



**CFR 47 FCC PART 15 SUBPART E  
ISED RSS-247 ISSUE 2**

**CERTIFICATION TEST REPORT**

*For*

**USB Dongle**

**MODEL NUMBER: EWN-8822BUN2AA**

**FCC ID: 2AMM6-8822BU**

**IC: 26313-8822BU**

**REPORT NUMBER: 4789730758-12**

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*Prepared for*

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	12/23/2020	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e) RSS-247 Clause 6.2	PASS
2	99% Occupied Bandwidth	RSS-Gen Clause 6.6	PASS
3	Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
4	Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
7	Frequency Stability	FCC 15.407 (g)	PASS
8	Antenna Requirement	FCC 15.203 RSS-GEN Clause 6.8	PASS
<b>Note:</b> 1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China. 2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >> ISED RSS-247 > when <Accuracy Method> decision rule is applied.			

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# 1. ATTESTATION OF TEST RESULTS

## Applicant Information

Company Name: Earda Technologies Co.,Ltd  
Address: Block A, LianFeng Creative Industry Park,2 JiSheng Road.,  
HuangGe Town, NanSha District, Guangzhou China

## Manufacturer Information

Company Name: Earda Technologies Co.,Ltd  
Address: Block A, LianFeng Creative Industry Park,2 JiSheng Road.,  
HuangGe Town, NanSha District, Guangzhou China

## EUT Information

EUT Name: USB Dongle  
Model: EWN-8822BUN2AA  
Sample Received Date: November 25, 2020  
Sample Status: Normal  
Sample ID: 3480130  
Date of Tested: November 25~December 8, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01 and KDB 662911 D01 Multiple Transmitter Output v02r01, KDB 905462 D03 UNII clients without radar detection New Rules v01r02.

## 3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p><b>A2LA (Certificate No.: 4102.01)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p><b>ISED (Company No.: 21320)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011</p>
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.





## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognize national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Duty Cycle	±0.028%
Emission Bandwidth and 99% Occupied Bandwidth	±0.0196%
Maximum Conducted Output Power	±0.766 dB
Maximum Power Spectral Density Level	±1.22 dB
Frequency Stability	±2.76%
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz)
	±1.328dB (1 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	



## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT Name	USB Dongle		
Model	EWN-8822BUN2AA		
Radio Technology	WLAN (IEEE 802.11a20/n HT20/n HT40/ac VHT20/VHT 40/VHT 80)		
Operation frequency	UNII-1: 5150 ~ 5250 MHz UNII-3: 5725 ~ 5850 MHz		
Modulation	IEEE 802.11a 20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT40: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT80: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)		
Power Supply	DC State	Rate Input:	DC 5 V

**5.2. MAXIMUM AVERAGE OUTPUT POWER****UNII-1 BAND**

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a 20	5150 ~ 5250	16.40	20.70
n HT20		12.92	20.23
n HT40		15.09	22.40
ac VHT20		12.94	20.25
ac VHT40		15.18	22.49
ac VHT80		13.41	20.72

**UNII-3 BAND**

IEEE Std. 802.11	Frequency (MHz)	Max Power (dBm)
a 20	5725 ~ 5850	16.65
n HT20		17.97
n HT40		18.10
ac VHT20		17.84
ac VHT40		18.07
ac VHT80		17.90

**5.3. CHANNEL LIST**

UNII-1 (For Bandwidth = 20 MHz)		UNII-1 (For Bandwidth = 40 MHz)		UNII-1 (For Bandwidth = 80 MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-3 (For Bandwidth = 20 MHz)		UNII-3 (For Bandwidth = 40 MHz)		UNII-3 (For Bandwidth = 80 MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				



#### 5.4. TEST CHANNEL CONFIGURATION

UNII-1 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a 20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11ac VHT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT80	CH 42(Low Channel)	5210 MHz

UNII-3 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a 20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT40	CH 151(Low Channel), CH 159(High Channel)	5755MHz, 5795MHz
802.11ac VHT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11ac VHT40	CH 151(Low Channel), CH 159(High Channel)	5755 MHz, 5795 MHz
802.11ac VHT80	CH 155(Low Channel)	5775 MHz

### 5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
0	UNII1	PCB	4.3
1	UNII3	PCB	4.3

Note: Directional gain=  $G_{ANT} + 10 \log [N_{ANT}] = 7.3 \text{ dBi}$

$G_{ANT}$ : Average of the Antenna Gain

$N_{ANT}$ : Antenna numbers

Note: The value of the antenna gain was declared by customer.

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a 20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.
802.11n HT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.
802.11n HT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.
802.11ac VHT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.
802.11ac VHT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.
802.11ac VHT80	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 0,1 can be used as transmitting/receiving antenna.

Note: Only 802.11a mode does not support MIMO mode.

## 5.6. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	MPTool

UNII-1

Mode	Rate	Channel	Soft set value	
			ANT0	ANT1
11a 20	6M	36	43	45
		40	43	45
		48	43	45
11n HT20	MCS0	36	31	33
		40	31	33
		48	31	33
11n HT40	MCS0	38	34	36
		46	34	36
11ac VHT20	MCS0	36	31	33
		40	31	33
		48	31	33
11ac VHT40	MCS0	38	34	36
		46	34	36
11ac VHT80	MCS0	42	32	34

UNII-3

Mode	Rate	Channel	Soft set value	
			ANT0	ANT1
11a 20	6M	149	44	47
		157	44	47
		165	45	46
11n HT20	MCS0	149	42	44
		157	42	45
		165	43	44
11n HT20	MCS0	151	40	44
		159	41	44
11ac VHT20	MCS0	149	42	44
		157	42	45
		165	43	44
11ac VHT40	MCS0	151	40	44
		159	41	44
11ac VHT80	MCS0	155	42	44

## 5.7. THE WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.6.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps  
802.11n HT20 mode: MCS0  
802.11n HT40 mode: MCS0  
802.11ac VHT20 mode: MCS0  
802.11ac VHT40 mode: MCS0  
802.11ac VHT80 mode: MCS0

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages, so for these 4 modes, only 802.11n HT20 and 802.11n HT40 worst case power modes radiated emission test data are recorded in the report .

802.11ac&n SISO mode and MIMO mode have the same power setting, so only the worst case power mode(MIMO) will be record in the report.

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 1 and Core 2 correspond to antenna 0 and antenna ` respectively.

Antenna 0 and Antenna 1 have the same power setting, but the power test data are different. (Declared by customer.)

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO & MIMO port combinations.

Conducted bandedge and spurious emissions tests were performed with SISO mode, as this port was found to have the worst case in terms of power settings amongst all supported possible SISO & MIMO port combinations.

Radiated emissions tests were performed with the MIMO modes. These were found to be the worst modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest conducted output power level, it was deemed to be the worst case.

The EUT support rotating antennas, we have done pre-tests under different angle combinations. so only the worst measurement position (X axis) was recorded in the report only the worst as shown in the setup photo.

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	TP00094A	/
2	UART	/	/	/
3	AC adapter	Lenovo	ADLX65CLGC2A	/

### I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	TYPE C	/	1.0	/

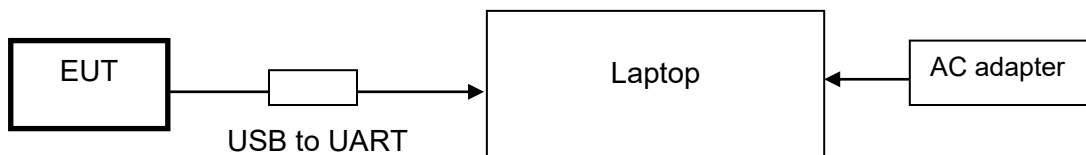
### ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
/	/	/	/	/

### TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

### SETUP DIAGRAM FOR TESTS





**6. MEASURING INSTRUMENT AND SOFTWARE USED**

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Conducted disturbance	Farad	EZ-EMC	Ver. UL-3A1		
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Nov. 12, 2020	Nov. 11, 2021
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance	Farad	EZ-EMC	Ver. UL-3A1		
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY55410512	Nov. 20, 2020	Nov. 19, 2021



<input checked="" type="checkbox"/>	Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	DC power supply	Keysight	E3642A	MY55159130	Nov.24,2020	Nov.23,2021
<input checked="" type="checkbox"/>	Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Nov. 20, 2020	Nov. 19, 2021

## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

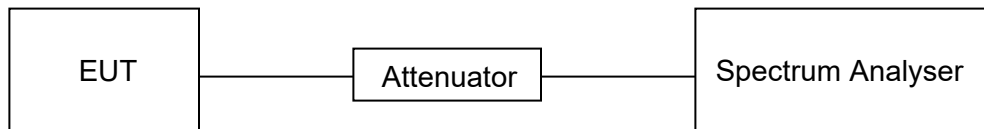
None; for reporting purposes only.

#### PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set  $RBW \geq EBW$  if possible; otherwise, set RBW to the largest available value. Set  $VBW \geq RBW$ . Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$ , where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$  microseconds.)

#### TEST SETUP



#### TEST ENVIRONMENT

Temperature	24.8 °C	Relative Humidity	46.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix D.

## 7.2. 6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH

### LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247 ISSUE 2		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725 (For FCC) 5470 ~ 5600 (For ISED) 5650 ~ 5725 (For ISED)
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISED)

### TEST PROCEDURE

ISED RSS-247 6.2.1.2 clause unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz.

### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 26 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 99 % Bandwidth: $> 3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

**Calculation for 99 % Bandwidth of UNII-2C and UNII-3 Straddle Channel:**

For Example: Fundamental Frequency: 5720 MHz

99 % OBW: 21.00 MHz

Turning Frequency: 5725 MHz

99 % Bandwidth of UNII-2C Band Portion =  $(5725 - (5720 - (21.00/2))) = 15.50$  MHz

99 % Bandwidth of UNII-3 Band Portion =  $(5720 + (21.00/2) - 5725) = 5.50$  MHz

**Calculation for 26 dB Bandwidth of UNII-2C Straddle Channel:**

For Example: Fundamental frequency: 5720 MHz

26 dB BW: 20.00 MHz

FL: 5710.16 MHz

FH: 5730.16 MHz

Turning Frequency: 5725 MHz

26 dB Bandwidth of UNII-2C Band Portion =  $5725 - 5710.16 = 14.84$  MHz

**Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:**

For Example: Fundamental frequency: 5720 MHz

6 dB BW: 16.44 MHz

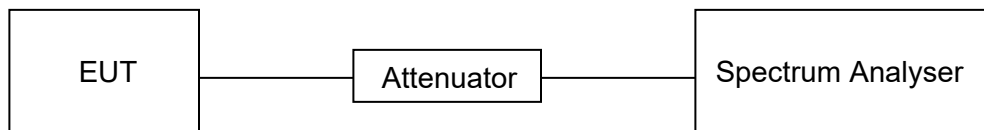
FL: 5711.76 MHz

FH: 5728.2 MHz

Turning Frequency: 5725 MHz

6 dB Bandwidth of UNII-3 band Portion =  $5728.2 - 5725 = 3.2$  MHz

**TEST SETUP**



**TEST ENVIRONMENT**

Temperature	24.8 °C	Relative Humidity	46.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V



**RESULTS**

Please refer to Appendix A1&A2&A3.



### 7.3. CONDUCTED OUTPUT POWER

**LIMITS**

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	<input type="checkbox"/> Outdoor Access Point: 1 W (30 dBm) <input checked="" type="checkbox"/> Indoor Access Point: 1 W (30 dBm) <input type="checkbox"/> Fixed Point-To-Point Access Points: 1 W (30 dBm) <input type="checkbox"/> Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 2		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or 10 + 10 log <sub>10</sub> B, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or 11 + 10 log <sub>10</sub> B dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or 17 + 10 log <sub>10</sub> B dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a 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.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

**Note:**

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## **TEST PROCEDURE**

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

### **Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):**

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW  $\geq$  3 MHz.
- (iv) Number of points in sweep  $\geq 2 \times$  span / RBW. (This ensures that bin-to-bin spacing is  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle  $<$  98 %, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\geq$  98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
- (viii) Trace average at least 100 traces in power averaging (rms) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

### **Method PM (Measurement using an RF average power meter):**

- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
  - a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
  - b. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
  - c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- (ii) If the transmitter does not transmit continuously, measure the duty cycle,  $x$ , of the transmitter output signal as described in II.B.
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding  $10 \log (1/x)$  where  $x$  is the duty cycle (e.g.,  $10 \log (1/0.25)$  if the duty cycle is 25 %).

### **Method PM-G (Measurement using a gated RF average power meter):**

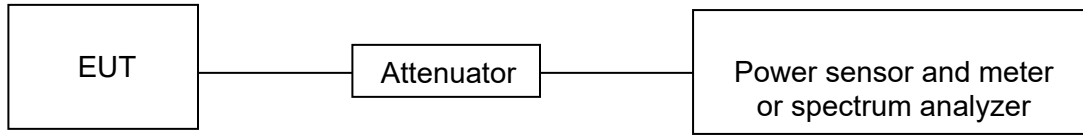
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power was measured using spectrum analyzer.





**TEST SETUP**



**TEST ENVIRONMENT**

Temperature	24.8 °C	Relative Humidity	46.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

**RESULTS**

Please refer to Appendix B.



## 7.4. POWER SPECTRAL DENSITY

### LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	<input type="checkbox"/> Outdoor Access Point: 17 dBm/MHz <input type="checkbox"/> Indoor Access Point: 17 dBm/MHz <input type="checkbox"/> Fixed Point-To-Point Access Points: 17 dBm/MHz <input checked="" type="checkbox"/> Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

ISED RSS-247 ISSUE 2		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
	The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

**Note:**

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

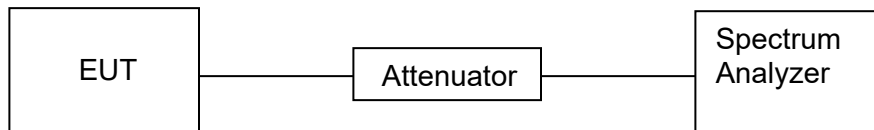
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

## **TEST SETUP**



## **TEST ENVIRONMENT**

Temperature	24.8 °C	Relative Humidity	46.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to Appendix C.



## 8. RADIATED TEST RESULTS

### LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Refer to ISED RSS-GEN Clause 8.9, Clause 8.10 and ISED RSS-247 6.2.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz		
Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)
9 - 490 kHz <sup>Note 1</sup>	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.



ISED Restricted bands refer to ISED RSS-GEN Clause 8.10

**Table 7 – Restricted frequency bands<sup>Note 1</sup>**

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.028	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.89475 - 16.89525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5480	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

**Note 1:** Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

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	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

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

<sup>2</sup>Above 38.6c

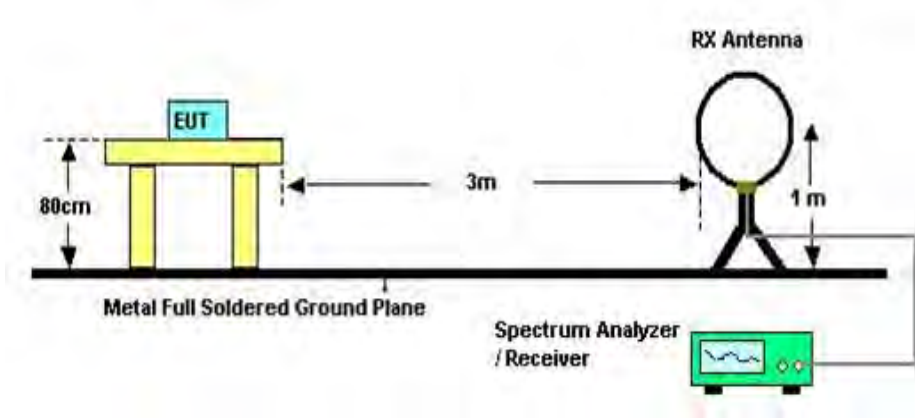


Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISED RSS-247 6.2.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
<p>Note:</p> <p>*1 beyond 75 MHz or more above of the band edge.</p> <p>*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.</p> <p>*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.</p> <p>*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p>		

**TEST SETUP AND PROCEDURE**

Below 30 MHz

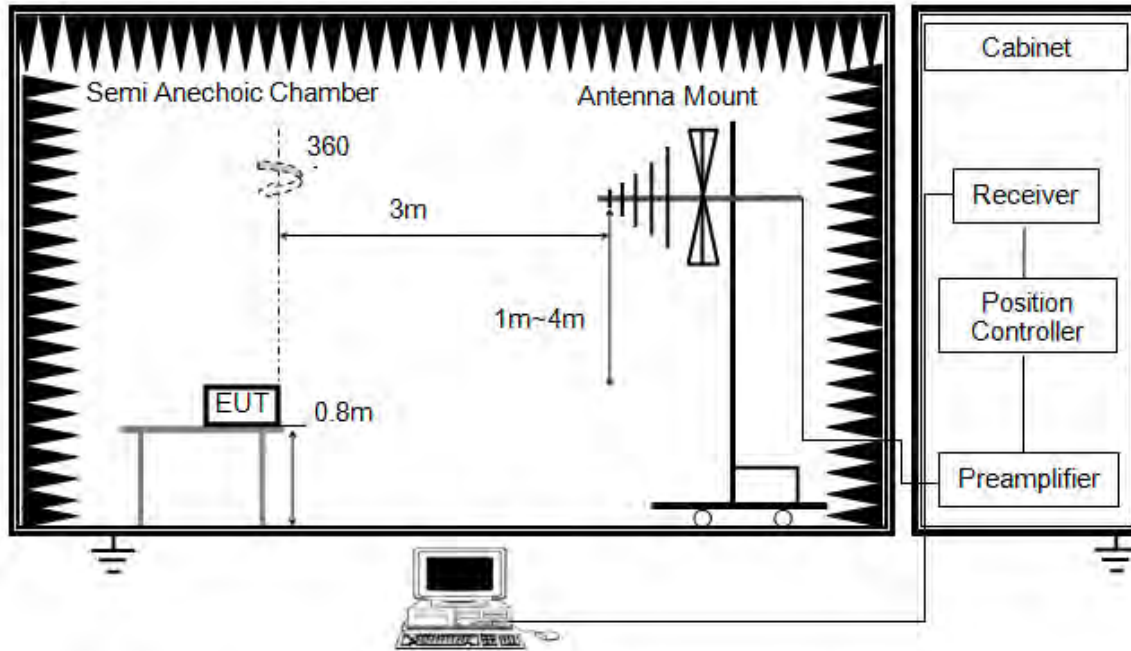


The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz



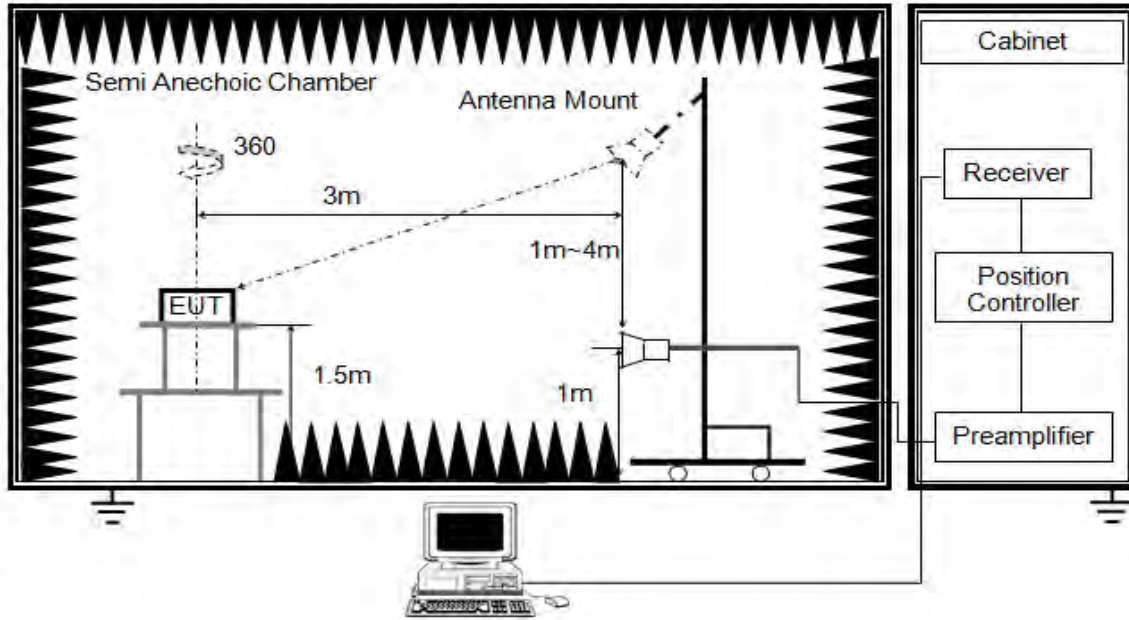
The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.



Above 1 GHz

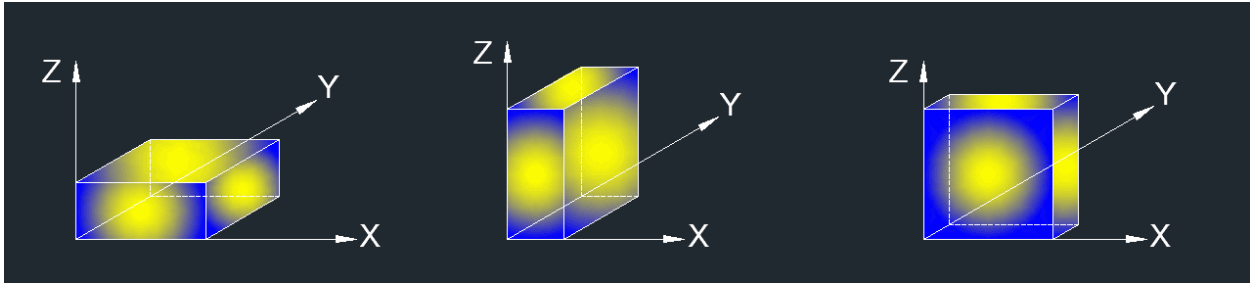


The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

### **TEST ENVIRONMENT**

Temperature	22.3 °C	Relative Humidity	55.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### **RESULTS**

## 8.1. RESTRICTED BANDEGE

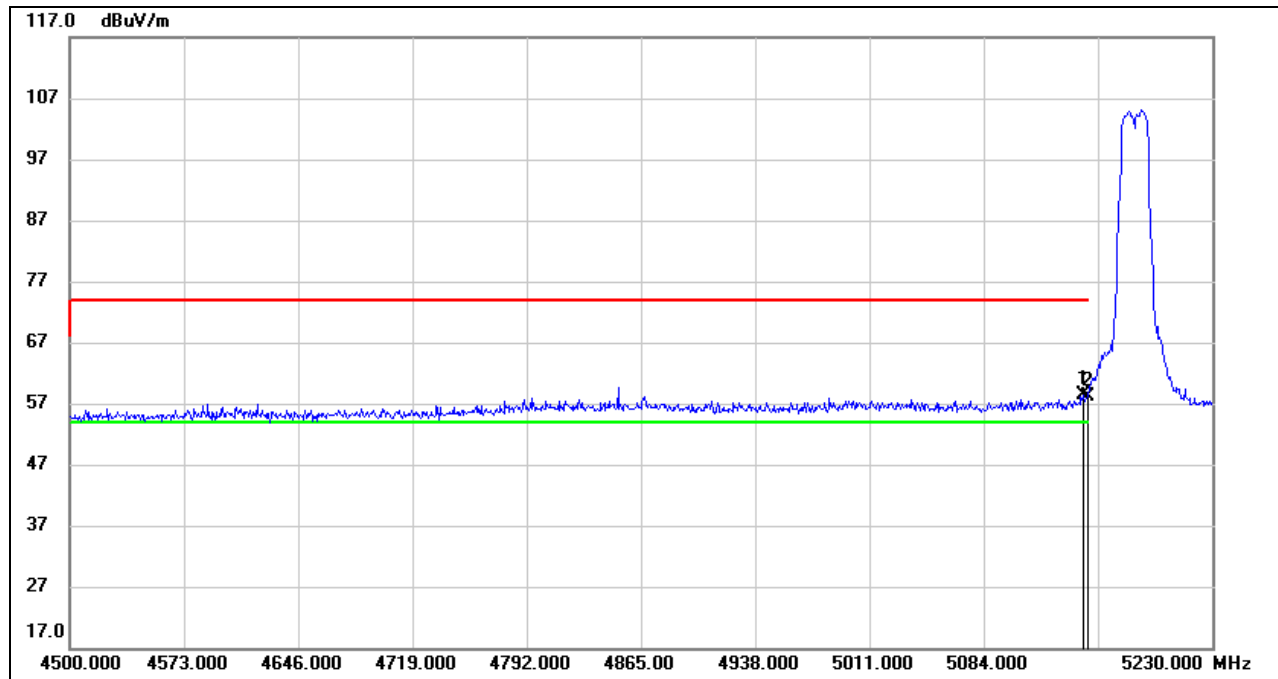
### 8.1.1. 802.11a SISO MODE

#### UNII-1 BAND

#### ANTENNA 0 TEST RESULTS (WORST CASE)

#### RESTRICTED BANDEGE (LOW CHANNEL, HORIZONTAL)

#### PEAK

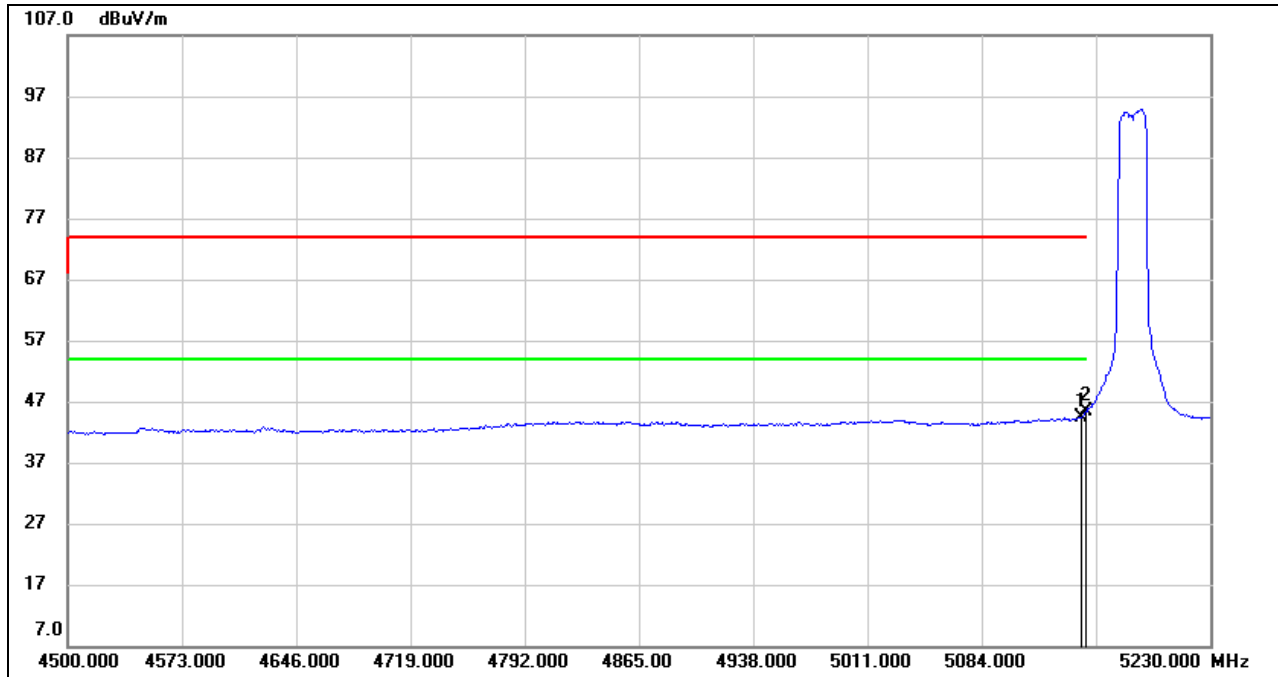


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5147.510	37.65	20.77	58.42	74.00	-15.58	peak
2	5150.000	37.43	20.79	58.22	74.00	-15.78	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



**AVG**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5147.510	23.68	20.77	44.45	54.00	-9.55	AVG
2	5150.000	24.61	20.79	45.40	54.00	-8.60	AVG

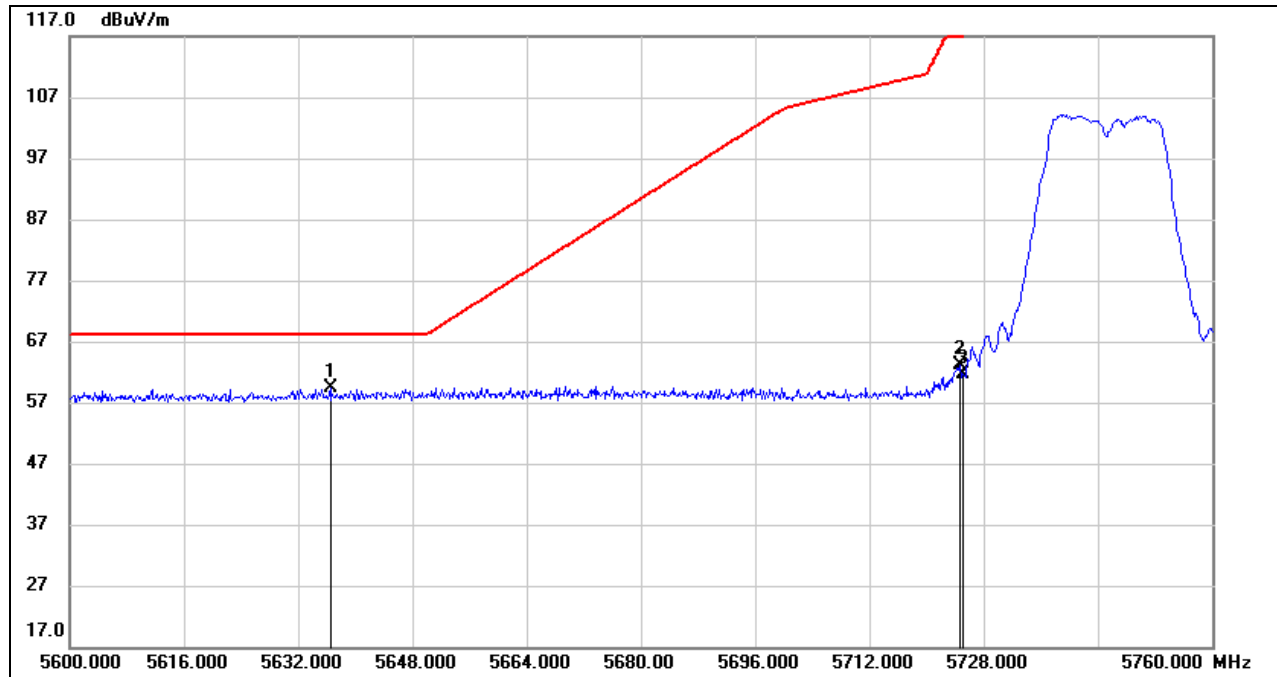
- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
  4. For the transmitting duration, please refer to clause 7.1.
  5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**UNII-3 BAND**

**ANTENNA 0 TEST RESULTS (WORST CASE)**

**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

**PEAK**

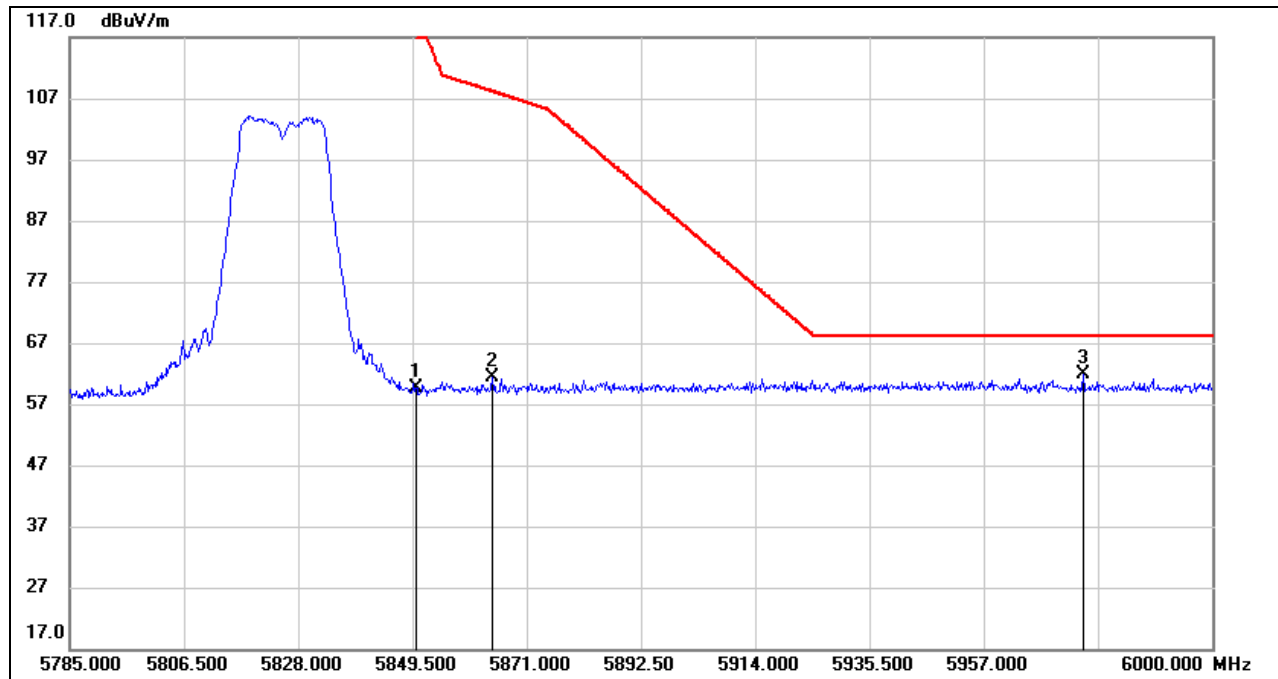


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5636.480	37.71	21.65	59.36	68.20	-8.84	peak
2	5724.640	41.40	21.62	63.02	121.38	-58.36	peak
3	5725.000	39.94	21.62	61.56	122.20	-60.64	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

**PEAK**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	37.18	22.39	59.57	122.20	-62.63	peak
2	5864.550	38.87	22.51	61.38	108.12	-46.74	peak
3	5975.705	39.34	22.57	61.91	68.20	-6.29	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

Note: Both horizontal and vertical had been tested, but only the worst data was recorded in the report.

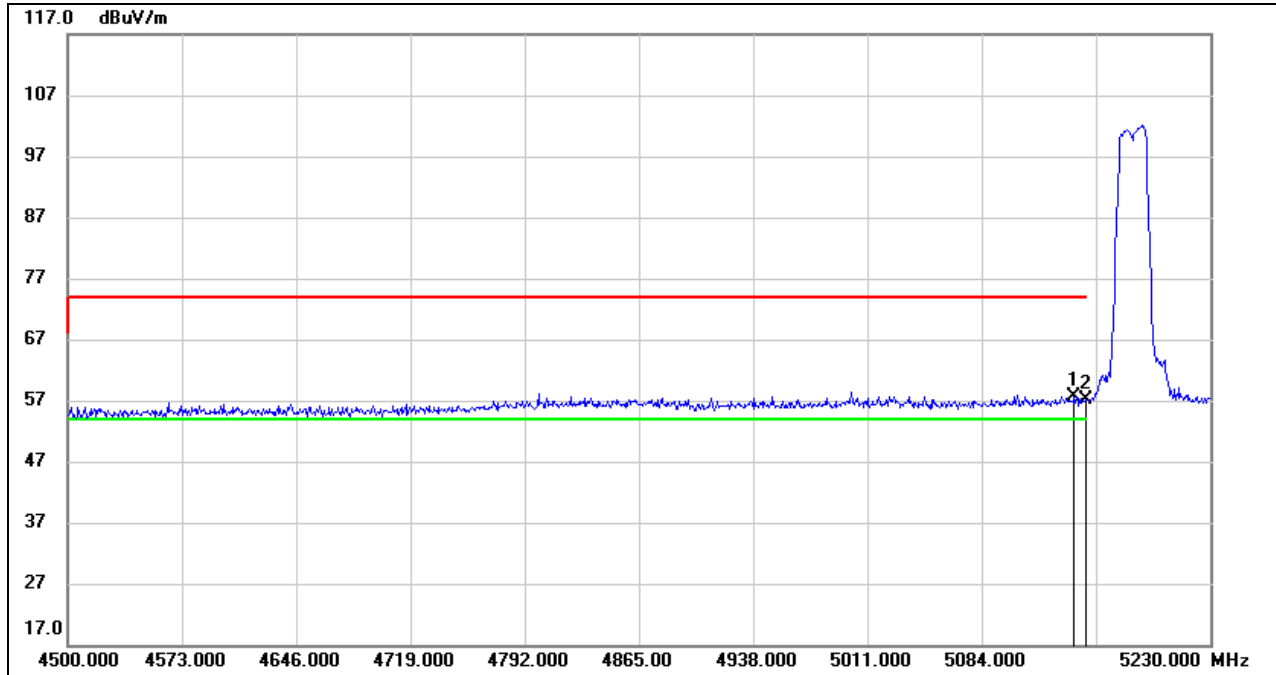


8.1.2. 802.11n HT20 MIMO MODE

UNII-1 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

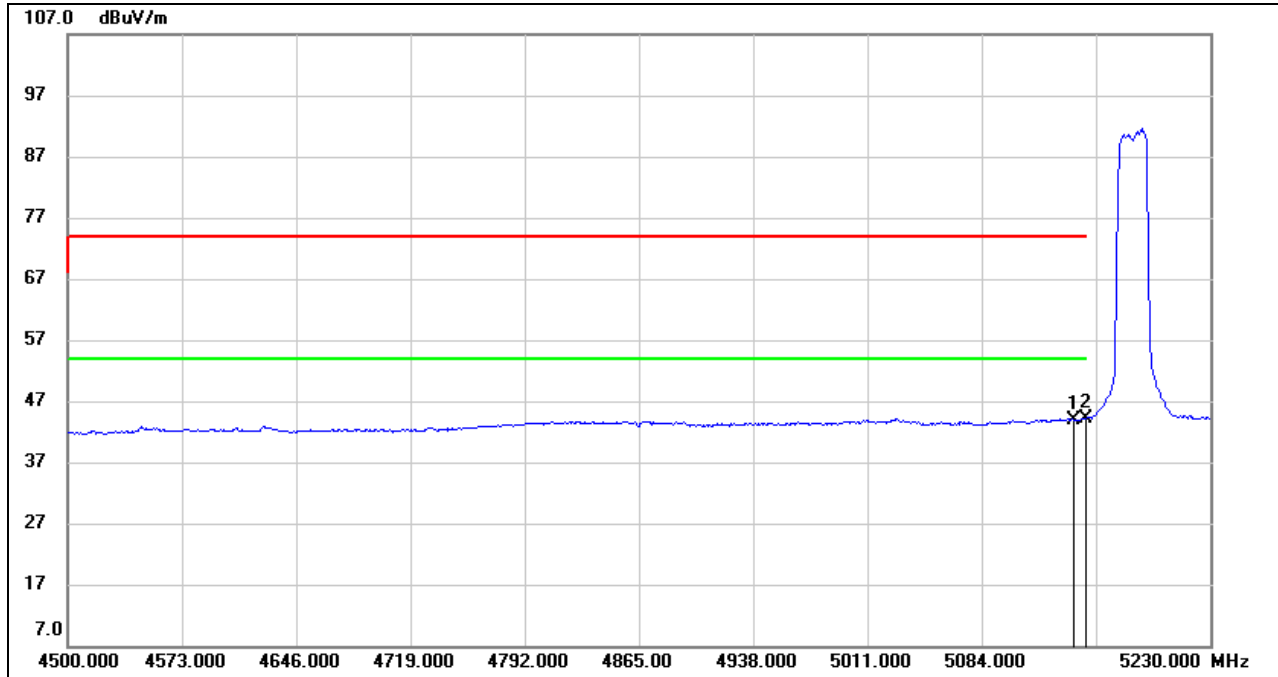


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5143.130	36.97	20.74	57.71	74.00	-16.29	peak
2	5150.000	36.31	20.79	57.10	74.00	-16.90	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



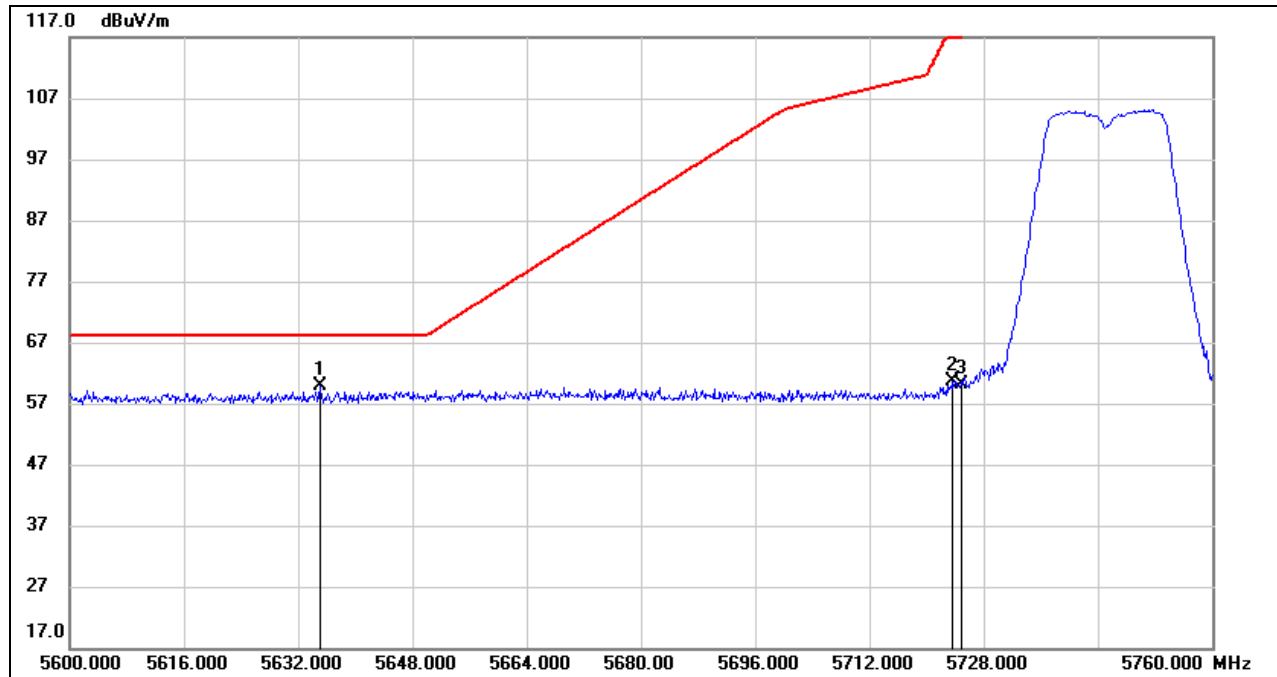
**AVG**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5143.130	23.16	20.74	43.90	54.00	-10.10	AVG
2	5150.000	23.35	20.79	44.14	54.00	-9.86	AVG

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  4. For the transmitting duration, please refer to clause 7.1.
  5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



**UNII-3 BAND****RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5635.040	38.13	21.65	59.78	68.20	-8.42	peak
2	5723.680	38.95	21.61	60.56	119.19	-58.63	peak

Note: 1. Measurement = Reading Level + Correct Factor.

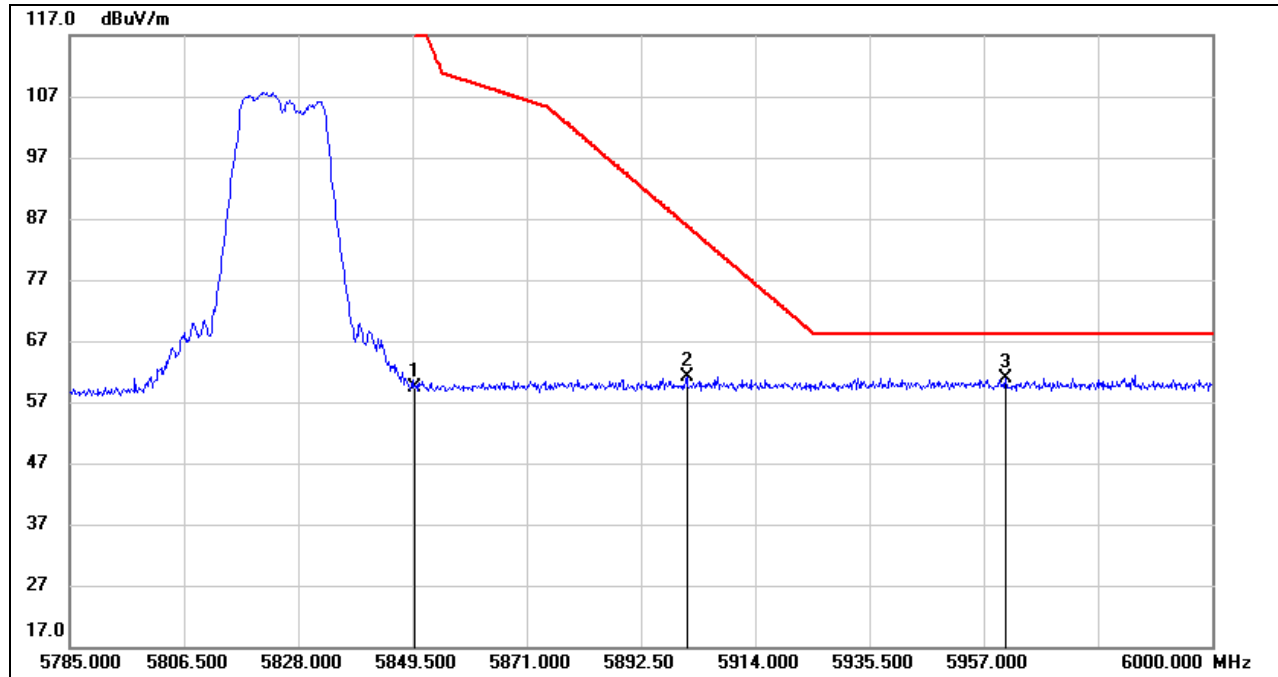
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

**PEAK**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	37.01	22.39	59.40	122.20	-62.80	peak
2	5901.100	38.24	22.79	61.03	85.85	-24.82	peak
3	5961.085	38.37	22.61	60.98	68.20	-7.22	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

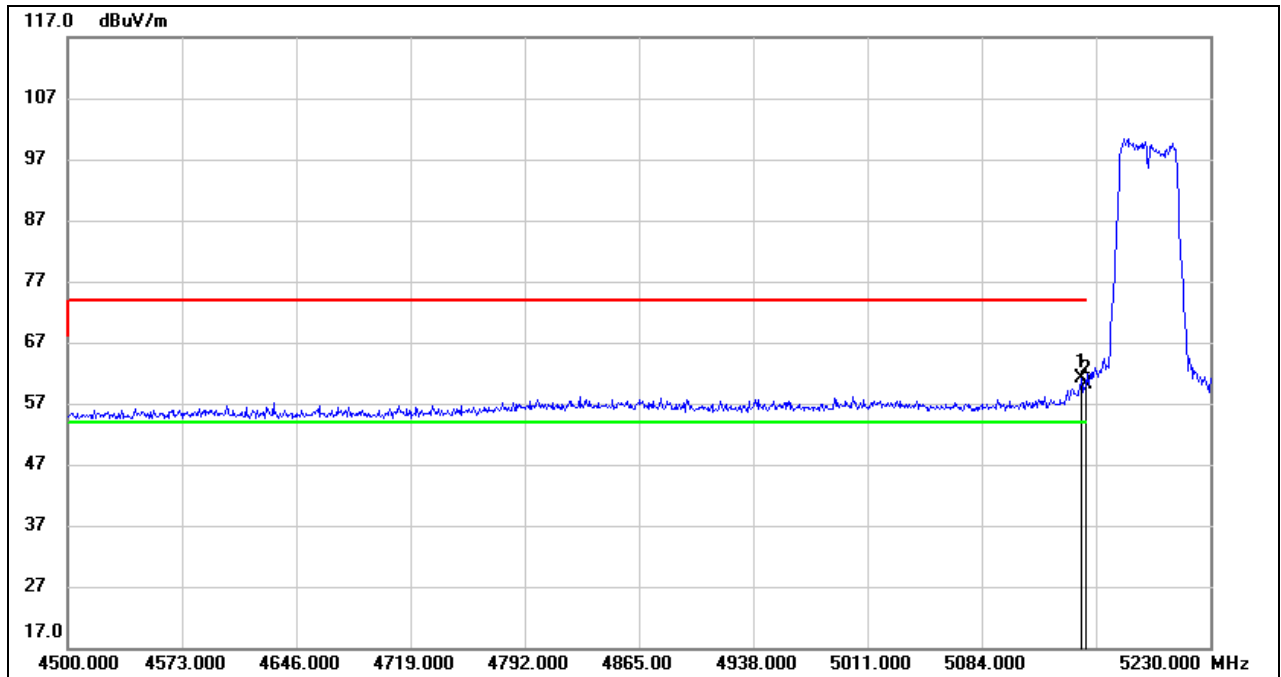
Note: Both horizontal and vertical had been tested, but only the worst data was recorded in the report.

**8.1.3. 802.11n HT40 MIMO MODE**

**UNII-1 BAND**

**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

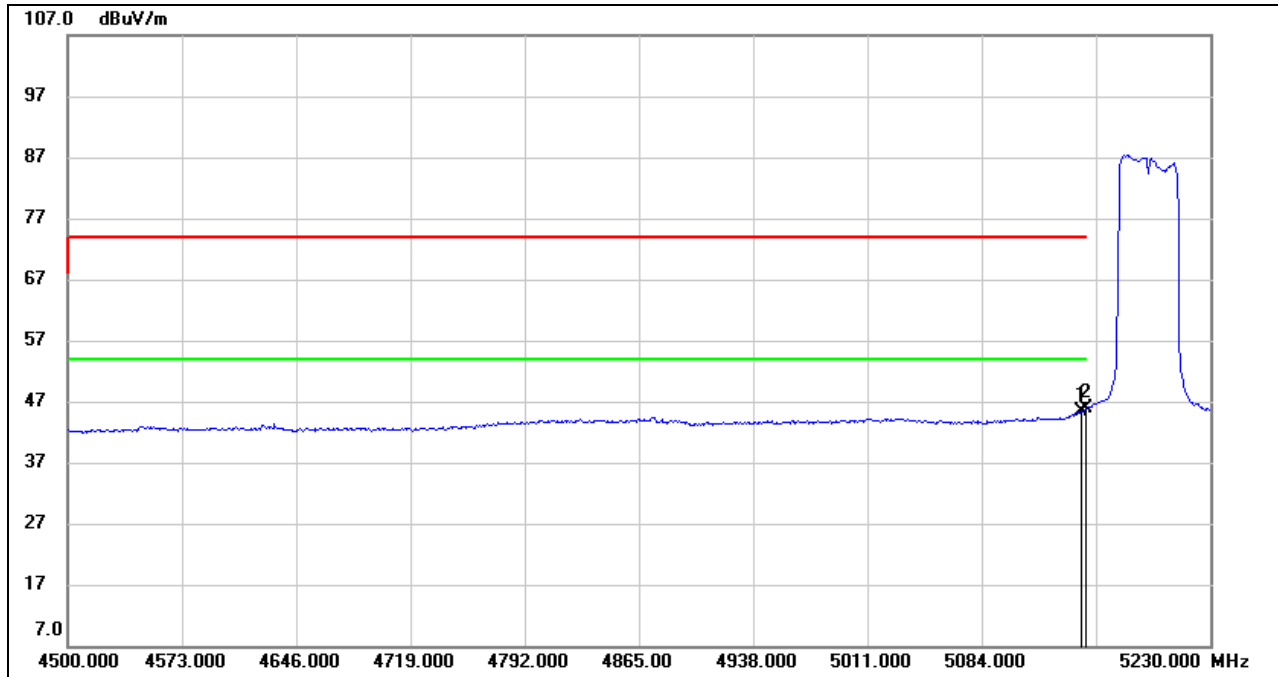
**PEAK**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5147.510	40.24	20.77	61.01	74.00	-12.99	peak
2	5150.000	39.35	20.79	60.14	74.00	-13.86	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**AVG**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5147.510	24.62	20.77	45.39	54.00	-8.61	AVG
2	5150.000	25.17	20.79	45.96	54.00	-8.04	AVG

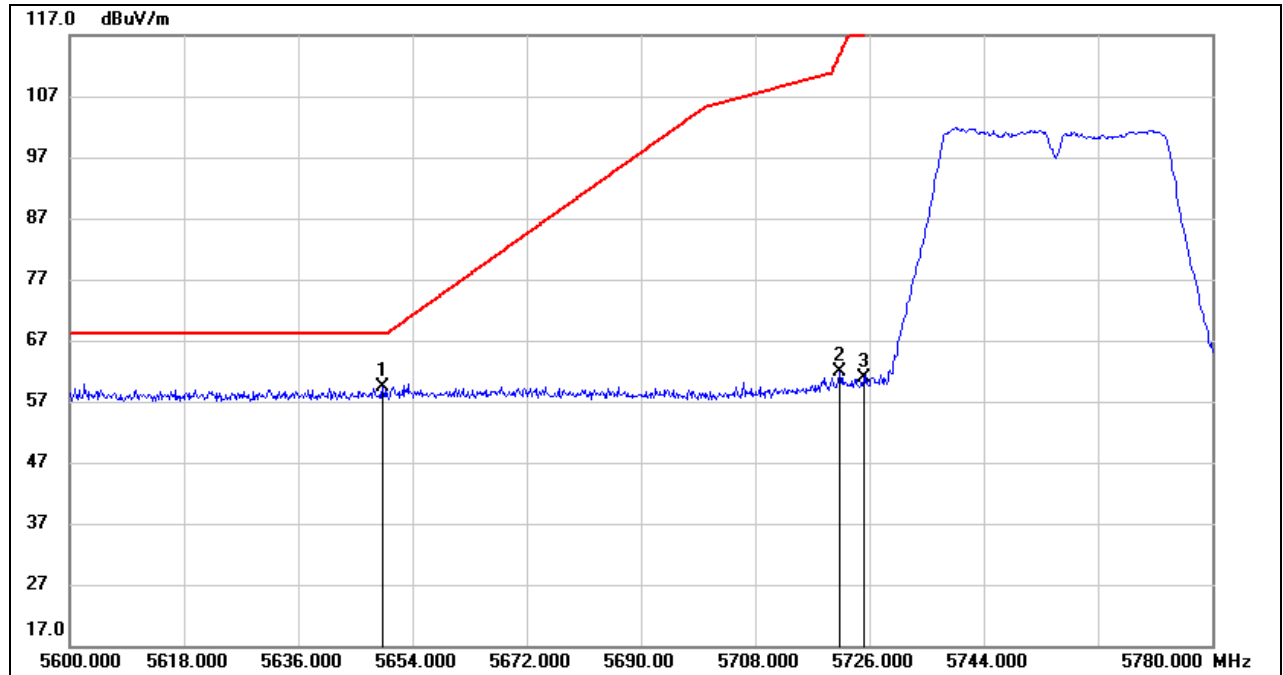
- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  4. For the transmitting duration, please refer to clause 7.1.
  5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



**UNII-3 BAND**

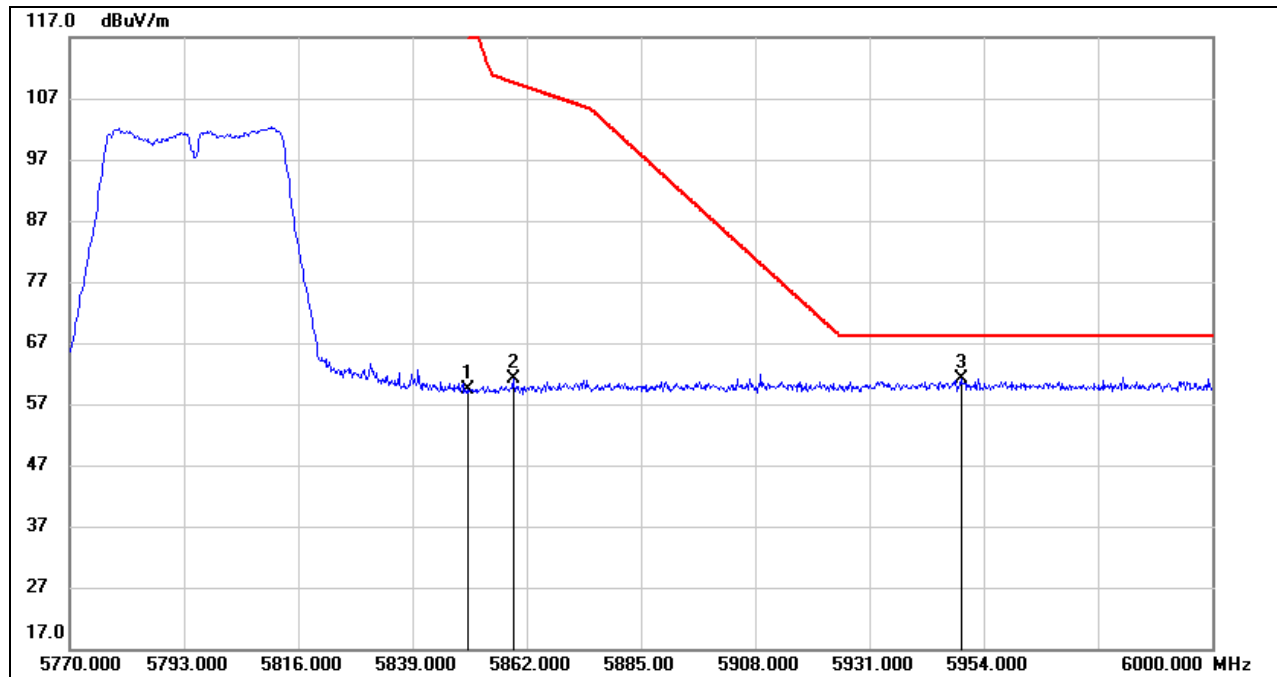
**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

**PEAK**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.320	37.76	21.62	59.38	68.20	-8.82	peak
2	5721.320	40.16	21.60	61.76	113.81	-52.05	peak
3	5725.000	39.23	21.62	60.85	122.20	-61.35	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	37.02	22.39	59.41	122.20	-62.79	peak
2	5859.240	38.56	22.47	61.03	109.61	-48.58	peak
3	5949.400	38.51	22.65	61.16	68.20	-7.04	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

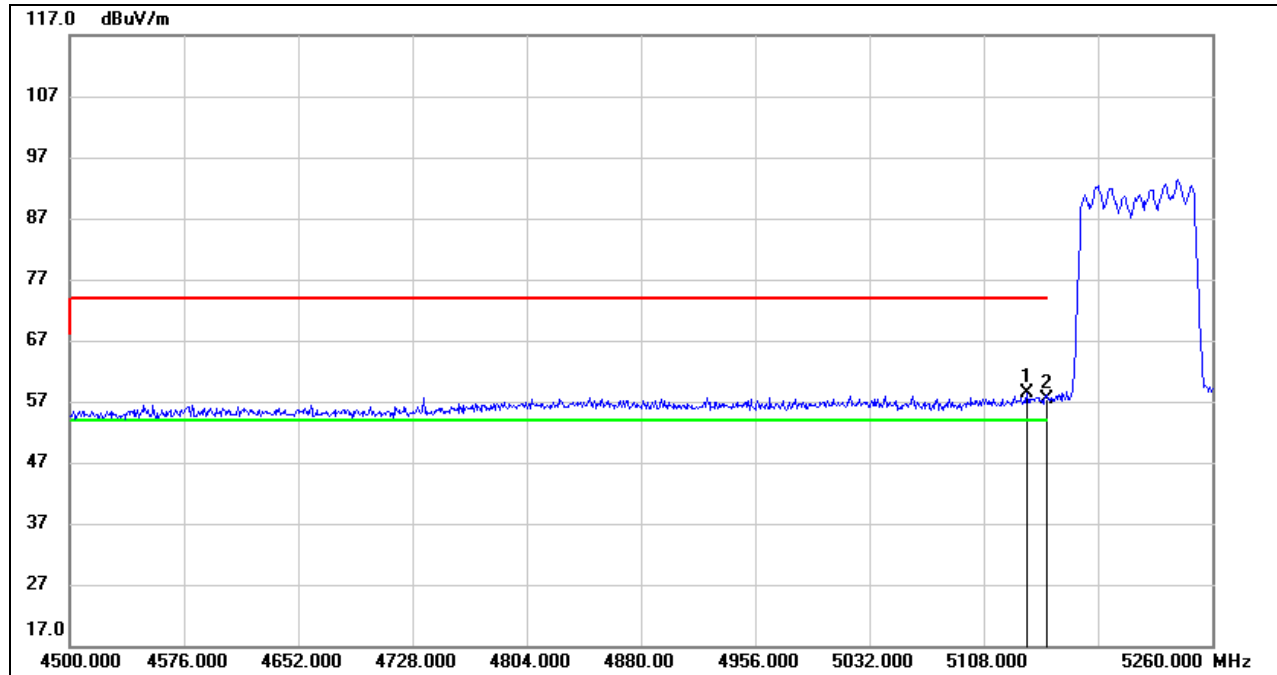
Note: Both horizontal and vertical had been tested, but only the worst data was recorded in the report.

### 8.1.4. 802.11ac VHT80 MIMO MODE

#### UNII-1 BAND

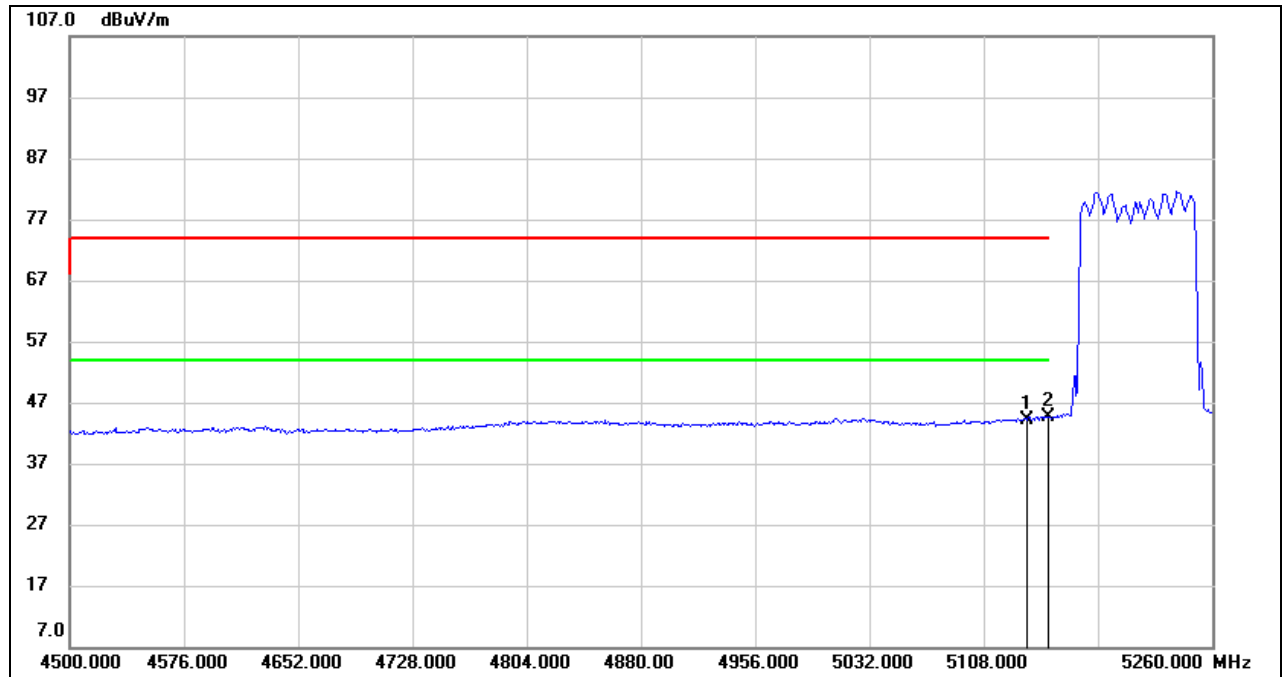
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5136.880	37.64	20.69	58.33	74.00	-15.67	peak
2	5150.000	36.63	20.79	57.42	74.00	-16.58	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

**AVG**

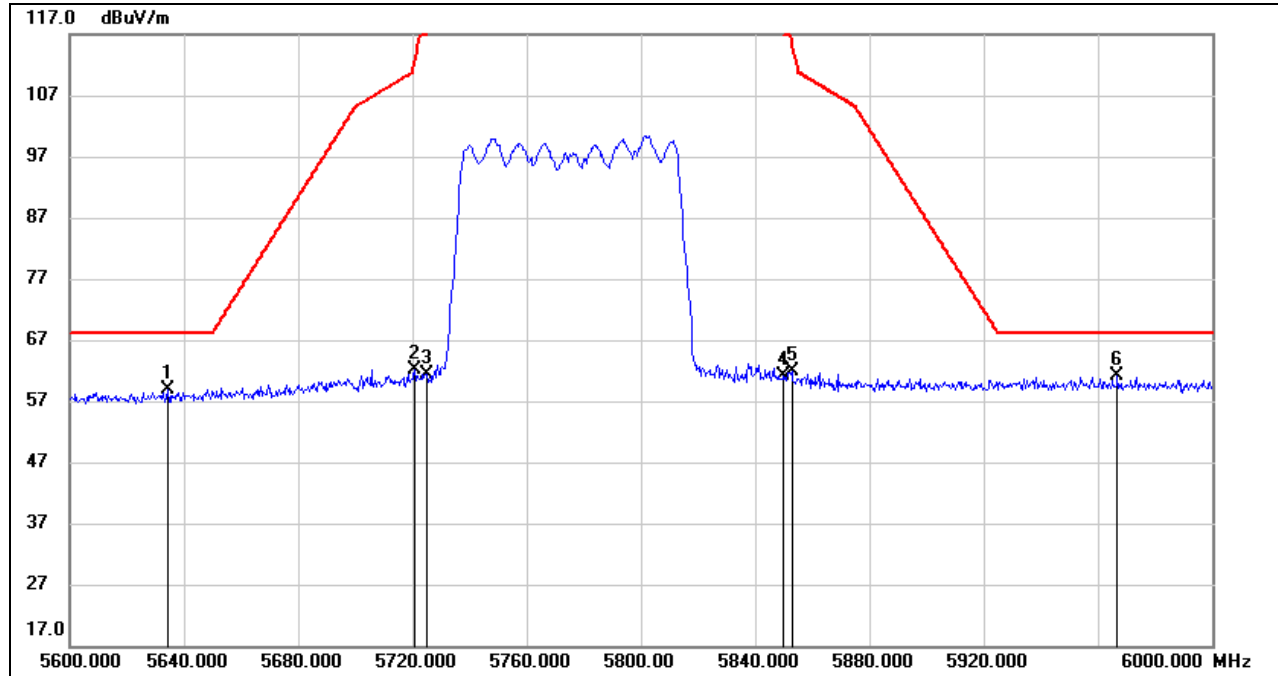
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5136.880	23.47	20.69	44.16	54.00	-9.84	AVG
2	5150.000	23.87	20.79	44.66	54.00	-9.34	AVG

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.
  4. For the transmitting duration, please refer to clause 7.1.
  5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



**UNII-3 BAND**

**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5634.400	37.18	21.66	58.84	68.20	-9.36	peak
2	5720.800	40.46	21.59	62.05	112.62	-50.57	peak
3	5725.000	39.77	21.62	61.39	122.20	-60.81	peak
4	5850.000	38.81	22.39	61.20	122.20	-61.00	peak
5	5852.800	39.52	22.41	61.93	115.81	-53.88	peak
6	5966.800	38.44	22.60	61.04	68.20	-7.16	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

Note: Both horizontal and vertical had been tested, but only the worst data was recorded in the report.

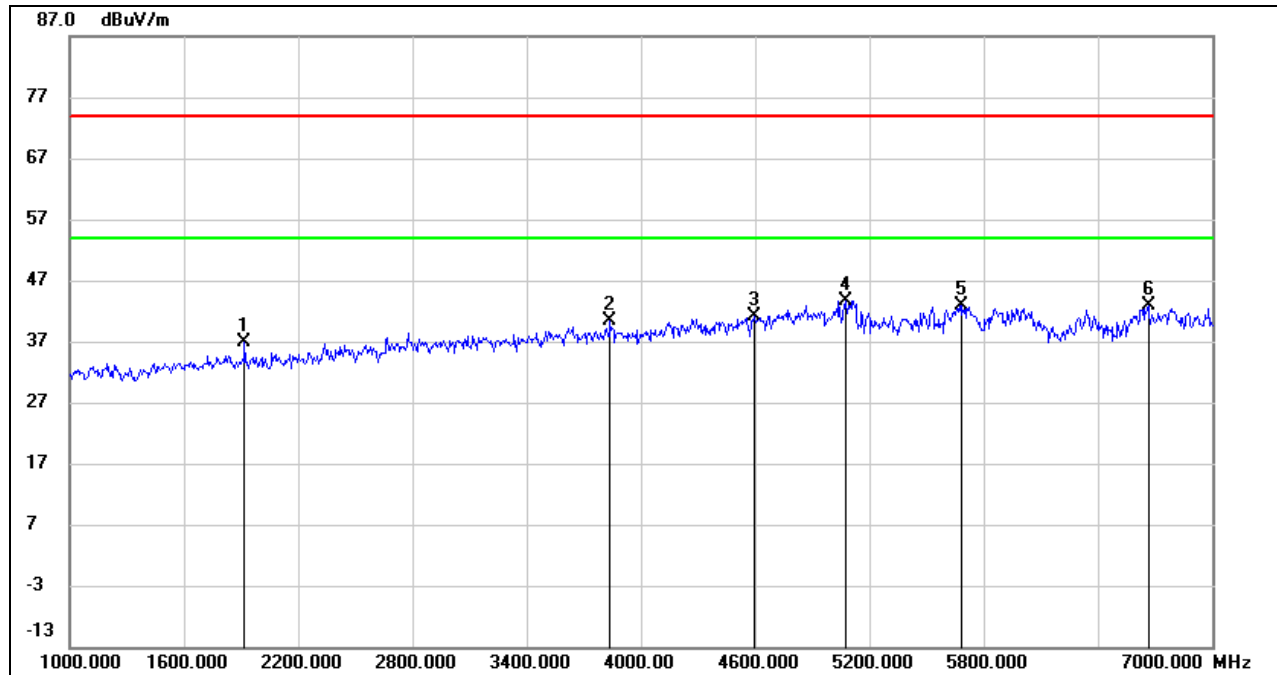
## 8.2. SPURIOUS EMISSIONS (1 GHz ~ 7 GHz)

### 8.2.1. 802.11a SISO MODE

#### ANTENNA 0 TEST RESULTS (WORST CASE)

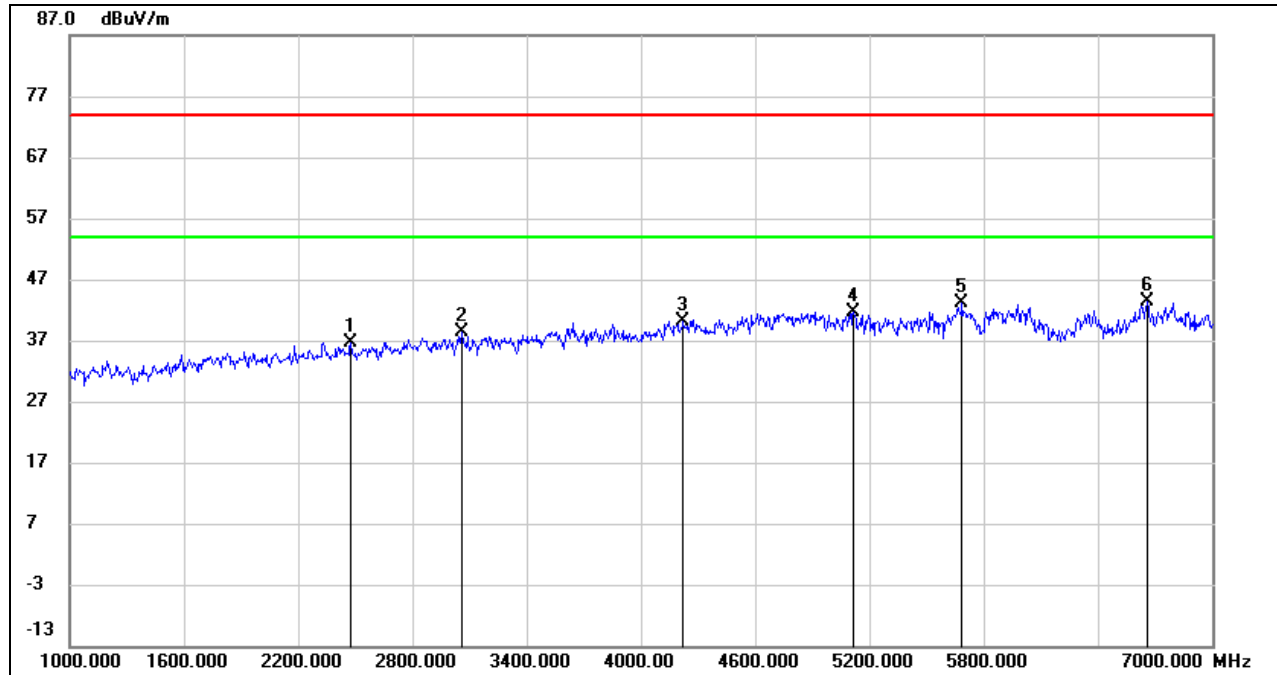
#### UNII-1 BAND

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	46.90	-10.13	36.77	74.00	-37.23	peak
2	3838.000	43.60	-3.32	40.28	74.00	-33.72	peak
3	4594.000	41.64	-0.60	41.04	74.00	-32.96	peak
4	5074.000	42.35	1.34	43.69	74.00	-30.31	peak
5	5686.000	40.42	2.47	42.89	74.00	-31.11	peak
6	6664.000	37.35	5.53	42.88	74.00	-31.12	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit..

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2476.000	44.98	-8.26	36.72	74.00	-37.28	peak
2	3058.000	43.84	-5.48	38.36	74.00	-35.64	peak
3	4222.000	41.91	-1.69	40.22	74.00	-33.78	peak
4	5116.000	40.06	1.60	41.66	74.00	-32.34	peak
5	5686.000	40.55	2.47	43.02	74.00	-30.98	peak
6	6658.000	37.86	5.51	43.37	74.00	-30.63	peak

Note: 1. Measurement = Reading Level + Correct Factor.

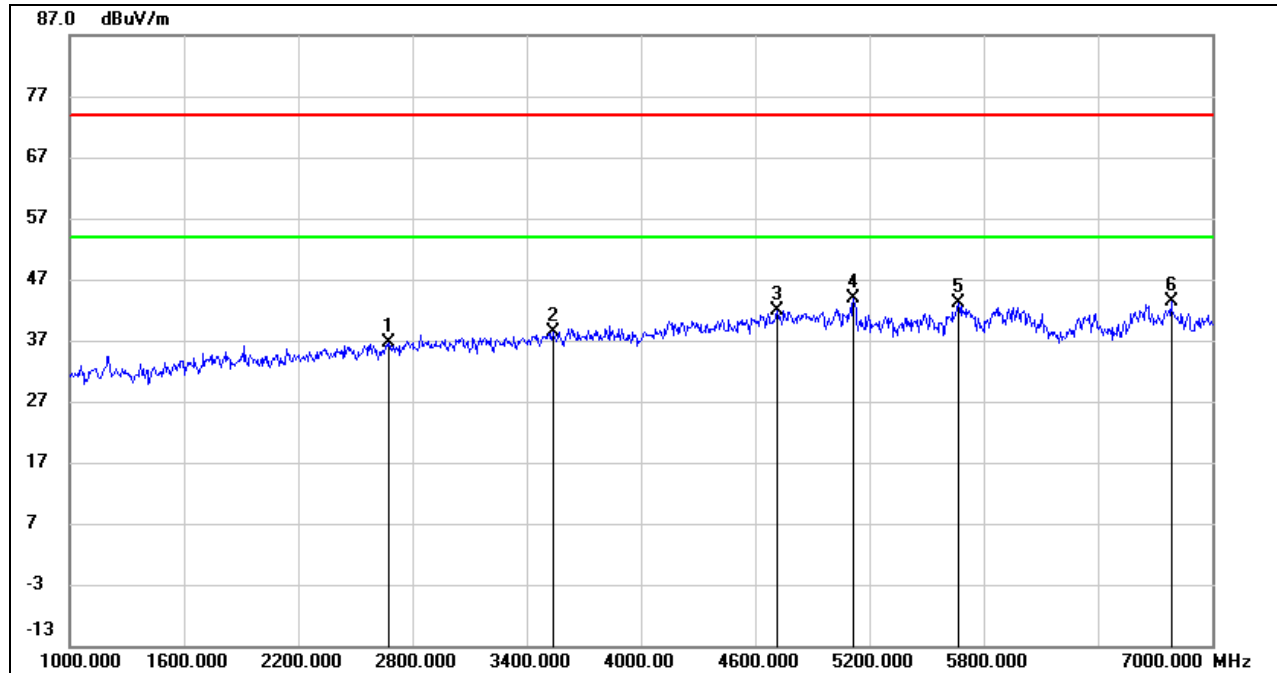
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2674.000	43.94	-7.37	36.57	74.00	-37.43	peak
2	3538.000	42.92	-4.51	38.41	74.00	-35.59	peak
3	4714.000	41.81	0.09	41.90	74.00	-32.10	peak
4	5116.000	42.40	1.60	44.00	74.00	-30.00	peak
5	5668.000	40.68	2.47	43.15	74.00	-30.85	peak
6	6784.000	37.81	5.56	43.37	74.00	-30.63	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

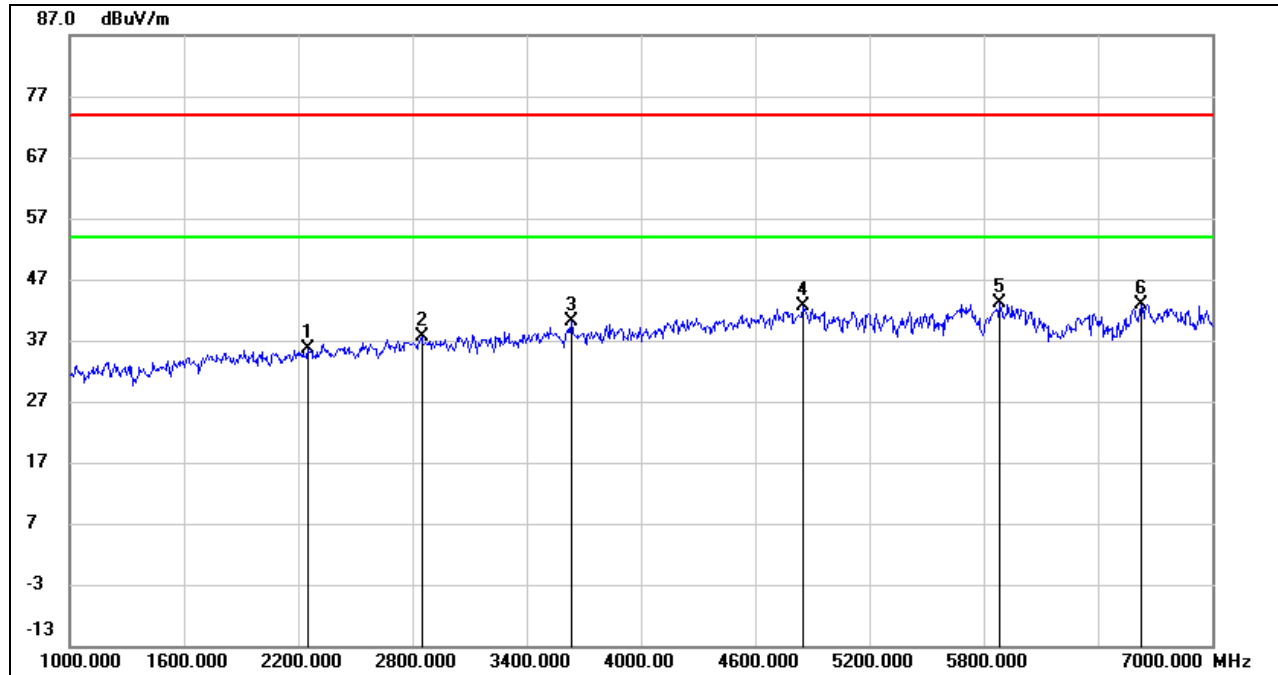
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

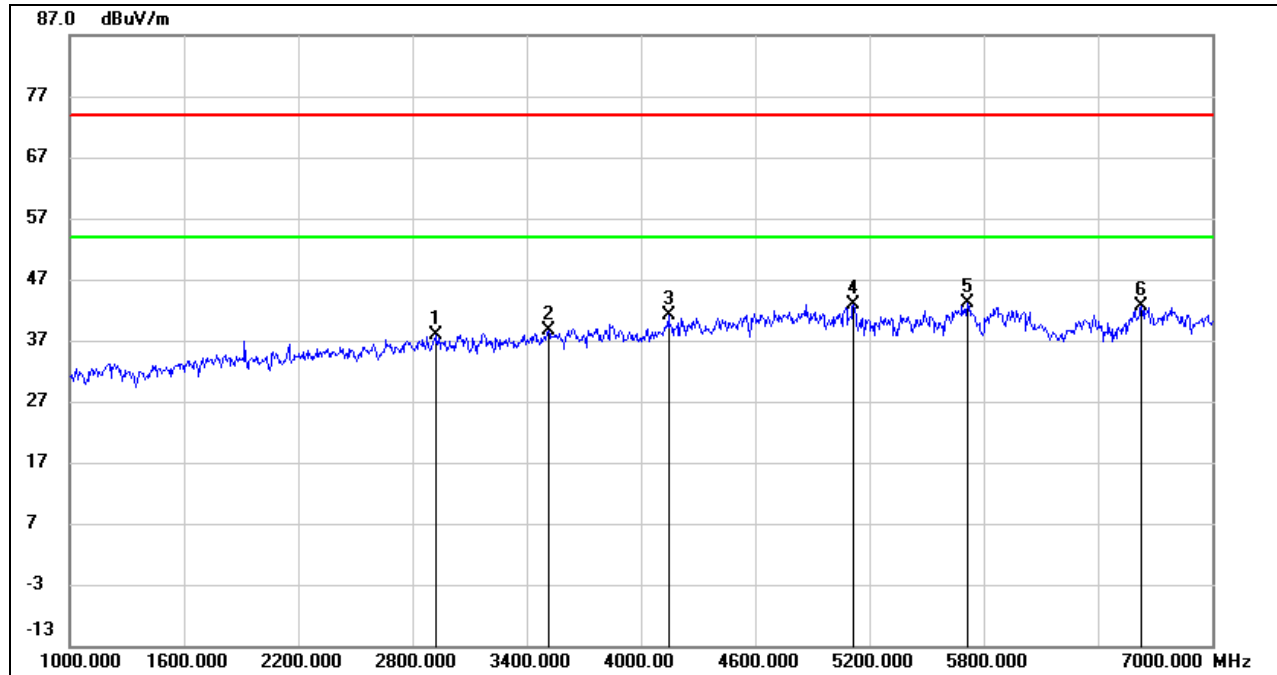
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2254.000	44.51	-8.87	35.64	74.00	-38.36	peak
2	2848.000	43.99	-6.33	37.66	74.00	-36.34	peak
3	3634.000	44.11	-4.03	40.08	74.00	-33.92	peak
4	4852.000	41.98	0.67	42.65	74.00	-31.35	peak
5	5884.000	40.40	2.84	43.24	74.00	-30.76	peak
6	6628.000	37.41	5.50	42.91	74.00	-31.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2926.000	43.71	-5.95	37.76	74.00	-36.24	peak
2	3514.000	43.17	-4.64	38.53	74.00	-35.47	peak
3	4144.000	43.30	-2.21	41.09	74.00	-32.91	peak
4	5116.000	41.27	1.60	42.87	74.00	-31.13	peak
5	5716.000	40.70	2.48	43.18	74.00	-30.82	peak
6	6628.000	37.12	5.50	42.62	74.00	-31.38	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

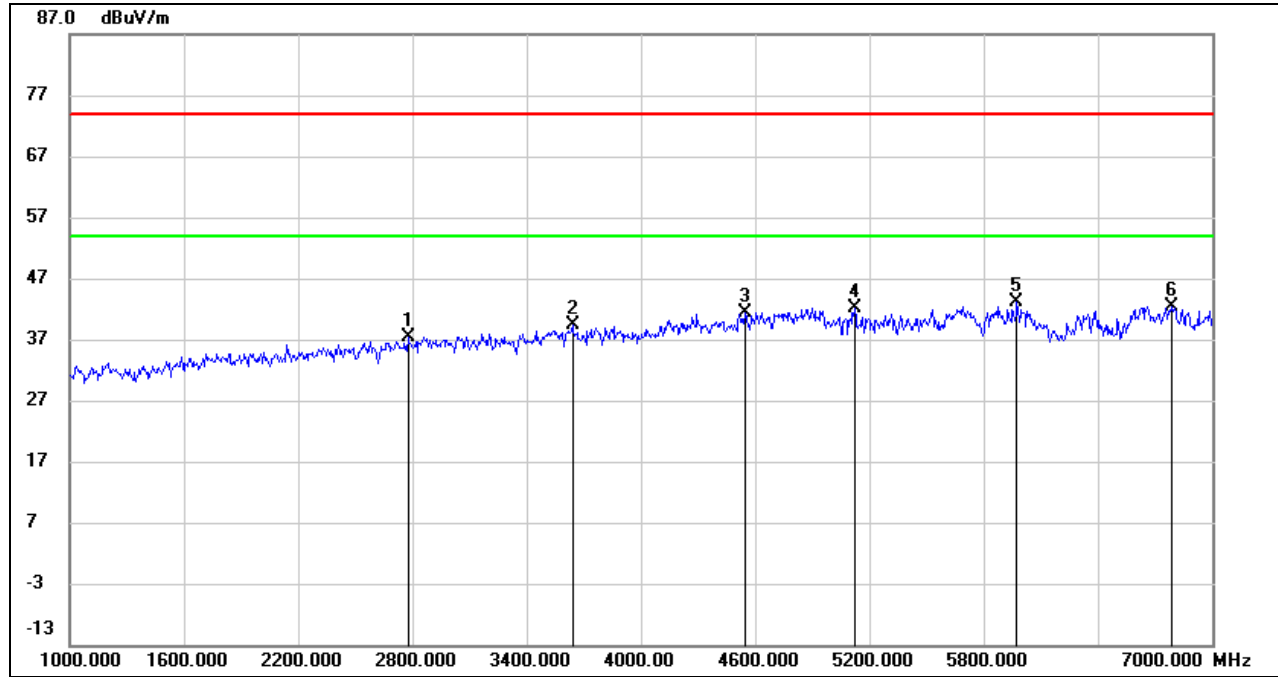
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



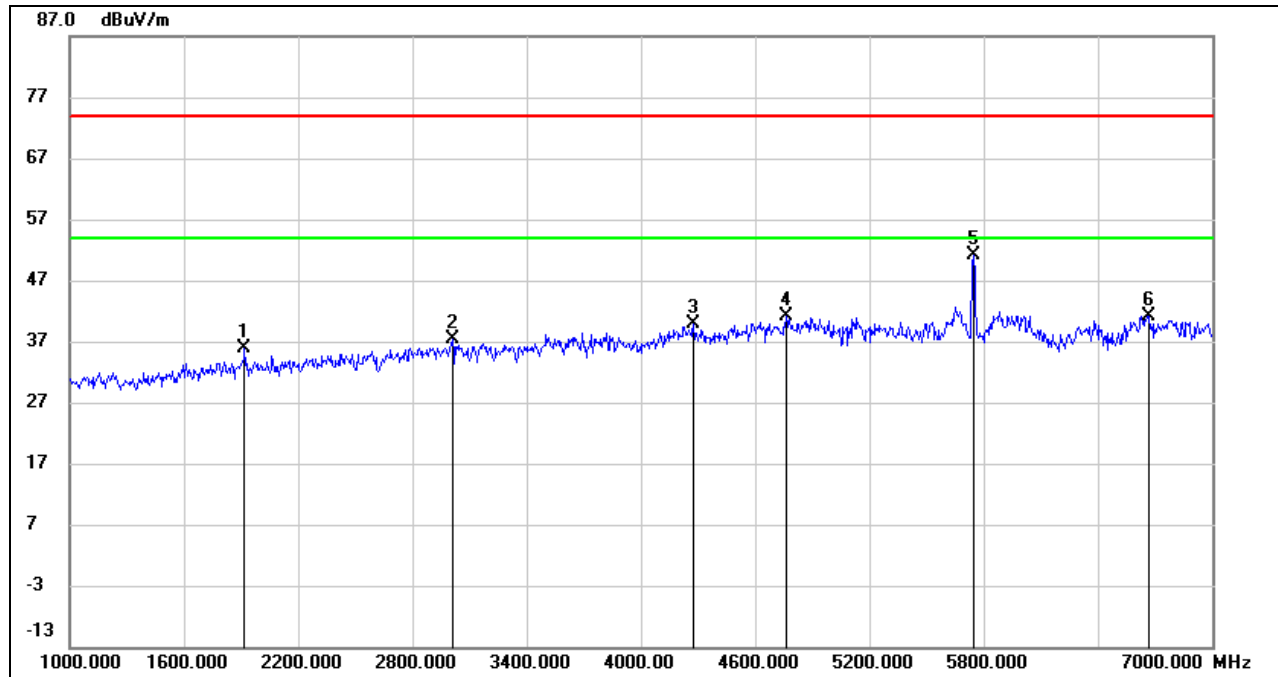
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2776.000	44.08	-6.72	37.36	74.00	-36.64	peak
2	3640.000	43.27	-4.00	39.27	74.00	-34.73	peak
3	4546.000	42.34	-0.93	41.41	74.00	-32.59	peak
4	5122.000	40.60	1.64	42.24	74.00	-31.76	peak
5	5974.000	39.83	3.20	43.03	74.00	-30.97	peak
6	6784.000	36.89	5.56	42.45	74.00	-31.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

**UNII-3 BAND**

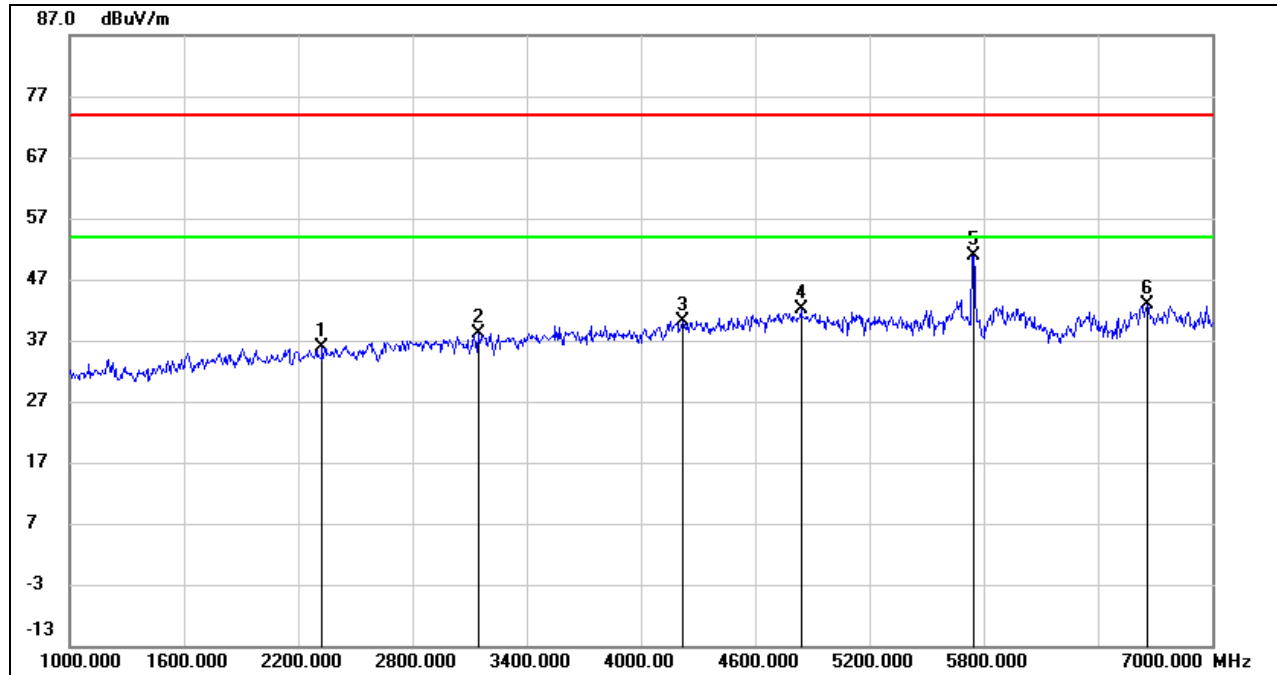
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	46.08	-10.13	35.95	74.00	-38.05	peak
2	3010.000	42.98	-5.57	37.41	74.00	-36.59	peak
3	4276.000	41.55	-1.74	39.81	74.00	-34.19	peak
4	4762.000	40.64	0.38	41.02	74.00	-32.98	peak
5	5745.000	48.74	2.49	51.23	74.00	-22.77	peak
6	6670.000	35.70	5.53	41.23	74.00	-32.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2326.000	44.50	-8.64	35.86	74.00	-38.14	peak
2	3148.000	43.41	-5.34	38.07	74.00	-35.93	peak
3	4216.000	41.90	-1.69	40.21	74.00	-33.79	peak
4	4840.000	41.58	0.65	42.23	74.00	-31.77	peak
5	5745.000	48.41	2.49	50.90	74.00	-23.10	peak
6	6658.000	37.37	5.51	42.88	74.00	-31.12	peak

Note: 1. Measurement = Reading Level + Correct Factor.

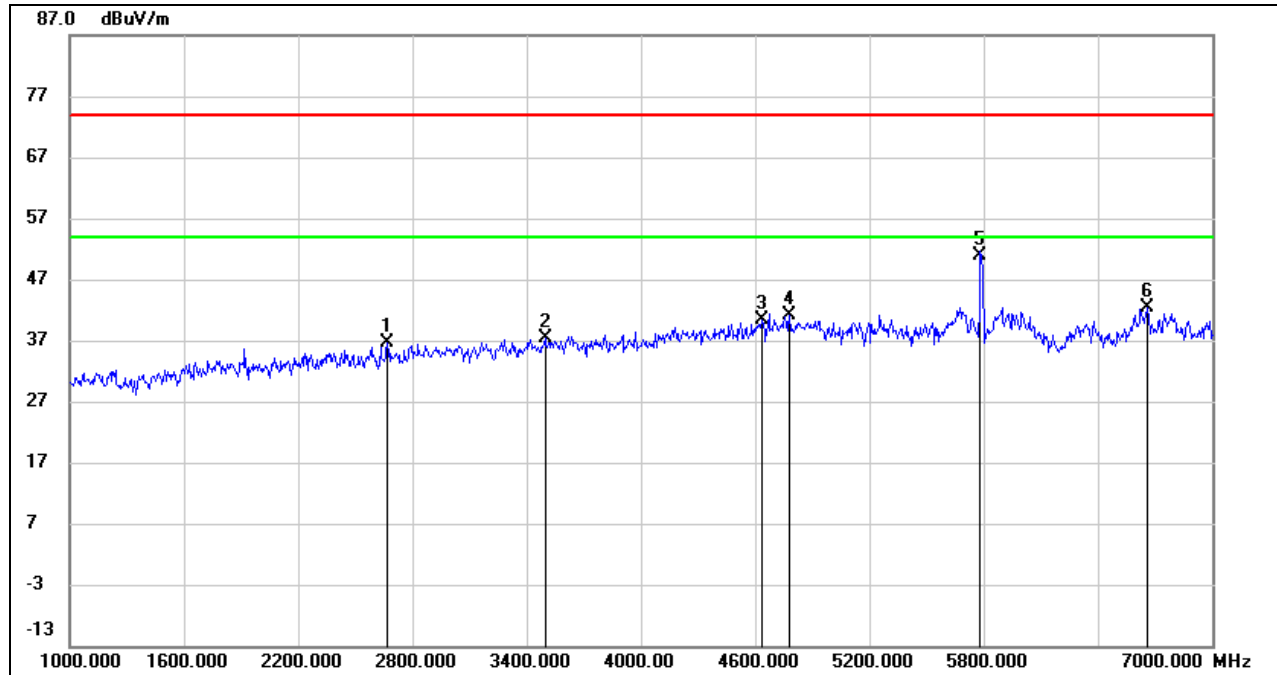
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2668.000	43.93	-7.42	36.51	74.00	-37.49	peak
2	3496.000	42.10	-4.72	37.38	74.00	-36.62	peak
3	4636.000	40.64	-0.35	40.29	74.00	-33.71	peak
4	4780.000	40.62	0.48	41.10	74.00	-32.90	peak
5	5785.000	48.32	2.50	50.82	74.00	-23.18	peak
6	6658.000	36.91	5.51	42.42	74.00	-31.58	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

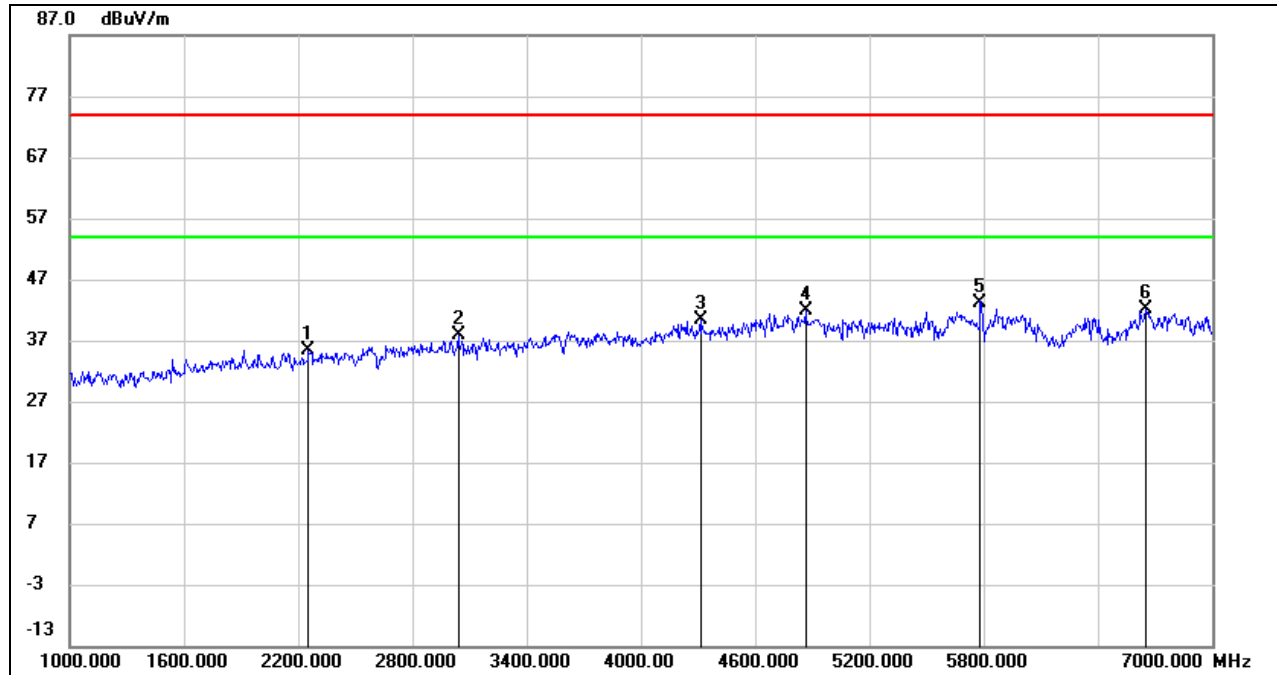
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2254.000	44.22	-8.87	35.35	74.00	-38.65	peak
2	3040.000	43.50	-5.52	37.98	74.00	-36.02	peak
3	4312.000	42.17	-1.78	40.39	74.00	-33.61	peak
4	4864.000	41.24	0.69	41.93	74.00	-32.07	peak
5	5785.000	40.62	2.50	43.12	74.00	-30.88	peak
6	6652.000	36.62	5.52	42.14	74.00	-31.86	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

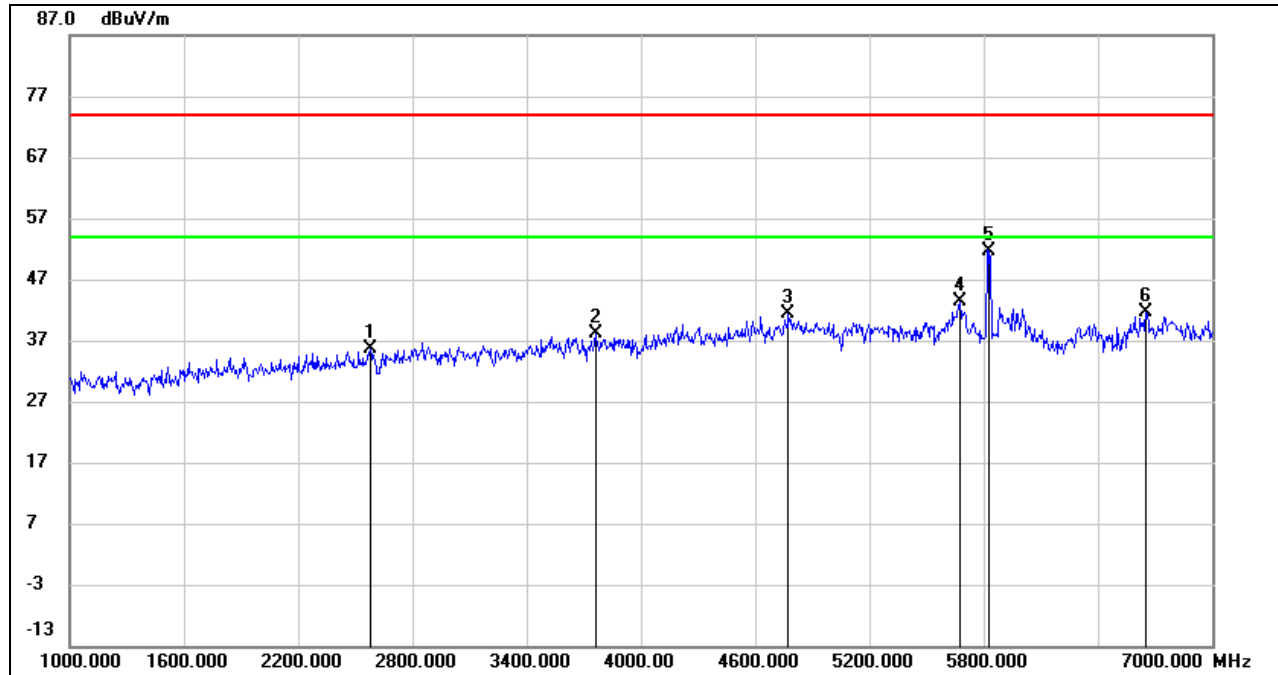
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

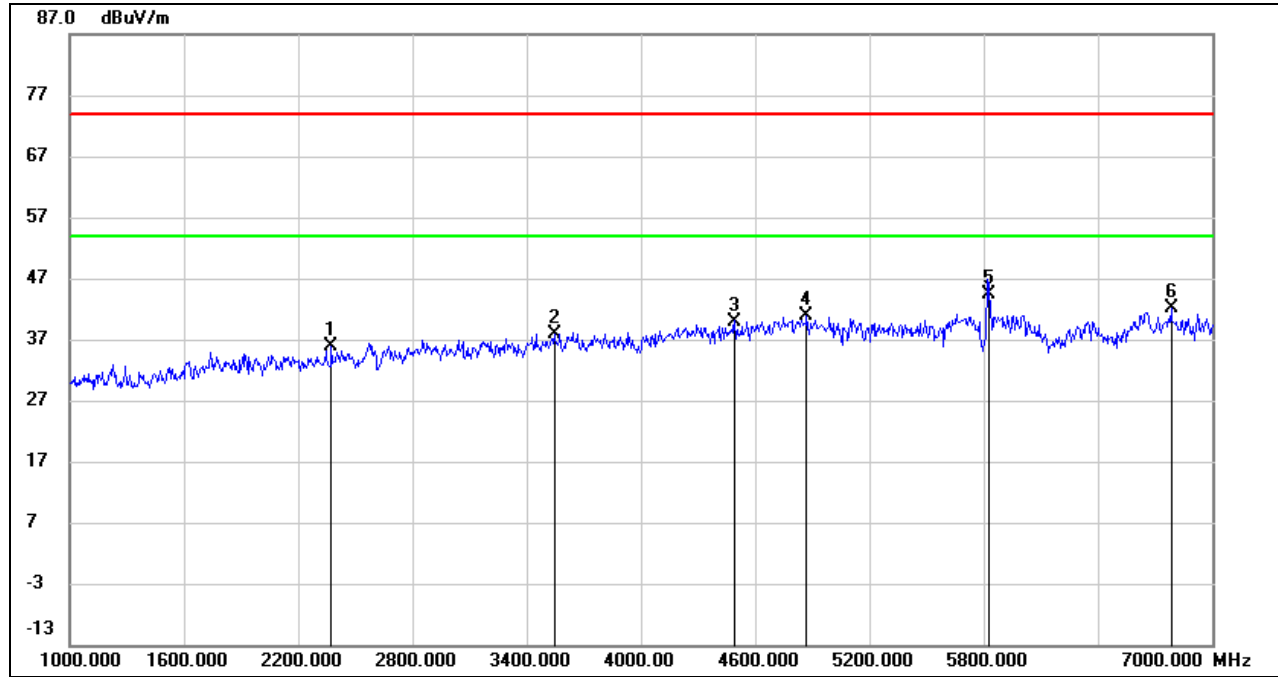


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2578.000	43.66	-7.95	35.71	74.00	-38.29	peak
2	3760.000	41.58	-3.44	38.14	74.00	-35.86	peak
3	4774.000	40.91	0.43	41.34	74.00	-32.66	peak
4	5674.000	40.92	2.48	43.40	74.00	-30.60	peak
5	5825.000	49.07	2.61	51.68	74.00	-22.32	peak
6	6652.000	36.16	5.52	41.68	74.00	-32.32	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2374.000	44.26	-8.48	35.78	74.00	-38.22	peak
2	3544.000	42.33	-4.48	37.85	74.00	-36.15	peak
3	4492.000	41.28	-1.28	40.00	74.00	-34.00	peak
4	4870.000	40.10	0.69	40.79	74.00	-33.21	peak
5	5825.000	41.71	2.61	44.32	74.00	-29.68	peak
6	6784.000	36.66	5.56	42.22	74.00	-31.78	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

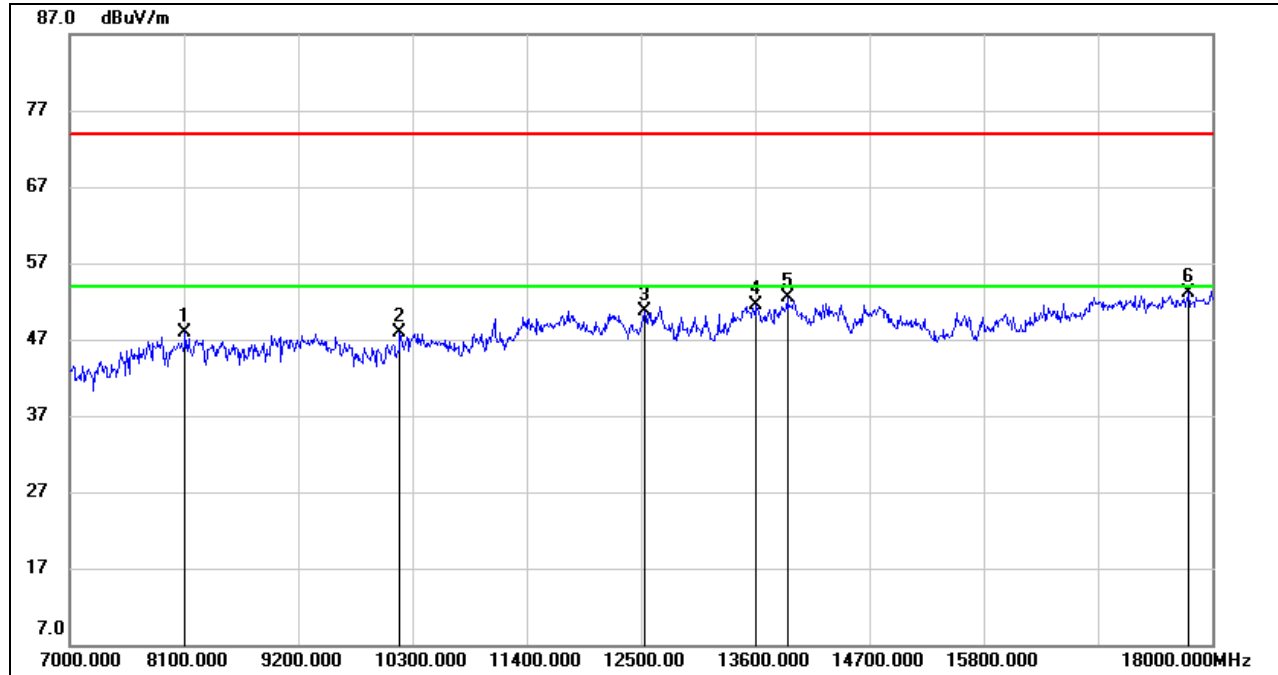
### 8.3. SPURIOUS EMISSIONS (7 GHz ~ 18 GHz)

#### 8.3.1. 802.11a SISO MODE

#### ANTENNA 0 TEST RESULTS (WORST CASE)

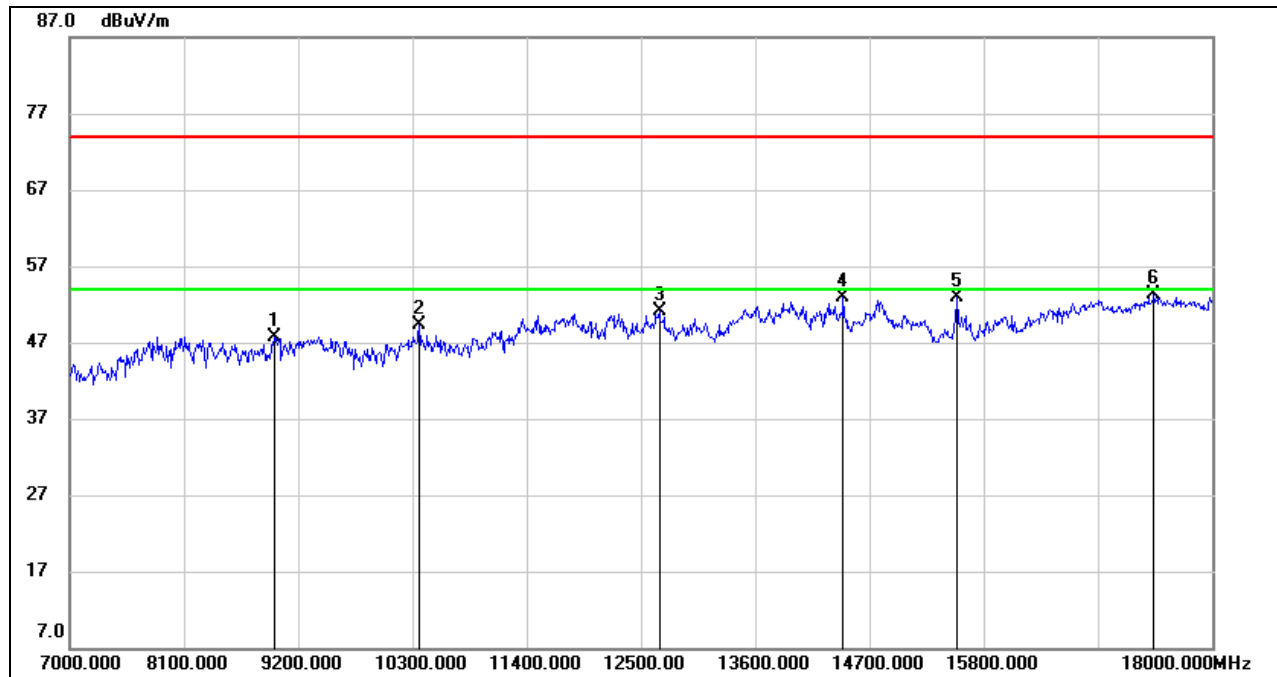
#### UNII-1 BAND

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8111.000	37.76	10.14	47.90	74.00	-26.10	peak
2	10179.000	36.40	11.41	47.81	74.00	-26.19	peak
3	12533.000	34.97	15.71	50.68	74.00	-23.32	peak
4	13611.000	33.61	17.81	51.42	74.00	-22.58	peak
5	13908.000	34.00	18.52	52.52	74.00	-21.48	peak
6	17769.000	28.05	25.10	53.15	74.00	-20.85	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8969.000	37.07	10.69	47.76	74.00	-26.24	peak
2	10366.000	37.12	12.09	49.21	74.00	-24.79	peak
3	12676.000	35.50	15.66	51.16	74.00	-22.84	peak
4	14447.000	34.74	18.14	52.88	74.00	-21.12	peak
5	15547.000	35.16	17.73	52.89	74.00	-21.11	peak
6	17439.000	30.42	22.85	53.27	74.00	-20.73	peak

Note: 1. Measurement = Reading Level + Correct Factor.

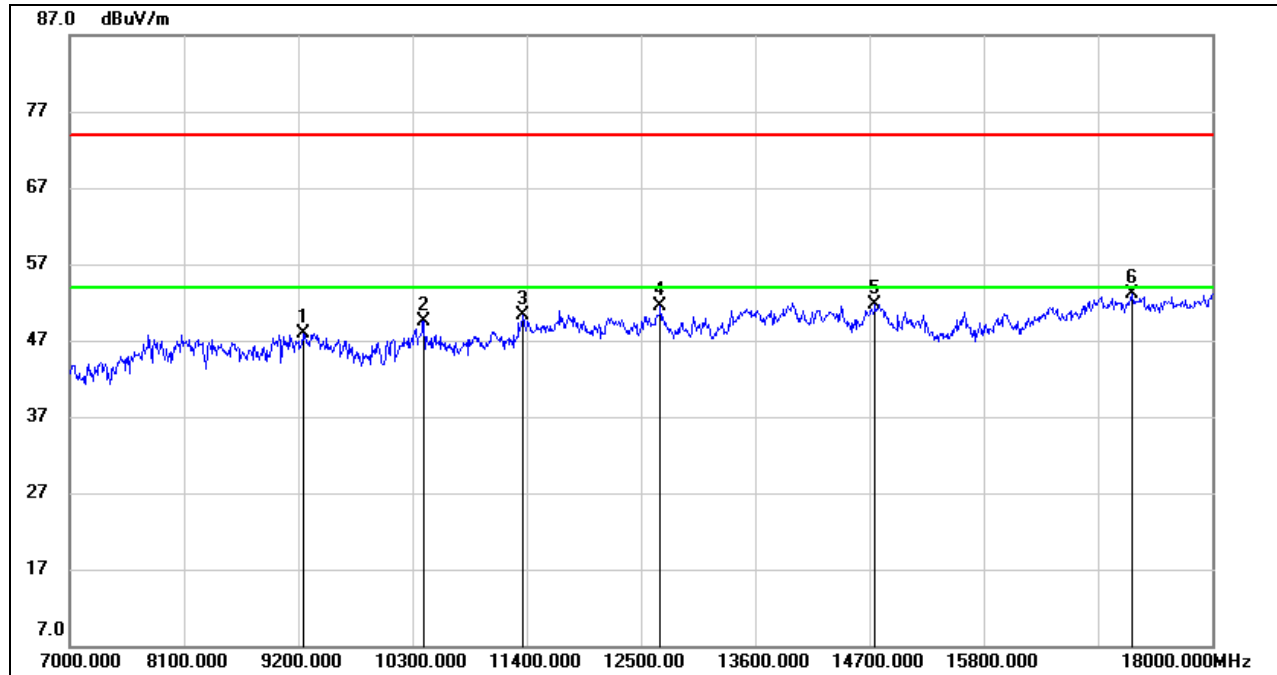
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9244.000	37.87	10.12	47.99	74.00	-26.01	peak
2	10410.000	37.20	12.25	49.45	74.00	-24.55	peak
3	11367.000	35.79	14.45	50.24	74.00	-23.76	peak
4	12687.000	35.89	15.64	51.53	74.00	-22.47	peak
5	14755.000	33.18	18.53	51.71	74.00	-22.29	peak
6	17230.000	30.18	22.87	53.05	74.00	-20.95	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

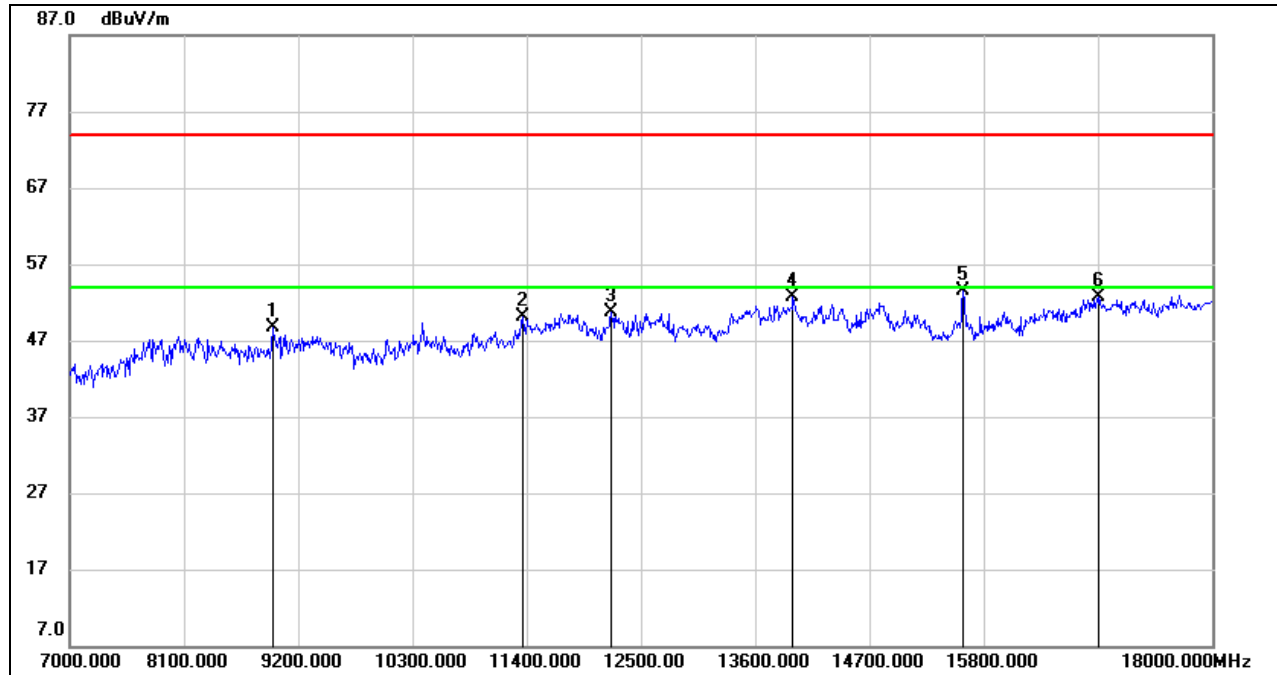
5. For the transmitting duration, please refer to clause 7.1.

6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8958.000	38.27	10.48	48.75	74.00	-25.25	peak
2	11356.000	35.73	14.35	50.08	74.00	-23.92	peak
3	12214.000	34.75	15.97	50.72	74.00	-23.28	peak
4	13963.000	34.01	18.65	52.66	74.00	-21.34	peak
5	15602.000	35.46	18.05	53.51	74.00	-20.49	peak
6	16911.000	30.77	21.99	52.76	74.00	-21.24	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

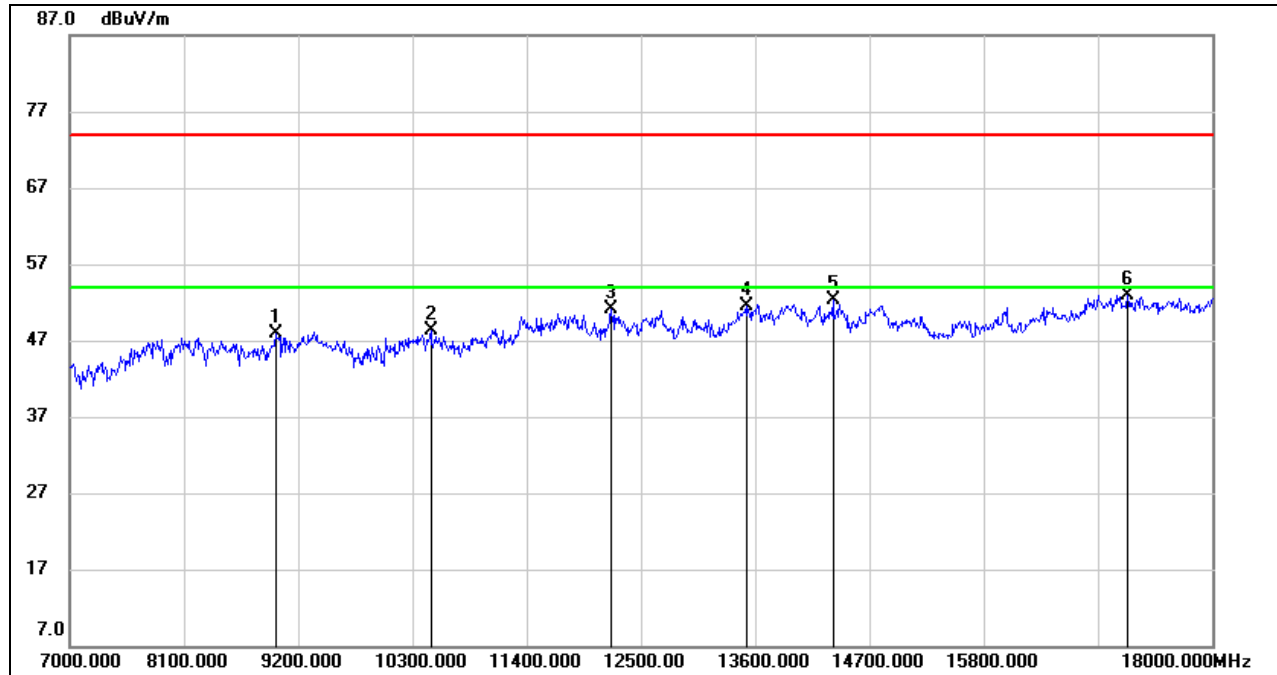
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8980.000	37.06	10.89	47.95	74.00	-26.05	peak
2	10476.000	35.92	12.33	48.25	74.00	-25.75	peak
3	12214.000	35.09	15.97	51.06	74.00	-22.94	peak
4	13512.000	33.76	17.76	51.52	74.00	-22.48	peak
5	14348.000	33.60	18.65	52.25	74.00	-21.75	peak
6	17186.000	30.31	22.64	52.95	74.00	-21.05	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

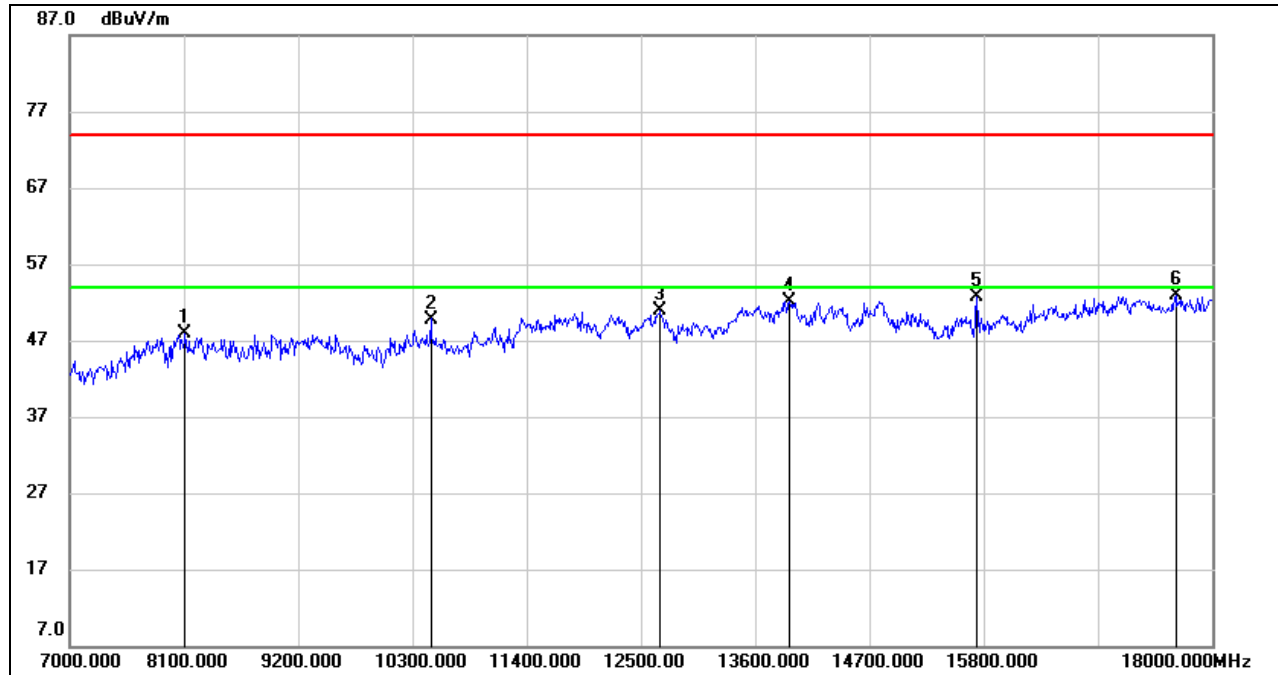
5. For the transmitting duration, please refer to clause 7.1.

6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

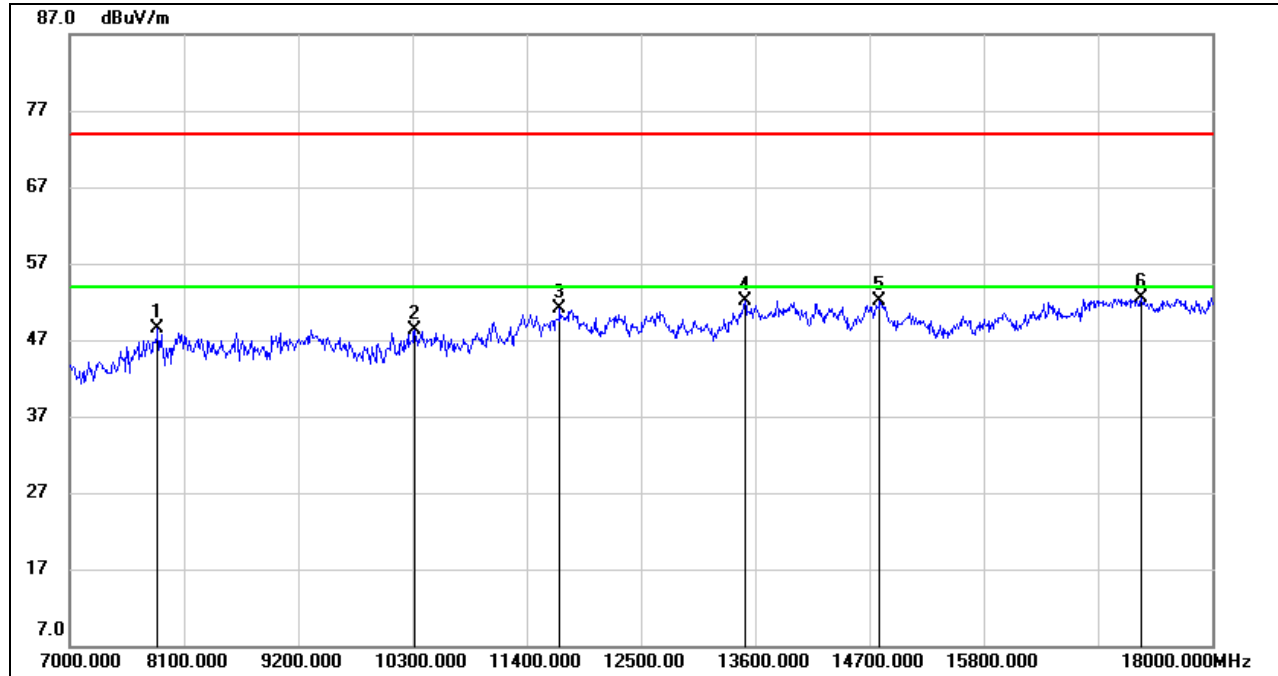
8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8111.000	37.75	10.14	47.89	74.00	-26.11	peak
2	10476.000	37.47	12.33	49.80	74.00	-24.20	peak
3	12687.000	35.18	15.64	50.82	74.00	-23.18	peak
4	13930.000	33.52	18.58	52.10	74.00	-21.90	peak
5	15734.000	34.42	18.20	52.62	74.00	-21.38	peak
6	17648.000	28.61	24.20	52.81	74.00	-21.19	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**UNII-3 BAND**
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7847.000	39.36	9.12	48.48	74.00	-25.52	peak
2	10322.000	36.37	11.91	48.28	74.00	-25.72	peak
3	11719.000	35.68	15.33	51.01	74.00	-22.99	peak
4	13501.000	34.42	17.76	52.18	74.00	-21.82	peak
5	14799.000	33.52	18.67	52.19	74.00	-21.81	peak
6	17318.000	29.25	23.25	52.50	74.00	-21.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.

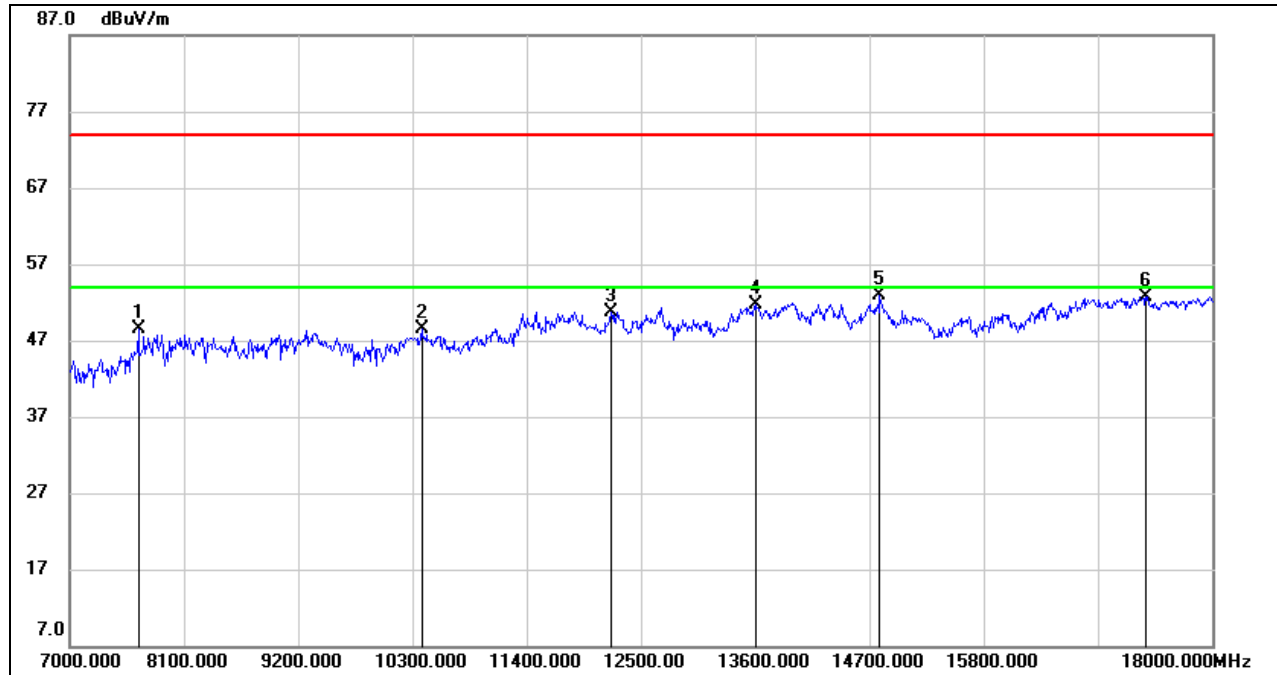
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	40.16	8.25	48.41	74.00	-25.59	peak
2	10388.000	36.36	12.18	48.54	74.00	-25.46	peak
3	12214.000	34.79	15.97	50.76	74.00	-23.24	peak
4	13611.000	33.88	17.81	51.69	74.00	-22.31	peak
5	14799.000	34.16	18.67	52.83	74.00	-21.17	peak
6	17362.000	29.71	22.98	52.69	74.00	-21.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

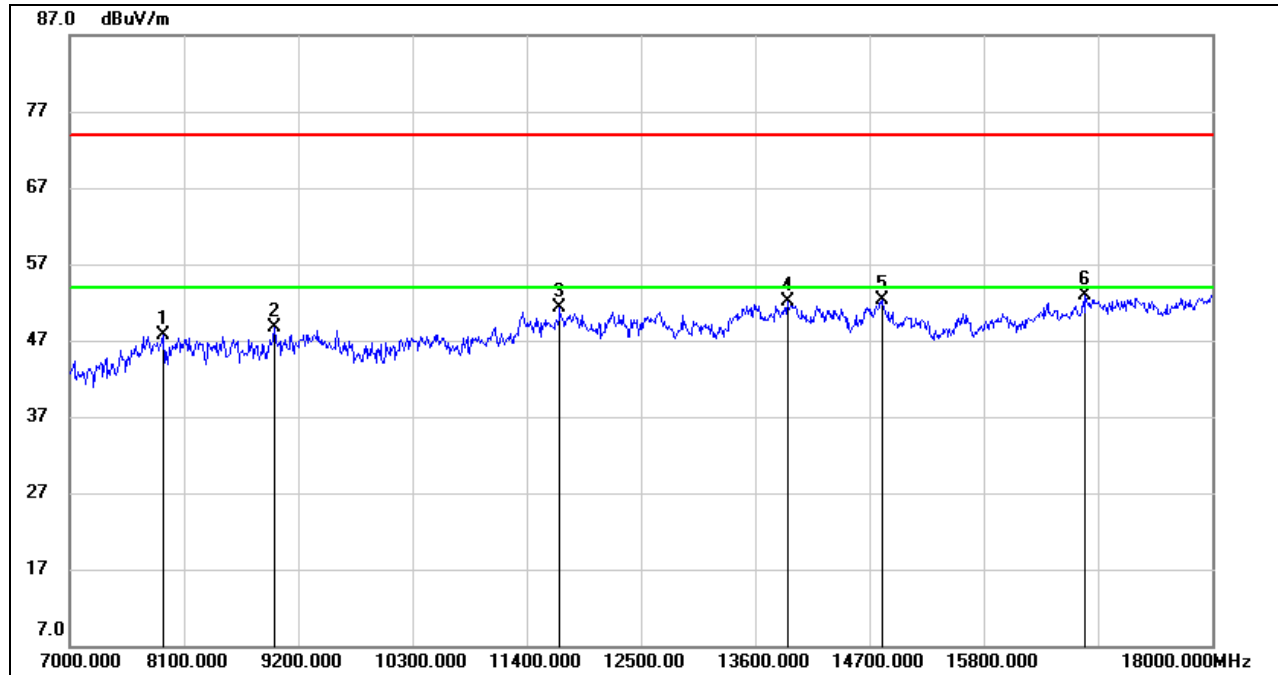
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

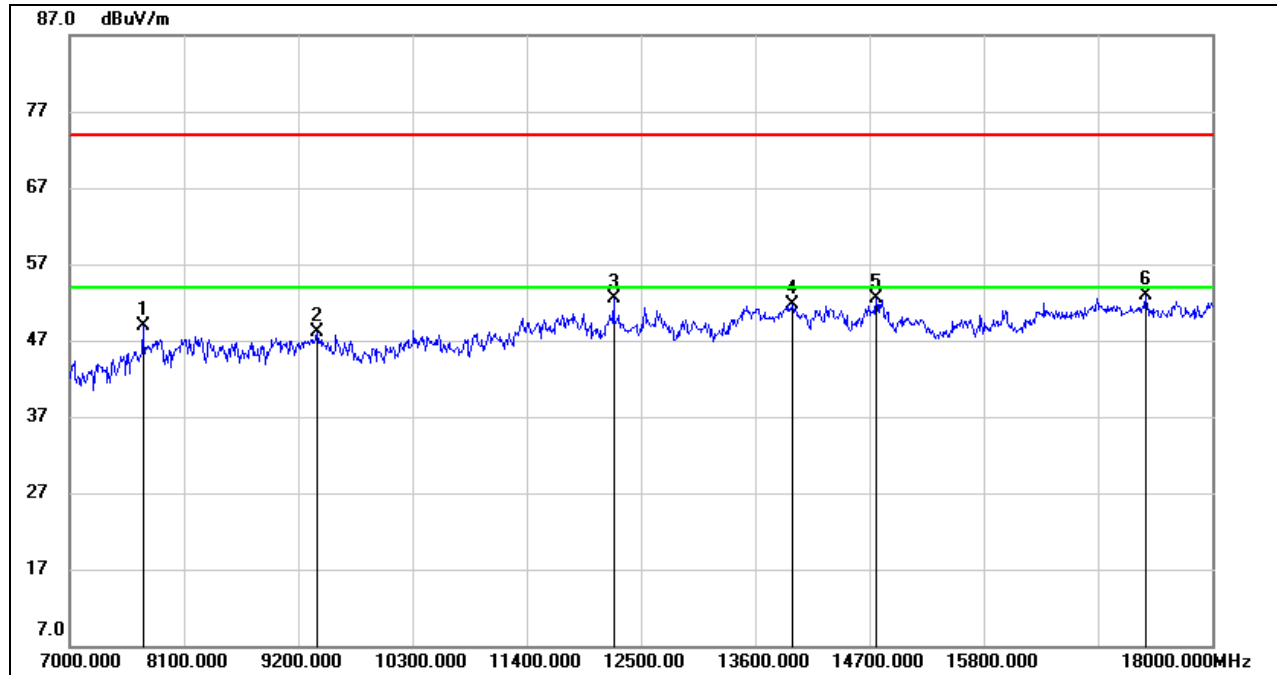
**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7902.000	38.78	8.85	47.63	74.00	-26.37	peak
2	8969.000	38.01	10.69	48.70	74.00	-25.30	peak
3	11719.000	35.91	15.33	51.24	74.00	-22.76	peak
4	13908.000	33.51	18.52	52.03	74.00	-21.97	peak
5	14821.000	33.75	18.52	52.27	74.00	-21.73	peak
6	16779.000	31.92	20.96	52.88	74.00	-21.12	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7704.000	40.43	8.48	48.91	74.00	-25.09	peak
2	9376.000	37.27	10.84	48.11	74.00	-25.89	peak
3	12236.000	36.50	16.01	52.51	74.00	-21.49	peak
4	13952.000	33.09	18.63	51.72	74.00	-22.28	peak
5	14766.000	33.84	18.57	52.41	74.00	-21.59	peak
6	17362.000	29.95	22.98	52.93	74.00	-21.07	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

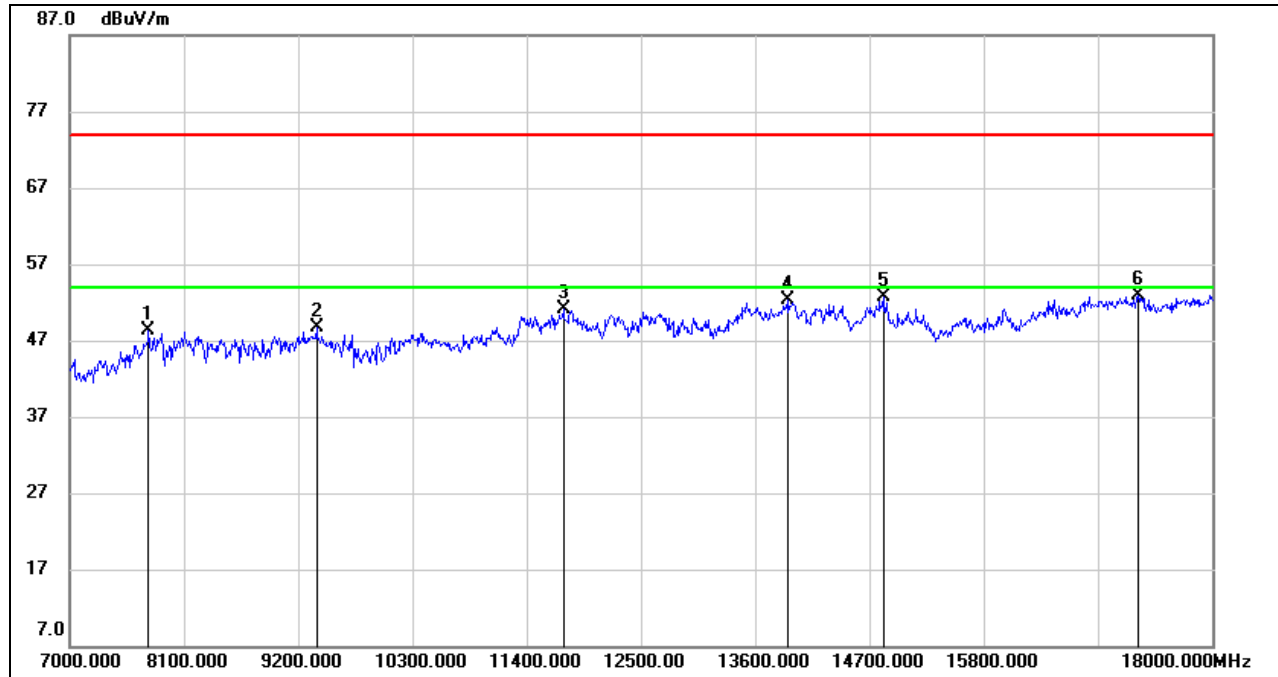
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

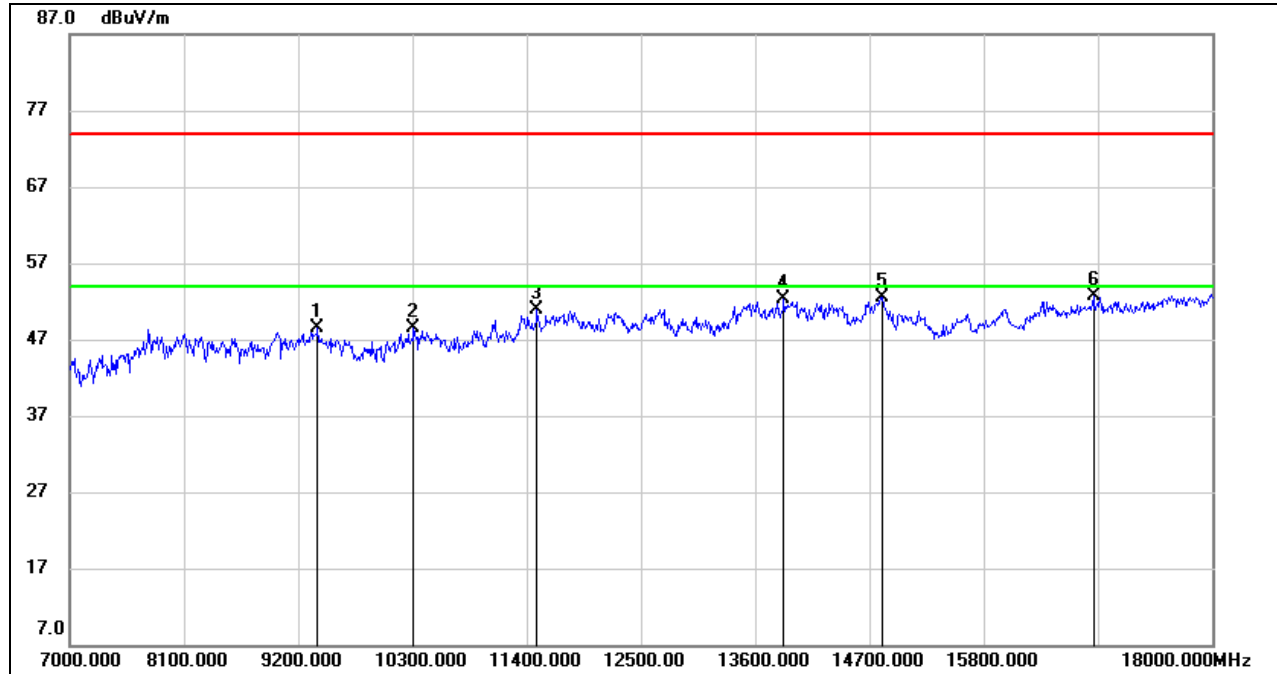


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	39.37	8.98	48.35	74.00	-25.65	peak
2	9376.000	37.88	10.84	48.72	74.00	-25.28	peak
3	11752.000	35.72	15.29	51.01	74.00	-22.99	peak
4	13919.000	33.80	18.54	52.34	74.00	-21.66	peak
5	14832.000	34.17	18.44	52.61	74.00	-21.39	peak
6	17285.000	29.69	23.27	52.96	74.00	-21.04	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9387.000	37.55	10.89	48.44	74.00	-25.56	peak
2	10311.000	36.65	11.86	48.51	74.00	-25.49	peak
3	11499.000	36.35	14.65	51.00	74.00	-23.00	peak
4	13875.000	33.77	18.49	52.26	74.00	-21.74	peak
5	14821.000	33.94	18.52	52.46	74.00	-21.54	peak
6	16856.000	31.08	21.62	52.70	74.00	-21.30	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

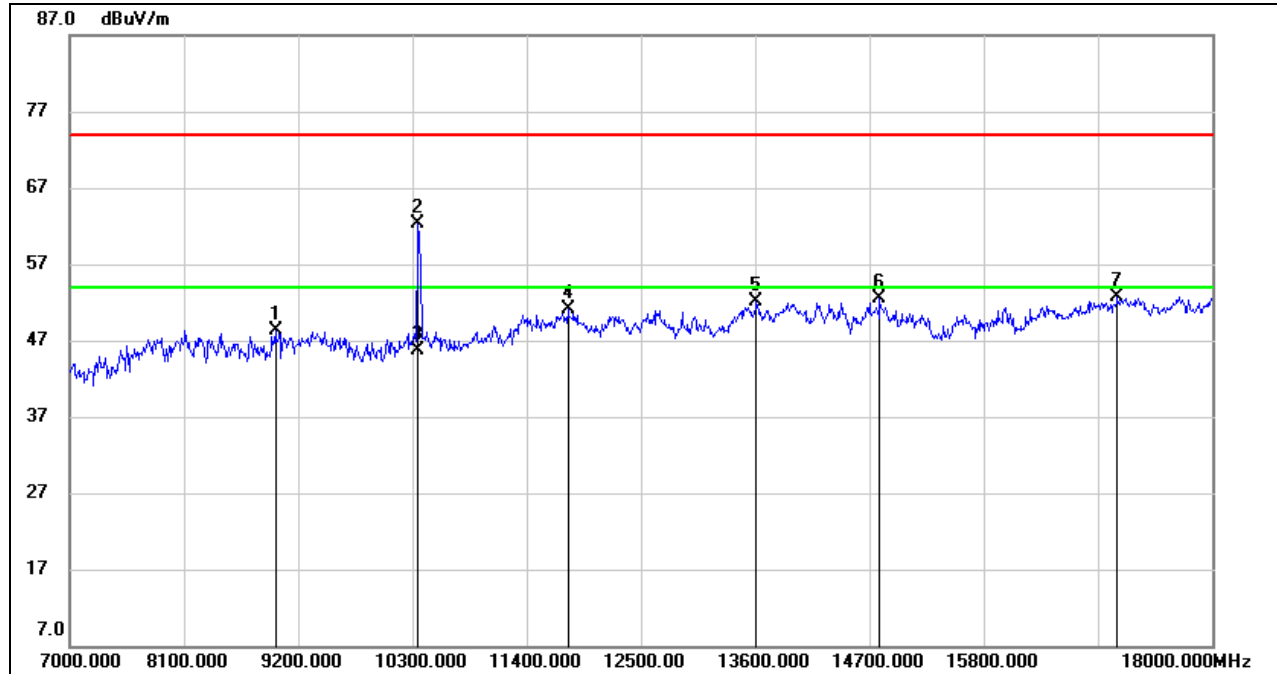
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### 8.3.2. 802.11n HT20 MIMO MODE

#### UNII-1 BAND

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8980.000	37.38	10.89	48.27	74.00	-25.73	peak
2*	10355.000	50.35	12.04	62.39	68.2	-5.81	peak
3*	10355.000	33.76	12.04	45.80	/	/	AVG
4	11796.000	35.90	15.25	51.15	74.00	-22.85	peak
5	13611.000	34.21	17.81	52.02	74.00	-21.98	peak
6	14799.000	33.74	18.67	52.41	74.00	-21.59	peak
7	17087.000	30.34	22.37	52.71	74.00	-21.29	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

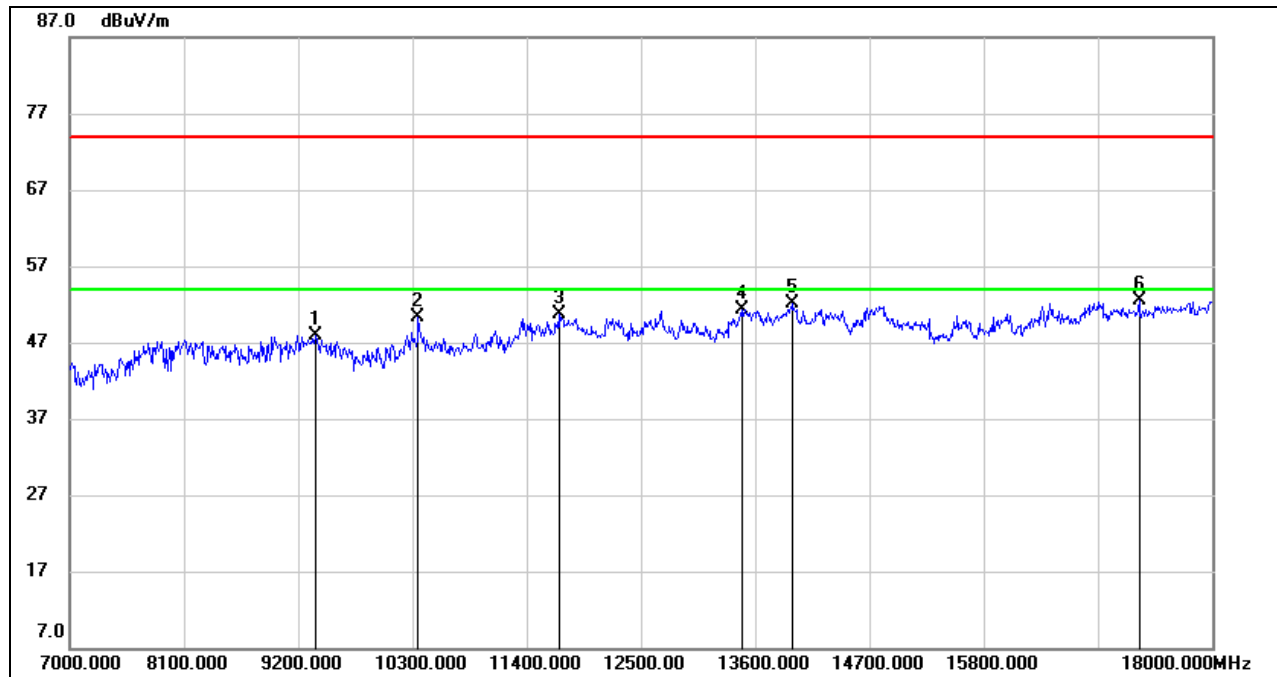
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. \*-indicates frequency is out of the restricted bands, the AVG result only for reference.

7. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9365.000	37.18	10.77	47.95	74.00	-26.05	peak
2	10355.000	38.32	12.04	50.36	74.00	-23.64	peak
3	11708.000	35.30	15.34	50.64	74.00	-23.36	peak
4	13468.000	33.69	17.66	51.35	74.00	-22.65	peak
5	13963.000	33.40	18.65	52.05	74.00	-21.95	peak
6	17296.000	29.17	23.35	52.52	74.00	-21.48	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

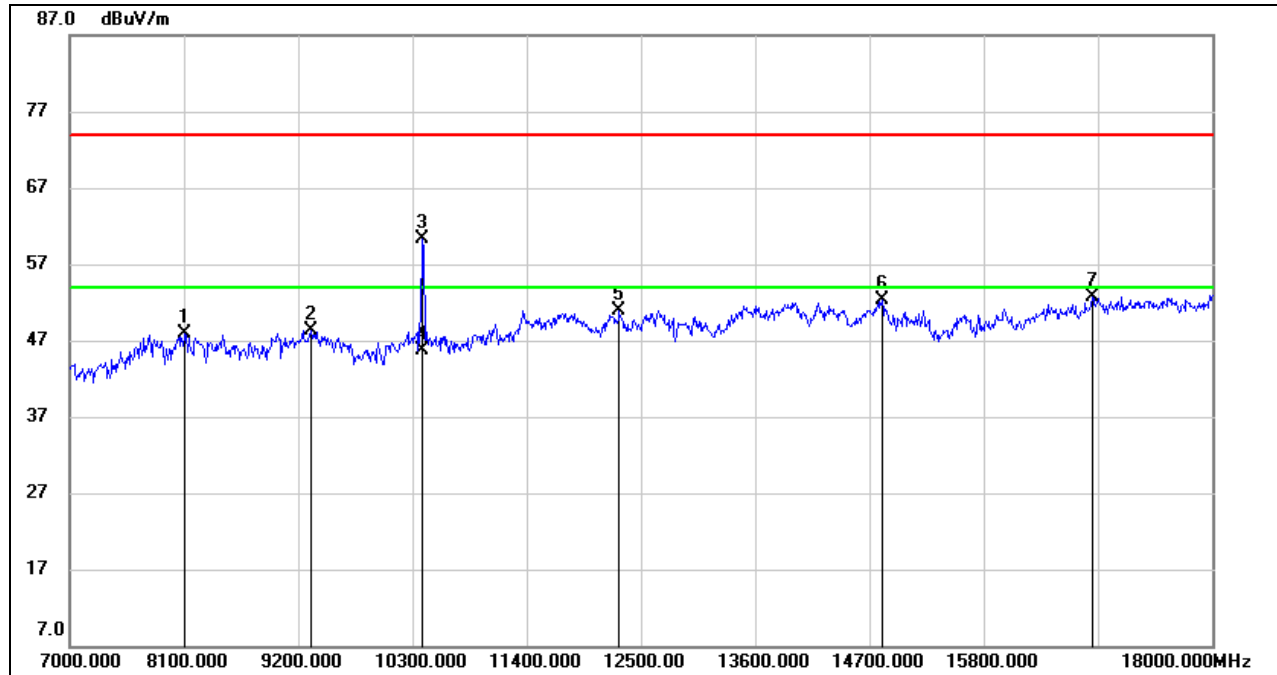
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

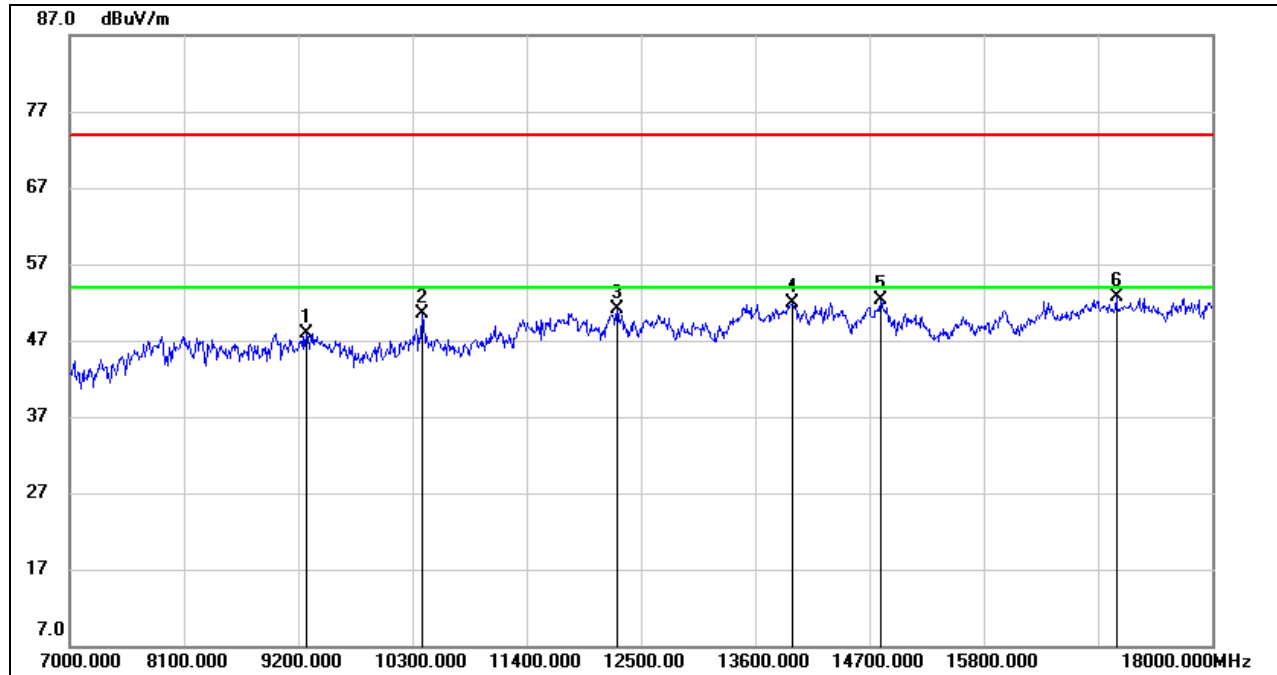
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8111.000	37.81	10.14	47.95	74.00	-26.05	peak
2	9321.000	37.83	10.52	48.35	74.00	-25.65	peak
3*	10399.000	48.16	12.23	60.39	68.2	-7.81	peak
4*	10399.000	33.48	12.23	45.71	/	/	AVG
5	12291.000	34.82	16.08	50.90	74.00	-23.10	peak
6	14821.000	33.86	18.52	52.38	74.00	-21.62	peak
7	16845.000	31.17	21.53	52.70	74.00	-21.30	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. \*-indicates frequency is out of the restricted bands, the AVG result only for reference.  
 7. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9277.000	37.71	10.28	47.99	74.00	-26.01	peak
2	10388.000	38.26	12.18	50.44	74.00	-23.56	peak
3	12269.000	34.98	16.04	51.02	74.00	-22.98	peak
4	13963.000	33.18	18.65	51.83	74.00	-22.17	peak
5	14810.000	33.76	18.59	52.35	74.00	-21.65	peak
6	17076.000	30.34	22.29	52.63	74.00	-21.37	peak

Note: 1. Measurement = Reading Level + Correct Factor.

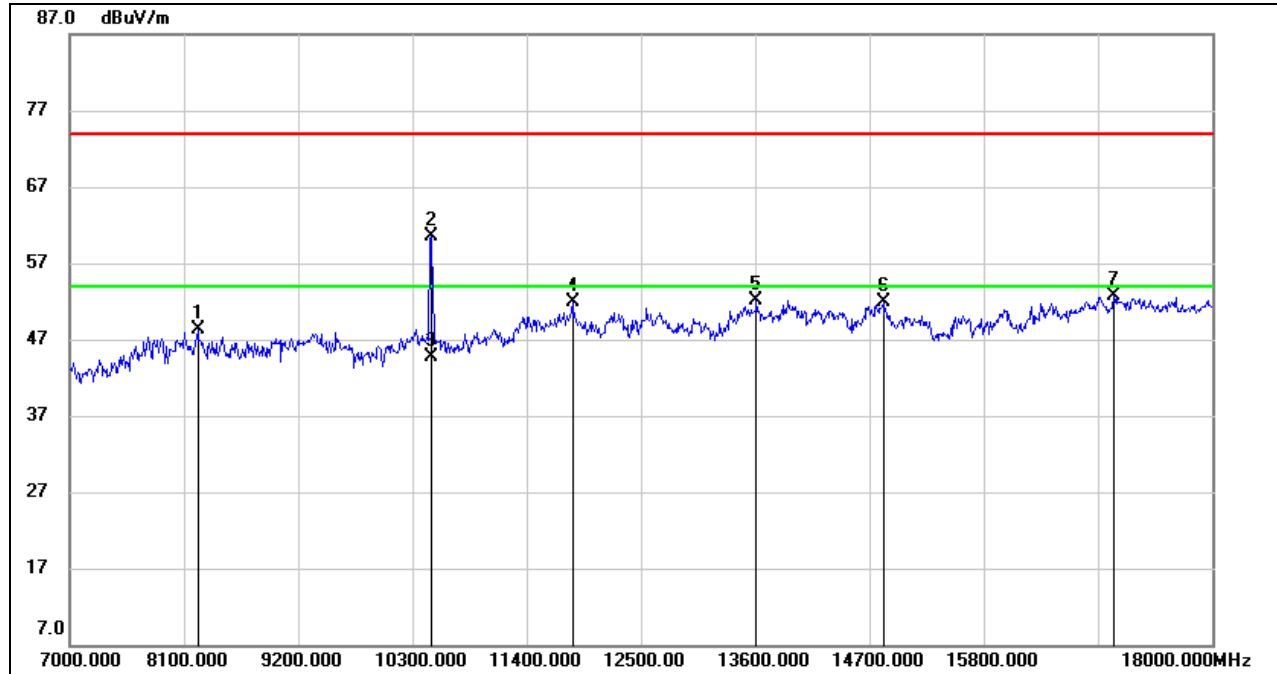
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8232.000	38.48	9.77	48.25	74.00	-25.75	peak
2*	10476.000	48.19	12.33	60.52	68.2	-7.68	peak
3*	10476.000	32.36	12.33	44.69	/	/	AVG
4	11840.000	36.63	15.35	51.98	74.00	-22.02	peak
5	13611.000	34.26	17.81	52.07	74.00	-21.93	peak
6	14832.000	33.39	18.44	51.83	74.00	-22.17	peak
7	17054.000	30.64	22.12	52.76	74.00	-21.24	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

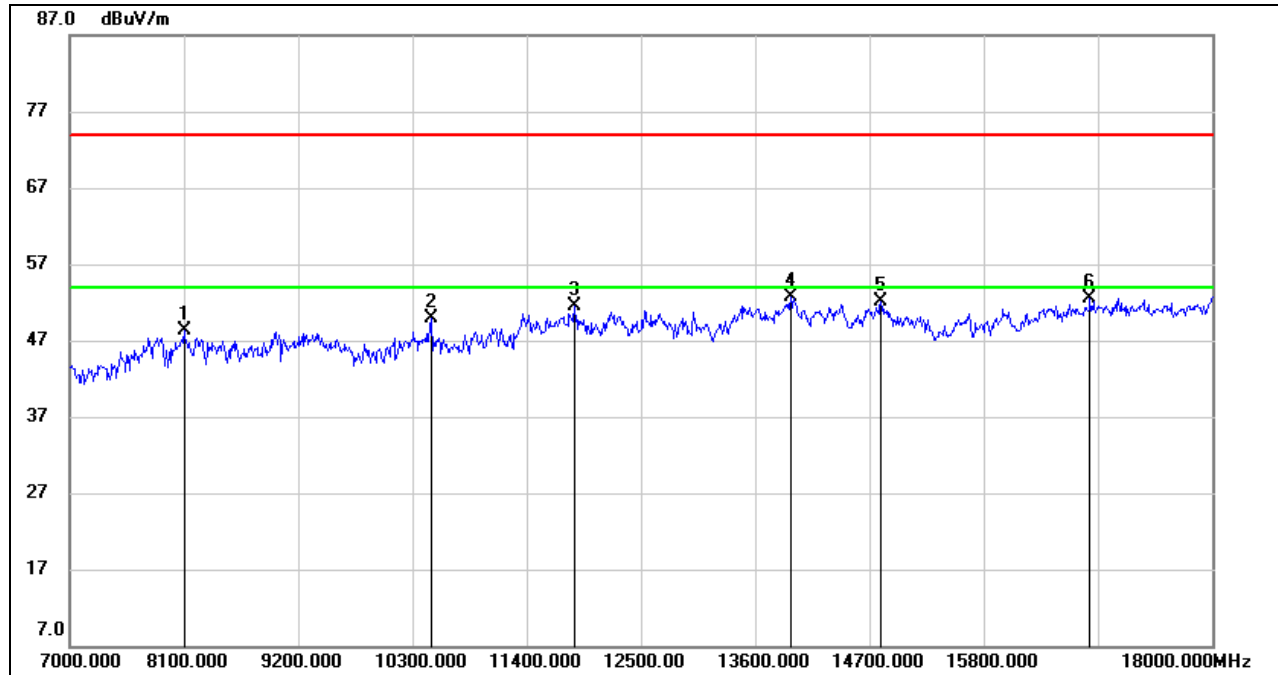
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. \*-indicates frequency is out of the restricted bands, the AVG result only for reference.

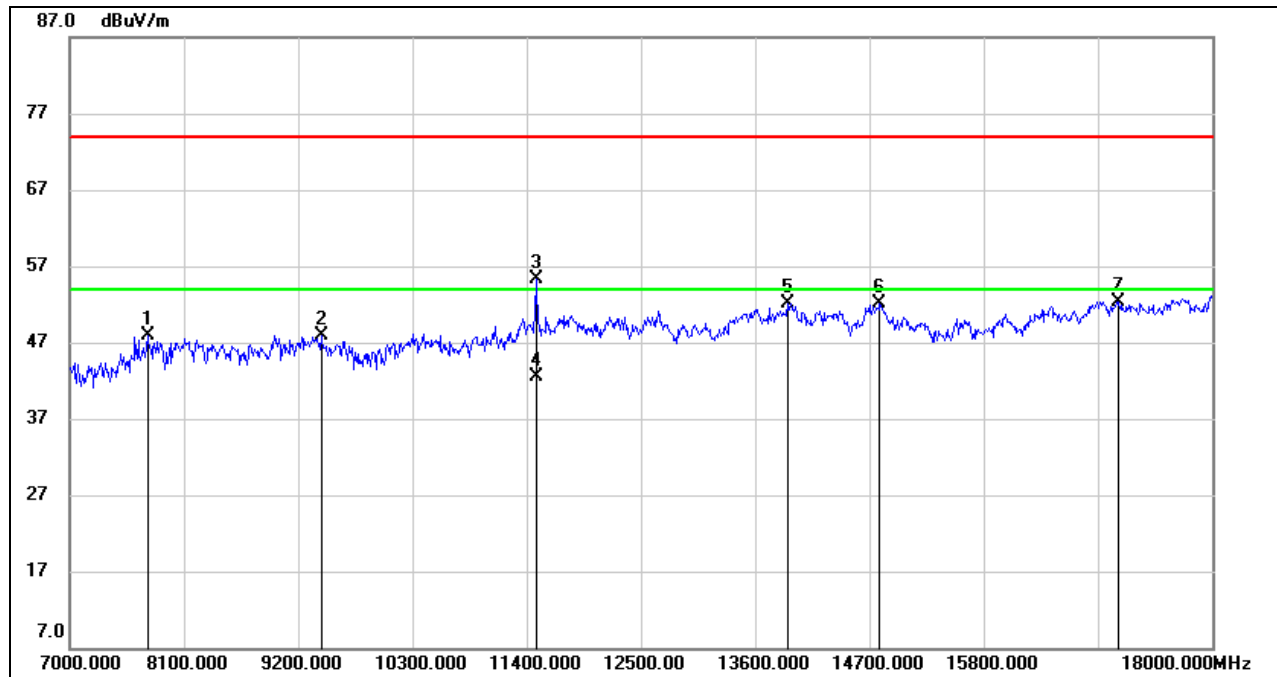
7. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8100.000	38.10	10.18	48.28	74.00	-25.72	peak
2	10476.000	37.48	12.33	49.81	74.00	-24.19	peak
3	11862.000	36.05	15.41	51.46	74.00	-22.54	peak
4	13941.000	34.05	18.60	52.65	74.00	-21.35	peak
5	14810.000	33.43	18.59	52.02	74.00	-21.98	peak
6	16823.000	31.16	21.34	52.50	74.00	-21.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**UNII-3 BAND**
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7748.000	38.96	8.88	47.84	74.00	-26.16	peak
2	9420.000	37.00	10.88	47.88	74.00	-26.12	peak
3	11488.000	40.61	14.66	55.27	74.00	-18.73	peak
4	11488.000	27.92	14.66	42.58	54.00	-11.42	AVG
5	13908.000	33.68	18.52	52.20	74.00	-21.80	peak
6	14799.000	33.51	18.67	52.18	74.00	-21.82	peak
7	17098.000	29.92	22.46	52.38	74.00	-21.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

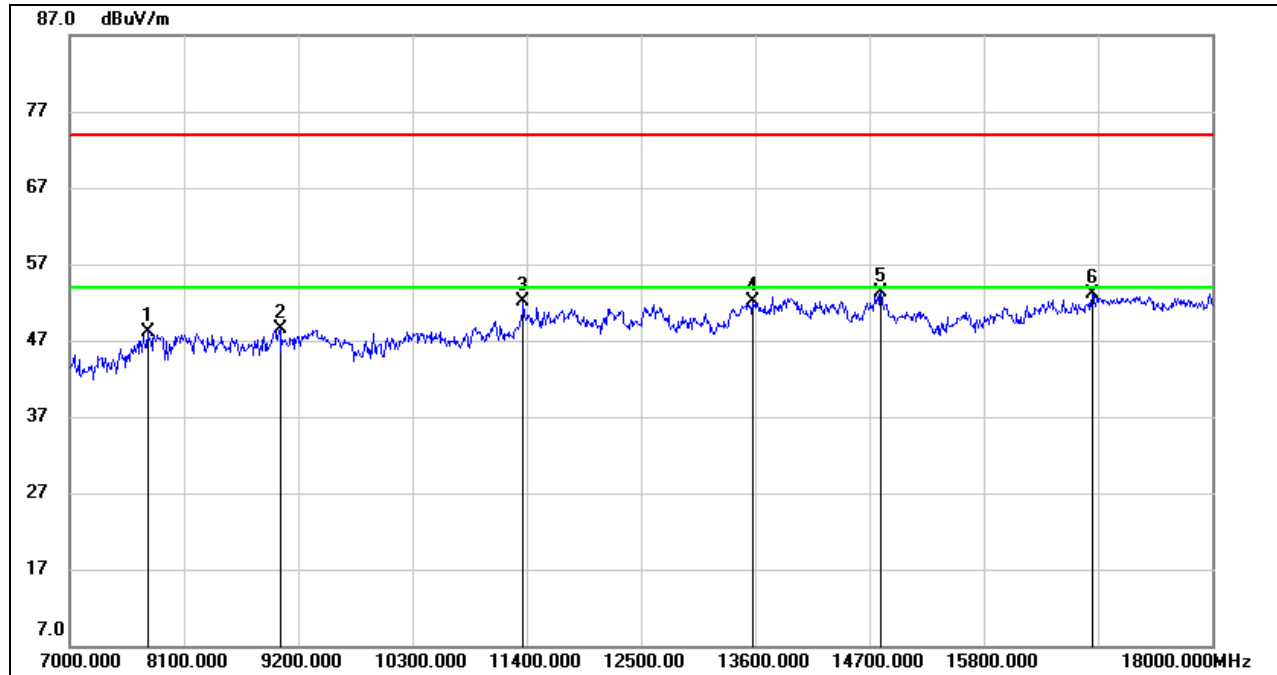
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7748.000	39.15	8.88	48.03	74.00	-25.97	peak
2	9024.000	37.43	11.01	48.44	74.00	-25.56	peak
3	11367.000	37.56	14.45	52.01	74.00	-21.99	peak
4	13578.000	34.35	17.75	52.10	74.00	-21.90	peak
5	14810.000	34.62	18.59	53.21	74.00	-20.79	peak
6	16845.000	31.56	21.53	53.09	74.00	-20.91	peak

Note: 1. Measurement = Reading Level + Correct Factor.

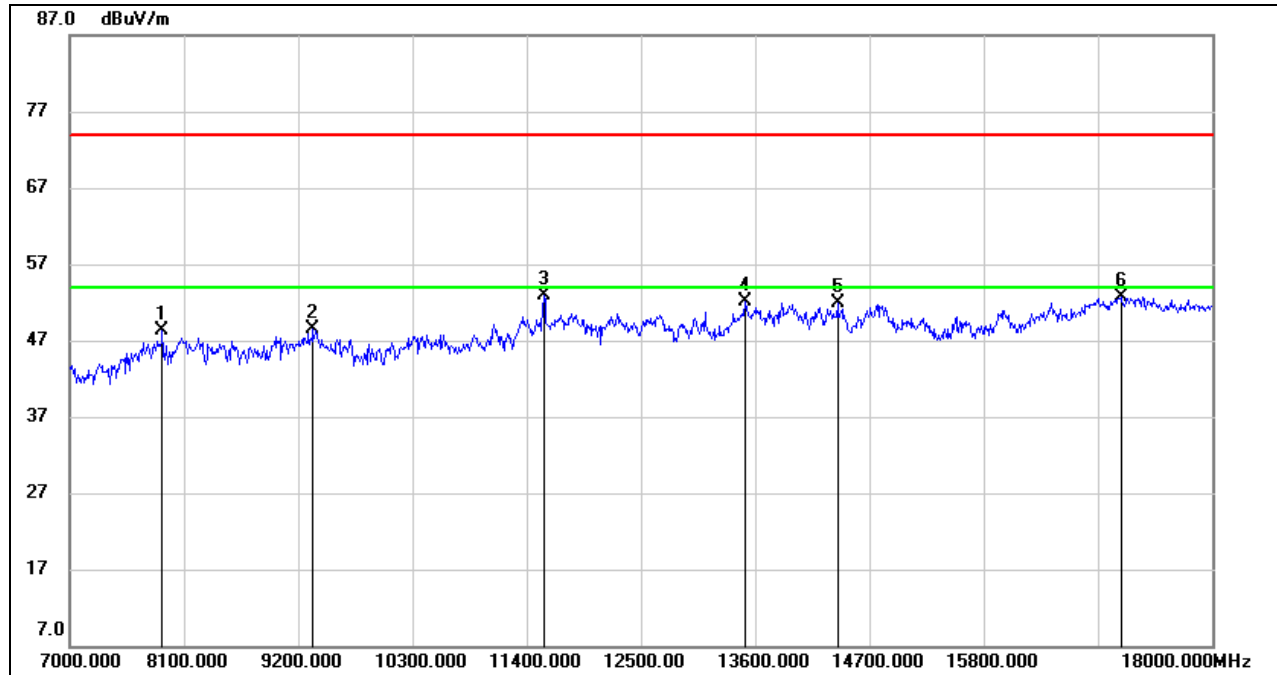
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7891.000	39.41	8.90	48.31	74.00	-25.69	peak
2	9343.000	37.85	10.64	48.49	74.00	-25.51	peak
3	11565.000	38.15	14.69	52.84	74.00	-21.16	peak
4	13501.000	34.39	17.76	52.15	74.00	-21.85	peak
5	14392.000	33.57	18.30	51.87	74.00	-22.13	peak
6	17120.000	30.15	22.51	52.66	74.00	-21.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

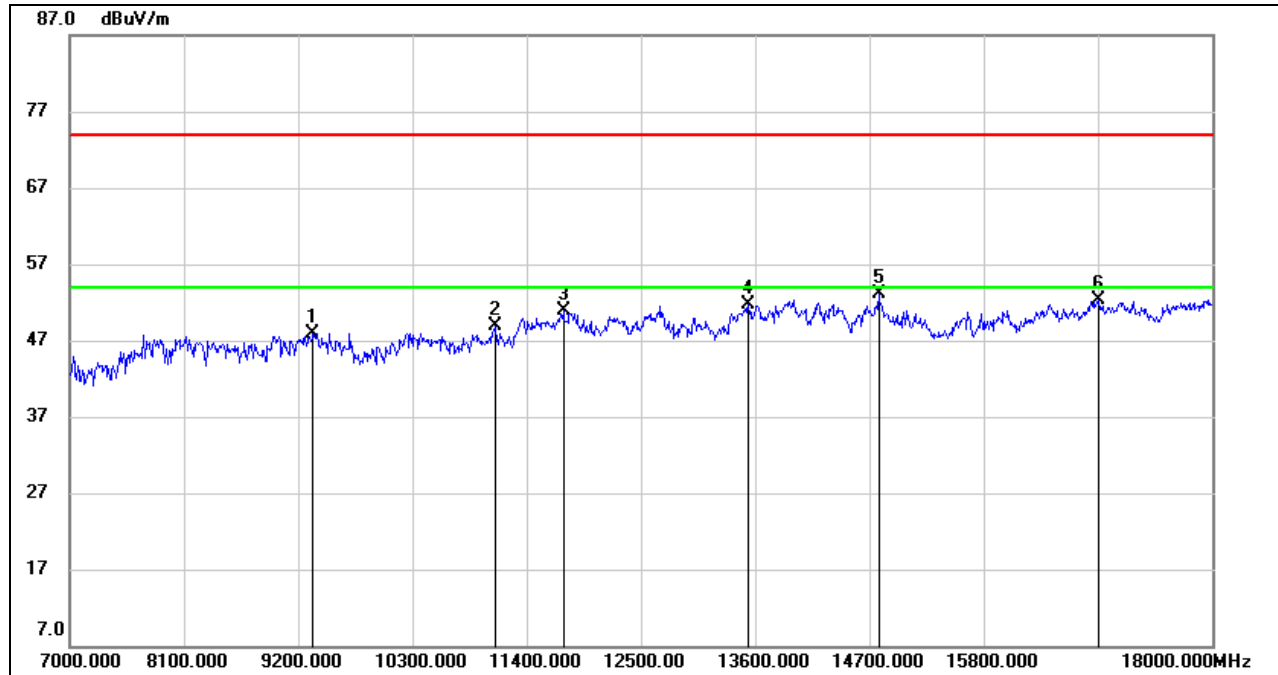
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

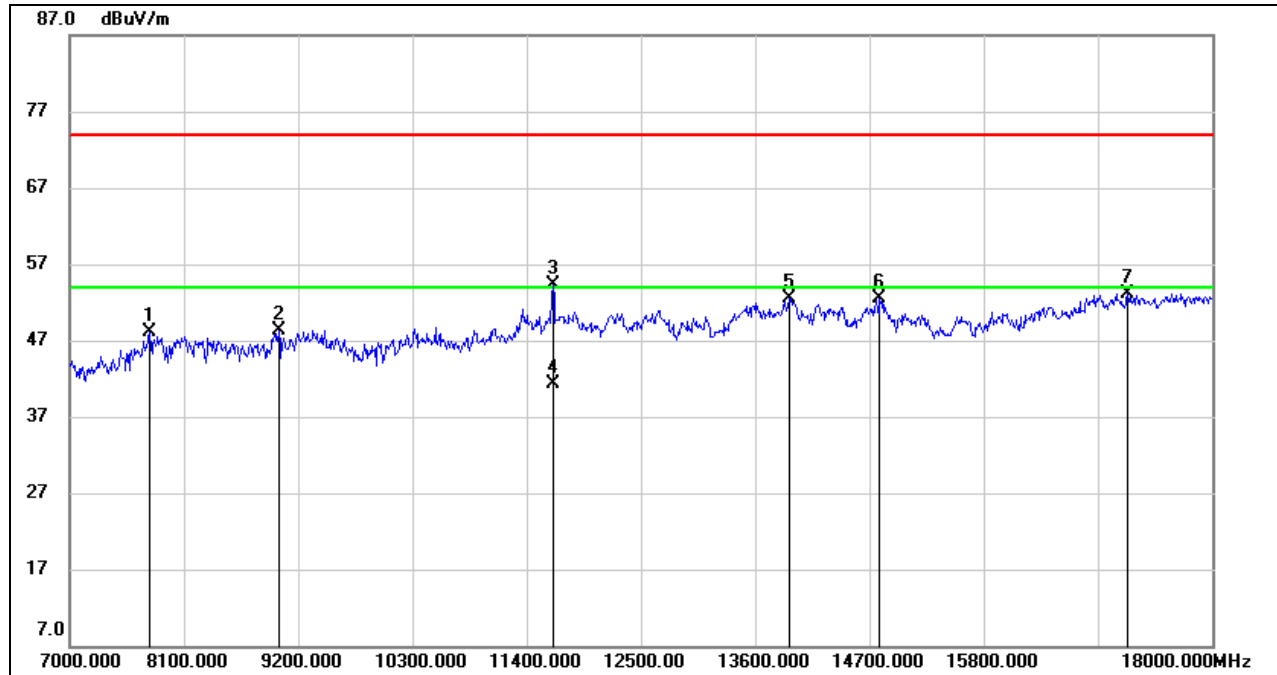
**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	37.34	10.64	47.98	74.00	-26.02	peak
2	11092.000	35.23	13.75	48.98	74.00	-25.02	peak
3	11752.000	35.69	15.29	50.98	74.00	-23.02	peak
4	13534.000	33.94	17.76	51.70	74.00	-22.30	peak
5	14788.000	34.46	18.63	53.09	74.00	-20.91	peak
6	16911.000	30.35	21.99	52.34	74.00	-21.66	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7770.000	38.96	9.09	48.05	74.00	-25.95	peak
2	9013.000	37.15	11.12	48.27	74.00	-25.73	peak
3	11653.000	39.29	15.05	54.34	74.00	-19.66	peak
4	11653.000	26.23	15.05	41.28	54.00	-12.72	AVG
5	13930.000	33.98	18.58	52.56	74.00	-21.44	peak
6	14799.000	33.83	18.67	52.50	74.00	-21.50	peak
7	17186.000	30.55	22.64	53.19	74.00	-20.81	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

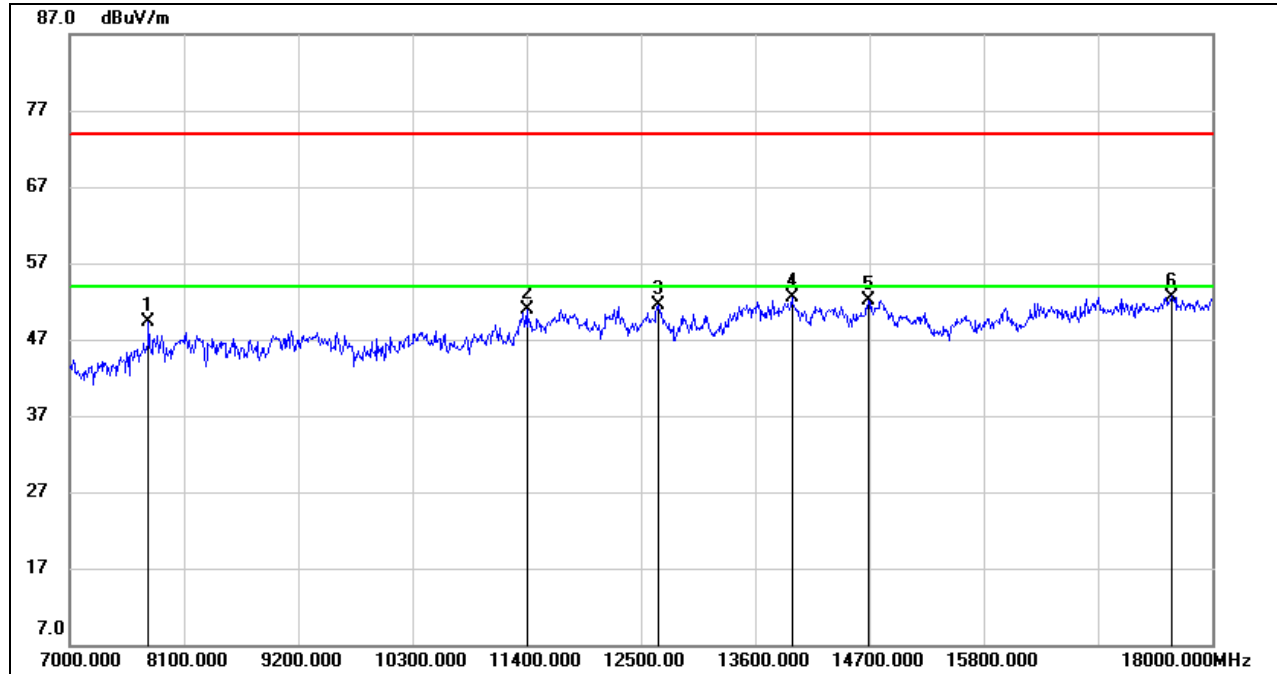
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	40.26	8.98	49.24	74.00	-24.76	peak
2	11400.000	36.05	14.76	50.81	74.00	-23.19	peak
3	12665.000	35.75	15.68	51.43	74.00	-22.57	peak
4	13952.000	33.88	18.63	52.51	74.00	-21.49	peak
5	14689.000	33.72	18.35	52.07	74.00	-21.93	peak
6	17615.000	28.67	23.93	52.60	74.00	-21.40	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

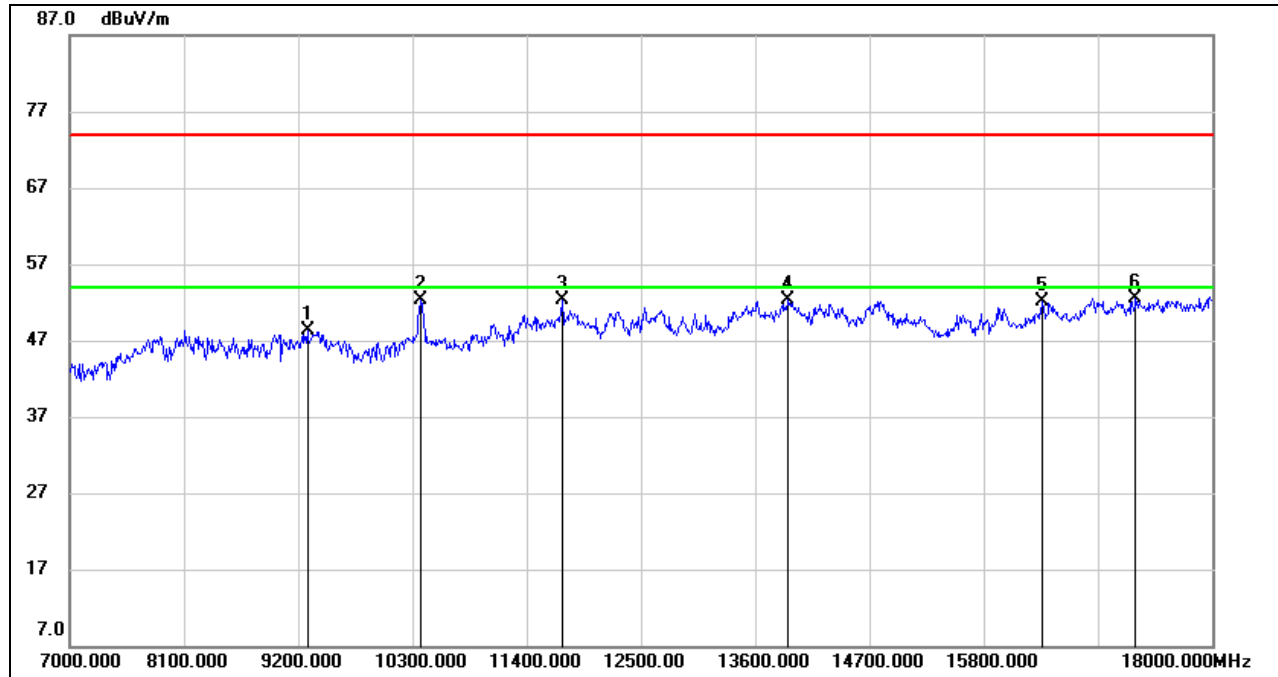
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### 8.3.3. 802.11n HT40 MIMO MODE

#### UNII-1 BAND

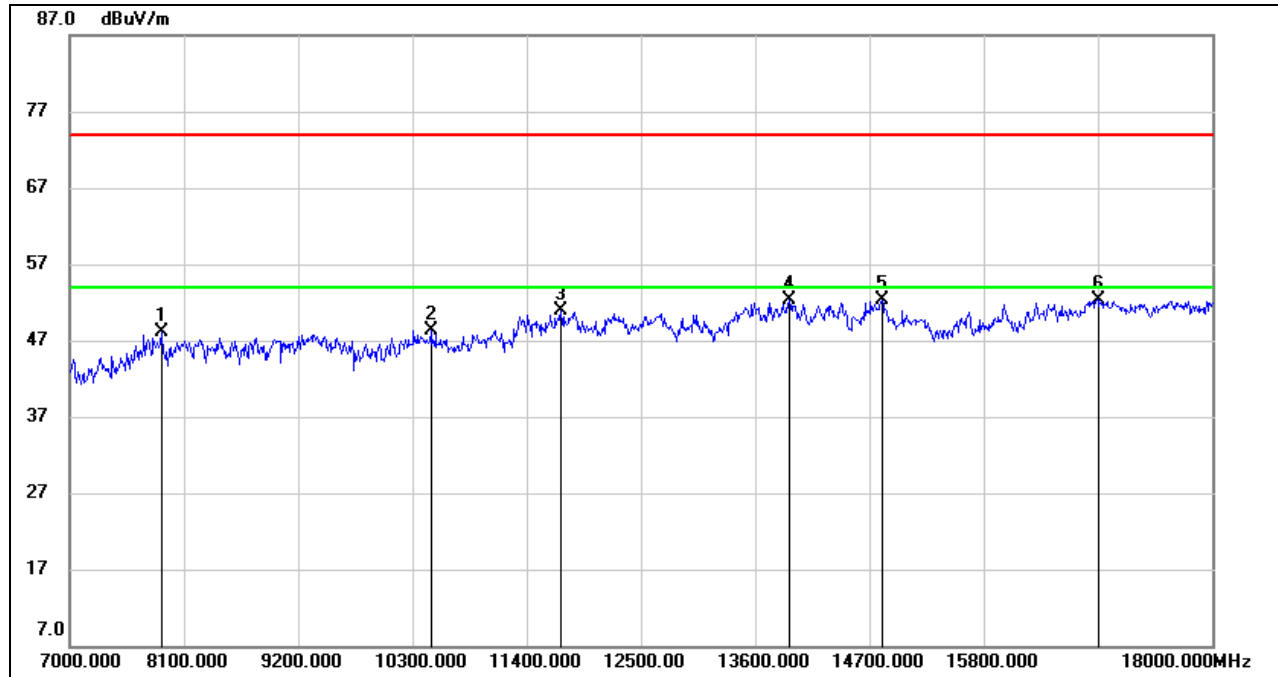
#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9288.000	38.06	10.34	48.40	74.00	-25.60	peak
2	10377.000	40.12	12.13	52.25	74.00	-21.75	peak
3	11741.000	36.96	15.30	52.26	74.00	-21.74	peak
4	13919.000	33.77	18.54	52.31	74.00	-21.69	peak
5	16361.000	32.13	19.98	52.11	74.00	-21.89	peak
6	17263.000	29.38	23.11	52.49	74.00	-21.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

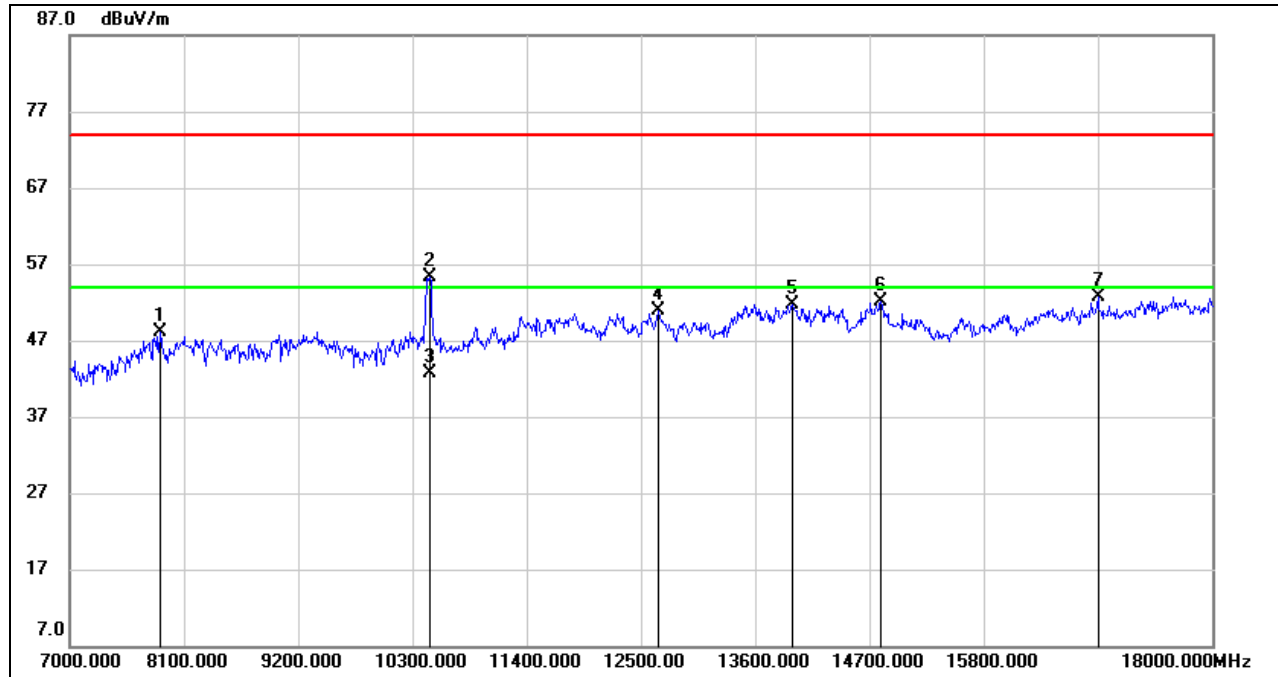
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7880.000	39.16	8.95	48.11	74.00	-25.89	peak
2	10476.000	35.95	12.33	48.28	74.00	-25.72	peak
3	11730.000	35.52	15.32	50.84	74.00	-23.16	peak
4	13930.000	33.75	18.58	52.33	74.00	-21.67	peak
5	14821.000	33.82	18.52	52.34	74.00	-21.66	peak
6	16900.000	30.31	22.02	52.33	74.00	-21.67	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

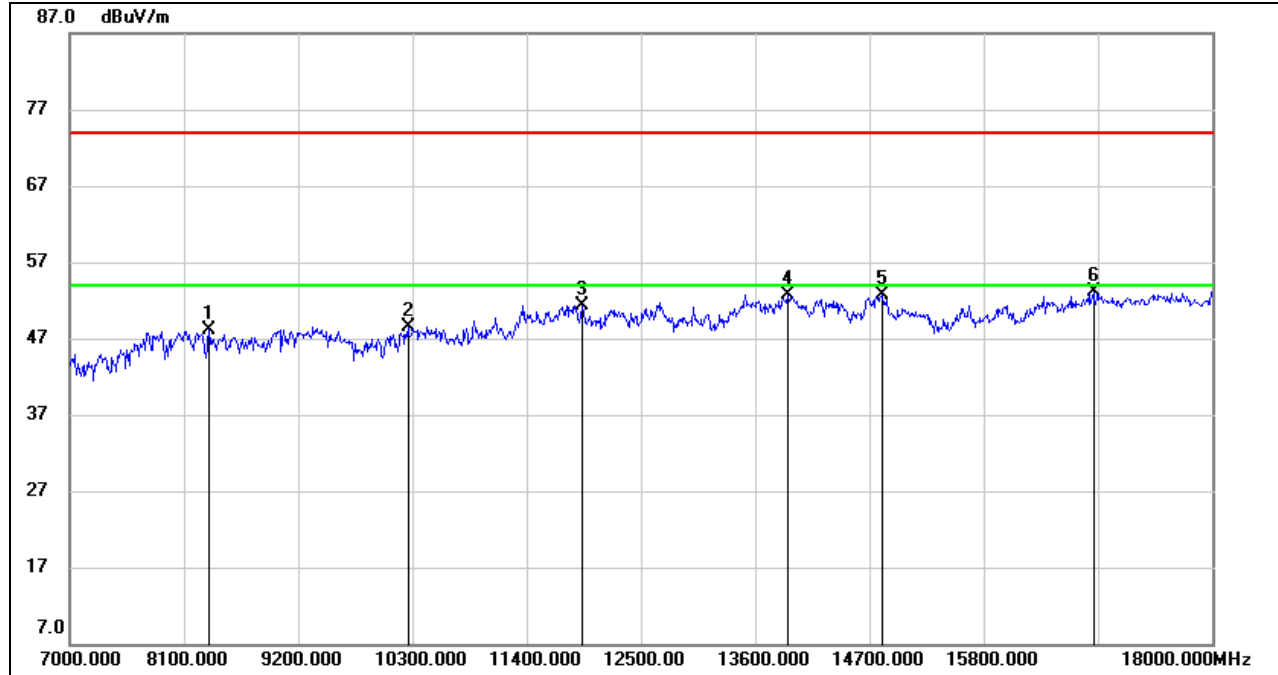


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	39.17	9.02	48.19	74.00	-25.81	peak
2*	10465.000	42.96	12.32	55.28	68.2	-12.92	peak
3*	10465.000	30.31	12.32	42.63	/	/	AVG
4	12665.000	35.20	15.68	50.88	74.00	-23.12	peak
5	13952.000	33.06	18.63	51.69	74.00	-22.31	peak
6	14810.000	33.45	18.59	52.04	74.00	-21.96	peak
7	16900.000	30.74	22.02	52.76	74.00	-21.24	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. \*-indicates frequency is out of the restricted bands, the AVG result only for reference.  
 7. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

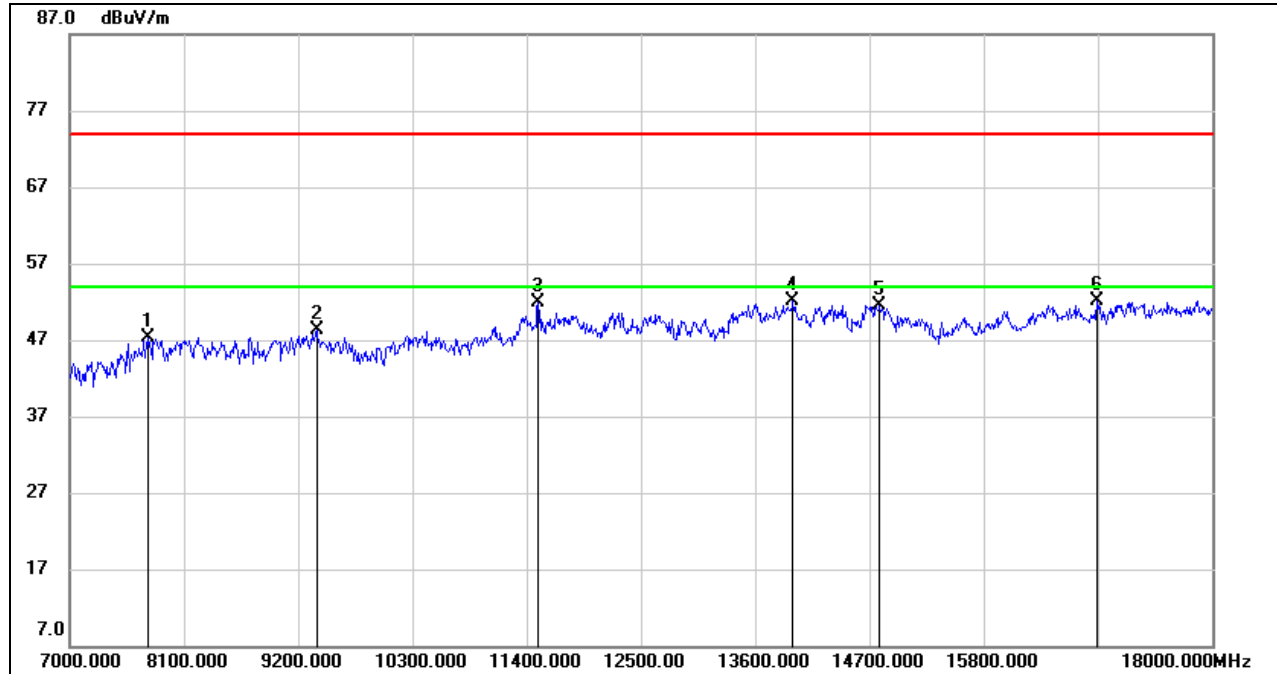


**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8342.000	38.56	9.54	48.10	74.00	-25.90	peak
2	10256.000	36.86	11.67	48.53	74.00	-25.47	peak
3	11939.000	35.83	15.54	51.37	74.00	-22.63	peak
4	13919.000	34.15	18.54	52.69	74.00	-21.31	peak
5	14821.000	34.10	18.52	52.62	74.00	-21.38	peak
6	16856.000	31.45	21.62	53.07	74.00	-20.93	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**UNII-3 BAND**
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	38.37	8.98	47.35	74.00	-26.65	peak
2	9376.000	37.37	10.84	48.21	74.00	-25.79	peak
3	11510.000	37.17	14.66	51.83	74.00	-22.17	peak
4	13963.000	33.54	18.65	52.19	74.00	-21.81	peak
5	14799.000	32.82	18.67	51.49	74.00	-22.51	peak
6	16889.000	30.25	21.91	52.16	74.00	-21.84	peak

Note: 1. Measurement = Reading Level + Correct Factor.

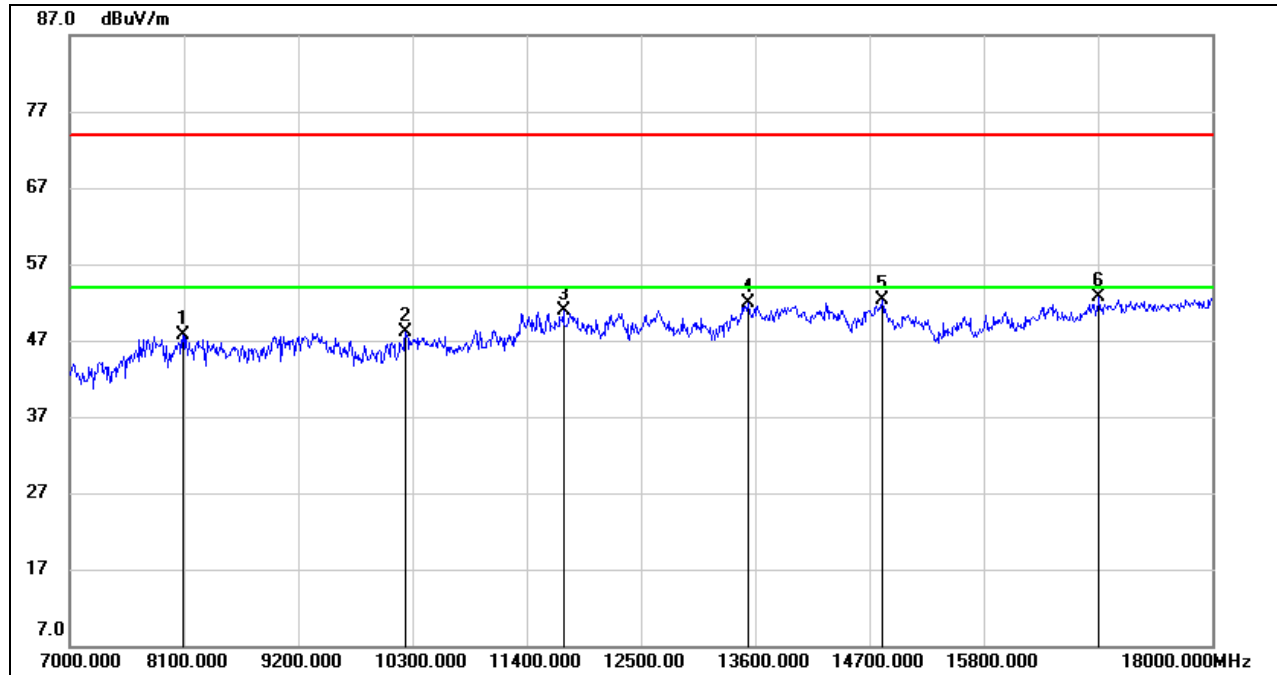
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8089.000	37.77	10.01	47.78	74.00	-26.22	peak
2	10234.000	36.41	11.60	48.01	74.00	-25.99	peak
3	11752.000	35.54	15.29	50.83	74.00	-23.17	peak
4	13534.000	34.22	17.76	51.98	74.00	-22.02	peak
5	14821.000	33.76	18.52	52.28	74.00	-21.72	peak
6	16911.000	30.79	21.99	52.78	74.00	-21.22	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

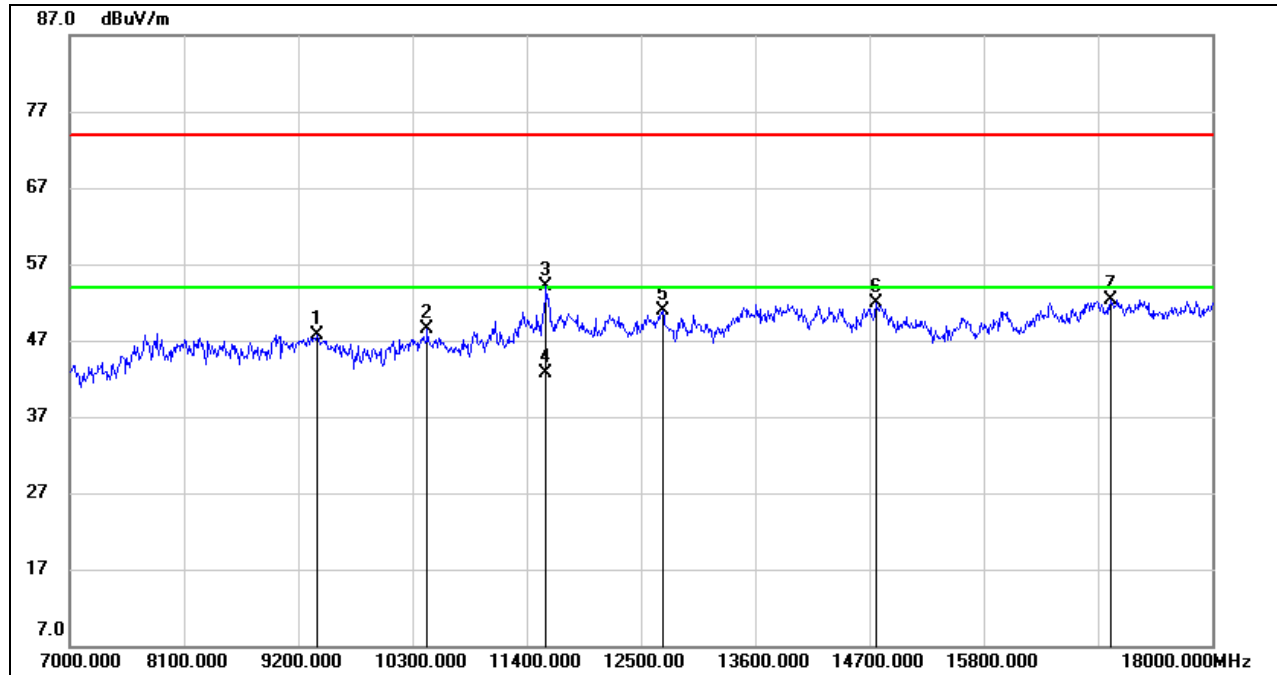
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9387.000	36.73	10.89	47.62	74.00	-26.38	peak
2	10443.000	36.26	12.29	48.55	74.00	-25.45	peak
3	11587.000	39.45	14.72	54.17	74.00	-19.83	peak
4	11587.000	28.03	14.72	42.75	54.00	-11.25	AVG
5	12709.000	35.30	15.66	50.96	74.00	-23.04	peak
6	14766.000	33.25	18.57	51.82	74.00	-22.18	peak
7	17021.000	30.50	21.87	52.37	74.00	-21.63	peak

Note: 1. Measurement = Reading Level + Correct Factor.

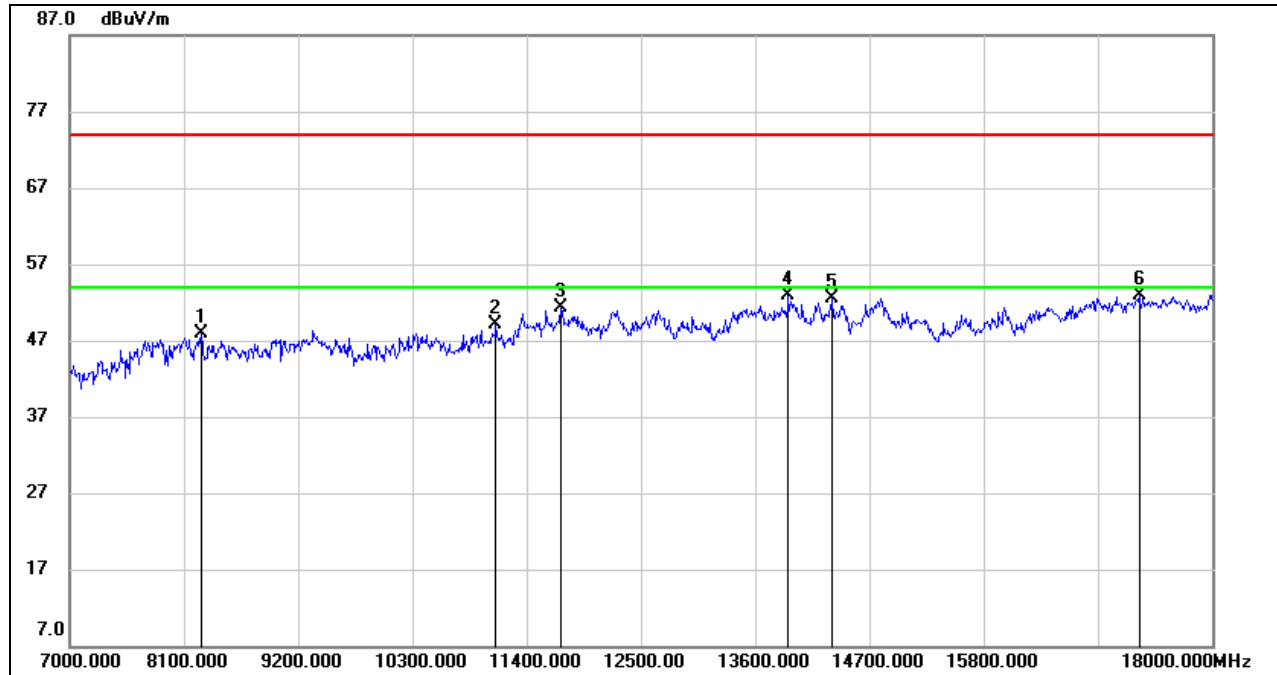
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8265.000	38.25	9.73	47.98	74.00	-26.02	peak
2	11103.000	35.28	13.80	49.08	74.00	-24.92	peak
3	11730.000	35.93	15.32	51.25	74.00	-22.75	peak
4	13919.000	34.34	18.54	52.88	74.00	-21.12	peak
5	14337.000	33.84	18.75	52.59	74.00	-21.41	peak
6	17296.000	29.54	23.35	52.89	74.00	-21.11	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

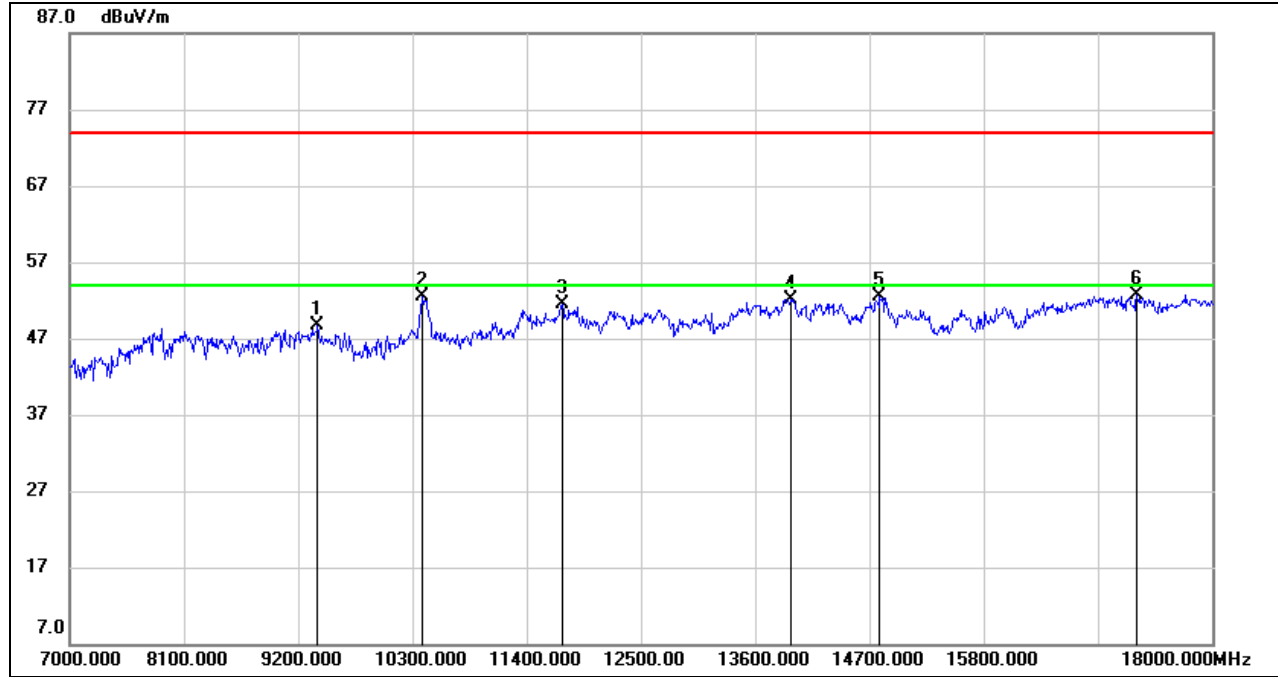
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**8.3.4. 802.11ac VHT80 MIMO MODE**

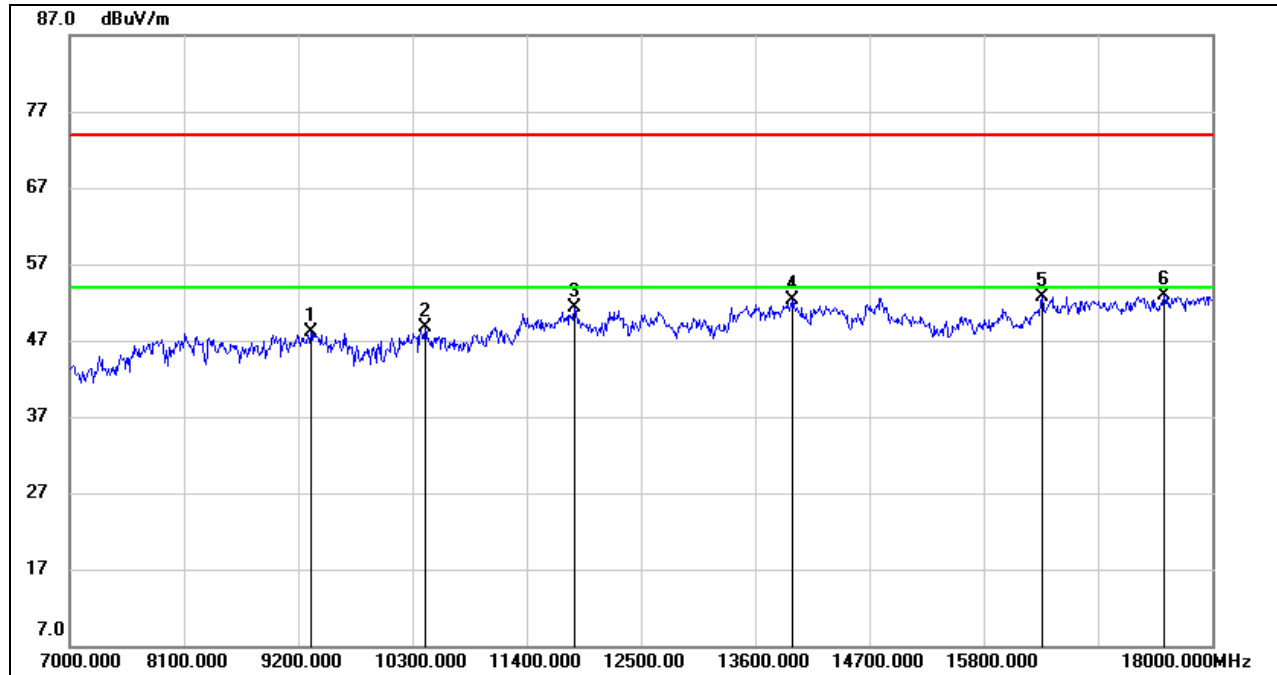
**UNII-1 BAND**

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9387.000	37.72	10.89	48.61	74.00	-25.39	peak
2	10399.000	40.27	12.23	52.50	74.00	-21.50	peak
3	11741.000	36.22	15.30	51.52	74.00	-22.48	peak
4	13941.000	33.58	18.60	52.18	74.00	-21.82	peak
5	14799.000	33.91	18.67	52.58	74.00	-21.42	peak
6	17274.000	29.51	23.19	52.70	74.00	-21.30	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9321.000	37.59	10.52	48.11	74.00	-25.89	peak
2	10421.000	36.45	12.25	48.70	74.00	-25.30	peak
3	11862.000	35.80	15.41	51.21	74.00	-22.79	peak
4	13963.000	33.74	18.65	52.39	74.00	-21.61	peak
5	16361.000	32.77	19.98	52.75	74.00	-21.25	peak
6	17538.000	29.56	23.31	52.87	74.00	-21.13	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

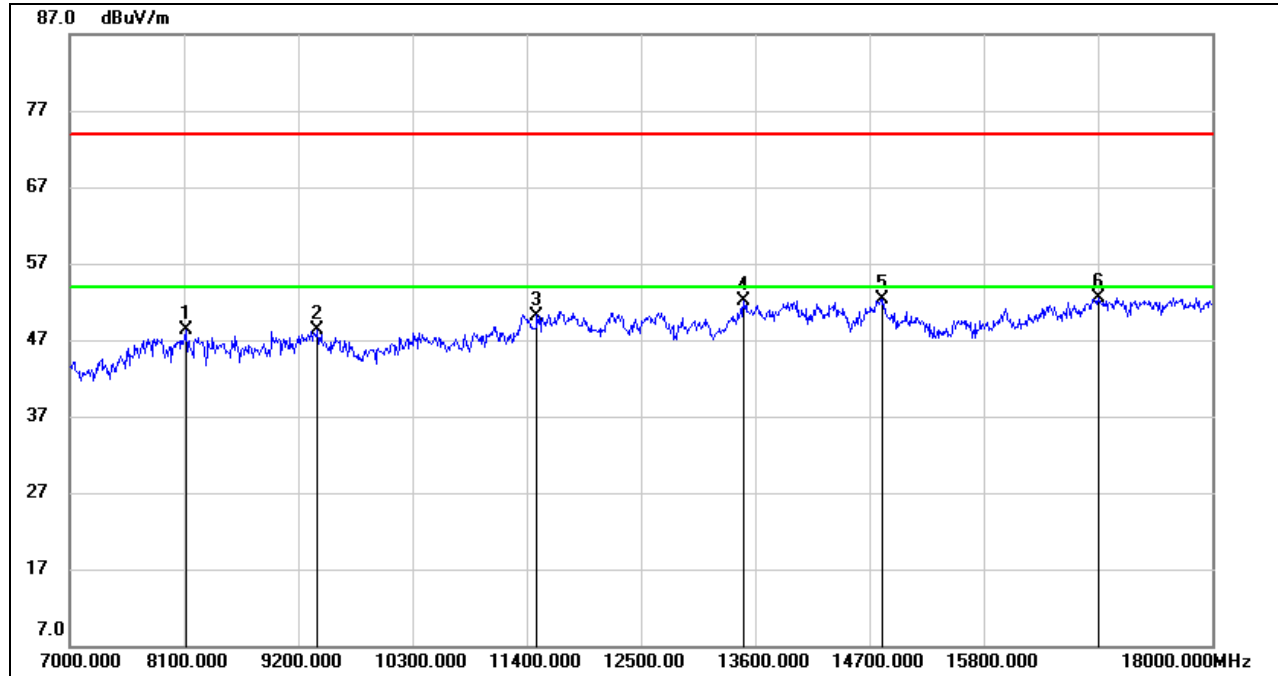
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**UNII-3 BAND**

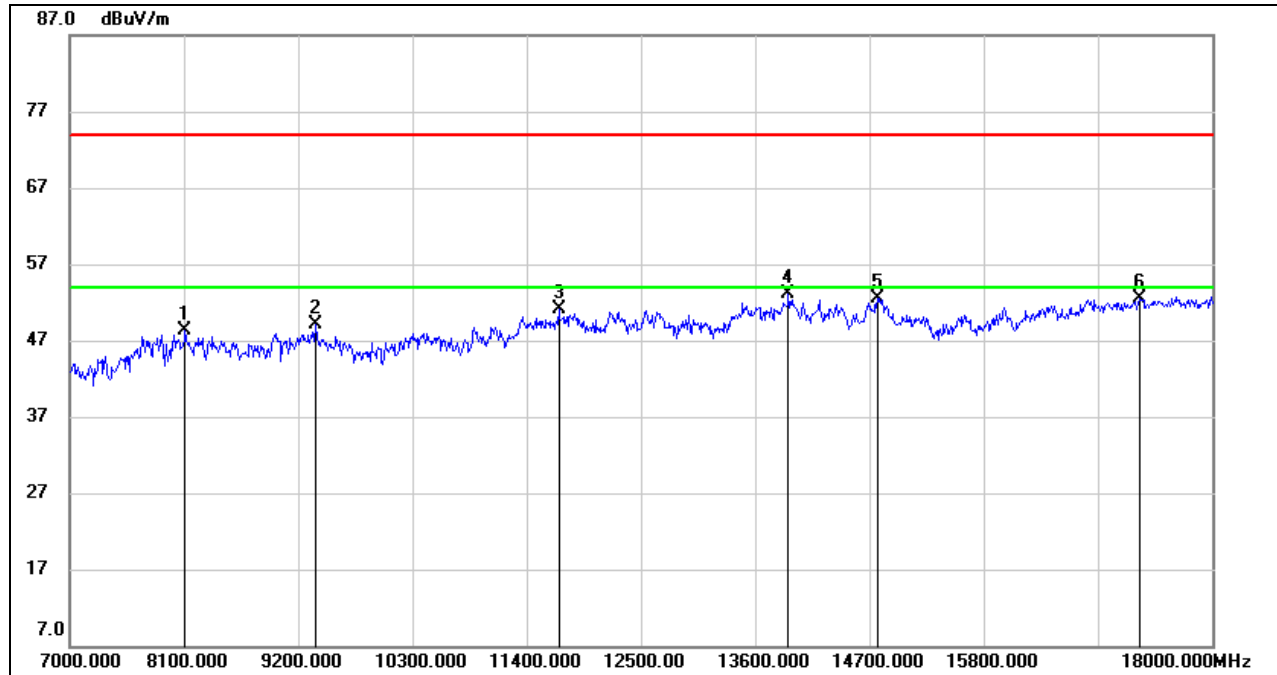
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8122.000	38.20	10.10	48.30	74.00	-25.70	peak
2	9387.000	37.50	10.89	48.39	74.00	-25.61	peak
3	11499.000	35.55	14.65	50.20	74.00	-23.80	peak
4	13490.000	34.35	17.73	52.08	74.00	-21.92	peak
5	14821.000	33.74	18.52	52.26	74.00	-21.74	peak
6	16900.000	30.58	22.02	52.60	74.00	-21.40	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8111.000	38.11	10.14	48.25	74.00	-25.75	peak
2	9365.000	38.31	10.77	49.08	74.00	-24.92	peak
3	11708.000	35.70	15.34	51.04	74.00	-22.96	peak
4	13919.000	34.62	18.54	53.16	74.00	-20.84	peak
5	14777.000	33.88	18.60	52.48	74.00	-21.52	peak
6	17307.000	29.11	23.33	52.44	74.00	-21.56	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

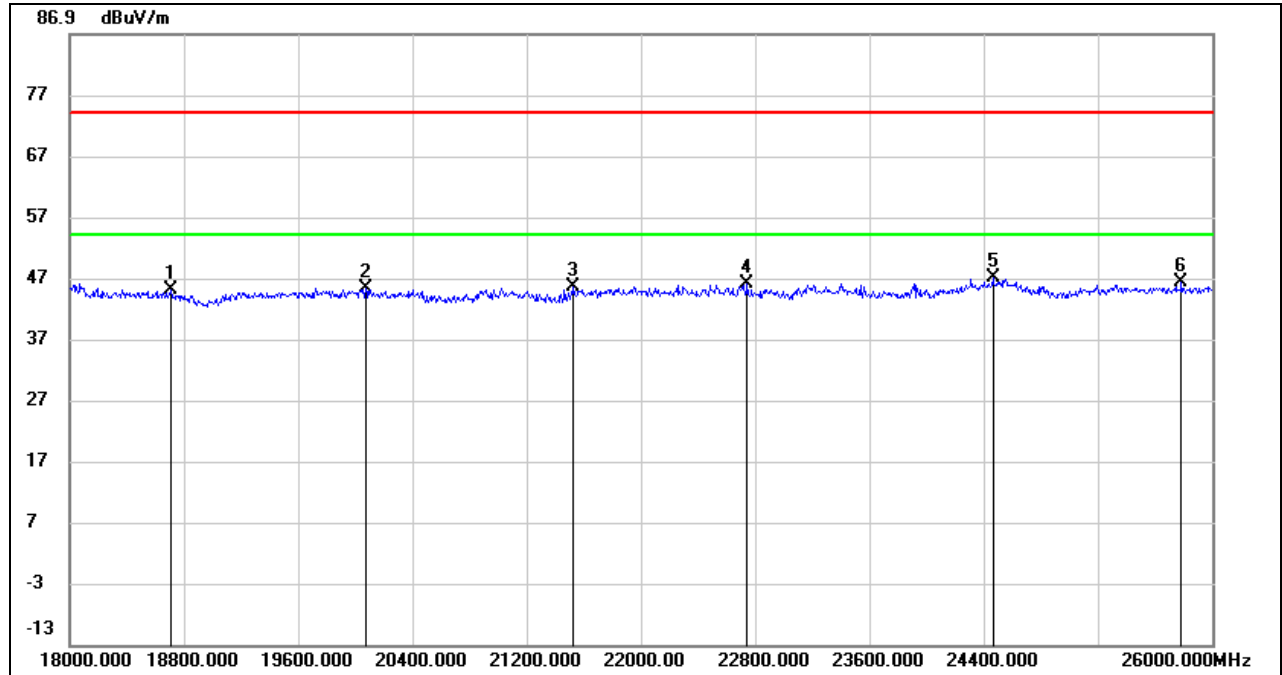
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

## 8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

### 8.4.1. 802.11n HT40 MIMO MODE

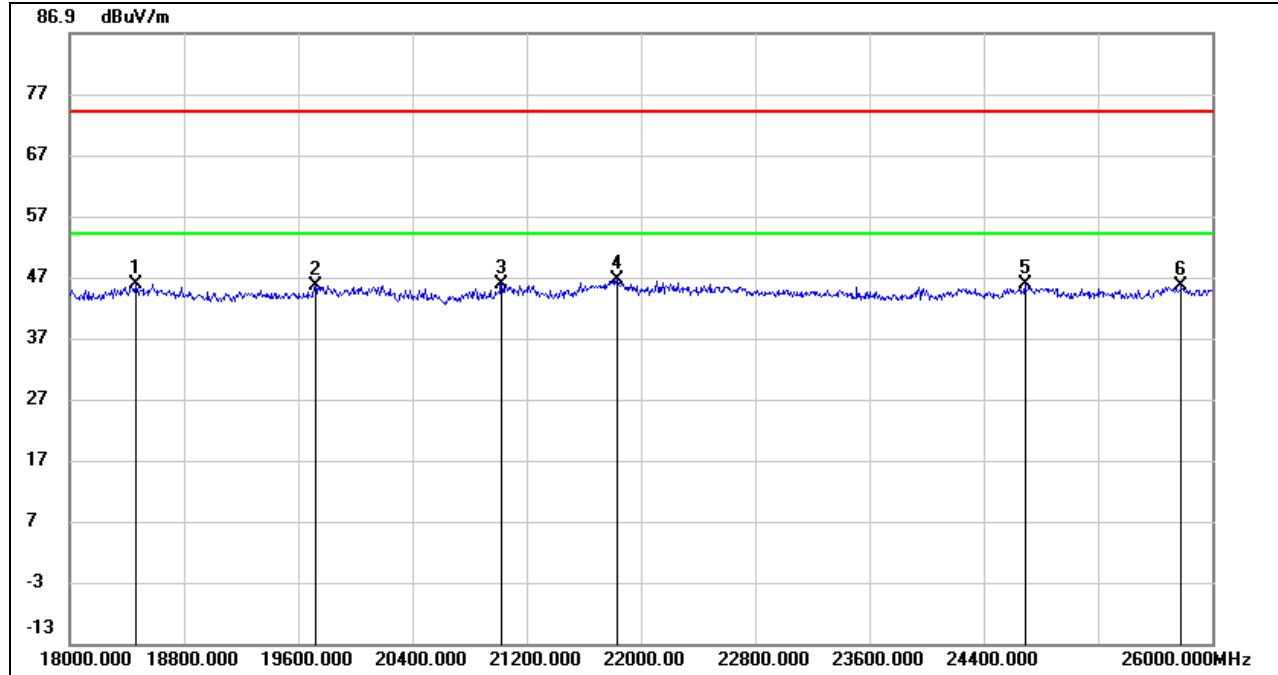
#### SPURIOUS EMISSIONS (UNII-3 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18712.000	49.73	-4.76	44.97	74.00	-29.03	peak
2	20072.000	49.84	-4.51	45.33	74.00	-28.67	peak
3	21528.000	51.42	-5.78	45.64	74.00	-28.36	peak
4	22744.000	51.68	-5.74	45.94	74.00	-28.06	peak
5	24464.000	49.78	-2.74	47.04	74.00	-26.96	peak
6	25784.000	47.73	-1.49	46.24	74.00	-27.76	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.

**SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18464.000	50.20	-4.39	45.81	74.00	-28.19	peak
2	19720.000	50.00	-4.39	45.61	74.00	-28.39	peak
3	21024.000	51.14	-5.30	45.84	74.00	-28.16	peak
4	21832.000	52.53	-5.92	46.61	74.00	-27.39	peak
5	24688.000	47.89	-2.11	45.78	74.00	-28.22	peak
6	25784.000	47.08	-1.49	45.59	74.00	-28.41	peak

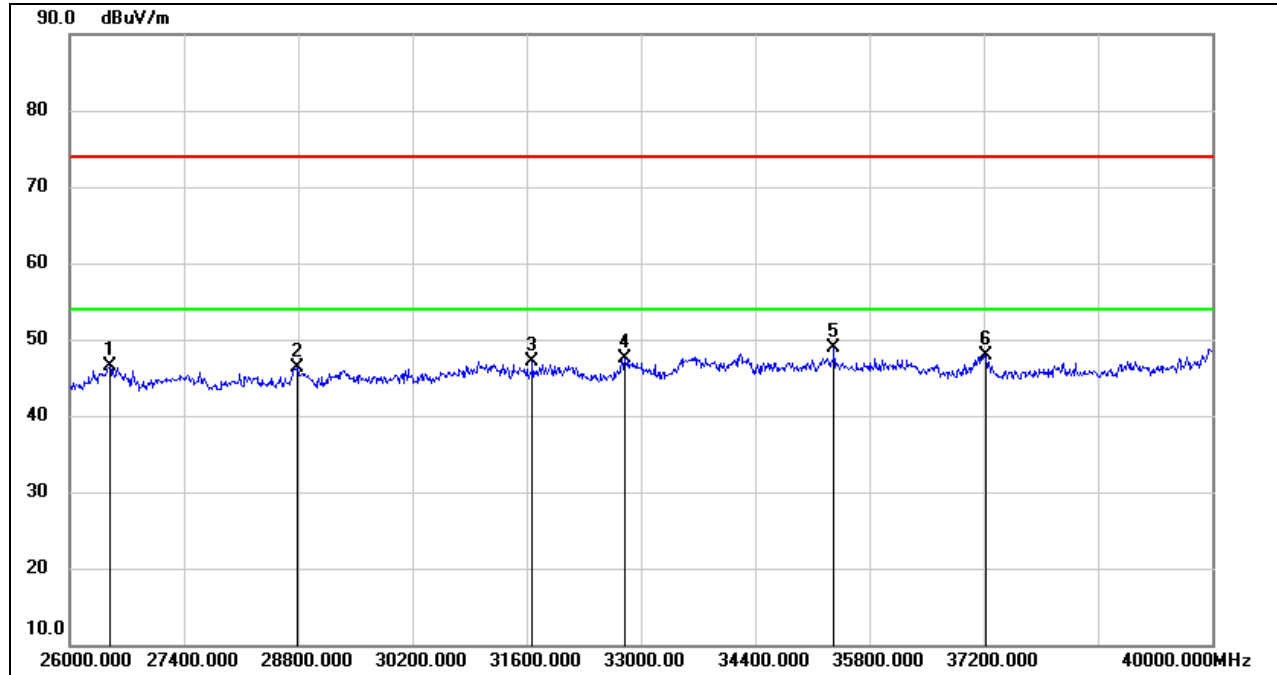
- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.5. SPURIOUS EMISSIONS (26 GHz ~ 40 GHz)

### 8.5.1. 802.11n HT40 MIMO MODE

#### SPURIOUS EMISSIONS (UNII-3 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)

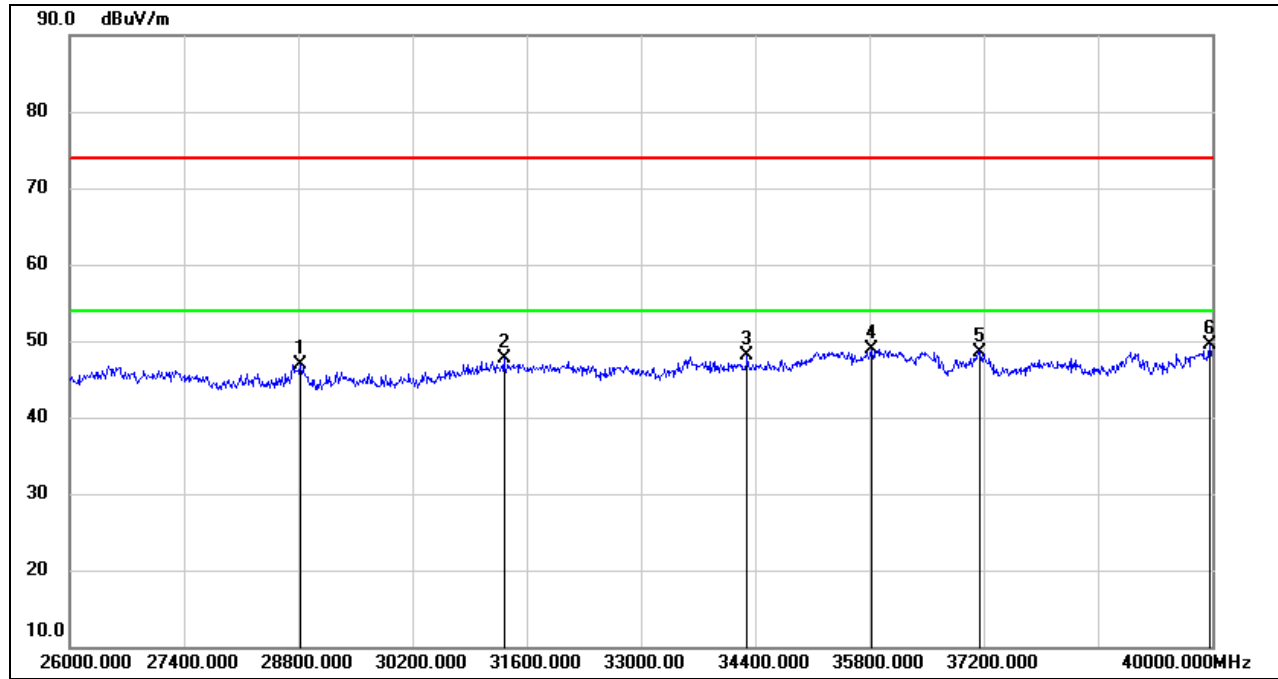


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.29	-4.74	46.55	74.00	-27.45	peak
2	28786.000	46.99	-0.64	46.35	74.00	-27.65	peak
3	31670.000	48.36	-1.21	47.15	74.00	-26.85	peak
4	32804.000	48.64	-1.12	47.52	74.00	-26.48	peak
5	35366.000	46.40	2.59	48.99	74.00	-25.01	peak
6	37228.000	44.73	3.14	47.87	74.00	-26.13	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Proper operation of the transmitter prior to adding the filter to the measurement chain.



**SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	28828.000	47.63	-0.79	46.84	74.00	-27.16	peak
2	31320.000	48.61	-0.93	47.68	74.00	-26.32	peak
3	34302.000	46.95	1.10	48.05	74.00	-25.95	peak
4	35828.000	45.25	3.67	48.92	74.00	-25.08	peak
5	37158.000	45.34	3.17	48.51	74.00	-25.49	peak
6	39972.000	44.45	5.13	49.58	74.00	-24.42	peak

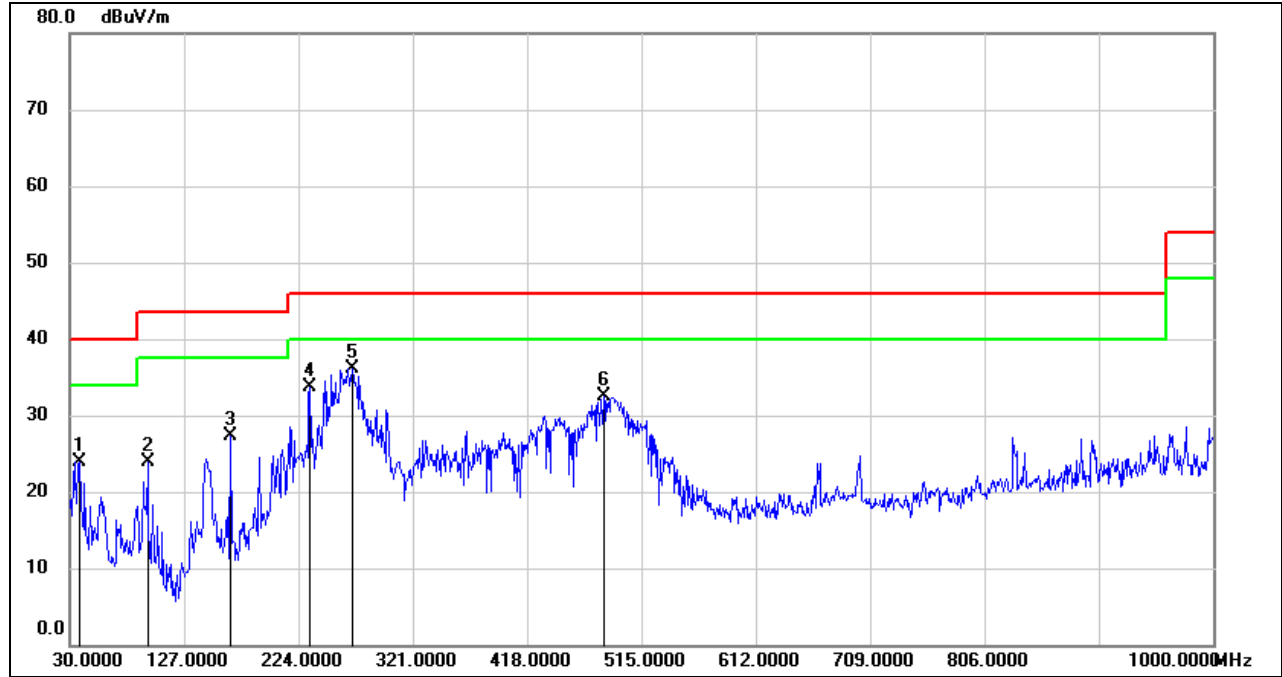
- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.6. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

### 8.6.1. 802.11n HT40 MIMO MODE

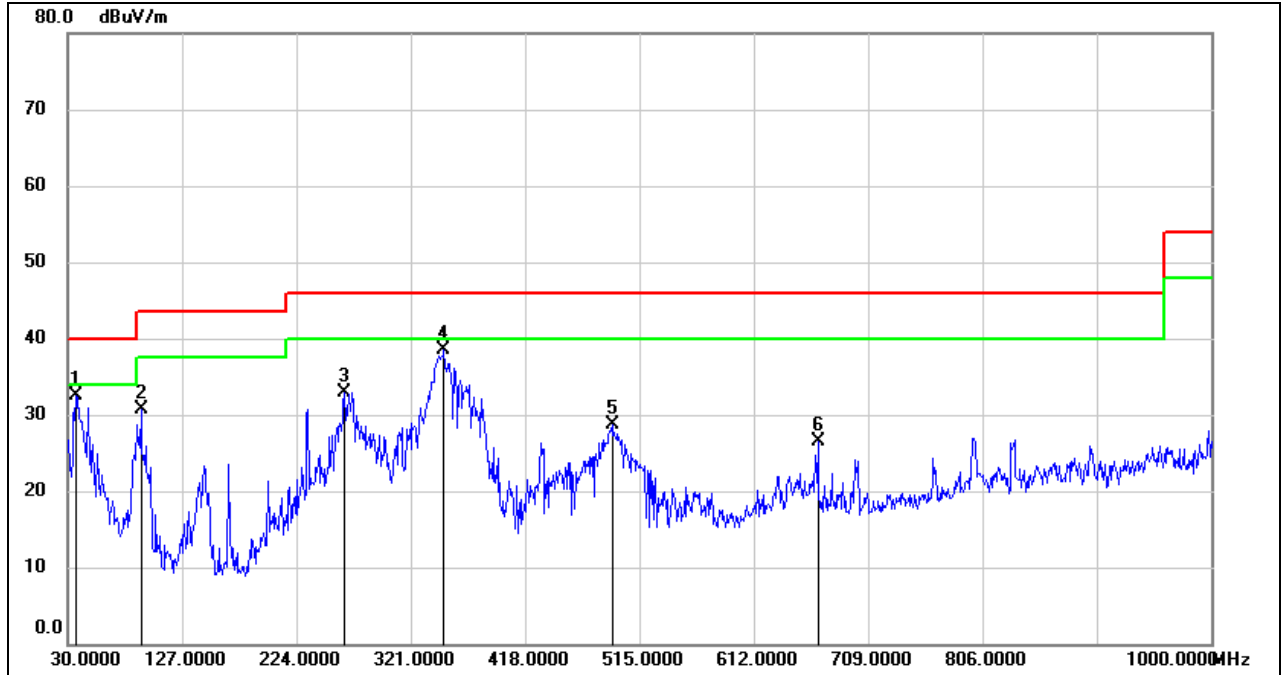
#### SPURIOUS EMISSIONS (UNII-3 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7300	41.78	-17.80	23.98	40.00	-16.02	QP
2	95.9600	45.27	-21.34	23.93	43.50	-19.57	QP
3	165.8000	44.59	-17.36	27.23	43.50	-16.27	QP
4	233.7000	51.36	-17.66	33.70	46.00	-12.30	QP
5	269.5900	51.75	-15.64	36.11	46.00	-9.89	QP
6	482.9900	43.68	-11.17	32.51	46.00	-13.49	QP

Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

**SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	36.7900	50.20	-17.65	32.55	40.00	-7.45	QP
2	92.0800	51.82	-21.09	30.73	43.50	-12.77	QP
3	264.7400	48.70	-15.74	32.96	46.00	-13.04	QP
4	349.1300	51.97	-13.53	38.44	46.00	-7.56	QP
5	491.7200	39.74	-10.96	28.78	46.00	-17.22	QP
6	666.3200	34.15	-7.65	26.50	46.00	-19.50	QP

- Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

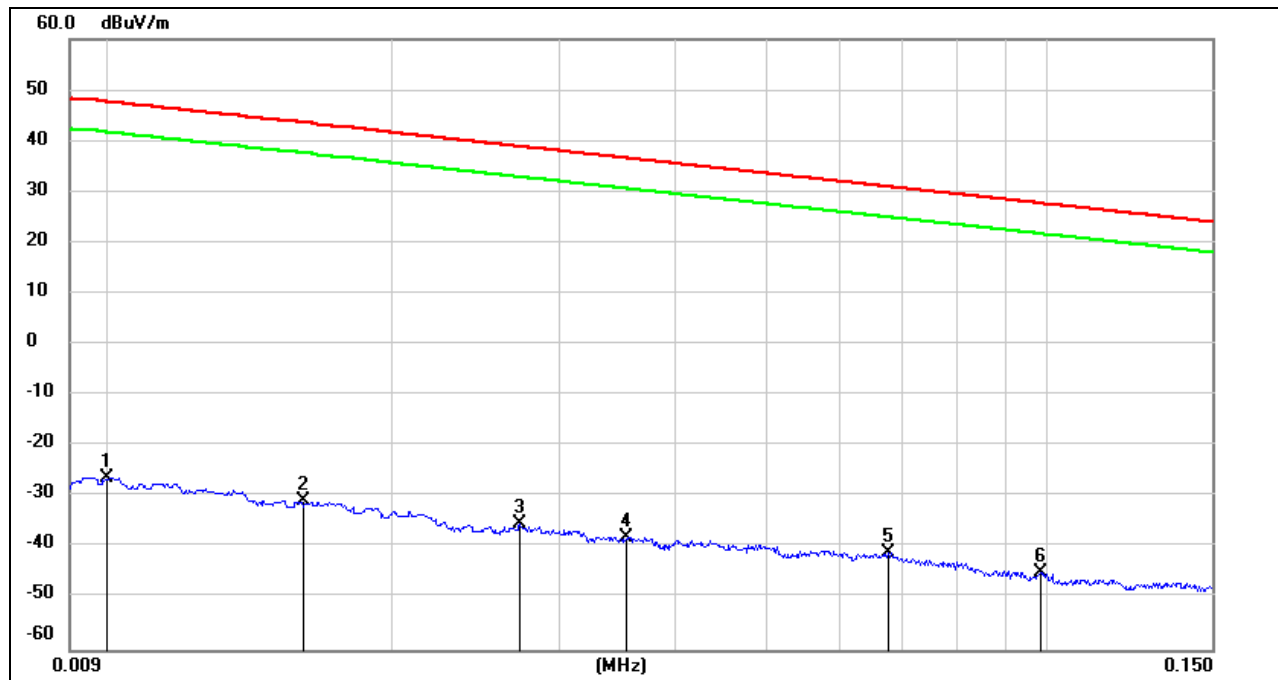
Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.7. SPURIOUS EMISSIONS BELOW 30 MHz

### 8.7.1. 802.11n HT40 MIMO MODE

#### SPURIOUS EMISSIONS (UNII-3 BAND LOW CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.0100	75.22	-101.40	-26.18	47.6	-77.68	-3.90	-73.78	peak
2	0.0160	70.47	-101.37	-30.9	43.52	-82.40	-7.98	-74.42	peak
3	0.0273	65.99	-101.38	-35.39	38.88	-86.89	-12.62	-74.27	peak
4	0.0354	63.47	-101.41	-37.94	36.62	-89.44	-14.88	-74.56	peak
5	0.0675	60.64	-101.56	-40.92	31.02	-92.42	-20.48	-71.94	peak
6	0.0985	57.05	-101.78	-44.73	27.73	-96.23	-23.77	-72.46	peak

Note: 1. Measurement = Reading Level + Correct Factor.

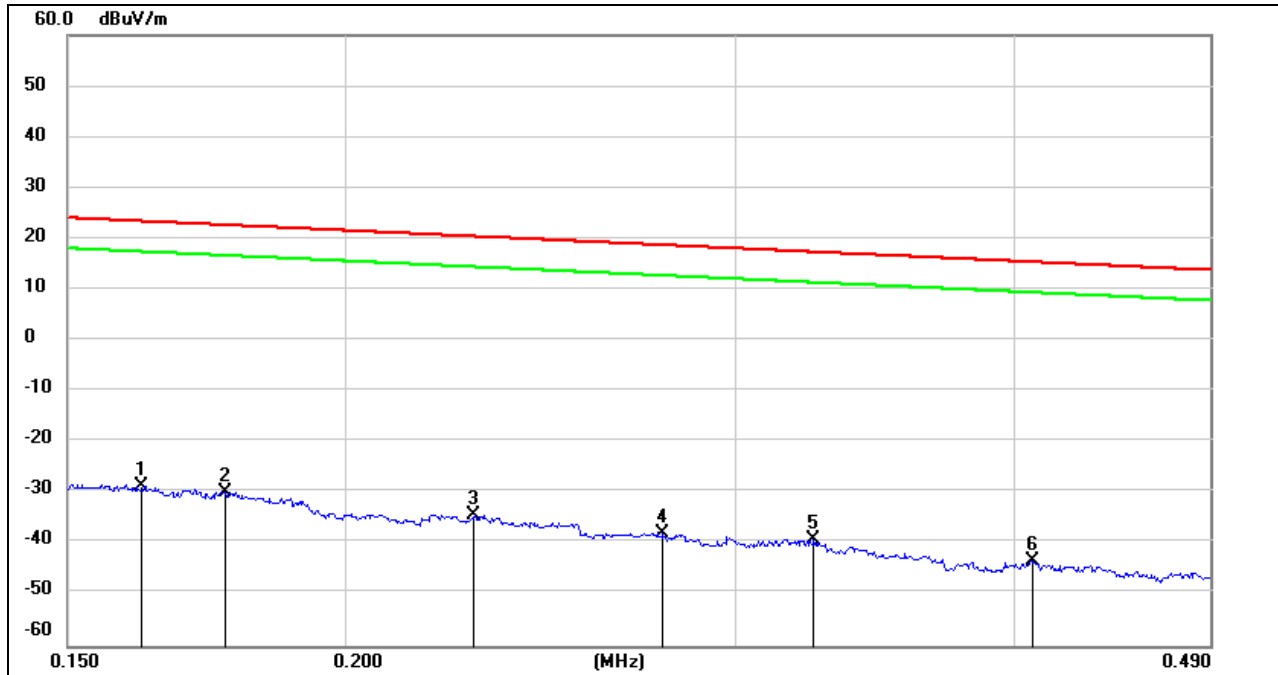
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}(120\pi) = \text{dBuV/m} - 51.5$ .



**150 kHz ~ 490 kHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1621	72.92	-101.65	-28.73	23.41	-80.23	-28.09	-52.14	peak
2	0.1766	71.98	-101.68	-29.7	22.67	-81.20	-28.83	-52.37	peak
3	0.2285	67.40	-101.77	-34.37	20.42	-85.87	-31.08	-54.79	peak
4	0.2782	63.79	-101.83	-38.04	18.71	-89.54	-32.79	-56.75	peak
5	0.3251	62.71	-101.88	-39.17	17.36	-90.67	-34.14	-56.53	peak
6	0.4081	58.58	-101.97	-43.39	15.39	-94.89	-36.11	-58.78	peak

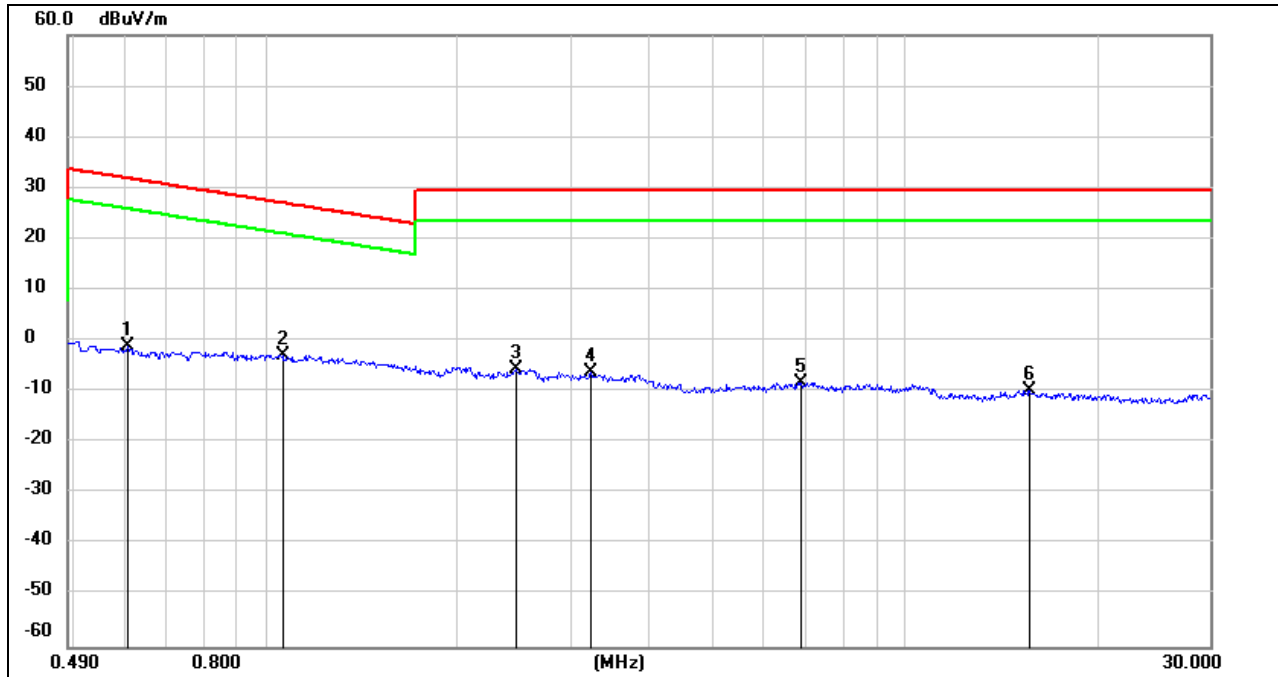
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4. dBuA/m = dBuV/m – 20log<sub>10</sub>(120π) = dBuV/m -51.5.

**490 kHz ~ 30 MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.6094	60.99	-62.09	-1.1	31.9	-52.60	-19.60	-33.00	peak
2	1.0620	59.51	-62.24	-2.73	27.08	-54.23	-24.42	-29.81	peak
3	2.4672	56.16	-61.71	-5.55	29.54	-57.05	-21.96	-35.09	peak
4	3.2343	55.29	-61.53	-6.24	29.54	-57.74	-21.96	-35.78	peak
5	6.8936	53.09	-61.22	-8.13	29.54	-59.63	-21.96	-37.67	peak
6	15.7172	51.16	-60.99	-9.83	29.54	-61.33	-21.96	-39.37	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.  
 3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.  
 4.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}(120\pi) = \text{dBuV/m} - 51.5$ .

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 9. AC POWER LINE CONDUCTED EMISSIONS

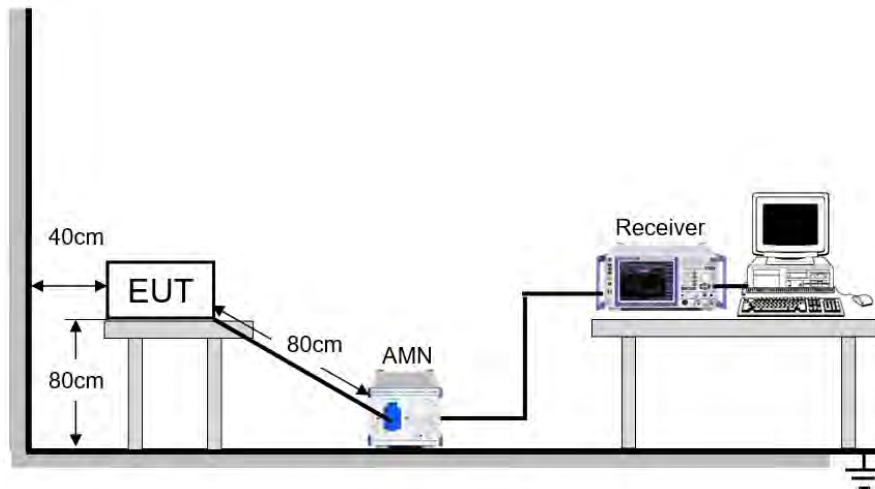
### LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

### TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

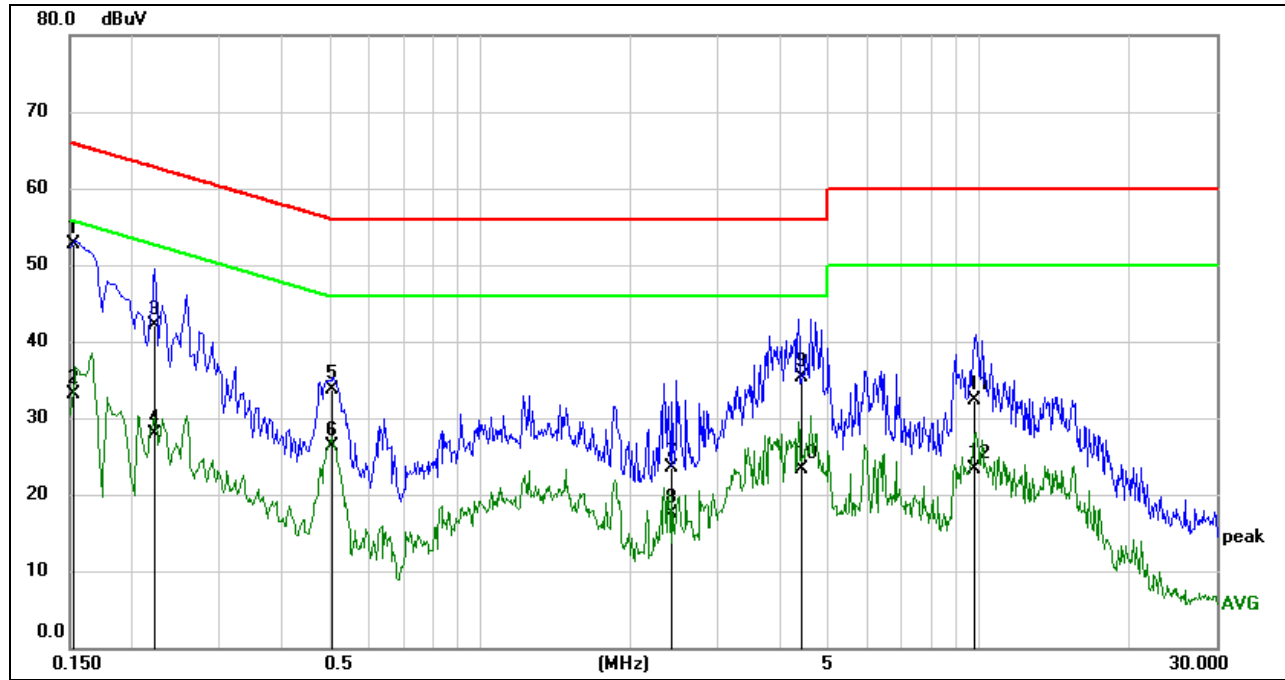
### TEST ENVIRONMENT

Temperature	23.6 °C	Relative Humidity	59.1 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V,60Hz

**RESULTS**

**9.1. 802.11n HT40 MODE**

**LINE N RESULTS (UNII-3 BAND LOW CHANNEL, WORST-CASE CONFIGURATION)**

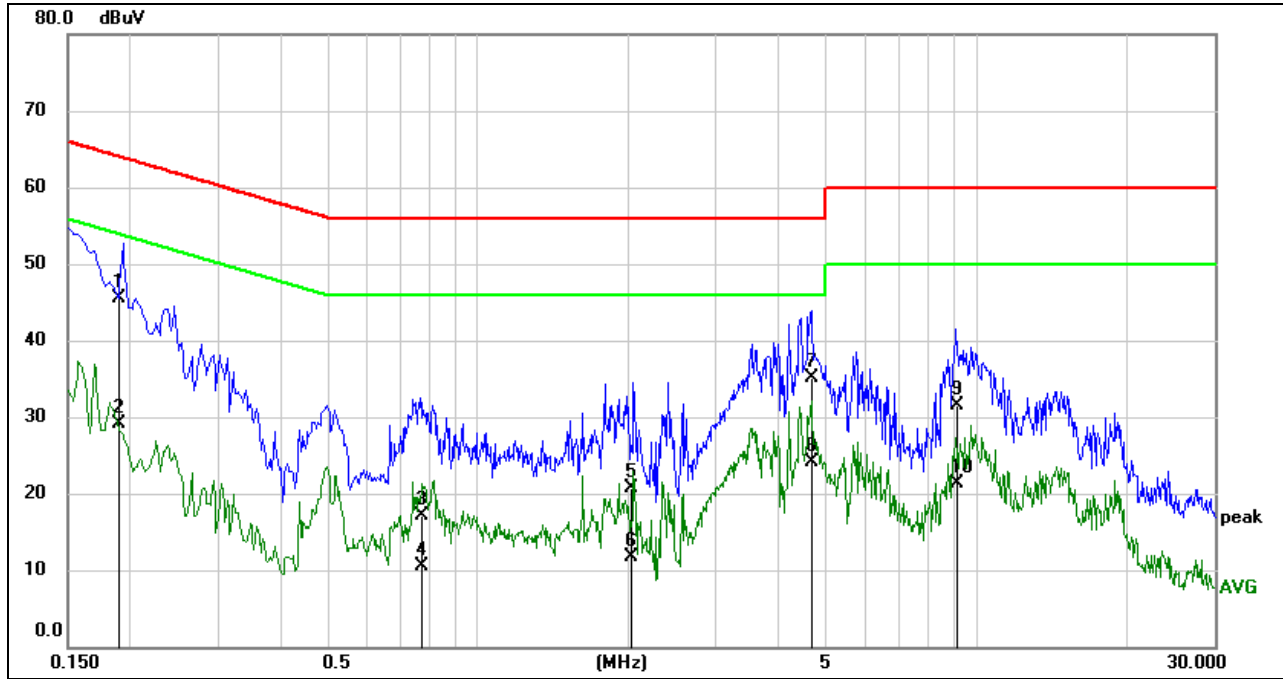


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1524	43.21	9.59	52.80	65.87	-13.07	QP
2	0.1524	23.52	9.59	33.11	55.87	-22.76	AVG
3	0.2212	32.57	9.59	42.16	62.77	-20.61	QP
4	0.2212	18.36	9.59	27.95	52.77	-24.82	AVG
5	0.5048	24.01	9.60	33.61	56.00	-22.39	QP
6	0.5048	16.67	9.60	26.27	46.00	-19.73	AVG
7	2.4346	13.88	9.63	23.51	56.00	-32.49	QP
8	2.4346	7.80	9.63	17.43	46.00	-28.57	AVG
9	4.4174	25.72	9.61	35.33	56.00	-20.67	QP
10	4.4174	13.75	9.61	23.36	46.00	-22.64	AVG
11	9.8407	22.65	9.62	32.27	60.00	-27.73	QP
12	9.8407	13.68	9.62	23.30	50.00	-26.70	AVG

Note: 1. Result = Reading + Correct Factor.  
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).  
 4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.



**LINE L RESULTS (UNII-1 BAND LOW CHANNEL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1901	35.83	9.59	45.42	64.03	-18.61	QP
2	0.1901	19.42	9.59	29.01	54.03	-25.02	AVG
3	0.7705	7.53	9.60	17.13	56.00	-38.87	QP
4	0.7705	0.98	9.60	10.58	46.00	-35.42	AVG
5	2.0312	10.99	9.63	20.62	56.00	-35.38	QP
6	2.0312	2.09	9.63	11.72	46.00	-34.28	AVG
7	4.6452	25.51	9.61	35.12	56.00	-20.88	QP
8	4.6452	14.56	9.61	24.17	46.00	-21.83	AVG
9	9.1421	21.81	9.61	31.42	60.00	-28.58	QP
10	9.1421	11.78	9.61	21.39	50.00	-28.61	AVG

Note: 1. Result = Reading + Correct Factor.  
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).  
 4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes had been tested, but only the worst data was recorded in the report.

## 10. FREQUENCY STABILITY

### LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

### TEST PROCEDURE

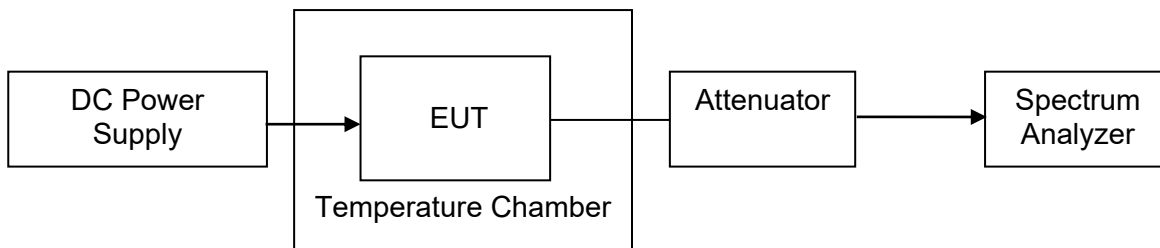
1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

### TEST SETUP





**TEST ENVIRONMENT**

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T <sub>N</sub> (Normal Temperature): 22 °C – 28 °C	T <sub>L</sub> (Low Temperature): 0 °C
		T <sub>H</sub> (High Temperature): 40 °C
Supply Voltage	V <sub>N</sub> (Normal Voltage): DC 5 V	V <sub>L</sub> (Low Voltage): DC 4.25 V
		V <sub>H</sub> (High Voltage): DC 5.75 V

**RESULTS**

Please refer to Appendix E.



## 11. ANTENNA REQUIREMENTS

### APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.407(a)

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

### RESULTS

Complies





## 12. Appendix

### 12.1. Appendix A1: Emission Bandwidth

#### 12.1.1. Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant0	5180	19.920	5170.240	5190.160	PASS
	Ant1	5180	19.920	5170.240	5190.160	PASS
	Ant0	5200	20.000	5189.960	5209.960	PASS
	Ant1	5200	19.840	5190.320	5210.160	PASS
	Ant0	5240	19.840	5230.200	5250.040	PASS
	Ant1	5240	19.640	5230.160	5249.800	PASS
	Ant0	5745	19.680	5735.040	5754.720	PASS
	Ant1	5745	19.960	5735.160	5755.120	PASS
	Ant0	5785	19.760	5775.000	5794.760	PASS
	Ant1	5785	20.320	5775.000	5795.320	PASS
	Ant0	5825	20.080	5814.960	5835.040	PASS
	Ant1	5825	19.440	5815.520	5834.960	PASS
11N20MIMO	Ant0	5180	19.880	5170.160	5190.040	PASS
	Ant1	5180	20.320	5169.880	5190.200	PASS
	Ant0	5200	20.200	5190.080	5210.280	PASS
	Ant1	5200	20.360	5190.200	5210.560	PASS
	Ant0	5240	19.840	5230.160	5250.000	PASS
	Ant1	5240	19.720	5230.280	5250.000	PASS
	Ant0	5745	20.400	5734.960	5755.360	PASS
	Ant1	5745	20.480	5734.960	5755.440	PASS
	Ant0	5785	20.040	5775.160	5795.200	PASS
	Ant1	5785	20.720	5774.760	5795.480	PASS
	Ant0	5825	20.280	5814.880	5835.160	PASS
	Ant1	5825	19.960	5815.400	5835.360	PASS
11N40MIMO	Ant0	5190	41.040	5169.680	5210.720	PASS
	Ant1	5190	41.760	5168.960	5210.720	PASS
	Ant0	5230	42.080	5209.280	5251.360	PASS
	Ant1	5230	41.600	5209.200	5250.800	PASS
	Ant0	5755	40.960	5734.680	5775.640	PASS
	Ant1	5755	41.520	5734.040	5775.560	PASS
	Ant0	5795	40.720	5774.600	5815.320	PASS
	Ant1	5795	43.760	5773.400	5817.160	PASS
11AC20MIMO	Ant0	5180	20.440	5169.840	5190.280	PASS
	Ant1	5180	20.480	5169.720	5190.200	PASS
	Ant0	5200	19.840	5190.200	5210.040	PASS
	Ant1	5200	20.680	5189.800	5210.480	PASS
	Ant0	5240	19.720	5230.320	5250.040	PASS
	Ant1	5240	19.840	5230.400	5250.240	PASS
	Ant0	5745	20.760	5734.800	5755.560	PASS
	Ant1	5745	20.760	5735.080	5755.840	PASS
	Ant0	5785	20.280	5774.960	5795.240	PASS
	Ant1	5785	20.200	5775.200	5795.400	PASS
	Ant0	5825	20.040	5815.080	5835.120	PASS
	Ant1	5825	20.480	5815.040	5835.520	PASS
11AC40MIMO	Ant0	5190	41.760	5168.640	5210.400	PASS
	Ant1	5190	40.880	5169.680	5210.560	PASS
	Ant0	5230	41.680	5209.680	5251.360	PASS
	Ant1	5230	42.560	5209.360	5251.920	PASS
	Ant0	5755	41.680	5734.120	5775.800	PASS
	Ant1	5755	40.320	5735.080	5775.400	PASS
	Ant0	5795	41.520	5774.120	5815.640	PASS



	Ant1	5795	41.680	5774.360	5816.040	PASS
11AC80MIMO	Ant0	5210	79.680	5170.640	5250.320	PASS
	Ant1	5210	78.880	5170.800	5249.680	PASS
	Ant0	5775	81.440	5734.200	5815.640	PASS
	Ant1	5775	80.160	5735.480	5815.640	PASS

### 12.1.2. Test Graphs





11A Ant1 5200



11A Ant0 5240



11A Ant1 5240



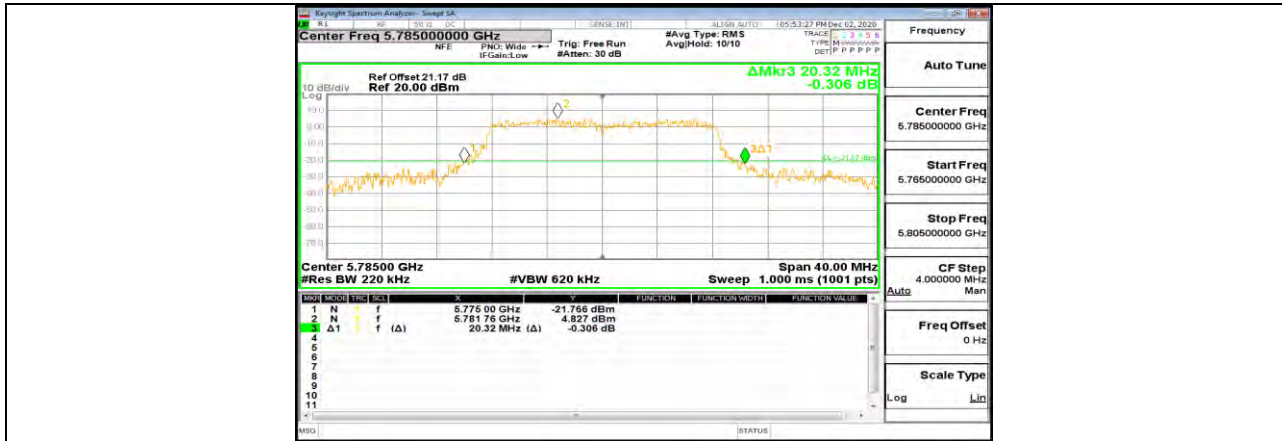
11A Ant0 5745



11A Ant1 5745



11A Ant0 5785



11A Ant1 5785



11A Ant0 5825



11A Ant1 5825



11N20MIMO Ant0 5180



11N20MIMO Ant1 5180



11N20MIMO Ant0 5200



11N20MIMO Ant1 5200



11N20MIMO Ant0 5240



11N20MIMO Ant1 5240





11N20MIMO Ant0 5745



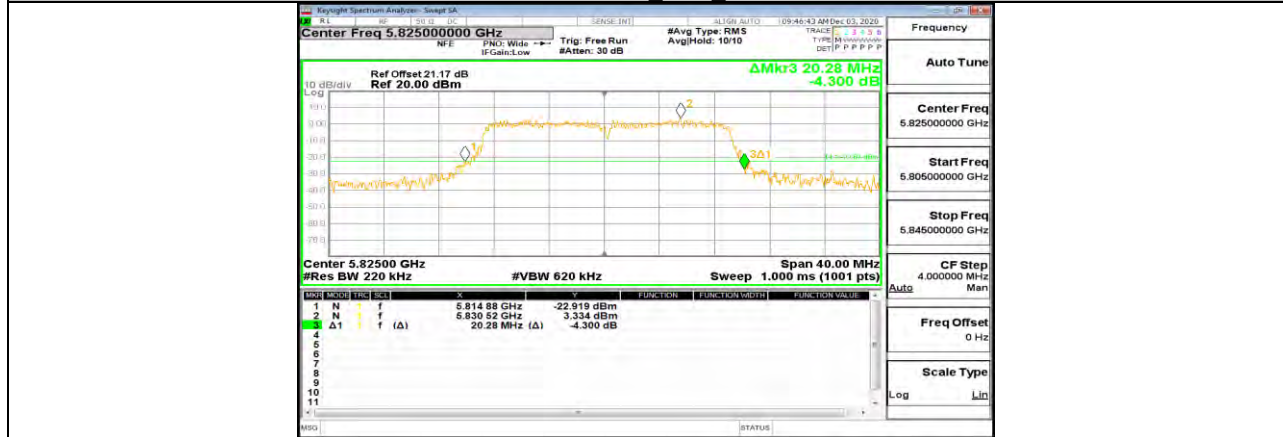
11N20MIMO Ant1 5745



11N20MIMO Ant0 5785



11N20MIMO Ant1 5785



11N20MIMO Ant0 5825



11N20MIMO Ant1 5825



11N40MIMO Ant0 5190



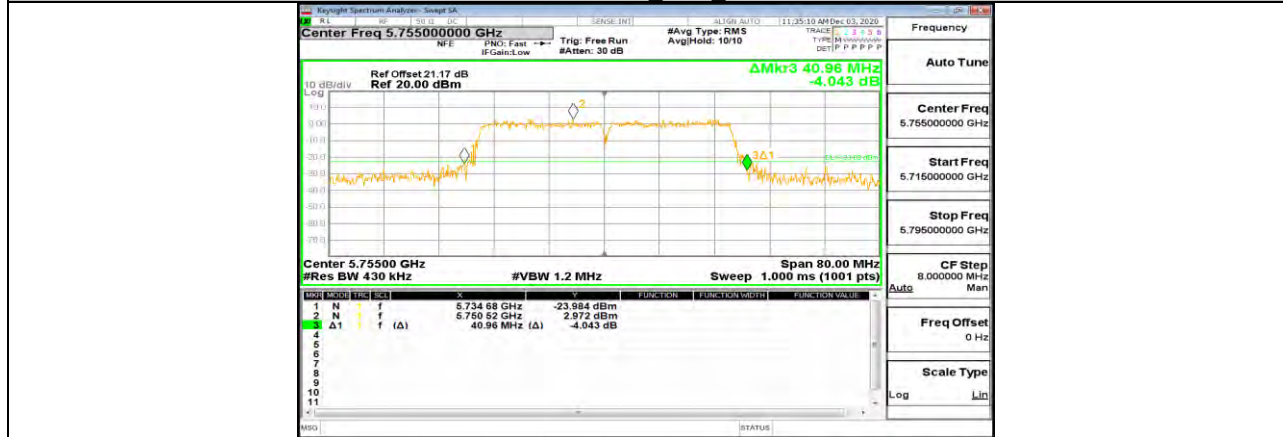
11N40MIMO Ant1 5190



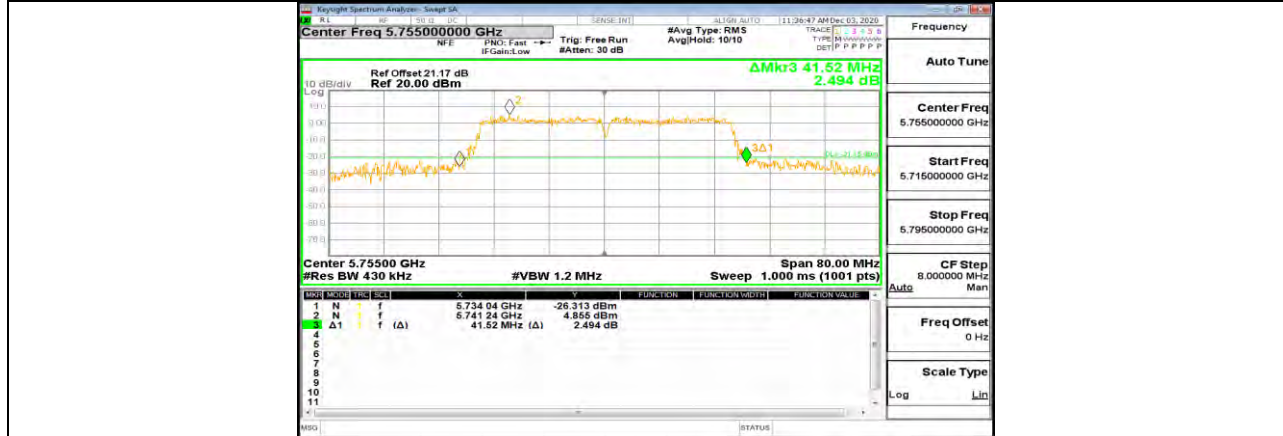
11N40MIMO Ant0 5230



11N40MIMO Ant1 5230



11N40MIMO Ant0 5755



11N40MIMO Ant1 5755



11N40MIMO Ant0 5795



11N40MIMO Ant1 5795



11AC20MIMO Ant0 5180



11AC20MIMO Ant1 5180



11AC20MIMO Ant0 5200



11AC20MIMO Ant1 5200



11AC20MIMO Ant0 5240



11AC20MIMO Ant1 5240



11AC20MIMO Ant0 5745



11AC20MIMO Ant1 5745



11AC20MIMO Ant0 5785



11AC20MIMO Ant1 5785