

**FCC 47 CFR PART 15 SUBPART E &  
INDUSTRY CANADA RSS-247  
(Class II Permissive Change)**

**TEST REPORT**

**For**

**802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card**

**Model: BCM94350ZAE**

**Trade Name: Broadcom**

*Issued to*

**Broadcom Corporation  
190 Mathilda Avenue, Sunnyvale, CA 94086**

*Issued by*

**Compliance Certification Services Inc.  
No.11, Wugong 6th Rd., Wugu Dist.,  
New Taipei City 24891, Taiwan. (R.O.C.)  
<http://www.ccsrf.com>  
[service@ccsrf.com](mailto:service@ccsrf.com)  
Issued Date: September 17, 2015**



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 17, 2015	Initial Issue	ALL	Kelly Cheng
01	October 6, 2015	1. Removed conducted test procedure 2. Modify the test procedure described sequence 3. Modify setup photo and added below 1GHz setup photo.	6, 18, 19, 46, 131	Kelly Cheng

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## 1. TEST RESULT CERTIFICATION

**Applicant:** Broadcom Corporation  
190 Mathilda Avenue, Sunnyvale, CA 94086

**Manufacturer:** Broadcom Corporation  
190 Mathilda Avenue, Sunnyvale, CA 94086

**Equipment Under Test:** 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card

**Trade Name:** Broadcom

**Model:** BCM94350ZAE

**Date of Test:** August 22~25, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart E & Industry Canada RSS-247 Issue 1	No non-compliance noted

### We hereby certify that:

Compliance Certification Services Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407 and Industry Canada RSS-247 Issue 1.

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

Approved by:

Reviewed by:



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Miller Lee  
Manager  
Compliance Certification Services Inc.

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Angel Cheng  
Section Manager  
Compliance Certification Services Inc.

## 2. EUT DESCRIPTION

Product	802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card				
Trade Name	Broadcom				
Model Number	BCM94350ZAE				
Model Discrepancy	N/A				
Received Date	August 17, 2015				
Power Supply	Powered form host device				
Operating Frequency Range & Number of Channels		Mode	Frequency Range (MHz)	Number of Channels	
	UNII Band I	IEEE 802.11a	5180	1 Channels	
		IEEE 802.11n HT 20 MHz	5180 – 5240	4 Channels	
		IEEE 802.11n HT 40 MHz	5190 ~ 5230	2 Channels	
		IEEE 802.11ac VHT 80 MHz	5210	1 Channels	
	UNII Band II	IEEE 802.11a	5320	1 Channels	
		IEEE 802.11n HT 20 MHz	5260 - 5320	4 Channels	
		IEEE 802.11n HT 40 MHz	5270 ~ 5310	2 Channels	
		IEEE 802.11ac VHT 80 MHz	5290	1 Channels	
	UNII Band III	IEEE 802.11a	5500 ~ 5700	11 Channels	
		IEEE 802.11n HT 20 MHz	5500 ~ 5720	12 Channels	
		IEEE 802.11n HT 40 MHz	5510 ~ 5710	6 Channels	
		IEEE 802.11ac VHT 80 MHz	5530 ~ 5690	3 Channels	
Transmit Power		Mode	Frequency Range (MHz)	Output Power (dBm)	Output Power (w)
	UNII Band I	IEEE 802.11a	5180	13.10	0.0204
		IEEE 802.11n HT 20 MHz	5180 – 5240	13.31	0.0214
		IEEE 802.11n HT 40 MHz	5190 ~ 5230	13.36	0.0217
		IEEE 802.11ac VHT 80 MHz	5210	13.16	0.0207
	UNII Band II	IEEE 802.11a	5320	13.10	0.0204
		IEEE 802.11n HT 20 MHz	5260 - 5320	13.31	0.0214
		IEEE 802.11n HT 40 MHz	5270 ~ 5310	13.26	0.0212
		IEEE 802.11ac VHT 80 MHz	5290	13.21	0.0209
	UNII Band III	IEEE 802.11a	5500 ~ 5700	13.20	0.0209
		IEEE 802.11n HT 20 MHz	5500 ~ 5720	13.26	0.0212
		IEEE 802.11n HT 40 MHz	5510 ~ 5710	13.26	0.0212
		IEEE 802.11ac VHT 80 MHz	5530 ~ 5690	13.21	0.0209
Modulation Technique	OFDM (QPSK, BPSK, 16-QAM, 64-QAM)				
Transmit Data Rate	EEE 802.11a mode: 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT 20 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 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 802.11n HT 80 mode: OFDM (29.3, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390, 468, 526.5, 585, 702, 780 Mbps)				
Antenna Specification	Auden / PIFA Antenna P/N : A30308-00 (TX1) / Gain: -0.11 dBi A30308-00 (TX2) / Gain: 0.80 dBi				
Host Brand	DELL	Host Model Name	T02H		
Class II Permissive Change	Adding the portable platforms T02H, The host have the same antenna type as originally approved with lower gains.				

### 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&IC ID: **QDS-BRCM1087 & 4324A-BRCM1087** filing to comply with FCC Part 15C, Section 15.207, 15.209 and IC RSS-247 & RSS-GEN.
3. Choosing the maximum antenna gain for the test.

### **3. TEST METHODOLOGY**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013 Radiated testing was performed at an antenna to EUT distance 3 meters.

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 Part 15.207, 15.209 and 15.407, RSS-GEN Issue 2, and RSS-247 Issue 1.

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

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

##### **Radiated Emissions**

The EUT is placed on the turntable, which is 1.5 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.10: 2013.

### 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

The EUT (model: BCM94350ZAE) had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in double TX chains and double RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and 1).

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

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.

#### **UNII Band I:**

##### **IEEE 802.11a for 5180MHz:**

Channel Low (5180MHz) with 6Mbps data rate were chosen for full testing.

##### **IEEE 802.11n HT 20 MHz for 5180 ~ 5240MHz:**

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

##### **IEEE 802.11n HT 40 MHz Channel for 5190 ~ 5230MHz:**

Channel Low (5190MHz) and Channel High (5230MHz) with 13.5Mbps data rate were chosen for full testing.

##### **IEEE 802.11ac VHT 80 MHz Channel for 5210MHz:**

Channel Low(5210MHz) with 29.3Mbps data rate were chosen for full testing.

#### **UNII Band II:**

##### **IEEE 802.11a for 5320MHz:**

Channel High (5320) with 6Mbps data rate were chosen for full testing.

##### **IEEE 802.11n HT 20 MHz for 5260 ~ 5320MHz:**

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6.5Mbps data rate were chosen for full testing.

##### **IEEE 802.11n HT 40 MHz for 5270 ~ 5310MHz:**

Channel Low (5270MHz) and Channel High (5310MHz) with 13.5Mbps data rate were chosen for full testing.

##### **IEEE 802.11ac VHT 80 MHz for 5290MHz:**

Channel Low (5290MHz) with 29.3Mbps data rate were chosen for full testing.



**UNII Band III:****IEEE 802.11a for 5500 ~ 5700MHz:**

Channel Low (5500MHz) and Channel High (5700MHz) with 6Mbps data rate were chosen for full testing.

**IEEE 802.11n HT 20 MHz for 5500 ~ 5720MHz:**

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5720MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11n HT 40 MHz for 5510 ~ 5670MHz:**

Channel Low (5510MHz), Channel Mid (5550MHz) and Channel High (5670MHz) with 13.5Mbps data rate were chosen for full testing.

**IEEE 802.11ac VHT 80 MHz for 5530 ~ 5690MHz:**

Channel Low (5530MHz) and Channel High (5690MHz) with 29.3Mbps data rate were chosen for full testing.

The field strength of spurious emission was measured in the following position: The EUT has Notebook mode, Flat mode, Tent mode, Stand mode, Tablet X, Y and Z axis modes. The worst emission was found in Tablet Y axis mode 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.

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	09/18/2015
EMI Test Receiver	R&S	ESCI	100064	06/04/2016
Bilog Antenna	Sunol Sciences	JB3	A030105	08/05/2016
Horn Antenna	EMCO	3117	00055165	01/26/2016
Horn Antenna	EMCO	3116	26370	12/25/2015
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
Pre-Amplifier	MITEQ	1652-3000	1490939	08/09/2016
Pre-Amplifier	EMC	EMC 01265	4035	06/04/2016
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	12/25/2015
Coaxial Cable	Huber+Suhner	102	29212/2	12/25/2015
Coaxial Cable	Huber+Suhner	102	29406/2	12/25/2015
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., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

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

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 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, ridged waveguide, horn and/or Loop. 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.



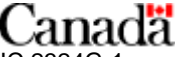
Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

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-247, 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	
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 I 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
1	Notebook PC	DELL	T02H	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 REQUIREMENTS & RSS-247 REQUIREMENTS

### 7.1 MAXIMUM CONDUCTED OUTPUT POWER

#### LIMIT

According to §15.407(a)

For the band 5.15-5.25 GHz, 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10\log B$ , where B is the 26 dB emission bandwidth in MHz.

If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi

#### **According to RSS-247,**

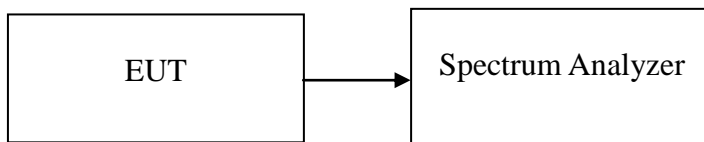
- (1) For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or  $10 + 10 \log_{10} B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
- (2) For the band 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

*In addition, devices with maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.*

*The peak power shall not exceed the limit as follow:*

#### **Test Configuration**

*The EUT was connected to a spectrum analyzer through a 50Ω RF cable.*



#### **TEST PROCEDURE**

Set span to encompass the entire emission bandwidth (EBW) of the signal.

Set RBW = 1 MHz / Set VBW = 3 MHz.

Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run". Trace average

100 traces in power averaging mode. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

## TEST RESULTS

*No non-compliance noted*

### Test Data

**Test mode: IEEE 802.11a mode / 5180MHz**

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
36	5180	*13.10	24.00

**Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
36	5180	10.30	10.20	13.26	24.00
49	5200	10.20	10.10	13.16	24.00
48	5240	10.20	10.40	*13.31	24.00

**Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
38	5190	10.20	10.10	13.16	24.00
46	5230	10.30	10.40	*13.36	24.00

**Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
42	5210	10.20	10.10	*13.16	24.00

**Test mode: IEEE 802.11a mode / 5320MHz**

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
64	5320	*13.10	24.00

**Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
52	5260	10.30	10.20	13.26	24.00
60	5300	10.30	10.30	*13.31	24.00
64	5320	10.20	10.10	13.16	24.00

**Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
54	5270	10.30	10.20	*13.26	24.00
62	5310	10.20	10.10	13.16	24.00

**Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
58	5290	10.20	10.20	*13.21	24.00



**Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz**

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
100	5500	*13.20	24.00
140	5700	13.20	24.00

**Test mode: IEEE 802.11n HT 20 MHz mode / 5500 ~ 5720MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
100	5500	10.20	10.20	13.21	24.00
116	5580	10.20	10.10	13.16	24.00
140	5700	10.30	10.20	*13.26	24.00
144	5720	10.10	10.00	13.06	24.00

**Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
102	5510	10.30	10.40	13.36	24.00
110	5550	10.30	10.20	*13.26	24.00
134	5670	10.30	10.20	13.26	24.00

**Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530 ~ 5690MHz**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
106	5530	10.30	10.10	13.21	24.00
138	5610	10.20	10.20	*13.21	24.00
138	5690	10.20	10.10	13.16	24.00

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

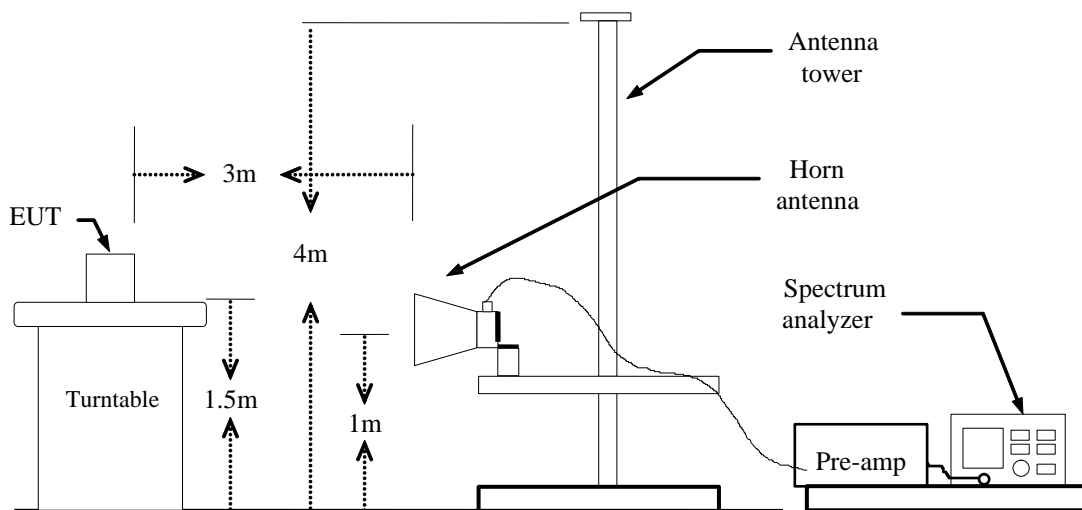
## 7.2 BAND EDGES MEASUREMENT

### LIMIT

According to §15.407(b) & RSS-247 §,

- (1) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
- (2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

### Test Configuration



## **TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 1.5m 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=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz,
    - if duty cycle  $\geq 98\%$ , VBW=10Hz.
    - if duty cycle  $< 98\%$  VBW=1/T.

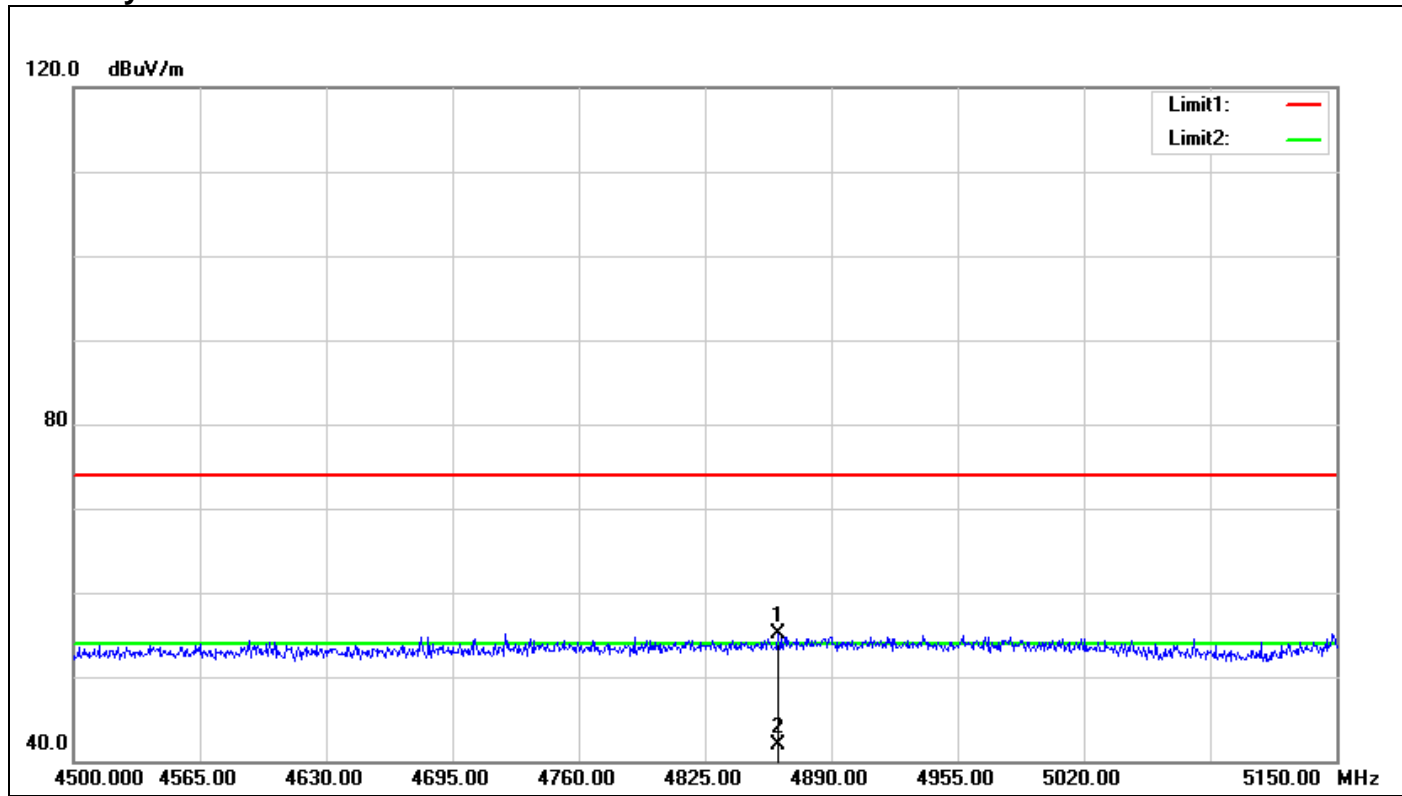
**IEEE 802.11a mode:** = 96%, VBW= 510Hz  
**IEEE 802.11n HT 20 MHz mode:** = 91%, VBW= 1KHz  
**IEEE 802.11n HT 40 MHz mode:** = 84%, VBW= 2KHz  
**IEEE 802.11ac VHT 80 MHz mode:** = 71%, VBW= 15KHz
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.
6. Result = Spectrum Reading + cable loss(spectrum to Amp) - Amp Gain + Cable loss(Amp to receive Ant)+ Receive Ant

## **TEST RESULTS**

Refer to attach spectrum analyzer data chart.

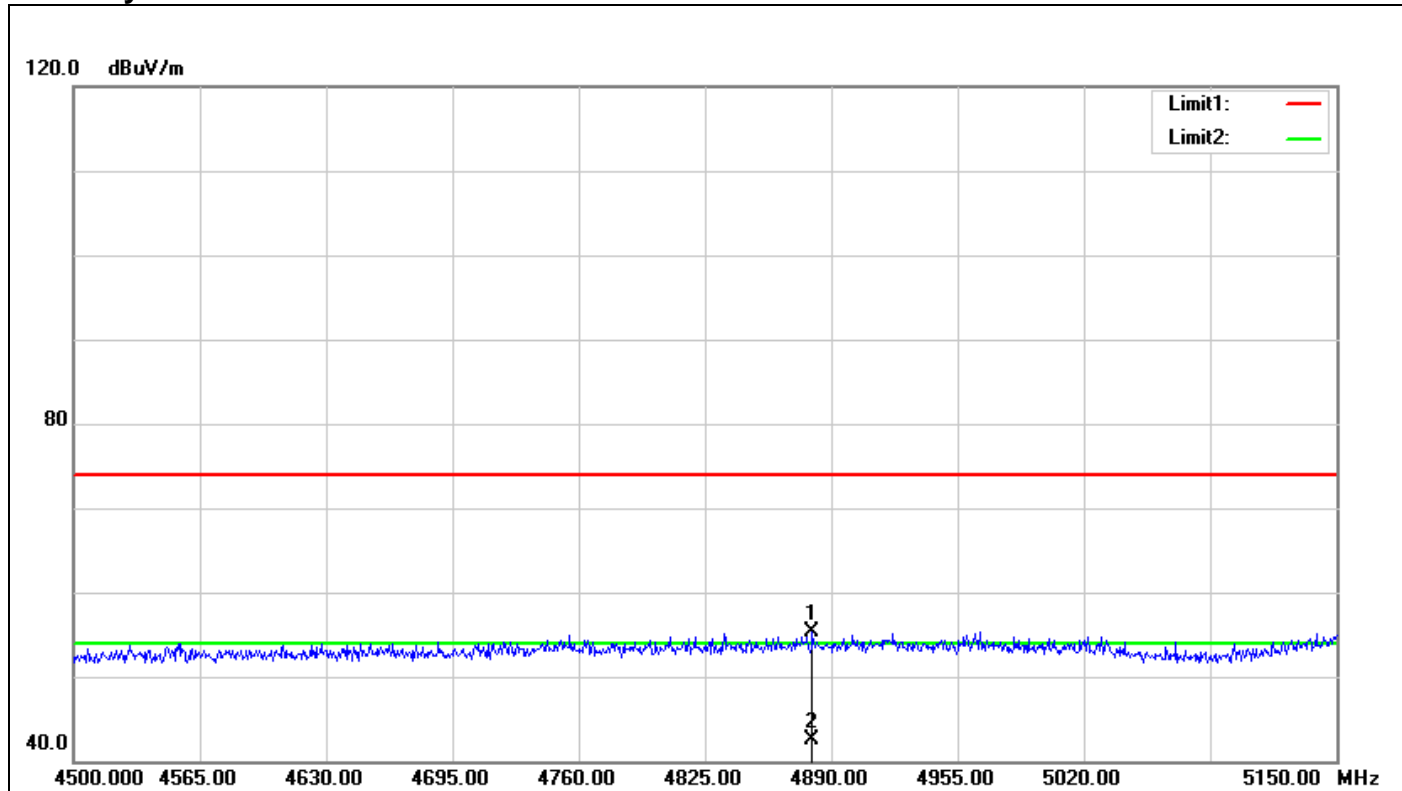
## Band Edges (IEEE 802.11a mode / CH 5180 MHz)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	4862.700	51.15	3.94	55.09	74.00	-18.91	100	207	peak
2	4862.700	38.01	3.94	41.95	54.00	-12.05	100	207	AVG

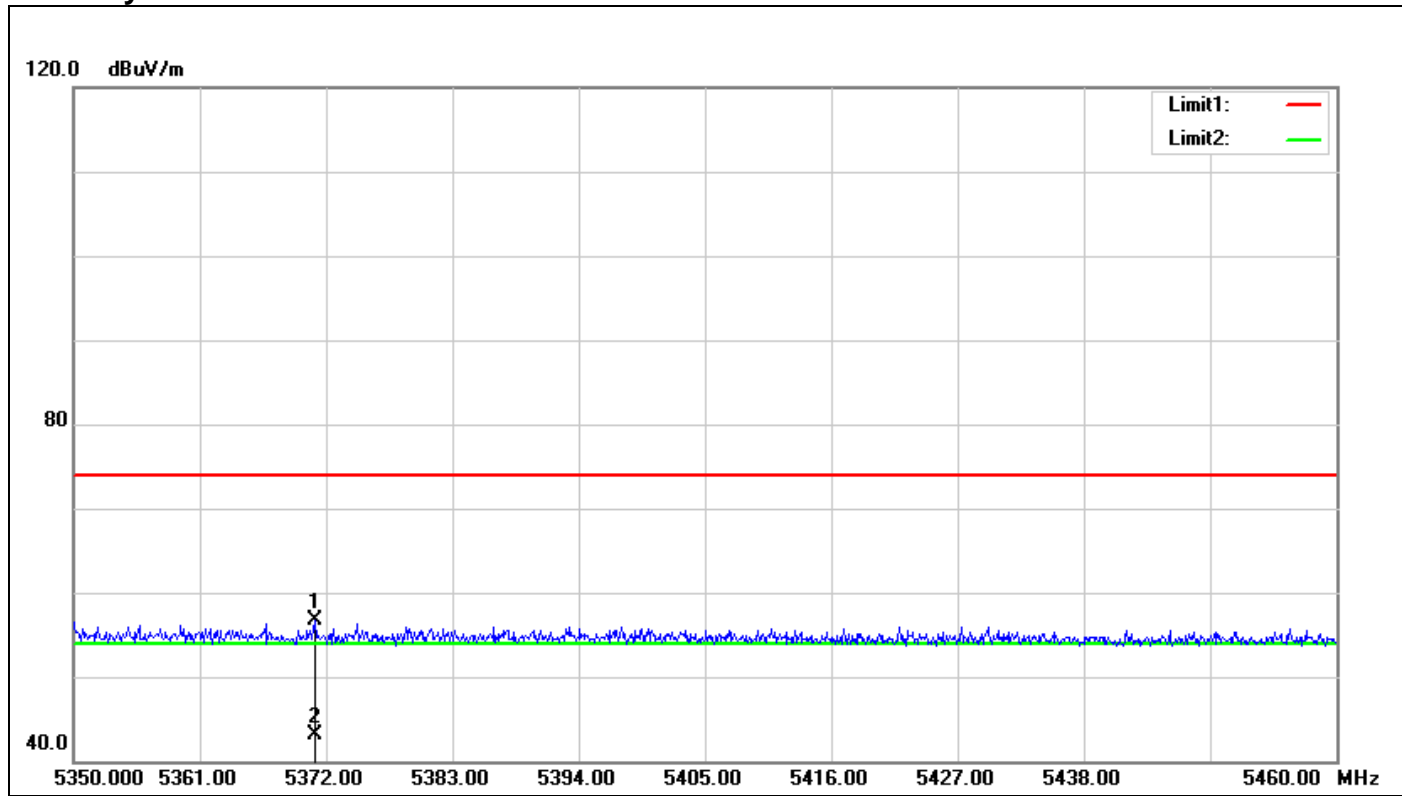
## Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	4880.250	51.35	3.91	55.26	74.00	-18.74	100	152	peak
2	4880.250	38.53	3.91	42.44	54.00	-11.56	100	152	AVG

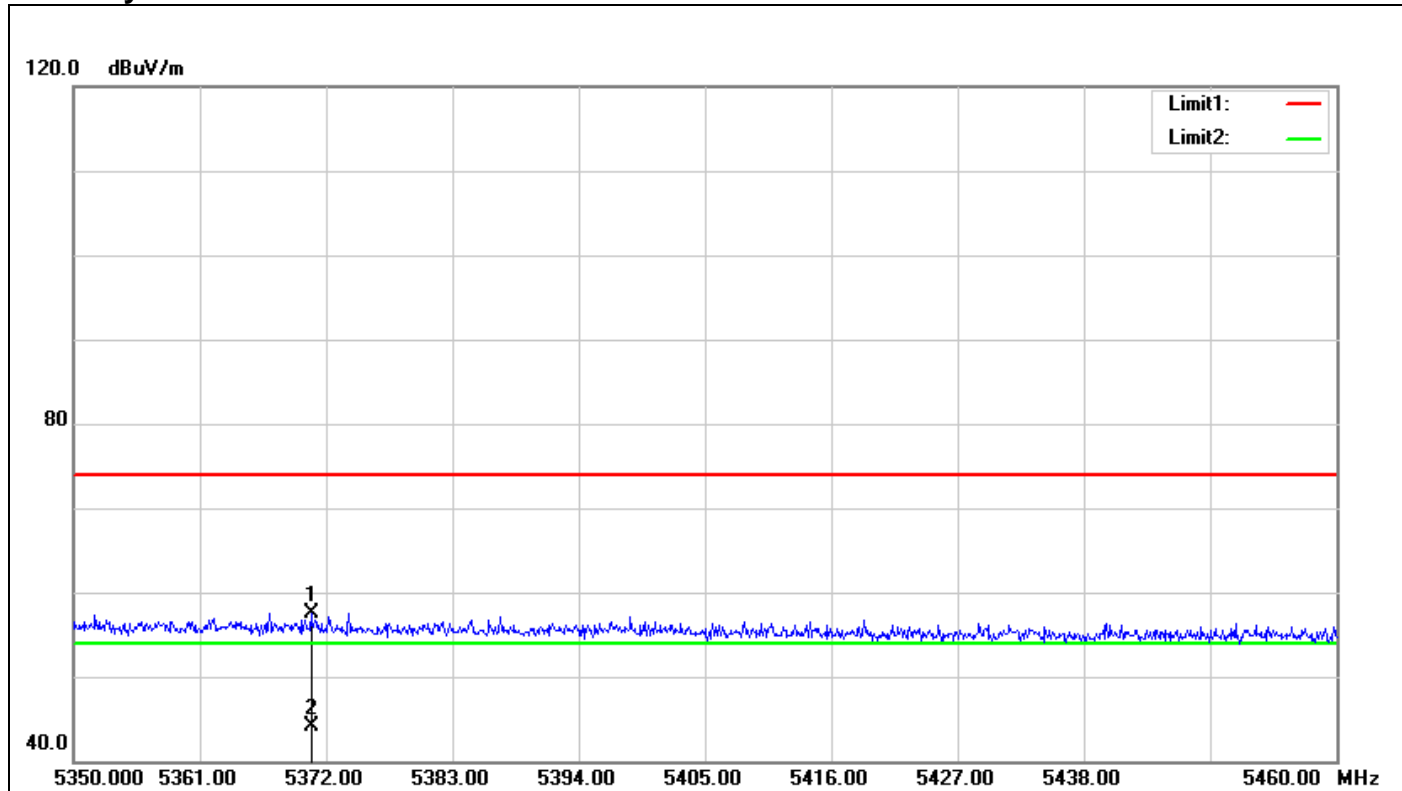
## Band Edges (IEEE 802.11a mode / CH 5320 MHz)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	5371.010	51.18	5.48	56.66	74.00	-17.34	100	287	peak
2	5371.010	37.71	5.48	43.19	54.00	-10.81	100	287	AVG

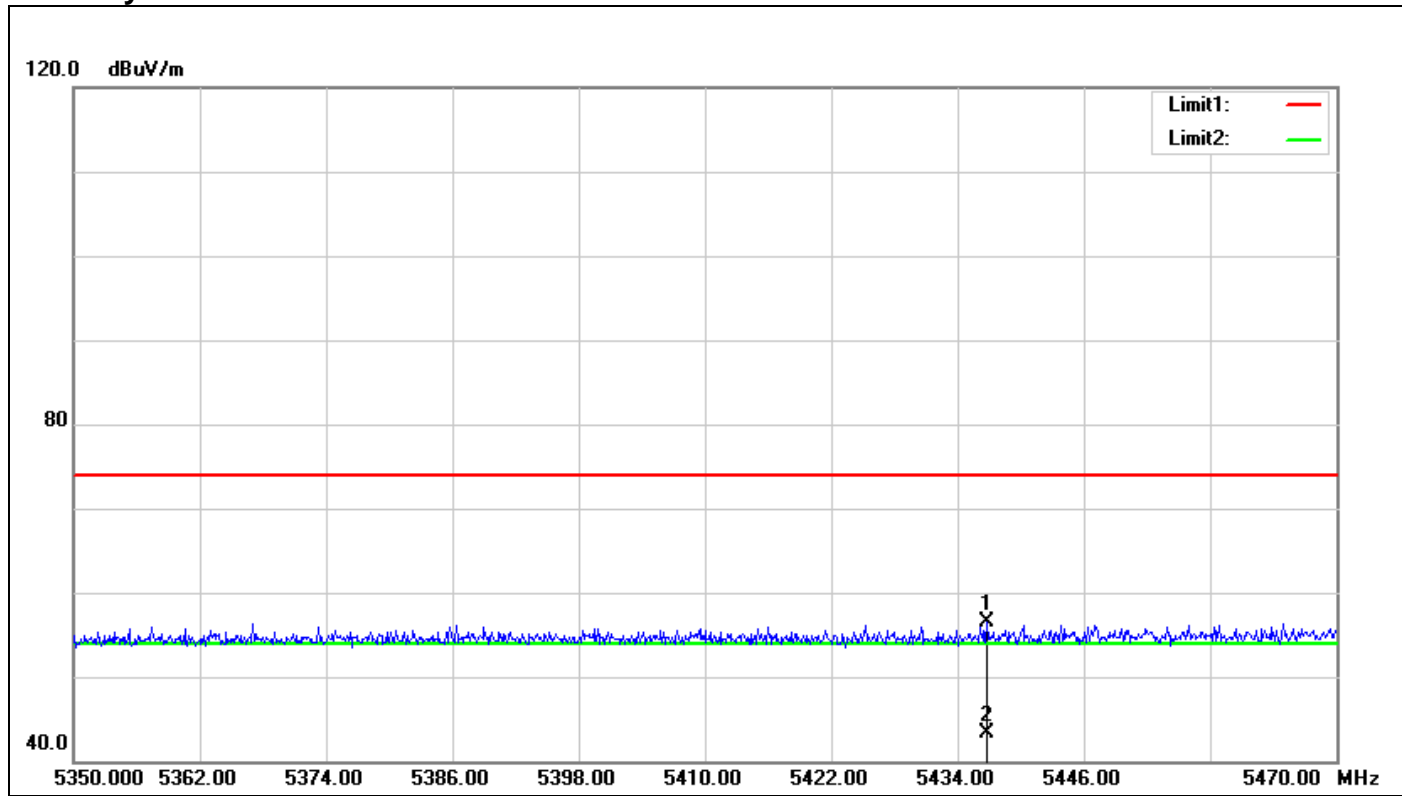
## Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	5370.680	52.08	5.48	57.56	74.00	-16.44	100	166	peak
2	5370.680	38.60	5.48	44.08	54.00	-9.92	100	166	AVG

## Band Edges (IEEE 802.11a mode / CH 5500 MHz)

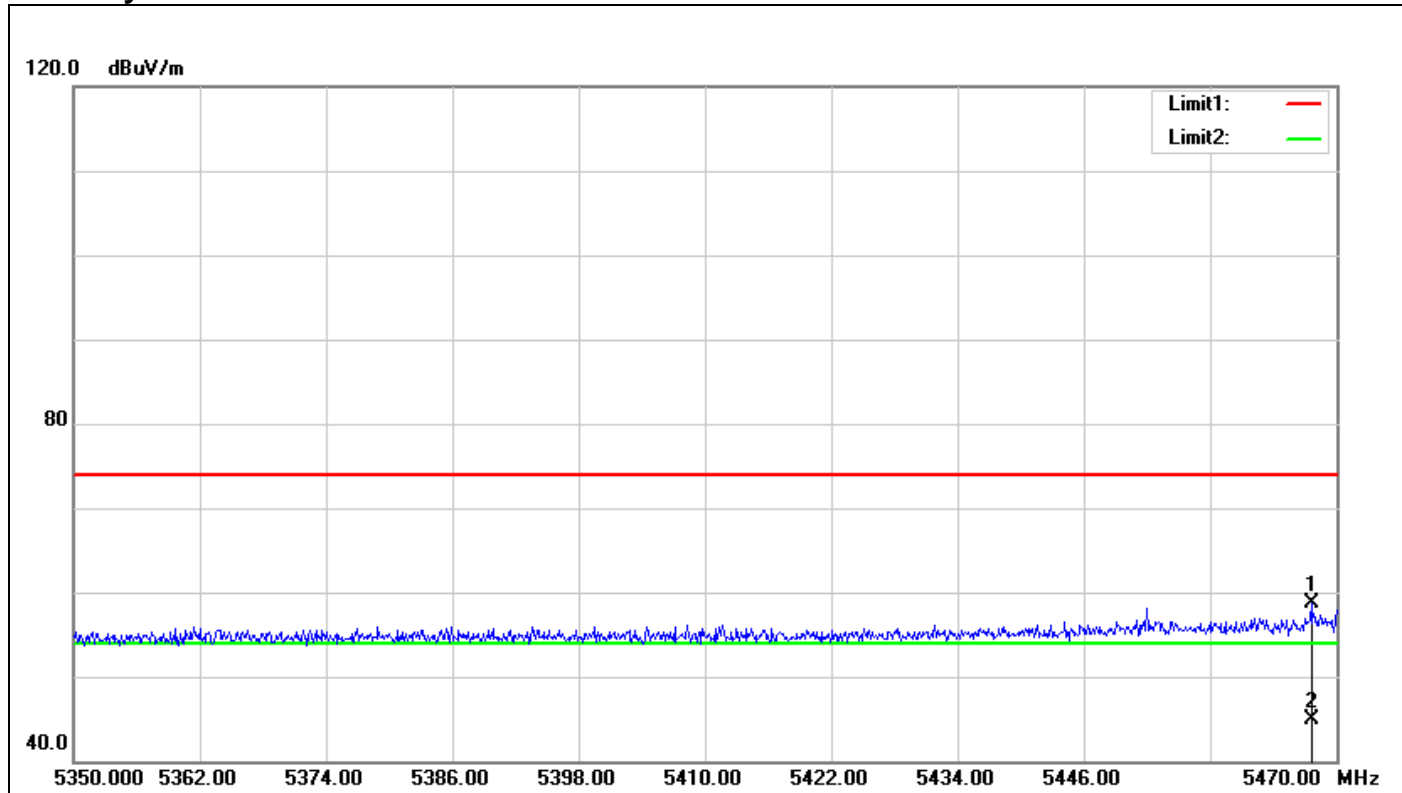
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	5436.760	51.02	5.55	56.57	74.00	-17.43	100	27	peak
2	5436.760	37.68	5.55	43.23	54.00	-10.77	100	27	AVG



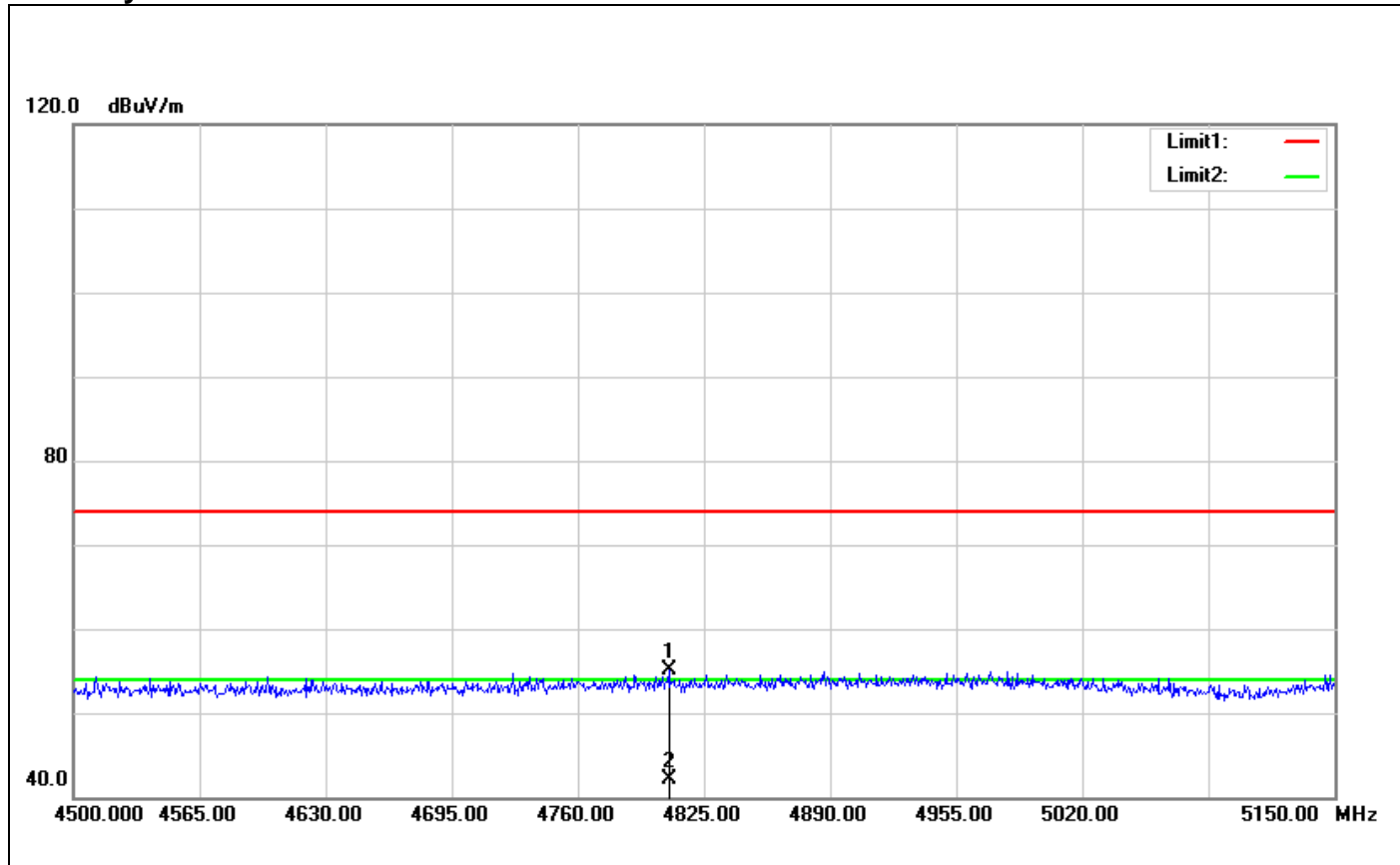
## Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( ° )	Remark
1	5467.600	53.30	5.40	58.70	74.00	-15.30	100	342	peak
2	5467.600	39.45	5.40	44.85	54.00	-9.15	100	342	AVG

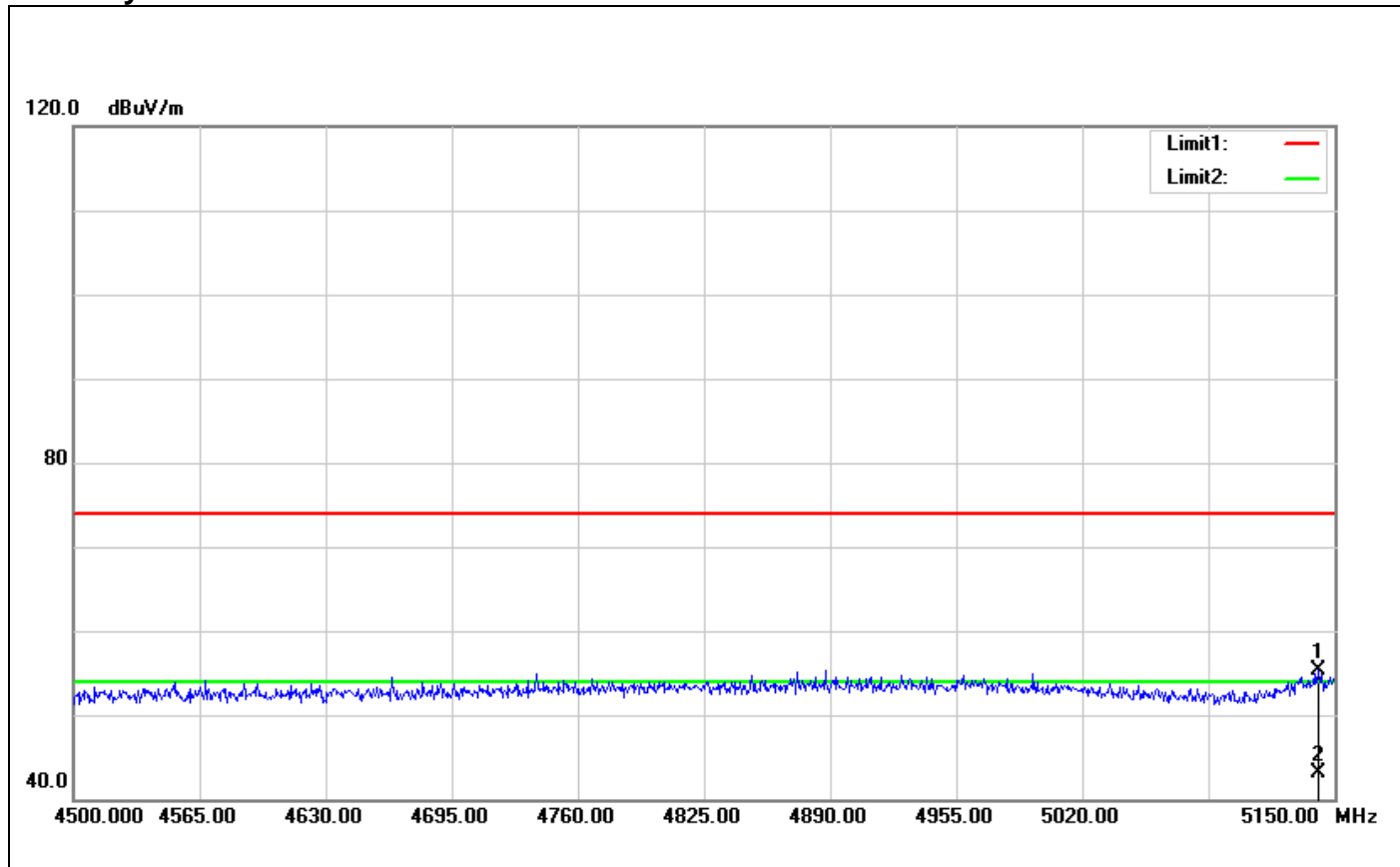
## Band Edges (IEEE 802.11n HT 20 MHz mode / CH 5180 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	4806.800	51.04	4.04	55.08	74.00	-18.92	100	185	peak
2	4806.800	38.04	4.04	42.08	54.00	-11.92	100	185	AVG

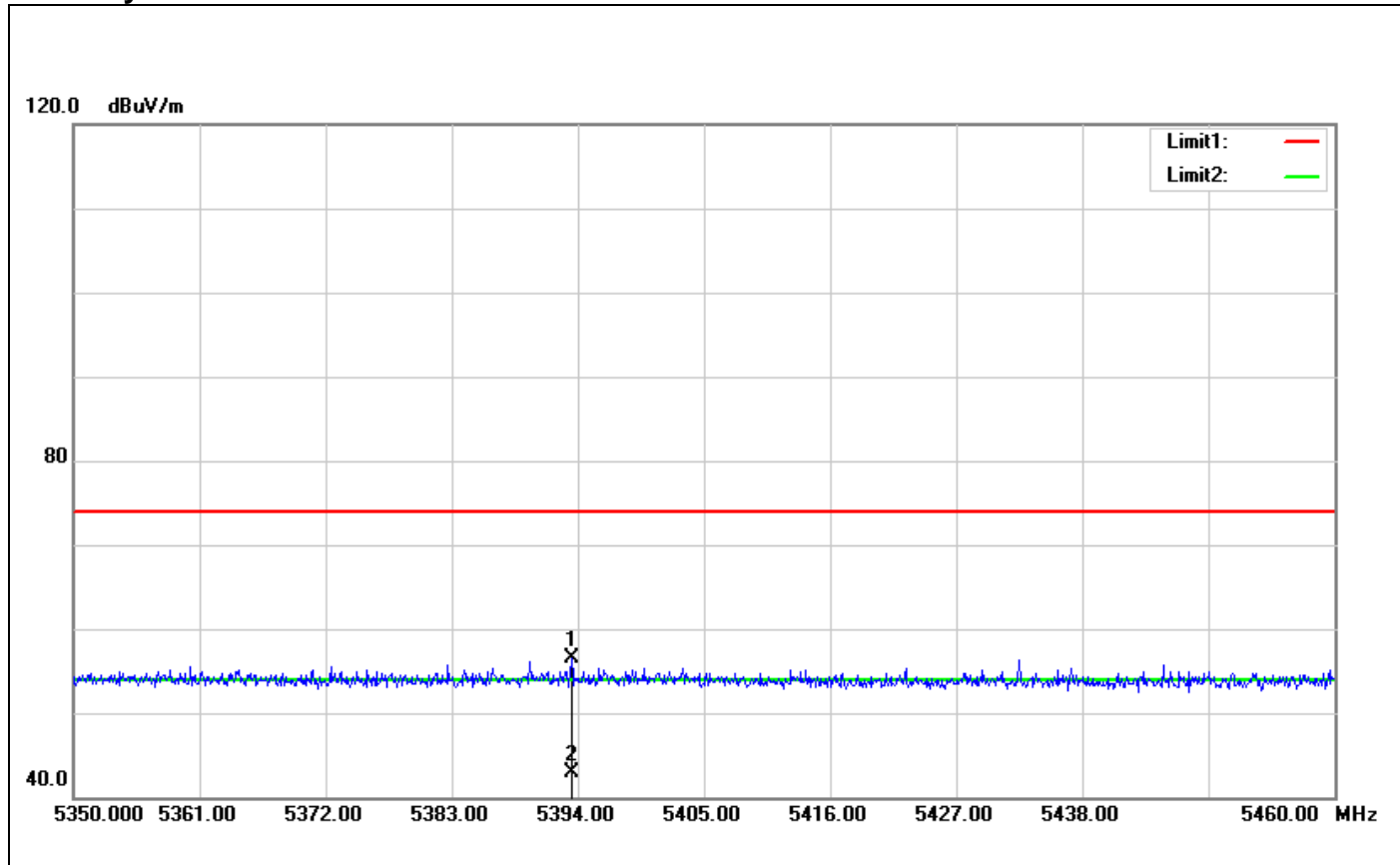
## Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5141.550	52.40	2.98	55.38	74.00	-18.62	100	144	peak
2	5141.550	40.04	2.98	43.02	54.00	-10.98	100	144	AVG

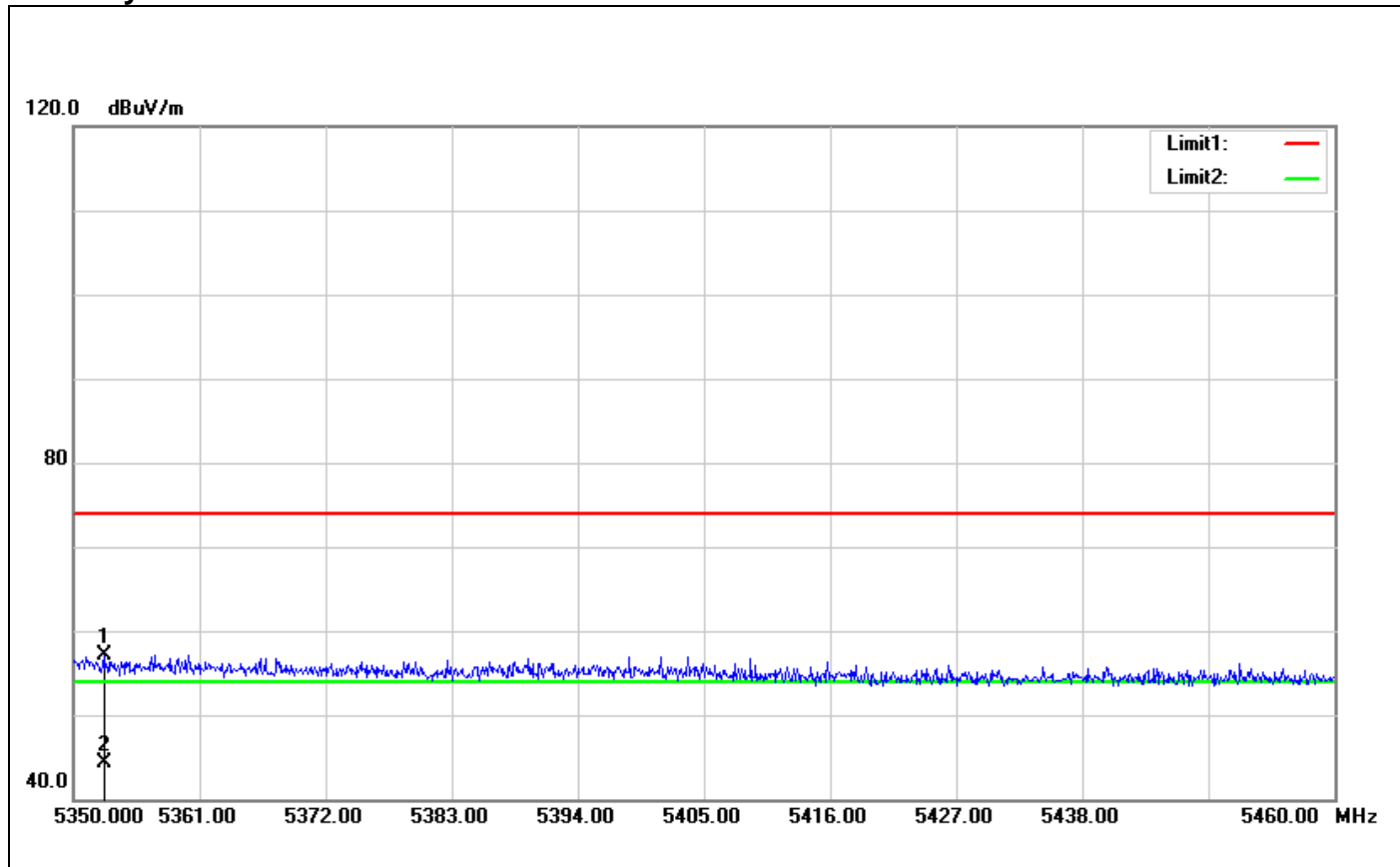
## Band Edges (IEEE 802.11n HT 20 MHz mode / CH 5320 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5393.450	50.74	5.67	56.41	74.00	-17.59	100	321	peak
2	5393.450	37.18	5.67	42.85	54.00	-11.15	100	321	AVG

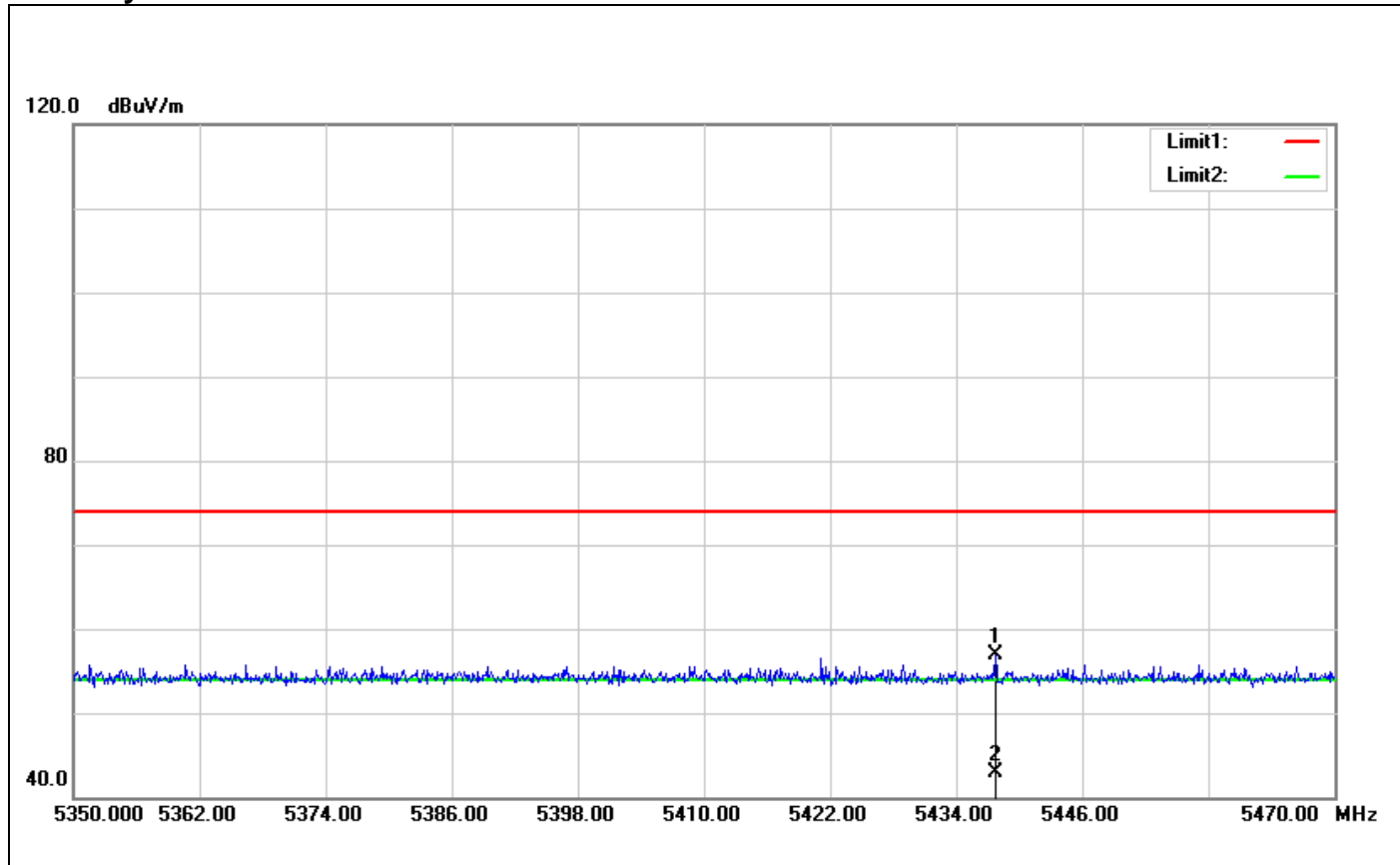
## Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5352.640	51.81	5.33	57.14	74.00	-16.86	100	360	peak
2	5352.640	39.03	5.33	44.36	54.00	-9.64	100	360	AVG

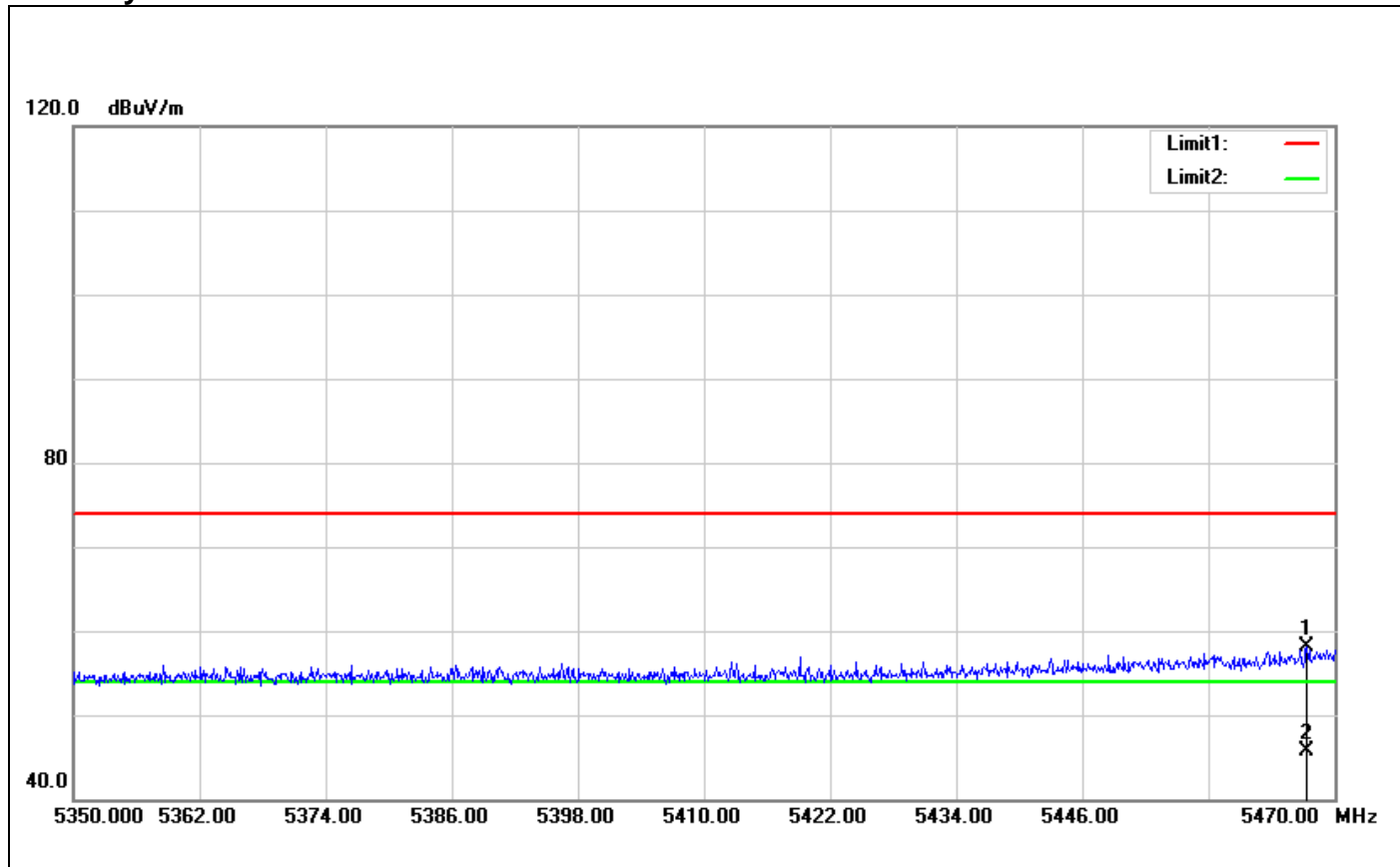
## Band Edges (IEEE 802.11n HT 20 MHz mode / CH 5500 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5437.720	51.36	5.54	56.90	74.00	-17.10	100	248	peak
2	5437.720	37.29	5.54	42.83	54.00	-11.17	100	248	AVG

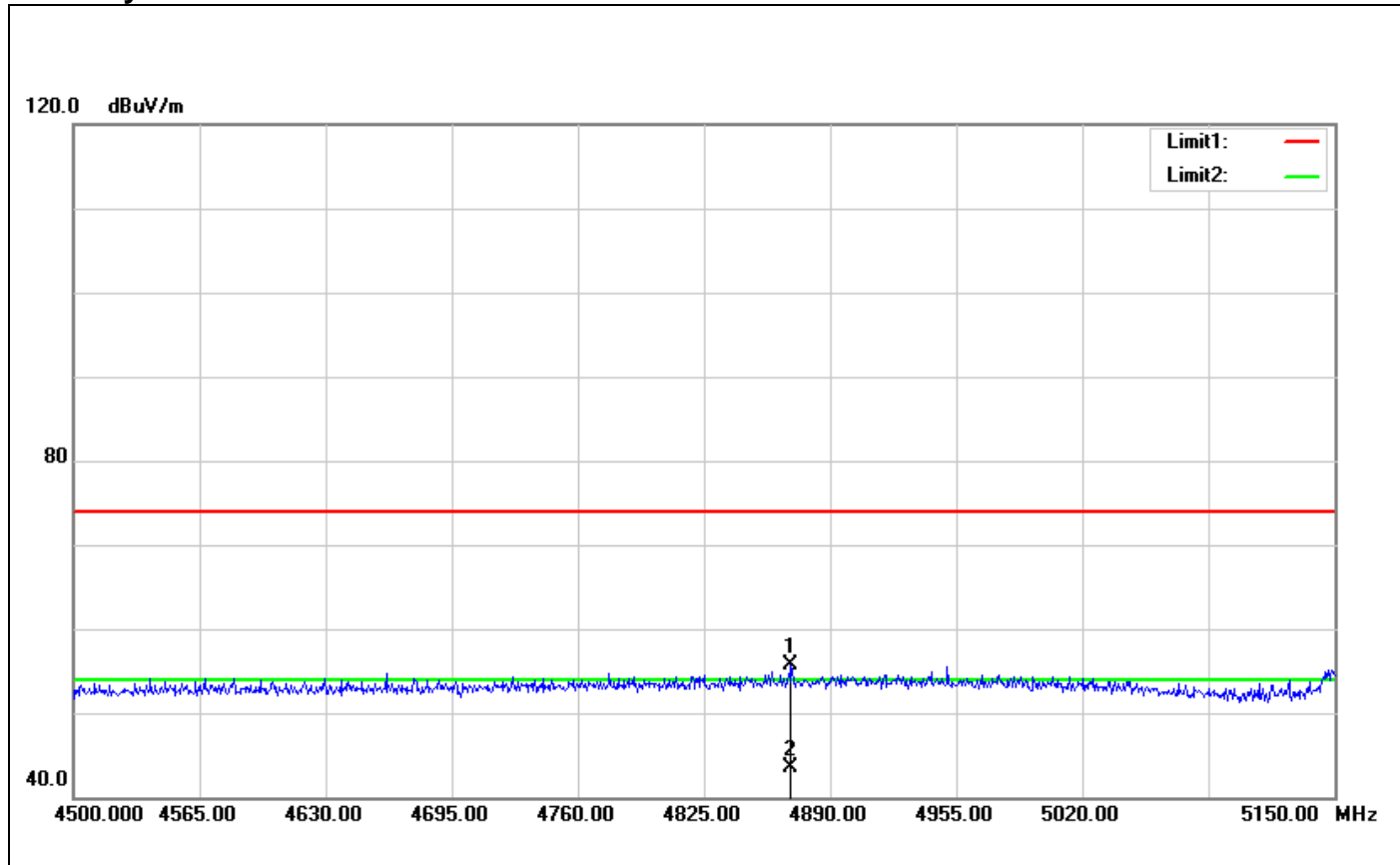
## Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5467.360	52.61	5.40	58.01	74.00	-15.99	100	101	peak
2	5467.360	40.28	5.40	45.68	54.00	-8.32	100	101	AVG

## Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5190 MHz)

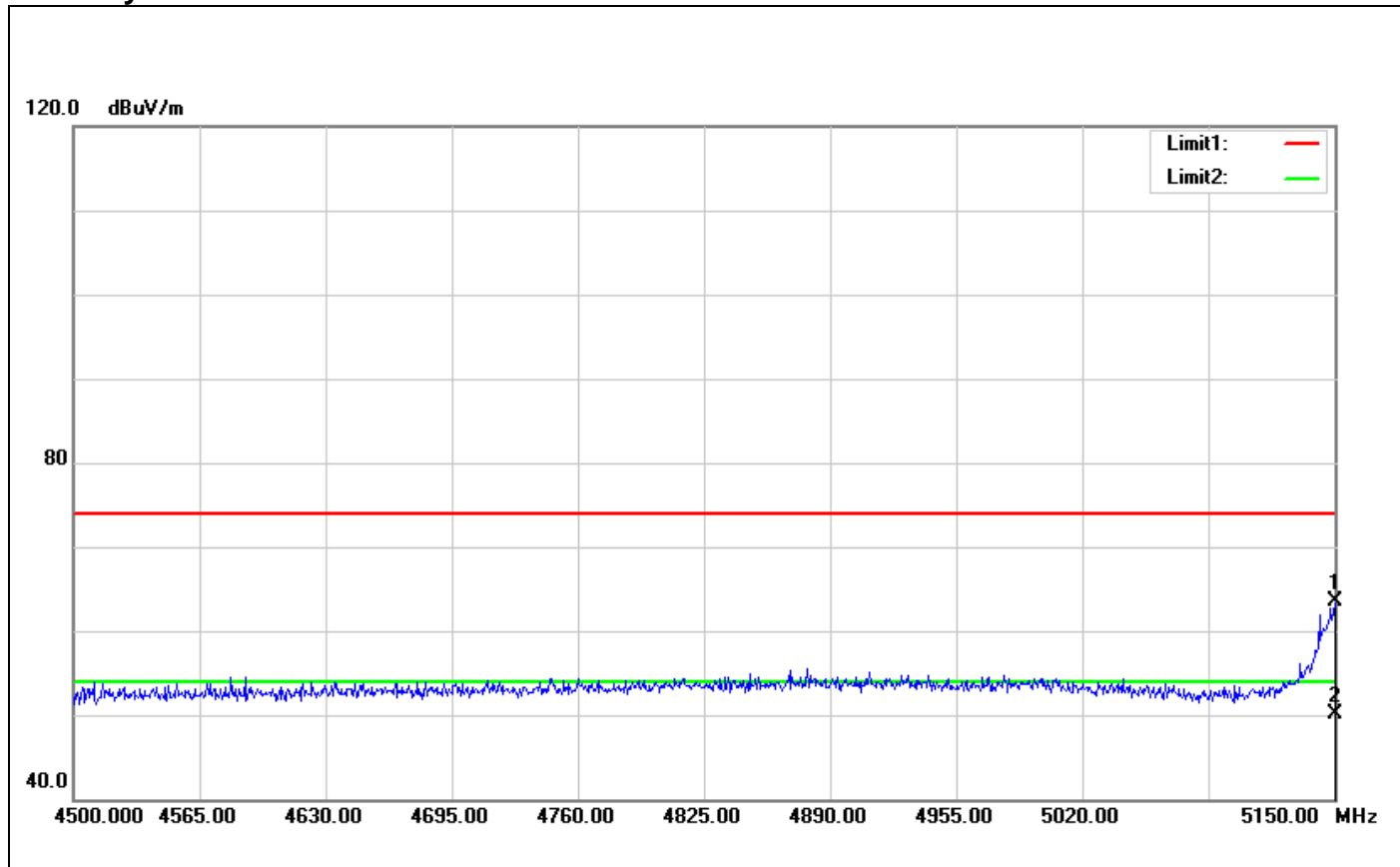
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	4869.850	51.79	3.93	55.72	74.00	-18.28	100	63	peak
2	4869.850	39.66	3.93	43.59	54.00	-10.41	100	63	AVG



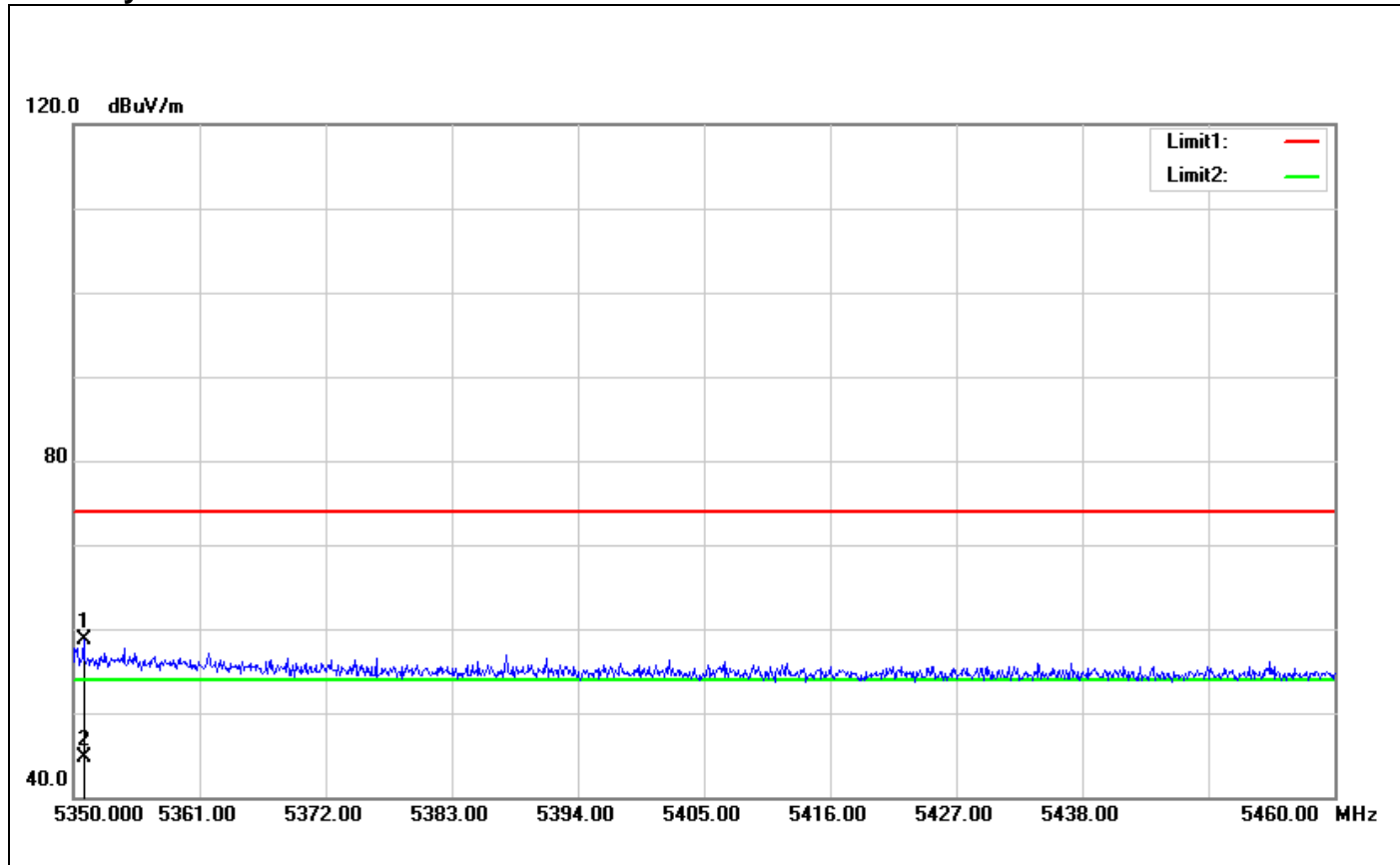
## Polarity: Horizontal



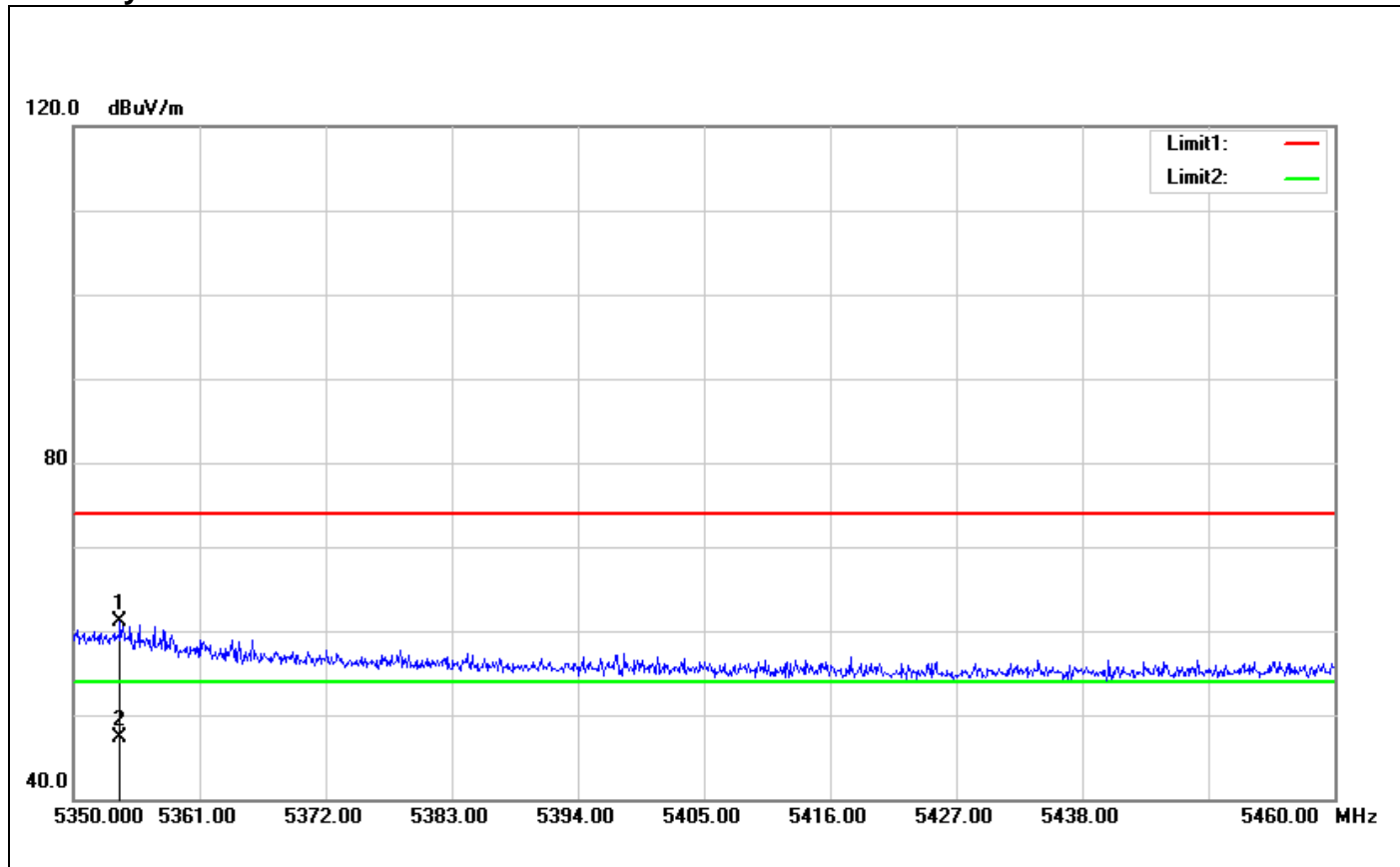
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5150.000	60.43	3.04	63.47	74.00	-10.53	100	350	peak
2	5150.000	47.08	3.04	50.12	54.00	-3.88	100	350	AVG

## Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5310 MHz)

Polarity: Vertical



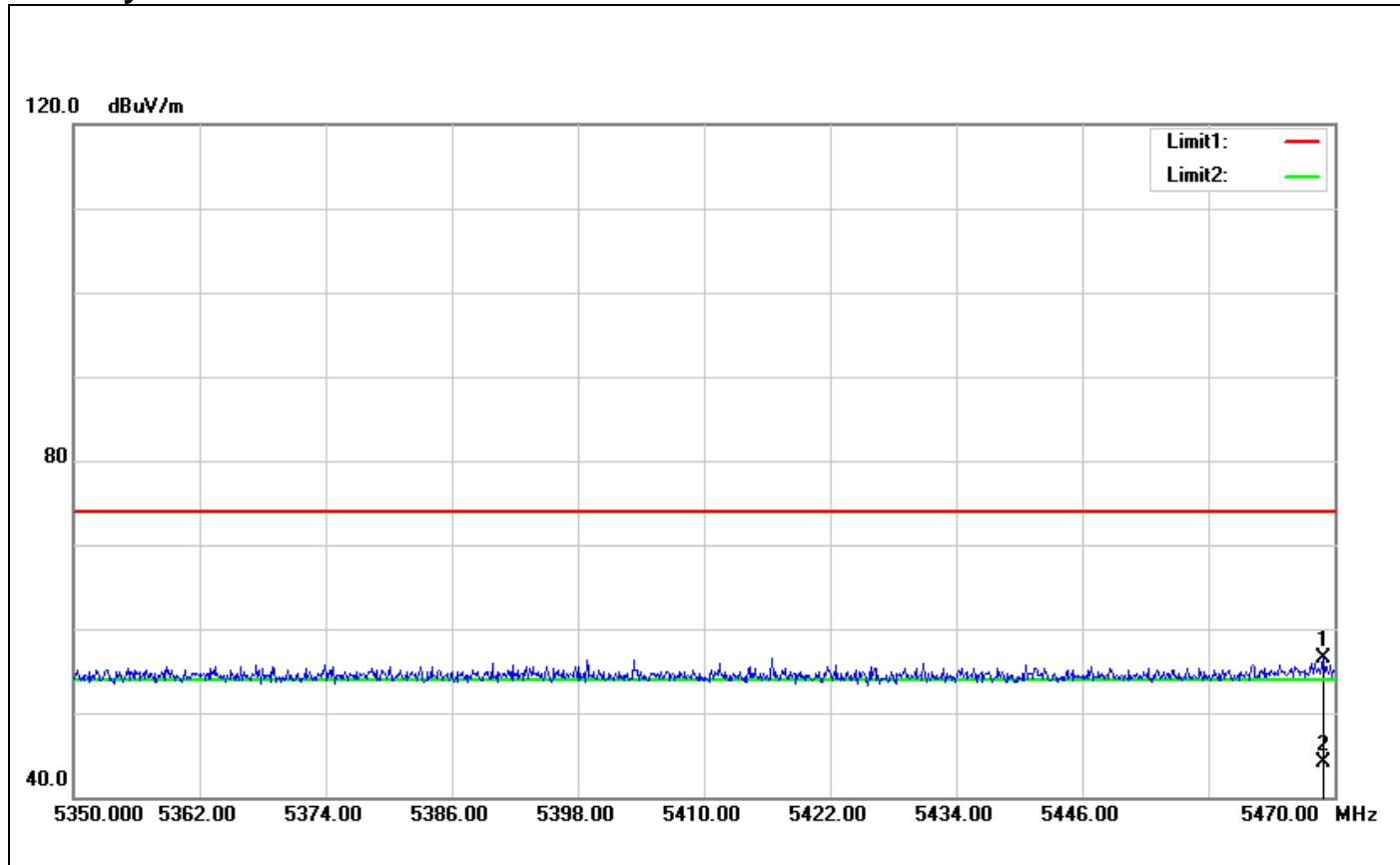
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5350.880	53.31	5.32	58.63	74.00	-15.37	100	325	peak
2	5350.880	39.39	5.32	44.71	74.00	-29.29	100	325	peak

**Polarity: Horizontal**

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5354.070	55.84	5.34	61.18	74.00	-12.82	100	162	peak
2	5354.070	41.94	5.34	47.28	54.00	-6.72	100	162	AVG

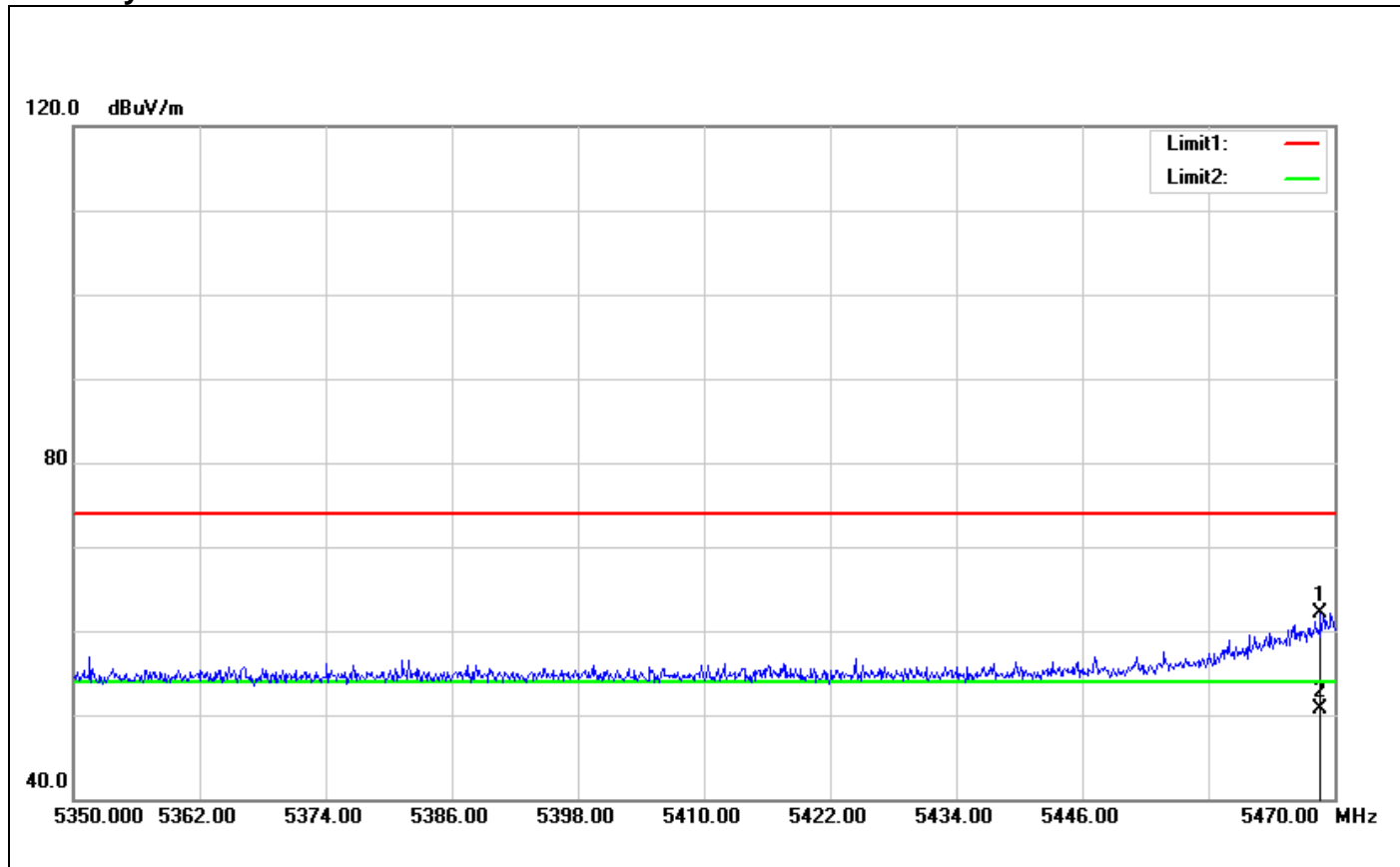
## Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5510 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5468.920	51.06	5.40	56.46	74.00	-17.54	100	174	peak
2	5468.920	38.67	5.40	44.07	54.00	-9.93	100	174	AVG

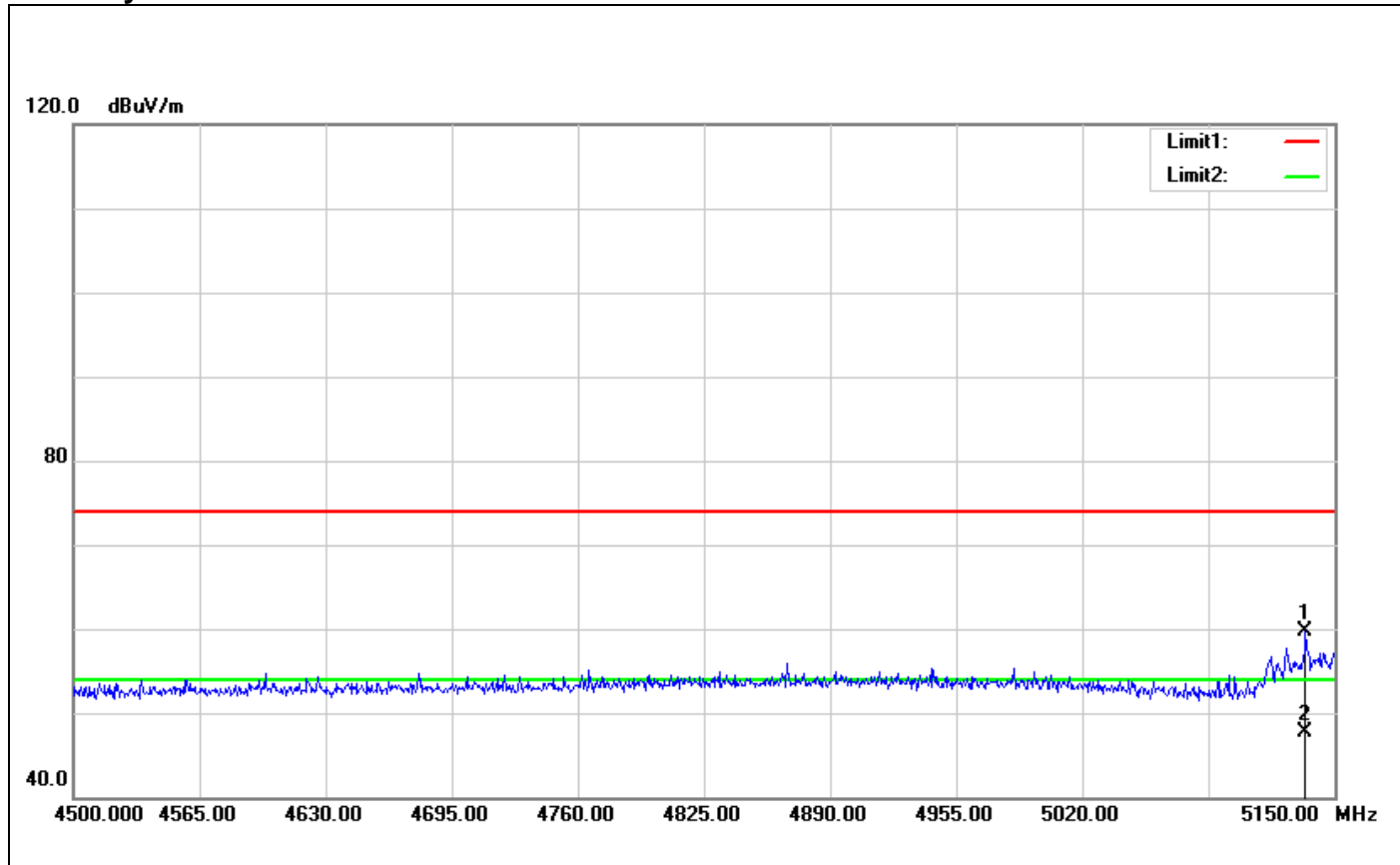
## Polarity: Horizontal



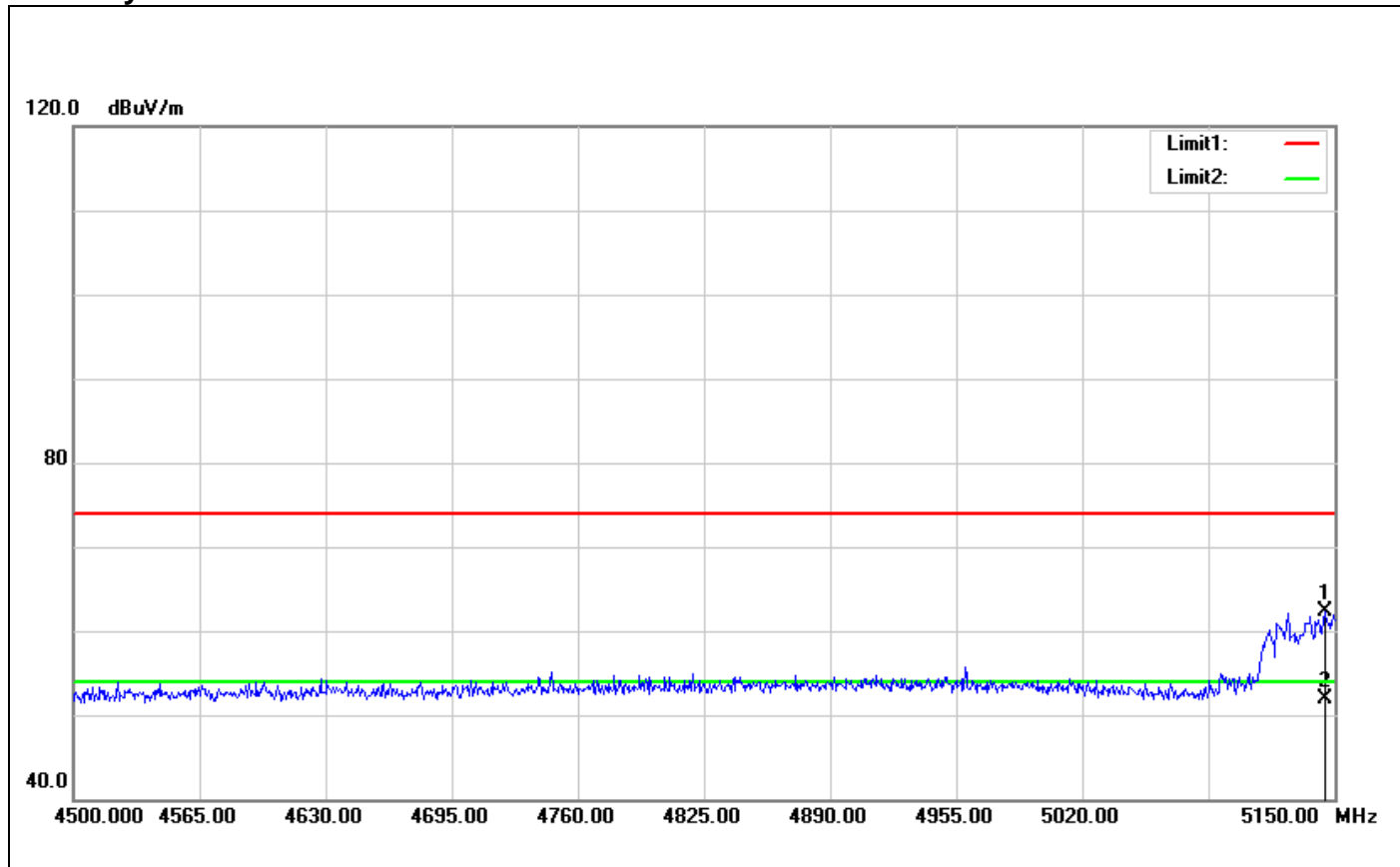
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5468.680	56.69	5.40	62.09	74.00	-11.91	100	152	peak
2	5468.680	45.31	5.40	50.71	54.00	-3.29	100	152	AVG

## Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5210 MHz)

Polarity: Vertical



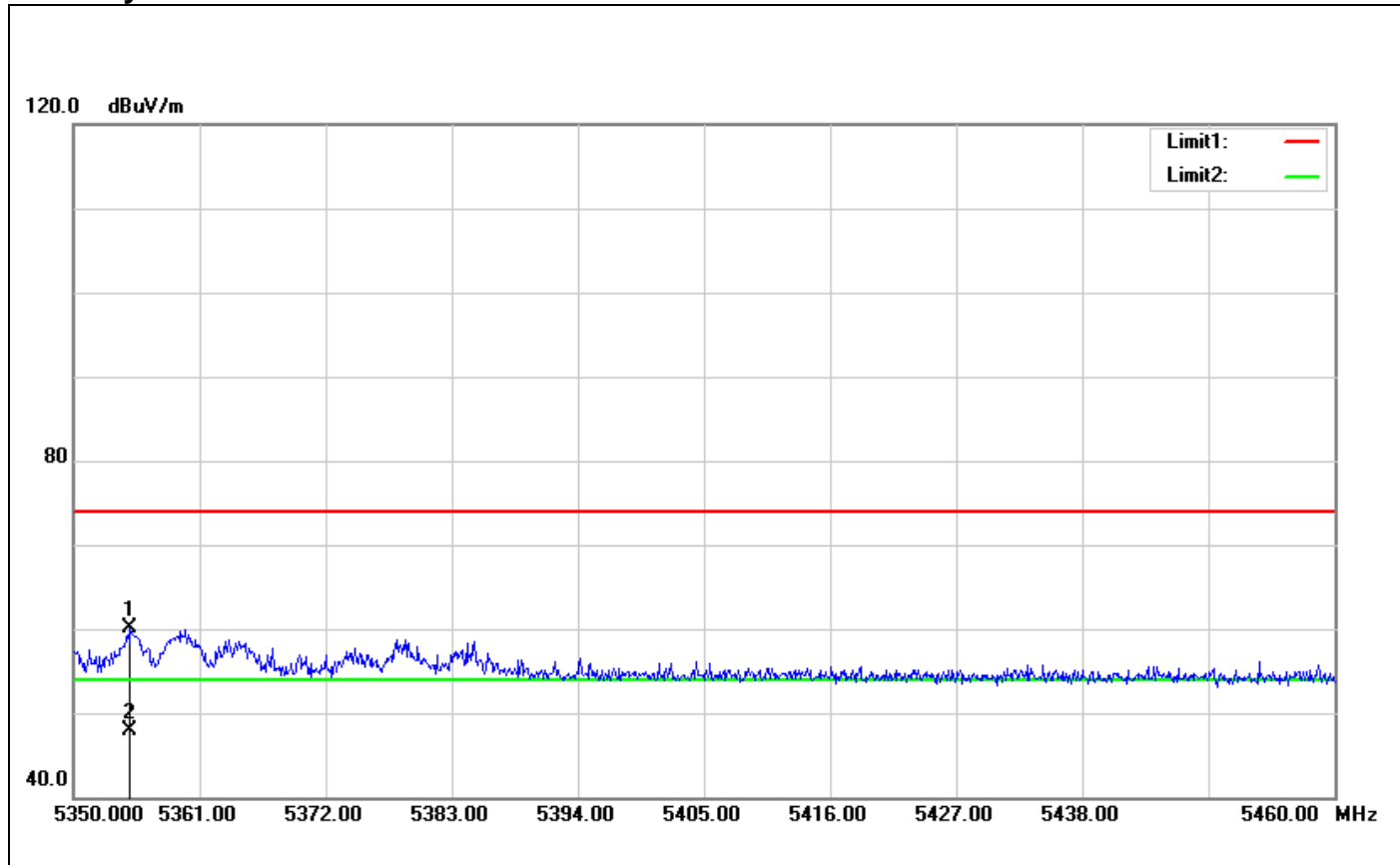
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5135.050	56.81	2.94	59.75	74.00	-14.25	100	123	peak
2	5135.050	44.71	2.94	47.65	54.00	-6.35	100	123	AVG

**Polarity: Horizontal**

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5144.800	59.35	3.00	62.35	74.00	-11.65	100	281	peak
2	5144.800	48.83	3.00	51.83	54.00	-2.17	100	281	AVG

## Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5290 MHz)

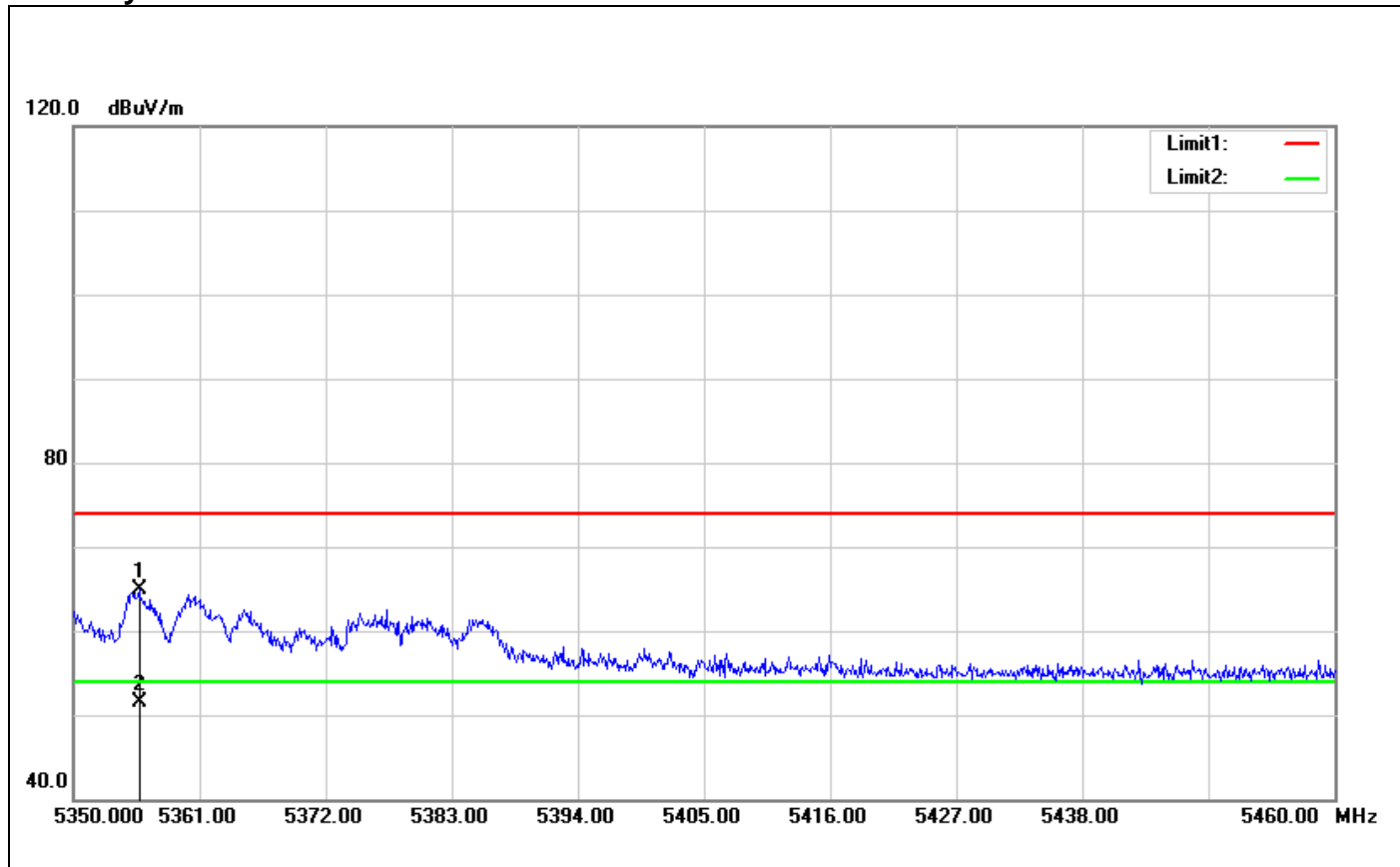
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5354.950	54.77	5.35	60.12	74.00	-13.88	100	4	peak
2	5354.950	42.54	5.35	47.89	54.00	-6.11	100	4	AVG



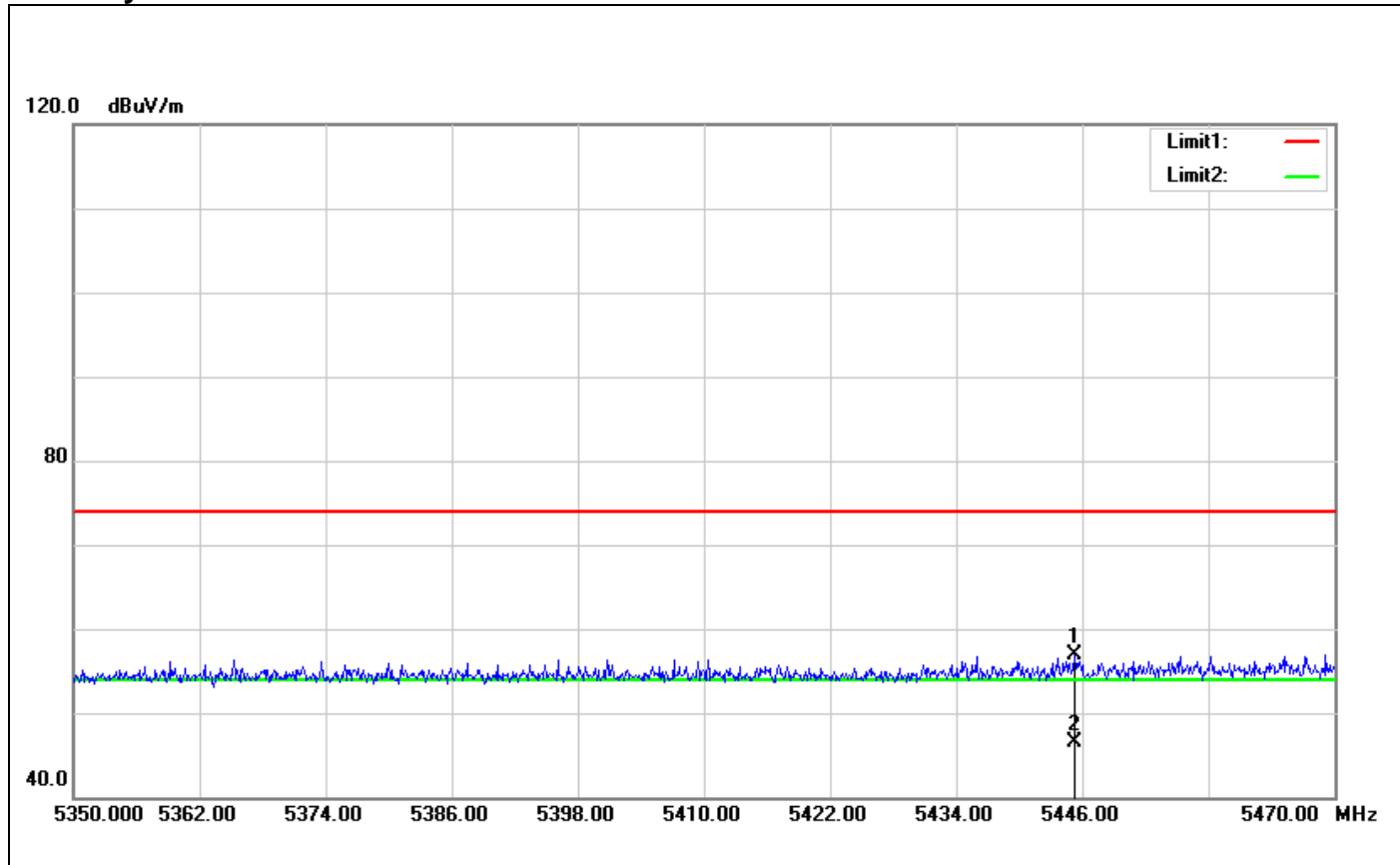
## Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5355.720	59.50	5.36	64.86	74.00	-9.14	100	82	peak
2	5355.720	46.05	5.36	51.41	54.00	-2.59	100	82	AVG

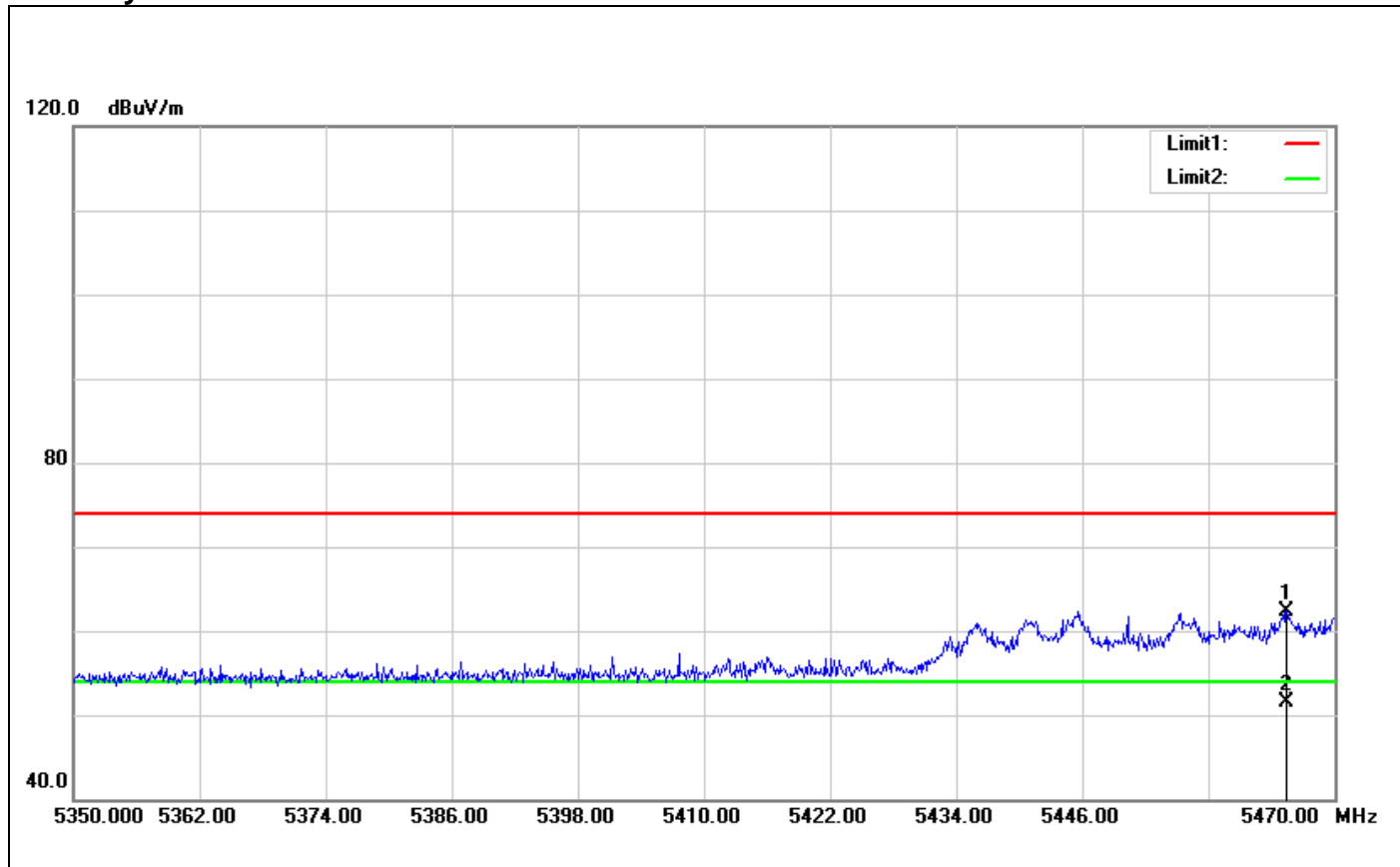
## Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5530 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5445.280	51.42	5.51	56.93	74.00	-17.07	100	322	peak
2	5445.280	40.99	5.51	46.50	54.00	-7.50	100	322	AVG

## Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )	
1	5465.440	56.95	5.41	62.36	74.00	-11.64	100	75	peak
2	5465.440	46.14	5.41	51.55	54.00	-2.45	100	75	AVG

### 7.3 RADIATED UNDESIRABLE EMISSION

1. According to §15.209(a) & RSS-247, 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

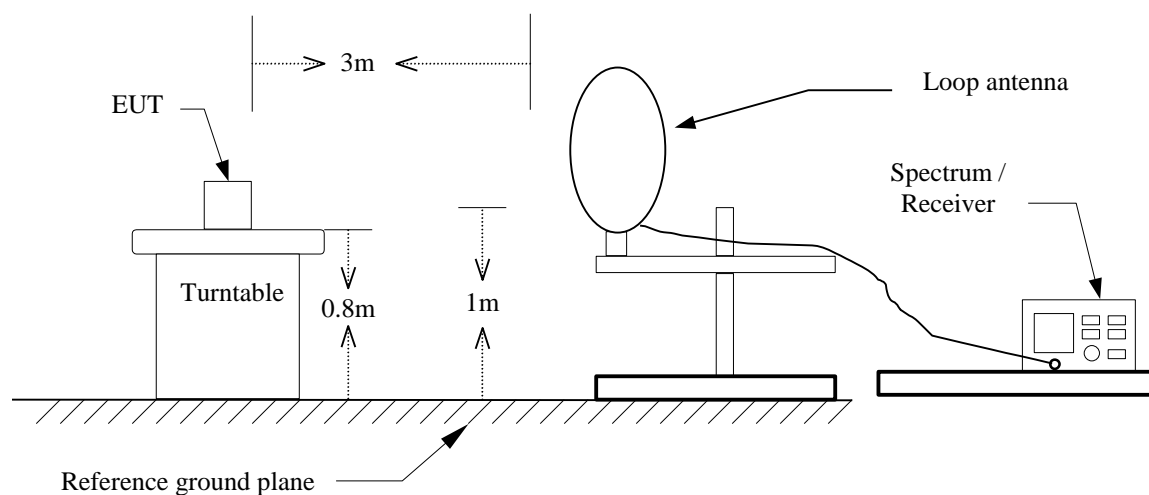
**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections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

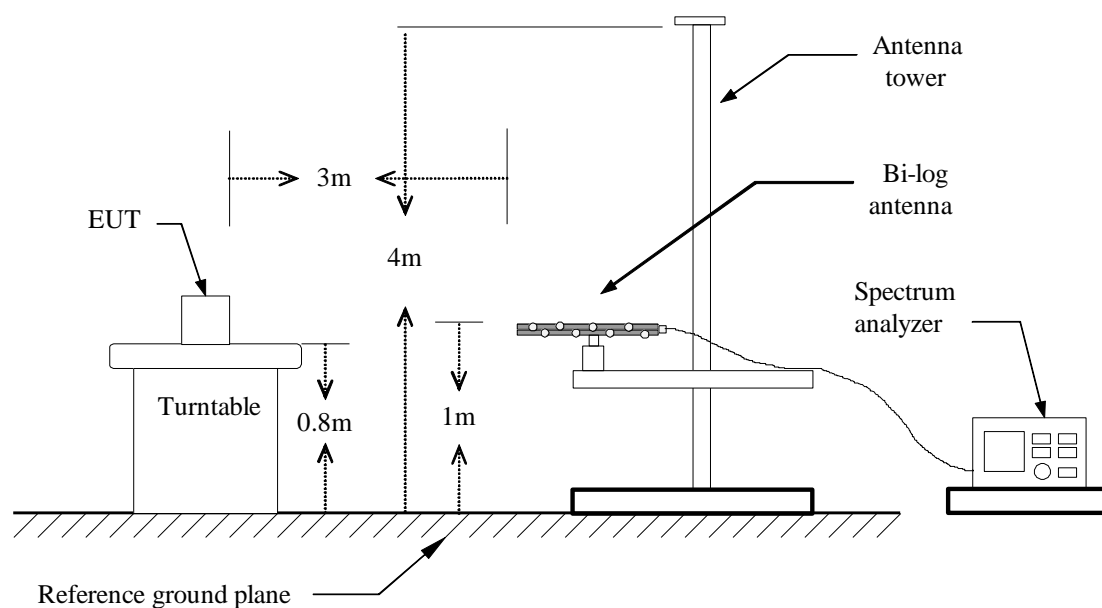
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

## Test Configuration

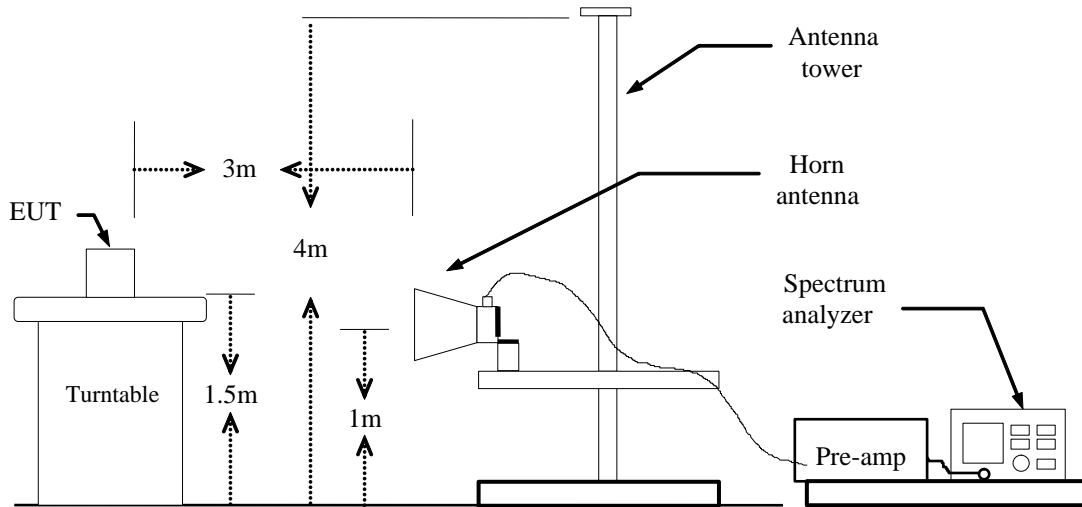
### 9kHz ~ 30MHz



### 30MHz ~ 1GHz



## Above 1 GHz



## **TEST PROCEDURE**

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m high and below 1 GHz is 0.8m high 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,

if duty cycle  $\geq 98\%$ , VBW=10Hz.

if duty cycle  $< 98\%$  VBW=1/T.

**IEEE 802.11a mode:** = 96%, VBW= 510Hz

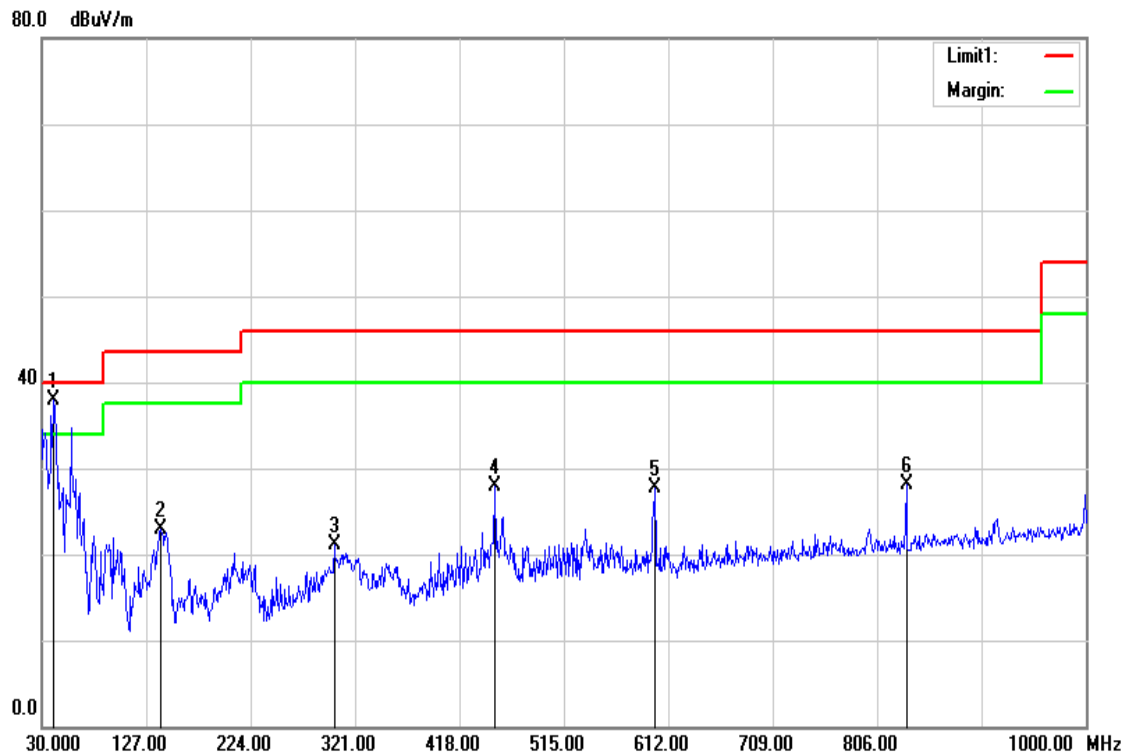
**IEEE 802.11n HT 20 MHz mode:** = 91%, VBW= 1KHz

**IEEE 802.11n HT 40 MHz mode:** = 84%, VBW= 2KHz

**IEEE 802.11ac VHT 80 MHz mode:** = 71%, VBW= 15KHz

7. Repeat above procedures until the measurements for all frequencies are complete.
8. Correction factor: Result = Spectrum Reading + cable loss(spectrum to Amp) - Amp Gain + Cable loss(Amp to receive Ant)+ Receive Ant

**Note:** We checked every harmonics frequencies from Fundamental frequencies with reduced VBW, and we mark a point to prove pass or not if we find any emission. For this case, there are no emissions hidden in the noise floor.

**Below 1 GHz****Operation Mode:** Normal Link**Test Date:** August 22, 2015**Temperature:** 27°C**Tested by:** Andy Shi**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)
40.6700	55.57	-17.58	37.99	40.00	-2.01	peak	V
140.5800	40.57	-17.71	22.86	43.50	-20.64	peak	V
301.6000	37.50	-16.37	21.13	46.00	-24.87	peak	V
450.9800	40.54	-12.64	27.90	46.00	-18.10	peak	V
599.3900	38.19	-10.52	27.67	46.00	-18.33	peak	V
833.1600	35.08	-6.98	28.10	46.00	-17.90	peak	V

**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) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

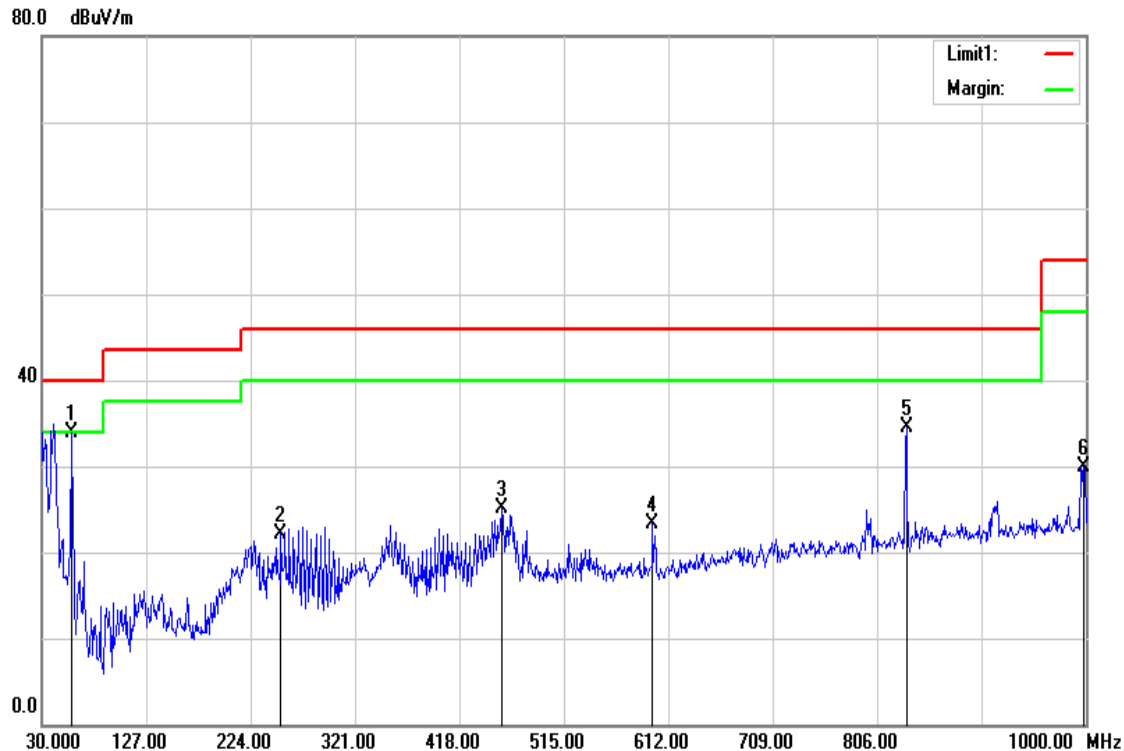


Operation Mode: Normal Link  
 Temperature: 27°C  
 Humidity: 53% RH

Test Date: August 22, 2015

Tested by: Andy Shi

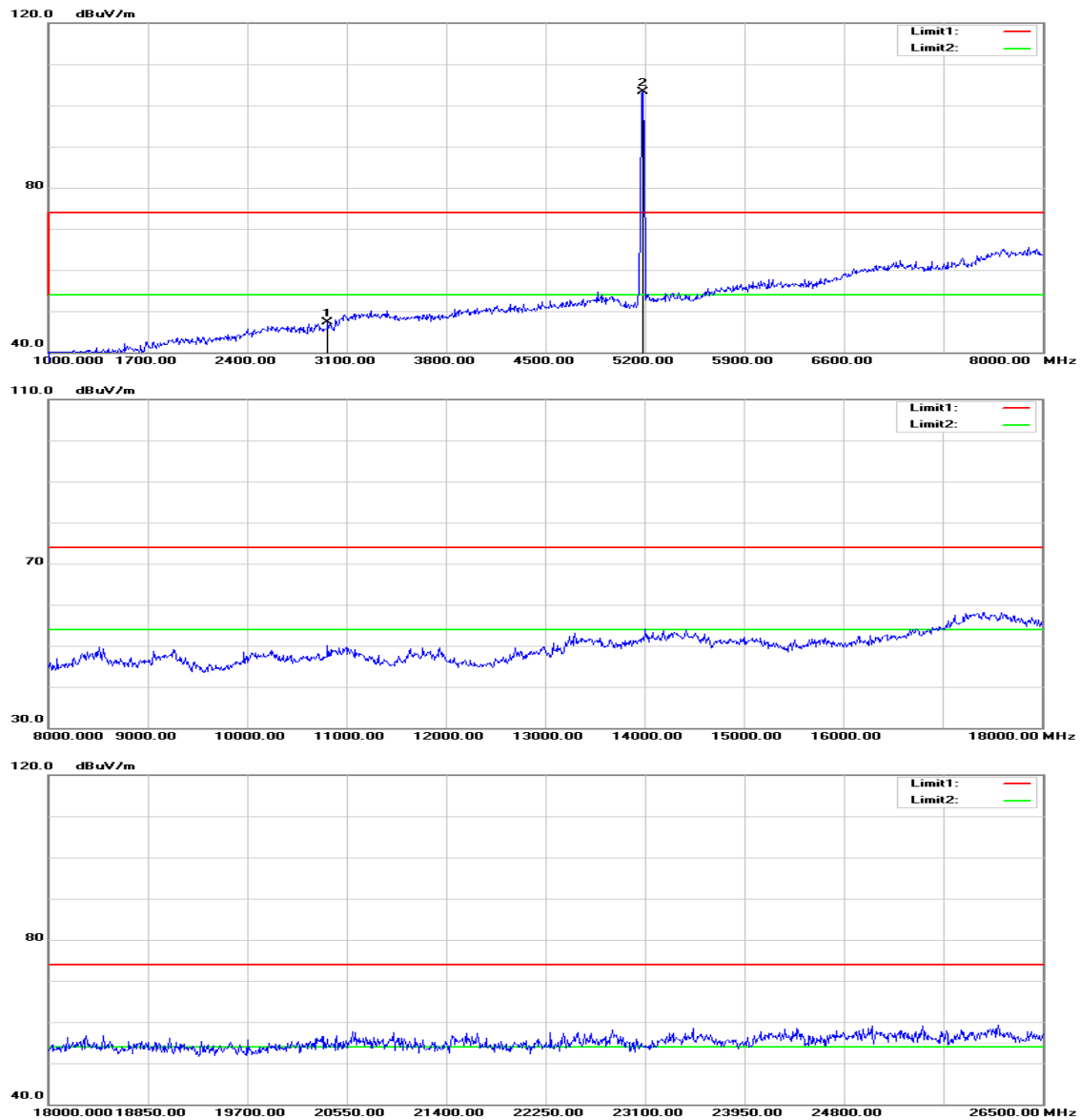
Polarity: Hor.



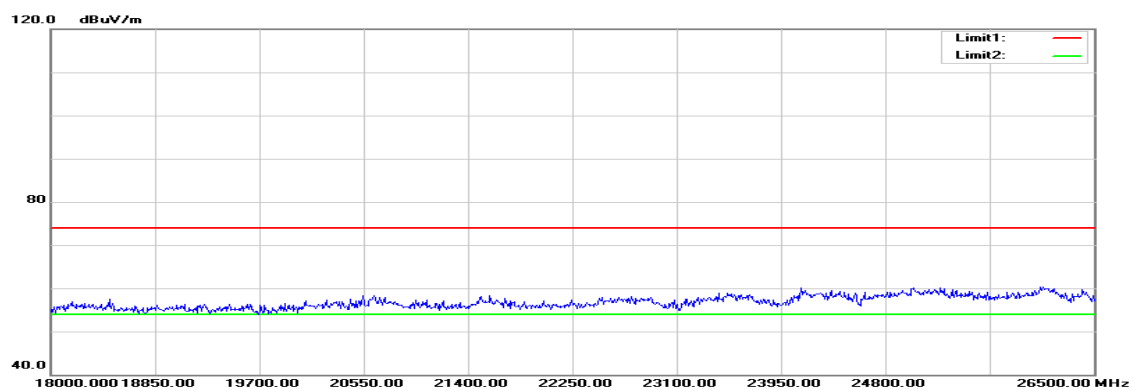
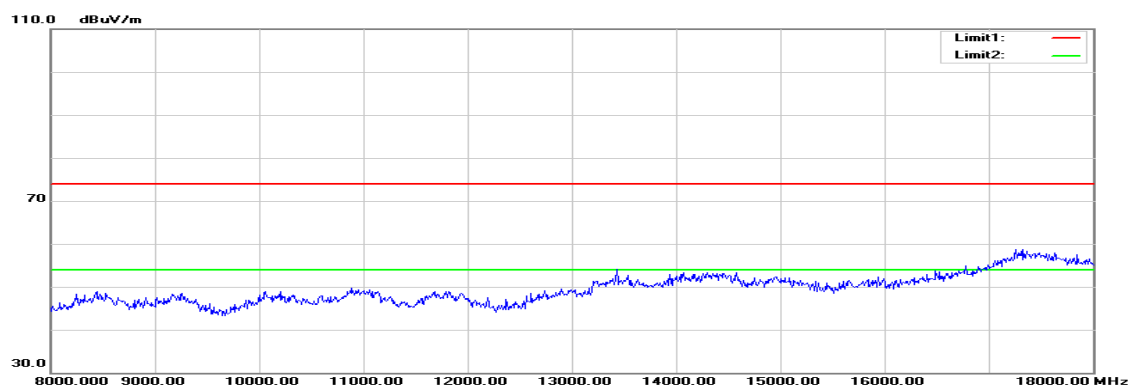
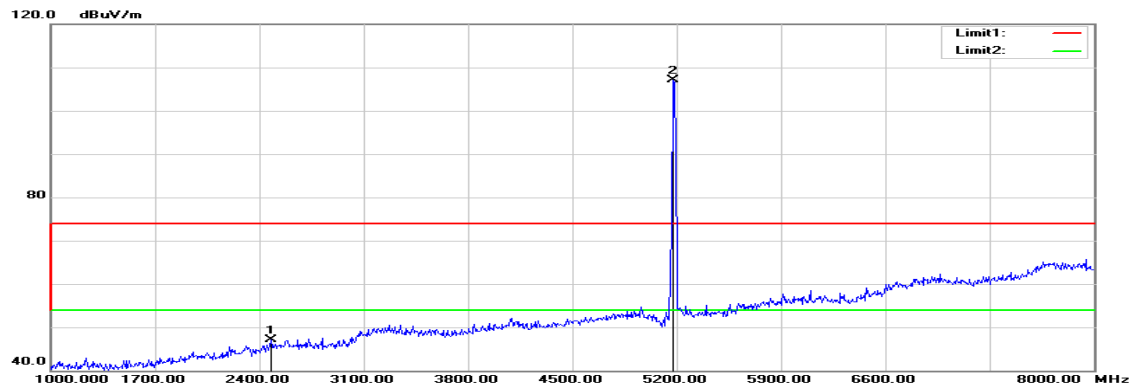
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
57.1600	57.48	-23.64	33.84	40.00	-6.16	peak	H
252.1300	40.43	-18.25	22.18	46.00	-23.82	peak	H
456.8000	37.64	-12.55	25.09	46.00	-20.91	peak	H
597.4500	33.77	-10.53	23.24	46.00	-22.76	peak	H
833.1600	41.56	-6.98	34.58	46.00	-11.42	peak	H
998.0600	34.68	-4.71	29.97	54.00	-24.03	peak	H

#### Remark:

1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).
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) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

**Above 1 GHz****Tx / IEEE 802.11a mode / 5180 MHz****Polarity: Vertical**

## Polarity: Horizontal

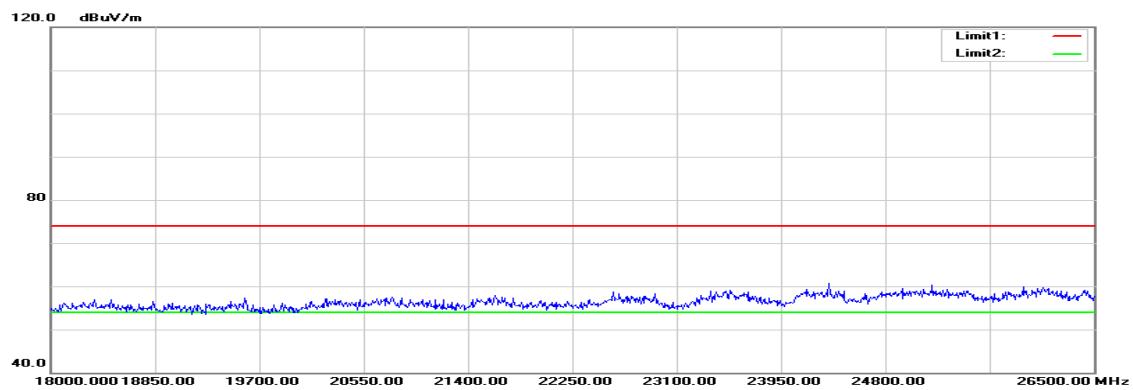
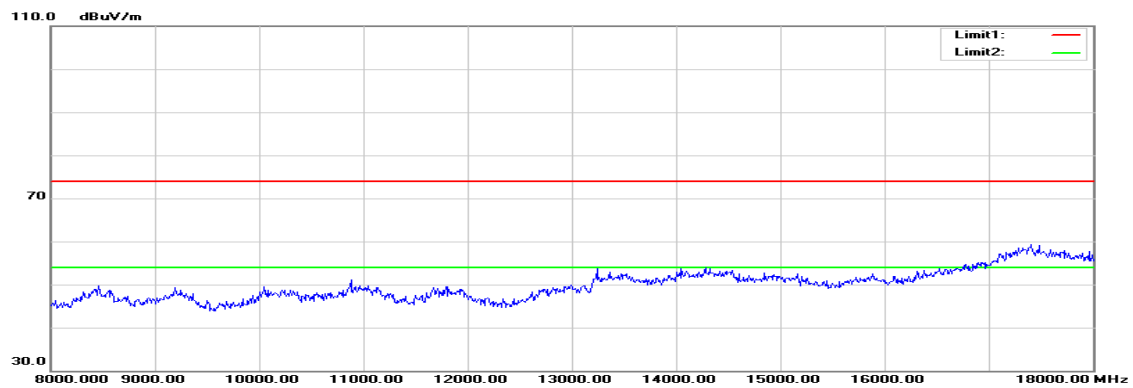
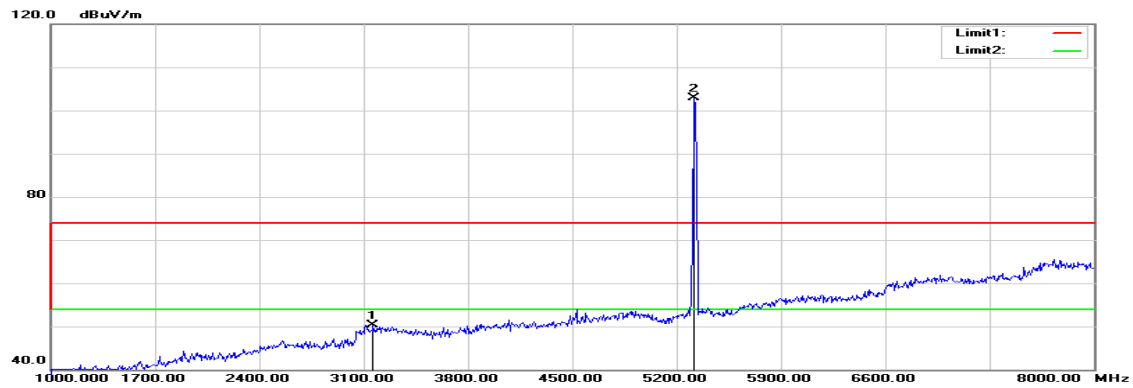


**Operation Mode:** Tx / IEEE 802.11a mode / 5180 MHz      **Test Date:** August 22, 2015  
**Temperature:** 27°C      **Tested by:** Andy Shi  
**Humidity:** 53% RH      **Polarity:** Ver. / Hor.

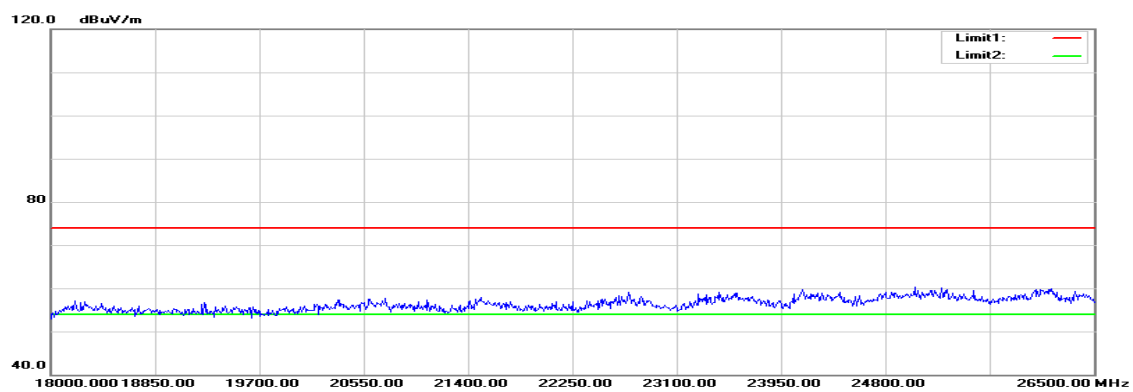
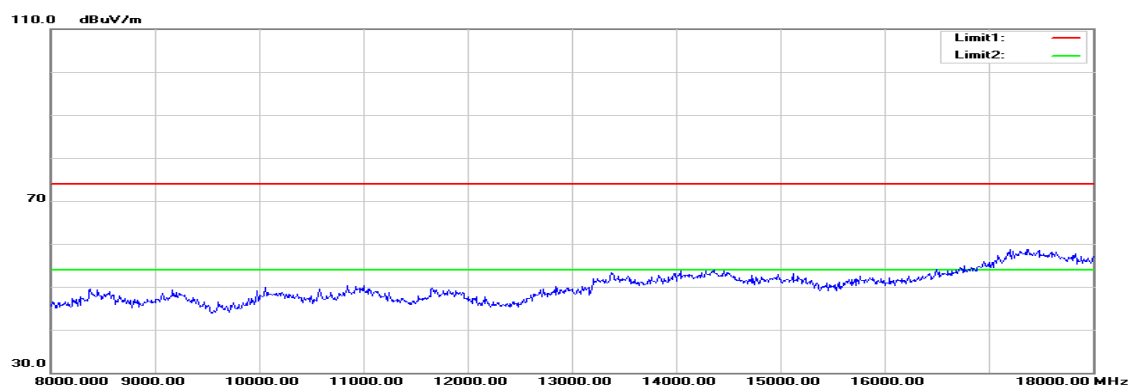
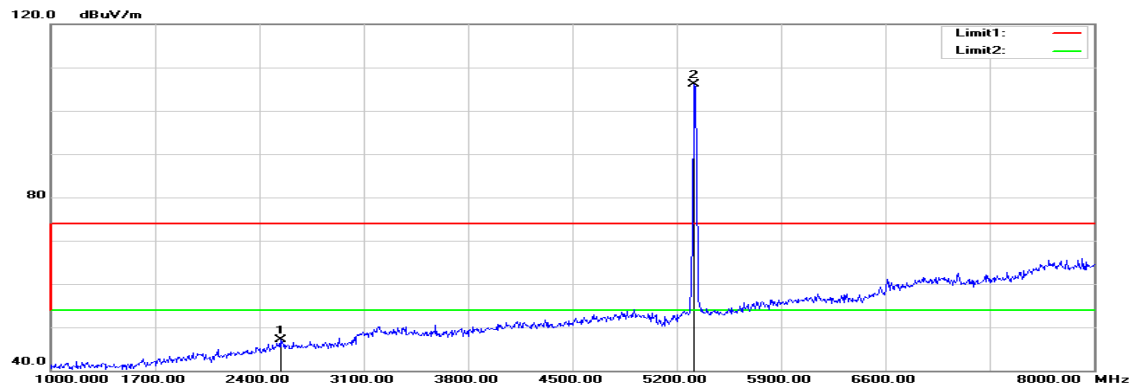
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
2967.000	49.42	-2.18	47.24	74.00	-26.76	peak	V
N/A							
2477.000	50.45	-3.32	47.13	74.00	-26.87	peak	H
N/A							

**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.
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.  $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$ .

**Tx / IEEE 802.11a mode / 5320 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11a mode / 5320 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 22, 2015

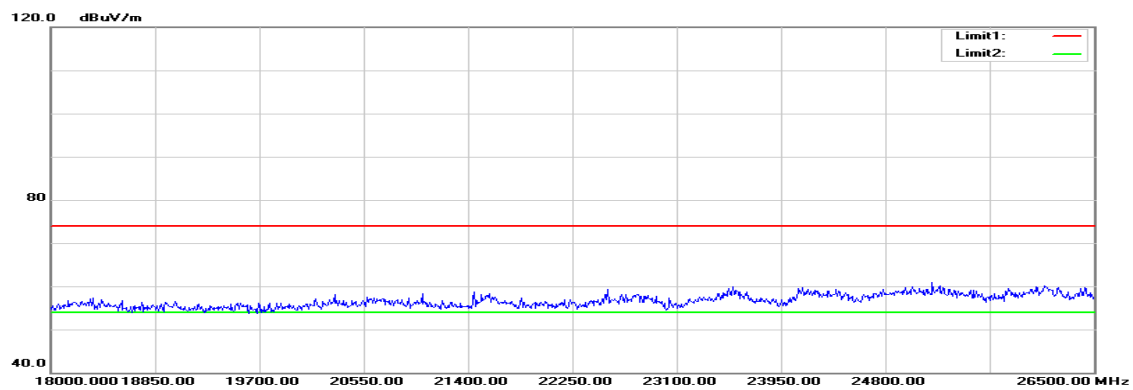
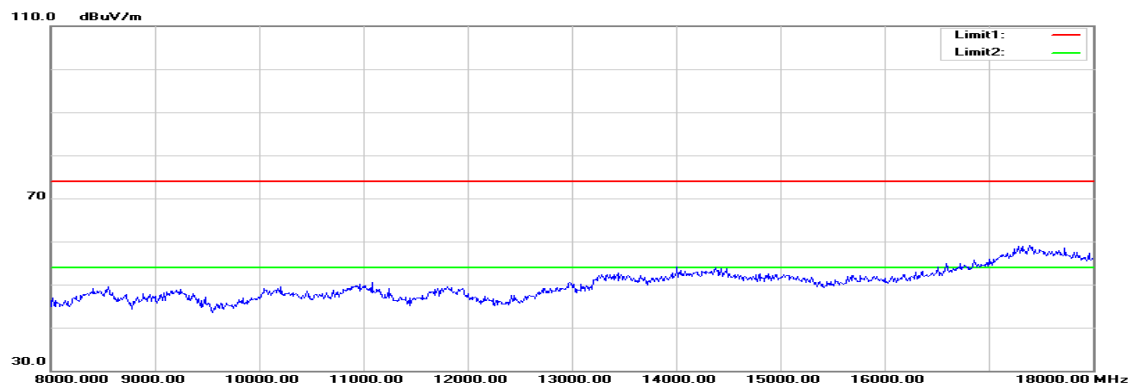
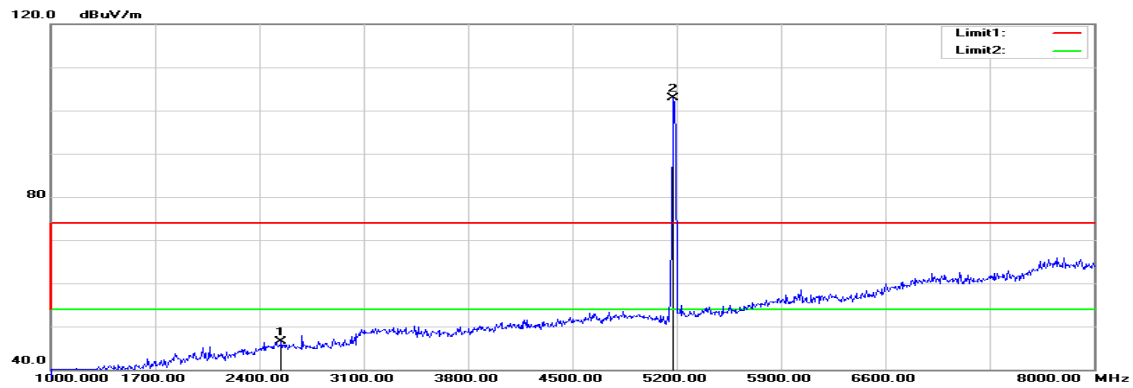
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3163.000	52.12	-1.72	50.40	74.00	-23.60	peak	V
N/A							
2540.000	50.21	-3.04	47.17	74.00	-26.83	peak	H
N/A							

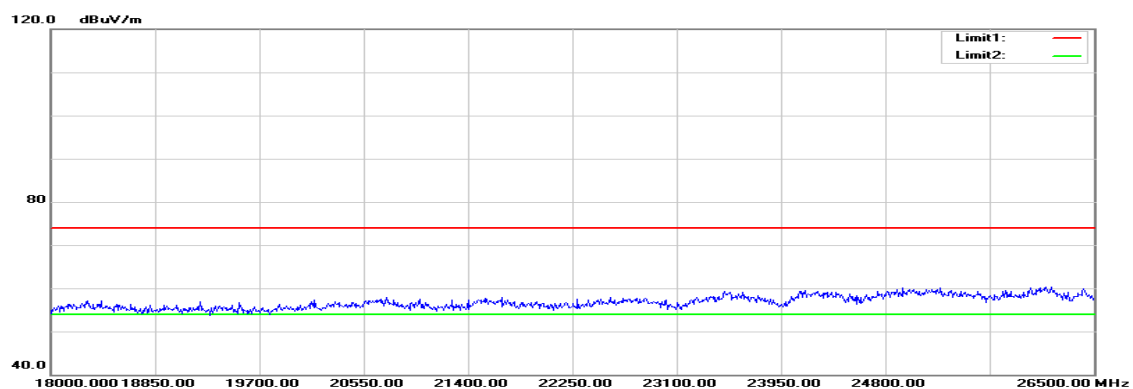
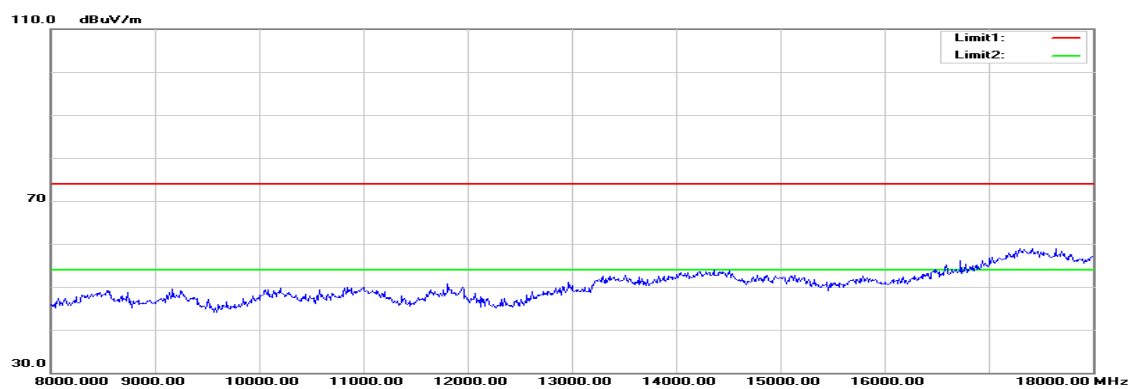
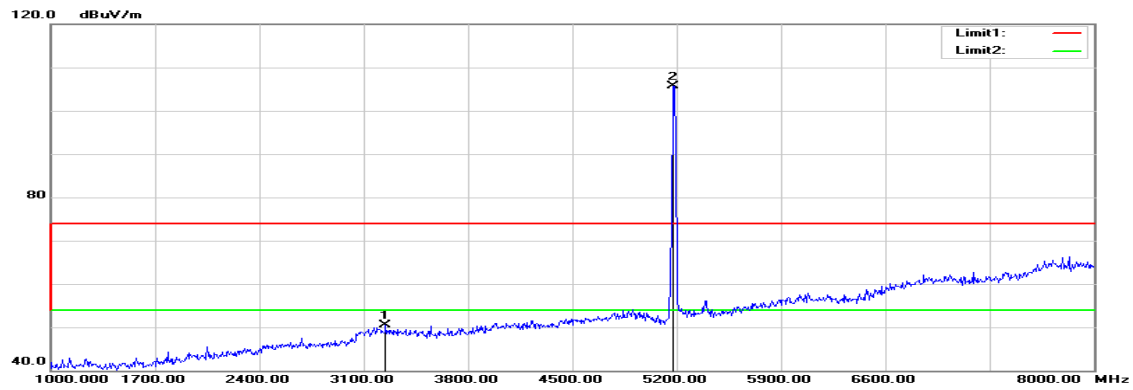
**Remark:**

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.
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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5180 MHz****Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5180 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 22, 2015

**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

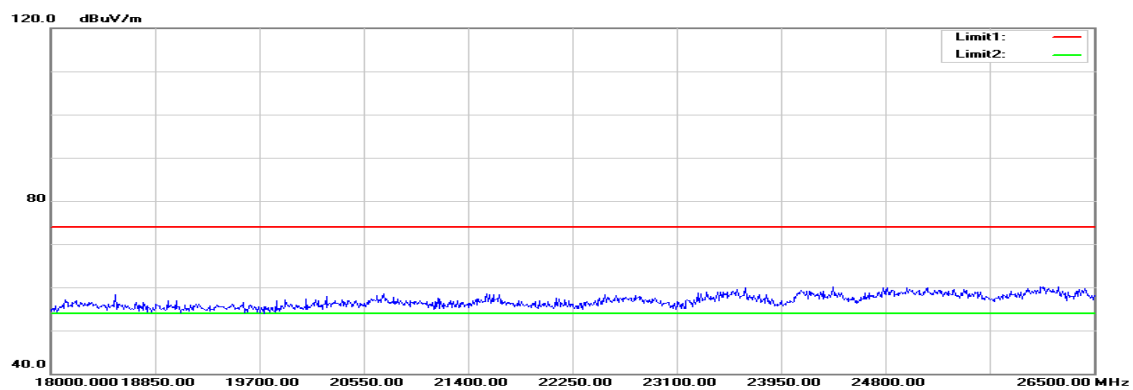
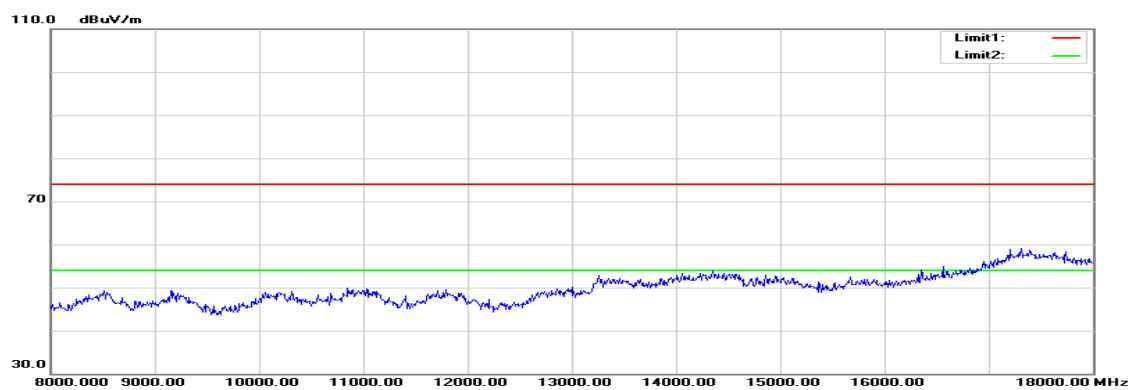
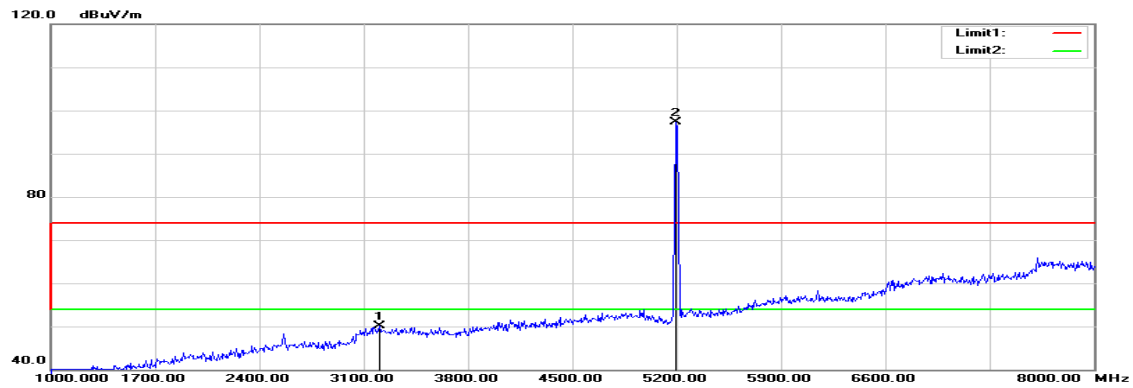
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
2547.000	49.61	-3.03	46.58	74.00	-27.42	peak	V
N/A							
3247.000	52.01	-1.52	50.49	74.00	-23.51	peak	H
N/A							

**Remark:**

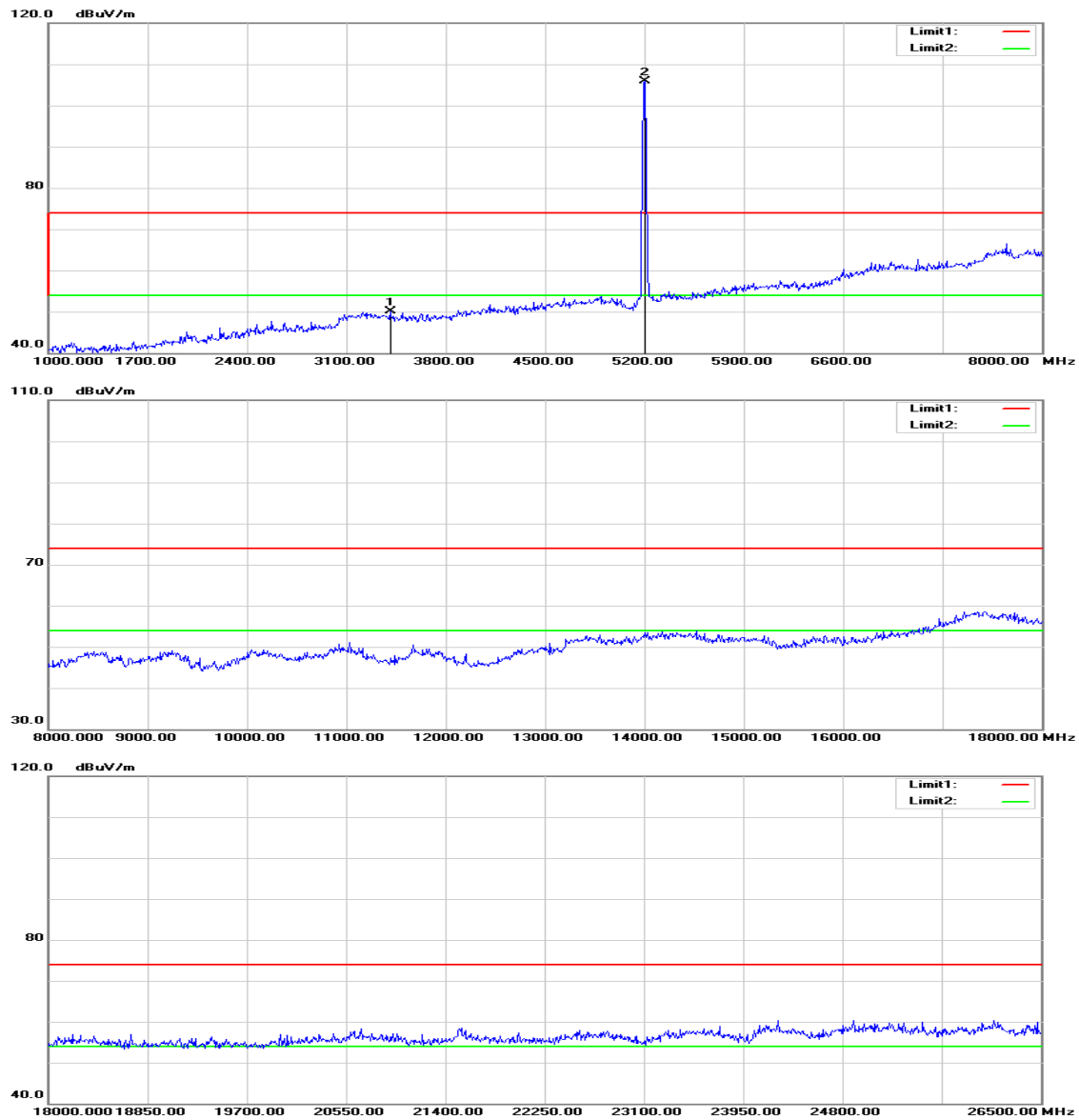
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
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).

## Tx / IEEE 802.11n HT 20 MHz mode / 5200 MHz

**Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5200 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

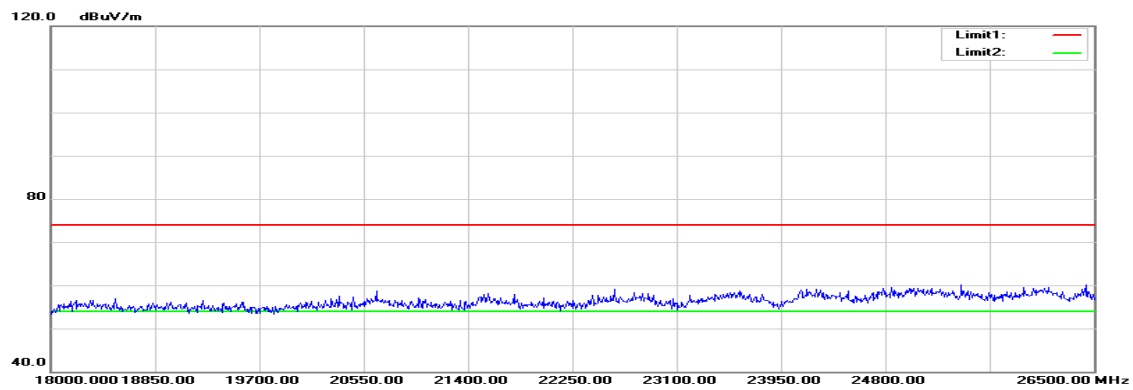
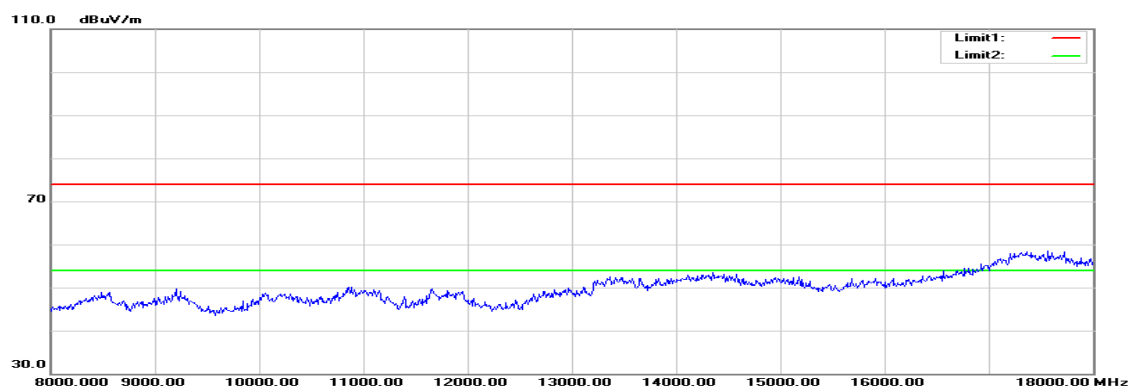
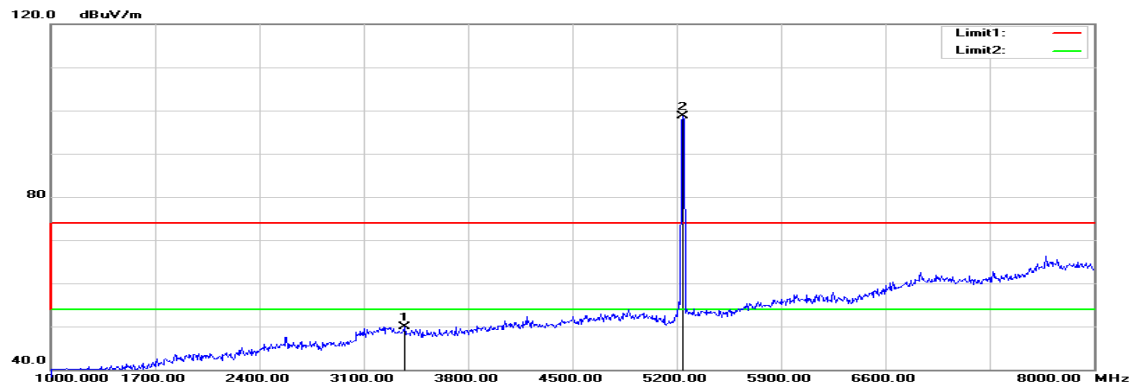
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

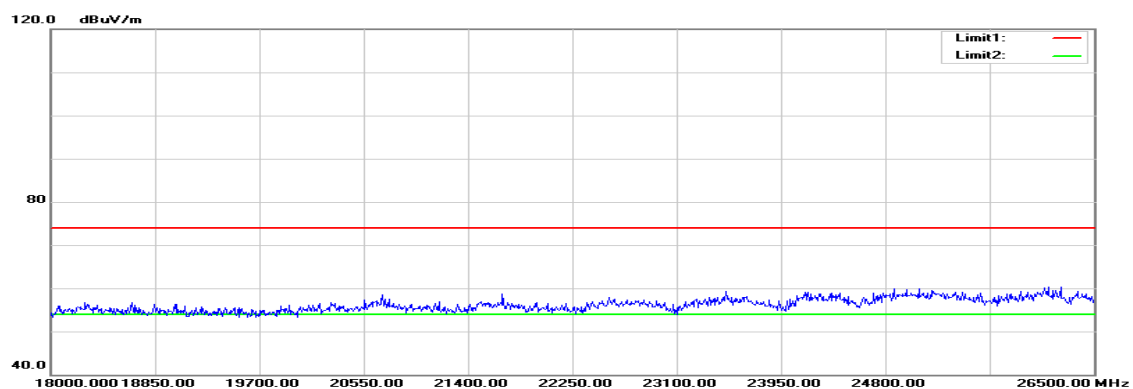
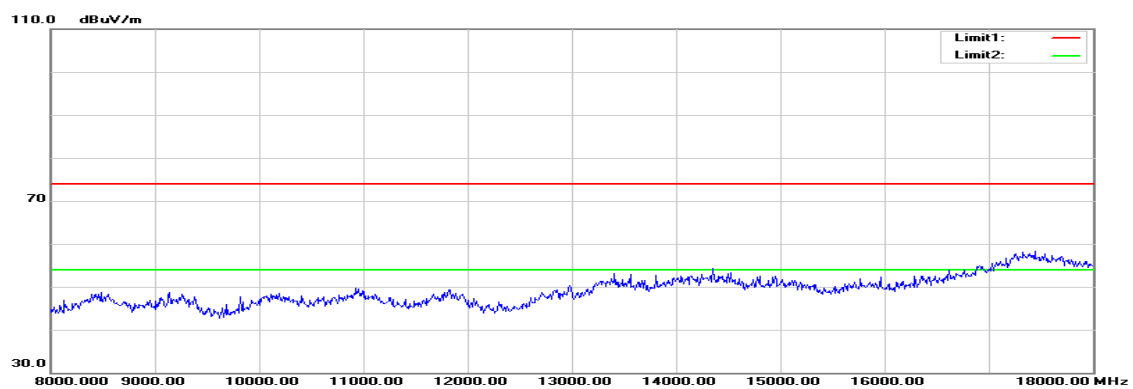
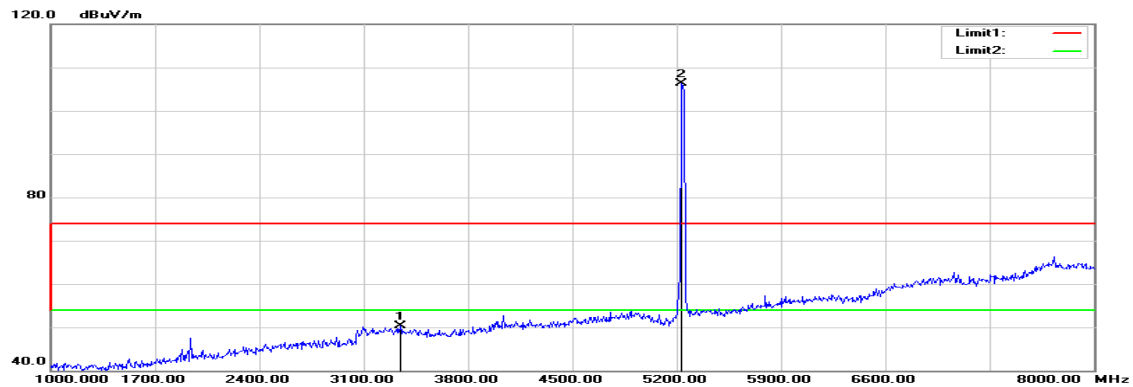
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3205.000	51.63	-1.62	50.01	74.00	-23.99	peak	V
N/A							
3408.000	51.20	-1.13	50.07	74.00	-23.93	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5240 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5240 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

**Tested by:** Andy Shi

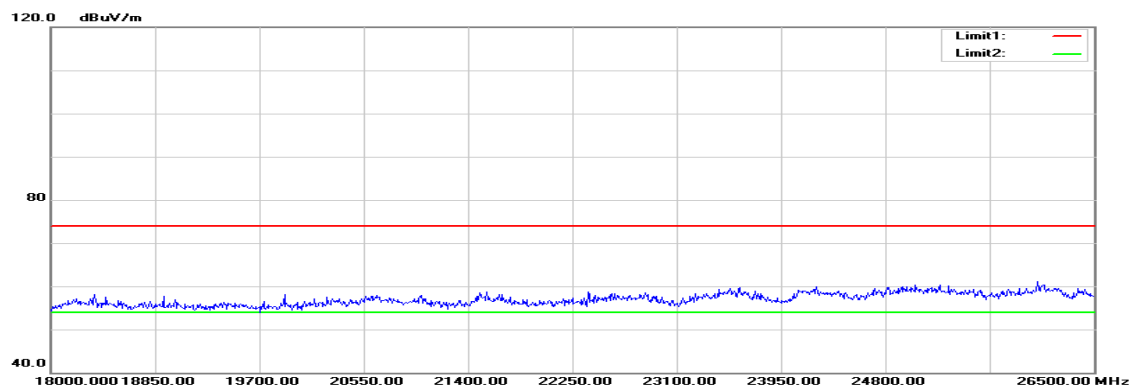
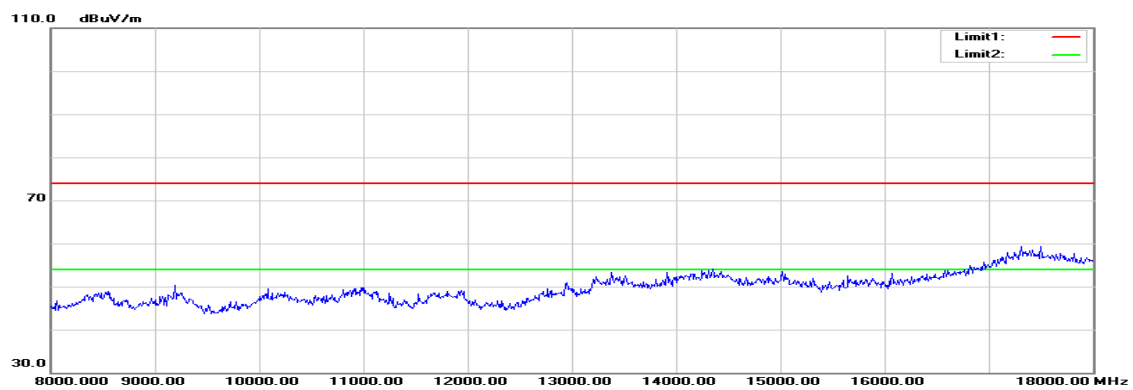
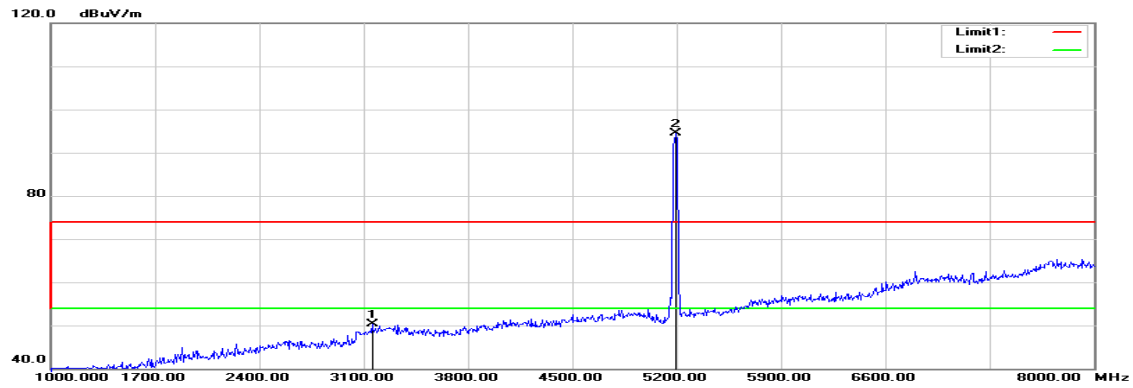
**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3345.000	51.51	-1.28	50.23	74.00	-23.77	peak	V
N/A							
3345.000	51.51	-1.28	50.23	74.00	-23.77	peak	H
N/A							

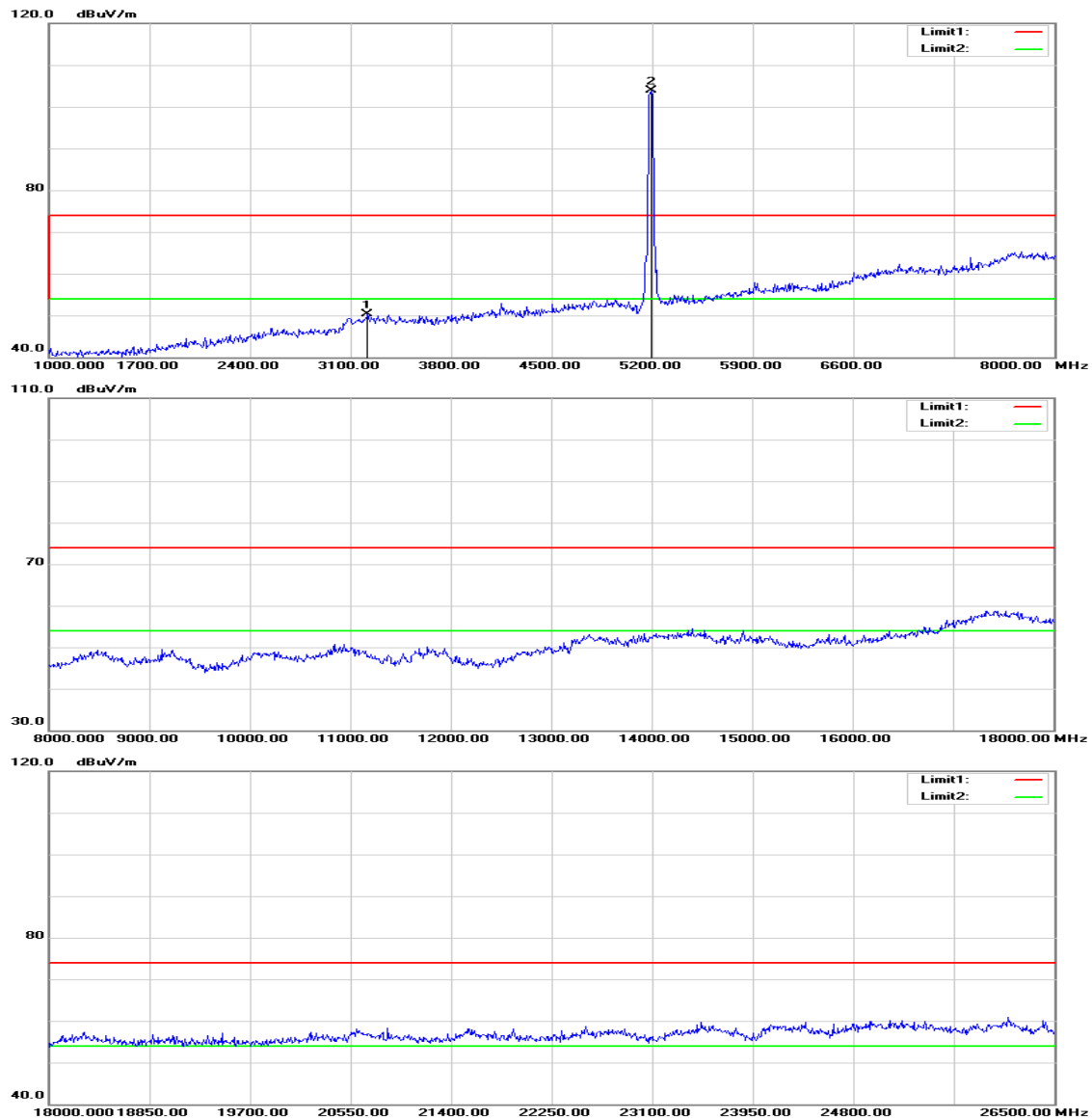
**Remark:**

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.
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).



**Tx / IEEE 802.11n HT 40 MHz mode / 5190 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5190 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

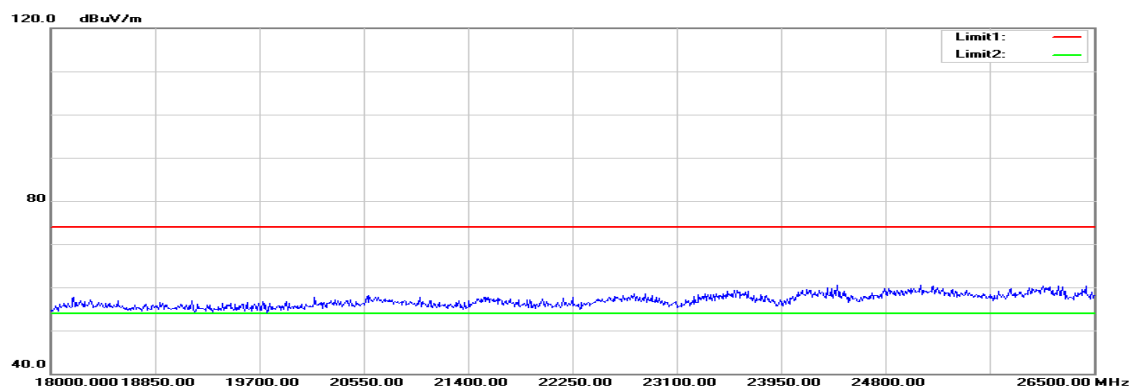
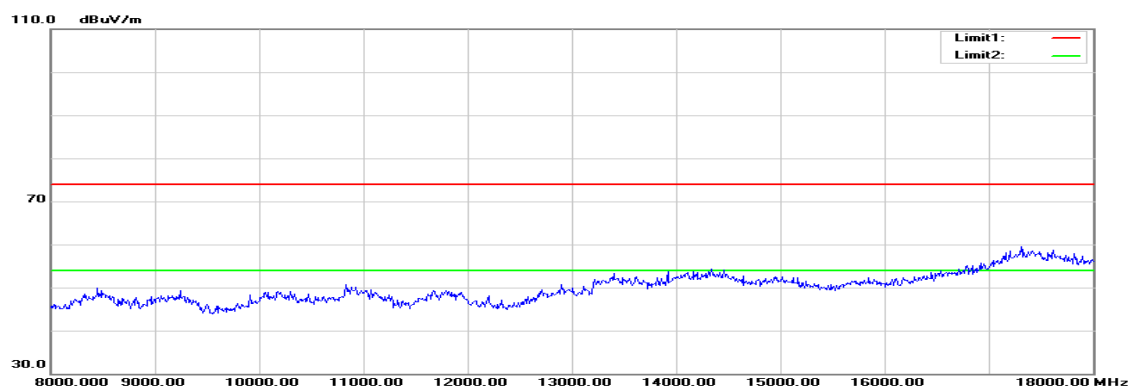
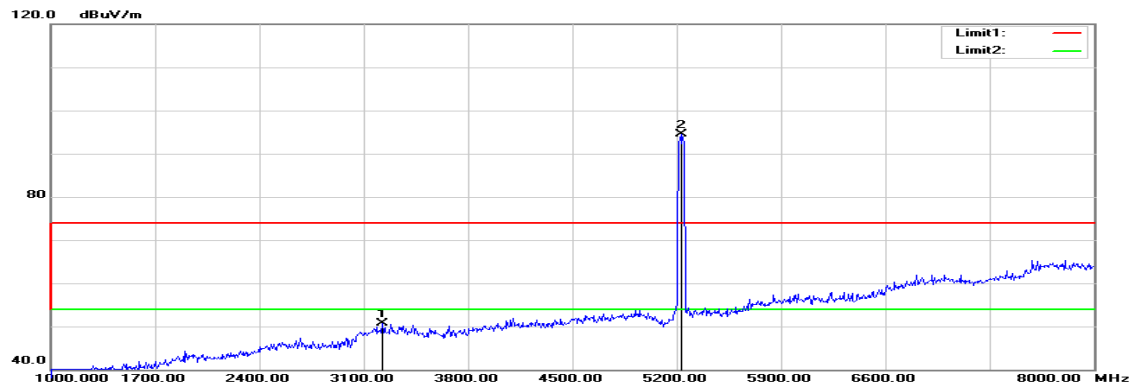
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

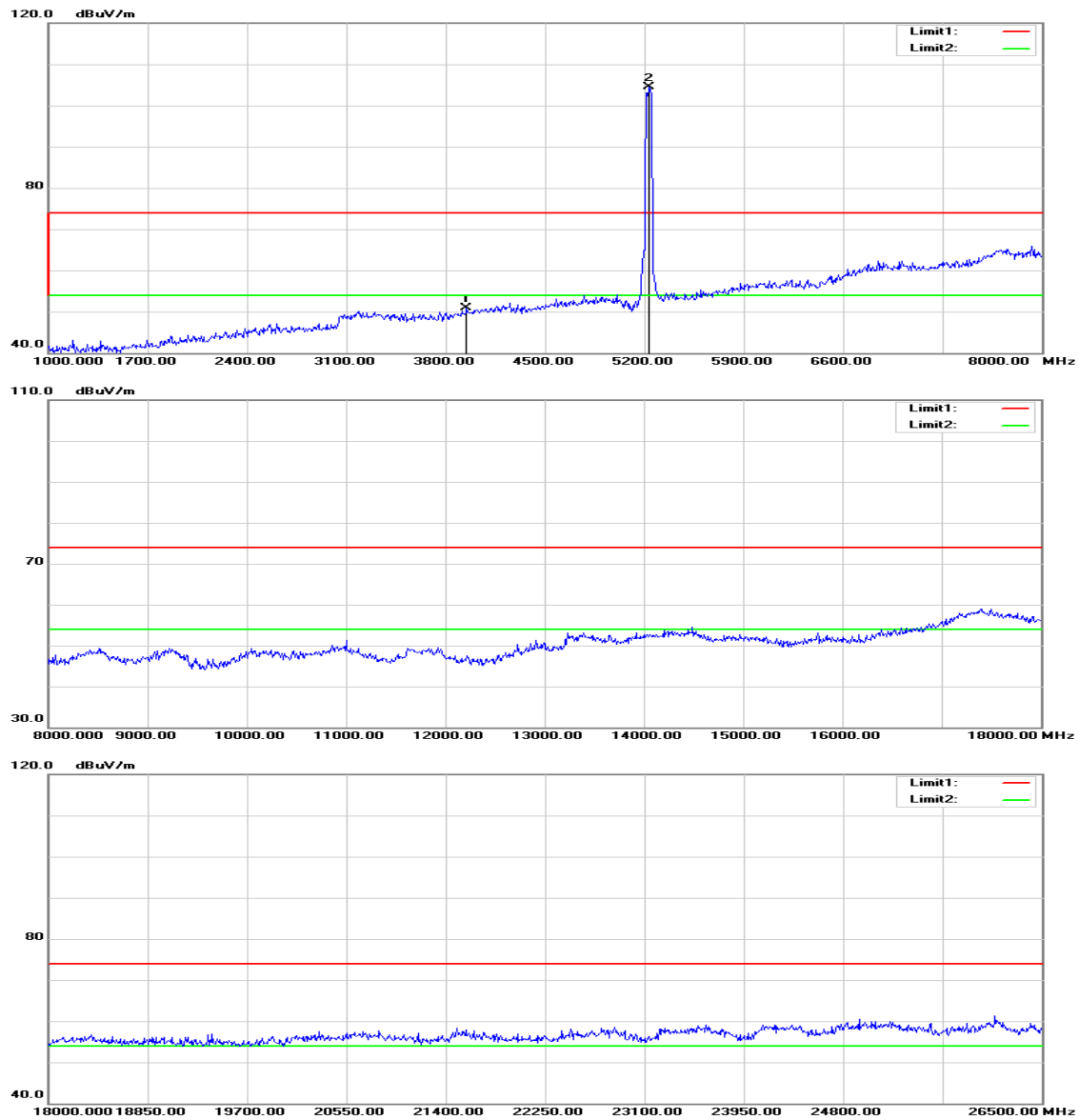
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3156.000	52.08	-1.74	50.34	74.00	-23.66	peak	V
N/A							
3219.000	51.85	-1.58	50.27	74.00	-23.73	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11n HT 40 MHz mode / 5230 MHz****Polarity: Vertical**

## Polarity: Horizontal



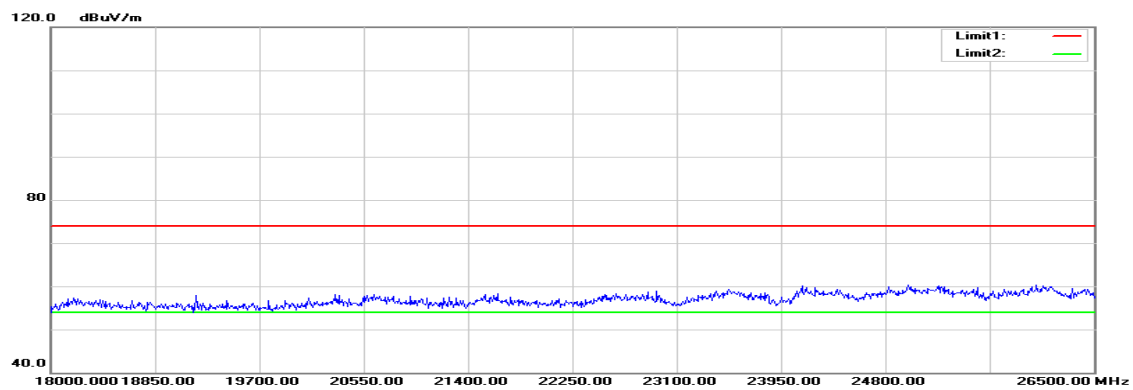
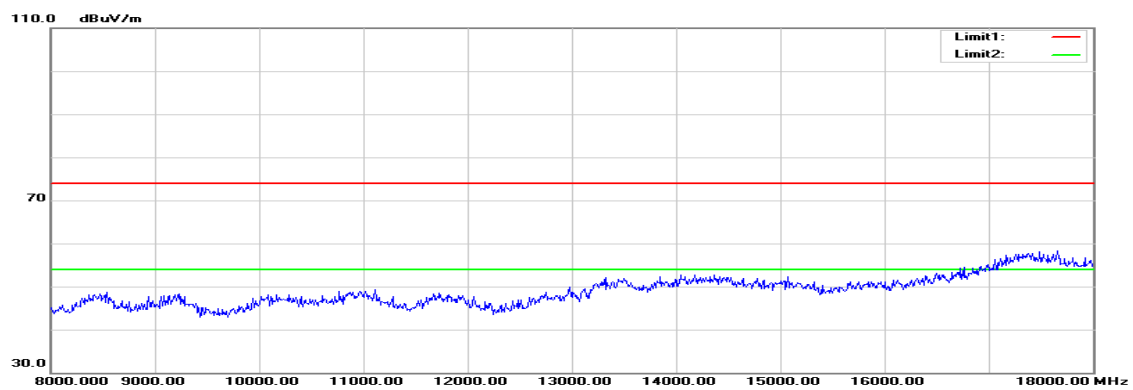
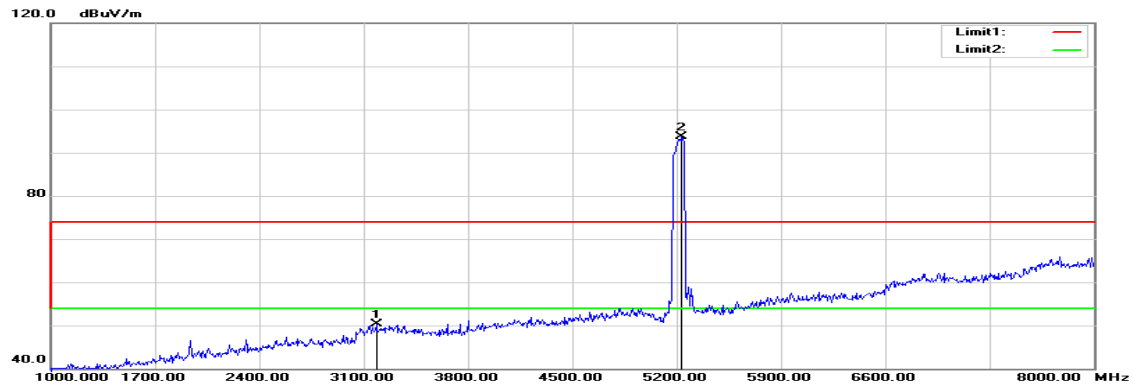
**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5230 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015  
**Tested by:** Andy Shi  
**Polarity:** Ver. / Hor.

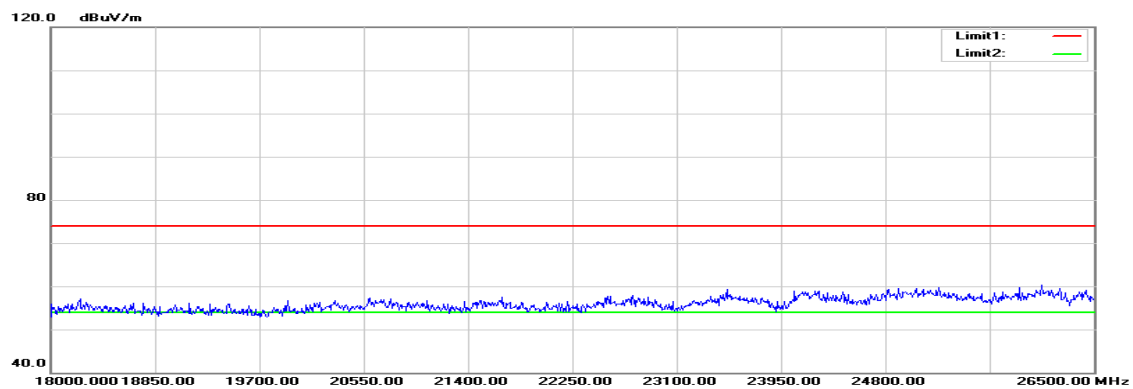
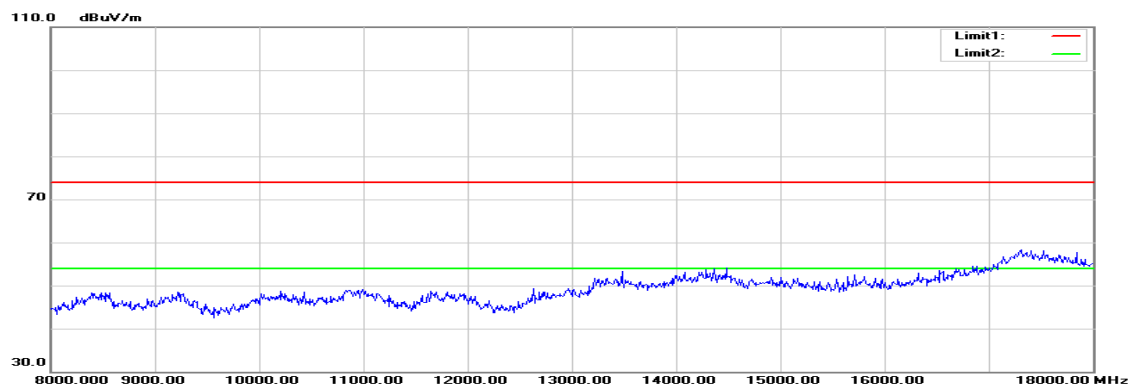
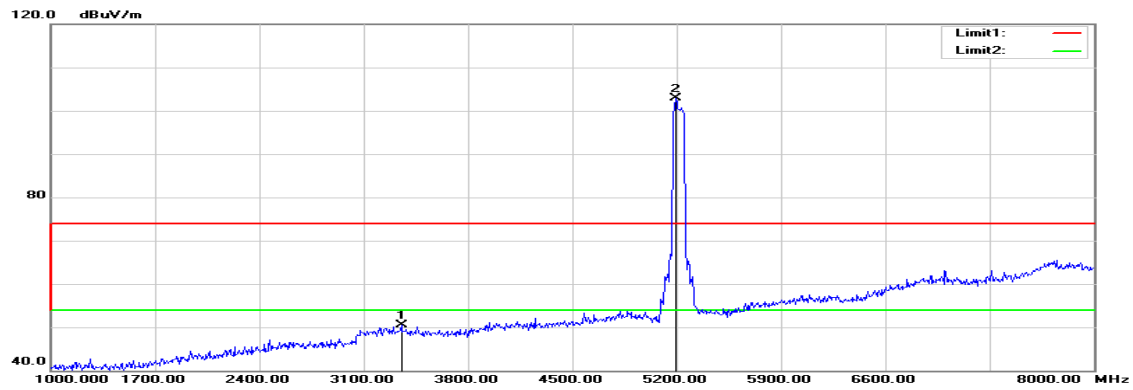
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3226.000	52.18	-1.57	50.61	74.00	-23.39	peak	V
N/A							
3947.000	49.95	1.00	50.95	74.00	-23.05	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11ac VHT 80 MHz mode / 5210MHz****Polarity: Vertical**

## Polarity: Horizontal





**Operation Mode:** Tx / IEEE 802.11ac VHT 80 MHz mode / 5210MHz

**Test Date:** August 25, 2015

**Temperature:** 27°C

**Tested by:** Andy Shi

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

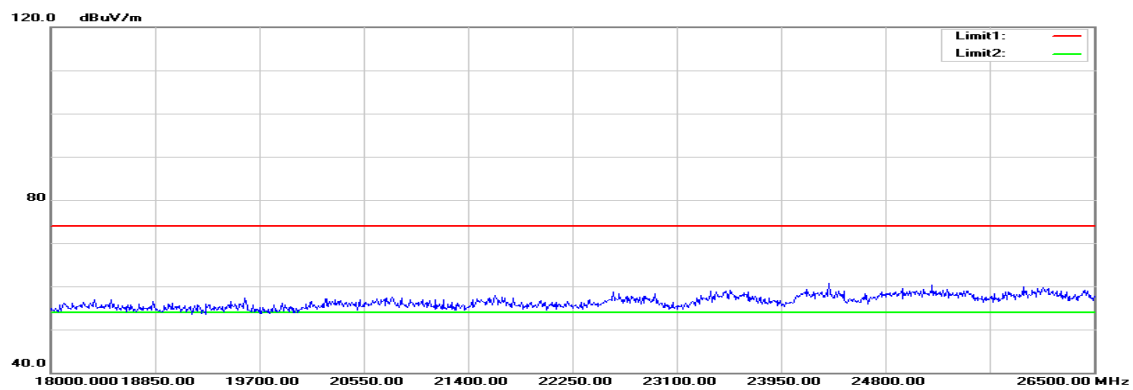
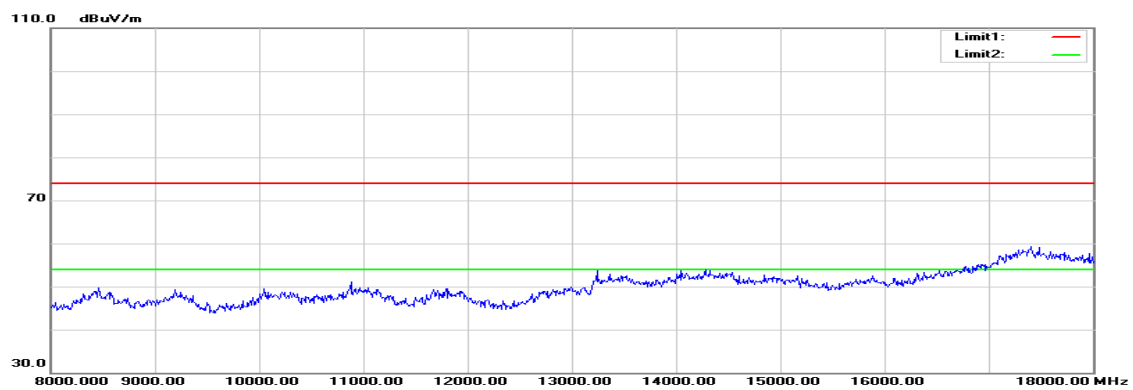
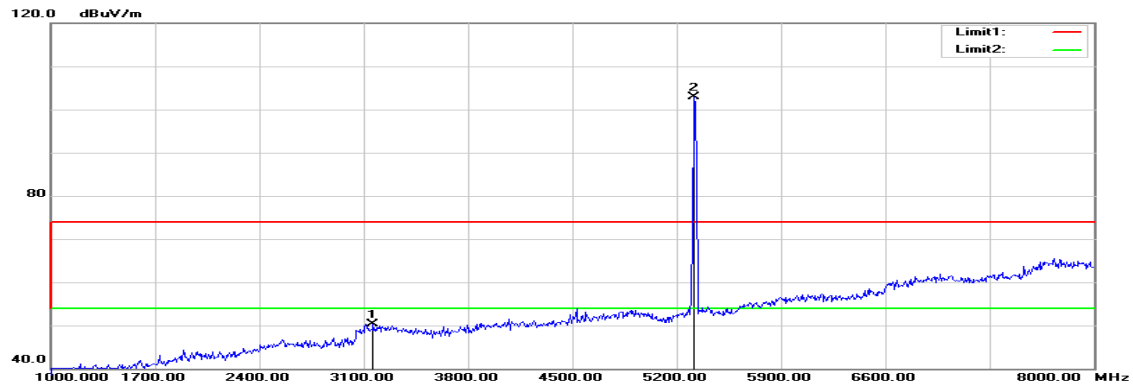
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3184.000	51.94	-1.67	50.27	74.00	-23.73	peak	V
N/A							
3352.000	51.74	-1.27	50.47	74.00	-23.53	peak	H
N/A							

**Remark:**

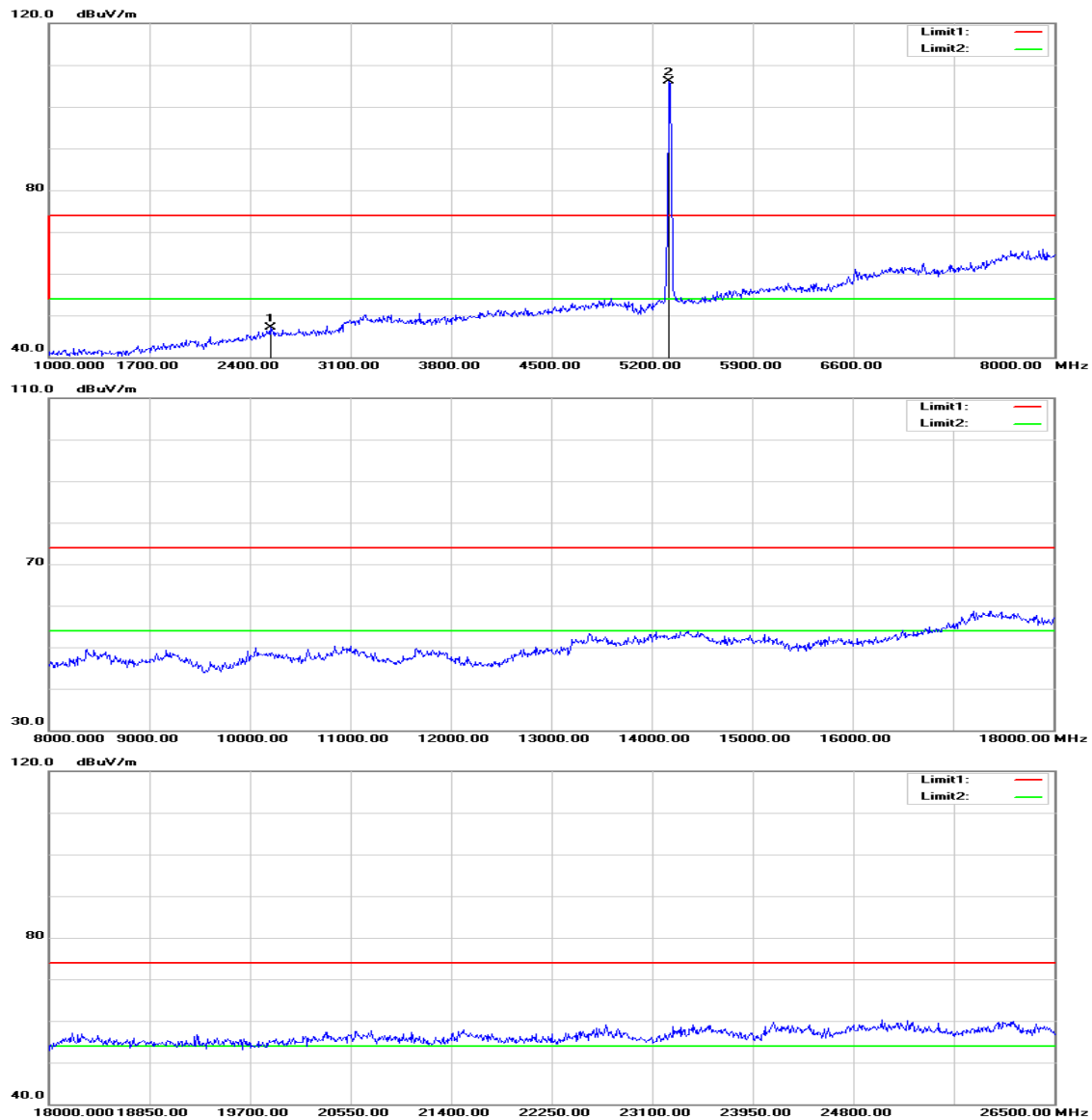
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
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).

## Tx / IEEE 802.11a mode / 5320 MHz

**Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11a mode / 5320 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 22, 2015

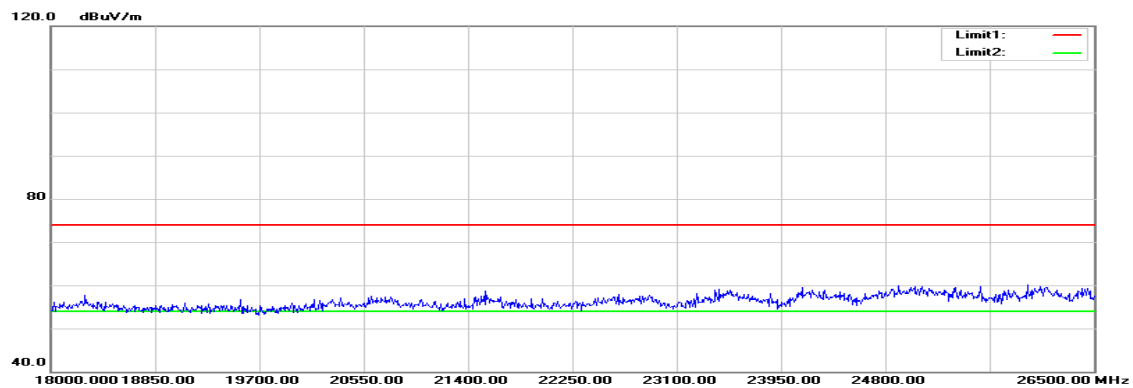
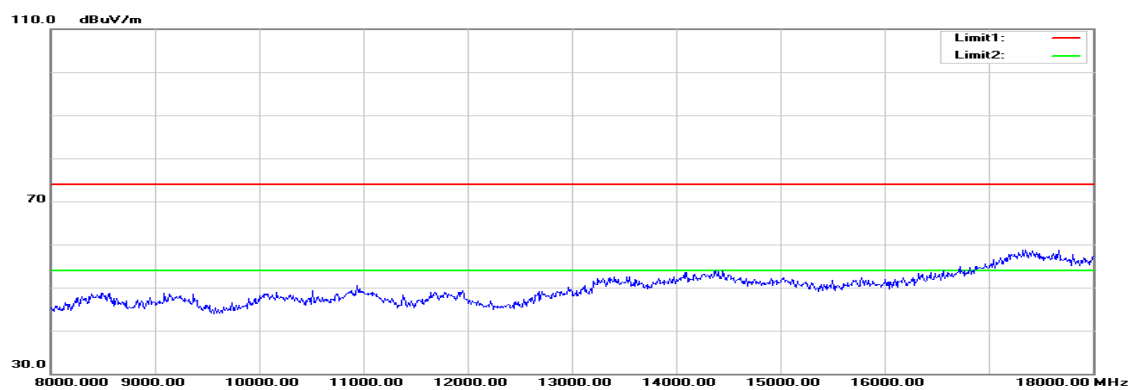
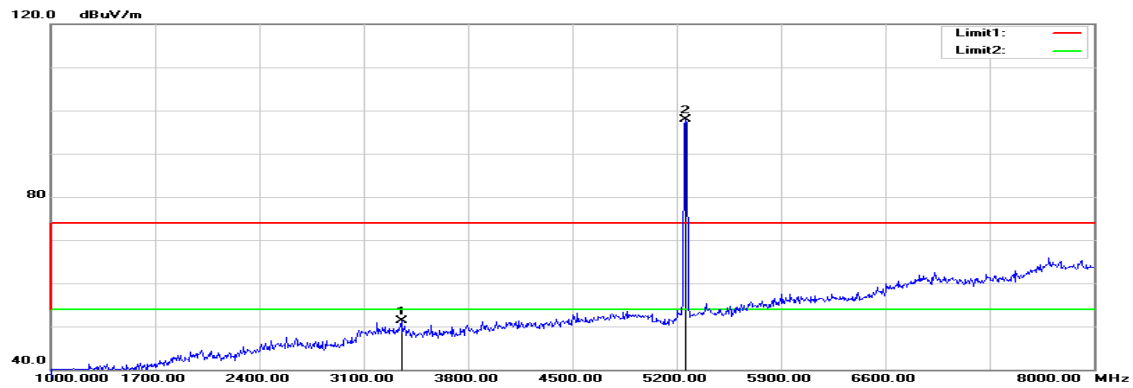
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

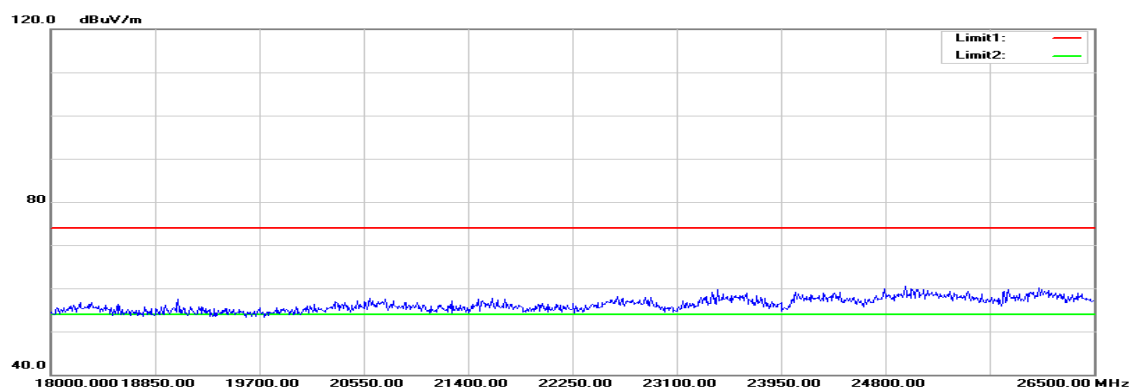
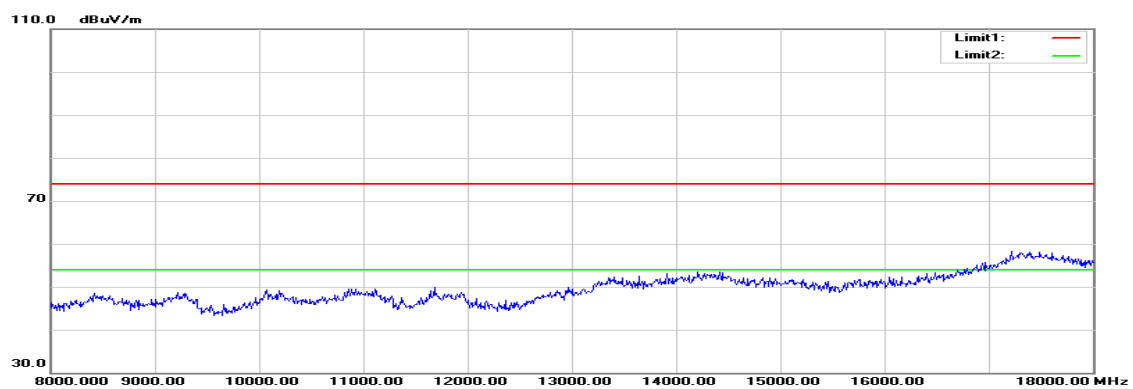
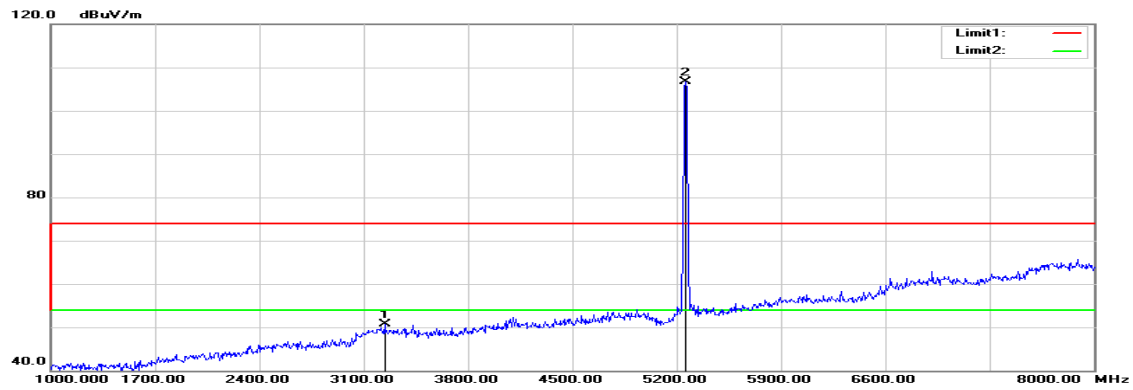
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3163.000	52.12	-1.72	50.40	74.00	-23.60	peak	V
N/A							
2540.000	50.21	-3.04	47.17	74.00	-26.83	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5260 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5260 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

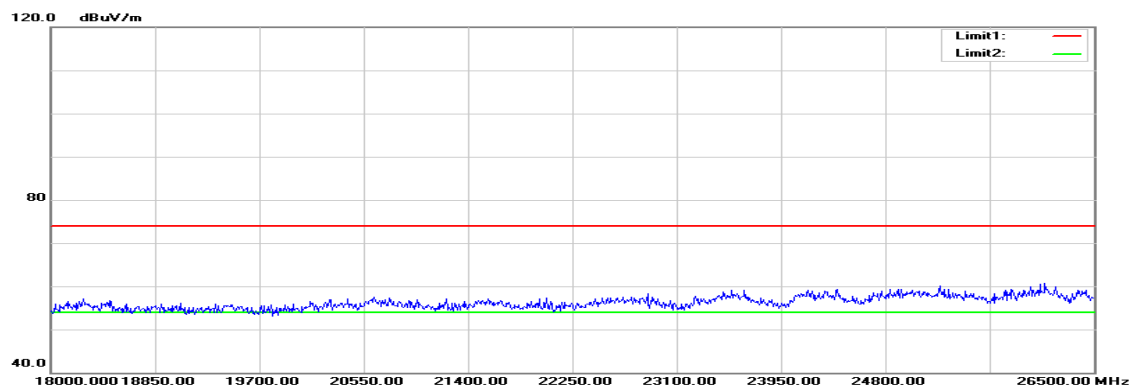
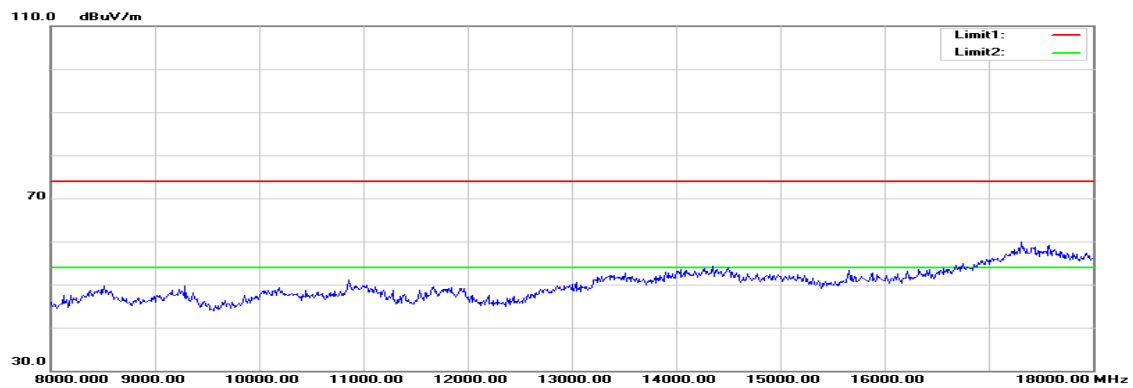
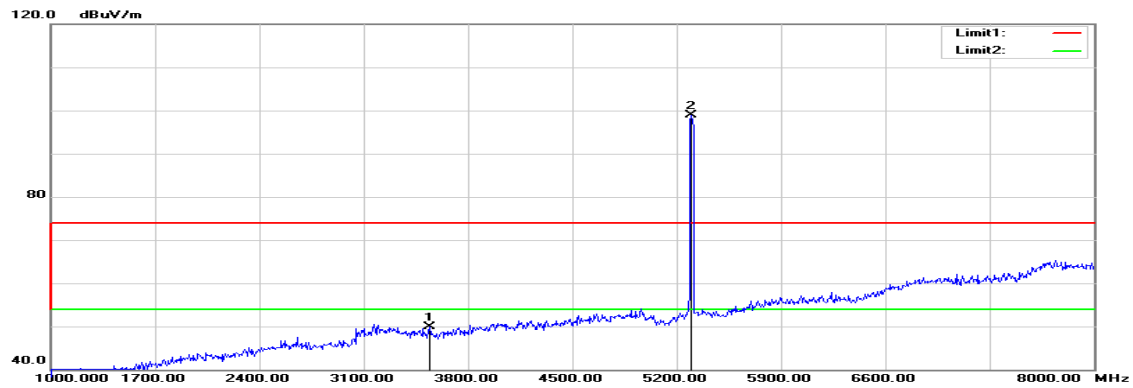
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3352.000	52.50	-1.27	51.23	74.00	-22.77	peak	V
N/A							
3240.000	52.29	-1.53	50.76	74.00	-23.24	peak	H
N/A							

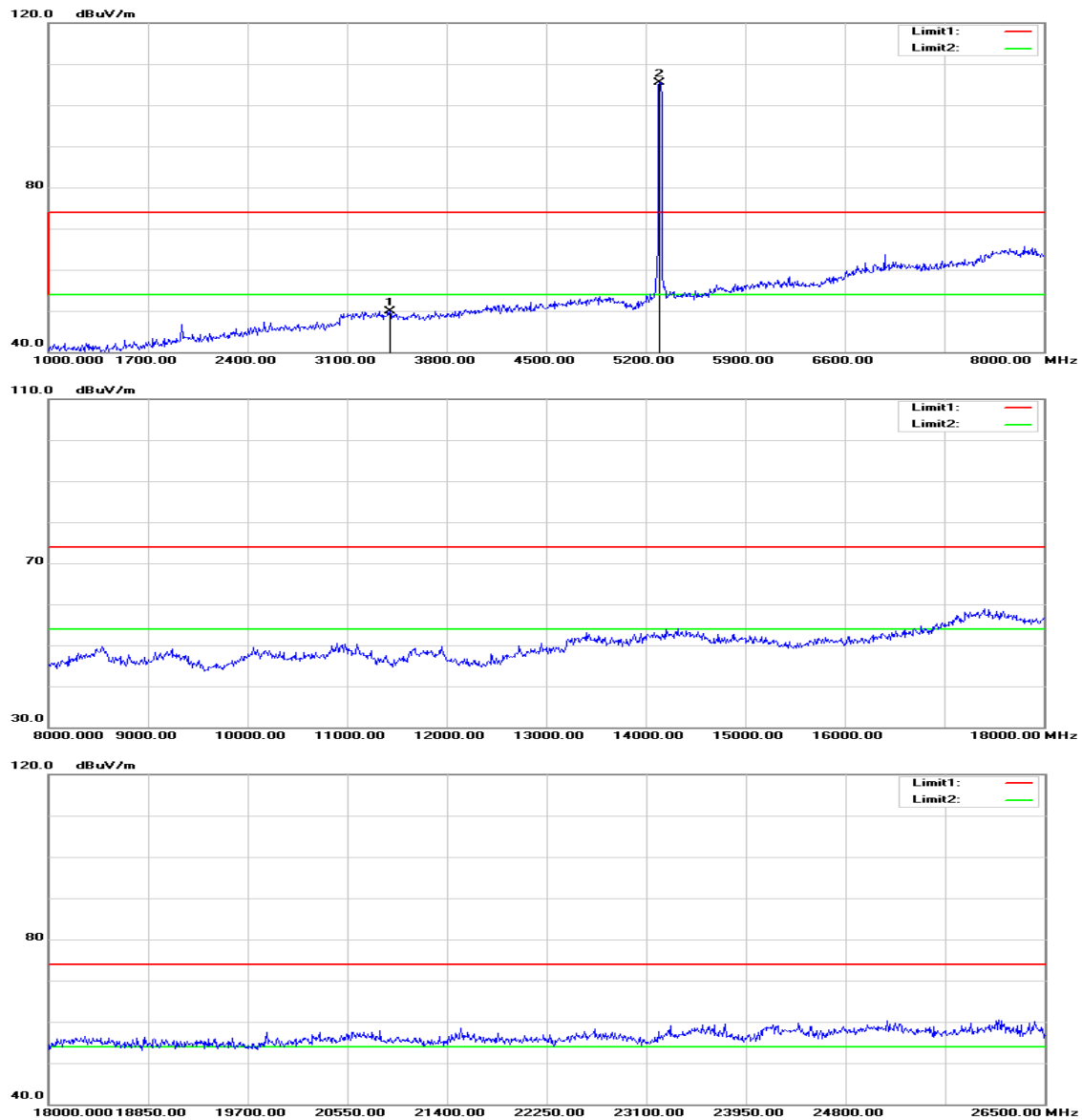
**Remark:**

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.
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).

**Tx / IEEE 802.11n HT 20 MHz Channel mode / 5300 MHz****Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5300 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

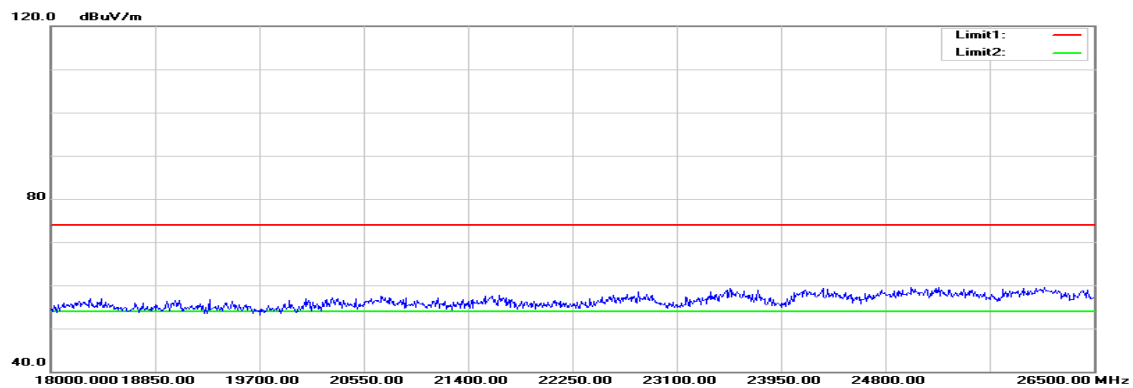
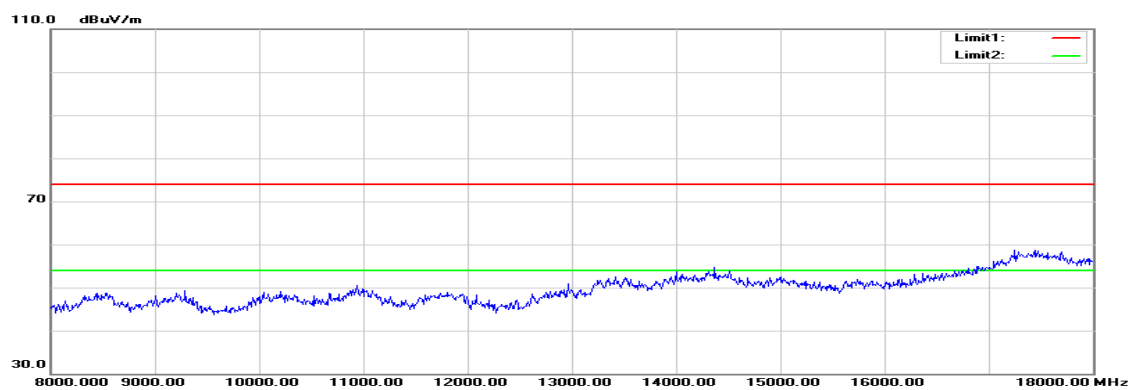
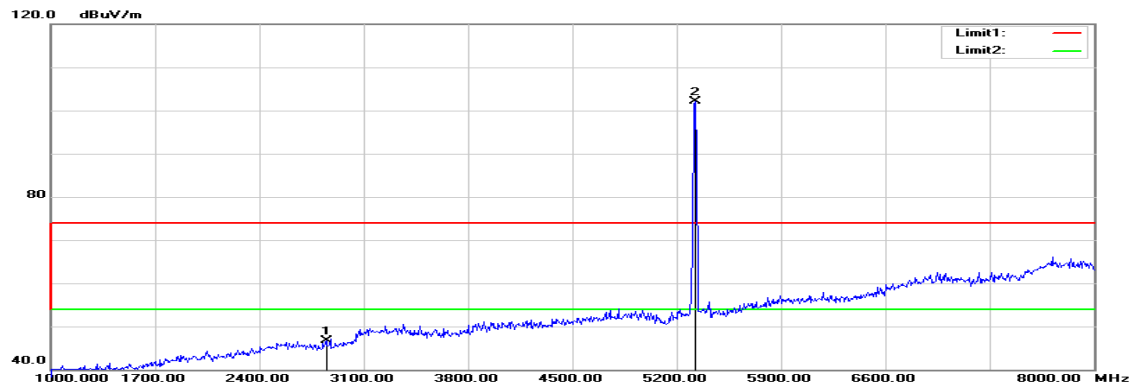
**Tested by:** Andy Shi

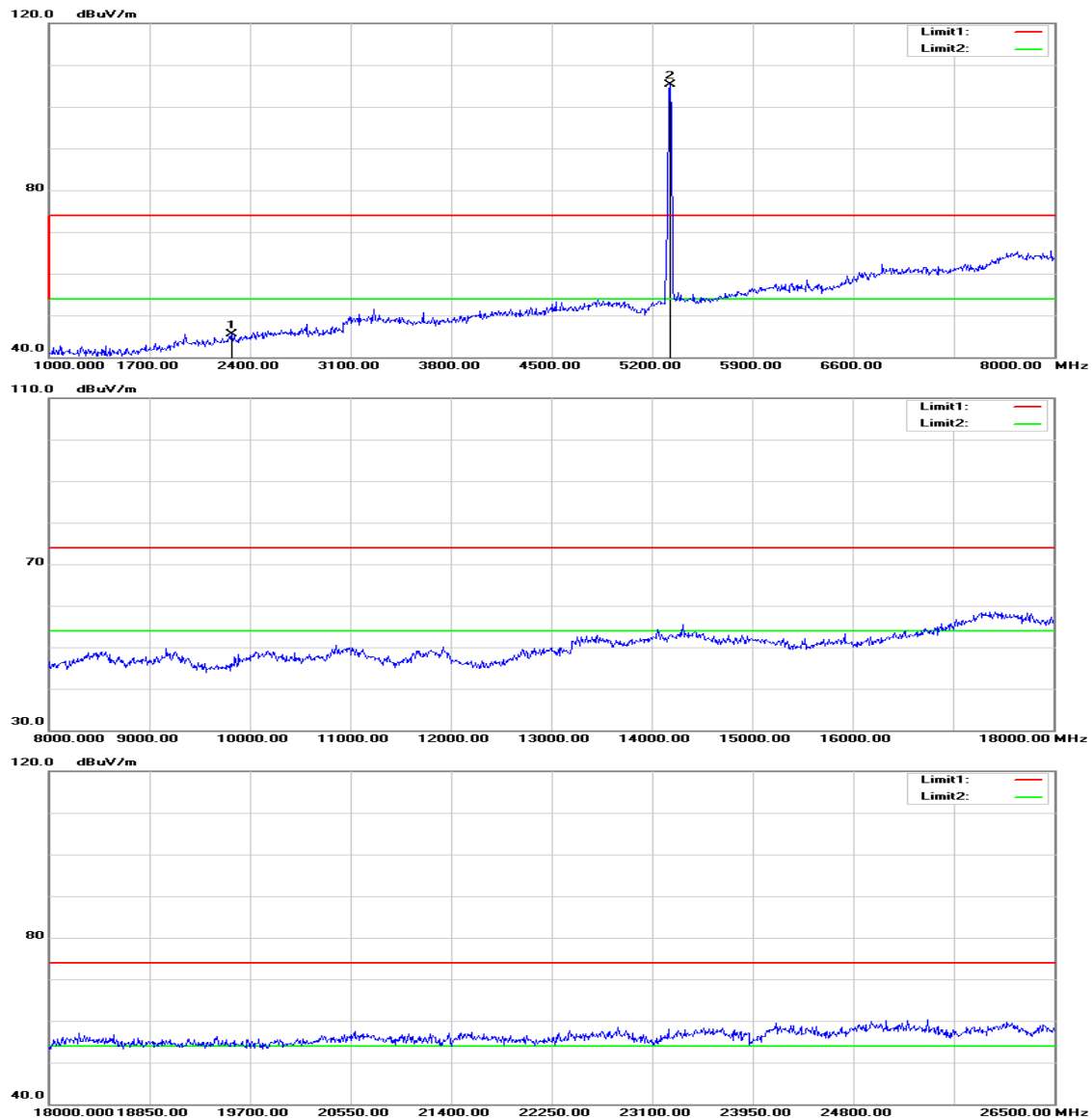
**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3541.000	50.65	-0.73	49.92	74.00	-24.08	peak	V
N/A							
3401.000	51.05	-1.15	49.90	74.00	-24.10	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.
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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5320 MHz****Polarity: Vertical**

**Polarity: Horizontal**

**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5320 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 22, 2015

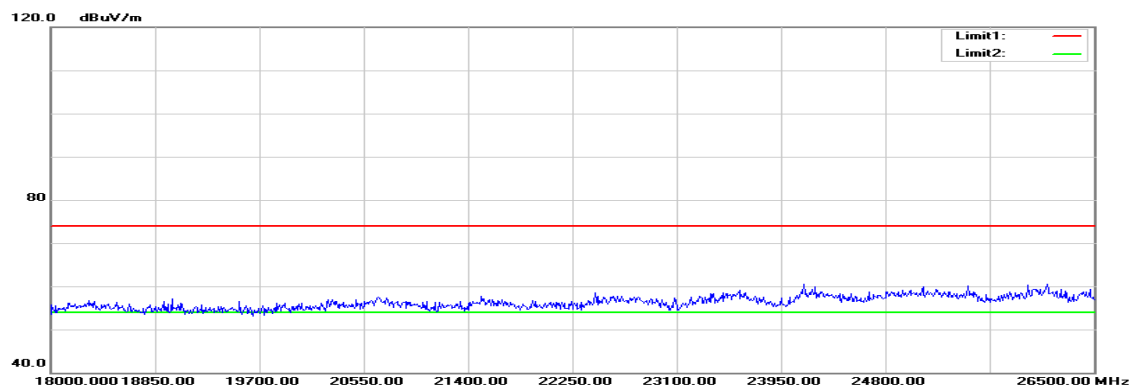
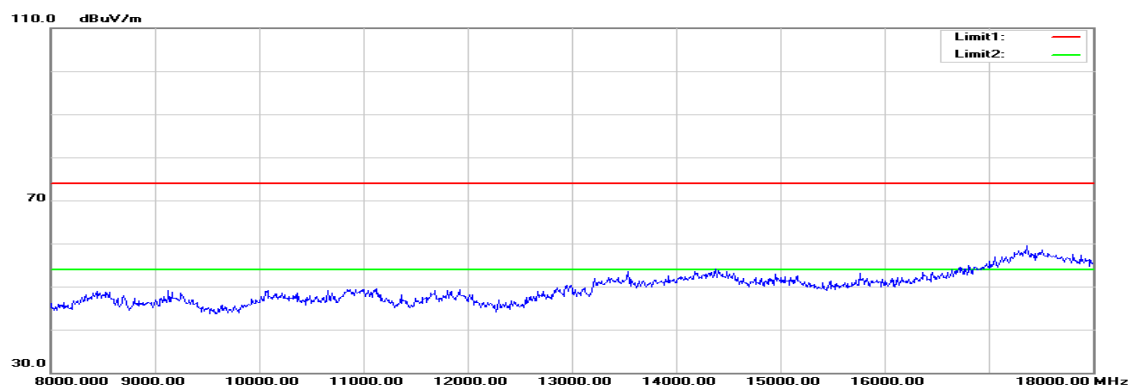
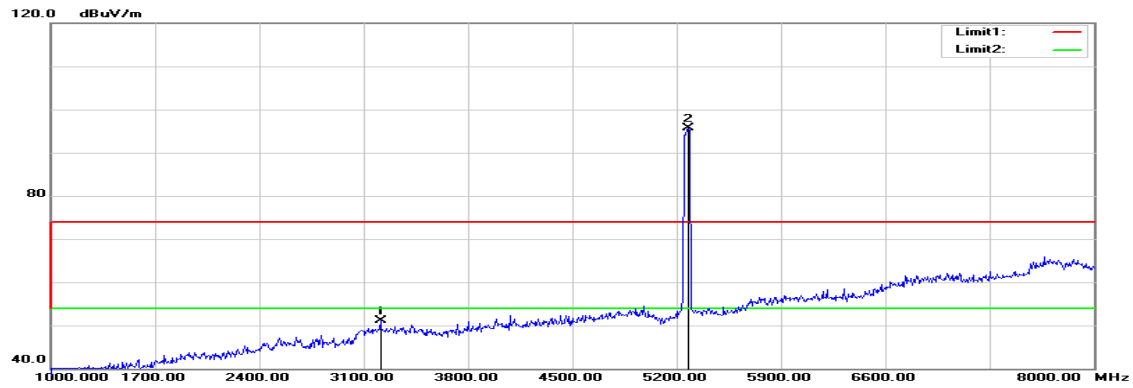
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

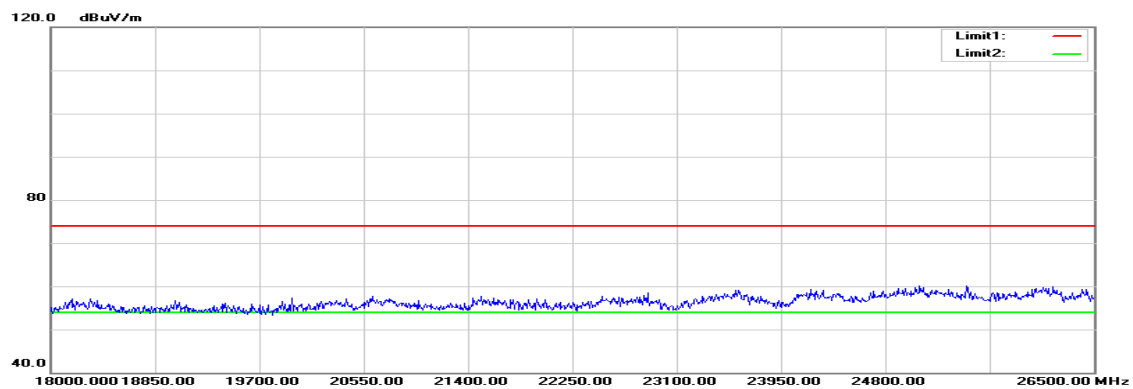
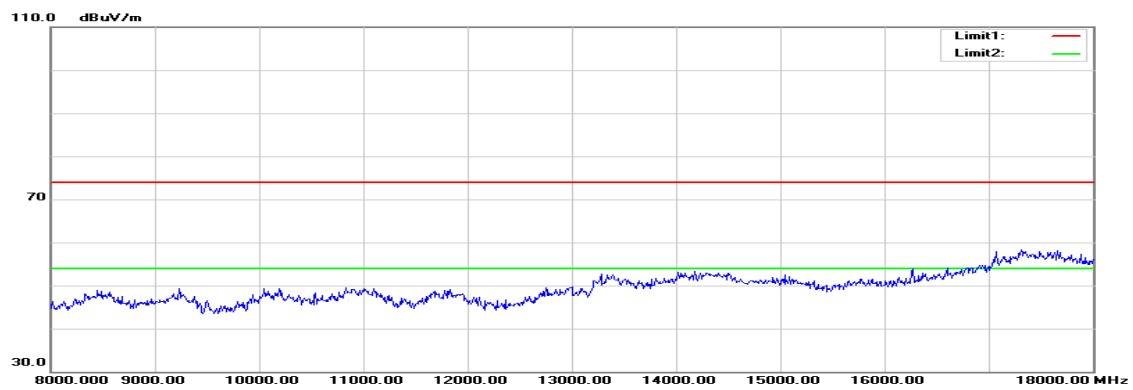
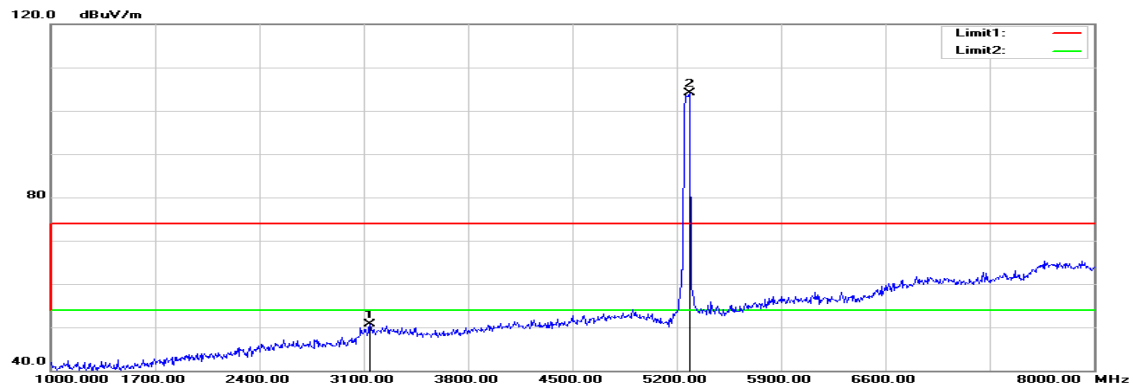
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
2848.000	49.14	-2.42	46.72	74.00	-27.28	peak	V
N/A							
2274.000	49.83	-4.33	45.50	74.00	-28.50	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11n HT 40 MHz mode / 5270 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5270 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3212.000	52.63	-1.60	51.03	74.00	-22.97	peak	V
N/A							
3142.000	52.38	-1.77	50.61	74.00	-23.39	peak	H
N/A							

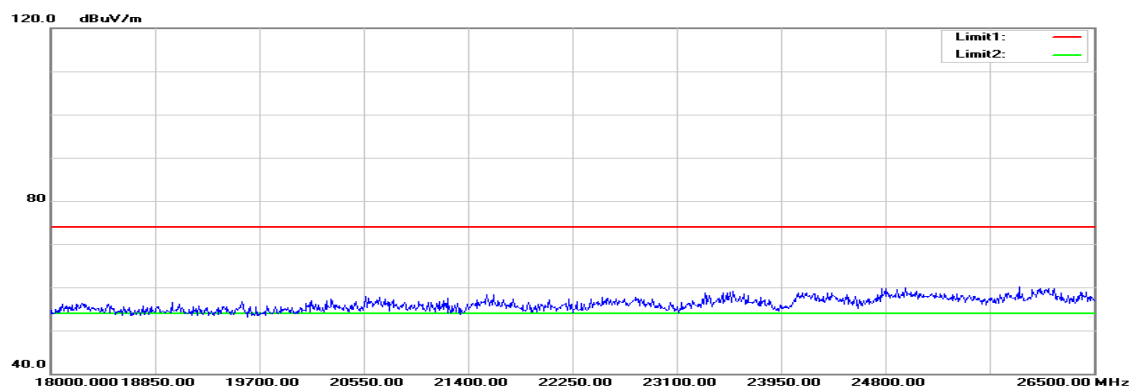
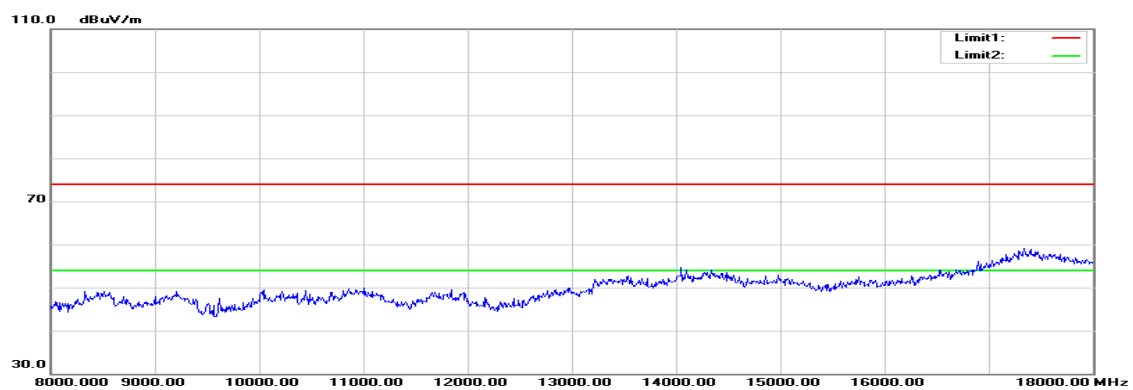
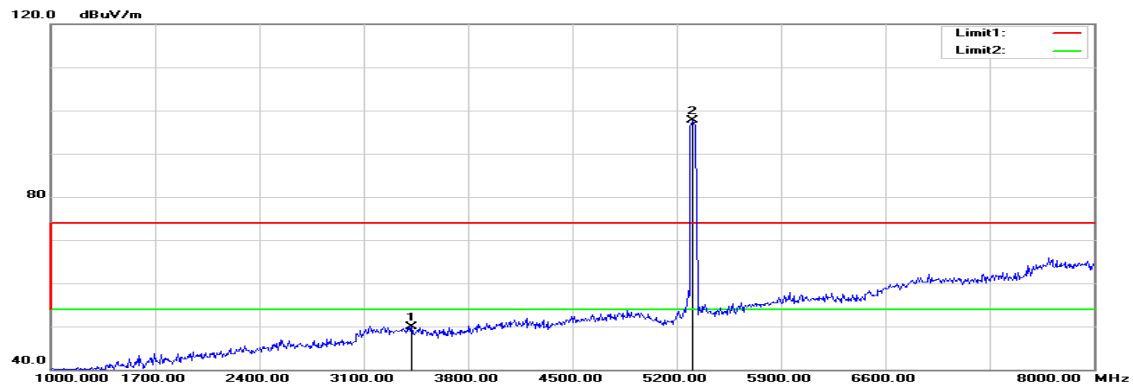
**Remark:**

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.
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.  $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$ .

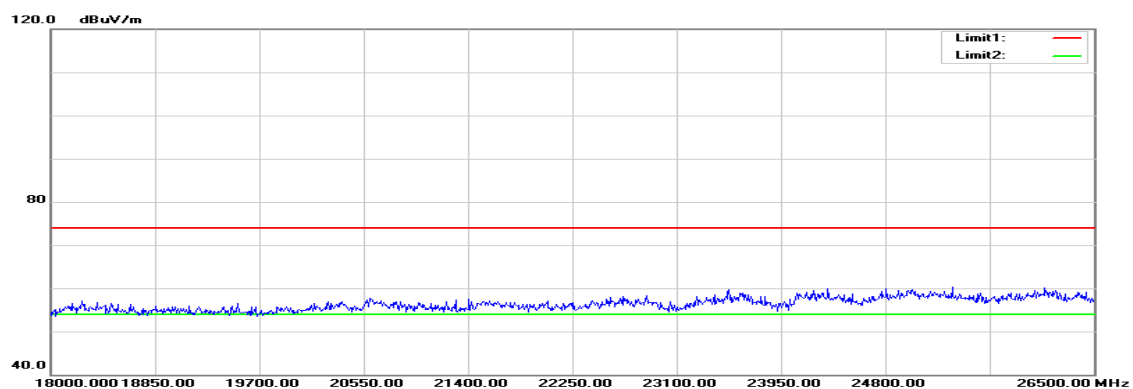
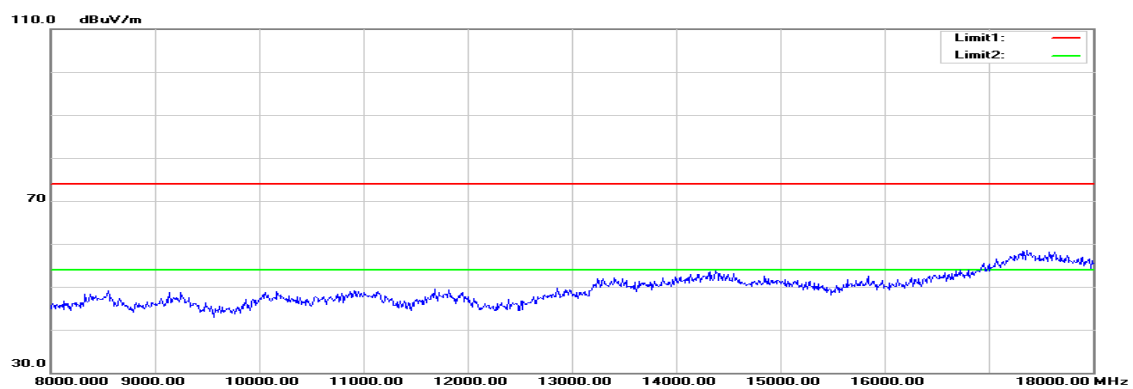
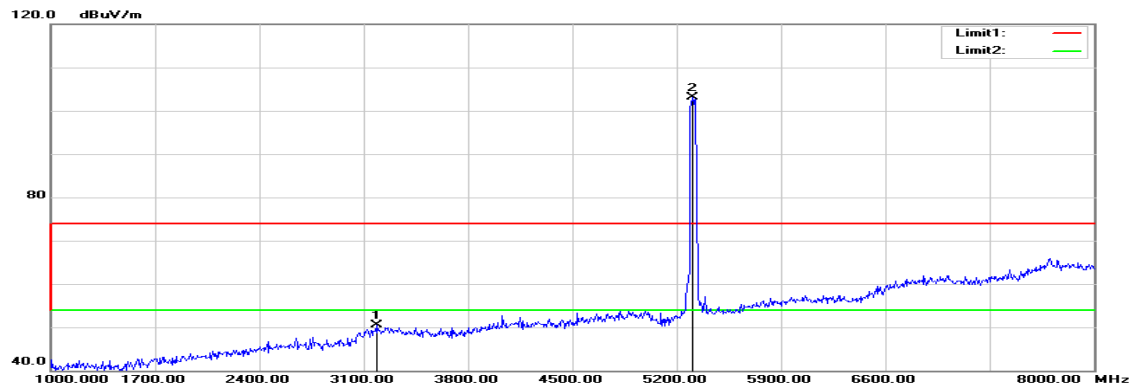


**Tx / IEEE 802.11n HT 40 MHz mode / 5310 MHz**

**Polarity: Vertical**



## Polarity: Horizontal



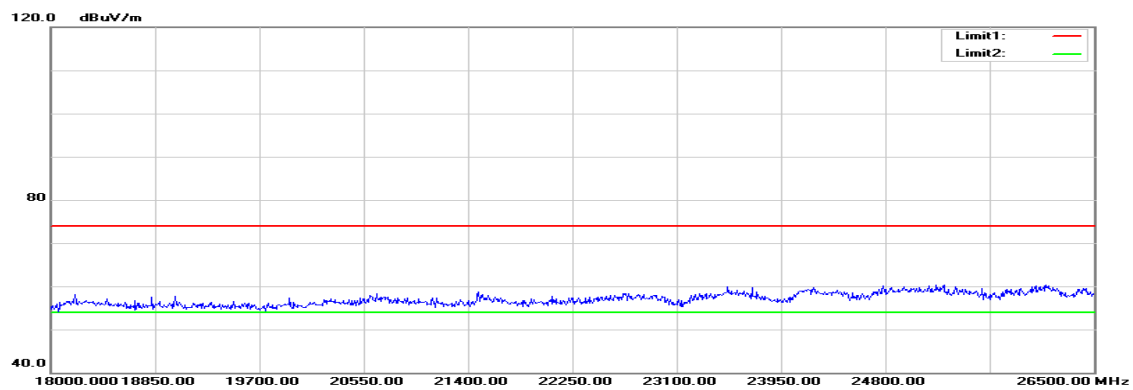
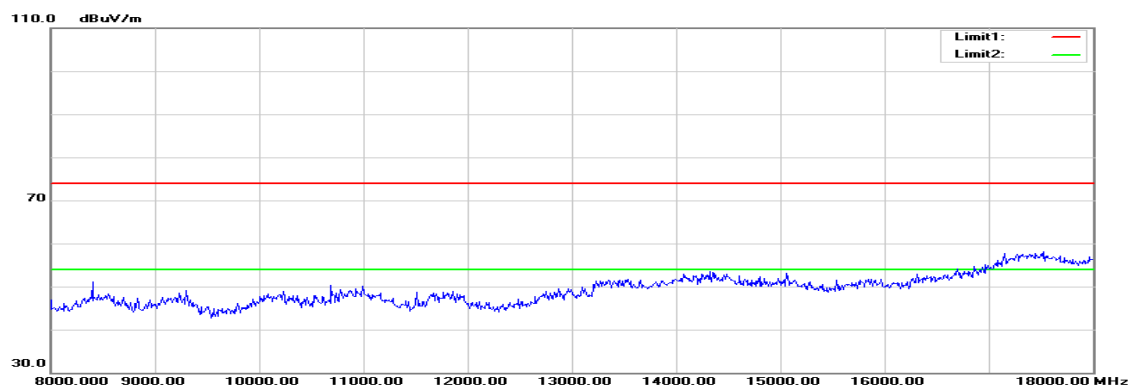
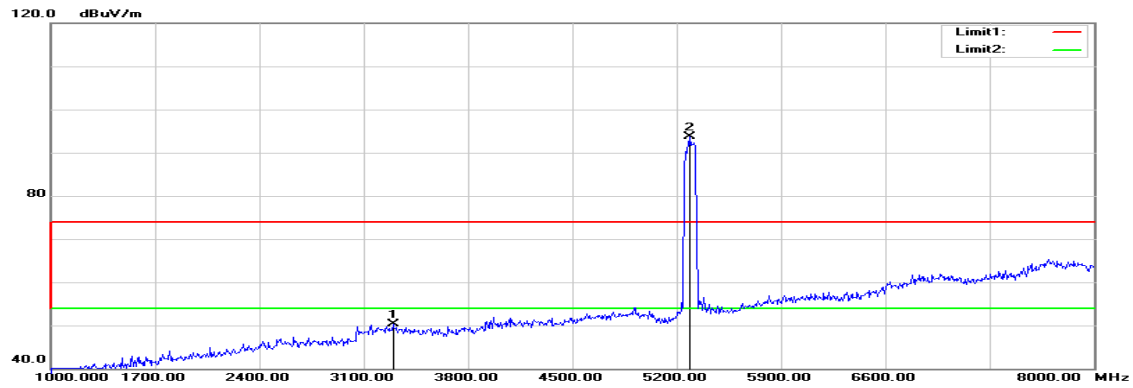
**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5310 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015  
**Tested by:** Andy Shi  
**Polarity:** Ver. / Hor.

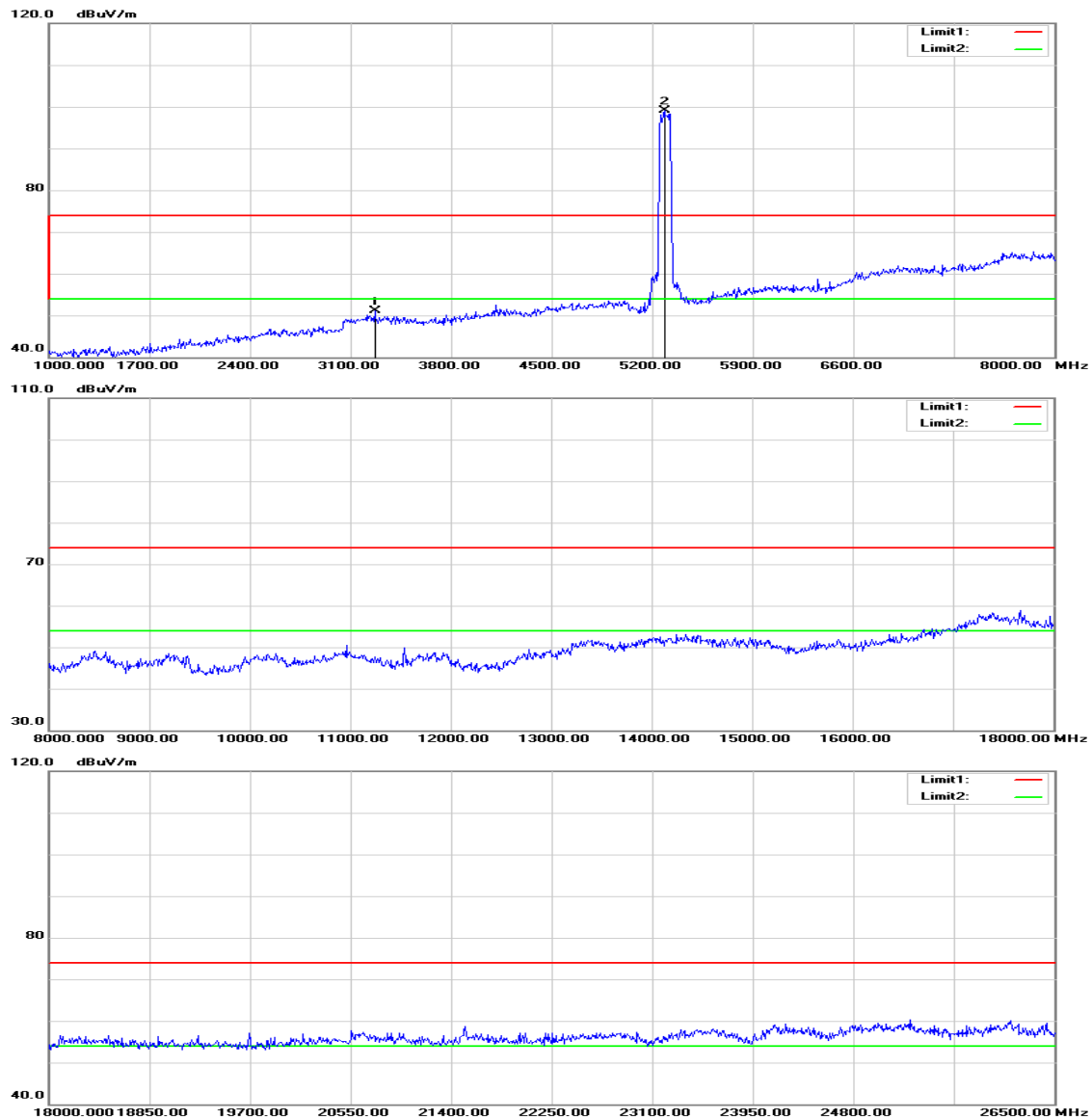
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3422.000	51.09	-1.10	49.99	74.00	-24.01	peak	V
N/A							
3184.000	52.17	-1.67	50.50	74.00	-23.50	peak	H
N/A							

**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.
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).

**Tx / IEEE 802.11ac VHT 80 MHz mode / 5290 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11ac VHT 80 MHz mode / 5290 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015  
**Tested by:** Andy Shi  
**Polarity:** Ver. / Hor.

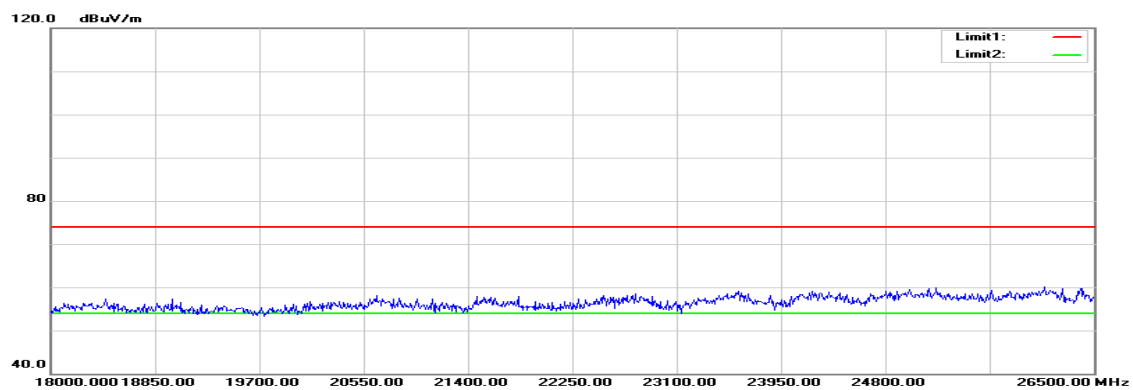
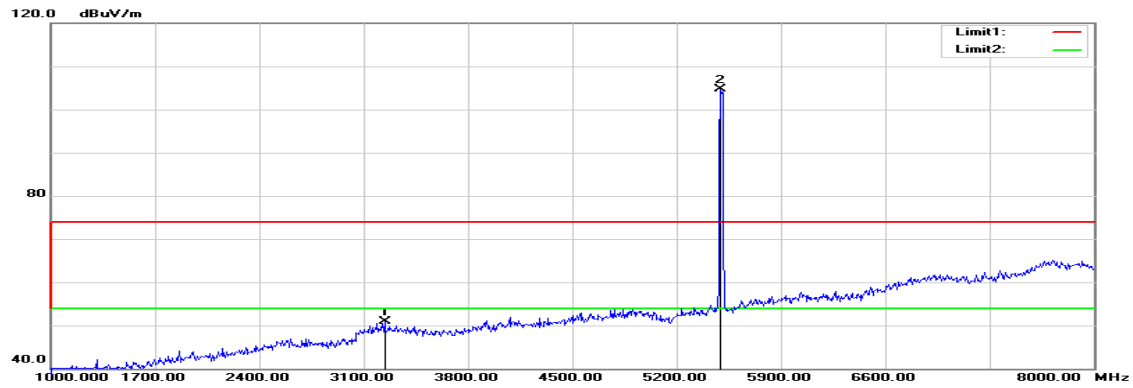
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3296.000	51.66	-1.40	50.26	74.00	-23.74	peak	V
N/A							
3268.000	52.48	-1.47	51.01	74.00	-22.99	peak	H
N/A							

**Remark:**

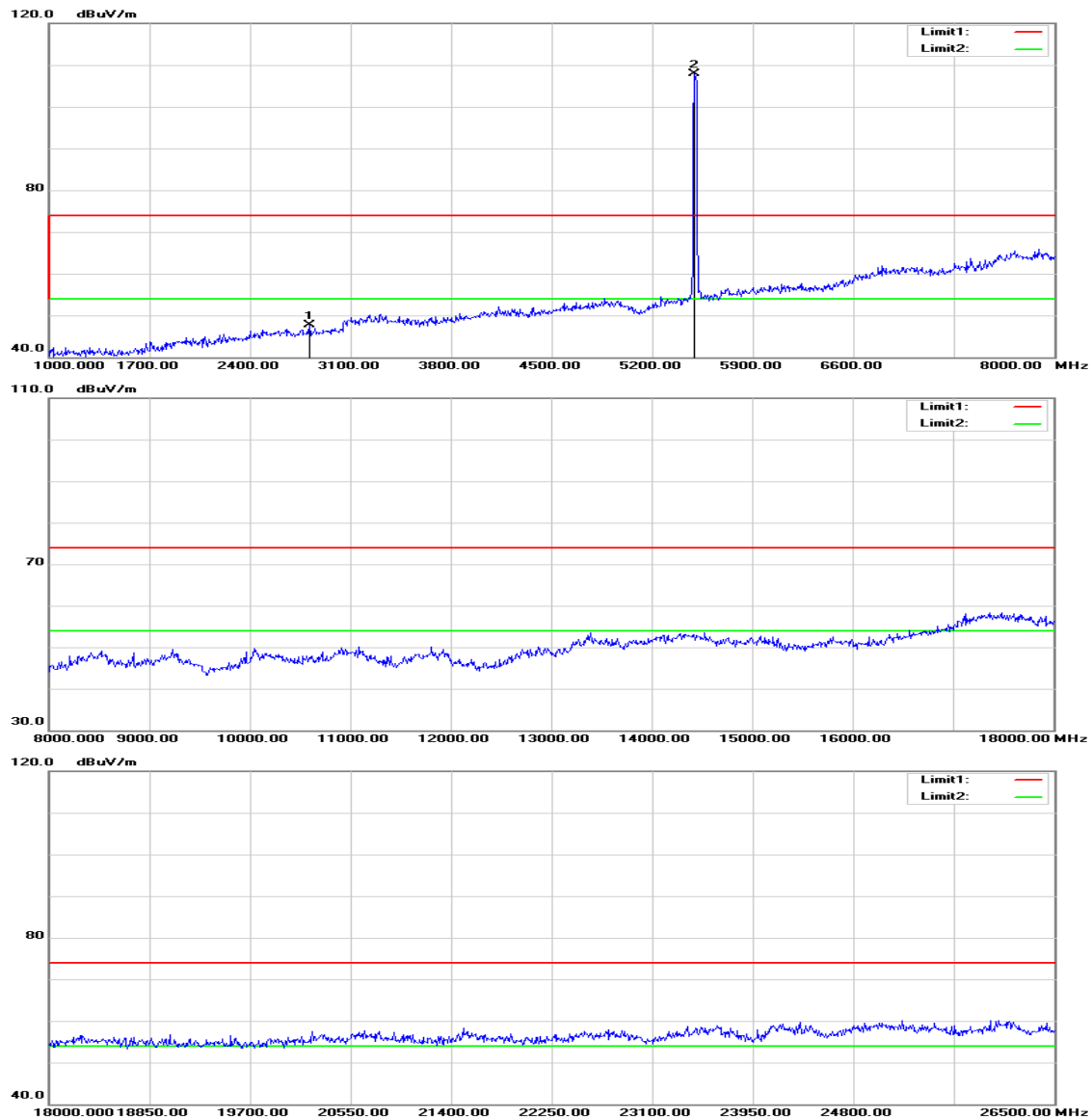
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
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).

## Tx / IEEE 802.11a mode / 5500 MHz

**Polarity: Vertical**



## Polarity: Horizontal





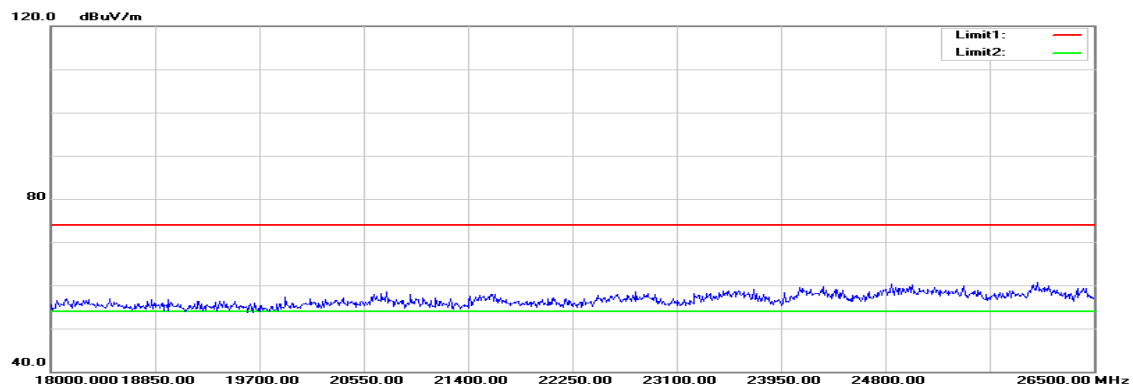
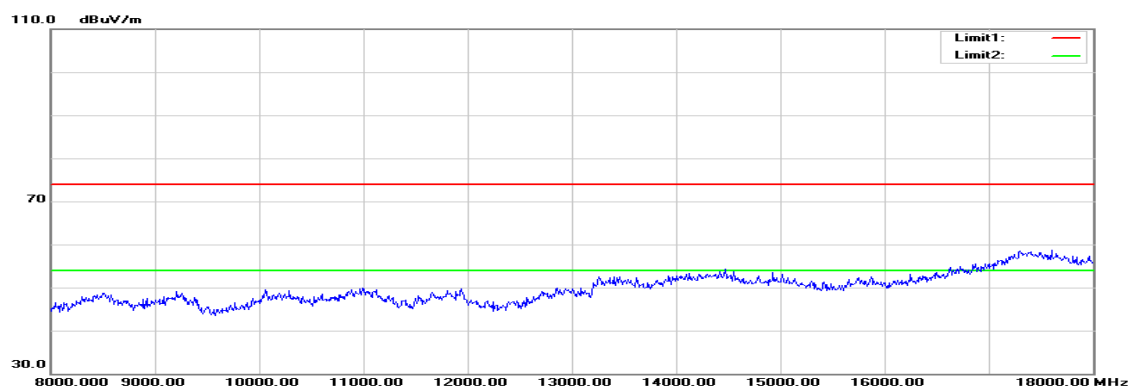
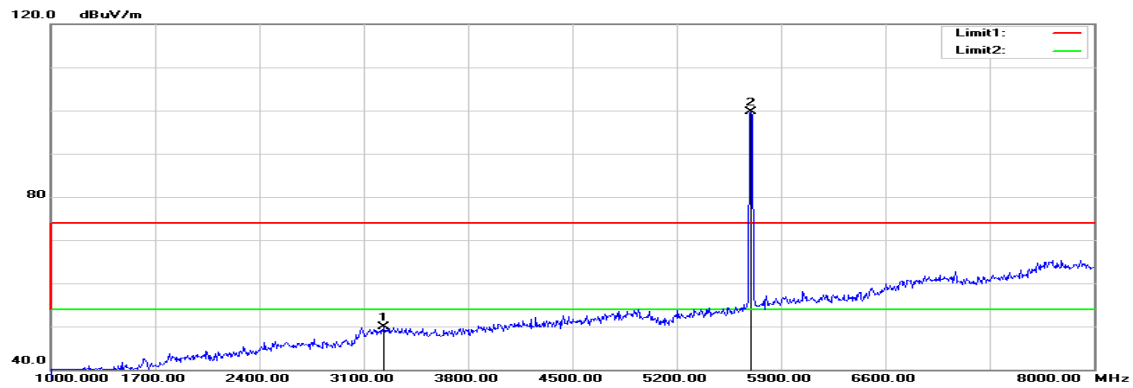
**Operation Mode:** Tx / IEEE 802.11a mode / 5500 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 22, 2015  
**Tested by:** Andy Shi  
**Polarity:** Ver. / Hor.

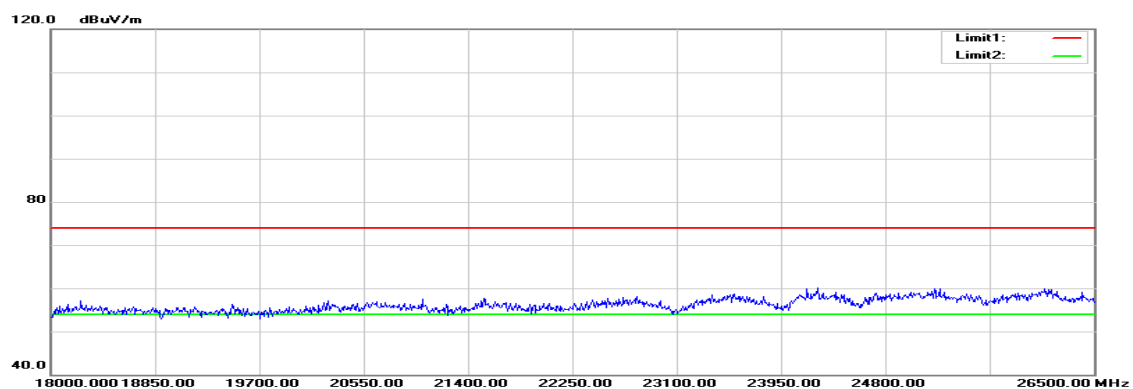
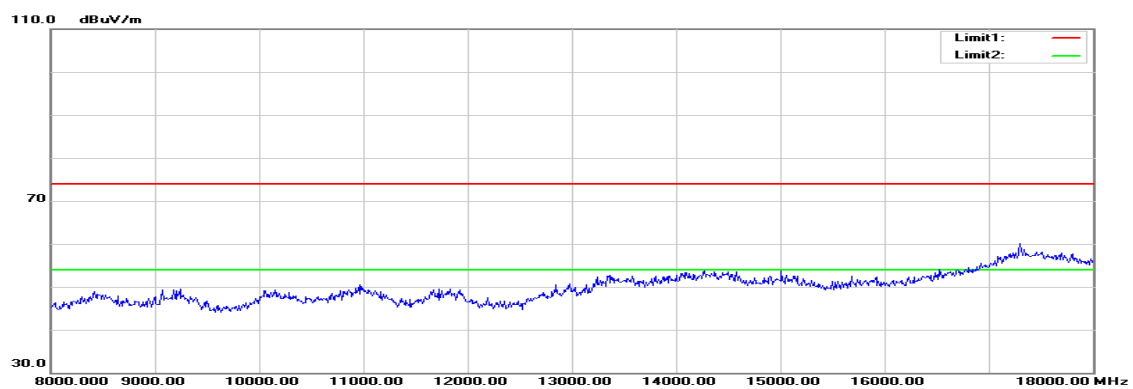
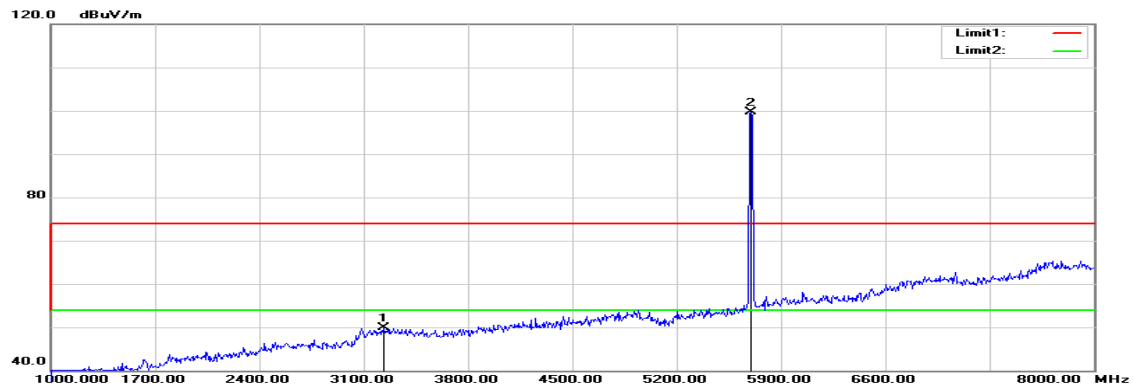
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3240.000	52.35	-1.53	50.82	74.00	-23.18	peak	V
N/A							
2813.000	50.13	-2.49	47.64	74.00	-26.36	peak	H
N/A							

**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.  $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$ .

**Tx / IEEE 802.11a mode / 5700 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11a mode / 5700 MHz**Test Date:** August 24, 2015**Temperature:** 27°C**Tested by:** Andy Shi**Humidity:** 53% RH**Polarity:** Ver. / Hor.

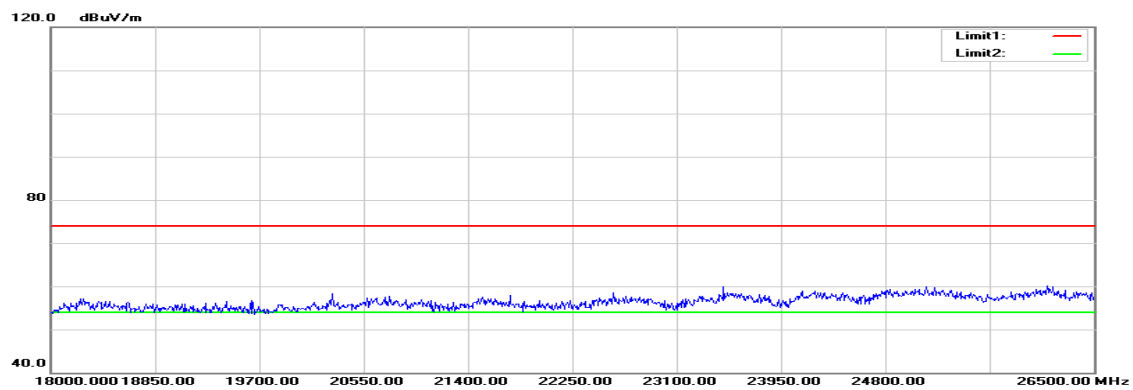
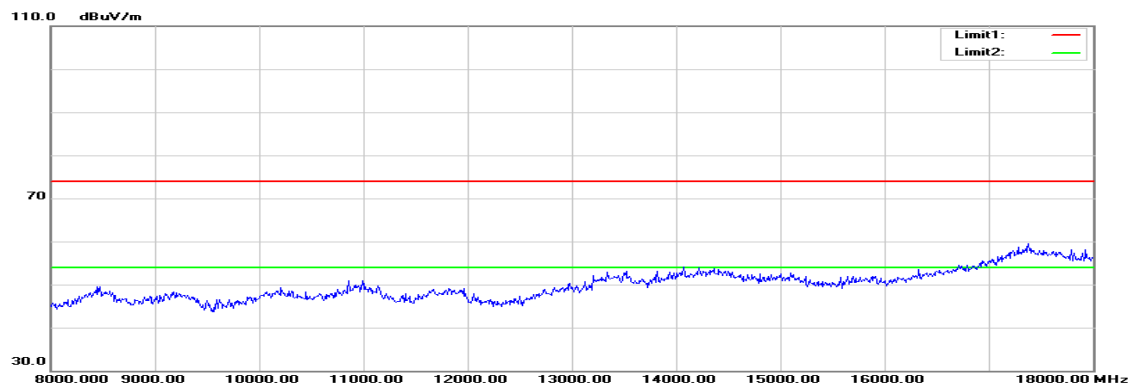
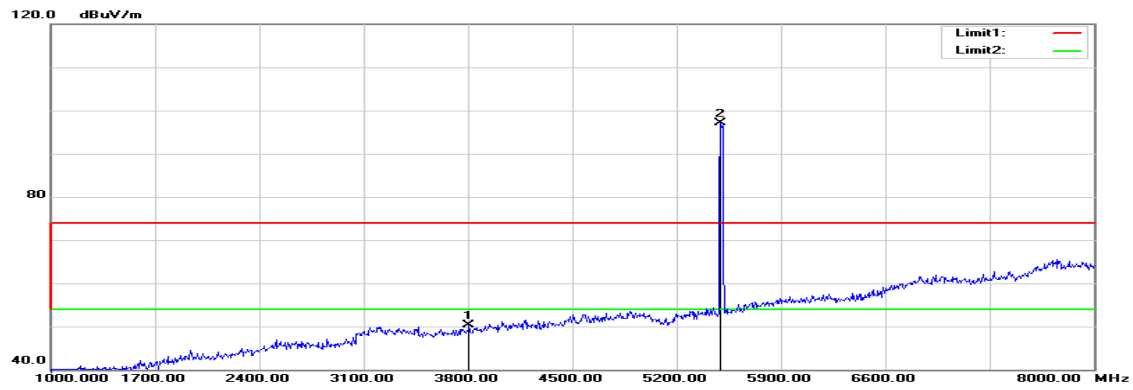
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3233.000	51.47	-1.55	49.92	74.00	-24.08	peak	V
N/A							
3233.000	51.57	-1.55	50.02	74.00	-23.98	peak	H
N/A							

**Remark:**

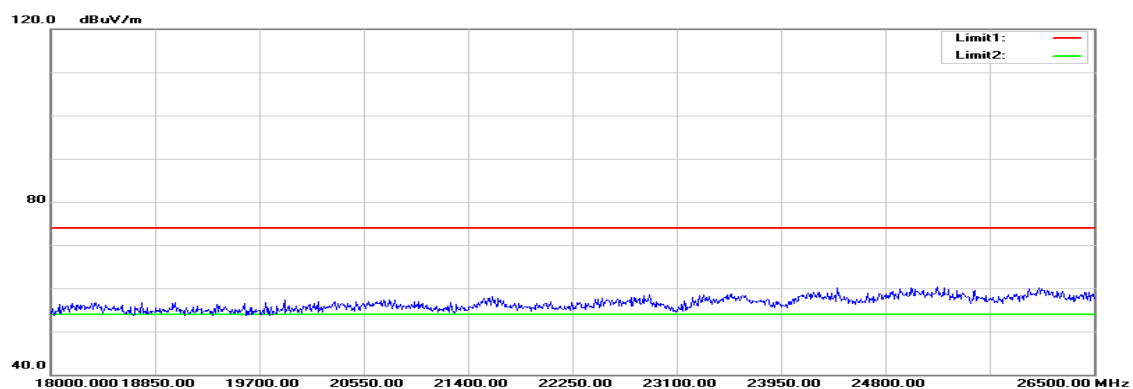
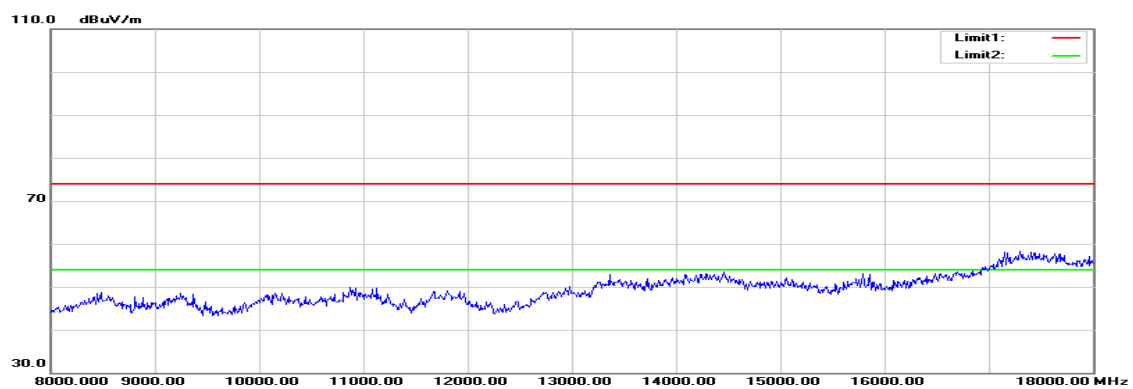
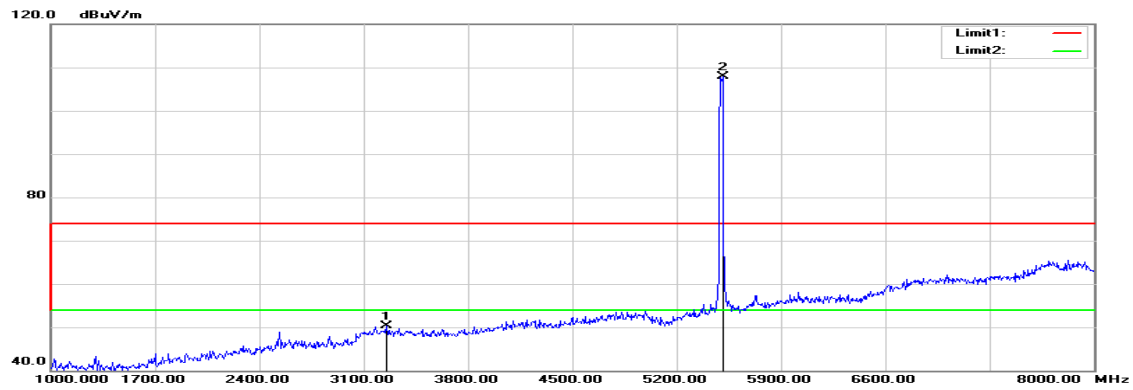
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit 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.  $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$ .

**Tx / IEEE 802.11n HT 20 MHz mode / 5500 MHz**

**Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5500 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

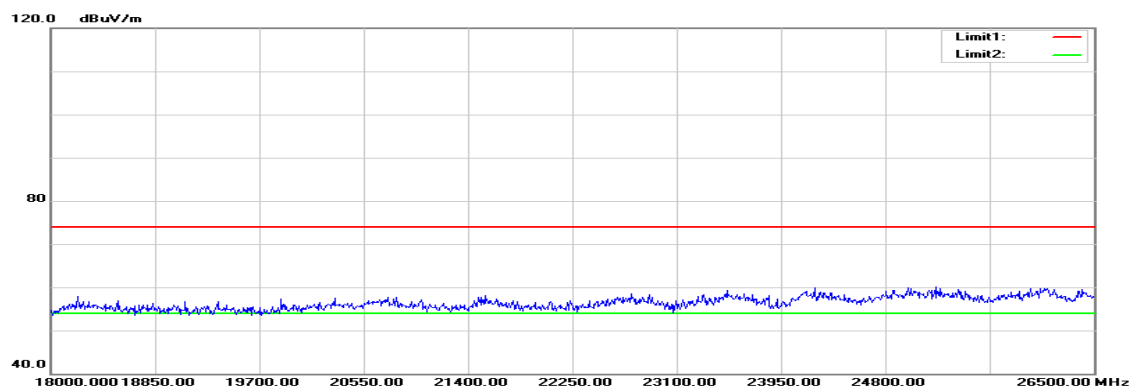
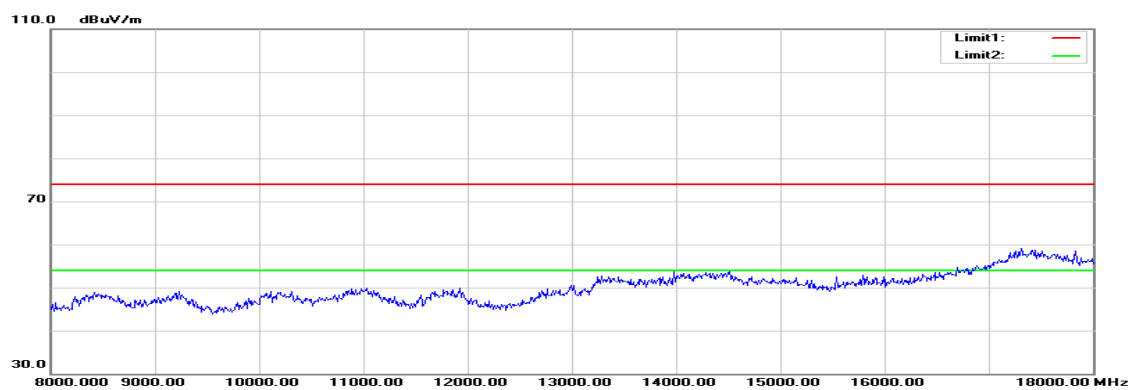
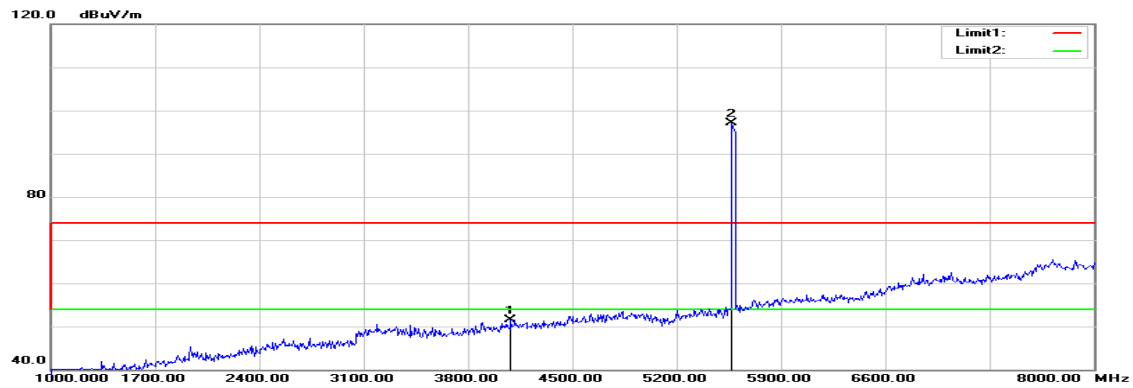
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3807.000	49.98	0.40	50.38	74.00	-23.62	peak	V
N/A							
3254.000	51.71	-1.50	50.21	74.00	-23.79	peak	H
N/A							

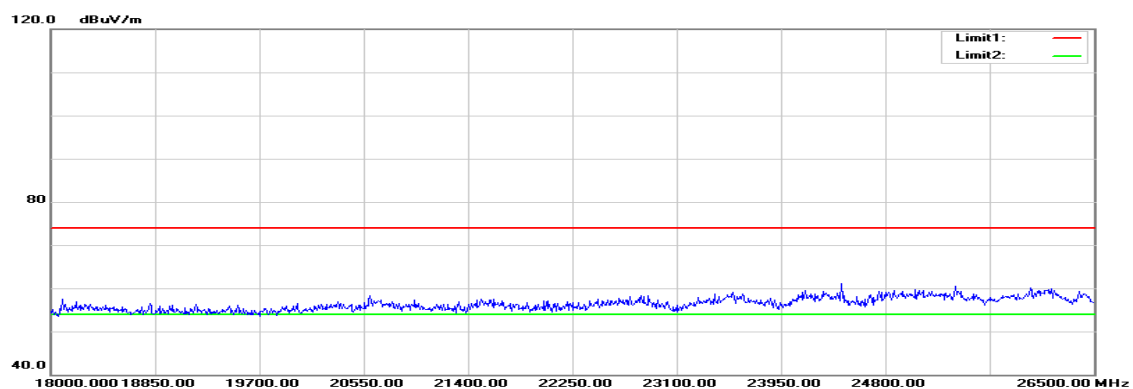
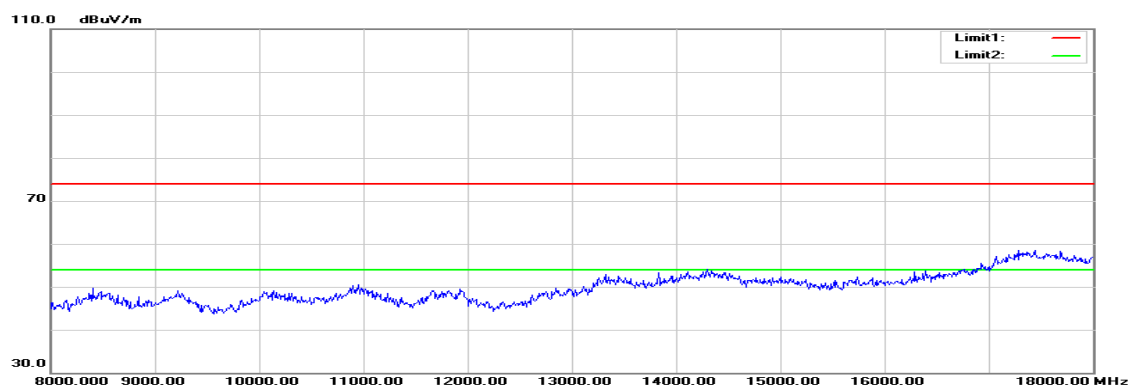
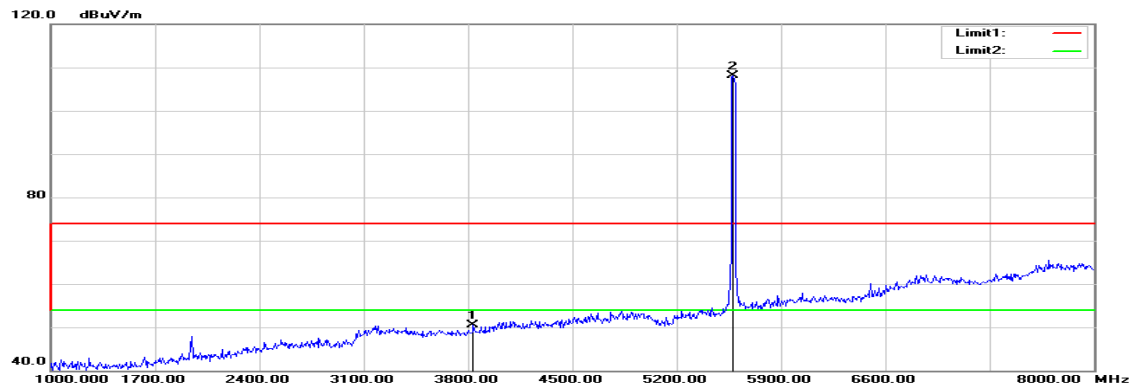
**Remark:**

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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5580 MHz****Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5580 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

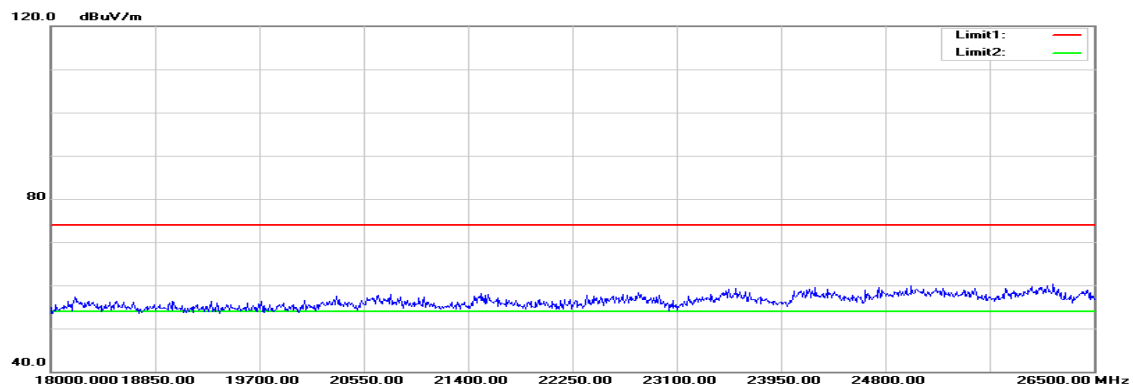
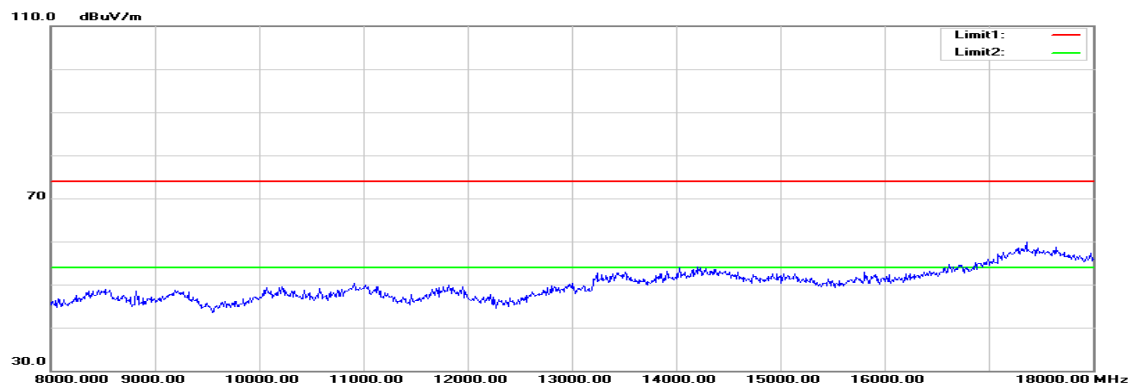
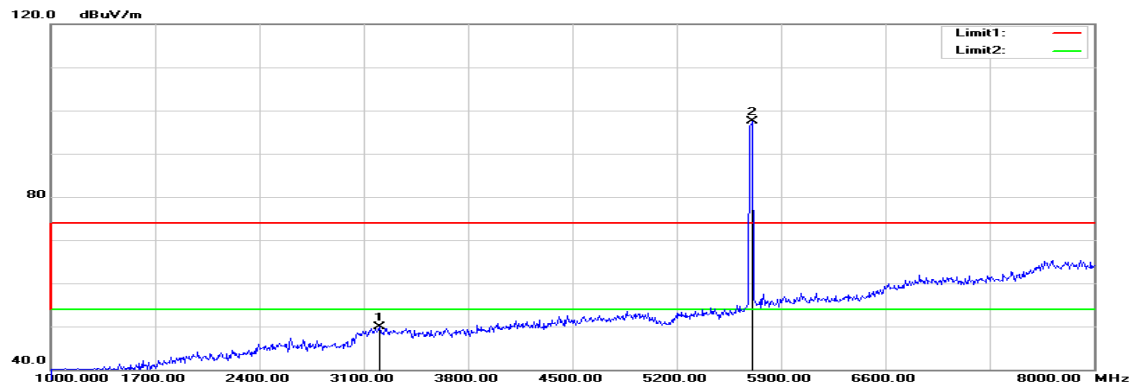
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

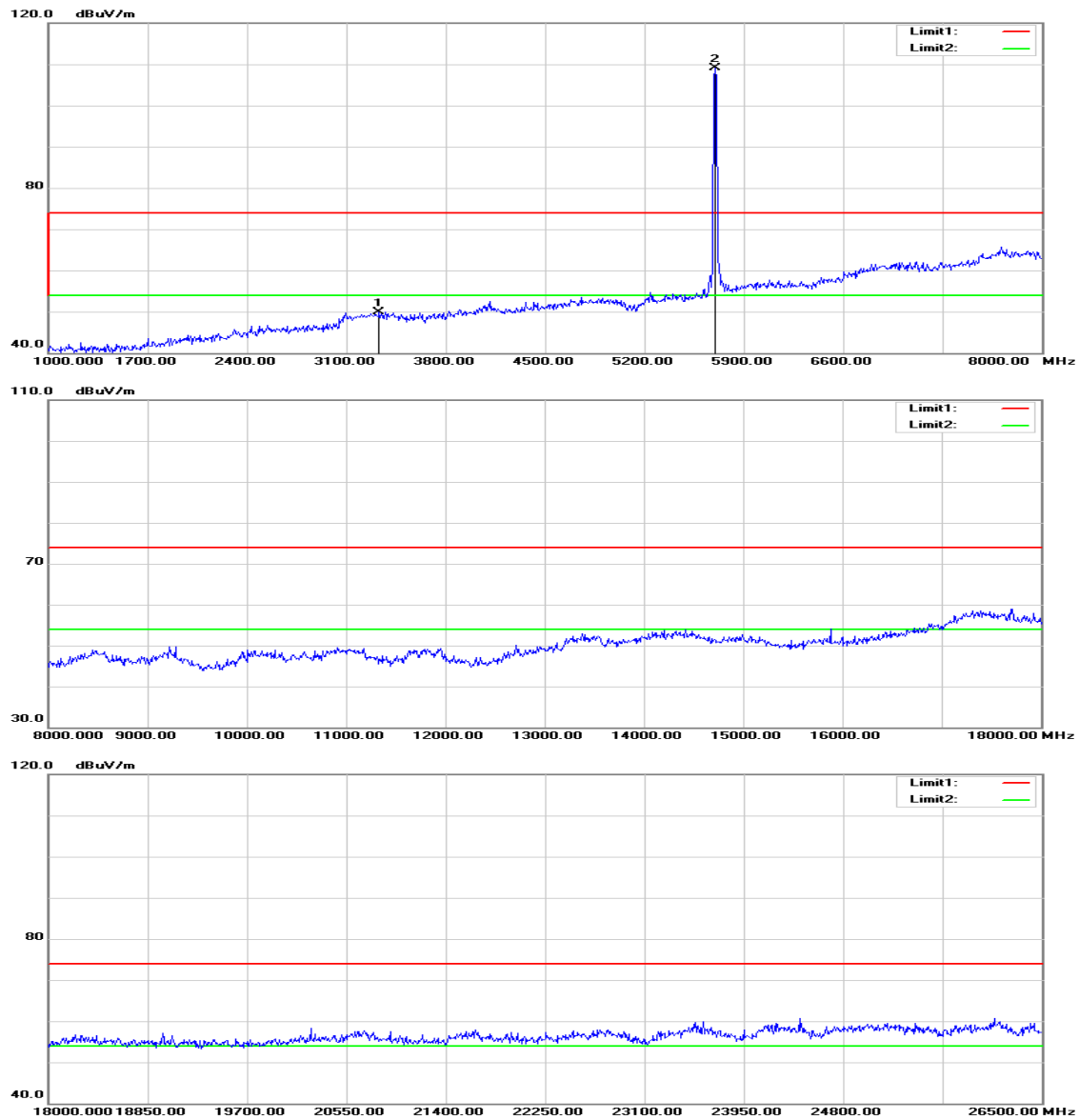
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4087.000	49.98	1.56	51.54	74.00	-22.46	peak	V
N/A							
3835.000	50.01	0.52	50.53	74.00	-23.47	peak	H
N/A							

**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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5700 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5700 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

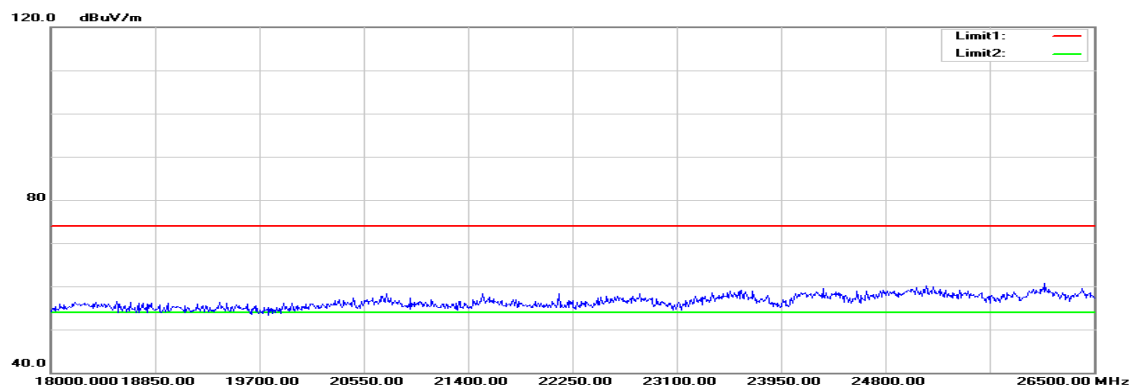
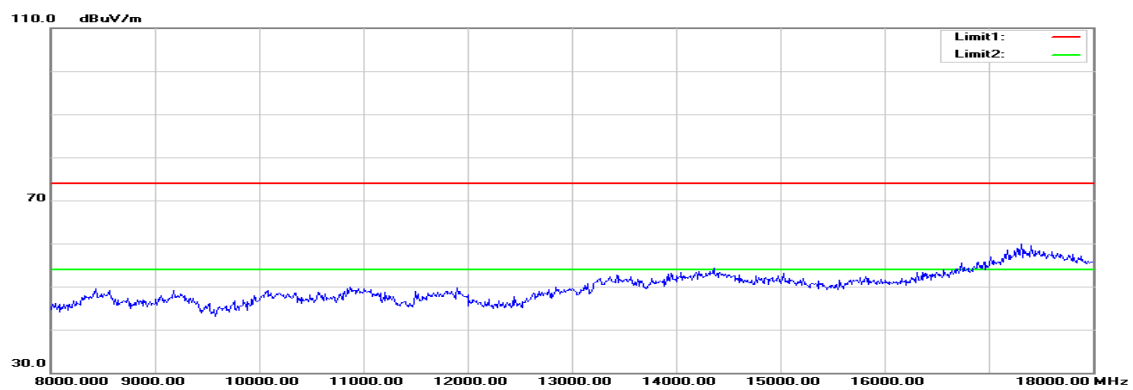
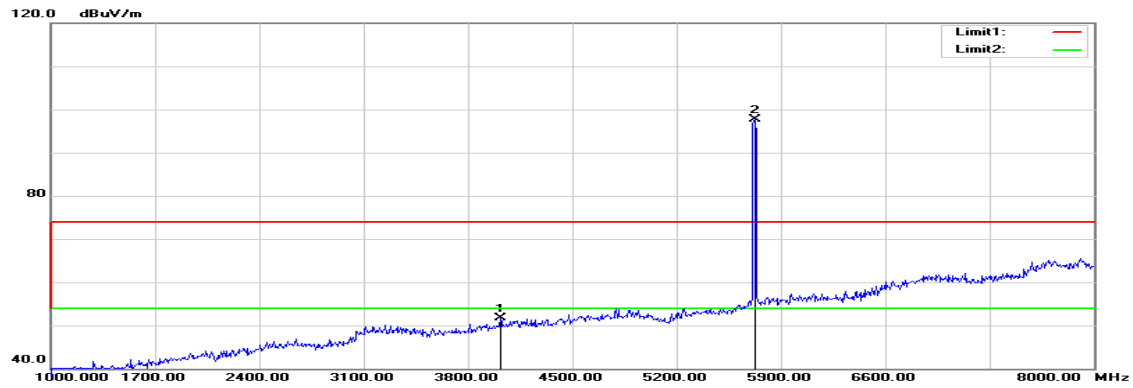
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

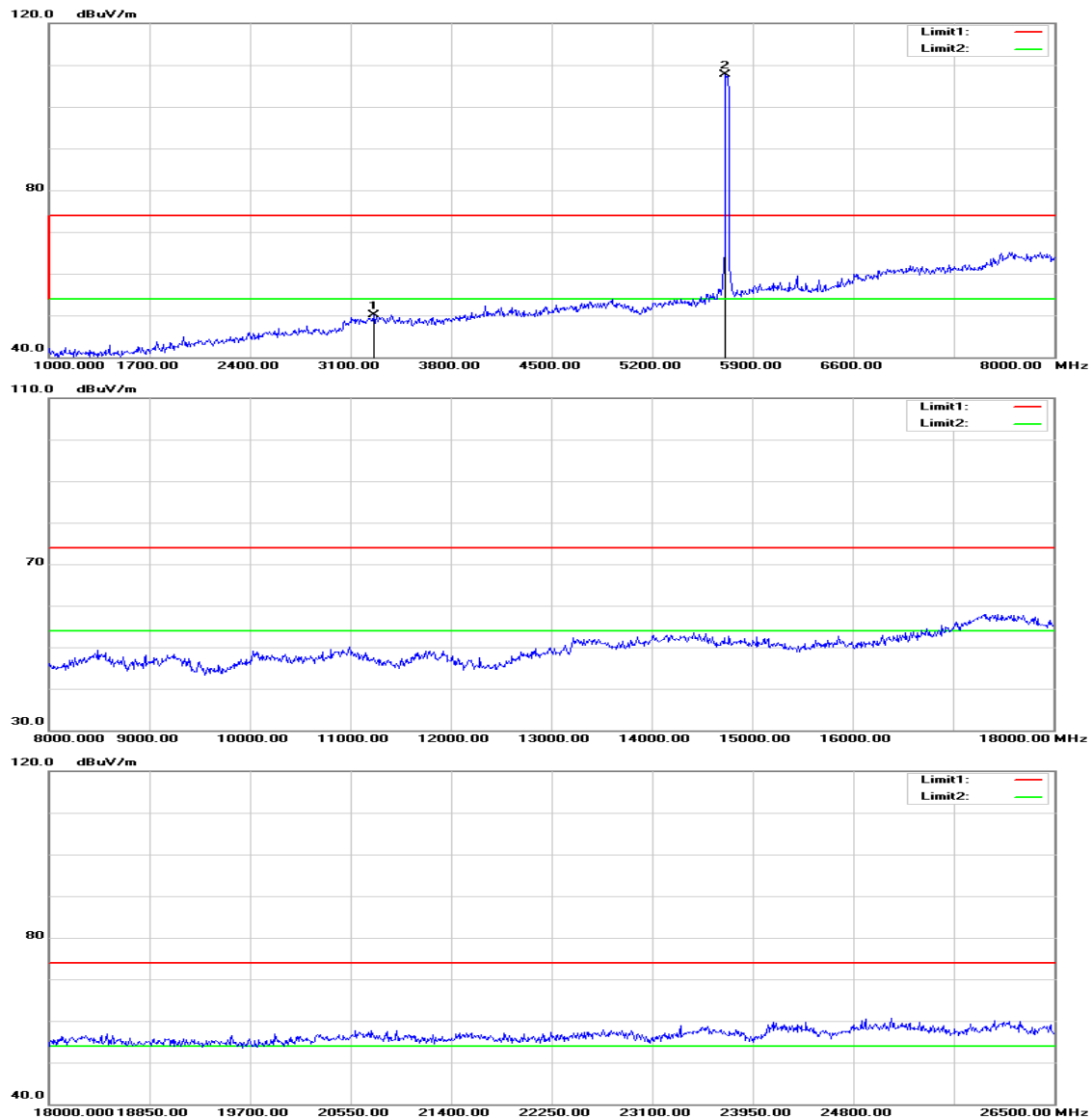
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3205.000	51.49	-1.62	49.87	74.00	-24.13	peak	V
3331.000	51.25	-1.32	49.93	74.00	-24.07	peak	H
N/A							

**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).

**Tx / IEEE 802.11n HT 20 MHz mode / 5720 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 20 MHz mode / 5720 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 24, 2015

**Tested by:** Andy Shi

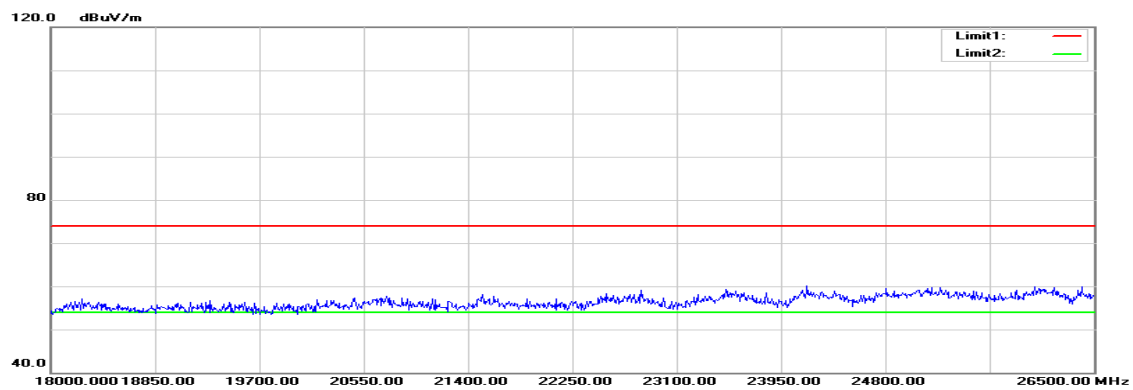
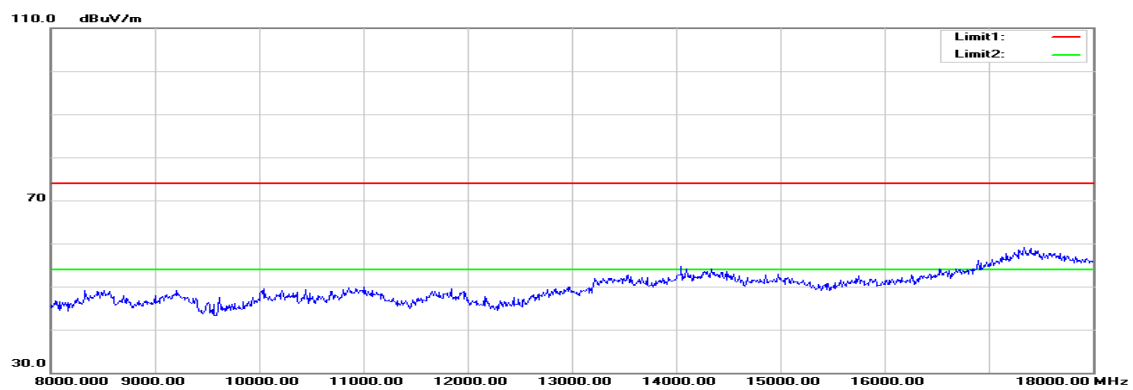
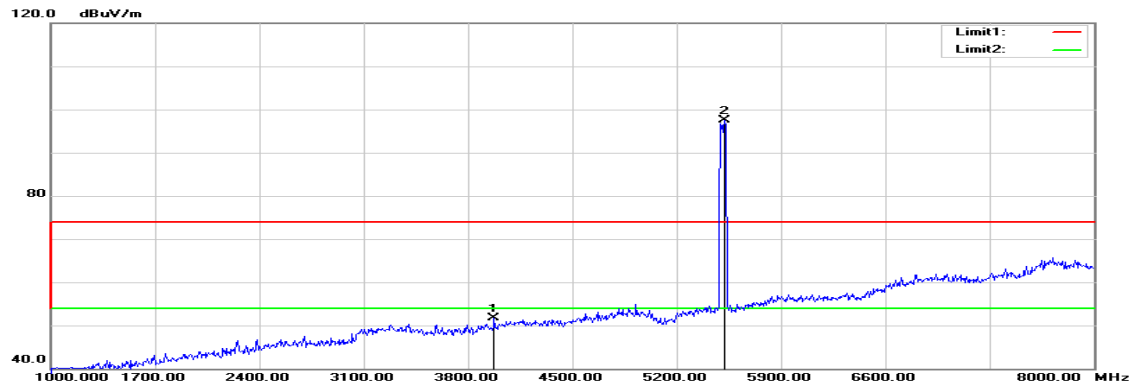
**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4017.000	50.35	1.29	51.64	74.00	-22.36	peak	V
N/A							
3261.000	51.61	-1.48	50.13	74.00	-23.87	peak	H
N/A							

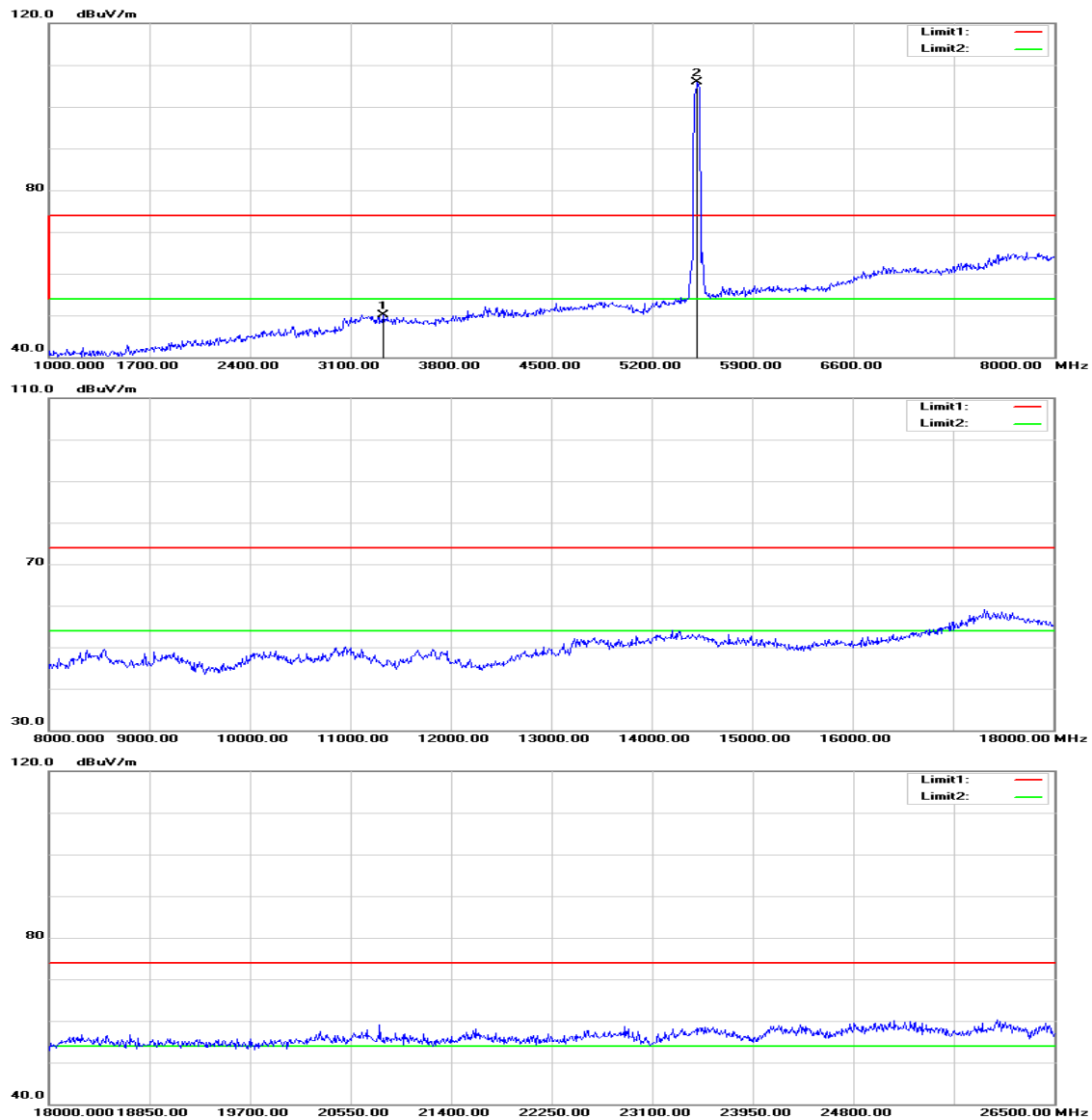
**Remark:**

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).



**Tx / IEEE 802.11n HT 40 MHz mode / 5510 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5510 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

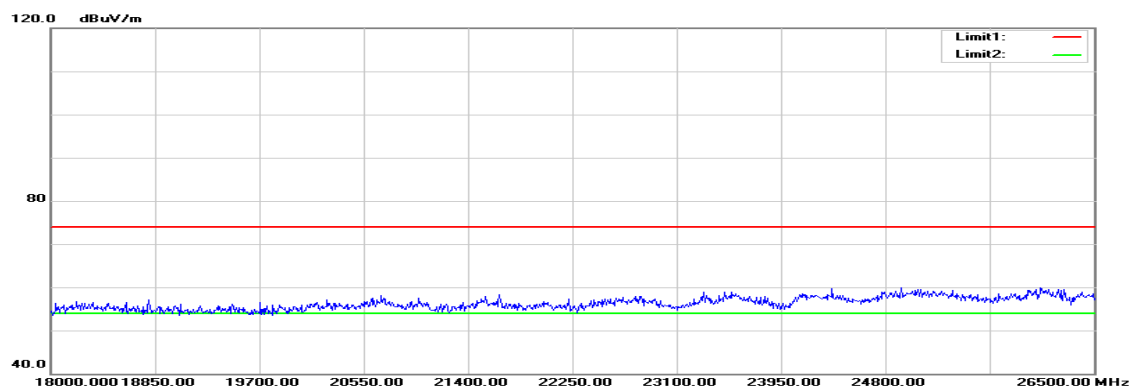
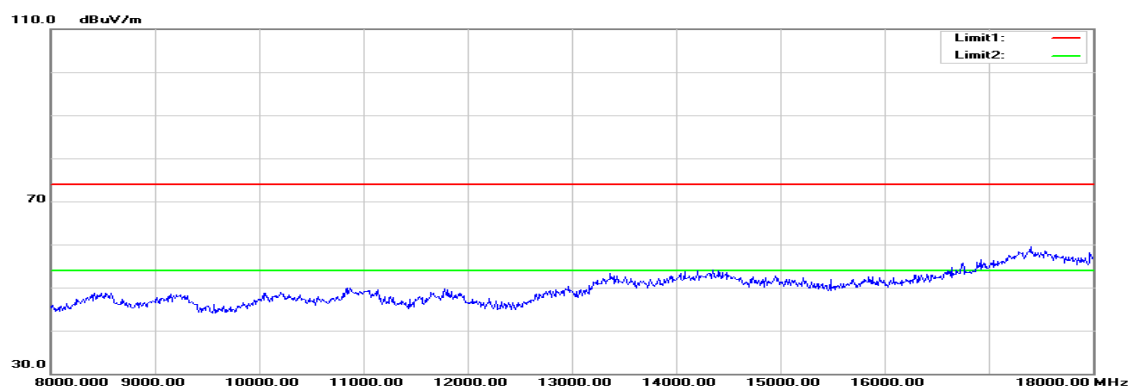
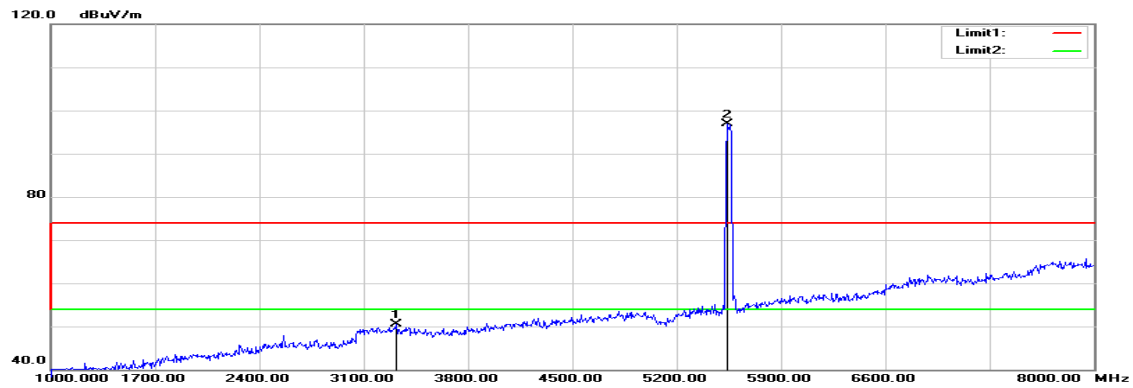
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

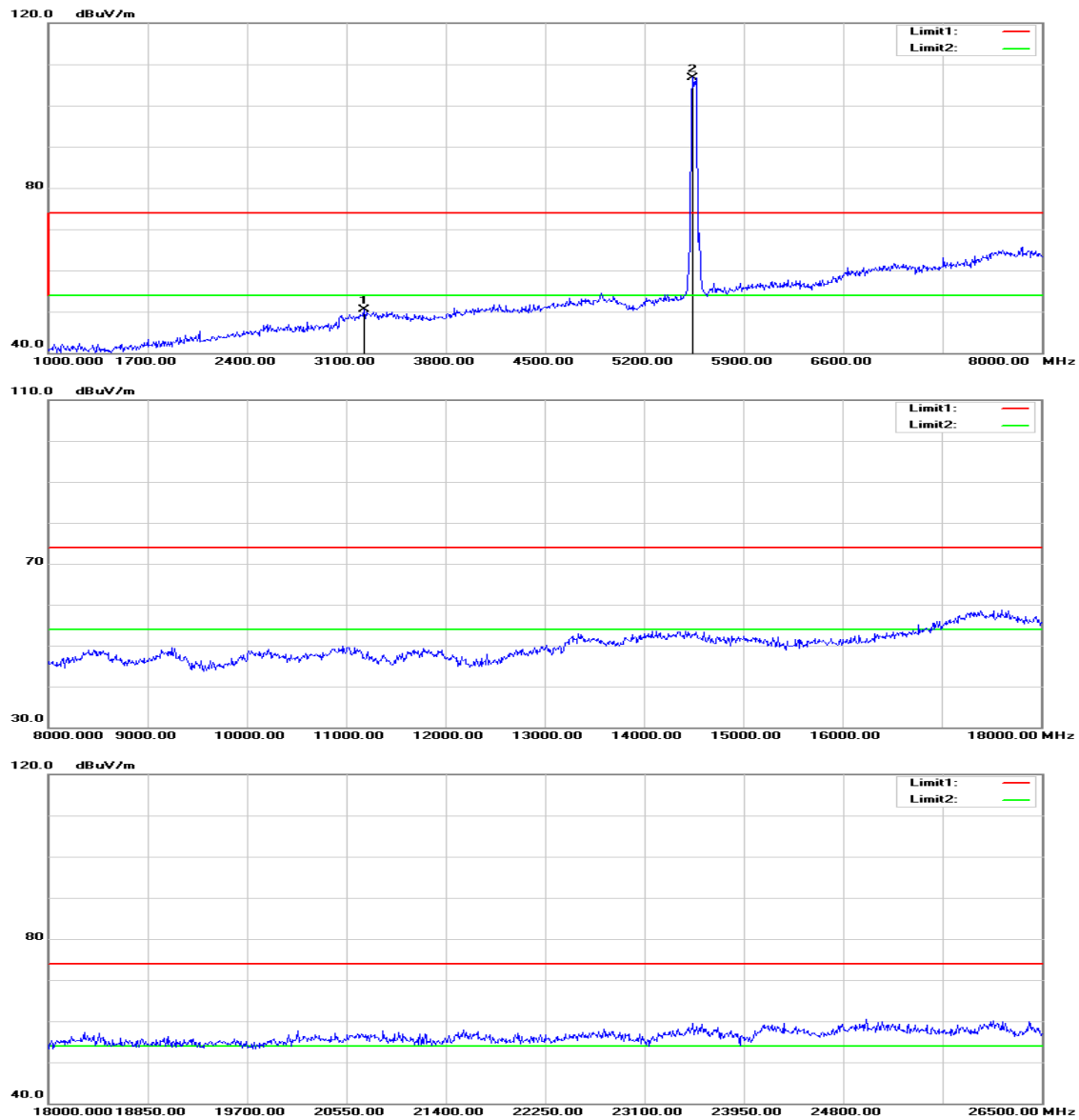
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3975.000	50.60	1.12	51.72	74.00	-22.28	peak	V
N/A							
3324.000	51.44	-1.33	50.11	74.00	-23.89	peak	H
N/A							

**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).

**Tx / IEEE 802.11n HT 40 MHz mode / 5550 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5550 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

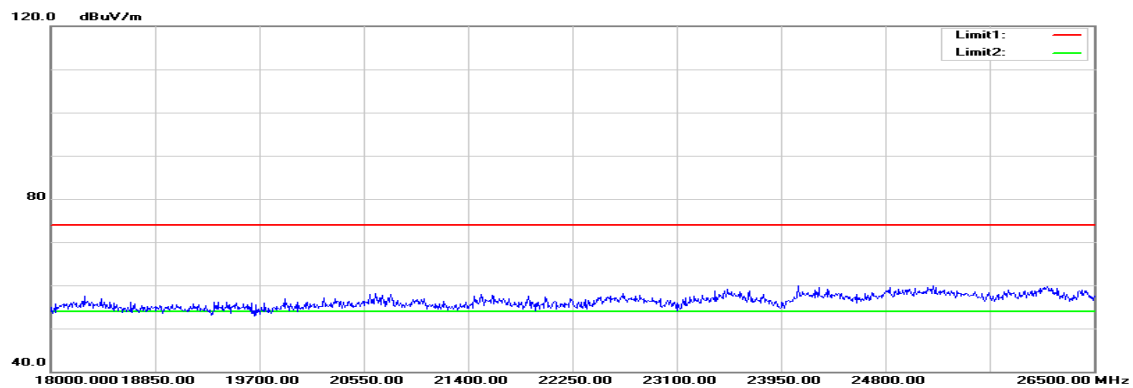
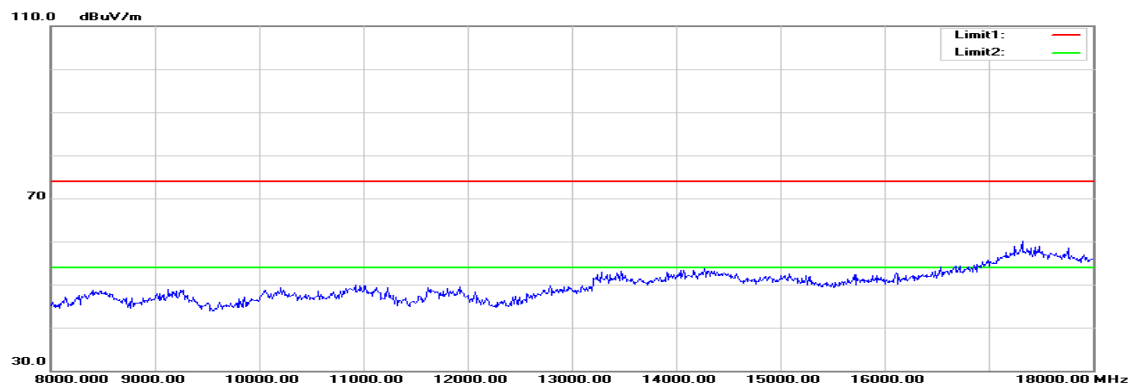
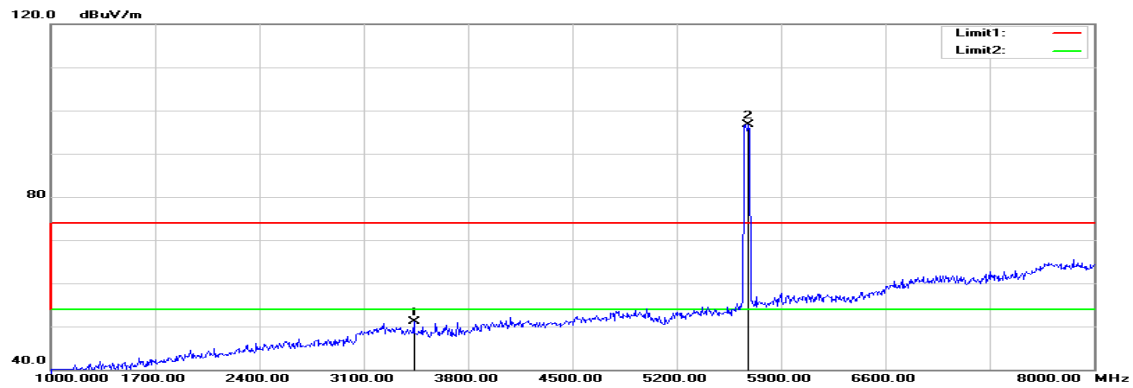
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

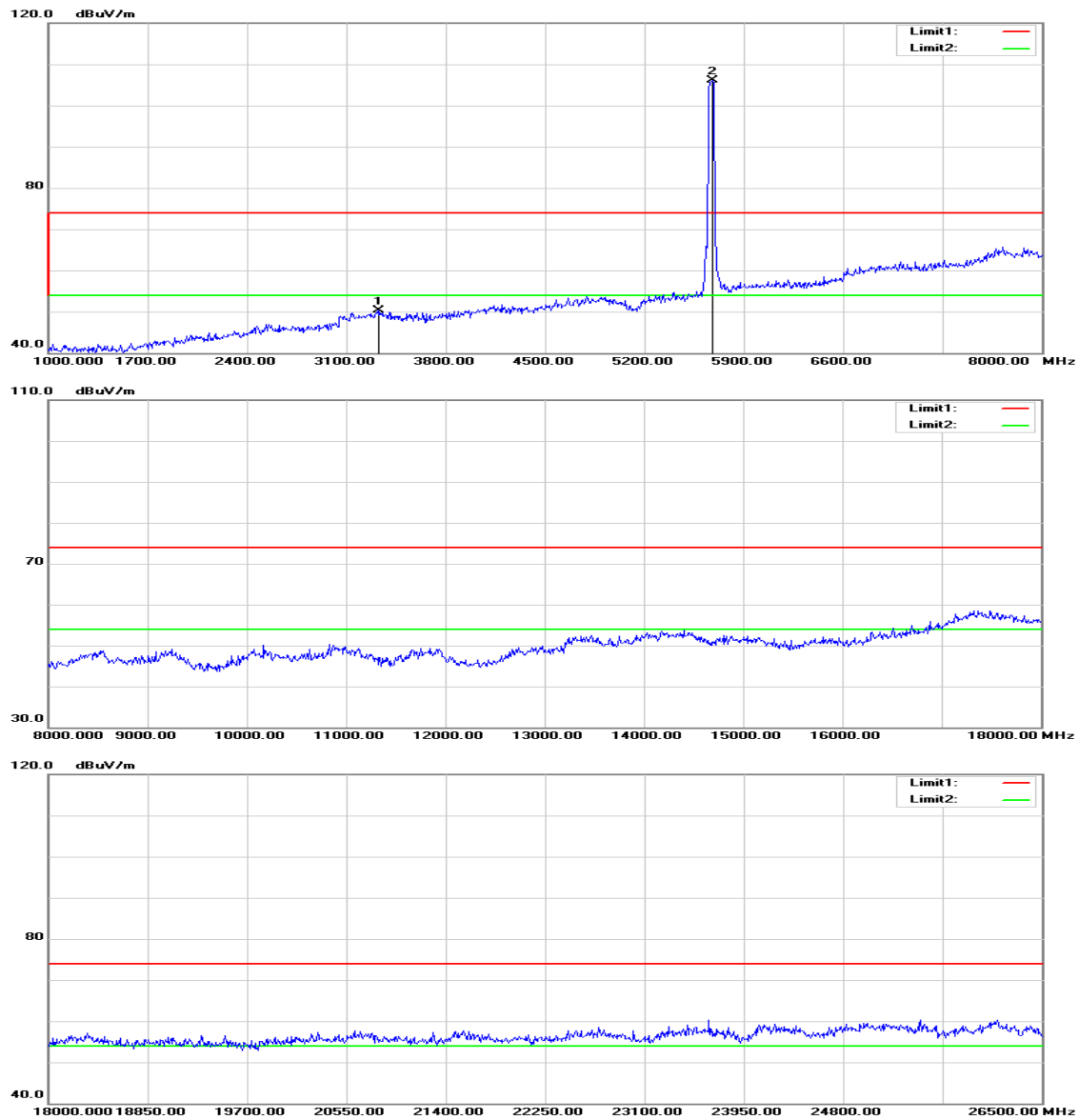
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3317.000	51.85	-1.35	50.50	74.00	-23.50	peak	V
N/A							
3226.000	52.02	-1.57	50.45	74.00	-23.55	peak	H
N/A							

**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).

**Tx / IEEE 802.11n HT 40 MHz mode / 5670 MHz****Polarity: Vertical**

## Polarity: Horizontal





**Operation Mode:** Tx / IEEE 802.11n HT 40 MHz mode / 5670 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

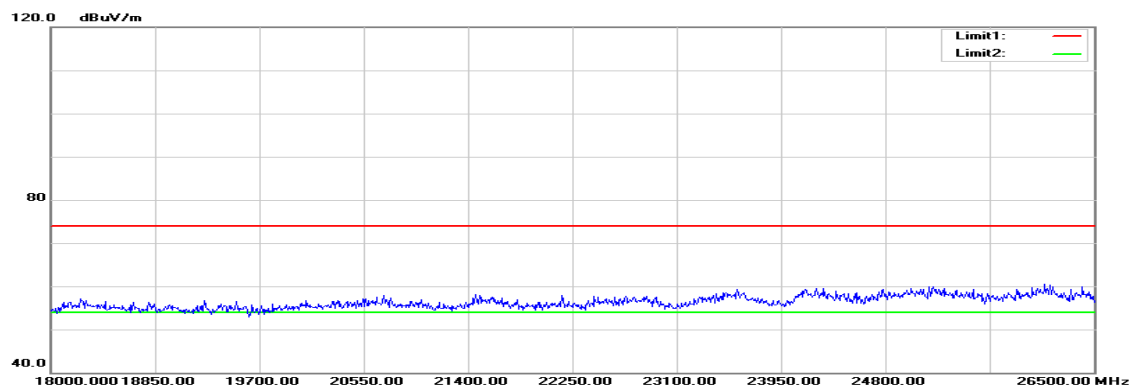
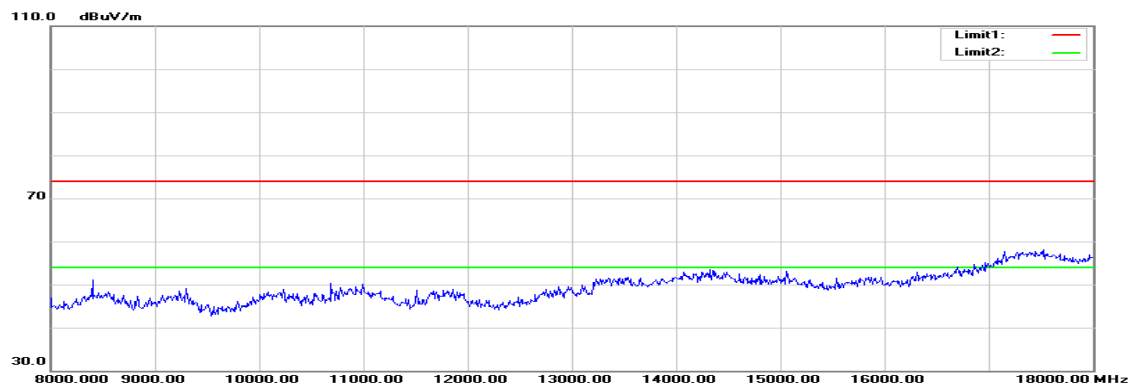
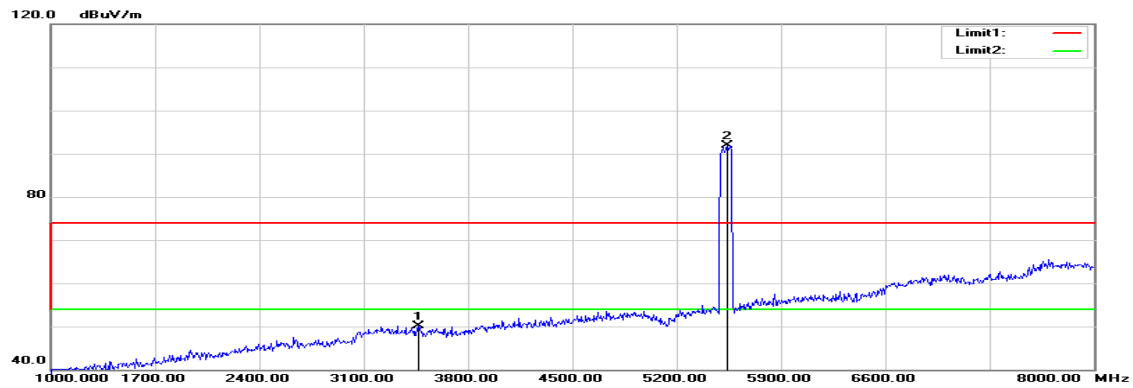
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

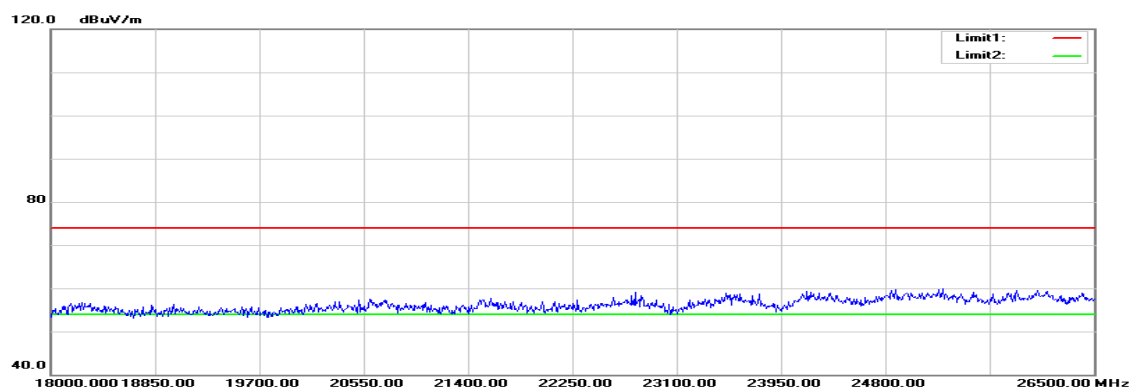
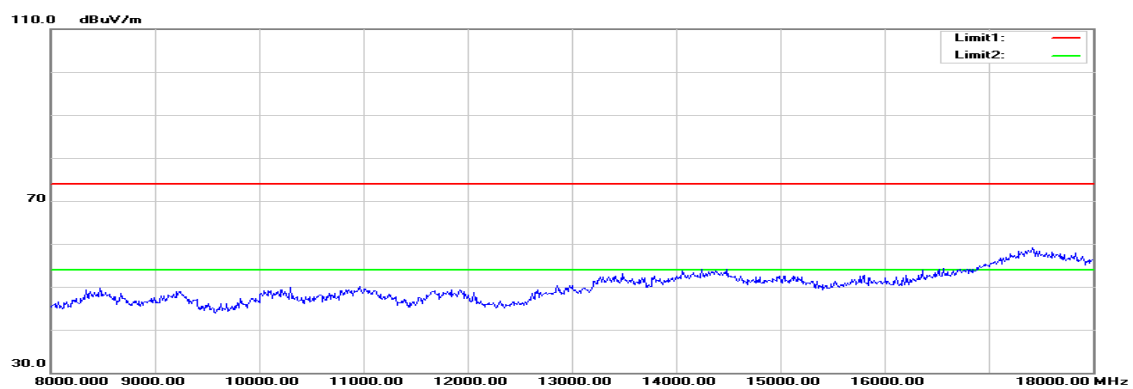
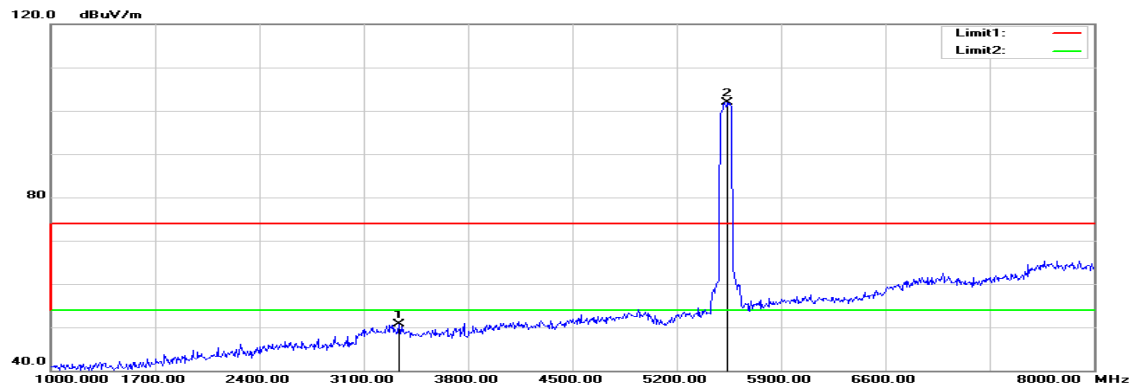
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3436.000	52.15	-1.06	51.09	74.00	-22.91	peak	V
N/A							
3331.000	51.68	-1.32	50.36	74.00	-23.64	peak	H
N/A							

**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).

**Tx / IEEE 802.11ac VHT 80 MHz mode / 5530 MHz****Polarity: Vertical**

## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11ac VHT 80 MHz mode / 5530 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

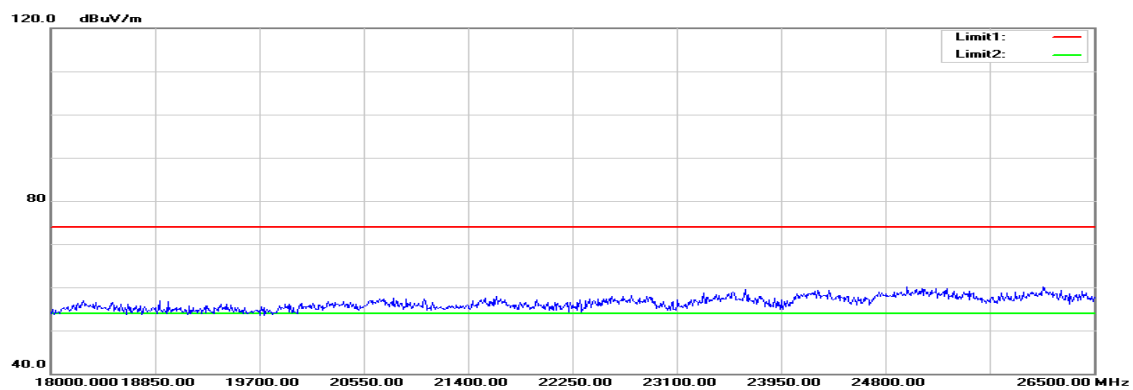
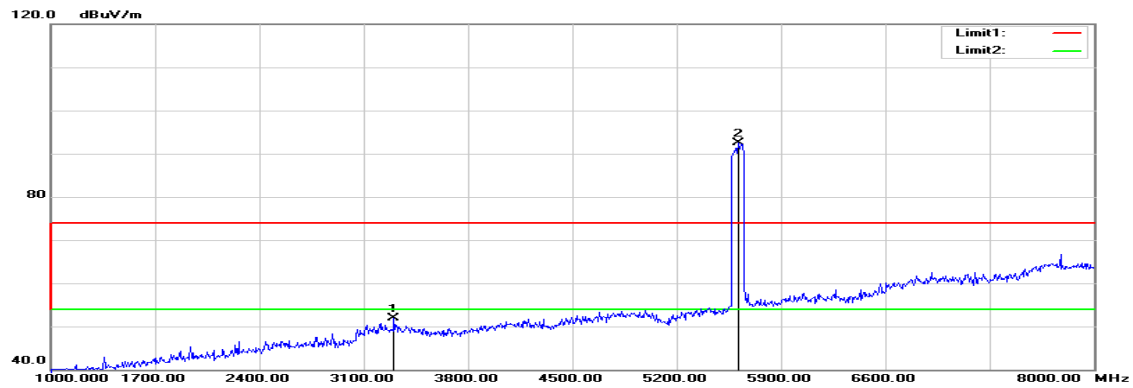
**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

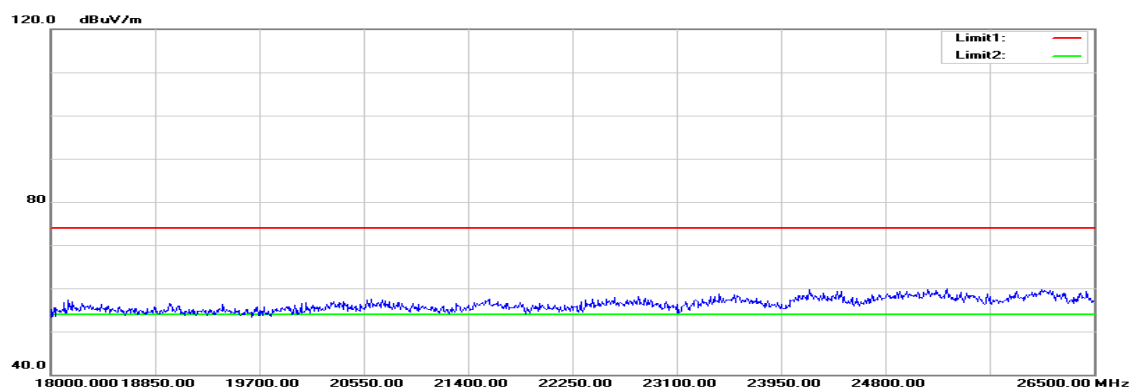
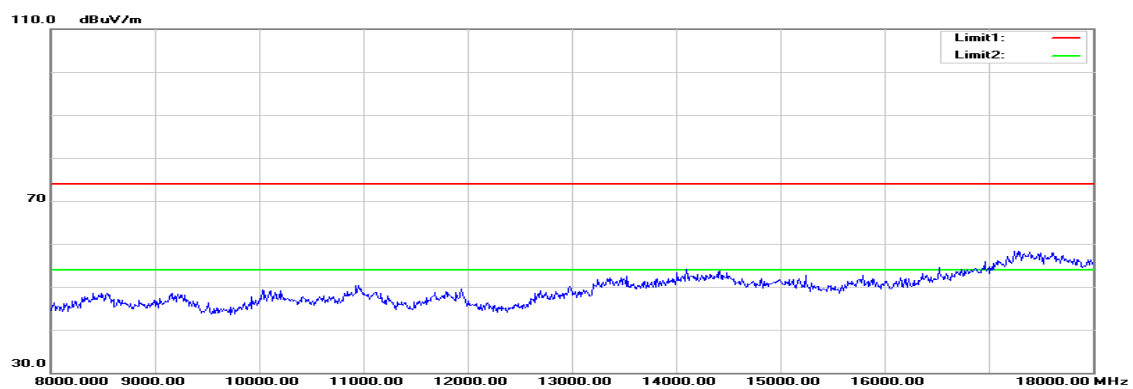
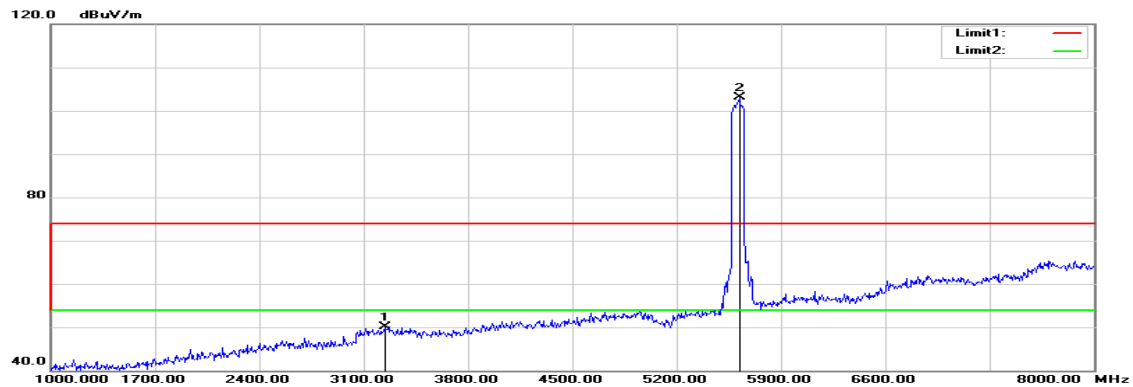
Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3471.000	51.10	-0.98	50.12	74.00	-23.88	peak	V
N/A							
3338.000	51.95	-1.30	50.65	74.00	-23.35	peak	H
N/A							

**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).

**Tx / IEEE 802.11ac VHT 80 MHz mode / 5610 MHz****Polarity: Vertical**

## Polarity: Horizontal

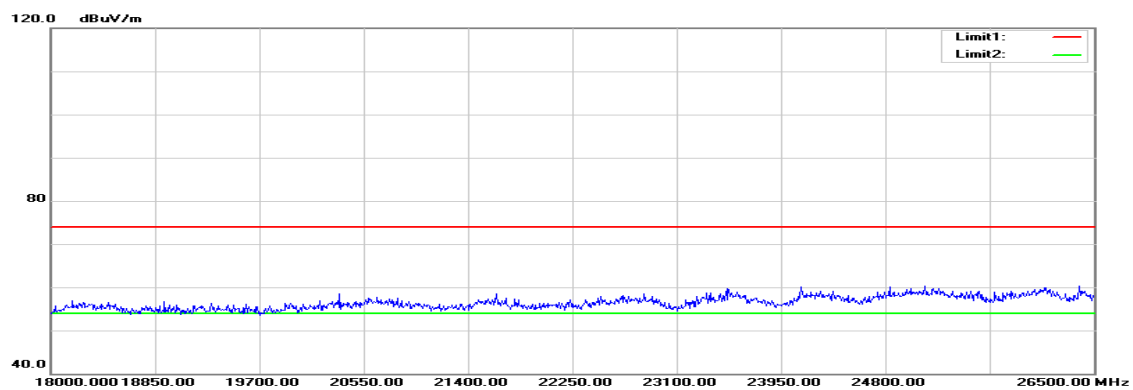
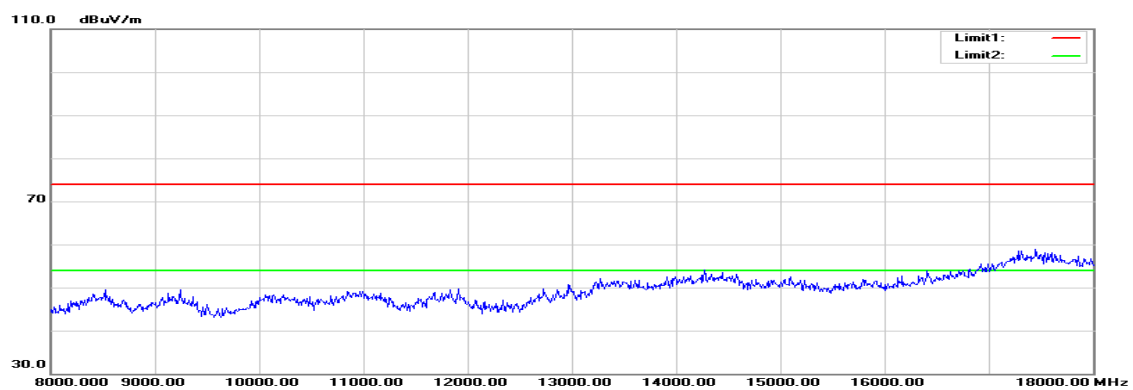
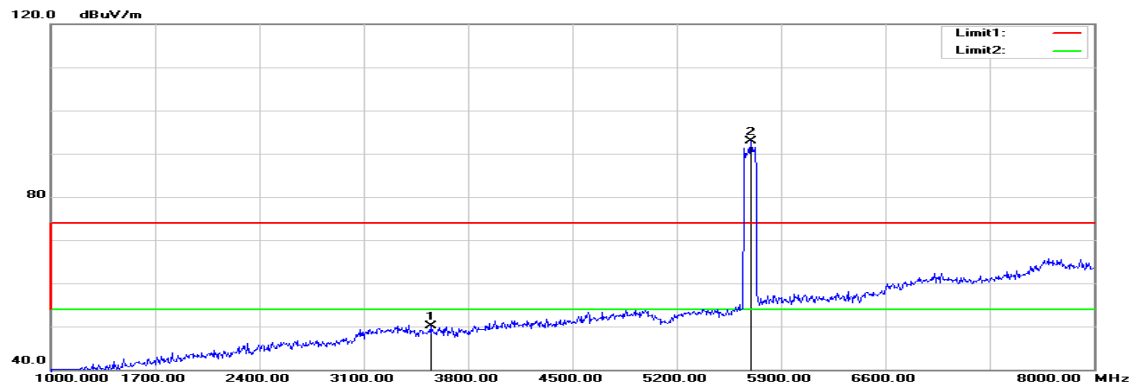


**Operation Mode:** Tx / IEEE 802.11ac VHT 80 MHz mode / 5610 MHz**Test Date:** August 25, 2015**Temperature:** 27°C**Tested by:** Andy Shi**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3303.000	53.30	-1.38	51.92	74.00	-22.08	peak	V
N/A							
3240.000	51.64	-1.53	50.11	74.00	-23.89	peak	H
N/A							

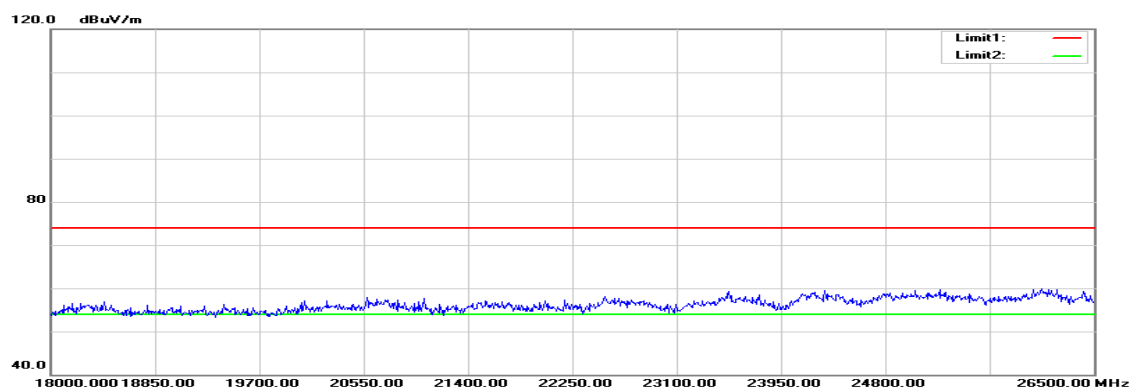
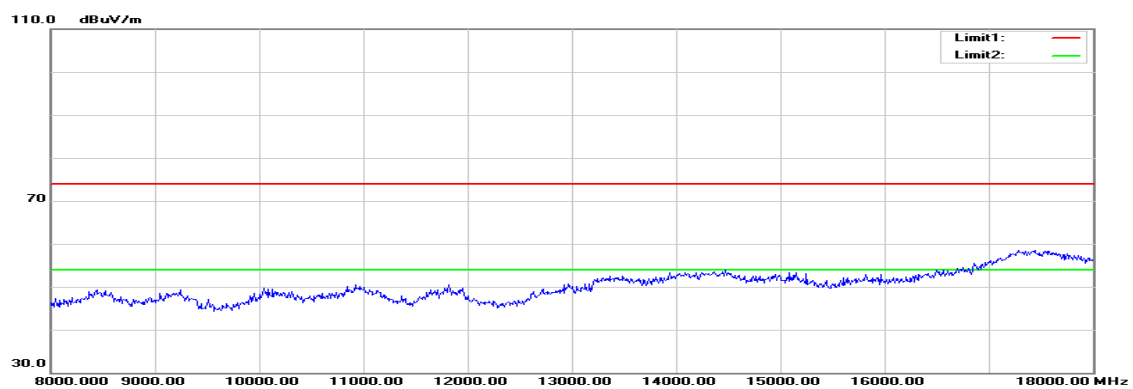
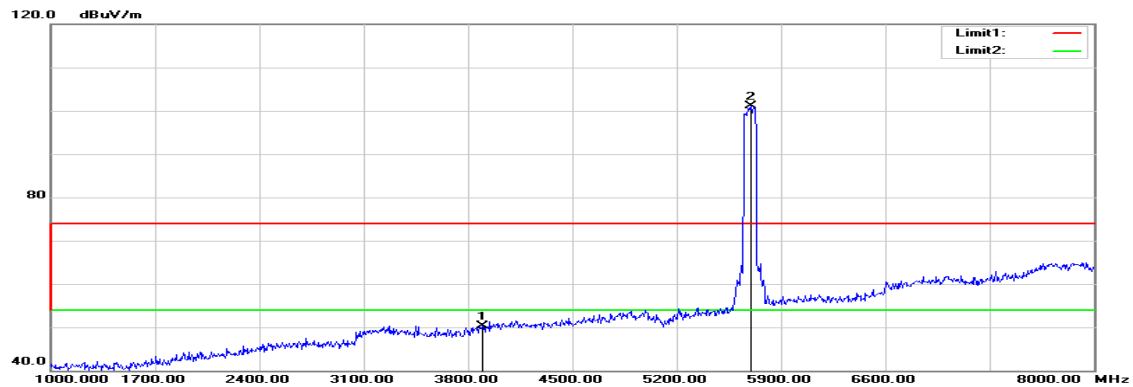
**Remark:**

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).

**Tx / IEEE 802.11ac VHT 80 MHz mode / 5690 MHz****Polarity: Vertical**



## Polarity: Horizontal



**Operation Mode:** Tx / IEEE 802.11ac VHT 80 MHz mode / 5690 MHz  
**Temperature:** 27°C  
**Humidity:** 53% RH

**Test Date:** August 25, 2015

**Tested by:** Andy Shi

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3548.000	50.73	-0.70	50.03	74.00	-23.97	peak	V
N/A							
3898.000	49.56	0.79	50.35	74.00	-23.65	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).