

## FCC 47 CFR PART 15 SUBPART C

### TEST REPORT

For

Rugged Tablet

Model: IMT-BT

Trade Name:  ADLINK  
TECHNOLOGY INC.

*Issued to*

**ADLINK TECHNOLOGY INC.**  
9F, No.166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235 Taiwan

*Issued by*

**Compliance Certification Services Inc.**  
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Issued Date: August 31, 2016



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 31, 2016	Initial Issue	ALL	Becca Chen
01	October 21, 2016	1. Modify FCC ID. 2. Added EUT Antenna Transmitter description. (P6)	ALL	Becca Chen

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# 1. TEST RESULT CERTIFICATION

**Applicant:** ADLINK TECHNOLOGY INC.  
9F, No.166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235  
Taiwan

**Manufacturer:** ADLINK TECHNOLOGY INC.  
9F, No.166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235  
Taiwan

**Equipment Under Test:** Rugged Tablet

**Model Number:** IMT-BT

**Trade Name:** 

**Date of Test:** August 10 ~ 24, 2016

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

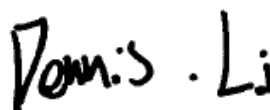
## We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

*Approved by:*

*Tested by:*



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Miller Lee  
Manager  
Compliance Certification Services Inc.

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Dennis Li  
Engineer  
Compliance Certification Services Inc.

## 2. EUT DESCRIPTION

<b>Product</b>	Rugged Tablet			
<b>Model Number</b>	IMT-BT			
<b>Trade Name</b>				
<b>Model Discrepancy</b>	N/A			
<b>Received Date</b>	April 20, 2016			
<b>Power supply</b>	1. VDC from Power Adapter SINPRO / HPU32A-105 I/P: 100-240Vac ~ 47-63Hz, 0.6-0.4A O/P: +12Vdc, 2.5A max. 2. Power from Battery ADLINK / IMTBT-B6300L-1 Rating: 7.6V, 6300mAh (47.88Wh)			
<b>Frequency Range</b>	2412 ~ 2462 MHz			
<b>Transmit Power</b>	<b>Mode</b>	<b>Frequency Range</b>	<b>Output Power (dBm)</b>	<b>Output Power (W)</b>
	IEEE 802.11b	2412 - 2462	19.45	0.0881
	IEEE 802.11g	2412 - 2462	23.63	0.2307
	IEEE 802.11n HT 20 MHz	2412 - 2462	24.14	0.2594
	IEEE 802.11n HT 40 MHz	2422 - 2452	23.42	0.2198
<b>Number of Channels</b>	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT 20 MHz mode: 11 Channels IEEE 802.11n HT 40 MHz mode: 7 Channels			
<b>Antenna Specification</b>	SINBON Main: A9702470-D / Gain: 2.44dBi Aux: A9702469-D / Gain: 2.18dBi PIFA Antenna			

**Remark:**

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **X4D-IMT-BT** filing to comply with FCC Part 15C, Section 15.207, 15.209.

### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 Part 15.207, 15.209, 15.247, KDB 558074 D01 DTS Meas Guidance v03r05

#### 3.1 EUT CONFIGURATION

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

#### 3.2 EUT EXERCISE

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

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

#### 3.3 GENERAL TEST PROCEDURES

##### Conducted Emissions

According to the requirements in ANSI C63.10: 2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### Radiated Emissions

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

##### EUT Antenna Transmitter description

Antenna	TX	RX
Main	V	X
Aux	X	V

### 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: IMT-BT) had been tested under operating condition.

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

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

**IEEE 802.11b mode:**

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

**IEEE 802.11g mode:**

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

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

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

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

Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.

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



## 4. INSTRUMENT CALIBRATION

### 4.1 MEASURING INSTRUMENT CALIBRATION

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

### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

Conducted Emissions Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Meter	Anritsu	ML2495A	1012009	2016/07/04	2017/07/03
Power Meter	Anritsu	MA2411B	917072	2016/07/04	2017/07/03
Spectrum Analyzer	R&S	FSV 40	101073	2016/08/01	2017/07/31

Wugu 966 Chamber A					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	2015/12/08	2016/12/07
Loop Ant	COM-POWER	AL-130	121051	2016/02/25	2017/02/24
Bilog Antenna	Sunol Sciences	JB1	A052609	2016/03/20	2017/03/21
Pre-Amplifier	EMEC	EM330	60609	2016/06/08	2017/06/07
Horn Antenna	ETC	MCTD 1209	DRH13M02003	2015/09/02	2016/09/01
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R

Conducted Emission Room # B					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
LISN	R&S	ENV216	101054	2016/05/11	2017/05/10
Receiver	R&S	ESCI	101073	2015/09/09	2016/09/08
Software	CCS-3A1-CE				

**Remark:**

- Each piece of equipment is scheduled for calibration once a year and Precision Dipole is scheduled for calibration once three years.
- N.C.R. = No Calibration Required.

### 4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2575
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, Chungsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.  
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029
- No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)  
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.  
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 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-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

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

## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

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

### 6.2 SUPPORT EQUIPMENT

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

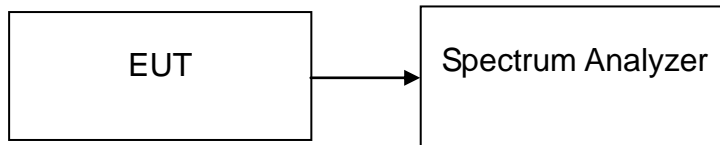
**Remark:**

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

## 7. FCC PART 15.247 REQUIREMENTS

### 7.1 99% BANDWIDTH

#### Test Configuration



#### TEST PROCEDURE

The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold.

**Test Data**

**IEEE 802.11b mode**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.1085
Mid	2437	15.0651
High	2462	15.1519

**IEEE 802.11g mode**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5412
Mid	2437	16.5850
High	2462	16.4978

**IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.6700
Mid	2437	17.6700
High	2462	17.6700

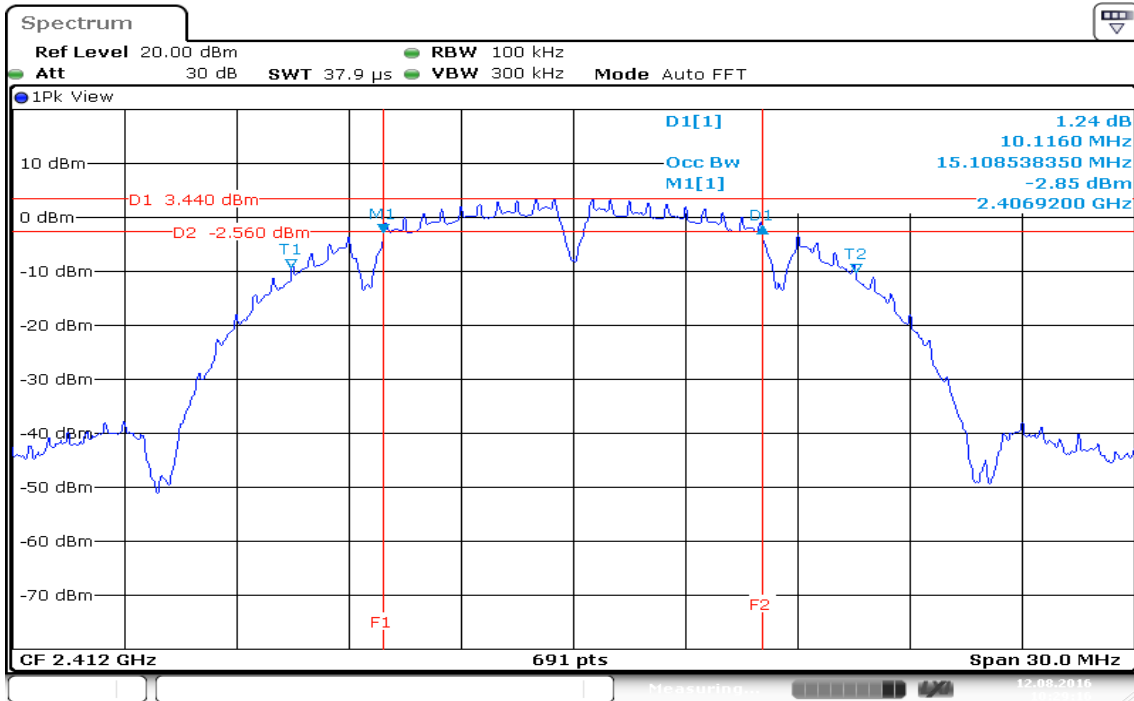
**IEEE 802.11n HT 40 MHz mode**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2422	36.2373
Mid	2437	36.3531
High	2452	36.3531

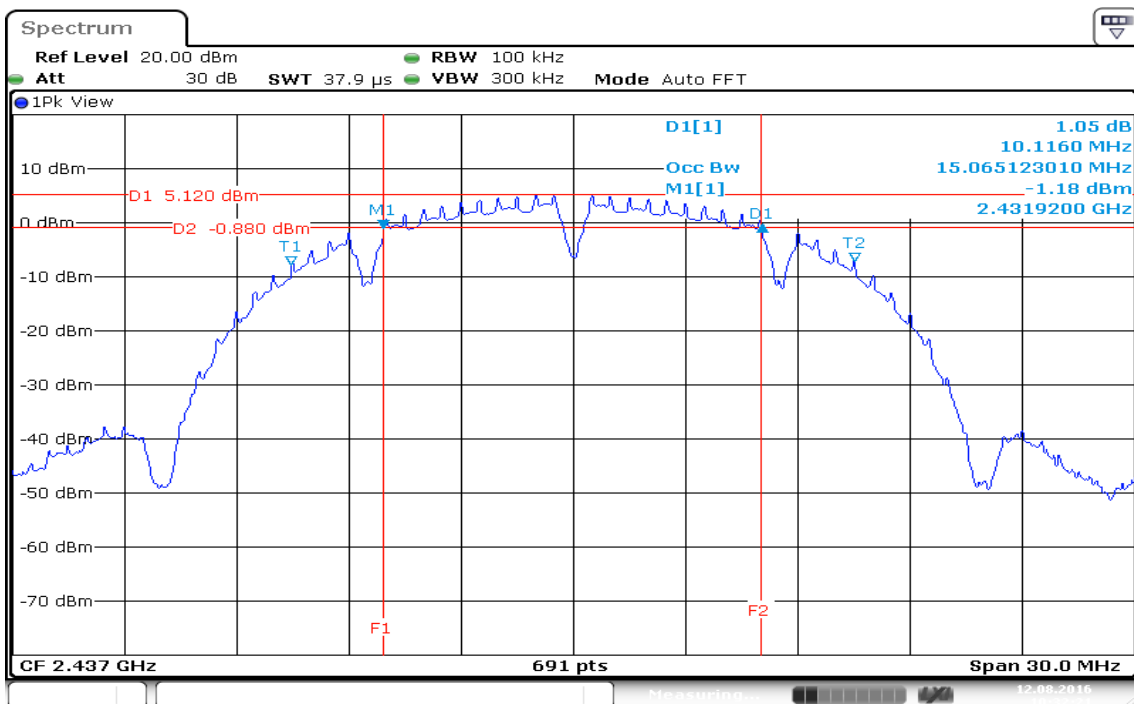
**Test Plot**

**IEEE 802.11b mode**

**99% Bandwidth (CH Low)**

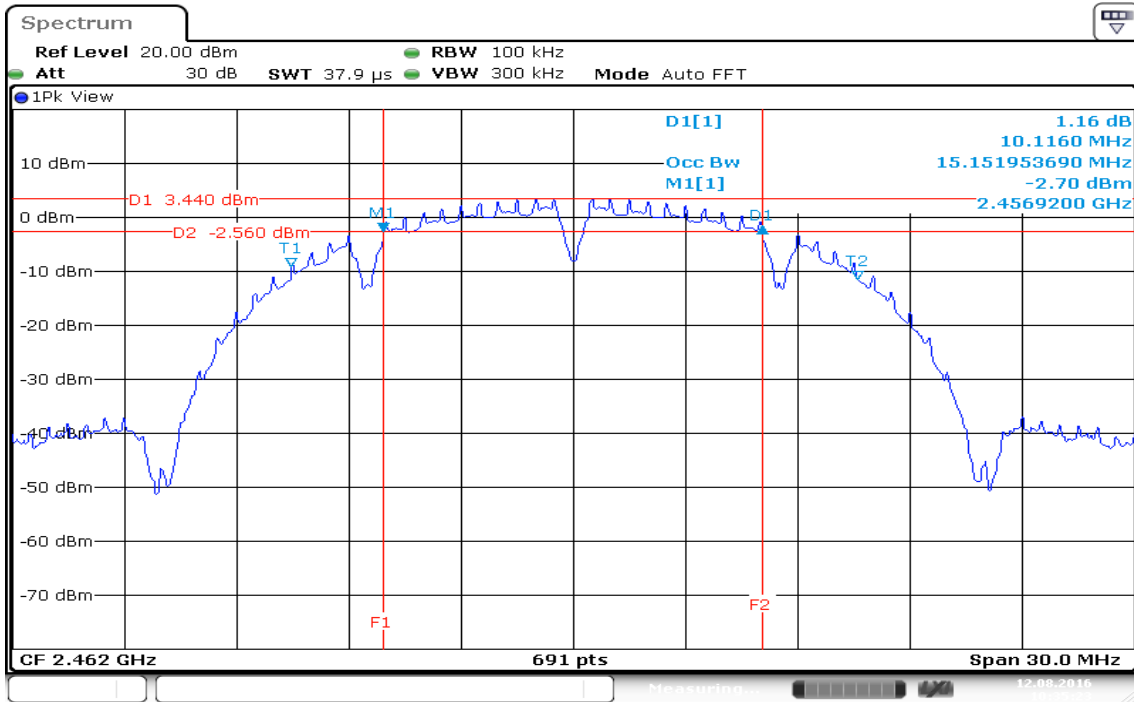


**99% Bandwidth (CH Mid)**





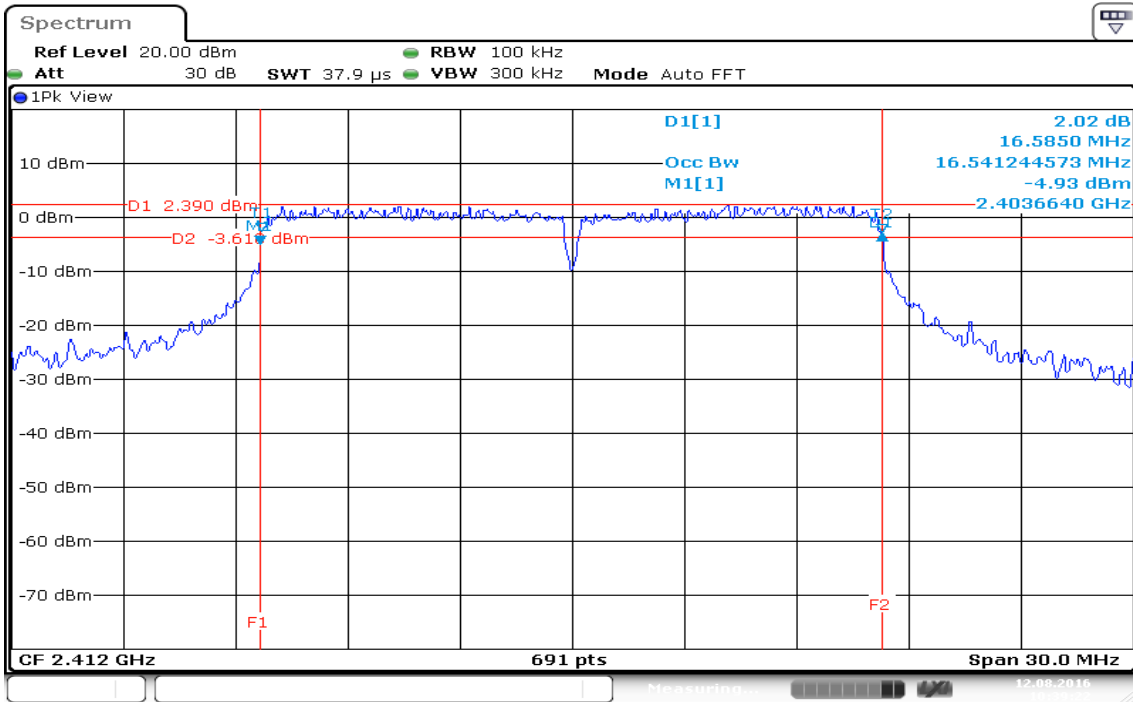
### 99% Bandwidth (CH High)



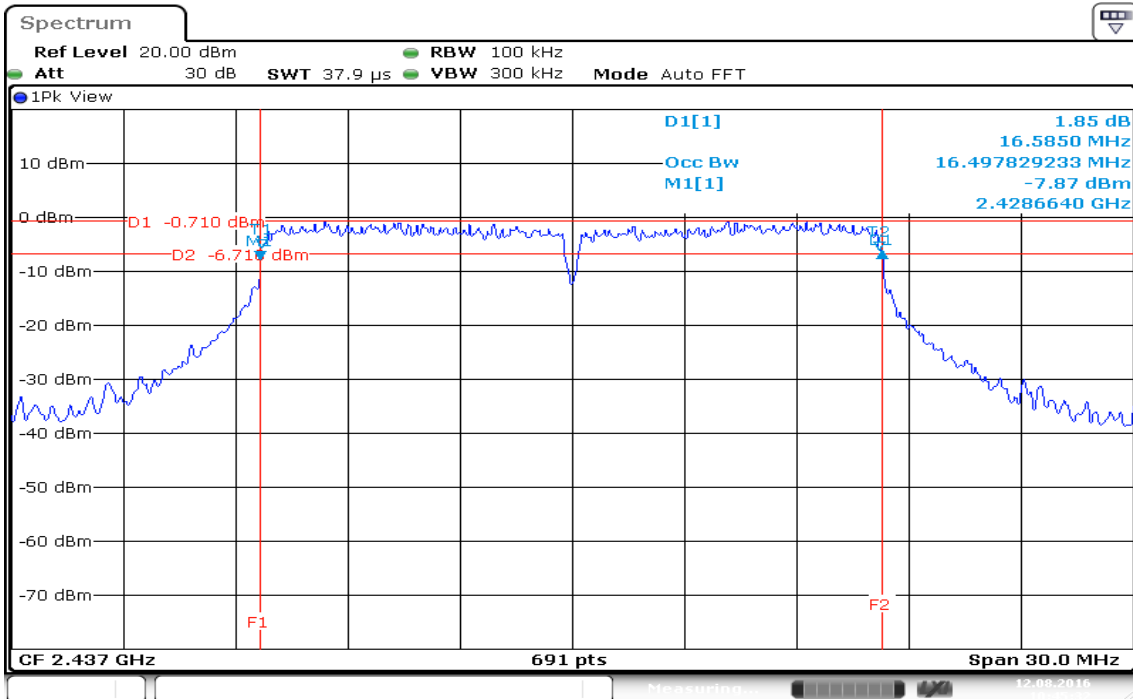
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**IEEE 802.11g mode**

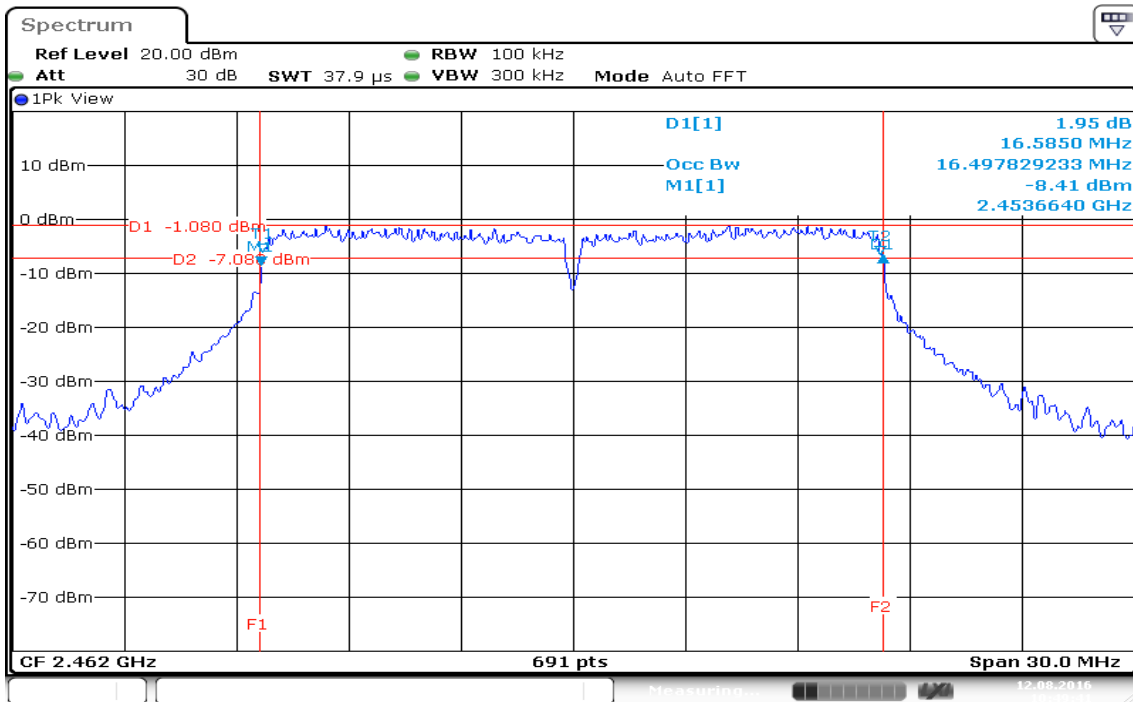
**99% Bandwidth (CH Low)**



**99% Bandwidth (CH Mid)**

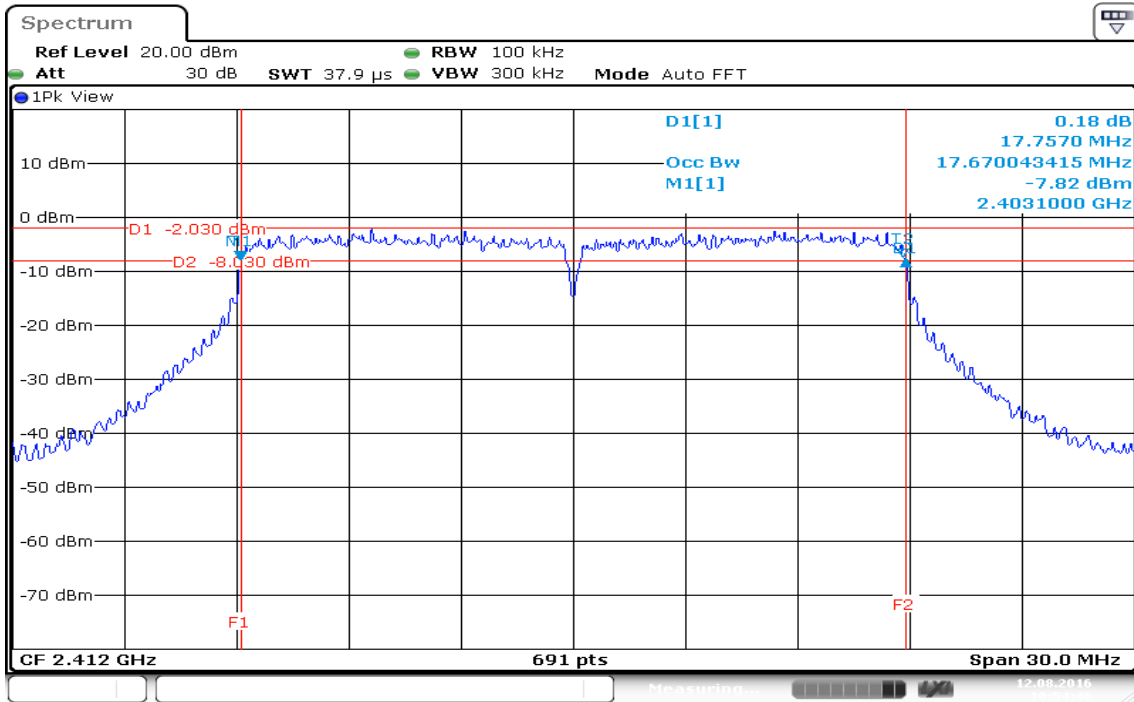


### 99% Bandwidth (CH High)

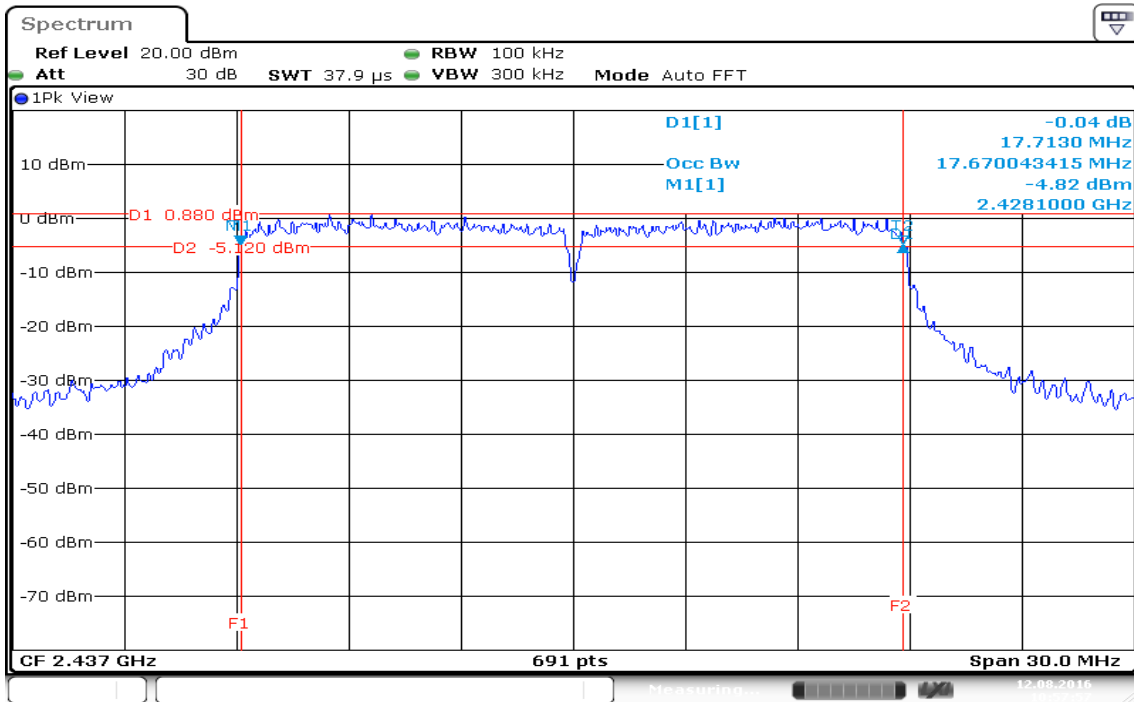


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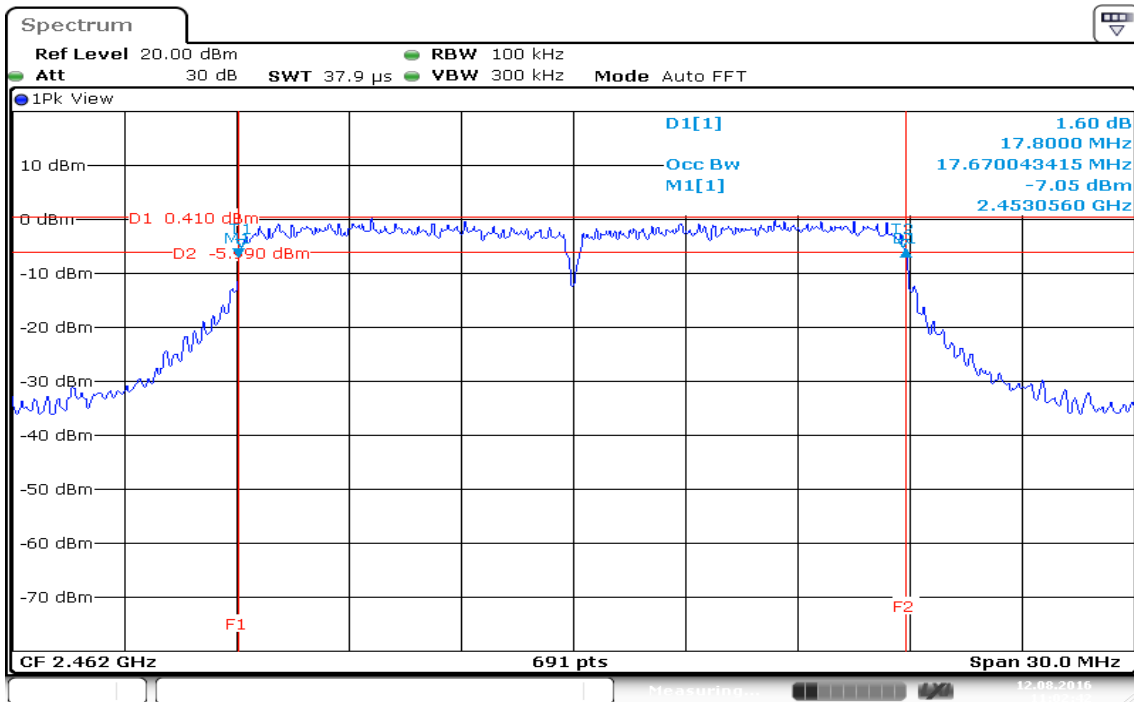
**IEEE 802.11n HT 20 MHz mode**  
**99% Bandwidth (CH Low)**



**99% Bandwidth (CH Mid)**

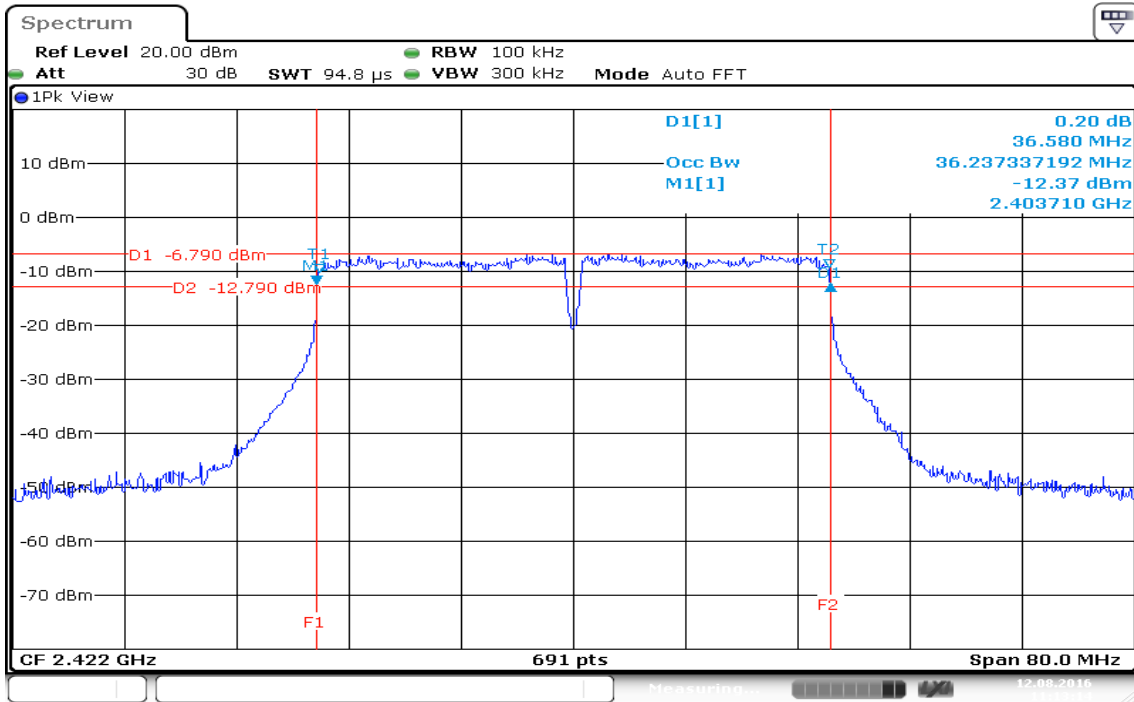


### 99% Bandwidth (CH High)

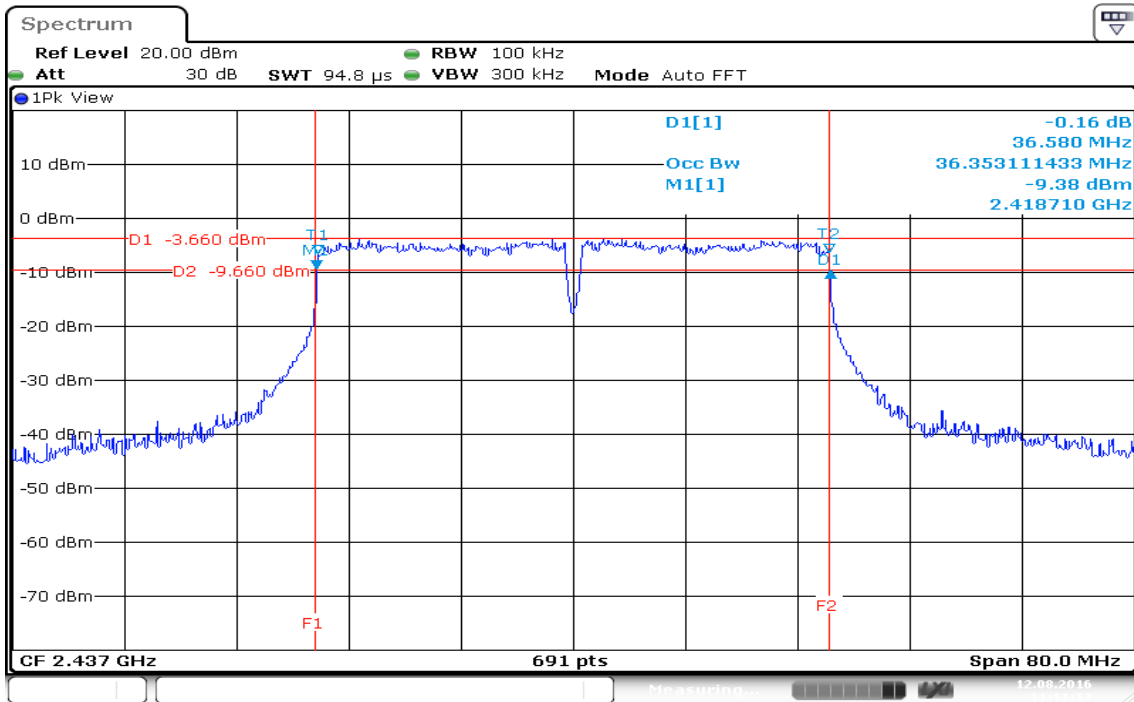


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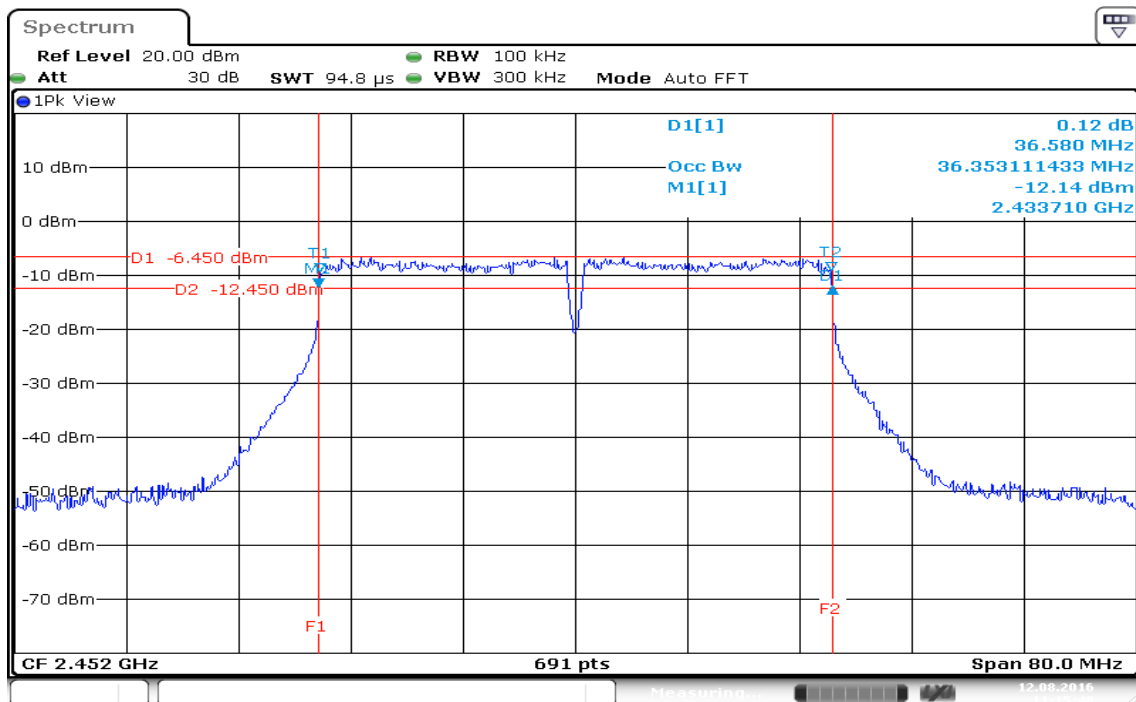
**IEEE 802.11n HT 40 MHz mode**  
**99% Bandwidth (CH Low)**



**99% Bandwidth (CH Mid)**



### 99% Bandwidth (CH High)



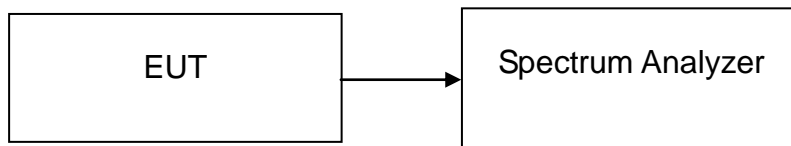
Date: 12.AUG.2016 11:15:48

## 7.2 6DB BANDWIDTH

### LIMIT

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

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100 kHz, VBW= 300kHz, Span = 50 MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

### TEST RESULTS

*No non-compliance noted*



**Test Data**

**IEEE 802.11b mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.1160	>500	PASS
Mid	2437	10.1160		PASS
High	2462	10.1160		PASS

**IEEE 802.11g mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.5850	>500	PASS
Mid	2437	16.5850		PASS
High	2462	16.5850		PASS

**IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.7570	>500	PASS
Mid	2437	17.7130		PASS
High	2462	17.8000		PASS

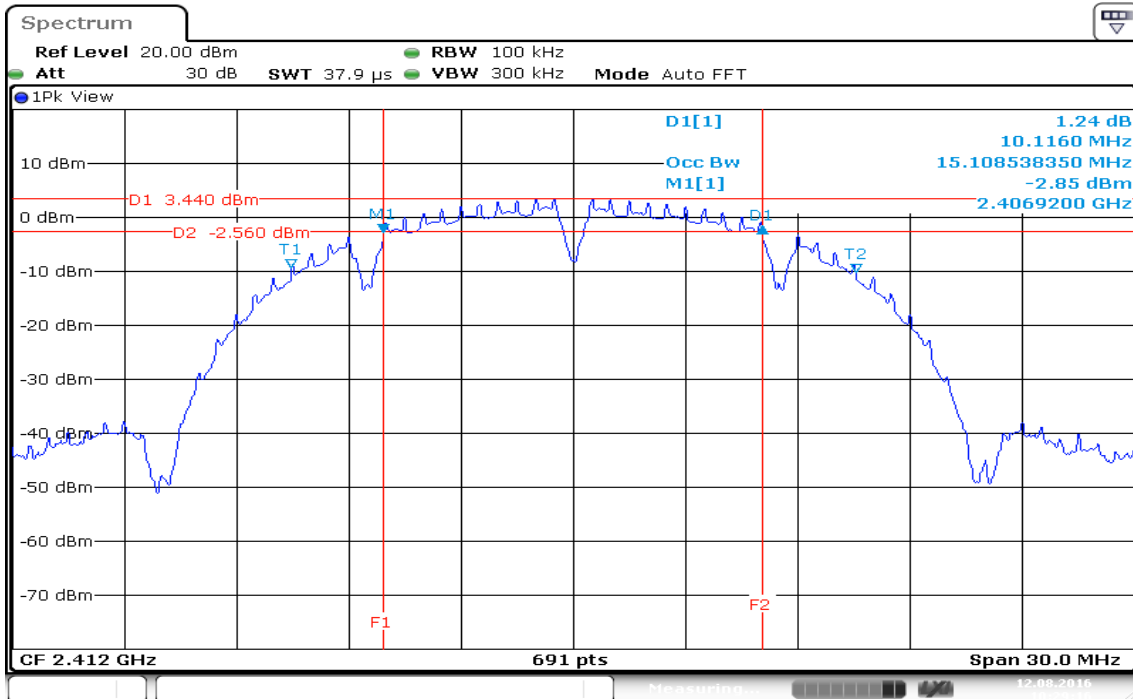
**IEEE 802.11n HT 40 MHz mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.580	>500	PASS
Mid	2437	36.580		PASS
High	2452	36.580		PASS

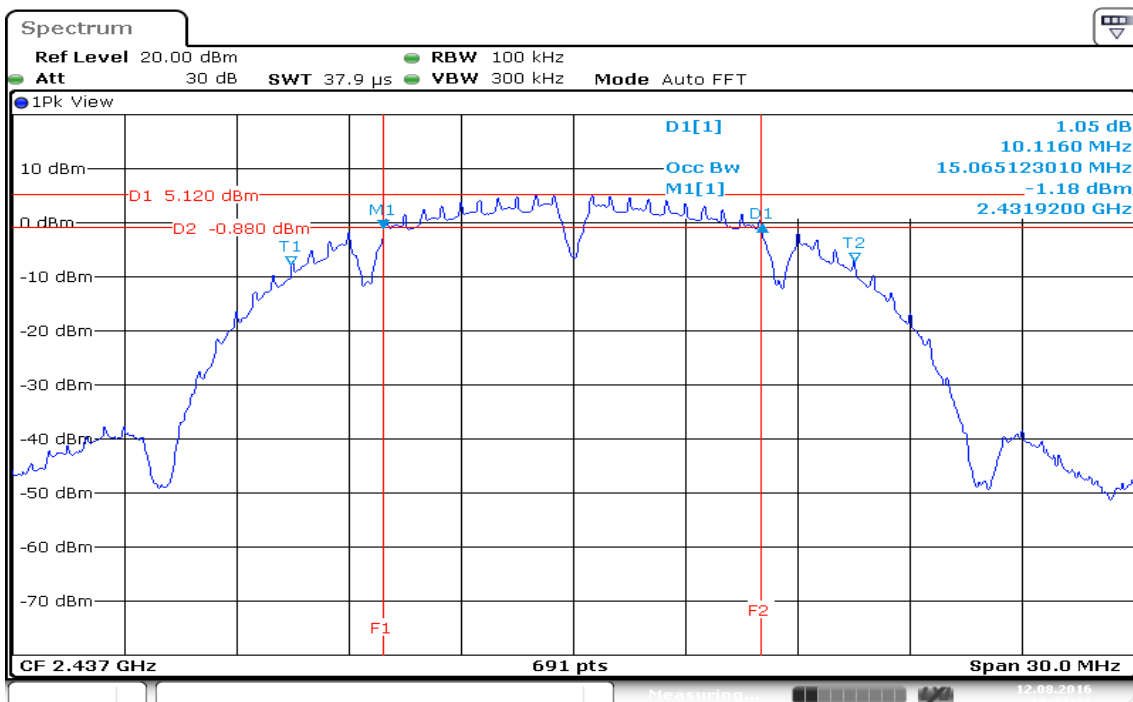
**Test Plot**

**IEEE 802.11b mode**

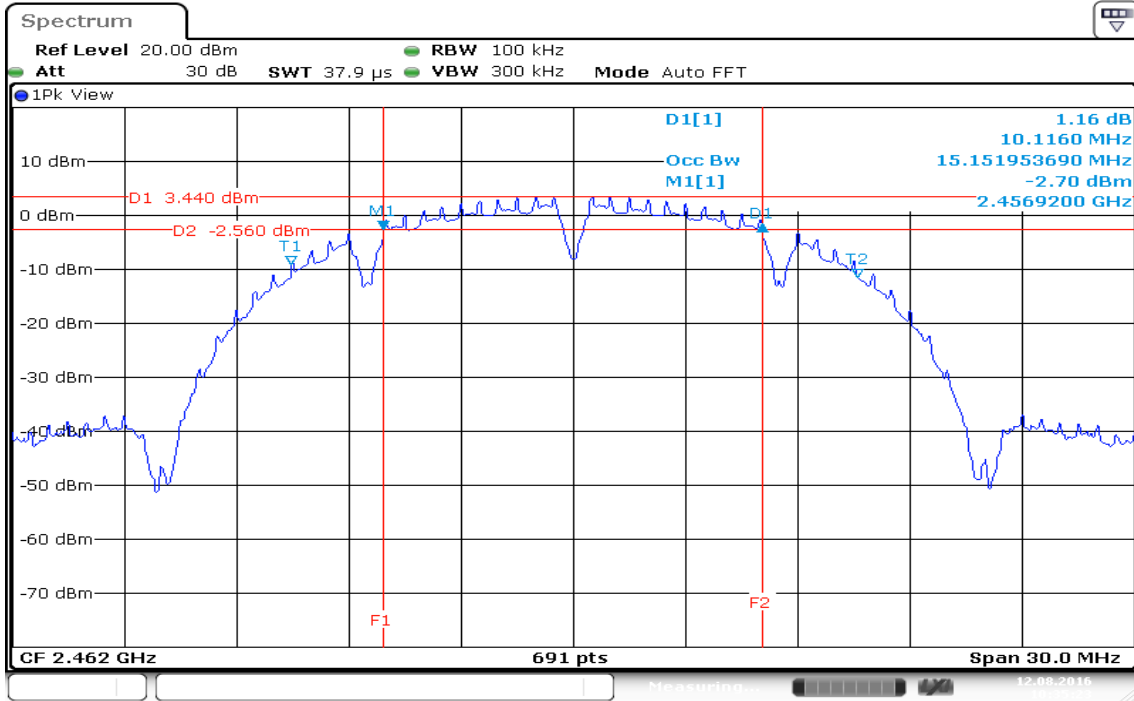
**6dB Bandwidth (CH Low)**



**6dB Bandwidth (CH Mid)**

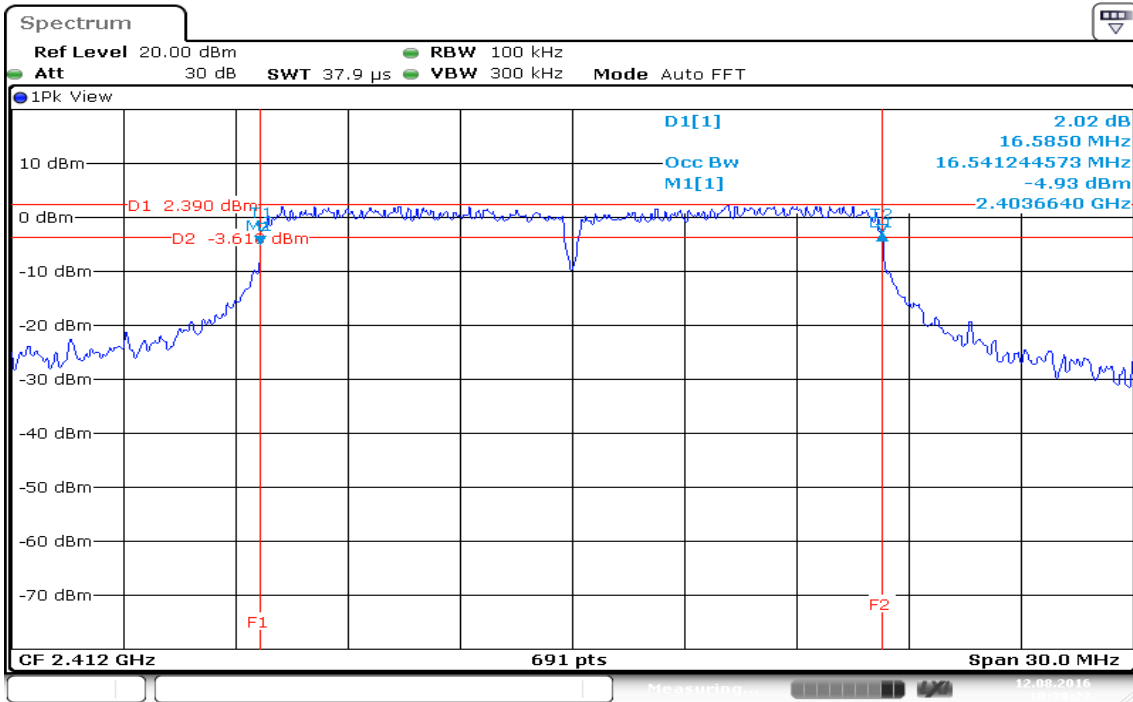


### 6dB Bandwidth (CH High)

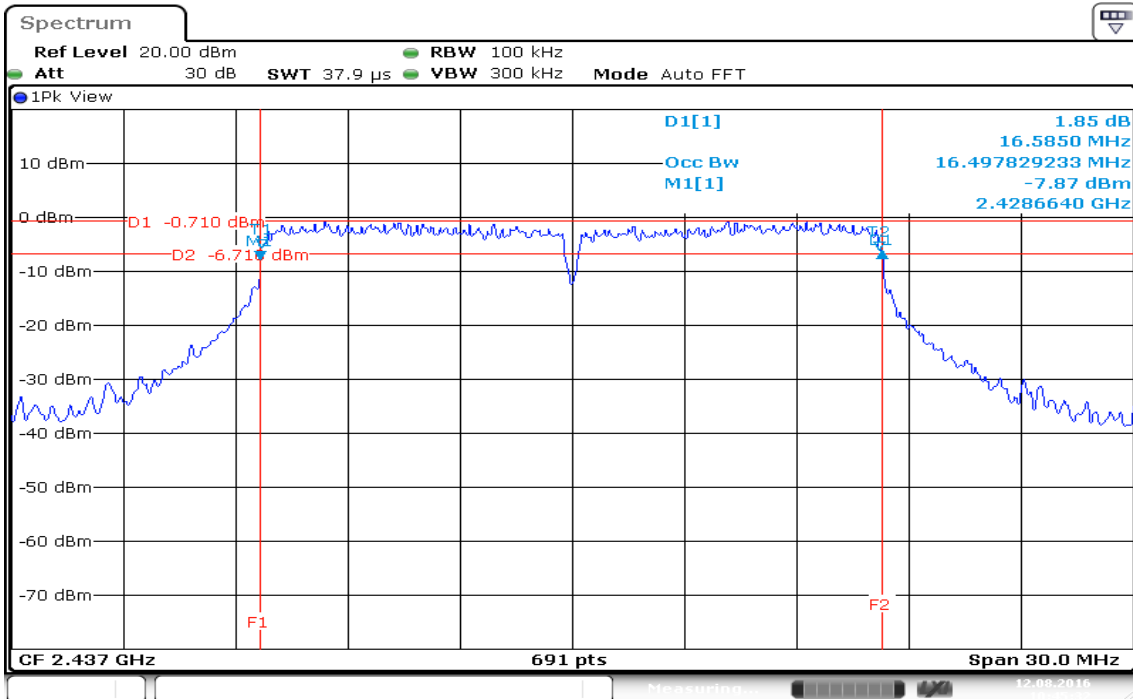


**IEEE 802.11g mode**

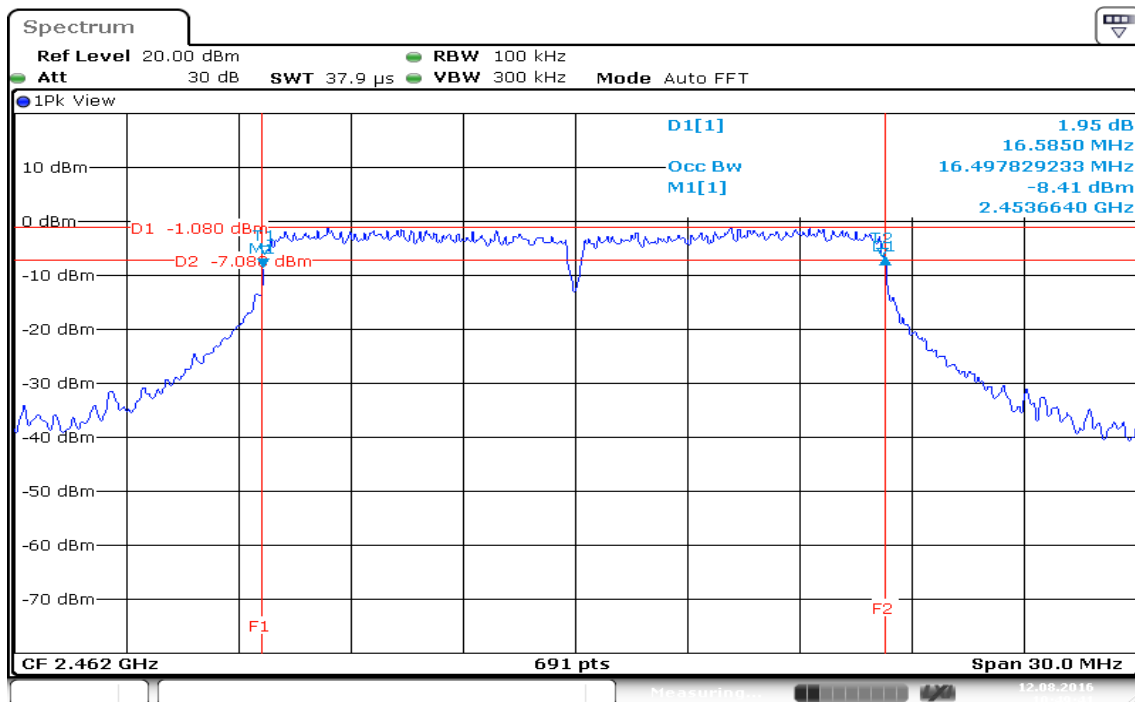
**6dB Bandwidth (CH Low)**



**6dB Bandwidth (CH Mid)**



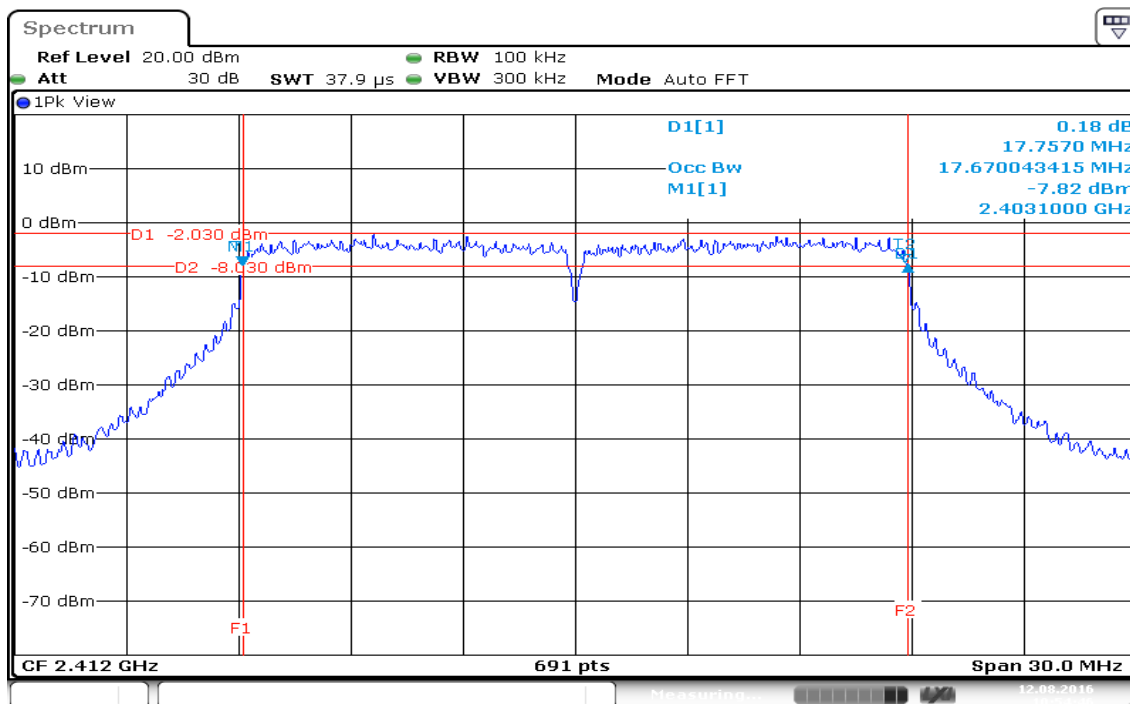
### 6dB Bandwidth (CH High)



Date: 12.AUG.2016 10:49:41

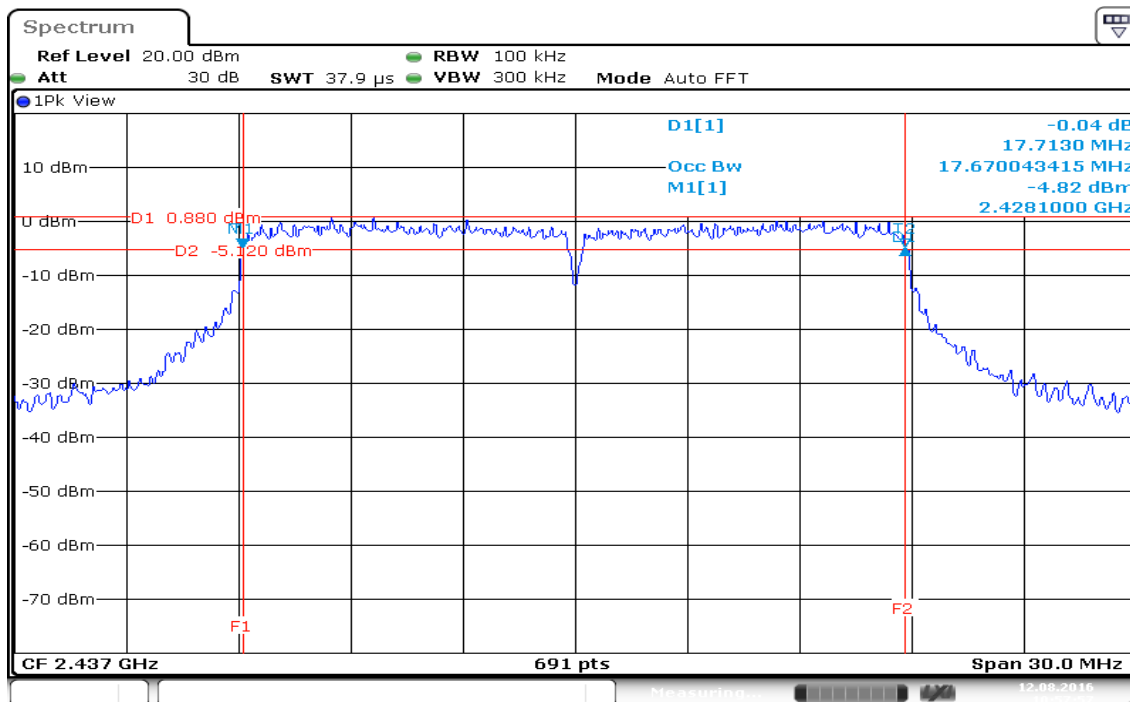
### IEEE 802.11n HT 20 MHz mode

#### 6dB Bandwidth (CH Low)



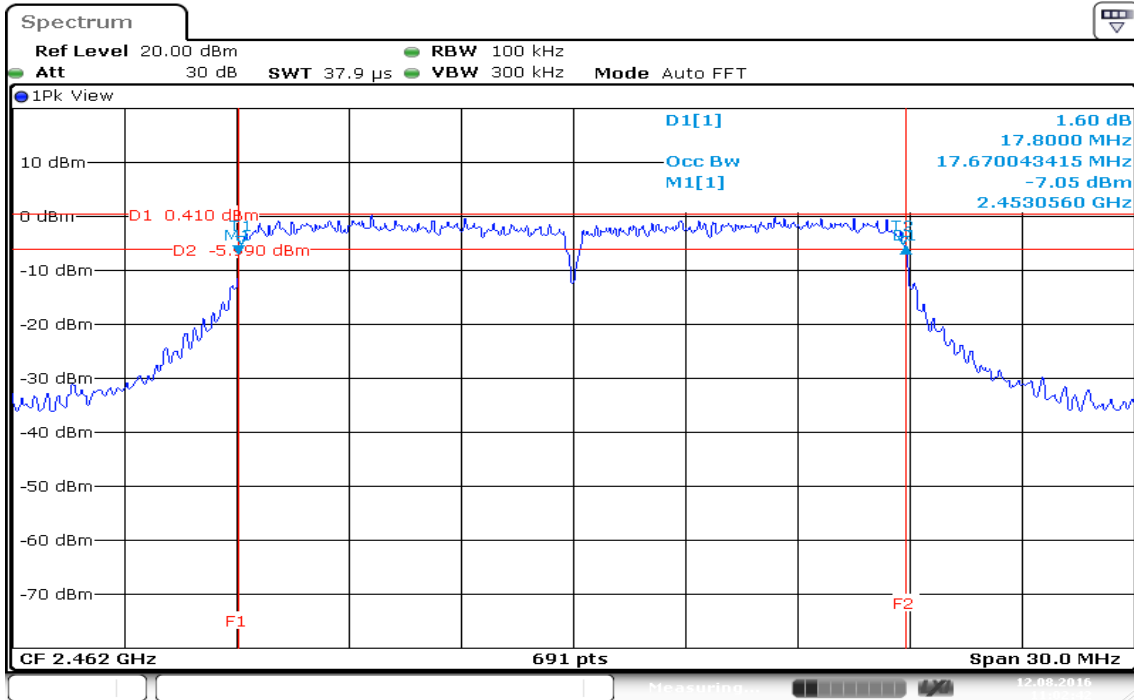
Date: 12.AUG.2016 10:54:46

#### 6dB Bandwidth (CH Mid)



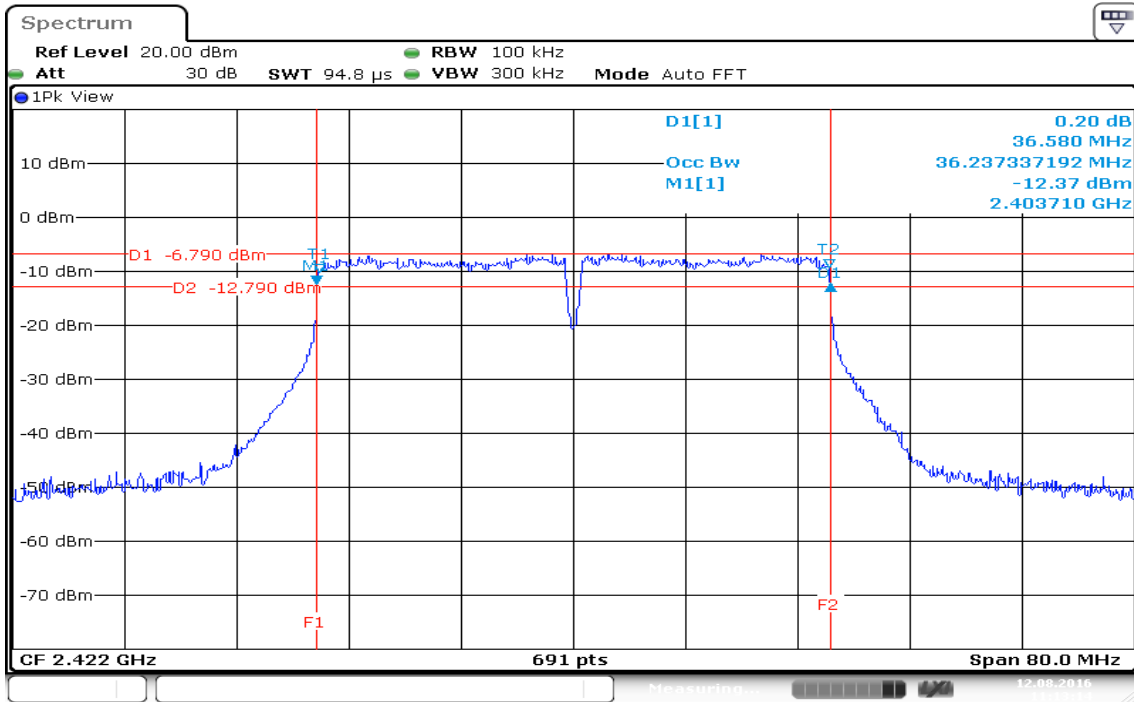
Date: 12.AUG.2016 10:57:57

### 6dB Bandwidth (CH High)

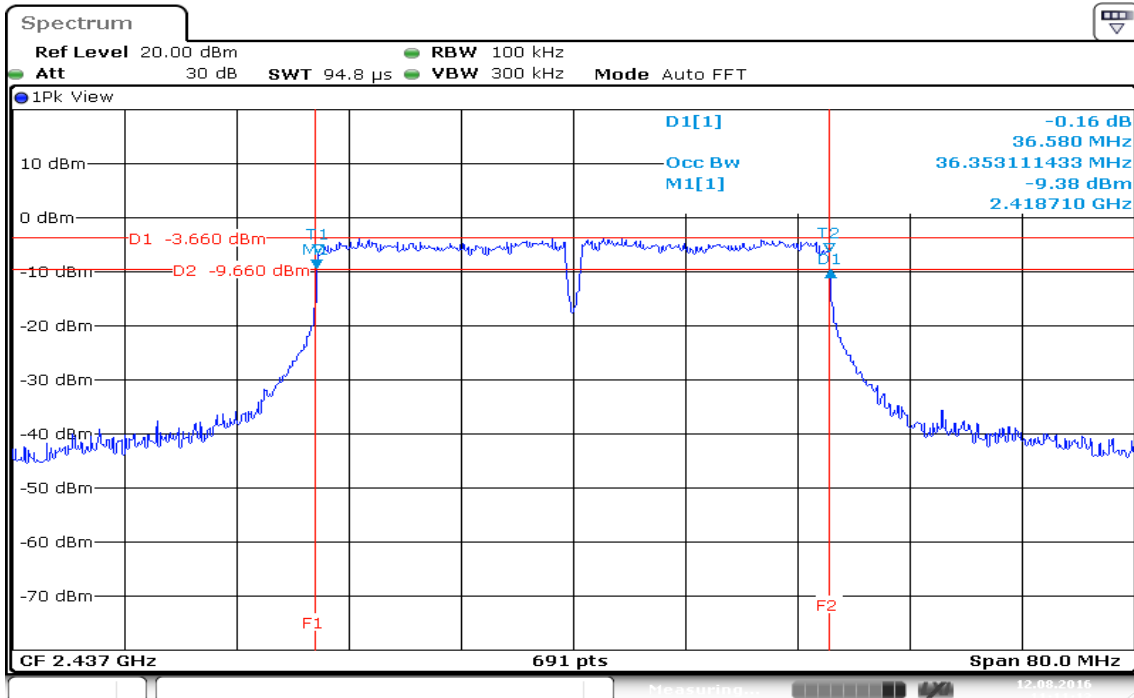


Date: 12.AUG.2016 11:02:42

**IEEE 802.11n HT 40 MHz mode**  
**6dB Bandwidth (CH Low)**

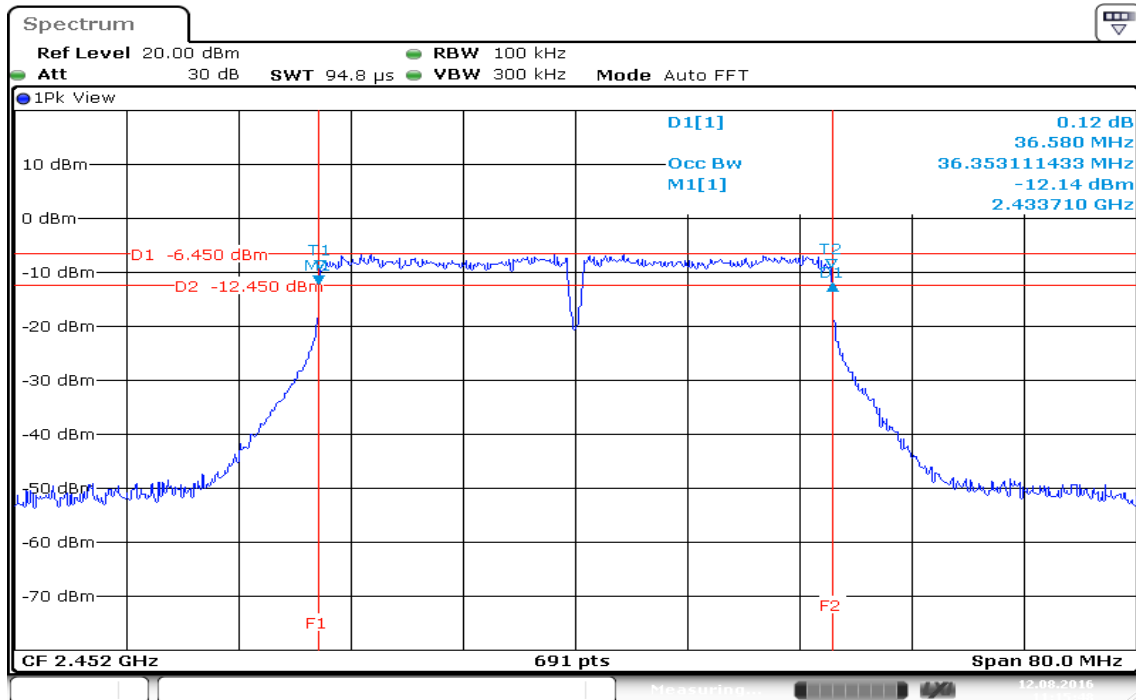


**6dB Bandwidth (CH Mid)**





### 6dB Bandwidth (CH High)



Date: 12.AUG.2016 11:15:48

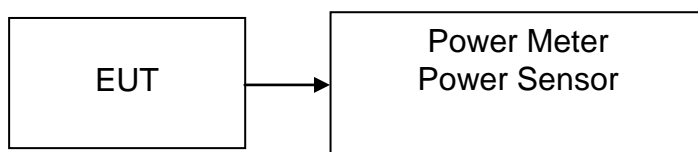
## 7.3 PEAK POWER

### LIMIT

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

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

### Test Configuration



### TEST PROCEDURE

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

### TEST RESULTS

*No non-compliance noted*

**Test Data**

**IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	17.92	0.0619	30	PASS
Mid	2437	<b>*19.45</b>	0.0881		PASS
High	2462	17.74	0.0594		PASS

**IEEE 802.11g mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	23.57	0.2275	30	PASS
Mid	2437	<b>*23.63</b>	0.2307		PASS
High	2462	23.45	0.2213		PASS

**IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	22.41	0.1742	30	PASS
Mid	2437	<b>*24.14</b>	0.2594		PASS
High	2462	22.09	0.1618		PASS

**IEEE 802.11n HT 40 MHz mode**

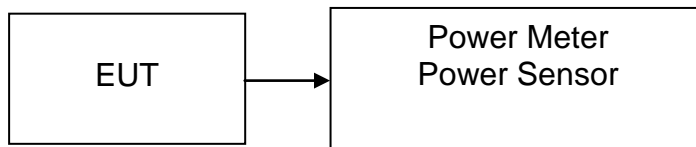
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2422	21.65	0.1462	30	PASS
Mid	2437	<b>*23.42</b>	0.2198		PASS
High	2452	21.47	0.1403		PASS

## 7.4 AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### Test Configuration



### TEST PROCEDURE

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

### TEST RESULTS

*No non-compliance noted*

**Test Data**

**Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	15.49	0.0354
Mid	2437	<b>*16.97</b>	0.0498
High	2462	15.37	0.0344

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	14.00	0.0251
Mid	2437	<b>*15.15</b>	0.0327
High	2462	14.43	0.0277

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

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	13.38	0.0218
Mid	2437	<b>*16.23</b>	0.0420
High	2462	13.26	0.0212

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

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2422	12.15	0.0164
Mid	2437	<b>*15.23</b>	0.0333
High	2452	12.05	0.0160

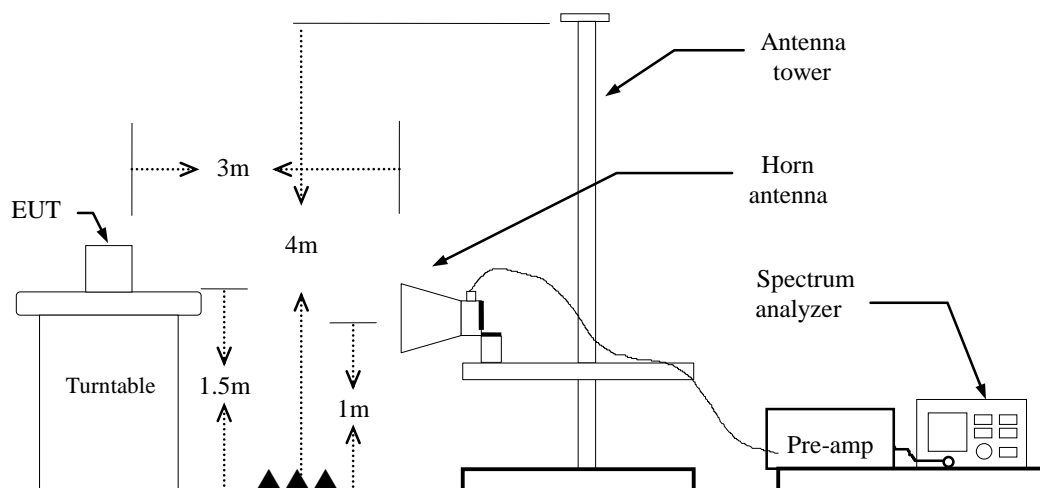
## 7.5 BAND EDGES MEASUREMENT

### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

### Test Configuration

#### For Radiated



## **TEST PROCEDURE**

### **For Radiated**

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=1MHz / VBW=3MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz,  
if duty cycle  $\geq$  98%, VBW=10Hz.  
if duty cycle < 98% VBW=1/T.  
**IEEE 802.11b mode:** =98%, VBW=10Hz  
**IEEE 802.11g mode:** =98%, VBW=10Hz  
**IEEE 802.11n HT 20 MHz mode:** =98%, VBW=10Hz  
**IEEE 802.11n HT 40 MHz mode:** =98%, VBW=10Hz
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

### **For Un-restricted Band Emissions**

The peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

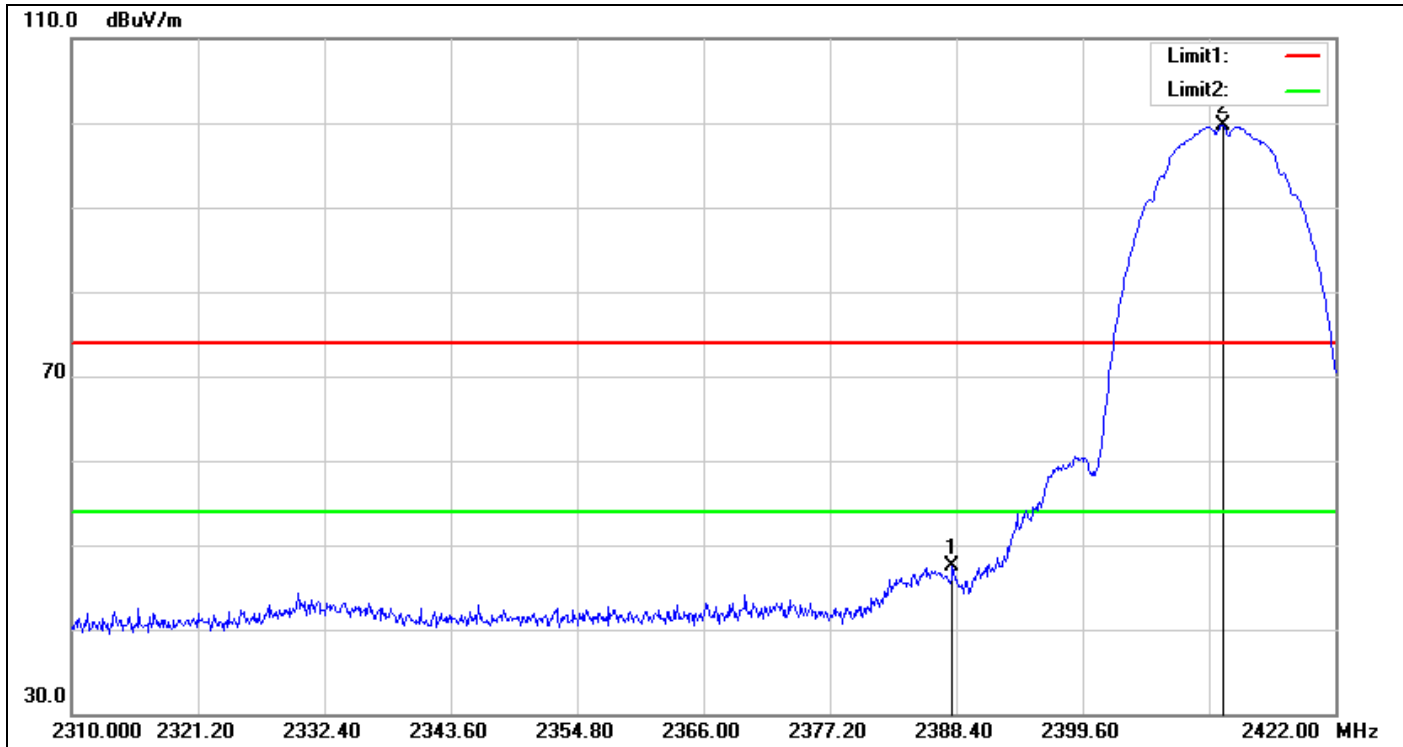
## **TEST RESULTS**

Refer to attach spectrum analyzer data chart.

**Band Edges**

**IEEE 802.11b Mode / CH Low**

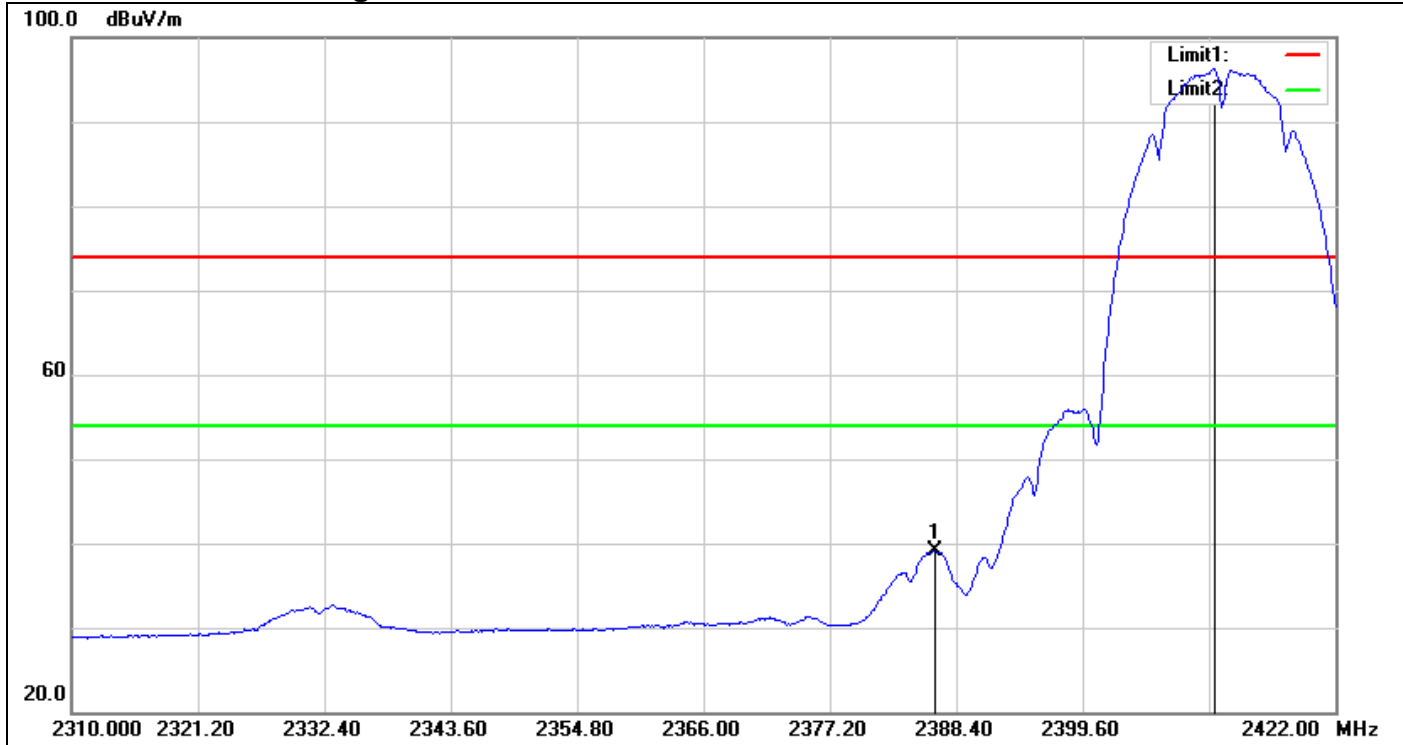
**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.064	50.05	-2.51	47.54	74.00	-26.46	peak
2	2412.032	102.18	-2.42	99.76	--	--	peak



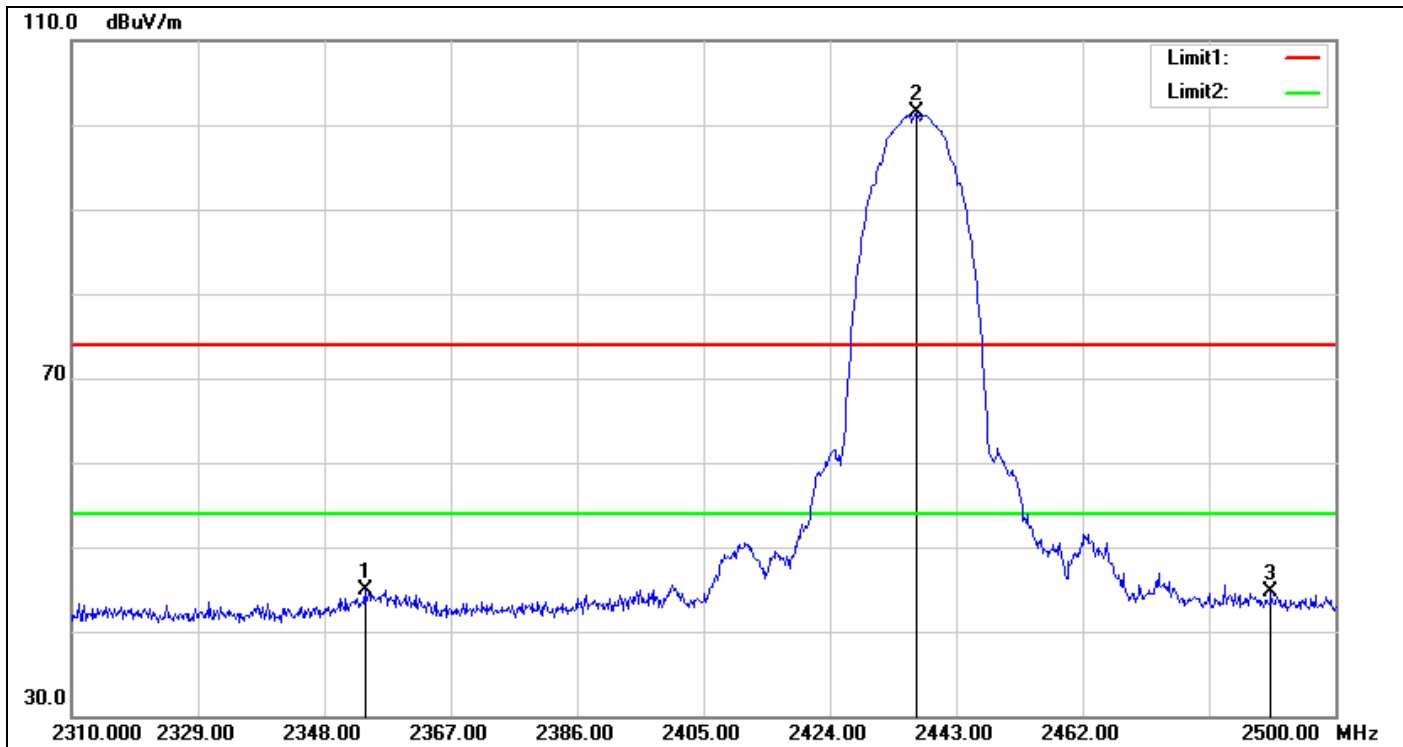
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.496	41.58	-2.52	39.06	54.00	-14.94	AVG
2	2411.248	98.67	-2.42	96.25	--	--	AVG

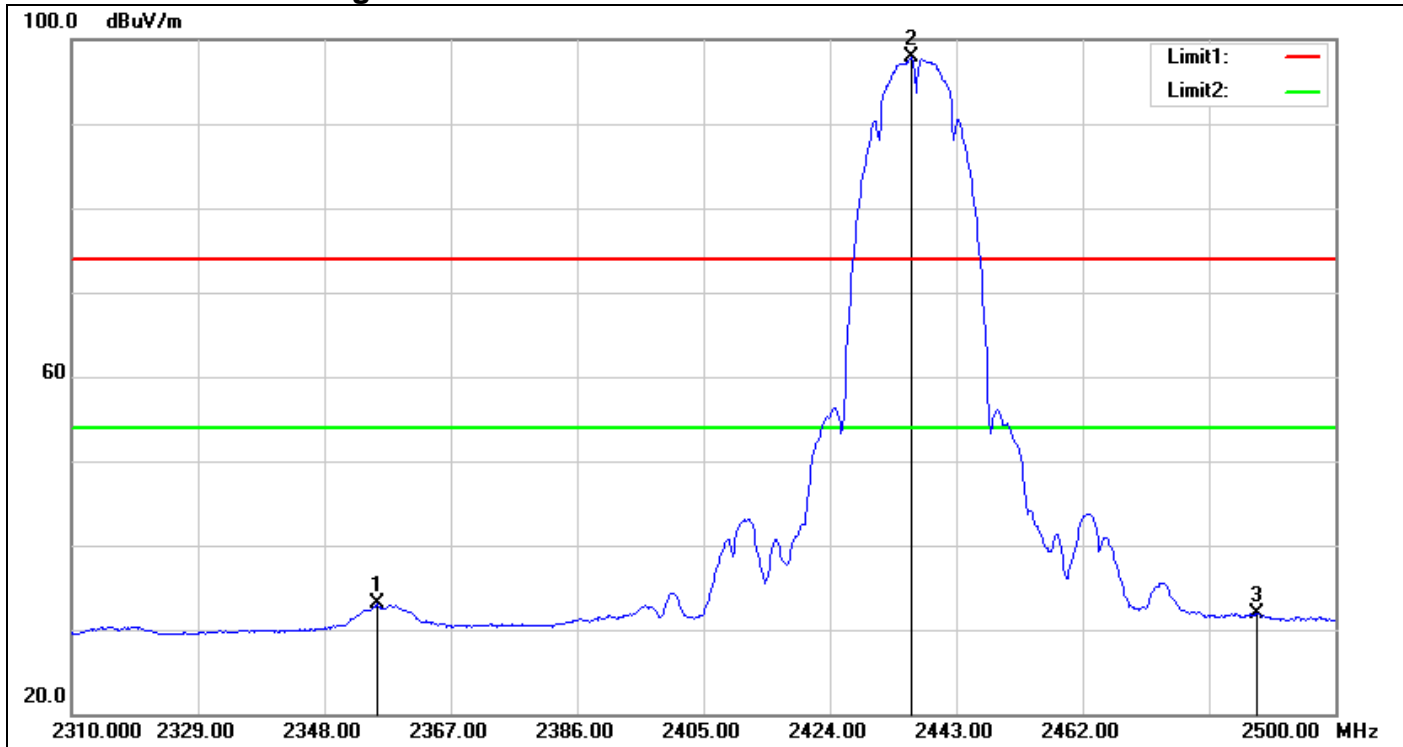
**IEEE 802.11b Mode / CH Mid**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2354.080	47.75	-2.80	44.95	74.00	-29.05	peak
2	2436.920	103.78	-2.23	101.55	--	--	peak
3	2490.310	46.57	-1.93	44.64	74.00	-29.36	peak

**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2355.980	35.84	-2.81	33.03	54.00	-20.97	AVG
2	2436.160	100.08	-2.24	97.84	--	--	AVG
3	2488.220	33.84	-1.95	31.89	54.00	-22.11	AVG

**IEEE 802.11b Mode / CH High**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.900	102.00	-2.10	99.90	--	--	peak
2	2487.600	51.78	-1.95	49.83	74.00	-24.17	peak

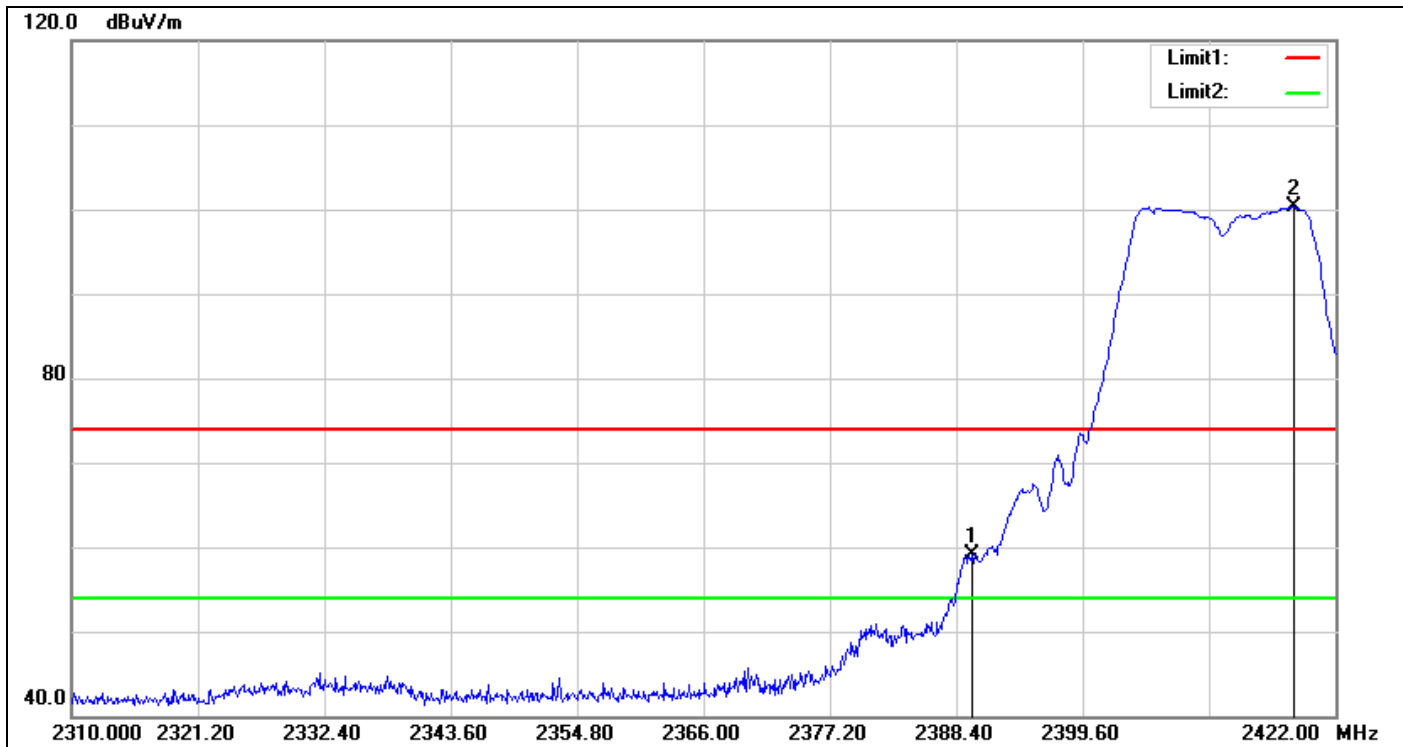
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.200	98.56	-2.10	96.46	--	--	AVG
2	2488.000	45.25	-1.95	43.30	54.00	-10.70	AVG

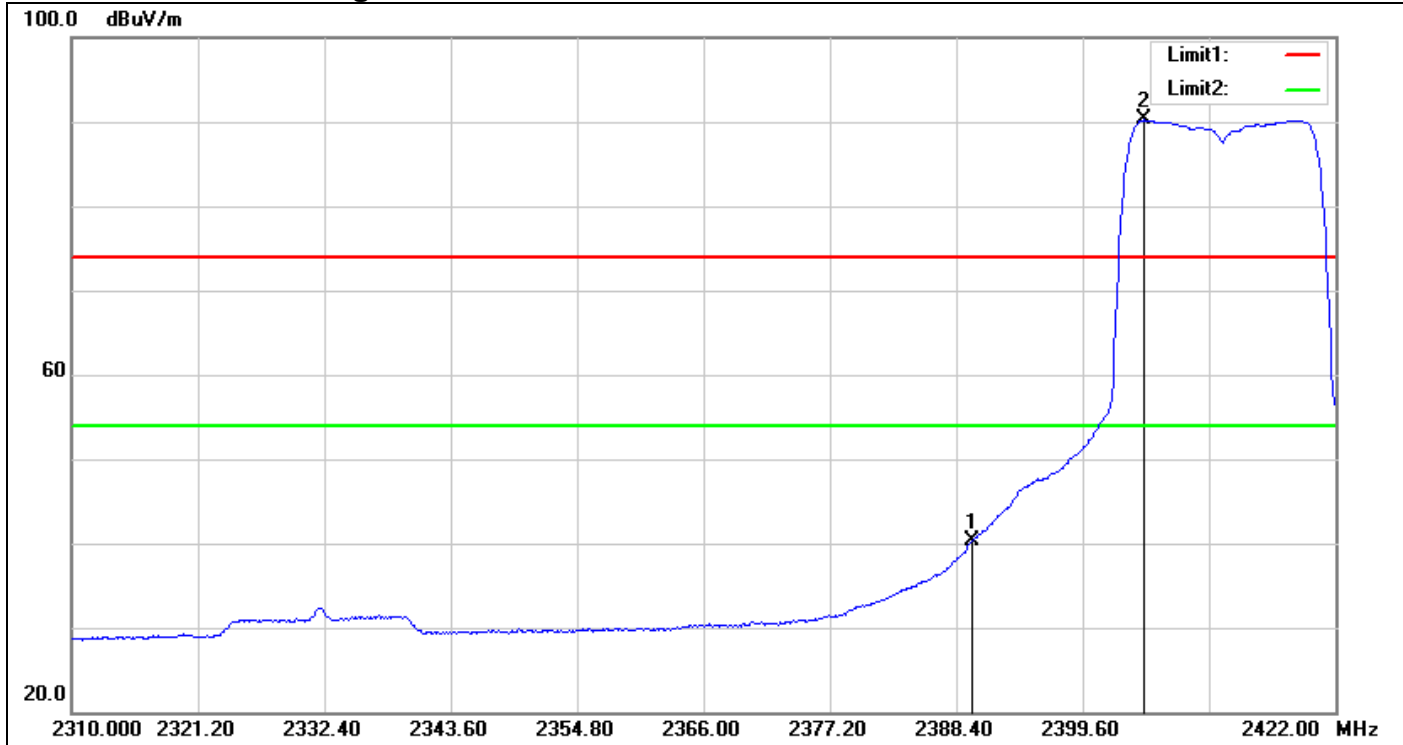
**IEEE 802.11g Mode / CH Low**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.744	61.57	-2.49	59.08	74.00	-14.92	peak
2	2418.304	102.69	-2.37	100.32	--	--	peak

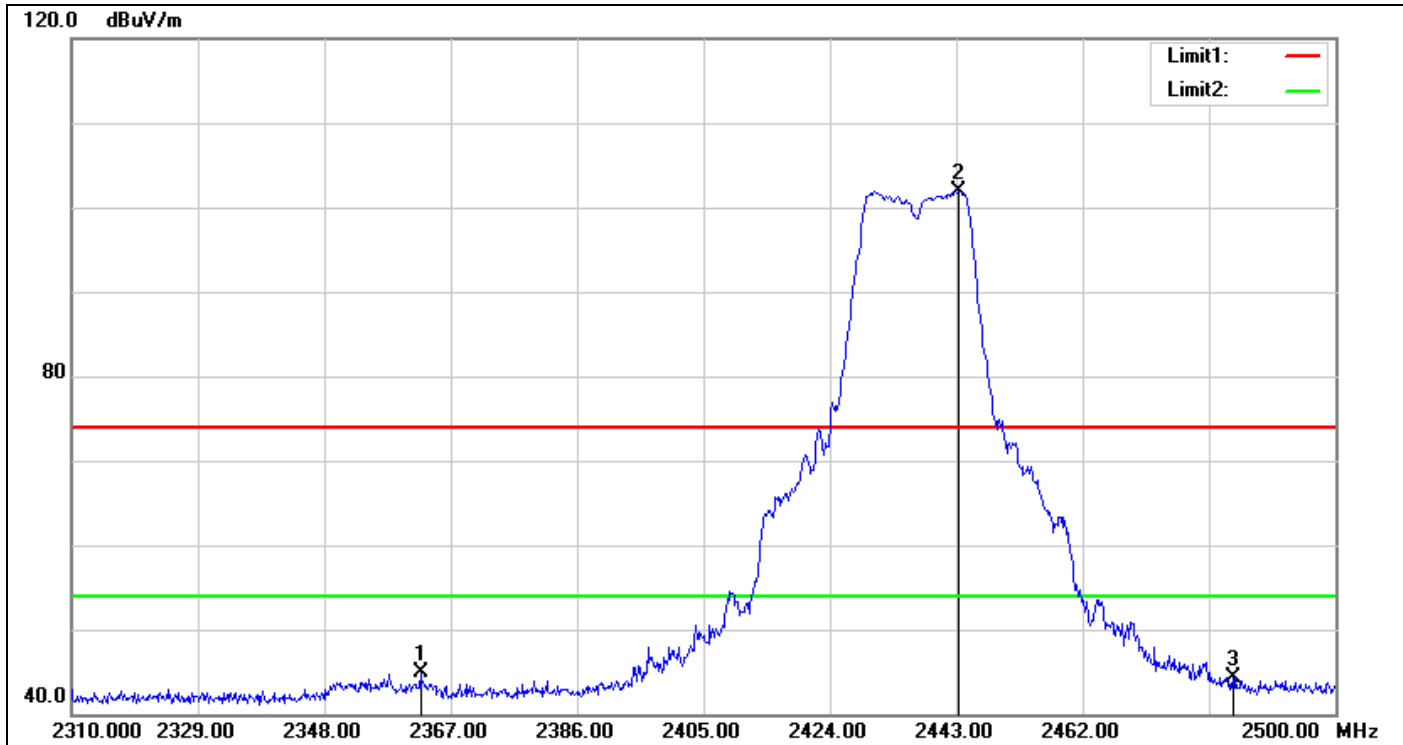
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.856	42.85	-2.49	40.36	54.00	-13.64	AVG
2	2404.976	92.63	-2.42	90.21	--	--	AVG

**IEEE 802.11g Mode / CH Mid**

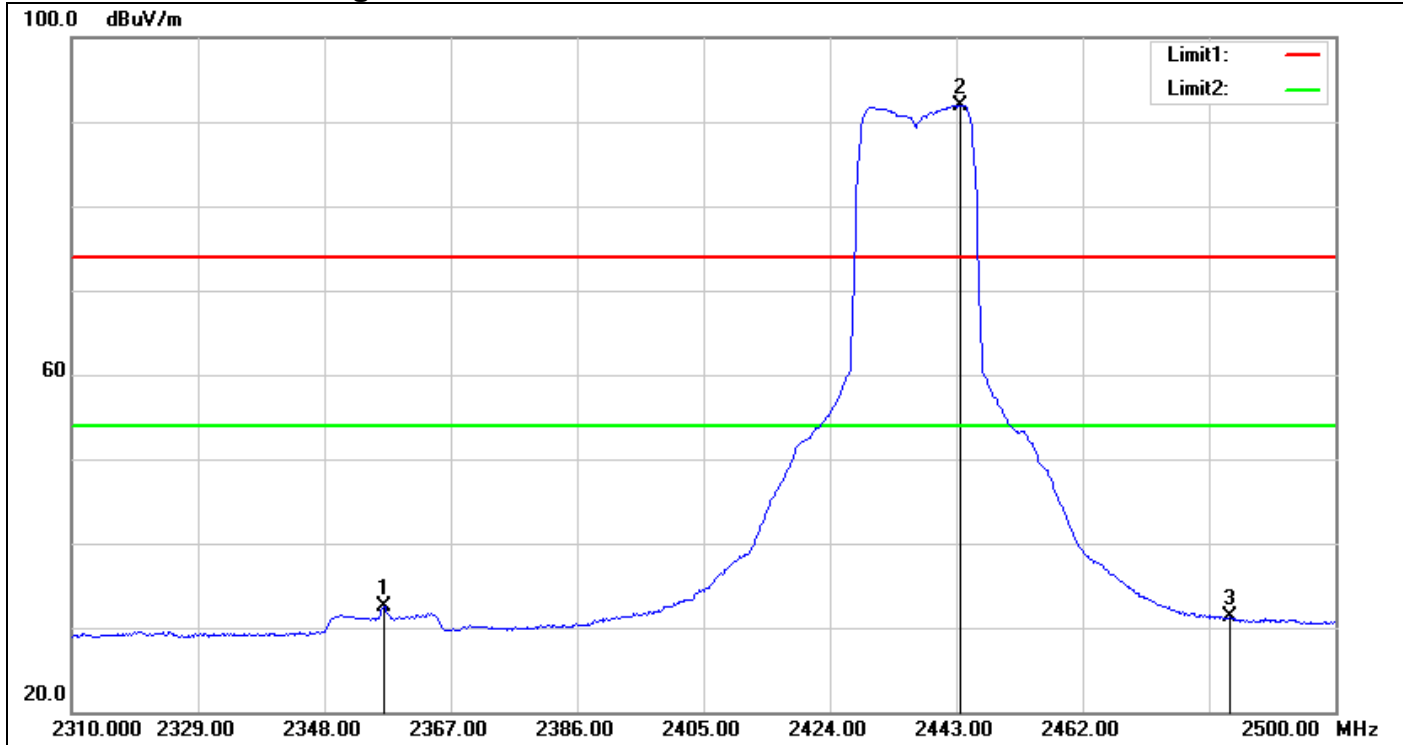
**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2362.440	47.59	-2.77	44.82	74.00	-29.18	peak
2	2443.380	104.14	-2.19	101.95	--	--	peak
3	2484.610	46.36	-1.98	44.38	74.00	-29.62	peak



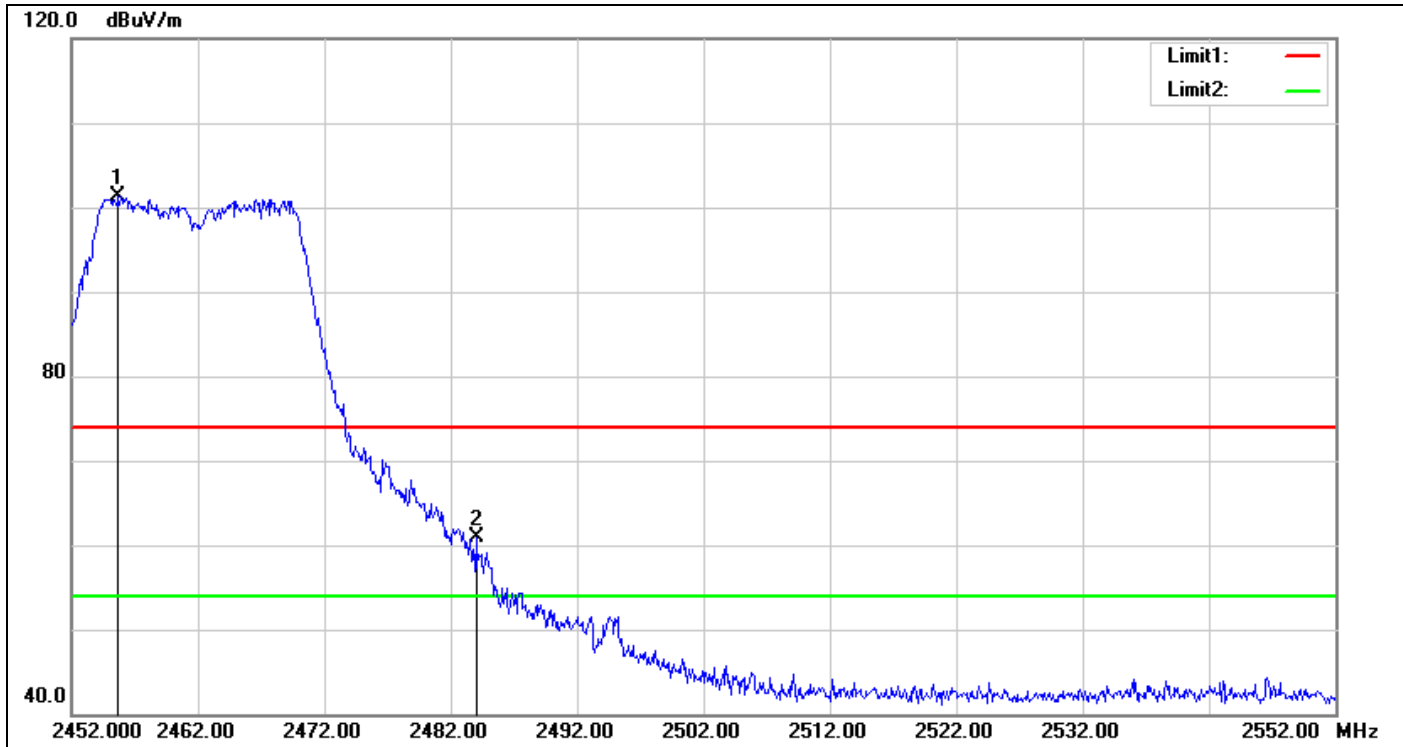
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2356.930	35.32	-2.81	32.51	54.00	-21.49	AVG
2	2443.570	94.07	-2.19	91.88	--	--	AVG
3	2484.230	33.26	-1.99	31.27	54.00	-22.73	AVG

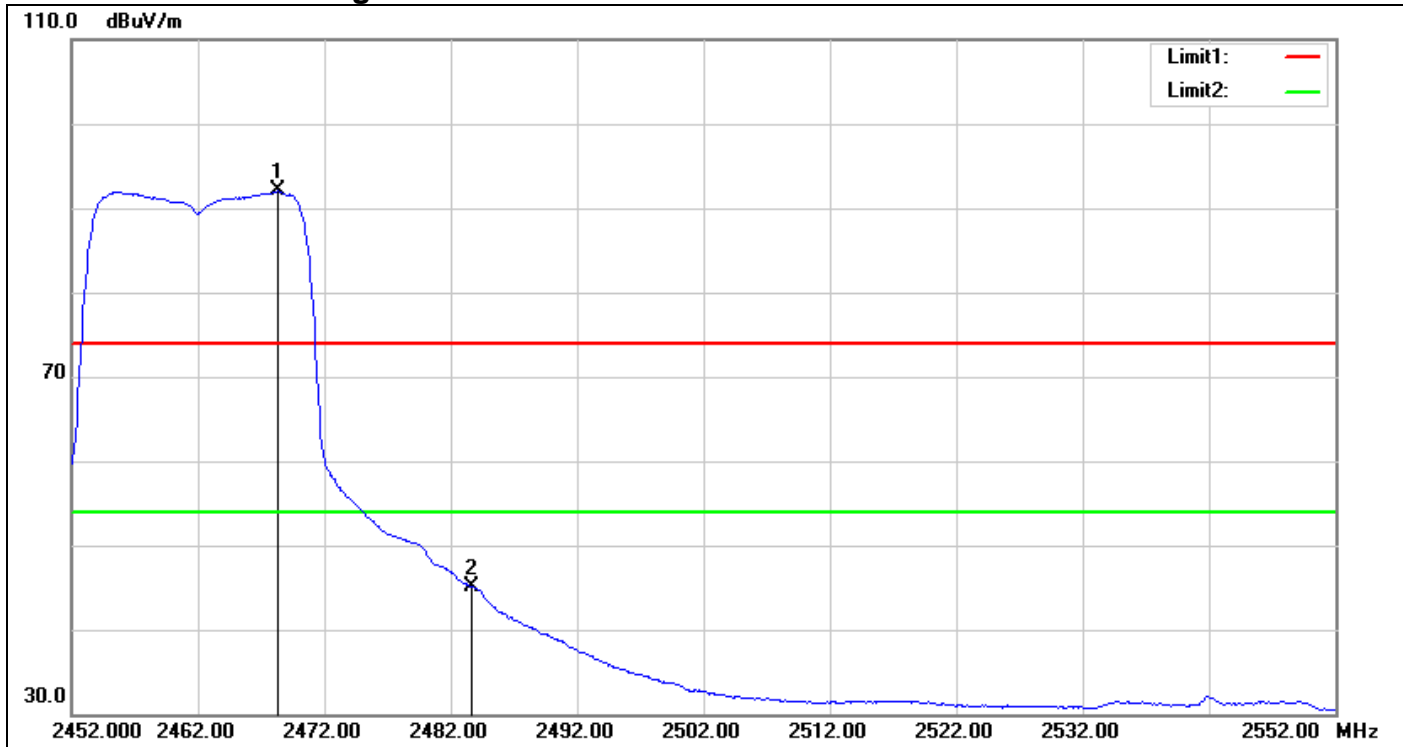
**IEEE 802.11g Mode / CH High**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2455.700	103.48	-2.12	101.36	--	--	peak
2	2484.000	62.80	-1.99	60.81	74.00	-13.19	peak

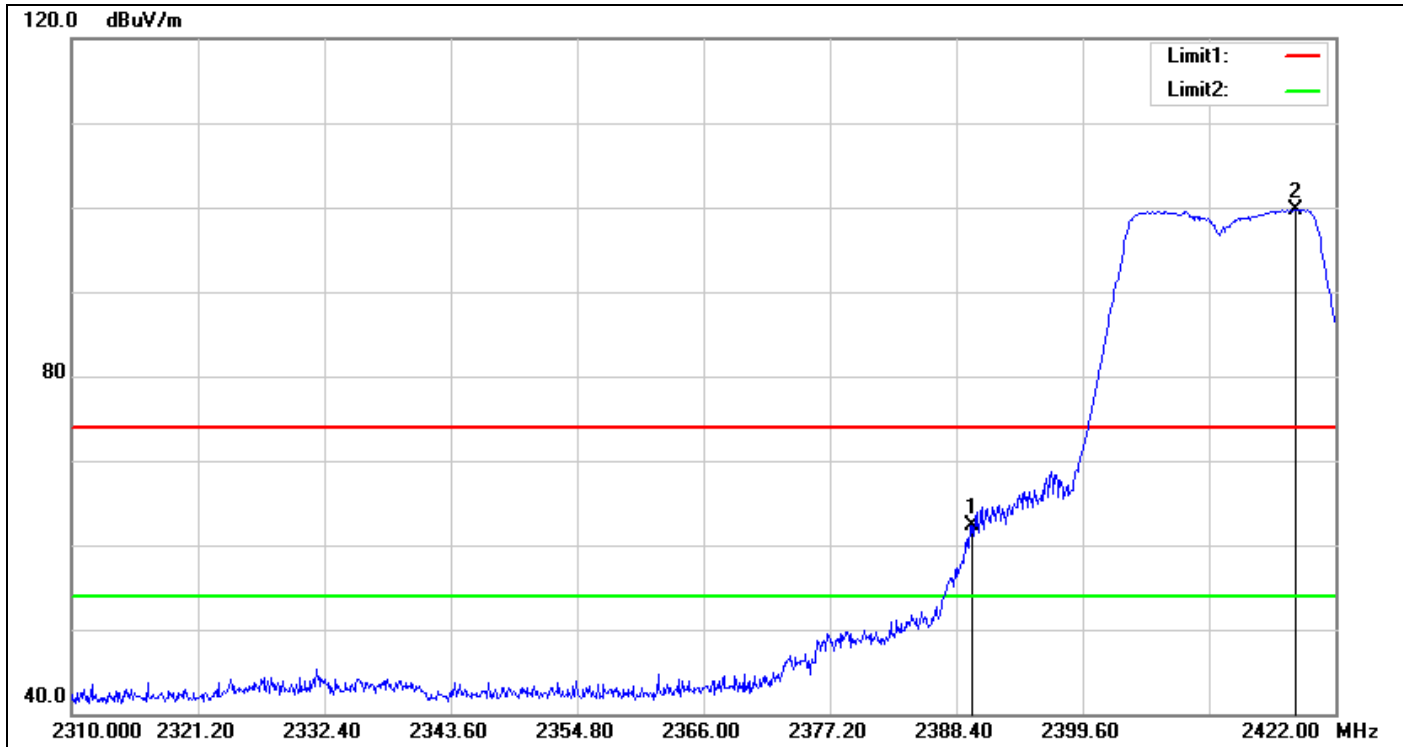
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2468.300	94.09	-2.07	92.02	--	--	AVG
2	2483.700	47.15	-1.99	45.16	54.00	-8.84	AVG

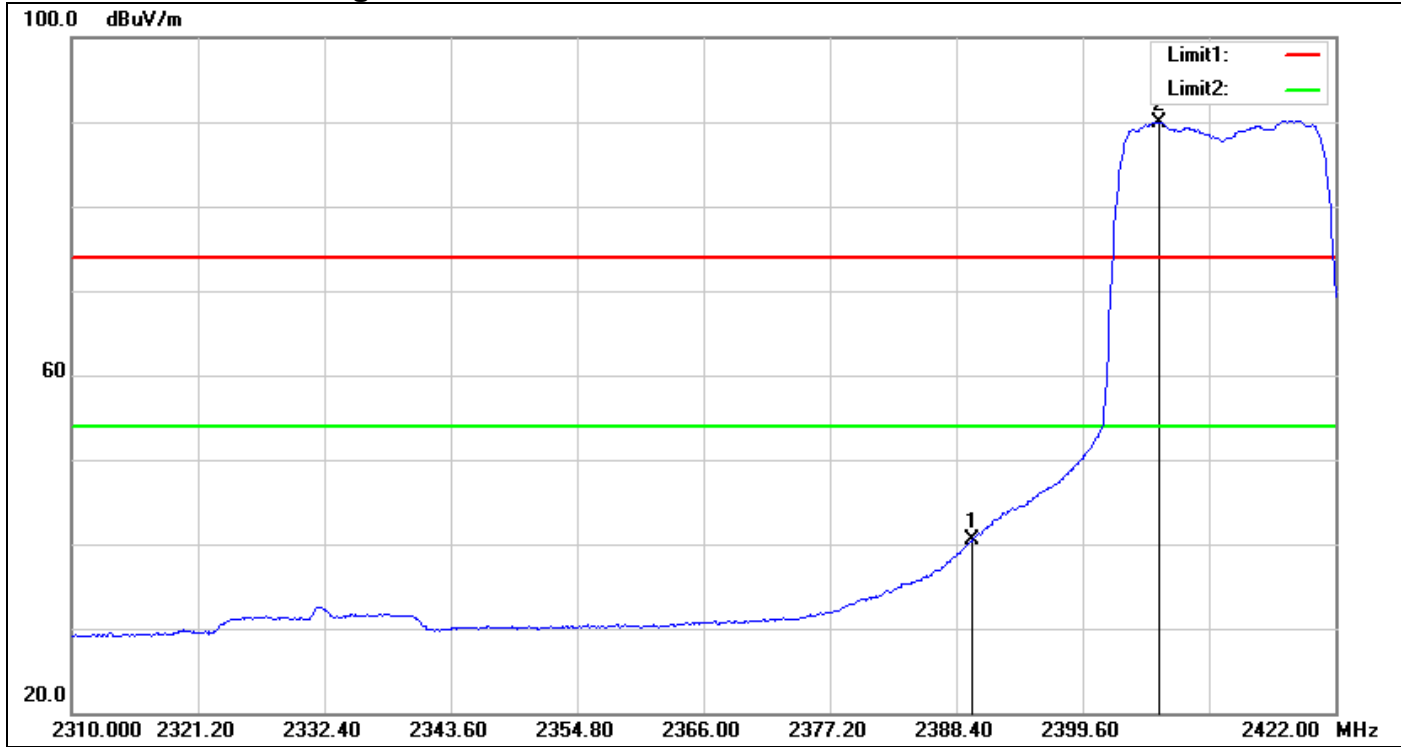
**IEEE 802.11n HT 20 MHz Mode / CH Low**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.744	64.87	-2.49	62.38	74.00	-11.62	peak
2	2418.416	102.15	-2.37	99.78	--	--	peak

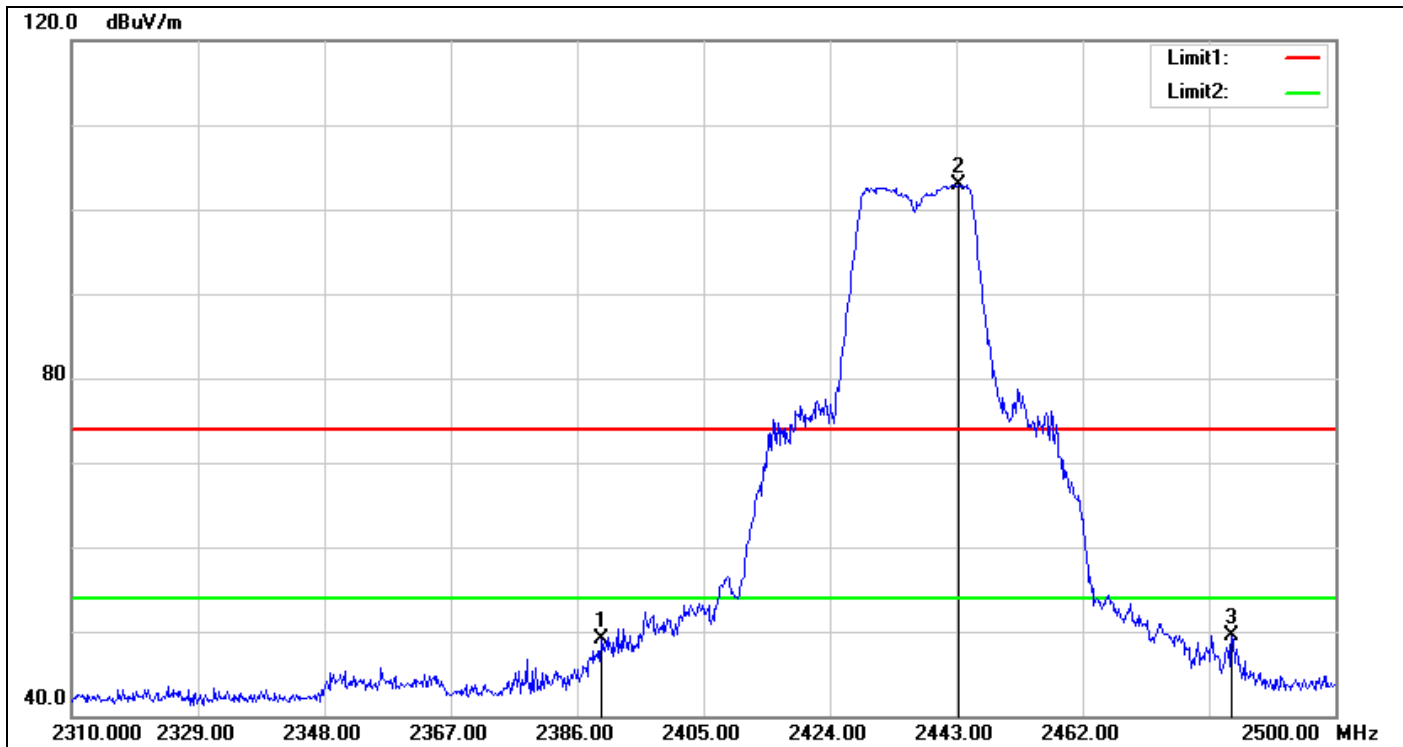
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.856	42.95	-2.49	40.46	54.00	-13.54	AVG
2	2406.432	92.36	-2.42	89.94	--	--	AVG

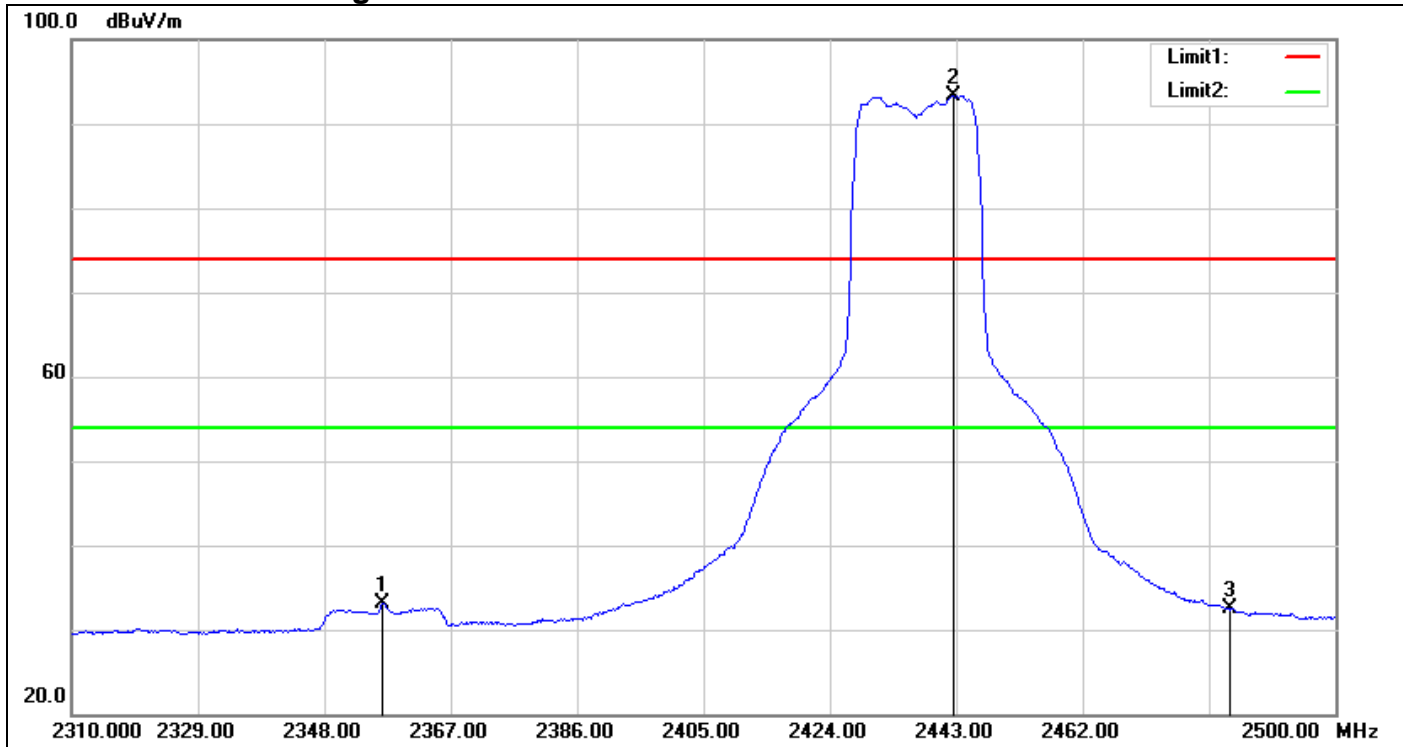
**IEEE 802.11n HT 20 MHz Mode / CH Mid**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.610	51.53	-2.49	49.04	74.00	-24.96	peak
2	2443.380	105.19	-2.19	103.00	--	--	peak
3	2484.420	51.53	-1.99	49.54	74.00	-24.46	peak

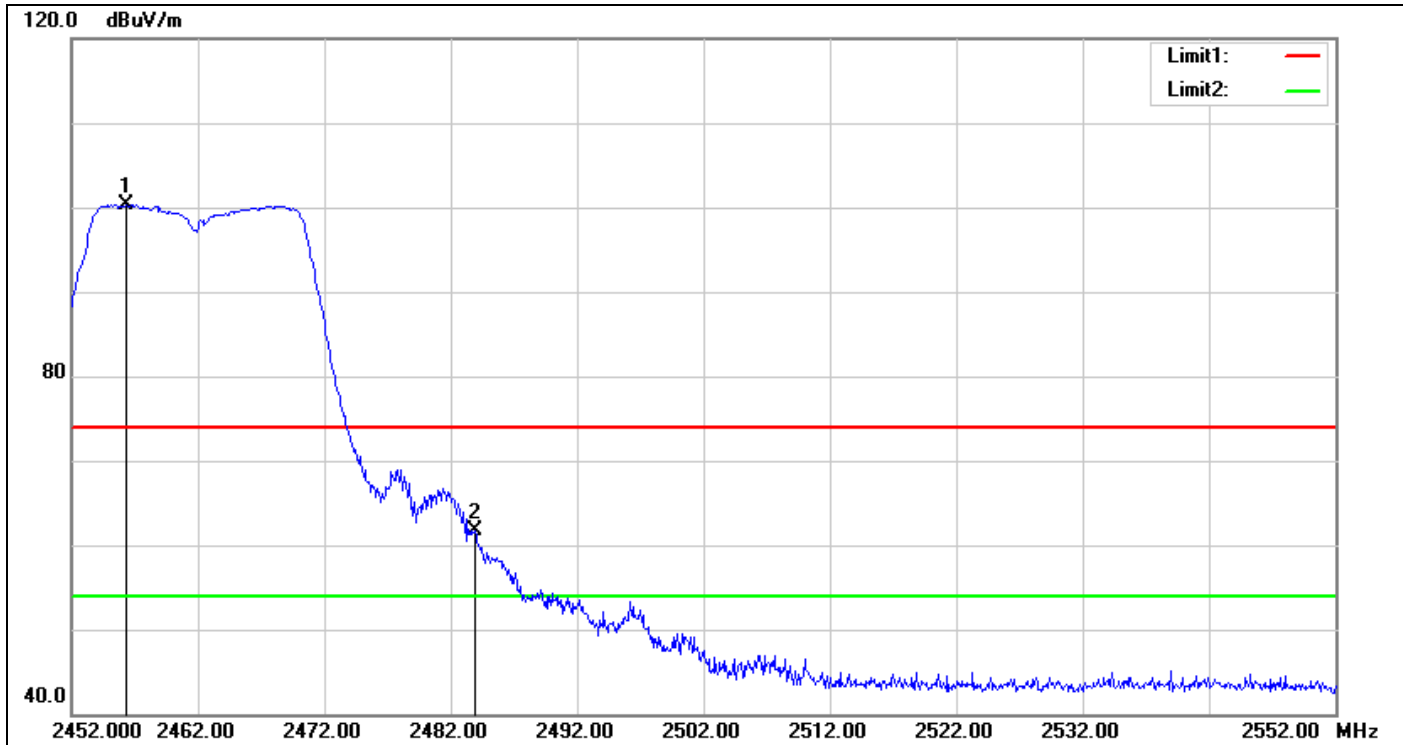
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2356.740	35.91	-2.81	33.10	54.00	-20.90	AVG
2	2442.620	95.55	-2.19	93.36	--	--	AVG
3	2484.040	34.51	-1.99	32.52	54.00	-21.48	AVG

**IEEE 802.11n HT 20 MHz Mode / CH High**

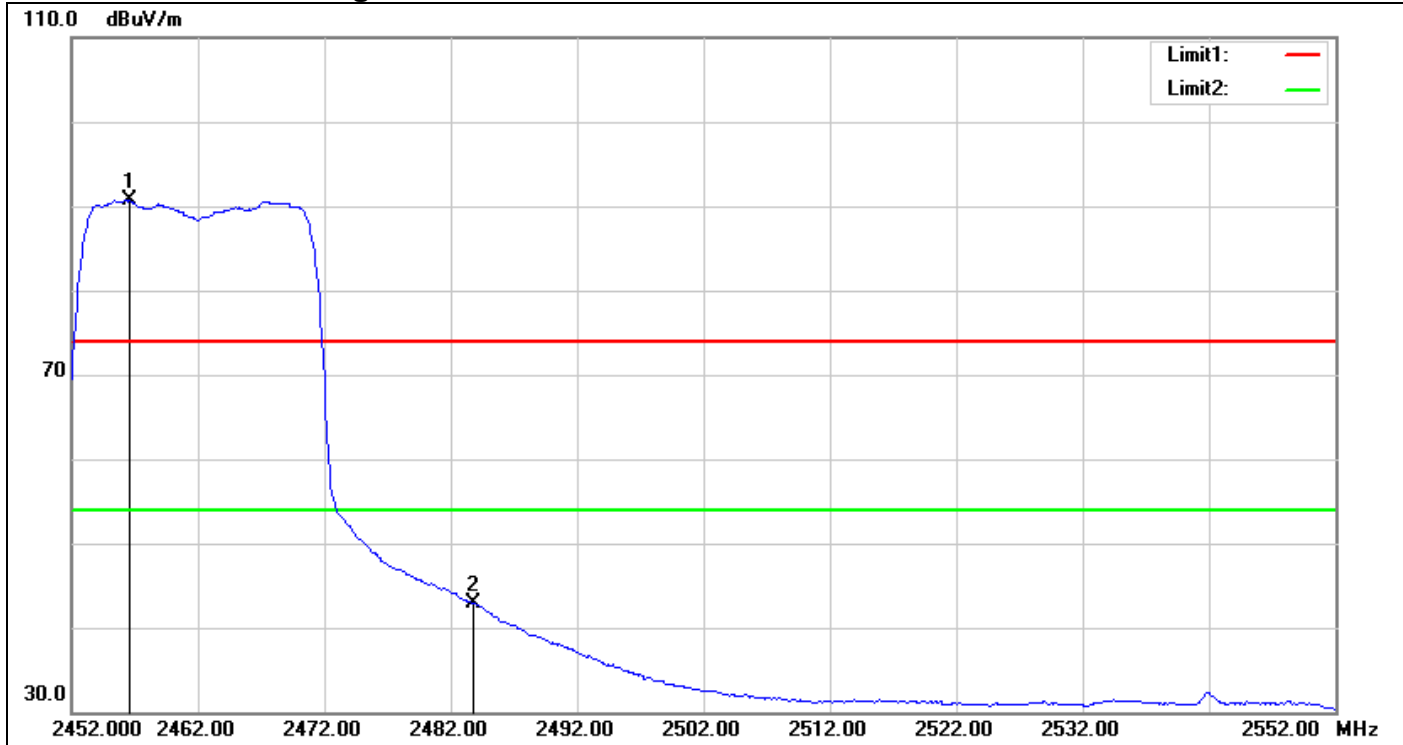
**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2456.300	102.37	-2.12	100.25	--	--	peak
2	2483.900	63.67	-1.99	61.68	74.00	-12.32	peak



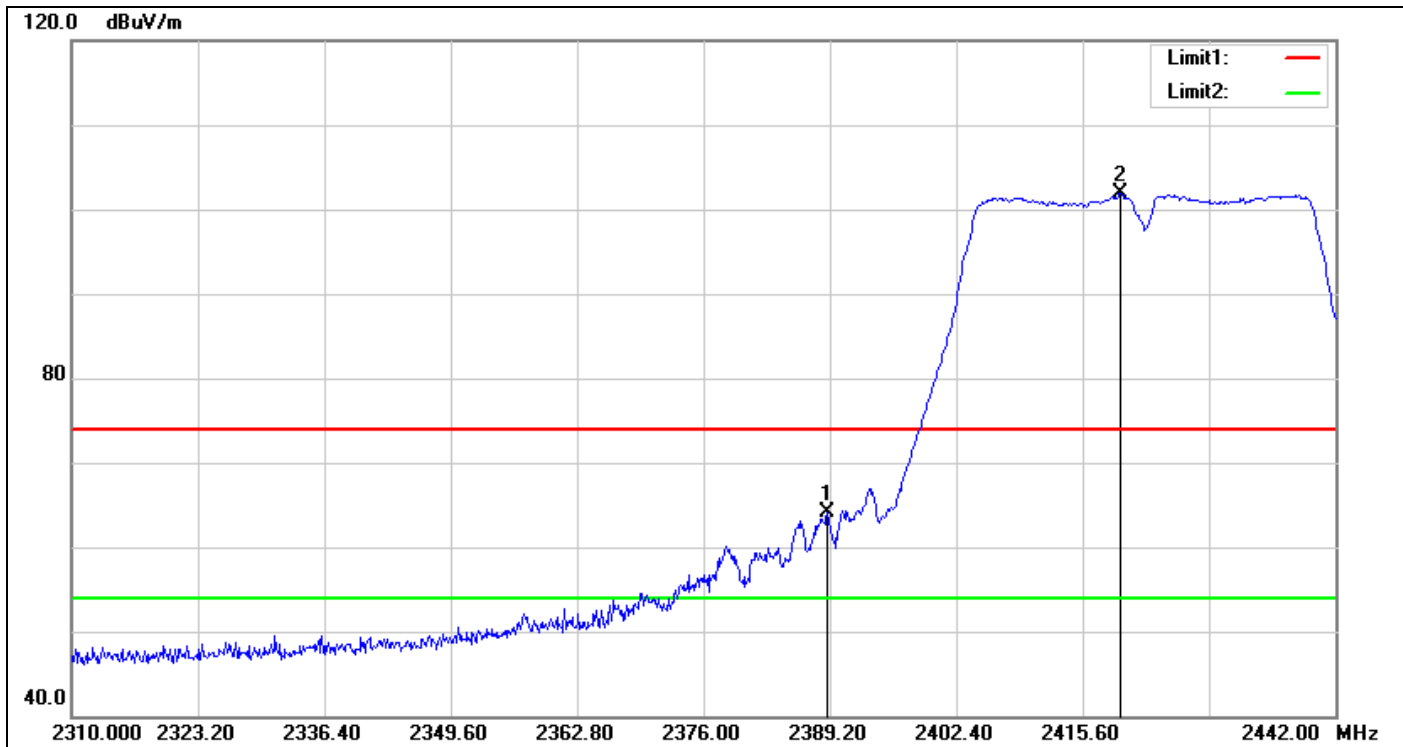
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2456.600	92.85	-2.12	90.73	--	--	AVG
2	2483.800	44.92	-1.99	42.93	54.00	-11.07	AVG

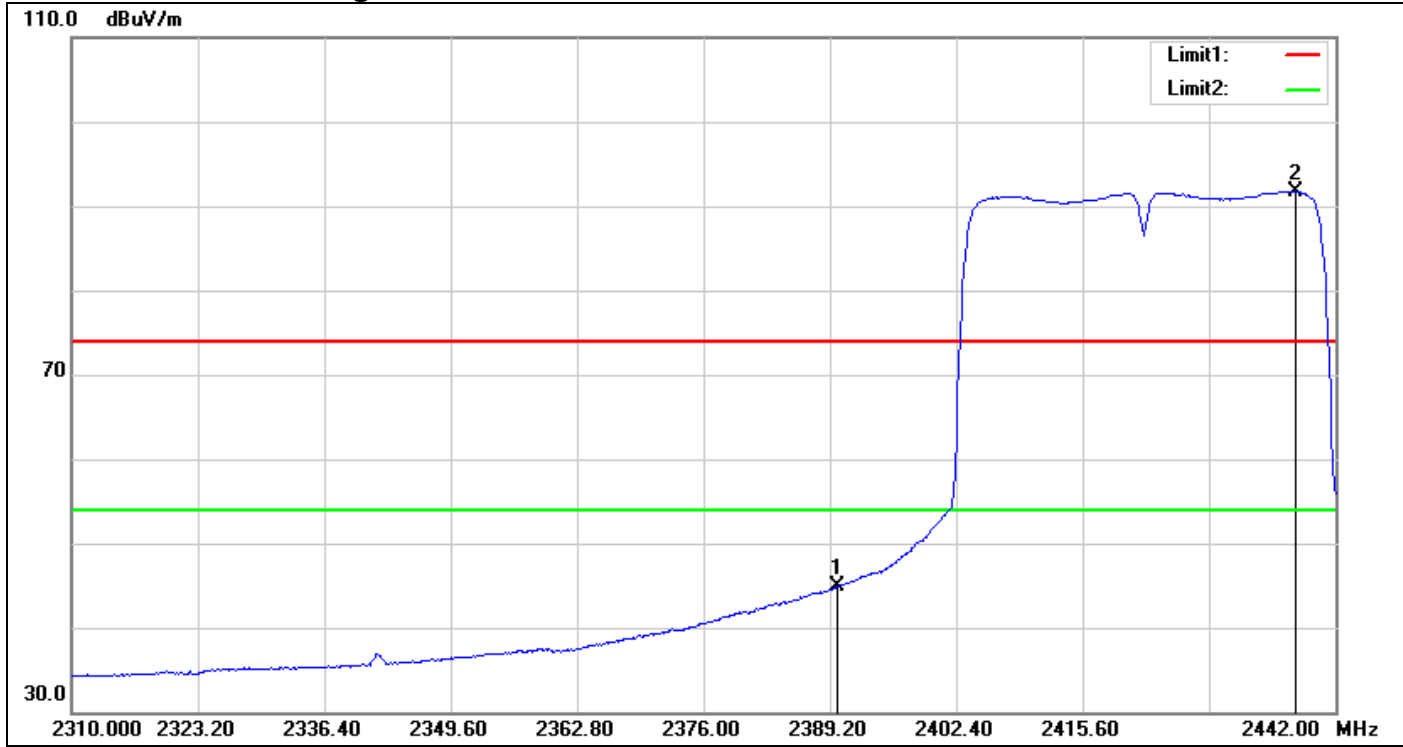
**IEEE 802.11n HT 40 MHz Mode / CH Low**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.936	66.58	-2.50	64.08	74.00	-9.92	peak
2	2419.560	104.20	-2.36	101.84	--	--	peak

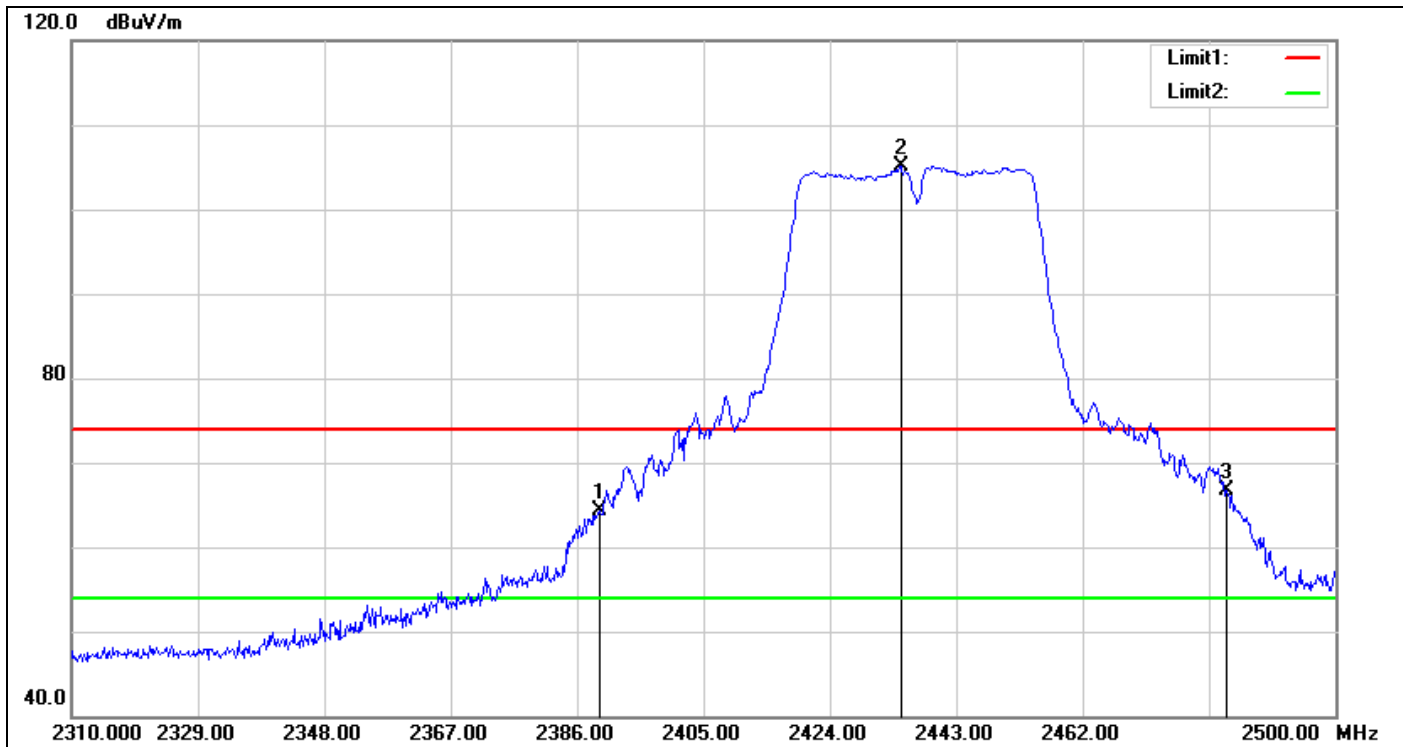
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.992	47.37	-2.49	44.88	54.00	-9.12	AVG
2	2437.908	94.00	-2.23	91.77	--	--	AVG

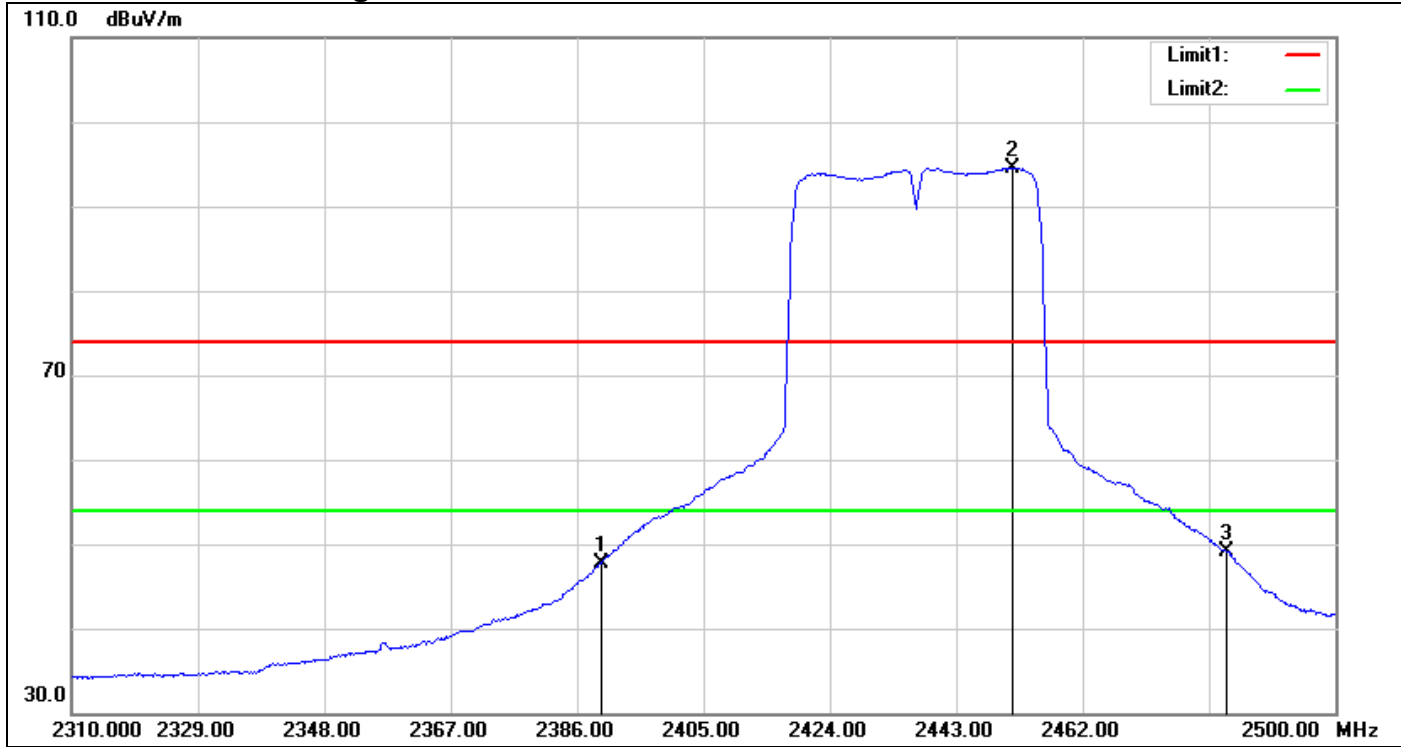
**IEEE 802.11n HT 40 MHz Mode / CH Mid**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.420	66.84	-2.50	64.34	74.00	-9.66	peak
2	2434.640	107.36	-2.25	105.11	--	--	peak
3	2483.660	68.79	-1.99	66.80	74.00	-7.20	peak

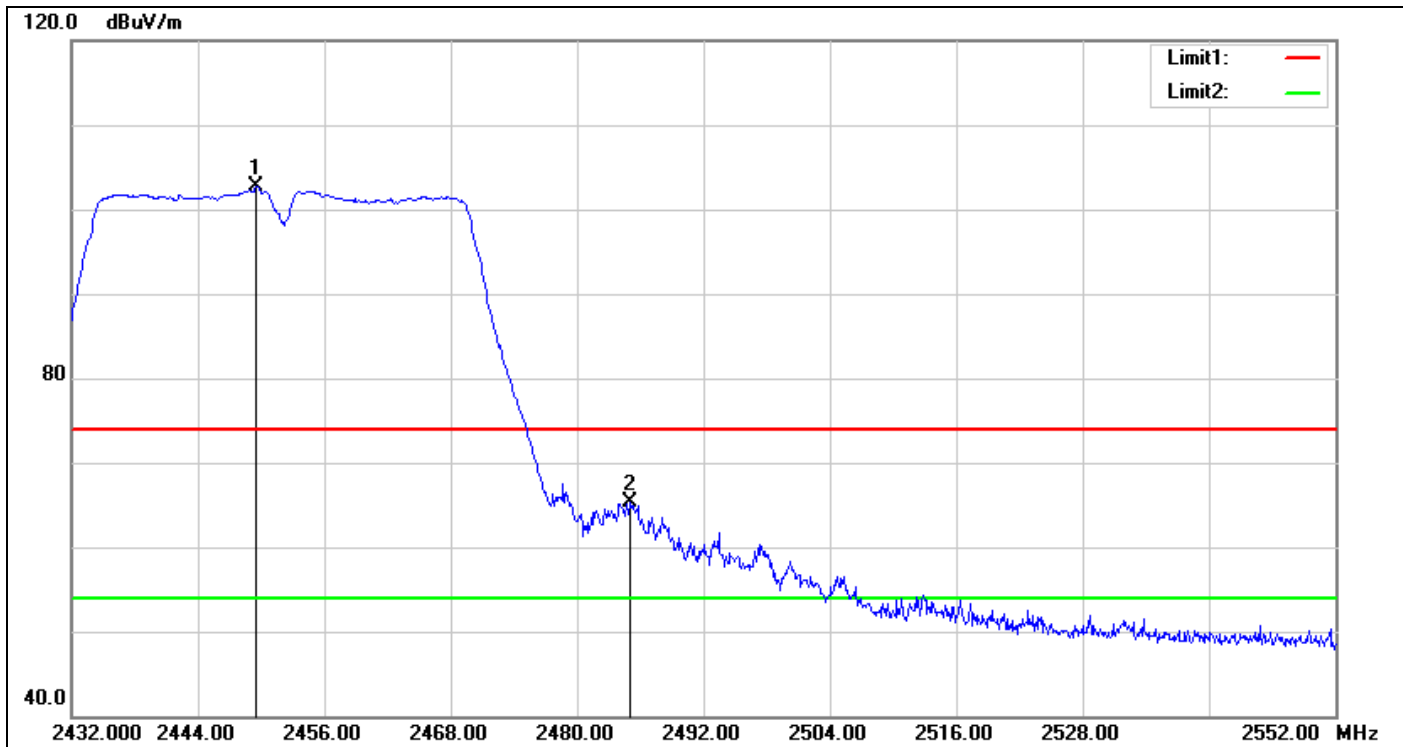
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.610	50.23	-2.49	47.74	54.00	-6.26	AVG
2	2451.360	96.66	-2.14	94.52	--	--	AVG
3	2483.660	51.16	-1.99	49.17	54.00	-4.83	AVG

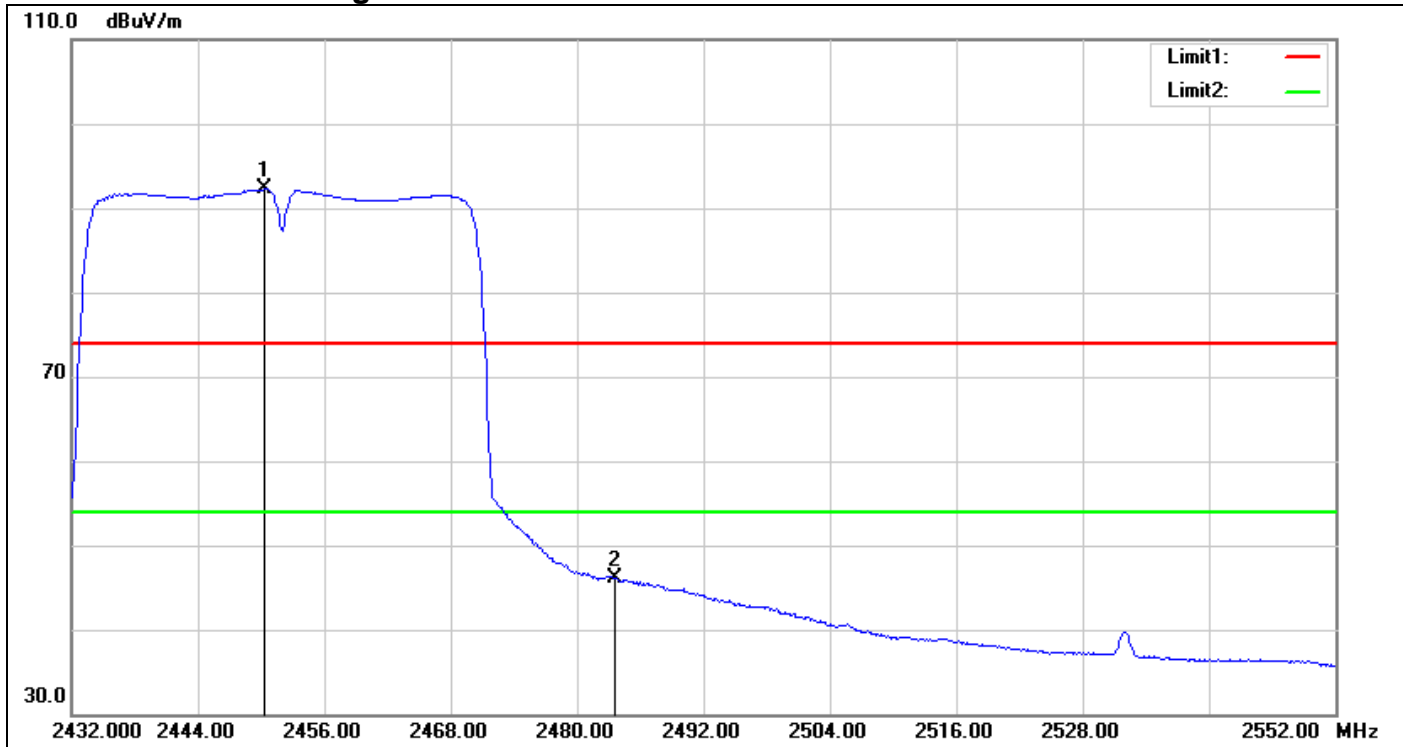
**IEEE 802.11n HT 40 MHz Mode / CH High**

**Detector mode: Peak**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2449.520	104.82	-2.14	102.68	--	--	peak
2	2485.040	67.24	-1.98	65.26	74.00	-8.74	peak

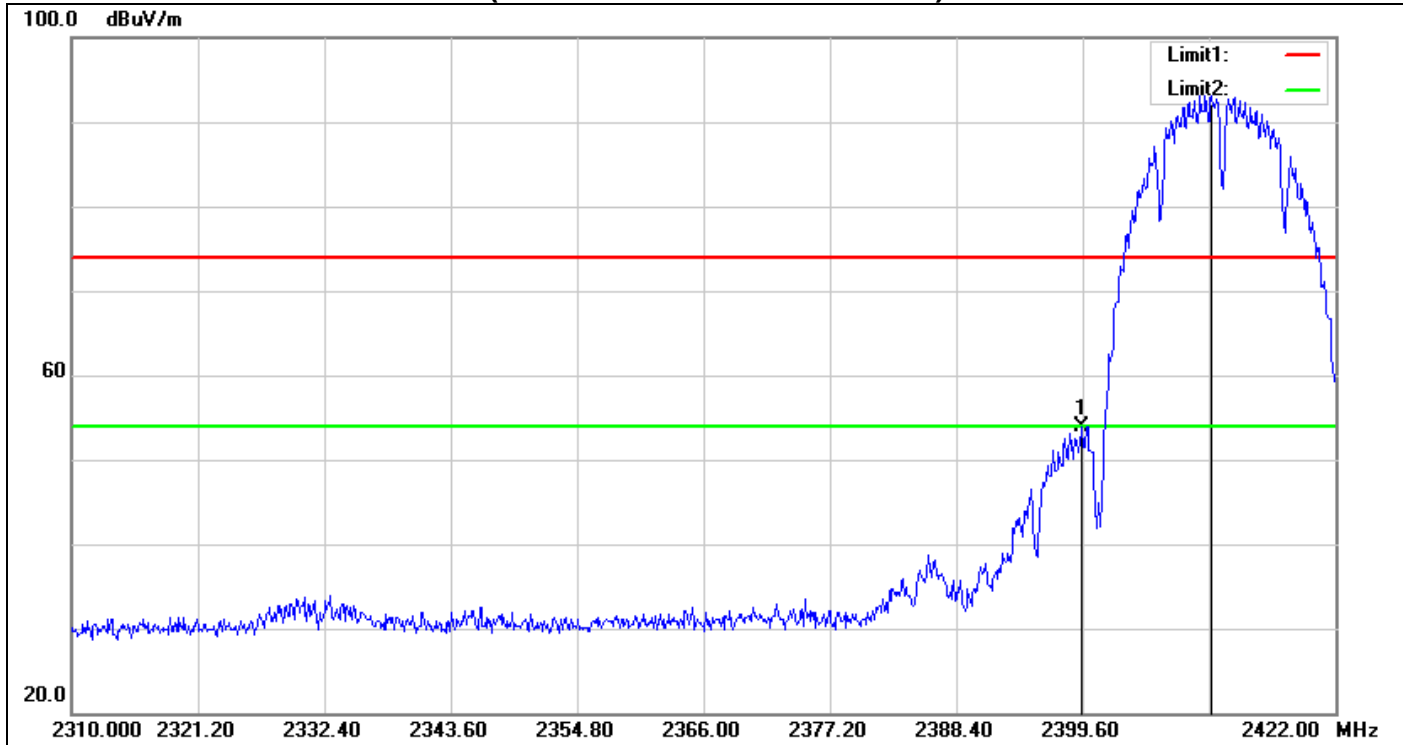
**Detector mode: Average**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2450.240	94.37	-2.14	92.23	--	--	AVG
2	2483.600	48.12	-1.99	46.13	54.00	-7.87	AVG

**Test Plot**

**Un-restricted Band Emissions (IEEE 802.11b mode / CH Low)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2399.488	56.40	-2.41	53.99	peak
2	2411.024	95.57	-2.42	93.15	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**



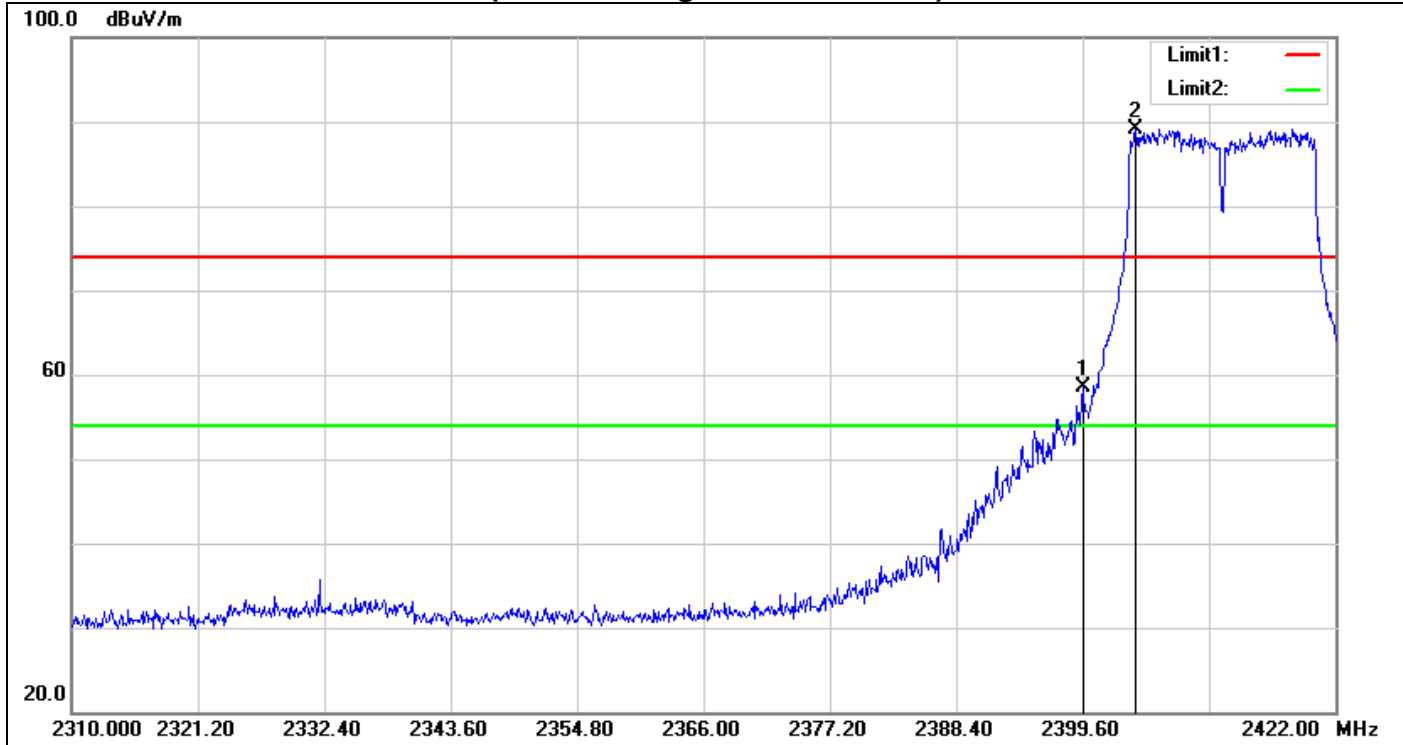
**Un-restricted Band Emissions (IEEE 802.11b mode / CH High)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2461.500	97.59	-2.10	95.49	peak
2	2488.000	45.47	-1.95	43.52	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

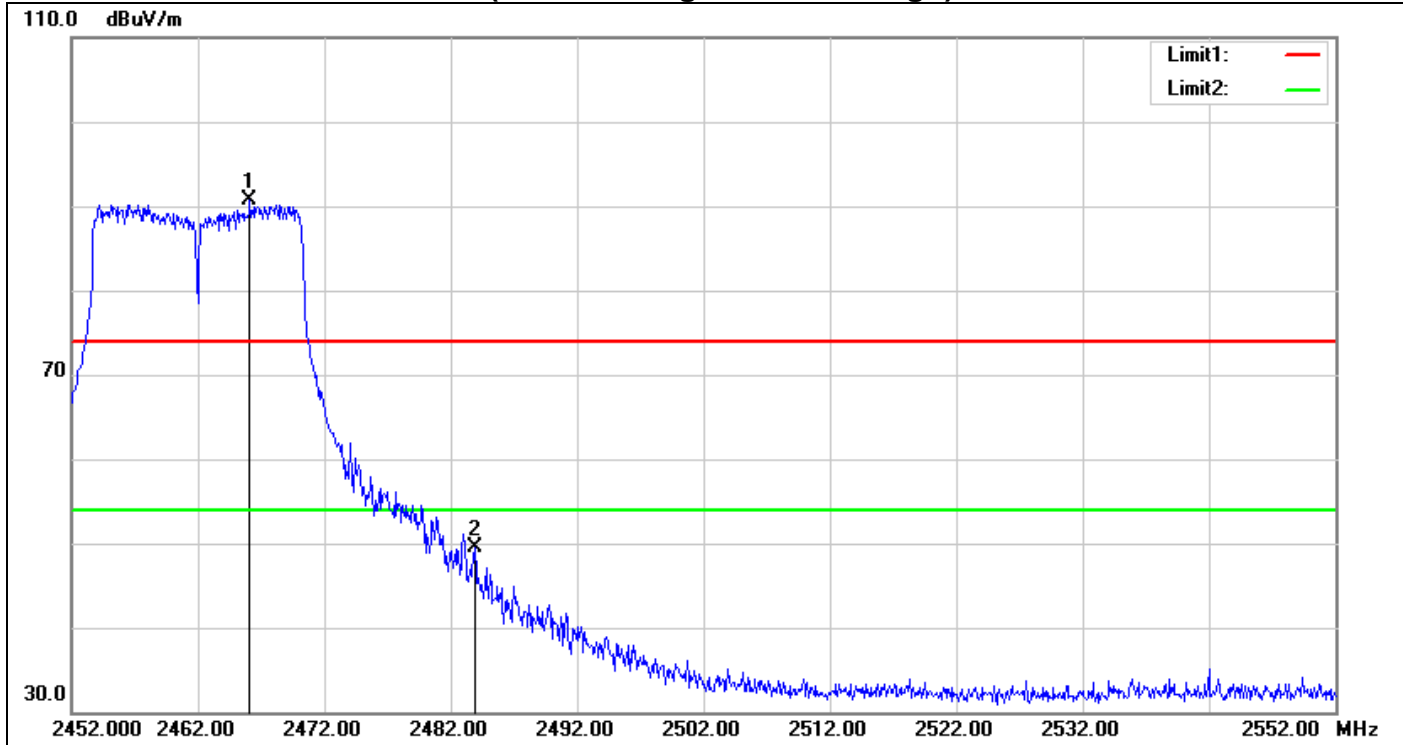
**Un-restricted Band Emissions (IEEE 802.11g mode / CH Low)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2399.600	60.99	-2.41	58.58	peak
2	2404.304	91.49	-2.42	89.07	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

**Un-restricted Band Emissions (IEEE 802.11g mode / CH High)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2466.100	92.69	-2.08	90.61	peak
2	2483.900	51.42	-1.99	49.43	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

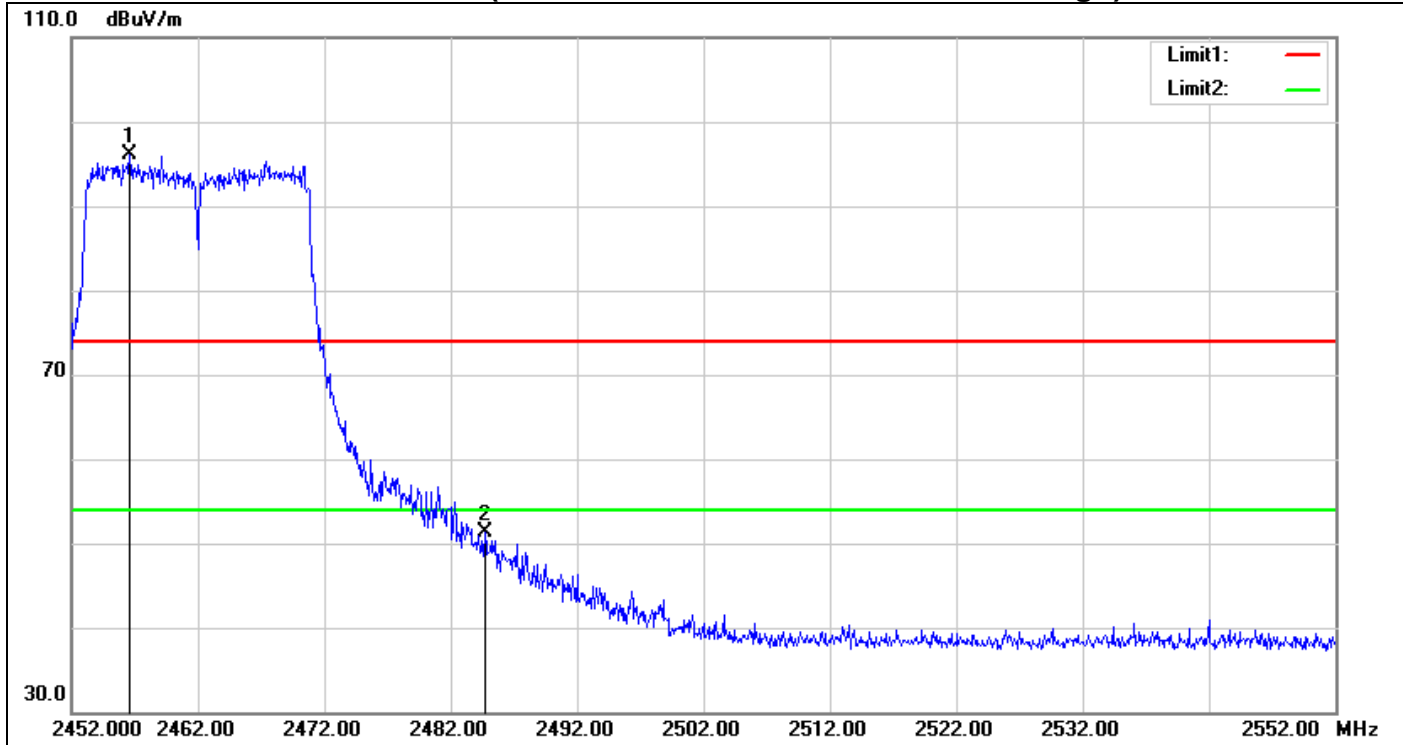
**Un-restricted Band Emissions (IEEE 802.11n HT 20 MHz mode / CH Low)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2399.824	58.21	-2.41	55.80	peak
2	2406.544	91.83	-2.42	89.41	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

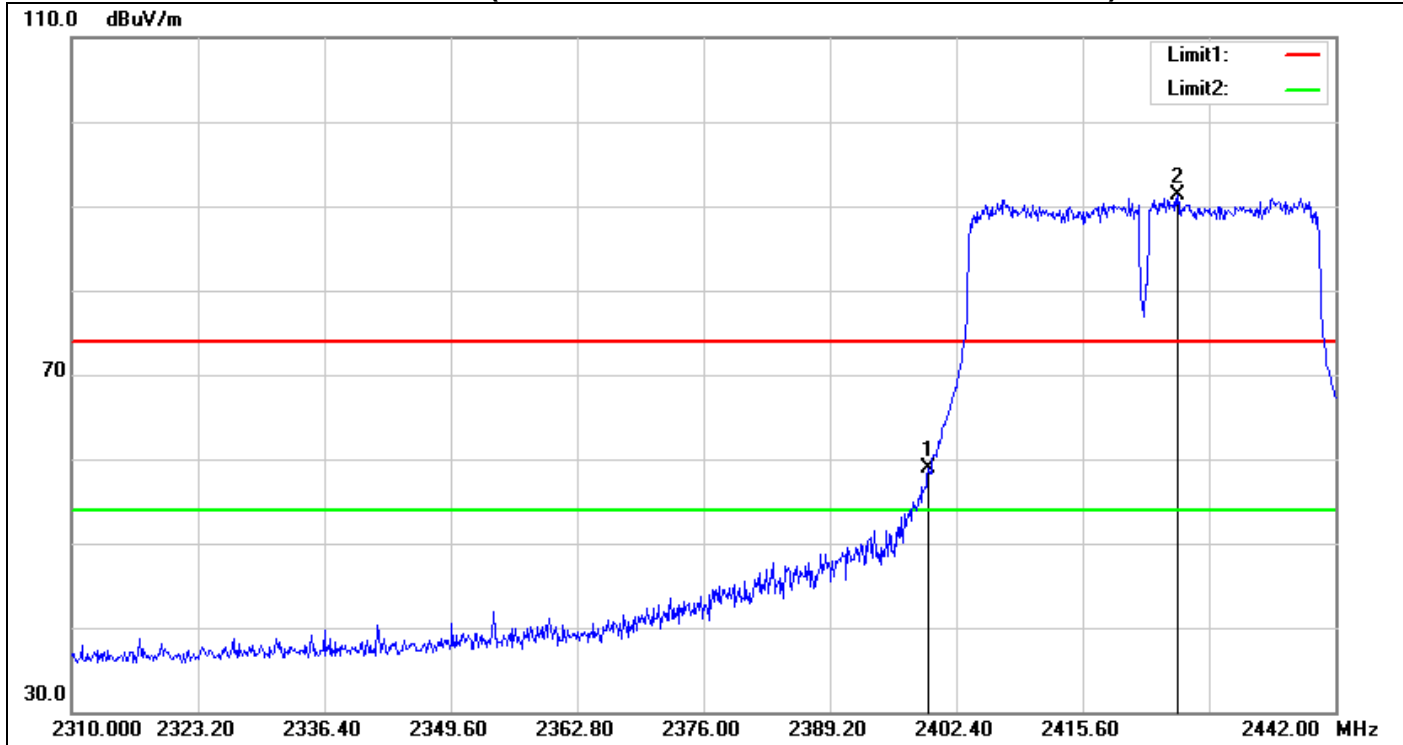
**Un-restricted Band Emissions (IEEE 802.11n HT 20 MHz mode / CH High)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2456.600	98.20	-2.12	96.08	peak
2	2484.700	53.25	-1.98	51.27	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

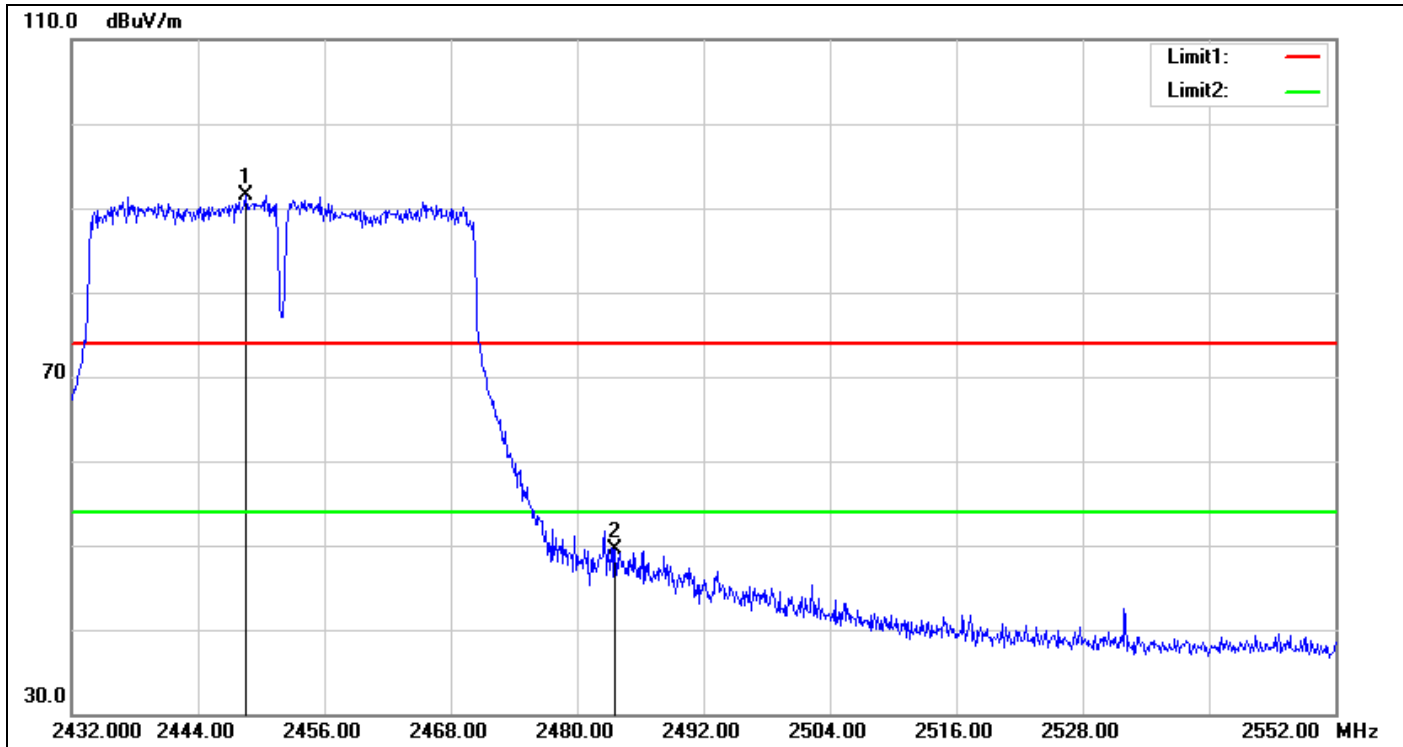
**Un-restricted Band Emissions (IEEE 802.11n HT 40 MHz mode / CH Low)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2399.496	61.28	-2.41	58.87	peak
2	2425.500	93.56	-2.32	91.24	peak

**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

**Un-restricted Band Emissions (IEEE 802.11n HT 40 MHz mode / CH High)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Remark
1	2448.560	93.75	-2.15	91.60	peak
2	2483.600	51.54	-1.99	49.55	peak

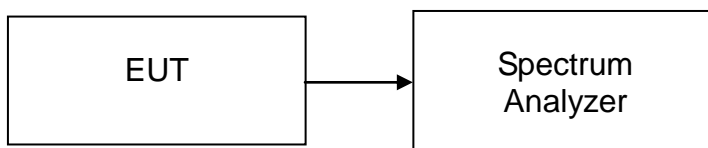
**Note: Spurious emission levels that exceed the level of 20 dB below the applicable limit.**

## **7.6 PEAK POWER SPECTRAL DENSITY**

### **LIMIT**

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

### **Test Configuration**



### **TEST PROCEDURE**

1. Place the EUT on the table and set it in transmitting mode.  
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3 kHz, VBW = 30 kHz, Span = 300 kHz, Sweep time = 100 s
3. Record the max reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### **TEST RESULTS**

*No non-compliance noted*



**Test Data**

**IEEE 802.11b mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-16.74	8.00	PASS
Mid	2437	-14.99		PASS
High	2462	-16.38		PASS

**IEEE 802.11g mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-10.90	8.00	PASS
Mid	2437	-14.65		PASS
High	2462	-14.83		PASS

**IEEE 802.11n HT 20 MHz mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.01	8.00	PASS
Mid	2437	-12.13		PASS
High	2462	-15.29		PASS

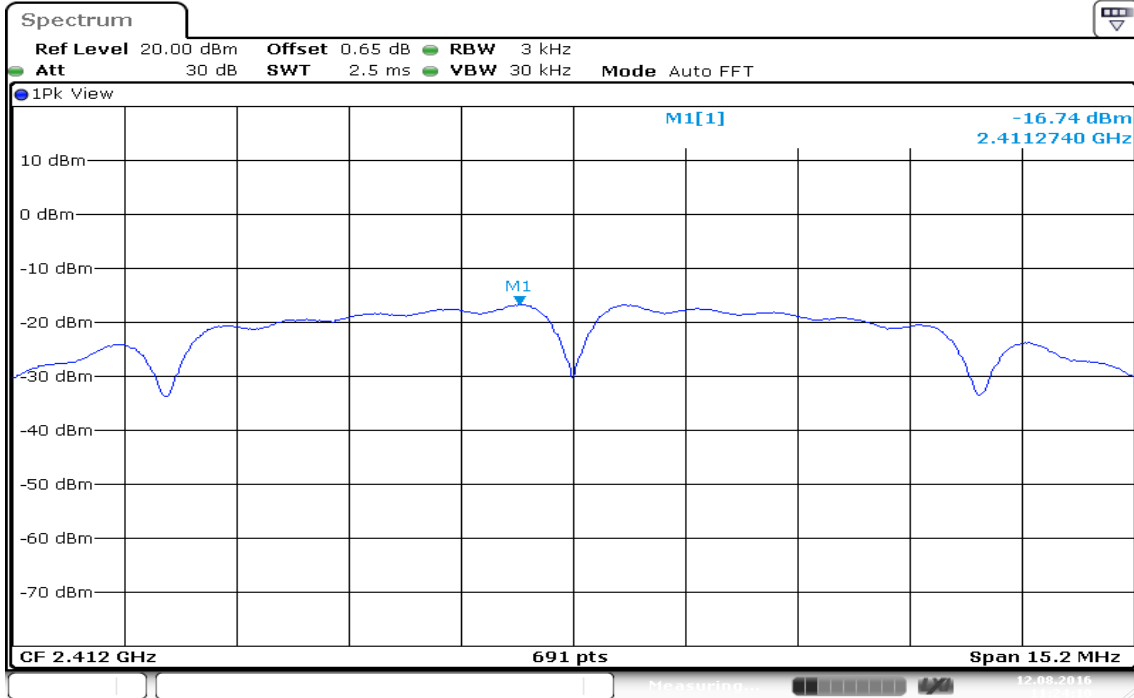
**IEEE 802.11n HT 40 MHz mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-18.19	8.00	PASS
Mid	2437	-15.10		PASS
High	2452	-18.68		PASS

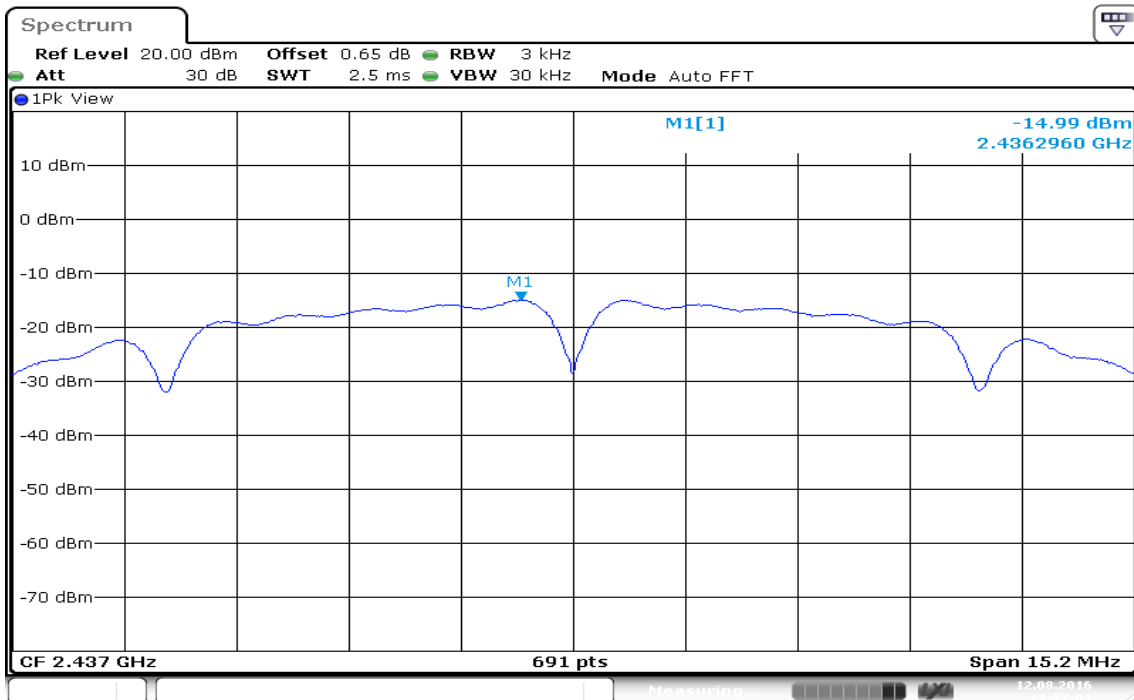
**Test Plot**

**IEEE 802.11b mode**

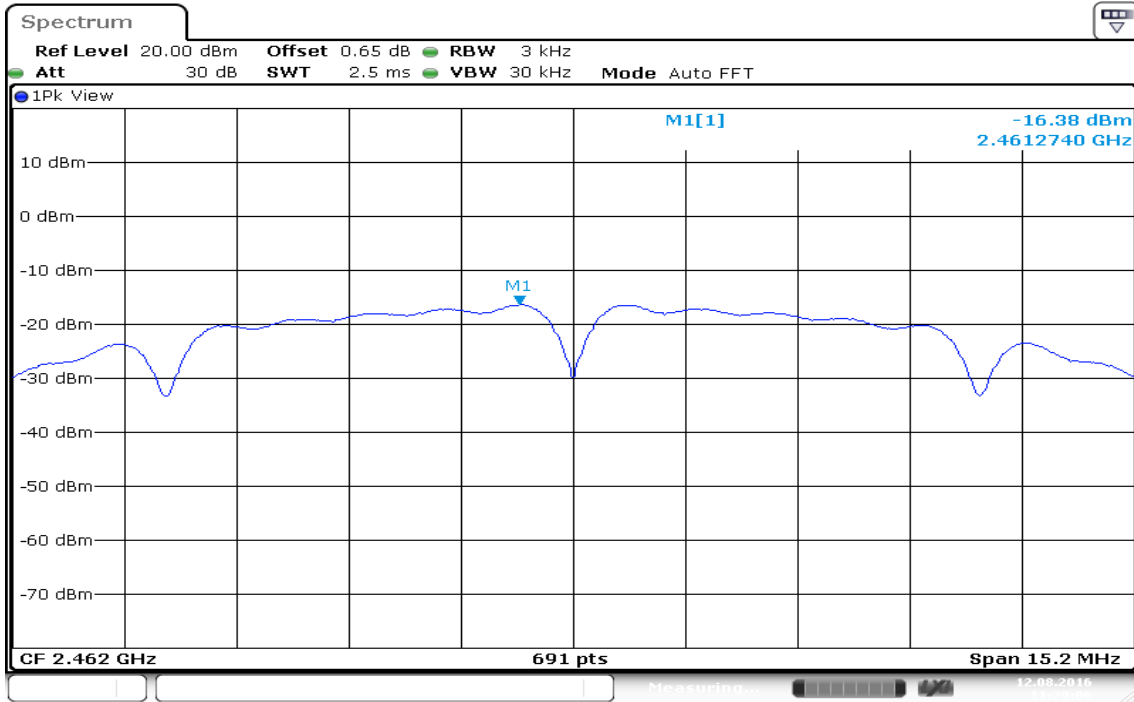
**PPSD (CH Low)**



**PPSD (CH Mid)**



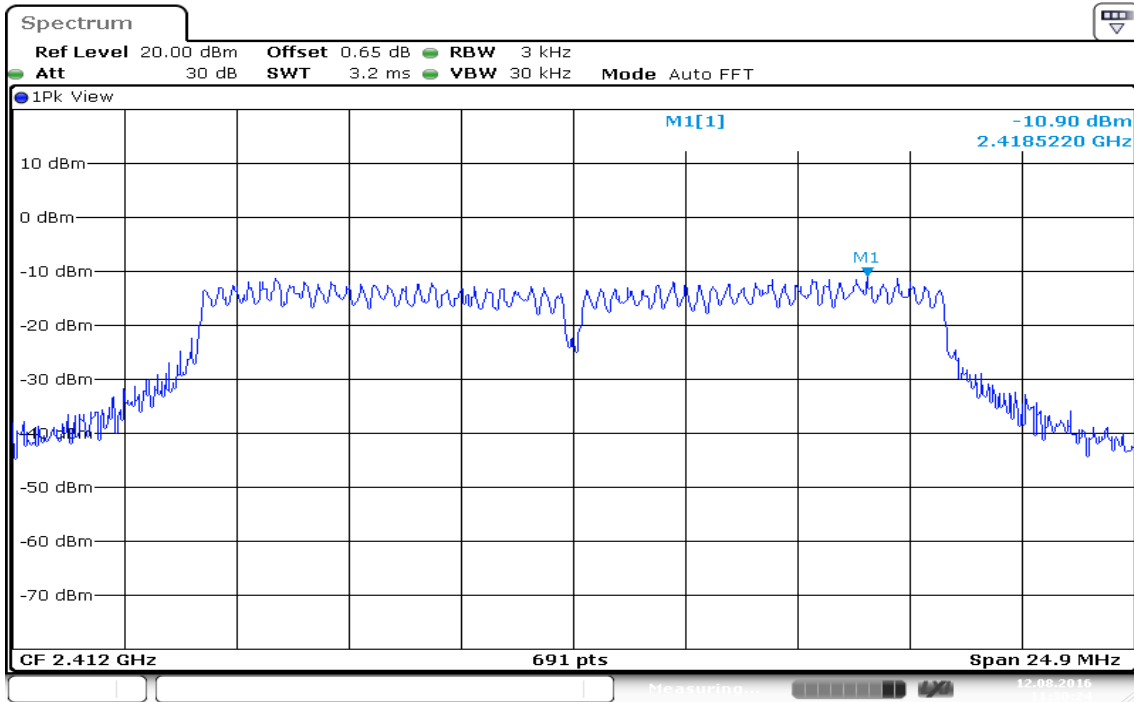
### PPSD (CH High)



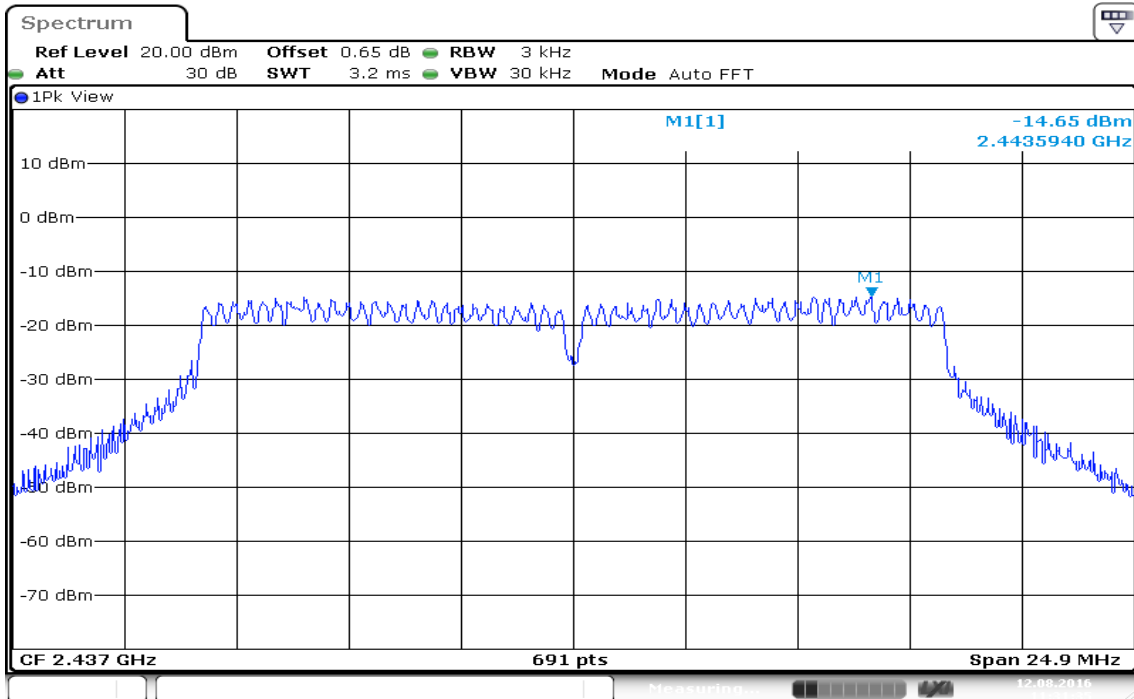
Date: 12.AUG.2016 11:29:06

### IEEE 802.11g mode

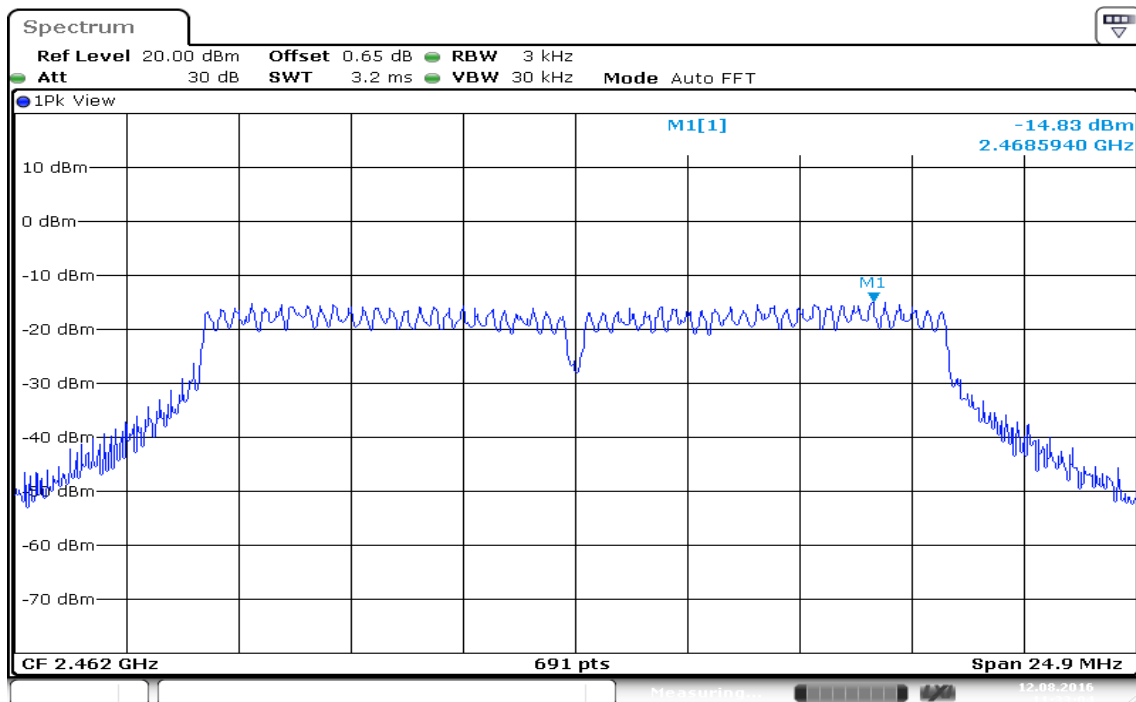
### PPSD (CH Low)



### PPSD (CH Mid)



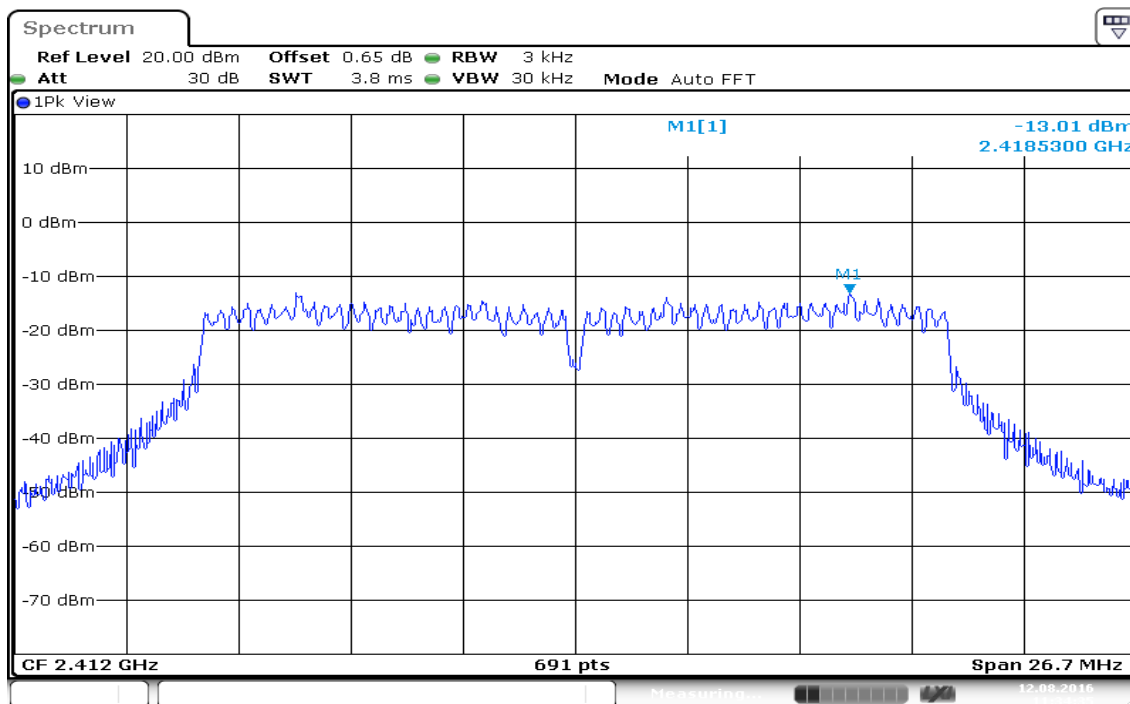
### PPSD (CH High)



Date: 12.AUG.2016 11:33:04

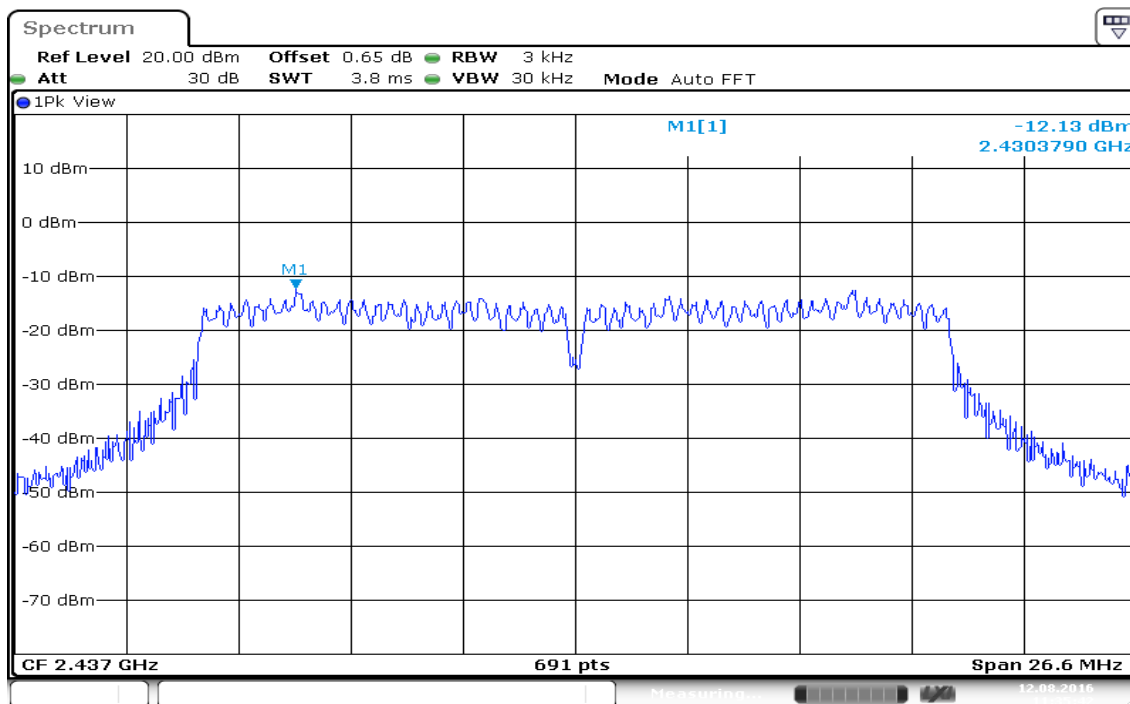
### IEEE 802.11n HT 20 MHz mode

### PPSD (CH Low)



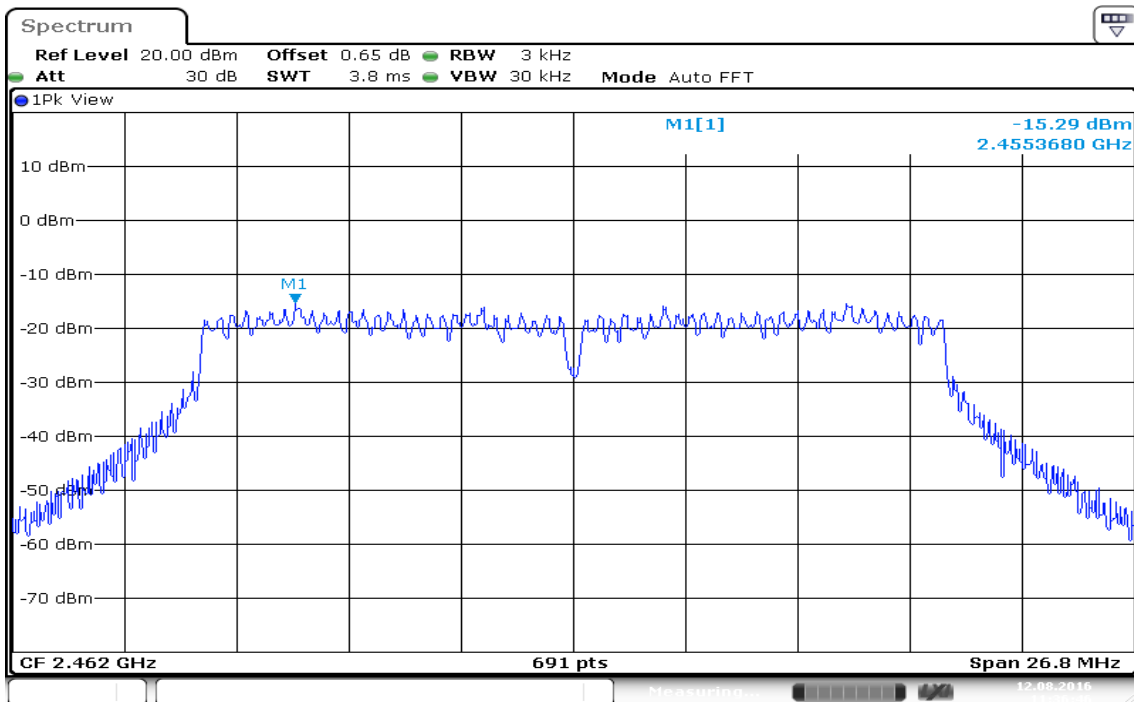
Date: 12.AUG.2016 11:34:35

### PPSD (CH Mid)



Date: 12.AUG.2016 11:35:42

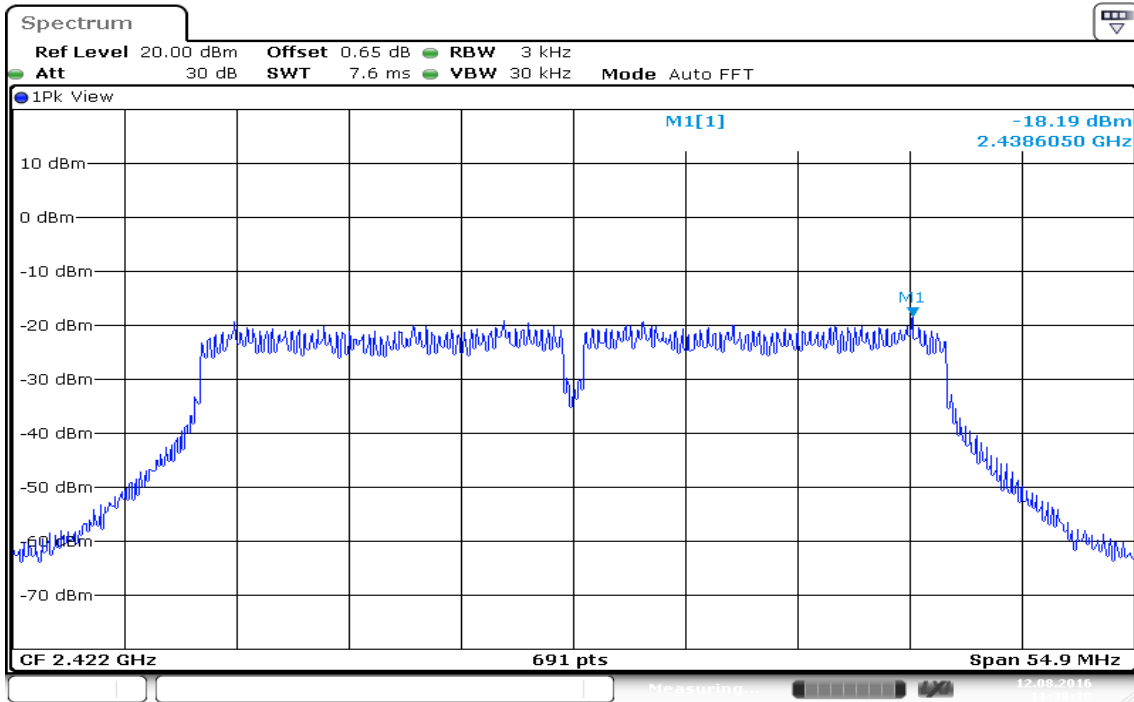
### PPSD (CH High)



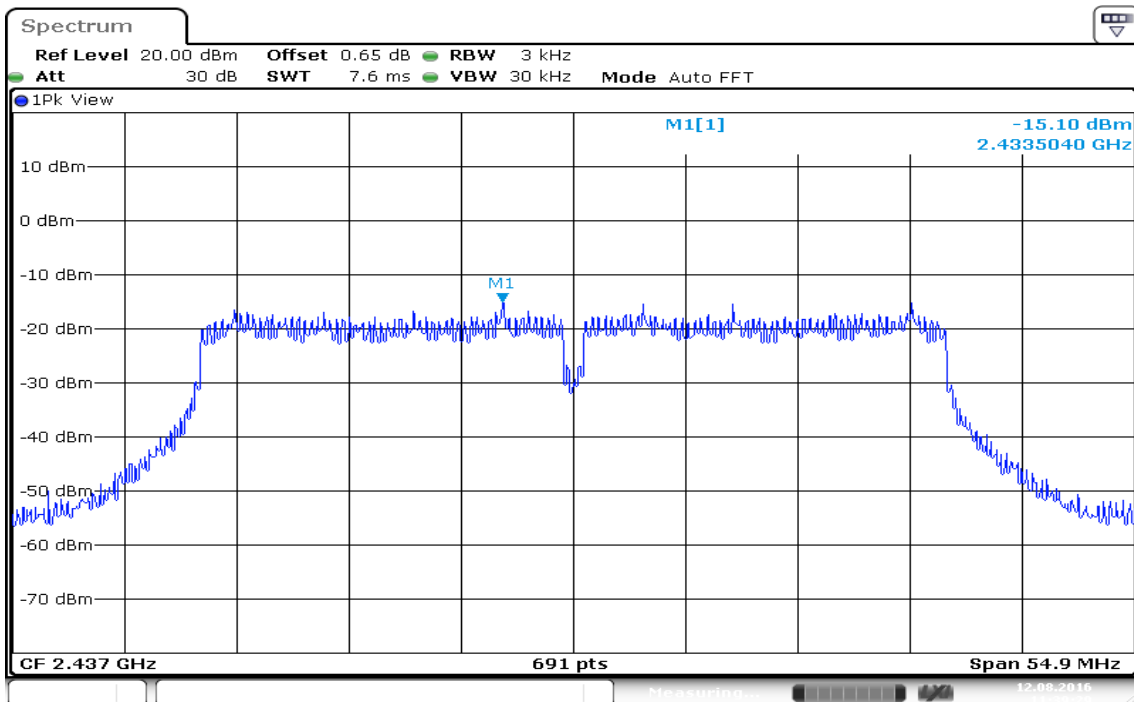
Date: 12.AUG.2016 11:36:46

**IEEE 802.11n HT 40 MHz mode**

**PPSD (CH Low)**

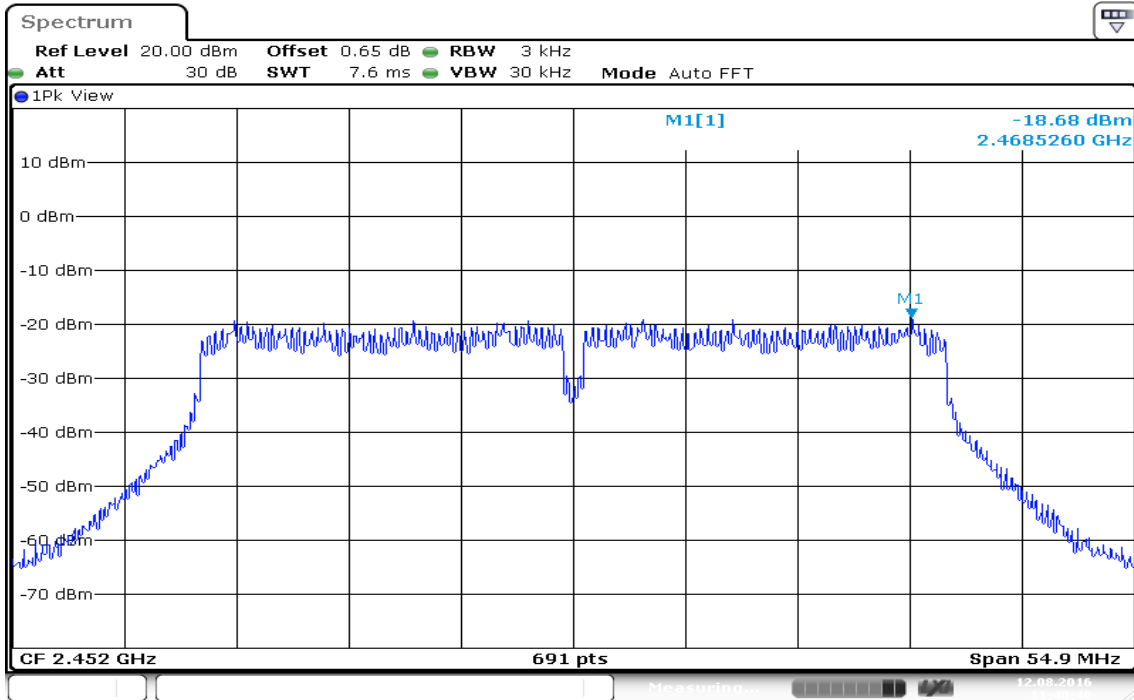


**PPSD (CH Mid)**





### PPSD (CH High)



Date: 12.AUG.2016 11:40:40

## 7.7 RADIATED EMISSIONS

### LIMIT

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

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

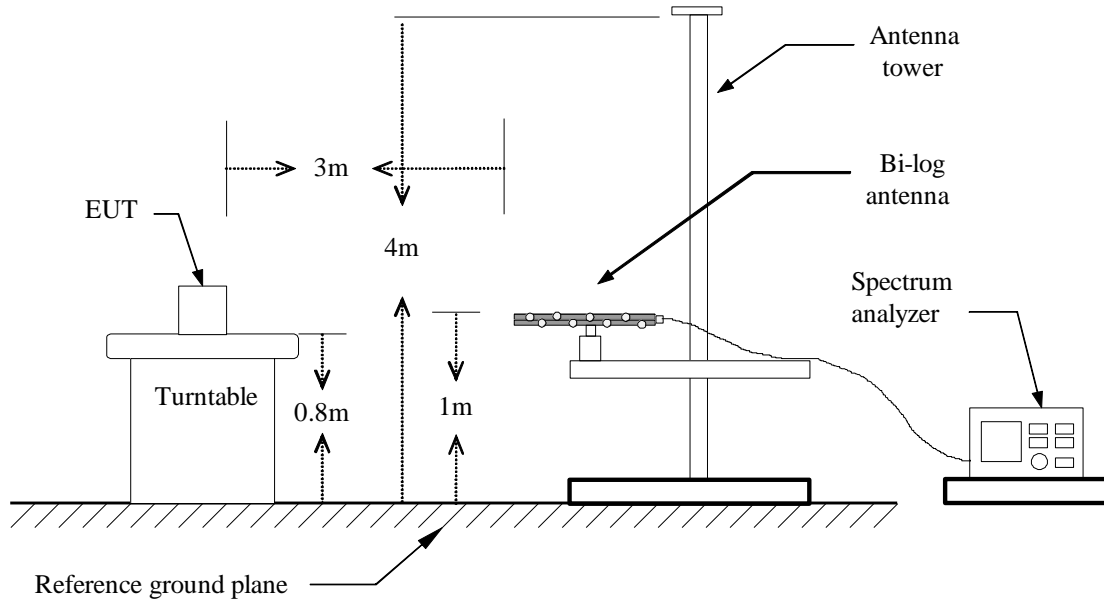
**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections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

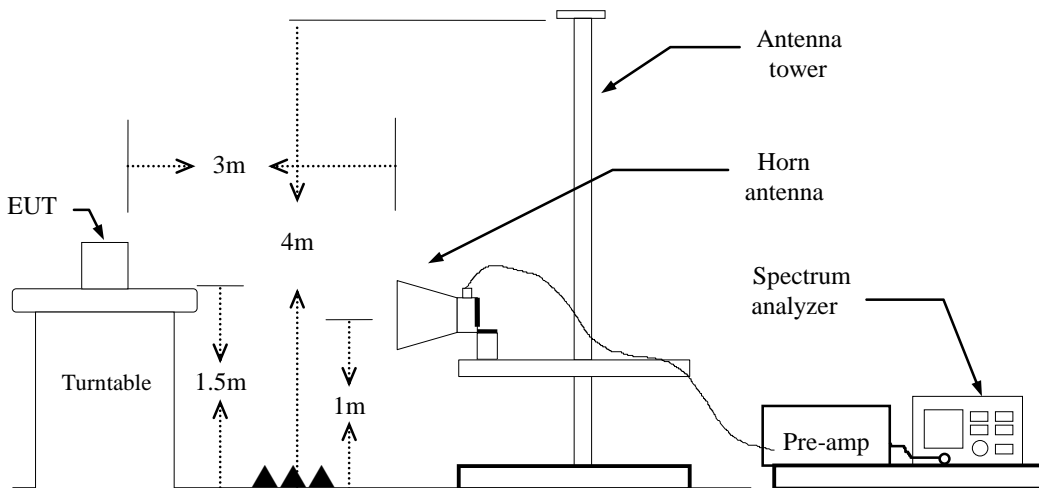
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
0.009 - 0.490	2400/F(kHz) +80	20LOG((2400/F(kHz))+80)
0.490 - 1.705	24000/F(kHz) +40	20LOG((24000/F(kHz))+40)
1.705 – 30.0	30	69.54
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### Test Configuration

#### 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=1MHz / VBW=3MHz / Sweep=AUTO

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

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

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

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

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

7. Repeat above procedures until the measurements for all frequencies are complete.
8. 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 1GHz**

**Operation Mode:** Normal Link

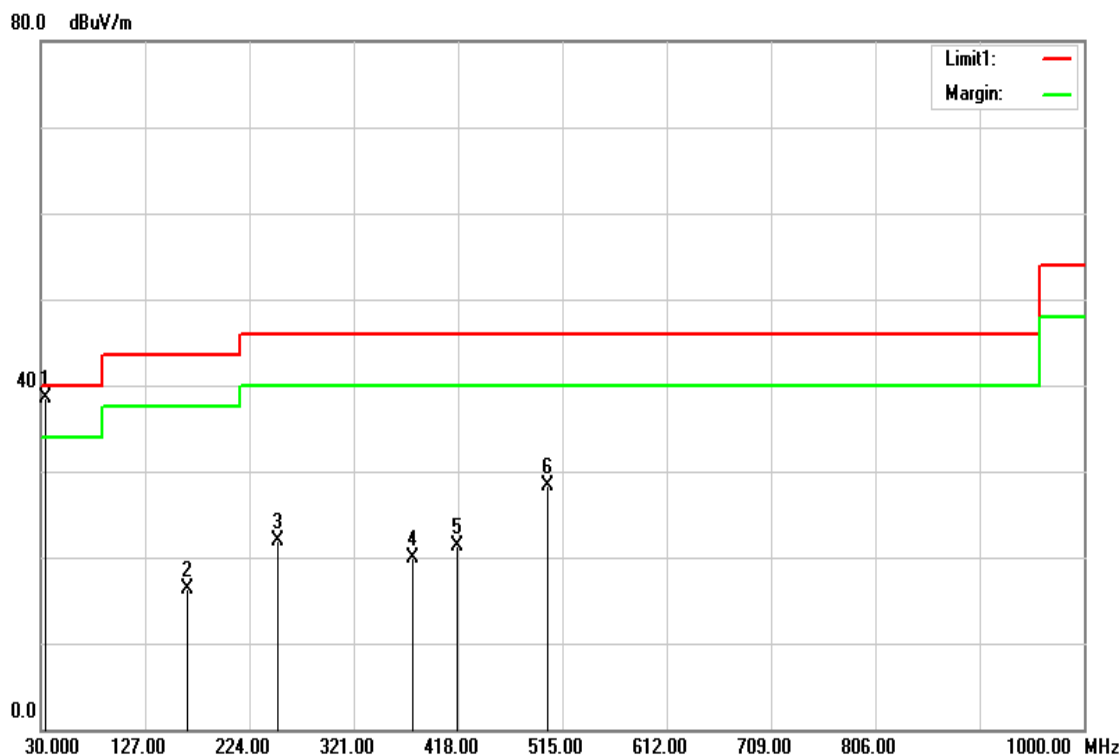
**Test Date:** August 24, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver.



Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
33.8800	49.30	-10.79	38.51	40.00	-1.49	peak	V
166.7700	33.00	-16.69	16.31	43.50	-27.19	peak	V
250.1900	38.27	-16.27	22.00	46.00	-24.00	peak	V
375.3200	32.20	-12.29	19.91	46.00	-26.09	peak	V
417.0300	32.50	-11.19	21.31	46.00	-24.69	peak	V
501.4200	37.49	-9.22	28.27	46.00	-17.73	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) = Result (dBuV/m) – Limit (dBuV/m).

**Operation Mode:** Normal Link

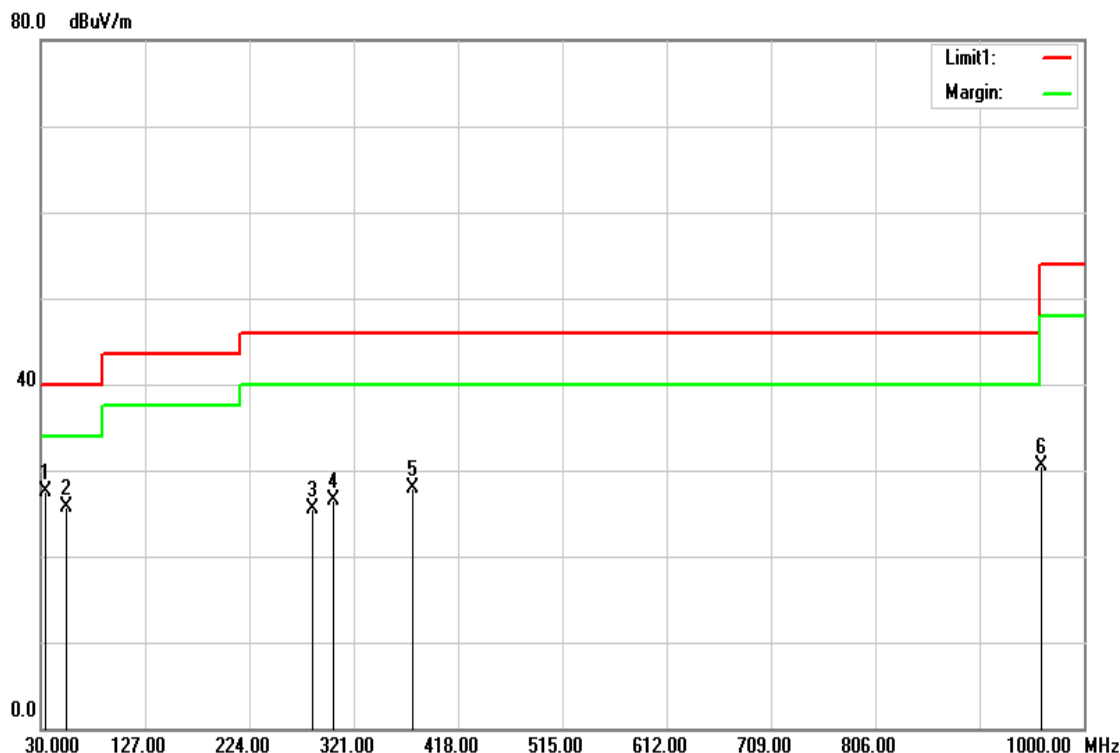
**Test Date:** August 24, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Hor.



Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
34.8500	39.05	-11.51	27.54	40.00	-12.46	peak	H
54.2500	47.13	-21.51	25.62	40.00	-14.38	peak	H
283.1700	40.00	-14.55	25.45	46.00	-20.55	peak	H
301.6000	40.61	-14.20	26.41	46.00	-19.59	peak	H
376.2900	40.23	-12.26	27.97	46.00	-18.03	peak	H
960.2300	32.75	-2.23	30.52	54.00	-23.48	peak	H

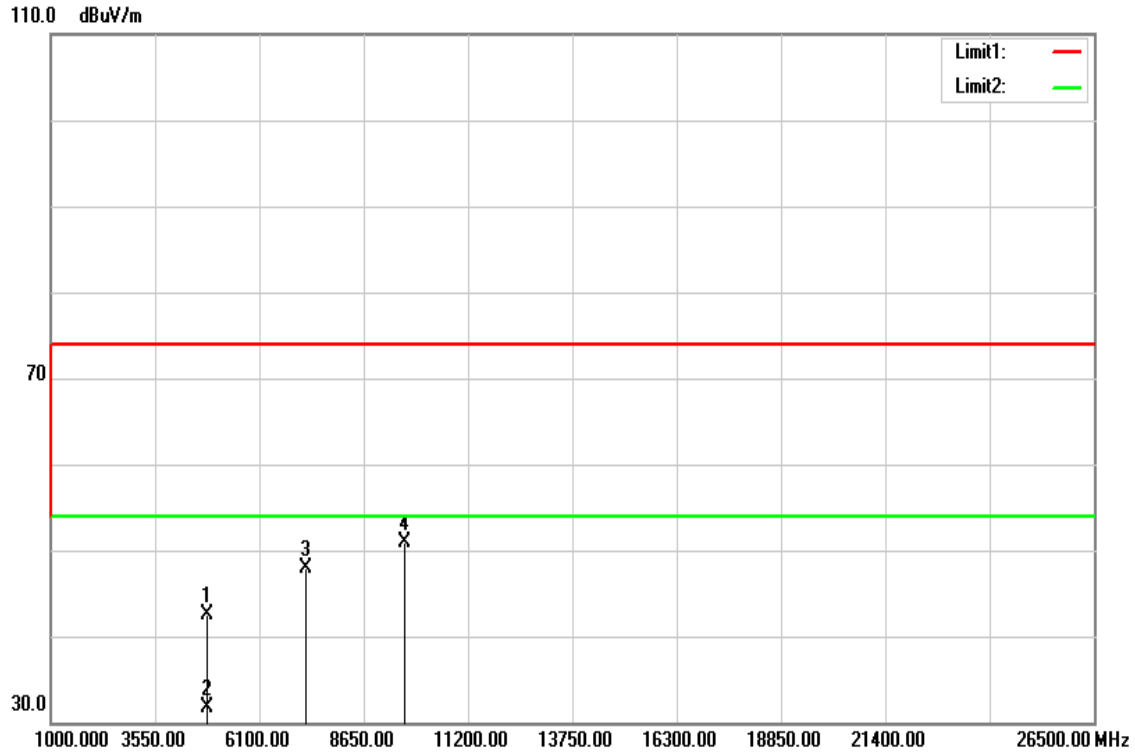
**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
4. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
5. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).

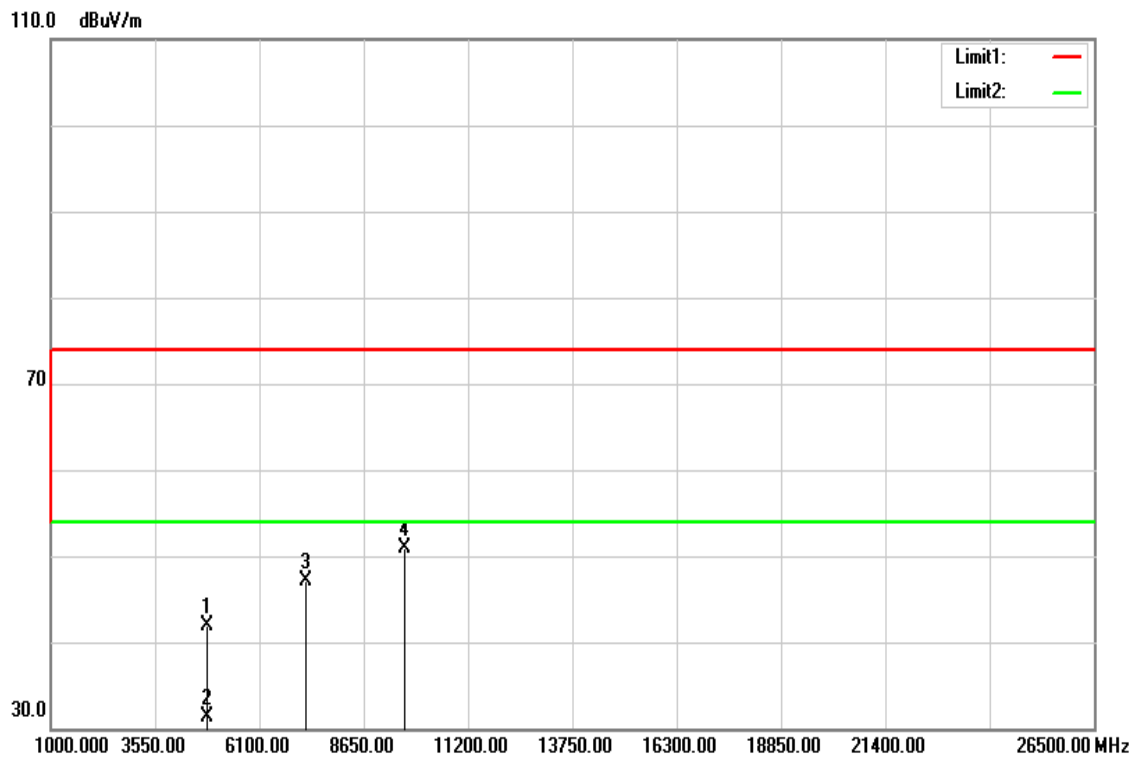
**Above 1 GHz**

**TX / IEEE 802.11b / CH Low**

**Polarity: Vertical**



**Polarity: Horizontal**



**Above 1 GHz**

**Operation Mode:** TX / IEEE 802.11b / CH Low

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4824.000	37.43	5.10	42.53	74.00	-31.47	peak	V
4824.000	26.52	5.10	31.62	54.00	-22.38	AVG	V
7236.000	35.26	12.71	47.97	74.00	-26.03	peak	V
9648.000	33.30	17.60	50.90	74.00	-23.10	peak	V
N/A							
4824.000	36.84	5.10	41.94	74.00	-32.06	peak	H
4824.000	26.23	5.10	31.33	54.00	-22.67	AVG	H
7236.000	34.46	12.71	47.17	74.00	-26.83	peak	H
9648.000	33.34	17.60	50.94	74.00	-23.06	peak	H
N/A							

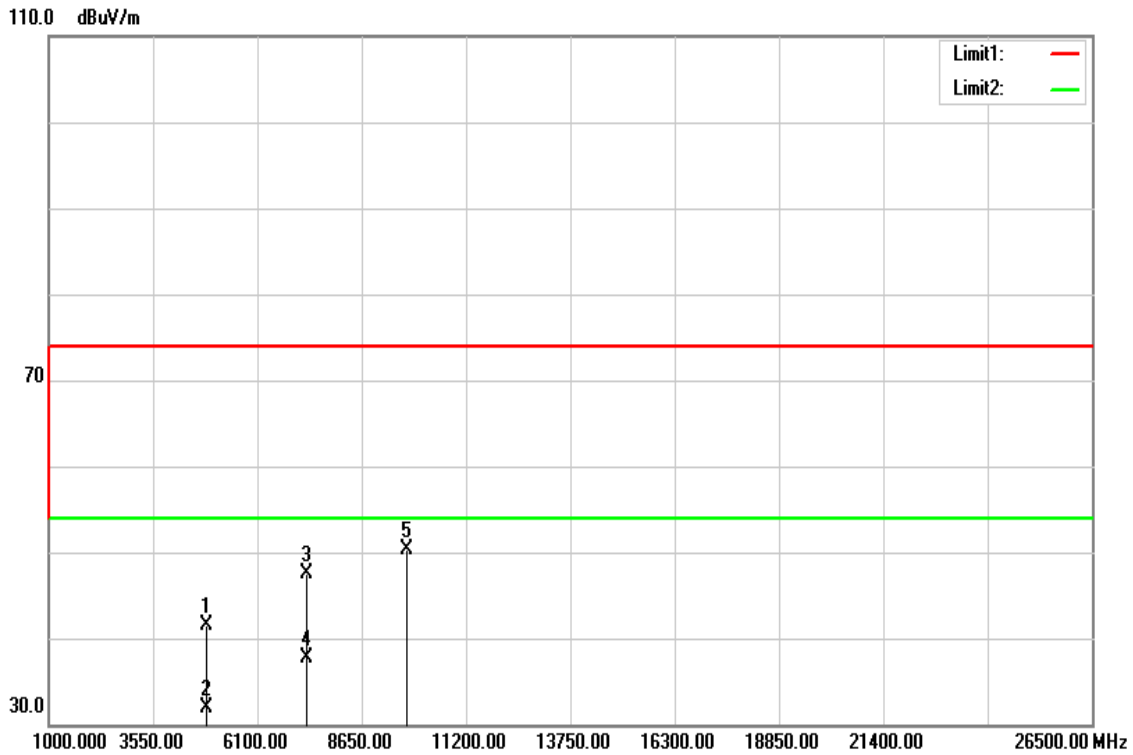
**Remark:**

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).

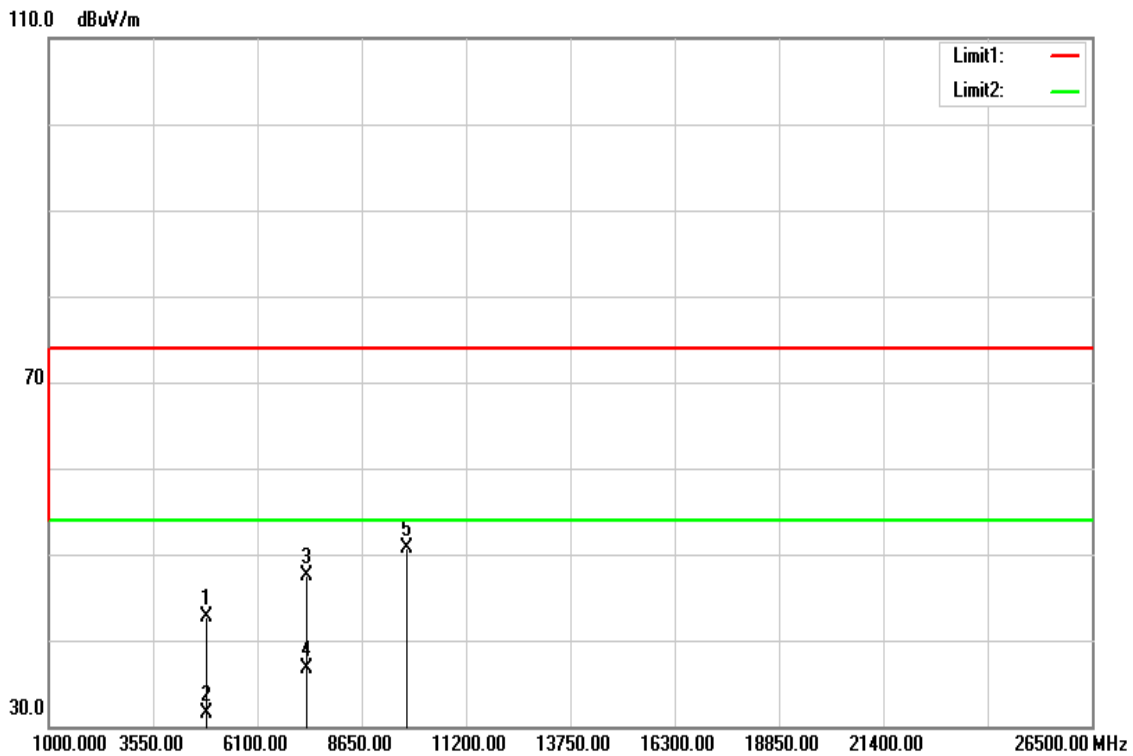


**TX / IEEE 802.11b / CH Mid**

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11b / CH Mid

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4874.000	36.33	5.23	41.56	74.00	-32.44	peak	V
4874.000	26.64	5.23	31.87	54.00	-22.13	AVG	V
7311.000	34.56	12.94	47.50	74.00	-26.50	peak	V
7311.000	24.73	12.94	37.67	74.00	-36.33	peak	V
9748.000	32.74	17.60	50.34	74.00	-23.66	peak	V
N/A							
4874.000	37.54	5.23	42.77	74.00	-31.23	peak	H
4874.000	26.35	5.23	31.58	54.00	-22.42	AVG	H
7311.000	34.52	12.94	47.46	74.00	-26.54	peak	H
7311.000	23.83	12.94	36.77	74.00	-37.23	peak	H
9748.000	33.20	17.60	50.80	74.00	-23.20	peak	H
N/A							

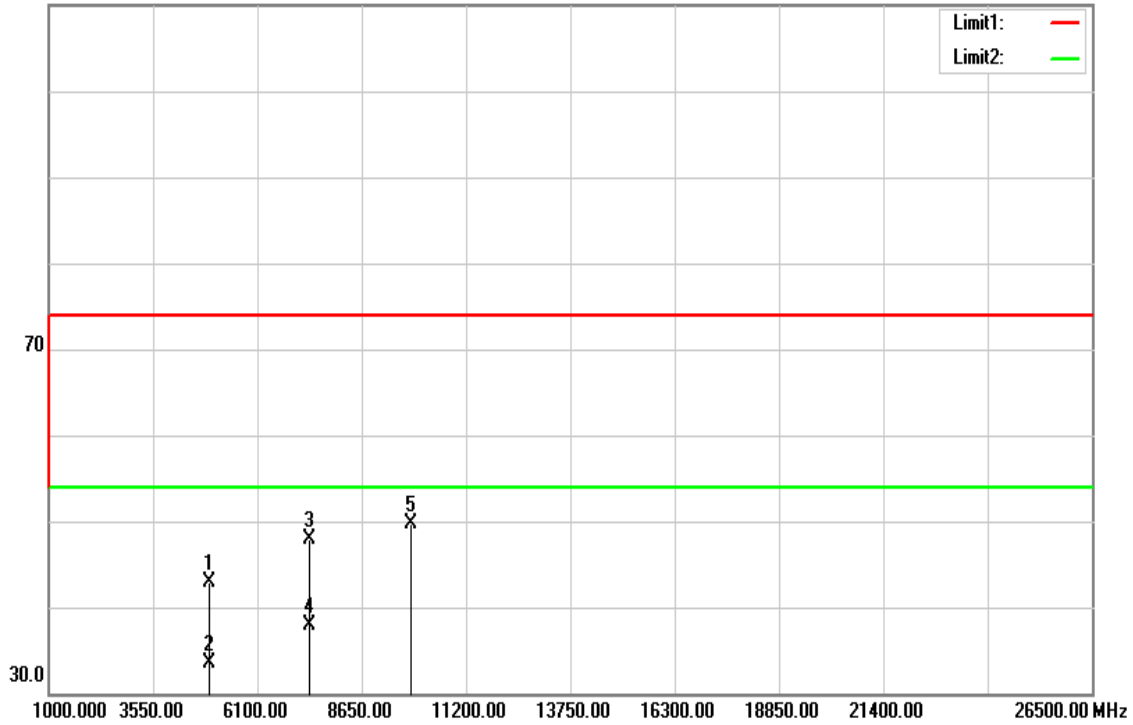
**Remark:**

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 802.11b / CH High**

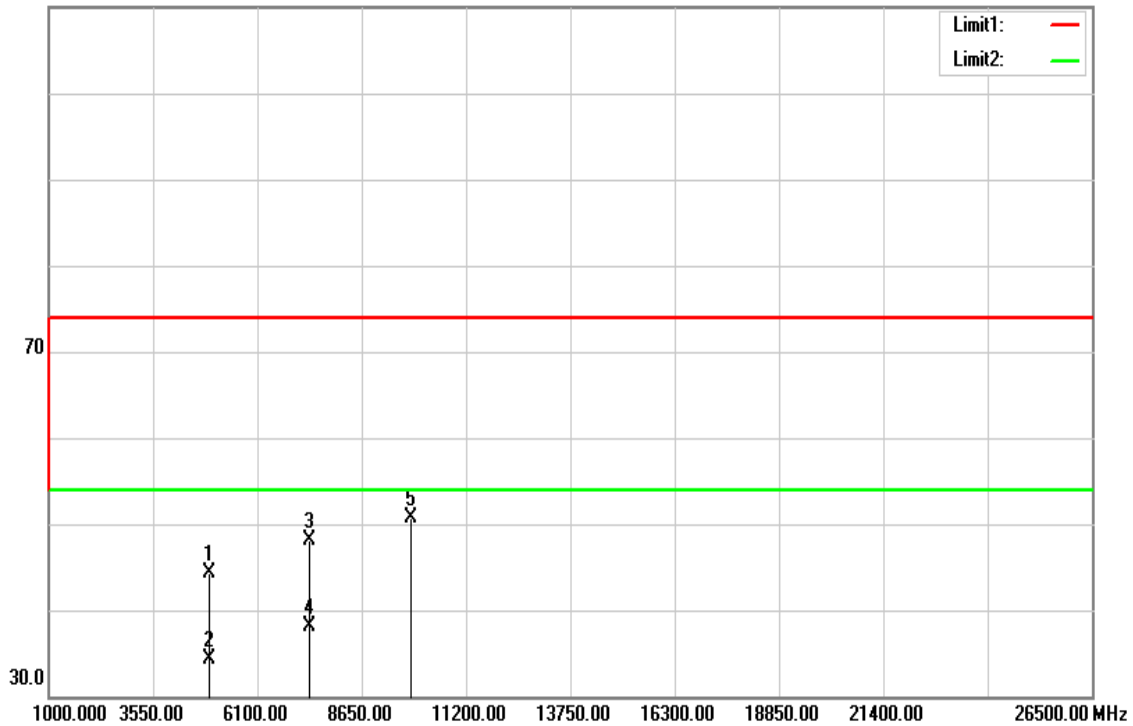
**Polarity: Vertical**

110.0 dBuV/m



**Polarity: Horizontal**

110.0 dBuV/m



**Operation Mode:** TX / IEEE 802.11b / CH High

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

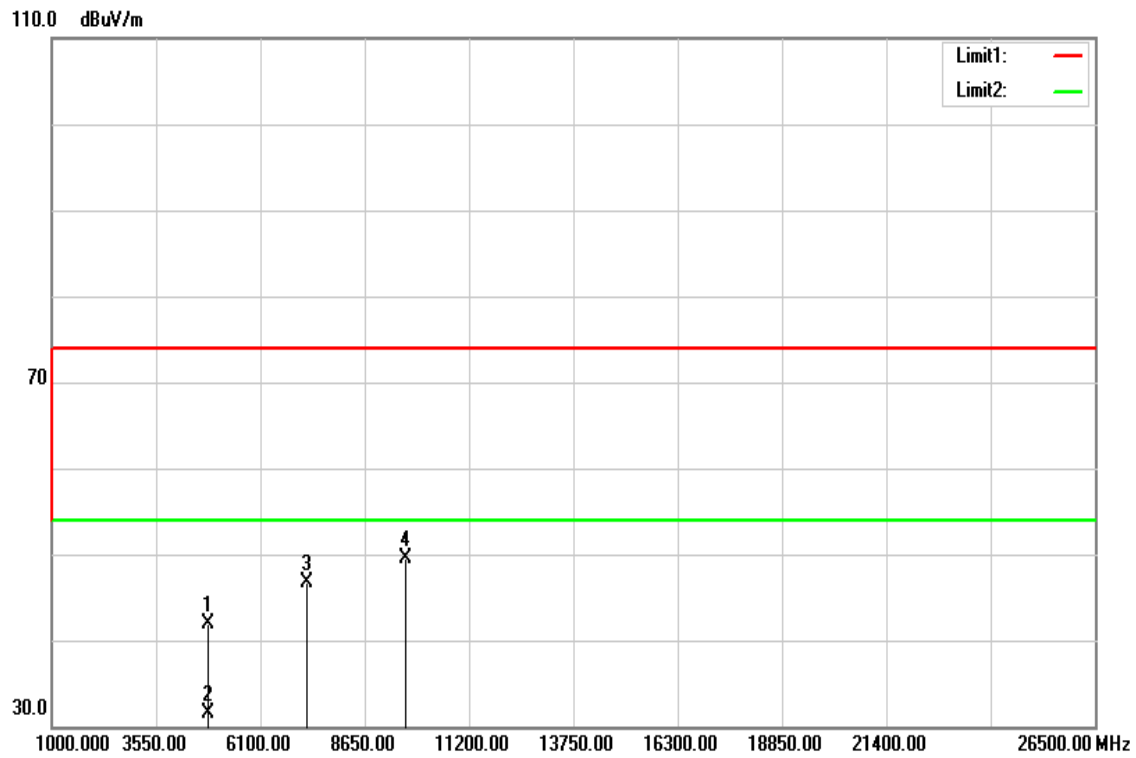
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4924.000	37.63	5.37	43.00	74.00	-31.00	peak	V
4924.000	28.13	5.37	33.50	54.00	-20.50	AVG	V
7386.000	34.75	13.17	47.92	74.00	-26.08	peak	V
7386.000	24.69	13.17	37.86	74.00	-36.14	peak	V
9848.000	32.08	17.60	49.68	74.00	-24.32	peak	V
N/A							
4924.000	38.83	5.37	44.20	74.00	-29.80	peak	H
4924.000	28.90	5.37	34.27	54.00	-19.73	AVG	H
7386.000	34.99	13.17	48.16	74.00	-25.84	peak	H
7386.000	25.00	13.17	38.17	74.00	-35.83	peak	H
9848.000	33.10	17.60	50.70	74.00	-23.30	peak	H
N/A							

**Remark:**

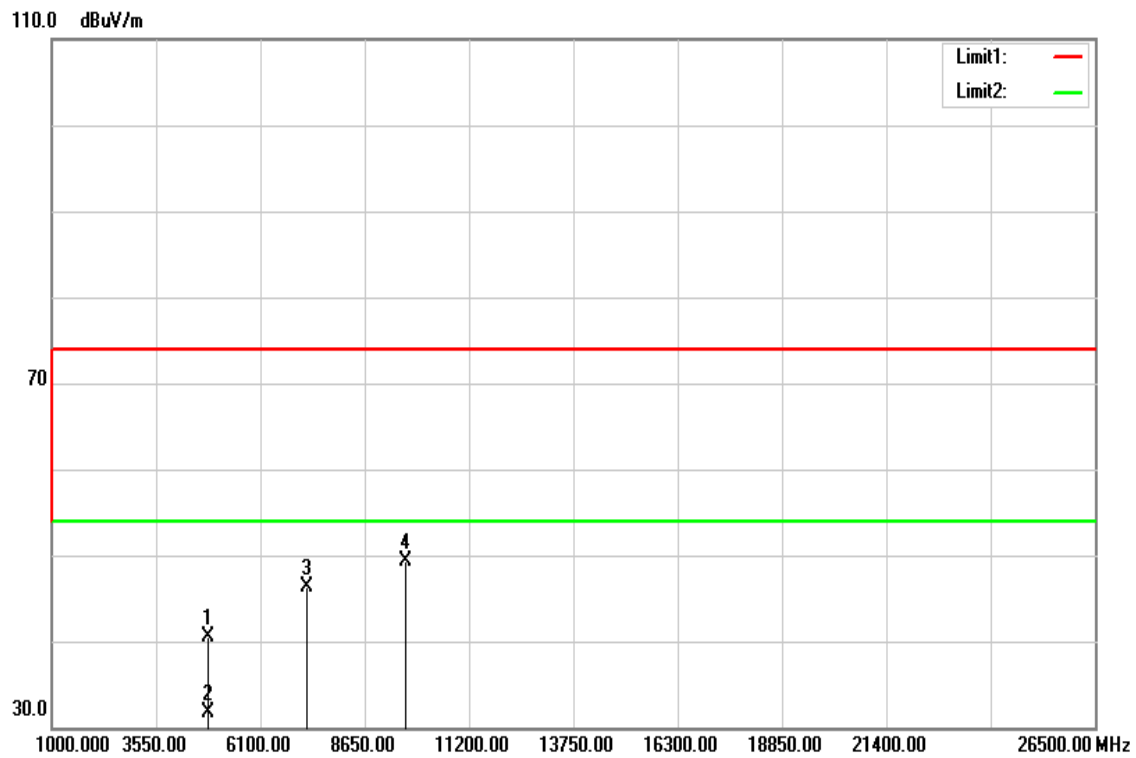
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit 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 802.11g / CH Low**

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11g / CH Low

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

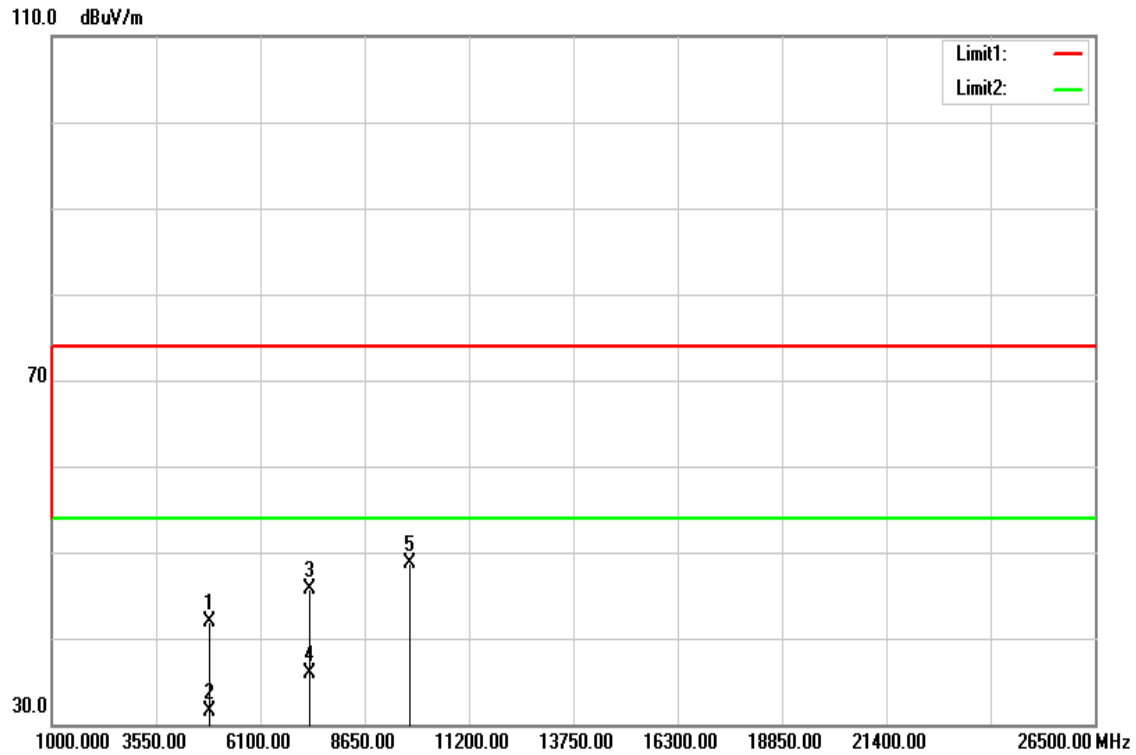
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4824.000	36.85	5.10	41.95	74.00	-32.05	peak	V
4824.000	26.48	5.10	31.58	54.00	-22.42	AVG	V
7236.000	34.00	12.71	46.71	74.00	-27.29	peak	V
9648.000	31.89	17.60	49.49	74.00	-24.51	peak	V
N/A							
4824.000	35.49	5.10	40.59	74.00	-33.41	peak	H
4824.000	26.58	5.10	31.68	54.00	-22.32	AVG	H
7236.000	33.59	12.71	46.30	74.00	-27.70	peak	H
9648.000	31.66	17.60	49.26	74.00	-24.74	peak	H
N/A							

**Remark:**

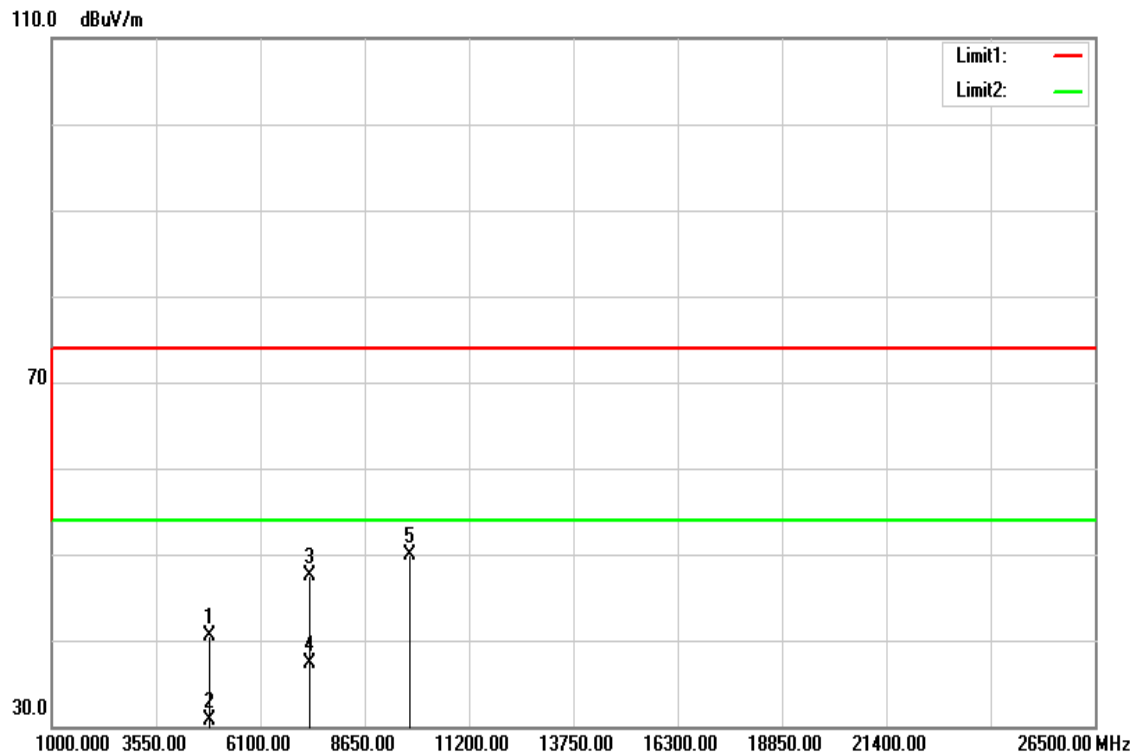
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit 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 802.11g / CH Mid**

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11g / CH Mid

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4874.000	36.69	5.23	41.92	74.00	-32.08	peak	V
4874.000	26.30	5.23	31.53	54.00	-22.47	AVG	V
7311.000	32.84	12.94	45.78	74.00	-28.22	peak	V
7311.000	22.93	12.94	35.87	74.00	-38.13	peak	V
9748.000	31.16	17.60	48.76	74.00	-25.24	peak	V
N/A							
4874.000	35.24	5.23	40.47	74.00	-33.53	peak	H
4874.000	25.40	5.23	30.63	54.00	-23.37	AVG	H
7311.000	34.53	12.94	47.47	74.00	-26.53	peak	H
7311.000	24.44	12.94	37.38	74.00	-36.62	peak	H
9748.000	32.24	17.60	49.84	74.00	-24.16	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 802.11g / CH High**

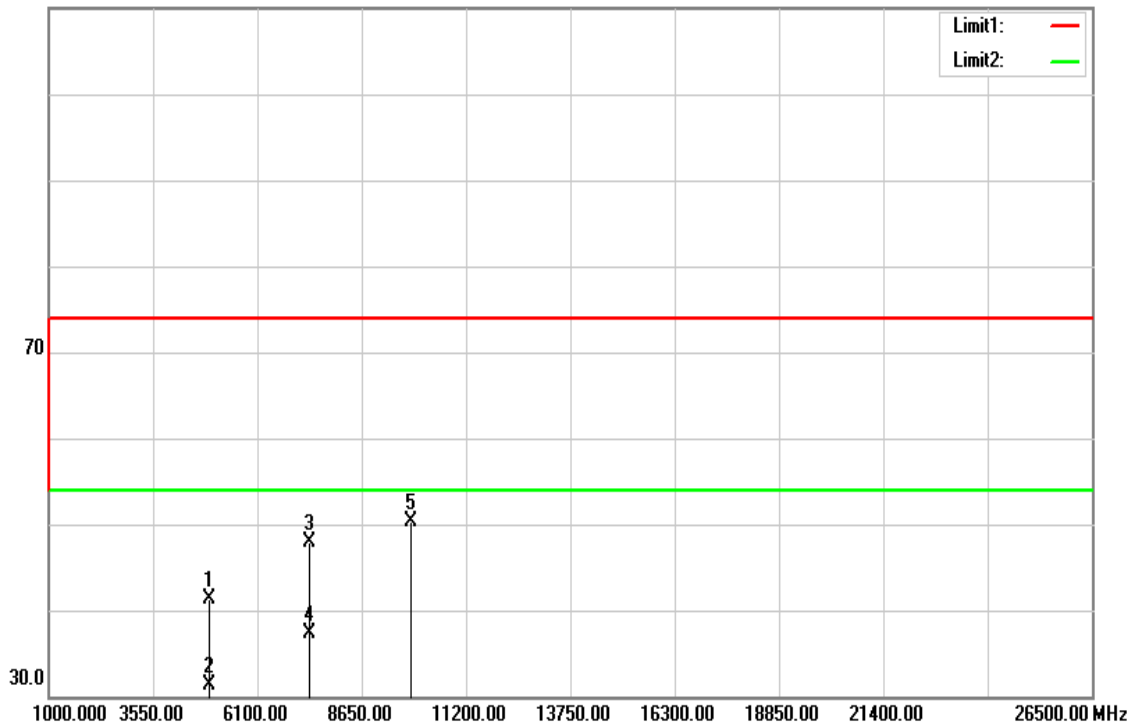
**Polarity: Vertical**

110.0 dBuV/m



**Polarity: Horizontal**

110.0 dBuV/m



**Operation Mode:** TX / IEEE 802.11g / CH High

**Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

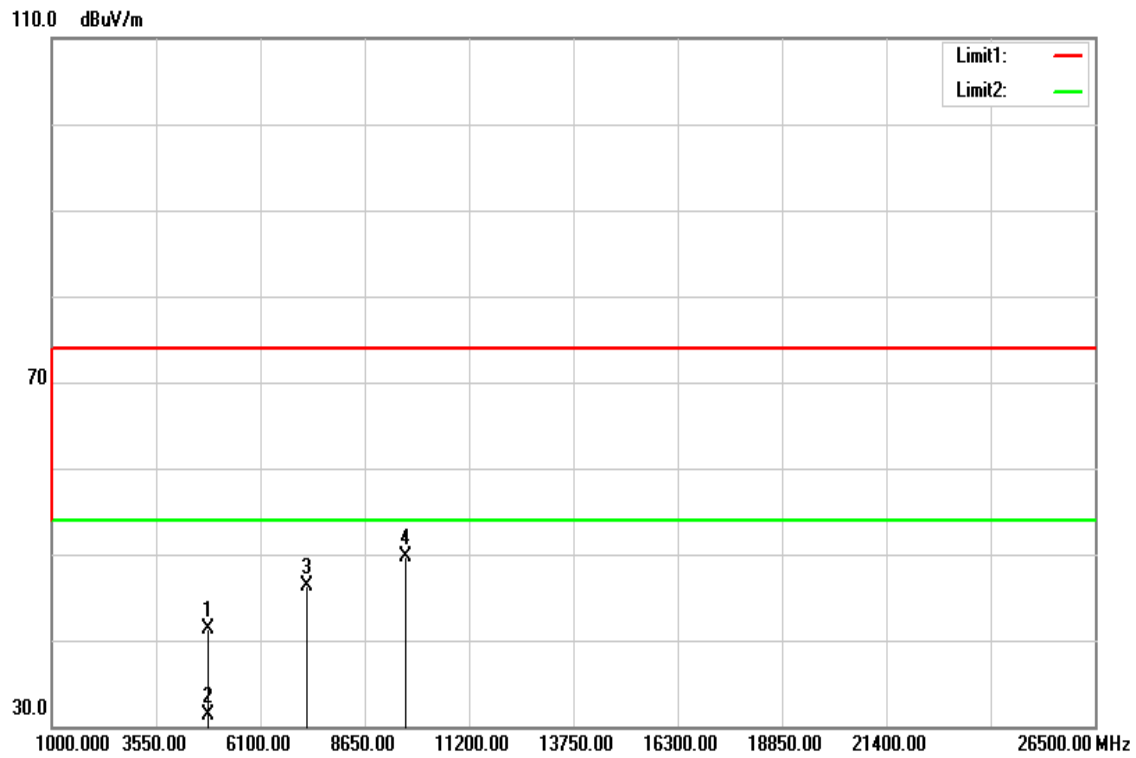
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4924.000	36.14	5.37	41.51	74.00	-32.49	peak	V
4924.000	25.70	5.37	31.07	54.00	-22.93	AVG	V
7386.000	34.13	13.17	47.30	74.00	-26.70	peak	V
7386.000	24.72	13.17	37.89	74.00	-36.11	peak	V
9848.000	32.43	17.60	50.03	74.00	-23.97	peak	V
N/A							
4924.000	35.89	5.37	41.26	74.00	-32.74	peak	H
4924.000	25.85	5.37	31.22	54.00	-22.78	AVG	H
7386.000	34.80	13.17	47.97	74.00	-26.03	peak	H
7386.000	24.08	13.17	37.25	74.00	-36.75	peak	H
9848.000	32.62	17.60	50.22	74.00	-23.78	peak	H
N/A							

**Remark:**

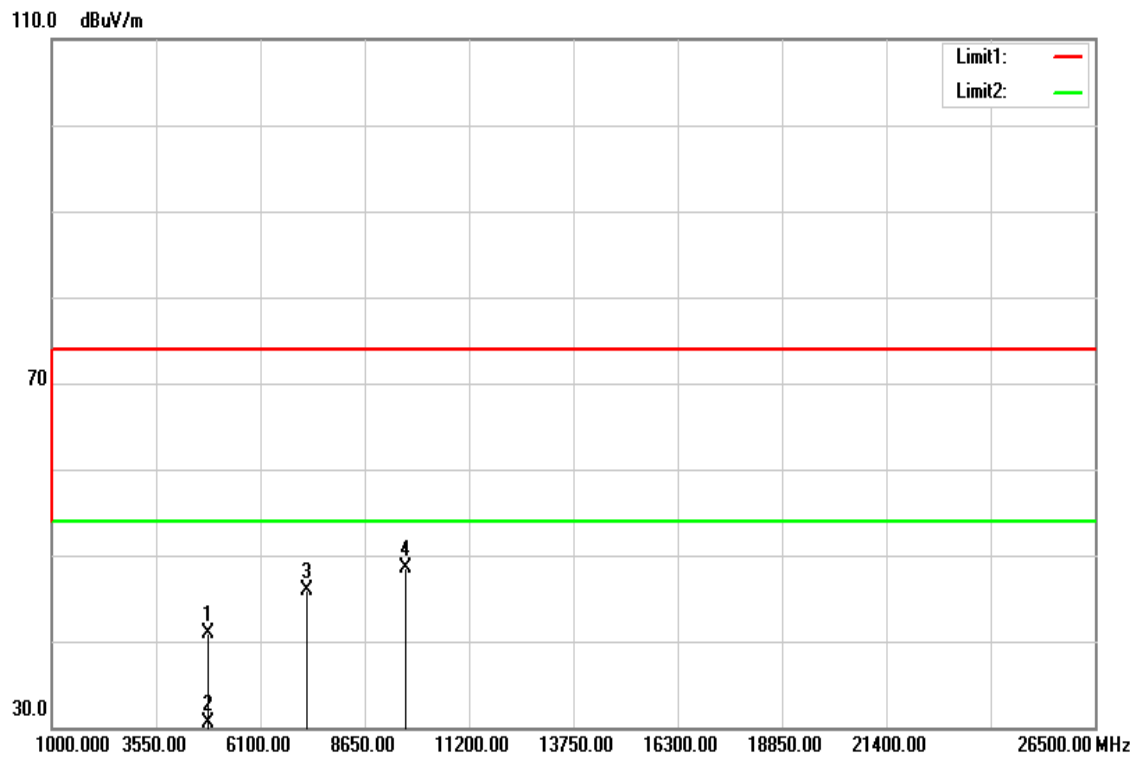
1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average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

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

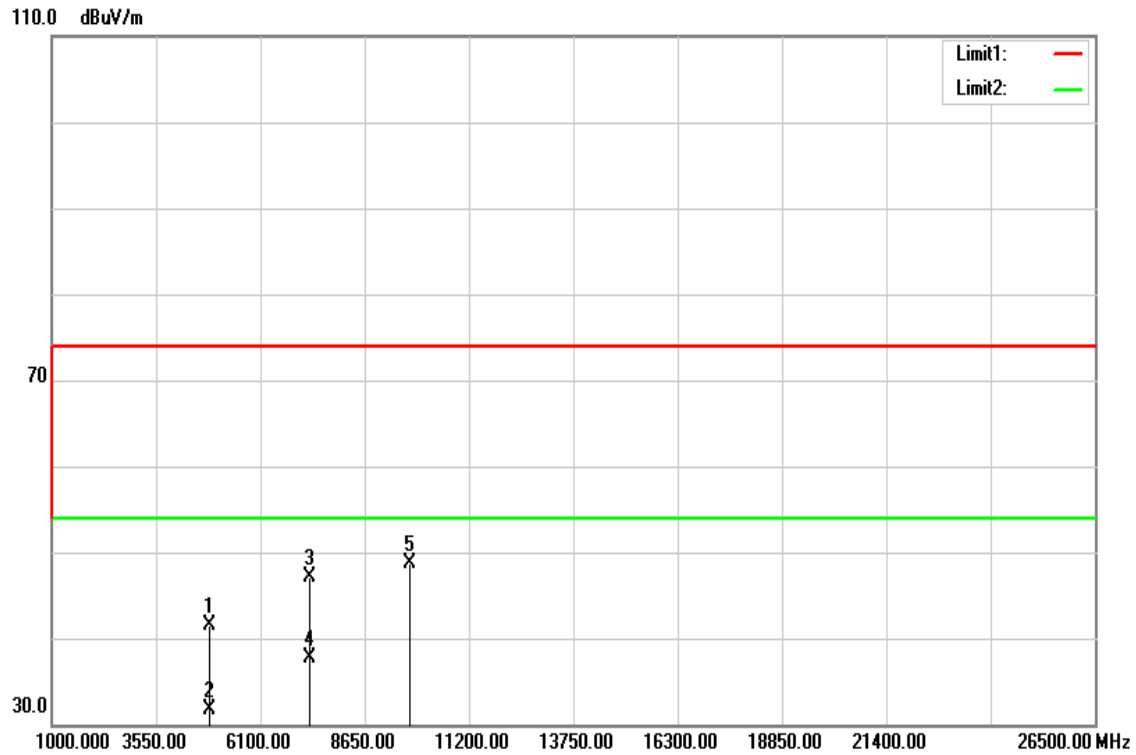
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4824.000	36.20	5.10	41.30	74.00	-32.70	peak	V
4824.000	26.15	5.10	31.25	54.00	-22.75	AVG	V
7236.000	33.54	12.71	46.25	74.00	-27.75	peak	V
9648.000	32.02	17.60	49.62	74.00	-24.38	peak	V
N/A							
4824.000	35.71	5.10	40.81	74.00	-33.19	peak	H
4824.000	25.46	5.10	30.56	54.00	-23.44	AVG	H
7236.000	33.26	12.71	45.97	74.00	-28.03	peak	H
9648.000	30.93	17.60	48.53	74.00	-25.47	peak	H
N/A							

**Remark:**

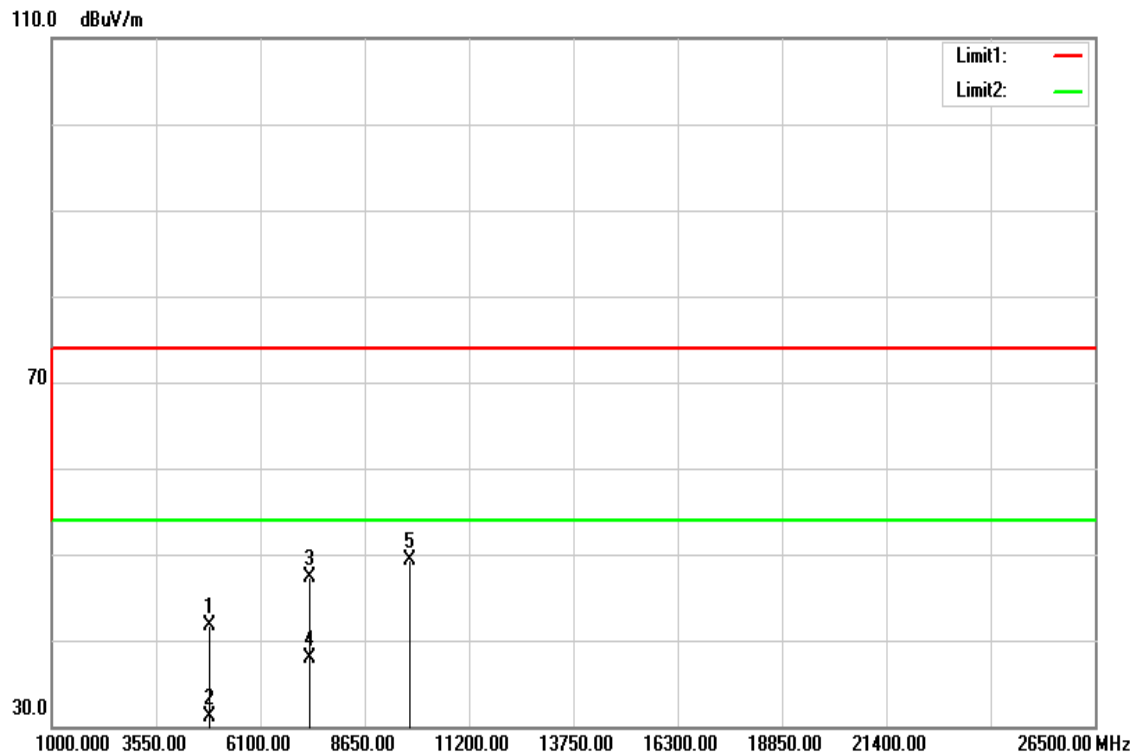
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit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

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Mid **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4874.000	36.19	5.23	41.42	74.00	-32.58	peak	V
4874.000	26.51	5.23	31.74	54.00	-22.26	AVG	V
7311.000	34.18	12.94	47.12	74.00	-26.88	peak	V
7311.000	24.75	12.94	37.69	74.00	-36.31	peak	V
9748.000	31.10	17.60	48.70	74.00	-25.30	peak	V
N/A							
4874.000	36.52	5.23	41.75	74.00	-32.25	peak	H
4874.000	25.97	5.23	31.20	54.00	-22.80	AVG	H
7311.000	34.32	12.94	47.26	74.00	-26.74	peak	H
7311.000	24.95	12.94	37.89	74.00	-36.11	peak	H
9748.000	31.69	17.60	49.29	74.00	-24.71	peak	H
N/A							

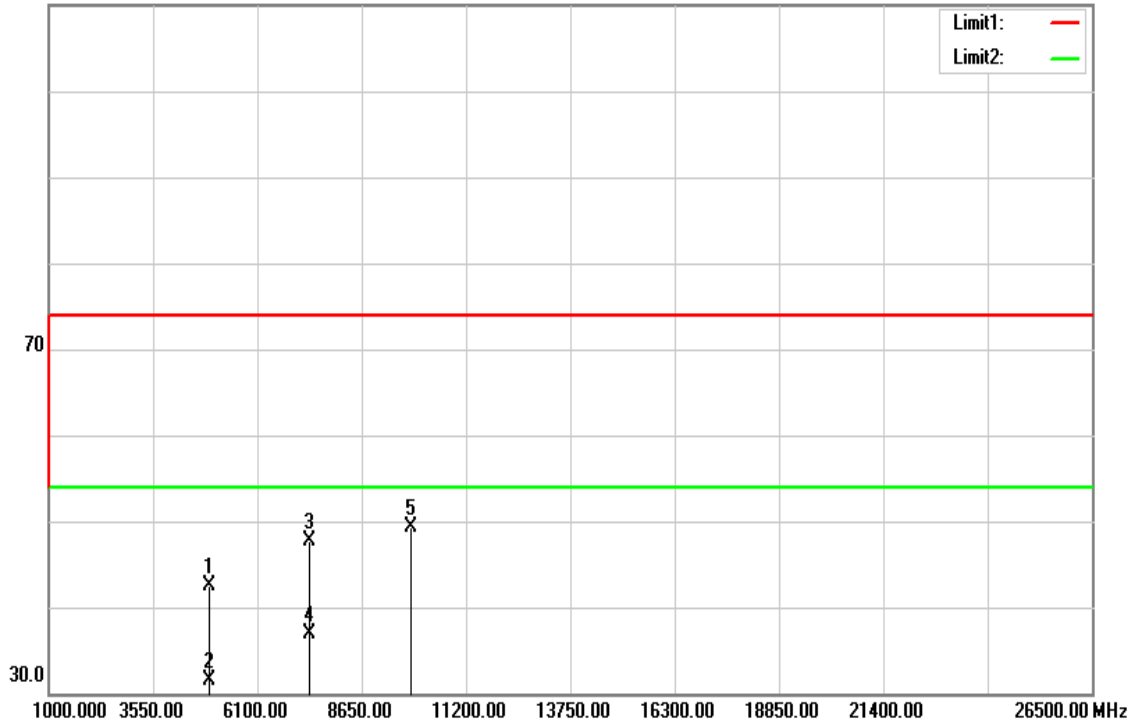
**Remark:**

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 / CH High**

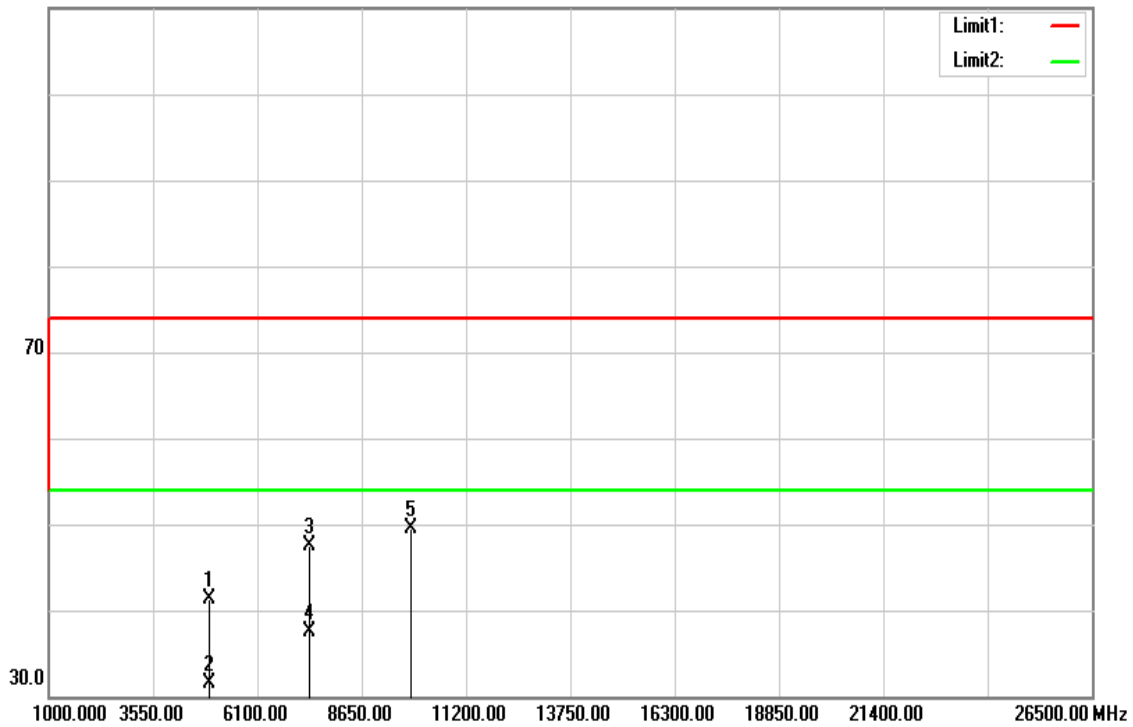
**Polarity: Vertical**

110.0 dBuV/m



**Polarity: Horizontal**

110.0 dBuV/m



**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH High **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4924.000	37.07	5.37	42.44	74.00	-31.56	peak	V
4924.000	26.21	5.37	31.58	54.00	-22.42	AVG	V
7386.000	34.58	13.17	47.75	74.00	-26.25	peak	V
7386.000	23.67	13.17	36.84	74.00	-37.16	peak	V
9848.000	31.62	17.60	49.22	74.00	-24.78	peak	V
N/A							
4924.000	35.94	5.37	41.31	74.00	-32.69	peak	H
4924.000	26.16	5.37	31.53	54.00	-22.47	AVG	H
7386.000	34.35	13.17	47.52	74.00	-26.48	peak	H
7386.000	24.41	13.17	37.58	74.00	-36.42	peak	H
9848.000	31.96	17.60	49.56	74.00	-24.44	peak	H
N/A							

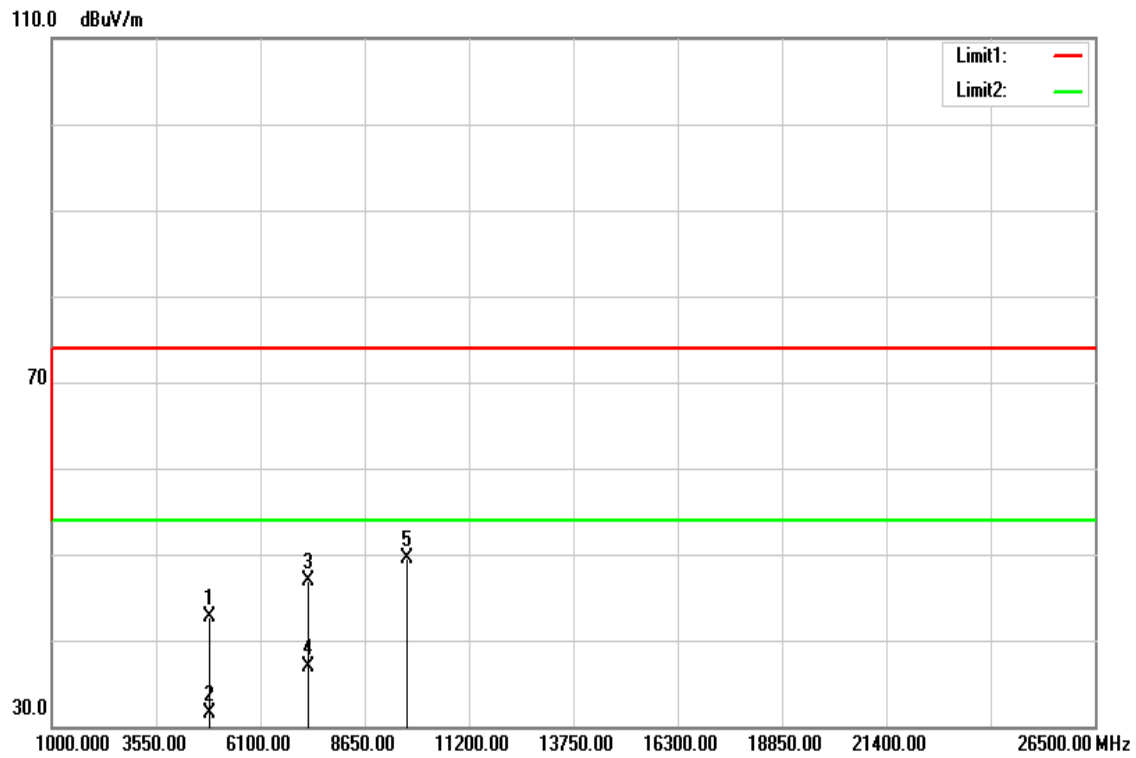
**Remark:**

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).

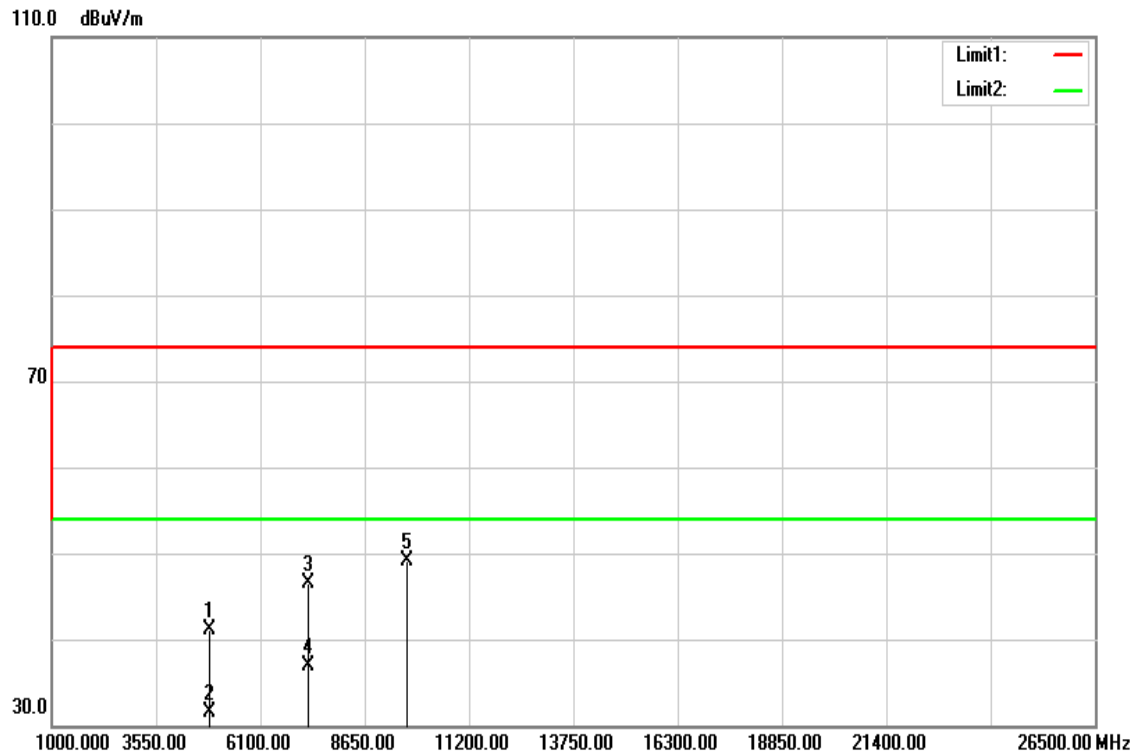


**TX / IEEE 802.11n HT 40 MHz mode / CH Low**

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode / CH Low **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

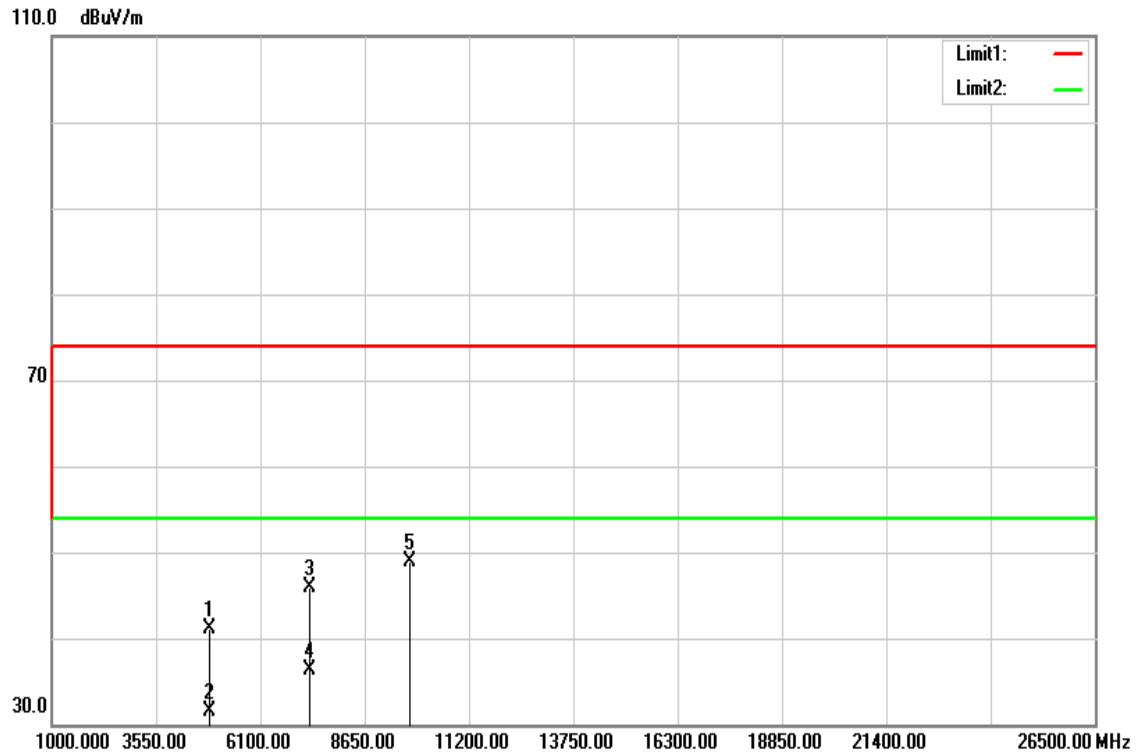
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4844.000	37.64	5.15	42.79	74.00	-31.21	peak	V
4844.000	26.31	5.15	31.46	54.00	-22.54	AVG	V
7266.000	34.10	12.80	46.90	74.00	-27.10	peak	V
7266.000	24.05	12.80	36.85	54.00	-17.15	AVG	V
9688.000	31.93	17.60	49.53	74.00	-24.47	peak	V
N/A							
4844.000	35.95	5.15	41.10	74.00	-32.90	peak	H
4844.000	26.32	5.15	31.47	54.00	-22.53	AVG	H
7266.000	33.69	12.80	46.49	74.00	-27.51	peak	H
7266.000	24.11	12.80	36.91	54.00	-17.09	AVG	H
9688.000	31.53	17.60	49.13	74.00	-24.87	peak	H
N/A							

**Remark:**

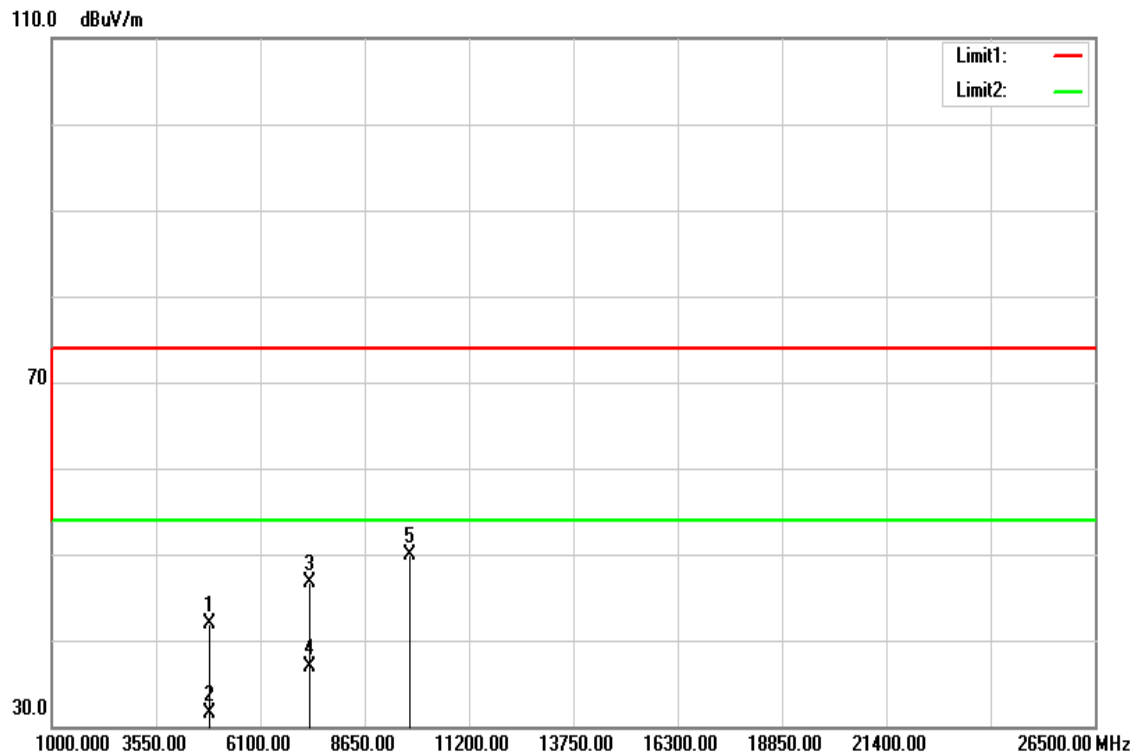
1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average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

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode / CH Mid **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

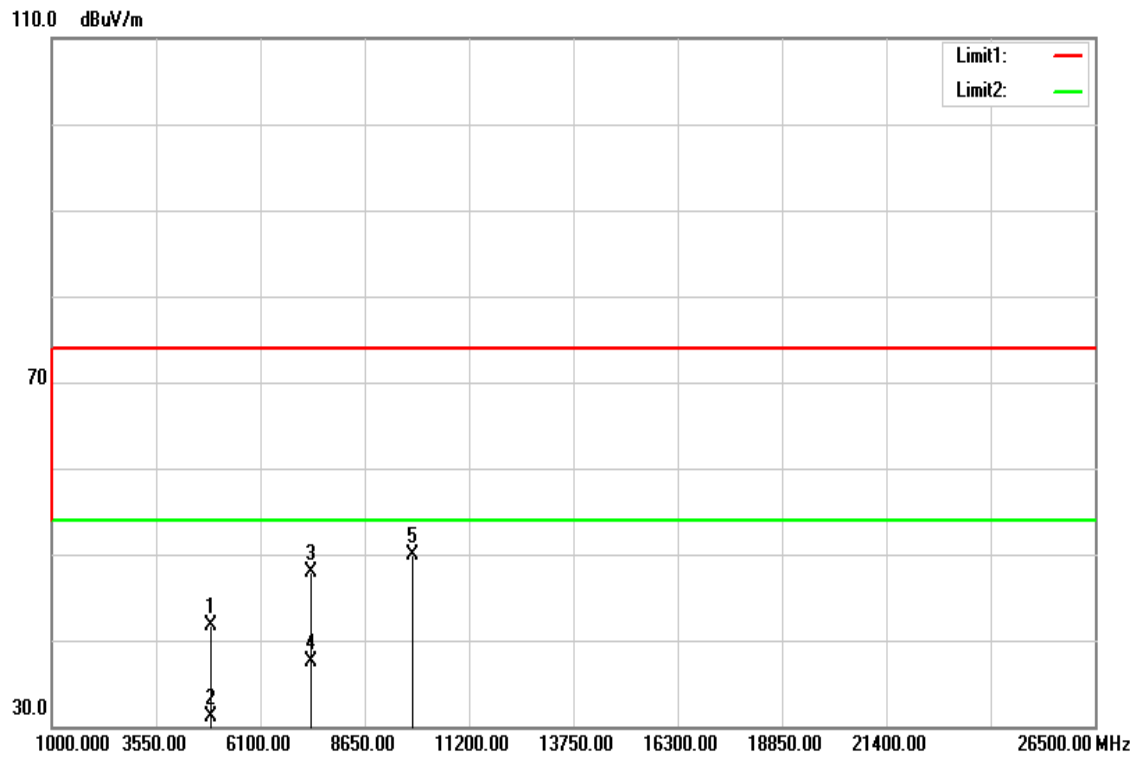
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4874.000	35.86	5.23	41.09	74.00	-32.91	peak	V
4874.000	26.33	5.23	31.56	54.00	-22.44	AVG	V
7311.000	33.06	12.94	46.00	74.00	-28.00	peak	V
7311.000	23.26	12.94	36.20	74.00	-37.80	peak	V
9748.000	31.30	17.60	48.90	74.00	-25.10	peak	V
N/A							
4874.000	36.61	5.23	41.84	74.00	-32.16	peak	H
4874.000	26.29	5.23	31.52	54.00	-22.48	AVG	H
7311.000	33.83	12.94	46.77	74.00	-27.23	peak	H
7311.000	23.90	12.94	36.84	74.00	-37.16	peak	H
9748.000	32.39	17.60	49.99	74.00	-24.01	peak	H
N/A							

**Remark:**

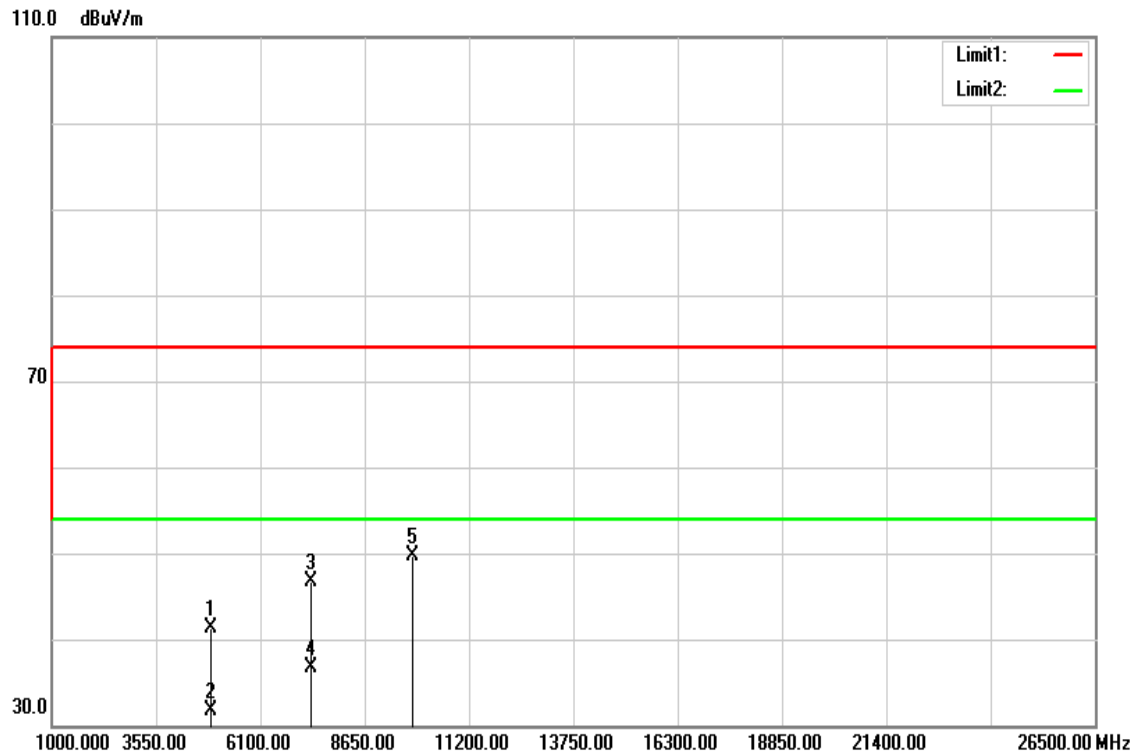
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit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

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

**Polarity: Vertical**



**Polarity: Horizontal**



**Operation Mode:** TX / IEEE 802.11n HT 40 MHz mode / CH High **Test Date:** August 25, 2016

**Temperature:** 27°C

**Tested by:** Dennis Li

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
4904.000	36.49	5.31	41.80	74.00	-32.20	peak	V
4904.000	25.89	5.31	31.20	54.00	-22.80	AVG	V
7356.000	34.85	13.08	47.93	74.00	-26.07	peak	V
7356.000	24.48	13.08	37.56	74.00	-36.44	peak	V
9808.000	32.26	17.60	49.86	74.00	-24.14	peak	V
N/A							
4904.000	35.98	5.31	41.29	74.00	-32.71	peak	H
4904.000	26.29	5.31	31.60	54.00	-22.40	AVG	H
7356.000	33.63	13.08	46.71	74.00	-27.29	peak	H
7356.000	23.72	13.08	36.80	74.00	-37.20	peak	H
9808.000	32.19	17.60	49.79	74.00	-24.21	peak	H
N/A							

**Remark:**

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

## 7.8 POWERLINE CONDUCTED EMISSIONS

### LIMIT

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

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

\* Decreases with the logarithm of the frequency.

### Test Configuration

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

### TEST PROCEDURE

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

## TEST RESULTS

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

### Test Data

**Operation Mode:** Normal Link                      **Test Date:** August 10, 2016  
**Temperature:** 24°C                                      **Tested by:** Dennis Li  
**Humidity:** 50% RH

Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.5540	34.12	20.43	9.83	43.95	30.26	56.00	46.00	-12.05	-15.74	L1
1.0060	34.56	17.89	9.85	44.41	27.74	56.00	46.00	-11.59	-18.26	L1
1.2340	33.65	15.41	9.85	43.50	25.26	56.00	46.00	-12.50	-20.74	L1
1.9900	33.85	16.48	9.88	43.73	26.36	56.00	46.00	-12.27	-19.64	L1
2.7420	35.23	20.31	9.90	45.13	30.21	56.00	46.00	-10.87	-15.79	L1
3.4980	33.67	19.61	9.93	43.60	29.54	56.00	46.00	-12.40	-16.46	L1
3.7700	32.70	19.19	9.93	42.63	29.12	56.00	46.00	-13.37	-16.88	L1
0.4820	33.83	19.18	9.89	43.72	29.07	56.30	46.30	-12.58	-17.23	L2
0.5100	32.94	16.44	9.89	42.83	26.33	56.00	46.00	-13.17	-19.67	L2
0.6540	33.35	14.95	9.89	43.24	24.84	56.00	46.00	-12.76	-21.16	L2
0.8460	34.36	17.65	9.90	44.26	27.55	56.00	46.00	-11.74	-18.45	L2
0.9500	34.50	19.04	9.90	44.40	28.94	56.00	46.00	-11.60	-17.06	L2
1.3700	34.03	16.34	9.91	43.94	26.25	56.00	46.00	-12.06	-19.75	L2
1.8620	34.46	16.99	9.93	44.39	26.92	56.00	46.00	-11.61	-19.08	L2
2.3820	34.25	19.90	9.95	44.20	29.85	56.00	46.00	-11.80	-16.15	L2
3.0620	32.75	18.70	9.99	42.74	28.69	56.00	46.00	-13.26	-17.31	L2
3.7020	31.09	18.52	10.01	41.10	28.53	56.00	46.00	-14.90	-17.47	L2
4.8980	29.10	17.92	10.08	39.18	28.00	56.00	46.00	-16.82	-18.00	L2

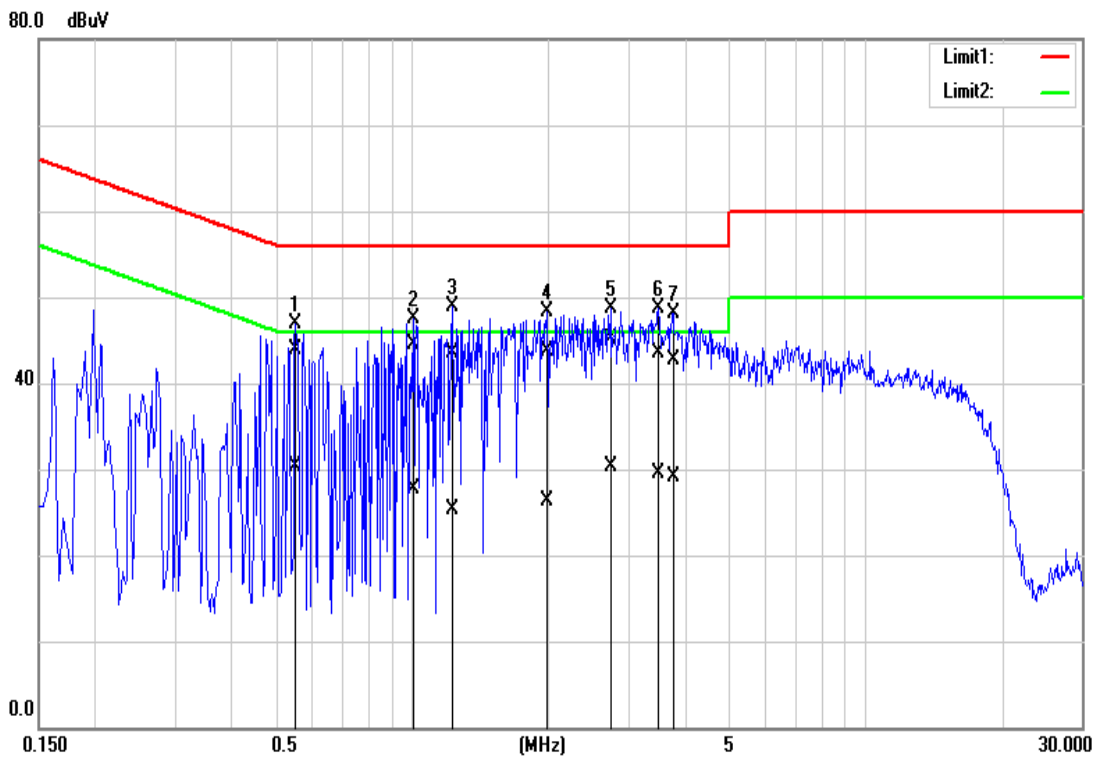
**Remark:**

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



### Test Plots

#### Conducted emissions (Line 1)



#### Conducted emissions (Line 2)

