



**FCC 47 CFR PART 15 SUBPART C &  
INDUSTRY CANADA RSS-210  
(Class II Permissive Change)**

**TEST REPORT**

**For**

**1X1 802.11b/g/n-BT4.0 PCIe/USB M.2 Combo Module**

**Model: QCNFA335**

**Trade Name: Qualcomm Atheros**

*Issued to*

**Qualcomm Atheros, Inc.  
1700 Technology Drive, san Jose, CA95110**

*Issued by*

**Compliance Certification Services Inc.  
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**Issued Date: October 21, 2014**



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 21, 2014	Initial Issue	ALL	Kelly Cheng



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## 1. TEST RESULT CERTIFICATION

**Applicant:** Qualcomm Atheros, Inc.  
1700 Technology Drive, san Jose, CA95110

**Manufacturer:** Qualcomm Atheros, Inc.  
1700 Technology Drive, san Jose, CA95110

**Equipment Under Test:** 1X1 802.11b/g/n-BT4.0 PCIe/USB M.2 Combo Module

**Trade Name:** Qualcomm Atheros

**Model:** QCNFA335

**Date of Test:** October 17, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C & Industry Canada RSS-210 Issue 8 December, 2010	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: 2009 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 and Industry Canada RSS-210.

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

*Approved by:*

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Miller Lee  
Section Manager  
Compliance Certification Services Inc.

*Reviewed by:*

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Angel Cheng  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	1X1 802.11b/g/n-BT4.0 PCIe/USB M.2 Combo Module			
<b>Trade Name</b>	Qualcomm Atheros			
<b>Model Number</b>	QCNFA335			
<b>Model Discrepancy</b>	N/A			
<b>Received Date</b>	September 3, 2014			
<b>Power Adapter</b>	Power from host device.			
<b>Frequency Range</b>	2412 ~ 2462 MHz			
<b>Transmit Power</b>	Mode	Frequency Range	Output Power (dBm)	Output Power (W)
	802.11b	2412 - 2462	21.40	0.1380
	802.11g	2412 - 2462	20.30	0.1072
	802.11n Standard-20 MHz	2412 - 2462	20.50	0.1122
	802.11n Standard-40 MHz	2422 - 2452	20.70	0.1175
<b>Modulation Technique</b>	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) IEEE 802.11n HT 20 MHz mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 MHz mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)			
	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT 20 MHz mode: 11 Channels IEEE 802.11n HT 40 MHz mode: 7 Channels			
<b>Antenna Specification</b>	TONGDA Corporation P/N: T-543-9021043-1 (DC33001MD00) (Main) / 0.74dBi T-543-9021043-2 (DC33001MD10) (Aux) / -0.07dBi			
	Change #1 Adding a portable platform: Lenovo Yoga 3 11 Regulatory Model Number: QCNFA335. Change #2 The host has the same antenna type as originally approved with lower gains. Trademark: TONGDA Model: Tx1 / Rx1 Antenna: T-543-9021043-1 (DC33001MD00); Tx2 / Rx2 Antenna: T-543-9021043-2 (DC33001MD10)			

**Remark:**

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **PPD-QCNFA335** & IC: **4104A-QCNFA335** 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: 2009 and FCC CFR 47 Part 15.207, 15.209, 15.247 and DA00-705.

The tests documented in this report were performed in accordance with IC RSS-210, IC RSS-Gen, IC RSS-102, IC RSS-212, and ANSI C63.4.

This submittal(s) (test report) is intended for IC Certification with Industry Canada RSS-210.

#### **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.

The tests documented in this report were performed in accordance with IC RSS-210, IC RSS-Gen, IC RSS-102, and ANSI C63.4.

#### **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 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.



### 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:

<b>MHz</b>	<b>MHz</b>	<b>MHz</b>	<b>GHz</b>
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**

The EUT (model: QCNFA335) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode was programmed.

After verification, all tests carried out are with the worst-case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode and receiving radiated spurious emission above 1GHz, which worst case was in CH Mid mode only.

#### **IEEE 802.11b mode:**

Channel Low(2412MHz), Channel Mid(2442MHz) and Channel High(2462MHz) with 1Mbps data rate were chosen for full testing.

#### **IEEE 802.11g mode:**

Channel Low(2412MHz), Channel Mid(2442MHz) and Channel High(2462MHz) with 6Mbps data rate were chosen for full testing.

#### **IEEE 802.11n HT 20 MHz mode:**

Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

#### **IEEE 802.11n HT 40 MHz mode:**

Channel Low (2422MHz), Channel Mid (2442MHz) and Channel High (2452MHz) with 13.5Mbps data rate 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 (Y 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 and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/14/2015
Power Meter	Anritsu	ML2495A	1012009	04/24/2015
Power Sensor	Anritsu	MA2411B	0917072	04/24/2015

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	11/13/2014
EMI Test Receiver	R&S	ESCI	100064	02/14/2015
Pre-Amplifier	Mini-Circuits	ZFL-1000LN	SF350700823	01/10/2015
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1415367	11/18/2014
Bilog Antenna	Sunol Sciences	JB3	A030105	09/30/2015
Horn Antenna	EMCO	3117	00055165	01/09/2015
Horn Antenna	EMCO	3116	00026370	10/09/2015
Loop Antenna	EMCO	6502	8905/2356	06/08/2015
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
Site NSA	CCS	N/A	N/A	12/23/2014
Test S/W	EZ-EMC (CCS-3A1RE)			



### **4.3 MEASUREMENT UNCERTAINTY**

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

***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 Dist., New Taipei City 24891, Taiwan. (R.O.C.)  
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, 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 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 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.



## 5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	 Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

*\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*



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

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

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

### **6.2 SUPPORT EQUIPMENT**

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC	Lenovo	Lenovo Yoga 3 11	N/A	FCC DOC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

***Remark:***

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



## 7. FCC PART 15.247 REQUIREMENTS & RSS-210 REQUIREMENTS

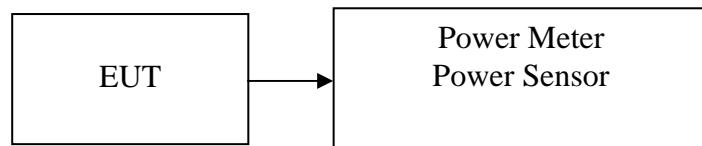
### 7.1 PEAK POWER

#### **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.
3. According to RSS-210 §A8.4(4), for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

#### **Test Configuration**



#### **TEST PROCEDURE**

The transmitter output is connected to the Power Meter. The Power Meter is set to the peak power detection.

#### **TEST RESULTS**

*No non-compliance noted*

**Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	21.30	0.1349	1.00	PASS
Mid	2442	<b>*21.40</b>	0.1380		PASS
High	2462	21.30	0.1349		PASS

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.90	0.0776	1.00	PASS
Mid	2442	<b>*20.30</b>	0.1072		PASS
High	2462	18.90	0.0776		PASS

**Test mode: IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.80	0.0603	1.00	PASS
Mid	2442	<b>*20.50</b>	0.1122		PASS
High	2462	18.20	0.0661		PASS

**Test mode: IEEE 802.11n HT 40 MHz mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	16.60	0.0457	1.00	PASS
Mid	2442	<b>*20.70</b>	0.1175		PASS
High	2452	16.20	0.0417		PASS

**Remark:** Total Output Power (w) = Chain 0 ( $10^{(Output\ Power\ /10)/1000}$ ) + Chain 1 ( $10^{(Output\ Power\ /10)/1000}$ )

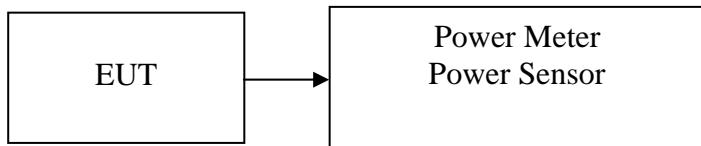


## 7.2 AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### Test Configuration



### TEST PROCEDURE

The transmitter output is connected to the Power Meter. The Power Meter is set to the peak power detection.

### TEST RESULTS

*No non-compliance noted*

**Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	16.90	0.0490
Mid	2442	17.00	0.0501
High	2462	16.90	0.0490

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	15.40	0.0347
Mid	2442	16.90	0.0490
High	2462	15.30	0.0339

**Test mode: IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	14.40	0.0275
Mid	2442	17.00	0.0501
High	2462	15.00	0.0316

**Test mode: IEEE 802.11n HT 40 MHz mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2422	12.90	0.0195
Mid	2442	16.90	0.0490
High	2452	12.80	0.0191

**Remark:** Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000)

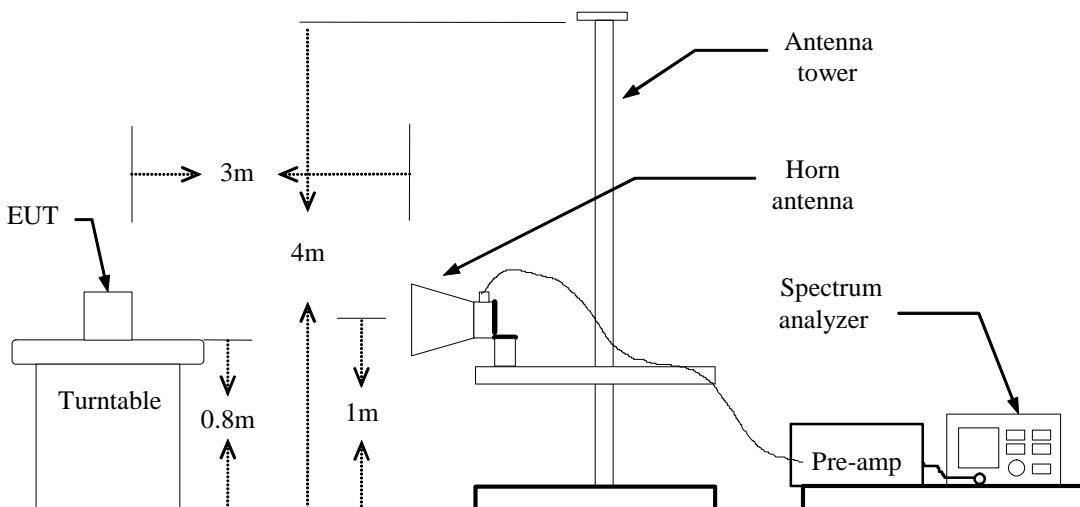
## 7.3 BAND EDGES MEASUREMENT

### LIMIT

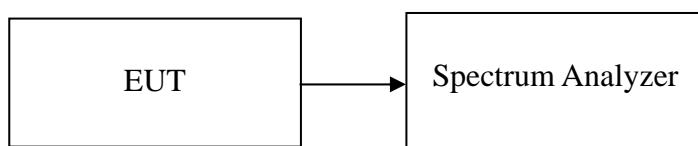
According to §15.247(d) & RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band 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

##### For Radiated



##### For Conducted





## **TEST PROCEDURE**

### **For Radiated**

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=3MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz,  
if duty cycle  $\geq 98\%$ , VBW=10Hz.  
if duty cycle  $< 98\%$  VBW=1/T.  
**IEEE 802.11b mode:**  $\geq 98\%$ , VBW=10Hz  
**IEEE 802.11g mode:**  $\geq 98\%$ , VBW=10Hz  
**IEEE 802.11n HT 20 MHz mode:**  $\geq 98\%$ , VBW=10Hz  
**IEEE 802.11n HT 40 MHz mode:**  $\geq 98\% = \text{VBW } 10\text{Hz}$
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

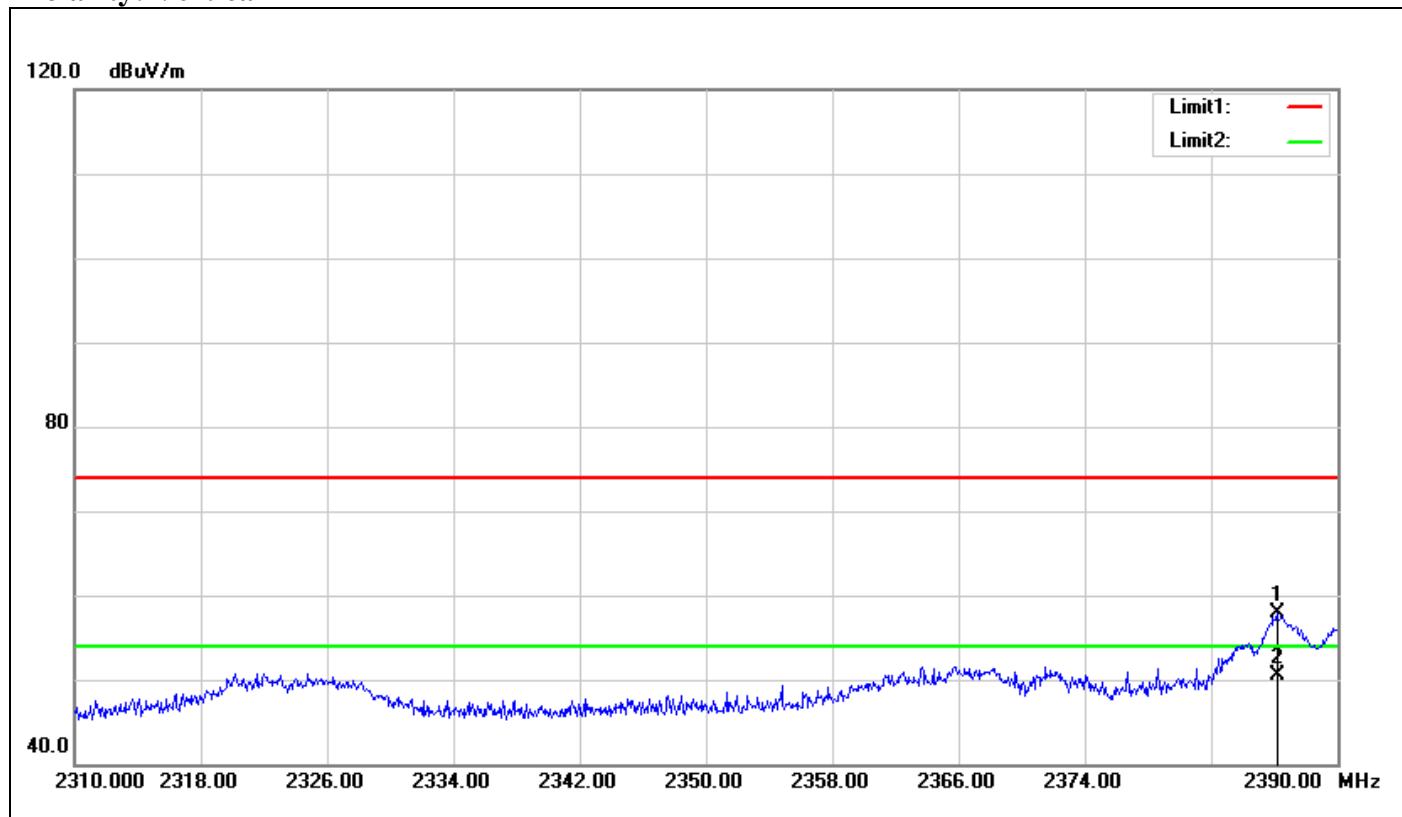
### **For Conducted**

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.

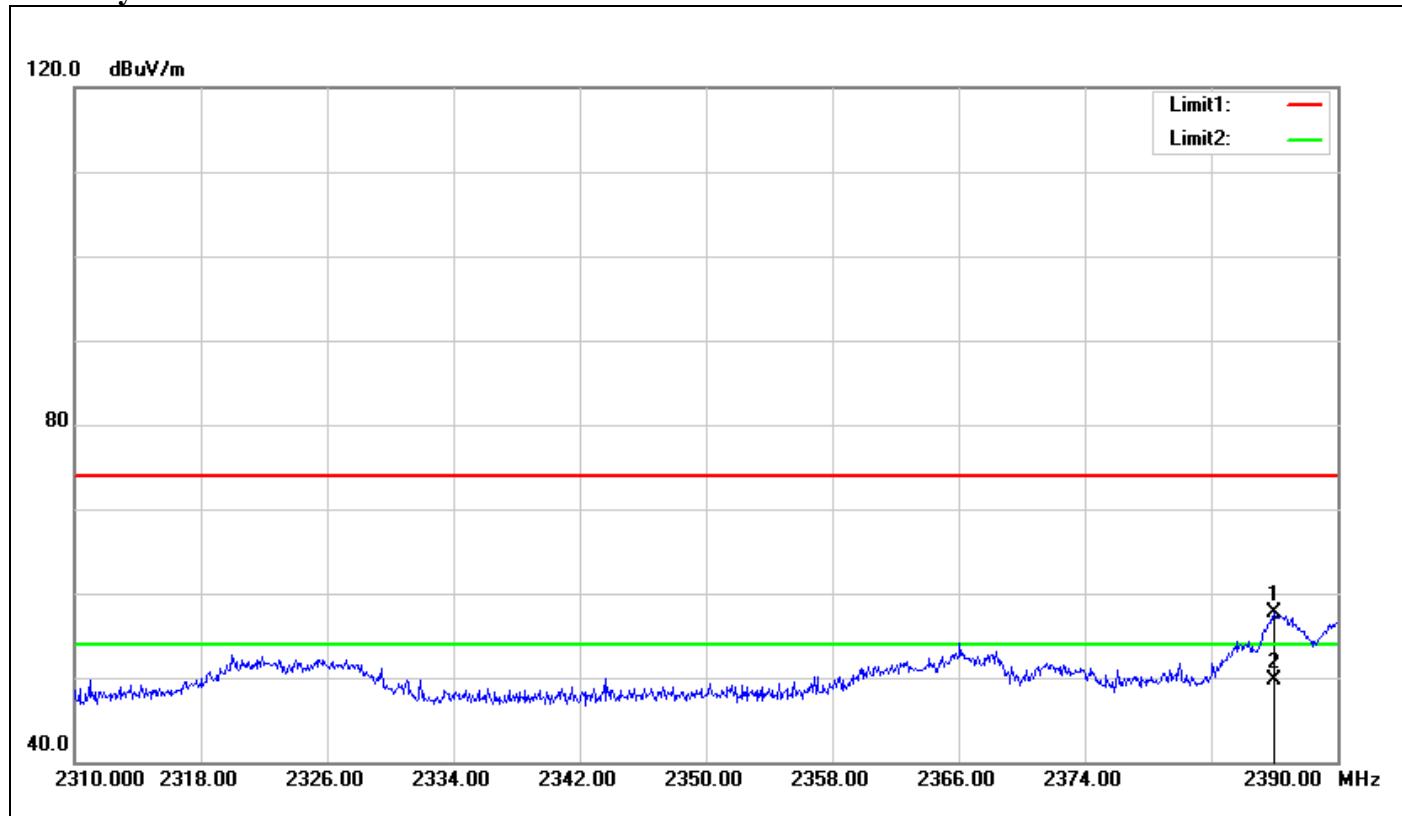
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

## **TEST RESULTS**

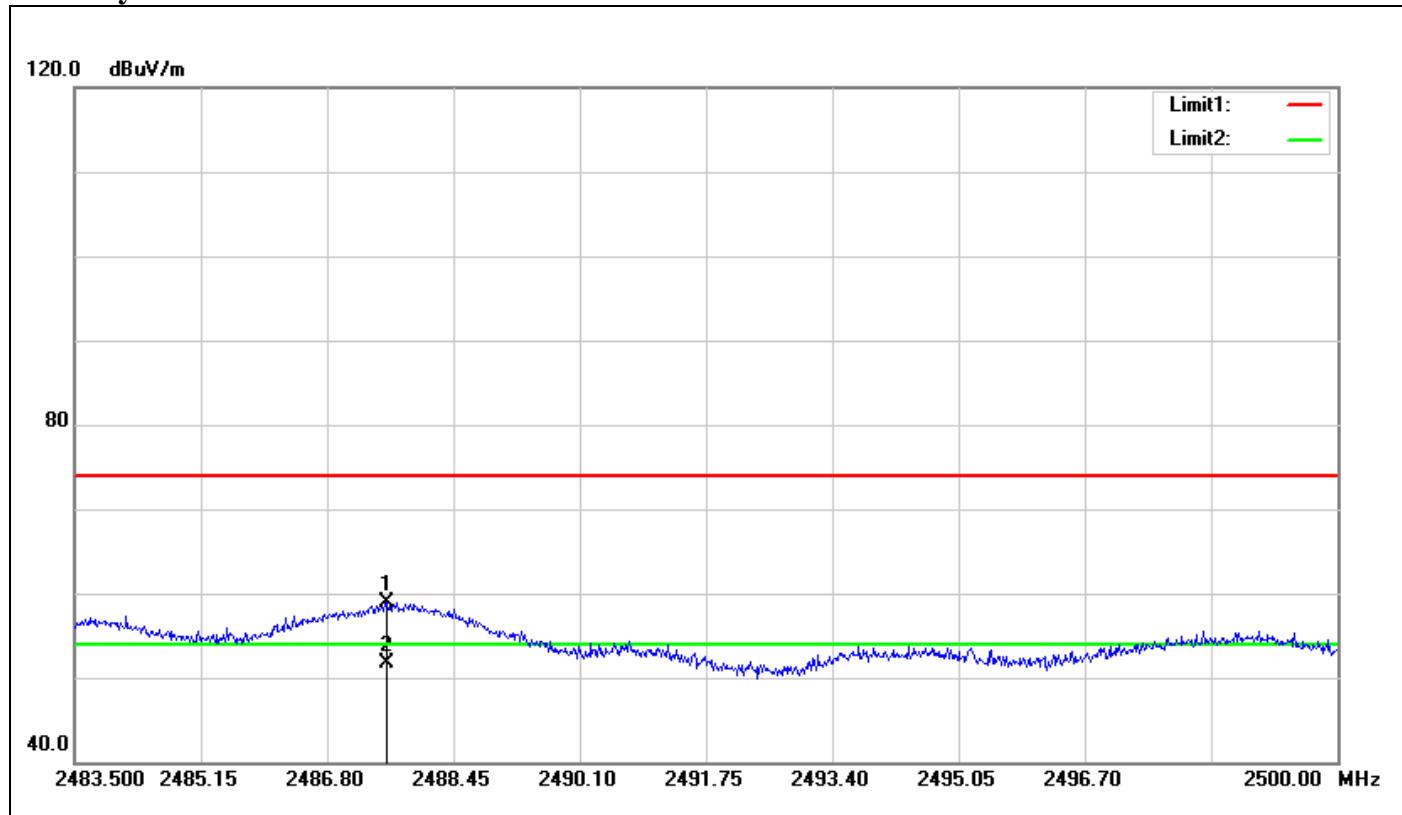
Refer to attach spectrum analyzer data chart.

**Band Edges (IEEE 802.11b mode / CH Low)****Polarity: Vertical**

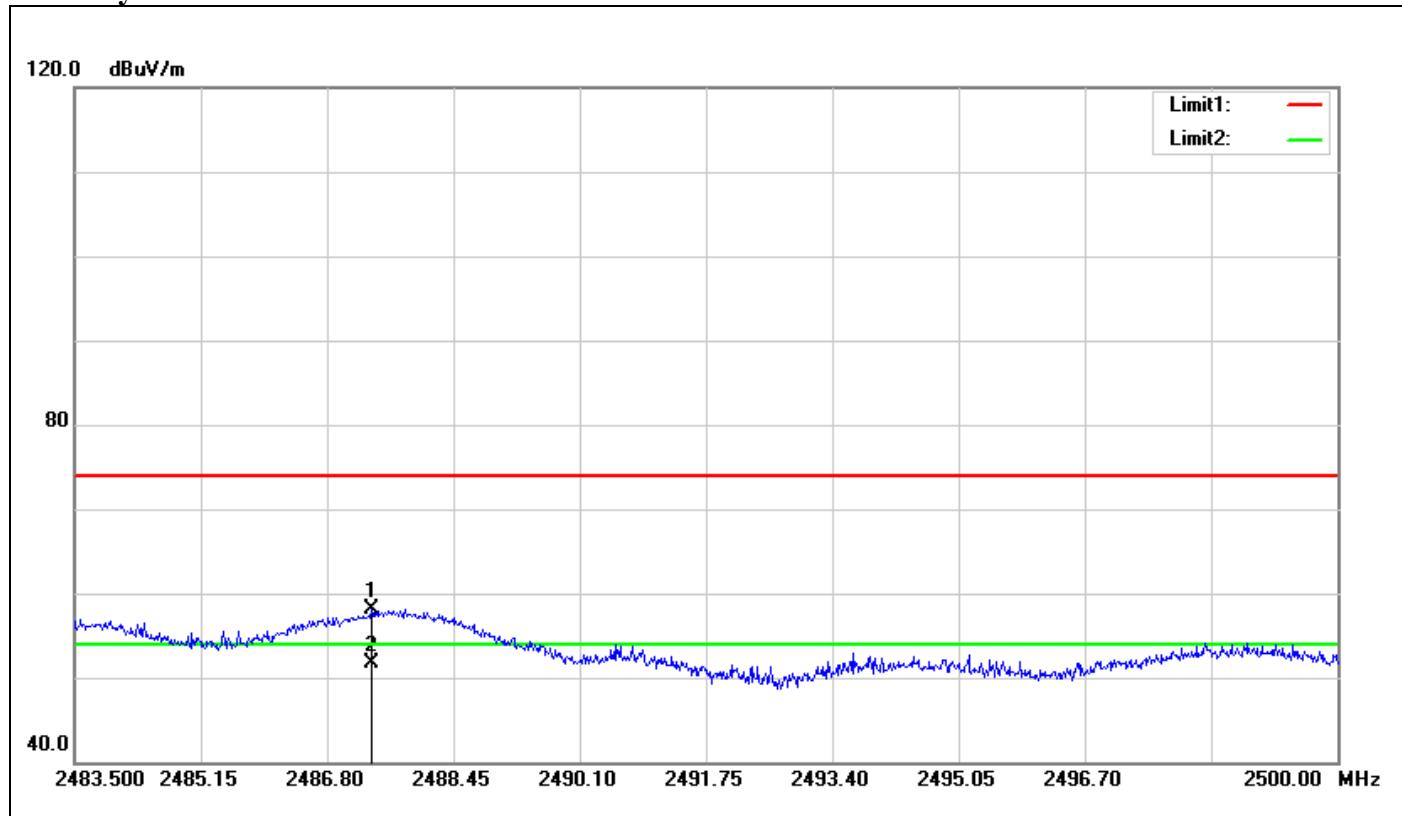
No.	Frequency (MHz)	Reading (dB <sub>uV</sub> )	Correct Factor(dB/m)	Result (dB <sub>uV/m</sub> )	Limit (dB <sub>uV/m</sub> )	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2386.160	61.66	-3.80	57.86	74.00	-16.14	100	343	peak
2	2386.160	54.35	-3.80	50.55	54.00	-3.45	100	343	AVG

**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2386.000	61.50	-3.81	57.69	74.00	-16.31	100	207	peak
2	2386.000	53.56	-3.81	49.75	54.00	-4.25	100	207	AVG

**Band Edges (IEEE 802.11b mode / CH High)****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dB <sub>uV</sub> )	Correct Factor(dB/m)	Result (dB <sub>uV/m</sub> )	Limit (dB <sub>uV/m</sub> )	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2487.575	62.18	-3.23	58.95	74.00	-15.05	100	189	peak
2	2487.575	54.84	-3.23	51.61	54.00	-2.39	100	189	AVG

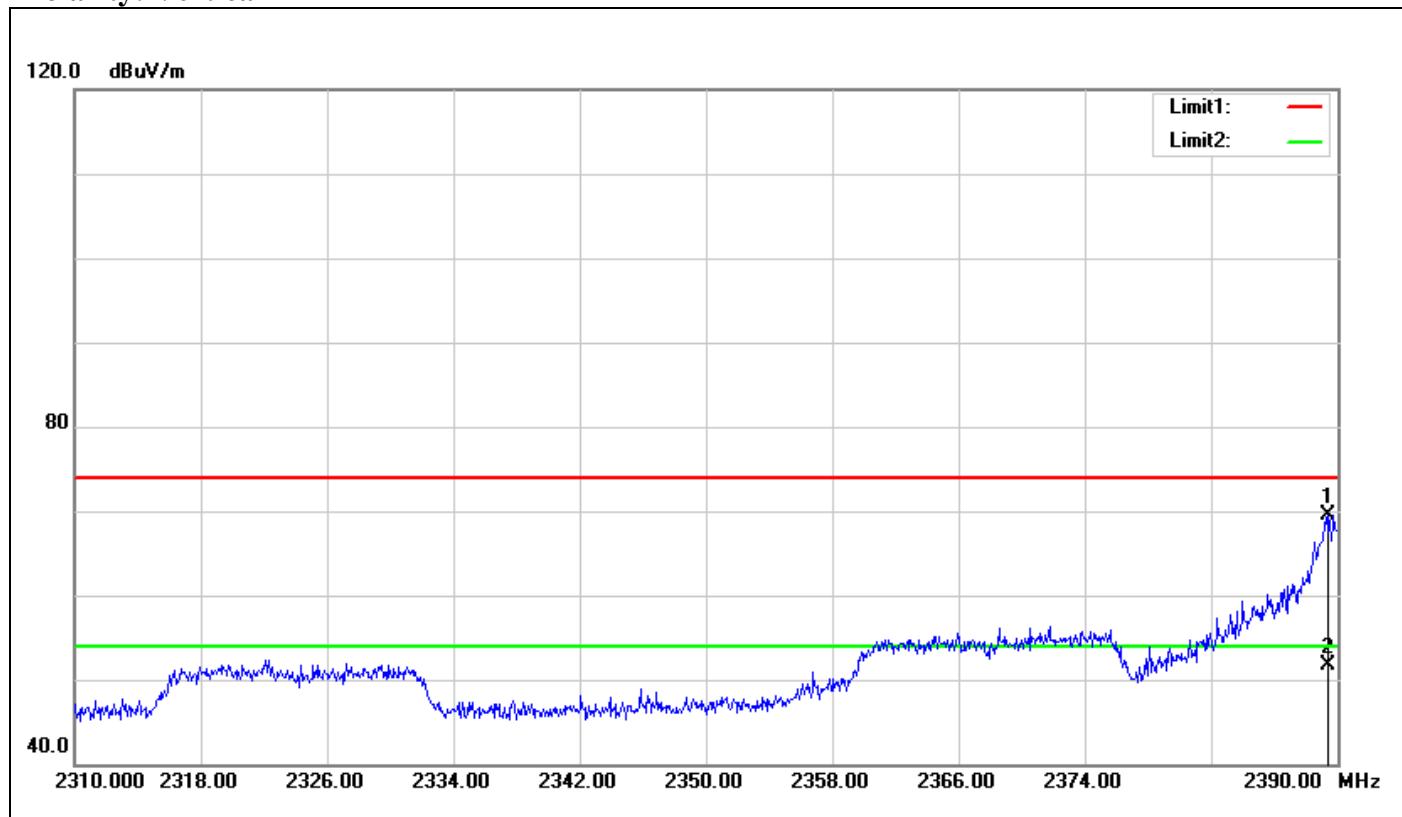
**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2487.378	61.31	-3.24	58.07	74.00	-15.93	120	296	peak
2	2487.378	54.91	-3.24	51.67	54.00	-2.33	120	296	AVG

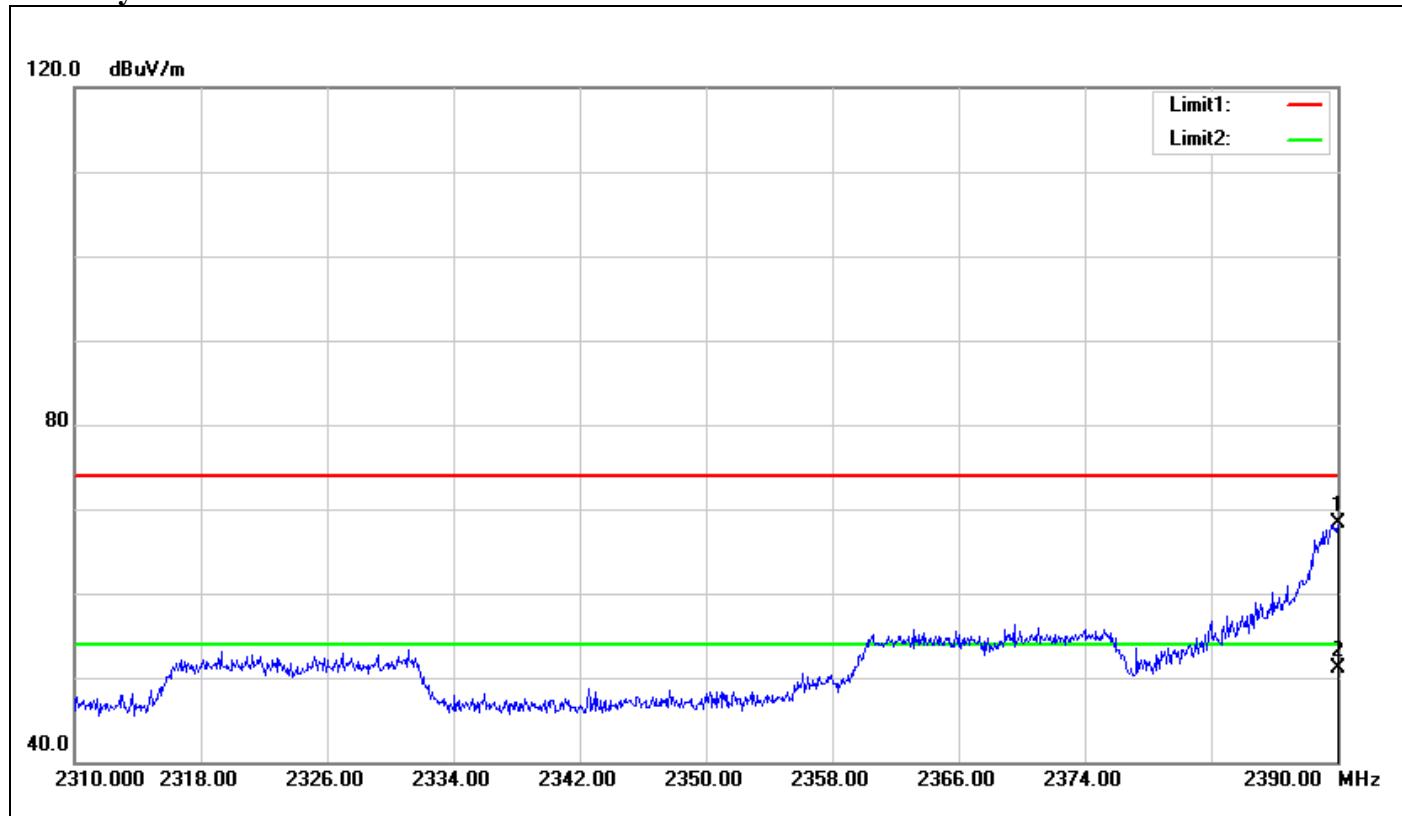


## Band Edges (IEEE 802.11g mode / CH Low)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.440	73.25	-3.78	69.47	74.00	-4.53	100	243	peak
2	2389.440	55.48	-3.78	51.70	54.00	-2.30	100	243	AVG

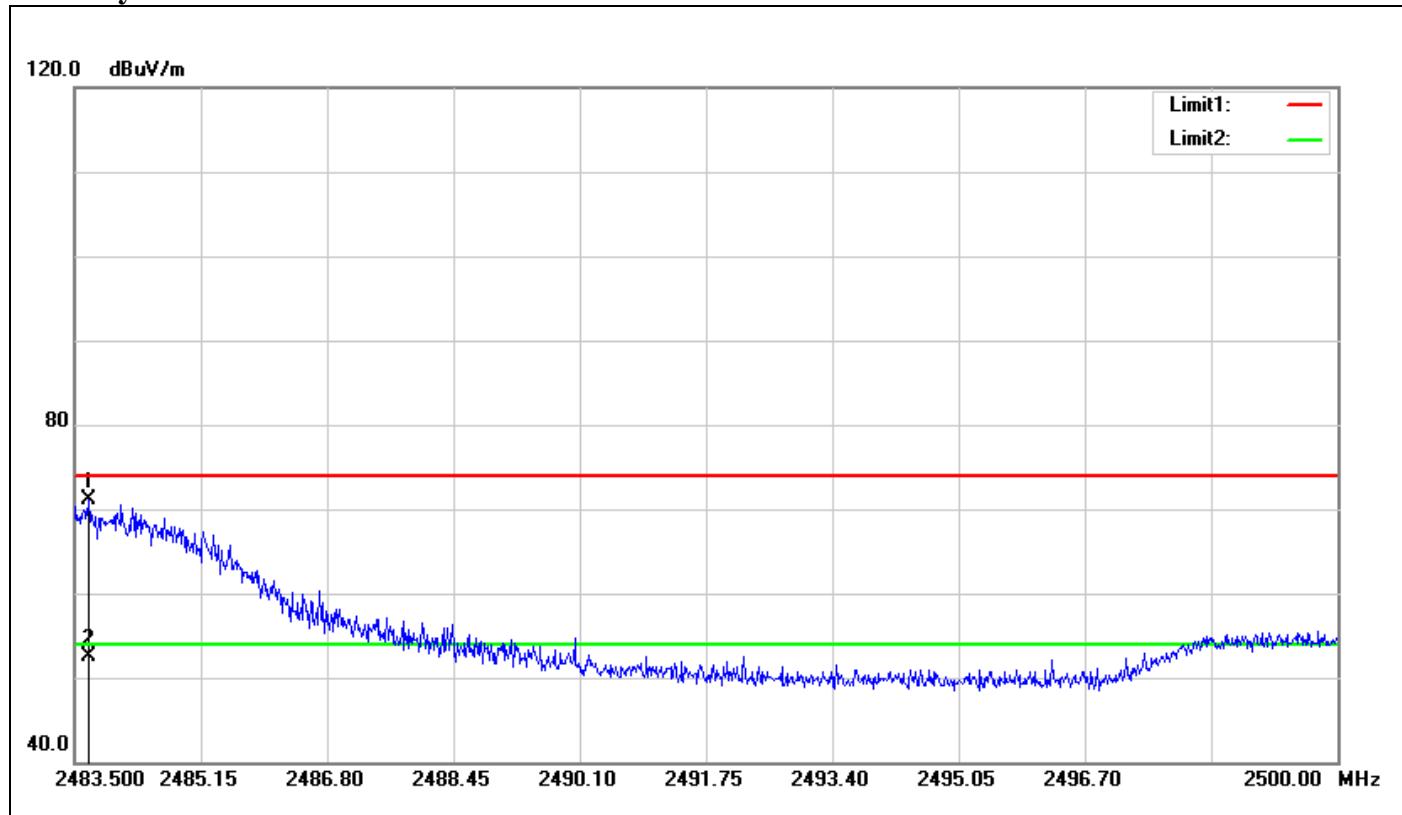
**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2390.000	72.05	-3.77	68.28	74.00	-5.72	100	340	peak
2	2390.000	54.79	-3.77	51.02	54.00	-2.98	100	340	AVG

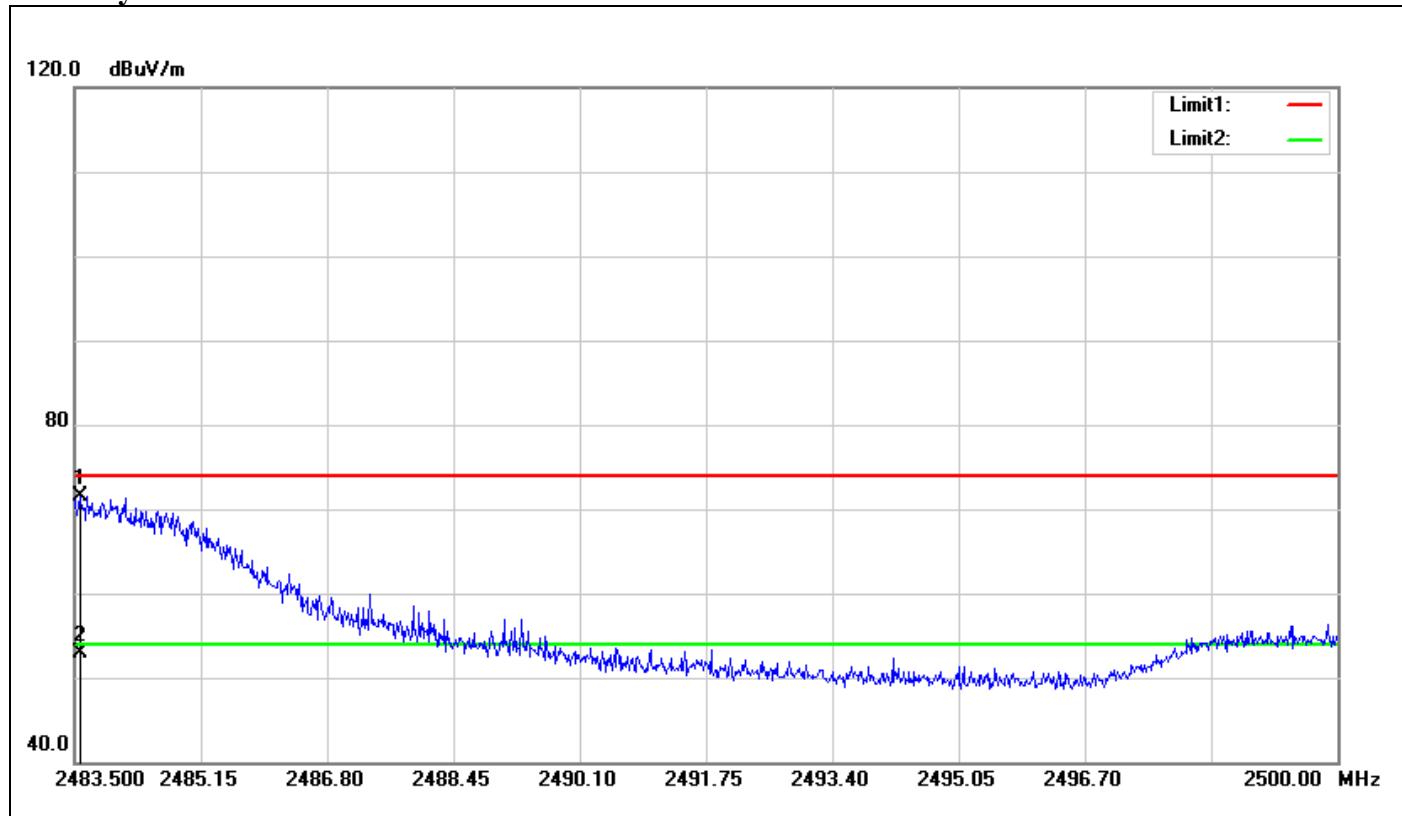


## Band Edges (IEEE 802.11g mode / CH High)

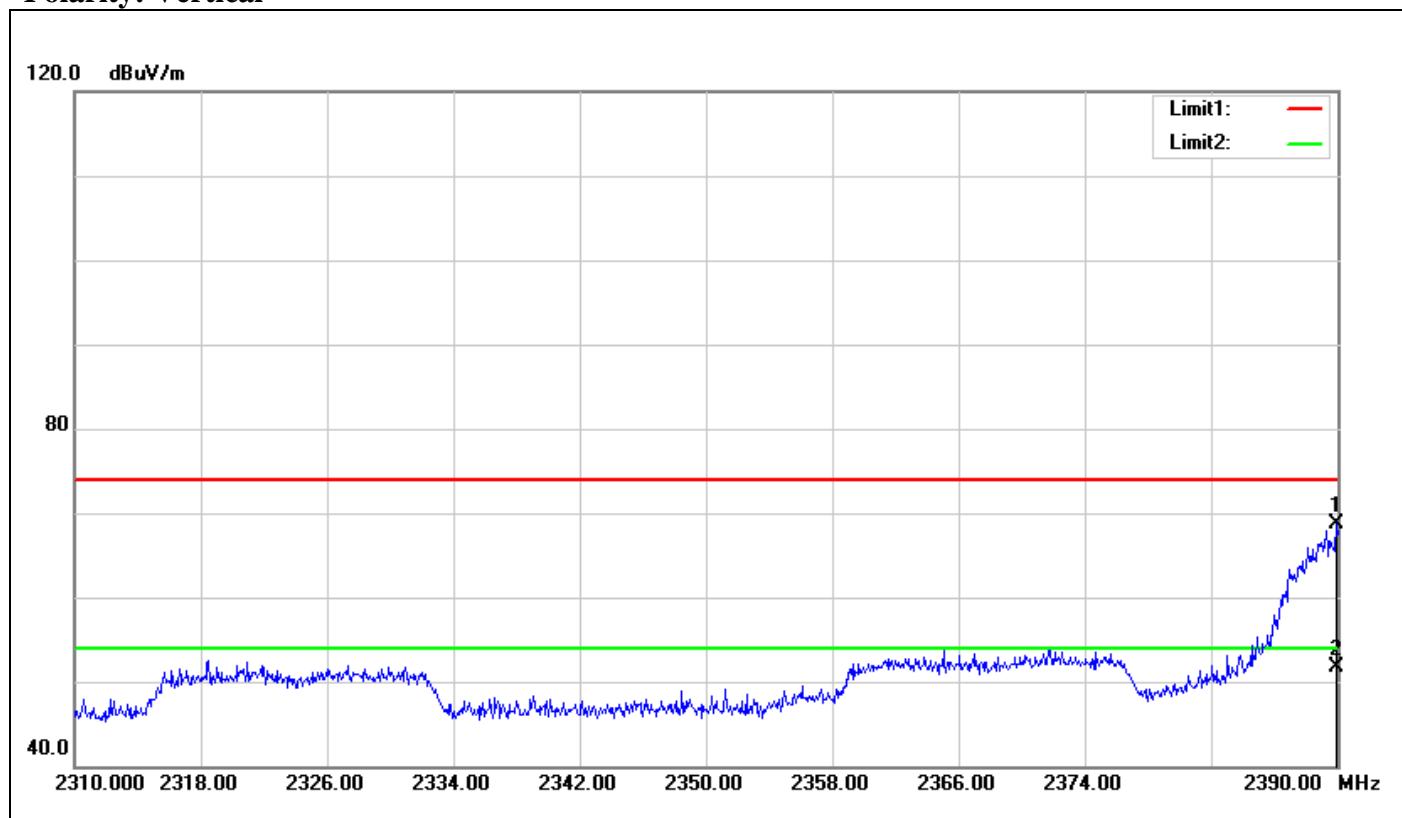
Polarity: Vertical



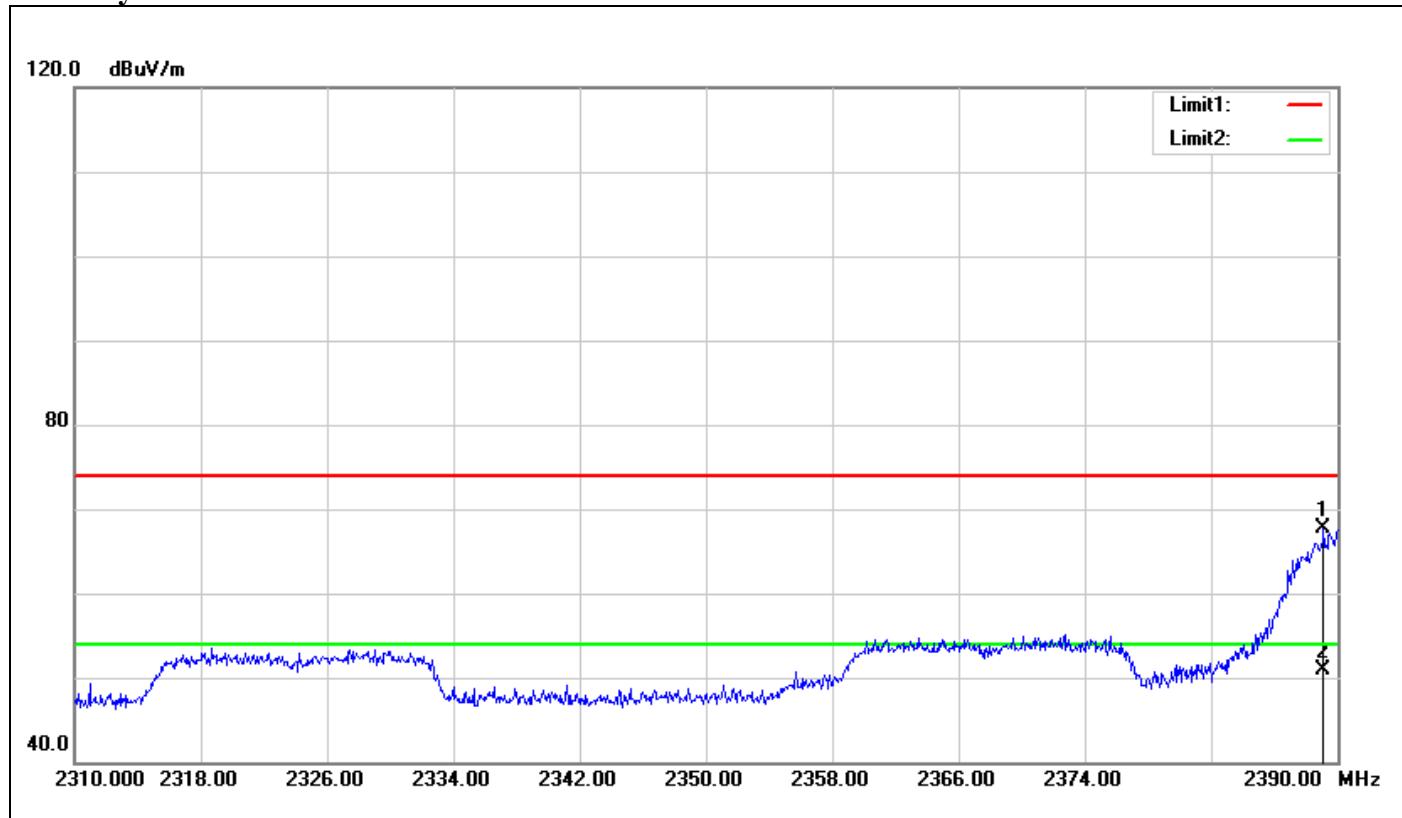
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.682	74.29	-3.27	71.02	74.00	-2.98	100	138	peak
2	2483.682	55.83	-3.27	52.56	54.00	-1.44	100	138	AVG

**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.566	74.79	-3.27	71.52	74.00	-2.48	100	289	peak
2	2483.566	56.27	-3.27	53.00	54.00	-1.00	100	289	AVG

**Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low)****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.920	72.41	-3.77	68.64	74.00	-5.36	100	159	peak
2	2389.920	55.44	-3.77	51.67	54.00	-2.33	100	159	AVG

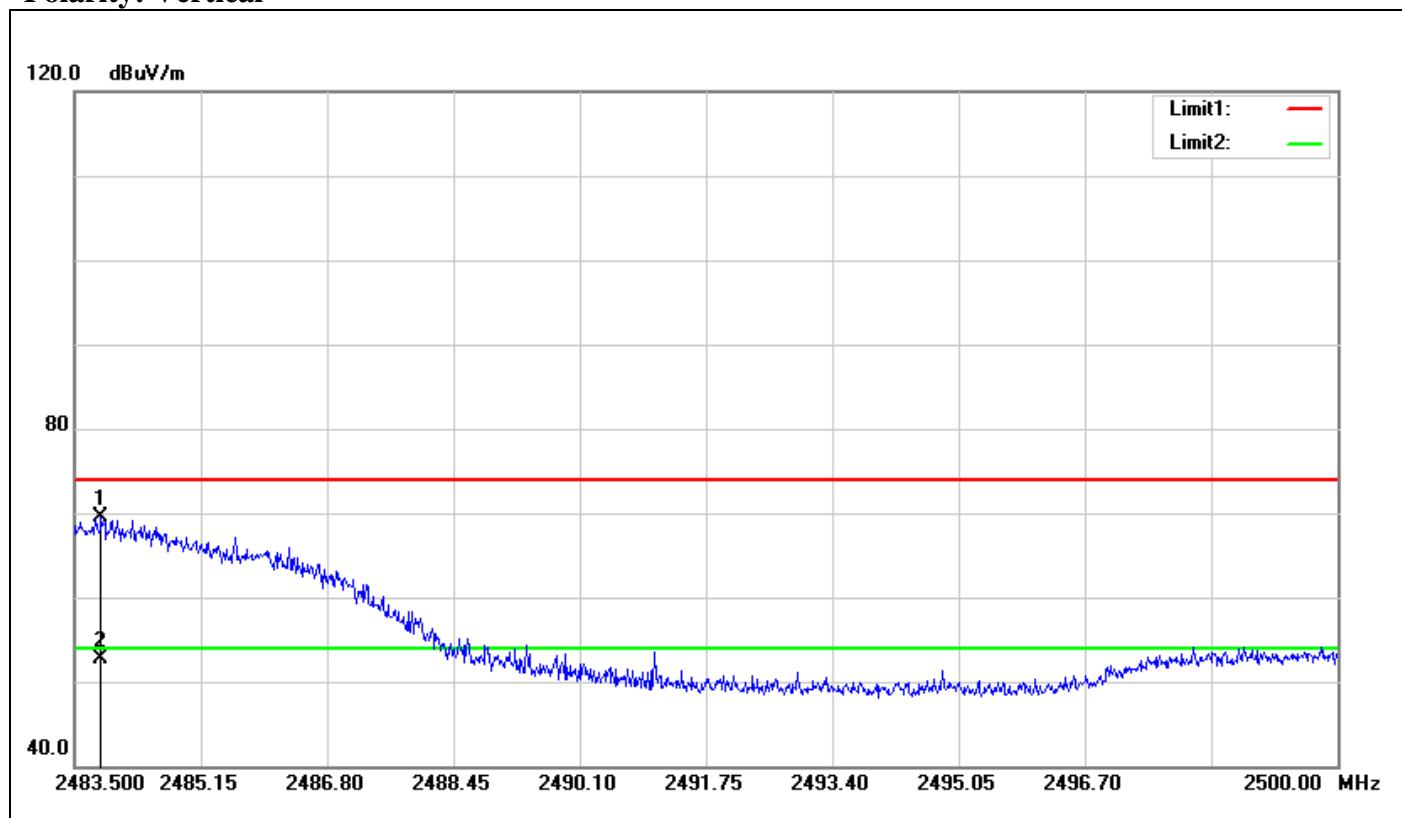
**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.120	71.56	-3.78	67.78	74.00	-6.22	100	50	peak
2	2389.120	54.77	-3.78	50.99	54.00	-3.01	100	50	AVG

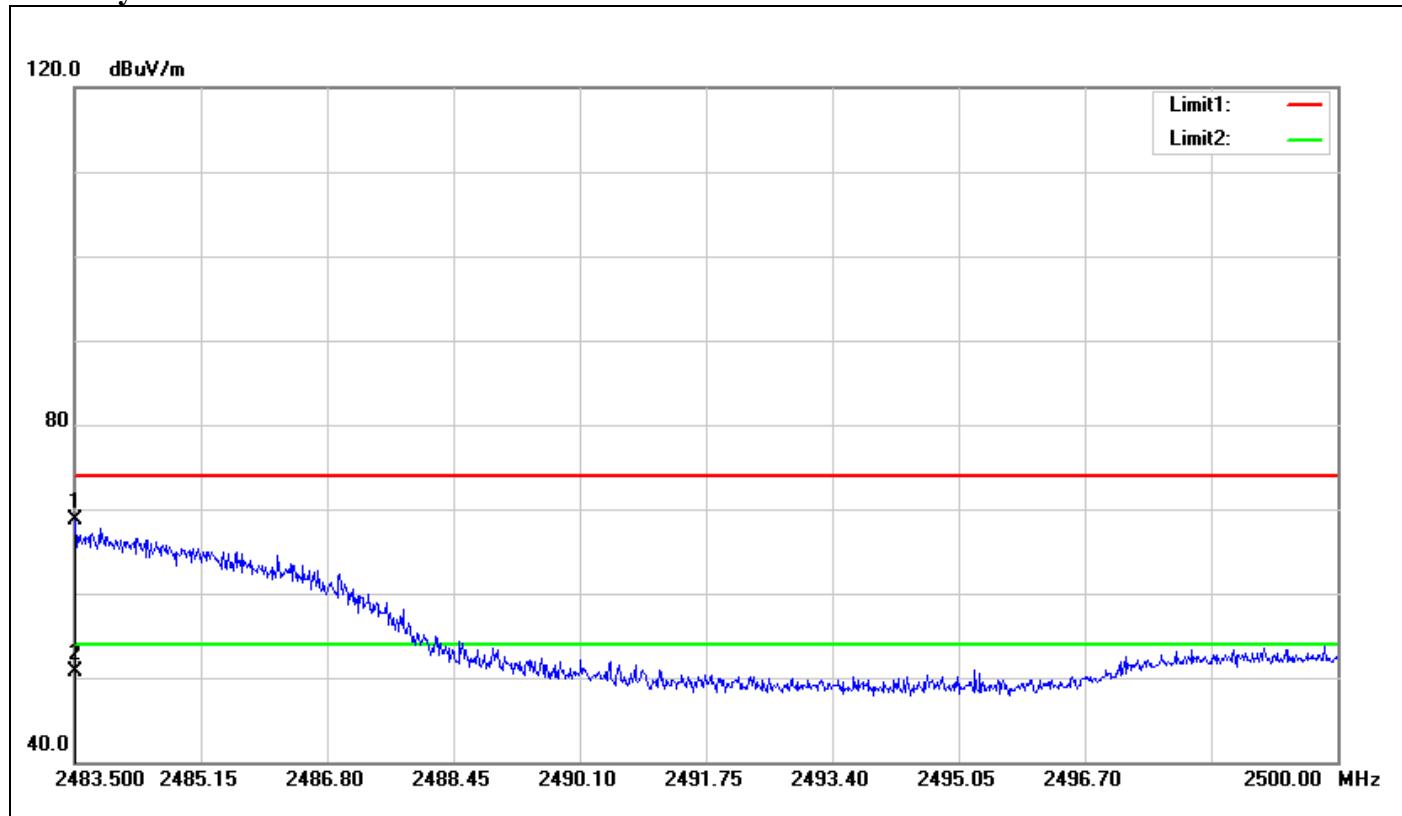


## Band Edges (IEEE 802.11n HT 20 MHz mode / CH High)

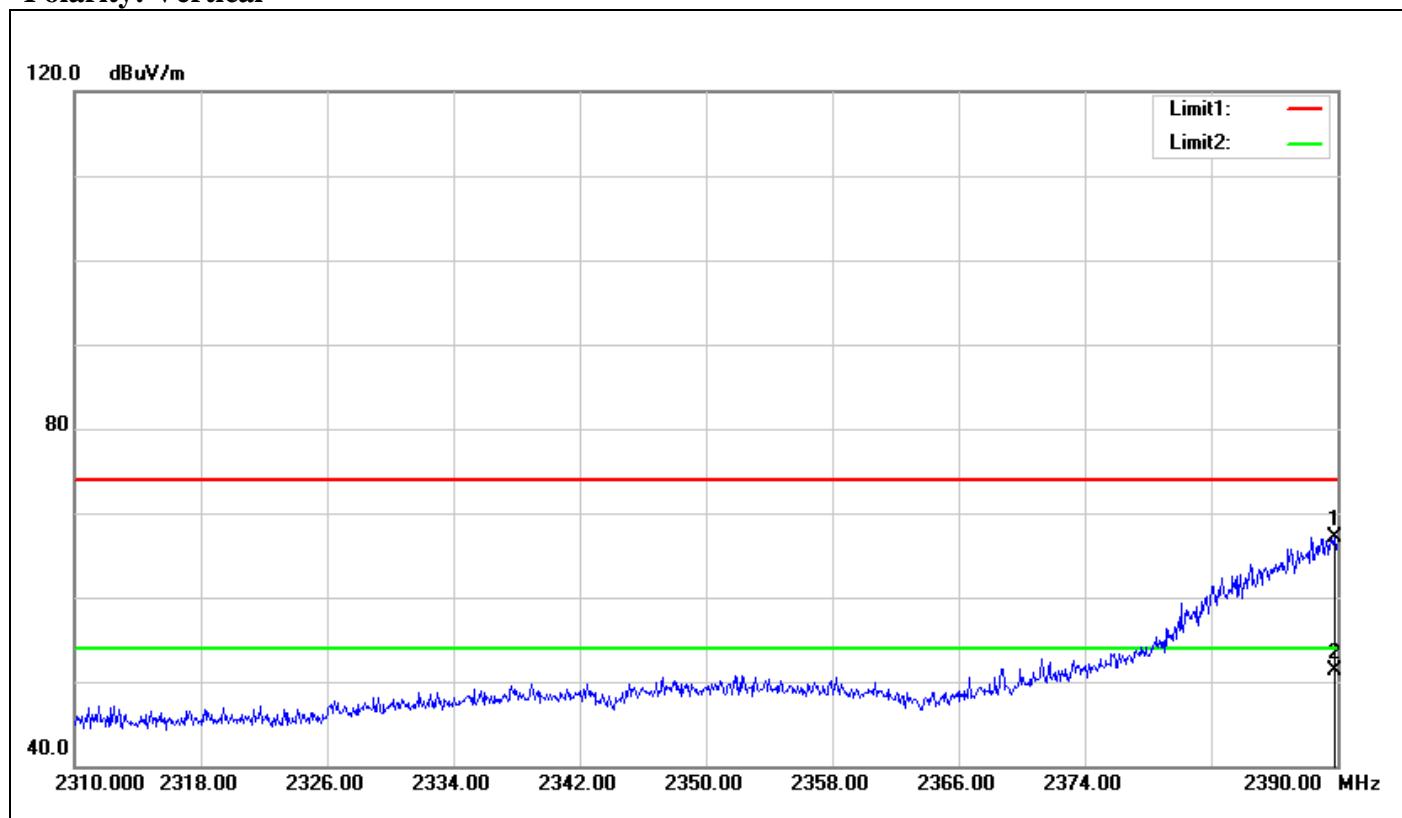
Polarity: Vertical



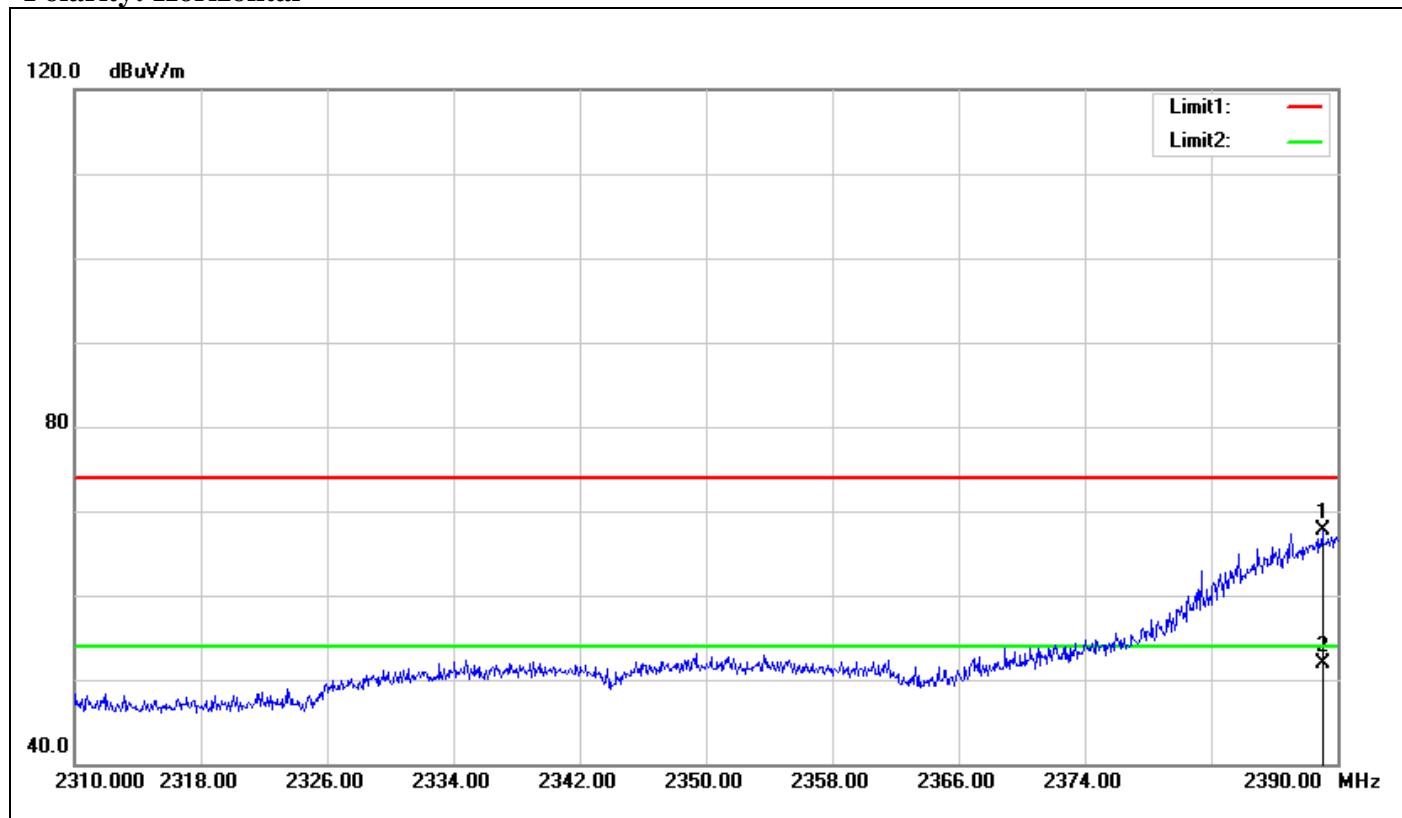
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.847	72.72	-3.27	69.45	74.00	-4.55	100	42	peak
2	2483.847	56.05	-3.27	52.78	54.00	-1.22	100	42	AVG

**Polarity: Horizontal**

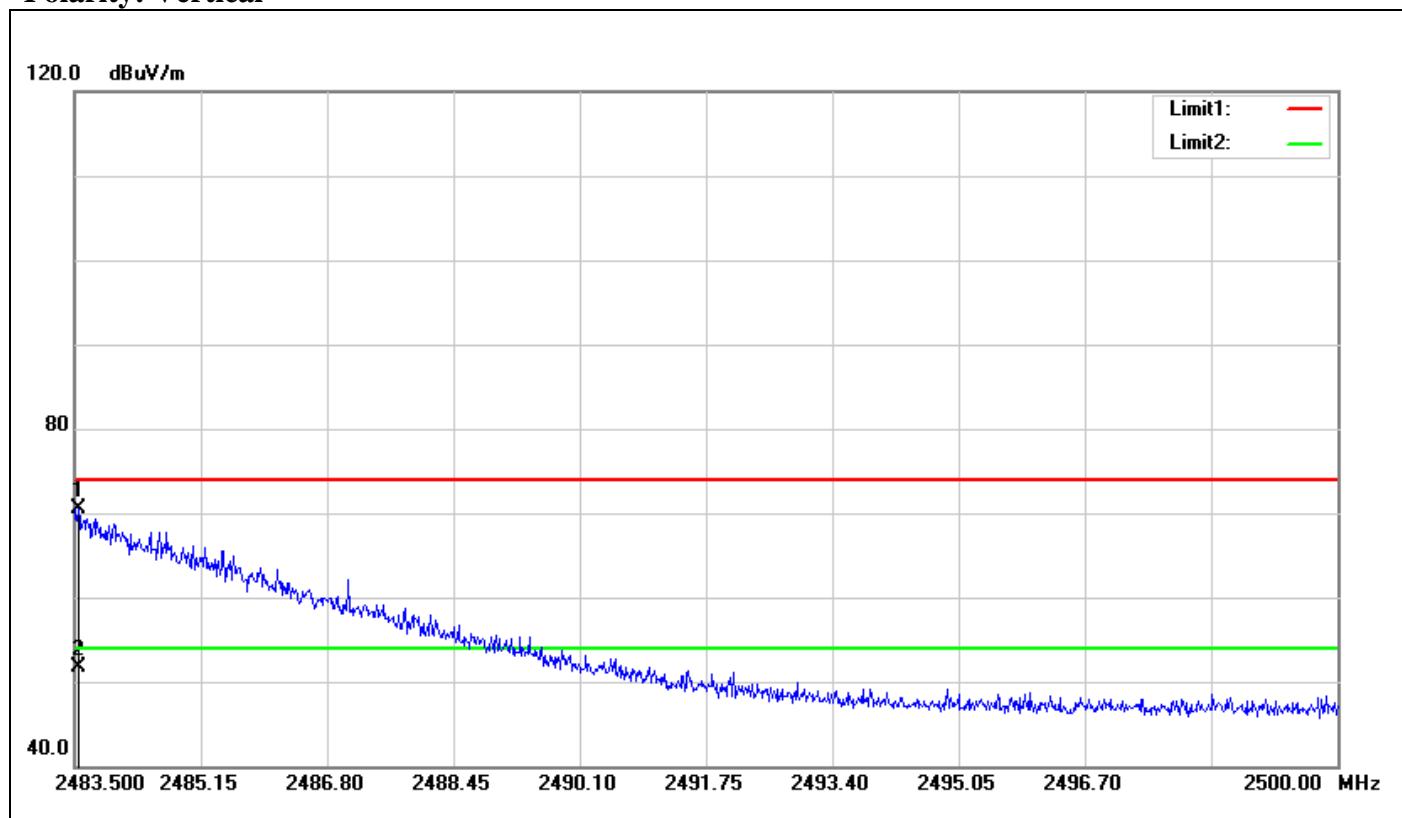
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.517	71.93	-3.27	68.66	74.00	-5.34	100	322	peak
2	2483.517	54.06	-3.27	50.79	54.00	-3.21	100	322	AVG

**Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low)****Polarity: Vertical**

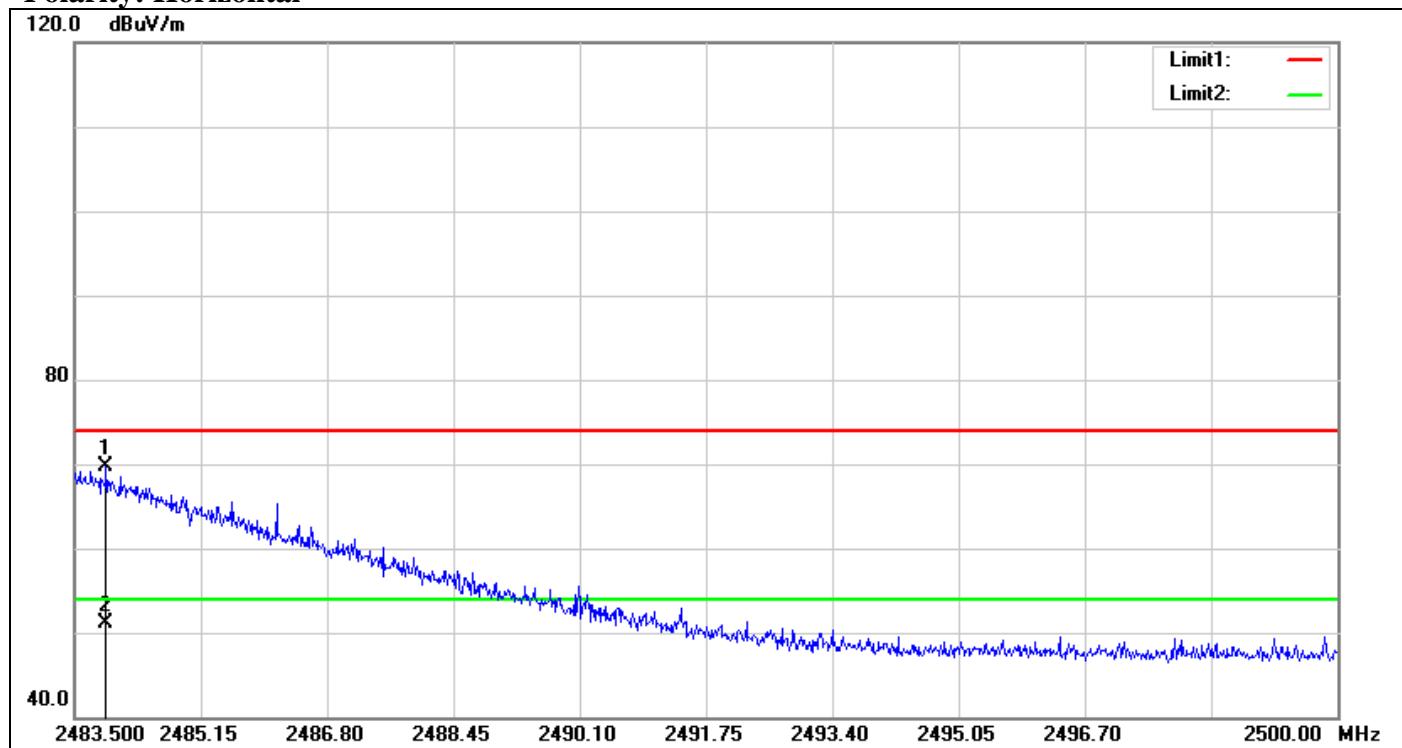
No.	Frequency (MHz)	Reading (dBmV)	Correct Factor(dB/m)	Result (dBmV/m)	Limit (dBmV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.840	70.96	-3.77	67.19	74.00	-6.81	100	67	peak
2	2389.840	55.05	-3.77	51.28	54.00	-2.72	100	67	AVG

**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.040	71.42	-3.78	67.64	74.00	-6.36	100	360	peak
2	2389.040	55.65	-3.78	51.87	54.00	-2.13	100	360	AVG

**Band Edges (IEEE 802.11n HT 40 MHz mode / CH High)****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.550	73.74	-3.27	70.47	74.00	-3.53	100	277	peak
2	2483.550	54.90	-3.27	51.63	54.00	-2.37	100	277	AVG

**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.912	73.06	-3.27	69.79	74.00	-4.21	100	296	peak
2	2483.912	54.41	-3.27	51.14	54.00	-2.86	100	296	AVG



## 7.4 RADIATED EMISSIONS

### LIMIT

All spurious emissions shall comply with the limits of §15.209(a) and RSS-Gen Table 2 & Table 5.

#### **RSS-Gen Table 2 & Table 5: General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz** (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

**Note:** \*Measurements for compliance with limits in the above table may be performed at distances other than 3 metres, in accordance with Section 7.2.7.

Transmitting devices are not permitted in Table 1 bands or, unless stated otherwise, in TV bands (54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-806 MHz).

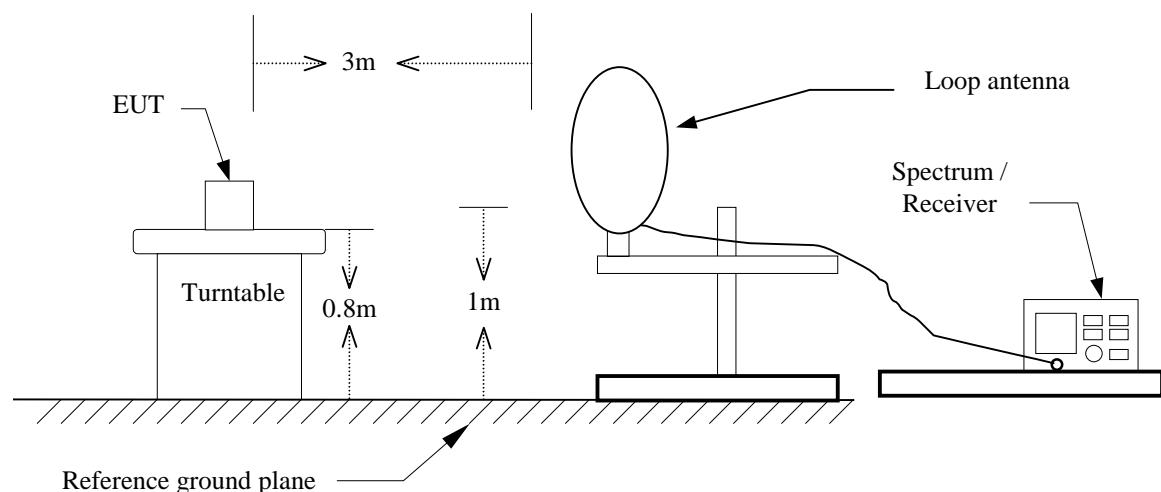
#### **RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)**

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/377F (F in kHz)	3000
490-1,705 kHz	24,000/F (F in kHz)	24,000/377F (F in kHz)	30
1.705-30 MHz	30	N/A	30

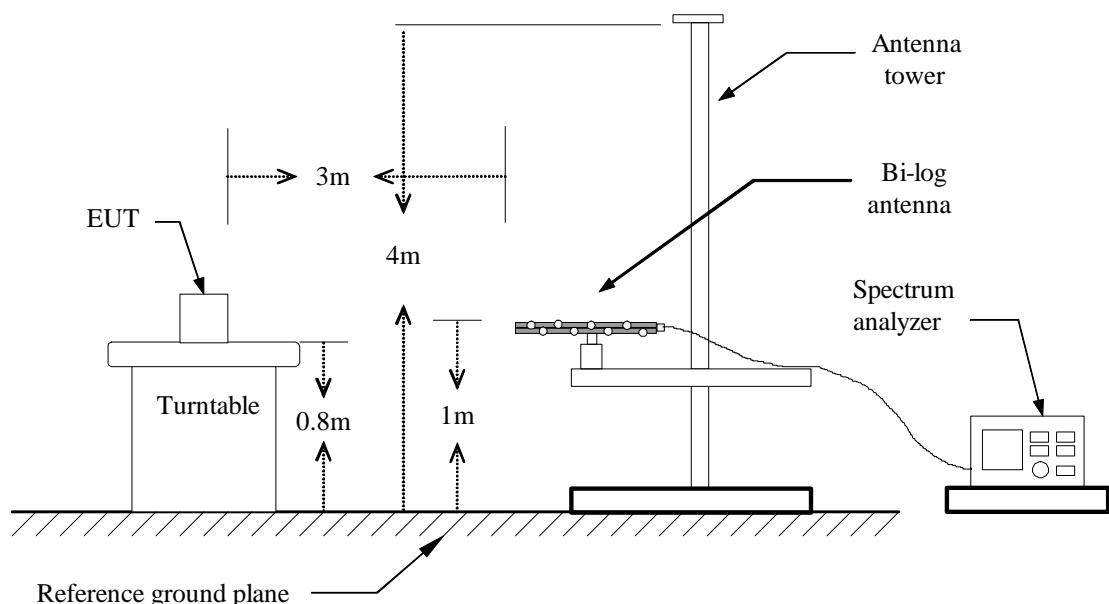
**Note:** The emission limits for the bands 9-90 kHz and 110-490 kHz are based on measurements employing an average detector.

## Test Configuration

### 9kHz ~ 30MHz

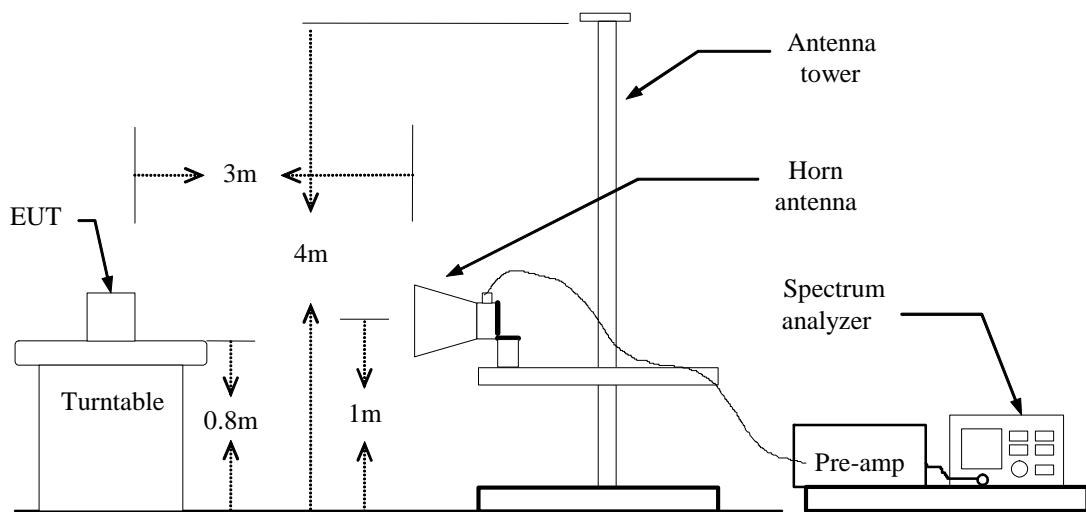


### 30MHz ~ 1GHz





**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=3MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz,  
if duty cycle  $\geq 98\%$ , VBW=10Hz.  
if duty cycle  $< 98\%$  VBW=1/T.

**IEEE 802.11b mode:**  $\geq 98\%$ , VBW=10Hz

**IEEE 802.11g mode:**  $\geq 98\%$ , VBW=10Hz

**IEEE 802.11n HT 20 MHz mode:**  $\geq 98\%$ , VBW=10Hz

**IEEE 802.11n HT 40 MHz mode:**  $\geq 98\%$ , VBW=10Hz

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

**Below 1GHz****Operation Mode:** Normal Link**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
139.6100	41.24	-17.68	23.56	43.50	-19.94	peak	V
278.3200	50.59	-16.79	33.80	46.00	-12.20	peak	V
419.9400	42.81	-13.48	29.33	46.00	-16.67	peak	V
638.1900	32.44	-9.59	22.85	46.00	-23.15	peak	V
911.7300	29.41	-6.00	23.41	46.00	-22.59	peak	V
975.7500	34.58	-5.07	29.51	54.00	-24.49	peak	V
139.6100	41.23	-17.68	23.55	43.50	-19.95	peak	H
216.2400	47.69	-18.72	28.97	46.00	-17.03	peak	H
419.9400	42.20	-13.48	28.72	46.00	-17.28	peak	H
556.7100	30.22	-10.93	19.29	46.00	-26.71	peak	H
698.3300	33.44	-8.81	24.63	46.00	-21.37	peak	H
799.2100	30.61	-7.39	23.22	46.00	-22.78	peak	H

***Remark:***

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.*
4. *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.*
5. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*

**Above 1 GHz****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1542.000	49.60	-7.31	42.29	74.00	-31.71	peak	V
4825.000	51.26	4.01	55.27	74.00	-18.73	peak	V
4825.000	47.85	4.01	51.86	54.00	-2.14	AVG	V
N/A							
1810.000	50.26	-5.89	44.37	74.00	-29.63	peak	H
4825.000	47.94	4.01	51.95	74.00	-22.05	peak	H
4825.000	44.45	4.01	48.46	54.00	-5.54	AVG	H
N/A							

**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).

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1594.000	48.63	-7.03	41.60	74.00	-32.40	peak	V
4875.000	51.11	3.92	55.03	74.00	-18.97	peak	V
4875.000	48.62	3.92	52.54	54.00	-1.46	AVG	V
7310.000	43.97	10.71	54.68	74.00	-19.32	peak	V
7310.000	37.14	10.71	47.85	54.00	-6.15	AVG	V
N/A							
1686.000	50.73	-6.54	44.19	74.00	-29.81	peak	H
4875.000	51.28	3.92	55.20	74.00	-18.80	peak	H
4875.000	44.57	3.92	48.49	54.00	-5.51	AVG	H
N/A							

**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).

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1414.000	50.43	-7.91	42.52	74.00	-31.48	peak	V
4925.000	49.43	3.90	53.33	74.00	-20.67	peak	V
4925.000	46.73	3.90	50.63	54.00	-3.37	AVG	V
N/A							
1802.000	49.67	-5.93	43.74	74.00	-30.26	peak	H
4925.000	48.30	3.90	52.20	74.00	-21.80	peak	H
4925.000	45.62	3.90	49.52	54.00	-4.48	AVG	H
N/A							

**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).

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1648.000	50.42	-6.75	43.67	74.00	-30.33	peak	V
4050.000	42.04	1.42	43.46	74.00	-30.54	peak	V
4825.000	38.74	4.01	42.75	74.00	-31.25	peak	V
N/A							
1832.000	49.23	-5.77	43.46	74.00	-30.54	peak	H
3215.000	42.58	-1.59	40.99	74.00	-33.01	peak	H
N/A							

**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).

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1626.000	50.11	-6.86	43.25	74.00	-30.75	peak	V
4800.000	39.27	4.05	43.32	74.00	-30.68	peak	V
5380.000	38.67	5.56	44.23	74.00	-29.77	peak	V
N/A							
1692.000	51.27	-6.51	44.76	74.00	-29.24	peak	H
N/A							

**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).

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1684.000	50.71	-6.55	44.16	74.00	-29.84	peak	V
4345.000	42.18	2.53	44.71	74.00	-29.29	peak	V
N/A							
1894.000	49.87	-5.44	44.43	74.00	-29.57	peak	H
3965.000	43.92	1.08	45.00	74.00	-29.00	peak	H
N/A							

**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).



**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Low    **Test Date:** October 17, 2014

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1808.000	50.05	-5.90	44.15	74.00	-29.85	peak	V
4785.000	39.31	3.99	43.30	74.00	-30.70	peak	V
5385.000	37.56	5.60	43.16	74.00	-30.84	peak	V
N/A							
1564.000	49.98	-7.19	42.79	74.00	-31.21	peak	H
N/A							

**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).



**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Mid

**Test Date:** October 17, 2014

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1484.000	49.90	-7.60	42.30	74.00	-31.70	peak	V
4780.000	40.83	3.97	44.80	74.00	-29.20	peak	V
N/A							
1650.000	50.12	-6.74	43.38	74.00	-30.62	peak	H
N/A							

***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).*

**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH High **Test Date:** October 17, 2014**Temperature:** 27°C**Tested by:** Dennis Li**Humidity:** 53 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1894.000	49.82	-5.44	44.38	74.00	-29.62	peak	V
4790.000	40.50	4.01	44.51	74.00	-29.49	peak	V
N/A							
1696.000	50.66	-6.49	44.17	74.00	-29.83	peak	H
N/A							

**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).



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode  
/ CH Low

**Test Date:** October 17, 2014

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1656.000	50.32	-6.70	43.62	74.00	-30.38	peak	V
4790.000	40.78	4.01	44.79	74.00	-29.21	peak	V
N/A							
1472.000	50.12	-7.65	42.47	74.00	-31.53	peak	H
3245.000	41.98	-1.52	40.46	74.00	-33.54	peak	H
N/A							

**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).



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode  
/ CH Mid

**Test Date:** October 17, 2014

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1946.000	49.42	-5.17	44.25	74.00	-29.75	peak	V
4780.000	40.46	3.97	44.43	74.00	-29.57	peak	V
N/A							
1644.000	50.40	-6.77	43.63	74.00	-30.37	peak	H
N/A							

**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).



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode  
/ CH High

**Test Date:** October 17, 2014

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1810.000	50.70	-5.89	44.81	74.00	-29.19	peak	V
4795.000	40.74	4.03	44.77	74.00	-29.23	peak	V
5380.000	39.24	5.56	44.80	74.00	-29.20	peak	V
N/A							
1846.000	50.31	-5.70	44.61	74.00	-29.39	peak	H
N/A							

**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).