CFR 47 FCC PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

Integrated video conference terminal

MODEL NUMBER: UC S10, MS10B, MS**, UC******

FCC ID: 2AFG6-MS10B

REPORT NUMBER: 4789822671.2-9

ISSUE DATE: April 07, 2021

Prepared for

Guangzhou Shirui Electronics Co Ltd
192 Kezhu Road, Scientech Park, guangzhou Economic Technology Development District Guangzhou China

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	04/07/2021	Initial Issue	

Summary of Test Results			
Clause	**Test Items**	**FCC Rules**	**Test Results**
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test for AC Power Port	FCC Part 15.207	Pass
7	Antenna Requirement	FCC Part 15.203	Pass

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:	Guangzhou Shirui Electronics Co Ltd
Address:	192 Kezhu Road, Scientech Park, guangzhou Economic Technology Development District Guangzhou China

Manufacturer Information

Company Name:	Guangzhou Shirui Electronics Co Ltd
Address:	192 Kezhu Road, Scientech Park, guangzhou Economic Technology Development District Guangzhou China

EUT Information

EUT Name:	Integrated video conference terminal
Model:	UC S10
Series Model:	MS10B, MS****, UC****
Model difference:	See section 5.1 of this report for detail
Sample Received Date:	February 7, 2021
Sample Status:	Normal
Sample ID:	3689328
Date of Tested:	February 7, 2021~ April 7, 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, 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 Delcaration 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 and the test lab Conformity Assessment 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

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)
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	UC S10			
Series Model	MS10B, MS****, UC****			
Model difference	There are no difference except the model name. (*=A-Z, a-z, 0-9 “-” or blank, no other difference but model number and color just for marketing purpose)			
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)			
Wireless Module	RTL8822CU-CG			
Supply Voltage	☐AC mains State			
	☒DC State	☐Internal Power Supply		
		☒External Power Supply or AC/DC adapter	Rate Input:	AC 100-240V~, 50/60Hz, 50/60, 1.0A Max
			Rate Output:	DC 12V3A, 36.0W
		☐Battery		

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]	8.42
g	2412 ~ 2462	1-11[11]	11.21
n HT20	2412 ~ 2462	1-11[11]	12.77
n HT40	2422 ~ 2452	3-9[7]	13.64

5.4. TEST CHANNEL CONFIGURATION

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

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

5.6. THE WORSE CASE CONFIGURATIONS

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

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

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

Worst case Data Rates declared by the customer:

IEEE 802.11b / 1 Mbps
IEEE 802.11g / 6 Mbps
IEEE 802.11n HT20 / MCS0
IEEE 802.11n HT40 / MCS0

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

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

Duty cycle and occupied channel bandwidth tests, only SISO mode and one chain were tested since the duty cycle and bandwidth does not change depending on chains used.

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

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

The EUT support rotating antennas, we have done pre-tests under different angle combinations. so only the worst measurement position (X axis) was recorded in the report only the worst as shown in the setup photo.

5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2412-2462	FPC antenna	2.44
2	2412-2462	FPC antenna	2.44

Note: Directional gain= G_{ANT} + 10 log (N_{ANT}) = 5.45dBi
G_{ANT}: Average of the Antenna Gain
N_{ANT}: Antenna numbers
Note: The value of the antenna gain was declared by customer.

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	☒2TX, 2RX	ANT 1,2 can be used as transmitting/receiving antenna.

Note: The test mode 802.11b and 802.11g only support SISO mode, the test mode 802.11n HT20 and 802.11n HT40 can support SISO mode and MIMO mode.

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	X230i	/
2	USB TO UART	/	/	/
3	Monitor	DELL	P2715Qt	CN-040FHF-WS200-79C-390L
4	Earphone	GIONEE	N/A	N/A
5	Mouse	Lenovo	MO28UOB	8SSM50G45918F CCC1545

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	1.0	/
2	HDMI Cable	YES	YES	1.5	/
3	Network Cable	/	/	2.0	/

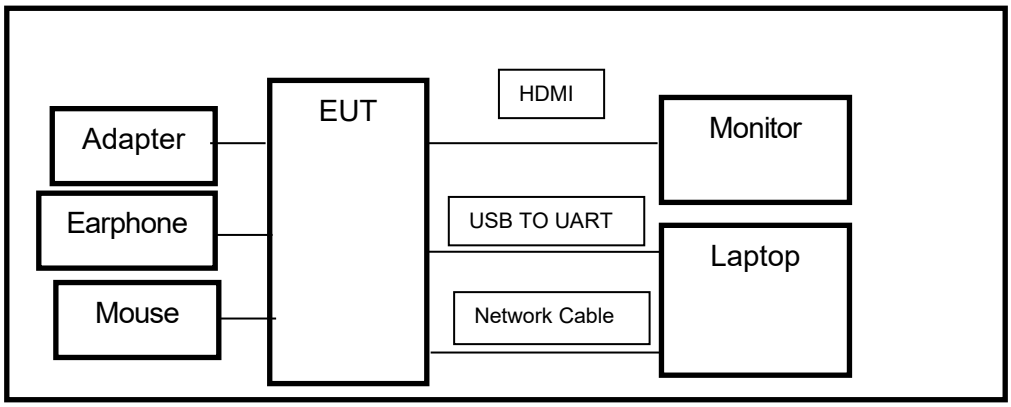
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	Adapter	GangQi	GQ36-120300-AX	Input: AC 100-240V~, 50/60Hz, 50/60, 1.0A Max Output: DC 12V3A, 36.0W

TEST SETUP

The EUT can work in engineering mode with a software.

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	Nov. 12, 2020	Nov. 11, 2021
☑	Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
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	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
☑	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
☑	Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
☑	Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
☑	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Nov. 12, 2020	Nov. 11, 2021
☑	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
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	Nov. 20, 2020	Nov. 19, 2021
☑	Power sensor, Power Meter	Tonsend	JS0806-2	178060074	Dec.30,2020	Dec.30,2021

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

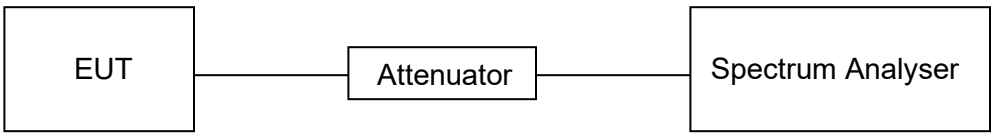
LIMITS

None; for reporting purposes only

PROCEDURE

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

TEST SETUP



TEST ENVIRONMENT

Temperature	26.8 °C	Relative Humidity	67.8 %
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

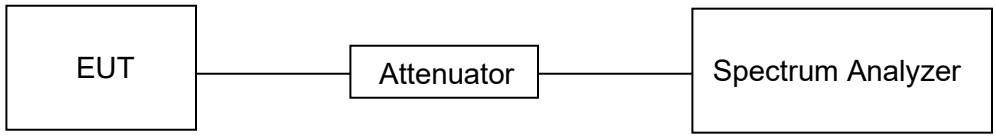
Connect the EUT to the spectrum analyser and use the following settings:

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

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

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

TEST SETUP



TEST ENVIRONMENT

Temperature	26.8 °C	Relative Humidity	67.8 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V/60 Hz

RESULTS

Please refer to appendix A & B.

7.3. CONDUCTED OUTPUT POWER

LIMITS

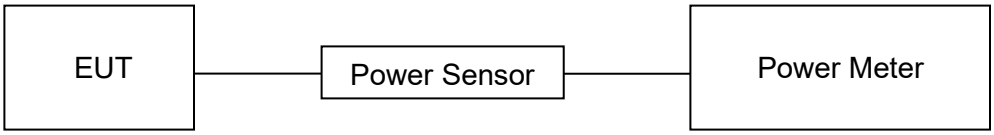
CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	AVG Output Power	1 watt or 30 dBm	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause in 11.9.2.

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).
Measure peak emission level, the indicated level is the average output power, after any corrections for external attenuators and cables.

TEST SETUP



TEST ENVIRONMENT

Temperature	26.8 °C	Relative Humidity	67.8 %
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

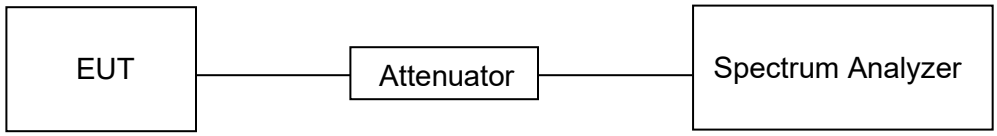
Refer to ANSI C63.10-2013 clause 11.10.

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 kHz ≤ RBW ≤ 100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



TEST ENVIRONMENT

Temperature	26.8 °C	Relative Humidity	67.8 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V/60 Hz

RESULTS

Please refer to appendix D.

7.5. CONDUCTED BANDEDGE 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:

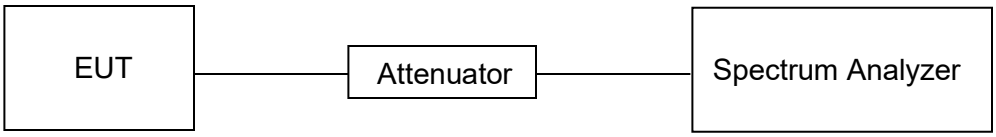
Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	≥3 × RBW
measurement points	≥span/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	26.8 °C	Relative Humidity	67.8 %
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

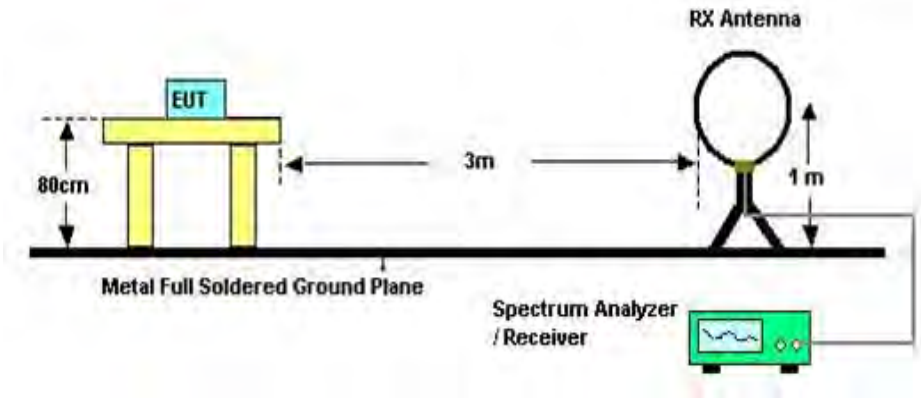
FCC Restricted bands of operation refer to FCC §15.205 (a):

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: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

TEST SETUP AND PROCEDURE

Below 30 MHz



The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

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

3. The EUT was placed on a turntable with 80cm above ground.

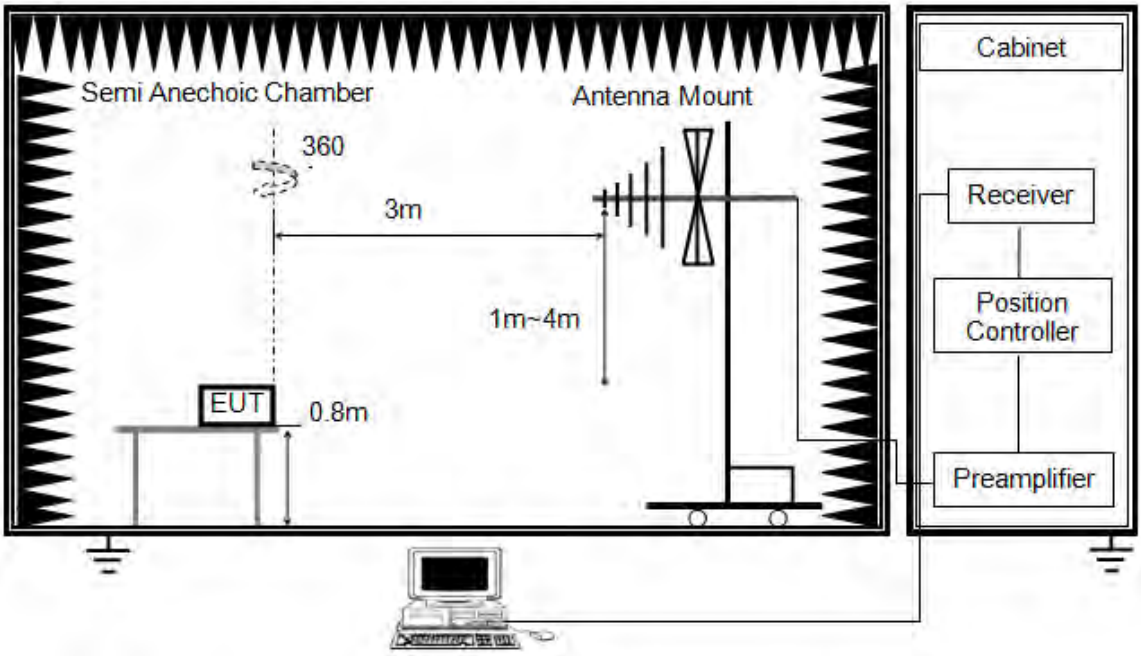
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz



The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

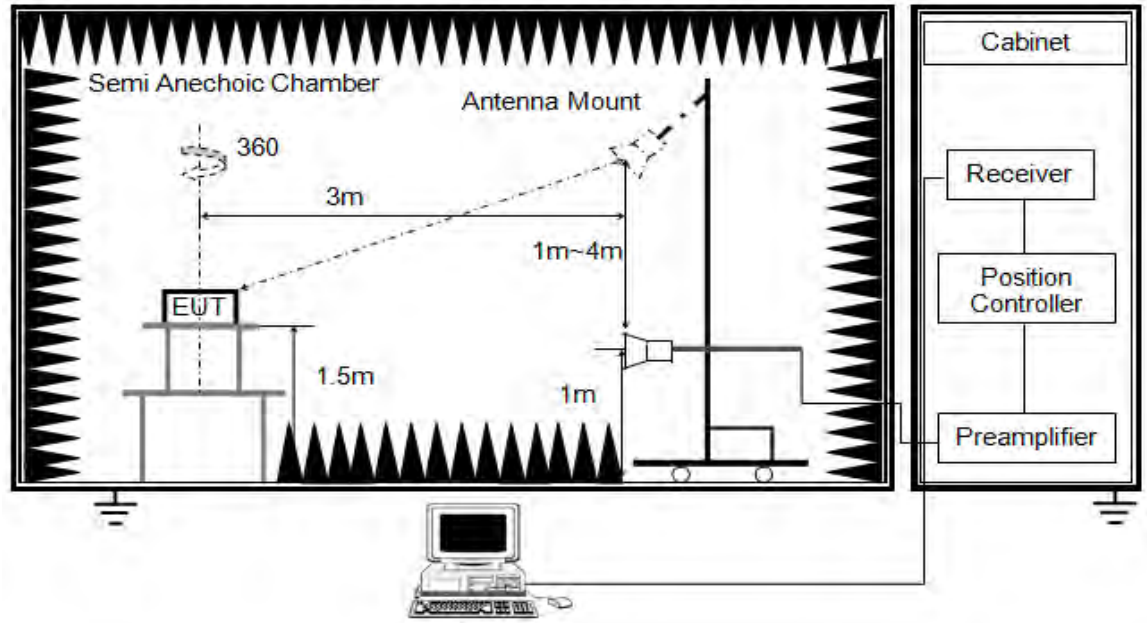
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz



The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

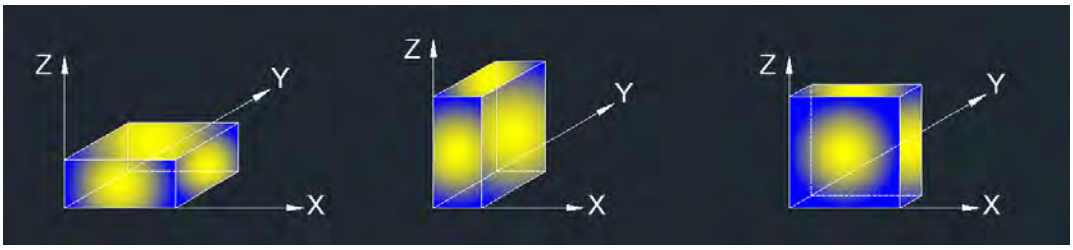
3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note: 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	22.7 °C	Relative Humidity	66.7 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V/60 Hz

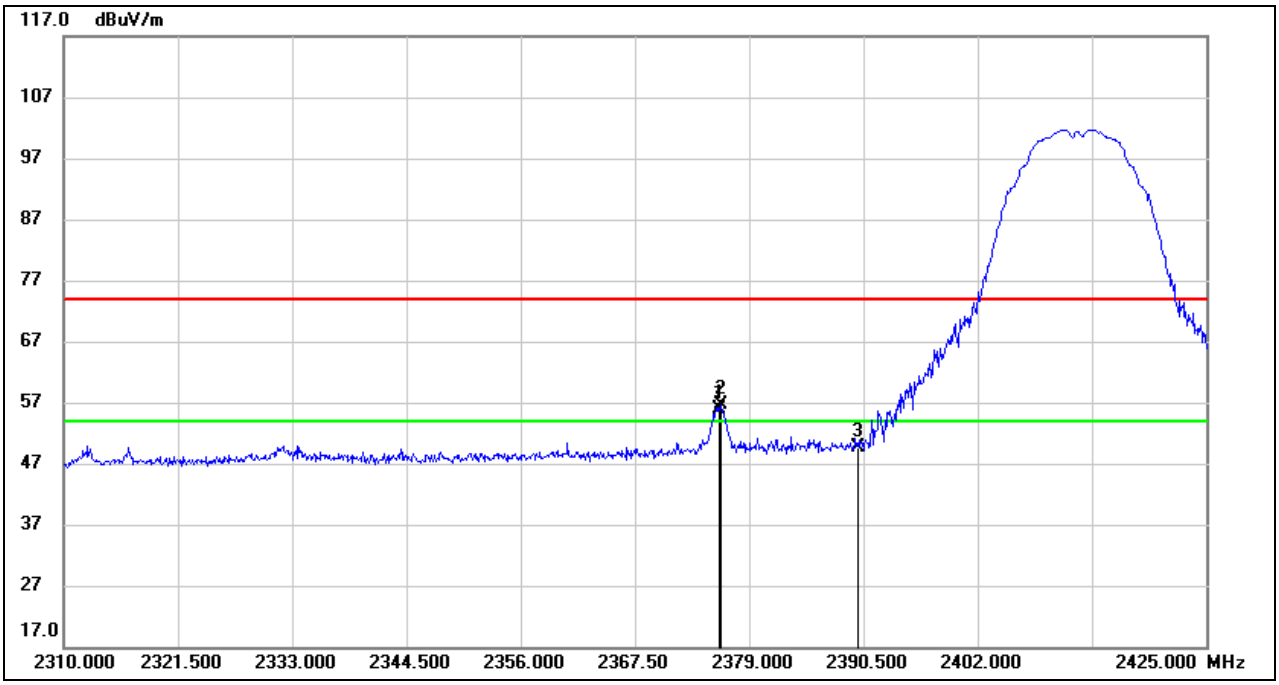
RESULTS

8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b SISO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

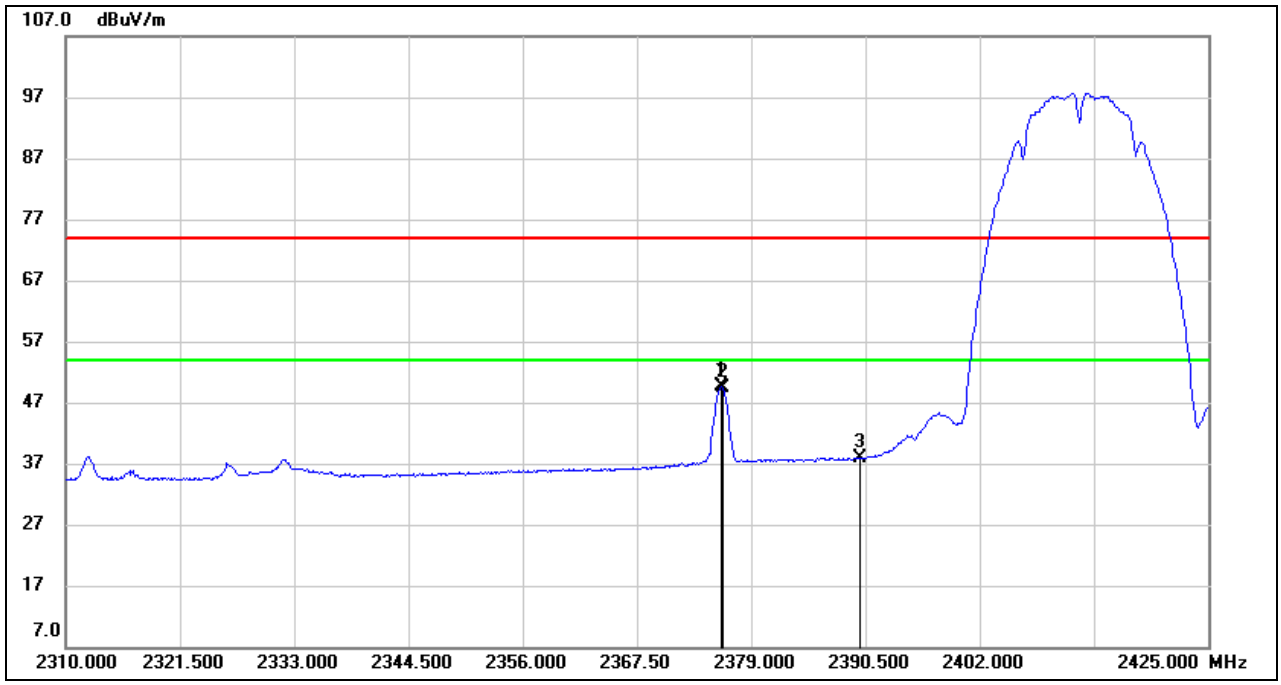
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.010	22.67	33.25	55.92	74.00	-18.08	peak
2	2376.125	23.39	33.25	56.64	74.00	-17.36	peak
3	2390.000	16.18	33.35	49.53	74.00	-24.47	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

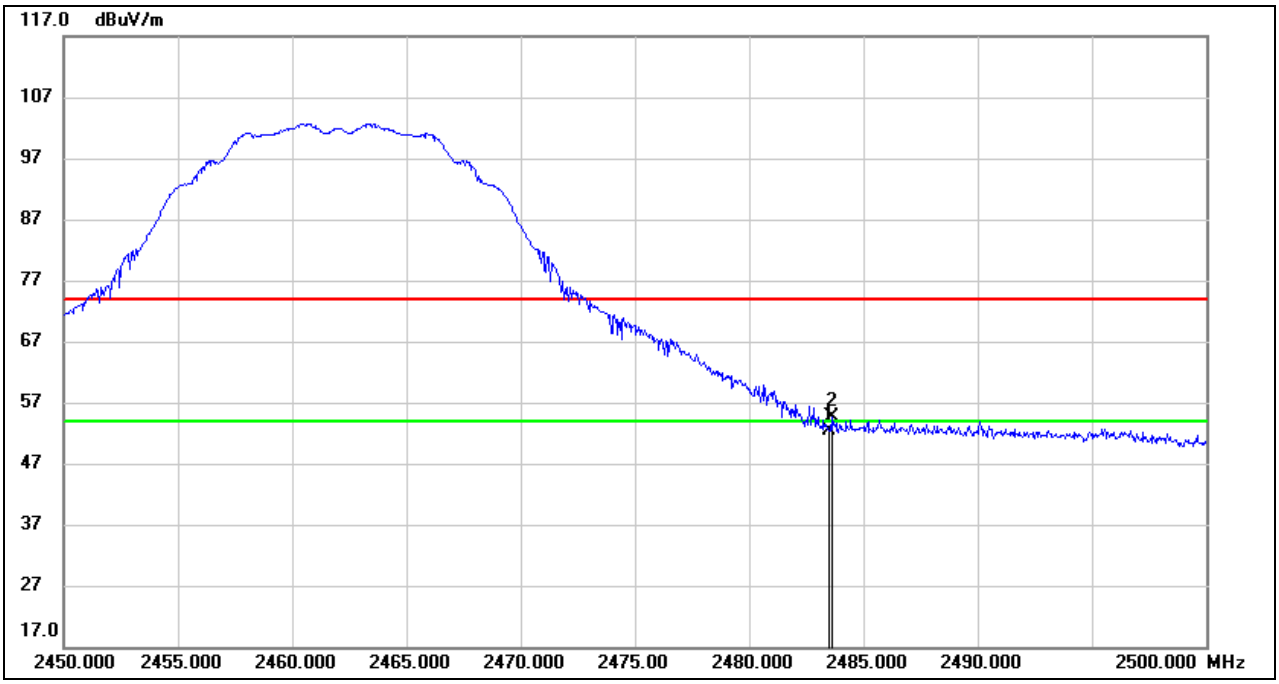


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.010	16.46	33.25	49.71	54.00	-4.29	AVG
2	2376.125	16.14	33.25	49.39	54.00	-4.61	AVG
3	2390.000	4.44	33.35	37.79	54.00	-16.21	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

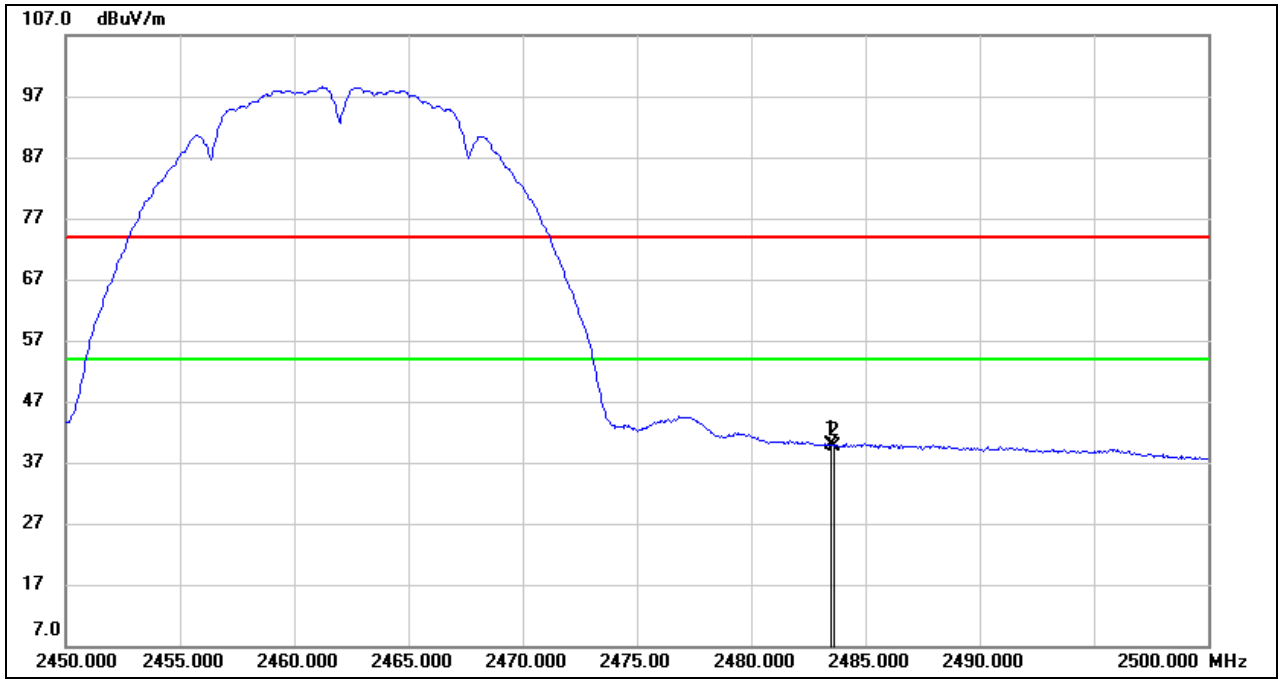
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.73	33.71	52.44	74.00	-21.56	peak
2	2483.600	20.83	33.71	54.54	74.00	-19.46	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	6.17	33.71	39.88	54.00	-14.12	AVG
2	2483.600	6.02	33.71	39.73	54.00	-14.27	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.

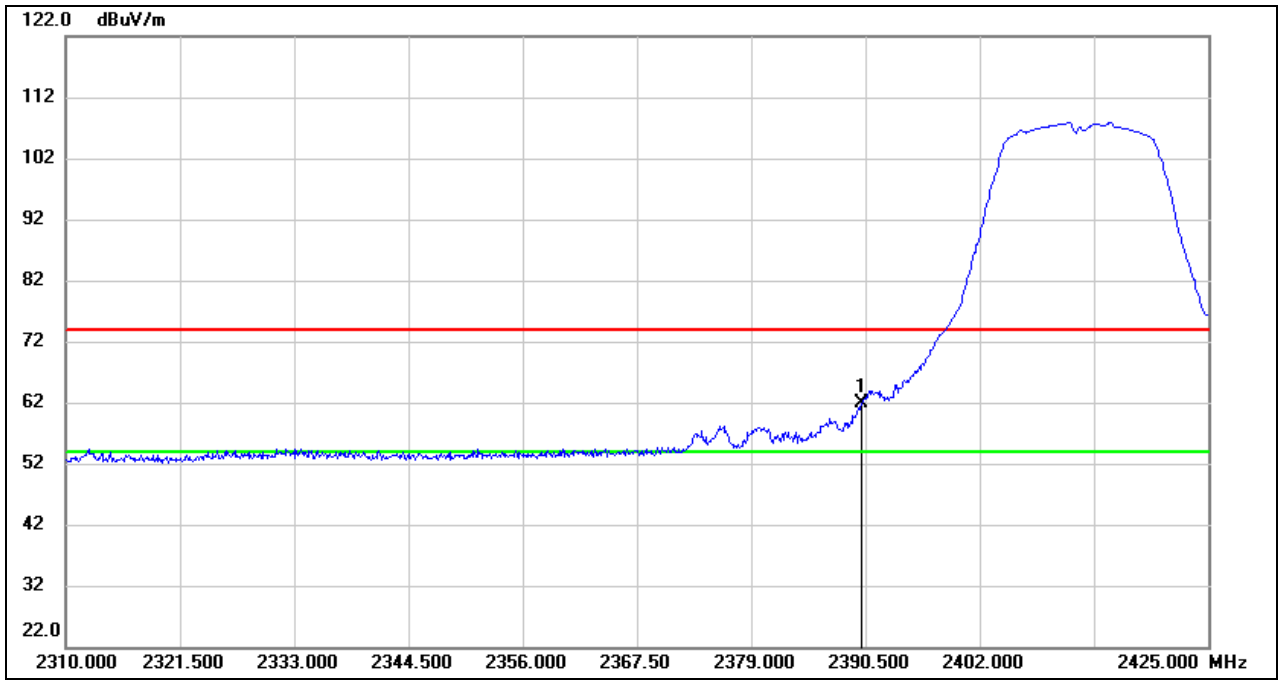
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

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

8.1.2. 802.11g SISO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

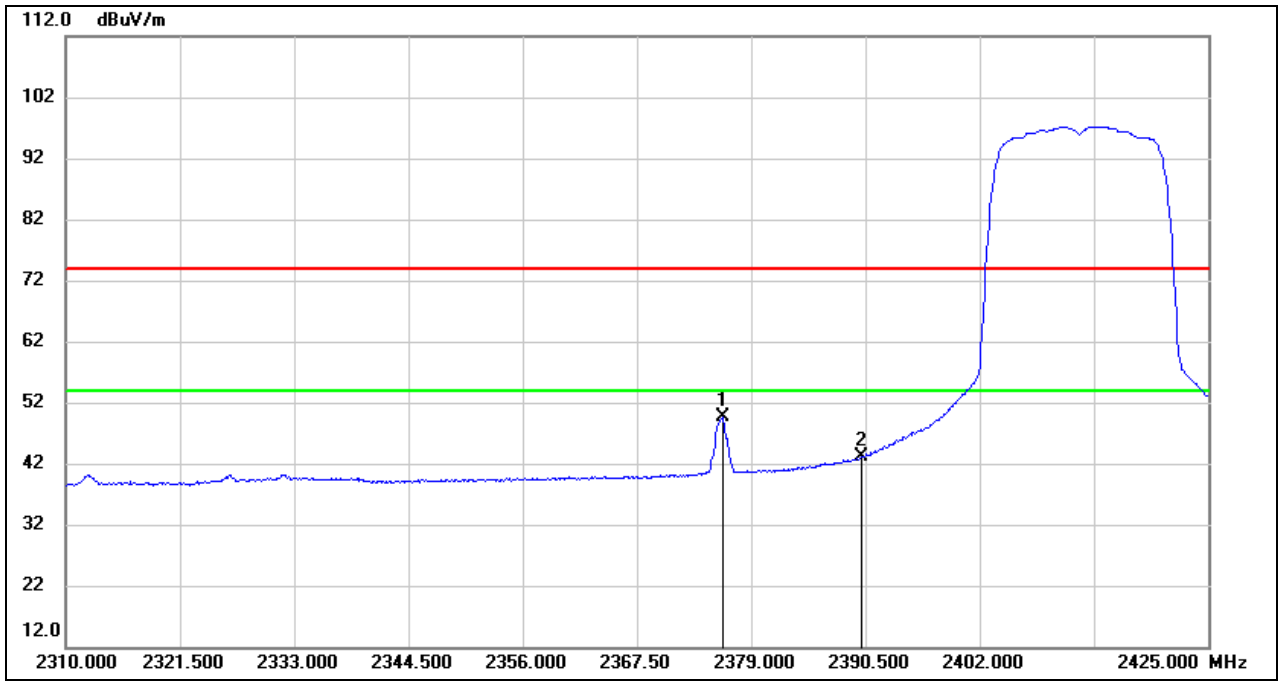
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	28.52	33.35	61.87	74.00	-12.13	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG

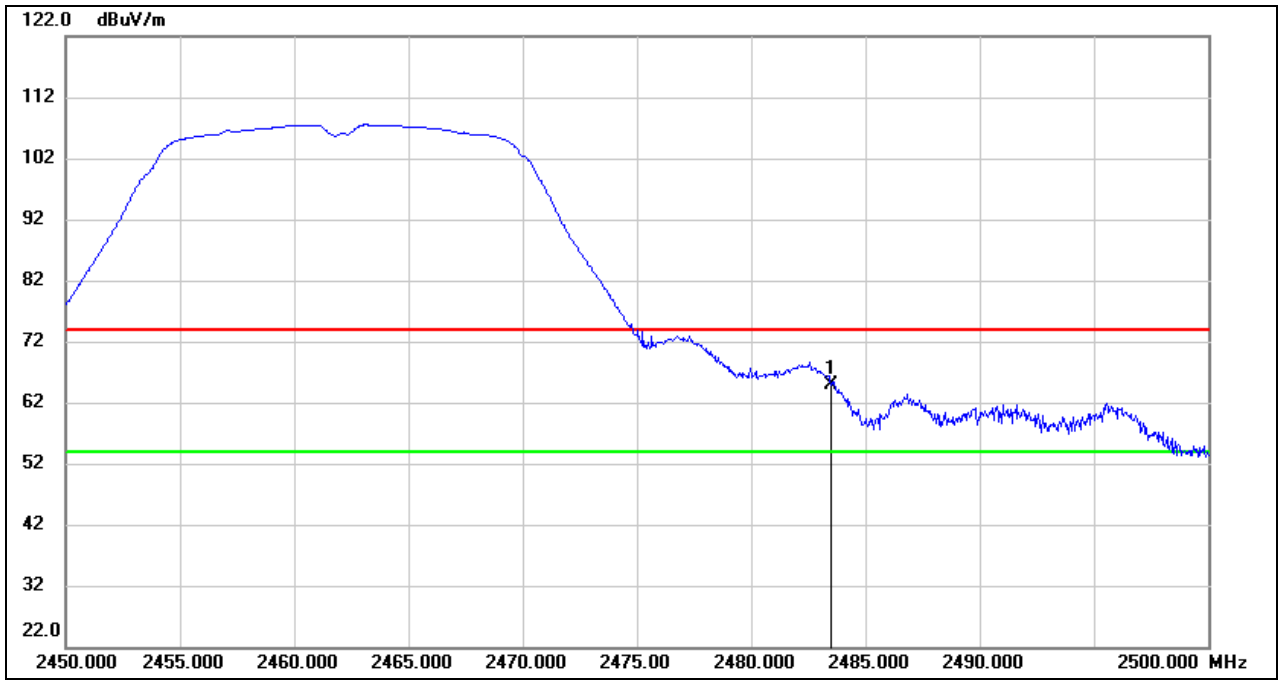


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.125	16.26	33.25	49.51	54.00	-4.49	AVG
2	2390.000	9.78	33.35	43.13	54.00	-10.87	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

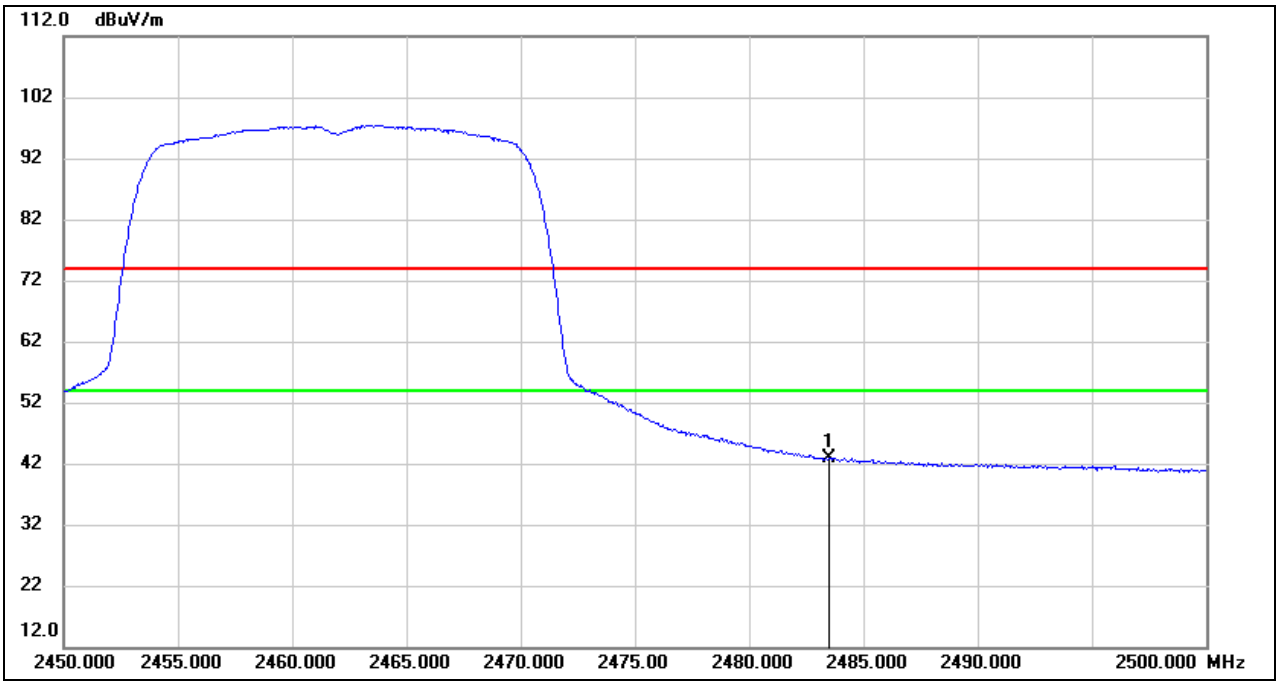
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	31.08	33.71	64.79	74.00	-9.21	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	9.12	33.71	42.83	54.00	-11.17	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.

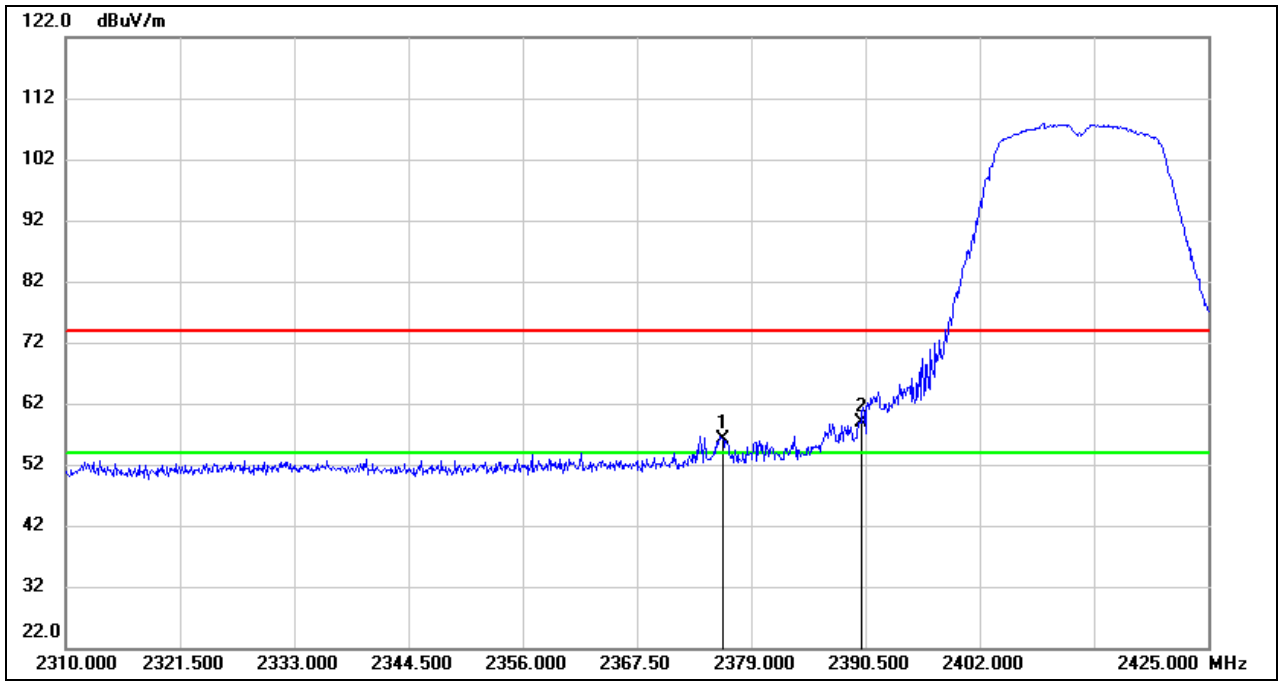
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

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

8.1.3. 802.11n HT20 MIMO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

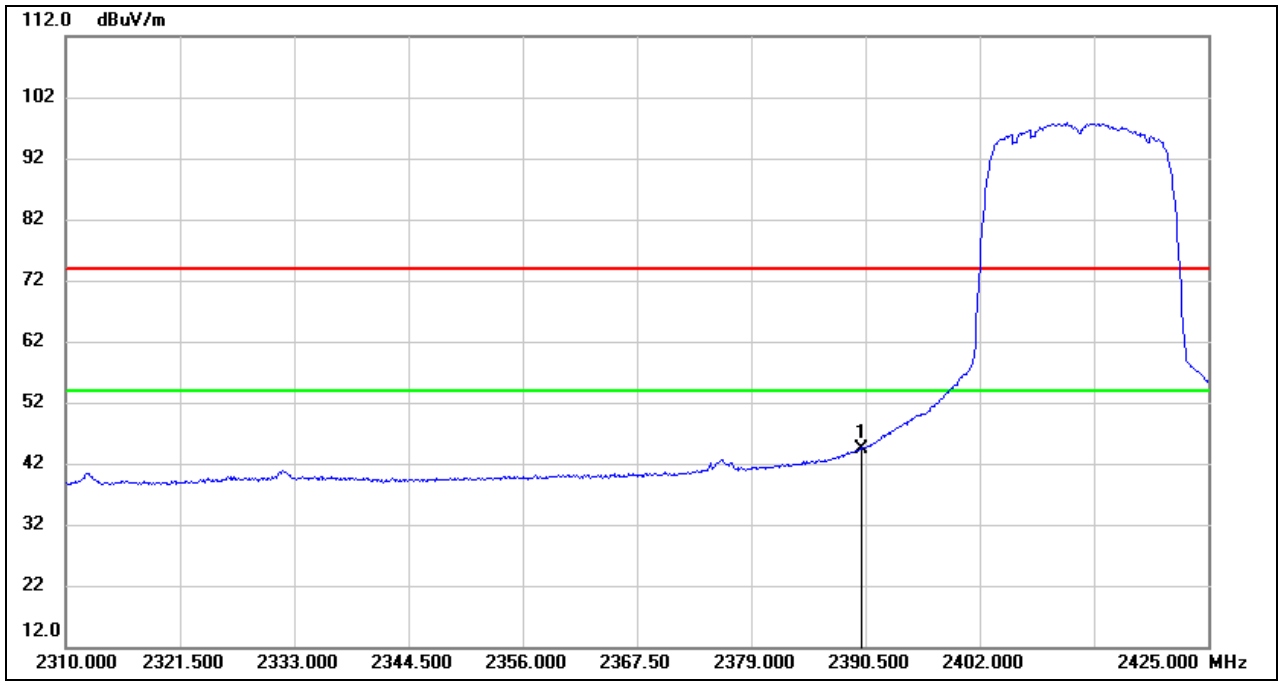
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.125	22.91	33.25	56.16	74.00	-17.84	peak
2	2390.000	25.65	33.35	59.00	74.00	-15.00	peak

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

AVG

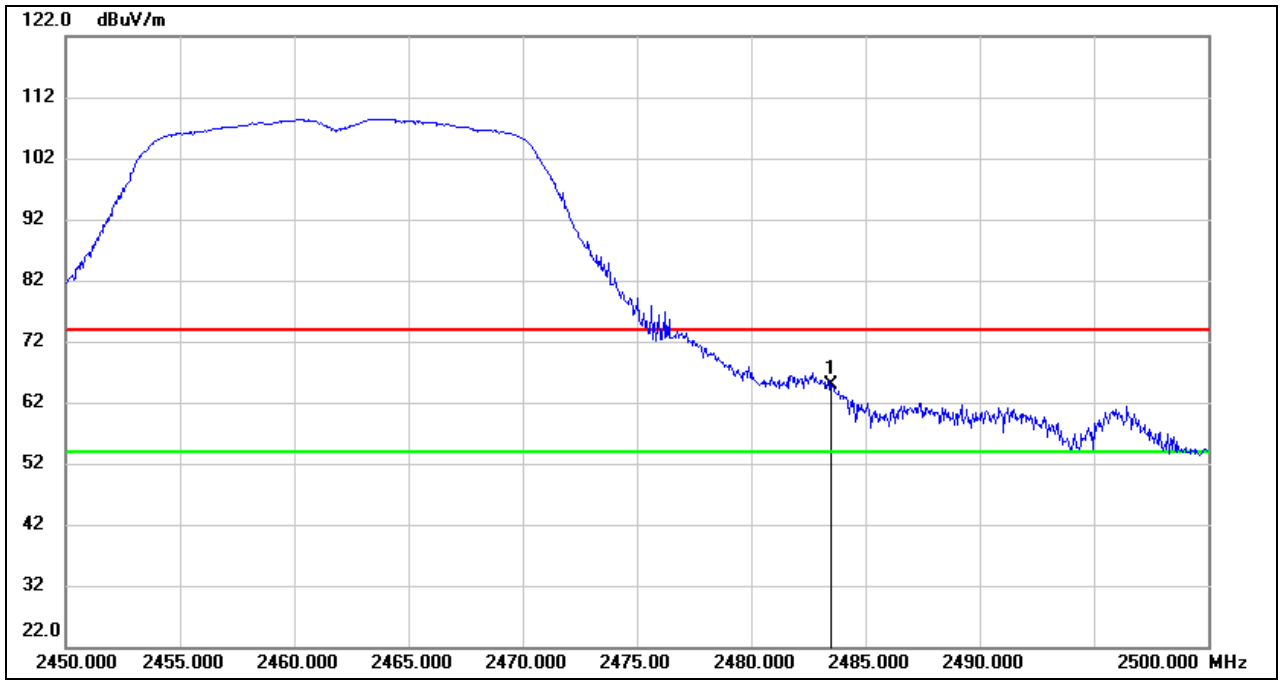


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	11.11	33.35	44.46	54.00	-9.54	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

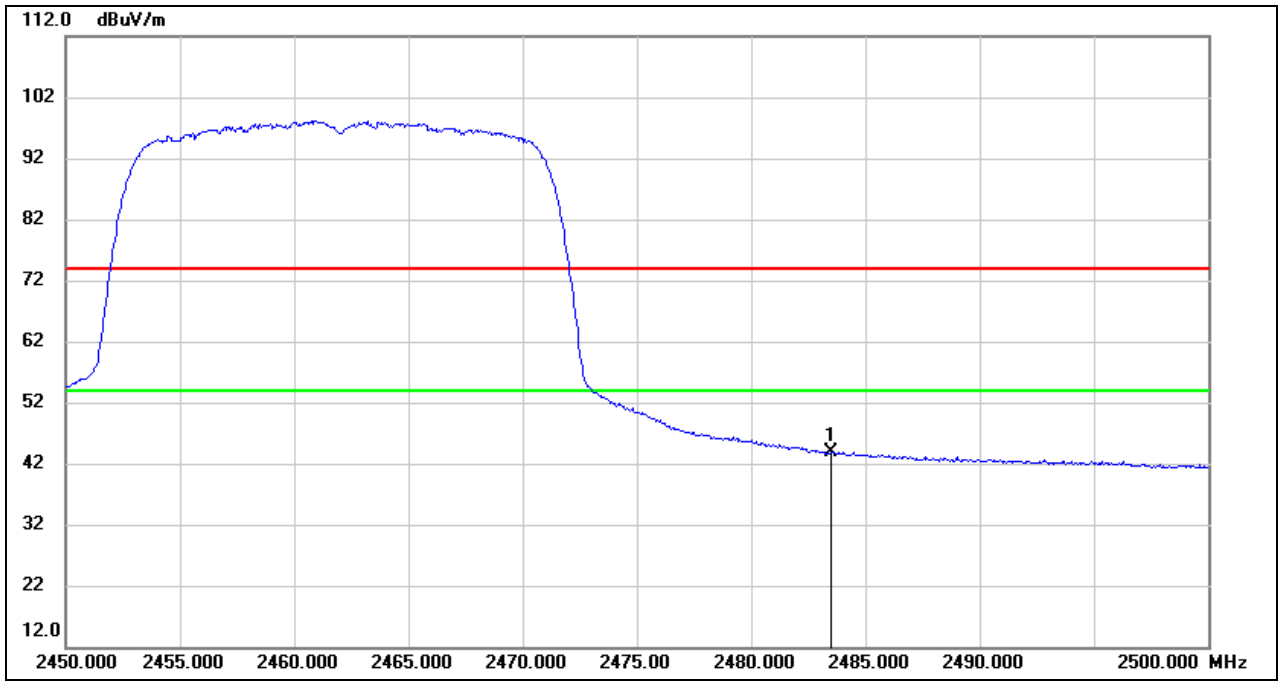
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	31.09	33.71	64.80	74.00	-9.20	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	10.18	33.71	43.89	54.00	-10.11	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.

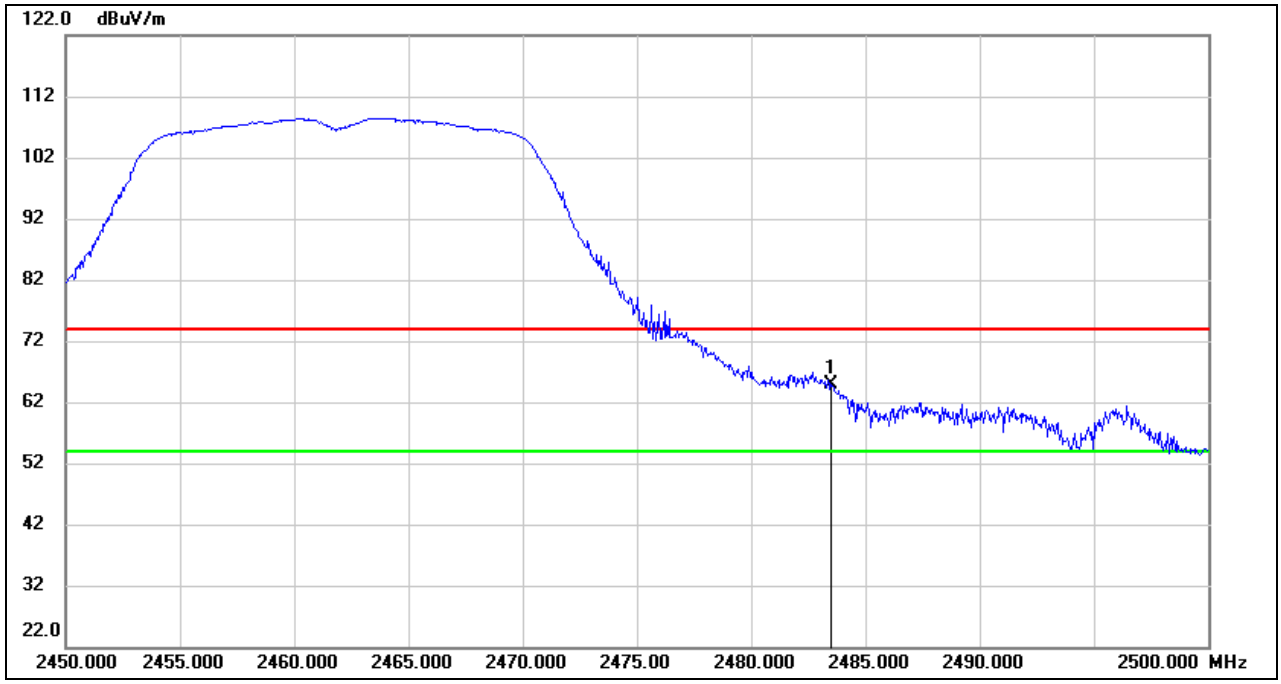
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

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

8.1.4. 802.11n HT40 MIMO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

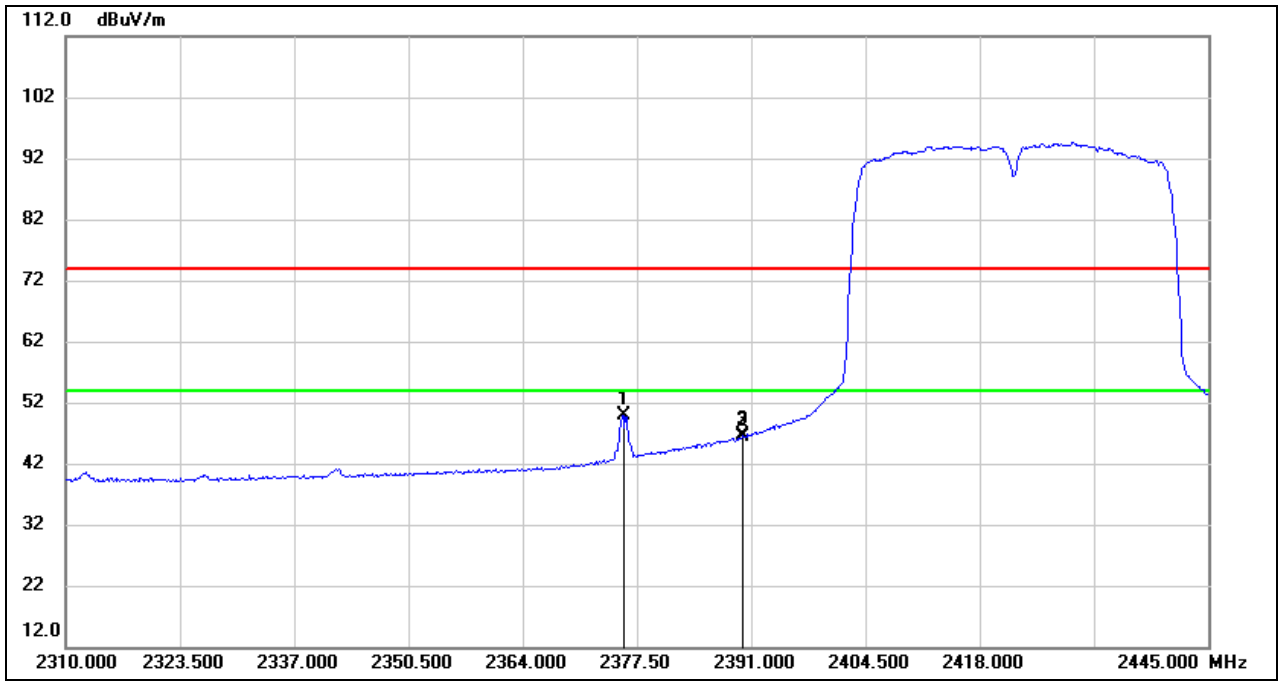
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	31.09	33.71	64.80	74.00	-9.20	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

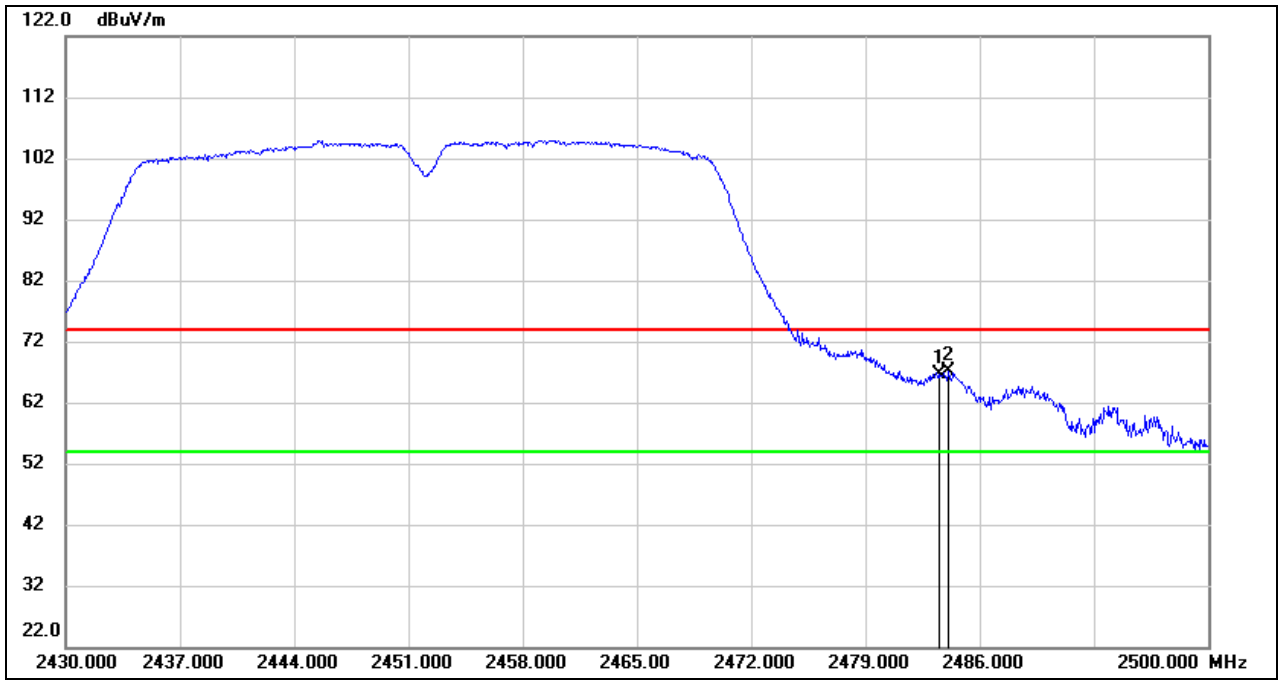


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2375.880	16.54	33.25	49.79	54.00	-4.21	AVG
2	2389.785	13.04	33.35	46.39	54.00	-7.61	AVG
3	2390.000	13.21	33.35	46.56	54.00	-7.44	AVG

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

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

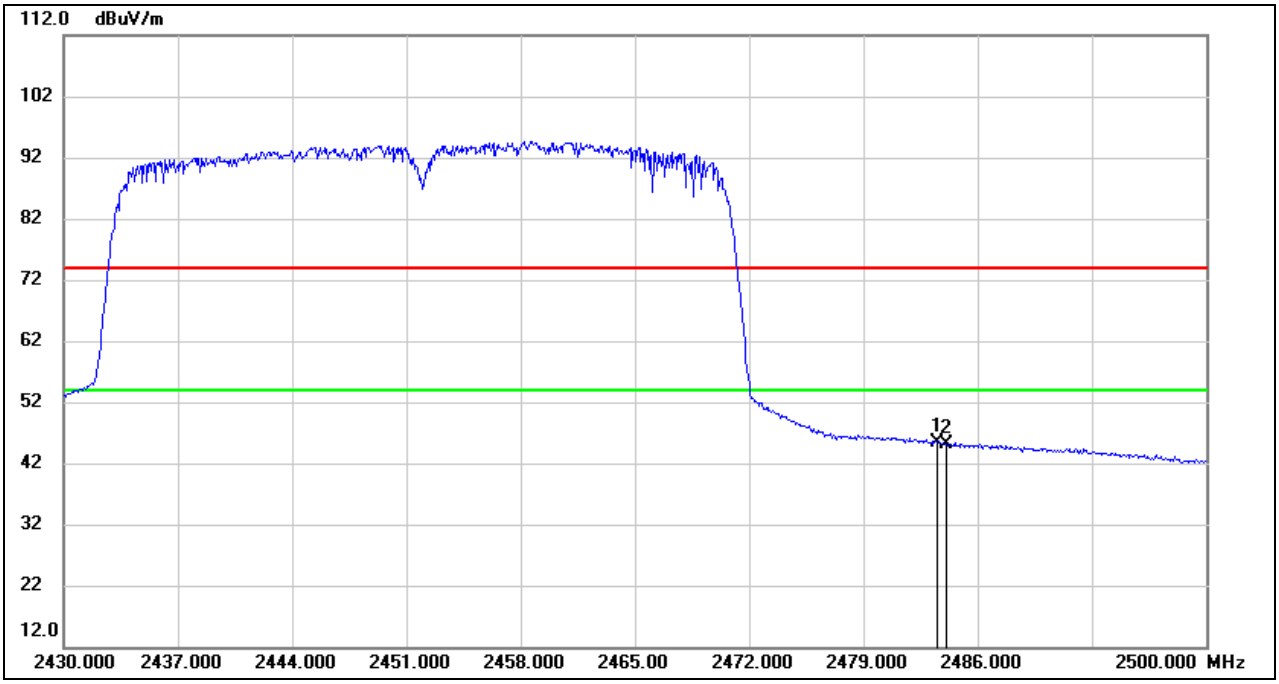
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	32.93	33.71	66.64	74.00	-7.36	peak
2	2484.110	33.33	33.71	67.04	74.00	-6.96	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. 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	11.63	33.71	45.34	54.00	-8.66	AVG
2	2484.110	11.35	33.71	45.06	54.00	-8.94	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.

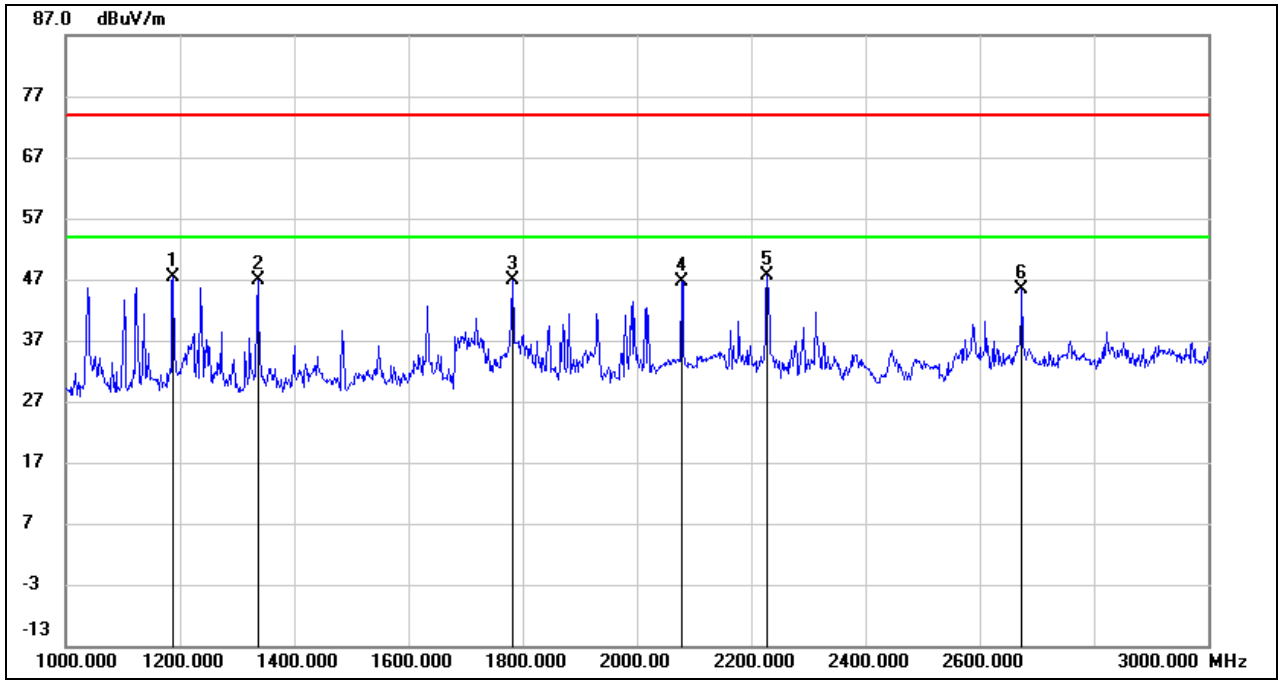
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

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

8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

8.2.1. 802.11b SISO MODE

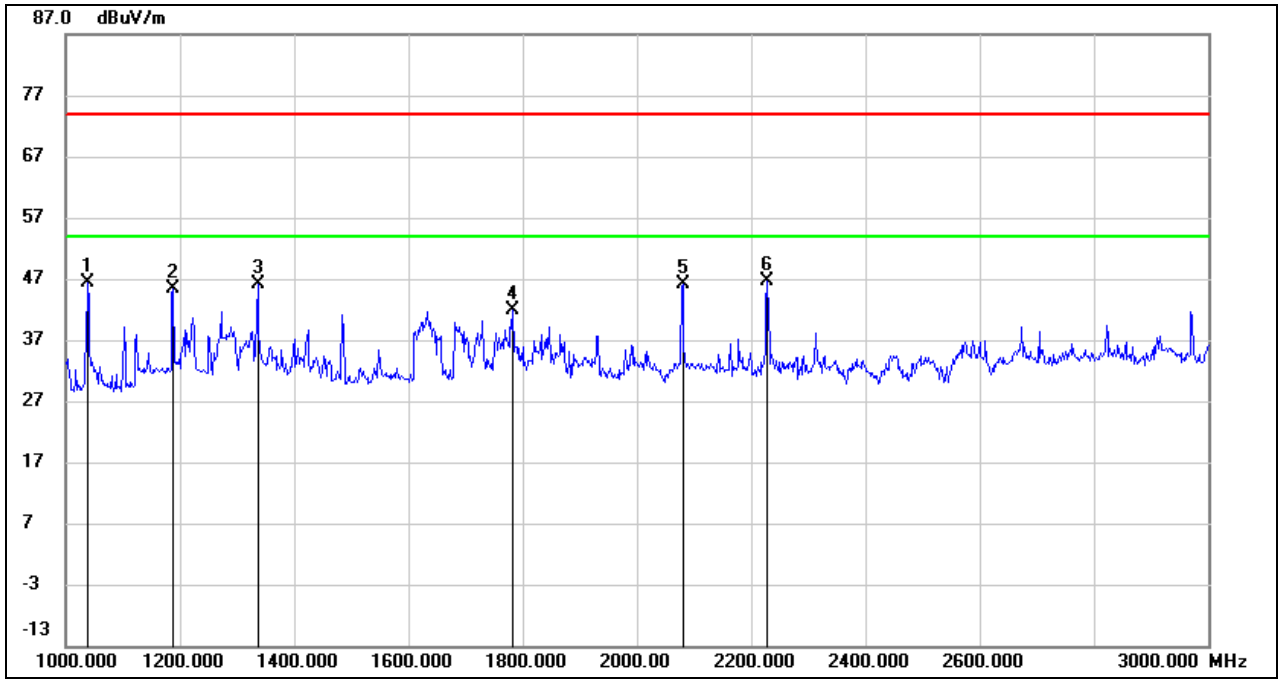
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	60.32	-13.05	47.27	74.00	-26.73	peak
2	1336.000	59.69	-12.80	46.89	74.00	-27.11	peak
3	1782.000	56.95	-10.18	46.77	74.00	-27.23	peak
4	2078.000	56.41	-9.75	46.66	74.00	-27.34	peak
5	2228.000	56.57	-8.96	47.61	74.00	-26.39	peak
6	2674.000	52.64	-7.37	45.27	74.00	-28.73	peak

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

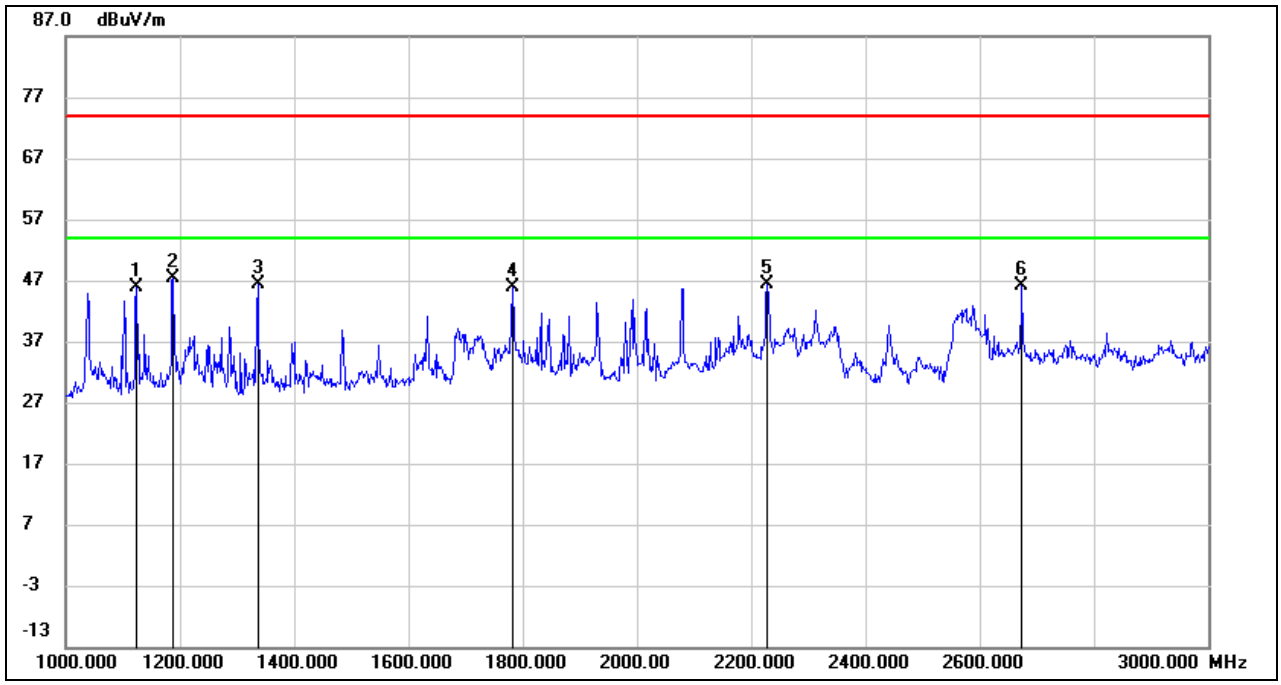
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1038.000	60.08	-13.79	46.29	74.00	-27.71	peak
2	1188.000	58.52	-13.05	45.47	74.00	-28.53	peak
3	1336.000	58.96	-12.80	46.16	74.00	-27.84	peak
4	1782.000	52.03	-10.18	41.85	74.00	-32.15	peak
5	2080.000	55.85	-9.73	46.12	74.00	-27.88	peak
6	2228.000	55.61	-8.96	46.65	74.00	-27.35	peak

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

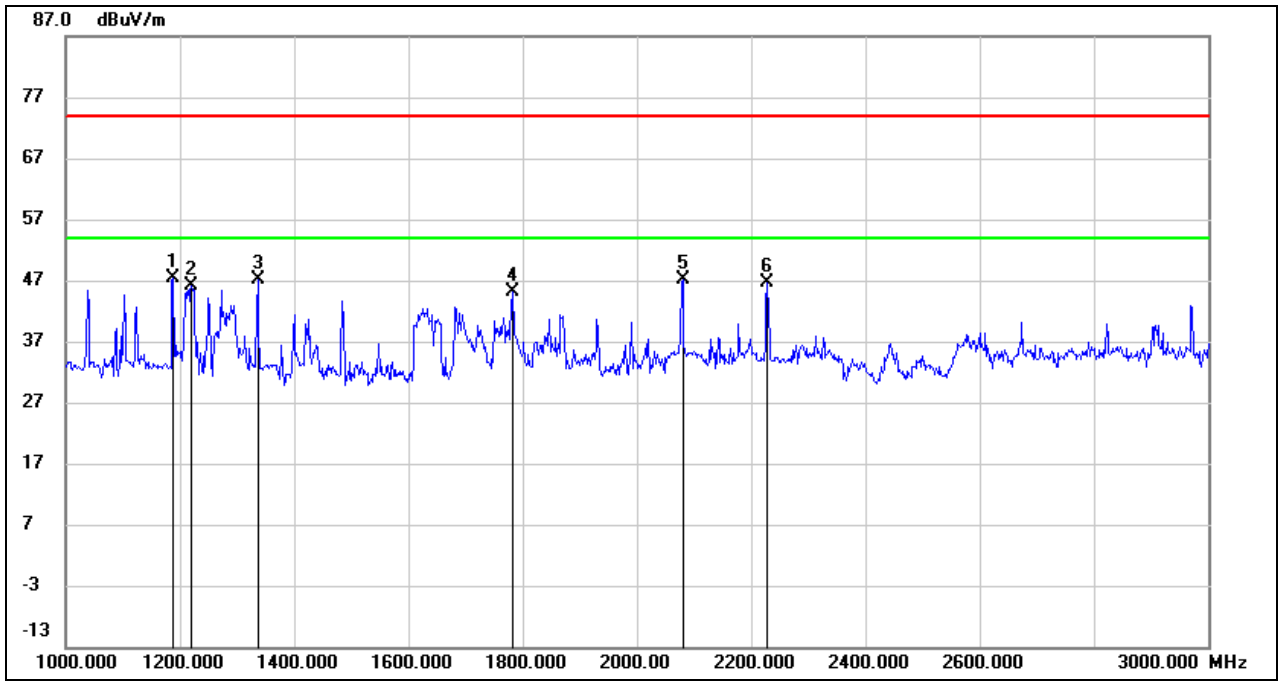
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1124.000	59.13	-13.37	45.76	74.00	-28.24	peak
2	1188.000	60.39	-13.05	47.34	74.00	-26.66	peak
3	1336.000	59.16	-12.80	46.36	74.00	-27.64	peak
4	1782.000	56.04	-10.18	45.86	74.00	-28.14	peak
5	2228.000	55.26	-8.96	46.30	74.00	-27.70	peak
6	2674.000	53.53	-7.37	46.16	74.00	-27.84	peak

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

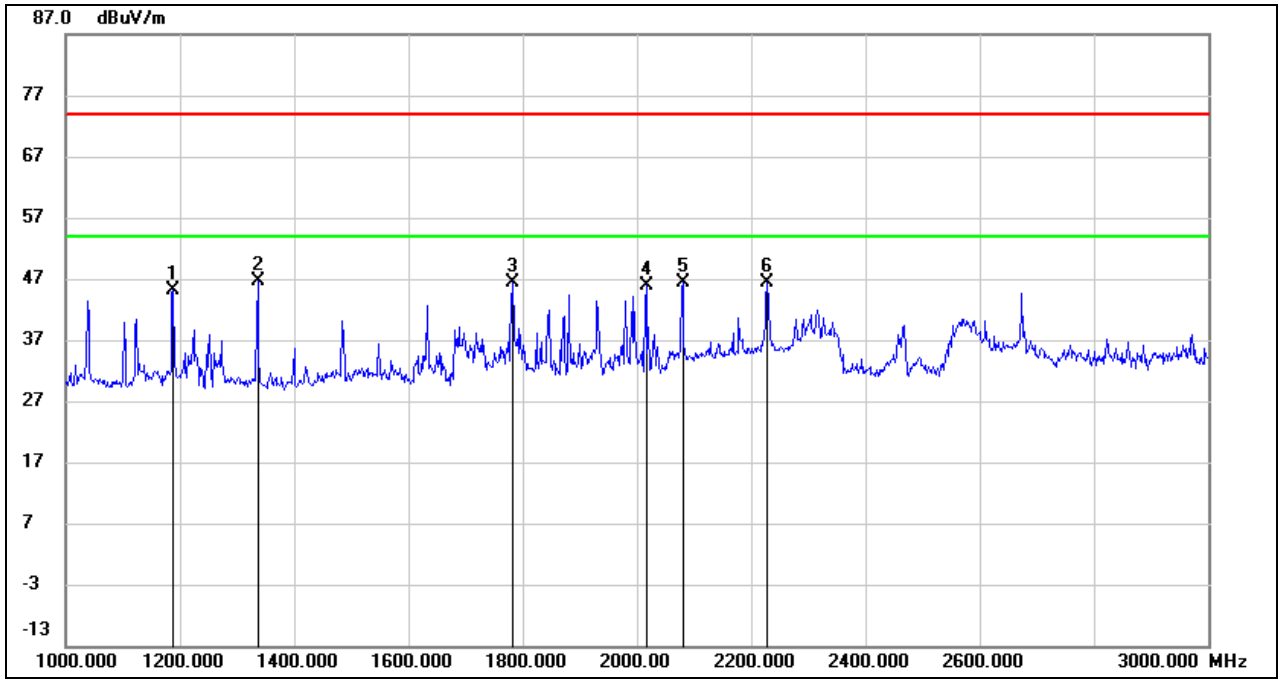
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	60.48	-13.05	47.43	74.00	-26.57	peak
2	1220.000	59.02	-12.96	46.06	74.00	-27.94	peak
3	1336.000	59.89	-12.80	47.09	74.00	-26.91	peak
4	1782.000	55.38	-10.18	45.20	74.00	-28.80	peak
5	2080.000	56.85	-9.73	47.12	74.00	-26.88	peak
6	2228.000	55.54	-8.96	46.58	74.00	-27.42	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.

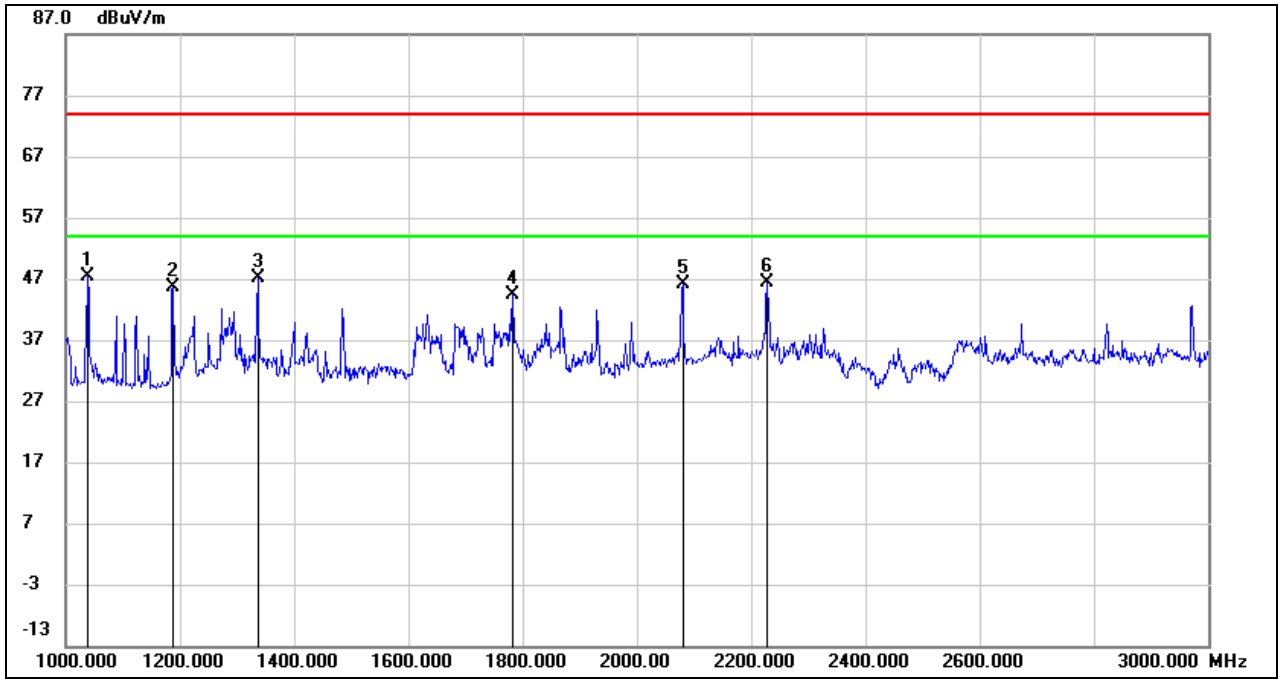
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	58.20	-13.05	45.15	74.00	-28.85	peak
2	1336.000	59.43	-12.80	46.63	74.00	-27.37	peak
3	1782.000	56.53	-10.18	46.35	74.00	-27.65	peak
4	2016.000	56.09	-10.09	46.00	74.00	-28.00	peak
5	2080.000	56.20	-9.73	46.47	74.00	-27.53	peak
6	2228.000	55.22	-8.96	46.26	74.00	-27.74	peak

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1038.000	61.15	-13.79	47.36	74.00	-26.64	peak
2	1188.000	58.66	-13.05	45.61	74.00	-28.39	peak
3	1336.000	59.83	-12.80	47.03	74.00	-26.97	peak
4	1782.000	54.49	-10.18	44.31	74.00	-29.69	peak
5	2080.000	55.87	-9.73	46.14	74.00	-27.86	peak
6	2228.000	55.35	-8.96	46.39	74.00	-27.61	peak

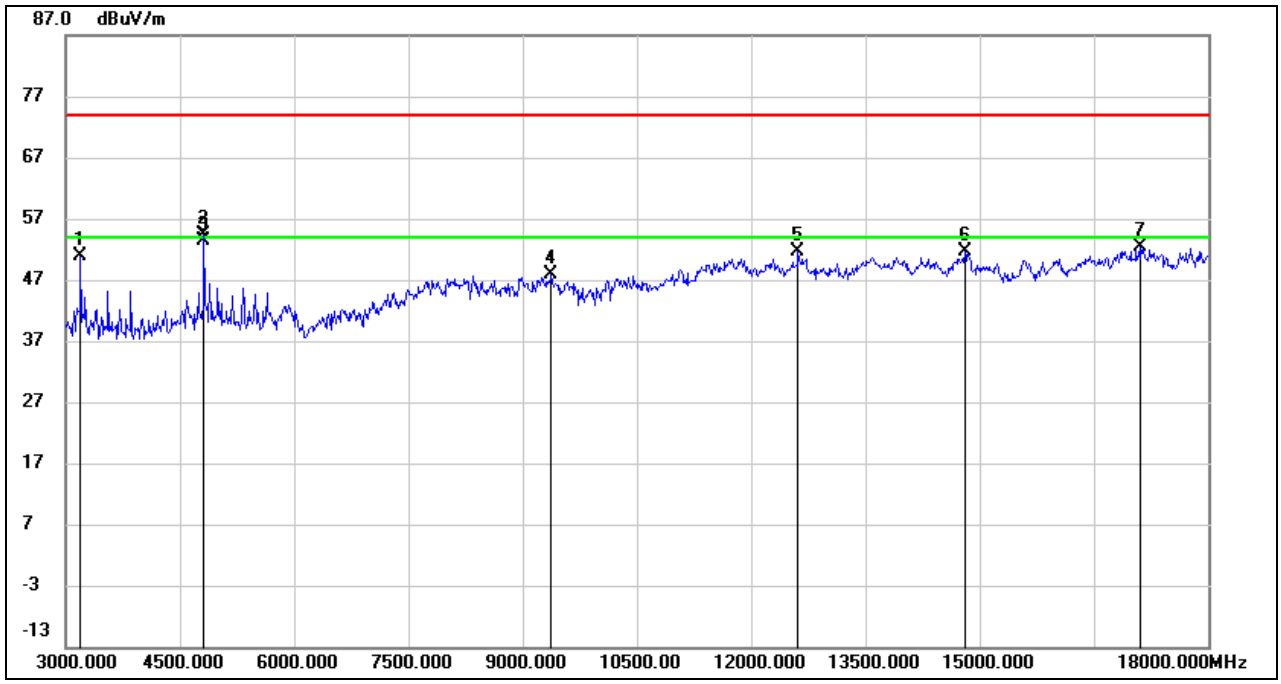
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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

8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

8.3.1. 802.11b SISO MODE

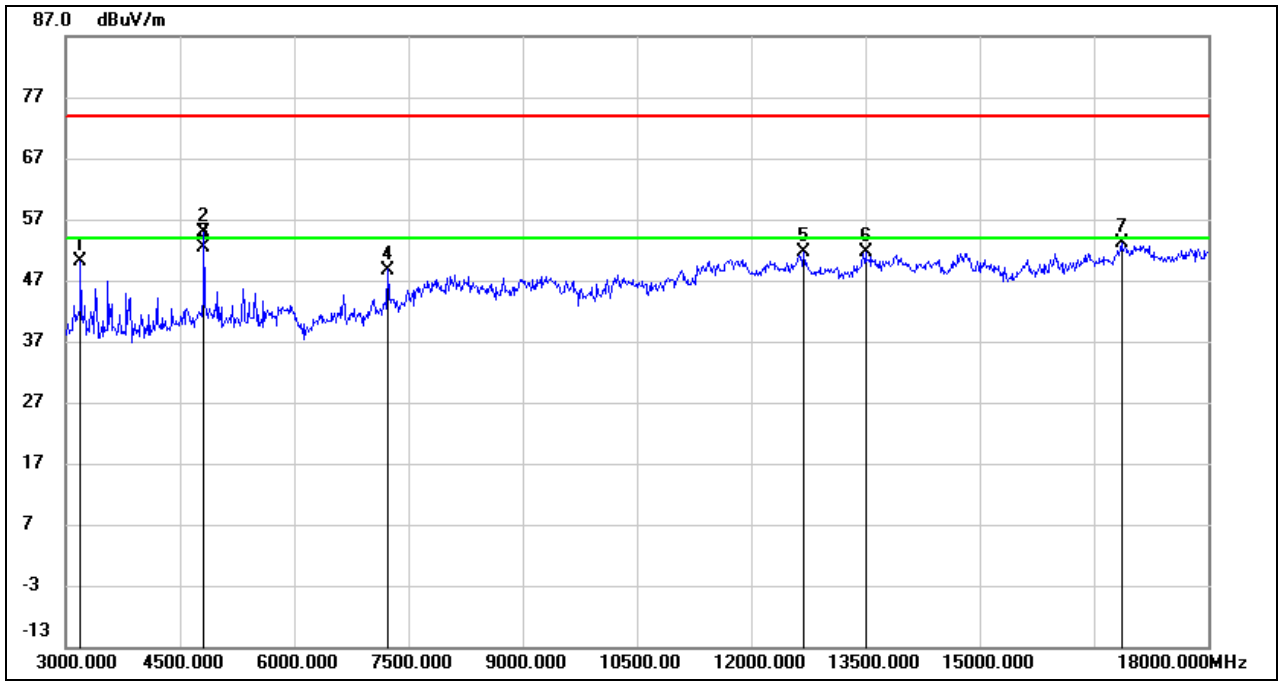
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.79	-3.91	50.88	74.00	-23.12	peak
2	4815.000	53.01	1.38	54.39	74.00	-19.61	peak
3	4815.000	52.05	1.38	53.43	54.00	-0.57	AVG
4	9375.000	36.97	10.83	47.80	74.00	-26.20	peak
5	12615.000	35.83	15.75	51.58	74.00	-22.42	peak
6	14805.000	33.55	18.00	51.55	74.00	-22.45	peak
7	17100.000	30.49	21.90	52.39	74.00	-21.61	peak

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

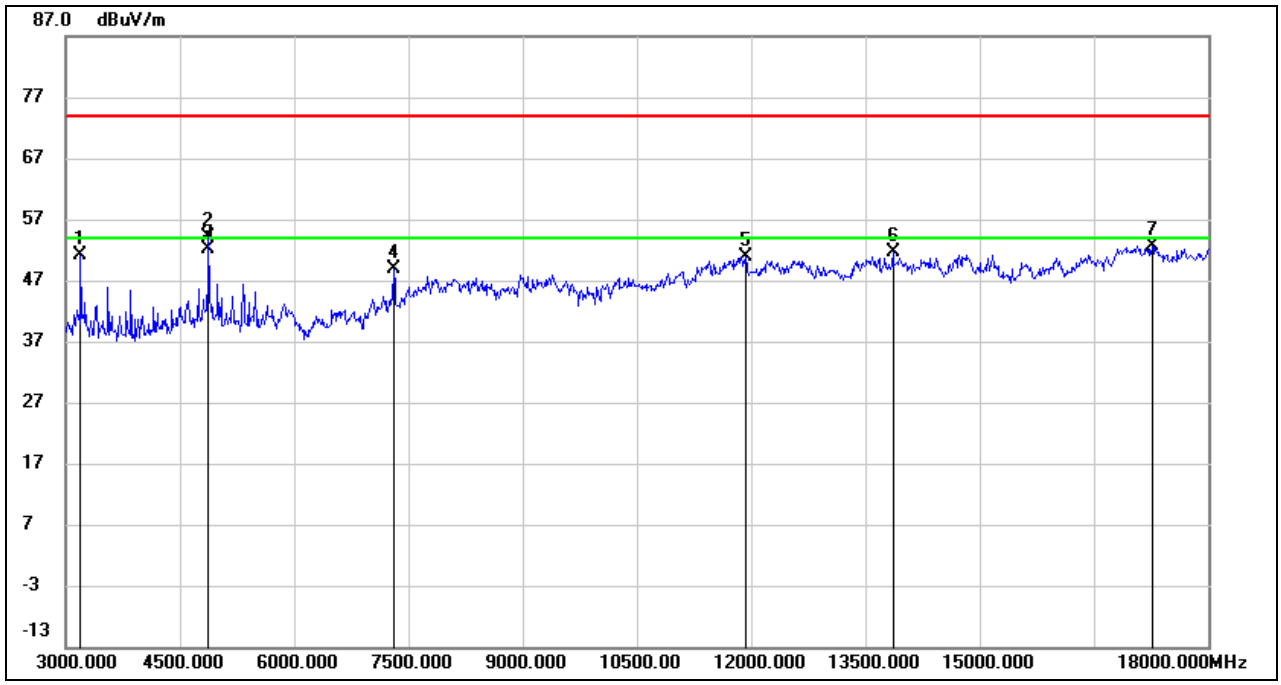
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.11	-3.91	50.20	74.00	-23.80	peak
2	4815.000	53.45	1.38	54.83	74.00	-19.17	peak
3	4815.000	50.95	1.38	52.33	54.00	-1.67	AVG
4	7230.000	41.47	7.28	48.75	74.00	-25.25	peak
5	12690.000	36.06	15.64	51.70	74.00	-22.30	peak
6	13500.000	34.33	17.22	51.55	74.00	-22.45	peak
7	16860.000	31.90	21.22	53.12	74.00	-20.88	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. 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.

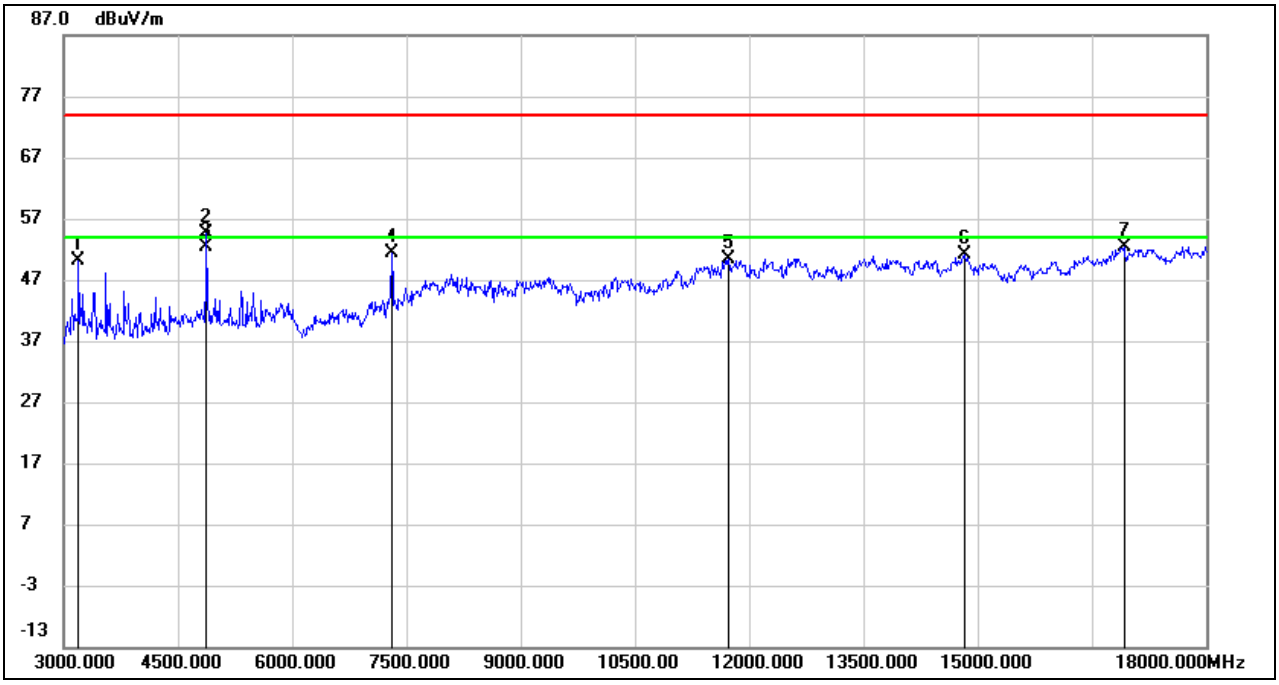
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.99	-3.91	51.08	74.00	-22.92	peak
2	4875.000	52.85	1.32	54.17	74.00	-19.83	peak
3	4875.000	50.77	1.32	52.09	54.00	-1.91	AVG
4	7305.000	41.83	7.14	48.97	74.00	-25.03	peak
5	11925.000	35.45	15.52	50.97	74.00	-23.03	peak
6	13860.000	34.03	17.55	51.58	74.00	-22.42	peak
7	17265.000	30.27	22.39	52.66	74.00	-21.34	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.

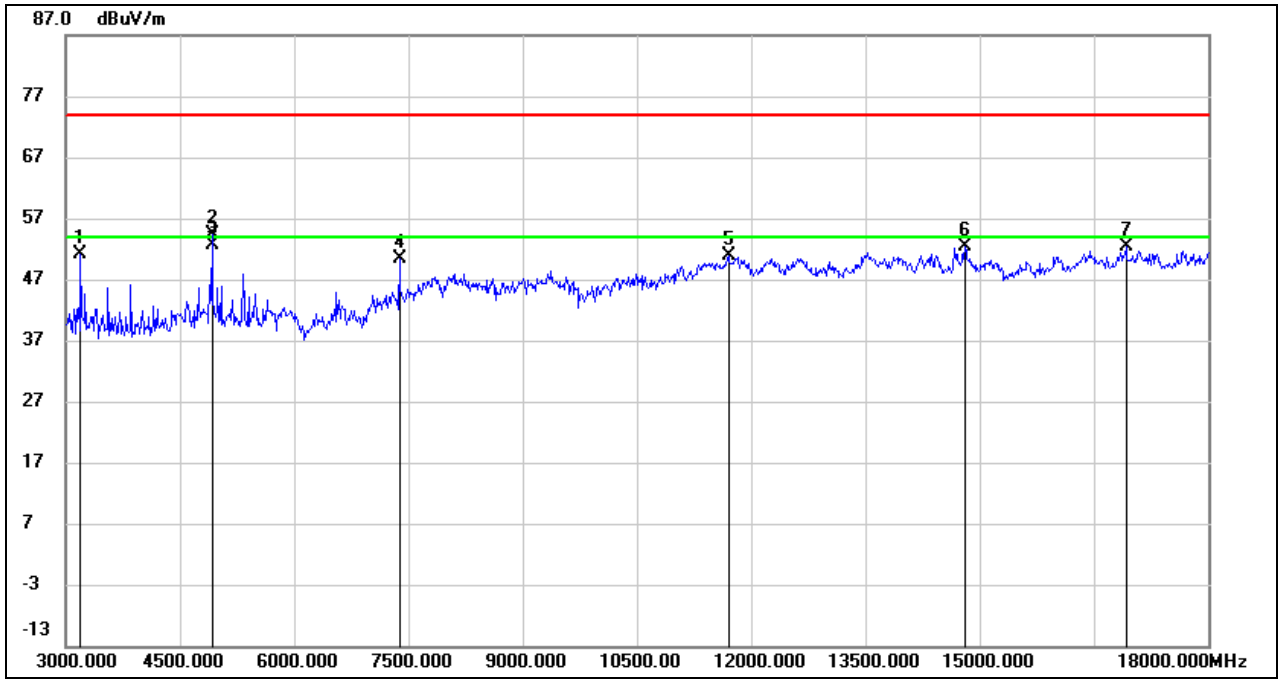
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	53.95	-3.91	50.04	74.00	-23.96	peak
2	4875.000	53.30	1.32	54.62	74.00	-19.38	peak
3	4875.000	51.18	1.32	52.50	54.00	-1.50	AVG
4	7305.000	44.22	7.14	51.36	74.00	-22.64	peak
5	11730.000	35.14	15.32	50.46	74.00	-23.54	peak
6	14820.000	33.17	17.91	51.08	74.00	-22.92	peak
7	16920.000	30.86	21.51	52.37	74.00	-21.63	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.

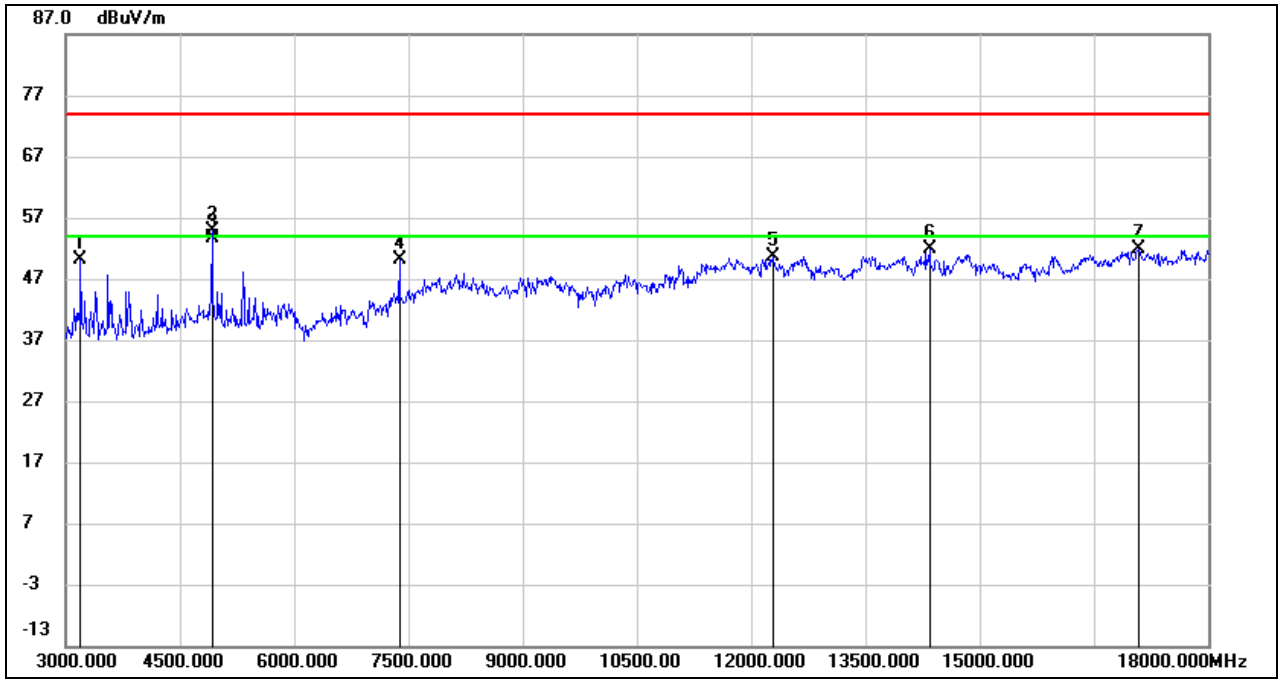
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	55.06	-3.91	51.15	74.00	-22.85	peak
2	4920.000	52.96	1.45	54.41	74.00	-19.59	peak
3	4920.000	51.17	1.45	52.62	54.00	-1.38	AVG
4	7380.000	42.70	7.79	50.49	74.00	-23.51	peak
5	11700.000	35.49	15.35	50.84	74.00	-23.16	peak
6	14805.000	34.30	18.00	52.30	74.00	-21.70	peak
7	16920.000	30.82	21.51	52.33	74.00	-21.67	peak

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

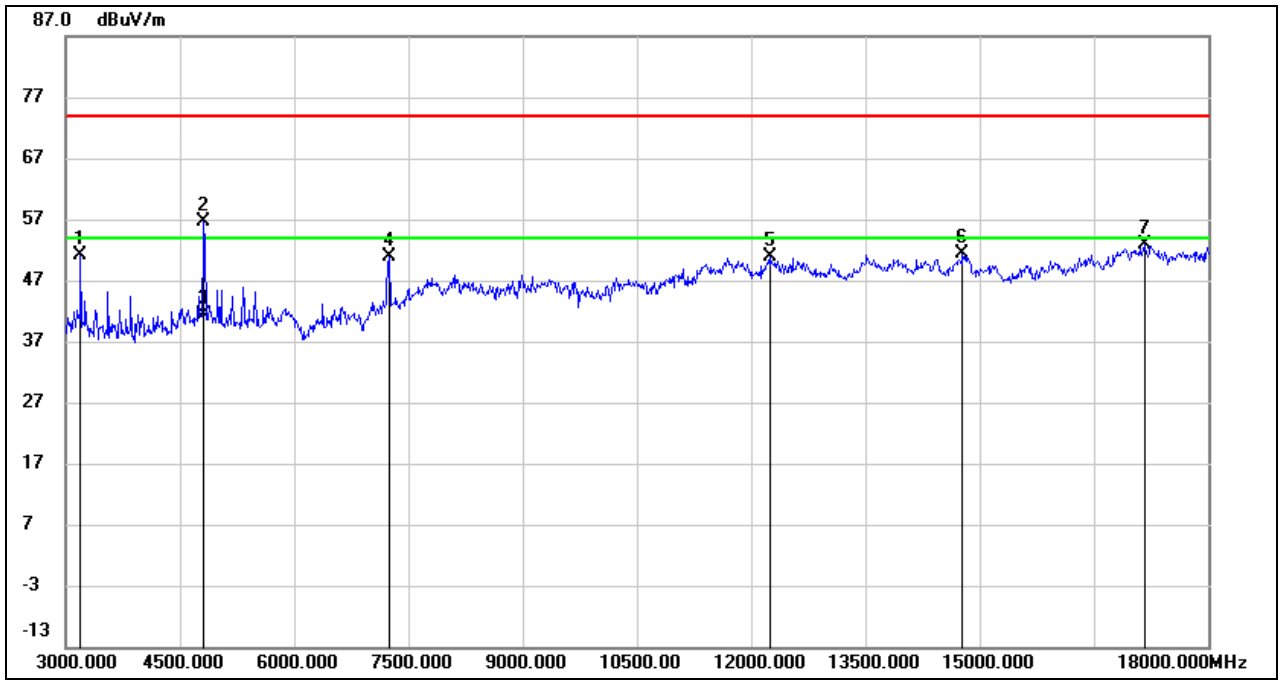


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.06	-3.91	50.15	74.00	-23.85	peak
2	4920.000	53.41	1.45	54.86	74.00	-19.14	peak
3	4920.000	52.25	1.45	53.70	54.00	-0.30	AVG
4	7380.000	42.35	7.79	50.14	74.00	-23.86	peak
5	12285.000	34.45	16.08	50.53	74.00	-23.47	peak
6	14340.000	34.08	17.84	51.92	74.00	-22.08	peak
7	17085.000	30.00	21.80	51.80	74.00	-22.20	peak

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

8.3.2. 802.11g SISO MODE

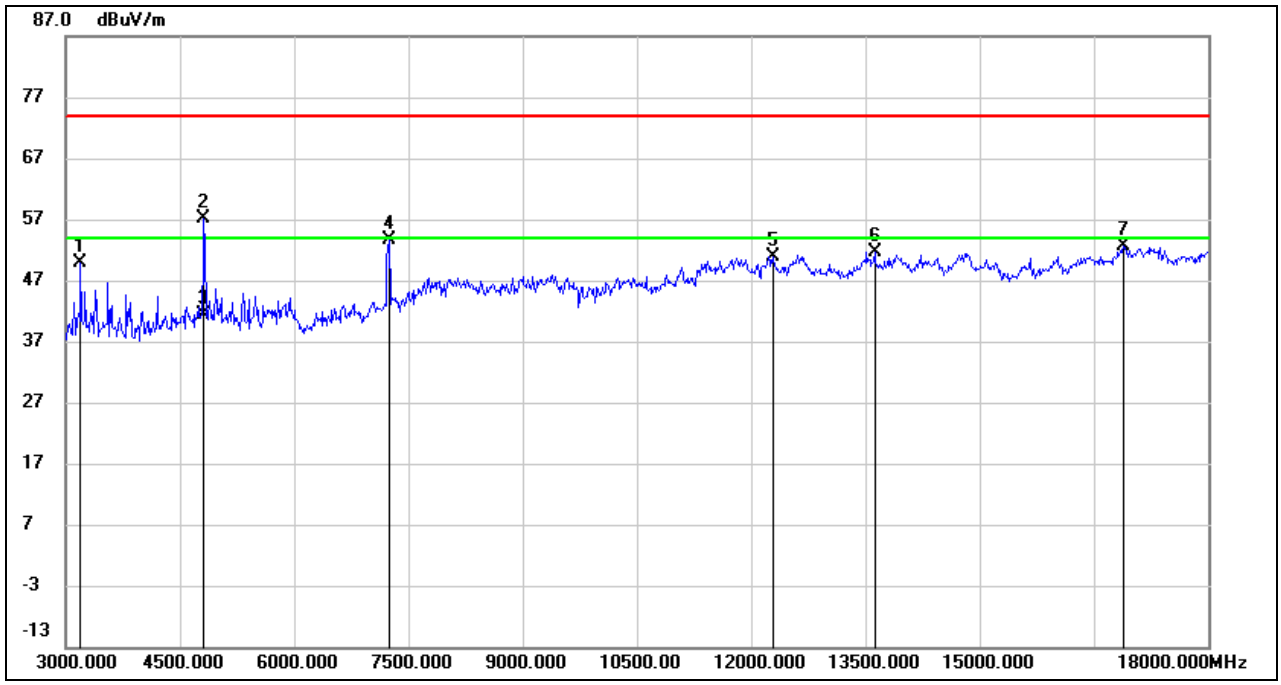
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	55.00	-3.91	51.09	74.00	-22.91	peak
2	4815.000	55.14	1.38	56.52	74.00	-17.48	peak
3	4815.000	40.05	1.38	41.43	54.00	-12.57	AVG
4	7245.000	43.55	7.25	50.80	74.00	-23.20	peak
5	12240.000	34.78	16.01	50.79	74.00	-23.21	peak
6	14775.000	33.35	17.95	51.30	74.00	-22.70	peak
7	17160.000	30.85	21.96	52.81	74.00	-21.19	peak

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

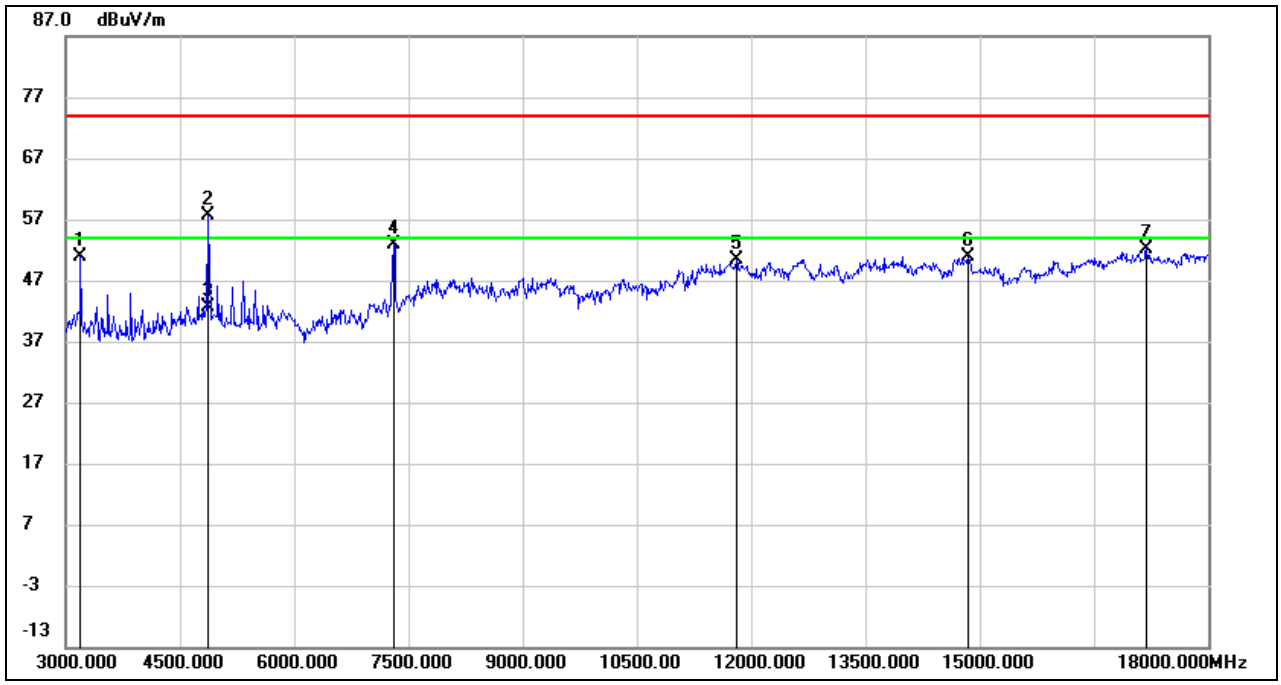
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	53.75	-3.91	49.84	74.00	-24.16	peak
2	4815.000	55.83	1.38	57.21	74.00	-16.79	peak
3	4815.000	40.02	1.38	41.40	54.00	-12.60	AVG
4	7245.000	46.37	7.25	53.62	74.00	-20.38	peak
5	12285.000	34.91	16.08	50.99	74.00	-23.01	peak
6	13620.000	34.49	17.19	51.68	74.00	-22.32	peak
7	16890.000	31.02	21.49	52.51	74.00	-21.49	peak

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

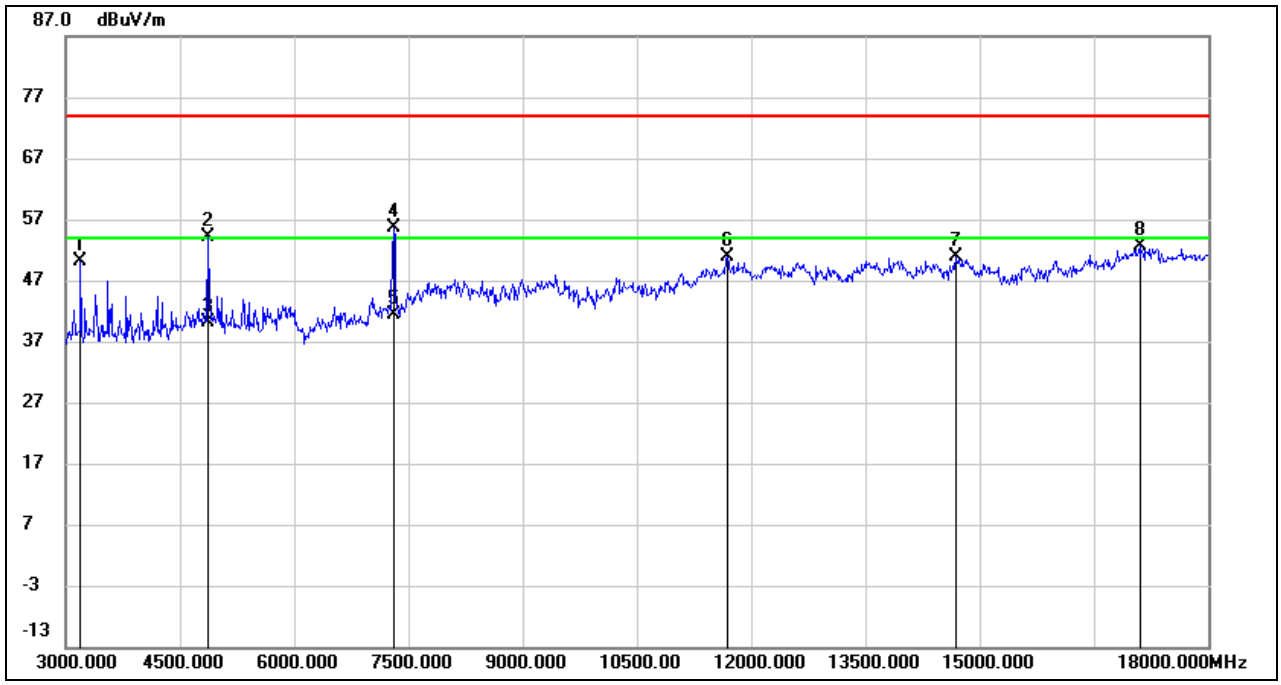
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.76	-3.91	50.85	74.00	-23.15	peak
2	4875.000	56.25	1.32	57.57	74.00	-16.43	peak
3	4875.000	41.28	1.32	42.60	54.00	-11.40	AVG
4	7305.000	45.79	7.14	52.93	74.00	-21.07	peak
5	11805.000	35.02	15.26	50.28	74.00	-23.72	peak
6	14850.000	33.24	17.71	50.95	74.00	-23.05	peak
7	17190.000	30.05	21.98	52.03	74.00	-21.97	peak

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

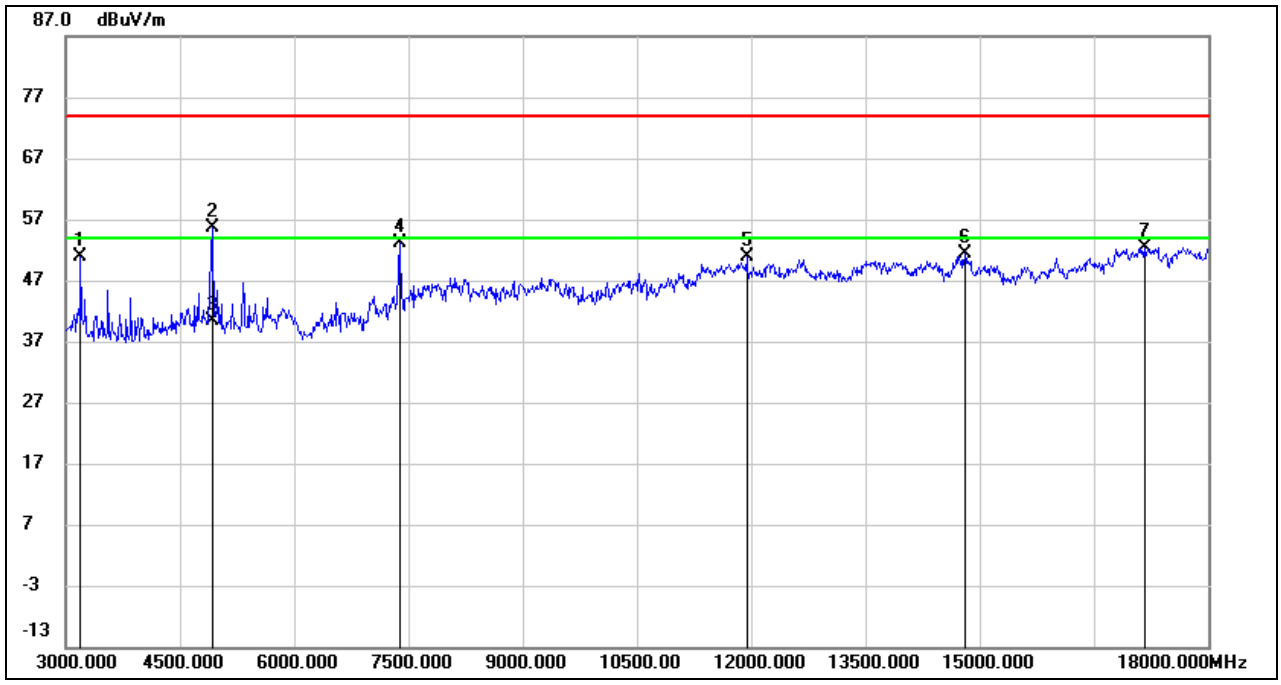
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	53.95	-3.91	50.04	74.00	-23.96	peak
2	4875.000	52.84	1.32	54.16	74.00	-19.84	peak
3	4875.000	38.93	1.32	40.25	54.00	-13.75	AVG
4	7305.000	48.61	7.14	55.75	74.00	-18.25	peak
5	7305.000	34.36	7.14	41.50	54.00	-12.50	AVG
6	11685.000	35.67	15.26	50.93	74.00	-23.07	peak
7	14685.000	33.13	17.64	50.77	74.00	-23.23	peak
8	17100.000	30.69	21.90	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. 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.

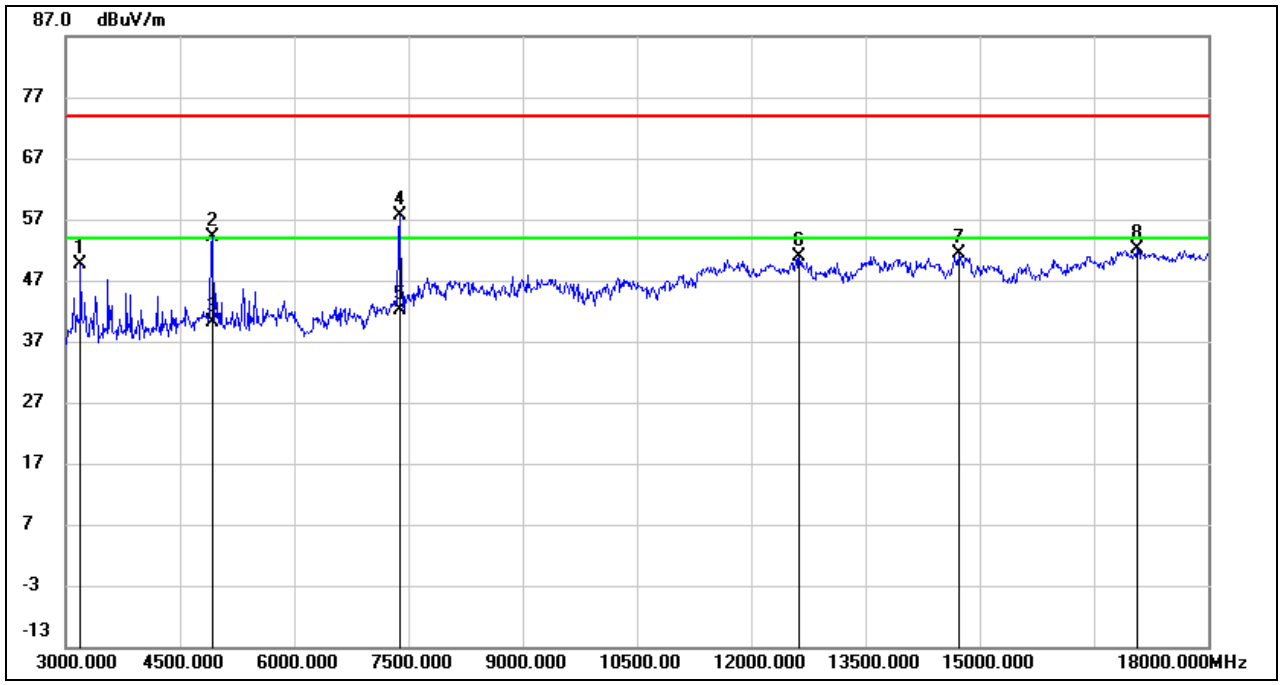
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.89	-3.91	50.98	74.00	-23.02	peak
2	4920.000	54.29	1.45	55.74	74.00	-18.26	peak
3	4920.000	38.88	1.45	40.33	54.00	-13.67	AVG
4	7380.000	45.38	7.79	53.17	74.00	-20.83	peak
5	11940.000	35.22	15.54	50.76	74.00	-23.24	peak
6	14805.000	33.31	18.00	51.31	74.00	-22.69	peak
7	17160.000	30.41	21.96	52.37	74.00	-21.63	peak

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

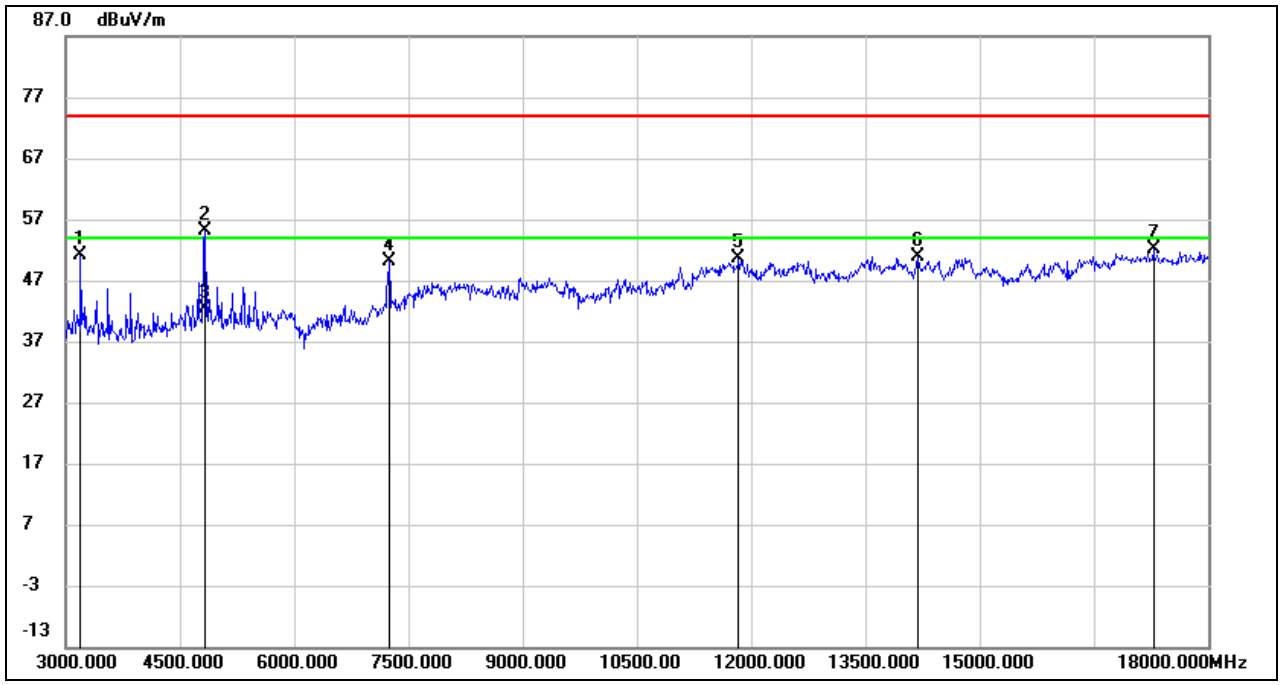


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	53.51	-3.91	49.60	74.00	-24.40	peak
2	4920.000	52.64	1.45	54.09	74.00	-19.91	peak
3	4920.000	38.65	1.45	40.10	54.00	-13.90	AVG
4	7380.000	49.95	7.79	57.74	74.00	-16.26	peak
5	7380.000	34.43	7.79	42.22	54.00	-11.78	AVG
6	12630.000	35.27	15.72	50.99	74.00	-23.01	peak
7	14730.000	33.52	17.79	51.31	74.00	-22.69	peak
8	17070.000	30.32	21.71	52.03	74.00	-21.97	peak

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

8.3.3. 802.11n HT20 MIMO MODE

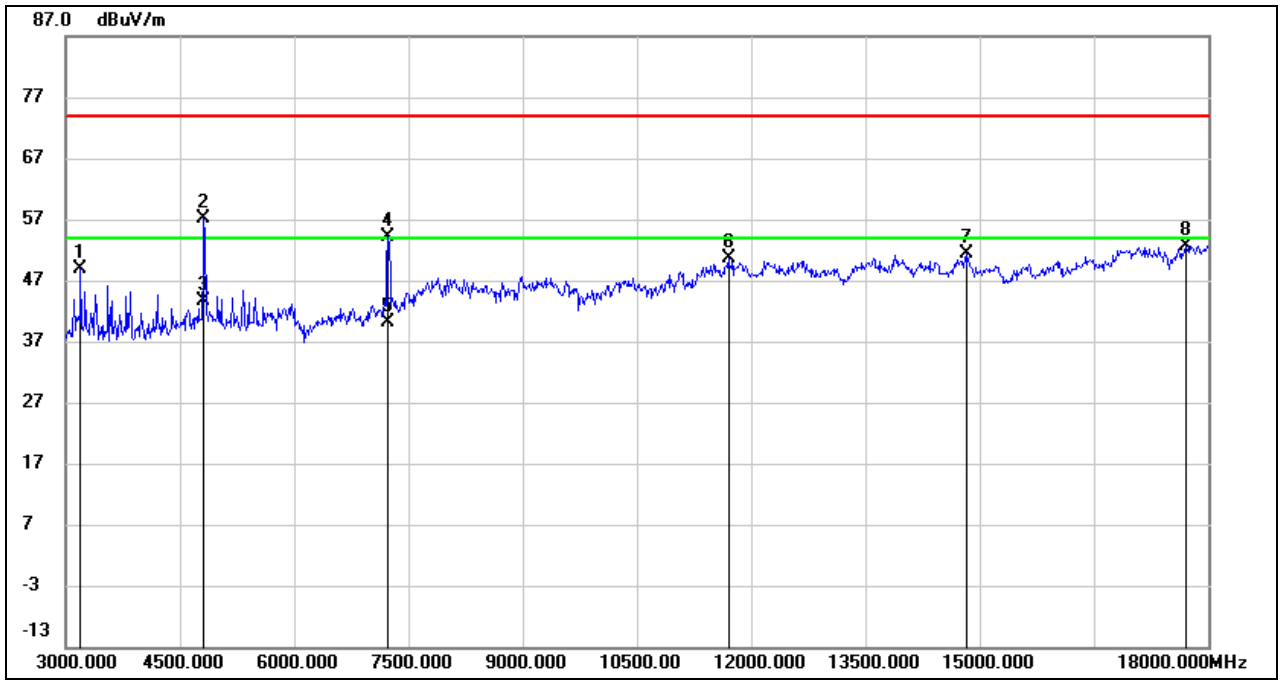
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.92	-3.91	51.01	74.00	-22.99	peak
2	4830.000	53.73	1.37	55.10	74.00	-18.90	peak
3	4830.000	40.89	1.37	42.26	54.00	-11.74	AVG
4	7245.000	42.98	7.25	50.23	74.00	-23.77	peak
5	11835.000	35.40	15.34	50.74	74.00	-23.26	peak
6	14190.000	33.24	17.76	51.00	74.00	-23.00	peak
7	17280.000	29.63	22.48	52.11	74.00	-21.89	peak

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

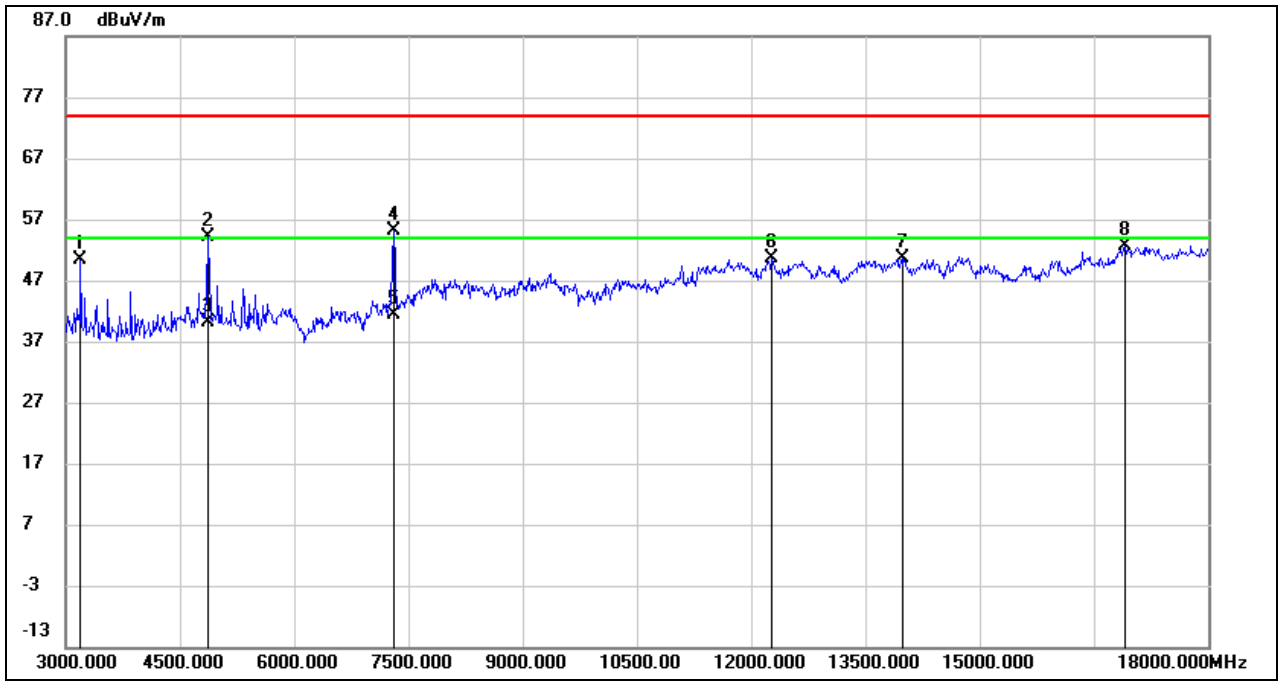
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	52.88	-3.91	48.97	74.00	-25.03	peak
2	4815.000	55.83	1.38	57.21	74.00	-16.79	peak
3	4815.000	42.31	1.38	43.69	54.00	-10.31	AVG
4	7230.000	46.81	7.28	54.09	74.00	-19.91	peak
5	7230.000	32.75	7.28	40.03	54.00	-13.97	AVG
6	11700.000	35.31	15.35	50.66	74.00	-23.34	peak
7	14820.000	33.49	17.91	51.40	74.00	-22.60	peak
8	17715.000	29.18	23.56	52.74	74.00	-21.26	peak

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

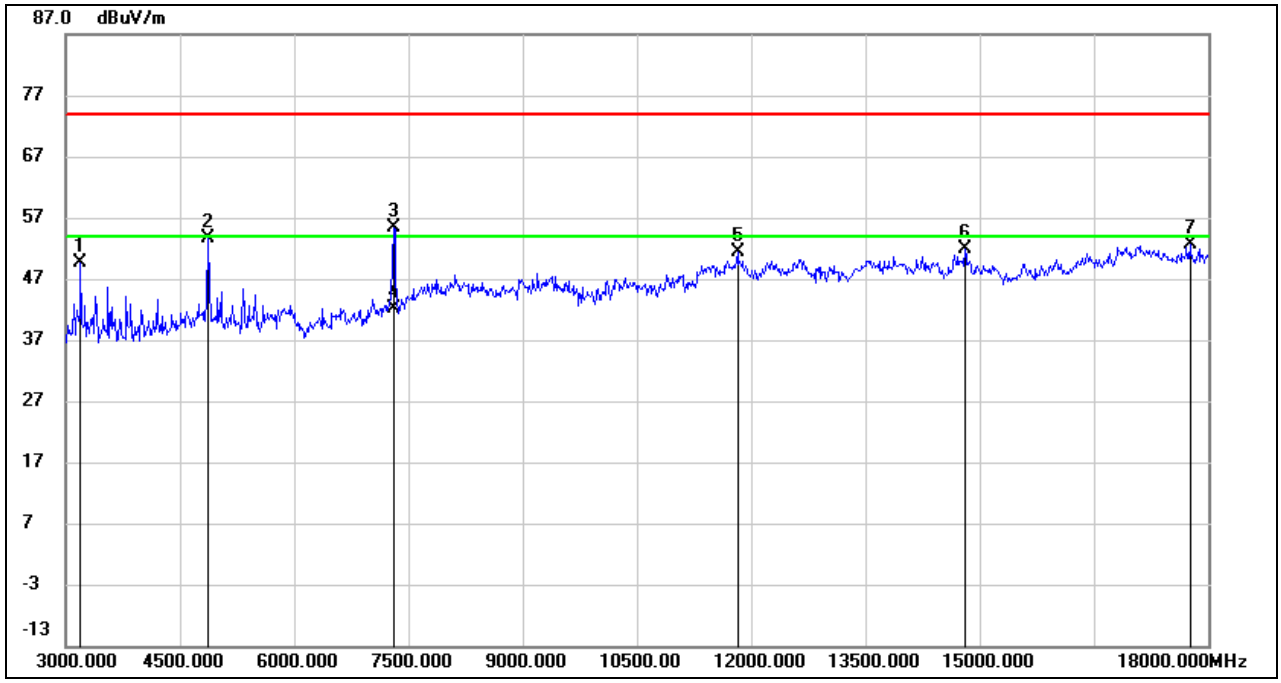
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.38	-3.91	50.47	74.00	-23.53	peak
2	4860.000	52.81	1.33	54.14	74.00	-19.86	peak
3	4860.000	38.83	1.33	40.16	54.00	-13.84	AVG
4	7305.000	47.95	7.14	55.09	74.00	-18.91	peak
5	7305.000	34.16	7.14	41.30	54.00	-12.70	AVG
6	12270.000	34.62	16.04	50.66	74.00	-23.34	peak
7	13980.000	32.96	17.64	50.60	74.00	-23.40	peak
8	16905.000	31.09	21.55	52.64	74.00	-21.36	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.

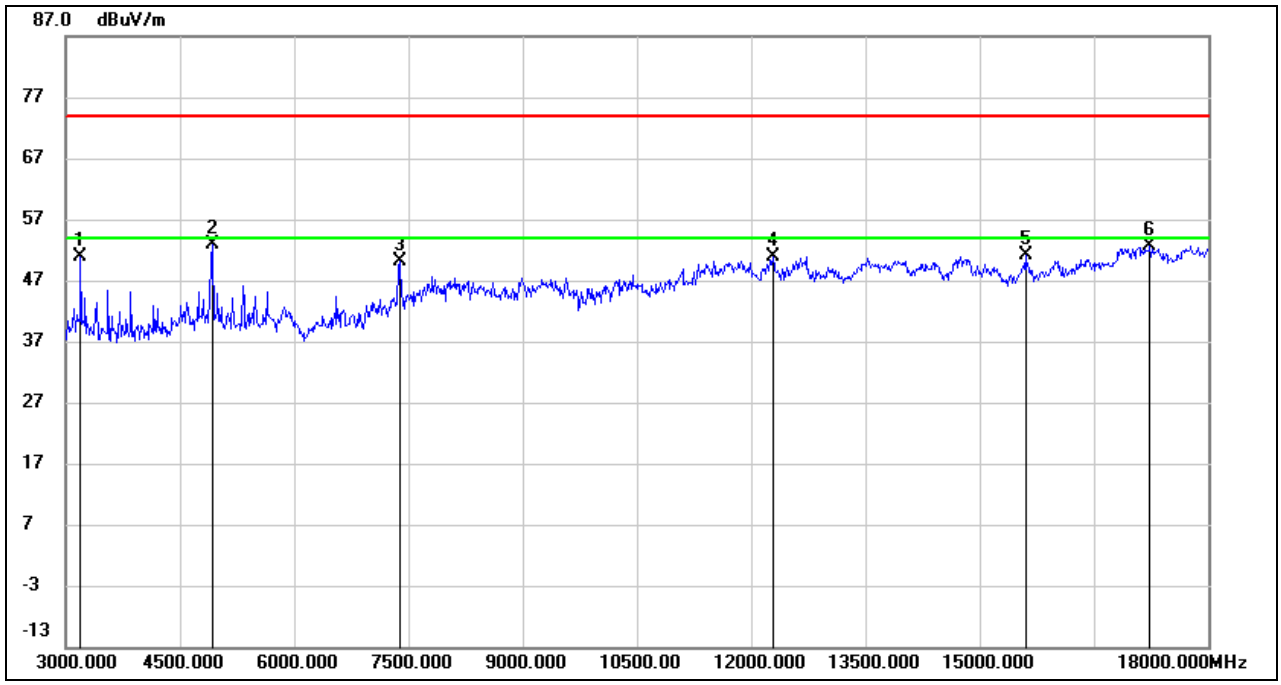
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	53.48	-3.91	49.57	74.00	-24.43	peak
2	4875.000	52.27	1.32	53.59	74.00	-20.41	peak
3	7305.000	48.13	7.14	55.27	74.00	-18.73	peak
4	7305.000	35.03	7.14	42.17	54.00	-11.83	AVG
5	11820.000	36.05	15.29	51.34	74.00	-22.66	peak
6	14805.000	33.92	18.00	51.92	74.00	-22.08	peak
7	17760.000	28.77	23.82	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. 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.

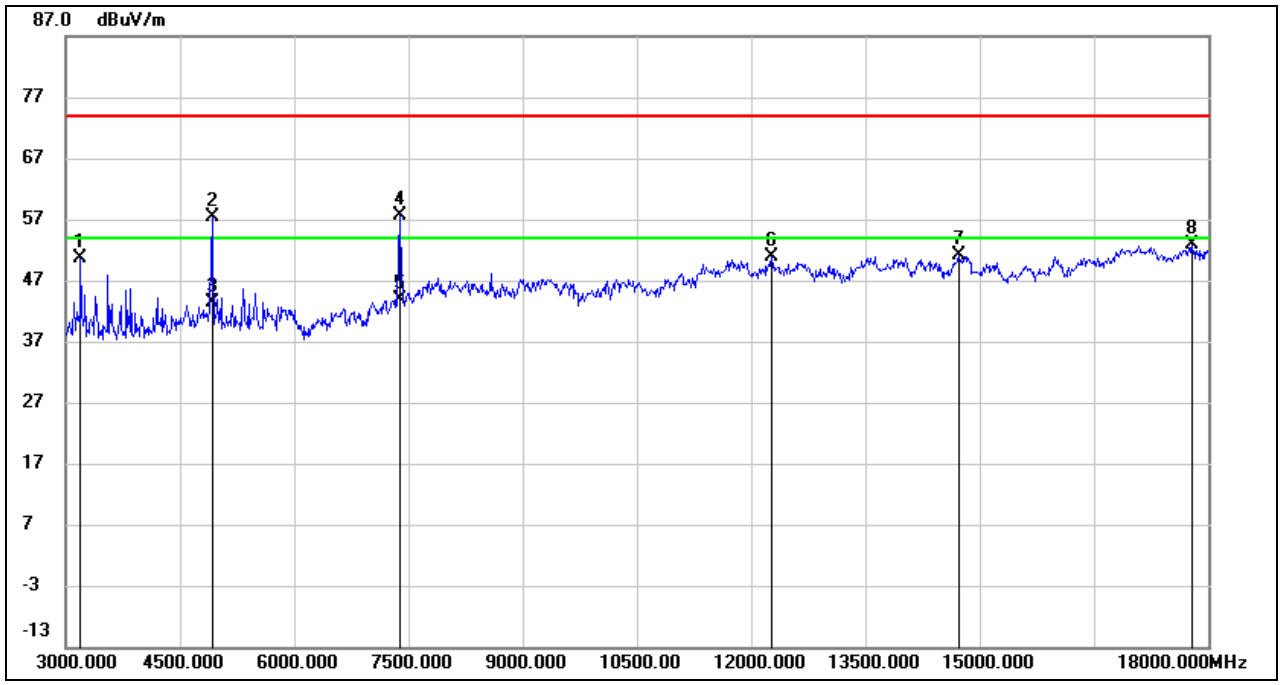
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.72	-3.91	50.81	74.00	-23.19	peak
2	4920.000	51.34	1.45	52.79	74.00	-21.21	peak
3	7380.000	42.23	7.79	50.02	74.00	-23.98	peak
4	12285.000	34.87	16.08	50.95	74.00	-23.05	peak
5	15600.000	33.36	17.70	51.06	74.00	-22.94	peak
6	17235.000	30.41	22.21	52.62	74.00	-21.38	peak

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



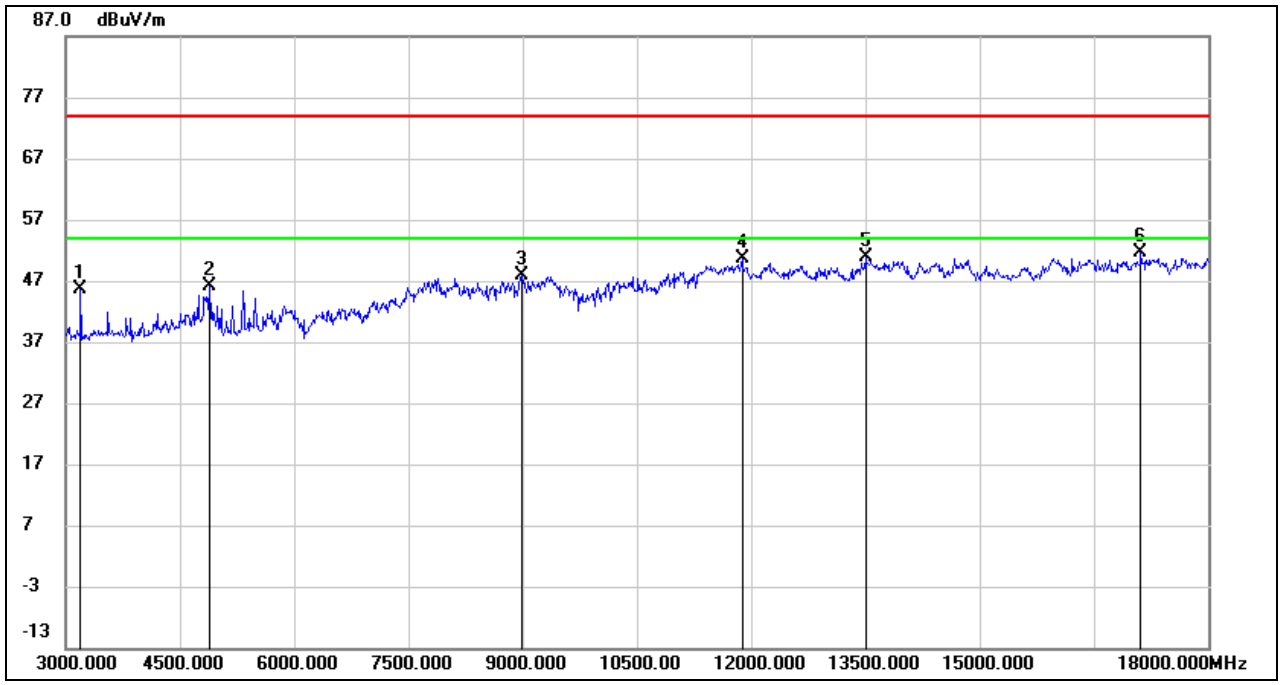
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	54.43	-3.91	50.52	74.00	-23.48	peak
2	4920.000	55.85	1.45	57.30	74.00	-16.70	peak
3	4920.000	41.90	1.45	43.35	54.00	-10.65	AVG
4	7380.000	49.74	7.79	57.53	74.00	-16.47	peak
5	7380.000	36.03	7.79	43.82	54.00	-10.18	AVG
6	12270.000	34.83	16.04	50.87	74.00	-23.13	peak
7	14730.000	33.39	17.79	51.18	74.00	-22.82	peak
8	17790.000	28.99	23.99	52.98	74.00	-21.02	peak

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

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

8.3.4. 802.11n HT40 MIMO MODE

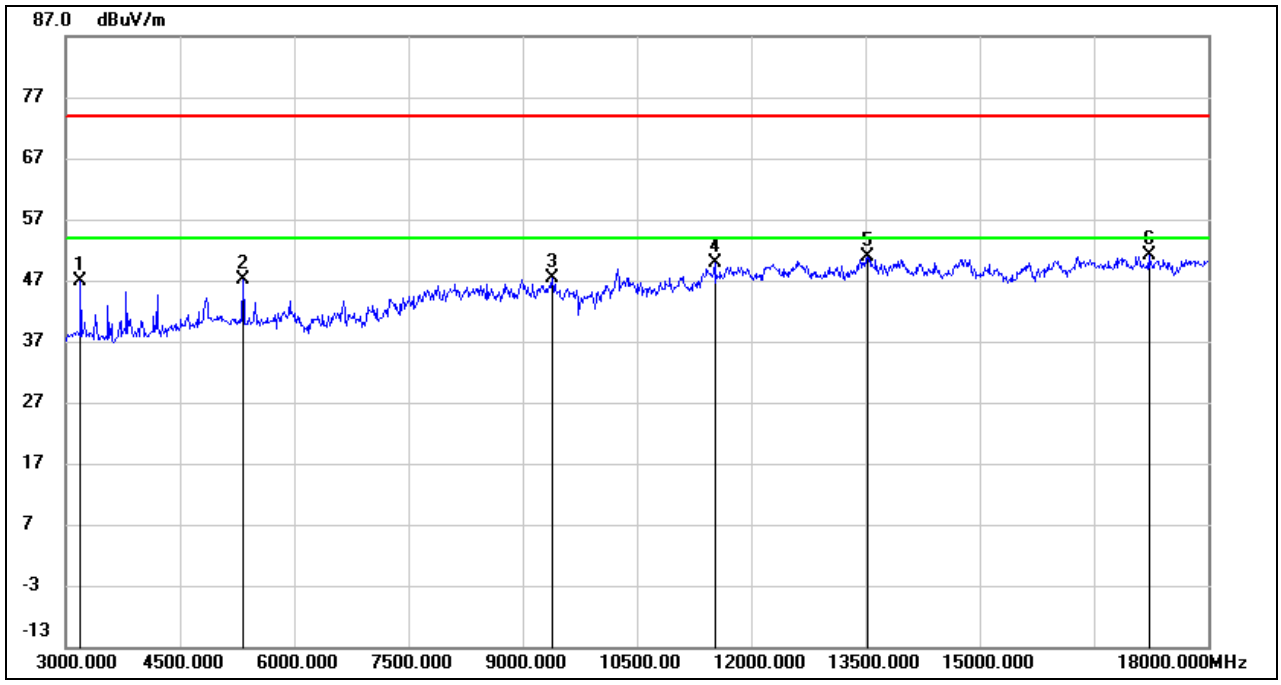
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	49.53	-3.91	45.62	74.00	-28.38	peak
2	4890.000	44.72	1.30	46.02	74.00	-27.98	peak
3	8985.000	36.91	10.99	47.90	74.00	-26.10	peak
4	11880.000	35.22	15.46	50.68	74.00	-23.32	peak
5	13500.000	33.63	17.22	50.85	74.00	-23.15	peak
6	17115.000	29.64	21.91	51.55	74.00	-22.45	peak

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

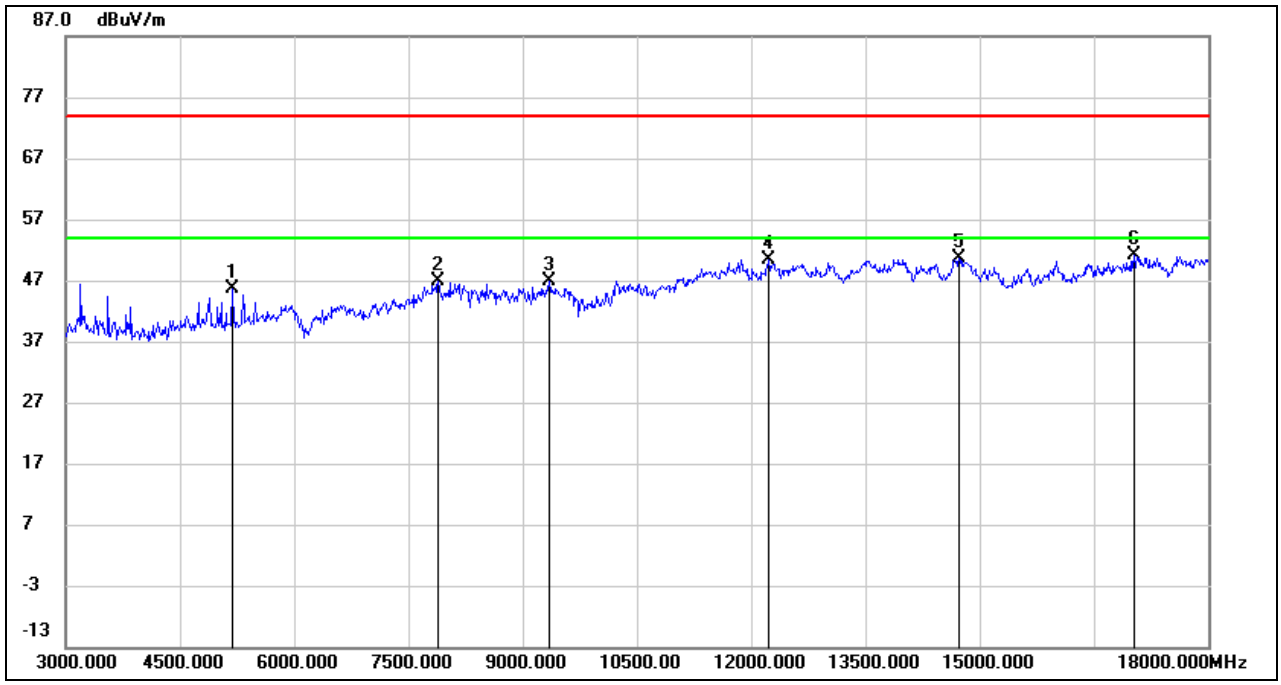
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	50.70	-3.91	46.79	74.00	-27.21	peak
2	5325.000	44.86	2.38	47.24	74.00	-26.76	peak
3	9390.000	36.39	10.92	47.31	74.00	-26.69	peak
4	11520.000	35.17	14.66	49.83	74.00	-24.17	peak
5	13530.000	33.75	17.19	50.94	74.00	-23.06	peak
6	17220.000	28.92	22.12	51.04	74.00	-22.96	peak

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

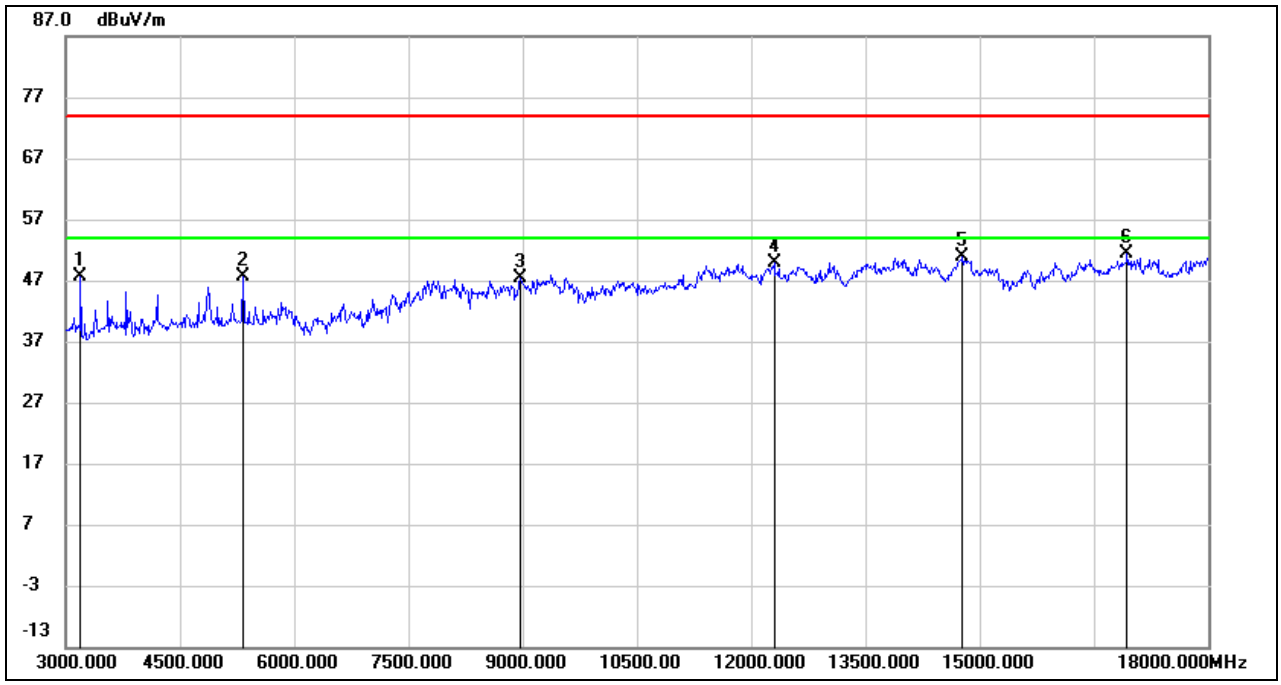
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5190.000	42.77	2.74	45.51	74.00	-28.49	peak
2	7890.000	37.89	8.91	46.80	74.00	-27.20	peak
3	9345.000	36.16	10.66	46.82	74.00	-27.18	peak
4	12225.000	34.44	15.99	50.43	74.00	-23.57	peak
5	14730.000	32.83	17.79	50.62	74.00	-23.38	peak
6	17025.000	29.80	21.40	51.20	74.00	-22.80	peak

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

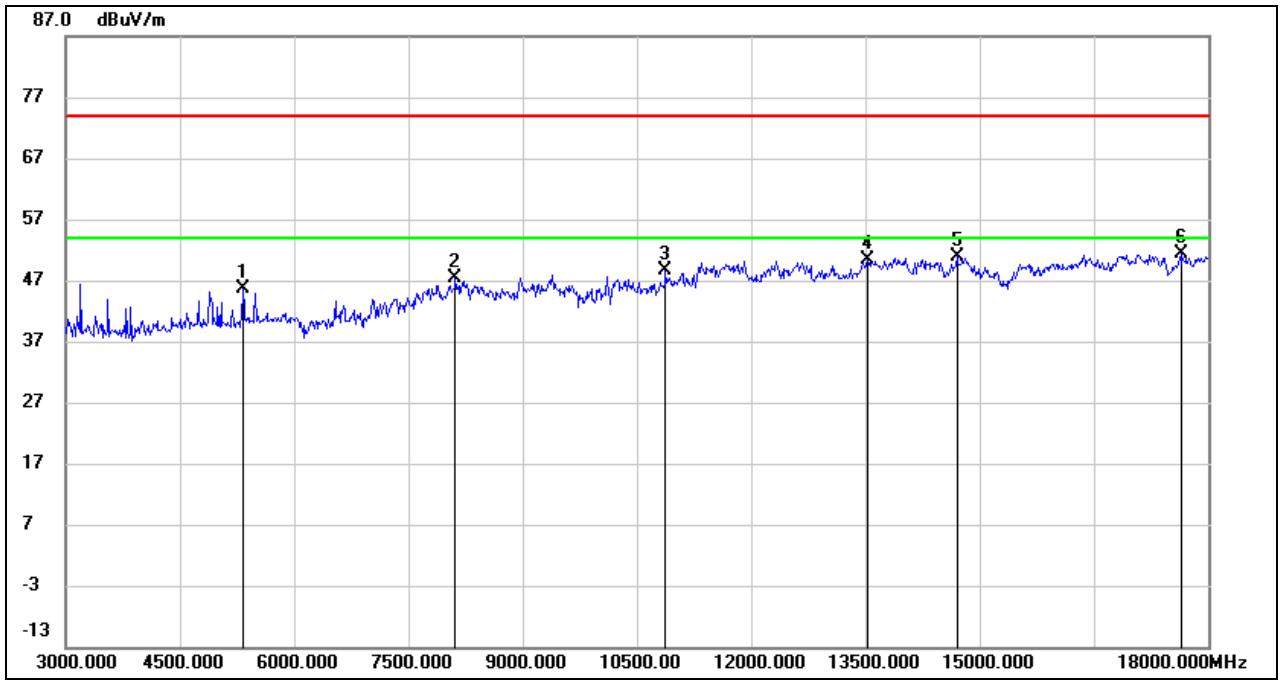
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	51.65	-3.91	47.74	74.00	-26.26	peak
2	5325.000	45.32	2.38	47.70	74.00	-26.30	peak
3	8970.000	36.66	10.70	47.36	74.00	-26.64	peak
4	12300.000	33.80	16.09	49.89	74.00	-24.11	peak
5	14775.000	32.81	17.95	50.76	74.00	-23.24	peak
6	16935.000	29.81	21.45	51.26	74.00	-22.74	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.

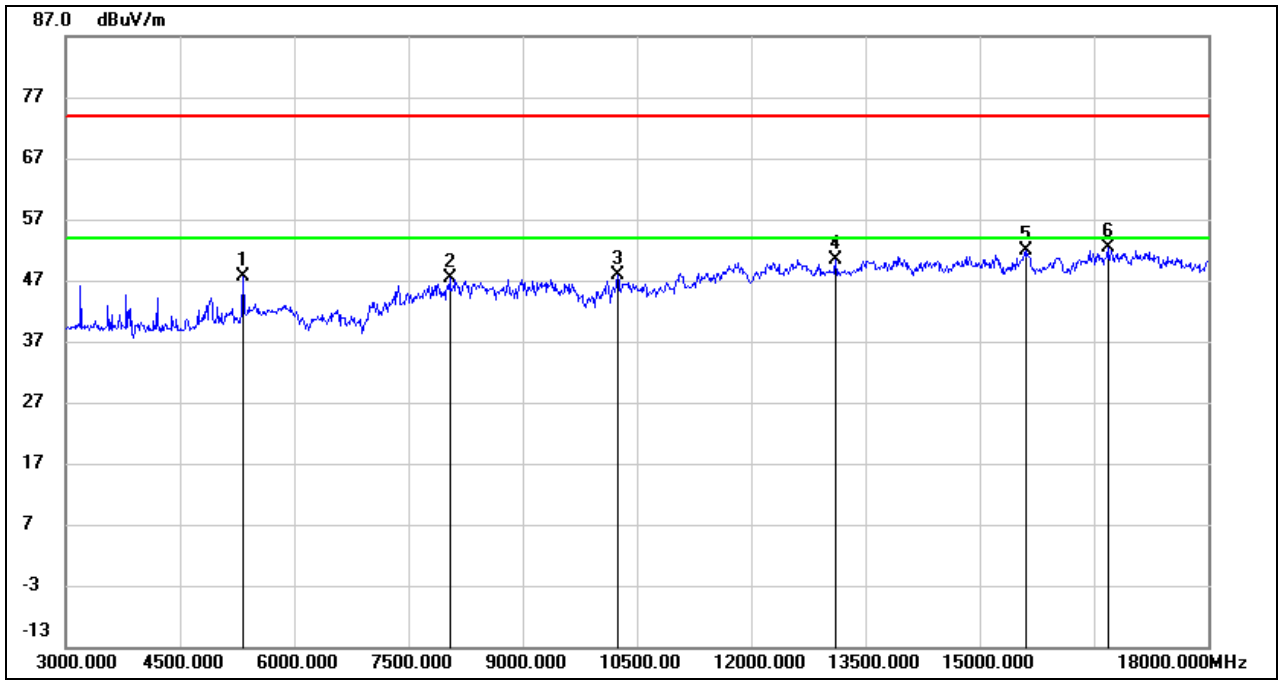
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5325.000	43.16	2.38	45.54	74.00	-28.46	peak
2	8115.000	37.18	10.13	47.31	74.00	-26.69	peak
3	10875.000	35.28	13.26	48.54	74.00	-25.46	peak
4	13530.000	33.22	17.19	50.41	74.00	-23.59	peak
5	14700.000	33.31	17.69	51.00	74.00	-23.00	peak
6	17655.000	28.34	23.14	51.48	74.00	-22.52	peak

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5325.000	45.28	2.38	47.66	74.00	-26.34	peak
2	8040.000	38.20	9.25	47.45	74.00	-26.55	peak
3	10245.000	36.24	11.63	47.87	74.00	-26.13	peak
4	13110.000	34.26	16.02	50.28	74.00	-23.72	peak
5	15615.000	34.14	17.72	51.86	74.00	-22.14	peak
6	16680.000	32.32	19.96	52.28	74.00	-21.72	peak

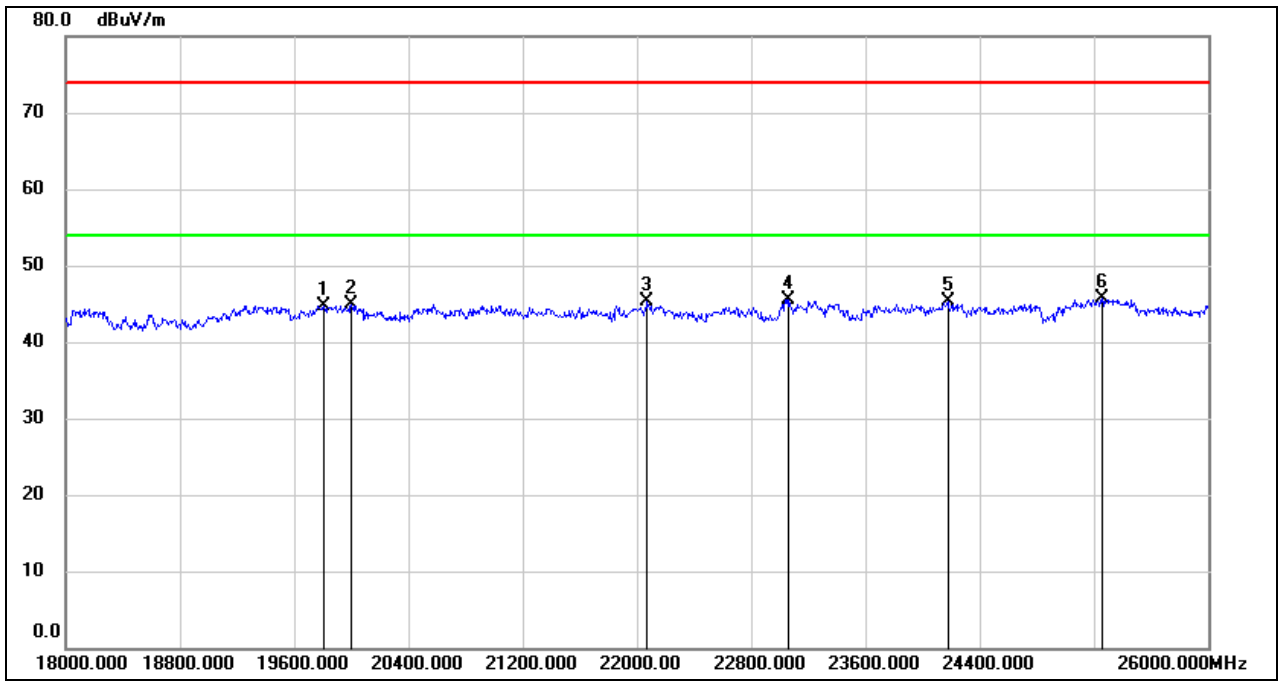
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.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

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

8.5. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.5.1. 802.11n HT40 SISO MODE

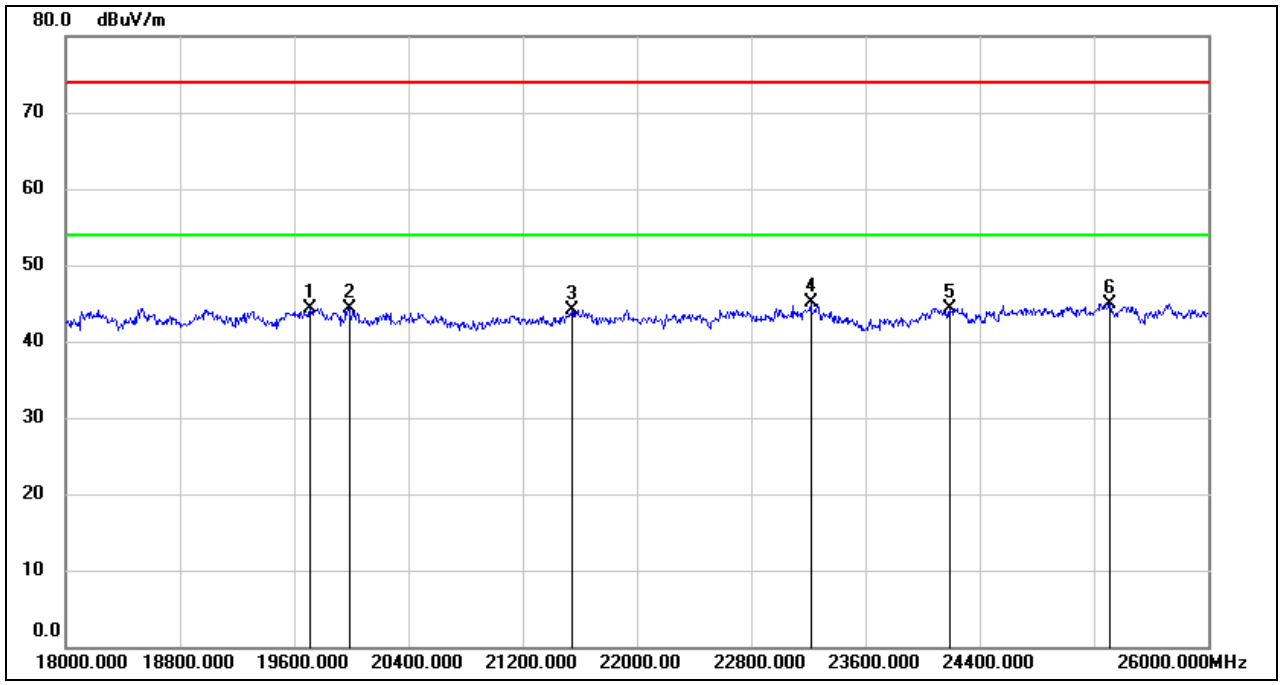
SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19808.000	50.09	-5.29	44.80	74.00	-29.20	peak
2	20000.000	50.31	-5.45	44.86	74.00	-29.14	peak
3	22072.000	49.77	-4.41	45.36	74.00	-28.64	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	25256.000	47.29	-1.67	45.62	74.00	-28.38	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	19712.000	49.51	-5.29	44.22	74.00	-29.78	peak
2	19984.000	49.71	-5.44	44.27	74.00	-29.73	peak
3	21544.000	48.76	-4.63	44.13	74.00	-29.87	peak
4	23216.000	48.51	-3.38	45.13	74.00	-28.87	peak
5	24192.000	47.21	-2.81	44.40	74.00	-29.60	peak
6	25312.000	46.70	-1.70	45.00	74.00	-29.00	peak

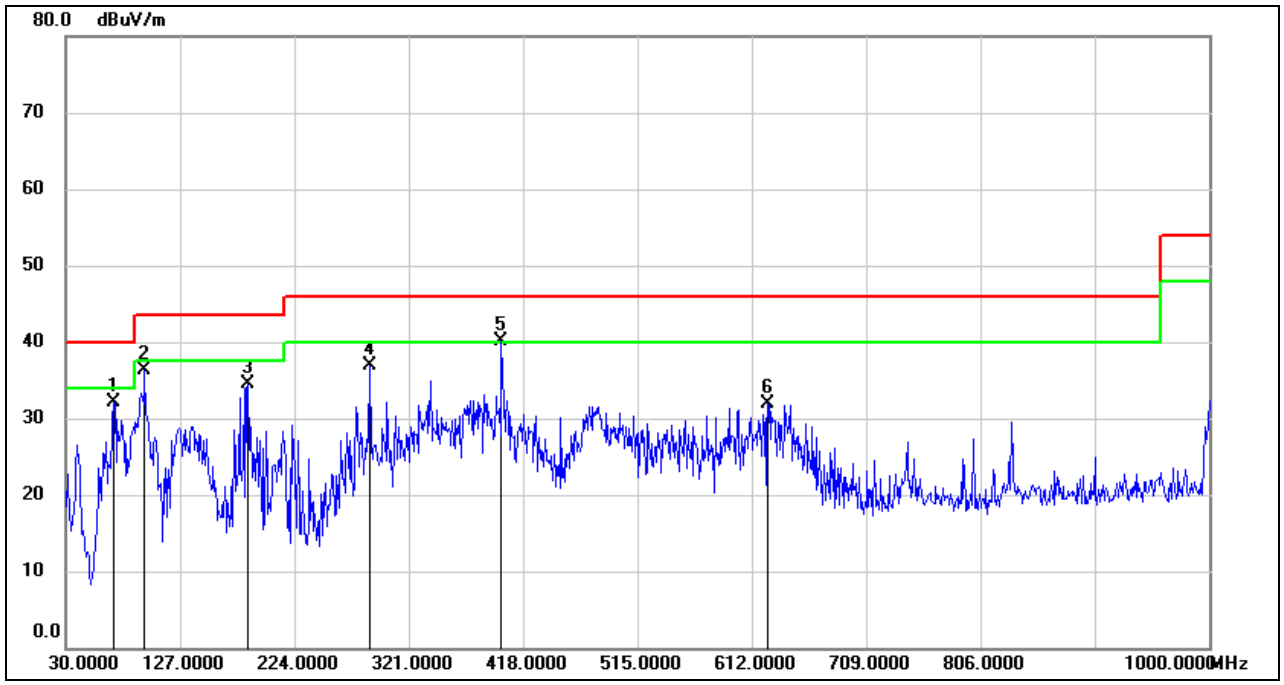
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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

8.6. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

8.6.1. 802.11n HT40 SISO MODE

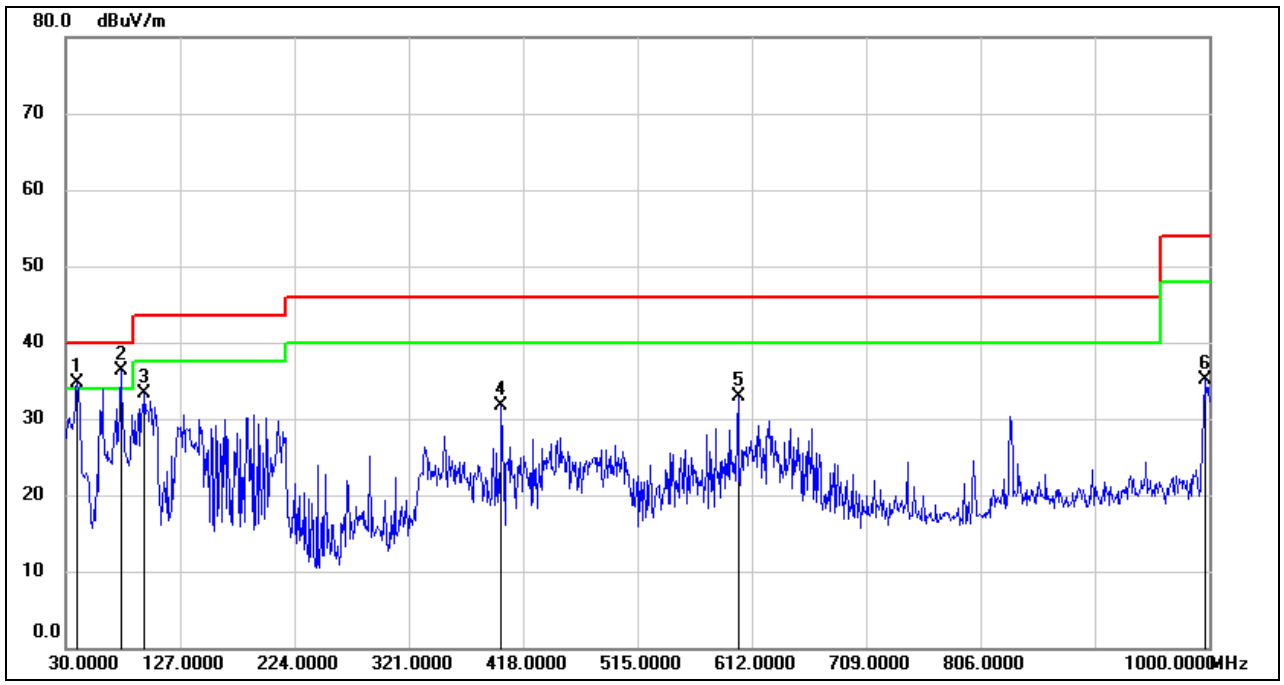
SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	70.7400	52.70	-20.63	32.07	40.00	-7.93	QP
2	96.9300	57.78	-21.38	36.40	43.50	-7.10	QP
3	184.2300	51.34	-16.77	34.57	43.50	-8.93	QP
4	288.0200	52.94	-16.06	36.88	46.00	-9.12	QP
5	399.5700	53.53	-13.37	40.16	46.00	-5.84	QP
6	625.5800	41.17	-9.28	31.89	46.00	-14.11	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	39.7000	54.63	-19.96	34.67	40.00	-5.33	QP
2	76.5600	57.31	-21.07	36.24	40.00	-3.76	QP
3	96.9300	54.59	-21.38	33.21	43.50	-10.29	QP
4	399.5700	45.12	-13.37	31.75	46.00	-14.25	QP
5	600.3600	42.53	-9.54	32.99	46.00	-13.01	QP
6	997.0900	39.27	-4.18	35.09	54.00	-18.91	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

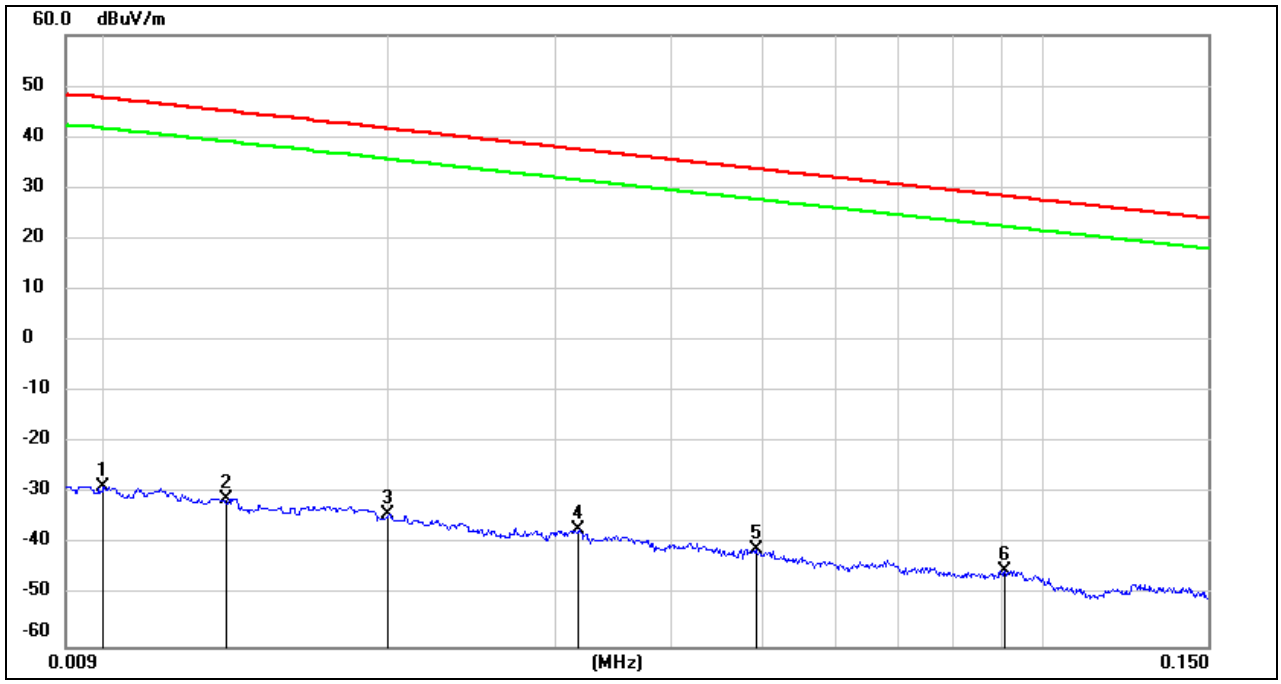
Note: All the modes and channels had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11n HT40 SISO MODE

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

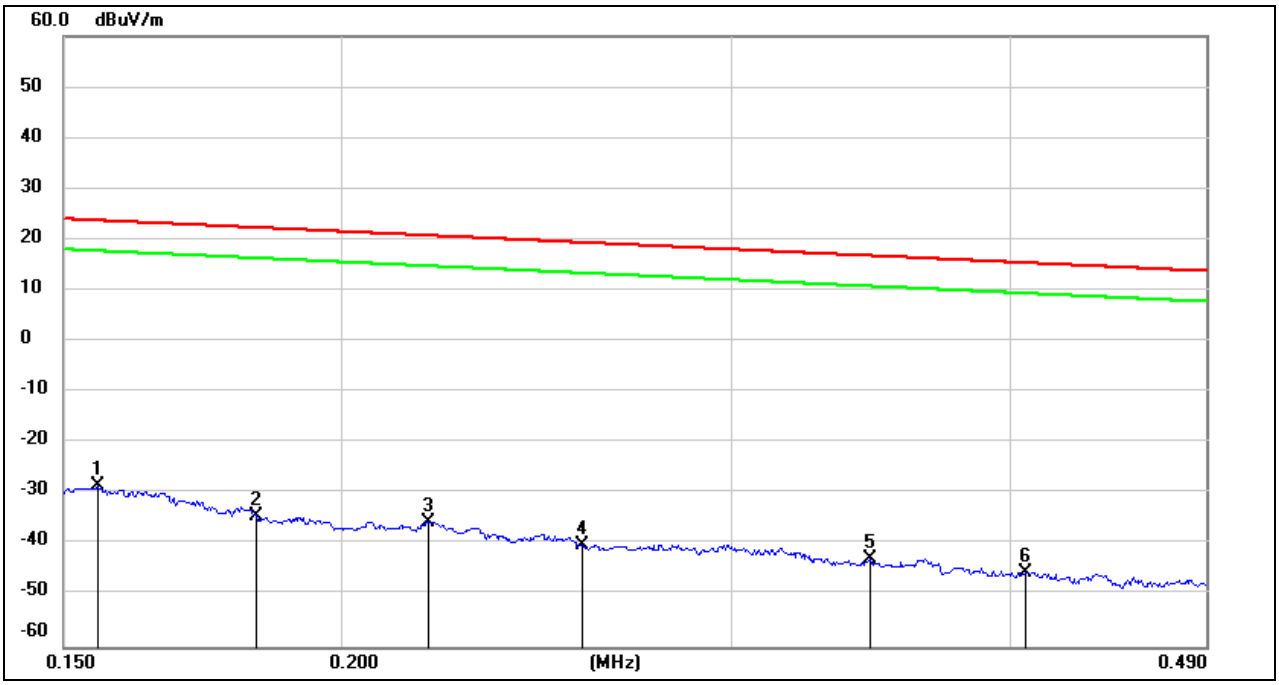
9 kHz~ 150 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	72.72	-101.40	-28.68	47.6	-76.28	peak
2	0.0134	70.23	-101.39	-31.16	45.06	-76.22	peak
3	0.0200	67.36	-101.34	-33.98	41.58	-75.56	peak
4	0.0318	64.34	-101.40	-37.06	37.55	-74.61	peak
5	0.0492	60.55	-101.47	-40.92	33.76	-74.68	peak
6	0.0911	56.61	-101.72	-45.11	28.41	-73.52	peak

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

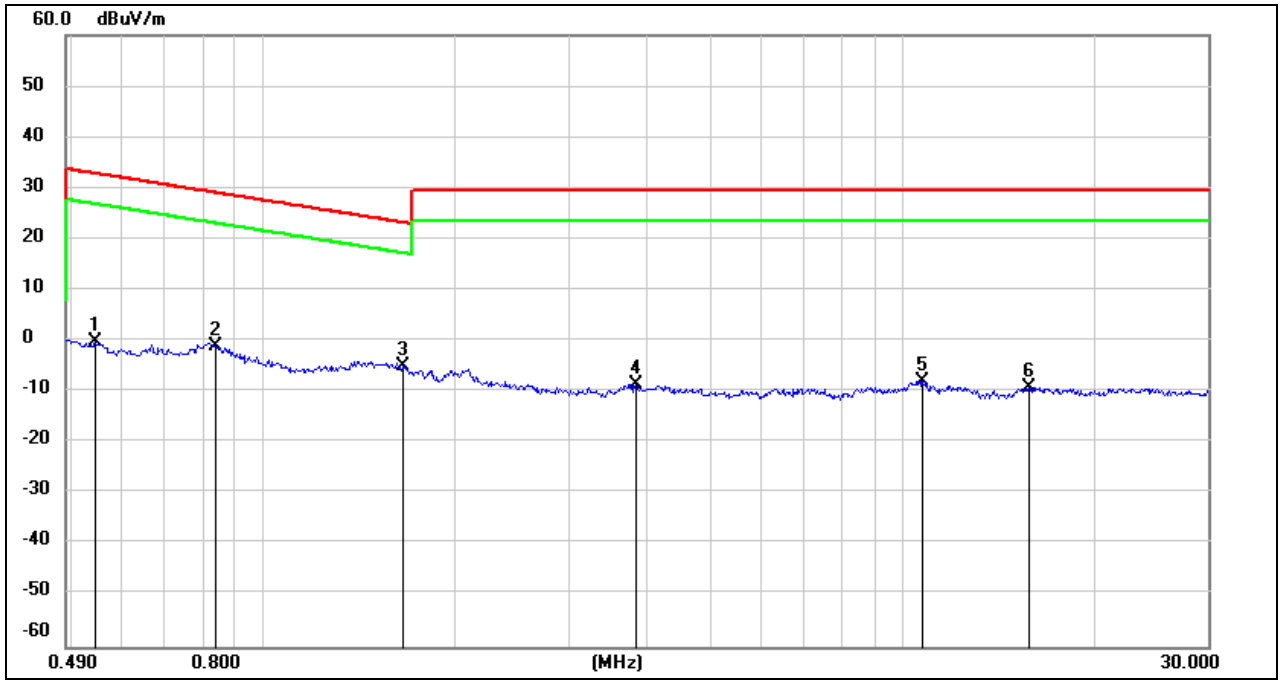
150 kHz ~ 490 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.1554	73.27	-101.65	-28.38	23.77	-52.15	peak
2	0.1832	67.49	-101.69	-34.2	22.35	-56.55	peak
3	0.2190	66.27	-101.75	-35.48	20.79	-56.27	peak
4	0.2565	61.82	-101.80	-39.98	19.42	-59.40	peak
5	0.3462	59.24	-101.90	-42.66	16.81	-59.47	peak
6	0.4062	56.64	-101.96	-45.32	15.43	-60.75	peak

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

490 kHz ~ 30 MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.5453	61.87	-62.08	-0.21	32.87	-33.08	peak
2	0.8400	61.21	-62.17	-0.96	29.12	-30.08	peak
3	1.6491	57.05	-61.98	-4.93	23.26	-28.19	peak
4	3.8246	52.70	-61.38	-8.68	29.54	-38.22	peak
5	10.7299	52.98	-60.83	-7.85	29.54	-37.39	peak
6	15.7759	51.75	-60.99	-9.24	29.54	-38.78	peak

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

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

9. AC POWER LINE CONDUCTED EMISSIONS

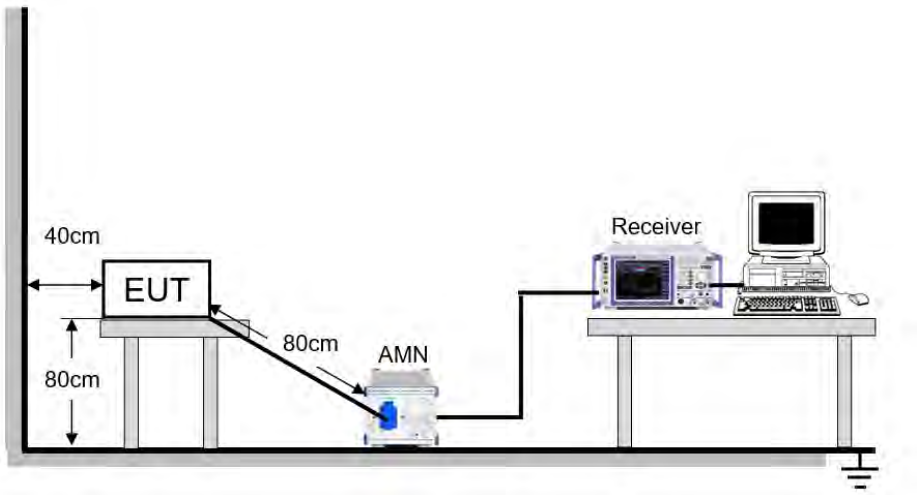
LIMITS

Please refer to CFR 47 FCC §15.207 (a)

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

TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



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

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

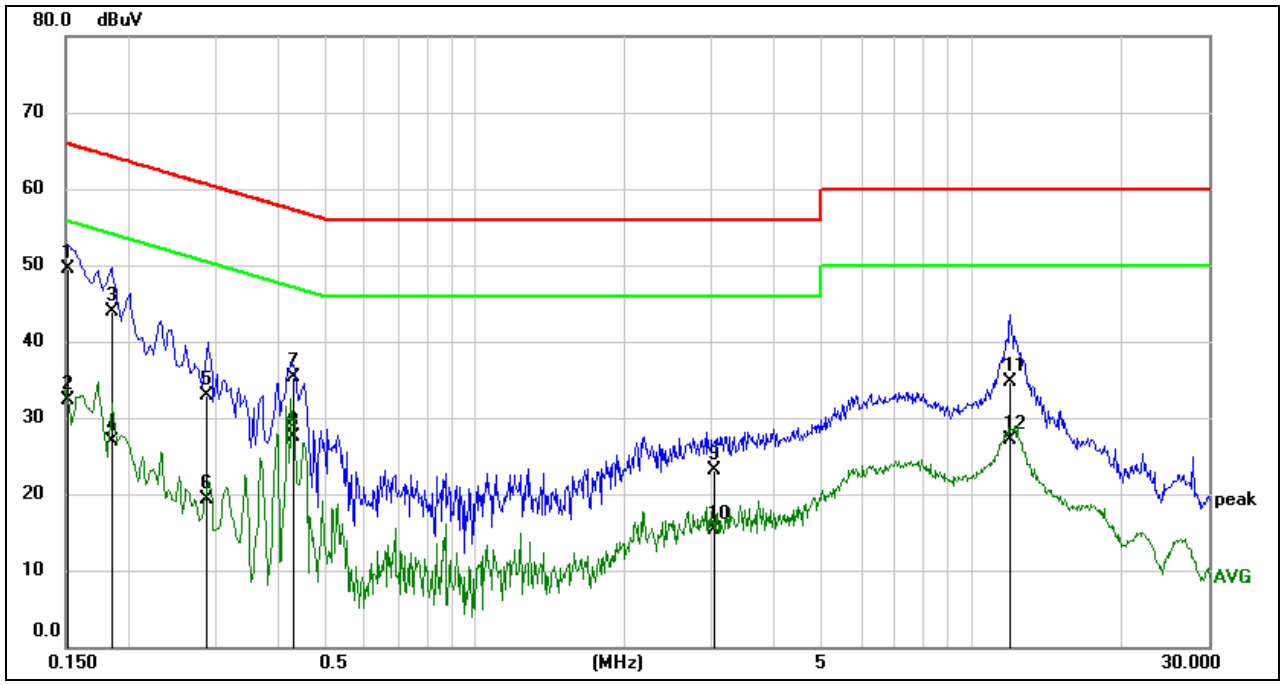
TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	65.1 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V/60 Hz

RESULTS

9.1. 802.11n HT40 SISO MODE

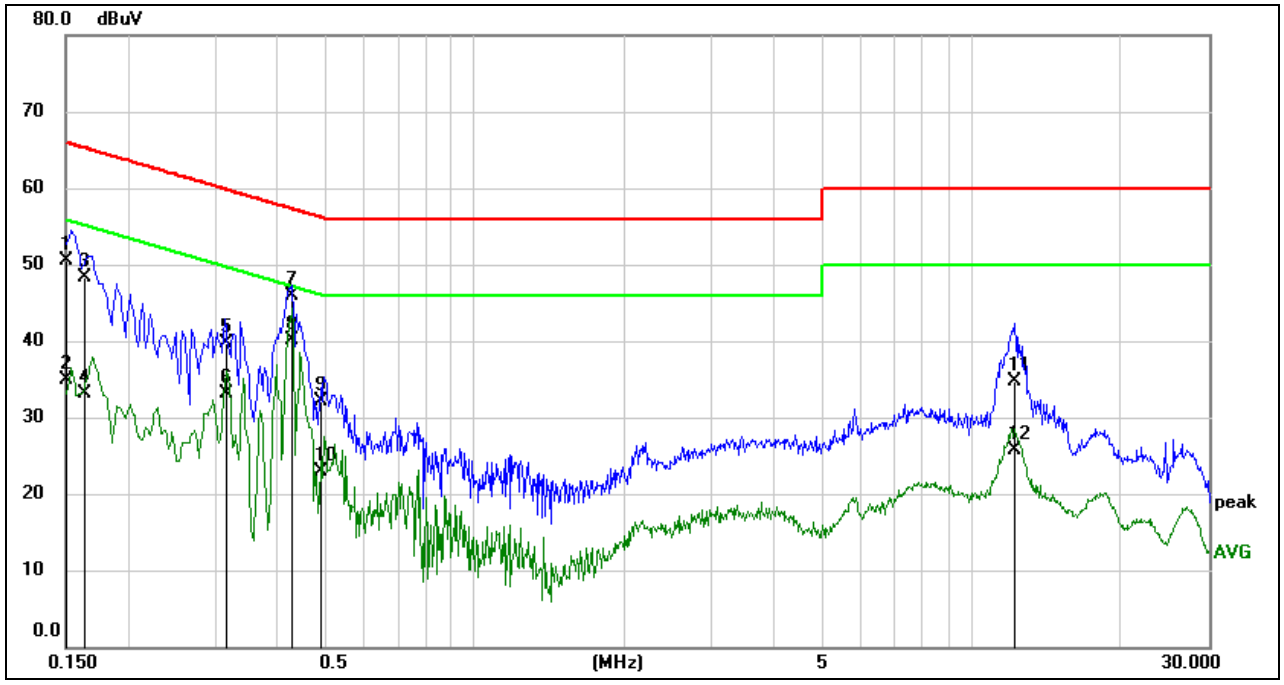
LINE N RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1518	39.93	9.59	49.52	65.90	-16.38	QP
2	0.1518	22.67	9.59	32.26	55.90	-23.64	AVG
3	0.1870	34.41	9.59	44.00	64.17	-20.17	QP
4	0.1870	17.39	9.59	26.98	54.17	-27.19	AVG
5	0.2878	23.31	9.59	32.90	60.59	-27.69	QP
6	0.2878	9.79	9.59	19.38	50.59	-31.21	AVG
7	0.4309	25.62	9.60	35.22	57.24	-22.02	QP
8	0.4309	17.87	9.60	27.47	47.24	-19.77	AVG
9	3.0329	13.42	9.62	23.04	56.00	-32.96	QP
10	3.0329	5.74	9.62	15.36	46.00	-30.64	AVG
11	12.0044	25.01	9.66	34.67	60.00	-25.33	QP
12	12.0044	17.36	9.66	27.02	50.00	-22.98	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	0.1507	40.84	9.59	50.43	65.96	-15.53	QP
2	0.1507	25.26	9.59	34.85	55.96	-21.11	AVG
3	0.1625	38.80	9.59	48.39	65.34	-16.95	QP
4	0.1625	23.60	9.59	33.19	55.34	-22.15	AVG
5	0.3154	30.14	9.59	39.73	59.83	-20.10	QP
6	0.3154	23.61	9.59	33.20	49.83	-16.63	AVG
7	0.4284	36.22	9.60	45.82	57.28	-11.46	QP
8	0.4284	30.49	9.60	40.09	47.28	-7.19	AVG
9	0.4935	22.51	9.60	32.11	56.11	-24.00	QP
10	0.4935	13.22	9.60	22.82	46.11	-23.29	AVG
11	12.1752	24.96	9.66	34.62	60.00	-25.38	QP
12	12.1752	16.04	9.66	25.70	50.00	-24.30	AVG

Note: 1. Result = Reading +Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

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

10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

11. Appendix

11.1. Appendix A: DTS Bandwidth

11.1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.160	2406.960	2417.120	0.5	PASS
	Ant2	2412	9.880	2406.960	2416.840	0.5	PASS
	Ant1	2437	10.120	2432.000	2442.120	0.5	PASS
	Ant2	2437	10.120	2431.960	2442.080	0.5	PASS
	Ant1	2462	10.120	2456.960	2467.080	0.5	PASS
	Ant2	2462	10.160	2456.960	2467.120	0.5	PASS
11G	Ant1	2412	15.720	2404.240	2419.960	0.5	PASS
	Ant2	2412	16.440	2403.800	2420.240	0.5	PASS
	Ant1	2437	16.400	2428.840	2445.240	0.5	PASS
	Ant2	2437	16.440	2428.800	2445.240	0.5	PASS
	Ant1	2462	16.400	2453.840	2470.240	0.5	PASS
	Ant2	2462	16.440	2453.800	2470.240	0.5	PASS
11N20MIMO	Ant1	2412	17.680	2403.200	2420.880	0.5	PASS
	Ant2	2412	17.200	2403.240	2420.440	0.5	PASS
	Ant1	2437	17.680	2428.160	2445.840	0.5	PASS
	Ant2	2437	17.680	2428.160	2445.840	0.5	PASS
	Ant1	2462	17.480	2453.320	2470.800	0.5	PASS
	Ant2	2462	17.240	2453.200	2470.440	0.5	PASS
11N40MIMO	Ant1	2422	35.280	2404.320	2439.600	0.5	PASS
	Ant2	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant1	2437	35.360	2419.320	2454.680	0.5	PASS
	Ant2	2437	35.200	2419.400	2454.600	0.5	PASS
	Ant1	2452	35.280	2434.400	2469.680	0.5	PASS
	Ant2	2452	35.200	2434.400	2469.600	0.5	PASS

11.1.2. Test Graphs

11B_Ant1_2412

11B_Ant2_2412

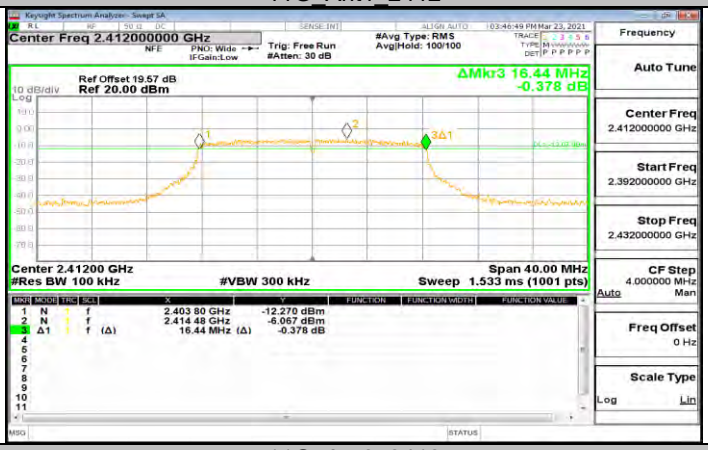
11B_Ant1_2437

11B_Ant2_2437

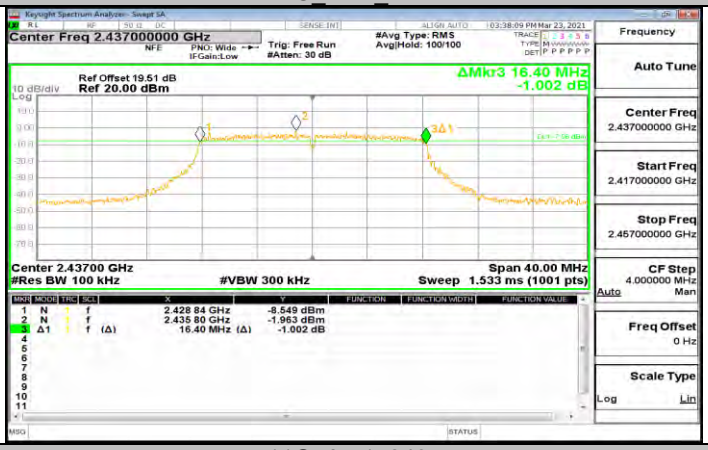
11B_Ant1_2462

11B_Ant2_2462

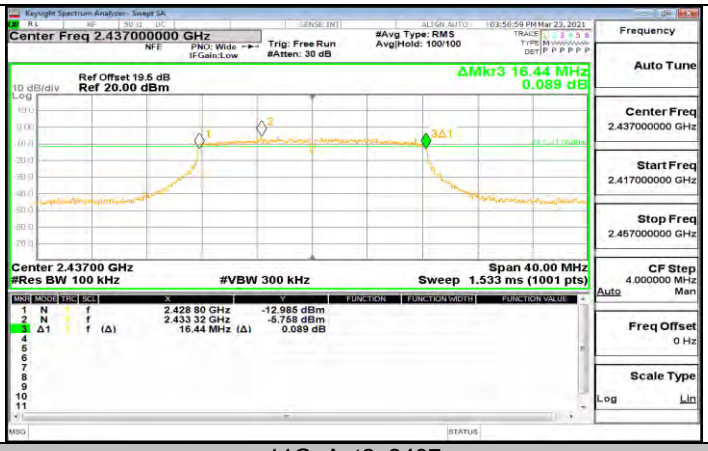
11G_Ant1_2412



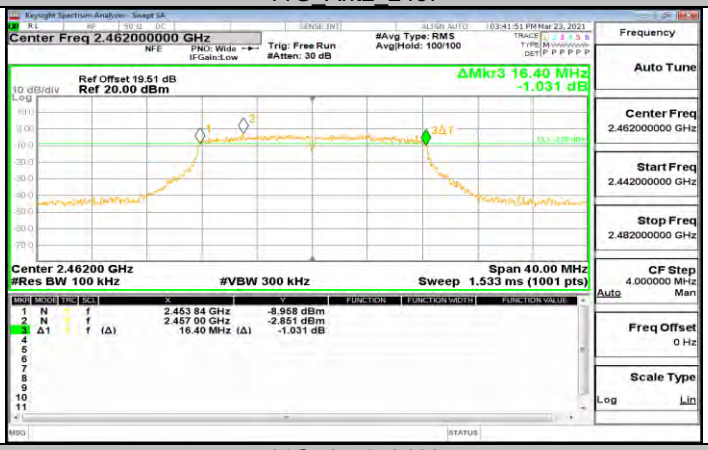
11G_Ant2_2412



11G_Ant1_2437



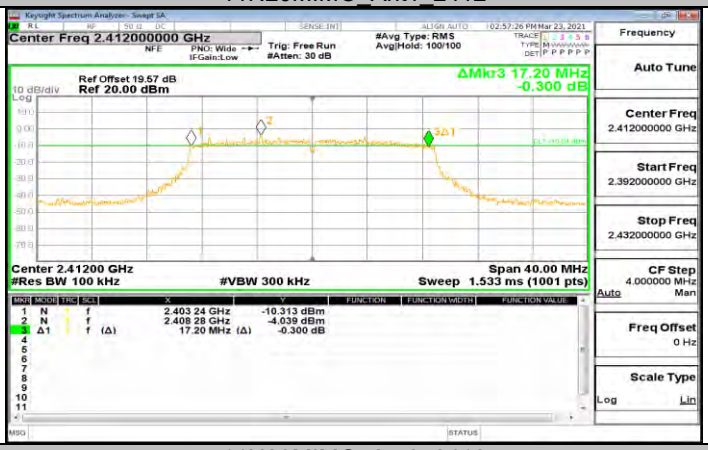
11G_Ant2_2437



11G_Ant1_2462

11G_Ant2_2462

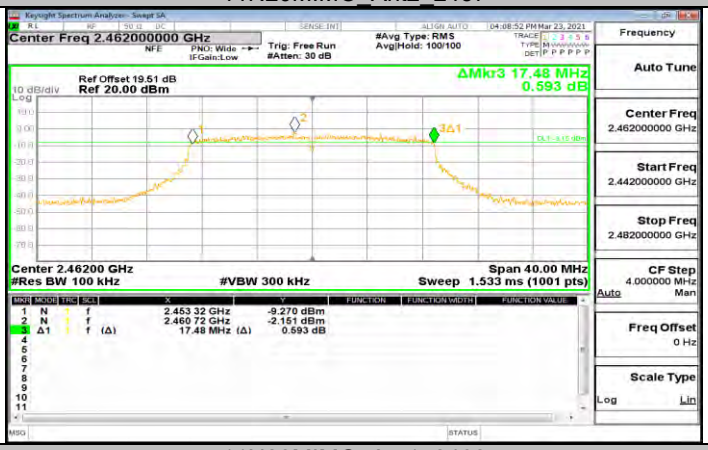
11N20MIMO_Ant1_2412



11N20MIMO_Ant2_2412

11N20MIMO_Ant1_2437

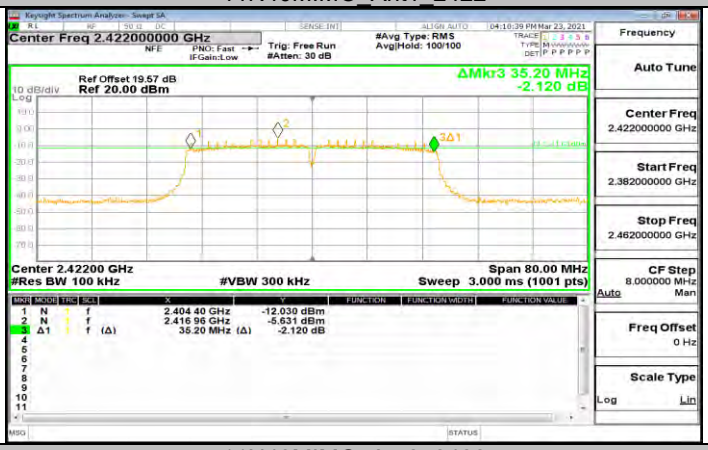
11N20MIMO_Ant2_2437



11N20MIMO_Ant1_2462

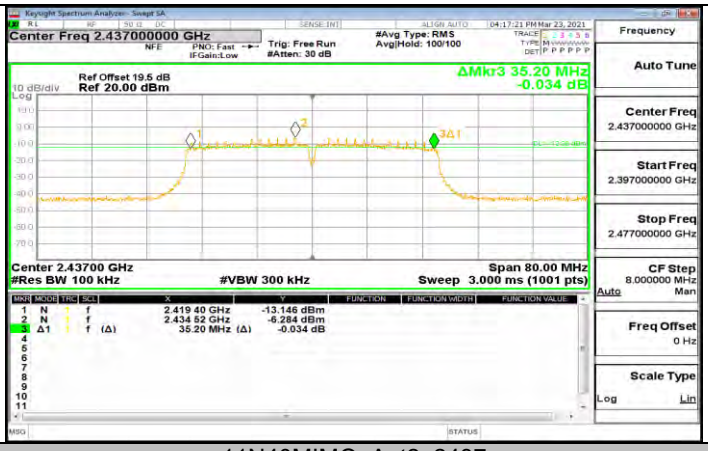
11N20MIMO_Ant2_2462

11N40MIMO_Ant1_2422

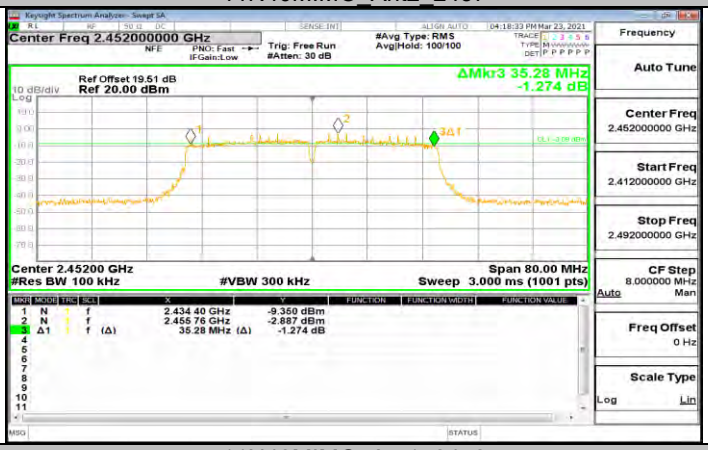


11N40MIMO_Ant2_2422

11N40MIMO_Ant1_2437



11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452

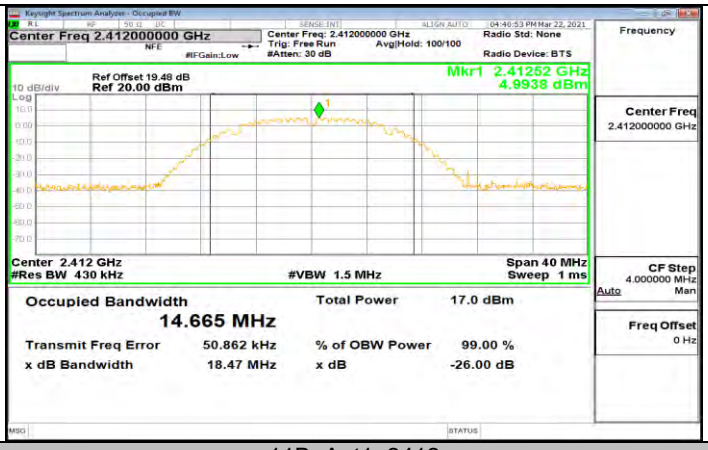
11N40MIMO_Ant2_2452

11.2. Appendix B: Occupied Channel Bandwidth

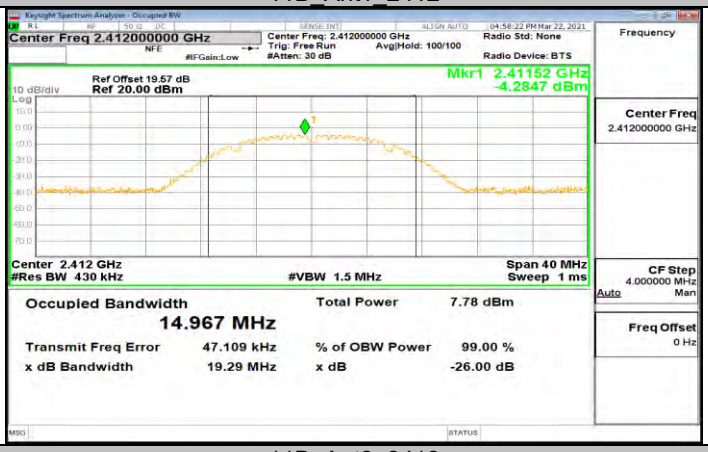
11.2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant1	2412	14.665	2404.718	2419.383	PASS
	Ant2	2412	14.967	2404.564	2419.531	PASS
	Ant1	2437	14.837	2429.622	2444.459	PASS
	Ant2	2437	15.007	2429.520	2444.527	PASS
	Ant1	2462	14.893	2454.594	2469.487	PASS
	Ant2	2462	15.002	2454.542	2469.544	PASS
11G	Ant1	2412	16.680	2403.725	2420.405	PASS
	Ant2	2412	16.791	2403.597	2420.388	PASS
	Ant1	2437	16.761	2428.662	2445.423	PASS
	Ant2	2437	16.929	2428.589	2445.518	PASS
	Ant1	2462	16.747	2453.683	2470.430	PASS
	Ant2	2462	16.845	2453.626	2470.471	PASS
11N20MIMO	Ant1	2412	17.865	2403.087	2420.952	PASS
	Ant2	2412	17.852	2403.095	2420.947	PASS
	Ant1	2437	17.921	2428.080	2446.001	PASS
	Ant2	2437	17.899	2428.110	2446.009	PASS
	Ant1	2462	17.869	2453.063	2470.932	PASS
	Ant2	2462	17.889	2453.045	2470.934	PASS
11N40MIMO	Ant1	2422	36.147	2404.060	2440.207	PASS
	Ant2	2422	36.137	2404.018	2440.155	PASS
	Ant1	2437	36.250	2418.941	2455.191	PASS
	Ant2	2437	36.222	2418.960	2455.182	PASS
	Ant1	2452	36.290	2433.937	2470.227	PASS
	Ant2	2452	36.239	2433.976	2470.215	PASS

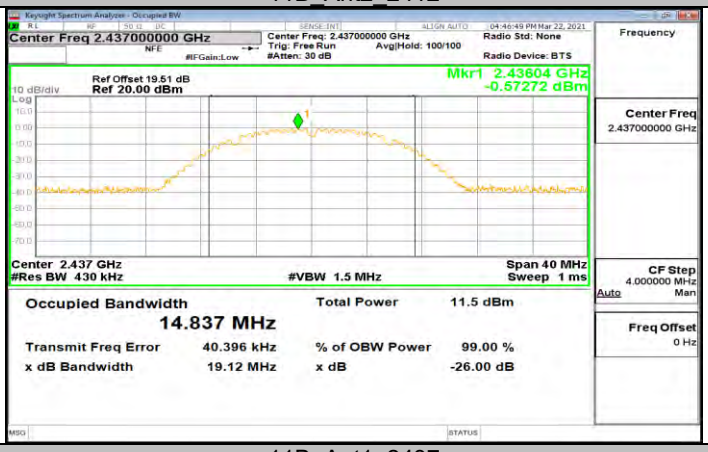
11.2.2. Test Graphs



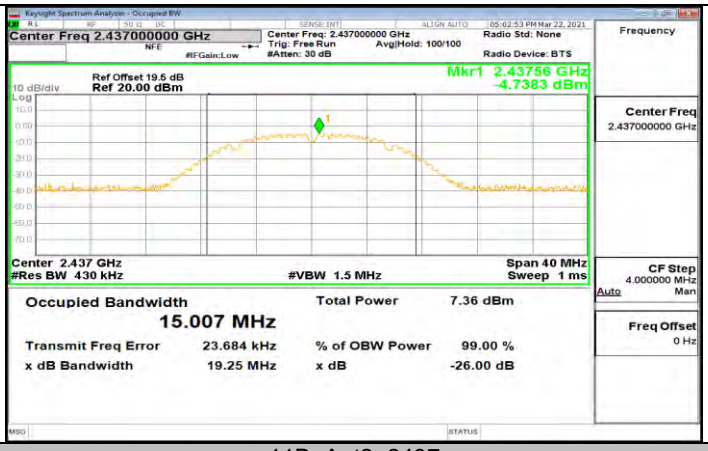
11B_Ant1_2412



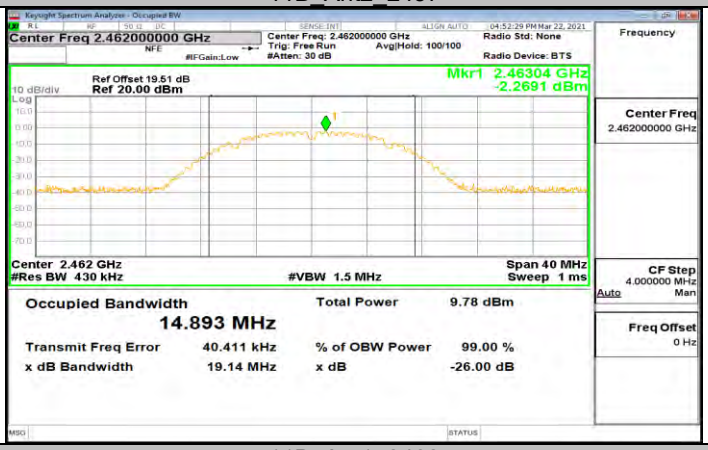
11B_Ant2_2412



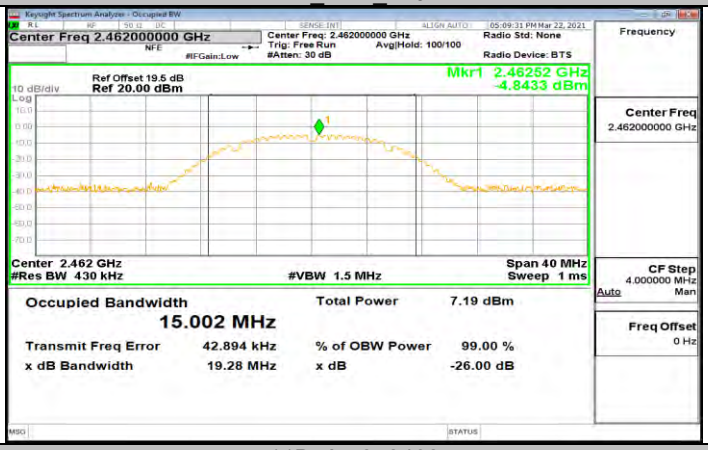
11B_Ant1_2437



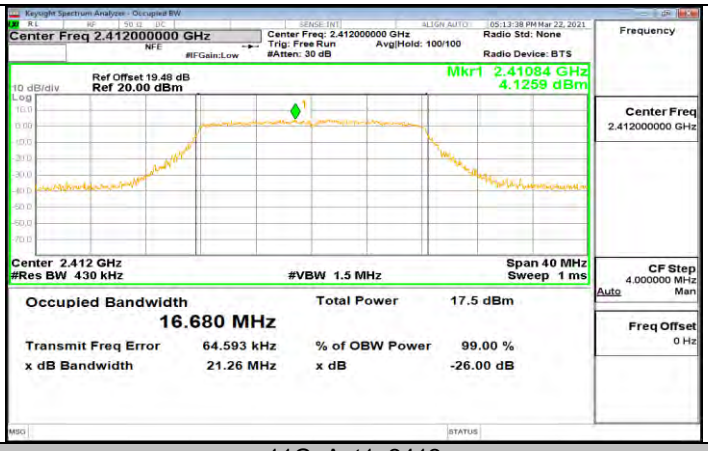
11B_Ant2_2437



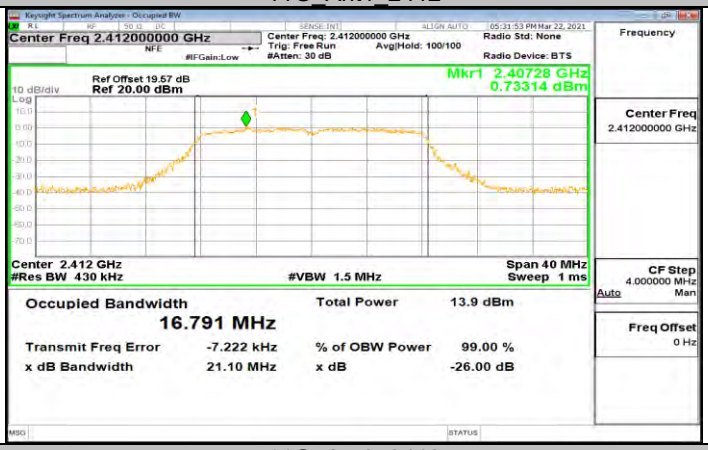
11B_Ant1_2462



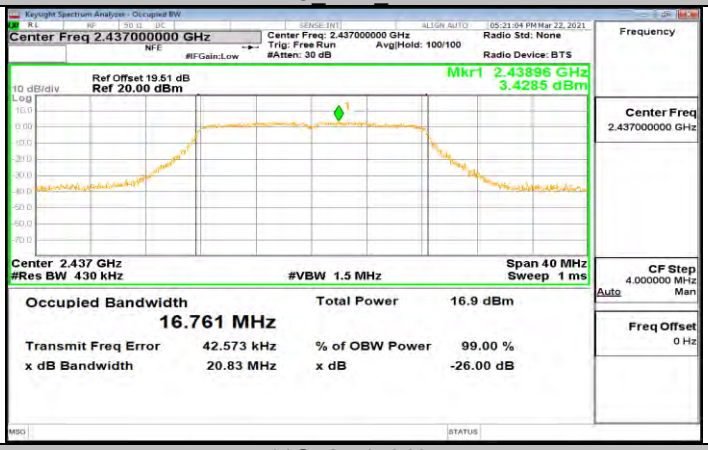
11B_Ant2_2462



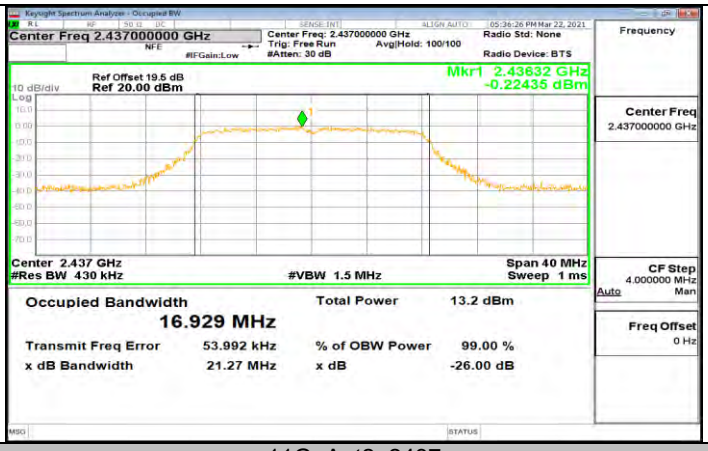
11G_Ant1_2412



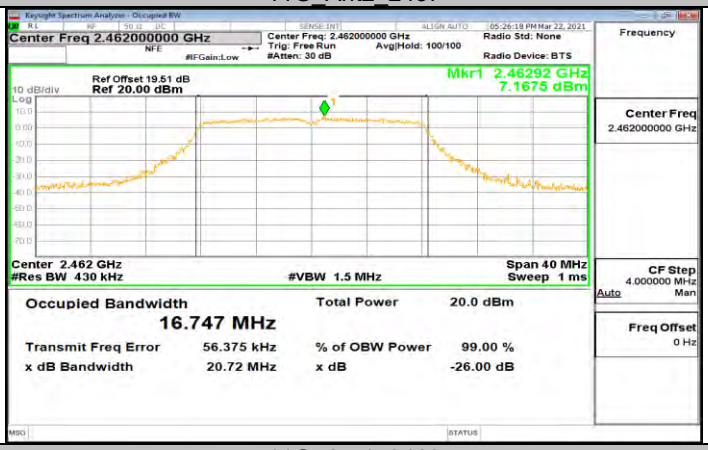
11G_Ant2_2412



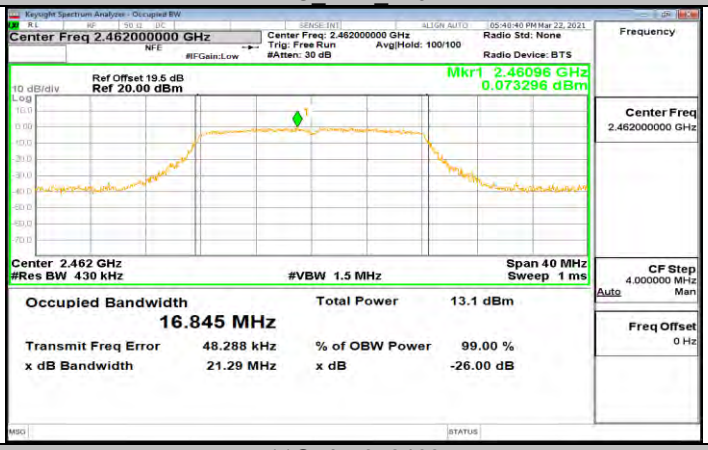
11G_Ant1_2437



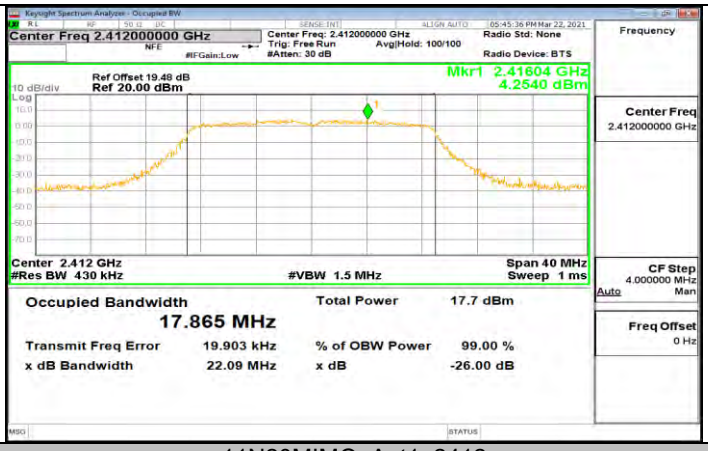
11G_Ant2_2437



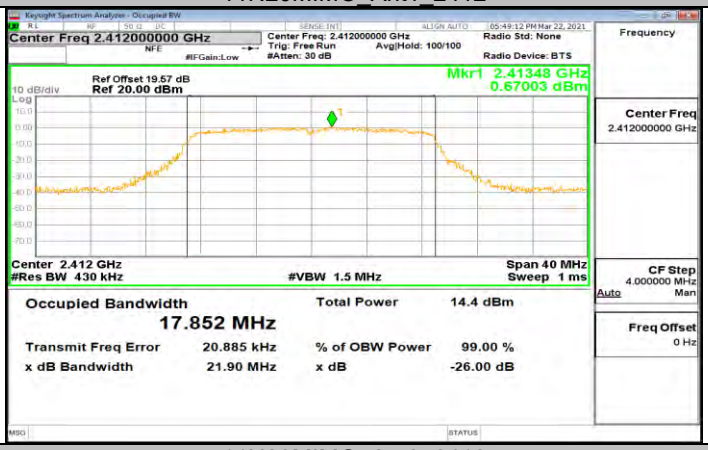
11G_Ant1_2462



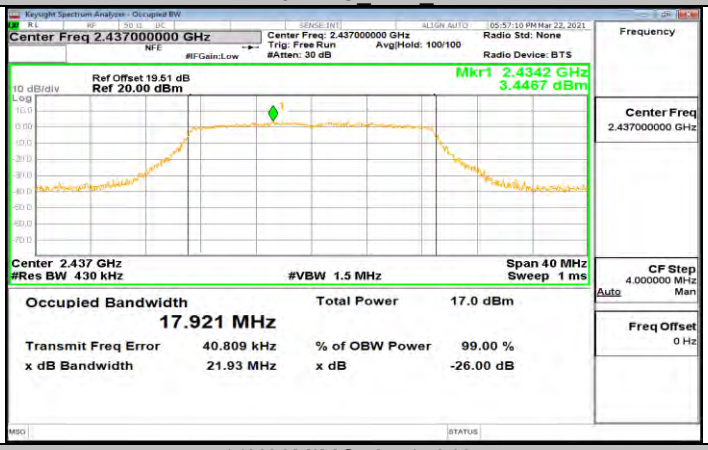
11G_Ant2_2462



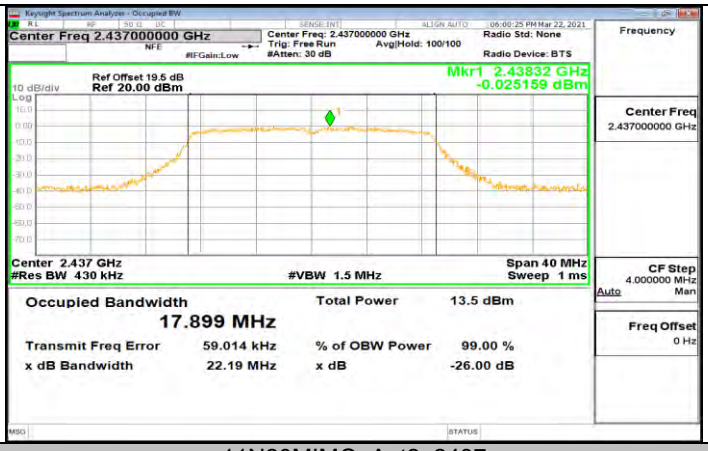
11N20MIMO_Ant1_2412



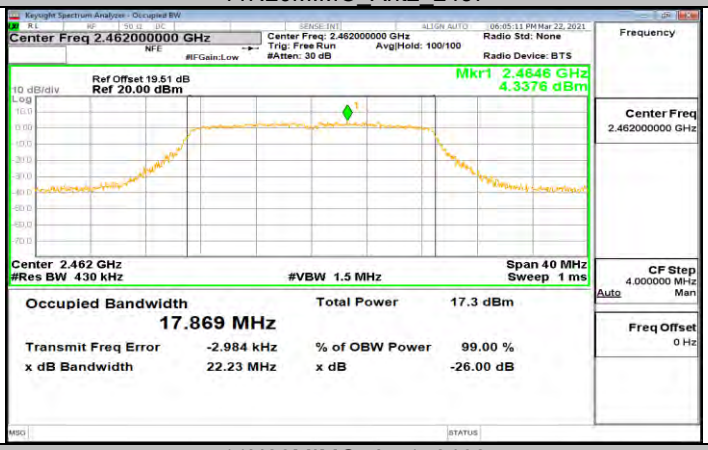
11N20MIMO_Ant2_2412



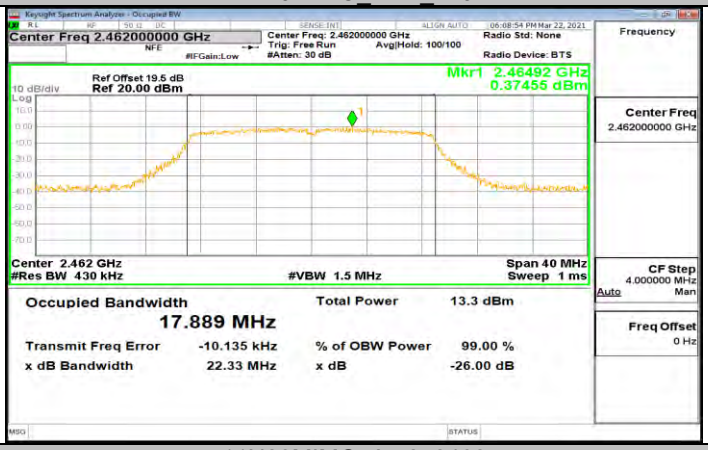
11N20MIMO_Ant1_2437



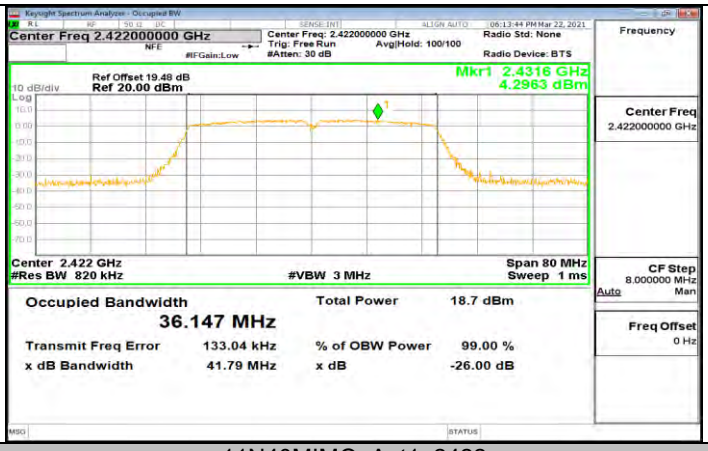
11N20MIMO_Ant2_2437



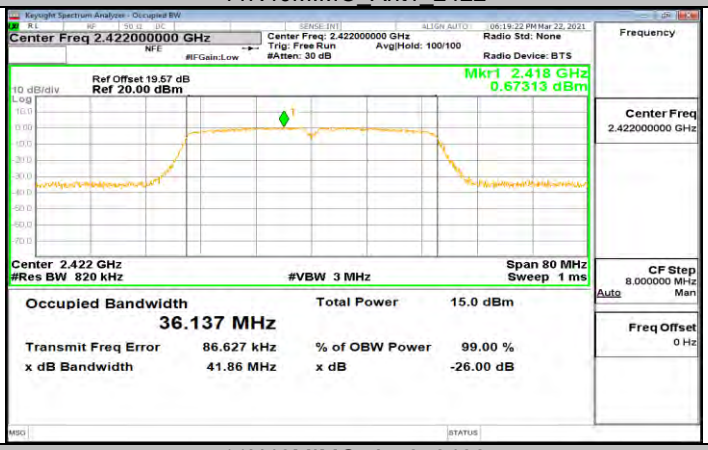
11N20MIMO_Ant1_2462



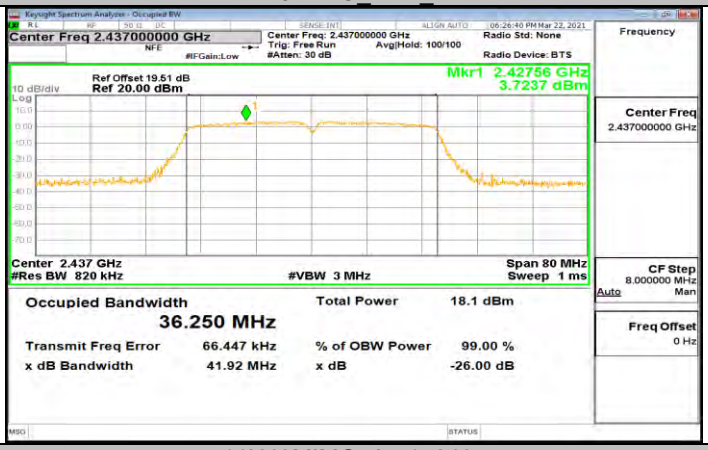
11N20MIMO_Ant2_2462



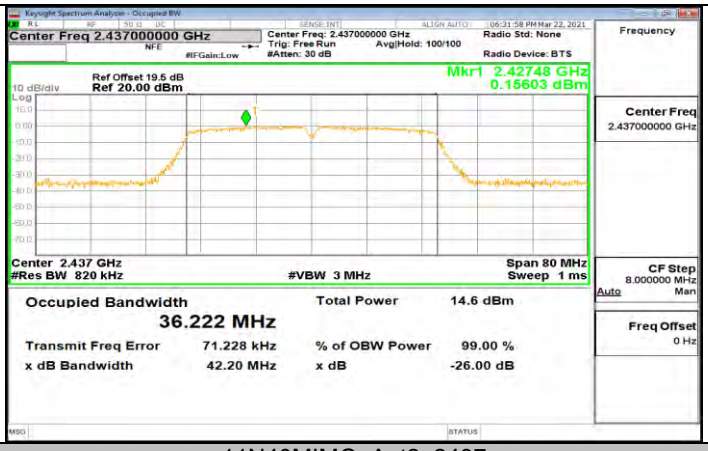
11N40MIMO_Ant1_2422



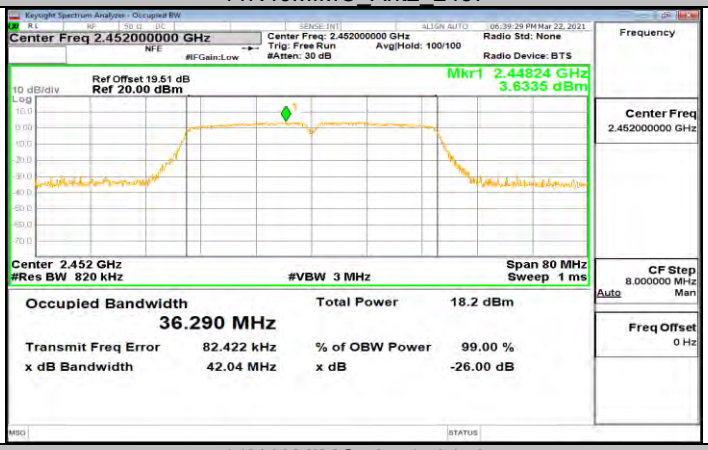
11N40MIMO_Ant2_2422



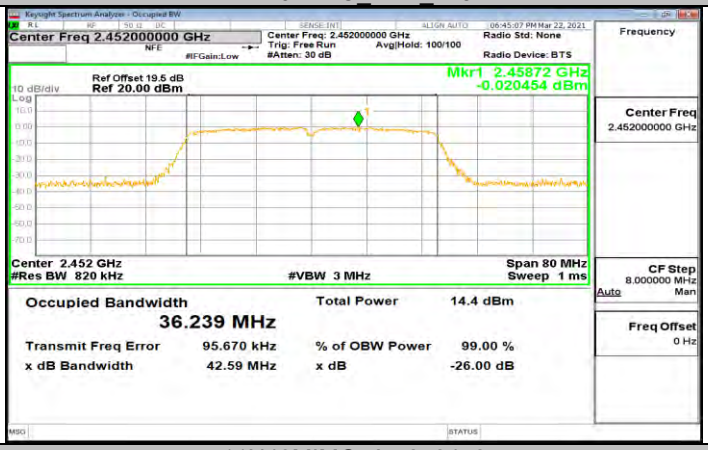
11N40MIMO_Ant1_2437



11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452

11.3. Appendix C: Maximum AVG conducted output power

11.3.1. Test Result

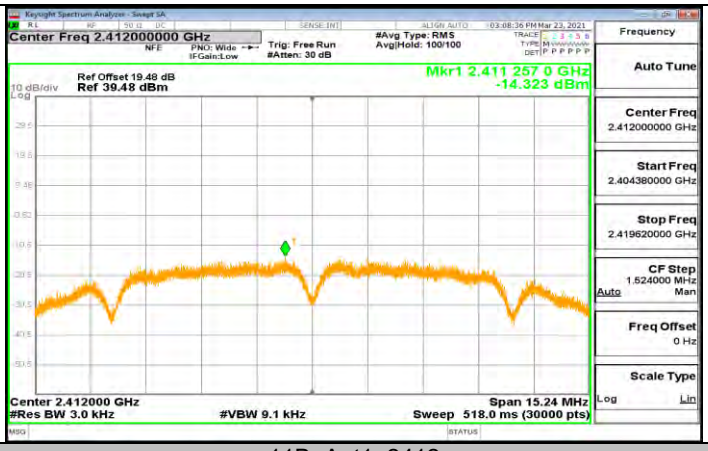
Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	8.36	<=30	PASS
	Ant2	2412	5.46	<=30	PASS
	Ant1	2437	8.28	<=30	PASS
	Ant2	2437	4.48	<=30	PASS
	Ant1	2462	8.42	<=30	PASS
	Ant2	2462	4.14	<=30	PASS
11G	Ant1	2412	11.21	<=30	PASS
	Ant2	2412	8.06	<=30	PASS
	Ant1	2437	10.47	<=30	PASS
	Ant2	2437	7.44	<=30	PASS
	Ant1	2462	10.50	<=30	PASS
	Ant2	2462	6.98	<=30	PASS
11N20MIMO	Ant1	2412	11.04	<=30	PASS
	Ant2	2412	7.94	<=30	PASS
	total	2412	12.77	<=30	PASS
	Ant1	2437	10.95	<=30	PASS
	Ant2	2437	7.53	<=30	PASS
	total	2437	12.58	<=30	PASS
	Ant1	2462	11.28	<=30	PASS
	Ant2	2462	7.32	<=30	PASS
	total	2462	12.75	<=30	PASS
11N40MIMO	Ant1	2422	11.99	<=30	PASS
	Ant2	2422	8.63	<=30	PASS
	total	2422	13.64	<=30	PASS
	Ant1	2437	11.22	<=30	PASS
	Ant2	2437	7.47	<=30	PASS
	total	2437	12.75	<=30	PASS
	Ant1	2452	11.61	<=30	PASS
	Ant2	2452	7.36	<=30	PASS
	total	2452	13.00	<=30	PASS

11.4. Appendix D: Maximum power spectral density

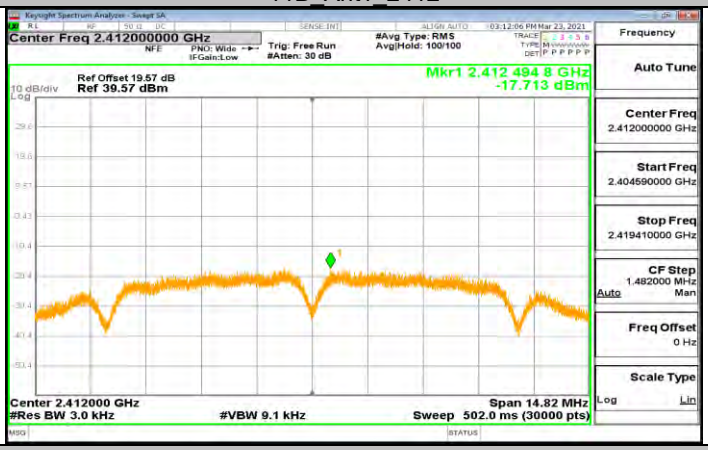
11.4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-14.32	<=8	PASS
	Ant2	2412	-17.71	<=8	PASS
	Ant1	2437	-14.67	<=8	PASS
	Ant2	2437	-17.95	<=8	PASS
	Ant1	2462	-14.35	<=8	PASS
	Ant2	2462	-17.55	<=8	PASS
11G	Ant1	2412	-12.99	<=8	PASS
	Ant2	2412	-16.67	<=8	PASS
	Ant1	2437	-13.67	<=8	PASS
	Ant2	2437	-17.49	<=8	PASS
	Ant1	2462	-14.14	<=8	PASS
	Ant2	2462	-17.49	<=8	PASS
11N20MIMO	Ant1	2412	-13.78	<=8	PASS
	Ant2	2412	-17.00	<=8	PASS
	total	2412	-12.09	<=8	PASS
	Ant1	2437	-14.16	<=8	PASS
	Ant2	2437	-17.75	<=8	PASS
	total	2437	-12.58	<=8	PASS
	Ant1	2462	-12.83	<=8	PASS
	Ant2	2462	-17.33	<=8	PASS
	total	2462	-11.51	<=8	PASS
11N40MIMO	Ant1	2422	-16.84	<=8	PASS
	Ant2	2422	-20.5	<=8	PASS
	total	2422	-15.29	<=8	PASS
	Ant1	2437	-17.52	<=8	PASS
	Ant2	2437	-21.00	<=8	PASS
	total	2437	-15.91	<=8	PASS
	Ant1	2452	-16.97	<=8	PASS
	Ant2	2452	-20.78	<=8	PASS
	total	2452	-15.46	<=8	PASS

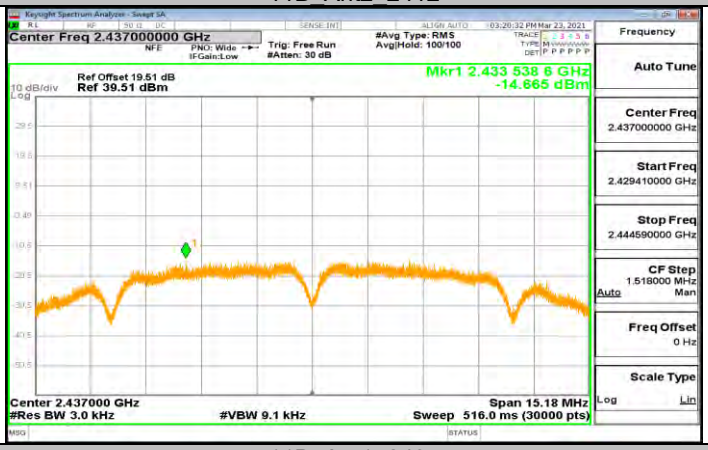
11.4.2. Test Graphs



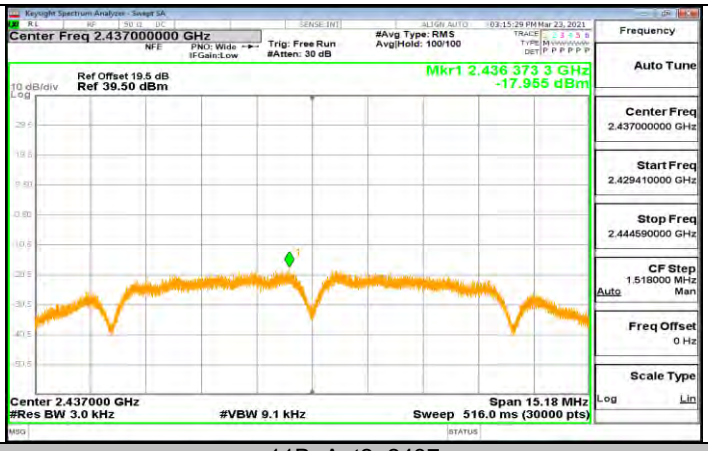
11B_Ant1_2412



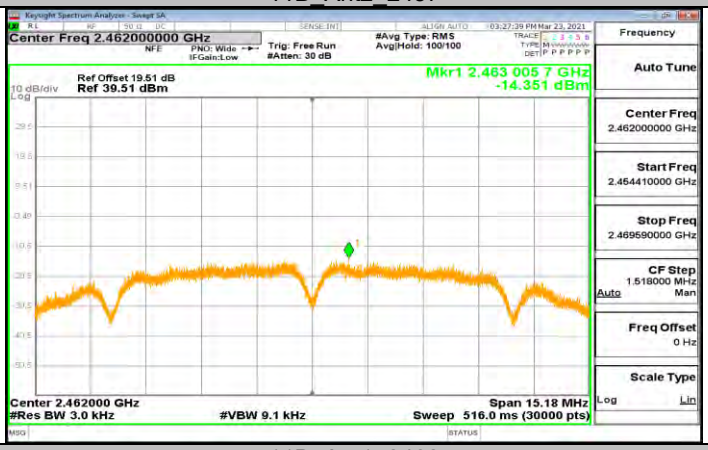
11B_Ant2_2412



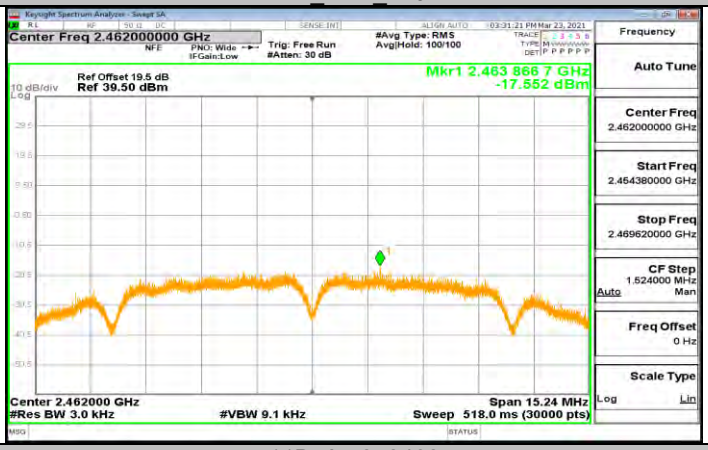
11B_Ant1_2437



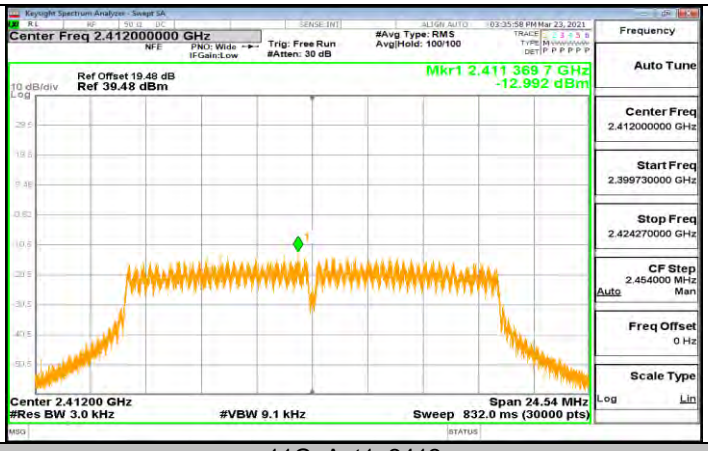
11B_Ant2_2437



11B_Ant1_2462

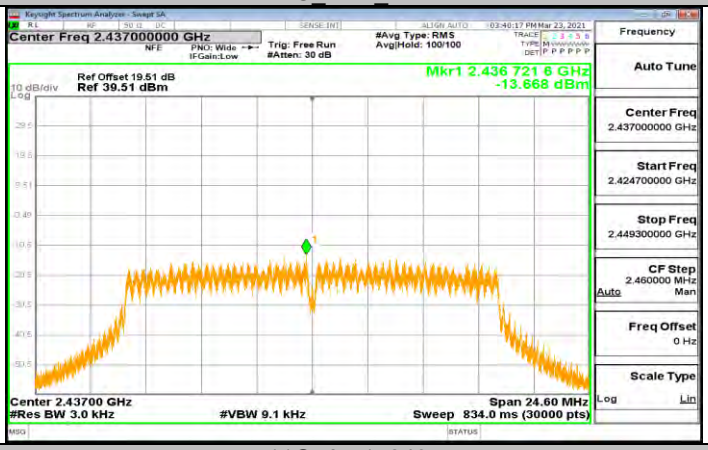


11B_Ant2_2462

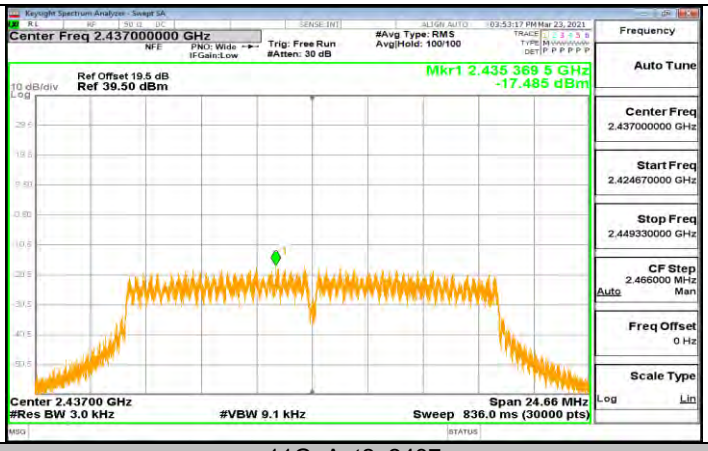


11G_Ant1_2412

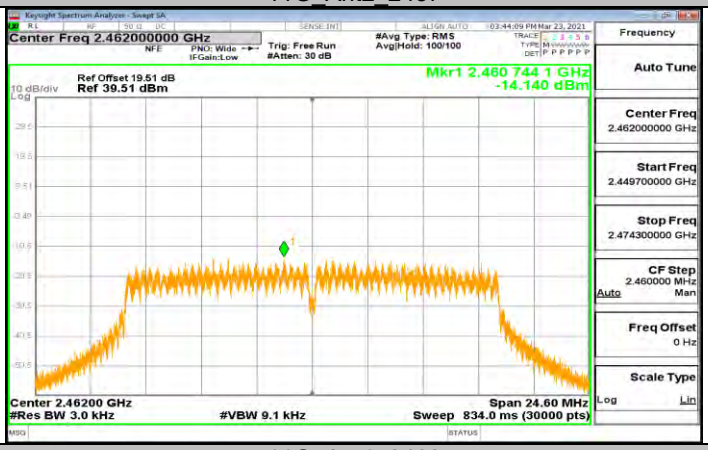
11G_Ant2_2412



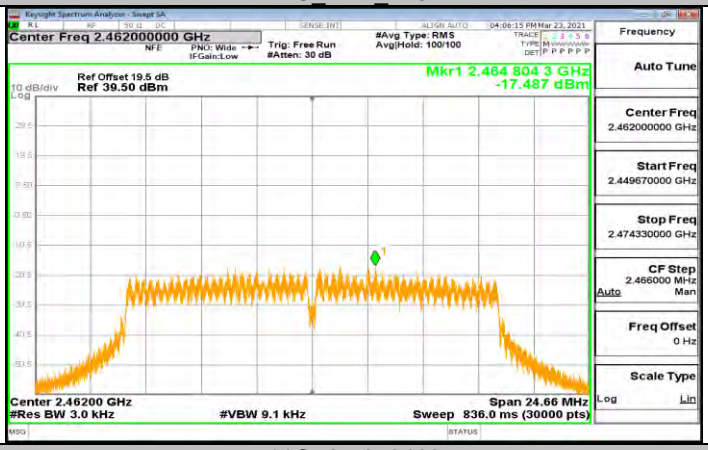
11G_Ant1_2437



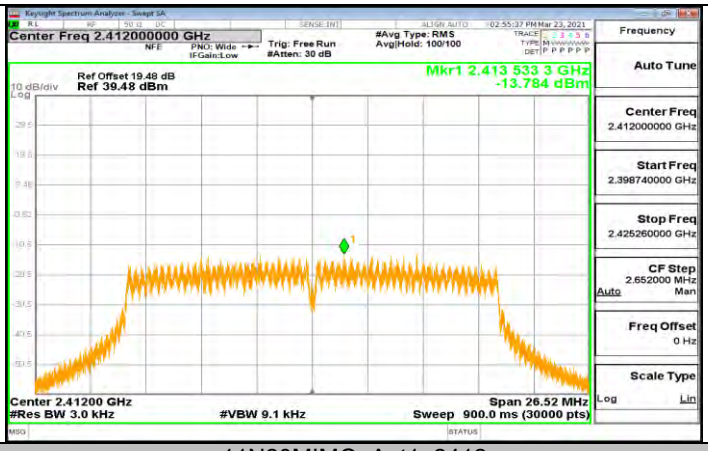
11G_Ant2_2437



11G_Ant1_2462

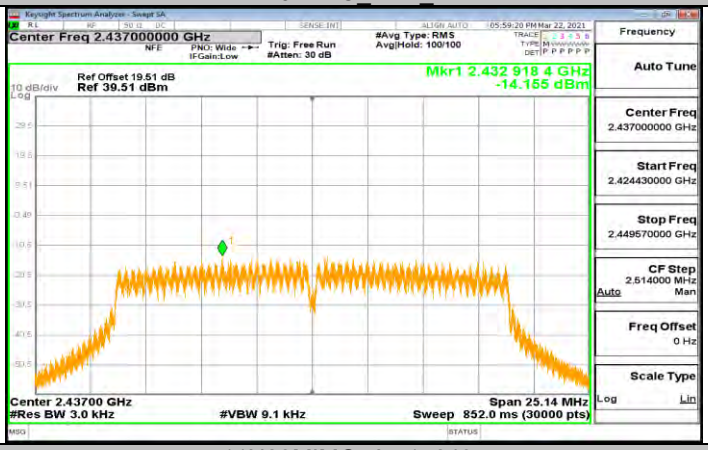


11G_Ant2_2462

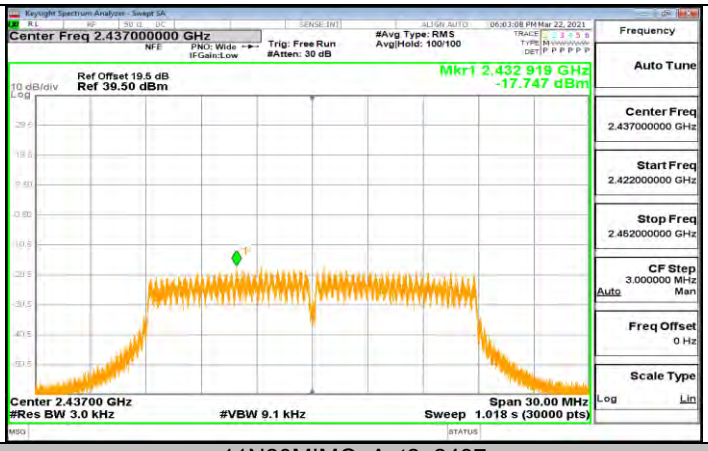


11N20MIMO_Ant1_2412

11N20MIMO_Ant2_2412

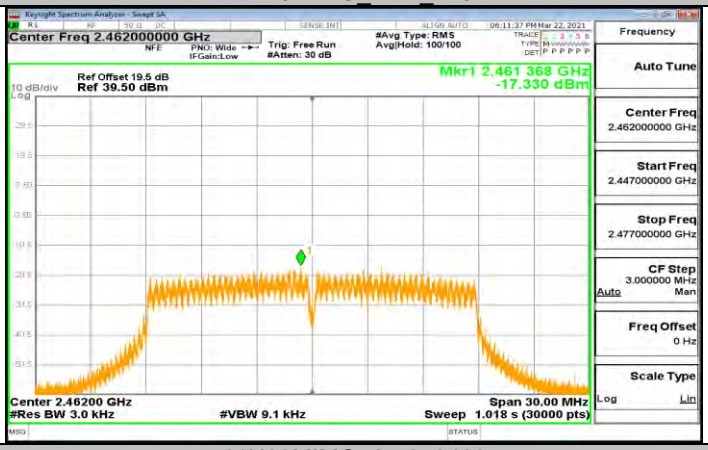


11N20MIMO_Ant1_2437

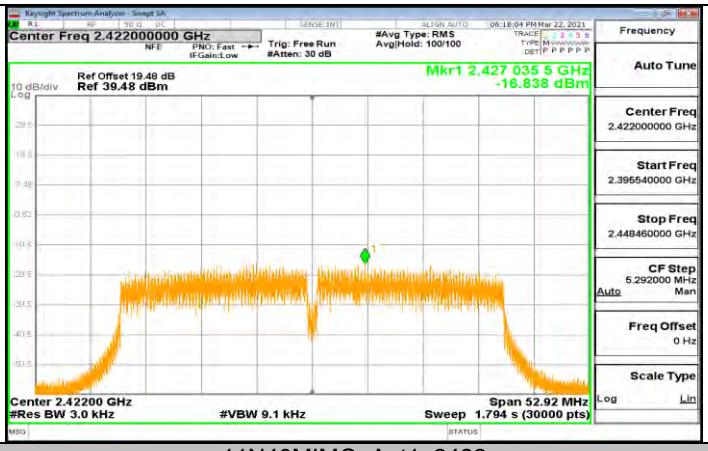


11N20MIMO_Ant2_2437

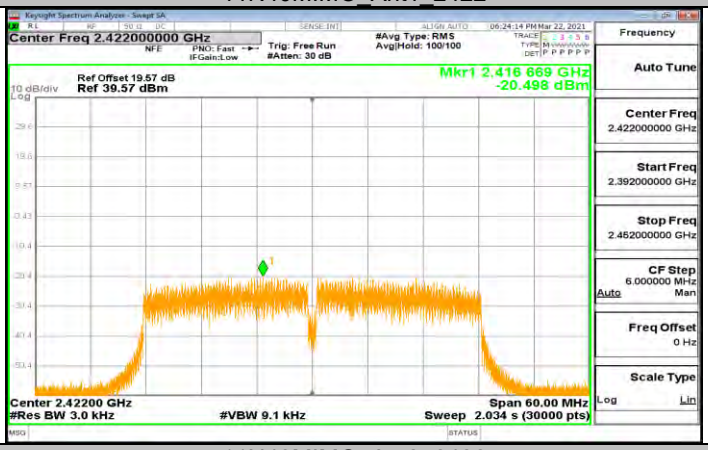
11N20MIMO_Ant1_2462



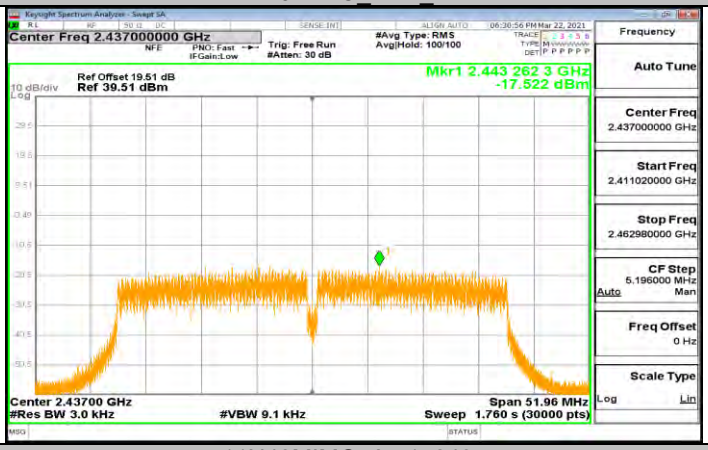
11N20MIMO_Ant2_2462



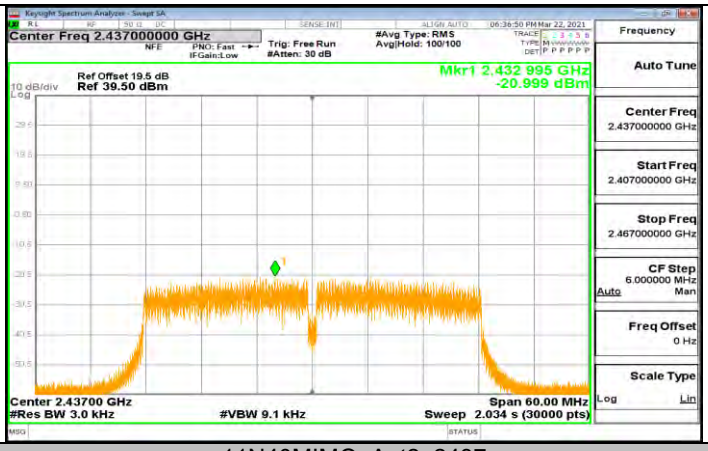
11N40MIMO_Ant1_2422



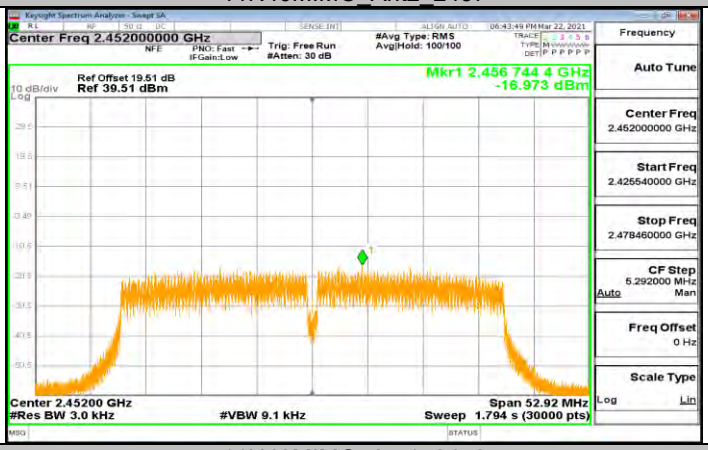
11N40MIMO_Ant2_2422



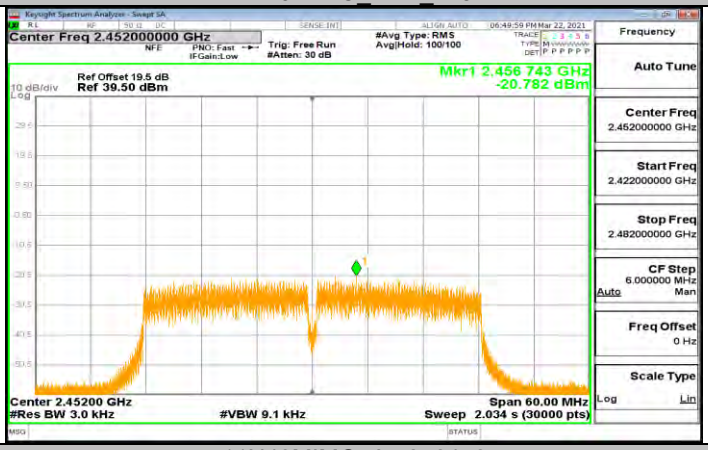
11N40MIMO_Ant1_2437



11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



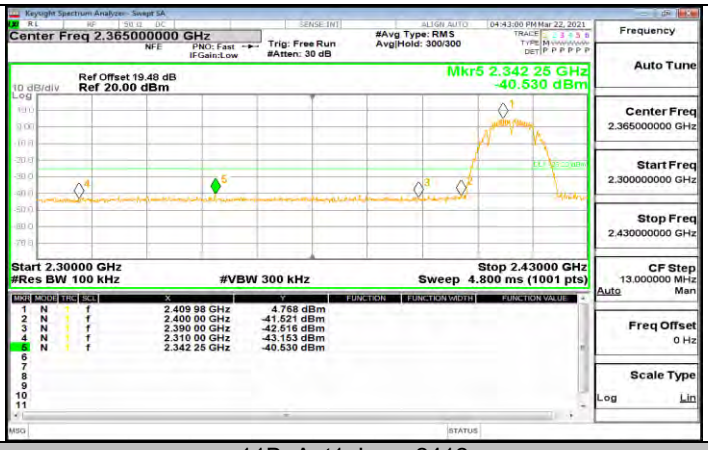
11N40MIMO_Ant2_2452

11.5. Appendix E: Band edge measurements

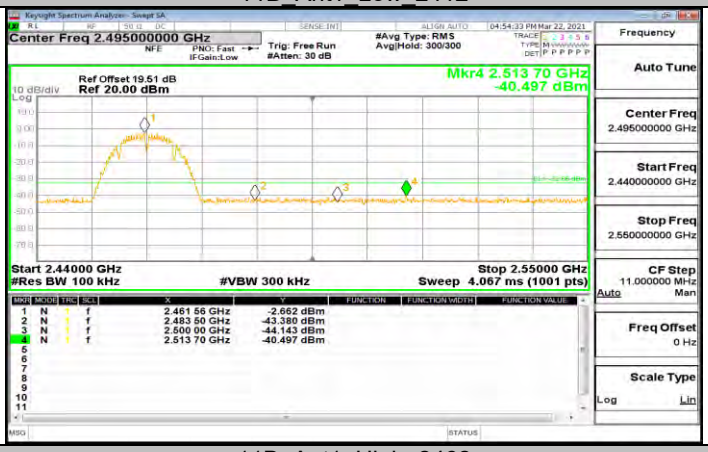
11.5.1. Test Result

Test Mode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	4.77	-40.53	<=-25.23	PASS
		High	2462	-2.66	-40.5	<=-32.66	PASS
11G	Ant1	Low	2412	0.55	-38.71	<=-29.45	PASS
		High	2462	3.03	-40.34	<=-26.97	PASS
11N20MIMO	Ant1	Low	2412	0.85	-35.37	<=-29.15	PASS
		High	2462	0.09	-40.81	<=-29.91	PASS
11N40MIMO	Ant1	Low	2422	-2.10	-39.16	<=-32.1	PASS
		High	2452	-2.61	-40.27	<=-32.6	PASS

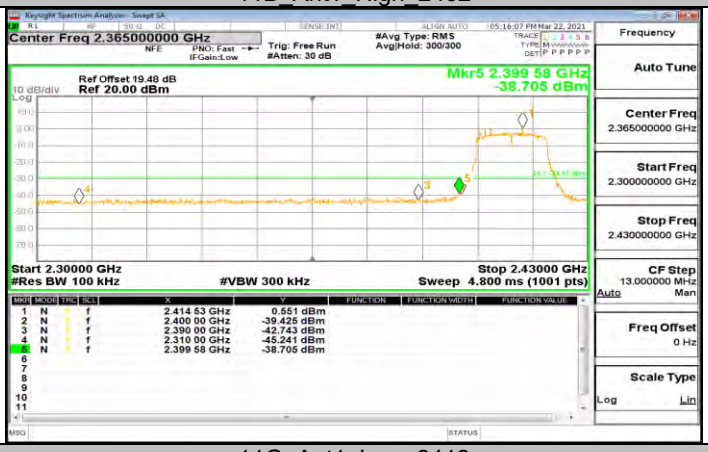
11.5.2. Test Graphs



11B_Ant1_Low_2412

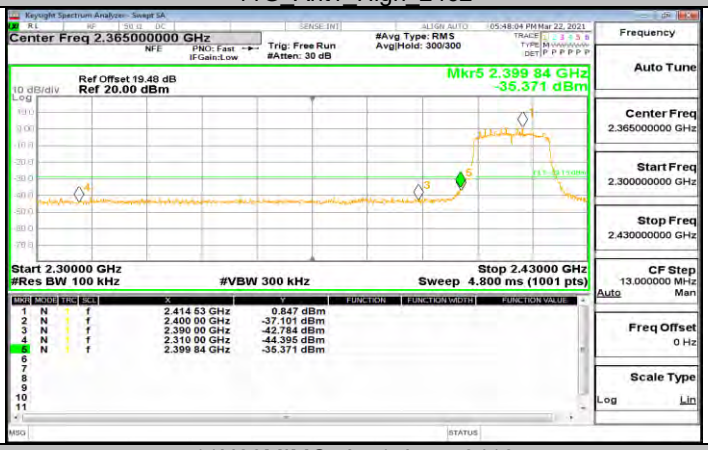


11B_Ant1_High_2462

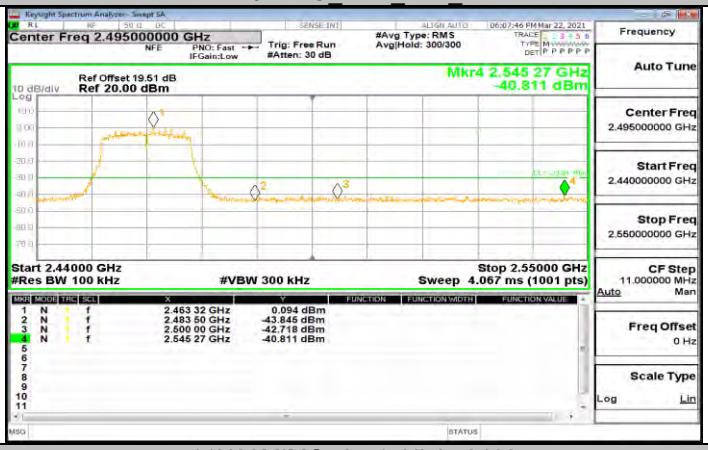


11G_Ant1_Low_2412

11G_Ant1_High_2462

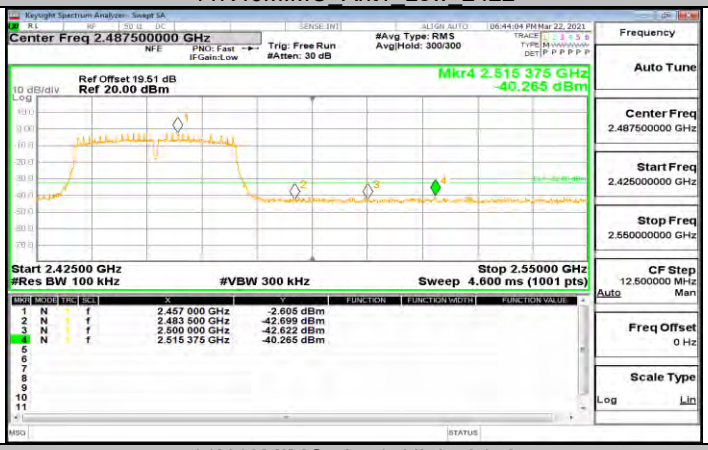


11N20MIMO_Ant1_Low_2412



11N20MIMO_Ant1_High_2462

11N40MIMO_Ant1_Low_2422



11N40MIMO_Ant1_High_2452

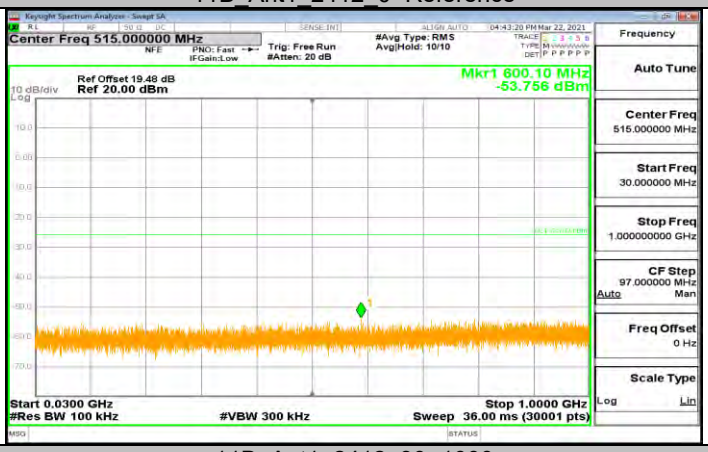
11.6. Appendix F: Conducted Spurious Emission

11.6.1. Test Result

Test Mode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.18	4.18	---	PASS
			30~1000	4.18	-53.76	<=-25.82	PASS
			1000~26500	4.18	-44.63	<=-25.82	PASS
		2437	Reference	-0.90	-0.90	---	PASS
			30~1000	-0.90	-53.88	<=-30.9	PASS
			1000~26500	-0.90	-43.83	<=-30.9	PASS
		2462	Reference	-2.91	-2.91	---	PASS
			30~1000	-2.91	-53.6	<=-32.91	PASS
			1000~26500	-2.91	-44.27	<=-32.91	PASS
11G	Ant1	2412	Reference	-1.56	-1.56	---	PASS
			30~1000	-1.56	-52.83	<=-31.56	PASS
			1000~26500	-1.56	-44.03	<=-31.56	PASS
		2437	Reference	-2.09	-2.09	---	PASS
			30~1000	-2.09	-52.27	<=-32.09	PASS
			1000~26500	-2.09	-43.84	<=-32.09	PASS
		2462	Reference	2.32	2.32	---	PASS
			30~1000	2.32	-53.72	<=-27.69	PASS
			1000~26500	2.32	-44.79	<=-27.69	PASS
11N20MIMO	Ant1	2412	Reference	0.08	0.08	---	PASS
			30~1000	0.08	-52.32	<=-29.92	PASS
			1000~26500	0.08	-44.62	<=-29.92	PASS
		2437	Reference	-0.17	-0.17	---	PASS
			30~1000	-0.17	-53.54	<=-30.17	PASS
			1000~26500	-0.17	-43.5	<=-30.17	PASS
		2462	Reference	-0.44	-0.44	---	PASS
			30~1000	-0.44	-53.34	<=-30.44	PASS
			1000~26500	-0.44	-43.95	<=-30.44	PASS
11N40MIMO	Ant1	2422	Reference	-2.23	-2.23	---	PASS
			30~1000	-2.23	-53.71	<=-32.23	PASS
			1000~26500	-2.23	-43.56	<=-32.23	PASS
		2437	Reference	-2.52	-2.52	---	PASS
			30~1000	-2.52	-53	<=-32.52	PASS
			1000~26500	-2.52	-44.29	<=-32.52	PASS
		2452	Reference	-2.48	-2.48	---	PASS
			30~1000	-2.48	-53.18	<=-32.48	PASS
			1000~26500	-2.48	-44.55	<=-32.48	PASS

Test Graphs

11B_Ant1_2412_0~Reference



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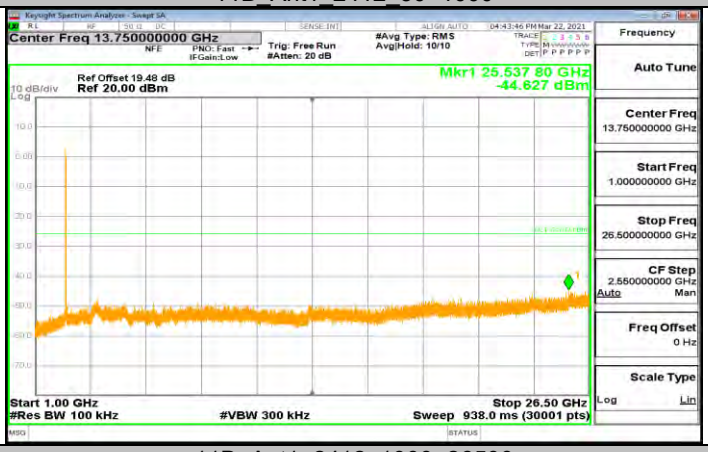
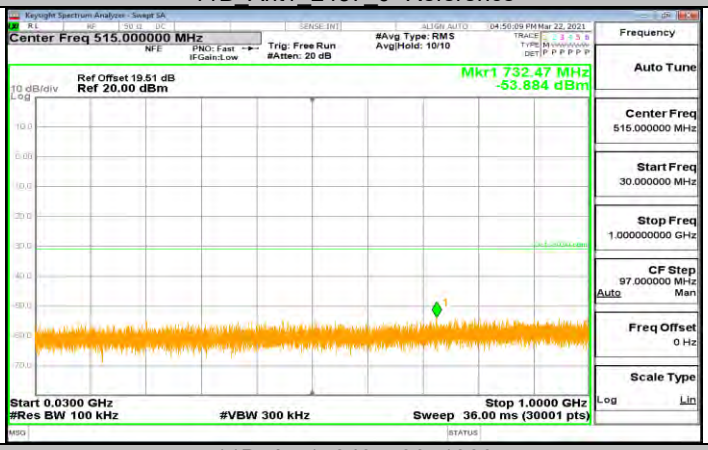


11B_Ant1_2412_1000~26500

11B_Ant1_2437_0~Reference



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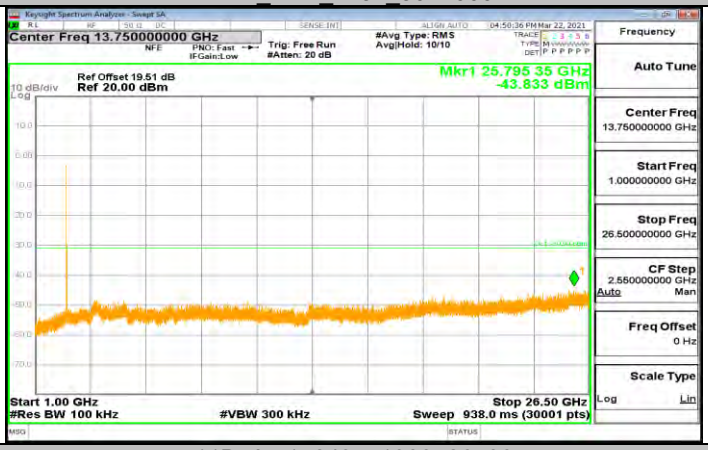

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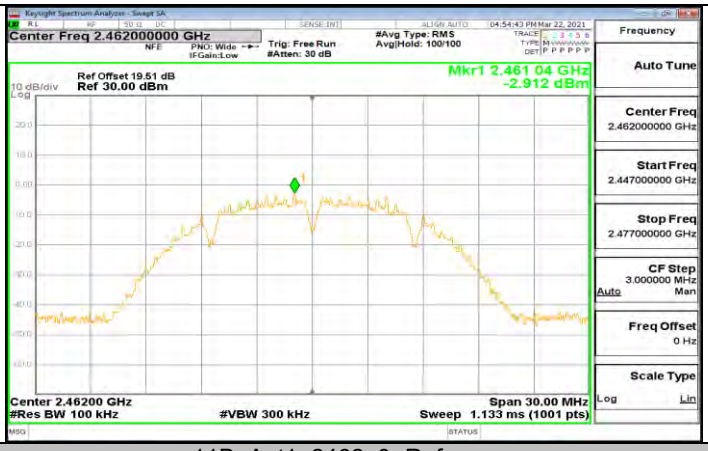

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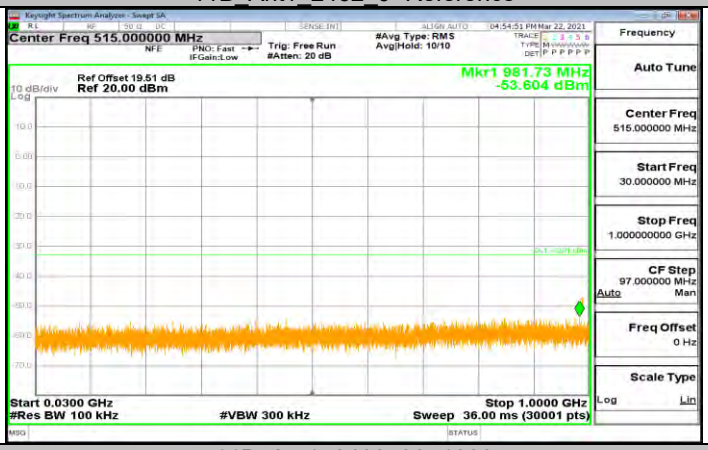

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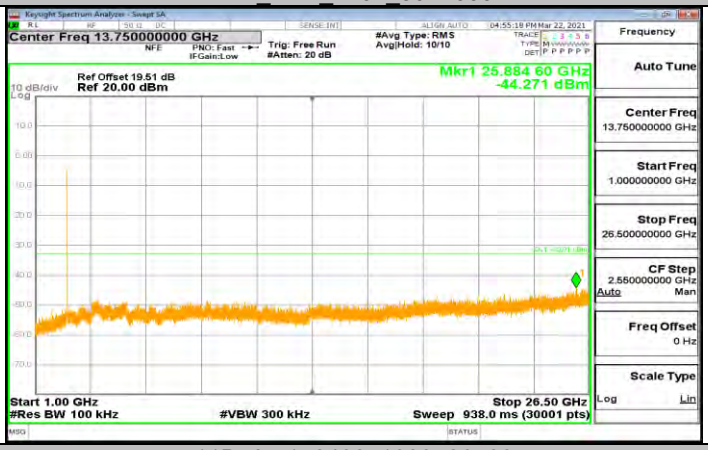

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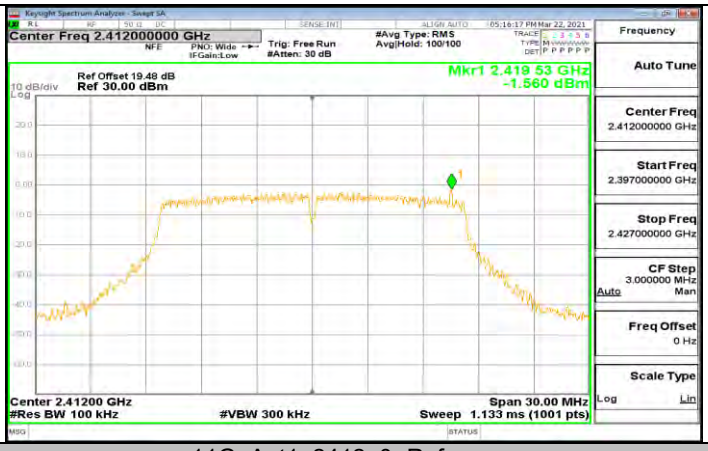

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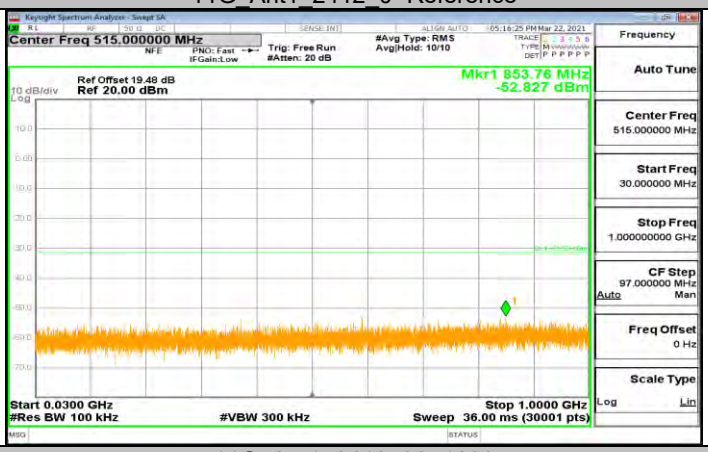

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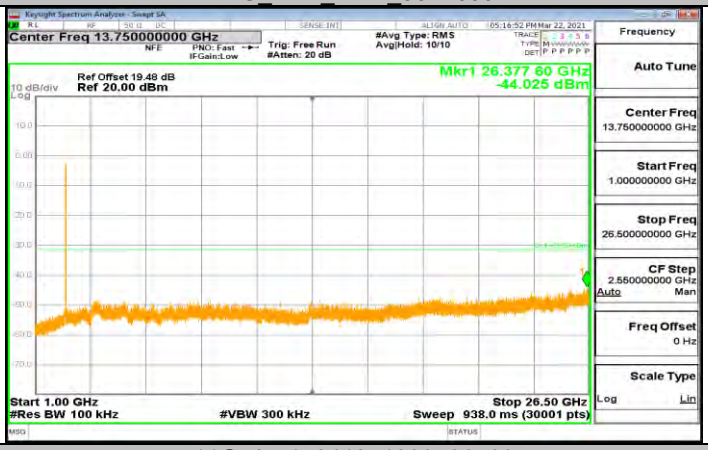

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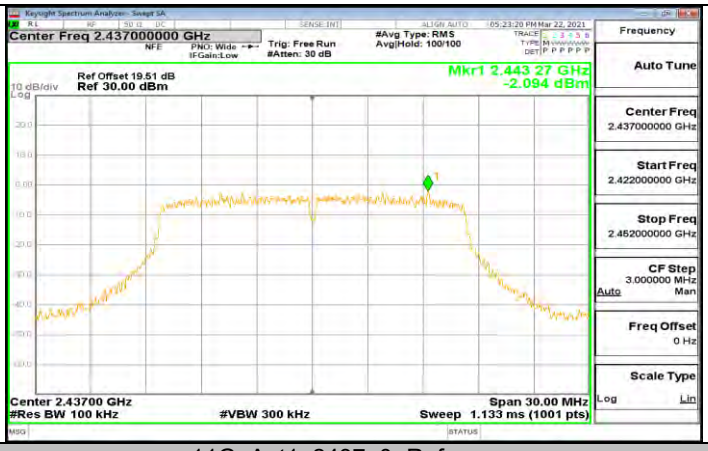

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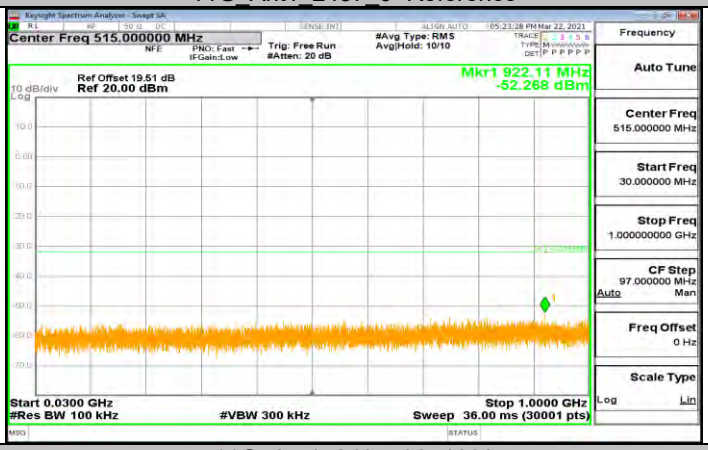

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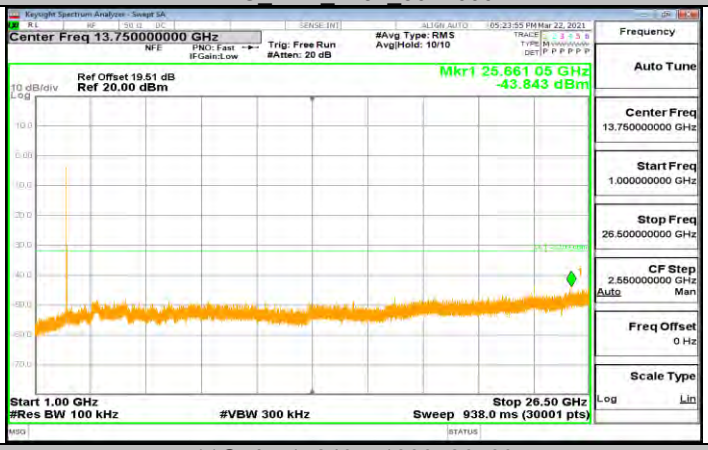

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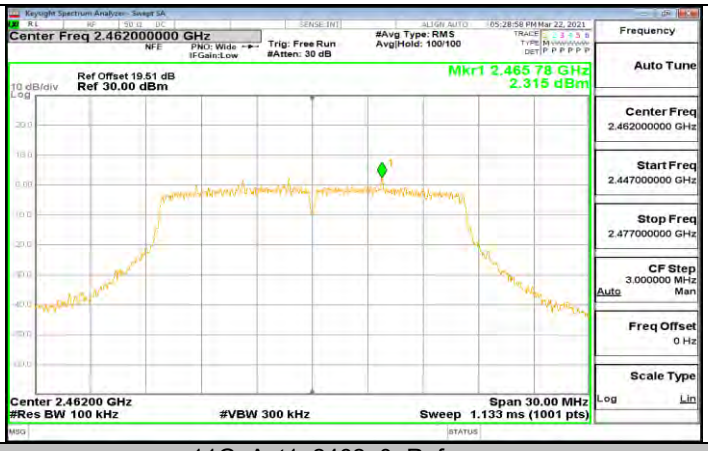

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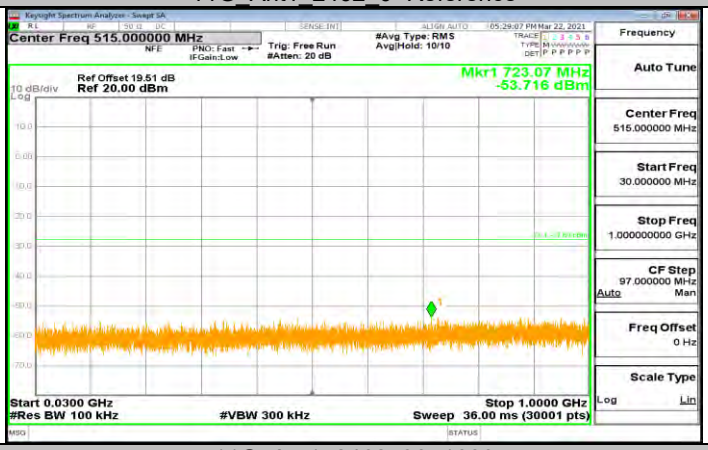

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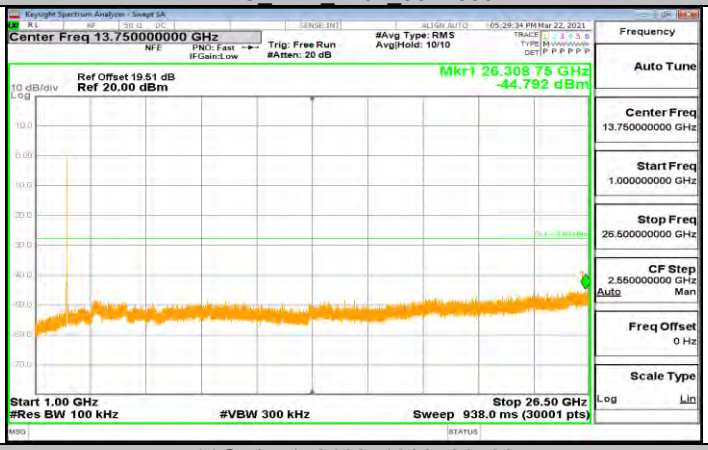
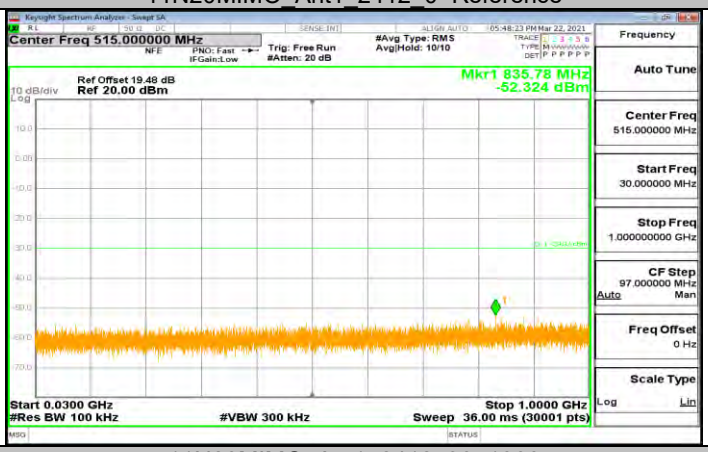


11G_Ant1_2462_1000~26500

11N20MIMO_Ant1_2412_0~Reference



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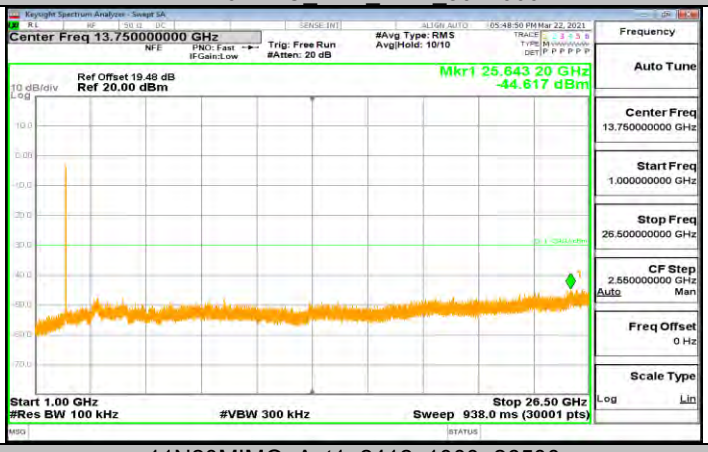
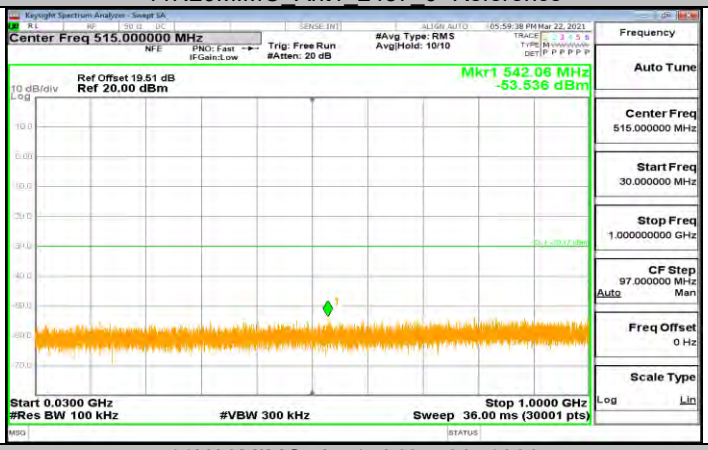


11N20MIMO_Ant1_2412_1000~26500

11N20MIMO_Ant1_2437_0~Reference



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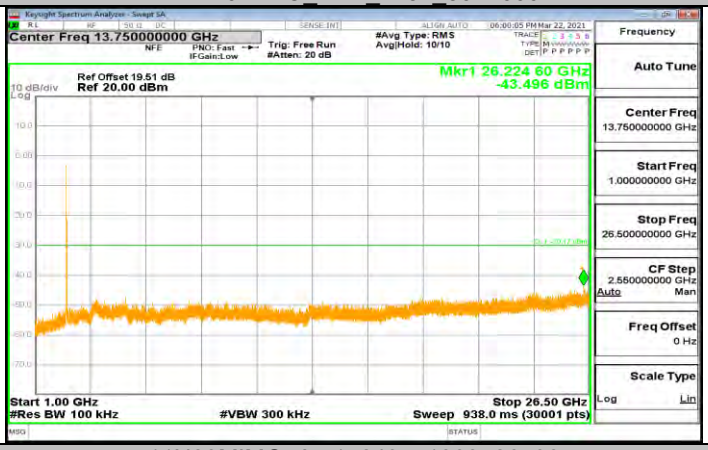

11N20MIMO_Ant1_2437_1000~26500

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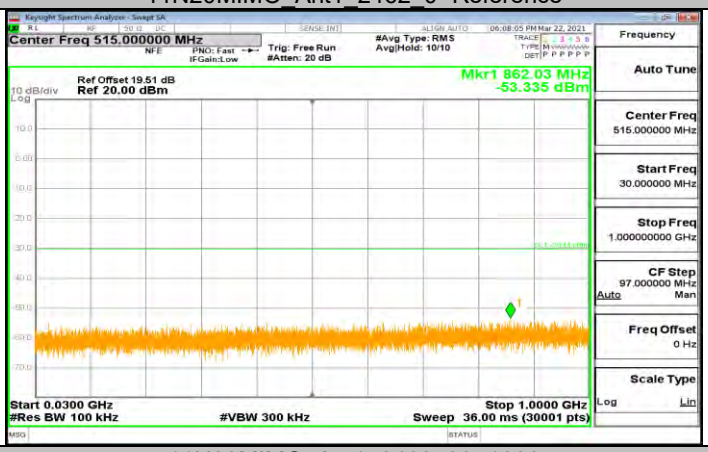

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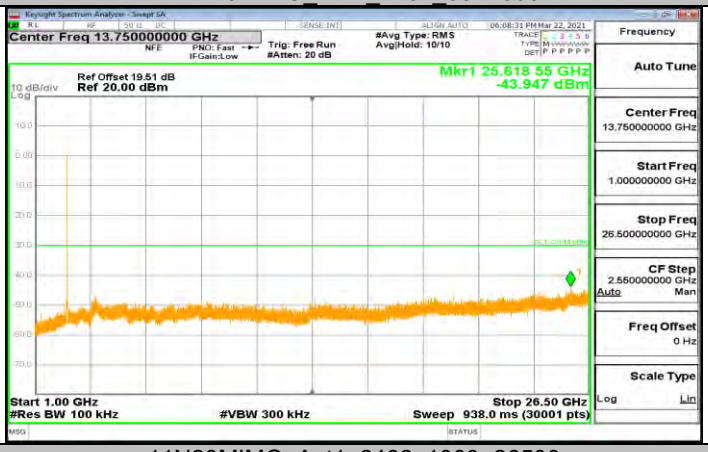
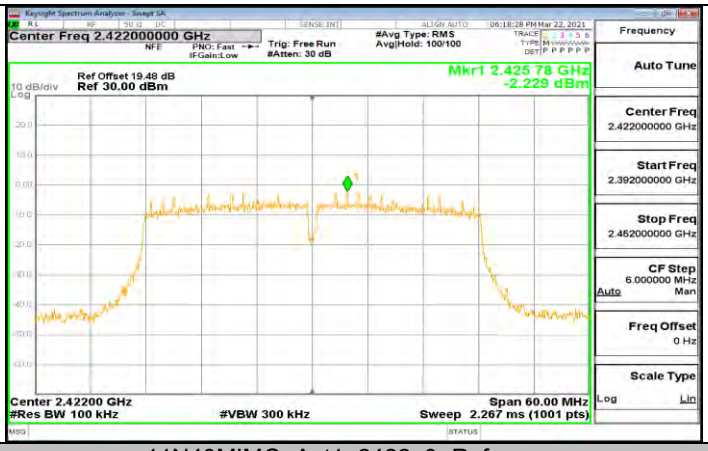


11N20MIMO_Ant1_2462_1000~26500



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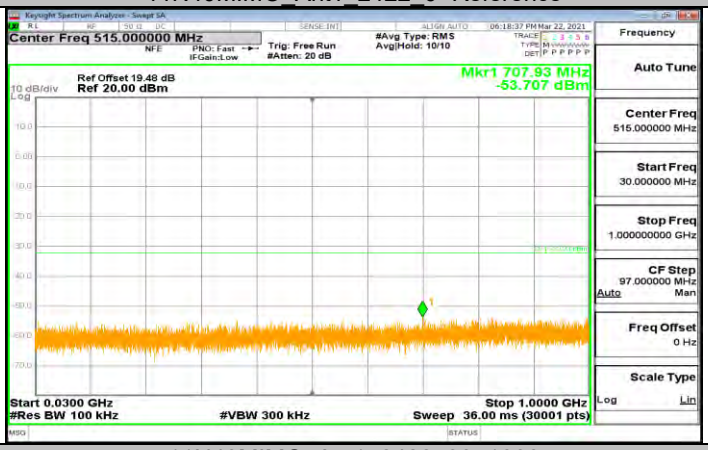
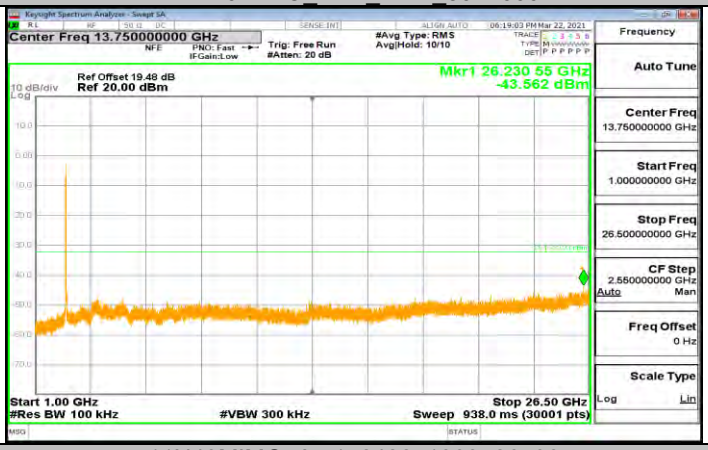


11N40MIMO_Ant1_2422_30~1000



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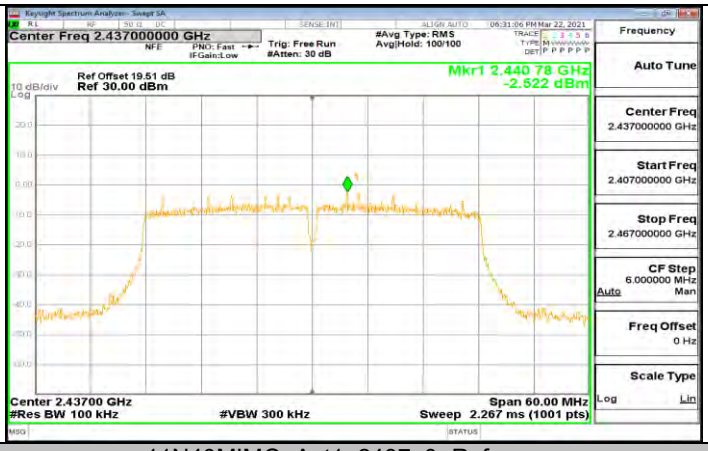

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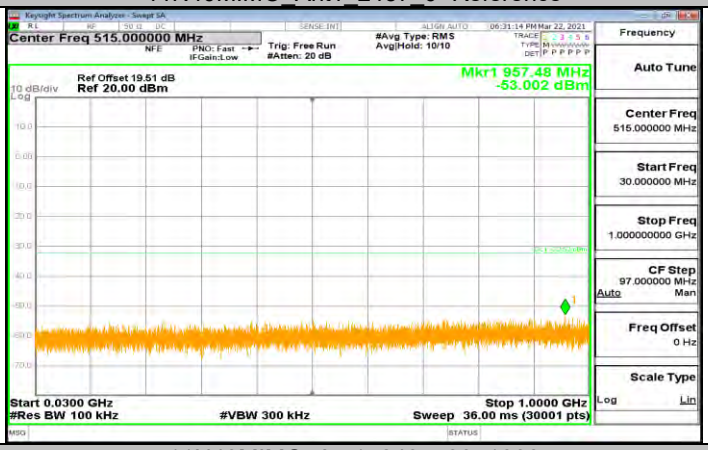

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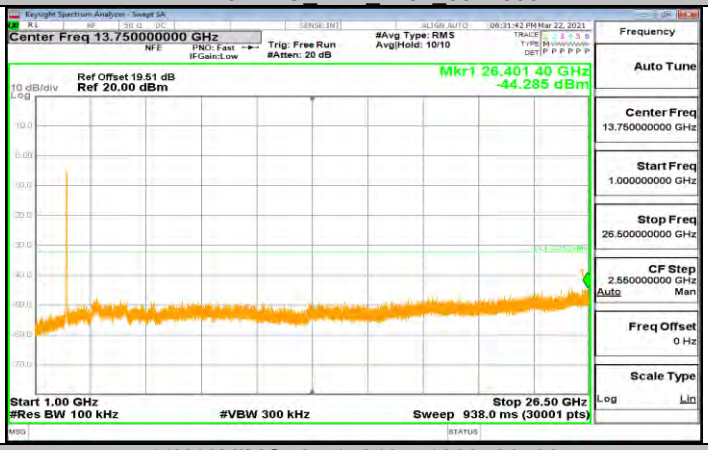
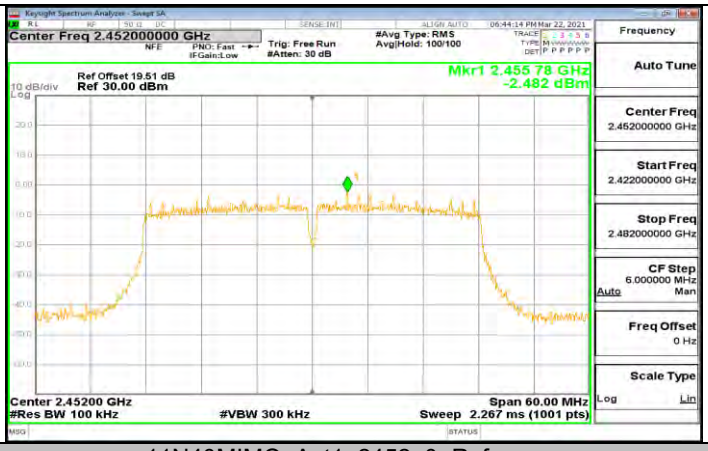
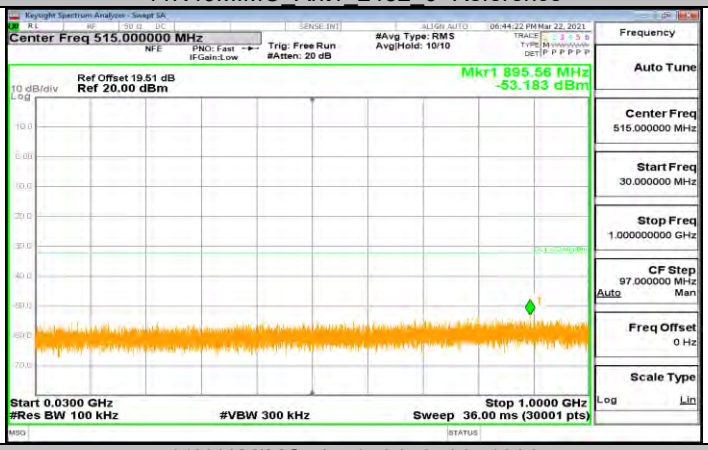


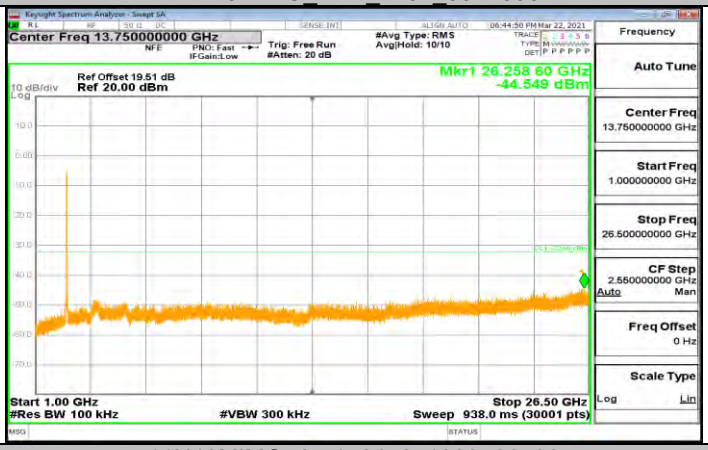
11N40MIMO_Ant1_2437_1000~26500



11N40MIMO_Ant1_2452_0~Reference



11N40MIMO_Ant1_2452_30~1000



11N40MIMO_Ant1_2452_1000~26500

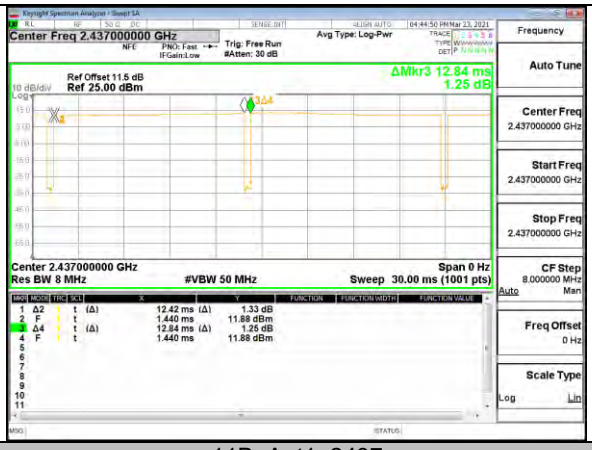
11.7. Appendix G: Duty Cycle

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	12.42	12.84	0.9673	96.73	0.14	0.08	0.1
11G	2.06	2.26	0.9115	91.15	0.40	0.49	0.5
11N20MIMO	1.92	2.04	0.9412	94.12	0.26	0.52	1
11N40MIMO	0.95	1.08	0.8796	87.96	0.56	1.05	1.5

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.
The duty cycle correction is used to the per chain measured values since duty cycles are less than 98% for all modes.

11.7.2. Test Graphs



11B_Ant1_2437

11G_Ant1_2437

11N20MIMO_Ant1_2437

11N40MIMO_Ant1_2437

END OF REPORT