



## **CFR 47 FCC PART 15 SUBPART C**

### **CERTIFICATION TEST REPORT**

*For*

**WIFI+BT Module**

**MODEL NUMBER: DCT2EM2101**

**FCC ID: 2AC23-DCT2E**

**REPORT NUMBER: 4790071769.2-3**

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*Prepared for*

**Hui Zhou Gaoshengda Technology Co.,LTD  
No.2,Jin-da Road,Huinan High-tech Industrial Park,Hui-ao Avenue,Huizhou  
City,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](http://www.ul.com)**

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	09/01/2021	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test for AC Power Port	FCC Part 15.207	Pass
7	Antenna Requirement	FCC Part 15.203	Pass
<p>Note:</p> <p>1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.</p> <p>2. The measurement result for the sample received is &lt;Pass&gt; according to &lt; CFR 47 FCC PART 15 SUBPART C &gt; when &lt;Accuracy Method&gt; decision rule is applied.</p>			

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Hui Zhou Gaoshengda Technology Co.,LTD  
Address: No.2,Jin-da Road,Huinan High-tech Industrial Park,Hui-ao Avenue,Huizhou City,Guangdong,China

### Manufacturer Information

Company Name: Hui Zhou Gaoshengda Technology Co.,LTD  
Address: No.2,Jin-da Road,Huinan High-tech Industrial Park,Hui-ao Avenue,Huizhou City,Guangdong,China

### EUT Information

EUT Name: WIFI+BT Module  
Model: DCT2EM2101  
Brand: GSD  
Sample Received Date: August 19, 2021  
Sample Status: Normal  
Sample ID: 4158685  
Date of Tested: August 20, 2021 ~ August 31, 2021

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C	PASS

Tested By:

Mick 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.

## 3. FACILITIES AND ACCREDITATION

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

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

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



## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

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

### 4.2. MEASUREMENT UNCERTAINTY

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

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



## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT Name	WIFI+BT Module
Model Name	DCT2EM2101
Radio Technology	IEEE802.11b/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)
Power Supply	DC 5 V

### 5.2. CHANNEL LIST

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

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

### 5.3. MAXIMUM OUTPUT POWER

IEEE Std. 802.11	Frequency (MHz)	Channel Number	Maximum Conducted AVG Output Power (dBm)	Maximum AVG EIRP (dBm)
b	2412 ~ 2462	1-11[11]	14.46	16.18
g	2412 ~ 2462	1-11[11]	15.52	17.24
n HT20	2412 ~ 2462	1-11[11]	17.74	22.47
n HT40	2422 ~ 2452	3-9[7]	18.17	22.90

#### 5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11g)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT20)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT40)	CH 3, CH 6, CH 9	2422MHz, 2437MHz, 2452MHz

#### 5.5. THE WORSE CASE POWER SETTING PARAMETER

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

Note: Antenna 1 and antenna 2 use the same power setting for both SISO and MIMO modes.

## 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 as provided by the client were:

802.11b mode: 1 Mbps

802.11g 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 1 and Core 2 correspond to antenna 1 and antenna 2 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, CDD mode have the maximum power setting, 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	PIFA antenna	1.72
2	2412-2462	PIFA antenna	1.72

Note: Mode Directional gain=  $G_{ANT} + 10 \log(N_{ANT}) = 4.73 \text{ dBi}$

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

$N_{ANT}$ : Antenna numbers

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

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11g	<input checked="" type="checkbox"/> 1TX, 1RX	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, BT & WLAN 5G, WLAN 2.4G & WLAN 5G can't transmit simultaneously. (Declared by customer.)

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	ThinkPad	X230i	/
2	Adaptor	Lenovo	ADLX65YCC3D	Input:AC100-240V ~1.8A 50-60Hz
3	USB TO UART	/	/	/

### I/O CABLES

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

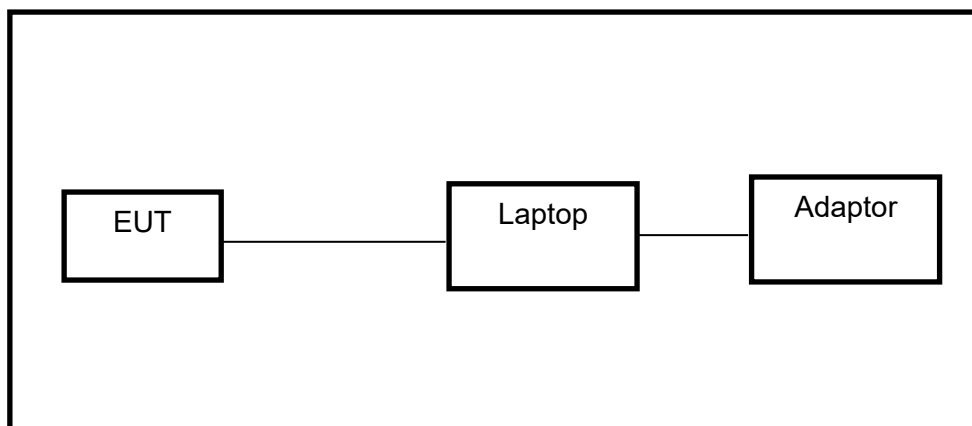
### ACCESSORIES

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

### 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	130959	April 24, 2020	April 23, 2023
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	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	#697	July 20, 2021	July 19, 2024
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
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	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.
Power sensor, Power Meter	R&S	OSP120	100921	Mar.23,2020	Mar.22,2021



## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

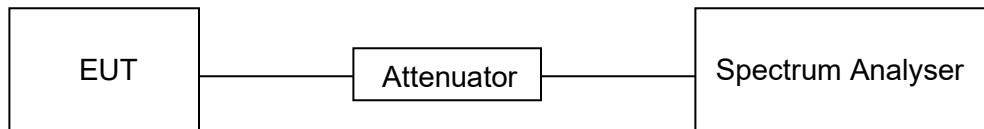
#### LIMITS

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	26.6 °C	Relative Humidity	56.8 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix G.



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

### LIMITS

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

### TEST PROCEDURE

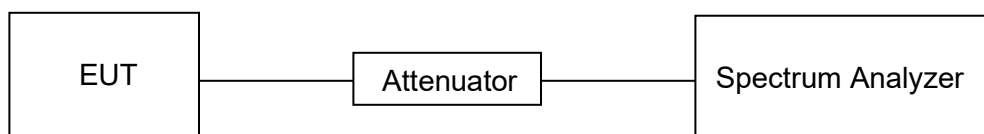
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Frequency Span	Between 1.5 times and 5.0 times the OBW
Detector	Peak
RBW	For 6 dB Bandwidth: 100 kHz For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: $\geq 3 \times$ RBW For 99 % Occupied Bandwidth: $\geq 3 \times$ RBW
Trace	Max hold
Sweep	Auto couple

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

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

### TEST SETUP



**TEST ENVIRONMENT**

Temperature	26.6 °C	Relative Humidity	56.8 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

**RESULTS**

Please refer to appendix A & B.



### 7.3. CONDUCTED OUTPUT POWER

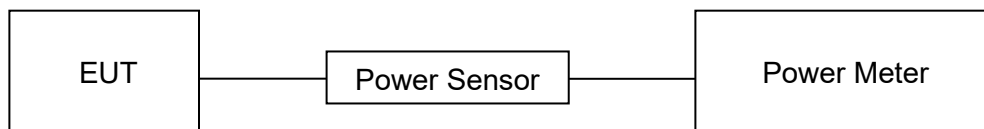
#### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	AVG 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	26.6 °C	Relative Humidity	56.8 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### RESULTS

Please refer to appendix C.



## 7.4. POWER SPECTRAL DENSITY

### LIMITS

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

### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.10.

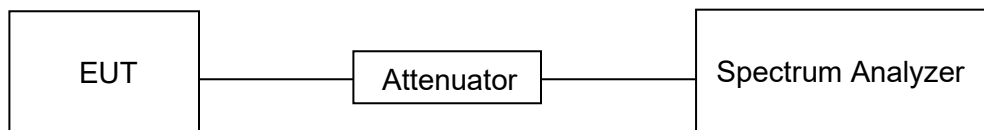
Connect the EUT to the spectrum analyser and use the following settings:

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	26.6 °C	Relative Humidity	56.8 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V



## **RESULTS**

Please refer to appendix D.



## 7.5. CONDUCTED BANDEGE AND SPURIOUS EMISSIONS

### LIMITS

CFR 47 FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	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.

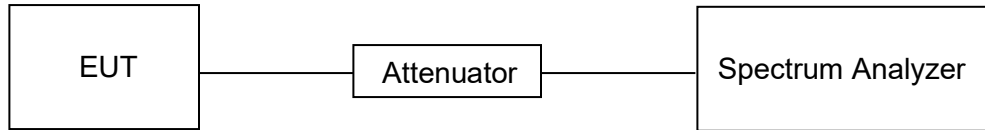
Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

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	26.6 °C	Relative Humidity	56.8 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

**RESULTS**

Please refer to appendix E & F.



## 8. RADIATED TEST RESULTS

### LIMITS

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

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

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

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

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

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

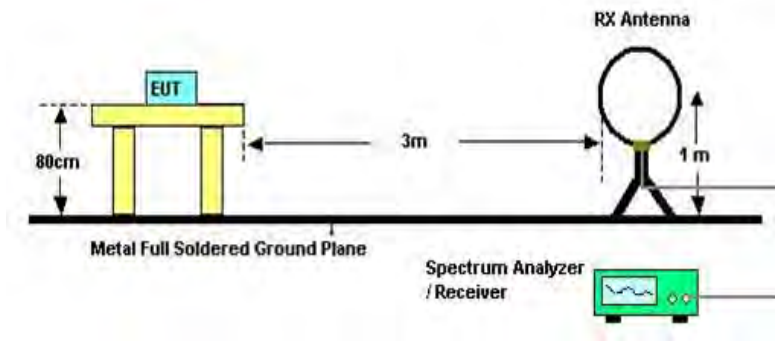
Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6c



## TEST SETUP AND PROCEDURE

Below 30 MHz

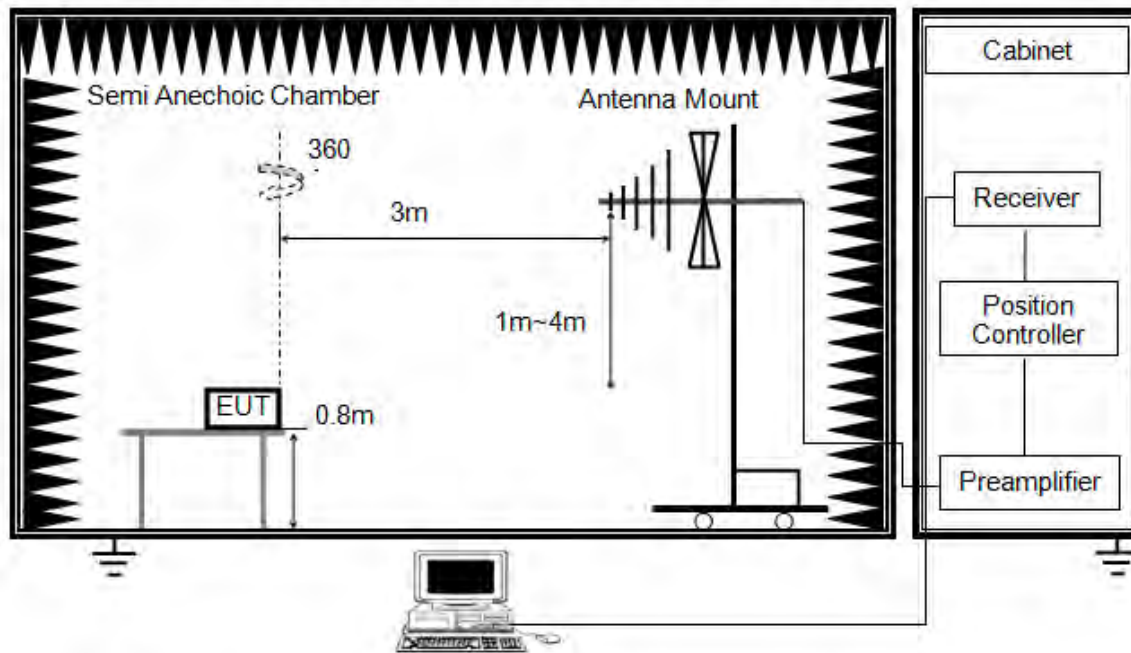


The setting of the spectrum analyser

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

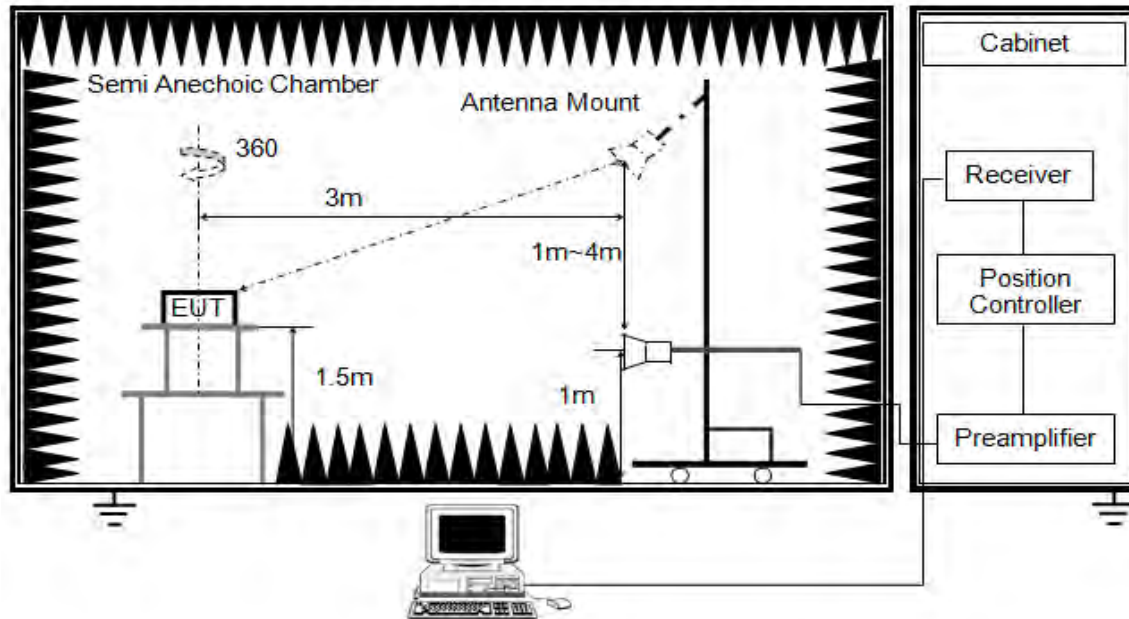


The setting of the spectrum analyser

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

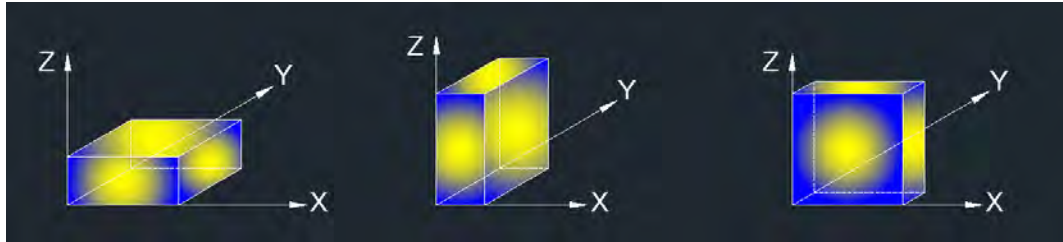


The setting of the spectrum analyser

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	23.5 °C	Relative Humidity	60 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

### RESULTS

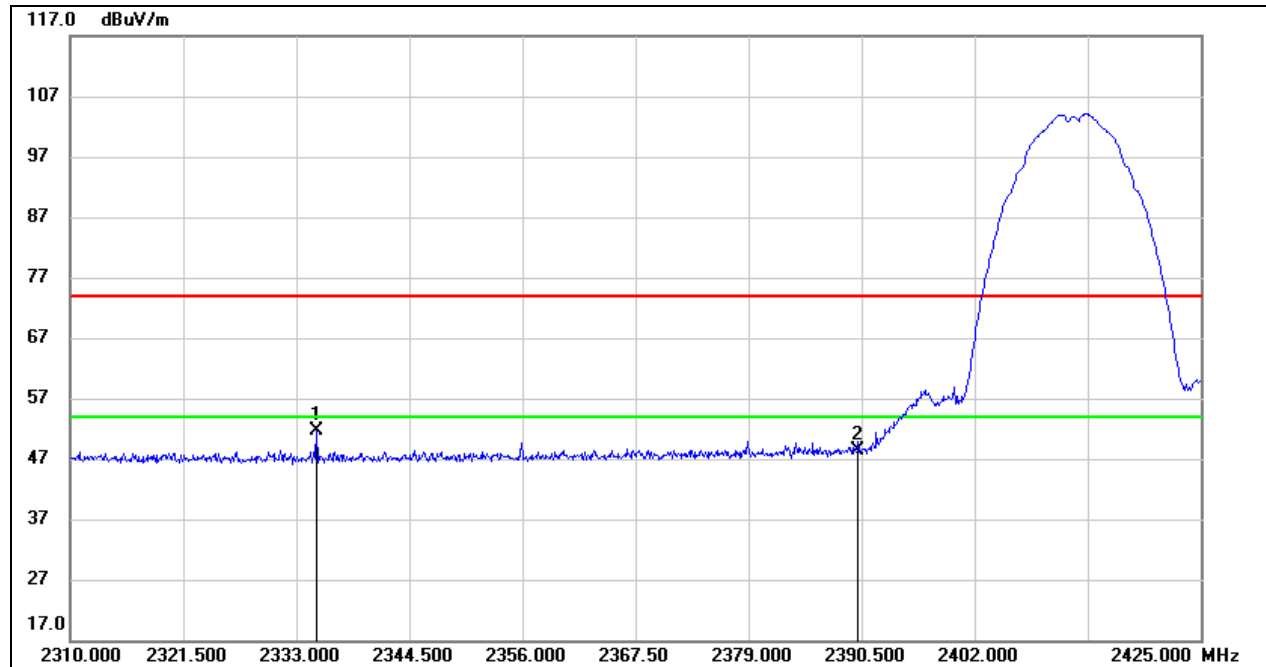
## 8.1. RESTRICTED BANDEDGE

### 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	2335.070	18.66	32.93	51.59	74.00	-22.41	peak
2	2390.000	15.08	33.35	48.43	74.00	-25.57	peak

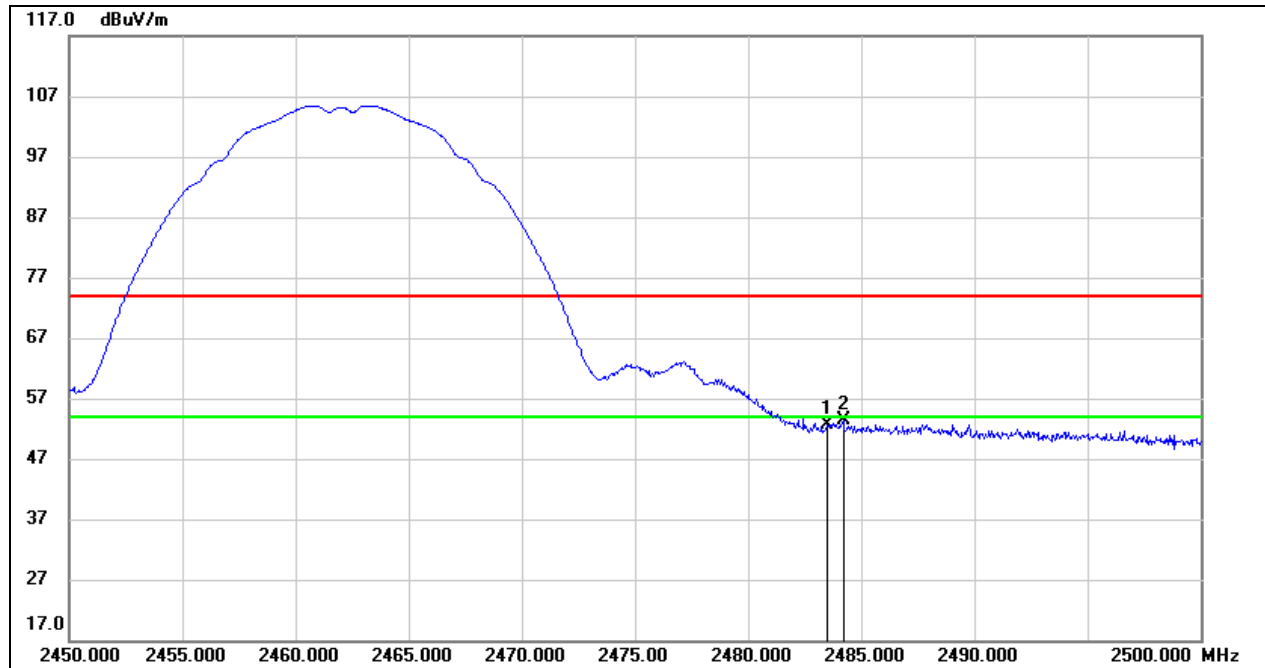
Note: 1. Measurement = Reading Level + Correct Factor.

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.

# 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	18.98	33.71	52.69	74.00	-21.31	peak
2	2484.200	19.73	33.71	53.44	74.00	-20.56	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.

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

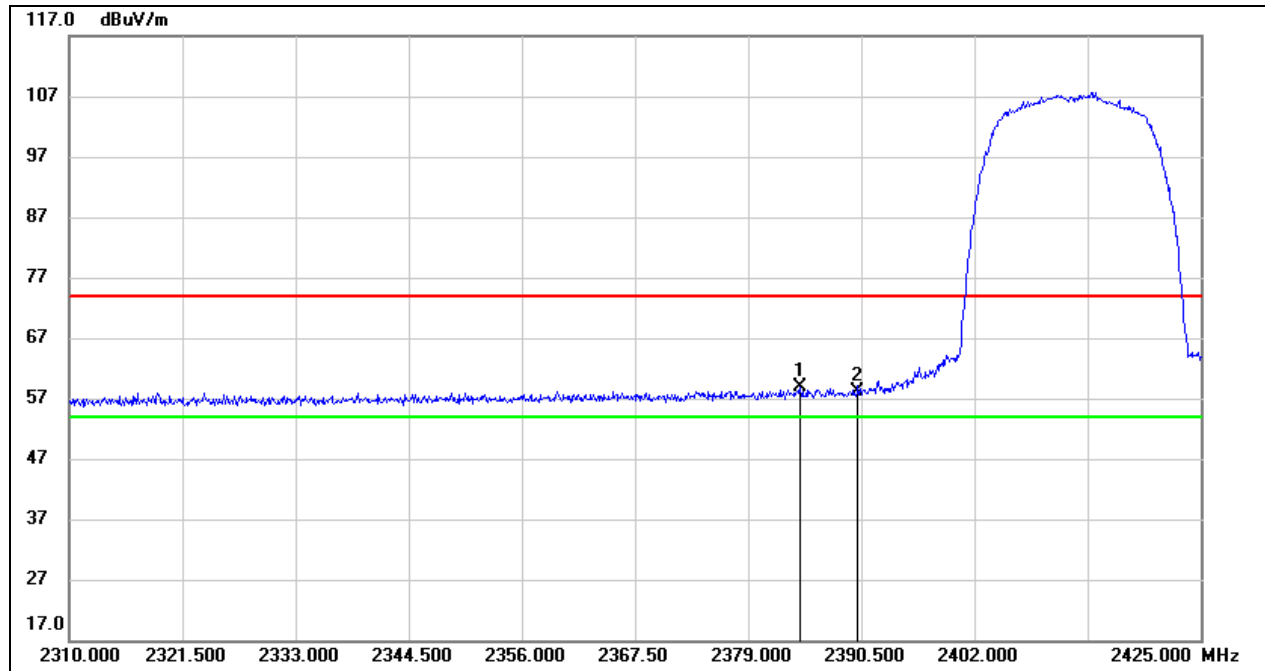
Note: Both antennas have been tested, only the worst data was recorded in the report.

## 8.1.2. 802.11g SISO MODE

### ANTENNA 1 TEST RESULTS (WORST CASE)

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

#### PEAK

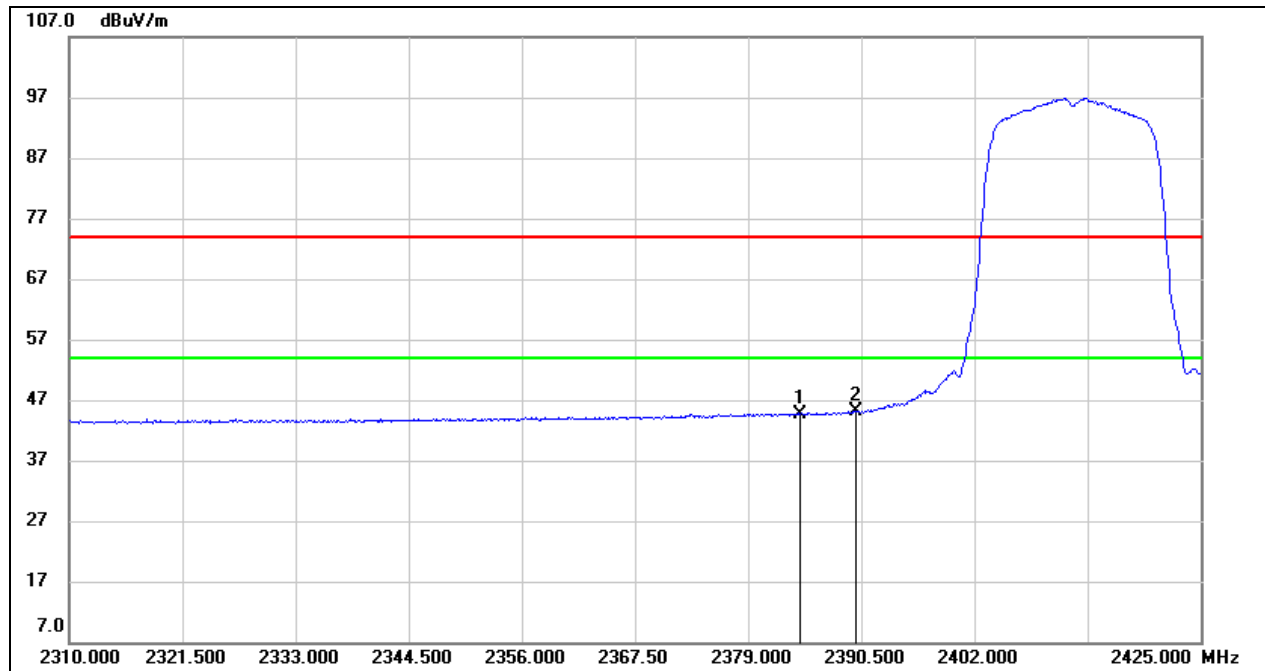


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.290	25.60	33.31	58.91	74.00	-15.09	peak
2	2390.000	24.85	33.35	58.20	74.00	-15.80	peak

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	2384.290	11.38	33.31	44.69	54.00	-9.31	AVG
2	2390.000	11.66	33.35	45.01	54.00	-8.99	AVG

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

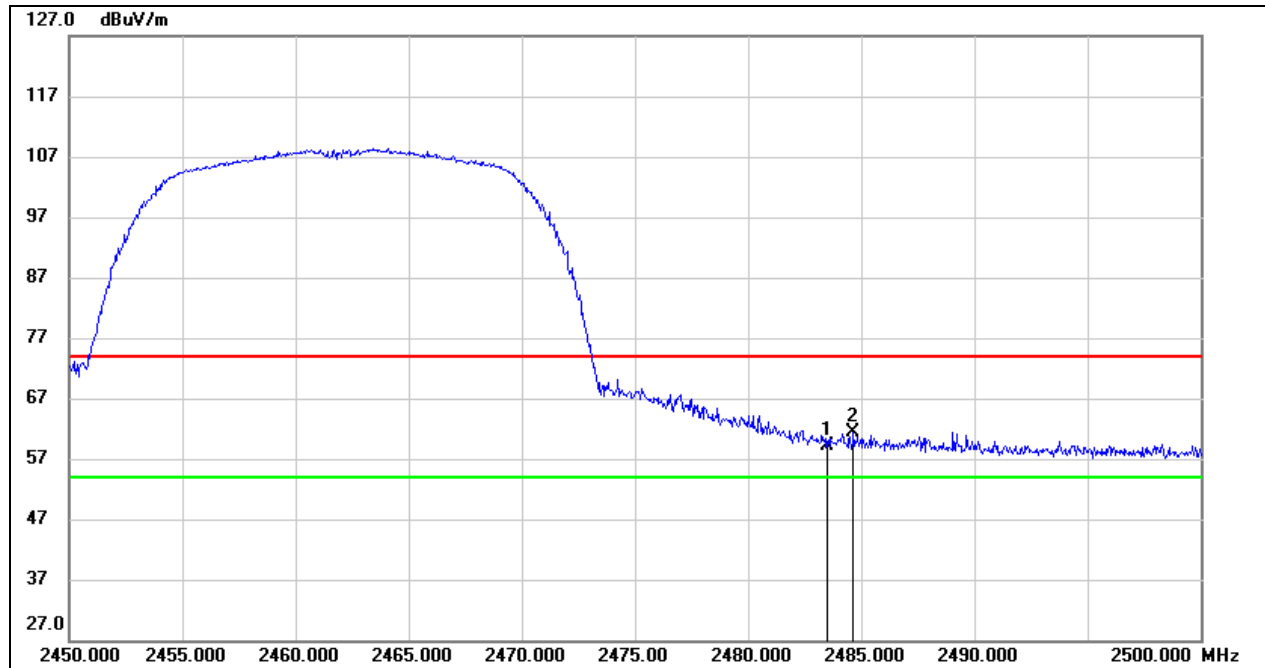
2. Peak: Peak detector.

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



# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



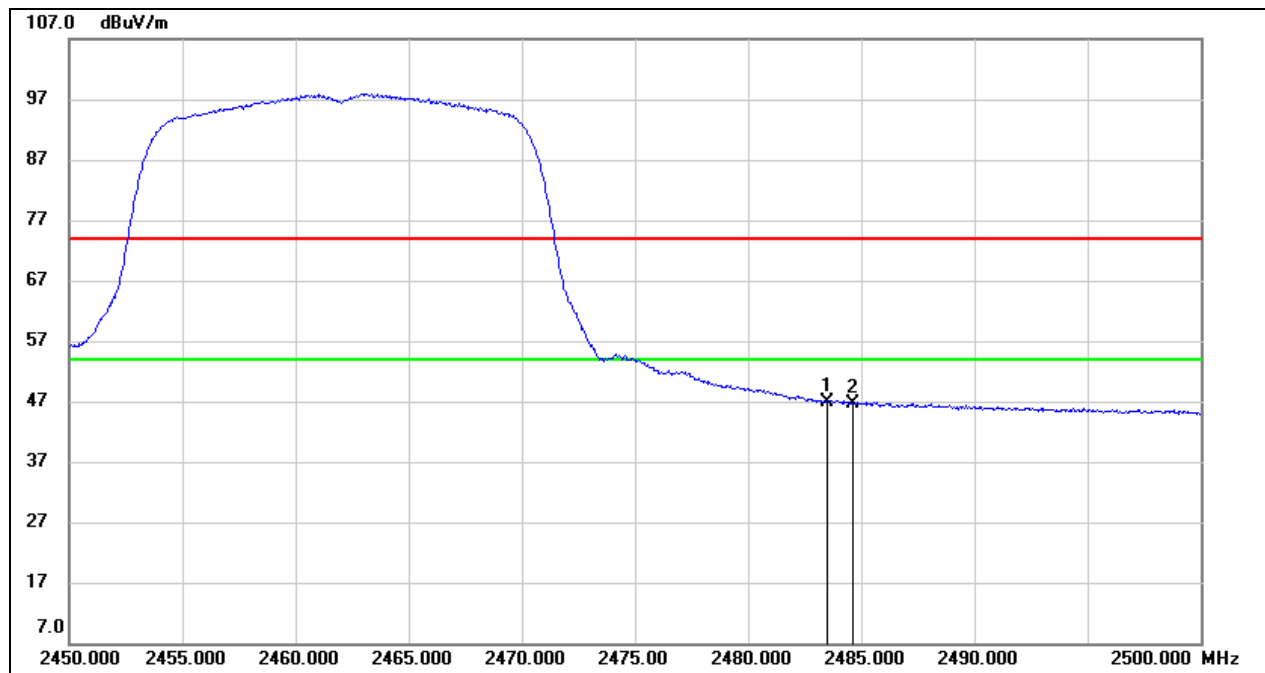
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	25.41	33.71	59.12	74.00	-14.88	peak
2	2484.650	27.78	33.71	61.49	74.00	-12.51	peak

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

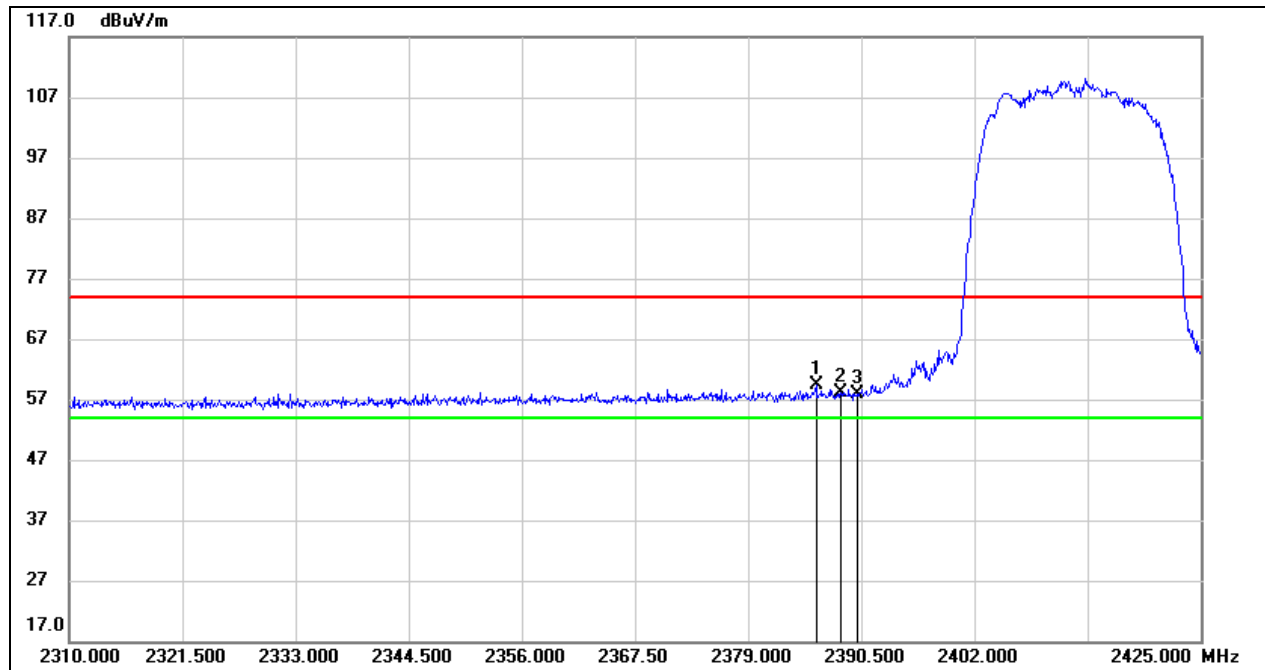


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	13.15	33.71	46.86	54.00	-7.14	AVG
2	2484.650	12.84	33.71	46.55	54.00	-7.45	AVG

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.

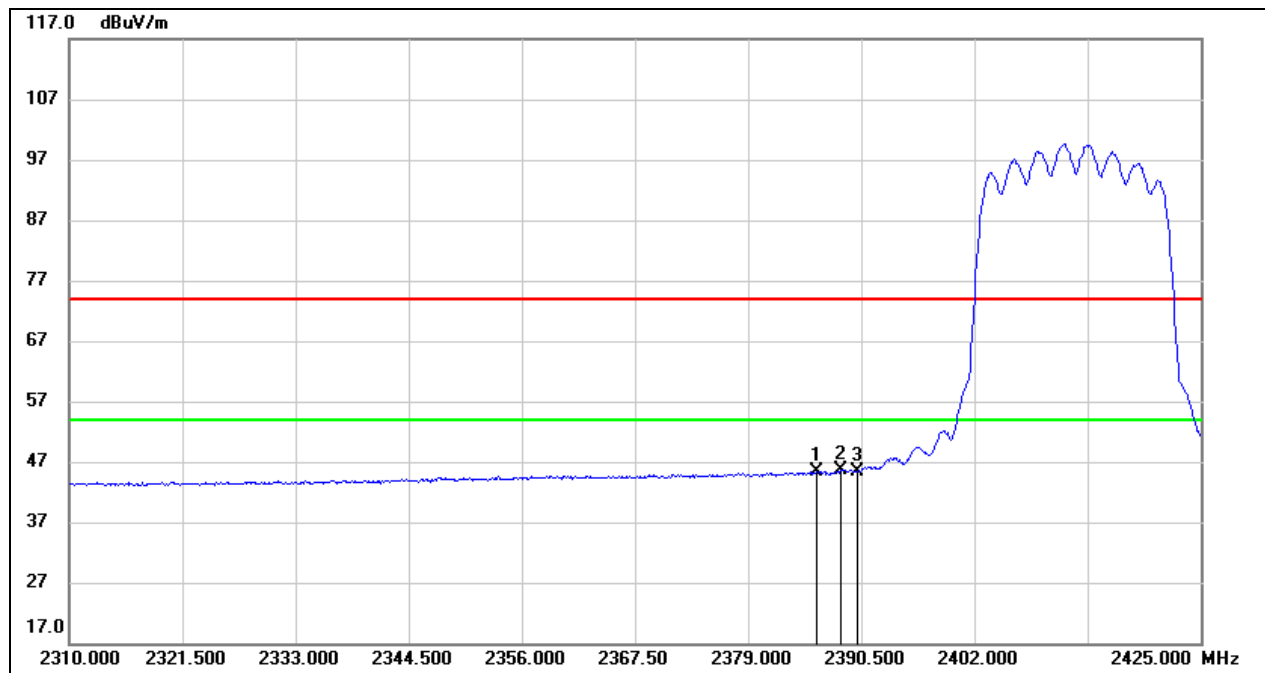
**8.1.3. 802.11n HT20 MIMO MODE****RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.900	26.16	33.32	59.48	74.00	-14.52	peak
2	2388.430	24.86	33.34	58.20	74.00	-15.80	peak
3	2390.000	24.56	33.35	57.91	74.00	-16.09	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	2385.900	12.08	33.32	45.40	54.00	-8.60	AVG
2	2388.430	12.33	33.34	45.67	54.00	-8.33	AVG
3	2390.000	12.11	33.35	45.46	54.00	-8.54	AVG

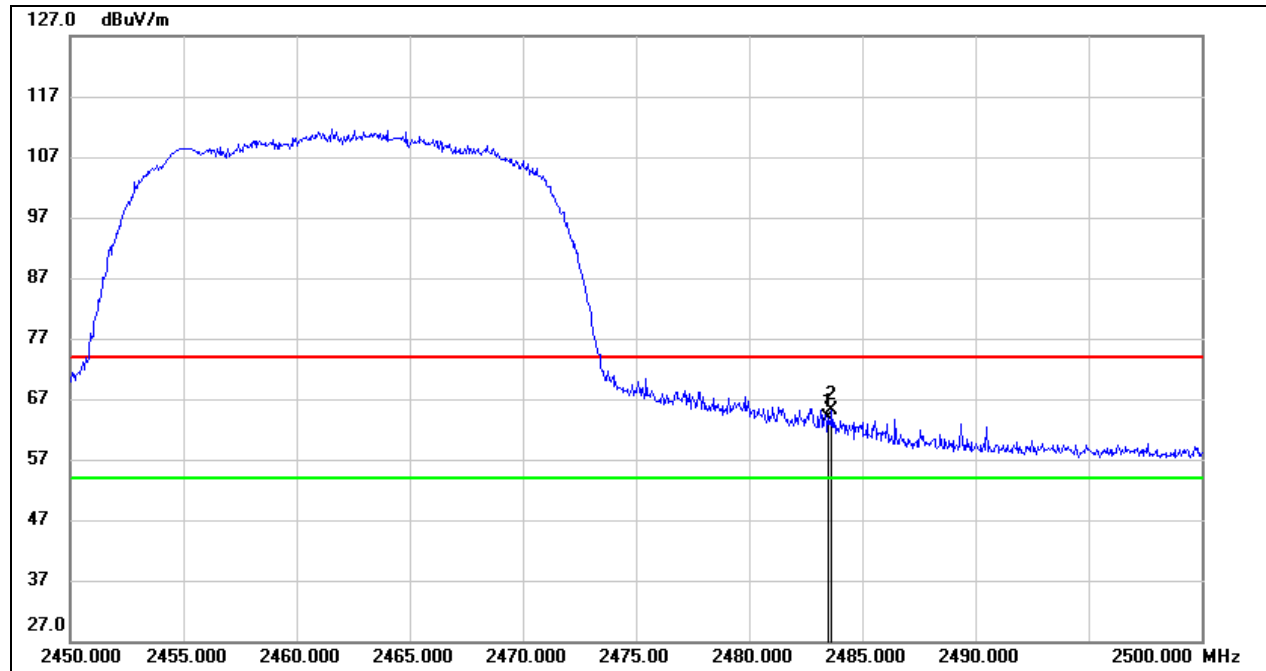
Note: 1. Measurement = Reading Level + Correct Factor.

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.

# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



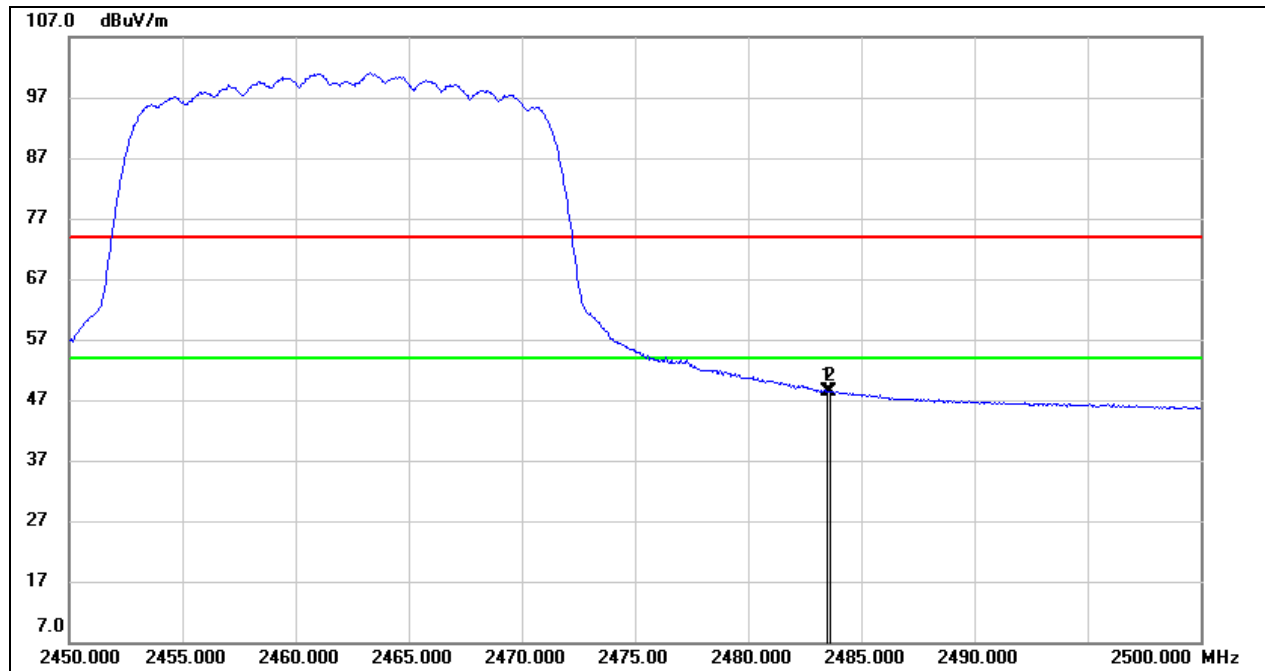
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	30.09	33.71	63.80	74.00	-10.20	peak
2	2483.650	31.39	33.71	65.10	74.00	-8.90	peak

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

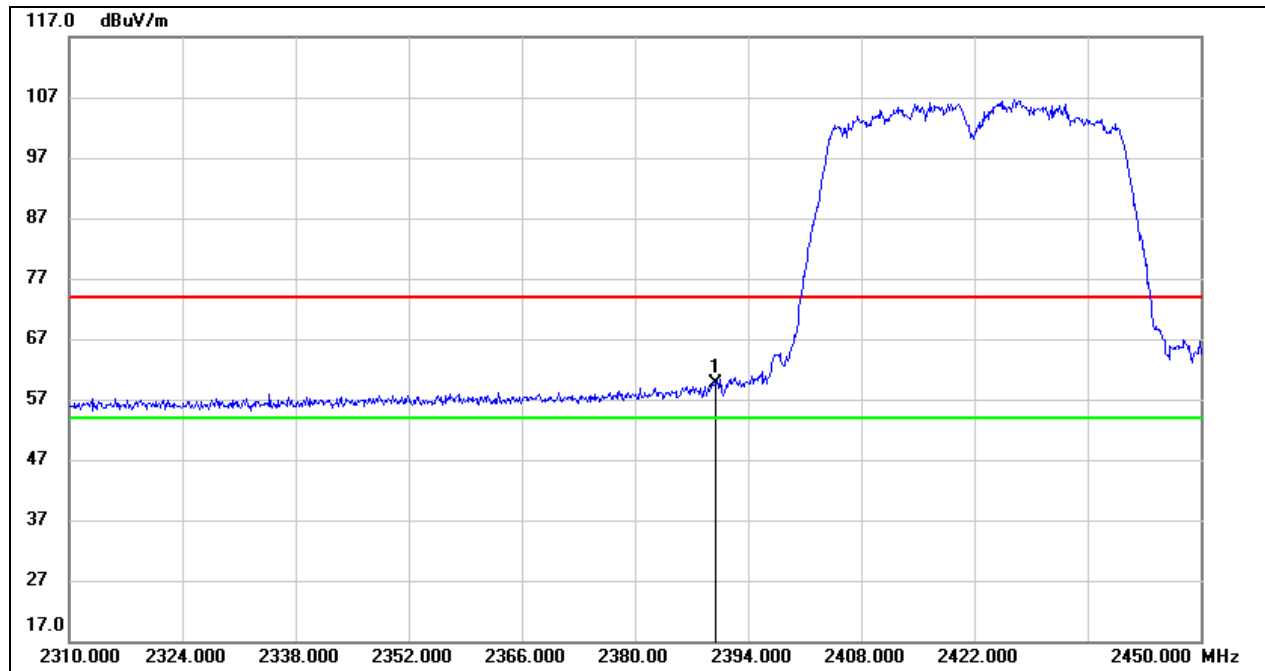


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	14.58	33.71	48.29	54.00	-5.71	AVG
2	2483.650	14.67	33.71	48.38	54.00	-5.62	AVG

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.

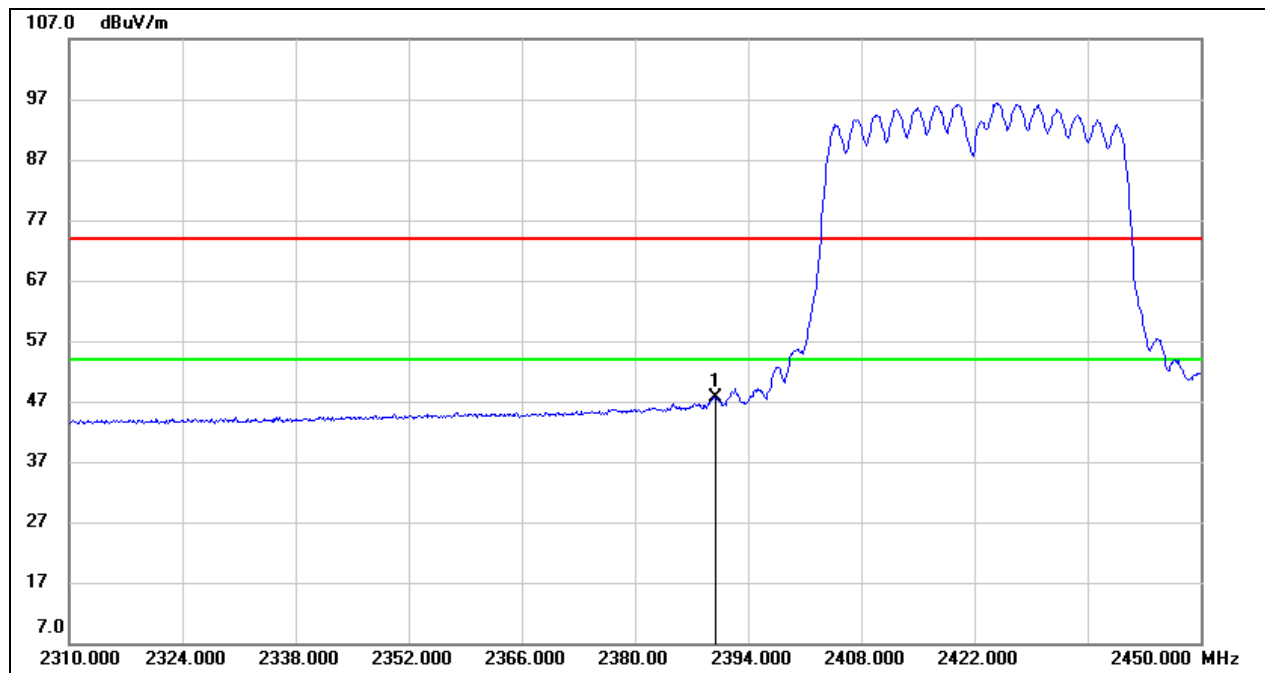
**8.1.1. 802.11n HT40 MIMO MODE****RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.18	33.35	59.53	74.00	-14.47	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	14.27	33.35	47.62	54.00	-6.38	AVG

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

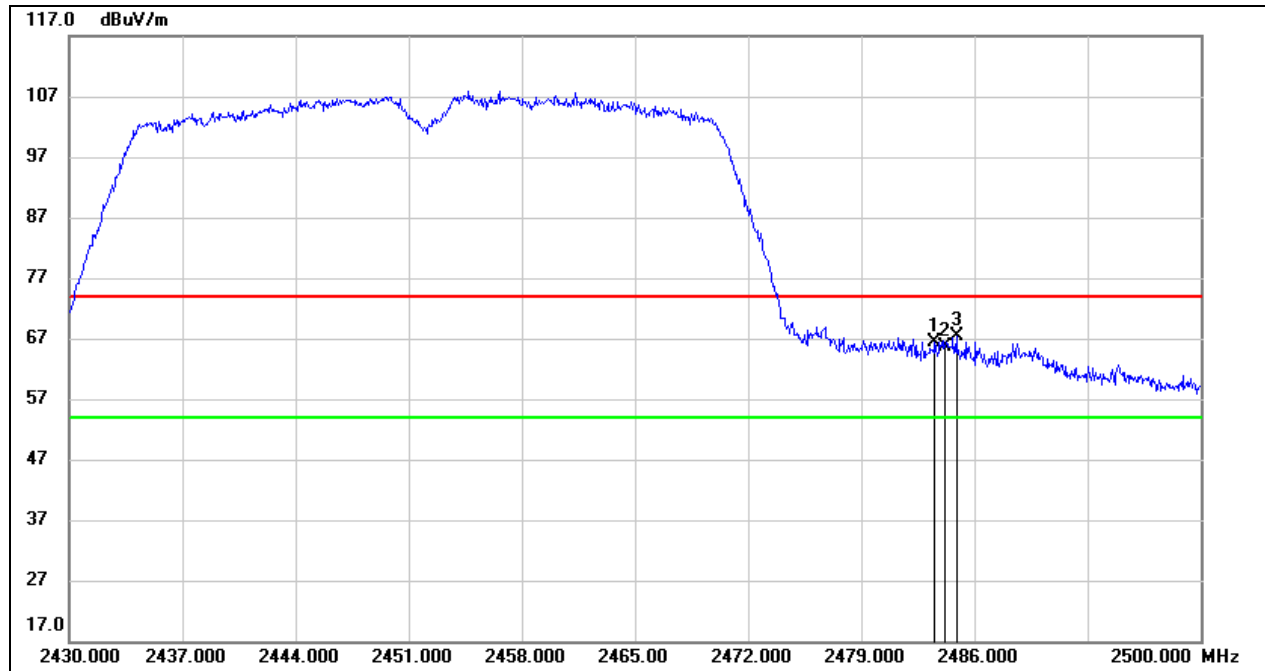
2. Peak: Peak detector.

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



# RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

## PEAK



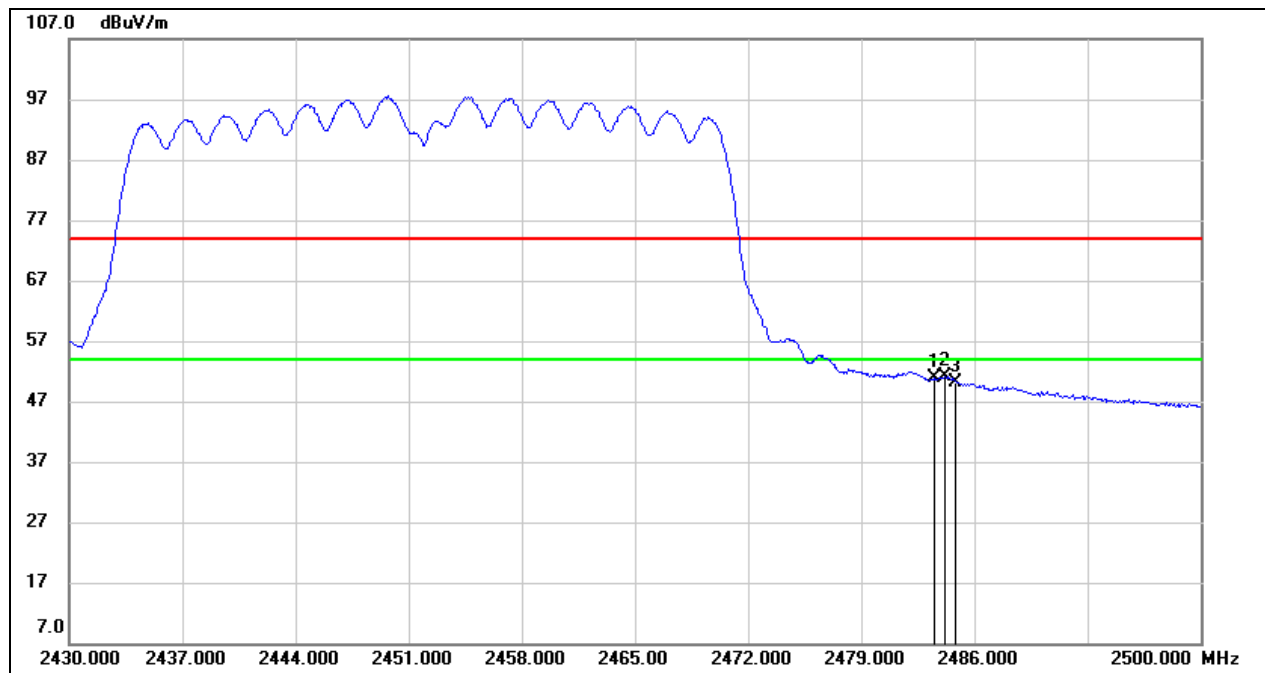
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	32.63	33.71	66.34	74.00	-7.66	peak
2	2484.180	31.98	33.71	65.69	74.00	-8.31	peak
3	2484.880	33.61	33.71	67.32	74.00	-6.68	peak

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	17.08	33.71	50.79	54.00	-3.21	AVG
2	2484.180	17.46	33.71	51.17	54.00	-2.83	AVG
3	2484.880	16.46	33.71	50.17	54.00	-3.83	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.

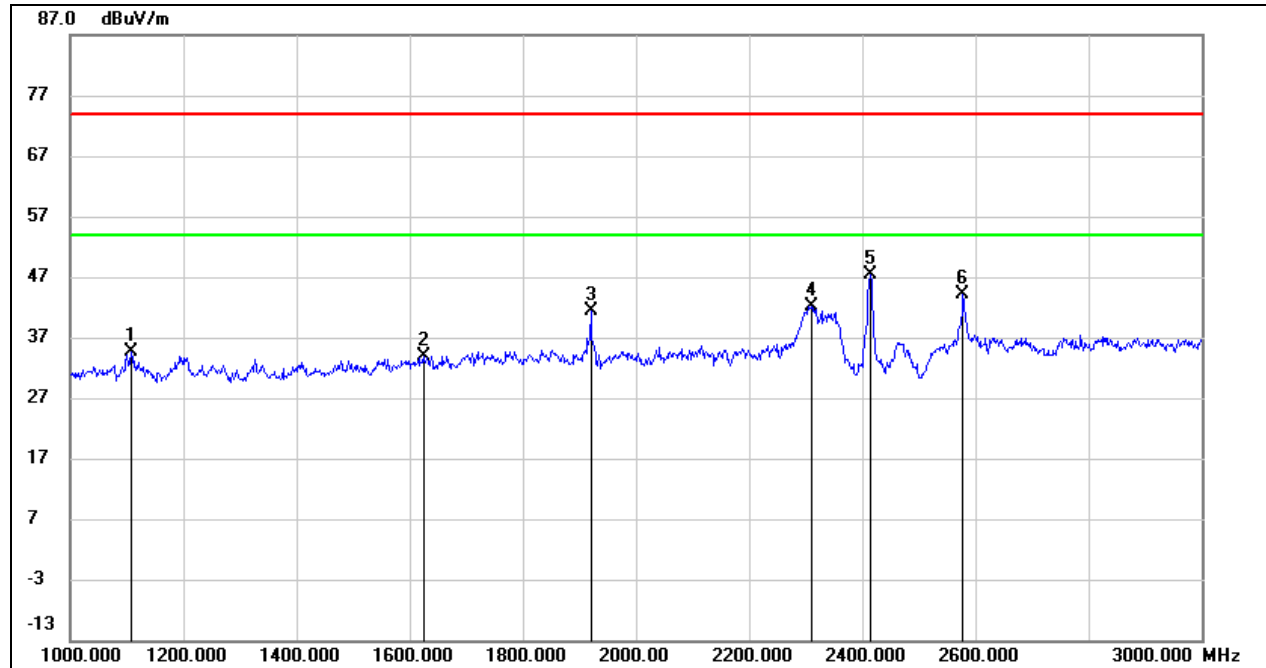
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.  
Note: All modes have been tested, only the worst data was recorded in the report.

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

### 8.2.1. 802.11b SISO MODE

#### ANTENNA 1 TEST RESULTS (WORST CASE)

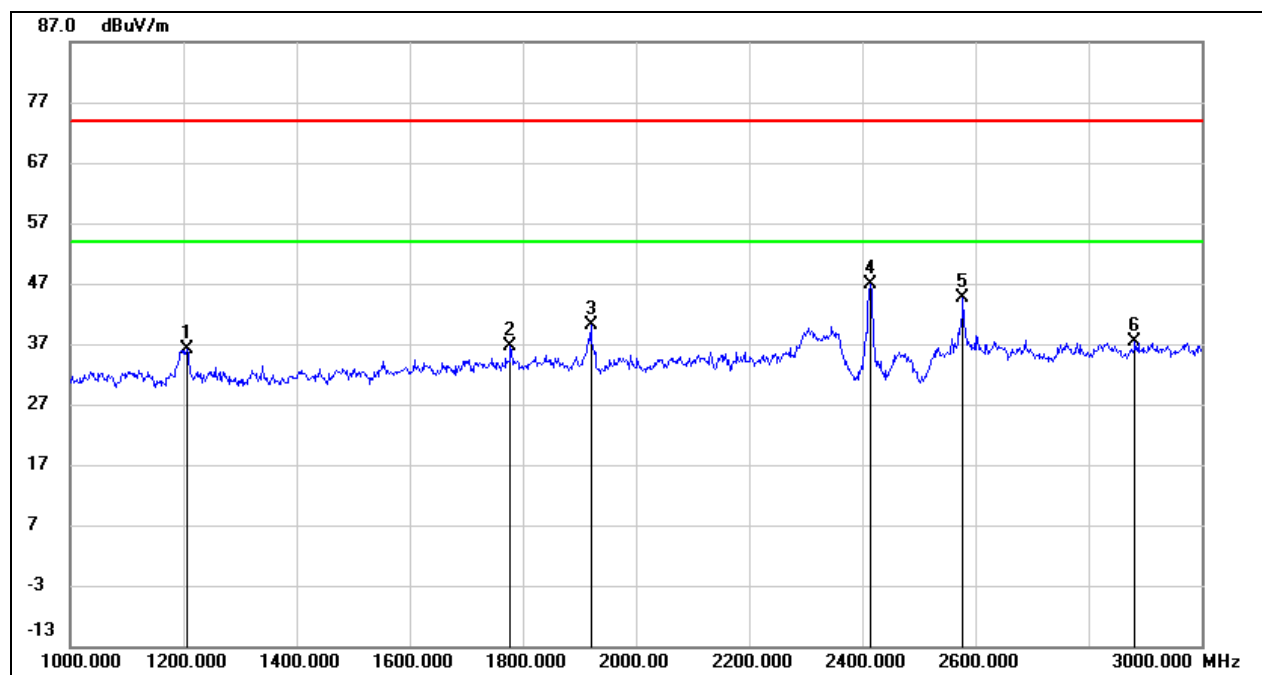
#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1108.000	48.04	-13.45	34.59	74.00	-39.41	peak
2	1624.000	45.25	-11.38	33.87	74.00	-40.13	peak
3	1920.000	51.45	-10.13	41.32	74.00	-32.68	peak
4	2310.000	50.82	-8.69	42.13	74.00	-31.87	peak
5	2414.000	55.75	-8.36	47.39	74.00	-26.61	peak
6	2578.000	51.98	-7.95	44.03	74.00	-29.97	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 Band reject filter losses.  
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

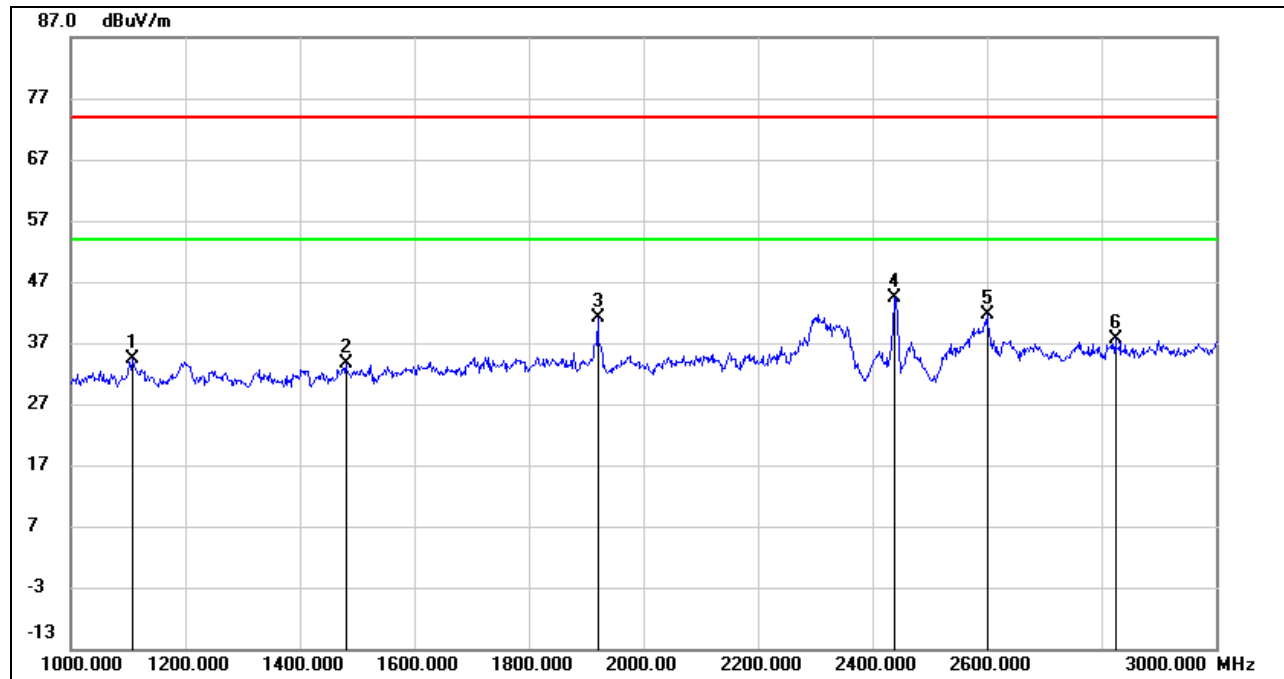
### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1206.000	49.15	-12.98	36.17	74.00	-37.83	peak
2	1778.000	46.77	-10.21	36.56	74.00	-37.44	peak
3	1920.000	50.28	-10.13	40.15	74.00	-33.85	peak
4	2414.000	55.20	-8.36	46.84	74.00	-27.16	peak
5	2578.000	52.55	-7.95	44.60	74.00	-29.40	peak
6	2882.000	43.51	-6.16	37.35	74.00	-36.65	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 Band reject filter losses.  
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

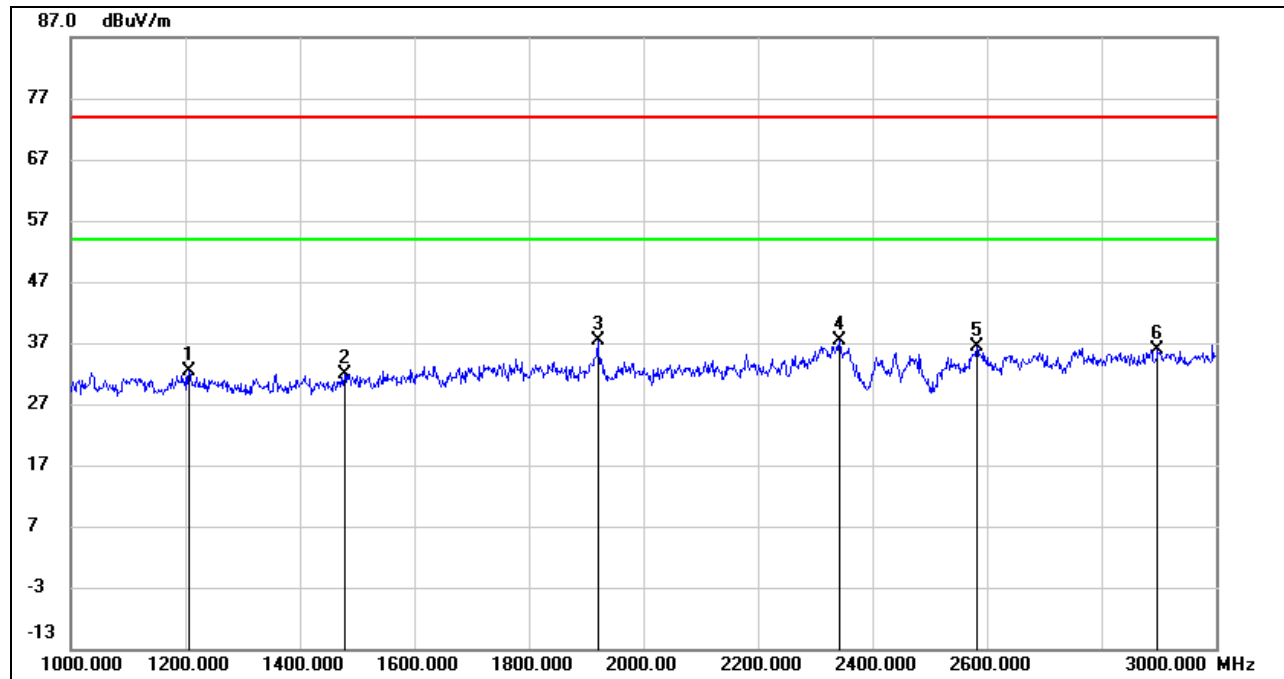
### HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1108.000	47.71	-13.45	34.26	74.00	-39.74	peak
2	1480.000	45.87	-12.33	33.54	74.00	-40.46	peak
3	1920.000	51.28	-10.13	41.15	74.00	-32.85	peak
4	2438.000	52.63	-8.33	44.30	74.00	-29.70	peak
5	2600.000	49.46	-7.86	41.60	74.00	-32.40	peak
6	2824.000	43.94	-6.43	37.51	74.00	-36.49	peak

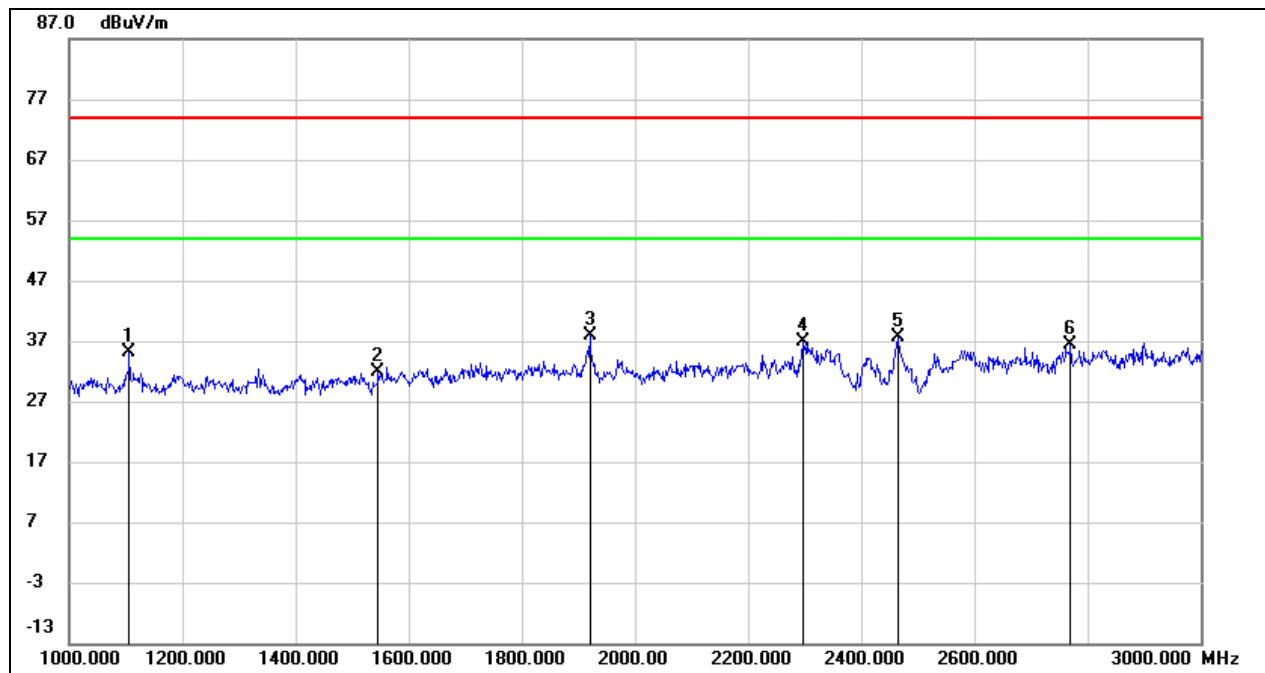
- Note:
1. Peak Result = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject 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	1206.000	45.45	-12.98	32.47	74.00	-41.53	peak
2	1478.000	44.31	-12.33	31.98	74.00	-42.02	peak
3	1920.000	47.53	-10.13	37.40	74.00	-36.60	peak
4	2342.000	45.90	-8.58	37.32	74.00	-36.68	peak
5	2582.000	44.19	-7.92	36.27	74.00	-37.73	peak
6	2898.000	42.09	-6.09	36.00	74.00	-38.00	peak

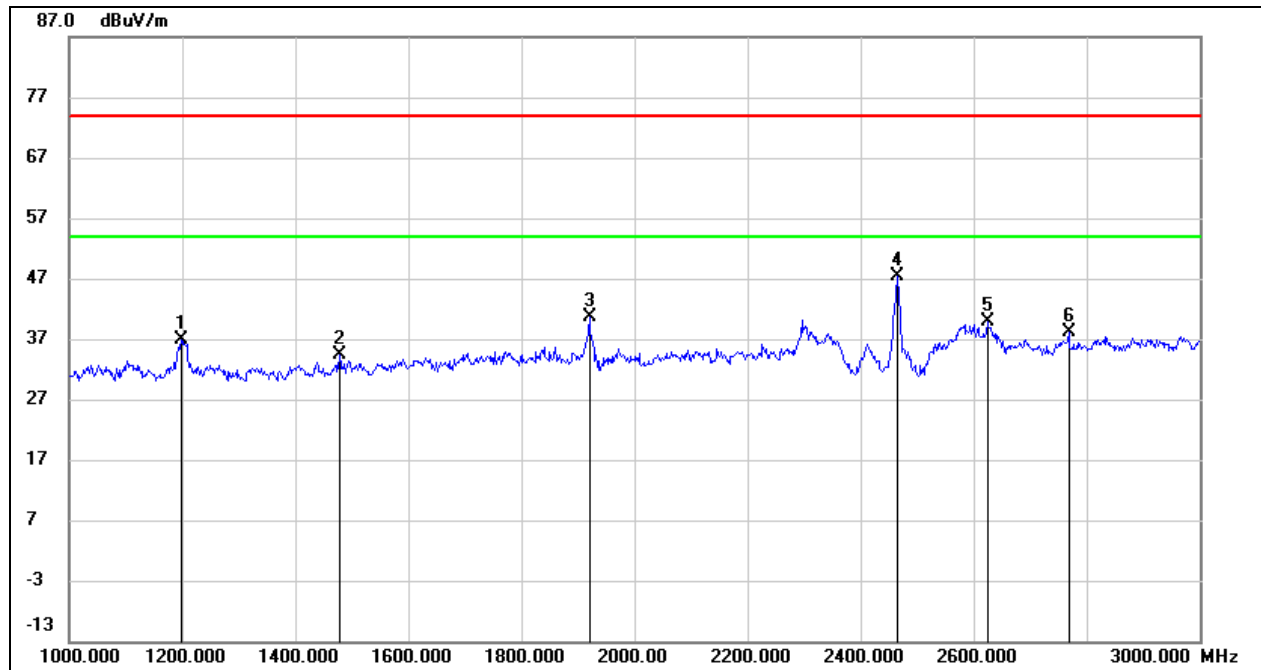
- Note:
1. Peak Result = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject 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	1106.000	48.66	-13.46	35.20	74.00	-38.80	peak
2	1546.000	43.89	-11.92	31.97	74.00	-42.03	peak
3	1920.000	47.93	-10.13	37.80	74.00	-36.20	peak
4	2296.000	45.54	-8.74	36.80	74.00	-37.20	peak
5	2464.000	45.79	-8.27	37.52	74.00	-36.48	peak
6	2770.000	43.20	-6.75	36.45	74.00	-37.55	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 Band reject 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	1198.000	50.00	-13.00	37.00	74.00	-37.00	peak
2	1478.000	46.61	-12.33	34.28	74.00	-39.72	peak
3	1920.000	50.82	-10.13	40.69	74.00	-33.31	peak
4	2464.000	55.56	-8.27	47.29	74.00	-26.71	peak
5	2624.000	47.58	-7.70	39.88	74.00	-34.12	peak
6	2768.000	44.91	-6.76	38.15	74.00	-35.85	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 Band reject filter losses.  
5. 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.

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

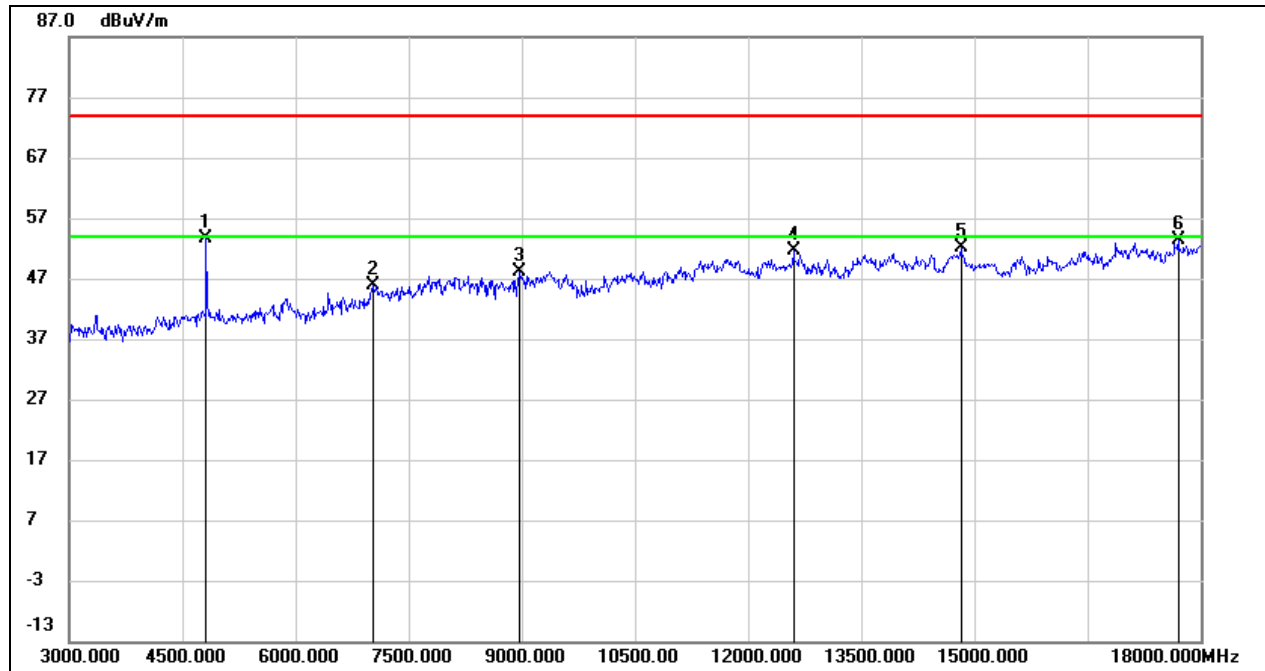


### 8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

#### 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	4815.000	52.23	1.38	53.61	74.00	-20.39	peak
2	7020.000	38.39	7.61	46.00	74.00	-28.00	peak
3	8970.000	37.42	10.70	48.12	74.00	-25.88	peak
4	12600.000	35.73	15.78	51.51	74.00	-22.49	peak
5	14820.000	34.33	17.91	52.24	74.00	-21.76	peak
6	17700.000	29.94	23.47	53.41	74.00	-20.59	peak

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

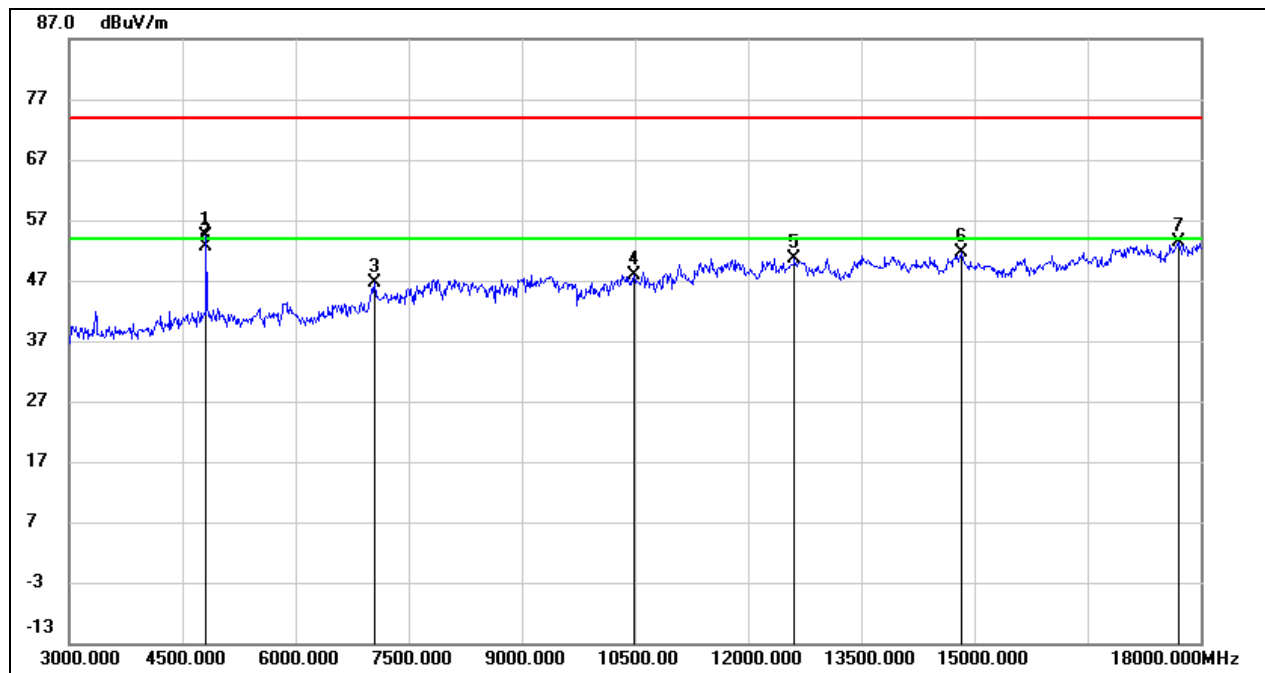
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

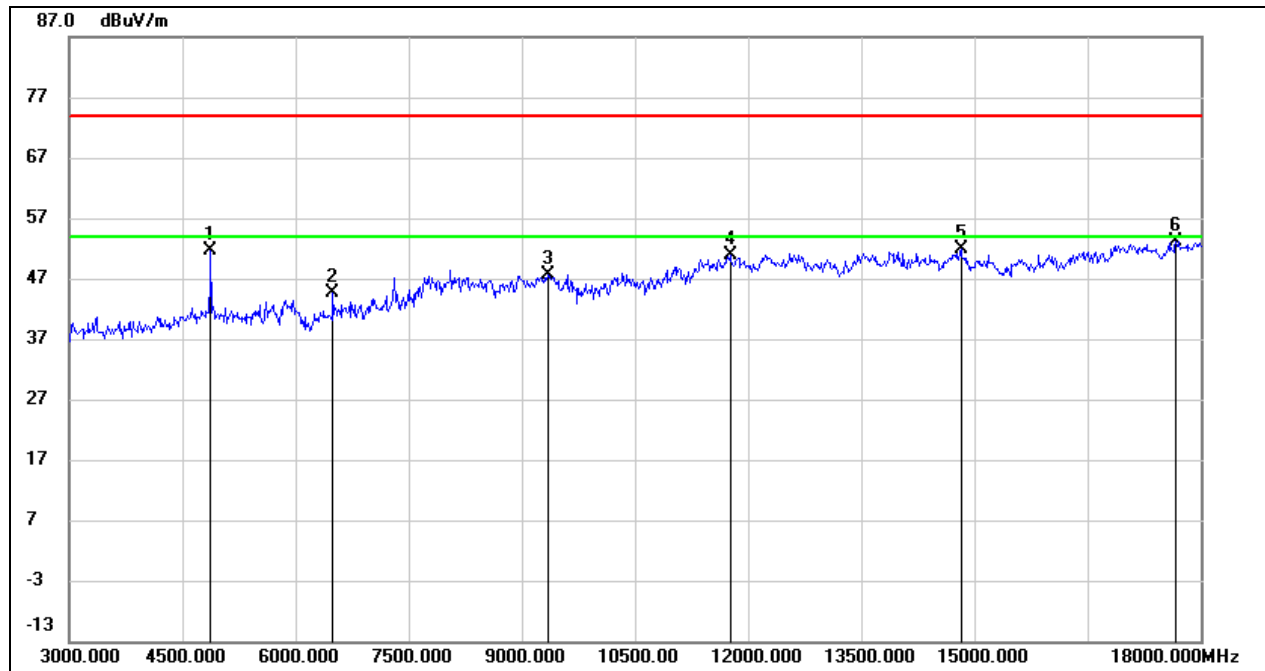
### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	53.12	1.38	54.50	74.00	-19.50	peak
2	4815.000	51.20	1.38	52.58	54.00	-1.42	AVG
3	7050.000	38.92	7.63	46.55	74.00	-27.45	peak
4	10485.000	35.56	12.35	47.91	74.00	-26.09	peak
5	12615.000	34.94	15.75	50.69	74.00	-23.31	peak
6	14835.000	33.87	17.80	51.67	74.00	-22.33	peak
7	17700.000	29.83	23.47	53.30	74.00	-20.70	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	50.30	1.32	51.62	74.00	-22.38	peak
2	6495.000	38.04	6.69	44.73	54.00	-9.27	CAV
3	9345.000	37.00	10.66	47.66	74.00	-26.34	peak
4	11760.000	35.53	15.29	50.82	74.00	-23.18	peak
5	14820.000	33.86	17.91	51.77	74.00	-22.23	peak
6	17670.000	29.96	23.24	53.20	74.00	-20.80	peak

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

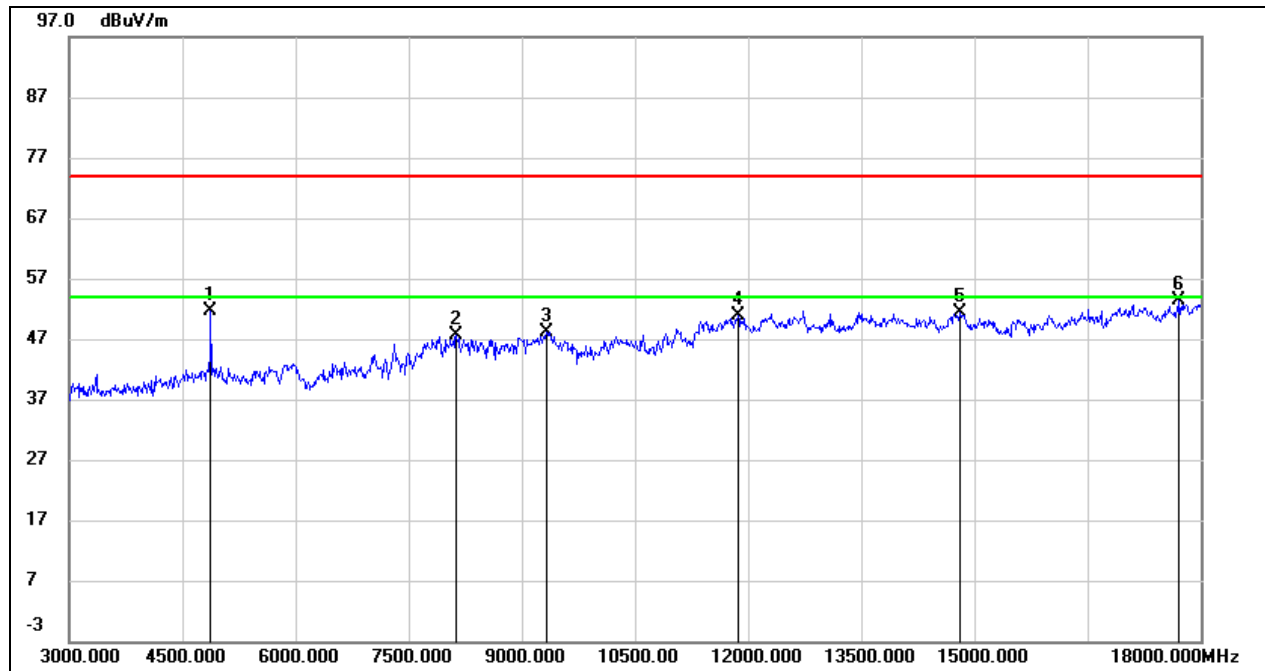
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	50.27	1.32	51.59	74.00	-22.41	peak
2	8130.000	37.48	10.06	47.54	74.00	-26.46	peak
3	9330.000	37.51	10.57	48.08	74.00	-25.92	peak
4	11865.000	35.41	15.42	50.83	74.00	-23.17	peak
5	14805.000	33.33	18.00	51.33	74.00	-22.67	peak
6	17715.000	29.93	23.56	53.49	74.00	-20.51	peak

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

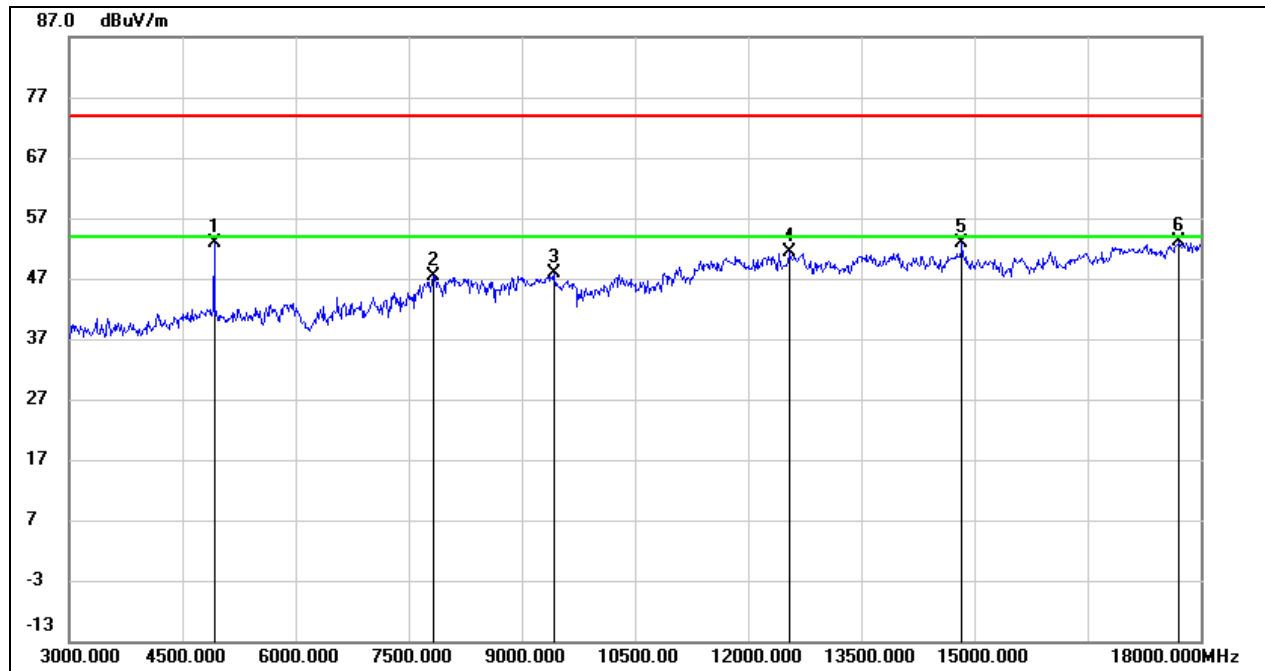
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	51.44	1.45	52.89	74.00	-21.11	peak
2	7830.000	38.27	9.20	47.47	74.00	-26.53	peak
3	9420.000	37.07	10.88	47.95	74.00	-26.05	peak
4	12540.000	35.71	15.72	51.43	74.00	-22.57	peak
5	14835.000	35.08	17.80	52.88	74.00	-21.12	peak
6	17715.000	29.52	23.56	53.08	74.00	-20.92	peak

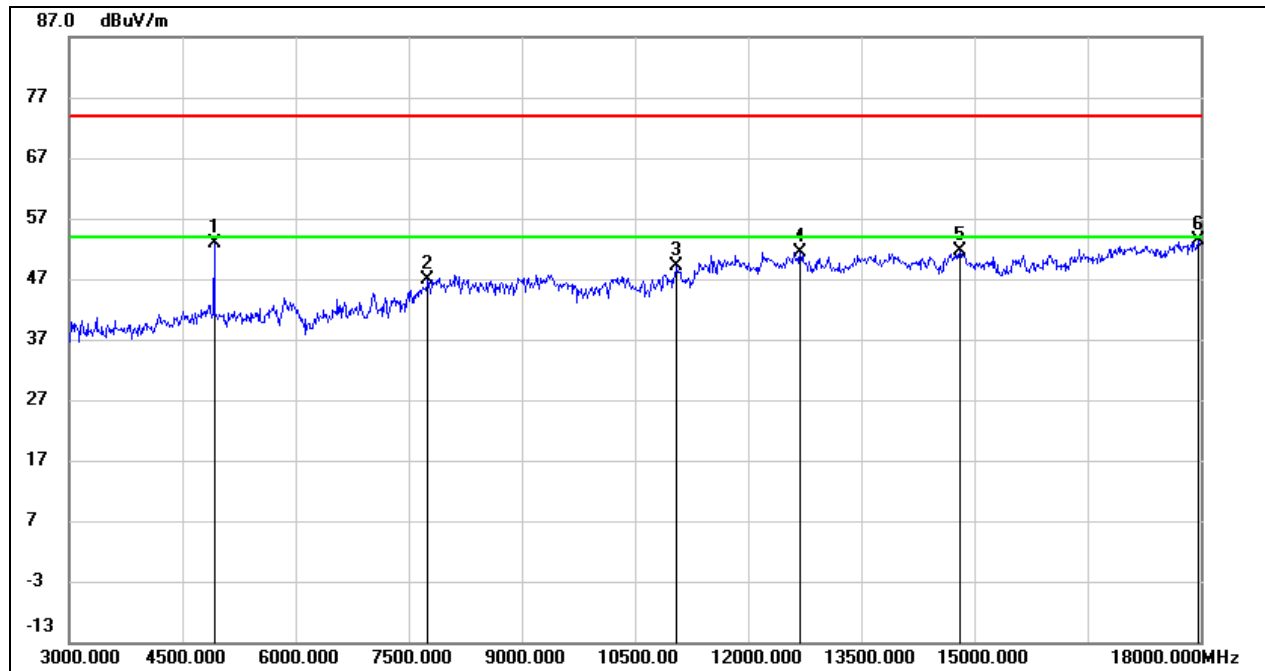
Note: 1. Peak Result = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	51.32	1.45	52.77	74.00	-21.23	peak
2	7755.000	37.90	8.94	46.84	54.00	-7.16	CAV
3	11055.000	35.51	13.58	49.09	74.00	-24.91	peak
4	12690.000	35.86	15.64	51.50	74.00	-22.50	peak
5	14805.000	33.66	18.00	51.66	74.00	-22.34	peak
6	17970.000	29.25	24.15	53.40	74.00	-20.60	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.

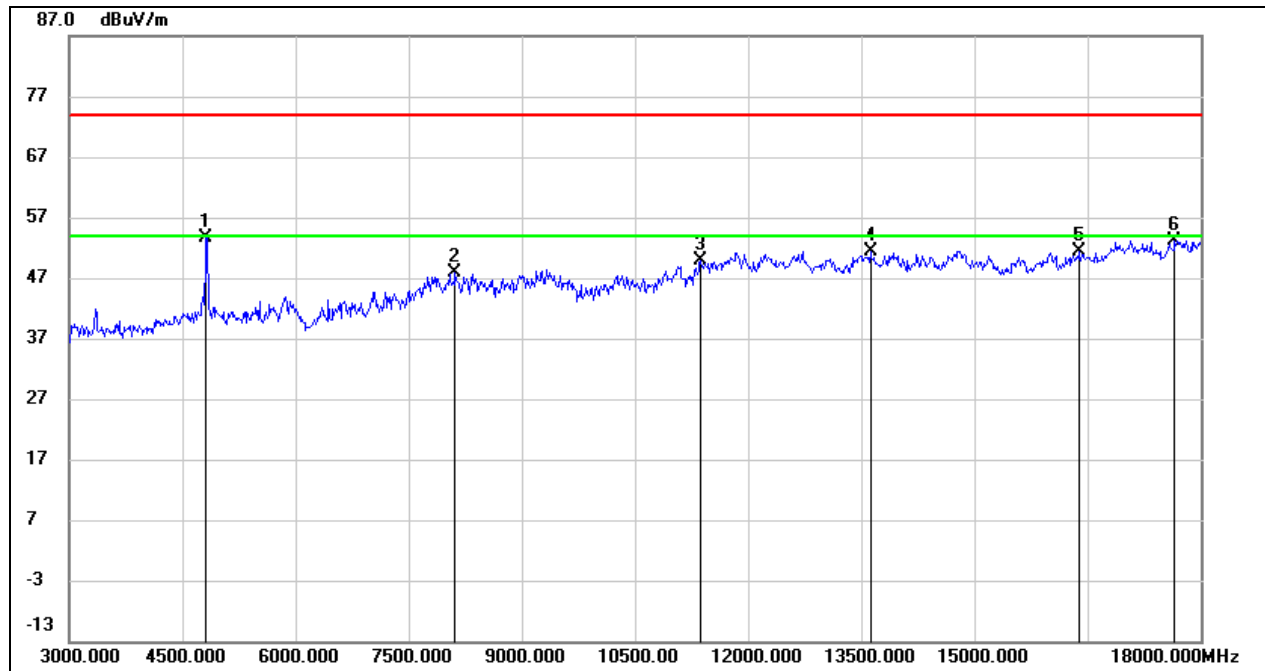
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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	4815.000	52.20	1.38	53.58	74.00	-20.42	peak
2	8115.000	37.87	10.13	48.00	74.00	-26.00	peak
3	11370.000	35.29	14.49	49.78	74.00	-24.22	peak
4	13620.000	34.18	17.19	51.37	74.00	-22.63	peak
5	16395.000	31.71	19.68	51.39	74.00	-22.61	peak
6	17655.000	30.10	23.14	53.24	74.00	-20.76	peak

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

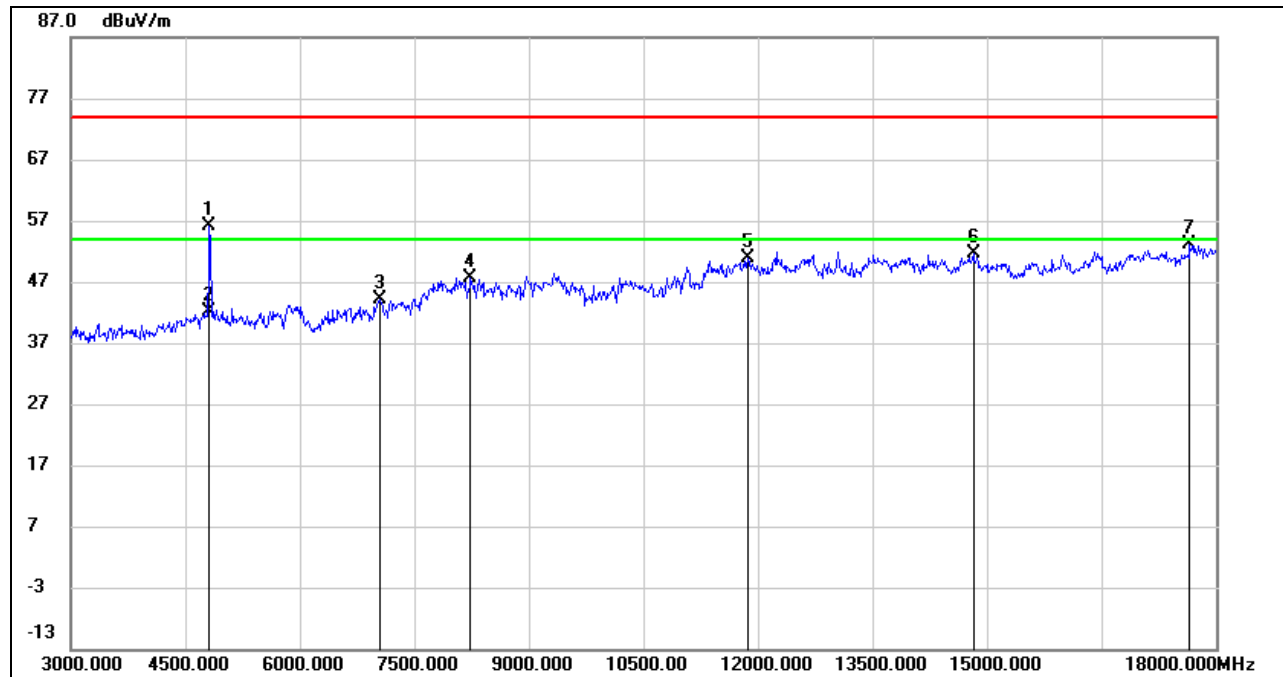
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

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

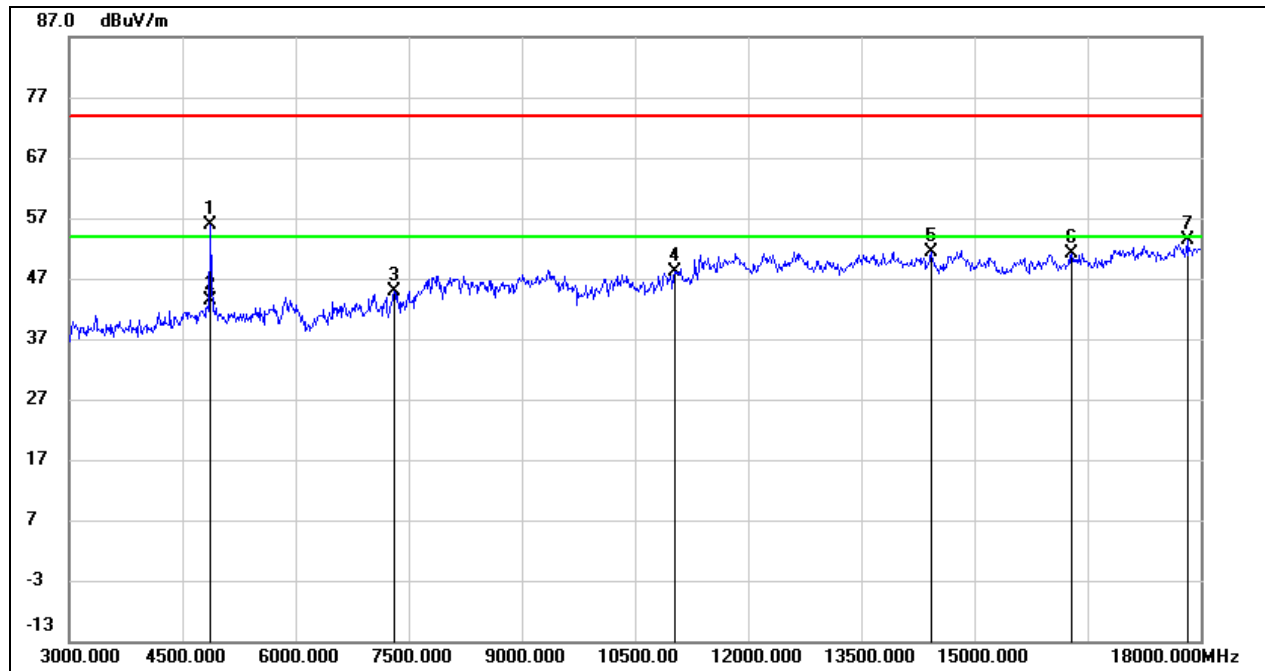


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	54.85	1.38	56.23	74.00	-17.77	peak
2	4815.000	40.83	1.38	42.21	54.00	-11.79	AVG
3	7050.000	36.54	7.63	44.17	74.00	-29.83	peak
4	8235.000	37.91	9.76	47.67	74.00	-26.33	peak
5	11865.000	35.55	15.42	50.97	74.00	-23.03	peak
6	14820.000	33.68	17.91	51.59	74.00	-22.41	peak
7	17655.000	29.91	23.14	53.05	74.00	-20.95	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	54.53	1.32	55.85	74.00	-18.15	peak
2	4875.000	42.06	1.32	43.38	54.00	-10.62	AVG
3	7305.000	37.72	7.14	44.86	74.00	-29.14	peak
4	11025.000	34.77	13.43	48.20	74.00	-25.80	peak
5	14430.000	34.14	17.34	51.48	74.00	-22.52	peak
6	16290.000	31.60	19.52	51.12	74.00	-22.88	peak
7	17820.000	29.29	24.01	53.30	74.00	-20.70	peak

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

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

3. Peak: Peak detector.

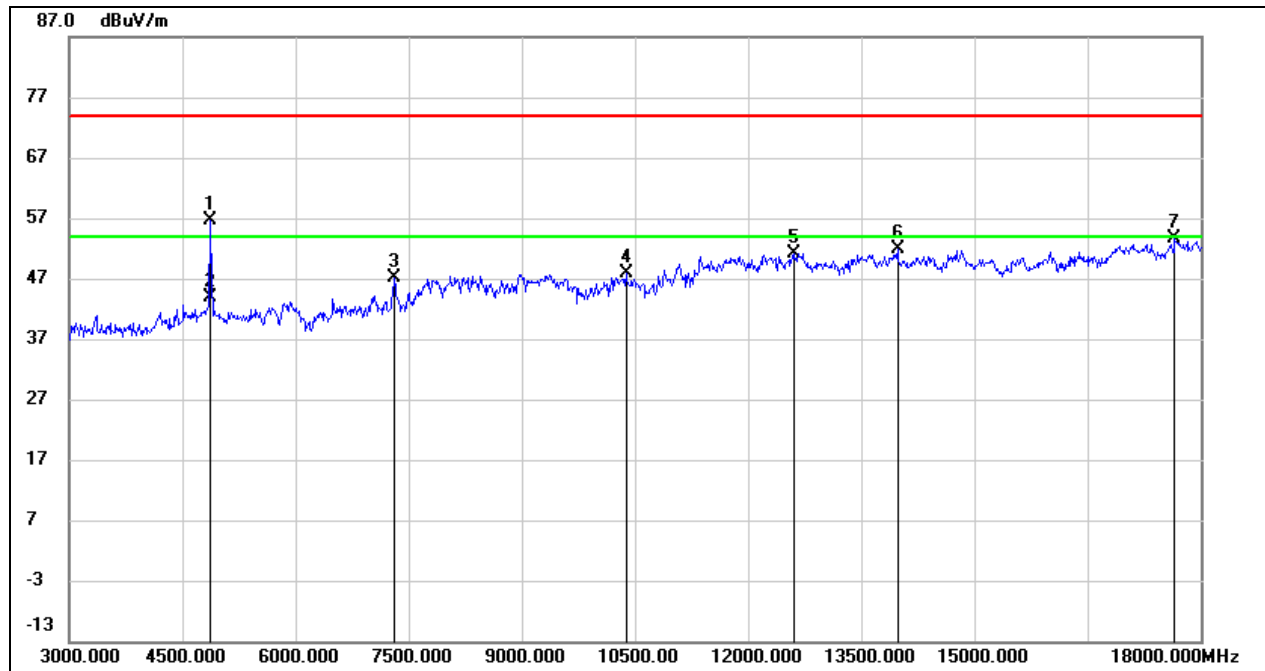
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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

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

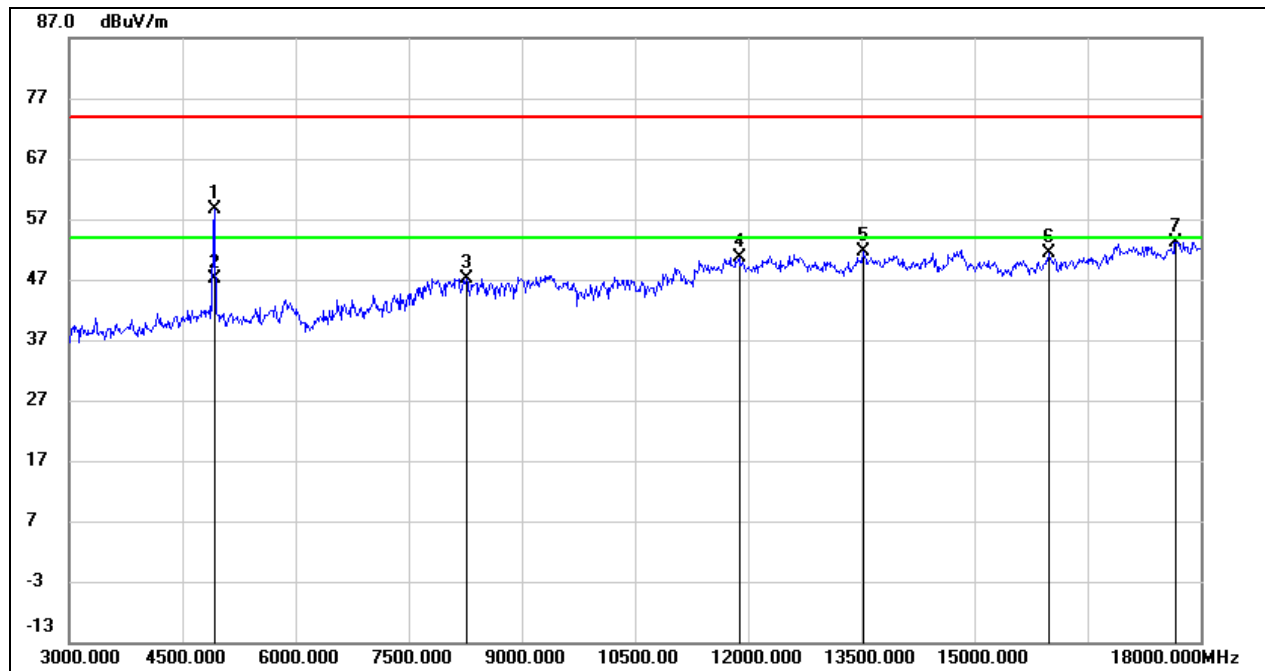
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	55.36	1.33	56.69	74.00	-17.31	peak
2	4860.000	42.51	1.33	43.84	54.00	-10.16	AVG
3	7305.000	39.92	7.14	47.06	74.00	-26.94	peak
4	10380.000	35.68	12.15	47.83	74.00	-26.17	peak
5	12600.000	35.47	15.78	51.25	74.00	-22.75	peak
6	13980.000	34.32	17.64	51.96	74.00	-22.04	peak
7	17655.000	30.53	23.14	53.67	74.00	-20.33	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/T_{on}$ , where:  $T_{on}$  is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	57.10	1.45	58.55	74.00	-15.45	peak
2	4920.000	45.57	1.45	47.02	54.00	-6.98	AVG
3	8265.000	37.47	9.73	47.20	74.00	-26.80	peak
4	11880.000	35.25	15.46	50.71	74.00	-23.29	peak
5	13530.000	34.52	17.19	51.71	74.00	-22.29	peak
6	15990.000	32.89	18.39	51.28	74.00	-22.72	peak
7	17670.000	29.99	23.24	53.23	74.00	-20.77	peak

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

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

3. Peak: Peak detector.

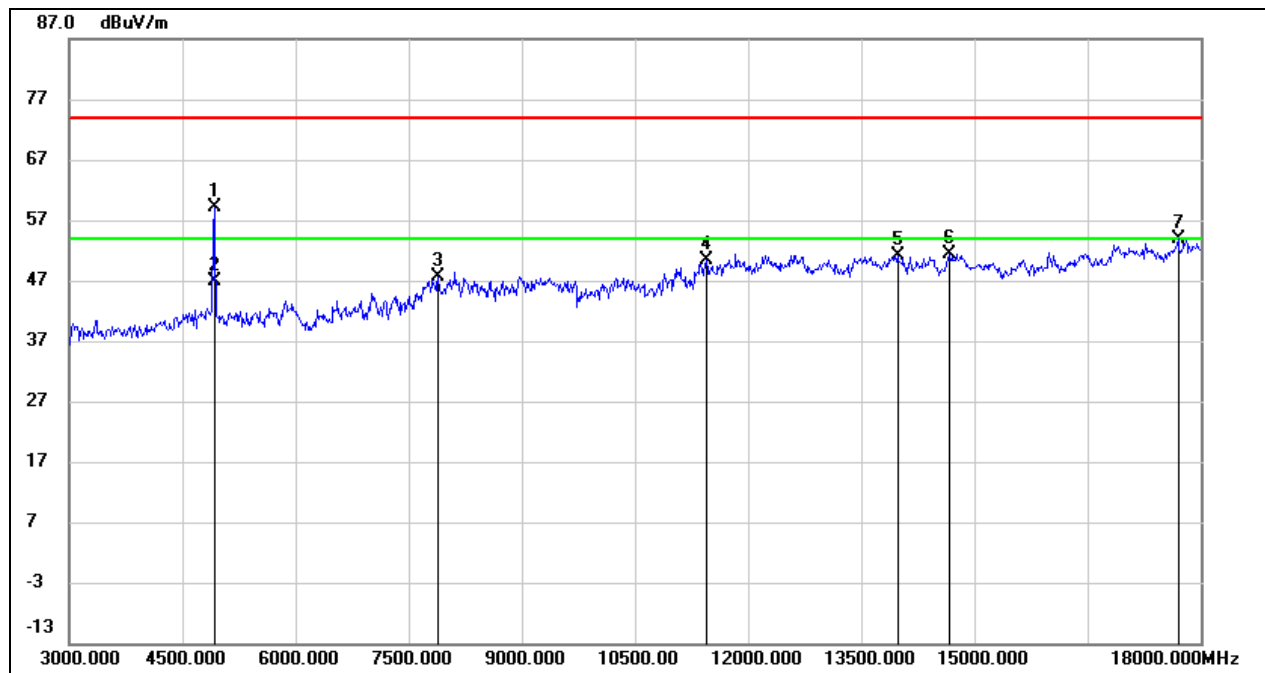
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	57.74	1.45	59.19	74.00	-14.81	peak
2	4920.000	45.41	1.45	46.86	54.00	-7.14	AVG
3	7890.000	38.73	8.91	47.64	74.00	-26.36	peak
4	11445.000	35.59	14.71	50.30	74.00	-23.70	peak
5	13980.000	33.58	17.64	51.22	74.00	-22.78	peak
6	14670.000	33.81	17.59	51.40	74.00	-22.60	peak
7	17700.000	30.46	23.47	53.93	74.00	-20.07	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. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.

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

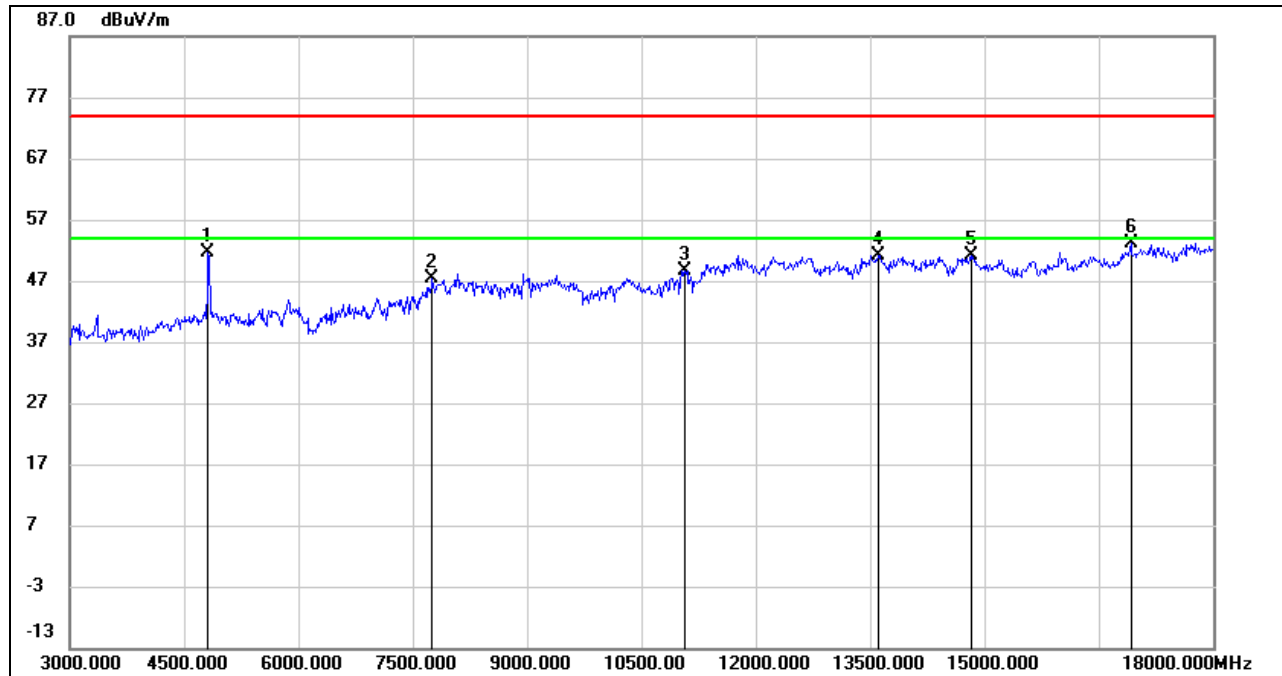
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

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	4815.000	50.31	1.38	51.69	74.00	-22.31	peak
2	7755.000	38.34	8.94	47.28	74.00	-26.72	peak
3	11070.000	34.98	13.65	48.63	74.00	-25.37	peak
4	13605.000	34.12	17.12	51.24	74.00	-22.76	peak
5	14820.000	33.11	17.91	51.02	74.00	-22.98	peak
6	16920.000	31.67	21.51	53.18	74.00	-20.82	peak

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

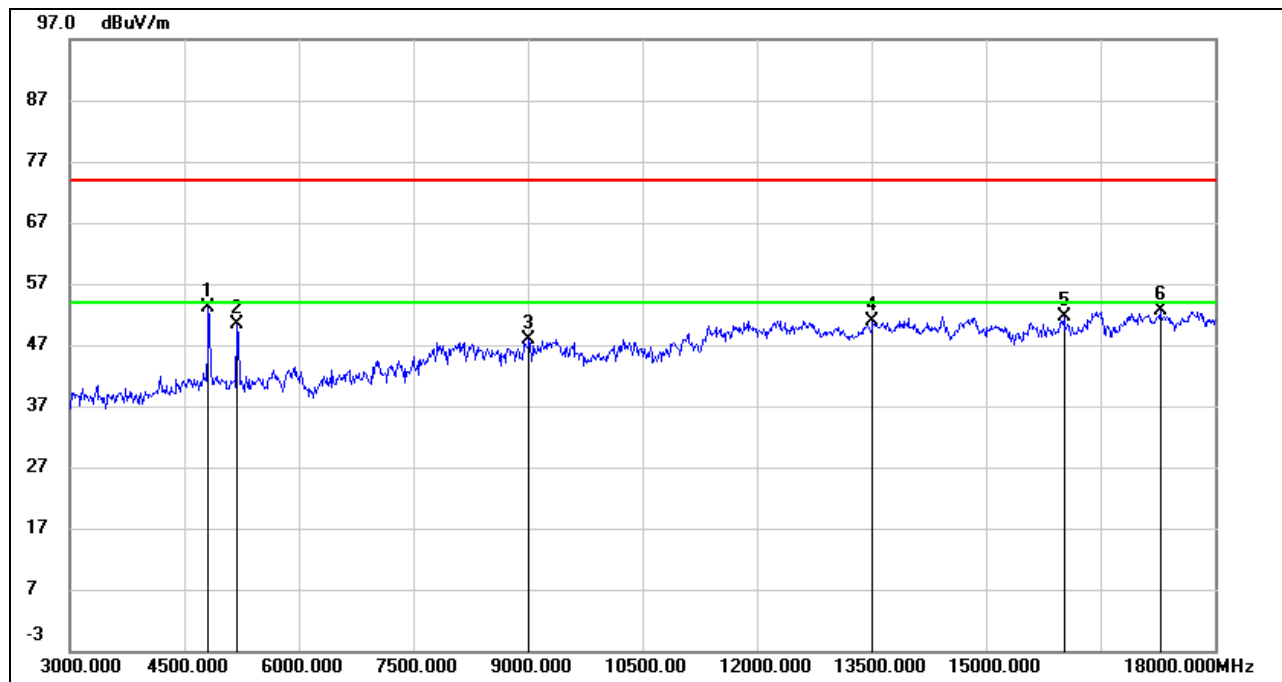
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

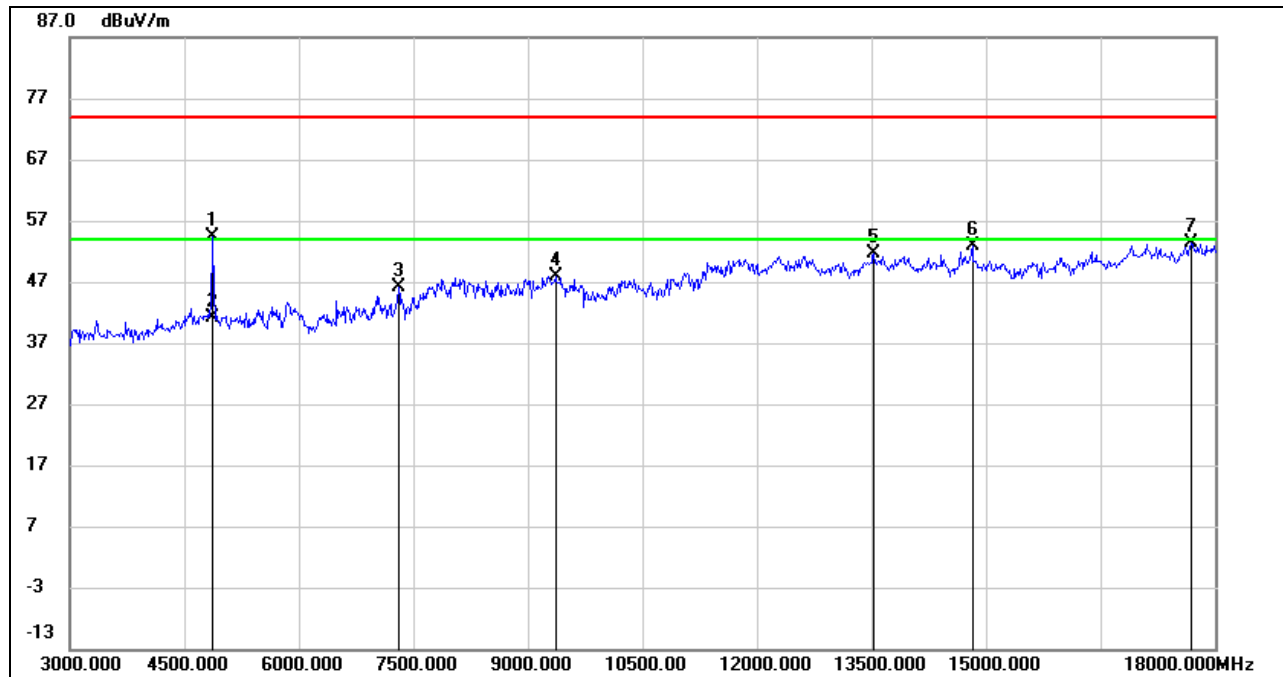
### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	51.71	1.38	53.09	74.00	-20.91	peak
2	5190.000	47.65	2.74	50.39	74.00	-23.61	peak
3	9015.000	36.85	11.10	47.95	74.00	-26.05	peak
4	13515.000	33.79	17.19	50.98	74.00	-23.02	peak
5	16020.000	33.34	18.41	51.75	74.00	-22.25	peak
6	17280.000	30.17	22.48	52.65	74.00	-21.35	peak

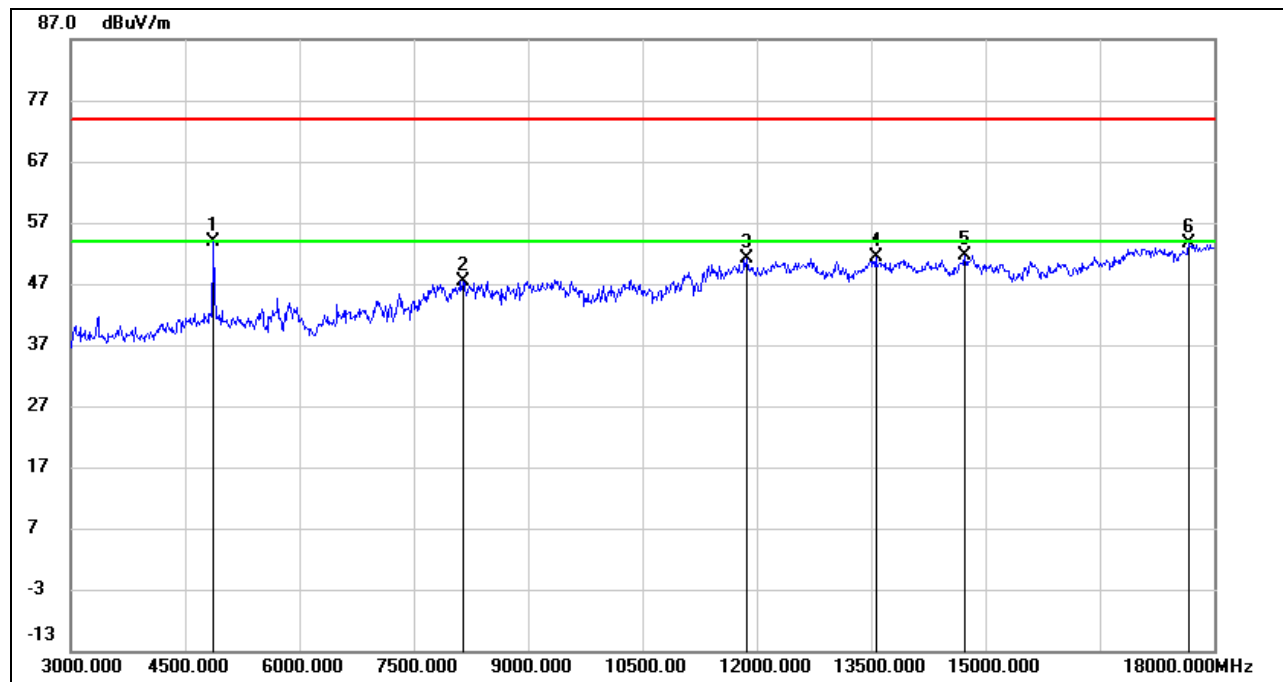
- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	53.10	1.32	54.42	74.00	-19.58	peak
2	4875.000	39.72	1.32	41.04	54.00	-12.96	AVG
3	7305.000	39.06	7.14	46.20	74.00	-27.80	peak
4	9360.000	37.19	10.75	47.94	74.00	-26.06	peak
5	13530.000	34.49	17.19	51.68	74.00	-22.32	peak
6	14820.000	35.07	17.91	52.98	74.00	-21.02	peak
7	17685.000	30.09	23.36	53.45	74.00	-20.55	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	52.57	1.32	53.89	74.00	-20.11	peak
2	8145.000	37.42	10.01	47.43	74.00	-26.57	peak
3	11865.000	35.62	15.42	51.04	74.00	-22.96	peak
4	13560.000	34.30	17.15	51.45	74.00	-22.55	peak
5	14730.000	33.95	17.79	51.74	74.00	-22.26	peak
6	17670.000	30.30	23.24	53.54	74.00	-20.46	peak

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

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

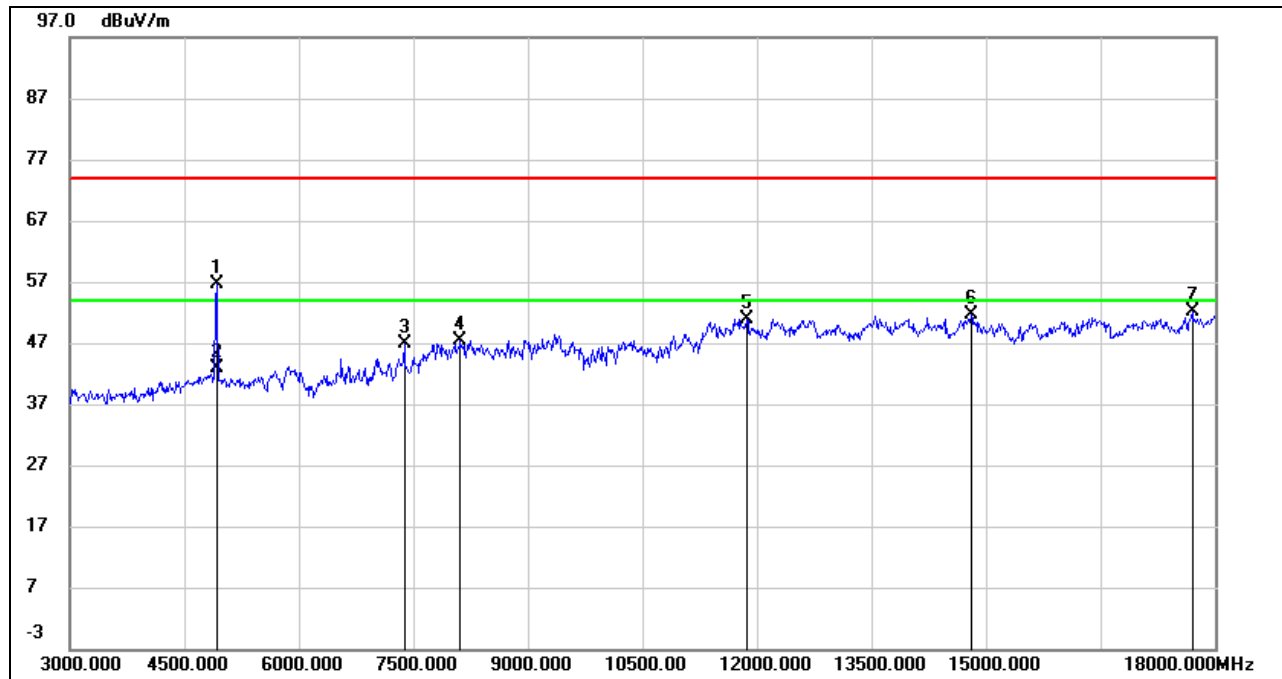
3. Peak: Peak detector.

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

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



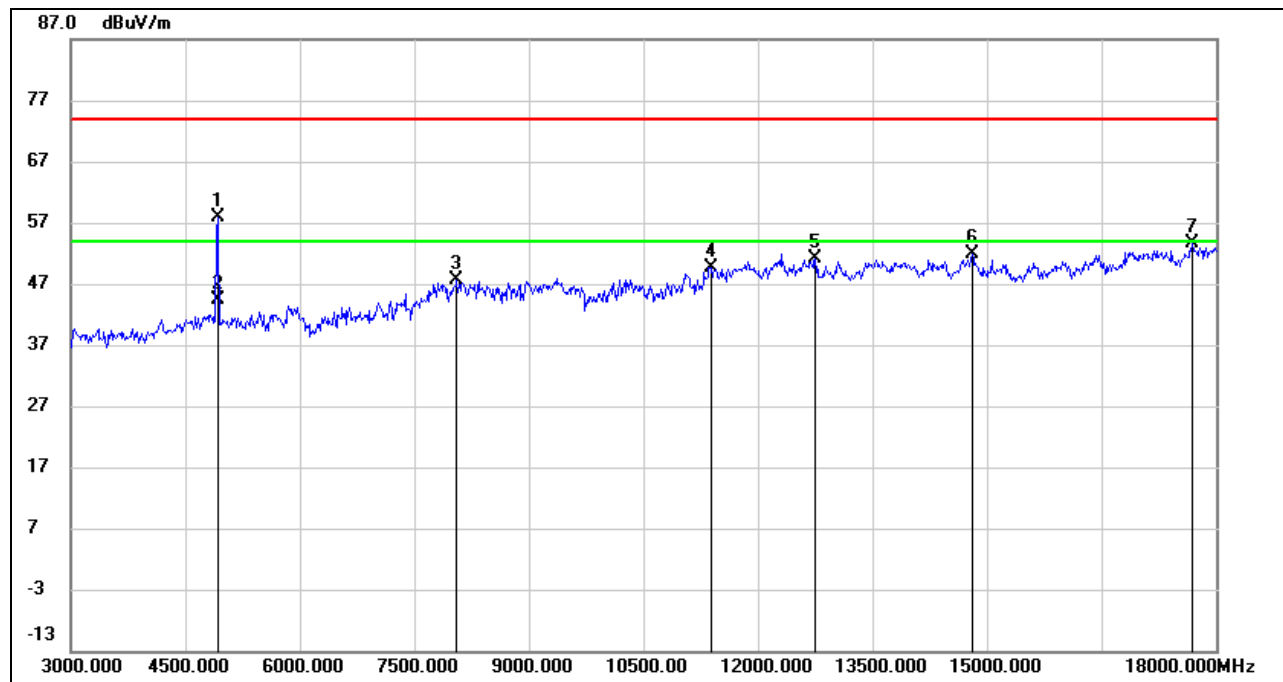
### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	55.24	1.45	56.69	74.00	-17.31	peak
2	4920.000	41.44	1.45	42.89	54.00	-11.11	AVG
3	7380.000	39.03	7.79	46.82	74.00	-27.18	peak
4	8115.000	37.29	10.13	47.42	74.00	-26.58	peak
5	11865.000	35.54	15.42	50.96	74.00	-23.04	peak
6	14805.000	33.66	18.00	51.66	74.00	-22.34	peak
7	17700.000	28.64	23.47	52.11	74.00	-21.89	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

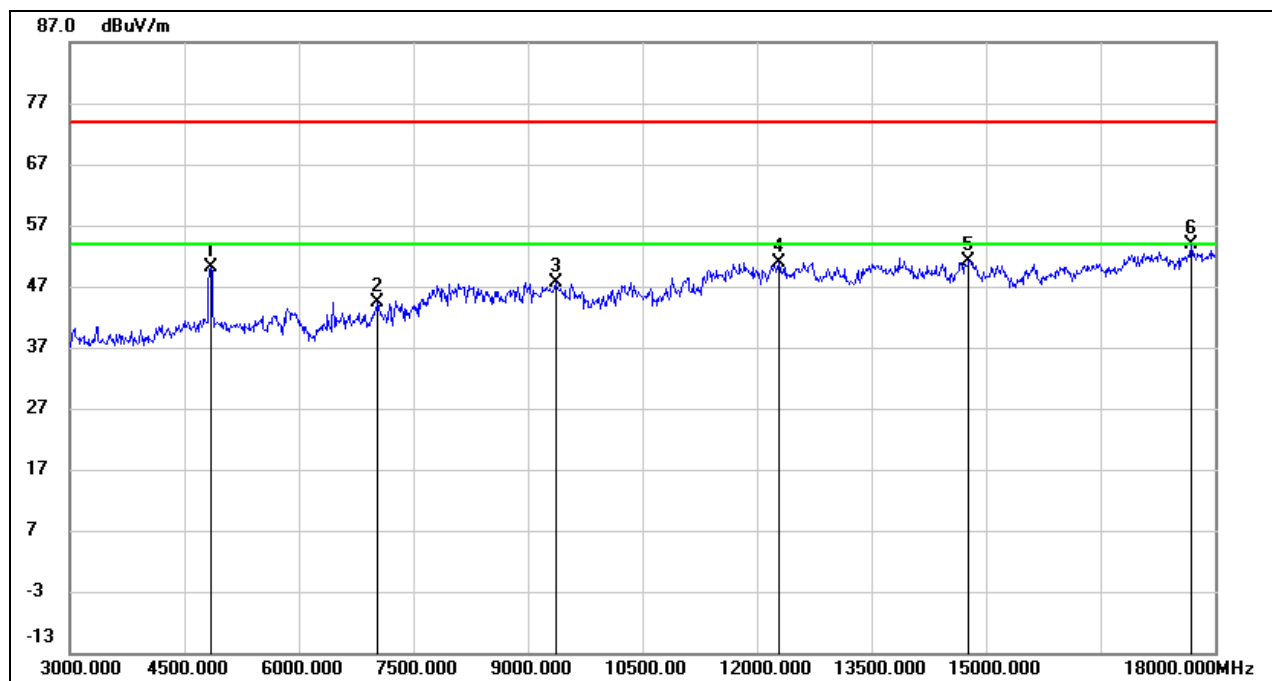


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	56.45	1.45	57.90	74.00	-16.10	peak
2	4920.000	42.92	1.45	44.37	54.00	-9.63	AVG
3	8055.000	38.05	9.48	47.53	74.00	-26.47	peak
4	11385.000	35.07	14.62	49.69	74.00	-24.31	peak
5	12750.000	35.38	15.81	51.19	74.00	-22.81	peak
6	14805.000	33.77	18.00	51.77	74.00	-22.23	peak
7	17685.000	30.21	23.36	53.57	74.00	-20.43	peak

Note: 1. Peak Result = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.  
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
5. For the transmitting duration, please refer to clause 7.1.  
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

### 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	48.86	1.35	50.21	74.00	-23.79	peak
2	7035.000	36.81	7.62	44.43	74.00	-29.57	peak
3	9360.000	36.95	10.75	47.70	74.00	-26.30	peak
4	12285.000	34.75	16.08	50.83	74.00	-23.17	peak
5	14775.000	33.13	17.95	51.08	74.00	-22.92	peak
6	17685.000	30.50	23.36	53.86	74.00	-20.14	peak

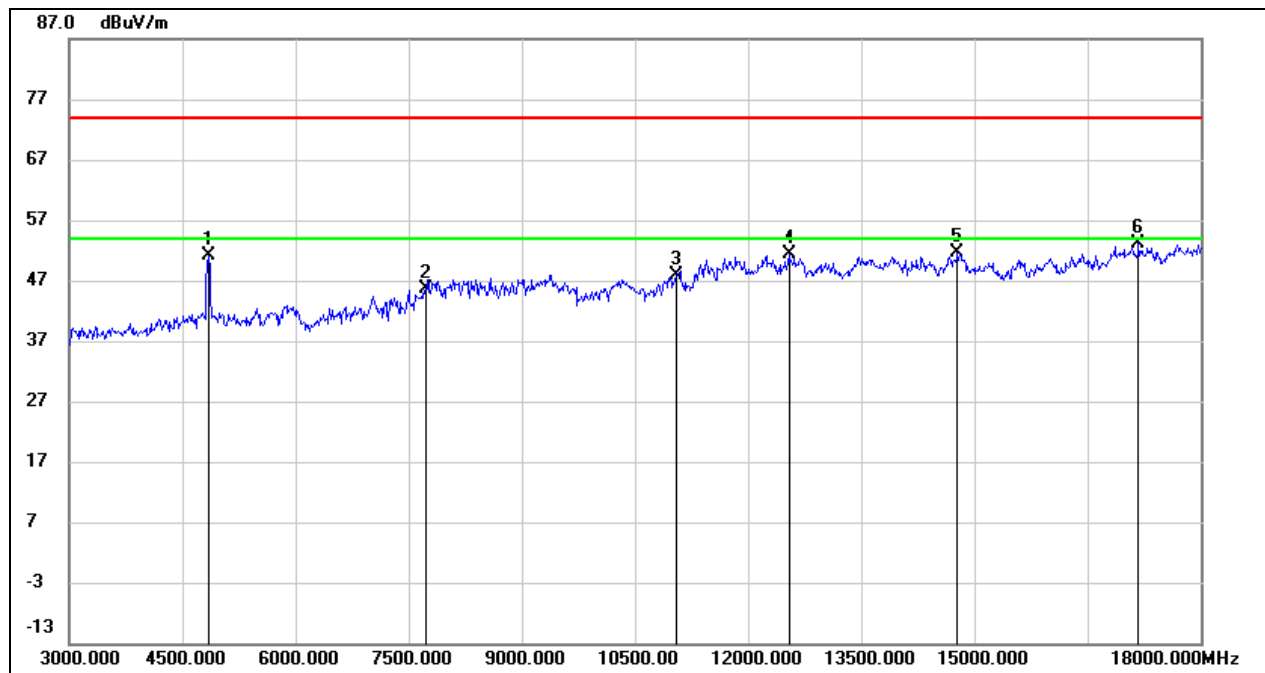
Note: 1. Peak Result = Reading Level + Correct Factor.

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	4845.000	49.70	1.35	51.05	74.00	-22.95	peak
2	7725.000	37.05	8.67	45.72	74.00	-28.28	peak
3	11040.000	34.48	13.51	47.99	74.00	-26.01	peak
4	12540.000	35.57	15.72	51.29	74.00	-22.71	peak
5	14775.000	33.71	17.95	51.66	74.00	-22.34	peak
6	17175.000	31.05	21.97	53.02	74.00	-20.98	peak

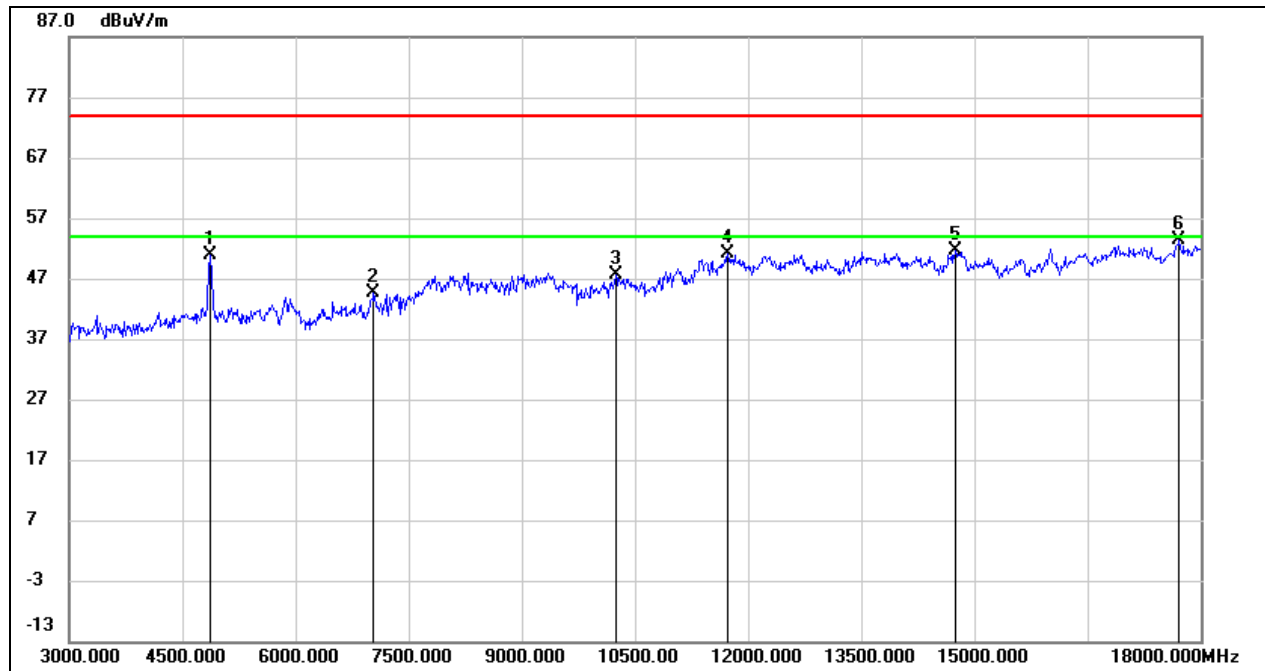
Note: 1. Peak Result = Reading Level + Correct Factor.

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	49.44	1.32	50.76	74.00	-23.24	peak
2	7035.000	36.95	7.62	44.57	74.00	-29.43	peak
3	10245.000	36.08	11.63	47.71	74.00	-26.29	peak
4	11730.000	35.74	15.32	51.06	74.00	-22.94	peak
5	14745.000	33.75	17.84	51.59	74.00	-22.41	peak
6	17715.000	29.91	23.56	53.47	74.00	-20.53	peak

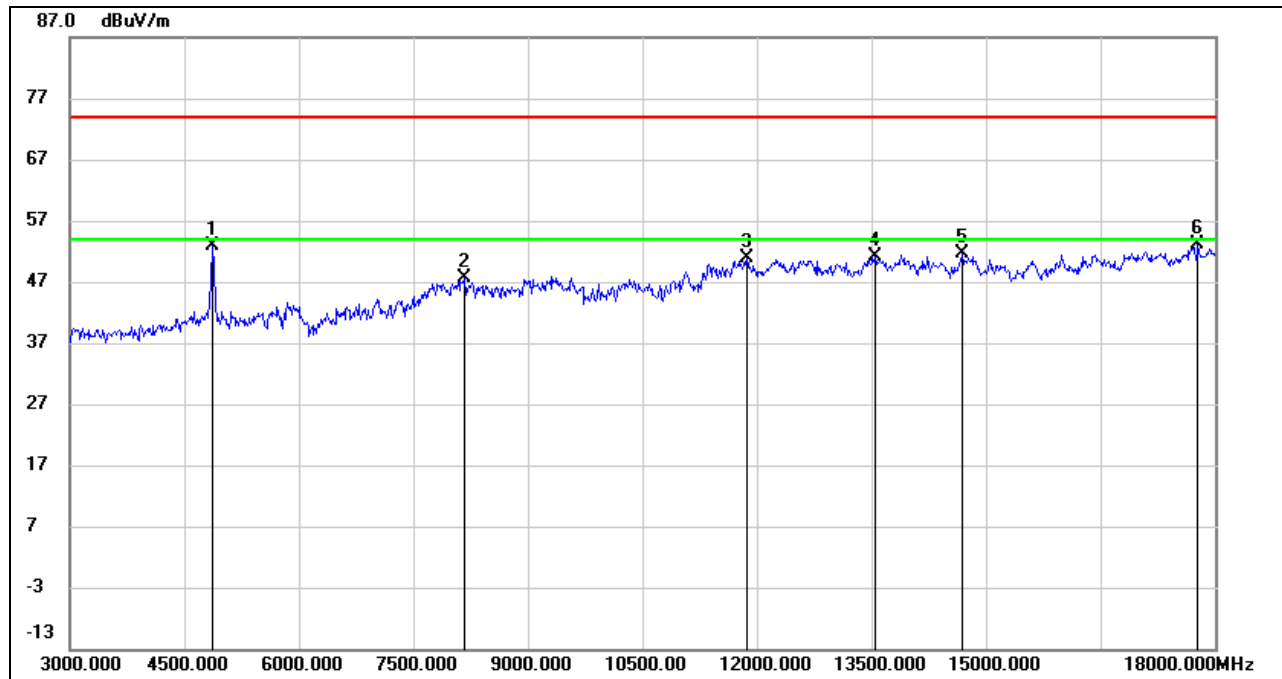
Note: 1. Peak Result = Reading Level + Correct Factor.

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.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	51.51	1.32	52.83	74.00	-21.17	peak
2	8175.000	37.63	9.90	47.53	74.00	-26.47	peak
3	11865.000	35.34	15.42	50.76	74.00	-23.24	peak
4	13545.000	34.09	17.16	51.25	74.00	-22.75	peak
5	14685.000	34.11	17.64	51.75	74.00	-22.25	peak
6	17775.000	29.14	23.91	53.05	74.00	-20.95	peak

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

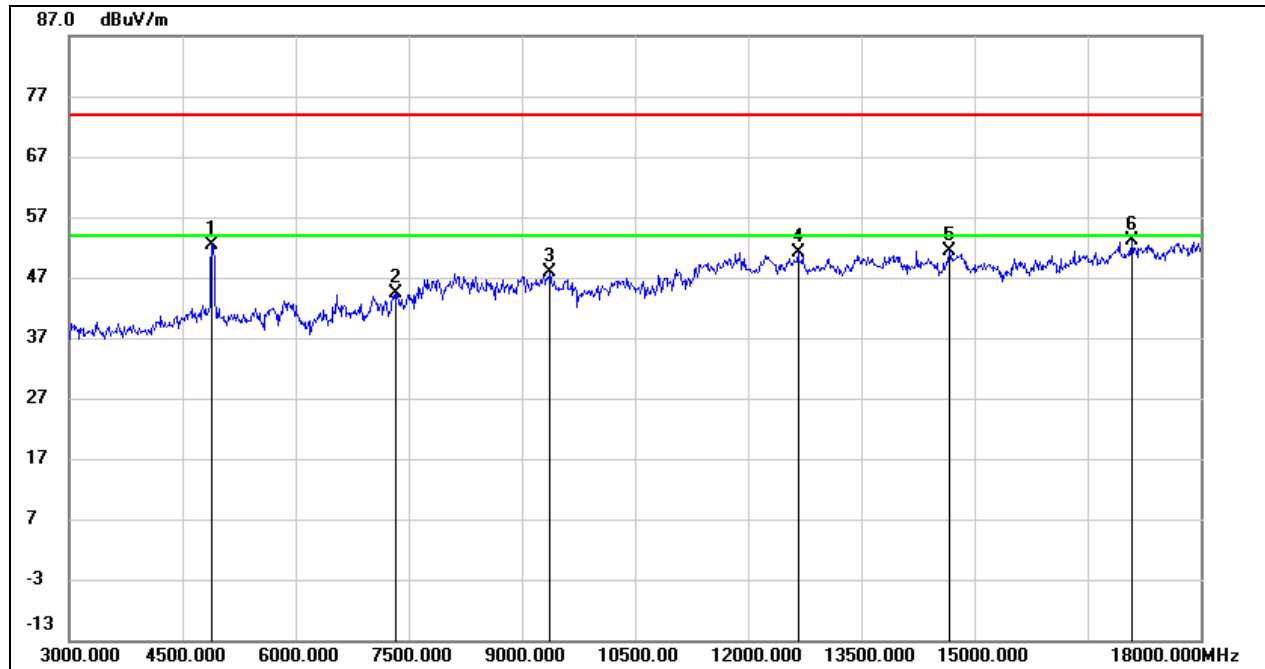
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	4890.000	51.08	1.30	52.38	74.00	-21.62	peak
2	7335.000	36.88	7.41	44.29	74.00	-29.71	peak
3	9375.000	36.93	10.83	47.76	74.00	-26.24	peak
4	12660.000	35.47	15.69	51.16	74.00	-22.84	peak
5	14670.000	33.85	17.59	51.44	74.00	-22.56	peak
6	17085.000	31.45	21.80	53.25	74.00	-20.75	peak

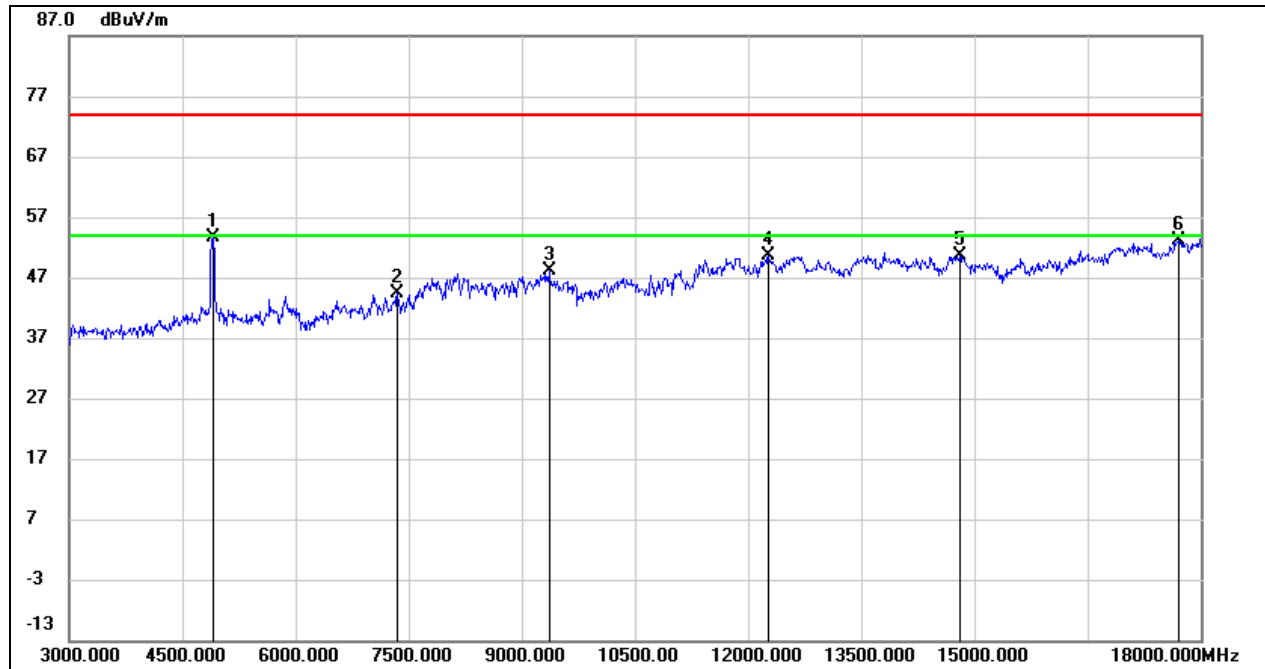
Note: 1. Peak Result = Reading Level + Correct Factor.

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	4905.000	52.20	1.33	53.53	74.00	-20.47	peak
2	7350.000	36.92	7.53	44.45	74.00	-29.55	peak
3	9360.000	37.43	10.75	48.18	74.00	-25.82	peak
4	12270.000	34.58	16.04	50.62	74.00	-23.38	peak
5	14805.000	32.67	18.00	50.67	74.00	-23.33	peak
6	17700.000	29.61	23.47	53.08	74.00	-20.92	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.

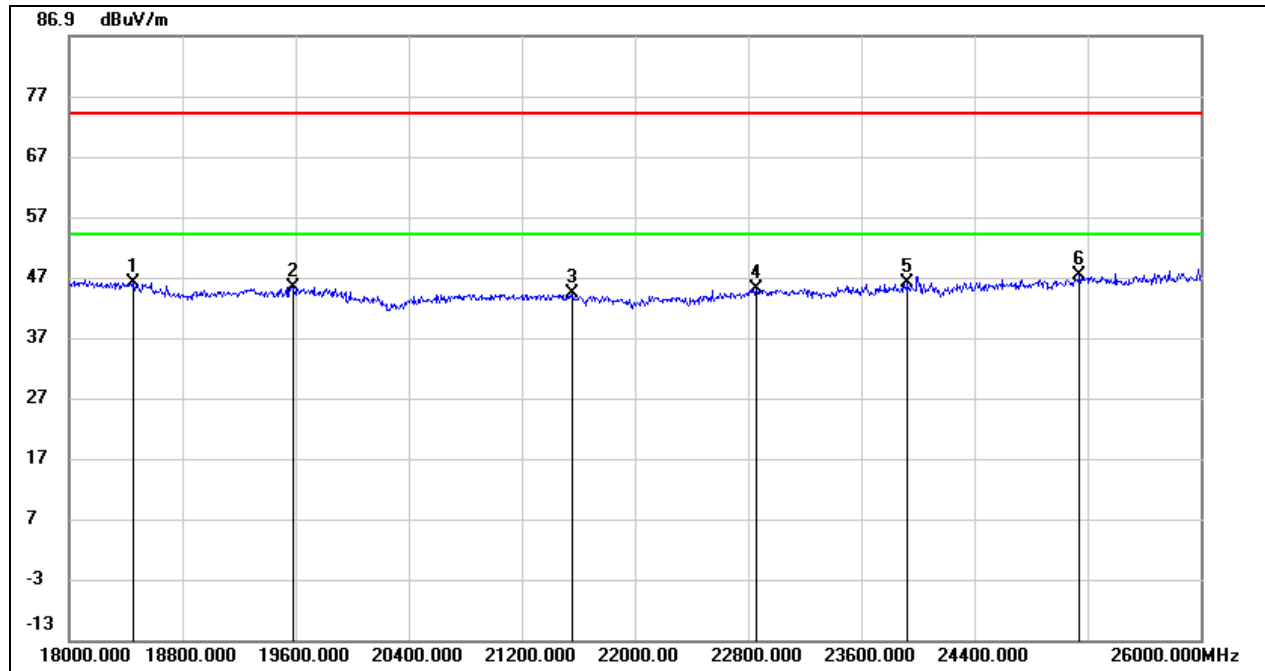


## 8.5. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

### 8.5.1. 802.11b SISO MODE

#### ANTENNA 1 TEST RESULTS (WORST CASE)

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



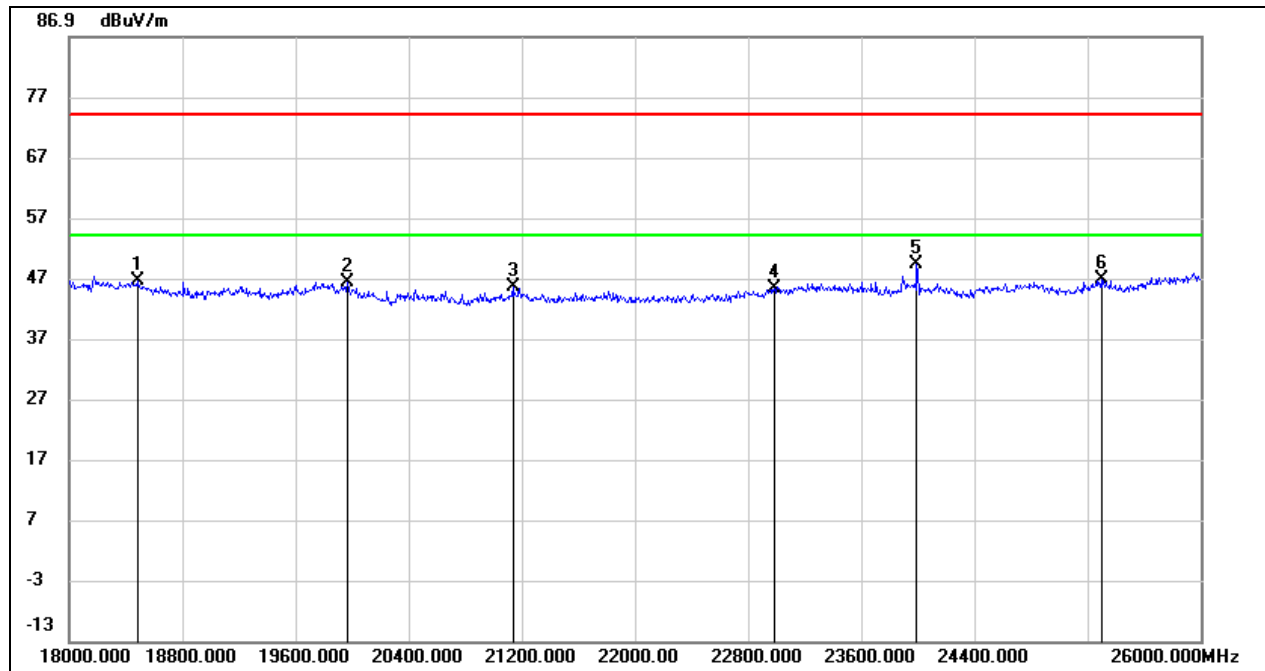
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18456.000	50.43	-4.38	46.05	74.00	-27.95	peak
2	19584.000	50.01	-4.64	45.37	74.00	-28.63	peak
3	21560.000	50.06	-5.77	44.29	74.00	-29.71	peak
4	22856.000	50.83	-5.68	45.15	74.00	-28.85	peak
5	23928.000	50.32	-4.19	46.13	74.00	-27.87	peak
6	25144.000	48.39	-1.14	47.25	74.00	-26.75	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 (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18480.000	50.79	-4.38	46.41	74.00	-27.59	peak
2	19968.000	50.73	-4.36	46.37	74.00	-27.63	peak
3	21136.000	50.86	-5.41	45.45	74.00	-28.55	peak
4	22984.000	50.79	-5.61	45.18	74.00	-28.82	peak
5	23992.000	53.22	-4.03	49.19	74.00	-24.81	peak
6	25296.000	48.20	-1.30	46.90	74.00	-27.10	peak

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

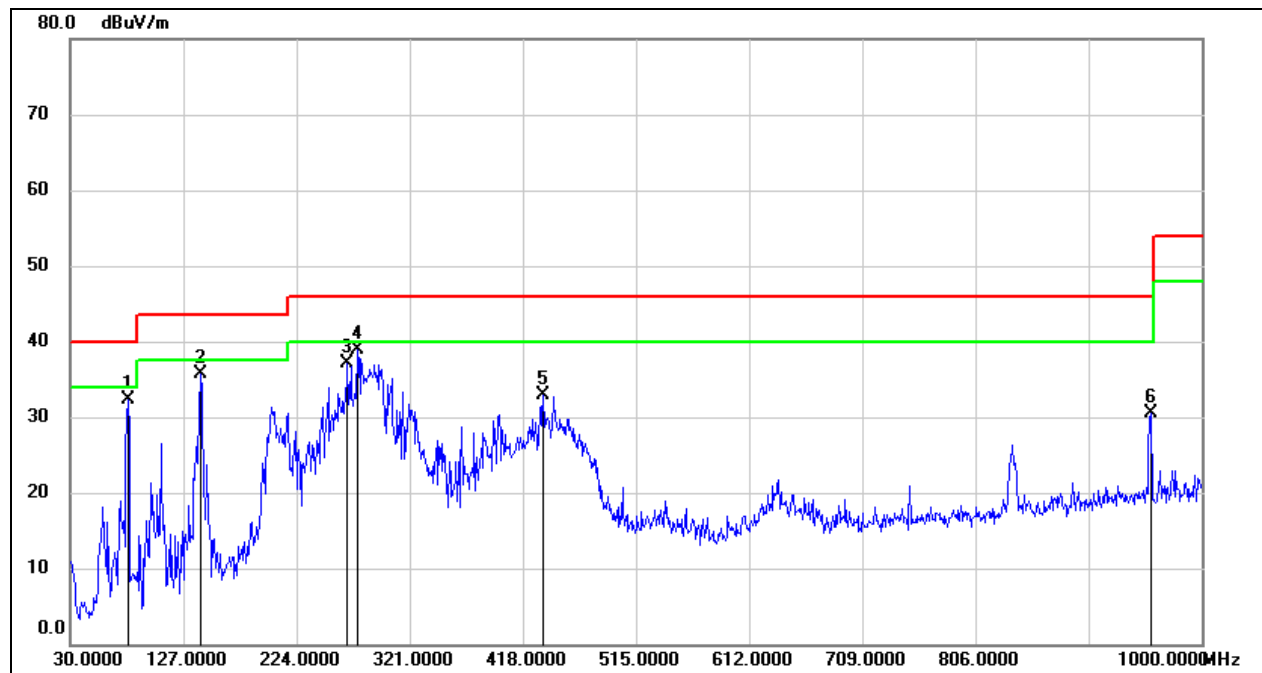
Note: All the modes had been tested, but only the worst data was recorded in the report.

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

### 8.6.1. 802.11b SISO MODE

#### ANTENNA 1 TEST RESULTS (WORST CASE)

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

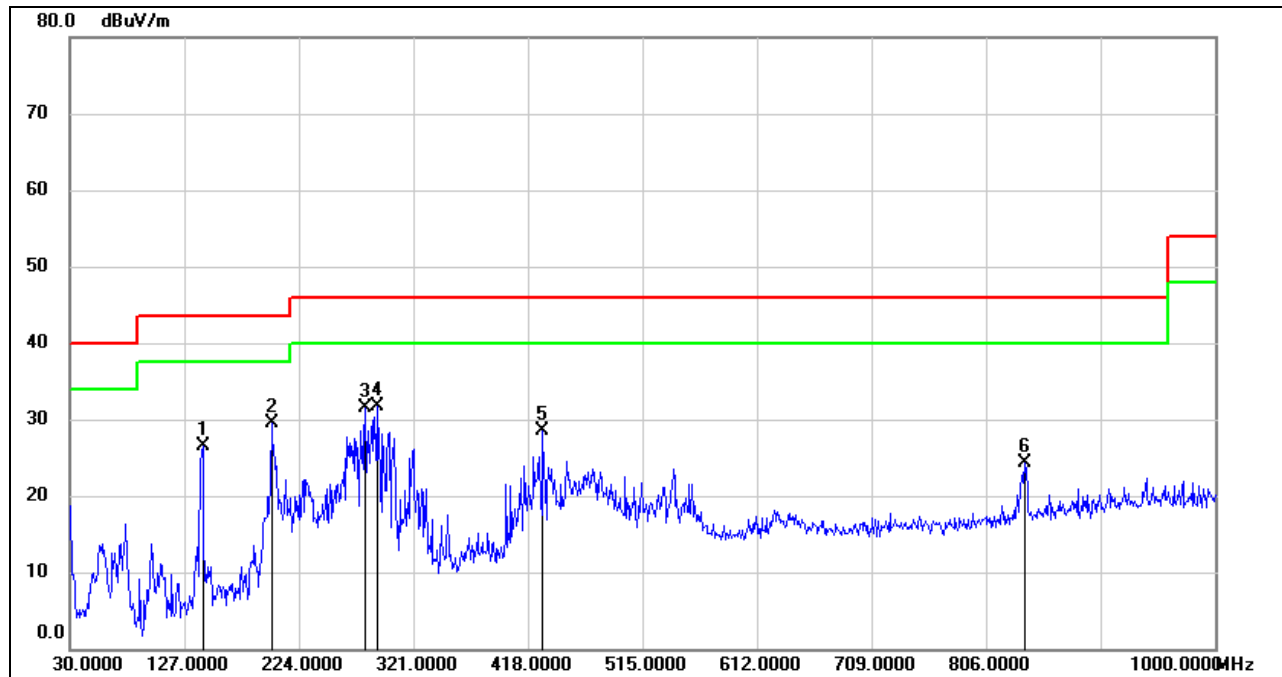


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	79.4700	53.53	-21.30	32.23	40.00	-7.77	QP
2	141.5500	54.46	-18.76	35.70	43.50	-7.80	QP
3	267.6500	54.96	-17.93	37.03	46.00	-8.97	QP
4	276.3800	55.94	-17.06	38.88	46.00	-7.12	QP
5	435.4600	45.49	-12.64	32.85	46.00	-13.15	QP
6	956.3500	34.95	-4.49	30.46	46.00	-15.54	QP

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

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

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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	142.5200	45.18	-18.70	26.48	43.50	-17.02	QP
2	200.7200	45.88	-16.44	29.44	43.50	-14.06	QP
3	280.2600	48.20	-16.66	31.54	46.00	-14.46	QP
4	289.9600	47.54	-15.91	31.63	46.00	-14.37	QP
5	430.6100	41.17	-12.71	28.46	46.00	-17.54	QP
6	838.9800	30.70	-6.49	24.21	46.00	-21.79	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.

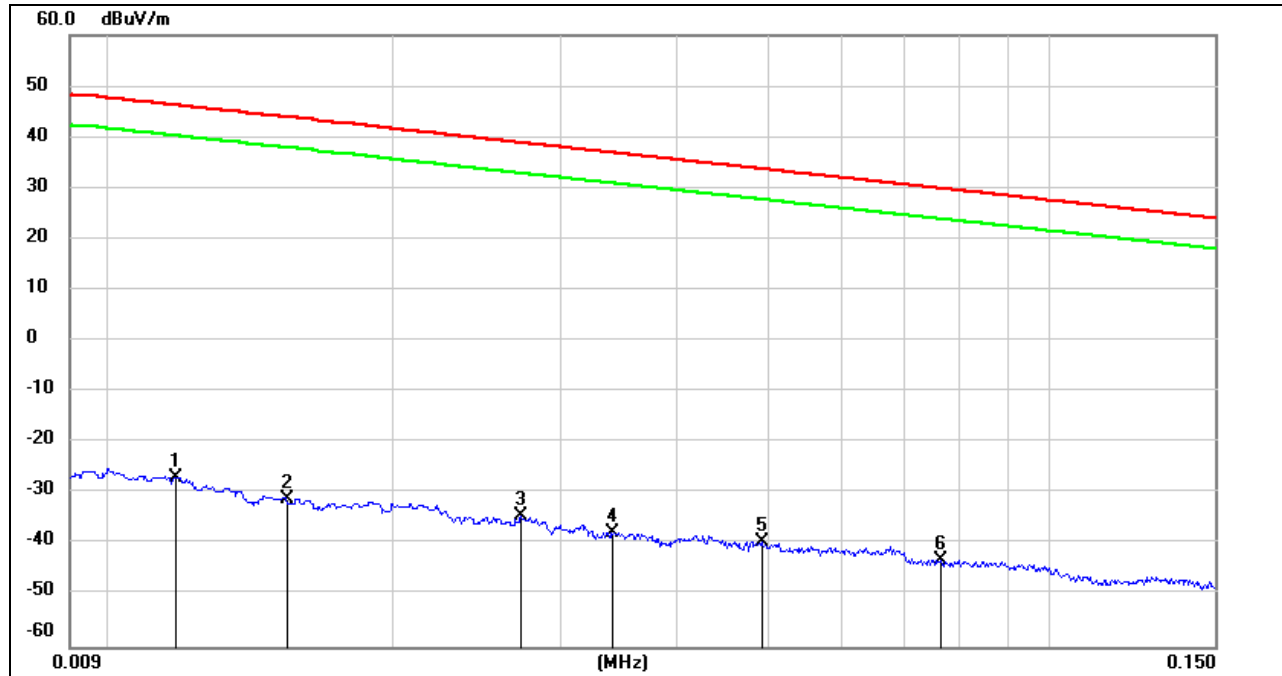
## 8.7. SPURIOUS EMISSIONS BELOW 30 MHz

### 8.7.1. 802.11b SISO MODE

#### ANTENNA 1 TEST RESULTS (WORST CASE)

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

9 kHz~ 150 kHz

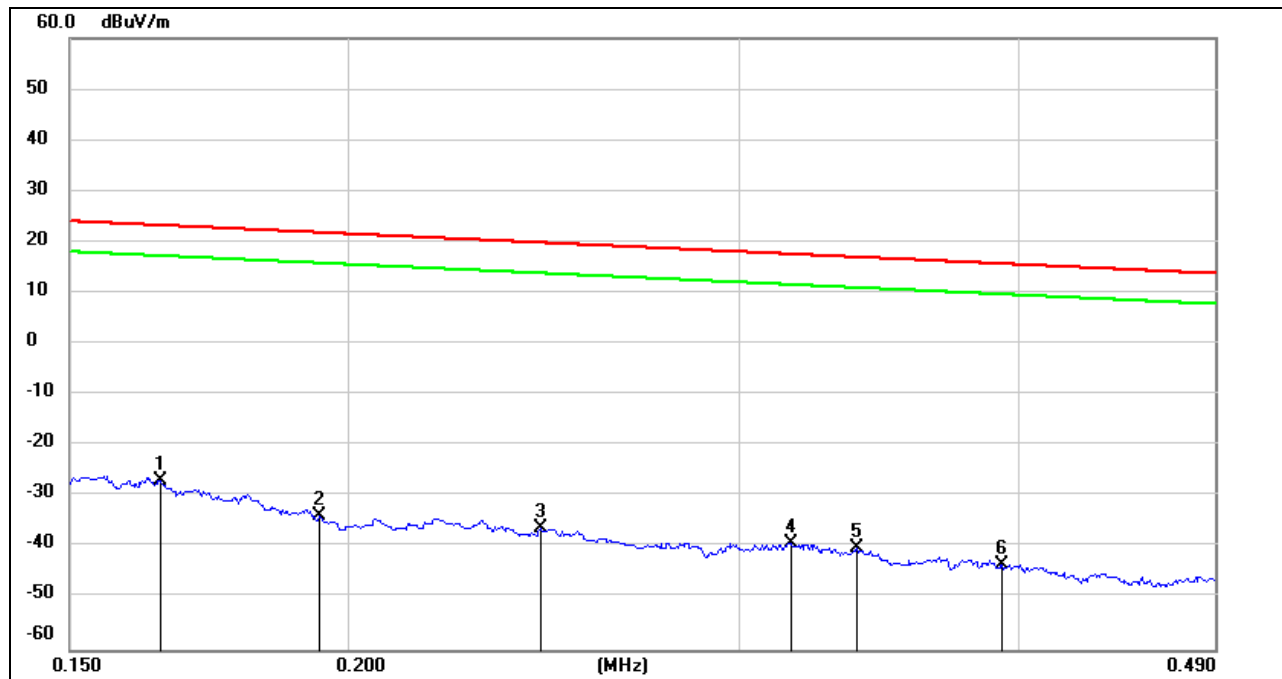


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.0117	74.48	-101.39	-26.91	46.24	-73.15	peak
2	0.0154	70.44	-101.37	-30.93	43.85	-74.78	peak
3	0.0273	66.99	-101.38	-34.39	38.88	-73.27	peak
4	0.0342	63.86	-101.41	-37.55	36.92	-74.47	peak
5	0.0492	62.05	-101.47	-39.42	33.76	-73.18	peak
6	0.0767	58.59	-101.61	-43.02	29.91	-72.93	peak

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

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

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

150 kHz ~ 490 kHz

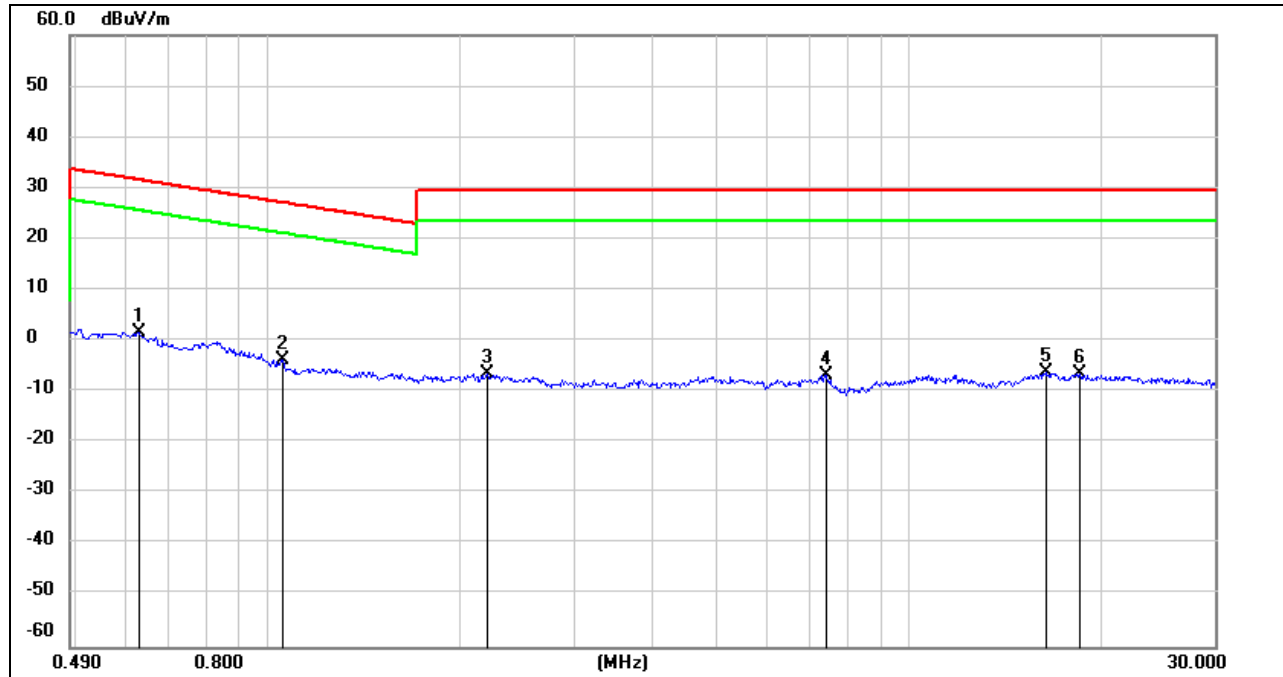
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.1647	74.76	-101.66	-26.9	23.27	-50.17	peak
2	0.1942	67.81	-101.70	-33.89	21.84	-55.73	peak
3	0.2442	65.53	-101.79	-36.26	19.85	-56.11	peak
4	0.3163	62.70	-101.87	-39.17	17.6	-56.77	peak
5	0.3382	61.73	-101.90	-40.17	17.02	-57.19	peak
6	0.3933	58.72	-101.96	-43.24	15.71	-58.95	peak

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

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

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

**490 kHz ~ 30 MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.6298	63.67	-62.09	1.58	31.62	-30.04	peak
2	1.0524	58.44	-62.24	-3.8	27.16	-30.96	peak
3	2.2015	55.36	-61.78	-6.42	29.54	-35.96	peak
4	7.4249	54.45	-61.15	-6.7	29.54	-36.24	peak
5	16.3959	54.67	-60.96	-6.29	29.54	-35.83	peak
6	18.4908	54.56	-60.89	-6.33	29.54	-35.87	peak

Note: 1. Measurement = Reading Level + Correct Factor .  
 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.  
 3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

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

## 9. AC POWER LINE CONDUCTED EMISSIONS

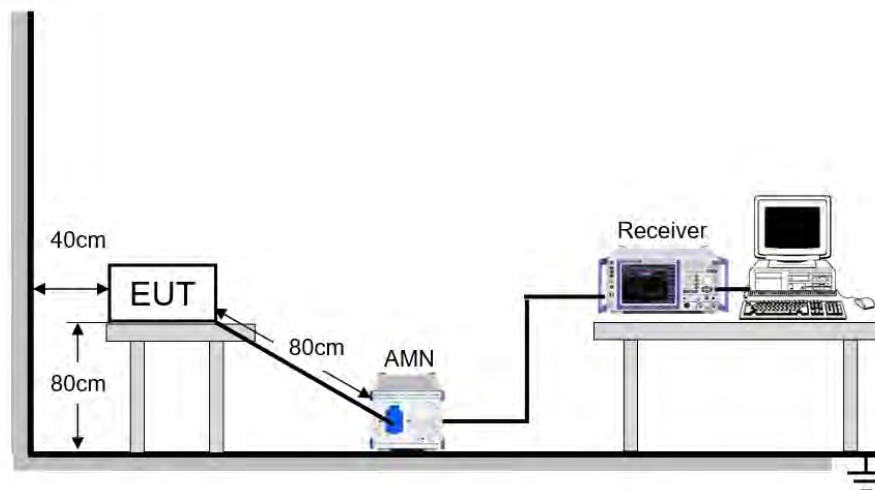
### LIMITS

Please refer to CFR 47 FCC §15.207 (a)

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

### TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



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

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

### TEST ENVIRONMENT

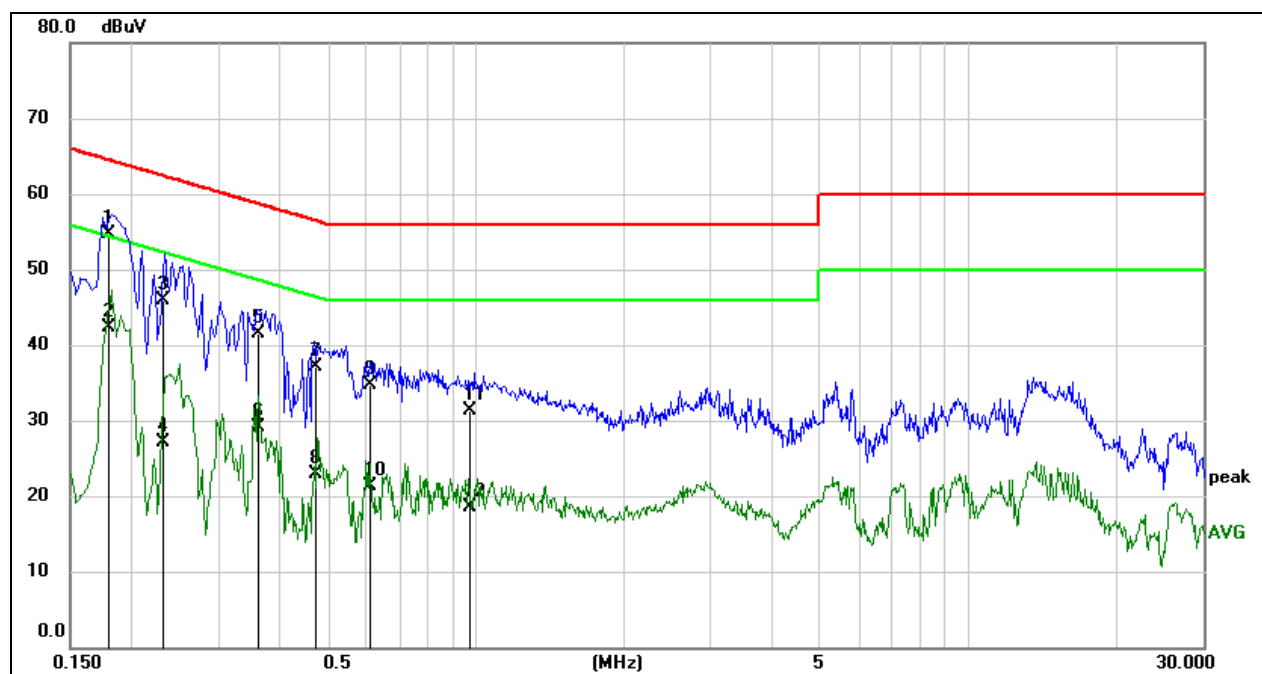
Temperature	22 °C	Relative Humidity	58 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V



## RESULTS

### 9.1. 802.11b SISO MODE

#### ANTENNA 1 TEST RESULTS (WORST CASE) LINE L RESULTS (HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1792	45.09	9.59	54.68	64.52	-9.84	QP
2	0.1792	32.78	9.59	42.37	54.52	-12.15	AVG
3	0.2306	36.27	9.59	45.86	62.43	-16.57	QP
4	0.2306	17.60	9.59	27.19	52.43	-25.24	AVG
5	0.3620	31.91	9.59	41.50	58.68	-17.18	QP
6	0.3620	19.61	9.59	29.20	48.68	-19.48	AVG
7	0.4713	27.43	9.60	37.03	56.49	-19.46	QP
8	0.4713	13.29	9.60	22.89	46.49	-23.60	AVG
9	0.6071	25.02	9.60	34.62	56.00	-21.38	QP
10	0.6071	11.65	9.60	21.25	46.00	-24.75	AVG
11	0.9771	21.79	9.61	31.40	56.00	-24.60	QP
12	0.9771	8.95	9.61	18.56	46.00	-27.44	AVG

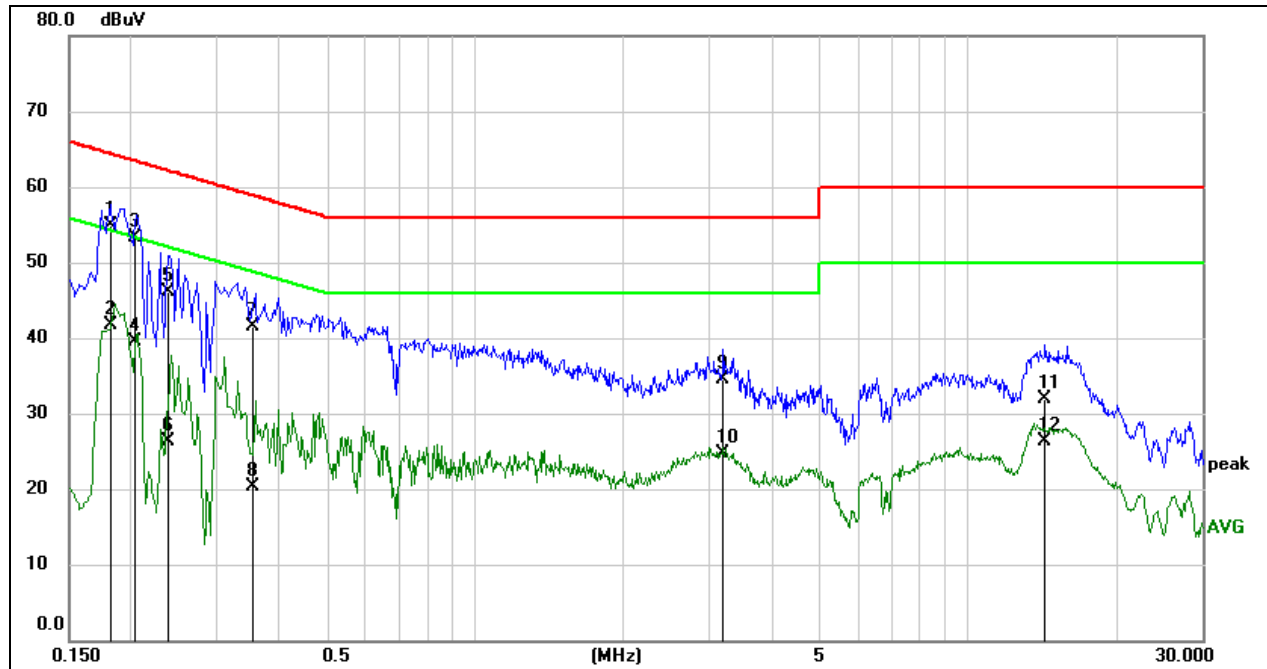
Note: 1. Result = Reading +Correct Factor.

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

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1823	45.25	9.59	54.84	64.38	-9.54	QP
2	0.1823	32.17	9.59	41.76	54.38	-12.62	AVG
3	0.2036	43.75	9.59	53.34	63.46	-10.12	QP
4	0.2036	30.01	9.59	39.60	53.46	-13.86	AVG
5	0.2390	36.46	9.59	46.05	62.13	-16.08	QP
6	0.2390	16.71	9.59	26.30	52.13	-25.83	AVG
7	0.3537	31.88	9.59	41.47	58.88	-17.41	QP
8	0.3537	10.66	9.59	20.25	48.88	-28.63	AVG
9	3.1666	24.81	9.61	34.42	56.00	-21.58	QP
10	3.1666	15.16	9.61	24.77	46.00	-21.23	AVG
11	14.4659	22.26	9.66	31.92	60.00	-28.08	QP
12	14.4659	16.63	9.66	26.29	50.00	-23.71	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 §1 5.203

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	8.120	2407.920	2416.040	0.5	PASS
	Ant2	2412	8.120	2407.920	2416.040	0.5	PASS
	Ant1	2437	8.160	2433.400	2441.560	0.5	PASS
	Ant2	2437	8.160	2432.920	2441.080	0.5	PASS
	Ant1	2462	7.600	2457.960	2465.560	0.5	PASS
	Ant2	2462	8.160	2457.920	2466.080	0.5	PASS
11G	Ant1	2412	16.360	2403.800	2420.160	0.5	PASS
	Ant2	2412	15.360	2404.200	2419.560	0.5	PASS
	Ant1	2437	16.040	2428.800	2444.840	0.5	PASS
	Ant2	2437	15.160	2429.400	2444.560	0.5	PASS
	Ant1	2462	16.160	2454.040	2470.200	0.5	PASS
	Ant2	2462	15.760	2454.400	2470.160	0.5	PASS
11N20MIMO	Ant1	2412	16.600	2403.560	2420.160	0.5	PASS
	Ant2	2412	16.600	2403.840	2420.440	0.5	PASS
	Ant1	2437	17.360	2428.480	2445.840	0.5	PASS
	Ant2	2437	17.000	2428.240	2445.240	0.5	PASS
	Ant1	2462	16.760	2453.840	2470.600	0.5	PASS
	Ant2	2462	17.640	2453.240	2470.880	0.5	PASS
11N40MIMO	Ant1	2422	35.280	2404.400	2439.680	0.5	PASS
	Ant2	2422	35.280	2404.400	2439.680	0.5	PASS
	Ant1	2437	35.200	2419.480	2454.680	0.5	PASS
	Ant2	2437	35.200	2419.480	2454.680	0.5	PASS
	Ant1	2452	35.200	2434.480	2469.680	0.5	PASS
	Ant2	2452	35.200	2434.480	2469.680	0.5	PASS

## 11.1.2. Test Graphs















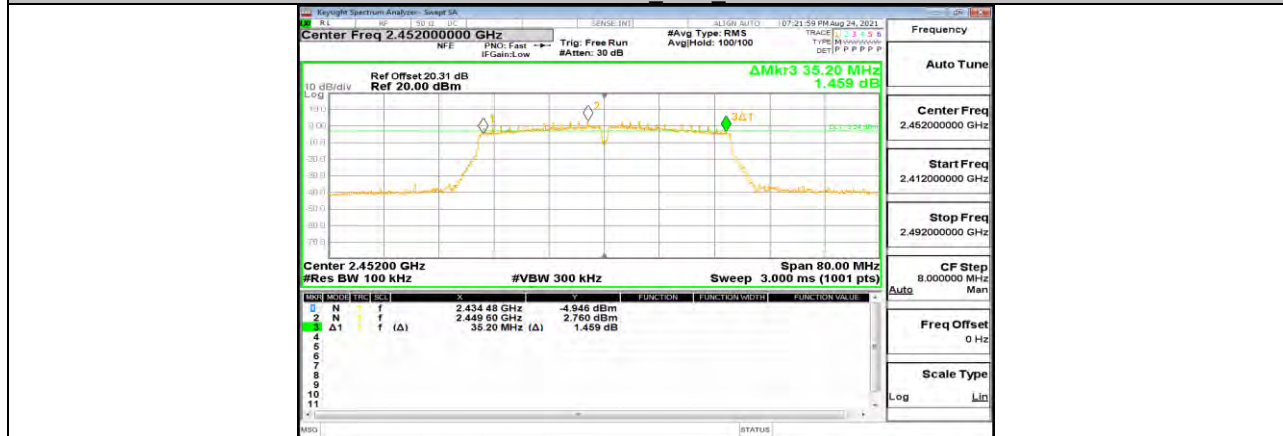




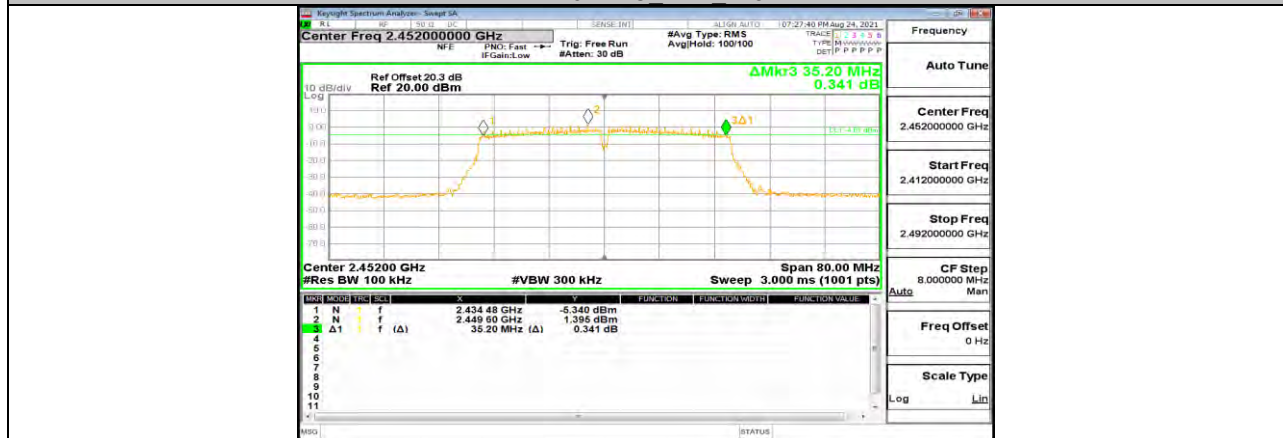




11N40MIMO Ant2 2437



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	13.495	2405.235	2418.730	PASS
	Ant2	2412	13.410	2405.282	2418.692	PASS
	Ant1	2437	13.528	2430.249	2443.777	PASS
	Ant2	2437	13.440	2430.274	2443.714	PASS
	Ant1	2462	13.533	2455.193	2468.726	PASS
	Ant2	2462	13.429	2455.265	2468.694	PASS
11G	Ant1	2412	16.847	2403.569	2420.416	PASS
	Ant2	2412	16.856	2403.573	2420.429	PASS
	Ant1	2437	16.716	2428.616	2445.332	PASS
	Ant2	2437	16.805	2428.568	2445.373	PASS
	Ant1	2462	16.821	2453.590	2470.411	PASS
	Ant2	2462	16.785	2453.606	2470.391	PASS
11N20MIMO	Ant1	2412	17.775	2403.082	2420.857	PASS
	Ant2	2412	17.647	2403.185	2420.832	PASS
	Ant1	2437	17.757	2428.140	2445.897	PASS
	Ant2	2437	17.726	2428.172	2445.898	PASS
	Ant1	2462	17.758	2453.141	2470.899	PASS
	Ant2	2462	17.703	2453.202	2470.905	PASS
11N40MIMO	Ant1	2422	36.117	2403.975	2440.092	PASS
	Ant2	2422	36.096	2403.976	2440.072	PASS
	Ant1	2437	36.041	2419.012	2455.053	PASS
	Ant2	2437	36.043	2419.122	2455.165	PASS
	Ant1	2452	36.057	2434.100	2470.157	PASS
	Ant2	2452	36.087	2434.119	2470.206	PASS

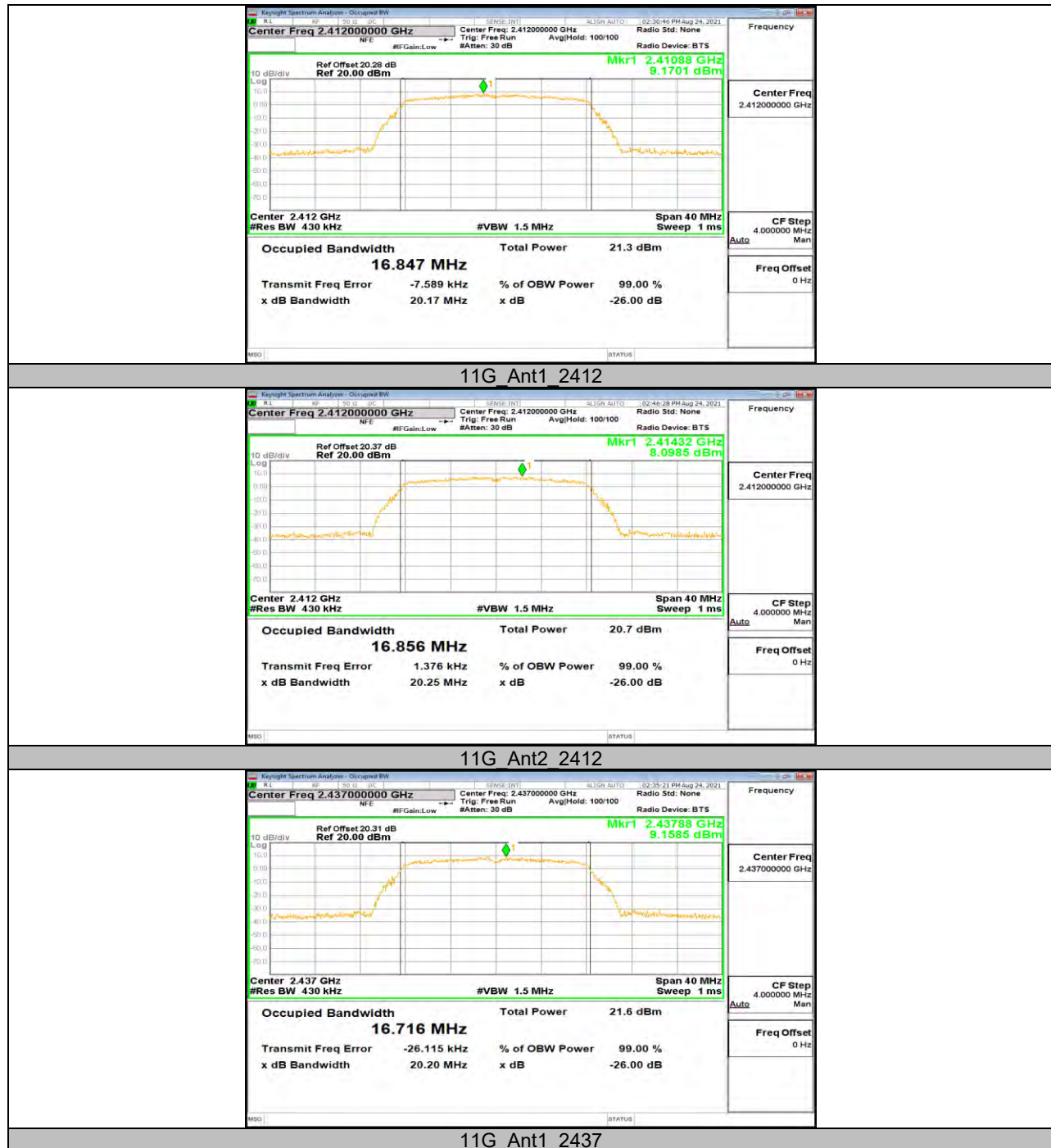


## 11.2.2. Test Graphs























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

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	14.46	<=30	PASS
	Ant2	2412	13.62	<=30	PASS
	Ant1	2437	13.79	<=30	PASS
	Ant2	2437	12.77	<=30	PASS
	Ant1	2462	13.82	<=30	PASS
	Ant2	2462	12.50	<=30	PASS
11G	Ant1	2412	15.32	<=30	PASS
	Ant2	2412	14.65	<=30	PASS
	Ant1	2437	15.45	<=30	PASS
	Ant2	2437	14.44	<=30	PASS
	Ant1	2462	15.52	<=30	PASS
	Ant2	2462	14.58	<=30	PASS
11N20MIMO	Ant1	2412	14.73	<=30	PASS
	Ant2	2412	14.07	<=30	PASS
	total	2412	17.42	<=30	PASS
	Ant1	2437	14.98	<=30	PASS
	Ant2	2437	13.59	<=30	PASS
	total	2437	17.35	<=30	PASS
	Ant1	2462	15.33	<=30	PASS
	Ant2	2462	14.04	<=30	PASS
11N40MIMO	total	2462	17.74	<=30	PASS
	Ant1	2422	15.33	<=30	PASS
	Ant2	2422	14.32	<=30	PASS
	total	2422	17.86	<=30	PASS
	Ant1	2437	15.50	<=30	PASS
	Ant2	2437	14.22	<=30	PASS
	total	2437	17.92	<=30	PASS
	Ant1	2452	15.82	<=30	PASS
	Ant2	2452	14.39	<=30	PASS
	total	2452	18.17	<=30	PASS

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

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



## 11.4. Appendix D: Maximum power spectral density

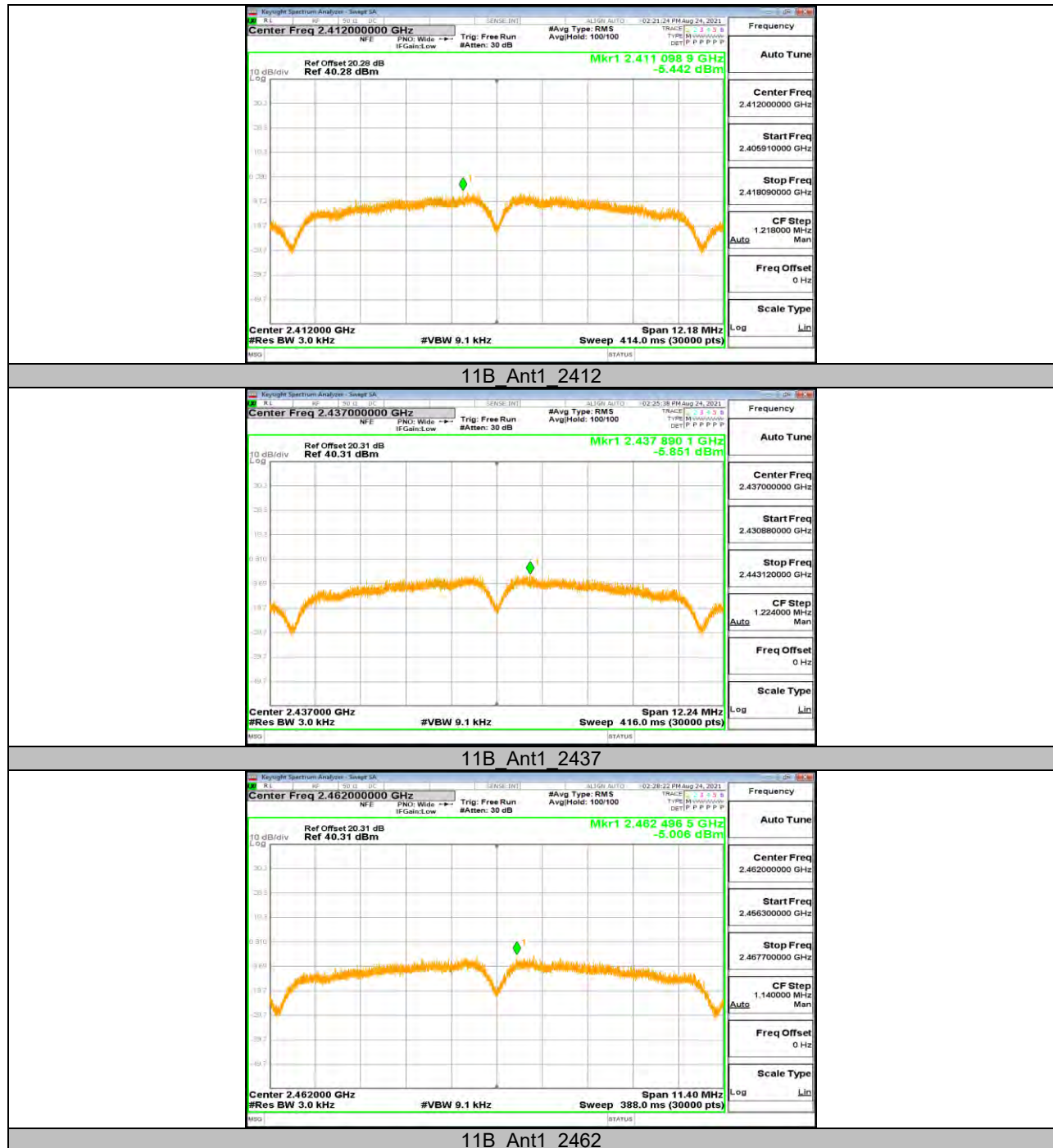
### 11.4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-5.44	<=8	PASS
		2437	-5.85	<=8	PASS
		2462	-5.01	<=8	PASS
11G	Ant1	2412	-8.58	<=8	PASS
		2437	-7.61	<=8	PASS
		2462	-8.89	<=8	PASS
11N20MIMO	Ant1	2412	-9.55	<=8	PASS
	Ant2	2412	-9.01	<=8	PASS
	total	2412	-6.26	<=8	PASS
	Ant1	2437	-8.9	<=8	PASS
	Ant2	2437	-9.22	<=8	PASS
	total	2437	-6.05	<=8	PASS
	Ant1	2462	-8.9	<=8	PASS
	Ant2	2462	-9.32	<=8	PASS
	total	2462	-6.09	<=8	PASS
11N40MIMO	Ant1	2422	-11.31	<=8	PASS
	Ant2	2422	-12.35	<=8	PASS
	total	2422	-8.79	<=8	PASS
	Ant1	2437	-11.1	<=8	PASS
	Ant2	2437	-12.94	<=8	PASS
	total	2437	-8.91	<=8	PASS
	Ant1	2452	-10.94	<=8	PASS
	Ant2	2452	-12.03	<=8	PASS
	total	2452	-8.44	<=8	PASS

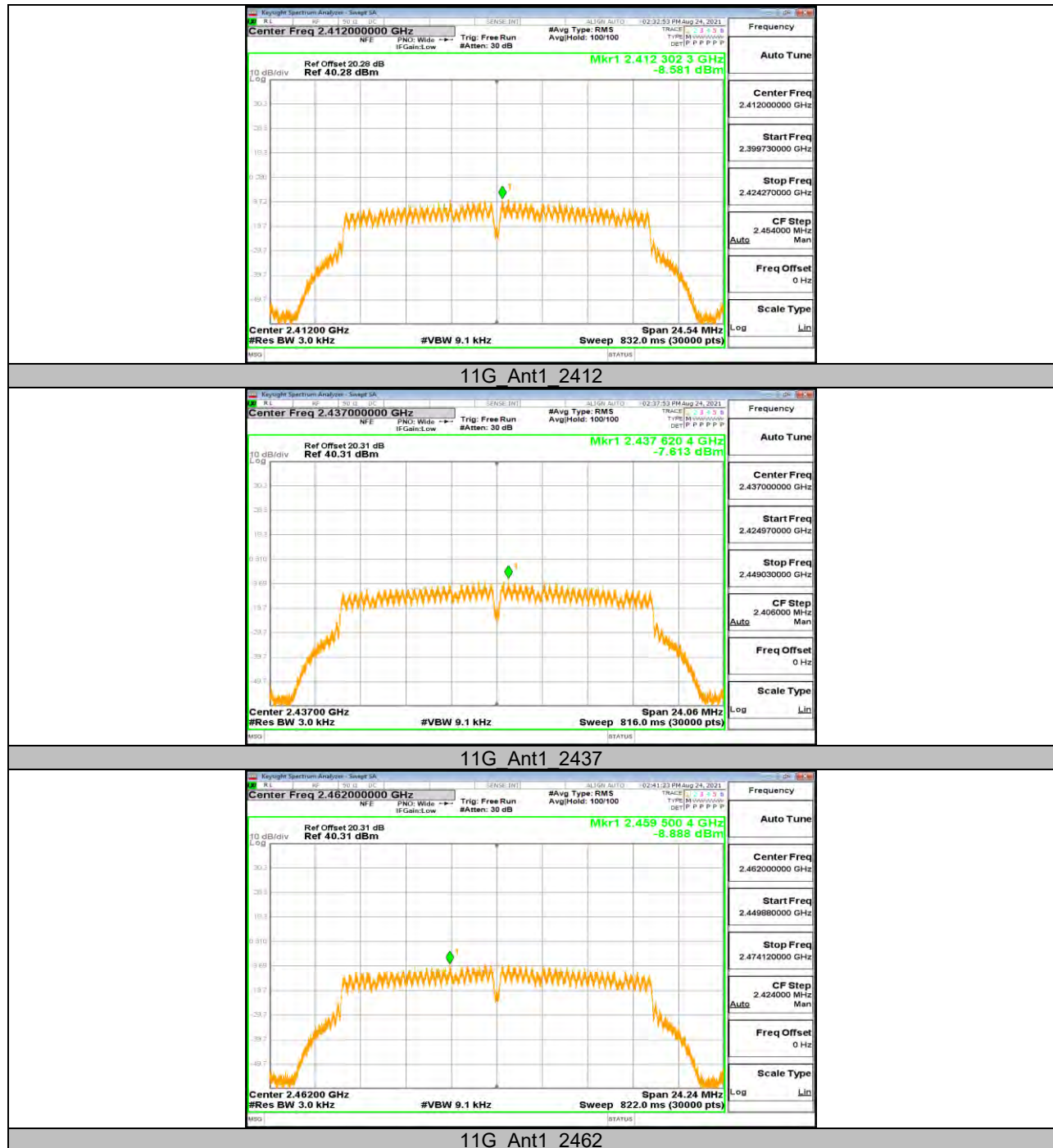
Note: Both antennas have been tested, only the worst data was recorded in the report.



## 11.4.2. Test Graphs



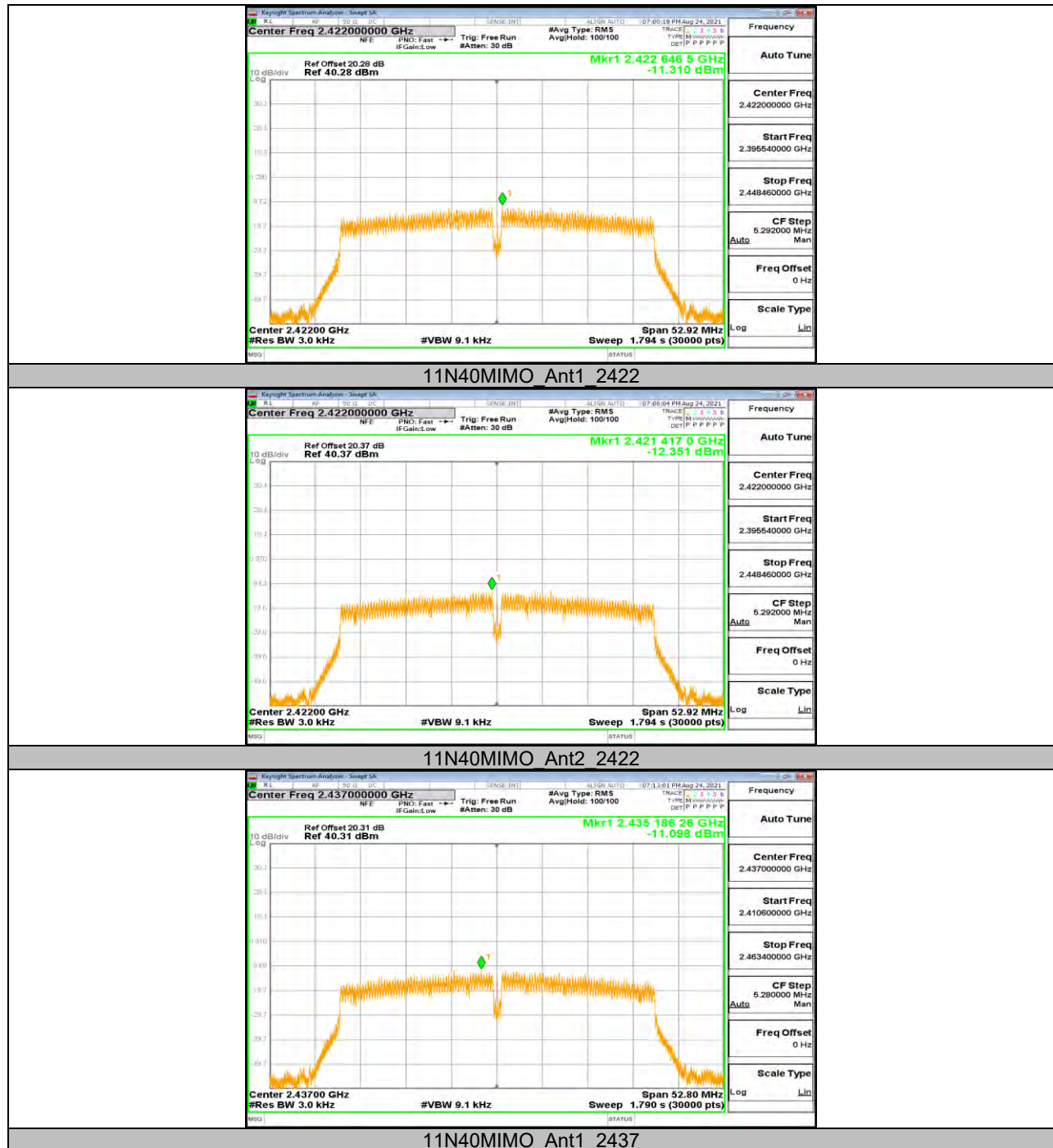


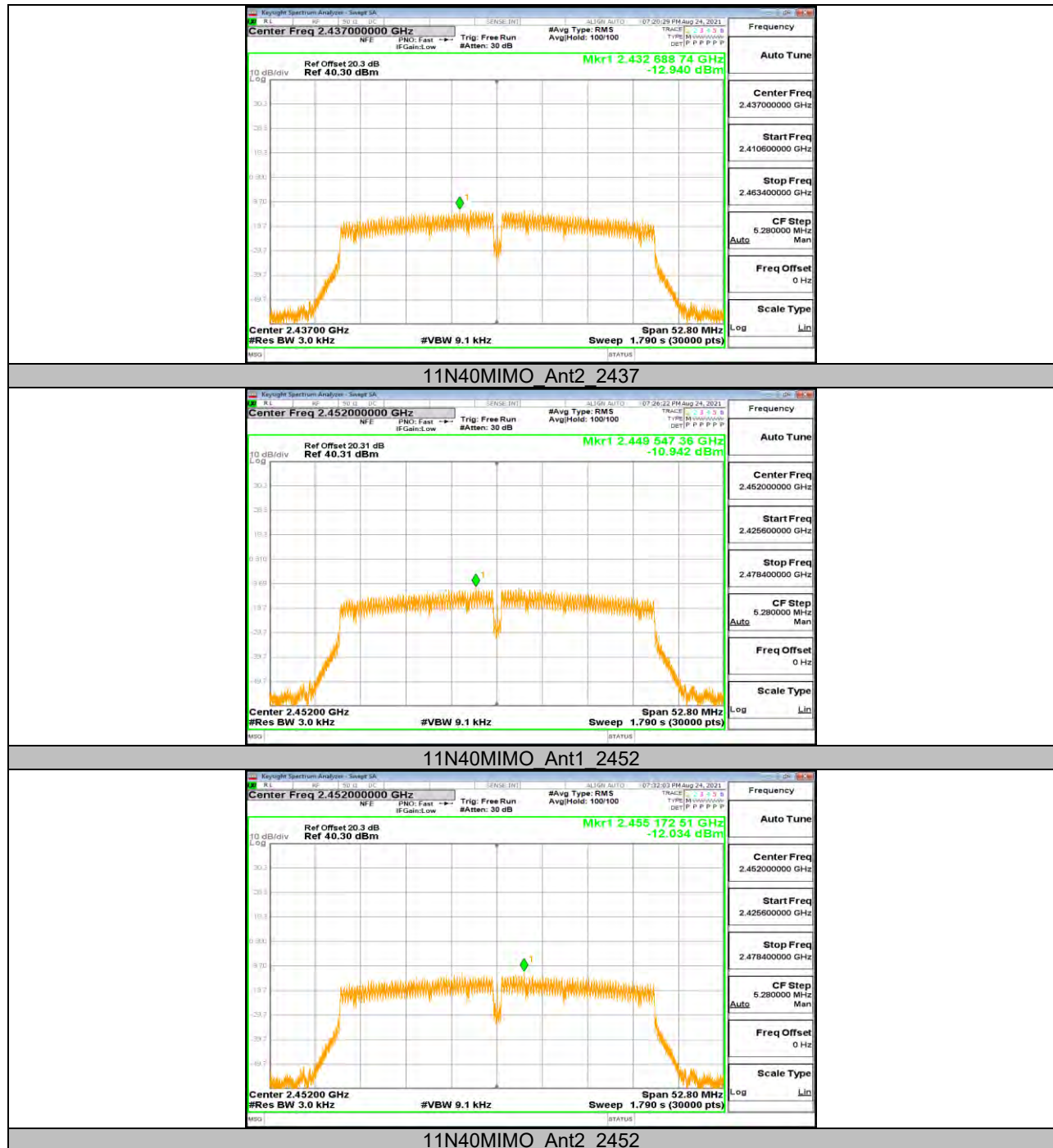














## 11.5. Appendix E: Band edge measurements

### 11.5.1. Test Result

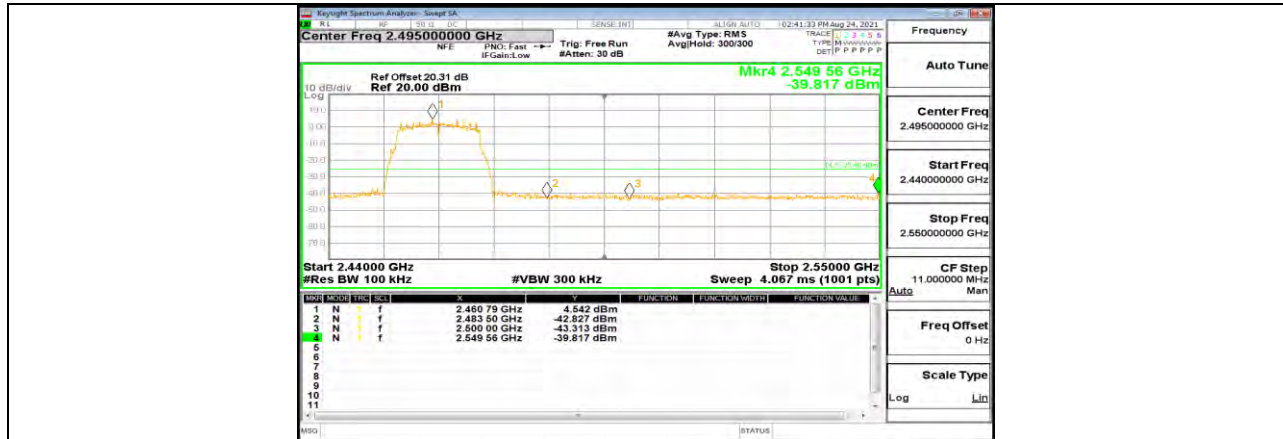
Test Mode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	7.94	-37.41	<=-22.06	PASS
		High	2462	8.23	-40.24	<=-21.77	PASS
11G	Ant1	Low	2412	4.99	-37.29	<=-25.01	PASS
		High	2462	4.54	-39.82	<=-25.46	PASS
11N20MIMO	Ant1	Low	2412	4.40	-36.87	<=-25.6	PASS
	Ant2	Low	2412	3.56	-37.89	<=-26.44	PASS
	Ant1	High	2462	4.75	-39.59	<=-25.25	PASS
	Ant2	High	2462	3.19	-39.96	<=-26.82	PASS
11N40MIMO	Ant1	Low	2422	2.01	-37.5	<=-27.99	PASS
	Ant2	Low	2422	1.39	-37.58	<=-28.61	PASS
	Ant1	High	2452	2.55	-38.24	<=-27.45	PASS
	Ant2	High	2452	1.29	-39.51	<=-28.71	PASS



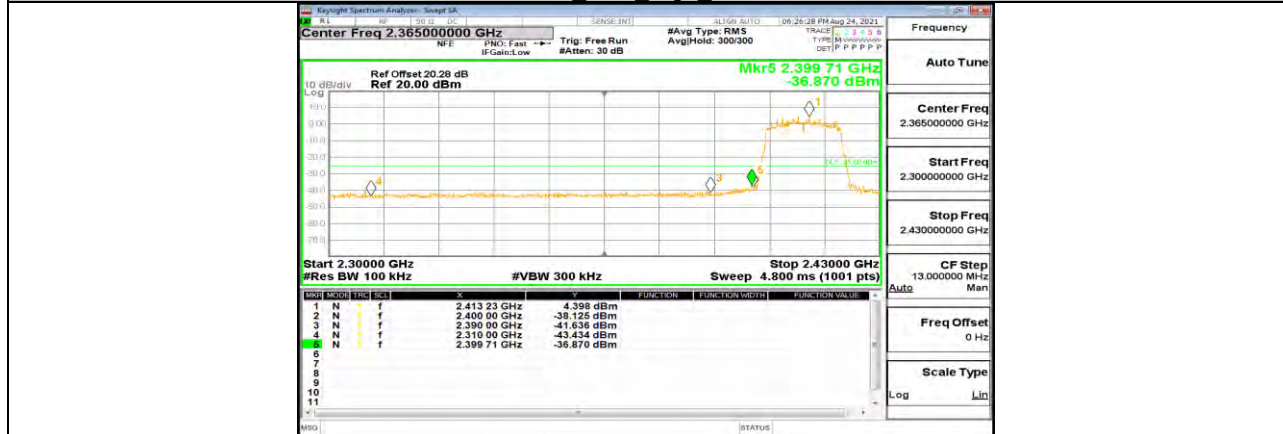
## 11.5.2. Test Graphs







11G Ant1 High 2462

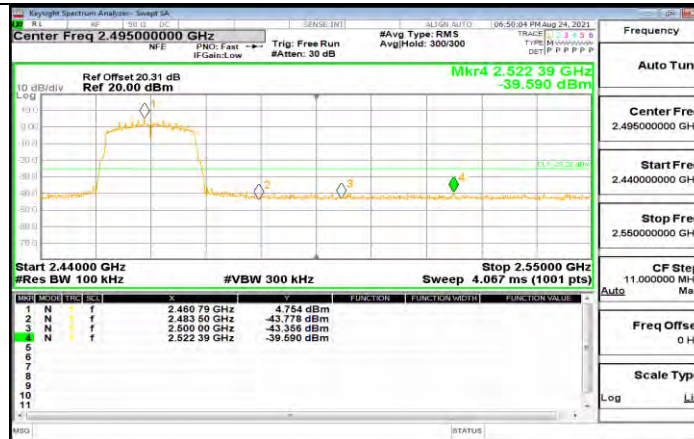


11N20MIMO Ant1 Low 2412

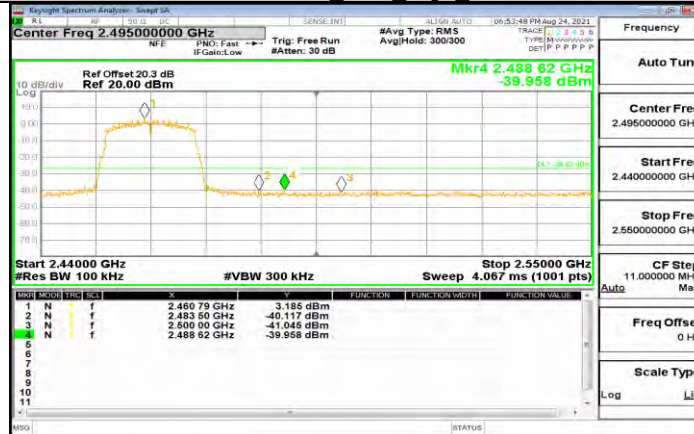


11N20MIMO Ant2 Low 2412

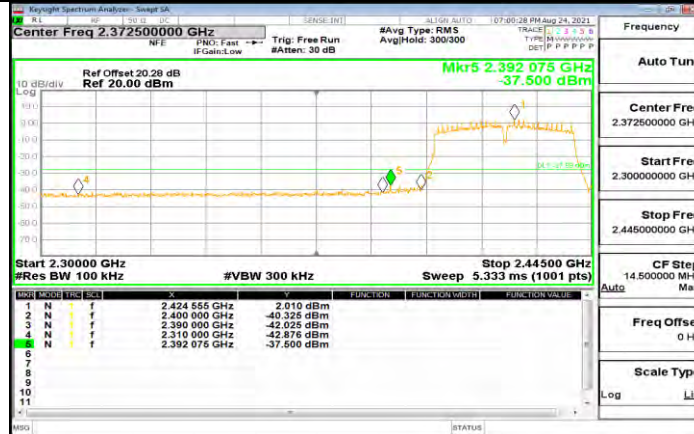




11N20MIMO Ant1 High 2462



11N20MIMO Ant2 High 2462



11N40MIMO Ant1 Low 2422



## 11.6. Appendix F: Conducted Spurious Emission

### 11.6.1. Test Result

Test Mode	Antenna	Channel	FreqRange [Mhz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	6.23	---	PASS
			30~1000	-53.04	<=-23.77	PASS
			1000~26500	-37.02	<=-23.77	PASS
		2437	Reference	7.50	---	PASS
			30~1000	-52.93	<=-22.5	PASS
			1000~26500	-39.7	<=-22.5	PASS
		2462	Reference	7.74	---	PASS
			30~1000	-52.88	<=-22.26	PASS
			1000~26500	-42.65	<=-22.26	PASS
11G	Ant1	2412	Reference	3.23	---	PASS
			30~1000	-53.01	<=-26.77	PASS
			1000~26500	-44.24	<=-26.77	PASS
		2437	Reference	4.06	---	PASS
			30~1000	-52.07	<=-25.94	PASS
			1000~26500	-44.15	<=-25.94	PASS
		2462	Reference	4.77	---	PASS
			30~1000	-52.55	<=-25.23	PASS
			1000~26500	-44.29	<=-25.23	PASS
11N20MIMO	Ant1	2412	Reference	4.45	---	PASS
			30~1000	-53.23	<=-25.55	PASS
			1000~26500	-43.28	<=-25.55	PASS
	Ant2	2412	Reference	3.69	---	PASS
			30~1000	-52.81	<=-26.31	PASS
			1000~26500	-44.17	<=-26.31	PASS
	Ant1	2437	Reference	3.96	---	PASS
			30~1000	-52.51	<=-26.04	PASS
			1000~26500	-43.76	<=-26.04	PASS
	Ant2	2437	Reference	3.29	---	PASS
			30~1000	-52.43	<=-26.71	PASS
			1000~26500	-44.04	<=-26.71	PASS
	Ant1	2462	Reference	3.56	---	PASS
			30~1000	-52.61	<=-26.44	PASS
			1000~26500	-43.81	<=-26.44	PASS
	Ant2	2462	Reference	2.92	---	PASS
			30~1000	-51.32	<=-27.08	PASS
			1000~26500	-43.33	<=-27.08	PASS
11N40MIMO	Ant1	2422	Reference	1.96	---	PASS
			30~1000	-52.98	<=-28.04	PASS
			1000~26500	-43.95	<=-28.04	PASS
	Ant2	2422	Reference	1.46	---	PASS
			30~1000	-52.89	<=-28.54	PASS
			1000~26500	-44.04	<=-28.54	PASS
	Ant1	2437	Reference	2.14	---	PASS
			30~1000	-53.32	<=-27.86	PASS
			1000~26500	-43.05	<=-27.86	PASS
	Ant2	2437	Reference	1.59	---	PASS
			30~1000	-52.59	<=-28.41	PASS
			1000~26500	-43.13	<=-28.41	PASS
	Ant1	2452	Reference	2.30	---	PASS
			30~1000	-53.01	<=-27.71	PASS
			1000~26500	-44.46	<=-27.71	PASS
	Ant2	2452	Reference	1.06	---	PASS
			30~1000	-51.67	<=-28.94	PASS
			1000~26500	-43.11	<=-28.94	PASS

## 11.6.2. Test Graphs



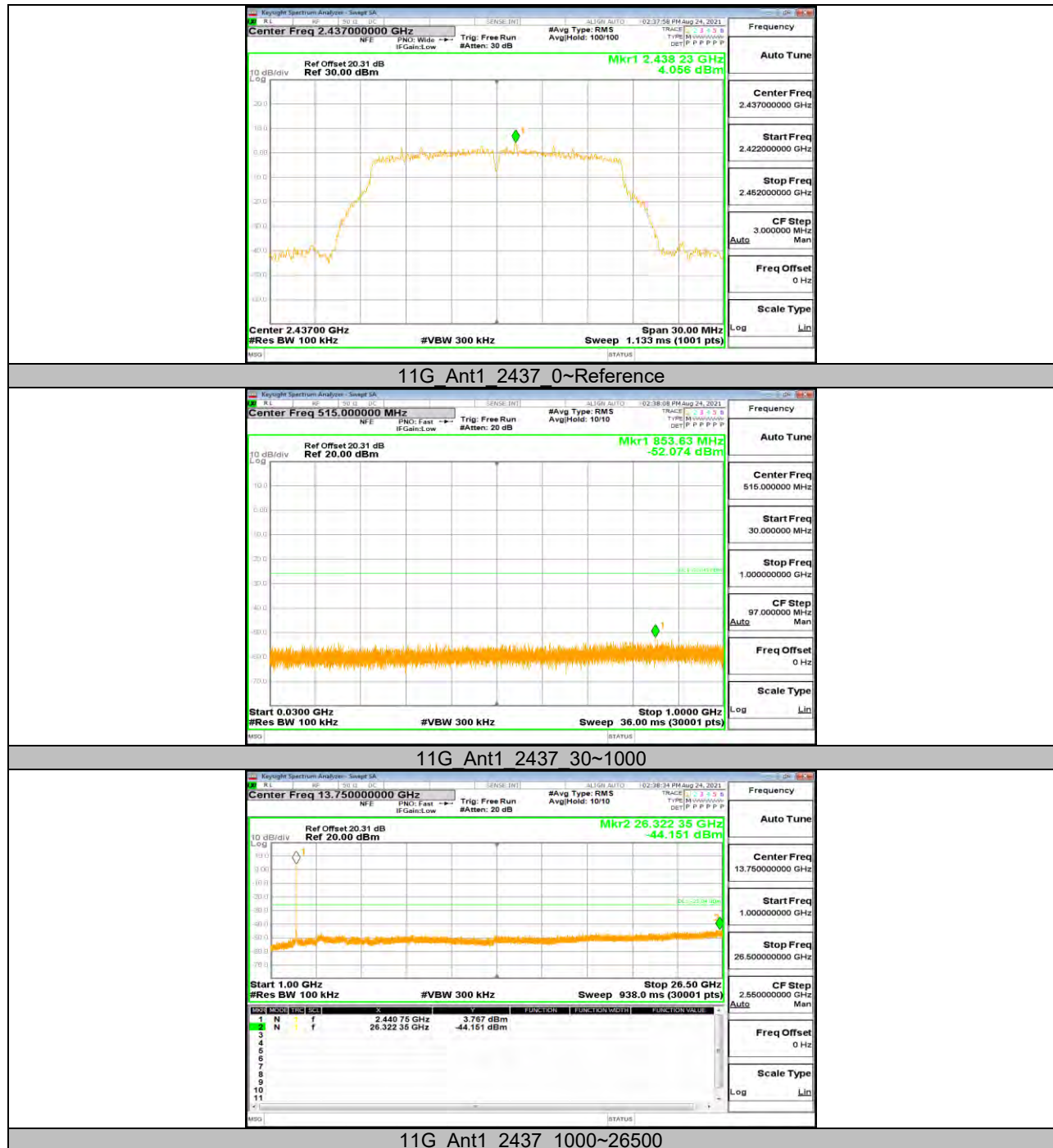




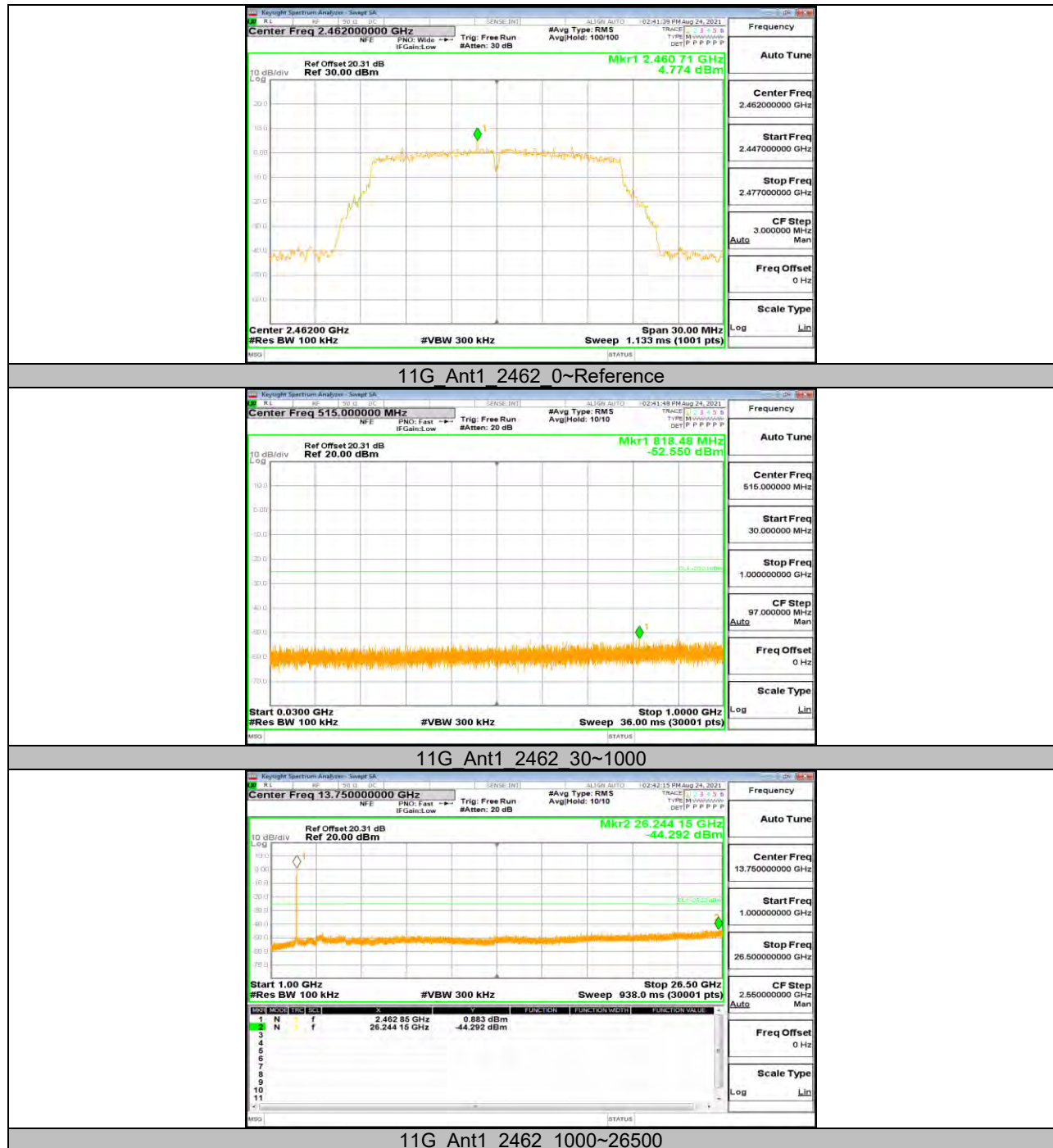


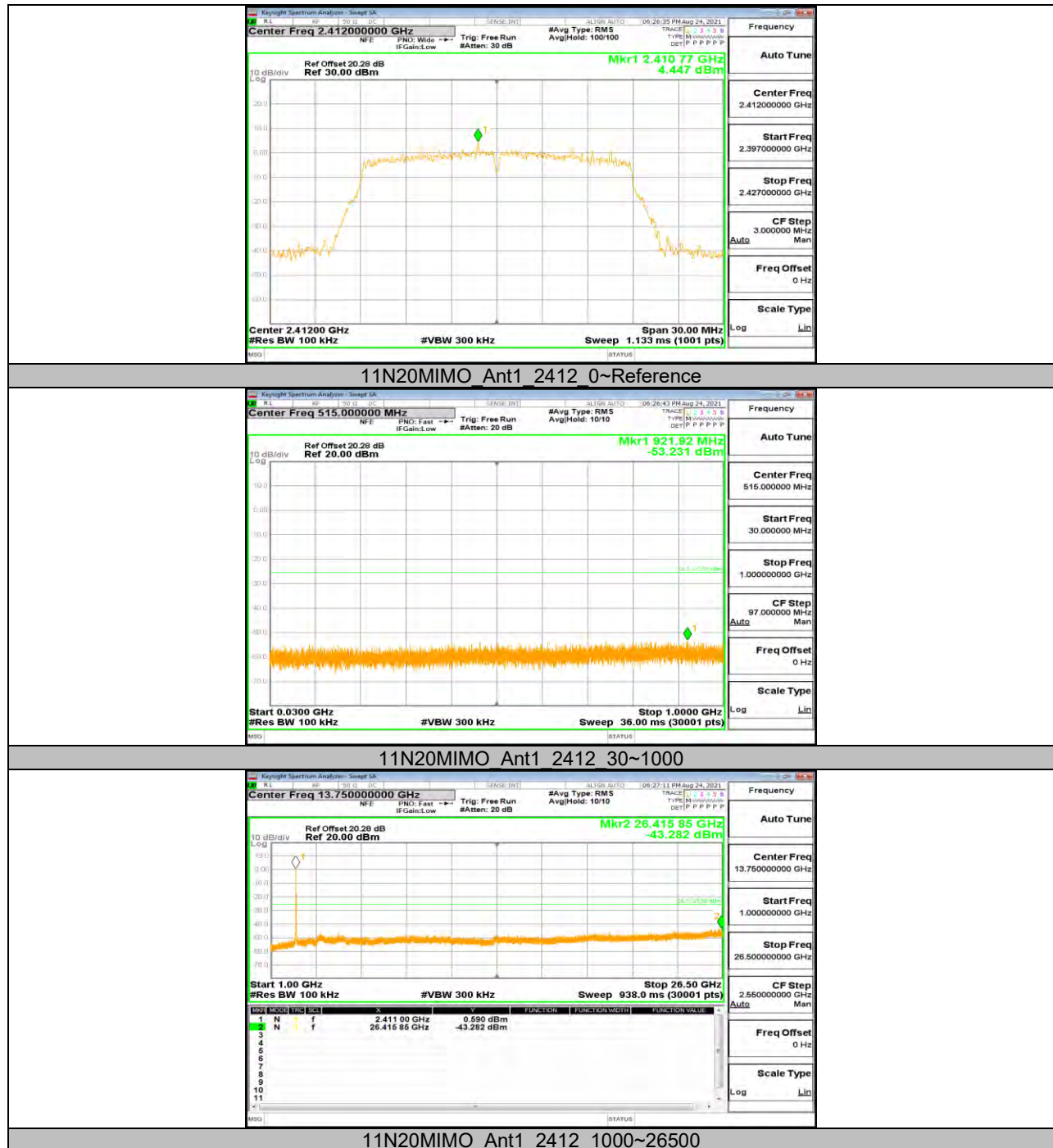






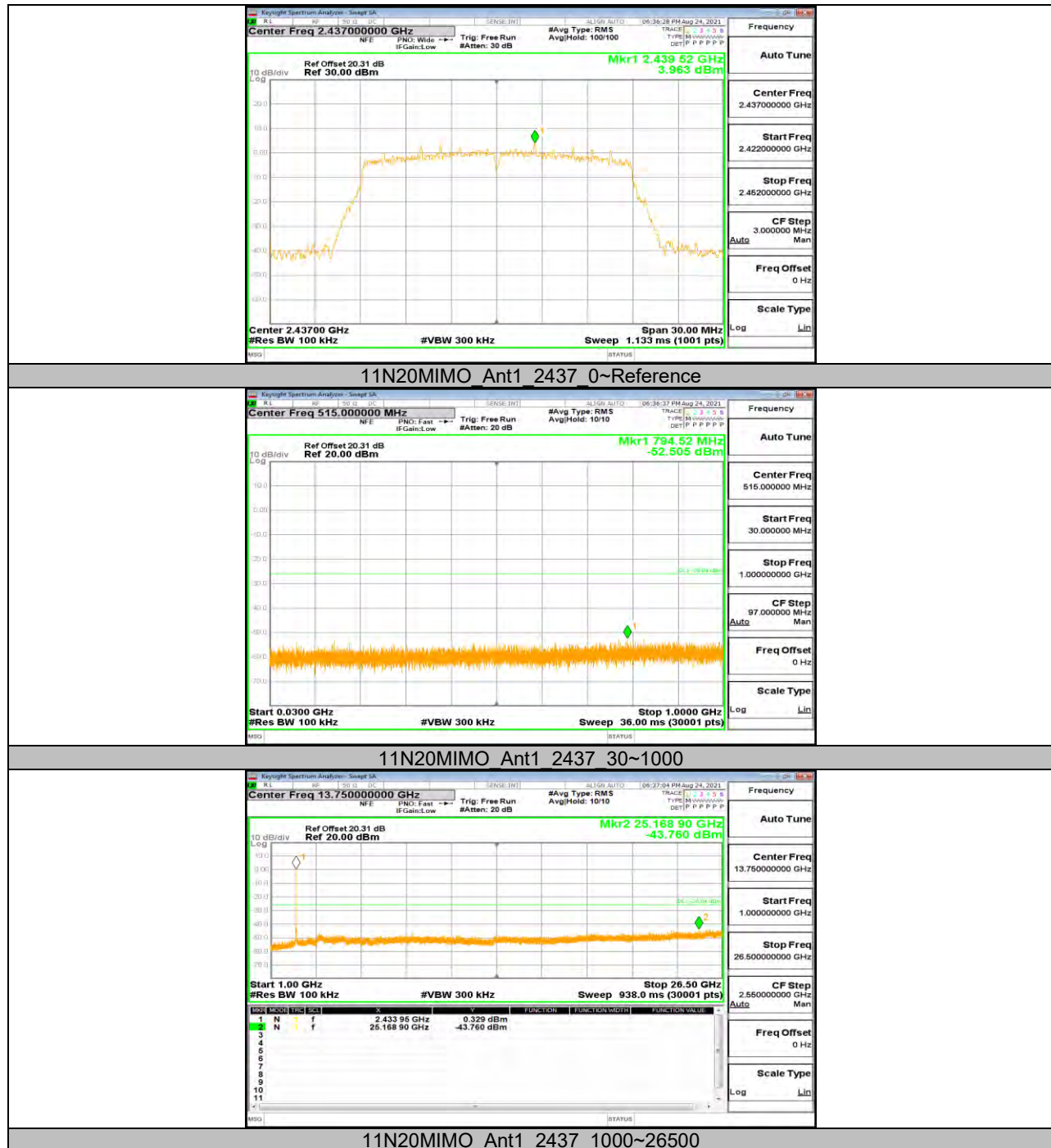








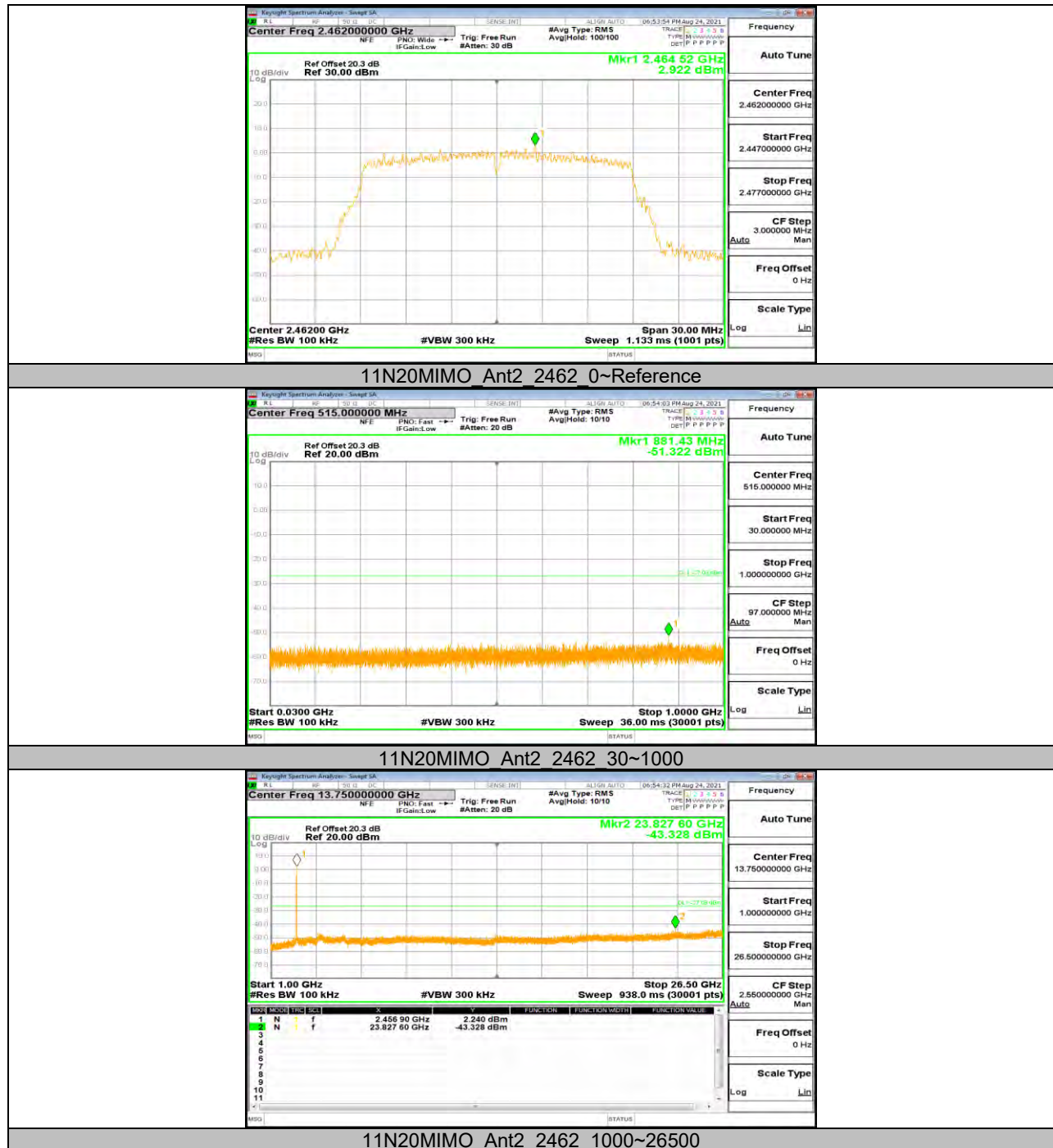






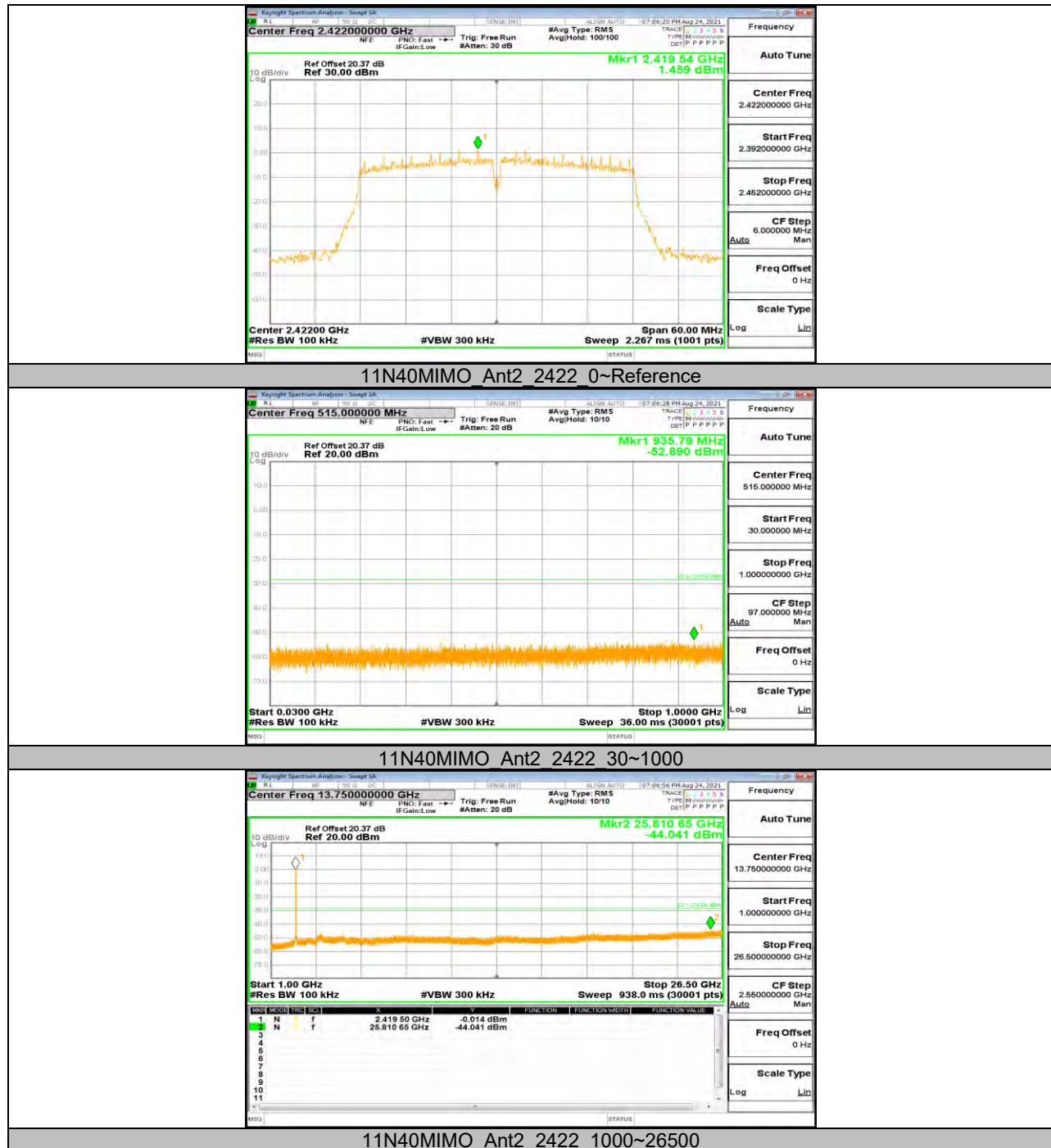




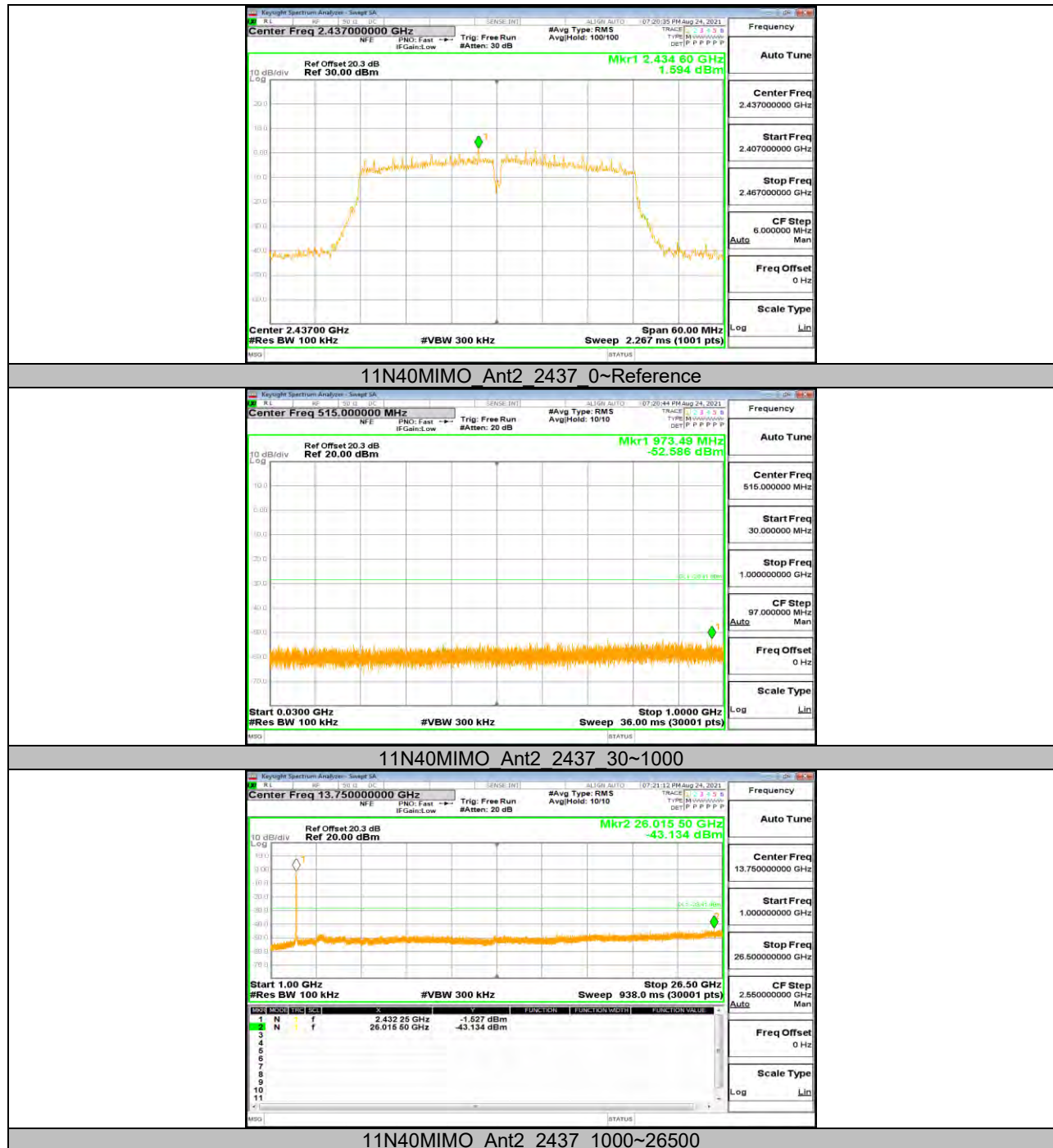




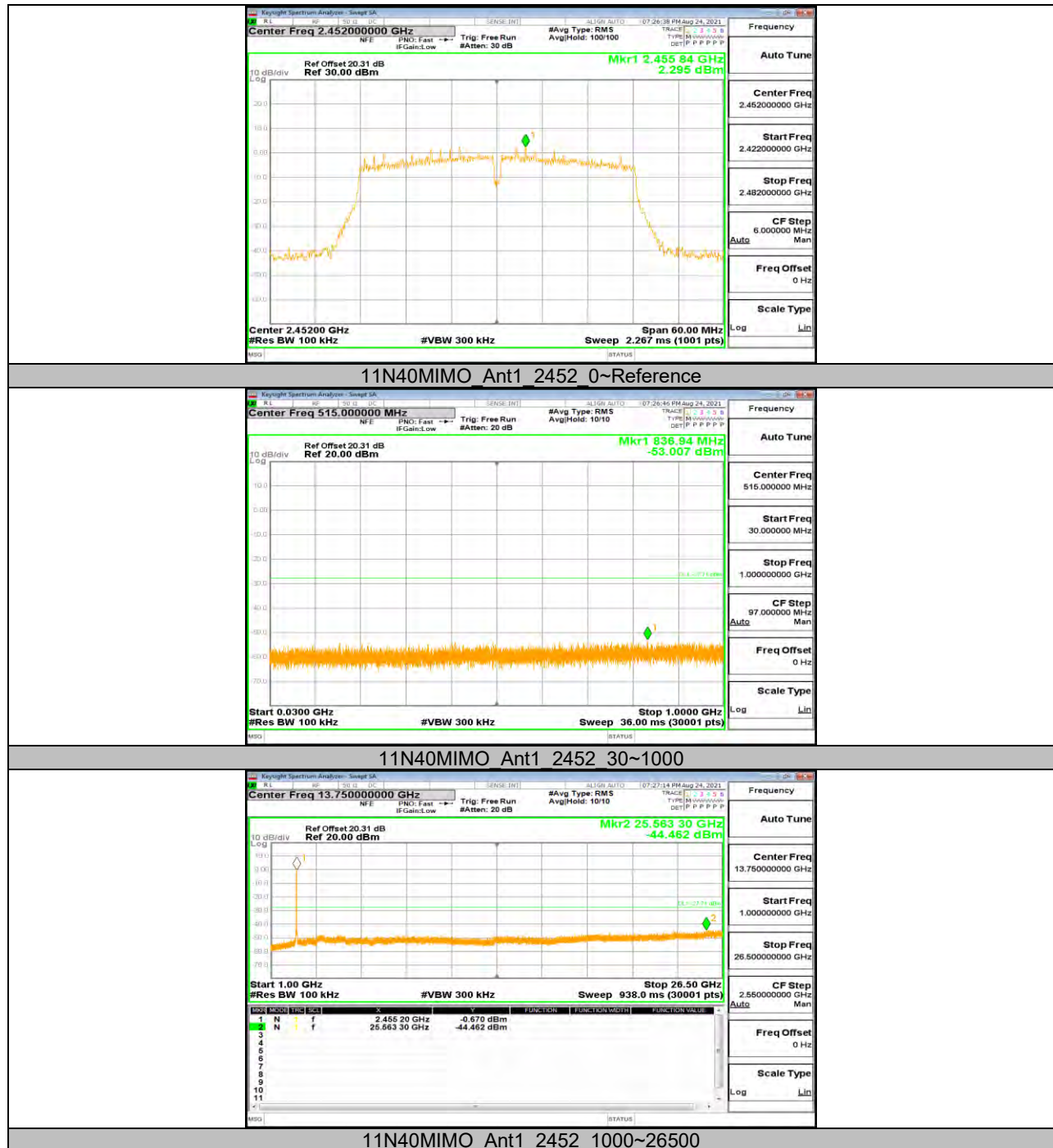


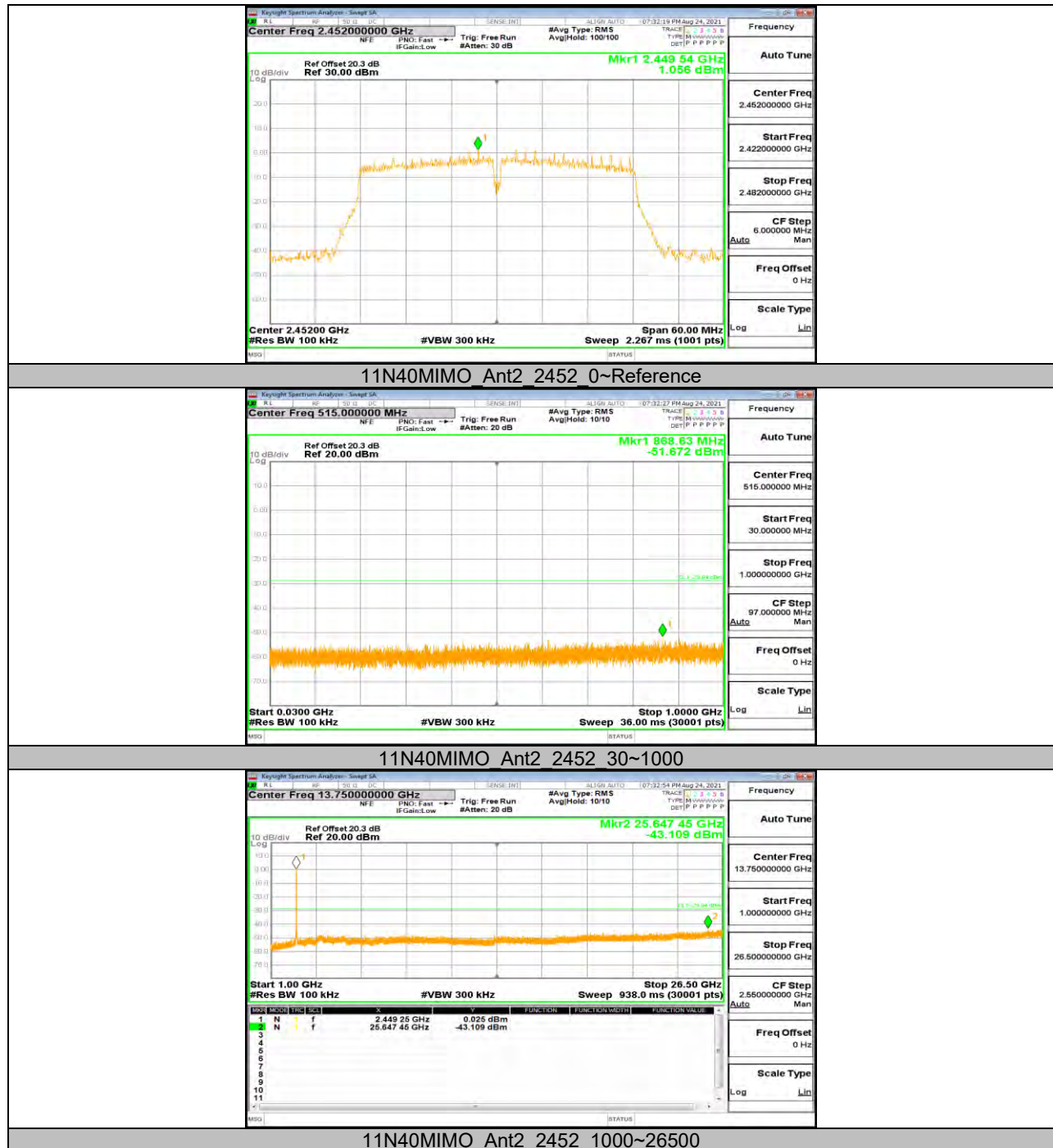














## 11.7. Appendix G: Duty Cycle

### 11.7.1. Test Result

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11B	8.38	8.42	0.9952	99.52	0.02	0.12	0.01
11G	1.39	1.43	0.9720	97.20	0.12	0.72	1
11N20MIMO	1.30	1.35	0.9630	96.30	0.16	0.77	1
11N40MIMO	0.65	0.69	0.9420	94.20	0.26	1.54	2

Note:

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

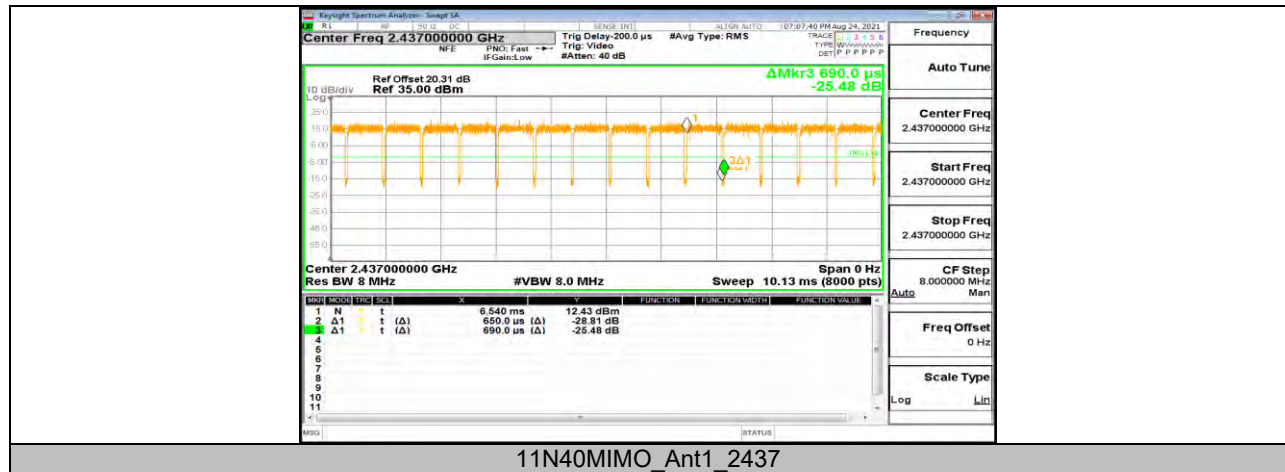
Where: x is Duty Cycle (Linear)

Where: T is On Time

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

## 11.7.2. Test Graphs





END OF REPORT