



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

CERTIFICATION TEST REPORT

For

WIFI+BT Module

MODEL NUMBER: WT5YM2611

FCC ID: 2AC23- WT5Y

IC: 12290A- WT5Y

REPORT NUMBER: 4789769271-3

ISSUE DATE: January 14, 2021

Prepared for

**Hui Zhou Gaoshengda Technology Co.,LTD
NO.75 Zhongkai Development Area Huizhou, Guangdong China**

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

Tel: +86 769 22038881

Fax: +86 769 33244054

Website: www.ul.com



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	01/14/2021	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
Note: 1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China. 2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.			



TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	6
2. TEST METHODOLOGY	7
3. FACILITIES AND ACCREDITATION	7
4. CALIBRATION AND UNCERTAINTY	8
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	<i>8</i>
4.2. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>8</i>
5. EQUIPMENT UNDER TEST	9
5.1. <i>DESCRIPTION OF EUT</i>	<i>9</i>
5.2. <i>CHANNEL LIST.....</i>	<i>9</i>
5.3. <i>MAXIMUM OUTPUT POWER.....</i>	<i>9</i>
5.4. <i>TEST CHANNEL CONFIGURATION.....</i>	<i>10</i>
5.5. <i>THE WORSE CASE POWER SETTING PARAMETER.....</i>	<i>10</i>
5.6. <i>THE WORSE CASE CONFIGURATIONS</i>	<i>11</i>
5.7. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	<i>12</i>
5.8. <i>DESCRIPTION OF TEST SETUP.....</i>	<i>13</i>
6. MEASURING INSTRUMENT AND SOFTWARE USED	14
7. ANTENNA PORT TEST RESULTS	16
7.1. <i>ON TIME AND DUTY CYCLE.....</i>	<i>16</i>
7.2. <i>6 dB DTS BANDWIDTH AND 99 % OCCUPIED BANDWIDTH</i>	<i>17</i>
7.3. <i>CONDUCTED OUTPUT POWER.....</i>	<i>19</i>
7.4. <i>POWER SPECTRAL DENSITY</i>	<i>20</i>
7.5. <i>CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS.....</i>	<i>22</i>
8. RADIATED TEST RESULTS.....	24
8.1. <i>RESTRICTED BANDEDGE</i>	<i>30</i>
8.1.1. <i>802.11b SISO MODE.....</i>	<i>30</i>
8.1.2. <i>802.11g SISO MODE.....</i>	<i>34</i>
8.1.3. <i>802.11n HT20 MIMO MODE</i>	<i>38</i>
8.1.4. <i>802.11n HT40 MIMO MODE.....</i>	<i>42</i>
8.2. <i>SPURIOUS EMISSIONS (1 GHz ~ 3 GHz).....</i>	<i>46</i>
8.2.1. <i>802.11b SISO MODE.....</i>	<i>46</i>
8.3. <i>SPURIOUS EMISSIONS (3 GHz ~ 18 GHz).....</i>	<i>52</i>
8.3.1. <i>802.11b SISO MODE.....</i>	<i>52</i>
8.3.2. <i>802.11g SISO MODE.....</i>	<i>58</i>
8.3.3. <i>802.11n HT20 MIMO MODE</i>	<i>64</i>
8.3.4. <i>802.11n HT40 MIMO MODE</i>	<i>70</i>



8.5.	<i>SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)</i>	76
8.5.1.	802.11n HT20 MIMO MODE	76
8.6.	<i>SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)</i>	78
8.6.1.	802.11n HT20 MIMO MODE	78
8.7.	<i>SPURIOUS EMISSIONS BELOW 30 MHz</i>	80
8.7.1.	802.11n HT20 MIMO MODE	80
9.	AC POWER LINE CONDUCTED EMISSIONS	83
9.1.	802.11n HT20 MIMO MODE	84
10.	ANTENNA REQUIREMENTS	86
11.	Appendix	87
11.1.	<i>Appendix A: DTS Bandwidth</i>	87
11.1.1.	Test Result	87
11.1.2.	Test Graphs	88
11.2.	<i>Appendix B: Occupied Channel Bandwidth</i>	96
11.2.1.	Test Result	96
11.2.2.	Test Graphs	97
11.3.	<i>Appendix C: Maximum AVG conducted output power</i>	105
11.3.1.	Test Result	105
11.4.	<i>Appendix D: Maximum power spectral density</i>	106
11.4.1.	Test Result	106
11.4.2.	Test Graphs	107
11.5.	<i>Appendix E: Band edge measurements</i>	115
11.5.1.	Test Result	115
11.5.2.	Test Graphs	116
11.6.	<i>Appendix F: Conducted Spurious Emission</i>	120
11.6.1.	Test Result	120
11.6.2.	Test Graphs	121
11.7.	<i>Appendix G: Duty Cycle</i>	139
11.7.1.	Test Result	139
11.7.2.	Test Graphs	140



1. ATTESTATION OF TEST RESULTS

Applicant Information

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

Manufacturer Information

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

EUT Information

EUT Name: WIFI+BT Module
Model: WT5YM2611
Brand: GSD
Serial Model: Please refer to clause 5.1. Description of EUT
Sample Received Date: December 9, 2020
Sample Status: Normal
Sample ID: 3547996
Date of Tested: December 9, 2020~ December 25, 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

Tested By:

Kebo Zhang
Project Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager



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>A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p>ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p>VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011</p>
---------------------------	---

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	WIFI+BT Module
Model	WT5YM2611
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 (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)
Ratings	DC 3.3 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)	Maximum AVG EIRP (dBm)
b	2412 ~ 2462	1-11[11]	14.29	17.29
g	2412 ~ 2462	1-11[11]	14.17	17.17
n HT20	2412 ~ 2462	1-11[11]	15.58	21.58
n HT40	2422 ~ 2452	3-9[7]	14.44	20.44

**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		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	2	18	18	18	/		
802.11g	2	1B	1B	1B			
802.11n HT20	2	1B	1B	1B			
802.11n HT40	2	/			15	16	16

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:

802.11b mode: 1 Mbps

802.11b mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

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

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

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

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

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

The EUT support 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	Inverted F PCB antenna	3
2	2412-2462	Inverted F PCB antenna	3

Note:

Directional gain= $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ dBi =6.0dBi
 N_{ANT} : Antenna numbers

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:

1. Only 802.11n HT20/HT40 support MIMO mode
2. BT&WLAN 2.4G & WLAN 5G can't transmit simultaneously. (declared by client)

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

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	PC-20190107FTFN	/
2	UART	/	/	/
3	AC adapter	Lenovo	ADLX65CLGC2A	/

I/O CABLES

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

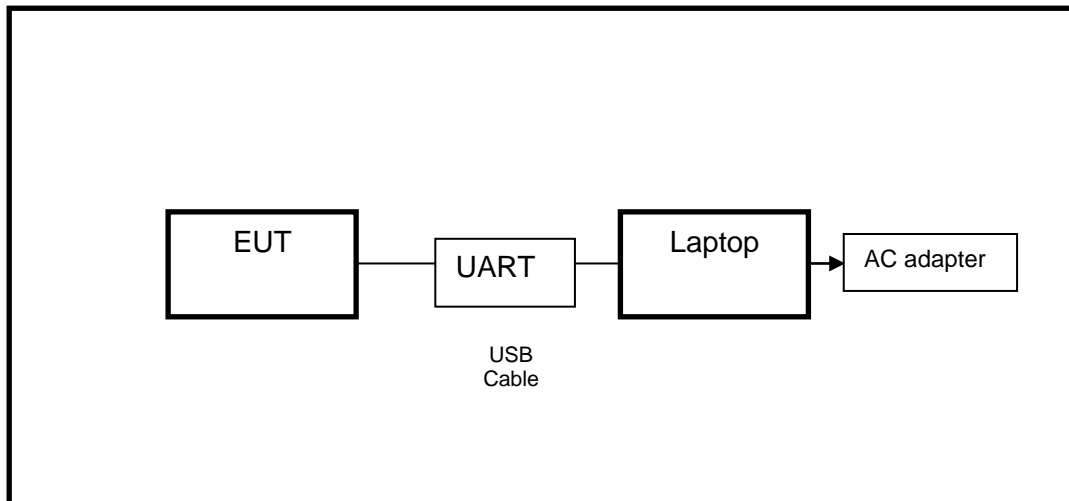
ACCESSORIES

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					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	TDK	PA-02-3	TRS-308-00002	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version



Test Software for Radiated Emissions	Farad	EZ-EMC	Ver. UL-3A1
--------------------------------------	-------	--------	-------------

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

Other Instruments					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

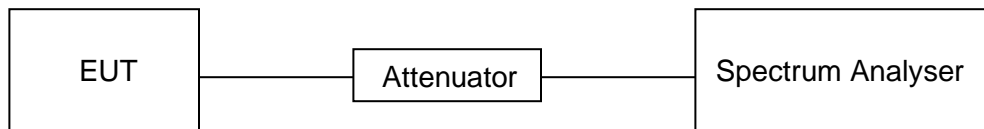
LIMITS

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	25.3 °C	Relative Humidity	61.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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	≥ 500 kHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

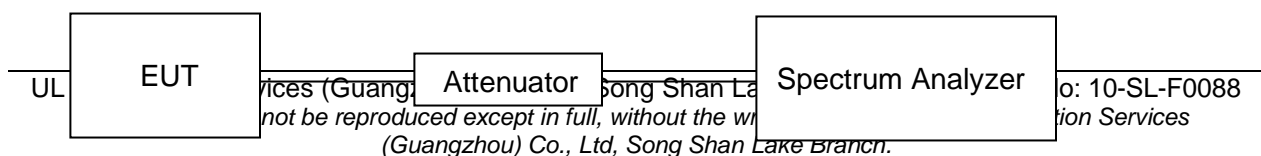
TEST PROCEDURE

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: ≥3 × RBW For 99 % Occupied Bandwidth: ≥3 × 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	25.3 °C	Relative Humidity	61.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

RESULTS

Please refer to appendix A & B.

7.3. CONDUCTED OUTPUT POWER

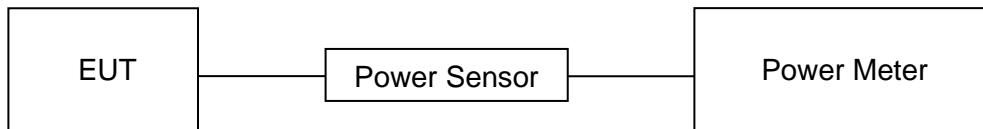
LIMITS

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

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	25.3 °C	Relative Humidity	61.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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.

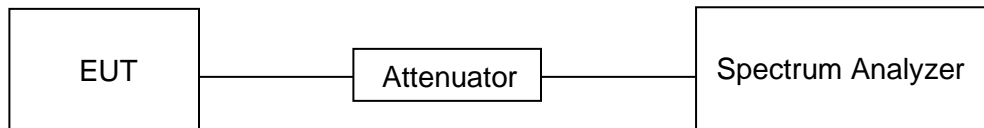
Connect the EUT to the spectrum analyser and use the following settings:

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	25.3 °C	Relative Humidity	61.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V



RESULTS

Please refer to appendix D.



7.5. CONDUCTED BANDEGE 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.

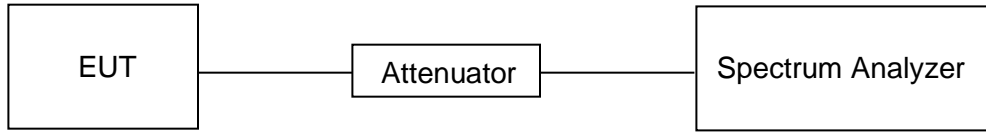
Change the settings for emission level measurement:

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	25.3 °C	Relative Humidity	61.7 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 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 ISED 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

ISED General field strength limits at frequencies below 30 MHz

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

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

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

Table 7 – Restricted frequency bands^{Note 1}

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	166.52475 - 166.52525	9.3 - 9.5
2.1735 - 2.1905	166.7 - 166.9	10.6 - 12.7
3.020 - 3.028	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1045.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

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

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

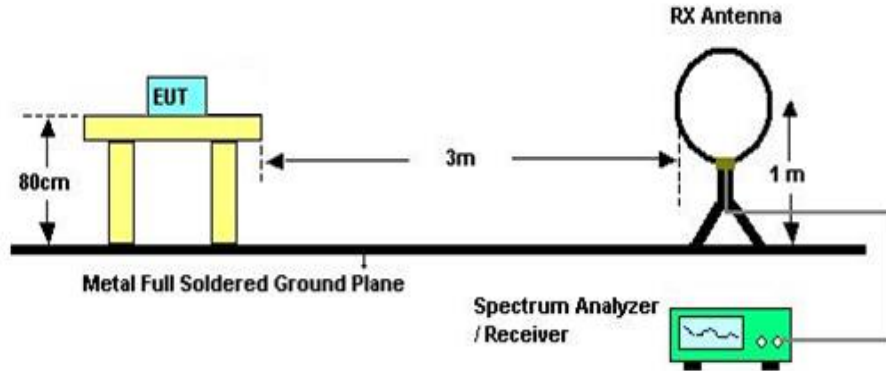
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218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

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

²Above 38.6c

TEST SETUP AND PROCEDURE

Below 30 MHz

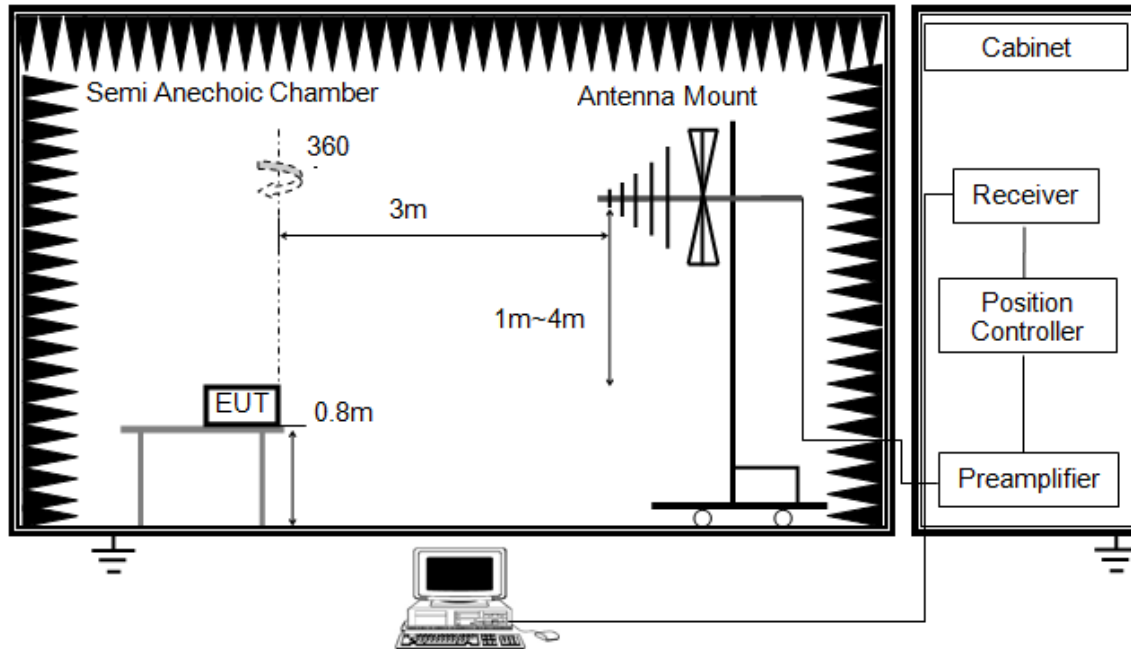


The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 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

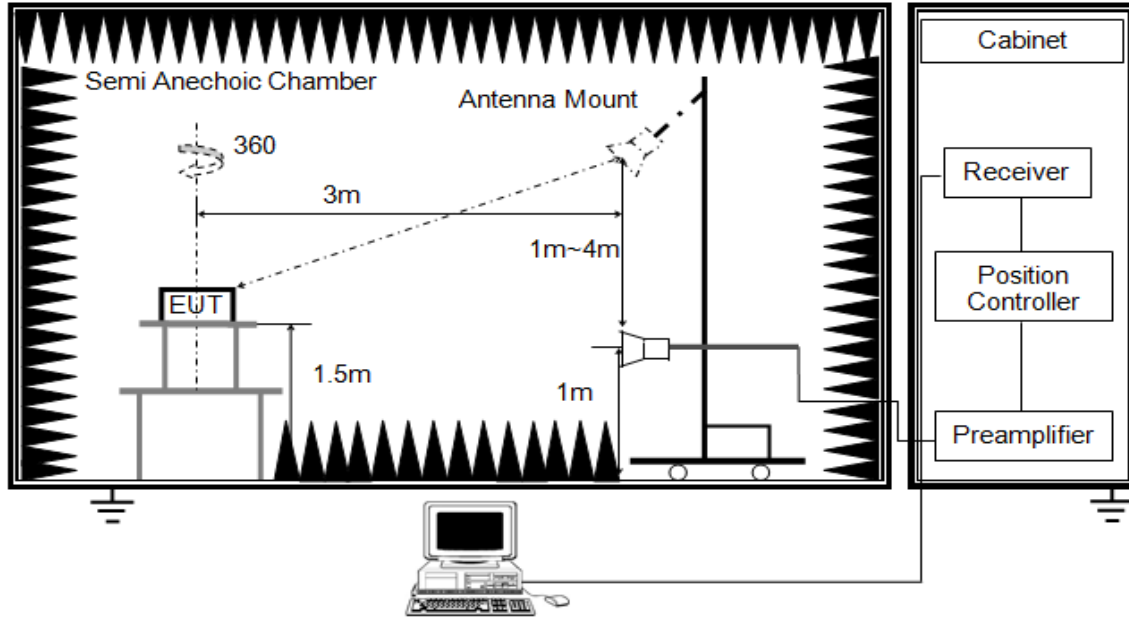


The setting of the spectrum analyser

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

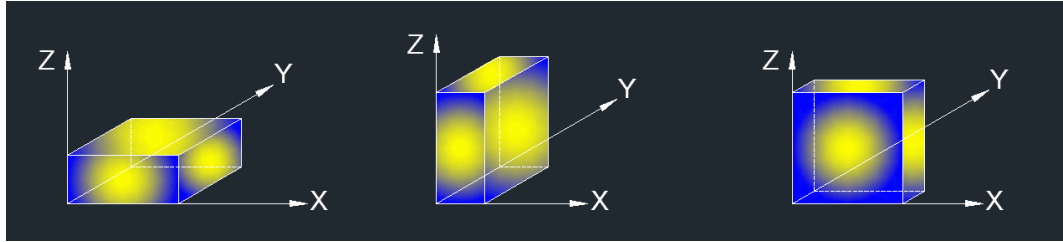


The setting of the spectrum analyser

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

TEST ENVIRONMENT

Temperature	20.9 °C	Relative Humidity	52.9 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

RESULTS

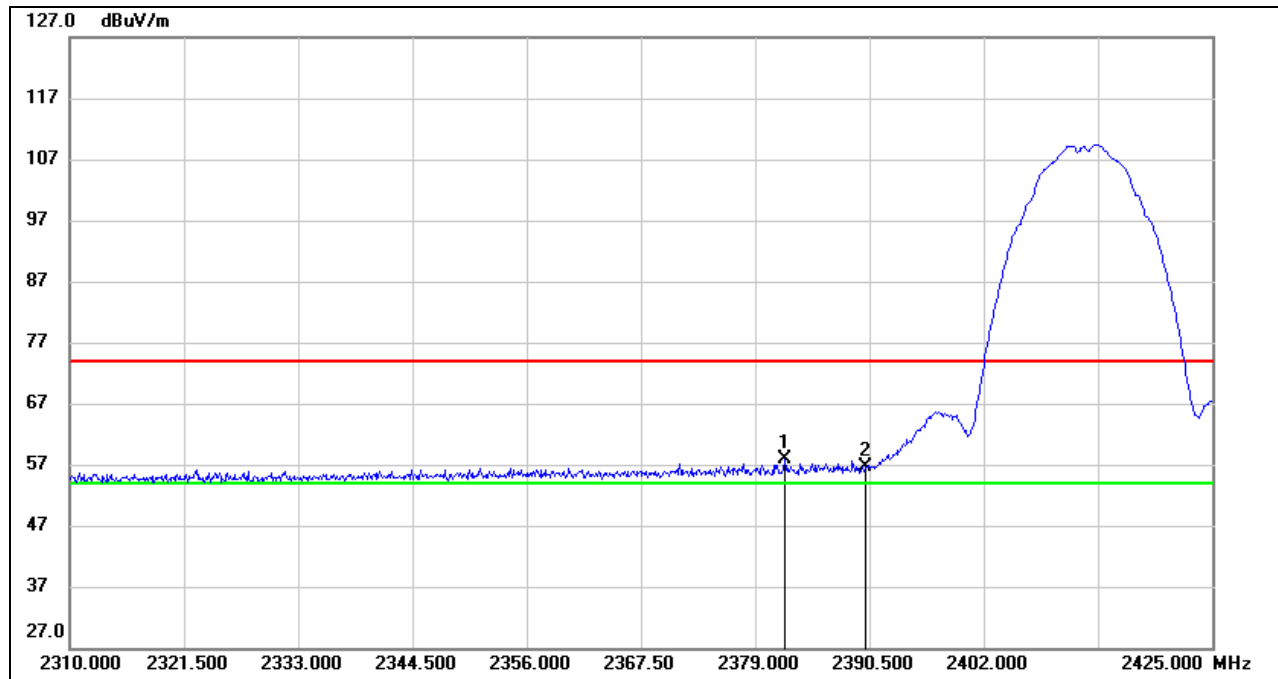
8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2381.990	46.80	11.09	57.89	74.00	-16.11	peak
2	2390.000	45.39	11.15	56.54	74.00	-17.46	peak

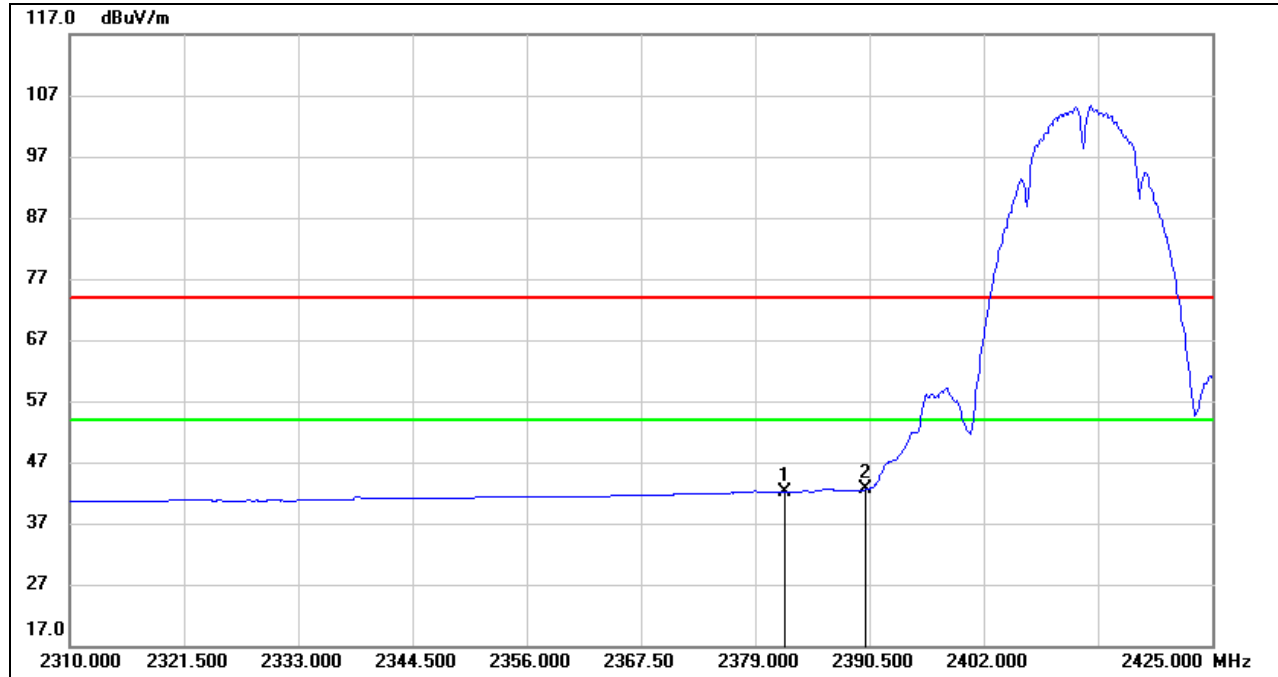
Note: 1. Measurement = Reading Level + Correct Factor.

2. Peak: Peak detector.

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



AVG

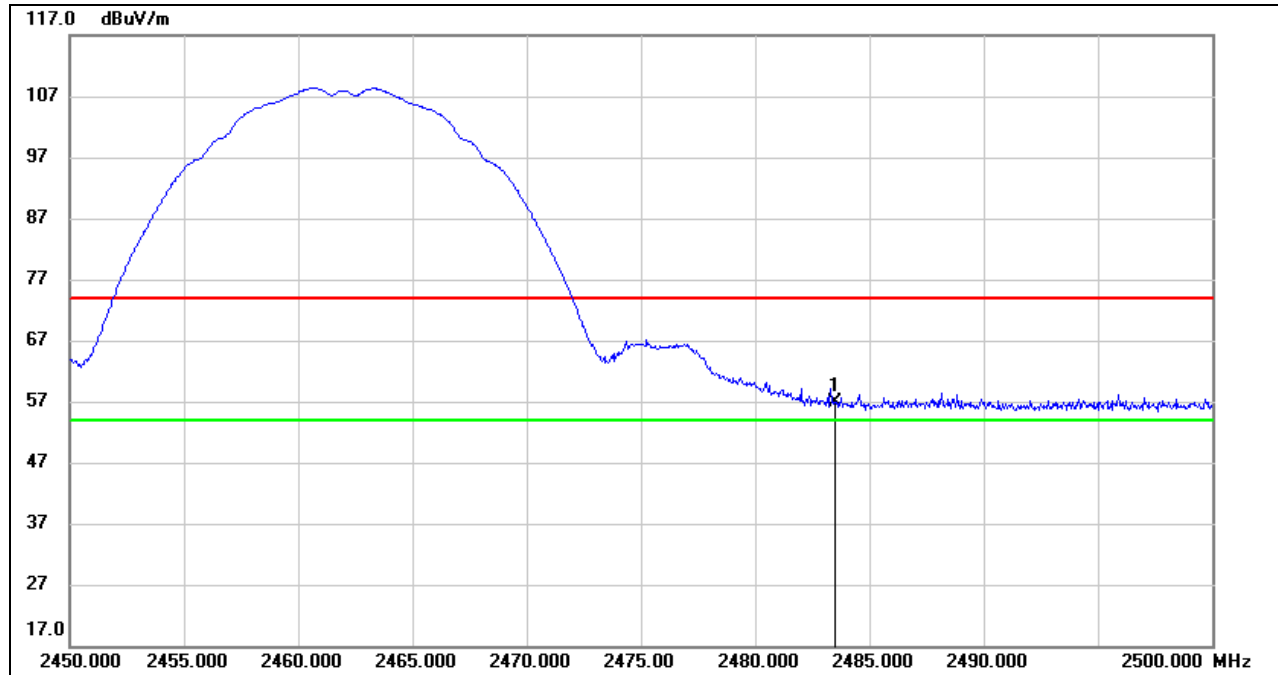


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2381.990	31.10	11.09	42.19	54.00	-11.81	AVG
2	2390.000	31.38	11.15	42.53	54.00	-11.47	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK

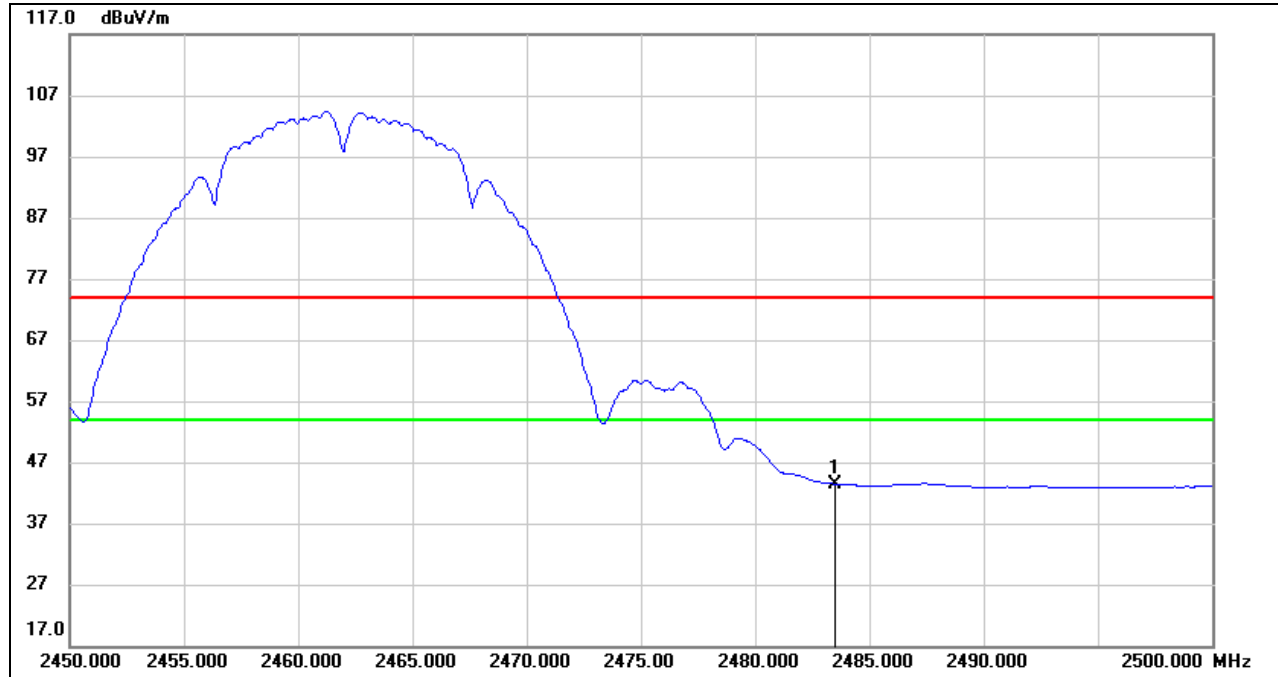


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	45.19	11.57	56.76	74.00	-17.24	peak

Note: 1. Measurement = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. 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	31.84	11.57	43.41	54.00	-10.59	AVG

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

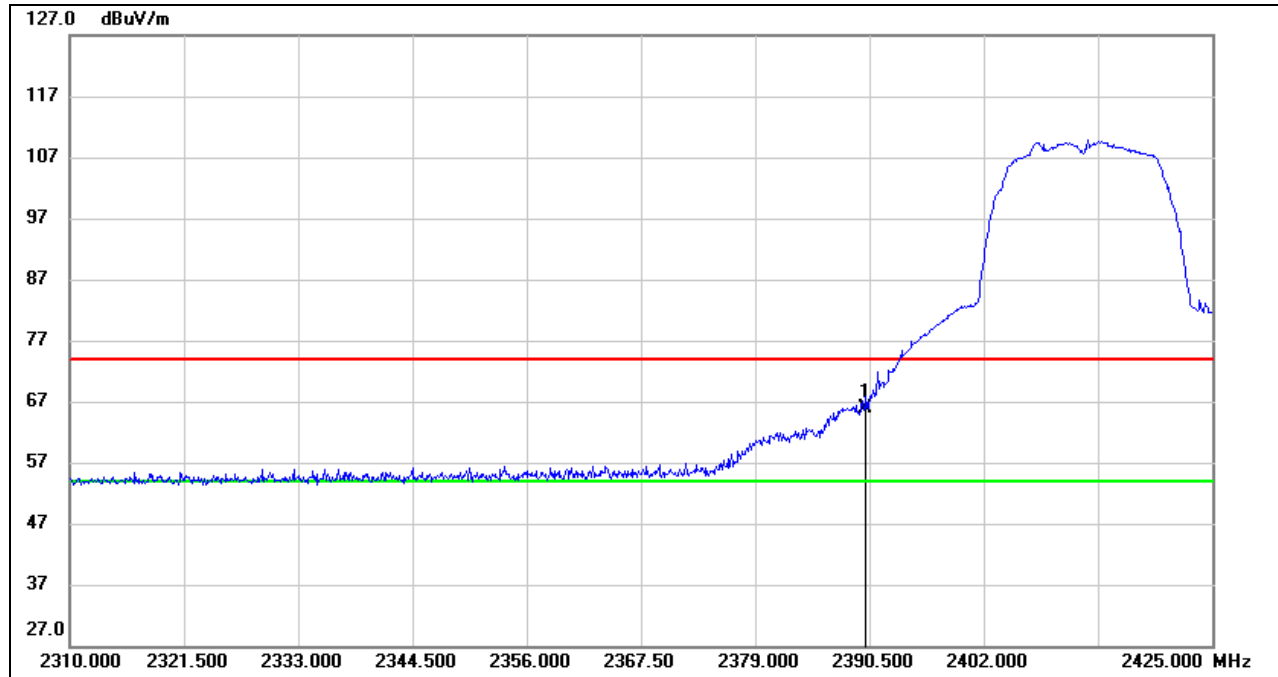
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.
 Note: Both antennas have been tested, only the worst data was recorded in the report.

8.1.2. 802.11g SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

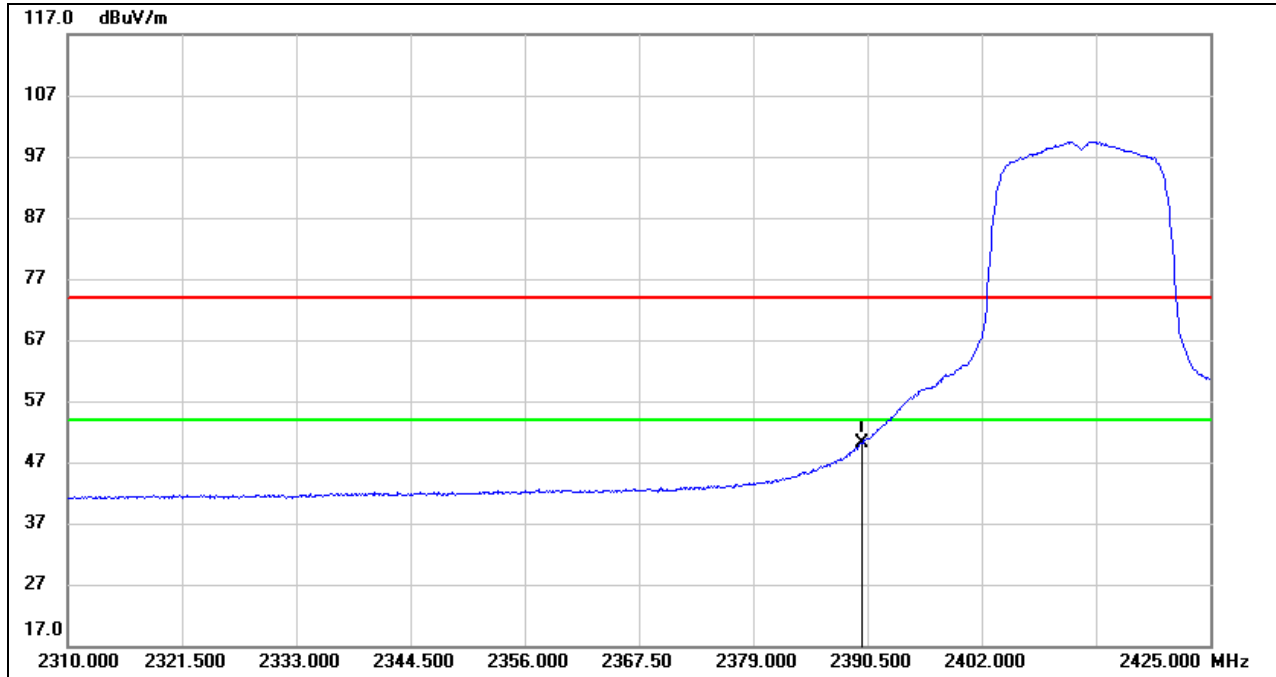
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	54.71	11.15	65.86	74.00	-8.14	peak

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

AVG



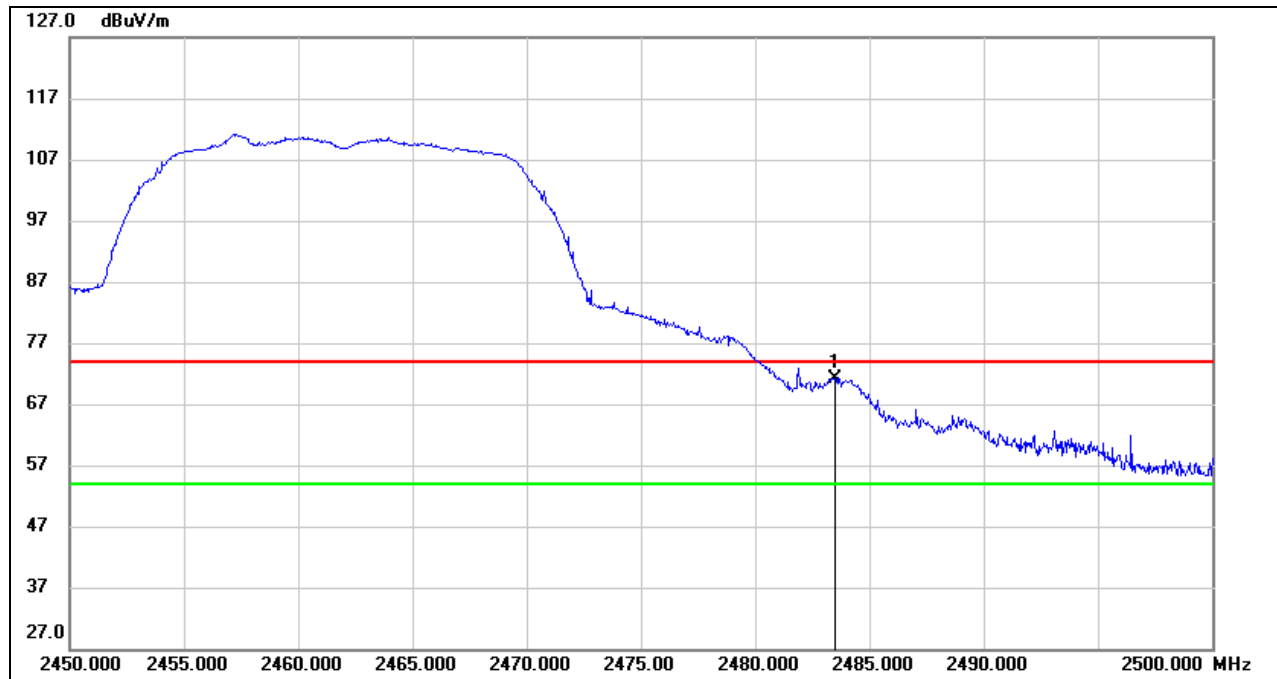
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	38.91	11.15	50.06	54.00	-3.94	AVG

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



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

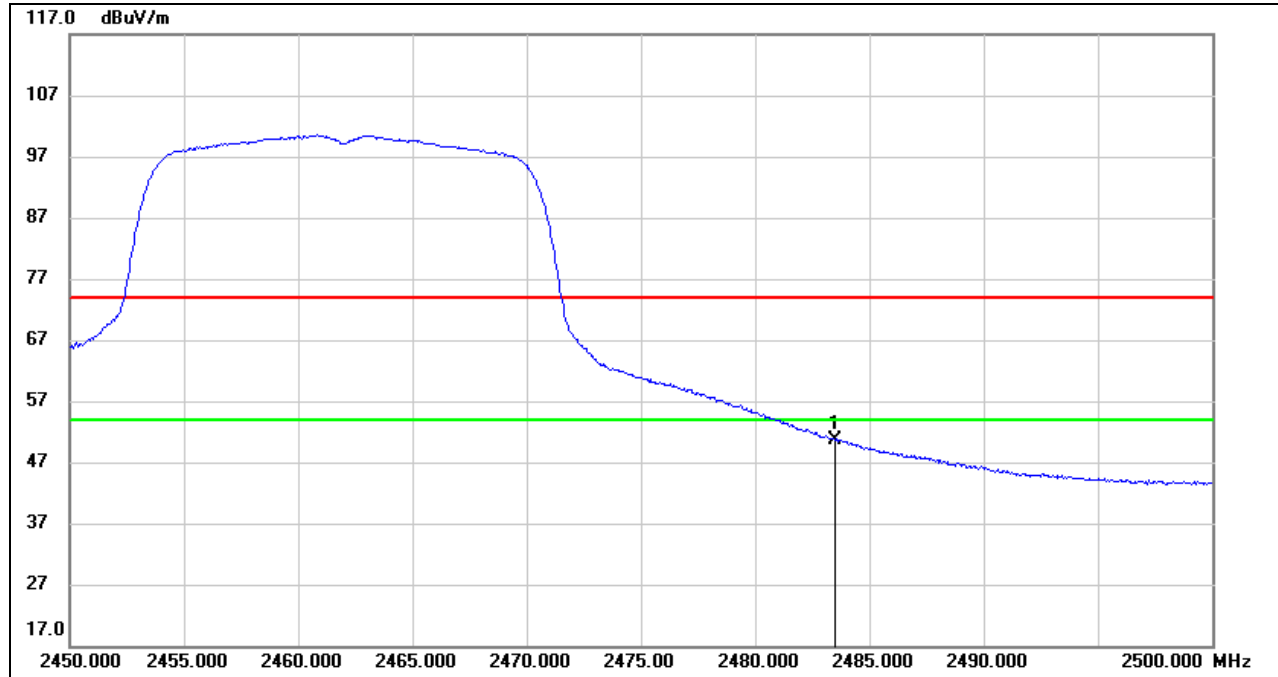
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	59.46	11.57	71.03	74.00	-2.97	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. 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	39.14	11.57	50.71	54.00	-3.29	AVG

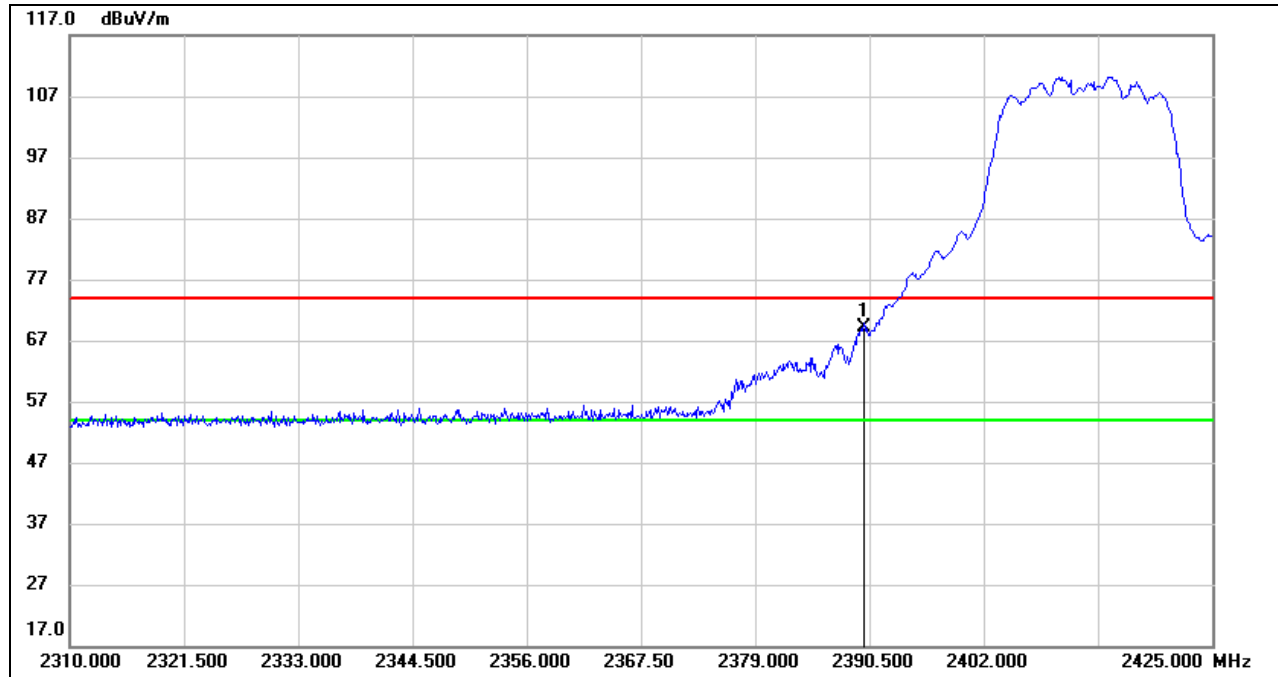
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
 3. For the transmitting duration, please refer to clause 7.1.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.
 Note: Both antennas have 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



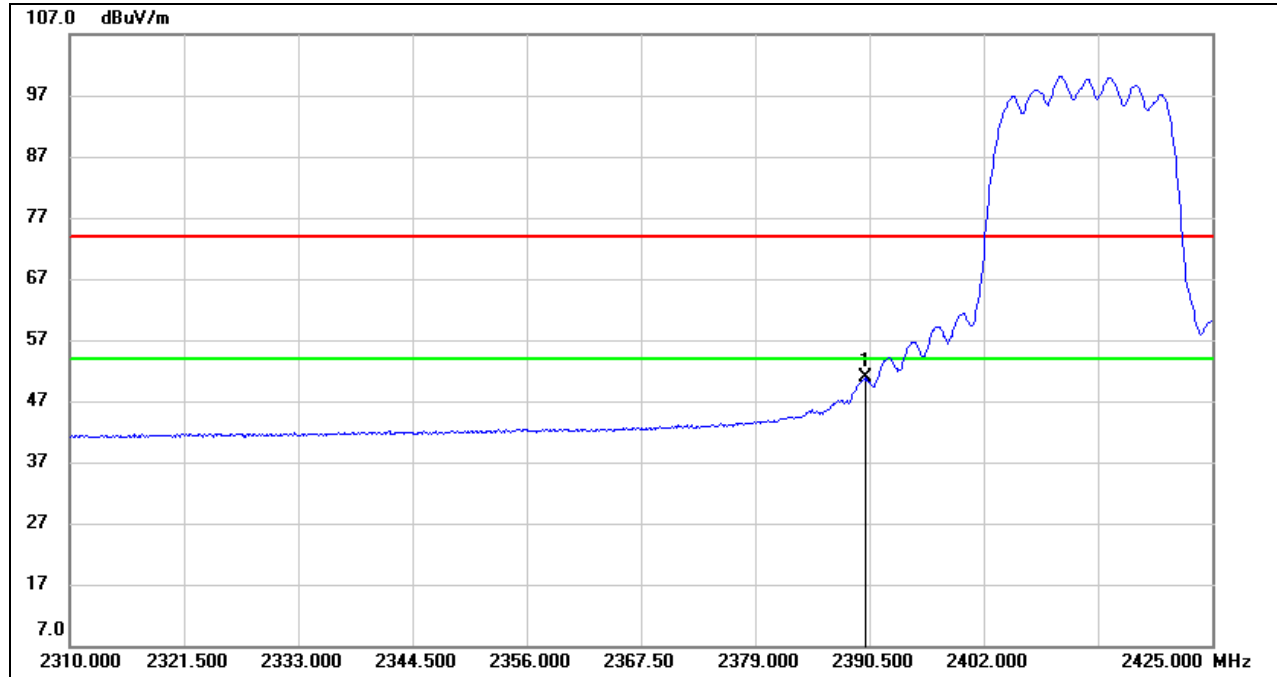
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	57.94	11.15	69.09	74.00	-4.91	peak

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

2. Peak: Peak detector.

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

AVG

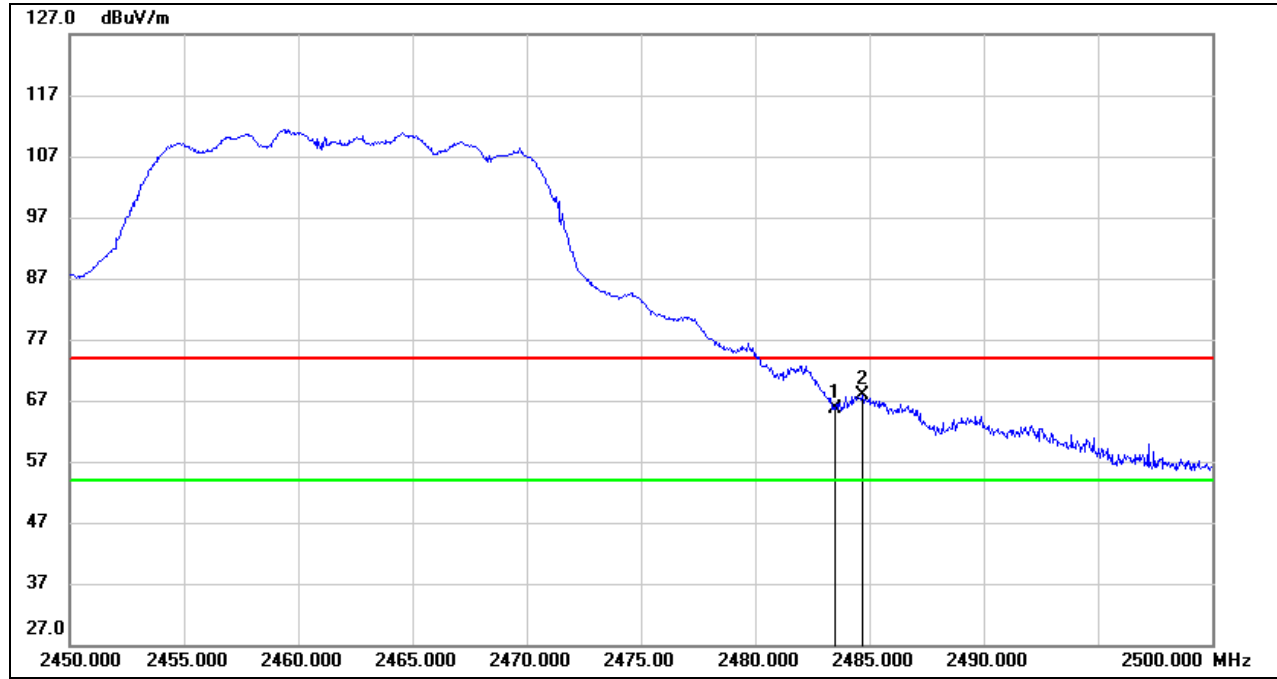


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	39.61	11.15	50.76	54.00	-3.24	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

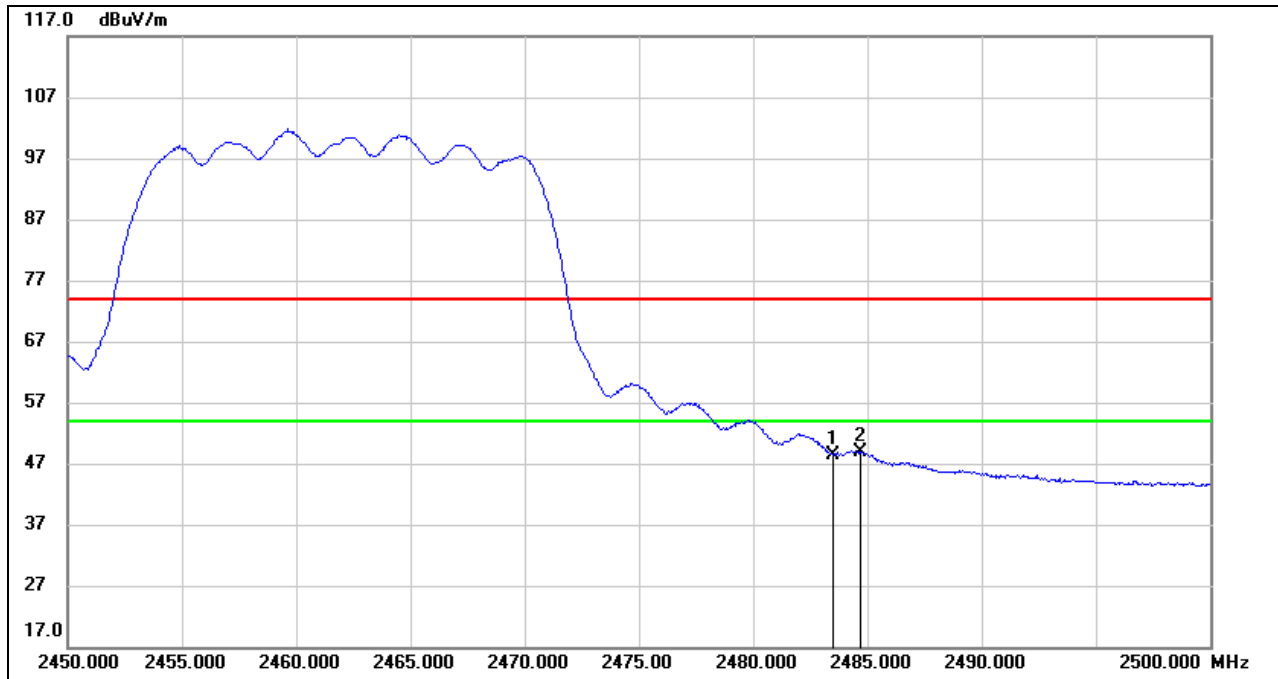
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	54.02	11.57	65.59	74.00	-8.41	peak
2	2484.700	56.30	11.57	67.87	74.00	-6.13	peak

Note: 1. Measurement = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. 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	36.73	11.57	48.30	54.00	-5.70	AVG
2	2484.700	37.27	11.57	48.84	54.00	-5.16	AVG

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

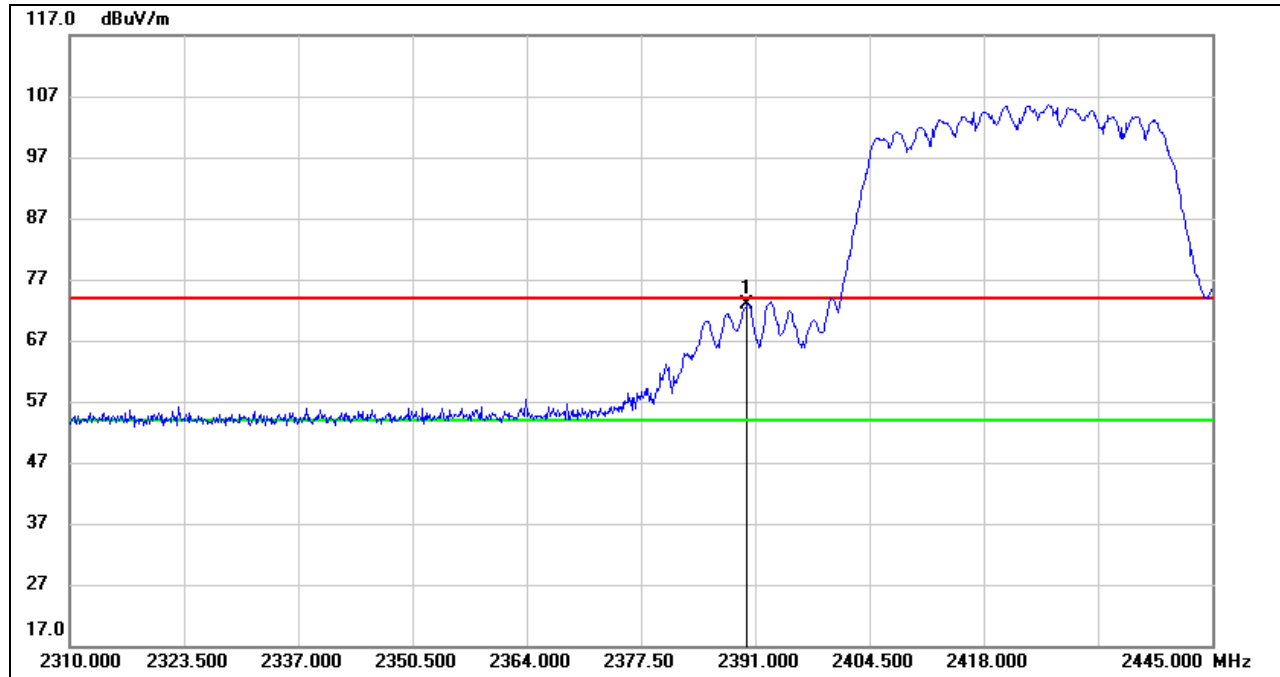
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.
 Note: All modes have been tested, only the worst data was recorded in the report.



8.1.4. 802.11n HT40 MIMO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

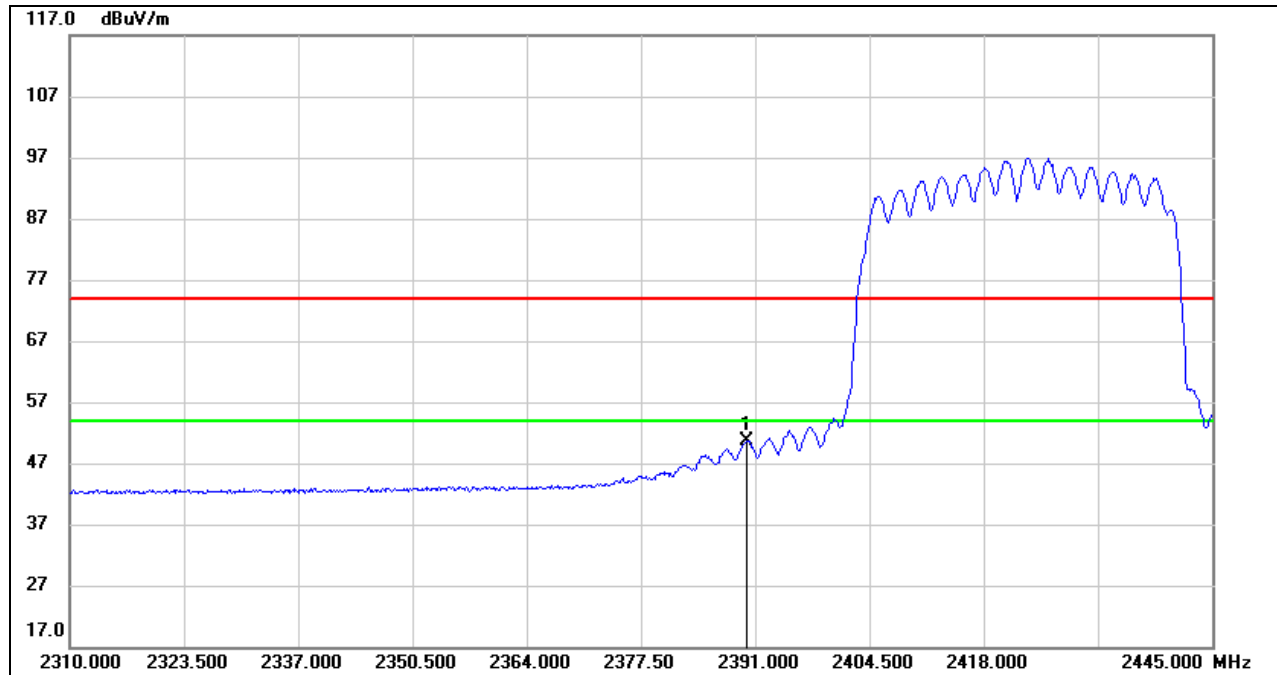
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	61.34	11.59	72.93	74.00	-1.07	peak

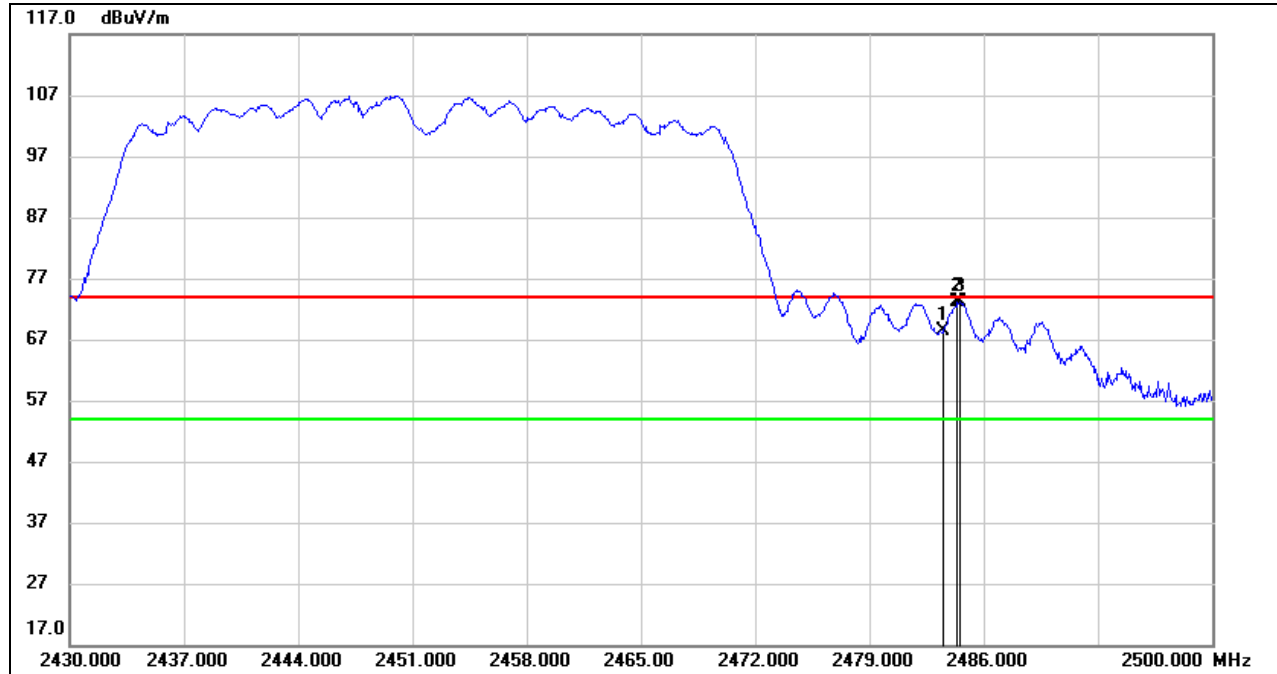
Note: 1. Measurement = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	38.98	11.59	50.57	54.00	-3.43	AVG

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

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

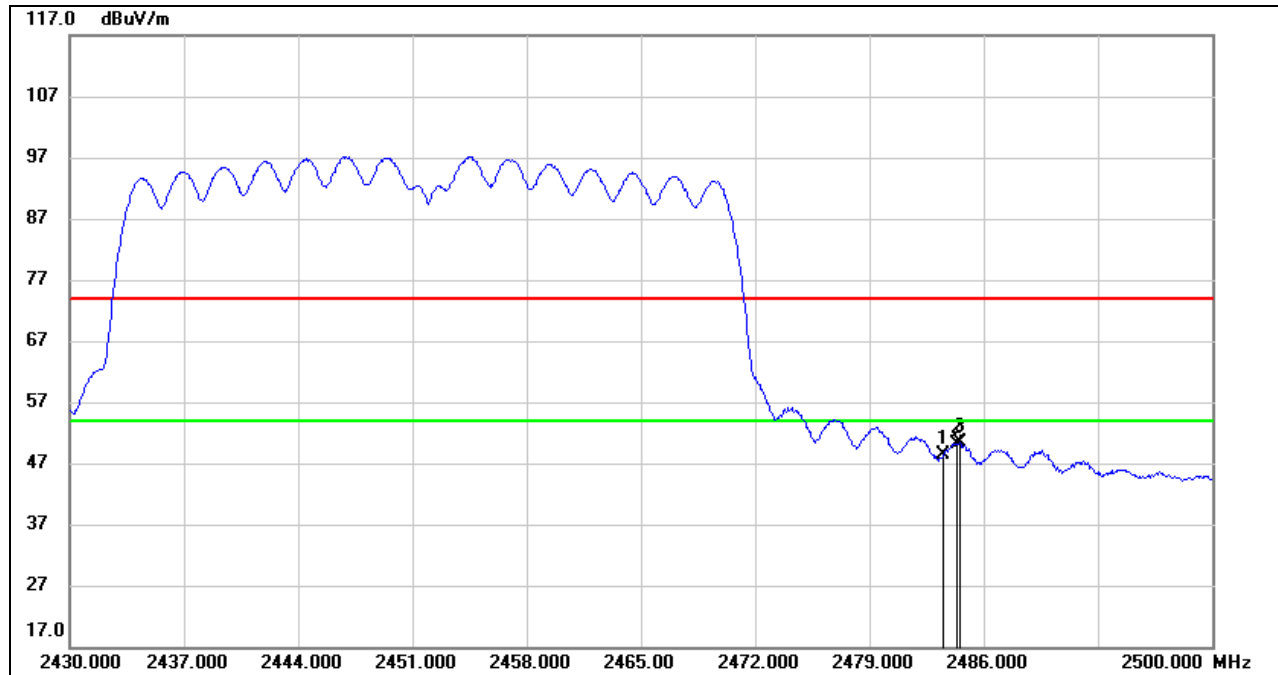
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	56.45	11.97	68.42	74.00	-5.58	peak
2	2484.390	61.17	11.97	73.14	74.00	-0.86	peak
3	2484.530	61.13	11.97	73.10	74.00	-0.90	peak

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

2. Peak: Peak detector.

3. 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	36.48	11.97	48.45	54.00	-5.55	AVG
2	2484.390	38.17	11.97	50.14	54.00	-3.86	AVG
3	2484.530	38.33	11.97	50.30	54.00	-3.70	AVG

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

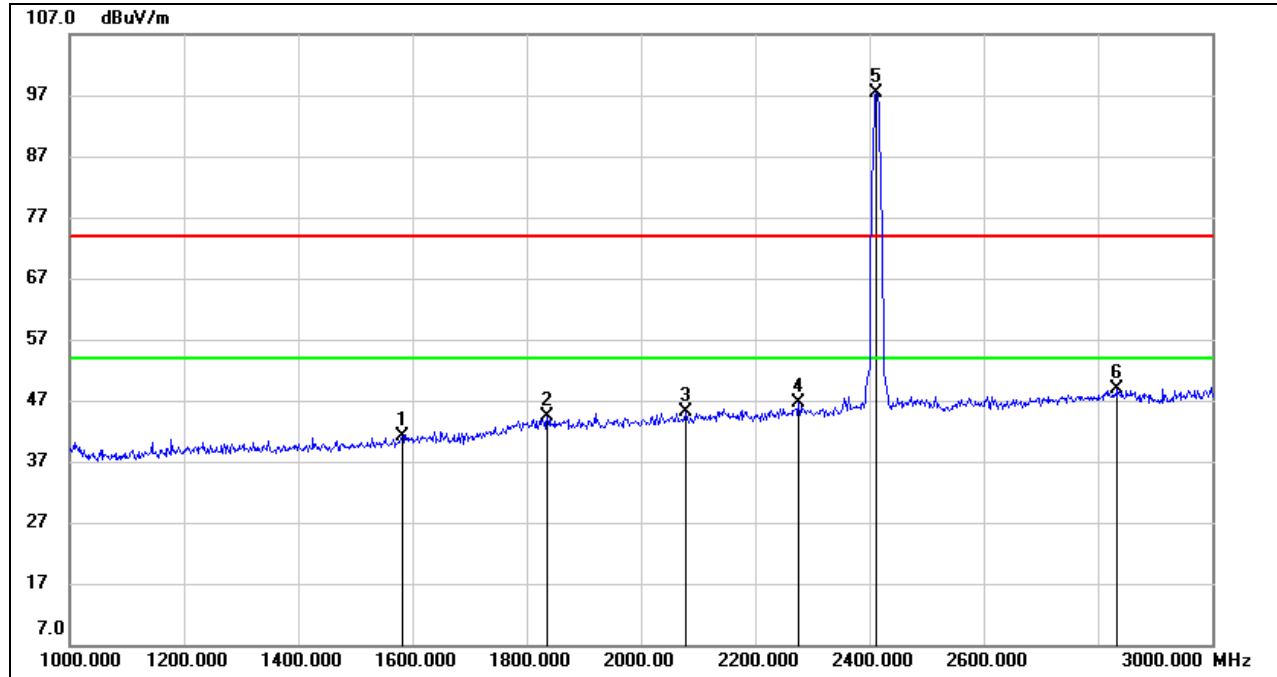
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.
 Note: All modes have been tested, only the worst data was recorded in the report.

8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

8.2.1. 802.11b SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

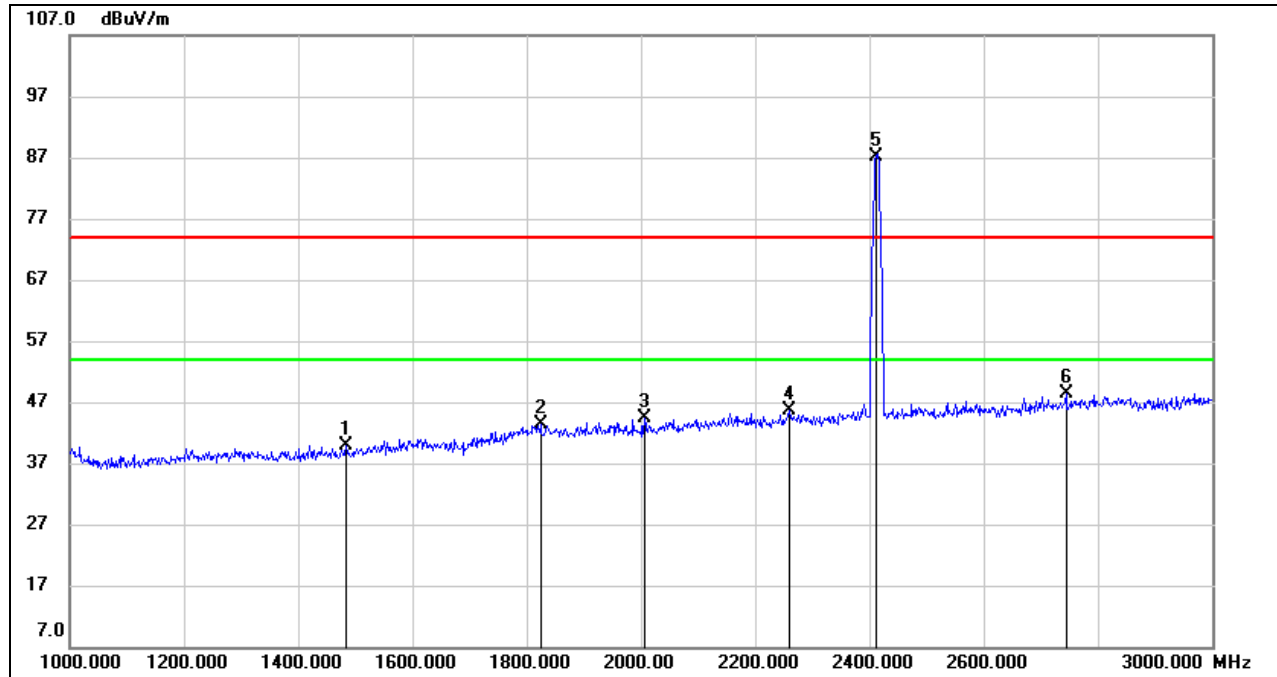


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1582.000	33.40	7.73	41.13	74.00	-32.87	peak
2	1836.000	34.57	9.70	44.27	74.00	-29.73	peak
3	2078.000	34.60	10.61	45.21	74.00	-28.79	peak
4	2276.000	35.67	11.00	46.67	74.00	-27.33	peak
5	2412.000	85.57	11.71	97.28	/	/	fundamental
6	2834.000	35.66	13.32	48.98	74.00	-25.02	peak

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

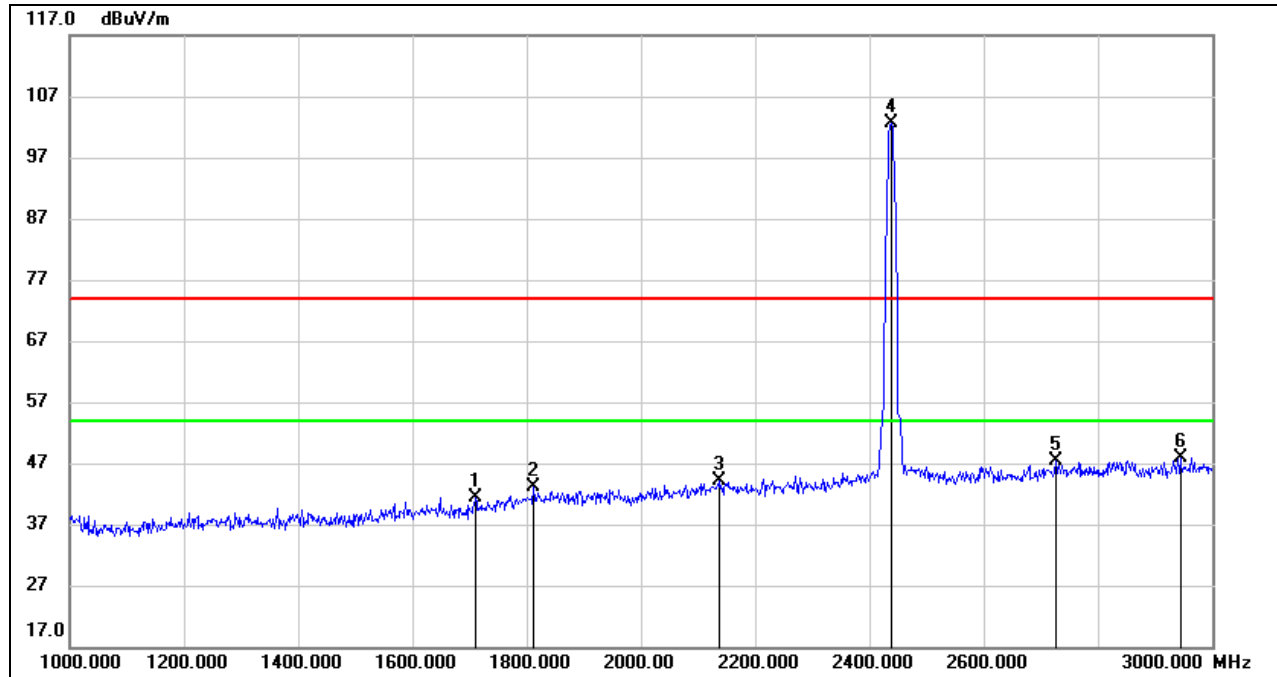
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

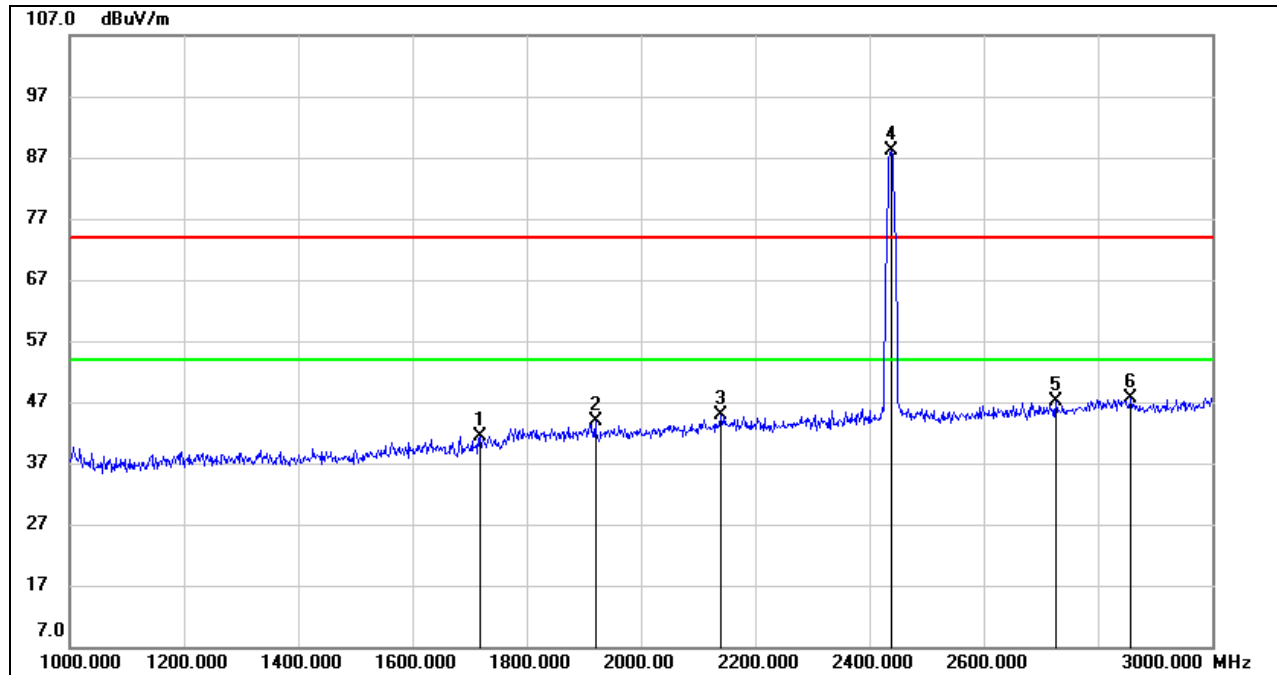
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1484.000	32.92	6.90	39.82	74.00	-34.18	peak
2	1824.000	33.66	9.68	43.34	74.00	-30.66	peak
3	2006.000	34.26	10.07	44.33	74.00	-29.67	peak
4	2260.000	34.54	11.00	45.54	74.00	-28.46	peak
5	2412.000	75.34	11.71	87.05	/	/	fundamental
6	2744.000	35.51	12.83	48.34	74.00	-25.66	peak

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

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	1710.000	33.20	8.26	41.46	74.00	-32.54	peak
2	1812.000	33.44	9.67	43.11	74.00	-30.89	peak
3	2138.000	33.21	10.87	44.08	74.00	-29.92	peak
4	2437.000	90.74	11.80	102.54	/	/	fundamental
5	2726.000	34.79	12.70	47.49	74.00	-26.51	peak
6	2944.000	34.15	13.74	47.89	74.00	-26.11	peak

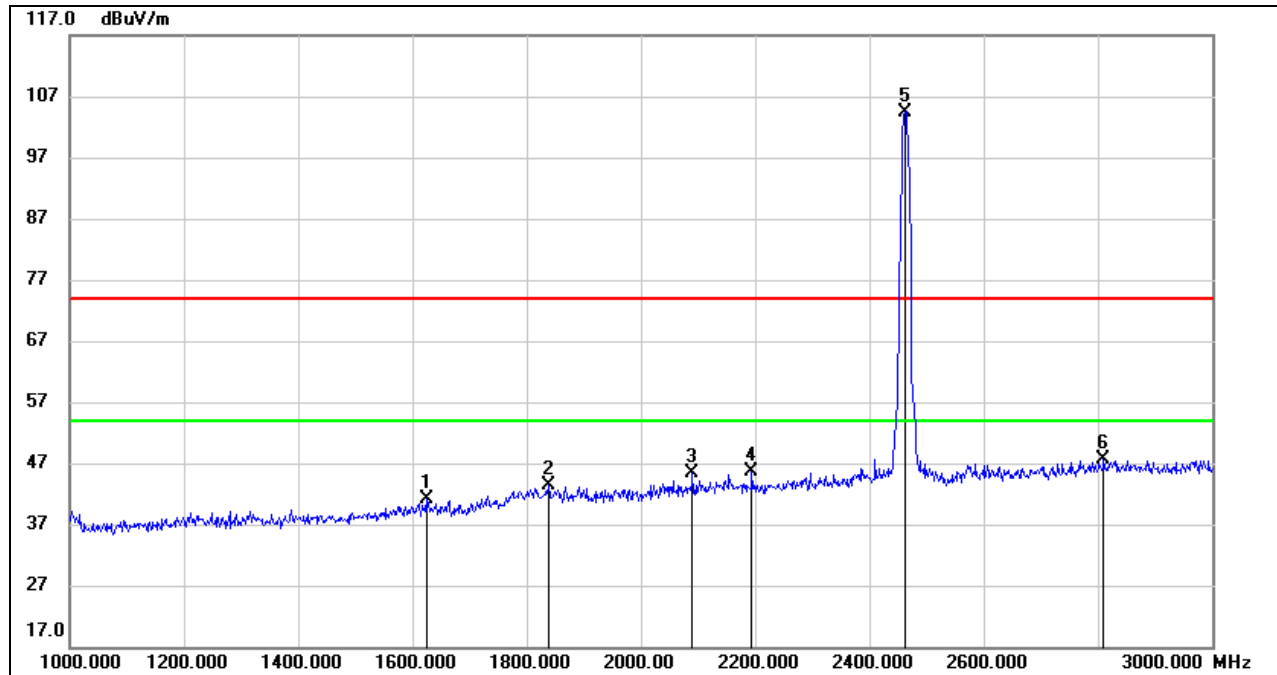
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.

**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	1718.000	33.00	8.38	41.38	74.00	-32.62	peak
2	1920.000	34.14	9.84	43.98	74.00	-30.02	peak
3	2140.000	34.05	10.87	44.92	74.00	-29.08	peak
4	2437.000	76.21	11.80	88.01	/	/	fundamental
5	2726.000	34.36	12.70	47.06	74.00	-26.94	peak

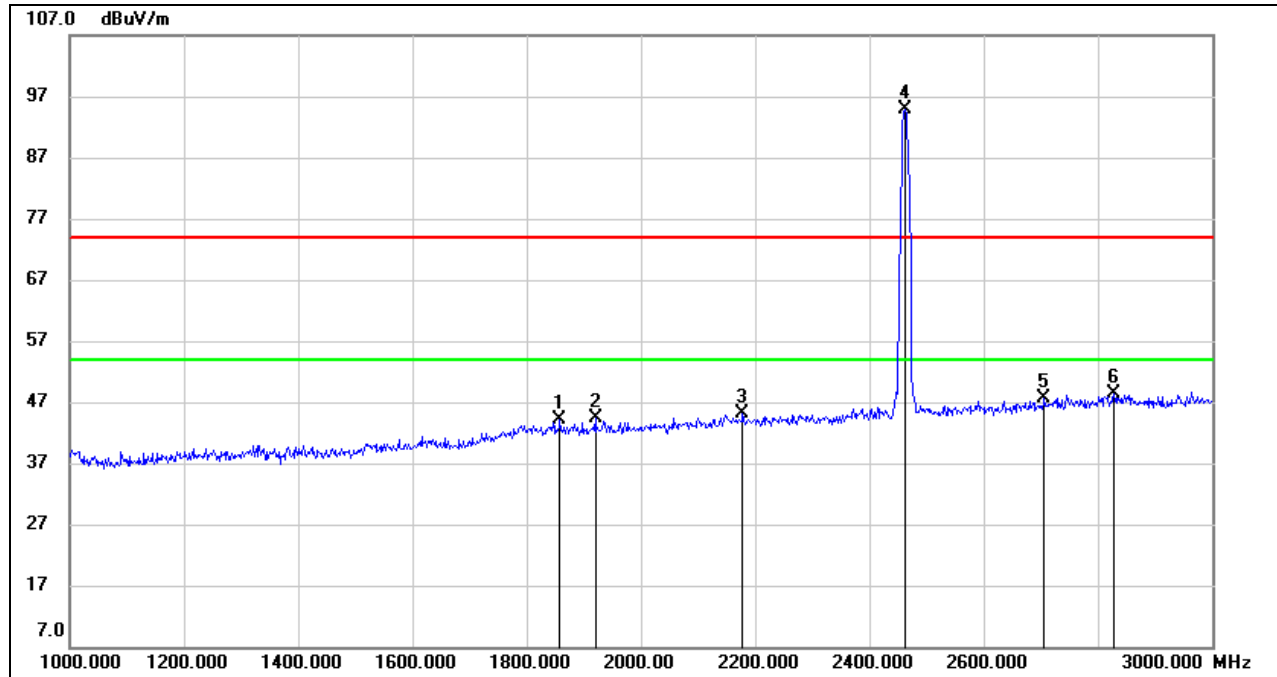
- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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	1624.000	33.17	7.95	41.12	74.00	-32.88	peak
2	1838.000	33.58	9.69	43.27	74.00	-30.73	peak
3	2090.000	34.60	10.70	45.30	74.00	-28.70	peak
4	2194.000	34.53	11.01	45.54	74.00	-28.46	peak
5	2462.000	92.43	11.89	104.32	/	/	fundamental
6	2810.000	34.37	13.26	47.63	74.00	-26.37	peak

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

**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	1858.000	34.50	9.73	44.23	74.00	-29.77	peak
2	1920.000	34.43	9.84	44.27	74.00	-29.73	peak
3	2178.000	34.21	10.97	45.18	74.00	-28.82	peak
4	2462.000	83.01	11.89	94.90	/	/	fundamental
5	2706.000	35.13	12.55	47.68	74.00	-26.32	peak
6	2828.000	35.00	13.30	48.30	74.00	-25.70	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.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

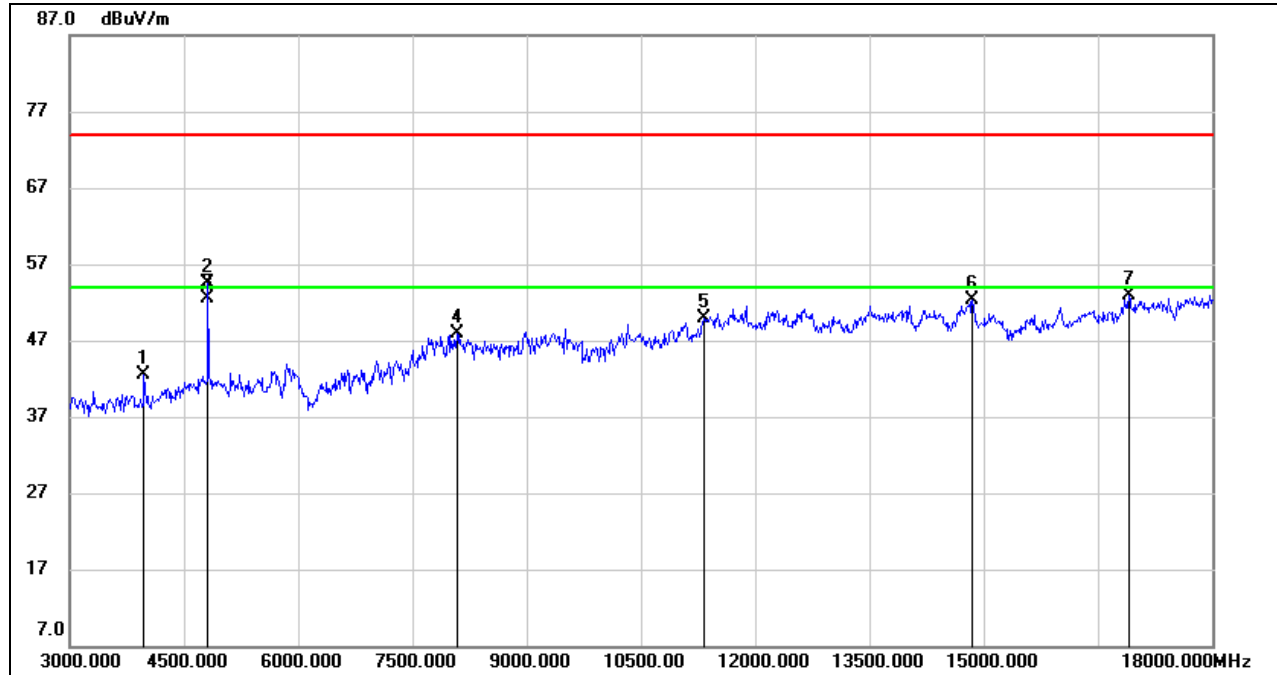
Note: All modes and channels have been tested, only the worst data was recorded in the report.

8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

8.3.1. 802.11b SISO MODE

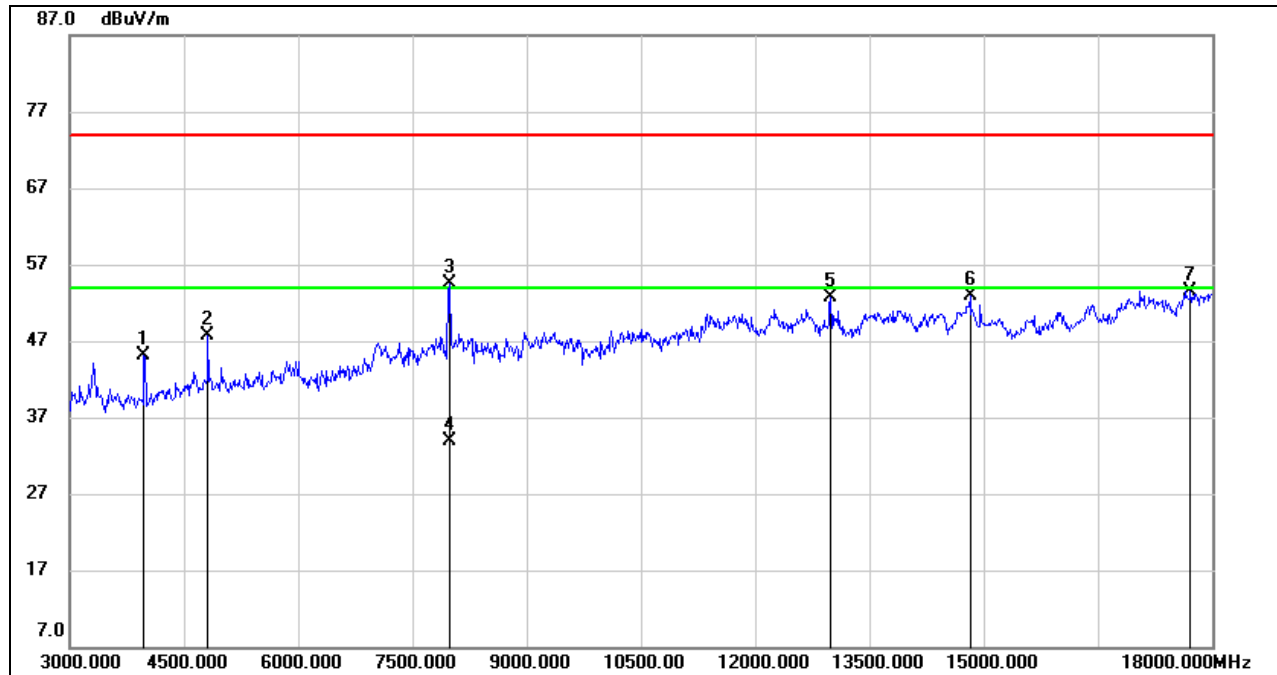
ANTENNA 1 TEST RESULTS (WORST CASE)

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	3975.000	45.02	-2.57	42.45	74.00	-31.55	peak
2	4815.000	53.06	1.38	54.44	74.00	-19.56	peak
3	4815.000	51.10	1.38	52.48	54.00	-1.52	AVG
4	8085.000	37.92	9.94	47.86	74.00	-26.14	peak
5	11325.000	35.90	14.07	49.97	74.00	-24.03	peak
6	14850.000	34.58	17.71	52.29	74.00	-21.71	peak
7	16905.000	31.42	21.55	52.97	74.00	-21.03	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
 4. For the transmitting duration, please refer to clause 7.1.
 5. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 6. 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	3975.000	47.62	-2.57	45.05	74.00	-28.95	peak
2	4815.000	46.39	1.38	47.77	74.00	-26.23	peak
3	7995.000	45.82	8.65	54.47	74.00	-19.53	peak
4	7995.000	25.25	8.65	33.90	54.00	-20.10	AVG
5	12990.000	36.66	16.05	52.71	74.00	-21.29	peak
6	14820.000	35.07	17.91	52.98	74.00	-21.02	peak
7	17715.000	30.00	23.56	53.56	74.00	-20.44	peak

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

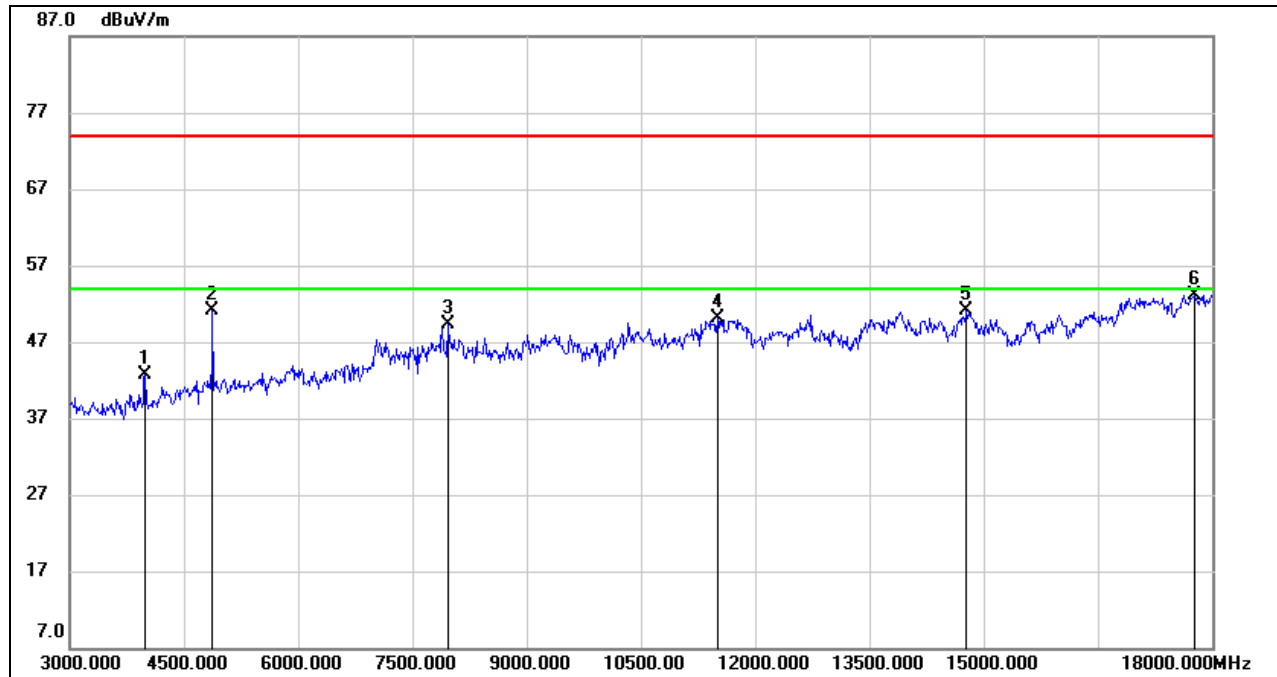
2. Peak: Peak detector.

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

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

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

6. 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	3990.000	45.26	-2.51	42.75	74.00	-31.25	peak
2	4875.000	49.81	1.32	51.13	74.00	-22.87	peak
3	7965.000	40.60	8.71	49.31	74.00	-24.69	peak
4	11505.000	35.46	14.66	50.12	74.00	-23.88	peak
5	14775.000	33.12	17.95	51.07	74.00	-22.93	peak
6	17775.000	29.22	23.91	53.13	74.00	-20.87	peak

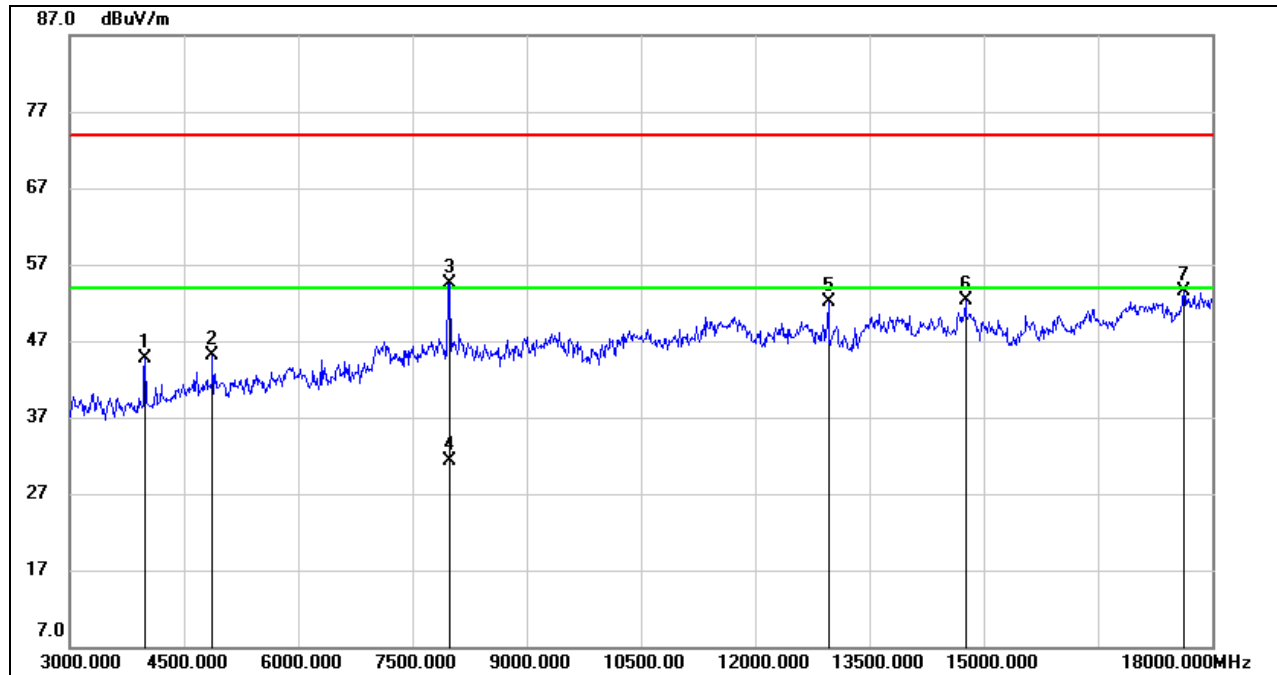
Note: 1. Peak Result = Reading Level + Correct Factor.

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	3990.000	47.21	-2.51	44.70	74.00	-29.30	peak
2	4875.000	43.71	1.32	45.03	74.00	-28.97	peak
3	7995.000	45.93	8.65	54.58	74.00	-19.42	peak
4	7995.000	22.57	8.65	31.22	54.00	-22.78	AVG
5	12960.000	35.87	16.18	52.05	74.00	-21.95	peak
6	14760.000	34.31	17.90	52.21	74.00	-21.79	peak
7	17625.000	30.54	22.92	53.46	74.00	-20.54	peak

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

2. Peak: Peak detector.

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

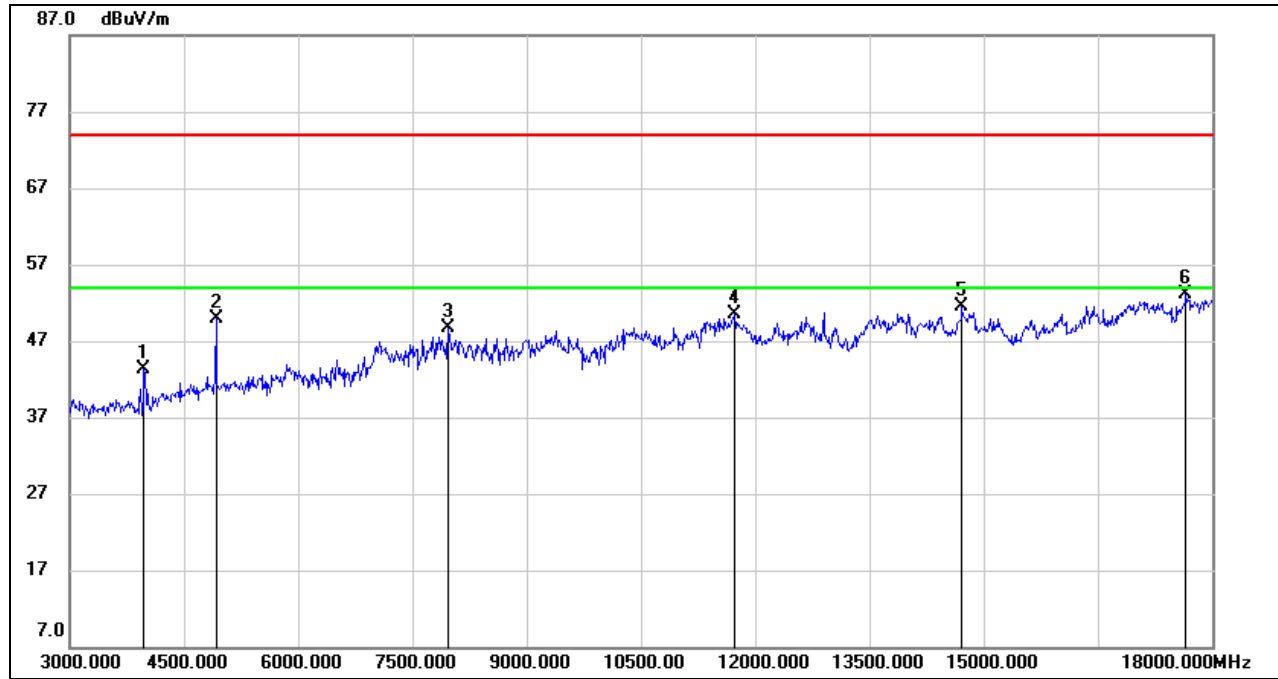
4. For the transmitting duration, please refer to clause 7.1.

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

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

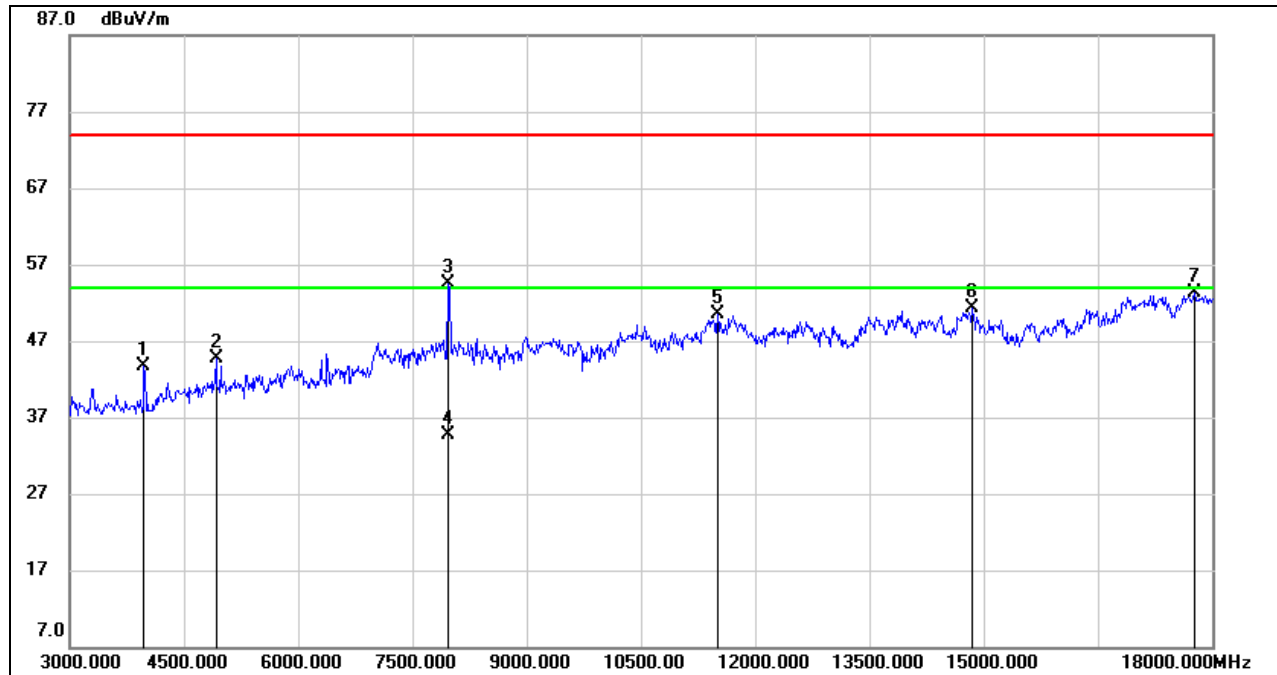


HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3975.000	45.85	-2.57	43.28	74.00	-30.72	peak
2	4920.000	48.42	1.45	49.87	74.00	-24.13	peak
3	7965.000	39.93	8.71	48.64	74.00	-25.36	peak
4	11730.000	35.12	15.32	50.44	74.00	-23.56	peak
5	14715.000	33.71	17.74	51.45	74.00	-22.55	peak
6	17655.000	29.99	23.14	53.13	74.00	-20.87	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	3975.000	46.34	-2.57	43.77	74.00	-30.23	peak
2	4920.000	43.32	1.45	44.77	74.00	-29.23	peak
3	7965.000	45.86	8.71	54.57	74.00	-19.43	peak
4	7965.000	25.95	8.71	34.66	54.00	-19.34	AVG
5	11505.000	35.87	14.66	50.53	74.00	-23.47	peak
6	14850.000	33.61	17.71	51.32	74.00	-22.68	peak
7	17760.000	29.46	23.82	53.28	74.00	-20.72	peak

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

2. Peak: Peak detector.

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

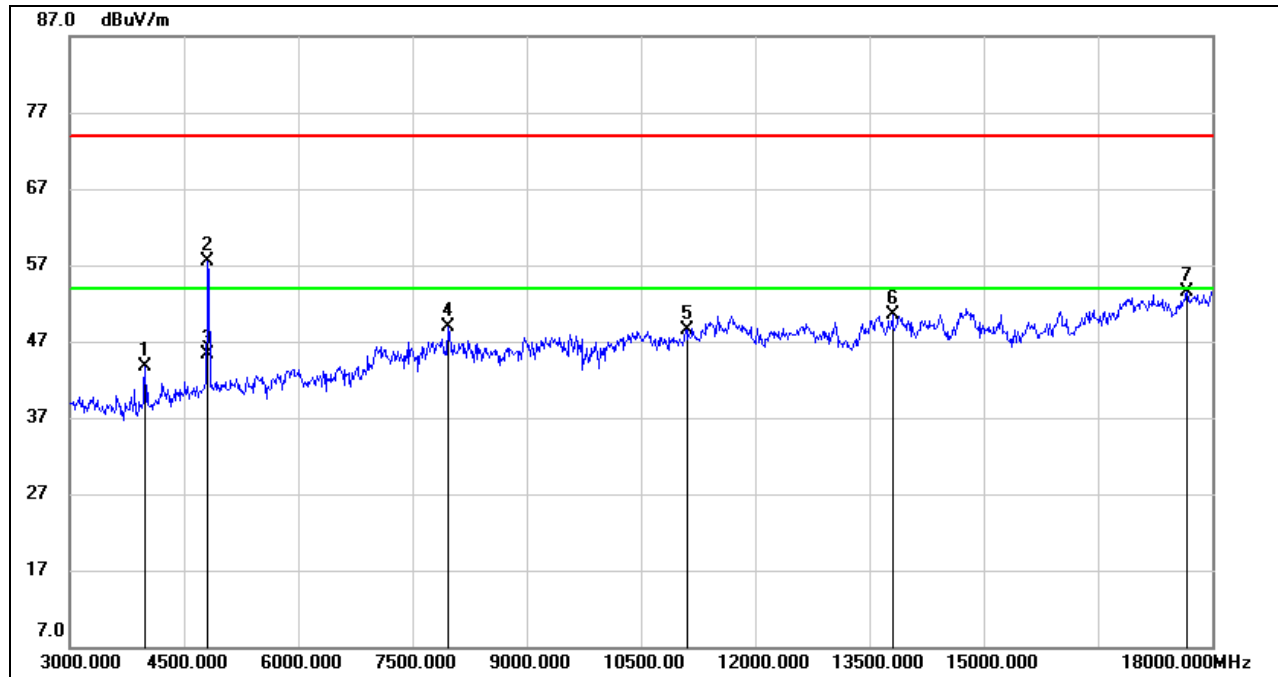
6. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

8.3.2. 802.11g SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

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	3990.000	46.17	-2.51	43.66	74.00	-30.34	peak
2	4815.000	56.17	1.38	57.55	74.00	-16.45	peak
3	4815.000	43.94	1.38	45.32	54.00	-8.68	AVG
4	7965.000	40.12	8.71	48.83	74.00	-25.17	peak
5	11100.000	34.73	13.79	48.52	74.00	-25.48	peak
6	13800.000	32.82	17.61	50.43	74.00	-23.57	peak
7	17670.000	30.19	23.24	53.43	74.00	-20.57	peak

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

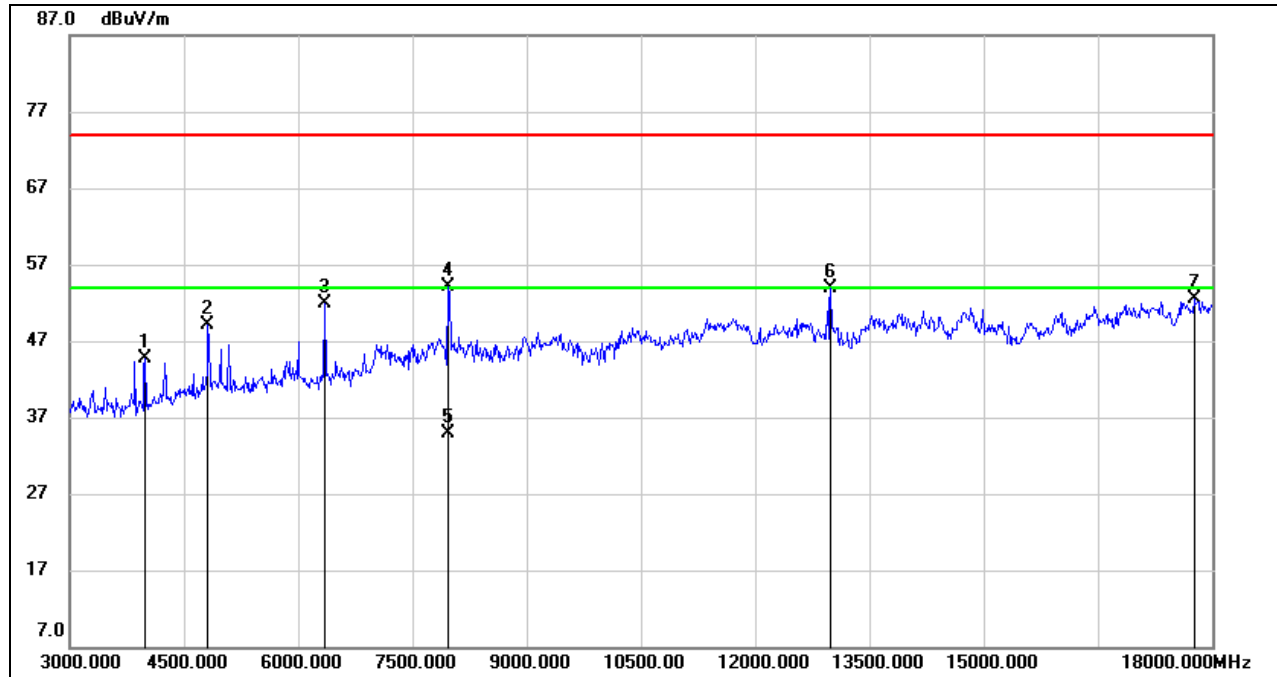
2. Peak: Peak detector.

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

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

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

6. 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	3990.000	47.27	-2.51	44.76	74.00	-29.24	peak
2	4815.000	47.77	1.38	49.15	74.00	-24.85	peak
3	6345.000	47.16	4.65	51.81	74.00	-22.19	peak
4	7965.000	45.34	8.71	54.05	74.00	-19.95	peak
5	7965.000	26.29	8.71	35.00	54.00	-19.00	AVG
6	12990.000	37.91	16.05	53.96	74.00	-20.04	peak
7	17760.000	28.76	23.82	52.58	74.00	-21.42	peak

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

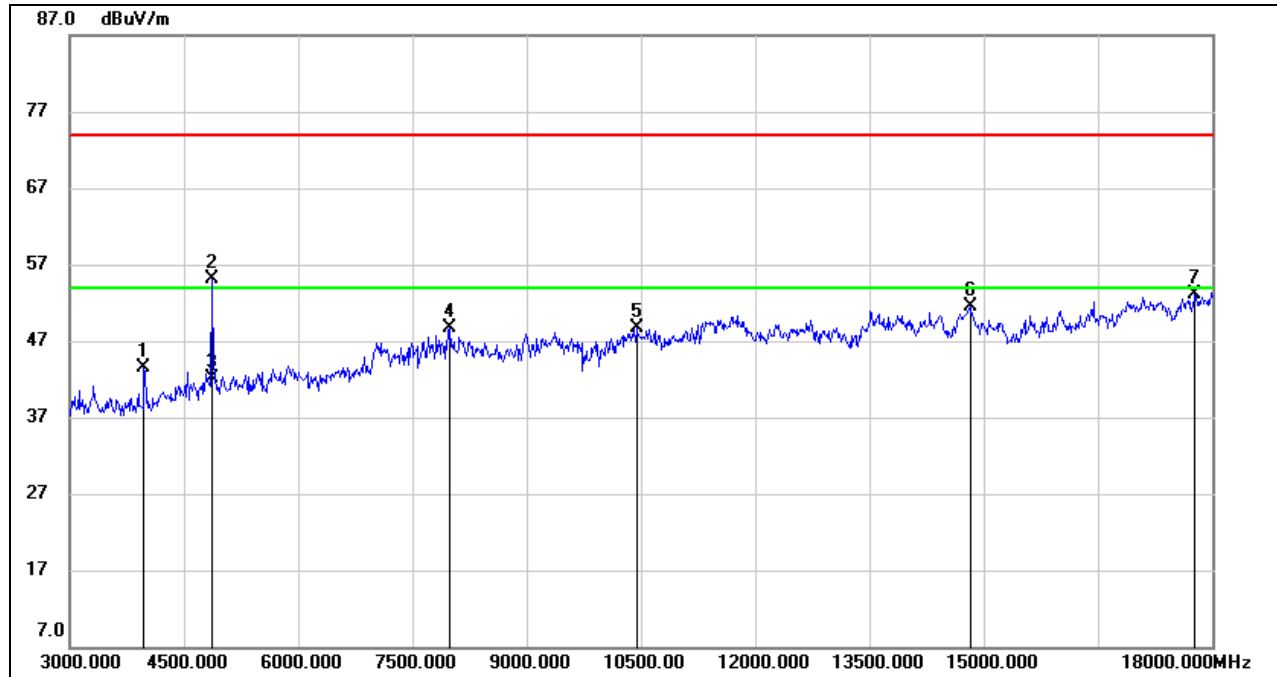
2. Peak: Peak detector.

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

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

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

6. 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	3975.000	46.00	-2.57	43.43	74.00	-30.57	peak
2	4860.000	53.72	1.33	55.05	74.00	-18.95	peak
3	4860.000	40.73	1.33	42.06	54.00	-11.94	AVG
4	7995.000	40.01	8.65	48.66	74.00	-25.34	peak
5	10440.000	36.43	12.28	48.71	74.00	-25.29	peak
6	14820.000	33.50	17.91	51.41	74.00	-22.59	peak
7	17775.000	29.13	23.91	53.04	74.00	-20.96	peak

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

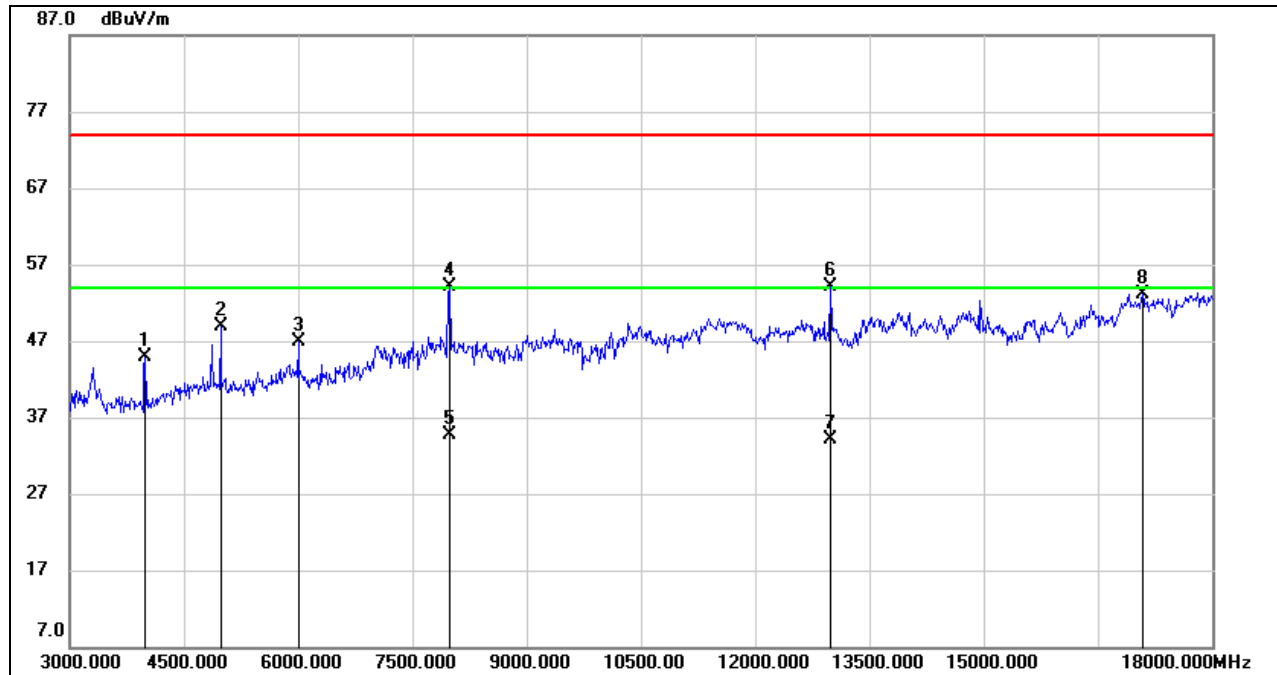
2. Peak: Peak detector.

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

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

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

6. 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	3990.000	47.38	-2.51	44.87	74.00	-29.13	peak
2	4980.000	46.94	1.98	48.92	74.00	-25.08	peak
3	6000.000	42.95	4.00	46.95	74.00	-27.05	peak
4	7995.000	45.45	8.65	54.10	74.00	-19.90	peak
5	7995.000	26.08	8.65	34.73	54.00	-19.27	AVG
6	12990.000	38.09	16.05	54.14	74.00	-19.86	peak
7	12990.000	18.10	16.05	34.15	54.00	-19.85	AVG
8	17085.000	31.32	21.80	53.12	74.00	-20.88	peak

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

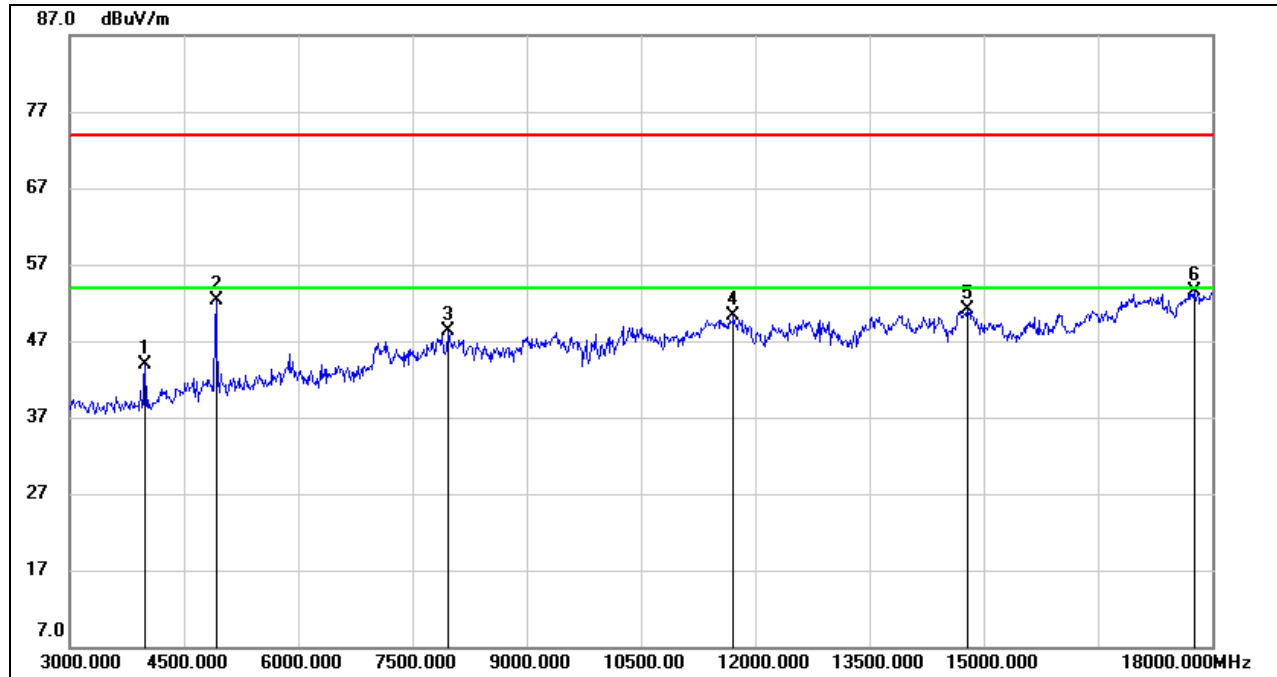
2. Peak: Peak detector.

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

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

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

6. 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	3990.000	46.46	-2.51	43.95	74.00	-30.05	peak
2	4920.000	50.77	1.45	52.22	74.00	-21.78	peak
3	7965.000	39.55	8.71	48.26	74.00	-25.74	peak
4	11715.000	34.97	15.34	50.31	74.00	-23.69	peak
5	14790.000	33.12	18.01	51.13	74.00	-22.87	peak
6	17760.000	29.70	23.82	53.52	74.00	-20.48	peak

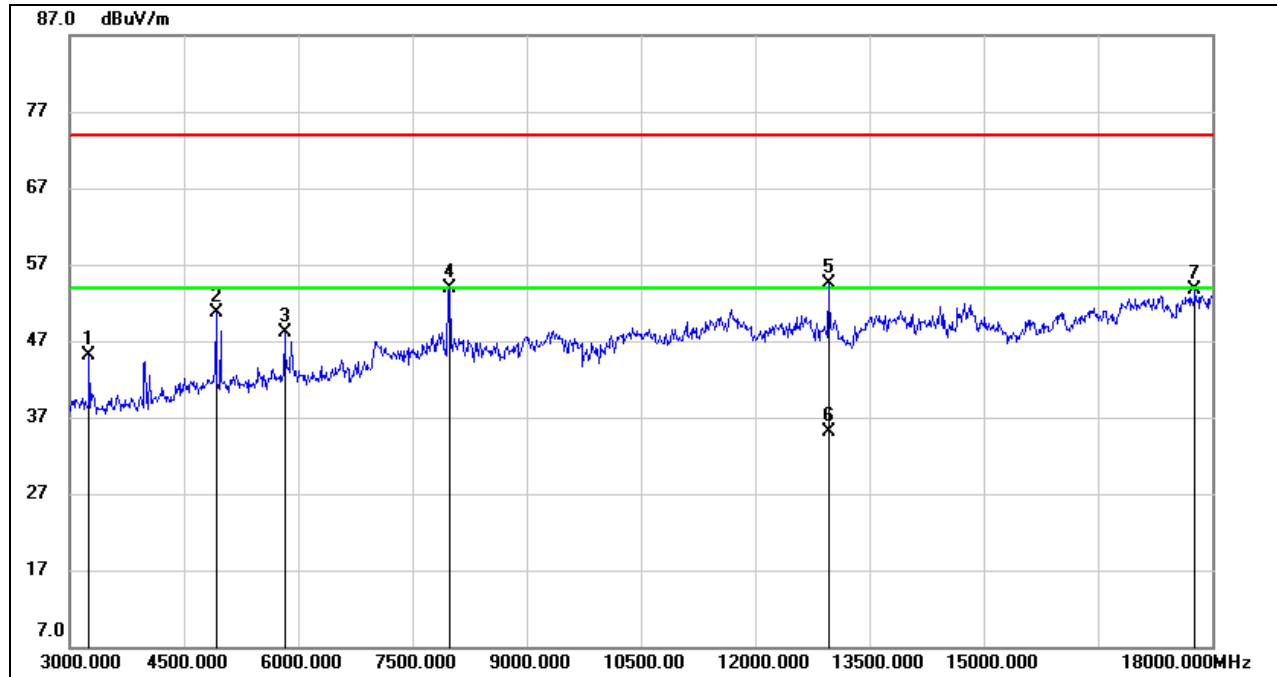
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

4. 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	3255.000	48.96	-3.77	45.19	74.00	-28.81	peak
2	4920.000	49.31	1.45	50.76	74.00	-23.24	peak
3	5820.000	44.35	3.70	48.05	74.00	-25.95	peak
4	7995.000	45.25	8.65	53.90	74.00	-20.10	peak
5	12960.000	38.28	16.18	54.46	74.00	-19.54	peak
6	12960.000	18.98	16.18	35.16	54.00	-18.84	AVG
7	17775.000	29.72	23.91	53.63	74.00	-20.37	peak

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

2. Peak: Peak detector.

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

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

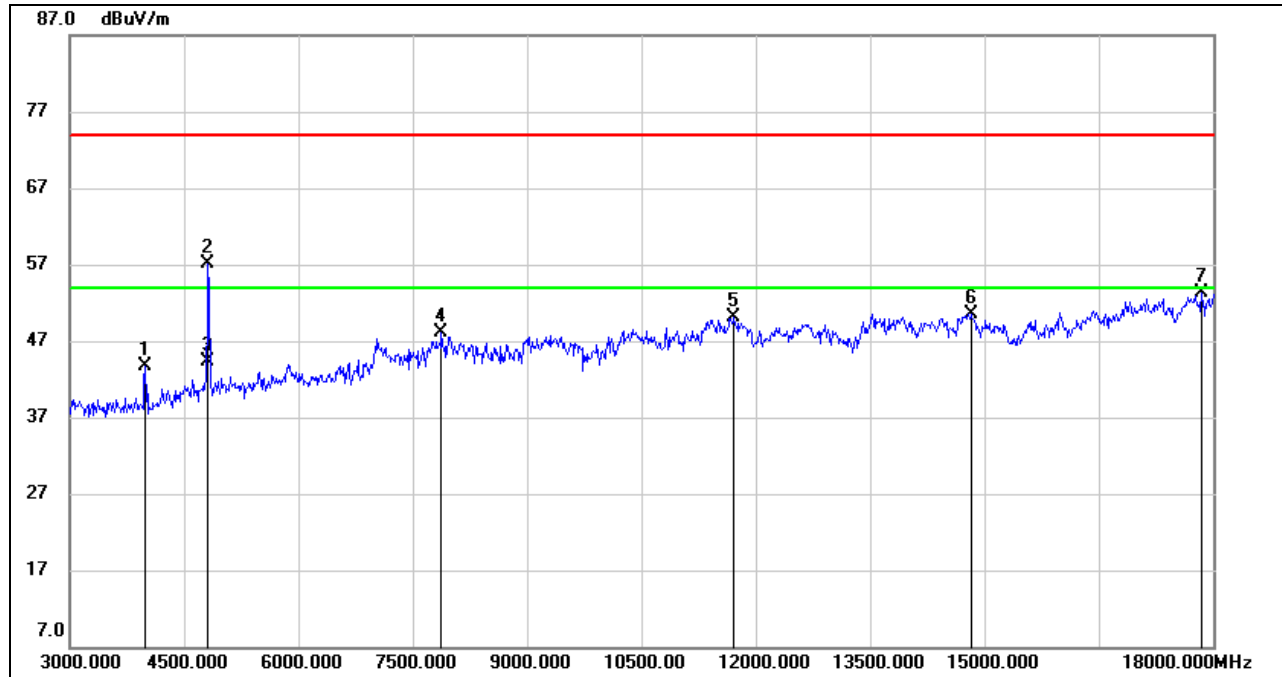
5. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

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	3990.000	46.17	-2.51	43.66	74.00	-30.34	peak
2	4815.000	55.67	1.38	57.05	74.00	-16.95	peak
3	4815.000	42.98	1.38	44.36	54.00	-9.64	AVG
4	7875.000	39.16	8.98	48.14	74.00	-25.86	peak
5	11715.000	34.82	15.34	50.16	74.00	-23.84	peak
6	14820.000	32.66	17.91	50.57	74.00	-23.43	peak
7	17850.000	29.26	23.97	53.23	74.00	-20.77	peak

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

2. Peak: Peak detector.

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

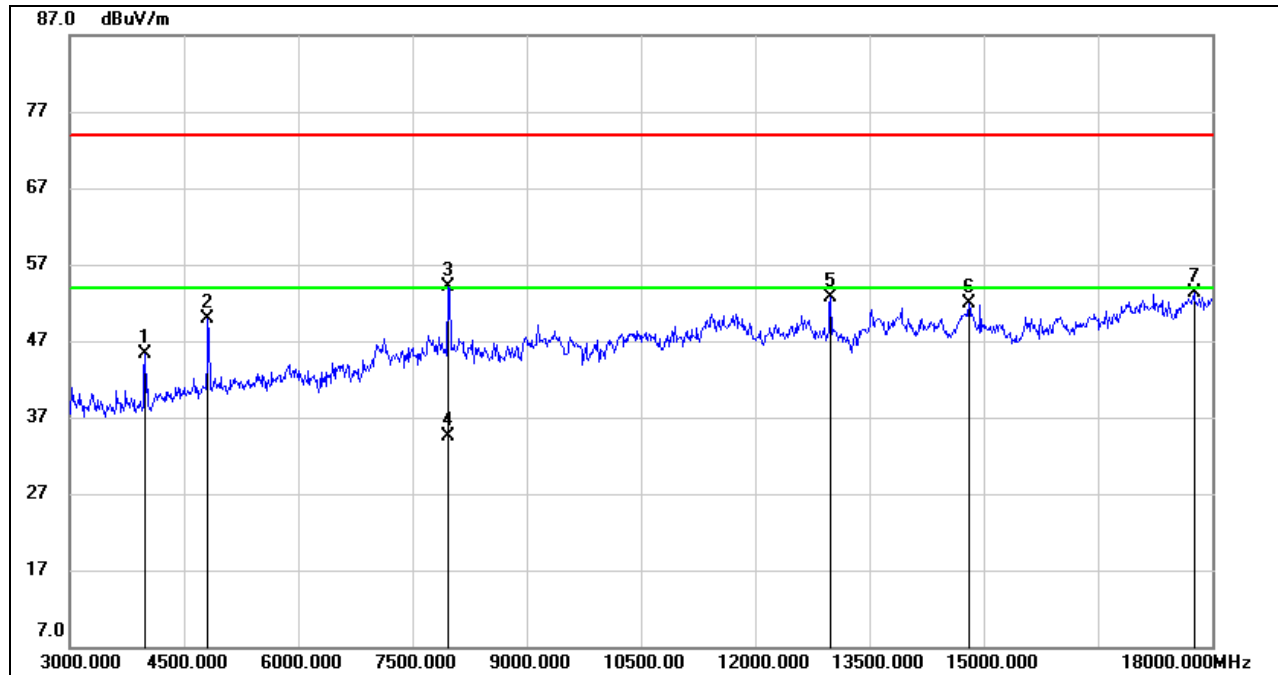
4. For the transmitting duration, please refer to clause 7.1.

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

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

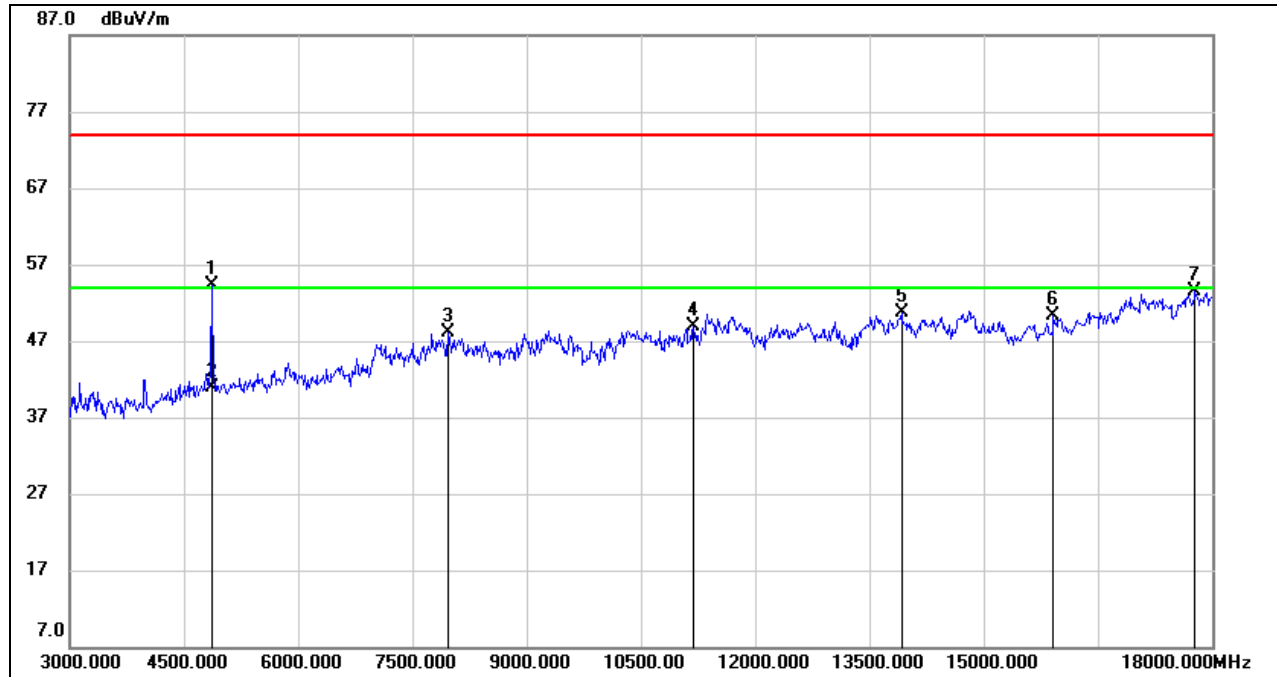


HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3990.000	47.81	-2.51	45.30	74.00	-28.70	peak
2	4815.000	48.55	1.38	49.93	74.00	-24.07	peak
3	7965.000	45.38	8.71	54.09	74.00	-19.91	peak
4	7965.000	25.85	8.71	34.56	54.00	-19.44	AVG
5	12990.000	36.74	16.05	52.79	74.00	-21.21	peak
6	14805.000	33.92	18.00	51.92	74.00	-22.08	peak
7	17760.000	29.45	23.82	53.27	74.00	-20.73	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
 4. For the transmitting duration, please refer to clause 7.1.
 5. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 6. 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	52.91	1.33	54.24	74.00	-19.76	peak
2	4860.000	39.67	1.33	41.00	54.00	-13.00	AVG
3	7965.000	39.30	8.71	48.01	74.00	-25.99	peak
4	11190.000	35.18	13.78	48.96	74.00	-25.04	peak
5	13920.000	33.09	17.55	50.64	74.00	-23.36	peak
6	15915.000	32.23	18.11	50.34	74.00	-23.66	peak
7	17775.000	29.66	23.91	53.57	74.00	-20.43	peak

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

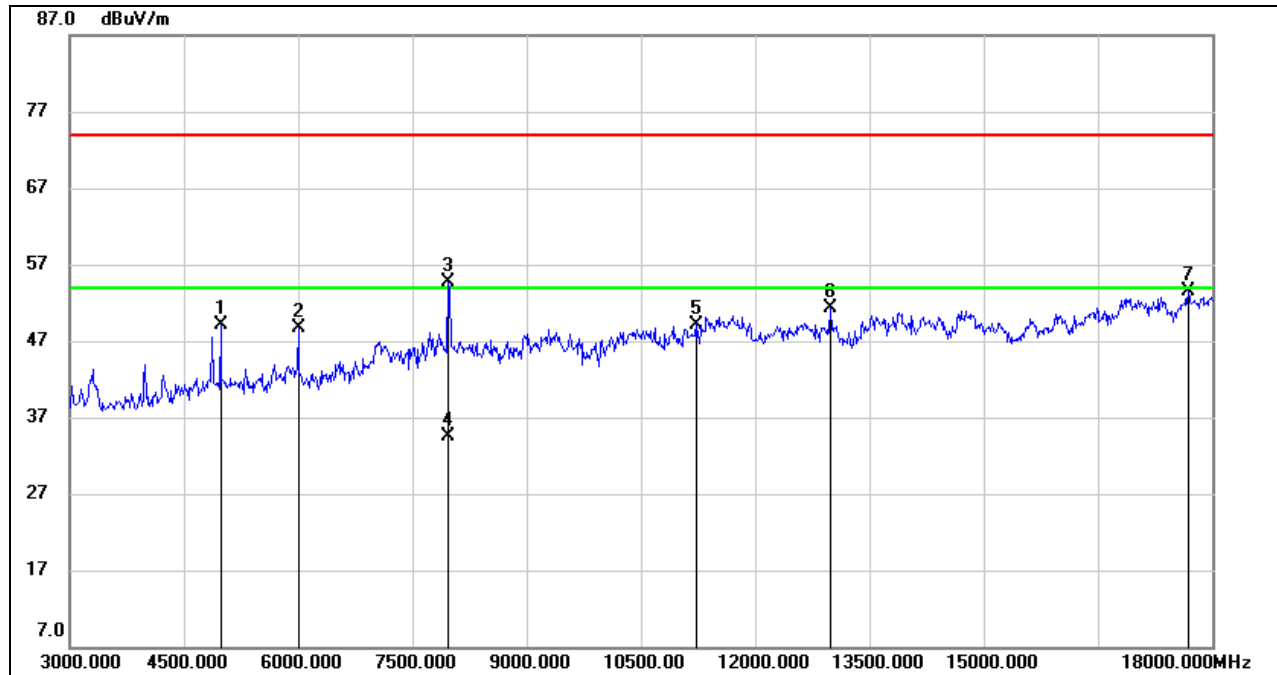
2. Peak: Peak detector.

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

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

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

6. 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	4980.000	47.18	1.98	49.16	74.00	-24.84	peak
2	6000.000	44.78	4.00	48.78	74.00	-25.22	peak
3	7965.000	46.04	8.71	54.75	74.00	-19.25	peak
4	7965.000	25.85	8.71	34.56	54.00	-19.44	AVG
5	11220.000	35.40	13.80	49.20	74.00	-24.80	peak
6	12990.000	35.30	16.05	51.35	74.00	-22.65	peak
7	17685.000	30.07	23.36	53.43	74.00	-20.57	peak

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

2. Peak: Peak detector.

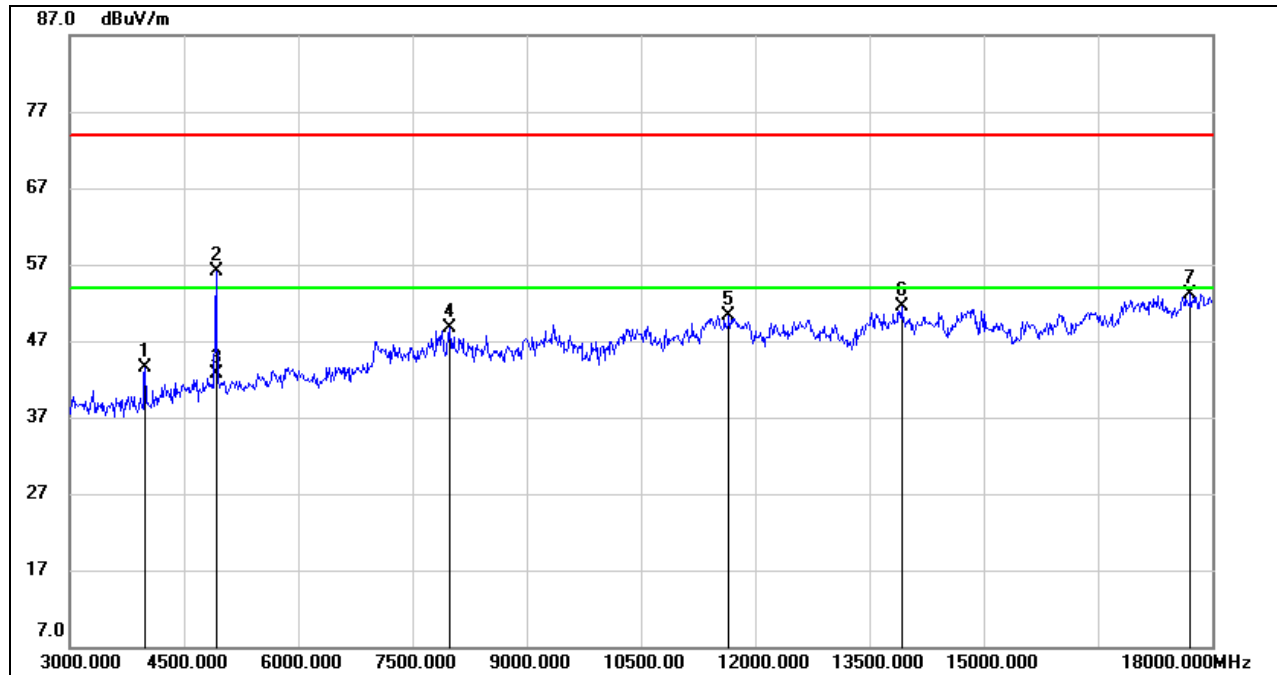
3. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.

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

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

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

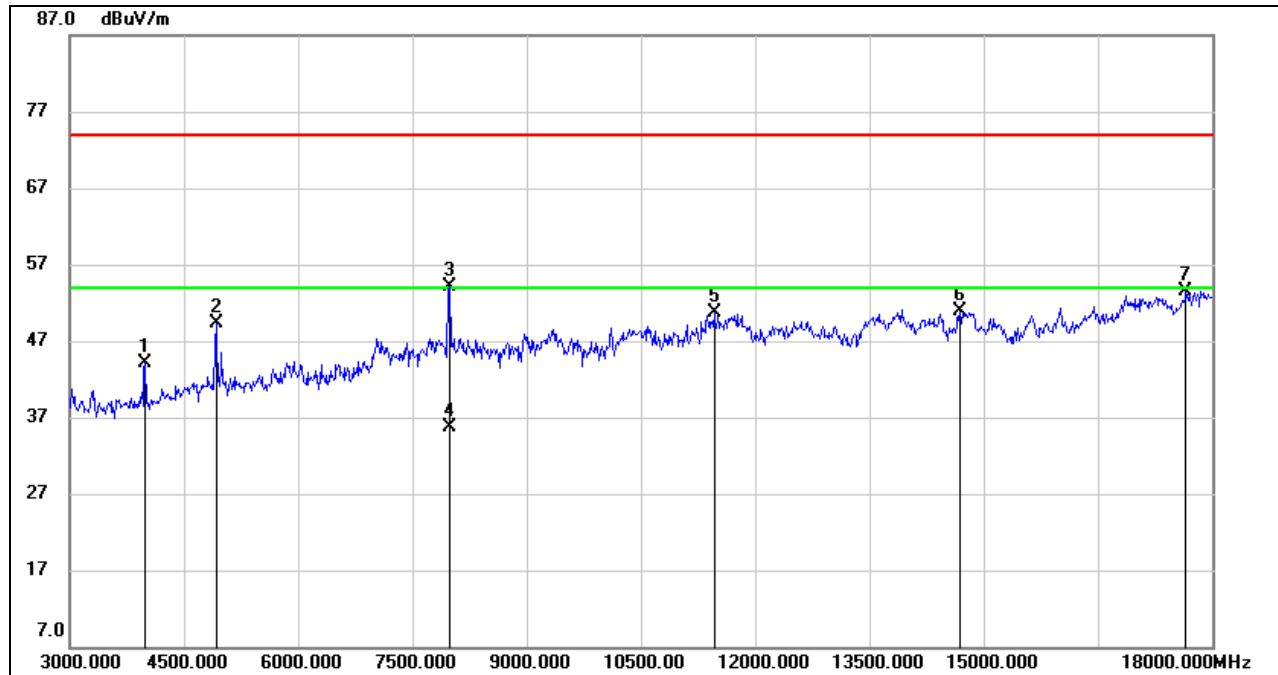
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3990.000	45.96	-2.51	43.45	74.00	-30.55	peak
2	4920.000	54.71	1.45	56.16	74.00	-17.84	peak
3	4920.000	41.18	1.45	42.63	54.00	-11.37	AVG
4	7995.000	40.02	8.65	48.67	74.00	-25.33	peak
5	11655.000	35.29	15.07	50.36	74.00	-23.64	peak
6	13920.000	33.95	17.55	51.50	74.00	-22.50	peak
7	17715.000	29.54	23.56	53.10	74.00	-20.90	peak

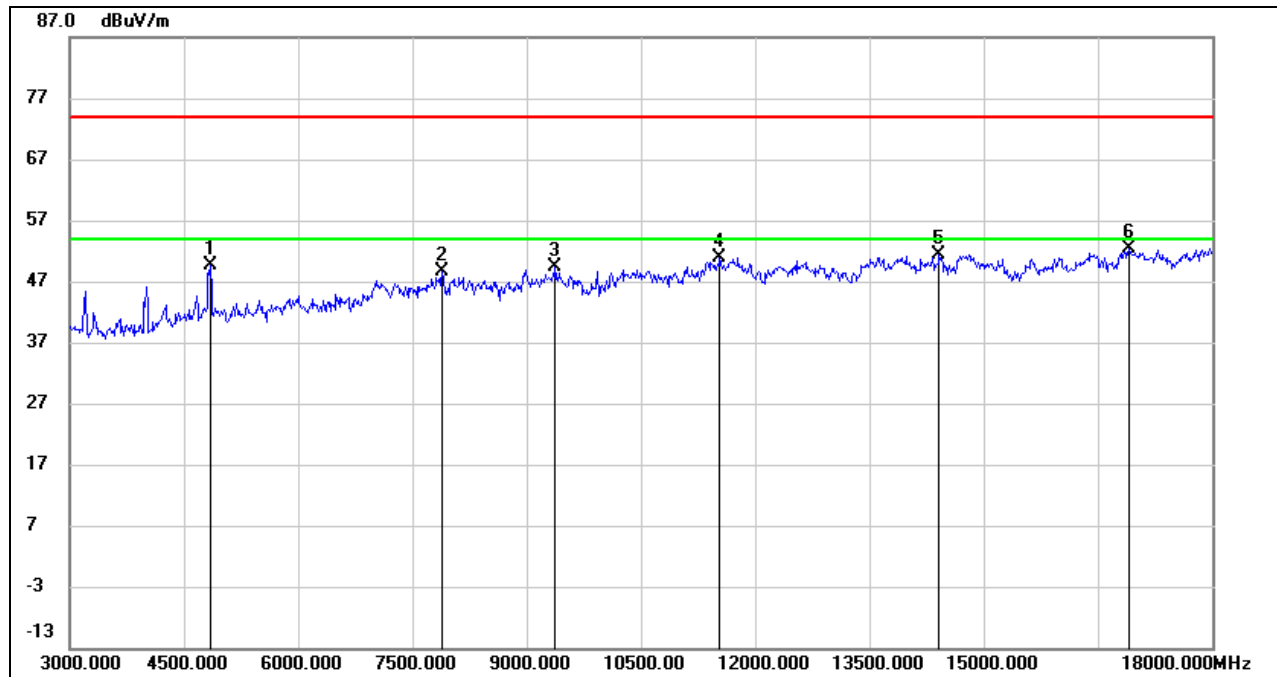
- Note: 1. Peak Result = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
 4. For the transmitting duration, please refer to clause 7.1.
 5. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 6. 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	3990.000	46.53	-2.51	44.02	74.00	-29.98	peak
2	4920.000	47.89	1.45	49.34	74.00	-24.66	peak
3	7995.000	45.36	8.65	54.01	74.00	-19.99	peak
4	7995.000	26.97	8.65	35.62	54.00	-18.38	AVG
5	11460.000	35.94	14.69	50.63	74.00	-23.37	peak
6	14685.000	33.20	17.64	50.84	74.00	-23.16	peak
7	17655.000	30.46	23.14	53.60	74.00	-20.40	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
 2. Peak: Peak detector.
 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. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 6. 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	48.16	1.35	49.51	74.00	-24.49	peak
2	7890.000	39.63	8.91	48.54	74.00	-25.46	peak
3	9375.000	38.62	10.83	49.45	74.00	-24.55	peak
4	11535.000	36.22	14.67	50.89	74.00	-23.11	peak
5	14415.000	33.98	17.36	51.34	74.00	-22.66	peak
6	16905.000	30.79	21.55	52.34	74.00	-21.66	peak

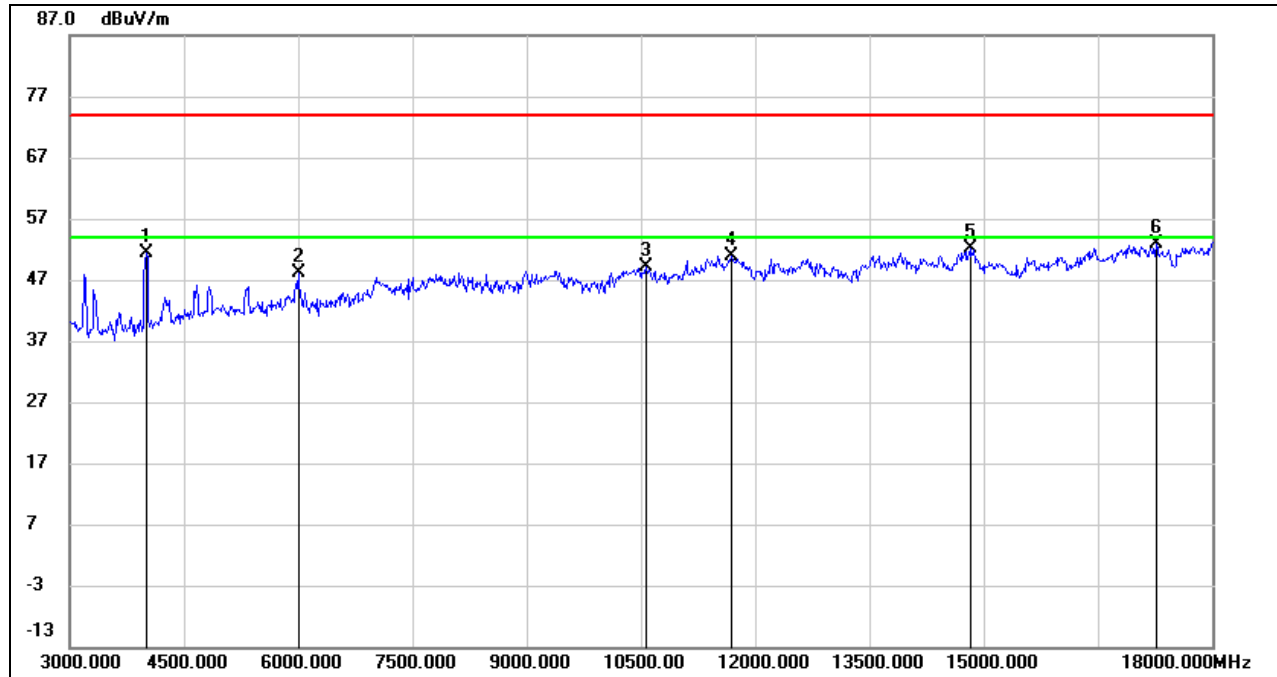
Note: 1. Peak Result = Reading Level + Correct Factor.

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	4005.000	53.87	-2.46	51.41	74.00	-22.59	peak
2	6000.000	44.08	4.00	48.08	74.00	-25.92	peak
3	10560.000	36.50	12.56	49.06	74.00	-24.94	peak
4	11685.000	35.67	15.26	50.93	74.00	-23.07	peak
5	14820.000	34.31	17.91	52.22	74.00	-21.78	peak
6	17265.000	30.42	22.39	52.81	74.00	-21.19	peak

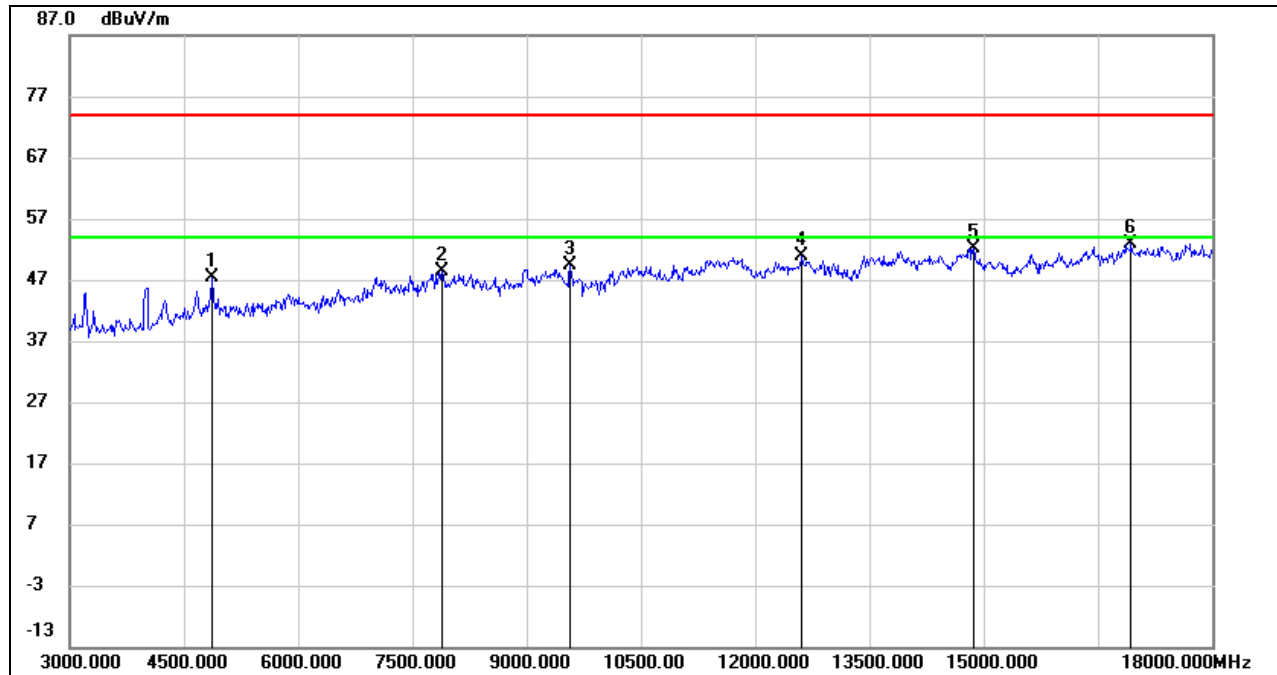
Note: 1. Peak Result = Reading Level + Correct Factor.

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	45.94	1.32	47.26	74.00	-26.74	peak
2	7890.000	39.54	8.91	48.45	74.00	-25.55	peak
3	9570.000	38.48	10.88	49.36	74.00	-24.64	peak
4	12615.000	35.15	15.75	50.90	74.00	-23.10	peak
5	14865.000	34.59	17.61	52.20	74.00	-21.80	peak
6	16935.000	31.46	21.45	52.91	74.00	-21.09	peak

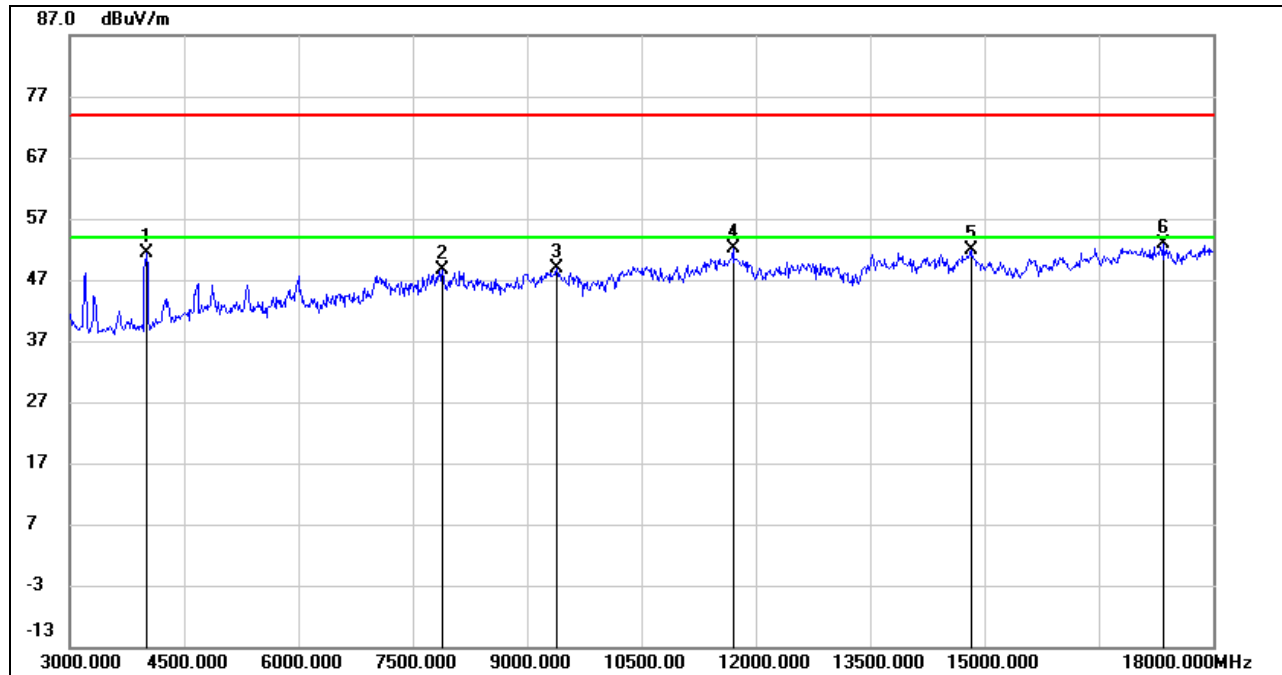
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

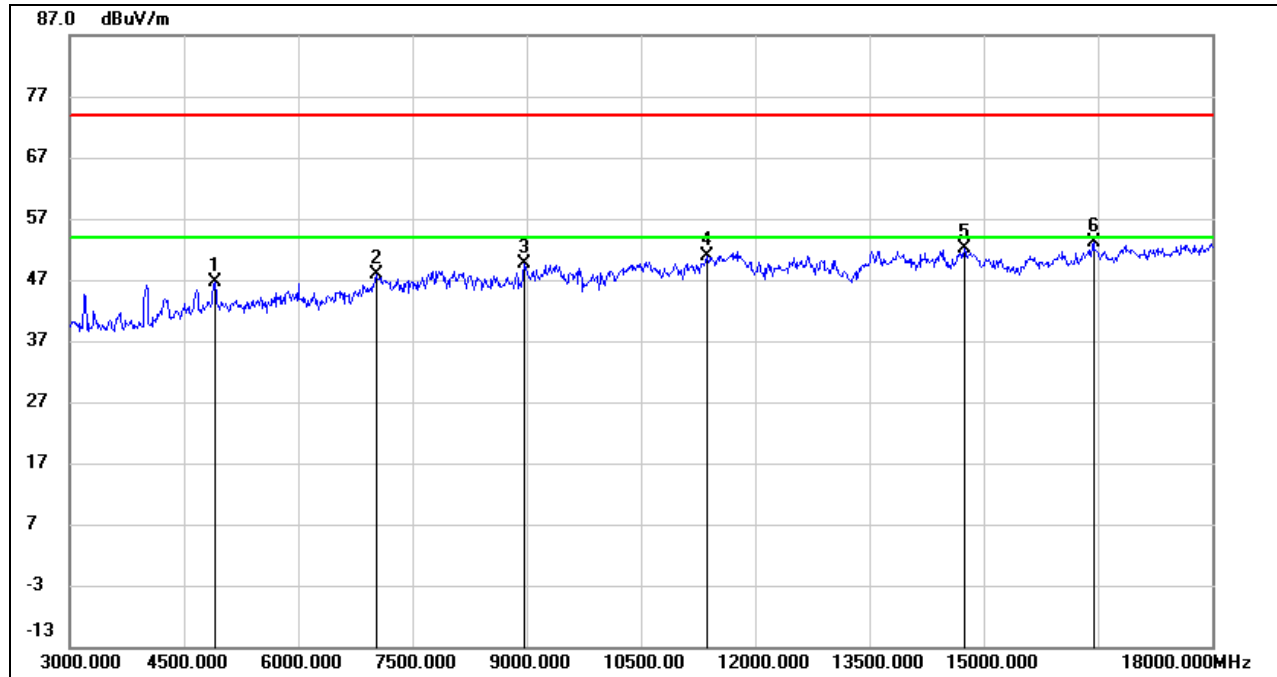
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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	4005.000	53.92	-2.46	51.46	74.00	-22.54	peak
2	7890.000	39.64	8.91	48.55	74.00	-25.45	peak
3	9390.000	38.00	10.92	48.92	74.00	-25.08	peak
4	11700.000	36.73	15.35	52.08	74.00	-21.92	peak
5	14820.000	33.85	17.91	51.76	74.00	-22.24	peak
6	17340.000	30.62	22.31	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 (HIGH CHANNEL, HORIZONTAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4905.000	45.24	1.33	46.57	74.00	-27.43	peak
2	7020.000	40.25	7.61	47.86	74.00	-26.14	peak
3	8970.000	38.91	10.70	49.61	74.00	-24.39	peak
4	11370.000	36.42	14.49	50.91	74.00	-23.09	peak
5	14745.000	34.39	17.84	52.23	74.00	-21.77	peak
6	16440.000	33.43	19.68	53.11	74.00	-20.89	peak

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

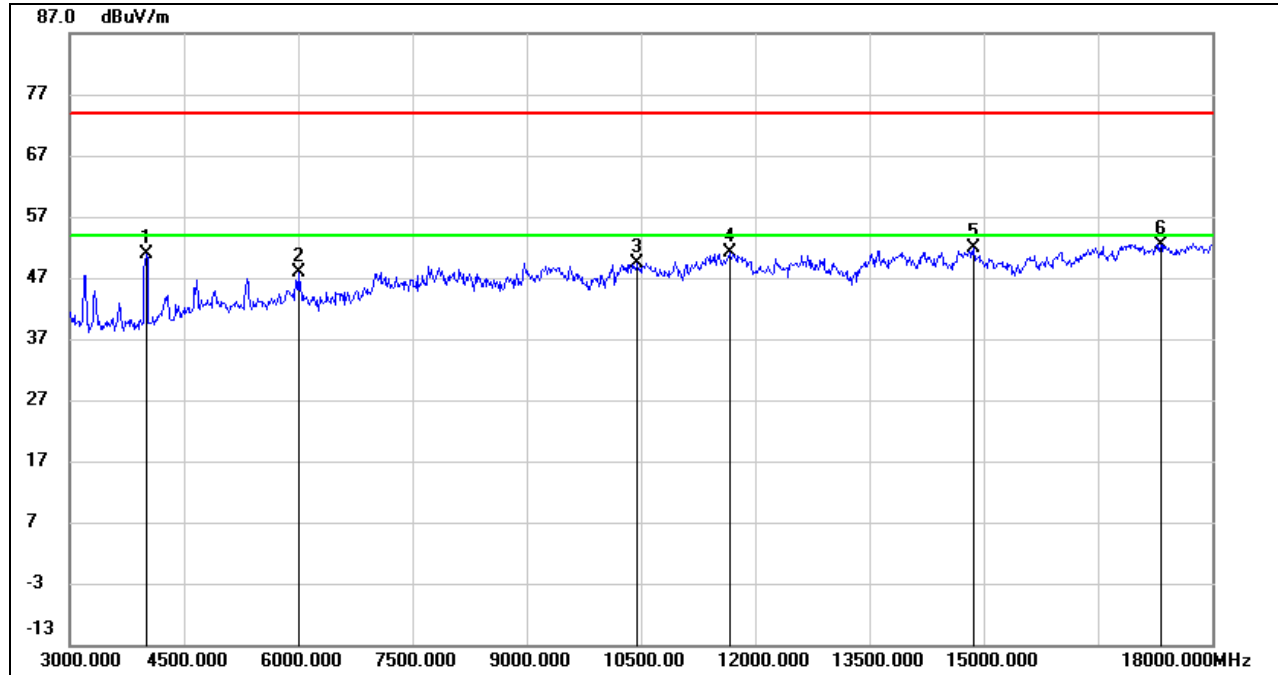
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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)



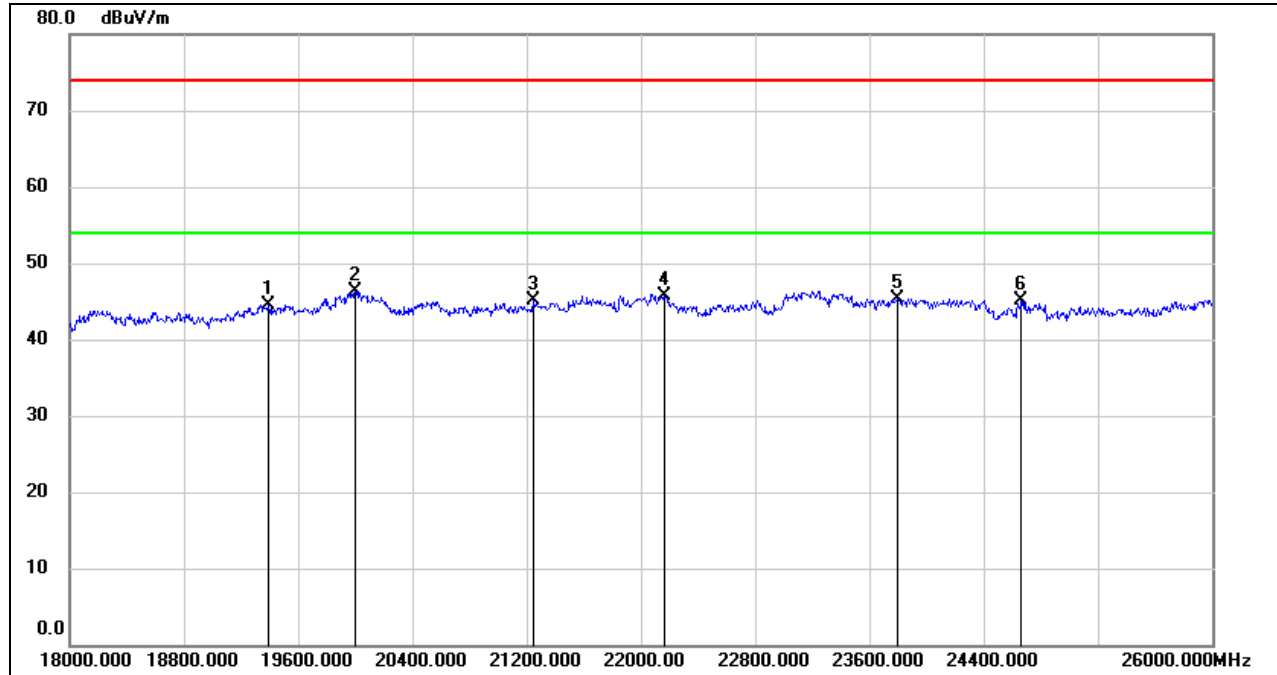
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4005.000	53.33	-2.46	50.87	74.00	-23.13	peak
2	6000.000	43.88	4.00	47.88	74.00	-26.12	peak
3	10455.000	37.11	12.31	49.42	74.00	-24.58	peak
4	11670.000	35.96	15.16	51.12	74.00	-22.88	peak
5	14865.000	34.30	17.61	51.91	74.00	-22.09	peak
6	17325.000	30.05	22.42	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. 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 HT20 MIMO MODE

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

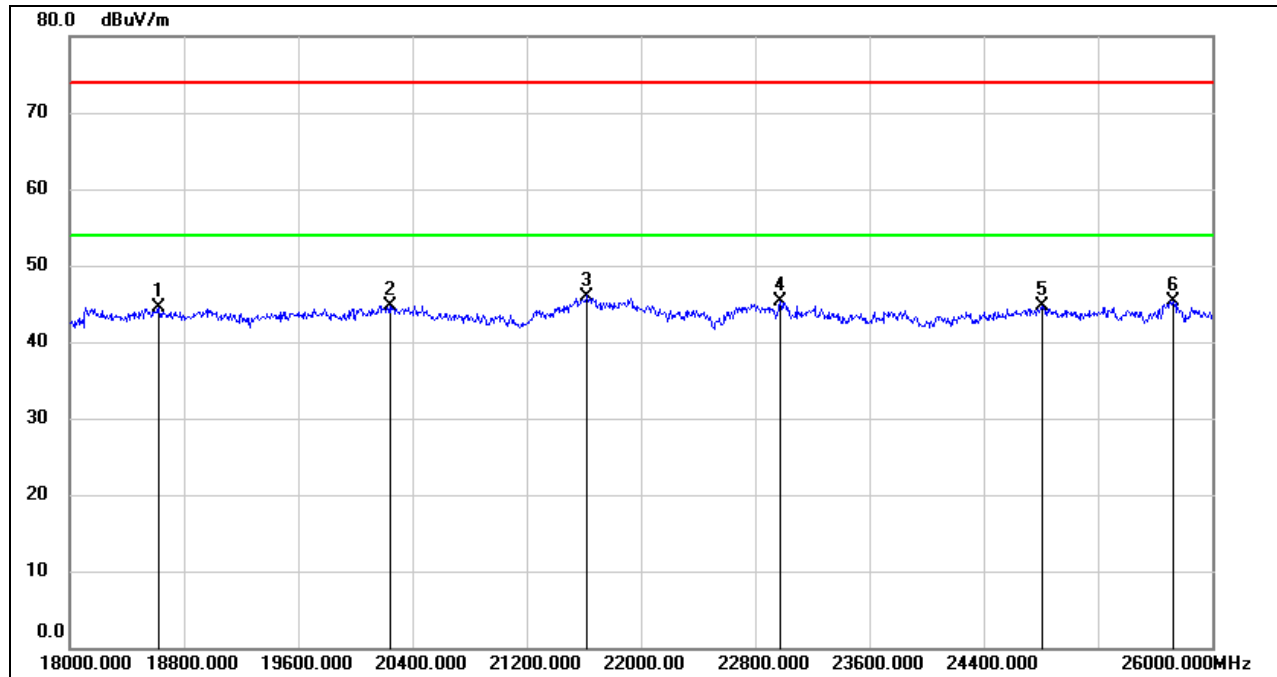


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19392.000	50.12	-5.57	44.55	74.00	-29.45	peak
2	20000.000	51.81	-5.45	46.36	74.00	-27.64	peak
3	21248.000	49.79	-4.77	45.02	74.00	-28.98	peak
4	22160.000	50.08	-4.31	45.77	74.00	-28.23	peak
5	23800.000	48.41	-3.11	45.30	74.00	-28.70	peak
6	24664.000	47.40	-2.33	45.07	74.00	-28.93	peak

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

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

3. Peak: Peak detector.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18624.000	49.83	-5.34	44.49	74.00	-29.51	peak
2	20240.000	50.32	-5.61	44.71	74.00	-29.29	peak
3	21624.000	50.51	-4.51	46.00	74.00	-28.00	peak
4	22976.000	48.76	-3.46	45.30	74.00	-28.70	peak
5	24808.000	46.93	-2.27	44.66	74.00	-29.34	peak
6	25728.000	46.11	-0.72	45.39	74.00	-28.61	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.

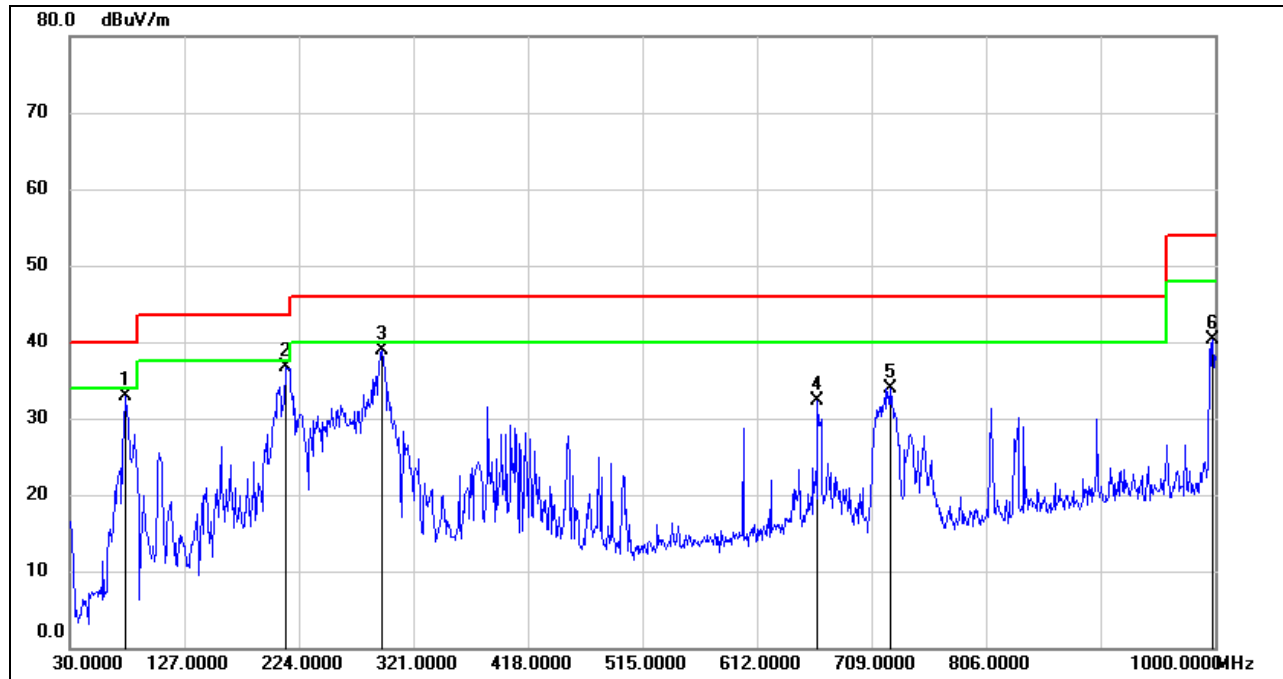
3. Peak: Peak detector.

Note: All the modes 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 HT20 MIMO MODE

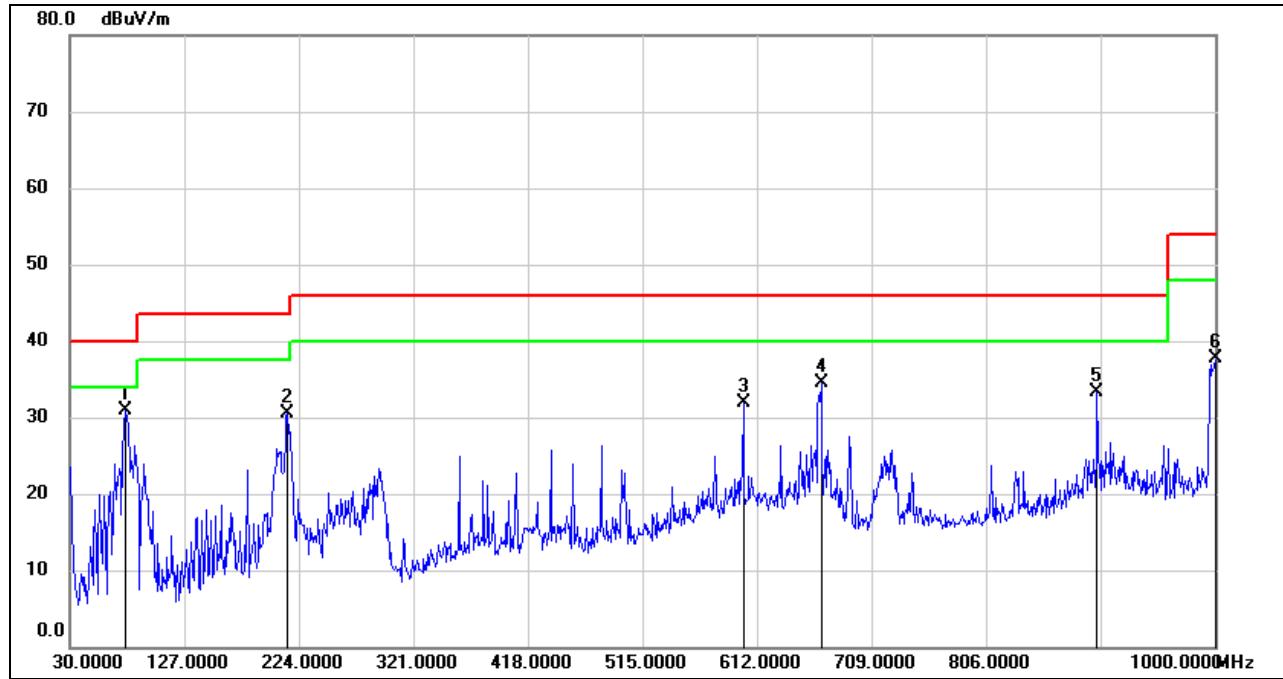
SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	54.01	-21.14	32.87	40.00	-7.13	QP
2	212.3600	54.17	-17.50	36.67	43.50	-6.83	QP
3	293.8400	54.67	-15.68	38.99	46.00	-7.01	QP
4	663.4099	40.96	-8.66	32.30	46.00	-13.70	QP
5	724.5200	42.07	-8.09	33.98	46.00	-12.02	QP
6	998.0600	44.56	-4.18	40.38	54.00	-13.62	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 (LOW CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	52.09	-21.14	30.95	40.00	-9.05	QP
2	214.3000	48.16	-17.66	30.50	43.50	-13.00	QP
3	600.3600	41.51	-9.54	31.97	46.00	-14.03	QP
4	666.3200	43.22	-8.65	34.57	46.00	-11.43	QP
5	900.0900	38.49	-5.21	33.28	46.00	-12.72	QP
6	1000.0000	41.84	-4.15	37.69	54.00	-16.31	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

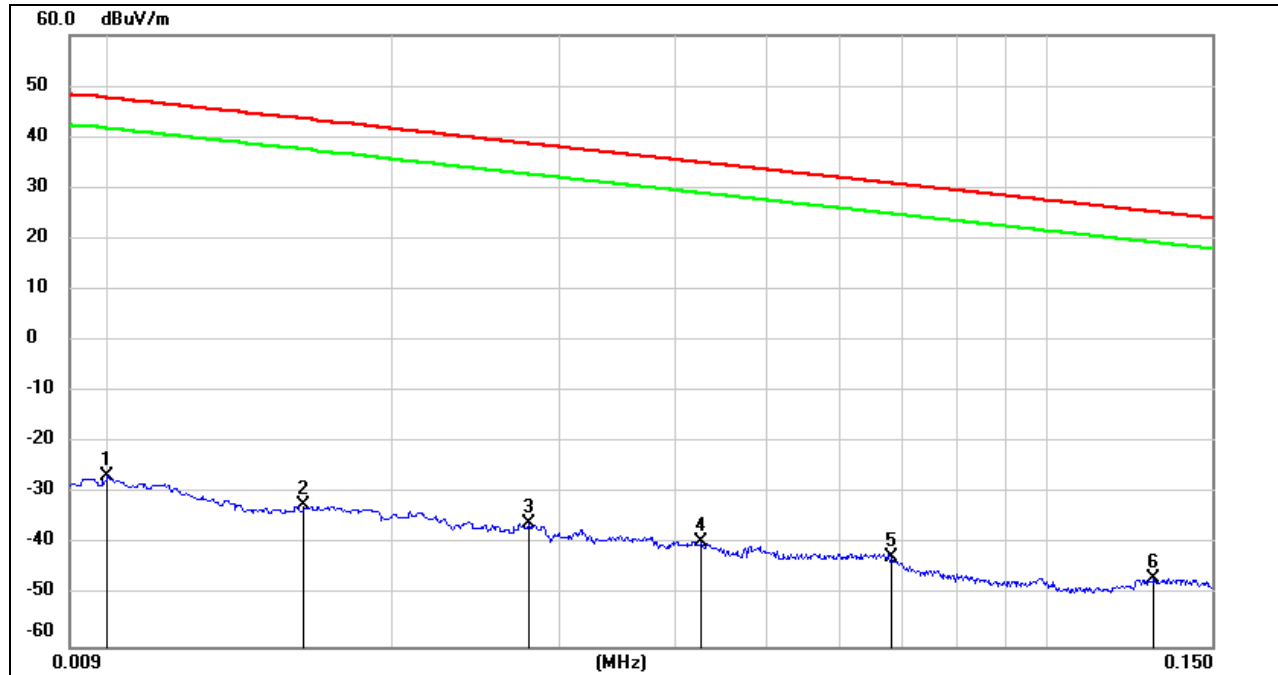
Note: All the modes and channels had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11n HT20 MIMO MODE

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

9 kHz~ 150 kHz



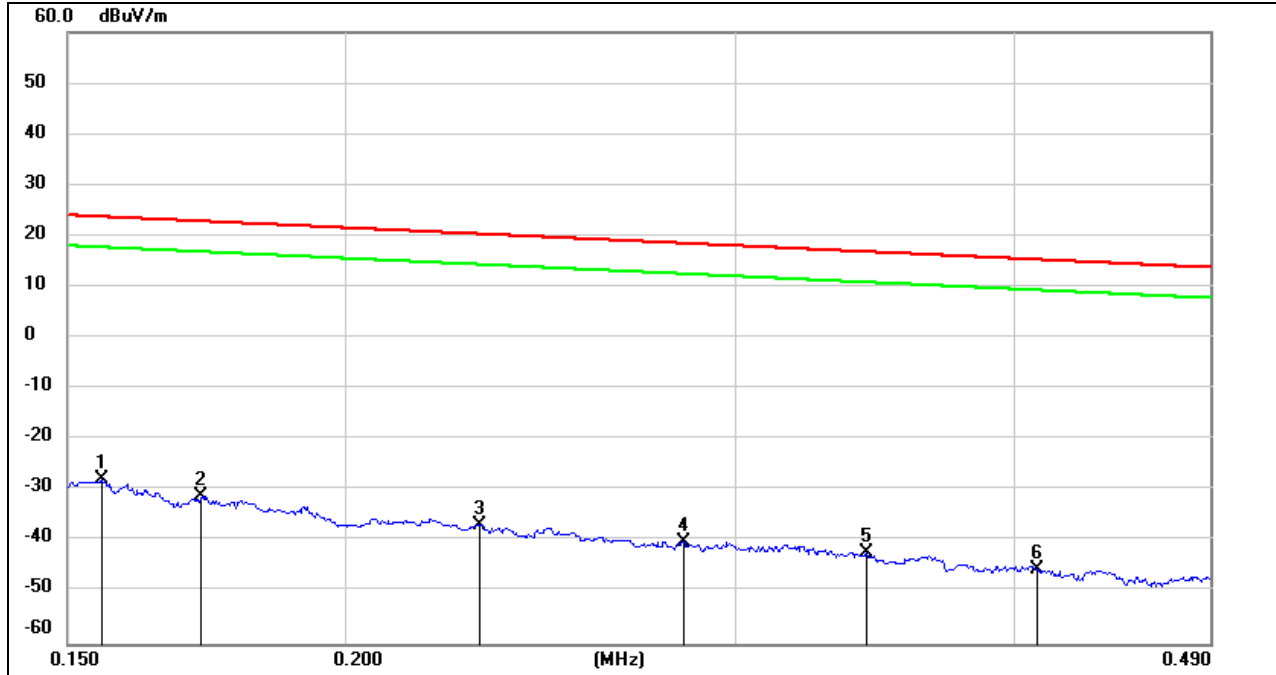
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.0100	74.72	-101.40	-26.68	47.6	-78.18	-3.90	-74.28	peak
2	0.0160	68.97	-101.37	-32.4	43.52	-83.90	-7.98	-75.92	peak
3	0.0279	65.67	-101.38	-35.71	38.69	-87.21	-12.81	-74.40	peak
4	0.0427	62.14	-101.45	-39.31	34.99	-90.81	-16.51	-74.30	peak
5	0.0680	59.04	-101.56	-42.52	30.95	-94.02	-20.55	-73.47	peak
6	0.1300	54.93	-101.70	-46.77	25.33	-98.27	-26.17	-72.10	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

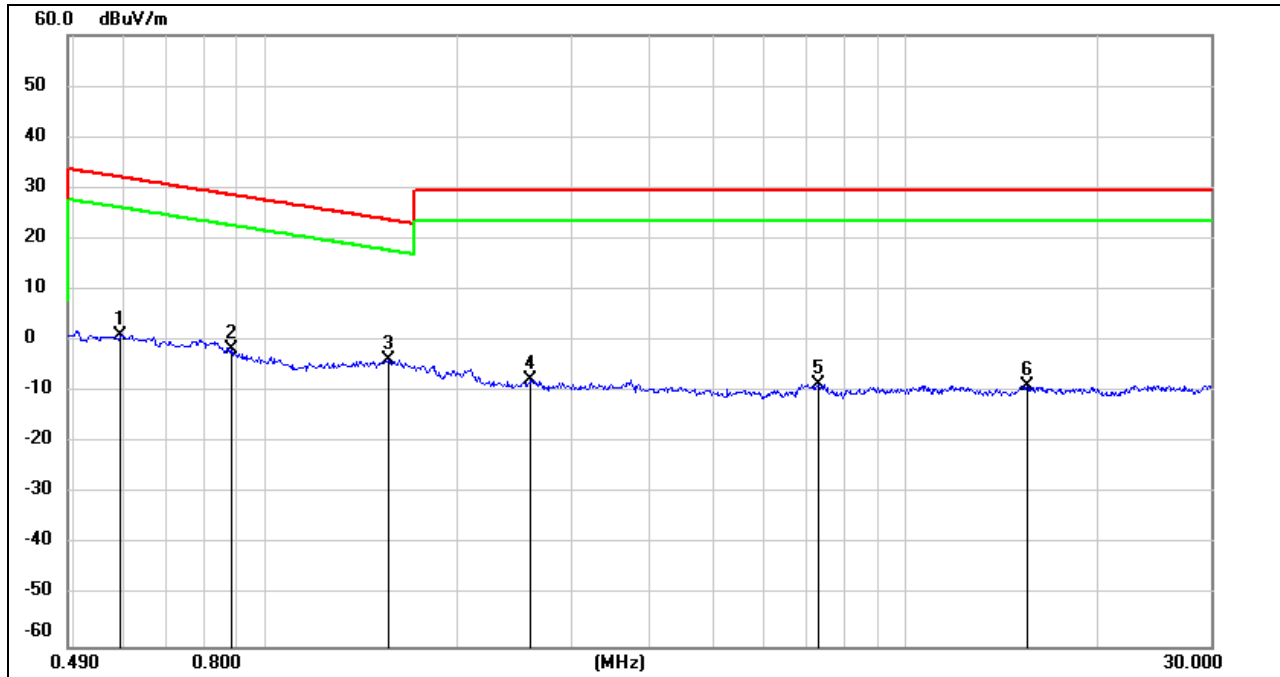


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1554	73.77	-101.65	-27.88	23.77	-79.38	-27.73	-51.65	peak
2	0.1723	70.50	-101.67	-31.17	22.88	-82.67	-28.62	-54.05	peak
3	0.2298	65.05	-101.77	-36.72	20.37	-88.22	-31.13	-57.09	peak
4	0.2837	61.72	-101.83	-40.11	18.54	-91.61	-32.96	-58.65	peak
5	0.3431	59.67	-101.90	-42.23	16.89	-93.73	-34.61	-59.12	peak
6	0.4097	56.52	-101.97	-45.45	15.35	-96.95	-36.15	-60.80	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	0.8820	60.68	-62.19	-1.51	28.69	-53.01	-22.81	-30.20	peak
3	1.5564	58.18	-62.02	-3.84	23.76	-55.34	-27.74	-27.60	peak
4	2.5935	54.11	-61.68	-7.57	29.54	-59.07	-21.96	-37.11	peak
5	7.3361	52.58	-61.17	-8.59	29.54	-60.09	-21.96	-38.13	peak
6	15.4809	52.20	-61.00	-8.8	29.54	-60.30	-21.96	-38.34	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 and channels had been tested, but only the worst data was recorded in the report.

9. AC POWER LINE CONDUCTED EMISSIONS

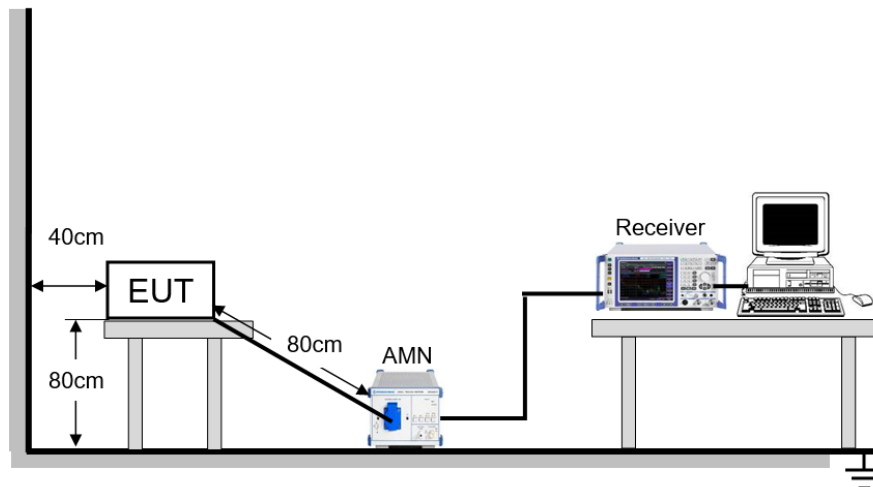
LIMITS

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.

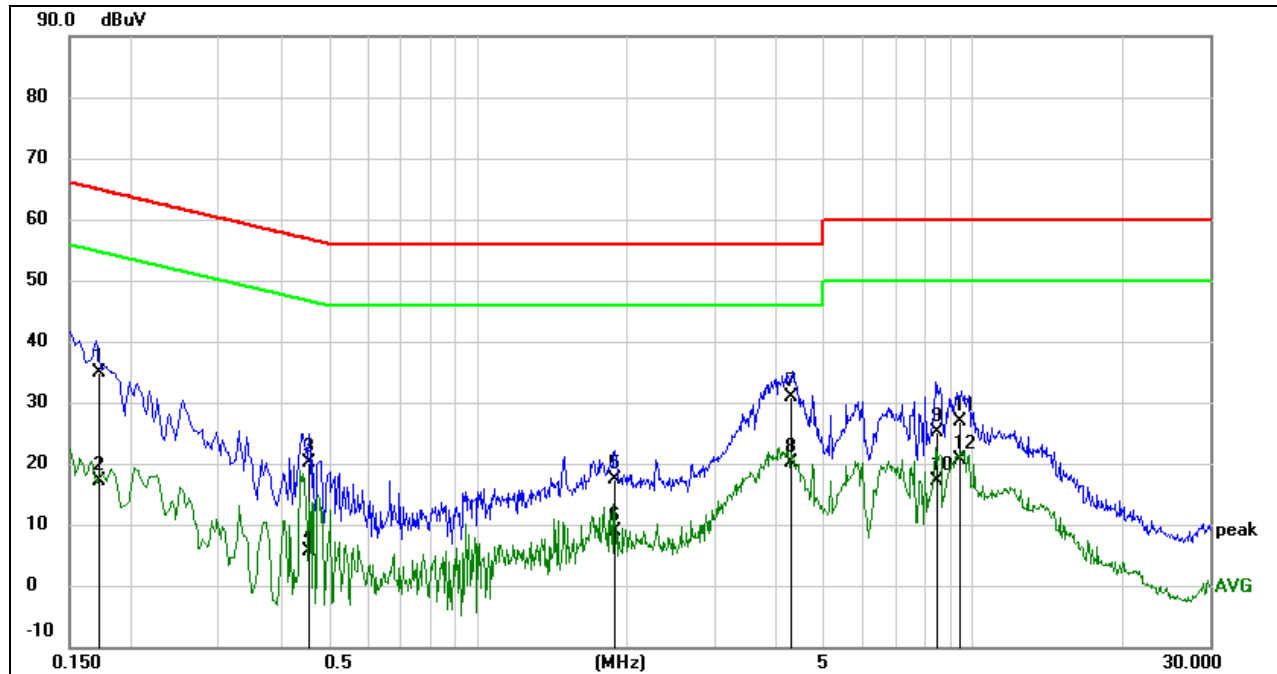


The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver 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	18.6 °C	Relative Humidity	41 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

RESULTS
9.1. 802.11n HT20 MIMO MODE
LINE N RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)


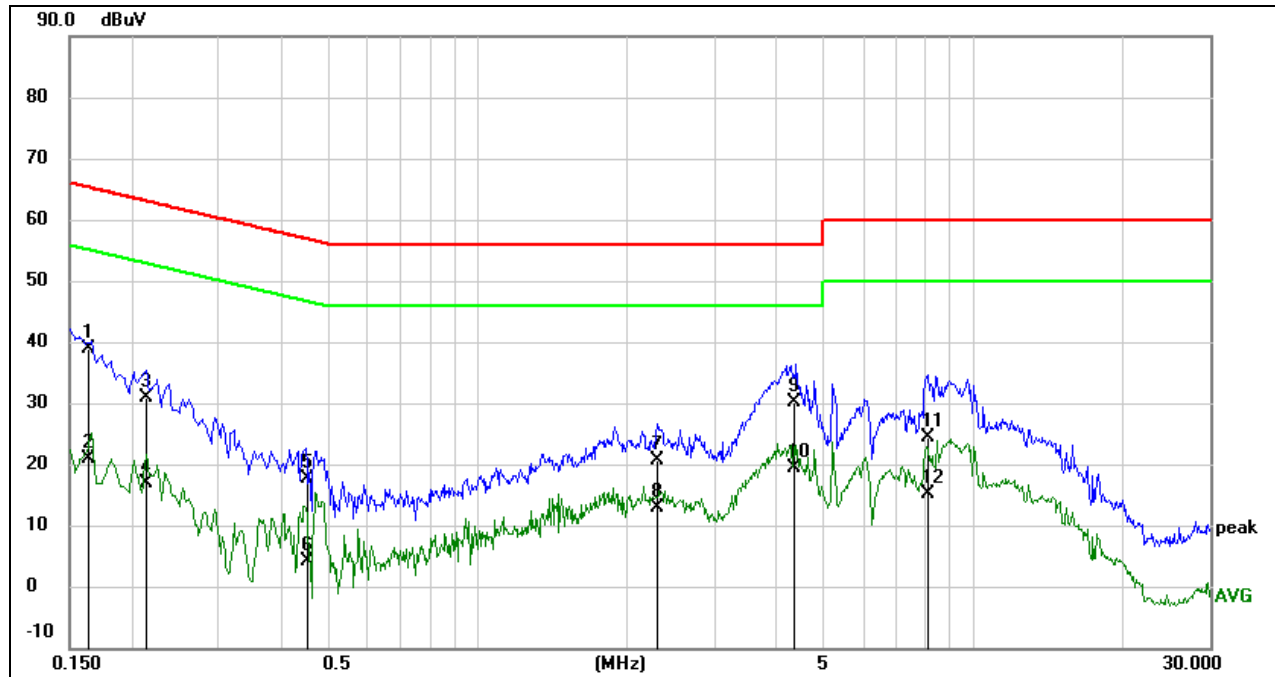
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1728	34.96	-0.01	34.95	64.82	-29.87	QP
2	0.1728	17.08	-0.01	17.07	54.82	-37.75	AVG
3	0.4548	20.17	0.00	20.17	56.79	-36.62	QP
4	0.4548	5.68	0.00	5.68	46.79	-41.11	AVG
5	1.8935	17.38	0.02	17.40	56.00	-38.60	QP
6	1.8935	8.87	0.02	8.89	46.00	-37.11	AVG
7	4.2752	30.84	0.00	30.84	56.00	-25.16	QP
8	4.2752	20.15	0.00	20.15	46.00	-25.85	AVG
9	8.4257	25.17	0.01	25.18	60.00	-34.82	QP
10	8.4257	17.08	0.01	17.09	50.00	-32.91	AVG
11	9.3883	26.98	0.02	27.00	60.00	-33.00	QP
12	9.3883	20.68	0.02	20.70	50.00	-29.30	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 (LOW CHANNEL, WORST-CASE CONFIGURATION)


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1626	38.80	-0.01	38.79	65.33	-26.54	QP
2	0.1626	20.95	-0.01	20.94	55.33	-34.39	AVG
3	0.2128	30.86	-0.01	30.85	63.10	-32.25	QP
4	0.2128	16.79	-0.01	16.78	53.10	-36.32	AVG
5	0.4530	17.52	0.00	17.52	56.82	-39.30	QP
6	0.4530	4.21	0.00	4.21	46.82	-42.61	AVG
7	2.2989	20.58	0.03	20.61	56.00	-35.39	QP
8	2.2989	12.83	0.03	12.86	46.00	-33.14	AVG
9	4.3372	30.19	0.00	30.19	56.00	-25.81	QP
10	4.3372	19.35	0.00	19.35	46.00	-26.65	AVG
11	8.1809	24.25	0.01	24.26	60.00	-35.74	QP
12	8.1809	15.00	0.01	15.01	50.00	-34.99	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

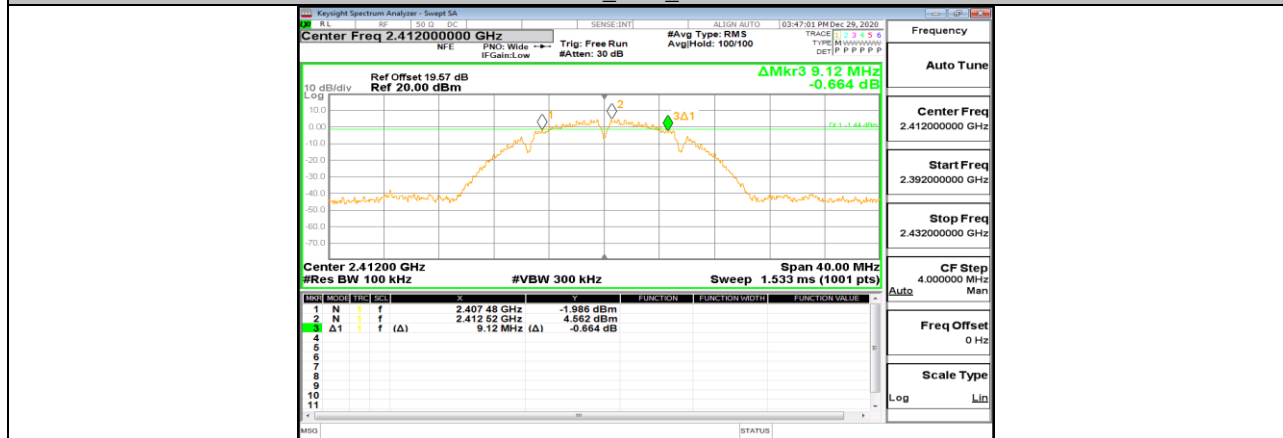
Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.120	2407.480	2416.600	0.5	PASS
	Ant2	2412	9.120	2407.480	2416.600	0.5	PASS
	Ant1	2437	9.080	2432.480	2441.560	0.5	PASS
	Ant2	2437	9.120	2432.440	2441.560	0.5	PASS
	Ant1	2462	8.200	2457.920	2466.120	0.5	PASS
	Ant2	2462	8.680	2457.920	2466.600	0.5	PASS
11G	Ant1	2412	15.200	2404.440	2419.640	0.5	PASS
	Ant2	2412	15.160	2404.440	2419.600	0.5	PASS
	Ant1	2437	15.040	2429.520	2444.560	0.5	PASS
	Ant2	2437	15.240	2429.400	2444.640	0.5	PASS
	Ant1	2462	15.400	2454.240	2469.640	0.5	PASS
	Ant2	2462	15.200	2454.440	2469.640	0.5	PASS
11N20MIMO	Ant1	2412	15.120	2404.440	2419.560	0.5	PASS
	Ant2	2412	15.120	2404.480	2419.600	0.5	PASS
	Ant1	2437	15.160	2429.400	2444.560	0.5	PASS
	Ant2	2437	15.200	2429.400	2444.600	0.5	PASS
	Ant1	2462	15.160	2454.440	2469.600	0.5	PASS
	Ant2	2462	16.200	2453.600	2469.800	0.5	PASS
11N40MIMO	Ant1	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant2	2422	35.280	2404.400	2439.680	0.5	PASS
	Ant1	2437	35.280	2419.400	2454.680	0.5	PASS
	Ant2	2437	35.280	2419.400	2454.680	0.5	PASS
	Ant1	2452	35.200	2434.400	2469.600	0.5	PASS
	Ant2	2452	35.280	2434.400	2469.680	0.5	PASS



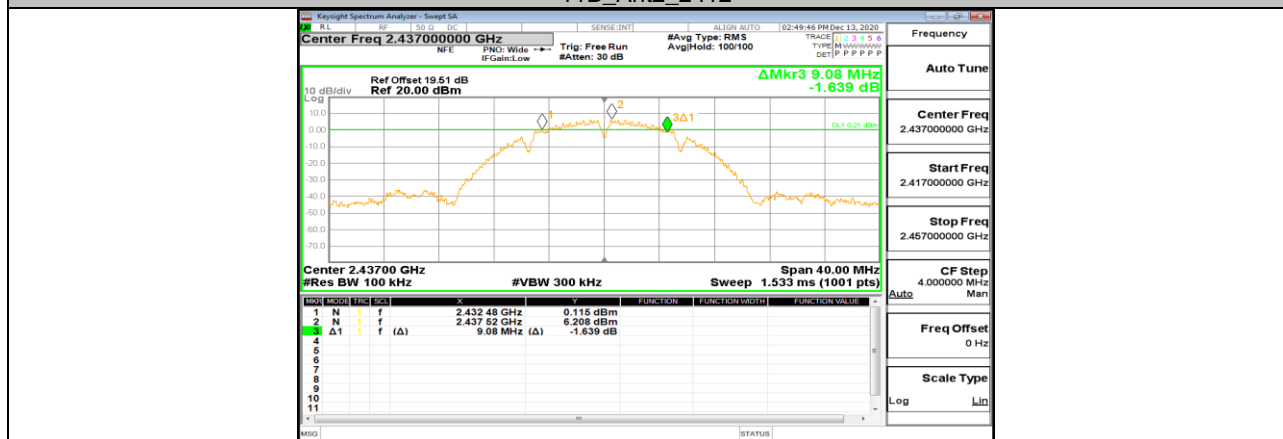
11.1.2. Test Graphs



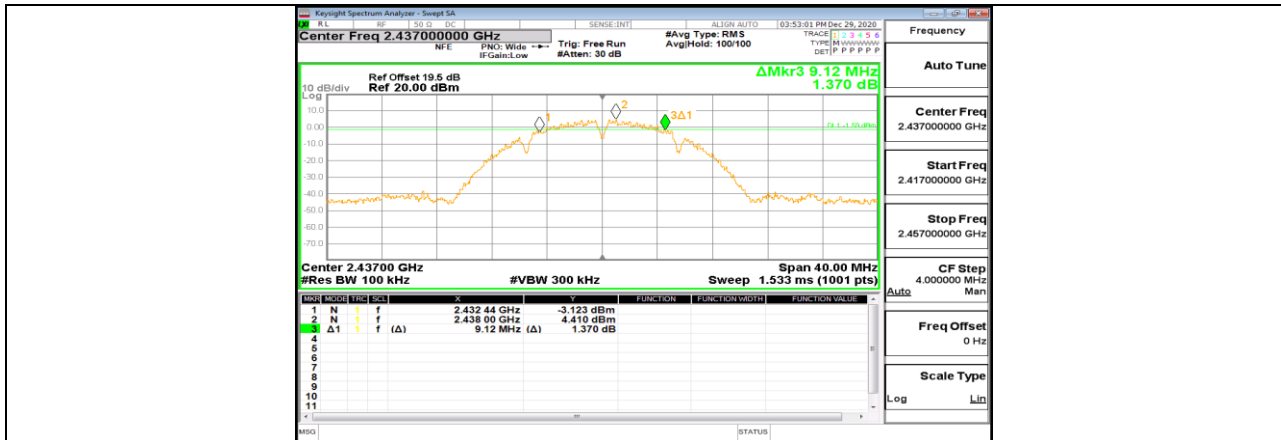
11B_Ant1_2412



11B_Ant2_2412



11B_Ant1_2437



11B_Ant2_2437



11B_Ant1_2462



11B_Ant2_2462



11G_Ant1_2412



11G_Ant2_2412



11G_Ant1_2437



11G_Ant2_2437



11G_Ant1_2462



11G_Ant2_2462



11N20MIMO_Ant1_2412



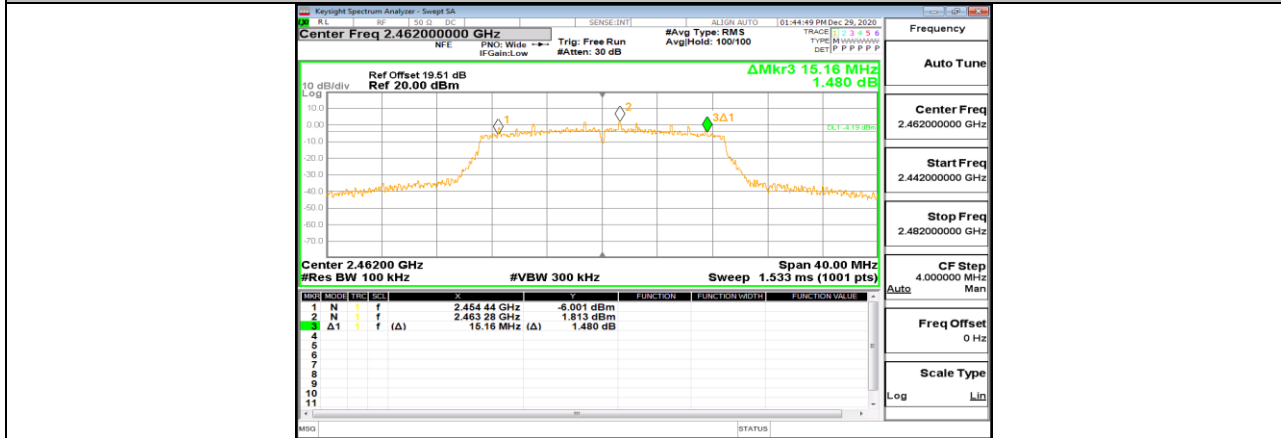
11N20MIMO_Ant2_2412



11N20MIMO_Ant1_2437



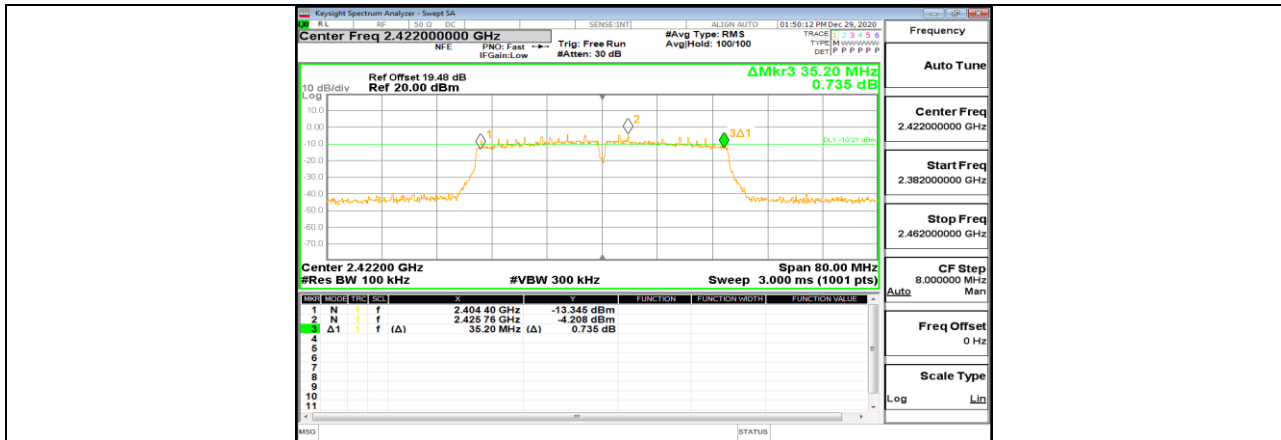
11N20MIMO_Ant2_2437



11N20MIMO_Ant1_2462



11N20MIMO_Ant2_2462



11N40MIMO_Ant1_2422



11N40MIMO_Ant2_2422



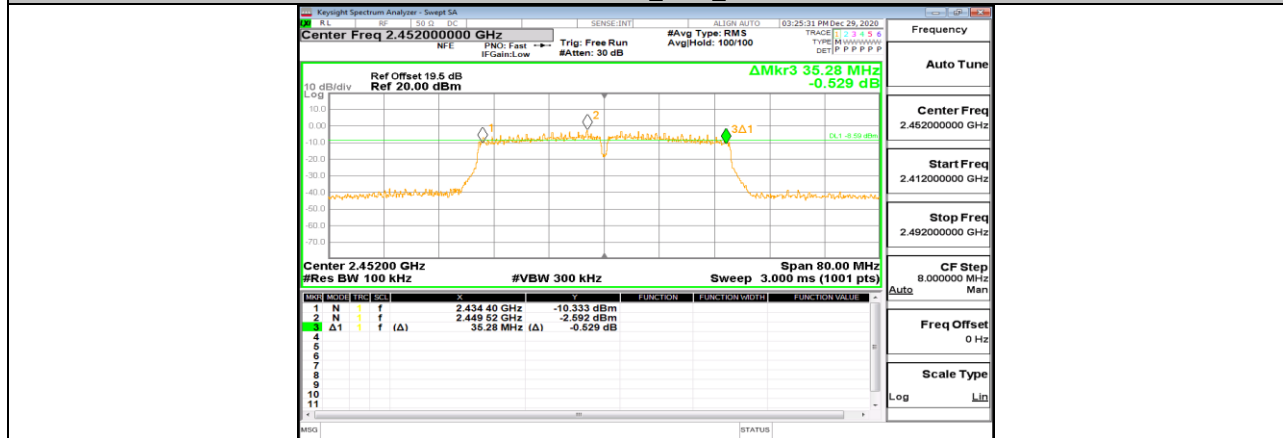
11N40MIMO_Ant1_2437



11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452

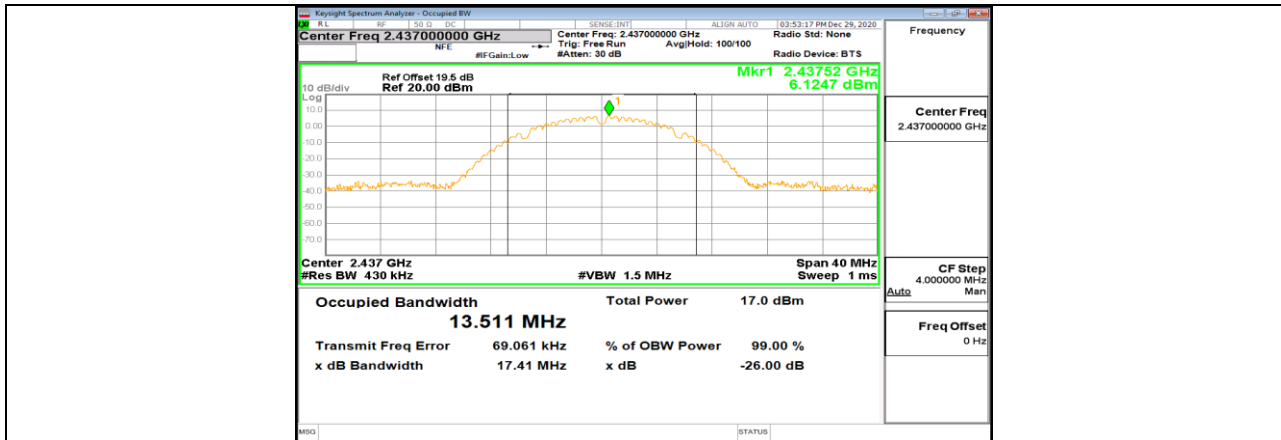
**11.2. Appendix B: Occupied Channel Bandwidth****11.2.1. Test Result**

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant1	2412	13.604	2405.203	2418.807	PASS
	Ant2	2412	13.489	2405.315	2418.804	PASS
	Ant1	2437	13.757	2430.150	2443.907	PASS
	Ant2	2437	13.511	2430.314	2443.825	PASS
	Ant1	2462	13.757	2455.122	2468.879	PASS
	Ant2	2462	13.519	2455.267	2468.786	PASS
11G	Ant1	2412	16.800	2403.589	2420.389	PASS
	Ant2	2412	16.897	2403.559	2420.456	PASS
	Ant1	2437	16.829	2428.598	2445.427	PASS
	Ant2	2437	16.835	2428.560	2445.395	PASS
	Ant1	2462	16.831	2453.605	2470.436	PASS
	Ant2	2462	16.846	2453.606	2470.452	PASS
11N20MIMO	Ant1	2412	17.808	2403.105	2420.913	PASS
	Ant2	2412	17.598	2403.231	2420.829	PASS
	Ant1	2437	17.867	2428.102	2445.969	PASS
	Ant2	2437	17.609	2428.229	2445.838	PASS
	Ant1	2462	17.879	2453.062	2470.941	PASS
	Ant2	2462	17.674	2453.186	2470.860	PASS
11N40MIMO	Ant1	2422	36.183	2403.989	2440.172	PASS
	Ant2	2422	36.215	2403.955	2440.170	PASS
	Ant1	2437	36.198	2418.987	2455.185	PASS
	Ant2	2437	36.294	2418.922	2455.216	PASS
	Ant1	2452	36.211	2433.964	2470.175	PASS
	Ant2	2452	36.249	2433.977	2470.226	PASS

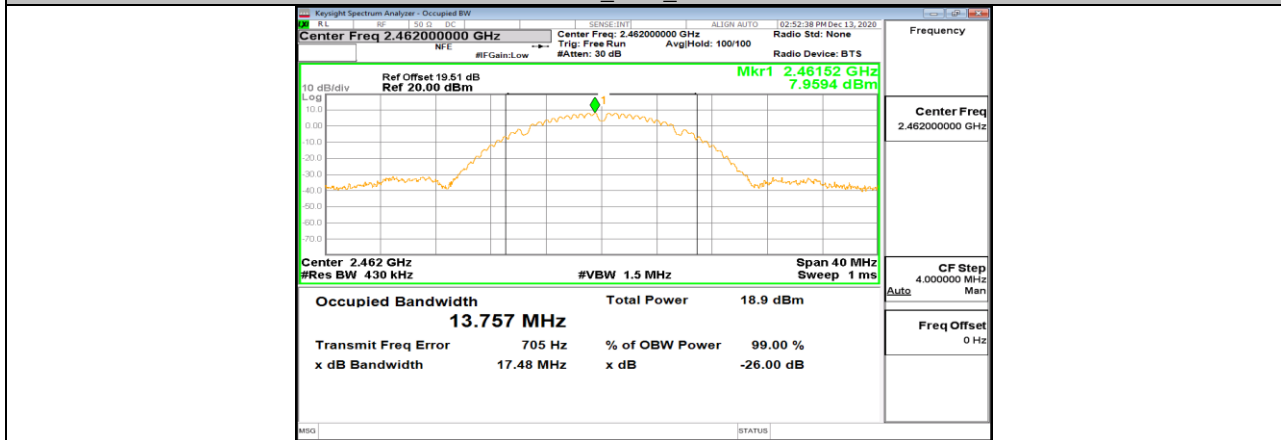


11.2.2. Test Graphs

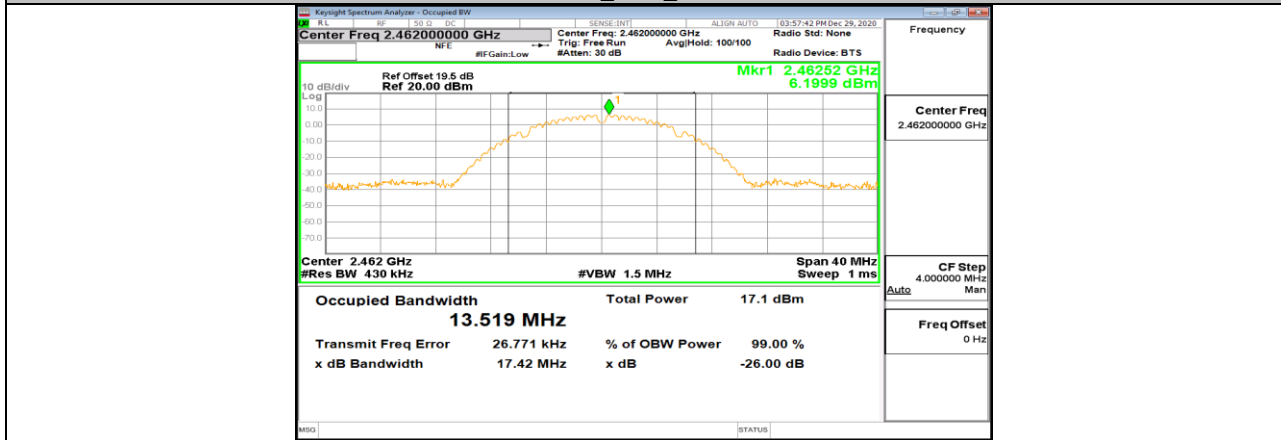




11B_Ant2_2437



11B_Ant1_2462



11B_Ant2_2462