



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

**CERTIFICATION TEST REPORT**

*For*

**IEEE 802.11b/g/n 2T2R USB Wi-Fi Module**

**MODEL NUMBER: SKO.W603.6**

**FCC ID: 2AR82-SKOW603601**

**IC: 24728-SKOW603601**

**REPORT NUMBER: 4789740323-1**

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	01/04/2021	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2) RSS-247 Clause 5.2 (a) ISED RSS-Gen Clause 6.7	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (d)	Pass
3	Power Spectral Density	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
6	Conducted Emission Test for AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
7	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 6.8	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;&lt; ISED RSS-247 &gt; when &lt;Accuracy Method&gt; decision rule is applied.</p>			

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Guangzhou Shikun Electronics Co., Ltd  
Address: NO.6 Liankun Road, Huangpu District, Guangzhou, China

### Manufacturer Information

Company Name: Guangzhou Shikun Electronics Co., Ltd  
Address: NO.6 Liankun Road, Huangpu District, Guangzhou, China

### EUT Information

EUT Name: IEEE 802.11b/g/n 2T2R USB Wi-Fi Module  
Model: SKO.W603.6  
Sample Received Date: December 1, 2020  
Sample Status: Normal  
Sample ID: 3492101  
Date of Tested: December 1, 2020~ December 11, 2020

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

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

## 3. FACILITIES AND ACCREDITATION

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

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

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

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

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

### 4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Duty Cycle	±0.028%
DTS and 99% Occupied Bandwidth	±0.0196%
Maximum Conducted Output Power	±0.686 dB
Maximum Power Spectral Density Level	±0.743 dB
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz)
	±1.328dB (1 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	





## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT Name	IEEE 802.11b/g/n 2T2R USB Wi-Fi Module		
Model	SKO.W603.6		
Radio Technology	WLAN (IEEE 802.11b/g/n HT20/n HT40)		
Operation frequency	IEEE 802.11b: 2412MHz ~ 2462MHz IEEE 802.11g: 2412MHz ~ 2462MHz IEEE 802.11n HT20: 2412MHz ~ 2462MHz IEEE 802.11n HT40: 2422MHz ~ 2452MHz		
Modulation	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)		
Power Supply	DC State	Rate Input:	DC 5 V

### 5.2. CHANNEL LIST

Channel List for 802.11b/g/n (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	/	/

Channel List for 802.11n (40 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	5	2432	7	2442	9	2452
4	2427	6	2437	8	2447	/	/

### 5.3. MAXIMUM OUTPUT POWER

IEEE Std. 802.11	Frequency (MHz)	Channel Number	Maximum Conducted AVG Output Power (dBm)
802.11b SISO	2412 ~ 2462	1-11[11]	15.91
802.11g SISO	2412 ~ 2462	1-11[11]	13.85
802.11n HT20 SISO	2412 ~ 2462	1-11[11]	Covered by 802.11n HT20 2TX CDD
802.11n HT20 SDM	2412 ~ 2462	1-11[11]	Covered by 802.11n HT20 2TX CDD
802.11n HT20 CDD	2412 ~ 2462	1-11[11]	15.84
802.11n HT20 STBC	2412 ~ 2462	1-11[11]	Covered by 802.11n HT20 2TX CDD
802.11n HT40 SISO	2422 ~ 2452	3-9[7]	Covered by 802.11n HT40 2TX CDD
802.11n HT40 SDM	2422 ~ 2452	3-9[7]	Covered by 802.11n HT40 2TX CDD
802.11n HT40 CDD	2422 ~ 2452	3-9[7]	16.32
802.11n HT40 STBC	2422 ~ 2452	3-9[7]	Covered by 802.11n HT40 2TX CDD

### 5.4. TEST CHANNEL CONFIGURATION

IEEE Std. 802.11	Test Channel Number	Frequency
b	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
g	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
n HT20	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
n HT40	CH 3(Low Channel), CH 6(MID Channel), CH 9(High Channel)	2422 MHz, 2437 MHz, 2452 MHz

### 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worst Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		MT7603U_QA_Tool					
Modulation Mode	Transmit Antenna Number	Test Software setting value					
		NCB: 20MHz			NCB: 40MHz		
		CH 1	CH 6	CH 11	CH 3	CH 6	CH 9
802.11b	1	Default	Default	Default	/		
802.11g	1	Default	Default	Default			
802.11n HT20	1	Default	Default	Default			
802.11n HT40	1	/			Default	Default	Default

## 5.6. THE WORSE CASE CONFIGURATIONS

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

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

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

Worst case Data Rates declared by the customer:

- IEEE 802.11b / SISO – DBPSK / 1 Mbps
- IEEE 802.11g / SISO – BPSK / 6 Mbps
- IEEE 802.11n HT20 / MIMO – BPSK / MCS0
- IEEE 802.11n HT40 / MIMO – BPSK / MCS0

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.



## 5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2412-2462	PCBA Antenna	1.54
2	2412-2462	PCBA Antenna	1.72

Note: Directional gain=  $10 \log [(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}] = 4.6\text{dBi} < 6 \text{ dBi}$

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

$N_{ANT}$ : Antenna numbers

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

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11g	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
Note: Only 802.11n HT20/HT40 support MIMO mode.		

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	ThinkPad	X230i	/

Note: The PC was provided by the customer.

### I/O CABLES

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

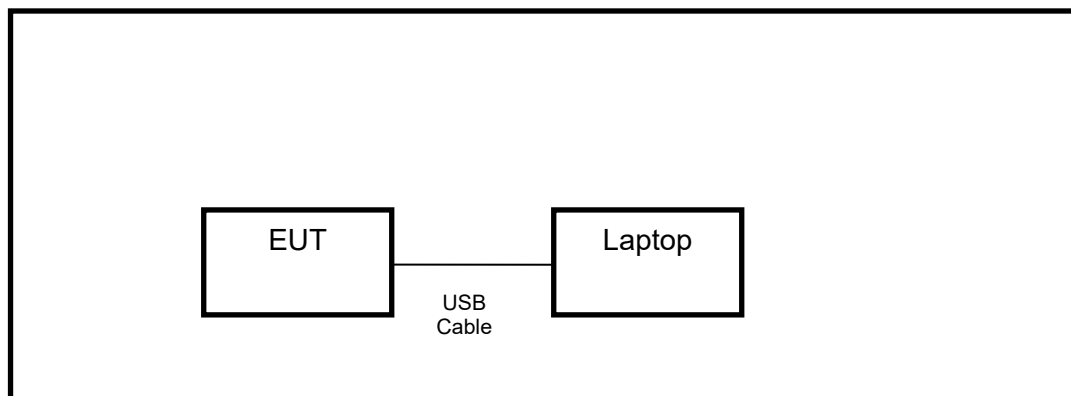
### ACCESSORIES

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

### TEST SETUP

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

### SETUP DIAGRAM FOR TESTS





## 6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Software						
Used	Description		Manufacturer	Name		Version
<input checked="" type="checkbox"/>	Test Software for Conducted disturbance		Farad	EZ-EMC		Ver. UL-3A1
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY564000 36	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A0909 9	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
<input checked="" type="checkbox"/>	Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
Software						
Used	Description		Manufacturer	Name		Version
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Farad	EZ-EMC		Ver. UL-3A1



Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY55410512	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
<input checked="" type="checkbox"/>	Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021



## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

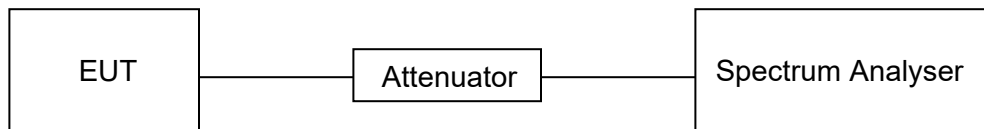
#### LIMITS

None; for reporting purposes only

#### PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

#### TEST SETUP



#### TEST ENVIRONMENT

Temperature	24 °C	Relative Humidity	50.75 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix G.





## 7.2. 6 dB DTS BANDWIDTH AND 99 % OCCUPIED BANDWIDTH

### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2) ISED RSS-247 5.2 (a)	6 dB Bandwidth	$\geq 500$ kHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

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

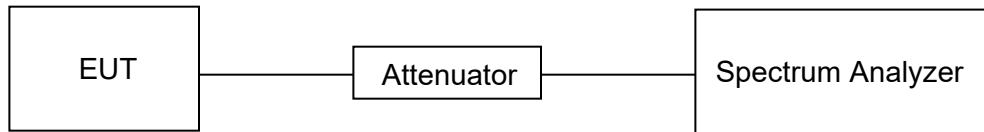
Center Frequency	The center frequency of the channel under test
Frequency Span	Between 1.5 times and 5.0 times the OBW
Detector	Peak
RBW	For 6 dB Bandwidth: 100 kHz For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: $\geq 3 \times$ RBW For 99 % Occupied Bandwidth: $\geq 3 \times$ 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 dB relative to the maximum level measured in the fundamental emission.



### **TEST SETUP**



### **TEST ENVIRONMENT**

Temperature	24 °C	Relative Humidity	50.75 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### **RESULTS**

Please refer to appendix A & B.



### 7.3. CONDUCTED OUTPUT POWER

#### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3) ISED RSS-247 5.4 (d)	Peak Output Power	1 watt or 30 dBm	2400-2483.5

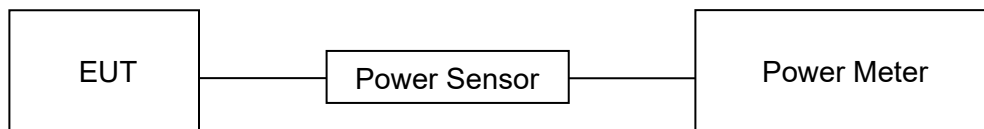
#### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.9.

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).

Measure peak emission level, the indicated level is the average output power, after any corrections for external attenuators and cables.

#### TEST SETUP



#### TEST ENVIRONMENT

Temperature	24 °C	Relative Humidity	50.75 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix C.



## 7.4. POWER SPECTRAL DENSITY

### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e) ISED RSS-247 5.2 (b)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.10.

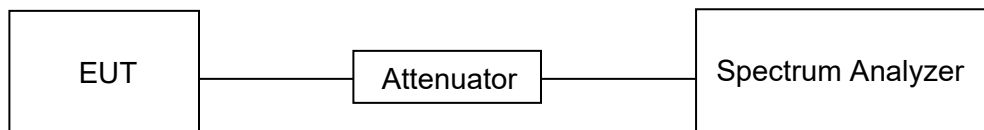
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### TEST SETUP



### TEST ENVIRONMENT

Temperature	24 °C	Relative Humidity	50.75 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V



## **RESULTS**

Please refer to appendix D.

## 7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.11 and 11.13.

Connect the EUT to the spectrum analyser and use the following settings for reference level measurement:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

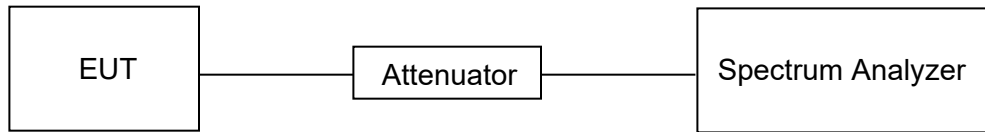
Change the settings for emission level measurement:

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11.



### **TEST SETUP**



### **TEST ENVIRONMENT**

Temperature	24 °C	Relative Humidity	50.75 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### **RESULTS**

Please refer to appendix E & F.



## 8. RADIATED TEST RESULTS

### LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISSED RSS-GEN Clause 8.9 and Clause 8.10.

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

ISSED General field strength limits at frequencies below 30 MHz

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

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





ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

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

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

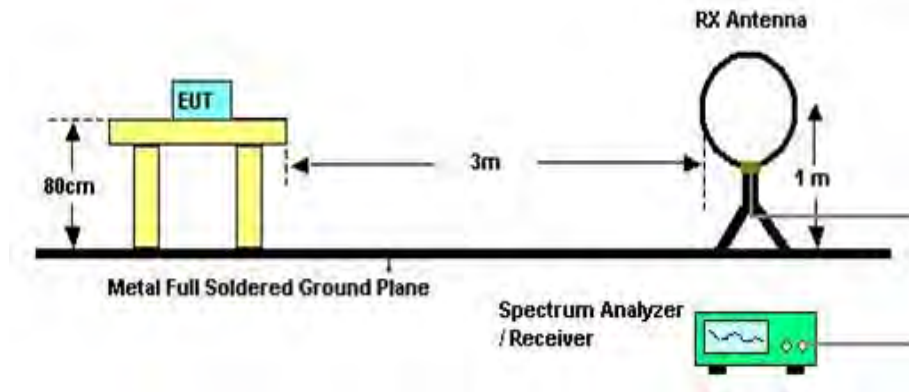
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
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

## TEST SETUP AND PROCEDURE

Below 30 MHz

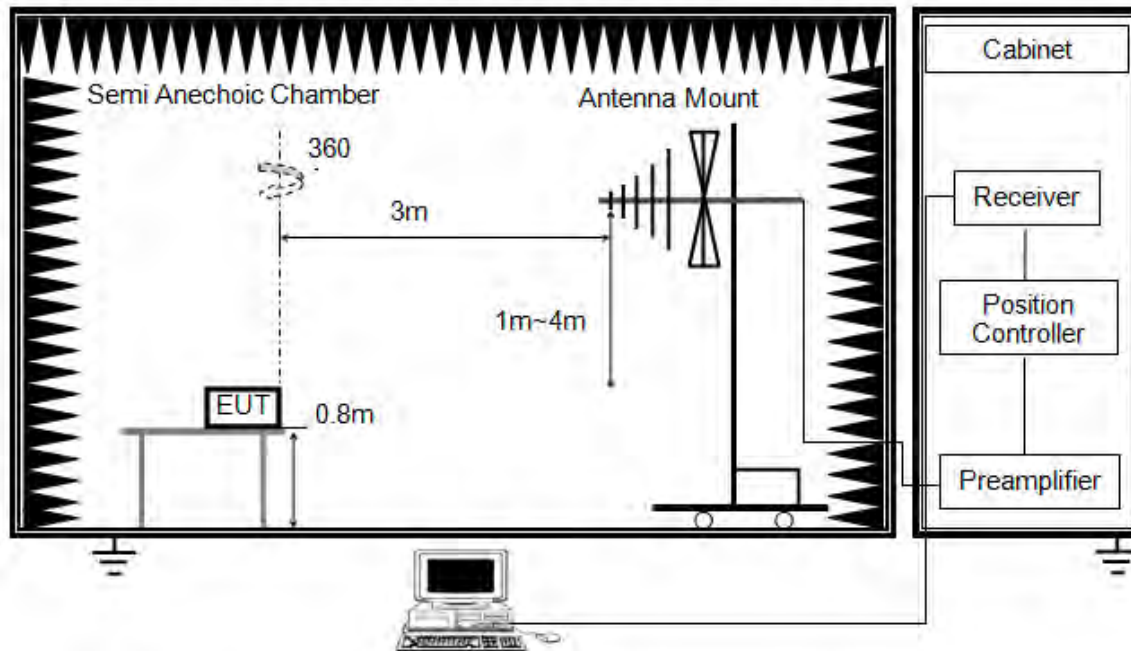


The setting of the spectrum analyzer

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 80cm 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

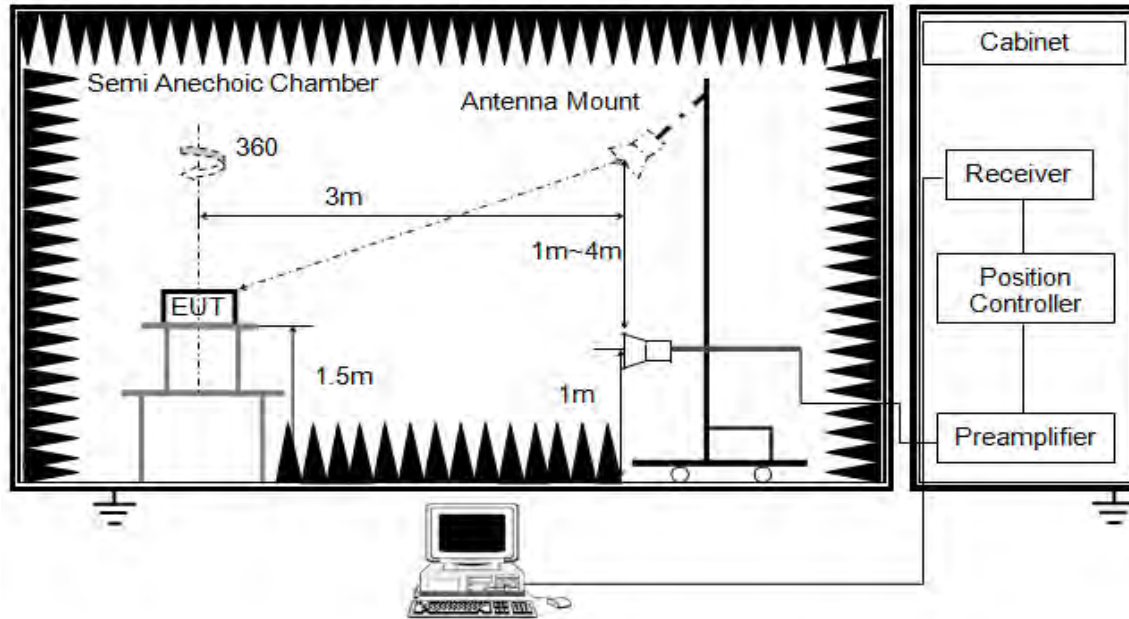


The setting of the spectrum analyser

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

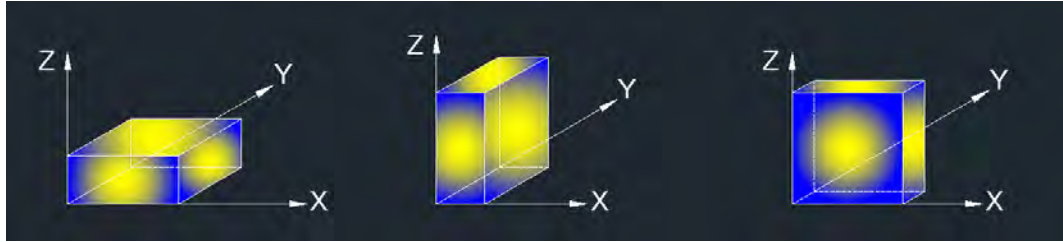


The setting of the spectrum analyser

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 ANSI C63.10-2013 clause 6.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



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

## **TEST ENVIRONMENT**

Temperature	23.9 °C	Relative Humidity	48 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

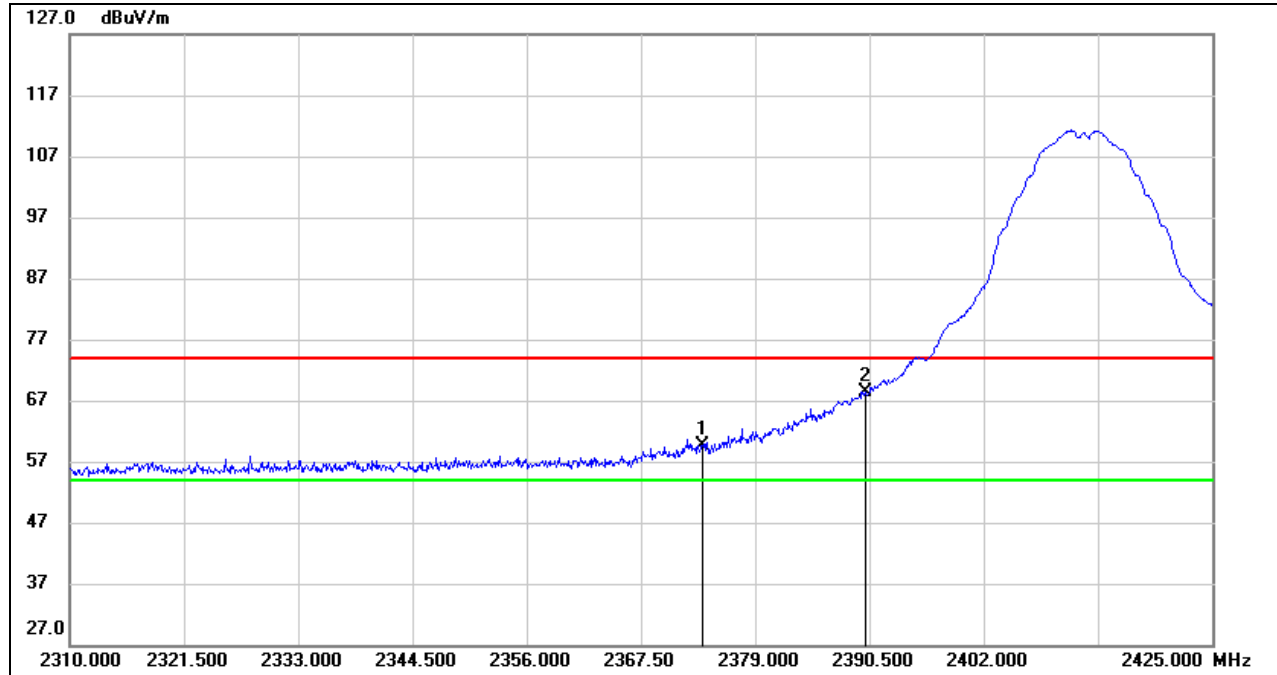
## **RESULTS**

## 8.1. RESTRICTED BANDEDGE

### 8.1.1. 802.11b SISO MODE

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

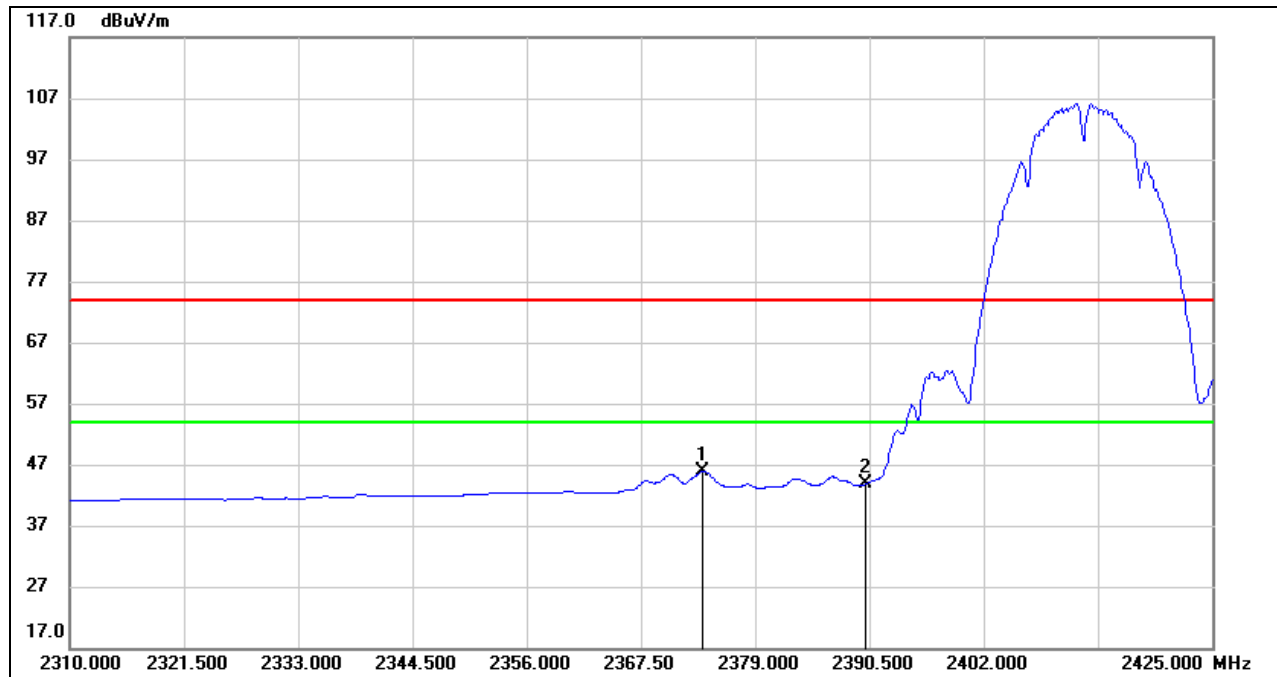
#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2373.710	48.05	11.48	59.53	74.00	-14.47	peak
2	2390.000	56.72	11.59	68.31	74.00	-5.69	peak

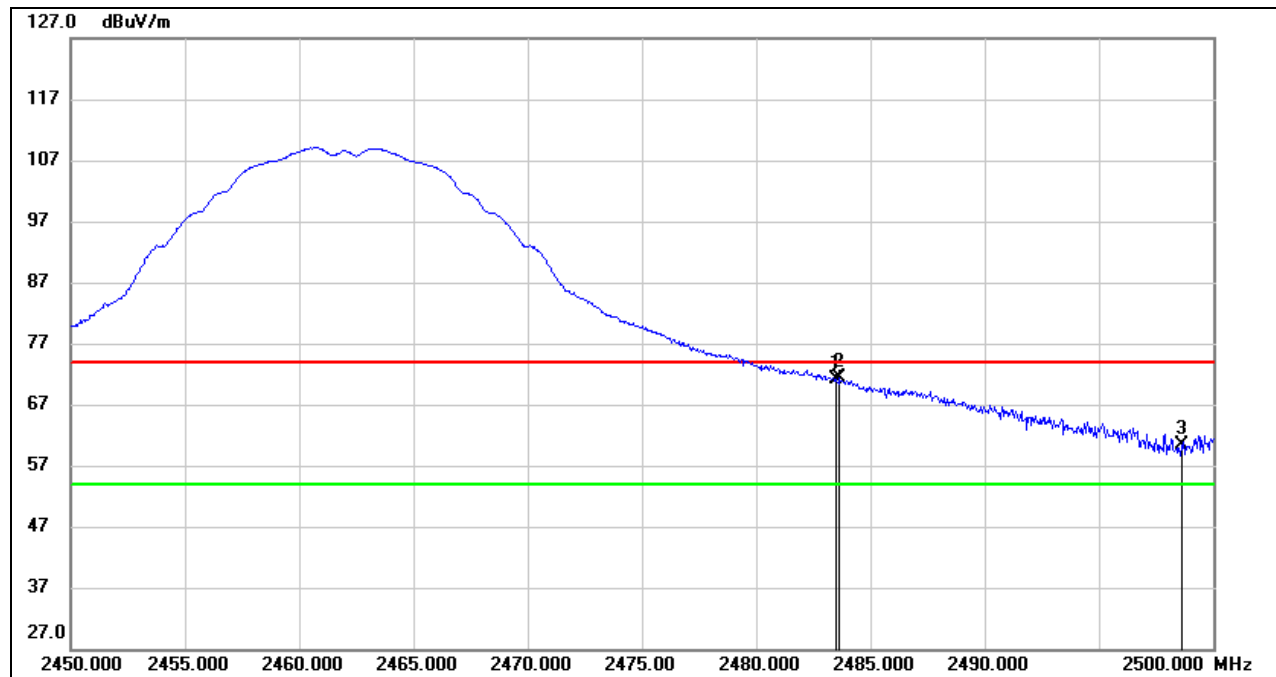
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2373.710	34.49	11.48	45.97	54.00	-8.03	AVG
2	2390.000	32.23	11.59	43.82	54.00	-10.18	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.

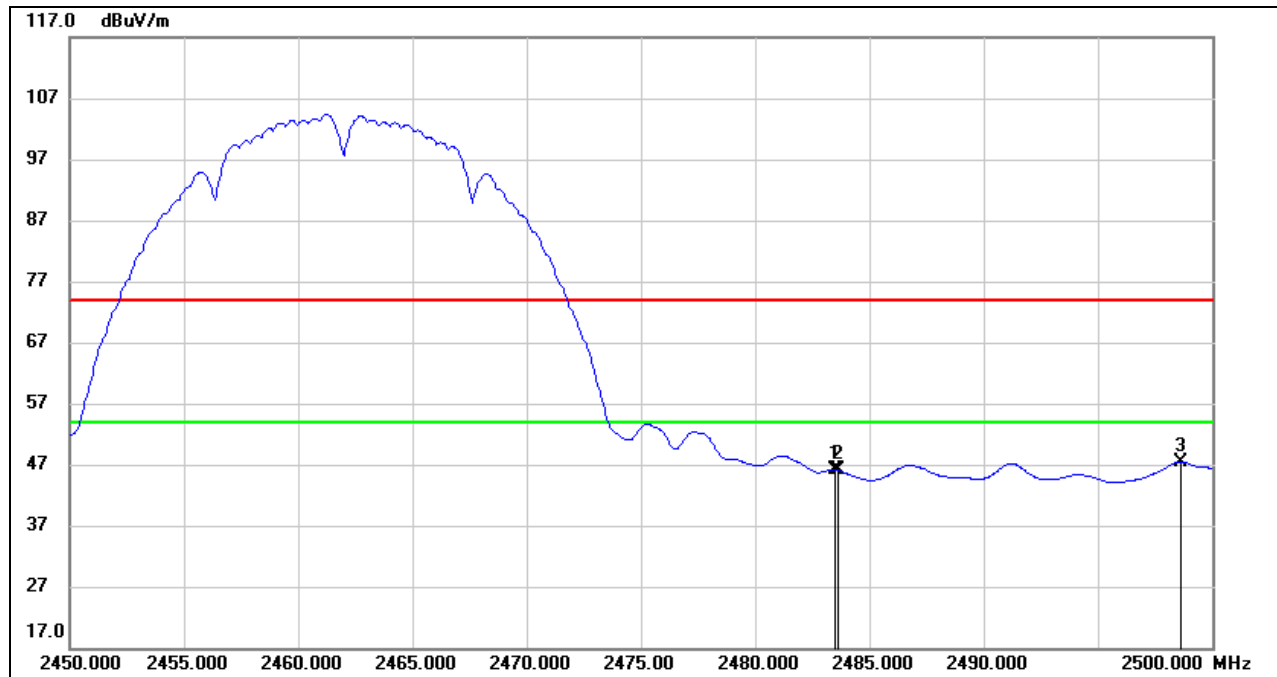
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	59.27	11.97	71.24	74.00	-2.76	peak
2	2483.650	59.52	11.97	71.49	74.00	-2.51	peak
3	2498.600	48.40	12.03	60.43	74.00	-13.57	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	34.24	11.97	46.21	54.00	-7.79	AVG
2	2483.650	34.14	11.97	46.11	54.00	-7.89	AVG
3	2498.600	35.43	12.03	47.46	54.00	-6.54	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.

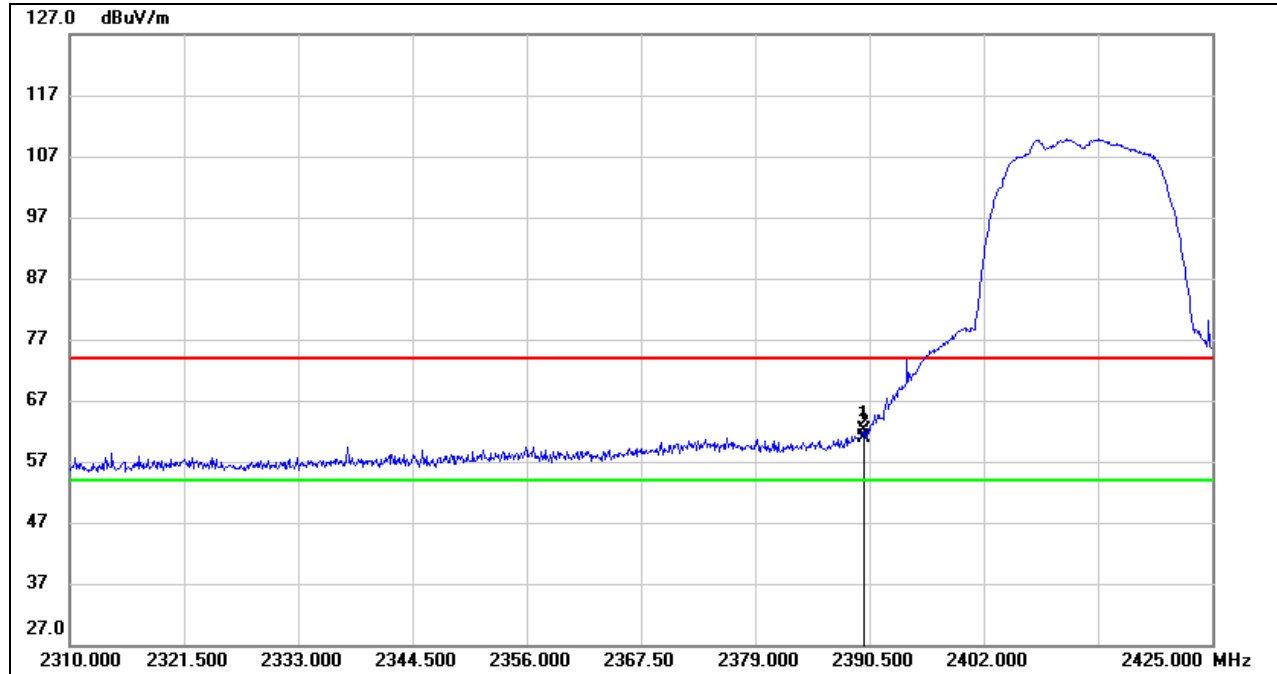
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

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

## 8.1.2. 802.11g SISO MODE

### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

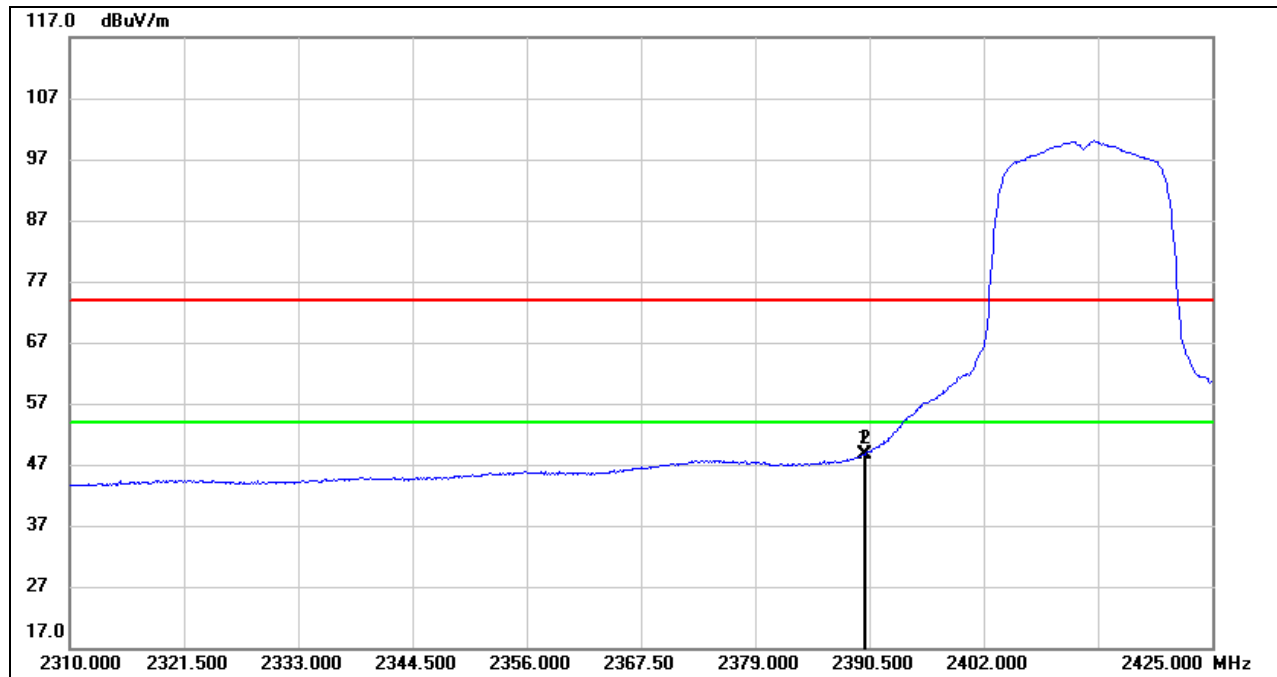
#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.925	50.50	11.59	62.09	74.00	-11.91	peak
2	2390.000	49.26	11.59	60.85	74.00	-13.15	peak

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

**AVG**

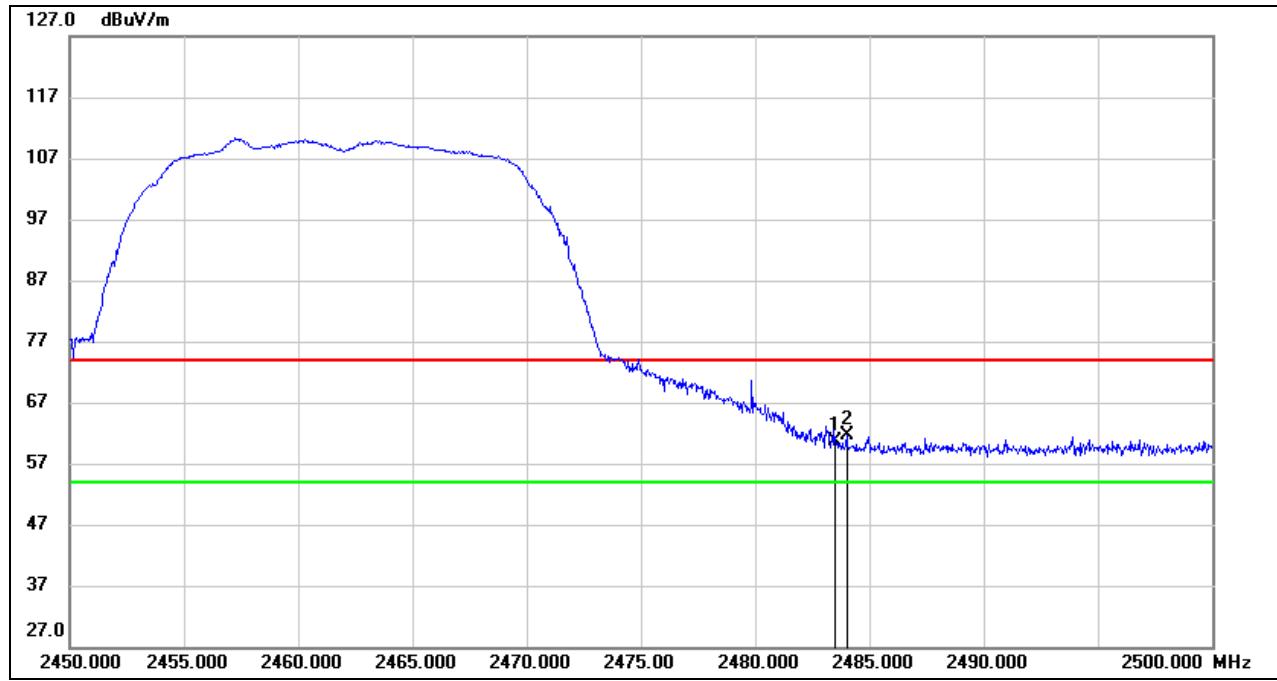


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.925	37.01	11.59	48.60	54.00	-5.40	AVG
2	2390.000	37.12	11.59	48.71	54.00	-5.29	AVG

- 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)

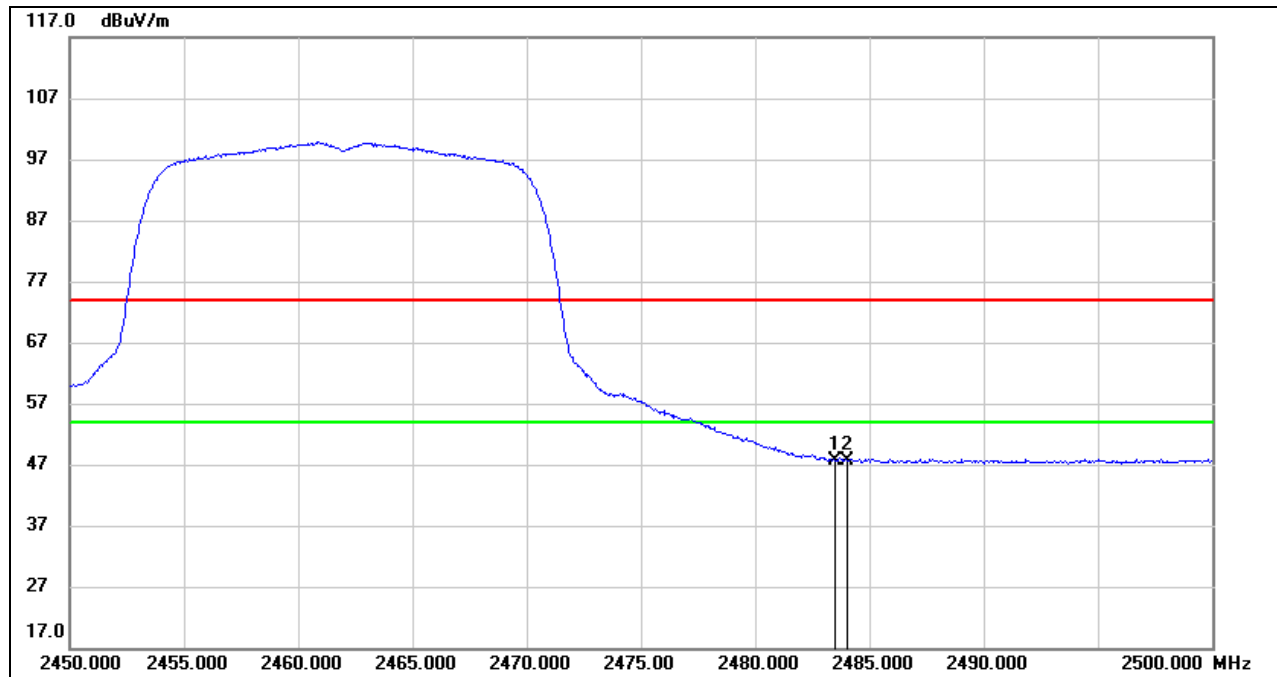
## PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	48.57	11.97	60.54	74.00	-13.46	peak
2	2484.000	49.72	11.97	61.69	74.00	-12.31	peak

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

**AVG**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	35.61	11.97	47.58	54.00	-6.42	AVG
2	2484.000	35.60	11.97	47.57	54.00	-6.43	AVG

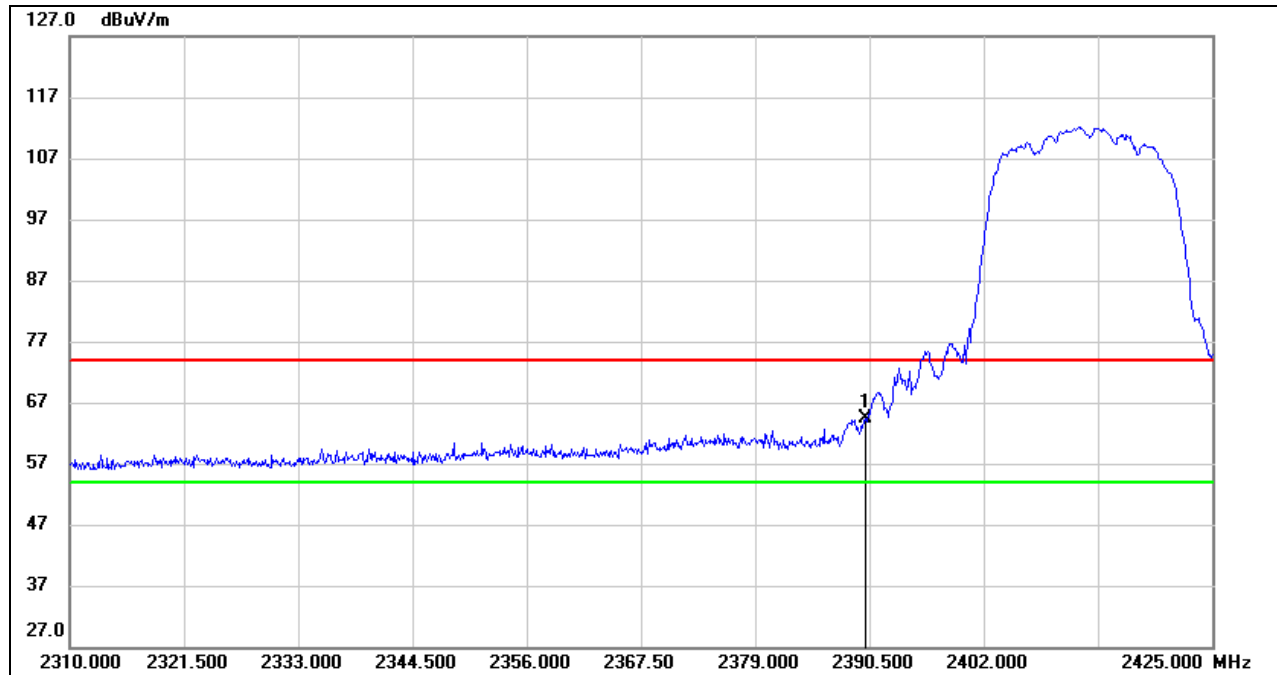
- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
 4. For the transmitting duration, please refer to clause 7.1.  
 5. Only the worst data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

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

### 8.1.3. 802.11n HT20 MIMO MODE

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

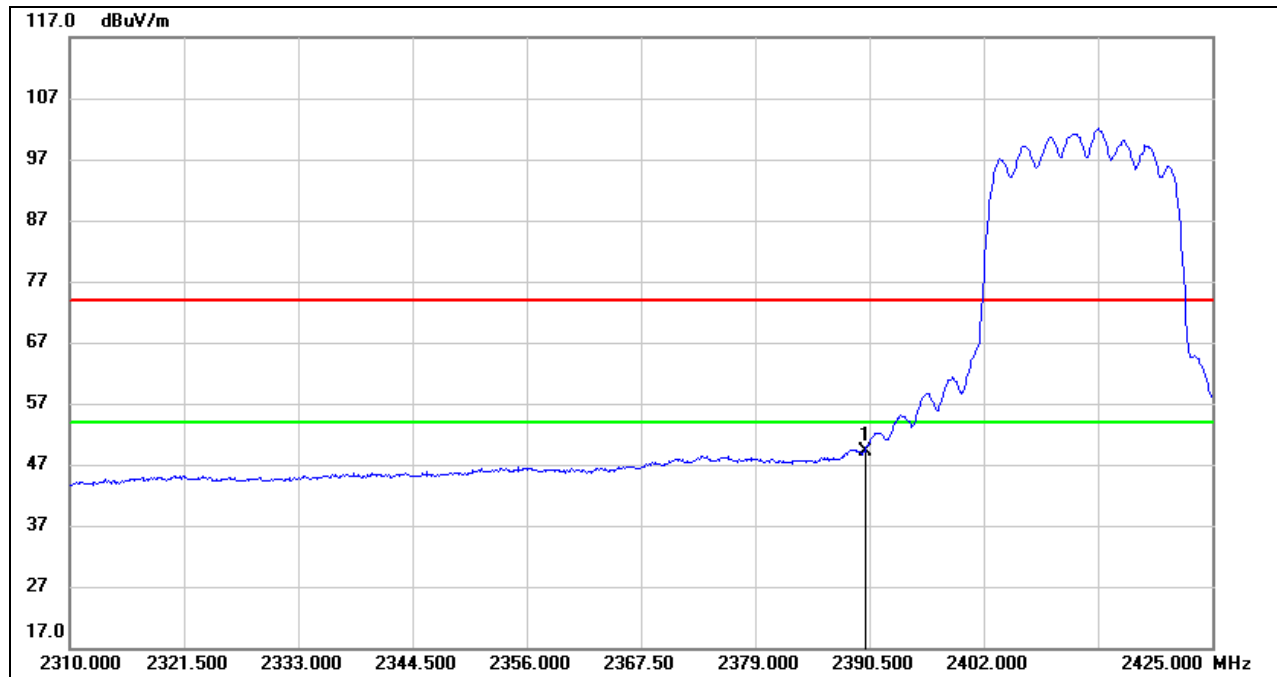
#### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	52.71	11.59	64.30	74.00	-9.70	peak

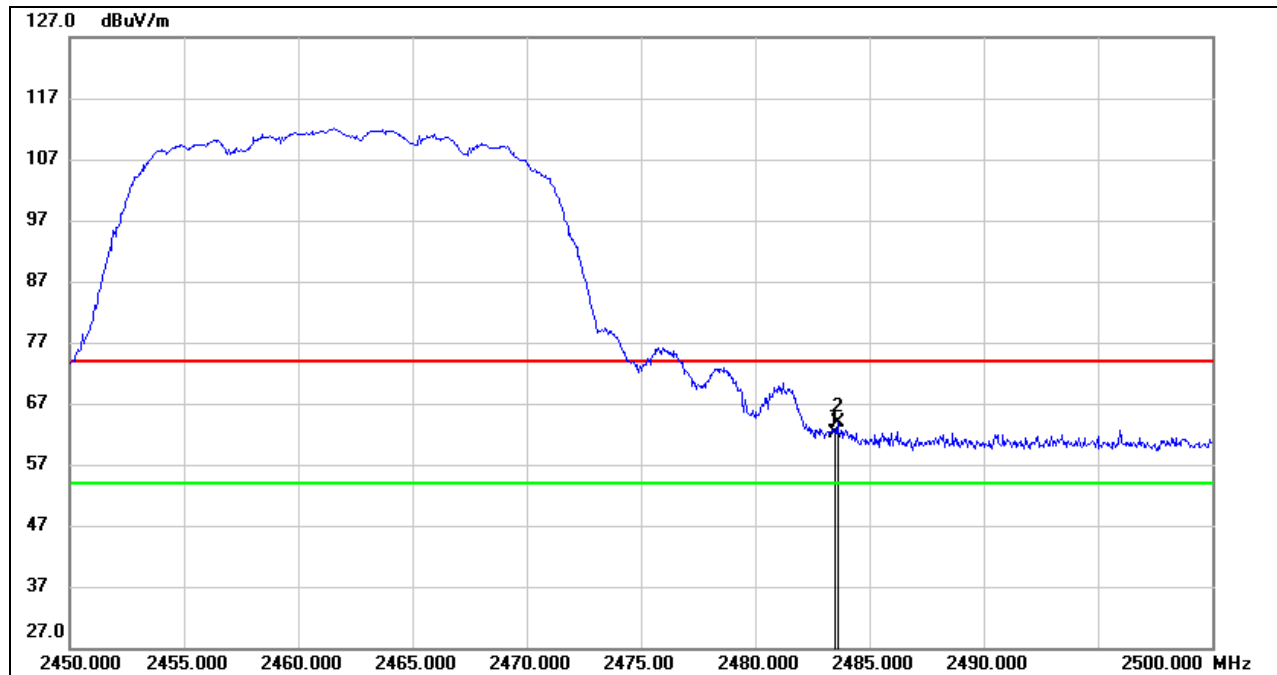
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	37.60	11.59	49.19	54.00	-4.81	AVG

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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	50.16	11.97	62.13	74.00	-11.87	peak
2	2483.600	51.81	11.97	63.78	74.00	-10.22	peak

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

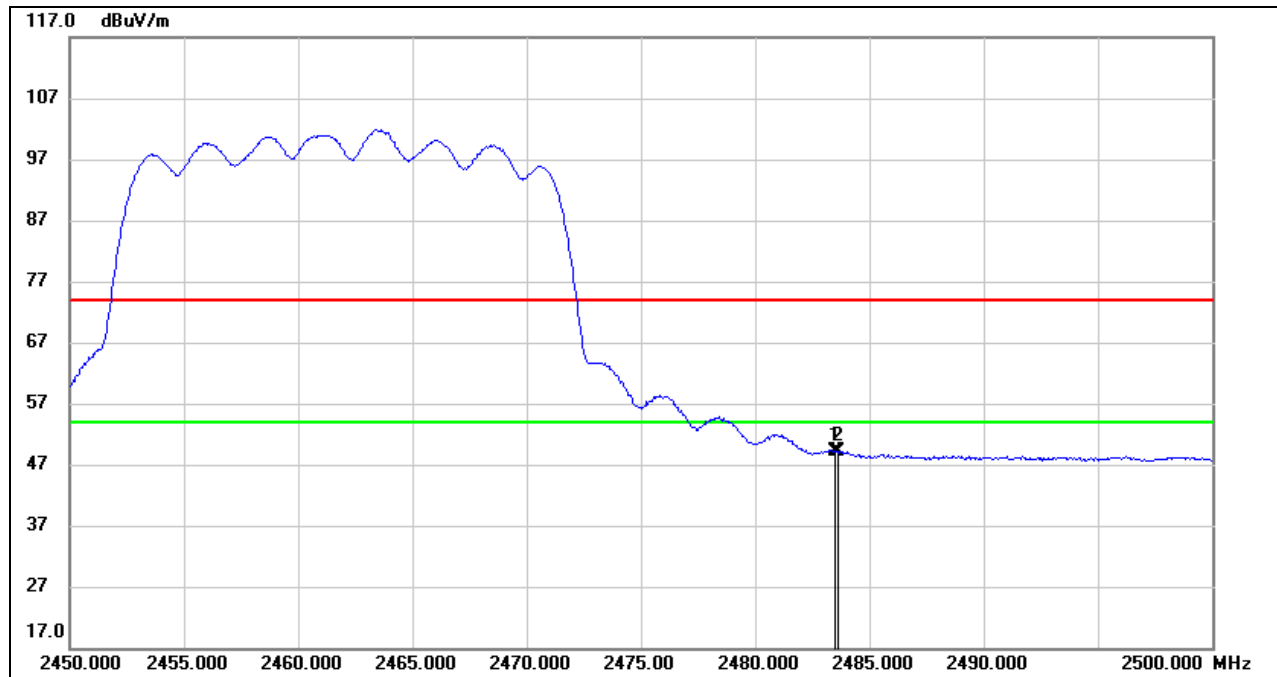
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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



### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	37.10	11.97	49.07	54.00	-4.93	AVG
2	2483.600	37.25	11.97	49.22	54.00	-4.78	AVG

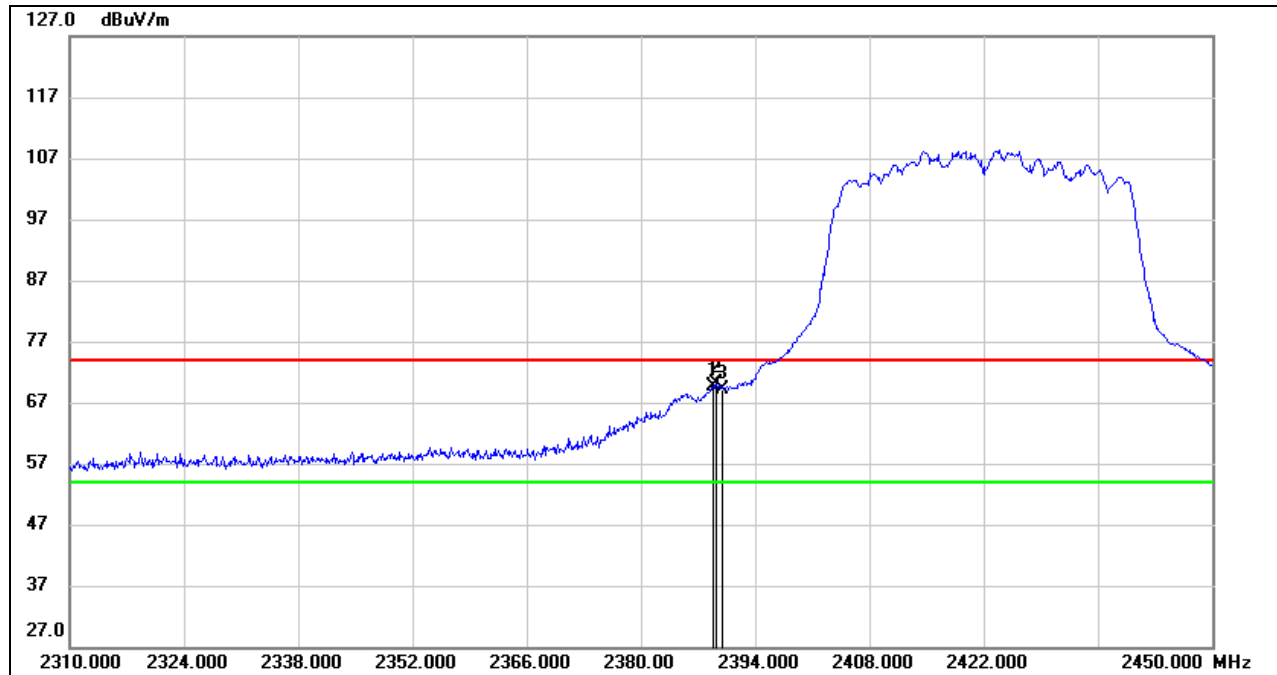
Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 4. For the transmitting duration, please refer to clause 7.1.  
 5. Only the worst data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

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

# 8.1.4. 802.11n HT40 MIMO MODE

## RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

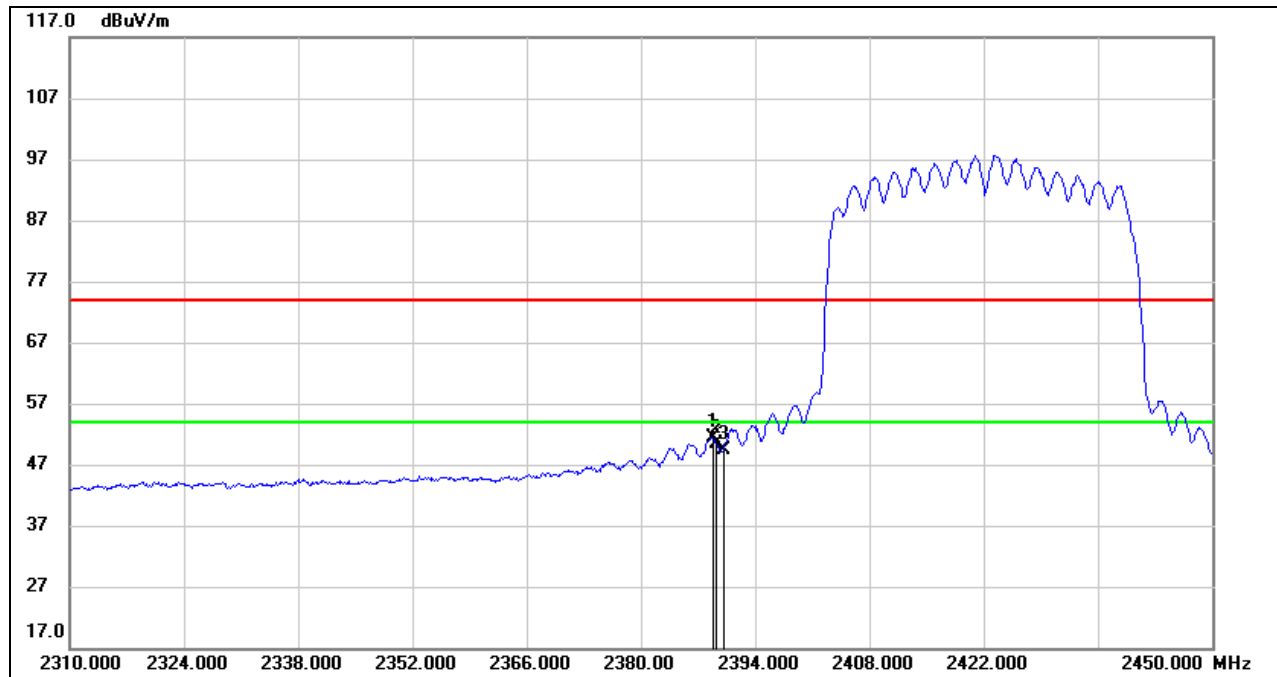
### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.820	58.14	11.58	69.72	74.00	-4.28	peak
2	2389.240	58.43	11.58	70.01	74.00	-3.99	peak
3	2390.000	57.56	11.59	69.15	74.00	-4.85	peak

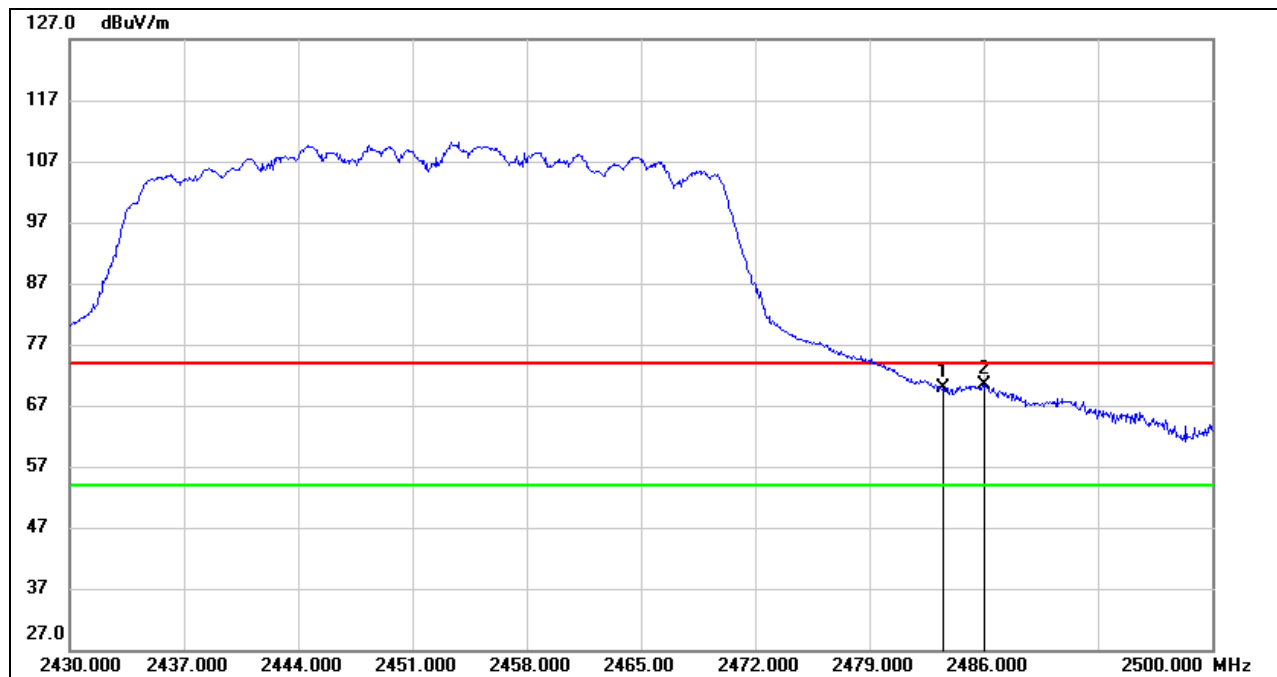
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data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

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.820	39.83	11.58	51.41	54.00	-2.59	AVG
2	2389.240	38.83	11.58	50.41	54.00	-3.59	AVG
3	2390.000	37.91	11.59	49.50	54.00	-4.50	AVG

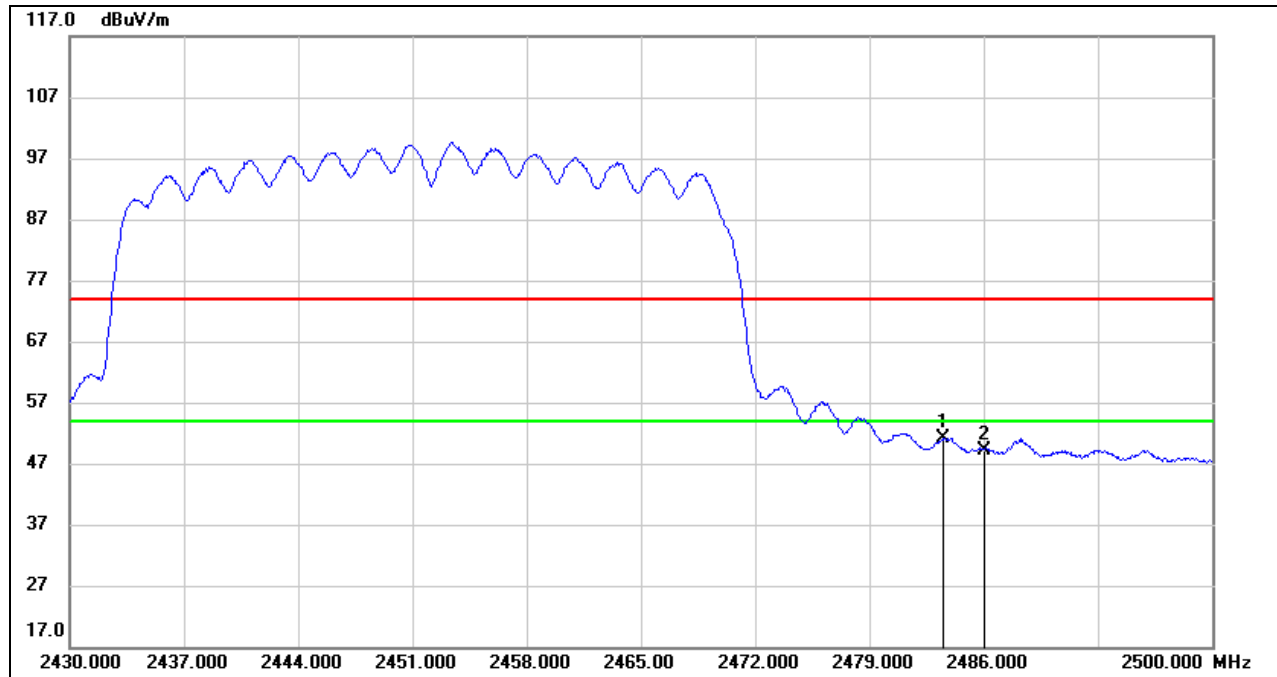
- Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data was 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	2483.500	57.95	11.97	69.92	74.00	-4.08	peak
2	2486.000	58.41	11.98	70.39	74.00	-3.61	peak

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

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	39.11	11.97	51.08	54.00	-2.92	AVG
2	2486.000	37.27	11.98	49.25	54.00	-4.75	AVG

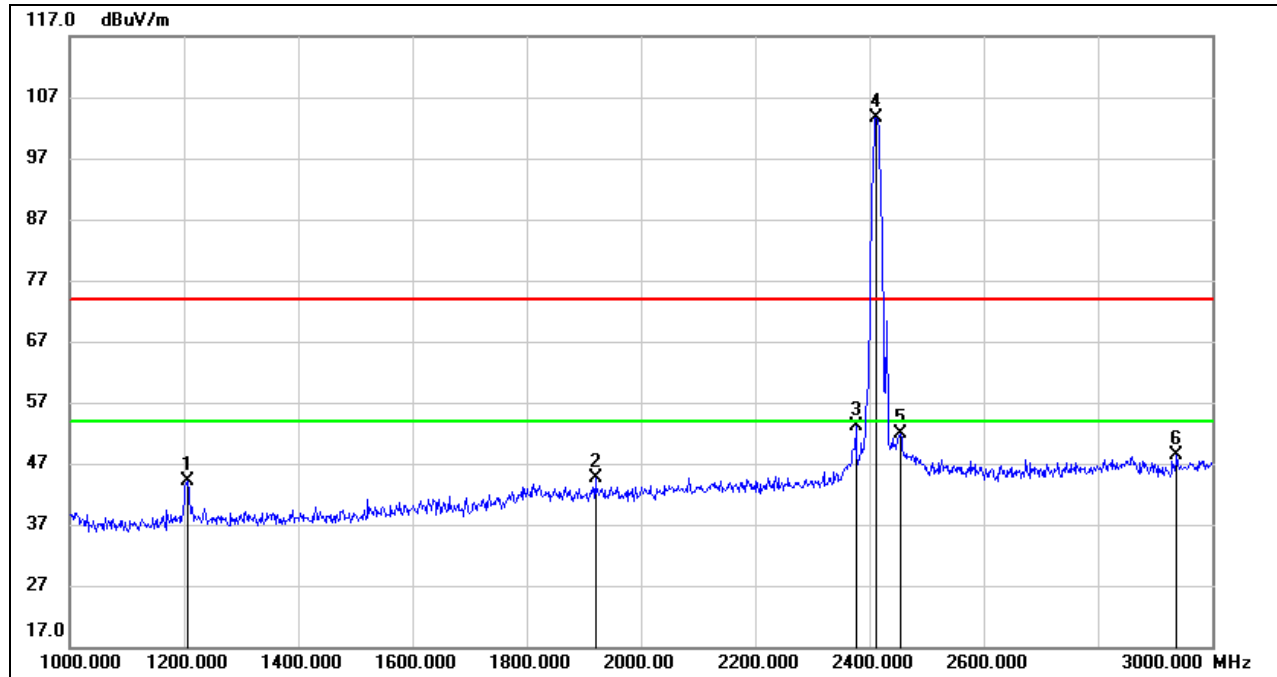
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
4. For the transmitting duration, please refer to clause 7.1.  
5. Only the worst data was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

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

## 8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

### 8.2.1. 802.11b SISO MODE

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

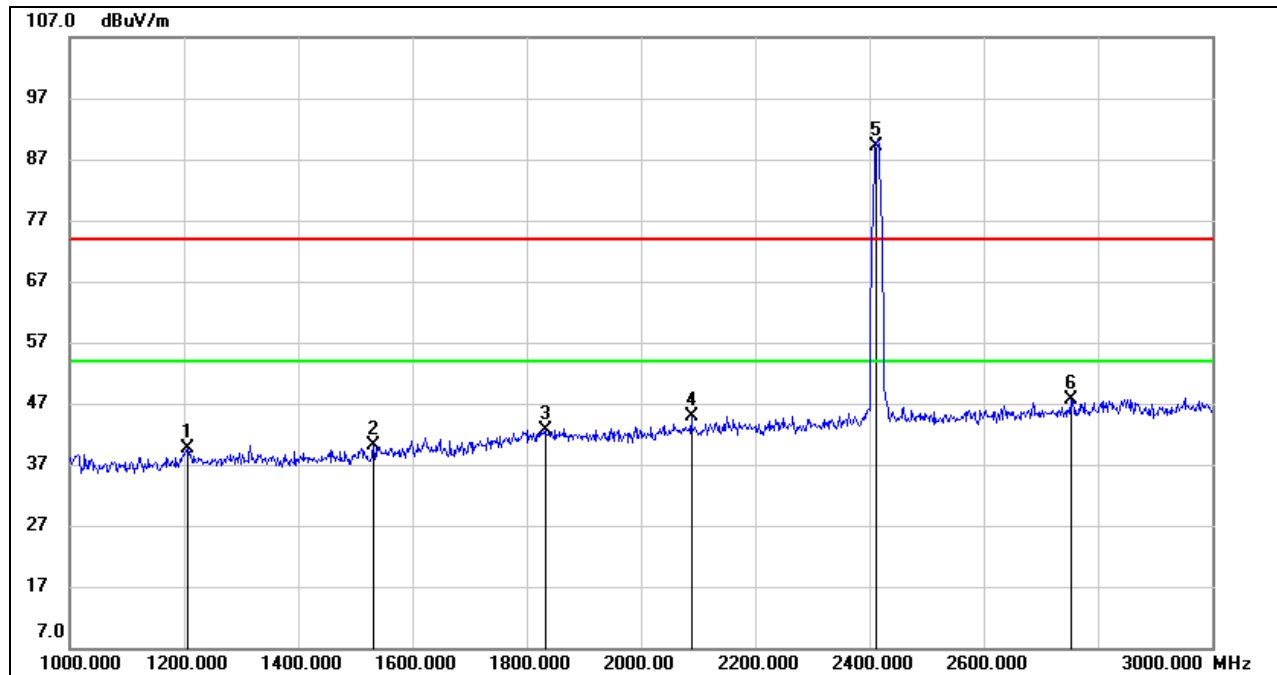


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1206.000	37.62	6.52	44.14	74.00	-29.86	peak
2	1920.000	34.87	9.84	44.71	74.00	-29.29	peak
3	2376.000	41.70	11.50	53.20	74.00	-20.80	peak
4	2412.000	91.83	11.71	103.54	/	/	fundamental
5	2454.000	40.00	11.86	51.86	74.00	-22.14	peak
6	2938.000	34.61	13.71	48.32	74.00	-25.68	peak

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

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

3. Peak: Peak detector.

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

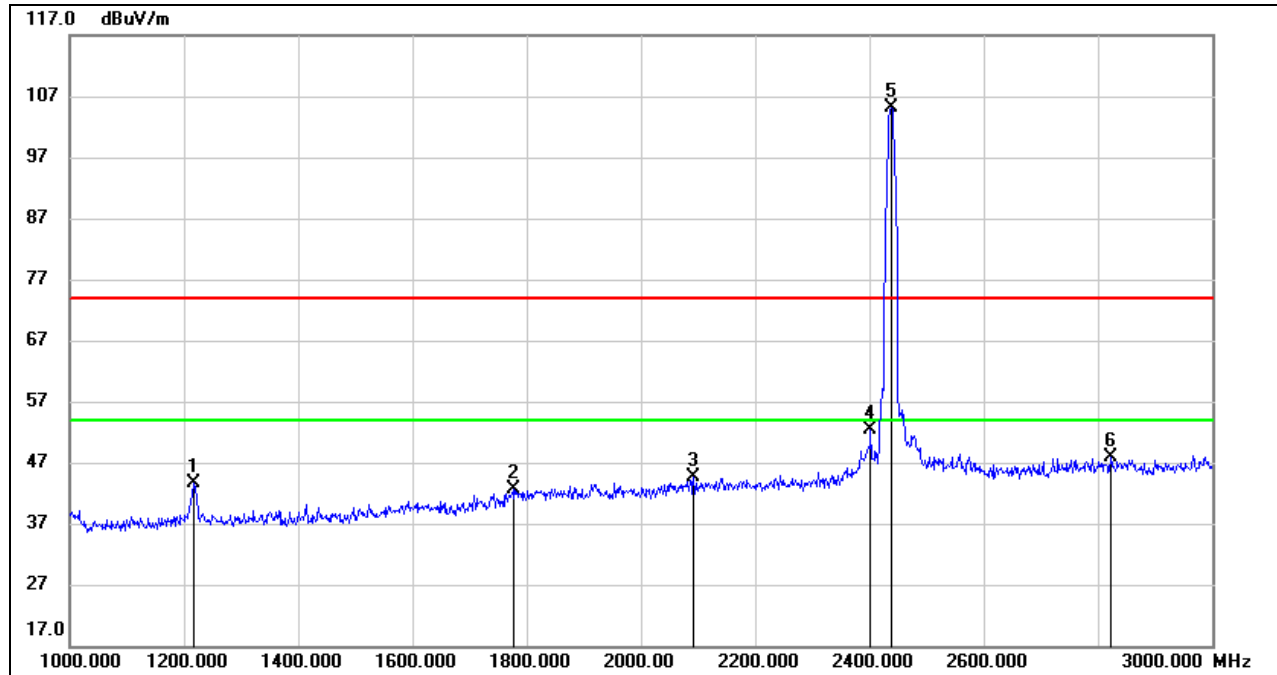
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1206.000	33.20	6.52	39.72	74.00	-34.28	peak
2	1532.000	33.00	7.25	40.25	74.00	-33.75	peak
3	1832.000	32.87	9.69	42.56	74.00	-31.44	peak
4	2088.000	34.30	10.69	44.99	74.00	-29.01	peak
5	2412.000	77.54	11.71	89.25	/	/	fundamental
6	2752.000	34.82	12.89	47.71	74.00	-26.29	peak

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

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

3. Peak: Peak detector.

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

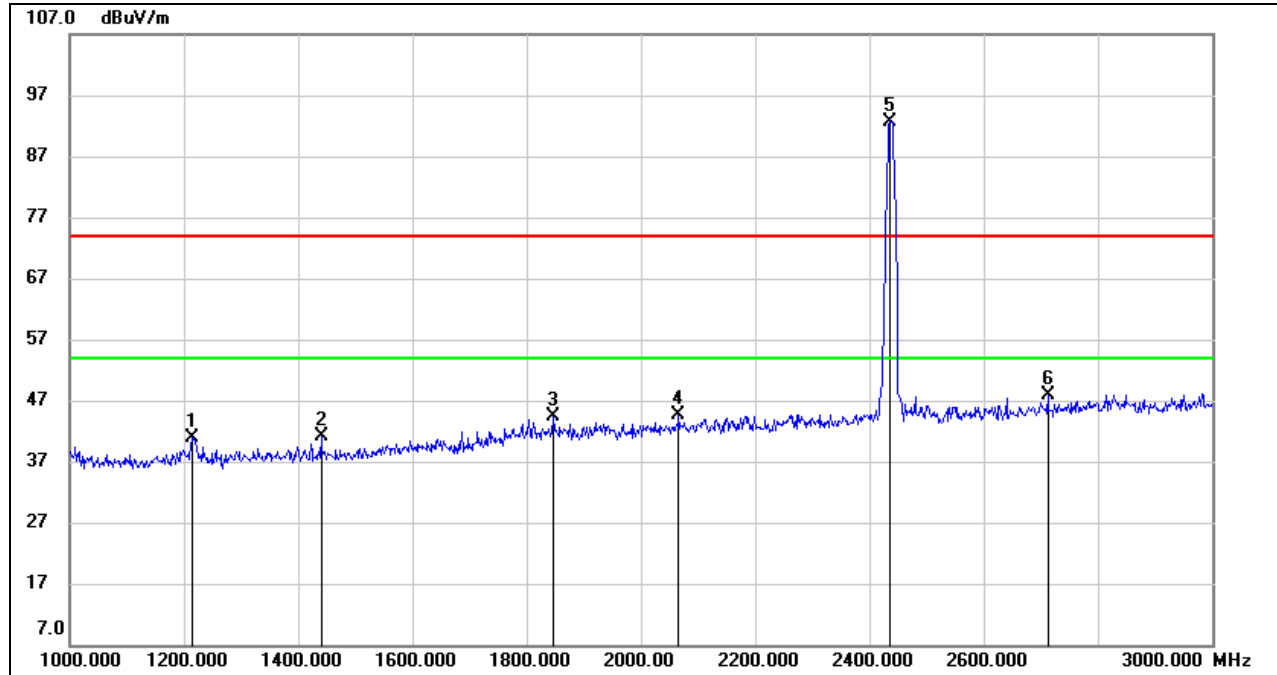


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1218.000	37.09	6.53	43.62	74.00	-30.38	peak
2	1776.000	33.32	9.28	42.60	74.00	-31.40	peak
3	2092.000	34.00	10.72	44.72	74.00	-29.28	peak
4	2402.000	40.62	11.66	52.28	74.00	-21.72	peak
5	2437.000	93.43	11.80	105.23	/	/	fundamental
6	2822.000	34.47	13.29	47.76	74.00	-26.24	peak

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

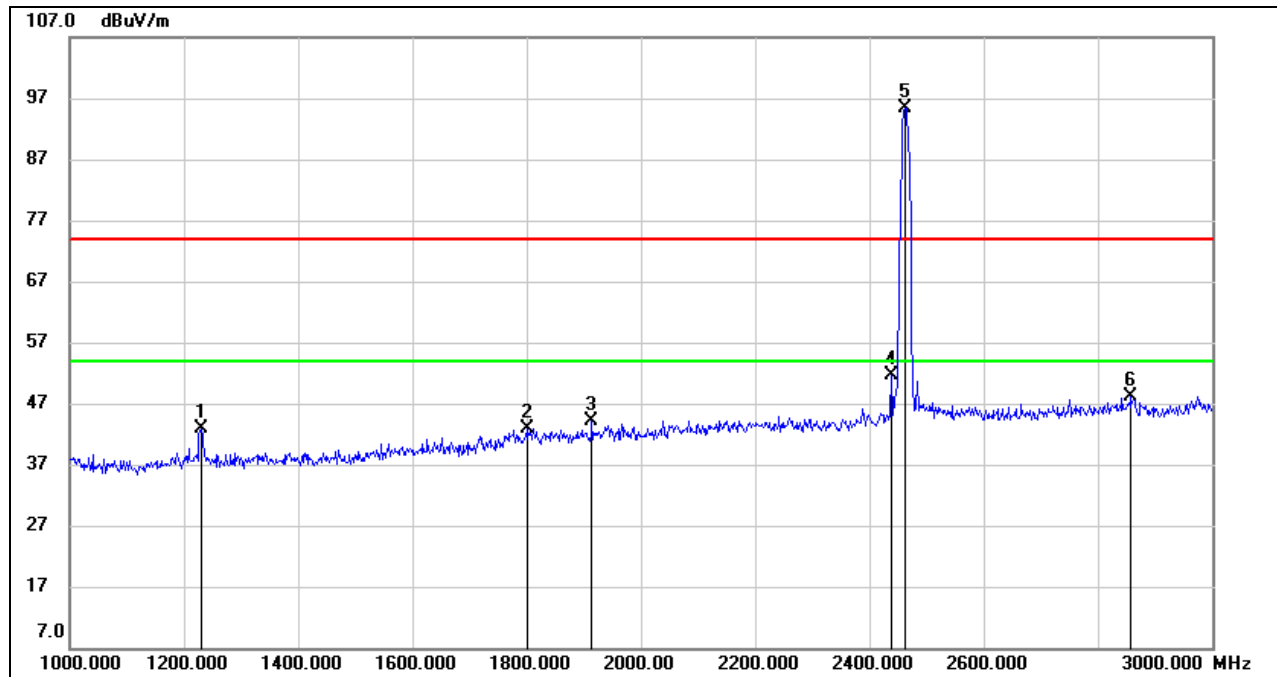


### HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1214.000	34.42	6.53	40.95	74.00	-33.05	peak
2	1440.000	34.24	6.79	41.03	74.00	-32.97	peak
3	1846.000	34.55	9.71	44.26	74.00	-29.74	peak
4	2066.000	34.21	10.52	44.73	74.00	-29.27	peak
5	2437.000	80.89	11.80	92.69	/	/	fundamental
6	2712.000	35.35	12.60	47.95	74.00	-26.05	peak

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

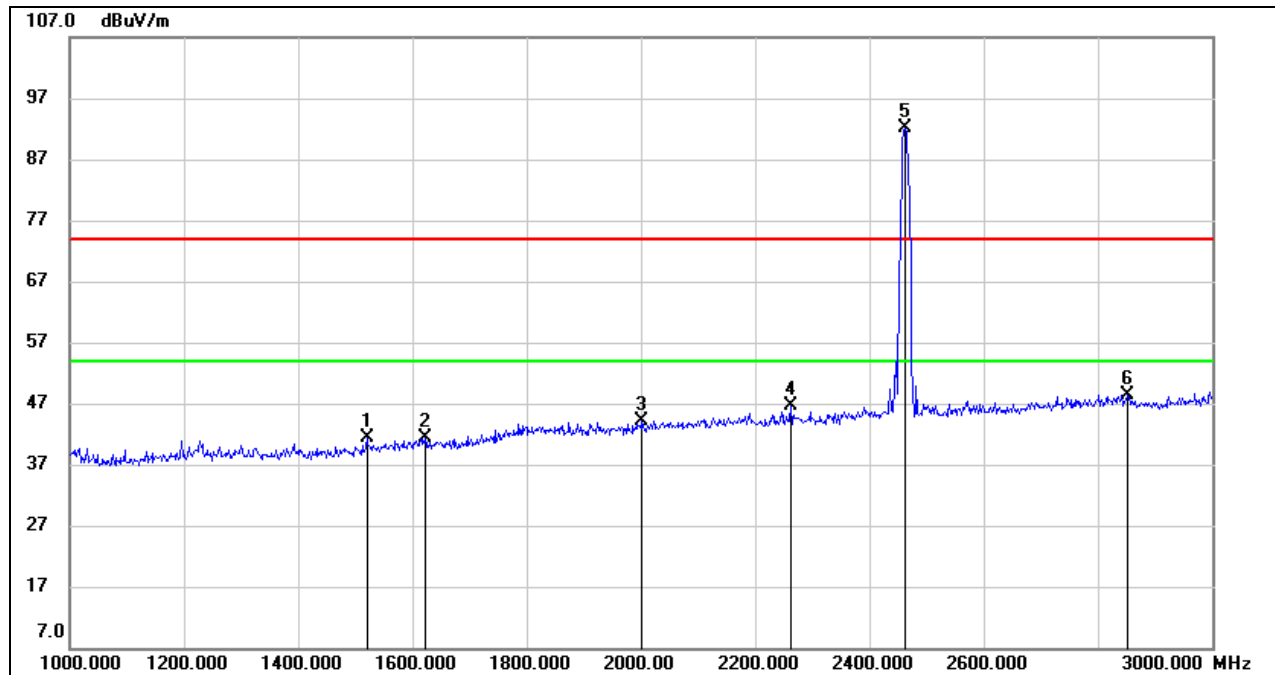
**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1230.000	36.28	6.55	42.83	74.00	-31.17	peak
2	1800.000	33.23	9.65	42.88	74.00	-31.12	peak
3	1914.000	34.28	9.81	44.09	74.00	-29.91	peak
4	2438.000	39.82	11.80	51.62	74.00	-22.38	peak
5	2462.000	83.44	11.89	95.33	/	/	fundamental
6	2858.000	34.82	13.37	48.19	74.00	-25.81	peak

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

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

3. Peak: Peak detector.

**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	1520.000	34.12	7.14	41.26	74.00	-32.74	peak
2	1622.000	33.46	7.95	41.41	74.00	-32.59	peak
3	2002.000	34.17	10.04	44.21	74.00	-29.79	peak
4	2262.000	35.58	11.01	46.59	74.00	-27.41	peak
5	2462.000	80.15	11.89	92.04	/	/	fundamental
6	2852.000	35.04	13.36	48.40	74.00	-25.60	peak

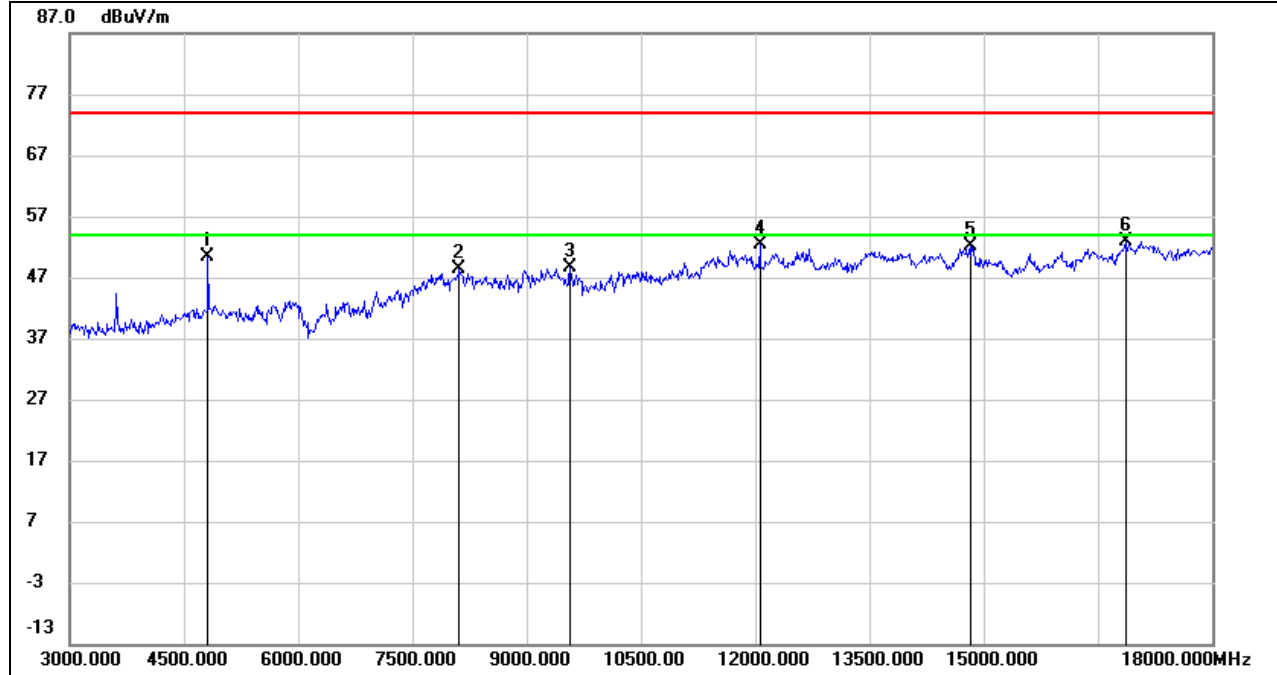
Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.

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

### 8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

#### 8.3.1. 802.11b SISO MODE

##### 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	4815.000	48.92	1.38	50.30	74.00	-23.70	peak
2	8115.000	38.14	10.13	48.27	74.00	-25.73	peak
3	9570.000	37.65	10.88	48.53	74.00	-25.47	peak
4	12060.000	36.99	15.44	52.43	74.00	-21.57	peak
5	14820.000	34.18	17.91	52.09	74.00	-21.91	peak
6	16860.000	31.71	21.22	52.93	74.00	-21.07	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

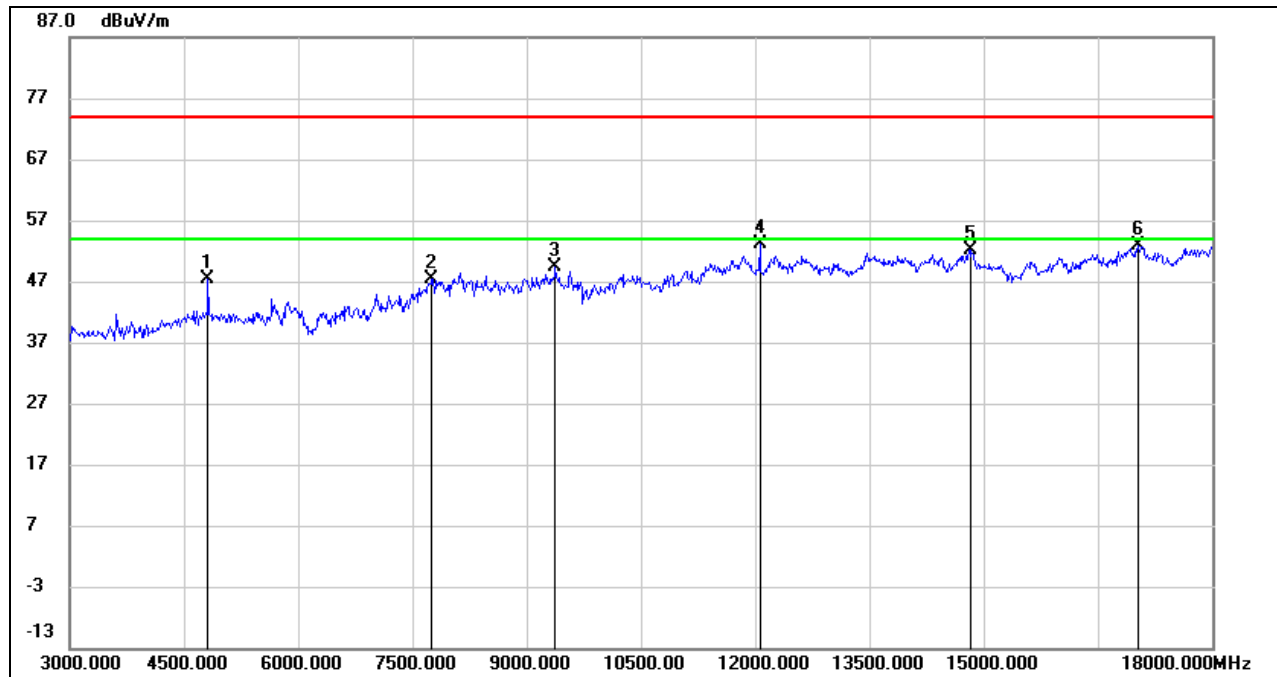
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

### 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	4815.000	46.06	1.38	47.44	74.00	-26.56	peak
2	7755.000	38.46	8.94	47.40	74.00	-26.60	peak
3	9375.000	38.58	10.83	49.41	74.00	-24.59	peak
4	12060.000	37.80	15.44	53.24	74.00	-20.76	peak
5	14820.000	34.33	17.91	52.24	74.00	-21.76	peak
6	17025.000	31.49	21.40	52.89	74.00	-21.11	peak

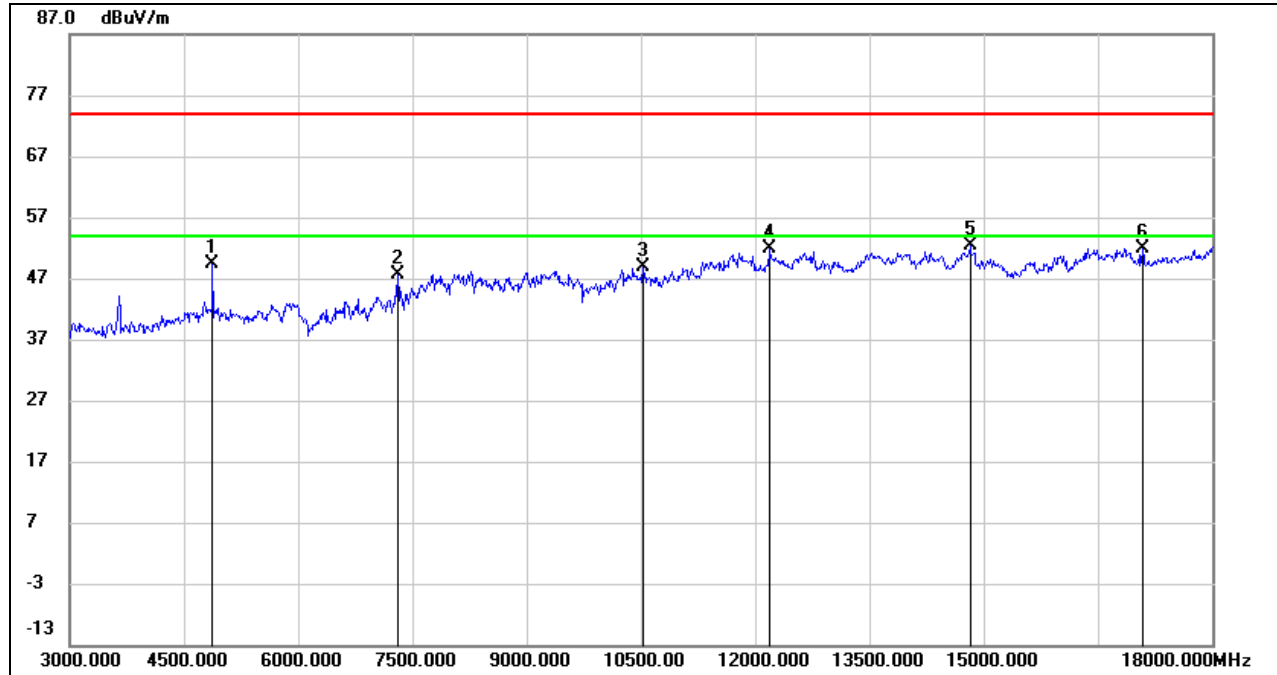
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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

**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	4875.000	48.01	1.32	49.33	74.00	-24.67	peak
2	7305.000	40.38	7.14	47.52	74.00	-26.48	peak
3	10530.000	36.30	12.46	48.76	74.00	-25.24	peak
4	12195.000	35.89	15.93	51.82	74.00	-22.18	peak
5	14820.000	34.44	17.91	52.35	74.00	-21.65	peak
6	17085.000	30.07	21.80	51.87	74.00	-22.13	peak

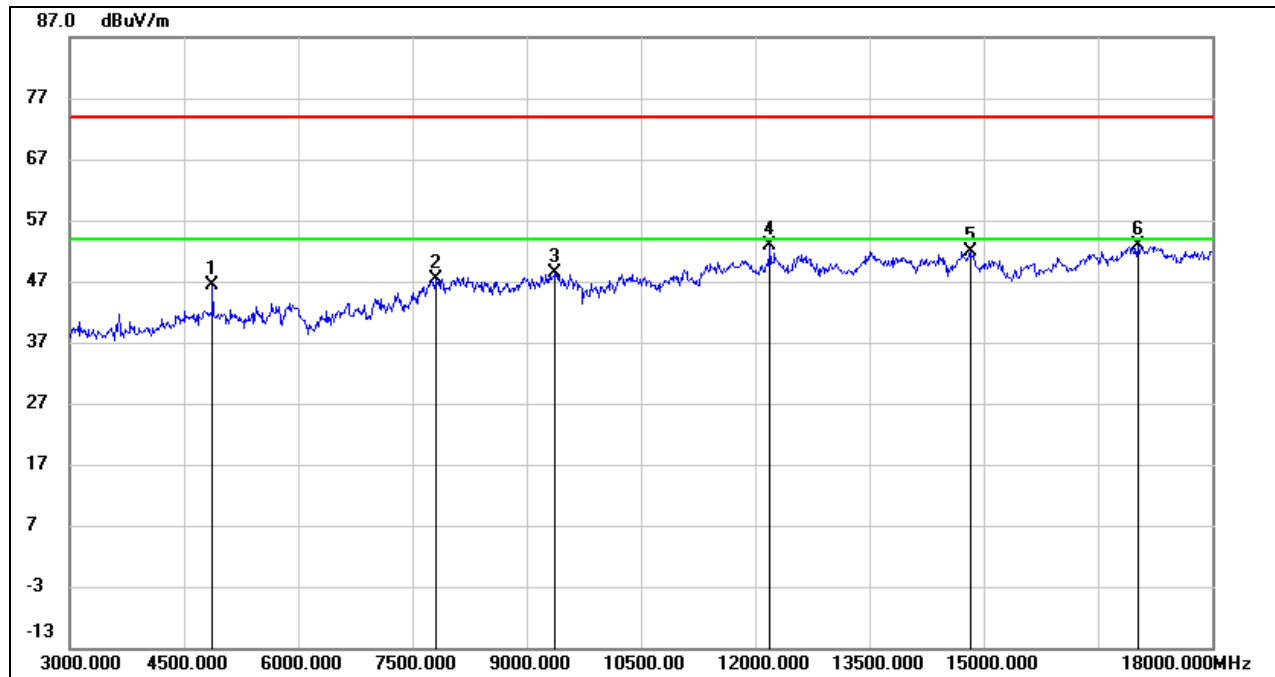
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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

**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	4875.000	44.96	1.32	46.28	74.00	-27.72	peak
2	7815.000	38.14	9.28	47.42	74.00	-26.58	peak
3	9375.000	37.63	10.83	48.46	74.00	-25.54	peak
4	12195.000	36.95	15.93	52.88	74.00	-21.12	peak
5	14820.000	33.95	17.91	51.86	74.00	-22.14	peak
6	17025.000	31.36	21.40	52.76	74.00	-21.24	peak

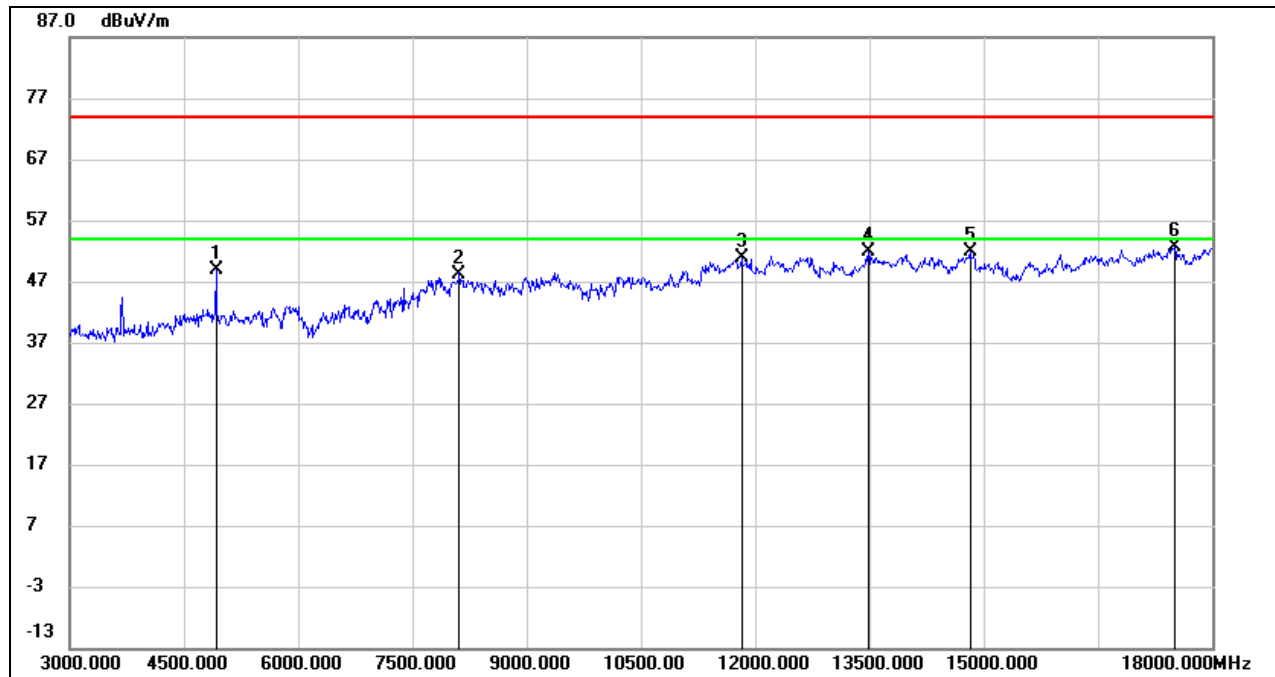
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

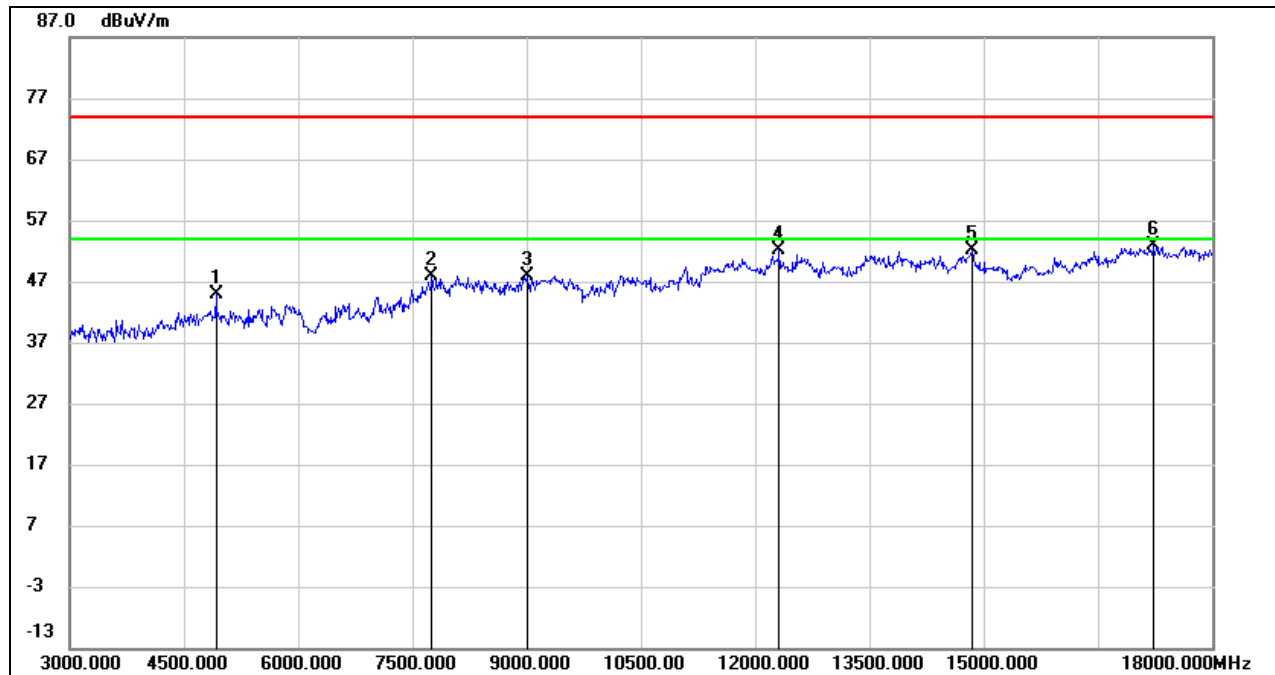
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

**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	4920.000	47.47	1.45	48.92	74.00	-25.08	peak
2	8115.000	38.12	10.13	48.25	74.00	-25.75	peak
3	11820.000	35.61	15.29	50.90	74.00	-23.10	peak
4	13485.000	34.75	17.19	51.94	74.00	-22.06	peak
5	14820.000	33.98	17.91	51.89	74.00	-22.11	peak
6	17505.000	30.66	22.08	52.74	74.00	-21.26	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



**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	4920.000	43.37	1.45	44.82	74.00	-29.18	peak
2	7755.000	39.04	8.94	47.98	74.00	-26.02	peak
3	9000.000	36.62	11.27	47.89	74.00	-26.11	peak
4	12315.000	35.99	16.06	52.05	74.00	-21.95	peak
5	14850.000	34.30	17.71	52.01	74.00	-21.99	peak
6	17235.000	30.69	22.21	52.90	74.00	-21.10	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

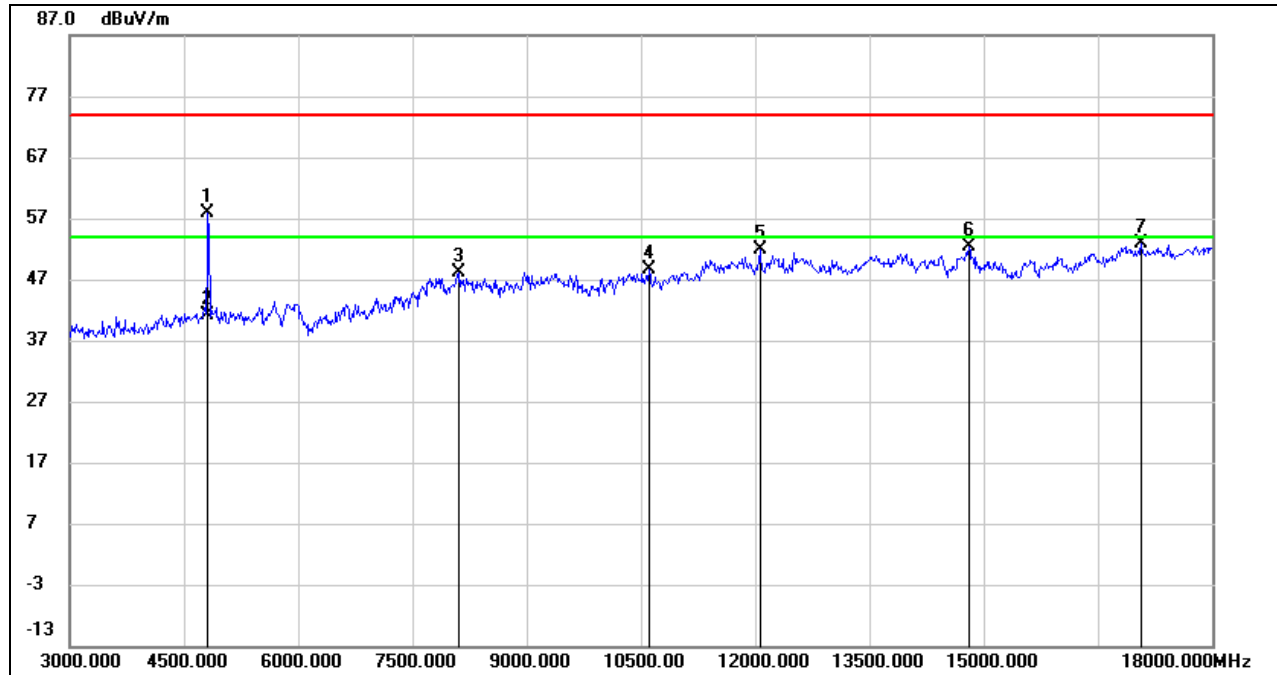
3. Peak: Peak detector.

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

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

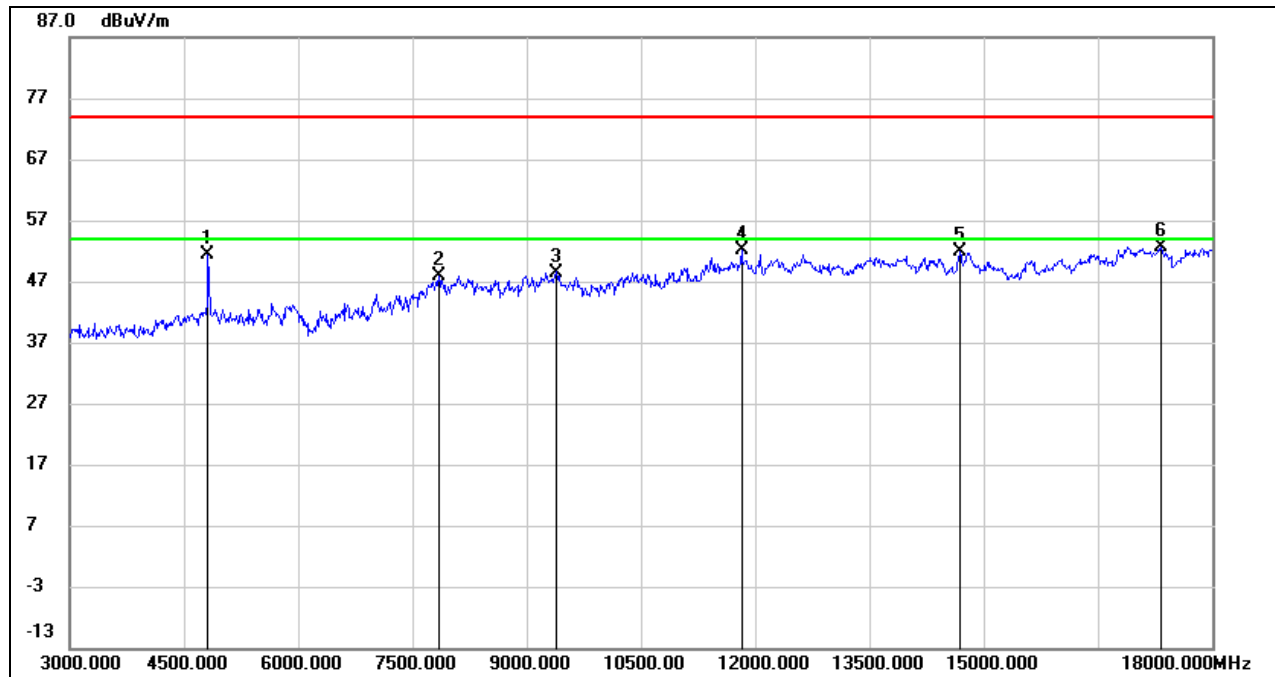
### 8.3.2. 802.11g SISO MODE

#### 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	4815.000	56.53	1.38	57.91	74.00	-16.09	peak
2	4815.000	39.75	1.38	41.13	54.00	-12.87	AVG
3	8115.000	37.88	10.13	48.01	74.00	-25.99	peak
4	10605.000	35.98	12.69	48.67	74.00	-25.33	peak
5	12060.000	36.34	15.44	51.78	74.00	-22.22	peak
6	14805.000	34.38	18.00	52.38	74.00	-21.62	peak
7	17070.000	31.14	21.71	52.85	74.00	-21.15	peak

Note: 1. Peak Result = 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.

**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	4815.000	49.89	1.38	51.27	74.00	-22.73	peak
2	7845.000	38.63	9.14	47.77	74.00	-26.23	peak
3	9390.000	37.58	10.92	48.50	74.00	-25.50	peak
4	11820.000	36.81	15.29	52.10	74.00	-21.90	peak
5	14685.000	34.18	17.64	51.82	74.00	-22.18	peak
6	17325.000	30.23	22.42	52.65	74.00	-21.35	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

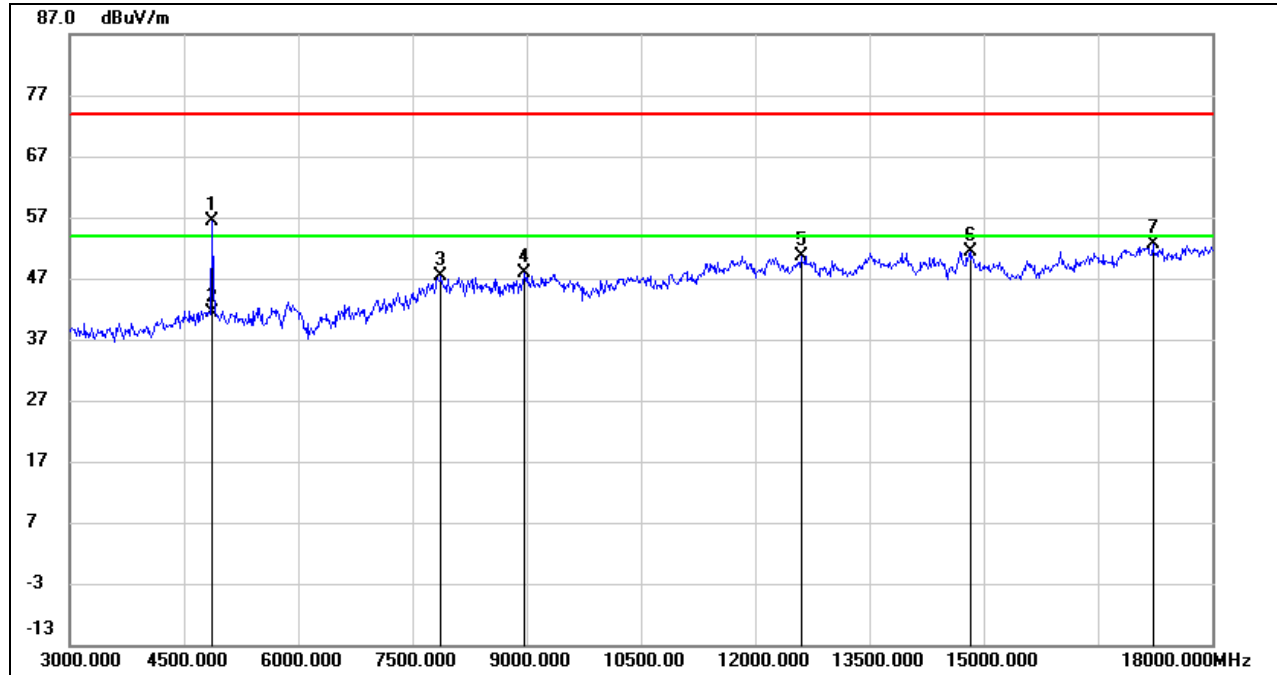
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

### 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	4860.000	55.16	1.33	56.49	74.00	-17.51	peak
2	4860.000	40.00	1.33	41.33	54.00	-12.67	AVG
3	7875.000	38.37	8.98	47.35	74.00	-26.65	peak
4	8970.000	37.13	10.70	47.83	74.00	-26.17	peak
5	12600.000	34.97	15.78	50.75	74.00	-23.25	peak
6	14820.000	33.53	17.91	51.44	74.00	-22.56	peak
7	17220.000	30.40	22.12	52.52	74.00	-21.48	peak

Note: 1. Peak Result = 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.

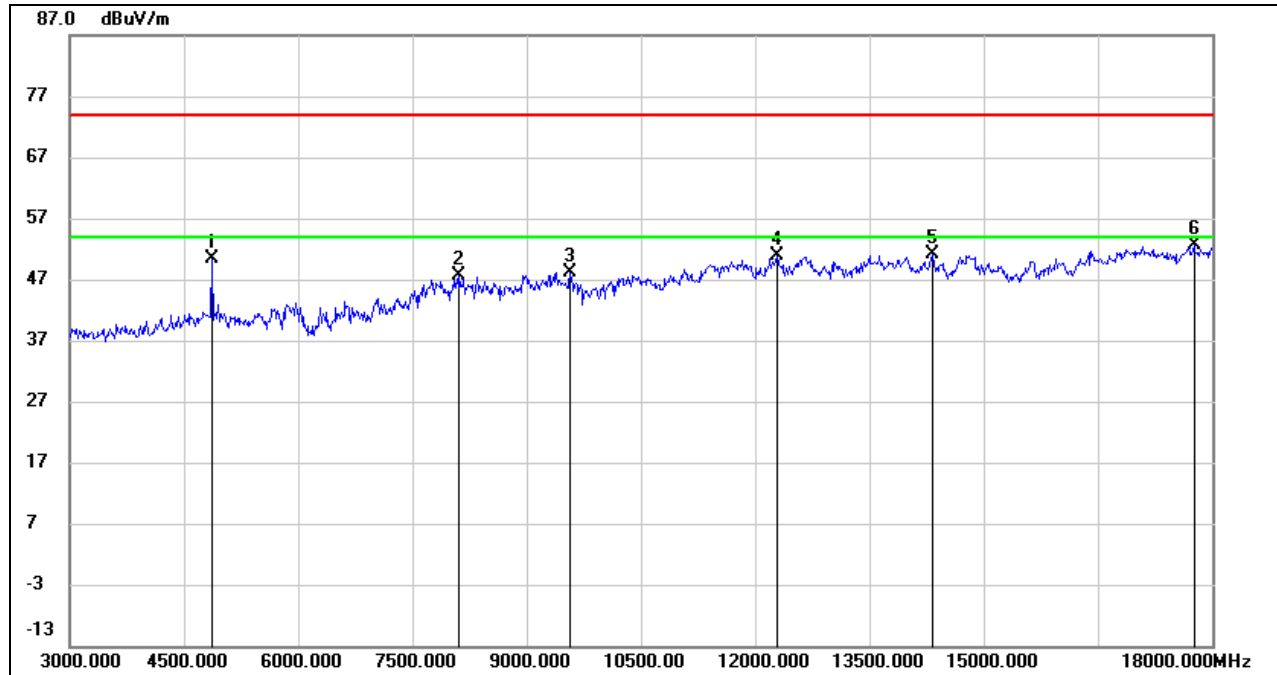
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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.

### 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	4860.000	48.94	1.33	50.27	74.00	-23.73	peak
2	8115.000	37.38	10.13	47.51	74.00	-26.49	peak
3	9570.000	37.29	10.88	48.17	74.00	-25.83	peak
4	12285.000	34.84	16.08	50.92	74.00	-23.08	peak
5	14325.000	33.09	17.94	51.03	74.00	-22.97	peak
6	17760.000	28.74	23.82	52.56	74.00	-21.44	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

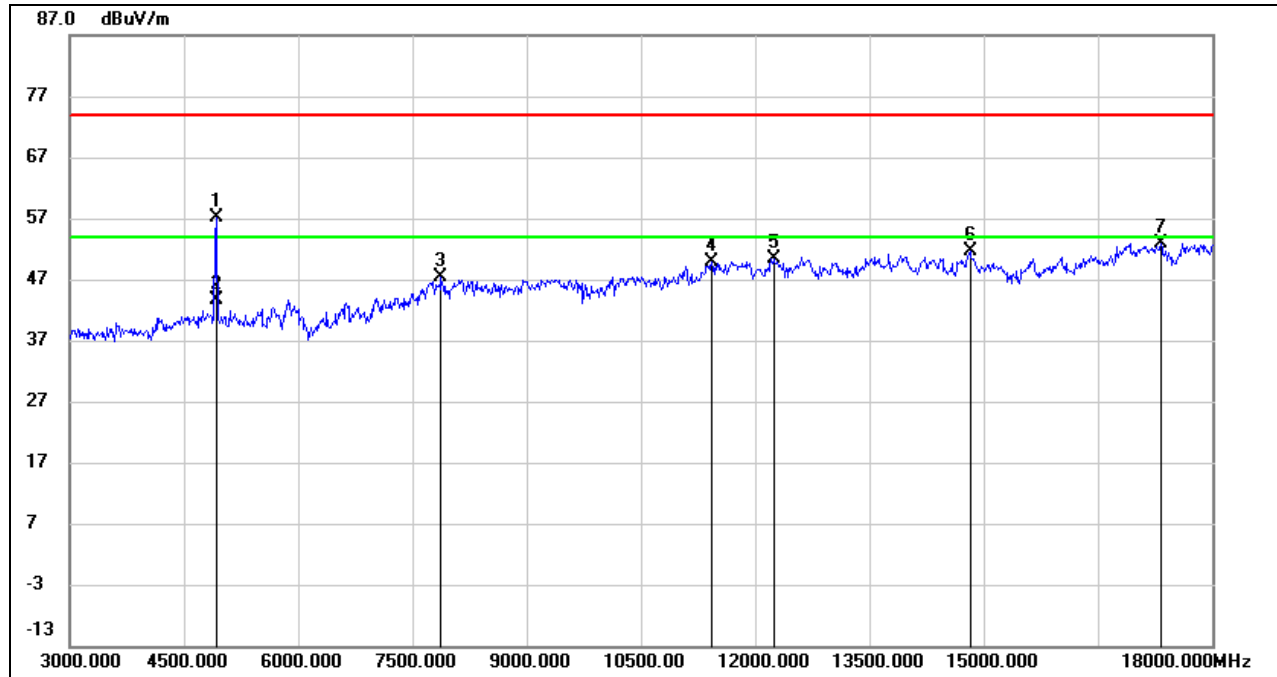
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

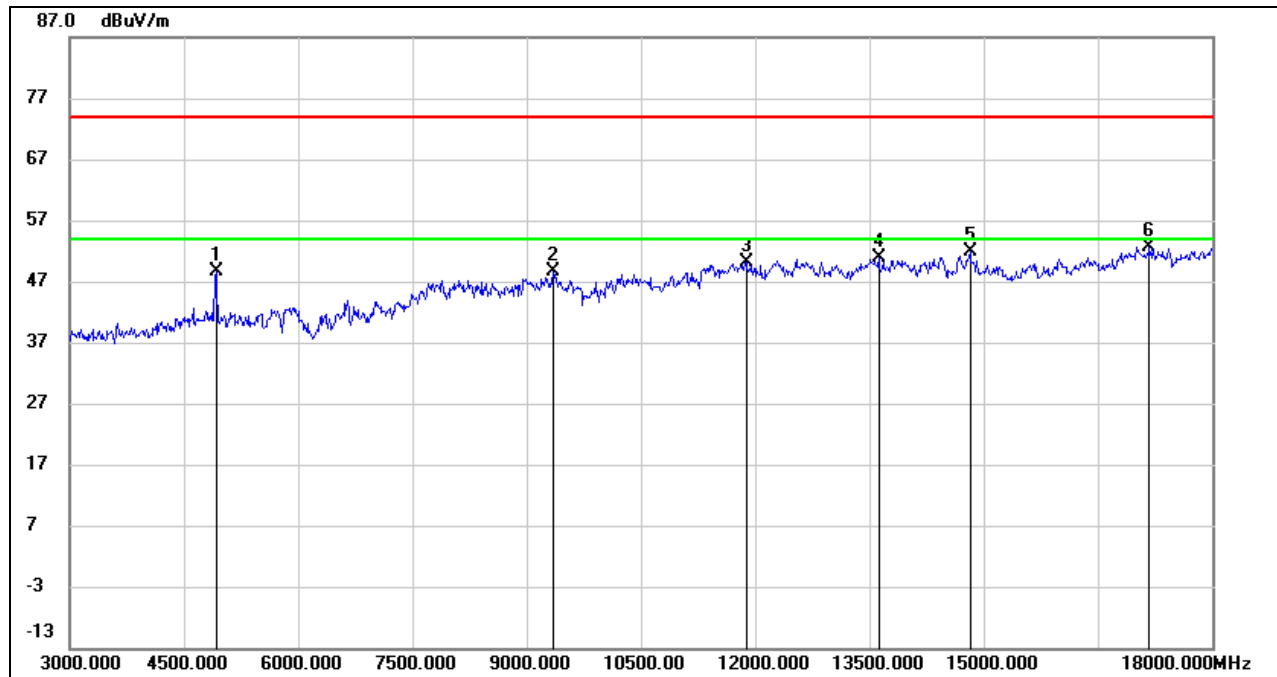
### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	55.70	1.45	57.15	74.00	-16.85	peak
2	4920.000	42.26	1.45	43.71	54.00	-10.29	AVG
3	7875.000	38.28	8.98	47.26	74.00	-26.74	peak
4	11430.000	35.16	14.72	49.88	74.00	-24.12	peak
5	12240.000	34.32	16.01	50.33	74.00	-23.67	peak
6	14820.000	33.62	17.91	51.53	74.00	-22.47	peak
7	17325.000	30.54	22.42	52.96	74.00	-21.04	peak

- Note: 1. Peak Result = 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.

### 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	4920.000	47.13	1.45	48.58	74.00	-25.42	peak
2	9345.000	37.86	10.66	48.52	74.00	-25.48	peak
3	11880.000	34.62	15.46	50.08	74.00	-23.92	peak
4	13620.000	33.72	17.19	50.91	74.00	-23.09	peak
5	14820.000	34.08	17.91	51.99	74.00	-22.01	peak
6	17175.000	30.65	21.97	52.62	74.00	-21.38	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

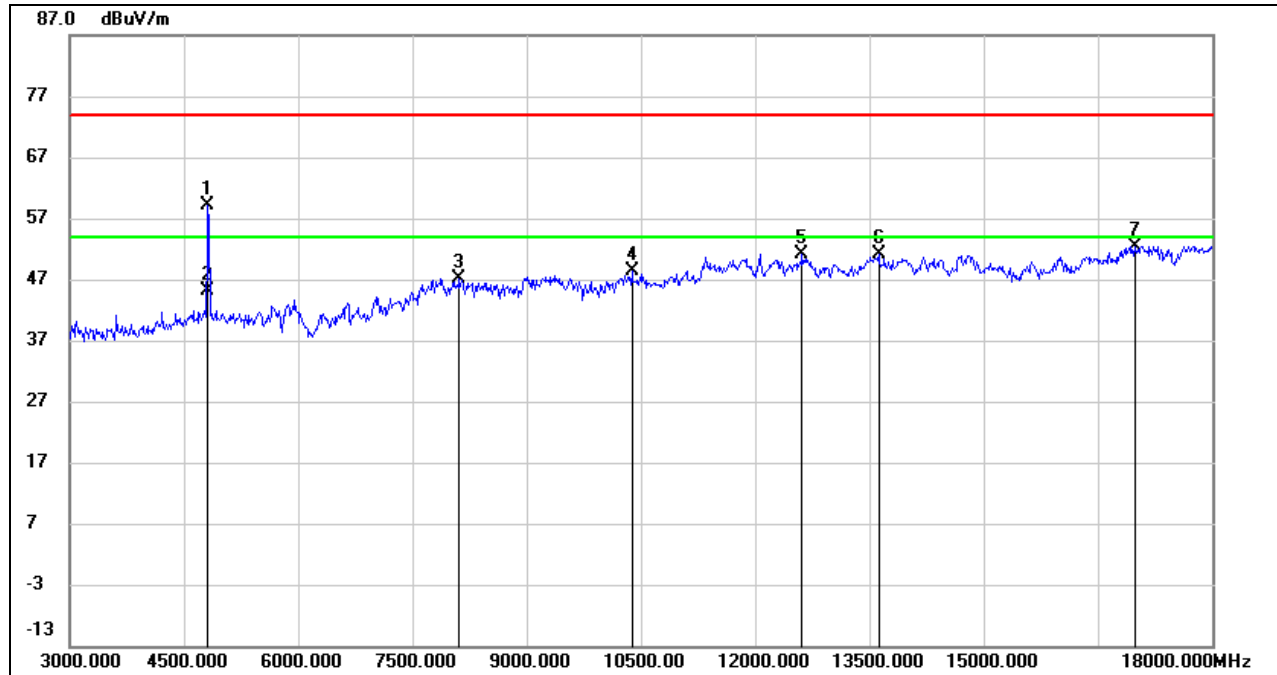
3. Peak: Peak detector.

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

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

### 8.3.3. 802.11n HT20 MIMO MODE

#### 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	4815.000	57.79	1.38	59.17	74.00	-14.83	peak
2	4815.000	43.73	1.38	45.11	54.00	-8.89	AVG
3	8115.000	37.10	10.13	47.23	74.00	-26.77	peak
4	10380.000	36.11	12.15	48.26	74.00	-25.74	peak
5	12615.000	35.39	15.75	51.14	74.00	-22.86	peak
6	13620.000	33.90	17.19	51.09	74.00	-22.91	peak
7	16980.000	31.17	21.30	52.47	74.00	-21.53	peak

Note: 1. Peak Result = 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.

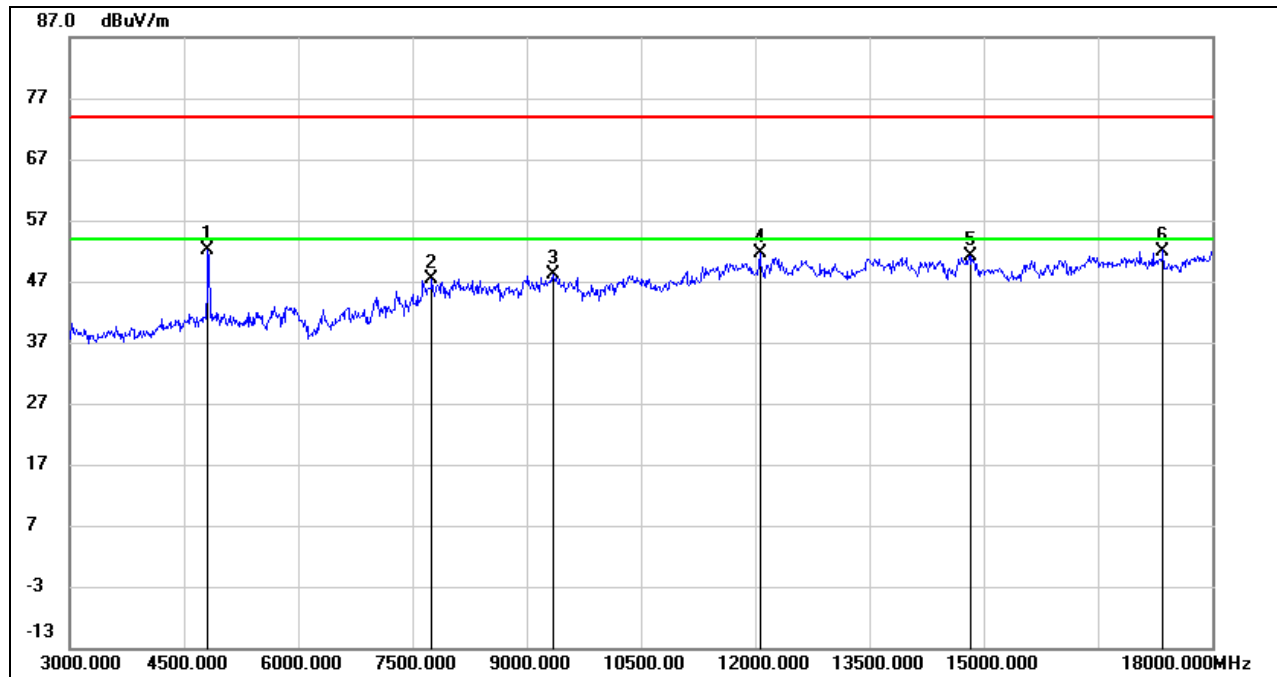
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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.



**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	4815.000	50.67	1.38	52.05	74.00	-21.95	peak
2	7755.000	38.47	8.94	47.41	74.00	-26.59	peak
3	9345.000	37.40	10.66	48.06	74.00	-25.94	peak
4	12060.000	36.09	15.44	51.53	74.00	-22.47	peak
5	14820.000	33.10	17.91	51.01	74.00	-22.99	peak
6	17355.000	29.80	22.20	52.00	74.00	-22.00	peak

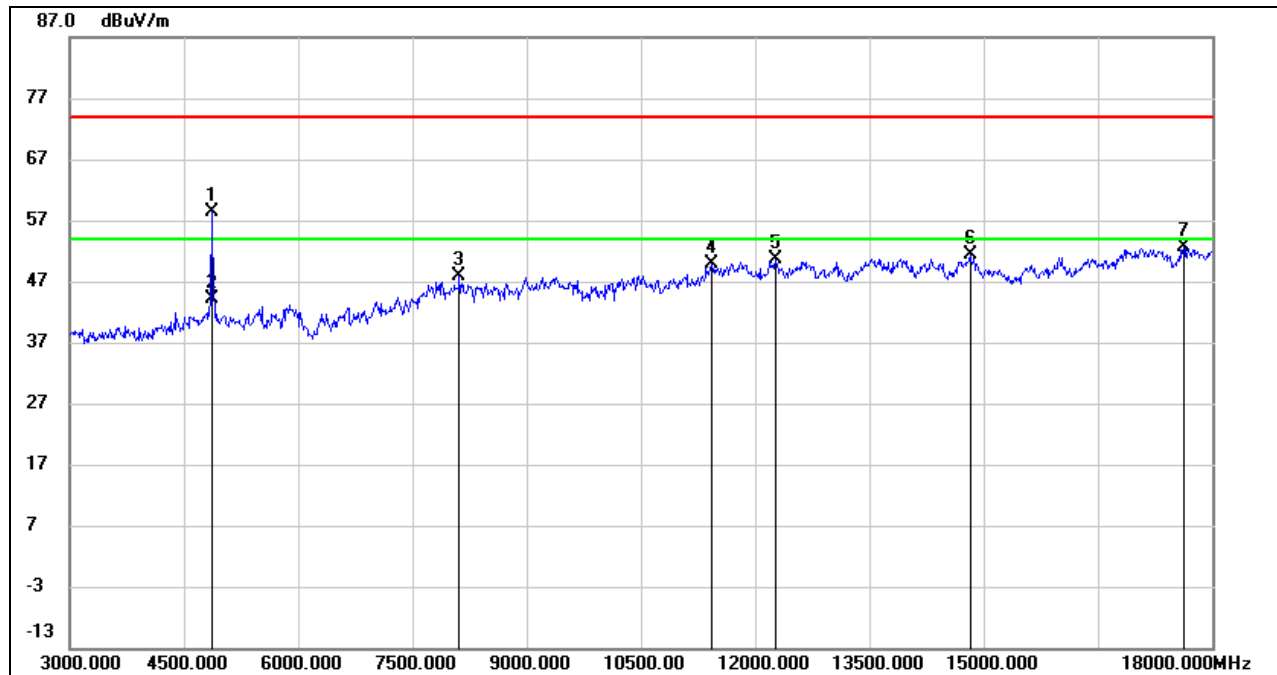
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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

**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	4860.000	57.14	1.33	58.47	74.00	-15.53	peak
2	4860.000	42.73	1.33	44.06	54.00	-9.94	AVG
3	8115.000	37.63	10.13	47.76	74.00	-26.24	peak
4	11430.000	35.12	14.72	49.84	74.00	-24.16	peak
5	12270.000	34.63	16.04	50.67	74.00	-23.33	peak
6	14820.000	33.54	17.91	51.45	74.00	-22.55	peak
7	17625.000	29.76	22.92	52.68	74.00	-21.32	peak

Note: 1. Peak Result = 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.

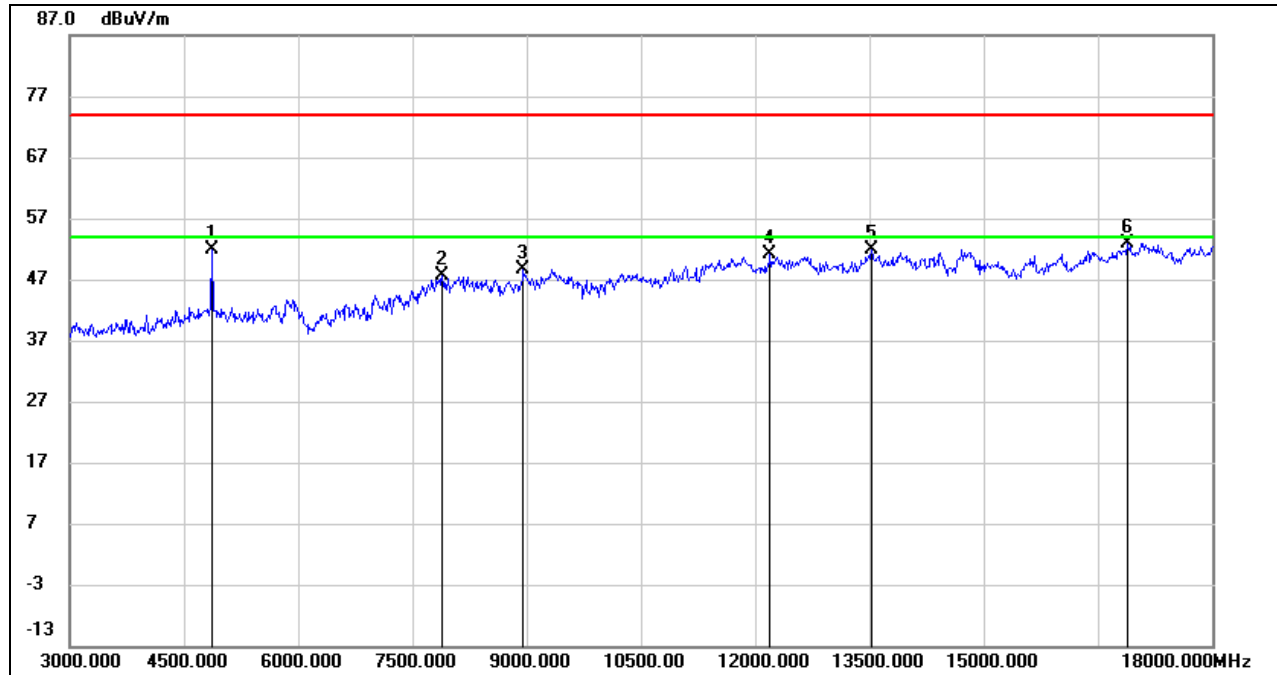
4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.

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.

### 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	4875.000	50.62	1.32	51.94	74.00	-22.06	peak
2	7890.000	38.62	8.91	47.53	74.00	-26.47	peak
3	8955.000	38.22	10.41	48.63	74.00	-25.37	peak
4	12195.000	35.12	15.93	51.05	74.00	-22.95	peak
5	13530.000	34.77	17.19	51.96	74.00	-22.04	peak
6	16890.000	31.43	21.49	52.92	74.00	-21.08	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

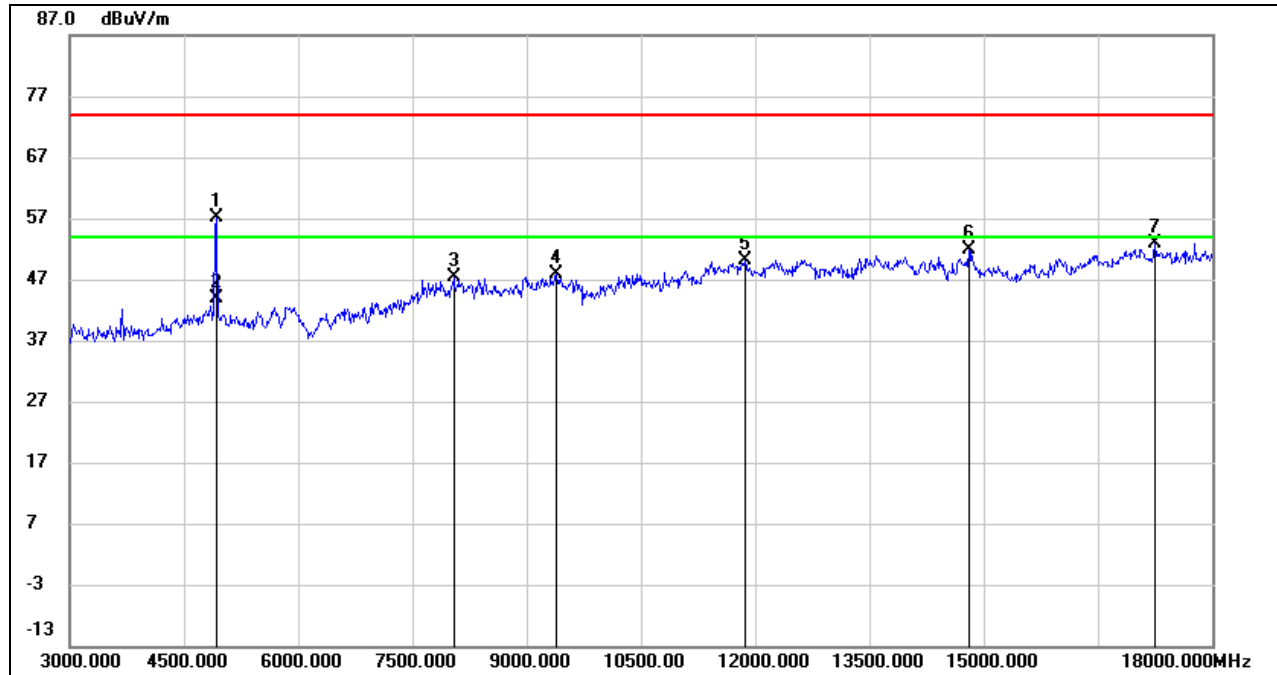
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

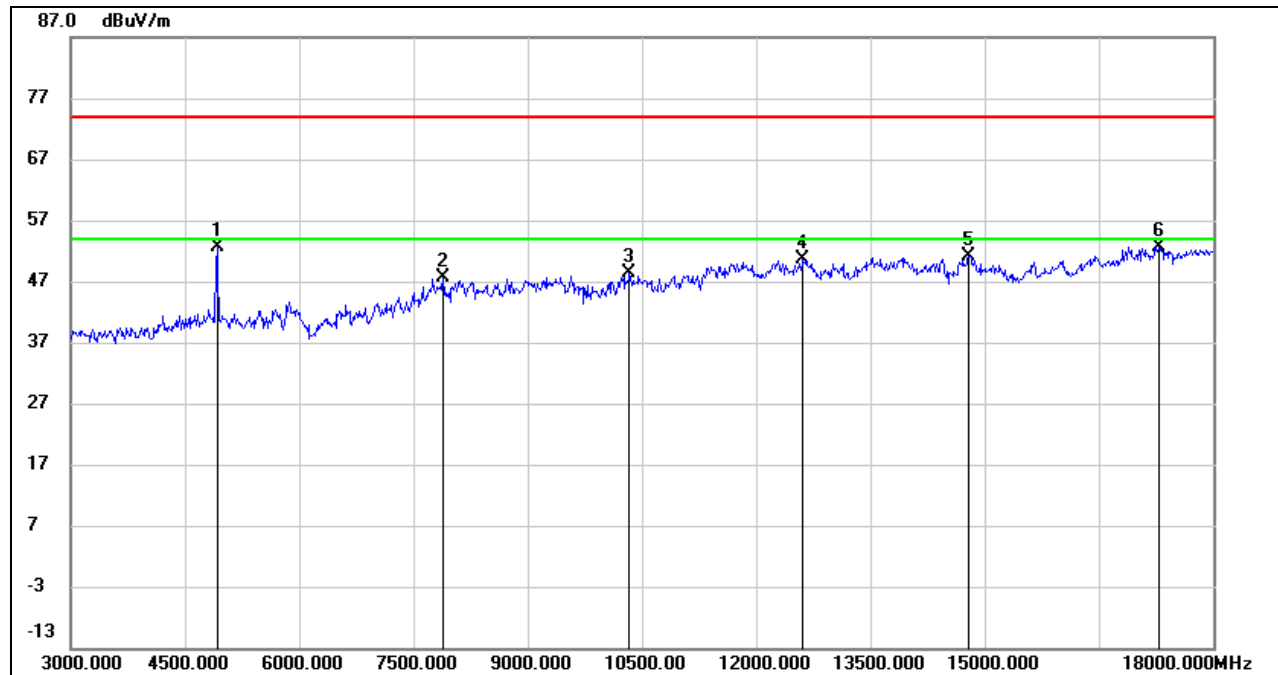
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

### 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	4920.000	55.76	1.45	57.21	74.00	-16.79	peak
2	4920.000	42.45	1.45	43.90	54.00	-10.10	AVG
3	8040.000	38.20	9.25	47.45	74.00	-26.55	peak
4	9390.000	36.89	10.92	47.81	74.00	-26.19	peak
5	11865.000	34.74	15.42	50.16	74.00	-23.84	peak
6	14805.000	33.83	18.00	51.83	74.00	-22.17	peak
7	17250.000	30.61	22.30	52.91	74.00	-21.09	peak

- Note:
1. Peak Result = 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.

**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	4920.000	51.25	1.45	52.70	74.00	-21.30	peak
2	7890.000	38.65	8.91	47.56	74.00	-26.44	peak
3	10335.000	36.39	11.96	48.35	74.00	-25.65	peak
4	12615.000	34.77	15.75	50.52	74.00	-23.48	peak
5	14790.000	33.24	18.01	51.25	74.00	-22.75	peak
6	17295.000	30.10	22.58	52.68	74.00	-21.32	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

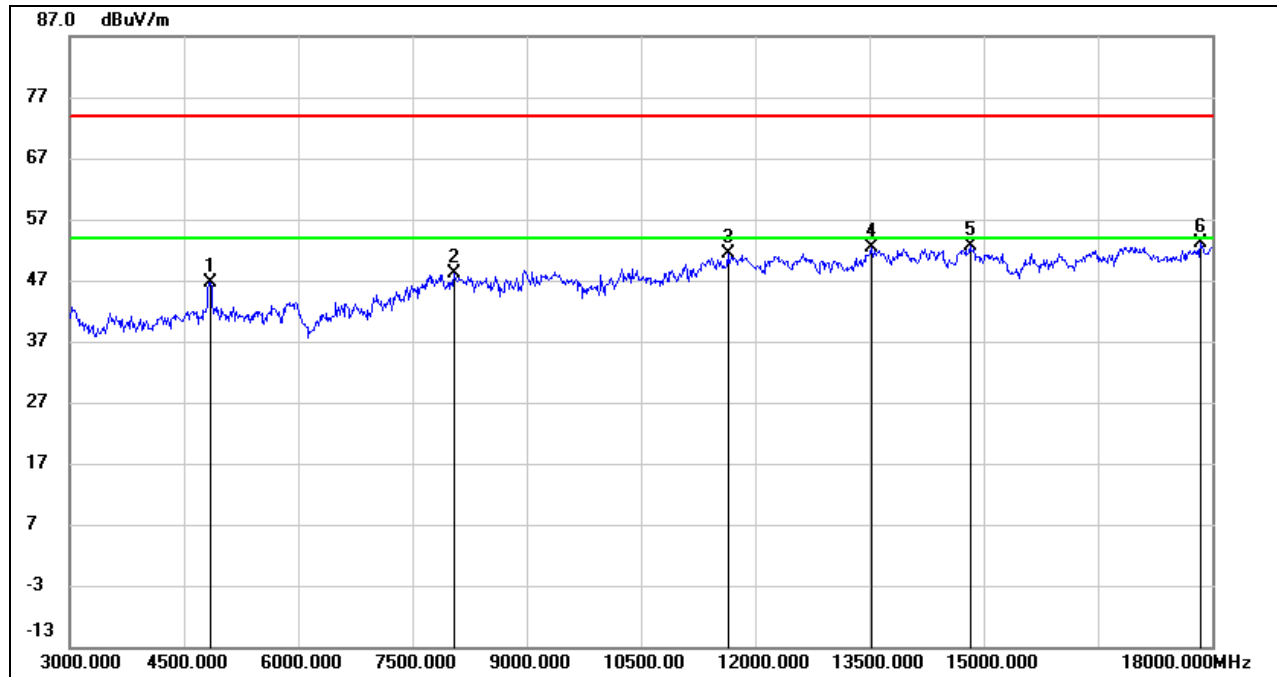
3. Peak: Peak detector.

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

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

### 8.3.4. 802.11n HT40 MIMO MODE

#### 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	4845.000	45.24	1.35	46.59	74.00	-27.41	peak
2	8040.000	38.93	9.25	48.18	74.00	-25.82	peak
3	11640.000	36.37	14.97	51.34	74.00	-22.66	peak
4	13530.000	34.59	17.76	52.35	74.00	-21.65	peak
5	14820.000	34.08	18.53	52.61	74.00	-21.39	peak
6	17850.000	27.93	25.29	53.22	74.00	-20.78	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

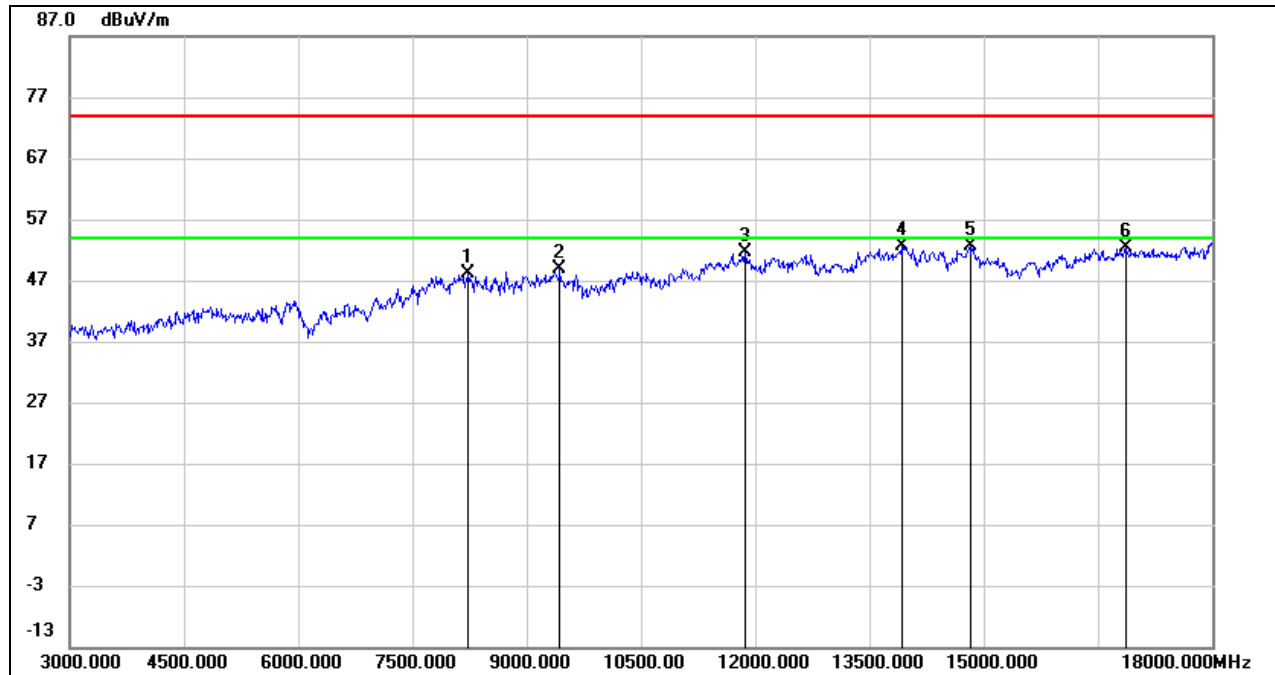
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

### 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	8235.000	38.35	9.76	48.11	74.00	-25.89	peak
2	9435.000	37.95	10.81	48.76	74.00	-25.24	peak
3	11865.000	36.21	15.42	51.63	74.00	-22.37	peak
4	13920.000	34.06	18.54	52.60	74.00	-21.40	peak
5	14820.000	34.03	18.53	52.56	74.00	-21.44	peak
6	16860.000	30.65	21.66	52.31	74.00	-21.69	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

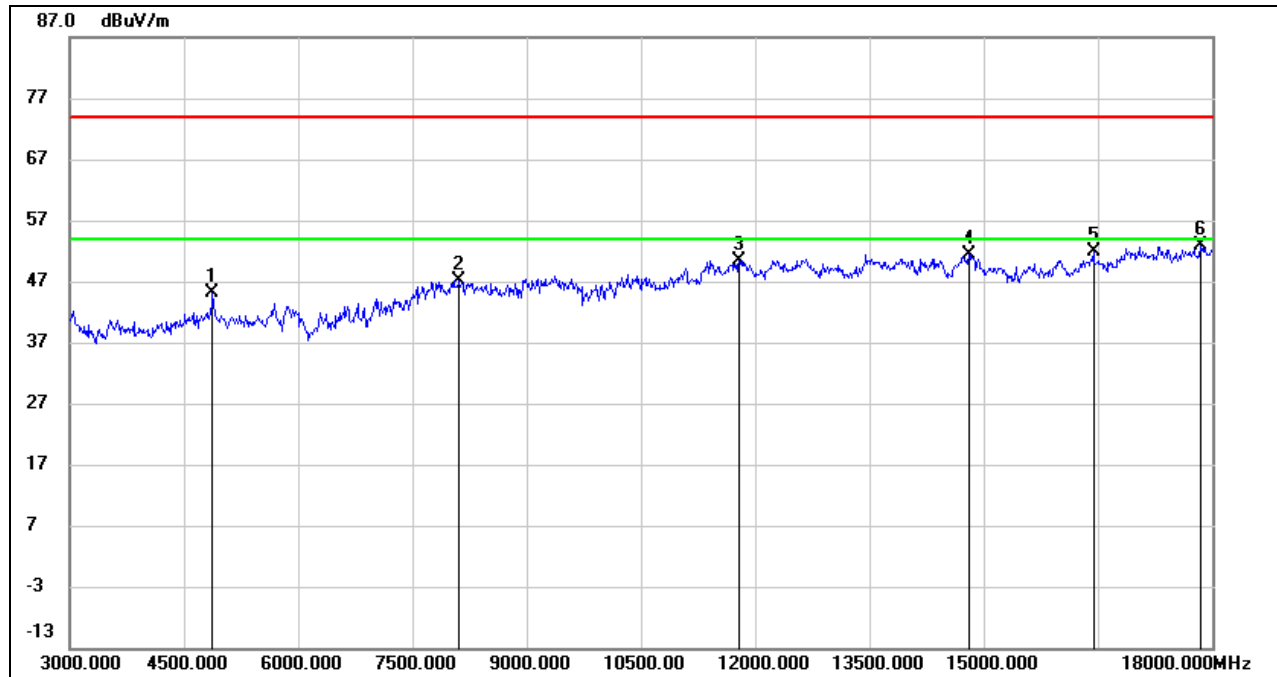
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

### 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	4875.000	43.90	1.32	45.22	74.00	-28.78	peak
2	8115.000	37.11	10.13	47.24	74.00	-26.76	peak
3	11790.000	35.12	15.26	50.38	74.00	-23.62	peak
4	14805.000	33.45	18.00	51.45	74.00	-22.55	peak
5	16440.000	32.16	19.68	51.84	74.00	-22.16	peak
6	17850.000	28.85	23.97	52.82	74.00	-21.18	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

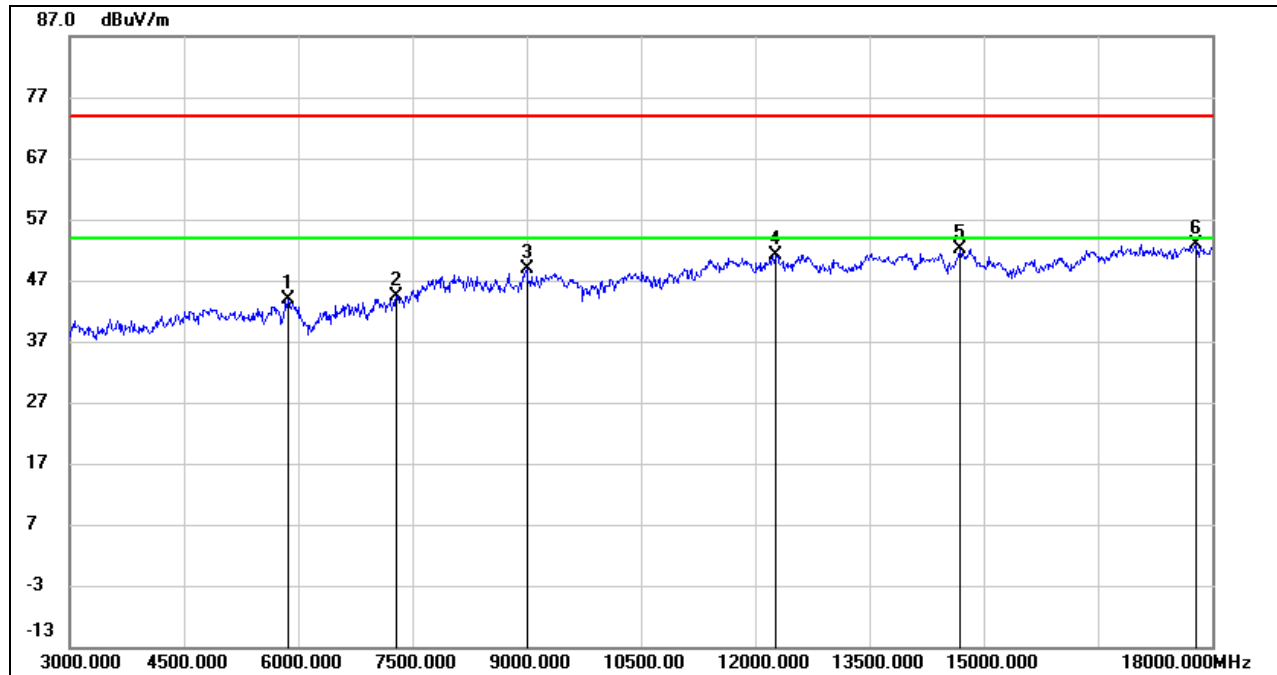
3. Peak: Peak detector.

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

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



### 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	5865.000	39.66	4.16	43.82	74.00	-30.18	peak
2	7290.000	37.24	7.12	44.36	74.00	-29.64	peak
3	9000.000	37.49	11.27	48.76	74.00	-25.24	peak
4	12270.000	35.00	16.04	51.04	74.00	-22.96	peak
5	14685.000	34.59	17.64	52.23	74.00	-21.77	peak
6	17790.000	28.78	23.99	52.77	74.00	-21.23	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

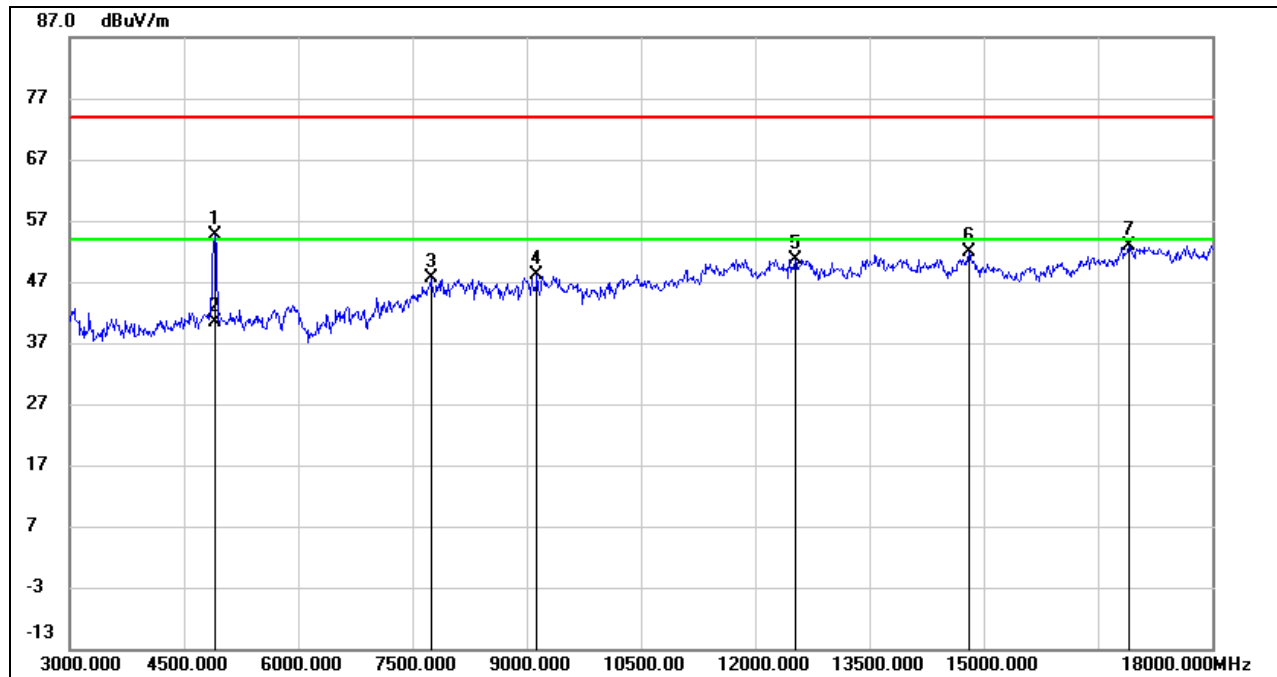
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

### 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	4905.000	53.29	1.33	54.62	74.00	-19.38	peak
2	4905.000	39.03	1.33	40.36	54.00	-13.64	AVG
3	7740.000	38.73	8.81	47.54	74.00	-26.46	peak
4	9135.000	37.94	10.07	48.01	74.00	-25.99	peak
5	12525.000	34.95	15.70	50.65	74.00	-23.35	peak
6	14805.000	33.80	18.00	51.80	74.00	-22.20	peak
7	16905.000	31.25	21.55	52.80	74.00	-21.20	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

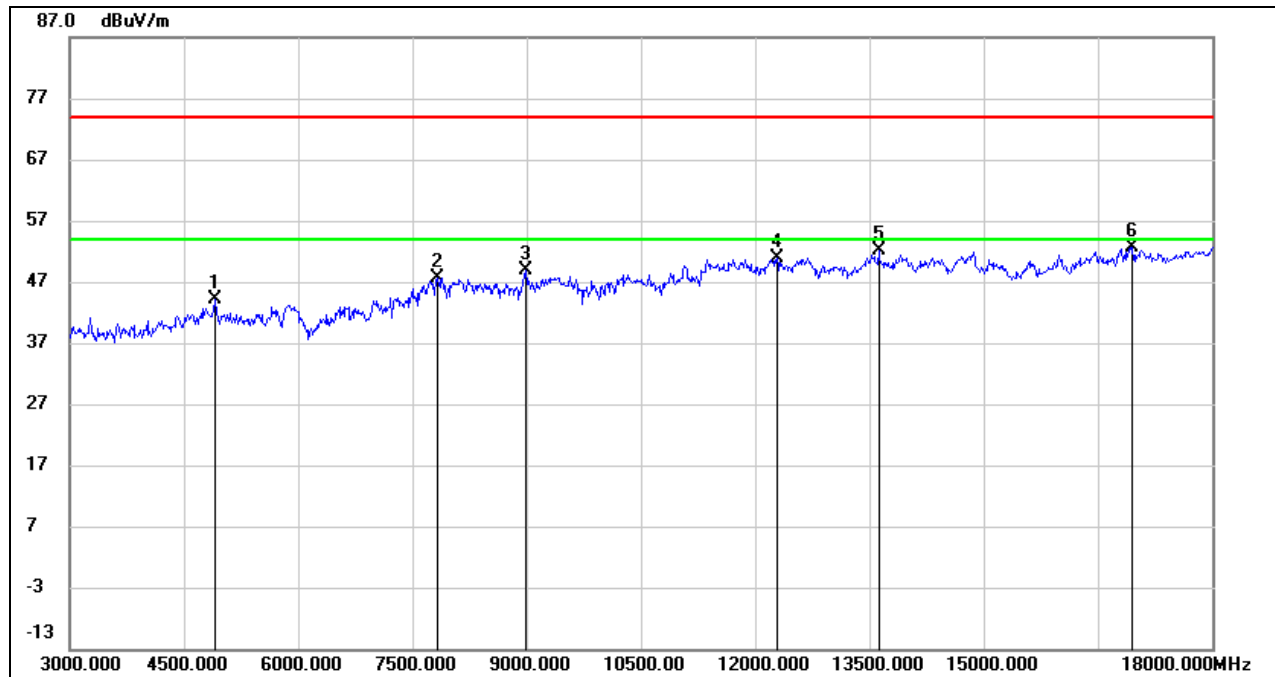
3. Peak: Peak detector.

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.

**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	4905.000	42.85	1.33	44.18	74.00	-29.82	peak
2	7830.000	38.42	9.20	47.62	74.00	-26.38	peak
3	8985.000	37.88	10.99	48.87	74.00	-25.13	peak
4	12285.000	34.86	16.08	50.94	74.00	-23.06	peak
5	13620.000	34.86	17.19	52.05	74.00	-21.95	peak
6	16950.000	31.13	21.41	52.54	74.00	-21.46	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

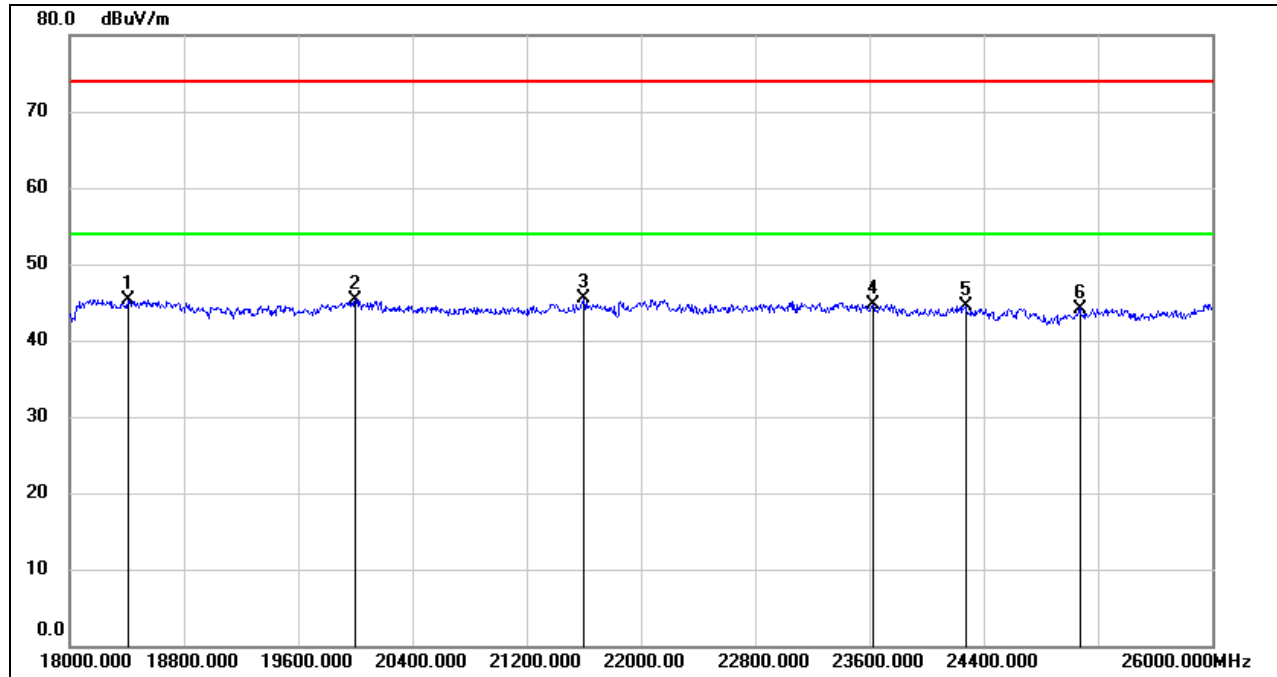
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

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

### 8.5.1. 802.11n HT40 MIMO MODE

#### SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18408.000	50.66	-5.37	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	23624.000	47.85	-3.16	44.69	74.00	-29.31	peak
5	24272.000	47.25	-2.79	44.46	74.00	-29.54	peak
6	25072.000	46.17	-1.97	44.20	74.00	-29.80	peak

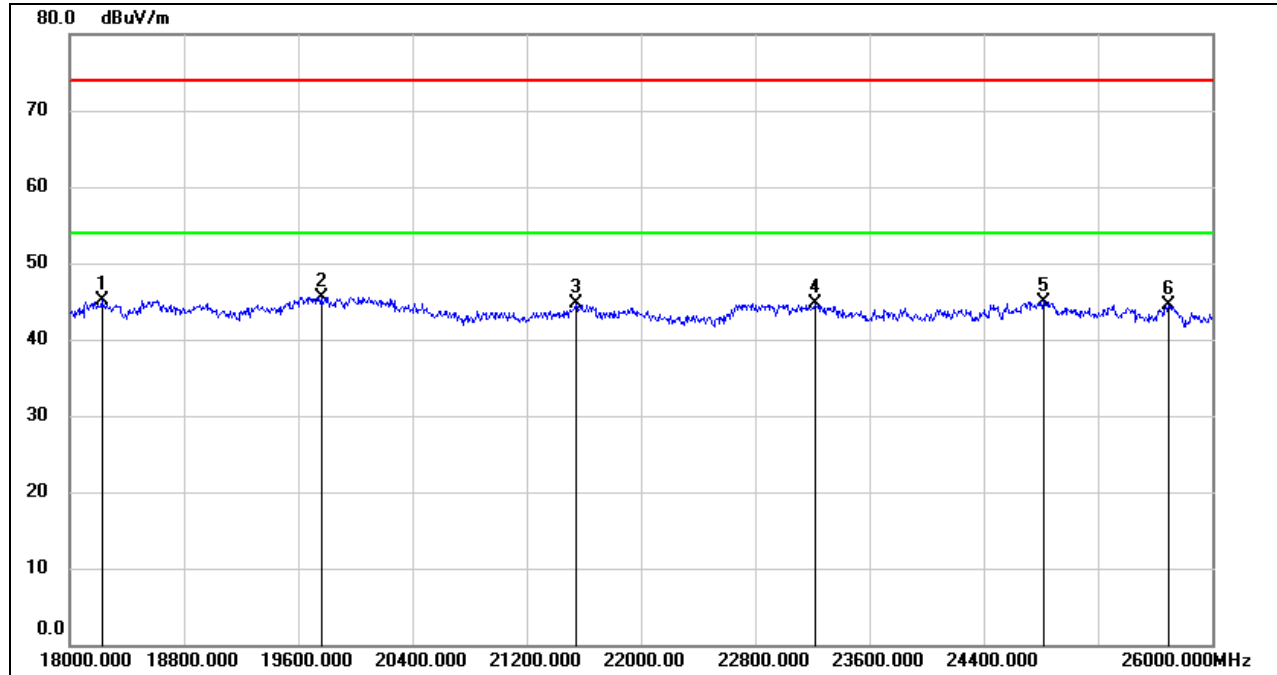
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18224.000	50.58	-5.53	45.05	74.00	-28.95	peak
2	19760.000	50.85	-5.26	45.59	74.00	-28.41	peak
3	21544.000	49.26	-4.63	44.63	74.00	-29.37	peak
4	23216.000	48.01	-3.38	44.63	74.00	-29.37	peak
5	24824.000	47.26	-2.26	45.00	74.00	-29.00	peak
6	25696.000	45.44	-0.86	44.58	74.00	-29.42	peak

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

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

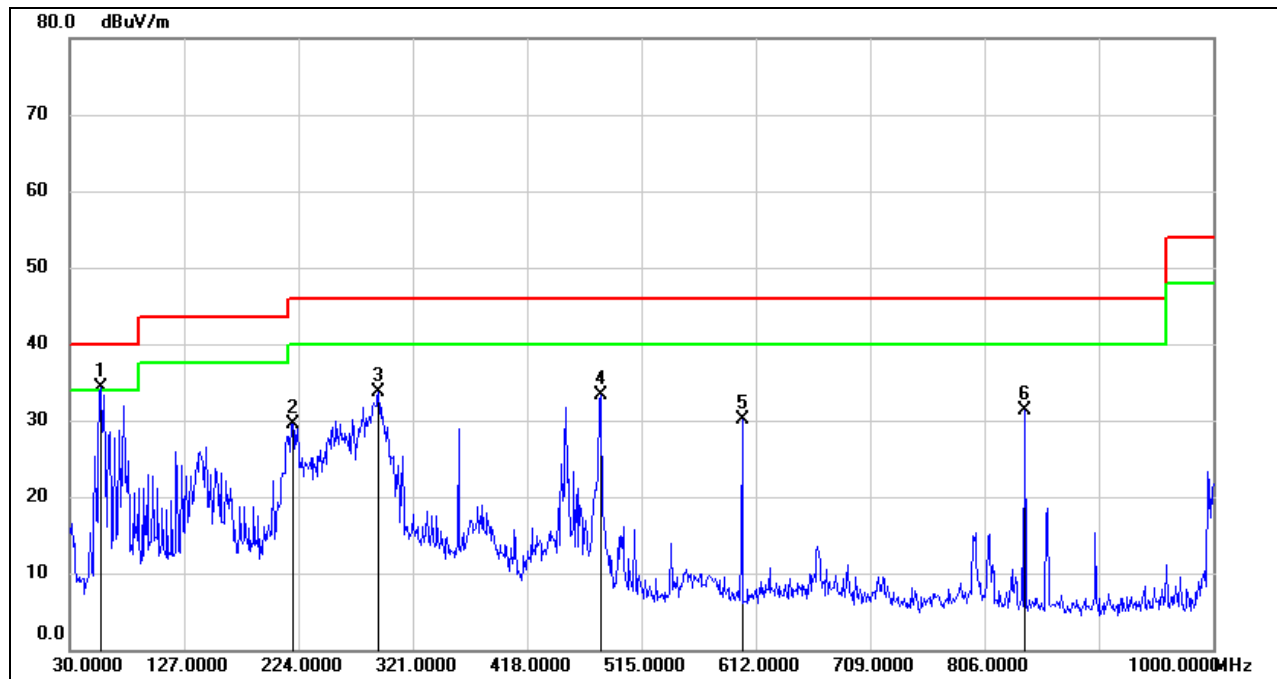
3. Peak: Peak detector.

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

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

### 8.6.1. 802.11n HT40 MIMO MODE

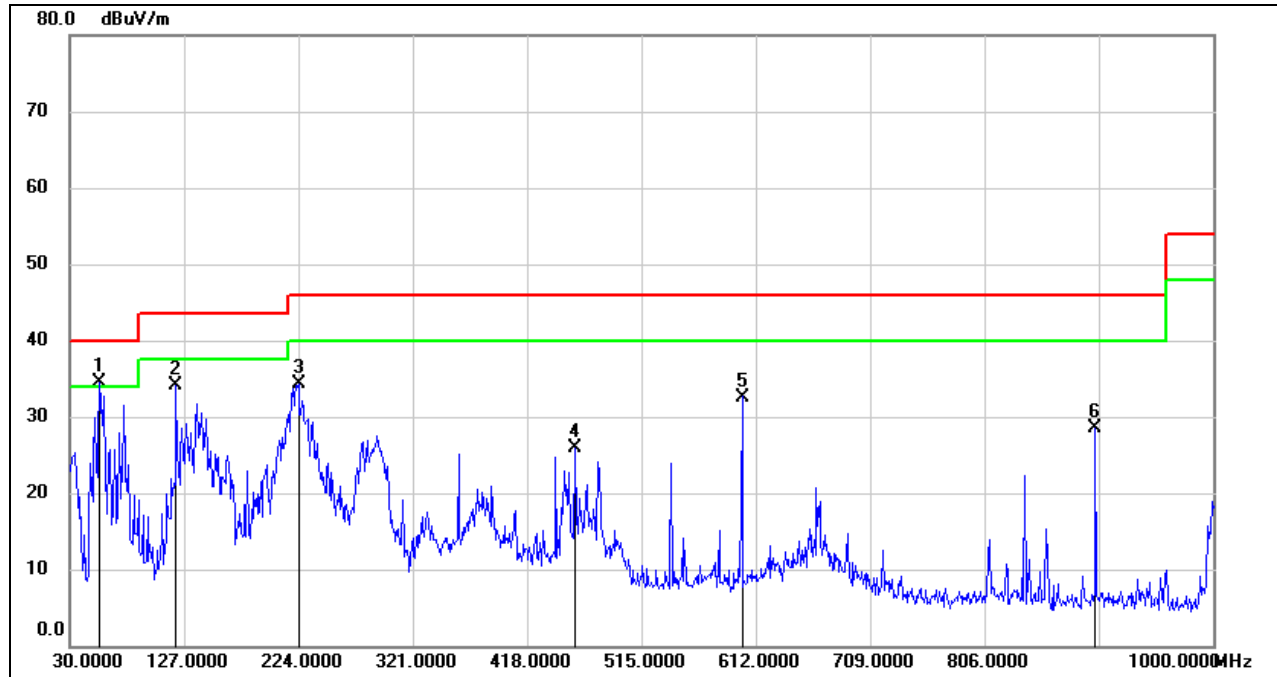
#### SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	56.1900	55.53	-21.13	34.40	40.00	-5.60	QP
2	219.1500	48.78	-19.19	29.59	46.00	-16.41	QP
3	291.9000	50.87	-17.12	33.75	46.00	-12.25	QP
4	480.0800	46.65	-13.44	33.21	46.00	-12.79	QP
5	600.3600	41.55	-11.40	30.15	46.00	-15.85	QP
6	839.9500	39.90	-8.62	31.28	46.00	-14.72	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 (MID CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	55.2200	55.69	-21.15	34.54	40.00	-5.46	QP
2	120.2100	54.66	-20.65	34.01	43.50	-9.49	QP
3	224.0000	53.88	-19.48	34.40	46.00	-11.60	QP
4	458.7400	39.67	-13.80	25.87	46.00	-20.13	QP
5	600.3600	44.00	-11.40	32.60	46.00	-13.40	QP
6	900.0900	35.80	-7.30	28.50	46.00	-17.50	QP

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

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

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

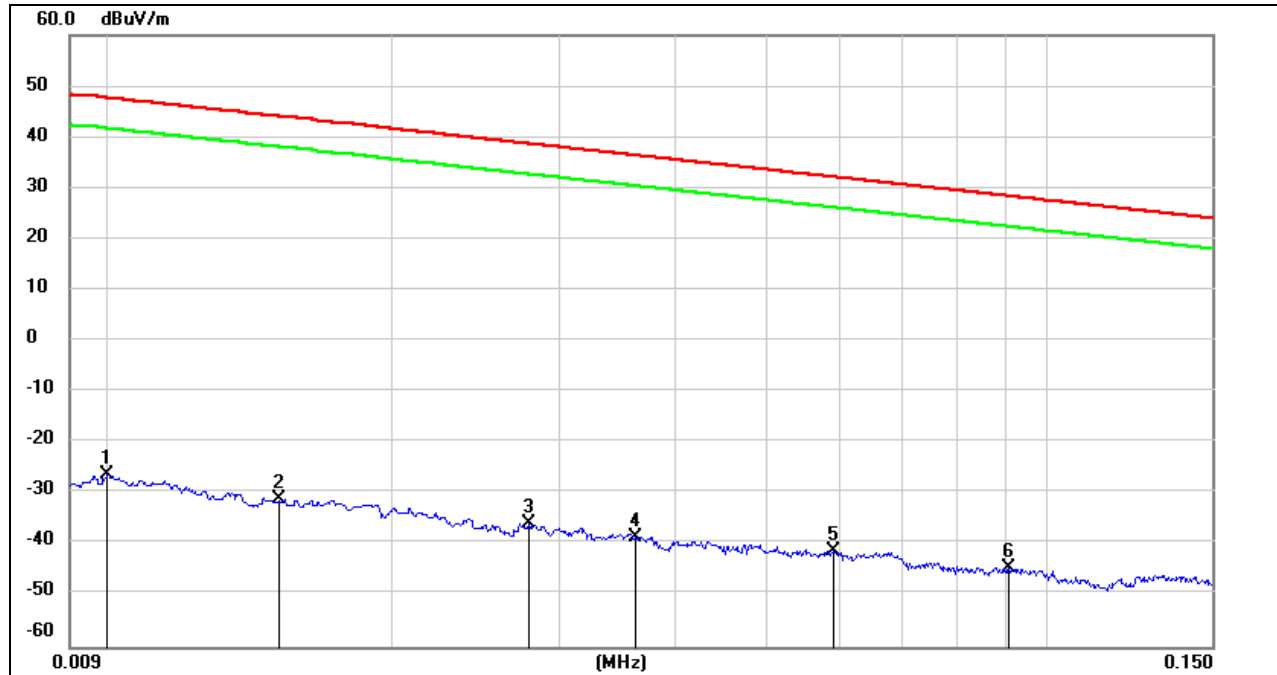
Note: All the modes and channels had been tested, but only the worst data was recorded in the report.

## 8.7. SPURIOUS EMISSIONS BELOW 30 MHz

### 8.7.1. 802.11n HT40 MIMO MODE

#### SPURIOUS EMISSIONS (MID CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



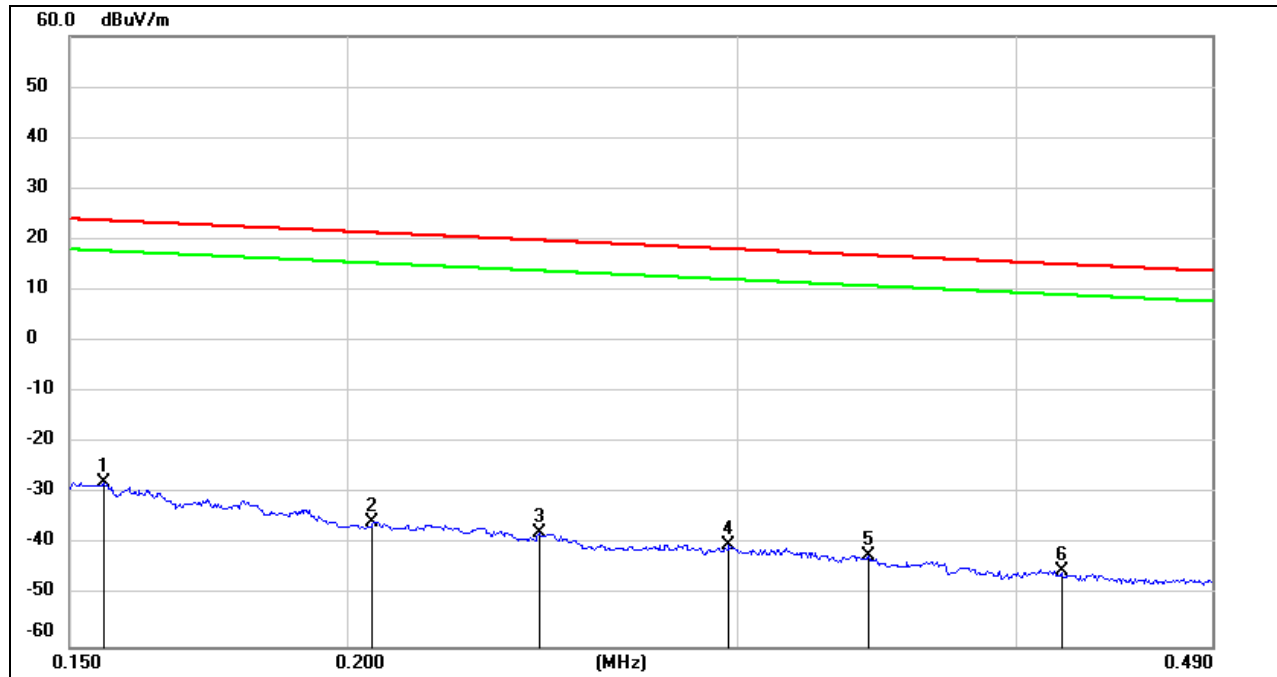
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.0100	75.22	-101.40	-26.18	47.6	-77.68	-3.90	-73.78	peak
2	0.0151	70.21	-101.37	-31.16	44.02	-82.66	-7.48	-75.18	peak
3	0.0279	65.67	-101.38	-35.71	38.69	-87.21	-12.81	-74.40	peak
4	0.0362	63.01	-101.42	-38.41	36.43	-89.91	-15.07	-74.84	peak
5	0.0589	60.31	-101.52	-41.21	32.2	-92.71	-19.30	-73.41	peak
6	0.0911	57.11	-101.72	-44.61	28.41	-96.11	-23.09	-73.02	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).

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

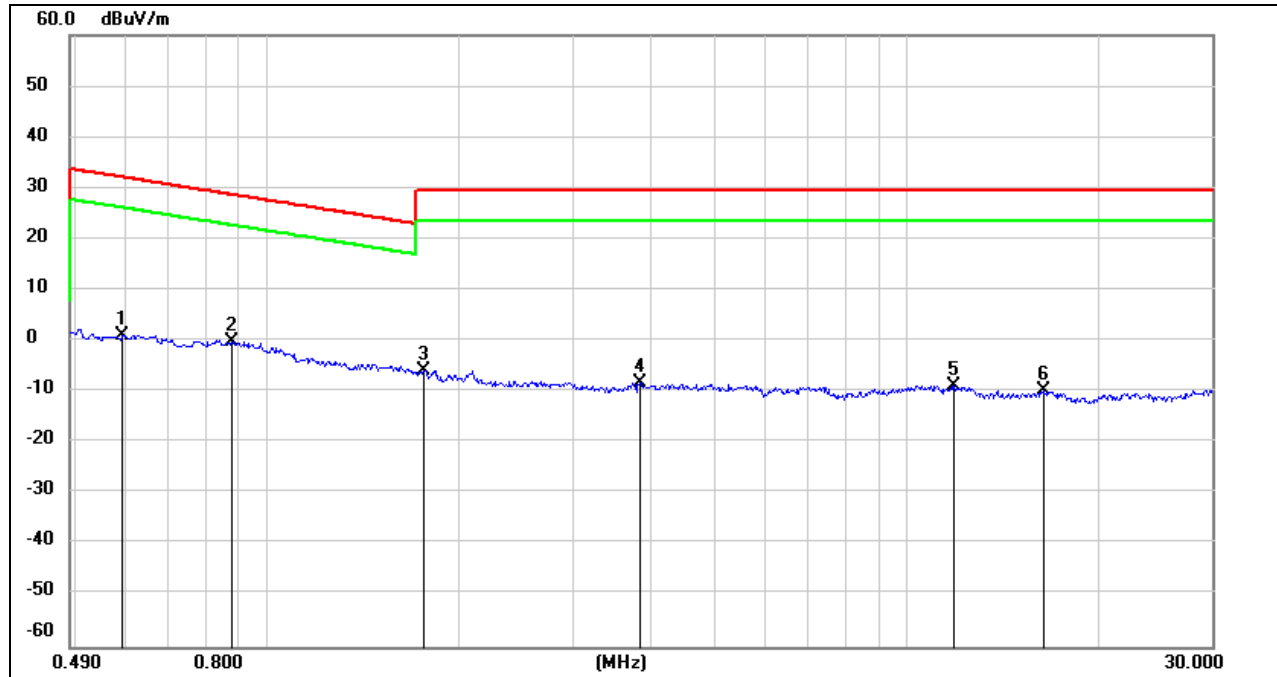
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISCED Result (dBuA/m)	ISCED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1554	73.77	-101.65	-27.88	23.77	-79.38	-27.73	-51.65	peak
2	0.2053	66.29	-101.73	-35.44	21.35	-86.94	-30.15	-56.79	peak
3	0.2442	64.03	-101.79	-37.76	19.85	-89.26	-31.65	-57.61	peak
4	0.2972	61.66	-101.85	-40.19	18.14	-91.69	-33.36	-58.33	peak
5	0.3431	59.67	-101.90	-42.23	16.89	-93.73	-34.61	-59.12	peak
6	0.4193	56.68	-101.98	-45.3	15.15	-96.80	-36.35	-60.45	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).

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)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.5917	63.24	-62.08	1.16	32.16	-50.34	-19.34	-31.00	peak
2	0.8789	62.06	-62.19	-0.13	28.73	-51.63	-22.77	-28.86	peak
3	1.7580	56.08	-61.93	-5.85	29.54	-57.35	-21.96	-35.39	peak
4	3.8246	53.20	-61.38	-8.18	29.54	-59.68	-21.96	-37.72	peak
5	11.8513	52.06	-60.88	-8.82	29.54	-60.32	-21.96	-38.36	peak
6	16.3959	51.17	-60.96	-9.79	29.54	-61.29	-21.96	-39.33	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).

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

## 9. AC POWER LINE CONDUCTED EMISSIONS

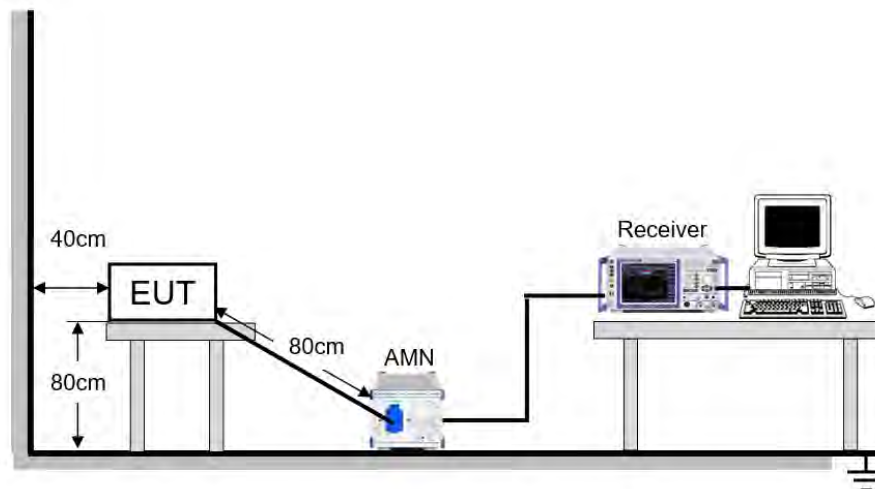
### LIMITS

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

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

### TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



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

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

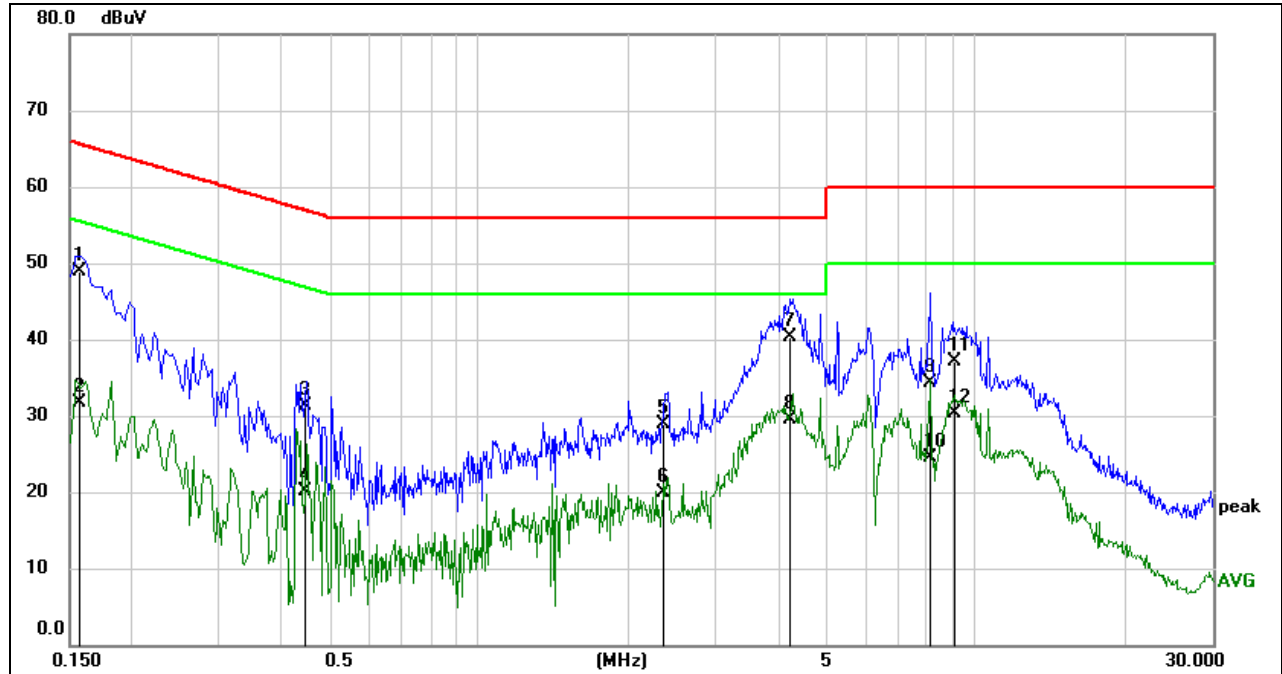
### TEST ENVIRONMENT

Temperature	23.6 °C	Relative Humidity	59.1 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## RESULTS

### 9.1. 802.11n HT40 MIMO MODE

#### LINE N RESULTS (MID CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1564	39.25	9.59	48.84	65.65	-16.81	QP
2	0.1564	22.04	9.59	31.63	55.65	-24.02	AVG
3	0.4464	21.77	9.60	31.37	56.94	-25.57	QP
4	0.4464	10.42	9.60	20.02	46.94	-26.92	AVG
5	2.3465	19.37	9.63	29.00	56.00	-27.00	QP
6	2.3465	10.34	9.63	19.97	46.00	-26.03	AVG
7	4.2490	30.76	9.60	40.36	56.00	-15.64	QP
8	4.2490	19.81	9.60	29.41	46.00	-16.59	AVG
9	8.0904	24.75	9.61	34.36	60.00	-25.64	QP
10	8.0904	14.90	9.61	24.51	50.00	-25.49	AVG
11	9.0618	27.51	9.61	37.12	60.00	-22.88	QP
12	9.0618	20.79	9.61	30.40	50.00	-19.60	AVG

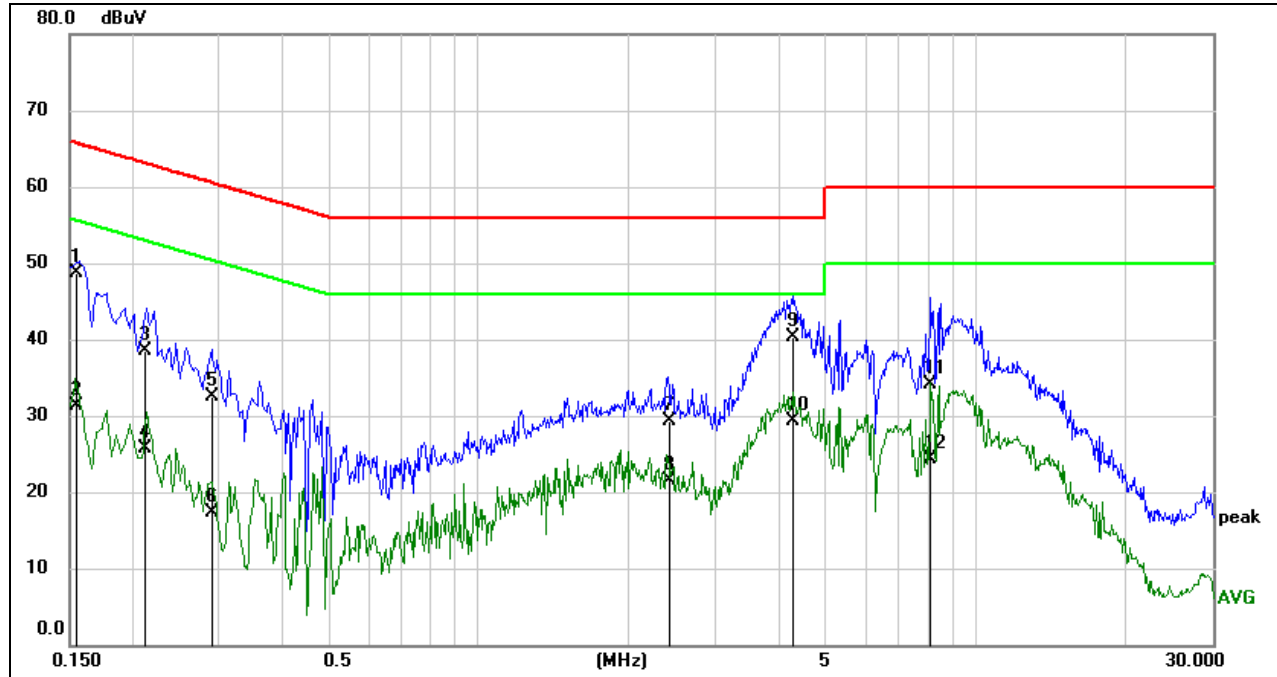
Note: 1. Result = Reading +Correct Factor.

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

3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).

4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1544	39.12	9.59	48.71	65.76	-17.05	QP
2	0.1544	21.65	9.59	31.24	55.76	-24.52	AVG
3	0.2120	28.94	9.59	38.53	63.13	-24.60	QP
4	0.2120	16.13	9.59	25.72	53.13	-27.41	AVG
5	0.2910	22.88	9.59	32.47	60.50	-28.03	QP
6	0.2910	7.71	9.59	17.30	50.50	-33.20	AVG
7	2.4342	19.75	9.63	29.38	56.00	-26.62	QP
8	2.4342	11.87	9.63	21.50	46.00	-24.50	AVG
9	4.2930	30.69	9.60	40.29	56.00	-15.71	QP
10	4.2930	19.65	9.60	29.25	46.00	-16.75	AVG
11	8.1443	24.55	9.61	34.16	60.00	-25.84	QP
12	8.1443	14.78	9.61	24.39	50.00	-25.61	AVG

Note: 1. Result = Reading +Correct Factor.

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

3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).

4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

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



## 10. ANTENNA REQUIREMENTS

### APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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

Please refer to FCC §15.247(b)(4)

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

### RESULTS

Complies



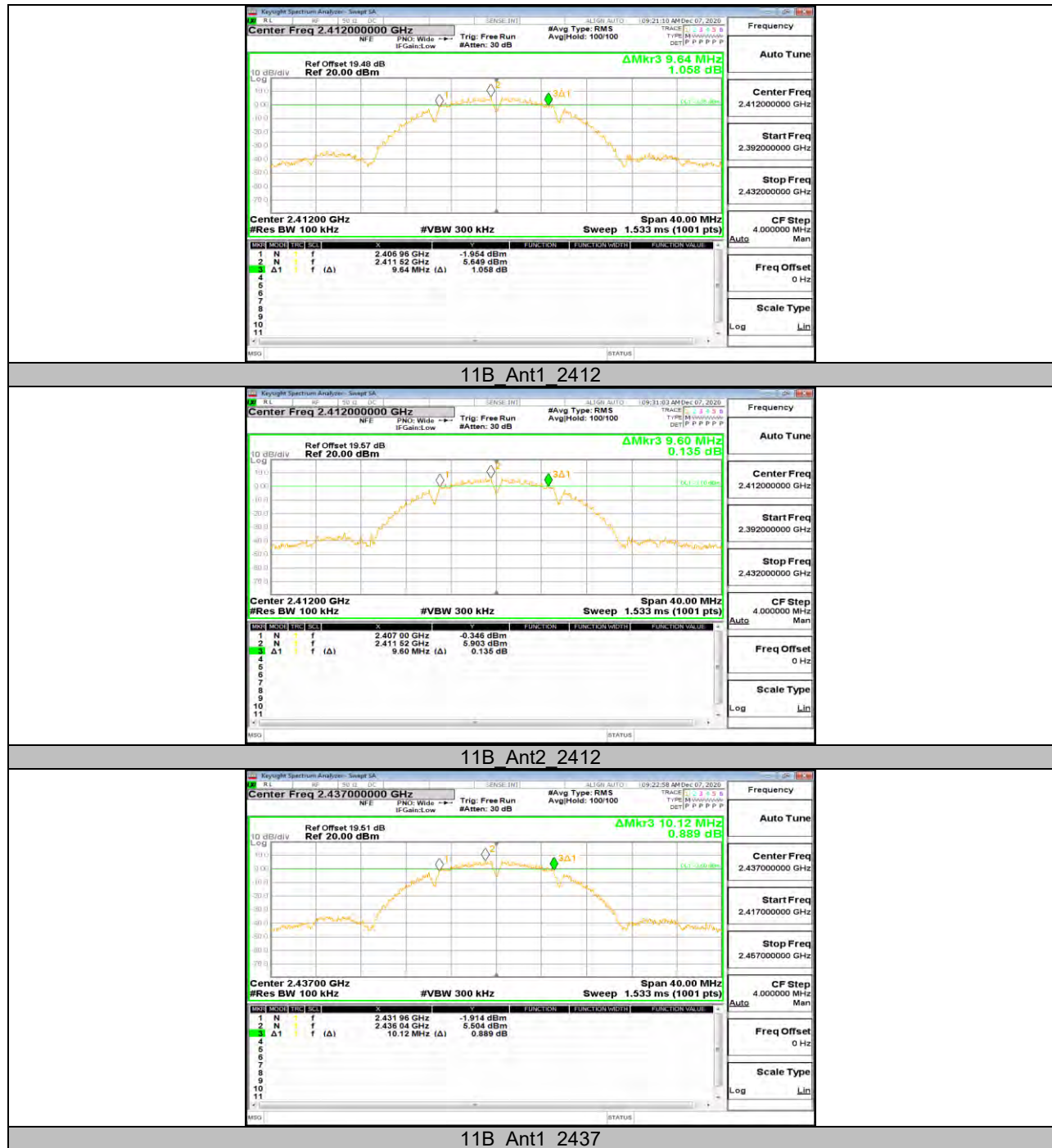
## 11. Appendix

### 11.1. Appendix A: DTS Bandwidth

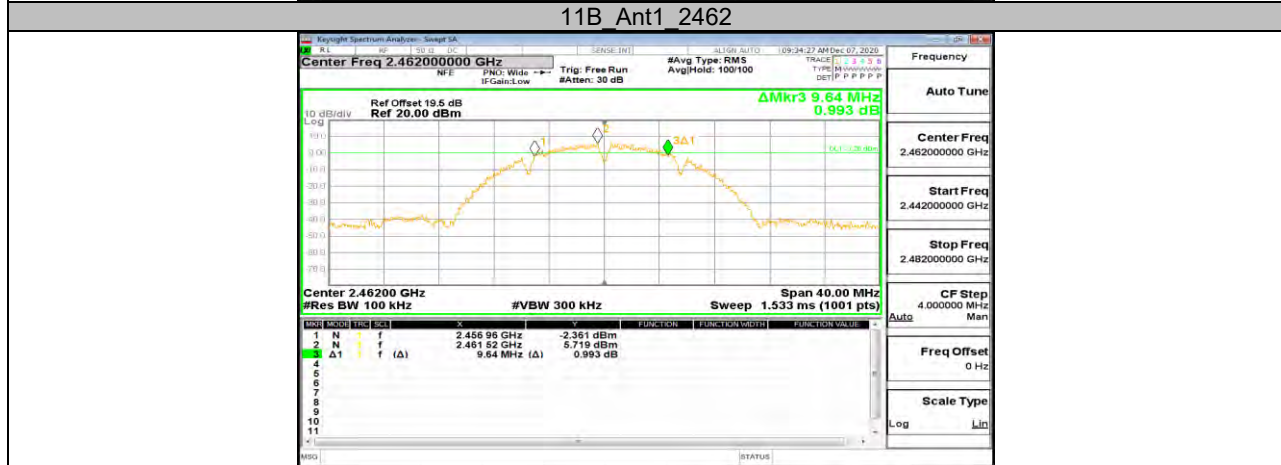
#### 11.1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.640	2406.960	2416.600	0.5	PASS
	Ant2	2412	9.600	2407.000	2416.600	0.5	PASS
	Ant1	2437	10.120	2431.960	2442.080	0.5	PASS
	Ant2	2437	9.120	2432.480	2441.600	0.5	PASS
	Ant1	2462	9.160	2457.440	2466.600	0.5	PASS
	Ant2	2462	9.640	2456.960	2466.600	0.5	PASS
11G	Ant1	2412	16.400	2403.840	2420.240	0.5	PASS
	Ant2	2412	15.760	2404.200	2419.960	0.5	PASS
	Ant1	2437	16.360	2428.840	2445.200	0.5	PASS
	Ant2	2437	16.120	2428.840	2444.960	0.5	PASS
	Ant1	2462	15.960	2453.840	2469.800	0.5	PASS
	Ant2	2462	16.160	2453.840	2470.000	0.5	PASS
11N20MIMO	Ant1	2412	17.640	2403.200	2420.840	0.5	PASS
	Ant2	2412	16.760	2403.440	2420.200	0.5	PASS
	Ant1	2437	17.400	2428.200	2445.600	0.5	PASS
	Ant2	2437	16.720	2428.480	2445.200	0.5	PASS
	Ant1	2462	17.640	2453.200	2470.840	0.5	PASS
	Ant2	2462	17.280	2453.200	2470.480	0.5	PASS
11N40MIMO	Ant1	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant2	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant1	2437	35.200	2419.400	2454.600	0.5	PASS
	Ant2	2437	35.200	2419.400	2454.600	0.5	PASS
	Ant1	2452	35.200	2434.400	2469.600	0.5	PASS
	Ant2	2452	35.200	2434.400	2469.600	0.5	PASS

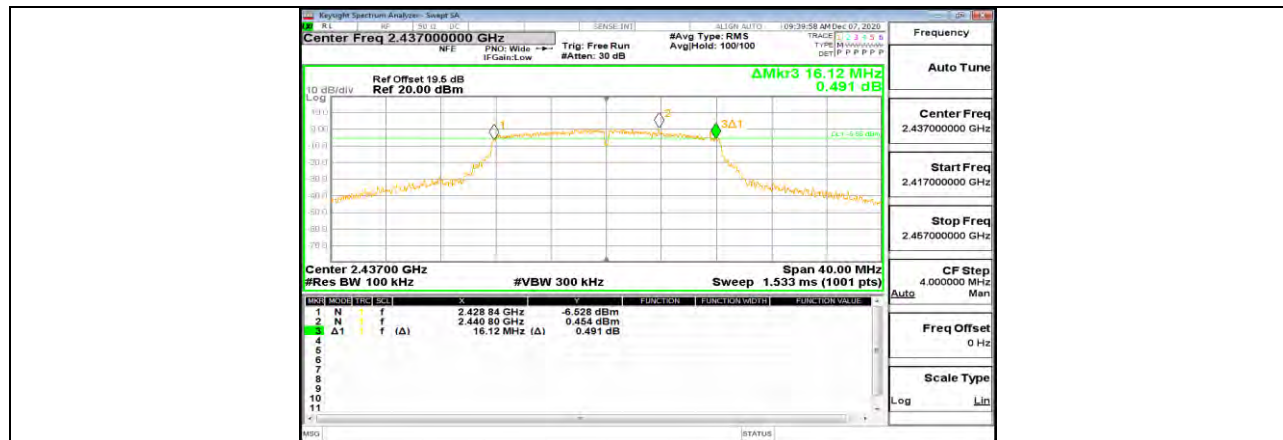
## 11.1.2. Test Graphs











11G\_Ant2\_2437



11G\_Ant1\_2462



11G\_Ant2\_2462













## 11.2. Appendix B: Occupied Channel Bandwidth

### 11.2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant1	2412	14.420	2404.781	2419.201	PASS
	Ant2	2412	14.309	2404.836	2419.145	PASS
	Ant1	2437	14.459	2429.745	2444.204	PASS
	Ant2	2437	14.360	2429.749	2444.109	PASS
	Ant1	2462	14.428	2454.748	2469.176	PASS
	Ant2	2462	14.326	2454.829	2469.155	PASS
11G	Ant1	2412	16.701	2403.634	2420.335	PASS
	Ant2	2412	16.779	2403.593	2420.372	PASS
	Ant1	2437	16.764	2428.582	2445.346	PASS
	Ant2	2437	16.836	2428.527	2445.363	PASS
	Ant1	2462	16.828	2453.517	2470.345	PASS
	Ant2	2462	16.839	2453.571	2470.410	PASS
11N20MIMO	Ant1	2412	17.807	2403.110	2420.917	PASS
	Ant2	2412	17.575	2403.233	2420.808	PASS
	Ant1	2437	17.760	2428.122	2445.882	PASS
	Ant2	2437	17.592	2428.215	2445.807	PASS
	Ant1	2462	17.767	2453.115	2470.882	PASS
	Ant2	2462	17.561	2453.226	2470.787	PASS
11N40MIMO	Ant1	2422	35.850	2404.067	2439.917	PASS
	Ant2	2422	35.961	2403.946	2439.907	PASS
	Ant1	2437	35.866	2419.073	2454.939	PASS
	Ant2	2437	35.983	2418.994	2454.977	PASS
	Ant1	2452	35.896	2434.026	2469.922	PASS
	Ant2	2452	36.140	2434.007	2470.147	PASS



## 11.2.2. Test Graphs





















**11.3. Appendix C: Maximum AVG conducted output power****11.3.1. Test Result**

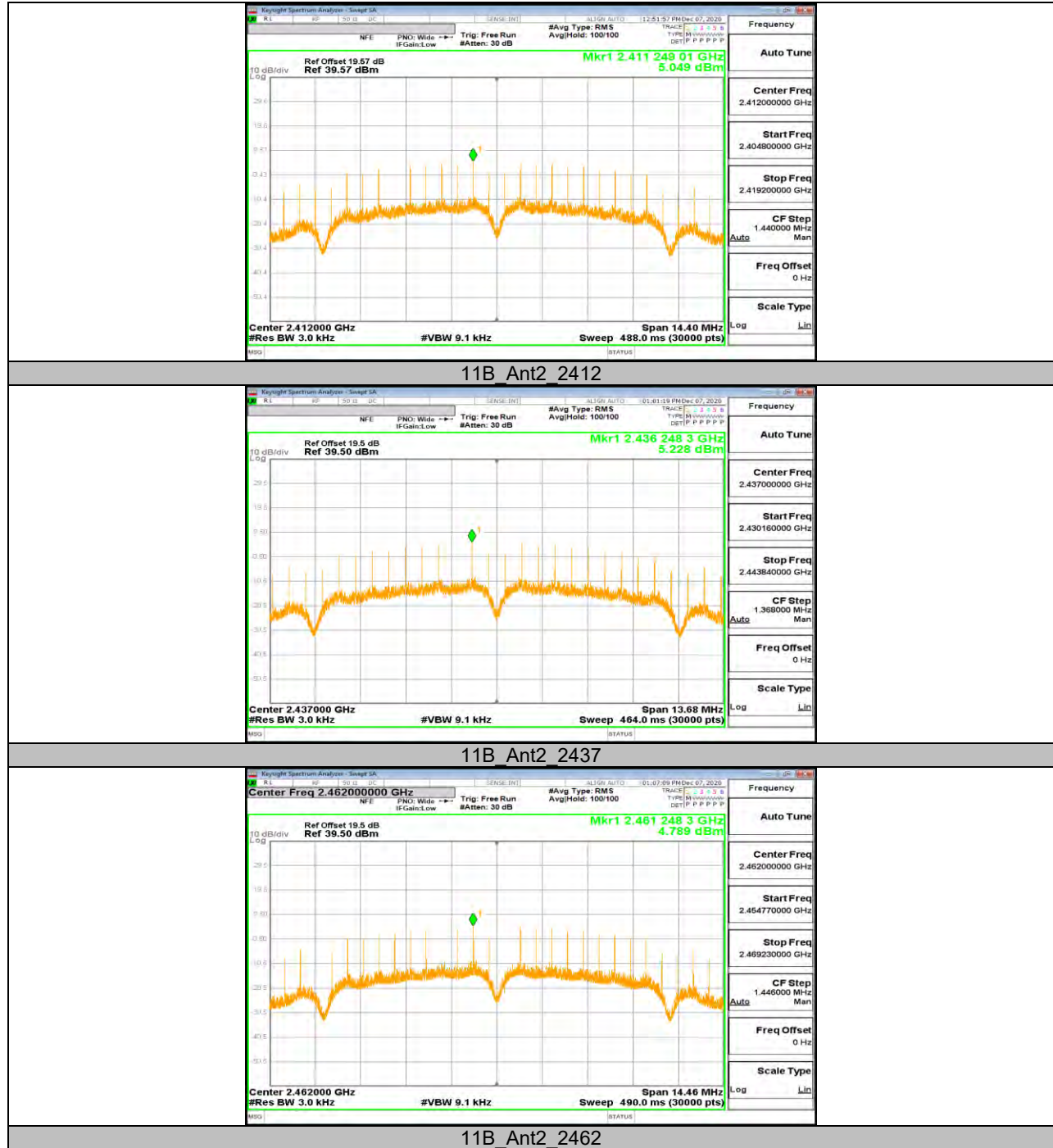
Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	15.56	<=30	PASS
	Ant2	2412	15.86	<=30	PASS
	Ant1	2437	15.67	<=30	PASS
	Ant2	2437	15.91	<=30	PASS
	Ant1	2462	15.54	<=30	PASS
	Ant2	2462	15.57	<=30	PASS
11G	Ant1	2412	13.35	<=30	PASS
	Ant2	2412	13.85	<=30	PASS
	Ant1	2437	13.58	<=30	PASS
	Ant2	2437	13.83	<=30	PASS
	Ant1	2462	13.50	<=30	PASS
	Ant2	2462	13.50	<=30	PASS
11N20MIMO	Ant1	2412	12.50	<=30	PASS
	Ant2	2412	13.03	<=30	PASS
	total	2412	15.78	<=30	PASS
	Ant1	2437	12.71	<=30	PASS
	Ant2	2437	12.95	<=30	PASS
	total	2437	15.84	<=30	PASS
	Ant1	2462	12.26	<=30	PASS
	Ant2	2462	12.99	<=30	PASS
11N40MIMO	total	2462	15.65	<=30	PASS
	Ant1	2422	12.99	<=30	PASS
	Ant2	2422	13.28	<=30	PASS
	total	2422	16.15	<=30	PASS
	Ant1	2437	13.30	<=30	PASS
	Ant2	2437	13.32	<=30	PASS
	total	2437	16.32	<=30	PASS
	Ant1	2452	12.58	<=30	PASS
	Ant2	2452	13.10	<=30	PASS
	total	2452	15.86	<=30	PASS

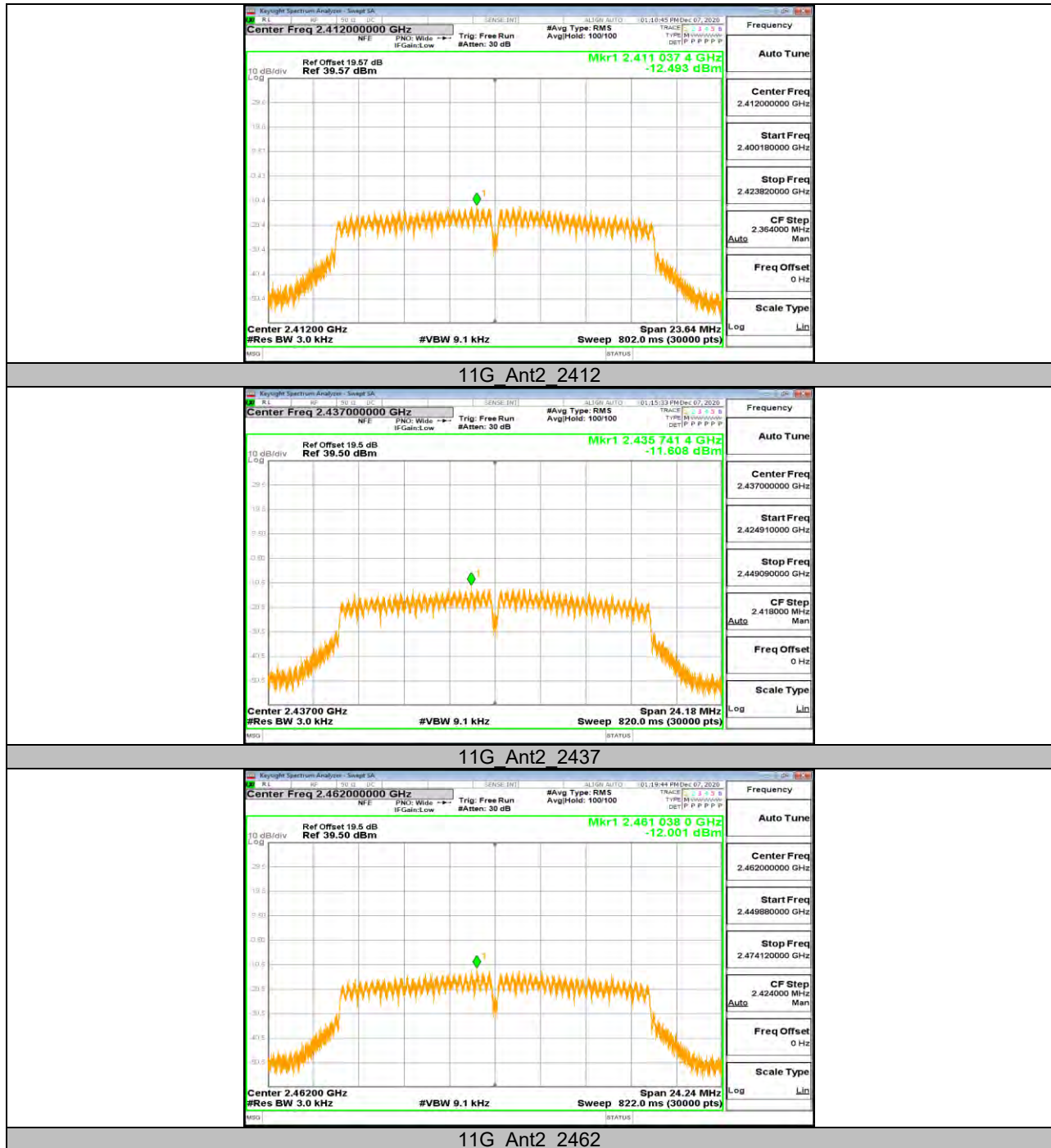
## 11.4. Appendix D: Maximum power spectral density

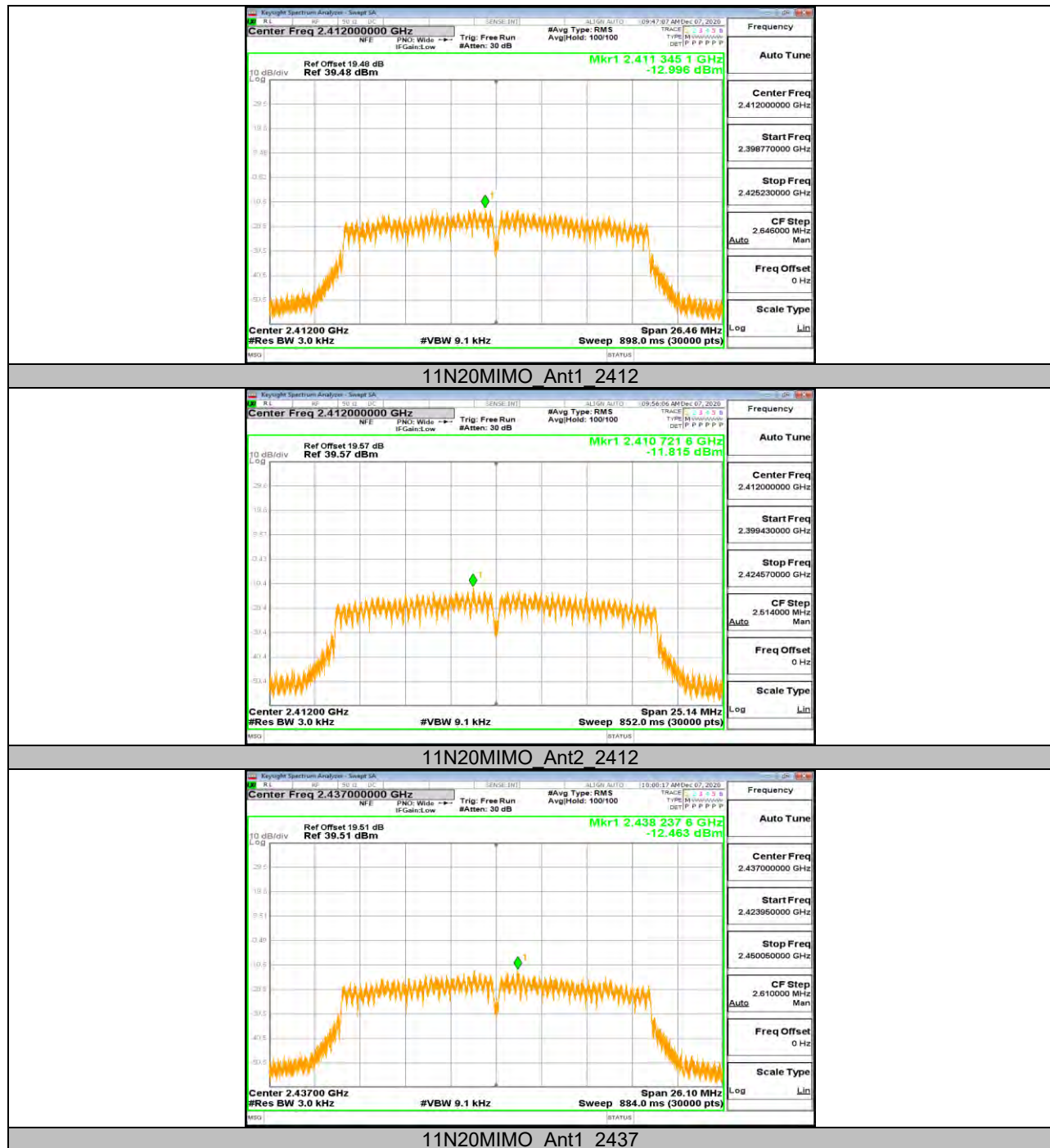
### 11.4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant2	2412	5.05	<=8	PASS
		2437	5.23	<=8	PASS
		2462	4.79	<=8	PASS
11G	Ant2	2412	-12.49	<=8	PASS
		2437	-11.61	<=8	PASS
		2462	-12	<=8	PASS
11N20MIMO	Ant1	2412	-13	<=8	PASS
	Ant2	2412	-11.82	<=8	PASS
	total	2412	-9.36	<=8	PASS
	Ant1	2437	-12.46	<=8	PASS
	Ant2	2437	-11.64	<=8	PASS
	total	2437	-9.02	<=8	PASS
	Ant1	2462	-6.46	<=8	PASS
	Ant2	2462	-12.43	<=8	PASS
	total	2462	-5.48	<=8	PASS
11N40MIMO	Ant1	2422	-14.93	<=8	PASS
	Ant2	2422	-14.21	<=8	PASS
	total	2422	-11.54	<=8	PASS
	Ant1	2437	-15.12	<=8	PASS
	Ant2	2437	-15.49	<=8	PASS
	total	2437	-12.29	<=8	PASS
	Ant1	2452	-15.22	<=8	PASS
	Ant2	2452	-14.8	<=8	PASS
	total	2452	-11.99	<=8	PASS

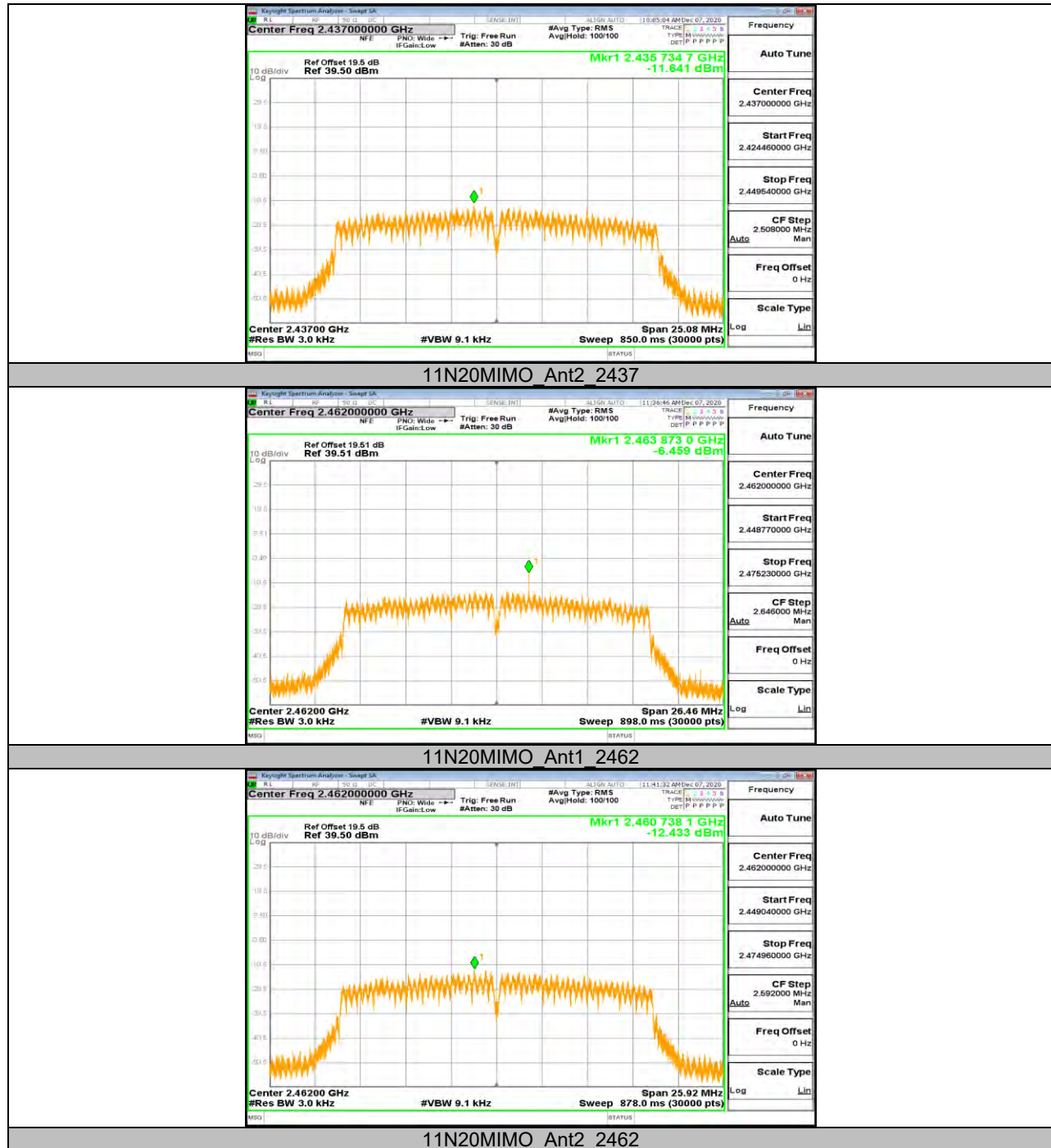
## 11.4.2. Test Graphs

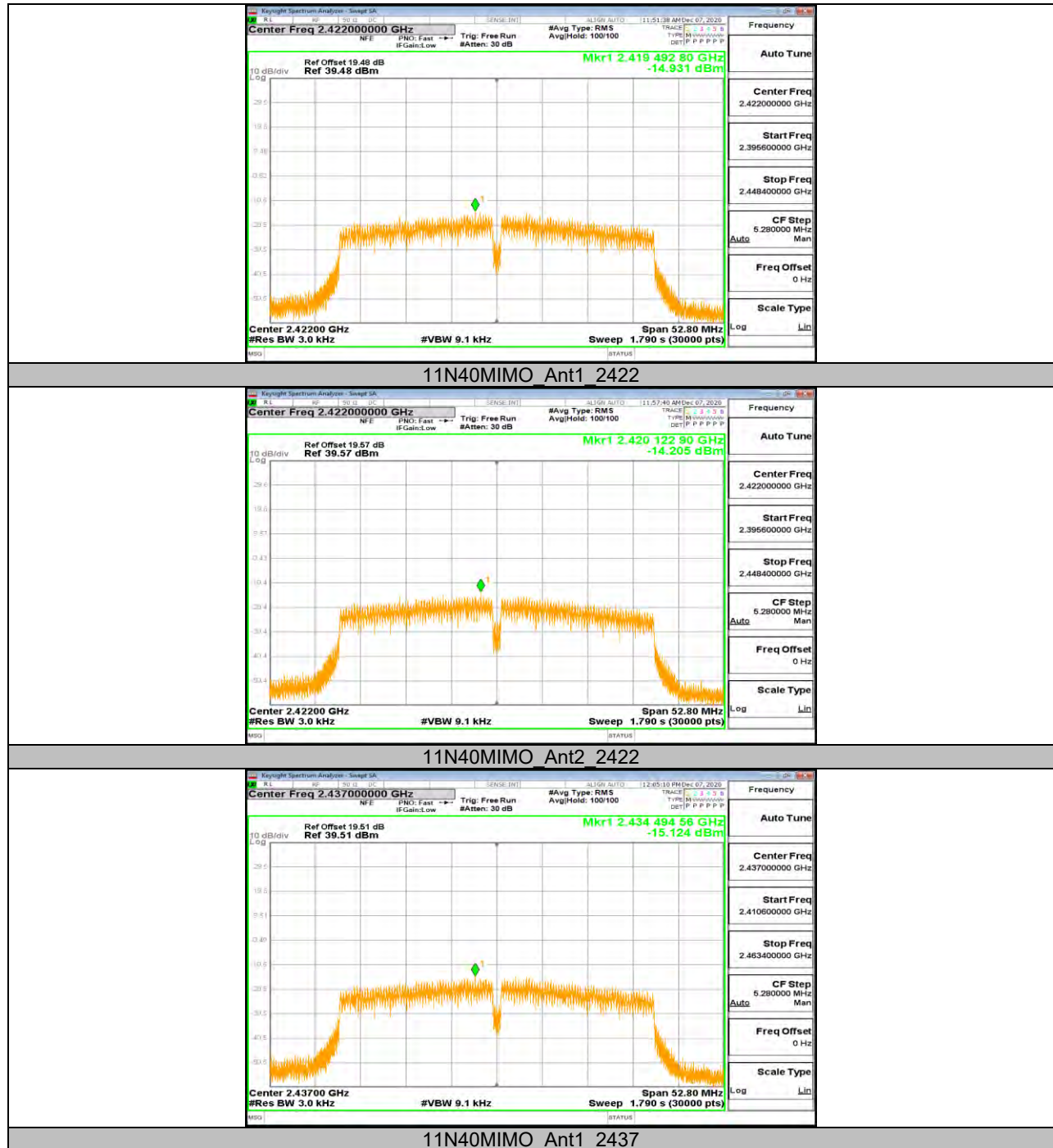


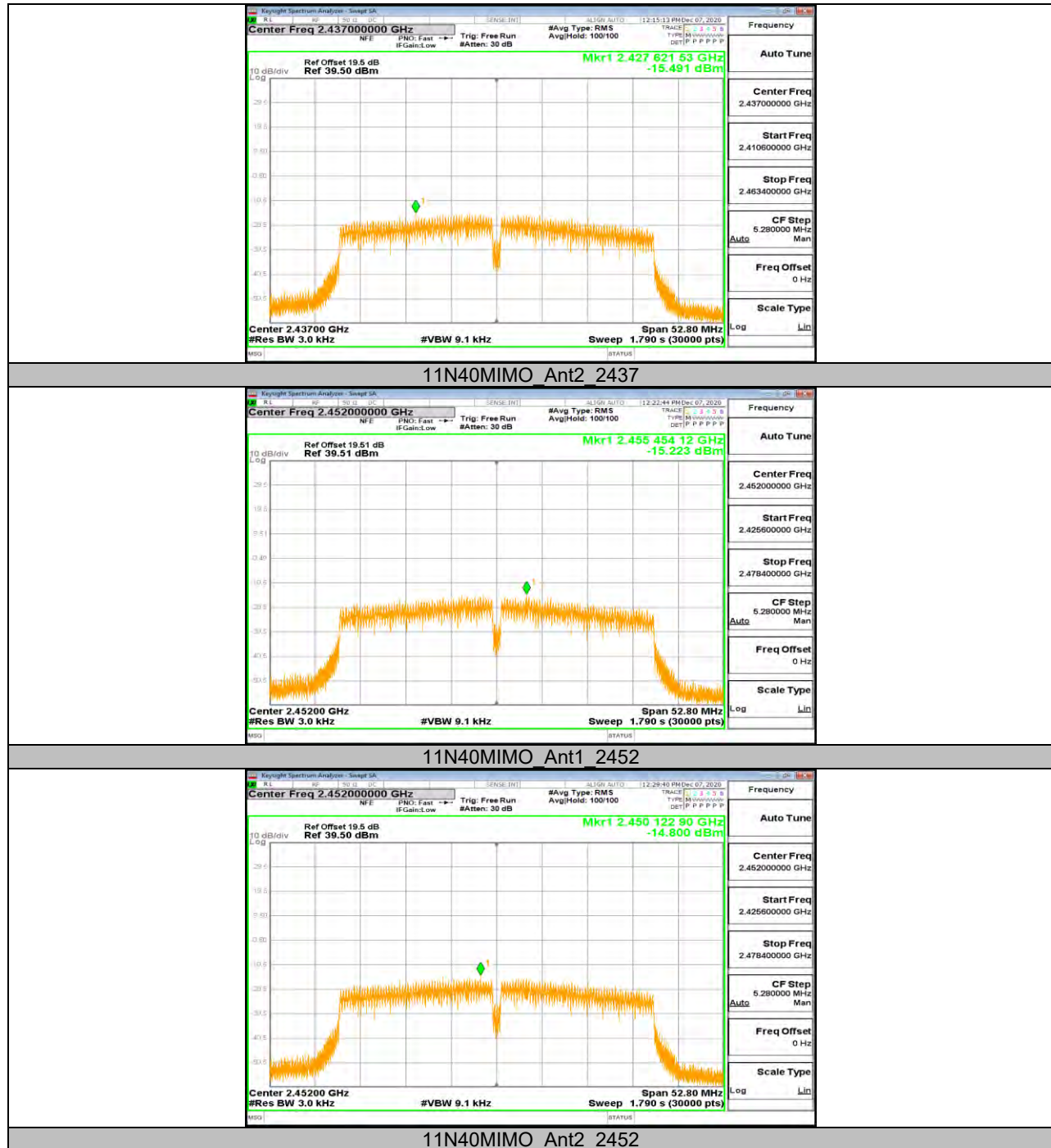
















## 11.5. Appendix E: Band edge measurements

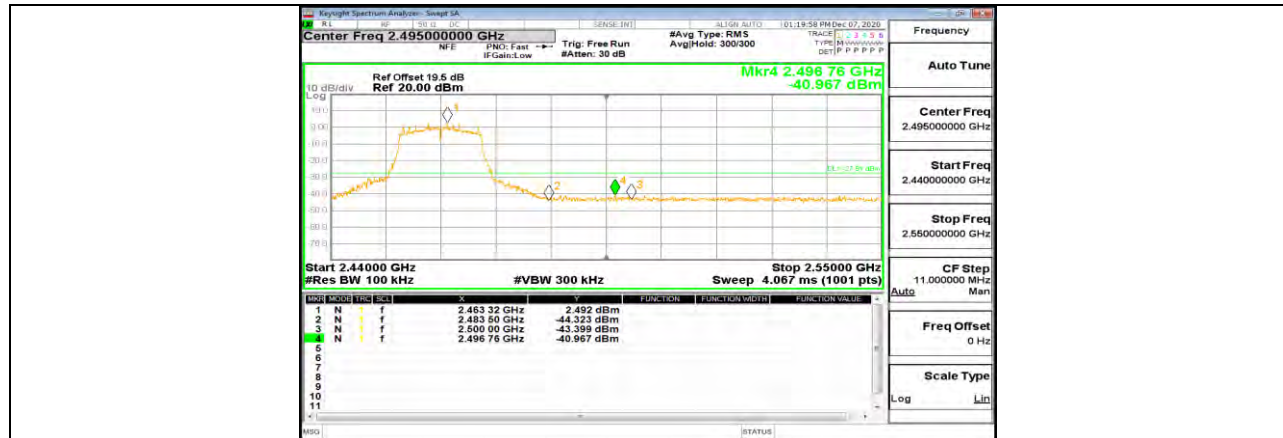
### 11.5.1. Test Result

Test Mode	Antenna	ChName	Channel	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant2	Low	2412	5.80	-35.28	<=-24.2	PASS
		High	2462	5.57	-40.67	<=-24.44	PASS
11G	Ant2	Low	2412	1.90	-29.35	<=-28.1	PASS
		High	2462	2.49	-40.97	<=-27.51	PASS
11N20MIMO	Ant1	Low	2412	2.59	-31.62	<=-27.41	PASS
	Ant2	Low	2412	2.61	-30.88	<=-27.39	PASS
	Ant1	High	2462	2.35	-41.07	<=-27.65	PASS
	Ant2	High	2462	2.42	-40.68	<=-27.58	PASS
11N40MIMO	Ant1	Low	2422	0.74	-32.83	<=-29.26	PASS
	Ant2	Low	2422	0.76	-32.46	<=-29.24	PASS
	Ant1	High	2452	0.69	-39.03	<=-29.31	PASS
	Ant2	High	2452	0.37	-39.62	<=-29.63	PASS

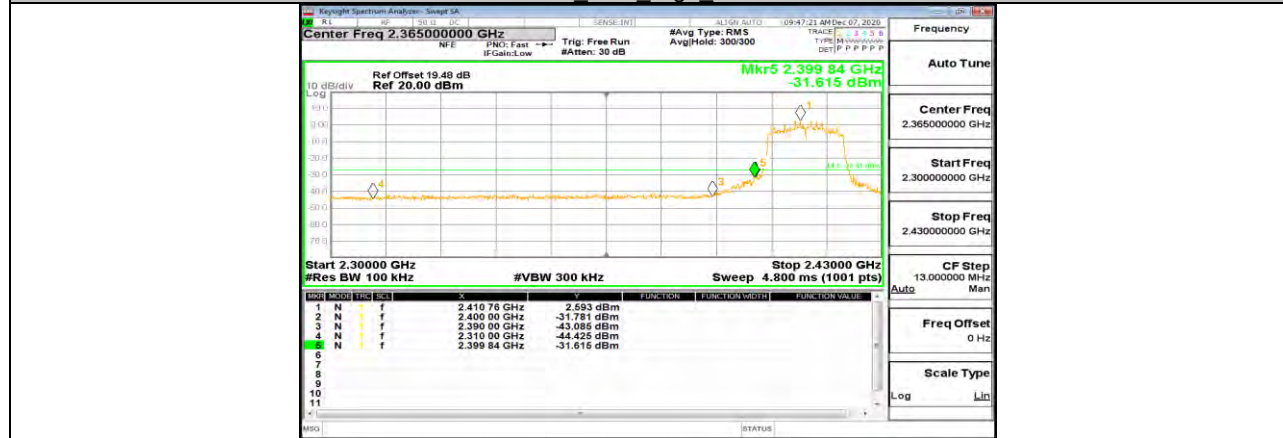


## 11.5.2. Test Graphs

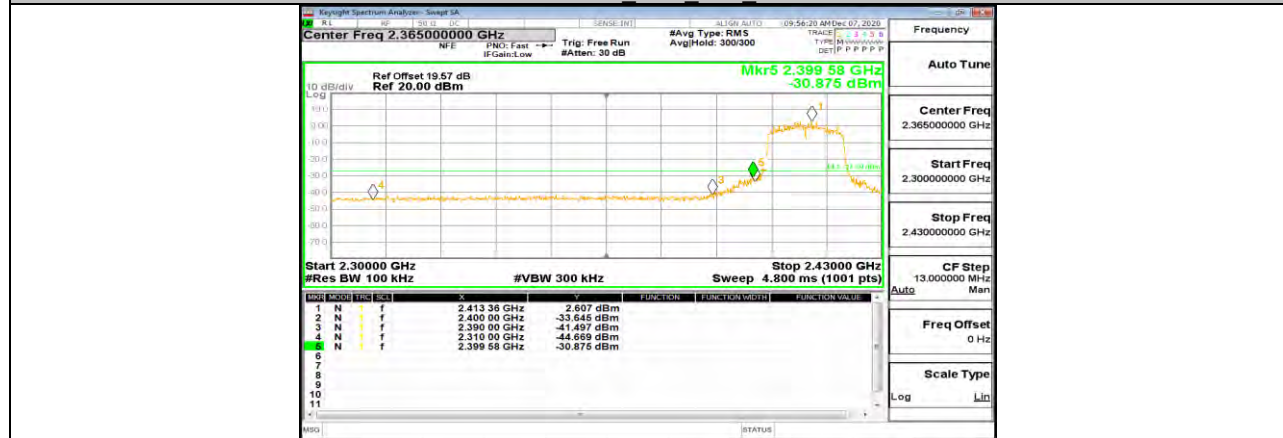




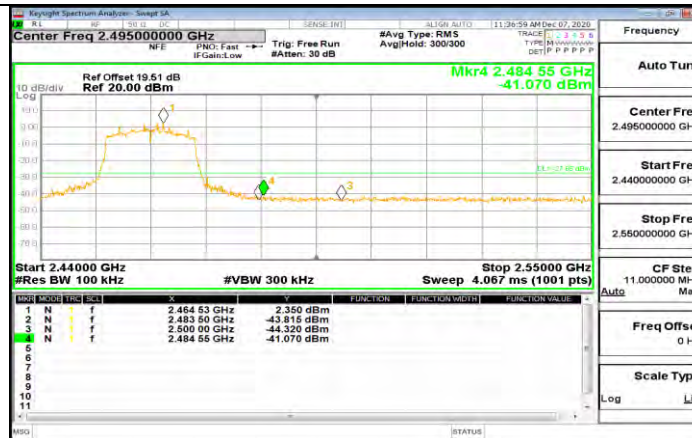
11G Ant2 High 2462



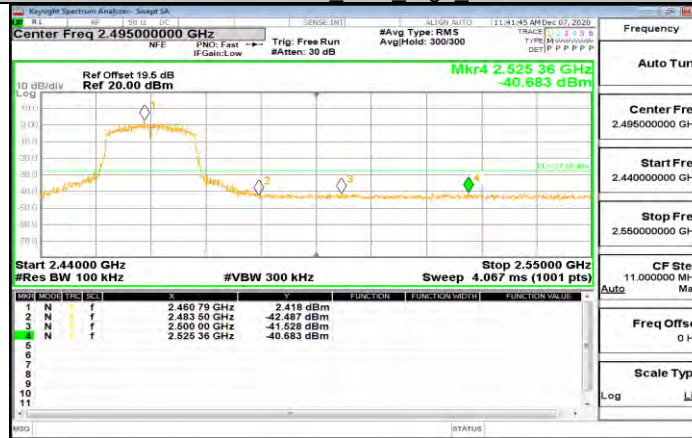
11N20MIMO\_Ant1 Low 2412



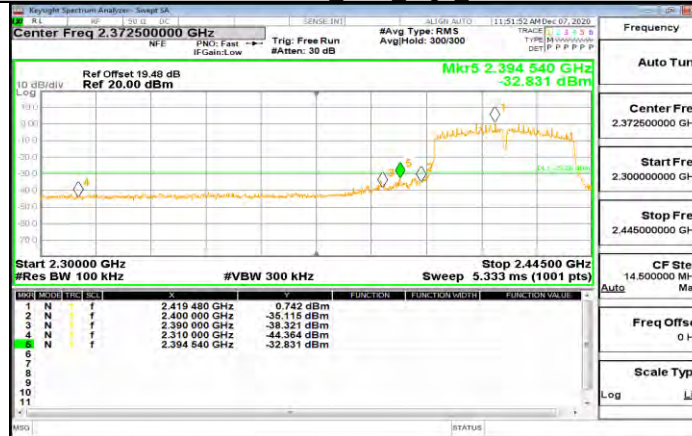
11N20MIMO\_Ant2 Low 2412



11N20MIMO Ant1 High 2462



11N20MIMO Ant2 High 2462



11N40MIMO Ant1 Low 2422





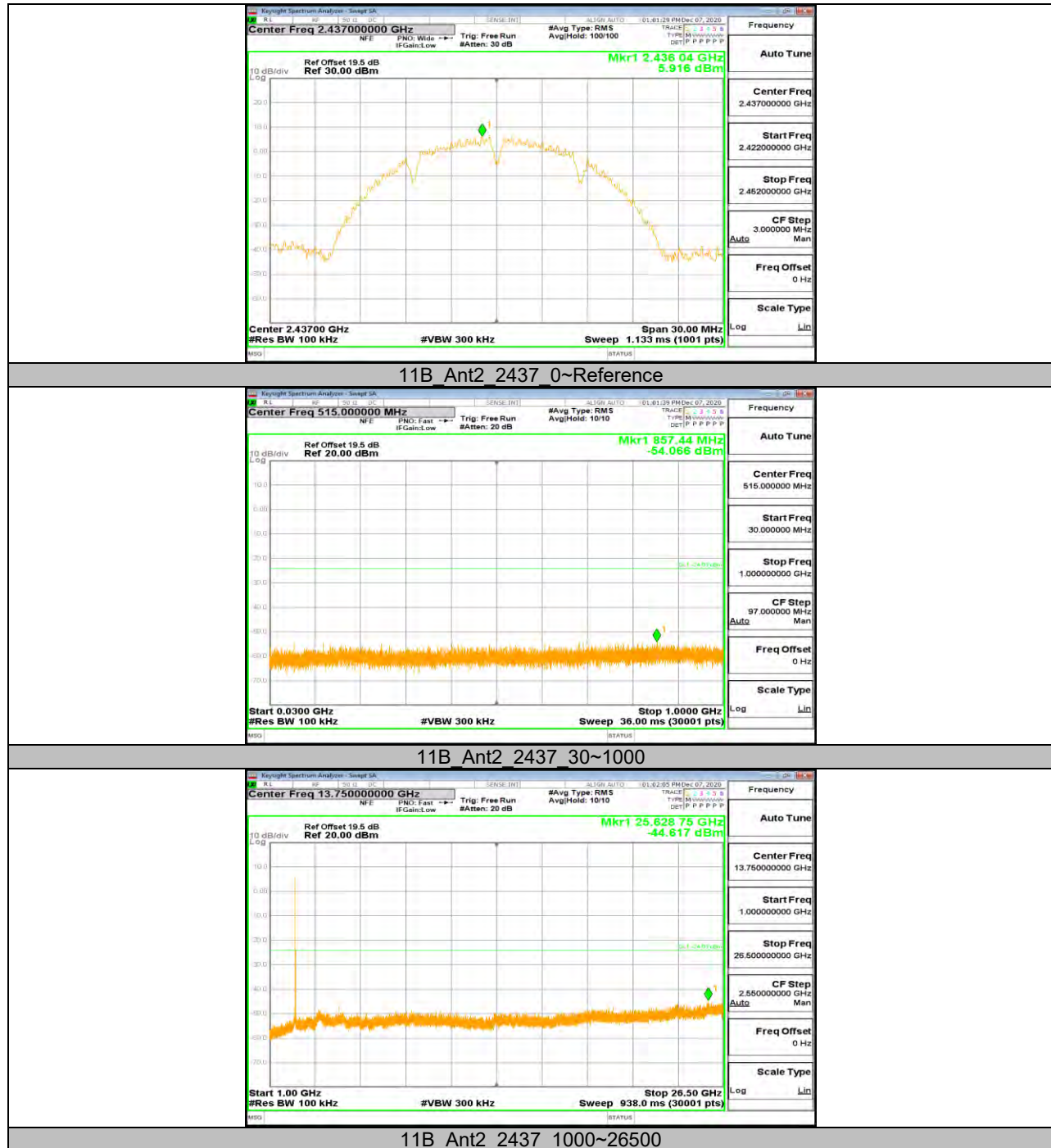
## 11.6. Appendix F: Conducted Spurious Emission

### 11.6.1. Test Result

Test Mode	Antenna	Channel	FreqRange [Mhz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant2	2412	Reference	5.76	---	PASS
			30~1000	-53.12	<=-24.24	PASS
			1000~26500	-45.48	<=-24.24	PASS
		2437	Reference	5.92	---	PASS
			30~1000	-54.07	<=-24.08	PASS
			1000~26500	-44.62	<=-24.08	PASS
		2462	Reference	5.55	---	PASS
			30~1000	-53.66	<=-24.45	PASS
			1000~26500	-44.76	<=-24.45	PASS
11G	Ant2	2412	Reference	0.02	---	PASS
			30~1000	-53.5	<=-29.98	PASS
			1000~26500	-44.57	<=-29.98	PASS
		2437	Reference	2.91	---	PASS
			30~1000	-53.62	<=-27.09	PASS
			1000~26500	-44.56	<=-27.09	PASS
		2462	Reference	2.39	---	PASS
			30~1000	-54	<=-27.61	PASS
			1000~26500	-43.92	<=-27.61	PASS
11N20MIMO	Ant1	2412	Reference	2.28	---	PASS
			30~1000	-52.37	<=-27.72	PASS
			1000~26500	-45.47	<=-27.72	PASS
	Ant2	2412	Reference	2.31	---	PASS
			30~1000	-52.7	<=-27.7	PASS
			1000~26500	-44.15	<=-27.7	PASS
	Ant1	2437	Reference	1.48	---	PASS
			30~1000	-53.54	<=-28.52	PASS
			1000~26500	-44.46	<=-28.52	PASS
	Ant2	2437	Reference	1.37	---	PASS
			30~1000	-53.06	<=-28.64	PASS
			1000~26500	-45.14	<=-28.64	PASS
	Ant1	2462	Reference	2.22	---	PASS
			30~1000	-53.67	<=-27.78	PASS
			1000~26500	-44.61	<=-27.78	PASS
	Ant2	2462	Reference	0.94	---	PASS
			30~1000	-52.9	<=-29.06	PASS
			1000~26500	-44.99	<=-29.06	PASS
11N40MIMO	Ant1	2422	Reference	0.78	---	PASS
			30~1000	-51.46	<=-29.22	PASS
			1000~26500	-44.59	<=-29.22	PASS
	Ant2	2422	Reference	0.57	---	PASS
			30~1000	-51.06	<=-29.43	PASS
			1000~26500	-43.69	<=-29.43	PASS
	Ant1	2437	Reference	0.88	---	PASS
			30~1000	-51.92	<=-29.12	PASS
			1000~26500	-43.54	<=-29.12	PASS
	Ant2	2437	Reference	-0.59	---	PASS
			30~1000	-50.42	<=-30.59	PASS
			1000~26500	-44.39	<=-30.59	PASS
	Ant1	2452	Reference	0.70	---	PASS
			30~1000	-52.28	<=-29.3	PASS
			1000~26500	-44.6	<=-29.3	PASS

## 11.6.2. Test Graphs























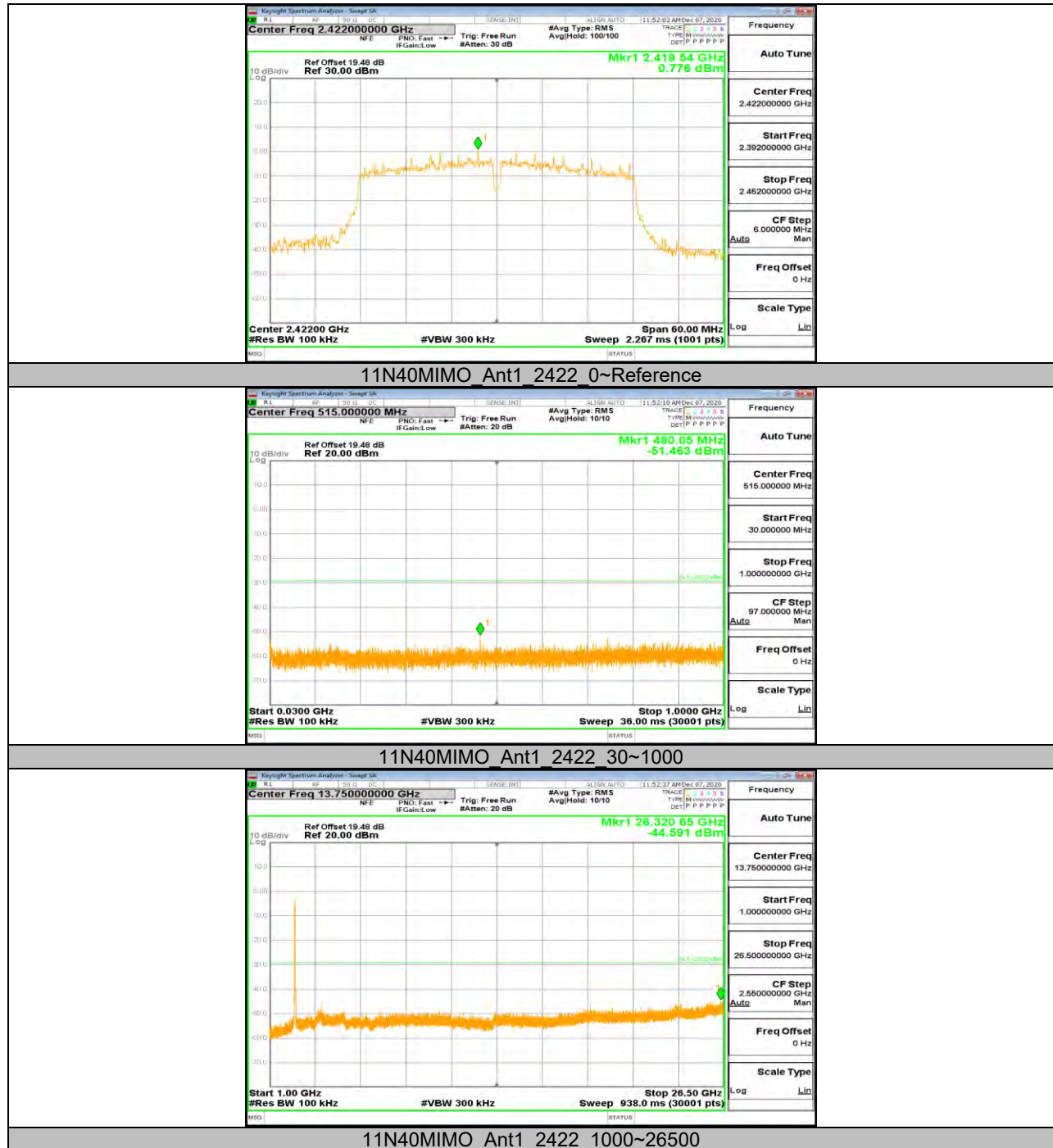


























## 11.7. Appendix G: Duty Cycle

### 11.7.1. Test Result

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)
11B	8.41	8.57	0.9813	98.13	0.08	0.12	0.5
11G	1.39	1.56	0.8910	89.10	0.50	0.72	1
11N20MIMO	1.30	1.47	0.8844	88.44	0.53	0.77	1
11N40MIMO	0.64	0.81	0.7901	79.01	1.02	1.56	2

Note:

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

Where: x is Duty Cycle (Linear)

Where: T is On Time

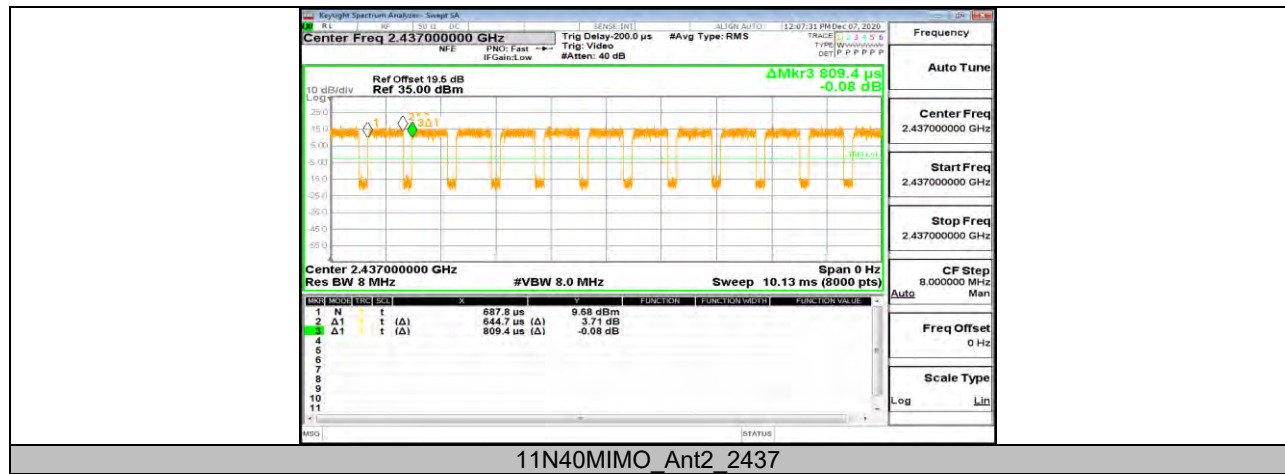
If that calculated VBW is not available on the analyzer then the next higher value should be used.





## 11.7.2. Test Graphs





END OF REPORT