



**CFR 47 FCC PART 15 SUBPART E**  
**CERTIFICATION TEST REPORT**

*For*

**Tablet**

**MODEL NUMBER: VT-TABLET-5081G**

**FCC ID: 2AAGE5081GB4898**

**REPORT NUMBER: 4790198193.1-4**

**ISSUE DATE: December 20, 2021**

*Prepared for*

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	12/20/2021	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e)	PASS
2	99% Occupied Bandwidth	FCC part 2.1049	PASS
3	Conducted Output Power	FCC 15.407 (a)	PASS
4	Power Spectral Density	FCC 15.407 (a)	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207	PASS
7	Frequency Stability	FCC 15.407 (g)	PASS
8	Antenna Requirement	FCC 15.203	PASS
<p>Note:</p> <p>1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.</p> <p>2. The measurement result for the sample received is &lt;Pass&gt; according to &lt; CFR 47 FCC PART 15 SUBPART C &gt;when &lt;Accuracy Method&gt; decision rule is applied.</p>			



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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Chengdu Vantron Technology Co., Ltd.  
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

### Manufacturer Information

Company Name: Chengdu Vantron Technology Co., Ltd.  
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

### EUT Information

EUT Name: Tablet  
Model: VT-TABLET-5081G  
Brand: VANTRON  
Sample Received Date: November 23, 2021  
Sample Status: Normal  
Sample ID: 4432310  
Date of Tested: November 23 ~ December 17, 2021

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E	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, KDB414788 D01 Radiated Test Site v01r01.

## 3. FACILITIES AND ACCREDITATION

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

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

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





## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

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

### 4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
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	Tablet
Model	VT-TABLET-5081G
Radio Technology	WLAN (IEEE 802.11a20/n HT20/n HT40/ac VHT20/VHT 40/VHT 80)
Operation frequency	UNII-1: 5150 ~ 5250 MHz UNII-3: 5725 ~ 5850 MHz
Modulation	IEEE 802.11a20: 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)
Rated Input	DC 5 V, 2A
Li-ion Battery	3.8 V, 8000 mAh, 30.4Wh

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

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a 20	5150 ~ 5250	12.88
n HT20		15.45
n HT40		15.47
ac VHT20		Covered by 802.11n HT20
ac VHT40		Covered by 802.11n HT40
ac VHT80		12.36

**UNII-3 BAND**

IEEE Std. 802.11	Frequency (MHz)	Max Power (dBm)
a 20	5725 ~ 5850	13.83
n HT20		16.55
n HT40		16.54
ac VHT20		Covered by 802.11n HT20
ac VHT40		Covered by 802.11n HT40
ac VHT80		15.66

**5.3. CHANNEL LIST**

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

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



#### 5.4. TEST CHANNEL CONFIGURATION

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

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

## 5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	UNII1& UNII3	Integral antenna	2.4
2	UNII1& UNII3	Integral antenna	1.4

Note: Directional gain=  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$  dBi=4.92 dBi.

$N_{ANT}$  : Antenna numbers

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

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 or ANT 2 can be used as transmitting/receiving antenna.
802.11n HT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11n HT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT80	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
Note: 1.For transmit simultaneously, all the modes had been tested, only the worst data for LTE & 2.4G WIFI was recorded in the LTE report.		

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

## 5.6. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	UART

UNII-1

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	36	default
		40	default
		48	default
11n HT20	MCS0	36	default
		40	default
		48	default
11n HT40	MCS0	38	default
		46	default
11ac VHT20	MCS0	36	default
		40	default
		48	default
11ac VHT40	MCS0	38	default
		46	default
11ac VHT80	MCS0	42	default

UNII-3

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	149	default
		157	default
		165	default
11n HT20	MCS0	149	default
		157	default
		165	default
11n HT20	MCS0	151	default
		159	default
11ac VHT20	MCS0	149	default
		157	default
		165	default
11ac VHT40	MCS0	151	default
		159	default
11ac VHT80	MCS0	155	default

## 5.7. THE WORSE CASE CONFIGURATIONS

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

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

Test channels referring to section 5.4.

Maximum power setting referring to section 5.6.

Worst case Data Rates declared by the customer:

- IEEE 802.11a / SISO – BPSK / 6 Mbps
- IEEE 802.11n HT20 / MIMO – BPSK / MCS0
- IEEE 802.11n HT40 / MIMO – BPSK / MCS0
- IEEE 802.11ac VHT20 / MIMO – BPSK / MCS0
- IEEE 802.11ac VHT40 / MIMO – BPSK / MCS0
- IEEE 802.11ac VHT80 / MIMO – BPSK / MCS0

For Radiated test of 802.11a the antenna with higher output power was selected to be test.

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

Since 802.11ac VHT20/VHT40 mode are different from 802.11n HT20/HT40 only in control messages, so all the tests (except conducted output power and power spectral density) were performed on the worst case (802.11ac VHT20/802.11ac VHT40) mode between these 4 modes and only the worst data was recorded in this report.

The EUT support Cyclic Shift Diversity(CDD), Space Time Coding(STBC), Spatial Division Multiplexing(SDM) modes. They use the same conducted power per chain in any given mode, so we only chose the worst case mode CDD for final testing.

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
/	/	/	/	/

### I/O CABLES

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

### ACCESSORIES

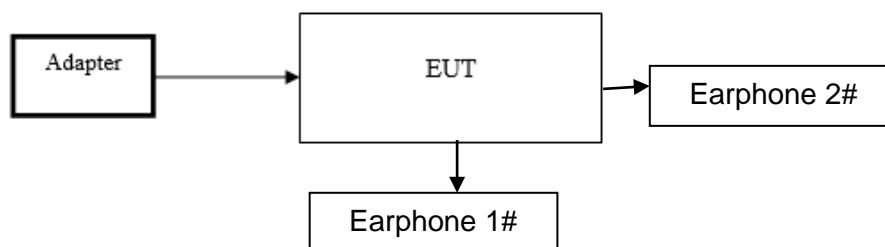
Item	Accessory	Brand Name	Model Name	Description
1	Power adapter	HUAWEI	HW-100225C00	5V2A
2	Earphone 1#	/	/	/
3	Earphone 2#	/	/	/
4	TF Card	/	/	/

### TEST SETUP

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

### SETUP DIAGRAM FOR TESTS

For Conducted Emission Test for AC Power Port test:







## 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	Oct.30, 2021	Oct.29, 2022
Two-Line V-Network	R&S	ENV216	101983	Oct.30, 2021	Oct.29, 2022
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Oct.30, 2021	Oct.29, 2022
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	Oct.30, 2021	Oct.29, 2022
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.30, 2021	Oct.29, 2022
EMI Measurement Receiver	R&S	ESR26	101377	Oct.30, 2021	Oct.29, 2022
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.30, 2021	Oct.29, 2022
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.31, 2021	Oct.30, 2022
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.31, 2021	Oct.30, 2022
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.31, 2021	Oct.30, 2022
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Oct.31, 2021	Oct.30, 2022
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Oct.31, 2021	Oct.30, 2022
Band Reject	Wainwright	WRCJV20-	2	Oct.31, 2021	Oct.30, 2022



Filter		5120-5150- 5350-5380- 60SS			
Band Reject Filter	Wainwright	WRCJV20- 5440-5470- 5725-5755- 60SS	1	Oct.31, 2021	Oct.30, 2022
Software					
Description		Manufacturer	Name	Version	
Test Software for Radiated Emissions		Farad	EZ-EMC	Ver. UL-3A1	

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Mar.23,2021	Mar.22,2022
Vector Signal Generator	R&S	SMBV100A	261637	Oct.30, 2021	Oct.29, 2022
Signal Generator	R&S	SMB100A	178553	Oct.30, 2021	Oct.29, 2022
Signal Analyzer	R&S	FSV40	101118	Oct.30, 2021	Oct.29, 2022
Software					
Description	Manufacturer		Name		Version
For R&S TS 8997 Test System	Rohde & Schwarz		EMC 32		10.60.10
Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wideband Radio Communication Tester	R&S	CMW500	155523	Oct.30, 2021	Oct.29, 2022
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.29, 2021	Sep.28, 2022
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Oct.30, 2021	Oct.29, 2022
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Oct.30, 2021	Oct.29, 2022
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Oct.30, 2021	Oct.29, 2022
DC power supply	Keysight	E3642A	MY55159130	Oct.30, 2021	Oct.29, 2022
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Nov.20,2020	Nov.19,2022
Software					
Description	Manufacturer	Name			Version
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System			2.6.77.0518



## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

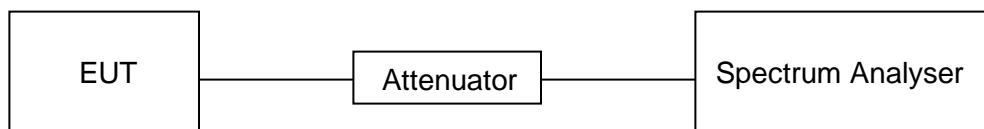
None; for reporting purposes only.

#### 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	23.7 °C	Relative Humidity	41.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix D.



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

### LIMITS

CFR 47 FCC Part15, Subpart E		
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 ISSED) 5650 ~ 5725 (For ISSED)
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 ISSED)

### TEST PROCEDURE

ISSED RSS-247 6.2.1.2 clause unwanted emission limits

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

### TEST PROCEDURE

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

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

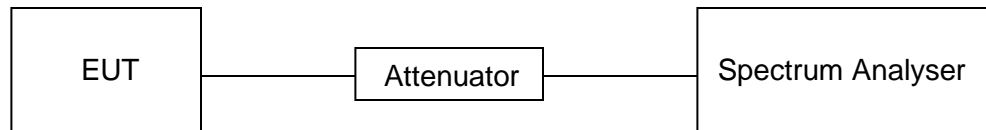
Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For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

### **TEST SETUP**



### **TEST ENVIRONMENT**

Temperature	23.7 °C	Relative Humidity	41.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### **RESULTS**

Please refer to Appendix A1&A2&A3.



### 7.3. CONDUCTED OUTPUT POWER

#### LIMITS

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

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):**

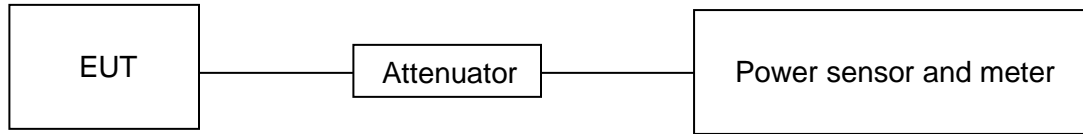
- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
  - a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
  - b. At all times when the EUT is transmitting, 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.



### TEST SETUP



### TEST ENVIRONMENT

Temperature	23.7 °C	Relative Humidity	41.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### RESULTS

Please refer to Appendix B.





## 7.4. POWER SPECTRAL DENSITY

### LIMITS

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

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

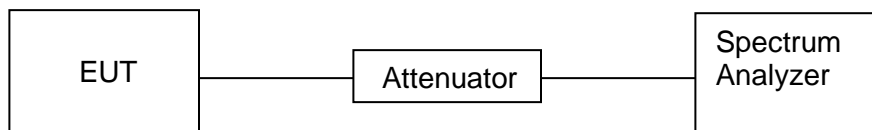
For U-NII-3:

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	23.7 °C	Relative Humidity	41.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to Appendix C.



## 8. RADIATED TEST RESULTS

### LIMITS

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

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



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

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

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

<sup>2</sup>Above 38.6c

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

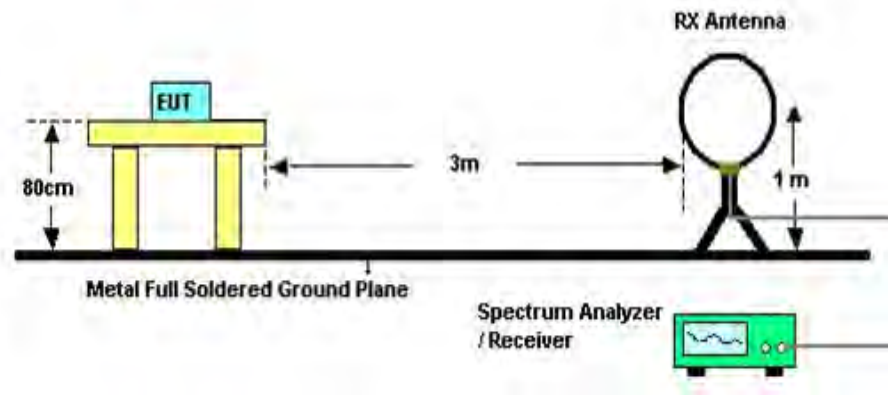
\*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

\*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

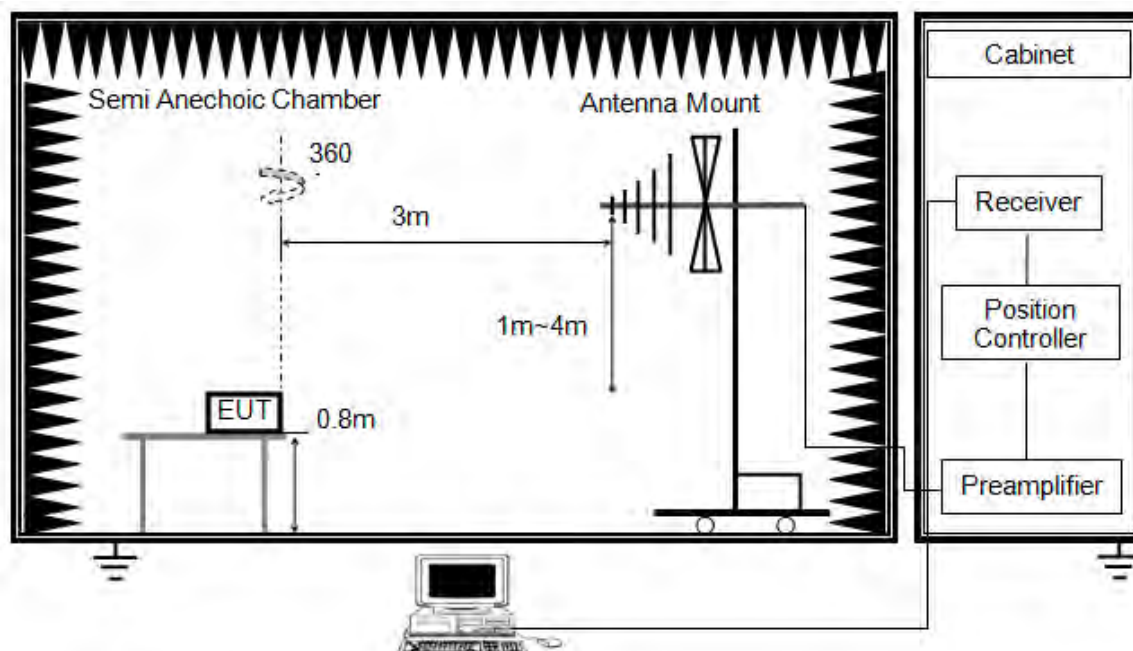


The setting of the spectrum analyser

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

Below 1 GHz and above 30 MHz

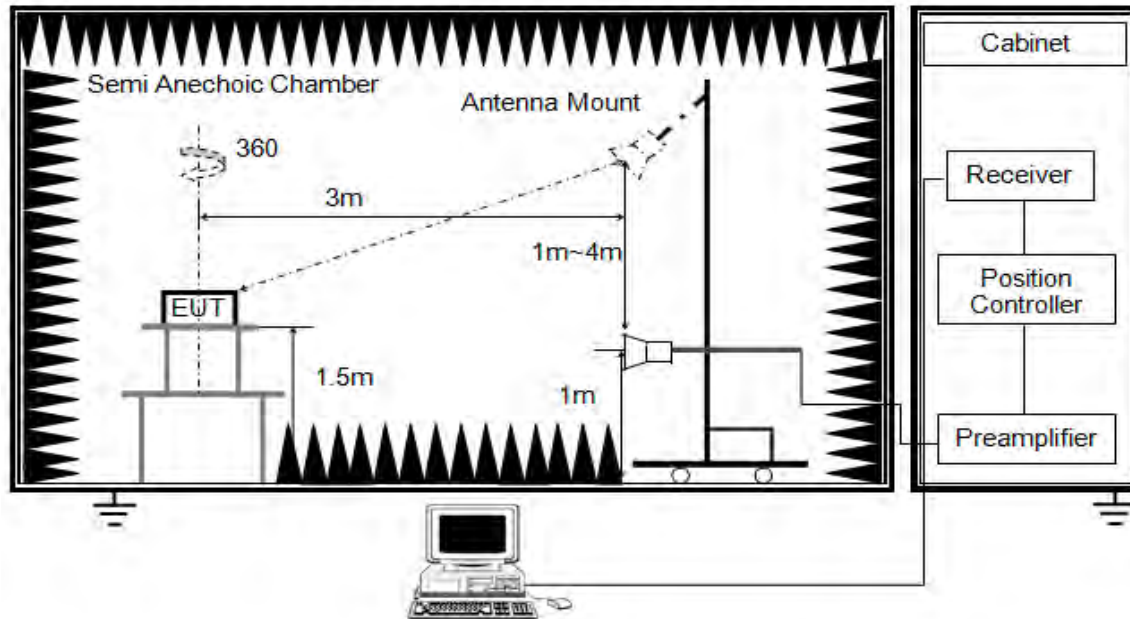


The setting of the spectrum analyser

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

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

Above 1 GHz

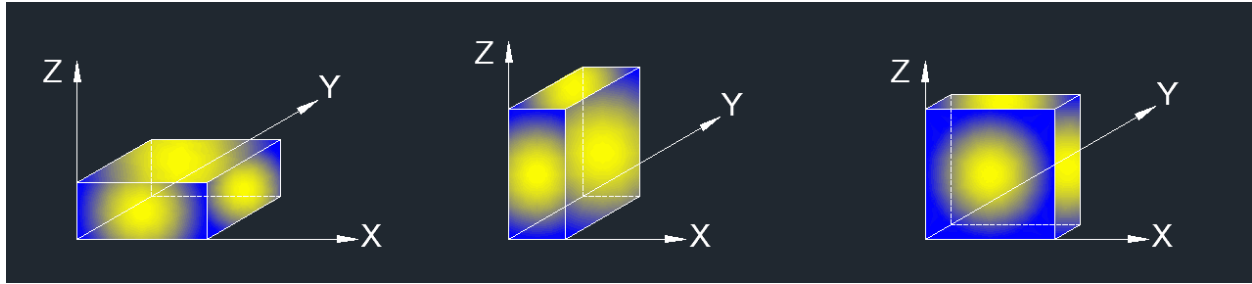


The setting of the spectrum analyser

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

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

X axis, Y axis, Z axis positions:



Note 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.

Note 3: 1.For transmit simultaneously, all the modes had been tested, only the worst data for LTE & 2.4G WIFI was recorded in the LTE report.

### TEST ENVIRONMENT

Temperature	22.5°C	Relative Humidity	48 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### RESULTS





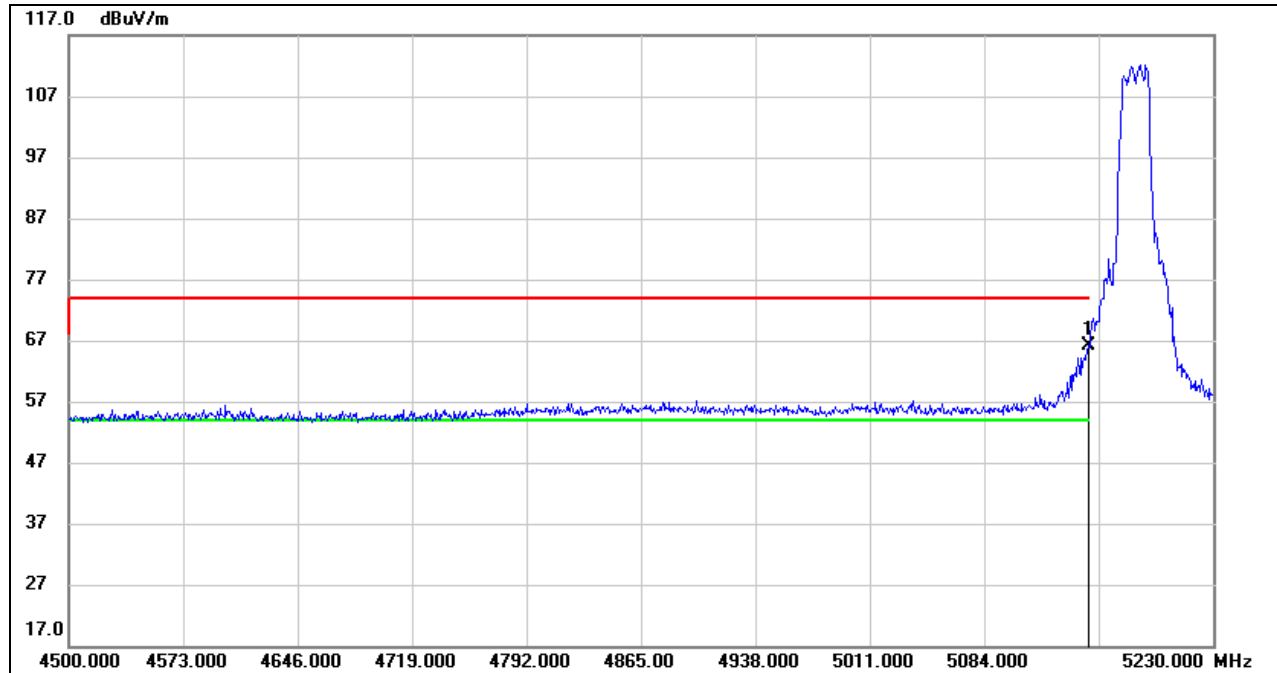
## 8.1. RESTRICTED BANDEDGE

### 8.1.1. 802.11a SISO MODE

#### UNII-1 BAND

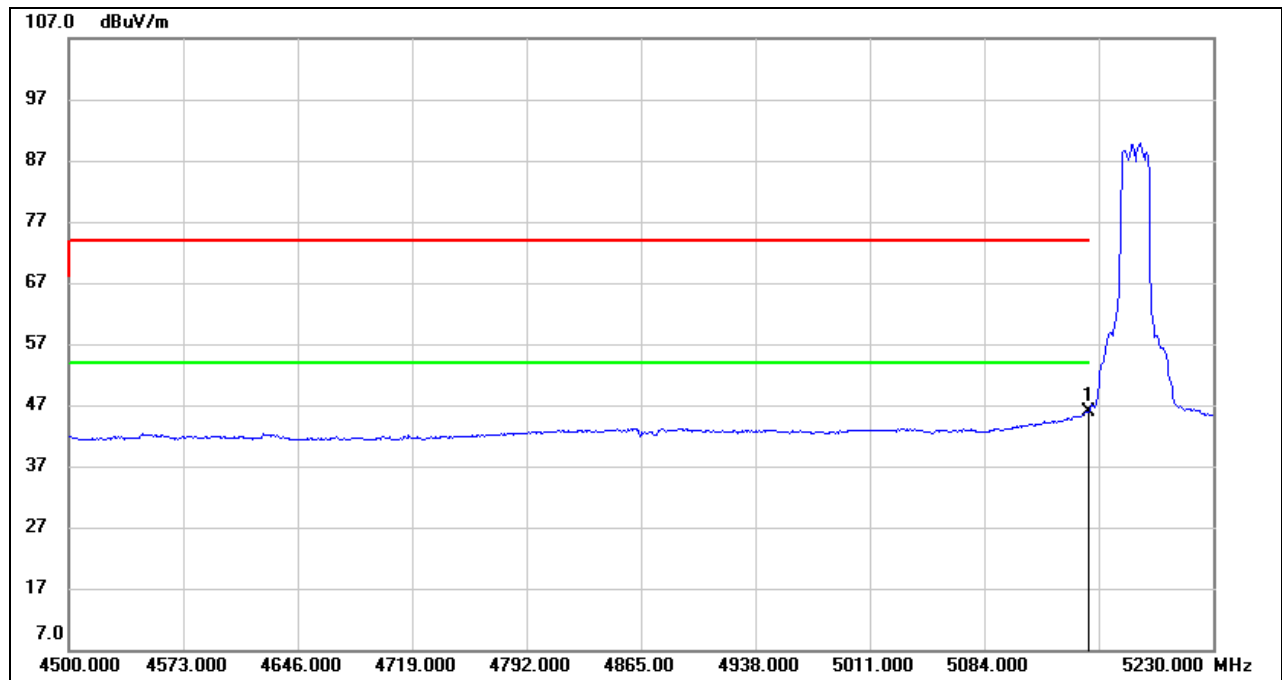
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	26.15	39.91	66.06	74.00	-7.94	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. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

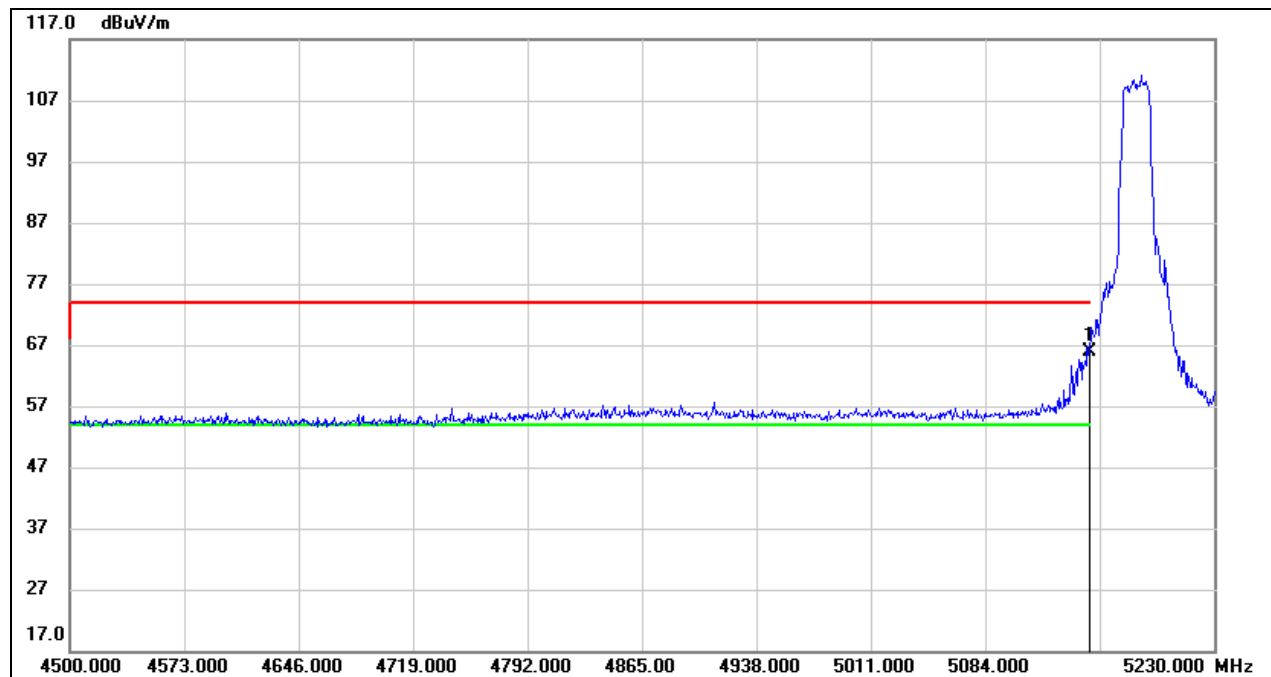
**AVG**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	6.05	39.91	45.96	54.00	-8.04	AVG

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

# RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

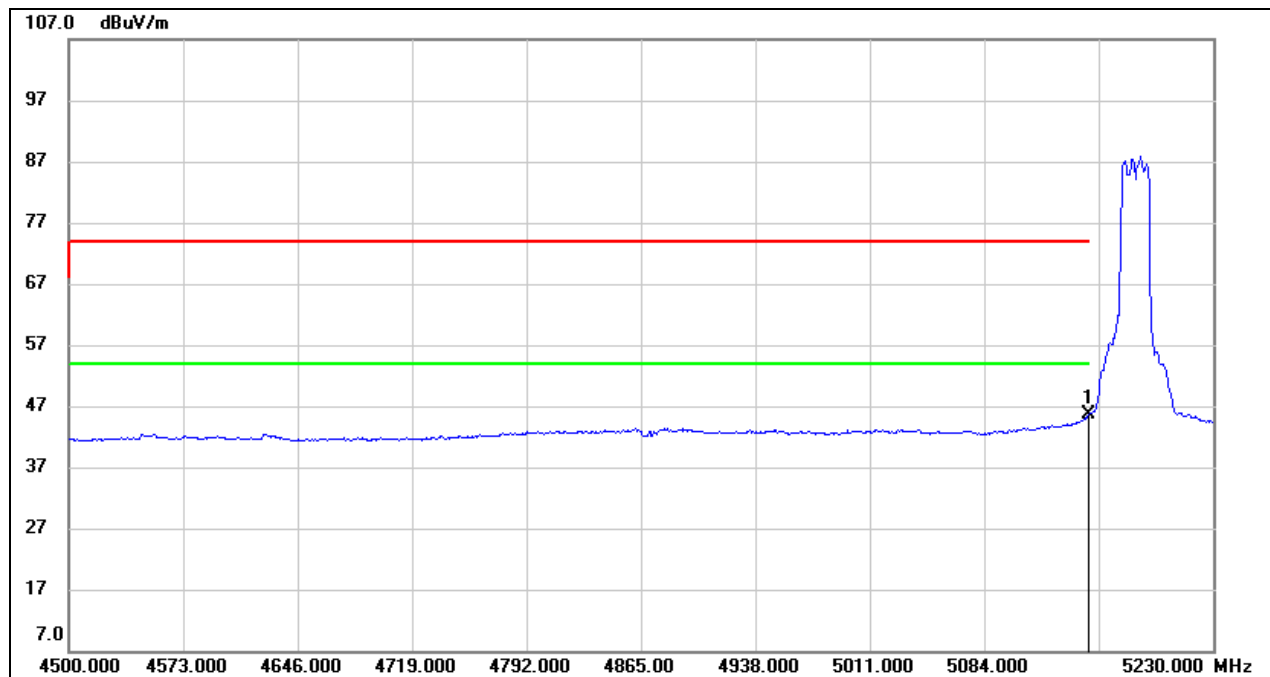
## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	25.91	39.91	65.82	74.00	-8.18	peak

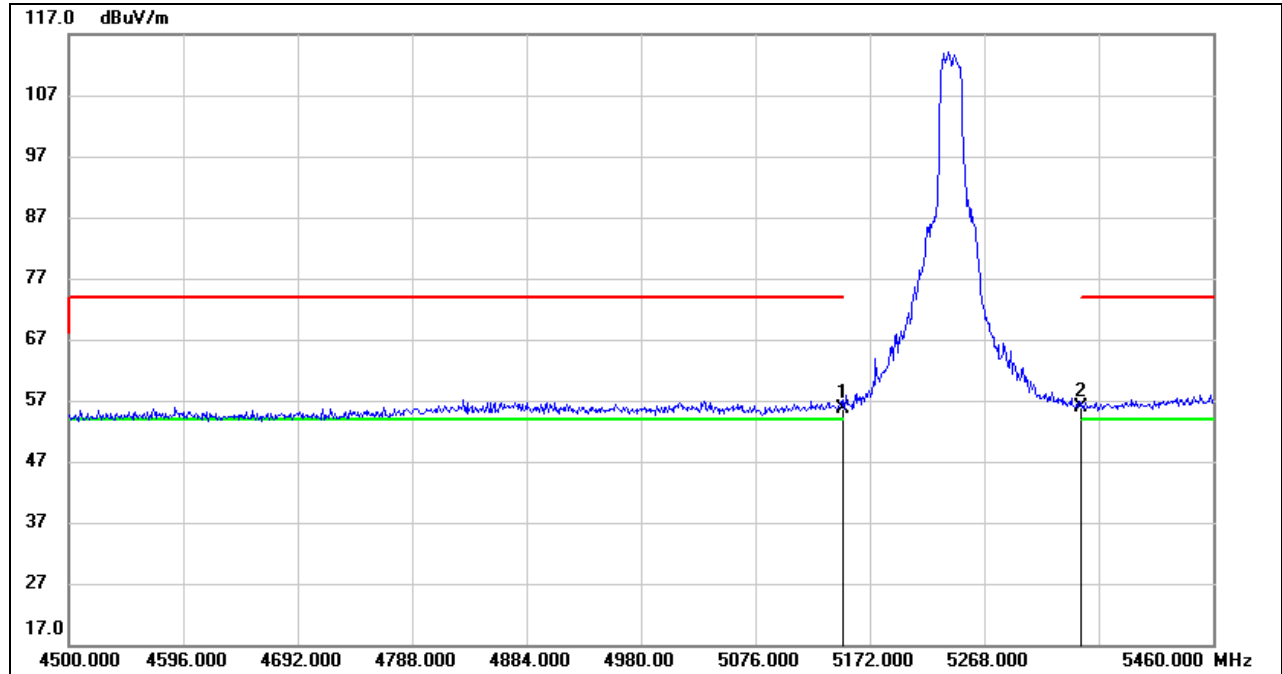
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	5.61	39.91	45.52	54.00	-8.48	AVG

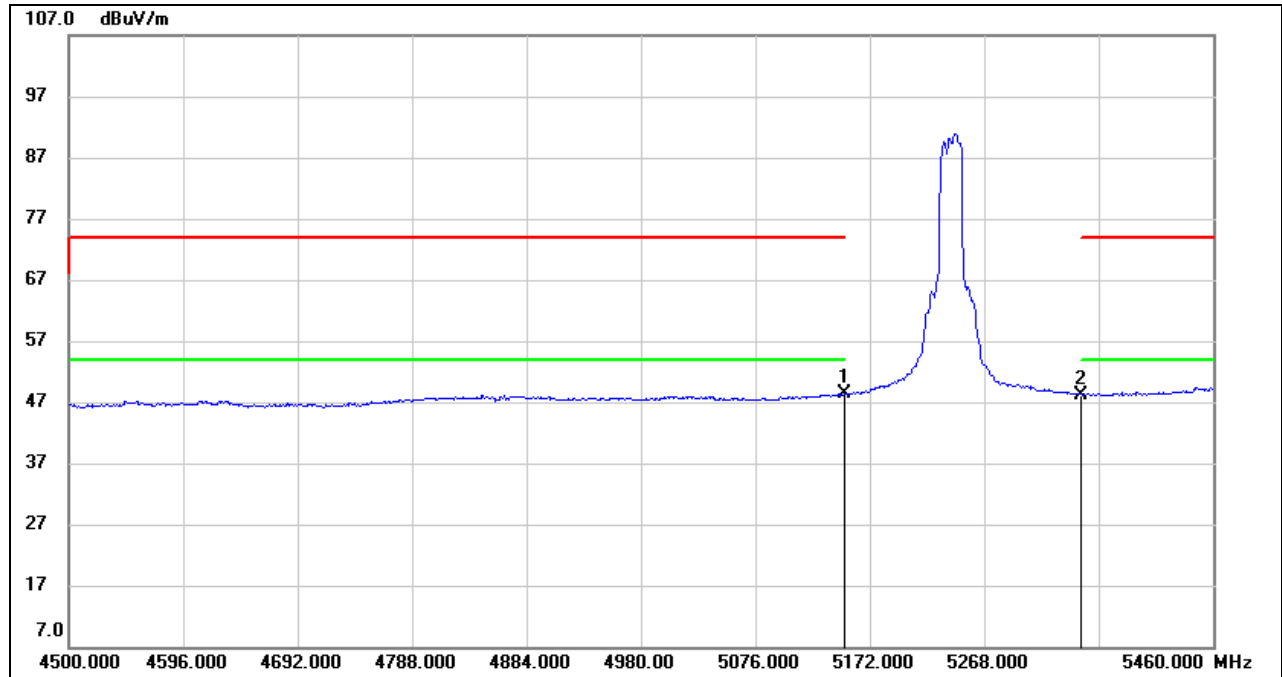
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data was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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	15.64	39.91	55.55	74.00	-18.45	peak
2	5350.000	15.81	40.08	55.89	74.00	-18.11	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	8.54	39.91	48.45	54.00	-5.55	AVG
2	5350.000	8.14	40.08	48.22	54.00	-5.78	AVG

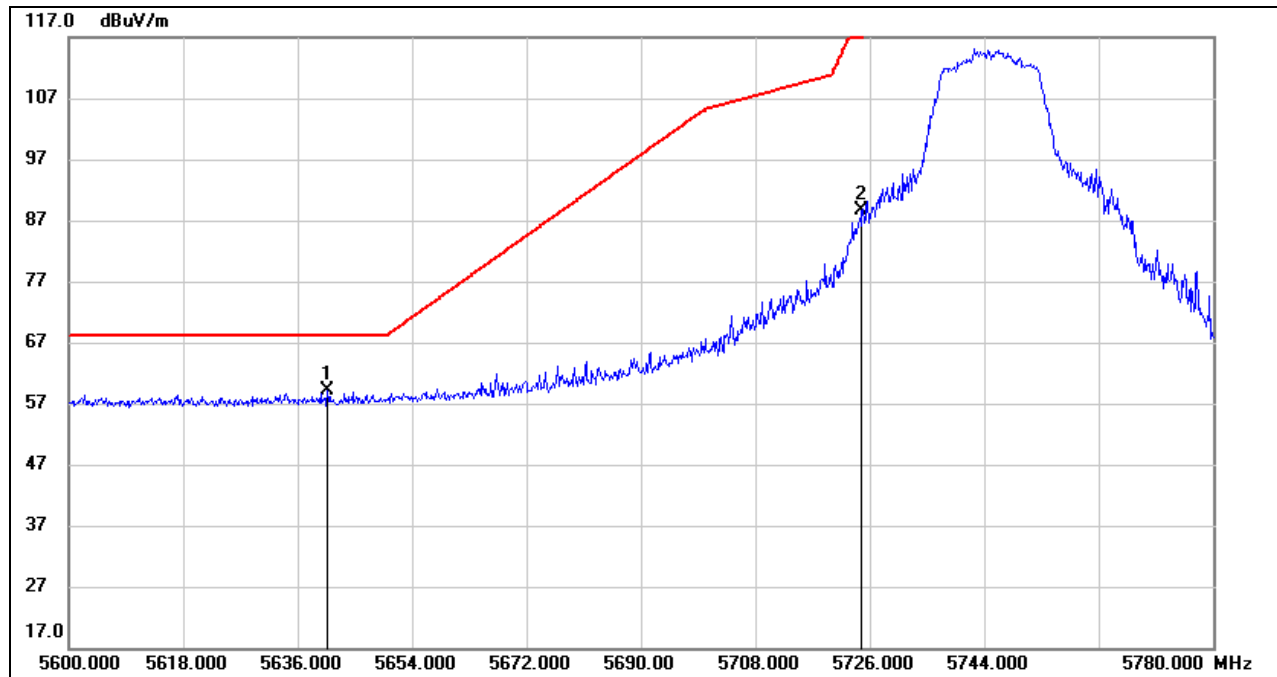
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data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

Note: All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

### UNII-3 BAND

### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5640.680	18.60	40.63	59.23	68.20	-8.97	peak
2	5724.740	48.09	40.62	88.71	121.61	-32.90	peak

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

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

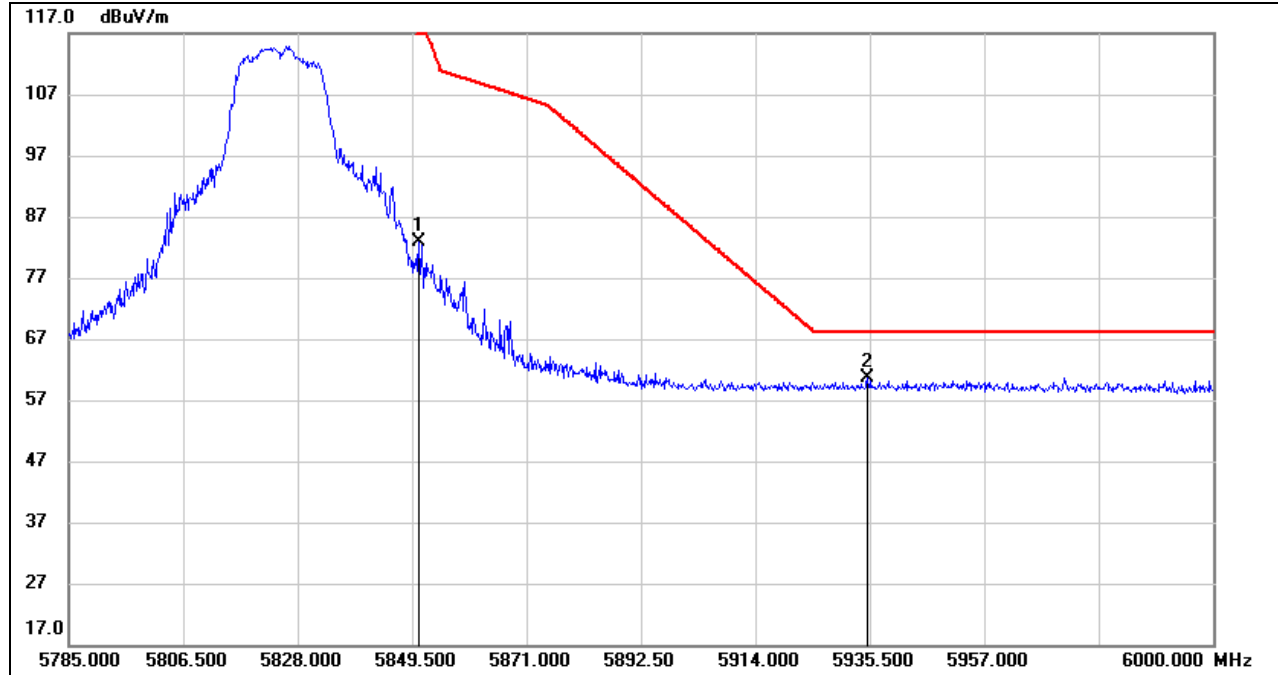
3. Peak: Peak detector.

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

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

# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.790	41.49	41.46	82.95	120.40	-37.45	peak
2	5935.070	18.77	41.78	60.55	68.20	-7.65	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

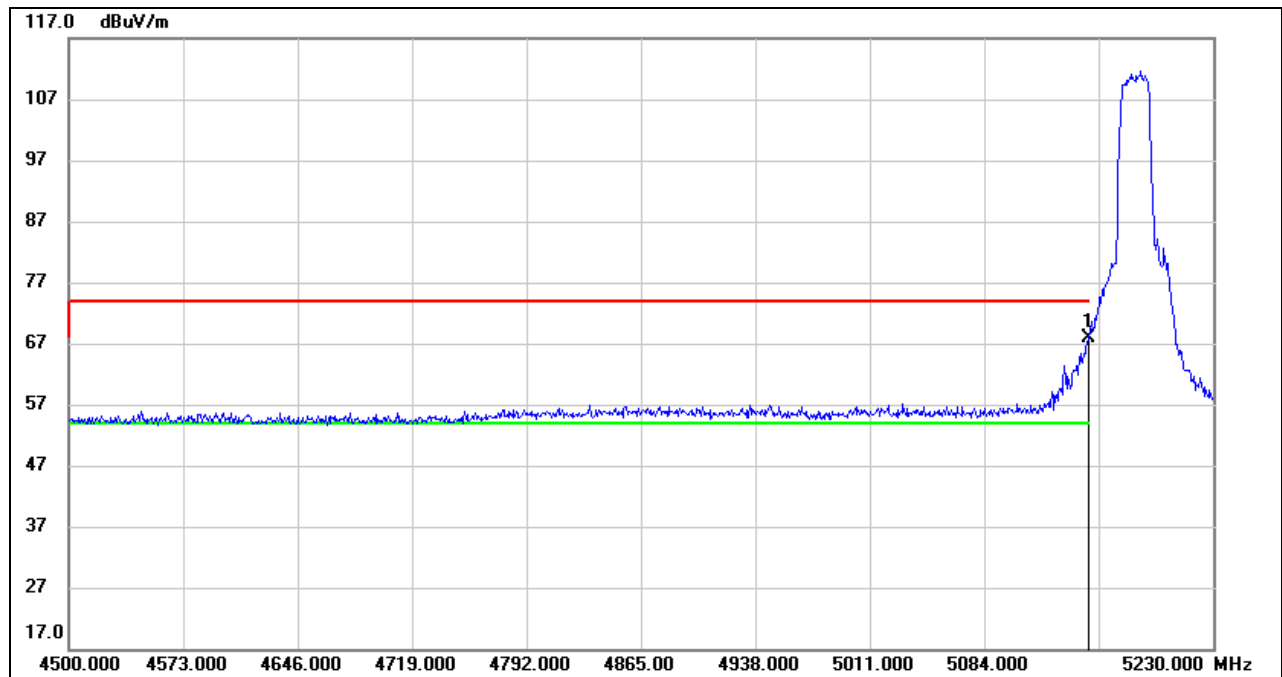


## 8.1.2. 802.11n HT20 MIMO MODE

### UNII-1 BAND

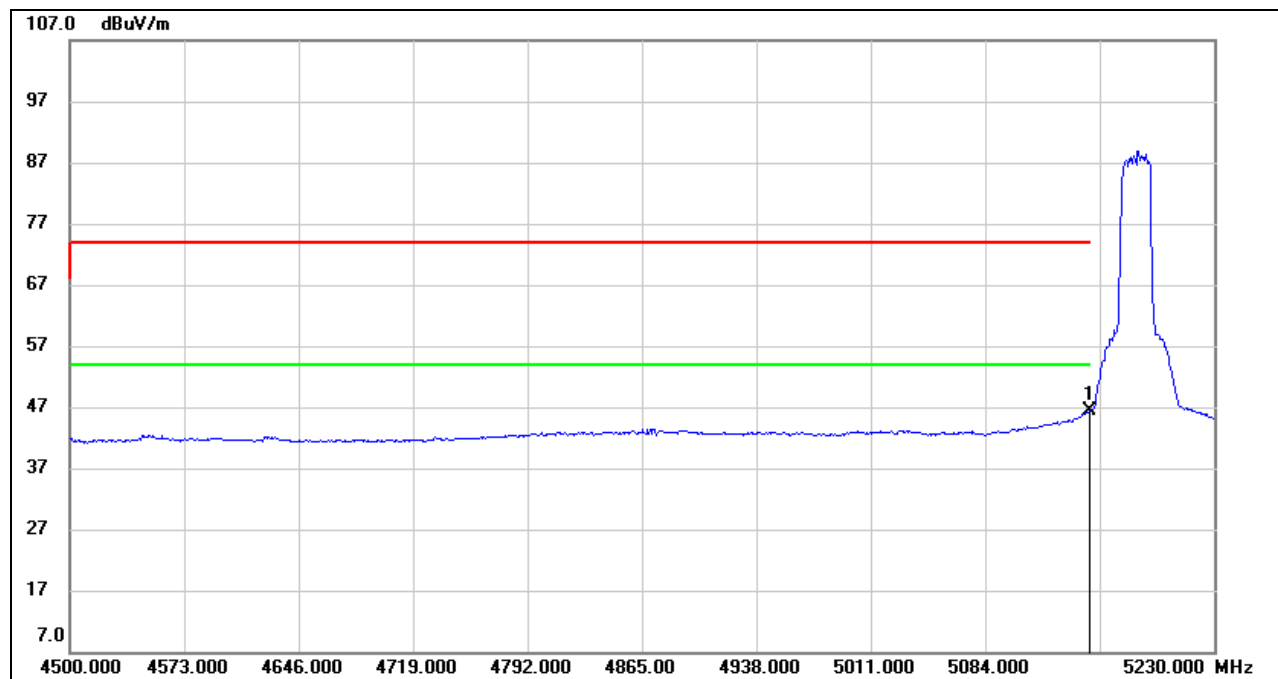
### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	28.01	39.91	67.92	74.00	-6.08	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. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

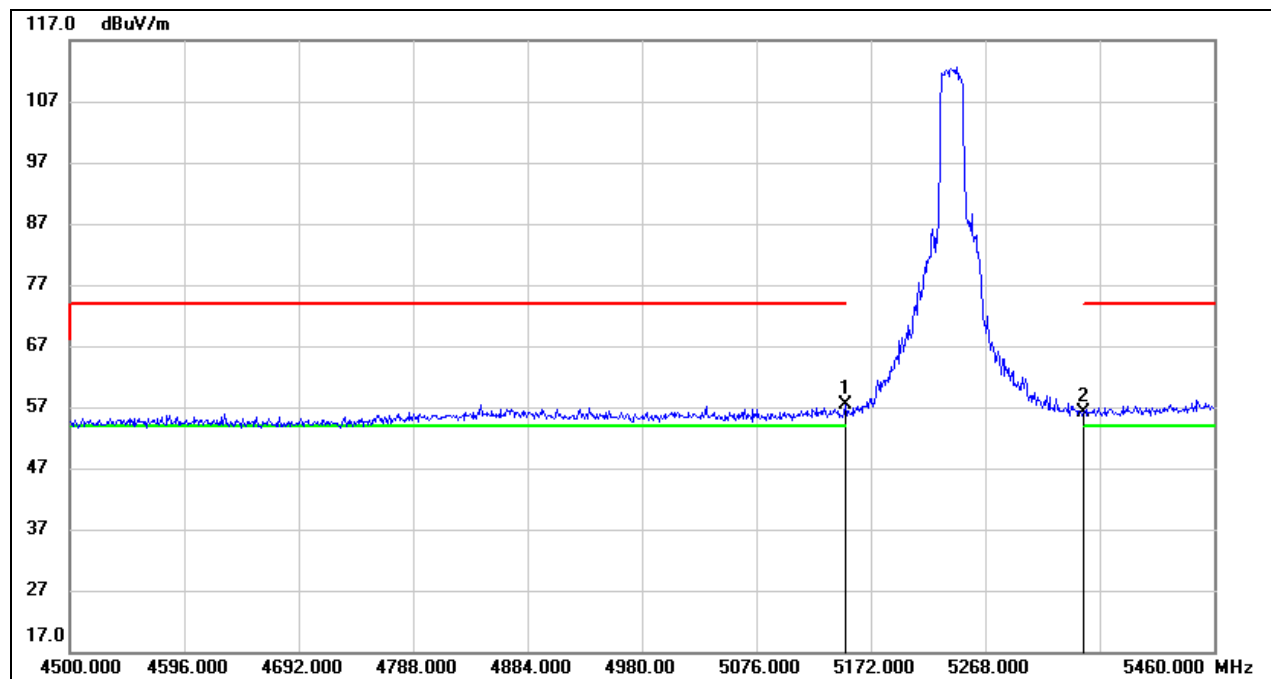
**AVG**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	6.45	39.91	46.36	54.00	-7.64	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, HORIZONTAL)

## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	17.50	39.91	57.41	74.00	-16.59	peak
2	5350.000	16.13	40.08	56.21	74.00	-17.79	peak

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

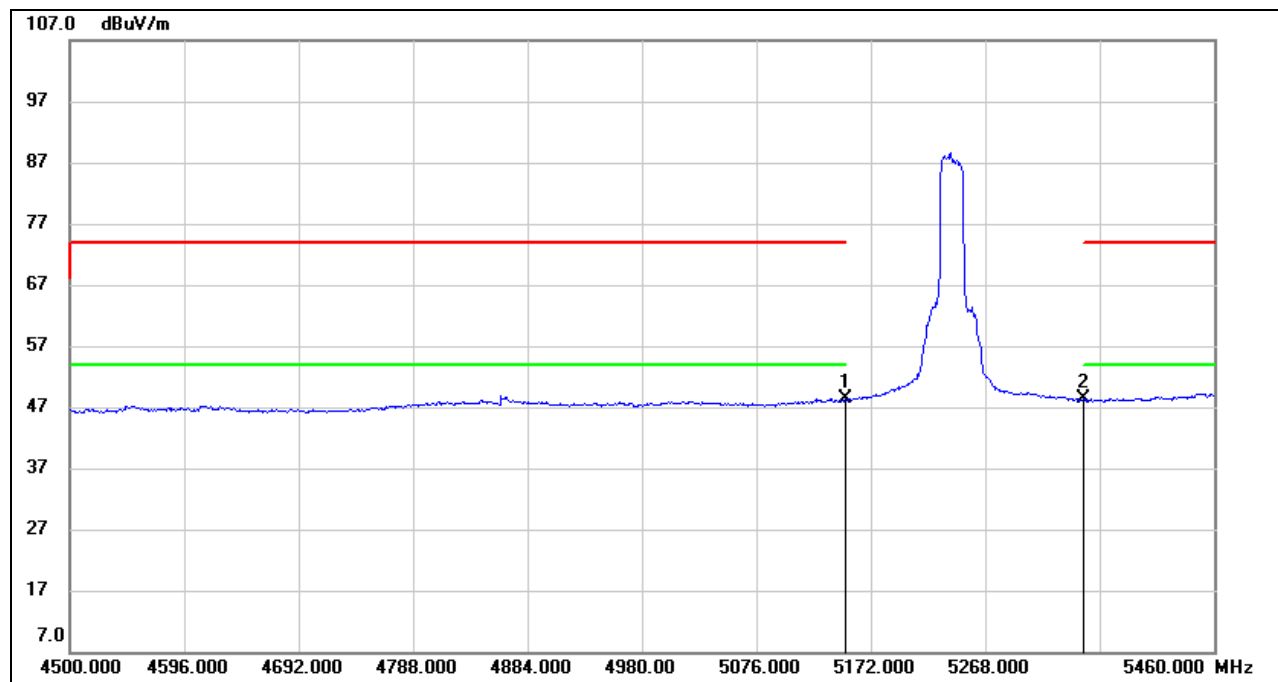
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	8.51	39.91	48.42	54.00	-5.58	AVG
2	5350.000	8.26	40.08	48.34	54.00	-5.66	AVG

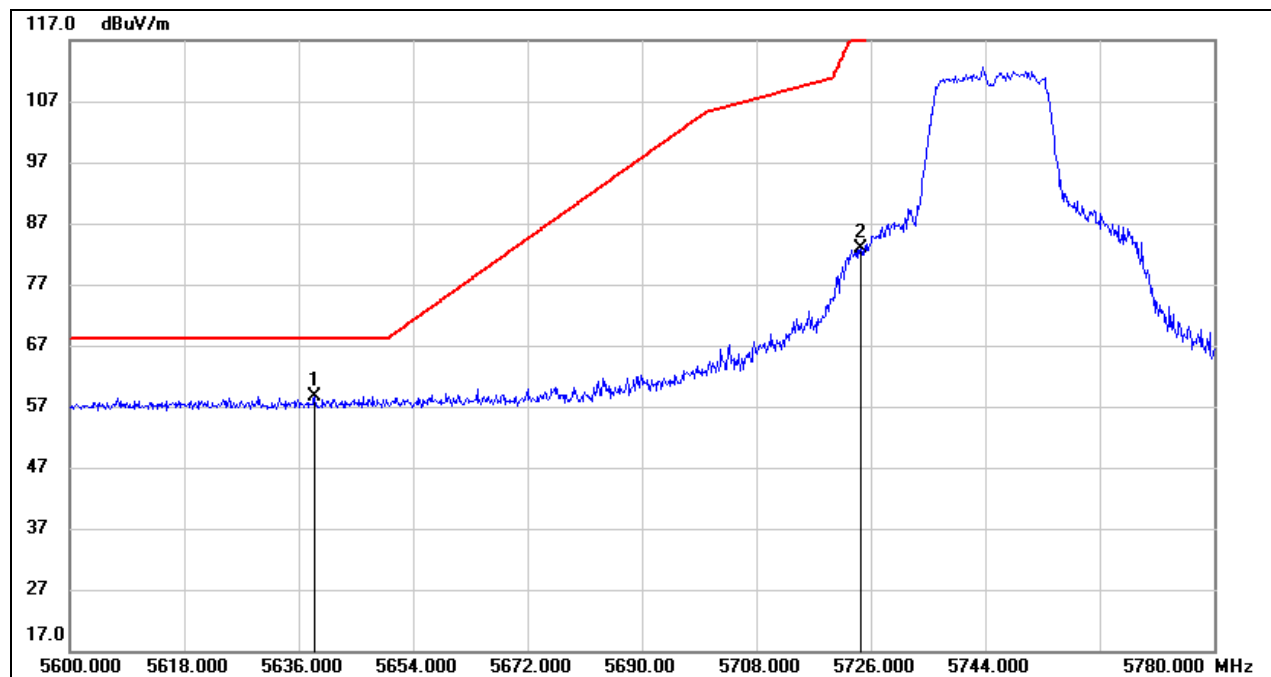
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data was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

Note: All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

## UNII-3 BAND

### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5638.520	18.05	40.63	58.68	68.20	-9.52	peak
2	5724.380	42.33	40.62	82.95	120.79	-37.84	peak

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

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

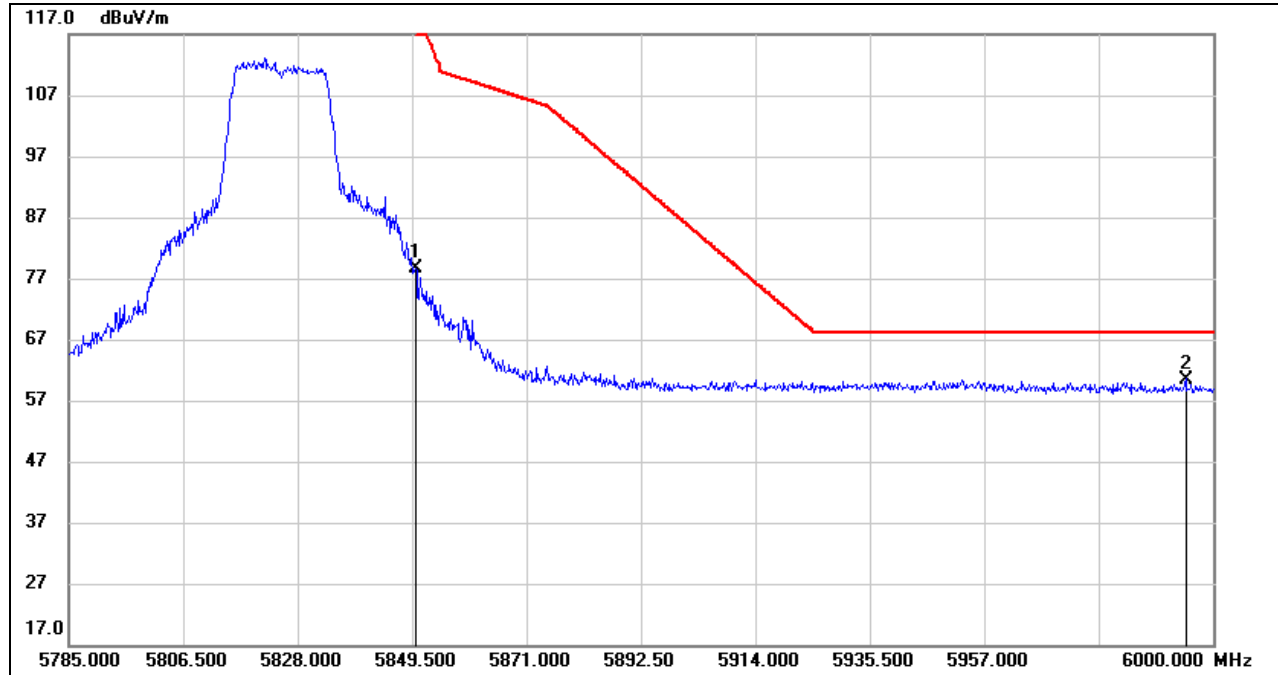
3. Peak: Peak detector.

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

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

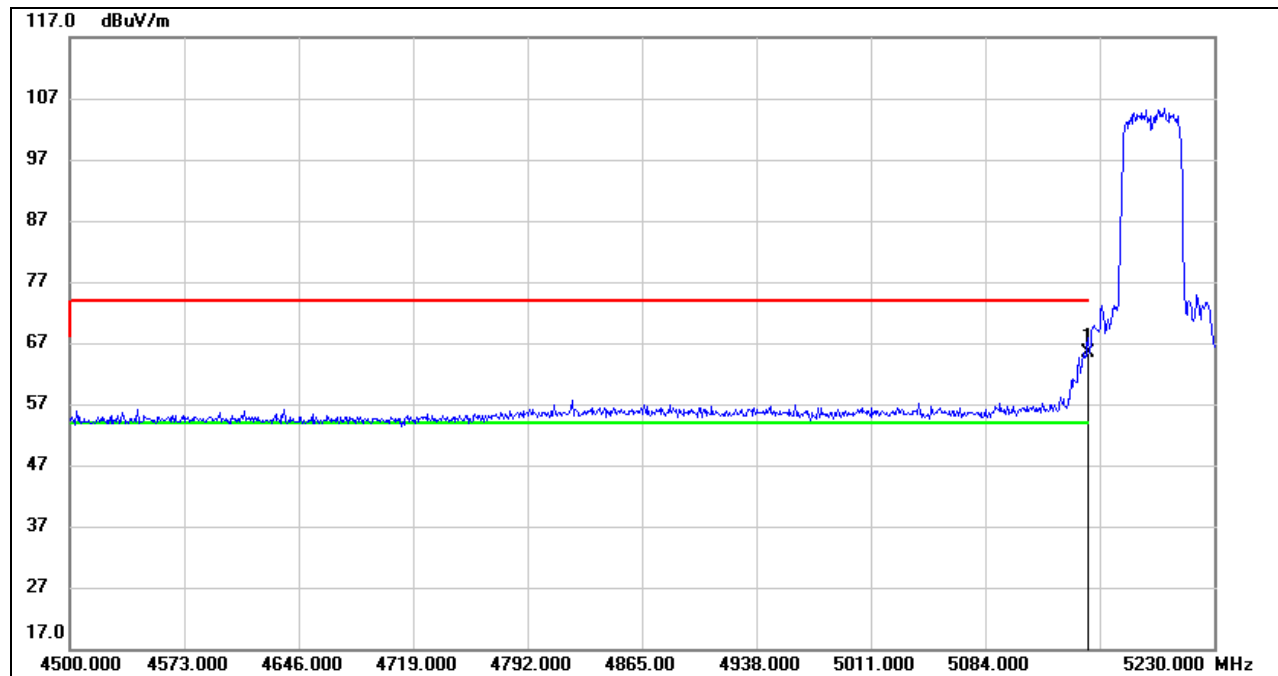
# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



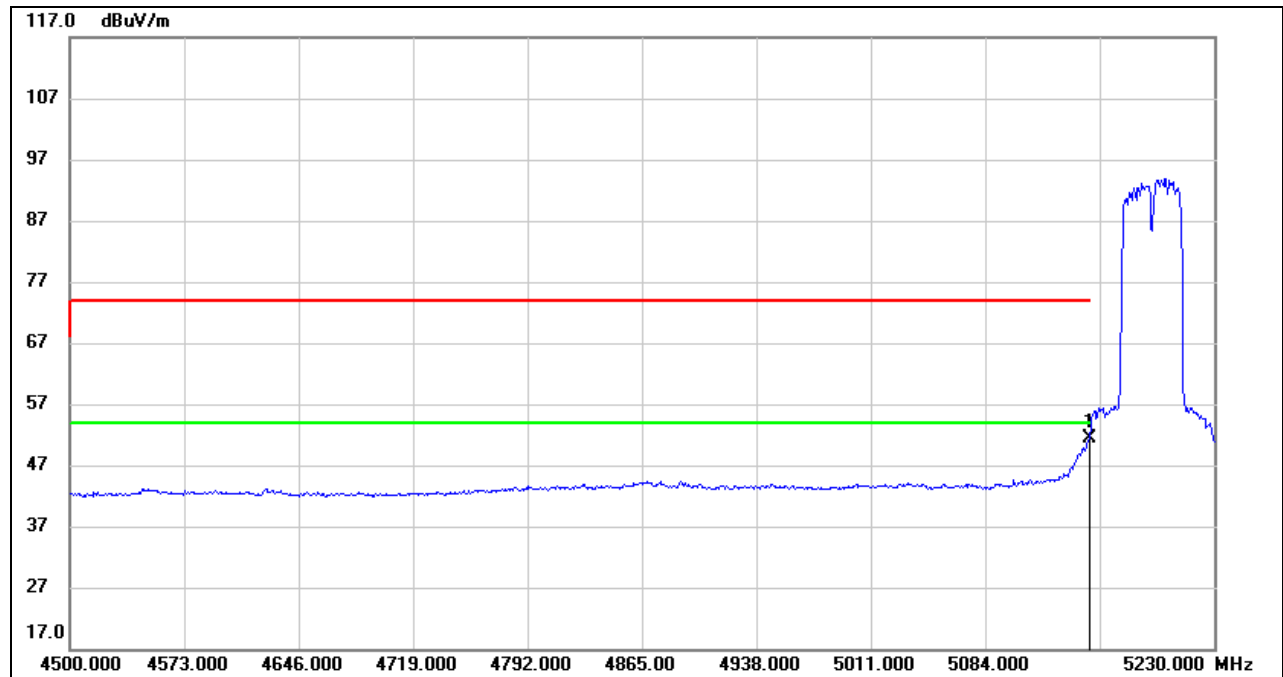
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.145	37.05	41.46	78.51	121.87	-43.36	peak
2	5994.840	19.02	41.48	60.50	68.20	-7.70	peak

- 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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

**8.1.3. 802.11n HT40 MIMO MODE****UNII-1 BAND****RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	25.47	39.91	65.38	74.00	-8.62	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

**AVG**

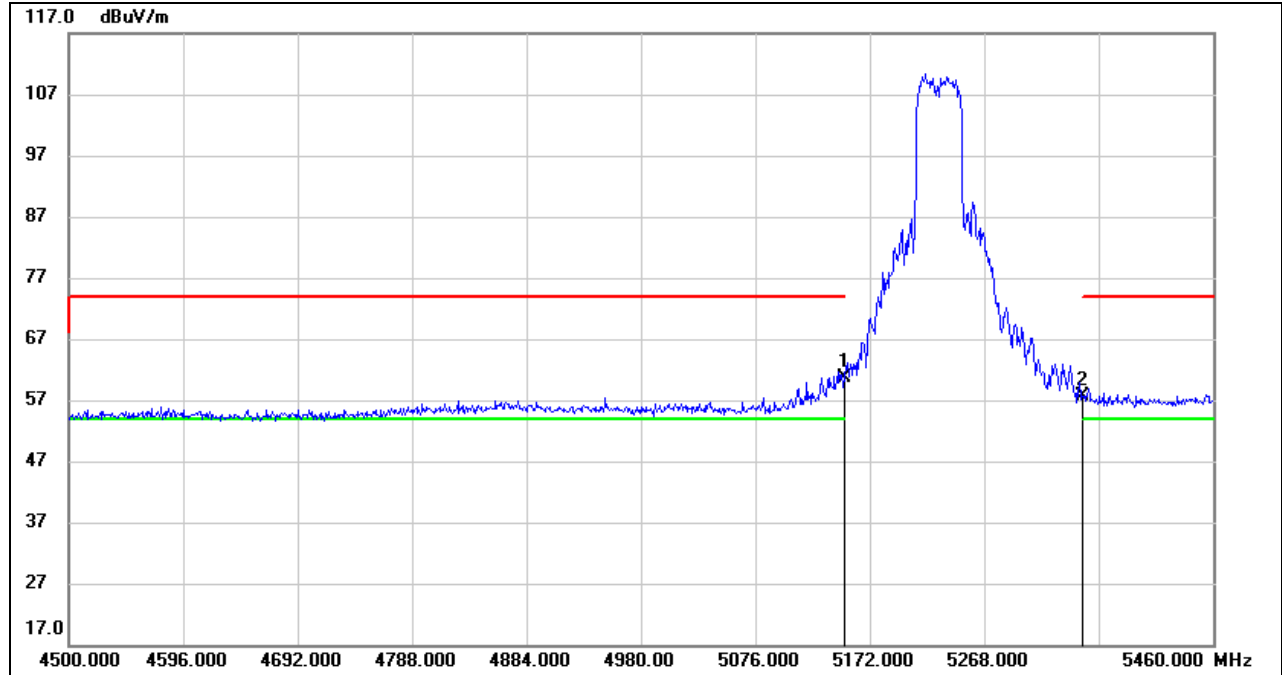
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	11.40	39.91	51.31	54.00	-2.69	AVG

- 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, HORIZONTAL)

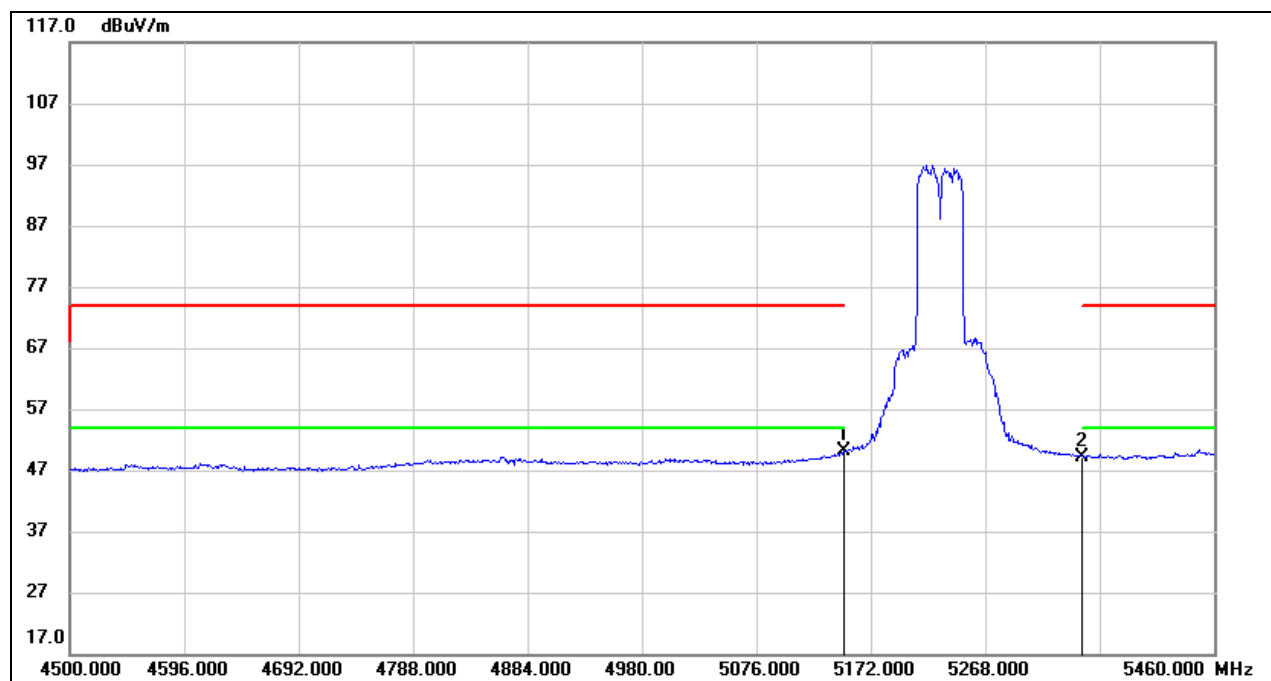
## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	20.83	39.91	60.74	74.00	-13.26	peak
2	5350.000	17.66	40.08	57.74	74.00	-16.26	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. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	10.18	39.91	50.09	54.00	-3.91	AVG
2	5350.000	9.07	40.08	49.15	54.00	-4.85	AVG

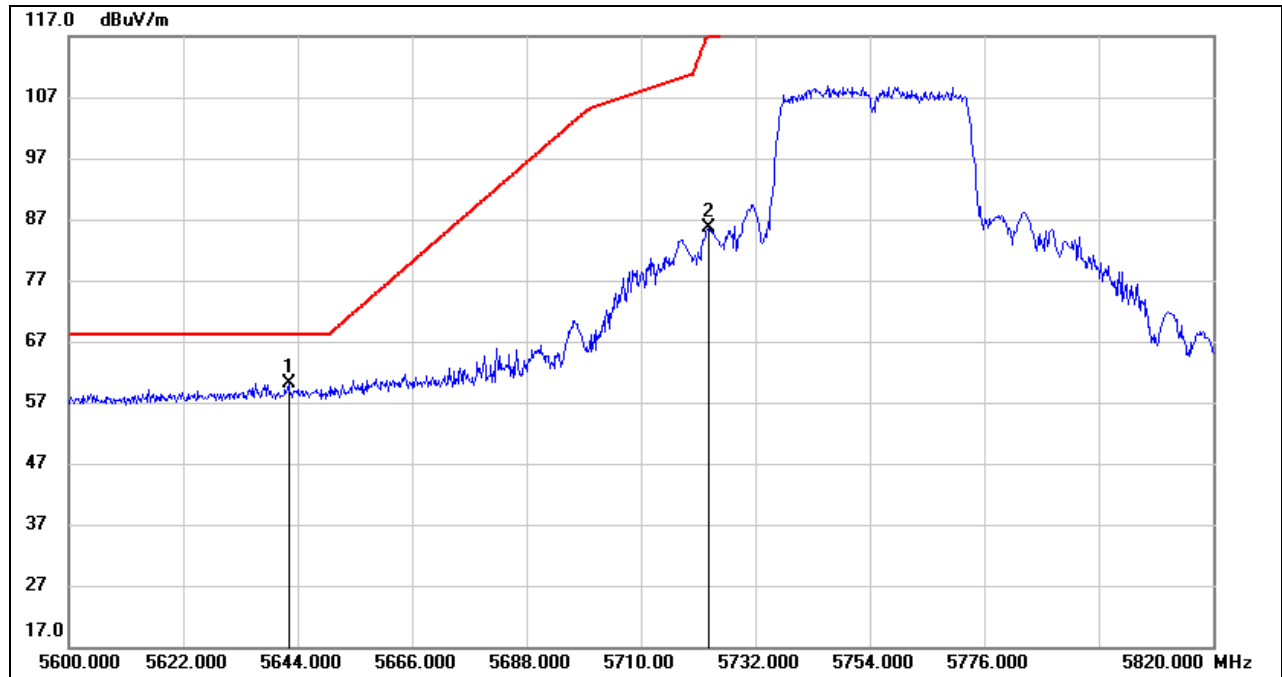
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data was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

Note: All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

**UNII-3 BAND**

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

**PEAK**

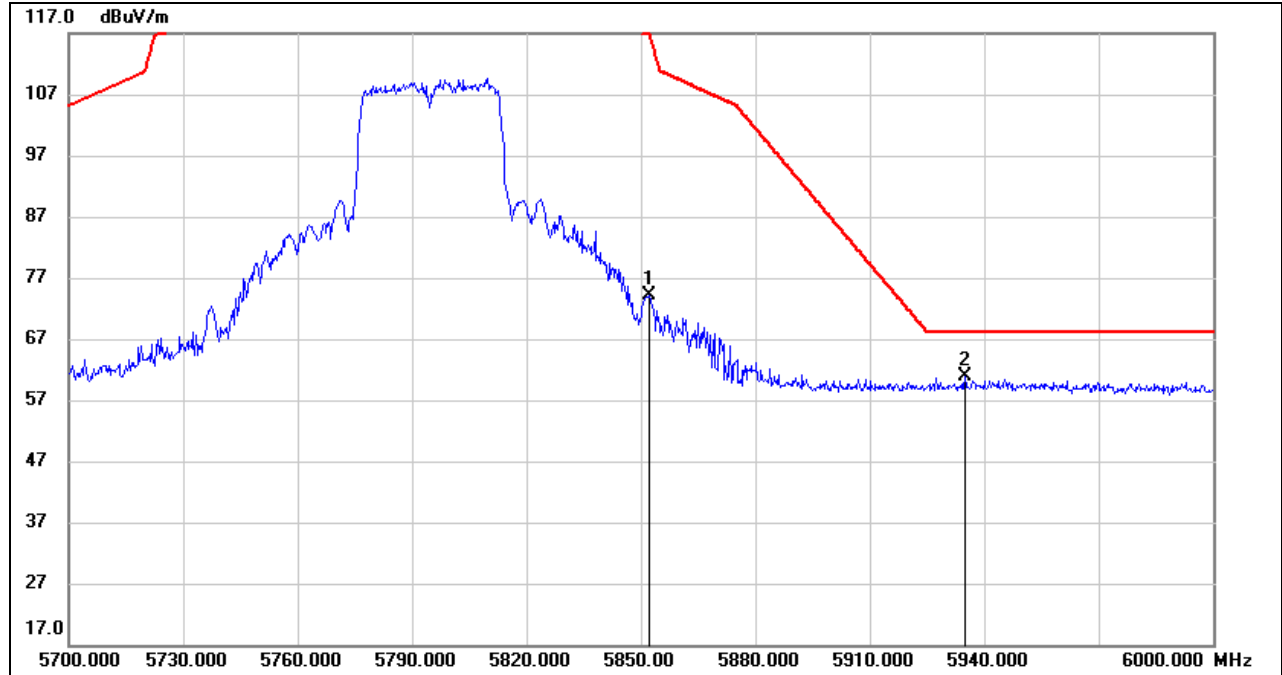


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5642.240	19.54	40.62	60.16	68.20	-8.04	peak
2	5722.980	45.14	40.61	85.75	117.60	-31.85	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.  
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

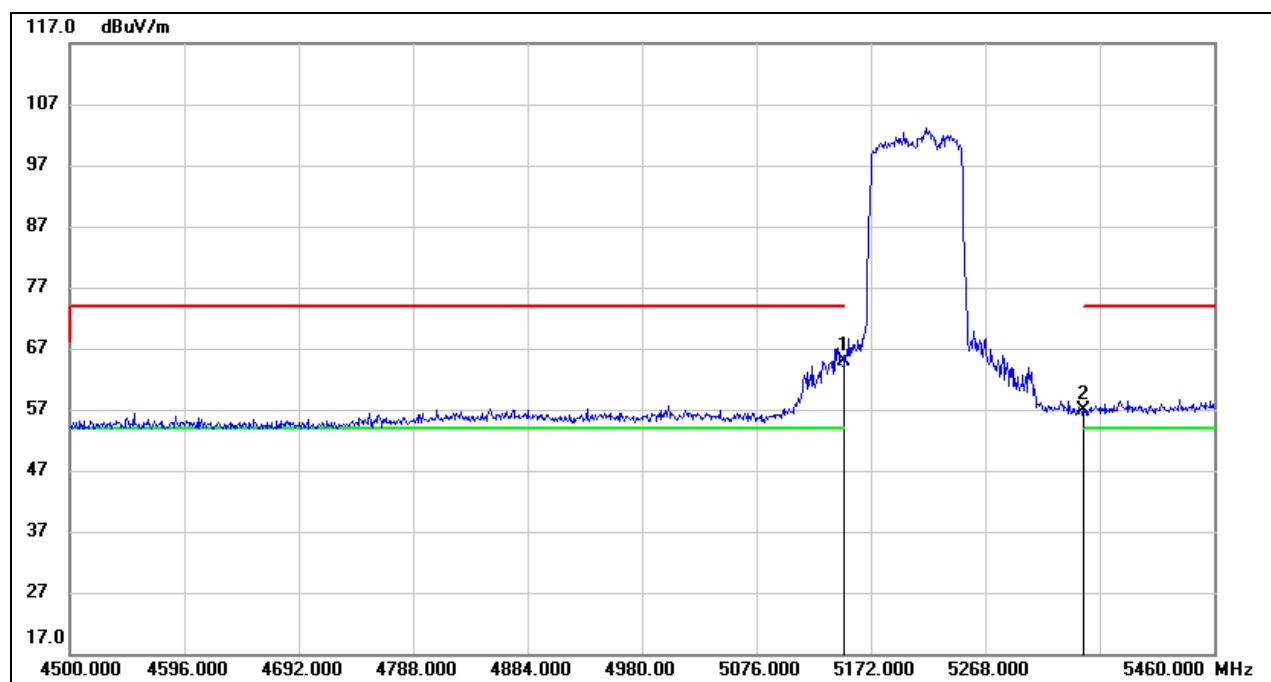
# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5852.100	32.70	41.47	74.17	117.41	-43.24	peak
2	5934.900	19.08	41.77	60.85	68.20	-7.35	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.  
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

**8.1.4. 802.11ac VHT80 MIMO MODE****UNII-1 BAND****RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	25.03	39.91	64.94	74.00	-9.06	peak
2	5350.000	16.72	40.08	56.80	74.00	-17.20	peak

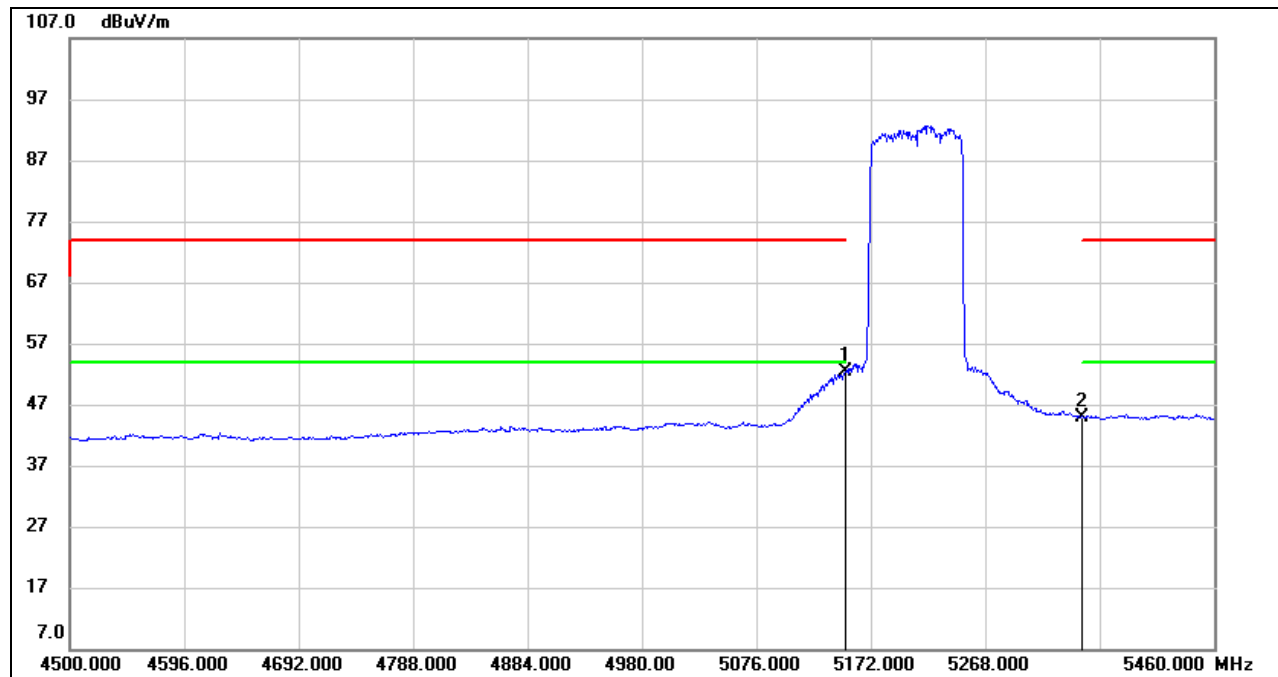
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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

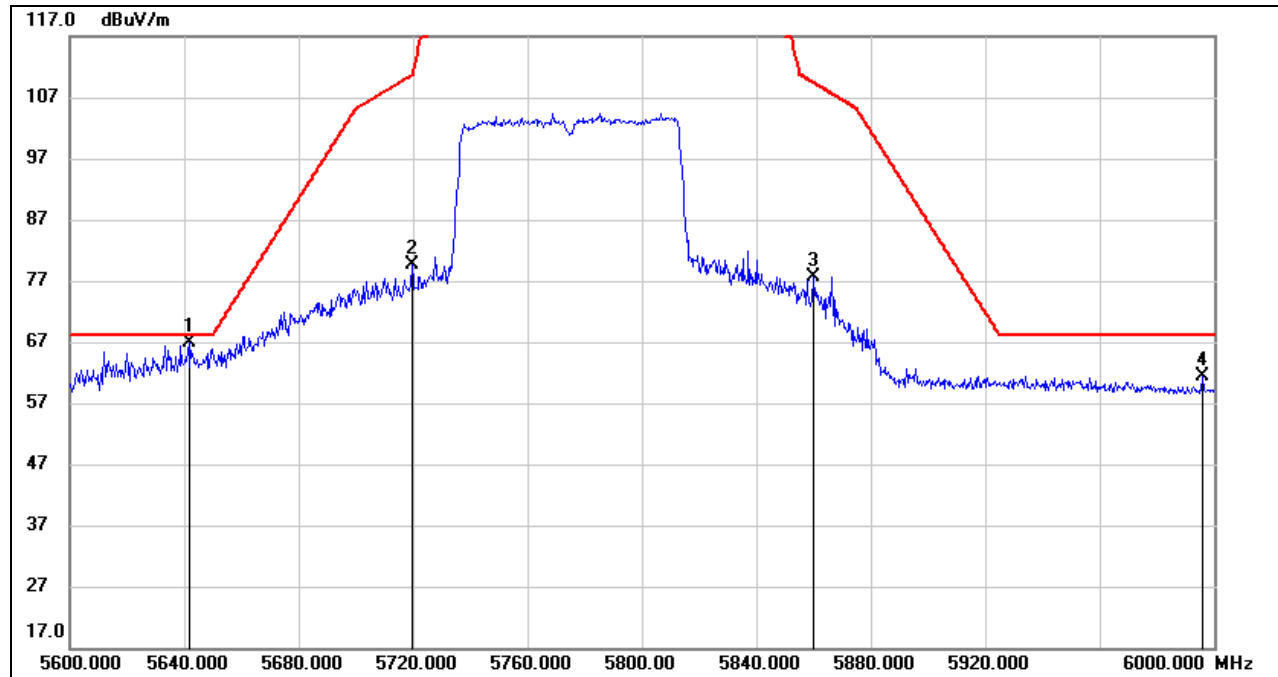
**AVG**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	12.55	39.91	52.46	54.00	-1.54	AVG
2	5350.000	4.92	40.08	45.00	54.00	-9.00	AVG

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

## UNII-3 BAND

### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5641.600	26.36	40.63	66.99	68.20	-1.21	peak
2	5719.600	39.12	40.60	79.72	110.69	-30.97	peak
3	5860.000	36.18	41.55	77.73	109.40	-31.67	peak
4	5996.000	19.89	41.48	61.37	68.20	-6.83	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.

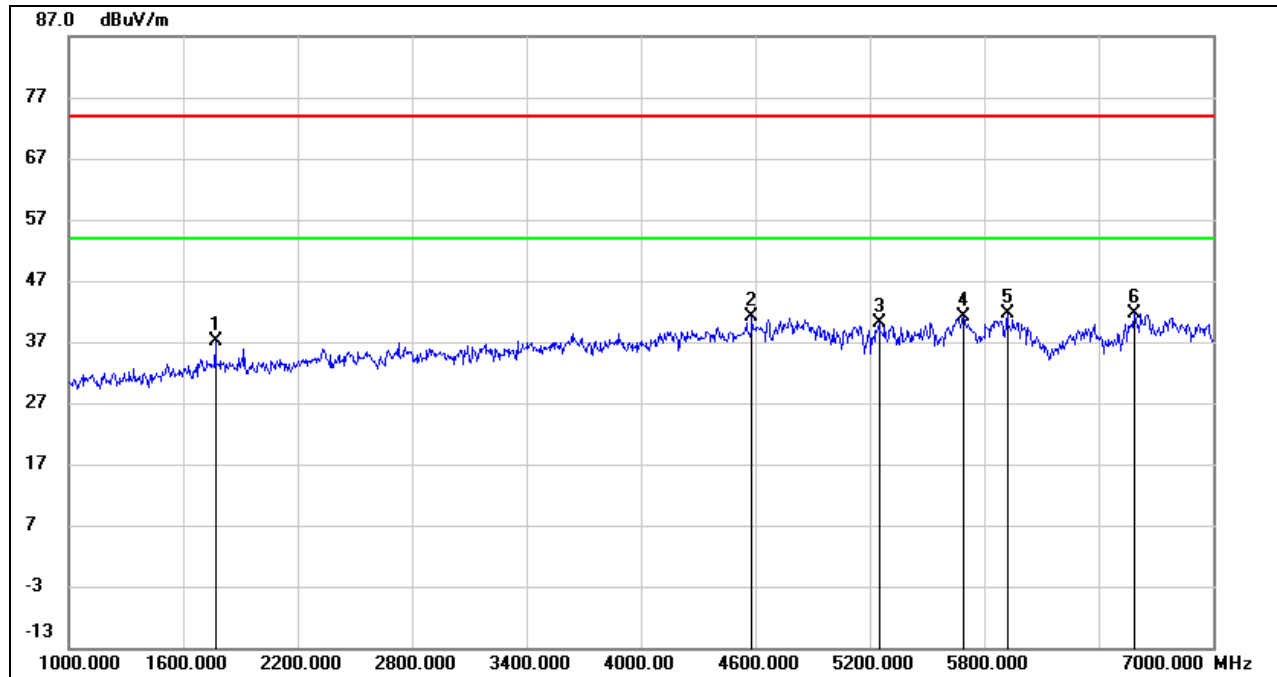
5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

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

### 8.2.1. 802.11a SISO 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	1771.000	48.13	-10.94	37.19	74.00	-36.81	peak
2	4585.000	42.97	-1.73	41.24	74.00	-32.76	peak
3	5251.000	39.32	0.84	40.16	74.00	-33.84	peak
4	5692.000	39.69	1.43	41.12	74.00	-32.88	peak
5	5923.000	39.80	1.91	41.71	74.00	-32.29	peak
6	6586.000	37.17	4.41	41.58	74.00	-32.42	peak

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

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

3. Peak: Peak detector.

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

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

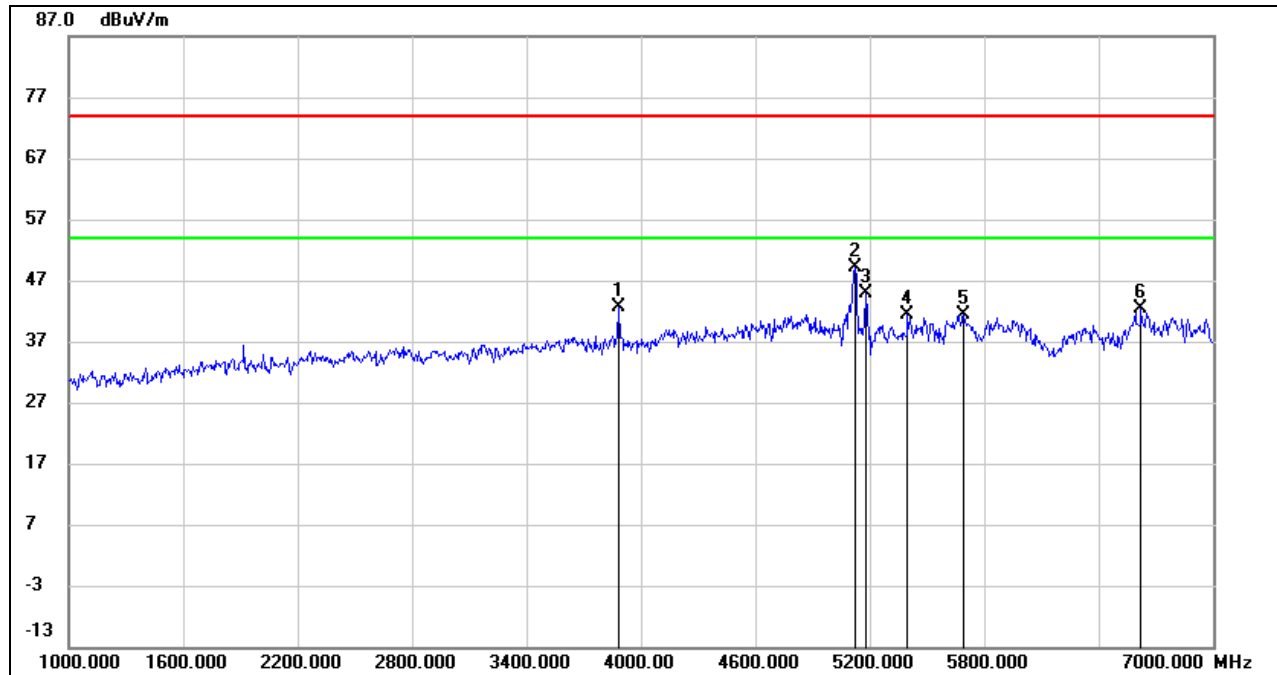
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



### 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	3886.000	47.19	-4.51	42.68	74.00	-31.32	peak
2	5125.000	48.71	0.35	49.06	74.00	-24.94	peak
3	5180.000	44.19	0.73	44.92	74.00	-29.08	peak
4	5401.000	40.70	0.79	41.49	74.00	-32.51	peak
5	5692.000	39.83	1.43	41.26	74.00	-32.74	peak
6	6625.000	37.77	4.51	42.28	74.00	-31.72	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.

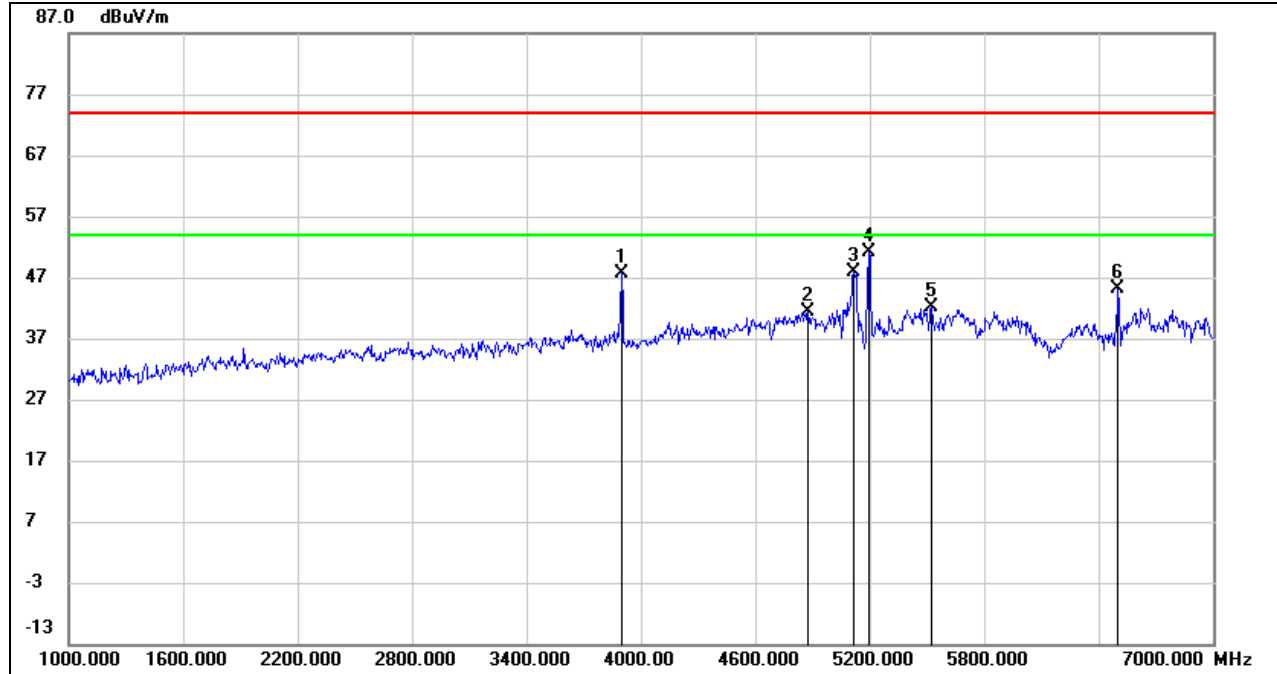
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	3901.000	52.05	-4.53	47.52	74.00	-26.48	peak
2	4876.000	41.93	-0.59	41.34	74.00	-32.66	peak
3	5116.000	47.66	0.29	47.95	74.00	-26.05	peak
4	5194.000	50.35	0.82	51.17	74.00	-22.83	peak
5	5524.000	40.79	1.22	42.01	74.00	-31.99	peak
6	6502.000	41.30	3.93	45.23	74.00	-28.77	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. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

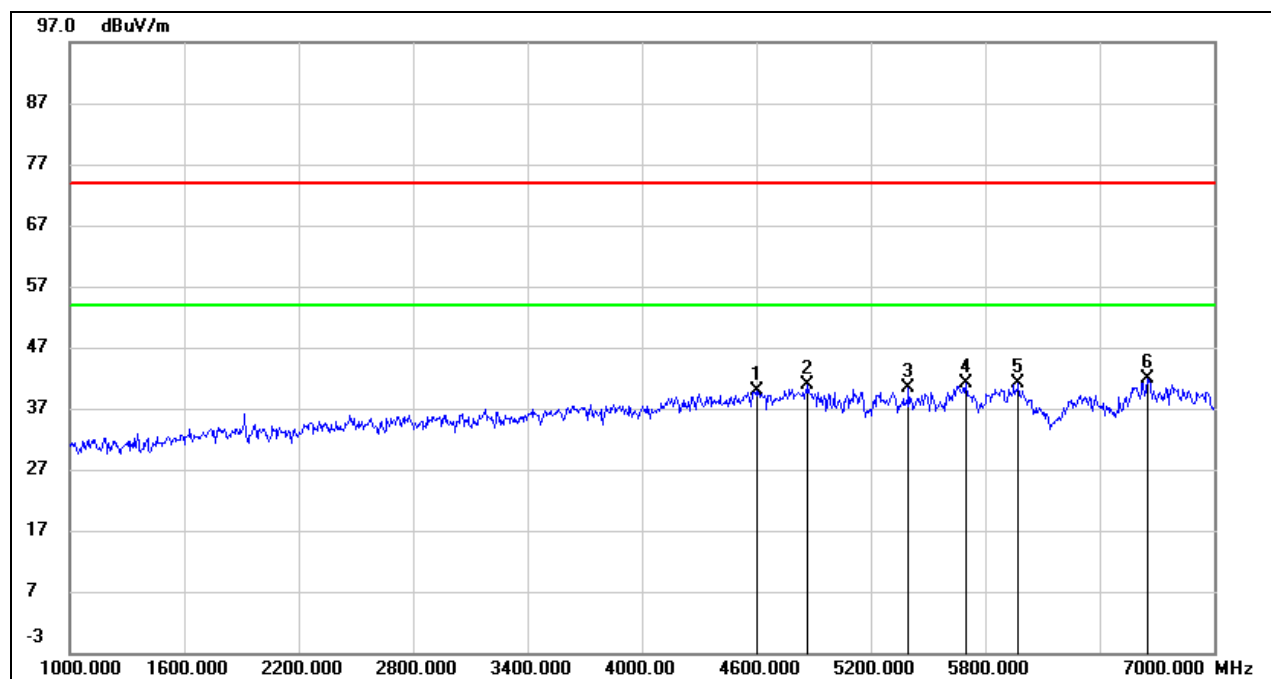
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

## 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	4603.000	41.45	-1.63	39.82	74.00	-34.18	peak
2	4870.000	41.49	-0.60	40.89	74.00	-33.11	peak
3	5398.000	39.53	0.80	40.33	74.00	-33.67	peak
4	5698.000	39.79	1.45	41.24	74.00	-32.76	peak
5	5977.000	38.91	2.11	41.02	74.00	-32.98	peak
6	6655.000	37.46	4.52	41.98	74.00	-32.02	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.

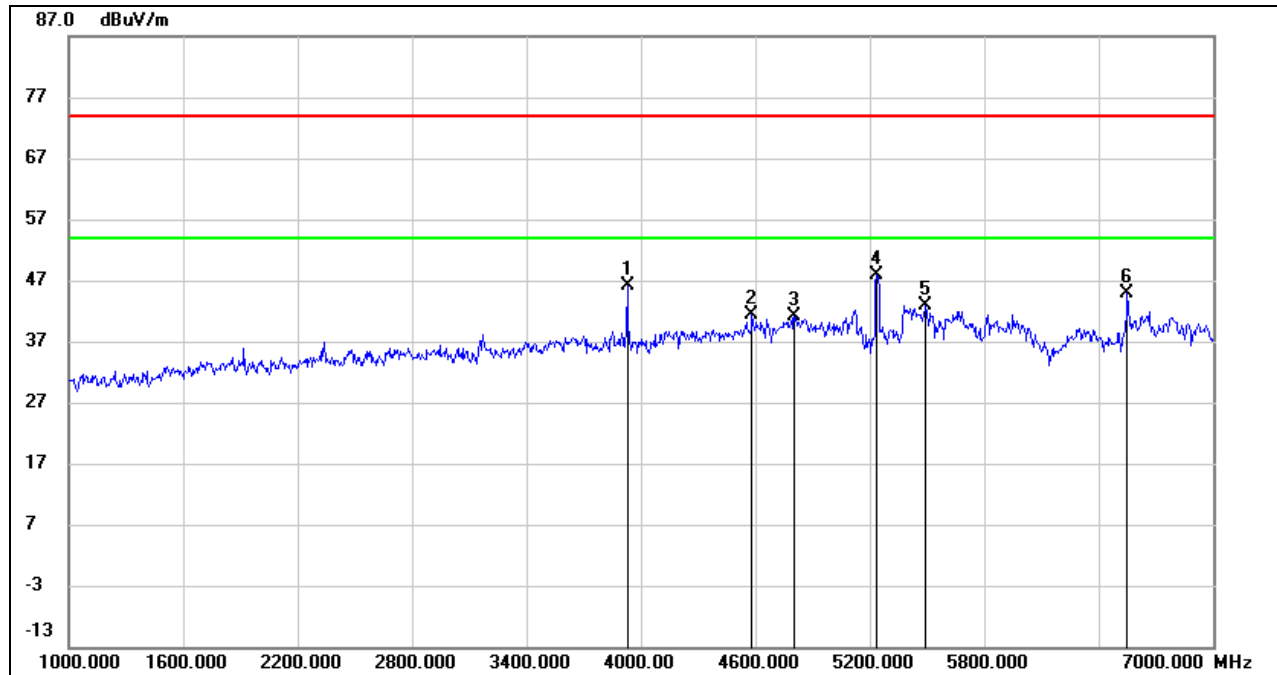
4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.

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 Band reject filter losses.

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

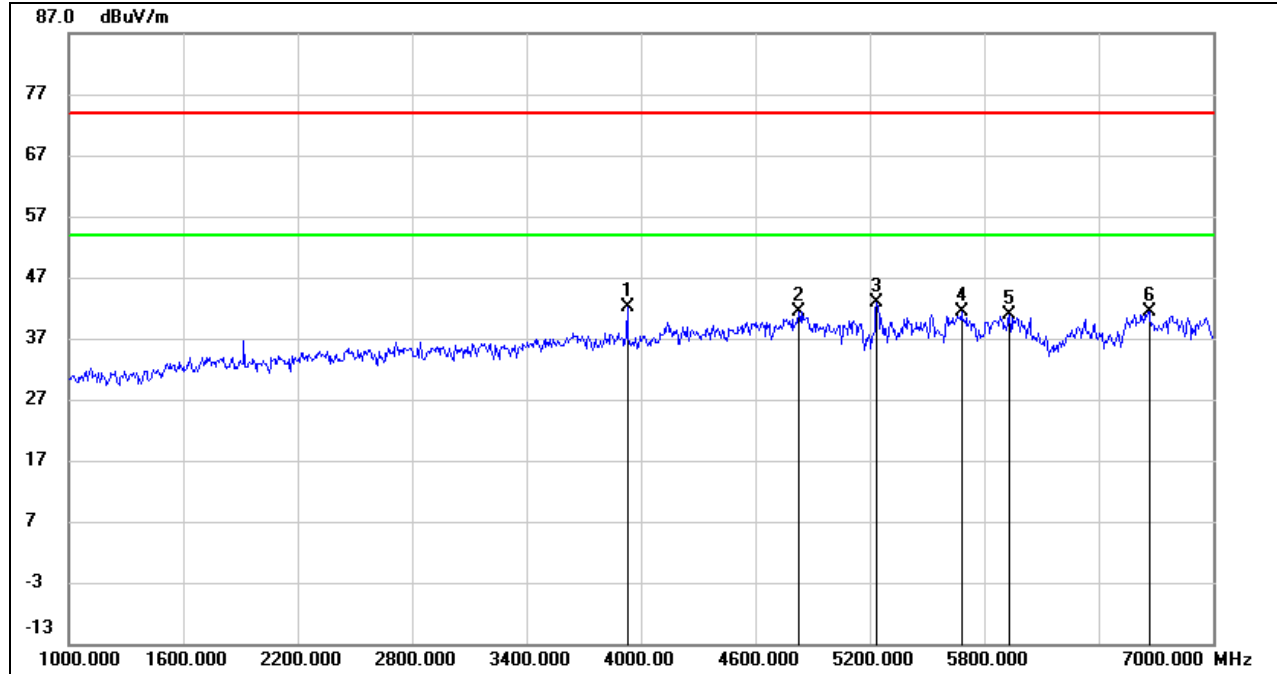
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	3931.000	50.70	-4.59	46.11	74.00	-27.89	peak
2	4585.000	43.03	-1.73	41.30	74.00	-32.70	peak
3	4804.000	41.68	-0.65	41.03	74.00	-32.97	peak
4	5236.000	47.04	0.84	47.88	74.00	-26.12	peak
5	5497.000	41.74	1.15	42.89	74.00	-31.11	peak
6	6553.000	40.65	4.23	44.88	74.00	-29.12	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. 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 Band reject filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

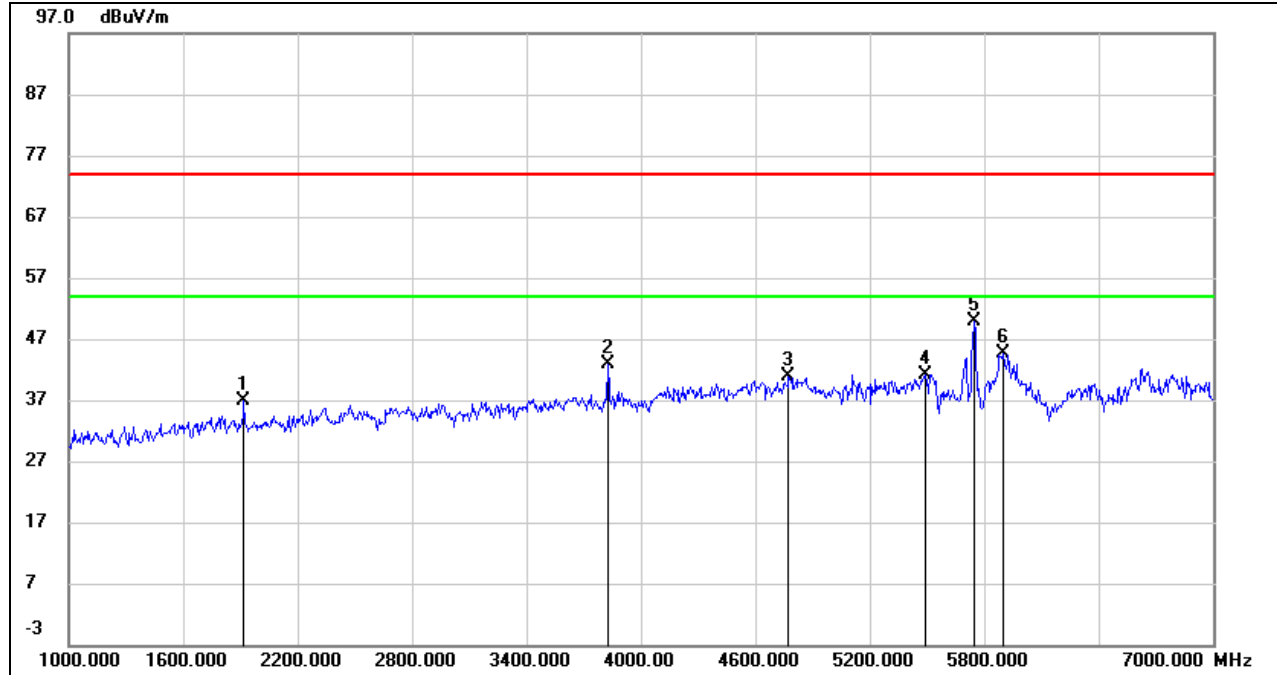


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3931.000	46.70	-4.59	42.11	74.00	-31.89	peak
2	4831.000	42.12	-0.63	41.49	74.00	-32.51	peak
3	5239.000	41.98	0.85	42.83	74.00	-31.17	peak
4	5683.000	39.92	1.44	41.36	74.00	-32.64	peak
5	5932.000	38.94	1.94	40.88	74.00	-33.12	peak
6	6667.000	36.80	4.53	41.33	74.00	-32.67	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. 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 Band reject filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

## 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	47.92	-11.02	36.90	74.00	-37.10	peak
2	3829.000	47.39	-4.41	42.98	74.00	-31.02	peak
3	4774.000	41.72	-0.79	40.93	74.00	-33.07	peak
4	5491.000	40.00	1.13	41.13	74.00	-32.87	peak
5	5745.000	48.34	1.45	49.79	74.00	-24.21	peak
6	5902.000	42.81	1.83	44.64	74.00	-29.36	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.

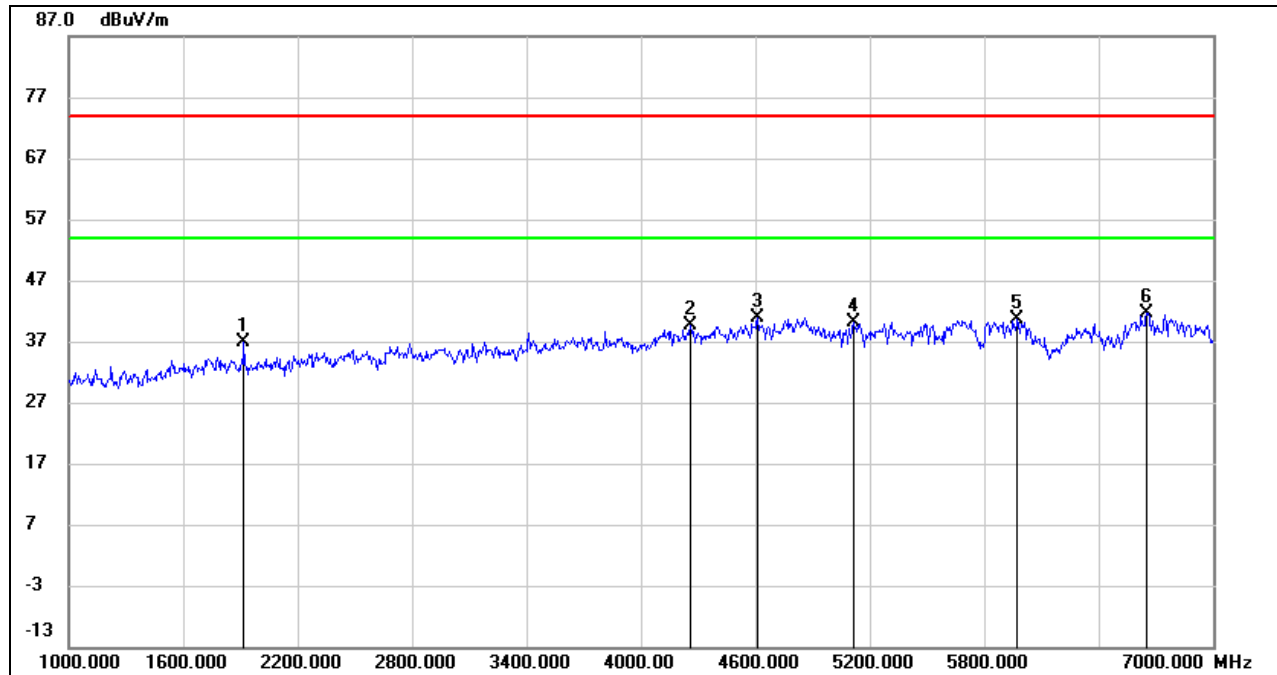
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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 Band reject filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	47.79	-11.02	36.77	74.00	-37.23	peak
2	4258.000	42.36	-2.77	39.59	74.00	-34.41	peak
3	4615.000	42.52	-1.57	40.95	74.00	-33.05	peak
4	5116.000	39.88	0.29	40.17	74.00	-33.83	peak
5	5977.000	38.41	2.11	40.52	74.00	-33.48	peak
6	6652.000	37.14	4.52	41.66	74.00	-32.34	peak

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

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

3. Peak: Peak detector.

4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.

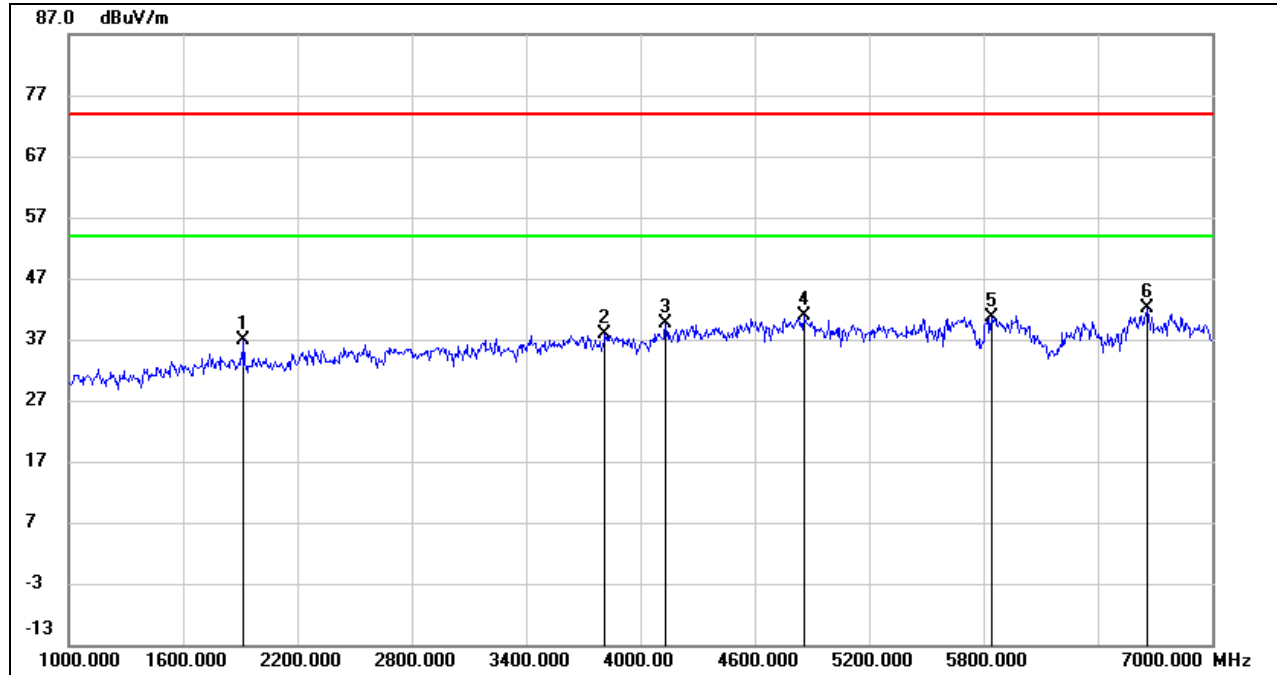
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

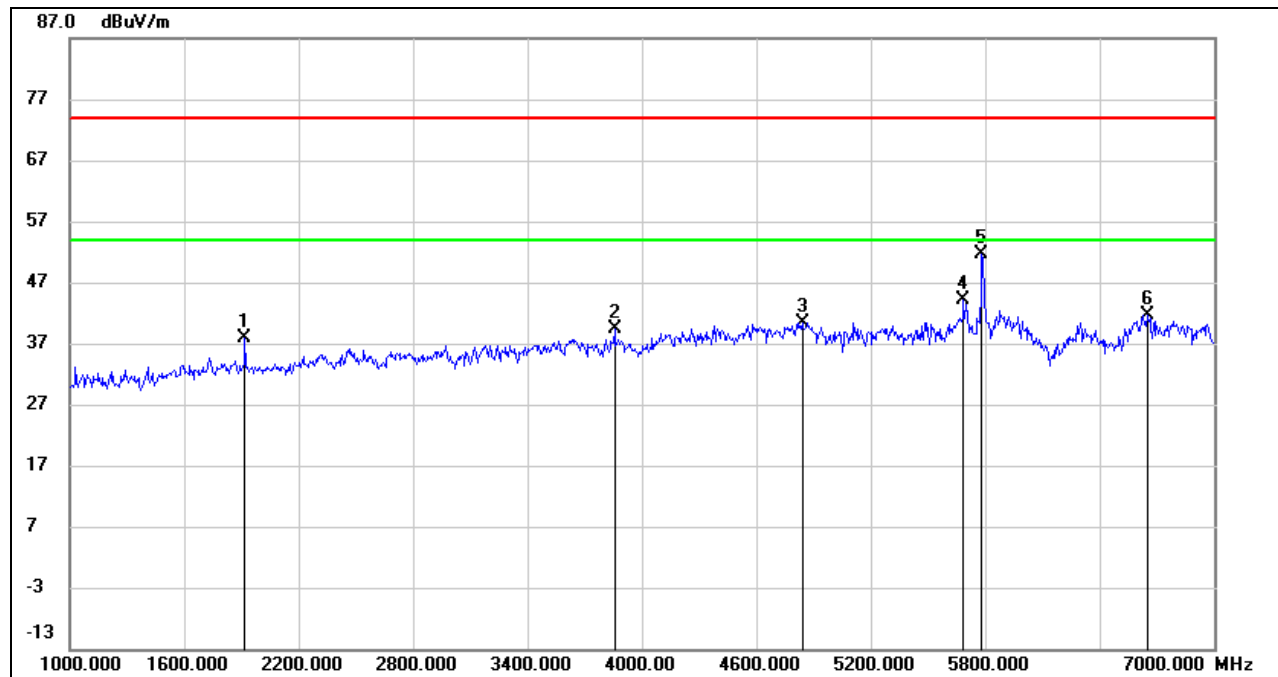


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	47.78	-11.02	36.76	74.00	-37.24	peak
2	3814.000	42.27	-4.38	37.89	74.00	-36.11	peak
3	4135.000	42.92	-3.38	39.54	74.00	-34.46	peak
4	4861.000	41.38	-0.60	40.78	74.00	-33.22	peak
5	5845.000	39.07	1.62	40.69	74.00	-33.31	peak
6	6658.000	37.59	4.51	42.10	74.00	-31.90	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. 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 Band reject filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



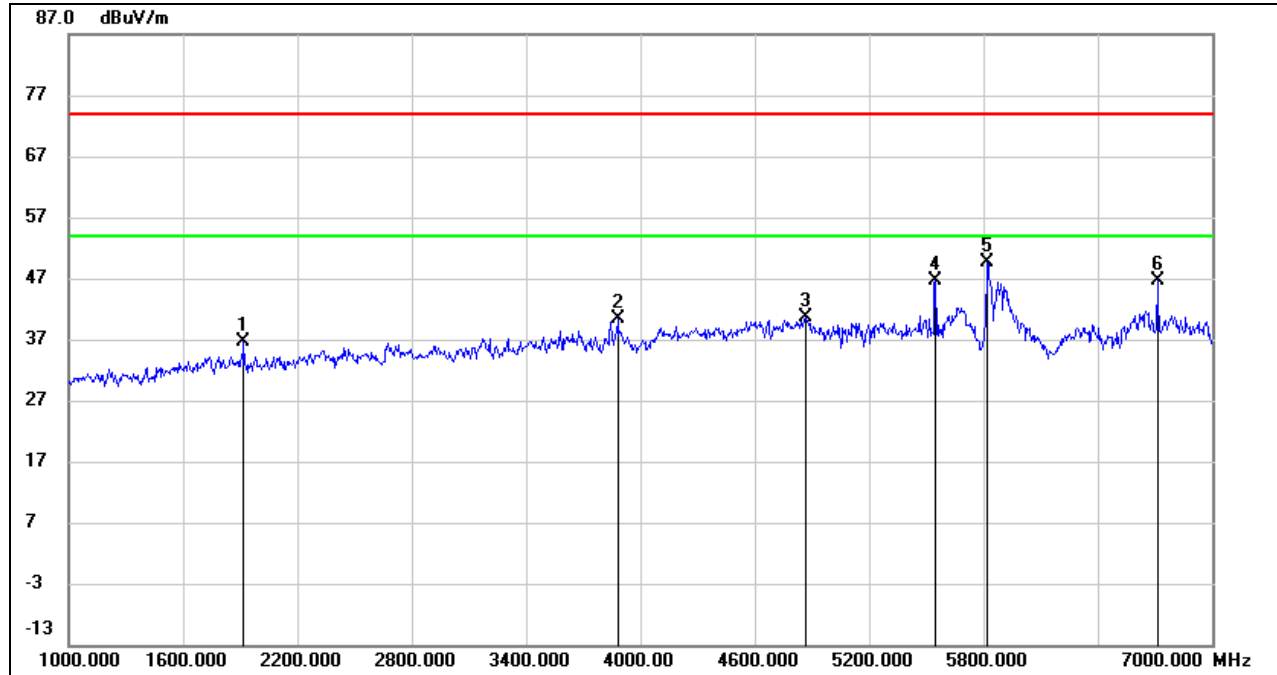
### HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1918.000	48.87	-11.02	37.85	74.00	-36.15	peak
2	3856.000	43.83	-4.46	39.37	74.00	-34.63	peak
3	4843.000	41.10	-0.62	40.48	74.00	-33.52	peak
4	5686.000	42.76	1.44	44.20	74.00	-29.80	peak
5	5782.000	50.23	1.44	51.67	74.00	-22.33	peak
6	6655.000	37.22	4.52	41.74	74.00	-32.26	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 Band reject filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	47.62	-11.02	36.60	74.00	-37.40	peak
2	3883.000	44.91	-4.50	40.41	74.00	-33.59	peak
3	4864.000	41.28	-0.60	40.68	74.00	-33.32	peak
4	5551.000	45.27	1.30	46.57	74.00	-27.43	peak
5	5825.000	48.14	1.55	49.69	74.00	-24.31	peak
6	6715.000	42.02	4.54	46.56	74.00	-27.44	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.

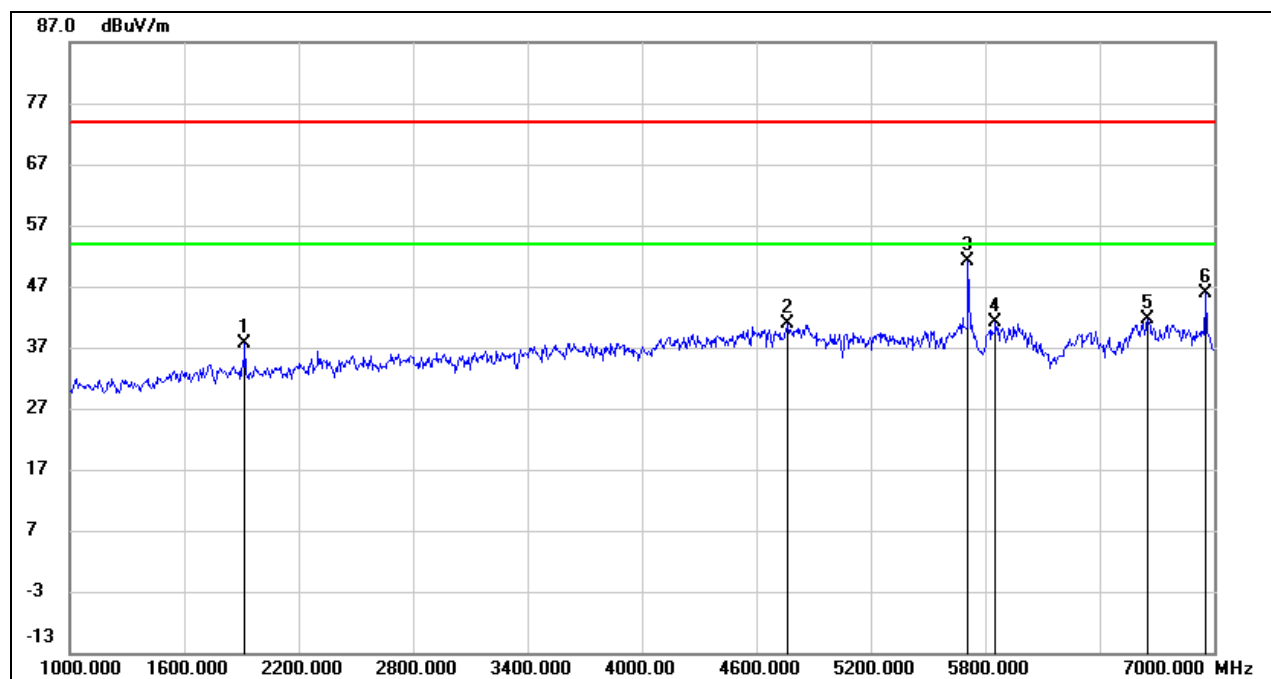
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	48.74	-11.02	37.72	74.00	-36.28	peak
2	4762.000	41.69	-0.83	40.86	74.00	-33.14	peak
3	5713.000	49.59	1.44	51.03	74.00	-22.97	peak
4	5857.000	39.46	1.67	41.13	74.00	-32.87	peak
5	6652.000	37.10	4.52	41.62	74.00	-32.38	peak
6	6958.000	40.93	5.01	45.94	74.00	-28.06	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 Band reject filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

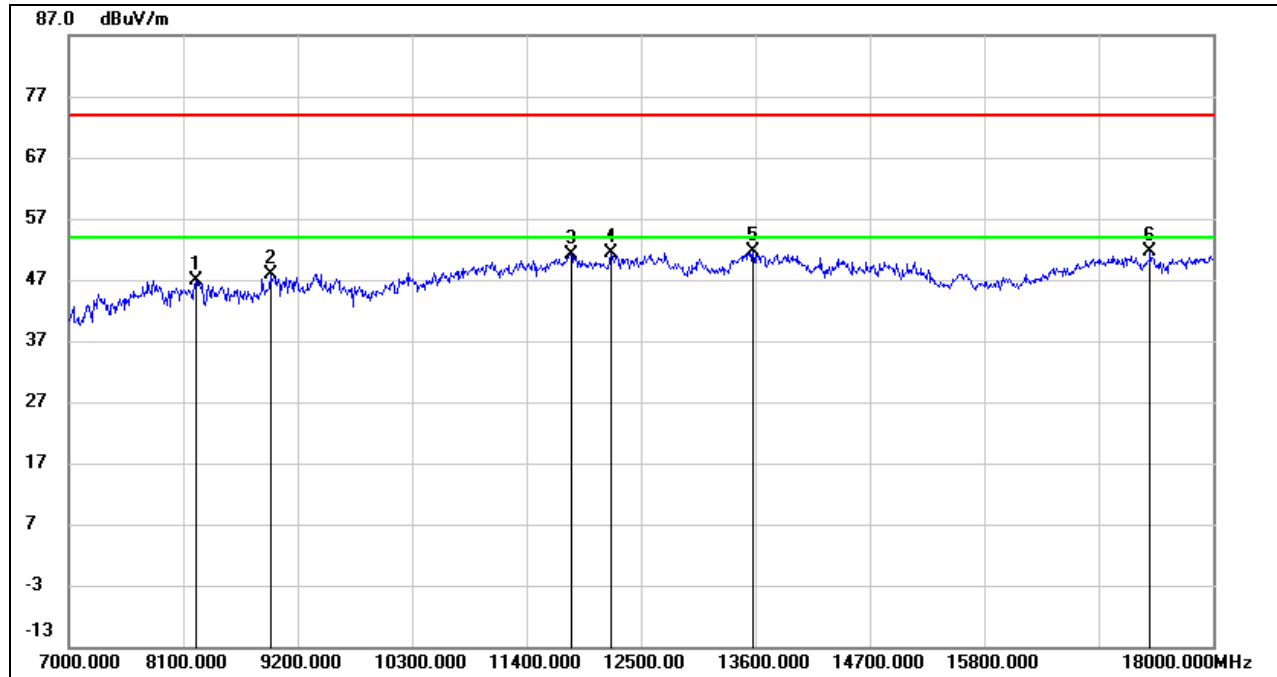
Note: All the channels and modes had been tested, but only the worst data was recorded in the report.

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

#### 8.3.1. 802.11a SISO MODE

##### 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	8221.000	38.29	8.63	46.92	74.00	-27.08	peak
2	8936.000	38.55	9.43	47.98	74.00	-26.02	peak
3	11829.000	33.85	17.30	51.15	74.00	-22.85	peak
4	12214.000	34.78	16.66	51.44	74.00	-22.56	peak
5	13578.000	33.31	18.38	51.69	74.00	-22.31	peak
6	17400.500	31.75	19.83	51.58	74.00	-22.42	peak

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

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

3. Peak: Peak detector.

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

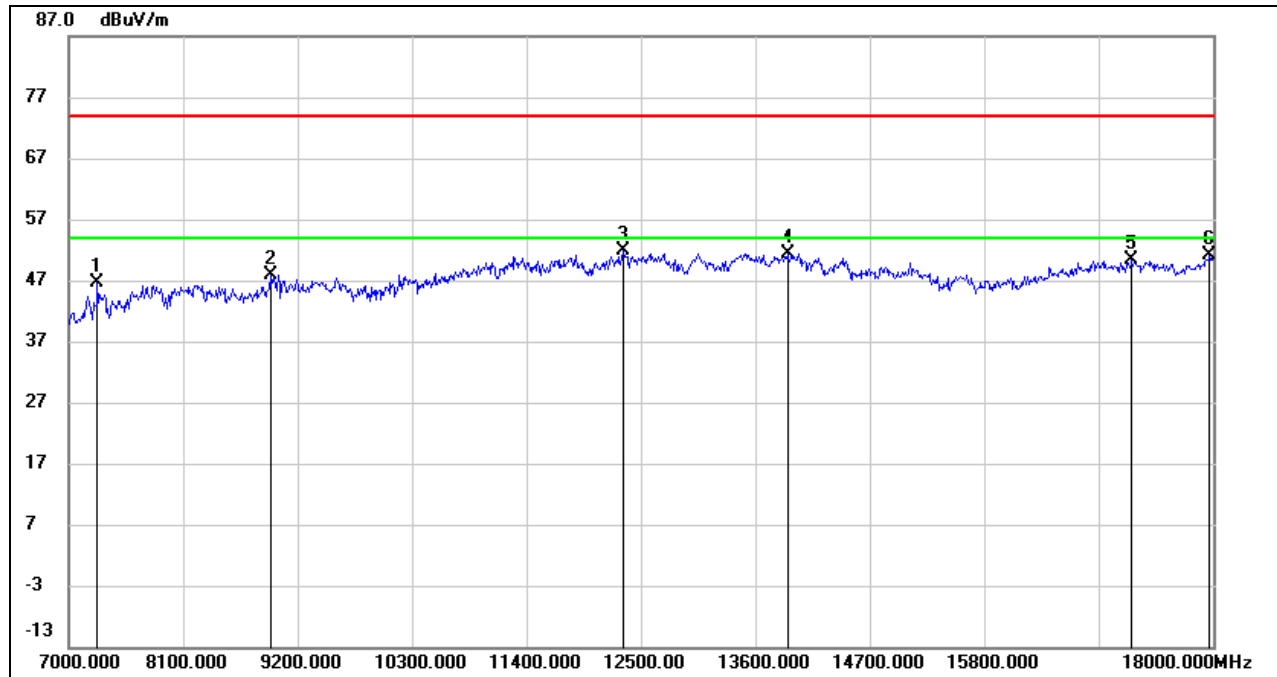
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	7275.000	40.28	6.42	46.70	74.00	-27.30	peak
2	8941.500	38.41	9.49	47.90	74.00	-26.10	peak
3	12340.500	35.18	16.82	52.00	74.00	-22.00	peak
4	13913.500	32.69	18.65	51.34	74.00	-22.66	peak
5	17224.500	30.58	19.75	50.33	74.00	-23.67	peak
6	17972.500	27.74	23.30	51.04	74.00	-22.96	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.

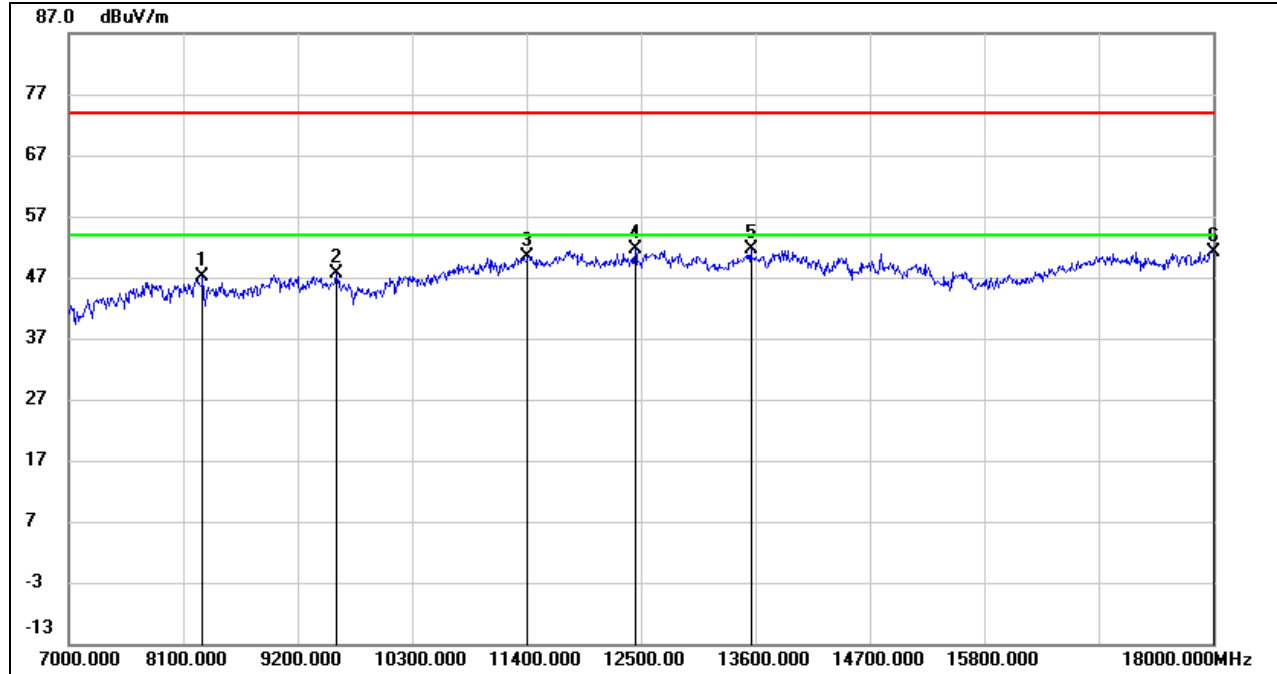
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8287.000	38.65	8.37	47.02	74.00	-26.98	peak
2	9574.000	37.14	10.46	47.60	74.00	-26.40	peak
3	11411.000	34.61	15.87	50.48	74.00	-23.52	peak
4	12450.500	34.79	16.78	51.57	74.00	-22.43	peak
5	13561.500	33.16	18.39	51.55	74.00	-22.45	peak
6	18000.000	27.78	23.37	51.15	74.00	-22.85	peak

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

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

3. Peak: Peak detector.

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

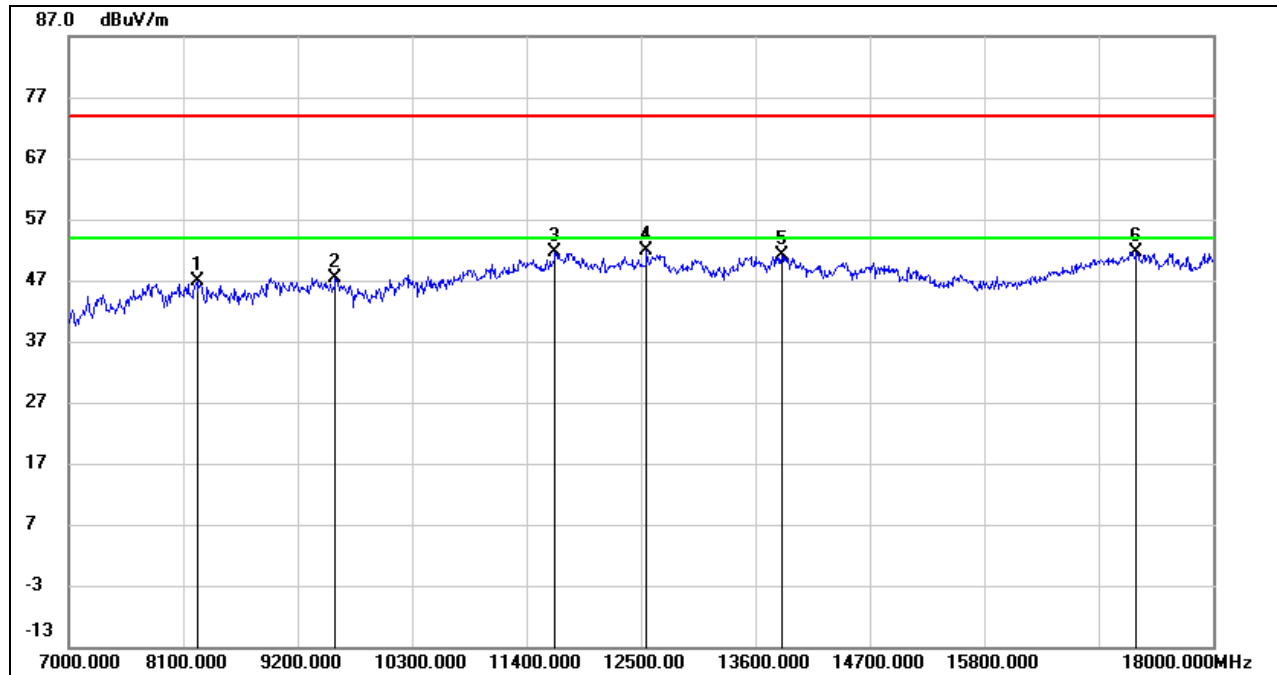
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8237.500	38.32	8.56	46.88	74.00	-27.12	peak
2	9568.500	37.02	10.46	47.48	74.00	-26.52	peak
3	11680.500	34.88	16.72	51.60	74.00	-22.40	peak
4	12555.000	35.25	16.65	51.90	74.00	-22.10	peak
5	13858.500	32.39	18.71	51.10	74.00	-22.90	peak
6	17268.500	31.86	19.78	51.64	74.00	-22.36	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.

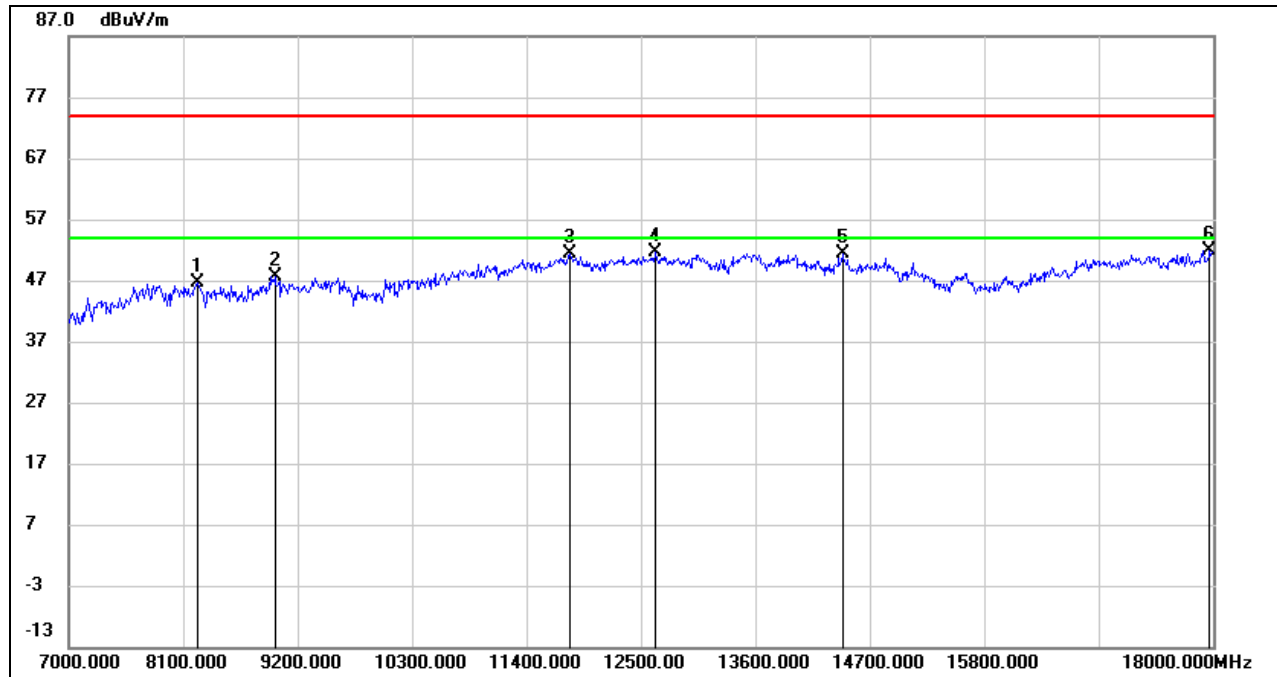
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8232.000	38.06	8.59	46.65	74.00	-27.35	peak
2	8985.500	37.56	9.97	47.53	74.00	-26.47	peak
3	11823.500	34.09	17.32	51.41	74.00	-22.59	peak
4	12648.500	34.79	16.74	51.53	74.00	-22.47	peak
5	14436.000	34.02	17.27	51.29	74.00	-22.71	peak
6	17972.500	28.61	23.30	51.91	74.00	-22.09	peak

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

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

3. Peak: Peak detector.

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

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

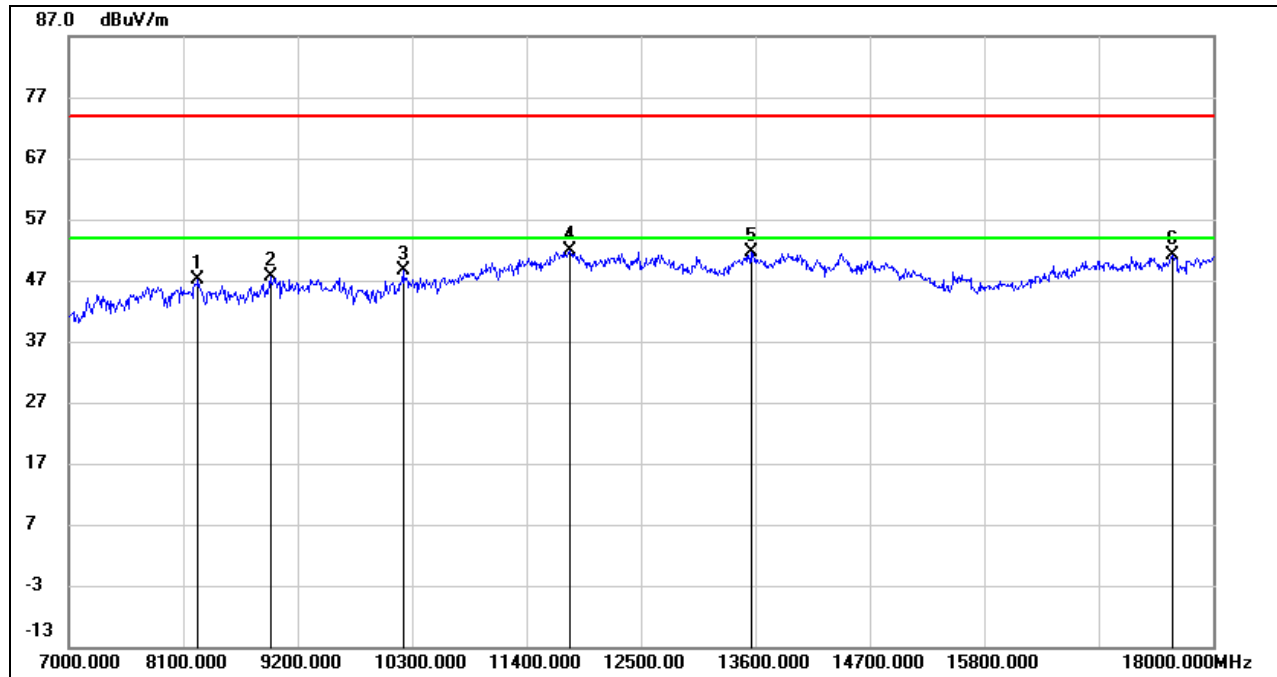
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

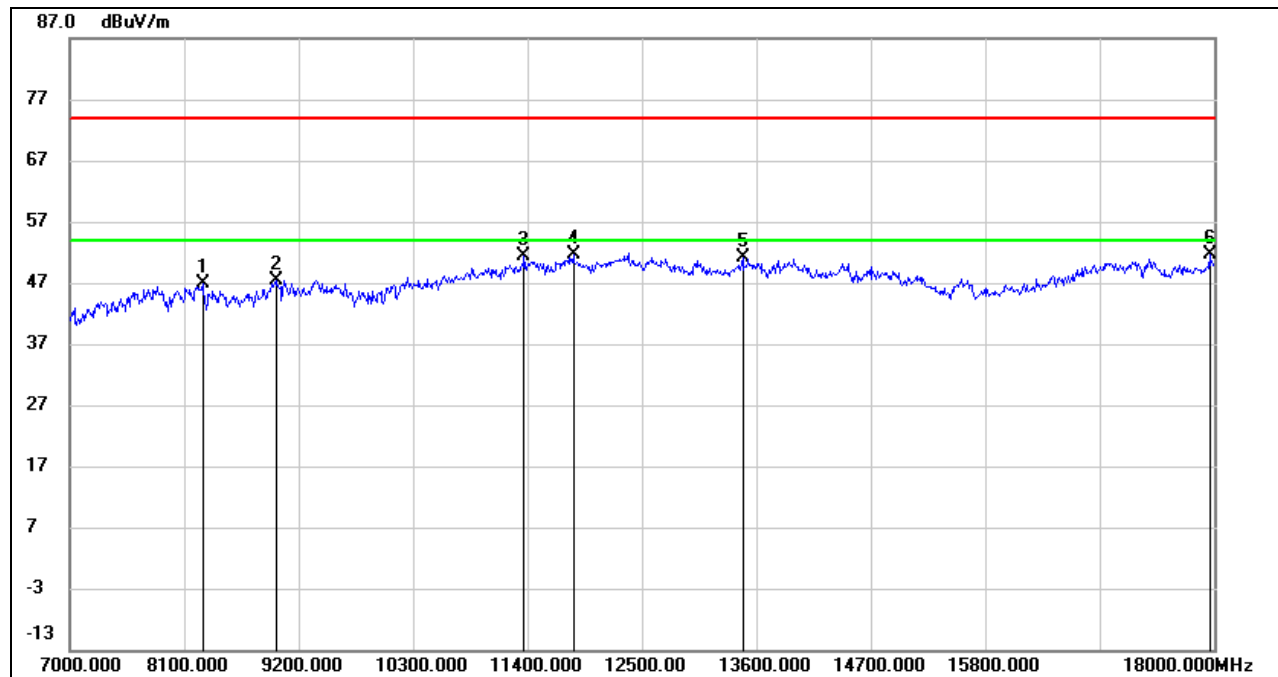


### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



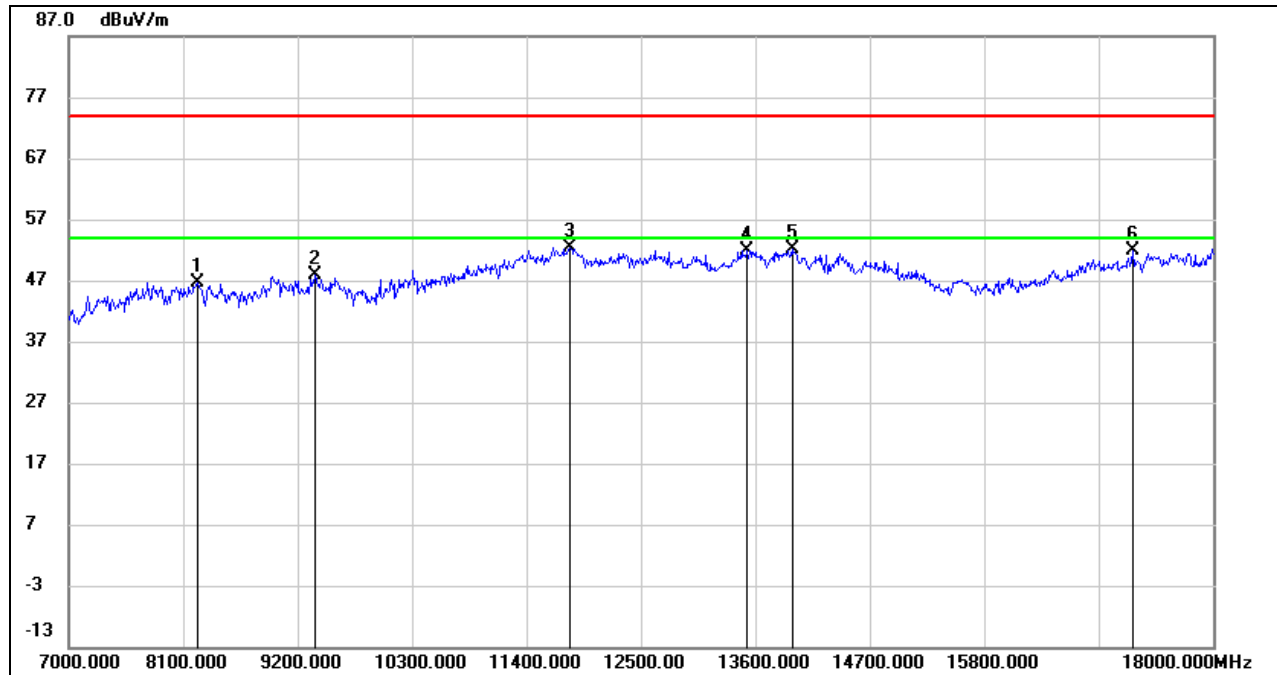
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8243.000	38.55	8.54	47.09	74.00	-26.91	peak
2	8936.000	38.10	9.43	47.53	74.00	-26.47	peak
3	10217.500	37.23	11.36	48.59	74.00	-25.41	peak
4	11818.000	34.56	17.31	51.87	74.00	-22.13	peak
5	13556.000	33.12	18.39	51.51	74.00	-22.49	peak
6	17609.500	30.39	20.85	51.24	74.00	-22.76	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8281.500	38.37	8.39	46.76	74.00	-27.24	peak
2	8996.500	37.32	10.10	47.42	74.00	-26.58	peak
3	11372.500	35.57	15.71	51.28	74.00	-22.72	peak
4	11840.000	34.24	17.29	51.53	74.00	-22.47	peak
5	13468.000	32.89	18.35	51.24	74.00	-22.76	peak
6	17956.000	28.29	23.26	51.55	74.00	-22.45	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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8243.000	38.10	8.54	46.64	74.00	-27.36	peak
2	9365.000	37.86	9.92	47.78	74.00	-26.22	peak
3	11823.500	35.00	17.32	52.32	74.00	-21.68	peak
4	13528.500	33.55	18.40	51.95	74.00	-22.05	peak
5	13952.000	33.46	18.61	52.07	74.00	-21.93	peak
6	17235.500	32.24	19.75	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

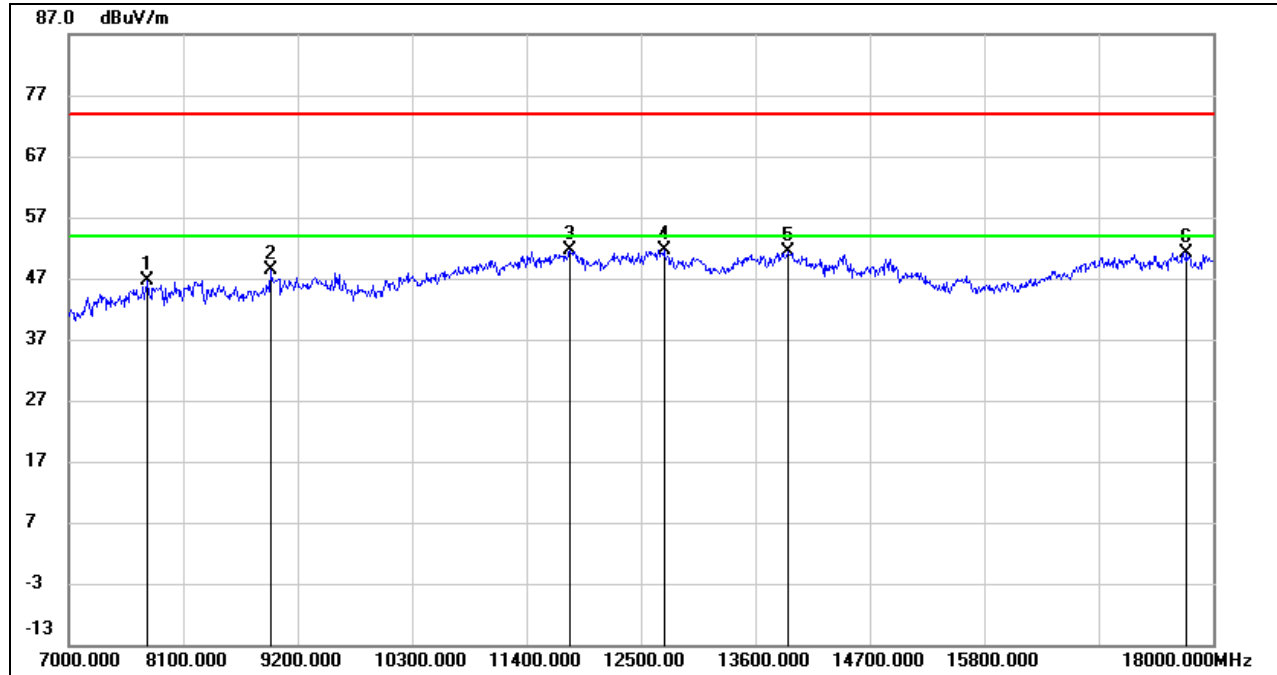
5. For the transmitting duration, please refer to clause 7.1.

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.

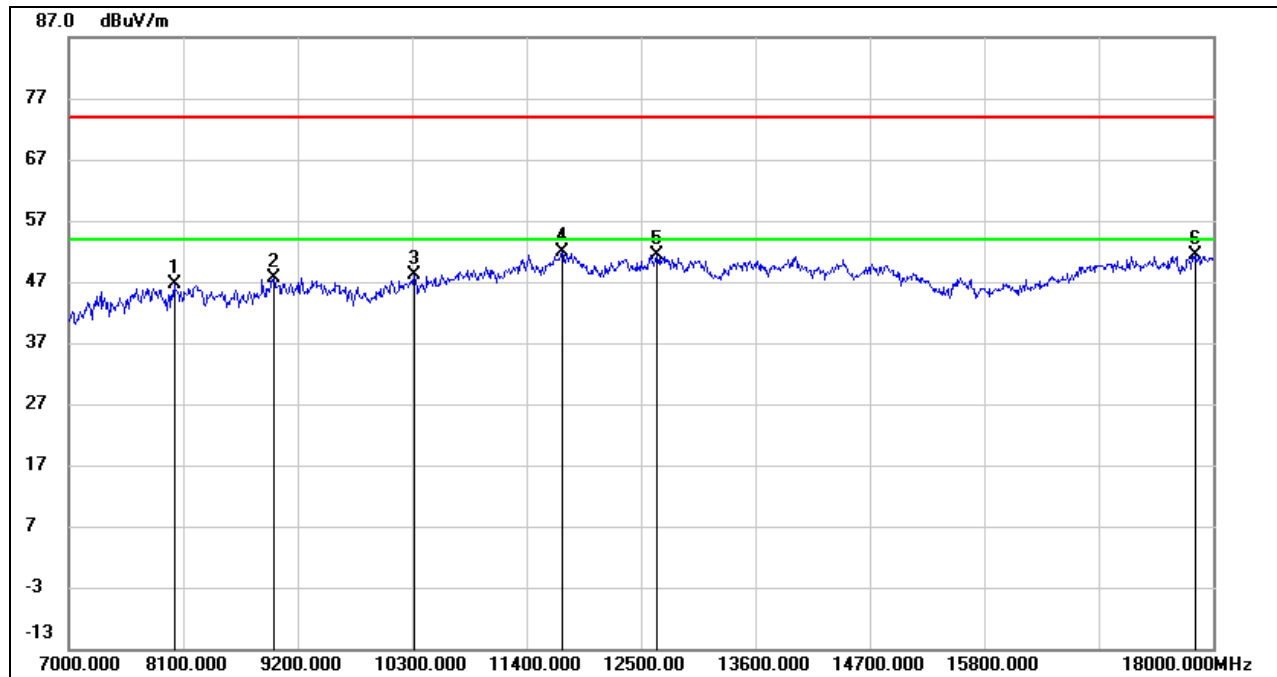
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	7759.000	39.08	7.45	46.53	74.00	-27.47	peak
2	8941.500	38.78	9.49	48.27	74.00	-25.73	peak
3	11818.000	34.26	17.31	51.57	74.00	-22.43	peak
4	12720.000	34.73	16.89	51.62	74.00	-22.38	peak
5	13924.500	32.81	18.64	51.45	74.00	-22.55	peak
6	17747.000	28.92	22.30	51.22	74.00	-22.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8017.500	39.38	7.20	46.58	74.00	-27.42	peak
2	8969.000	37.86	9.79	47.65	74.00	-26.35	peak
3	10327.500	36.45	11.72	48.17	74.00	-25.83	peak
4	11741.000	34.90	17.03	51.93	74.00	-22.07	peak
5	12654.000	34.74	16.74	51.48	74.00	-22.52	peak
6	17829.500	28.47	22.94	51.41	74.00	-22.59	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.

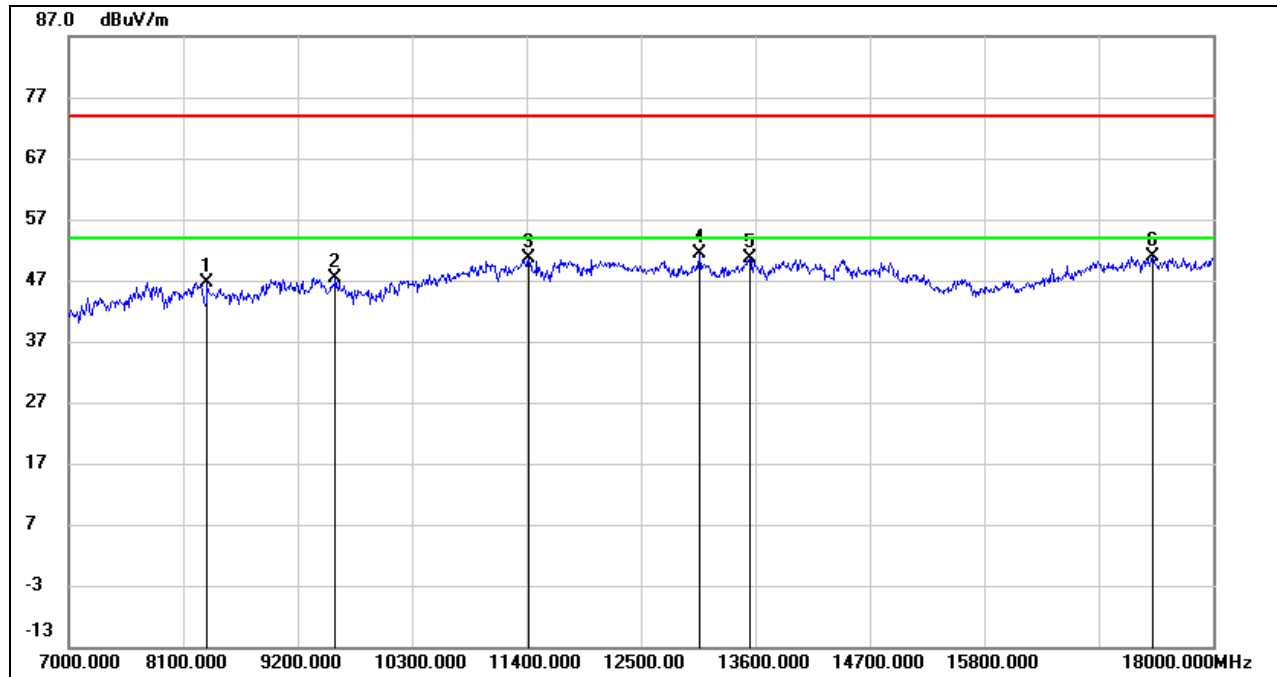
5. For the transmitting duration, please refer to clause 7.1.

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.

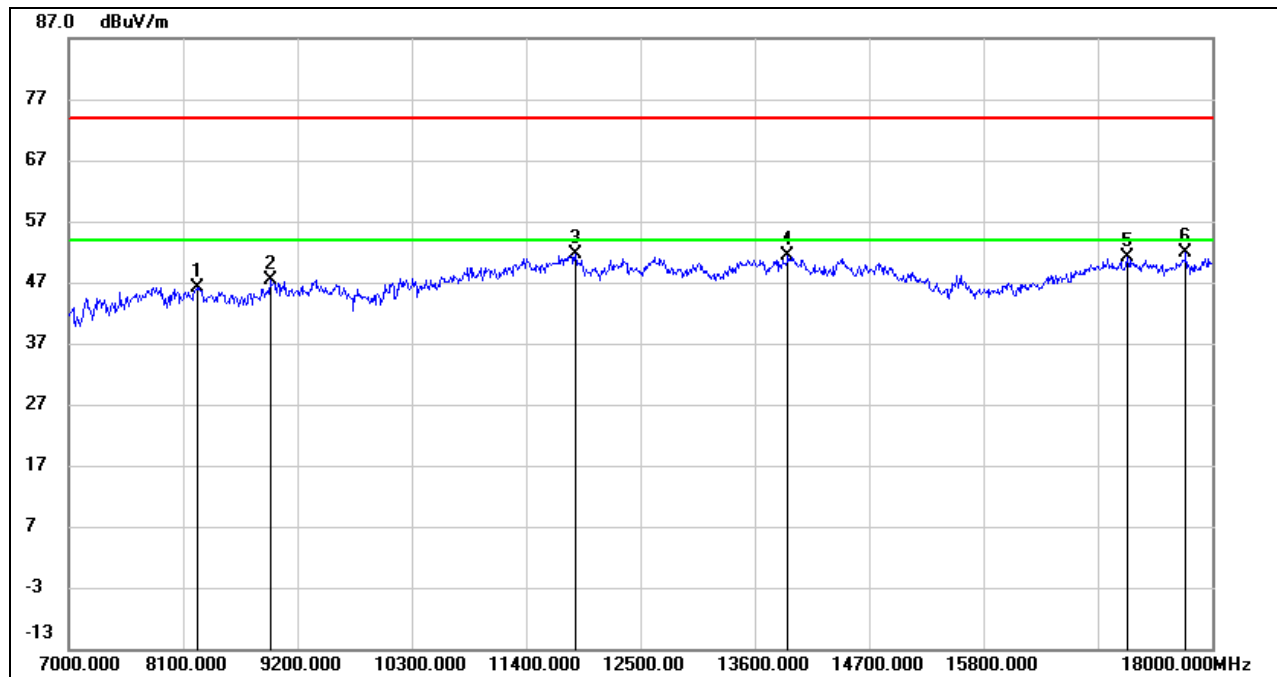
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8336.500	38.51	8.17	46.68	74.00	-27.32	peak
2	9568.500	36.92	10.46	47.38	74.00	-26.62	peak
3	11427.500	34.69	15.92	50.61	74.00	-23.39	peak
4	13066.500	34.26	17.05	51.31	74.00	-22.69	peak
5	13550.500	32.27	18.39	50.66	74.00	-23.34	peak
6	17417.000	31.11	19.88	50.99	74.00	-23.01	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

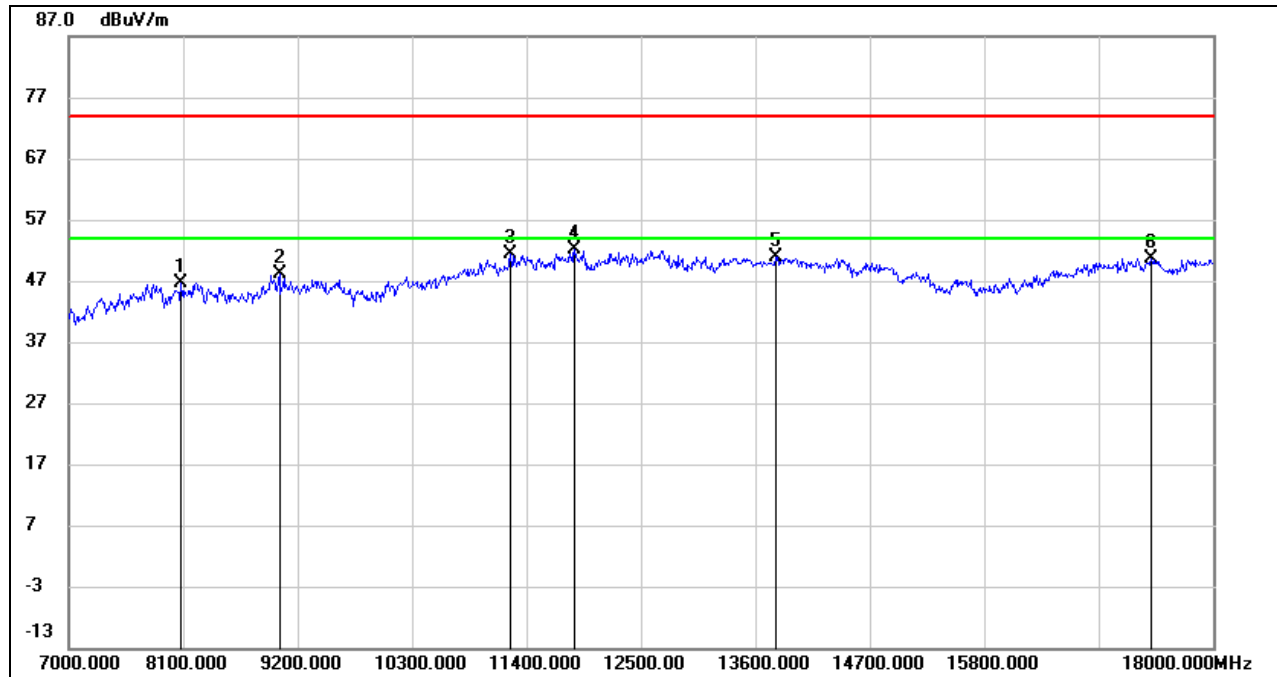
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8243.000	37.67	8.54	46.21	74.00	-27.79	peak
2	8936.000	38.05	9.43	47.48	74.00	-26.52	peak
3	11873.000	34.35	17.23	51.58	74.00	-22.42	peak
4	13924.500	32.85	18.64	51.49	74.00	-22.51	peak
5	17186.000	31.52	19.65	51.17	74.00	-22.83	peak
6	17752.500	29.63	22.37	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8083.500	38.98	7.76	46.74	74.00	-27.26	peak
2	9029.500	38.06	9.96	48.02	74.00	-25.98	peak
3	11251.500	36.17	15.13	51.30	74.00	-22.70	peak
4	11862.000	34.80	17.25	52.05	74.00	-21.95	peak
5	13803.500	32.16	18.78	50.94	74.00	-23.06	peak
6	17406.000	30.83	19.85	50.68	74.00	-23.32	peak

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

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

3. Peak: Peak detector.

4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.

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

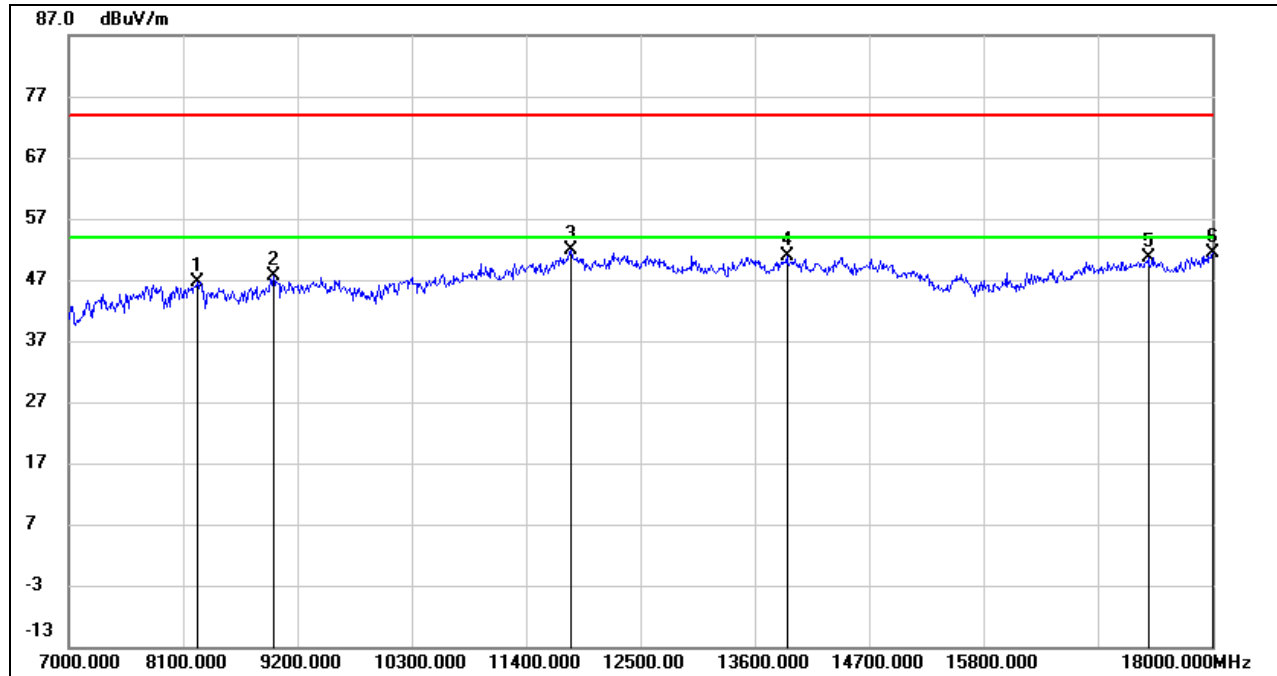
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



### 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	8243.000	38.21	8.54	46.75	74.00	-27.25	peak
2	8969.000	37.86	9.79	47.65	74.00	-26.35	peak
3	11829.000	34.47	17.30	51.77	74.00	-22.23	peak
4	13913.500	32.11	18.65	50.76	74.00	-23.24	peak
5	17384.000	30.86	19.83	50.69	74.00	-23.31	peak
6	18000.000	28.13	23.37	51.50	74.00	-22.50	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.

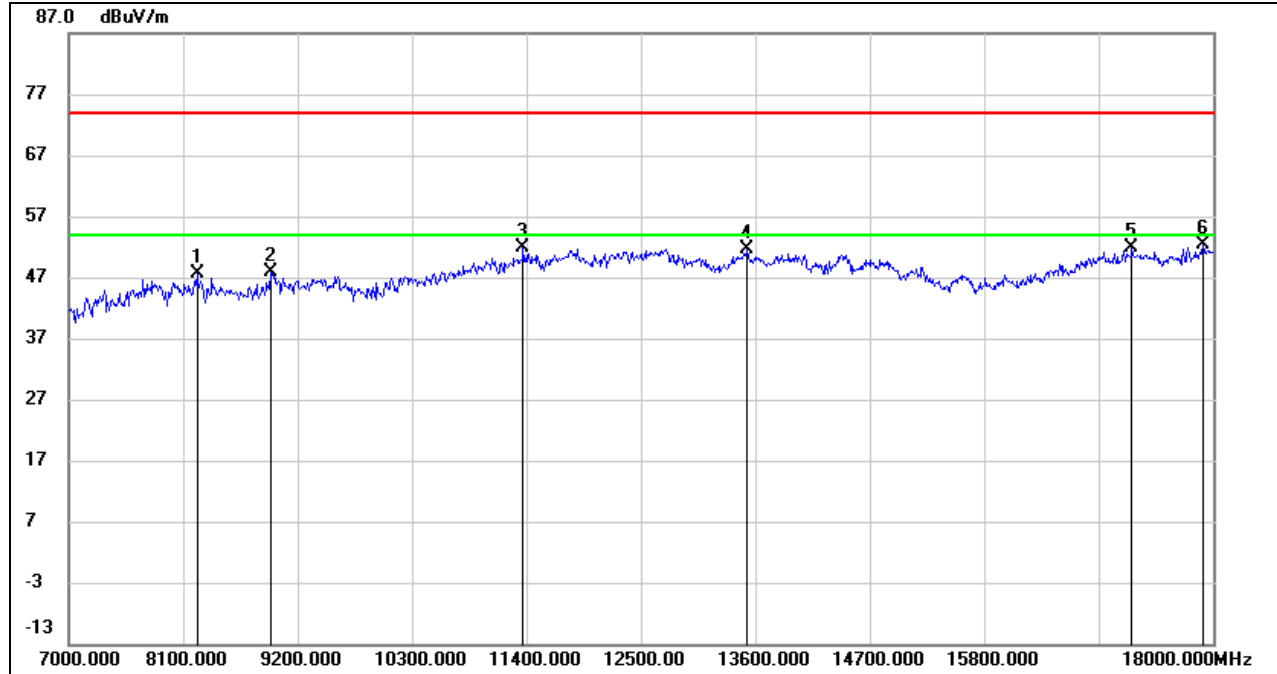
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8237.500	38.99	8.56	47.55	74.00	-26.45	peak
2	8941.500	38.29	9.49	47.78	74.00	-26.22	peak
3	11372.500	36.25	15.71	51.96	74.00	-22.04	peak
4	13528.500	33.16	18.40	51.56	74.00	-22.44	peak
5	17224.500	32.02	19.75	51.77	74.00	-22.23	peak
6	17906.500	29.34	23.13	52.47	74.00	-21.53	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

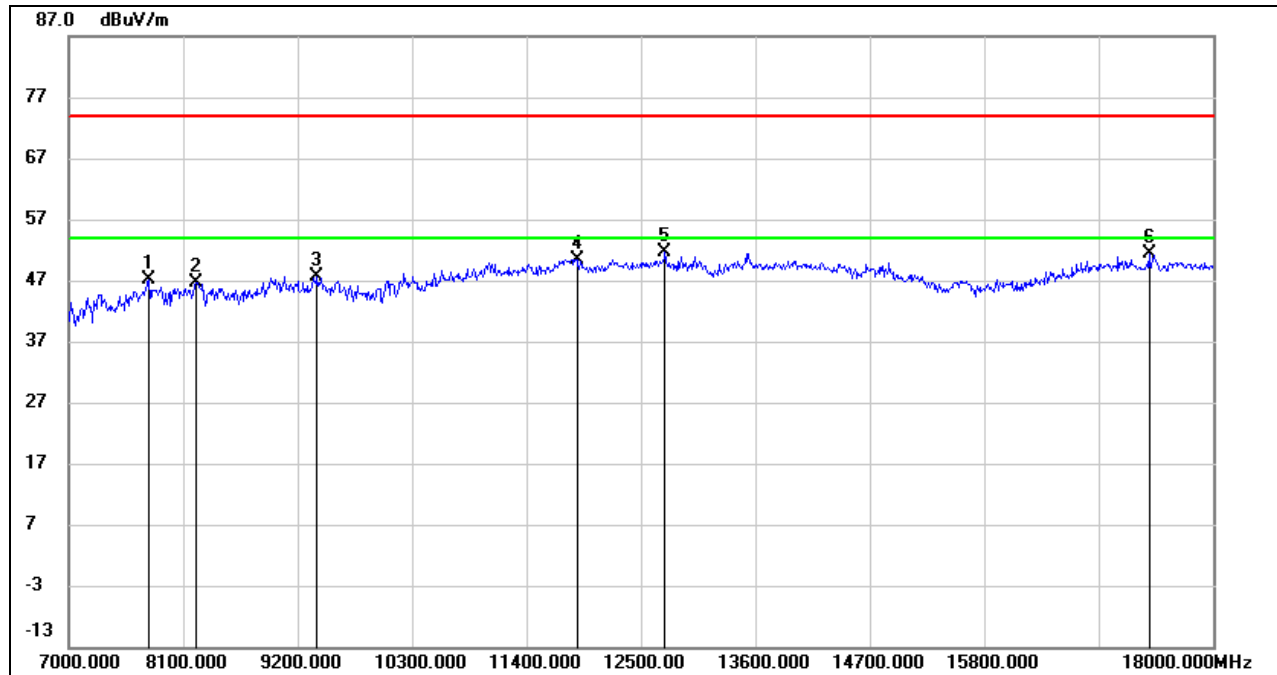
5. For the transmitting duration, please refer to clause 7.1.

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.

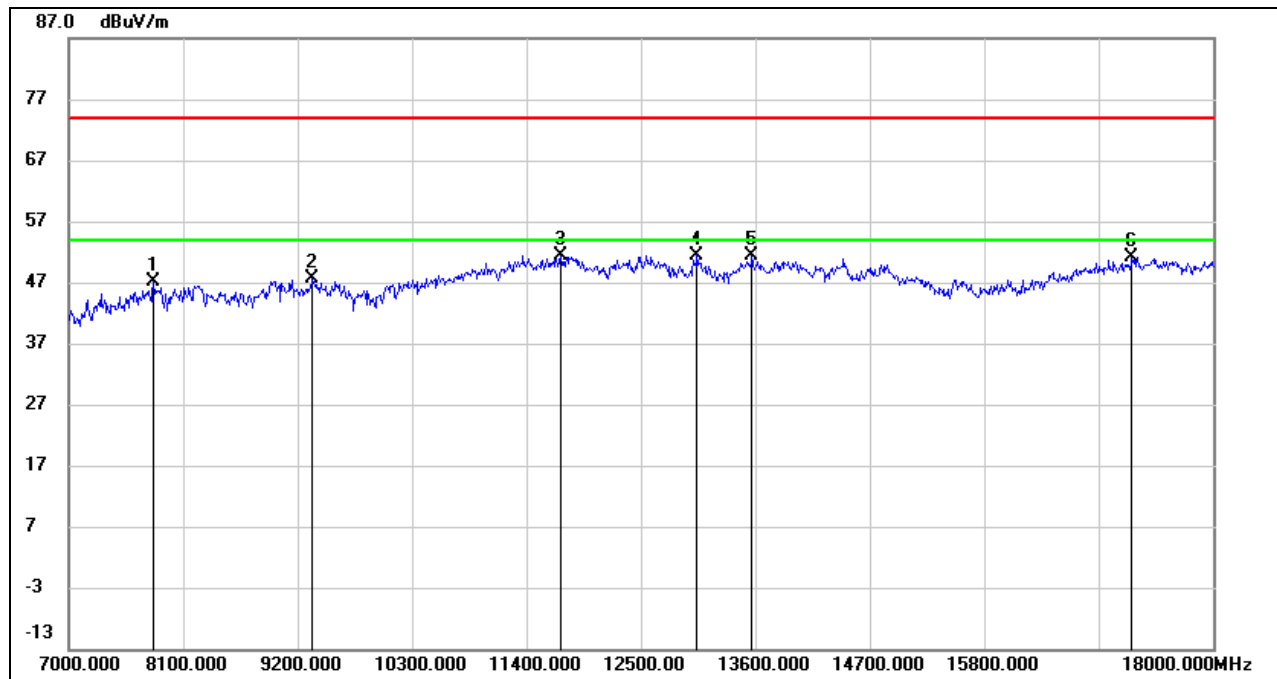
8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	7770.000	39.68	7.49	47.17	74.00	-26.83	peak
2	8226.500	38.06	8.61	46.67	74.00	-27.33	peak
3	9392.500	37.49	10.09	47.58	74.00	-26.42	peak
4	11884.000	33.26	17.22	50.48	74.00	-23.52	peak
5	12731.000	34.62	16.93	51.55	74.00	-22.45	peak
6	17384.000	31.62	19.83	51.45	74.00	-22.55	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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	7814.000	39.58	7.57	47.15	74.00	-26.85	peak
2	9343.000	37.79	9.80	47.59	74.00	-26.41	peak
3	11735.500	34.34	17.01	51.35	74.00	-22.65	peak
4	13044.500	34.50	17.00	51.50	74.00	-22.50	peak
5	13567.000	33.12	18.38	51.50	74.00	-22.50	peak
6	17219.000	31.41	19.74	51.15	74.00	-22.85	peak

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

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

3. Peak: Peak detector.

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

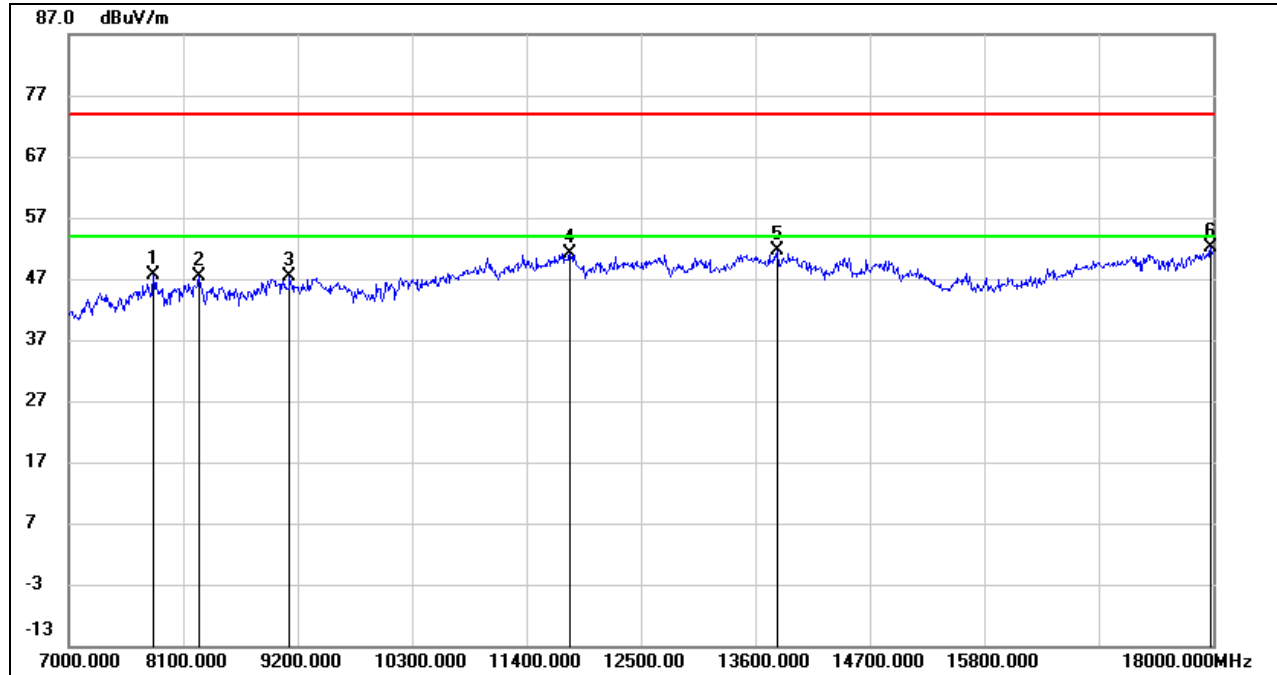
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

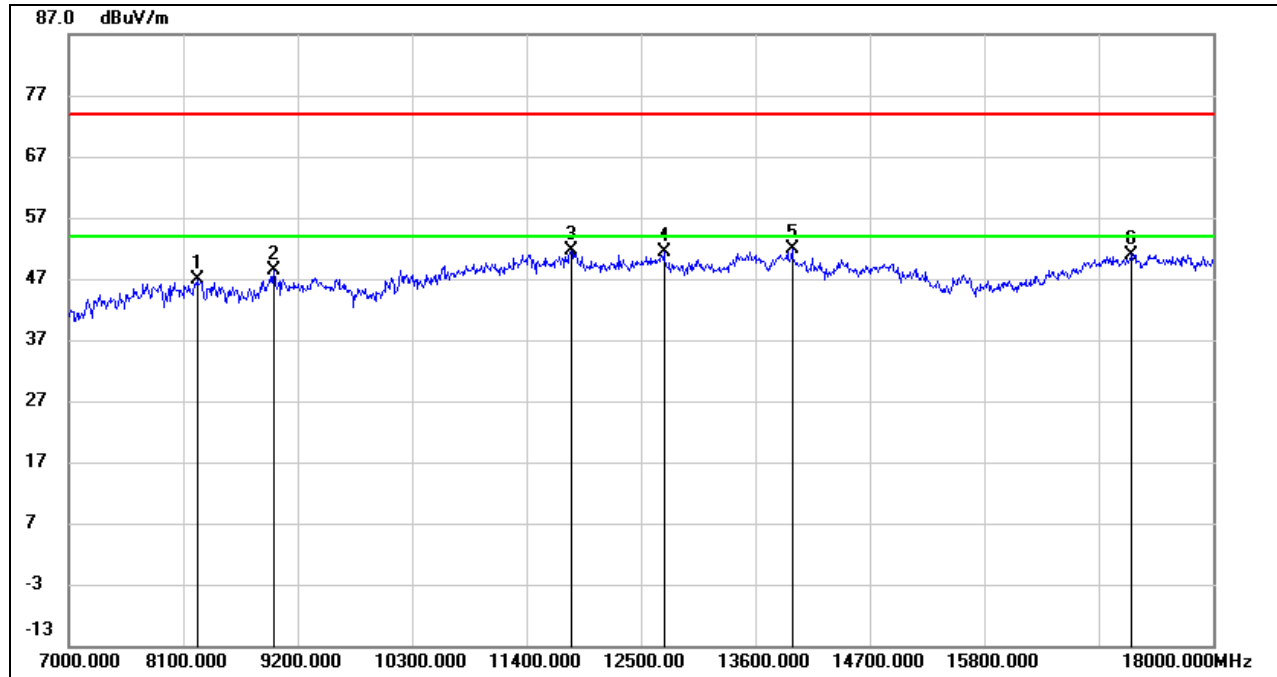


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7814.000	40.05	7.57	47.62	74.00	-26.38	peak
2	8259.500	38.88	8.48	47.36	74.00	-26.64	peak
3	9128.500	37.93	9.37	47.30	74.00	-26.70	peak
4	11818.000	33.71	17.31	51.02	74.00	-22.98	peak
5	13809.000	32.79	18.77	51.56	74.00	-22.44	peak
6	17983.500	28.80	23.33	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

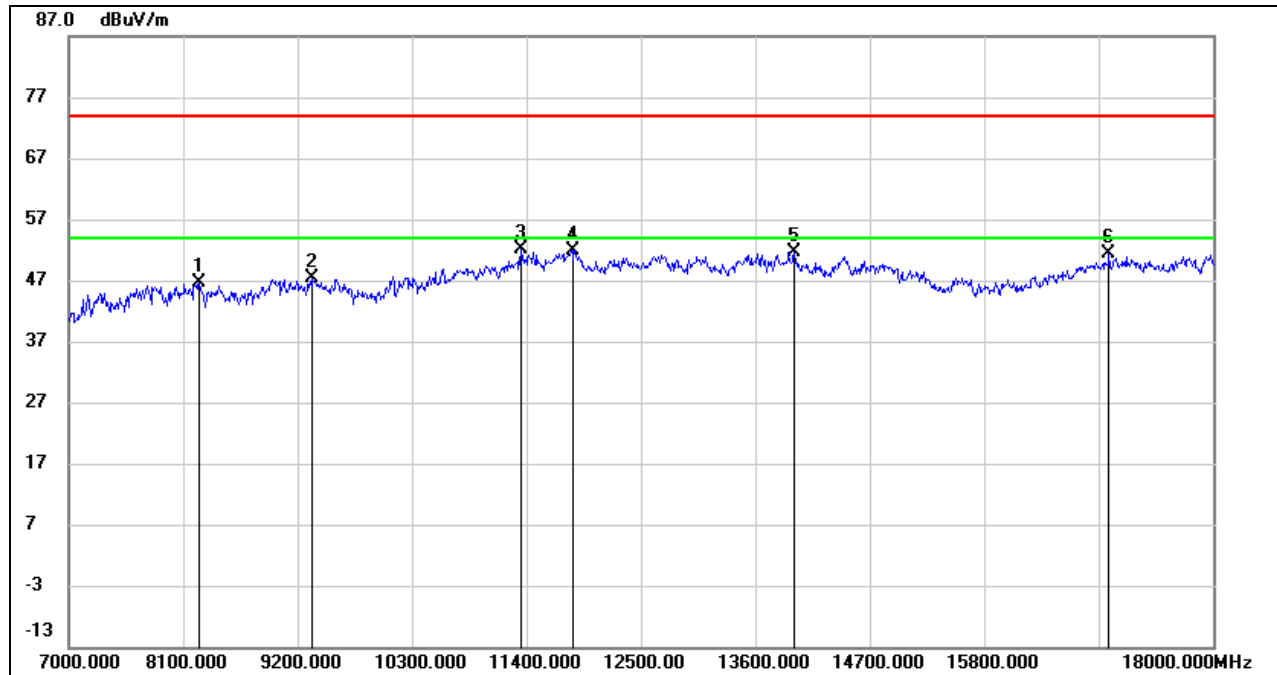
## UNII-3 BAND

### 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	8237.500	38.43	8.56	46.99	74.00	-27.01	peak
2	8974.500	38.43	9.85	48.28	74.00	-25.72	peak
3	11829.000	34.35	17.30	51.65	74.00	-22.35	peak
4	12725.500	34.54	16.91	51.45	74.00	-22.55	peak
5	13952.000	33.16	18.61	51.77	74.00	-22.23	peak
6	17219.000	31.26	19.74	51.00	74.00	-23.00	peak

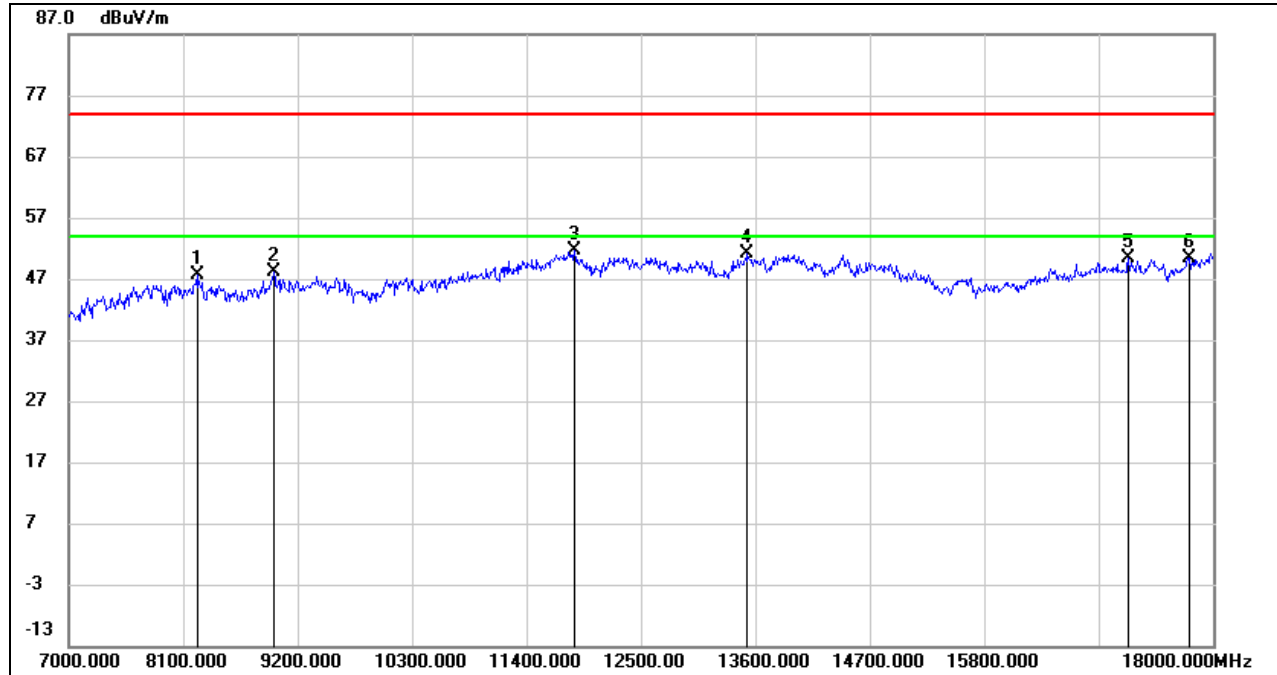
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8259.500	38.27	8.48	46.75	74.00	-27.25	peak
2	9348.500	37.45	9.83	47.28	74.00	-26.72	peak
3	11350.500	36.48	15.60	52.08	74.00	-21.92	peak
4	11840.000	34.65	17.29	51.94	74.00	-22.06	peak
5	13979.500	33.11	18.57	51.68	74.00	-22.32	peak
6	16999.000	32.95	18.53	51.48	74.00	-22.52	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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8237.500	39.18	8.56	47.74	74.00	-26.26	peak
2	8969.000	38.24	9.79	48.03	74.00	-25.97	peak
3	11867.500	34.43	17.24	51.67	74.00	-22.33	peak
4	13528.500	32.63	18.40	51.03	74.00	-22.97	peak
5	17191.500	30.79	19.69	50.48	74.00	-23.52	peak
6	17769.000	27.95	22.53	50.48	74.00	-23.52	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.

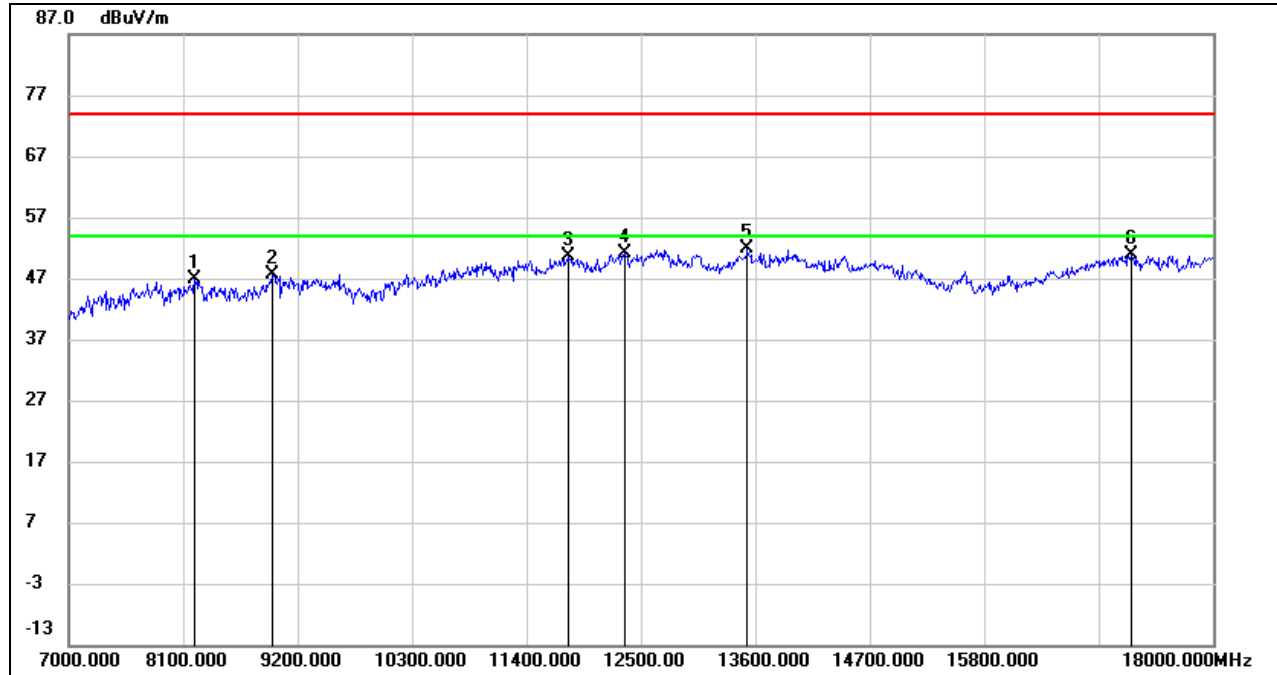
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



### 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	8215.500	38.31	8.65	46.96	74.00	-27.04	peak
2	8958.000	38.06	9.67	47.73	74.00	-26.27	peak
3	11796.000	33.20	17.33	50.53	74.00	-23.47	peak
4	12346.000	34.20	16.83	51.03	74.00	-22.97	peak
5	13523.000	33.48	18.41	51.89	74.00	-22.11	peak
6	17213.500	31.10	19.75	50.85	74.00	-23.15	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. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

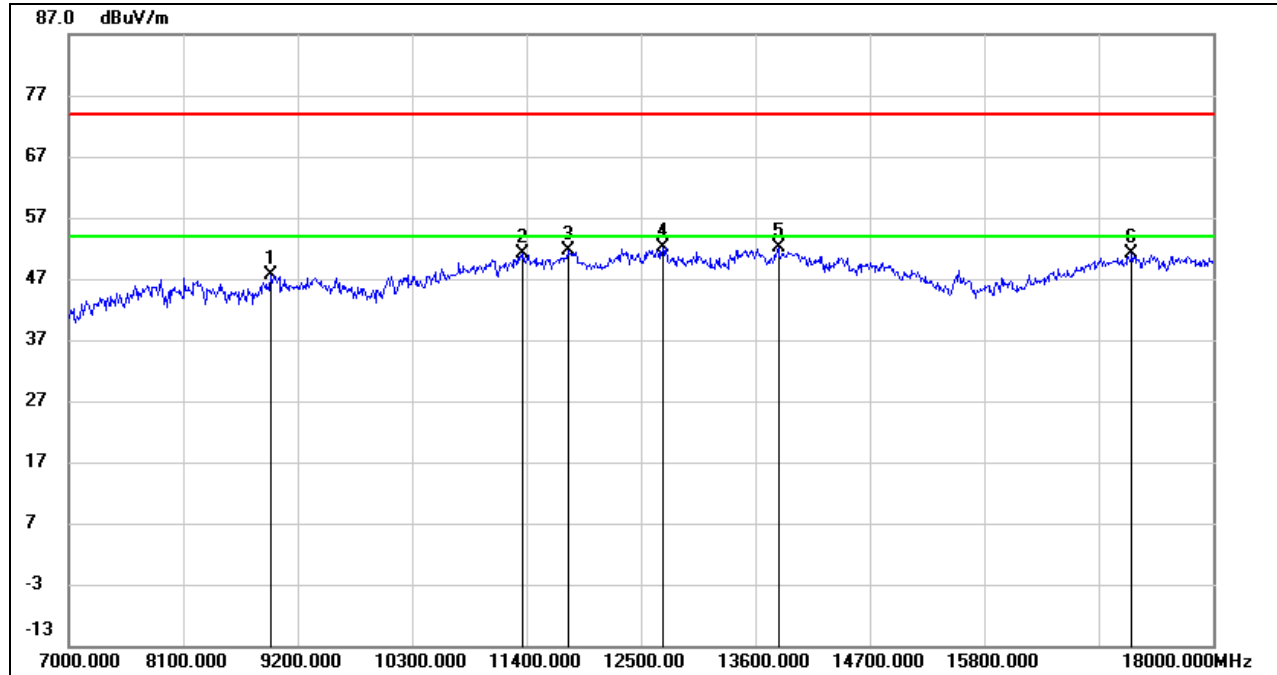
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	38.22	9.43	47.65	74.00	-26.35	peak
2	11372.500	35.47	15.71	51.18	74.00	-22.82	peak
3	11801.500	34.21	17.35	51.56	74.00	-22.44	peak
4	12714.500	35.36	16.88	52.24	74.00	-21.76	peak
5	13820.000	33.34	18.75	52.09	74.00	-21.91	peak
6	17224.500	31.48	19.75	51.23	74.00	-22.77	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

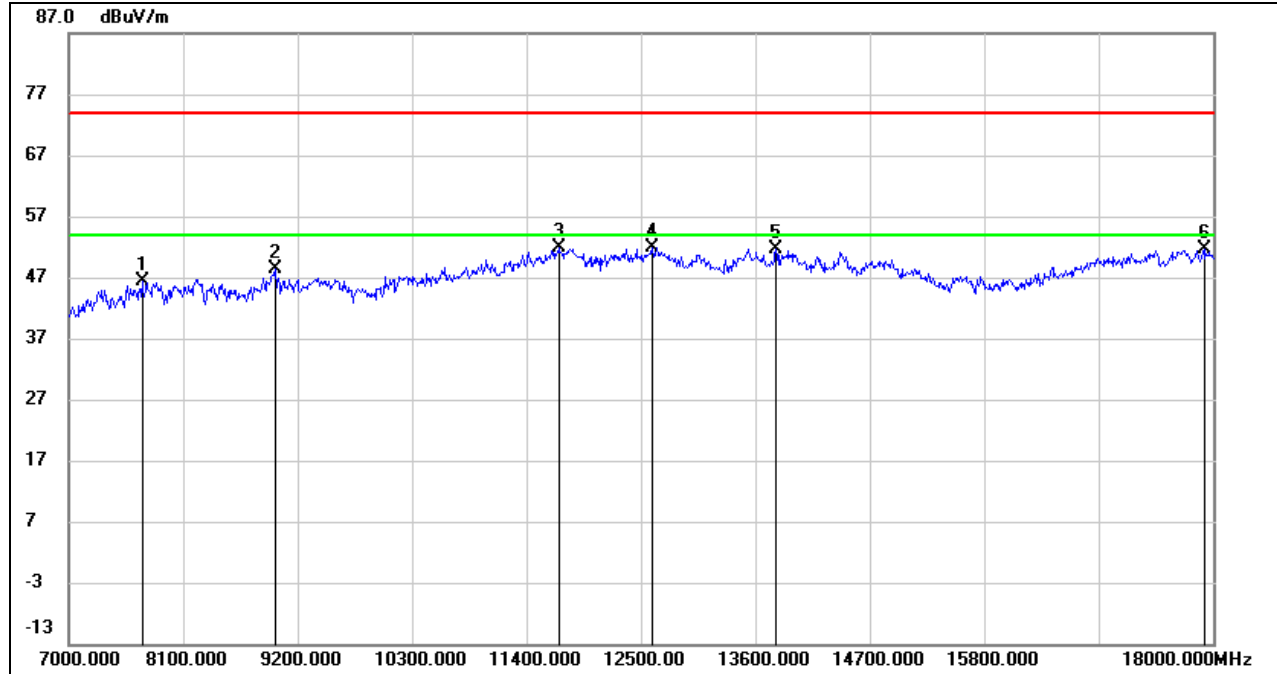
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	7709.500	39.04	7.25	46.29	74.00	-27.71	peak
2	8985.500	38.48	9.97	48.45	74.00	-25.55	peak
3	11708.000	35.05	16.87	51.92	74.00	-22.08	peak
4	12610.000	35.31	16.64	51.95	74.00	-22.05	peak
5	13798.000	32.90	18.78	51.68	74.00	-22.32	peak
6	17912.000	28.40	23.14	51.54	74.00	-22.46	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.

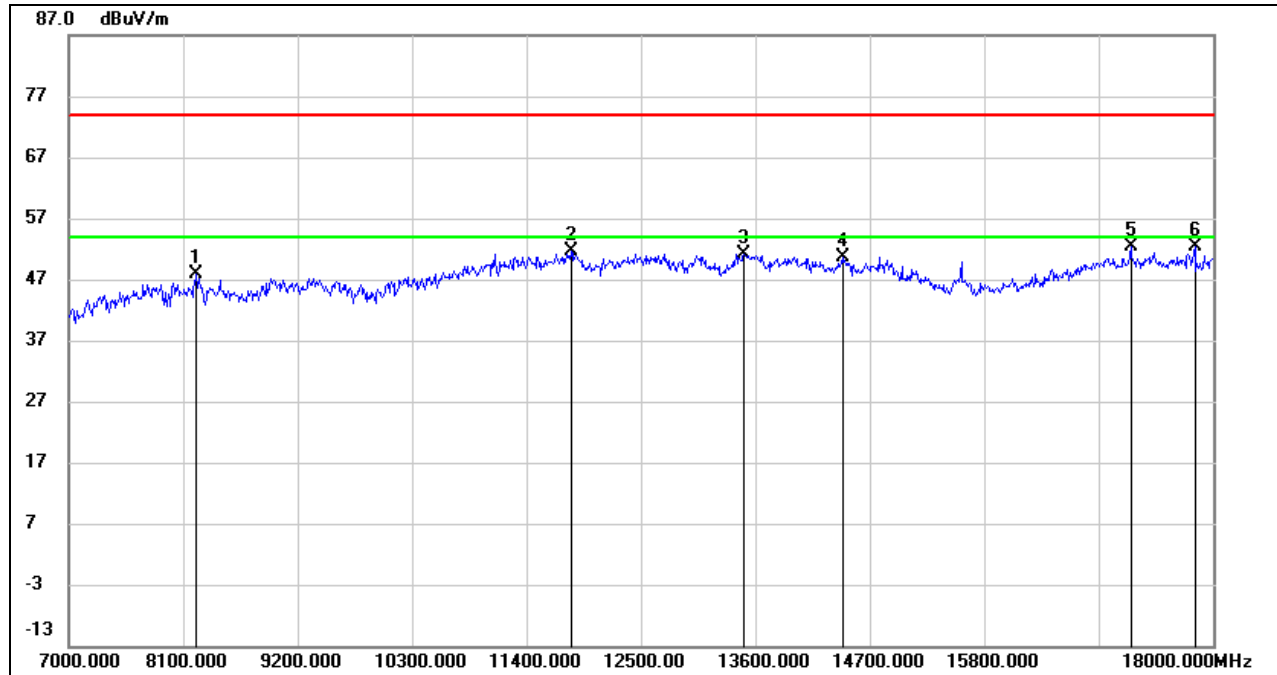
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8221.000	39.25	8.63	47.88	74.00	-26.12	peak
2	11829.000	34.23	17.30	51.53	74.00	-22.47	peak
3	13495.500	32.75	18.41	51.16	74.00	-22.84	peak
4	14436.000	33.46	17.27	50.73	74.00	-23.27	peak
5	17213.500	32.63	19.75	52.38	74.00	-21.62	peak
6	17829.500	29.49	22.94	52.43	74.00	-21.57	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.

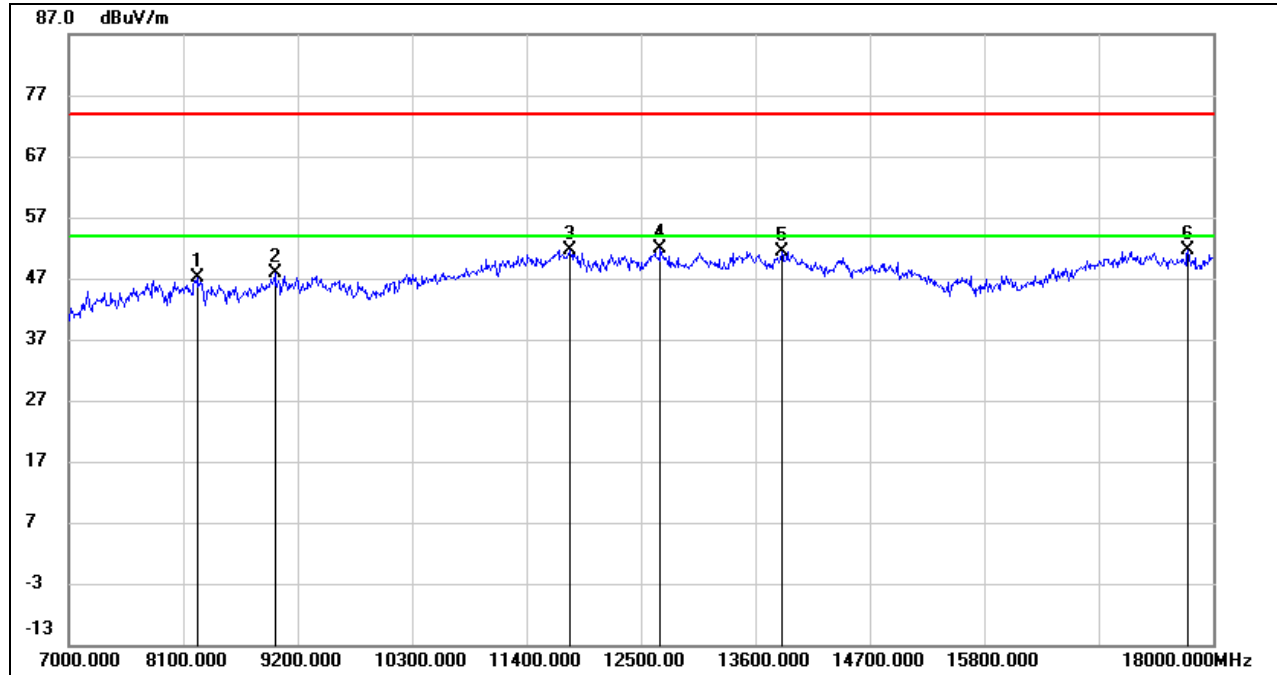
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8237.500	38.50	8.56	47.06	74.00	-26.94	peak
2	8980.000	38.00	9.91	47.91	74.00	-26.09	peak
3	11818.000	34.35	17.31	51.66	74.00	-22.34	peak
4	12687.000	34.97	16.82	51.79	74.00	-22.21	peak
5	13858.500	32.68	18.71	51.39	74.00	-22.61	peak
6	17763.500	29.08	22.48	51.56	74.00	-22.44	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.

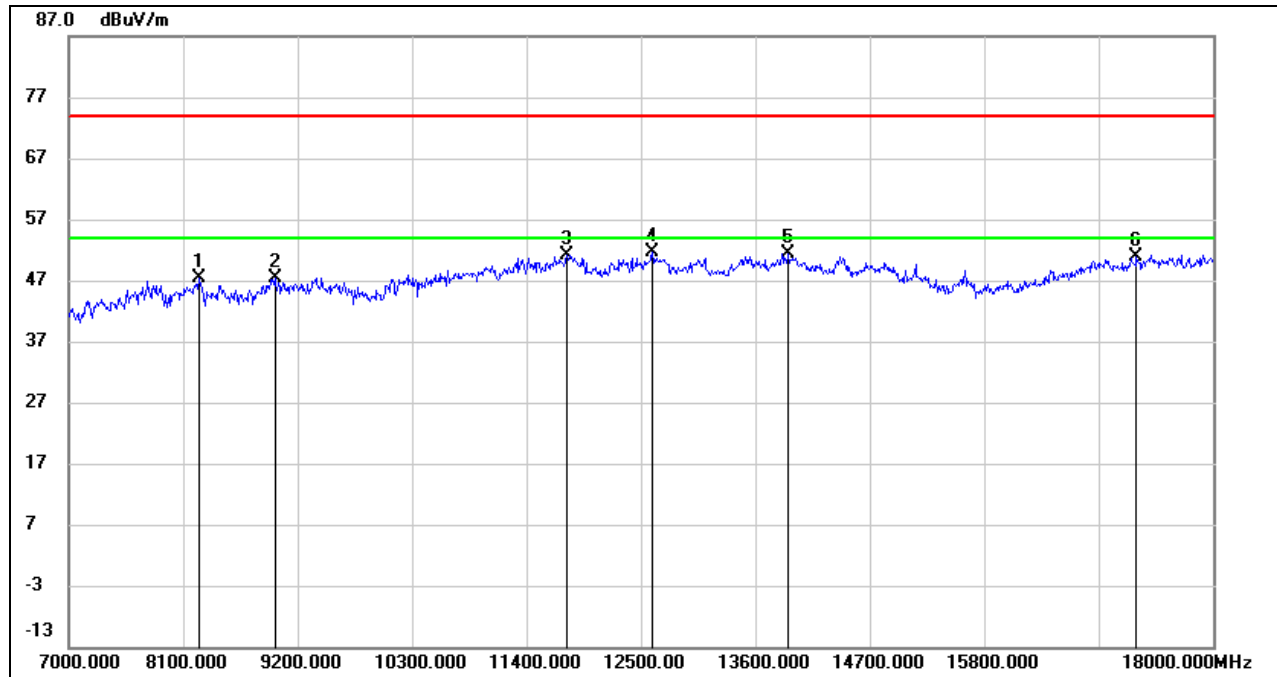
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8259.500	38.86	8.48	47.34	74.00	-26.66	peak
2	8980.000	37.52	9.91	47.43	74.00	-26.57	peak
3	11790.500	33.91	17.30	51.21	74.00	-22.79	peak
4	12615.500	34.99	16.66	51.65	74.00	-22.35	peak
5	13919.000	32.79	18.64	51.43	74.00	-22.57	peak
6	17263.000	31.06	19.78	50.84	74.00	-23.16	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. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

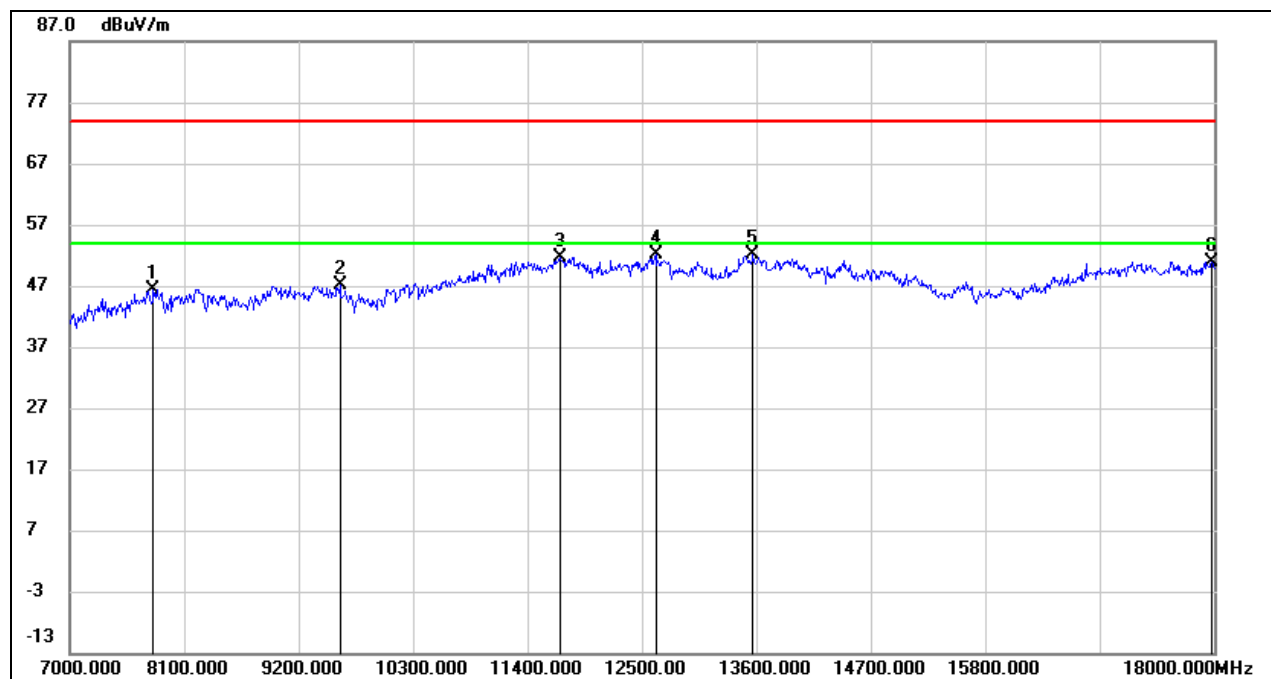
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	7808.500	38.88	7.59	46.47	74.00	-27.53	peak
2	9601.500	36.73	10.51	47.24	74.00	-26.76	peak
3	11708.000	34.87	16.87	51.74	74.00	-22.26	peak
4	12637.500	35.44	16.71	52.15	74.00	-21.85	peak
5	13567.000	33.68	18.38	52.06	74.00	-21.94	peak
6	17983.500	27.57	23.33	50.90	74.00	-23.10	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.

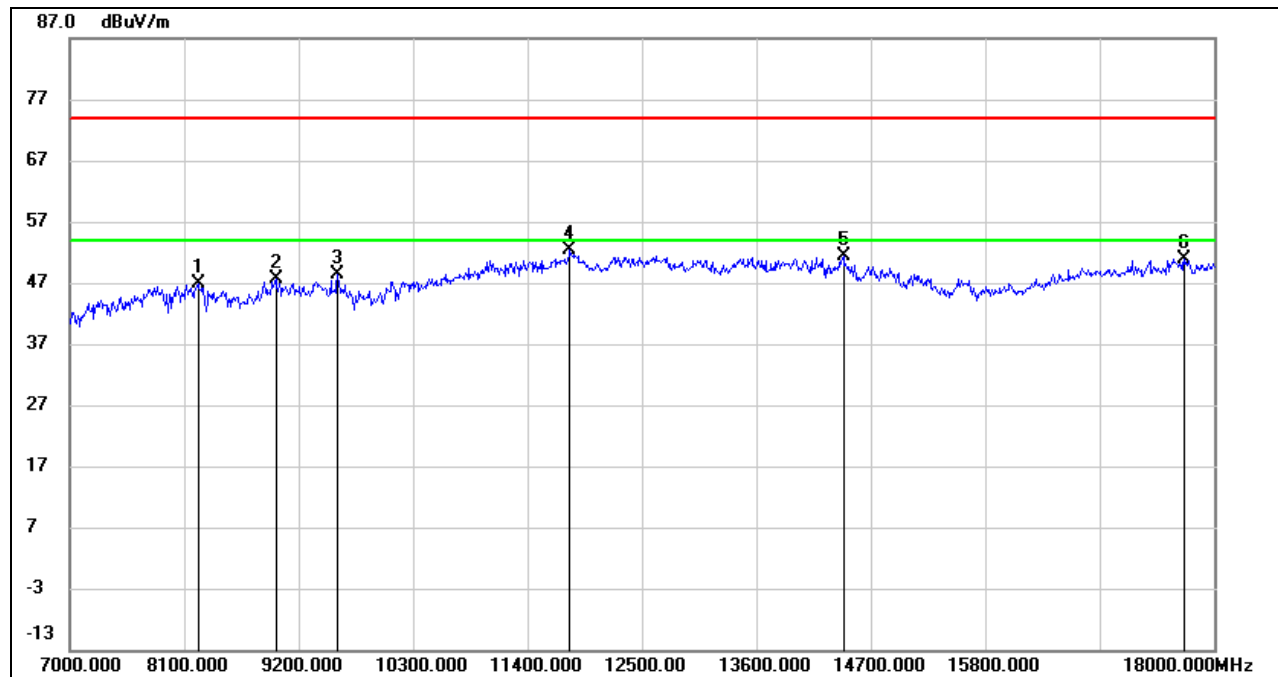
4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

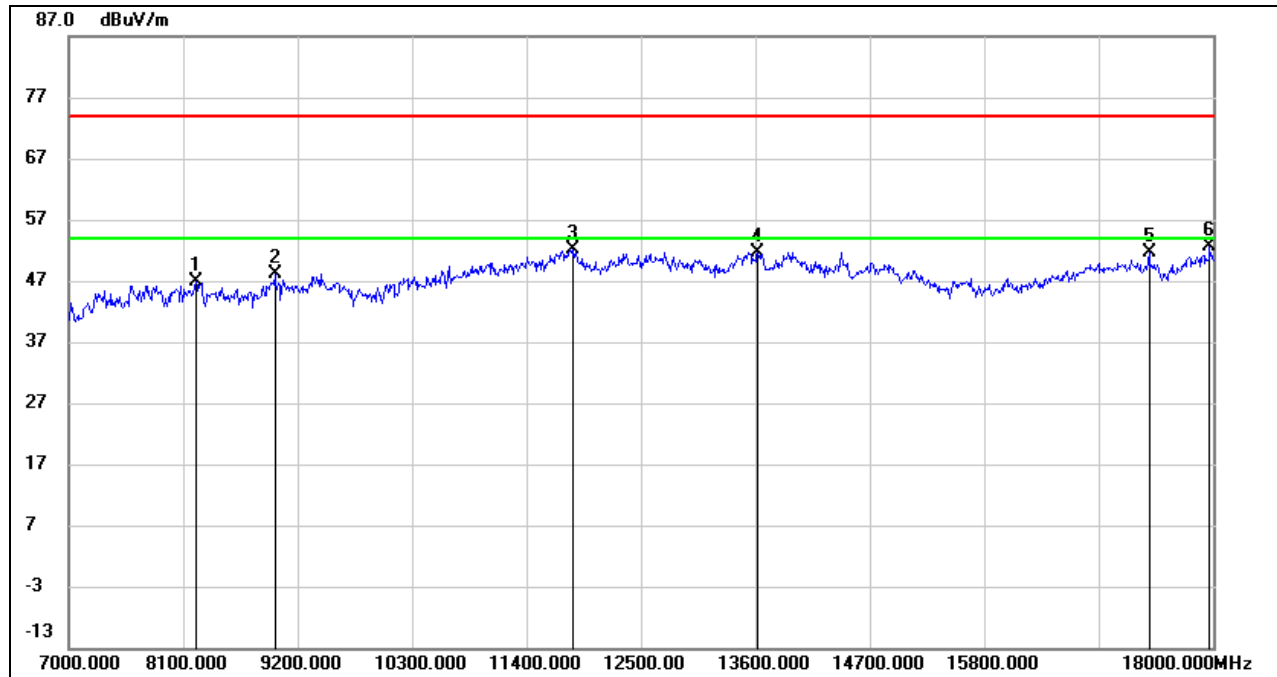
**UNII-3 BAND****HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8232.000	38.18	8.59	46.77	74.00	-27.23	peak
2	8985.500	37.60	9.97	47.57	74.00	-26.43	peak
3	9574.000	38.02	10.46	48.48	74.00	-25.52	peak
4	11807.000	35.02	17.35	52.37	74.00	-21.63	peak
5	14441.500	34.14	17.24	51.38	74.00	-22.62	peak
6	17719.500	28.77	22.01	50.78	74.00	-23.22	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



### 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	8221.000	38.33	8.63	46.96	74.00	-27.04	peak
2	8985.500	38.22	9.97	48.19	74.00	-25.81	peak
3	11856.500	34.90	17.26	52.16	74.00	-21.84	peak
4	13622.000	33.26	18.41	51.67	74.00	-22.33	peak
5	17384.000	31.82	19.83	51.65	74.00	-22.35	peak
6	17967.000	29.26	23.28	52.54	74.00	-21.46	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.

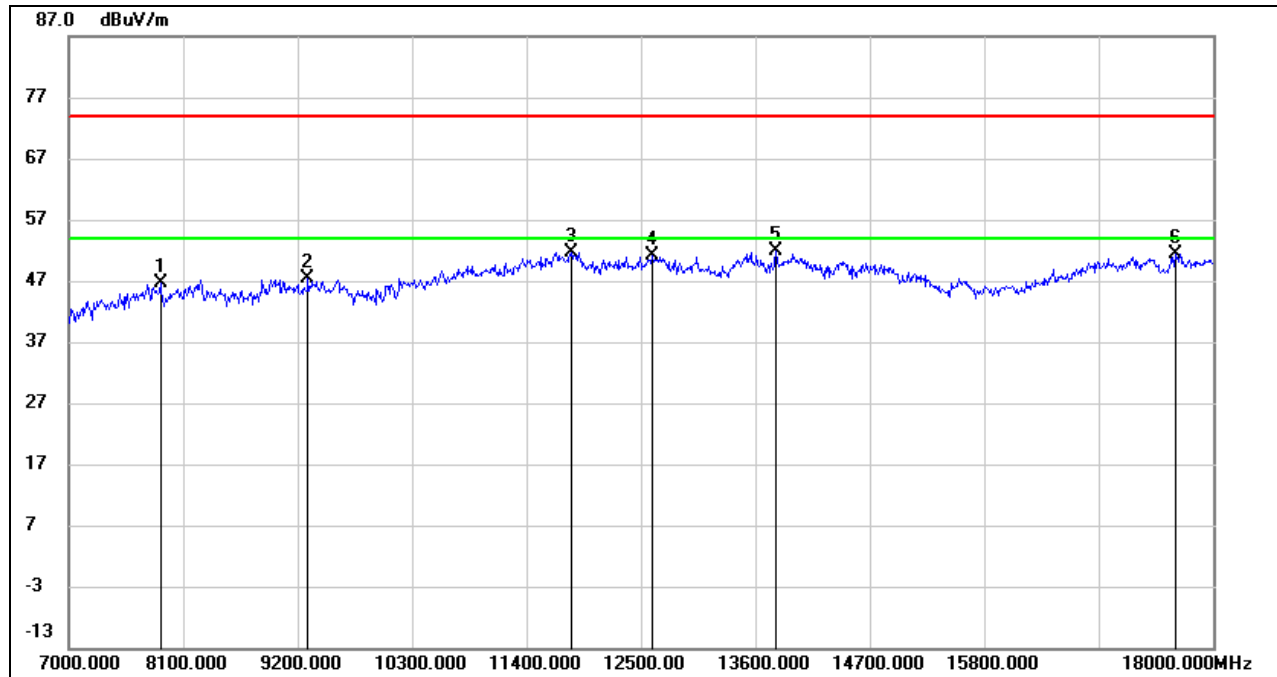
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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.

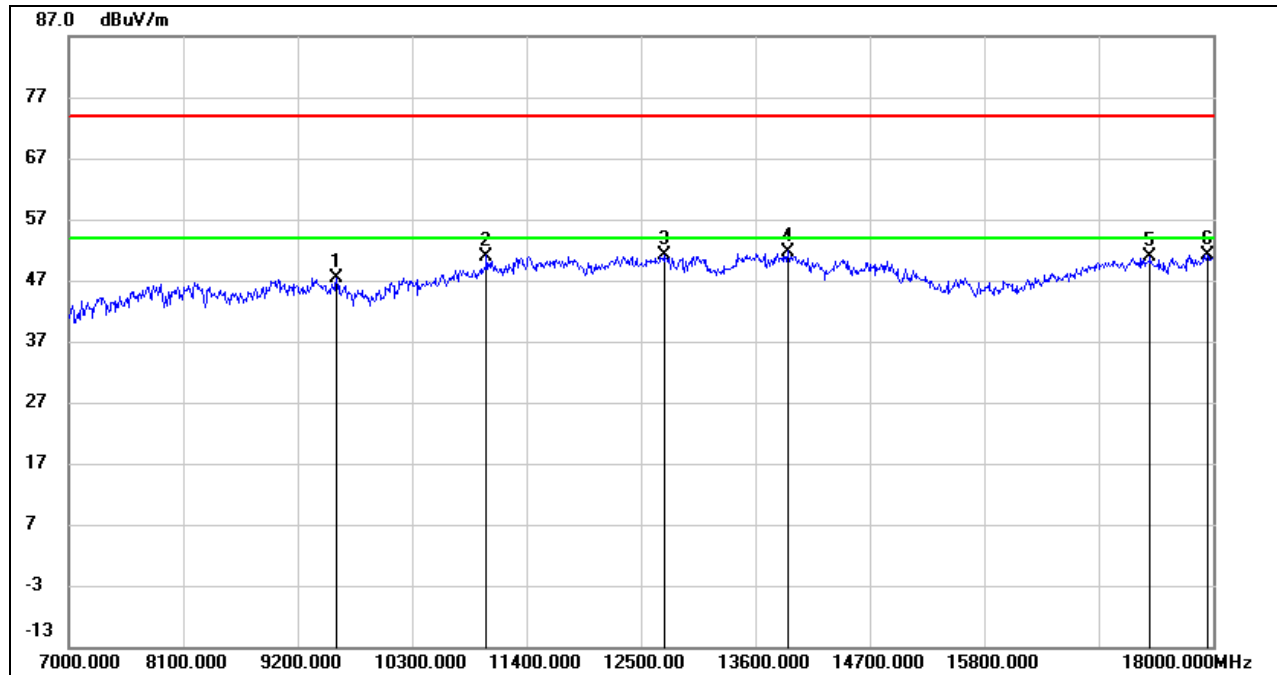
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	7880.000	39.24	7.39	46.63	74.00	-27.37	peak
2	9299.000	37.73	9.54	47.27	74.00	-26.73	peak
3	11834.500	34.32	17.29	51.61	74.00	-22.39	peak
4	12615.500	34.46	16.66	51.12	74.00	-22.88	peak
5	13803.500	33.01	18.78	51.79	74.00	-22.21	peak
6	17642.500	30.30	21.19	51.49	74.00	-22.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

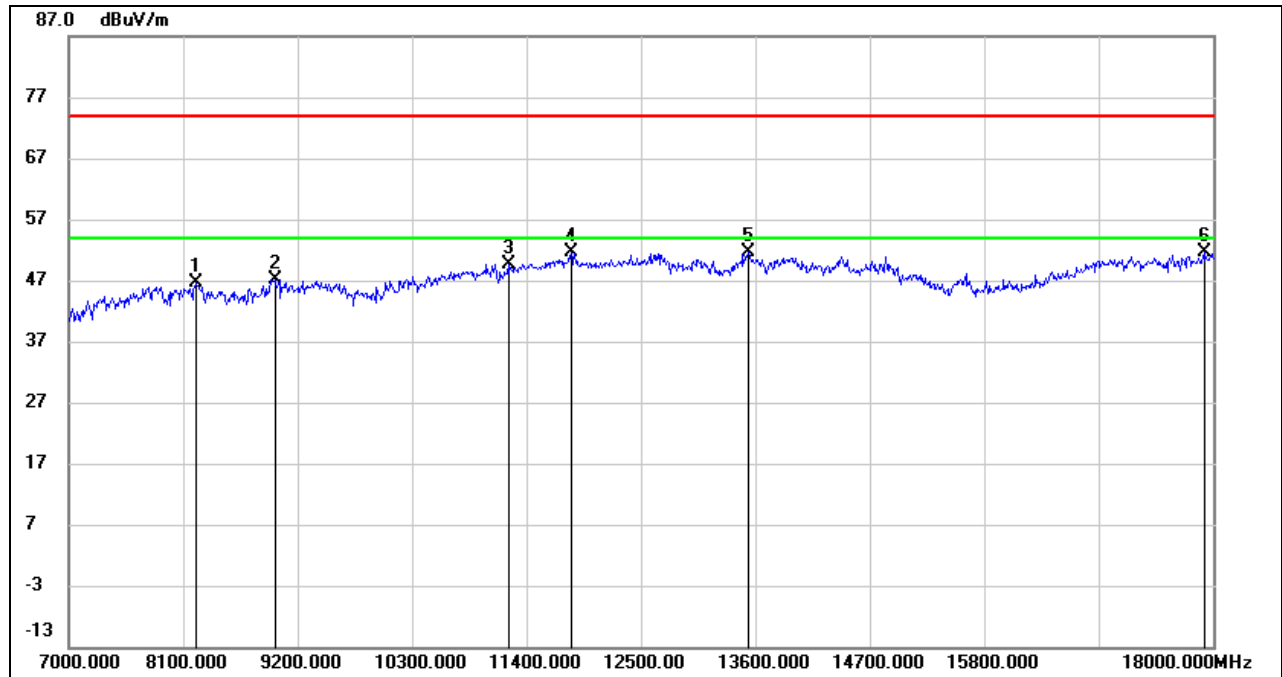
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9579.500	36.91	10.48	47.39	74.00	-26.61	peak
2	11015.000	36.78	14.22	51.00	74.00	-23.00	peak
3	12720.000	34.13	16.89	51.02	74.00	-22.98	peak
4	13913.500	33.10	18.65	51.75	74.00	-22.25	peak
5	17400.500	31.01	19.83	50.84	74.00	-23.16	peak
6	17950.500	27.98	23.24	51.22	74.00	-22.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

### 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	8226.500	38.11	8.61	46.72	74.00	-27.28	peak
2	8980.000	37.22	9.91	47.13	74.00	-26.87	peak
3	11229.500	34.69	15.04	49.73	74.00	-24.27	peak
4	11834.500	34.29	17.29	51.58	74.00	-22.42	peak
5	13534.000	33.34	18.40	51.74	74.00	-22.26	peak
6	17912.000	28.38	23.14	51.52	74.00	-22.48	peak

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

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

3. Peak: Peak detector.

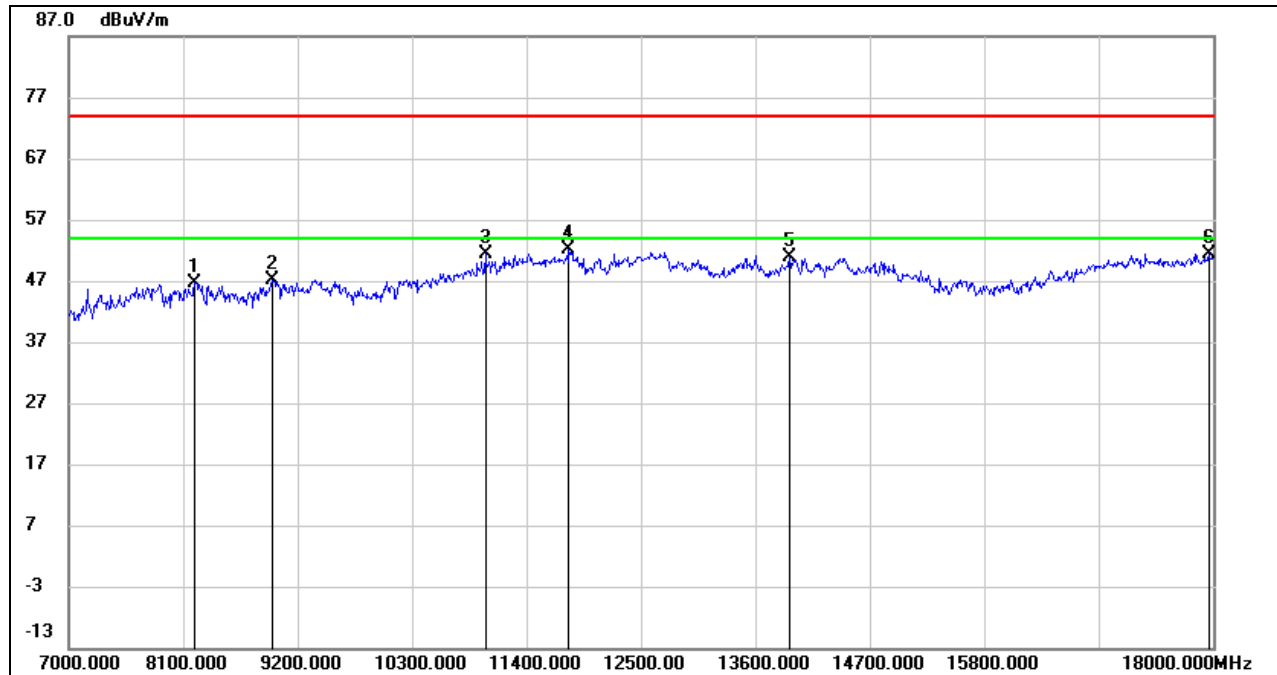
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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.

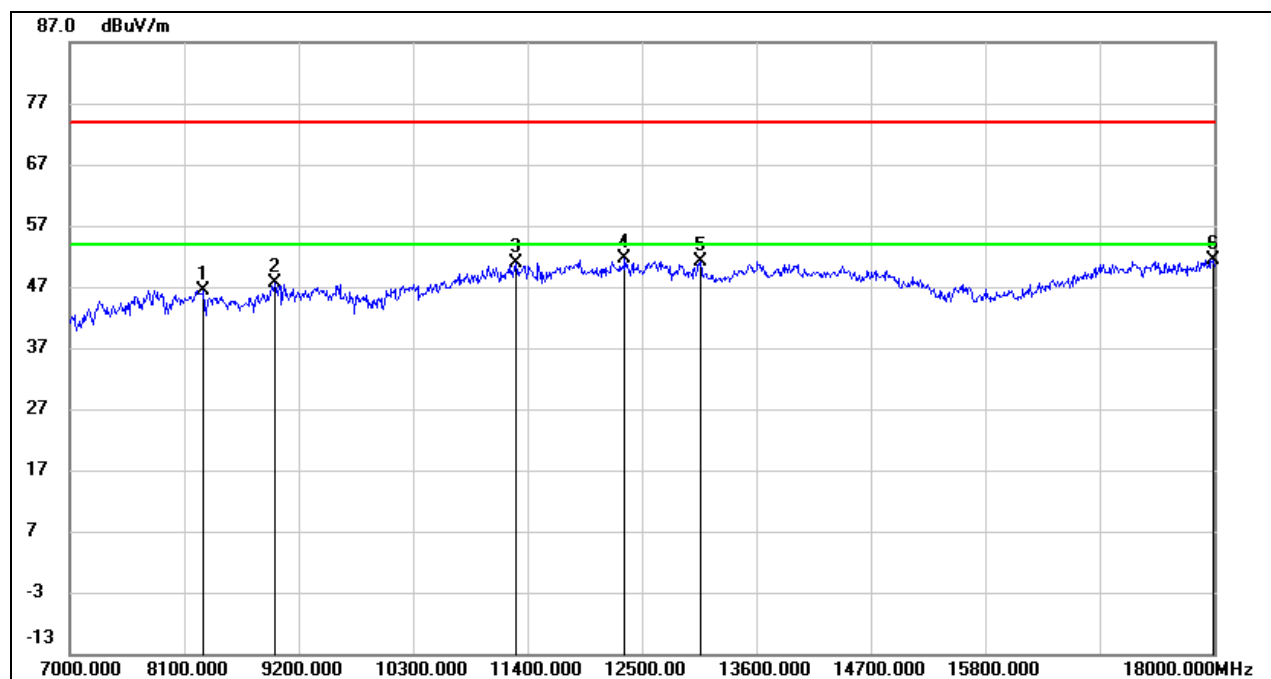
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8215.500	38.03	8.65	46.68	74.00	-27.32	peak
2	8963.500	37.36	9.73	47.09	74.00	-26.91	peak
3	11009.500	37.15	14.19	51.34	74.00	-22.66	peak
4	11812.500	34.81	17.33	52.14	74.00	-21.86	peak
5	13935.500	32.31	18.62	50.93	74.00	-23.07	peak
6	17961.500	28.17	23.27	51.44	74.00	-22.56	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**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	8287.000	38.01	8.37	46.38	74.00	-27.62	peak
2	8969.000	37.79	9.79	47.58	74.00	-26.42	peak
3	11290.000	35.56	15.32	50.88	74.00	-23.12	peak
4	12335.000	34.70	16.81	51.51	74.00	-22.49	peak
5	13061.000	34.13	17.03	51.16	74.00	-22.84	peak
6	17989.000	28.15	23.34	51.49	74.00	-22.51	peak

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

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

3. Peak: Peak detector.

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

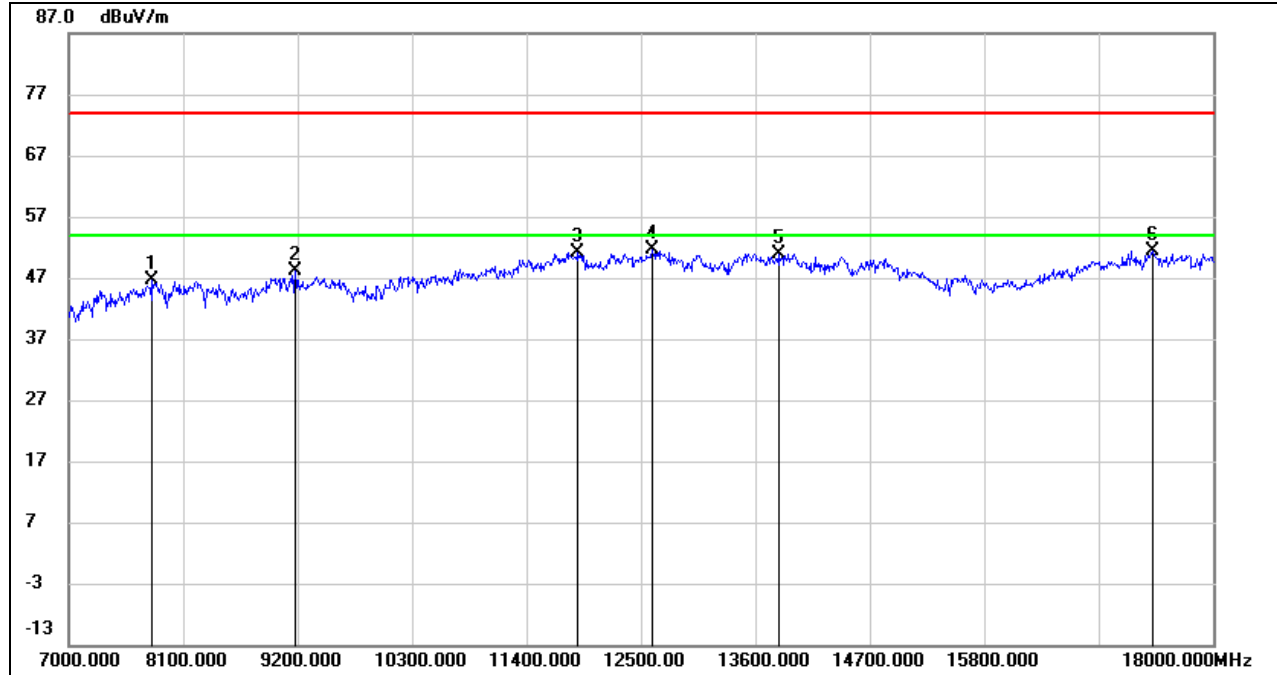
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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



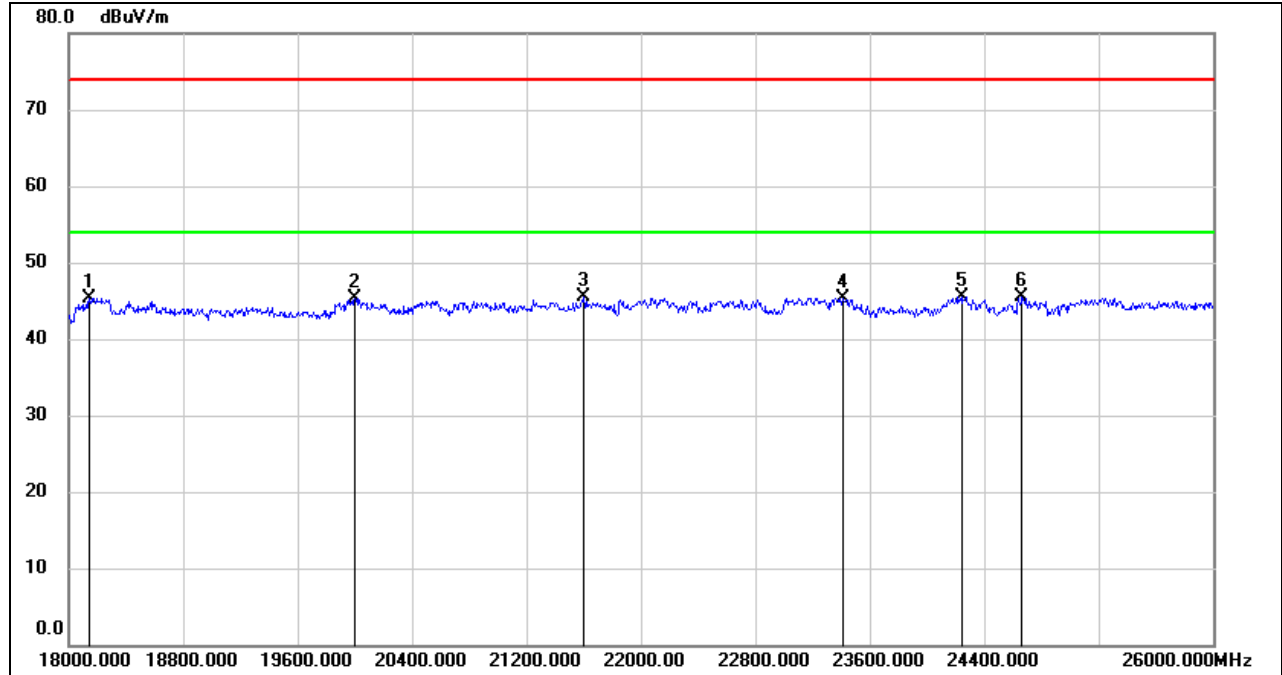
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7808.500	39.06	7.59	46.65	74.00	-27.35	peak
2	9178.000	38.95	9.07	48.02	74.00	-25.98	peak
3	11900.500	33.84	17.19	51.03	74.00	-22.97	peak
4	12610.000	34.87	16.64	51.51	74.00	-22.49	peak
5	13836.500	32.22	18.74	50.96	74.00	-23.04	peak
6	17417.000	31.61	19.88	51.49	74.00	-22.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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

### 8.4.1. 802.11ac VHT80 MIMO MODE

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18144.000	50.77	-5.48	45.29	74.00	-28.71	peak
2	20000.000	50.81	-5.45	45.36	74.00	-28.64	peak
3	21600.000	50.02	-4.54	45.48	74.00	-28.52	peak
4	23408.000	48.61	-3.22	45.39	74.00	-28.61	peak
5	24248.000	48.32	-2.83	45.49	74.00	-28.51	peak
6	24664.000	47.90	-2.33	45.57	74.00	-28.43	peak

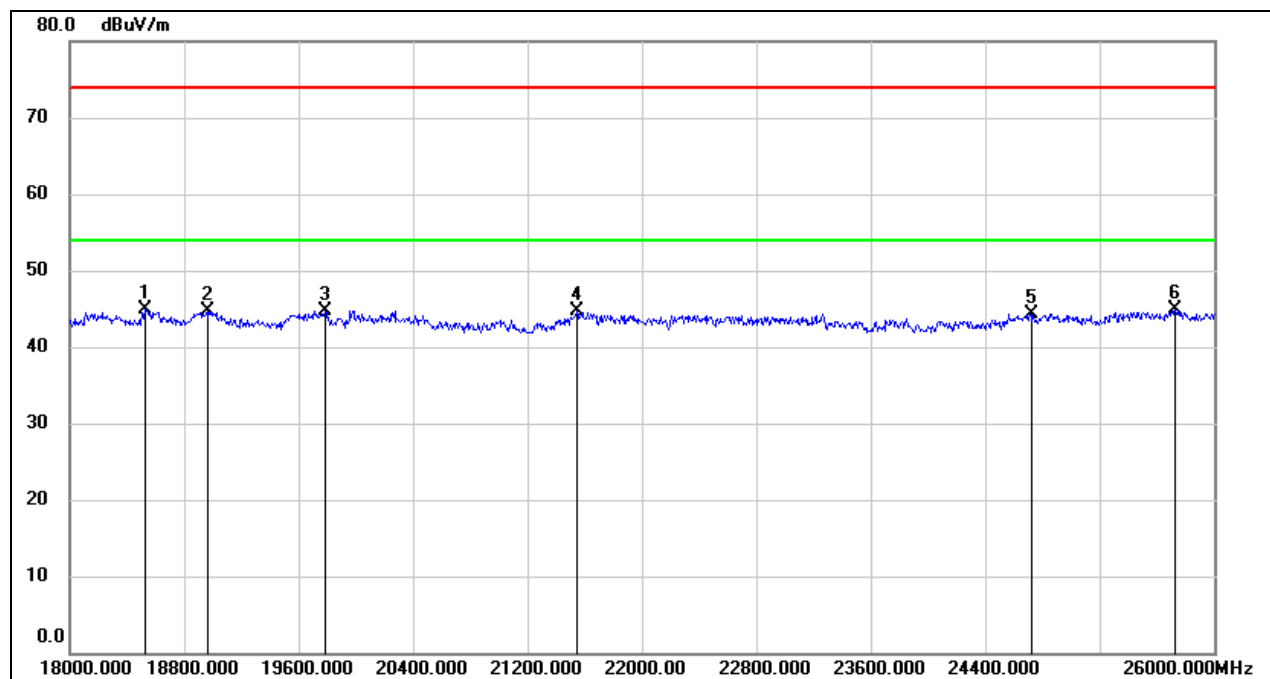
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.



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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18528.000	50.11	-5.26	44.85	74.00	-29.15	peak
2	18960.000	50.01	-5.25	44.76	74.00	-29.24	peak
3	19784.000	50.07	-5.28	44.79	74.00	-29.21	peak
4	21544.000	49.26	-4.63	44.63	74.00	-29.37	peak
5	24720.000	46.72	-2.33	44.39	74.00	-29.61	peak
6	25728.000	45.61	-0.72	44.89	74.00	-29.11	peak

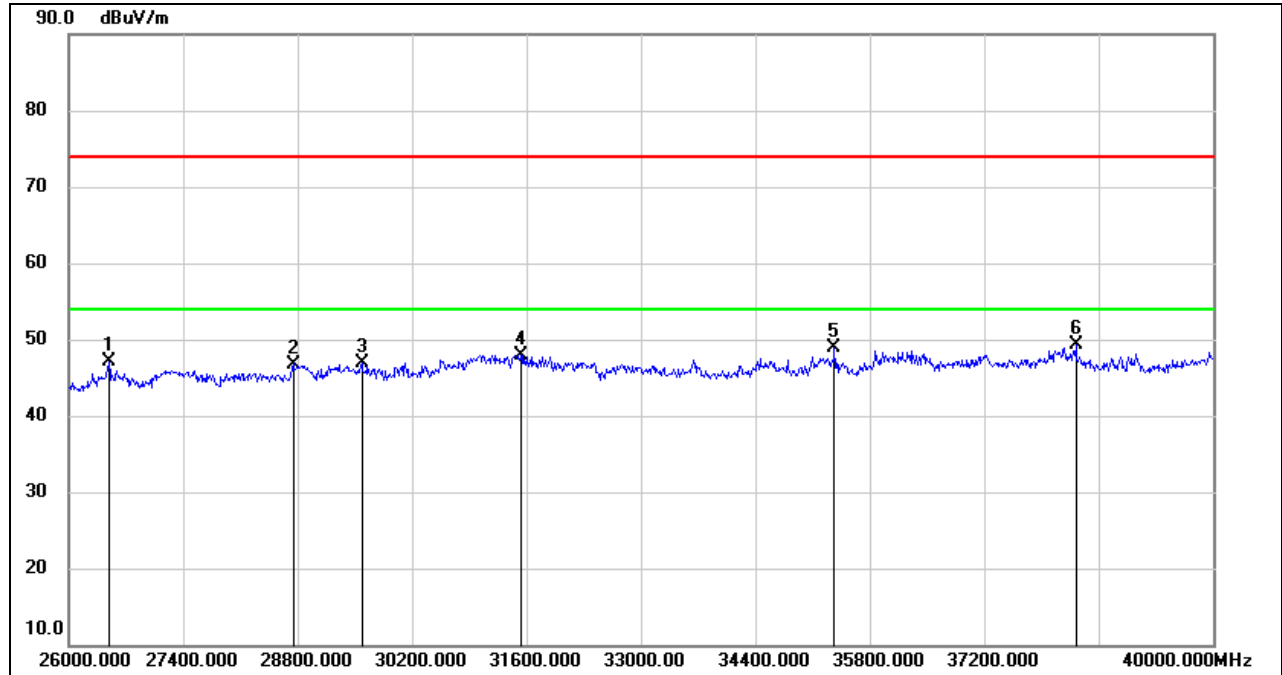
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.

Note: All the channels and modes 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. 802.11ac VHT80 MIMO MODE

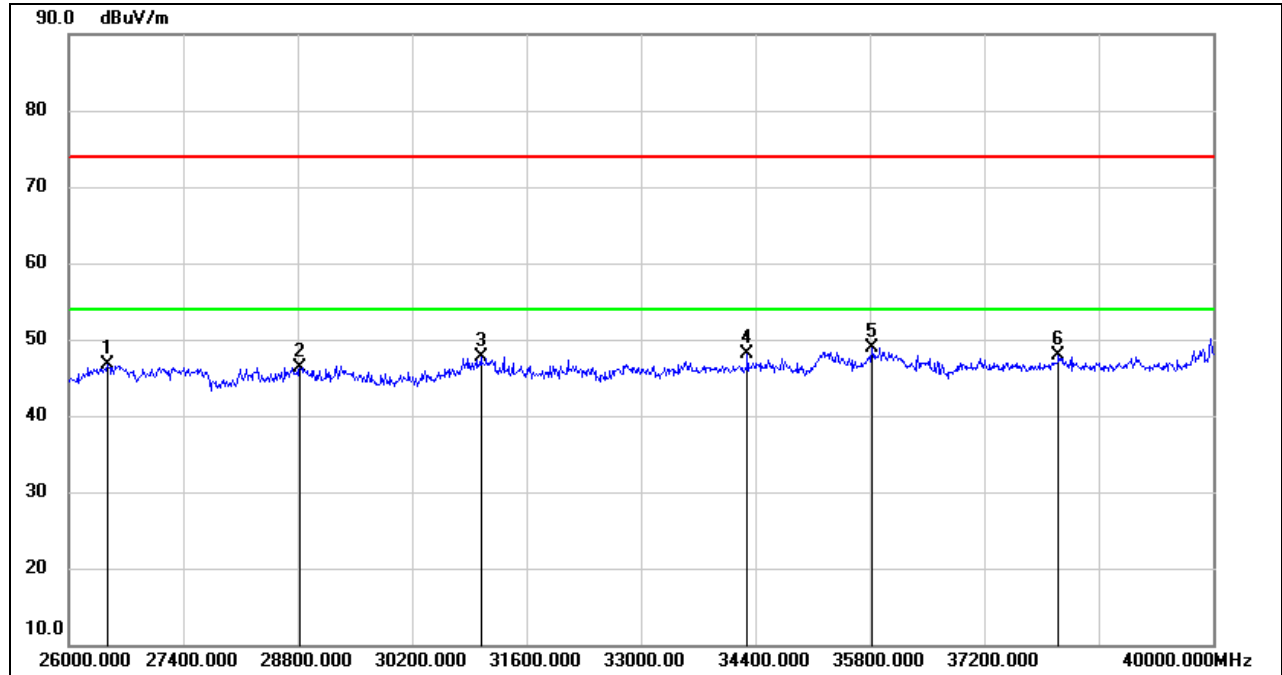
#### SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.79	-4.74	47.05	74.00	-26.95	peak
2	28744.000	47.36	-0.56	46.80	74.00	-27.20	peak
3	29584.000	47.91	-1.03	46.88	74.00	-27.12	peak
4	31530.000	49.08	-1.21	47.87	74.00	-26.13	peak
5	35366.000	46.40	2.59	48.99	74.00	-25.01	peak
6	38320.000	45.56	3.77	49.33	74.00	-24.67	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. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26476.000	51.53	-4.78	46.75	74.00	-27.25	peak
2	28828.000	47.13	-0.79	46.34	74.00	-27.66	peak
3	31040.000	48.45	-0.72	47.73	74.00	-26.27	peak
4	34302.000	46.95	1.10	48.05	74.00	-25.95	peak
5	35828.000	45.25	3.67	48.92	74.00	-25.08	peak
6	38110.000	44.33	3.53	47.86	74.00	-26.14	peak

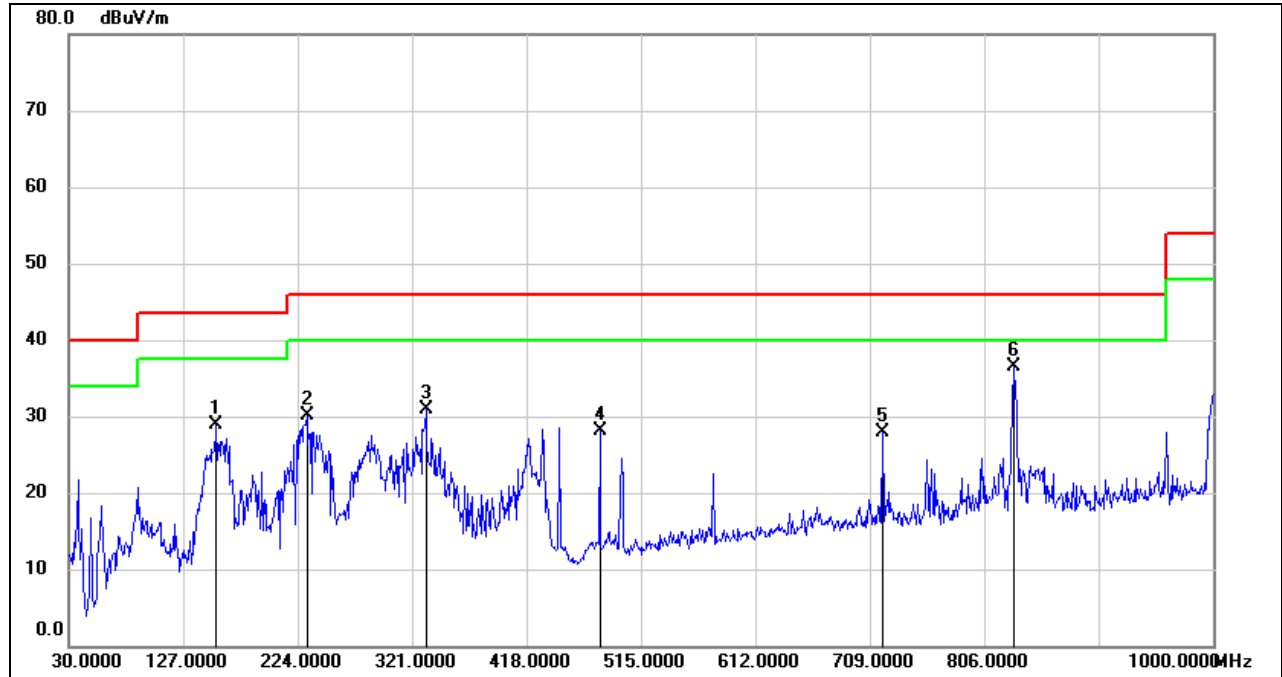
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: All the channels and modes 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. 802.11ac VHT80 MIMO MODE

#### SPURIOUS EMISSIONS (UNII1 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)

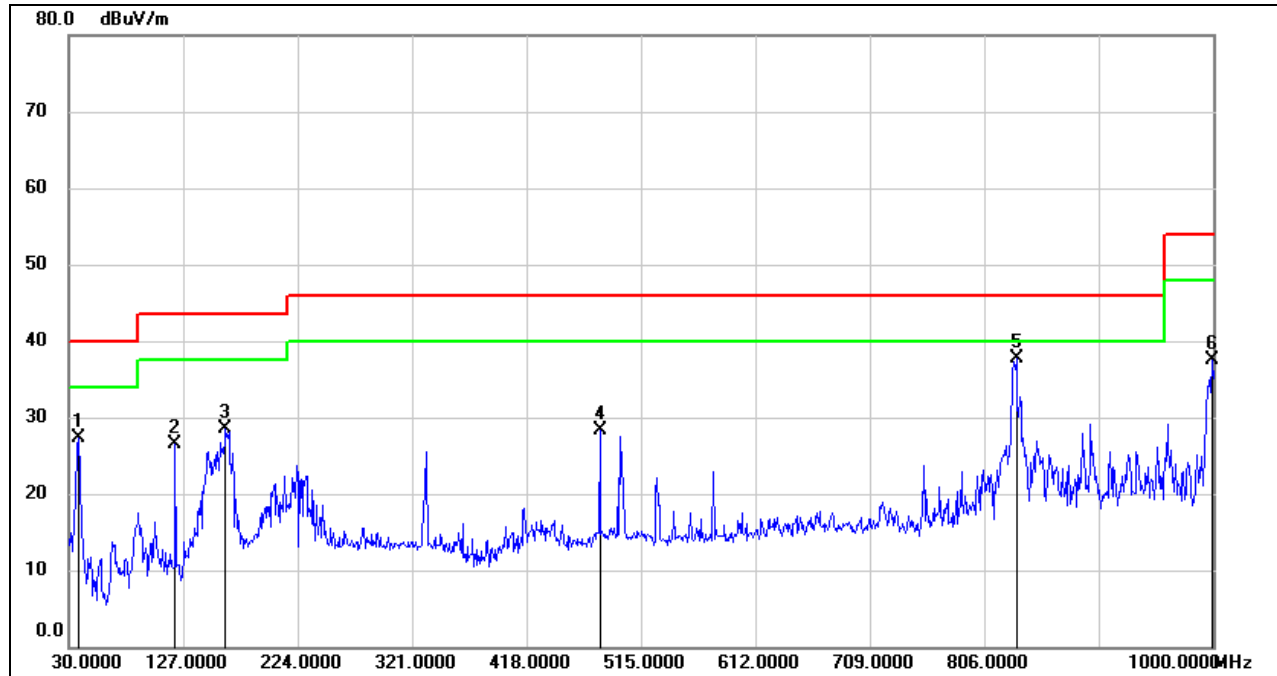


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	155.1300	46.94	-18.01	28.93	43.50	-14.57	QP
2	231.7600	48.80	-18.76	30.04	46.00	-15.96	QP
3	332.6400	45.47	-14.62	30.85	46.00	-15.15	QP
4	480.0800	39.88	-11.79	28.09	46.00	-17.91	QP
5	719.6700	36.01	-8.08	27.93	46.00	-18.07	QP
6	831.2199	43.11	-6.65	36.46	46.00	-9.54	QP

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



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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7300	47.02	-19.81	27.21	40.00	-12.79	QP
2	120.2100	46.33	-19.85	26.48	43.50	-17.02	QP
3	162.8900	46.05	-17.62	28.43	43.50	-15.07	QP
4	480.0800	40.16	-11.79	28.37	46.00	-17.63	QP
5	833.1599	44.25	-6.61	37.64	46.00	-8.36	QP
6	999.0300	41.64	-4.16	37.48	54.00	-16.52	QP

Note: 1. Result Level = Read Level + Correct Factor.

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

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

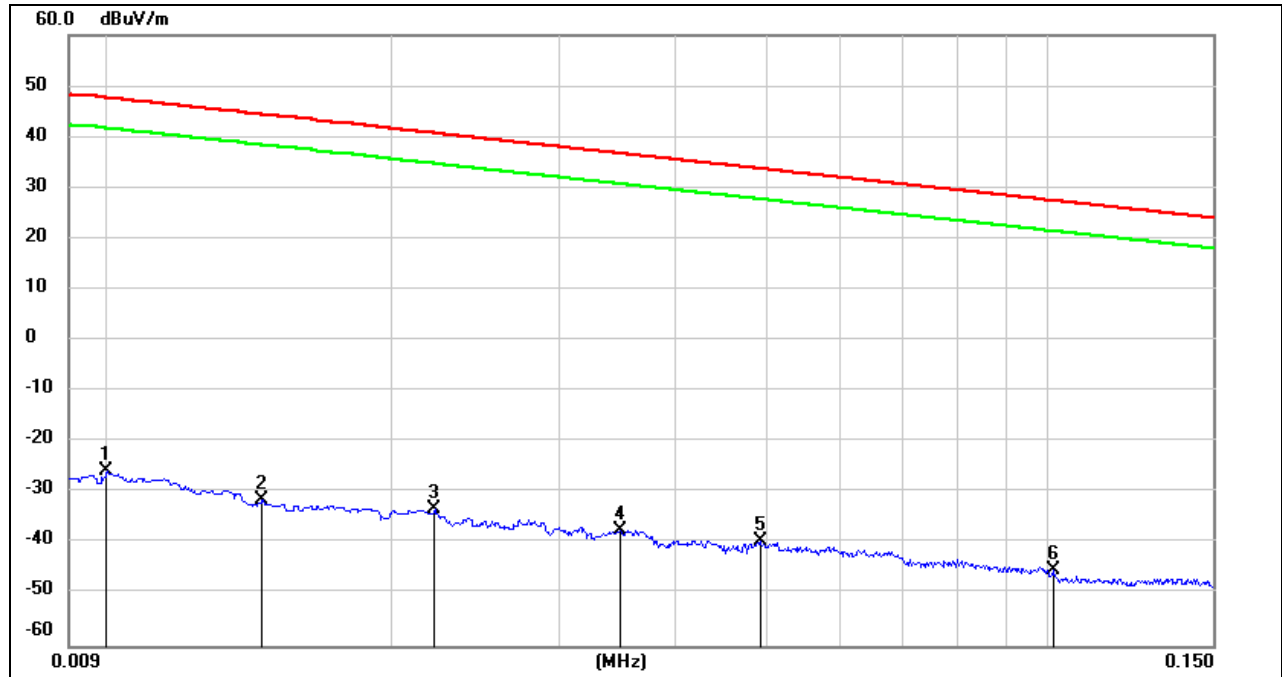
Note: All the channels and modes antennas had been tested, but only the worst data was recorded in the report.

## 8.7. SPURIOUS EMISSIONS BELOW 30 MHz

### 8.7.1. 802.11ac VHT80 MIMO MODE

#### SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



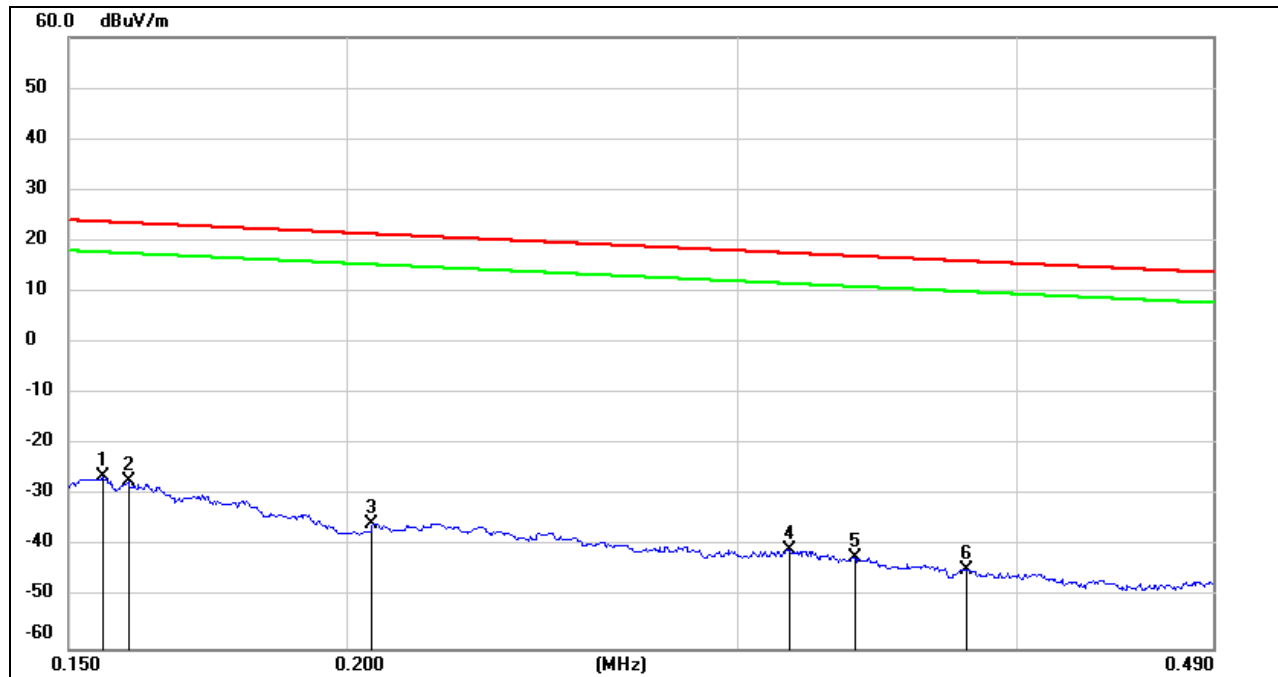
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	75.72	-101.40	-25.68	47.60	-73.28	peak
2	0.0145	70.05	-101.38	-31.33	44.37	-75.70	peak
3	0.0221	68.13	-101.35	-33.22	40.71	-73.93	peak
4	0.0349	64.03	-101.41	-37.38	36.75	-74.13	peak
5	0.0492	62.05	-101.47	-39.42	33.76	-73.18	peak
6	0.1014	56.56	-101.79	-45.23	27.48	-72.71	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.

**150 kHz ~ 490 kHz**



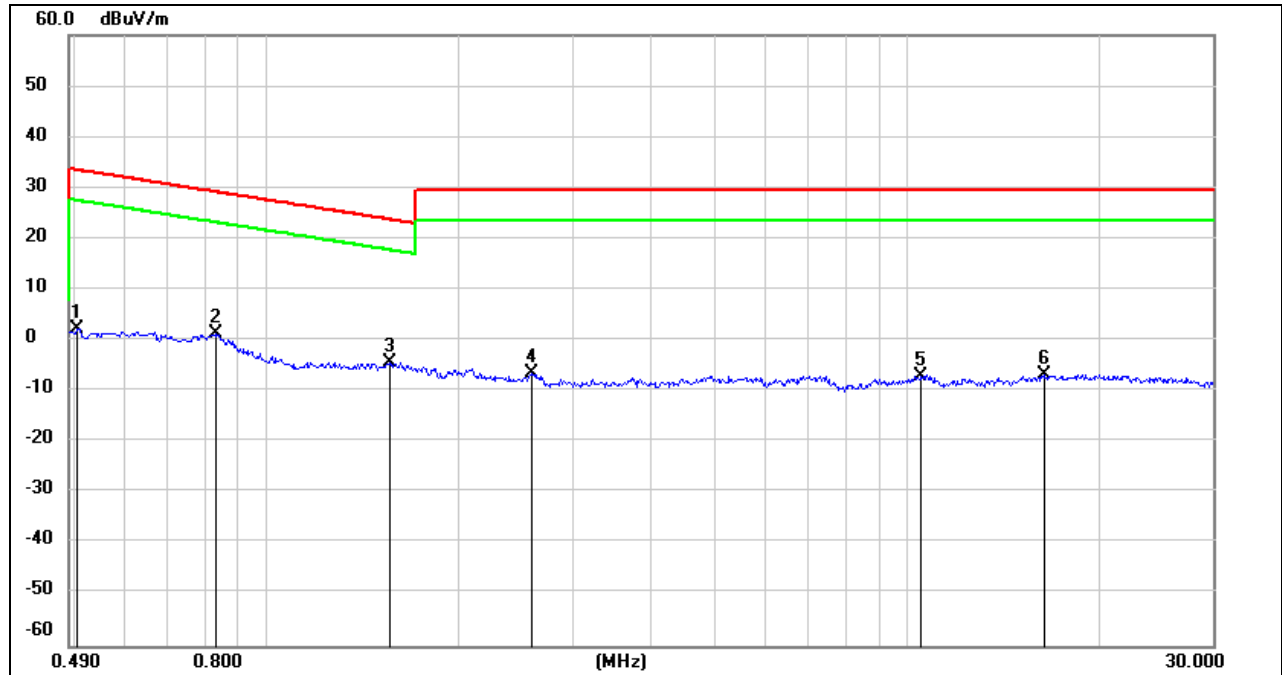
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1554	75.27	-101.65	-26.38	23.77	-50.15	peak
2	0.1595	74.36	-101.65	-27.29	23.55	-50.84	peak
3	0.2053	66.29	-101.73	-35.44	21.35	-56.79	peak
4	0.3163	61.20	-101.87	-40.67	17.60	-58.27	peak
5	0.3382	59.73	-101.90	-42.17	17.02	-59.19	peak
6	0.3800	57.52	-101.94	-44.42	16.01	-60.43	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.

**490 kHz ~ 30 MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5039	64.44	-62.07	2.37	33.56	-31.19	peak
2	0.8296	63.44	-62.17	1.27	29.23	-27.96	peak
3	1.5564	57.68	-62.02	-4.34	23.76	-28.10	peak
4	2.5935	55.11	-61.68	-6.57	29.54	-36.11	peak
5	10.5234	53.80	-60.82	-7.02	29.54	-36.56	peak
6	16.3959	54.17	-60.96	-6.79	29.54	-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.

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



## 9. AC POWER LINE CONDUCTED EMISSIONS

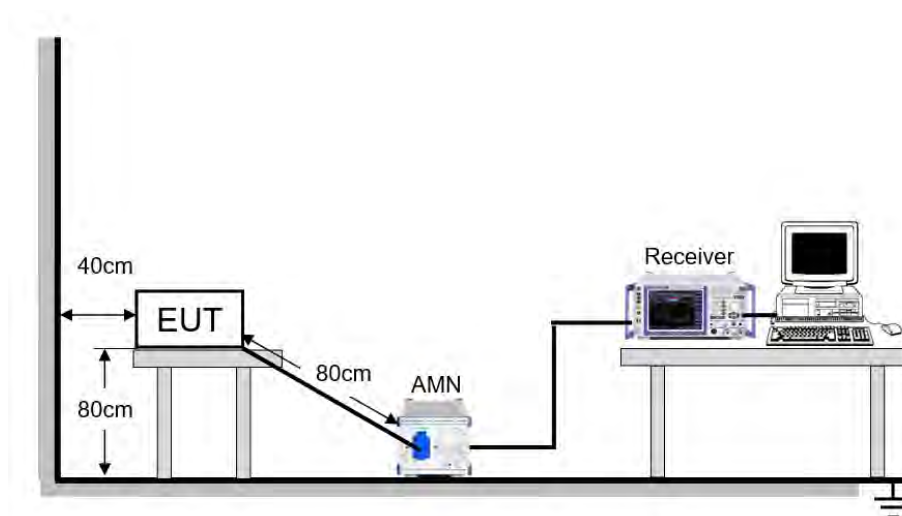
### LIMITS

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.

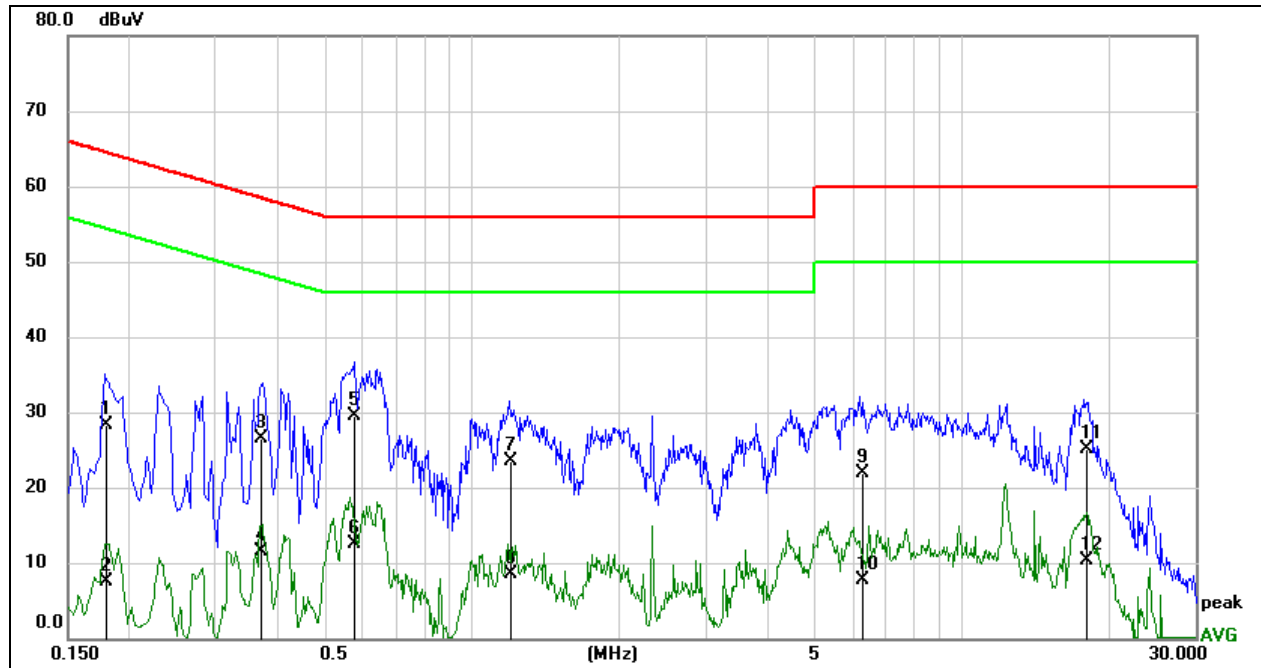
### TEST ENVIRONMENT

Temperature	22.7 °C	Relative Humidity	54.6 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120V_60Hz

## RESULTS

### 9.1.1. 802.11ac VHT80 MIMO MODE

#### LINE L RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1800	28.83	-0.50	28.33	64.49	-36.16	QP
2	0.1800	8.05	-0.50	7.55	54.49	-46.94	AVG
3	0.3701	26.93	-0.50	26.43	58.50	-32.07	QP
4	0.3701	12.02	-0.50	11.52	48.50	-36.98	AVG
5	0.5762	29.93	-0.50	29.43	56.00	-26.57	QP
6	0.5762	13.05	-0.50	12.55	46.00	-33.45	AVG
7	1.2024	23.85	-0.40	23.45	56.00	-32.55	QP
8	1.2024	8.86	-0.40	8.46	46.00	-37.54	AVG
9	6.2527	22.15	-0.17	21.98	60.00	-38.02	QP
10	6.2527	7.85	-0.17	7.68	50.00	-42.32	AVG
11	17.8844	26.12	-0.92	25.20	60.00	-34.80	QP
12	17.8844	11.28	-0.92	10.36	50.00	-39.64	AVG

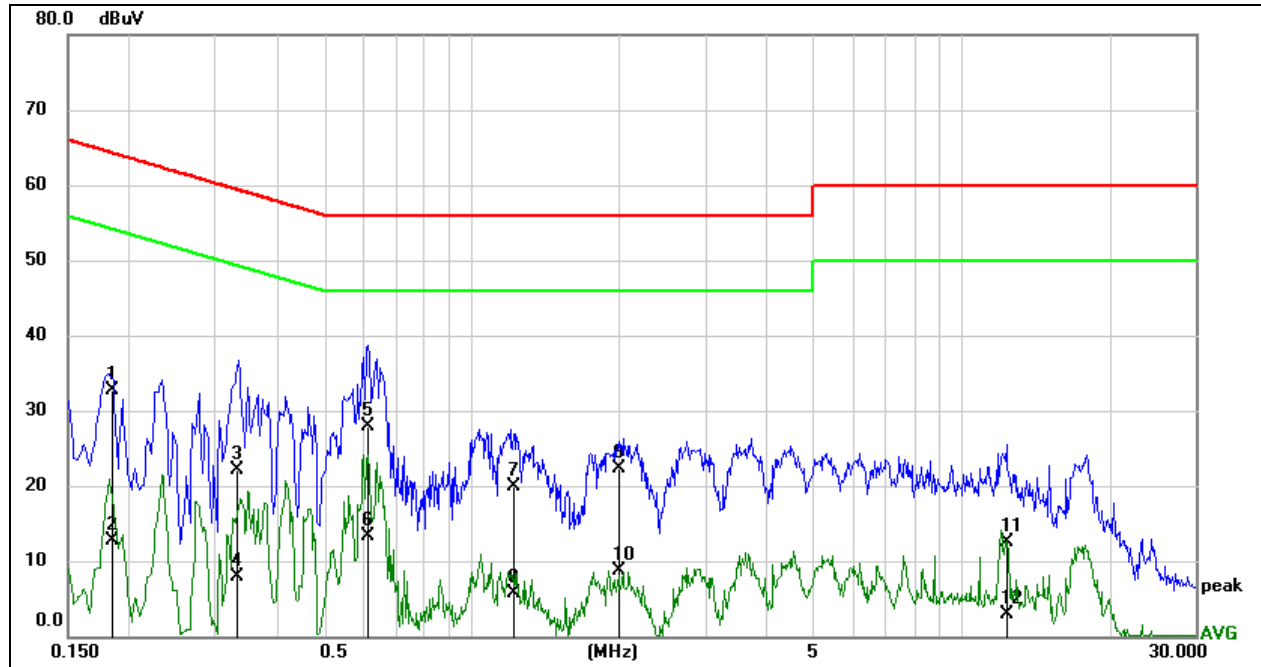
Note: 1. Result = Reading +Correct Factor.

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 (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1853	33.20	-0.40	32.80	64.24	-31.44	QP
2	0.1853	13.09	-0.40	12.69	54.24	-41.55	AVG
3	0.3318	22.53	-0.40	22.13	59.41	-37.28	QP
4	0.3318	8.36	-0.40	7.96	49.41	-41.45	AVG
5	0.6153	28.36	-0.40	27.96	56.00	-28.04	QP
6	0.6153	13.74	-0.40	13.34	46.00	-32.66	AVG
7	1.2211	20.08	-0.10	19.98	56.00	-36.02	QP
8	1.2211	5.82	-0.10	5.72	46.00	-40.28	AVG
9	2.0087	22.49	-0.10	22.39	56.00	-33.61	QP
10	2.0087	8.82	-0.10	8.72	46.00	-37.28	AVG
11	12.3258	13.37	-0.89	12.48	60.00	-47.52	QP
12	12.3258	3.81	-0.89	2.92	50.00	-47.08	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

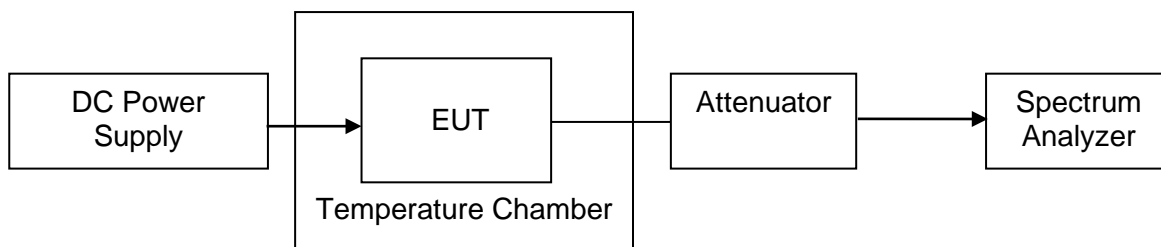
1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 45 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

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

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

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

### TEST SETUP





## **TEST ENVIRONMENT**

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T <sub>N</sub> (Normal Temperature): 22 °C – 28 °C	T <sub>L</sub> (Low Temperature): 0 °C
		T <sub>H</sub> (High Temperature): 45 °C
Supply Voltage	V <sub>N</sub> (Normal Voltage): AC 120V_60Hz	V <sub>L</sub> (Low Voltage): AC 102V_60Hz
		V <sub>H</sub> (High Voltage): AC 138V_60Hz

## **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



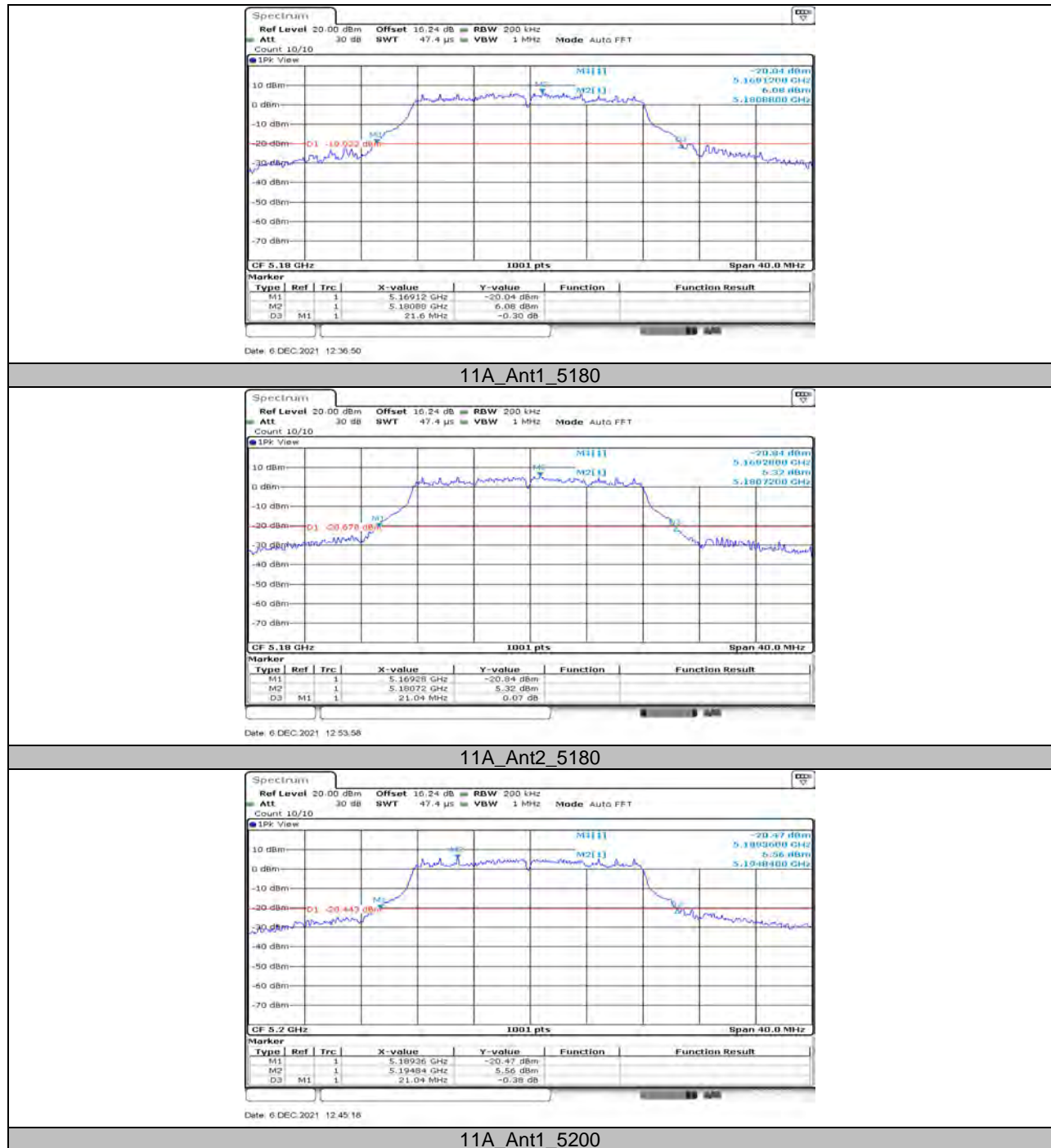
## 12. Appendix

### 12.1. Appendix A1: Emission Bandwidth

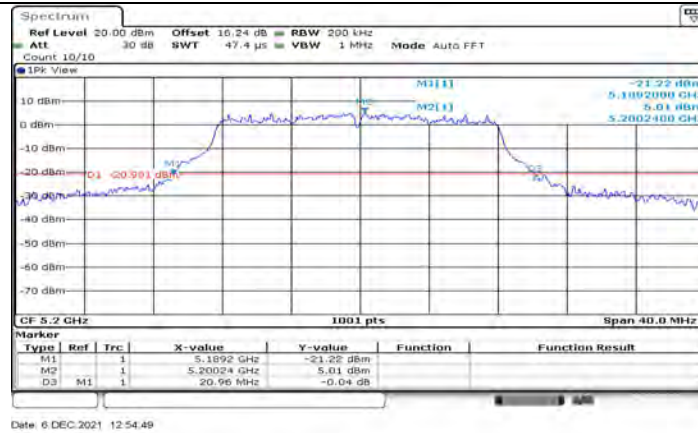
#### 12.1.1. Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	21.600	5169.120	5190.720	PASS
	Ant2	5180	21.040	5169.280	5190.320	PASS
	Ant1	5200	21.040	5189.360	5210.400	PASS
	Ant2	5200	20.960	5189.200	5210.160	PASS
	Ant1	5240	21.400	5229.200	5250.600	PASS
	Ant2	5240	21.480	5229.040	5250.520	PASS
	Ant1	5745	21.440	5733.840	5755.280	PASS
	Ant2	5745	21.600	5734.000	5755.600	PASS
	Ant1	5785	21.320	5774.200	5795.520	PASS
	Ant2	5785	21.320	5774.040	5795.360	PASS
	Ant1	5825	21.360	5814.200	5835.560	PASS
	Ant2	5825	21.560	5814.160	5835.720	PASS
11N20MIMO	Ant1	5180	21.560	5169.080	5190.640	PASS
	Ant2	5180	21.480	5169.120	5190.600	PASS
	Ant1	5200	21.560	5189.120	5210.680	PASS
	Ant2	5200	21.720	5188.920	5210.640	PASS
	Ant1	5240	21.480	5229.400	5250.880	PASS
	Ant2	5240	21.560	5229.080	5250.640	PASS
	Ant1	5745	21.520	5734.080	5755.600	PASS
	Ant2	5745	21.360	5734.120	5755.480	PASS
	Ant1	5785	22.520	5773.960	5796.480	PASS
	Ant2	5785	21.360	5774.200	5795.560	PASS
	Ant1	5825	22.680	5813.800	5836.480	PASS
	Ant2	5825	21.440	5814.280	5835.720	PASS
11N40MIMO	Ant1	5190	39.760	5170.000	5209.760	PASS
	Ant2	5190	40.400	5169.600	5210.000	PASS
	Ant1	5230	40.160	5209.920	5250.080	PASS
	Ant2	5230	40.160	5209.840	5250.000	PASS
	Ant1	5755	40.000	5734.760	5774.760	PASS
	Ant2	5755	40.080	5734.760	5774.840	PASS
	Ant1	5795	40.240	5774.840	5815.080	PASS
	Ant2	5795	39.920	5774.920	5814.840	PASS
11AC80MIMO	Ant1	5210	83.360	5168.240	5251.600	PASS
	Ant2	5210	82.560	5168.560	5251.120	PASS
	Ant1	5775	84.000	5732.760	5816.760	PASS
	Ant2	5775	82.560	5733.400	5815.960	PASS

## 12.1.2. Test Graphs







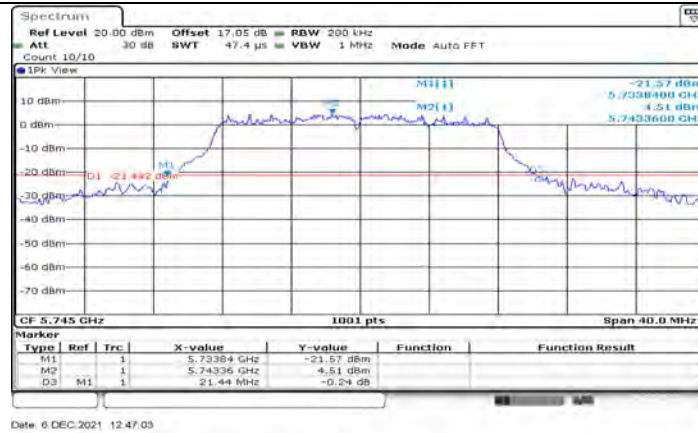
11A\_Ant2\_5200



11A\_Ant1\_5240



11A\_Ant2\_5240



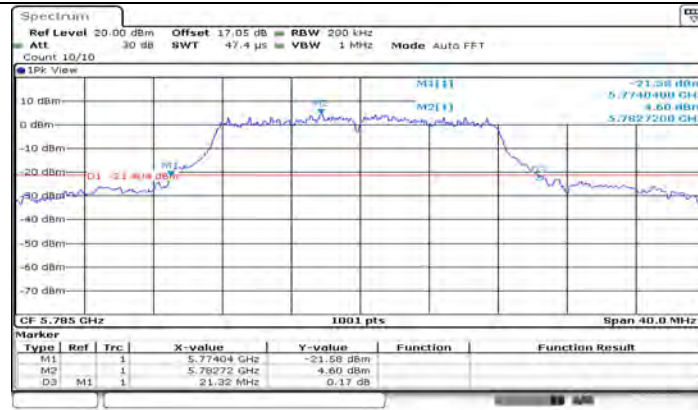
11A\_Ant1\_5745



11A\_Ant2\_5745



11A\_Ant1\_5785



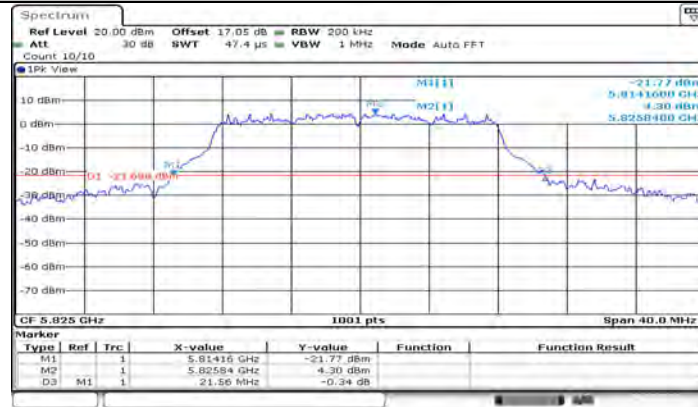
Date: 6 DEC 2021 12:57:12

11A\_Ant2\_5785



Date: 6 DEC 2021 12:52:58

11A\_Ant1\_5825



Date: 6 DEC 2021 12:57:53

11A\_Ant2\_5825



Date: 6 DEC 2021 10:35:25

### 11N20MIMO\_Ant1\_5180



Date: 6 DEC 2021 10:39:54

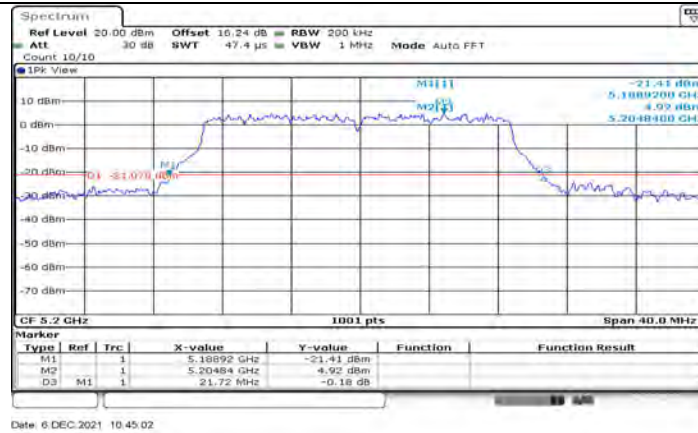
### 11N20MIMO\_Ant2\_5180



Date: 6 DEC 2021 10:42:20

### 11N20MIMO\_Ant1\_5200

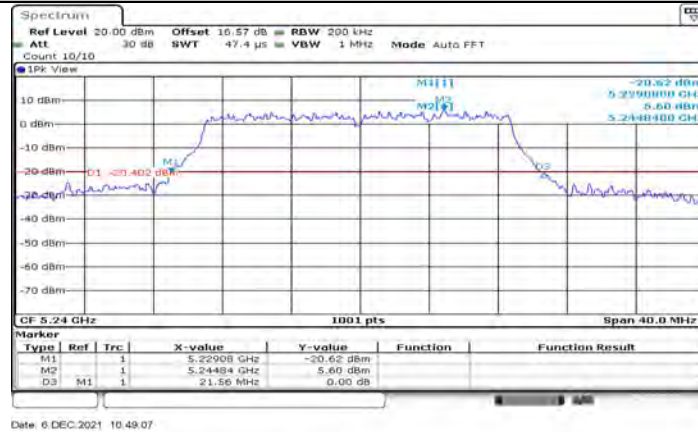




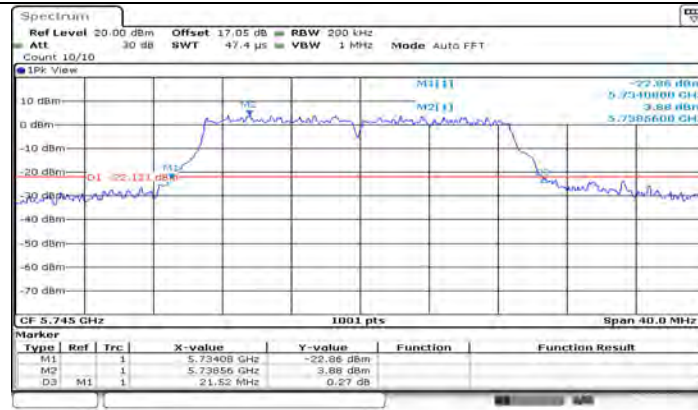
11N20MIMO\_Ant2\_5200



11N20MIMO\_Ant1\_5240



11N20MIMO\_Ant2\_5240



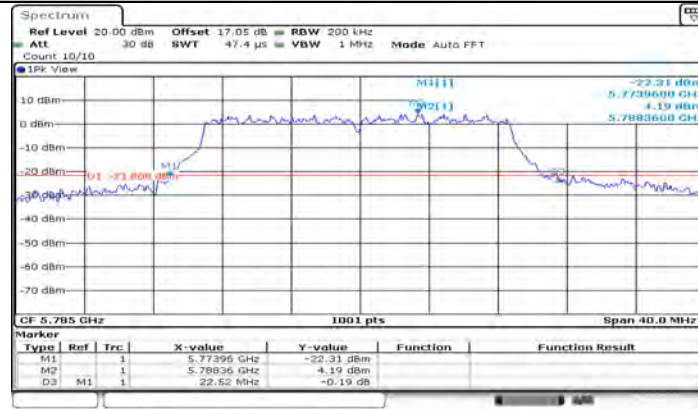
Date: 6 DEC 2021 10:51:36

11N20MIMO\_Ant1\_5745



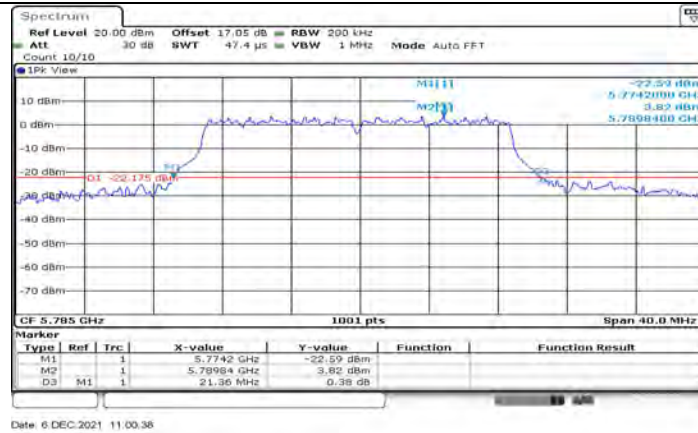
Date: 6 DEC 2021 10:53:23

11N20MIMO\_Ant2\_5745



Date: 6 DEC 2021 13:06:48

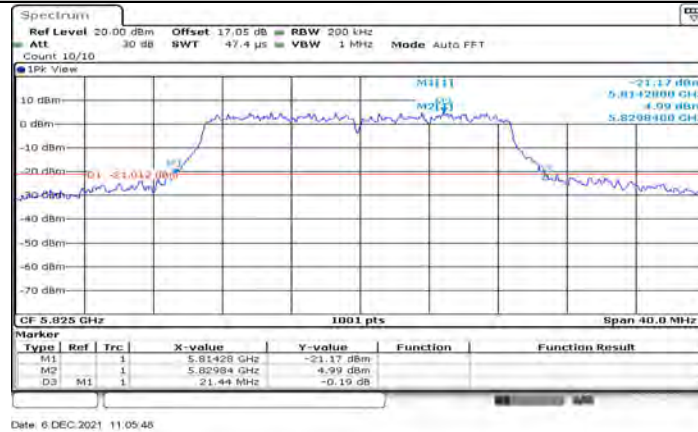
11N20MIMO\_Ant1\_5785



11N20MIMO\_Ant2\_5785



11N20MIMO\_Ant1\_5825



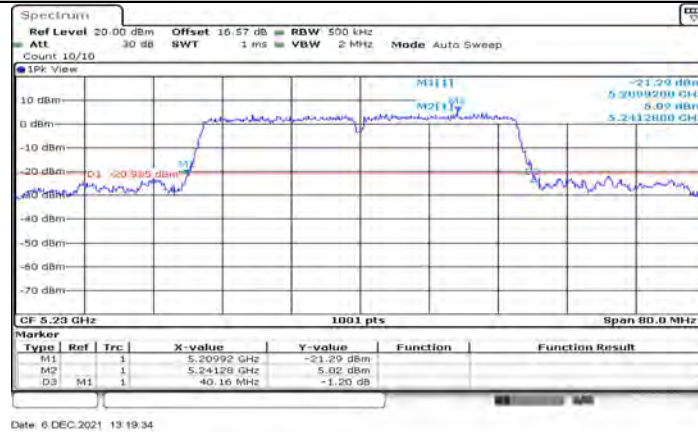
11N20MIMO\_Ant2\_5825



11N40MIMO\_Ant1\_5190

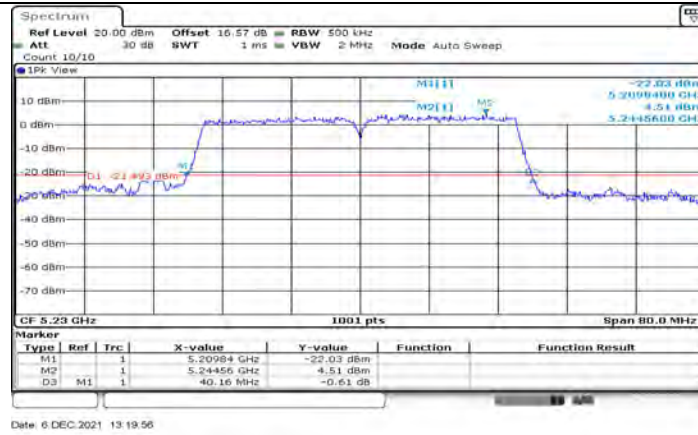


11N40MIMO\_Ant2\_5190

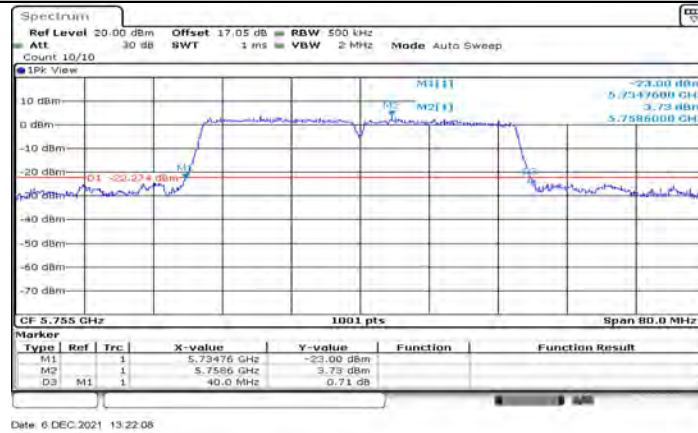


11N40MIMO\_Ant1\_5230





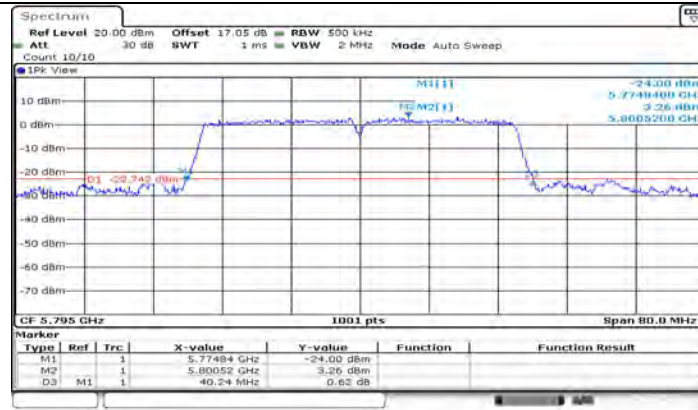
11N40MIMO\_Ant2\_5230



11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



Date: 6 DEC 2021 13:25:24

## 11N40MIMO\_Ant1\_5795



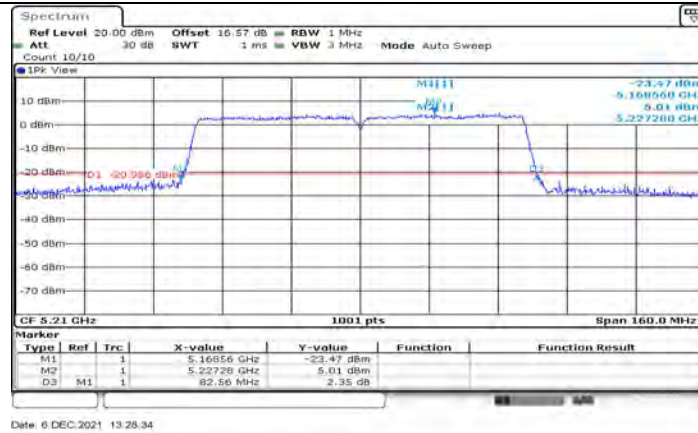
Date: 6 DEC 2021 13:25:36

## 11N40MIMO\_Ant2\_5795

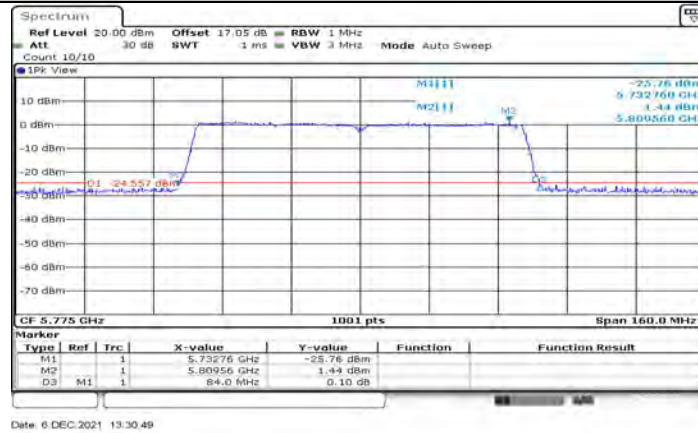


Date: 6 DEC 2021 13:28:15

## 11AC80MIMO\_Ant1\_5210



11AC80MIMO\_Ant2\_5210



11AC80MIMO\_Ant1\_5775

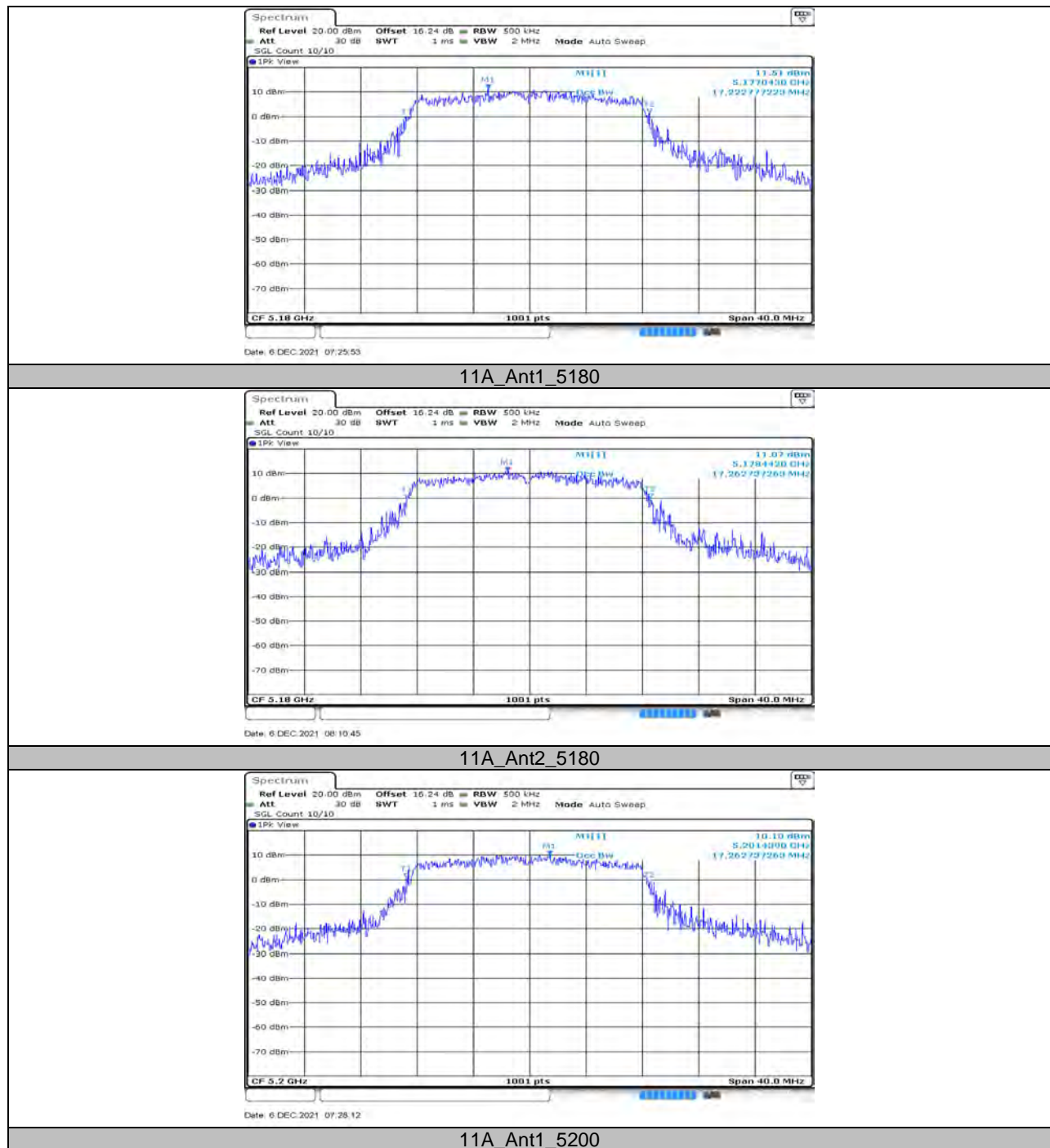


11AC80MIMO\_Ant2\_5775

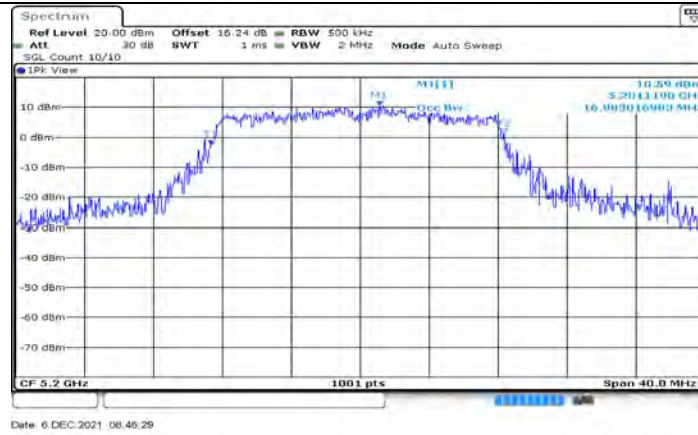
**12.2. Appendix A2: Occupied channel bandwidth****12.2.1. Test Result**

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	17.223	5171.289	5188.511	PASS
	Ant2	5180	17.263	5171.289	5188.551	PASS
	Ant1	5200	17.263	5191.249	5208.511	PASS
	Ant2	5200	16.983	5191.369	5208.352	PASS
	Ant1	5240	17.343	5231.249	5248.591	PASS
	Ant2	5240	16.903	5231.449	5248.352	PASS
	Ant1	5745	17.263	5736.209	5753.472	PASS
	Ant2	5745	17.223	5736.209	5753.432	PASS
	Ant1	5785	17.542	5776.209	5793.751	PASS
	Ant2	5785	17.383	5776.249	5793.631	PASS
	Ant1	5825	17.343	5816.209	5833.551	PASS
	Ant2	5825	17.183	5816.369	5833.551	PASS
11N20MIMO	Ant1	5180	18.102	5170.809	5188.911	PASS
	Ant2	5180	18.022	5170.889	5188.911	PASS
	Ant1	5200	17.982	5190.889	5208.871	PASS
	Ant2	5200	18.022	5190.889	5208.911	PASS
	Ant1	5240	18.102	5230.889	5248.991	PASS
	Ant2	5240	18.102	5230.889	5248.991	PASS
	Ant1	5745	18.102	5735.809	5753.911	PASS
	Ant2	5745	17.982	5735.809	5753.791	PASS
	Ant1	5785	18.062	5775.849	5793.911	PASS
	Ant2	5785	18.022	5775.809	5793.831	PASS
	Ant1	5825	18.382	5815.649	5834.031	PASS
	Ant2	5825	18.062	5815.849	5833.911	PASS
11N40MIMO	Ant1	5190	36.843	5171.459	5208.302	PASS
	Ant2	5190	36.523	5171.618	5208.142	PASS
	Ant1	5230	36.923	5211.698	5248.621	PASS
	Ant2	5230	36.603	5211.618	5248.222	PASS
	Ant1	5755	36.683	5736.459	5773.142	PASS
	Ant2	5755	36.923	5736.299	5773.222	PASS
	Ant1	5795	36.683	5776.538	5813.222	PASS
	Ant2	5795	36.763	5776.538	5813.302	PASS
11AC80MIMO	Ant1	5210	76.883	5171.638	5248.521	PASS
	Ant2	5210	76.723	5171.798	5248.521	PASS
	Ant1	5775	77.043	5736.319	5813.362	PASS
	Ant2	5775	77.043	5736.159	5813.202	PASS

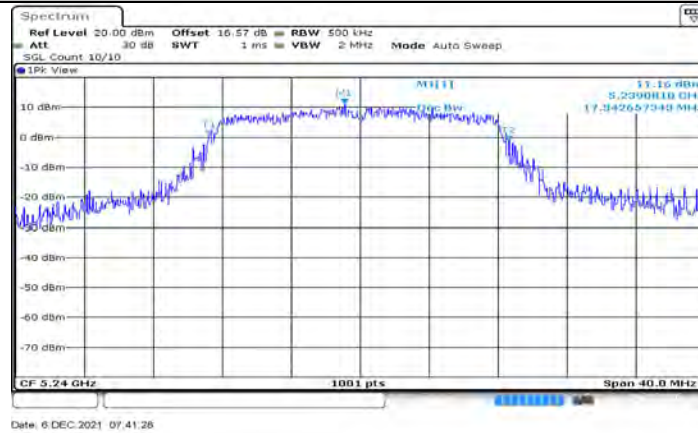
## 12.2.2. Test Graphs



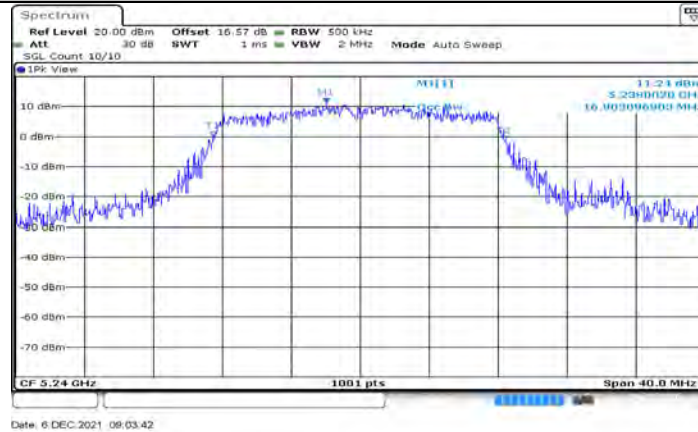




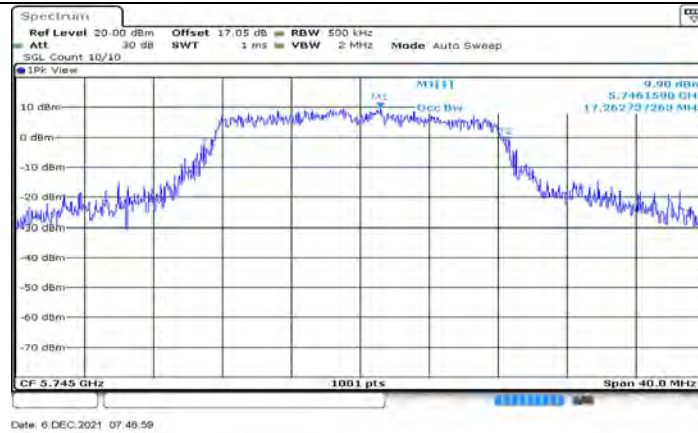
11A\_Ant2\_5200



11A\_Ant1\_5240



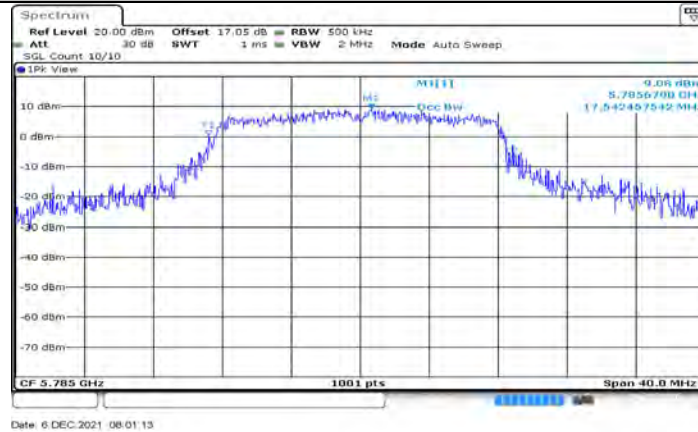
11A\_Ant2\_5240



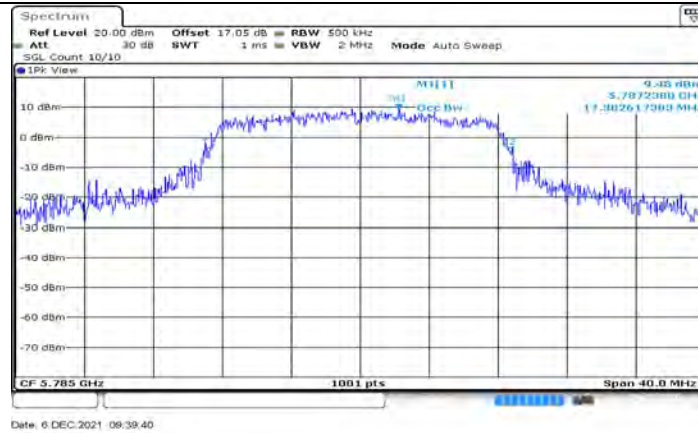
11A\_Ant1\_5745



11A\_Ant2\_5745



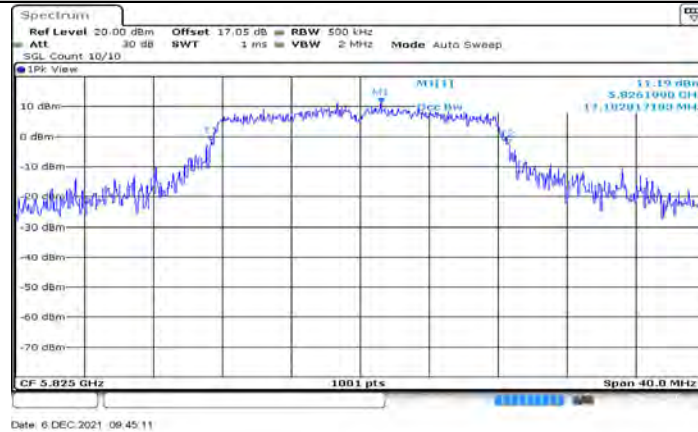
11A\_Ant1\_5785



11A\_Ant2\_5785

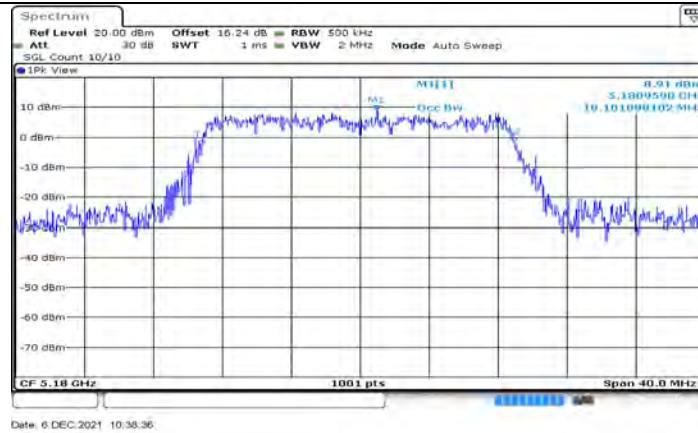


11A\_Ant1\_5825

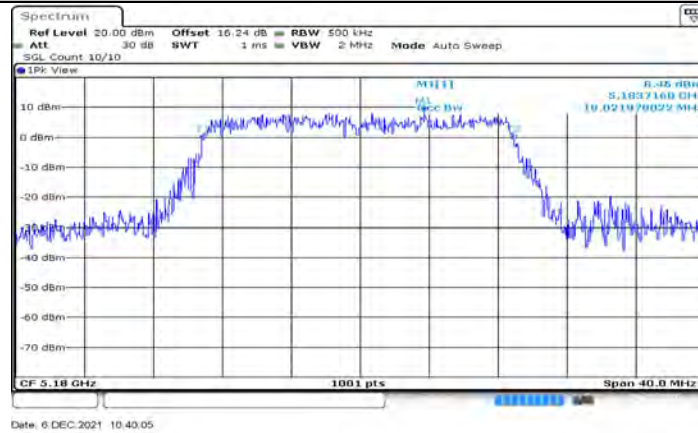


11A\_Ant2\_5825

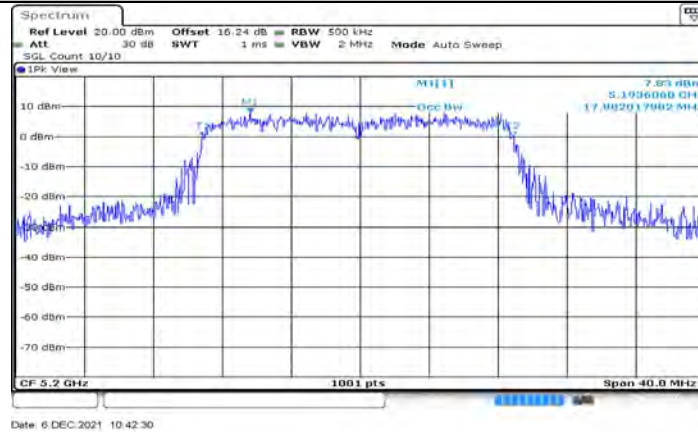




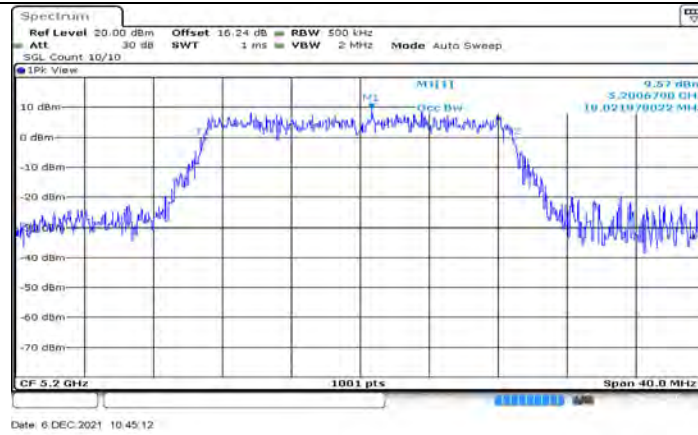
11N20MIMO\_Ant1\_5180



11N20MIMO\_Ant2\_5180



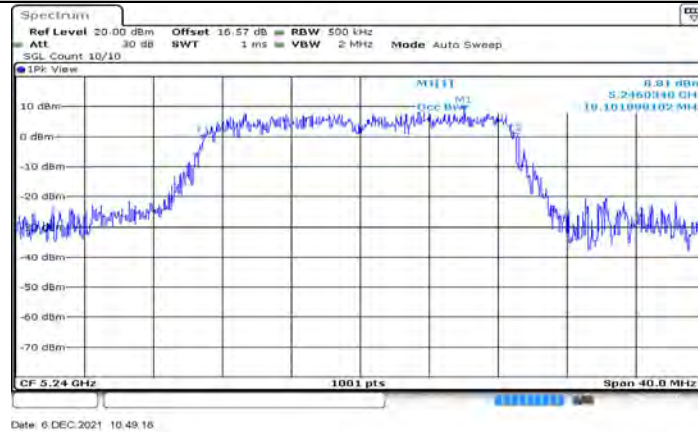
11N20MIMO\_Ant1\_5200



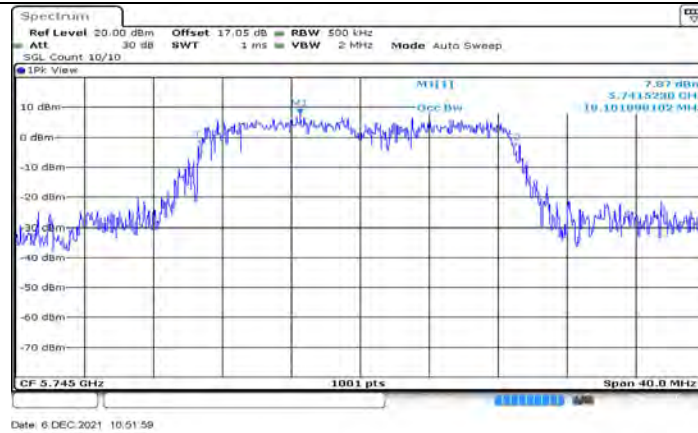
11N20MIMO\_Ant2\_5200



11N20MIMO\_Ant1\_5240



11N20MIMO\_Ant2\_5240



11N20MIMO\_Ant1\_5745



11N20MIMO\_Ant2\_5745



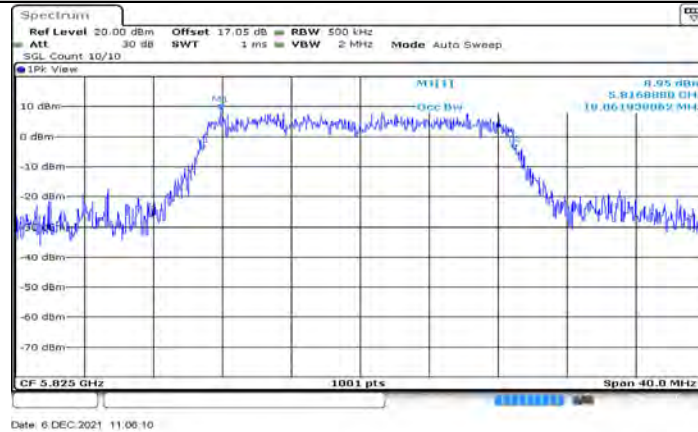
11N20MIMO\_Ant1\_5785



11N20MIMO\_Ant2\_5785

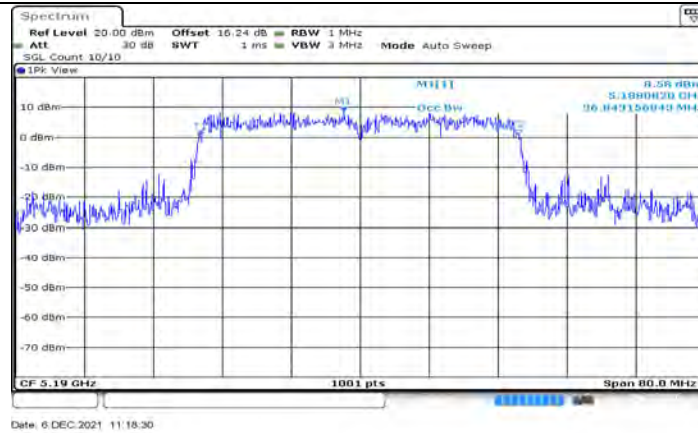


11N20MIMO\_Ant1\_5825

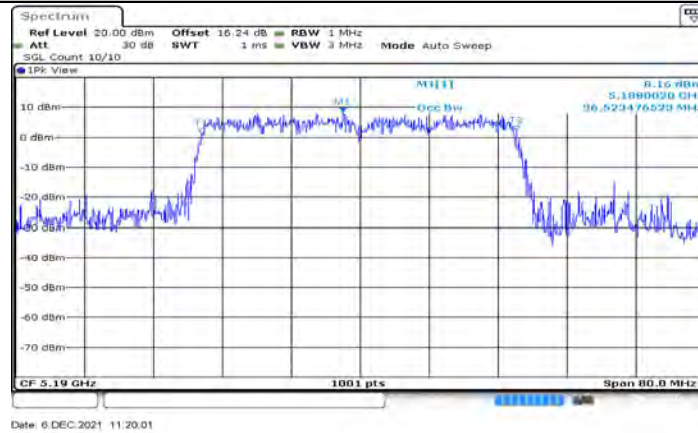


11N20MIMO\_Ant2\_5825

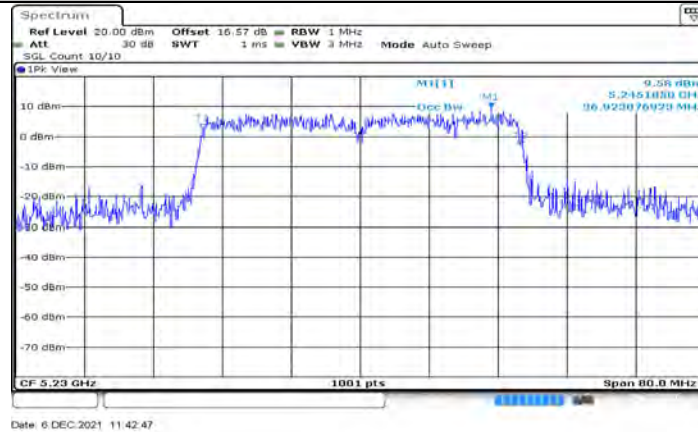




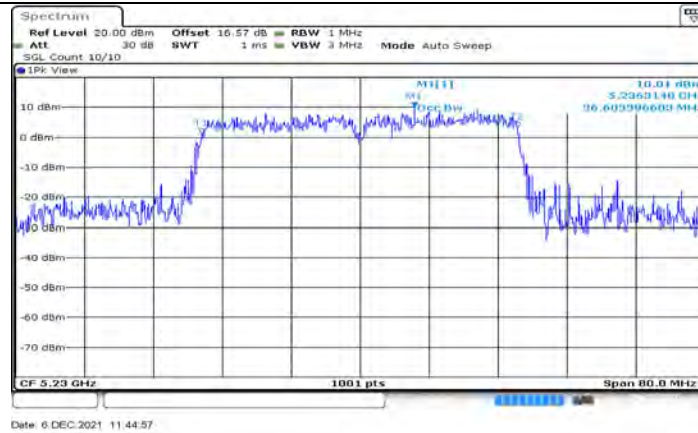
11N40MIMO\_Ant1\_5190



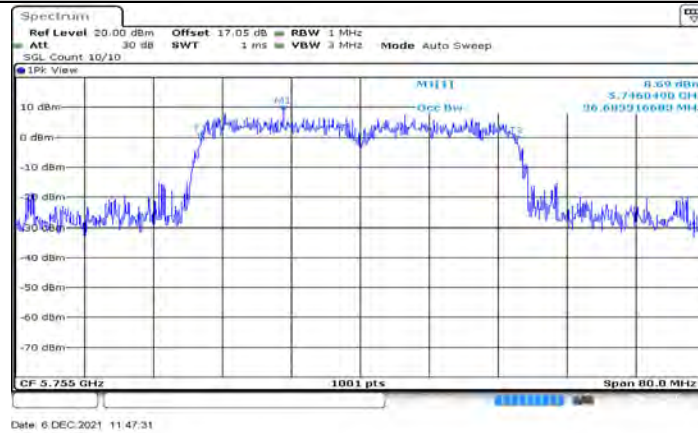
11N40MIMO\_Ant2\_5190



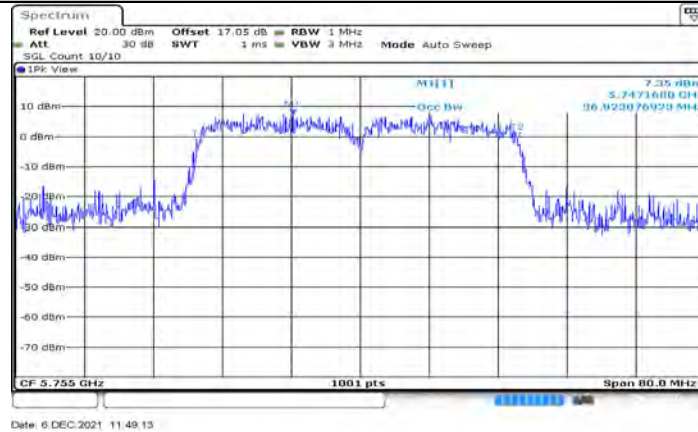
11N40MIMO\_Ant1\_5230



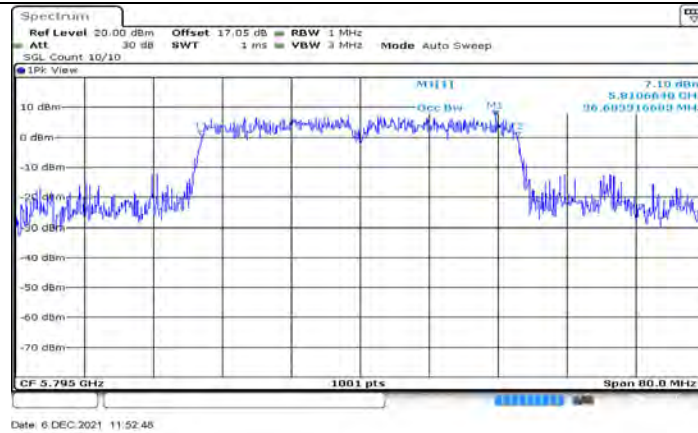
11N40MIMO\_Ant2\_5230



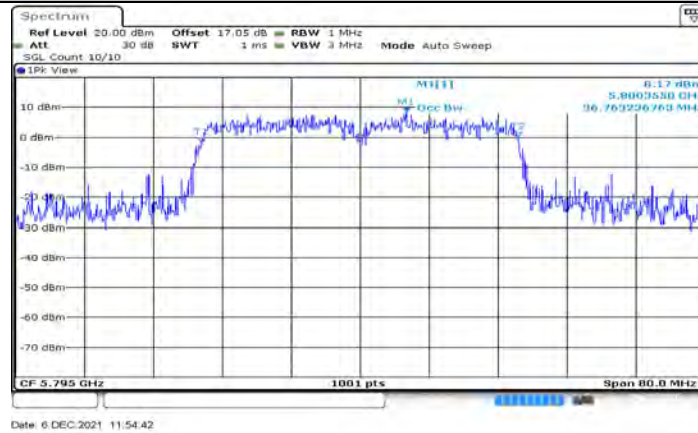
11N40MIMO\_Ant1\_5755



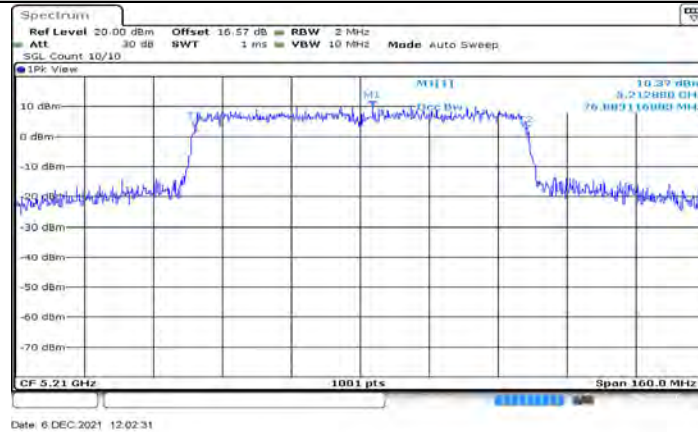
11N40MIMO\_Ant2\_5755



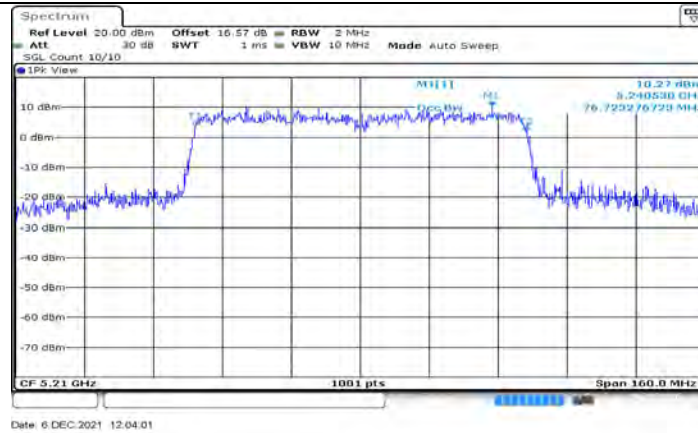
11N40MIMO\_Ant1\_5795



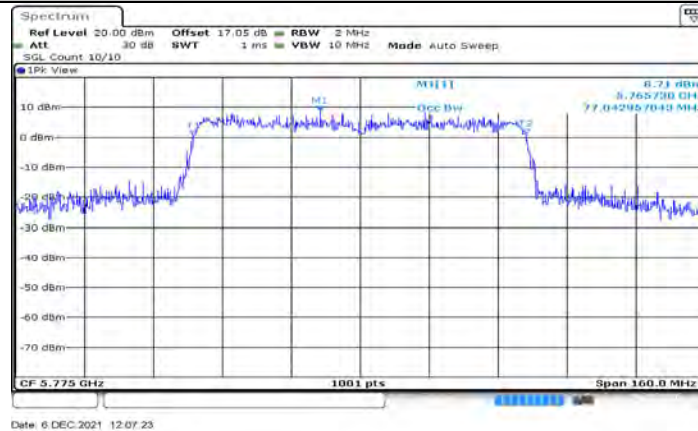
11N40MIMO\_Ant2\_5795



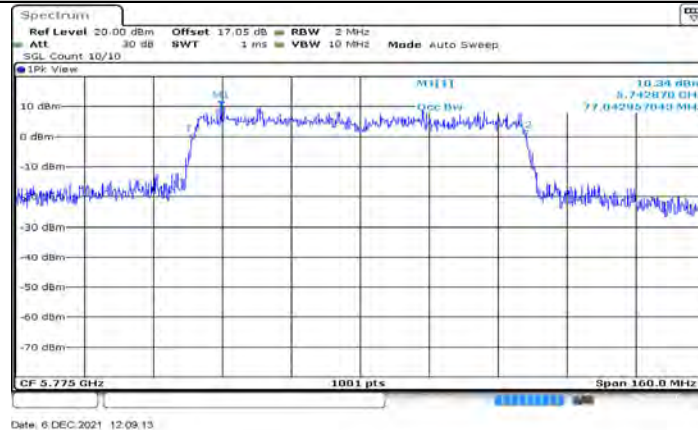
11AC80MIMO\_Ant1\_5210



11AC80MIMO\_Ant2\_5210



11AC80MIMO\_Ant1\_5775



11AC80MIMO\_Ant2\_5775



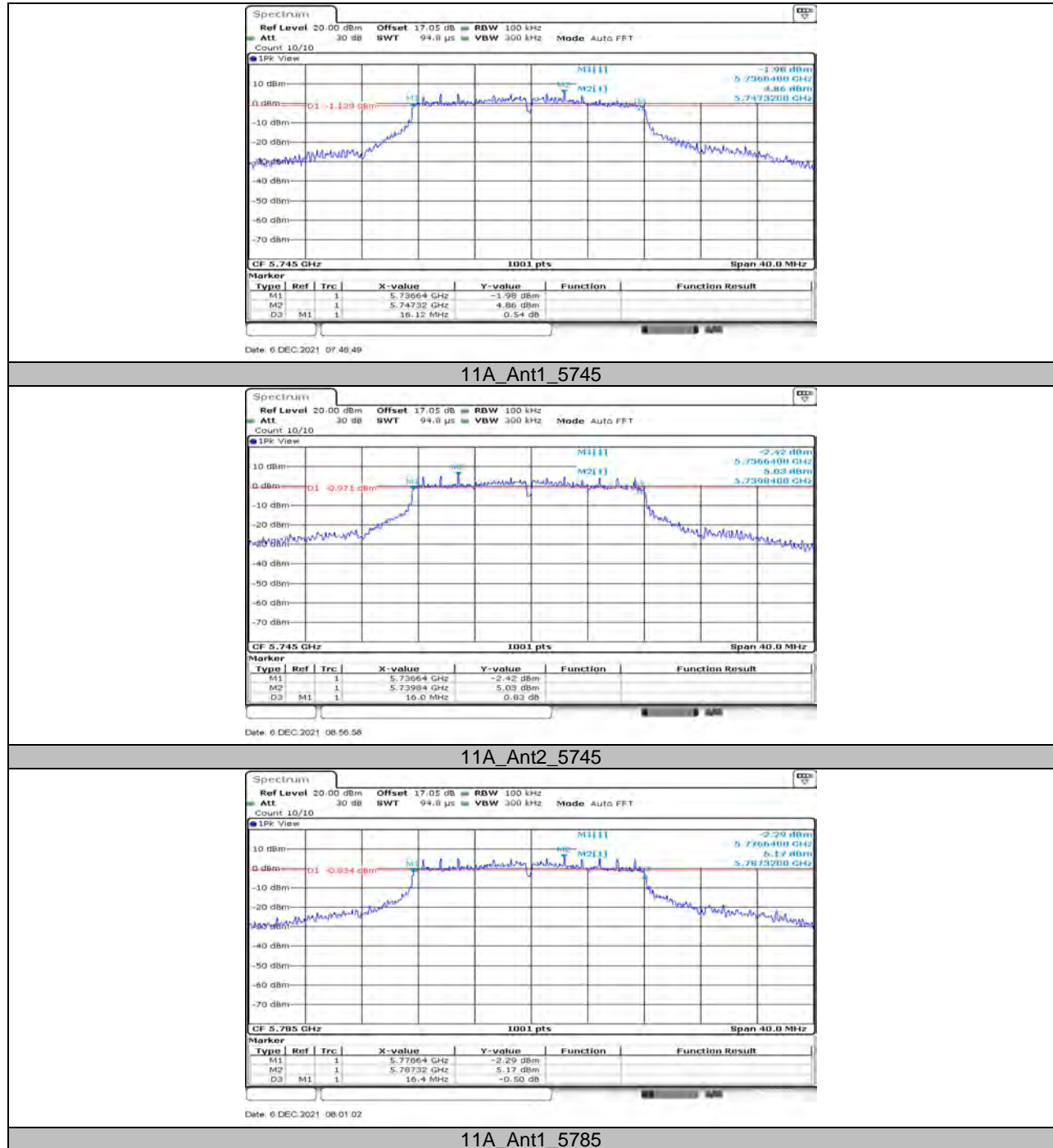


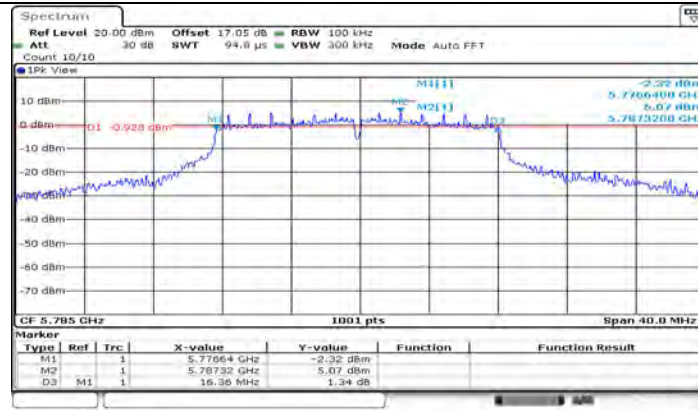
## 12.3. Appendix A3: Min emission bandwidth

### 12.3.1. Test Result

Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.120	5736.640	5752.760	0.5	PASS
	Ant2	5745	16.000	5736.640	5752.640	0.5	PASS
	Ant1	5785	16.400	5776.640	5793.040	0.5	PASS
	Ant2	5785	16.360	5776.640	5793.000	0.5	PASS
	Ant1	5825	16.400	5816.640	5833.040	0.5	PASS
	Ant2	5825	16.160	5816.640	5832.800	0.5	PASS
11N20MIMO	Ant1	5745	17.760	5735.920	5753.680	0.5	PASS
	Ant2	5745	17.760	5735.920	5753.680	0.5	PASS
	Ant1	5785	17.800	5775.960	5793.760	0.5	PASS
	Ant2	5785	17.800	5775.920	5793.720	0.5	PASS
	Ant1	5825	17.720	5815.960	5833.680	0.5	PASS
	Ant2	5825	17.760	5815.960	5833.720	0.5	PASS
11N40MIMO	Ant1	5755	36.640	5736.520	5773.160	0.5	PASS
	Ant2	5755	36.640	5736.520	5773.160	0.5	PASS
	Ant1	5795	36.560	5776.600	5813.160	0.5	PASS
	Ant2	5795	36.640	5776.520	5813.160	0.5	PASS
11AC80MIMO	Ant1	5775	76.480	5736.440	5812.920	0.5	PASS
	Ant2	5775	76.800	5736.440	5813.240	0.5	PASS

### 12.3.2. Test Graphs





Date: 6 DEC 2021 09:39:29

11A\_Ant2\_5785



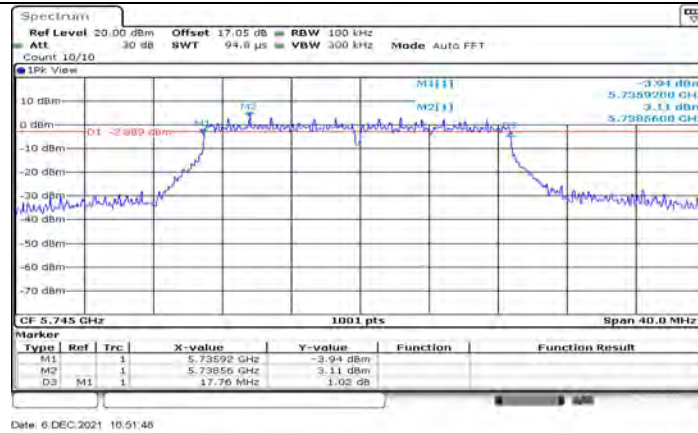
Date: 6 DEC 2021 08:03:32

11A\_Ant1\_5825

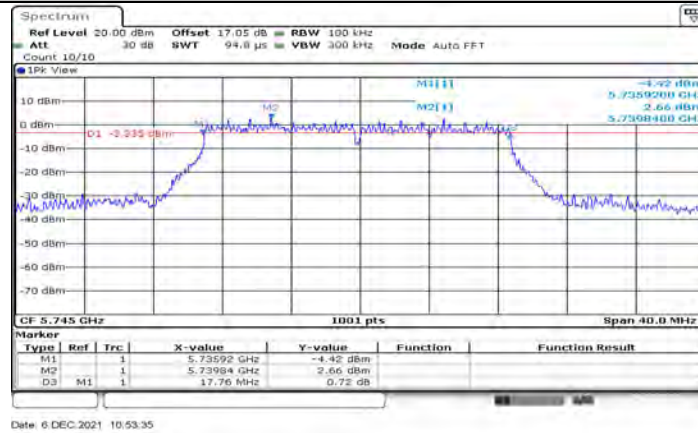


Date: 6 DEC 2021 09:45:01

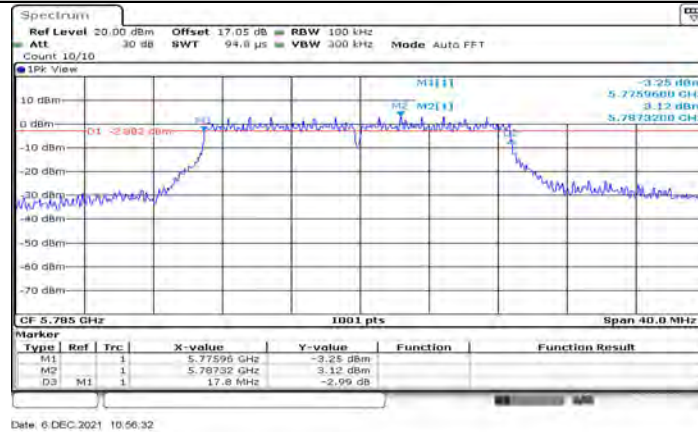
11A\_Ant2\_5825



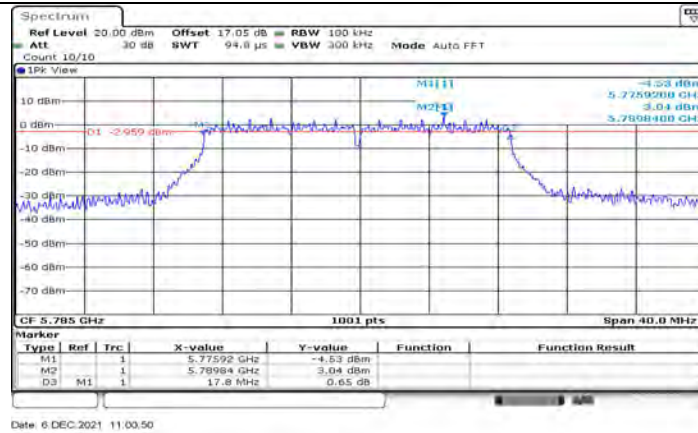
11N20MIMO\_Ant1\_5745



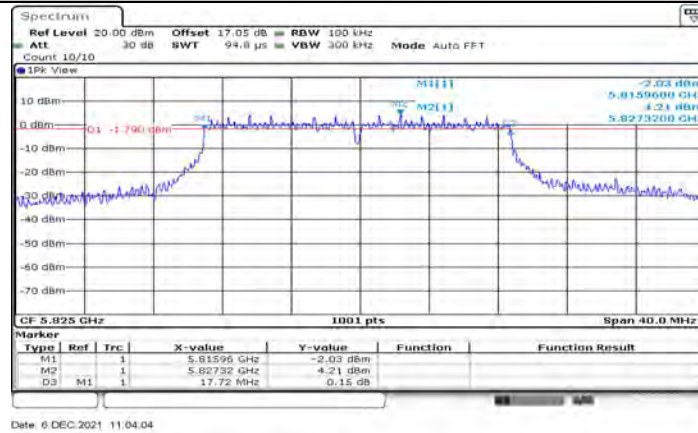
11N20MIMO\_Ant2\_5745



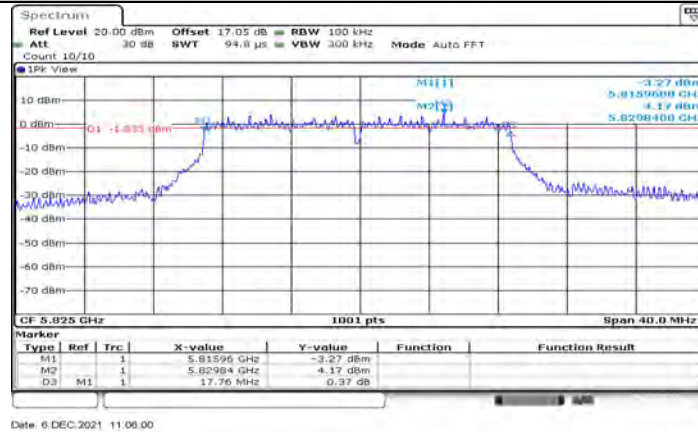
11N20MIMO\_Ant1\_5785



11N20MIMO\_Ant2\_5785

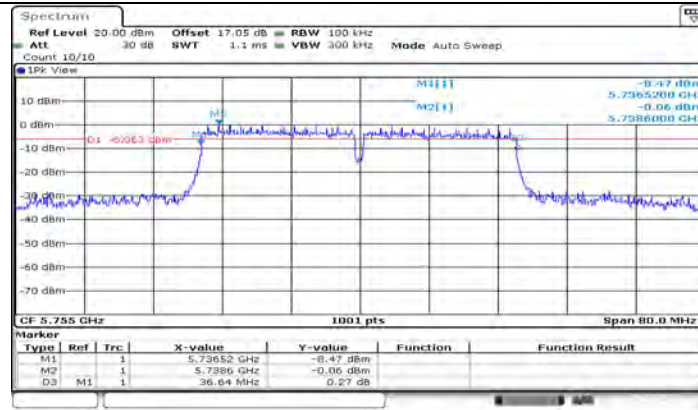


11N20MIMO\_Ant1\_5825



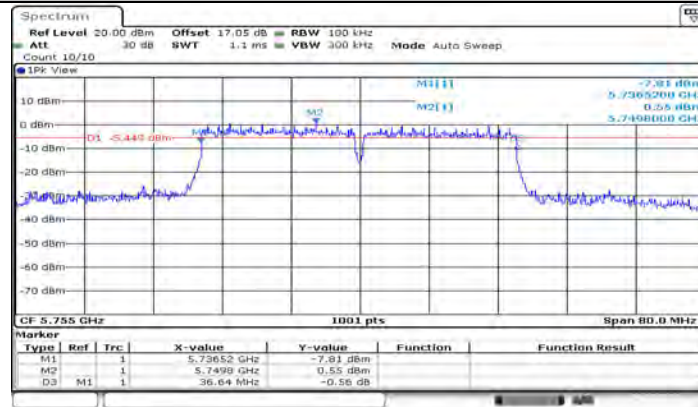
11N20MIMO\_Ant2\_5825





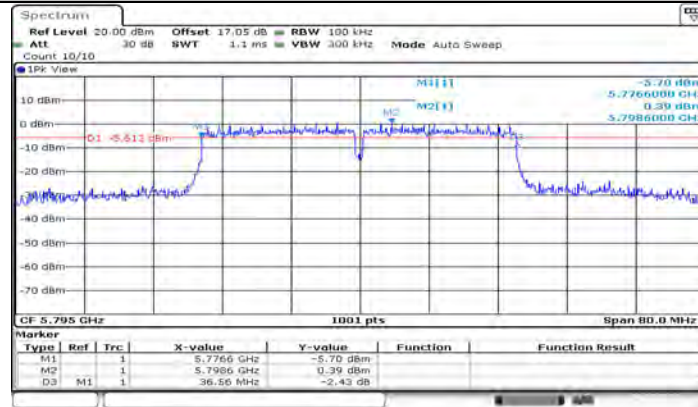
Date: 6 DEC 2021 11:47:20

#### 11N40MIMO\_Ant1\_5755



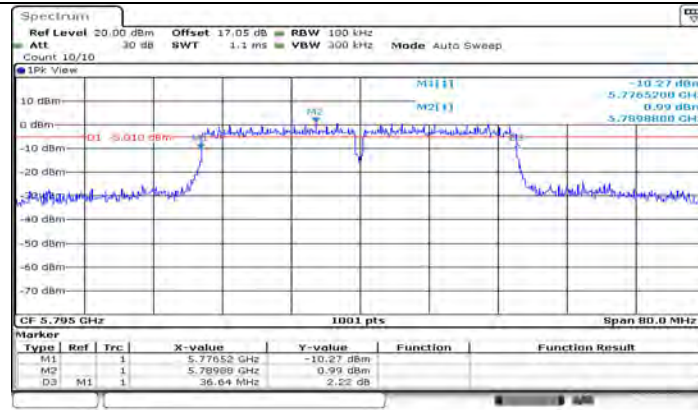
Date: 6 DEC 2021 11:49:02

#### 11N40MIMO\_Ant2\_5755

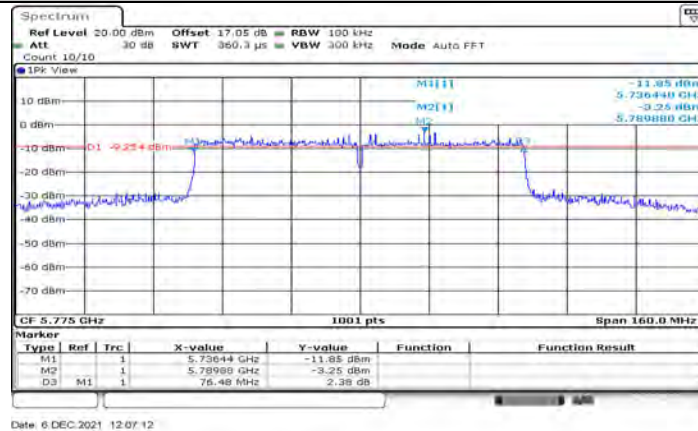


Date: 6 DEC 2021 11:52:37

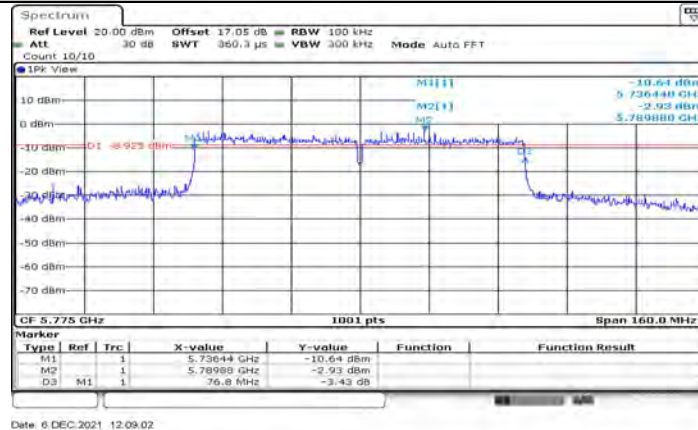
#### 11N40MIMO\_Ant1\_5795



11N40MIMO\_Ant2\_5795



11AC80MIMO\_Ant1\_5775



11AC80MIMO\_Ant2\_5775





**12.3.3.****12.4. Appendix B: Maximum conducted output power****12.4.1. Test Result**

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	11.19	≤23.98	PASS
	Ant2	5180	12.88	≤23.98	PASS
	Ant1	5200	12.42	≤23.98	PASS
	Ant2	5200	12.60	≤23.98	PASS
	Ant1	5240	12.20	≤23.98	PASS
	Ant2	5240	12.77	≤23.98	PASS
	Ant1	5745	12.12	≤30	PASS
	Ant2	5745	13.79	≤30	PASS
	Ant1	5785	12.01	≤30	PASS
	Ant2	5785	13.83	≤30	PASS
	Ant1	5825	12.41	≤30	PASS
	Ant2	5825	14.89	≤30	PASS
11N20MIMO	Ant1	5180	11.11	≤23.98	PASS
	Ant2	5180	12.56	≤23.98	PASS
	total	5180	14.91	≤23.98	PASS
	Ant1	5200	12.32	≤23.98	PASS
	Ant2	5200	12.56	≤23.98	PASS
	total	5200	15.45	≤23.98	PASS
	Ant1	5240	12.12	≤23.98	PASS
	Ant2	5240	12.67	≤23.98	PASS
	total	5240	15.41	≤23.98	PASS
	Ant1	5745	12.09	≤30	PASS
	Ant2	5745	13.56	≤30	PASS
	total	5745	15.90	≤30	PASS
	Ant1	5785	11.87	≤30	PASS
	Ant2	5785	13.56	≤30	PASS
	total	5785	15.81	≤30	PASS
	Ant1	5825	12.23	≤30	PASS
	Ant2	5825	14.54	≤30	PASS
	total	5825	16.55	≤30	PASS
11N40MIMO	Ant1	5190	11.22	≤23.98	PASS
	Ant2	5190	12.46	≤23.98	PASS
	total	5190	14.89	≤23.98	PASS
	Ant1	5230	12.31	≤23.98	PASS
	Ant2	5230	12.61	≤23.98	PASS
	total	5230	15.47	≤23.98	PASS
	Ant1	5755	12.12	≤30	PASS
	Ant2	5755	13.49	≤30	PASS
	total	5755	15.87	≤30	PASS
	Ant1	5795	12.17	≤30	PASS
	Ant2	5795	14.57	≤30	PASS
	total	5795	16.54	≤30	PASS
11AC80MIMO	Ant1	5210	11.12	≤23.98	PASS
	Ant2	5210	12.36	≤23.98	PASS
	total	5210	14.79	≤23.98	PASS
	Ant1	5775	11.67	≤30	PASS
	Ant2	5775	13.45	≤30	PASS
	total	5775	15.66	≤30	PASS

Note: 1. Conducted Power=Meas. Level+ Correction Factor

2. The Duty Cycle Factor (refer to section 7.1) had already compensated to the test data.

## 12.5. Appendix C: Maximum power spectral density

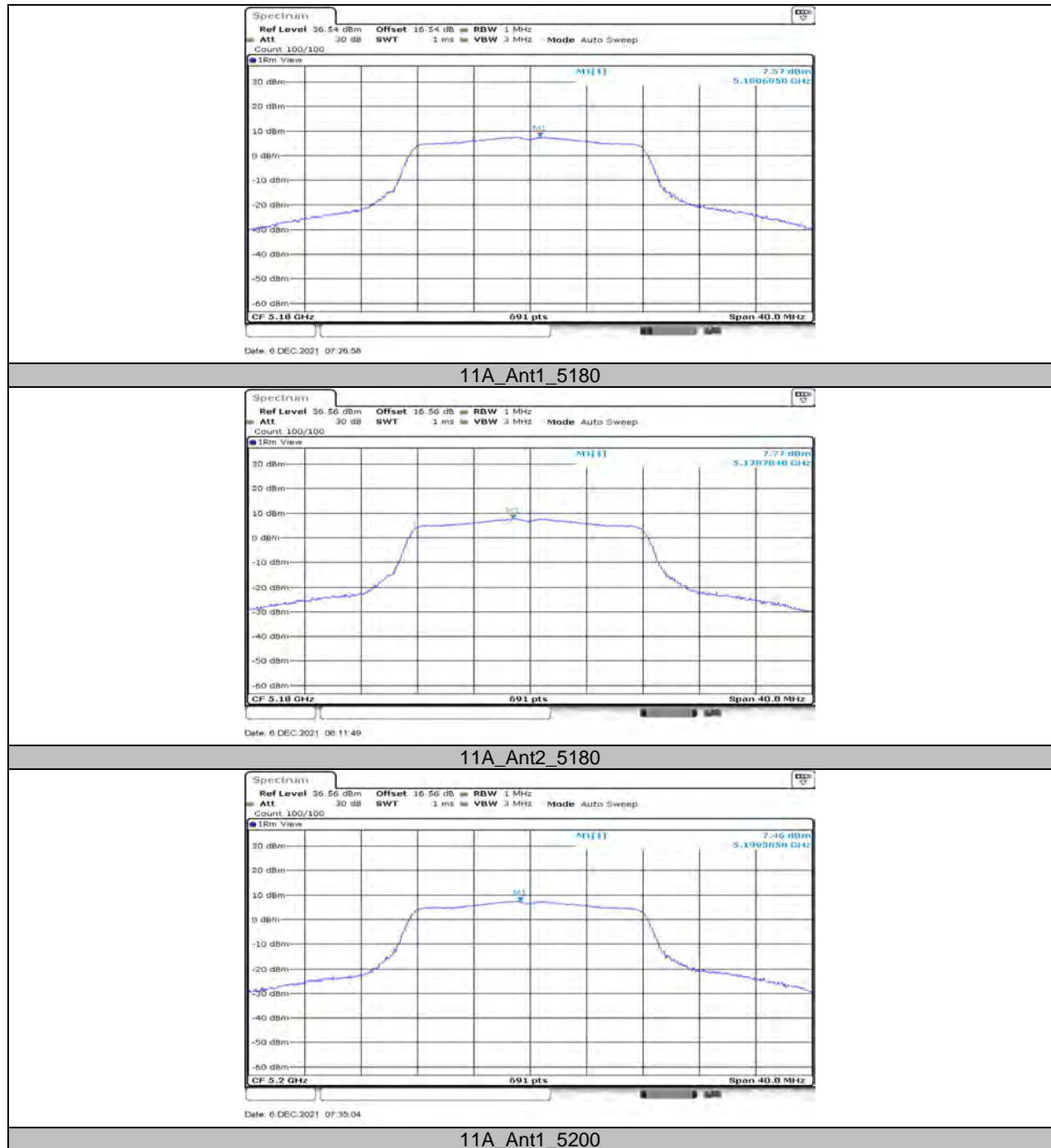
### 12.5.1. Test Result

Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	7.57	≤11	PASS
	Ant2	5180	7.77	≤11	PASS
	Ant1	5200	7.46	≤11	PASS
	Ant2	5200	7.08	≤11	PASS
	Ant1	5240	7.52	≤11	PASS
	Ant2	5240	7.53	≤11	PASS
	Ant1	5745	3.59	≤30	PASS
	Ant2	5745	3.18	≤30	PASS
	Ant1	5785	3.45	≤30	PASS
	Ant2	5785	3.23	≤30	PASS
	Ant1	5825	4.68	≤30	PASS
	Ant2	5825	4.29	≤30	PASS
11N20MIMO	Ant1	5180	4.76	≤11	PASS
	Ant2	5180	4.53	≤11	PASS
	total	5180	7.66	≤11	PASS
	Ant1	5200	4.43	≤11	PASS
	Ant2	5200	4.06	≤11	PASS
	total	5200	7.26	≤11	PASS
	Ant1	5240	4.23	≤11	PASS
	Ant2	5240	4.57	≤11	PASS
	total	5240	7.41	≤11	PASS
	Ant1	5745	0.65	≤30	PASS
	Ant2	5745	0.39	≤30	PASS
	total	5745	3.53	≤30	PASS
	Ant1	5785	0.76	≤30	PASS
	Ant2	5785	0.44	≤30	PASS
	total	5785	3.61	≤30	PASS
	Ant1	5825	1.68	≤30	PASS
	Ant2	5825	1.23	≤30	PASS
	total	5825	4.47	≤30	PASS
11N40MIMO	Ant1	5190	1.39	≤11	PASS
	Ant2	5190	1.31	≤11	PASS
	total	5190	4.36	≤11	PASS
	Ant1	5230	1.9	≤11	PASS
	Ant2	5230	2.05	≤11	PASS
	total	5230	4.99	≤11	PASS
	Ant1	5755	-1.97	≤30	PASS
	Ant2	5755	-2.43	≤30	PASS
	total	5755	0.82	≤30	PASS
	Ant1	5795	-1.28	≤30	PASS
	Ant2	5795	-1.81	≤30	PASS
	total	5795	1.47	≤30	PASS
11AC80MIMO	Ant1	5210	-2.54	≤11	PASS
	Ant2	5210	-0.82	≤11	PASS
	total	5210	1.41	≤11	PASS
	Ant1	5775	-5.2	≤30	PASS
	Ant2	5775	-6.71	≤30	PASS
	total	5775	-2.88	≤30	PASS

Note : 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

## 12.5.2. Test Graphs





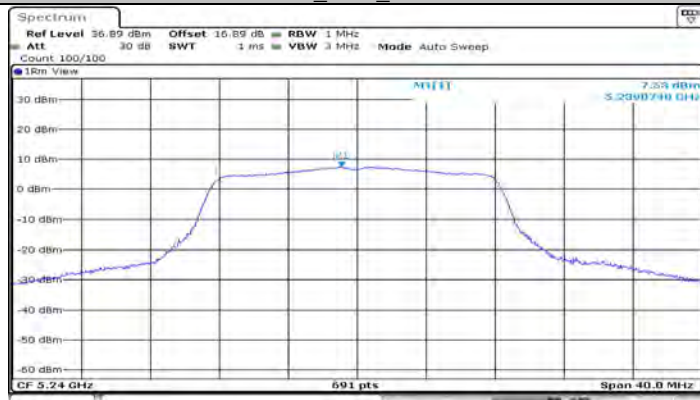
Date: 6 DEC 2021 08:47:33

11A\_Ant2\_5200



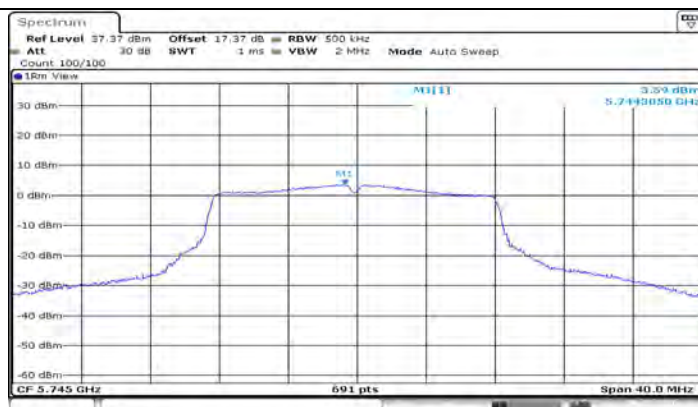
Date: 6 DEC 2021 07:42:32

11A\_Ant1\_5240



Date: 6 DEC 2021 09:06:20

11A\_Ant2\_5240



Date: 6 DEC 2021 07:51:48

11A\_Ant1\_5745



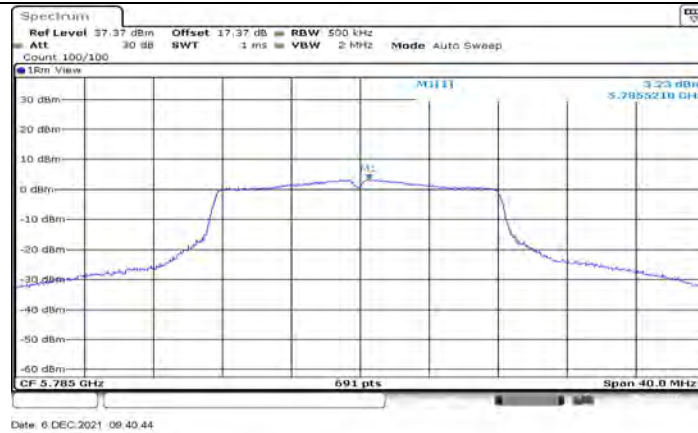
Date: 6 DEC 2021 08:58:12

11A\_Ant2\_5745



Date: 6 DEC 2021 08:02:17

11A\_Ant1\_5785



11A\_Ant2\_5785



11A\_Ant1\_5825



11A\_Ant2\_5825





11N20MIMO\_Ant1\_5180



11N20MIMO\_Ant2\_5180



11N20MIMO\_Ant1\_5200



11N20MIMO\_Ant2\_5200

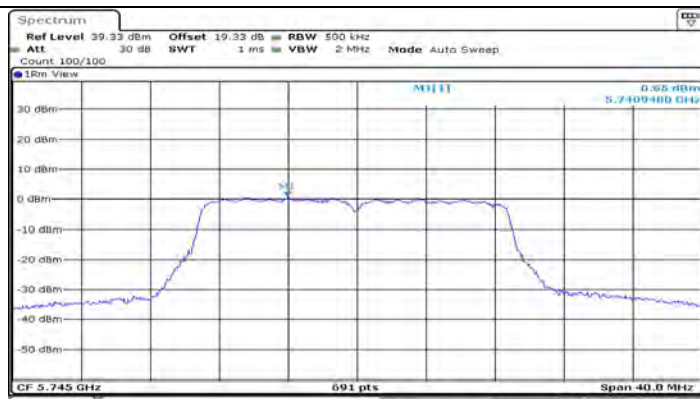


11N20MIMO\_Ant1\_5240



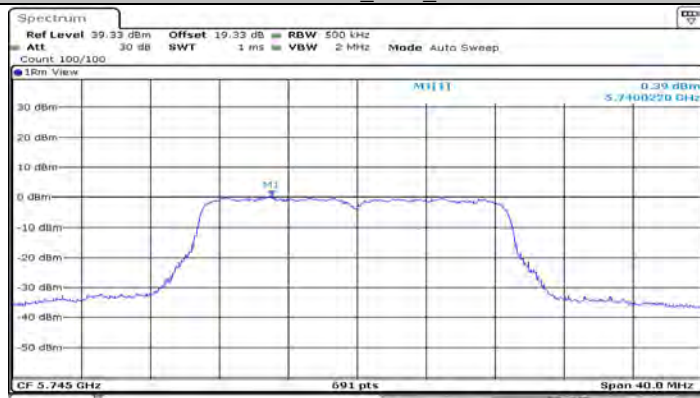
11N20MIMO\_Ant2\_5240





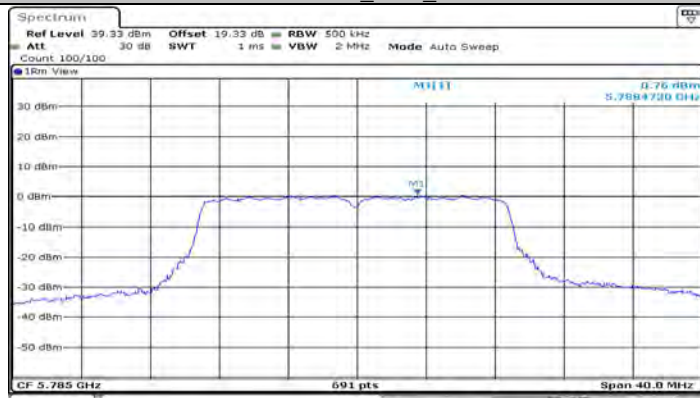
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11N20MIMO\_Ant1\_5745



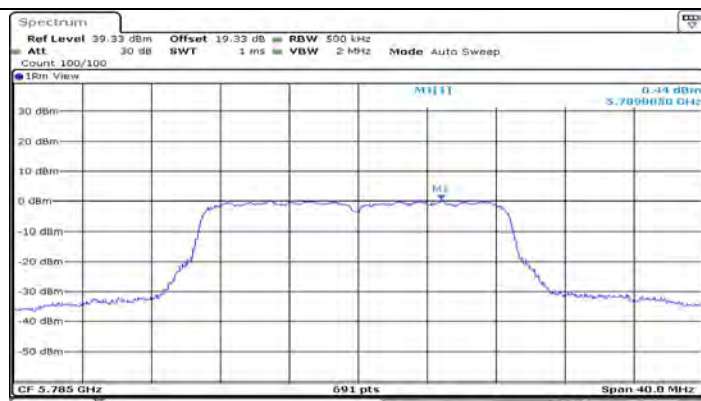
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11N20MIMO\_Ant2\_5745



Date: 6 DEC 2021 10:57:47

11N20MIMO\_Ant1\_5785



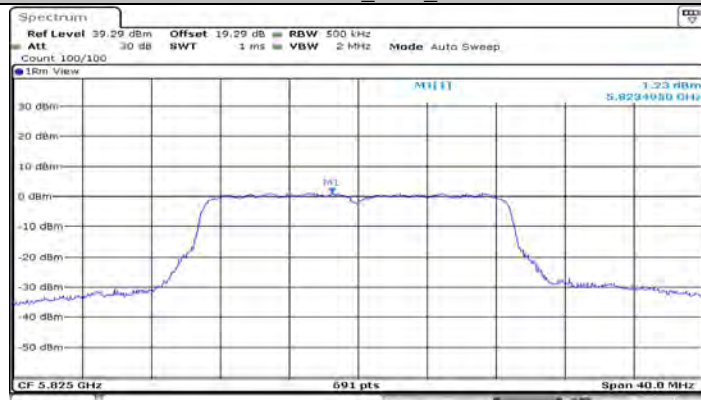
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11N20MIMO\_Ant2\_5785



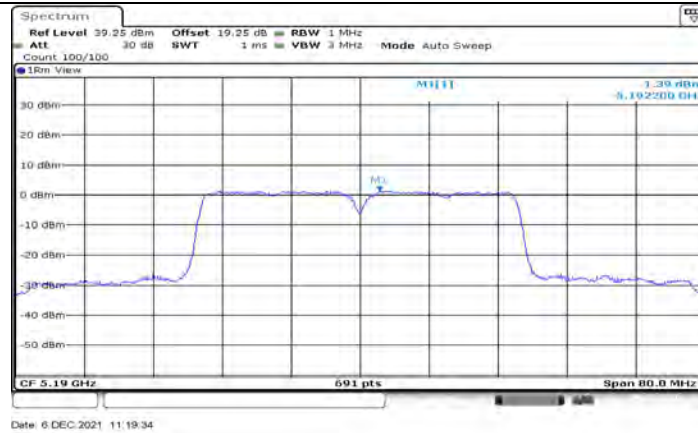
Date: 6 DEC 2021 11:05:16

11N20MIMO\_Ant1\_5825



Date: 6 DEC 2021 11:07:15

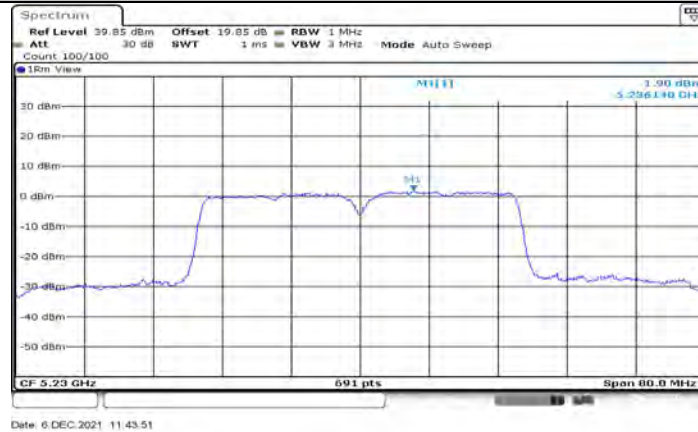
11N20MIMO\_Ant2\_5825



11N40MIMO\_Ant1\_5190



11N40MIMO\_Ant2\_5190



11N40MIMO\_Ant1\_5230



11N40MIMO\_Ant2\_5230



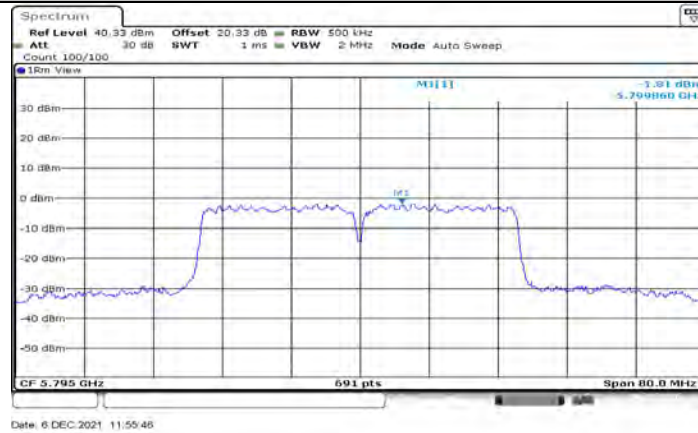
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795

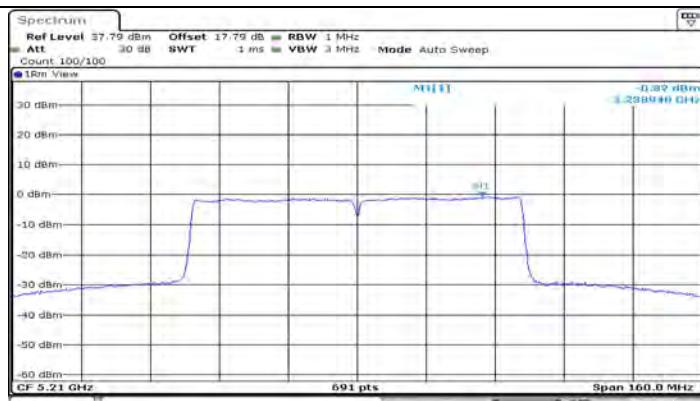


11N40MIMO\_Ant2\_5795



11AC80MIMO\_Ant1\_5210





11AC80MIMO\_Ant2\_5210



11AC80MIMO\_Ant1\_5775



11AC80MIMO\_Ant2\_5775



## 12.6. Appendix D: Duty Cycle

### 12.6.1. Test Result

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11A	1.38	1.48	0.9324	93.24	0.30	0.72	1
11N20MIMO	0.16	0.26	0.6154	61.54	2.11	6.25	7
11N40MIMO	0.10	0.20	0.5000	50.00	3.01	10.00	11
11AC80MIMO	2.22	2.24	0.9911	99.11	0.04	0.45	0.01

Note:

Duty Cycle Correction Factor= $10\log(1/x)$ .

Where: x is Duty Cycle (Linear)

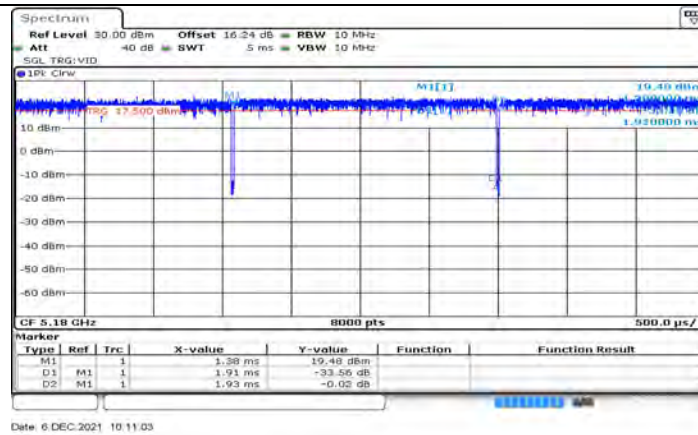
Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.

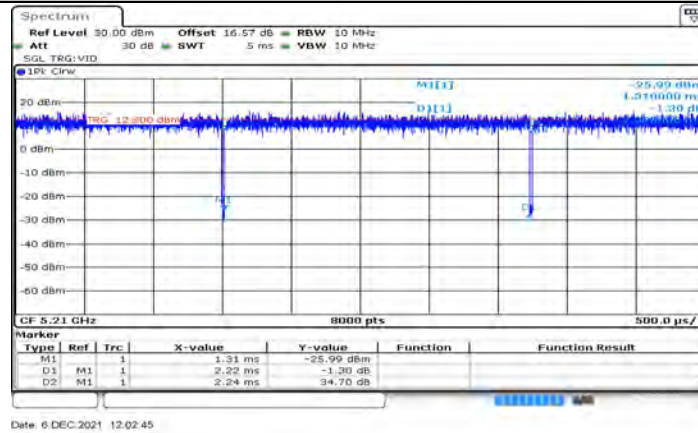
## 12.6.2. Test Graphs







11AC20MIMO\_Ant1\_5180



11AC80MIMO\_Ant1\_5210

**12.7. Appendix E: FREQUENCY STABILITY**

Frequency Error vs. Voltage									
802.11a:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5199.9858	-2.73	5199.9824	-3.38	5200.0074	1.43	5199.9990	-0.19
TN	VN	5200.0036	0.69	5200.0159	3.05	5199.9915	-1.64	5199.9802	-3.81
TN	VH	5200.0070	1.35	5199.9788	-4.08	5200.0116	2.23	5200.0128	2.46
Frequency Error vs. Temperature									
802.11a:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	VN	5200.0232	4.46	5200.0137	2.63	5199.9910	-1.73	5200.0113	2.18
40	VN	5200.0162	3.11	5199.9957	-0.82	5199.9923	-1.48	5200.0021	0.41
30	VN	5200.0074	1.43	5199.9908	-1.76	5200.0107	2.06	5200.0245	4.72
20	VN	5199.9764	-4.54	5199.9961	-0.75	5200.0082	1.59	5200.0115	2.20
10	VN	5199.9894	-2.04	5199.9936	-1.23	5200.0123	2.37	5200.0127	2.44
0	VN	5199.9886	-2.19	5200.0143	2.74	5199.9882	-2.26	5200.0116	2.22



Frequency Error vs. Voltage									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5825.0032	0.55	5825.0080	1.38	5824.9960	-0.68	5825.0057	0.98
TN	VN	5824.9965	-0.61	5825.0036	0.63	5825.0173	2.96	5825.0082	1.41
TN	VH	5824.9985	-0.26	5825.0227	3.90	5824.9824	-3.02	5824.9873	-2.18
Frequency Error vs. Temperature									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	VN	5825.0177	3.04	5825.0190	3.26	5825.0138	2.37	5824.9859	-2.42
40	VN	5824.9762	-4.09	5824.9935	-1.12	5824.9865	-2.31	5824.9974	-0.44
30	VN	5825.0062	1.06	5824.9883	-2.01	5825.0105	1.80	5825.0045	0.77
20	VN	5825.0077	1.32	5824.9891	-1.87	5824.9807	-3.31	5825.0072	1.24
10	VN	5825.0021	0.37	5824.9870	-2.23	5824.9767	-4.00	5825.0069	1.18
0	VN	5824.9919	-1.38	5825.0184	3.16	5824.9834	-2.84	5824.9934	-1.14

Note: All antennas and test modes have been tested, only the worst data record in the report.

**END OF REPORT**