



**CFR 47 FCC PART 15 SUBPART E
CERTIFICATION TEST REPORT**

For

Tablet

MODEL NUMBER: VT-TAB07-RK68H

FCC ID: 2AAGE-TAB07RK68HL

REPORT NUMBER: 4789722180-4

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Prepared for

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	12/08/2020	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e)	PASS
2	99% Occupied Bandwidth	RSS-Gen Clause 6.7	PASS
3	Conducted Output Power	FCC 15.407 (a)	PASS
4	Power Spectral Density	FCC 15.407 (a)	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207	PASS
7	Frequency Stability	FCC 15.407 (g)	PASS
8	Antenna Requirement	FCC 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: Chengdu Vantron Technology, Ltd.
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

Manufacturer Information

Company Name: Chengdu Vantron Technology, Ltd.
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

EUT Information

EUT Name: Tablet
Model: VT-TAB07-RK68H
Brand: VANTRON
Sample Received Date: November 20, 2020
Sample Status: Normal
Sample ID: 3474021
Date of Tested: November 20, 2020~ November 27, 2020

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, KDB414788 D01 Radiated Test Site v01r01.

3. FACILITIES AND ACCREDITATION

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

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

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



4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
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	Tablet		
Model	VT-TAB07-RK68H		
Radio Technology	WLAN (IEEE 802.11a20/n HT20/n HT40/ac VHT20/VHT 40/VHT 80)		
Operation frequency	UNII-1: 5150 ~ 5250 MHz UNII-3: 5725 ~ 5850 MHz		
Modulation	IEEE 802.11a20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT40: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT80: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)		
Power Supply	Power Adapter	Input	100-240 V~50/60Hz 0.5A
		Output	5V/2A
	Battery	4000mAh	



5.2. MAXIMUM OUTPUT POWER

UNII-1 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a 20	5150 ~ 5250	12.27	15.87
n HT20		11.92	15.52
n HT40		12.96	16.56
ac VHT20		12.21	15.81
ac VHT40		12.95	16.55
ac VHT80		12.04	15.64

UNII-3 BAND

IEEE Std. 802.11	Frequency (MHz)	Max Power (dBm)
a 20	5725 ~ 5850	14.18
n HT20		13.74
n HT40		14.44
ac VHT20		14.14
ac VHT40		14.30
ac VHT80		13.19

5.3. CHANNEL LIST

UNII-1 (For Bandwidth = 20 MHz)		UNII-1 (For Bandwidth = 40 MHz)		UNII-1 (For Bandwidth = 80 MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-3 (For Bandwidth = 20 MHz)		UNII-3 (For Bandwidth = 40 MHz)		UNII-3 (For Bandwidth = 80 MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

**TEST CHANNEL CONFIGURATION**

UNII-1 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11ac VHT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT80	CH 42(Low Channel)	5210 MHz

UNII-3 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT40	CH 151(Low Channel), CH 159(High Channel)	5755MHz, 5795MHz
802.11ac VHT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11ac VHT40	CH 151(Low Channel), CH 159(High Channel)	5755 MHz, 5795 MHz
802.11ac VHT80	CH 155(Low Channel)	5775 MHz



5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	UNII1, UNII3	Internal PIFA antenna	3.6

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11n HT20	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11n HT40	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11ac VHT20	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11ac VHT40	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11ac VHT80	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
Note:		
2. BT&WLAN 2.4G & WLAN 5G can't transmit simultaneously. (declared by client)		

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worst Case Power Setting Parameter	
Test Software	RFTestTool

UNII-1

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	36	default
		40	default
		48	default
11n HT20	MCS0	36	default
		40	default
		48	default
11n HT40	MCS0	38	default
		46	default
11ac VHT20	MCS0	36	default
		40	default
		48	default
11ac VHT40	MCS0	38	default
		46	default
11ac VHT80	MCS0	42	default

UNII-3

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	149	default
		157	default
		165	default
11n HT20	MCS0	149	default
		157	default
		165	default
11n HT20	MCS0	151	default
		159	default
11ac VHT20	MCS0	149	default
		157	default
		165	default
11ac VHT40	MCS0	151	default
		159	default
11ac VHT80	MCS0	155	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 5.6.

Worst case Data Rates declared by the customer:

- IEEE 802.11a / SISO – BPSK / 6 Mbps
- IEEE 802.11n HT20 / SISO – BPSK / MCS0
- IEEE 802.11n HT40 / SISO – BPSK / MCS0
- IEEE 802.11ac VHT20 / SISO – BPSK / MCS0
- IEEE 802.11ac VHT40 / SISO – BPSK / MCS0
- IEEE 802.11ac VHT80 / SISO – BPSK / MCS0

Since 802.11ac VHT20/VHT40 mode are different from 802.11n HT20/HT40 only in control messages, so all the tests (except conducted output power and power spectral density) were performed on the worst case (802.11ac VHT20/802.11ac VHT40) mode between these 4 modes and only the worst data was recorded in this report.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
/	/	/	/	

I/O CABLES

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

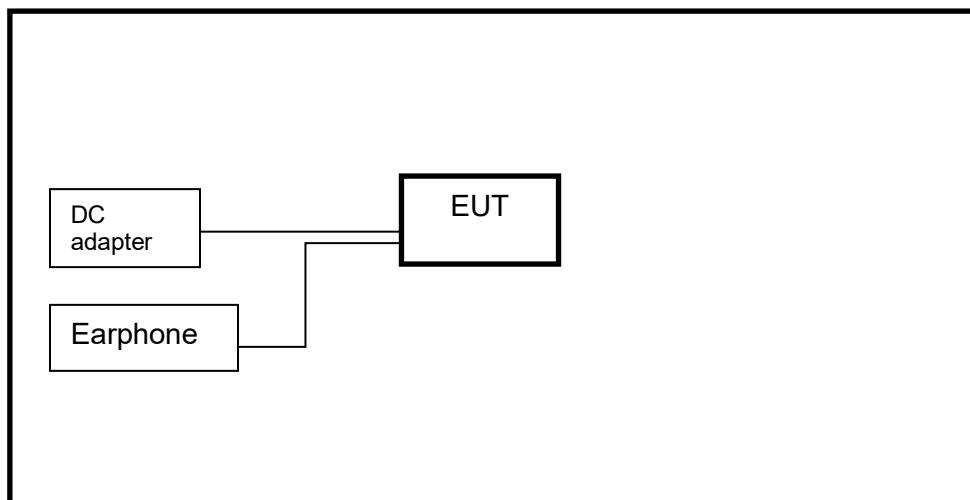
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	Power supply	/	NA010050020	OUTPUT 5V, 2A
2	Earphone	/	/	/
3	TF Card	/	/	/

TEST SETUP

The EUT can work in engineering mode with a software installed.

SETUP DIAGRAM FOR TESTS



6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Dec.05,2019	Dec.05,2020
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17, 2018	Sep.17, 2021
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A09099	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Sep.17, 2018	Sep.17, 2021
<input checked="" type="checkbox"/>	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11, 2018	Aug.11, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-3	TRS-308-00002	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Jan.07, 2019	Jan.07, 2022
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Dec.05,2019	Dec.05,2020



<input checked="" type="checkbox"/>	High Pass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Dec.05,2019	Dec.05,2020
Software						
Used	Description	Manufacturer		Name	Version	
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance	Farad		EZ-EMC	Ver. UL-3A1	
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Power sensor, Power Meter	R&S	OSP120	100921	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	DC power supply	Array	3662A	A1512015	Dec.05,2019	Dec.05,2020
<input checked="" type="checkbox"/>	Power sensor, Power Meter	R&S	OSP120	100921	Mar.13,2020	Mar.13,2021
<input checked="" type="checkbox"/>	Vector Signal Generator	R&S	SMBV100A	261637	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Signal Generator	R&S	SMB100A	178553	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Signal Analyzer	R&S	FSV40	A1512015	Dec.06,2019	Dec.06,2020
<input checked="" type="checkbox"/>	Attenuator	Weinschel	3M-10	T9692	Dec.06,2019	Dec.06,2020
Software						
Used	Description	Manufacturer		Name	Version	
<input checked="" type="checkbox"/>	Test Software for RF Conducted Test	Tonscend		JS1120-3 RF Test System	2.6.77.0518	
<input checked="" type="checkbox"/>	Test Software for DFS Test	R&S		EMC 32	10.60.10	

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

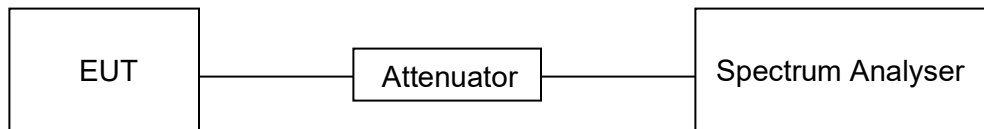
None; for reporting purposes only.

PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq EBW$ if possible; otherwise, set RBW to the largest available value. Set $VBW \geq RBW$. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

TEST SETUP



TEST ENVIRONMENT

Temperature	24.4 °C	Relative Humidity	50.2 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Please refer to appendix D.



7.2. 6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725 (For FCC) 5470 ~ 5600 (For ISED) 5650 ~ 5725 (For ISED)
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISED)

TEST PROCEDURE

ISED RSS-247 6.2.1.2 clause unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

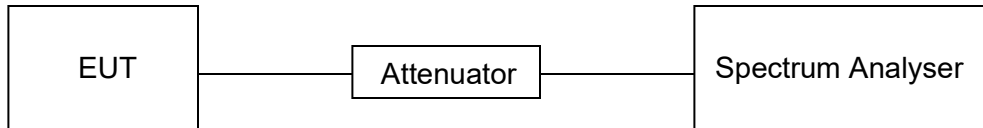
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 26 dB Bandwidth: $> 3 \times \text{RBW}$ For 99 % Bandwidth: $> 3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

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

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.4 °C	Relative Humidity	50.2 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Please refer to Appendix A1&A2&A3.



7.3. CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	<input type="checkbox"/> Outdoor Access Point: 1 W (30 dBm) <input type="checkbox"/> Indoor Access Point: 1 W (30 dBm) <input type="checkbox"/> Fixed Point-To-Point Access Points: 1 W (30 dBm) <input checked="" type="checkbox"/> Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW \geq 3 MHz.
- (iv) Number of points in sweep $\geq 2 \times$ span / RBW. (This ensures that bin-to-bin spacing is \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle $<$ 98 %, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle \geq 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
- (viii) Trace average at least 100 traces in power averaging (rms) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

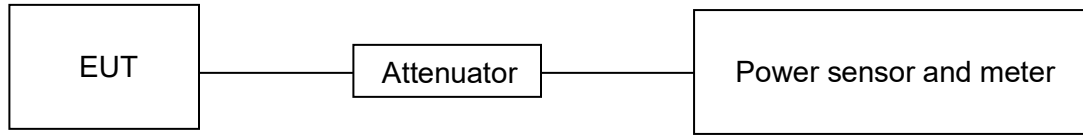
Method PM (Measurement using an RF average power meter):

- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
 - a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
 - b. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- (ii) If the transmitter does not transmit continuously, measure the duty cycle, x , of the transmitter output signal as described in II.B.
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25 %).

Method PM-G (Measurement using a gated RF average power meter):

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power was measured using spectrum analyzer.

TEST SETUP**TEST ENVIRONMENT**

Temperature	24.4 °C	Relative Humidity	50.2 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Please refer to Appendix B.



7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	<input type="checkbox"/> Outdoor Access Point: 17 dBm/MHz <input type="checkbox"/> Indoor Access Point: 17 dBm/MHz <input type="checkbox"/> Fixed Point-To-Point Access Points: 17 dBm/MHz <input checked="" type="checkbox"/> Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

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

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

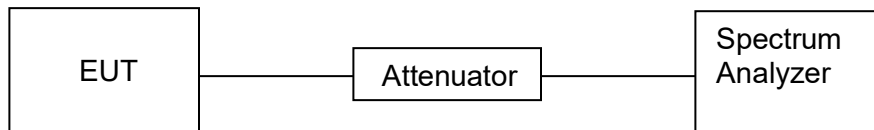
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.4 °C	Relative Humidity	50.2 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Please refer to Appendix C.



8. RADIATED TEST RESULTS

LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

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

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

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



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

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

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

²Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISSED RSS-247 6.2.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4

Note:

*1 beyond 75 MHz or more above of the band edge.

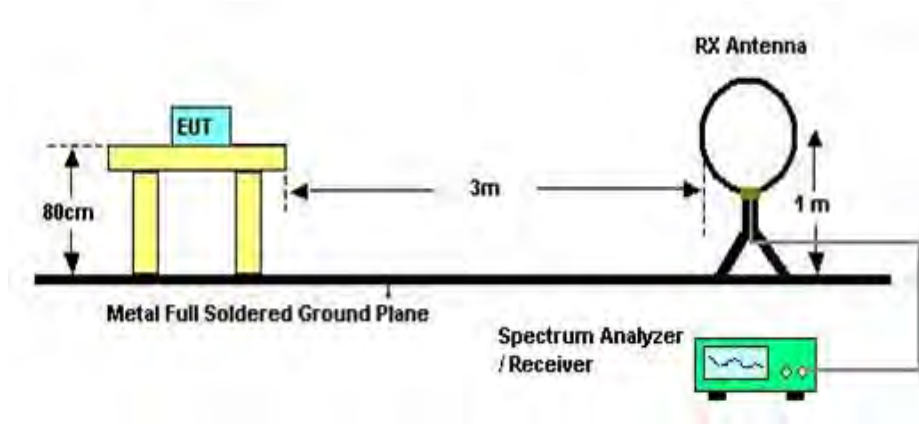
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

TEST SETUP AND PROCEDURE

Below 30 MHz

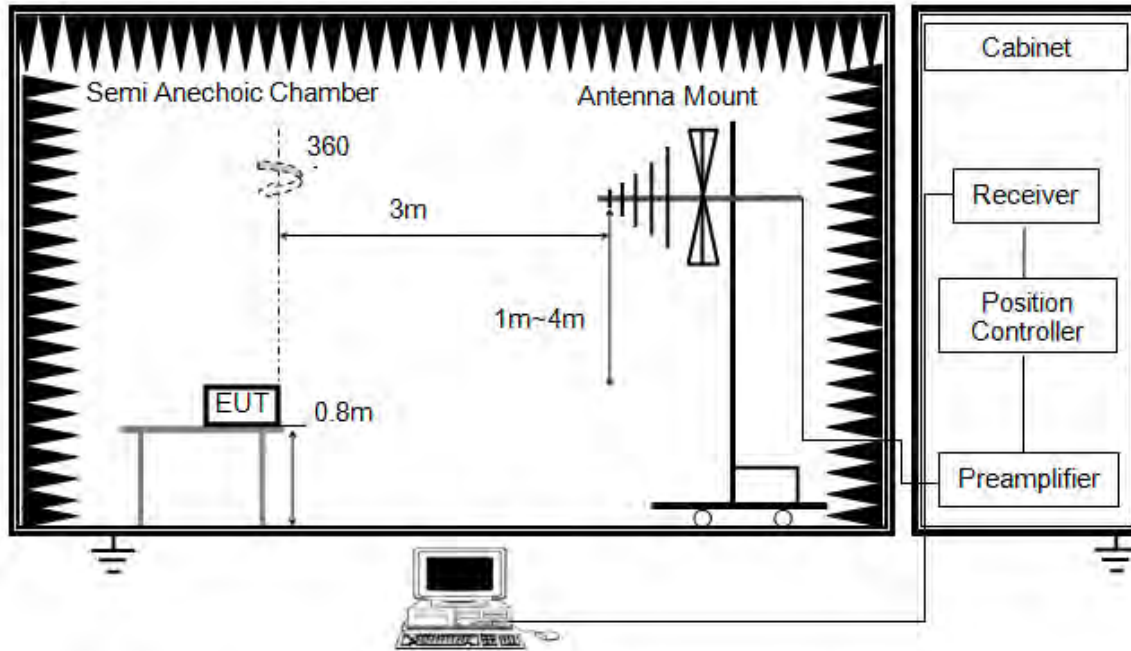


The setting of the spectrum analyser

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 80 cm 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

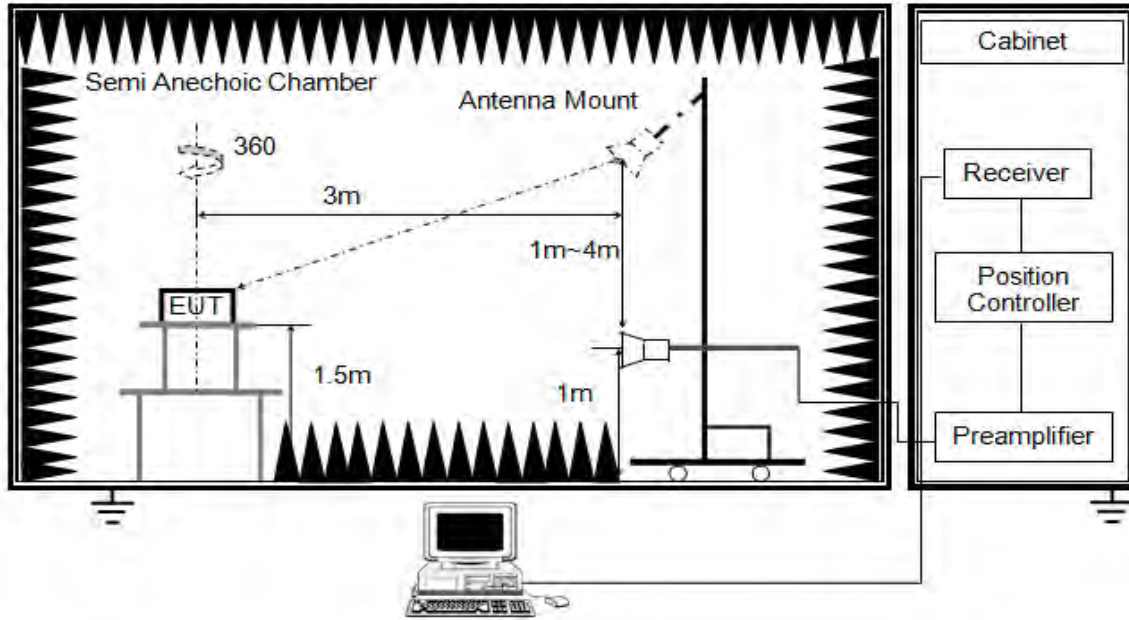


The setting of the spectrum analyser

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

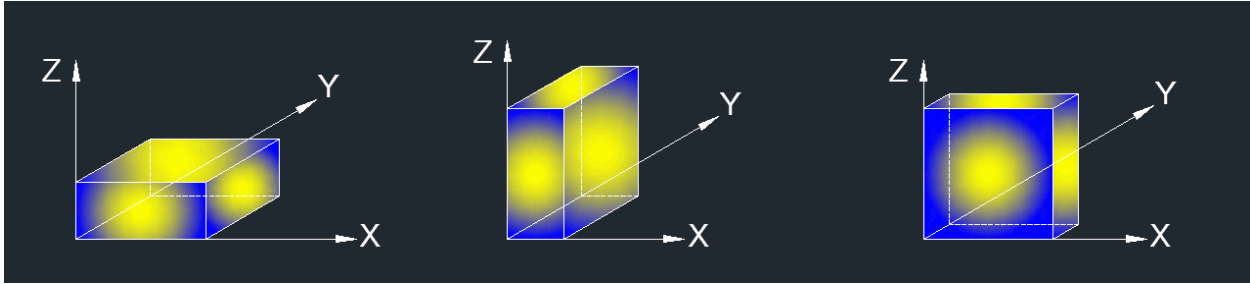


The setting of the spectrum analyser

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 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (1-4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



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

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

Note 3: BT, BLE and WIFI can not transmit in simultaneous.

TEST ENVIRONMENT

Temperature	24.8 °C	Relative Humidity	65.4 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS



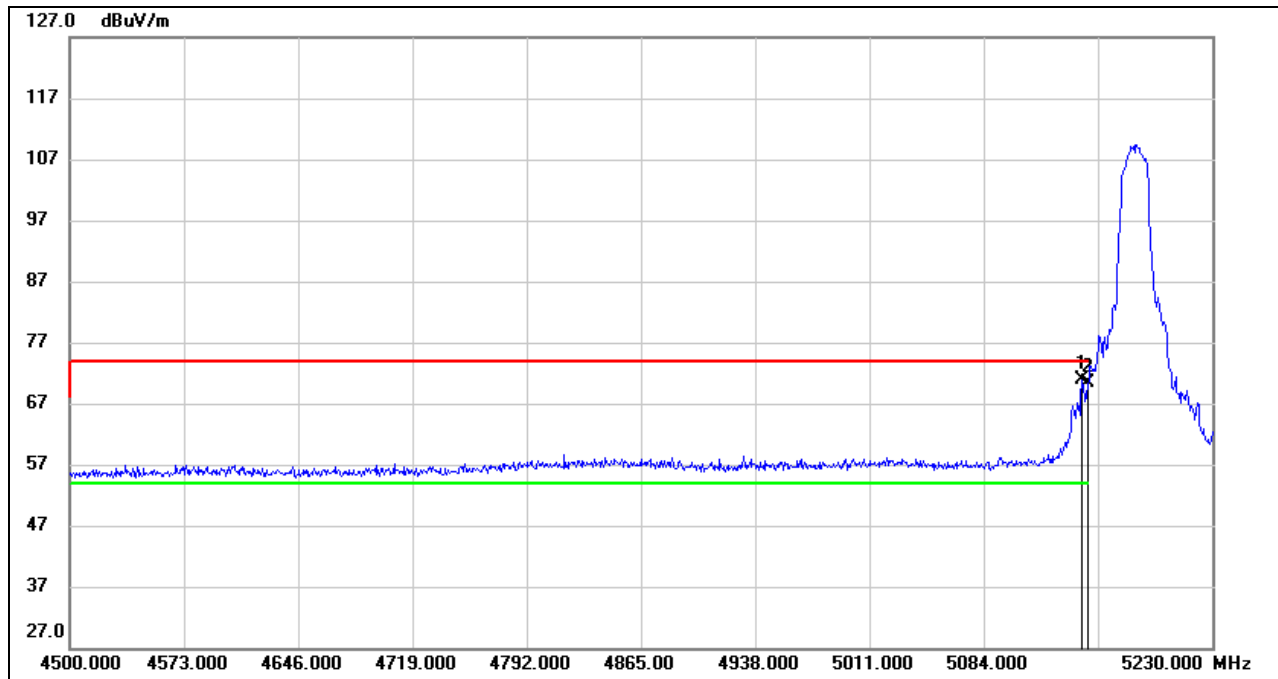
8.1. RESTRICTED BANDEGE

8.1.1. 802.11a SISO MODE

UNII-1 BAND

RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)

PEAK

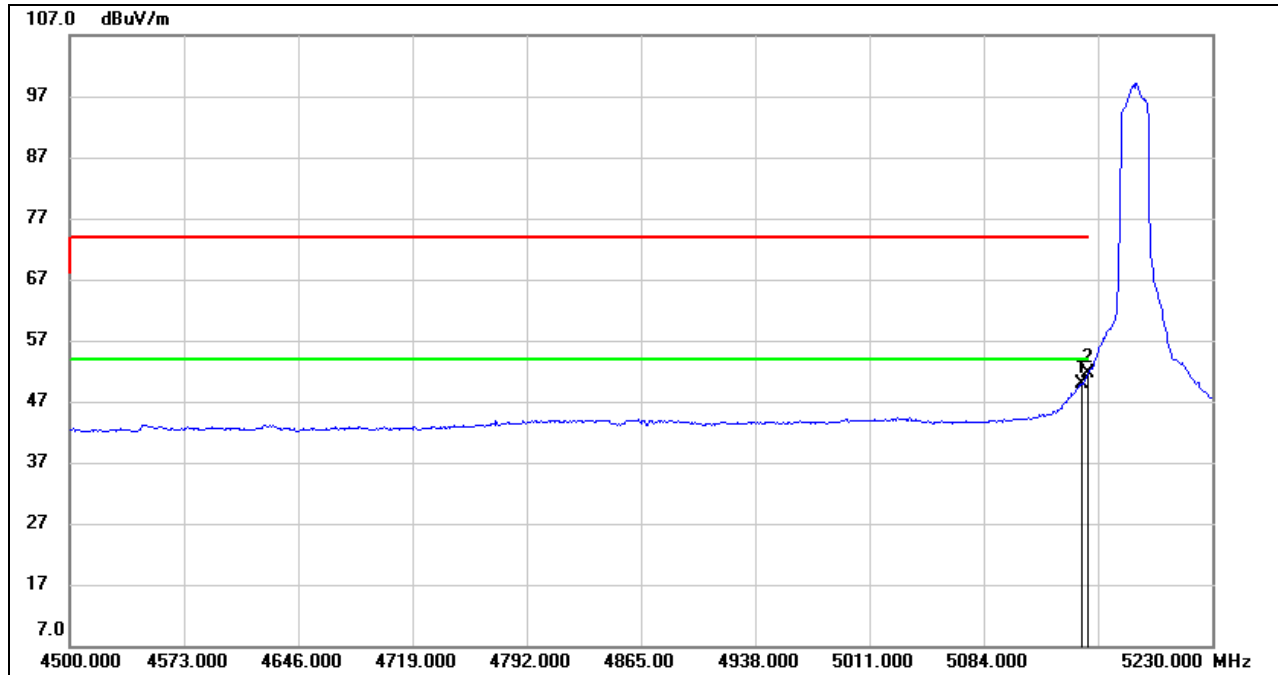


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5146.780	49.42	21.37	70.79	74.00	-3.21	peak
2	5150.000	48.88	21.39	70.27	74.00	-3.73	peak

- 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.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.



AVG



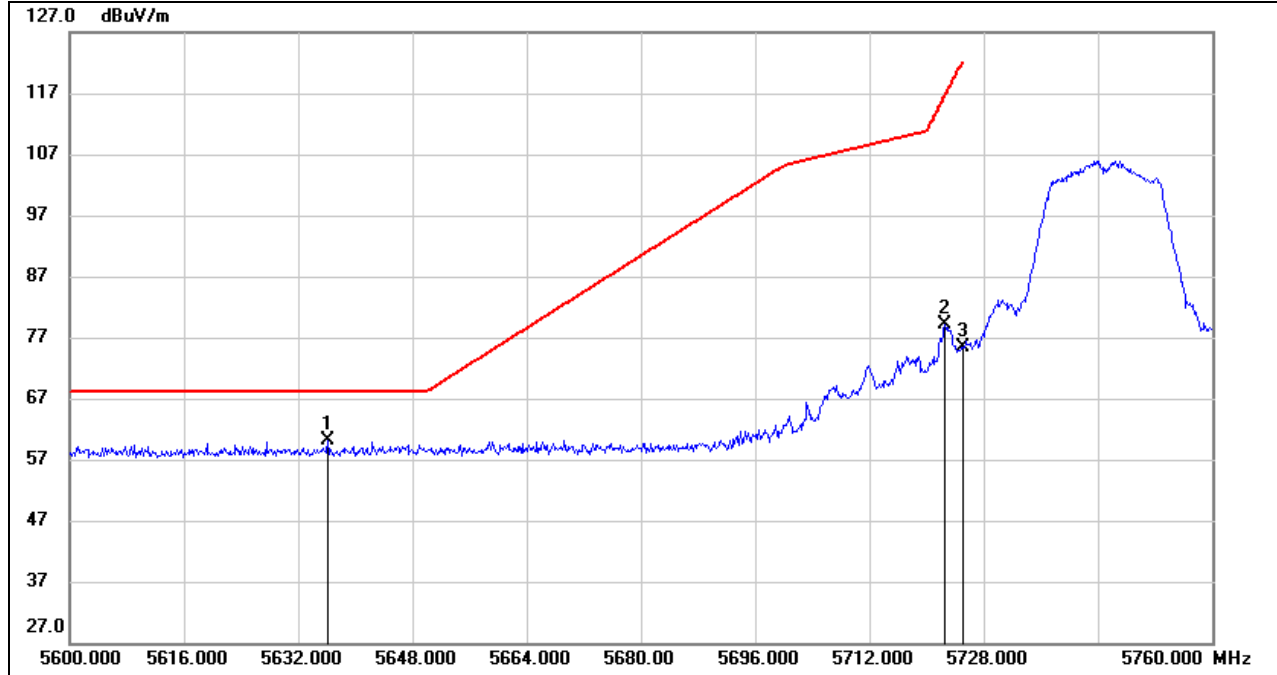
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5146.780	28.42	21.37	49.79	54.00	-4.21	AVG
2	5150.000	30.20	21.39	51.59	54.00	-2.41	AVG

- 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.

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

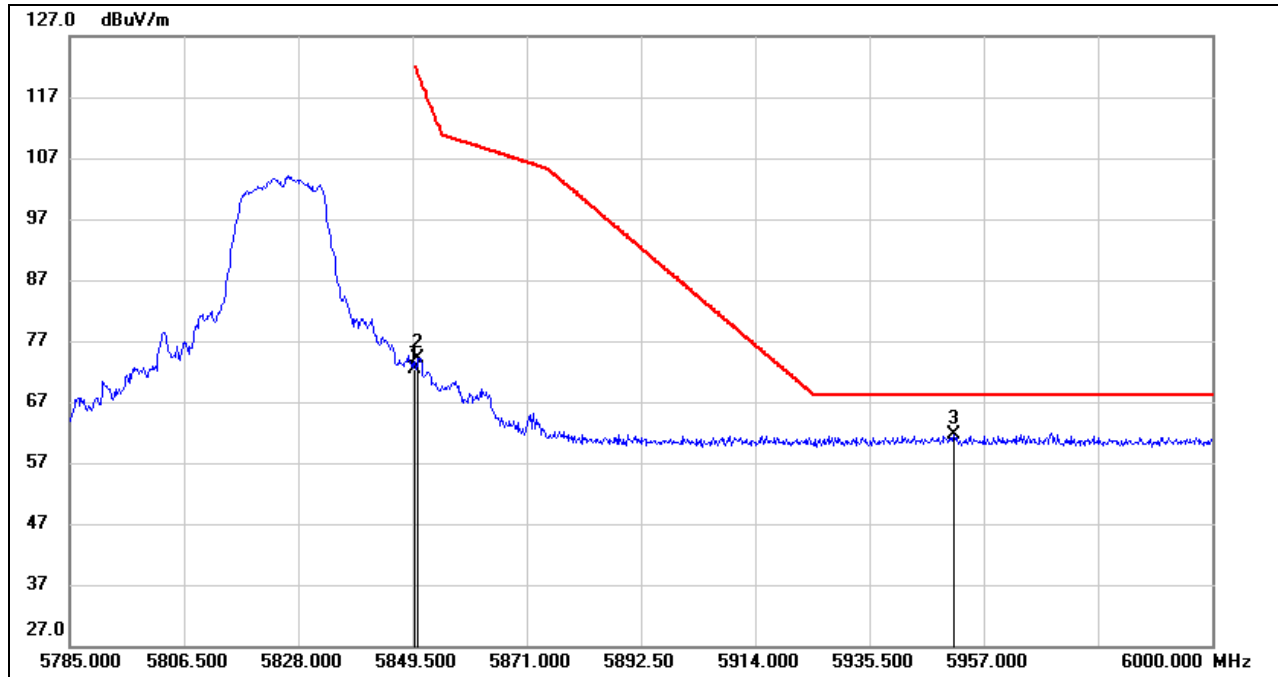


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5636.160	37.90	22.30	60.20	68.20	-8.00	peak
2	5722.560	56.79	22.27	79.06	116.64	-37.58	peak
3	5725.000	53.00	22.28	75.28	122.20	-46.92	peak

- 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.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	49.32	23.06	72.38	122.20	-49.82	peak
2	5850.575	51.09	23.07	74.16	120.89	-46.73	peak
3	5951.410	38.20	23.32	61.52	68.20	-6.68	peak

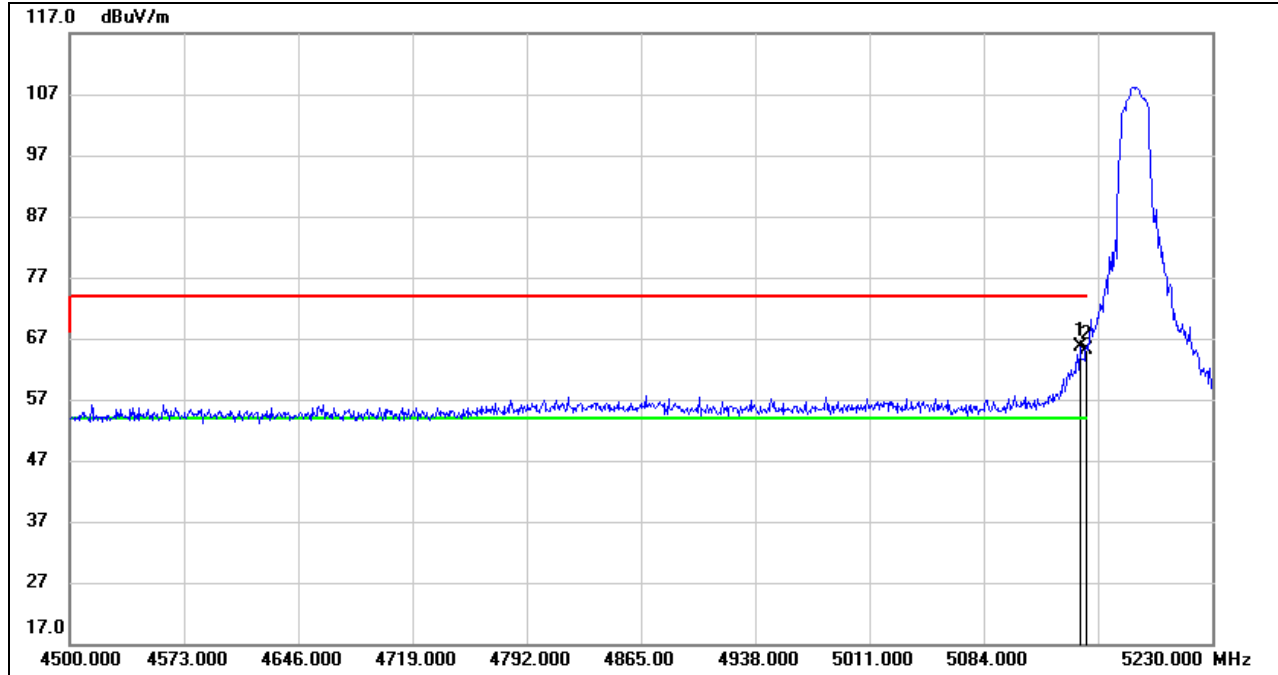
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

8.1.2. 802.11n HT20 SISO MODE

UNII-1 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

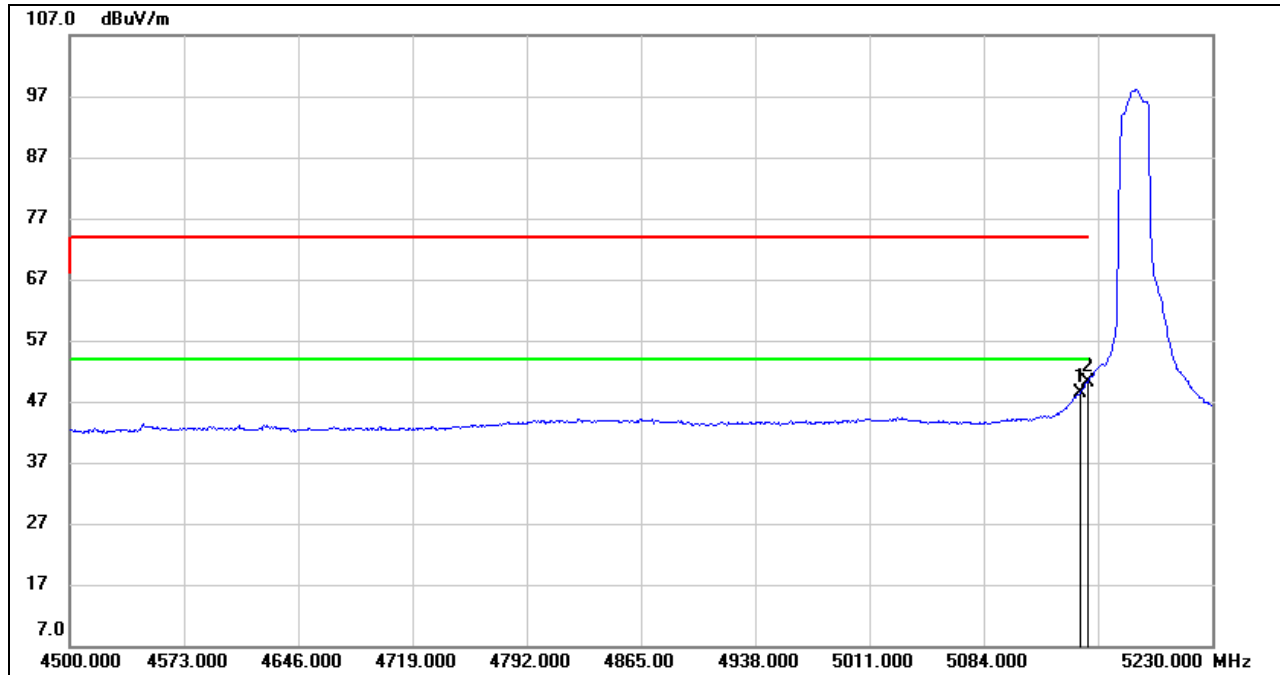
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.320	44.31	21.35	65.66	74.00	-8.34	peak
2	5150.000	43.66	21.39	65.05	74.00	-8.95	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

AVG



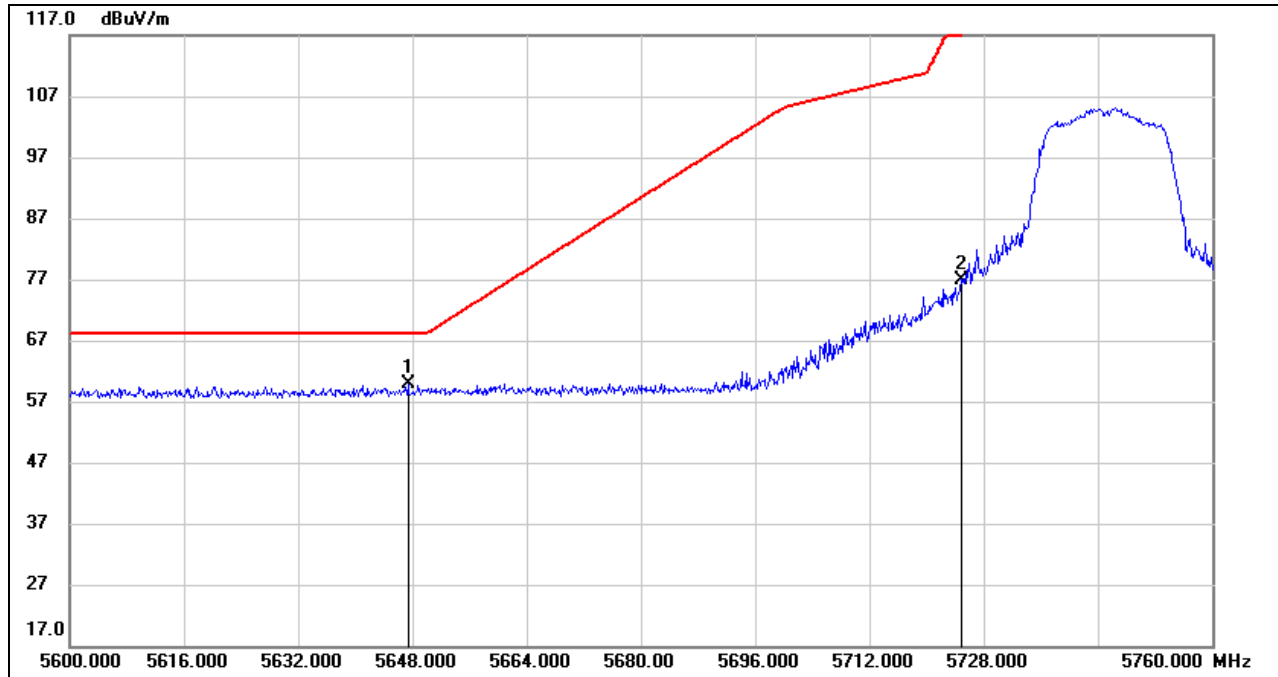
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.320	27.13	21.35	48.48	54.00	-5.52	AVG
2	5150.000	28.83	21.39	50.22	54.00	-3.78	AVG

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

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



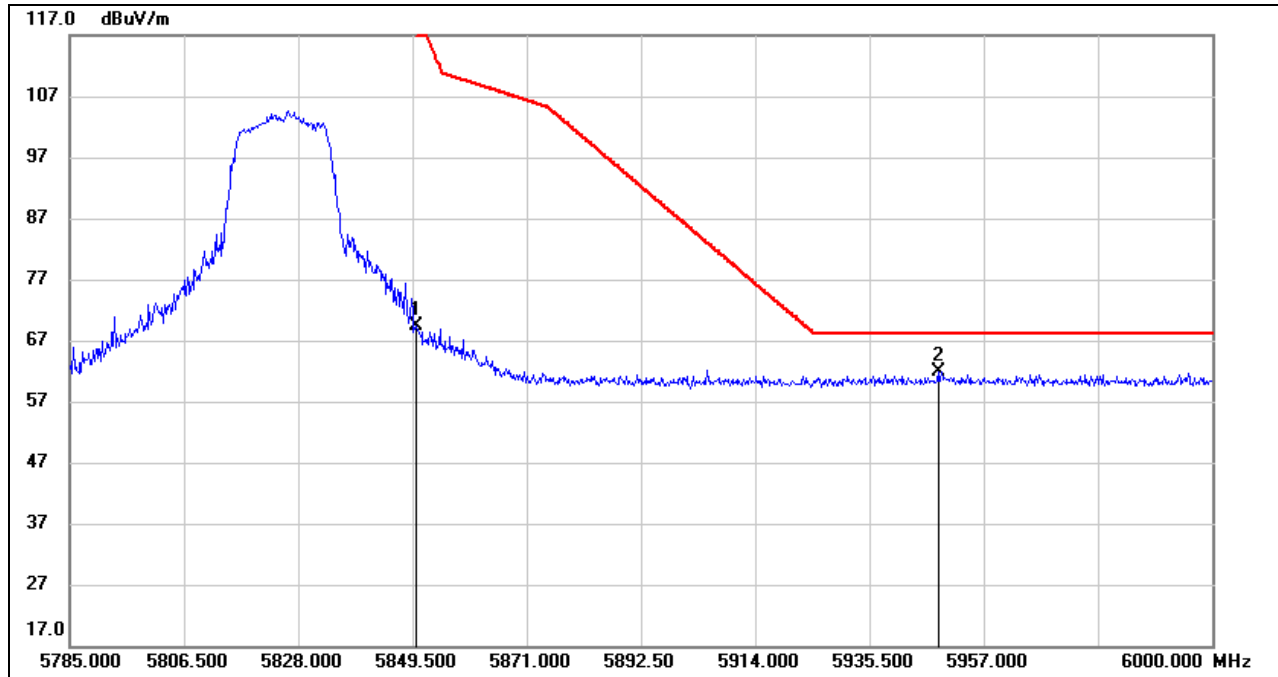
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5647.360	37.61	22.28	59.89	68.20	-8.31	peak
2	5725.000	54.52	22.28	76.80	122.20	-45.40	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	46.42	23.06	69.48	122.20	-52.72	peak
2	5948.400	38.61	23.34	61.95	68.20	-6.25	peak

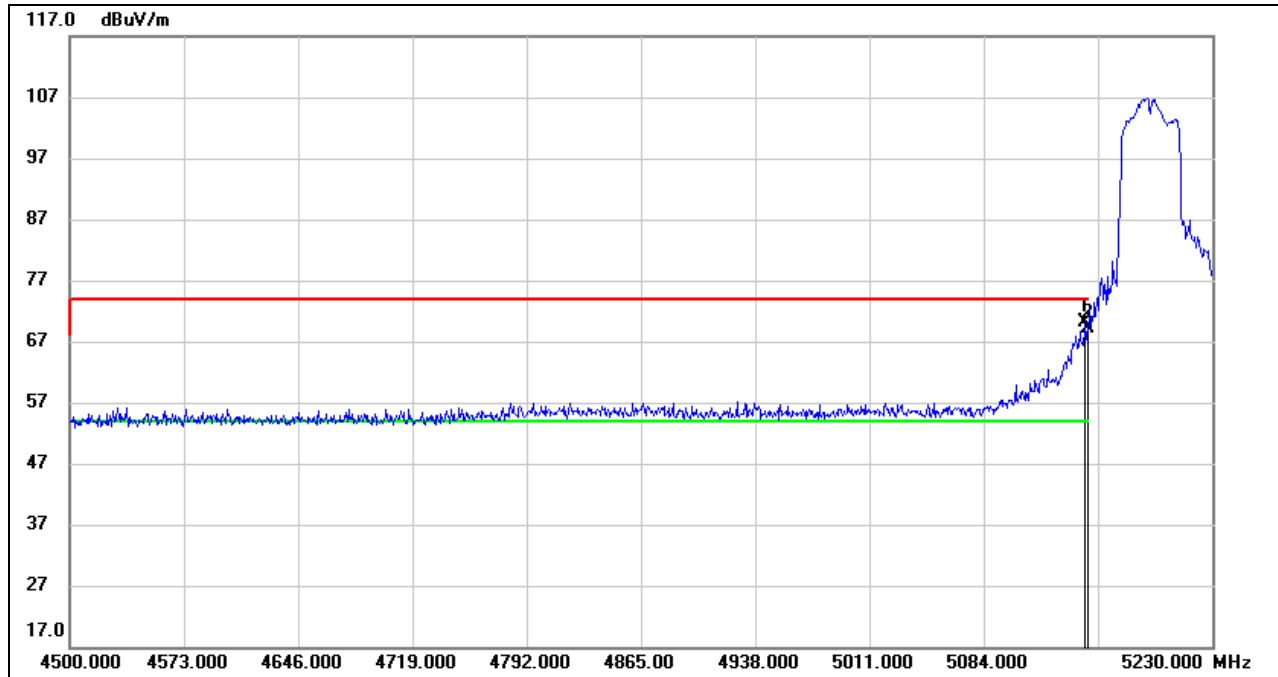
- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

8.1.3. 802.11n HT40 SISO MODE

UNII-1 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

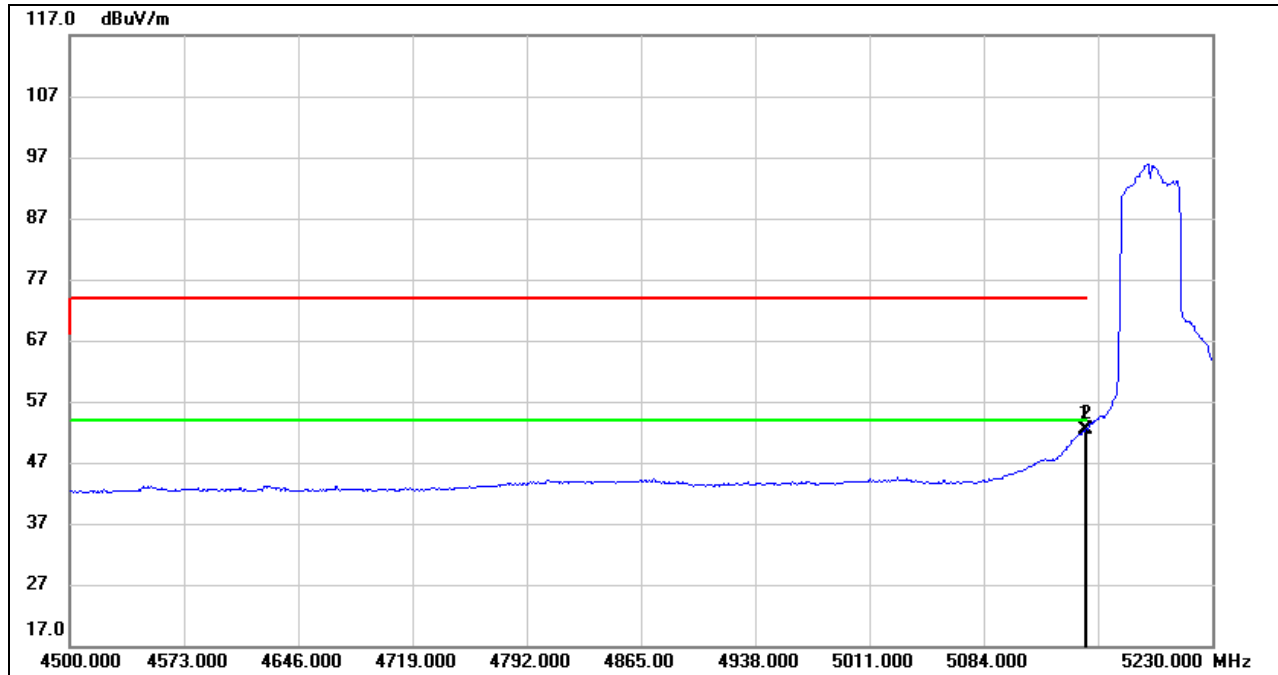
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5148.970	48.74	21.38	70.12	74.00	-3.88	peak
2	5150.000	47.67	21.39	69.06	74.00	-4.94	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

AVG



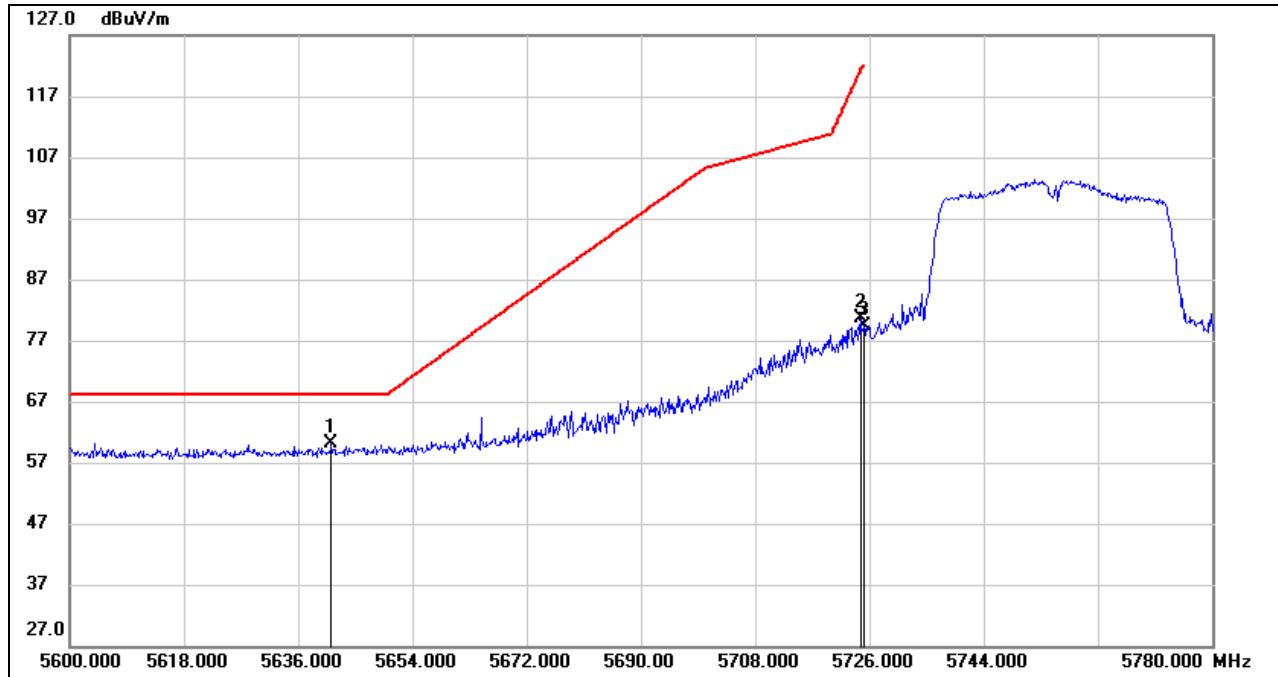
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5148.970	30.98	21.38	52.36	54.00	-1.64	AVG
2	5150.000	31.06	21.39	52.45	54.00	-1.55	AVG

- 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.

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

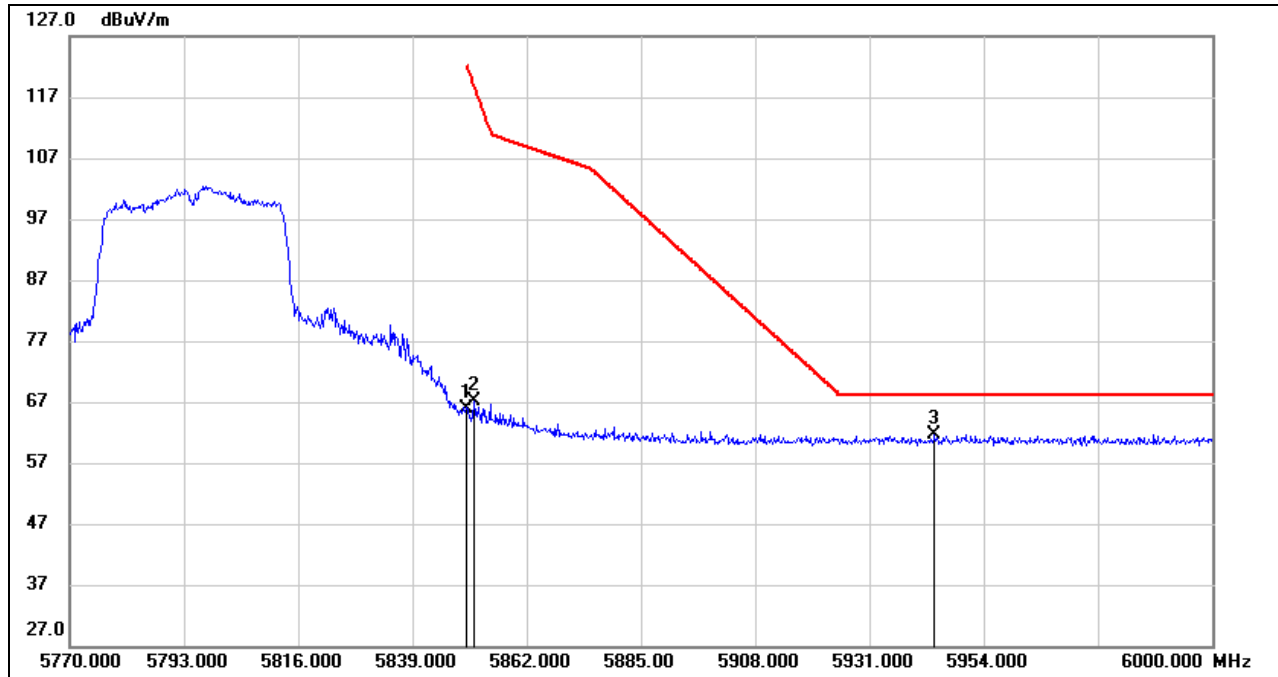


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5641.220	37.89	22.29	60.18	68.20	-8.02	peak
2	5724.560	58.40	22.28	80.68	121.20	-40.52	peak
3	5725.000	57.00	22.28	79.28	122.20	-42.92	peak

- 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.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	42.82	23.06	65.88	122.20	-56.32	peak
2	5851.420	43.97	23.07	67.04	118.96	-51.92	peak
3	5944.110	38.36	23.35	61.71	68.20	-6.49	peak

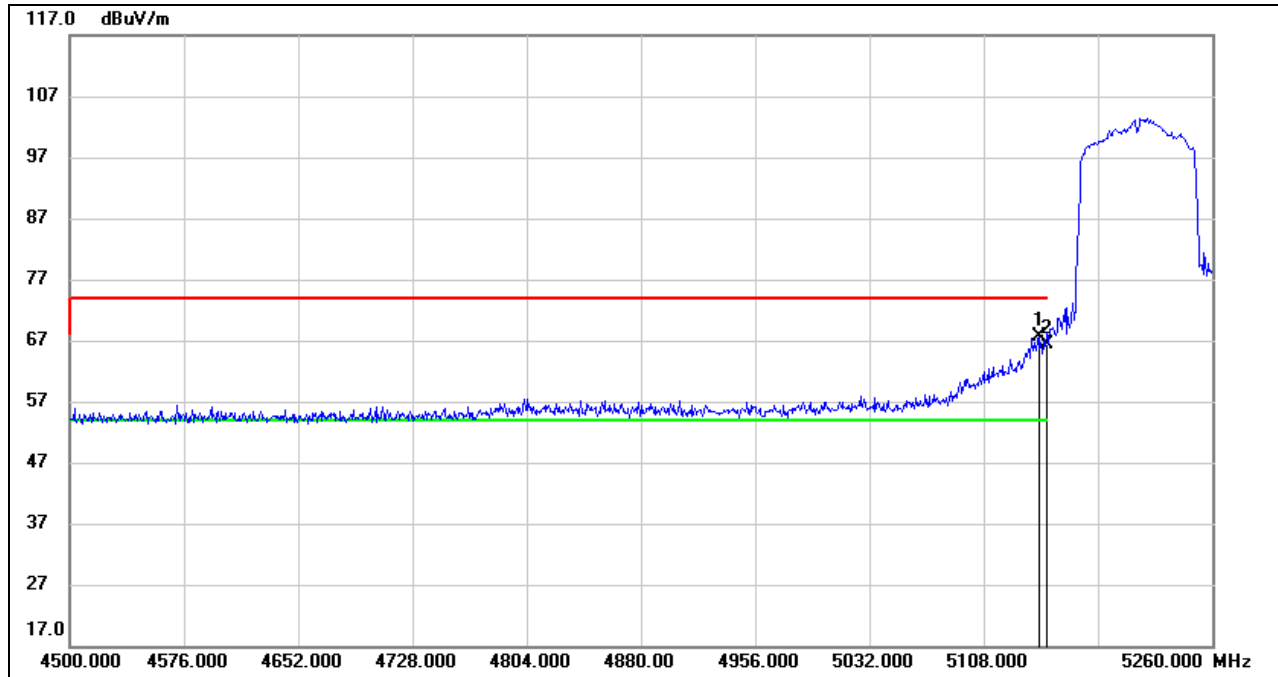
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

8.1.4. 802.11ac VHT80 SISO MODE

UNII-1 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

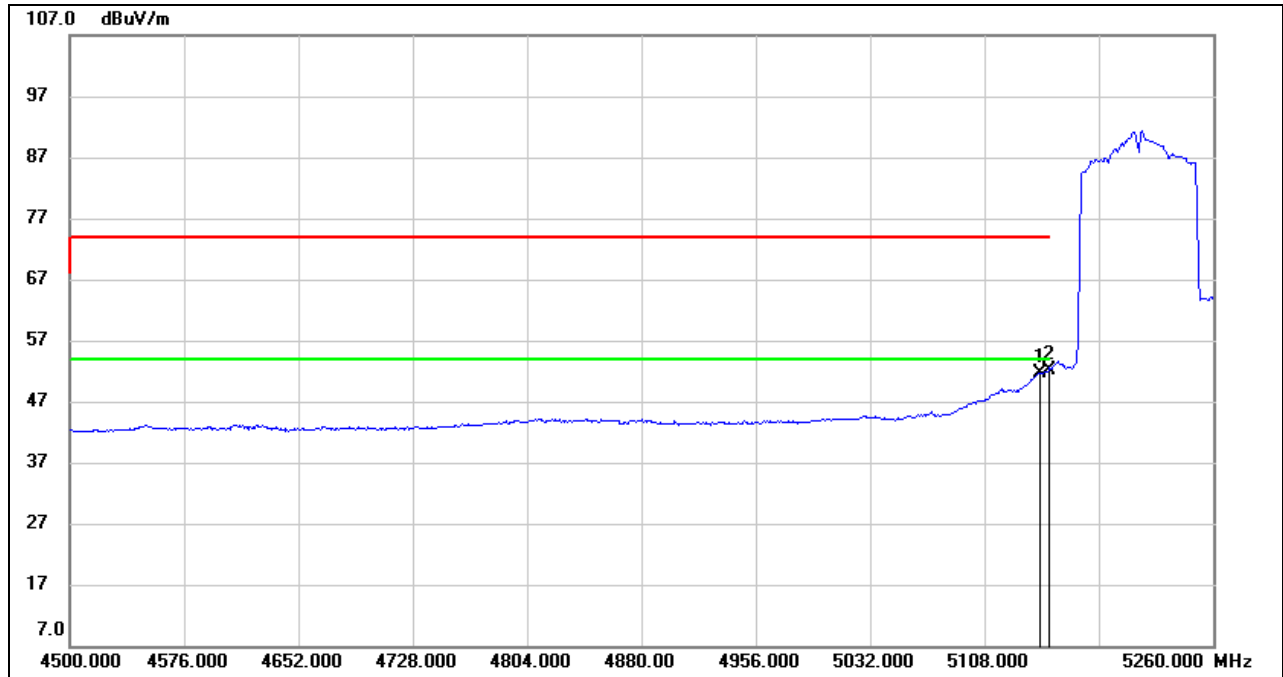


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.480	46.37	21.34	67.71	74.00	-6.29	peak
2	5150.000	45.08	21.39	66.47	74.00	-7.53	peak

- 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.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.



AVG

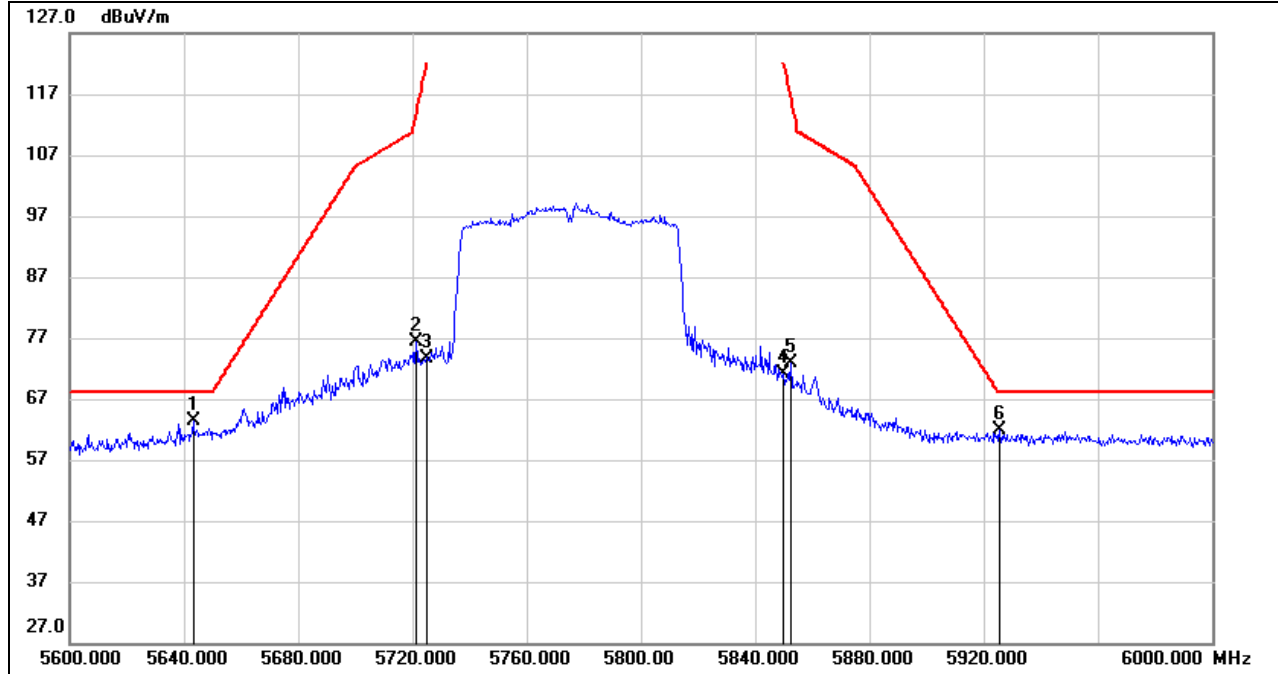


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.480	30.32	21.34	51.66	54.00	-2.34	AVG
2	5150.000	30.86	21.39	52.25	54.00	-1.75	AVG

- 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.

UNII-3 BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5643.200	41.13	22.28	63.41	68.20	-4.79	peak
2	5721.200	54.12	22.26	76.38	113.54	-37.16	peak
3	5725.000	51.44	22.28	73.72	122.20	-48.48	peak
4	5850.000	48.12	23.06	71.18	122.20	-51.02	peak
5	5852.400	49.85	23.08	72.93	116.73	-43.80	peak
6	5925.600	38.52	23.40	61.92	68.20	-6.28	peak

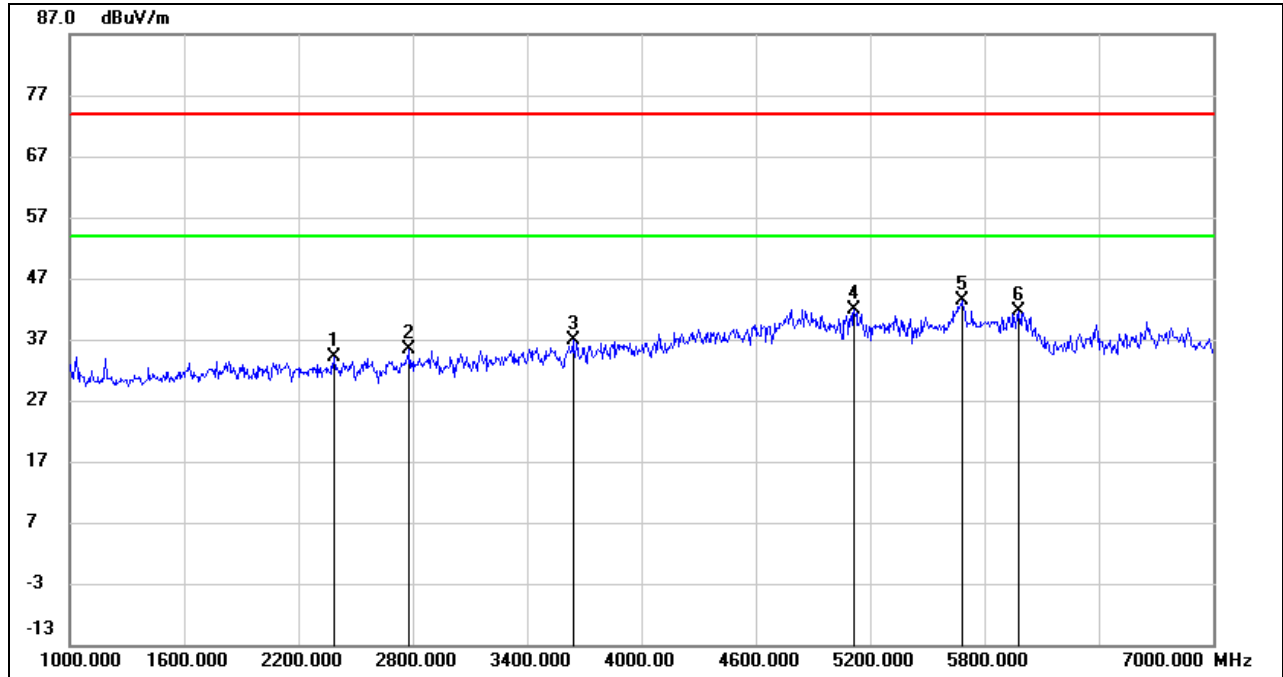
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
 5. All the polarities (vertical and horizontal) had been tested, only the worst data was recorded in the report.

8.2. SPURIOUS EMISSIONS (1 GHz ~ 7 GHz)

8.2.1. 802.11ac VHT80 MIMO MODE

UNII-1 BAND

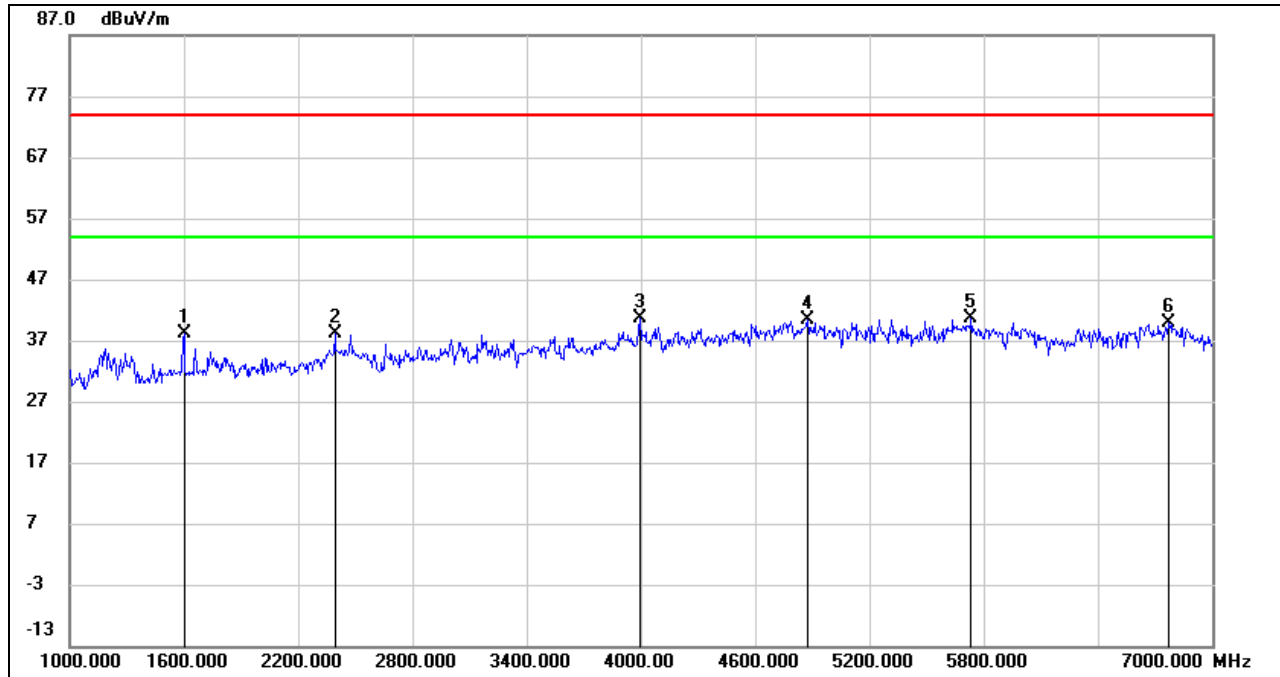
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.000	42.69	-8.67	34.02	74.00	-39.98	peak
2	2782.000	42.40	-7.07	35.33	74.00	-38.67	peak
3	3640.000	41.03	-4.26	36.77	74.00	-37.23	peak
4	5116.000	40.45	1.47	41.92	74.00	-32.08	peak
5	5680.000	41.36	2.00	43.36	74.00	-30.64	peak
6	5980.000	39.12	2.55	41.67	74.00	-32.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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 Band reject filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

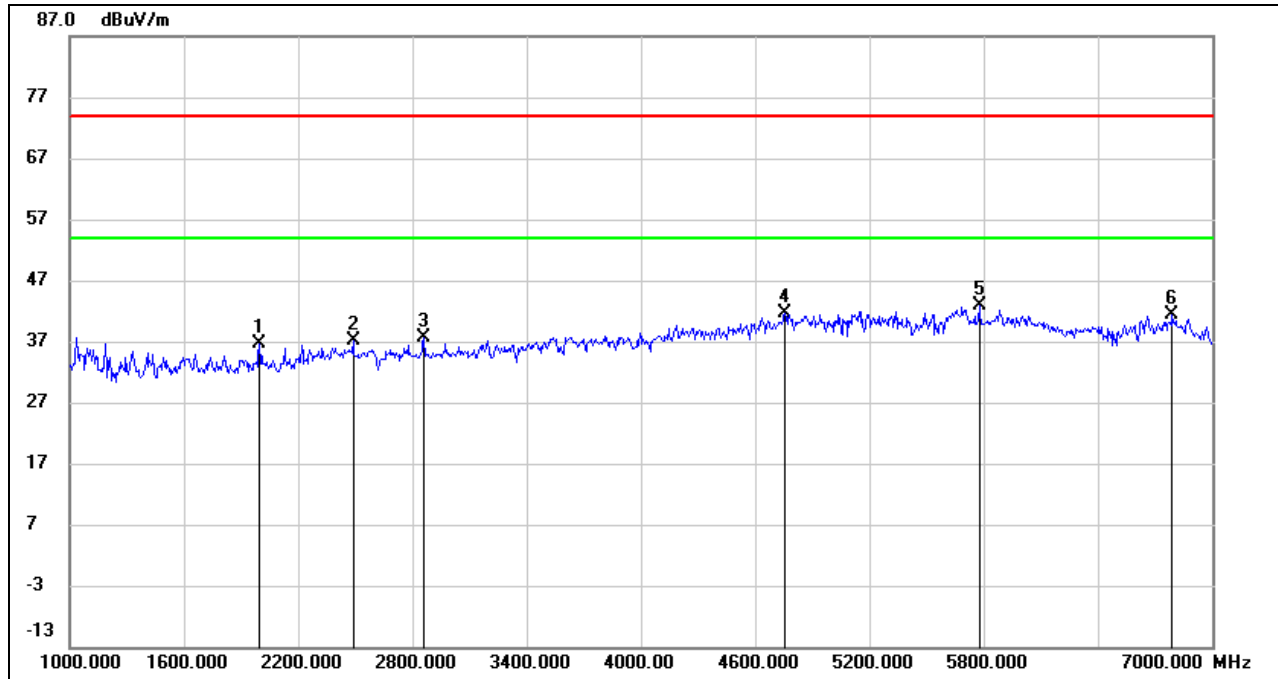


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1600.000	49.65	-11.62	38.03	74.00	-35.97	peak
2	2392.000	46.73	-8.63	38.10	74.00	-35.90	peak
3	3994.000	44.32	-3.73	40.59	74.00	-33.41	peak
4	4876.000	39.71	0.65	40.36	74.00	-33.64	peak
5	5734.000	38.74	1.97	40.71	74.00	-33.29	peak
6	6772.000	35.51	4.45	39.96	74.00	-34.04	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. 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 Band reject filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

UNII-3 BAND

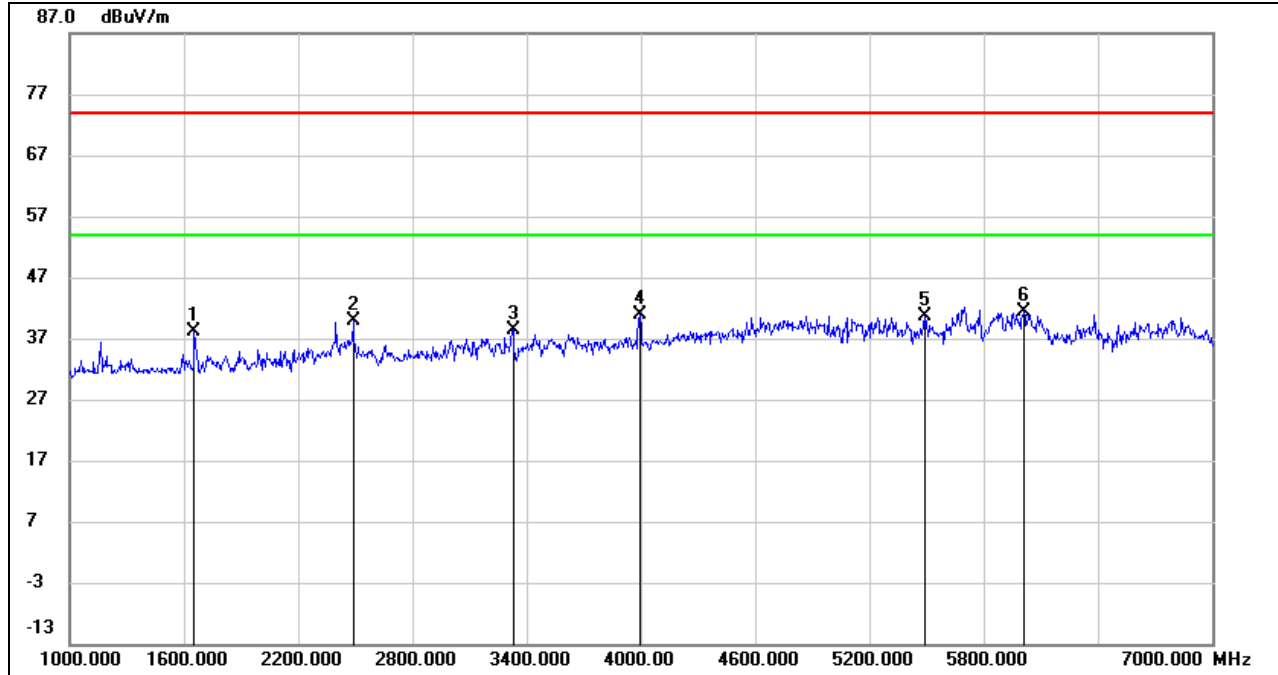
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1996.000	46.99	-10.24	36.75	74.00	-37.25	peak
2	2488.000	45.73	-8.50	37.23	74.00	-36.77	peak
3	2860.000	44.29	-6.68	37.61	74.00	-36.39	peak
4	4756.000	41.48	0.26	41.74	74.00	-32.26	peak
5	5776.000	40.92	1.95	42.87	74.00	-31.13	peak
6	6790.000	36.95	4.44	41.39	74.00	-32.61	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.
 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 Band reject filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	1654.000	49.34	-11.21	38.13	74.00	-35.87	peak
2	2488.000	48.37	-8.50	39.87	74.00	-34.13	peak
3	3328.000	43.92	-5.53	38.39	74.00	-35.61	peak
4	3994.000	44.51	-3.73	40.78	74.00	-33.22	peak
5	5488.000	38.94	1.77	40.71	74.00	-33.29	peak
6	6010.000	38.81	2.61	41.42	74.00	-32.58	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. 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 Band reject filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

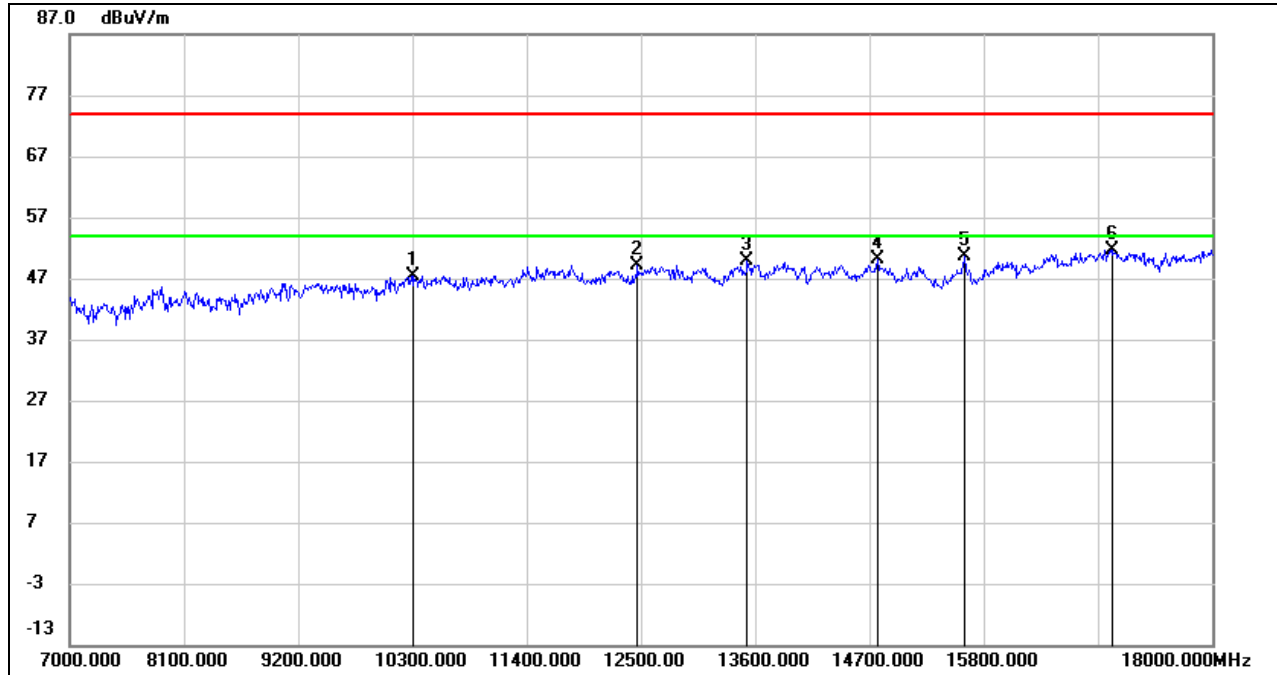
Note: All the channels and modes had been tested, but only the worst data was recorded in the report.

8.3. SPURIOUS EMISSIONS (7 GHz ~ 18 GHz)

8.3.1. 802.11a SISO MODE

UNII-1 BAND

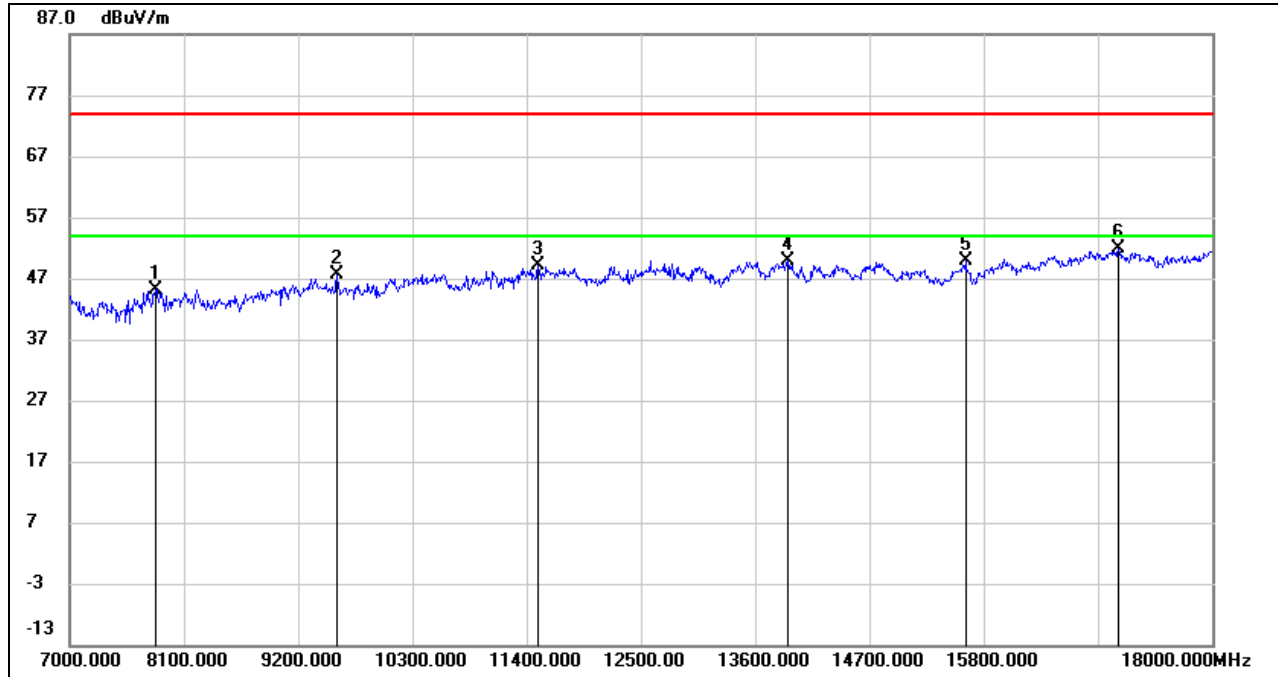
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10311.000	36.09	11.29	47.38	74.00	-26.62	peak
2	12467.000	34.55	14.62	49.17	74.00	-24.83	peak
3	13523.000	34.02	15.94	49.96	74.00	-24.04	peak
4	14777.000	33.96	16.10	50.06	74.00	-23.94	peak
5	15613.000	33.55	17.09	50.64	74.00	-23.36	peak
6	17043.000	30.98	20.74	51.72	74.00	-22.28	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

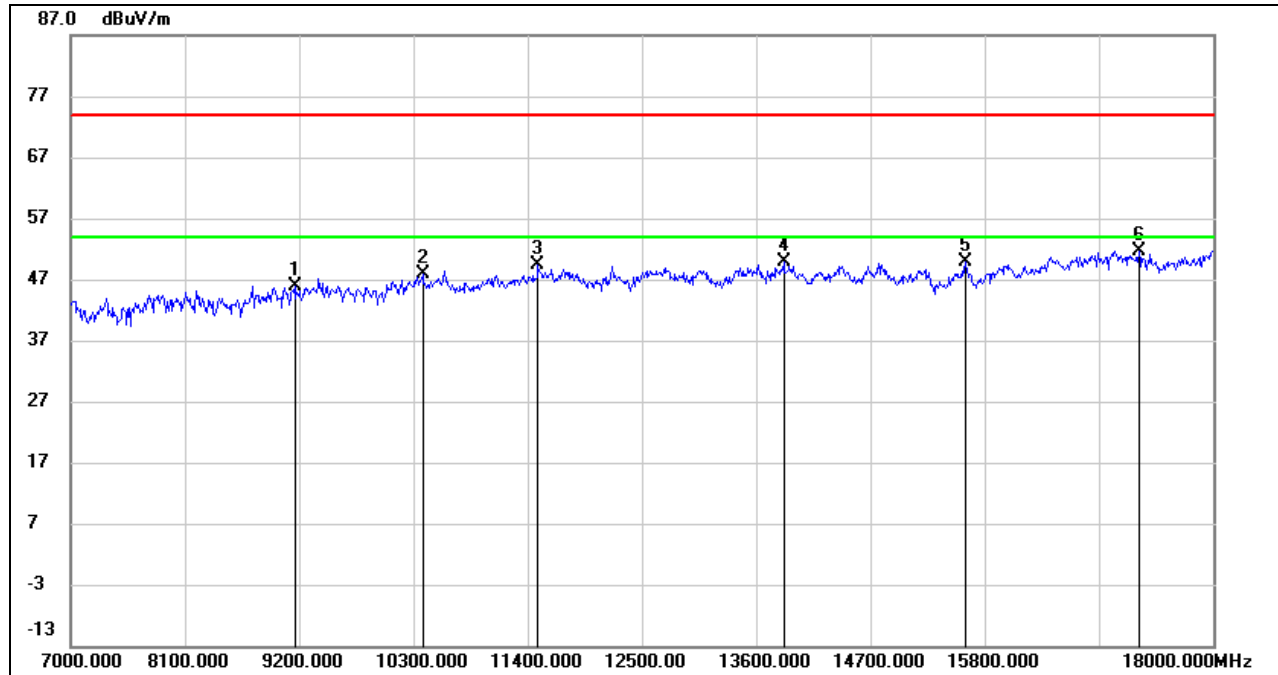
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7825.000	37.16	8.04	45.20	74.00	-28.80	peak
2	9574.000	38.07	9.66	47.73	74.00	-26.27	peak
3	11510.000	35.74	13.39	49.13	74.00	-24.87	peak
4	13919.000	33.69	16.16	49.85	74.00	-24.15	peak
5	15624.000	32.90	17.05	49.95	74.00	-24.05	peak
6	17098.000	30.95	20.88	51.83	74.00	-22.17	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

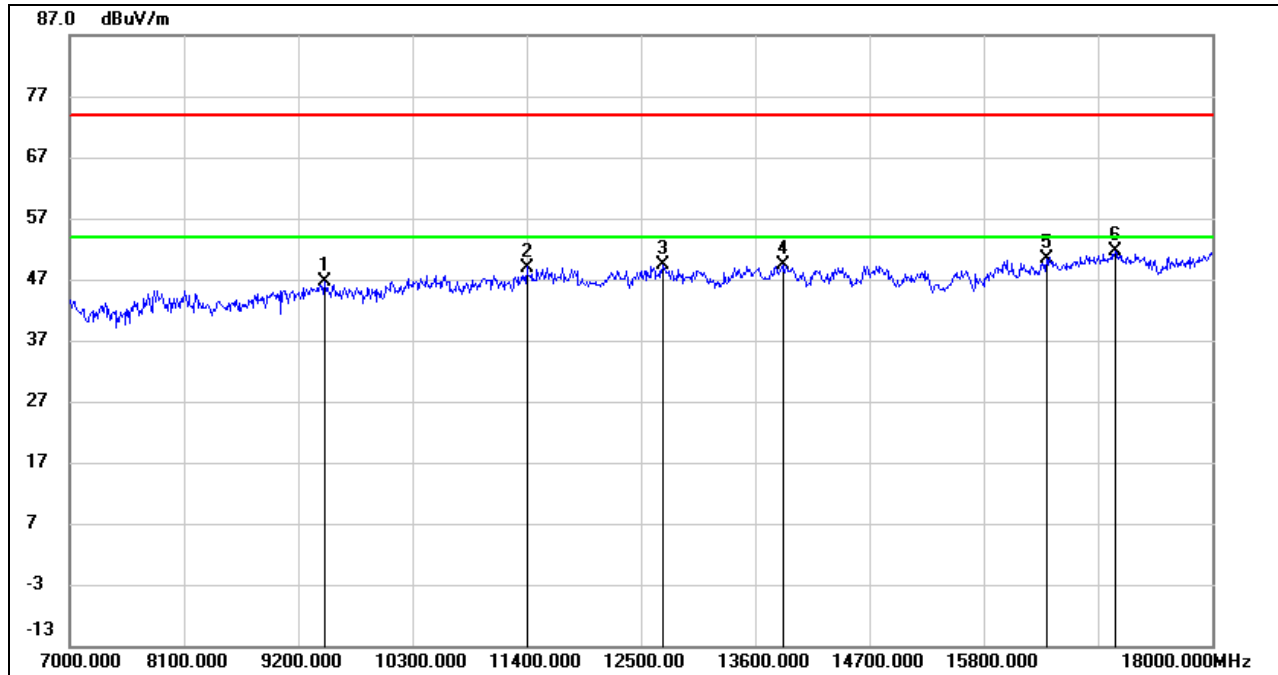
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9156.000	36.84	9.15	45.99	74.00	-28.01	peak
2	10388.000	36.72	11.18	47.90	74.00	-26.10	peak
3	11499.000	36.03	13.35	49.38	74.00	-24.62	peak
4	13864.000	33.50	16.48	49.98	74.00	-24.02	peak
5	15613.000	32.81	17.09	49.90	74.00	-24.10	peak
6	17285.000	29.91	21.79	51.70	74.00	-22.30	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

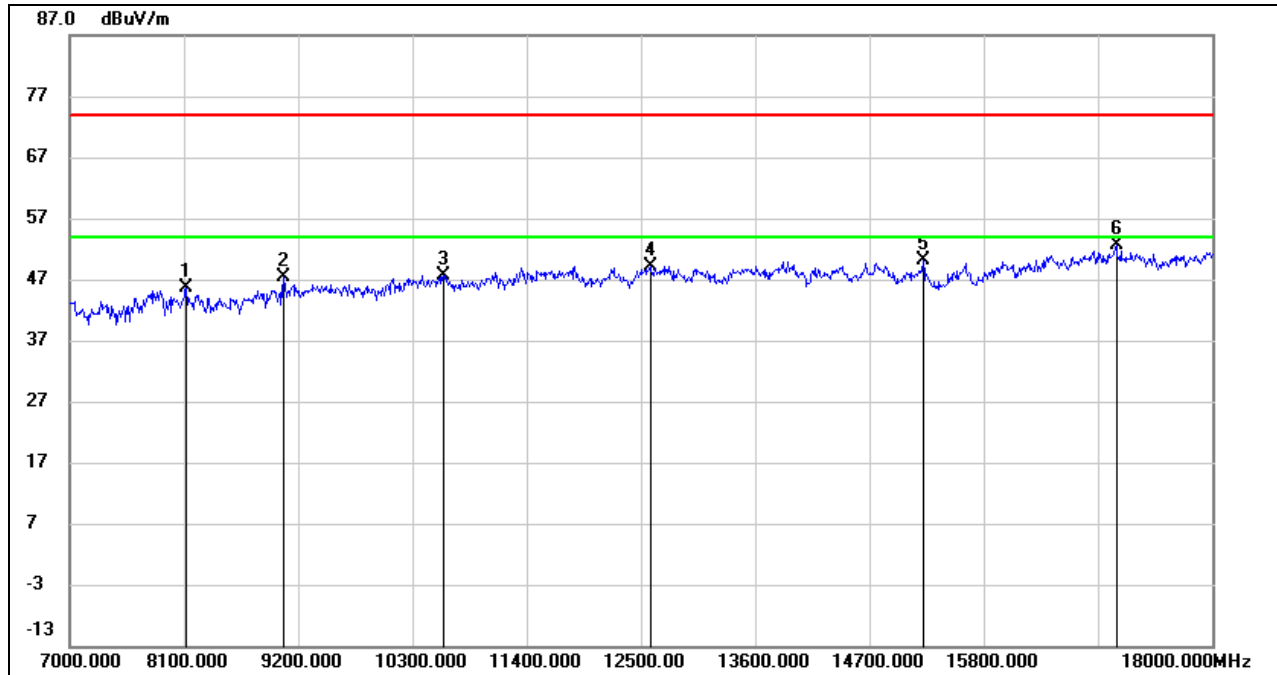
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9453.000	36.73	9.83	46.56	74.00	-27.44	peak
2	11400.000	36.26	12.74	49.00	74.00	-25.00	peak
3	12709.000	34.68	14.59	49.27	74.00	-24.73	peak
4	13864.000	32.93	16.48	49.41	74.00	-24.59	peak
5	16405.000	30.99	19.29	50.28	74.00	-23.72	peak
6	17065.000	30.75	20.79	51.54	74.00	-22.46	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	8122.000	37.31	8.29	45.60	74.00	-28.40	peak
2	9057.000	37.93	9.44	47.37	74.00	-26.63	peak
3	10597.000	35.31	12.43	47.74	74.00	-26.26	peak
4	12588.000	34.95	14.27	49.22	74.00	-24.78	peak
5	15217.000	34.03	16.12	50.15	74.00	-23.85	peak
6	17076.000	31.85	20.82	52.67	74.00	-21.33	peak

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

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

3. Peak: Peak detector.

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

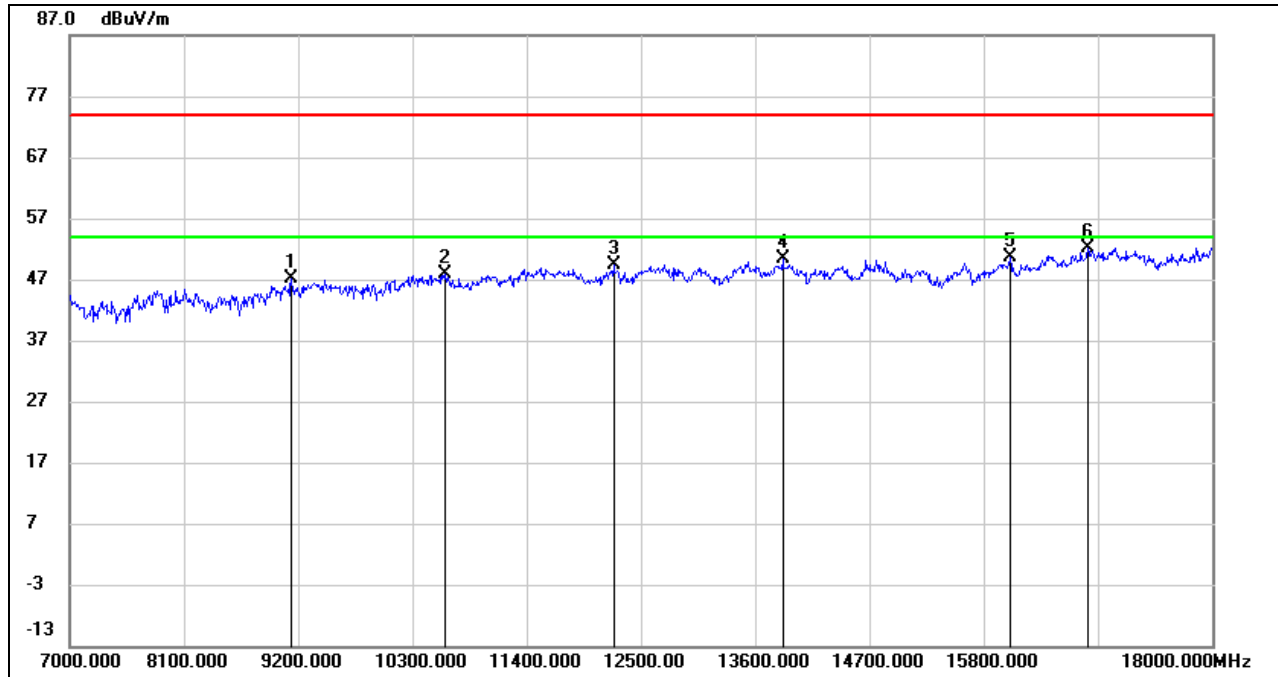
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

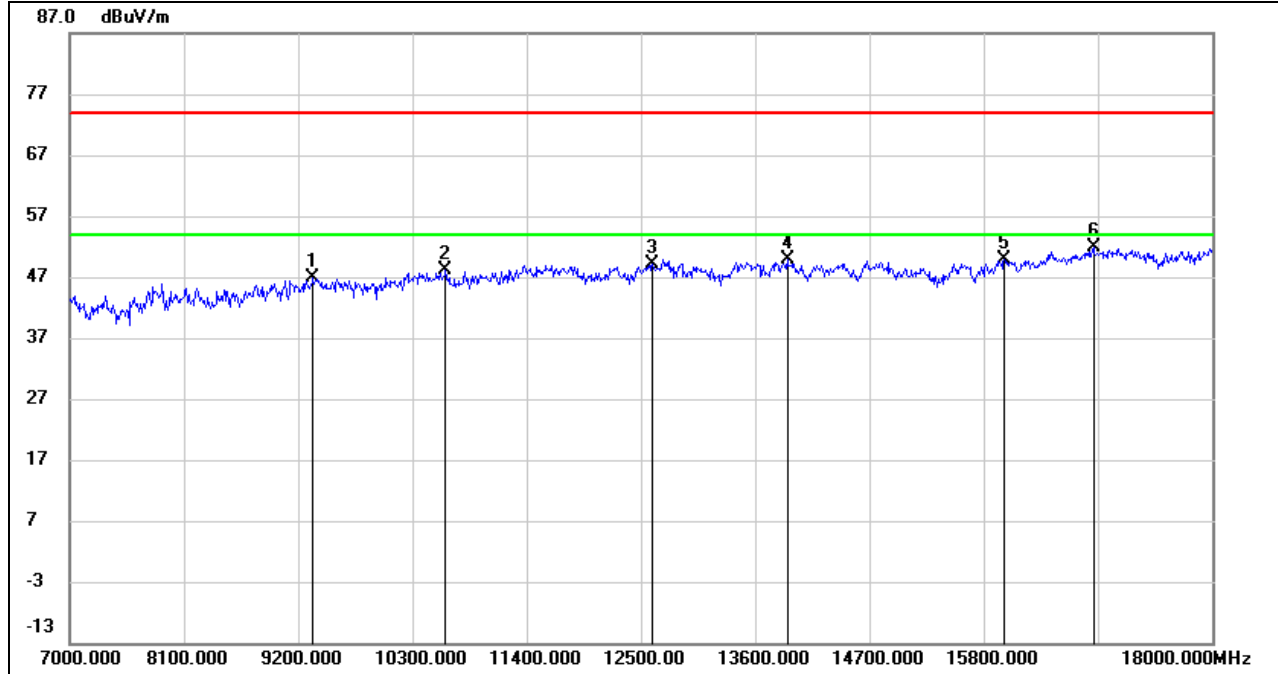


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	37.94	9.28	47.22	74.00	-26.78	peak
2	10619.000	35.52	12.32	47.84	74.00	-26.16	peak
3	12236.000	35.12	14.14	49.26	74.00	-24.74	peak
4	13864.000	33.90	16.48	50.38	74.00	-23.62	peak
5	16053.000	32.61	18.10	50.71	74.00	-23.29	peak
6	16801.000	32.02	20.19	52.21	74.00	-21.79	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

UNII-3 BAND

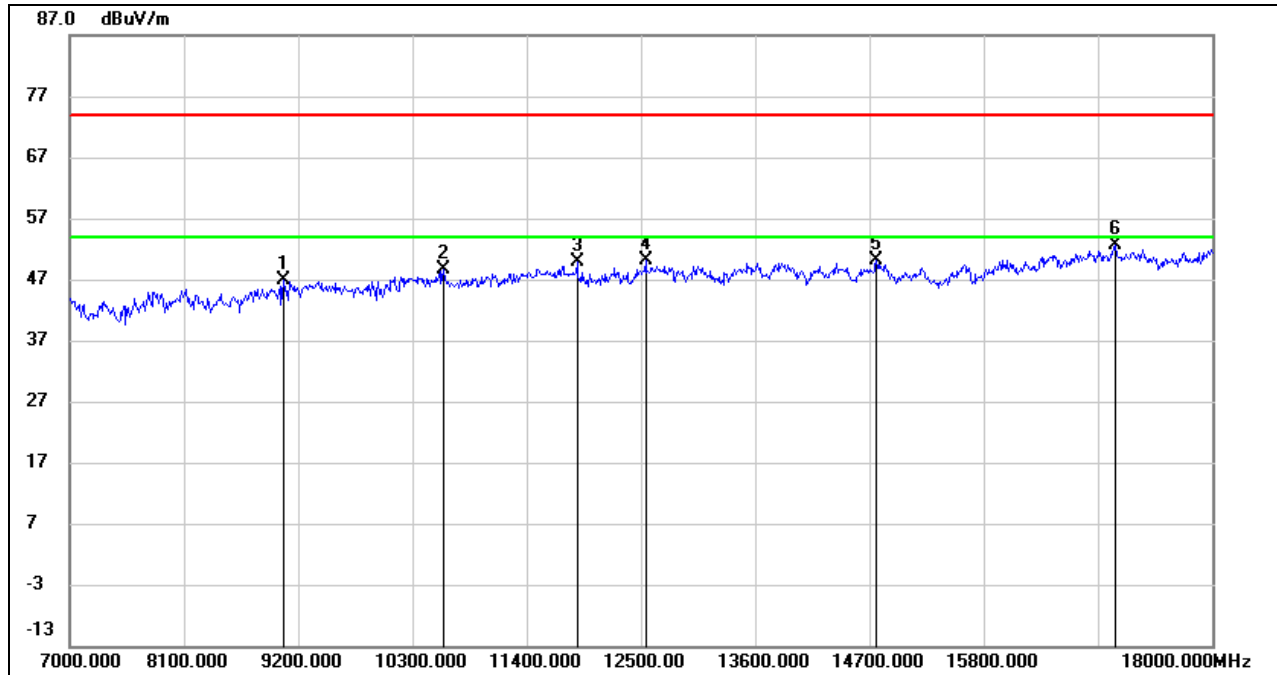
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	37.27	9.57	46.84	74.00	-27.16	peak
2	10619.000	35.73	12.32	48.05	74.00	-25.95	peak
3	12610.000	34.84	14.21	49.05	74.00	-24.95	peak
4	13908.000	33.73	16.16	49.89	74.00	-24.11	peak
5	15998.000	32.19	17.80	49.99	74.00	-24.01	peak
6	16856.000	31.71	20.13	51.84	74.00	-22.16	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	9057.000	37.35	9.44	46.79	74.00	-27.21	peak
2	10597.000	36.23	12.43	48.66	74.00	-25.34	peak
3	11884.000	36.57	13.38	49.95	74.00	-24.05	peak
4	12544.000	35.56	14.57	50.13	74.00	-23.87	peak
5	14766.000	34.04	16.11	50.15	74.00	-23.85	peak
6	17065.000	31.94	20.79	52.73	74.00	-21.27	peak

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

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

3. Peak: Peak detector.

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

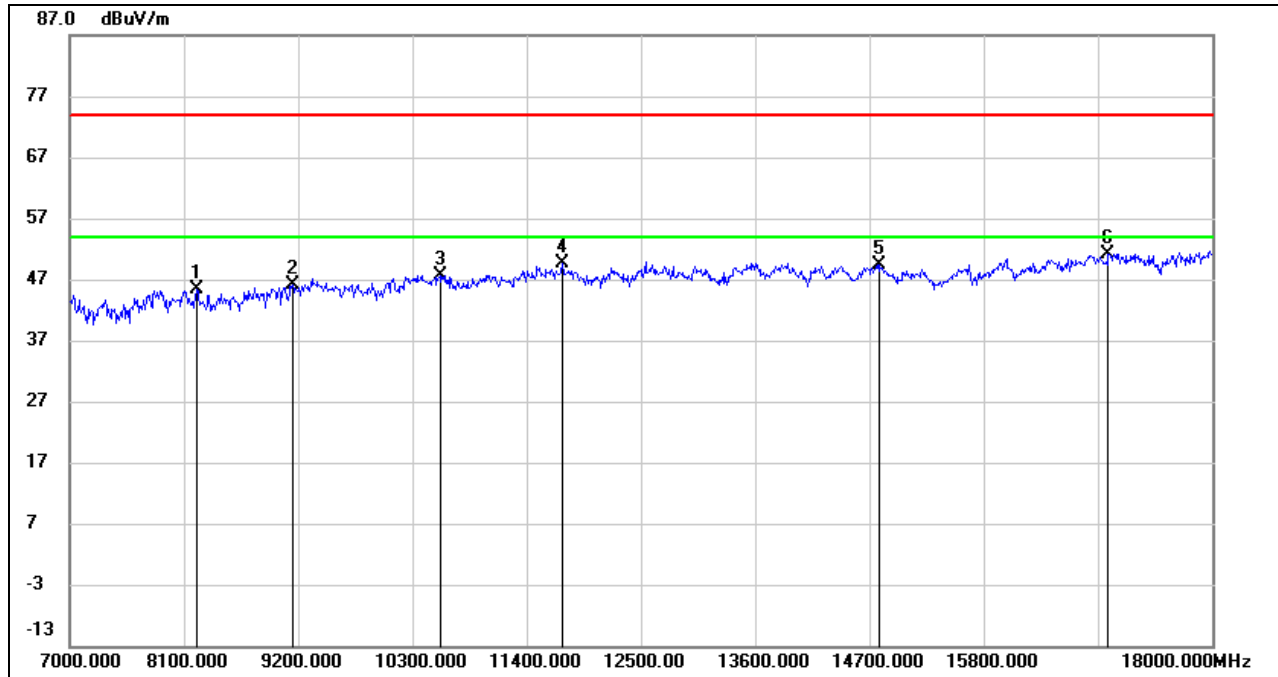
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

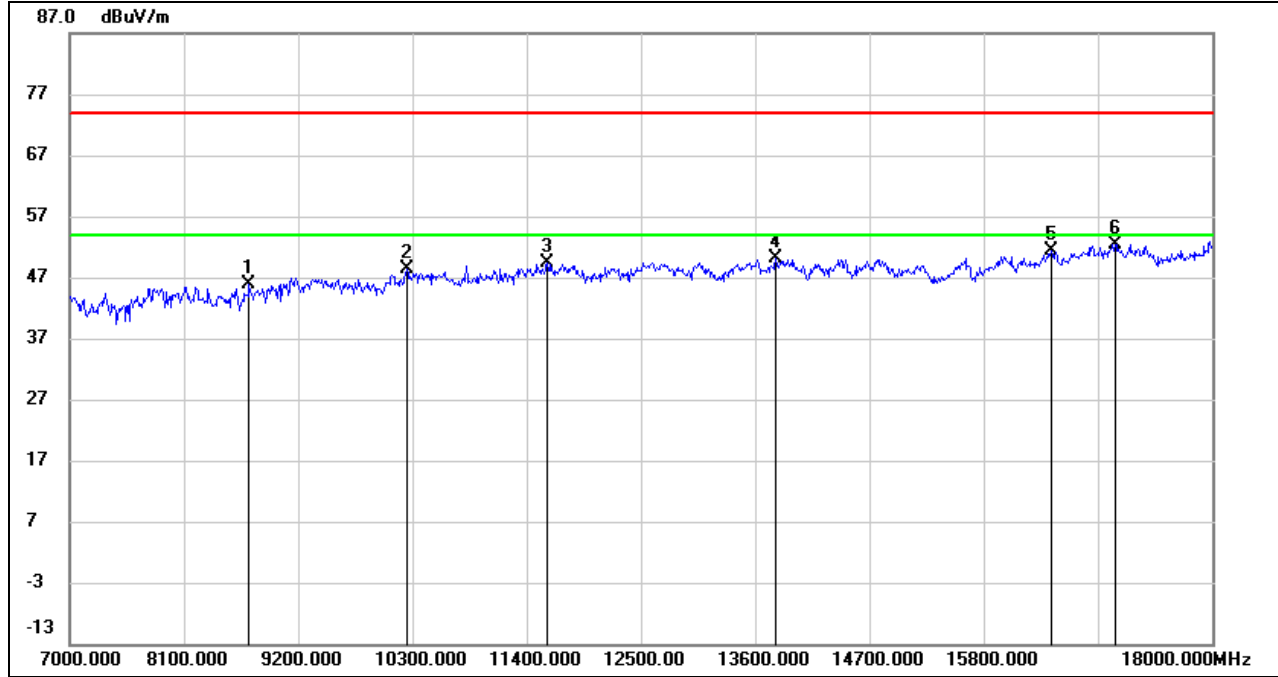
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8221.000	36.90	8.59	45.49	74.00	-28.51	peak
2	9145.000	37.00	9.22	46.22	74.00	-27.78	peak
3	10564.000	35.67	12.06	47.73	74.00	-26.27	peak
4	11741.000	36.39	13.13	49.52	74.00	-24.48	peak
5	14799.000	33.40	16.06	49.46	74.00	-24.54	peak
6	16999.000	30.58	20.64	51.22	74.00	-22.78	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

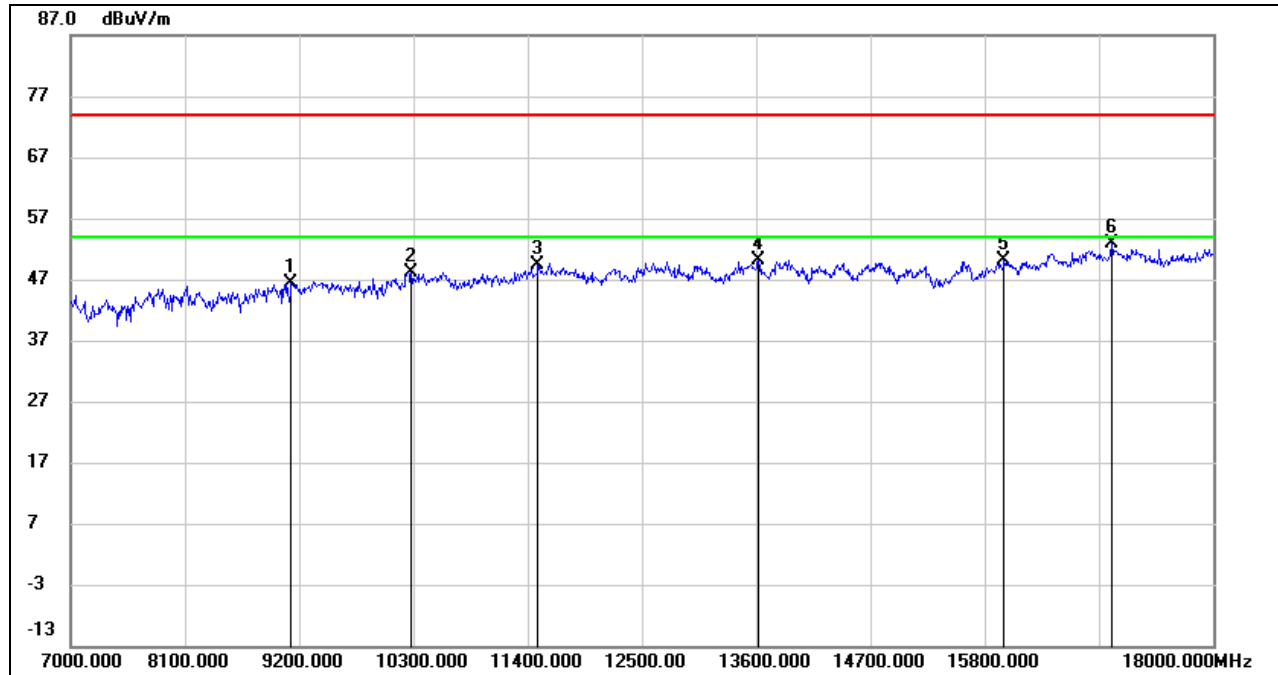
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8727.000	37.90	7.95	45.85	74.00	-28.15	peak
2	10245.000	37.51	10.82	48.33	74.00	-25.67	peak
3	11598.000	35.84	13.54	49.38	74.00	-24.62	peak
4	13798.000	33.09	17.05	50.14	74.00	-23.86	peak
5	16449.000	31.83	19.45	51.28	74.00	-22.72	peak
6	17065.000	31.57	20.79	52.36	74.00	-21.64	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

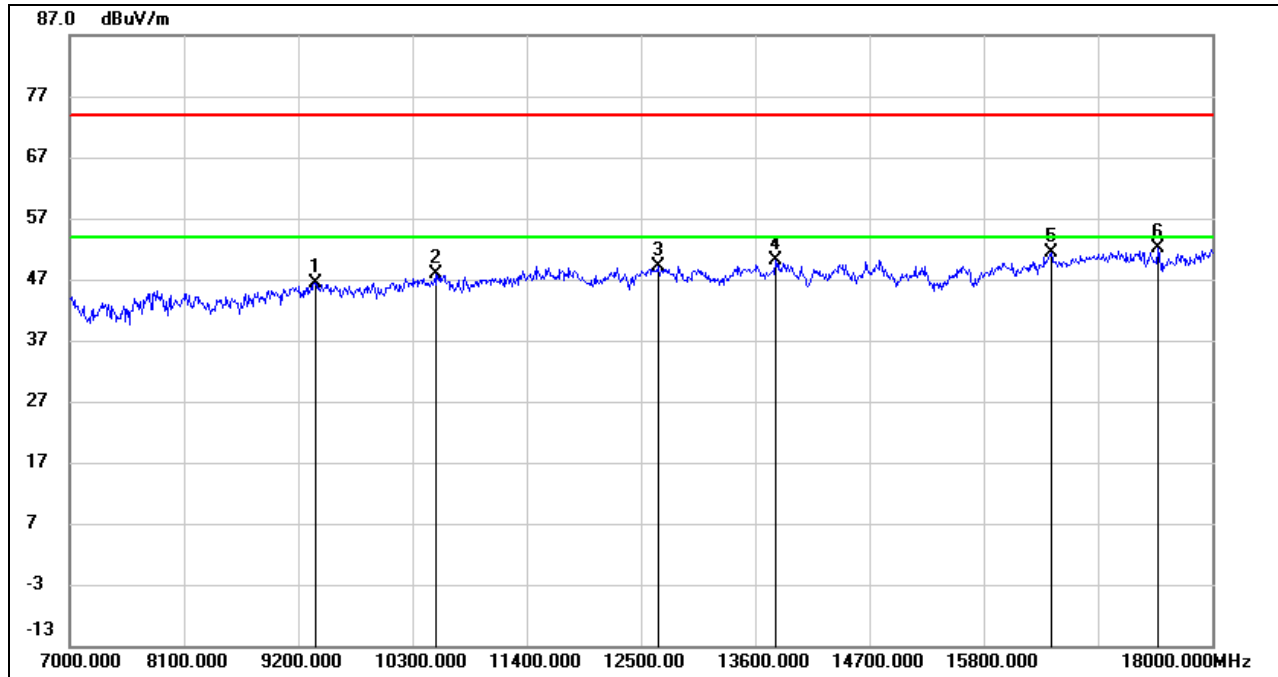
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9123.000	36.94	9.35	46.29	74.00	-27.71	peak
2	10278.000	37.04	11.10	48.14	74.00	-25.86	peak
3	11499.000	36.12	13.35	49.47	74.00	-24.53	peak
4	13622.000	34.01	16.08	50.09	74.00	-23.91	peak
5	15987.000	32.36	17.79	50.15	74.00	-23.85	peak
6	17021.000	32.19	20.69	52.88	74.00	-21.12	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



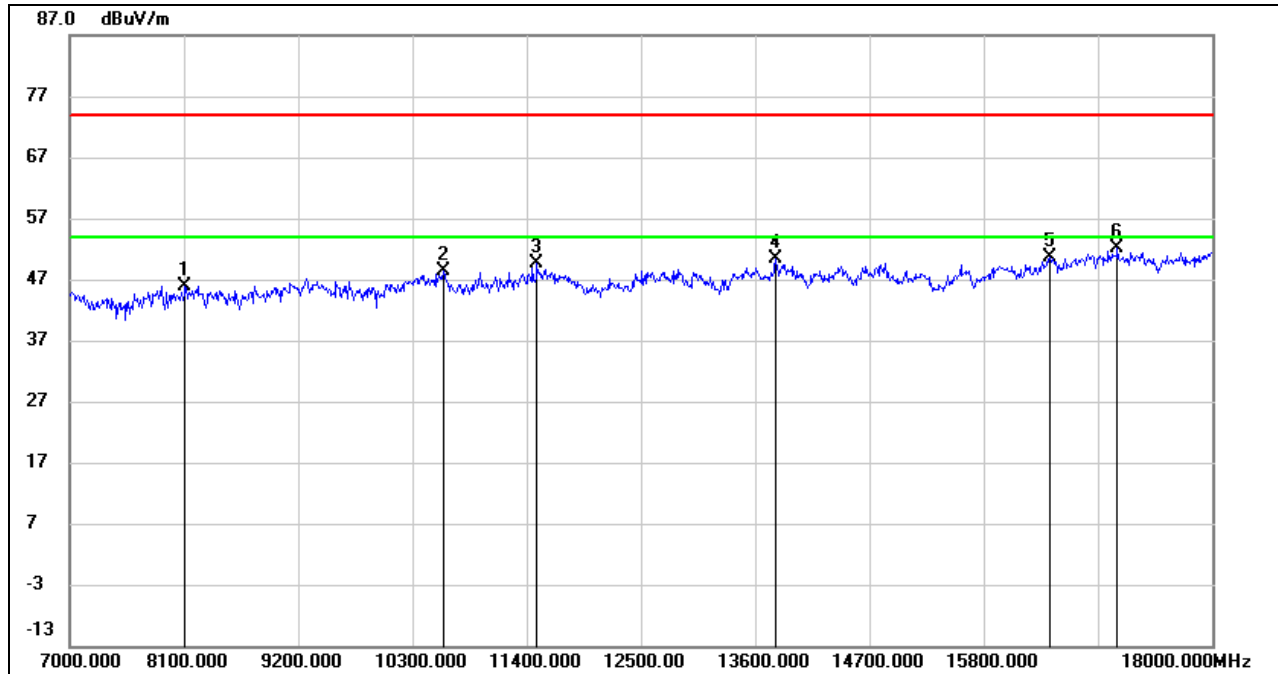
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9365.000	36.76	9.72	46.48	74.00	-27.52	peak
2	10520.000	36.22	11.57	47.79	74.00	-26.21	peak
3	12665.000	34.83	14.35	49.18	74.00	-24.82	peak
4	13798.000	33.09	17.05	50.14	74.00	-23.86	peak
5	16449.000	31.81	19.45	51.26	74.00	-22.74	peak
6	17483.000	30.78	21.45	52.23	74.00	-21.77	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

8.3.2. 802.11n HT20 MIMO MODE

UNII-1 BAND

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	8111.000	37.75	8.21	45.96	74.00	-28.04	peak
2	10597.000	35.86	12.43	48.29	74.00	-25.71	peak
3	11499.000	36.16	13.35	49.51	74.00	-24.49	peak
4	13798.000	33.24	17.05	50.29	74.00	-23.71	peak
5	16438.000	31.18	19.41	50.59	74.00	-23.41	peak
6	17087.000	31.20	20.85	52.05	74.00	-21.95	peak

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

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

3. Peak: Peak detector.

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

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

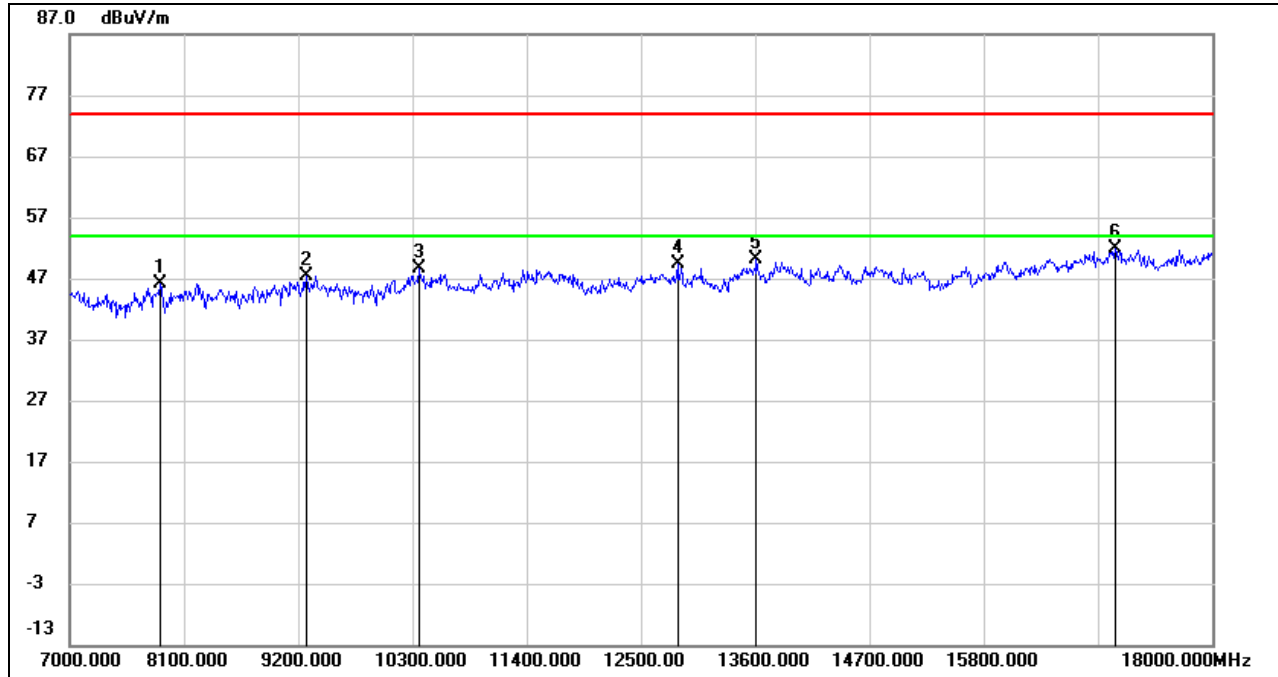
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.



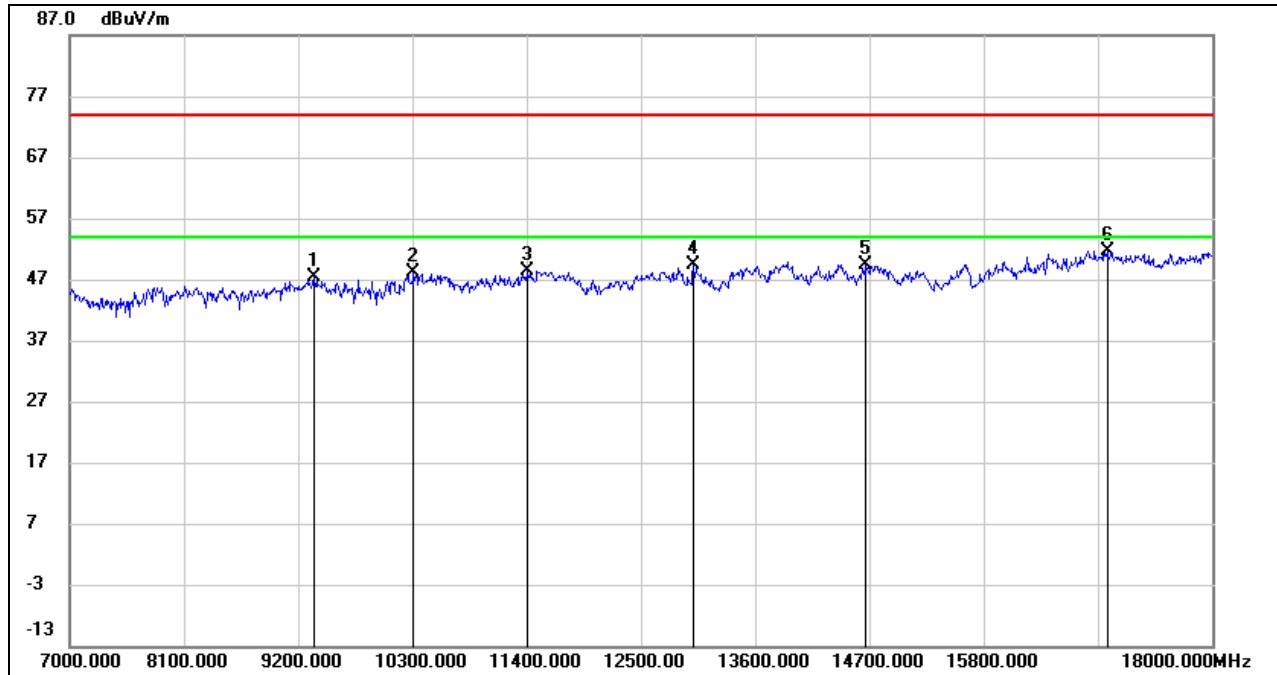
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	38.44	7.79	46.23	74.00	-27.77	peak
2	9277.000	38.19	9.21	47.40	74.00	-26.60	peak
3	10366.000	37.38	11.22	48.60	74.00	-25.40	peak
4	12852.000	33.75	15.61	49.36	74.00	-24.64	peak
5	13611.000	34.14	16.10	50.24	74.00	-23.76	peak
6	17065.000	31.07	20.79	51.86	74.00	-22.14	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	9354.000	37.73	9.64	47.37	74.00	-26.63	peak
2	10311.000	36.81	11.29	48.10	74.00	-25.90	peak
3	11411.000	35.65	12.81	48.46	74.00	-25.54	peak
4	13006.000	34.41	15.04	49.45	74.00	-24.55	peak
5	14667.000	33.32	16.16	49.48	74.00	-24.52	peak
6	16988.000	31.03	20.57	51.60	74.00	-22.40	peak

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

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

3. Peak: Peak detector.

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

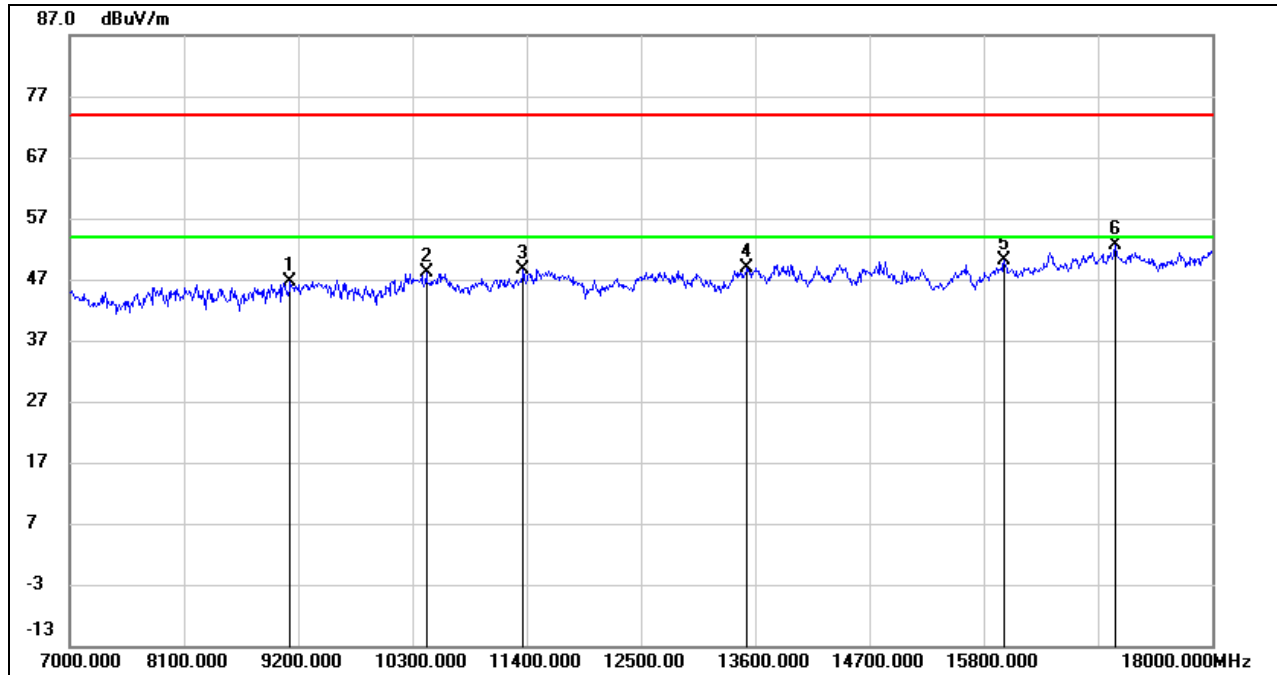
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

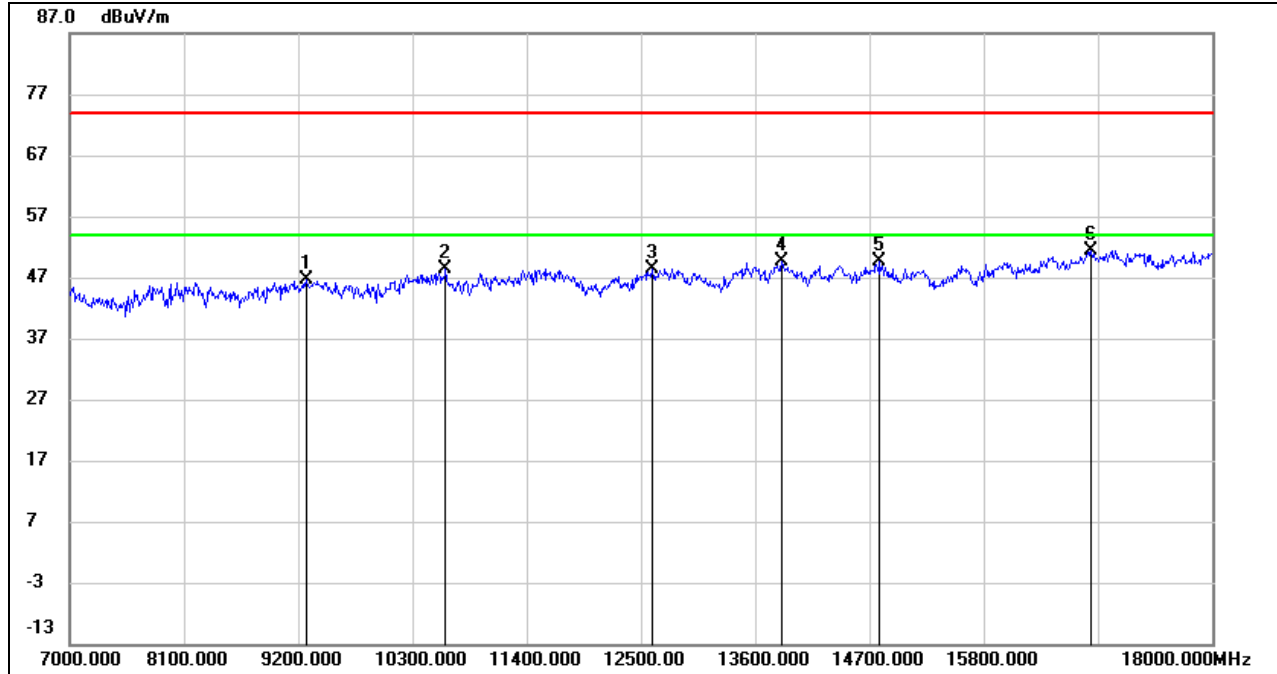
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9123.000	37.21	9.35	46.56	74.00	-27.44	peak
2	10432.000	36.99	11.23	48.22	74.00	-25.78	peak
3	11367.000	36.08	12.58	48.66	74.00	-25.34	peak
4	13523.000	33.06	15.94	49.00	74.00	-25.00	peak
5	15998.000	32.42	17.80	50.22	74.00	-23.78	peak
6	17065.000	31.73	20.79	52.52	74.00	-21.48	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

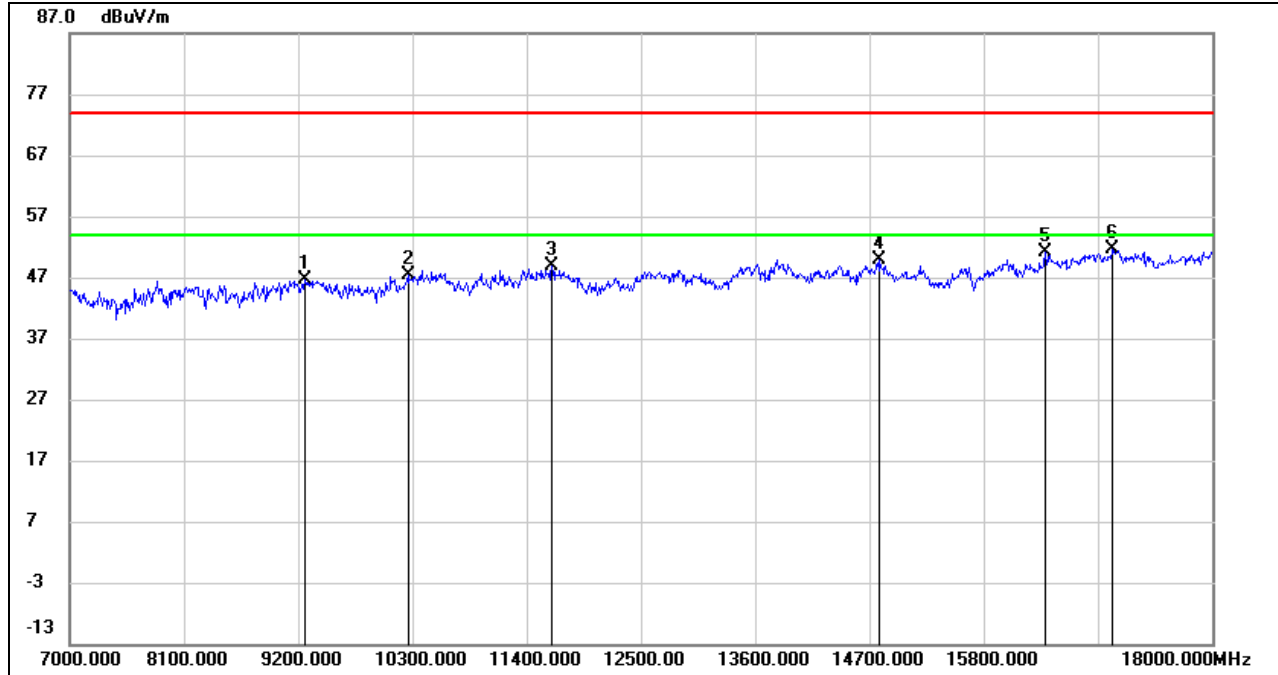
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9277.000	37.35	9.21	46.56	74.00	-27.44	peak
2	10619.000	36.05	12.32	48.37	74.00	-25.63	peak
3	12610.000	34.28	14.21	48.49	74.00	-25.51	peak
4	13853.000	32.94	16.59	49.53	74.00	-24.47	peak
5	14799.000	33.62	16.06	49.68	74.00	-24.32	peak
6	16834.000	31.21	20.15	51.36	74.00	-22.64	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

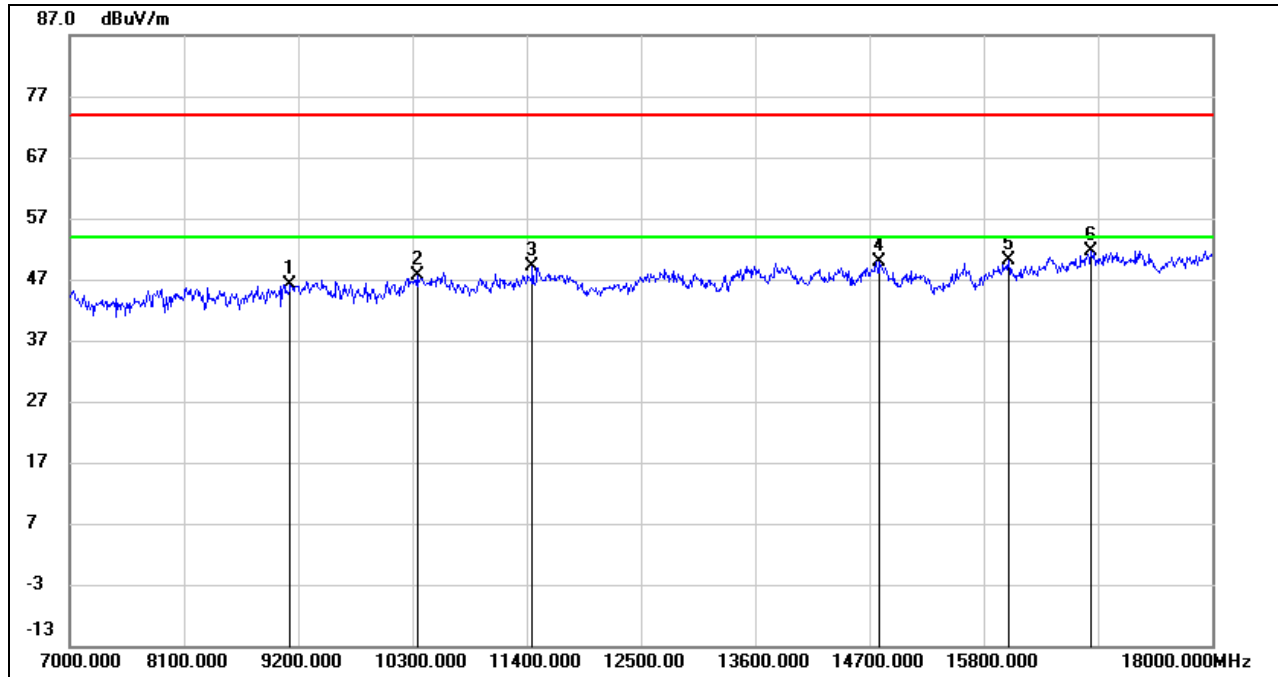


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9266.000	37.41	9.16	46.57	74.00	-27.43	peak
2	10256.000	36.40	10.91	47.31	74.00	-26.69	peak
3	11642.000	35.67	13.33	49.00	74.00	-25.00	peak
4	14799.000	33.75	16.06	49.81	74.00	-24.19	peak
5	16394.000	31.93	19.22	51.15	74.00	-22.85	peak
6	17043.000	30.79	20.74	51.53	74.00	-22.47	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

UNII-3 BAND

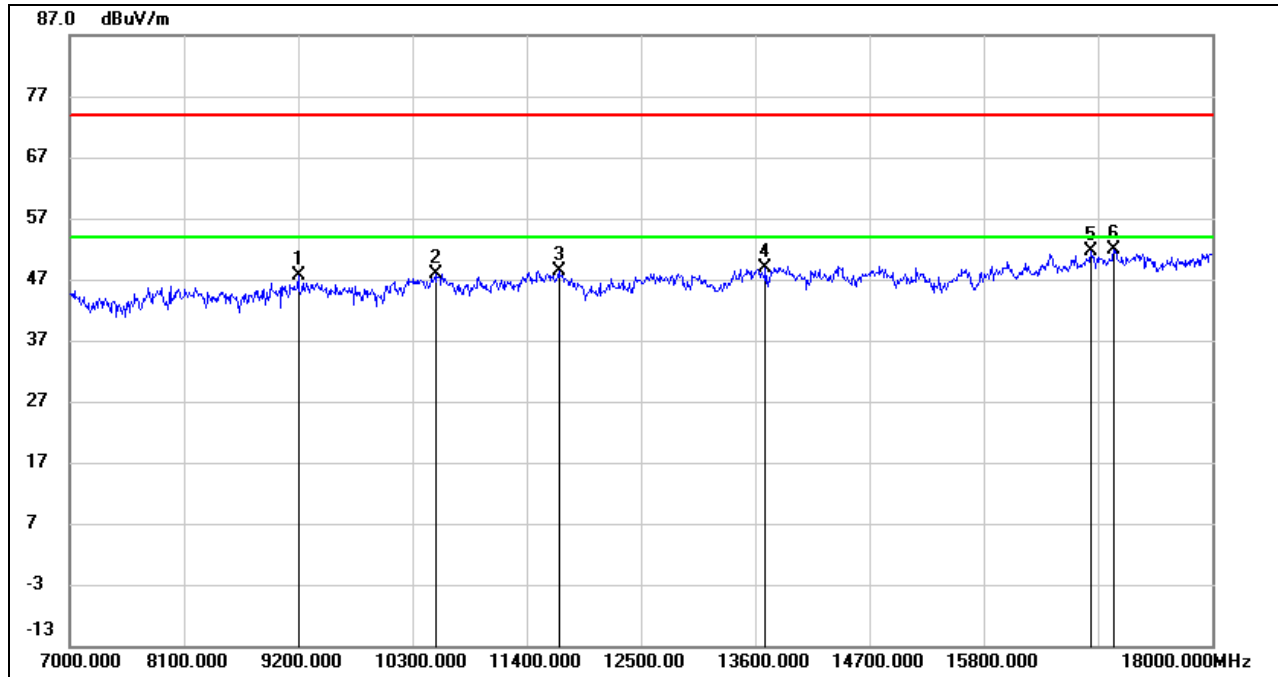
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9123.000	36.89	9.35	46.24	74.00	-27.76	peak
2	10344.000	36.36	11.25	47.61	74.00	-26.39	peak
3	11455.000	36.09	13.08	49.17	74.00	-24.83	peak
4	14799.000	33.78	16.06	49.84	74.00	-24.16	peak
5	16042.000	32.03	18.04	50.07	74.00	-23.93	peak
6	16834.000	31.55	20.15	51.70	74.00	-22.30	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

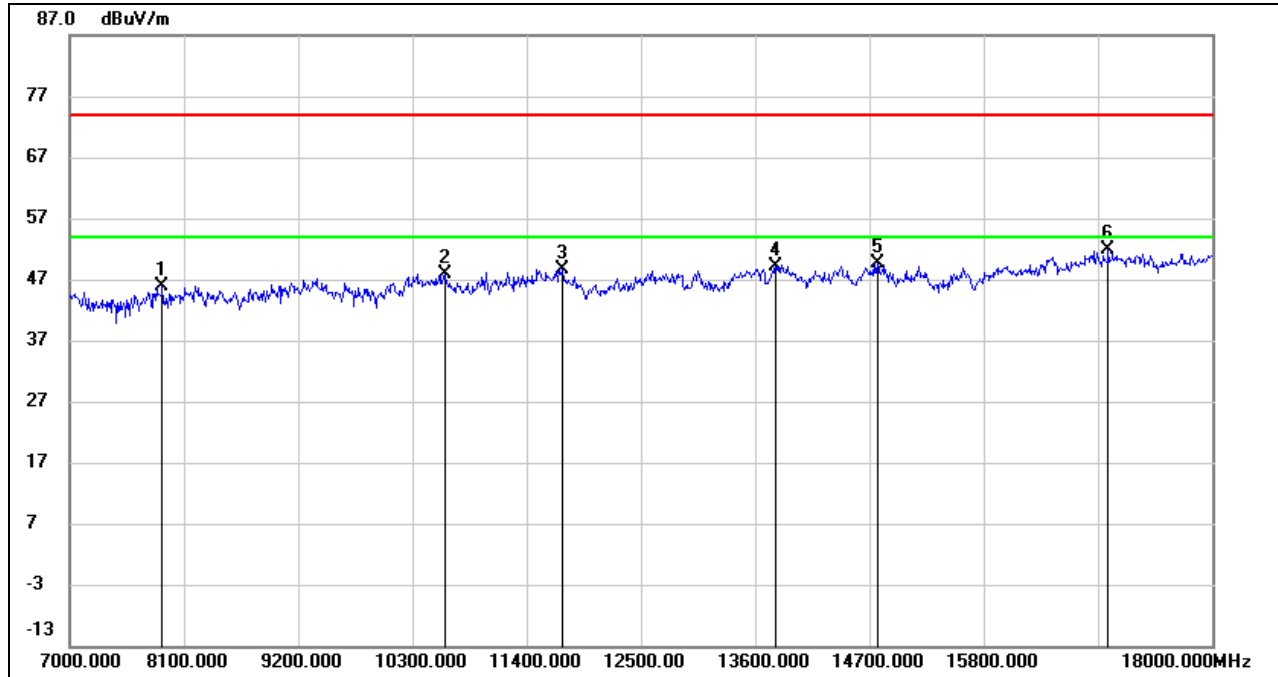
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9200.000	38.78	8.89	47.67	74.00	-26.33	peak
2	10531.000	36.29	11.70	47.99	74.00	-26.01	peak
3	11708.000	35.33	13.07	48.40	74.00	-25.60	peak
4	13699.000	32.92	16.06	48.98	74.00	-25.02	peak
5	16834.000	31.48	20.15	51.63	74.00	-22.37	peak
6	17054.000	31.00	20.76	51.76	74.00	-22.24	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

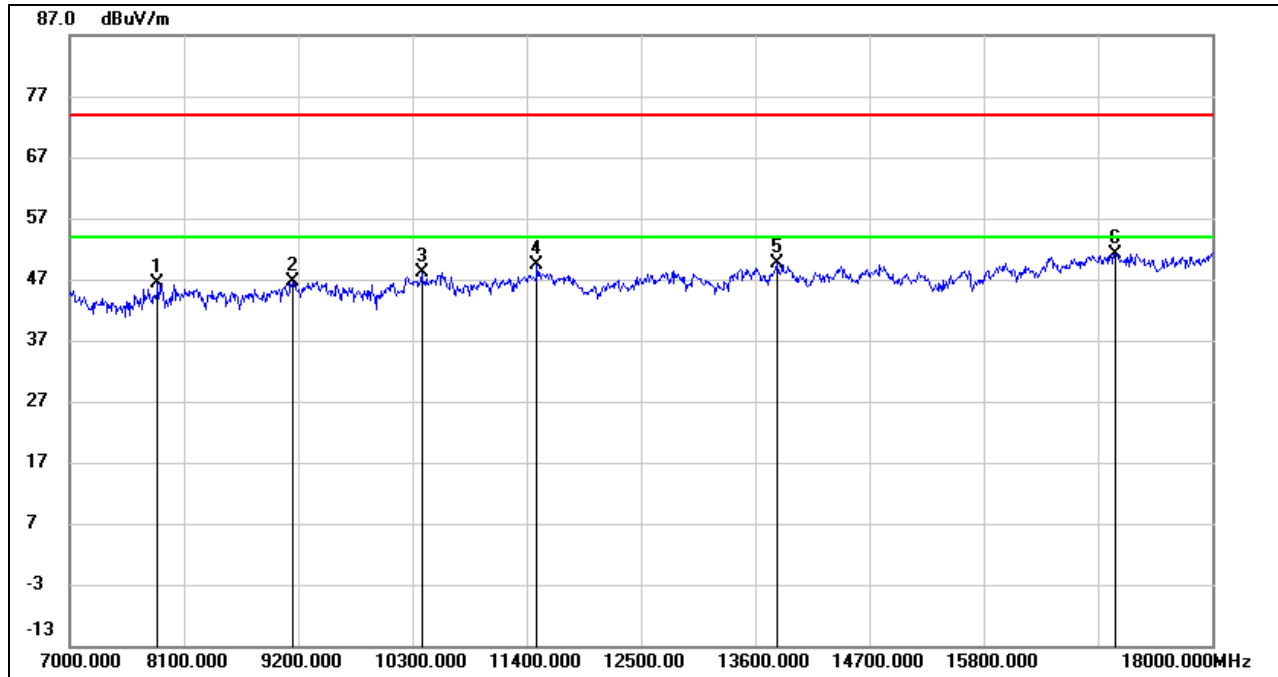
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7891.000	38.18	7.66	45.84	74.00	-28.16	peak
2	10608.000	35.58	12.39	47.97	74.00	-26.03	peak
3	11741.000	35.57	13.13	48.70	74.00	-25.30	peak
4	13798.000	32.08	17.05	49.13	74.00	-24.87	peak
5	14777.000	33.45	16.10	49.55	74.00	-24.45	peak
6	16999.000	31.34	20.64	51.98	74.00	-22.02	peak

- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

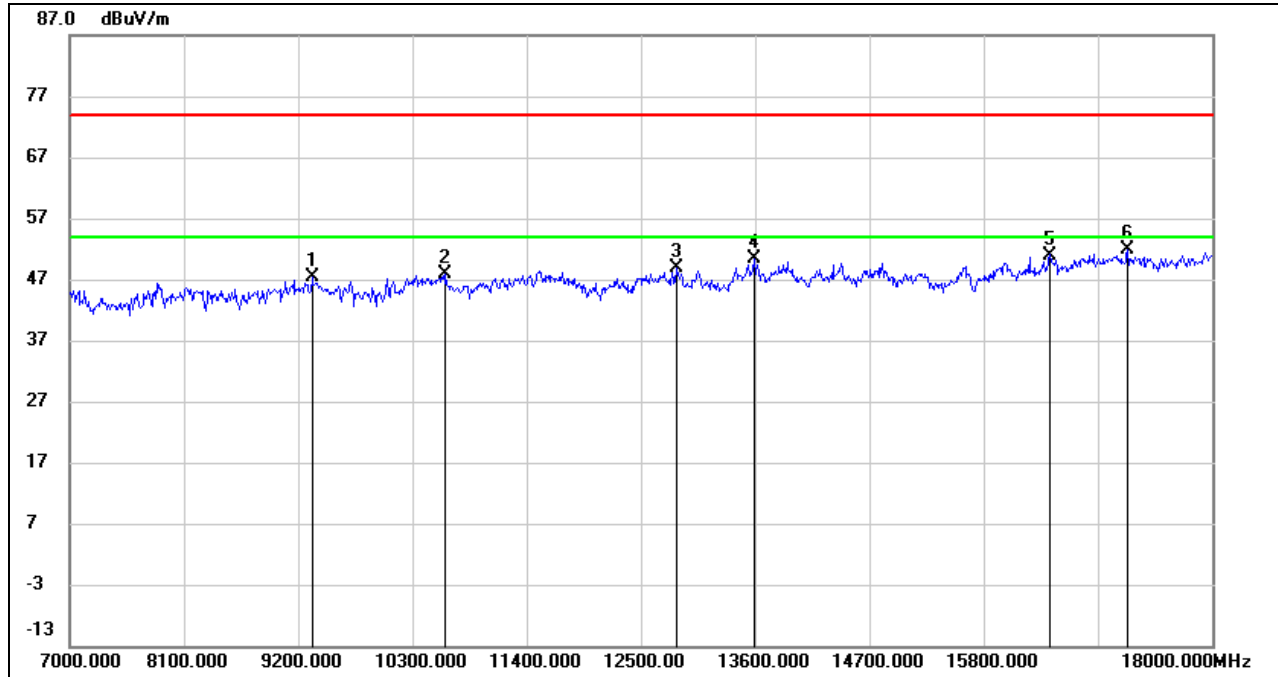
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7847.000	38.44	7.91	46.35	74.00	-27.65	peak
2	9145.000	37.52	9.22	46.74	74.00	-27.26	peak
3	10388.000	37.06	11.18	48.24	74.00	-25.76	peak
4	11499.000	35.91	13.35	49.26	74.00	-24.74	peak
5	13809.000	32.74	16.99	49.73	74.00	-24.27	peak
6	17065.000	30.42	20.79	51.21	74.00	-22.79	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

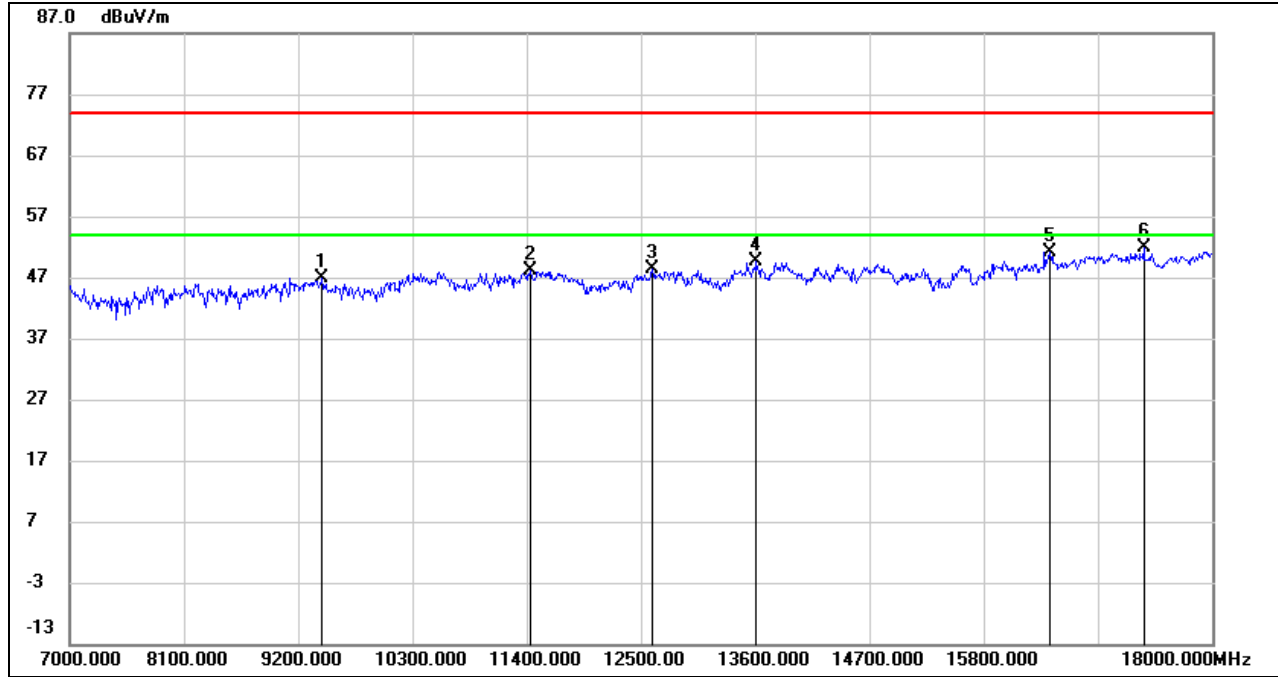
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9332.000	37.75	9.51	47.26	74.00	-26.74	peak
2	10619.000	35.44	12.32	47.76	74.00	-26.24	peak
3	12841.000	33.11	15.72	48.83	74.00	-25.17	peak
4	13589.000	34.26	16.08	50.34	74.00	-23.66	peak
5	16438.000	31.59	19.41	51.00	74.00	-23.00	peak
6	17186.000	30.66	21.16	51.82	74.00	-22.18	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



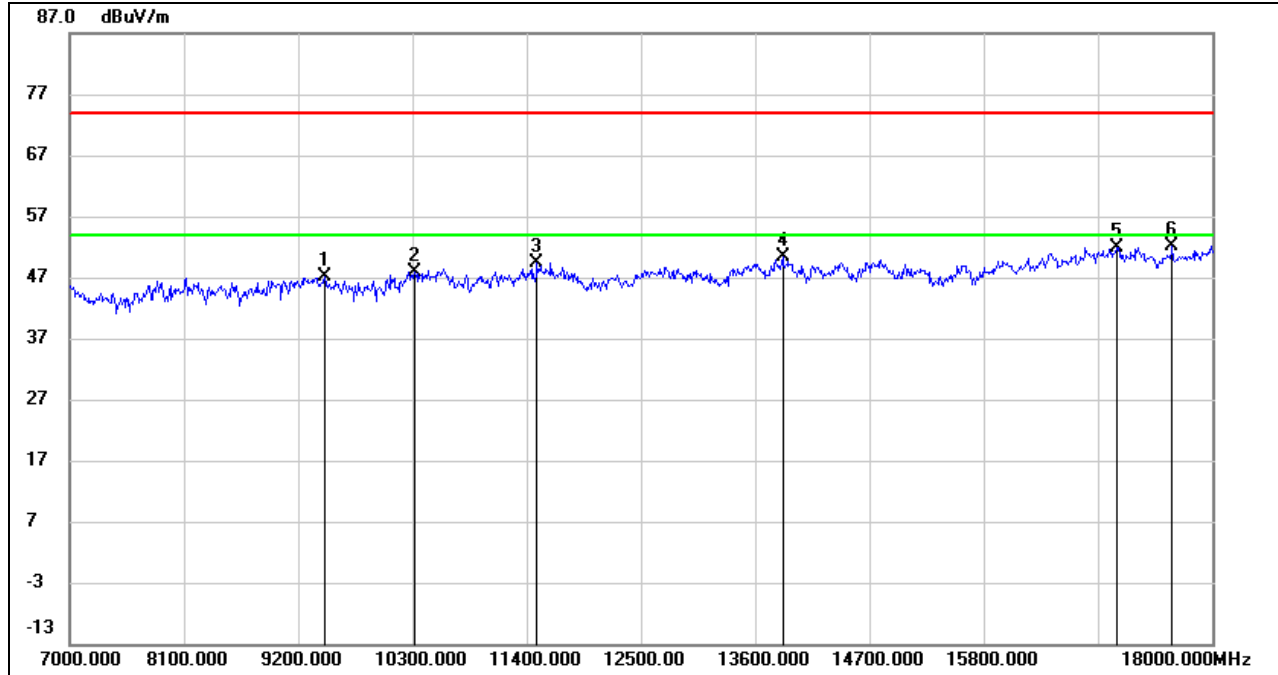
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9431.000	37.00	9.87	46.87	74.00	-27.13	peak
2	11433.000	35.22	12.95	48.17	74.00	-25.83	peak
3	12610.000	34.20	14.21	48.41	74.00	-25.59	peak
4	13611.000	33.45	16.10	49.55	74.00	-24.45	peak
5	16438.000	31.67	19.41	51.08	74.00	-22.92	peak
6	17340.000	30.19	21.74	51.93	74.00	-22.07	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

8.3.3. 802.11n HT40 MIMO MODE

UNII-1 BAND

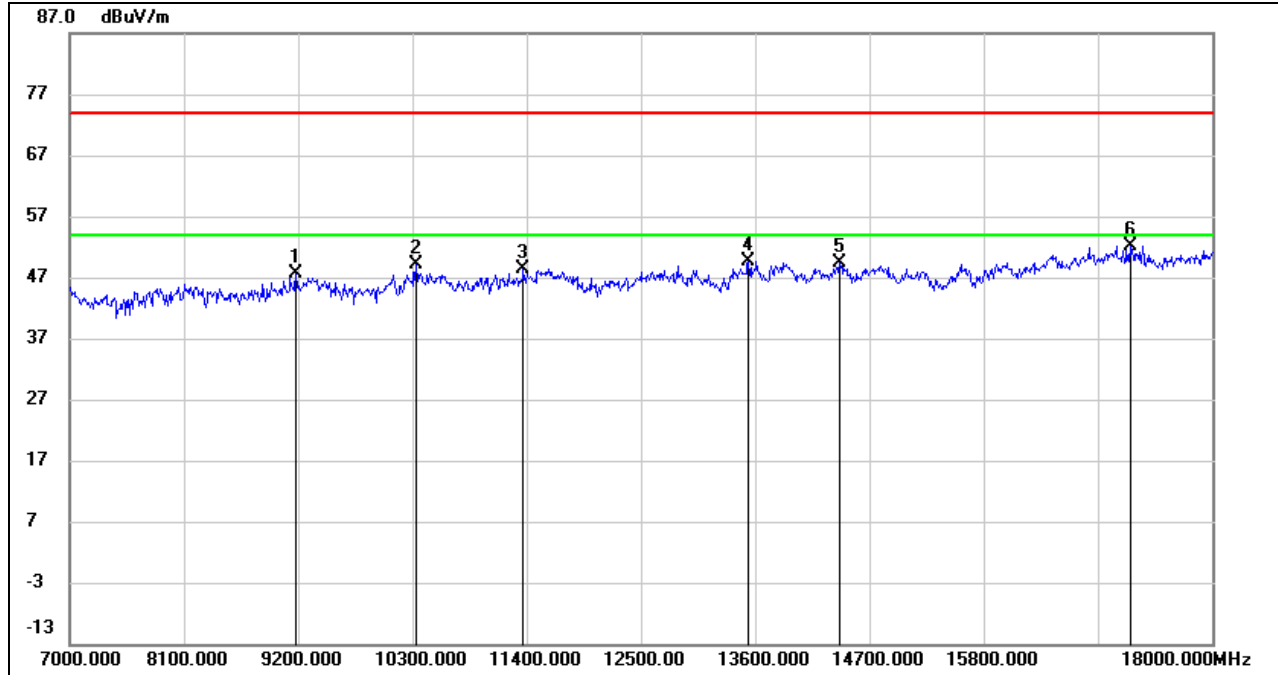
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9453.000	37.27	9.83	47.10	74.00	-26.90	peak
2	10322.000	36.68	11.27	47.95	74.00	-26.05	peak
3	11499.000	36.02	13.35	49.37	74.00	-24.63	peak
4	13864.000	33.81	16.48	50.29	74.00	-23.71	peak
5	17087.000	31.03	20.85	51.88	74.00	-22.12	peak
6	17615.000	30.09	21.96	52.05	74.00	-21.95	peak

Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

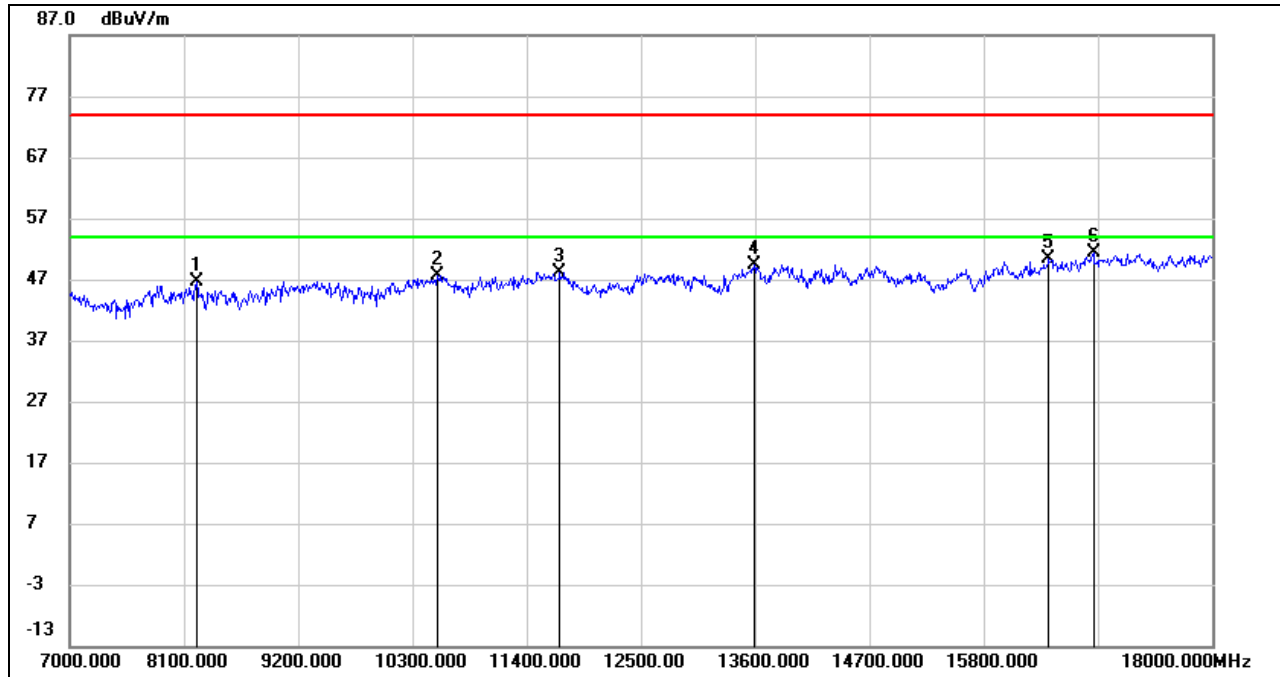
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9178.000	38.67	9.02	47.69	74.00	-26.31	peak
2	10333.000	37.79	11.25	49.04	74.00	-24.96	peak
3	11367.000	35.84	12.58	48.42	74.00	-25.58	peak
4	13534.000	33.69	15.97	49.66	74.00	-24.34	peak
5	14414.000	32.84	16.66	49.50	74.00	-24.50	peak
6	17208.000	30.82	21.26	52.08	74.00	-21.92	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

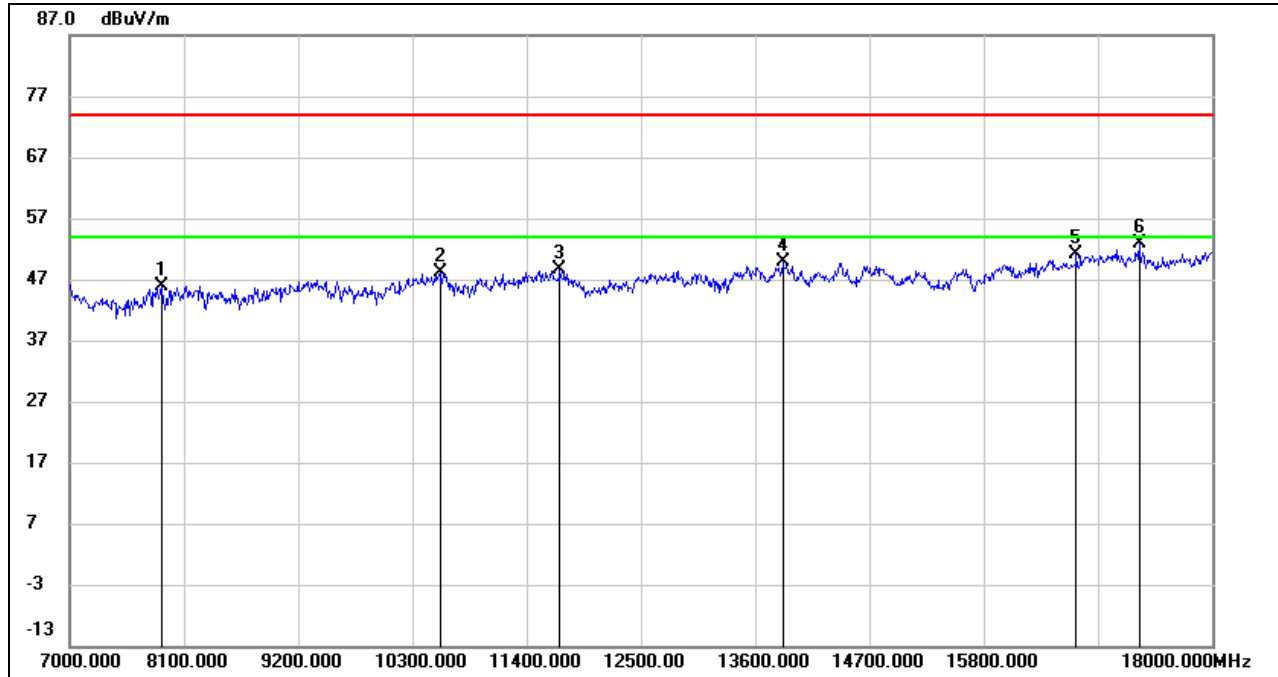
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8221.000	38.03	8.59	46.62	74.00	-27.38	peak
2	10542.000	35.86	11.83	47.69	74.00	-26.31	peak
3	11719.000	35.09	13.09	48.18	74.00	-25.82	peak
4	13589.000	33.34	16.08	49.42	74.00	-24.58	peak
5	16427.000	30.95	19.37	50.32	74.00	-23.68	peak
6	16856.000	31.16	20.13	51.29	74.00	-22.71	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

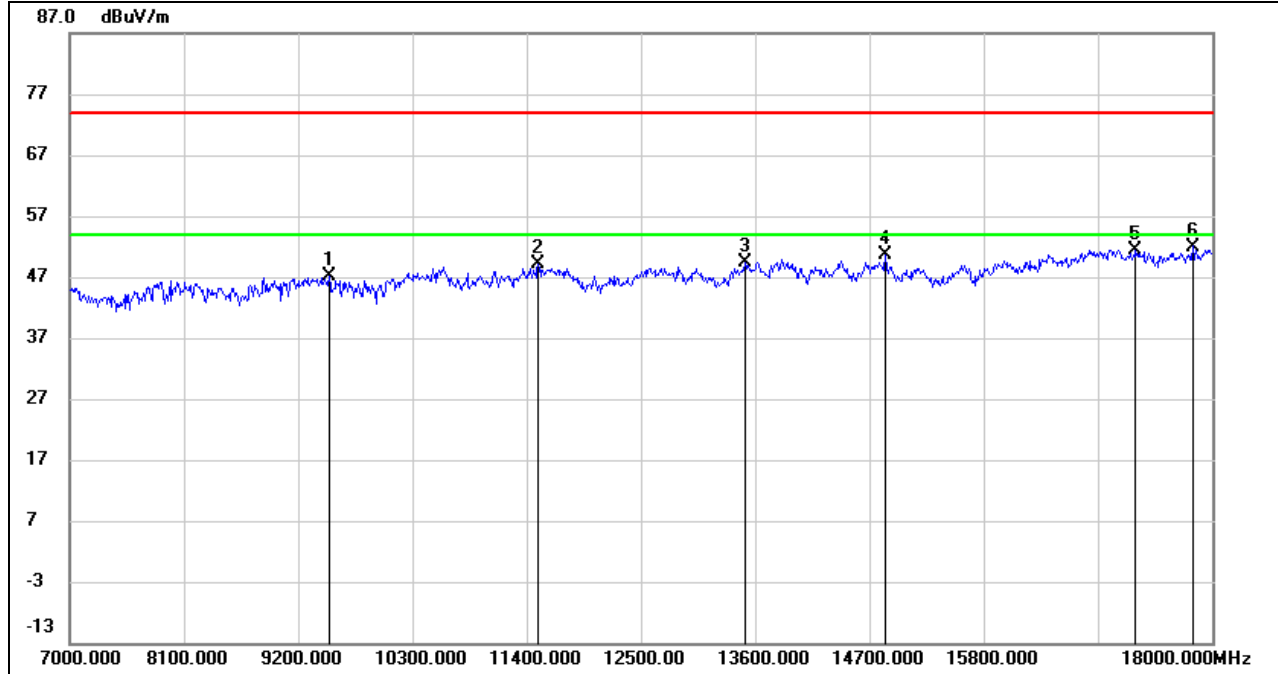


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7880.000	38.21	7.72	45.93	74.00	-28.07	peak
2	10564.000	35.99	12.06	48.05	74.00	-25.95	peak
3	11719.000	35.42	13.09	48.51	74.00	-25.49	peak
4	13864.000	33.32	16.48	49.80	74.00	-24.20	peak
5	16691.000	31.00	20.02	51.02	74.00	-22.98	peak
6	17296.000	30.93	21.86	52.79	74.00	-21.21	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. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.
 5. For the transmitting duration, please refer to clause 7.1.
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

UNII-3 BAND

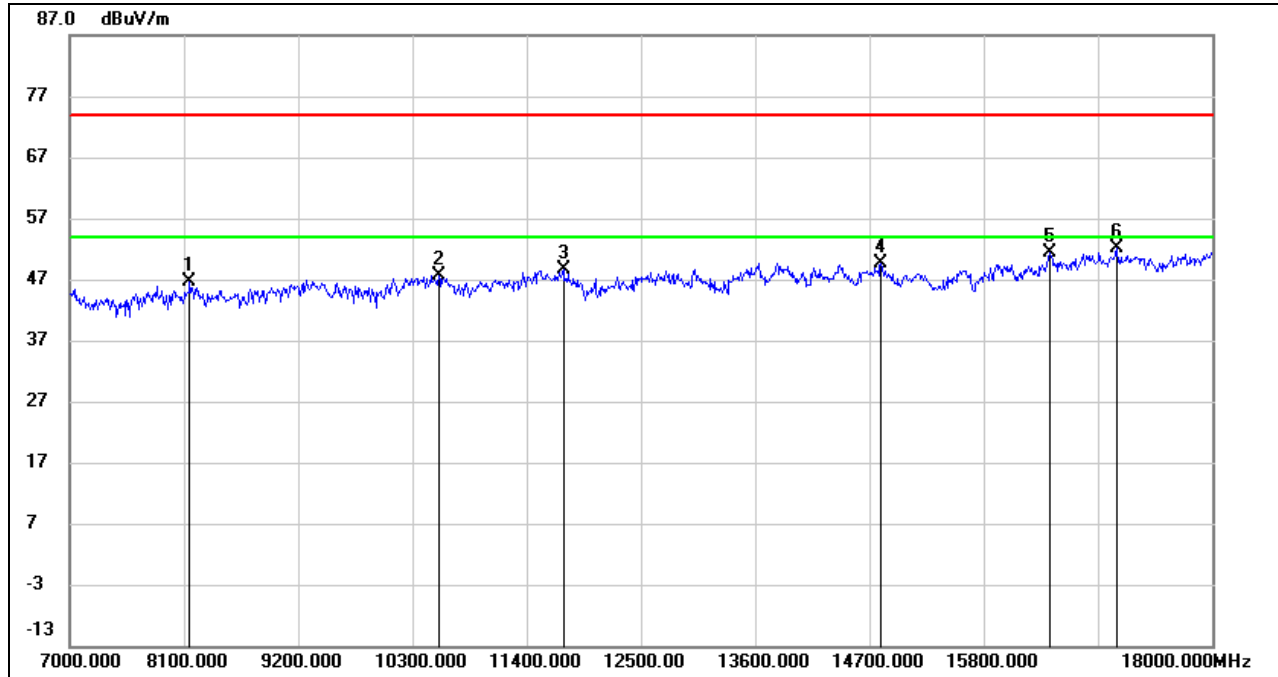
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9497.000	37.38	9.76	47.14	74.00	-26.86	peak
2	11510.000	35.74	13.39	49.13	74.00	-24.87	peak
3	13501.000	33.54	15.89	49.43	74.00	-24.57	peak
4	14854.000	34.47	16.13	50.60	74.00	-23.40	peak
5	17263.000	29.83	21.64	51.47	74.00	-22.53	peak
6	17813.000	28.59	23.41	52.00	74.00	-22.00	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

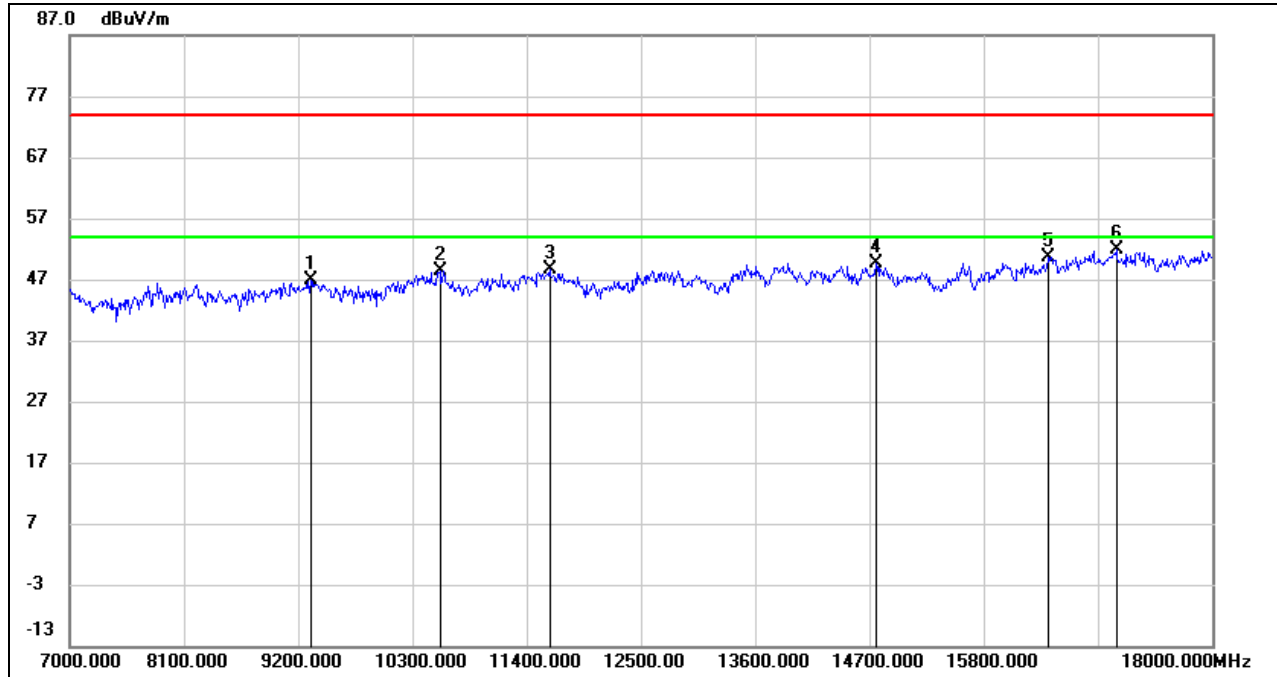
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8155.000	38.07	8.52	46.59	74.00	-27.41	peak
2	10553.000	35.80	11.93	47.73	74.00	-26.27	peak
3	11752.000	35.49	13.15	48.64	74.00	-25.36	peak
4	14810.000	33.49	16.07	49.56	74.00	-24.44	peak
5	16438.000	31.86	19.41	51.27	74.00	-22.73	peak
6	17076.000	31.36	20.82	52.18	74.00	-21.82	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	9321.000	37.54	9.44	46.98	74.00	-27.02	peak
2	10564.000	36.35	12.06	48.41	74.00	-25.59	peak
3	11620.000	35.24	13.44	48.68	74.00	-25.32	peak
4	14766.000	33.56	16.11	49.67	74.00	-24.33	peak
5	16416.000	31.34	19.33	50.67	74.00	-23.33	peak
6	17076.000	31.10	20.82	51.92	74.00	-22.08	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. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.

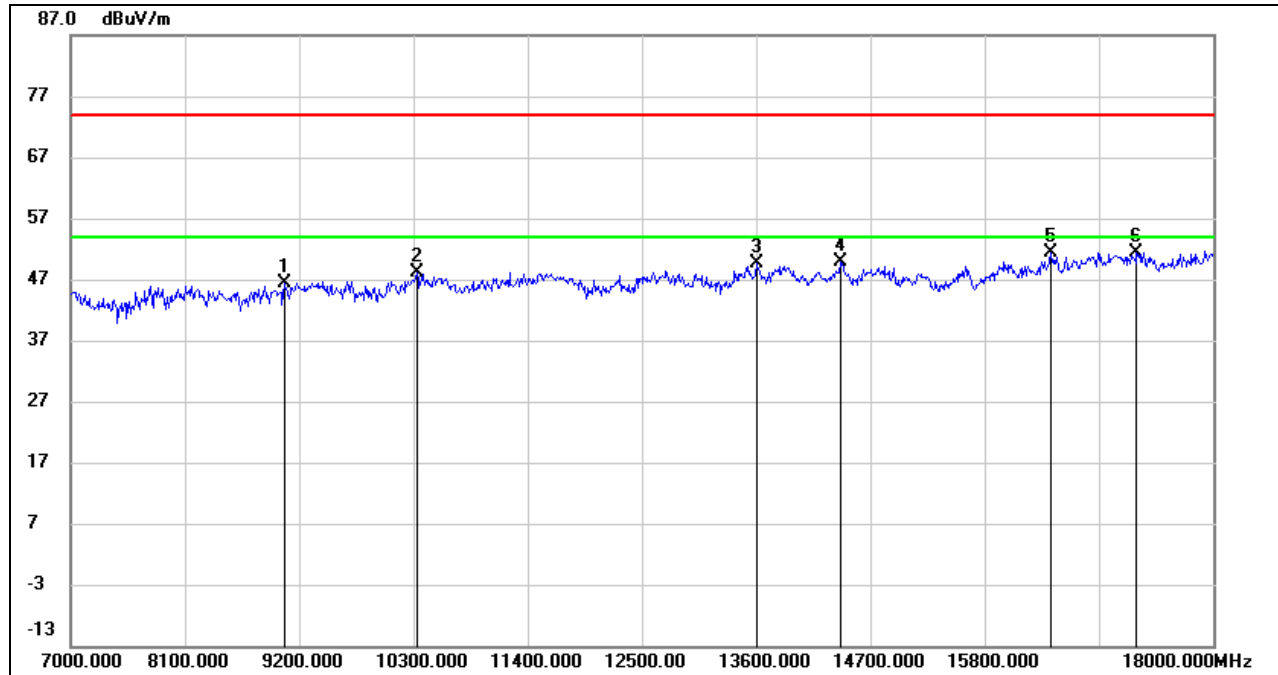
5. For the transmitting duration, please refer to clause 7.1.

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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



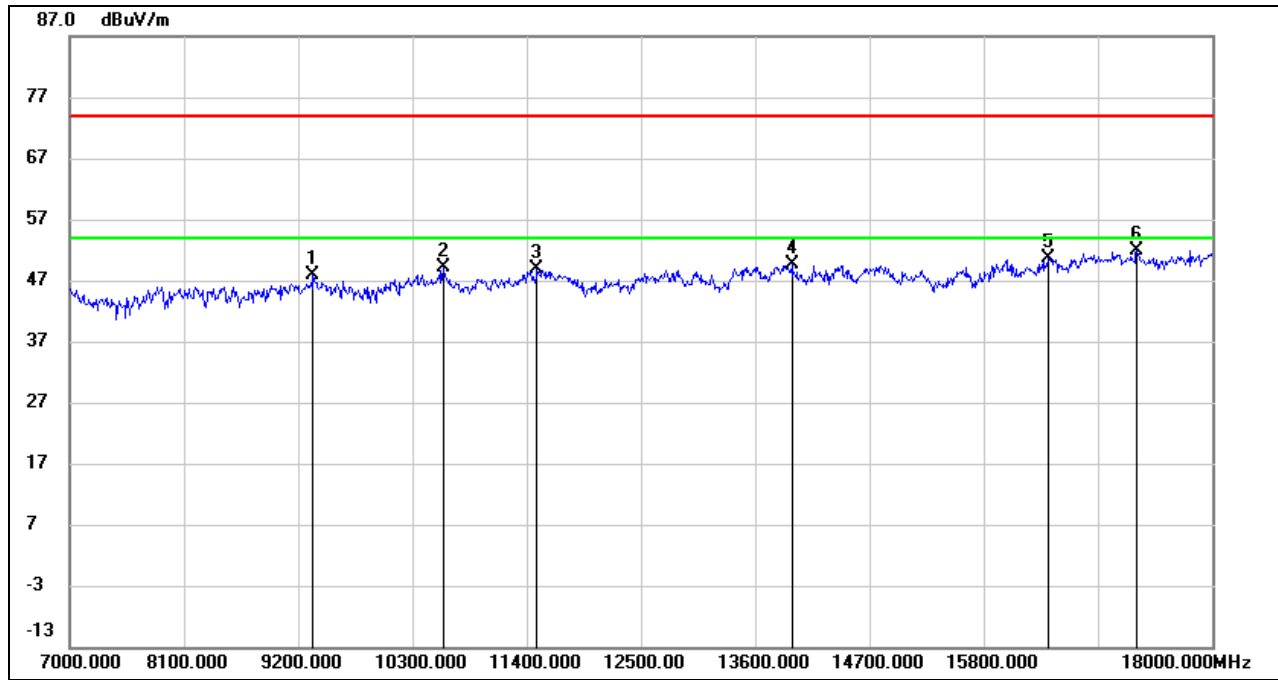
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9057.000	37.02	9.44	46.46	74.00	-27.54	peak
2	10333.000	36.94	11.25	48.19	74.00	-25.81	peak
3	13600.000	33.64	16.10	49.74	74.00	-24.26	peak
4	14414.000	33.30	16.66	49.96	74.00	-24.04	peak
5	16438.000	31.89	19.41	51.30	74.00	-22.70	peak
6	17263.000	29.75	21.64	51.39	74.00	-22.61	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.
 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

8.3.4. 802.11ac VHT80 MIMO MODE

UNII-1 BAND

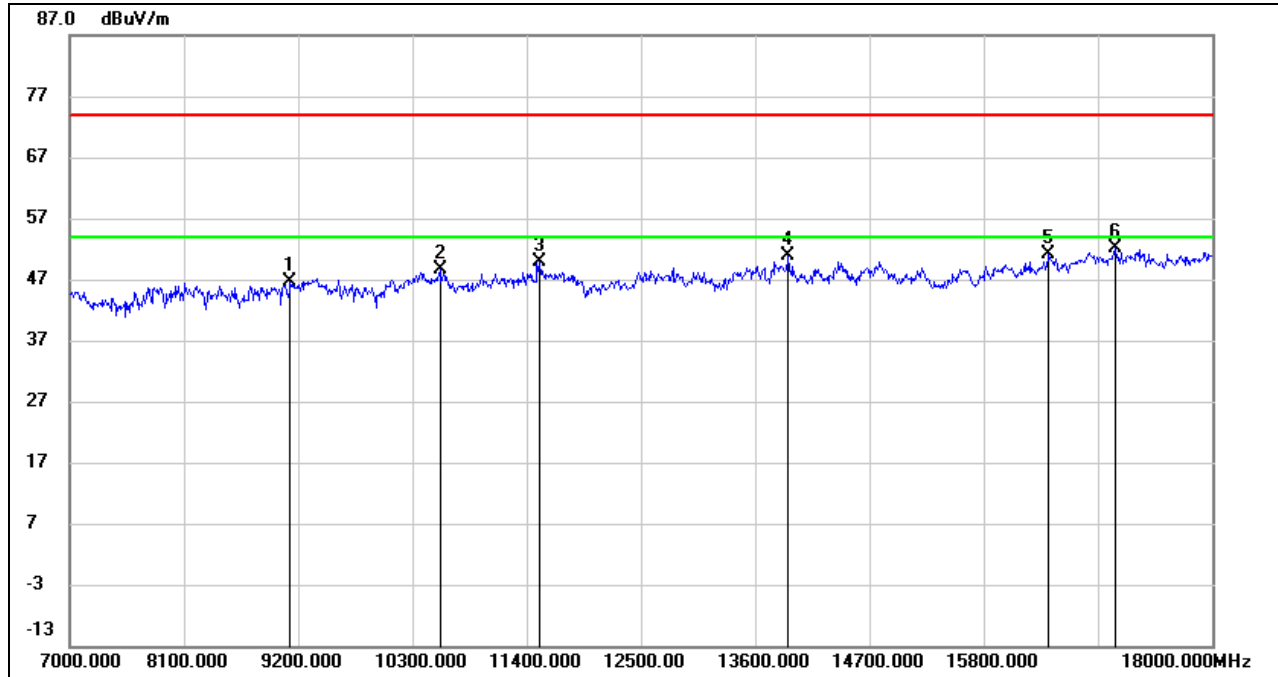
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	38.19	9.57	47.76	74.00	-26.24	peak
2	10597.000	36.61	12.43	49.04	74.00	-24.96	peak
3	11499.000	35.48	13.35	48.83	74.00	-25.17	peak
4	13952.000	33.39	16.16	49.55	74.00	-24.45	peak
5	16427.000	31.36	19.37	50.73	74.00	-23.27	peak
6	17274.000	30.27	21.71	51.98	74.00	-22.02	peak

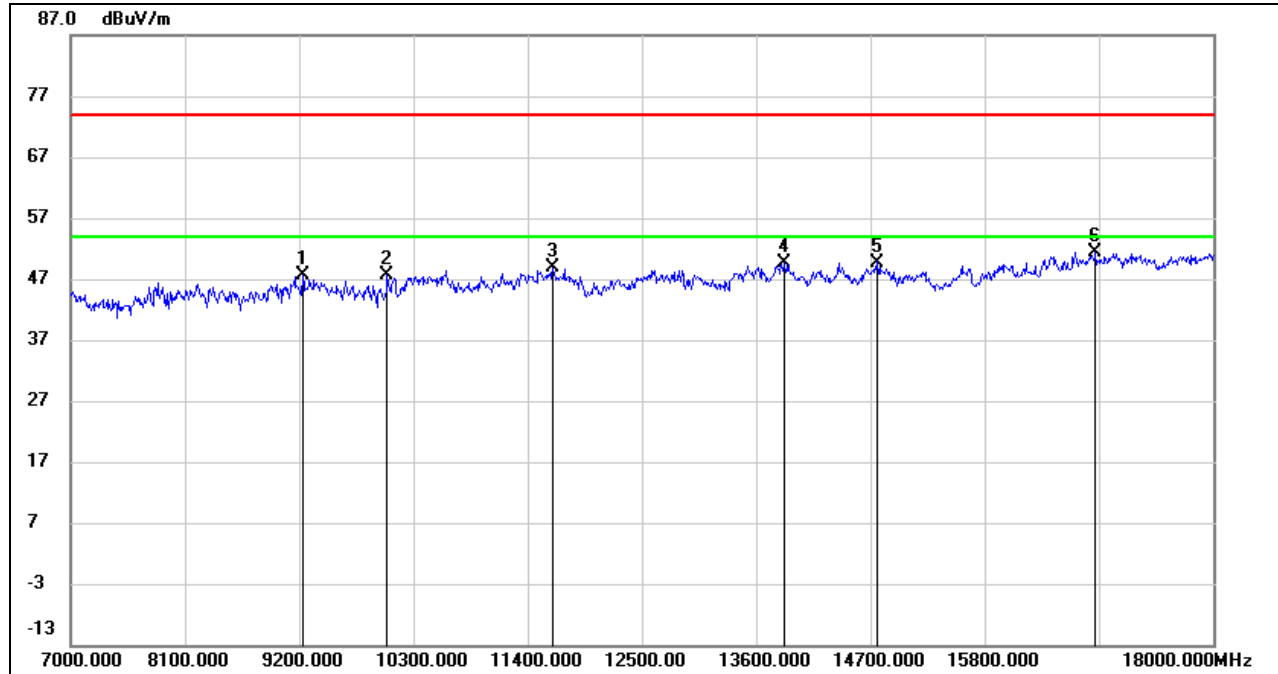
Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
 5. For the transmitting duration, please refer to clause 7.1.
 6. Filter 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

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	9123.000	37.28	9.35	46.63	74.00	-27.37	peak
2	10564.000	36.52	12.06	48.58	74.00	-25.42	peak
3	11521.000	36.49	13.40	49.89	74.00	-24.11	peak
4	13919.000	34.81	16.16	50.97	74.00	-23.03	peak
5	16427.000	31.76	19.37	51.13	74.00	-22.87	peak
6	17065.000	31.22	20.79	52.01	74.00	-21.99	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. 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. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

**UNII-3 BAND****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	9233.000	38.57	9.03	47.60	74.00	-26.40	peak
2	10047.000	37.16	10.45	47.61	74.00	-26.39	peak
3	11642.000	35.51	13.33	48.84	74.00	-25.16	peak
4	13875.000	33.30	16.39	49.69	74.00	-24.31	peak
5	14766.000	33.64	16.11	49.75	74.00	-24.25	peak
6	16867.000	31.35	20.13	51.48	74.00	-22.52	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. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.

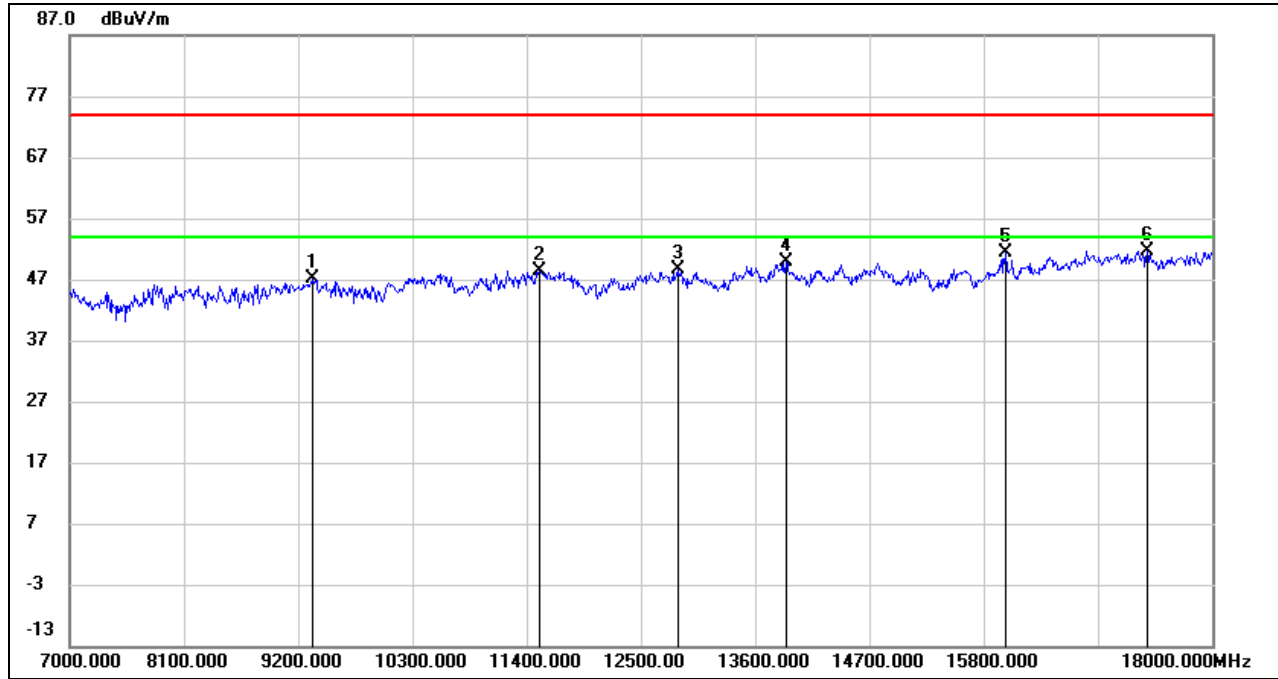
5. For the transmitting duration, please refer to clause 7.1.

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

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

8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



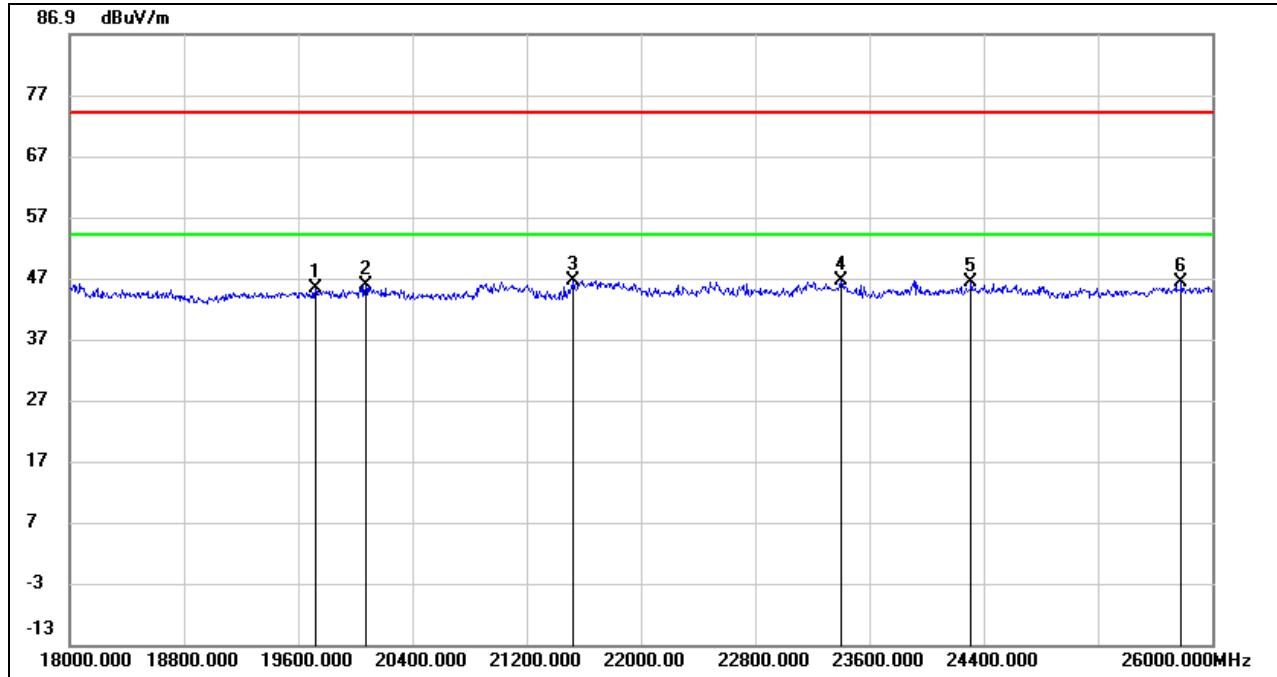
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	37.56	9.57	47.13	74.00	-26.87	peak
2	11521.000	35.09	13.40	48.49	74.00	-25.51	peak
3	12852.000	33.04	15.61	48.65	74.00	-25.35	peak
4	13897.000	33.57	16.20	49.77	74.00	-24.23	peak
5	16009.000	33.50	17.85	51.35	74.00	-22.65	peak
6	17373.000	30.06	21.63	51.69	74.00	-22.31	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.
 5. For the transmitting duration, please refer to clause 7.1.
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
 8. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point was deemed to comply with the limits list in the standard.

8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.4.1. 802.11n HT40 MODE

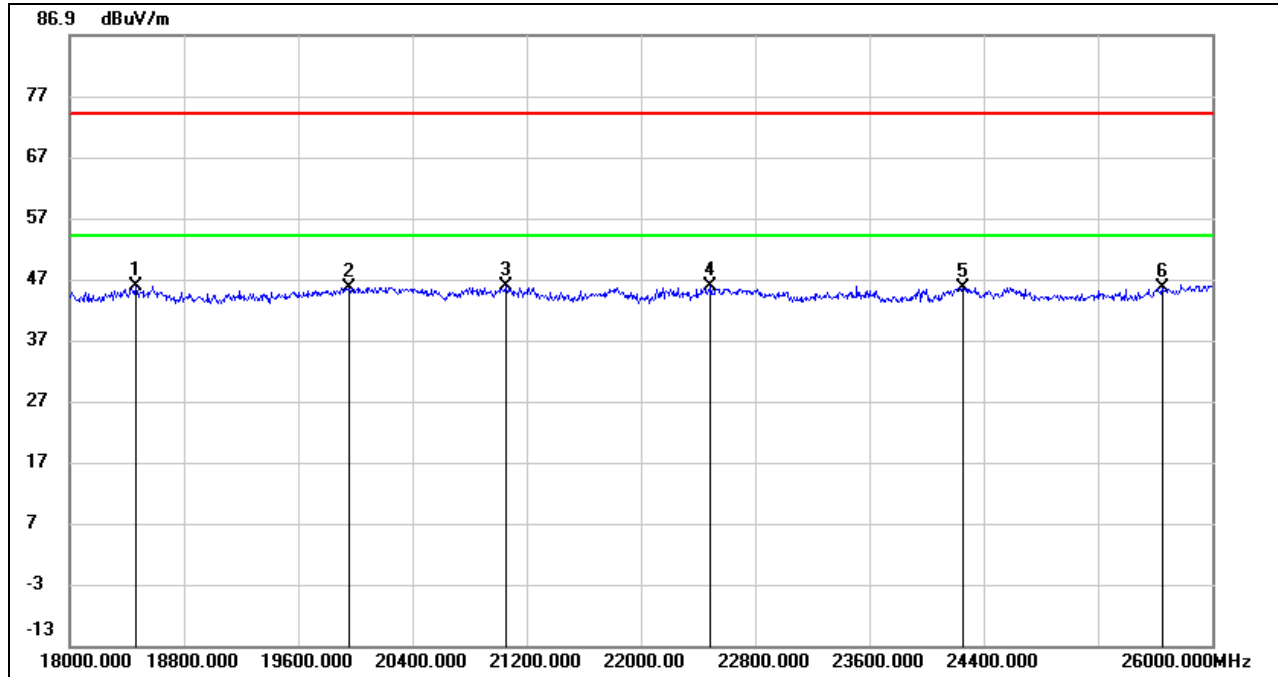
SPURIOUS EMISSIONS (UNII-3 BAND HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19720.000	49.58	-4.39	45.19	74.00	-28.81	peak
2	20072.000	50.34	-4.51	45.83	74.00	-28.17	peak
3	21528.000	52.42	-5.78	46.64	74.00	-27.36	peak
4	23400.000	51.42	-4.96	46.46	74.00	-27.54	peak
5	24312.000	49.60	-3.35	46.25	74.00	-27.75	peak
6	25784.000	47.73	-1.49	46.24	74.00	-27.76	peak

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

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18464.000	50.20	-4.39	45.81	74.00	-28.19	peak
2	19960.000	50.02	-4.37	45.65	74.00	-28.35	peak
3	21056.000	51.01	-5.33	45.68	74.00	-28.32	peak
4	22488.000	51.60	-5.81	45.79	74.00	-28.21	peak
5	24256.000	49.18	-3.56	45.62	74.00	-28.38	peak
6	25648.000	47.12	-1.53	45.59	74.00	-28.41	peak

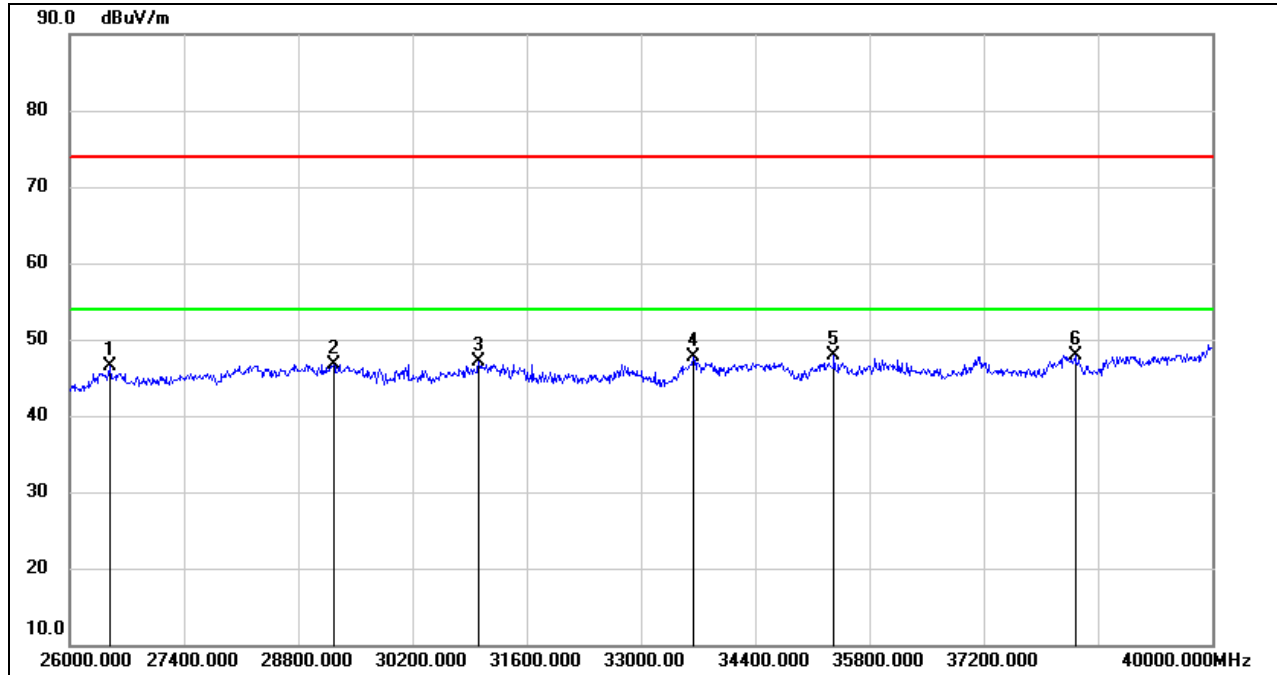
Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

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

8.5. SPURIOUS EMISSIONS (26 GHz ~ 40 GHz)

8.5.1. 802.11n HT40 MODE

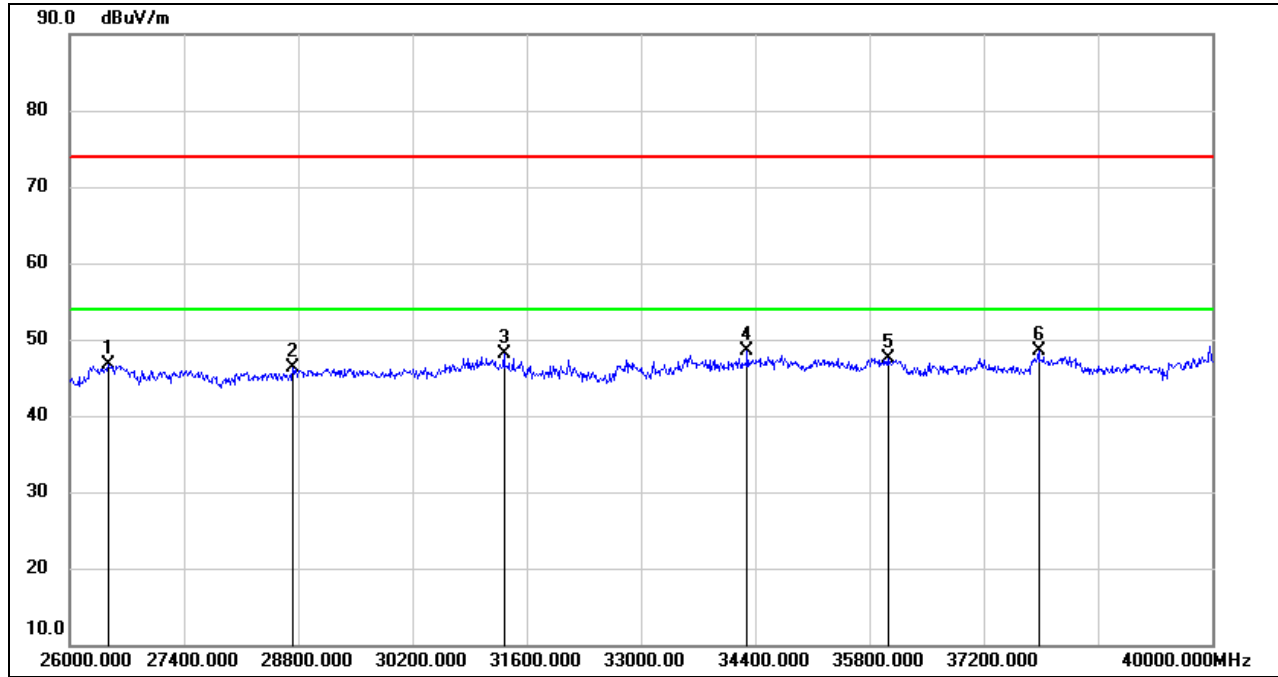
SPURIOUS EMISSIONS (UNII-3 BAND HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.29	-4.74	46.55	74.00	-27.45	peak
2	29234.000	47.77	-1.07	46.70	74.00	-27.30	peak
3	31012.000	47.83	-0.71	47.12	74.00	-26.88	peak
4	33644.000	47.31	0.42	47.73	74.00	-26.27	peak
5	35366.000	45.40	2.59	47.99	74.00	-26.01	peak
6	38320.000	44.06	3.77	47.83	74.00	-26.17	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. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26476.000	51.53	-4.78	46.75	74.00	-27.25	peak
2	28730.000	47.01	-0.69	46.32	74.00	-27.68	peak
3	31320.000	49.11	-0.93	48.18	74.00	-25.82	peak
4	34302.000	47.45	1.10	48.55	74.00	-25.45	peak
5	36024.000	43.54	3.96	47.50	74.00	-26.50	peak
6	37872.000	44.97	3.48	48.45	74.00	-25.55	peak

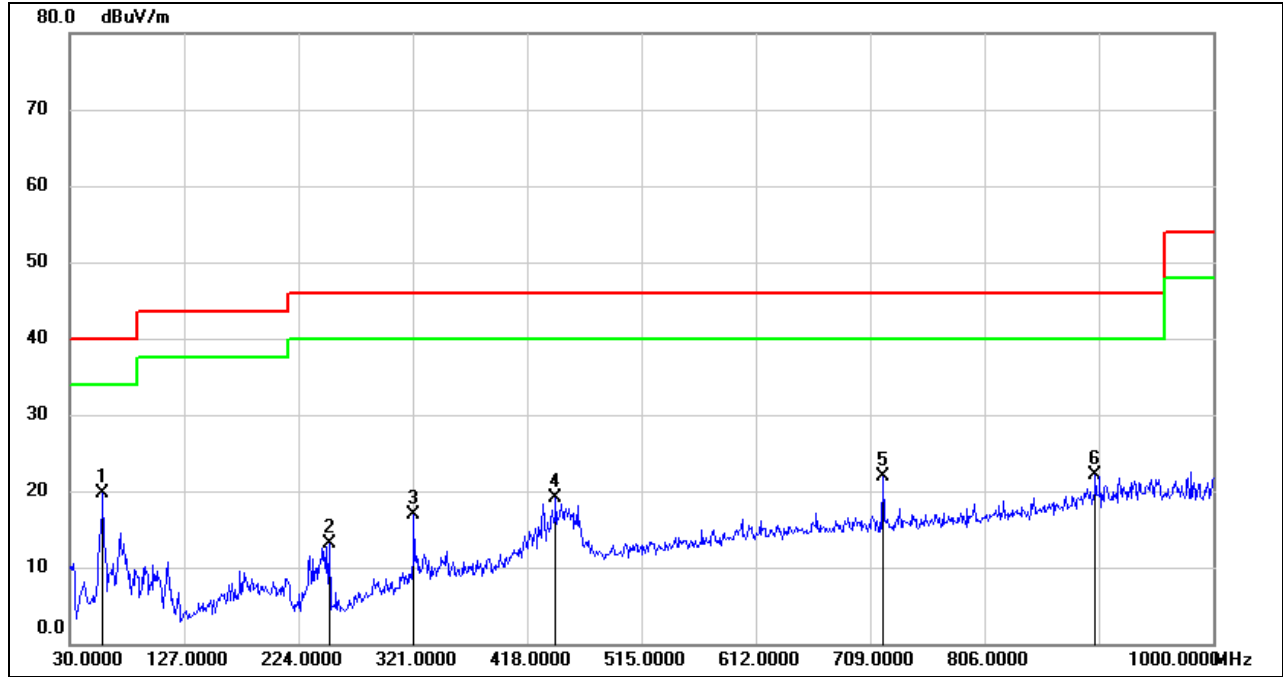
- Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: All the channels and modes antennas 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 MODE

SPURIOUS EMISSIONS (UNII-3 BAND HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)

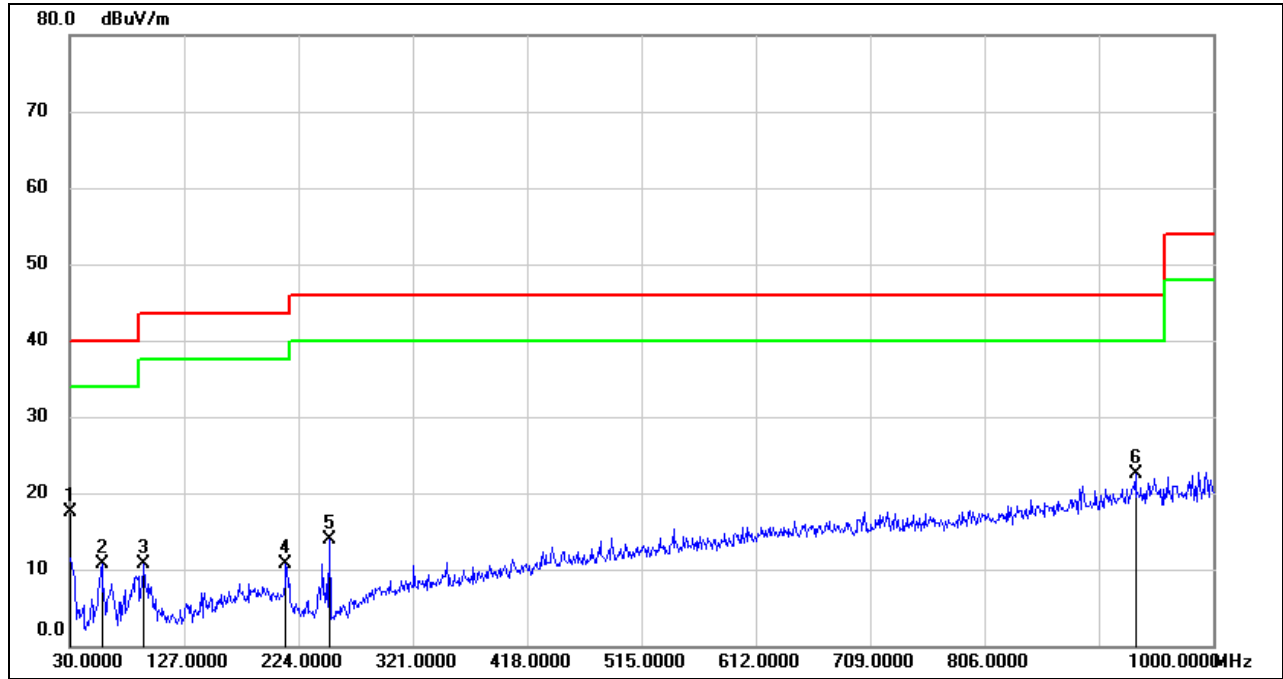


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	58.1300	40.17	-20.55	19.62	40.00	-20.38	QP
2	250.1900	32.07	-18.91	13.16	46.00	-32.84	QP
3	321.9700	31.65	-14.75	16.90	46.00	-29.10	QP
4	442.2500	31.67	-12.55	19.12	46.00	-26.88	QP
5	719.6700	29.94	-8.08	21.86	46.00	-24.14	QP
6	900.0900	27.32	-5.21	22.11	46.00	-23.89	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 (UNII-1 BAND HIGH CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	36.41	-18.94	17.47	40.00	-22.53	QP
2	57.1600	31.27	-20.58	10.69	40.00	-29.31	QP
3	93.0500	32.32	-21.69	10.63	43.50	-32.87	QP
4	213.3300	28.28	-17.58	10.70	43.50	-32.80	QP
5	250.1900	32.72	-18.91	13.81	46.00	-32.19	QP
6	934.0400	27.09	-4.67	22.42	46.00	-23.58	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

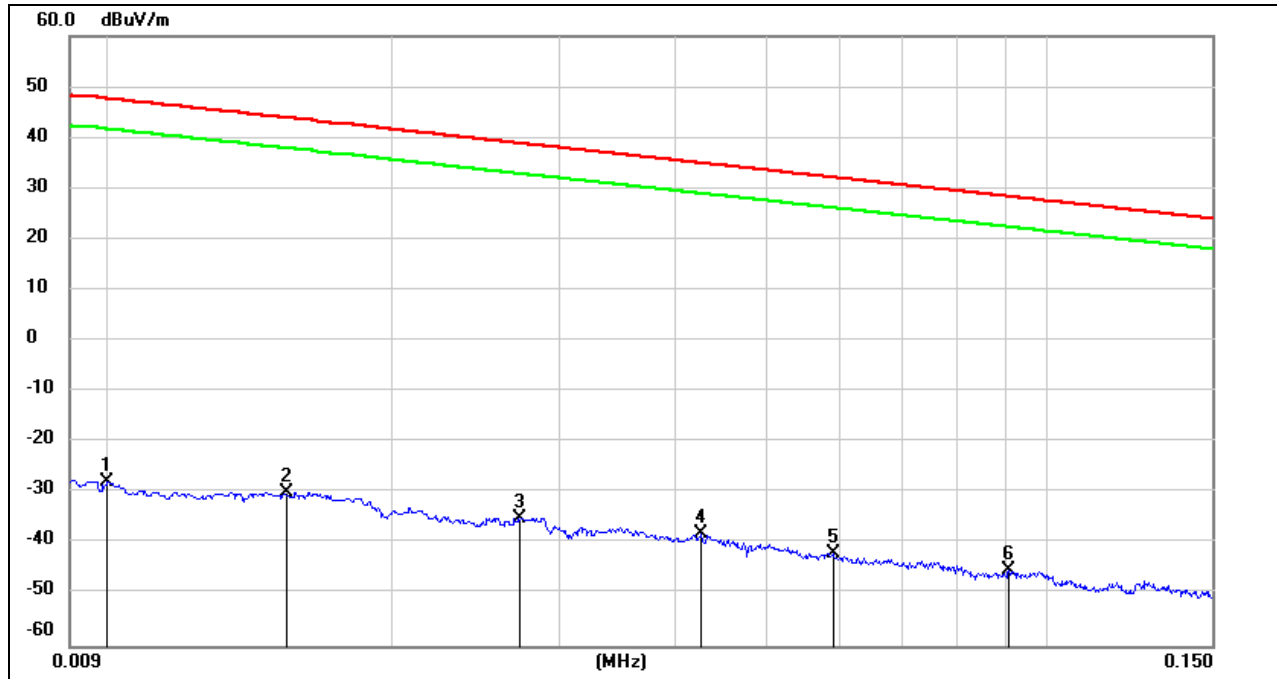
Note: All the channels and modes antennas had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11n HT40 MODE

SPURIOUS EMISSIONS (UNII-3 BAND HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



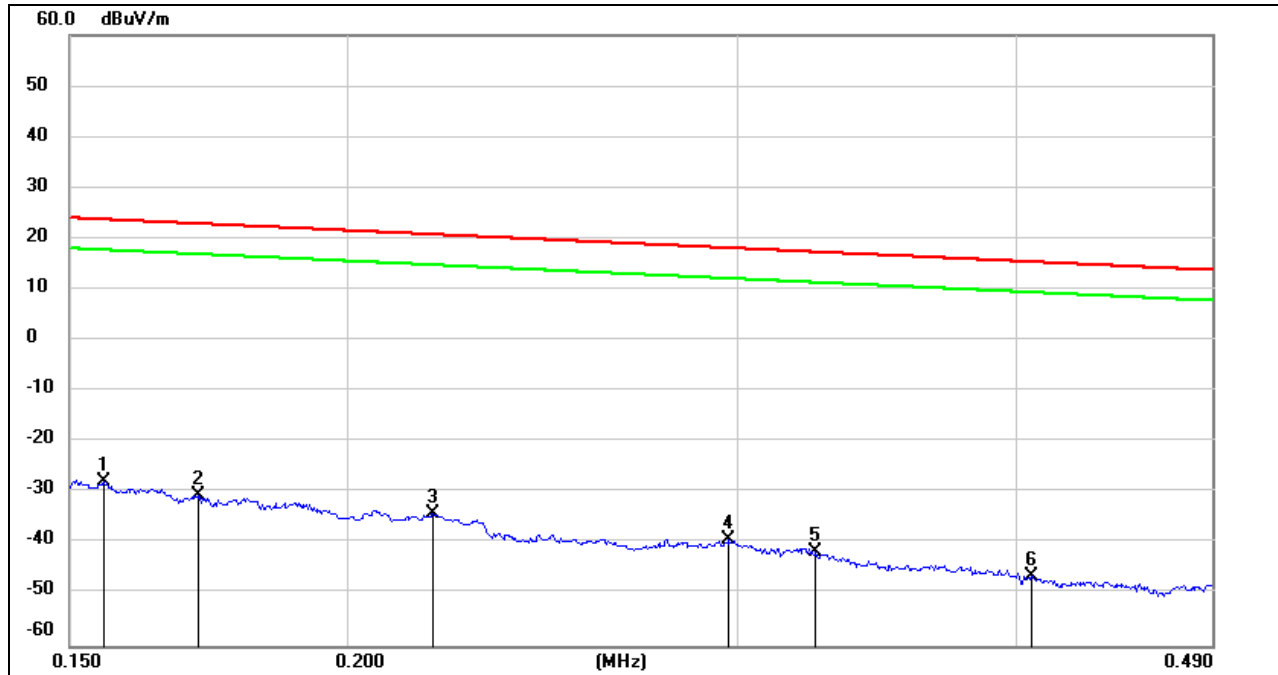
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	73.72	-101.40	-27.68	47.60	-75.28	peak
2	0.0154	71.44	-101.37	-29.93	43.85	-73.78	peak
3	0.0273	66.49	-101.38	-34.89	38.88	-73.77	peak
4	0.0427	63.64	-101.45	-37.81	34.99	-72.80	peak
5	0.0589	59.81	-101.52	-41.71	32.20	-73.91	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



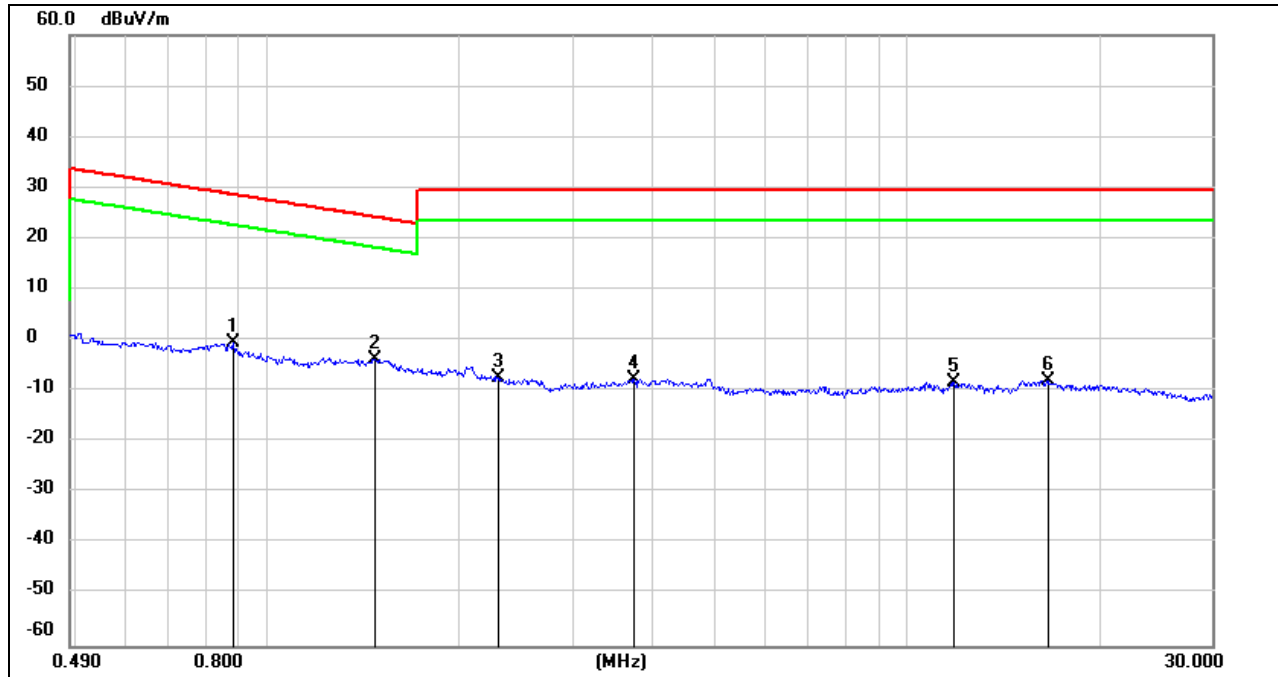
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1554	73.77	-101.65	-27.88	23.77	-51.65	peak
2	0.1715	71.11	-101.67	-30.56	22.92	-53.48	peak
3	0.2187	67.75	-101.75	-34.00	20.80	-54.80	peak
4	0.2972	62.66	-101.85	-39.19	18.14	-57.33	peak
5	0.3251	60.21	-101.88	-41.67	17.36	-59.03	peak
6	0.4062	55.64	-101.96	-46.32	15.43	-61.75	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)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.8820	61.68	-62.19	-0.51	28.69	-29.20	peak
2	1.4700	58.39	-62.05	-3.66	24.26	-27.92	peak
3	2.2924	54.34	-61.75	-7.41	29.54	-36.95	peak
4	3.7406	53.80	-61.40	-7.60	29.54	-37.14	peak
5	11.8513	52.56	-60.88	-8.32	29.54	-37.86	peak
6	16.7205	53.04	-60.95	-7.91	29.54	-37.45	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 channels and modes antennas had been tested, but only the worst data was recorded in the report.

9. AC POWER LINE CONDUCTED EMISSIONS

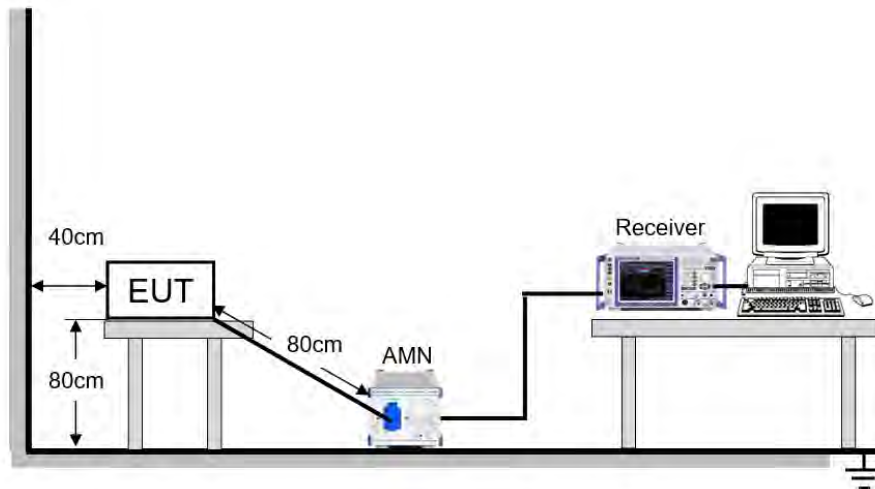
LIMITS

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

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

TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



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

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

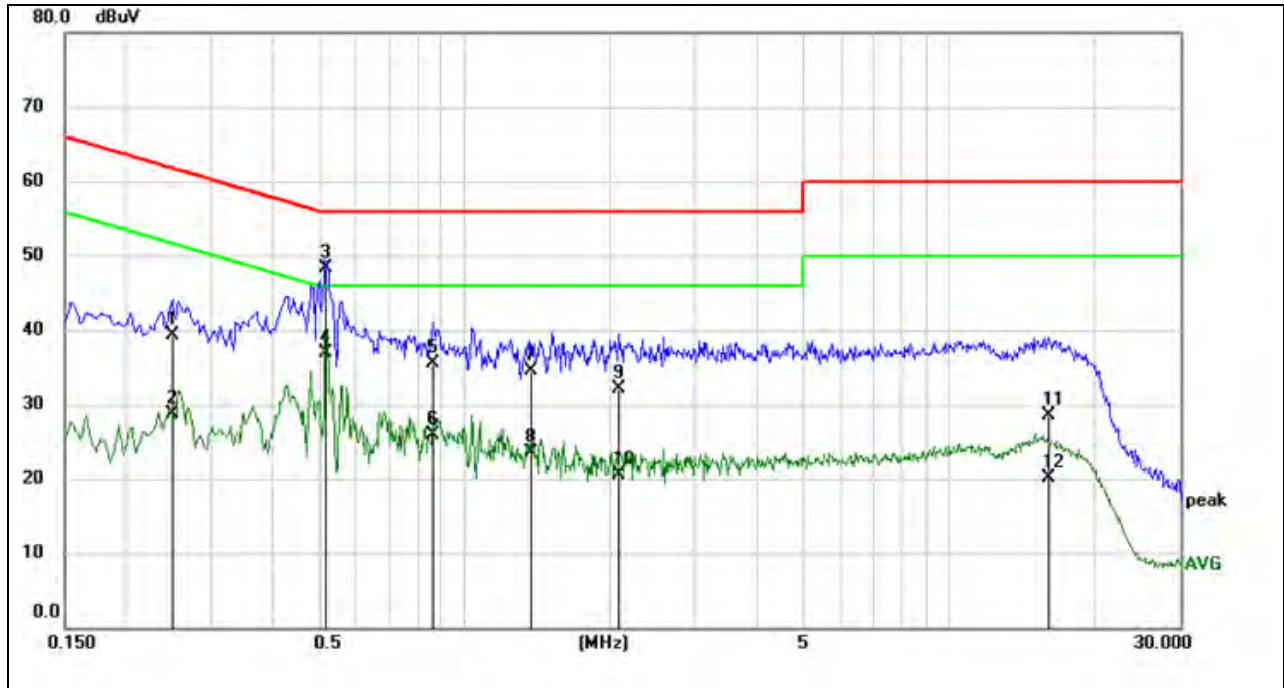
TEST ENVIRONMENT

Temperature	23.1 °C	Relative Humidity	56 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

9.1. 802.11n HT40 MODE

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2512	29.78	9.60	39.38	61.72	-22.34	QP
2	0.2512	19.05	9.60	28.65	51.72	-23.07	AVG
3	0.5185	38.66	9.60	48.26	56.00	-7.74	QP
4	0.5185	27.24	9.60	36.84	46.00	-9.16	AVG
5	0.8646	25.93	9.60	35.53	56.00	-20.47	QP
6	0.8646	16.38	9.60	25.98	46.00	-20.02	AVG
7	1.3714	24.89	9.61	34.50	56.00	-21.50	QP
8	1.3714	13.87	9.61	23.48	46.00	-22.52	AVG
9	2.1092	22.52	9.63	32.15	56.00	-23.85	QP
10	2.1092	10.85	9.63	20.48	46.00	-25.52	AVG
11	16.0951	18.47	9.97	28.44	60.00	-31.56	QP
12	16.0951	10.07	9.97	20.04	50.00	-29.96	AVG

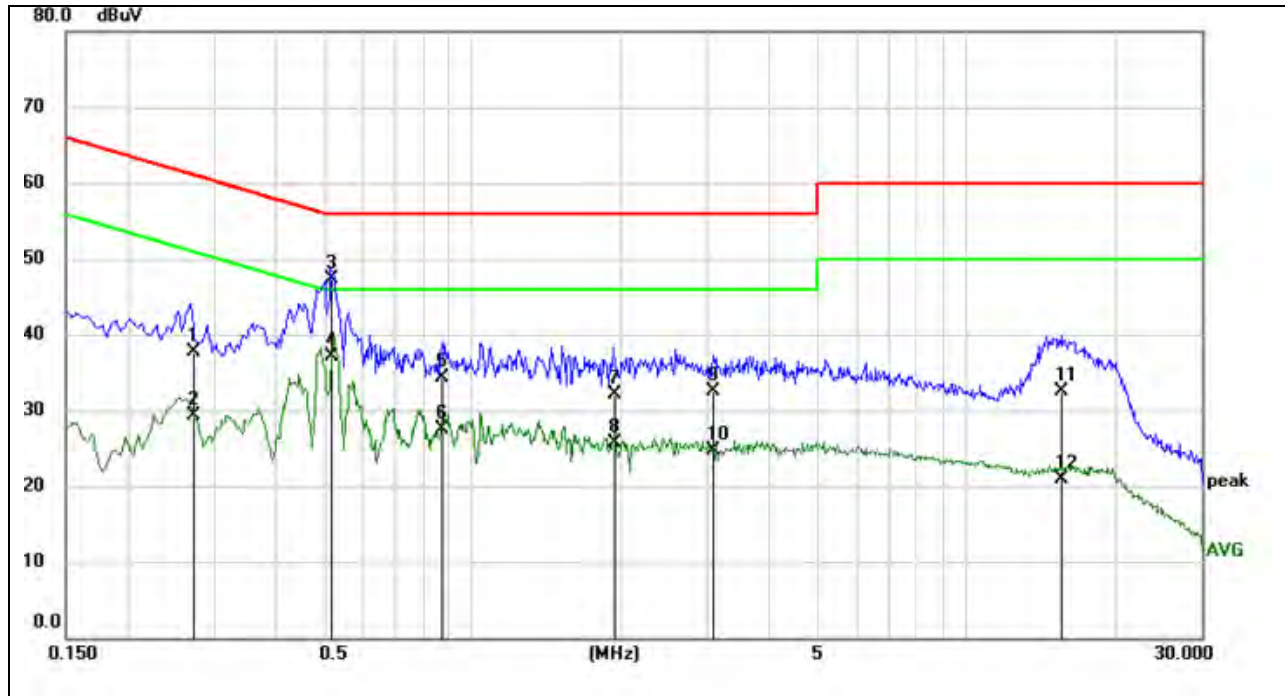
Note: 1. Result = Reading +Correct Factor.

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 (HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2719	28.07	9.60	37.67	61.06	-23.39	QP
2	0.2719	19.68	9.60	29.28	51.06	-21.78	AVG
3	0.5197	37.62	9.60	47.22	56.00	-8.78	QP
4	0.5197	27.60	9.60	37.20	46.00	-8.80	AVG
5	0.8668	24.76	9.60	34.36	56.00	-21.64	QP
6	0.8668	17.95	9.60	27.55	46.00	-18.45	AVG
7	1.9432	22.42	9.62	32.04	56.00	-23.96	QP
8	1.9432	16.14	9.62	25.76	46.00	-20.24	AVG
9	3.0789	22.82	9.64	32.46	56.00	-23.54	QP
10	3.0789	15.10	9.64	24.74	46.00	-21.26	AVG
11	15.6371	22.58	9.88	32.46	60.00	-27.54	QP
12	15.6371	11.11	9.88	20.99	50.00	-29.01	AVG

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

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

10. FREQUENCY STABILITY

LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

TEST PROCEDURE

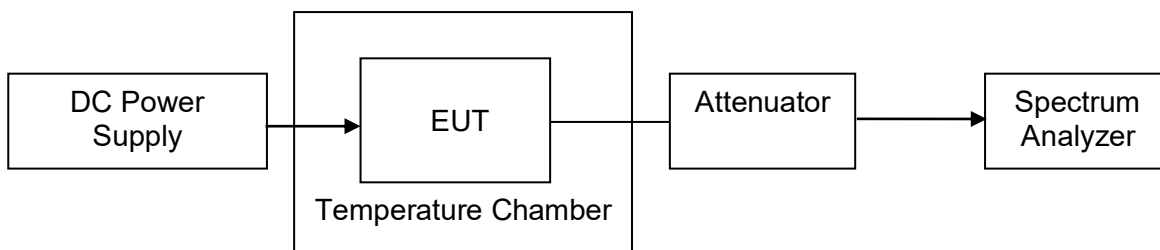
1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

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	10 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

TEST SETUP





TEST ENVIRONMENT

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T _N (Normal Temperature): 22 °C – 28 °C	T _L (Low Temperature): 0 °C
		T _H (High Temperature): 45 °C
Supply Voltage	V _N (Normal Voltage): DC 5 V	V _L (Low Voltage): DC 4.25V
		V _H (High Voltage): DC 5.75V

RESULTS

Please refer to Appendix E.

11. 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



12. Appendix

12.1. Appendix A1: Emission Bandwidth

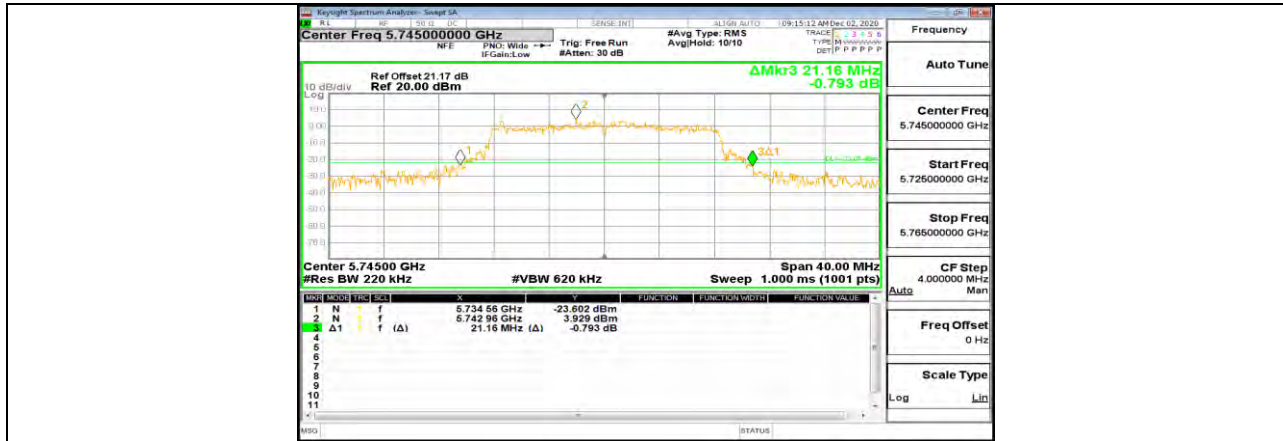
12.1.1. Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	20.720	5169.720	5190.440	PASS
		5200	20.680	5189.720	5210.400	PASS
		5240	20.560	5229.640	5250.200	PASS
		5745	21.160	5734.560	5755.720	PASS
		5785	21.000	5774.520	5795.520	PASS
		5825	20.680	5815.000	5835.680	PASS
11N20SISO	Ant1	5180	21.200	5169.320	5190.520	PASS
		5200	21.400	5189.320	5210.720	PASS
		5240	21.360	5229.320	5250.680	PASS
		5745	21.600	5734.160	5755.760	PASS
		5785	21.040	5774.440	5795.480	PASS
		5825	21.040	5814.560	5835.600	PASS
11N40SISO	Ant1	5190	39.280	5170.640	5209.920	PASS
		5230	38.880	5210.480	5249.360	PASS
		5755	41.200	5735.560	5776.760	PASS
		5795	39.760	5775.560	5815.320	PASS
11AC20SISO	Ant1	5180	20.880	5169.560	5190.440	PASS
		5200	21.320	5189.360	5210.680	PASS
		5240	20.960	5229.640	5250.600	PASS
		5745	20.920	5734.680	5755.600	PASS
		5785	21.080	5774.600	5795.680	PASS
		5825	21.160	5814.440	5835.600	PASS
11AC40SISO	Ant1	5190	39.600	5170.240	5209.840	PASS
		5230	39.920	5210.000	5249.920	PASS
		5755	41.440	5735.080	5776.520	PASS
		5795	40.160	5775.560	5815.720	PASS
11AC80SISO	Ant1	5210	79.840	5170.320	5250.160	PASS
		5775	80.640	5735.000	5815.640	PASS



12.1.2. Test Graphs

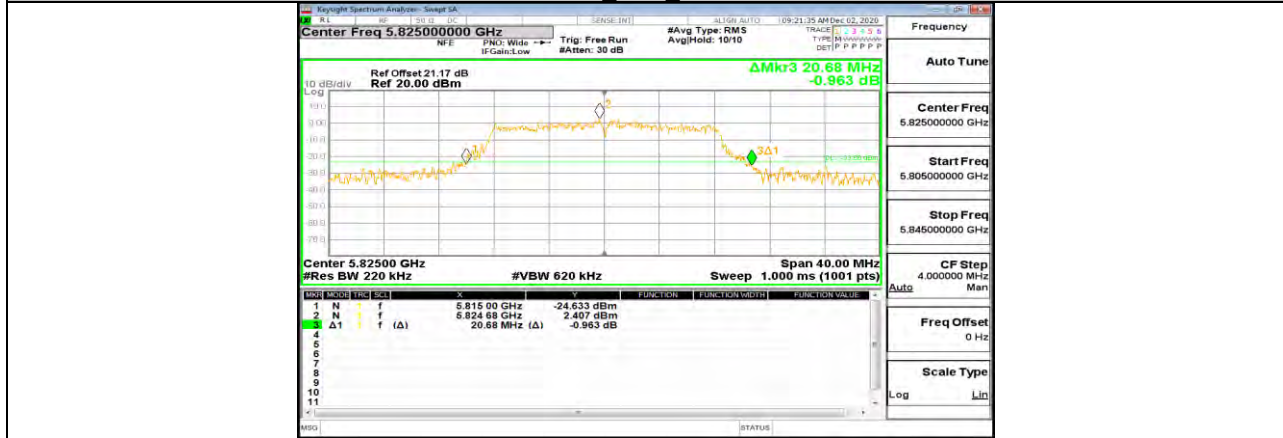




11A Ant1 5745



11A Ant1 5785



11A Ant1 5825



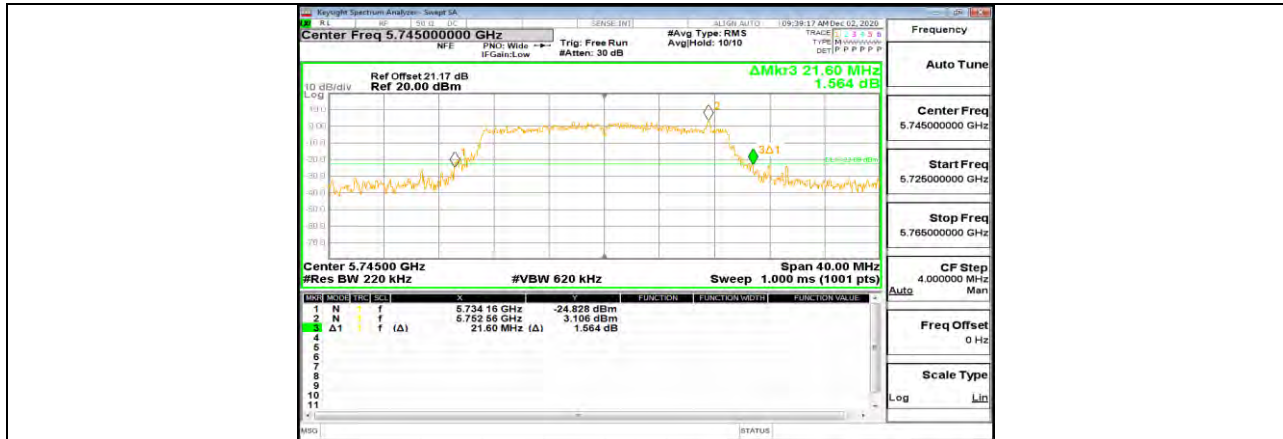
11N20SISO Ant1 5180



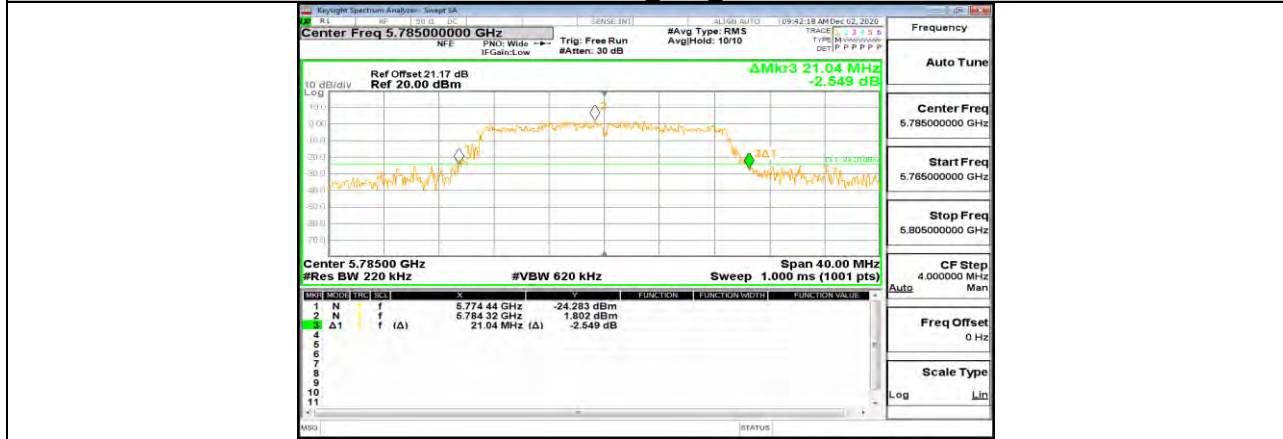
11N20SISO Ant1 5200



11N20SISO Ant1 5240



11N20SISO Ant1 5745



11N20SISO Ant1 5785



11N20SISO Ant1 5825



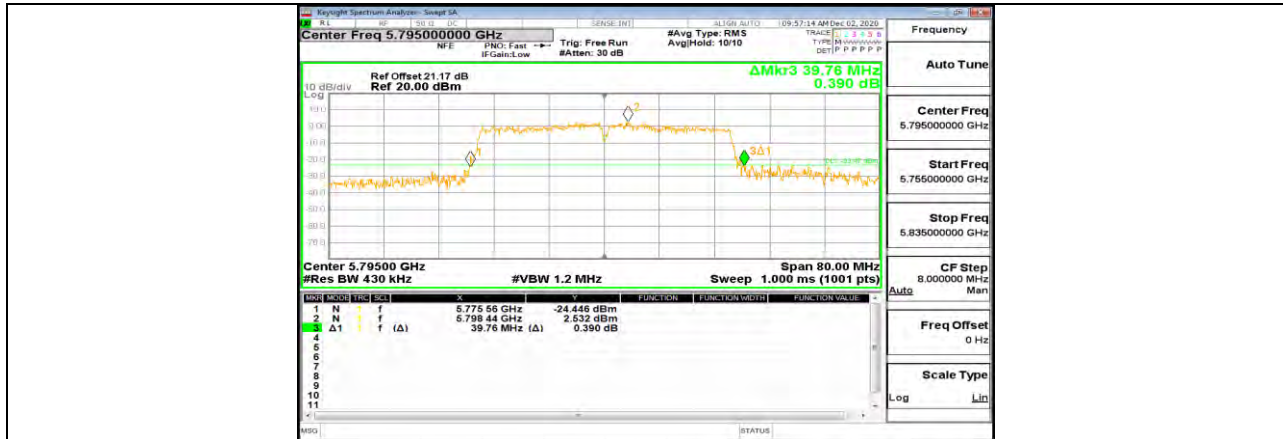
11N40SISO Ant1 5190



11N40SISO Ant1 5230



11N40SISO Ant1 5755



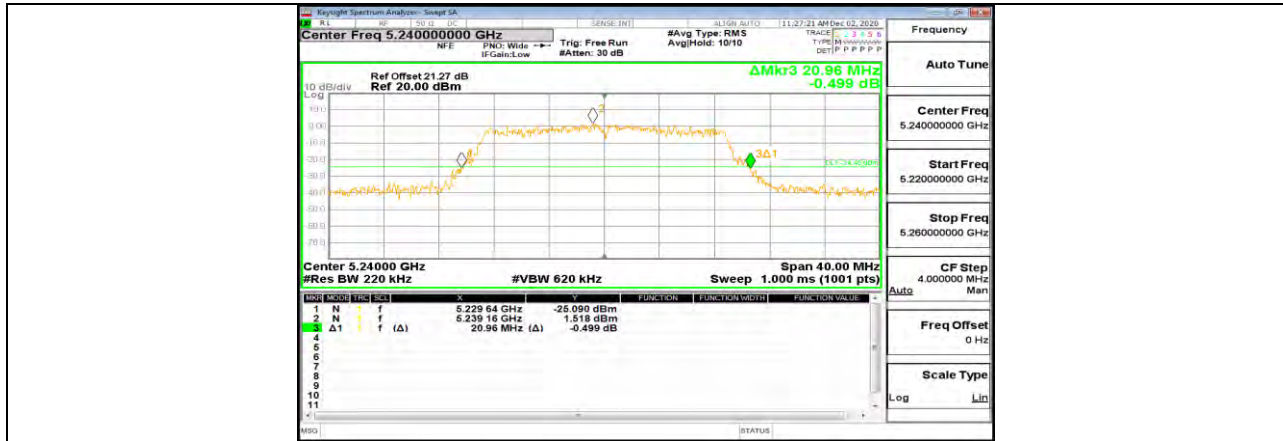
11N40SISO Ant1 5795



11AC20SISO Ant1 5180



11AC20SISO Ant1 5200



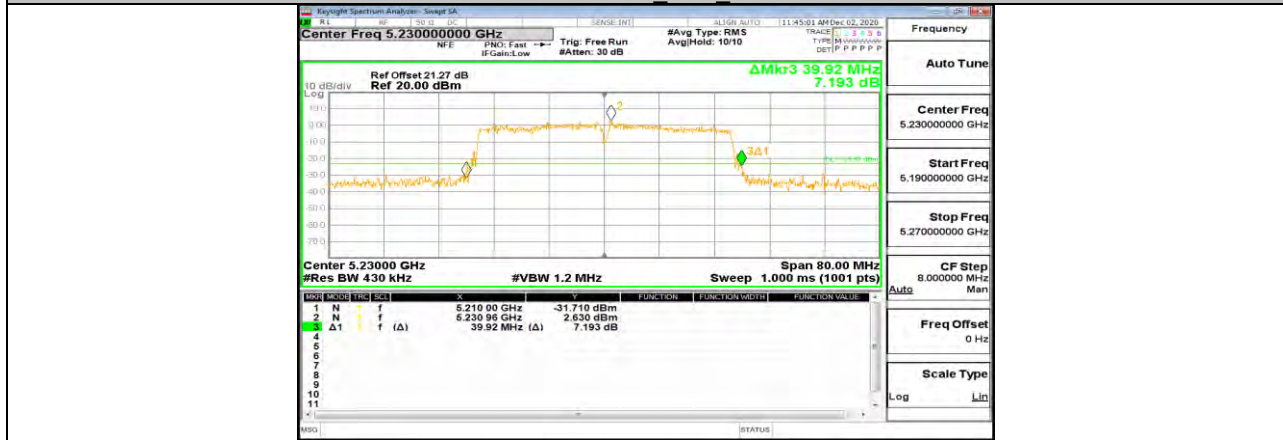
11AC20SISO Ant1 5240



11AC20SISO Ant1 5745

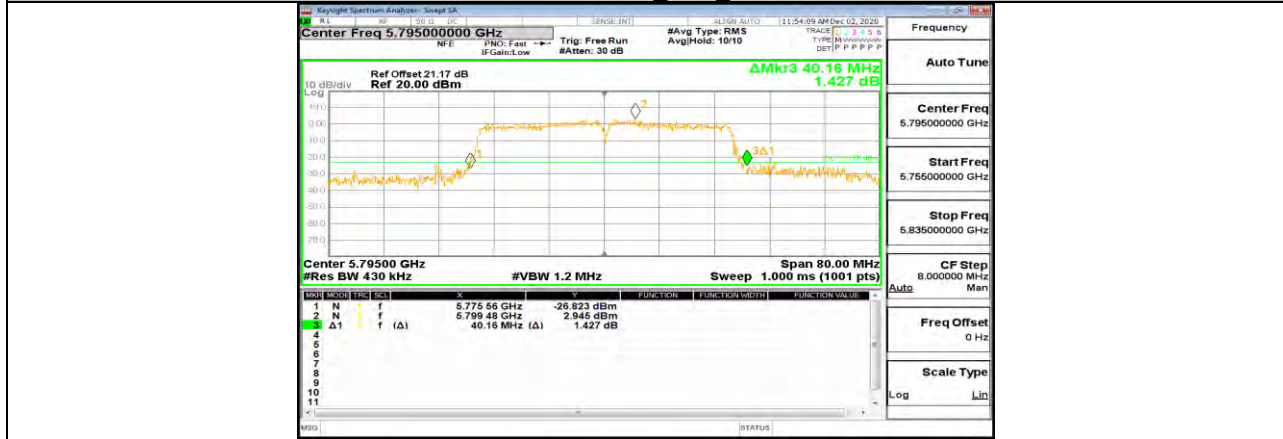


11AC20SISO Ant1 5785

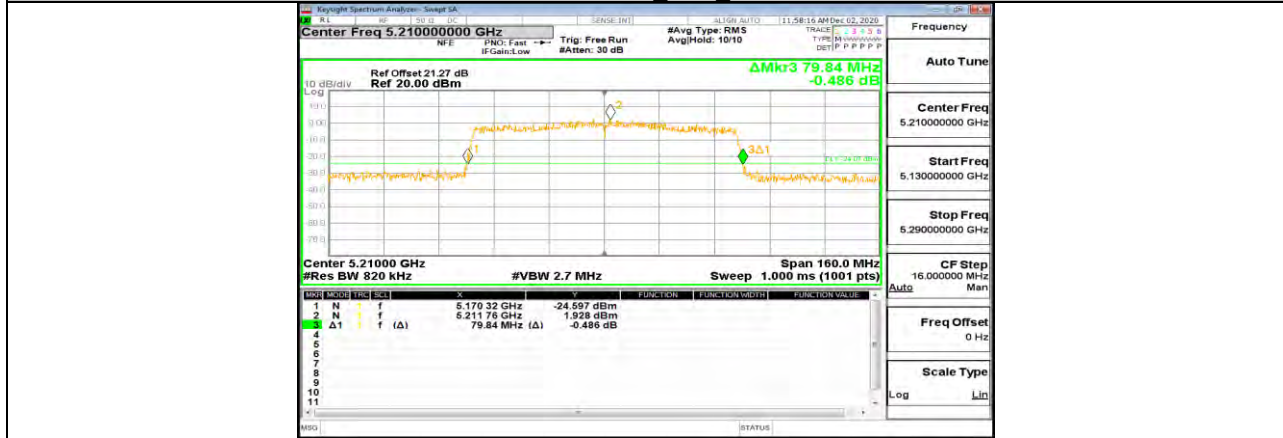




11AC40SISO Ant1 5755



11AC40SISO Ant1 5795



11AC80SISO Ant1 5210



12.2. Appendix A2: Occupied channel bandwidth

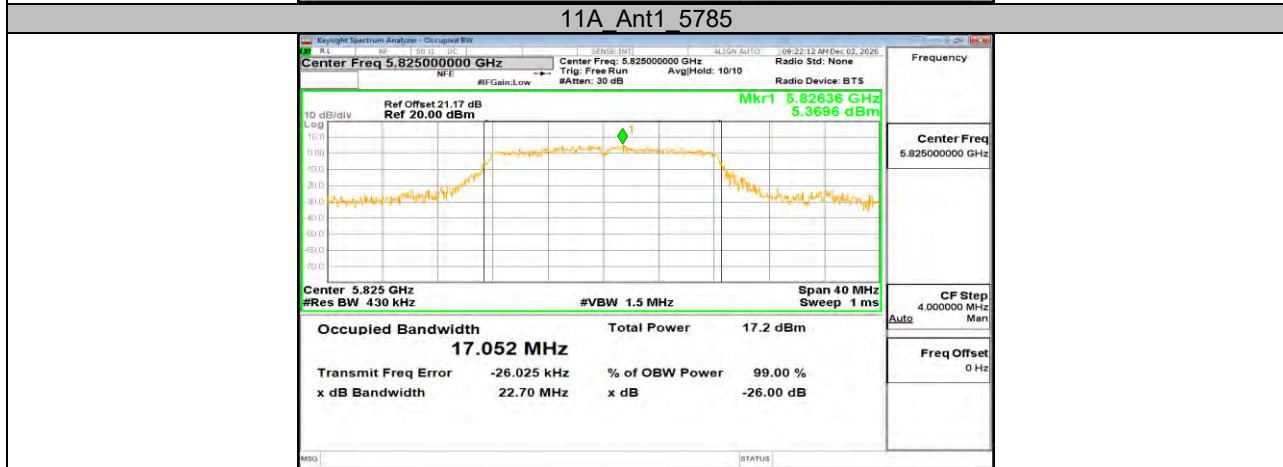
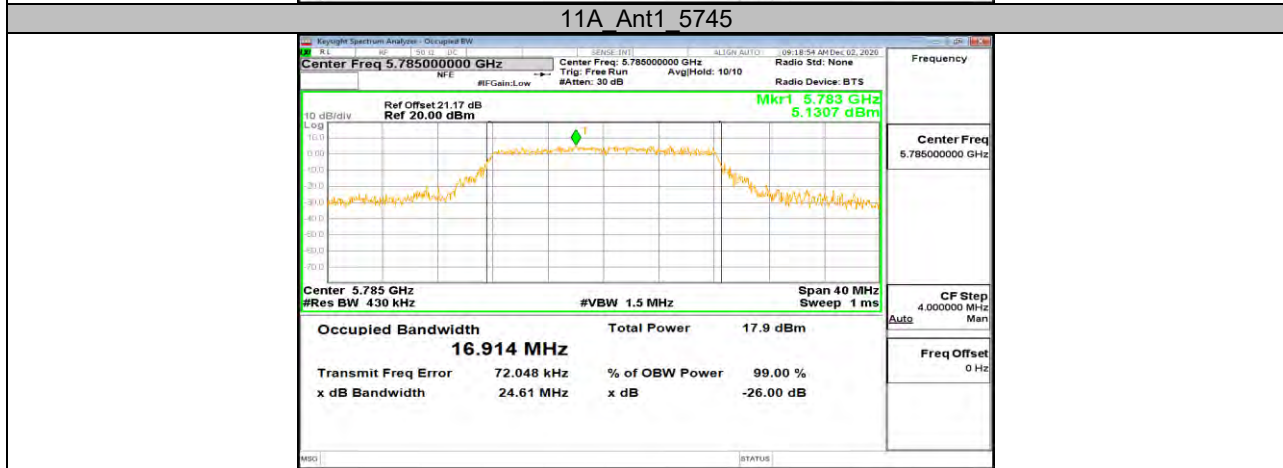
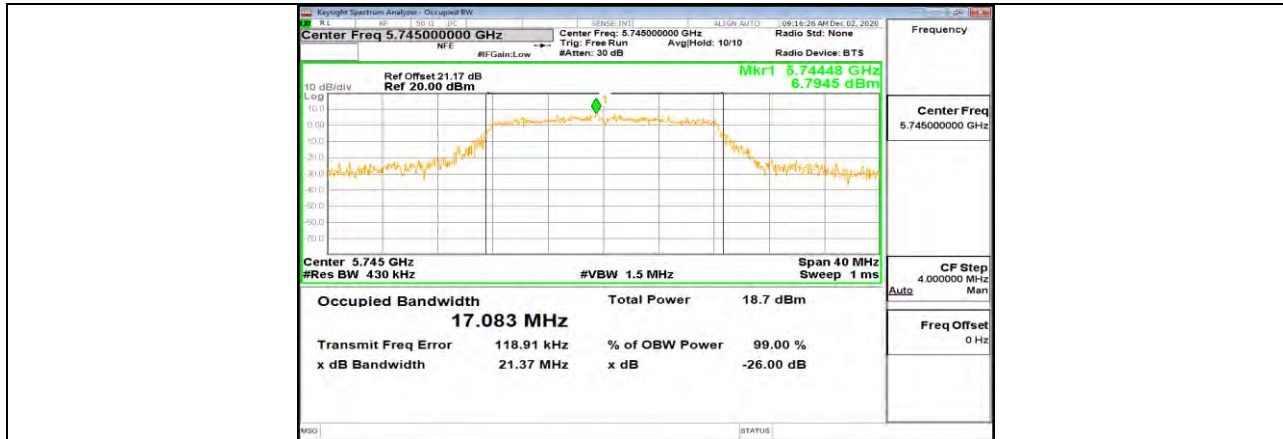
12.2.1. Test Result

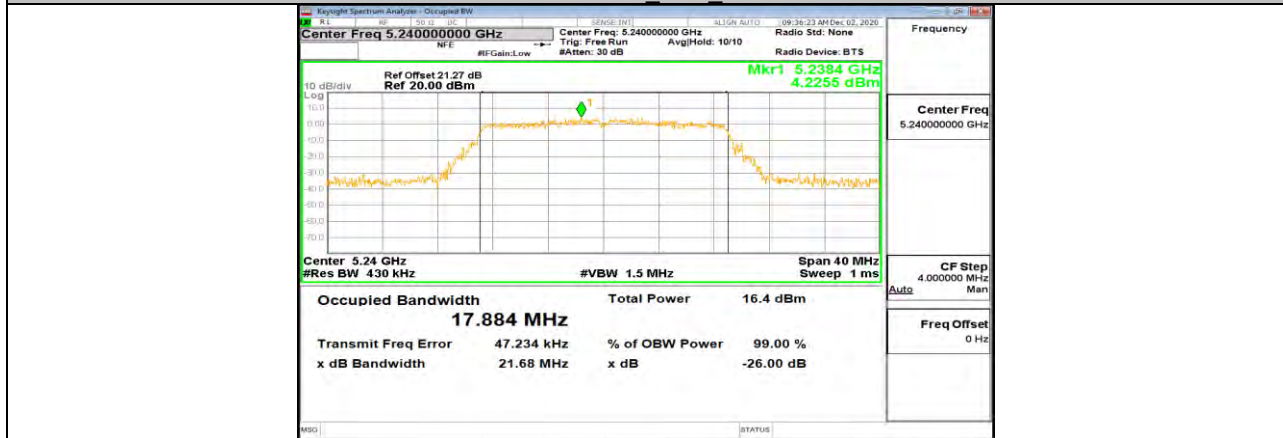
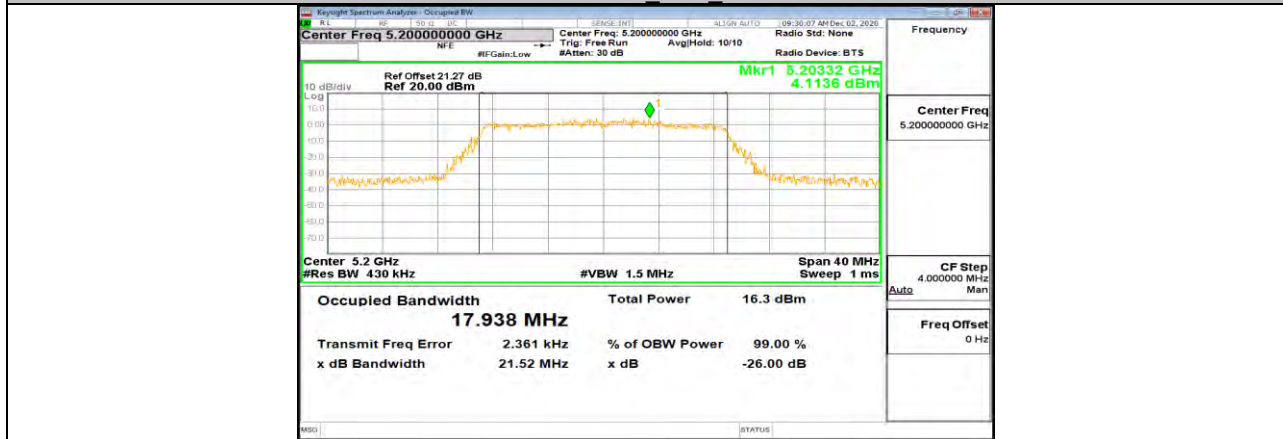
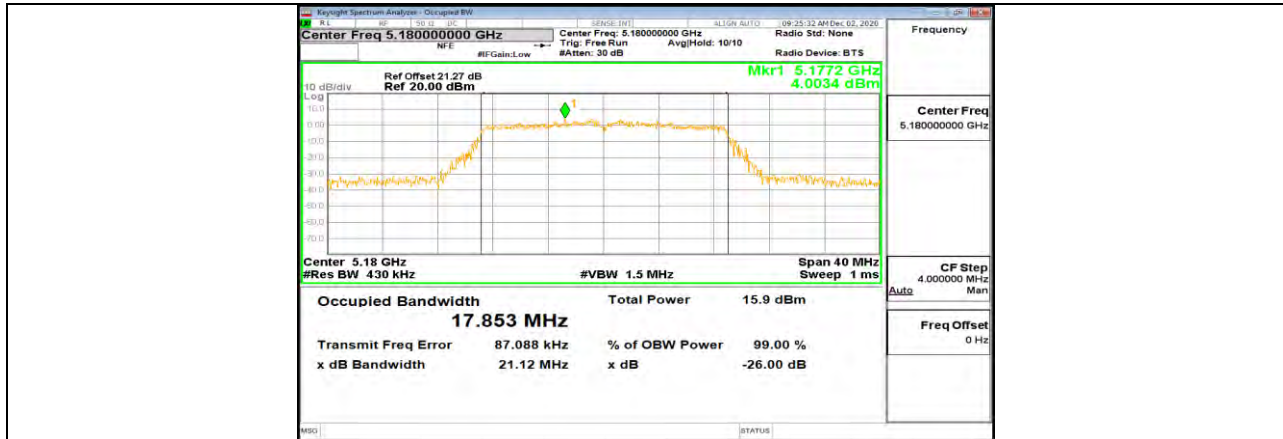
Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	16.854	5171.576	5188.430	PASS
		5200	16.849	5191.707	5208.556	PASS
		5240	16.908	5231.605	5248.513	PASS
		5745	17.083	5736.577	5753.660	PASS
		5785	16.914	5776.615	5793.529	PASS
		5825	17.052	5816.448	5833.500	PASS
11N20SISO	Ant1	5180	17.853	5171.161	5189.014	PASS
		5200	17.938	5191.033	5208.971	PASS
		5240	17.884	5231.105	5248.989	PASS
		5745	17.976	5736.091	5754.067	PASS
		5785	17.966	5776.073	5794.039	PASS
		5825	17.969	5816.049	5834.018	PASS
11N40SISO	Ant1	5190	36.304	5171.936	5208.240	PASS
		5230	36.285	5211.946	5248.231	PASS
		5755	36.298	5736.992	5773.290	PASS
		5795	36.324	5776.998	5813.322	PASS
11AC20SISO	Ant1	5180	18.059	5170.980	5189.039	PASS
		5200	17.933	5191.138	5209.071	PASS
		5240	18.017	5231.092	5249.109	PASS
		5745	17.874	5736.141	5754.015	PASS
		5785	17.953	5776.114	5794.067	PASS
		5825	18.002	5816.033	5834.035	PASS
11AC40SISO	Ant1	5190	36.236	5171.974	5208.210	PASS
		5230	36.259	5211.990	5248.249	PASS
		5755	36.447	5736.971	5773.418	PASS
		5795	36.377	5776.991	5813.368	PASS
11AC80SISO	Ant1	5210	75.647	5172.255	5247.902	PASS
		5775	75.796	5737.429	5813.225	PASS

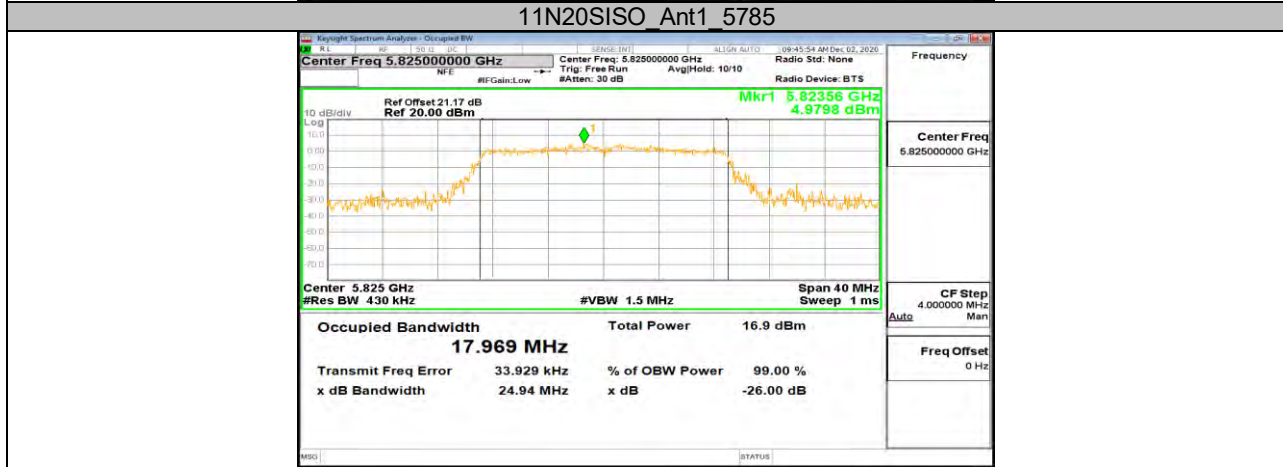
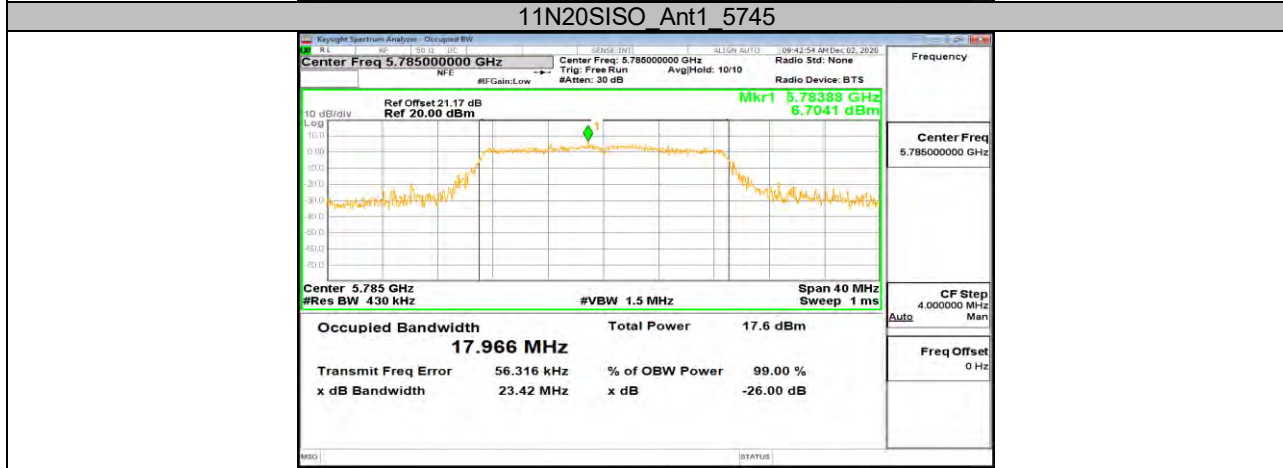
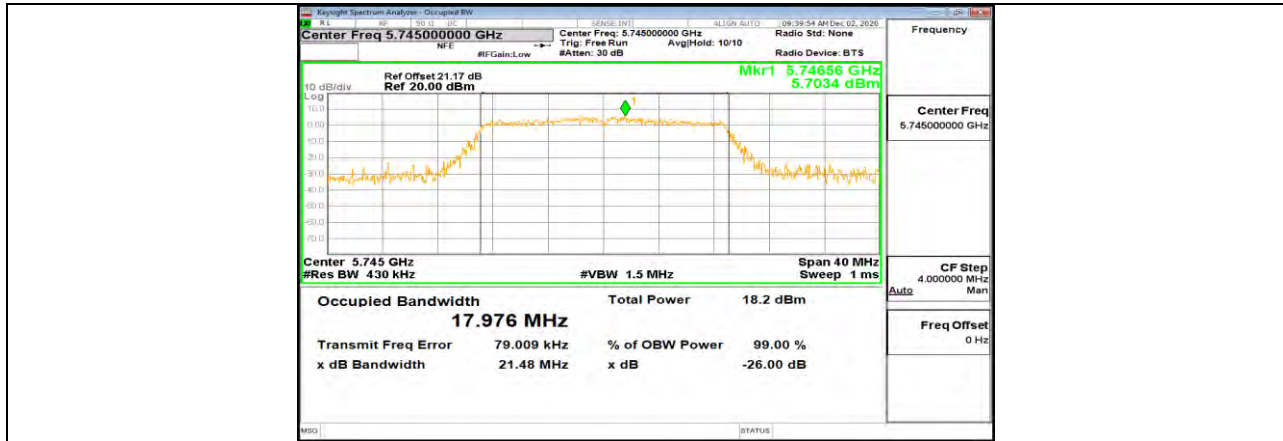


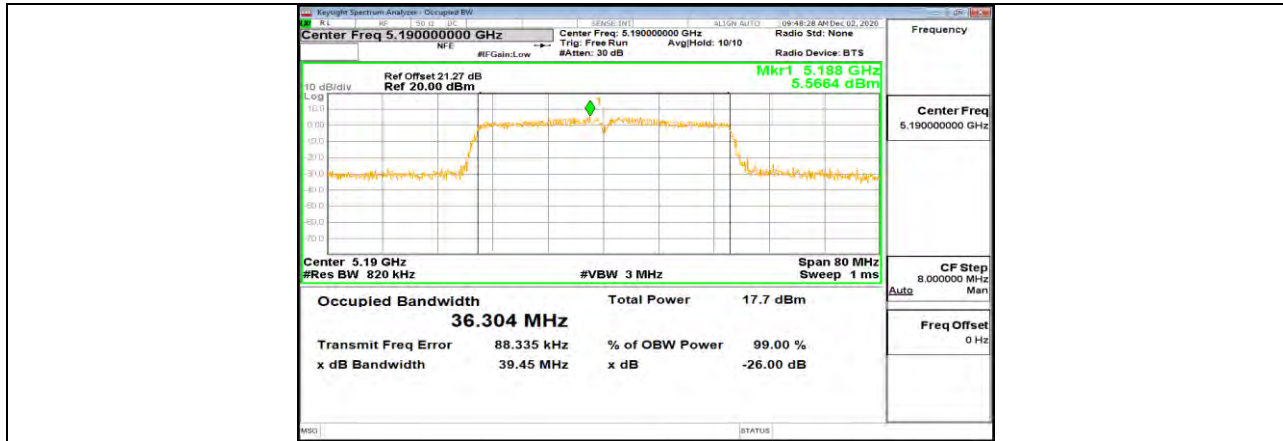
12.2.2. Test Graphs



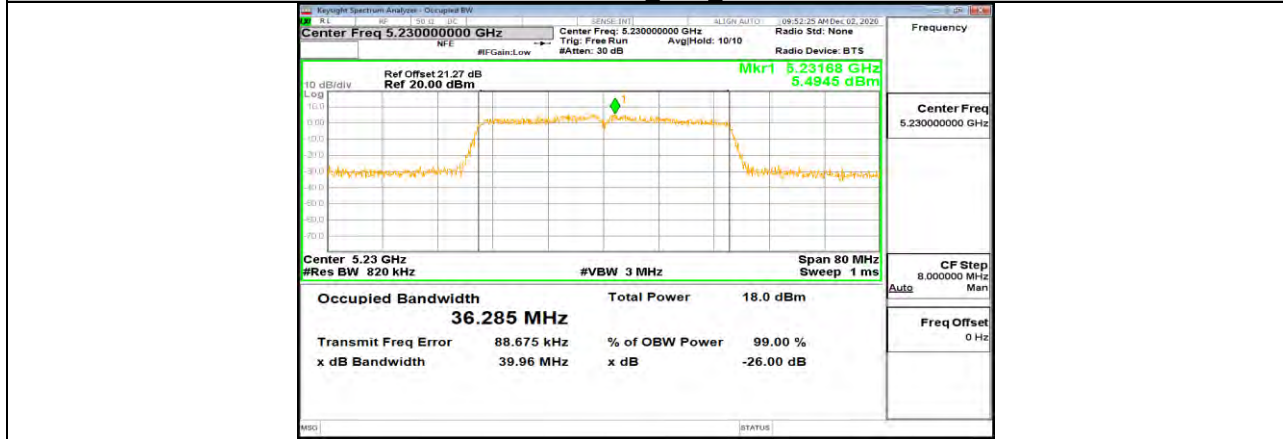




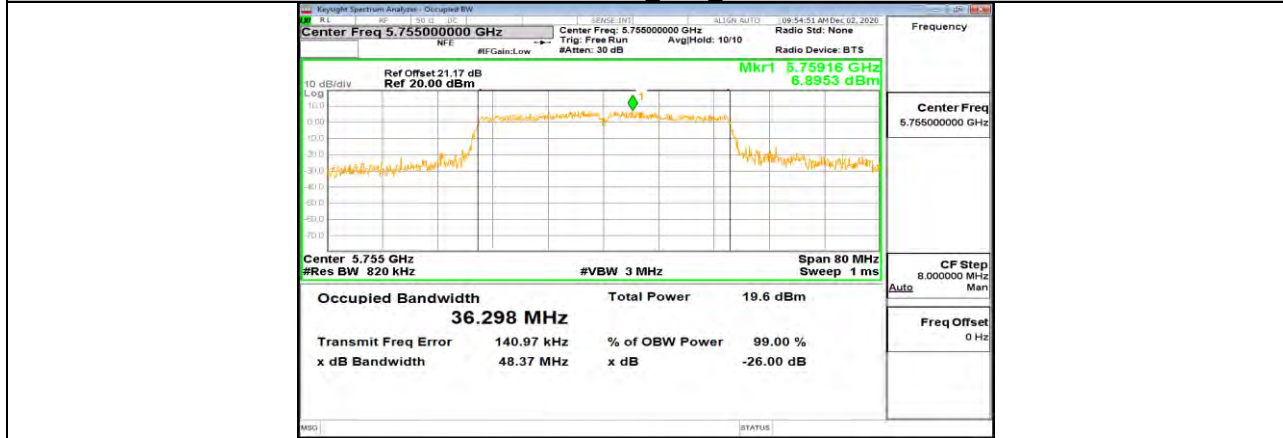




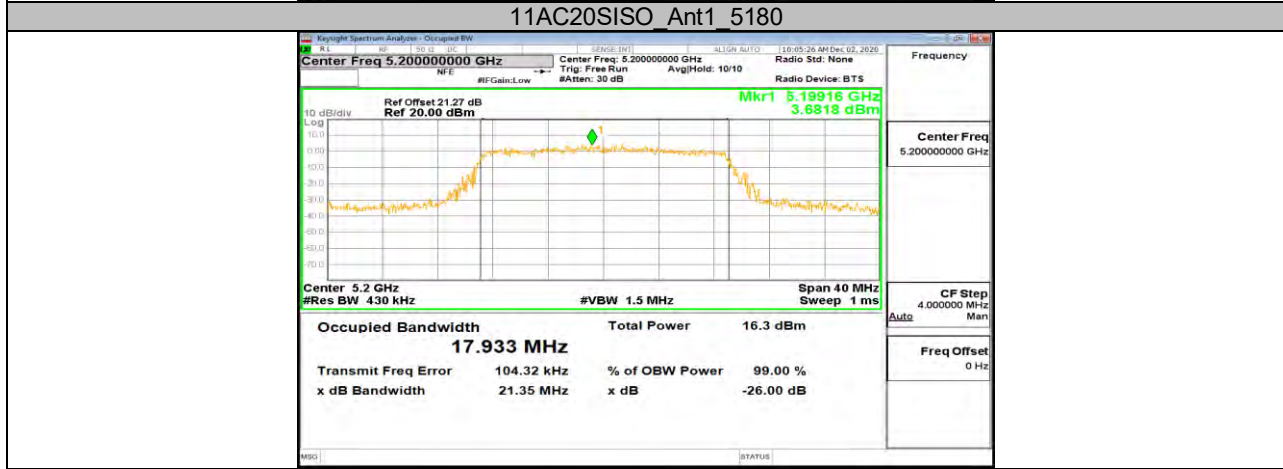
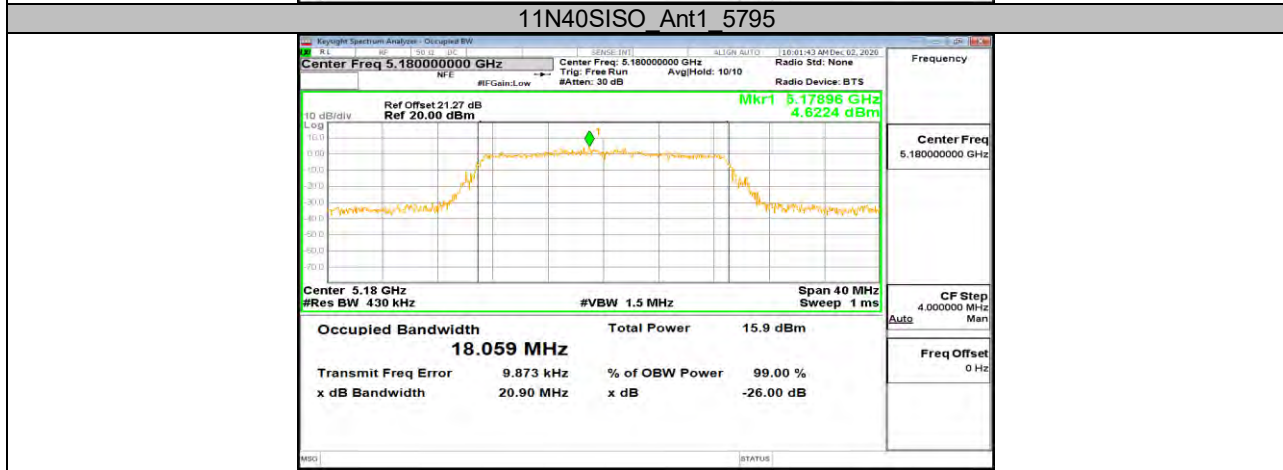
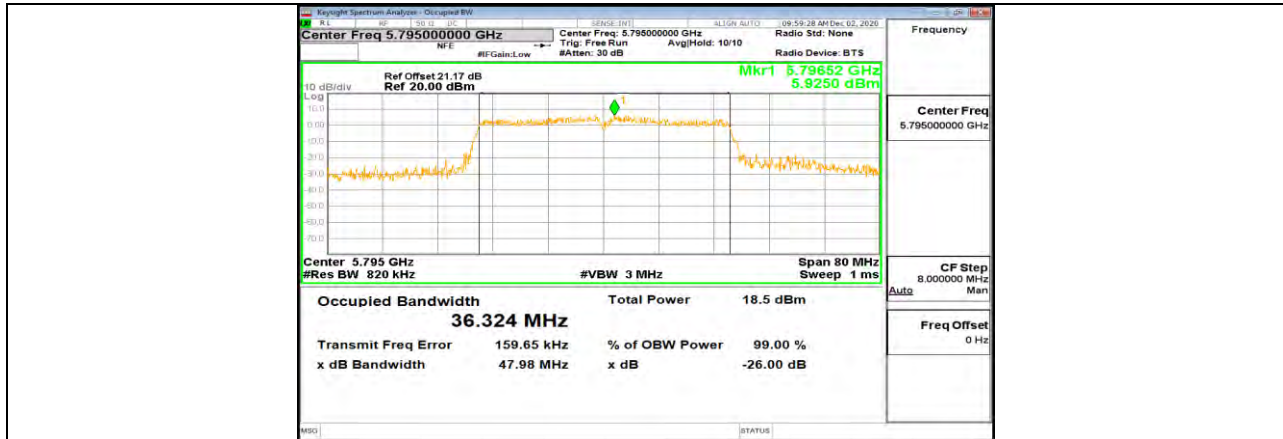
11N40SISO Ant1 5190

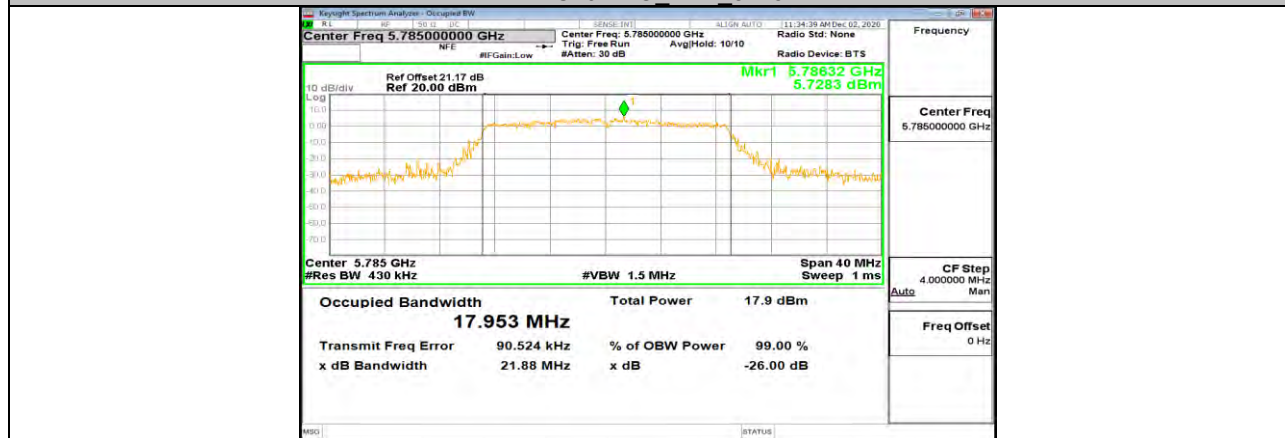
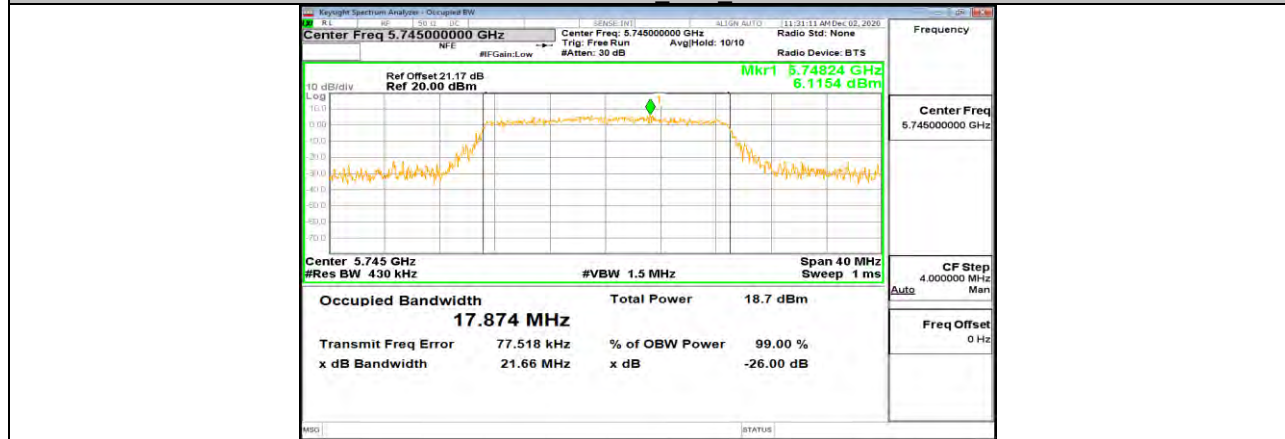
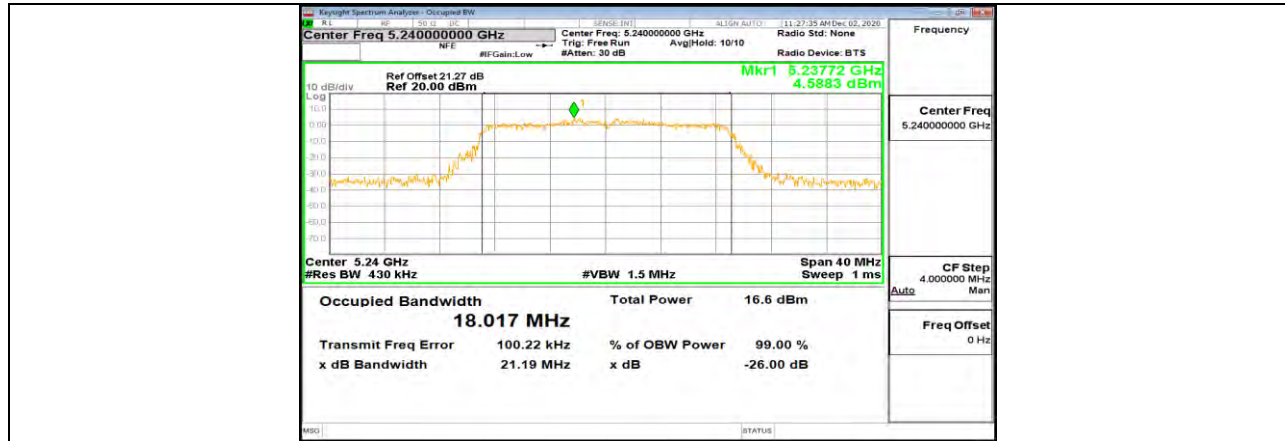


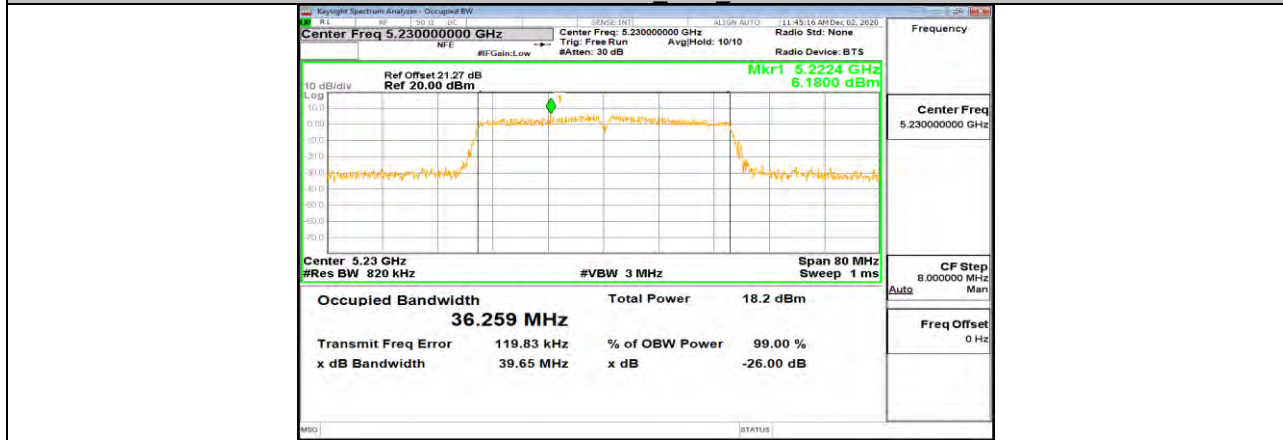
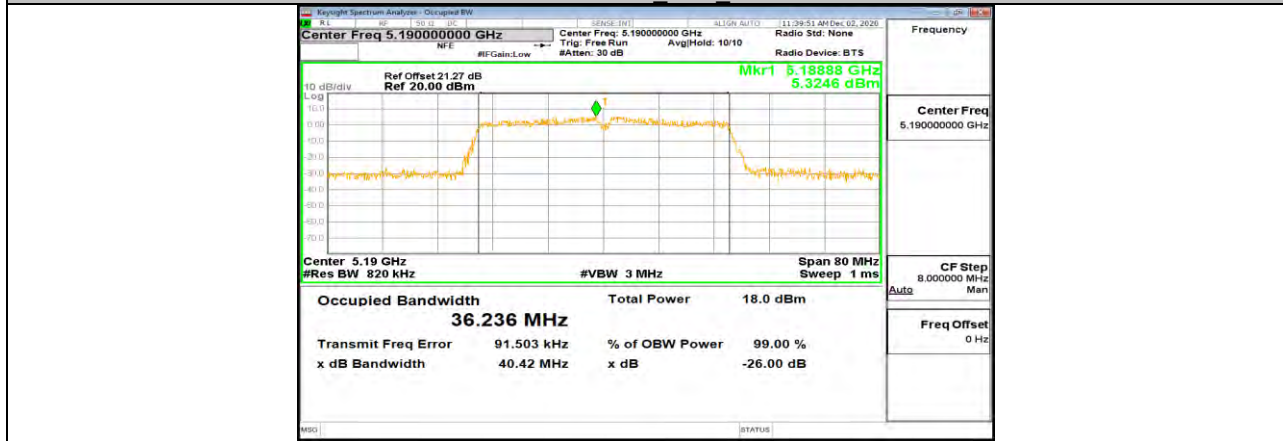
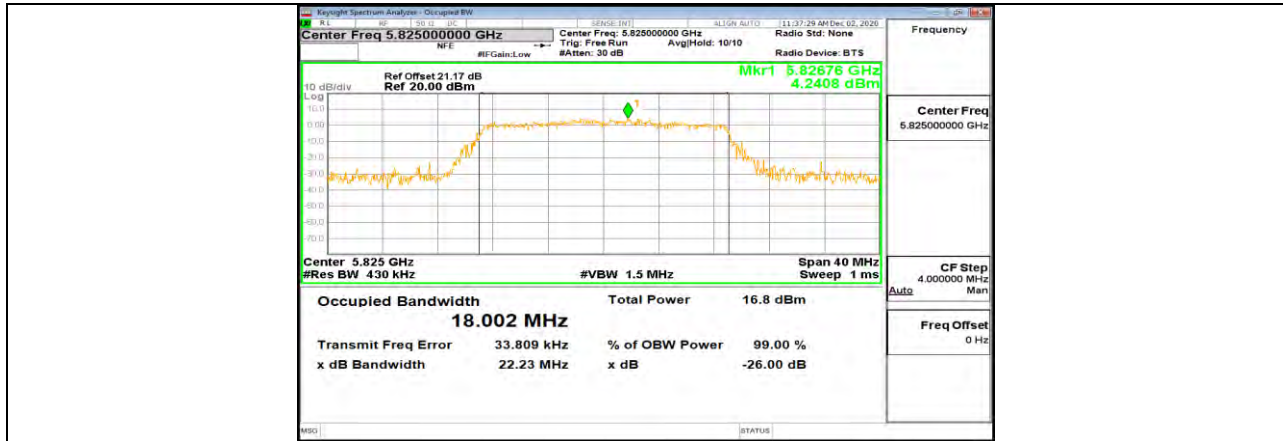
11N40SISO Ant1 5230

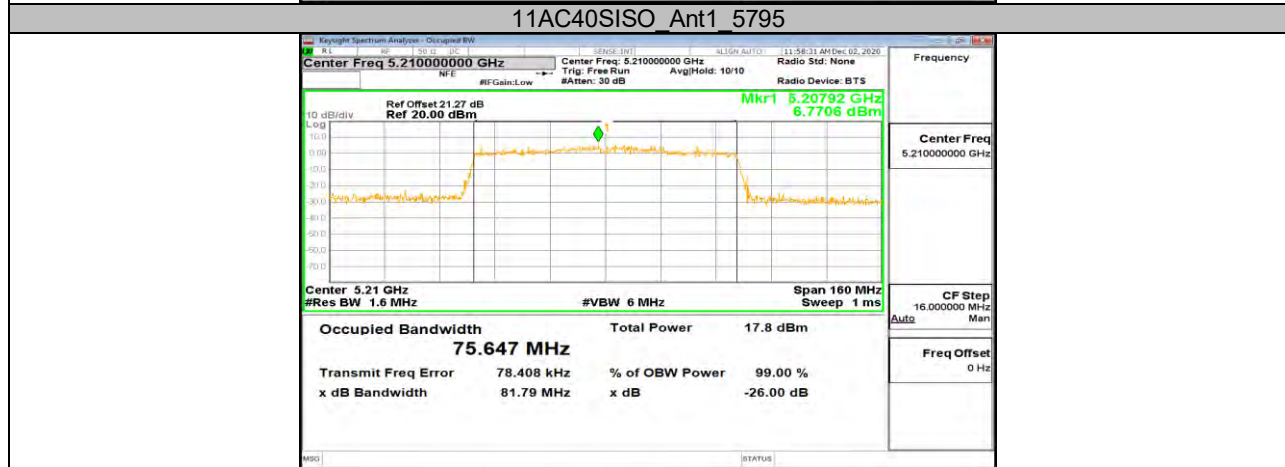
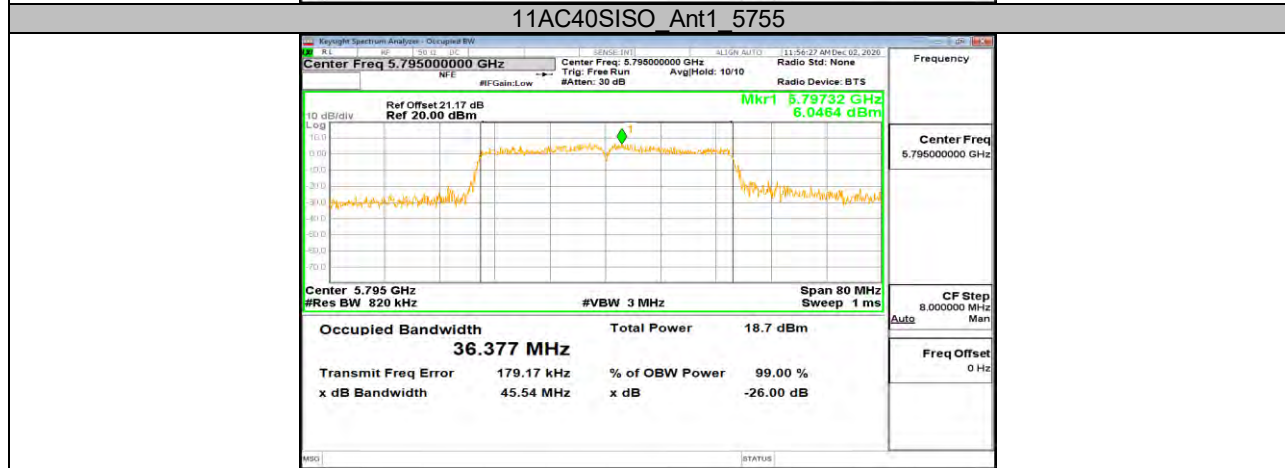
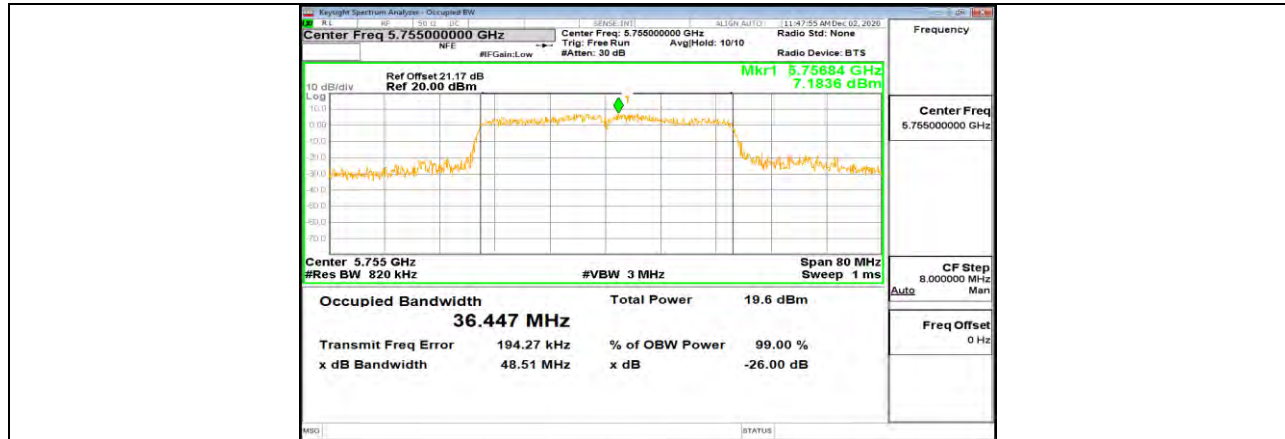


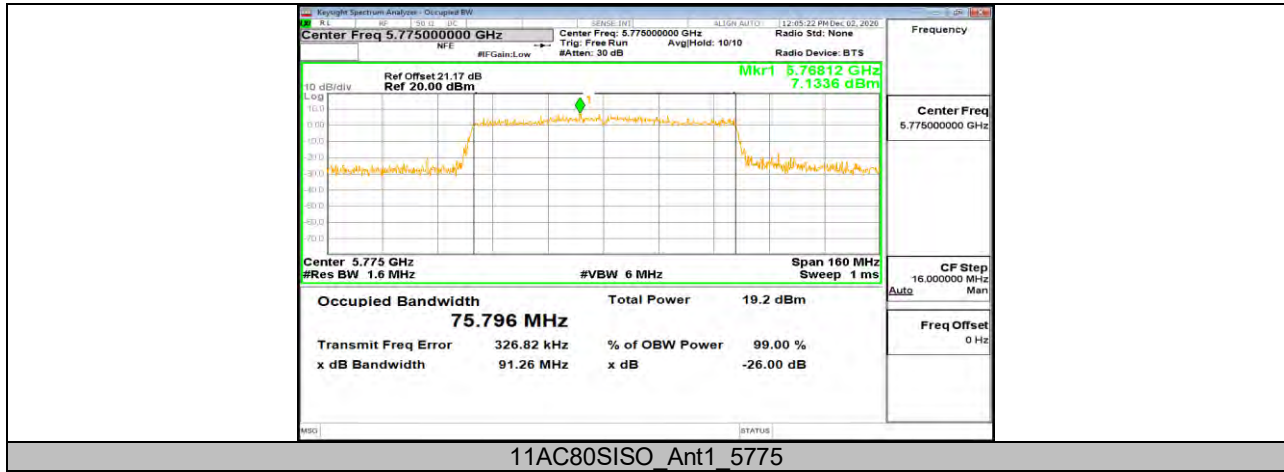
11N40SISO Ant1 5755













12.3. Appendix A3: Min emission bandwidth

12.3.1. Test Result

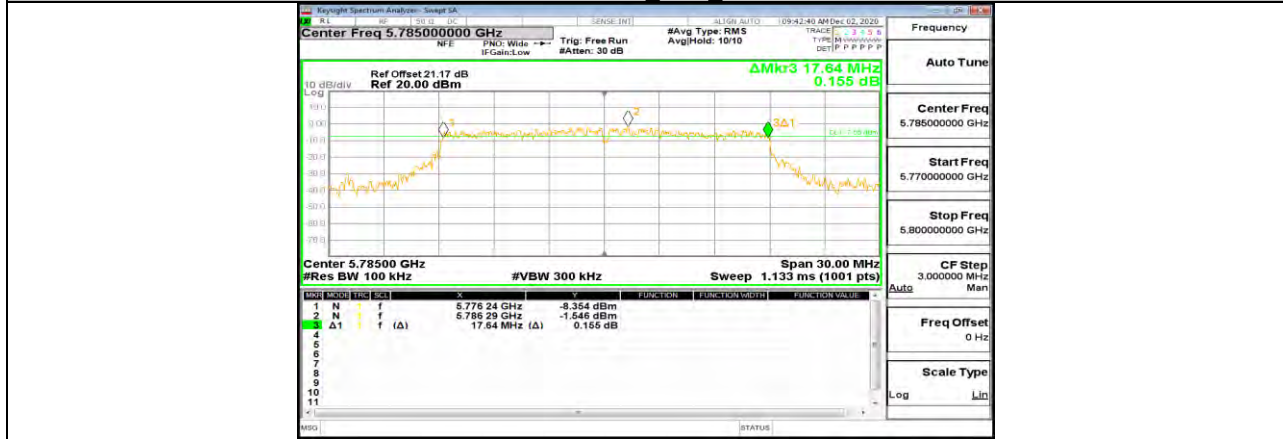
Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.350	5736.900	5753.250	0.5	PASS
		5785	16.410	5776.870	5793.280	0.5	PASS
		5825	16.350	5816.900	5833.250	0.5	PASS
11N20SISO	Ant1	5745	17.670	5736.240	5753.910	0.5	PASS
		5785	17.640	5776.240	5793.880	0.5	PASS
		5825	14.220	5818.430	5832.650	0.5	PASS
11N40SISO	Ant1	5755	36.480	5736.820	5773.300	0.5	PASS
		5795	36.480	5776.820	5813.300	0.5	PASS
11AC20SISO	Ant1	5745	17.640	5736.240	5753.880	0.5	PASS
		5785	17.640	5776.240	5793.880	0.5	PASS
		5825	17.580	5816.270	5833.850	0.5	PASS
11AC40SISO	Ant1	5755	35.580	5737.120	5772.700	0.5	PASS
		5795	36.420	5776.880	5813.300	0.5	PASS
11AC80SISO	Ant1	5775	75.360	5737.440	5812.800	0.5	PASS

12.3.2. Test Graphs





11N20SISO Ant1 5745



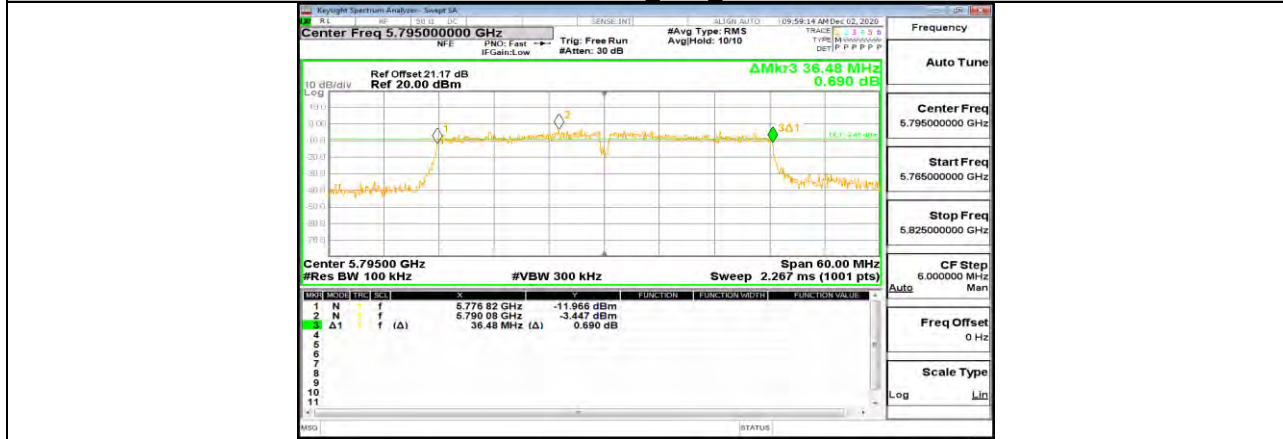
11N20SISO Ant1 5785



11N20SISO Ant1 5825



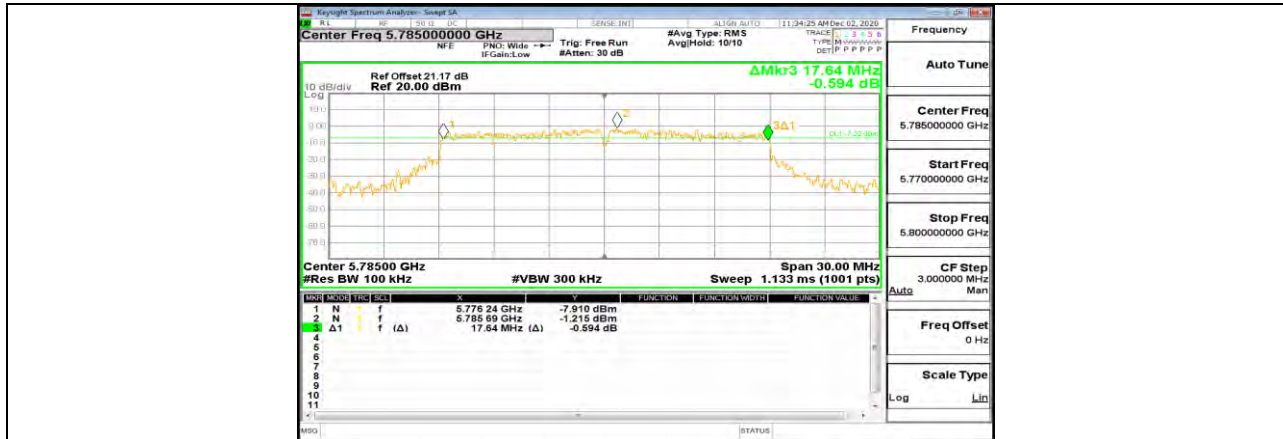
11N40SISO Ant1 5755



11N40SISO Ant1 5795



11AC20SISO Ant1 5745



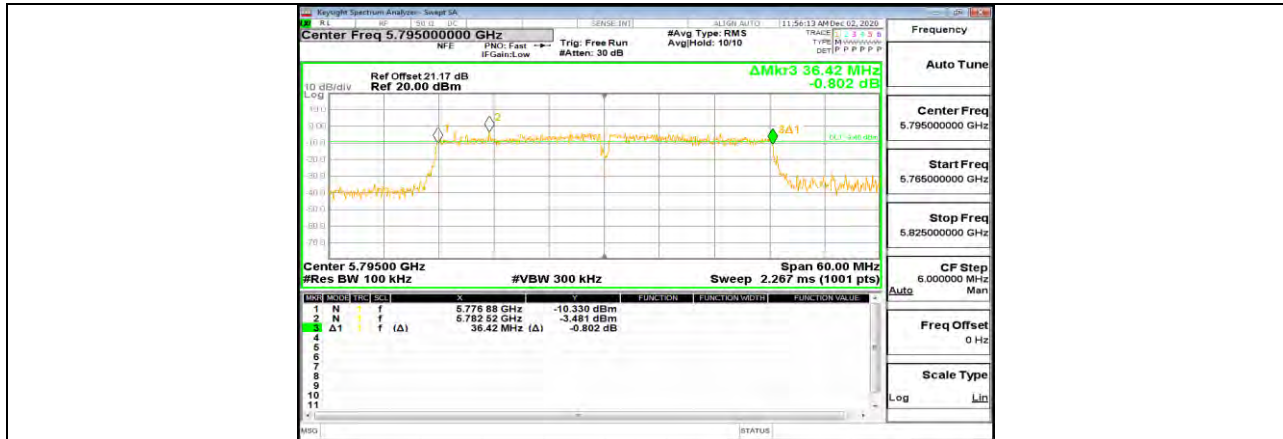
11AC20SISO Ant1 5785



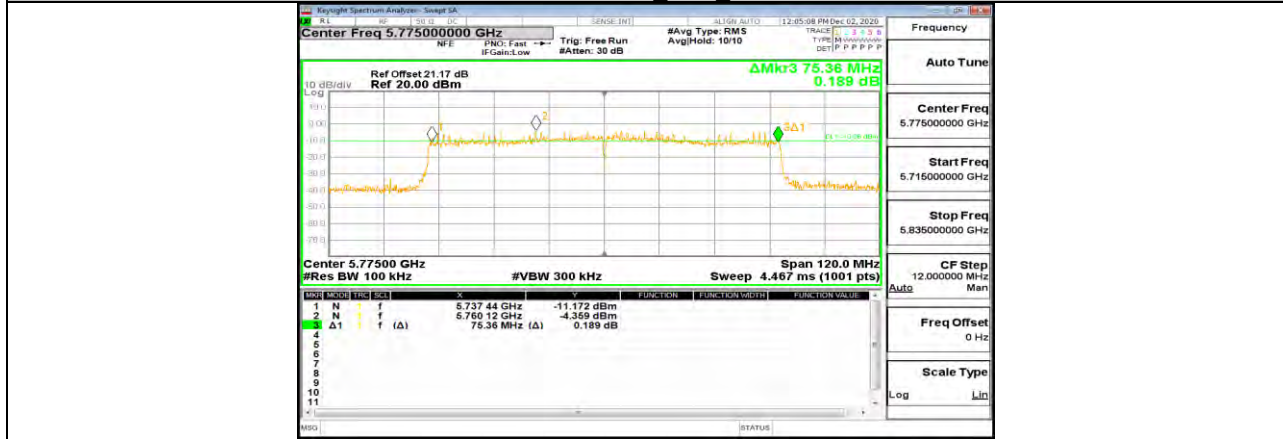
11AC20SISO Ant1 5825



11AC40SISO Ant1 5755



11AC40SISO Ant1 5795



11AC80SISO Ant1 5775



12.4. Appendix B: Maximum avg conducted output power
12.4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	11.80	<=24	PASS
		5200	12.01	<=24	PASS
		5240	12.27	<=24	PASS
		5745	14.18	<=30	PASS
		5785	13.26	<=30	PASS
		5825	12.71	<=30	PASS
11N20SISO	Ant1	5180	11.41	<=24	PASS
		5200	11.71	<=24	PASS
		5240	11.92	<=24	PASS
		5745	13.74	<=30	PASS
		5785	13.06	<=30	PASS
		5825	12.31	<=30	PASS
11N40SISO	Ant1	5190	12.59	<=24	PASS
		5230	12.96	<=24	PASS
		5755	14.44	<=30	PASS
		5795	13.34	<=30	PASS
11AC20SISO	Ant1	5180	11.35	<=24	PASS
		5200	11.70	<=24	PASS
		5240	12.21	<=24	PASS
		5745	14.14	<=30	PASS
		5785	13.17	<=30	PASS
		5825	12.51	<=30	PASS
11AC40SISO	Ant1	5190	12.62	<=24	PASS
		5230	12.95	<=24	PASS
		5755	14.30	<=30	PASS
		5795	13.58	<=30	PASS
11AC80SISO	Ant1	5210	12.04	<=24	PASS
		5775	13.19	<=30	PASS

Note : The Duty Cycle Factor is compensated in the graph.

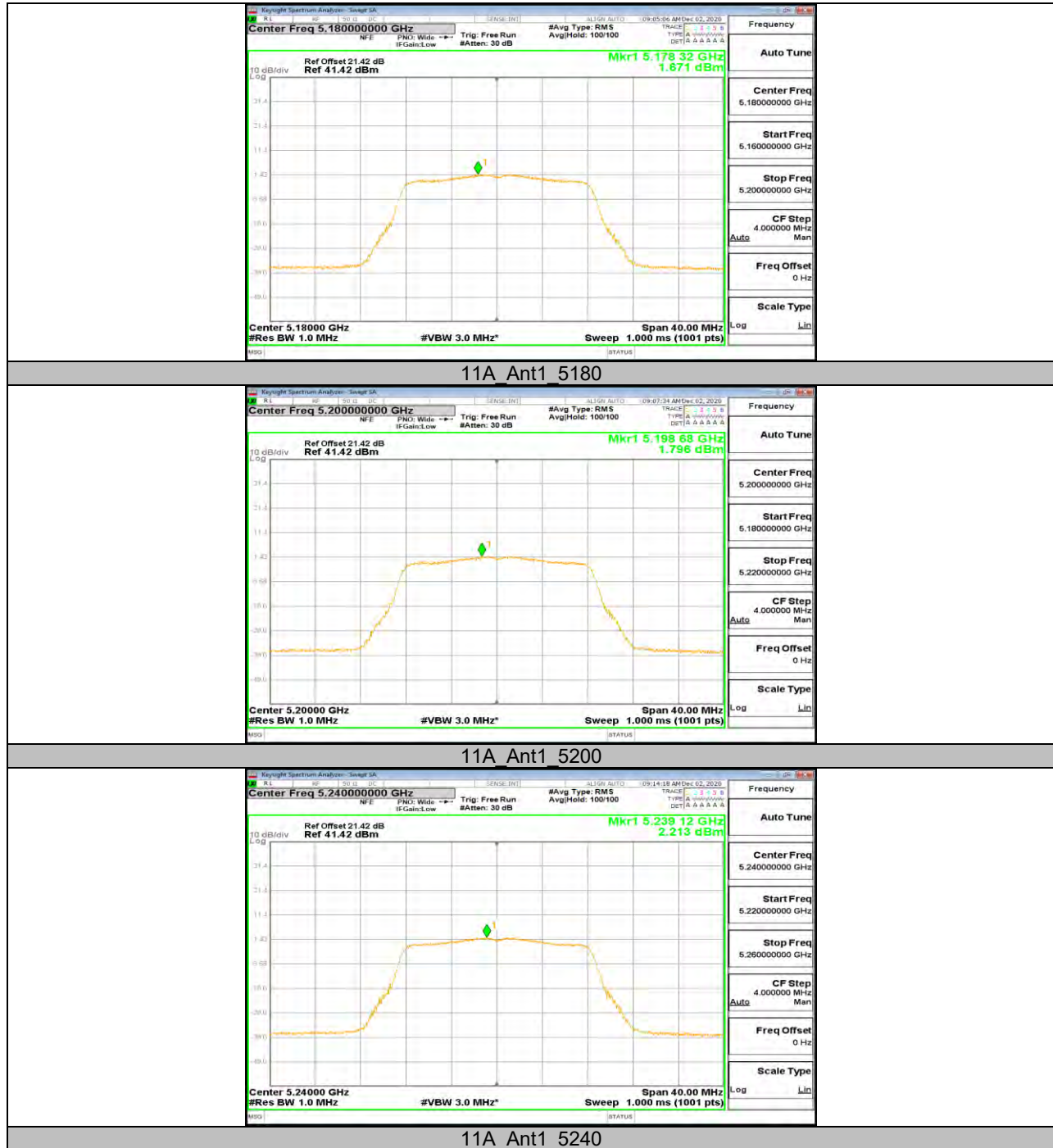


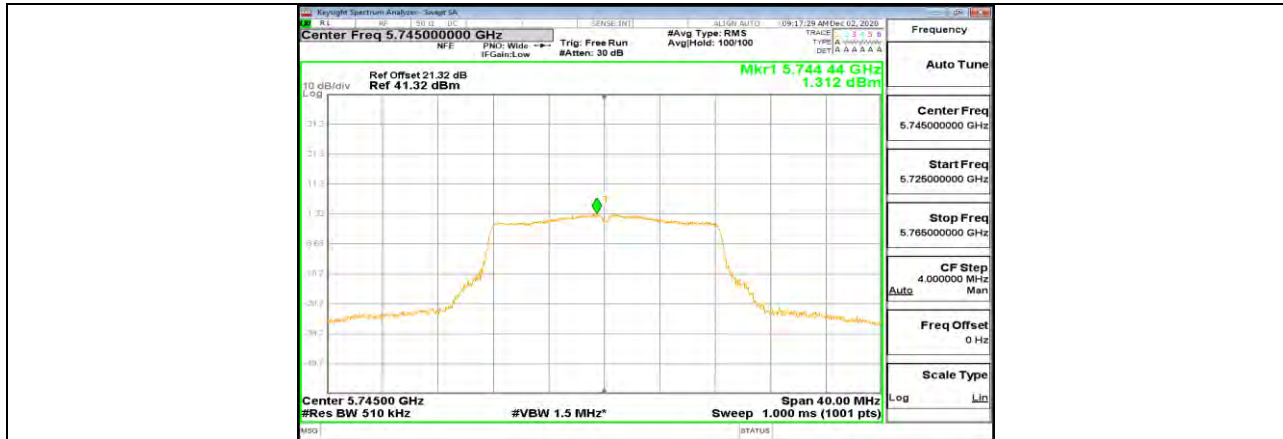
12.5. Appendix C: Maximum power spectral density
12.5.1. Test Result

Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	1.67	<=11	PASS
		5200	1.8	<=11	PASS
		5240	2.21	<=11	PASS
		5745	1.31	<=30	PASS
		5785	0.52	<=30	PASS
		5825	-0.11	<=30	PASS
11N20SISO	Ant1	5180	1.18	<=11	PASS
		5200	1.31	<=11	PASS
		5240	1.93	<=11	PASS
		5745	0.88	<=30	PASS
		5785	0.04	<=30	PASS
		5825	-0.73	<=30	PASS
11N40SISO	Ant1	5190	-0.68	<=11	PASS
		5230	-0.32	<=11	PASS
		5755	-1.53	<=30	PASS
		5795	-2.64	<=30	PASS
11AC20SISO	Ant1	5180	0.94	<=11	PASS
		5200	1.42	<=11	PASS
		5240	1.85	<=11	PASS
		5745	1.12	<=30	PASS
		5785	0.28	<=30	PASS
		5825	-0.74	<=30	PASS
11AC40SISO	Ant1	5190	-0.66	<=11	PASS
		5230	-0.42	<=11	PASS
		5755	-1.73	<=30	PASS
		5795	-2.59	<=30	PASS
11AC80SISO	Ant1	5210	-3.87	<=11	PASS
		5775	-5.76	<=30	PASS

Note : 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

12.5.2. Test Graphs





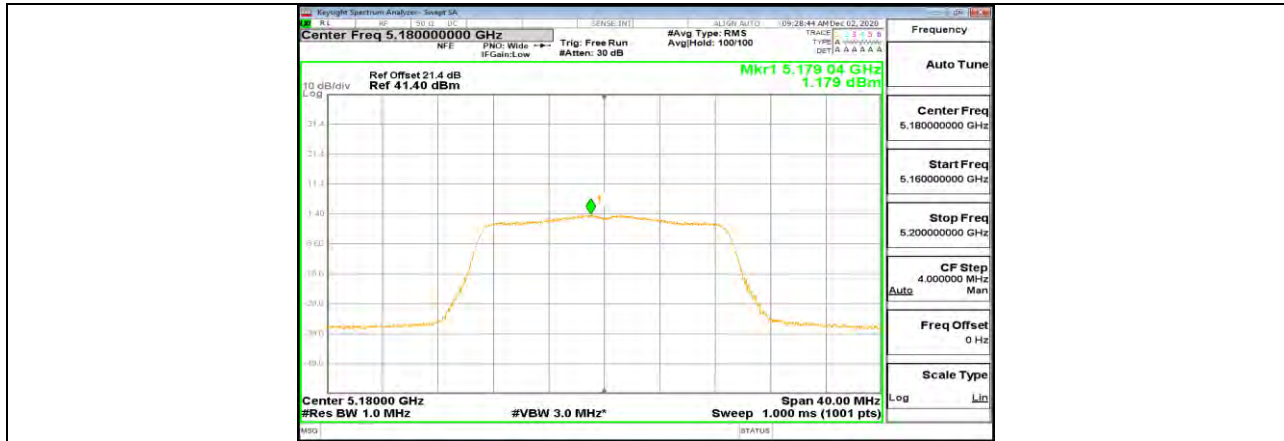
11A Ant1 5745



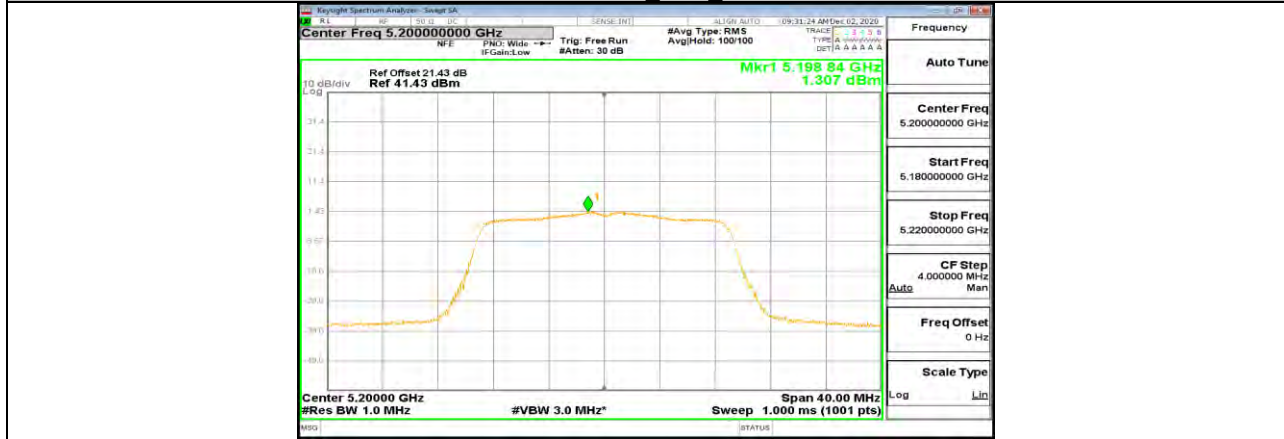
11A Ant1 5785



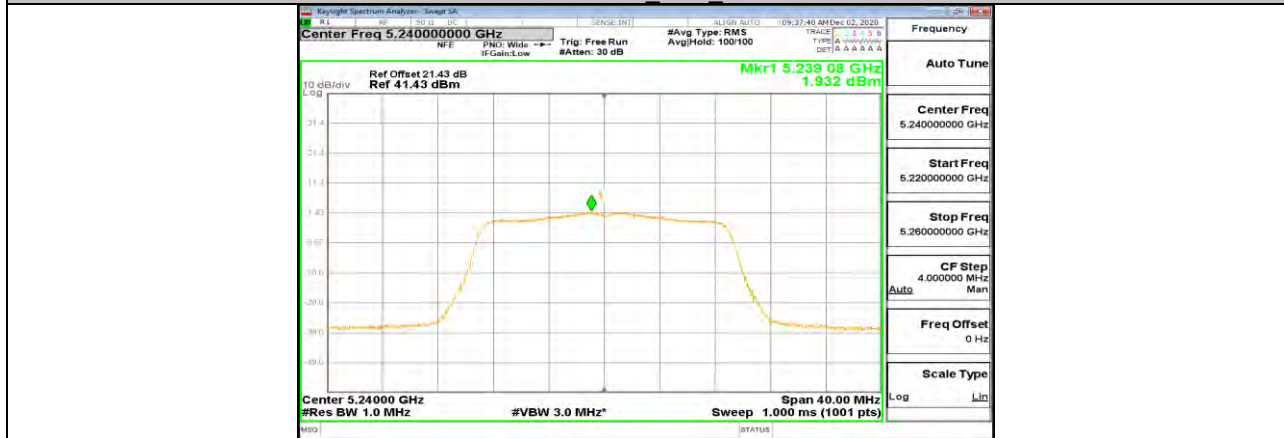
11A Ant1 5825



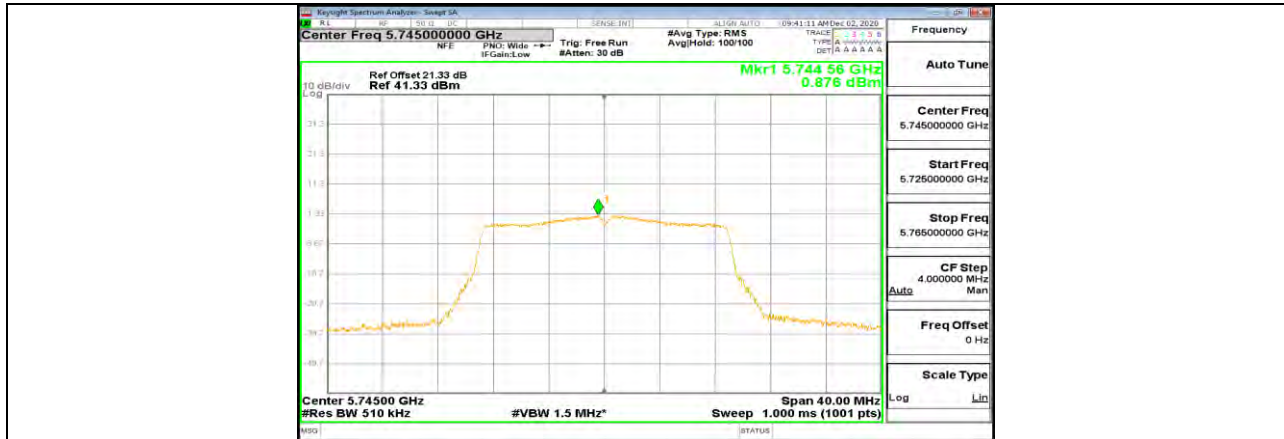
11N20SISO Ant1 5180



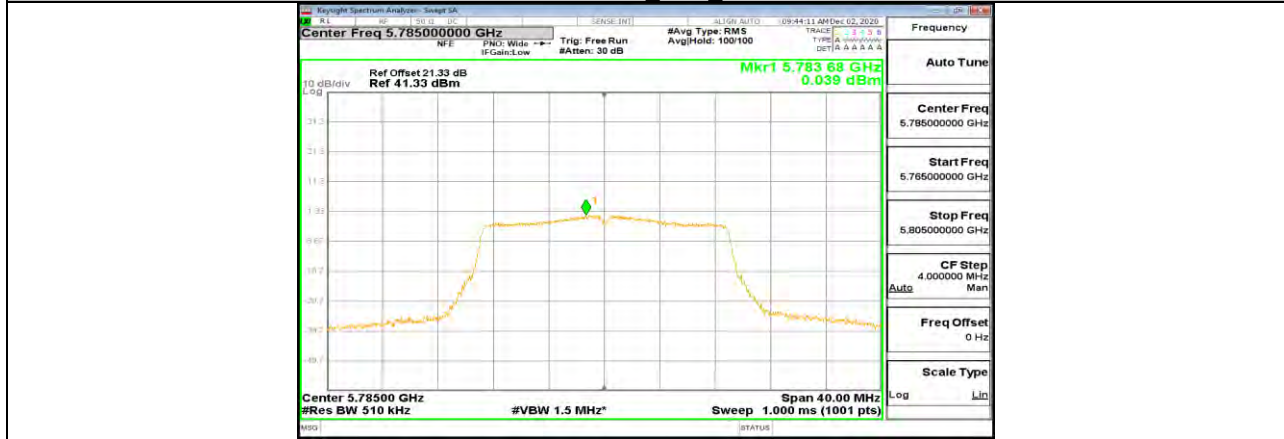
11N20SISO Ant1 5200



11N20SISO Ant1 5240



11N20SISO Ant1 5745



11N20SISO Ant1 5785



11N20SISO Ant1 5825



11N40SISO Ant1 5190



11N40SISO Ant1 5230



11N40SISO Ant1 5755



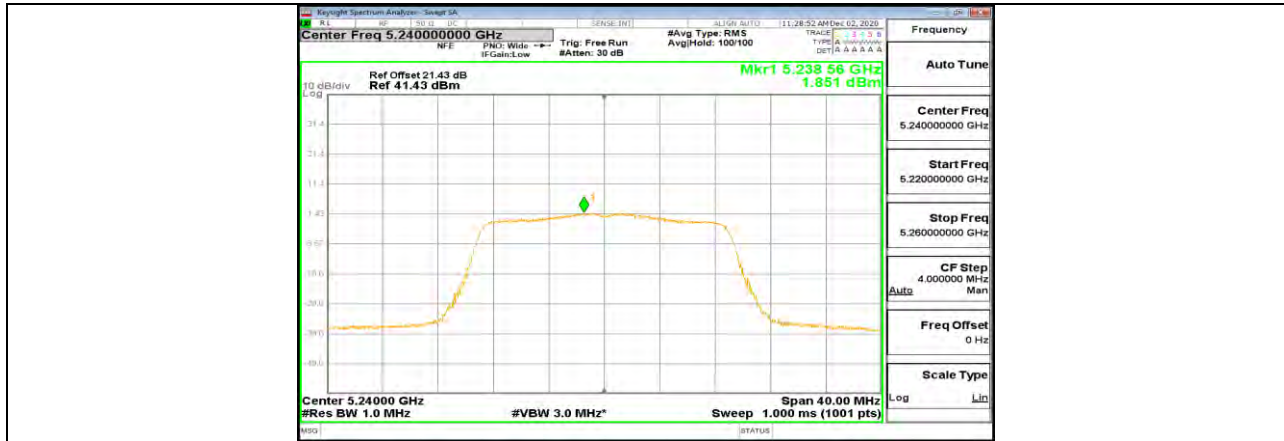
11N40SISO Ant1 5795



11AC20SISO Ant1 5180



11AC20SISO Ant1 5200



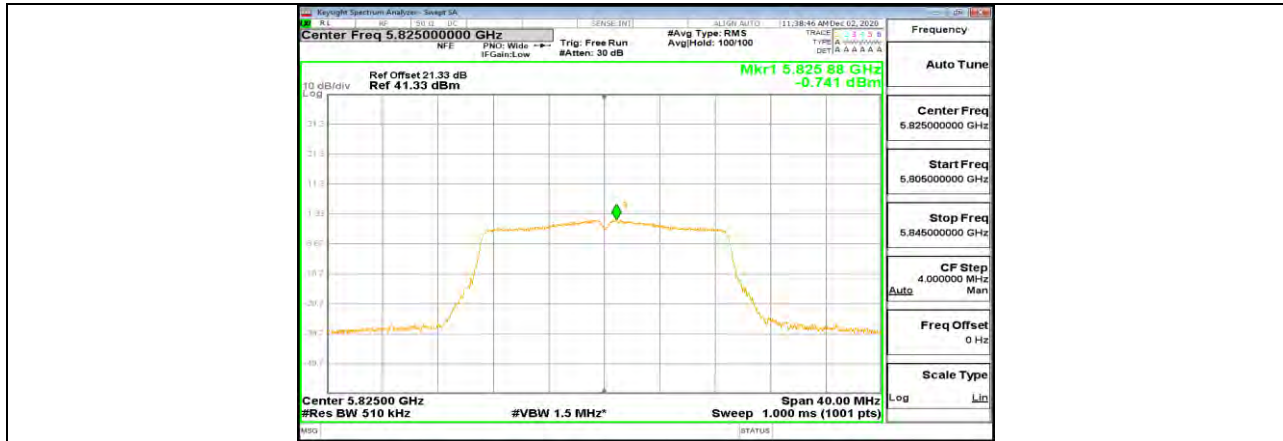
11AC20SISO Ant1 5240



11AC20SISO Ant1 5745



11AC20SISO Ant1 5785



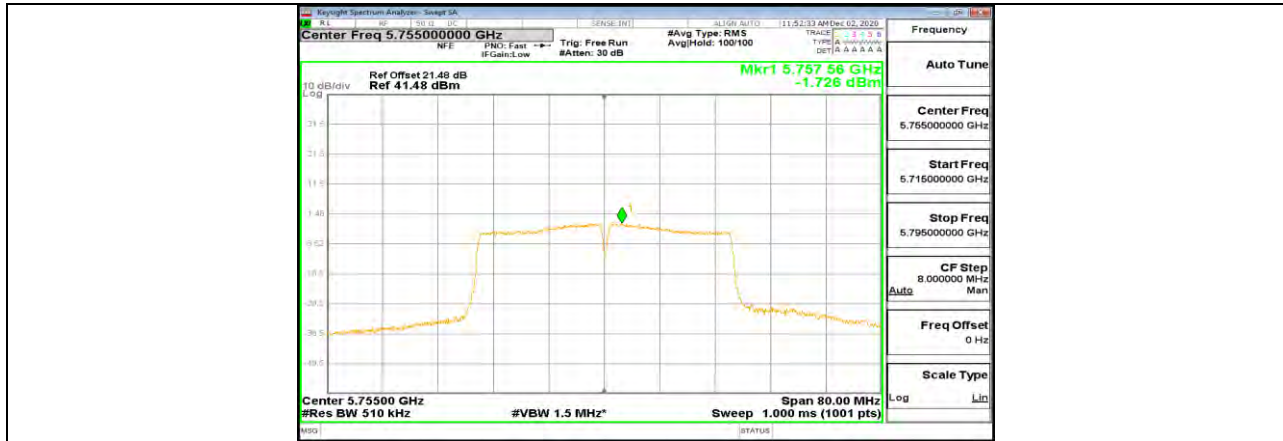
11AC20SISO Ant1 5825



11AC40SISO Ant1 5190



11AC40SISO Ant1 5230



11AC40SISO Ant1 5755



11AC40SISO Ant1 5795



11AC80SISO Ant1 5210





12.6. Appendix D: Duty Cycle

12.6.1. 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)
11A	1.39	1.44	0.9653	96.53	0.15	0.72	1
11N20SISO	1.31	1.35	0.9704	97.04	0.13	0.76	1
11N40SISO	0.65	0.69	0.9420	94.20	0.26	1.54	2
11AC20SISO	1.31	1.36	0.9632	96.32	0.16	0.76	1
11AC40SISO	0.65	0.70	0.9286	92.86	0.32	1.54	2
11AC80SISO	0.32	0.37	0.8649	86.49	0.63	3.13	3.5

Note:

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

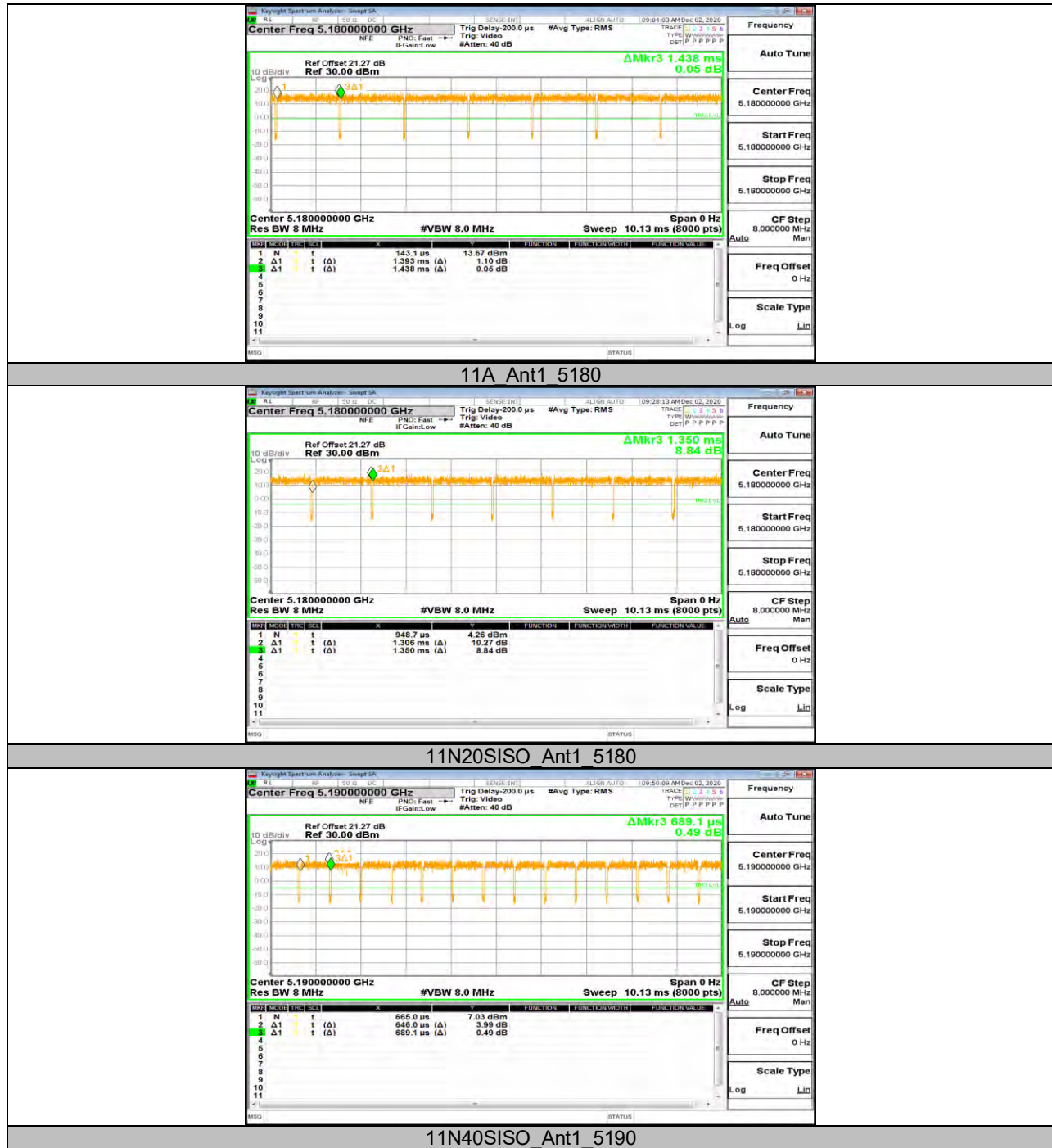
Where: x is Duty Cycle (Linear)

Where: T is On Time

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



12.6.2. Test Graphs

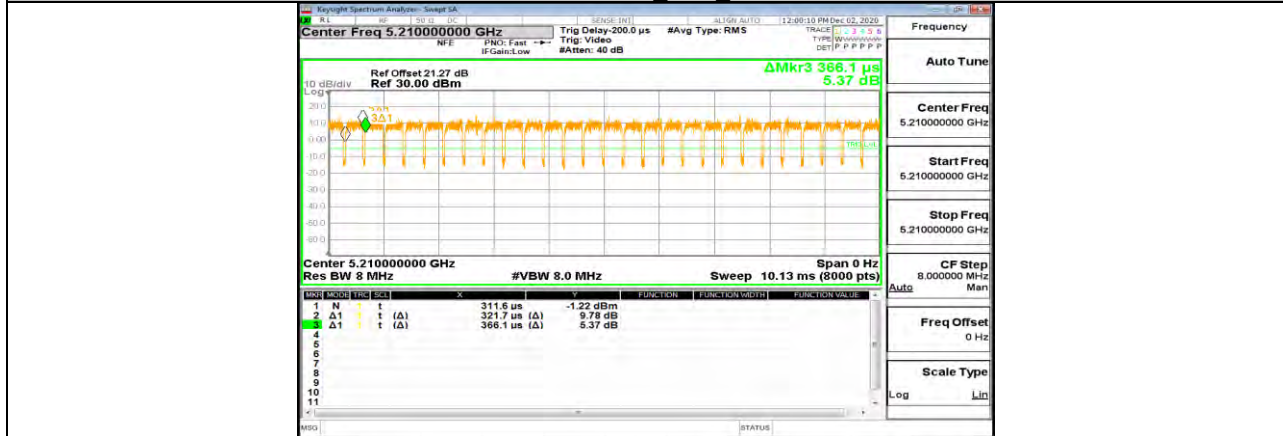




11AC20SISO Ant1 5180



11AC40SISO Ant1 5190



11AC80SISO Ant1 5210



12.7. Appendix E FREQUENCY STABILITY

Test Result

Frequency Error vs. Voltage									
802.11a:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
T _N	V _L	5199.9933	-1.29	5200.0083	1.60	5199.9813	-3.59	5200.0146	2.81
T _N	V _N	5199.9920	-1.54	5199.9854	-2.80	5200.0142	2.74	5199.9909	-1.75
T _N	V _H	5200.0050	0.97	5199.9969	-0.59	5200.0092	1.77	5199.9803	-3.80

Frequency Error vs. Temperature									
802.11a: 5200 MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	V _N	5199.9803	-3.79	5199.9883	-2.26	5199.9787	-4.10	5200.0189	3.63
40	V _N	5199.9985	-0.29	5199.9891	-2.10	5200.0167	3.22	5199.9904	-1.85
30	V _N	5199.9773	-4.36	5199.9954	-0.88	5199.9791	-4.02	5199.9764	-4.54
20	V _N	5199.9877	-2.37	5199.9816	-3.55	5200.0094	1.81	5199.9847	-2.95
10	V _N	5200.0089	1.71	5199.9948	-1.00	5200.0100	1.93	5200.0062	1.20
0	V _N	5199.9798	-3.89	5200.0025	0.48	5199.9849	-2.90	5199.9933	-1.29

Frequency Error vs. Voltage									
802.11a: 5825 MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
T _N	V _L	5825.0029	0.50	5825.0153	2.63	5824.9864	-2.33	5825.0142	2.44
T _N	V _N	5825.0022	0.38	5824.9764	-4.05	5824.9973	-0.46	5824.9855	-2.48
T _N	V _H	5825.0147	2.53	5825.0189	3.24	5824.9976	-0.41	5824.9937	-1.08

Frequency Error vs. Temperature									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	V _N	5825.0431	7.40	5825.0487	8.37	5825.0496	8.52	5825.0523	8.99
40	V _N	5824.9927	-1.26	5824.9791	-3.59	5824.9894	-1.81	5825.0170	2.92
30	V _N	5825.0084	1.44	5824.9973	-0.47	5825.0065	1.11	5825.0163	2.80
20	V _N	5825.0021	0.36	5825.0206	3.54	5824.9873	-2.18	5824.9972	-0.48
10	V _N	5825.0235	4.03	5824.9900	-1.71	5824.9859	-2.43	5824.9970	-0.51
0	V _N	5824.9950	-0.85	5825.0243	4.18	5825.0134	2.31	5825.0246	4.22



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

END OF REPORT