



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

CERTIFICATION TEST REPORT

For

WIFI+BT Module

MODEL NUMBER: DCT2SM2501

FCC ID: 2AC23-DCT2S

IC: 12290A-DCT2S

REPORT NUMBER: 4790089699.2-4

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Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	10/22/2021	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 6.7	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
Note: 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 E >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.			

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1. ATTESTATION OF TEST RESULTS

Applicant Information

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Address: NO.75 Zhongkai Development Area, Huizhou, Guangdong, China

Manufacturer Information

Company Name: Hui Zhou Gaoshengda Technology Co.,LTD
Address: NO.75 Zhongkai Development Area, Huizhou, Guangdong, China

EUT Information

EUT Name: WIFI+BT Module
Model: DCT2SM2501
Brand: GSD
Sample Received Date: September 2, 2021
Sample Status: Normal
Sample ID: 4194933
Date of Tested: September 6, 2021 ~ October 21, 2021

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, KDB 662911 D01 Multiple Transmitter Output v02r01.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1187) 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 ISED (Company No.: 21320) 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. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) 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
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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 40 GHz)	5.78 dB (1 GHz-18 GHz)
	5.23dB (18 GHz-26 GHz)
	5.64 dB (26 GHz-40 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	WIFI+BT Module
Model	DCT2SM2501
Radio Technology	WLAN (IEEE 802.11a/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 3.3 V

5.2. MAXIMUM OUTPUT POWER

UNII-1 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a 20	5150 ~ 5250	14.30	16.60
n HT20		14.03	16.33
n HT40		16.68	18.98
ac VHT80		15.35	17.65

UNII-3 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a 20	5725 ~ 5850	12.62
n HT20		14.73
n HT40		15.15
ac VHT80		12.10



5.3. CHANNEL LIST

UNII-1 (For Bandwidth=20MHz)		UNII-1 (For Bandwidth=40MHz)		UNII-1 (For Bandwidth=80MHz)	
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		UNII-3		UNII-3	
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. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5180 ~ 5825	PCB	2.3
2	5180 ~ 5825	PCB	2.3

The EUT support Cyclic Shift Diversity (CDD) mode.

MIMO output power port and MIMO PSD port summing was performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with the following method.

For output power measurements:

Directional gain= $G_{ANT} + \text{Array Gain} = 2.3 \text{ dBi}$

G_{ANT} : equal to the gain of the antenna having the highest gain

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$

For power spectral density (PSD) measurements:

Directional gain= $G_{ANT} + \text{Array Gain} = 5.31 \text{ dBi}$

Array Gain = $10 \log (N_{ANT}/N_{SS}) \text{ dB}$.

N_{ANT} : number of transmit antennas

N_{SS} : number of spatial streams, the worst case directional gain will occur when $N_{SS} = 1$

IEEE Std. 802.11	Transmit and Receive Mode	Description
a 20	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
n HT20	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
n HT40	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
ac VHT20	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
ac VHT40	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
ac VHT80	☒ 2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
Note: 1. 802.11a mode don't support MIMO mode. 2. BT&WLAN 2.4G, BT & WLAN 5G, WLAN 2.4G & WLAN 5G can't transmit simultaneously. (declared by client)		

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



5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	QA tool

UNII-1

Mode	Rate	Channel	Soft set value	
			ANT 1	ANT 2
11a 20	6M	36	1D	1D
		40	1D	1D
		48	1D	1D
11n HT20	MCS0	36	19	19
		40	19	19
		48	19	19
11n HT40	MCS0	38	1D	1D
		46	1D	1D
11ac VHT80	MCS0	42	1D	1D

UNII-3

Mode	Rate	Channel	Soft set value	
			ANT 1	ANT 2
11a 20	6M	149	1A	1A
		157	1A	1A
		165	1A	1A
11n HT20	MCS0	149	1A	1A
		157	1A	1A
		165	1A	1A
11n HT40	MCS0	151	1A	1A
		159	1A	1A
11ac VHT80	MCS0	155	1A	1A

5.6. 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 5.3.

Maximum power setting referring to section 5.5.

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 802.11n HT20 and HT40 only in control messages, so for these 4 modes, only worst mode's data was recorded in the report.

SISO mode and MIMO mode have the same power setting, so only the worst case power mode (MIMO) will be recorded in the report.

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

The EUT support Cyclic Shift Diversity (CDD), They use the same conducted power per chain in any given mode, so we only chose the worst-case mode CDD 2TX for final testing.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	XIAOXIN 5000	/
2	Power Adapter	Lenovo	ADLX65YAC3A	Input: AC 100 ~ 240 V, 1.8 A Output: DC 20 V, 2.25 A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	0.3	/

ACCESSORIES

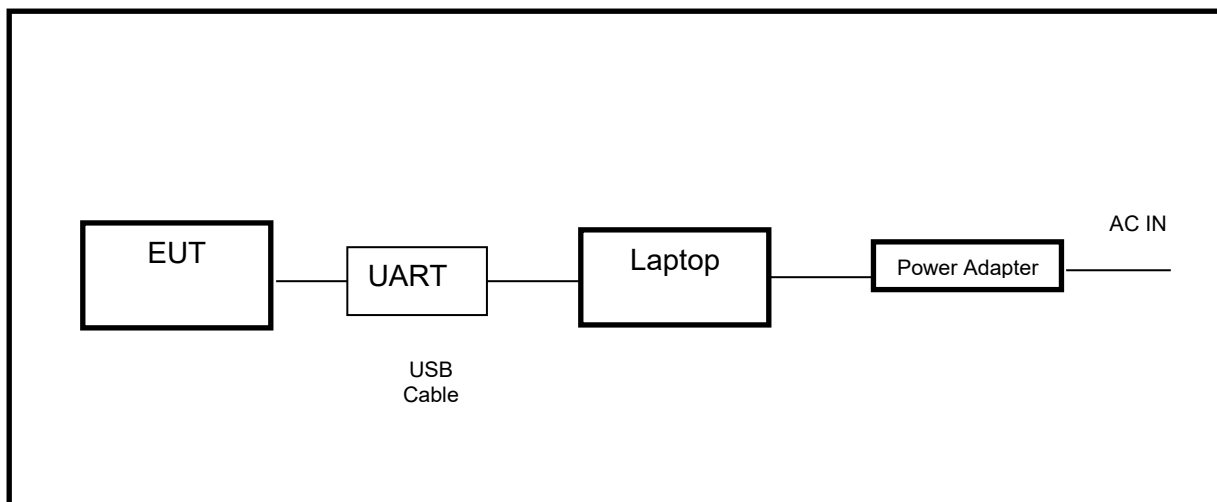
Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

Note: The cable is provided by customer.

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					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 2, 2021	Aug. 1, 2023
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Jul. 20, 2021	Jul. 20, 2023
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	TDK	PA-02-3	TRS-308-00002	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Nov. 12, 2020	Nov. 11, 2021
Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Nov. 12, 2020	Nov. 11, 2021
Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	Nov. 12, 2020	Nov. 11, 2021



Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Nov. 12, 2020	Nov. 11, 2021
Software					
Description		Manufacturer		Name	Version
Test Software for Radiated Emissions		Farad		EZ-EMC	Ver. UL-3A1

Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wideband Radio Communication Tester	R&S	CMW500	155523	Nov.20,2020	Nov.19,2021
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Nov.20,2020	Nov.19,2021
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Nov.20,2020	Nov.19,2021
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Nov.20,2020	Nov.19,2021
DC power supply	Keysight	E3642A	MY55159130	Nov.24,2020	Nov.23,2021
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Nov.20,2020	Nov.19,2021
Software					
Description		Manufacturer		Name	Version
Tonsend SRD Test System		Tonsend		JS1120-3 RF Test System	2.6.77.0518

Other Instruments					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021
Signal & Spectrum analyzer	R&S	FSW	1312.8000K26-103950-sj	Nov.20,2020	Nov.19,2021



7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

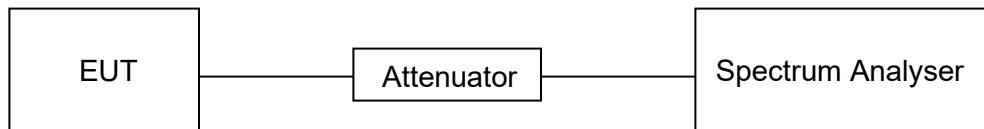
None; for reporting purposes only.

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	25.9 °C	Relative Humidity	56.1%
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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

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: $> 3 \times \text{RBW}$ 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

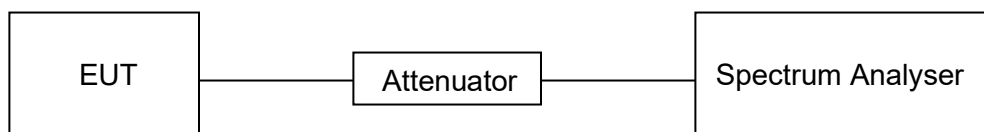
FL: 5711.76 MHz

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	25.9 °C	Relative Humidity	56.1%
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ 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 ₁₀ 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 ₁₀ B dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or 17 + 10 log ₁₀ 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). The e.i.r.p. shall not exceed 4 W	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 $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, 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 %).

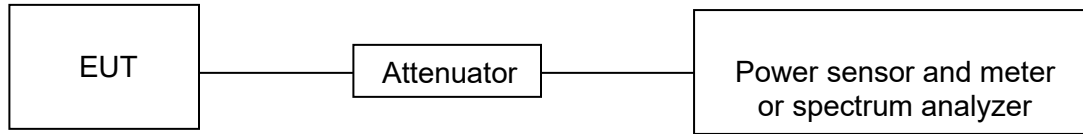
Method PM-G (Measurement using a gated RF average power meter):

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	25.9 °C	Relative Humidity	56.1%
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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	☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☒ 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

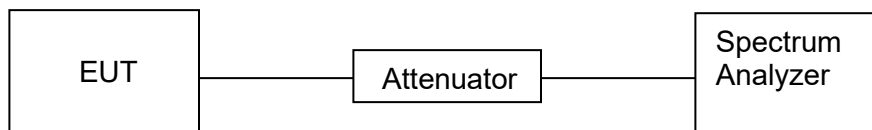
For U-NII-3:

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	25.9 °C	Relative Humidity	56.1%
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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 ^{Note 1}	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

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 - 3.026	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	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
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
¹ 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	(²)
13.36-13.41			

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

²Above 38.6c

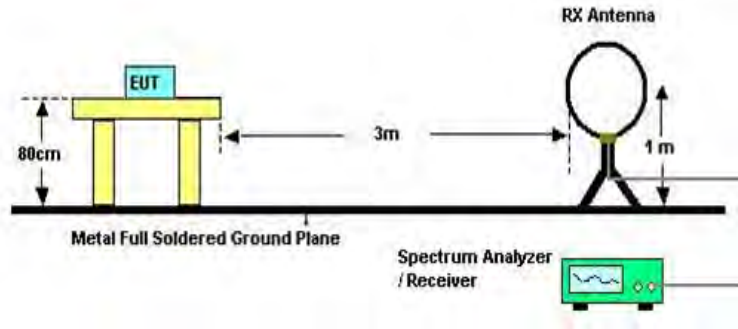


Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISSED RSS-247 6.2.

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
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

TEST SETUP AND PROCEDURE

Below 30 MHz

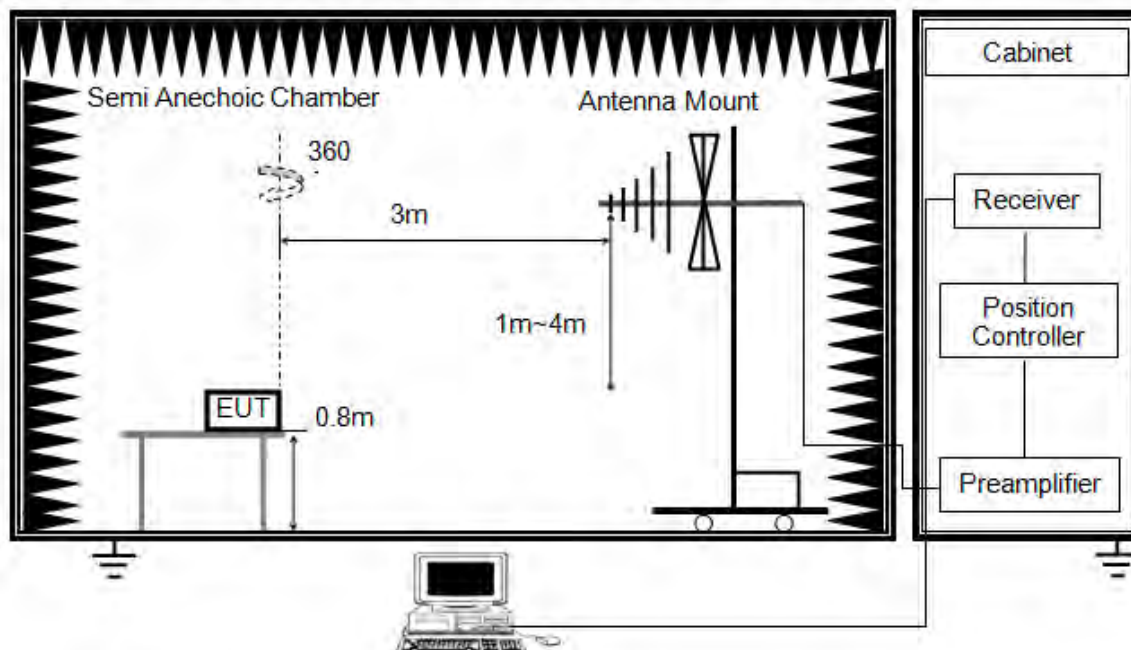


The setting of the spectrum analyser

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 11.11 & 11.12.
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 30m 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.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 ohm; For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to $Y-51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

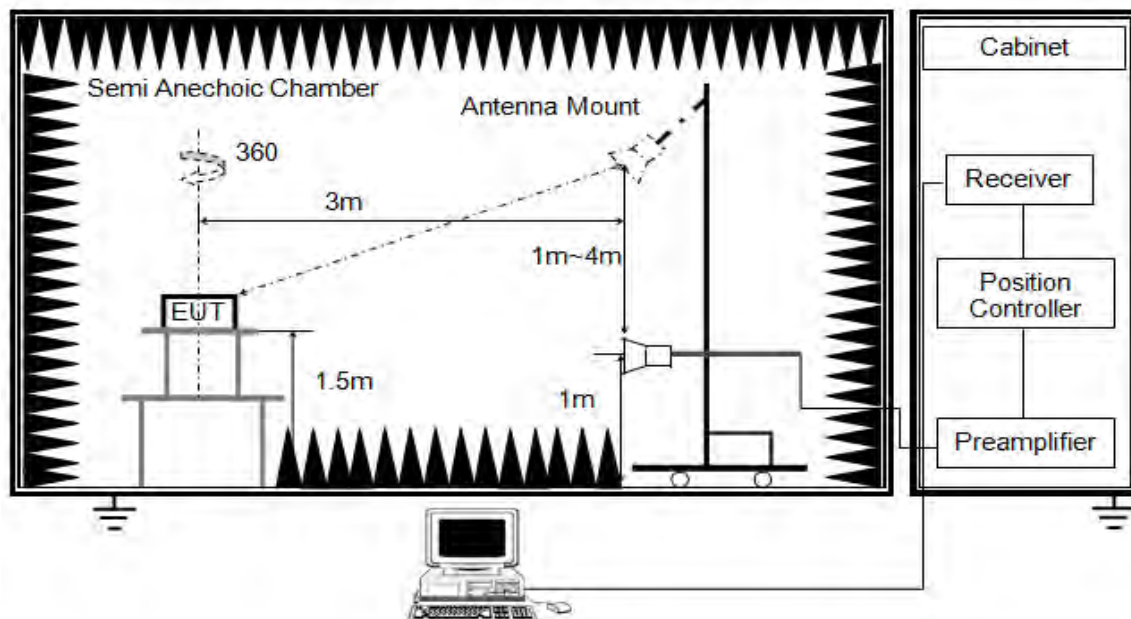


The setting of the spectrum analyser

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 11.11 & 11.12.
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.



Note 1: 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.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

TEST ENVIRONMENT

Temperature	25.2 °C	Relative Humidity	48 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

RESULTS



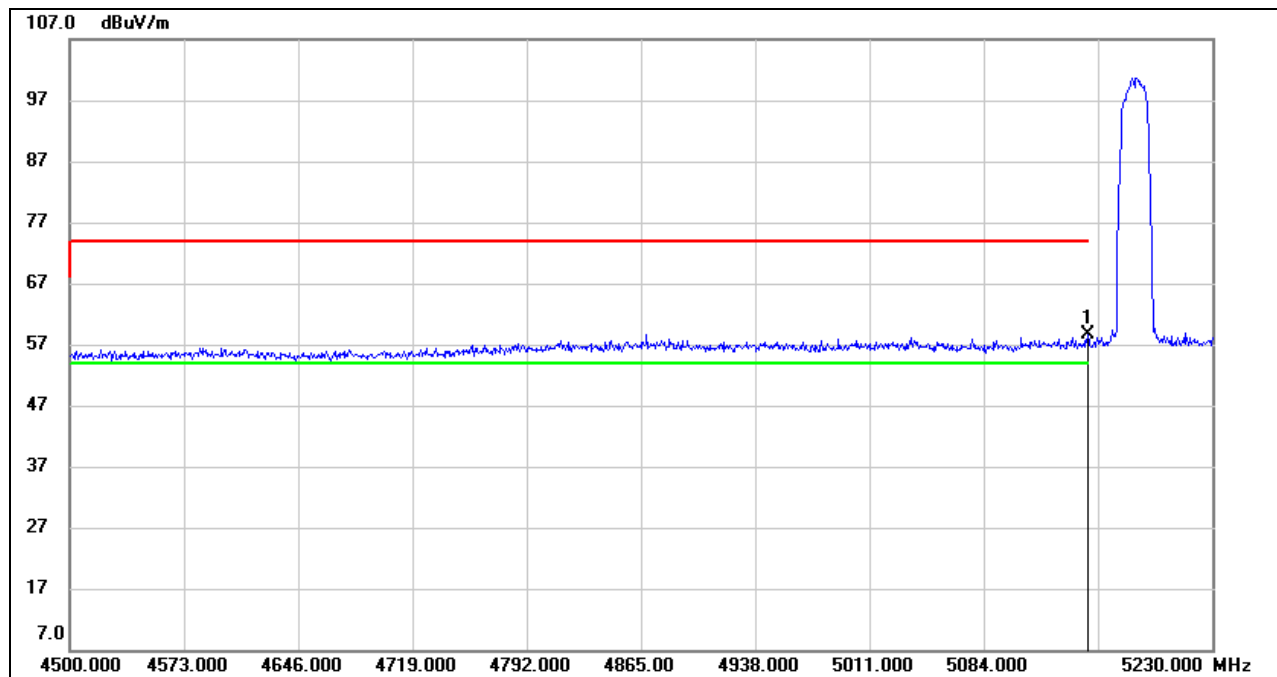
8.1. RESTRICTED BANDEDGE

8.1.1. 802.11a 20 MODE

UNII-1 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

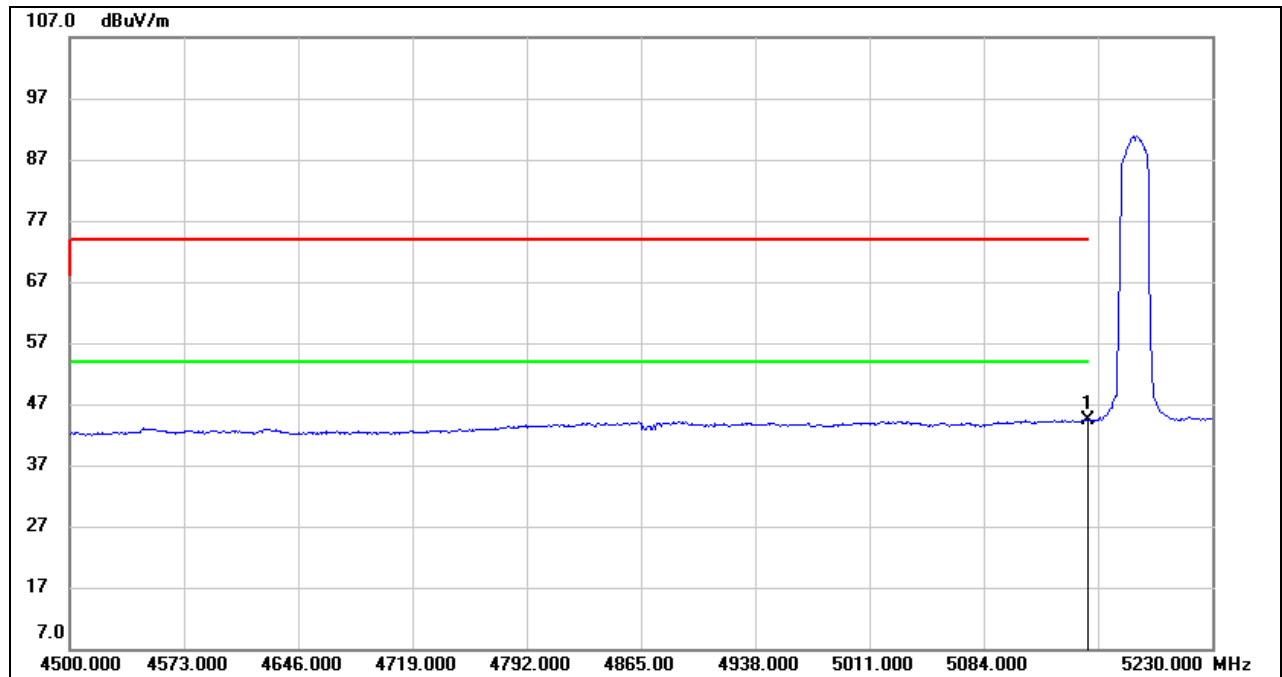
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	17.46	41.19	58.65	74.00	-15.35	peak

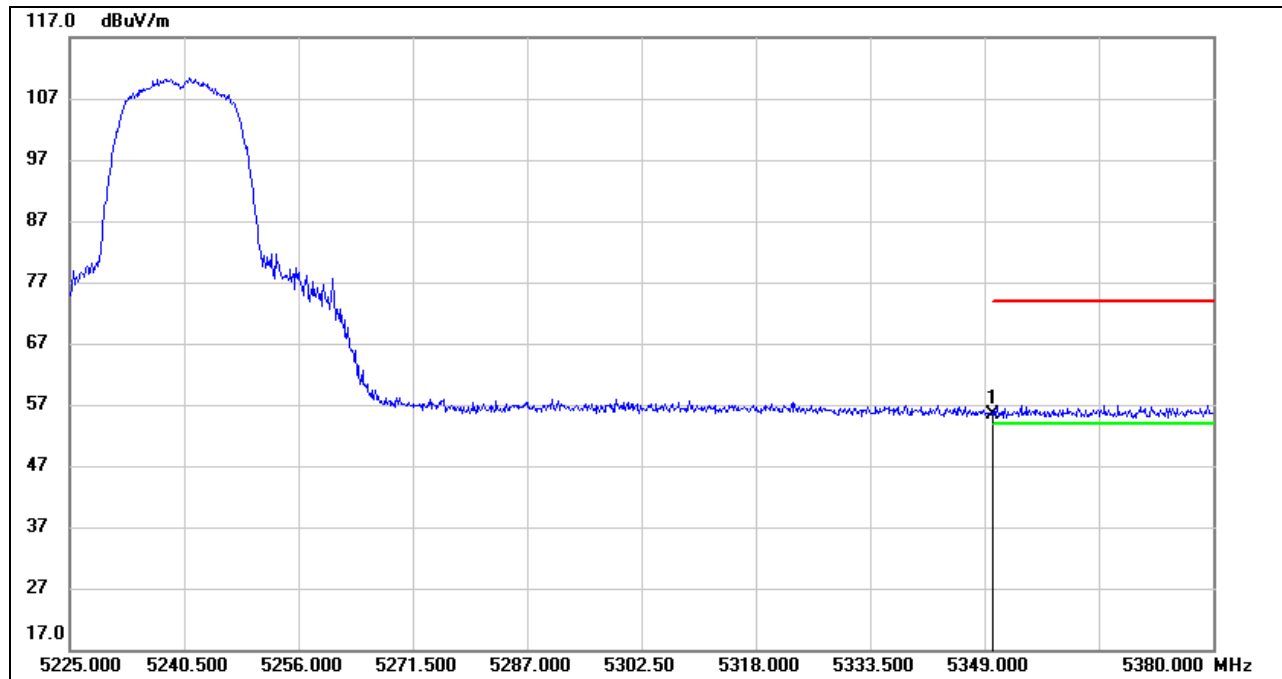
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	3.11	41.19	44.30	54.00	-9.70	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.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	15.39	40.08	55.47	74.00	-18.53	peak

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

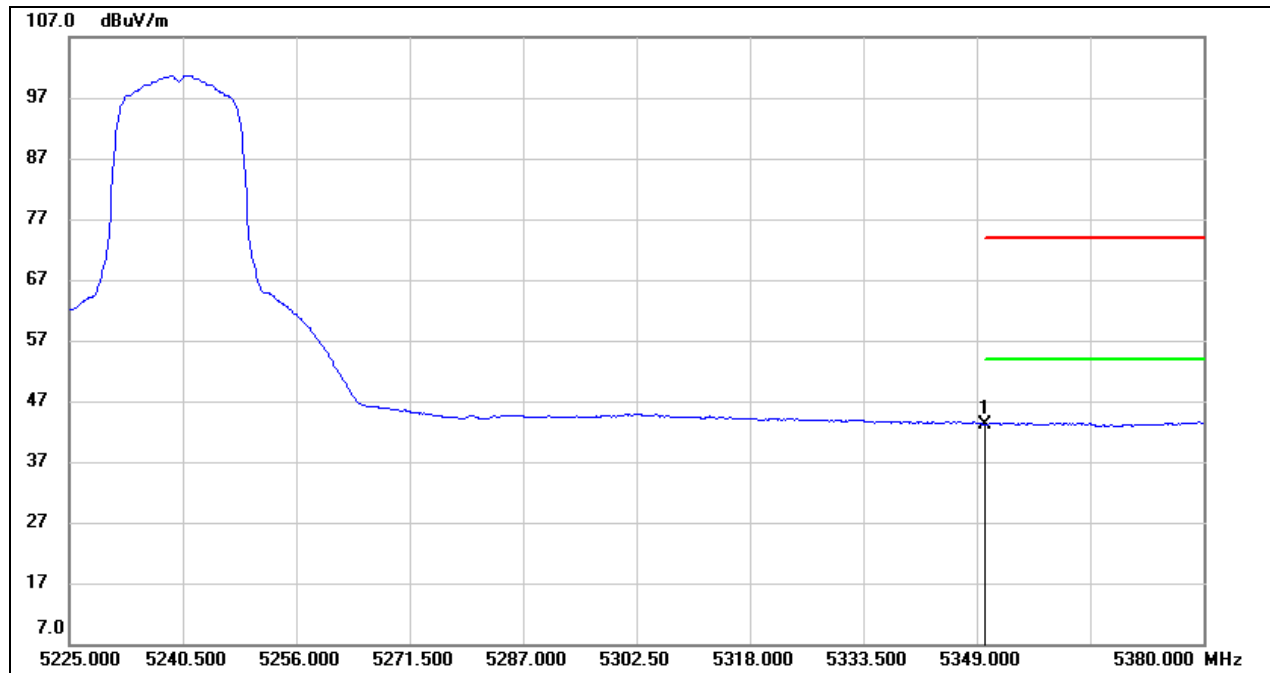
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

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

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	3.07	40.08	43.15	54.00	-10.85	AVG

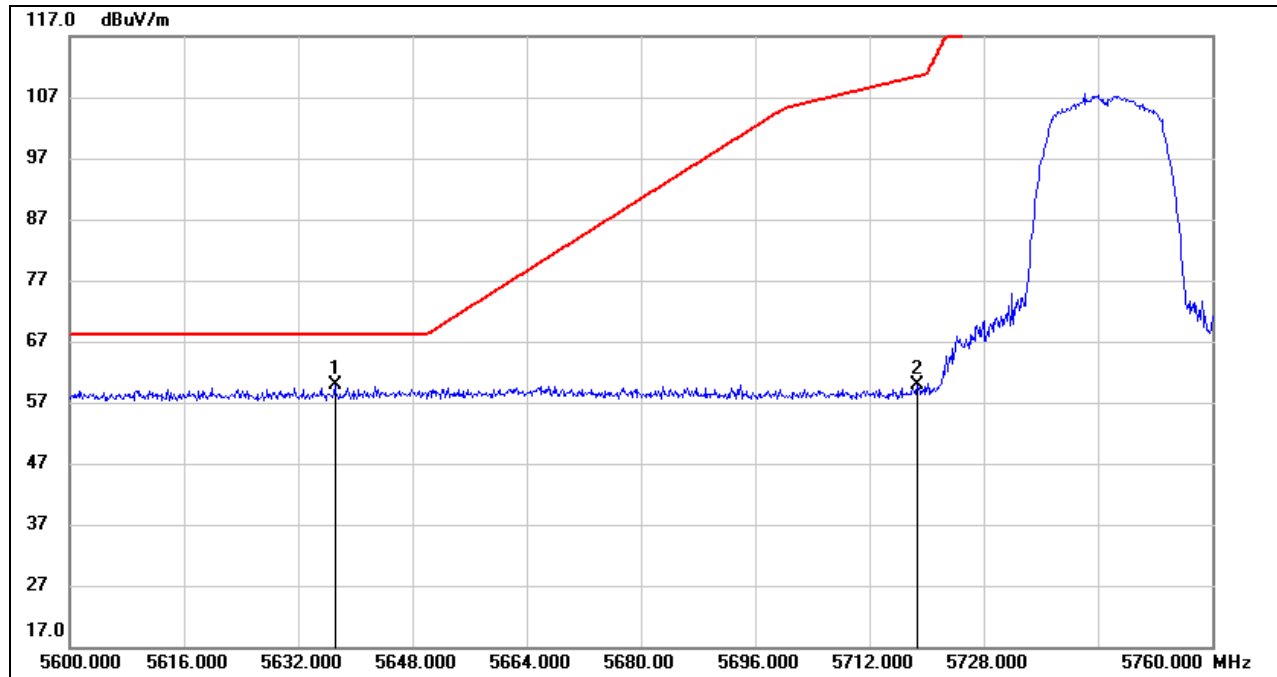
Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
 4. For the transmitting duration, please refer to clause 7.1.
 5. Only the worst data was recorded,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

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5637.120	18.13	41.66	59.79	68.20	-8.41	peak
2	5718.720	18.30	41.64	59.94	110.44	-50.50	peak

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

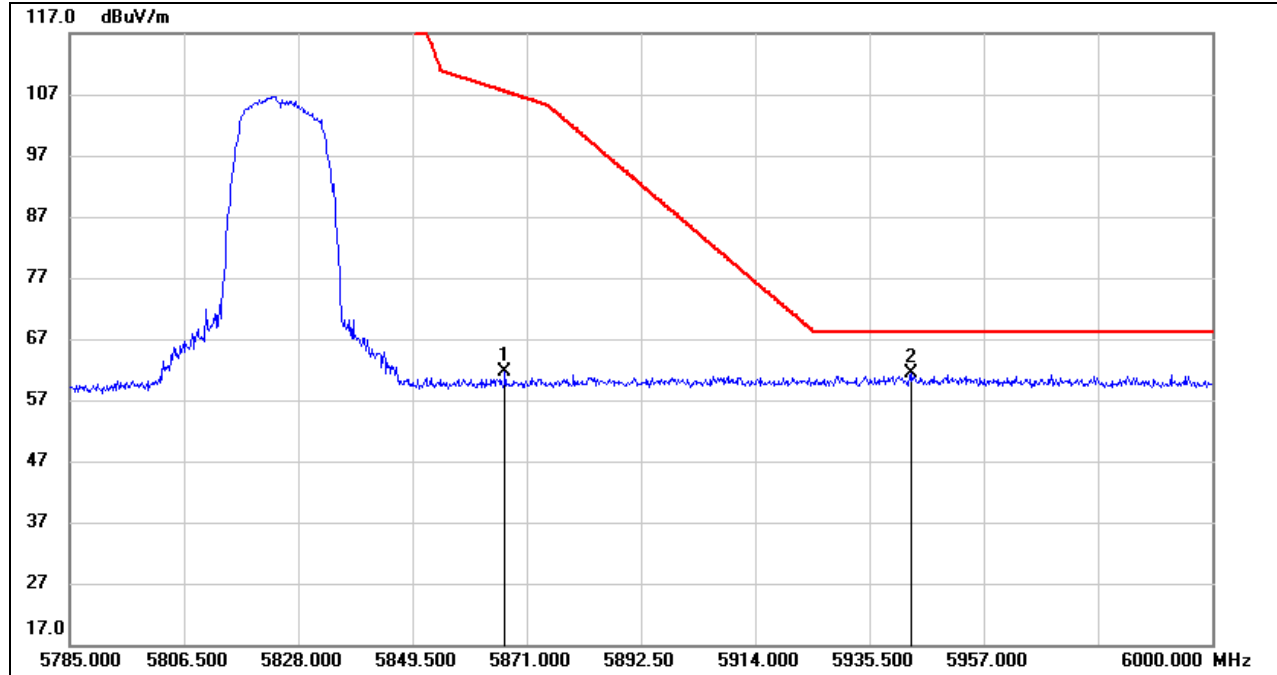
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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, VERTICAL)

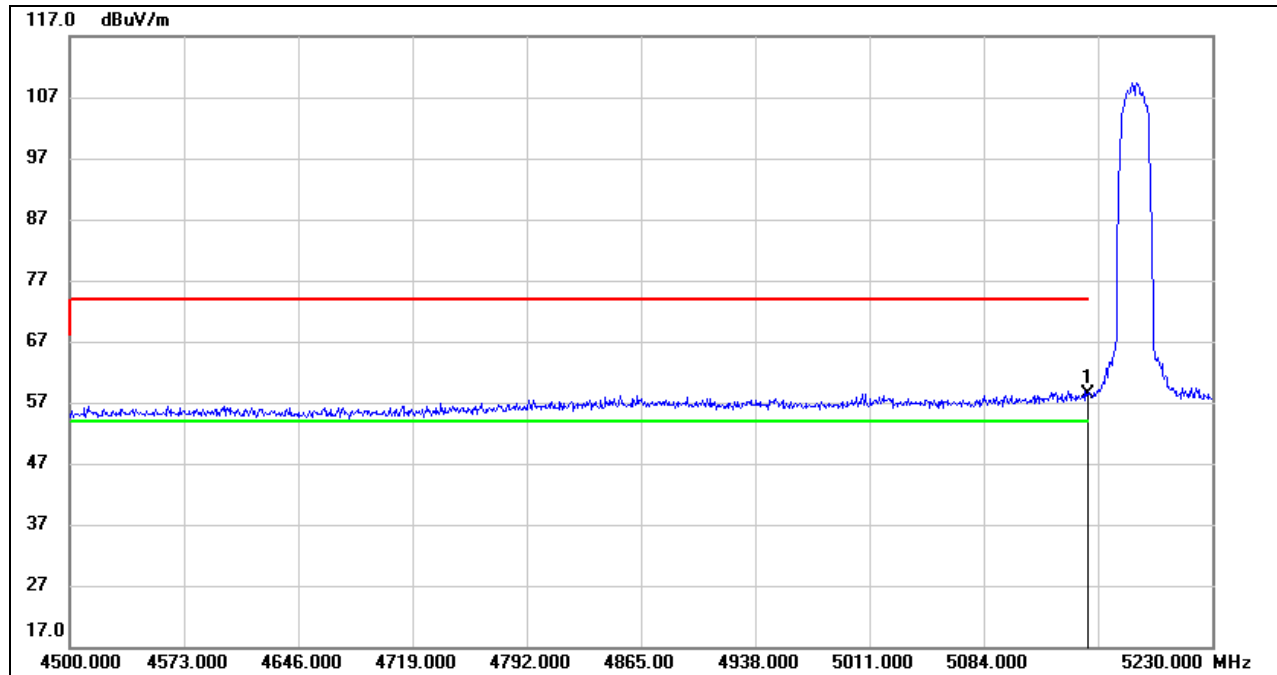
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5866.915	18.94	42.70	61.64	107.46	-45.82	peak
2	5943.240	18.52	42.82	61.34	68.20	-6.86	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.

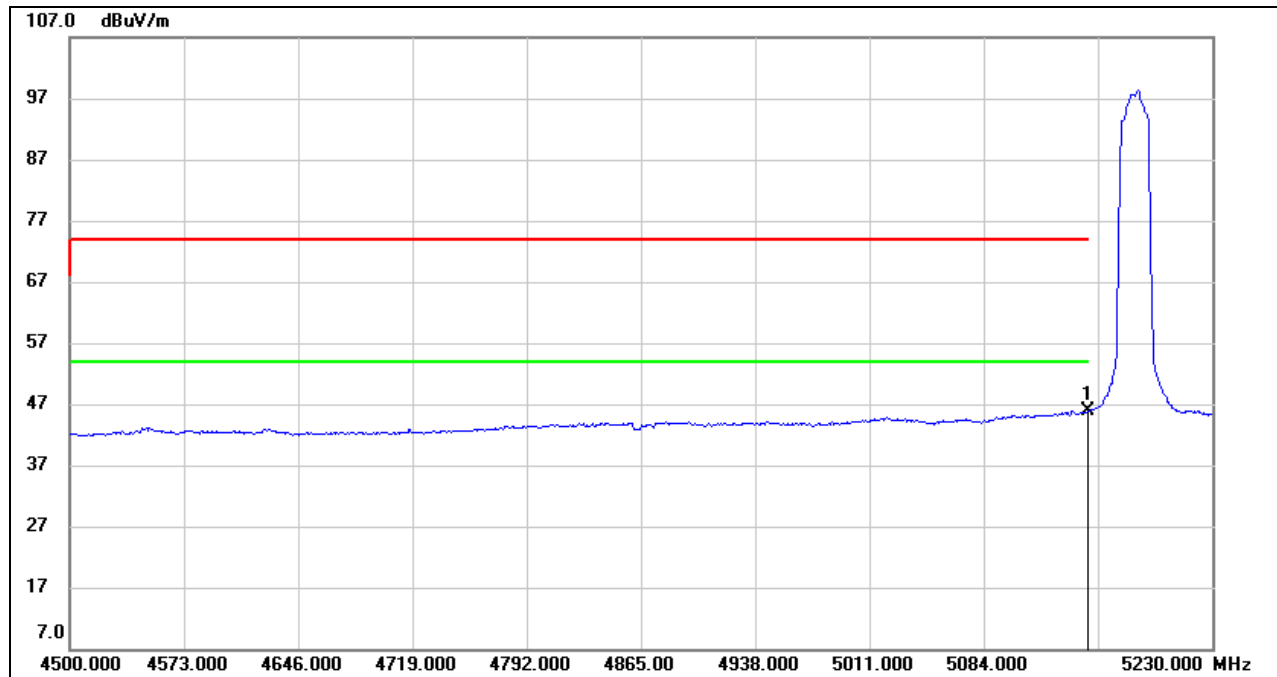
Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

**8.1.1. 802.11n HT20 MIMO MODE****UNII-1 BAND****RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	17.28	41.19	58.47	74.00	-15.53	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

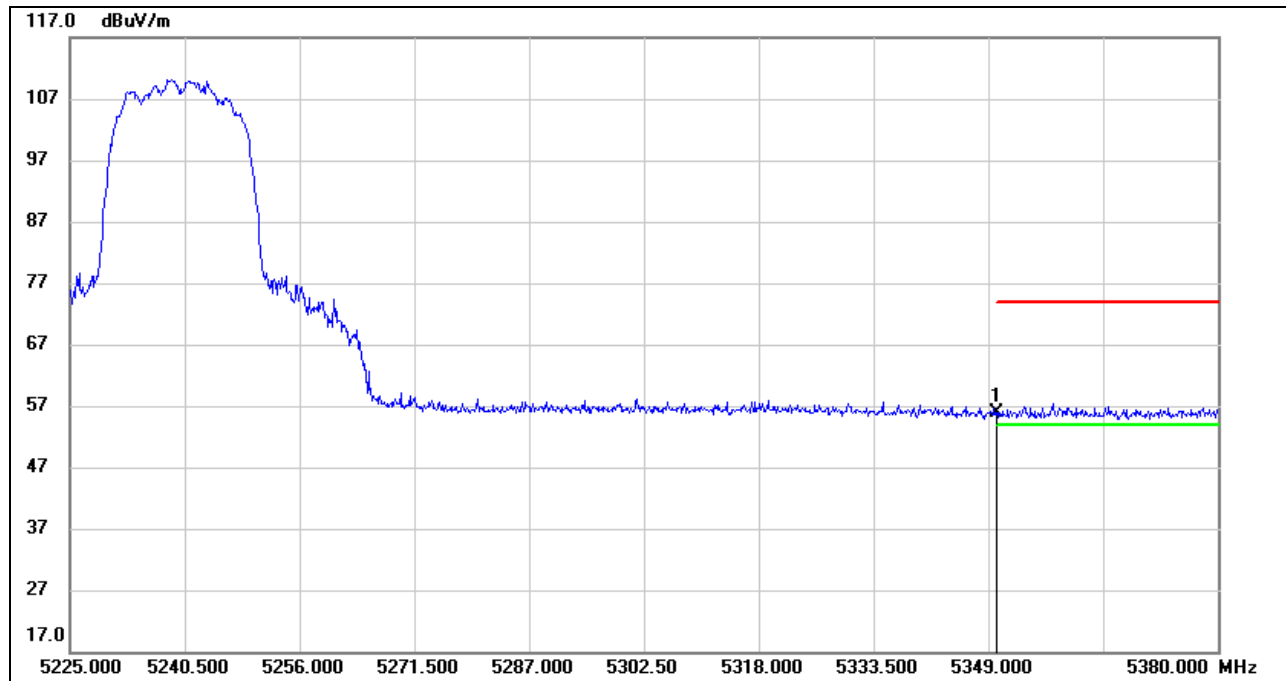


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	4.68	41.19	45.87	54.00	-8.13	AVG

- 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	15.77	40.08	55.85	74.00	-18.15	peak

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

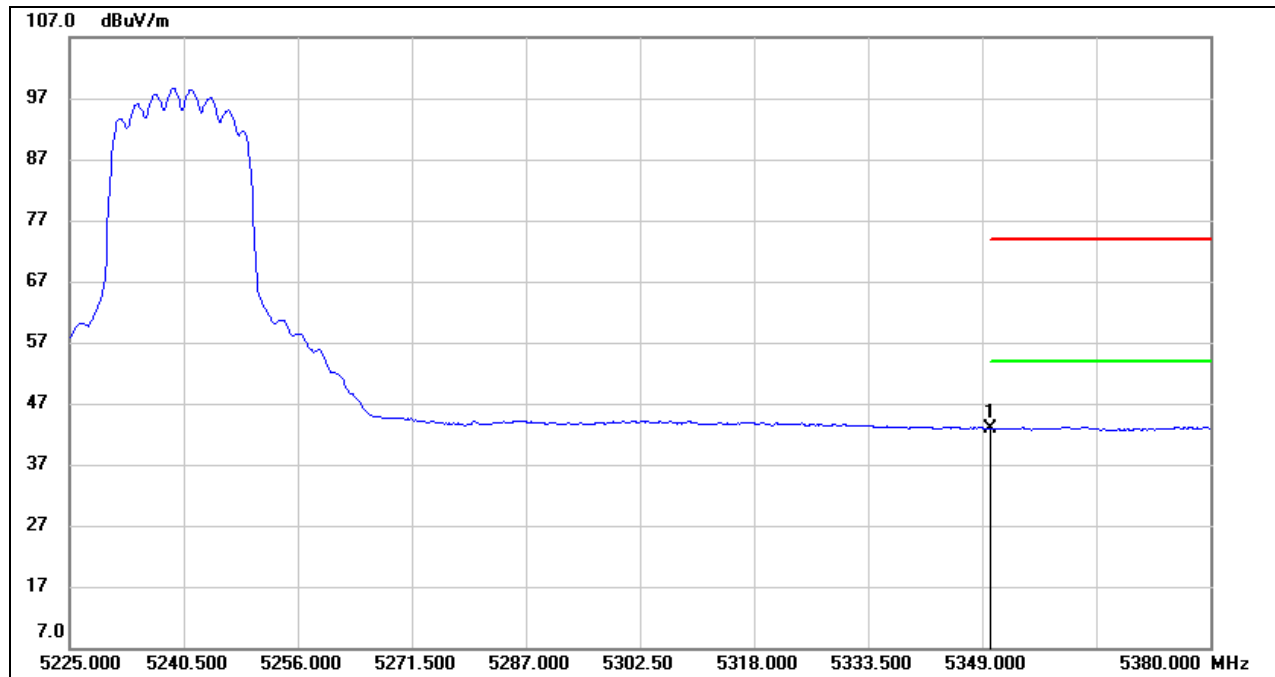
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

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

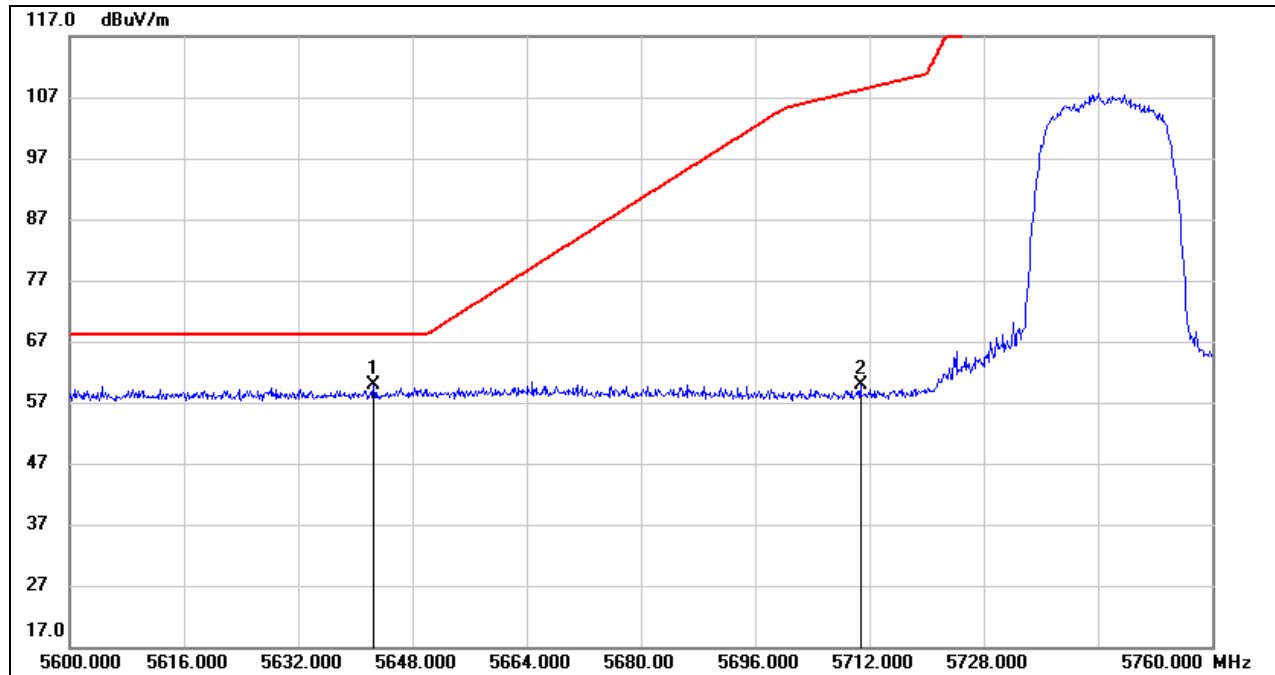
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	2.69	40.08	42.77	54.00	-11.23	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.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5642.560	18.17	41.65	59.82	68.20	-8.38	peak
2	5710.720	18.19	41.60	59.79	108.20	-48.41	peak

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

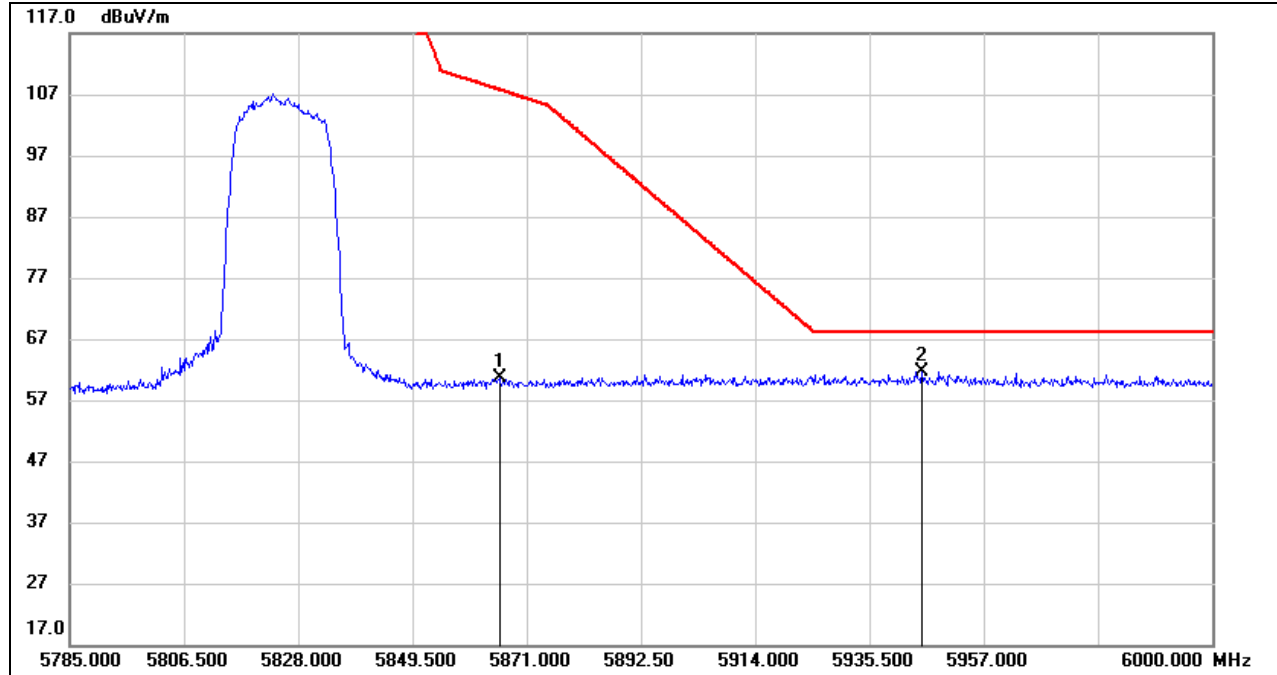
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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, VERTICAL)

PEAK



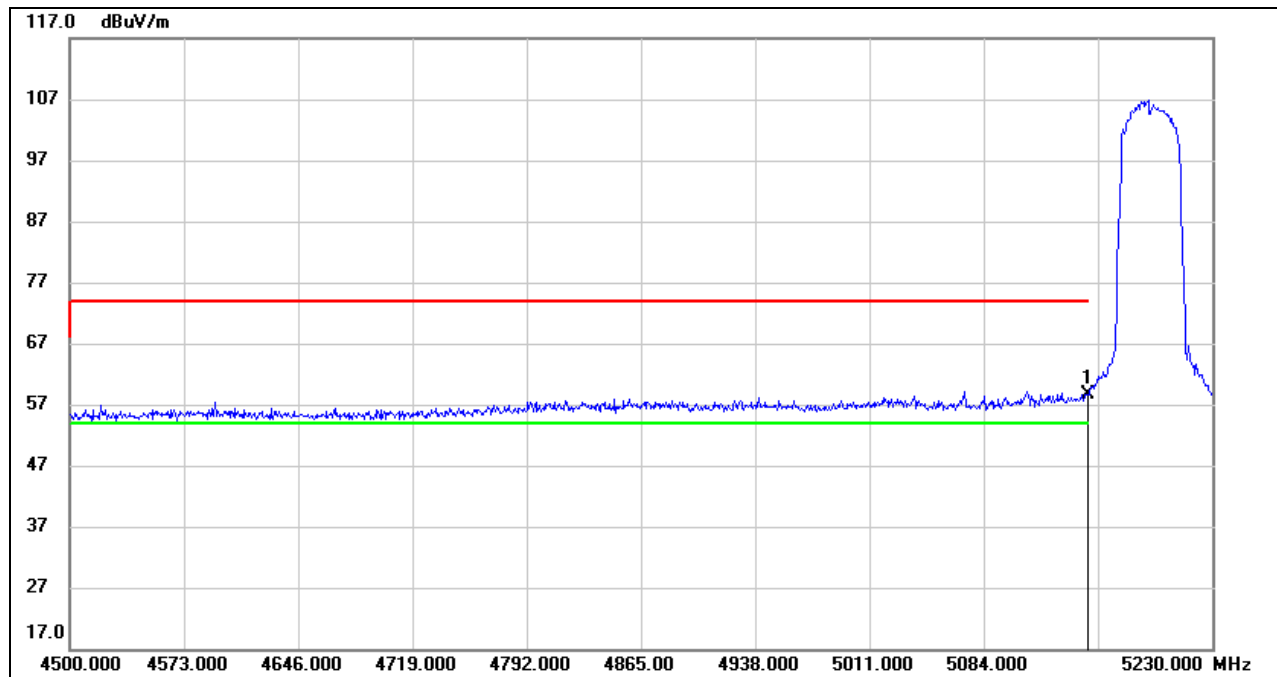
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5865.840	18.04	42.69	60.73	107.76	-47.03	peak
2	5945.390	18.83	42.81	61.64	68.20	-6.56	peak

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

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



8.1.2. 802.11n HT40 MIMO MODE

UNII-1 BANDRESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)PEAK

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	17.41	41.19	58.60	74.00	-15.40	peak

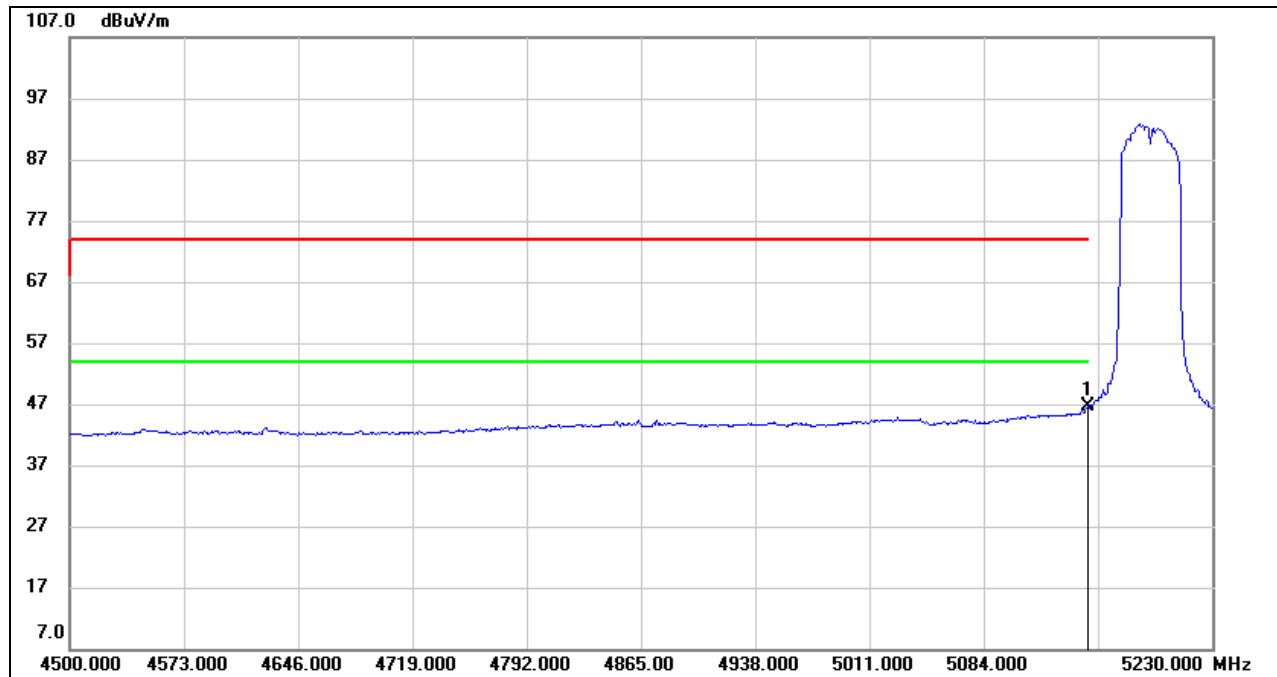
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

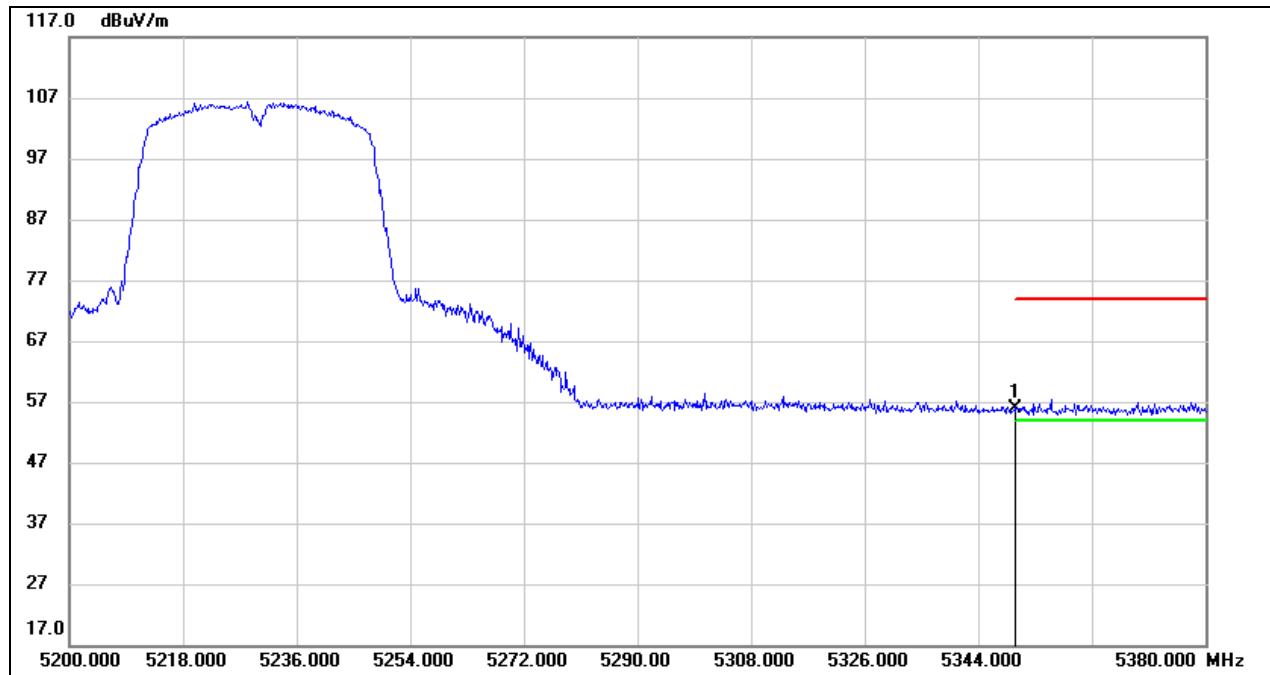
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	5.37	41.19	46.56	54.00	-7.44	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.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	15.79	40.08	55.87	74.00	-18.13	peak

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

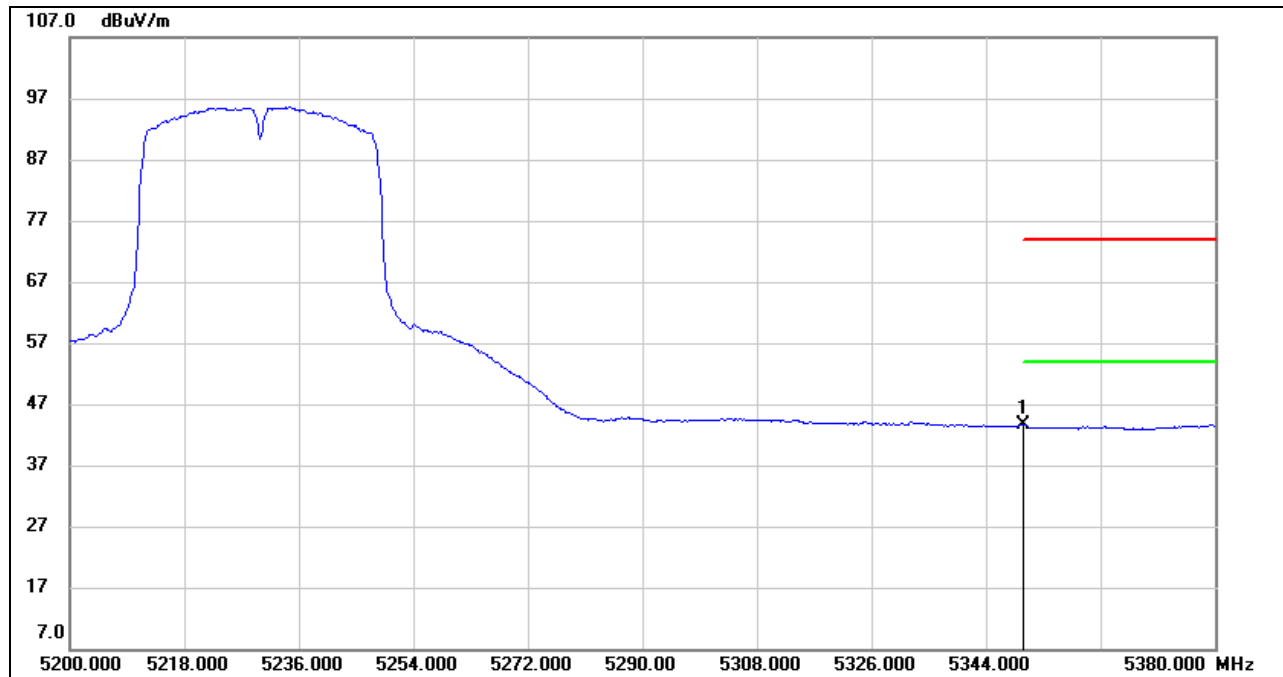
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

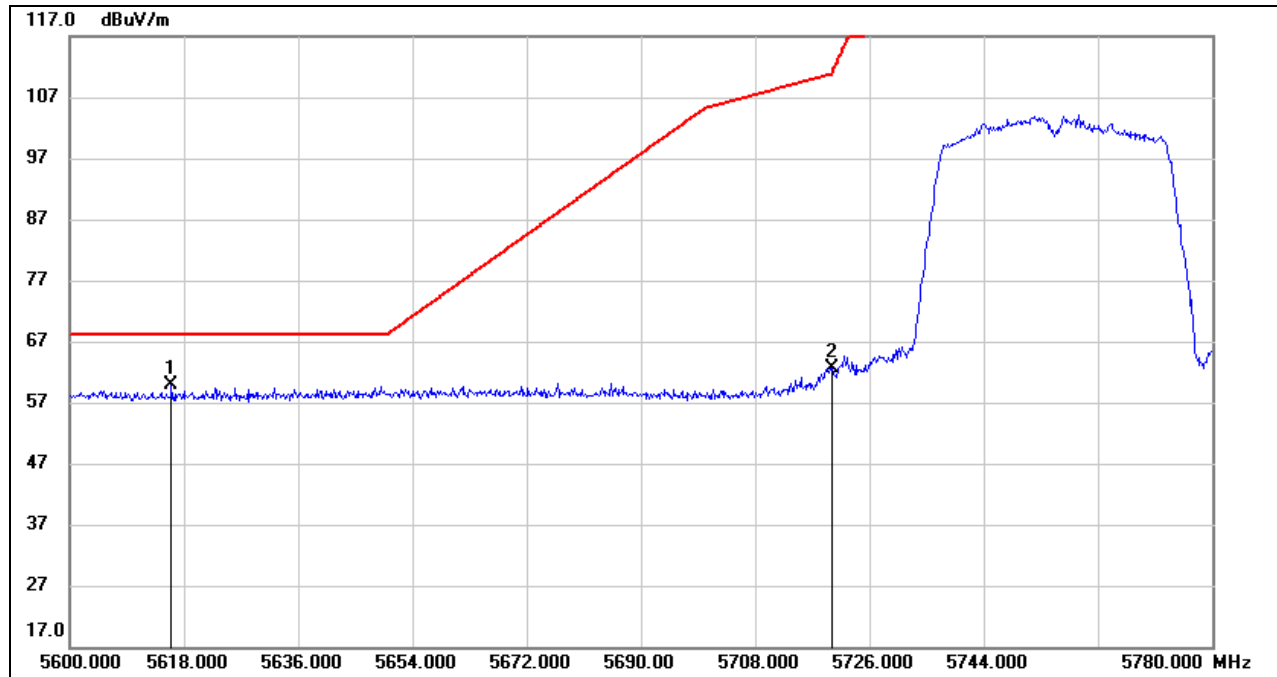
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	3.47	40.08	43.55	54.00	-10.45	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.

All the polarities (Horizontal and vertical) had been tested, only the worst data was recorded in the report

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5616.020	18.08	41.70	59.78	68.20	-8.42	peak
2	5720.060	20.95	41.64	62.59	110.94	-48.35	peak

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

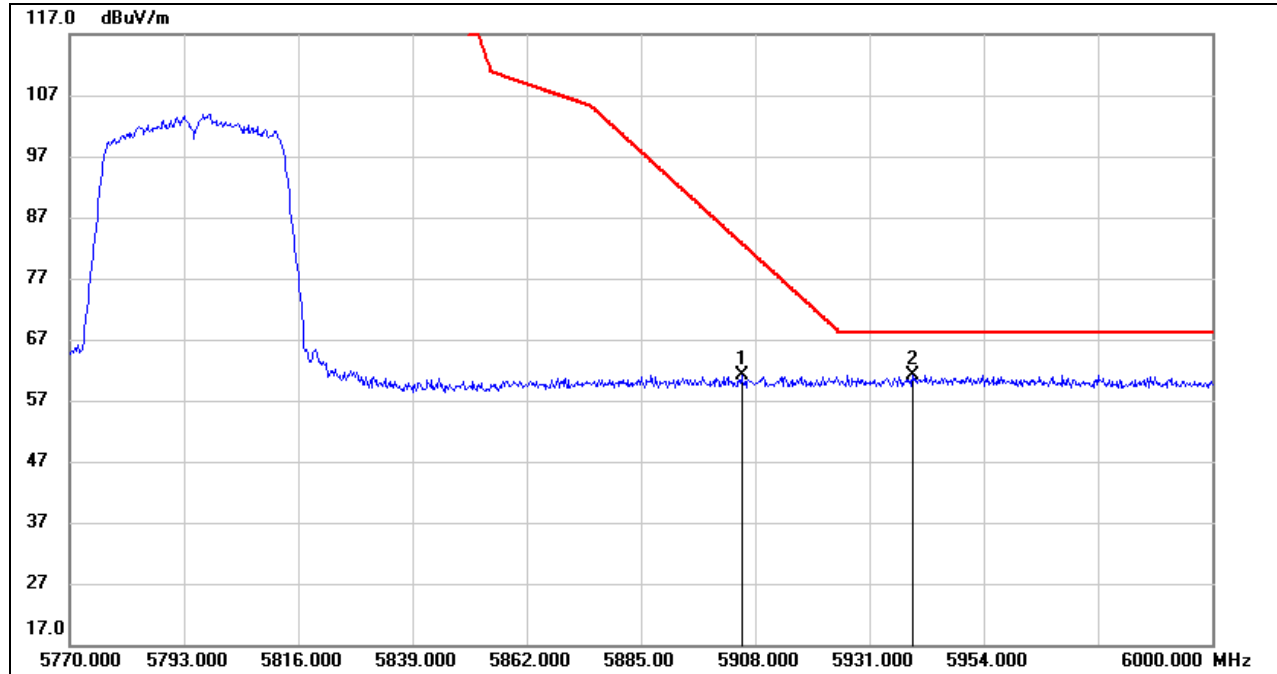
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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, VERTICAL)

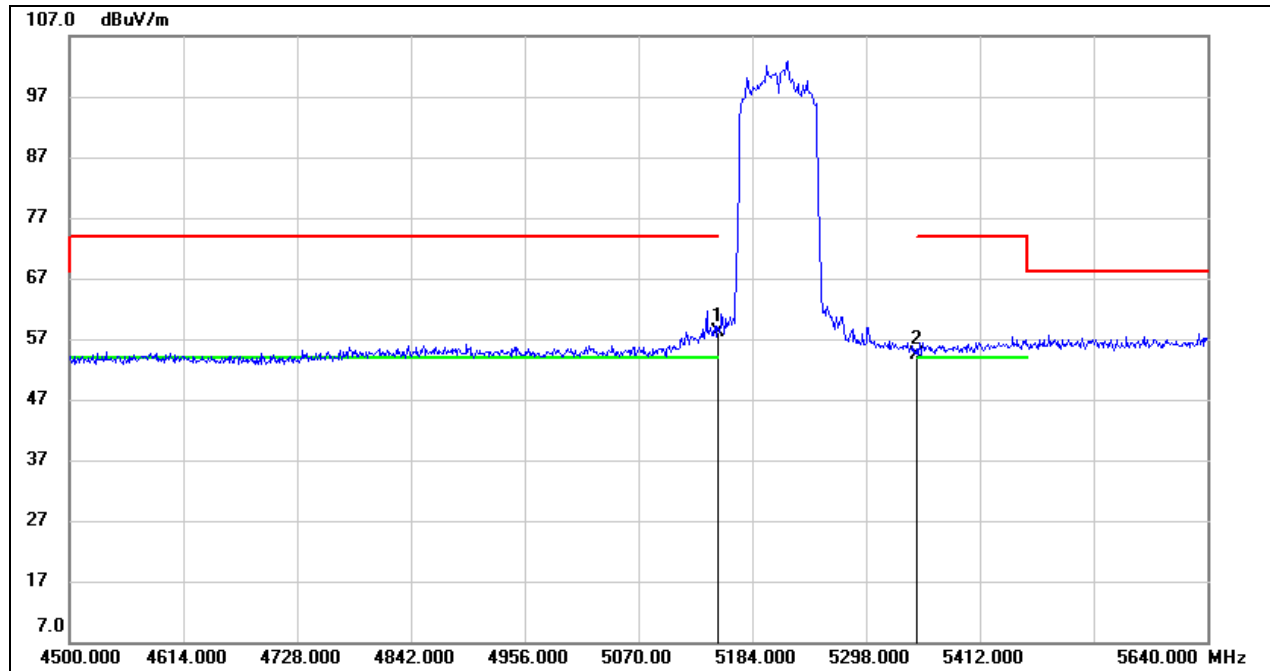
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5905.240	18.24	43.01	61.25	82.78	-21.53	peak
2	5939.740	18.38	42.85	61.23	68.20	-6.97	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 polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

**8.1.3. 802.11ac VHT80 MIMO MODE****UNII-1 BAND****RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	18.31	39.91	58.22	74.00	-15.78	peak
2	5350.000	14.32	40.08	54.40	74.00	-19.60	peak

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

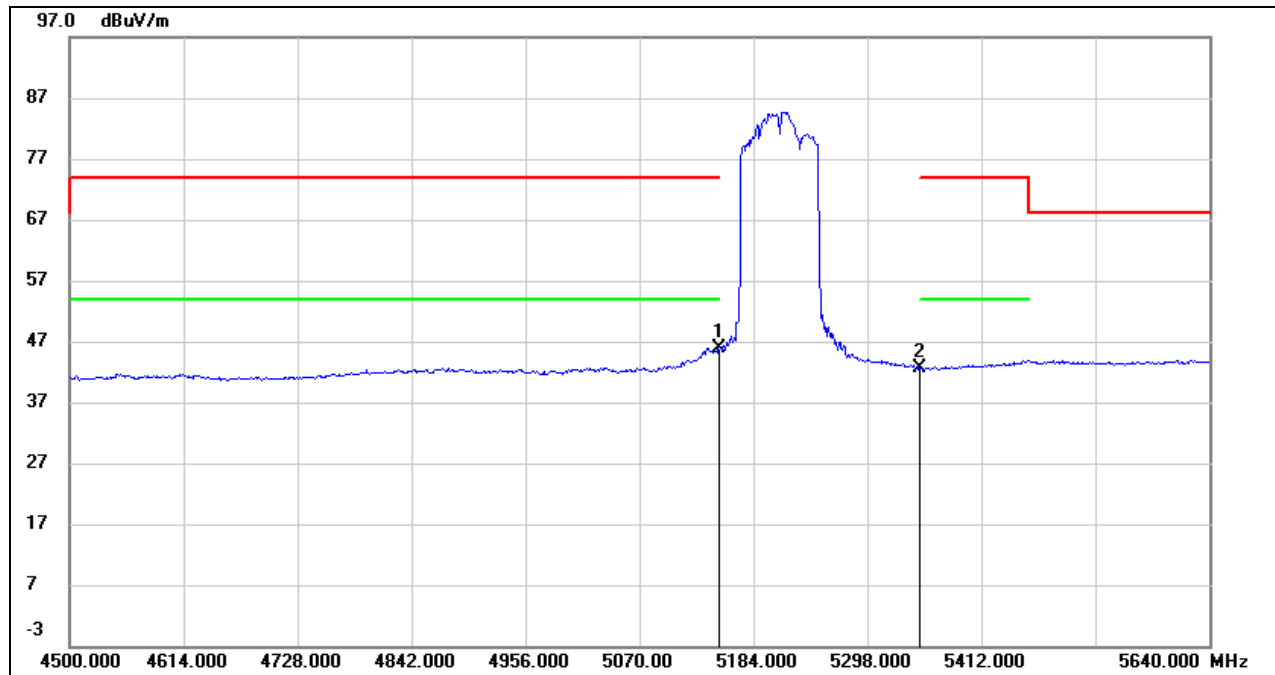
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

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

AVG



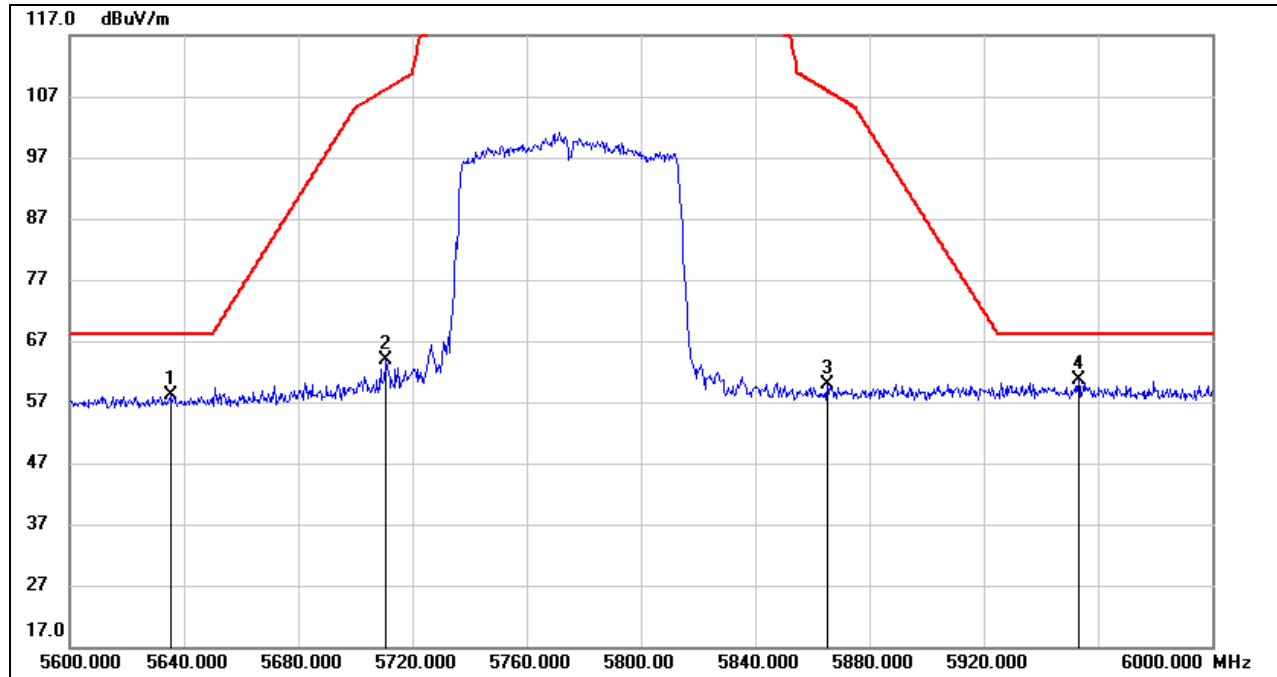
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	6.03	39.91	45.94	54.00	-8.06	AVG
2	5350.000	2.47	40.08	42.55	54.00	-11.45	AVG

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.

All the polarities (Horizontal and vertical) had been tested, only the worst data was recorded in the report

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5635.200	16.47	41.66	58.13	68.20	-10.07	peak
2	5710.800	22.40	41.60	64.00	108.23	-44.23	peak
3	5865.200	17.21	42.68	59.89	107.94	-48.05	peak
4	5953.200	17.74	42.78	60.52	68.20	-7.68	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.

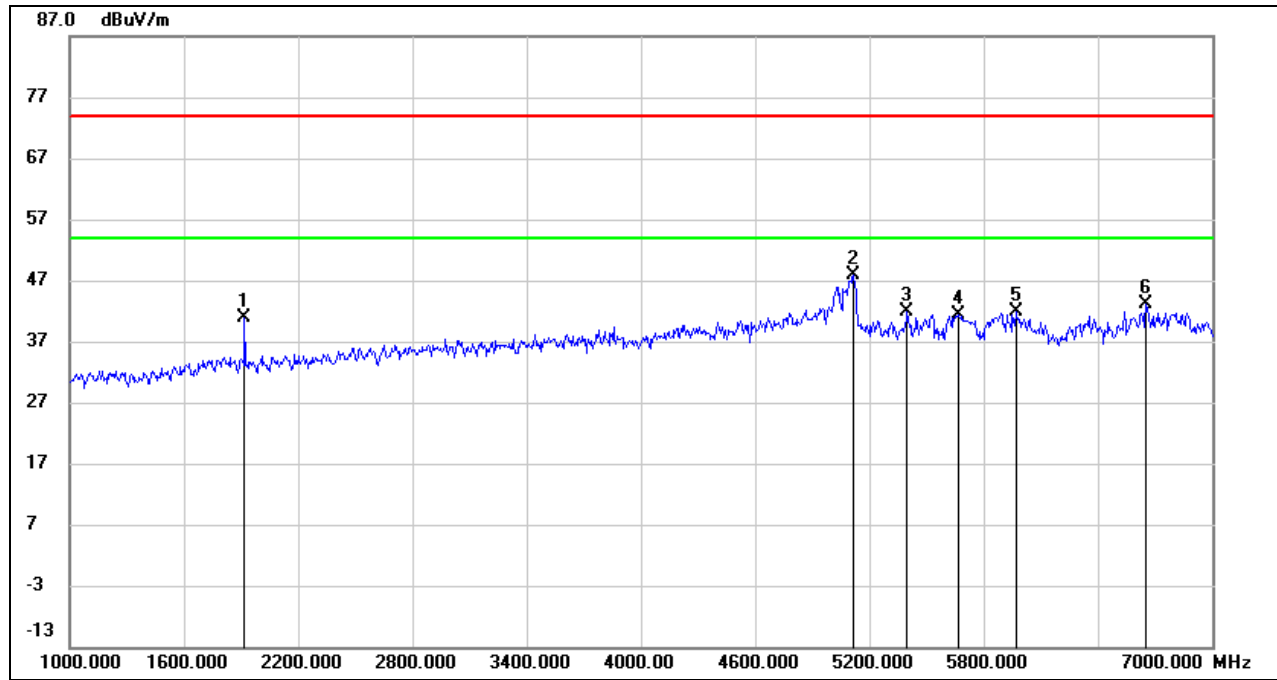
Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

8.2. SPURIOUS EMISSIONS (1 GHz ~ 7 GHz)

8.2.1. 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	1918.000	50.96	-10.13	40.83	74.00	-33.17	peak
2	5116.000	46.37	1.60	47.97	74.00	-26.03	peak
3	5398.000	40.05	1.88	41.93	74.00	-32.07	peak
4	5668.000	39.01	2.47	41.48	74.00	-32.52	peak
5	5968.000	38.81	3.17	41.98	74.00	-32.02	peak
6	6652.000	37.59	5.52	43.11	74.00	-30.89	peak

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

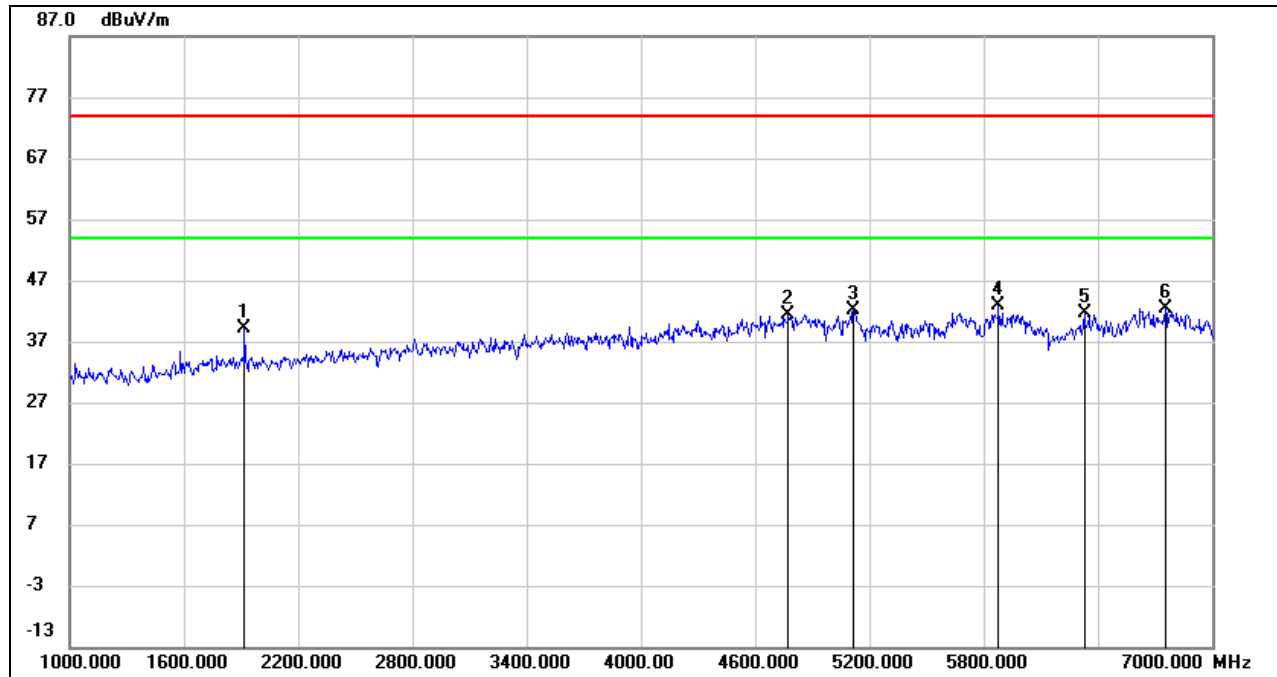
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	1918.000	49.31	-10.13	39.18	74.00	-34.82	peak
2	4774.000	40.93	0.43	41.36	74.00	-32.64	peak
3	5116.000	40.54	1.60	42.14	74.00	-31.86	peak
4	5878.000	40.05	2.81	42.86	74.00	-31.14	peak
5	6328.000	37.59	3.97	41.56	74.00	-32.44	peak
6	6754.000	36.86	5.56	42.42	74.00	-31.58	peak

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

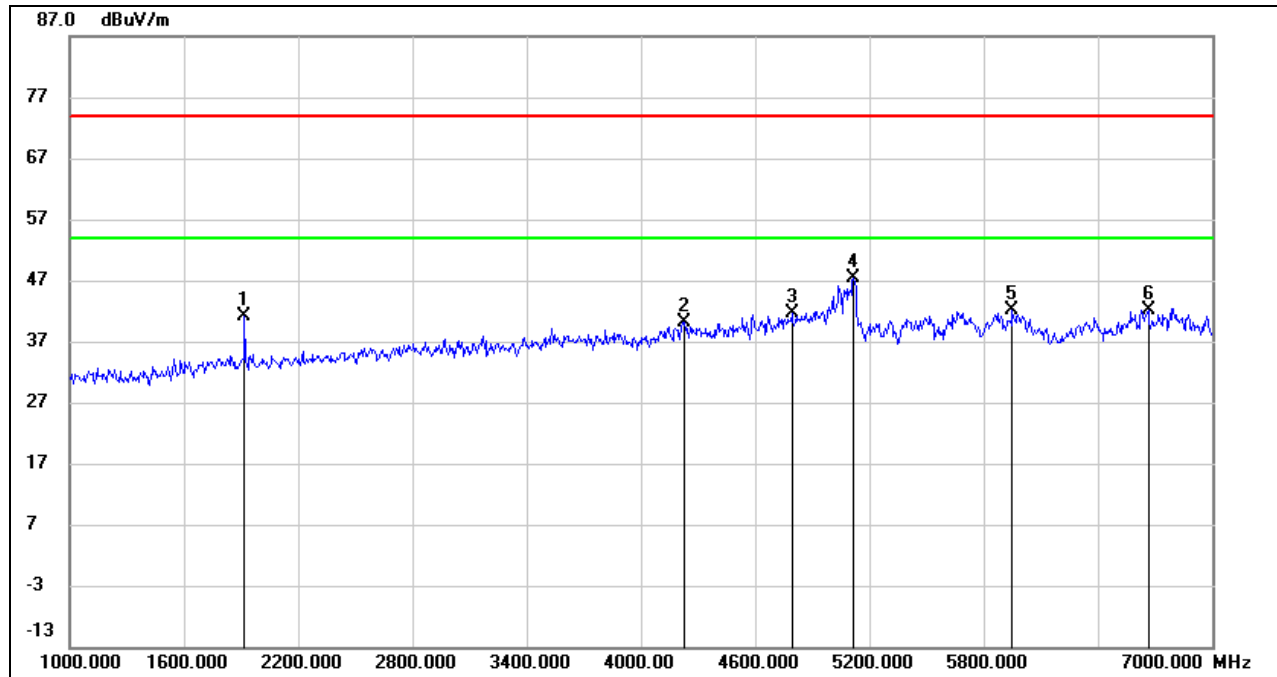
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	51.23	-10.13	41.10	74.00	-32.90	peak
2	4228.000	41.89	-1.70	40.19	74.00	-33.81	peak
3	4792.000	41.00	0.54	41.54	74.00	-32.46	peak
4	5116.000	45.82	1.60	47.42	74.00	-26.58	peak
5	5950.000	38.93	3.10	42.03	74.00	-31.97	peak
6	6664.000	36.54	5.53	42.07	74.00	-31.93	peak

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

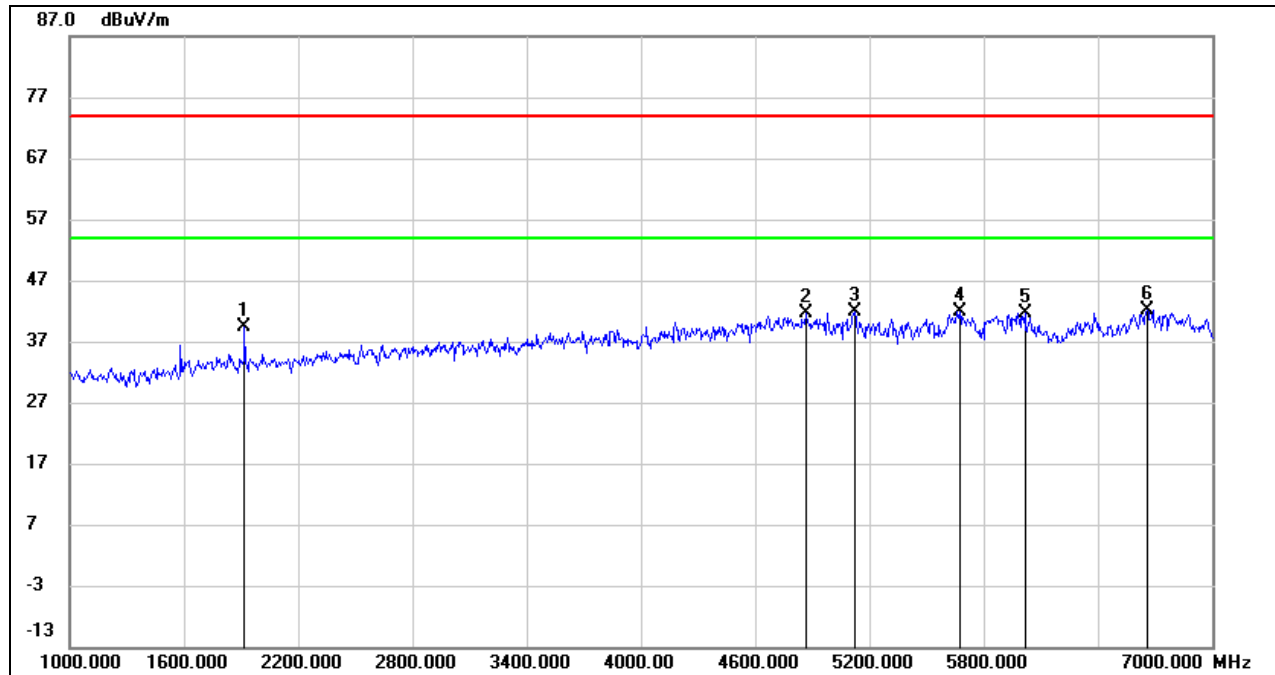
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

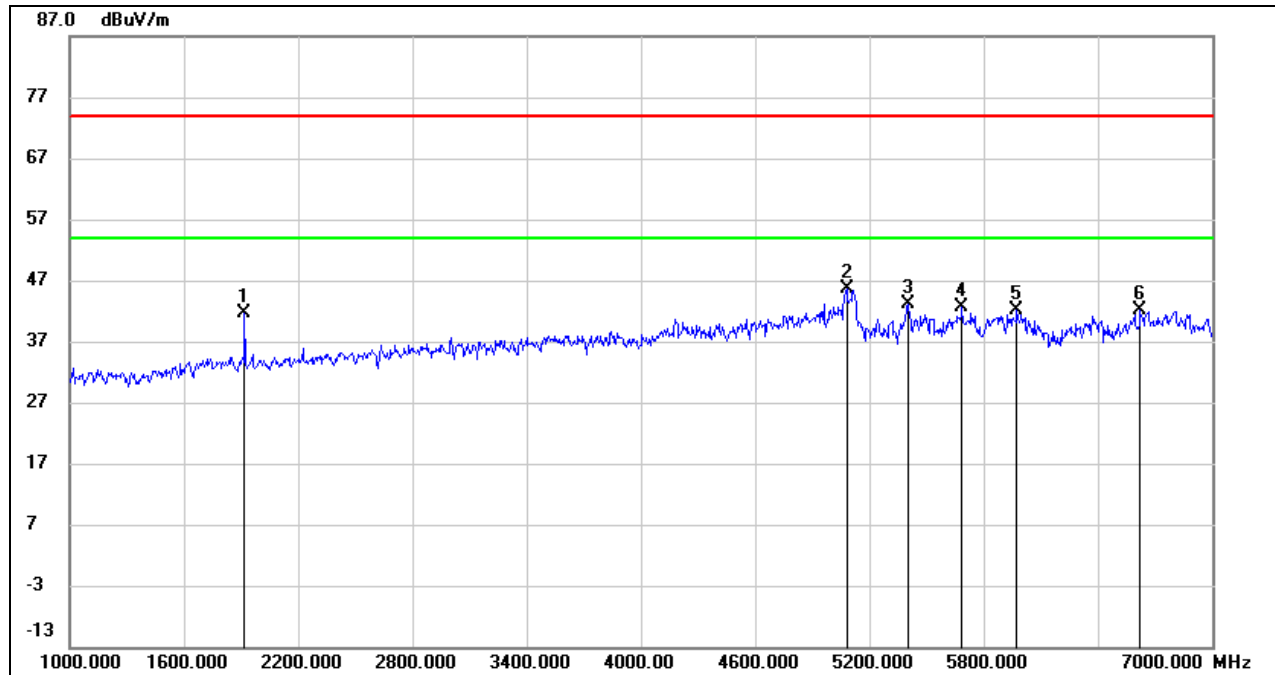
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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	1918.000	49.55	-10.13	39.42	74.00	-34.58	peak
2	4864.000	41.02	0.69	41.71	74.00	-32.29	peak
3	5122.000	40.18	1.64	41.82	74.00	-32.18	peak
4	5674.000	39.48	2.48	41.96	74.00	-32.04	peak
5	6016.000	38.38	3.30	41.68	74.00	-32.32	peak
6	6658.000	36.63	5.51	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	1918.000	51.70	-10.13	41.57	74.00	-32.43	peak
2	5080.000	44.16	1.38	45.54	74.00	-28.46	peak
3	5404.000	41.22	1.89	43.11	74.00	-30.89	peak
4	5686.000	40.06	2.47	42.53	74.00	-31.47	peak
5	5974.000	38.87	3.20	42.07	74.00	-31.93	peak
6	6622.000	36.63	5.51	42.14	74.00	-31.86	peak

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

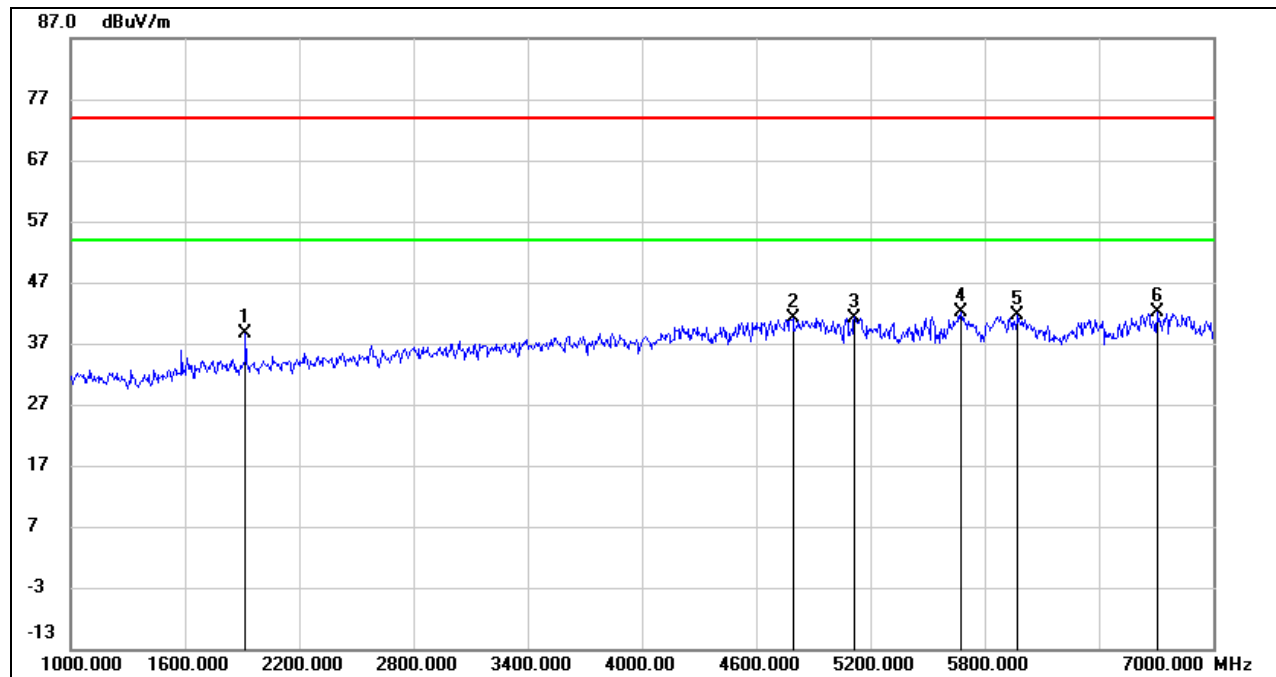
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	48.72	-10.13	38.59	74.00	-35.41	peak
2	4792.000	40.63	0.54	41.17	74.00	-32.83	peak
3	5116.000	39.65	1.60	41.25	74.00	-32.75	peak
4	5674.000	39.62	2.48	42.10	74.00	-31.90	peak
5	5974.000	38.48	3.20	41.68	74.00	-32.32	peak
6	6706.000	36.48	5.54	42.02	74.00	-31.98	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.

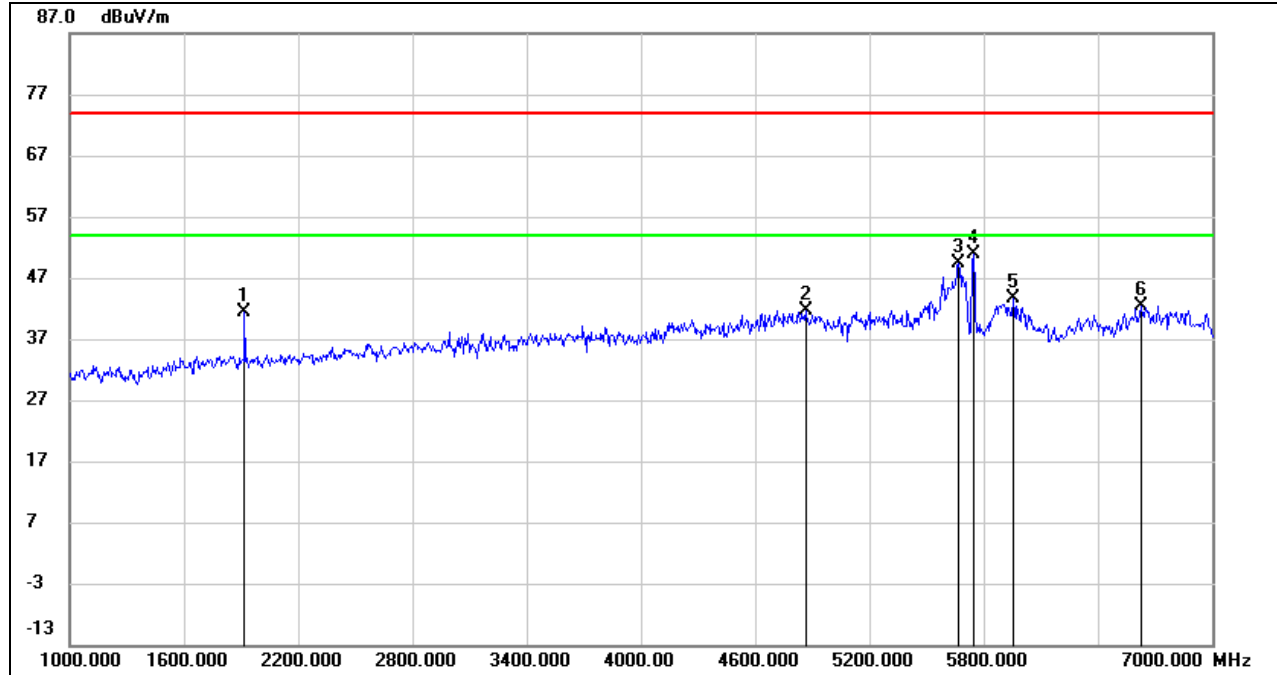
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

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.

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	51.46	-10.13	41.33	74.00	-32.67	peak
2	4864.000	41.03	0.69	41.72	74.00	-32.28	peak
3	5668.000	46.87	2.47	49.34	74.00	-24.66	peak
4	5746.000	48.45	2.50	50.95	74.00	-23.05	peak
5	5956.000	40.45	3.13	43.58	74.00	-30.42	peak
6	6628.000	36.83	5.50	42.33	74.00	-31.67	peak

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

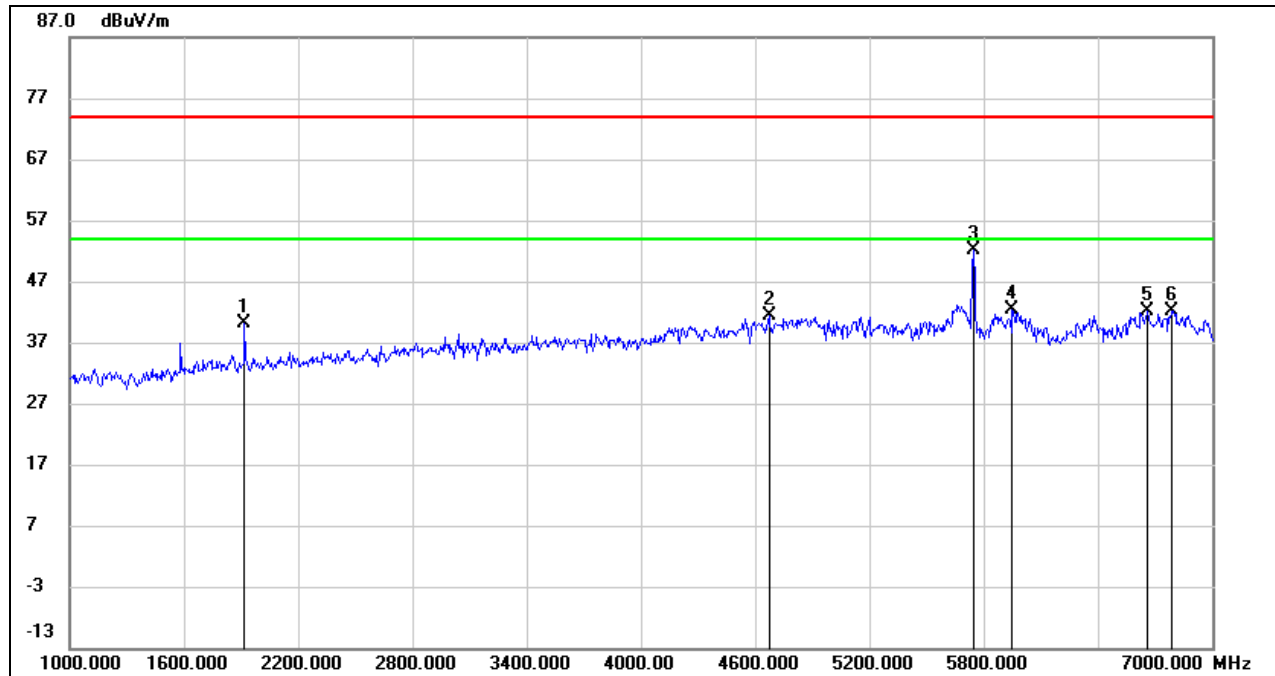
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	1918.000	50.14	-10.13	40.01	74.00	-33.99	peak
2	4672.000	41.52	-0.15	41.37	74.00	-32.63	peak
3	5746.000	49.74	2.50	52.24	74.00	-21.76	peak
4	5950.000	39.18	3.10	42.28	74.00	-31.72	peak
5	6658.000	36.53	5.51	42.04	74.00	-31.96	peak
6	6790.000	36.50	5.57	42.07	74.00	-31.93	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.

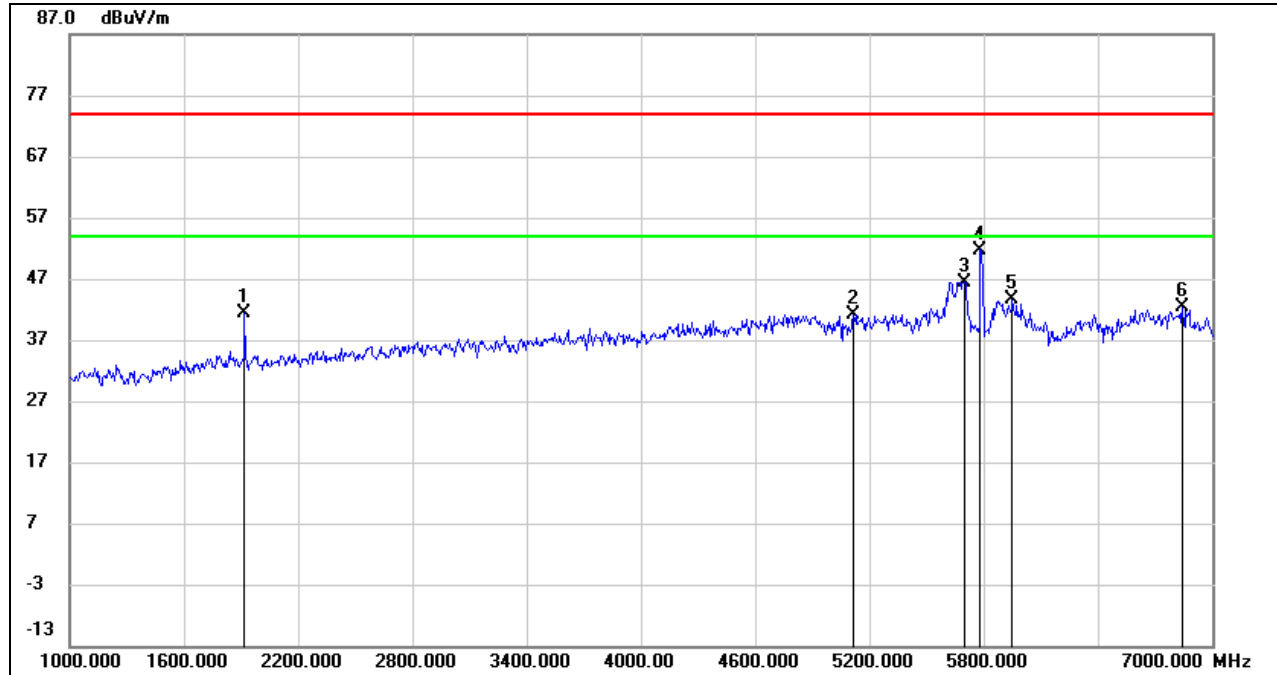
3. Peak: Peak detector.

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

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

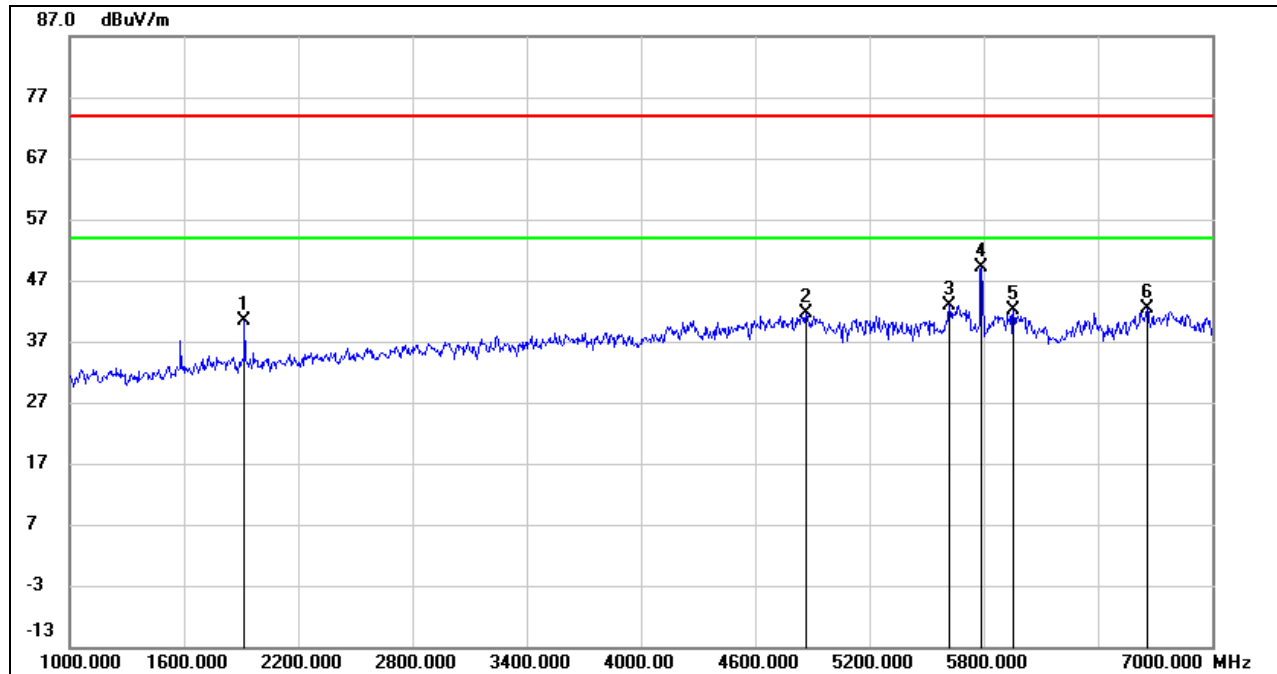
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

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	1918.000	51.44	-10.13	41.31	74.00	-32.69	peak
2	5116.000	39.61	1.60	41.21	74.00	-32.79	peak
3	5698.000	44.00	2.49	46.49	74.00	-27.51	peak
4	5785.000	49.06	2.50	51.56	74.00	-22.44	peak
5	5950.000	40.65	3.10	43.75	74.00	-30.25	peak
6	6844.000	36.57	5.70	42.27	74.00	-31.73	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 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	1918.000	50.61	-10.13	40.48	74.00	-33.52	peak
2	4864.000	41.04	0.69	41.73	74.00	-32.27	peak
3	5620.000	40.55	2.45	43.00	74.00	-31.00	peak
4	5788.000	46.66	2.50	49.16	74.00	-24.84	peak
5	5956.000	38.92	3.13	42.05	74.00	-31.95	peak
6	6658.000	36.88	5.51	42.39	74.00	-31.61	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.

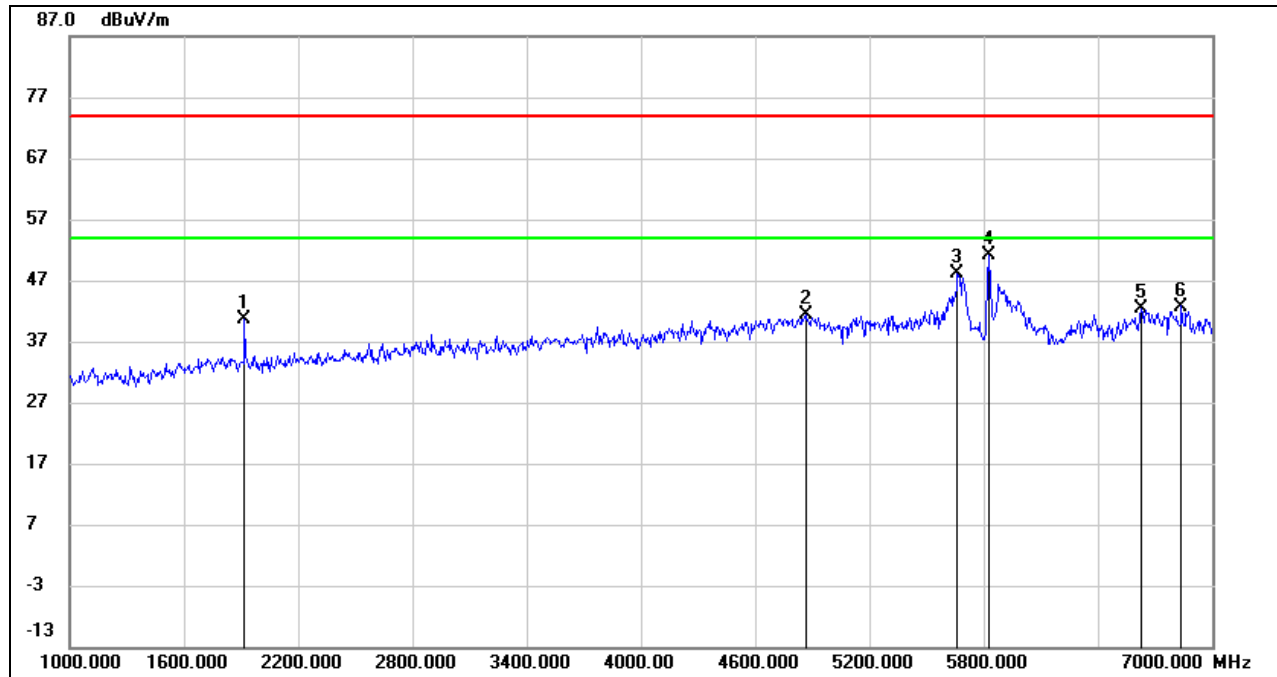
3. Peak: Peak detector.

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.

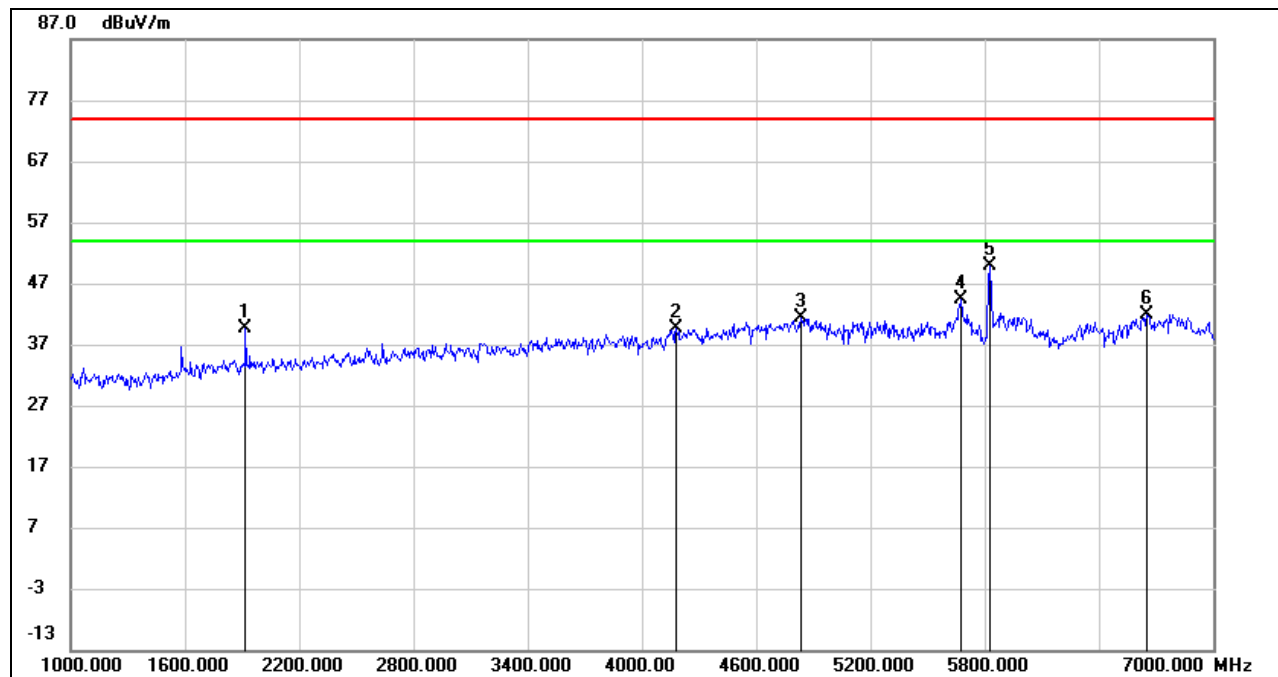
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	50.75	-10.13	40.62	74.00	-33.38	peak
2	4864.000	40.61	0.69	41.30	74.00	-32.70	peak
3	5662.000	45.55	2.47	48.02	74.00	-25.98	peak
4	5825.000	48.47	2.61	51.08	74.00	-22.92	peak
5	6628.000	36.99	5.50	42.49	74.00	-31.51	peak
6	6838.000	37.06	5.69	42.75	74.00	-31.25	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	1918.000	49.72	-10.13	39.59	74.00	-34.41	peak
2	4180.000	41.41	-1.87	39.54	74.00	-34.46	peak
3	4834.000	40.71	0.63	41.34	74.00	-32.66	peak
4	5674.000	41.80	2.48	44.28	74.00	-29.72	peak
5	5825.000	47.18	2.61	49.79	74.00	-24.21	peak
6	6652.000	36.33	5.52	41.85	74.00	-32.15	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.

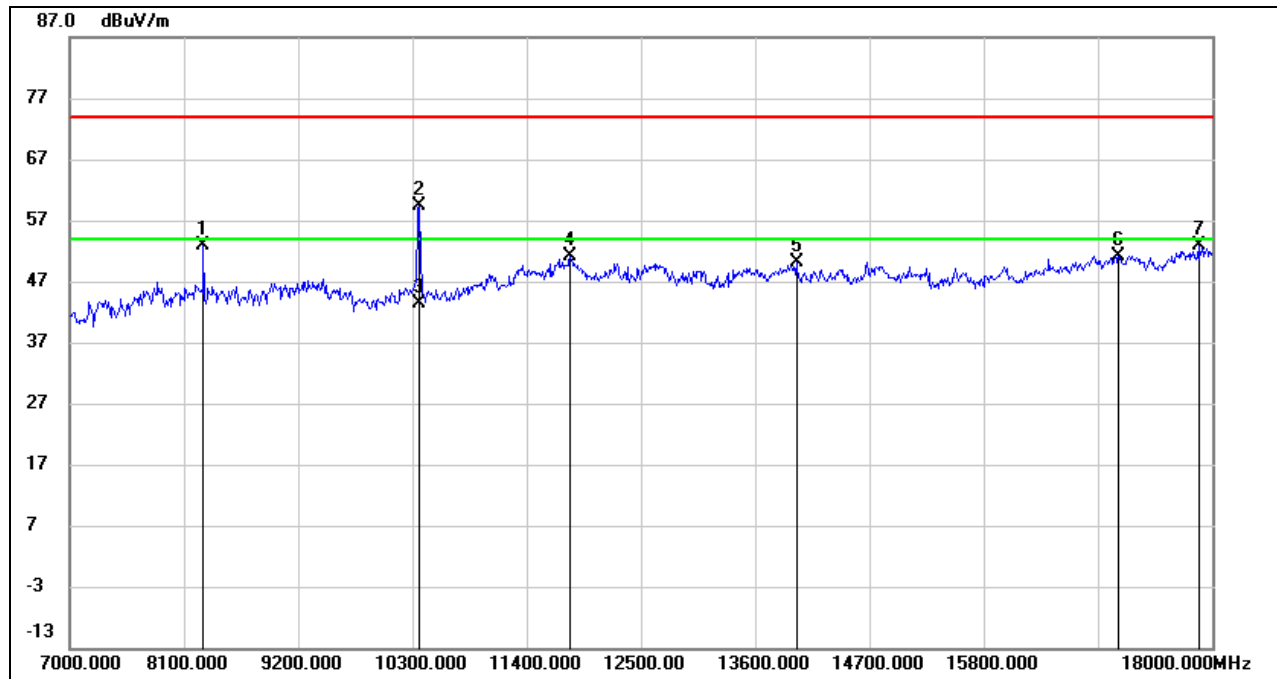
Note: All the modes and bands had been tested, but only the worst data was recorded in the report.

8.3. SPURIOUS EMISSIONS (7 GHz ~ 18 GHz)

8.3.1. 802.11a 20 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	8287.000	43.82	9.02	52.84	74.00	-21.16	peak
2	10366.000	48.02	11.33	59.35	74.00	-14.65	peak
3	10366.000	32.12	11.33	43.45	54.00	-10.55	AVG
4	11818.000	35.46	15.58	51.04	74.00	-22.96	peak
5	13996.000	33.39	16.85	50.24	74.00	-23.76	peak
6	17098.000	30.60	20.63	51.23	74.00	-22.77	peak
7	17868.000	30.05	22.71	52.76	74.00	-21.24	peak

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

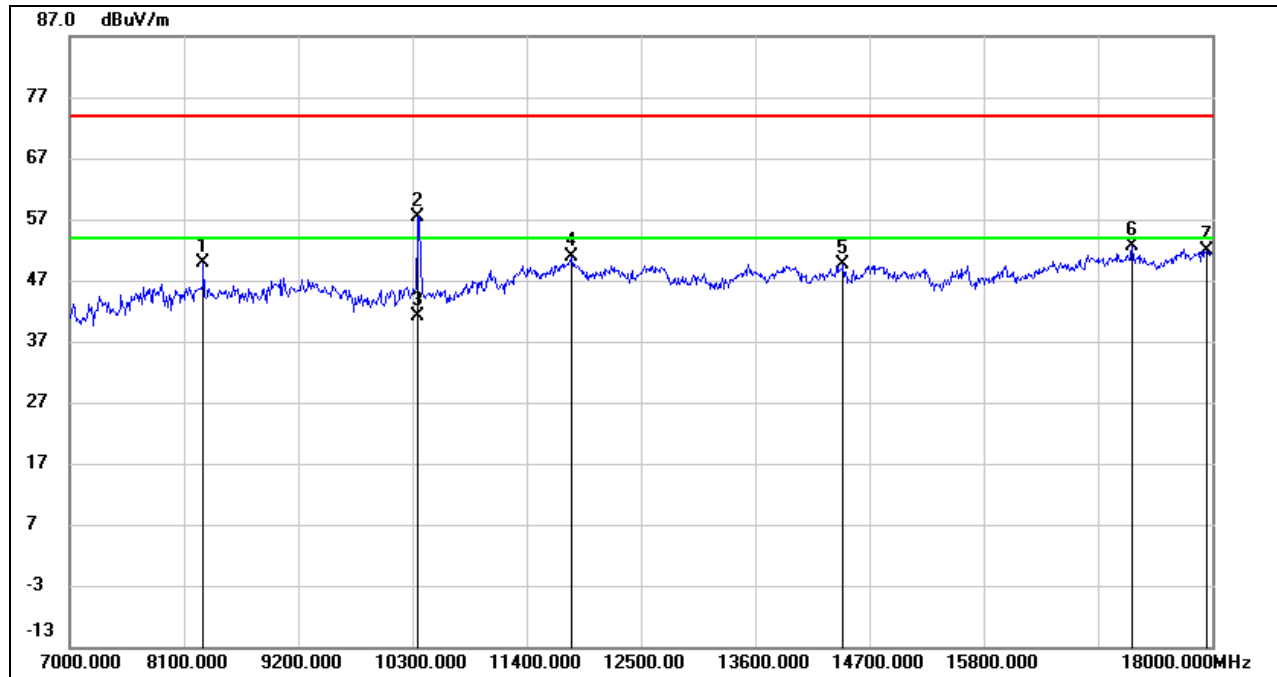
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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 (LOW CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8287.000	40.78	9.02	49.80	74.00	-24.20	peak
2	10355.000	46.14	11.29	57.43	74.00	-16.57	peak
3	10355.000	29.86	11.29	41.15	54.00	-12.85	AVG
4	11829.000	35.20	15.57	50.77	74.00	-23.23	peak
5	14447.000	32.81	16.77	49.58	74.00	-24.42	peak
6	17230.000	31.72	20.99	52.71	74.00	-21.29	peak
7	17945.000	29.16	22.68	51.84	74.00	-22.16	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.

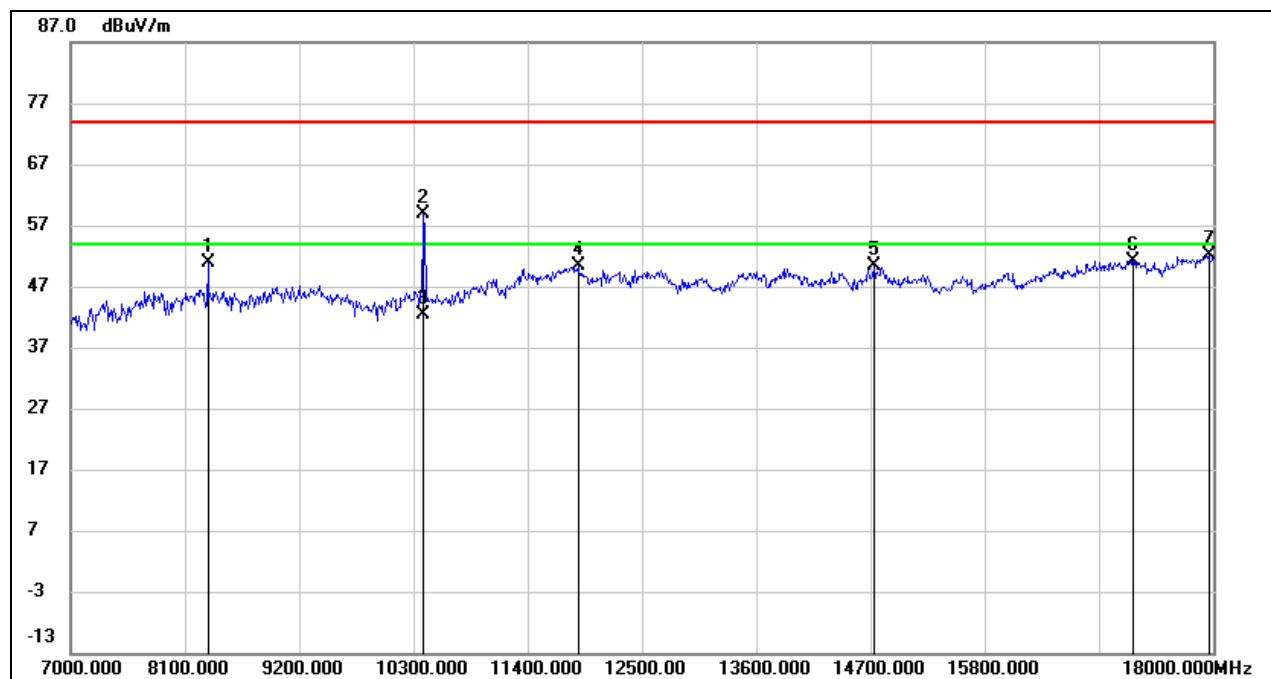
3. Peak: Peak detector.

4. 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	8320.000	41.98	8.90	50.88	74.00	-23.12	peak
2	10399.000	47.46	11.45	58.91	74.00	-15.09	peak
3	10399.000	30.90	11.45	42.35	54.00	-11.65	AVG
4	11884.000	34.83	15.49	50.32	74.00	-23.68	peak
5	14733.000	33.78	16.69	50.47	74.00	-23.53	peak
6	17230.000	30.25	20.99	51.24	74.00	-22.76	peak
7	17956.000	29.50	22.68	52.18	74.00	-21.82	peak

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

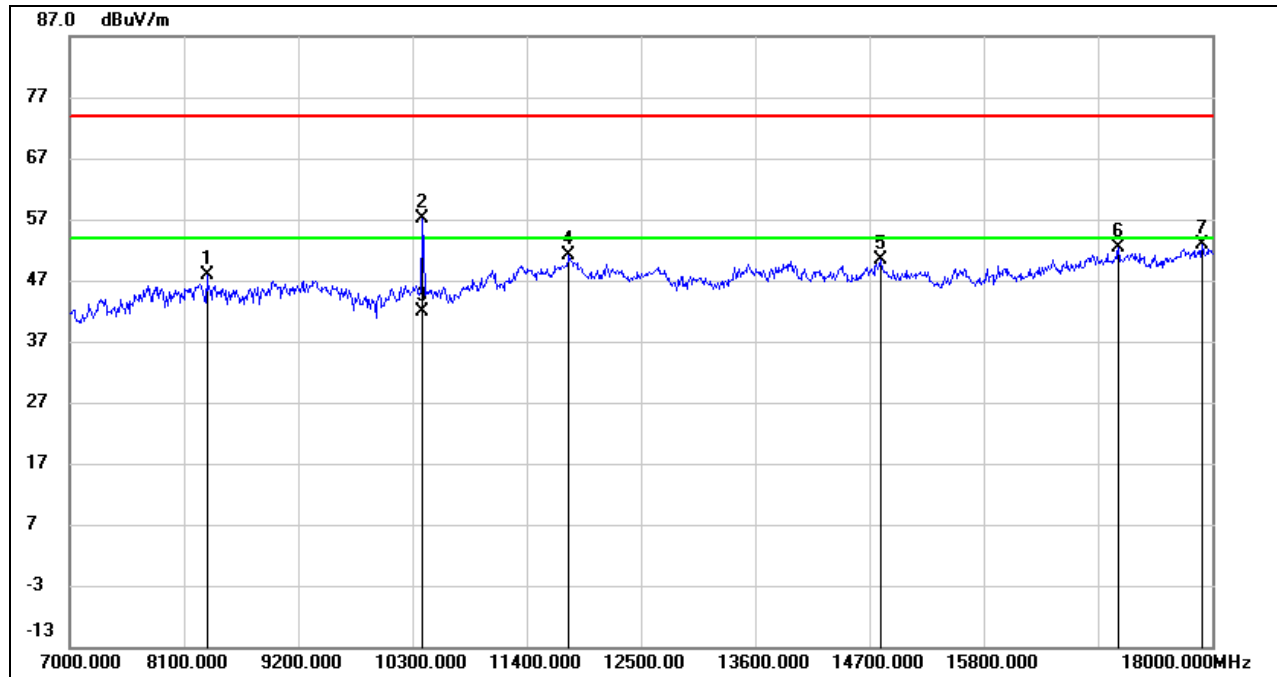
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8320.000	39.08	8.90	47.98	74.00	-26.02	peak
2	10399.000	45.75	11.45	57.20	74.00	-16.80	peak
3	10399.000	30.48	11.45	41.93	54.00	-12.07	AVG
4	11807.000	35.59	15.61	51.20	74.00	-22.80	peak
5	14810.000	33.69	16.80	50.49	74.00	-23.51	peak
6	17098.000	31.68	20.63	52.31	74.00	-21.69	peak
7	17901.000	30.08	22.69	52.77	74.00	-21.23	peak

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

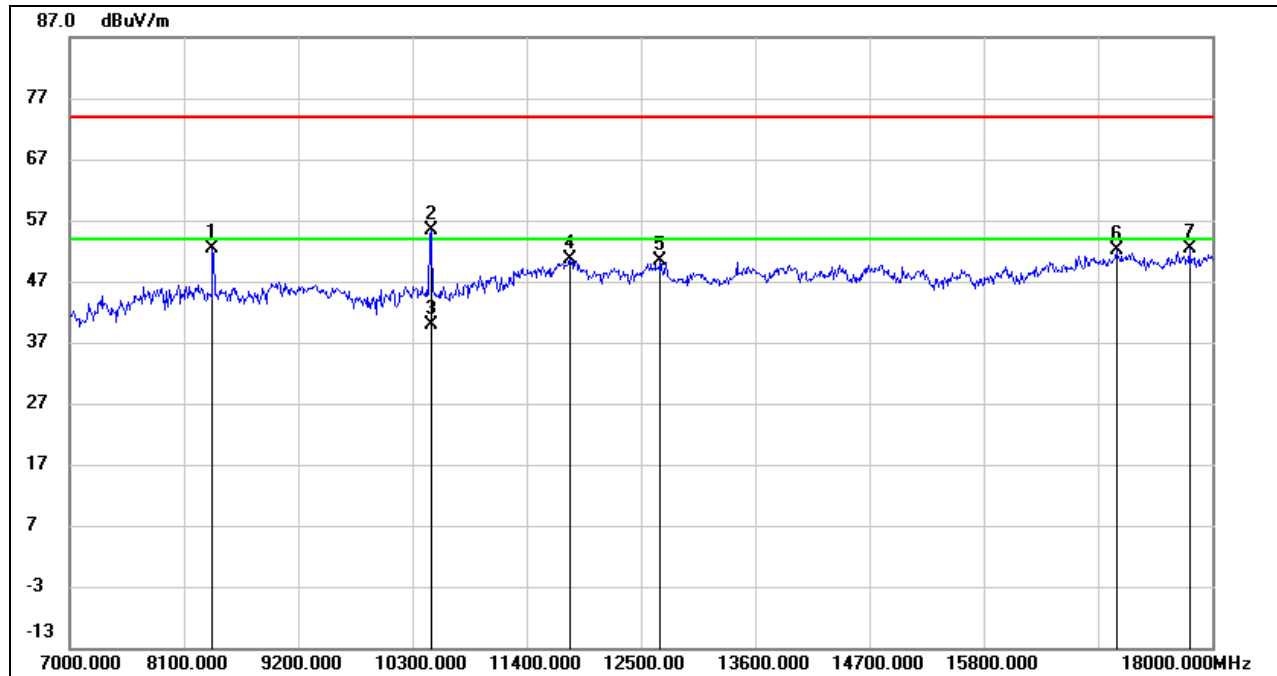
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8375.000	43.79	8.68	52.47	74.00	-21.53	peak
2	10476.000	43.55	11.83	55.38	74.00	-18.62	peak
3	10476.000	28.04	11.83	39.87	54.00	-14.13	AVG
4	11818.000	35.04	15.58	50.62	74.00	-23.38	peak
5	12687.000	35.00	15.45	50.45	74.00	-23.55	peak
6	17076.000	31.58	20.54	52.12	74.00	-21.88	peak
7	17780.000	29.87	22.57	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.

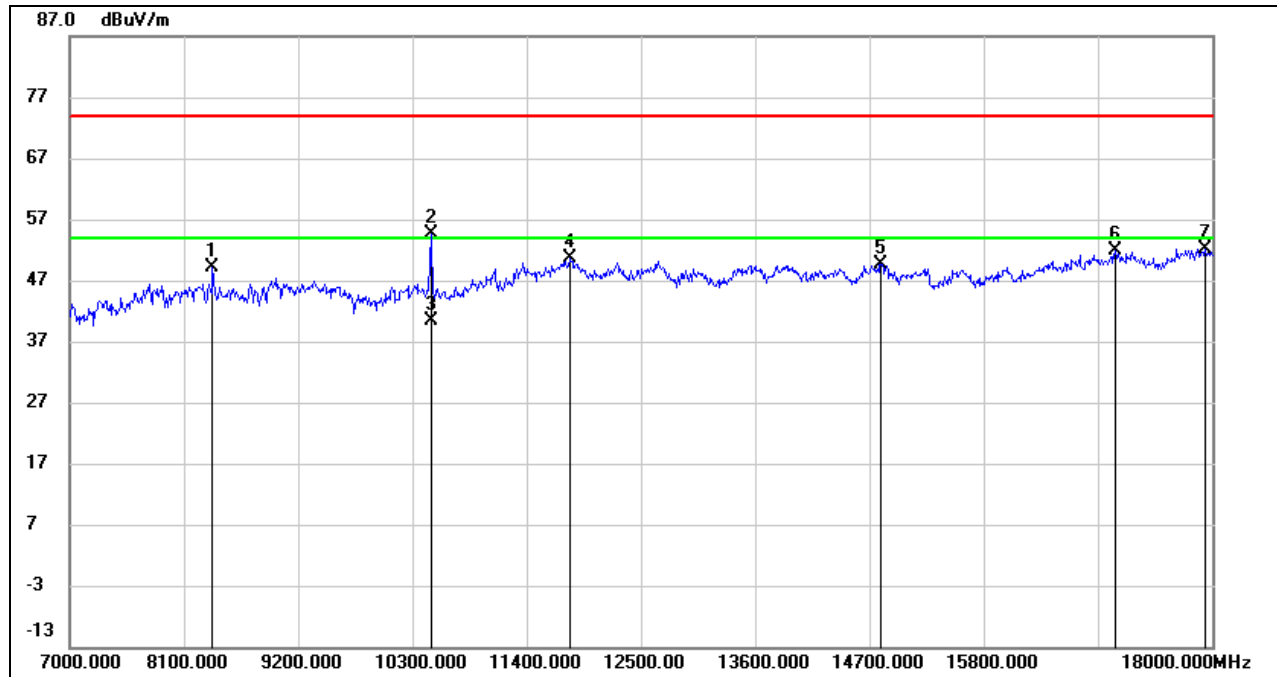
3. Peak: Peak detector.

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.

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	8375.000	40.44	8.68	49.12	74.00	-24.88	peak
2	10476.000	42.88	11.83	54.71	74.00	-19.29	peak
3	10476.000	28.63	11.83	40.46	54.00	-13.54	AVG
4	11818.000	35.02	15.58	50.60	74.00	-23.40	peak
5	14810.000	32.93	16.80	49.73	74.00	-24.27	peak
6	17065.000	31.37	20.49	51.86	74.00	-22.14	peak
7	17934.000	29.51	22.69	52.20	74.00	-21.80	peak

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

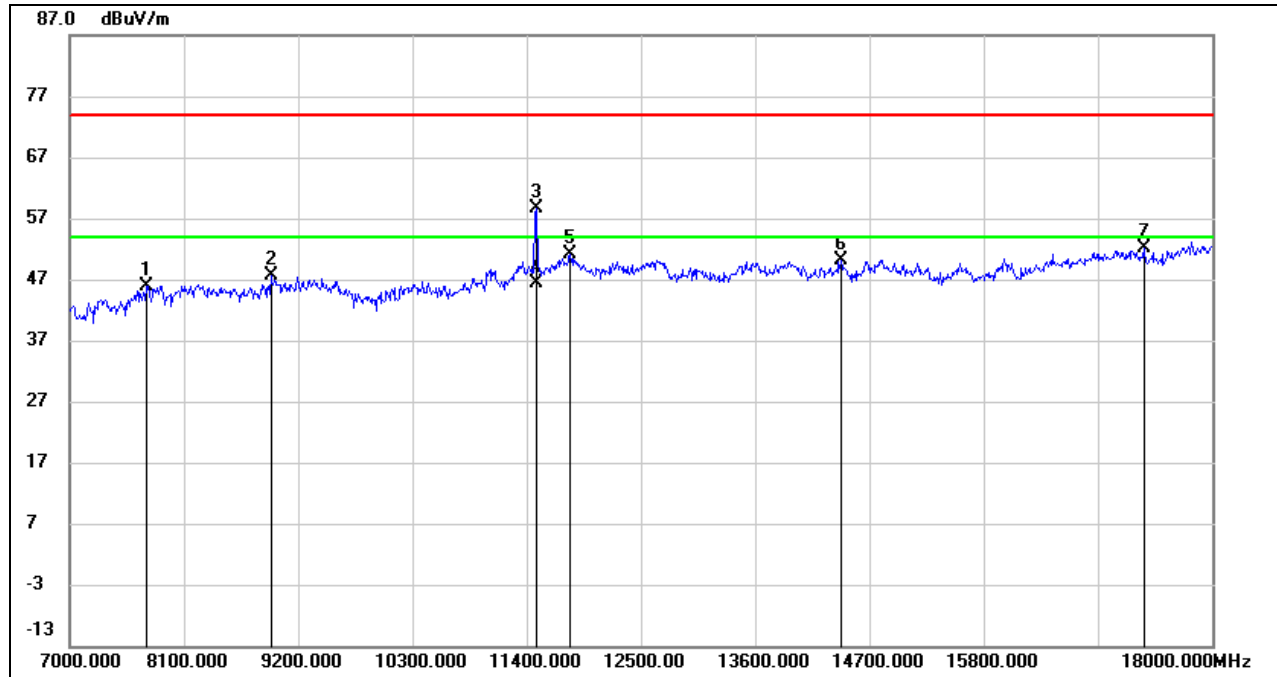
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	7737.000	37.98	8.00	45.98	74.00	-28.02	peak
2	8936.000	37.71	9.96	47.67	74.00	-26.33	peak
3	11488.000	44.37	14.34	58.71	74.00	-15.29	peak
4	11488.000	31.94	14.34	46.28	54.00	-7.72	AVG
5	11818.000	35.59	15.58	51.17	74.00	-22.83	peak
6	14425.000	33.22	16.80	50.02	74.00	-23.98	peak
7	17340.000	31.42	20.82	52.24	74.00	-21.76	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.

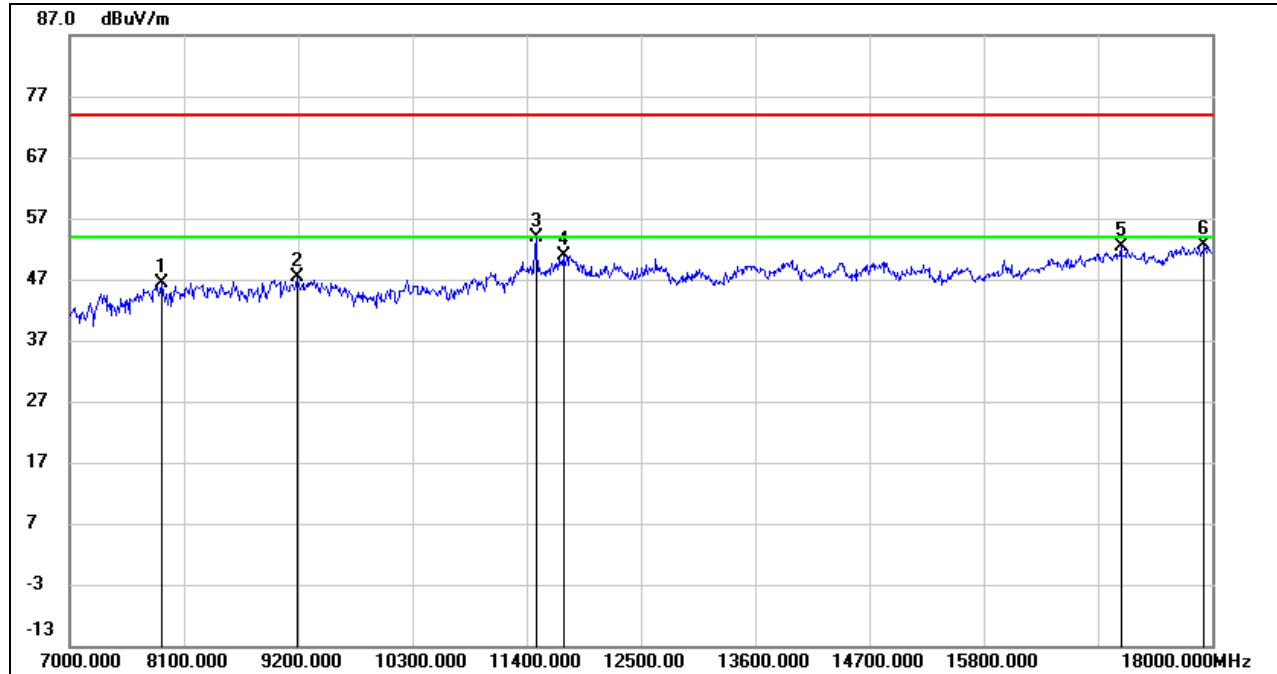
3. Peak: Peak detector.

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	38.39	8.01	46.40	74.00	-27.60	peak
2	9189.000	38.05	9.36	47.41	74.00	-26.59	peak
3	11488.000	39.60	14.34	53.94	74.00	-20.06	peak
4	11752.000	35.59	15.35	50.94	74.00	-23.06	peak
5	17120.000	31.58	20.72	52.30	74.00	-21.70	peak
6	17923.000	29.86	22.69	52.55	74.00	-21.45	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.

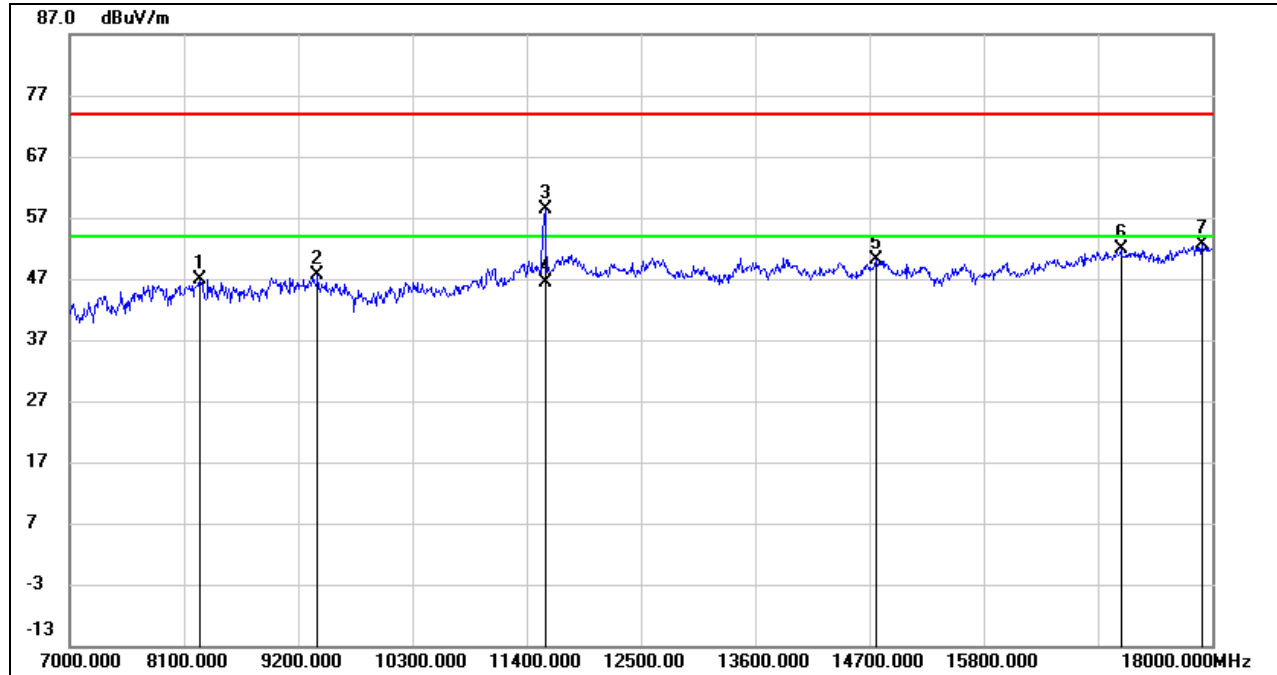
5. For the transmitting duration, please refer to clause 7.1.

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, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8254.000	37.77	9.15	46.92	74.00	-27.08	peak
2	9387.000	37.38	10.24	47.62	74.00	-26.38	peak
3	11576.000	43.89	14.48	58.37	74.00	-15.63	peak
4	11576.000	31.87	14.48	46.35	54.00	-7.65	AVG
5	14766.000	33.28	16.74	50.02	74.00	-23.98	peak
6	17120.000	31.05	20.72	51.77	74.00	-22.23	peak
7	17901.000	29.84	22.69	52.53	74.00	-21.47	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.

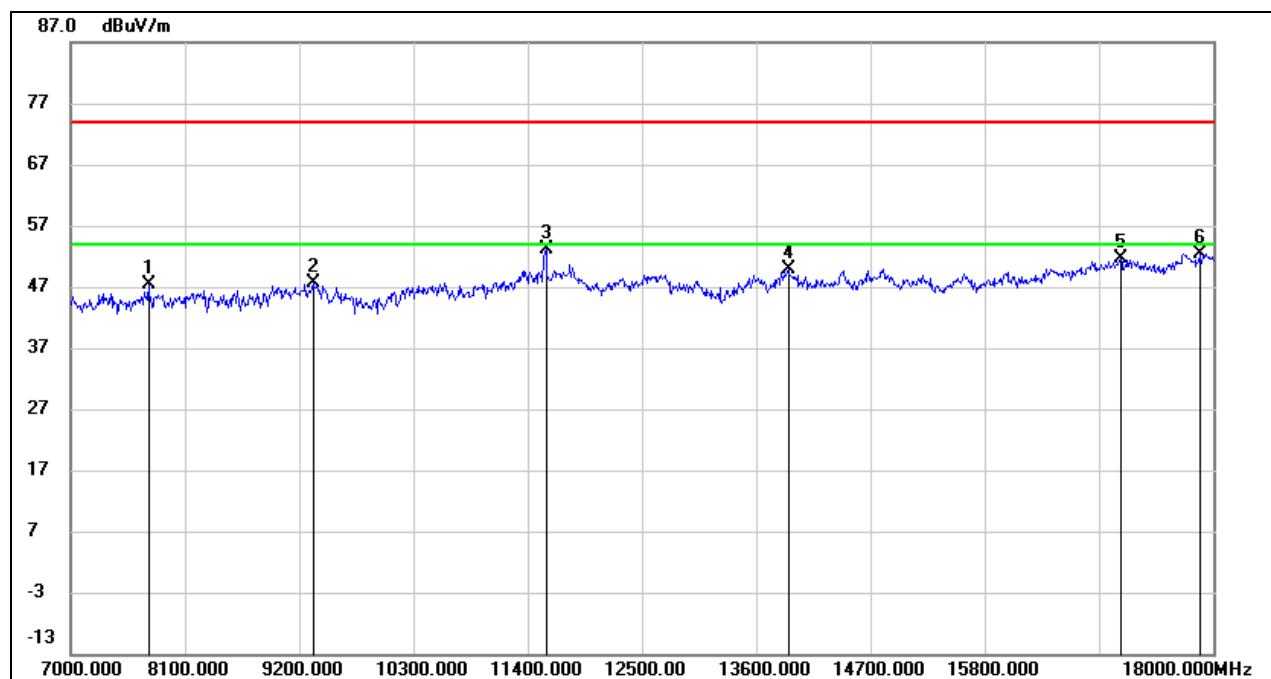
3. Peak: Peak detector.

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.

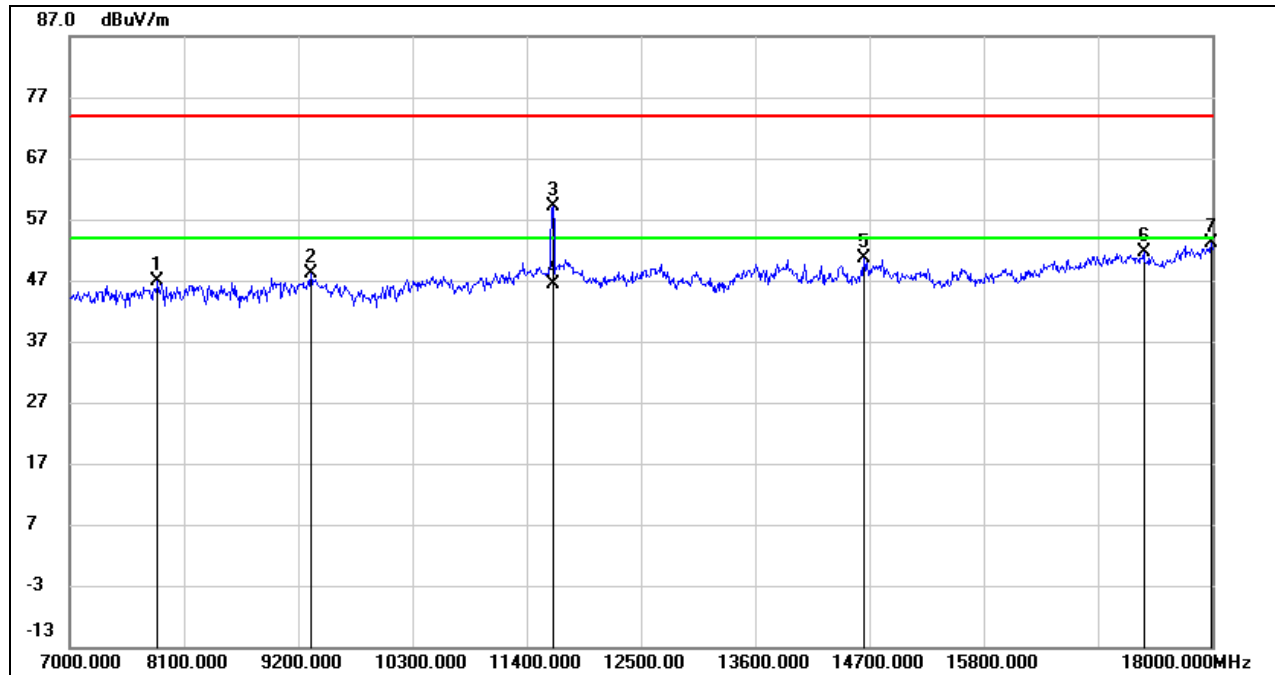
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

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	7748.000	39.43	8.05	47.48	74.00	-26.52	peak
2	9332.000	37.59	9.97	47.56	74.00	-26.44	peak
3	11576.000	38.54	14.48	53.02	74.00	-20.98	peak
4	13908.000	32.98	16.90	49.88	74.00	-24.12	peak
5	17109.000	30.84	20.67	51.51	74.00	-22.49	peak
6	17868.000	29.64	22.71	52.35	74.00	-21.65	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, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7847.000	38.65	8.11	46.76	74.00	-27.24	peak
2	9321.000	38.32	9.91	48.23	74.00	-25.77	peak
3	11653.000	44.24	14.80	59.04	74.00	-14.96	peak
4	11653.000	31.52	14.80	46.32	54.00	-7.68	AVG
5	14645.000	34.00	16.54	50.54	74.00	-23.46	peak
6	17340.000	30.74	20.82	51.56	74.00	-22.44	peak
7	17989.000	30.34	22.67	53.01	74.00	-20.99	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.

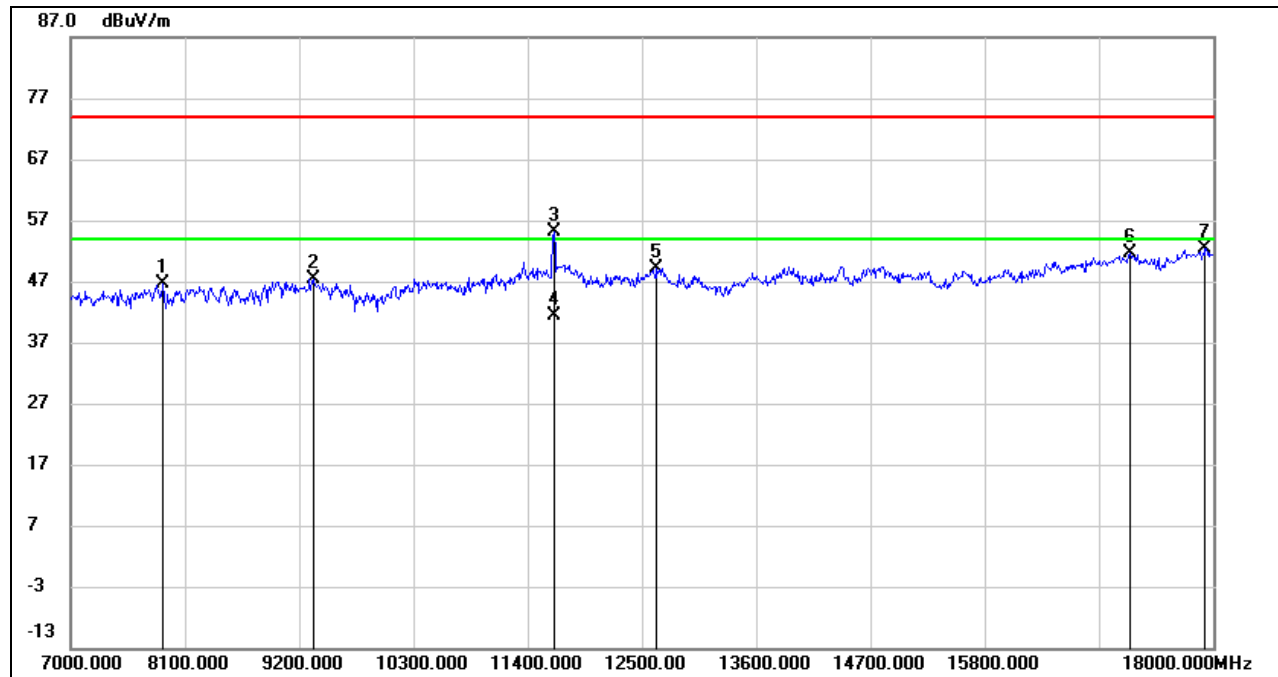
3. Peak: Peak detector.

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)



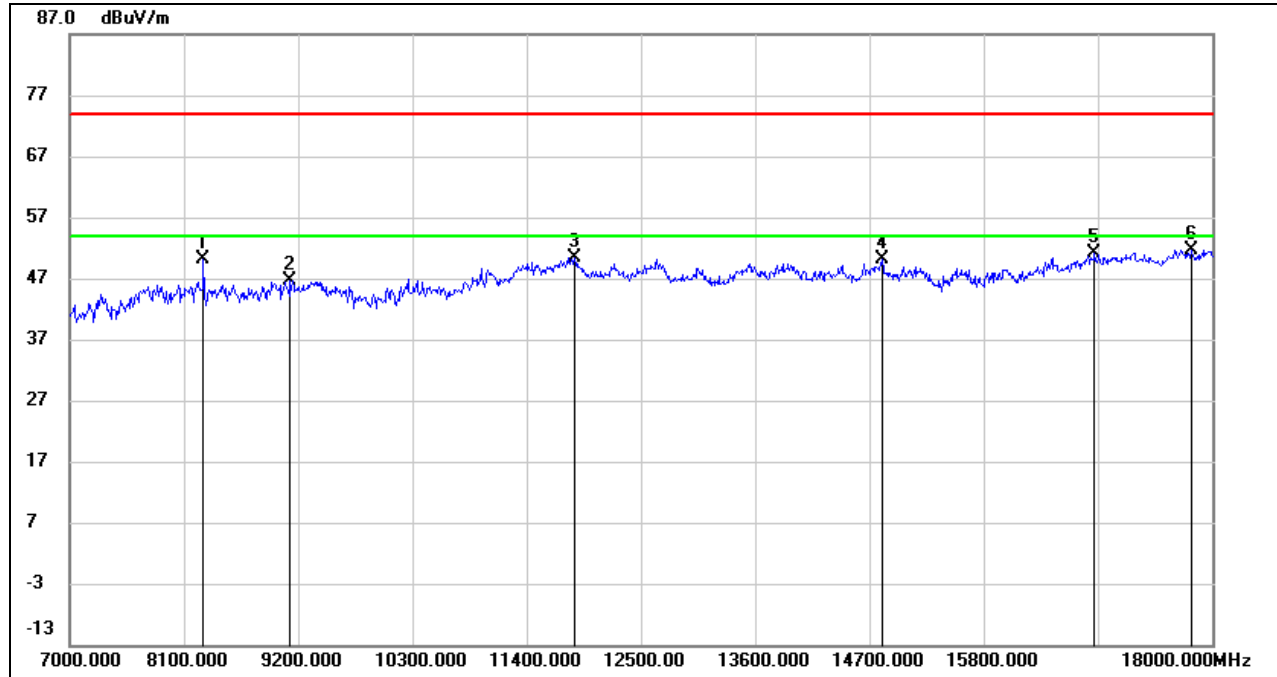
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7891.000	38.76	7.98	46.74	74.00	-27.26	peak
2	9343.000	37.44	10.02	47.46	74.00	-26.54	peak
3	11653.000	40.26	14.80	55.06	74.00	-18.94	peak
4	11653.000	26.55	14.80	41.35	54.00	-12.65	AVG
5	12643.000	33.77	15.36	49.13	74.00	-24.87	peak
6	17197.000	30.55	21.03	51.58	74.00	-22.42	peak
7	17923.000	29.61	22.69	52.30	74.00	-21.70	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.

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	8287.000	41.14	9.02	50.16	74.00	-23.84	peak
2	9123.000	36.84	9.81	46.65	74.00	-27.35	peak
3	11862.000	34.92	15.52	50.44	74.00	-23.56	peak
4	14821.000	33.37	16.81	50.18	74.00	-23.82	peak
5	16867.000	31.19	19.90	51.09	74.00	-22.91	peak
6	17802.000	28.89	22.72	51.61	74.00	-22.39	peak

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

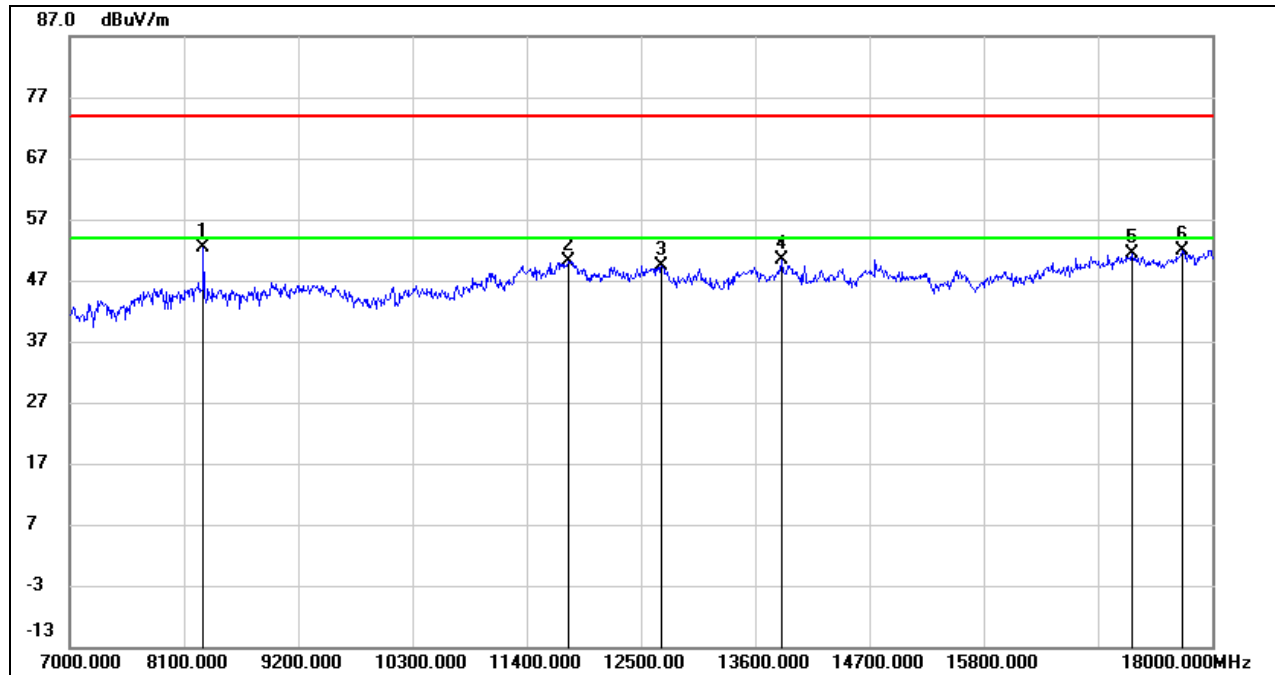
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8287.000	43.36	9.02	52.38	74.00	-21.62	peak
2	11807.000	34.54	15.61	50.15	74.00	-23.85	peak
3	12698.000	33.90	15.47	49.37	74.00	-24.63	peak
4	13853.000	33.49	16.93	50.42	74.00	-23.58	peak
5	17230.000	30.50	20.99	51.49	74.00	-22.51	peak
6	17714.000	29.86	22.04	51.90	74.00	-22.10	peak

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

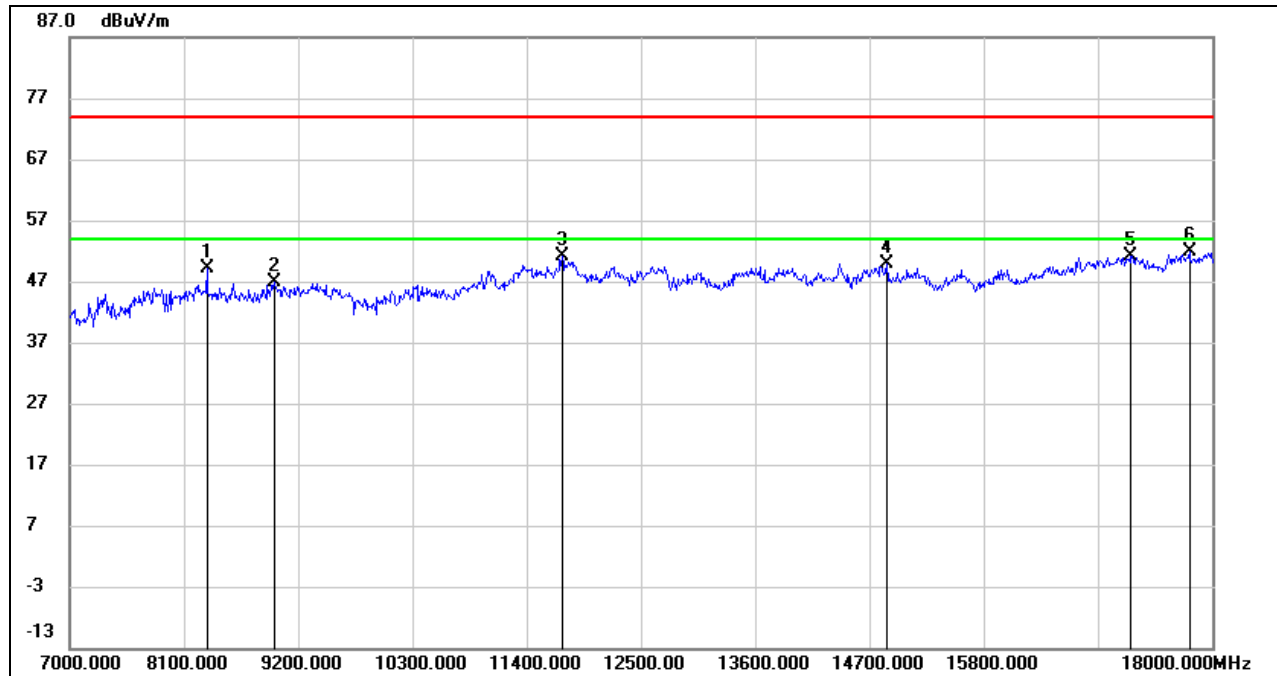
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

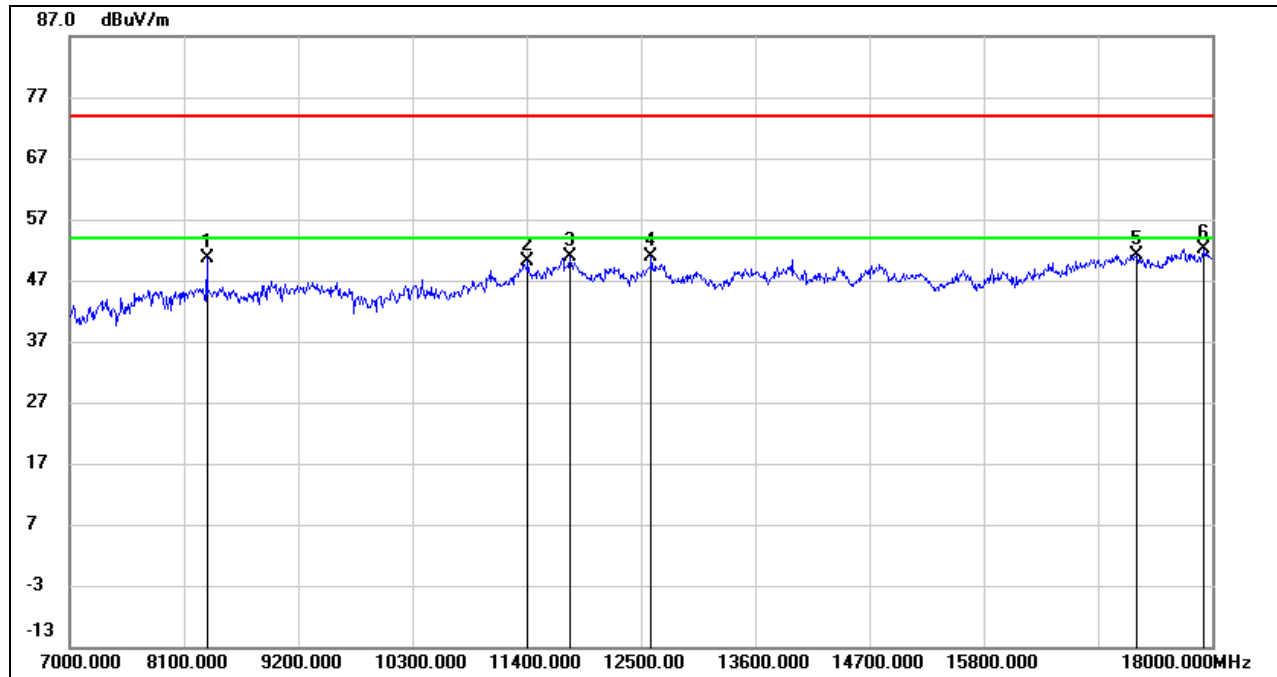
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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	8320.000	40.15	8.90	49.05	74.00	-24.95	peak
2	8969.000	36.59	10.31	46.90	74.00	-27.10	peak
3	11741.000	35.85	15.28	51.13	74.00	-22.87	peak
4	14865.000	33.05	16.83	49.88	74.00	-24.12	peak
5	17219.000	30.15	21.01	51.16	74.00	-22.84	peak
6	17780.000	29.20	22.57	51.77	74.00	-22.23	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	8320.000	41.76	8.90	50.66	74.00	-23.34	peak
2	11411.000	35.79	14.23	50.02	74.00	-23.98	peak
3	11818.000	35.37	15.58	50.95	74.00	-23.05	peak
4	12599.000	35.55	15.29	50.84	74.00	-23.16	peak
5	17274.000	30.30	20.93	51.23	74.00	-22.77	peak
6	17923.000	29.40	22.69	52.09	74.00	-21.91	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

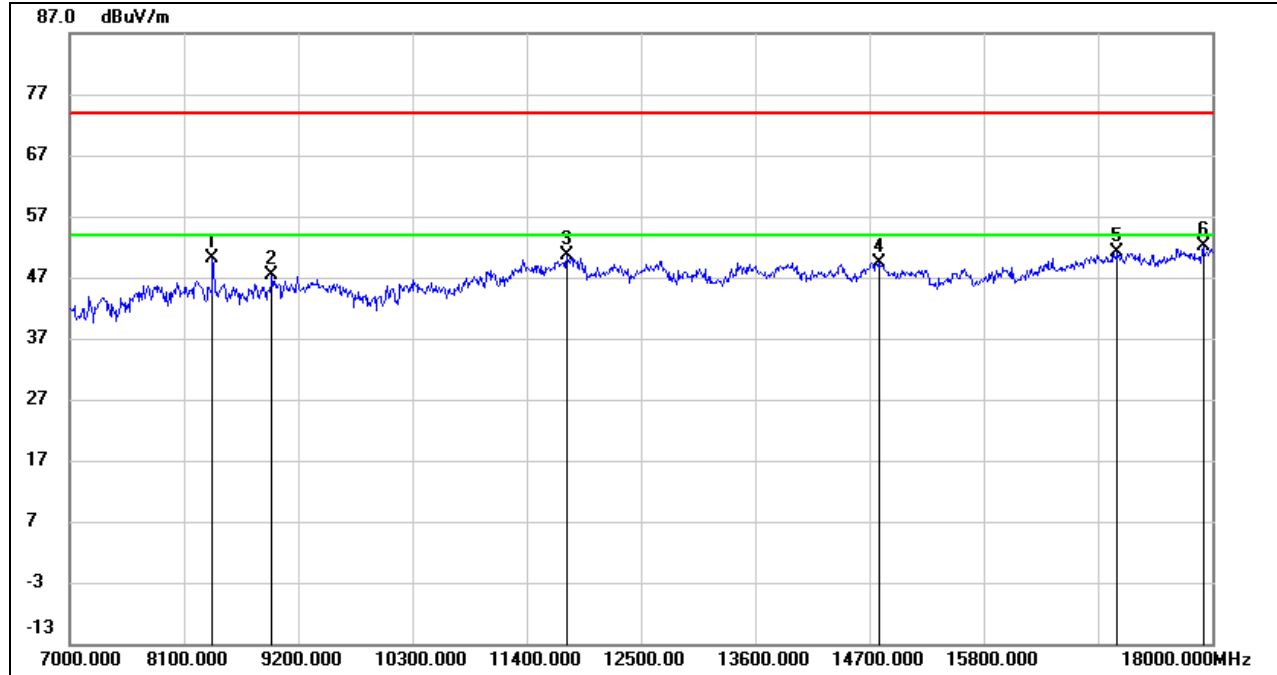
5. For the transmitting duration, please refer to clause 7.1.

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, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8375.000	41.51	8.68	50.19	74.00	-23.81	peak
2	8947.000	37.35	10.07	47.42	74.00	-26.58	peak
3	11785.000	35.17	15.52	50.69	74.00	-23.31	peak
4	14799.000	32.60	16.80	49.40	74.00	-24.60	peak
5	17087.000	30.50	20.58	51.08	74.00	-22.92	peak
6	17912.000	29.36	22.69	52.05	74.00	-21.95	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.

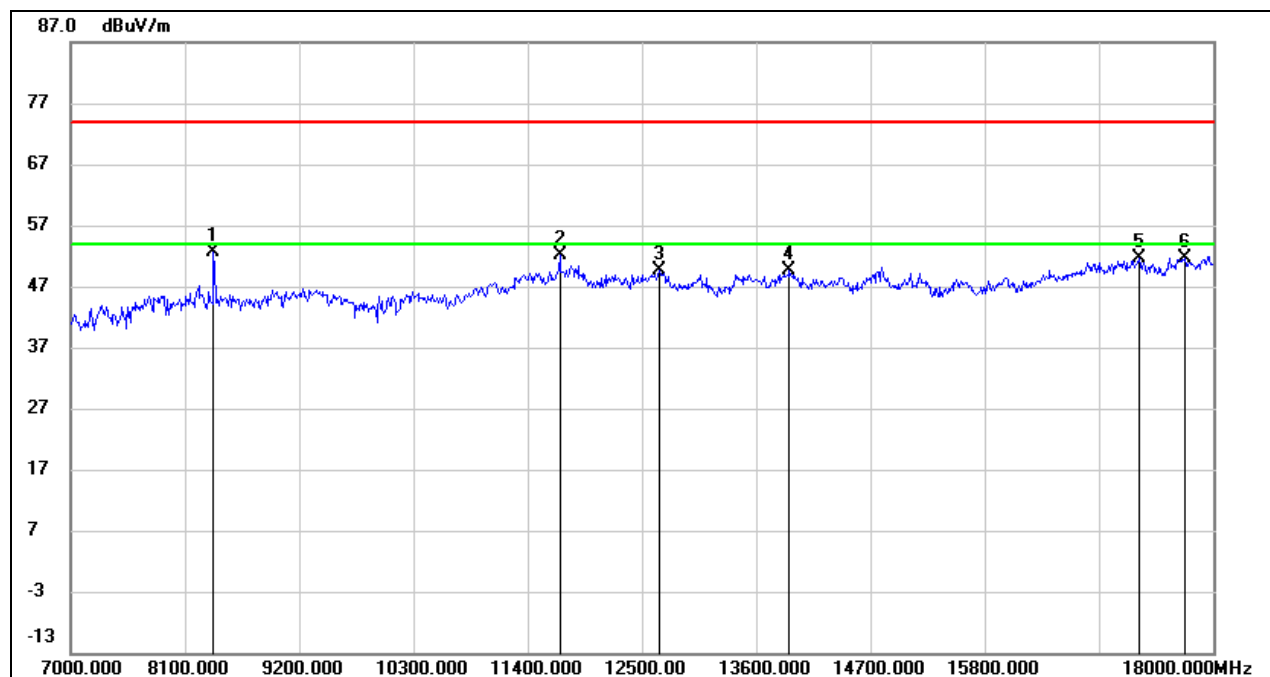
3. Peak: Peak detector.

4. 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	8375.000	44.06	8.68	52.74	74.00	-21.26	peak
2	11708.000	37.00	15.11	52.11	74.00	-21.89	peak
3	12665.000	34.12	15.41	49.53	74.00	-24.47	peak
4	13919.000	32.71	16.89	49.60	74.00	-24.40	peak
5	17285.000	30.68	20.92	51.60	74.00	-22.40	peak
6	17725.000	29.52	22.13	51.65	74.00	-22.35	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.

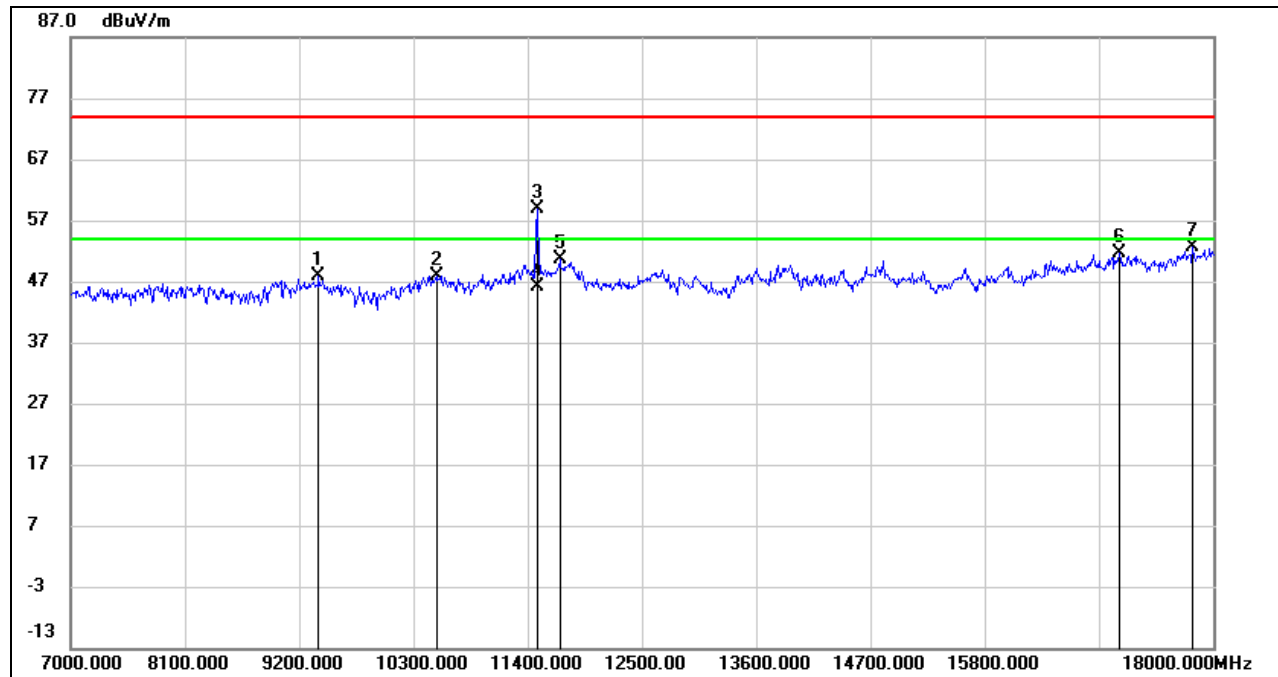
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

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.

**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	9387.000	37.54	10.24	47.78	74.00	-26.22	peak
2	10520.000	35.95	12.04	47.99	74.00	-26.01	peak
3	11488.000	44.50	14.34	58.84	74.00	-15.16	peak
4	11488.000	31.81	14.34	46.15	54.00	-7.85	AVG
5	11708.000	35.41	15.11	50.52	74.00	-23.48	peak
6	17098.000	31.08	20.63	51.71	74.00	-22.29	peak
7	17802.000	29.89	22.72	52.61	74.00	-21.39	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.

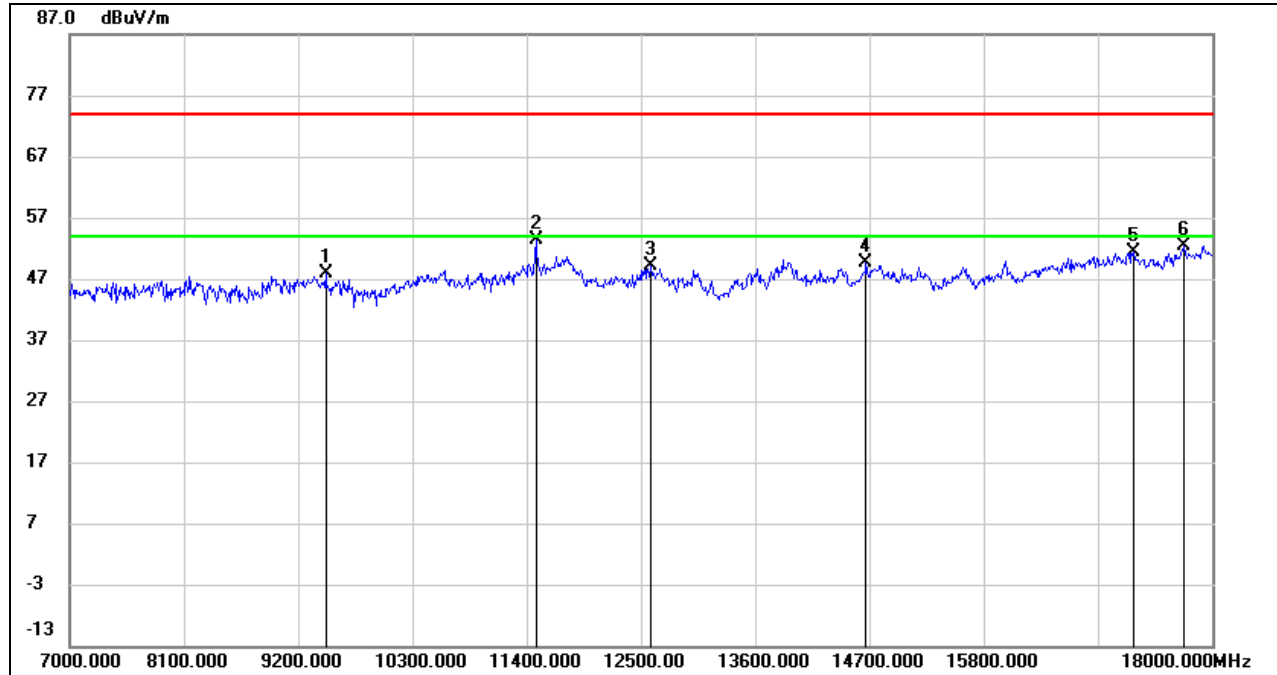
3. Peak: Peak detector.

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.

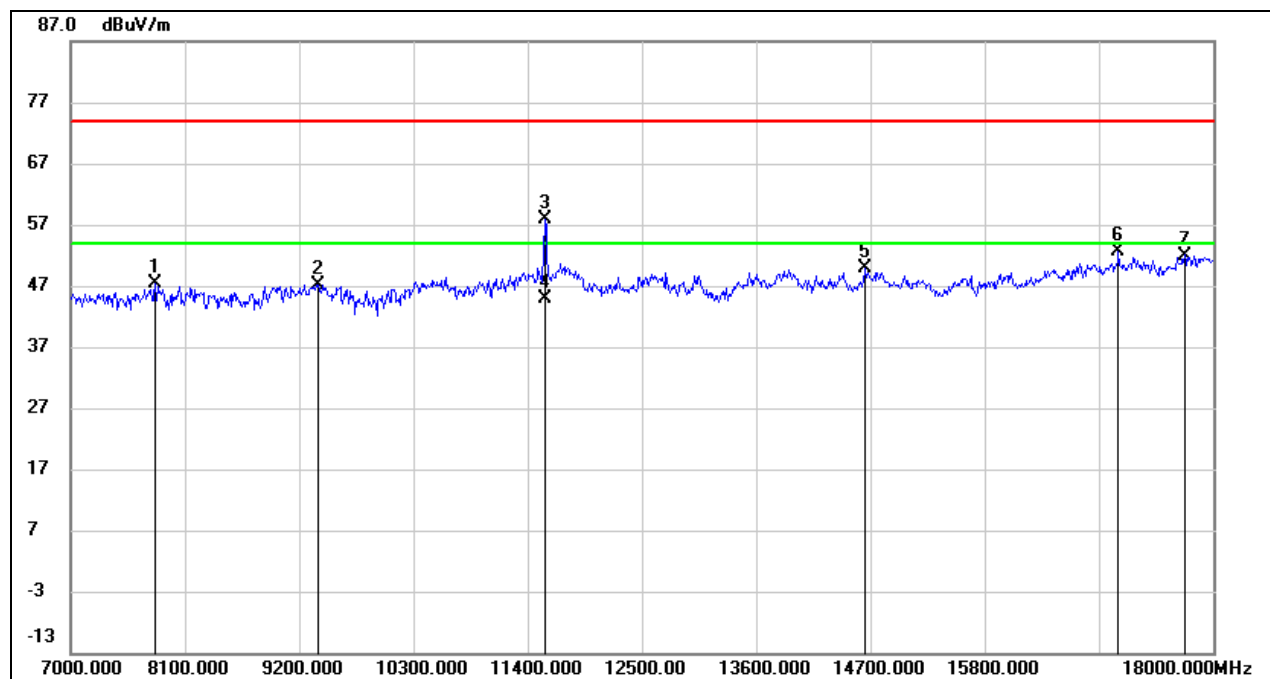
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

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	9464.000	37.43	10.40	47.83	74.00	-26.17	peak
2	11488.000	39.02	14.34	53.36	74.00	-20.64	peak
3	12599.000	33.92	15.29	49.21	74.00	-24.79	peak
4	14667.000	33.05	16.57	49.62	74.00	-24.38	peak
5	17241.000	30.30	20.97	51.27	74.00	-22.73	peak
6	17725.000	30.32	22.13	52.45	74.00	-21.55	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. 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, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7814.000	39.06	8.21	47.27	74.00	-26.73	peak
2	9376.000	36.94	10.19	47.13	74.00	-26.87	peak
3	11565.000	43.40	14.45	57.85	74.00	-16.15	peak
4	11565.000	30.31	14.45	44.76	54.00	-9.24	AVG
5	14645.000	33.32	16.54	49.86	74.00	-24.14	peak
6	17087.000	31.93	20.58	52.51	74.00	-21.49	peak
7	17725.000	29.87	22.13	52.00	74.00	-22.00	peak

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

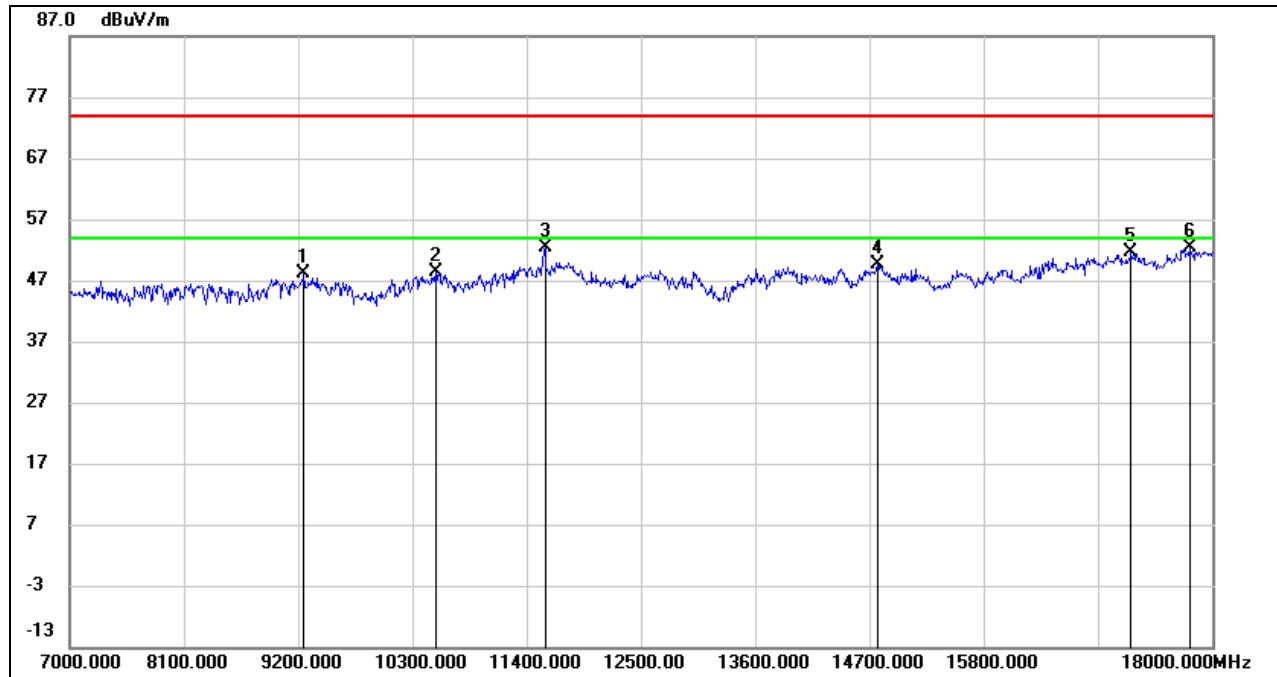
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	9255.000	38.69	9.56	48.25	74.00	-25.75	peak
2	10520.000	36.45	12.04	48.49	74.00	-25.51	peak
3	11576.000	37.91	14.48	52.39	74.00	-21.61	peak
4	14777.000	32.96	16.76	49.72	74.00	-24.28	peak
5	17219.000	30.56	21.01	51.57	74.00	-22.43	peak
6	17780.000	29.81	22.57	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

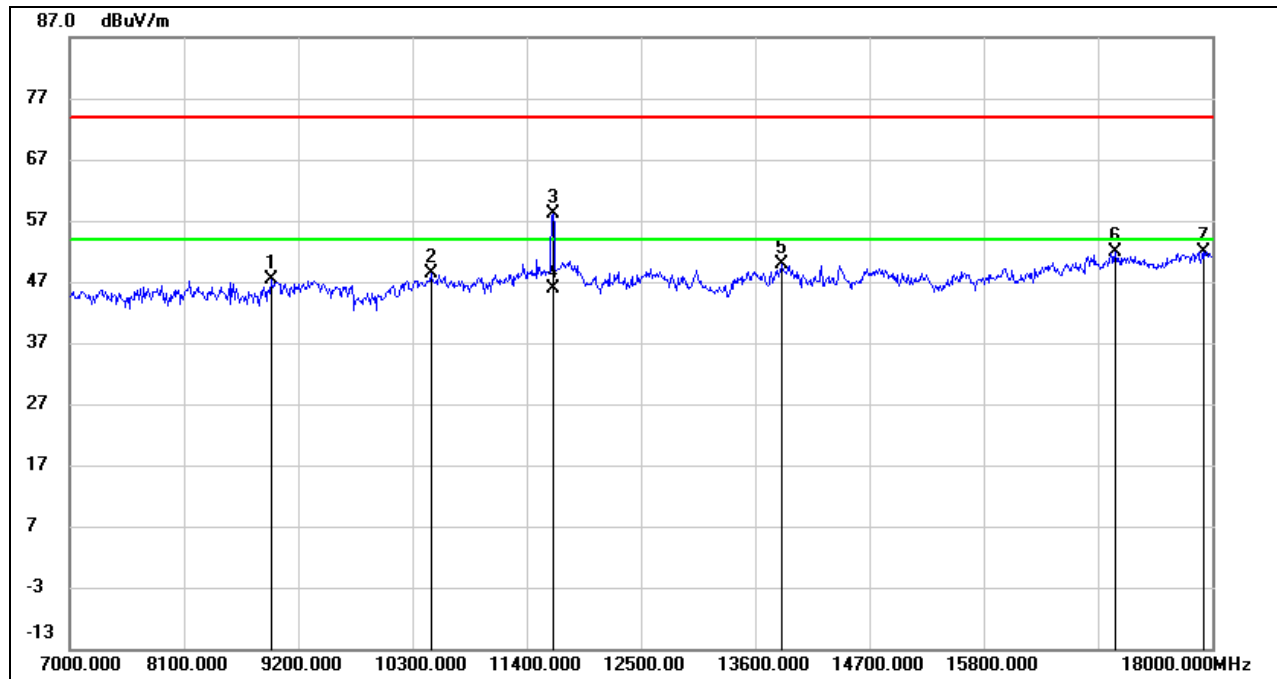
5. For the transmitting duration, please refer to clause 7.1.

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.

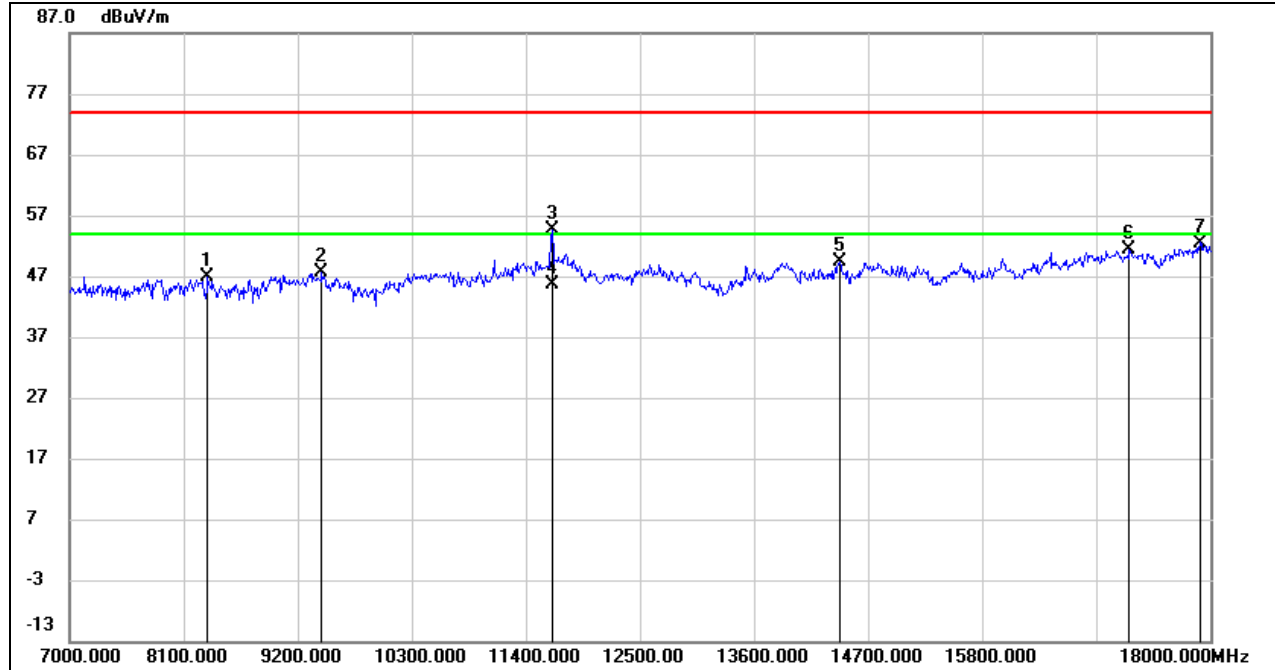
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8936.000	37.51	9.96	47.47	74.00	-26.53	peak
2	10476.000	36.59	11.83	48.42	74.00	-25.58	peak
3	11653.000	43.45	14.80	58.25	74.00	-15.75	peak
4	11653.000	30.96	14.80	45.76	54.00	-8.24	AVG
5	13853.000	32.91	16.93	49.84	74.00	-24.16	peak
6	17065.000	31.31	20.49	51.80	74.00	-22.20	peak
7	17912.000	29.29	22.69	51.98	74.00	-22.02	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	8331.000	37.98	8.85	46.83	74.00	-27.17	peak
2	9431.000	37.29	10.35	47.64	74.00	-26.36	peak
3	11653.000	39.73	14.80	54.53	74.00	-19.47	peak
4	11653.000	30.95	14.80	45.75	54.00	-8.25	AVG
5	14425.000	32.57	16.80	49.37	74.00	-24.63	peak
6	17219.000	30.41	21.01	51.42	74.00	-22.58	peak
7	17901.000	29.81	22.69	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. 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.

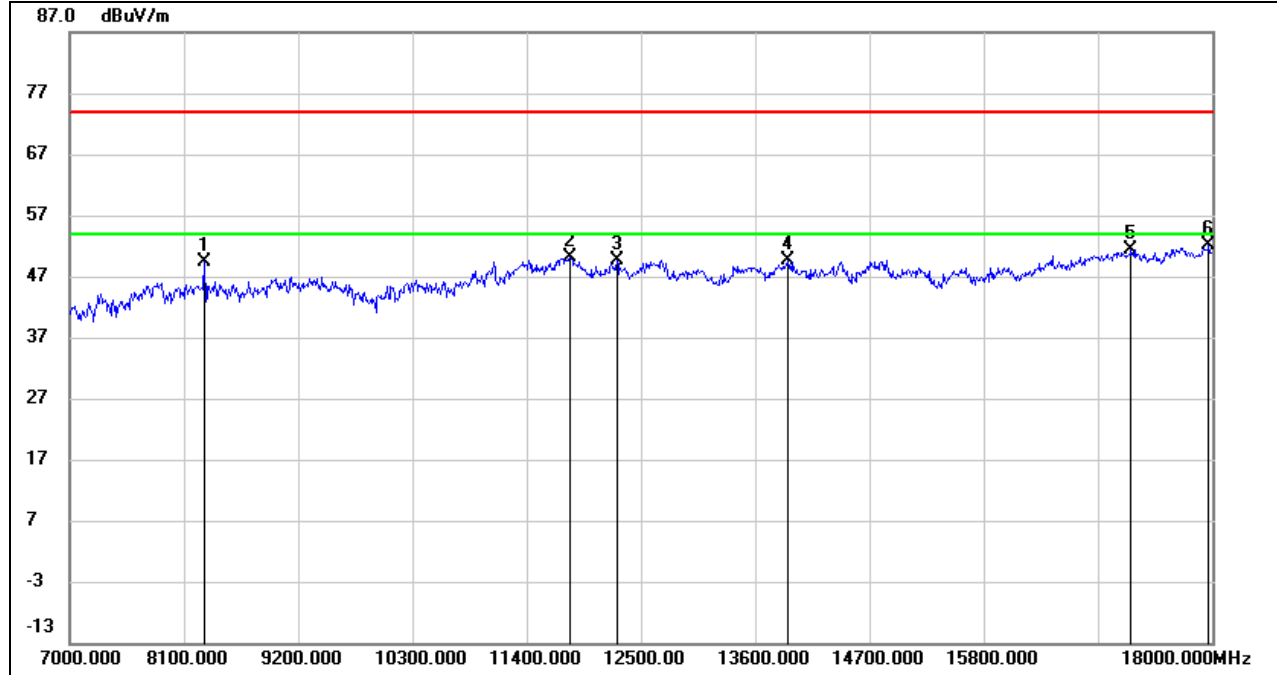
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

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	8298.000	40.30	8.98	49.28	74.00	-24.72	peak
2	11818.000	34.60	15.58	50.18	74.00	-23.82	peak
3	12269.000	34.48	15.24	49.72	74.00	-24.28	peak
4	13919.000	32.62	16.89	49.51	74.00	-24.49	peak
5	17219.000	30.28	21.01	51.29	74.00	-22.71	peak
6	17967.000	29.56	22.67	52.23	74.00	-21.77	peak

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

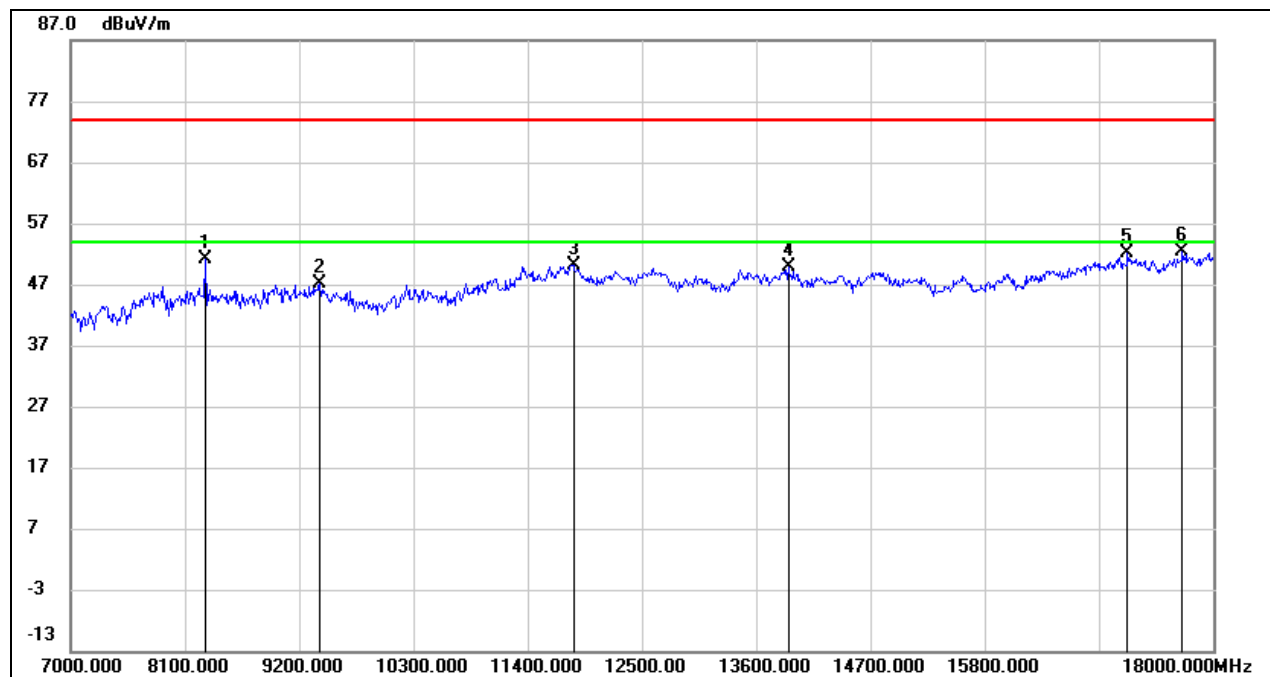
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	8298.000	42.22	8.98	51.20	74.00	-22.80	peak
2	9398.000	36.80	10.30	47.10	74.00	-26.90	peak
3	11840.000	34.59	15.56	50.15	74.00	-23.85	peak
4	13908.000	32.89	16.90	49.79	74.00	-24.21	peak
5	17175.000	31.08	20.94	52.02	74.00	-21.98	peak
6	17703.000	30.43	21.96	52.39	74.00	-21.61	peak

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

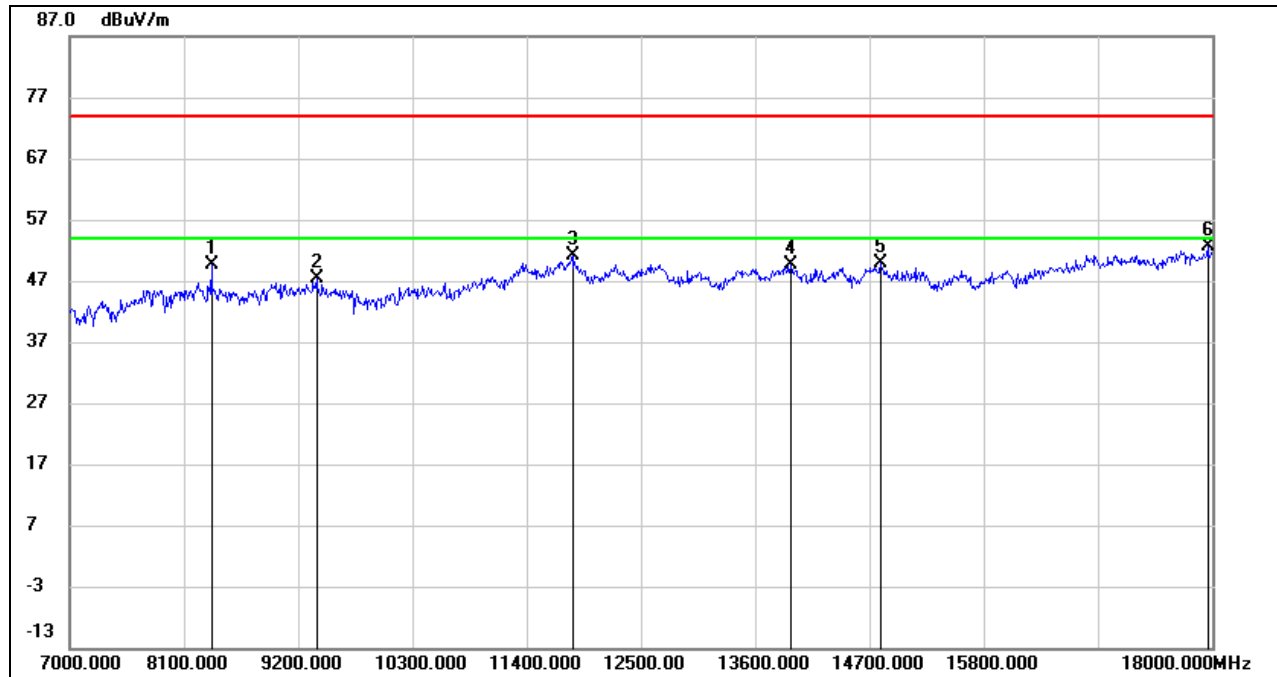
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8364.000	40.95	8.73	49.68	74.00	-24.32	peak
2	9376.000	37.15	10.19	47.34	74.00	-26.66	peak
3	11840.000	35.57	15.56	51.13	74.00	-22.87	peak
4	13941.000	32.74	16.88	49.62	74.00	-24.38	peak
5	14810.000	32.97	16.80	49.77	74.00	-24.23	peak
6	17956.000	29.99	22.68	52.67	74.00	-21.33	peak

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

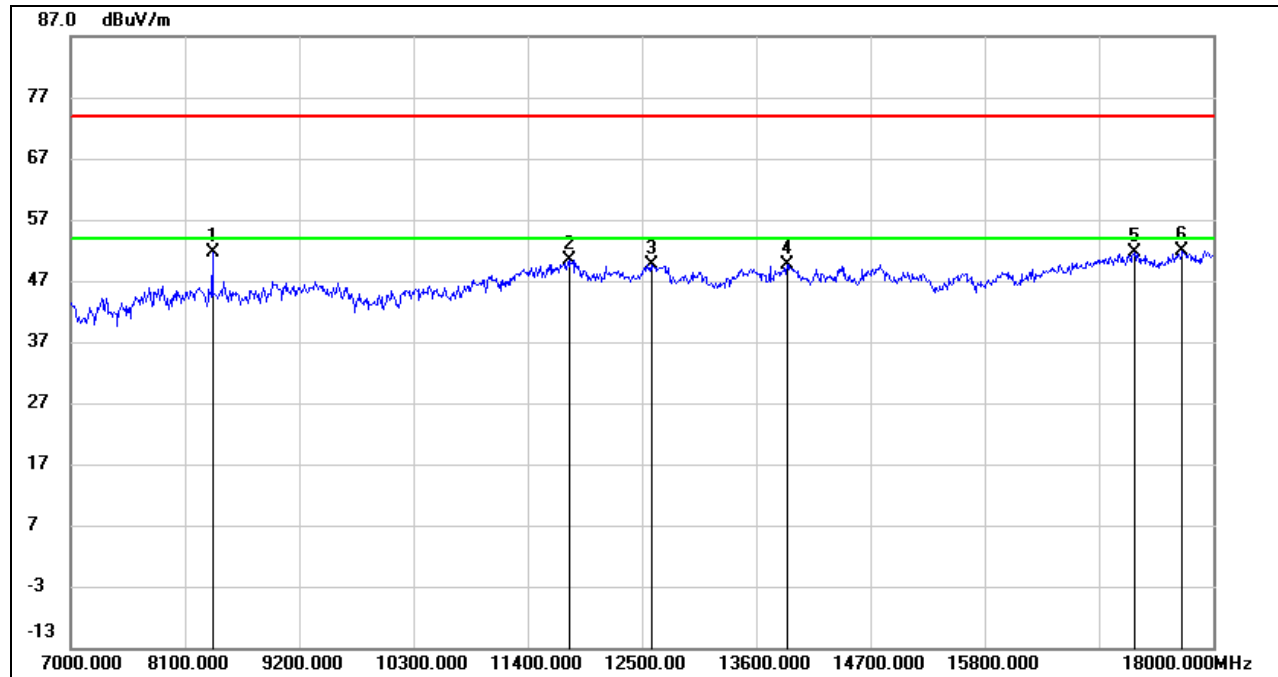
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8364.000	42.95	8.73	51.68	74.00	-22.32	peak
2	11796.000	34.69	15.59	50.28	74.00	-23.72	peak
3	12588.000	34.42	15.29	49.71	74.00	-24.29	peak
4	13897.000	32.72	16.90	49.62	74.00	-24.38	peak
5	17241.000	30.65	20.97	51.62	74.00	-22.38	peak
6	17703.000	29.92	21.96	51.88	74.00	-22.12	peak

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

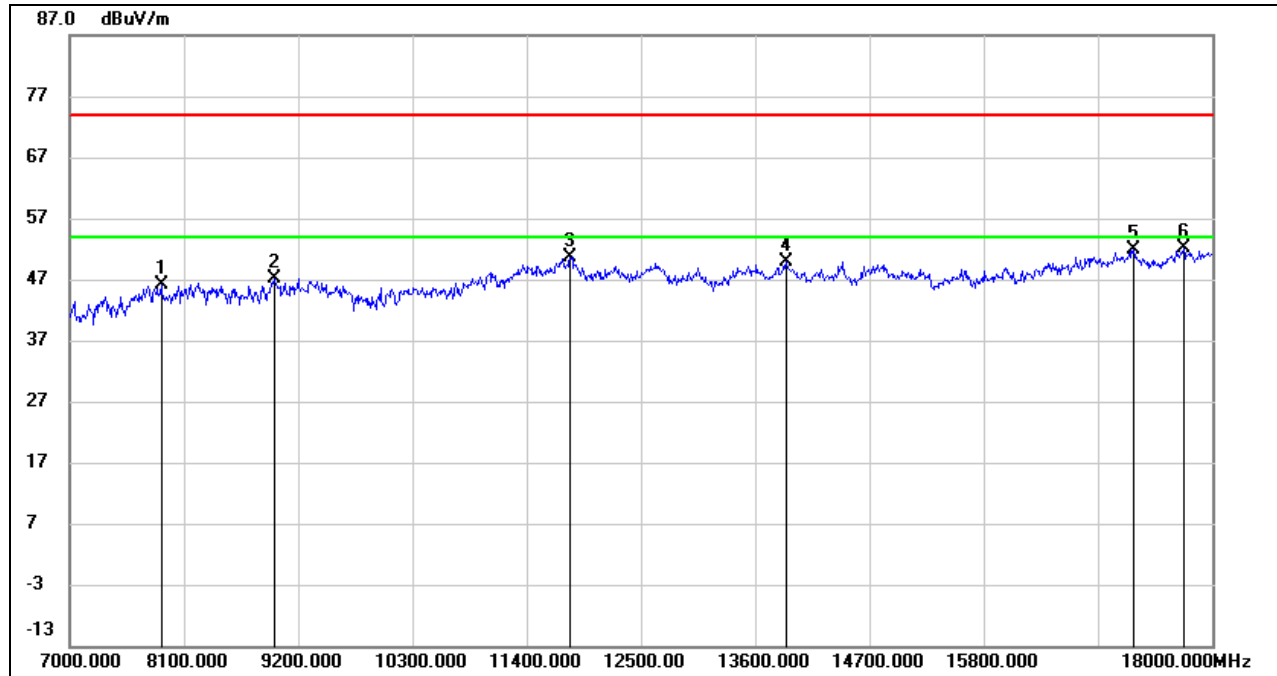
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

**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	7880.000	38.15	8.01	46.16	74.00	-27.84	peak
2	8969.000	36.78	10.31	47.09	74.00	-26.91	peak
3	11818.000	35.02	15.58	50.60	74.00	-23.40	peak
4	13897.000	32.91	16.90	49.81	74.00	-24.19	peak
5	17241.000	30.84	20.97	51.81	74.00	-22.19	peak
6	17725.000	29.97	22.13	52.10	74.00	-21.90	peak

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

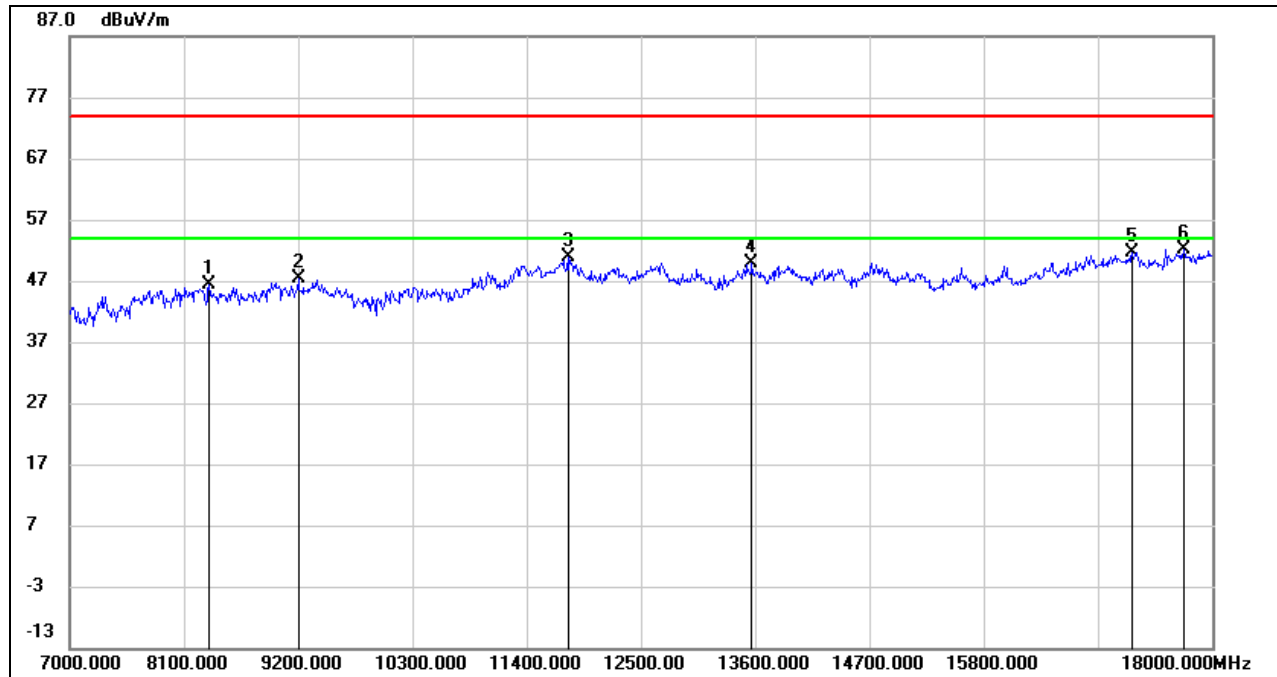
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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	8342.000	37.64	8.81	46.45	74.00	-27.55	peak
2	9200.000	38.21	9.29	47.50	74.00	-26.50	peak
3	11796.000	35.17	15.59	50.76	74.00	-23.24	peak
4	13567.000	33.37	16.42	49.79	74.00	-24.21	peak
5	17230.000	30.66	20.99	51.65	74.00	-22.35	peak
6	17725.000	30.11	22.13	52.24	74.00	-21.76	peak

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

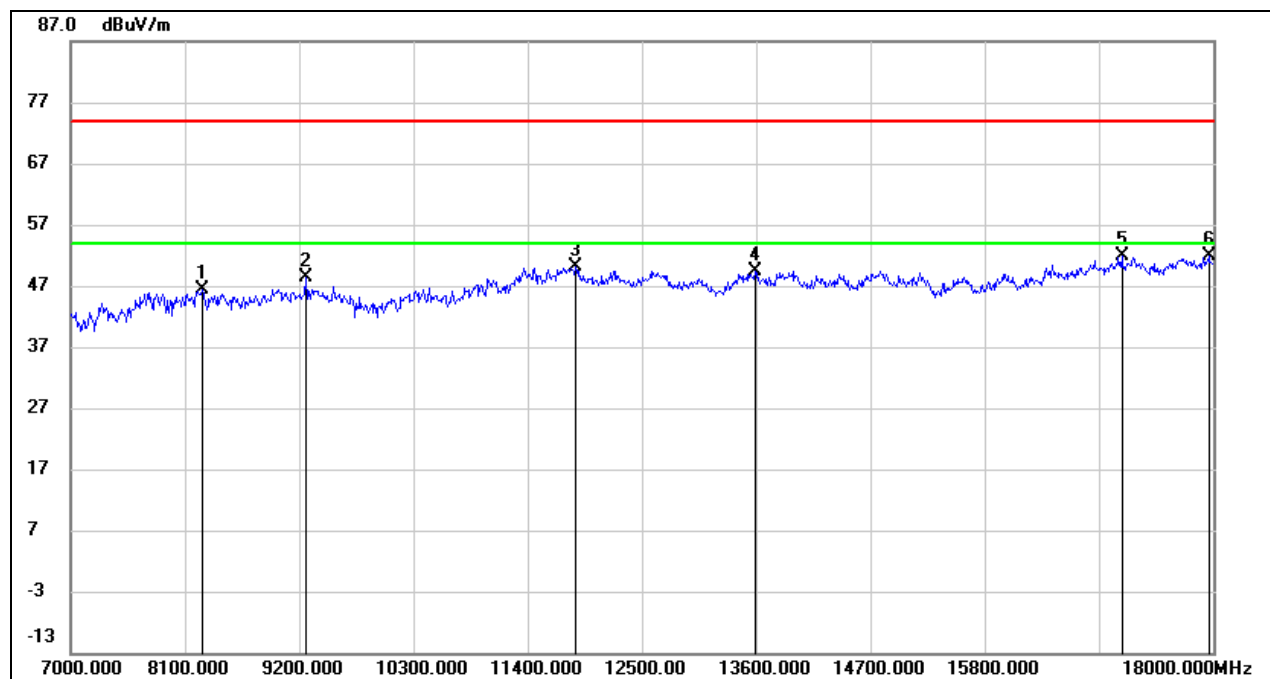
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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	8265.000	37.25	9.11	46.36	74.00	-27.64	peak
2	9266.000	38.73	9.62	48.35	74.00	-25.65	peak
3	11862.000	34.51	15.52	50.03	74.00	-23.97	peak
4	13589.000	32.99	16.42	49.41	74.00	-24.59	peak
5	17120.000	31.21	20.72	51.93	74.00	-22.07	peak
6	17956.000	29.31	22.68	51.99	74.00	-22.01	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.

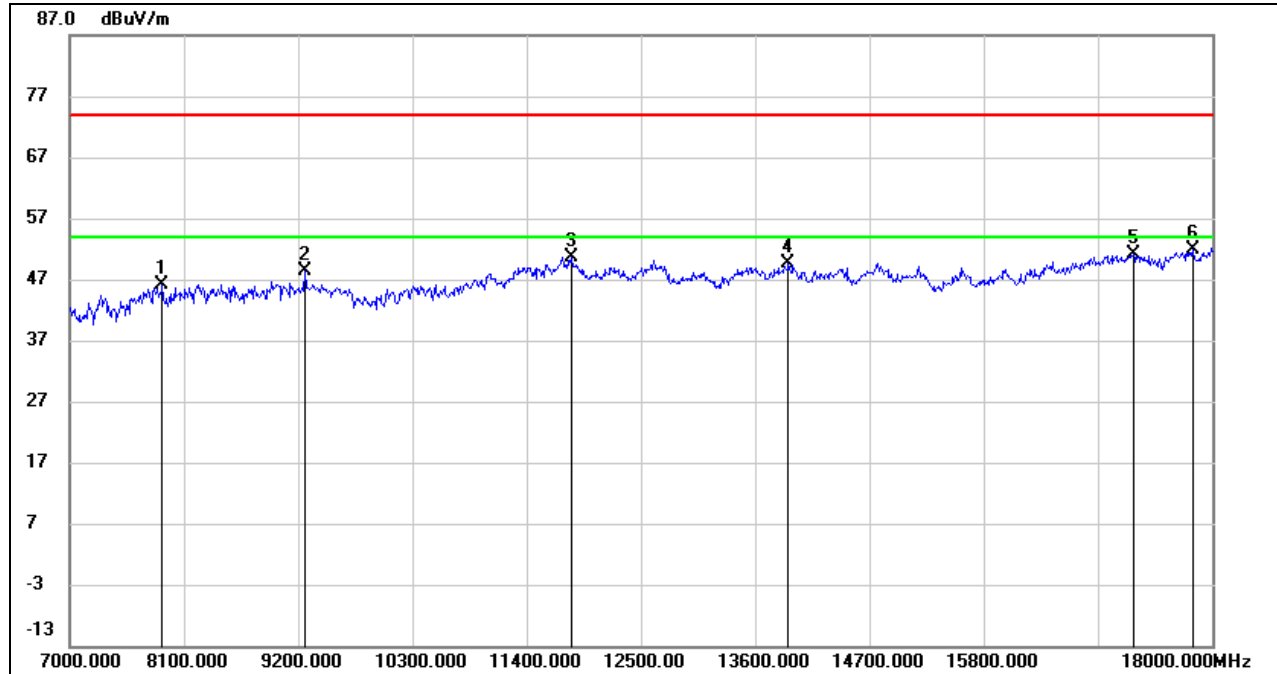
3. Peak: Peak detector.

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)



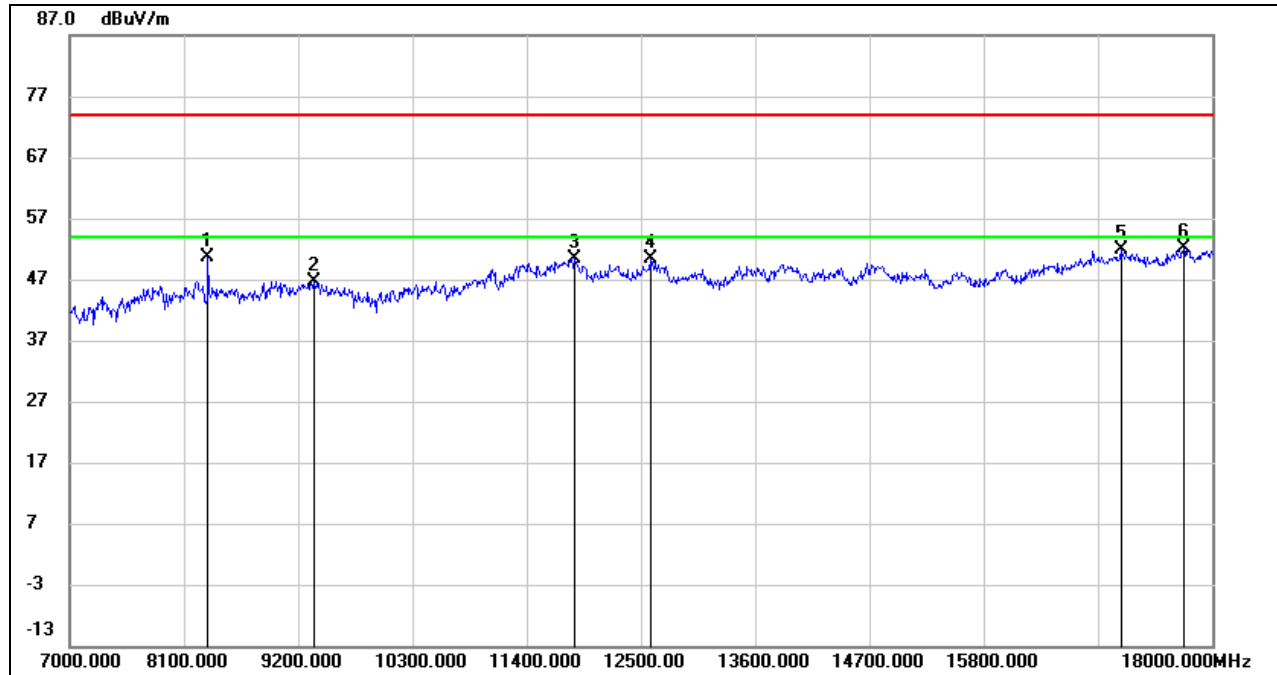
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7891.000	38.15	7.98	46.13	74.00	-27.87	peak
2	9266.000	38.68	9.62	48.30	74.00	-25.70	peak
3	11829.000	35.15	15.57	50.72	74.00	-23.28	peak
4	13919.000	32.73	16.89	49.62	74.00	-24.38	peak
5	17241.000	30.08	20.97	51.05	74.00	-22.95	peak
6	17813.000	29.08	22.72	51.80	74.00	-22.20	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.

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	8331.000	41.80	8.85	50.65	74.00	-23.35	peak
2	9354.000	36.49	10.07	46.56	74.00	-27.44	peak
3	11862.000	34.92	15.52	50.44	74.00	-23.56	peak
4	12588.000	35.08	15.29	50.37	74.00	-23.63	peak
5	17120.000	31.12	20.72	51.84	74.00	-22.16	peak
6	17725.000	29.88	22.13	52.01	74.00	-21.99	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.

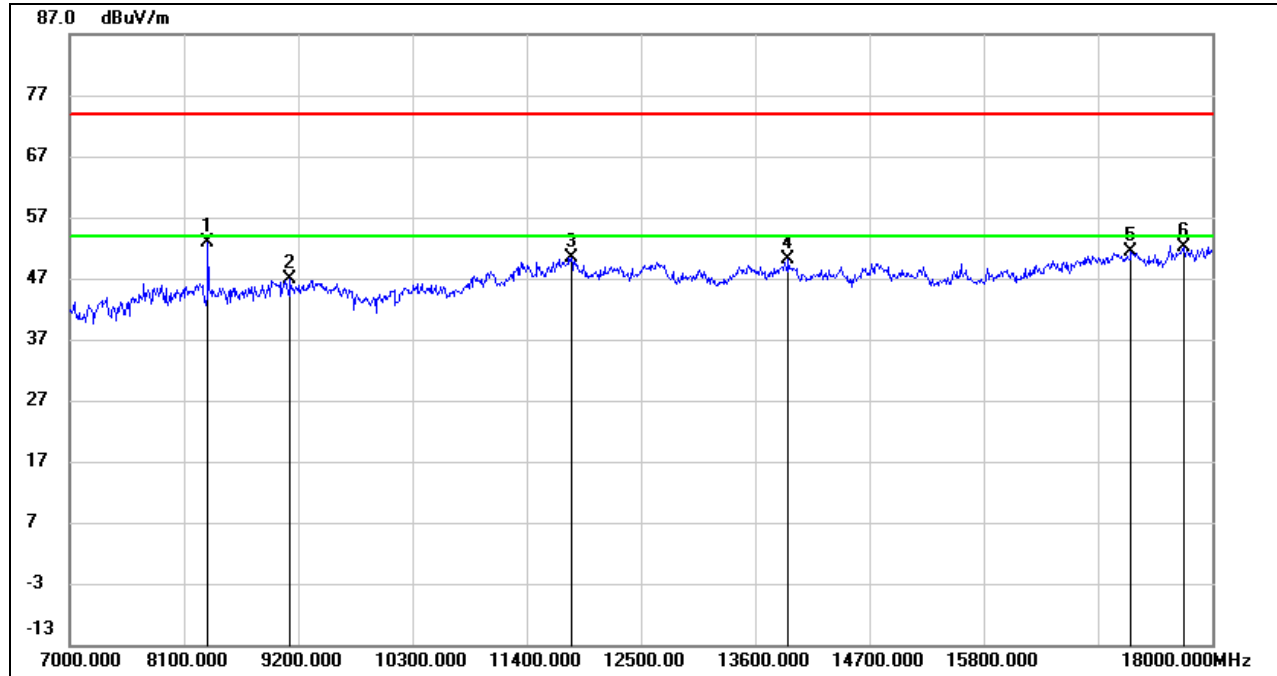
3. Peak: Peak detector.

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	8331.000	44.07	8.85	52.92	74.00	-21.08	peak
2	9123.000	37.16	9.81	46.97	74.00	-27.03	peak
3	11829.000	34.89	15.57	50.46	74.00	-23.54	peak
4	13919.000	33.12	16.89	50.01	74.00	-23.99	peak
5	17219.000	30.47	21.01	51.48	74.00	-22.52	peak
6	17725.000	30.00	22.13	52.13	74.00	-21.87	peak

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

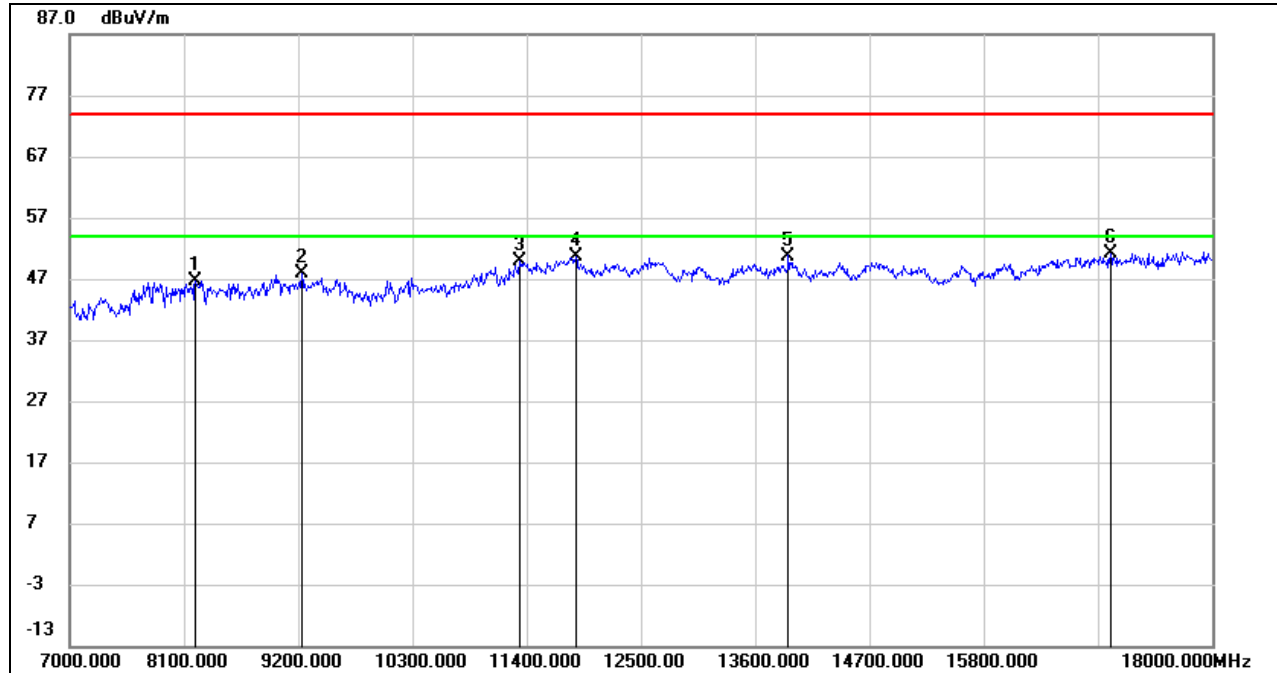
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	8210.000	37.25	9.32	46.57	74.00	-27.43	peak
2	9233.000	38.33	9.46	47.79	74.00	-26.21	peak
3	11334.000	35.81	14.02	49.83	74.00	-24.17	peak
4	11873.000	35.05	15.50	50.55	74.00	-23.45	peak
5	13919.000	33.86	16.89	50.75	74.00	-23.25	peak
6	17021.000	30.80	20.32	51.12	74.00	-22.88	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.

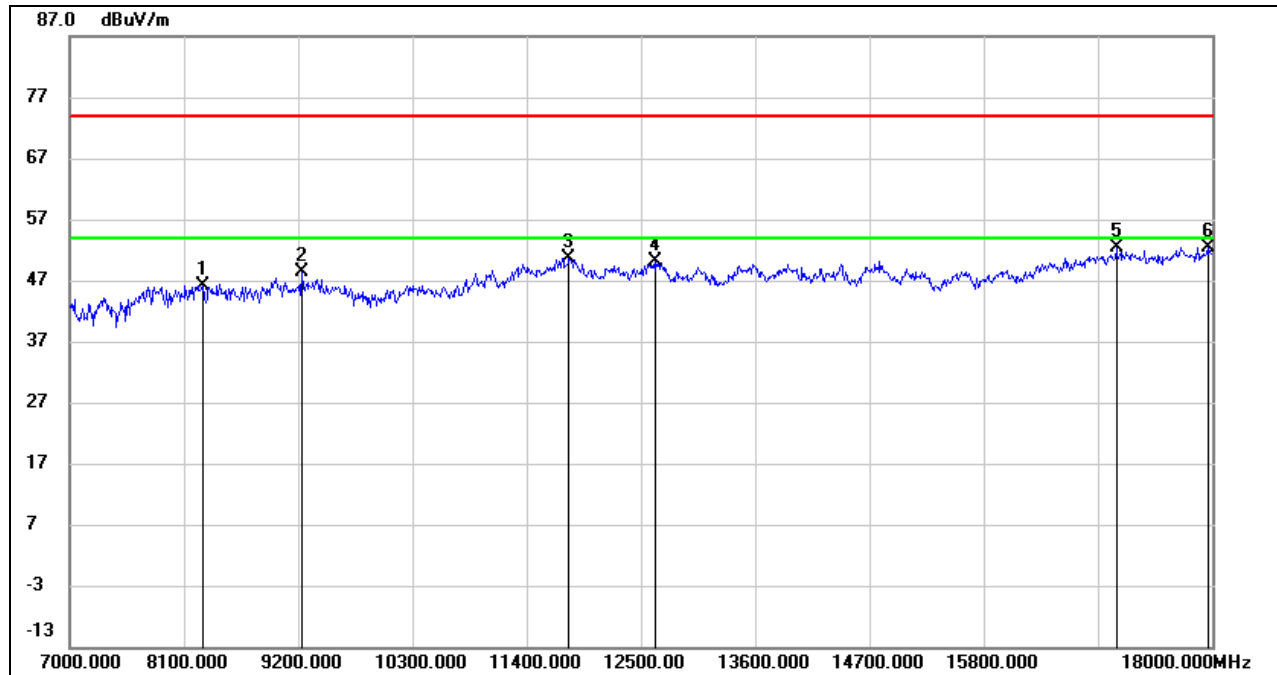
3. Peak: Peak detector.

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	8276.000	37.14	9.06	46.20	74.00	-27.80	peak
2	9233.000	38.95	9.46	48.41	74.00	-25.59	peak
3	11807.000	35.08	15.61	50.69	74.00	-23.31	peak
4	12643.000	34.74	15.36	50.10	74.00	-23.90	peak
5	17076.000	31.74	20.54	52.28	74.00	-21.72	peak
6	17956.000	29.76	22.68	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.

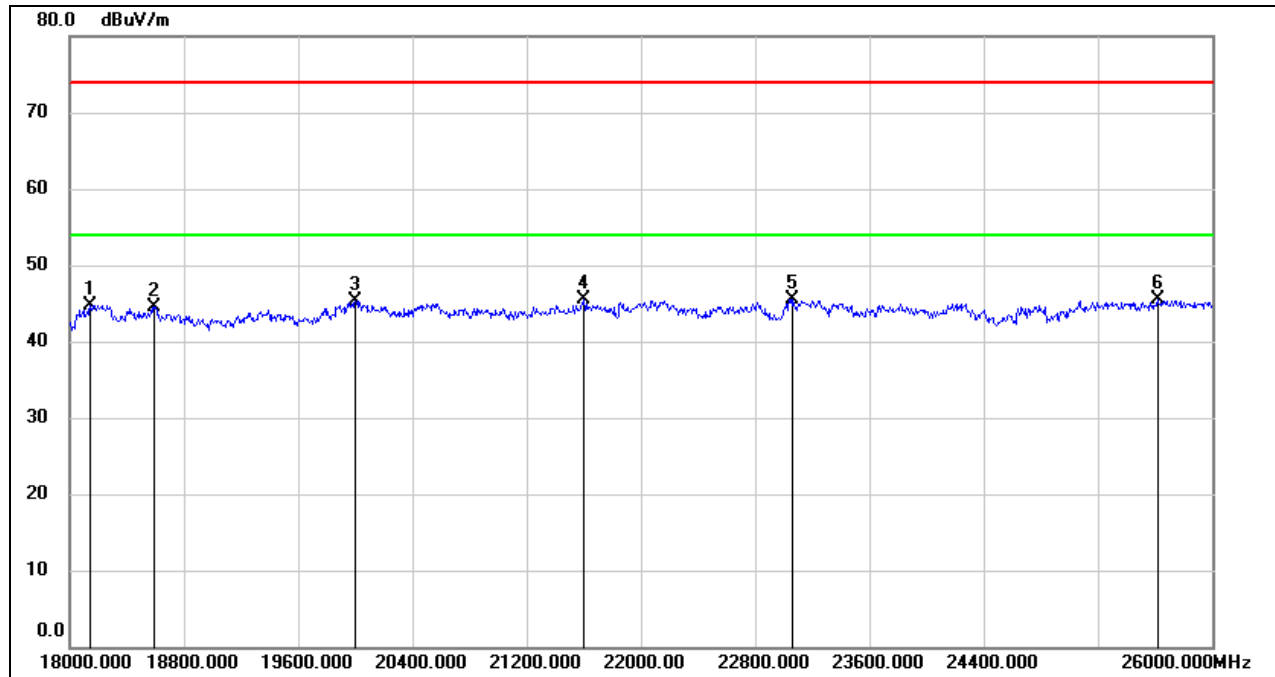
6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.4.1. 802.11n HT40 MIMO MODE

SPURIOUS EMISSIONS (UNII-1 BAND HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18144.000	50.27	-5.48	44.79	74.00	-29.21	peak
2	18592.000	49.75	-5.31	44.44	74.00	-29.56	peak
3	20000.000	50.81	-5.45	45.36	74.00	-28.64	peak
4	21600.000	50.02	-4.54	45.48	74.00	-28.52	peak
5	23064.000	48.99	-3.42	45.57	74.00	-28.43	peak
6	25616.000	46.68	-1.24	45.44	74.00	-28.56	peak

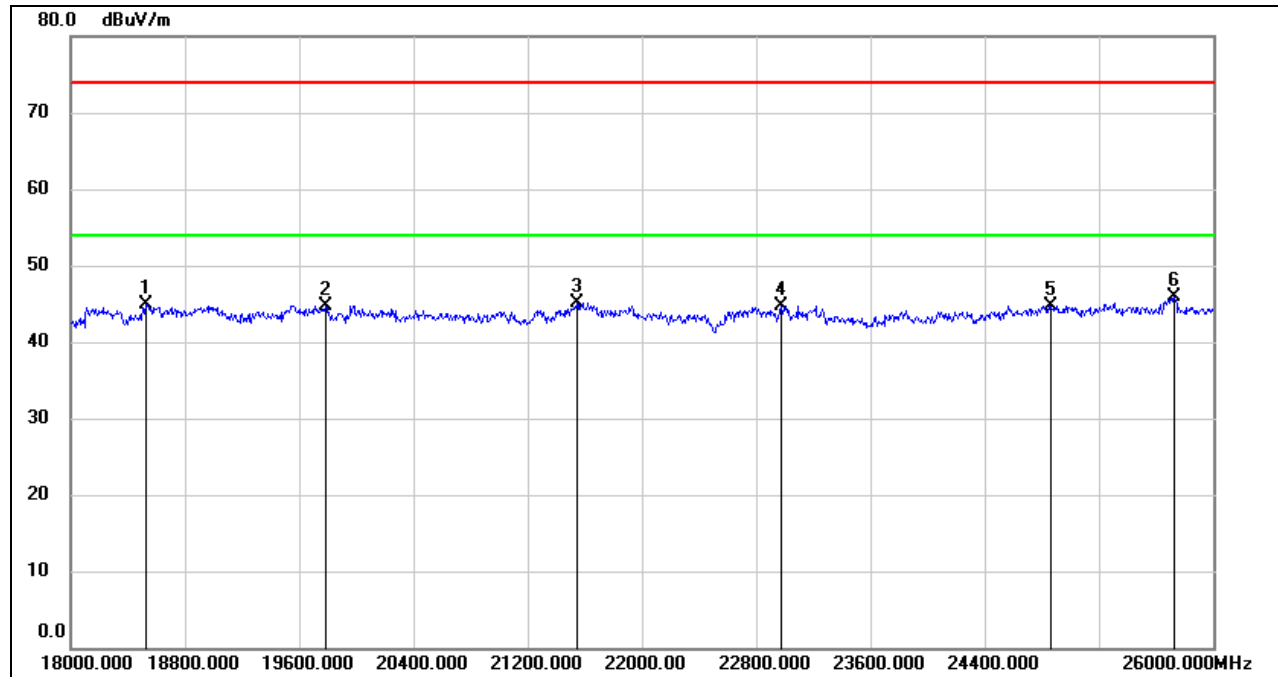
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.



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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18528.000	50.11	-5.26	44.85	74.00	-29.15	peak
2	19784.000	50.07	-5.28	44.79	74.00	-29.21	peak
3	21544.000	49.76	-4.63	45.13	74.00	-28.87	peak
4	22976.000	48.26	-3.46	44.80	74.00	-29.20	peak
5	24864.000	47.03	-2.23	44.80	74.00	-29.20	peak
6	25728.000	46.61	-0.72	45.89	74.00	-28.11	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.

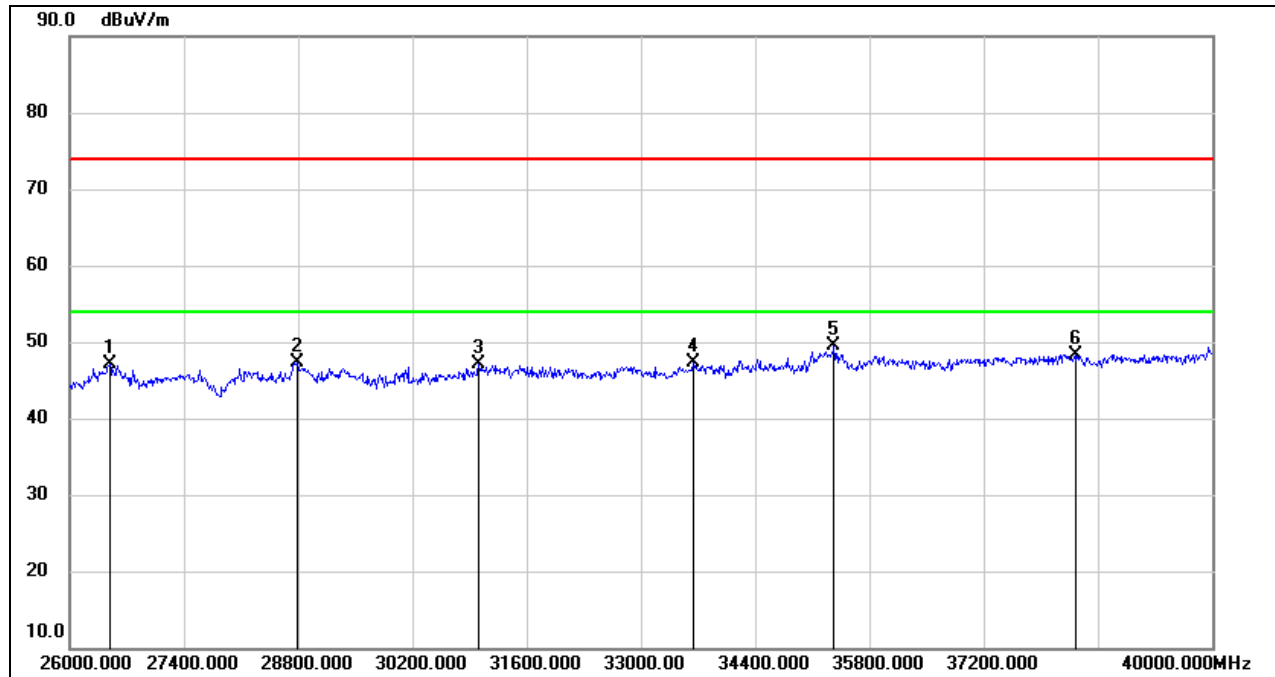
Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.



8.5. SPURIOUS EMISSIONS (26 GHz ~ 40 GHz)

8.5.1. 802.11n HT40 MIMO MODE

SPURIOUS EMISSIONS (UNII-1 BAND HIGH 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	51.79	-4.74	47.05	74.00	-26.95	peak
2	28786.000	47.99	-0.64	47.35	74.00	-26.65	peak
3	31012.000	47.83	-0.71	47.12	74.00	-26.88	peak
4	33644.000	46.81	0.42	47.23	74.00	-26.77	peak
5	35366.000	46.90	2.59	49.49	74.00	-24.51	peak
6	38320.000	44.56	3.77	48.33	74.00	-25.67	peak

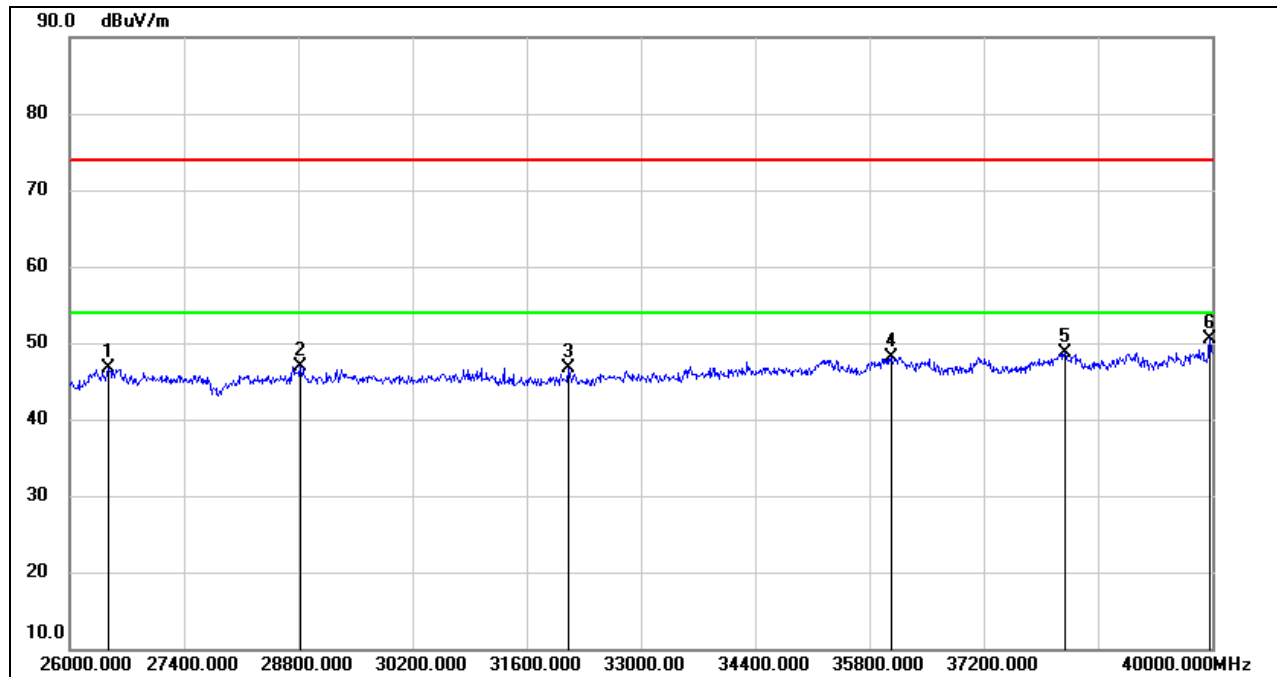
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.



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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26476.000	51.53	-4.78	46.75	74.00	-27.25	peak
2	28828.000	47.63	-0.79	46.84	74.00	-27.16	peak
3	32104.000	48.49	-1.75	46.74	74.00	-27.26	peak
4	36066.000	44.35	3.83	48.18	74.00	-25.82	peak
5	38194.000	44.93	3.72	48.65	74.00	-25.35	peak
6	39972.000	45.45	5.13	50.58	74.00	-23.42	peak

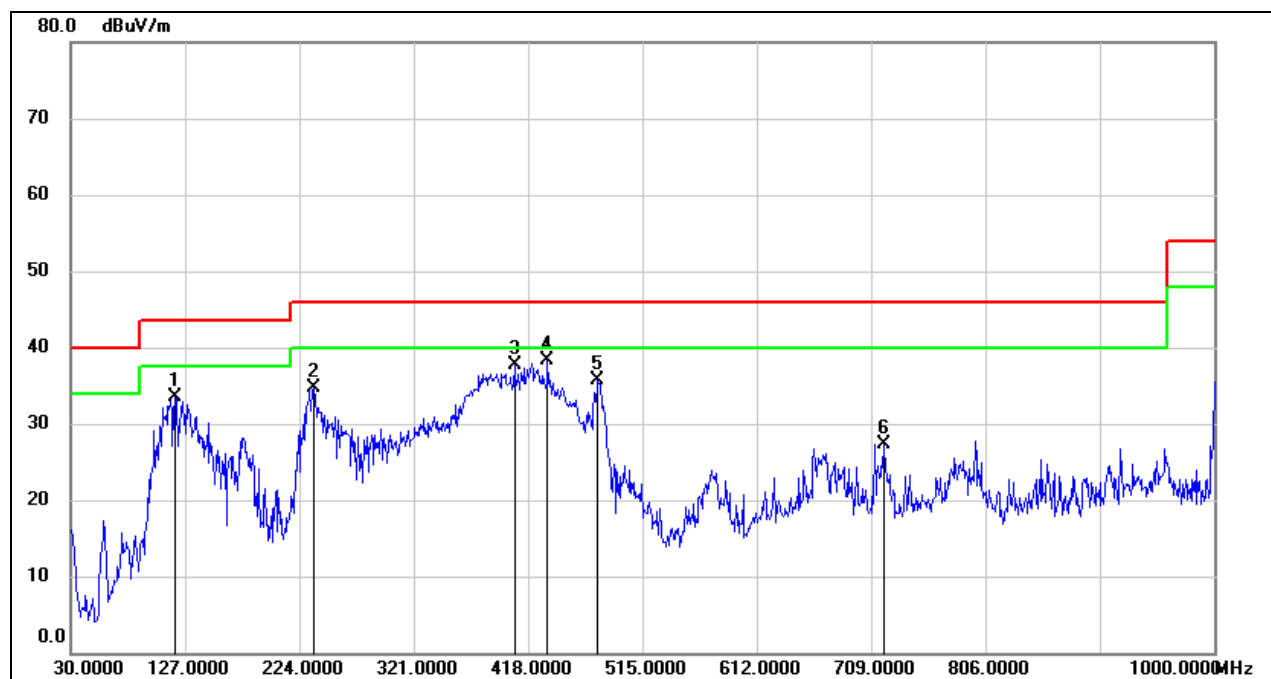
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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-1 BAND HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)

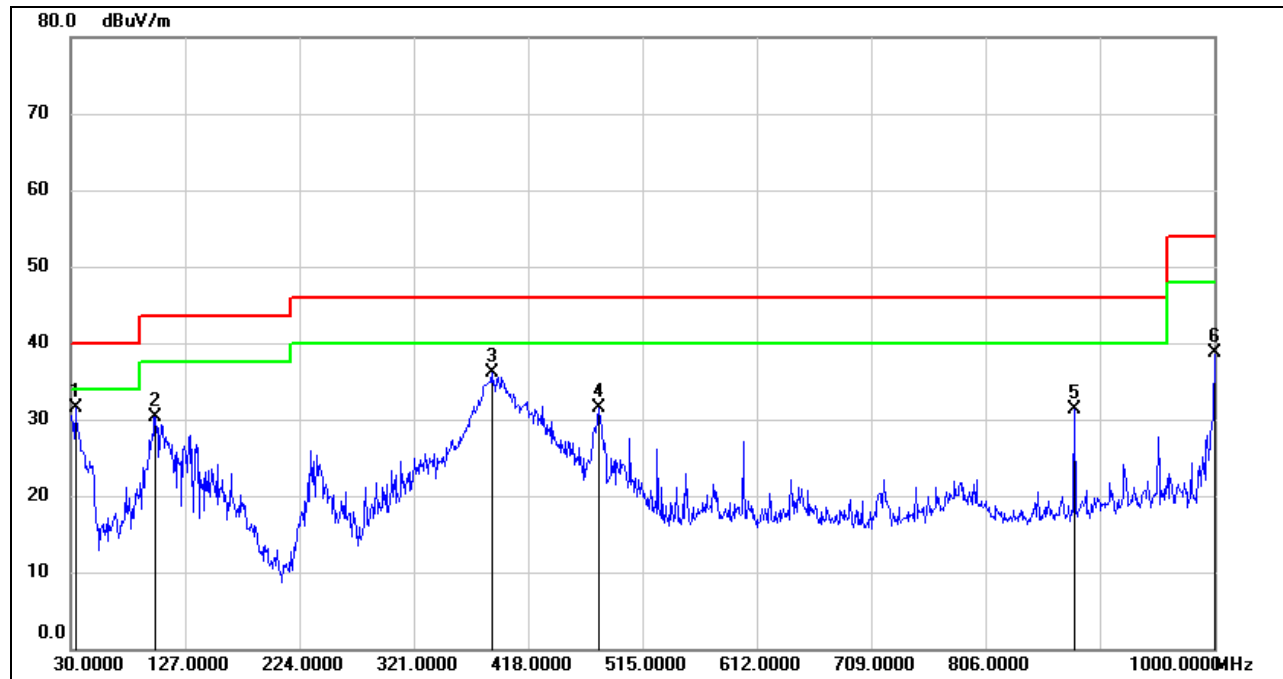


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	118.2700	53.39	-19.97	33.42	43.50	-10.08	QP
2	235.6400	53.72	-18.96	34.76	46.00	-11.24	QP
3	406.3599	50.86	-13.22	37.64	46.00	-8.36	QP
4	434.4900	50.97	-12.66	38.31	46.00	-7.69	QP
5	477.1700	47.66	-11.86	35.80	46.00	-10.20	QP
6	719.6700	35.42	-8.08	27.34	46.00	-18.66	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 HIGH CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)



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

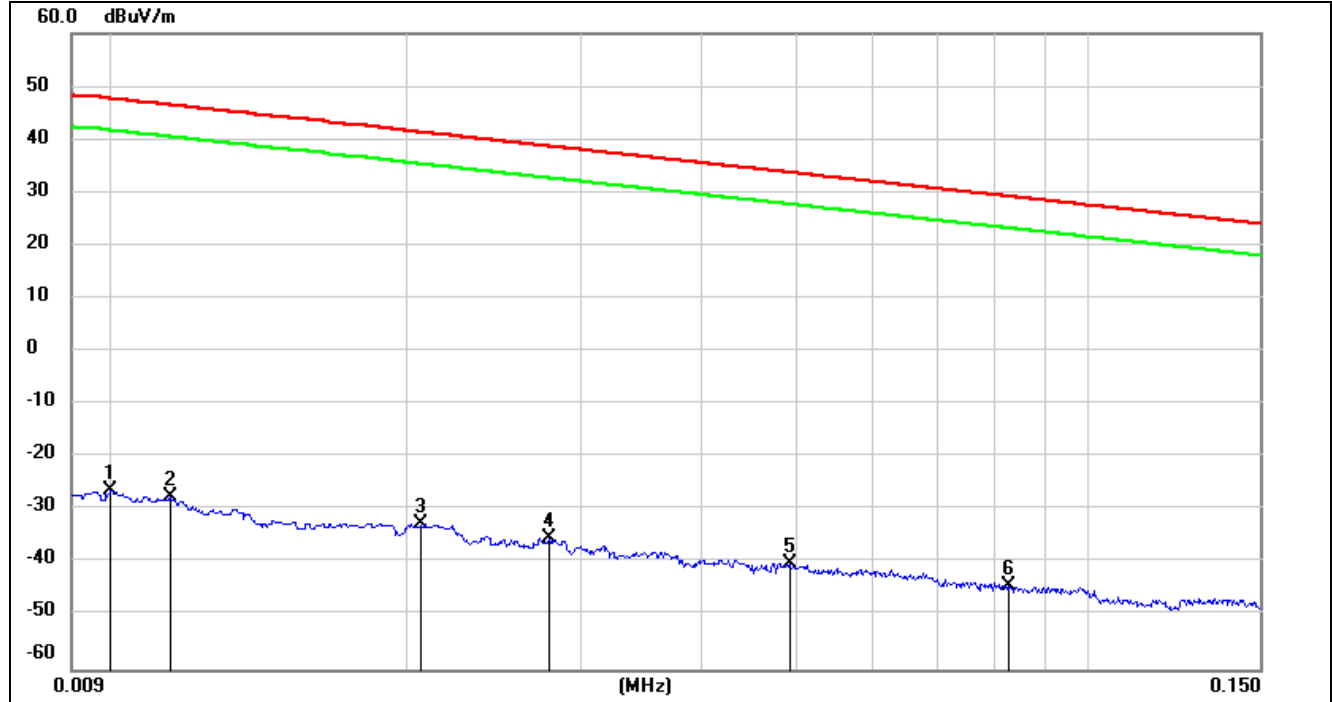
Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11n HT40 MIMO MODE

SPURIOUS EMISSIONS (UNII-1 BAND HIGH 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	0.0114	73.88	-101.40	-27.52	46.46	-79.02	-5.04	-73.98	peak
3	0.0206	68.92	-101.35	-32.43	41.32	-83.93	-10.18	-73.75	peak
4	0.0279	66.17	-101.38	-35.21	38.69	-86.71	-12.81	-73.90	peak
5	0.0492	61.55	-101.47	-39.92	33.76	-91.42	-17.74	-73.68	peak
6	0.0826	57.32	-101.65	-44.33	29.26	-95.83	-22.24	-73.59	peak

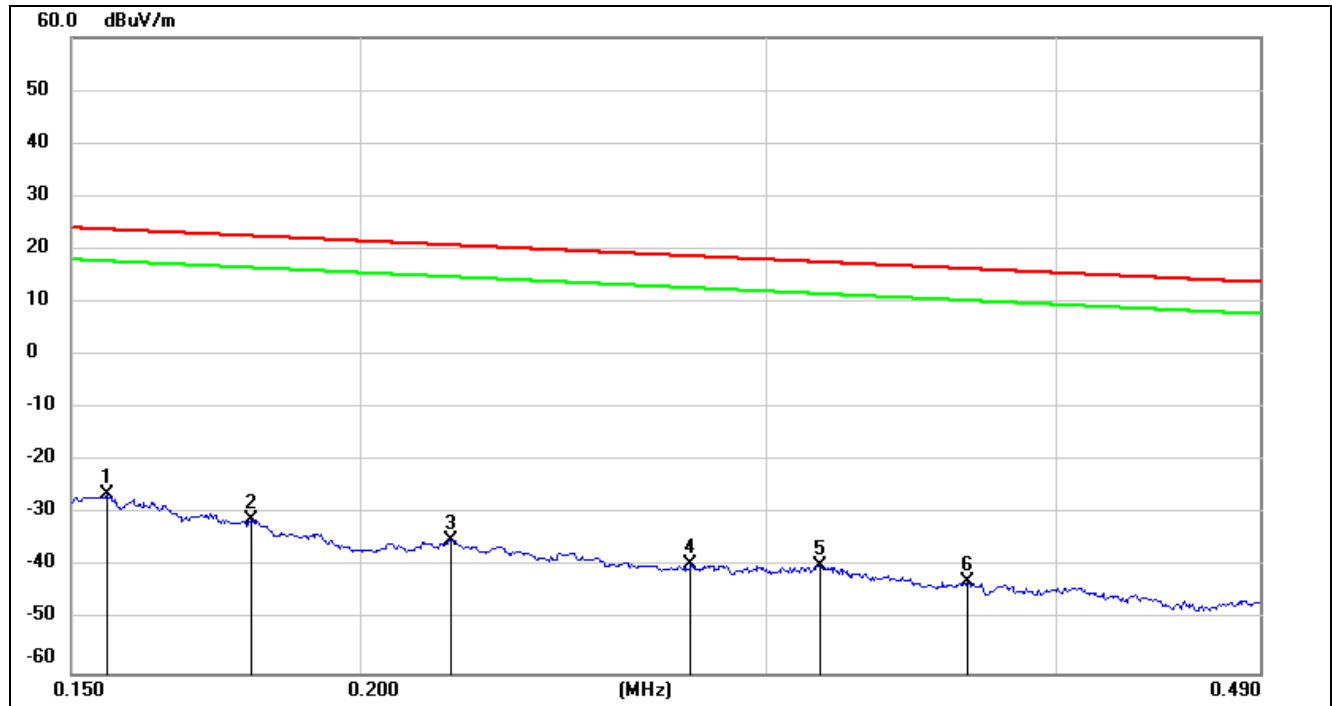
Note: 1. Measurement = Reading Level + Correct Factor.

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	0.1554	75.27	-101.65	-26.38	23.77	-77.88	-27.73	-50.15	peak
2	0.1794	70.77	-101.68	-30.91	22.53	-82.41	-28.97	-53.44	peak
3	0.2190	66.77	-101.75	-34.98	20.79	-86.48	-30.71	-55.77	peak
4	0.2782	62.29	-101.83	-39.54	18.71	-91.04	-32.79	-58.25	peak
5	0.3163	62.20	-101.87	-39.67	17.6	-91.17	-33.90	-57.27	peak
6	0.3662	59.08	-101.93	-42.85	16.33	-94.35	-35.17	-59.18	peak

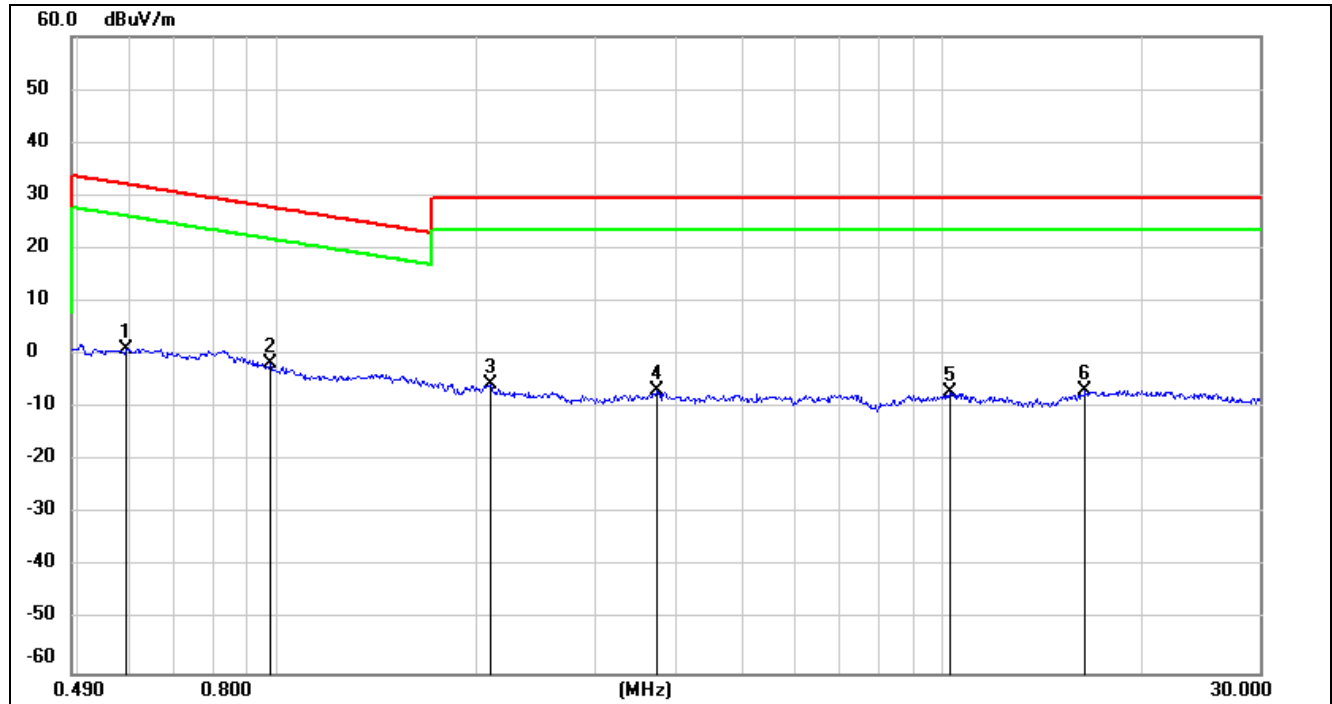
Note: 1. Measurement = Reading Level + Correct Factor.

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

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	0.5917	63.24	-62.08	1.16	32.16	-50.34	-19.34	-31.00	peak
2	0.9737	60.71	-62.25	-1.54	27.83	-53.04	-23.67	-29.37	peak
3	2.0939	56.39	-61.79	-5.4	29.54	-56.90	-21.96	-34.94	peak
4	3.7100	54.70	-61.41	-6.71	29.54	-58.21	-21.96	-36.25	peak
5	10.2576	53.63	-60.81	-7.18	29.54	-58.68	-21.96	-36.72	peak
6	16.3959	54.17	-60.96	-6.79	29.54	-58.29	-21.96	-36.33	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

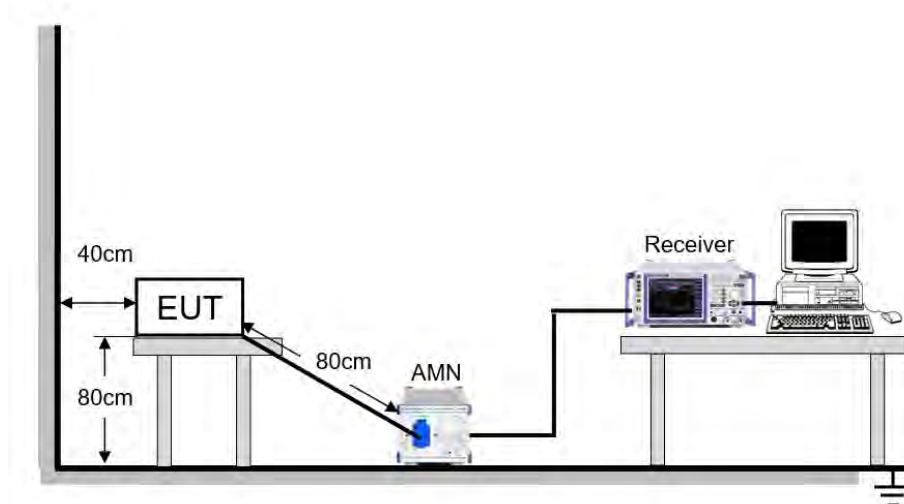
LIMITS

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.

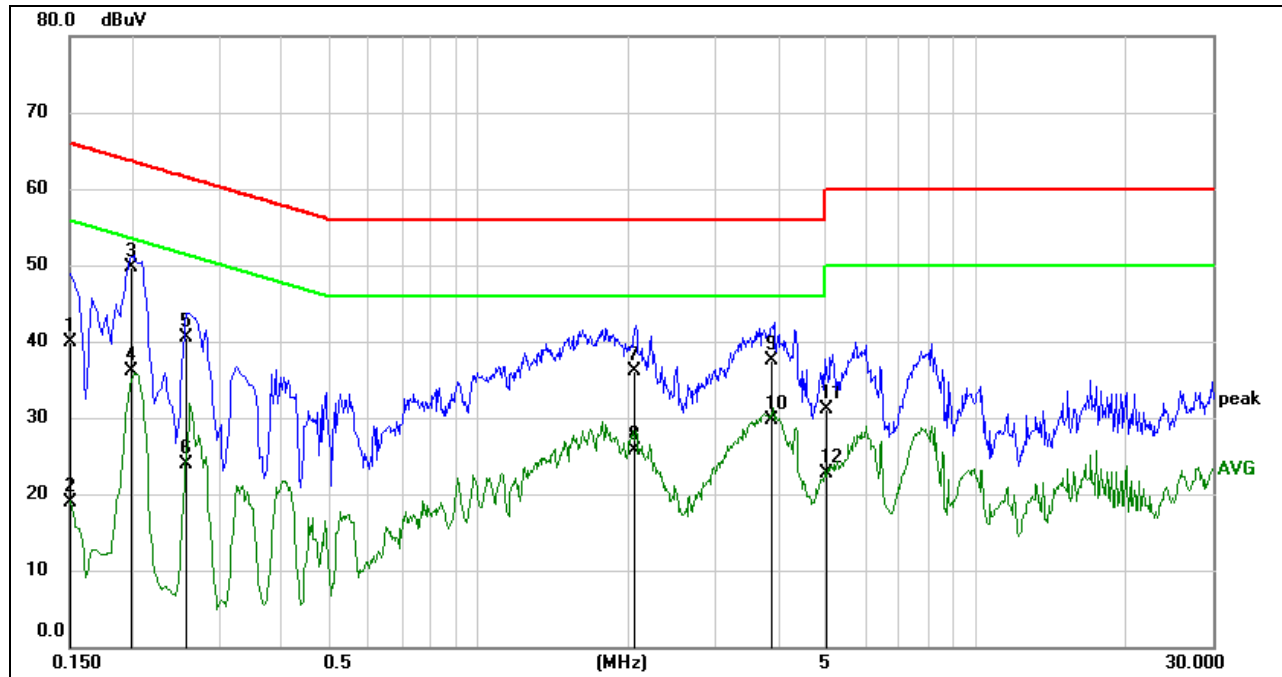


The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver 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	25.9 °C	Relative Humidity	67.7%
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

**RESULTS****9.1.1. 802.11n HT40 MIMO MODE****LINE L RESULTS (UNII-1 BAND HIGH CHANNEL, WORST-CASE CONFIGURATION)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	30.41	9.59	40.00	66.00	-26.00	QP
2	0.1500	9.28	9.59	18.87	56.00	-37.13	AVG
3	0.1995	40.18	9.59	49.77	63.63	-13.86	QP
4	0.1995	26.55	9.59	36.14	53.63	-17.49	AVG
5	0.2579	30.91	9.59	40.50	61.50	-21.00	QP
6	0.2579	14.30	9.59	23.89	51.50	-27.61	AVG
7	2.0484	26.57	9.63	36.20	56.00	-19.80	QP
8	2.0484	16.09	9.63	25.72	46.00	-20.28	AVG
9	3.8646	27.81	9.60	37.41	56.00	-18.59	QP
10	3.8646	20.08	9.60	29.68	46.00	-16.32	AVG
11	5.0301	21.39	9.62	31.01	60.00	-28.99	QP
12	5.0301	13.09	9.62	22.71	50.00	-27.29	AVG

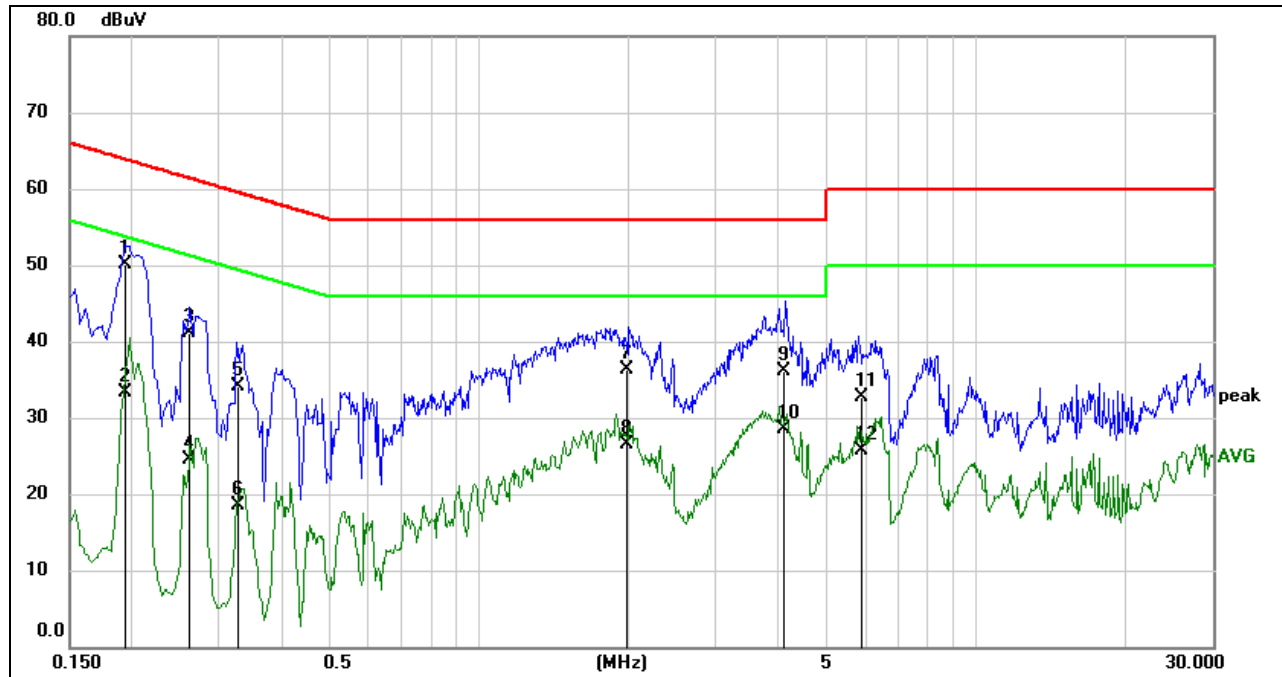
Note: 1. Result = Reading + Correct Factor.

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 N RESULTS (UNII-1 BAND HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1947	40.45	9.59	50.04	63.83	-13.79	QP
2	0.1947	23.64	9.59	33.23	53.83	-20.60	AVG
3	0.2597	31.45	9.59	41.04	61.44	-20.40	QP
4	0.2597	14.87	9.59	24.46	51.44	-26.98	AVG
5	0.3288	24.54	9.59	34.13	59.48	-25.35	QP
6	0.3288	9.01	9.59	18.60	49.48	-30.88	AVG
7	1.9926	26.75	9.63	36.38	56.00	-19.62	QP
8	1.9926	16.85	9.63	26.48	46.00	-19.52	AVG
9	4.1020	26.54	9.60	36.14	56.00	-19.86	QP
10	4.1020	18.99	9.60	28.59	46.00	-17.41	AVG
11	5.9009	23.16	9.64	32.80	60.00	-27.20	QP
12	5.9009	16.01	9.64	25.65	50.00	-24.35	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

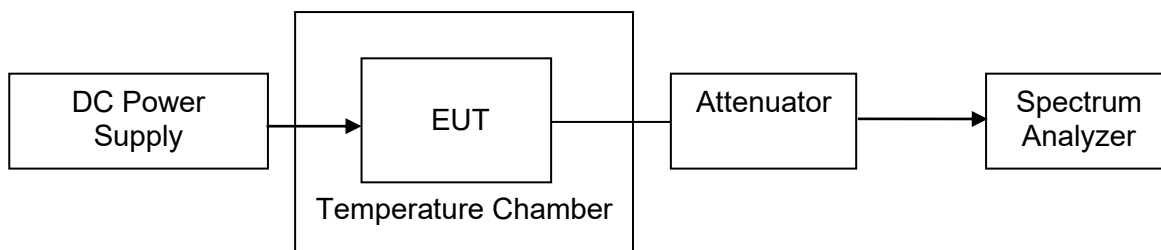
1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 70 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of 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 90 % to 110 % 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	TN (Normal Temperature): 26.4 °C	TL (Low Temperature): 0 °C
		TH (High Temperature): 70 °C
Supply Voltage	VN (Normal Voltage): DC 3.3 V	VL (Low Voltage): DC 2.97 V
		VH (High Voltage): DC 3.63 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 §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

**11.1. Appendix A1: Emission Bandwidth****11.1.1. Test Result**

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11A 20	Ant1	5180	19.840	5170.200	5190.040	PASS
	Ant2	5180	19.760	5170.200	5189.960	PASS
	Ant1	5200	19.800	5190.240	5210.040	PASS
	Ant2	5200	19.520	5190.400	5209.920	PASS
	Ant1	5240	19.320	5230.480	5249.800	PASS
	Ant2	5240	20.000	5229.800	5249.800	PASS
	Ant1	5745	19.520	5735.520	5755.040	PASS
	Ant2	5745	19.520	5735.080	5754.600	PASS
	Ant1	5785	19.520	5775.280	5794.800	PASS
	Ant2	5785	19.720	5775.120	5794.840	PASS
	Ant1	5825	19.200	5815.440	5834.640	PASS
	Ant2	5825	19.800	5815.120	5834.920	PASS
11N20MIMO	Ant1	5180	20.280	5169.880	5190.160	PASS
	Ant2	5180	20.320	5169.720	5190.040	PASS
	Ant1	5200	20.360	5189.640	5210.000	PASS
	Ant2	5200	20.080	5190.120	5210.200	PASS
	Ant1	5240	19.680	5230.200	5249.880	PASS
	Ant2	5240	20.120	5229.960	5250.080	PASS
	Ant1	5745	20.160	5734.960	5755.120	PASS
	Ant2	5745	19.920	5735.160	5755.080	PASS
	Ant1	5785	20.280	5774.960	5795.240	PASS
	Ant2	5785	20.000	5774.960	5794.960	PASS
	Ant1	5825	20.080	5815.080	5835.160	PASS
	Ant2	5825	19.560	5815.200	5834.760	PASS
11N40MIMO	Ant1	5190	39.760	5170.080	5209.840	PASS
	Ant2	5190	39.280	5170.560	5209.840	PASS
	Ant1	5230	40.080	5210.000	5250.080	PASS
	Ant2	5230	40.240	5209.680	5249.920	PASS
	Ant1	5755	40.480	5734.760	5775.240	PASS
	Ant2	5755	39.920	5735.160	5775.080	PASS
	Ant1	5795	40.400	5774.760	5815.160	PASS
	Ant2	5795	40.400	5775.000	5815.400	PASS
11AC80MIMO	Ant1	5210	80.160	5170.320	5250.480	PASS
	Ant2	5210	80.000	5170.000	5250.000	PASS
	Ant1	5775	80.320	5734.360	5814.680	PASS
	Ant2	5775	79.520	5735.480	5815.000	PASS



11.1.2. Test Graphs



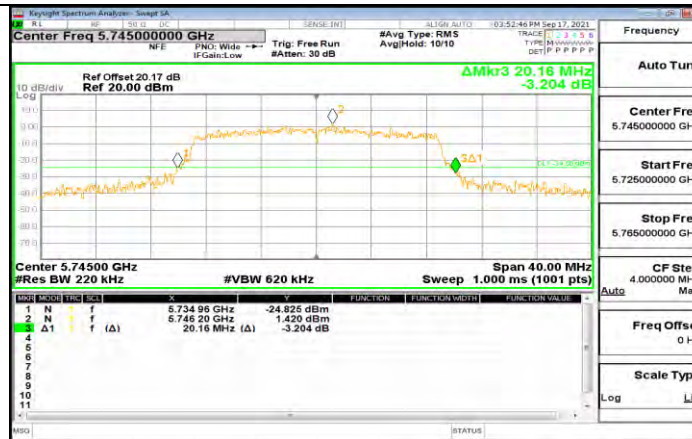












11N20MIMO Ant1 5745



11N20MIMO Ant2 5745



11N20MIMO Ant1 5785













11.2. Appendix A2: Occupied Channel Bandwidth

11.2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11A 20	Ant1	5180	16.532	5171.777	5188.309	PASS
	Ant2	5180	16.625	5171.734	5188.359	PASS
	Ant1	5200	16.649	5191.615	5208.264	PASS
	Ant2	5200	16.572	5191.697	5208.269	PASS
	Ant1	5240	16.785	5231.545	5248.330	PASS
	Ant2	5240	16.497	5231.737	5248.234	PASS
	Ant1	5745	16.703	5736.614	5753.317	PASS
	Ant2	5745	16.587	5736.720	5753.307	PASS
	Ant1	5785	16.601	5776.774	5793.375	PASS
	Ant2	5785	16.618	5776.660	5793.278	PASS
	Ant1	5825	16.662	5816.638	5833.300	PASS
	Ant2	5825	16.636	5816.698	5833.334	PASS
11N20MIMO	Ant1	5180	17.636	5171.215	5188.851	PASS
	Ant2	5180	17.572	5171.247	5188.819	PASS
	Ant1	5200	17.663	5191.180	5208.843	PASS
	Ant2	5200	17.801	5191.089	5208.890	PASS
	Ant1	5240	17.729	5231.110	5248.839	PASS
	Ant2	5240	17.707	5231.178	5248.885	PASS
	Ant1	5745	17.741	5736.117	5753.858	PASS
	Ant2	5745	17.700	5736.192	5753.892	PASS
	Ant1	5785	17.658	5776.180	5793.838	PASS
	Ant2	5785	17.682	5776.163	5793.845	PASS
	Ant1	5825	17.730	5816.197	5833.927	PASS
	Ant2	5825	17.737	5816.143	5833.880	PASS
11N40MIMO	Ant1	5190	36.154	5172.017	5208.171	PASS
	Ant2	5190	35.885	5172.140	5208.025	PASS
	Ant1	5230	35.944	5212.109	5248.053	PASS
	Ant2	5230	36.051	5212.002	5248.053	PASS
	Ant1	5755	36.202	5736.993	5773.195	PASS
	Ant2	5755	36.029	5737.097	5773.126	PASS
	Ant1	5795	36.194	5776.947	5813.141	PASS
11AC80MIMO	Ant2	5795	36.213	5777.032	5813.245	PASS
	Ant1	5210	75.399	5172.406	5247.805	PASS
	Ant2	5210	75.529	5172.382	5247.911	PASS
	Ant1	5775	75.924	5737.153	5813.077	PASS
	Ant2	5775	75.692	5737.338	5813.030	PASS