



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

CERTIFICATION TEST REPORT

For

Integrated video conference terminal

Model for Canada:	UC S10
Model for USA:	UC S10, MSA10, MSA11, MSA12, MSA13, MSA14, MSA15, MSA16, MSA17, MSA18, MSA19, MS10, MS11, MS12, MS13, MS14, MS15, MS16, MS17, MS18, MS19, UC S11, UC S12, UC S13, UC S14, UC S15, UC S16, UC S17, UC S18, UC S19

**FCC ID: 2AFG6-UCS10
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REPORT NUMBER: 4789531252-3

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Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	07/22/2020	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2) RSS-247 Clause 5.2 (a) ISED RSS-Gen Clause 6.7	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (d)	Pass
3	Power Spectral Density	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
6	Conducted Emission Test for AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
7	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 6.8	Pass
Note: 1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China. 2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.			



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: GUANGZHOU SHIRUI ELECTRONICS CO LTD
Address: NO. 192 KEZHU ROAD SCIENCE PARK ECONOMIC-
TECHNOLOGICAL DEVELOPMENT AREA GUANGZHOU
GUANGDONG 510530 CHINA

Manufacturer Information

Company Name: GUANGZHOU SHIRUI ELECTRONICS CO LTD
Address: NO. 192 KEZHU ROAD SCIENCE PARK ECONOMIC-
TECHNOLOGICAL DEVELOPMENT AREA GUANGZHOU
GUANGDONG 510530 CHINA

EUT Information

EUT Name: Integrated video conference terminal
Model for Canada: UC S10
Model for USA: Please refer to clause 5.1. Description of EUT
Sample Received Date: July 1, 2020
Sample Status: Normal
Sample ID: 3147330
Date of Tested: July 1 ~ 17, 2020

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

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2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

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

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz 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	3.62dB
Radiated Emission (Included Fundamental Emission) (9kHz ~ 30MHz)	2.2dB
Radiated Emission (Included Fundamental Emission) (30MHz ~ 1GHz)	4.00dB
Radiated Emission (Included Fundamental Emission) (1GHz to 26GHz)	5.78dB (1GHz ~ 18GHz)
	5.23dB (18GHz ~ 26GHz)
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	Integrated video conference terminal
Model for Canada	UC S10
Model for USA	UC S10,MSA10, MSA11,MSA12,MSA13,MSA14,MSA15,MSA16,MSA17, MSA18,MSA19,MS10,MS11,MS12,MS13,MS14,MS15,MS16,MS17,MS18, MS19,UC S11,UC S12,UC S13,UC S14,UC S15,UC S16,UC S17,UC S18, UC S19
Model Difference	The only difference is the model name.
Radio Technology	WLAN (IEEE 802.11b/g/n HT20/n HT40)
Operation frequency	IEEE 802.11b: 2412MHz ~ 2462MHz IEEE 802.11g: 2412MHz ~ 2462MHz IEEE 802.11n HT20: 2412MHz ~ 2462MHz IEEE 802.11n HT40: 2422MHz ~ 2452MHz
Modulation	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)
Rated Input	AC120V,60Hz
Wireless Module	SKI.WB8821CU.1

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)
b	2412 ~ 2462	1-11[11]	11.96
g	2412 ~ 2462	1-11[11]	12.03
n HT20	2412 ~ 2462	1-11[11]	10.97
n HT40	2422 ~ 2452	3-9[7]	11.24

5.4. TEST CHANNEL CONFIGURATION

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		Ampak RFTTestTool					
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	28	28	28	/		
802.11g	1	default	default	default			
802.11n HT20	1	default	default	default			
802.11n HT40	1	/			default	default	default



5.6. THE WORSE CASE CONFIGURATIONS

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

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

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

Note: The EUT have two wireless modules, one is called module SKI.WB7668U.1 and the other one called module SKI.WB8821CU.1.

Simultaneously transmission condition.

Condition	Technology		Support (YES/NO)
1 (Module SKI.WB7668U.1)	WLAN(2.4G)	WLAN(5G)	NO
2 (Module SKI.WB8821CU.1)	WLAN(2.4G)	WLAN(5G)	NO

Co-Location condition.

Condition	Technology (Module SKI.WB7668U.1)	Technology (Module SKI.WB8821CU.1)	Support (YES/NO)
1	WLAN (2.4G)	WLAN (2.4G)	YES
2	WLAN (5G)	WLAN (5G)	YES
3	WLAN (2.4G)	WLAN (5G)	YES
4	WLAN (5G)	WLAN (2.4G)	YES

For the Co-Location test result please refer to test report 4789531252-18.



5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2412-2462	FPC	5.95

Note: Antenna 2 only support WLAN5G, Antenna 1 only support WLAN2.4G.

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

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna
IEEE 802.11g	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna
IEEE 802.11n HT20	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna
IEEE 802.11n HT40	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	ThinkPad	TP00094A	/
2	AC adapter	Yealink	GQ36-120300-AU	Input: AC 100-240V, 50/60Hz 1.0A Output: DC 12V 3.0A
3	Monitor	DELL	P2715Qt	27 inch
4	Mouse	Lenovo	NO28UKB	/
4	USB TO UART	/	/	/
5	Earphone	Apple	/	/
6	RJ45 Terminal load	Adafruit	485-4511	/

I/O CABLES

Item	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	1	/
2	RJ45	/	/	1	/
3	HDMI	/	/	1	/

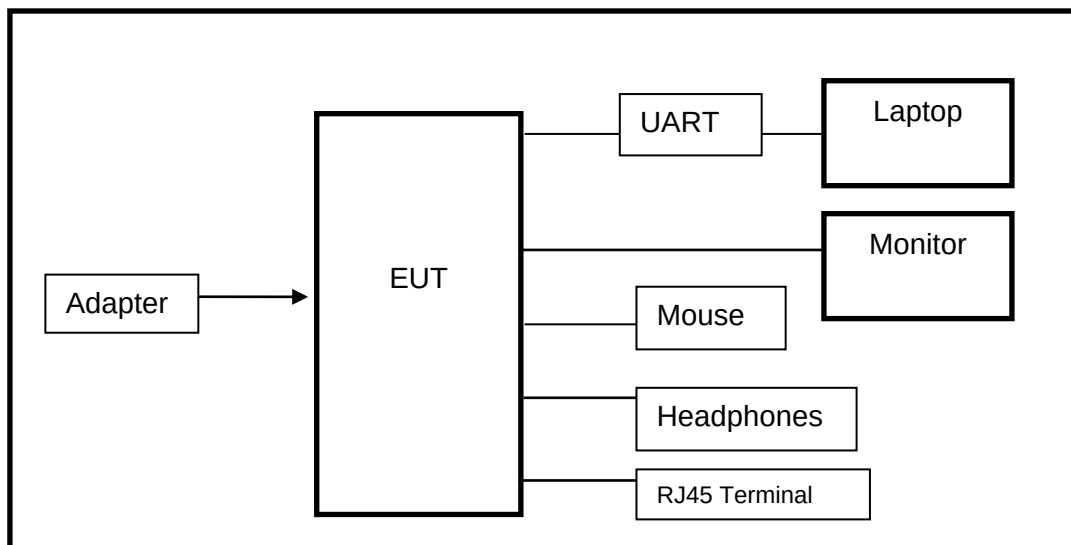
ACCESSORIES

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						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	EMI Test Receiver	R&S	ESR3	101961	Dec.05,2019	Dec.05,2020
☒	Two-Line V-Network	R&S	ENV216	101983	Dec.05,2019	Dec.05,2020
Software						
Used	Description			Manufacturer	Name	Version
☒	Test Software for Conducted disturbance			Farad	EZ-EMC	Ver. UL-3A1
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.06,2019	Dec.05,2020
☒	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17,2018	Sep.17,2021
☒	Preamplifier	HP	8447D	2944A09099	Dec.05,2019	Dec.05,2020
☒	EMI Measurement Receiver	R&S	ESR26	101377	Dec.05,2019	Dec.05,2020
☒	Horn Antenna	TDK	HRN-0118	130939	Sep.17,2018	Sep.17,2021
☒	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11,2018	Aug.11,2021
☒	Preamplifier	TDK	PA-02-0118	TRS-305-00067	Dec.05,2019	Dec.05,2020
☒	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.05,2019	Dec.05,2020
☒	Loop antenna	Schwarzbeck	1519B	00008	Jan.07,2019	Jan.07,2022
☒	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec.05,2019	Dec.05,2020
☒	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Dec.05,2019	Dec.05,2020
Software						
Used	Description			Manufacturer	Name	Version
☒	Test Software for Radiated disturbance			Farad	EZ-EMC	Ver. UL-3A1
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.



☒	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.06,2019	Dec.05,2020
☒	Power sensor, Power Meter	R&S	OSP120	100921	Dec.06,2019	Dec.06,2020



7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

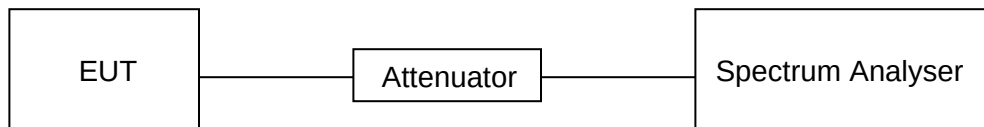
LIMITS

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	26.4°C	Relative Humidity	61.5%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

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	100	100	1.00	100%	0	0.01	0.01
11g	100	100	1.00	100%	0	0.01	0.01
11n HT20	100	100	1.00	100%	0	0.01	0.01
11n HT40	100	100	1.00	100%	0	0.01	0.01

Note:

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

Where: x is Duty Cycle (Linear)

Where: T is On Time

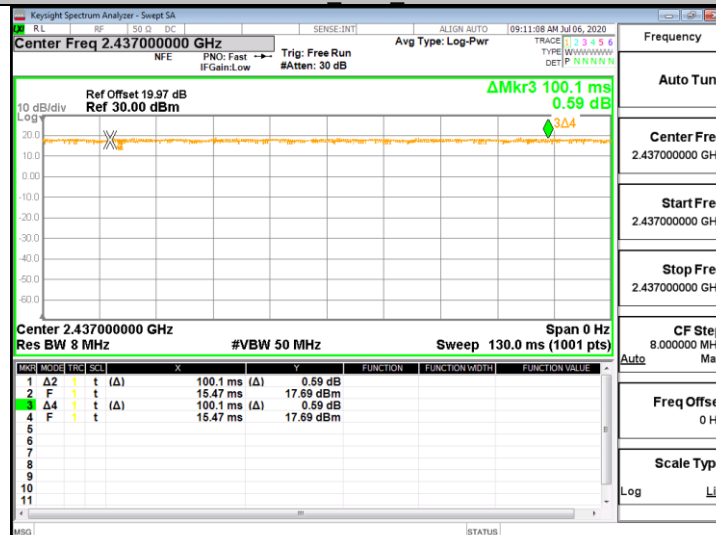
If that calculated VBW is not available on the analyzer then the next higher value should be used.



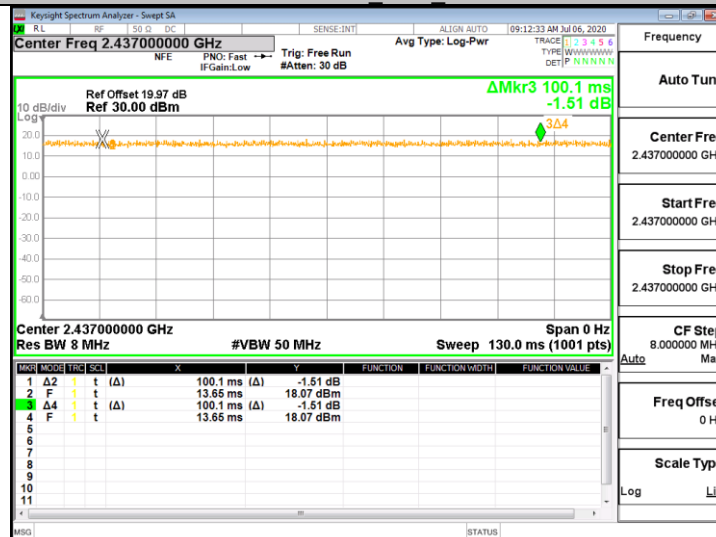
11B Ant1 2437

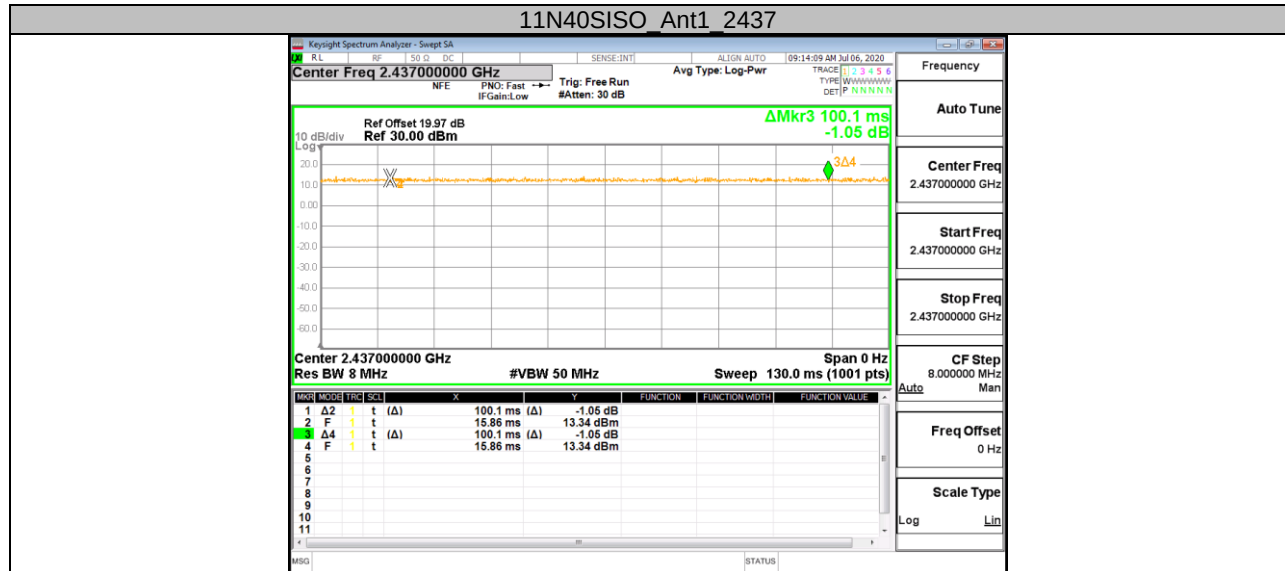


11G Ant1 2437



11N20SISO Ant1 2437







7.2. 6 dB DTS BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

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

TEST PROCEDURE

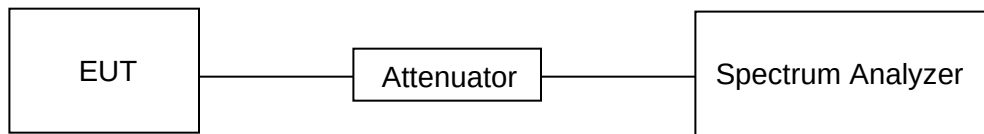
Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

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

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

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

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

**TEST SETUP****TEST ENVIRONMENT**

Temperature	26.4°C	Relative Humidity	61.5%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix A & B.



7.3. CONDUCTED OUTPUT POWER

LIMITS

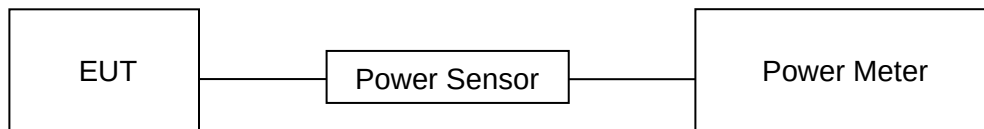
CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3) ISED RSS-247 5.4 (d)	AVG Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

AVG Detector use for AVG result.



TEST ENVIRONMENT

Temperature	26.4°C	Relative Humidity	61.5%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix C.



7.4. POWER SPECTRAL DENSITY

LIMITS

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

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.10.

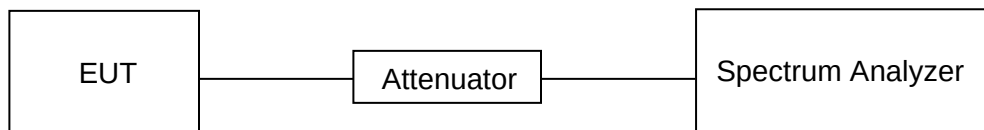
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
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	26.4°C	Relative Humidity	61.5%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz



RESULTS

Please refer to appendix D.

7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

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

TEST PROCEDURE

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

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100kHz
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.

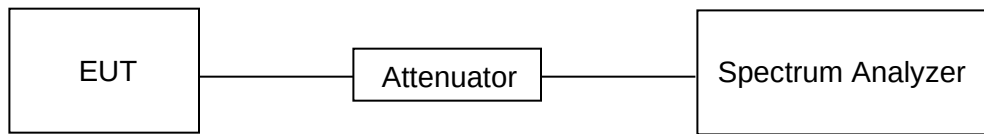
Change the settings for emission level measurement:

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100kHz
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	26.4°C	Relative Humidity	61.5%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix E & F.



8. RADIATED TEST RESULTS

LIMITS

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

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

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

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

ISED General field strength limits at frequencies below 30 MHz

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

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

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



Table 7 – Restricted frequency bands ^{Note 1}		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.8 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

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

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

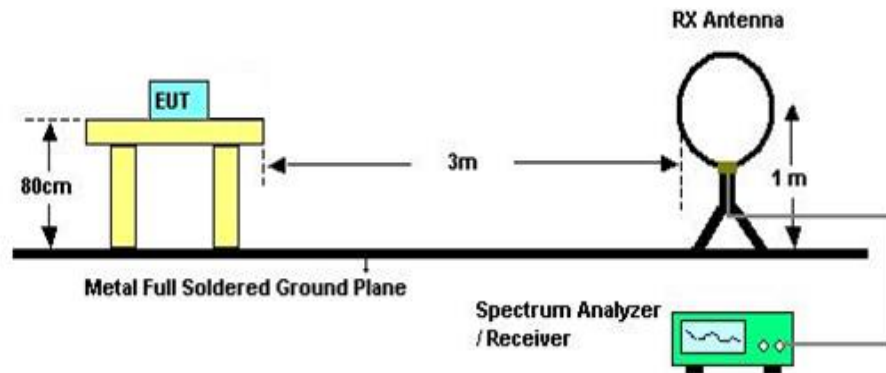
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218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

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

²Above 38.6c

TEST SETUP AND PROCEDURE

Below 30MHz

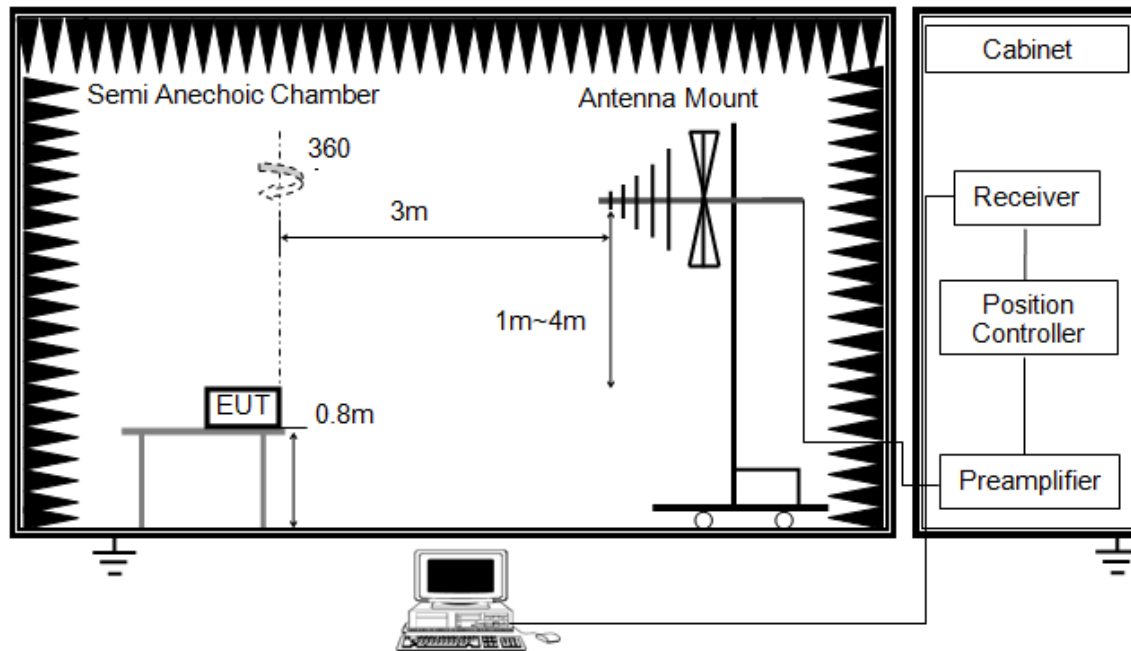


The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11.
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 variable 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 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1GHz and above 30MHz

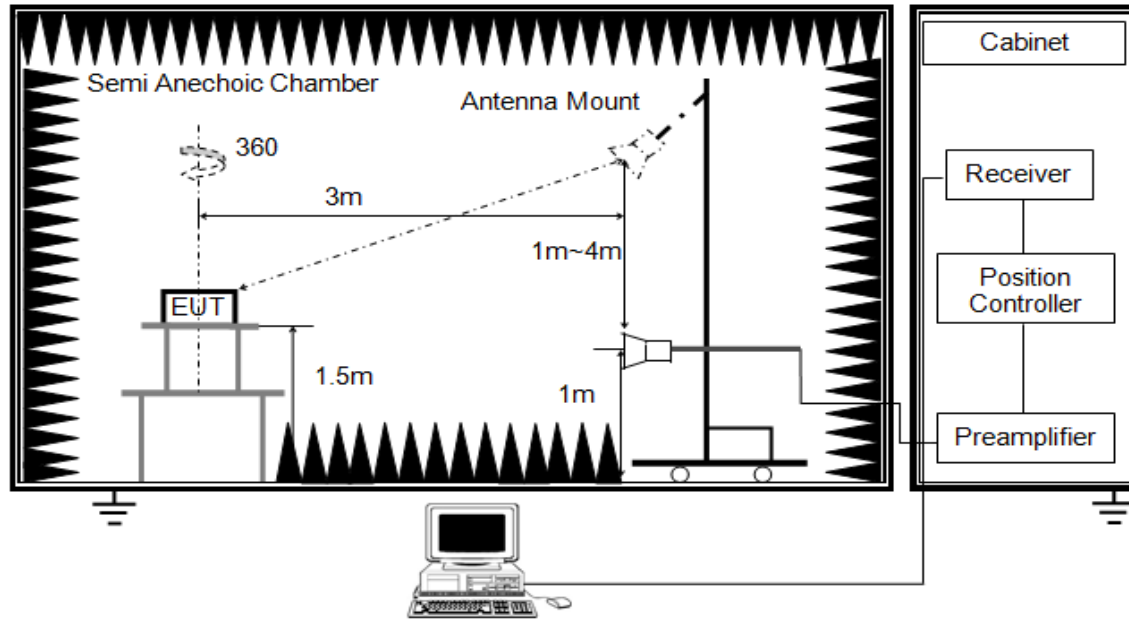


The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11.
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 80cm 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 1GHz, 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 1GHz

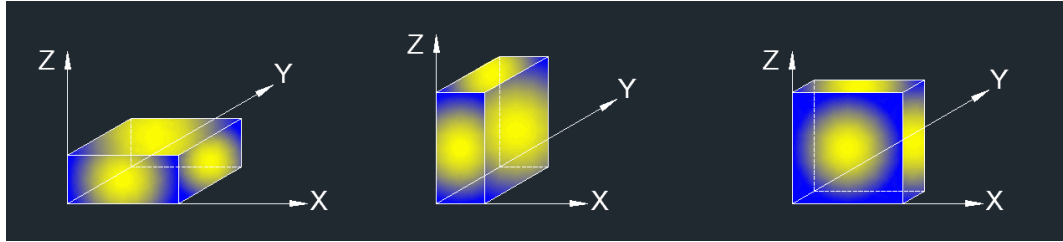


The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11 and 11.12.
2. The EUT was arranged to its worst case and then tune the antenna tower (1.5 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 1.5m 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 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



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

Note 2: The EUT does not support simultaneous transmission.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

TEST ENVIRONMENT

Temperature	23.6°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

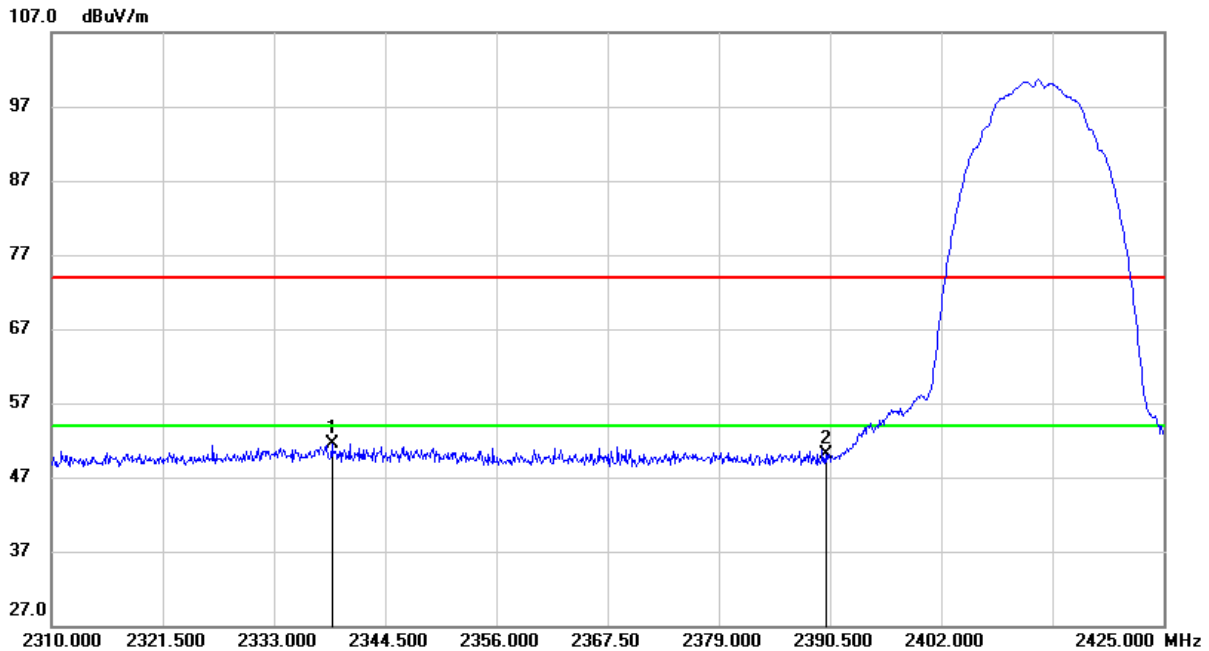
RESULTS

8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

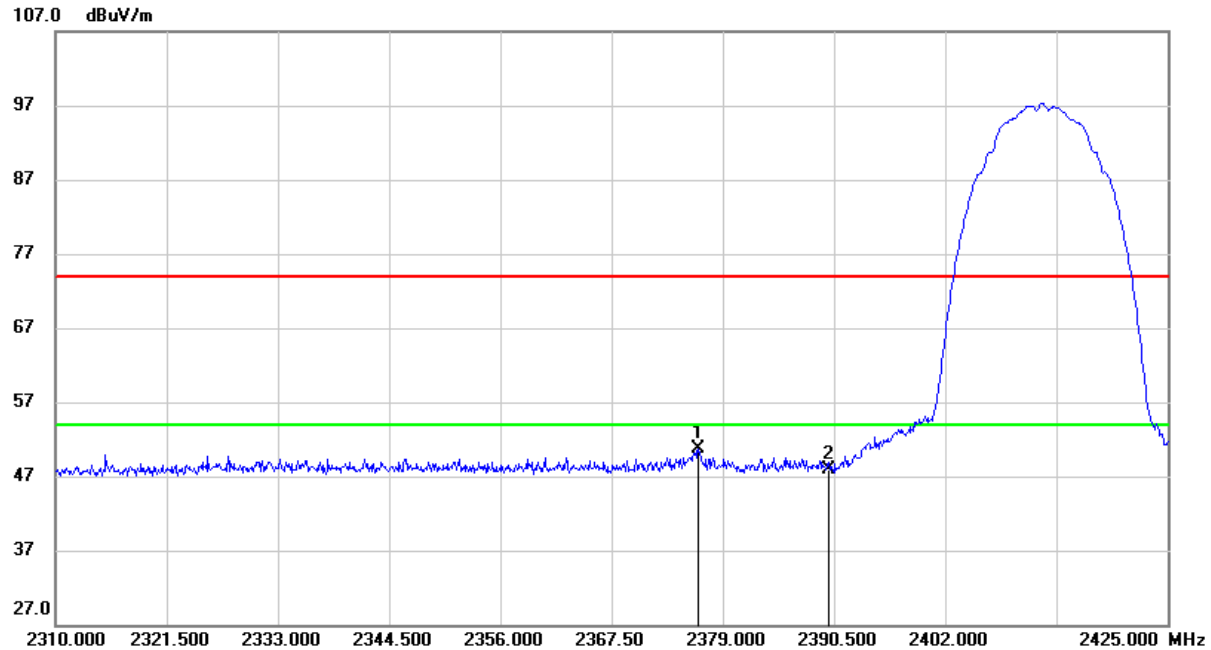


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2338.980	18.66	32.77	51.43	74.00	-22.57	peak
2	2390.000	17.19	32.94	50.13	74.00	-23.87	peak

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

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

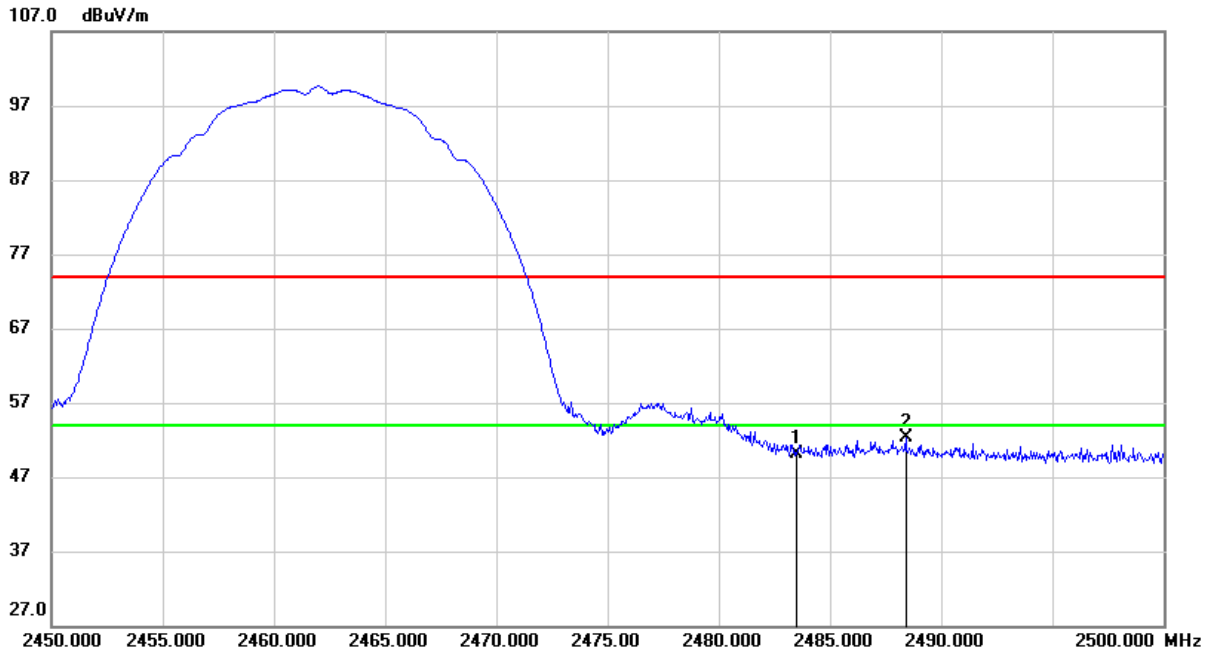


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.470	17.86	32.90	50.76	74.00	-23.24	peak
2	2390.000	15.05	32.94	47.99	74.00	-26.01	peak

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

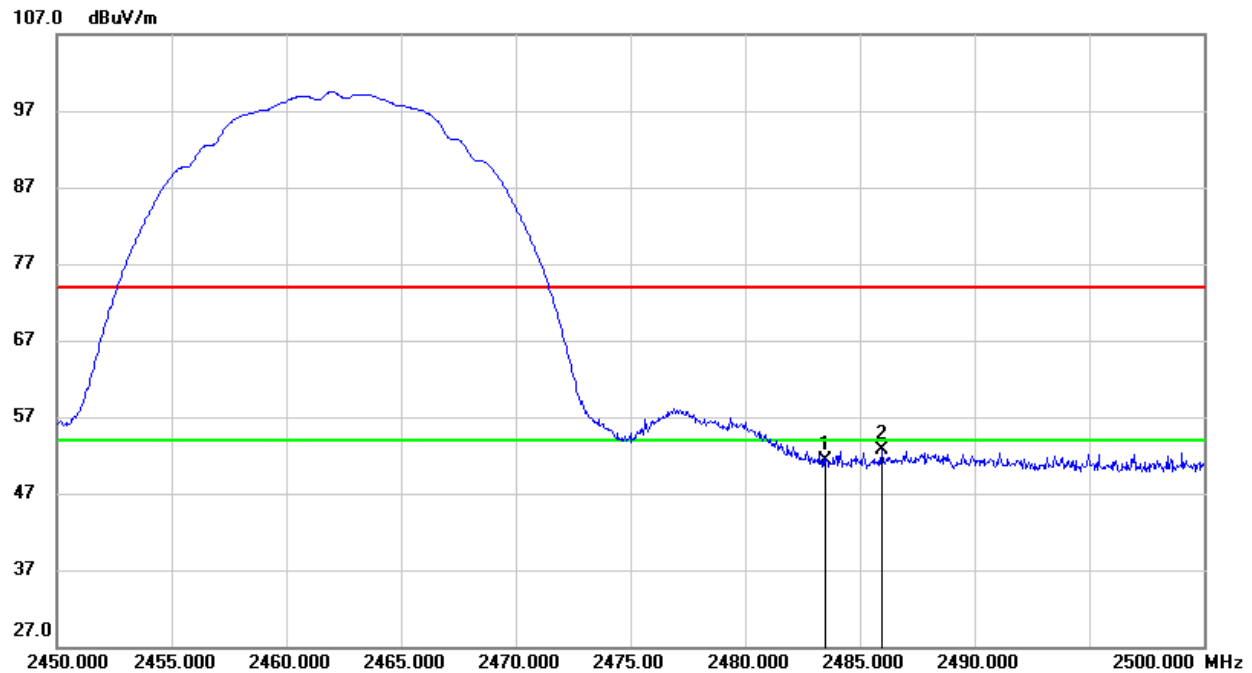
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	16.55	33.58	50.13	74.00	-23.87	peak
2	2488.400	18.69	33.62	52.31	74.00	-21.69	peak

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

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

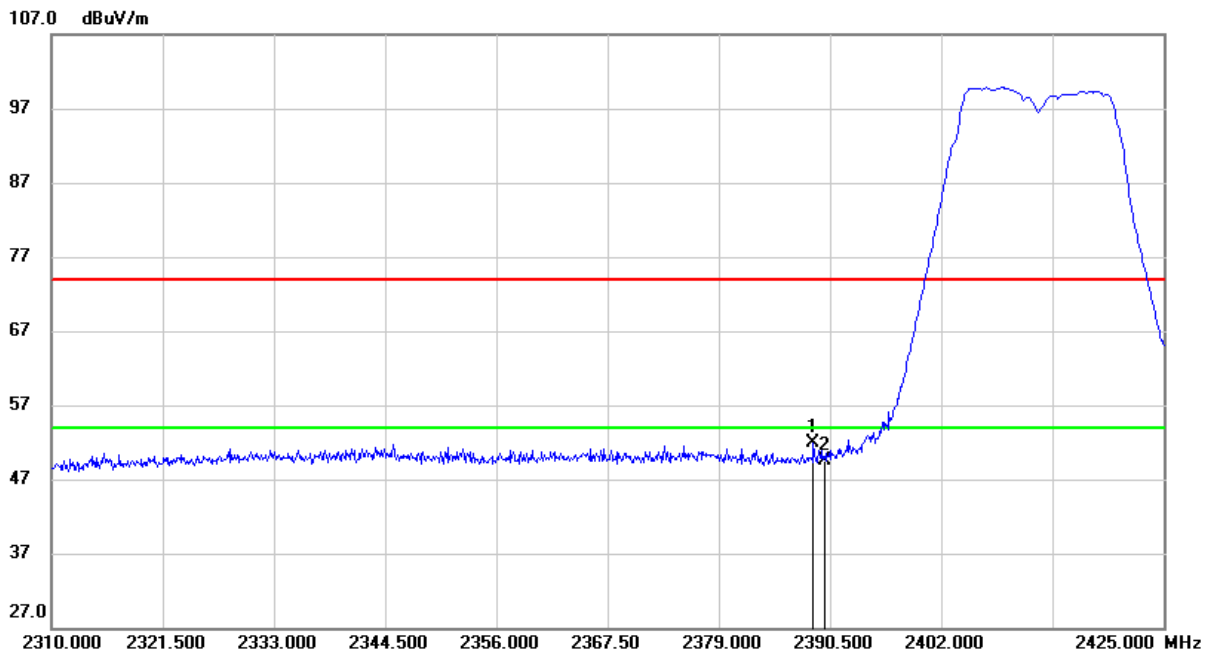
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	17.73	33.58	51.31	74.00	-22.69	peak
2	2485.950	19.02	33.59	52.61	74.00	-21.39	peak

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

8.1.2. 802.11g MODE

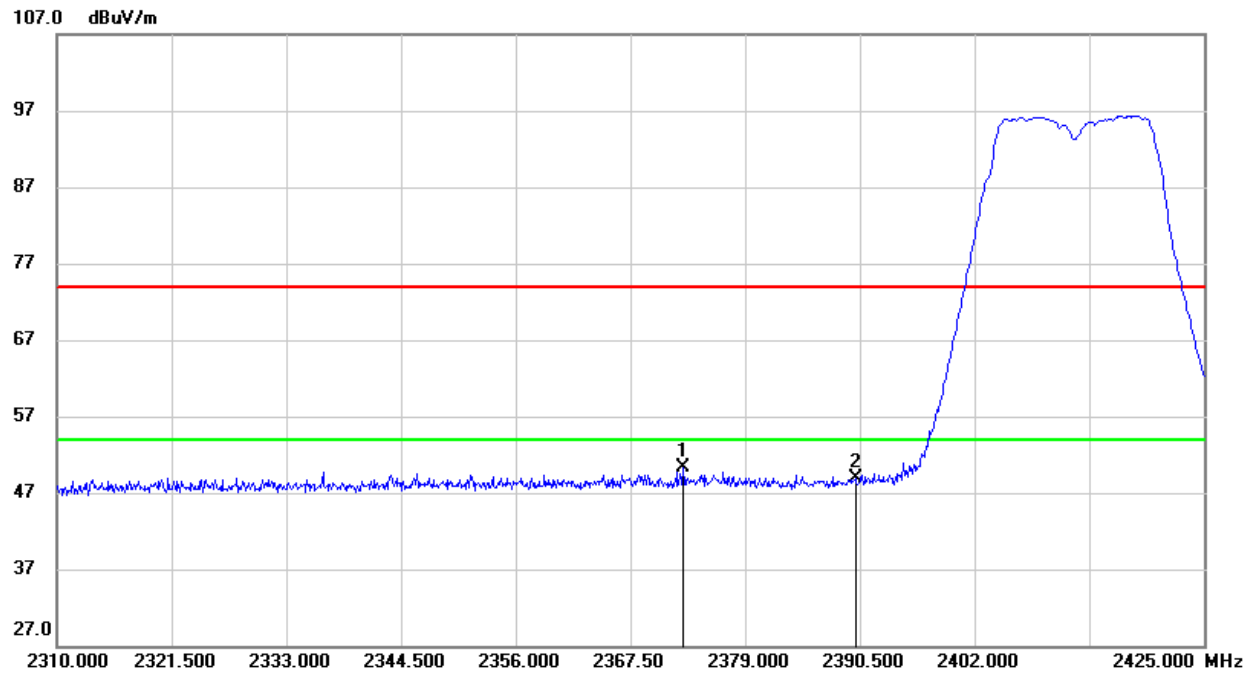
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



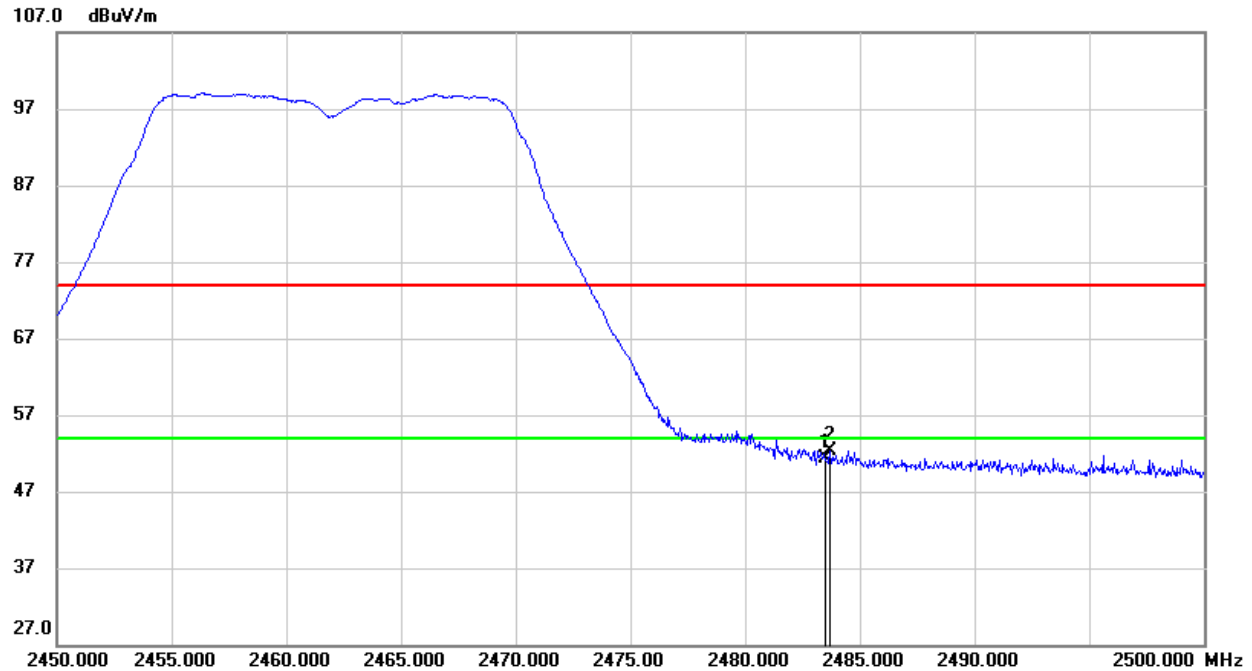
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.775	18.91	32.94	51.85	74.00	-22.15	peak
2	2390.000	16.64	32.94	49.58	74.00	-24.42	peak

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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2372.790	17.49	32.89	50.38	74.00	-23.62	peak
2	2390.000	16.00	32.94	48.94	74.00	-25.06	peak

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

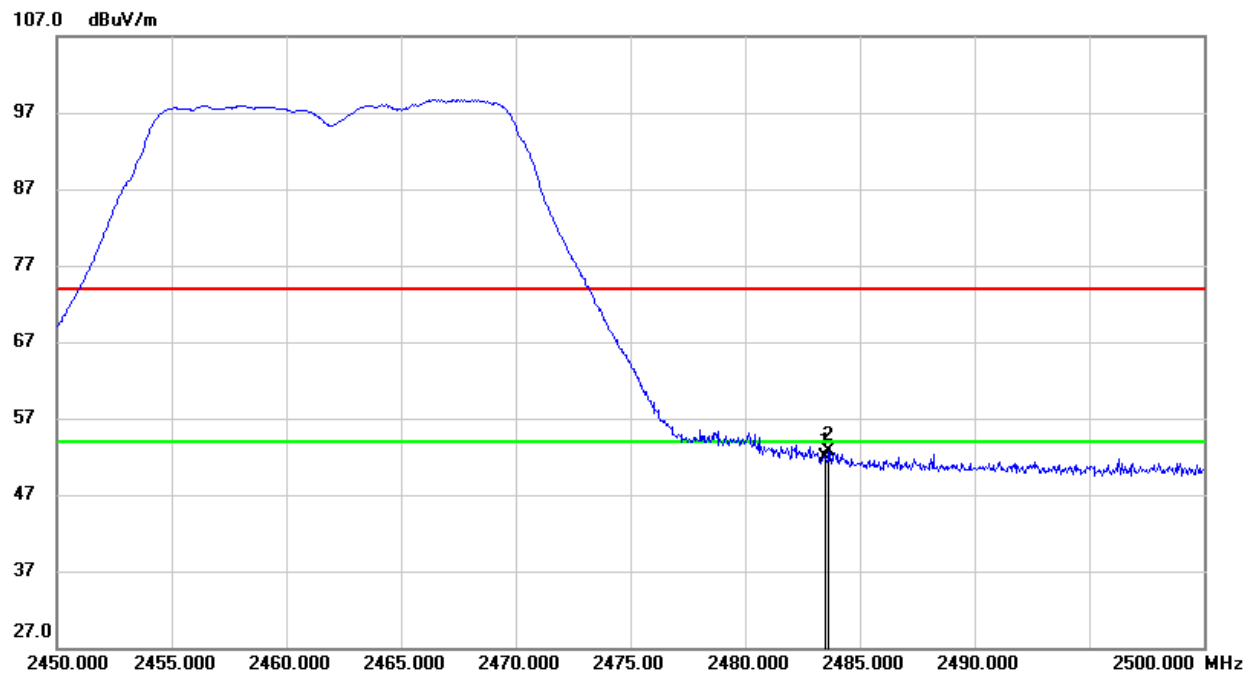
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)****PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	17.65	33.58	51.23	74.00	-22.77	peak
2	2483.700	18.74	33.58	52.32	74.00	-21.68	peak

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

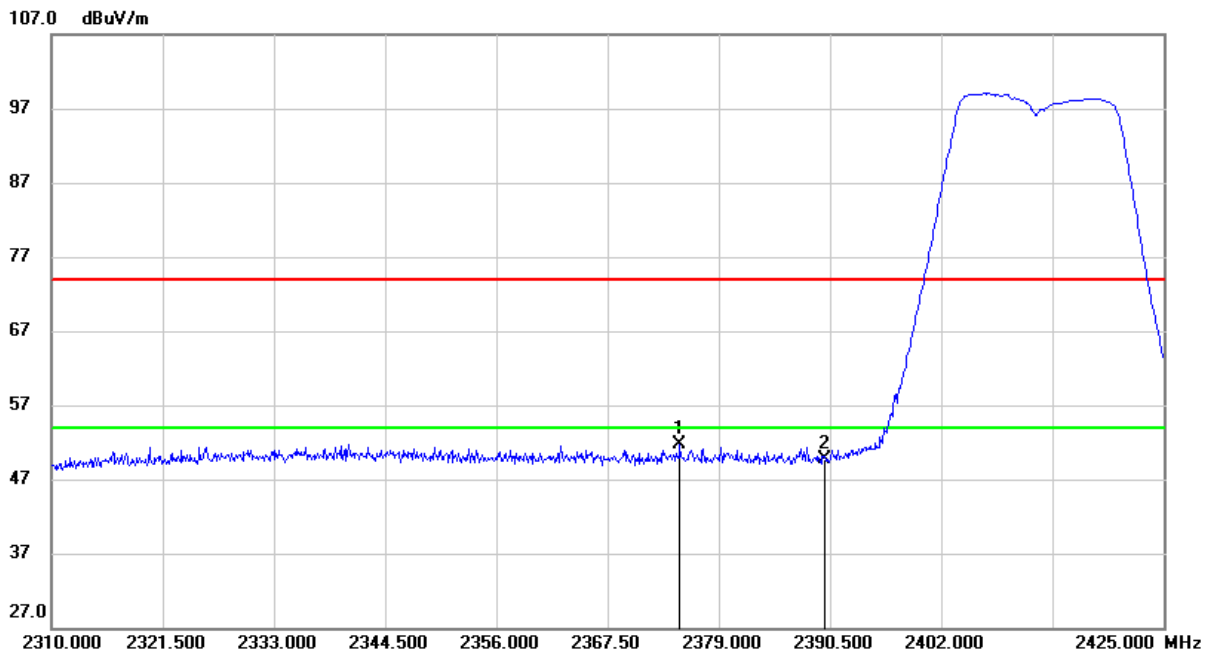
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.35	33.58	51.93	74.00	-22.07	peak
2	2483.650	19.11	33.58	52.69	74.00	-21.31	peak

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

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

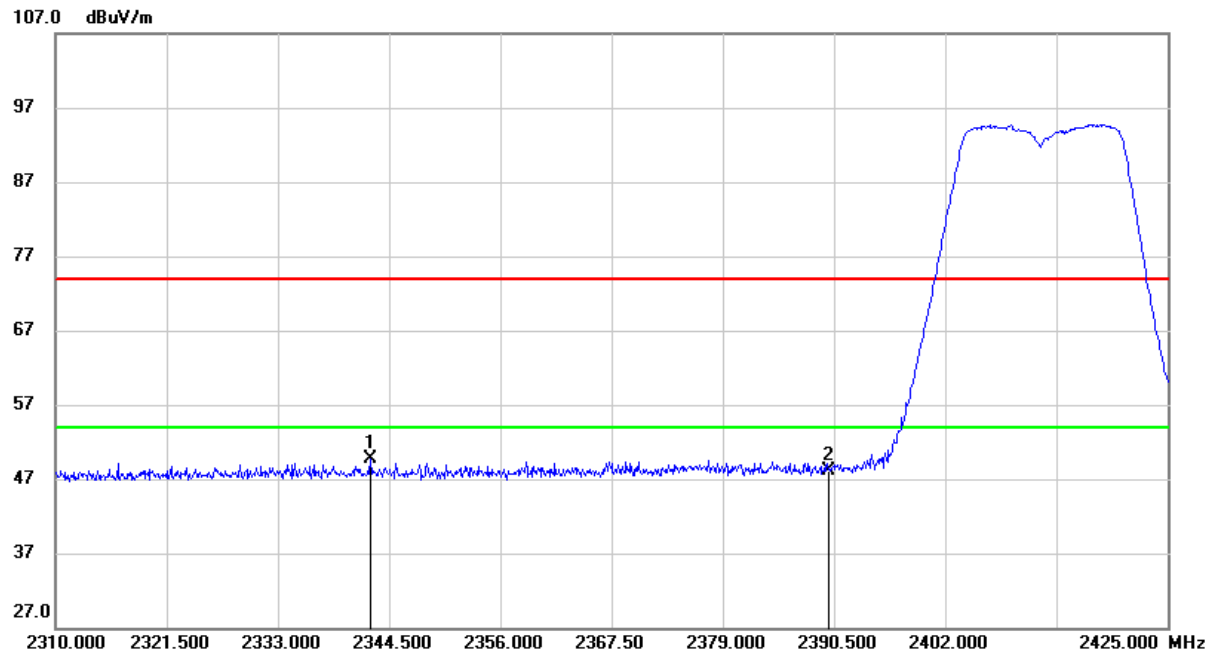
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2374.975	18.81	32.89	51.70	74.00	-22.30	peak
2	2390.000	16.74	32.94	49.68	74.00	-24.32	peak

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

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

3. Peak: Peak detector.

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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2342.545	16.87	32.79	49.66	74.00	-24.34	peak
2	2390.000	15.12	32.94	48.06	74.00	-25.94	peak

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

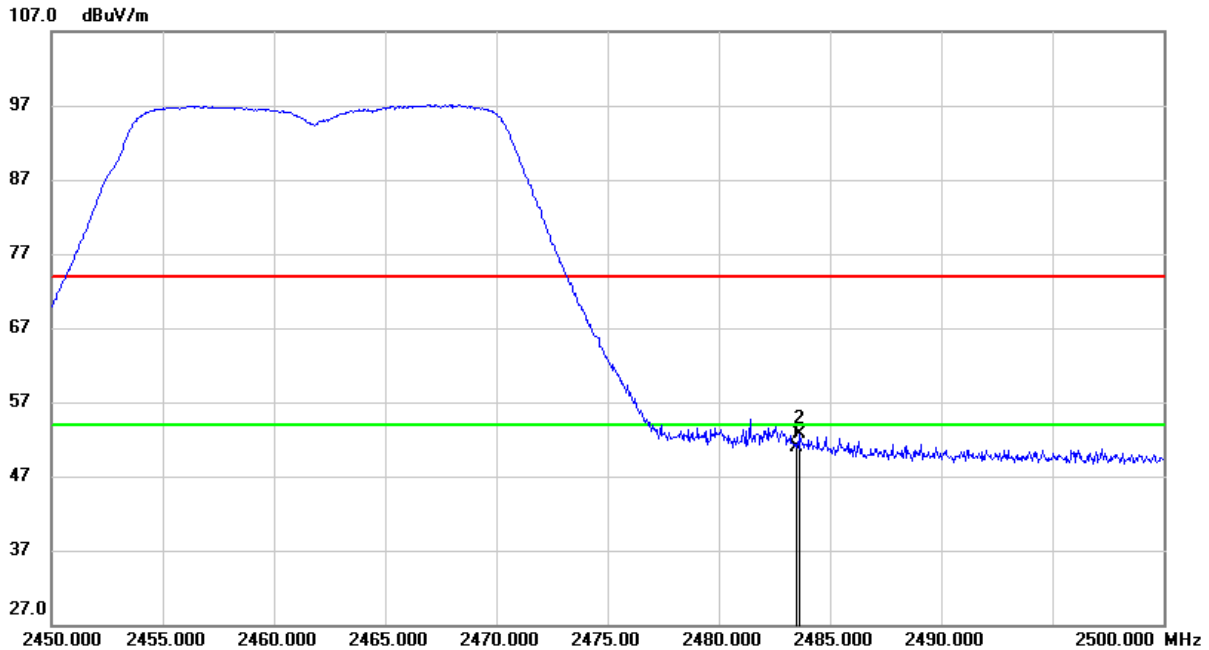
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

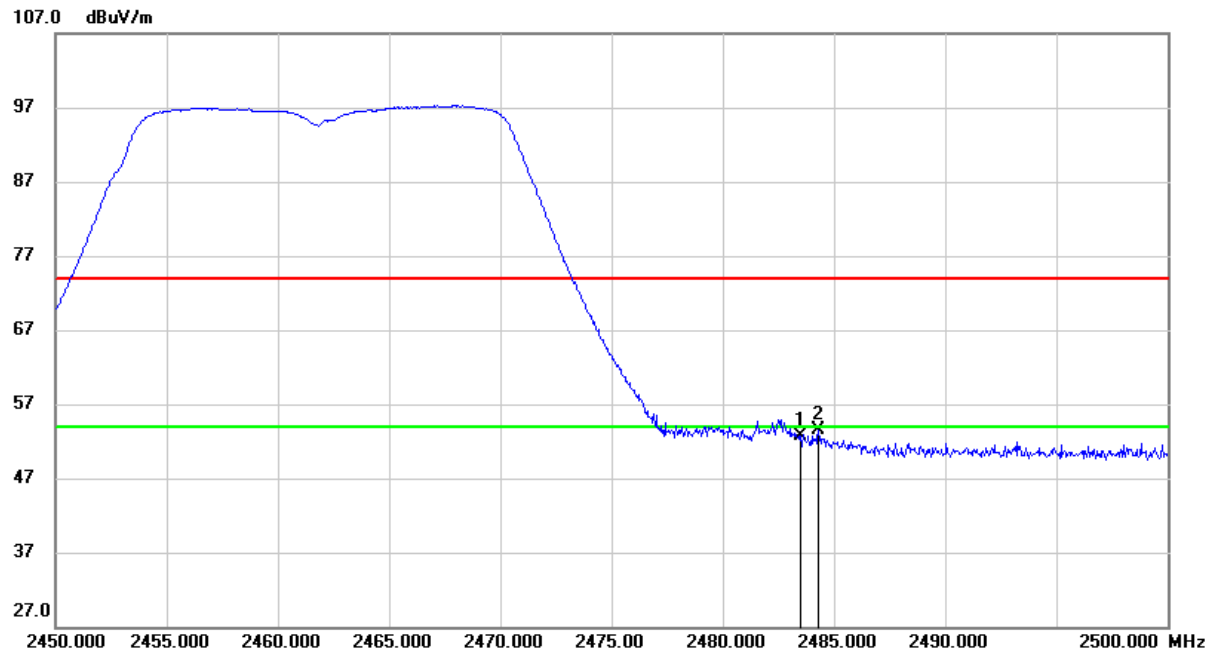
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	17.32	33.58	50.90	74.00	-23.10	peak
2	2483.650	19.14	33.58	52.72	74.00	-21.28	peak

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

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

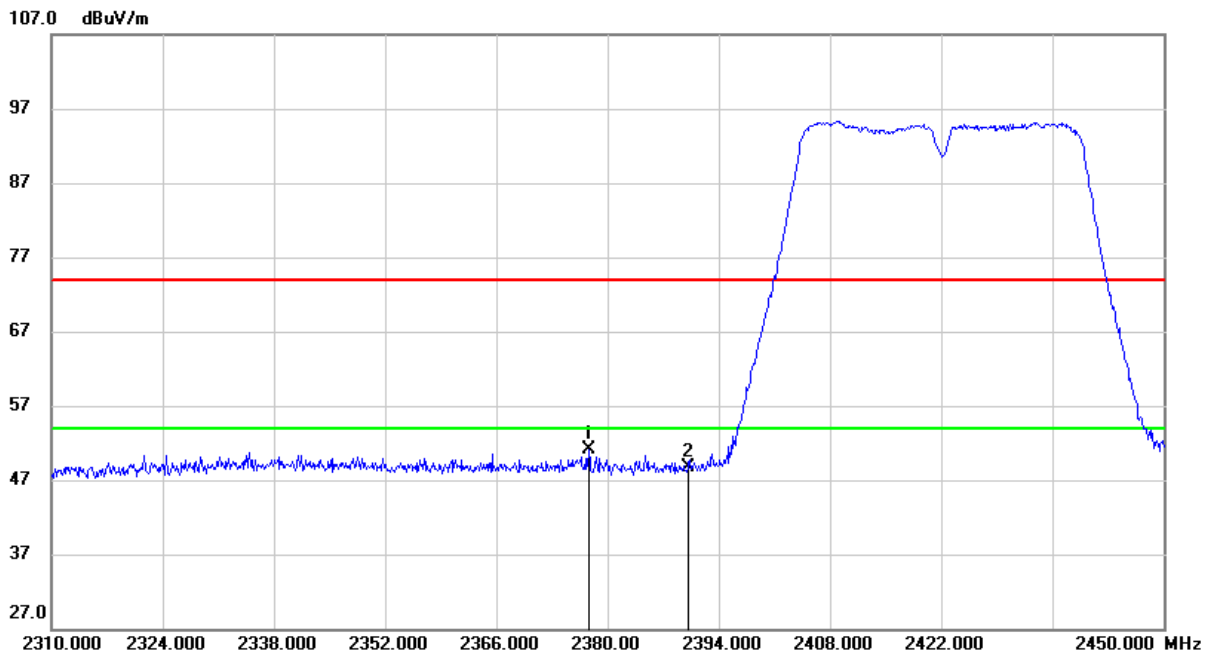
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	19.07	33.58	52.65	74.00	-21.35	peak
2	2484.300	19.84	33.59	53.43	74.00	-20.57	peak

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

8.1.4. 802.11n HT40 MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

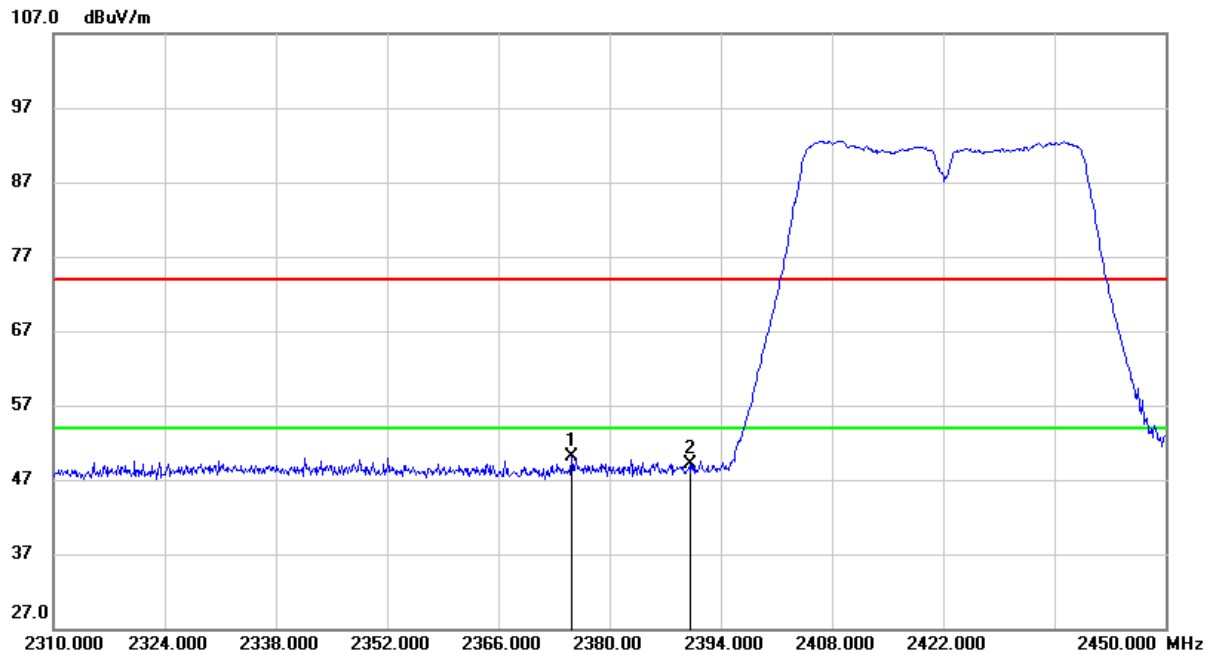


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2377.620	18.29	32.90	51.19	74.00	-22.81	peak
2	2390.000	15.80	32.94	48.74	74.00	-25.26	peak

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

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

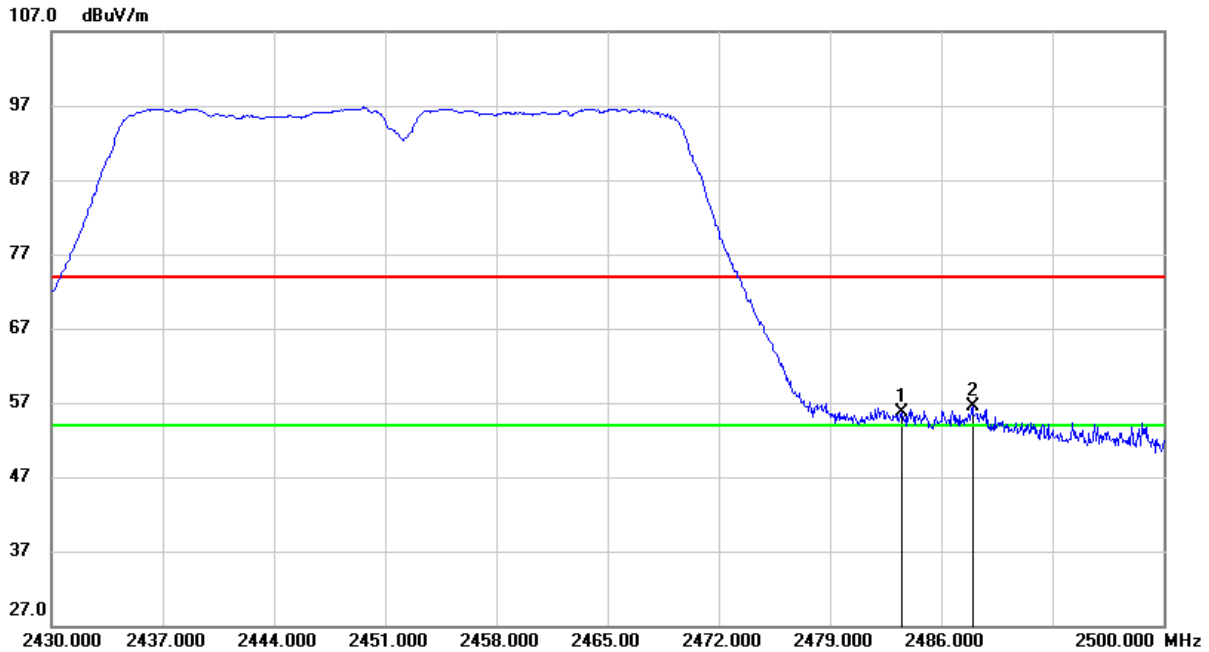


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2375.240	17.13	32.90	50.03	74.00	-23.97	peak
2	2390.000	16.09	32.94	49.03	74.00	-24.97	peak

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



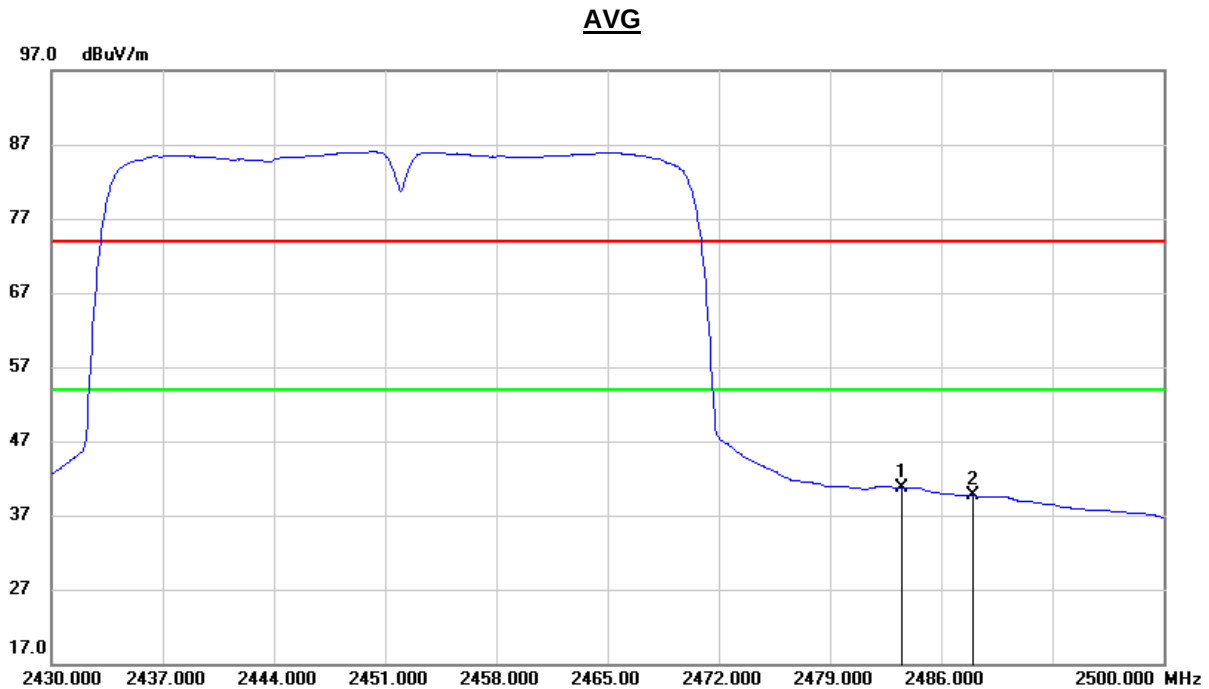
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	22.16	33.58	55.74	74.00	-18.26	peak
2	2487.960	22.89	33.61	56.50	74.00	-17.50	peak

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

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

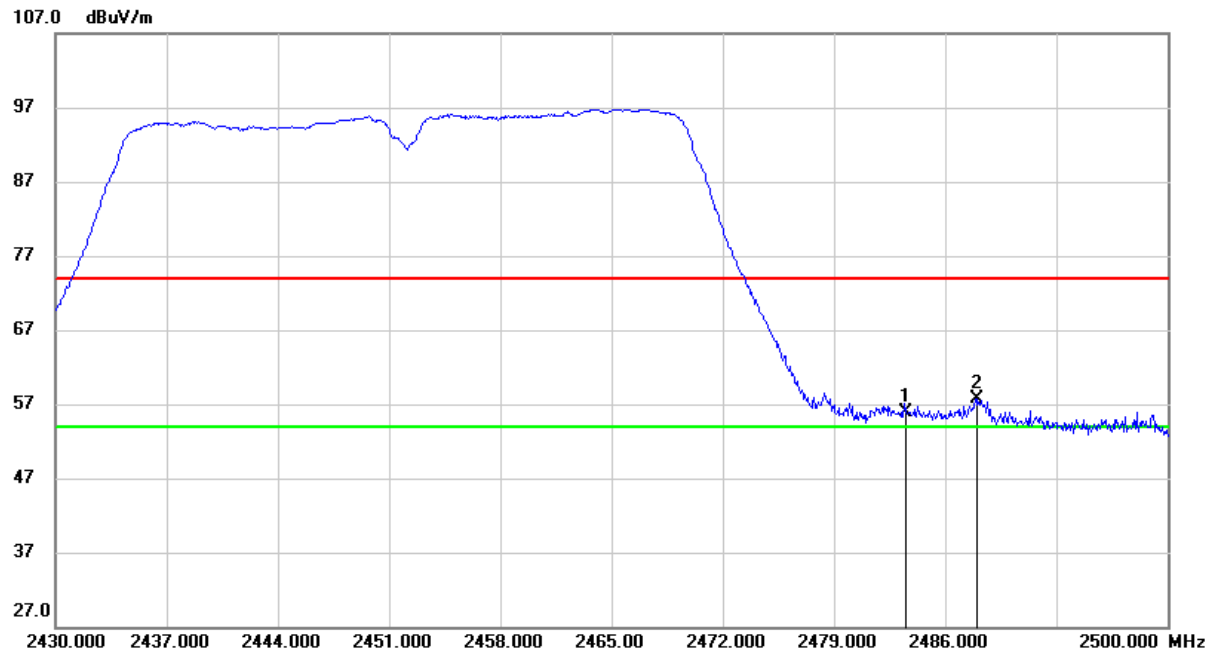
3. Peak: Peak detector.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	7.16	33.58	40.74	54.00	-13.26	AVG
2	2487.960	6.04	33.61	39.65	54.00	-14.35	AVG

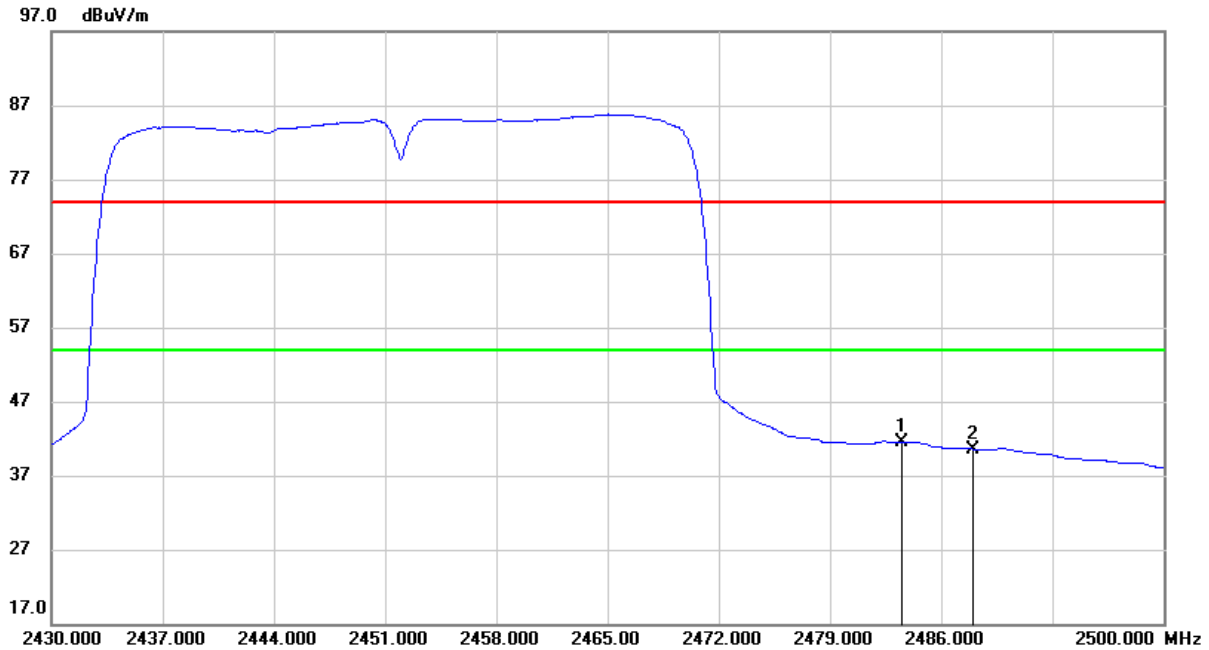
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded,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

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	22.36	33.58	55.94	74.00	-18.06	peak
2	2487.960	24.15	33.61	57.76	74.00	-16.24	peak

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

AVG



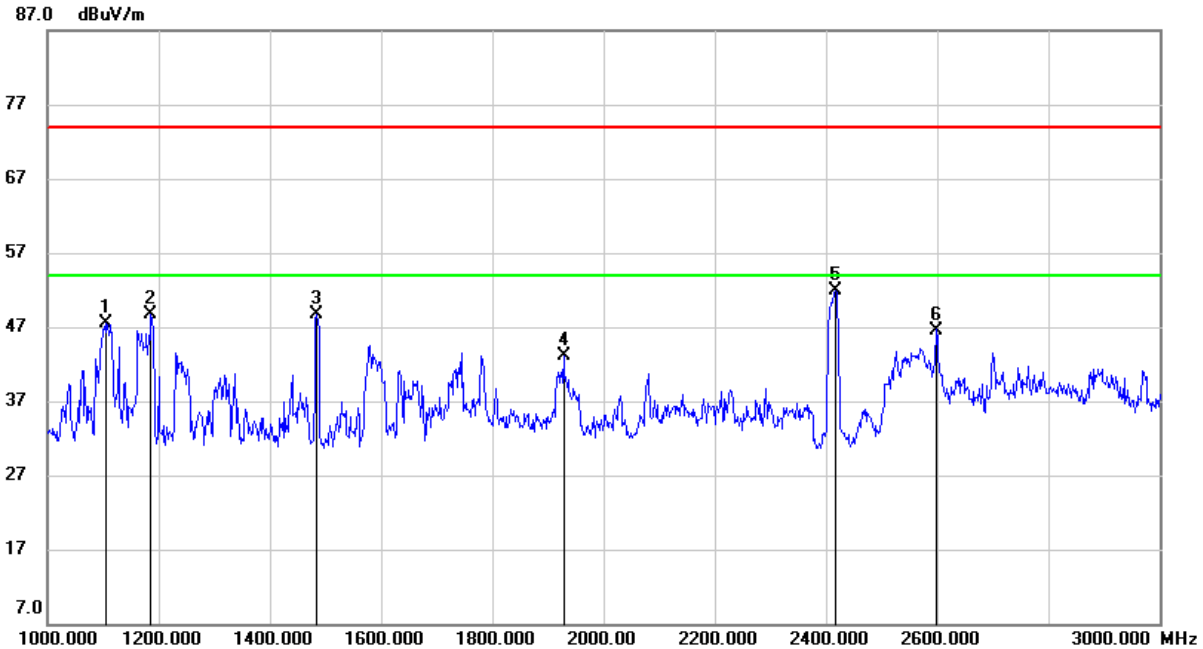
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	7.88	33.58	41.46	54.00	-12.54	AVG
2	2487.960	6.97	33.61	40.58	54.00	-13.42	AVG

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

8.2. SPURIOUS EMISSIONS (1GHz ~ 3GHz)

8.2.1. 802.11g 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	1106.000	60.88	-13.47	47.41	74.00	-26.59	peak
2	1186.000	61.57	-12.80	48.77	74.00	-25.23	peak
3	1484.000	60.94	-12.24	48.70	74.00	-25.30	peak
4	1928.000	53.09	-9.91	43.18	74.00	-30.82	peak
5	2412.000	59.74	-7.74	52.00	/	/	fundamental
6	2598.000	54.29	-7.69	46.60	74.00	-27.40	peak

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

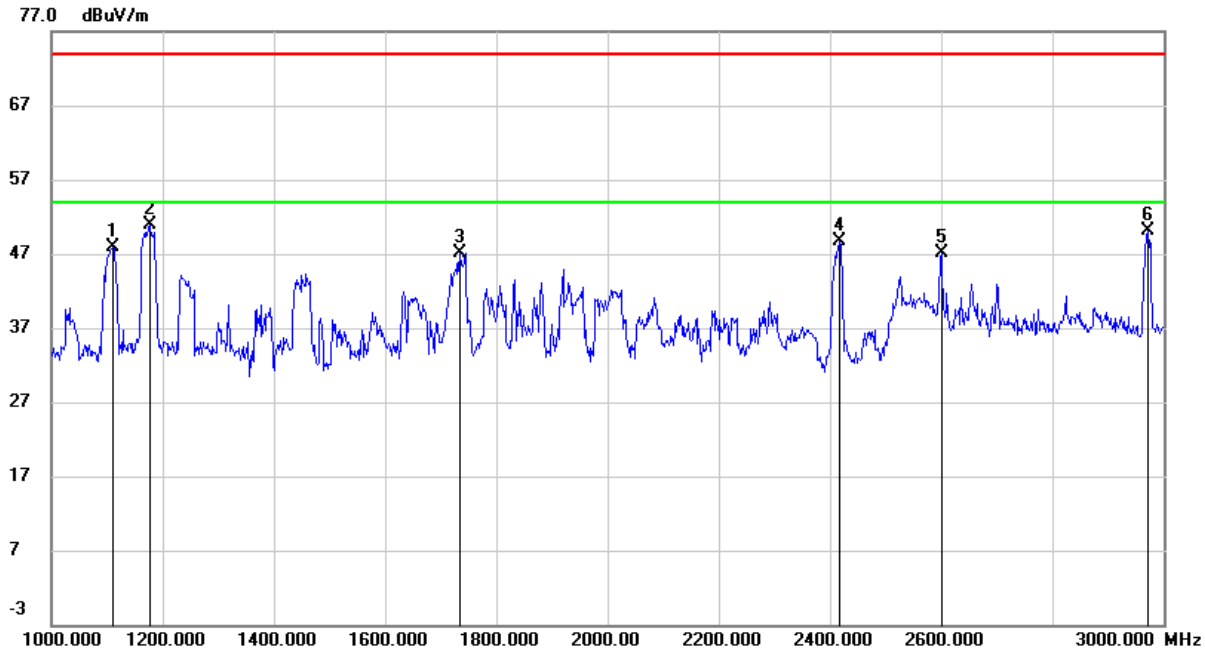
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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	1110.000	61.37	-13.43	47.94	74.00	-26.06	peak
2	1176.000	63.76	-12.87	50.89	74.00	-23.11	peak
3	1734.000	57.77	-10.57	47.20	74.00	-26.80	peak
4	2412.000	56.45	-7.74	48.71	/	/	fundamental
5	2600.000	54.87	-7.70	47.17	74.00	-26.83	peak
6	2972.000	55.48	-5.36	50.12	74.00	-23.88	peak

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

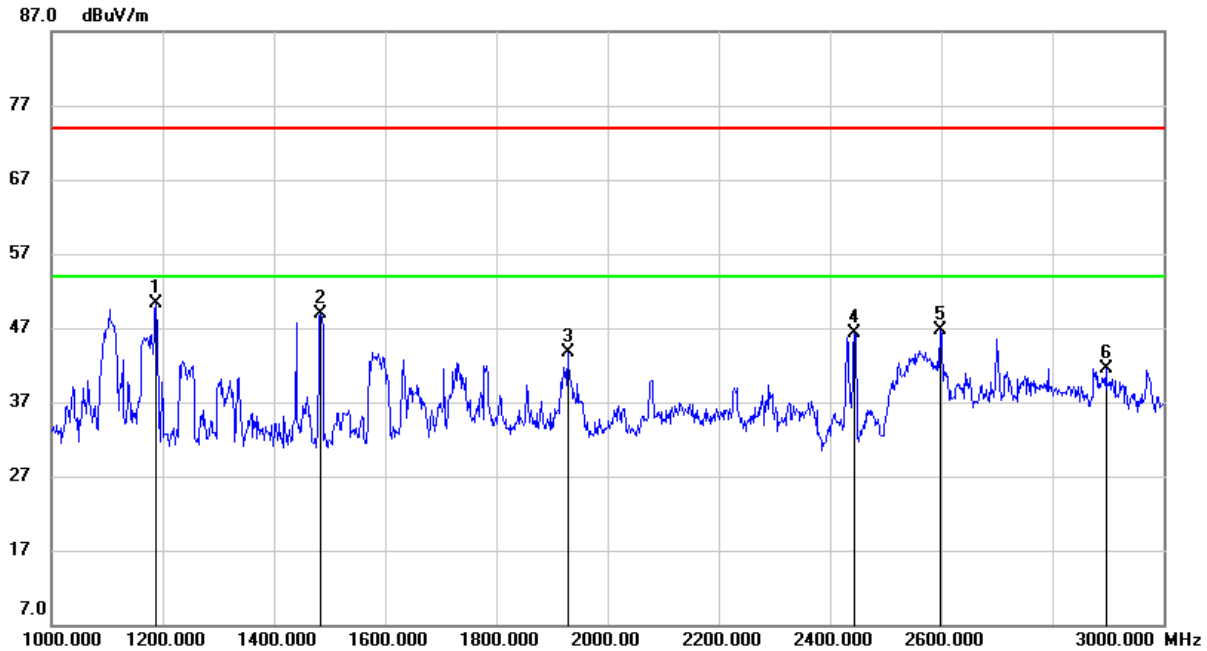
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

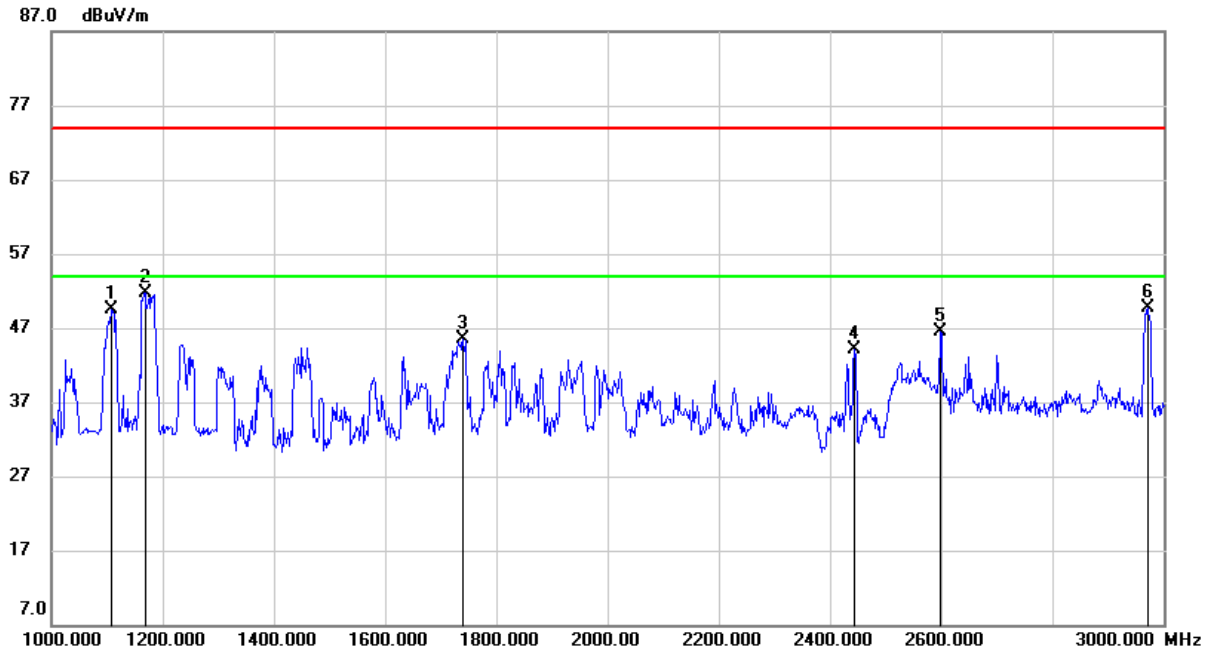
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	63.17	-12.77	50.40	74.00	-23.60	peak
2	1484.000	61.23	-12.24	48.99	74.00	-25.01	peak
3	1928.000	53.69	-9.91	43.78	74.00	-30.22	peak
4	2437.000	53.95	-7.55	46.40	/	/	fundamental
5	2598.000	54.41	-7.69	46.72	74.00	-27.28	peak
6	2896.000	47.06	-5.54	41.52	74.00	-32.48	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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.

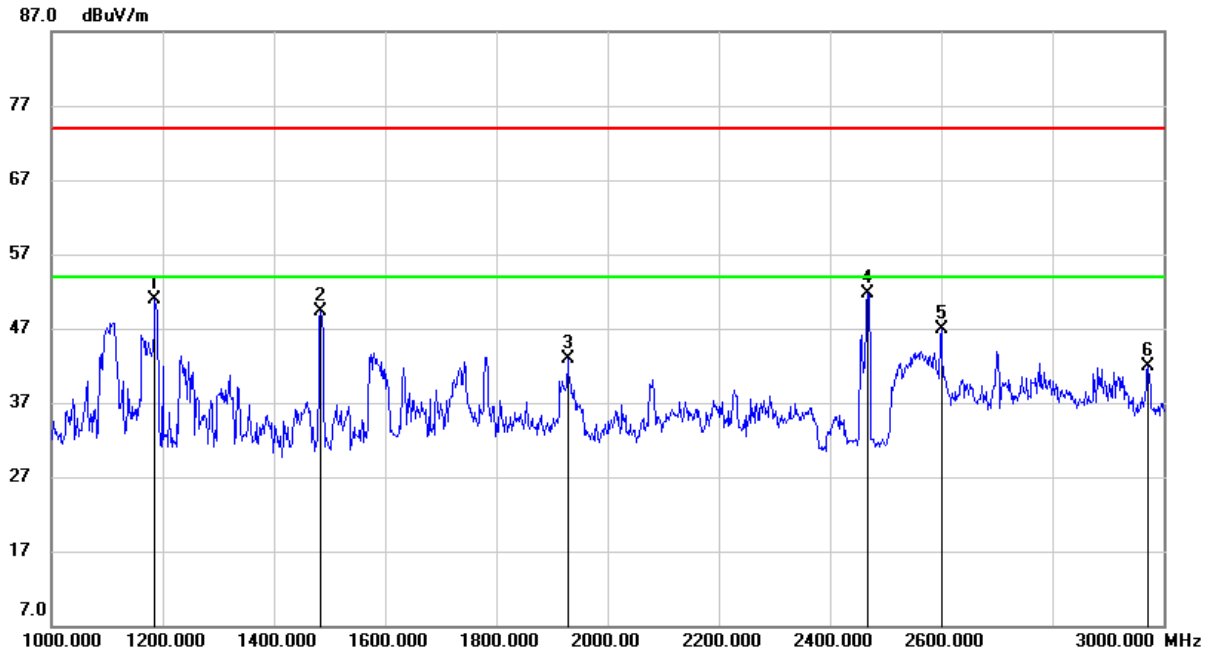
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1108.000	62.99	-13.46	49.53	74.00	-24.47	peak
2	1168.000	64.68	-12.95	51.73	74.00	-22.27	peak
3	1740.000	56.05	-10.51	45.54	74.00	-28.46	peak
4	2437.000	51.73	-7.55	44.18	/	/	fundamental
5	2598.000	54.20	-7.69	46.51	74.00	-27.49	peak
6	2972.000	55.03	-5.36	49.67	74.00	-24.33	peak

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

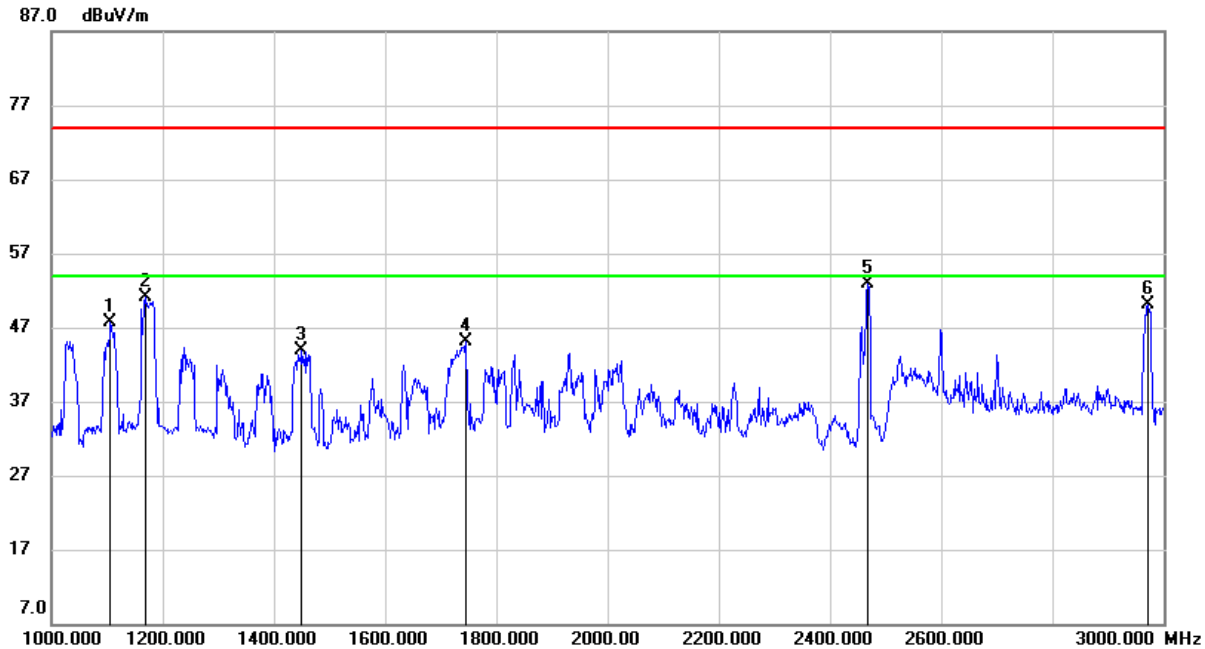
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1186.000	63.69	-12.80	50.89	74.00	-23.11	peak
2	1484.000	61.62	-12.24	49.38	74.00	-24.62	peak
3	1928.000	52.76	-9.91	42.85	74.00	-31.15	peak
4	2462.000	59.02	-7.39	51.63	/	/	fundamental
5	2600.000	54.67	-7.70	46.97	74.00	-27.03	peak
6	2972.000	47.18	-5.36	41.82	74.00	-32.18	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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	1106.000	61.14	-13.47	47.67	74.00	-26.33	peak
2	1170.000	64.01	-12.92	51.09	74.00	-22.91	peak
3	1450.000	56.30	-12.30	44.00	74.00	-30.00	peak
4	1746.000	55.57	-10.45	45.12	74.00	-28.88	peak
5	2462.000	60.38	-7.39	52.99	/	/	fundamental
6	2972.000	55.40	-5.36	50.04	74.00	-23.96	peak

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

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

3. Peak: Peak detector.

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

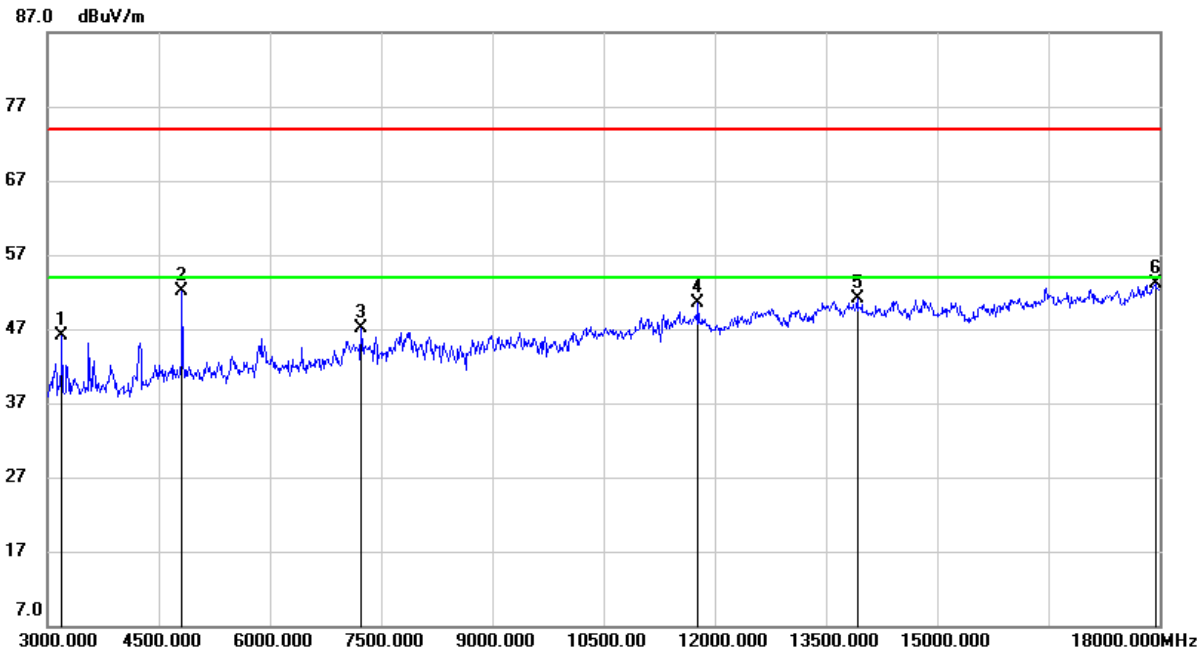
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.3. SPURIOUS EMISSIONS (3GHz ~ 18GHz)

8.3.1. 802.11b 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	3195.000	50.62	-4.42	46.20	74.00	-27.80	peak
2	4815.000	51.62	0.51	52.13	74.00	-21.87	peak
3	7230.000	41.28	5.89	47.17	74.00	-26.83	peak
4	11775.000	37.32	13.13	50.45	74.00	-23.55	peak
5	13920.000	34.93	16.17	51.10	74.00	-22.90	peak
6	17940.000	29.62	23.39	53.01	74.00	-20.99	peak

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

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

3. Peak: Peak detector.

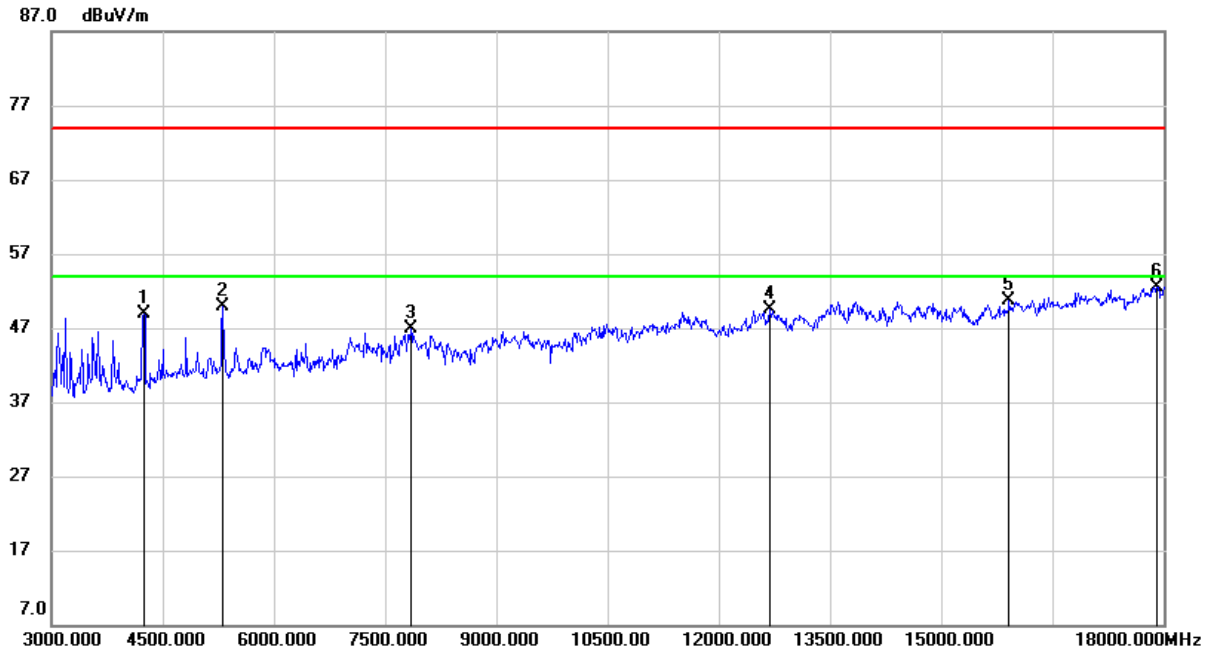
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.

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

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

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	50.50	-1.59	48.91	74.00	-25.09	peak
2	5310.000	47.84	2.02	49.86	74.00	-24.14	peak
3	7845.000	39.19	7.62	46.81	74.00	-27.19	peak
4	12690.000	35.31	14.25	49.56	74.00	-24.44	peak
5	15915.000	33.19	17.57	50.76	74.00	-23.24	peak
6	17910.000	29.22	23.35	52.57	74.00	-21.43	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.

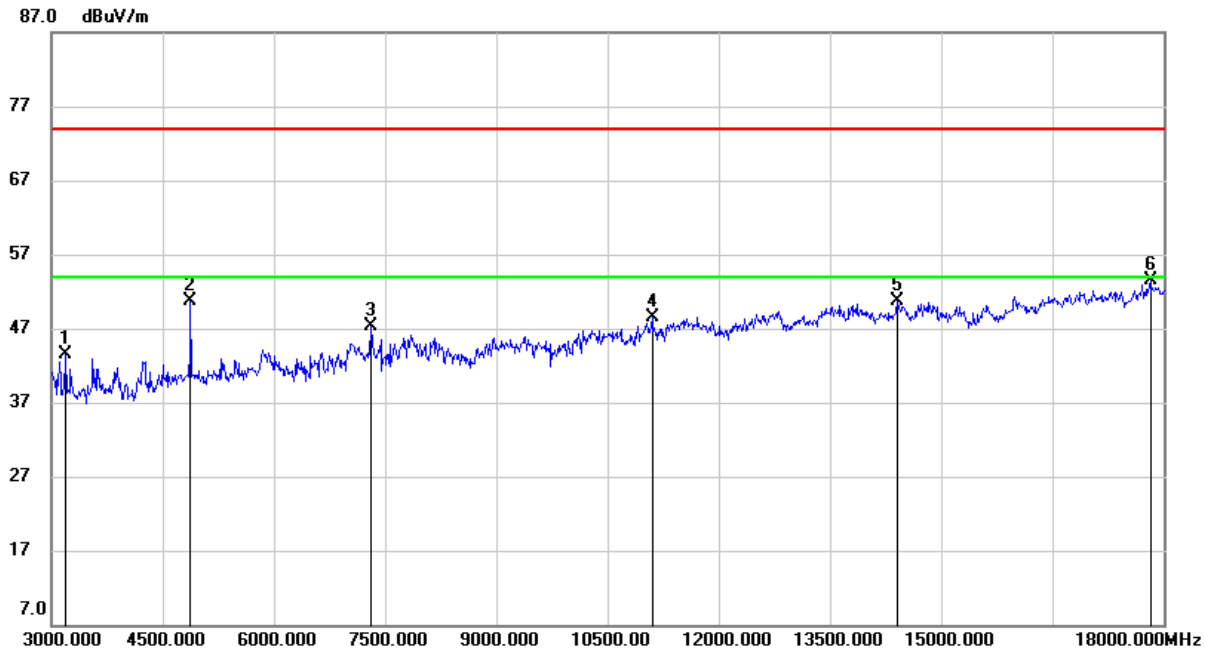
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.

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.

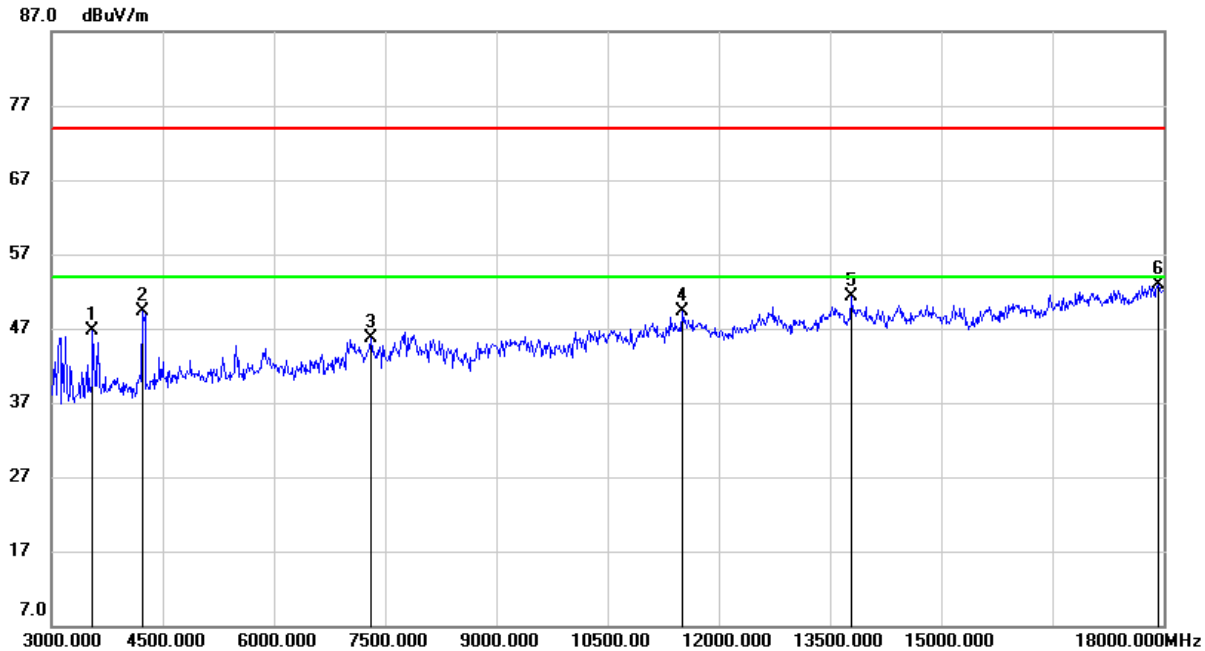
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	47.91	-4.42	43.49	74.00	-30.51	peak
2	4875.000	49.94	0.76	50.70	74.00	-23.30	peak
3	7305.000	41.25	6.08	47.33	74.00	-26.67	peak
4	11100.000	35.93	12.56	48.49	74.00	-25.51	peak
5	14400.000	34.41	16.35	50.76	74.00	-23.24	peak
6	17820.000	30.26	23.30	53.56	74.00	-20.44	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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.

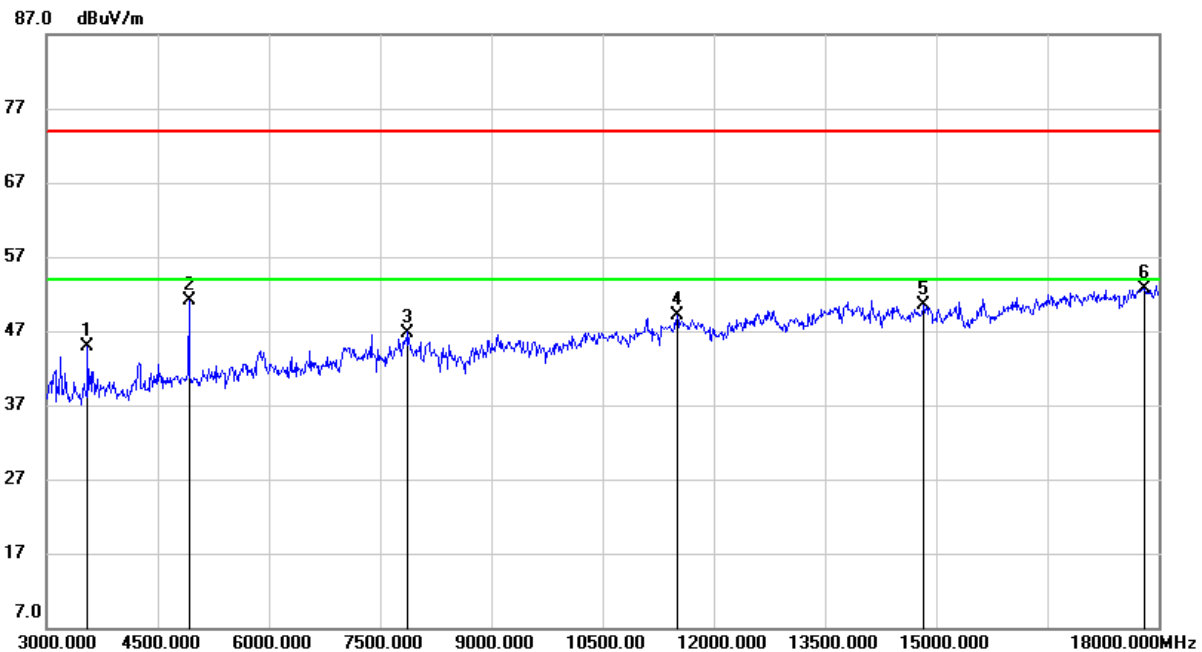
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	50.47	-3.72	46.75	74.00	-27.25	peak
2	4230.000	50.80	-1.47	49.33	74.00	-24.67	peak
3	7305.000	39.72	6.08	45.80	74.00	-28.20	peak
4	11505.000	35.90	13.42	49.32	74.00	-24.68	peak
5	13785.000	34.32	16.91	51.23	74.00	-22.77	peak
6	17925.000	29.53	23.37	52.90	74.00	-21.10	peak

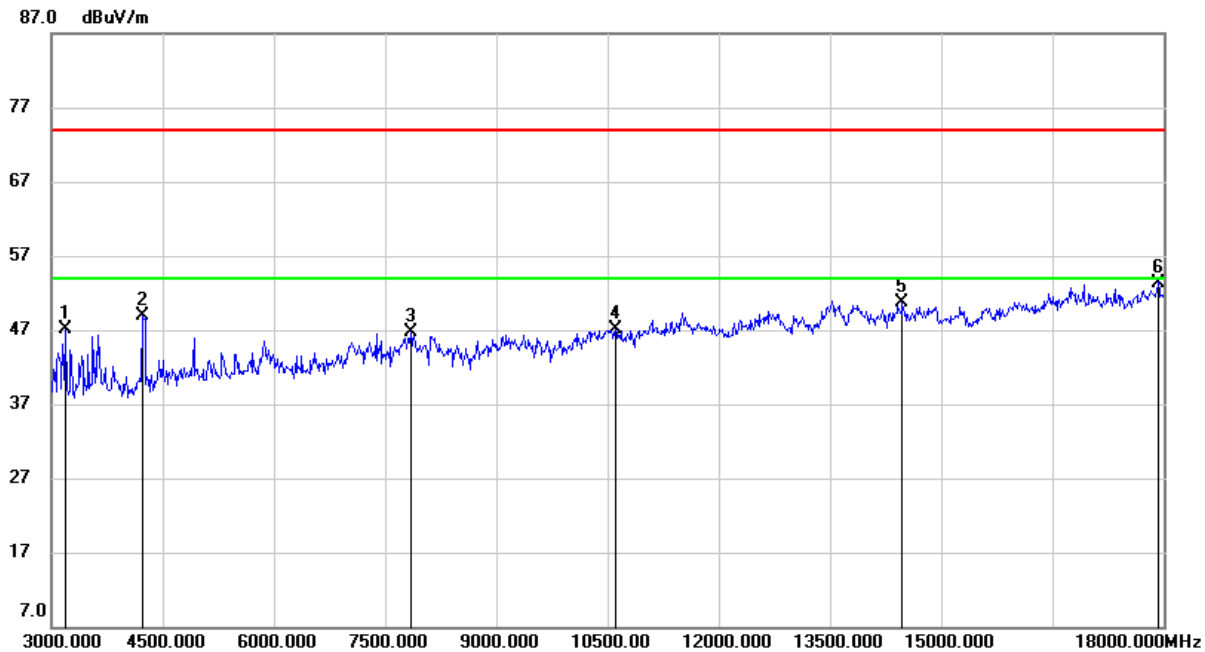
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses 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, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	48.70	-3.72	44.98	74.00	-29.02	peak
2	4920.000	50.09	0.96	51.05	74.00	-22.95	peak
3	7875.000	39.40	7.40	46.80	74.00	-27.20	peak
4	11505.000	35.66	13.42	49.08	74.00	-24.92	peak
5	14835.000	34.53	15.95	50.48	74.00	-23.52	peak
6	17805.000	29.42	23.31	52.73	74.00	-21.27	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.

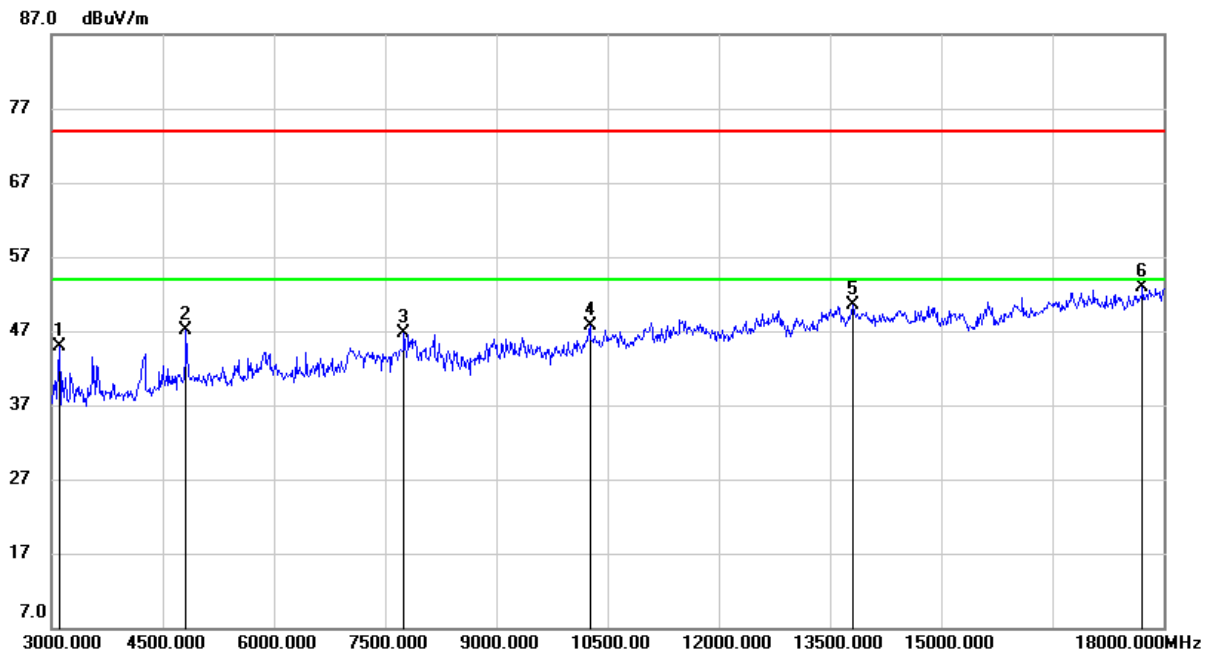
**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3180.000	51.34	-4.33	47.01	74.00	-26.99	peak
2	4230.000	50.45	-1.47	48.98	74.00	-25.02	peak
3	7845.000	39.09	7.62	46.71	74.00	-27.29	peak
4	10605.000	35.25	11.93	47.18	74.00	-26.82	peak
5	14475.000	34.32	16.36	50.68	74.00	-23.32	peak
6	17925.000	30.03	23.37	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. 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.

8.3.2. 802.11g MODE

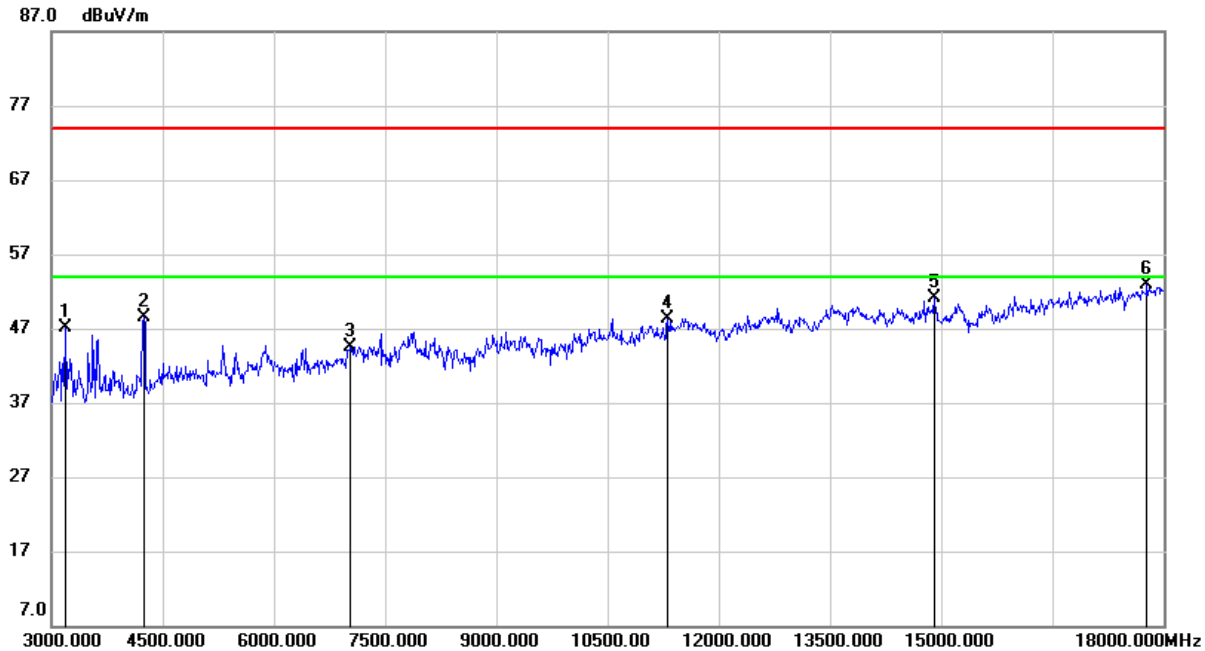
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3105.000	48.83	-3.85	44.98	74.00	-29.02	peak
2	4815.000	46.51	0.51	47.02	74.00	-26.98	peak
3	7755.000	39.35	7.29	46.64	74.00	-27.36	peak
4	10260.000	37.00	10.71	47.71	74.00	-26.29	peak
5	13815.000	33.52	16.97	50.49	74.00	-23.51	peak
6	17715.000	30.26	22.56	52.82	74.00	-21.18	peak

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

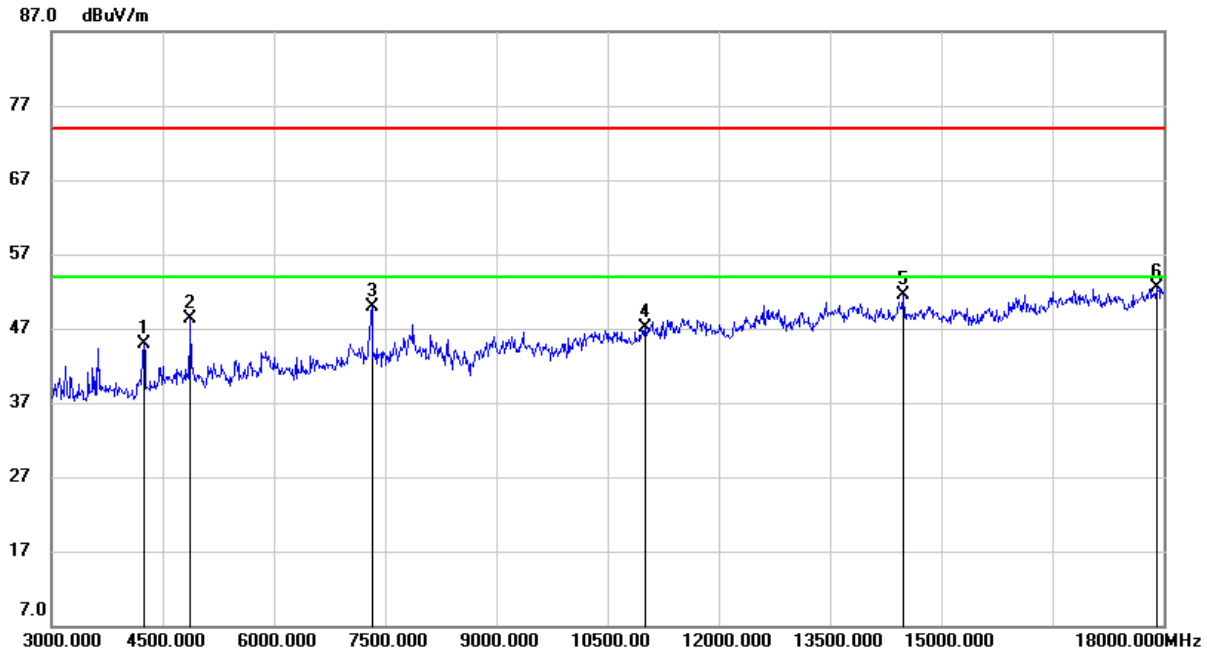
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3180.000	51.48	-4.33	47.15	74.00	-26.85	peak
2	4245.000	50.12	-1.59	48.53	74.00	-25.47	peak
3	7035.000	38.78	5.81	44.59	74.00	-29.41	peak
4	11310.000	35.93	12.37	48.30	74.00	-25.70	peak
5	14910.000	35.01	16.01	51.02	74.00	-22.98	peak
6	17775.000	29.79	23.09	52.88	74.00	-21.12	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.

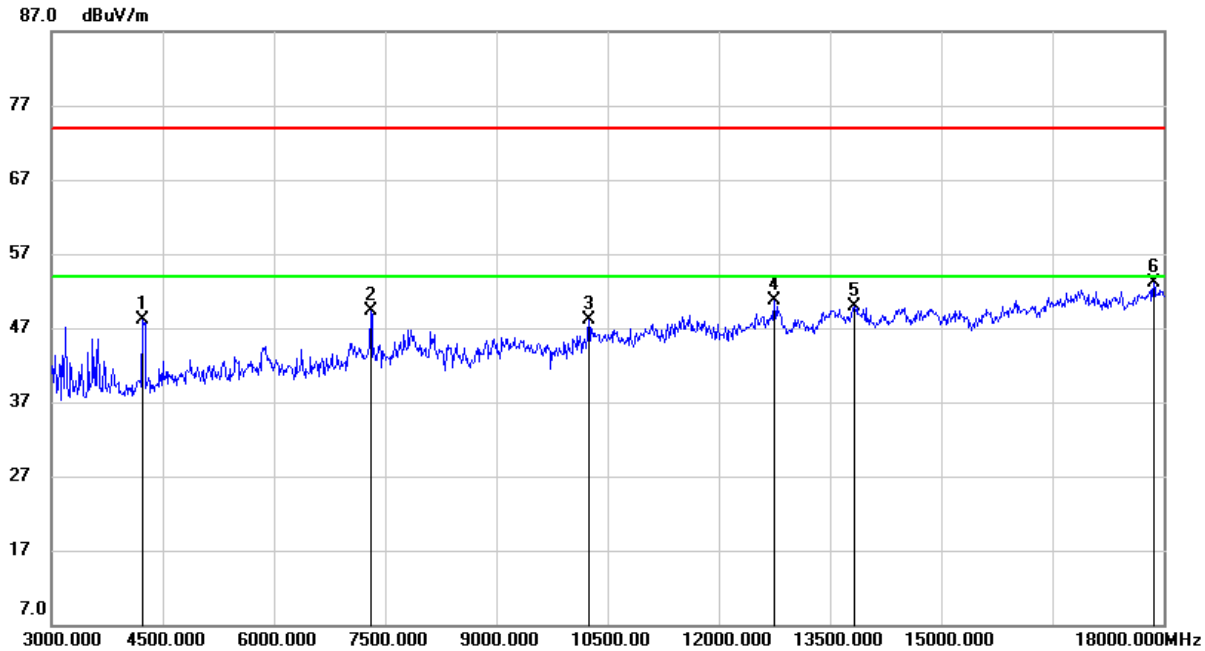
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	46.42	-1.59	44.83	74.00	-29.17	peak
2	4875.000	47.63	0.76	48.39	74.00	-25.61	peak
3	7320.000	43.82	6.14	49.96	74.00	-24.04	peak
4	11010.000	34.57	12.63	47.20	74.00	-26.80	peak
5	14490.000	35.05	16.37	51.42	74.00	-22.58	peak
6	17910.000	29.08	23.35	52.43	74.00	-21.57	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.

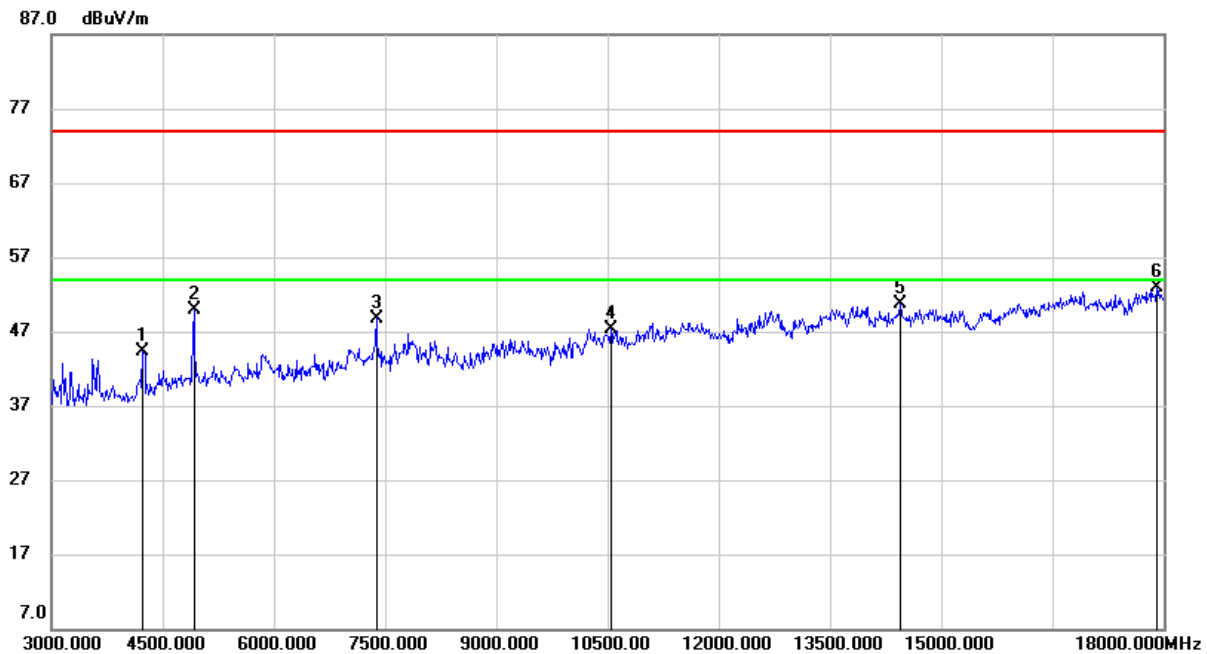
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4230.000	49.60	-1.47	48.13	74.00	-25.87	peak
2	7305.000	43.29	6.08	49.37	74.00	-24.63	peak
3	10245.000	37.48	10.56	48.04	74.00	-25.96	peak
4	12750.000	35.72	14.98	50.70	74.00	-23.30	peak
5	13830.000	33.00	16.84	49.84	74.00	-24.16	peak
6	17865.000	29.78	23.33	53.11	74.00	-20.89	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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.

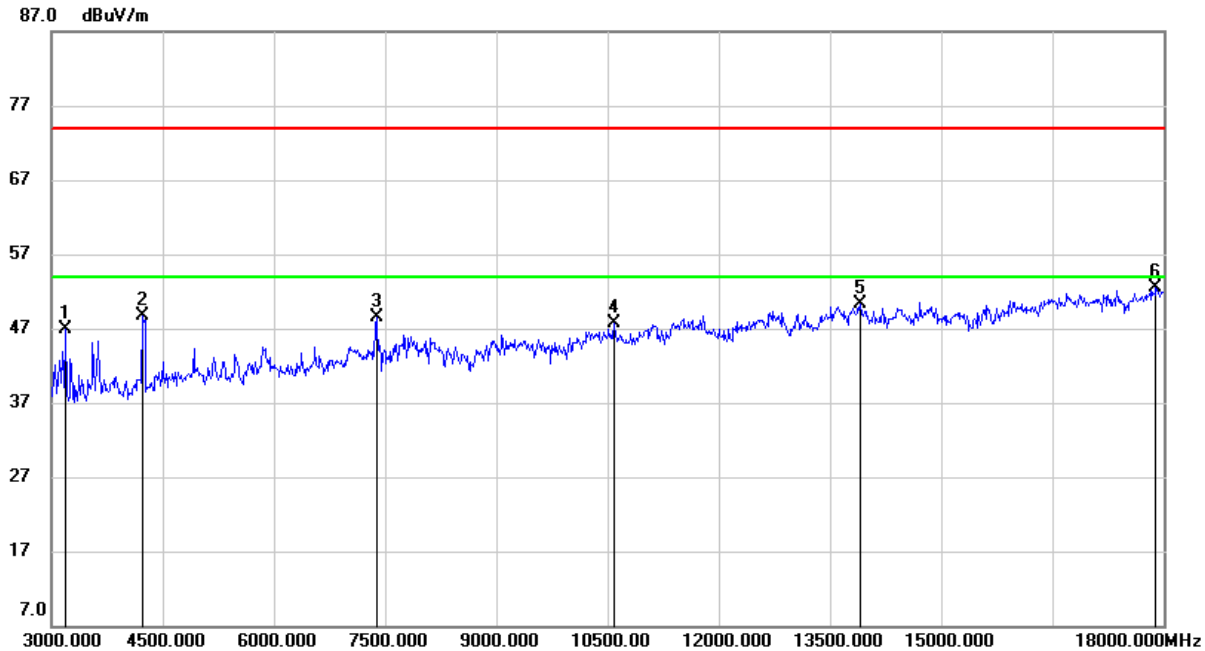
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4230.000	45.87	-1.47	44.40	74.00	-29.60	peak
2	4920.000	49.02	0.96	49.98	74.00	-24.02	peak
3	7380.000	42.39	6.41	48.80	74.00	-25.20	peak
4	10545.000	35.67	11.64	47.31	74.00	-26.69	peak
5	14445.000	34.31	16.36	50.67	74.00	-23.33	peak
6	17910.000	29.58	23.35	52.93	74.00	-21.07	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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)

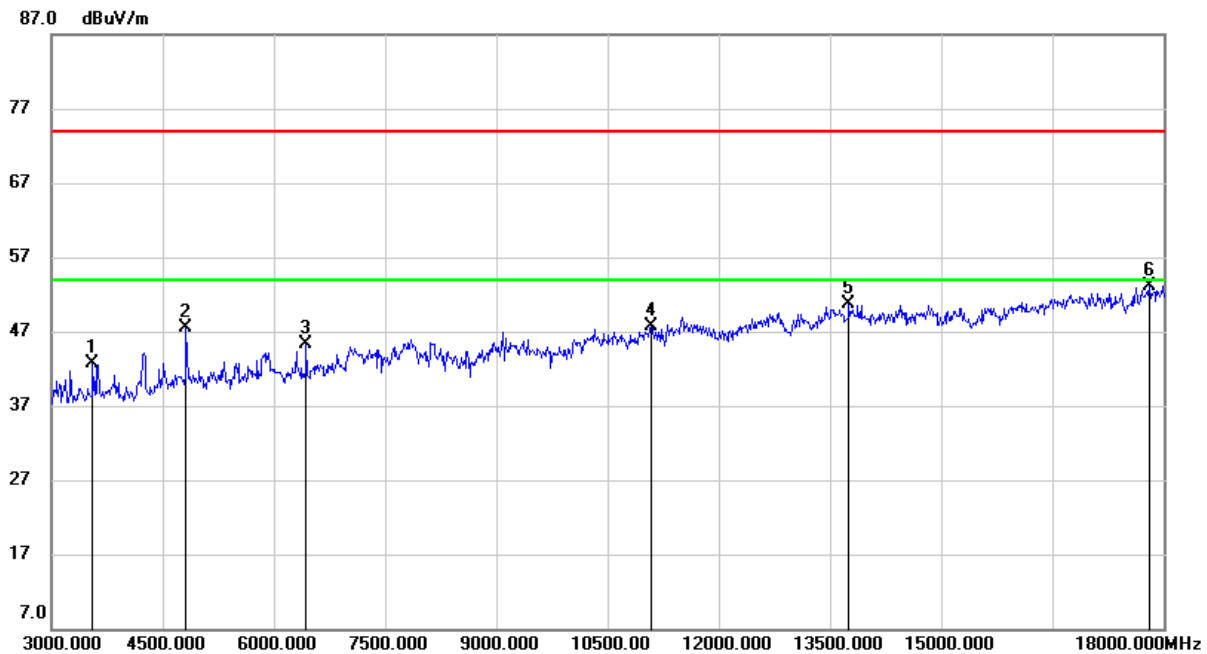


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	51.37	-4.42	46.95	74.00	-27.05	peak
2	4230.000	50.09	-1.47	48.62	74.00	-25.38	peak
3	7380.000	42.18	6.41	48.59	74.00	-25.41	peak
4	10590.000	35.86	11.88	47.74	74.00	-26.26	peak
5	13905.000	34.03	16.20	50.23	74.00	-23.77	peak
6	17895.000	29.09	23.34	52.43	74.00	-21.57	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.

8.3.3. 802.11n HT20 MODE

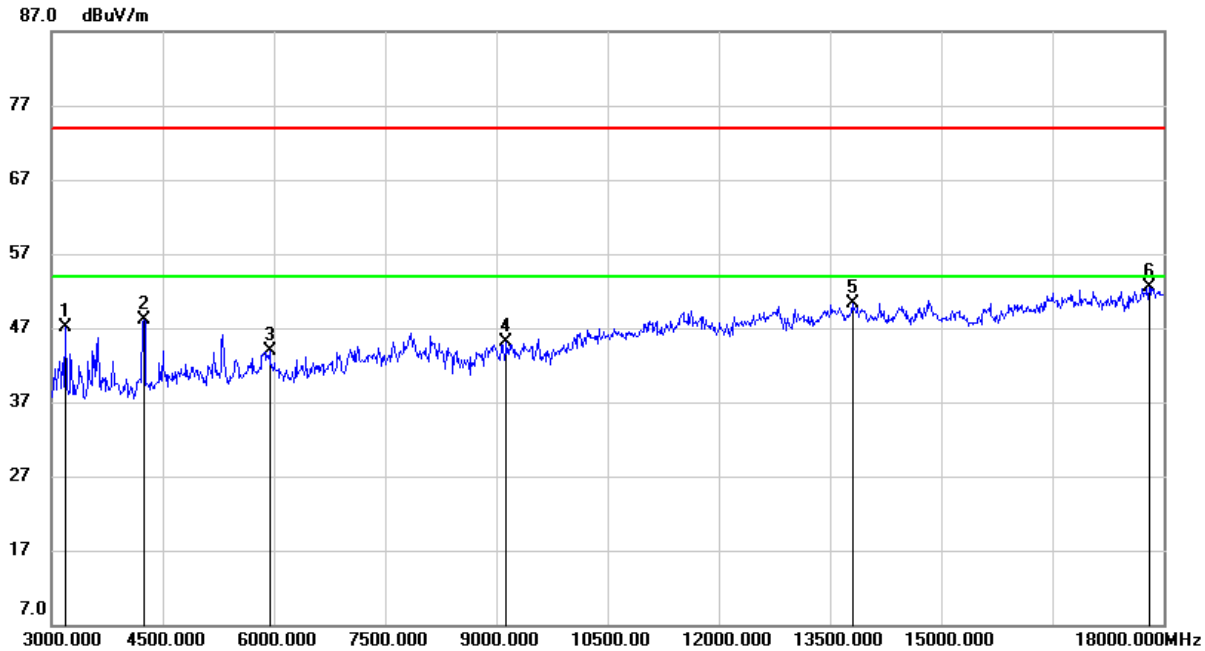
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	46.36	-3.72	42.64	74.00	-31.36	peak
2	4815.000	46.91	0.51	47.42	74.00	-26.58	peak
3	6435.000	40.63	4.72	45.35	74.00	-28.65	peak
4	11085.000	35.16	12.57	47.73	74.00	-26.27	peak
5	13755.000	34.07	16.54	50.61	74.00	-23.39	peak
6	17805.000	29.74	23.31	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.

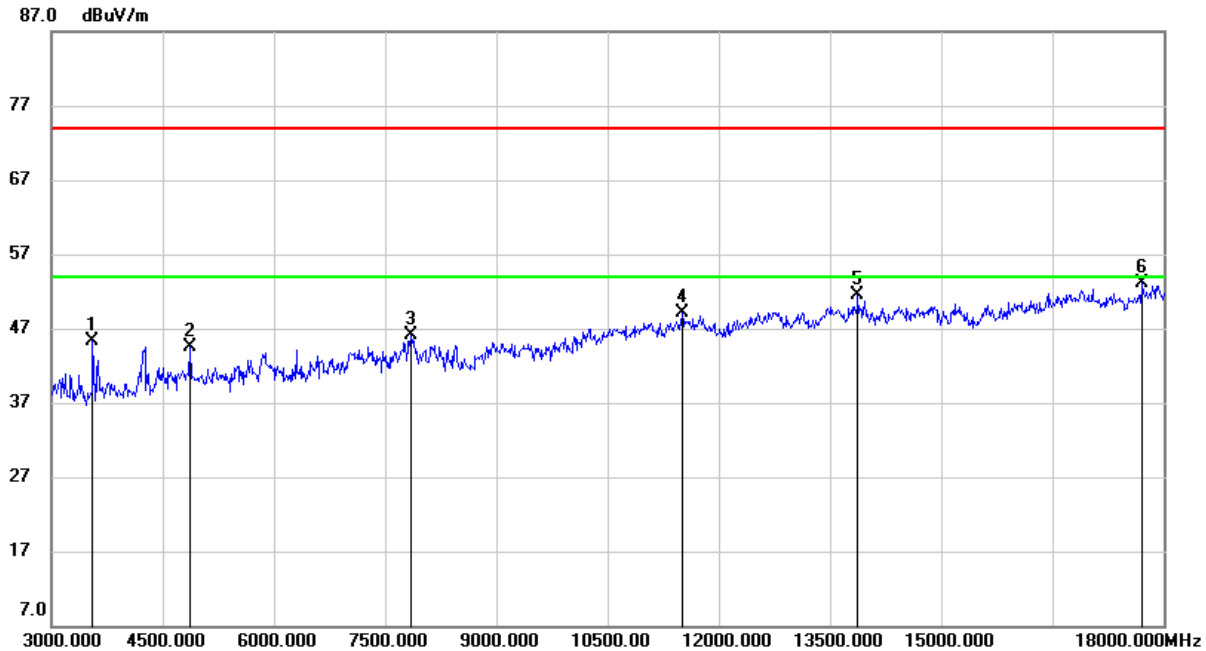
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3180.000	51.39	-4.33	47.06	74.00	-26.94	peak
2	4245.000	49.70	-1.59	48.11	74.00	-25.89	peak
3	5940.000	39.52	4.30	43.82	74.00	-30.18	peak
4	9135.000	35.94	9.07	45.01	74.00	-28.99	peak
5	13800.000	33.27	17.10	50.37	74.00	-23.63	peak
6	17805.000	29.11	23.31	52.42	74.00	-21.58	peak

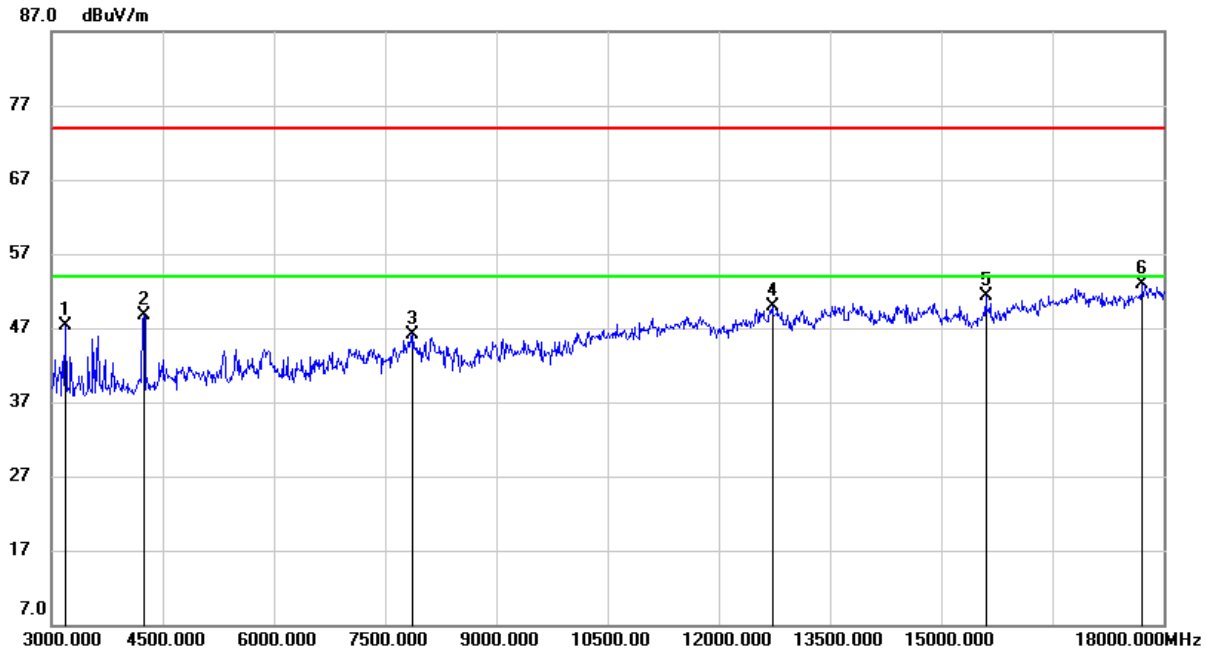
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter 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	3555.000	49.02	-3.72	45.30	74.00	-28.70	peak
2	4875.000	43.84	0.76	44.60	74.00	-29.40	peak
3	7845.000	38.46	7.62	46.08	74.00	-27.92	peak
4	11505.000	35.72	13.42	49.14	74.00	-24.86	peak
5	13875.000	35.01	16.44	51.45	74.00	-22.55	peak
6	17715.000	30.55	22.56	53.11	74.00	-20.89	peak

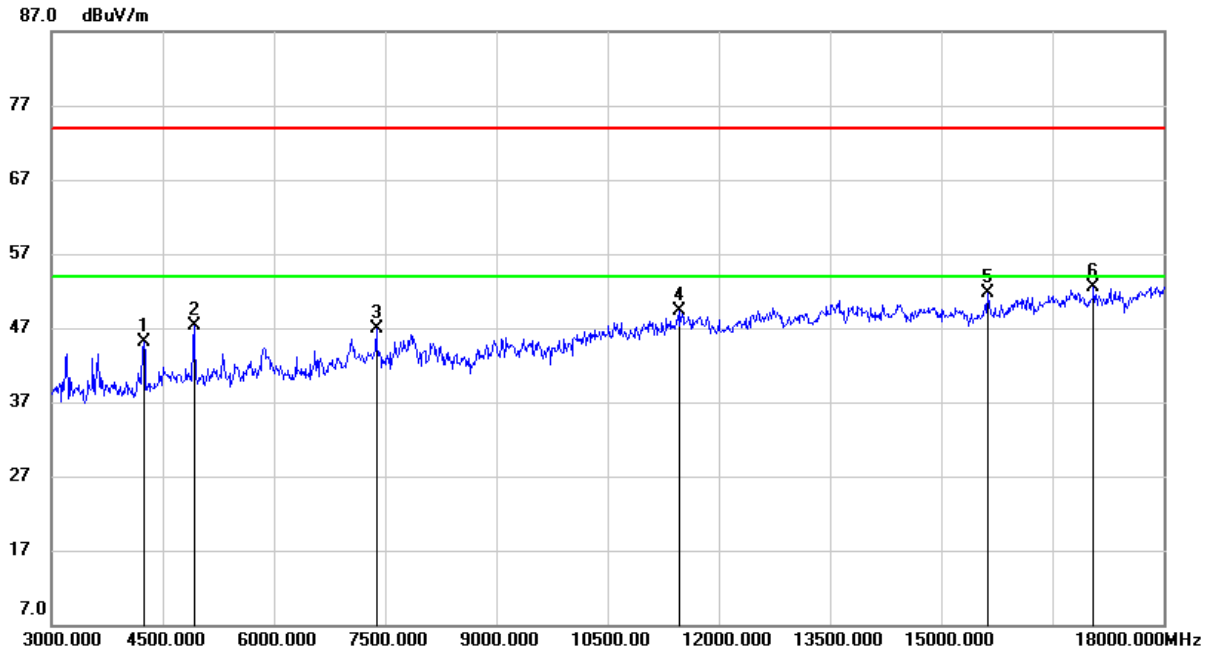
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter 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	3180.000	51.65	-4.33	47.32	74.00	-26.68	peak
2	4245.000	50.30	-1.59	48.71	74.00	-25.29	peak
3	7875.000	38.79	7.40	46.19	74.00	-27.81	peak
4	12720.000	35.30	14.57	49.87	74.00	-24.13	peak
5	15600.000	34.25	16.98	51.23	74.00	-22.77	peak
6	17715.000	30.40	22.56	52.96	74.00	-21.04	peak

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

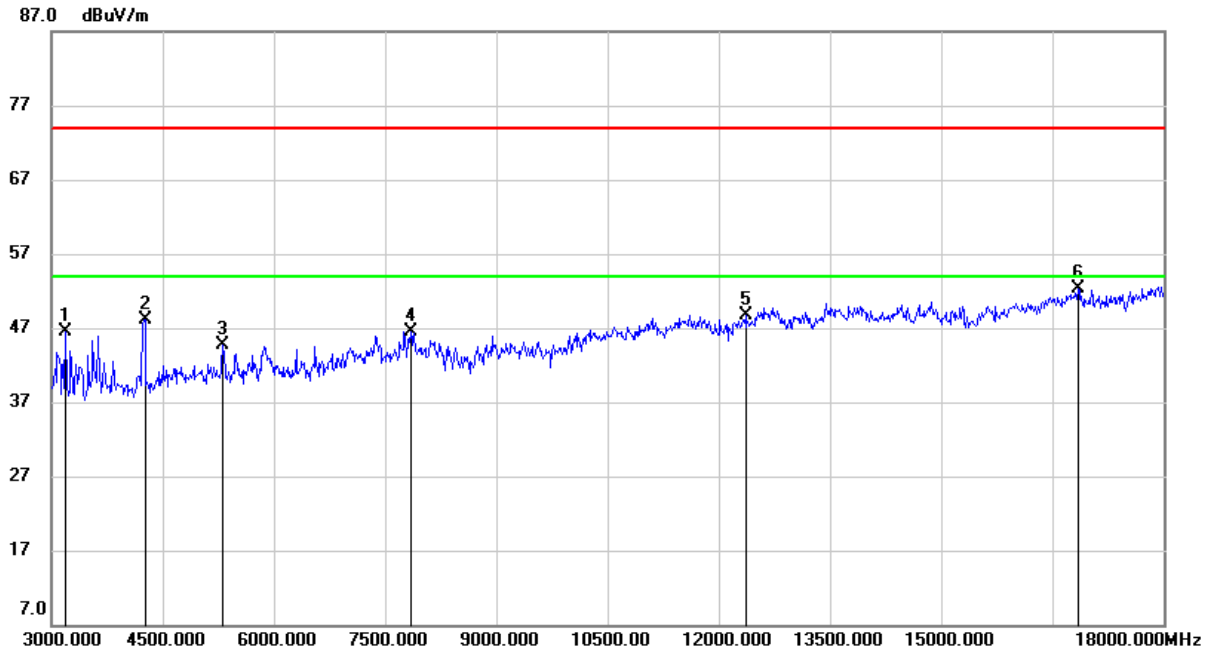
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	46.62	-1.59	45.03	74.00	-28.97	peak
2	4920.000	46.38	0.96	47.34	74.00	-26.66	peak
3	7380.000	40.58	6.41	46.99	74.00	-27.01	peak
4	11475.000	36.08	13.22	49.30	74.00	-24.70	peak
5	15630.000	34.75	16.89	51.64	74.00	-22.36	peak
6	17055.000	32.06	20.53	52.59	74.00	-21.41	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)

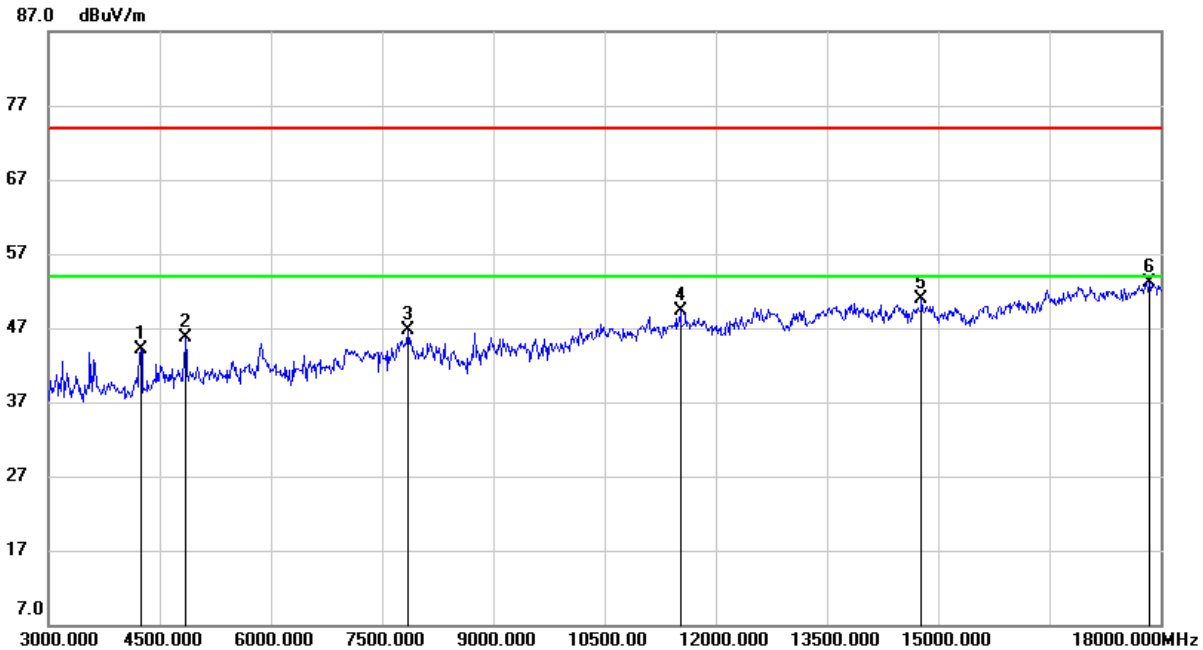


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	50.96	-4.42	46.54	74.00	-27.46	peak
2	4260.000	49.80	-1.71	48.09	74.00	-25.91	peak
3	5310.000	42.64	2.02	44.66	74.00	-29.34	peak
4	7845.000	38.94	7.62	46.56	74.00	-27.44	peak
5	12360.000	34.61	14.03	48.64	74.00	-25.36	peak
6	16845.000	32.42	19.96	52.38	74.00	-21.62	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 MODE

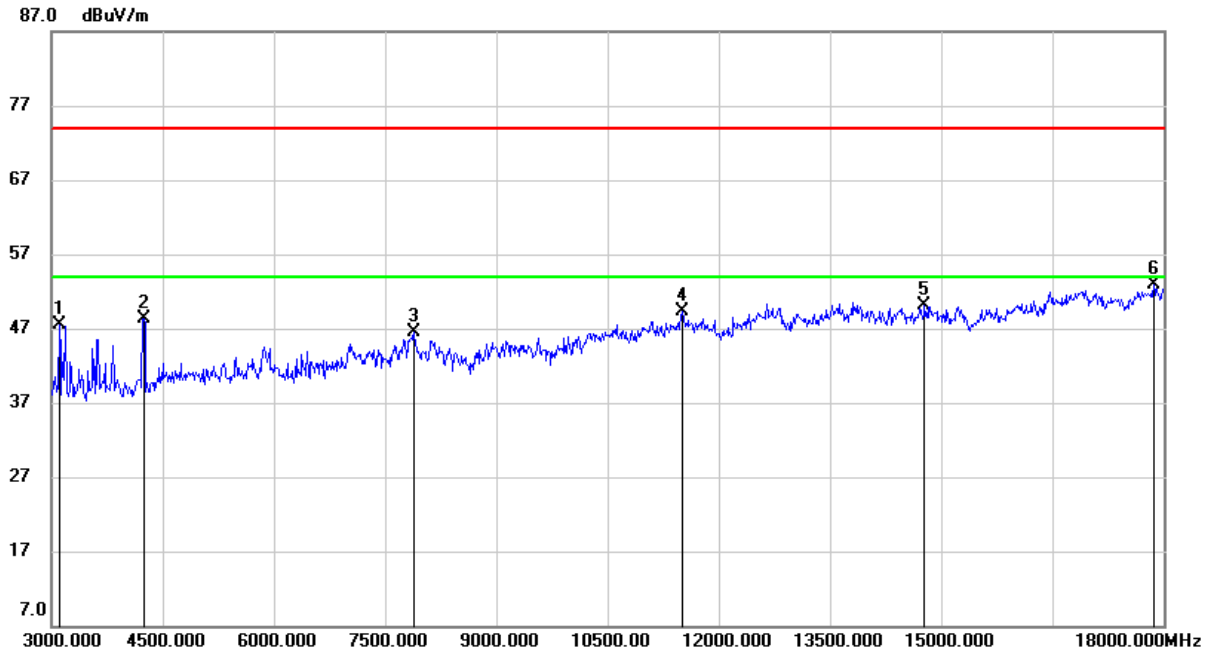
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	45.62	-1.59	44.03	74.00	-29.97	peak
2	4845.000	45.09	0.64	45.73	74.00	-28.27	peak
3	7845.000	39.06	7.62	46.68	74.00	-27.32	peak
4	11520.000	35.86	13.38	49.24	74.00	-24.76	peak
5	14775.000	35.01	15.95	50.96	74.00	-23.04	peak
6	17850.000	29.81	23.32	53.13	74.00	-20.87	peak

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

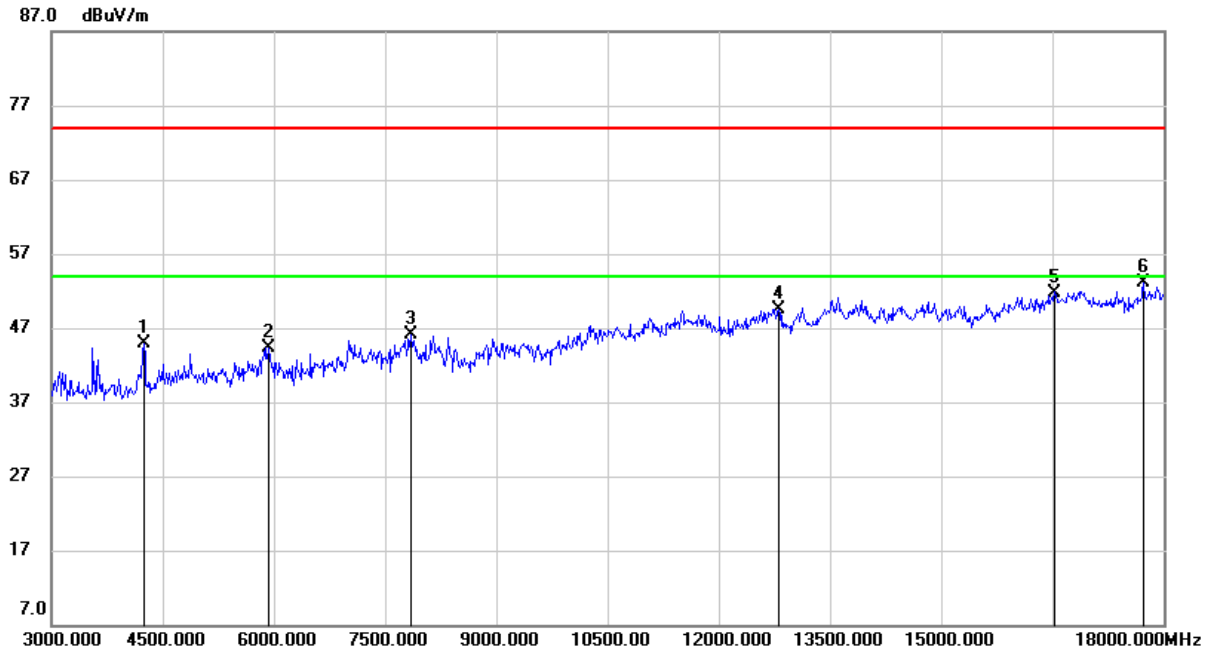
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3105.000	51.36	-3.85	47.51	74.00	-26.49	peak
2	4245.000	49.87	-1.59	48.28	74.00	-25.72	peak
3	7890.000	39.24	7.30	46.54	74.00	-27.46	peak
4	11505.000	35.80	13.42	49.22	74.00	-24.78	peak
5	14775.000	34.08	15.95	50.03	74.00	-23.97	peak
6	17865.000	29.48	23.33	52.81	74.00	-21.19	peak

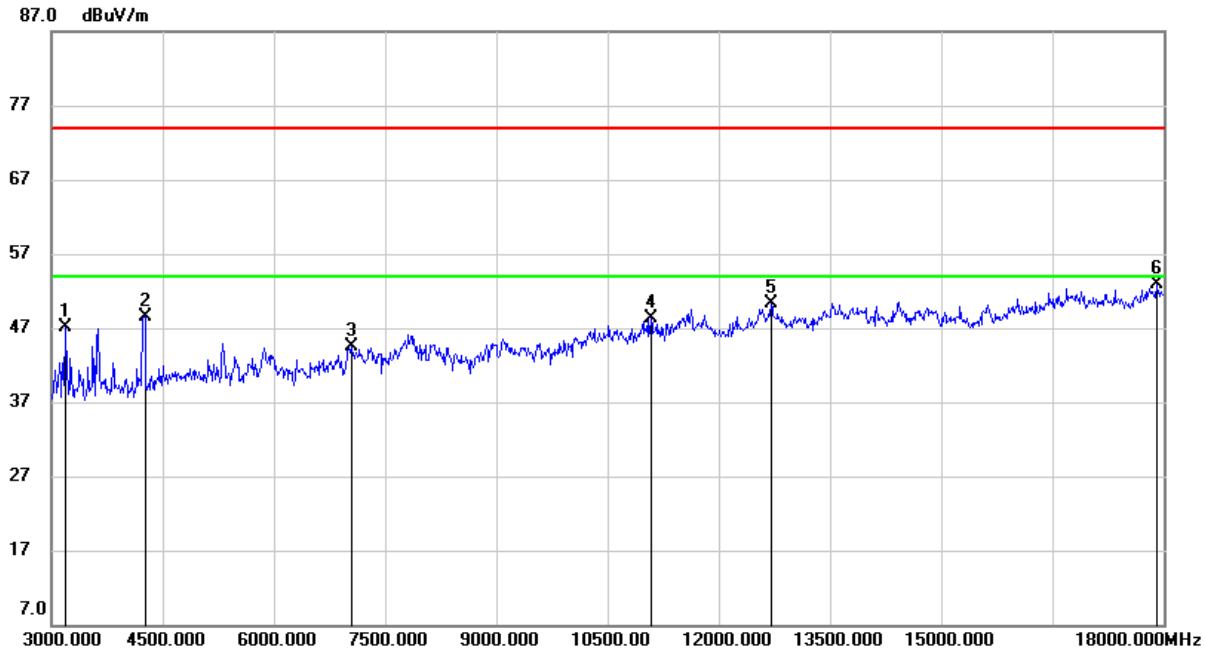
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter 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	4245.000	46.41	-1.59	44.82	74.00	-29.18	peak
2	5925.000	39.86	4.54	44.40	74.00	-29.60	peak
3	7845.000	38.41	7.62	46.03	74.00	-27.97	peak
4	12810.000	34.00	15.59	49.59	74.00	-24.41	peak
5	16530.000	32.54	19.26	51.80	74.00	-22.20	peak
6	17730.000	30.47	22.70	53.17	74.00	-20.83	peak

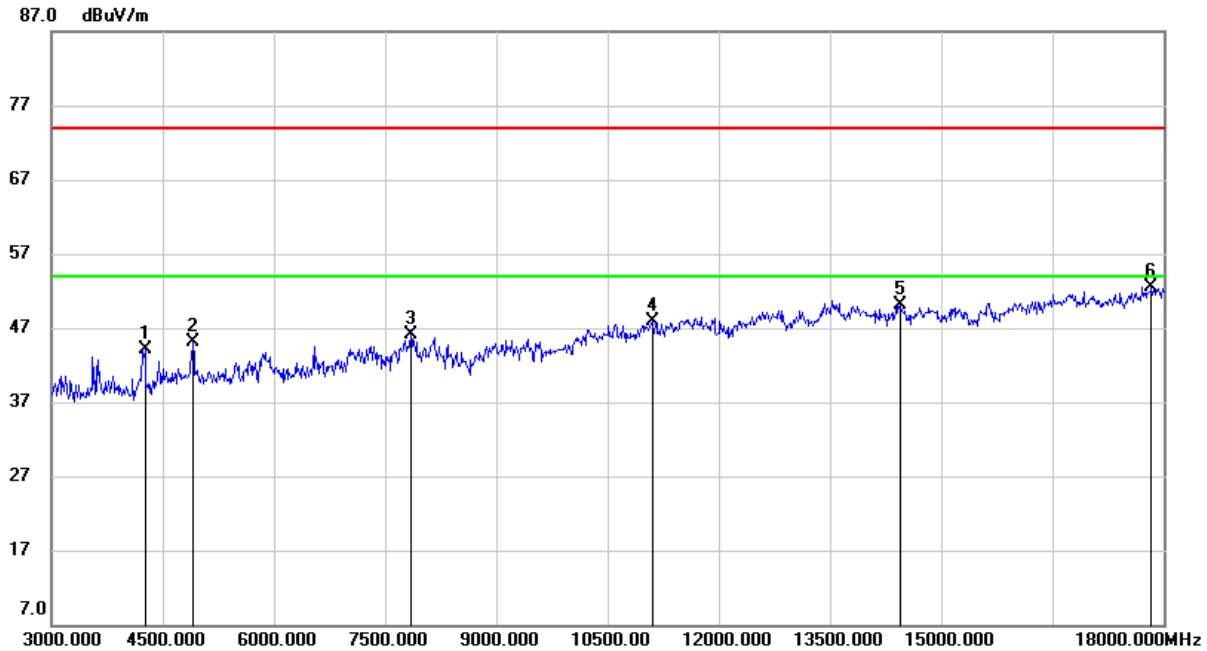
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter 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	3180.000	51.50	-4.33	47.17	74.00	-26.83	peak
2	4260.000	50.30	-1.71	48.59	74.00	-25.41	peak
3	7050.000	38.57	5.84	44.41	74.00	-29.59	peak
4	11085.000	35.71	12.57	48.28	74.00	-25.72	peak
5	12705.000	35.93	14.35	50.28	74.00	-23.72	peak
6	17910.000	29.52	23.35	52.87	74.00	-21.13	peak

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

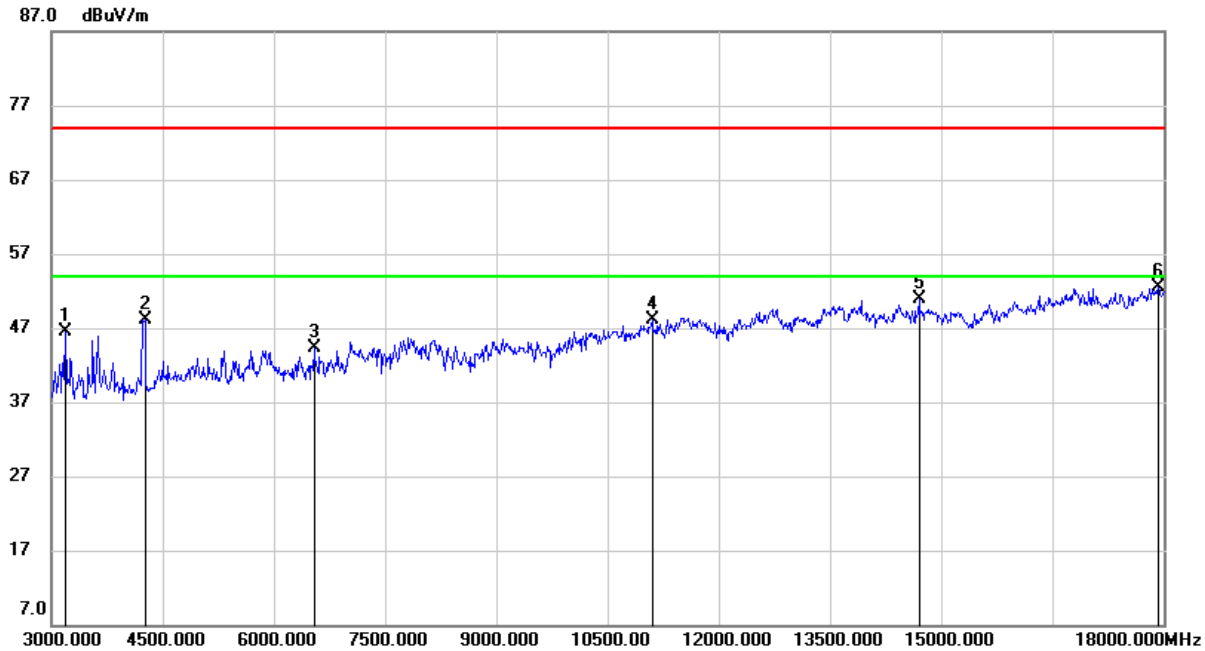
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4260.000	45.79	-1.71	44.08	74.00	-29.92	peak
2	4905.000	44.21	0.88	45.09	74.00	-28.91	peak
3	7845.000	38.44	7.62	46.06	74.00	-27.94	peak
4	11115.000	35.43	12.55	47.98	74.00	-26.02	peak
5	14445.000	33.82	16.36	50.18	74.00	-23.82	peak
6	17835.000	29.23	23.31	52.54	74.00	-21.46	peak

- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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)



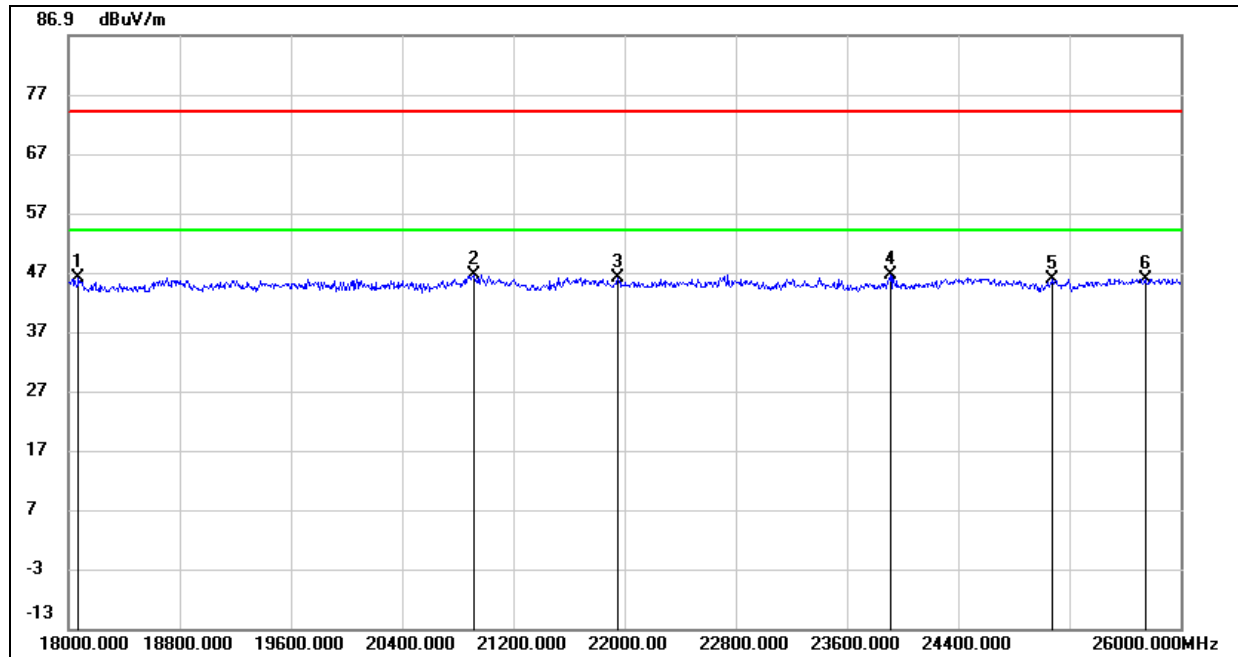
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3180.000	50.78	-4.33	46.45	74.00	-27.55	peak
2	4260.000	49.89	-1.71	48.18	74.00	-25.82	peak
3	6540.000	38.97	5.37	44.34	74.00	-29.66	peak
4	11100.000	35.61	12.56	48.17	74.00	-25.83	peak
5	14700.000	34.78	16.05	50.83	74.00	-23.17	peak
6	17925.000	29.12	23.37	52.49	74.00	-21.51	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. 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.

8.5. SPURIOUS EMISSIONS (18GHz ~ 26GHz)

8.5.1. 802.11n HT20 MODE

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18072.000	50.05	-4.02	46.03	74.00	-27.97	peak
2	20920.000	51.82	-5.23	46.59	74.00	-27.41	peak
3	21952.000	52.20	-6.16	46.04	74.00	-27.96	peak
4	23912.000	50.82	-4.23	46.59	74.00	-27.41	peak
5	25072.000	46.98	-1.11	45.87	74.00	-28.13	peak
6	25744.000	47.18	-1.34	45.84	74.00	-28.16	peak

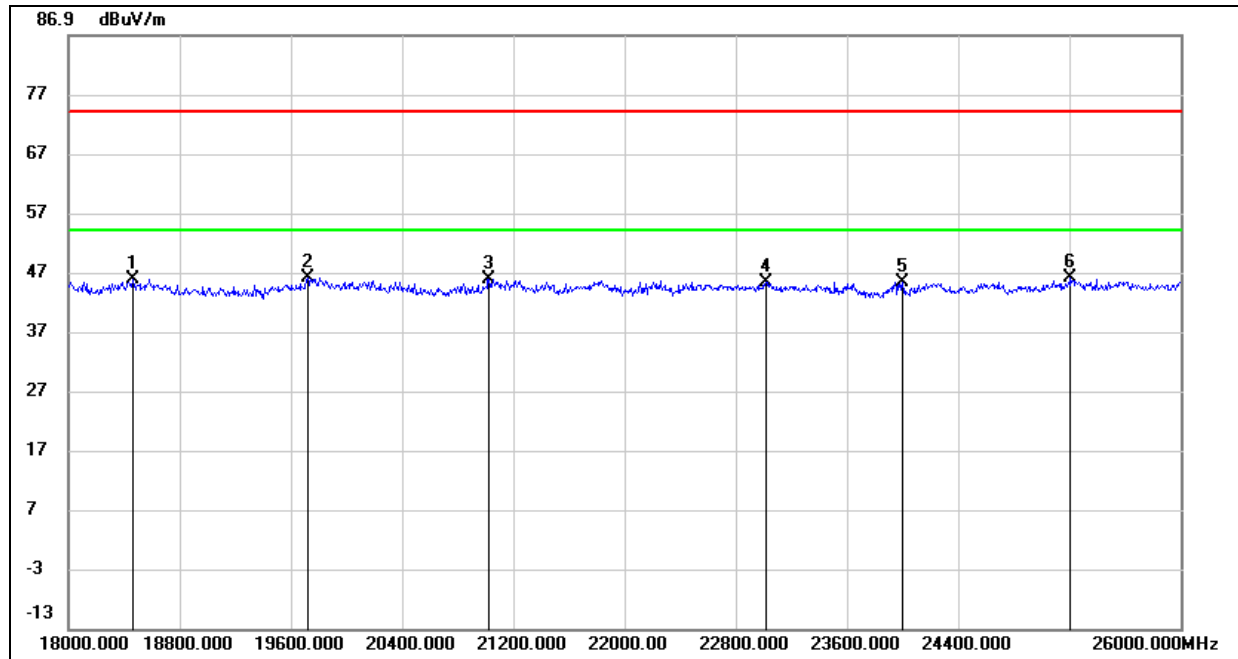
Note: 1. Measurement = Reading Level + Correct Factor.

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

3. Peak: Peak detector.

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18464.000	50.20	-4.39	45.81	74.00	-28.19	peak
2	19720.000	50.50	-4.39	46.11	74.00	-27.89	peak
3	21024.000	51.14	-5.30	45.84	74.00	-28.16	peak
4	23016.000	50.87	-5.58	45.29	74.00	-28.71	peak
5	24000.000	49.41	-4.01	45.40	74.00	-28.60	peak
6	25208.000	47.13	-1.16	45.97	74.00	-28.03	peak

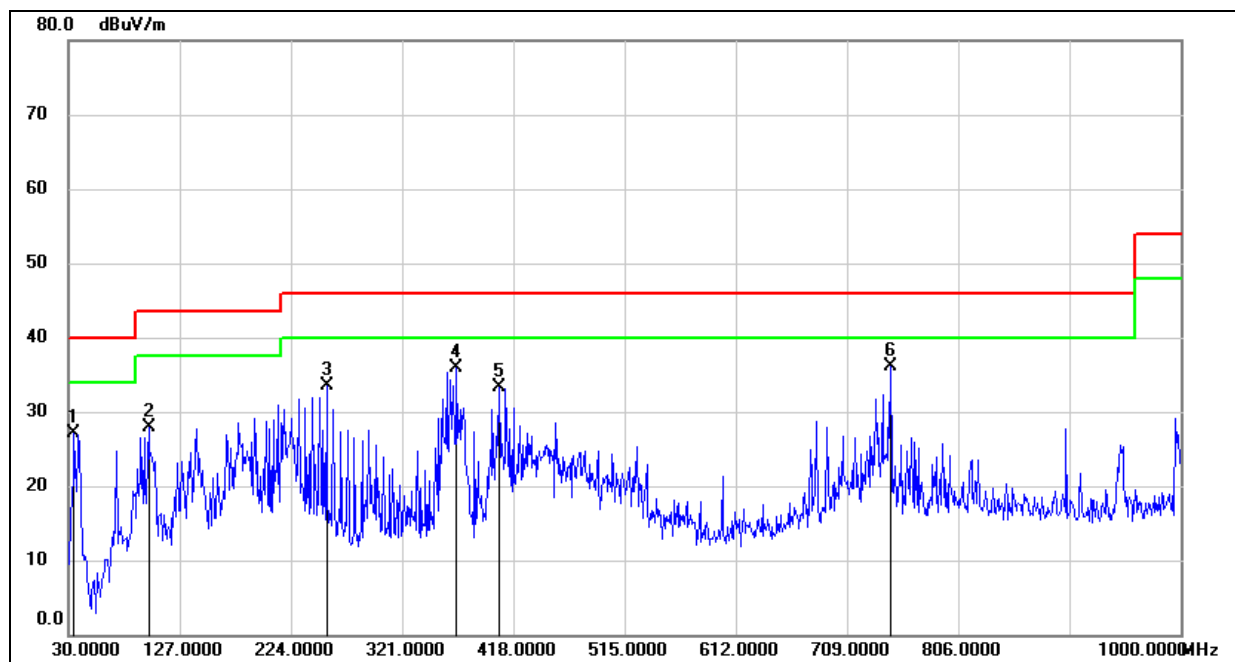
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

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

8.6. SPURIOUS EMISSIONS (30MHz ~ 1 GHz)

8.6.1. 802.11n HT20 MODE

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



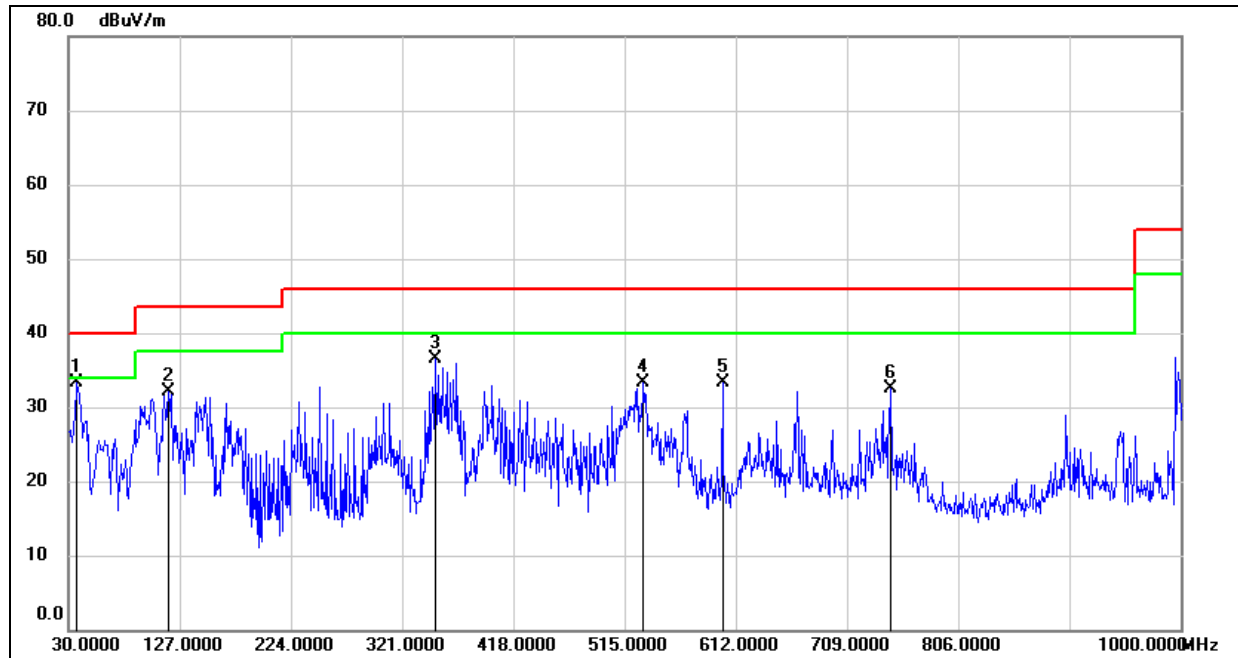
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	46.60	-19.49	27.11	40.00	-12.89	QP
2	99.8399	49.22	-21.25	27.97	43.50	-15.53	QP
3	255.0400	52.48	-19.06	33.42	46.00	-12.58	QP
4	368.5300	50.06	-14.09	35.97	46.00	-10.03	QP
5	405.3900	46.67	-13.35	33.32	46.00	-12.68	QP
6	746.8300	44.55	-8.39	36.16	46.00	-9.84	QP

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

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	36.7900	53.02	-19.72	33.30	40.00	-6.70	QP
2	117.3000	52.31	-20.18	32.13	43.50	-11.37	QP
3	350.1000	51.07	-14.57	36.50	46.00	-9.50	QP
4	531.4900	44.39	-11.08	33.31	46.00	-12.69	QP
5	600.3600	43.23	-9.91	33.32	46.00	-12.68	QP
6	746.8300	40.80	-8.39	32.41	46.00	-13.59	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

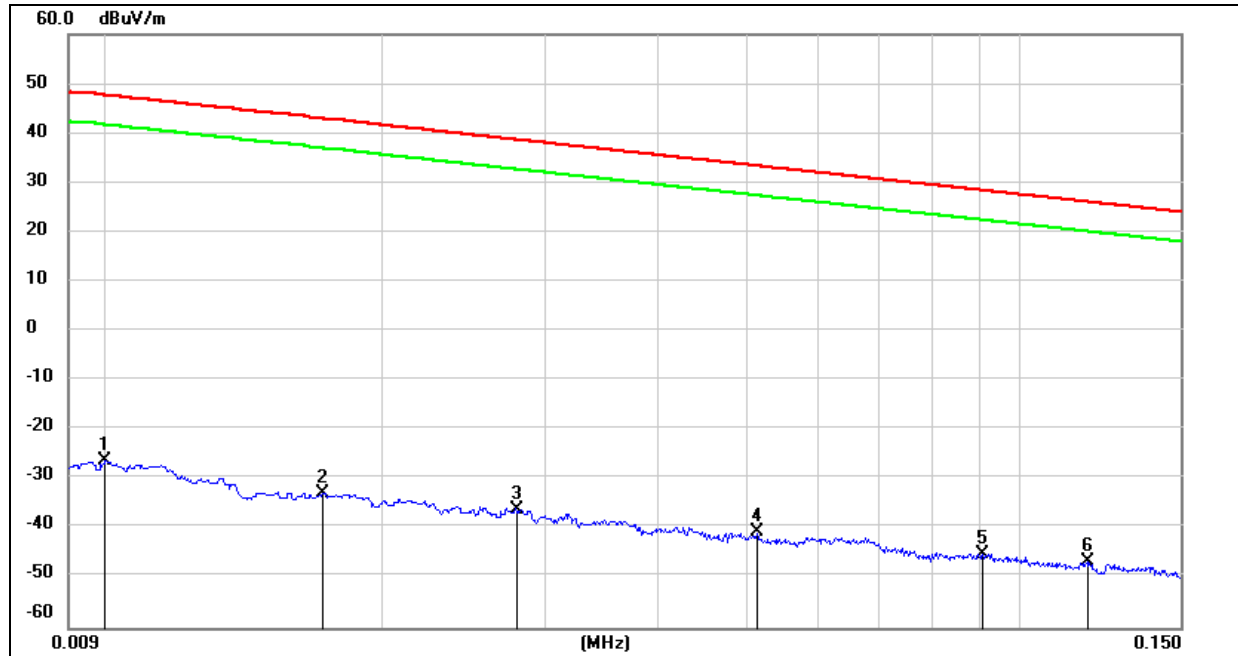
Note: All the modes had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30MHz

8.7.1. 802.11n HT20 MODE

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

9kHz~ 150kHz



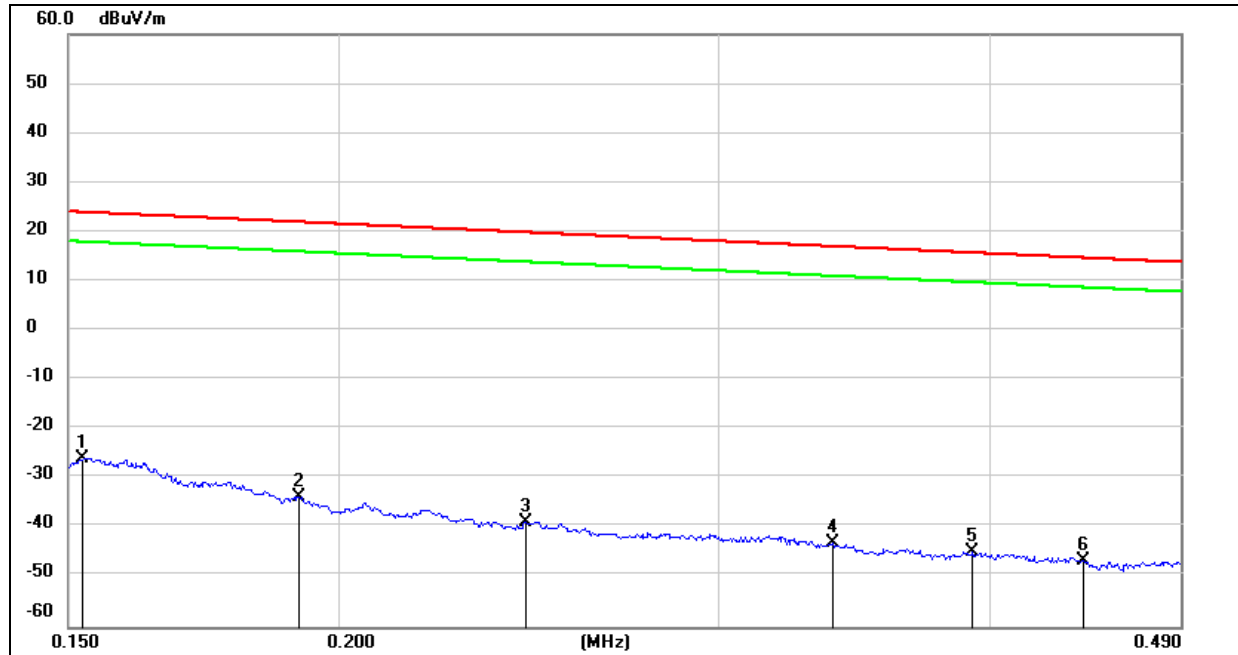
No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.0100	75.22	-101.40	-26.18	47.60	-77.68	-3.90	-73.78	peak
2	0.0171	68.38	-101.36	-32.98	42.94	-84.48	-8.56	-75.92	peak
3	0.0280	65.29	-101.38	-36.09	38.66	-87.59	-12.84	-74.75	peak
4	0.0514	60.68	-101.48	-40.80	33.38	-92.30	-18.12	-74.18	peak
5	0.0911	56.61	-101.72	-45.11	28.41	-96.61	-23.09	-73.52	peak
6	0.1184	55.02	-101.74	-46.72	26.14	-98.22	-25.36	-72.86	peak

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

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

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

150kHz ~ 490kHz



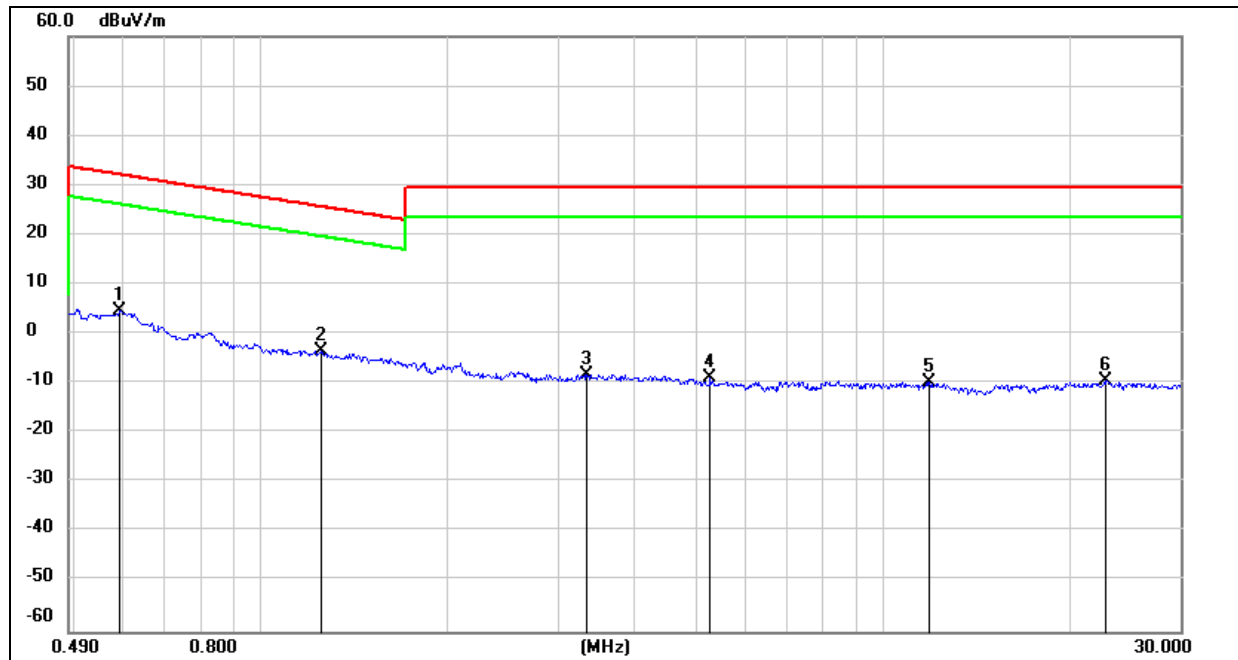
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1524	75.80	-101.63	-25.83	23.94	-77.33	-27.56	-49.77	peak
2	0.1917	68.04	-101.70	-33.66	21.95	-85.16	-29.55	-55.61	peak
3	0.2442	63.03	-101.79	-38.76	19.85	-90.26	-31.65	-58.61	peak
4	0.3382	58.73	-101.90	-43.17	17.02	-94.67	-34.48	-60.19	peak
5	0.3930	57.05	-101.96	-44.91	15.71	-96.41	-35.79	-60.62	peak
6	0.4415	55.35	-102.01	-46.66	14.70	-98.16	-36.80	-61.36	peak

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

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

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

490kHz ~ 30MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.5917	66.74	-62.08	4.66	32.16	-46.84	-19.34	-27.50	peak
2	1.2460	58.75	-62.16	-3.41	25.70	-54.91	-25.80	-29.11	peak
3	3.3334	53.27	-61.50	-8.23	29.54	-59.73	-21.96	-37.77	peak
4	5.2705	52.54	-61.45	-8.91	29.54	-60.41	-21.96	-38.45	peak
5	11.8513	51.06	-60.88	-9.82	29.54	-61.32	-21.96	-39.36	peak
6	22.7700	51.17	-60.62	-9.45	29.54	-60.95	-21.96	-38.99	peak

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

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

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

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

9. AC POWER LINE CONDUCTED EMISSIONS

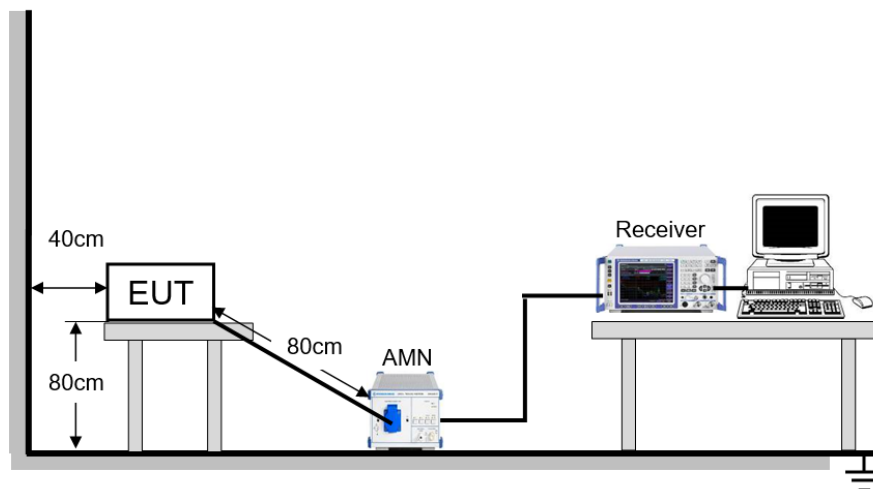
LIMITS

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

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

TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm 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 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

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.

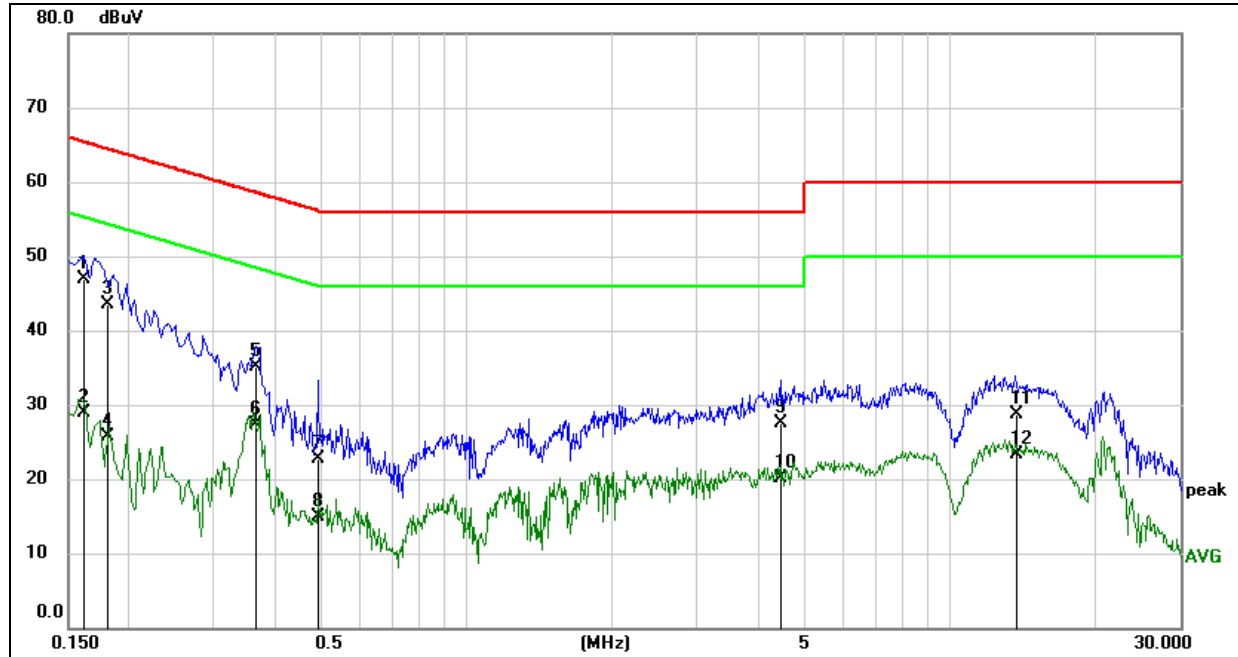
TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	68.9%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

9.1. 802.11n HT20 MODE

LINE N RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1615	37.33	9.60	46.93	65.39	-18.46	QP
2	0.1615	19.37	9.60	28.97	55.39	-26.42	AVG
3	0.1812	33.89	9.60	43.49	64.43	-20.94	QP
4	0.1812	16.08	9.60	25.68	54.43	-28.75	AVG
5	0.3673	25.54	9.60	35.14	58.56	-23.42	QP
6	0.3673	17.62	9.60	27.22	48.56	-21.34	AVG
7	0.4920	13.03	9.60	22.63	56.13	-33.50	QP
8	0.4920	5.24	9.60	14.84	46.13	-31.29	AVG
9	4.4901	17.83	9.66	27.49	56.00	-28.51	QP
10	4.4901	10.43	9.66	20.09	46.00	-25.91	AVG
11	13.7192	18.87	9.86	28.73	60.00	-31.27	QP
12	13.7192	13.36	9.86	23.22	50.00	-26.78	AVG

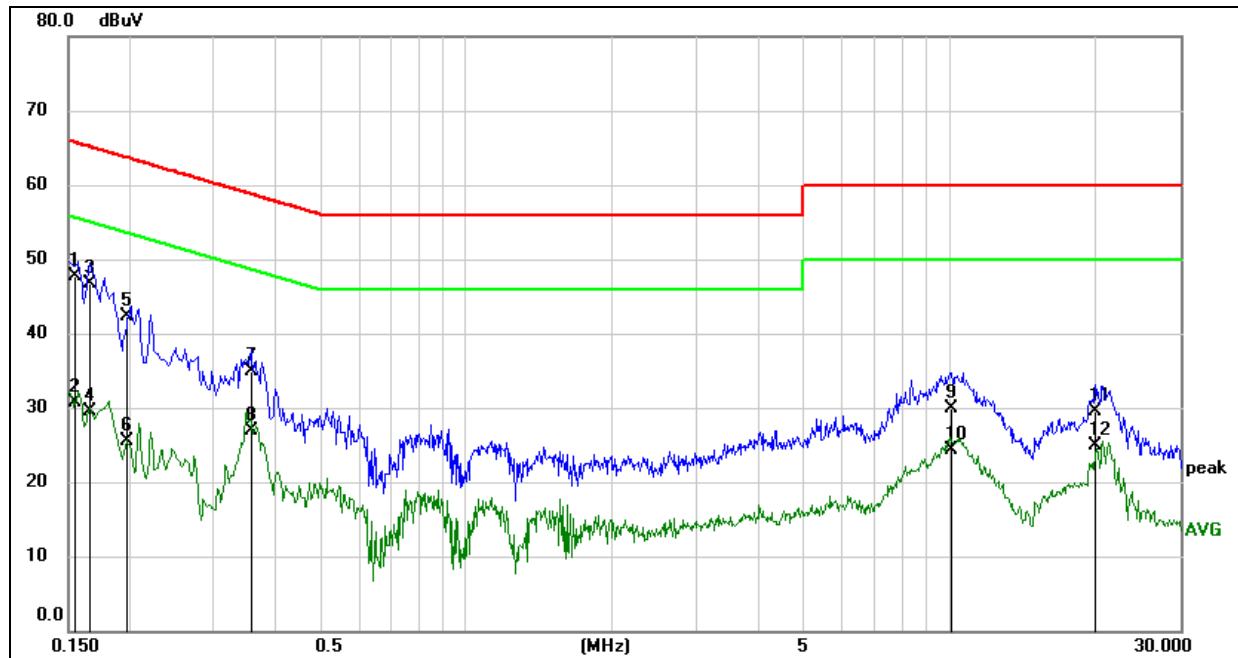
Note: 1. Result = Reading +Correct Factor.

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1543	38.02	9.61	47.63	65.77	-18.14	QP
2	0.1543	21.03	9.61	30.64	55.77	-25.13	AVG
3	0.1654	37.03	9.61	46.64	65.19	-18.55	QP
4	0.1654	19.93	9.61	29.54	55.19	-25.65	AVG
5	0.1977	32.70	9.60	42.30	63.71	-21.41	QP
6	0.1977	15.81	9.60	25.41	53.71	-28.30	AVG
7	0.3571	25.30	9.60	34.90	58.80	-23.90	QP
8	0.3571	17.29	9.60	26.89	48.80	-21.91	AVG
9	10.0811	20.12	9.74	29.86	60.00	-30.14	QP
10	10.0811	14.48	9.74	24.22	50.00	-25.78	AVG
11	20.1199	19.46	10.12	29.58	60.00	-30.42	QP
12	20.1199	14.85	10.12	24.97	50.00	-25.03	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: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

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



10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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

Please refer to FCC §15.247(b)(4)

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

RESULTS

Complies

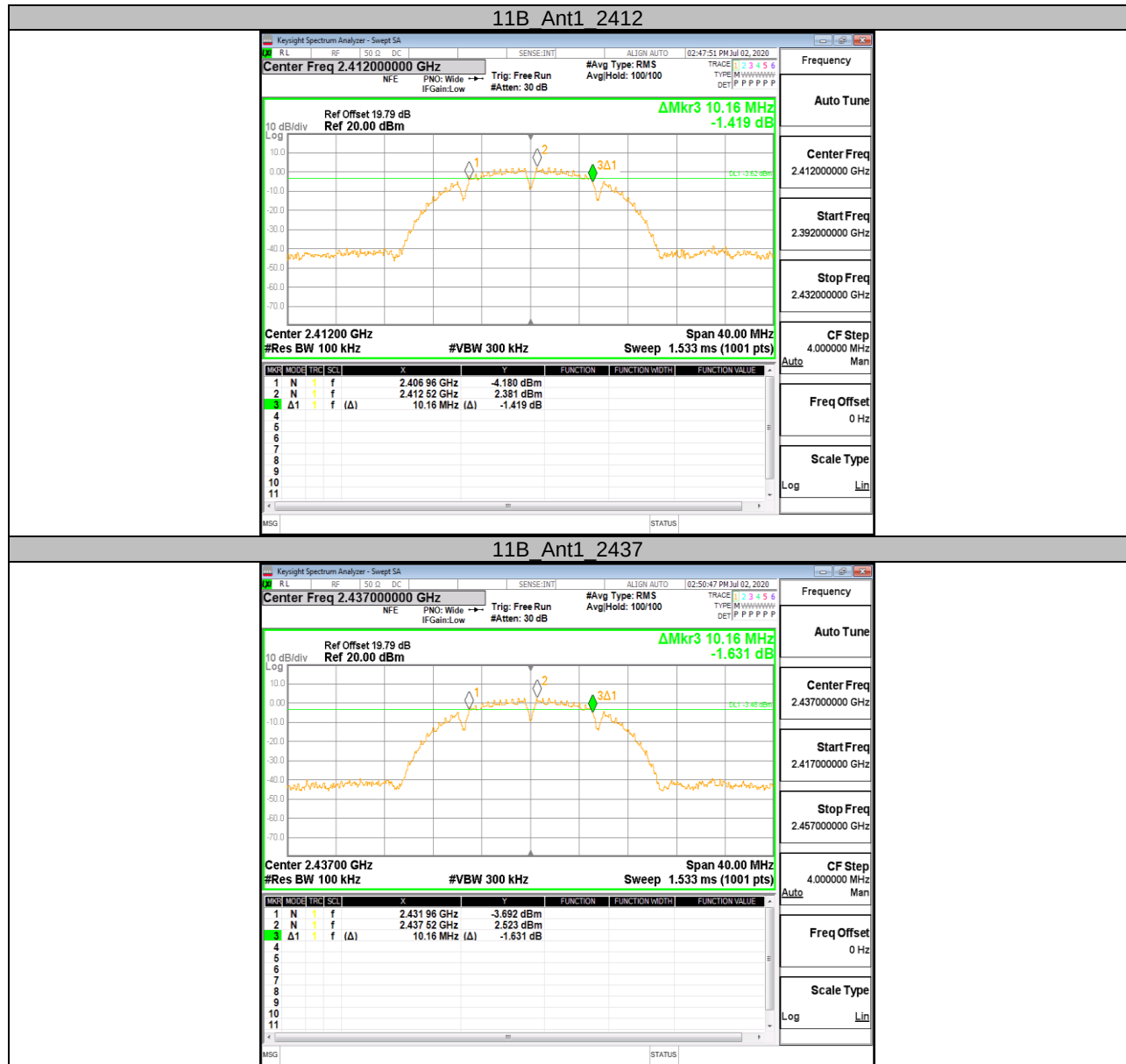


11. Appendix A: DTS Bandwidth

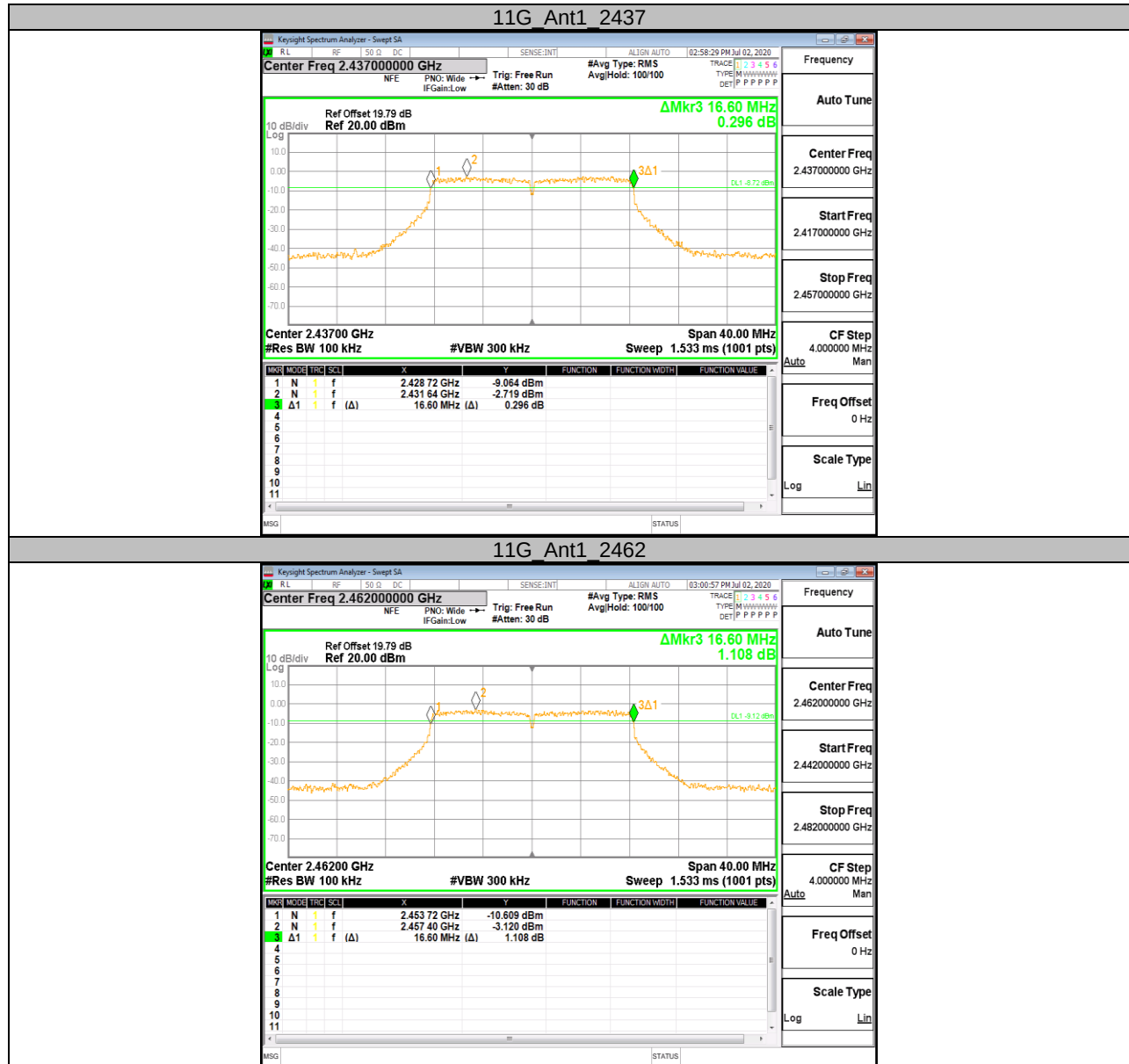
11.1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.160	2406.960	2417.120	0.5	PASS
		2437	10.160	2431.960	2442.120	0.5	PASS
		2462	10.160	2456.920	2467.080	0.5	PASS
11G	Ant1	2412	16.600	2403.720	2420.320	0.5	PASS
		2437	16.600	2428.720	2445.320	0.5	PASS
		2462	16.600	2453.720	2470.320	0.5	PASS
11N20SISO	Ant1	2412	17.760	2403.120	2420.880	0.5	PASS
		2437	17.760	2428.120	2445.880	0.5	PASS
		2462	17.760	2453.120	2470.880	0.5	PASS
11N40SISO	Ant1	2422	36.560	2403.760	2440.320	0.5	PASS
		2437	36.560	2418.760	2455.320	0.5	PASS
		2452	36.560	2433.760	2470.320	0.5	PASS

11.1.2. Test Graphs













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

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	15.034	2404.514	2419.548	---	PASS
		2437	15.041	2429.520	2444.561	---	PASS
		2462	15.066	2454.486	2469.552	---	PASS
11G	Ant1	2412	17.006	2403.461	2420.467	---	PASS
		2437	16.993	2428.463	2445.456	---	PASS
		2462	16.921	2453.518	2470.439	---	PASS
11N20SISO	Ant1	2412	17.946	2403.085	2421.031	---	PASS
		2437	17.955	2428.077	2446.032	---	PASS
		2462	17.983	2453.020	2471.003	---	PASS
11N40SISO	Ant1	2422	36.541	2403.849	2440.390	---	PASS
		2437	36.521	2418.851	2455.372	---	PASS
		2452	36.520	2433.846	2470.366	---	PASS



11.2.2. Test Graphs





