



CFR 47 FCC PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

CONSUMER CAMERA

**MODEL NUMBER: IPC-F22N-C, IPC-F22P-C, IPC-F22P-C-0280B-imou,
IPC-F22P-C-0360B-imou, IPC-F22P-0600B-imou, IPC-F22N-C-0280B-imou,
IPC-F22N-C-0360B-imou, IPC-F22N-C-0600B-imou, LC-K3X-C,
IPC-F22-C-0280B-LC, IPC-F22-C-0360B-LC, IPC-F22-C-0600B-LC,
IPC-F22P-C-imou, IPC-F22N-C-imou, IPC-F22-C-0280B-V2-LC,
IPC-F22-C-0360B-V2-LC, IPC-F22-C-0600B-V2-LC, IPC-F22P-C-0280B,
IPC-F22P-C-0360B, IPC-F22P-C-0600B, IPC-F22N-C-0280B, IPC-F22N-C-0360B,
IPC-F22N-C-0600B**

FCC ID: 2AVYF-IPC-FX2-C

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Prepared for

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The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.



Revision History

Rev.	Issue Date	Revisions	Revised By
V0	06/11/2021	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB 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
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 > when <Accuracy Method> decision rule is applied.			



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Hangzhou Huacheng Network Technology Co.,Ltd.
Address: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

Manufacturer Information

Company Name: Hangzhou Huacheng Network Technology Co.,Ltd.
Address: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

EUT Information

EUT Name: CONSUMER CAMERA
Model Name: IPC-F22N-C
Series Model: IPC-F22P-C, IPC-F22P-C-0280B-imou, IPC-F22P-C-0360B-imou, IPC-F22P-0600B-imou, IPC-F22N-C-0280B-imou, IPC-F22N-C-0360B-imou, IPC-F22N-C-0600B-imou, LC-K3X-C, IPC-F22-C-0280B-LC, IPC-F22-C-0360B-LC, IPC-F22-C-0600B-LC, IPC-F22P-C-imou, IPC-F22N-C-imou, IPC-F22-C-0280B-V2-LC, IPC-F22-C-0360B-V2-LC, IPC-F22-C-0600B-V2-LC, IPC-F22P-C-0280B, IPC-F22P-C-0360B, IPC-F22P-C-0600B, IPC-F22N-C-0280B, IPC-F22N-C-0360B, IPC-F22N-C-0600B
Model Difference: The difference is only the name of the models.
Brand: /
Sample Received Date: Normal
Sample Status: 3967062
Sample ID: June 7, 2021
Date of Tested: June 7, 2021 ~ June 11, 2021

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C	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 and ANSI C63.10-2013.

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. Body Identifier (CABID) is CN0046. 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 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	CONSUMER CAMERA
Model Name	IPC-F22N-C
Series Model	IPC-F22P-C, IPC-F22P-C-0280B-imou, IPC-F22P-C-0360B-imou, IPC-F22P-0600B-imou, IPC-F22N-C-0280B-imou, IPC-F22N-C-0360B-imou, IPC-F22N-C-0600B-imou, LC-K3X-C, IPC-F22-C-0280B-LC, IPC-F22-C-0360B-LC, IPC-F22-C-0600B-LC, IPC-F22P-C-imou, IPC-F22N-C-imou, IPC-F22-C-0280B-V2-LC, IPC-F22-C-0360B-V2-LC, IPC-F22-C-0600B-V2-LC, IPC-F22P-C-0280B, IPC-F22P-C-0360B, IPC-F22P-C-0600B, IPC-F22N-C-0280B, IPC-F22N-C-0360B, IPC-F22N-C-0600B.
Model differences	The difference is only the name of the models.
Radio Technology	IEEE802.11b/g/n HT20/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) 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)
Rating	DC 12 V, 0.5 A

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 802.11b/g/n (20 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]	14.49
g	2412 ~ 2462	1-11[11]	10.48
n HT20	2412 ~ 2462	1-11[11]	10.19
n HT40	2422 ~ 2452	3-9[7]	10.32

5.4. TEST CHANNEL CONFIGURATION

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

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

5.6. THE WORSE CASE CONFIGURATIONS

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

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

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

Worst case Data Rates declared by the customer:

802.11b mode: 1 Mbps

802.11b 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.

**5.7. DESCRIPTION OF AVAILABLE ANTENNAS**

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2412-2462	Monopole Antenna	1.79

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.

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

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	laptop	Lenovo	TP00094A	/
2	UART	/	/	/
3	RJ45 Terminal load	/	/	/
4	micro SD card	Kingston	/	32GB

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length	Remarks
1	USB	/	/	1.0 m	/
2	RJ 45 Cable	/	/	1.0 m	/

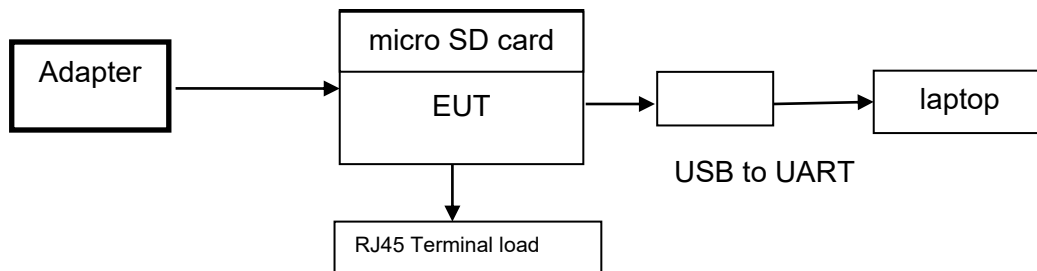
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	Switching Power Supply	MASS	NBS05C120050VU	Input: AC 100 ~ 240 V, 50/60 Hz, 0.15 A Output: DC 12 V, 0.5 A

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
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	TDK	PA-02-3	TRS-308-00002	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
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.
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021



7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

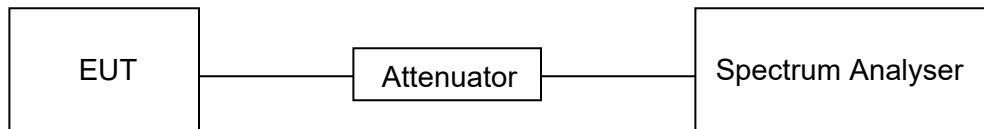
LIMITS

None; for reporting purposes only

PROCEDURE

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

TEST SETUP



TEST ENVIRONMENT

Temperature	25.8 °C	Relative Humidity	57.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

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	≥ 500 kHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

TEST PROCEDURE

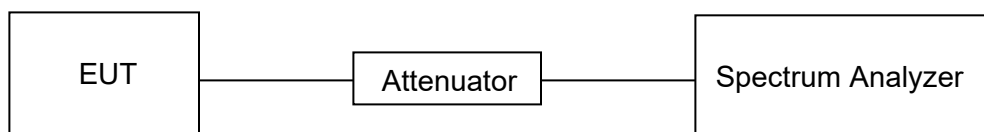
Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

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

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

- Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.
- Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



**TEST ENVIRONMENT**

Temperature	25.8 °C	Relative Humidity	57.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

RESULTS

Please refer to appendix A & B.



7.3. CONDUCTED OUTPUT POWER

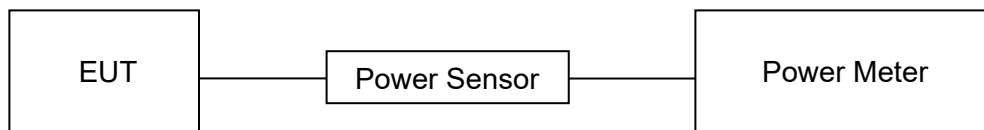
LIMITS

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	25.8 °C	Relative Humidity	57.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

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

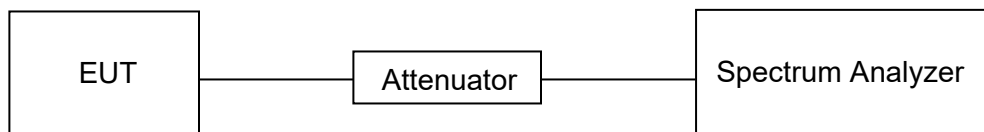
Connect the EUT to the spectrum analyser and use the following settings:

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

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

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

TEST SETUP



TEST ENVIRONMENT

Temperature	25.8 °C	Relative Humidity	57.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

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.

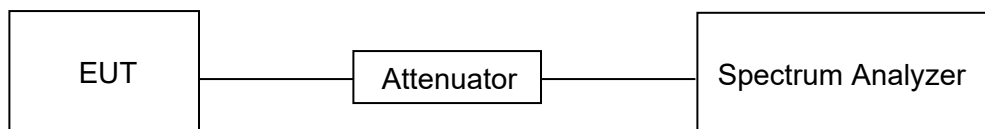
Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

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	25.8 °C	Relative Humidity	57.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

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):

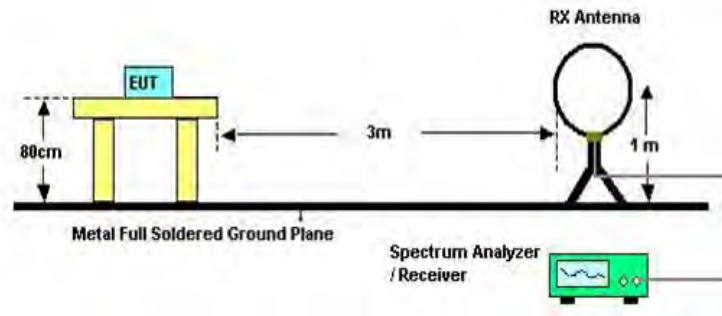
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218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

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

²Above 38.6c

TEST SETUP AND PROCEDURE

Below 30 MHz

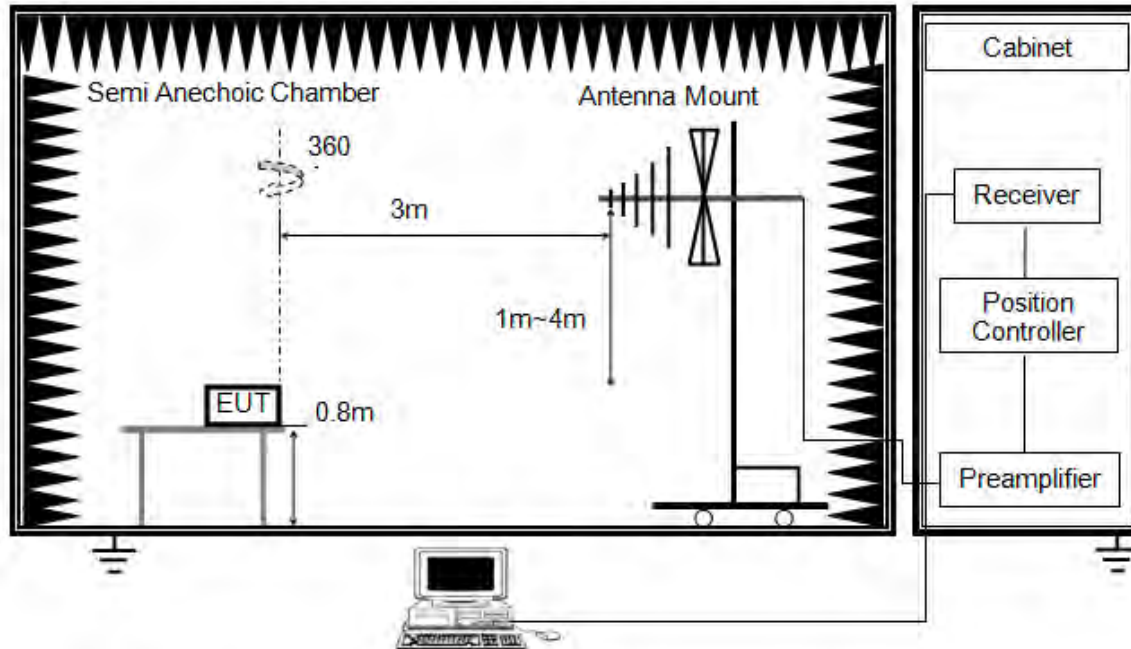


The setting of the spectrum analyser

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

- The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
- 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.
- The EUT was placed on a turntable with 80cm above ground.
- The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
- 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.
- 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.
- 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.
- The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to $Y-51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

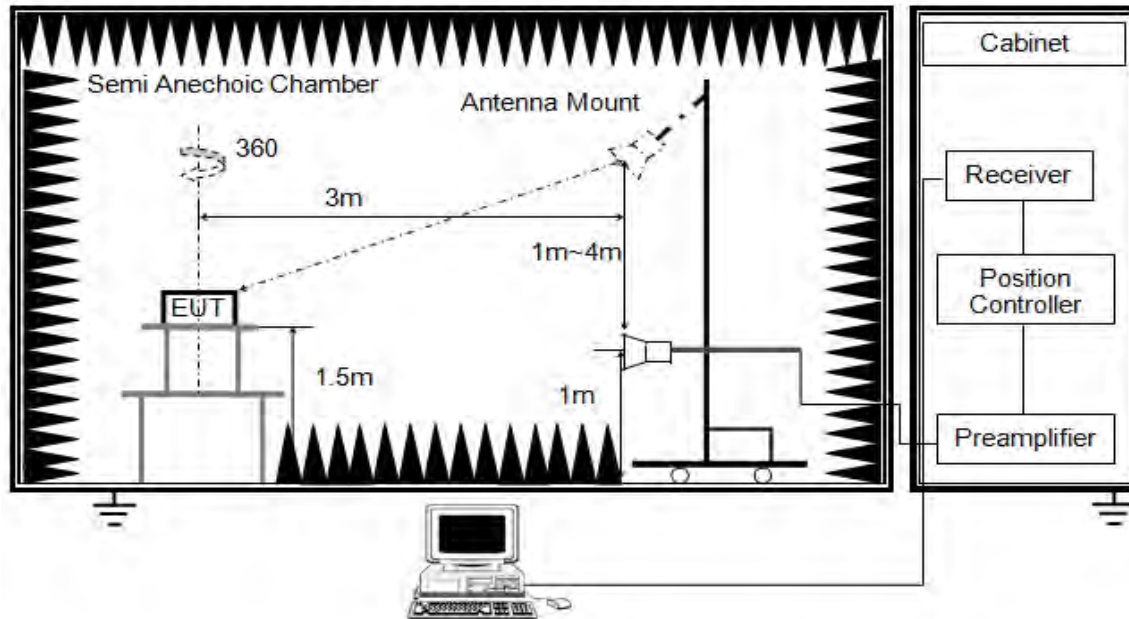


The setting of the spectrum analyser

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

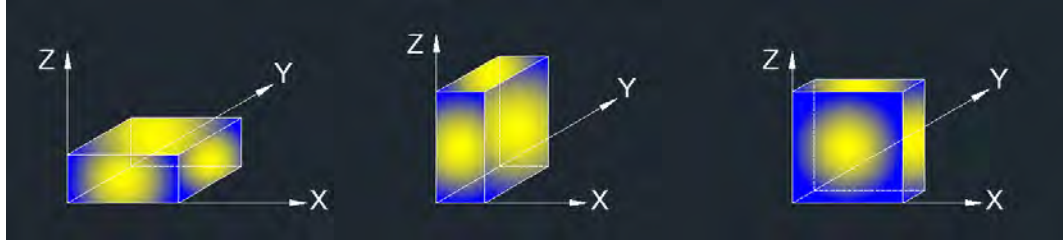


The setting of the spectrum analyser

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	62 %
Atmosphere Pressure	101 kPa	Test Voltage	AC120 V,60 Hz

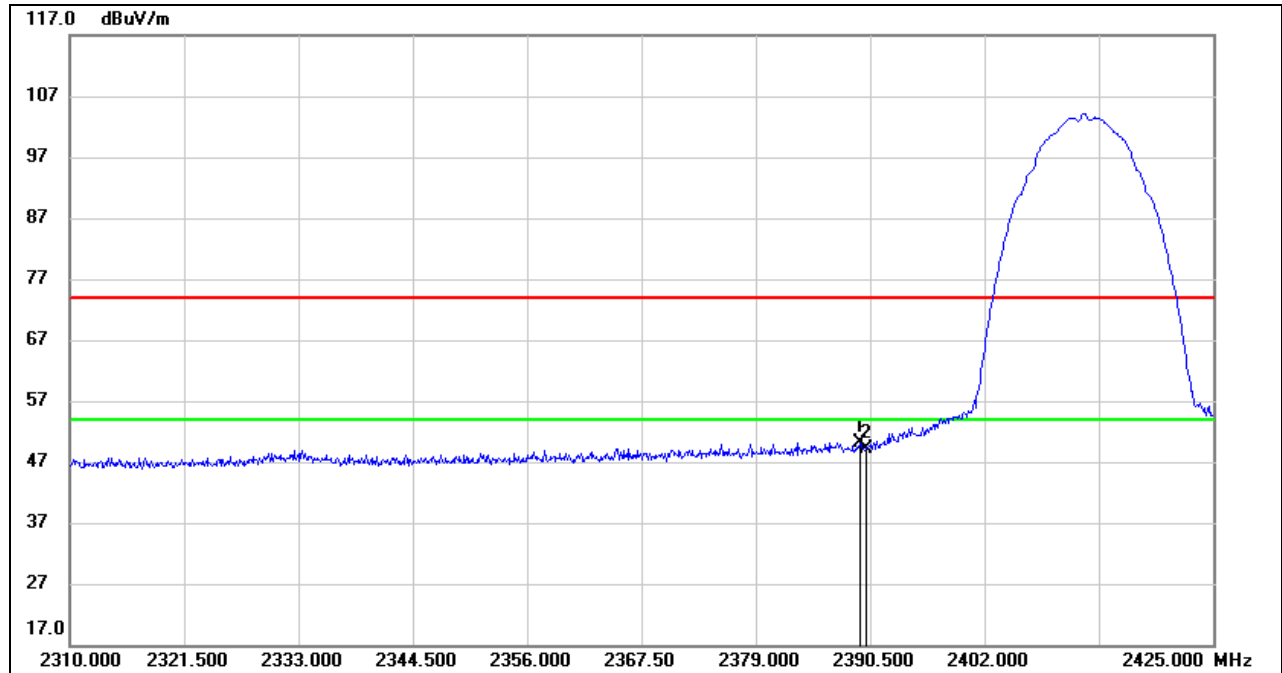
RESULTS

8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

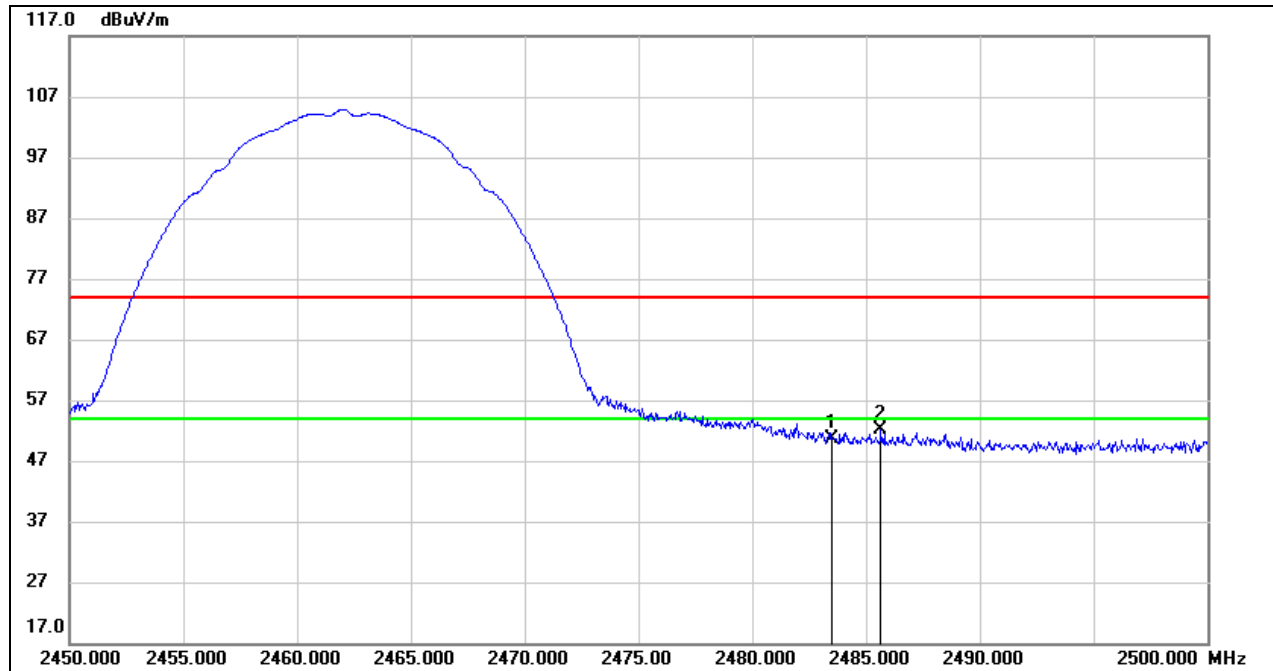


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.465	16.87	33.35	50.22	74.00	-23.78	peak
2	2390.000	15.70	33.35	49.05	74.00	-24.95	peak

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	16.80	33.71	50.51	74.00	-23.49	peak
2	2485.650	18.31	33.71	52.02	74.00	-21.98	peak

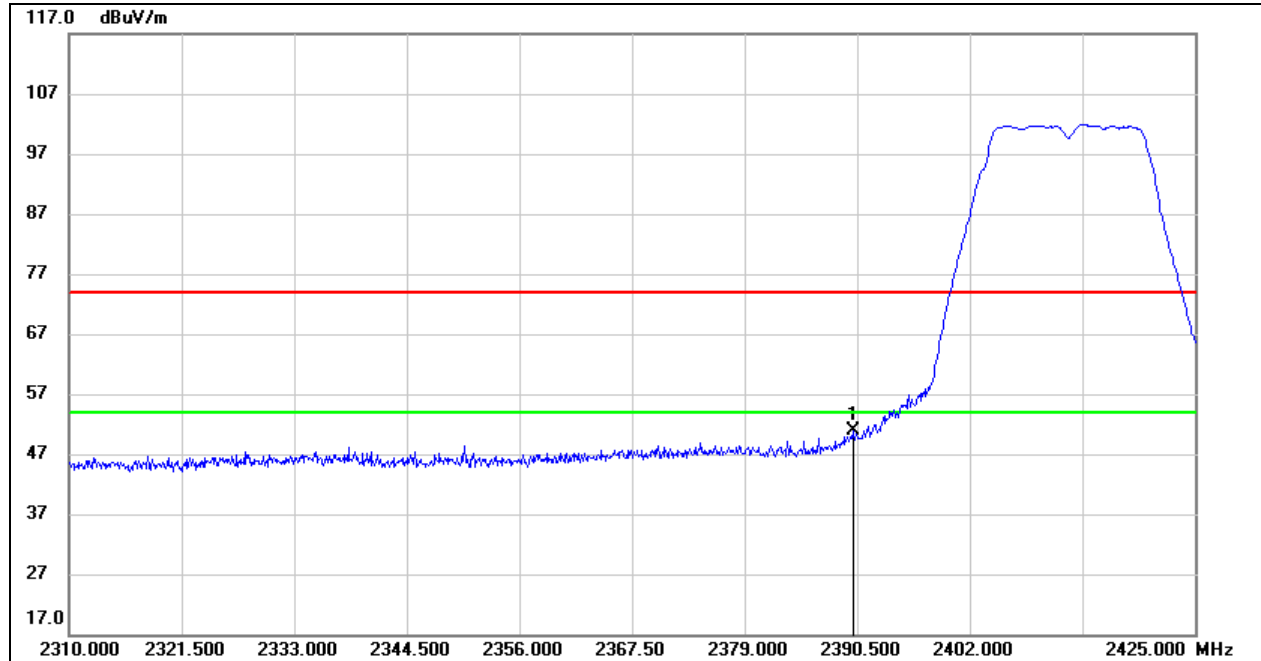
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

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

8.1.2. 802.11g MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

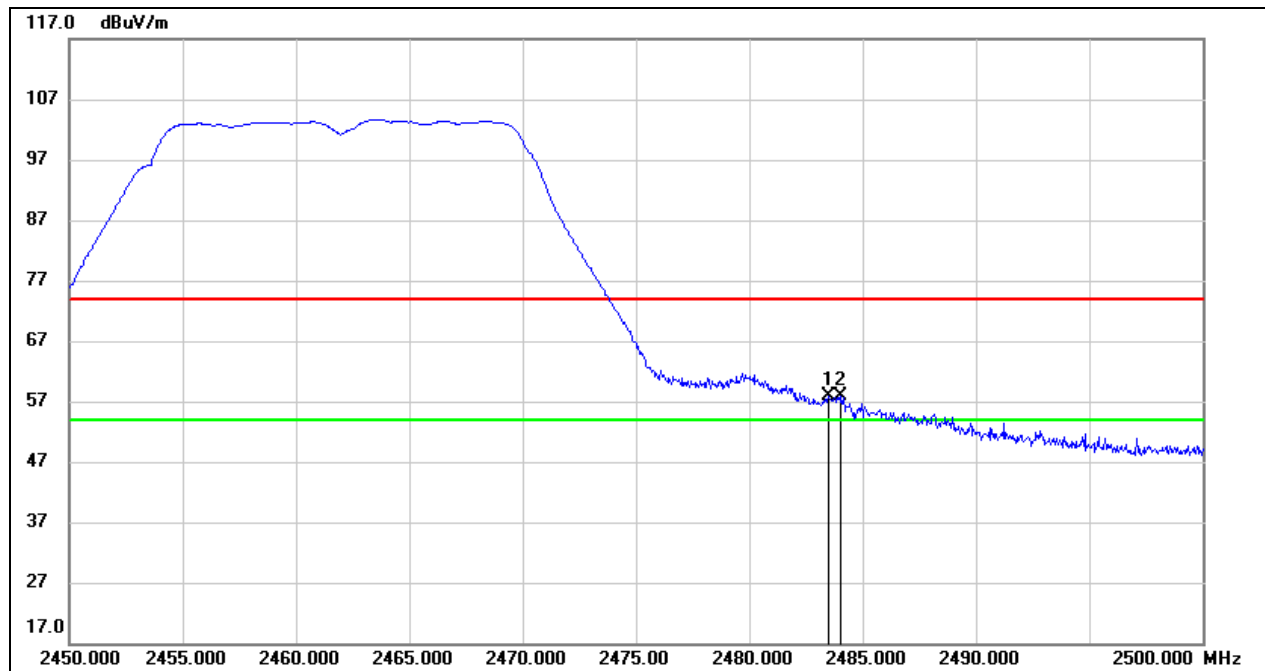
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	17.47	33.35	50.82	74.00	-23.18	peak

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

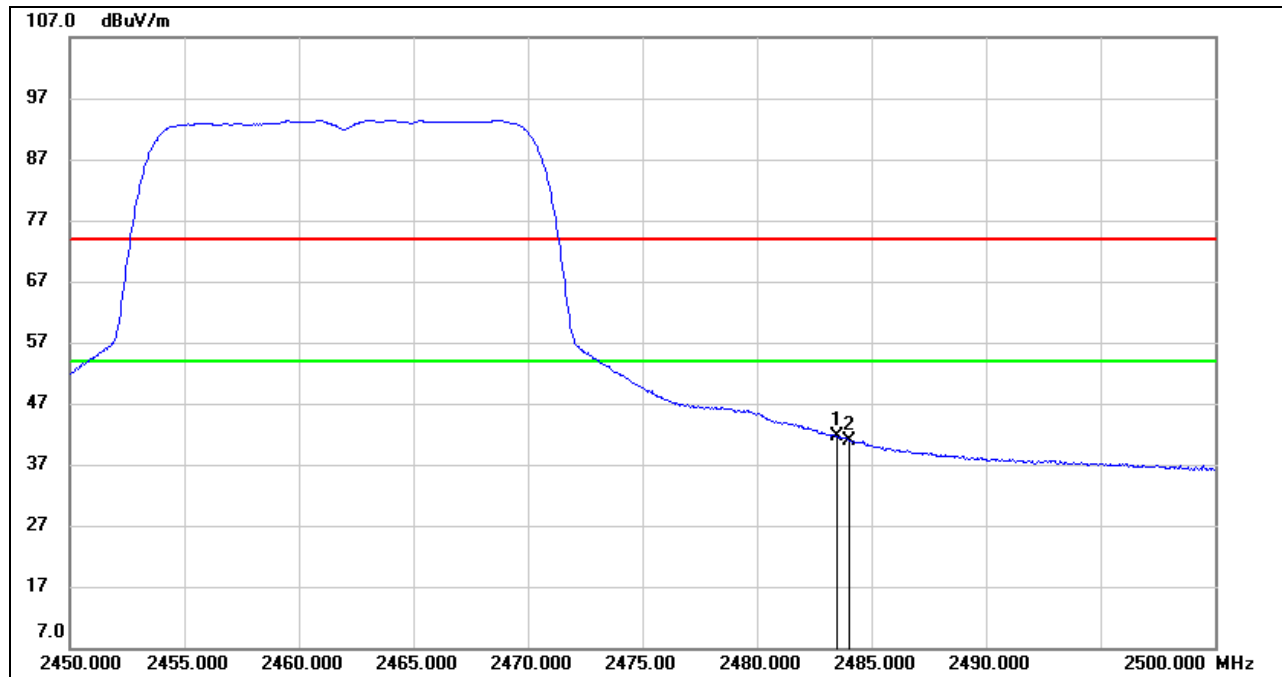
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	24.07	33.71	57.78	74.00	-16.22	peak
2	2484.000	24.19	33.71	57.90	74.00	-16.10	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. 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	7.98	33.71	41.69	54.00	-12.31	AVG
2	2484.000	7.20	33.71	40.91	54.00	-13.09	AVG

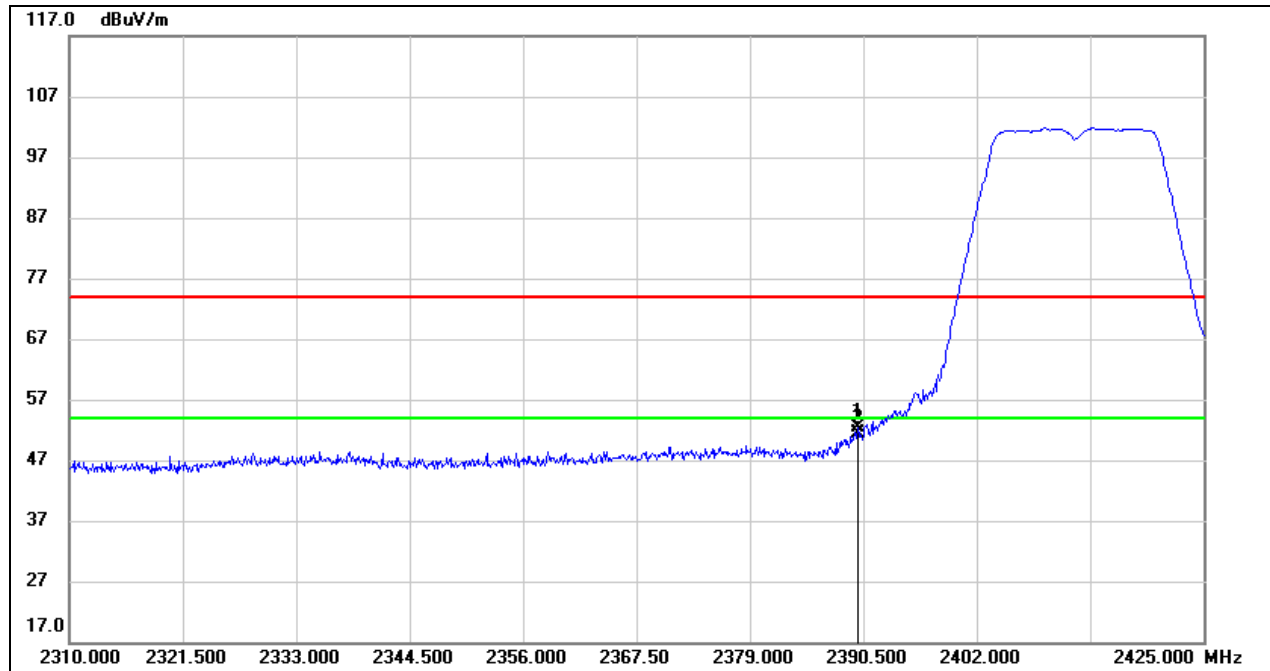
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded,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

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

8.1.3. 802.11n HT20 MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

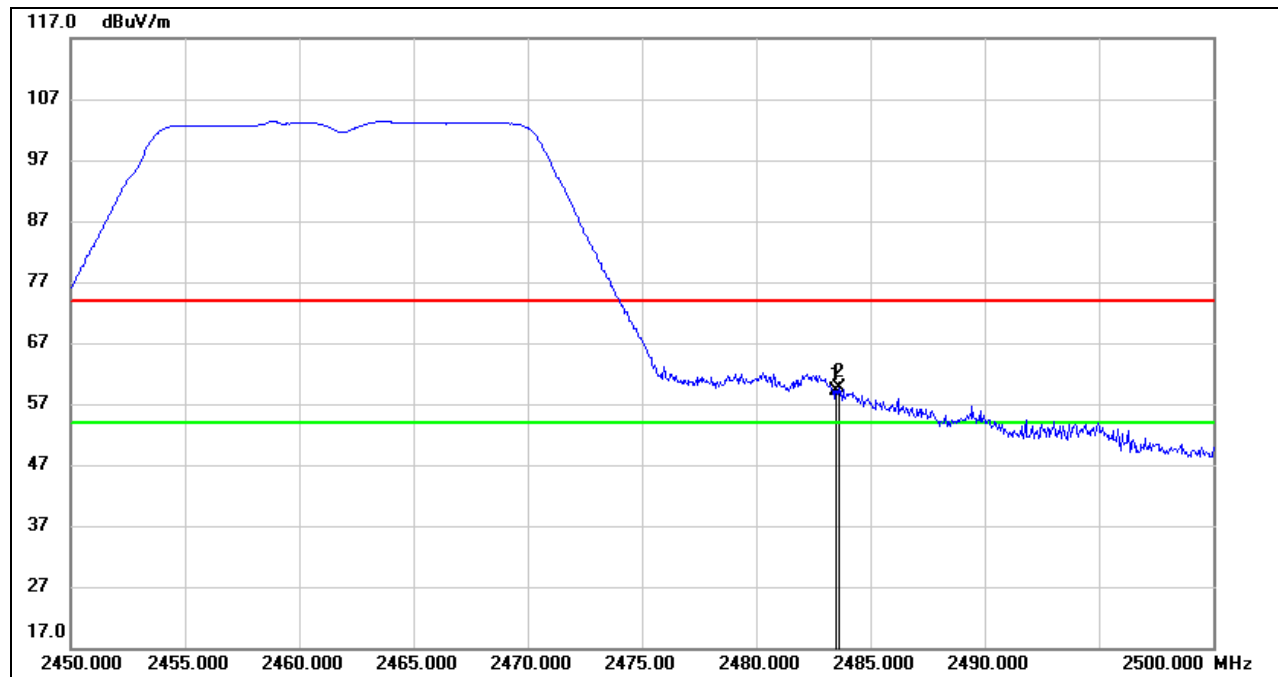


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.925	18.97	33.35	52.32	74.00	-21.68	peak
2	2390.000	17.98	33.35	51.33	74.00	-22.67	peak

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



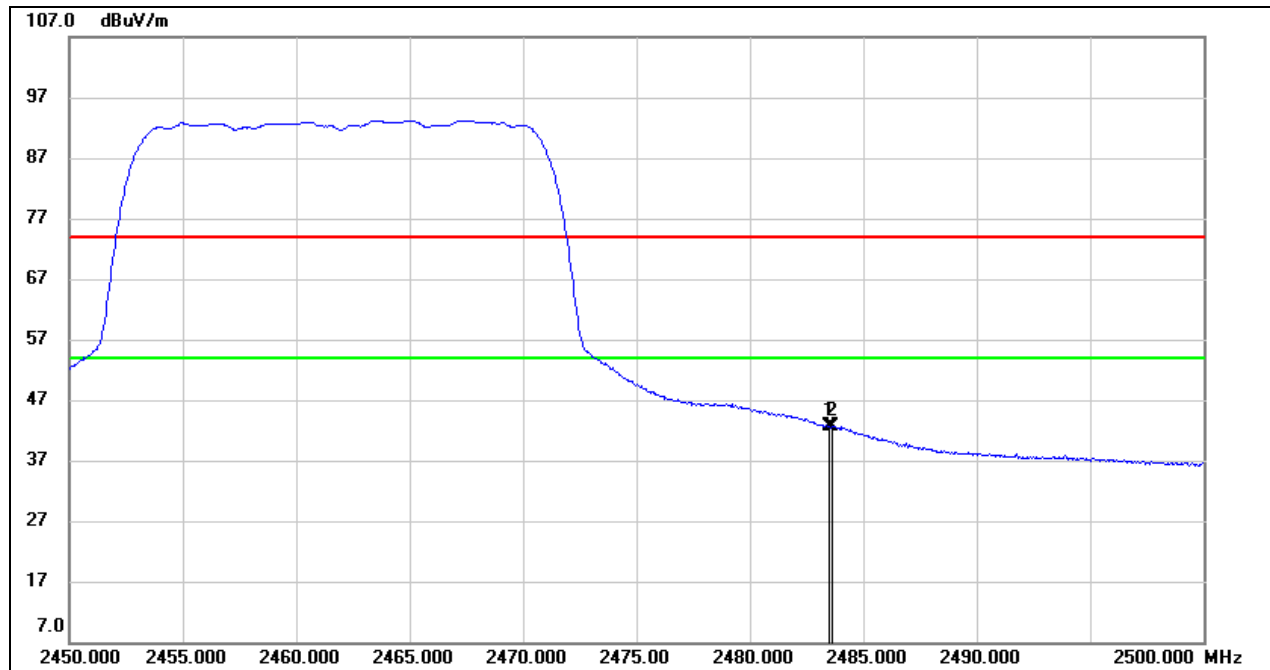
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	25.42	33.71	59.13	74.00	-14.87	peak
2	2483.600	26.02	33.71	59.73	74.00	-14.27	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	8.93	33.71	42.64	54.00	-11.36	AVG
2	2483.600	8.98	33.71	42.69	54.00	-11.31	AVG

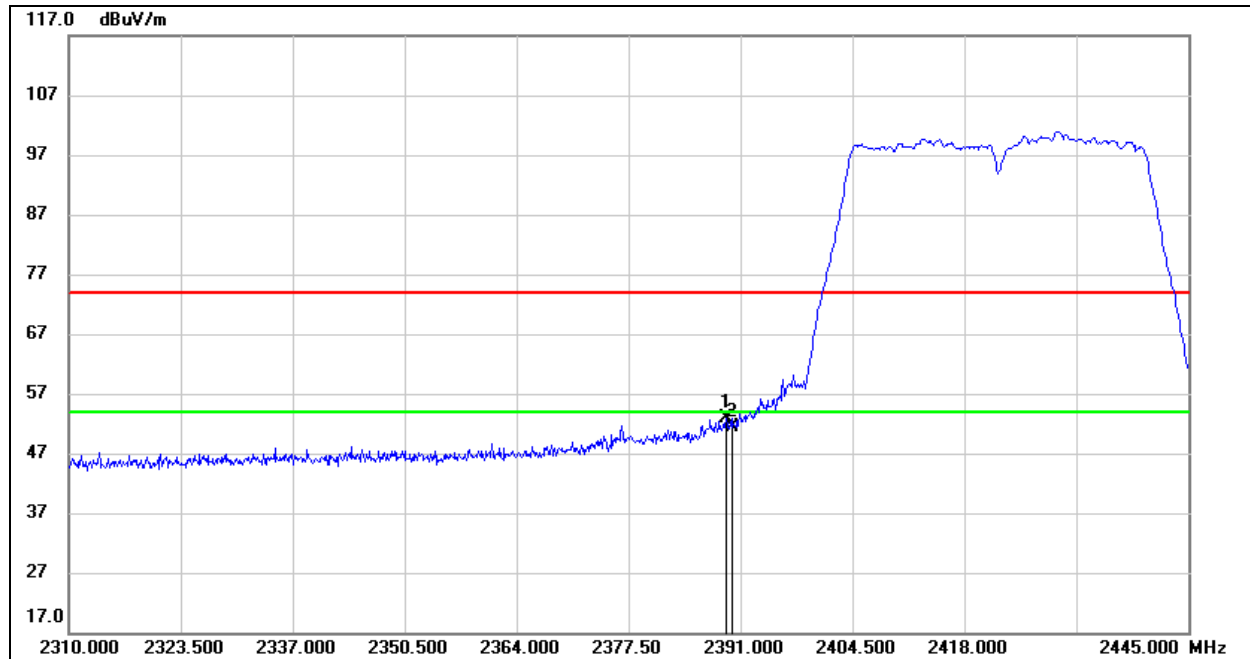
- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded,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

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

8.1.4. 802.11n HT40 MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

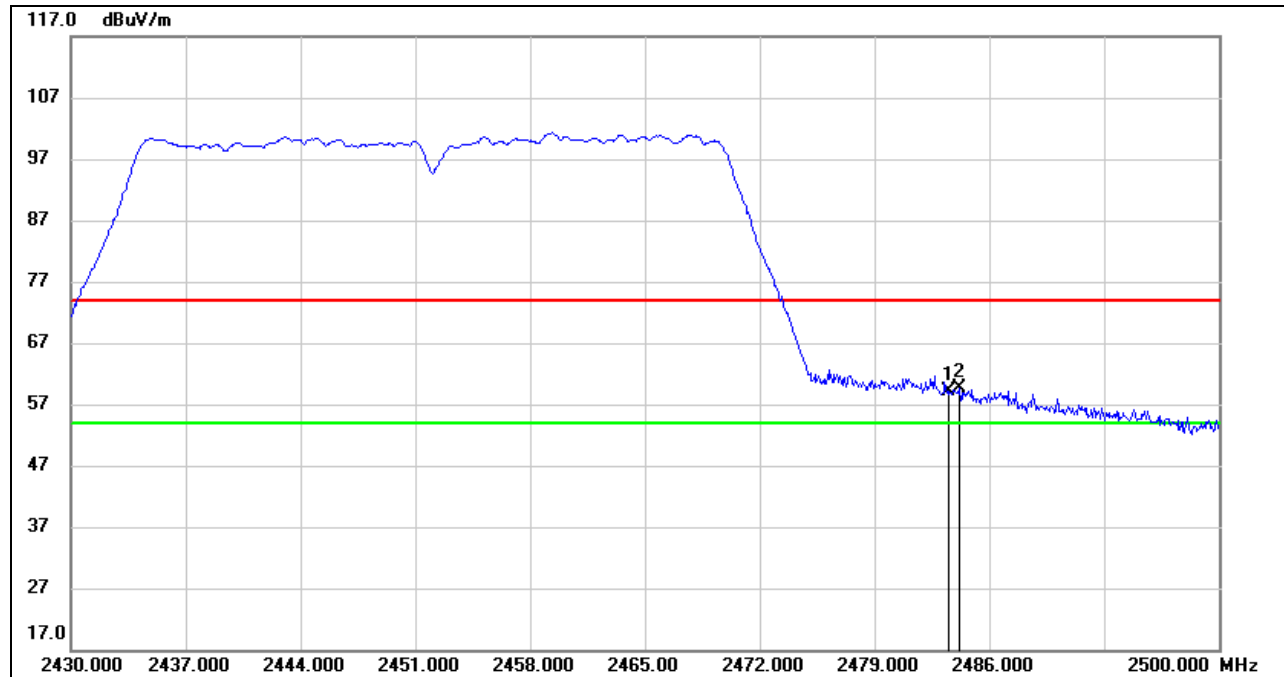


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.245	19.56	33.35	52.91	74.00	-21.09	peak
2	2390.000	18.15	33.35	51.50	74.00	-22.50	peak

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

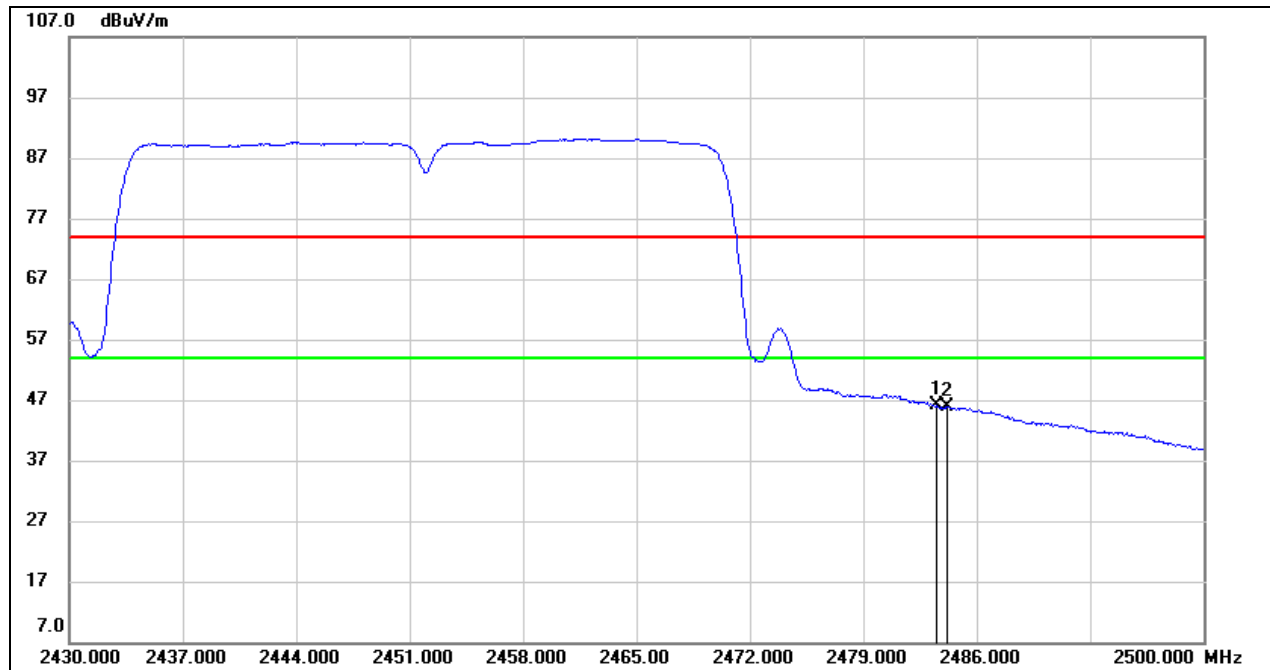
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	25.30	33.71	59.01	74.00	-14.99	peak
2	2484.180	25.81	33.71	59.52	74.00	-14.48	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. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	12.46	33.71	46.17	54.00	-7.83	AVG
2	2484.180	12.06	33.71	45.77	54.00	-8.23	AVG

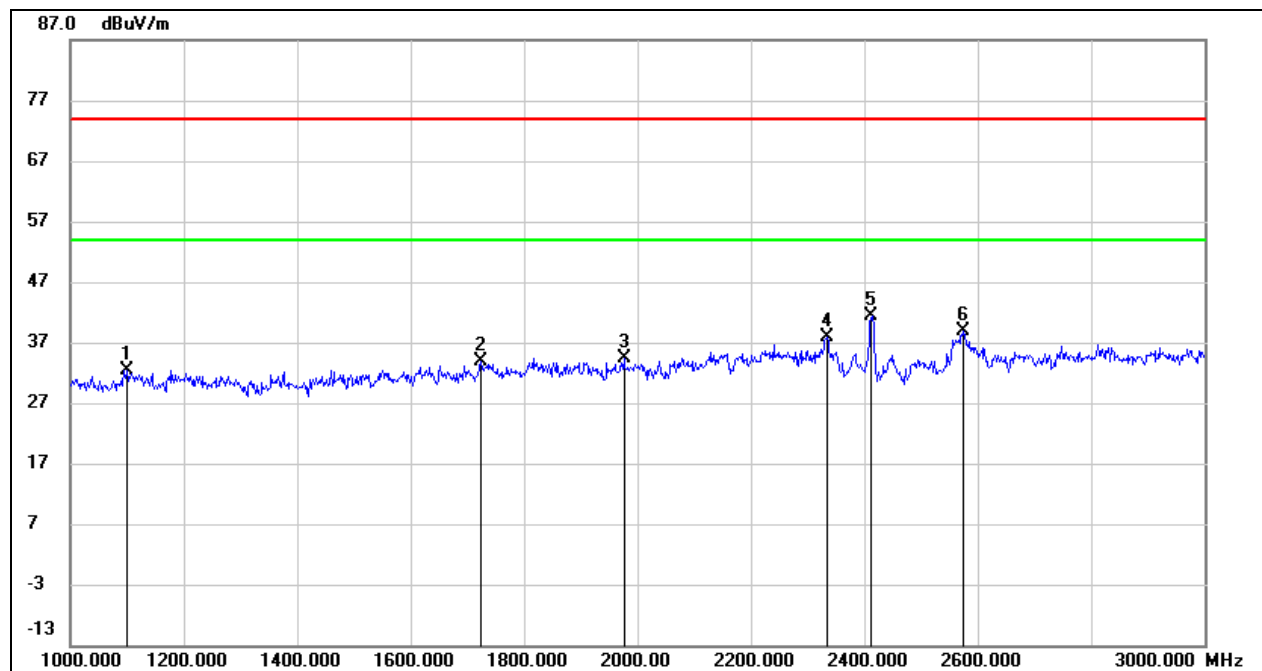
- Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded,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

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

8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

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	1100.000	45.96	-13.49	32.47	74.00	-41.53	peak
2	1724.000	44.38	-10.62	33.76	74.00	-40.24	peak
3	1976.000	44.57	-10.17	34.40	74.00	-39.60	peak
4	2334.000	46.37	-8.61	37.76	74.00	-36.24	peak
5	2412.000	49.82	-8.37	41.45	/	/	Fundamental
6	2574.000	46.76	-7.95	38.81	74.00	-35.19	peak

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

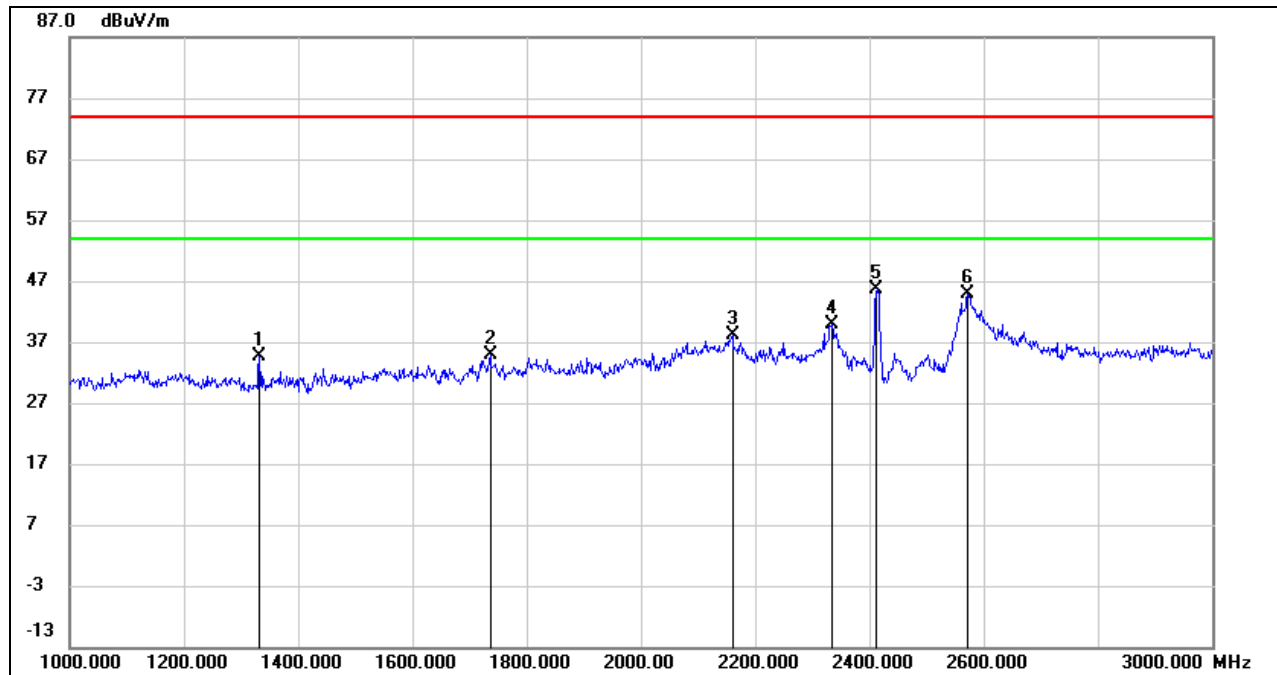
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	1332.000	47.45	-12.80	34.65	74.00	-39.35	peak
2	1736.000	45.38	-10.52	34.86	74.00	-39.14	peak
3	2160.000	47.40	-9.28	38.12	74.00	-35.88	peak
4	2334.000	48.57	-8.61	39.96	74.00	-34.04	peak
5	2412.000	53.95	-8.37	45.58	/	/	Fundamental
6	2572.000	52.83	-7.96	44.87	74.00	-29.13	peak

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

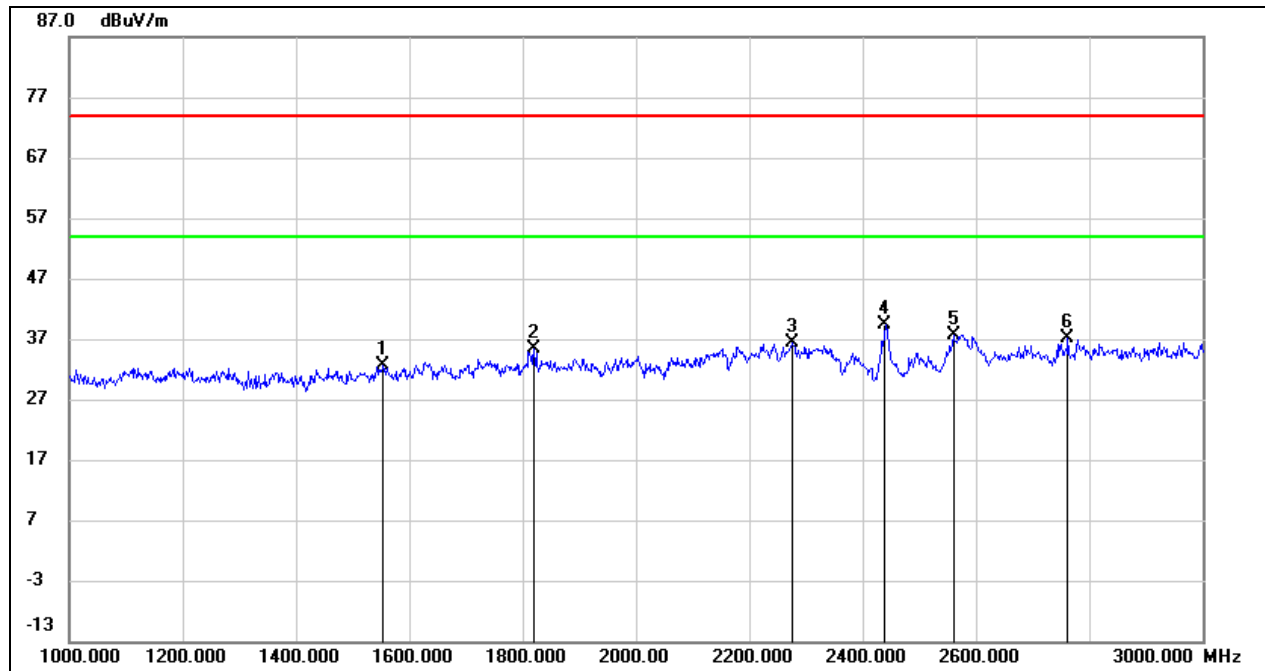
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	1554.000	44.37	-11.86	32.51	74.00	-41.49	peak
2	1820.000	45.41	-10.06	35.35	74.00	-38.65	peak
3	2276.000	45.05	-8.79	36.26	74.00	-37.74	peak
4	2437.000	47.80	-8.33	39.47	/	/	Fundamental
5	2560.000	45.72	-8.00	37.72	74.00	-36.28	peak
6	2762.000	44.00	-6.81	37.19	74.00	-36.81	peak

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

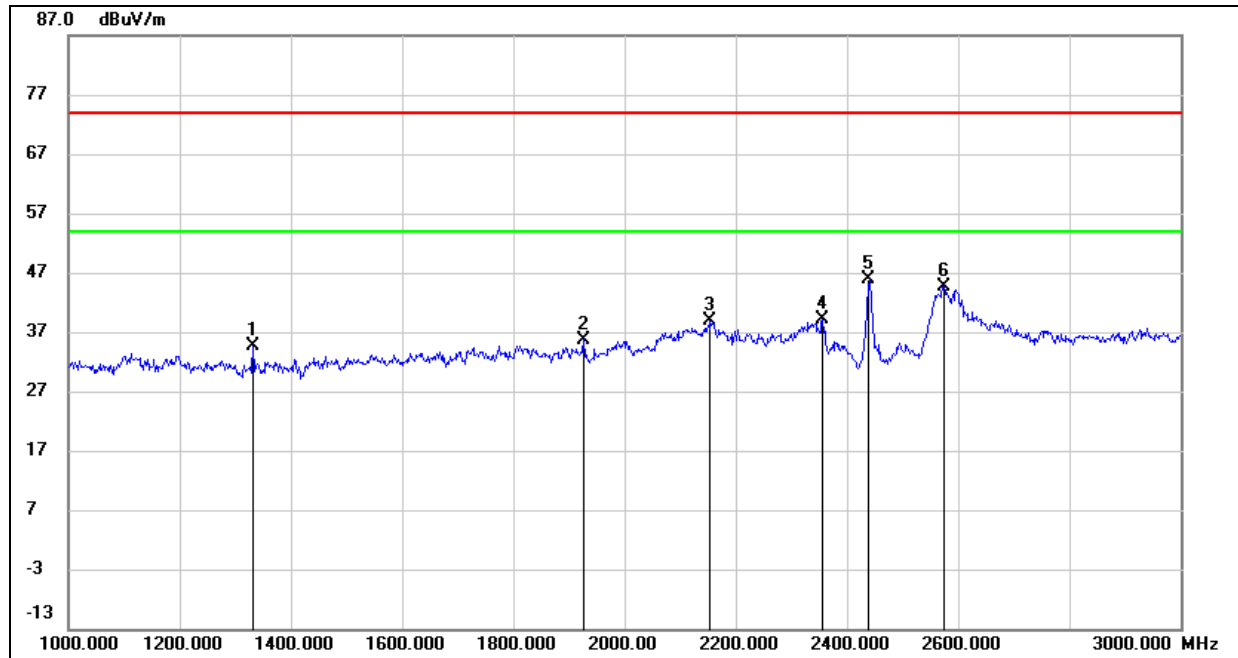
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

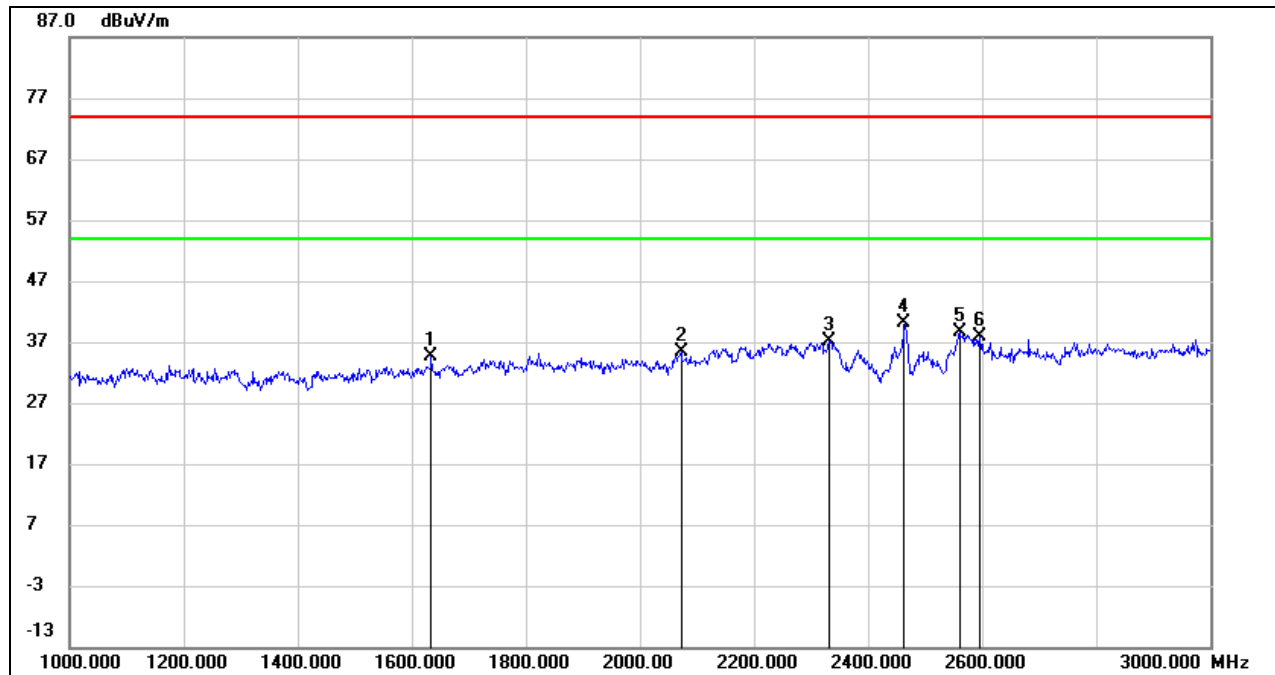
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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	1332.000	47.37	-12.80	34.57	74.00	-39.43	peak
2	1926.000	45.88	-10.13	35.75	74.00	-38.25	peak
3	2154.000	48.26	-9.31	38.95	74.00	-35.05	peak
4	2356.000	47.63	-8.54	39.09	74.00	-34.91	peak
5	2437.000	54.33	-8.33	46.00	/	/	Fundamental
6	2574.000	52.65	-7.95	44.70	74.00	-29.30	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	1634.000	46.05	-11.30	34.75	74.00	-39.25	peak
2	2072.000	45.12	-9.78	35.34	74.00	-38.66	peak
3	2332.000	45.85	-8.61	37.24	74.00	-36.76	peak
4	2462.000	48.45	-8.29	40.16	/	/	Fundamental
5	2560.000	46.64	-8.00	38.64	74.00	-35.36	peak
6	2596.000	45.79	-7.88	37.91	74.00	-36.09	peak

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

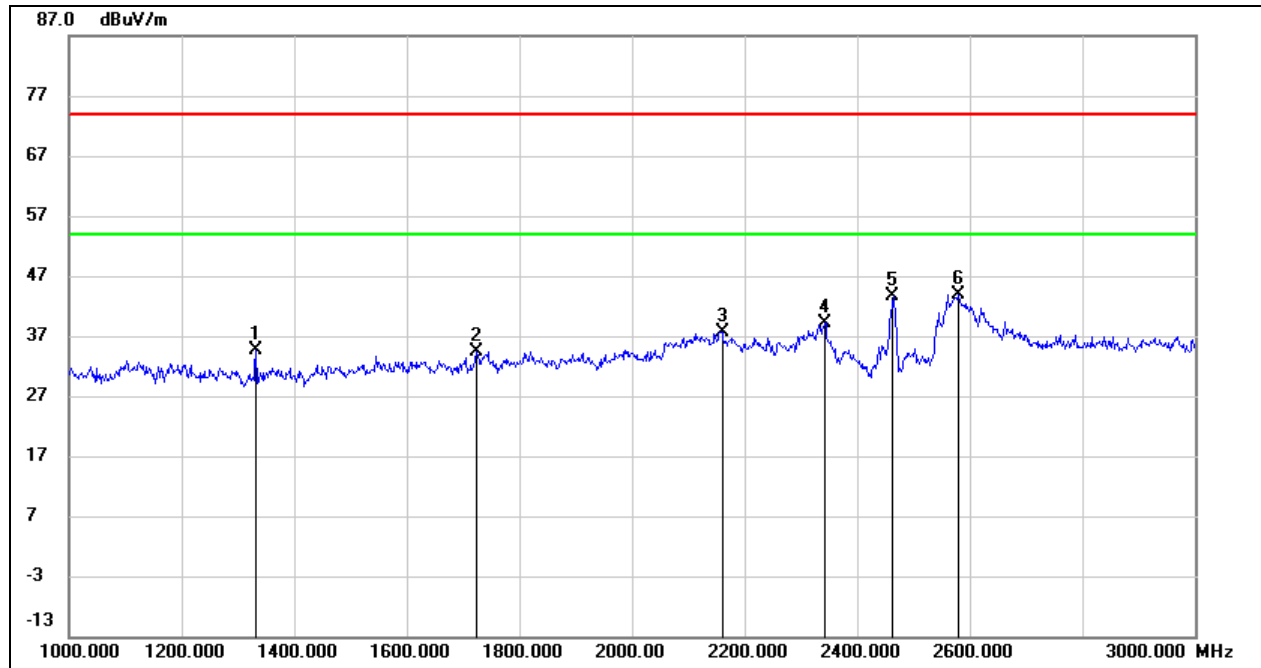
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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	1332.000	47.44	-12.80	34.64	74.00	-39.36	peak
2	1724.000	45.07	-10.62	34.45	74.00	-39.55	peak
3	2160.000	46.98	-9.28	37.70	74.00	-36.30	peak
4	2342.000	47.76	-8.58	39.18	74.00	-34.82	peak
5	2462.000	51.96	-8.29	43.67	/	/	Fundamental
6	2580.000	51.79	-7.93	43.86	74.00	-30.14	peak

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

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

3. Peak: Peak detector.

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

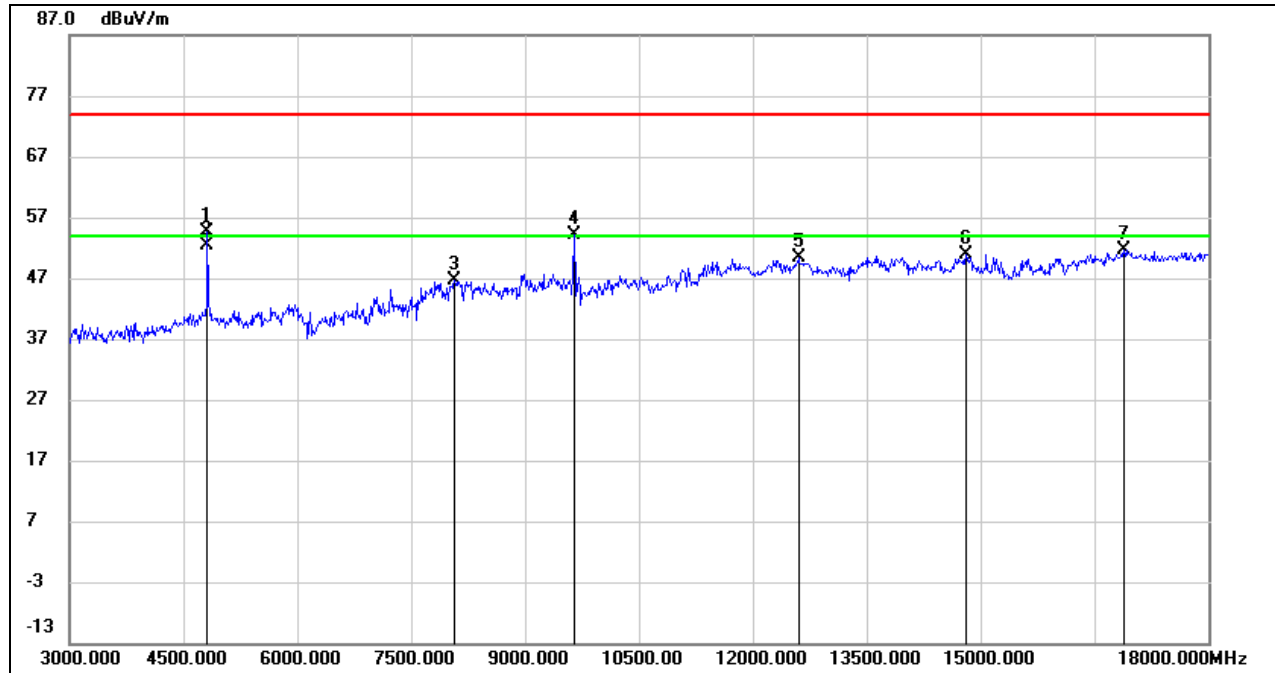
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

8.3.1. 802.11b 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	53.26	1.38	54.64	74.00	-19.36	peak
2	4815.000	50.96	1.38	52.34	54.00	-1.66	AVG
3	8070.000	36.95	9.72	46.67	74.00	-27.33	peak
4*	9645.000	43.41	10.81	54.22	/	/	peak
5	12600.000	34.52	15.78	50.30	74.00	-23.70	peak
6	14805.000	32.93	18.00	50.93	74.00	-23.07	peak
7	16890.000	30.23	21.49	51.72	74.00	-22.28	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.

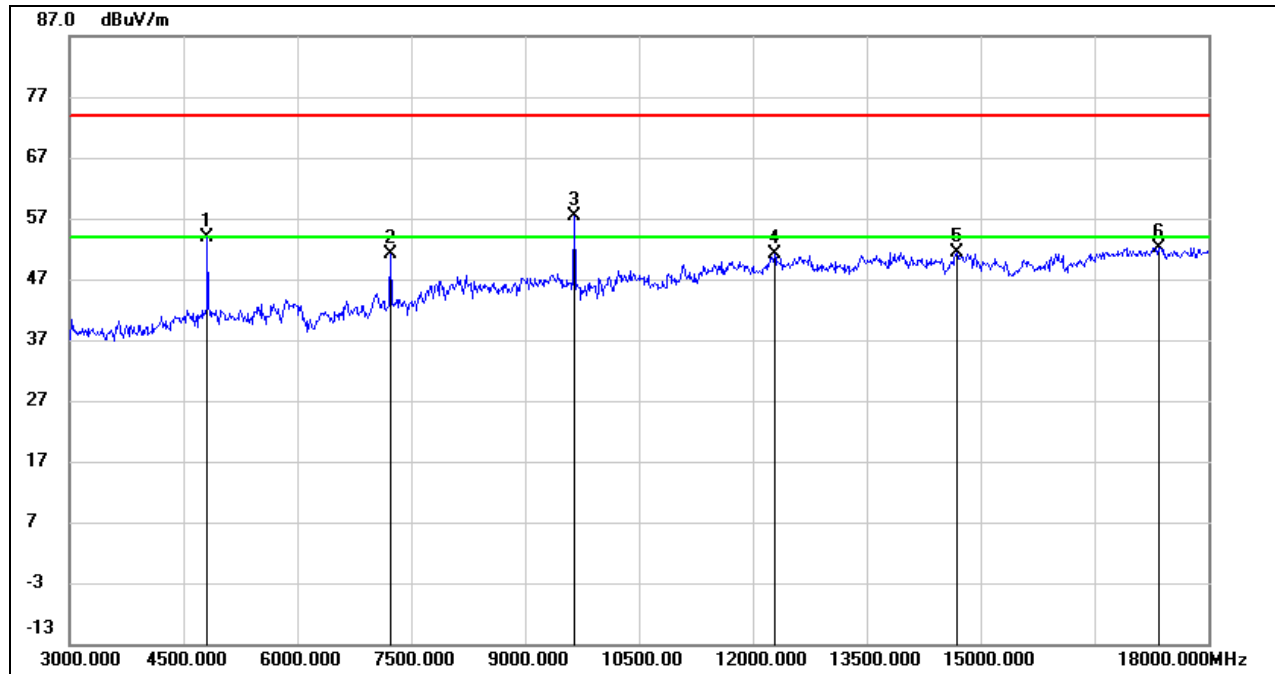
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	52.58	1.38	53.96	74.00	-20.04	peak
2	7230.000	43.90	7.28	51.18	74.00	-22.82	peak
3*	9645.000	46.51	10.81	57.32	/	/	peak
4	12285.000	35.12	16.08	51.20	74.00	-22.80	peak
5	14685.000	33.72	17.64	51.36	74.00	-22.64	peak
6	17340.000	29.94	22.31	52.25	74.00	-21.75	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.

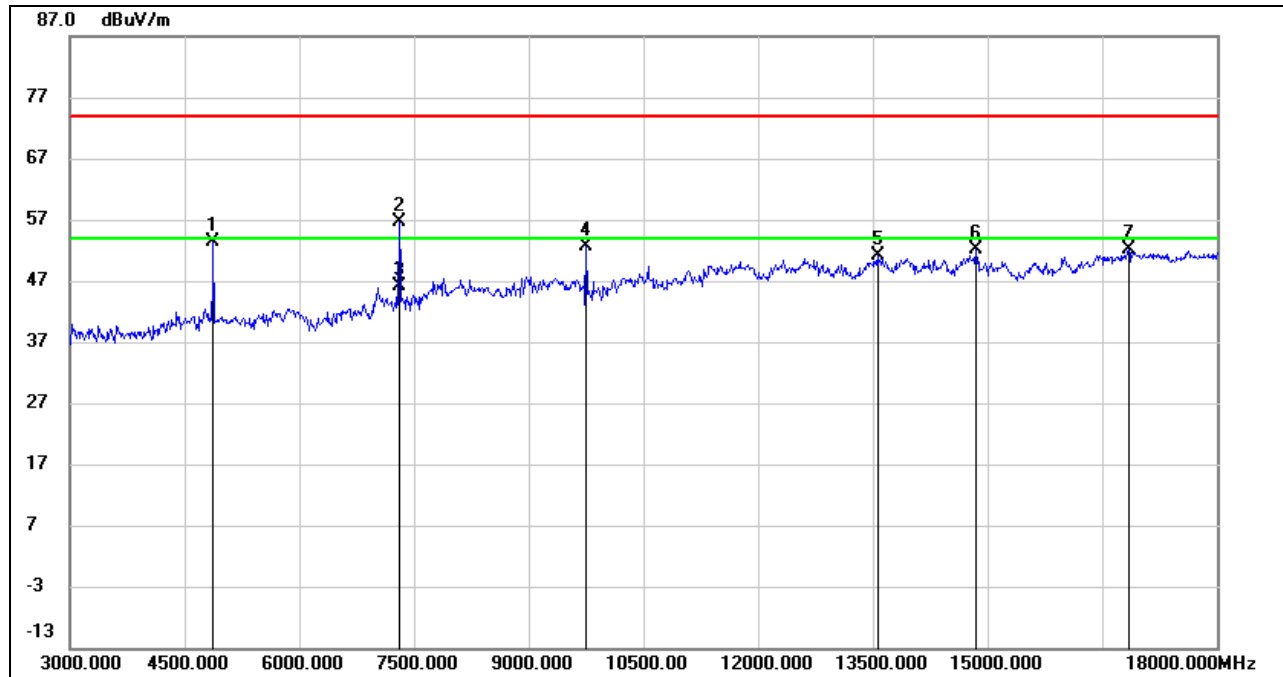
3. Peak: Peak detector.

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.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247 (d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	51.94	1.32	53.26	74.00	-20.74	peak
2	7305.000	49.47	7.14	56.61	74.00	-17.39	peak
3	7305.000	38.95	7.14	46.09	54.00	-7.91	AVG
4	9750.000	42.44	10.29	52.73	74.00	-21.27	peak
5	13560.000	34.02	17.15	51.17	74.00	-22.83	peak
6	14850.000	34.42	17.71	52.13	74.00	-21.87	peak
7	16845.000	31.02	21.10	52.12	74.00	-21.88	peak

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

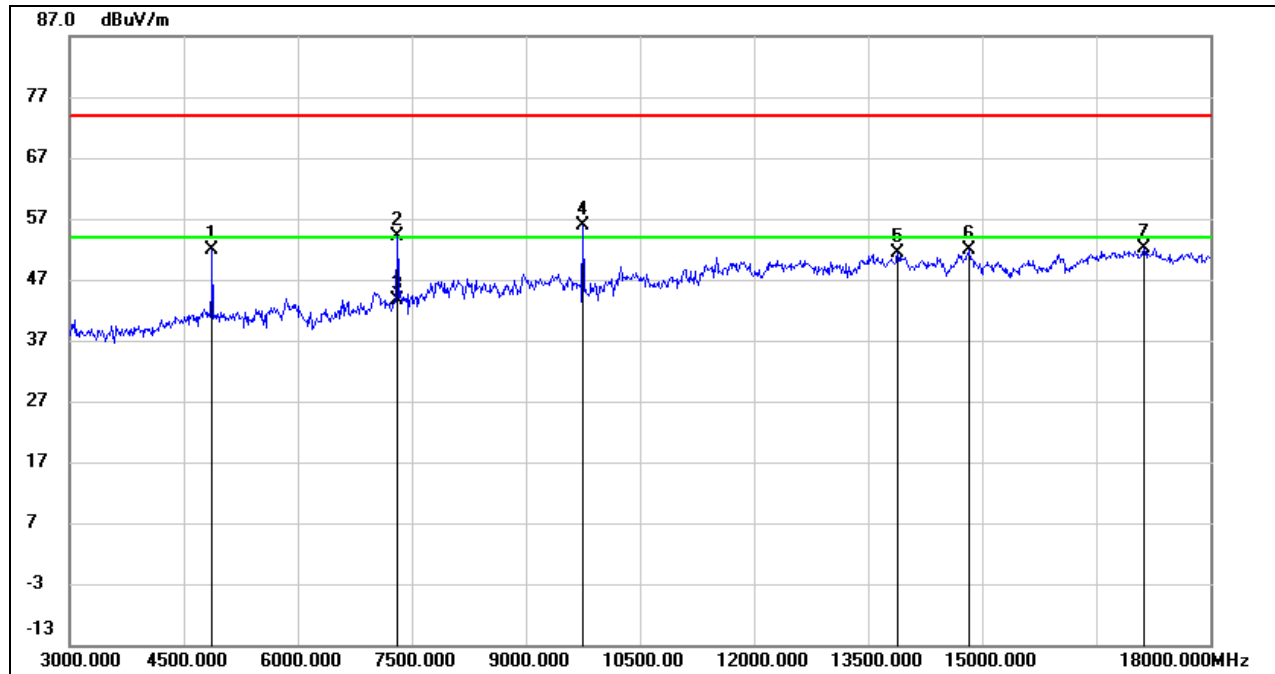
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	50.59	1.32	51.91	74.00	-22.09	peak
2	7305.000	46.89	7.14	54.03	74.00	-19.97	peak
3	7305.000	36.46	7.14	43.60	54.00	-10.40	AVG
4*	9750.000	45.60	10.29	55.89	/	/	peak
5	13890.000	33.74	17.53	51.27	74.00	-22.73	peak
6	14835.000	34.00	17.80	51.80	74.00	-22.20	peak
7	17130.000	30.21	21.92	52.13	74.00	-21.87	peak

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

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

3. Peak: Peak detector.

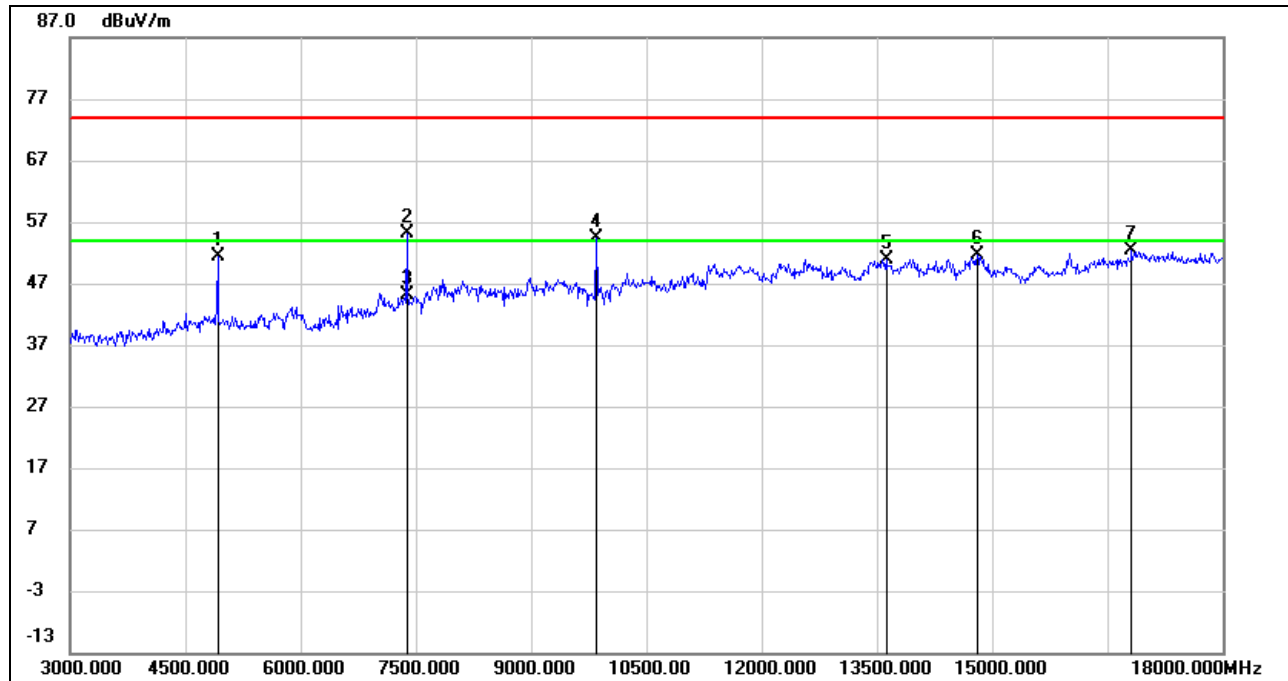
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	49.86	1.45	51.31	74.00	-22.69	peak
2	7380.000	47.24	7.79	55.03	74.00	-18.97	peak
3	7380.000	37.41	7.79	45.20	54.00	-8.80	AVG
4*	9855.000	43.74	10.64	54.38	/	/	peak
5	13620.000	33.67	17.19	50.86	74.00	-23.14	peak
6	14805.000	33.71	18.00	51.71	74.00	-22.29	peak
7	16815.000	31.43	20.84	52.27	74.00	-21.73	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.

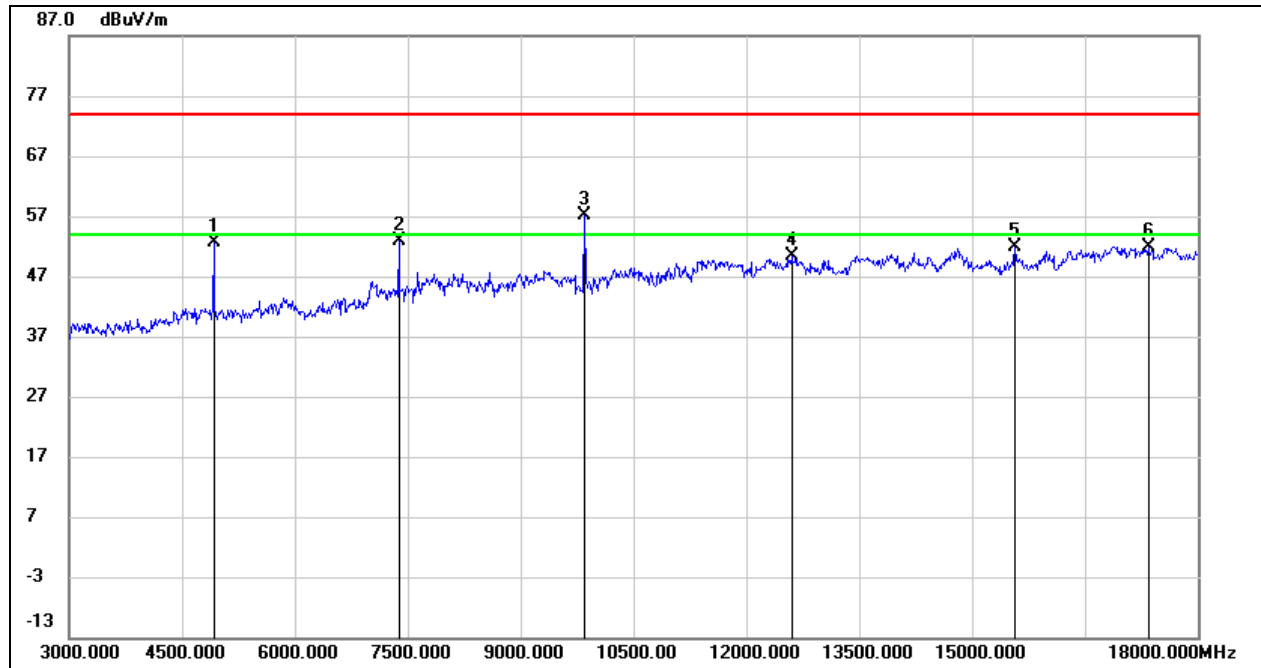
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	51.16	1.45	52.61	74.00	-21.39	peak
2	7380.000	44.97	7.79	52.76	74.00	-21.24	peak
3*	9840.000	46.70	10.48	57.18	/	/	peak
4	12600.000	34.61	15.78	50.39	74.00	-23.61	peak
5	15570.000	34.29	17.51	51.80	74.00	-22.20	peak
6	17340.000	29.69	22.31	52.00	74.00	-22.00	peak

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

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

3. Peak: Peak detector.

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

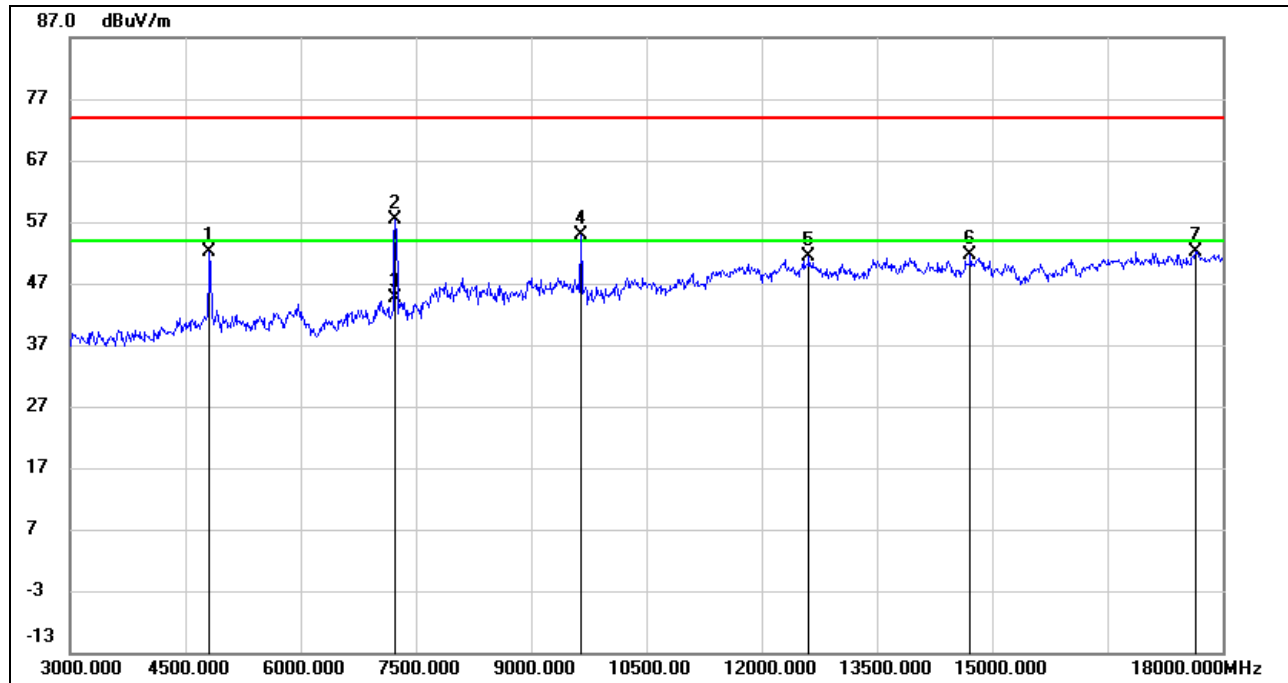
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

8.3.2. 802.11g MODE

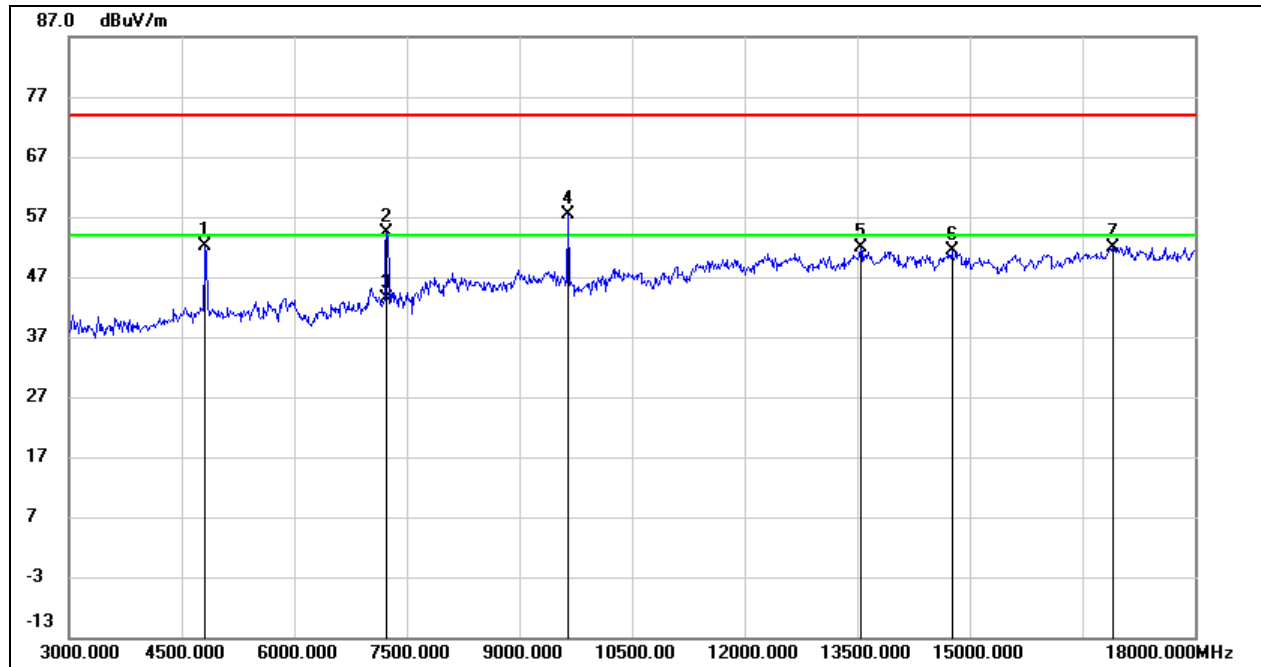
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	50.72	1.38	52.10	74.00	-21.90	peak
2	7230.000	50.13	7.28	57.41	74.00	-16.59	peak
3	7230.000	37.33	7.28	44.61	54.00	-9.39	AVG
4*	9645.000	44.03	10.81	54.84	/	/	peak
5	12615.000	35.57	15.75	51.32	74.00	-22.68	peak
6	14715.000	33.95	17.74	51.69	74.00	-22.31	peak
7	17640.000	29.11	23.03	52.14	74.00	-21.86	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.
6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247 (d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	50.81	1.38	52.19	74.00	-21.81	peak
2	7230.000	47.09	7.28	54.37	74.00	-19.63	peak
3	7230.000	36.08	7.28	43.36	54.00	-10.64	AVG
4*	9645.000	46.46	10.81	57.27	/	/	peak
5	13545.000	34.68	17.16	51.84	74.00	-22.16	peak
6	14760.000	33.52	17.90	51.42	74.00	-22.58	peak
7	16905.000	30.33	21.55	51.88	74.00	-22.12	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.

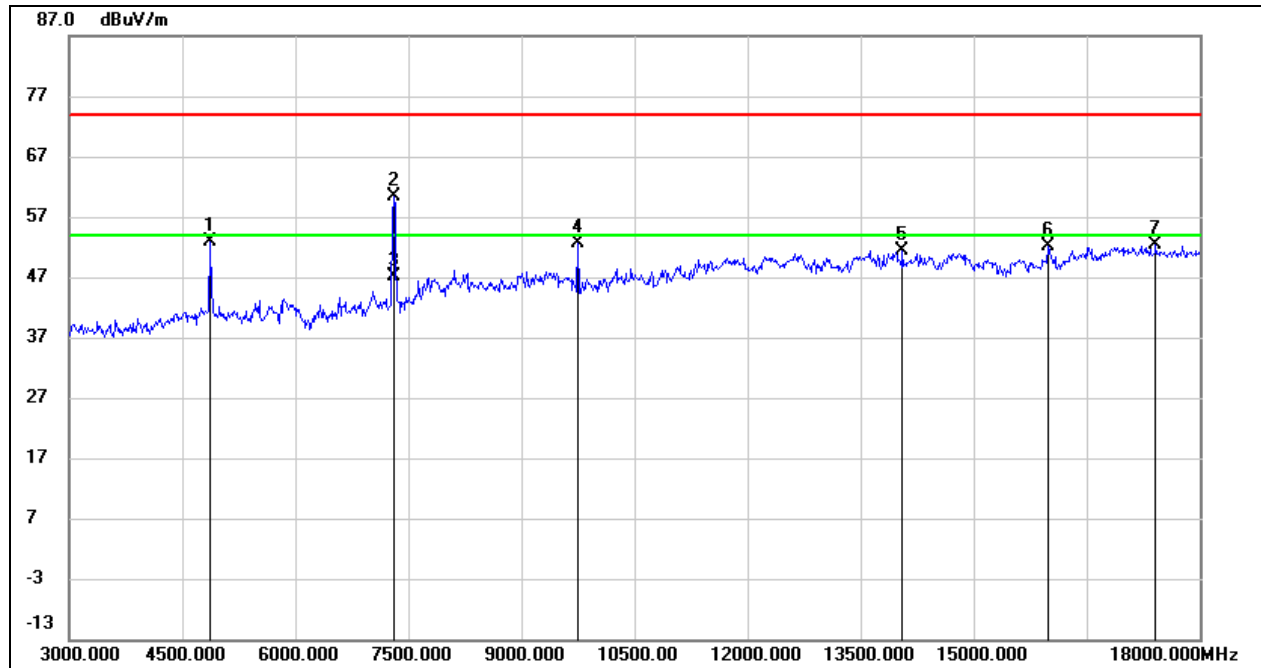
3. Peak: Peak detector.

4. 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.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247 (d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	51.62	1.33	52.95	74.00	-21.05	peak
2	7305.000	53.22	7.14	60.36	74.00	-13.64	peak
3	7305.000	39.97	7.14	47.11	54.00	-6.89	AVG
4	9750.000	42.34	10.29	52.63	74.00	-21.37	peak
5	14055.000	33.76	17.56	51.32	74.00	-22.68	peak
6	15990.000	33.62	18.39	52.01	74.00	-21.99	peak
7	17415.000	30.38	21.89	52.27	74.00	-21.73	peak

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

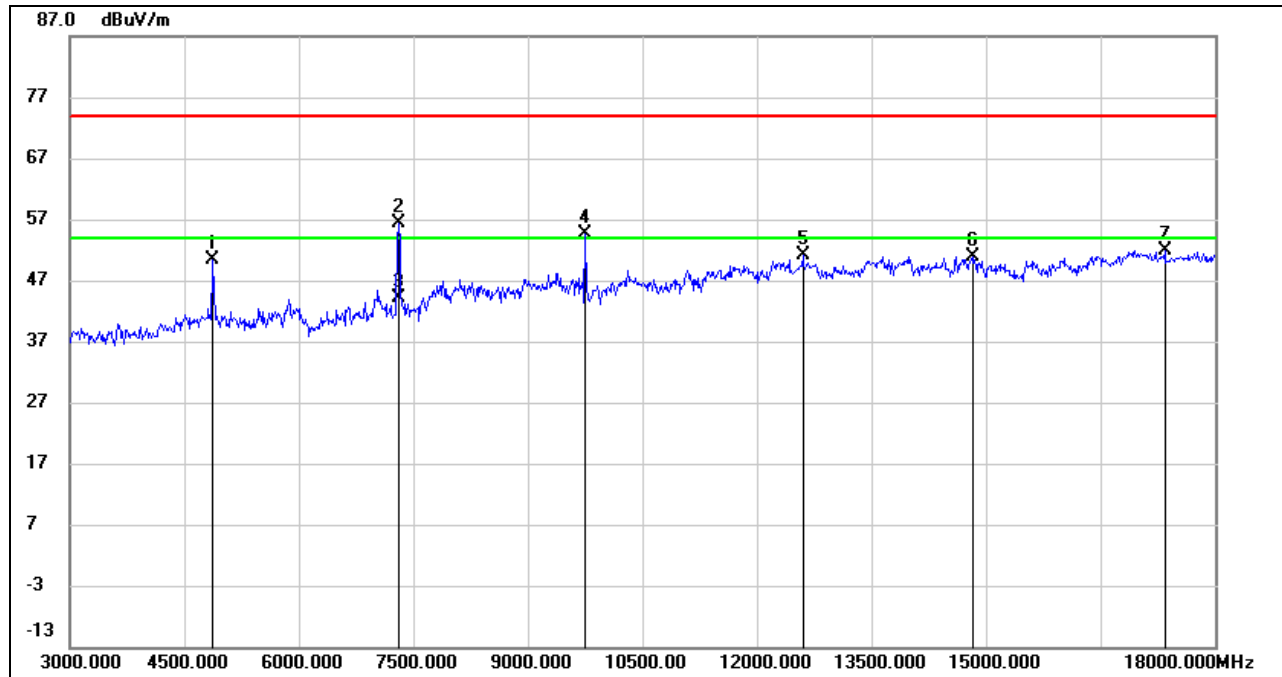
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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	49.14	1.32	50.46	74.00	-23.54	peak
2	7305.000	49.34	7.14	56.48	74.00	-17.52	peak
3	7305.000	37.04	7.14	44.18	54.00	-9.82	AVG
4*	9750.000	44.46	10.29	54.75	/	/	peak
5	12600.000	35.42	15.78	51.20	74.00	-22.80	peak
6	14820.000	33.02	17.91	50.93	74.00	-23.07	peak
7	17340.000	29.62	22.31	51.93	74.00	-22.07	peak

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

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

3. Peak: Peak detector.

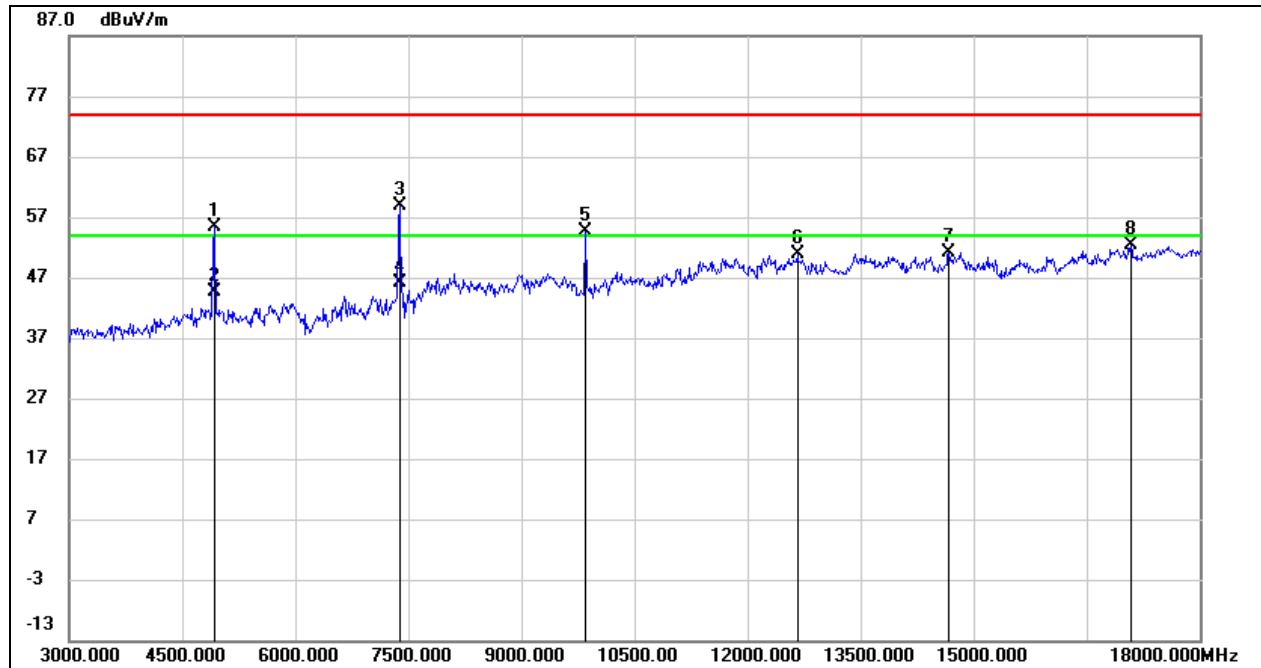
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	53.89	1.45	55.34	74.00	-18.66	peak
2	4920.000	43.11	1.45	44.56	54.00	-9.44	AVG
3	7380.000	51.10	7.79	58.89	74.00	-15.11	peak
4	7380.000	38.24	7.79	46.03	54.00	-7.97	AVG
5*	9840.000	44.13	10.48	54.61	/	/	peak
6	12660.000	35.07	15.69	50.76	74.00	-23.24	peak
7	14670.000	33.45	17.59	51.04	74.00	-22.96	peak
8	17085.000	30.46	21.80	52.26	74.00	-21.74	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.

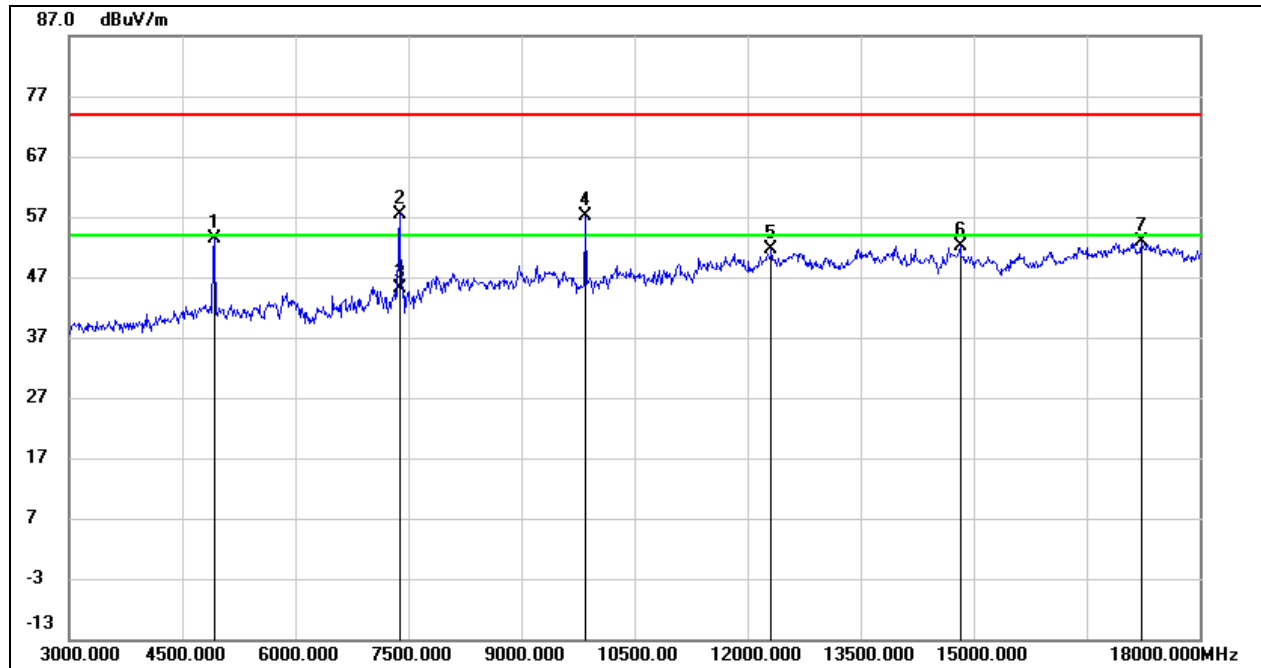
3. Peak: Peak detector.

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.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

**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	51.92	1.45	53.37	74.00	-20.63	peak
2	7380.000	49.71	7.79	57.50	74.00	-16.50	peak
3	7380.000	37.33	7.79	45.12	54.00	-8.88	AVG
4*	9855.000	46.45	10.64	57.09	/	/	peak
5	12315.000	35.46	16.06	51.52	74.00	-22.48	peak
6	14820.000	34.19	17.91	52.10	74.00	-21.90	peak
7	17220.000	30.84	22.12	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.

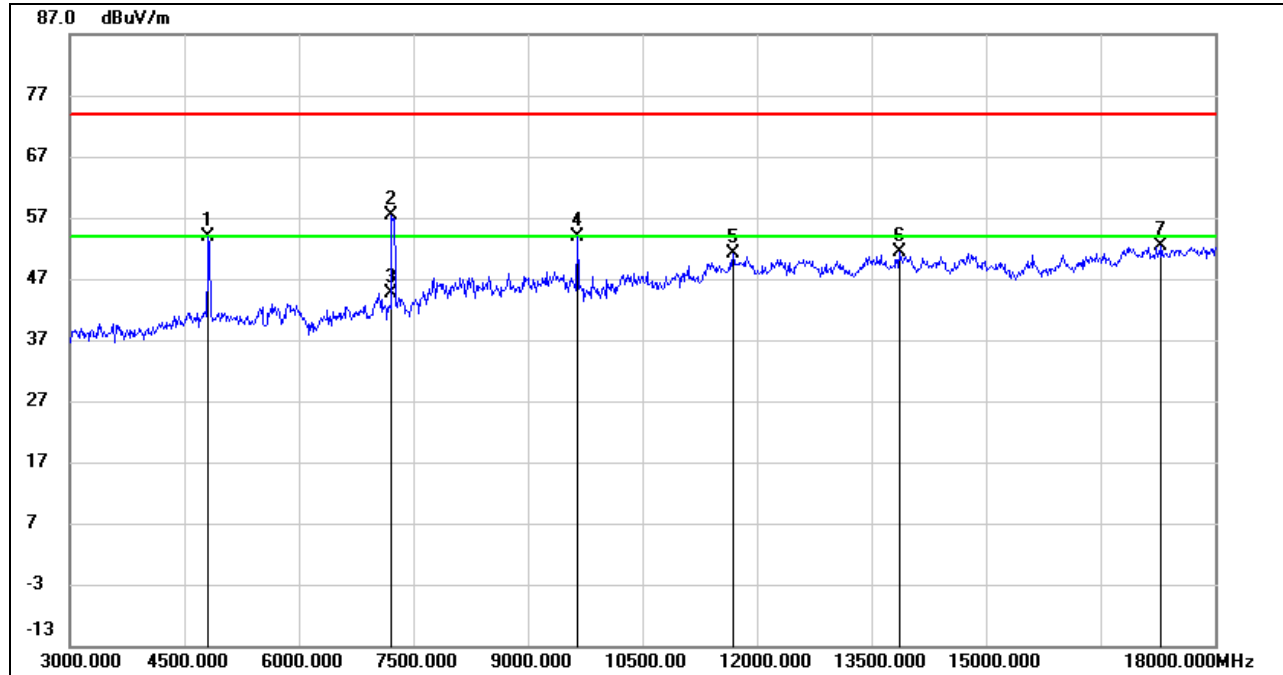
3. Peak: Peak detector.

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

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

8.3.3. 802.11n HT20 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	52.46	1.38	53.84	74.00	-20.16	peak
2	7215.000	50.01	7.32	57.33	74.00	-16.67	peak
3	7215.000	37.36	7.32	44.68	54.00	-9.32	AVG
4	9645.000	43.04	10.81	53.85	74.00	-20.15	peak
5	11685.000	35.78	15.26	51.04	74.00	-22.96	peak
6	13860.000	33.79	17.55	51.34	74.00	-22.66	peak
7	17295.000	29.77	22.58	52.35	74.00	-21.65	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.

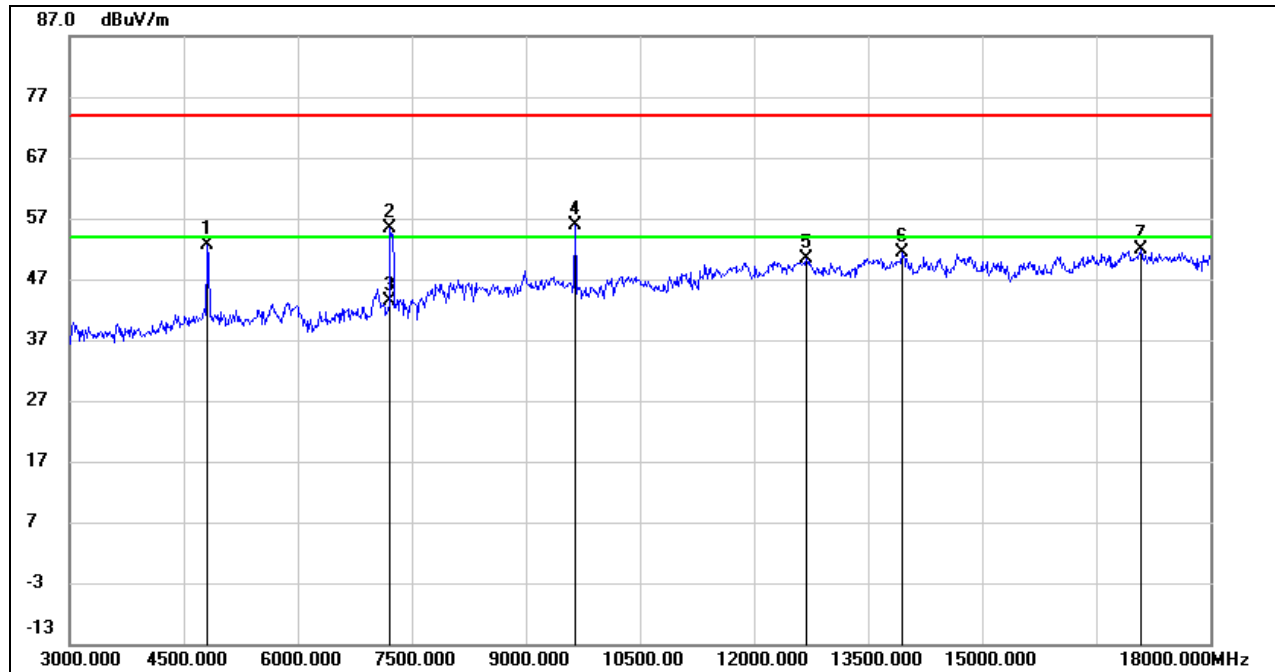
3. Peak: Peak detector.

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

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

**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	51.33	1.38	52.71	74.00	-21.29	peak
2	7215.000	48.13	7.32	55.45	74.00	-18.55	peak
3	7215.000	36.03	7.32	43.35	54.00	-10.65	AVG
4*	9645.000	45.15	10.81	55.96	/	/	peak
5	12690.000	34.74	15.64	50.38	74.00	-23.62	peak
6	13950.000	33.74	17.60	51.34	74.00	-22.66	peak
7	17085.000	30.06	21.80	51.86	74.00	-22.14	peak

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

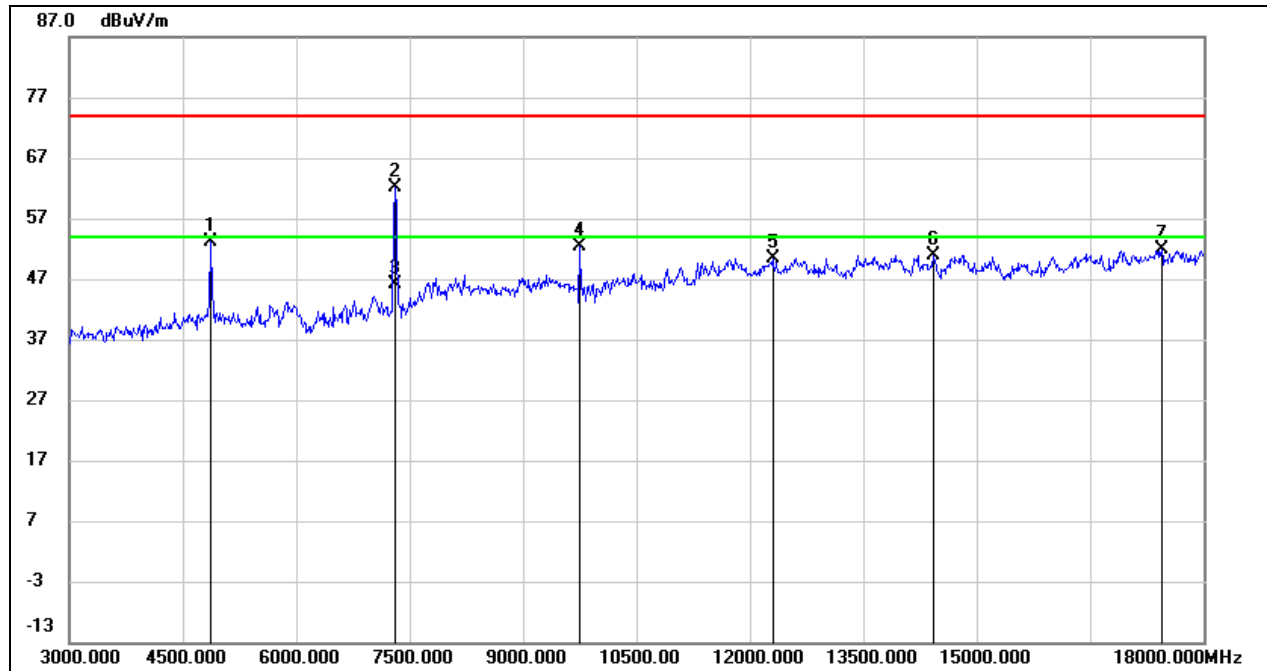
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247 (d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	51.76	1.33	53.09	74.00	-20.91	peak
2	7305.000	55.06	7.14	62.20	74.00	-11.80	peak
3	7305.000	38.92	7.14	46.06	54.00	-7.94	AVG
4	9750.000	42.14	10.29	52.43	74.00	-21.57	peak
5	12300.000	34.39	16.09	50.48	74.00	-23.52	peak
6	14430.000	33.65	17.34	50.99	74.00	-23.01	peak
7	17445.000	29.87	21.95	51.82	74.00	-22.18	peak

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

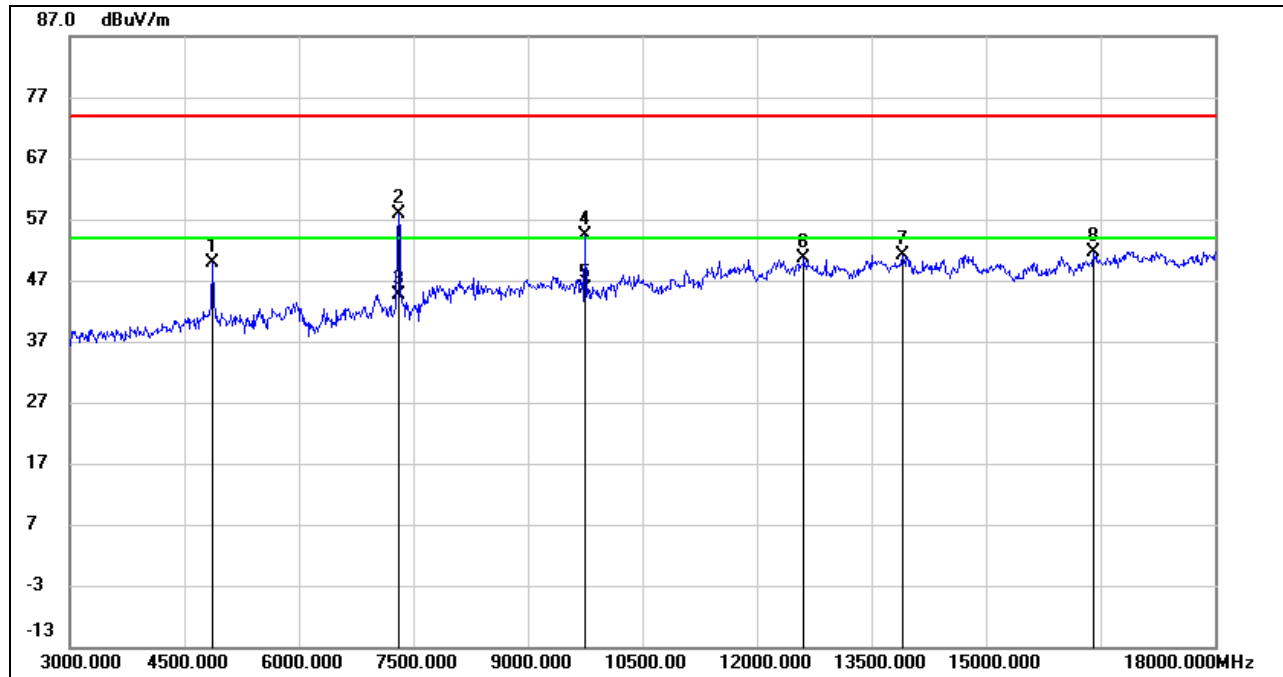
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	48.50	1.33	49.83	74.00	-24.17	peak
2	7305.000	50.75	7.14	57.89	74.00	-16.11	peak
3	7305.000	37.37	7.14	44.51	54.00	-9.49	AVG
4	9750.000	44.11	10.29	54.40	74.00	-19.60	peak
5	9750.000	35.33	10.29	45.62	54.00	-8.38	AVG
6	12615.000	35.00	15.75	50.75	74.00	-23.25	peak
7	13905.000	33.70	17.54	51.24	74.00	-22.76	peak
8	16410.000	31.99	19.69	51.68	74.00	-22.32	peak

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

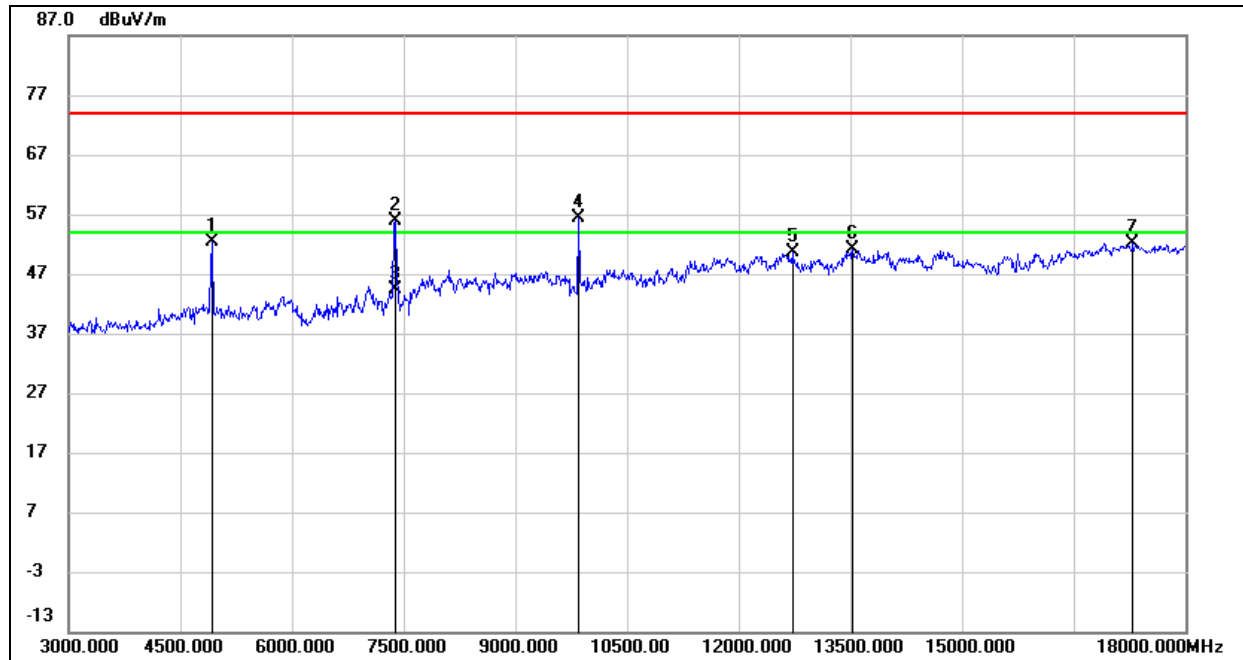
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

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

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

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	51.03	1.45	52.48	74.00	-21.52	peak
2	7380.000	48.16	7.79	55.95	74.00	-18.05	peak
3	7380.000	36.56	7.79	44.35	54.00	-9.65	AVG
4*	9855.000	45.86	10.64	56.50	/	/	peak
5	12720.000	35.03	15.70	50.73	74.00	-23.27	peak
6	13530.000	33.85	17.19	51.04	74.00	-22.96	peak
7	17295.000	29.58	22.58	52.16	74.00	-21.84	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.

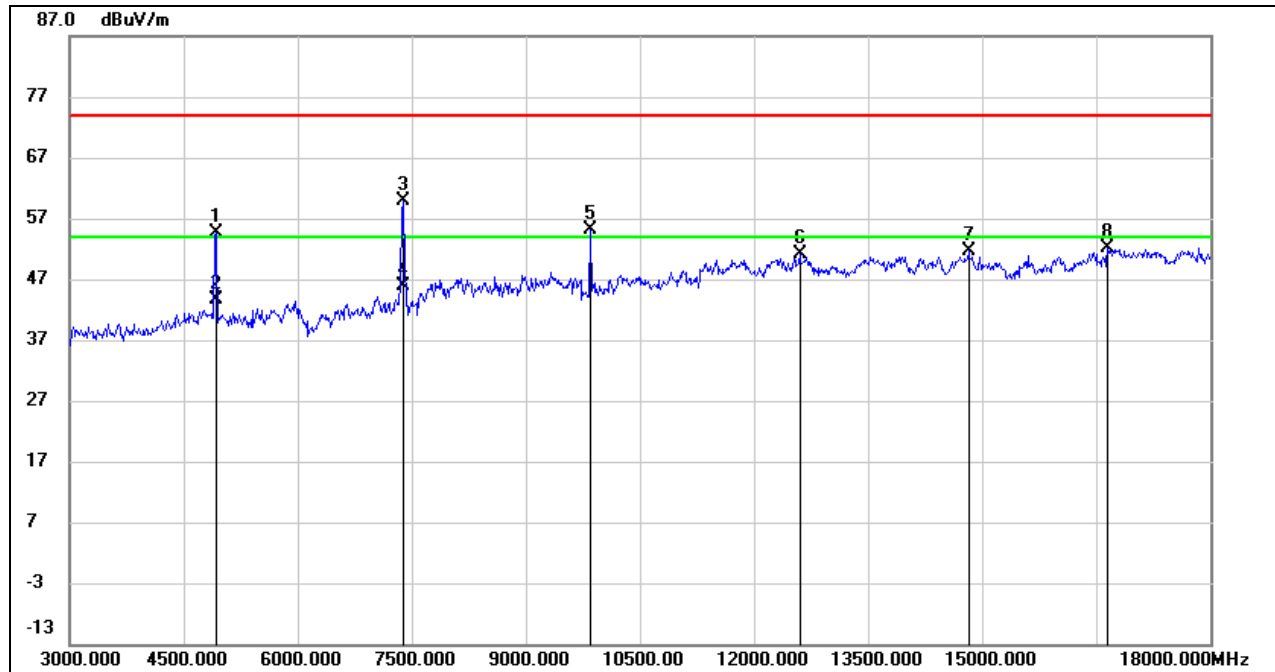
3. Peak: Peak detector.

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.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

**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	53.08	1.45	54.53	74.00	-19.47	peak
2	4920.000	42.10	1.45	43.55	54.00	-10.45	AVG
3	7380.000	52.20	7.79	59.99	74.00	-14.01	peak
4	7380.000	38.18	7.79	45.97	54.00	-8.03	AVG
5*	9840.000	44.71	10.48	55.19	/	/	peak
6	12600.000	35.25	15.78	51.03	74.00	-22.97	peak
7	14820.000	33.61	17.91	51.52	74.00	-22.48	peak
8	16650.000	32.27	19.98	52.25	74.00	-21.75	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.

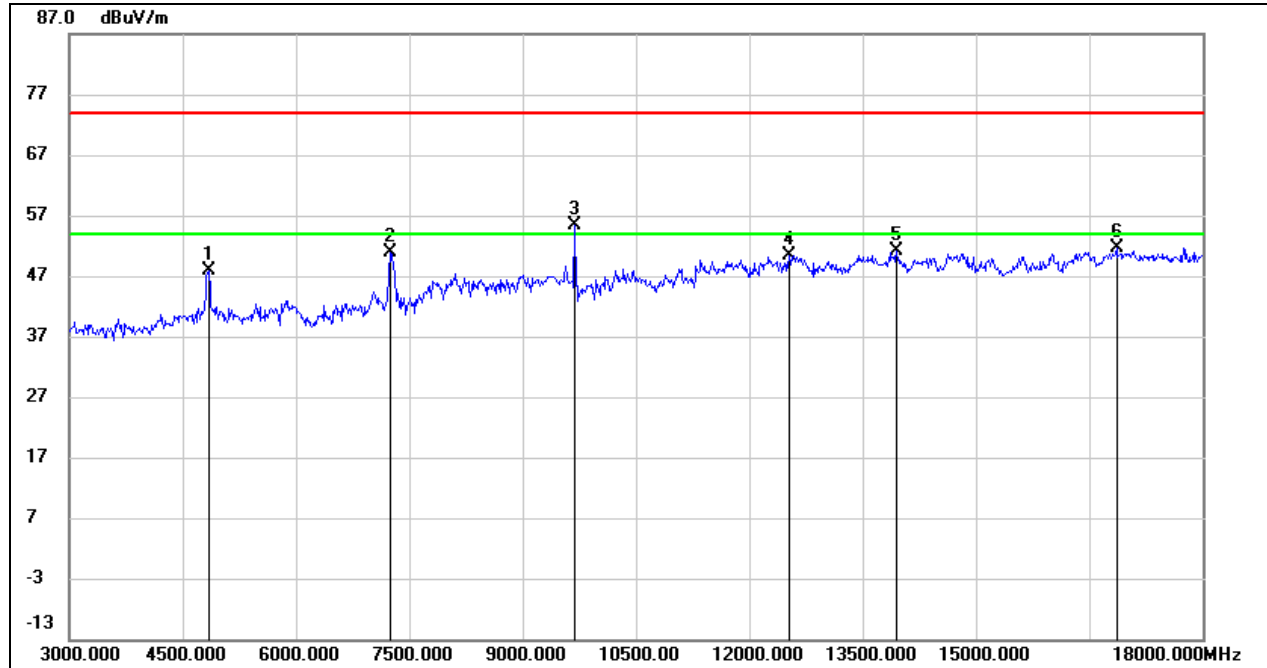
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	4845.000	46.62	1.35	47.97	74.00	-26.03	peak
2	7245.000	43.73	7.25	50.98	74.00	-23.02	peak
3*	9690.000	44.88	10.57	55.45	/	/	peak
4	12525.000	34.78	15.70	50.48	74.00	-23.52	peak
5	13950.000	33.49	17.60	51.09	74.00	-22.91	peak
6	16860.000	30.52	21.22	51.74	74.00	-22.26	peak

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

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

3. Peak: Peak detector.

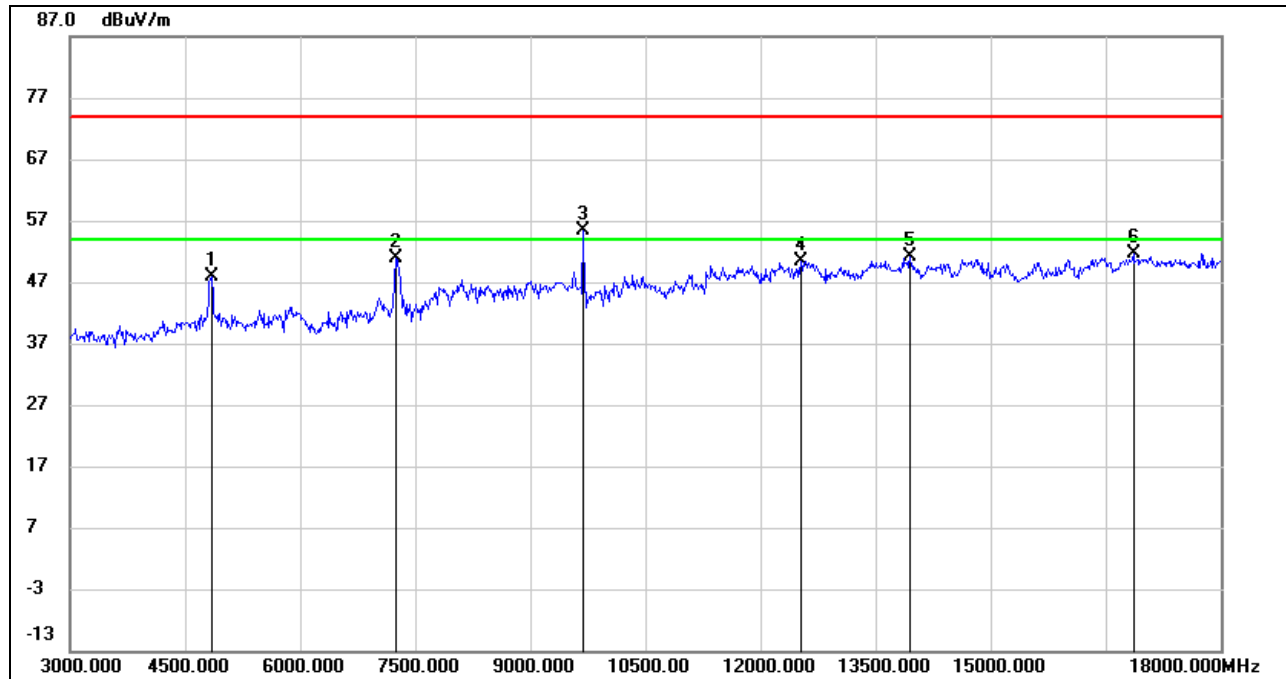
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	46.62	1.35	47.97	74.00	-26.03	peak
2	7245.000	43.73	7.25	50.98	74.00	-23.02	peak
3*	9690.000	44.88	10.57	55.45	/	/	peak
4	12525.000	34.78	15.70	50.48	74.00	-23.52	peak
5	13950.000	33.49	17.60	51.09	74.00	-22.91	peak
6	16860.000	30.52	21.22	51.74	74.00	-22.26	peak

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

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

3. Peak: Peak detector.

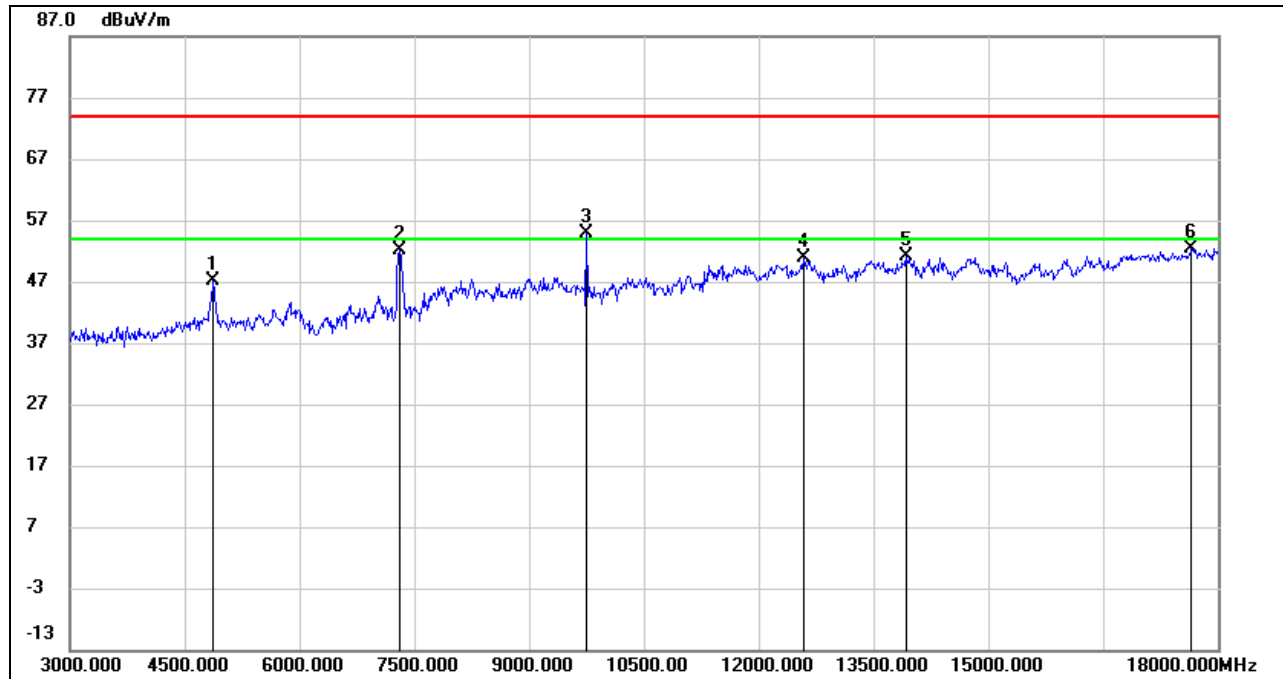
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

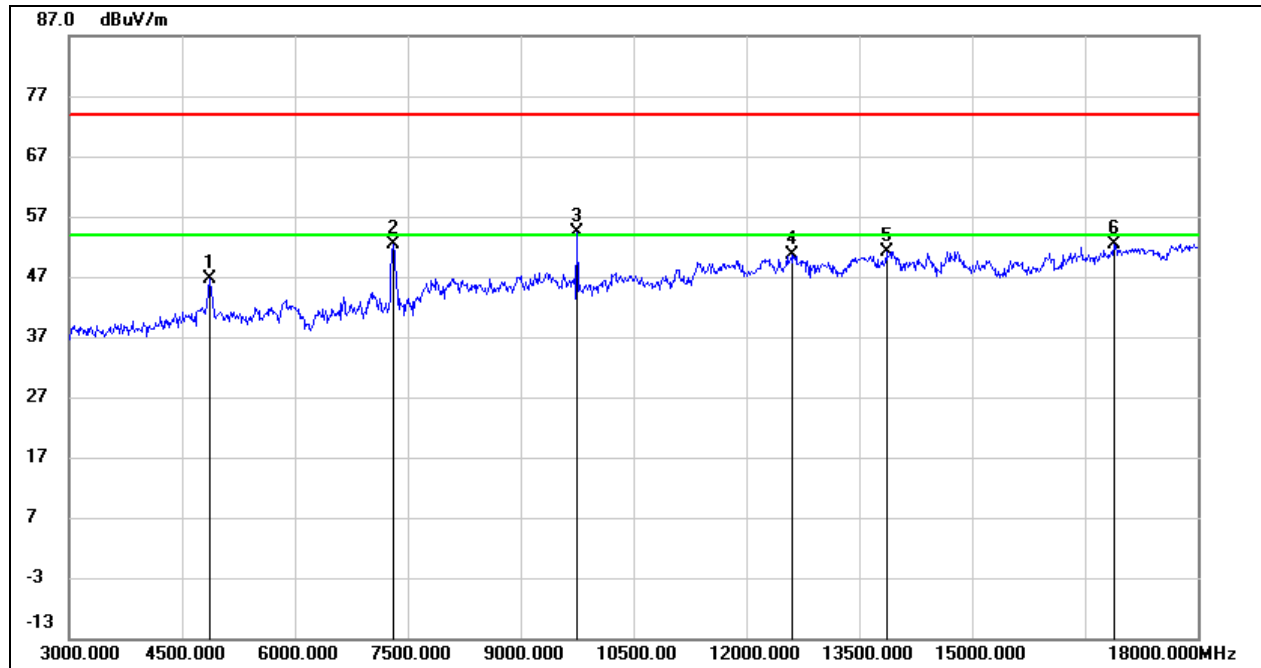
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	45.72	1.32	47.04	74.00	-26.96	peak
2	7305.000	45.08	7.14	52.22	74.00	-21.78	peak
3*	9750.000	44.71	10.29	55.00	/	/	peak
4	12585.000	35.00	15.77	50.77	74.00	-23.23	peak
5	13920.000	33.67	17.55	51.22	74.00	-22.78	peak
6	17655.000	29.32	23.14	52.46	74.00	-21.54	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.
6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247 (d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	45.29	1.33	46.62	74.00	-27.38	peak
2	7305.000	45.12	7.14	52.26	74.00	-21.74	peak
3*	9750.000	44.18	10.29	54.47	/	/	peak
4	12600.000	34.74	15.78	50.52	74.00	-23.48	peak
5	13860.000	33.65	17.55	51.20	74.00	-22.80	peak
6	16890.000	30.80	21.49	52.29	74.00	-21.71	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.

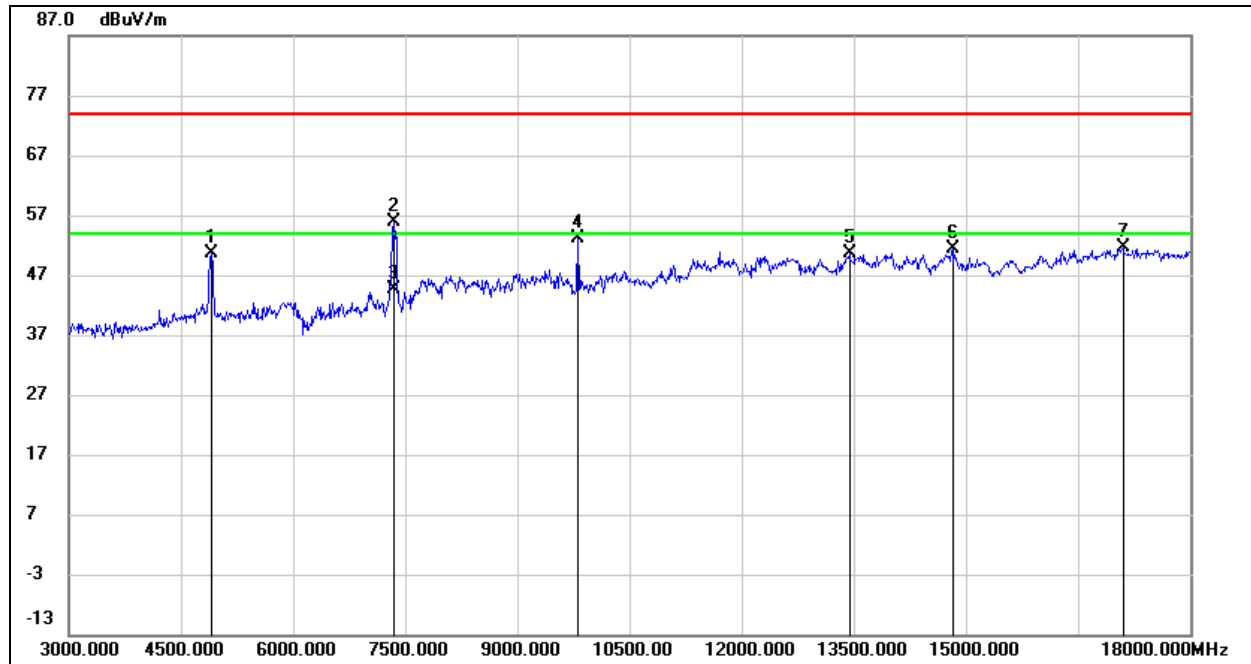
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4905.000	49.41	1.33	50.74	74.00	-23.26	peak
2	7350.000	48.38	7.53	55.91	74.00	-18.09	peak
3	7350.000	37.07	7.53	44.60	54.00	-9.40	AVG
4	9810.000	42.91	10.17	53.08	74.00	-20.92	peak
5	13440.000	33.41	17.10	50.51	74.00	-23.49	peak
6	14820.000	33.37	17.91	51.28	74.00	-22.72	peak
7	17100.000	29.76	21.90	51.66	74.00	-22.34	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.

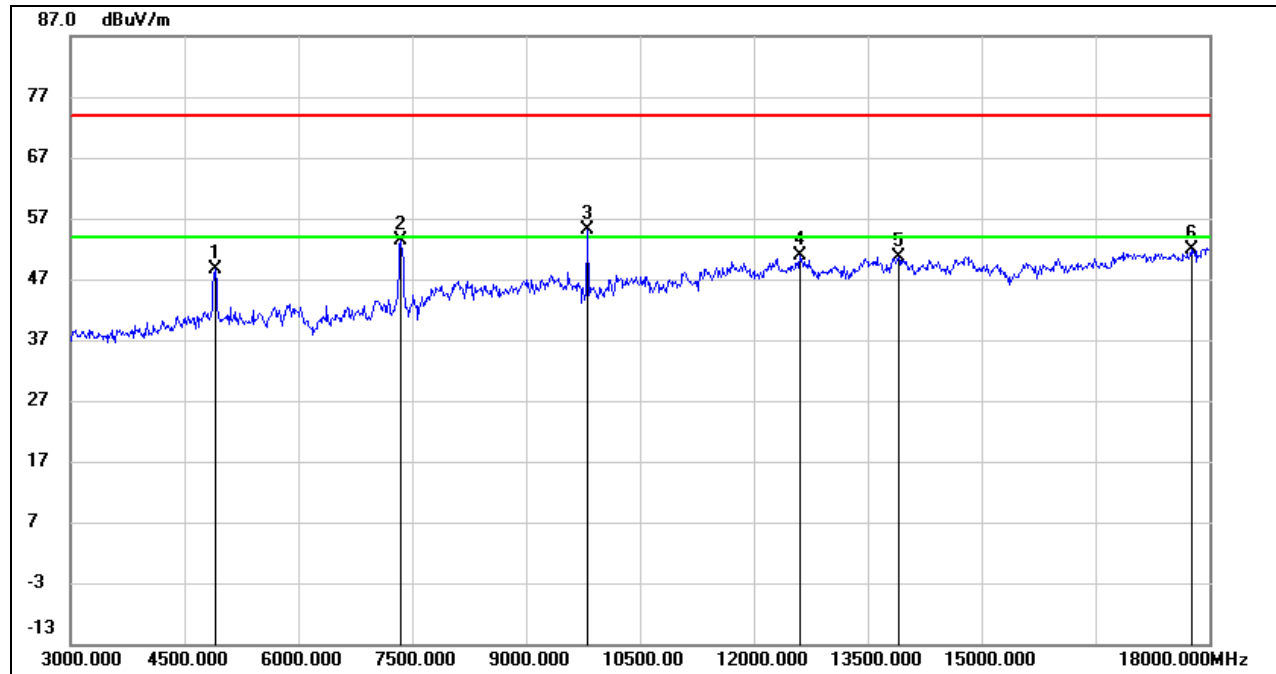
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

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	47.37	1.33	48.70	74.00	-25.30	peak
2	7350.000	45.78	7.53	53.31	74.00	-20.69	peak
3*	9810.000	44.91	10.17	55.08	/	/	peak
4	12600.000	35.12	15.78	50.90	74.00	-23.10	peak
5	13905.000	33.10	17.54	50.64	74.00	-23.36	peak
6	17760.000	28.12	23.82	51.94	74.00	-22.06	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.

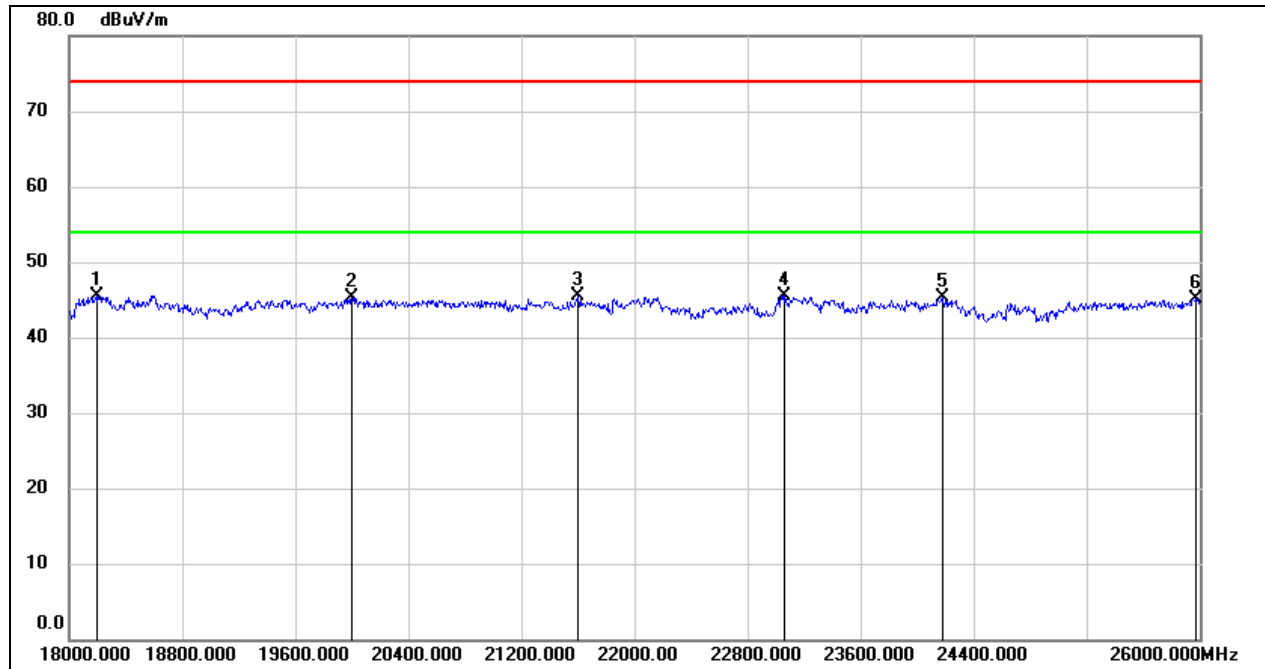
6. *-indicates frequency is out of the restricted bands and the limit is referring to 15.247

(d). We had already performed the conducted non-restricted bands test, please refer to clause 7.5.

8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.4.1. 802.11b MODE

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



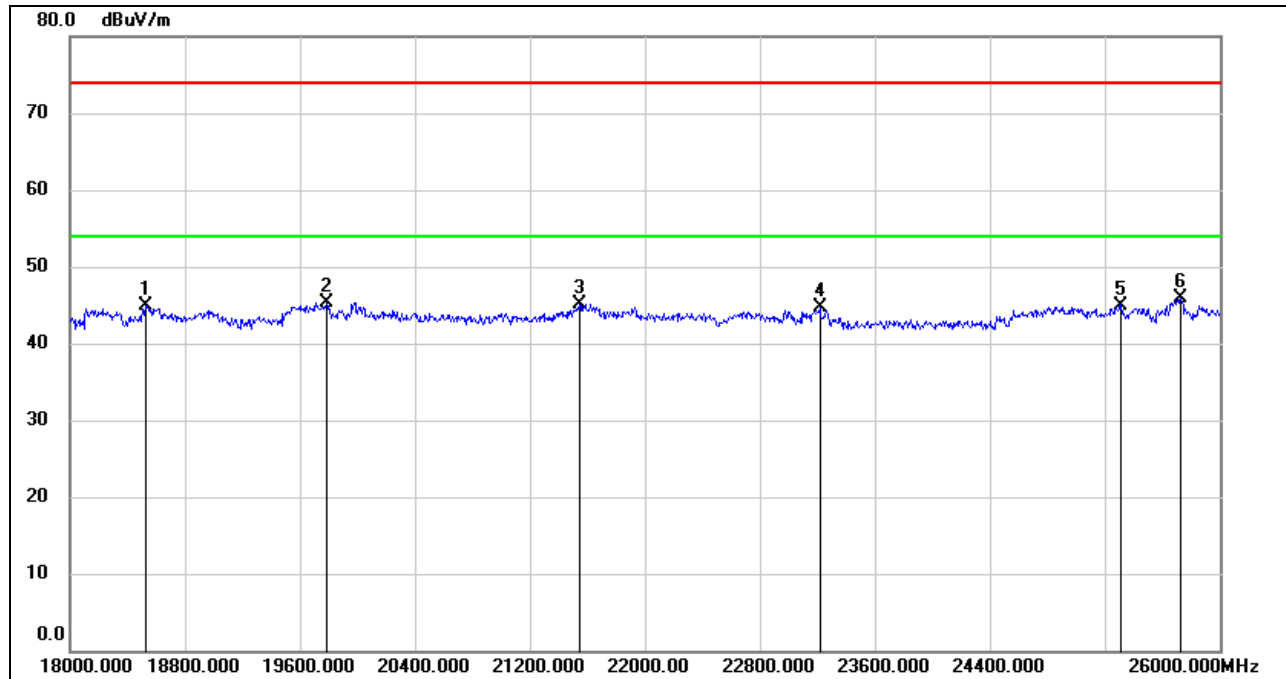
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18192.000	50.98	-5.51	45.47	74.00	-28.53	peak
2	20000.000	50.81	-5.45	45.36	74.00	-28.64	peak
3	21600.000	50.02	-4.54	45.48	74.00	-28.52	peak
4	23064.000	48.99	-3.42	45.57	74.00	-28.43	peak
5	24176.000	48.19	-2.80	45.39	74.00	-28.61	peak
6	25968.000	46.13	-1.00	45.13	74.00	-28.87	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.

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	18528.000	50.11	-5.26	44.85	74.00	-29.15	peak
2	19784.000	50.57	-5.28	45.29	74.00	-28.71	peak
3	21544.000	49.76	-4.63	45.13	74.00	-28.87	peak
4	23216.000	48.01	-3.38	44.63	74.00	-29.37	peak
5	25312.000	46.70	-1.70	45.00	74.00	-29.00	peak
6	25728.000	46.61	-0.72	45.89	74.00	-28.11	peak

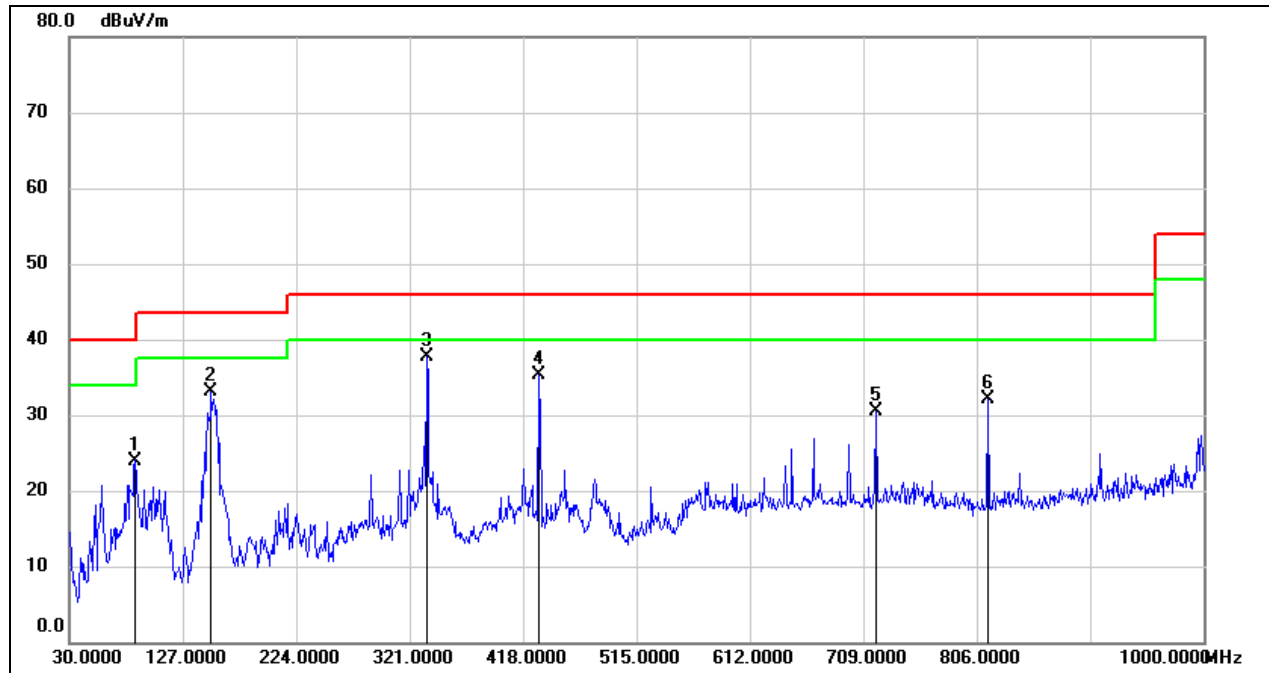
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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

8.5. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

8.5.1. 802.11b MODE

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

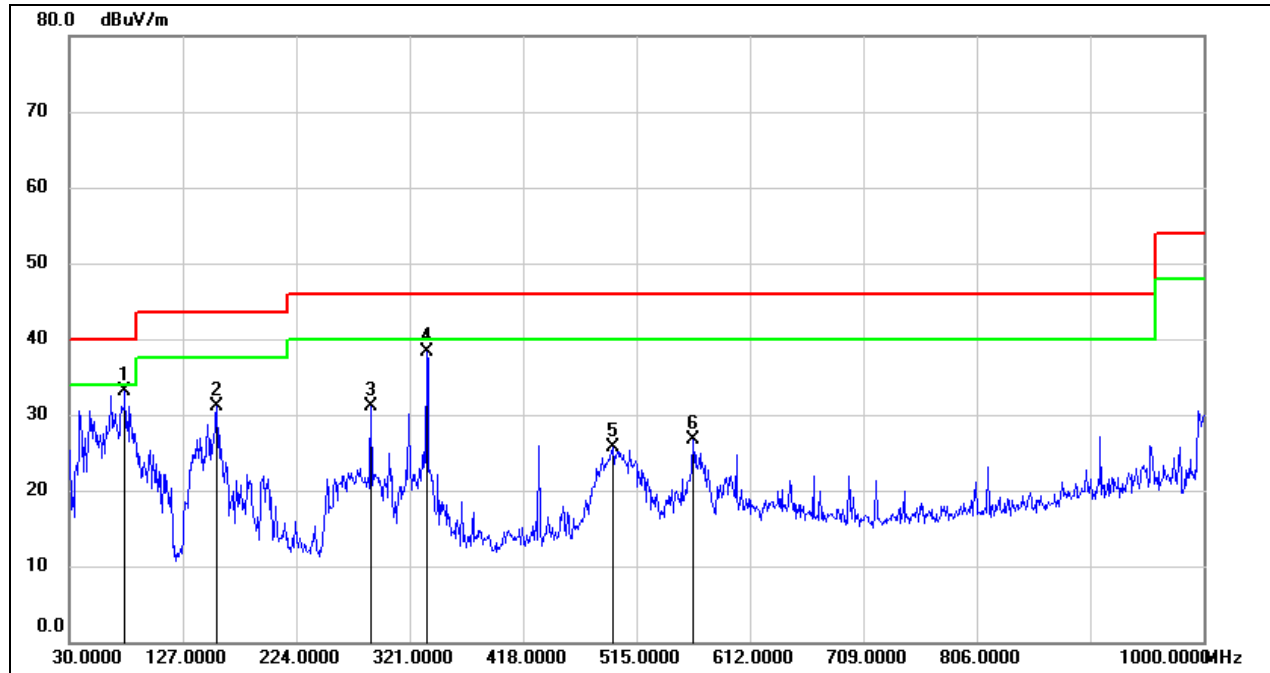


Note: 1. Result Level = Read Level + Correct Factor.

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	54.26	-21.14	33.12	40.00	-6.88	QP
2	156.1000	49.16	-17.96	31.20	43.50	-12.30	QP
3	288.0200	47.17	-16.06	31.11	46.00	-14.89	QP
4	335.5500	52.84	-14.54	38.30	46.00	-7.70	QP
5	494.6300	37.35	-11.59	25.76	46.00	-20.24	QP
6	563.5000	36.96	-10.23	26.73	46.00	-19.27	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

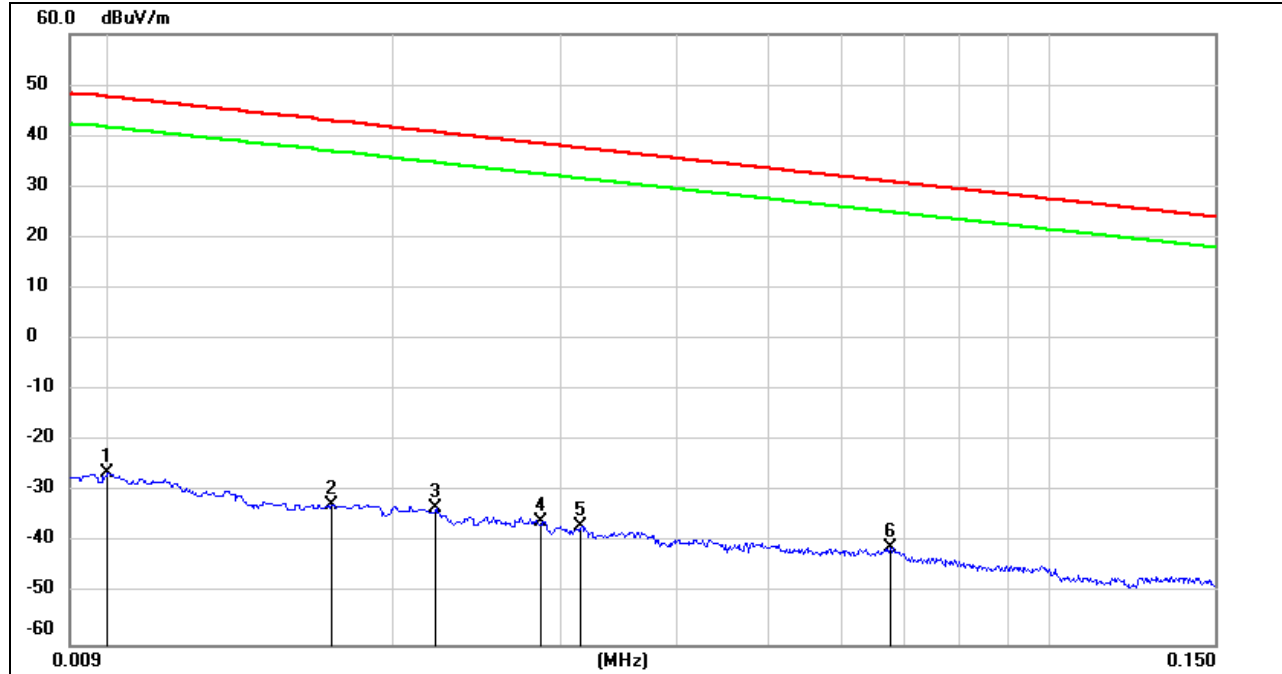
Note: All the modes and channels have been tested, but only the worst data was recorded in the report.

8.6. SPURIOUS EMISSIONS BELOW 30 MHz

8.6.1. 802.11b MODE

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

9 kHz~ 150 kHz



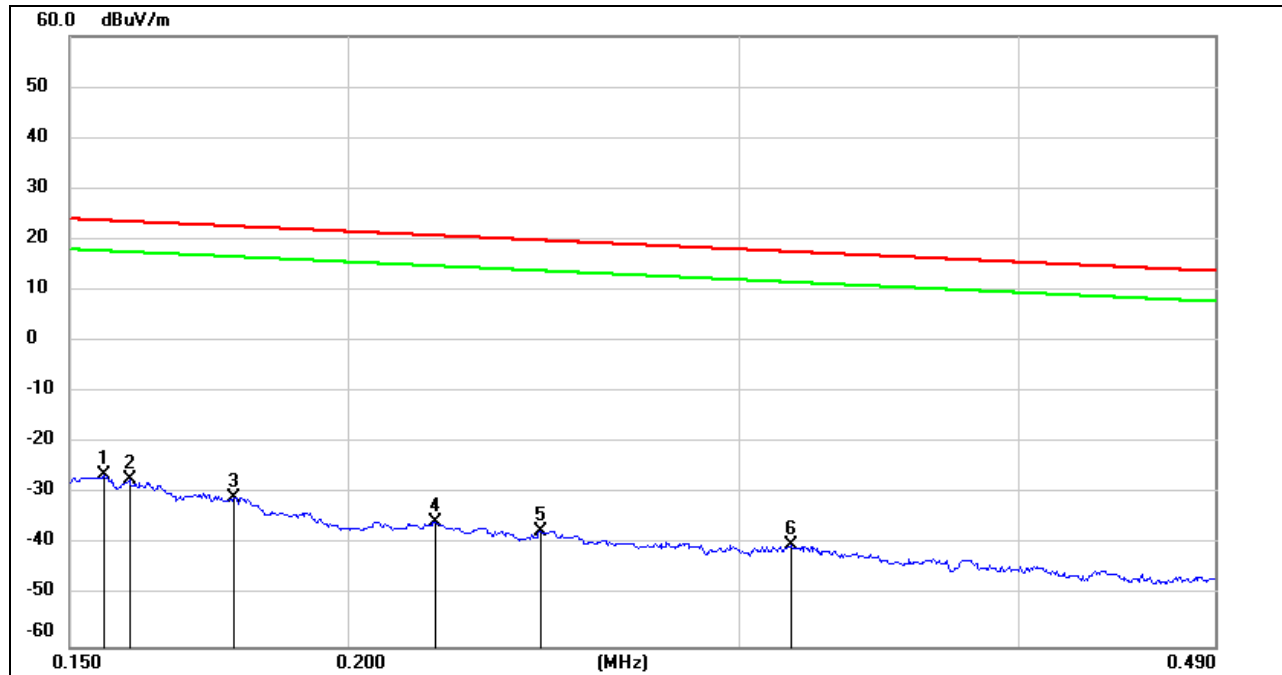
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	75.22	-101.40	-26.18	47.60	-73.78	peak
2	0.0171	68.88	-101.36	-32.48	42.94	-75.42	peak
3	0.0221	68.13	-101.35	-33.22	40.71	-73.93	peak
4	0.0286	65.46	-101.38	-35.92	38.47	-74.39	peak
5	0.0316	64.74	-101.40	-36.66	37.61	-74.27	peak
6	0.0675	60.64	-101.56	-40.92	31.02	-71.94	peak

Note: 1. Measurement = Reading Level + Correct Factor

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

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

150 kHz ~ 490 kHz



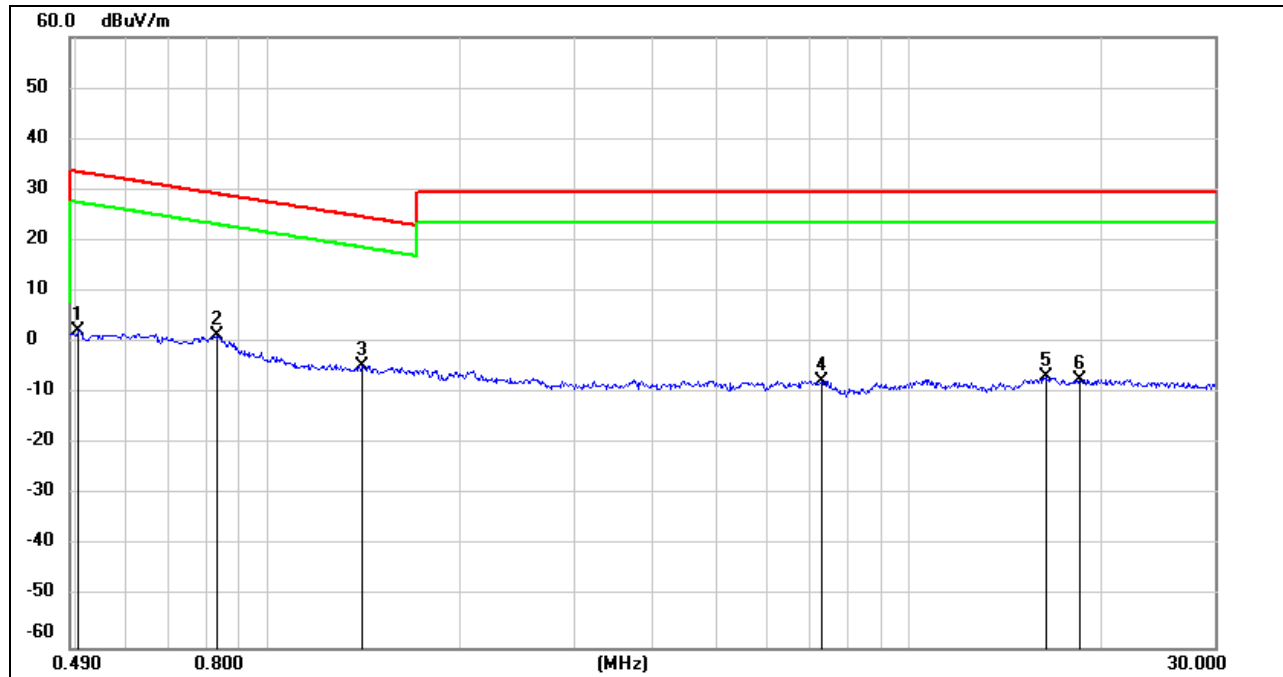
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1554	75.27	-101.65	-26.38	23.77	-50.15	peak
2	0.1595	74.36	-101.65	-27.29	23.55	-50.84	peak
3	0.1776	70.95	-101.68	-30.73	22.62	-53.35	peak
4	0.2190	66.27	-101.75	-35.48	20.79	-56.27	peak
5	0.2442	64.53	-101.79	-37.26	19.85	-57.11	peak
6	0.3163	61.70	-101.87	-40.17	17.60	-57.77	peak

Note: 1. Measurement = Reading Level + Correct Factor

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

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

490 kHz ~ 30 MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5039	64.44	-62.07	2.37	33.56	-31.19	peak
2	0.8296	63.44	-62.17	1.27	29.23	-27.96	peak
3	1.4048	57.40	-62.09	-4.69	24.65	-29.34	peak
4	7.3361	53.58	-61.17	-7.59	29.54	-37.13	peak
5	16.3959	54.17	-60.96	-6.79	29.54	-36.33	peak
6	18.4908	53.56	-60.89	-7.33	29.54	-36.87	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 had been tested, but only the worst data was recorded in the report.

9. AC POWER LINE CONDUCTED EMISSIONS

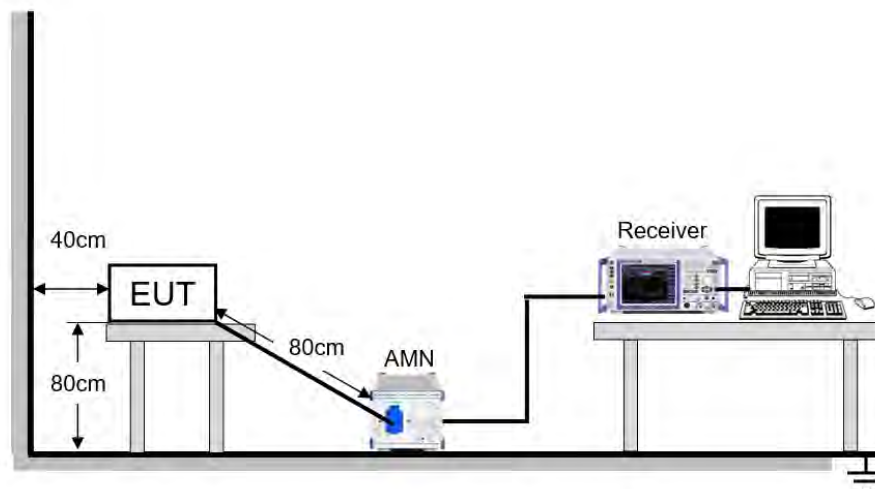
LIMITS

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. 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.

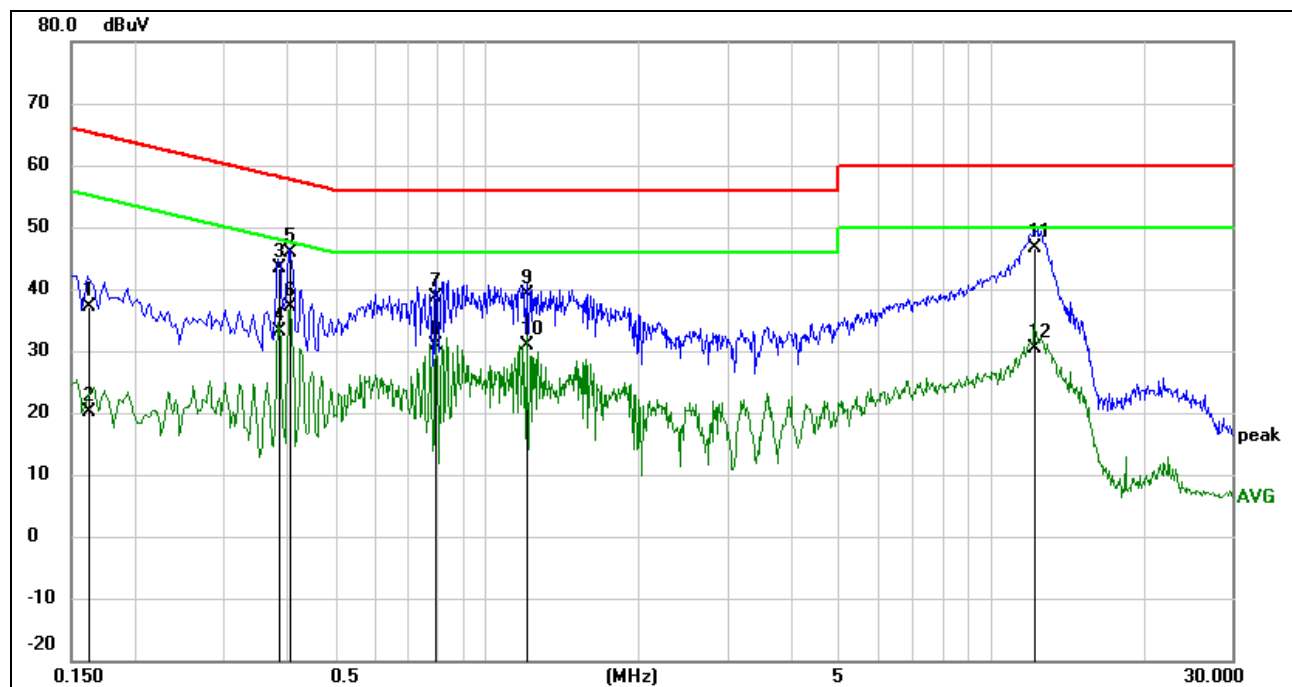
**TEST ENVIRONMENT**

Temperature	21.6 °C	Relative Humidity	59.5 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz

RESULTS

9.1. 802.11b SISO MODE

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1626	27.49	9.59	37.08	65.33	-28.25	QP
2	0.1626	10.52	9.59	20.11	55.33	-35.22	AVG
3	0.3876	33.70	9.59	43.29	58.11	-14.82	QP
4	0.3876	23.46	9.59	33.05	48.11	-15.06	AVG
5	0.4077	36.17	9.60	45.77	57.70	-11.93	QP
6	0.4077	27.57	9.60	37.17	47.70	-10.53	AVG
7	0.7934	29.04	9.60	38.64	56.00	-17.36	QP
8	0.7934	21.31	9.60	30.91	46.00	-15.09	AVG
9	1.2020	29.54	9.61	39.15	56.00	-16.85	QP
10	1.2020	21.33	9.61	30.94	46.00	-15.06	AVG
11	12.2680	36.98	9.66	46.64	60.00	-13.36	QP
12	12.2680	20.66	9.66	30.32	50.00	-19.68	AVG

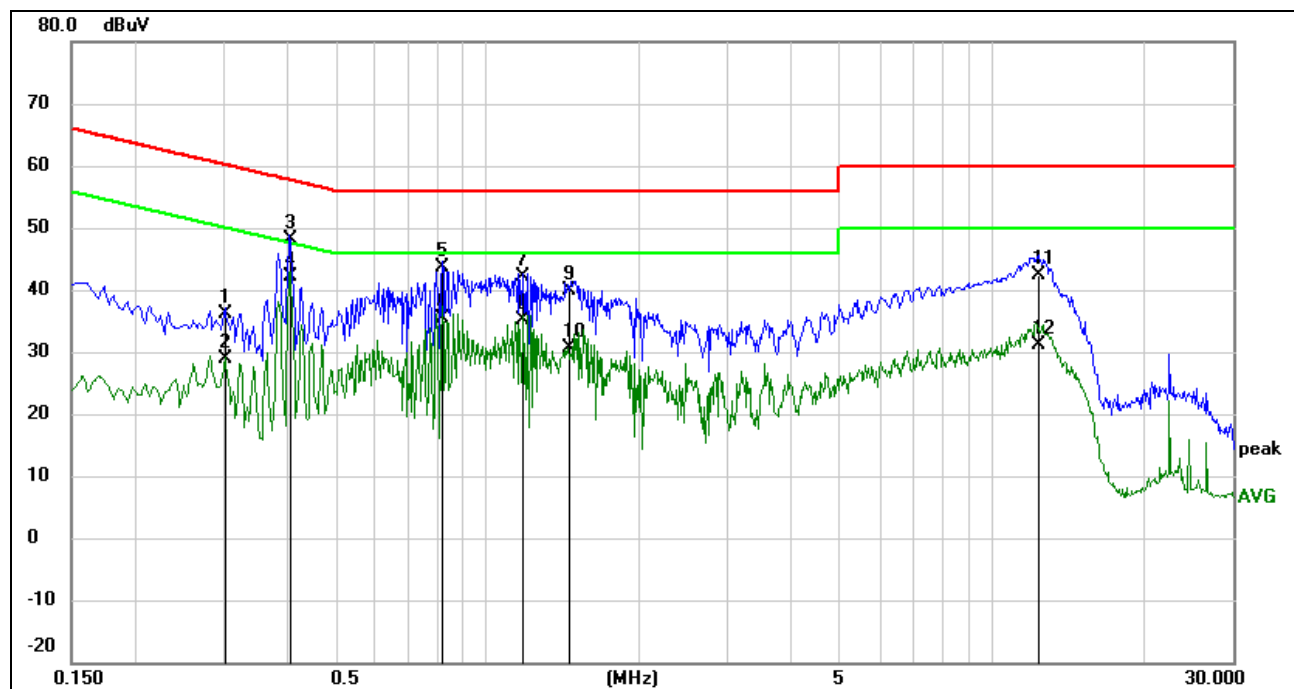
Note: 1. Result = Reading + Correct Factor.

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

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

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3030	26.50	9.59	36.09	60.16	-24.07	QP
2	0.3030	19.22	9.59	28.81	50.16	-21.35	AVG
3	0.4069	38.63	9.60	48.23	57.71	-9.48	QP
4	0.4069	32.56	9.60	42.16	47.71	-5.55	AVG
5	0.8152	34.10	9.60	43.70	56.00	-12.30	QP
6	0.8152	25.79	9.60	35.39	46.00	-10.61	AVG
7	1.1806	32.46	9.61	42.07	56.00	-13.93	QP
8	1.1806	25.57	9.61	35.18	46.00	-10.82	AVG
9	1.4619	30.22	9.62	39.84	56.00	-16.16	QP
10	1.4619	20.98	9.62	30.60	46.00	-15.40	AVG
11	12.3774	32.73	9.66	42.39	60.00	-17.61	QP
12	12.3774	21.40	9.66	31.06	50.00	-18.94	AVG

Note: 1. Result = Reading +Correct Factor.

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

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

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

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



10. 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

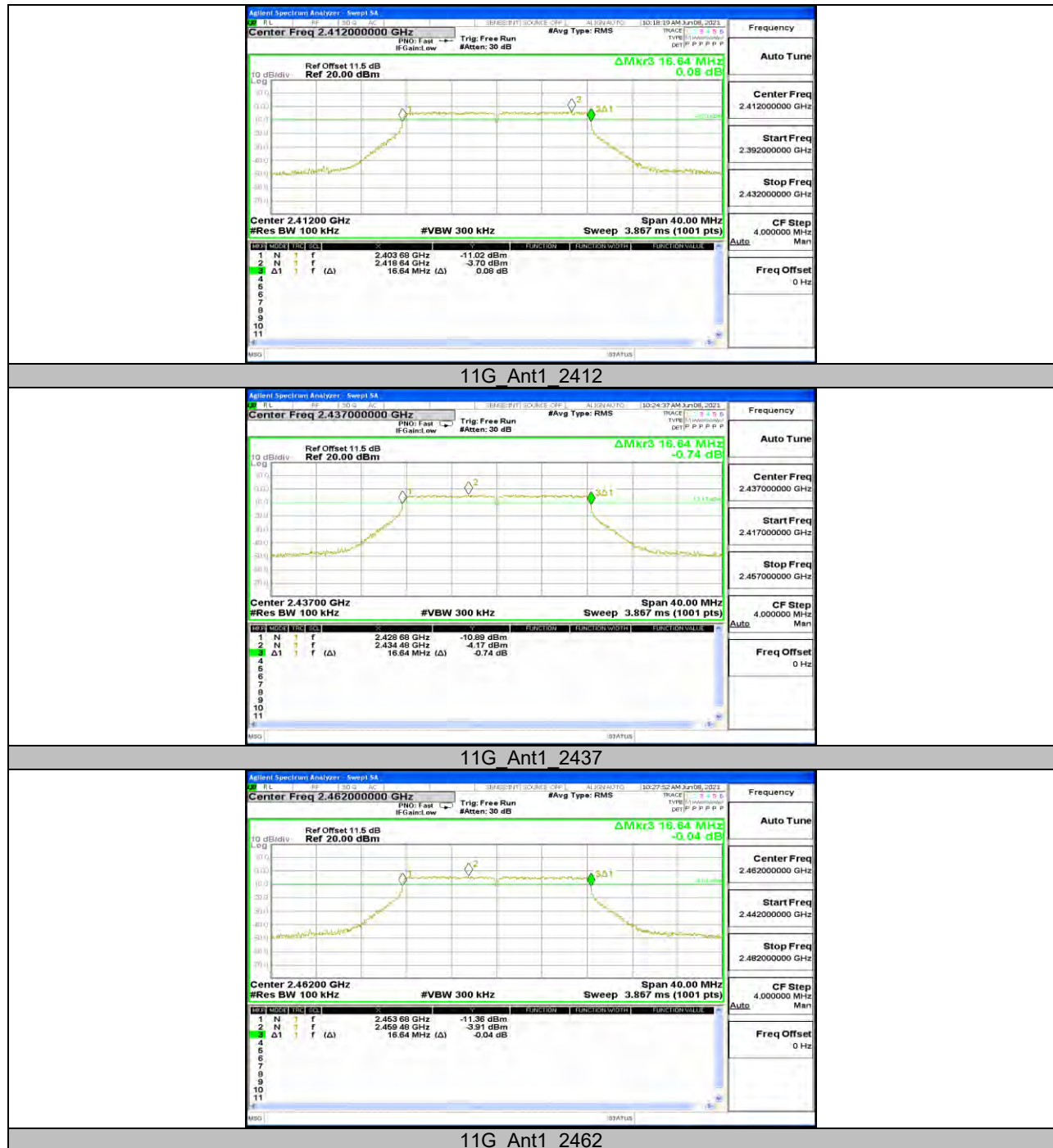
11.1. Appendix A: DTS Bandwidth

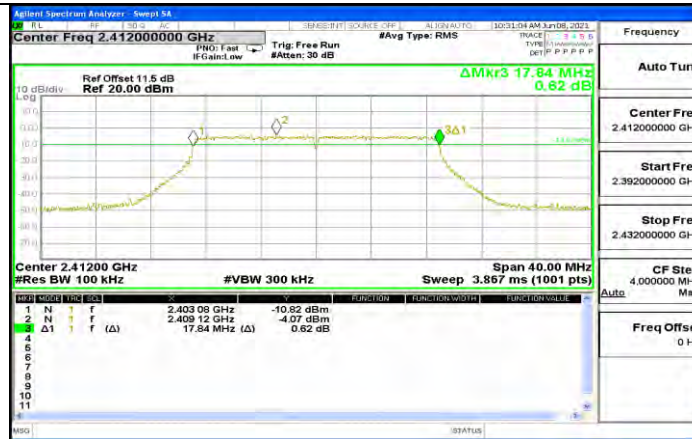
11.1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.120	2407.440	2416.560	0.5	PASS
		2437	9.120	2432.440	2441.560	0.5	PASS
		2462	9.120	2457.440	2466.560	0.5	PASS
11G	Ant1	2412	16.640	2403.680	2420.320	0.5	PASS
		2437	16.640	2428.680	2445.320	0.5	PASS
		2462	16.640	2453.680	2470.320	0.5	PASS
11N20SISO	Ant1	2412	17.840	2403.080	2420.920	0.5	PASS
		2437	17.840	2428.080	2445.920	0.5	PASS
		2462	17.840	2453.080	2470.920	0.5	PASS
11N40SISO	Ant1	2422	36.640	2403.680	2440.320	0.5	PASS
		2437	36.640	2418.680	2455.320	0.5	PASS
		2452	36.640	2433.680	2470.320	0.5	PASS

11.1.2. Test Graphs



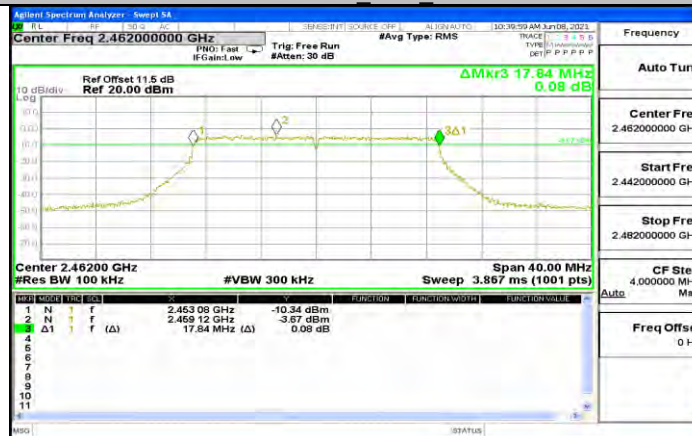




11N20SISO Ant1 2412



11N20SISO Ant1 2437



11N20SISO Ant1 2462



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

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant1	2412	13.308	2405.369	2418.677	PASS
		2437	13.319	2430.364	2443.683	PASS
		2462	13.298	2455.345	2468.643	PASS
11G	Ant1	2412	17.146	2403.288	2420.434	PASS
		2437	17.121	2428.299	2445.420	PASS
		2462	17.164	2453.252	2470.416	PASS
11N20SISO	Ant1	2412	18.046	2402.950	2420.996	PASS
		2437	18.053	2427.935	2445.988	PASS
		2462	18.047	2452.916	2470.963	PASS
11N40SISO	Ant1	2422	36.509	2403.823	2440.332	PASS
		2437	36.460	2418.825	2455.285	PASS
		2452	36.463	2433.795	2470.260	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	14.49	<=30	PASS
		2437	13.24	<=30	PASS
		2462	13.68	<=30	PASS
11G	Ant1	2412	10.48	<=30	PASS
		2437	10.15	<=30	PASS
		2462	10.35	<=30	PASS
11N20SISO	Ant1	2412	10.07	<=30	PASS
		2437	9.89	<=30	PASS
		2462	10.19	<=30	PASS
11N40SISO	Ant1	2422	10.25	<=30	PASS
		2437	9.89	<=30	PASS
		2452	10.32	<=30	PASS

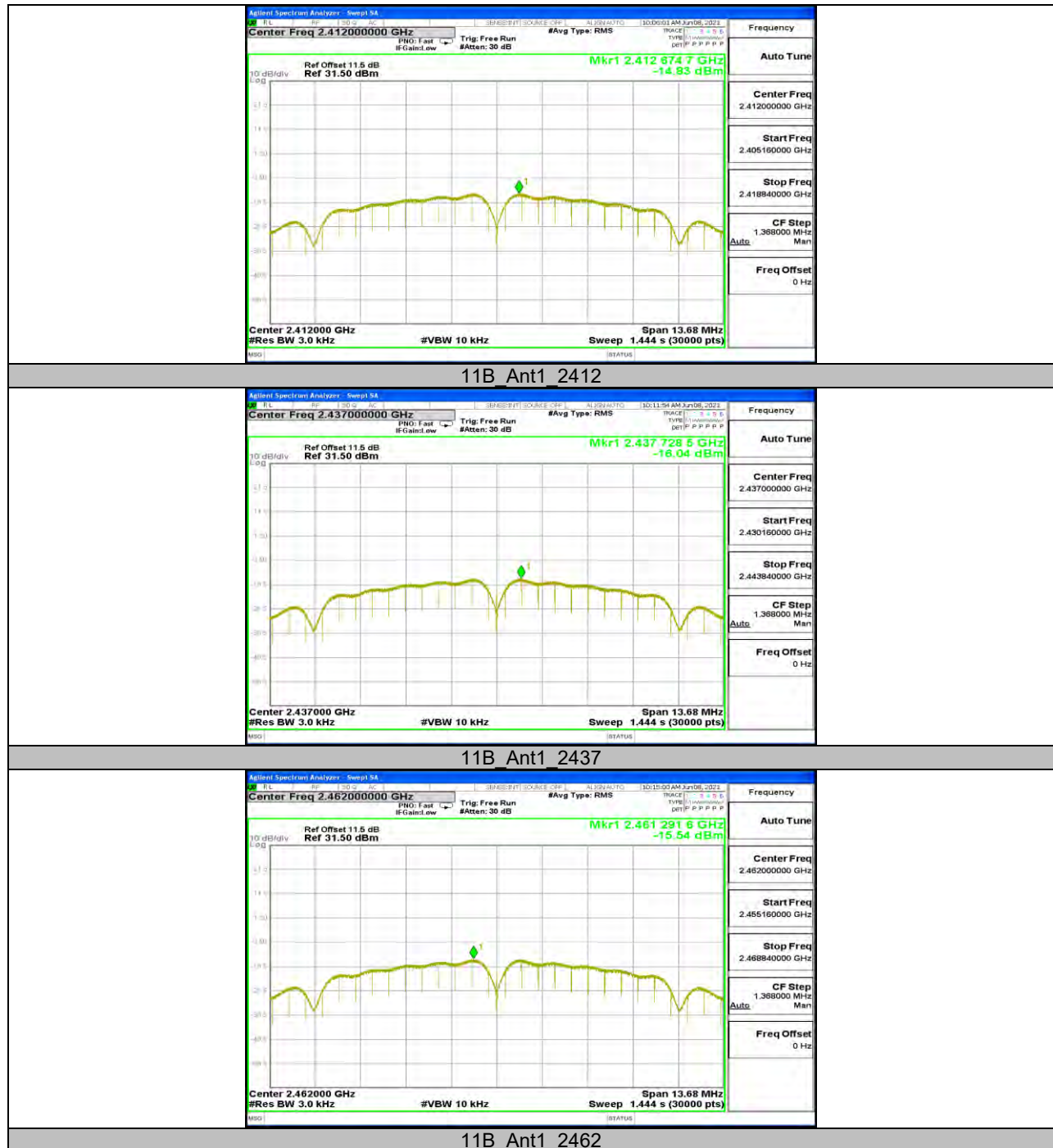
Note: 1. Conducted Power=Meas. Level+ Correction Factor

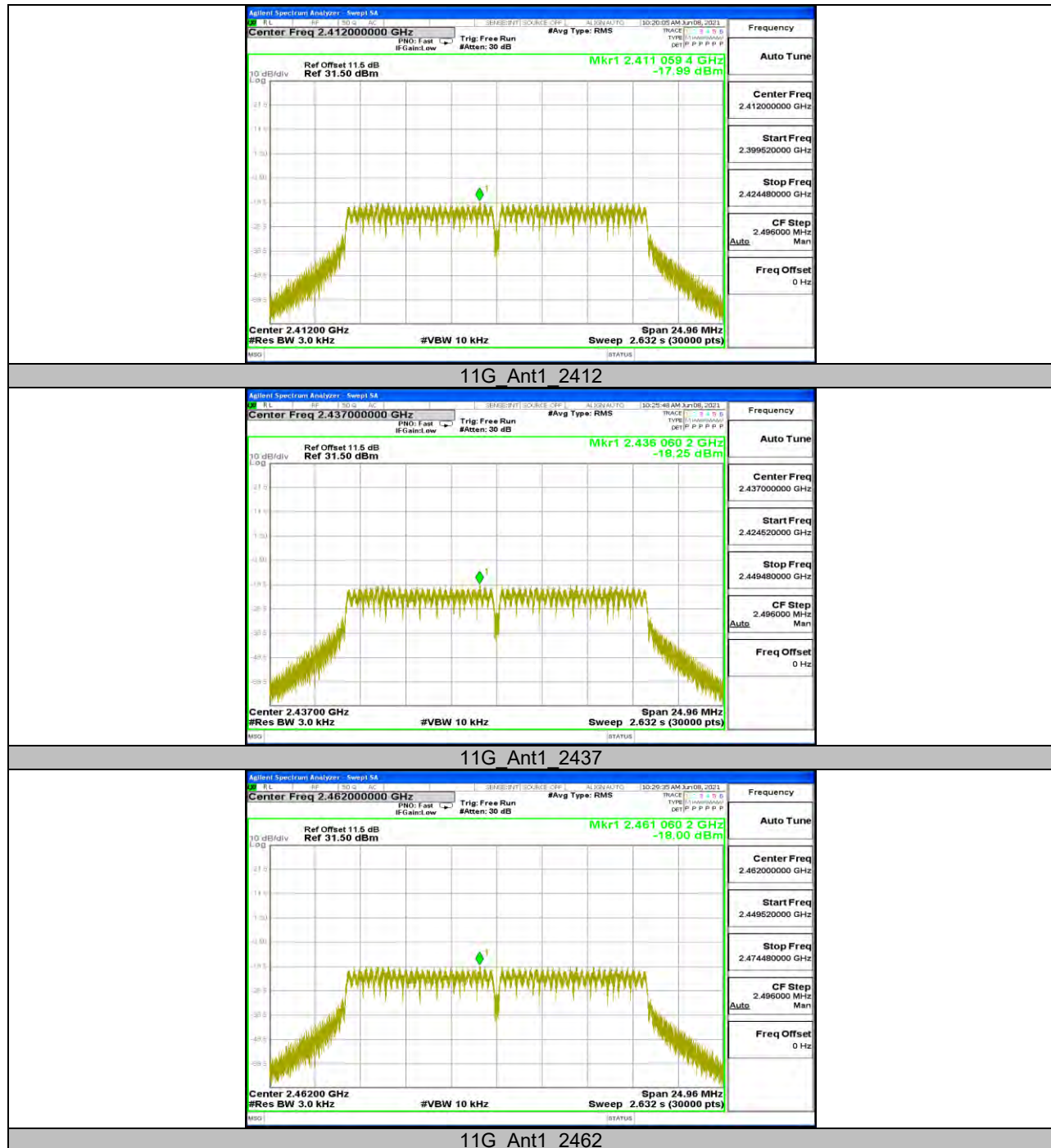
2. The Duty Cycle Factor (refer to section 7.1) had already compensated to the test data.

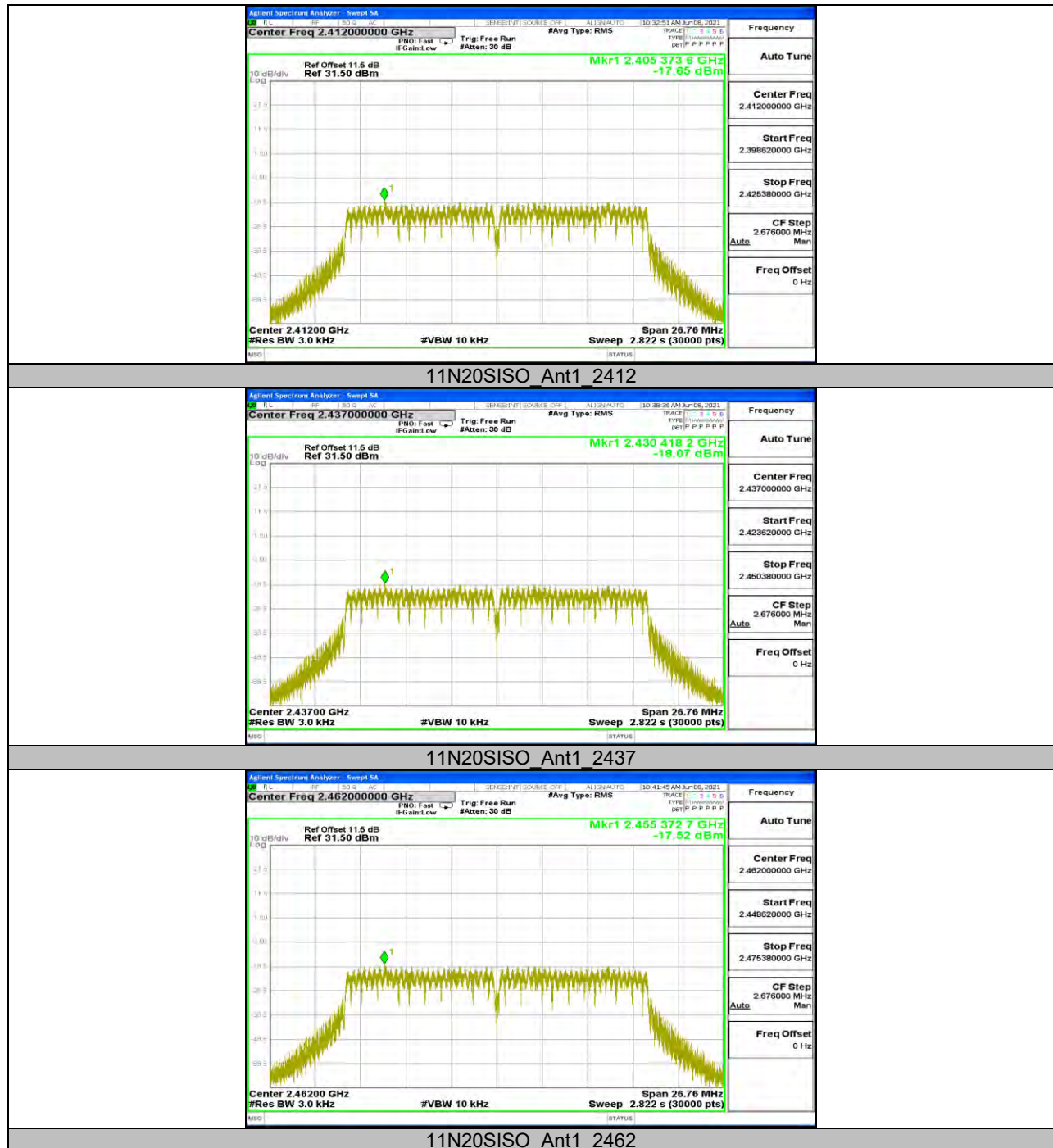
**11.4. Appendix D: Maximum power spectral density****11.4.1. Test Result**

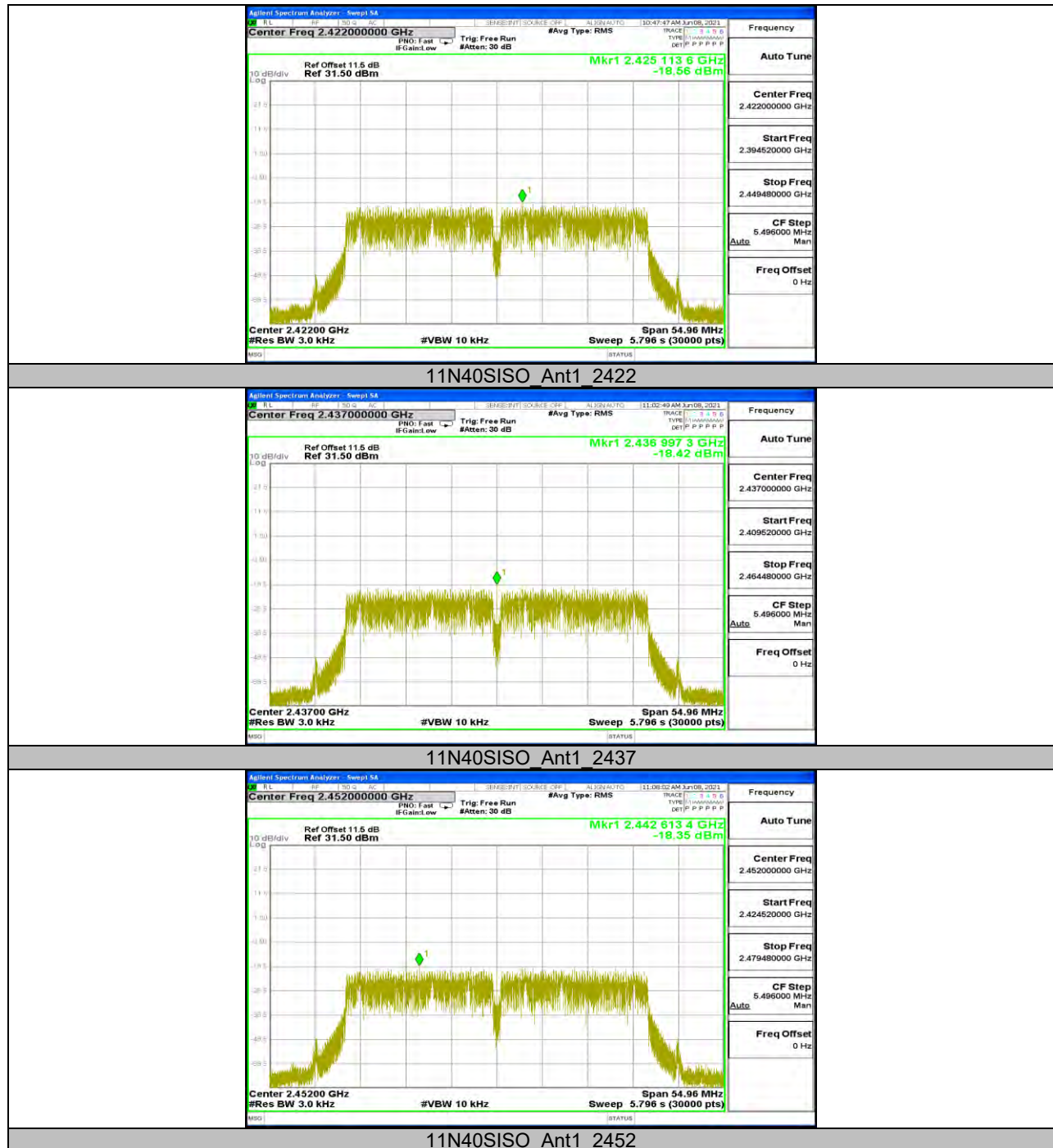
Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-14.83	<=8	PASS
		2437	-16.04	<=8	PASS
		2462	-15.54	<=8	PASS
11G	Ant1	2412	-17.99	<=8	PASS
		2437	-18.25	<=8	PASS
		2462	-18.00	<=8	PASS
11N20SISO	Ant1	2412	-17.65	<=8	PASS
		2437	-18.07	<=8	PASS
		2462	-17.52	<=8	PASS
11N40SISO	Ant1	2422	-18.56	<=8	PASS
		2437	-18.42	<=8	PASS
		2452	-18.35	<=8	PASS

11.4.2. Test Graphs









**11.5. Appendix E: Band edge measurements****11.5.1. Test Result**

Test Mode	Antenna	Ch Name	Channel	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.15	-45.13	<=-24.85	PASS
		High	2462	4.42	-46.87	<=-25.58	PASS
11G	Ant1	Low	2412	-4.03	-40.43	<=-34.03	PASS
		High	2462	-4.02	-46.49	<=-34.02	PASS
11N20SISO	Ant1	Low	2412	-4.19	-40.11	<=-34.19	PASS
		High	2462	-3.80	-46.52	<=-33.8	PASS
11N40SISO	Ant1	Low	2422	-5.74	-39.52	<=-35.74	PASS
		High	2452	-5.68	-45.43	<=-35.68	PASS



11.5.2. Test Graphs





11G Ant1 High 2462



11N20SISO Ant1 Low 2412



11N20SISO Ant1 High 2462



11N40SISO Ant1 Low 2422



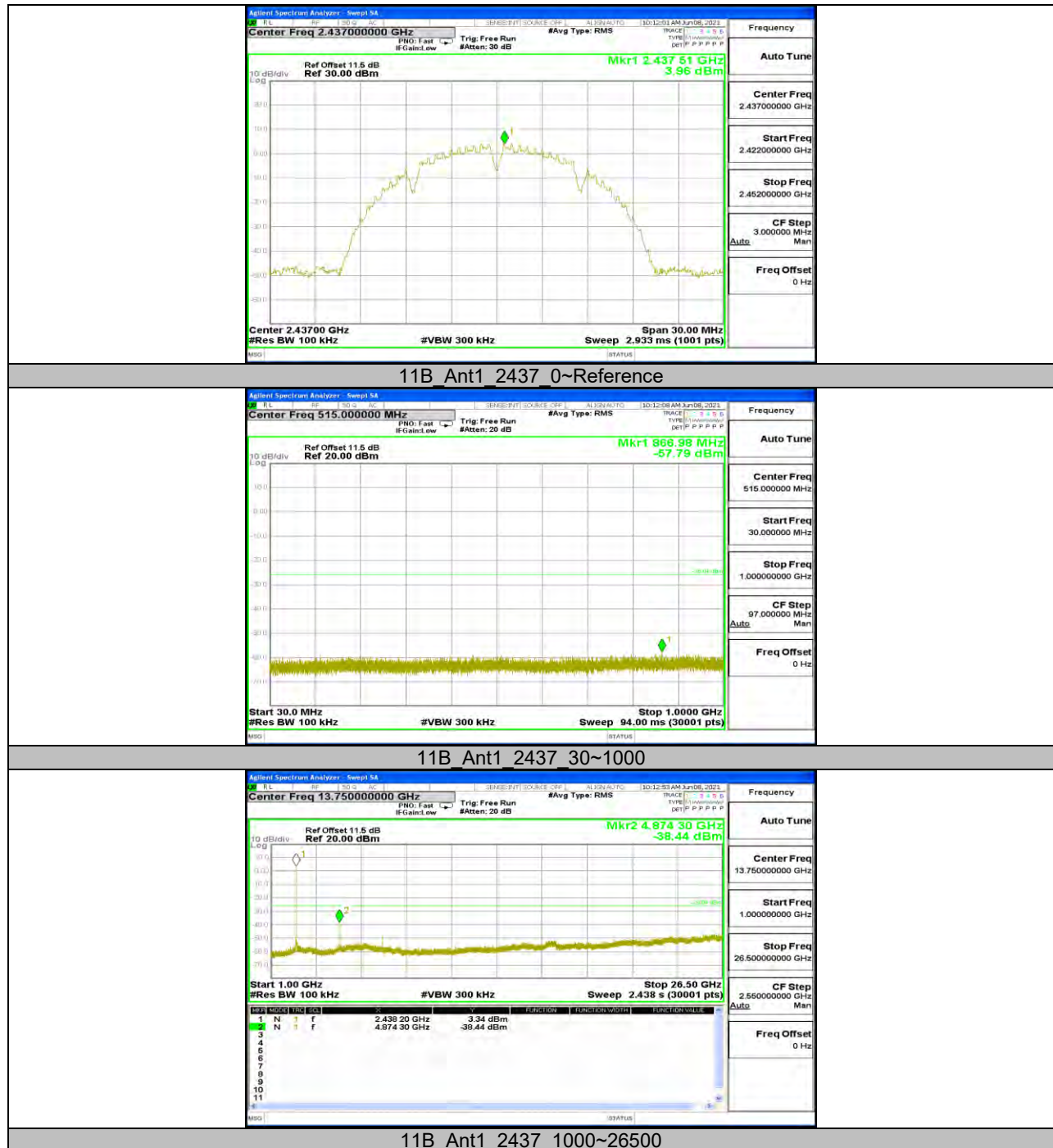
11N40SISO Ant1 High 2452

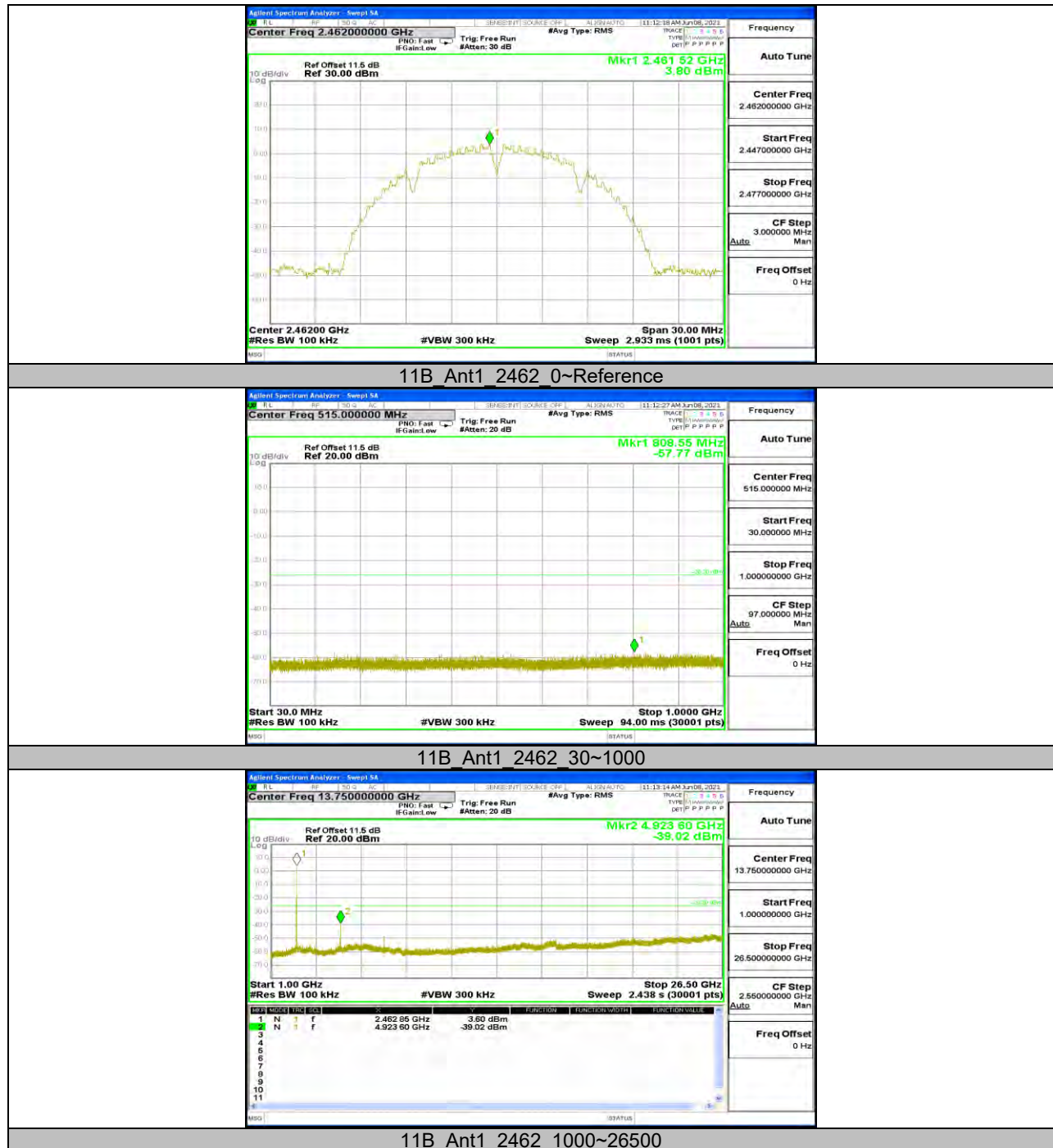
**11.6. Appendix F: Conducted Spurious Emission****11.6.1. Test Result**

Test Mode	Antenna	Channel	FreqRange [Mhz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	5.11	---	PASS
			30~1000	-57.29	<=-24.89	PASS
			1000~26500	-35.66	<=-24.89	PASS
		2437	Reference	3.96	---	PASS
			30~1000	-57.79	<=-26.04	PASS
			1000~26500	-38.44	<=-26.04	PASS
		2462	Reference	3.80	---	PASS
			30~1000	-57.77	<=-26.2	PASS
			1000~26500	-39.02	<=-26.2	PASS
11G	Ant1	2412	Reference	-4.02	---	PASS
			30~1000	-56.93	<=-34.02	PASS
			1000~26500	-46.48	<=-34.02	PASS
		2437	Reference	-4.41	---	PASS
			30~1000	-57.87	<=-34.41	PASS
			1000~26500	-46.93	<=-34.41	PASS
		2462	Reference	-4.09	---	PASS
			30~1000	-58.22	<=-34.09	PASS
			1000~26500	-46.4	<=-34.09	PASS
11N20SISO	Ant1	2412	Reference	-4.07	---	PASS
			30~1000	-57.53	<=-34.07	PASS
			1000~26500	-46.11	<=-34.07	PASS
		2437	Reference	-4.39	---	PASS
			30~1000	-57.26	<=-34.39	PASS
			1000~26500	-45.65	<=-34.39	PASS
		2462	Reference	-3.70	---	PASS
			30~1000	-58.2	<=-33.7	PASS
			1000~26500	-46.7	<=-33.7	PASS
11N40SISO	Ant1	2422	Reference	-5.84	---	PASS
			30~1000	-55.98	<=-35.85	PASS
			1000~26500	-45.96	<=-35.85	PASS
		2437	Reference	-5.90	---	PASS
			30~1000	-56.09	<=-35.9	PASS
			1000~26500	-46.66	<=-35.9	PASS
		2452	Reference	-5.42	---	PASS
			30~1000	-56.45	<=-35.42	PASS
			1000~26500	-46.13	<=-35.42	PASS

11.6.2. Test Graphs

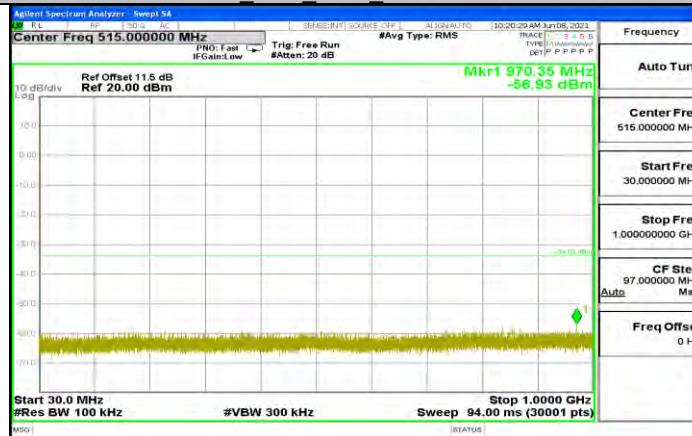




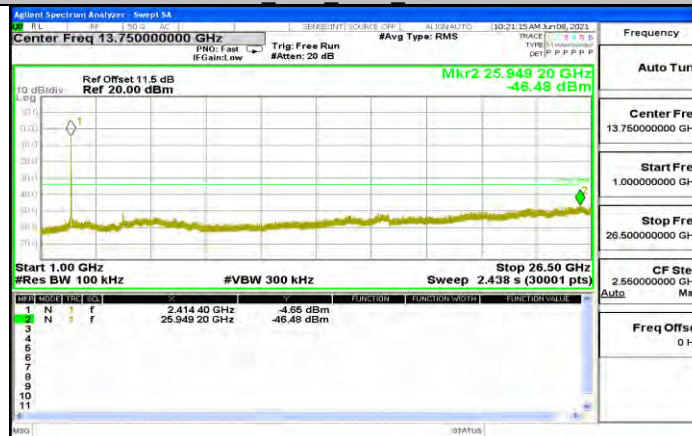




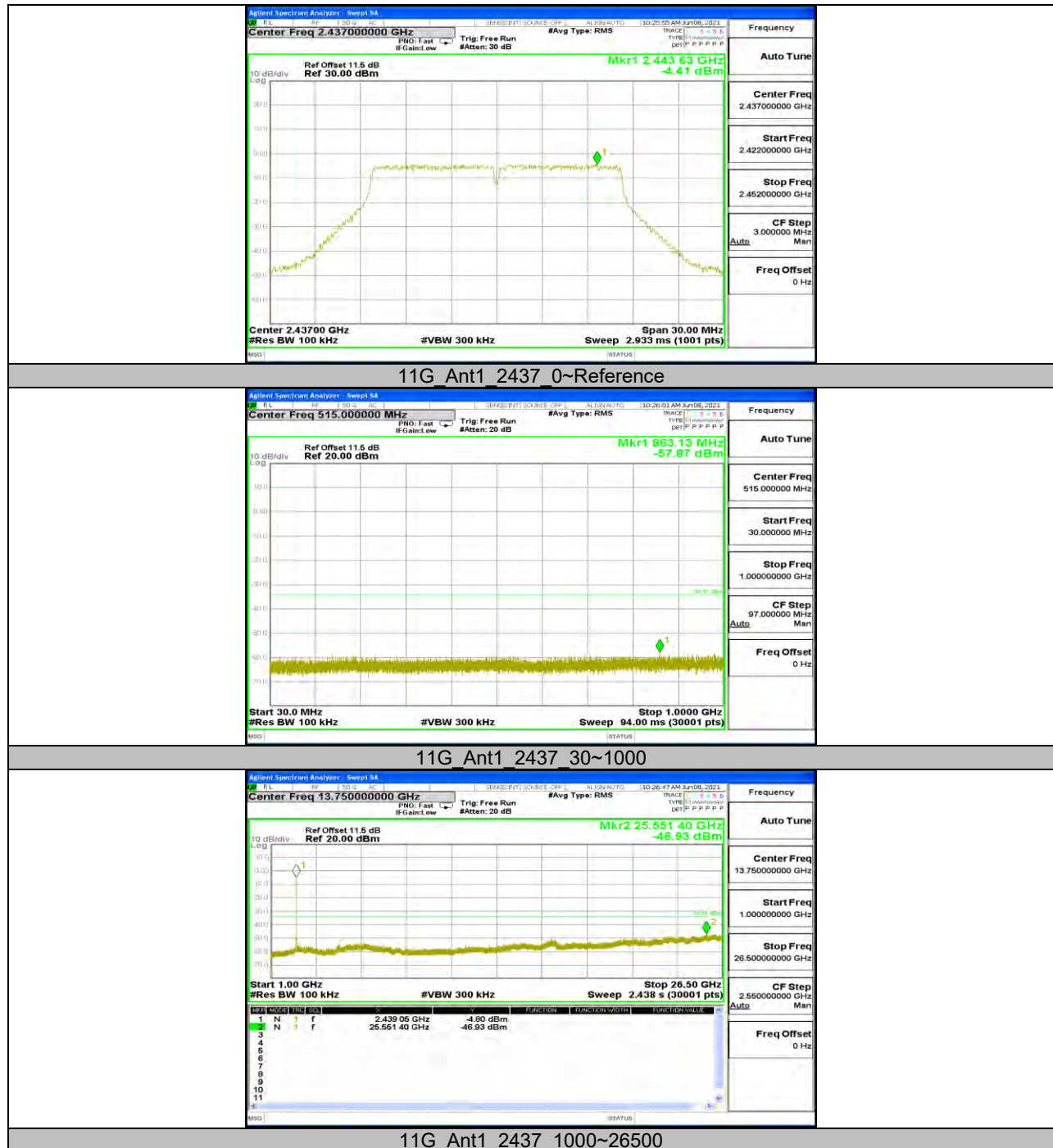
11G Ant1_2412_0~Reference

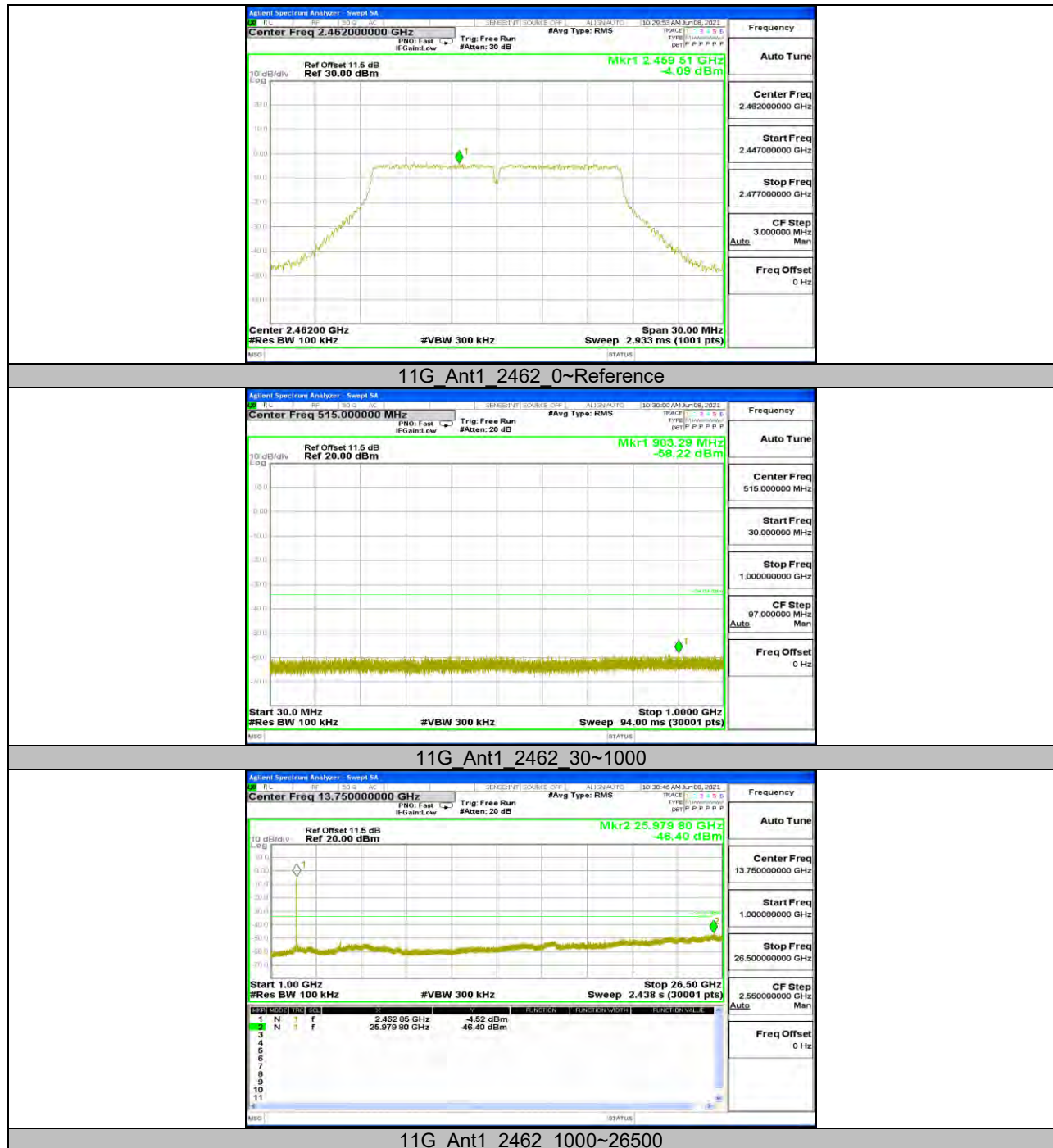


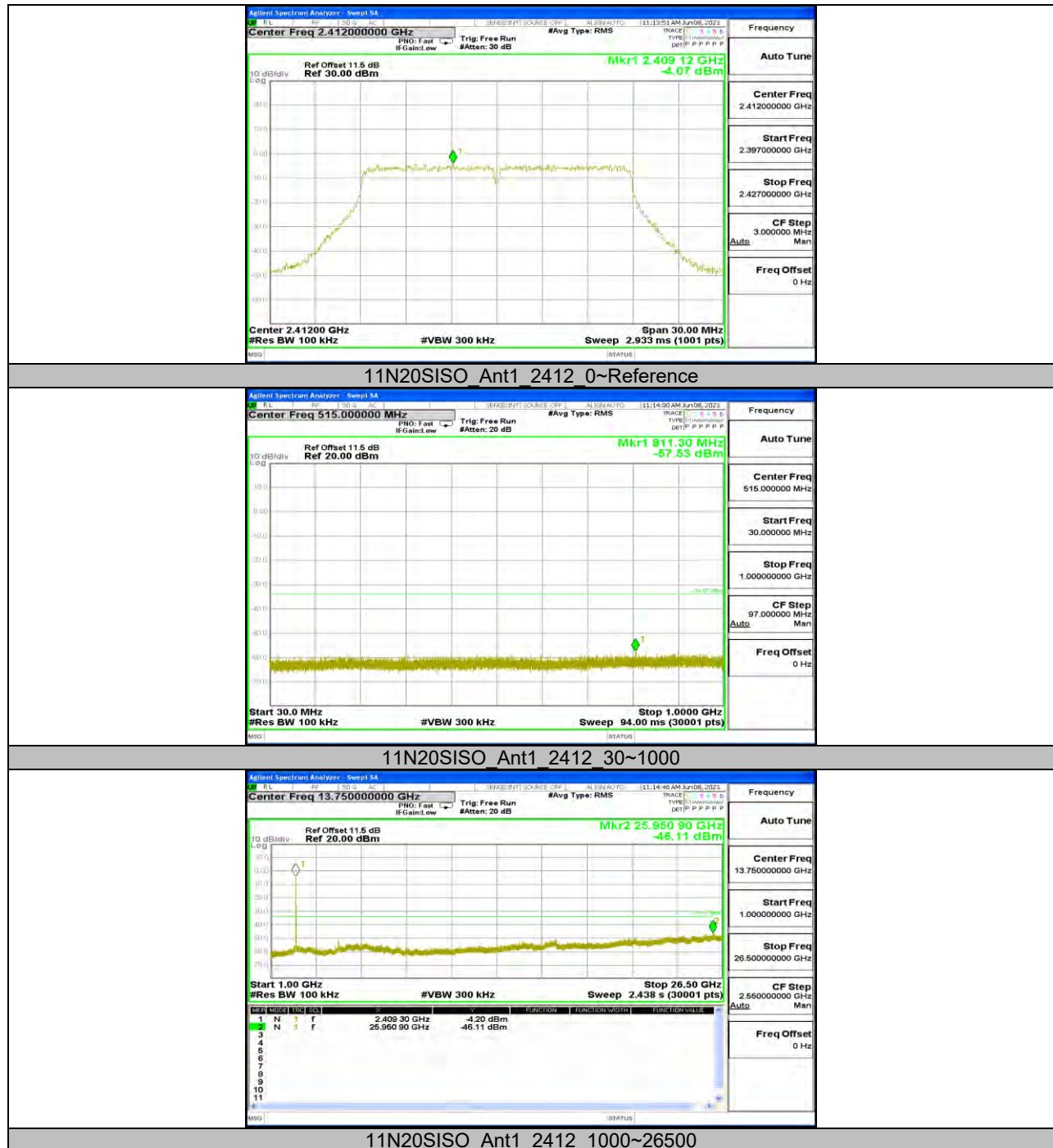
11G Ant1_2412_30~1000



11G Ant1_2412_1000~26500

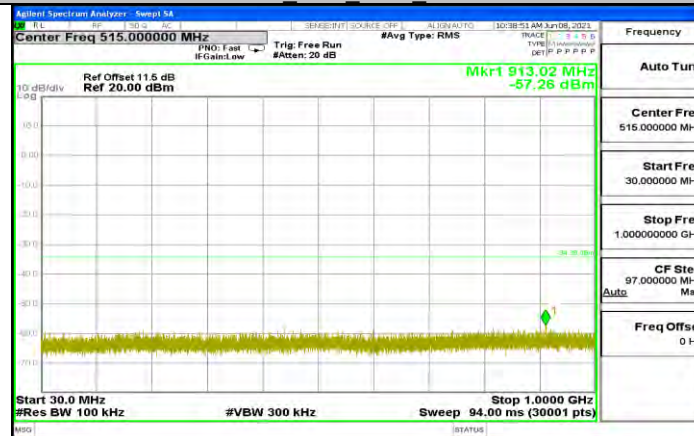




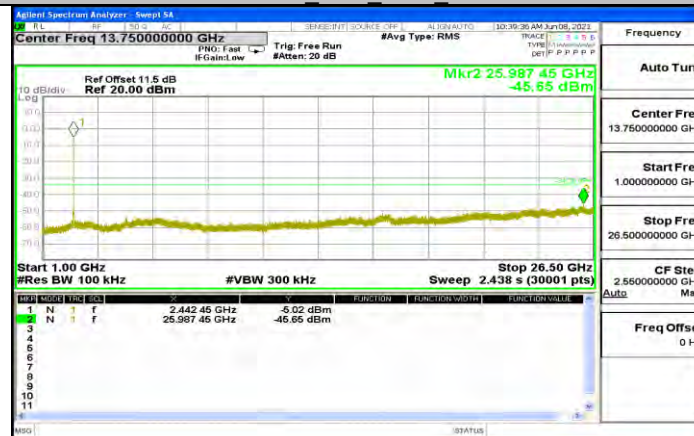




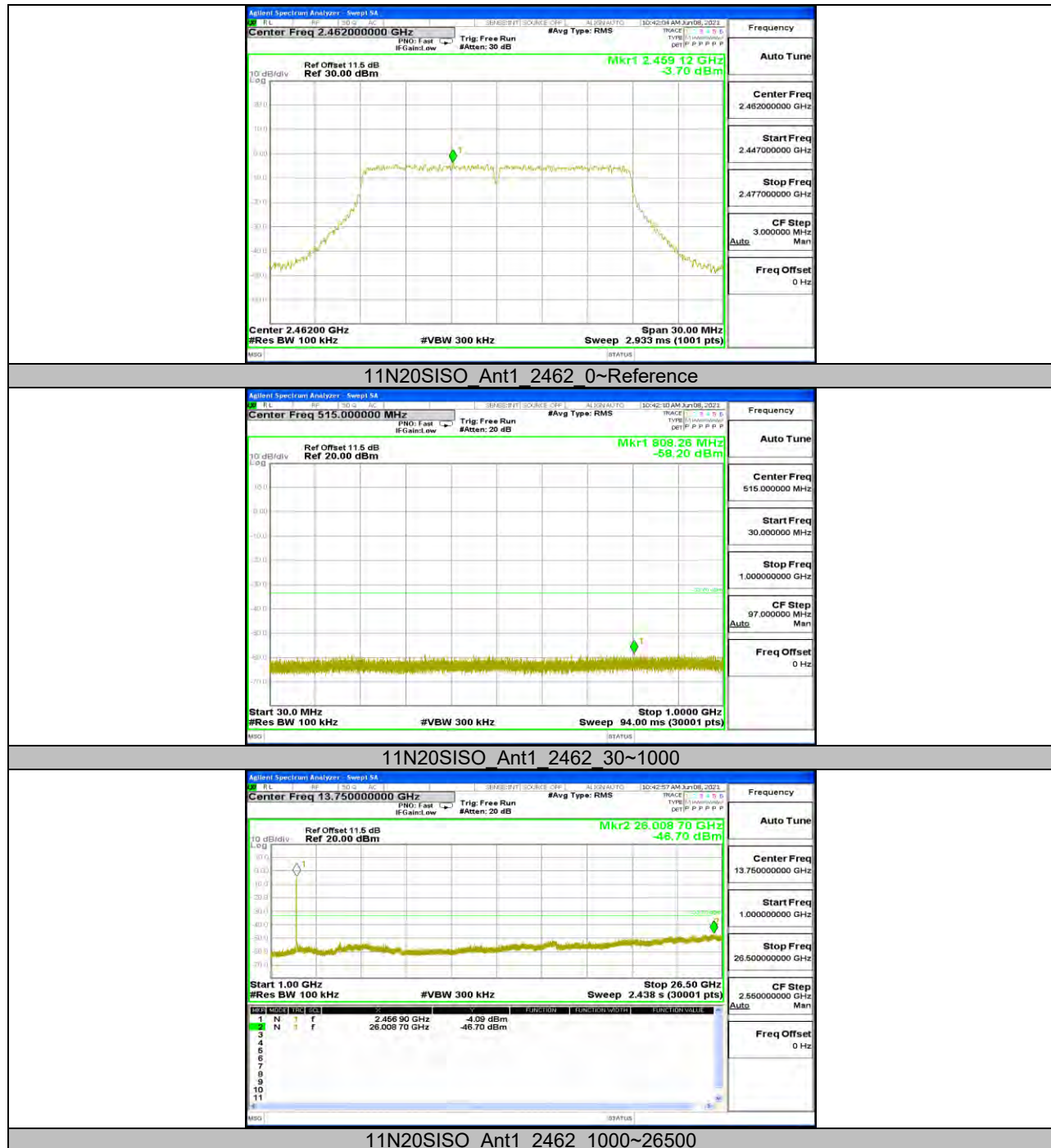
11N20SISO Ant1 2437 0~Reference

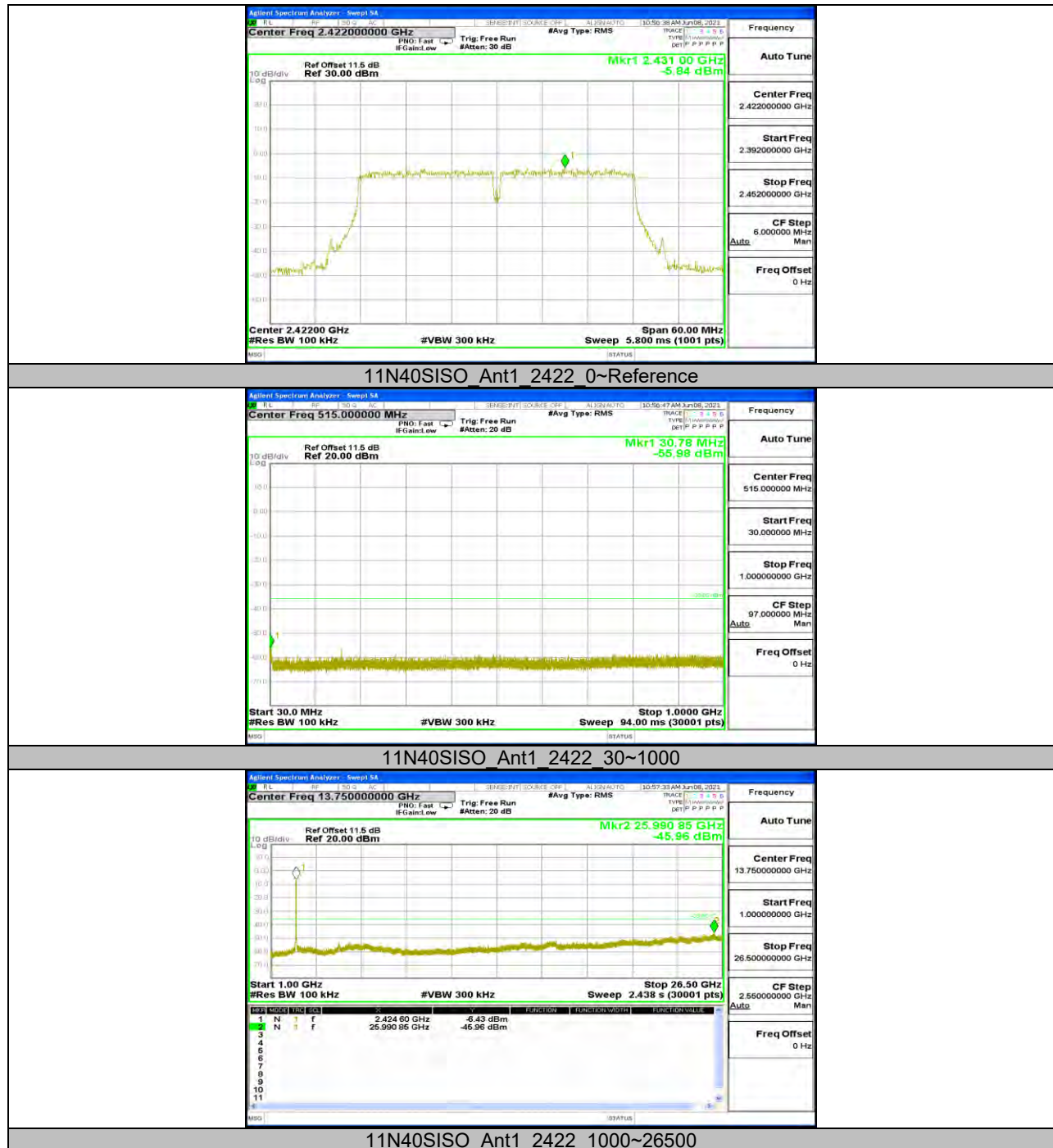


11N20SISO Ant1 2437 30~1000



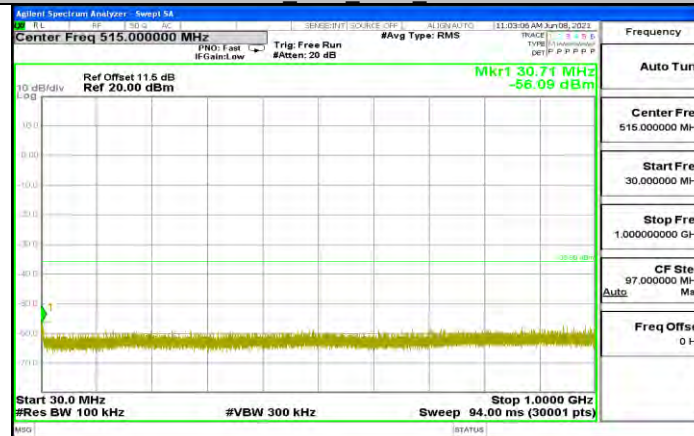
11N20SISO Ant1 2437 1000~26500



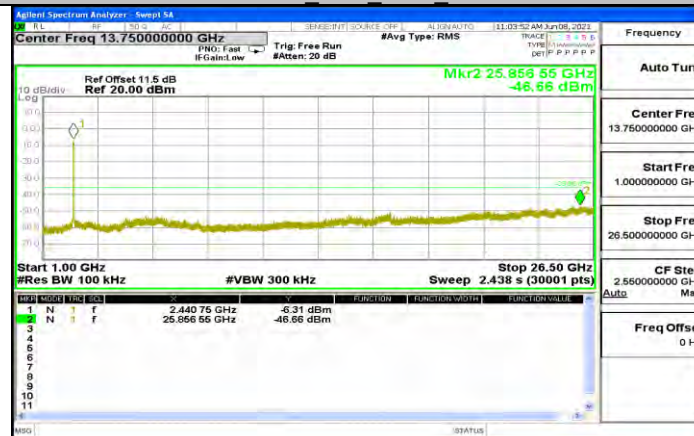




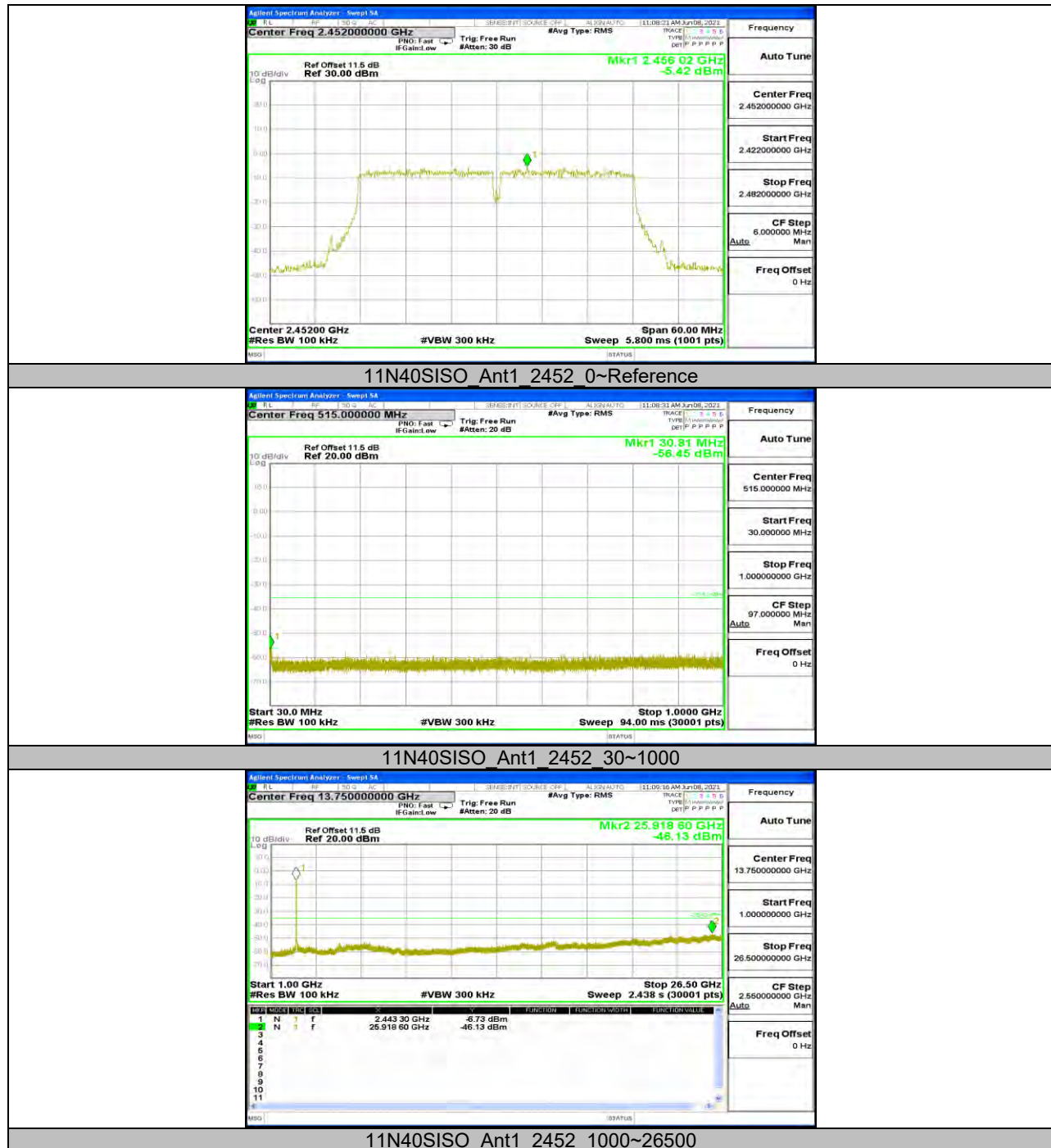
11N40SISO Ant1 2437 0~Reference



11N40SISO Ant1 2437 30~1000



11N40SISO Ant1 2437 1000~26500





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	100	100	1	100	0	0.01	0.01
11G	100	100	1	100	0	0.01	0.01
11N20SISO	100	100	1	100	0	0.01	0.01
11N40SISO	100	100	1	100	0	0.01	0.01

Note:

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

Where: x is Duty Cycle (Linear)

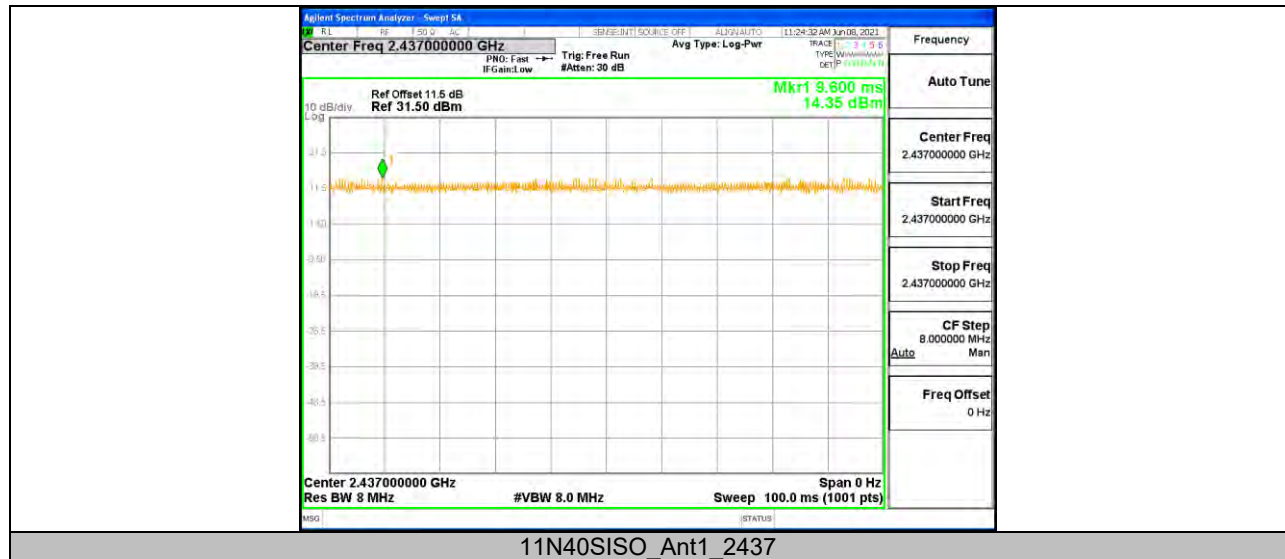
Where: T is On Time

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



11.7.2. Test Graphs





END OF REPORT