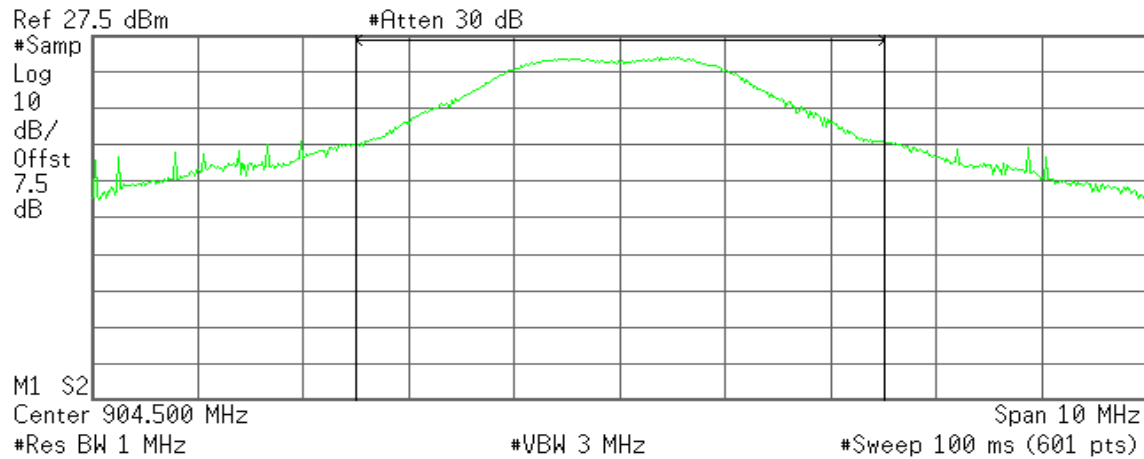


## Test Plot

### Average Power (CH Low)

Agilent 00:57:50 Sep 9, 2010

R T



Channel Power

14.90 dBm /5.0000 MHz

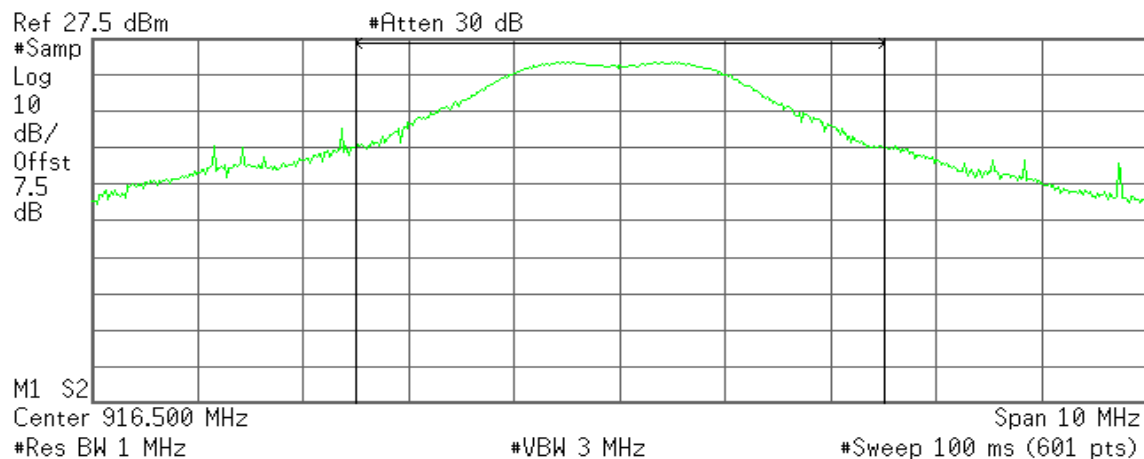
Power Spectral Density

-52.09 dBm/Hz

### Average Power (CH Mid)

Agilent 01:00:48 Sep 9, 2010

R T



Channel Power

14.46 dBm /5.0000 MHz

Power Spectral Density

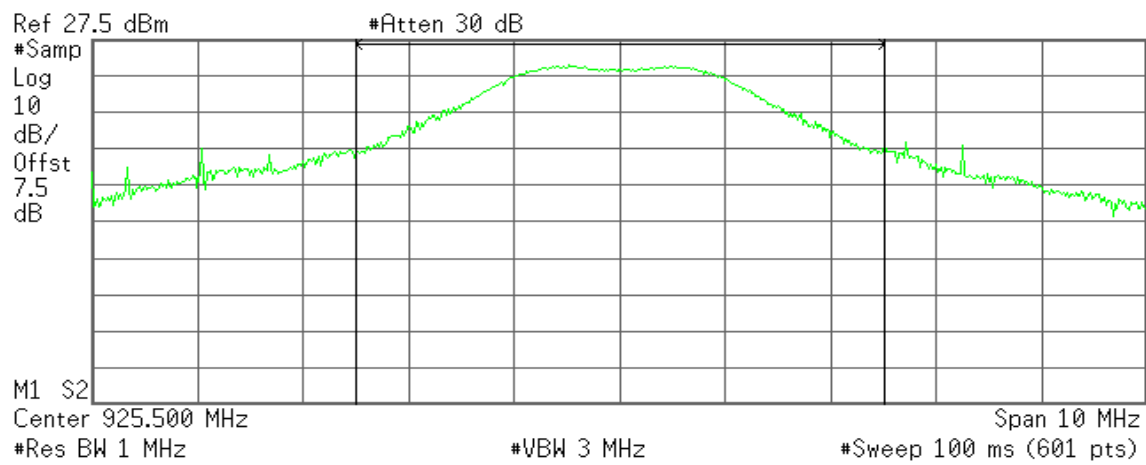
-52.53 dBm/Hz



## Average Power (CH High)

Agilent 01:06:11 Sep 9, 2010

R T



Channel Power

14.39 dBm /5.0000 MHz

Power Spectral Density

-52.60 dBm/Hz

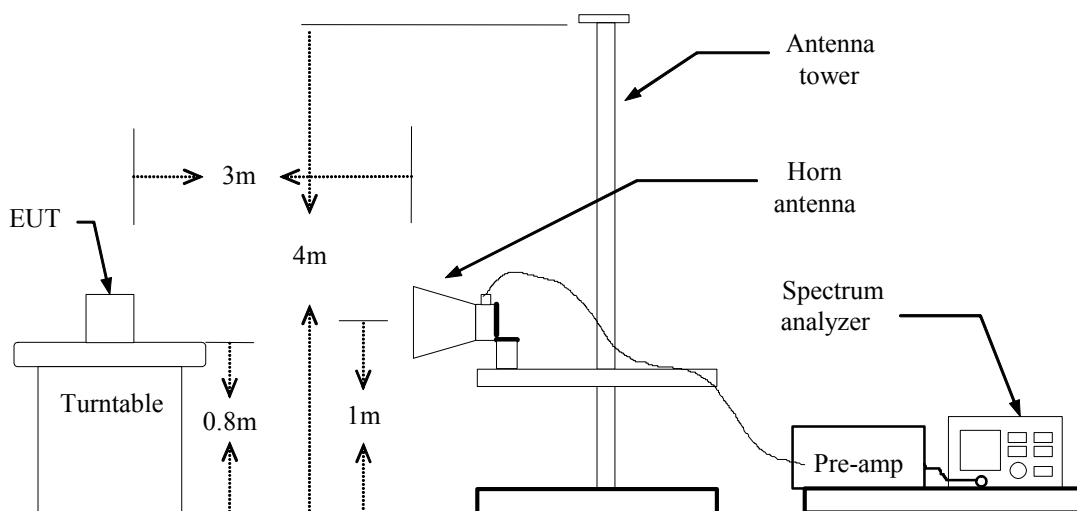


## 7.4 BAND EDGES MEASUREMENT

### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

### TEST CONFIGURATION



### TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:  
(a) PEAK: RBW=VBW=100KHz / Sweep=AUTO
5. Repeat the procedures until all the PEAK versus POLARIZATION are measured.

### TEST RESULTS

Refer to attach spectrum analyzer data chart.

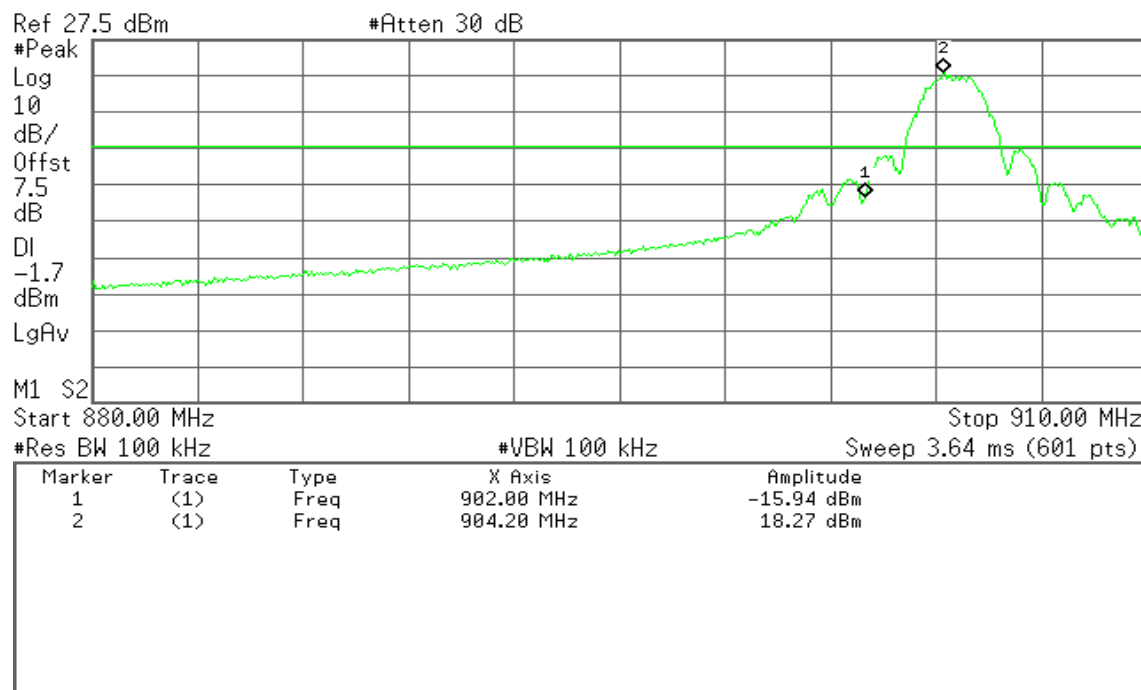


## Test Plot

### Band Edges (CH Low)

Agilent 17:30:18 Aug 14, 2010

R L

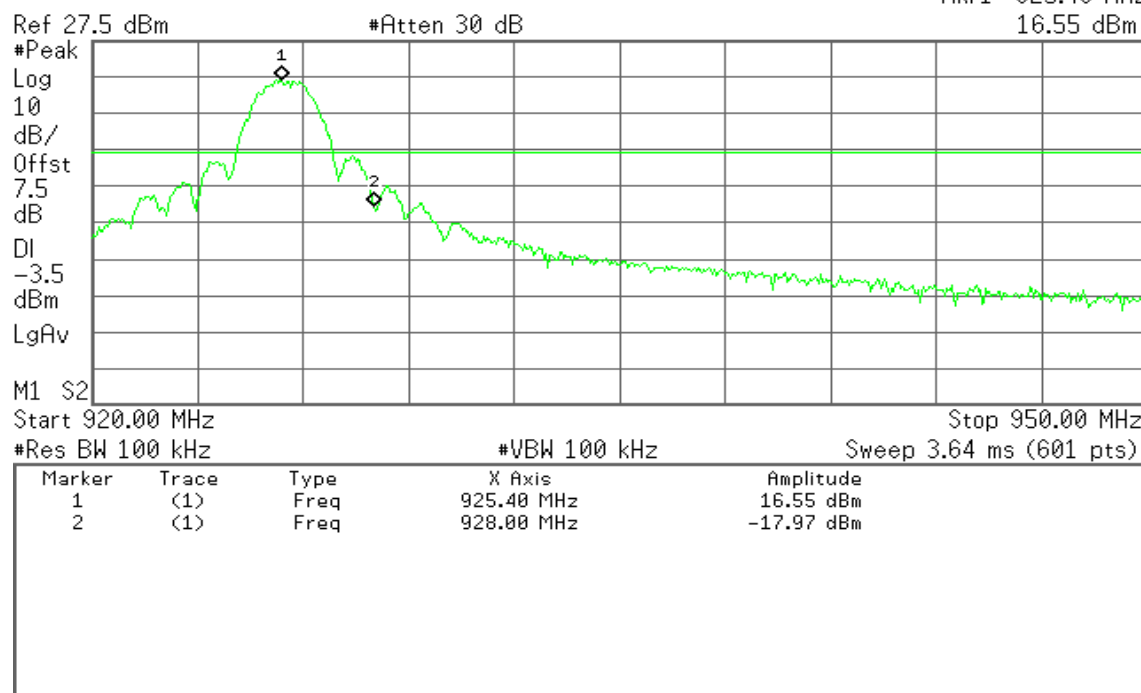


### Band Edges (CH High)

Agilent 17:32:29 Aug 14, 2010

R L

Mkr1 925.40 MHz  
16.55 dBm



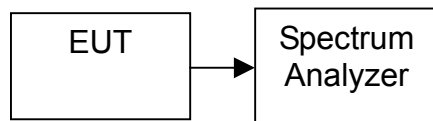


## **7.5 PEAK POWER SPECTRAL DENSITY**

### **LIMIT**

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

### **TEST CONFIGURATION**



### **TEST PROCEDURE**

According the FCC KDB558074 (Measurement of Digital Transmission Systems requirement Operating under Section 15.247 March 23, 2005, Power spectral density Option 1) as the following step:

1. Started with serval zoom-in steps with the beginning of 5MHz Span until the highest levels which could be found within the respective emission channels/bands
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### **TEST RESULTS**

*No non-compliance noted*

### **TEST DATA**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	904.5	6.28	8.00	PASS
Mid	916.5	7.09		PASS
High	925.5	6.69		PASS





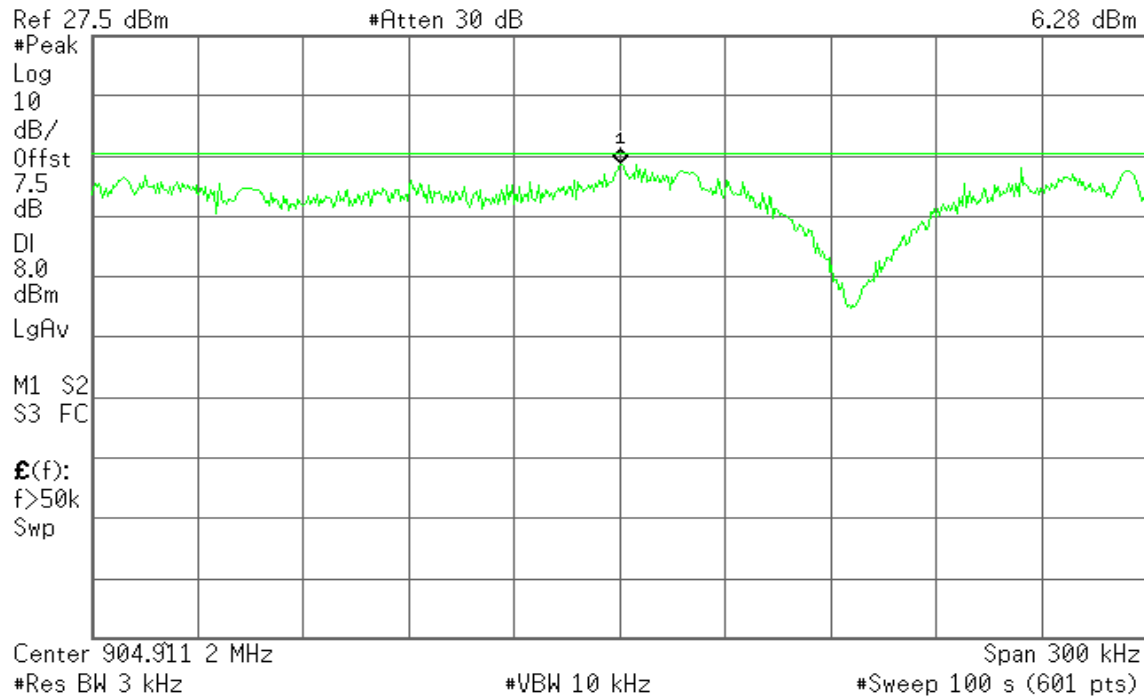
## Test Plot

### PPSD (CH Low)

Agilent 01:28:59 Sep 9, 2010

R T

Mkr1 904.911 7 MHz  
6.28 dBm

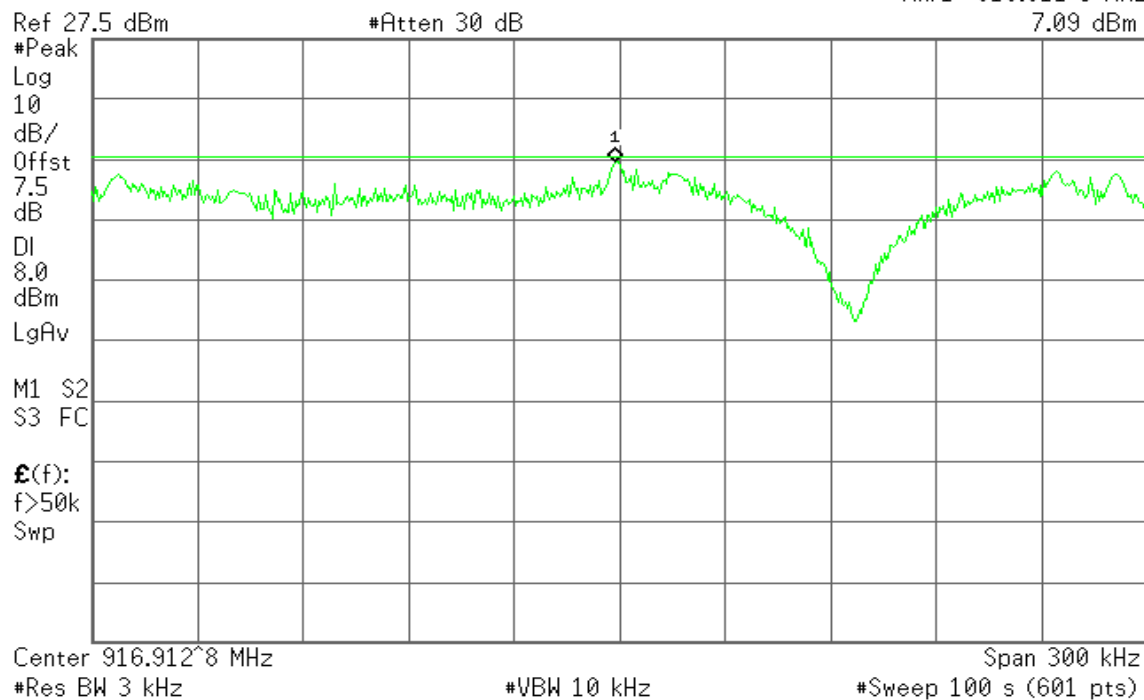


### PPSD (CH Mid)

Agilent 01:18:21 Sep 9, 2010

R T

Mkr1 916.911 3 MHz  
7.09 dBm





## PPSD (CH High)

Agilent 01:10:13 Sep 9, 2010

R T

Mkr1 925.912 7 MHz  
6.69 dBm

Ref 27.5 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

7.5

dB

DI

8.0

dBm

LgAv

M1 S2

S3 FC

$\mathcal{E}(f)$ :

f>50k

Swp

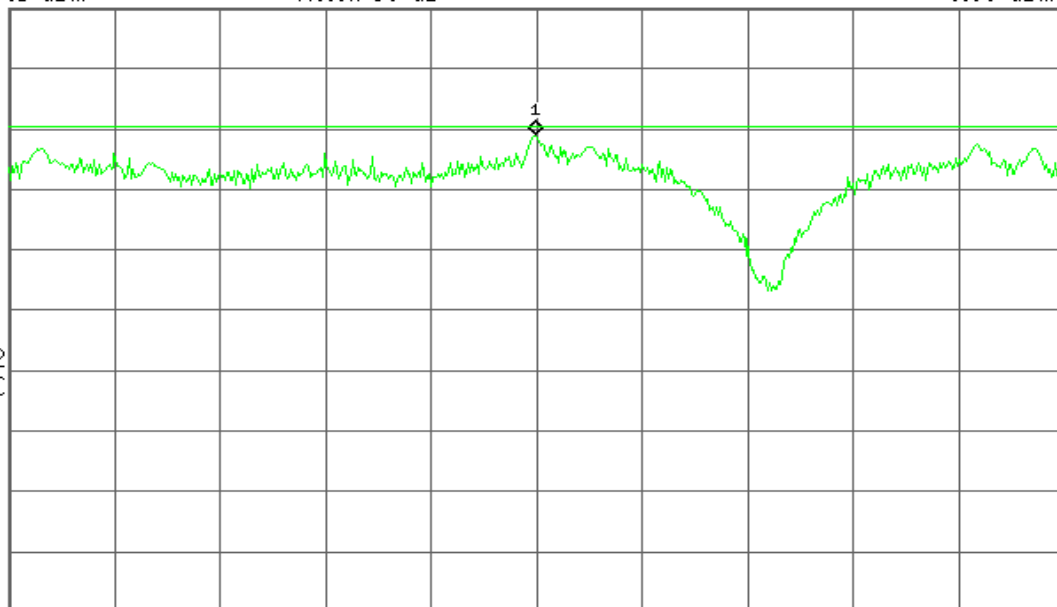
Center 925.913 2 MHz

#Res BW 3 kHz

#VBW 10 kHz

Span 300 kHz

#Sweep 100 s (601 pts)





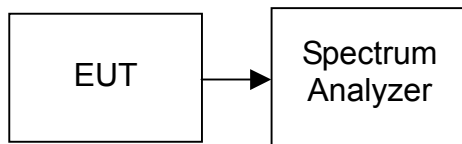
## **7.6 SPURIOUS EMISSIONS**

### **7.6.1 CONDUCTED MEASUREMENT**

#### **LIMIT**

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

Measurements are made over the 30MHz to 10GHz range with the transmitter set to the lowest, middle, and highest channels.

#### **TEST RESULTS**

*No non-compliance noted.*



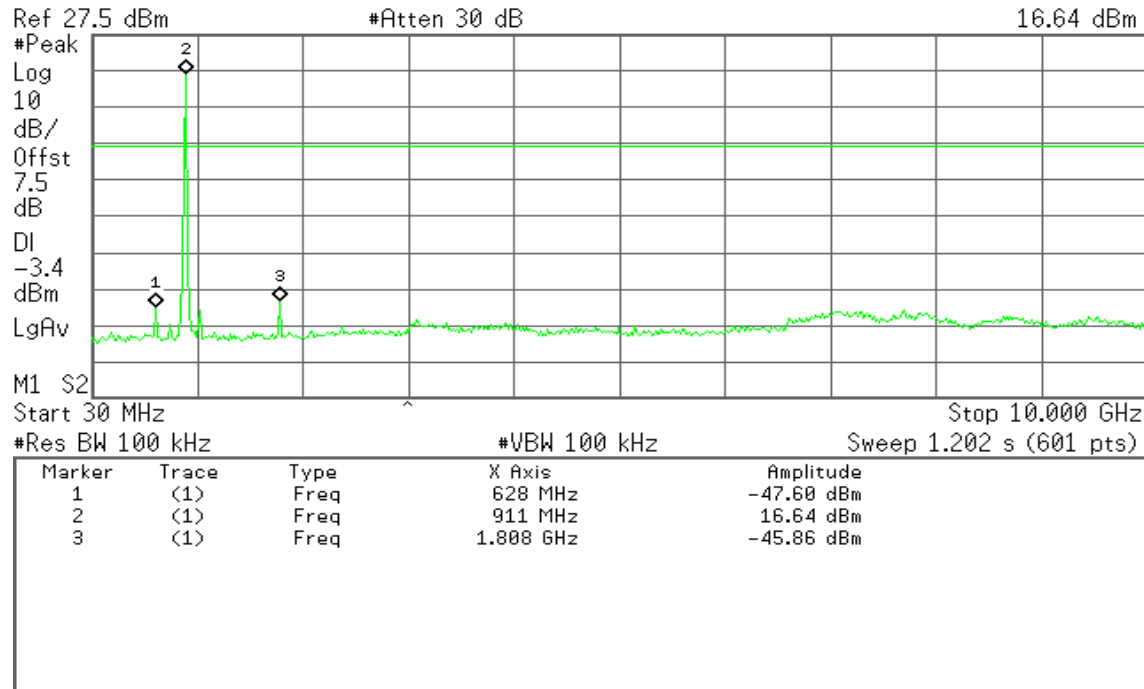
## Test Plot

### CH Low

Agilent 17:04:40 Aug 14, 2010

R L

Mkr2 911 MHz  
16.64 dBm

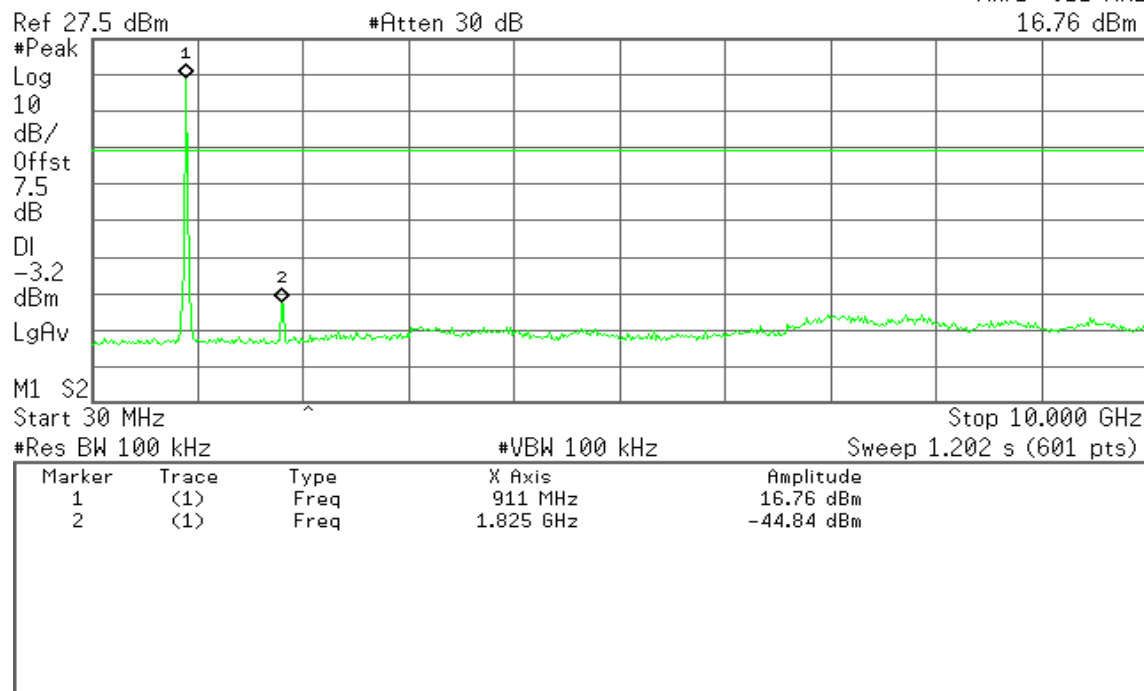


### CH Mid

Agilent 17:08:34 Aug 14, 2010

R L

Mkr1 911 MHz  
16.76 dBm



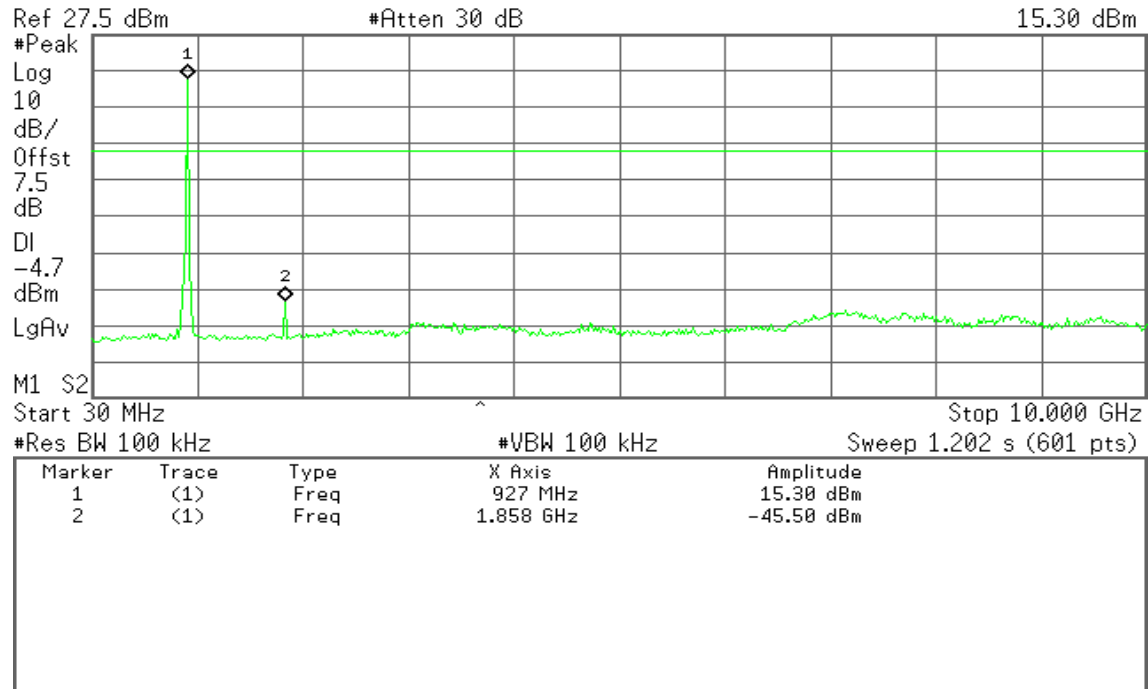


## CH High

Agilent 17:12:35 Aug 14, 2010

R L

Mkr1 927 MHz





## 7.6.2 RADIATED EMISSIONS

### LIMIT

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

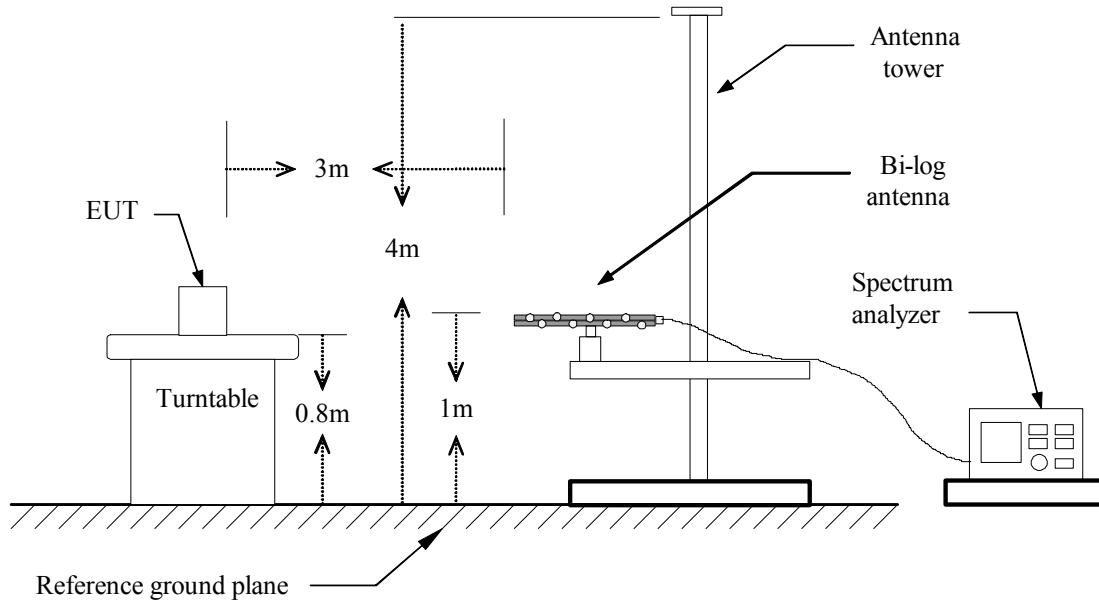
2. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

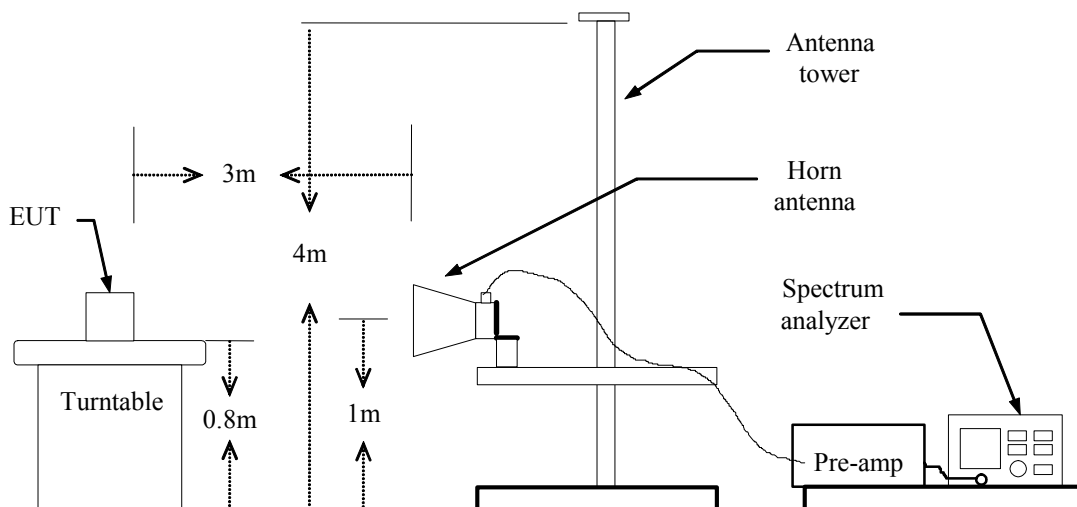


## TEST CONFIGURATION

### Below 1 GHz



### Above 1 GHz





## **TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a)PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b)AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

## **TEST RESULTS**

*No non-compliance noted.*



**TEST DATA****Below 1GHz****Fundamental****Dipole Antenna**

**Operation Mode:** TX / CH Low      **Test Date:** August 11, 2010  
**Temperature:** 18°C      **Tested by:** Stan Lin  
**Humidity:** 60% RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
904.9400	V	114.76	0.41	115.17	Peak
904.9400	V	93.60	0.41	94.01	AVG
904.9400	H	109.97	0.41	110.38	Peak
904.9400	H	89.52	0.41	89.93	AVG

**Operation Mode:** TX / CH Mid      **Test Date:** August 11, 2010  
**Temperature:** 18°C      **Tested by:** Stan Lin  
**Humidity:** 60% RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
916.5800	V	99.25	0.69	99.94	Peak
916.5800	V	78.64	0.69	79.33	AVG
916.5800	H	99.89	0.69	100.58	Peak
916.5800	H	79.01	0.69	79.70	AVG



**Operation Mode:** TX / CH High      **Test Date:** August 11, 2010  
**Temperature:** 18°C      **Tested by:** Stan Lin  
**Humidity:** 60% RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
926.2800	V	100.02	0.91	100.93	Peak
926.2800	V	78.99	0.91	79.90	AVG
926.2800	H	98.05	0.91	98.96	Peak
926.2800	H	77.31	0.91	78.22	AVG

### Monopole Antenna

**Operation Mode:** TX / CH Low      **Test Date:** August 11, 2010  
**Temperature:** 18°C      **Tested by:** Stan Lin  
**Humidity:** 60% RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
904.9400	V	99.59	0.41	100.00	Peak
904.9400	V	79.41	0.41	79.82	AVG
904.9400	H	101.72	0.41	102.13	Peak
904.9400	H	81.53	0.41	81.94	AVG

**Operation Mode:** TX / CH Mid      **Test Date:** August 11, 2010  
**Temperature:** 18°C      **Tested by:** Stan Lin  
**Humidity:** 60% RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
916.5800	V	97.16	0.69	99.94	Peak
916.5800	V	76.32	0.69	79.33	AVG
918.5200	H	101.52	0.73	102.25	Peak
918.5200	H	79.33	0.73	80.06	AVG

**Operation Mode:** TX / CH High**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Remark
926.2800	V	99.60	0.91	100.51	Peak
926.2800	V	78.79	0.91	79.70	AVG
926.2800	H	99.91	0.91	100.82	Peak
926.2800	H	79.18	0.91	80.09	AVG

**Harmonics****Dipole Antenna****Operation Mode:** TX / CH Low**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
43.5800	V	46.20	-13.48	32.72	40.00	-7.28	QP
103.7200	V	46.98	-17.35	29.63	43.50	-13.87	QP
138.6400	V	46.06	-12.55	33.51	43.50	-9.99	QP
361.7400	V	47.20	-9.62	37.58	46.00	-8.42	QP
619.7600	V	45.65	-4.36	41.29	46.00	-4.71	QP
782.7199	V	46.84	-2.16	44.68	46.00	-1.32	QP
39.7146	H	45.69	-13.67	32.02	40.00	-7.98	QP
146.4000	H	45.42	-12.48	32.94	43.50	-10.56	QP
352.0400	H	46.07	-9.66	36.41	46.00	-9.59	QP
472.3200	H	45.92	-7.75	38.17	46.00	-7.83	QP
627.5200	H	45.82	-4.51	41.31	46.00	-4.69	QP
751.6800	H	45.89	-2.15	43.74	46.00	-2.26	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX / CH Mid**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
39.7146	V	46.18	-13.67	32.51	40.00	-7.49	QP
158.0399	V	46.91	-12.87	34.04	43.50	-9.46	QP
303.5400	V	46.40	-11.02	35.38	46.00	-10.62	QP
346.2200	V	46.58	-9.78	36.80	46.00	-9.20	QP
594.5400	V	46.10	-4.23	41.87	46.00	-4.13	QP
730.3400	V	46.59	-2.54	44.05	46.00	-1.95	QP
45.0583	H	45.26	-13.42	31.84	40.00	-8.16	QP
142.5200	H	45.93	-12.35	33.58	43.50	-9.92	QP
328.7600	H	46.81	-10.29	36.52	46.00	-9.48	QP
464.5600	H	45.90	-7.94	37.96	46.00	-8.04	QP
604.2400	H	45.91	-4.08	41.83	46.00	-4.17	QP
774.9600	H	46.46	-2.16	44.30	46.00	-1.70	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX / CH High**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
39.7146	V	46.39	-13.67	32.72	40.00	-7.28	QP
142.5200	V	45.00	-12.35	32.65	43.50	-10.85	QP
303.5400	V	46.33	-11.02	35.31	46.00	-10.69	QP
371.4400	V	45.81	-9.58	36.23	46.00	-9.77	QP
621.7000	V	45.15	-4.40	40.75	46.00	-5.25	QP
769.1400	V	46.48	-2.16	44.32	46.00	-1.68	QP
35.8200	H	47.58	-14.18	33.40	40.00	-6.60	QP
140.5800	H	45.76	-12.28	33.48	43.50	-10.02	QP
322.9400	H	47.09	-10.46	36.63	46.00	-9.37	QP
377.2600	H	47.90	-9.57	38.33	46.00	-7.67	QP
594.5400	H	45.65	-4.23	41.42	46.00	-4.58	QP
705.1200	H	48.02	-3.04	44.98	46.00	-1.02	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Monopole Antenna****Operation Mode:** TX / CH Low**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
41.6400	V	39.24	-13.57	25.67	40.00	-14.33	QP
51.3400	V	39.66	-14.06	25.60	40.00	-14.40	QP
134.7600	V	39.51	-13.36	26.15	43.50	-17.35	QP
350.1000	V	40.35	-9.67	30.68	46.00	-15.32	QP
619.7600	V	39.60	-4.36	35.24	46.00	-10.76	QP
842.8600	V	38.43	-0.54	37.89	46.00	-8.11	QP
138.6400	H	39.47	-12.55	26.92	43.50	-16.58	QP
154.1600	H	39.21	-12.74	26.47	43.50	-17.03	QP
361.7400	H	41.97	-9.62	32.35	46.00	-13.65	QP
559.6200	H	39.02	-5.79	33.23	46.00	-12.77	QP
629.4600	H	40.99	-4.54	36.45	46.00	-9.55	QP
755.5600	H	41.12	-2.15	38.97	46.00	-7.03	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX / CH Mid**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
41.6400	V	41.35	-13.57	27.78	40.00	-12.22	QP
146.4000	V	40.30	-12.48	27.82	43.50	-15.68	QP
165.8000	V	42.27	-13.41	28.86	43.50	-14.64	QP
429.6400	V	42.60	-8.77	33.83	46.00	-12.17	QP
606.1800	V	40.39	-4.11	36.28	46.00	-9.72	QP
745.8600	V	41.14	-2.23	38.91	46.00	-7.09	QP
39.7146	H	42.37	-13.67	28.70	40.00	-11.30	QP
148.3400	H	39.88	-12.55	27.33	43.50	-16.17	QP
369.5000	H	41.71	-9.59	32.12	46.00	-13.88	QP
427.7000	H	41.00	-8.82	32.18	46.00	-13.82	QP
598.4200	H	39.84	-4.06	35.78	46.00	-10.22	QP
745.8600	H	40.61	-2.23	38.38	46.00	-7.62	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



**Operation Mode:** TX / CH High**Test Date:** August 11, 2010**Temperature:** 18°C**Tested by:** Stan Lin**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
39.7146	V	41.81	-13.67	28.14	40.00	-11.86	QP
142.5200	V	40.60	-12.35	28.25	43.50	-15.25	QP
255.0400	V	41.37	-12.39	28.98	46.00	-17.02	QP
371.4400	V	41.66	-9.58	32.08	46.00	-13.92	QP
602.3000	V	40.50	-4.03	36.47	46.00	-9.53	QP
749.7400	V	41.69	-2.15	39.54	46.00	-6.46	QP
42.8998	H	41.02	-13.50	27.52	40.00	-12.48	QP
70.7400	H	41.75	-18.34	23.41	40.00	-16.59	QP
156.1000	H	41.81	-12.81	29.00	43.50	-14.50	QP
406.3599	H	41.95	-9.31	32.64	46.00	-13.36	QP
536.3400	H	42.33	-6.45	35.88	46.00	-10.12	QP
784.6599	H	41.92	-2.17	39.75	46.00	-6.25	QP

**Remark:**

1. No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)
2. Measuring frequencies from 9 kHz to the 1GHz.
3. Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



## Above 1 GHz

### Dipole Antenna

**Operation Mode:** TX / CH Low

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1806.667	V	79.07	42.85	-7.18	71.89	35.67	74.00	54.00	-18.33	AVG
2713.333	V	61.76	37.37	-3.93	57.83	33.44	74.00	54.00	-20.56	AVG
3620.000	V	66.02	36.95	-0.87	65.15	36.08	74.00	54.00	-17.92	AVG
4526.667	V	65.32	37.97	1.87	67.19	39.84	74.00	54.00	-14.16	AVG
4580.000	V	51.17	49.37	1.92	53.09	51.29	74.00	54.00	-2.71	AVG
5427.500	V	57.93	34.36	4.02	61.95	38.38	74.00	54.00	-15.62	AVG
6102.500 <sup>7</sup>	V	53.96	52.22	4.19	58.15	56.41	95.17	74.01	-17.60	AVG
6335.000	V	51.01	32.40	4.21	55.22	36.61	74.00	54.00	-17.39	AVG
7235.000	V	60.91	34.79	6.20	67.11	40.99	74.00	54.00	-13.01	AVG
8142.500	V	63.82	35.39	8.59	72.41	43.98	74.00	54.00	-10.02	AVG
8532.500	V	48.13	33.96	8.47	56.60	42.43	74.00	54.00	-11.57	AVG
9042.500	V	49.23	32.93	9.72	58.95	42.65	74.00	54.00	-11.35	AVG
1806.667	H	68.55	40.56	-7.18	61.37	33.38	74.00	54.00	-20.62	AVG
2713.333	H	59.63	36.38	-3.93	55.70	32.45	74.00	54.00	-21.55	AVG
3613.333	H	57.01	34.80	-0.91	56.10	33.89	74.00	54.00	-20.11	AVG
4520.000	H	59.92	35.27	1.86	61.78	37.13	74.00	54.00	-16.87	AVG
5427.500	H	50.43	34.52	4.02	54.45	38.54	74.00	54.00	-15.46	AVG
6102.500	H	49.35	48.70	4.19	53.54	52.89	74.00	54.00	-1.11	AVG
6335.000	H	54.02	33.75	4.21	58.23	37.96	74.00	54.00	-16.04	AVG
7235.000	H	57.75	33.85	6.20	63.95	40.05	74.00	54.00	-13.95	AVG
8142.500	H	60.18	34.87	8.59	68.77	43.46	74.00	54.00	-10.54	AVG
9042.500	H	47.71	33.76	9.72	57.43	43.48	74.00	54.00	-10.52	AVG

#### **Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB



**Operation Mode:** TX / CH Mid

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1833.333	V	76.34	41.90	-7.03	69.31	34.87	74.00	54.00	-19.13	AVG
2746.667	V	64.85	37.53	-3.79	61.06	33.74	74.00	54.00	-20.26	AVG
3666.667	V	67.08	37.38	-0.64	66.44	36.74	74.00	54.00	-17.26	AVG
4580.000	V	70.06	38.14	1.92	71.98	40.06	74.00	54.00	-13.94	AVG
5495.000	V	56.06	35.11	4.27	60.33	39.38	74.00	54.00	-14.62	AVG
6102.500 <sup>*7</sup>	V	53.30	51.89	4.19	57.49	56.08	79.94	59.33	-3.25	AVG
6417.500	V	51.45	33.07	4.23	55.68	37.30	74.00	54.00	-16.70	AVG
7325.000	V	57.96	34.53	6.19	64.15	40.72	74.00	54.00	-13.28	AVG
8240.000	V	63.22	36.24	8.54	71.76	44.78	74.00	54.00	-9.22	AVG
8547.500	V	47.90	34.18	8.51	56.41	42.69	74.00	54.00	-11.31	AVG
9170.000	V	50.37	34.21	9.94	60.31	44.15	74.00	54.00	-9.85	AVG
1833.333	H	67.39	40.37	-7.03	60.36	33.34	74.00	54.00	-20.66	AVG
2746.667	H	60.88	35.94	-3.79	57.09	32.15	74.00	54.00	-21.85	AVG
3666.667	H	57.76	34.52	-0.64	57.12	33.88	74.00	54.00	-20.12	AVG
4580.000	H	61.86	34.74	1.92	63.78	36.66	74.00	54.00	-17.34	AVG
5495.000	H	51.36	35.01	4.27	55.63	39.28	74.00	54.00	-14.72	AVG
6102.500	H	49.02	47.76	4.19	53.21	51.95	74.00	54.00	-2.05	AVG
6417.500	H	54.44	33.92	4.23	58.67	38.15	74.00	54.00	-15.85	AVG
7332.500	H	52.98	33.27	6.19	59.17	39.46	74.00	54.00	-14.54	AVG
8247.500	H	55.64	34.51	8.54	64.18	43.05	74.00	54.00	-10.95	AVG
9170.000	H	49.35	33.55	9.94	59.29	43.49	74.00	54.00	-10.51	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB



**Operation Mode:** TX / CH High

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1846.667	V	71.84	43.49	-6.96	64.88	36.53	74.00	54.00	-17.47	AVG
2773.333	V	66.02	37.67	-3.68	62.34	33.99	74.00	54.00	-20.01	AVG
3700.000	V	66.42	37.28	-0.47	65.95	36.81	74.00	54.00	-17.19	AVG
4573.333	V	51.51	50.04	1.92	53.43	51.96	74.00	54.00	-2.04	AVG
4626.667	V	70.26	38.54	1.98	72.24	40.52	74.00	54.00	-13.48	AVG
5547.500	V	55.60	33.49	4.29	59.89	37.78	74.00	54.00	-16.22	AVG
6102.500 <sup>7</sup>	V	53.38	52.16	4.19	57.57	56.35	80.93	59.90	-3.55	AVG
6485.000	V	53.87	33.81	4.23	58.10	38.04	74.00	54.00	-15.96	AVG
7400.000	V	55.23	33.17	6.19	61.42	39.36	74.00	54.00	-14.64	AVG
8322.500	V	56.64	34.21	8.49	65.13	42.70	74.00	54.00	-11.30	AVG
8555.000	V	48.64	33.74	8.52	57.16	42.26	74.00	54.00	-11.74	AVG
9252.500	V	51.81	33.82	10.08	61.89	43.90	74.00	54.00	-10.10	AVG
1853.333	H	64.12	38.72	-6.93	57.19	31.79	74.00	54.00	-22.21	AVG
2466.667	H	53.25	---	-4.87	48.38	---	74.00	54.00	-25.62	Peak
2773.333	H	59.48	35.29	-3.68	55.80	31.61	74.00	54.00	-22.39	AVG
3700.000	H	57.22	35.34	-0.47	56.75	34.87	74.00	54.00	-19.13	AVG
4626.667	H	61.49	34.77	1.98	63.47	36.75	74.00	54.00	-17.25	AVG
5547.500	H	51.10	34.86	4.29	55.39	39.15	74.00	54.00	-14.85	AVG
6102.500	H	48.88	47.62	4.19	53.07	51.81	74.00	54.00	-2.19	AVG
6485.000	H	55.48	34.19	4.23	59.71	38.42	74.00	54.00	-15.58	AVG
7407.500	H	55.16	33.27	6.18	61.34	39.45	74.00	54.00	-14.55	AVG
8337.500	H	51.11	35.08	8.48	59.59	43.56	74.00	54.00	-10.44	AVG
9252.500*	H	49.16	34.31	10.08	59.24	44.39	74.00	54.00	-9.61	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB



## Monopole Antenna

**Operation Mode:** TX / CH Low

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1186.667	V	63.80	38.08	-10.44	53.36	27.64	74.00	54.00	-26.36	AVG
1806.667	V	55.34	---	-7.18	48.16	---	74.00	54.00	-25.84	Peak
2713.333	V	66.83	38.29	-3.93	62.90	34.36	74.00	54.00	-19.64	AVG
3620.000	V	64.67	36.58	-0.87	63.80	35.71	74.00	54.00	-18.29	AVG
4520.000	V	70.63	38.26	1.86	72.49	40.12	74.00	54.00	-13.88	AVG
4580.000	V	51.31	49.39	1.92	53.23	51.31	74.00	54.00	-2.69	AVG
5427.500	V	60.44	35.06	4.02	64.46	39.08	74.00	54.00	-14.92	AVG
6102.500 <sup>*7</sup>	V	54.05	53.25	4.19	57.44	58.24	80.00	59.82	-1.58	AVG
6327.500	V	51.19	32.36	4.20	55.39	36.56	74.00	54.00	-17.44	AVG
7235.000	V	61.45	34.80	6.20	67.65	41.00	74.00	54.00	-13.00	AVG
8135.000	V	57.85	34.71	8.59	66.44	43.30	74.00	54.00	-10.70	AVG
8532.500	V	47.94	---	8.47	56.41	---	74.00	54.00	-17.59	Peak
1806.667	H	51.53	---	-7.18	44.35	---	74.00	54.00	-29.65	Peak
2460.000	H	52.27	---	-4.89	47.38	---	74.00	54.00	-26.62	Peak
2713.333	H	59.43	37.48	-3.93	55.50	33.55	74.00	54.00	-20.45	AVG
3613.333	H	57.02	35.87	-0.91	56.11	34.96	74.00	54.00	-19.04	AVG
4520.000	H	60.36	36.28	1.86	62.22	38.14	74.00	54.00	-15.86	AVG
5427.500	H	58.11	34.19	4.02	62.13	38.21	74.00	54.00	-15.79	AVG
6102.500	H	47.71	---	4.19	51.90	---	74.00	54.00	-22.10	Peak
6335.000	H	54.49	33.41	4.21	58.70	37.62	74.00	54.00	-16.38	AVG
7227.500		56.12	34.13	6.21	62.33	40.34	74.00	54.00	-13.66	AVG
8142.500	H	55.37	34.07	8.59	63.96	42.66	74.00	54.00	-11.34	AVG
9050.000	H	49.68	34.04	9.73	59.41	43.77	74.00	54.00	-10.23	AVG

### **Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB



**Operation Mode:** TX / CH Mid

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1226.667	V	60.01	---	-10.25	49.76	---	74.00	54.00	-24.24	Peak
2746.667	V	66.97	37.61	-3.79	63.18	33.82	74.00	54.00	-20.18	AVG
3666.667	V	65.23	36.96	-0.64	64.59	36.32	74.00	54.00	-17.68	AVG
4580.000	V	70.54	38.16	1.92	72.46	40.08	74.00	54.00	-13.92	AVG
5495.000	V	57.66	34.28	4.27	61.93	38.55	74.00	54.00	-15.45	AVG
6102.500 <sup>7</sup>	V	53.39	52.42	4.19	57.58	56.61	79.94	59.33	-2.72	AVG
6410.000	V	50.59	33.08	4.22	54.81	37.30	74.00	54.00	-16.70	AVG
7325.000	V	58.66	33.97	6.19	64.85	40.16	74.00	54.00	-13.84	AVG
8240.000	V	58.47	34.92	8.54	67.01	43.46	74.00	54.00	-10.54	AVG
8547.500	V	48.03	33.73	8.51	56.54	42.24	74.00	54.00	-11.76	AVG
9170.000	V	49.46	33.19	9.94	59.40	43.13	74.00	54.00	-10.87	AVG
2753.333	H	58.05	38.02	-3.77	54.28	34.25	74.00	54.00	-19.75	AVG
3666.667	H	57.23	35.27	-0.64	56.59	34.63	74.00	54.00	-19.37	AVG
4586.667	H	61.88	37.29	1.93	63.81	39.22	74.00	54.00	-14.78	AVG
5495.000	H	54.21	34.37	4.27	58.48	38.64	74.00	54.00	-15.36	AVG
6102.500	H	47.88	46.59	4.19	52.07	50.78	74.00	54.00	-3.22	AVG
6410.000	H	54.23	33.74	4.22	58.45	37.96	74.00	54.00	-16.04	AVG
7325.000	H	53.40	34.69	6.19	59.59	40.88	74.00	54.00	-10.94	AVG
8240.000	H	54.52	33.79	8.54	63.06	42.33	74.00	54.00	-11.67	AVG
9170.000	H	48.54	33.92	9.94	58.48	43.86	74.00	54.00	-10.14	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB





**Operation Mode:** TX / CH High

**Test Date:** August 11, 2010

**Temperature:** 18°C

**Tested by:** Stan Lin

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2773.333	V	67.60	38.55	-3.68	63.92	34.87	74.00	54.00	-19.13	Peak
3706.667	V	65.66	35.97	-0.44	65.22	35.53	74.00	54.00	-18.47	AVG
4580.000	V	51.49	50.28	1.92	53.41	52.20	74.00	54.00	-1.80	AVG
4633.333	V	71.30	38.24	1.99	73.29	40.23	74.00	54.00	-13.77	AVG
5547.500	V	56.44	36.10	4.29	60.73	40.39	74.00	54.00	-13.61	AVG
6102.500 <sup>7</sup>	V	53.20	52.11	4.19	57.39	56.30	80.51	59.70	-3.10	AVG
6485.000	V	53.25	32.09	4.23	57.48	36.32	74.00	54.00	-17.68	AVG
7407.500	V	55.11	33.91	6.18	61.29	64.35	74.00	54.00	-13.91	AVG
8322.500	V	55.86	35.29	8.49	40.09	43.78	74.00	54.00	-10.22	AVG
8555.000	V	47.79	34.82	8.52	56.31	43.34	74.00	54.00	-10.66	AVG
9260.000	V	51.19	33.21	10.10	61.29	43.31	74.00	54.00	-10.69	AVG
2466.667	H	51.67	---	-4.87	46.80	---	74.00	54.00	-27.20	Peak
2780.000	H	58.30	37.55	-3.66	54.64	33.89	74.00	54.00	-20.11	AVG
3700.000	H	56.24	34.82	-0.47	55.77	34.35	74.00	54.00	-19.65	AVG
4626.667	H	62.67	35.99	1.98	64.65	37.97	74.00	54.00	-16.03	AVG
5555.000	H	53.80	34.37	4.29	58.09	38.66	74.00	54.00	-15.34	AVG
6102.500	H	48.26	47.19	4.19	52.45	51.38	74.00	54.00	-2.62	AVG
6485.000	H	54.50	33.09	4.23	58.73	37.32	74.00	54.00	-16.68	AVG
7400.000	H	55.21	34.24	6.19	61.40	40.43	74.00	54.00	-13.57	AVG
8322.500	H	51.91	35.11	8.49	60.40	43.60	74.00	54.00	-10.40	AVG
9260.000	H	49.15	34.51	10.10	59.25	44.61	74.00	54.00	-14.75	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).
7. Peak Limit = Fundamental Peak Result - 20dB; Average limit = Fundamental Average Result limit – 20 dB



## 7.7 POWERLINE CONDUCTED EMISSIONS

### **LIMIT**

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

\* Decreases with the logarithm of the frequency.

### **TEST CONFIGURATION**

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

### **TEST PROCEDURE**

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### **TEST RESULTS**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.



**TEST DATA****Operation Mode:** Charging**Test Date:** August 12, 2010**Temperature:** 25°C**Tested by:** Alonso Lu**Humidity:** 57% RH

Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.1500	22.37	-0.03	9.73	32.10	9.70	66.00	56.00	-33.90	-46.30	L1
0.2165	19.78	-0.02	9.72	29.50	9.70	62.95	52.95	-33.45	-43.25	L1
0.5214	10.48	-0.02	9.62	20.10	9.60	56.00	46.00	-35.90	-36.40	L1
8.6934	0.03	0.03	10.07	10.10	10.10	60.00	50.00	-49.90	-39.90	L1
11.5868	0.05	0.05	10.25	10.30	10.30	60.00	50.00	-49.70	-39.70	L1
13.0295	0.01	0.01	10.29	10.30	10.30	60.00	50.00	-49.70	-39.70	L1
0.1500	36.58	6.18	9.72	46.30	15.90	66.00	56.00	-19.70	-40.10	L2
0.1722	36.28	6.48	9.72	46.00	16.20	64.85	54.85	-18.85	-38.65	L2
0.1997	35.69	5.19	9.71	45.40	14.90	63.62	53.62	-18.22	-38.72	L2
0.2268	34.99	4.99	9.71	44.70	14.70	62.57	52.57	-17.87	-37.87	L2
0.5136	21.19	-0.01	9.61	30.80	9.60	56.00	46.00	-25.20	-36.40	L2
12.8966	1.37	-0.03	10.33	11.70	10.30	60.00	50.00	-48.30	-39.70	L2

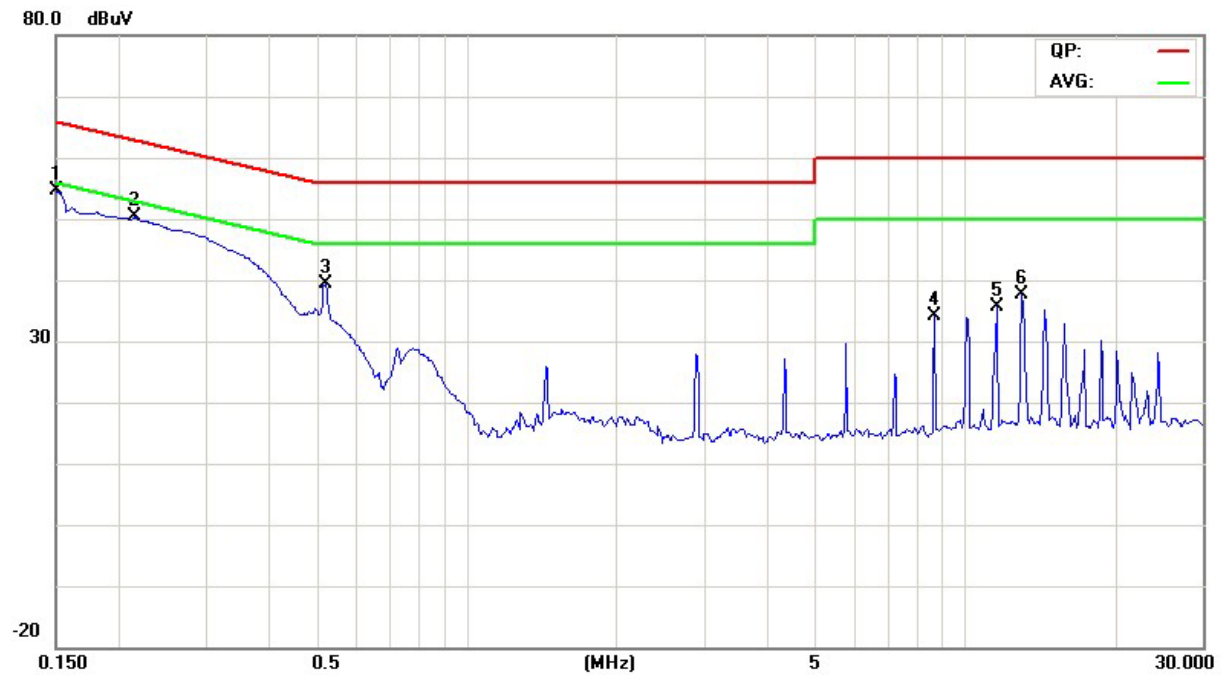
**Remark:**

1. The measuring frequencies range between 0.15 MHz and 30 MHz.
2. The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.
3. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10kHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

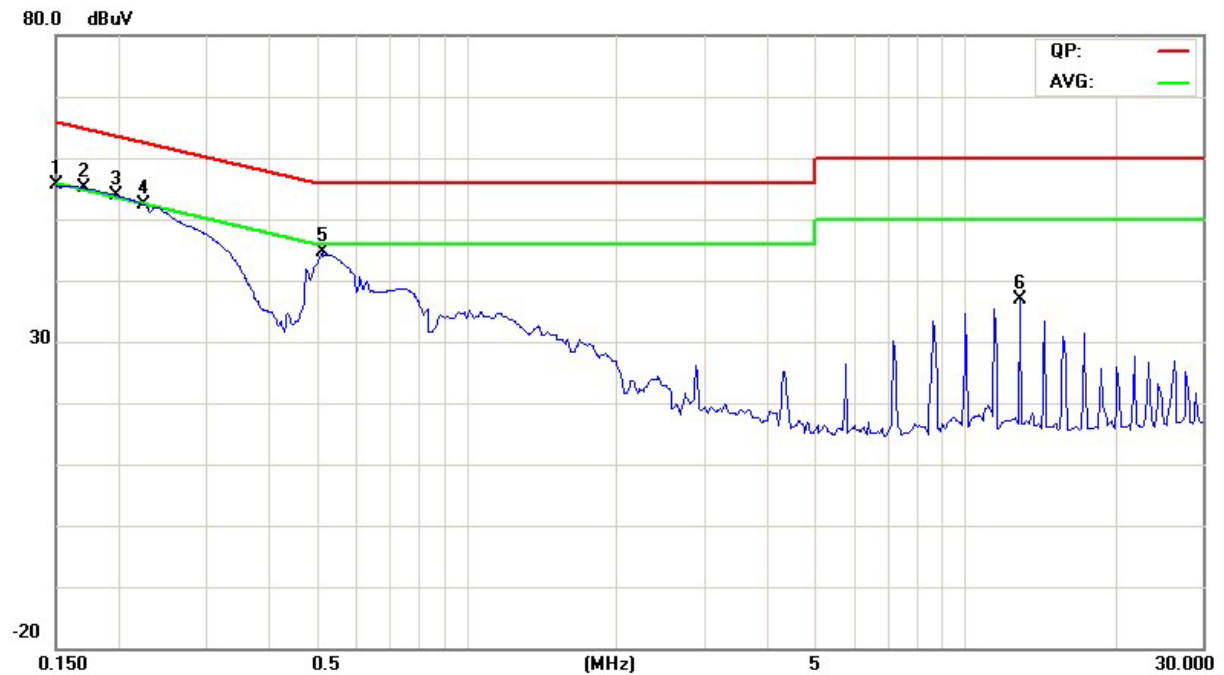


## Test Plot

### Conducted emissions (Line 1)



### Conducted emissions (Line 2)





## 8. APPENDIX I

### RADIO FREQUENCY EXPOSURE

#### LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

#### EUT Specification

<b>EUT</b>	Wireless Microphone
<b>Frequency band (Operating)</b>	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others: 904~925 MHz
<b>Device category</b>	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	21.69dBm (0.14757W) (Peak) 14.90dBm (0.03090W) (Average)
<b>Antenna gain (Max)</b>	0dBi (including cable loss) (Numeric gain: 1)
<b>Evaluation applied</b>	<input type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation <input checked="" type="checkbox"/> N/A
<b>Remark:</b> 1. The maximum output power is <u>21.69dBm (147.57mW) at 904.5MHz (with 1 numeric antenna gain.)</u> 2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm <sup>2</sup> even if the calculation indicates that the power density would be larger.	

#### TEST RESULTS

No non-compliance noted.

(SAR evaluation is not required for the PORTABLE device while its maximum output power (Average: 30.90mW) is lower than the general population low threshold:  $60/f_{(GHz)}$   
 $=60/0.9135 = 65.68mW$ )

even if the calculation indicates that the power density would be larger.)