

Radio Test Report

Report No.: STS2309309W13

Issued for

Swarovski-Optik AG & Co KG

Daniel-Swarovski-Str 70, 6067 Absam, Tyrol, Austria

Product Name: AX VISIO 10x32 WB

Brand Name: SWAROVSKI OPTIK

Model Name: 10x32

Series Model(s): SF-1L4LB0-0

FCC ID: 2A9DRSF-1L4LB

Test Standards: FCC Part15.407

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT**

Applicant's Name : Swarovski-Optik AG & Co KG
Address : Daniel-Swarovski-Str 70, 6067 Absam, Tyrol, Austria
Manufacturer's Name : Swarovski-Optik AG & Co KG
Address : Daniel-Swarovski-Str 70, 6067 Absam, Tyrol, Austria

Product Description

Product Name : AX VISIO 10x32 WB
Brand Name : SWAROVSKI OPTIK
Model Name : 10x32
Series Model(s) : SF-1L4LB0-0

Test Standards : FCC Part15.407

Test Procedure ANSI C63.10-2020

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

Date of Test..... :

Date of receipt of test item..... : 14 Sept. 2023

Date (s) of performance of tests..... : 14 Sept. 2023 ~ 12 Jan. 2024

Date of Issue : 12 Jan. 2024

Test Result : **Pass**

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Chris Chen

(Chris Chen)

Authorized Signatory :

Bovey Yang

(Bovey Yang)



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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	12 Jan. 2024	STS2309309W13	ALL	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

§ 15.407, KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part 15.407		
FCC standard	Test Item	Results
15.207	AC Conducted Emission	N/A
15.407 (a) /15.407 (e)	26dB/6dB &99% Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	PASS
15.407(b)/15.205/15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(a)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204	Antenna Requirement	PASS

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2020.

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 1.197\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.896\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 3.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 3.94\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 4.59\text{dB}$
6	All emissions, radiated >6G	$\pm 5.22\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.14\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.54\text{dB}$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	AX VISIO 10x32 WB	
Brand Name	SWAROVSKI OPTIK	
Model Name	10x32	
Series Model(s)	SF-1L4LB0-0	
Model Difference	Only different in Model name.	
Product Description	The EUT is a AX VISIO 10x32 WB	
	Operation Frequency:	IEEE 802.11a/ n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.230GHz IEEE 802.11ac(VHT80): 5.210GHz
		IEEE 802.11a/ n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11a/ n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz
	Modulation Type:	802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM
	Antenna Type:	SR42W009 SMD Antenna
	Antenna Gain (dBi):	5.32dBi
	Max.Output Power(Conducted):	14.56 dBm
More details of EUT technical specification, please refer to the User Manual.		
Test Channel	Please refer to the Note 3.	
Battery	Rated Voltage: 3.6V Charge Limit Voltage: 4.1V Capacity: 3.0Ah	
Hardware version number	Version 1c	
Software version number	v1.0.4	
Connecting I/O Port(s)	Please refer to the Note 1.	

Note

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.

Operation Frequency of channel			
5.180GHz-5.240GHz		5.745GHz-5.825GHz	
Channel	Frequency	Channel	Frequency
36	5180	149	5745
38	5190	151	5755
40	5200	153	5765
42	5210	157	5785
44	5220	159	5795
46	5230	161	5805
48	5240	165	5825

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Carrier Frequency Channel

5GHz:

For 802.11a/n(HT20)/ac(VHT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
36	5180	149	5745
40	5200	157	5785
48	5240	165	5825

For 802.11 n(HT40)/ac(VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
38	5190	151	5755
46	5230	159	5795

For 802.11ac (VHT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
42	5210	155	5775

3. KDB 662911 D01 Multiple Transmitter Output v02r01

2) Directional Gain Calculations for In-Band Measurements

a) Basic methodology with NANT transmit antennas, each with the same directional gain G_{ANT} dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be computed as follows:

(i) If any transmit signals are correlated with each other,

Directional gain = $G_{ANT} + 10 \log(NANT)$ dBi

(ii) If all transmit signals are completely uncorrelated with each other,

Directional gain = G_{ANT}

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description	Data Rate
Mode 1	TX IEEE 802.11a HT20 CH36&CH40&CH48	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH149&CH157&CH165	6 Mbps
Mode 3	TX IEEE 802.11n HT20 CH36&CH40&CH48	MCS 0
Mode 4	TX IEEE 802.11ac VHT20 CH36&CH40&CH48	NSS1 MCS0
Mode 5	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 6	TX IEEE 802.11ac VHT20 CH149&CH157&CH165	NSS1 MCS0
Mode 7	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 8	TX IEEE 802.11ac VHT40 CH38&CH46	NSS1 MCS0
Mode 9	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 10	TX IEEE 802.11ac VHT40 CH151&CH159	NSS1 MCS0
Mode 11	TX IEEE 802.11ac VHT80 CH42	NSS1 MCS0
Mode 12	TX IEEE 802.11ac VHT80 CH155	NSS1 MCS0

- Note: (1) The measurements are performed at the highest, middle, lowest available channels.
(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.
(3) We have tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.
(4) The battery is fully-charged during the radiated and RF conducted test.

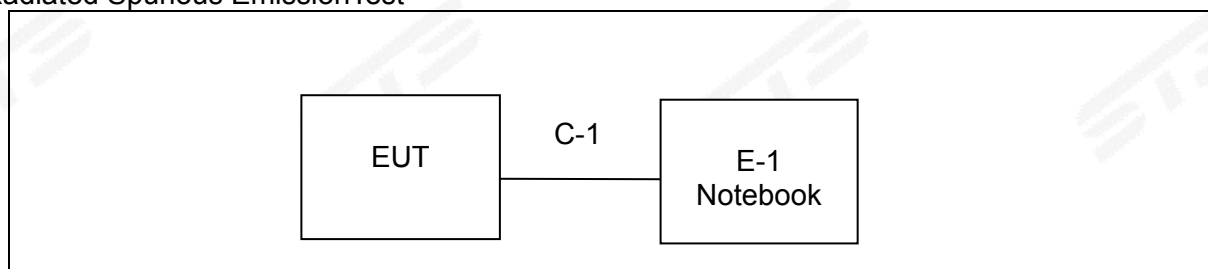
2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII-1 (5150MHz-5250MHz)	802.11a	5.32	16	QRCT 4
		802.11n(HT20)		15	
		802.11n(HT40)		11	
		802.11ac(VHT20)		14	
		802.11ac(VHT40)		13	
		802.11ac(VHT80)		12	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII-3 (5725MHz-5850MHz)	802.11a	5.32	16	QRCT 4
		802.11n(HT20)		15	
		802.11n(HT40)		15	
		802.11ac(VHT20)		14	
		802.11ac(VHT40)		13	
		802.11ac(VHT80)		12	

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	MFg	MPN	Length	Note
1	USB to UART board	SWAROVSKI OPTIK	18_00924_01	NA	NGB Debug Board
2	CPU to Debug mating Cable	JST Sales America Inc	A08SR08SR30 K152A	15cm	8 Position Cable Assembly Rectangular Socket to Socket
3	2x USB Type-A to Type-B Cable	TE Connectivity	1487595-1	100cm	USB 2.0 Cable A Male to B Male 3.28' (1.00m) Shielded)
4	Battery Chargers	SWAROVSKI OPTIK	800-325A	NA	Input: 5V DC/2.1A)
5	USB Hub	AMKETTE	HS080	NA	Amkette 4 Port Superspeed USB Hub 3.0 for PC/Laptops, Portable Data Hub with Hi-Speed Data Transfer Up to 5 GBPS

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
E-1	Personal computer	DELL	Inspiron 14-3467	N/A	N/A
C-1	USB Cable	TE Connectivity	1487595-1	100cm	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2023.03.03	2024.03.02
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2023.02.28	2024.02.27
Pre-Amplifier(1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2023.09.26	2024.09.25
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2023.03.06	2024.03.05
Active loop Antenna	ZHINAN	ZN30900C	16035	2023.02.28	2024.02.27
Bilog Antenna	TESEQ	CBL6111D	34678	2022.09.30	2024.09.29
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2023.09.24	2025.09.23
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2023.10.10	2025.10.09
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2023.09.26	2024.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	SC100_1	60531	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC power supply	HONGSHENGFENG	DPS-305AF	17064939	2023.09.26	2024.09.25
Test SW	EZ-EMC	Ver.STSLAB-03A1 RE			
Conduction Test equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2023.09.25	2024.09.24
LISN	R&S	ENV216	101242	2023.09.25	2024.09.24
LISN	EMCO	3810/2NM	23625	2023.09.25	2024.09.24
Temperature & Humidity	SW-108	SuWei	N/A	2023.03.03	2024.03.02
Test SW	EZ-EMC	Ver.STSLAB-03A1 CE			
RF Connected Test					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Signal Analyzer	Agilent	N9020A	MY51510623	2023.03.01	2024.02.28
Power Sensor	Keysight	U2021XA	MY55520005	2023.09.26	2024.09.25
Temperature & Humidity	SW-108	SuWei	N/A	2023.03.03	2024.03.02
Test SW	MW	MTS 8310_2.0.0.0			

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

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

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

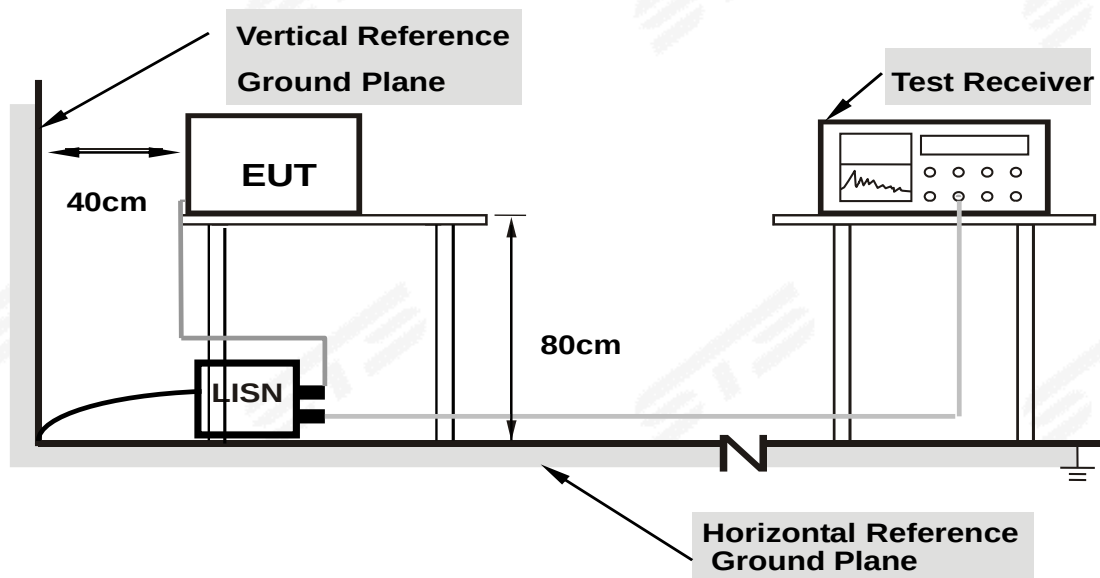
3.1.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

Note: product is battery operated and conducted emission test is not applicable.

3.2 RADIATED EMISSION AND (BANDEDGE) MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.407(b)7&15.205/209(a), then the limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	68.2	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15E.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
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	Above 38.6
13.36-13.41			

Note: In case the emission radiated emission above 1000MHz fall within the restricted band the restricted frequency bands, the peak limit is 74 dBuV/m.

LIMITS OF EMISSIONS OUTSIDE OF THE FREQUENCY BANDS

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note: dBuV/m(at 3M) = EIRP(dBm) + 95.2.

Peak Limit = -27dBm/MHz + 95.2 = 68.2 dBuV/m.

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier harmonic (Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

For Band edge

Spectrum Parameter	Setting
Detector	Peak
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- d. 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 QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

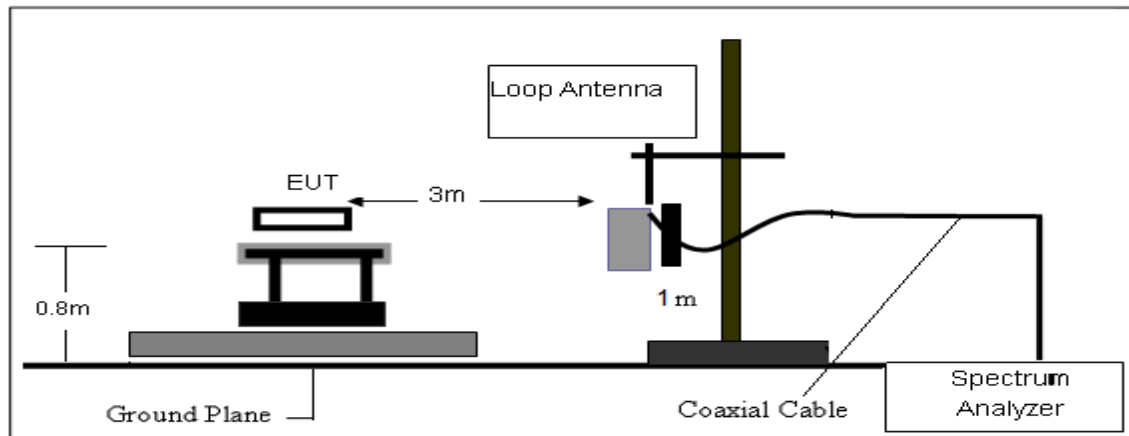
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.2 DEVIATION FROM TEST STANDARD

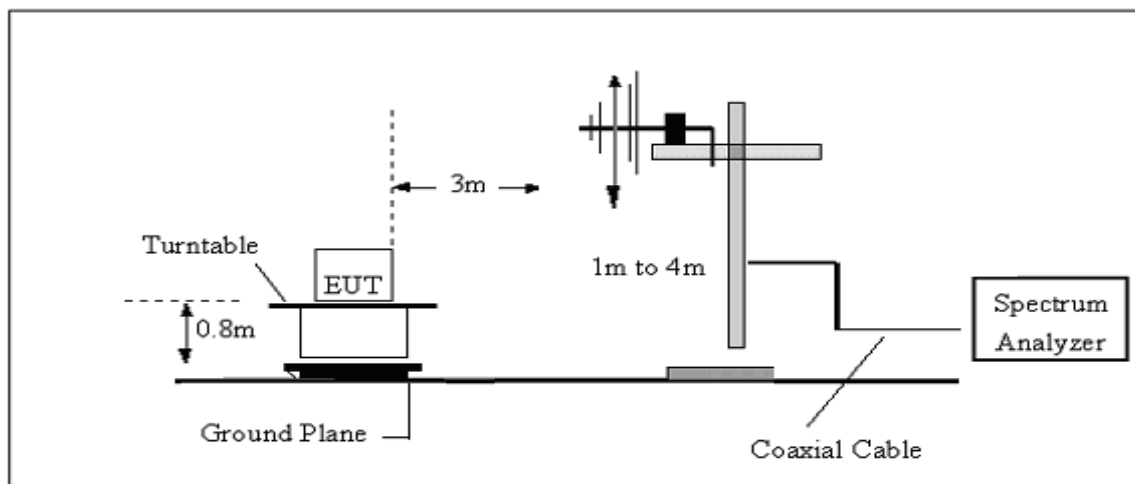
No deviation

3.2.3 TEST SETUP

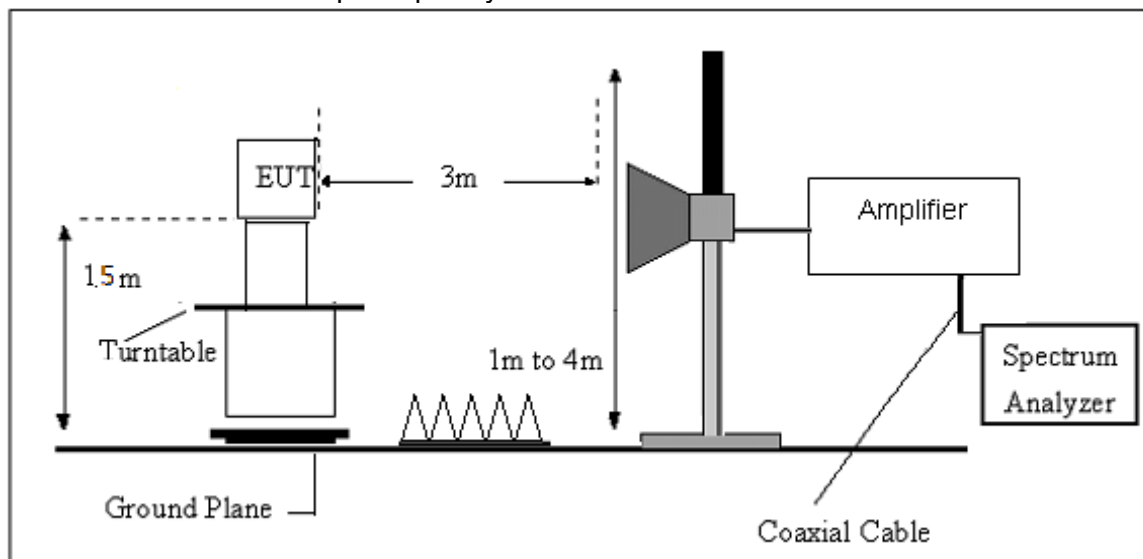
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = AF + CL - AG$$

3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.6V	Polarization :	--
Test Mode:	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (Between 30MHz – 1GHz)

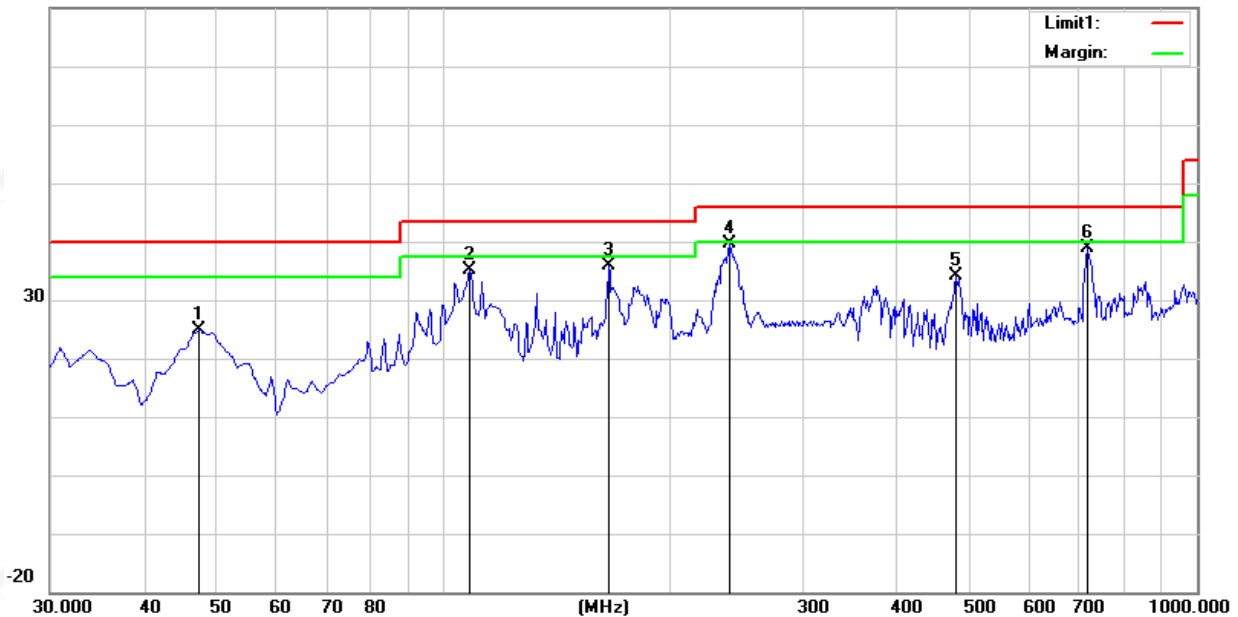
Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 3.6V	Polarization:	Horizontal
Test Mode	Mode 1~12(Mode 7 worst mode)		

No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
1	47.4600	46.74	-21.92	24.82	40.00	-15.18	peak
2	108.5700	54.26	-19.22	35.04	43.50	-8.46	peak
3	165.8000	55.26	-19.40	35.86	43.50	-7.64	peak
4	239.5200	57.62	-18.10	39.52	46.00	-6.48	peak
5	480.0800	42.66	-8.65	34.01	46.00	-11.99	peak
6	715.7900	42.32	-3.51	38.81	46.00	-7.19	peak

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBUV/m

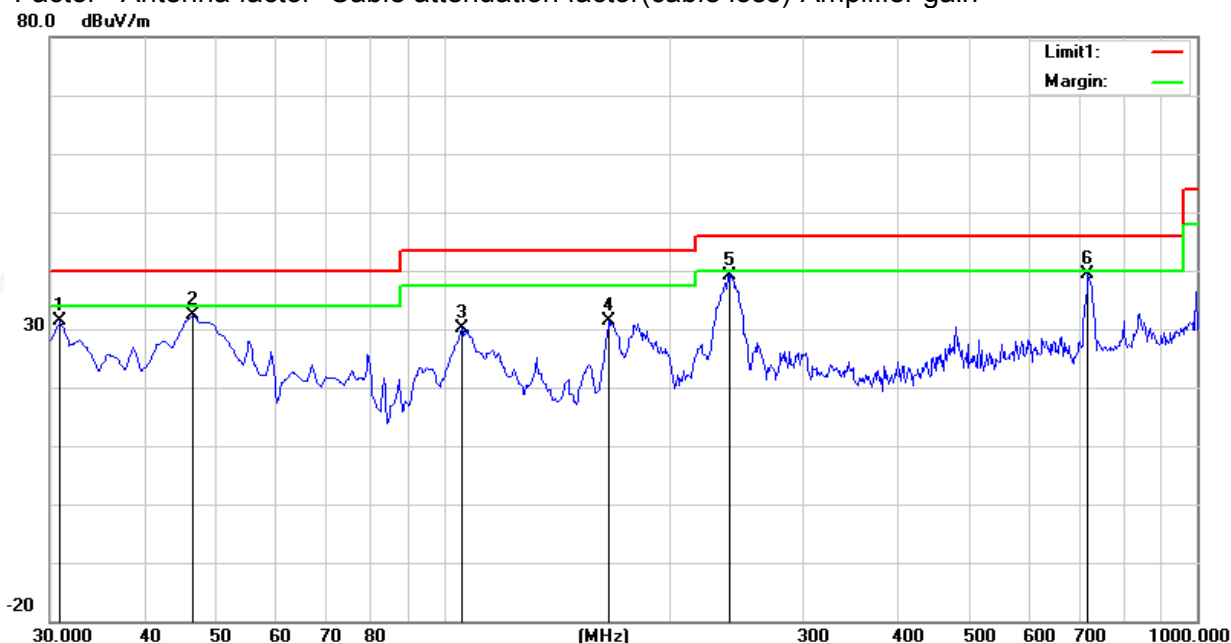


Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 3.6V	Polarization:	Vertical
Test Mode	Mode 1~12(Mode 7 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.9700	44.74	-13.35	31.39	40.00	-8.61	peak
2	46.4900	53.84	-21.41	32.43	40.00	-7.57	peak
3	105.6600	49.63	-19.53	30.10	43.50	-13.40	peak
4	165.8000	50.89	-19.40	31.49	43.50	-12.01	peak
5	239.5200	57.35	-18.10	39.25	46.00	-6.75	peak
6	718.7000	42.63	-3.33	39.30	46.00	-6.70	peak

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

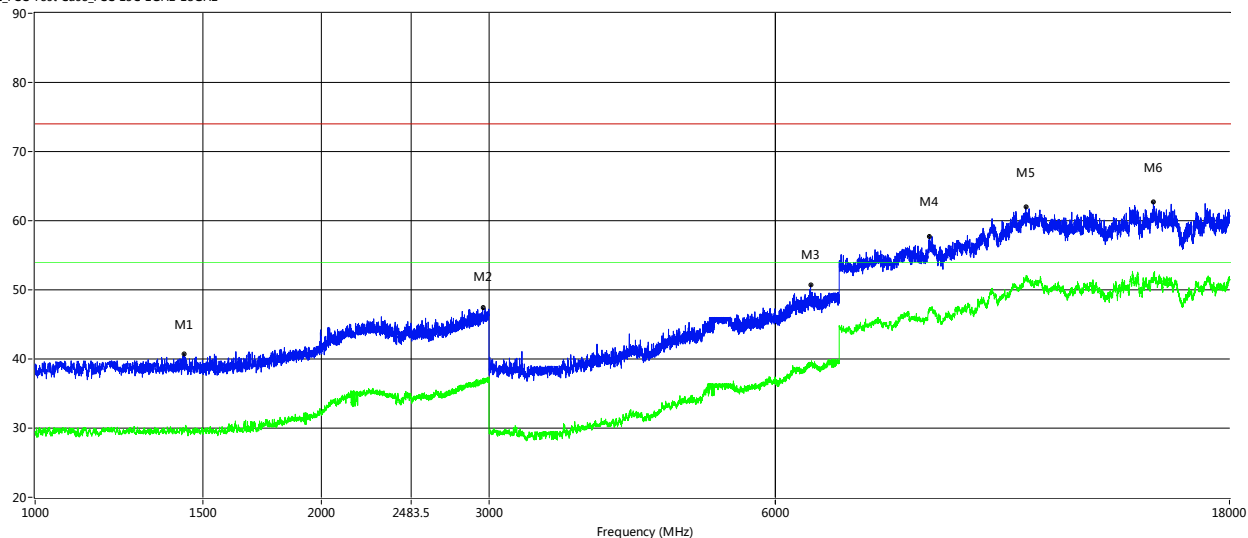


3.2.8 TEST RESULTS (Above 1000 MHz)

U-NII-1 5150-5250MHz

802.11a-L
Horizontal

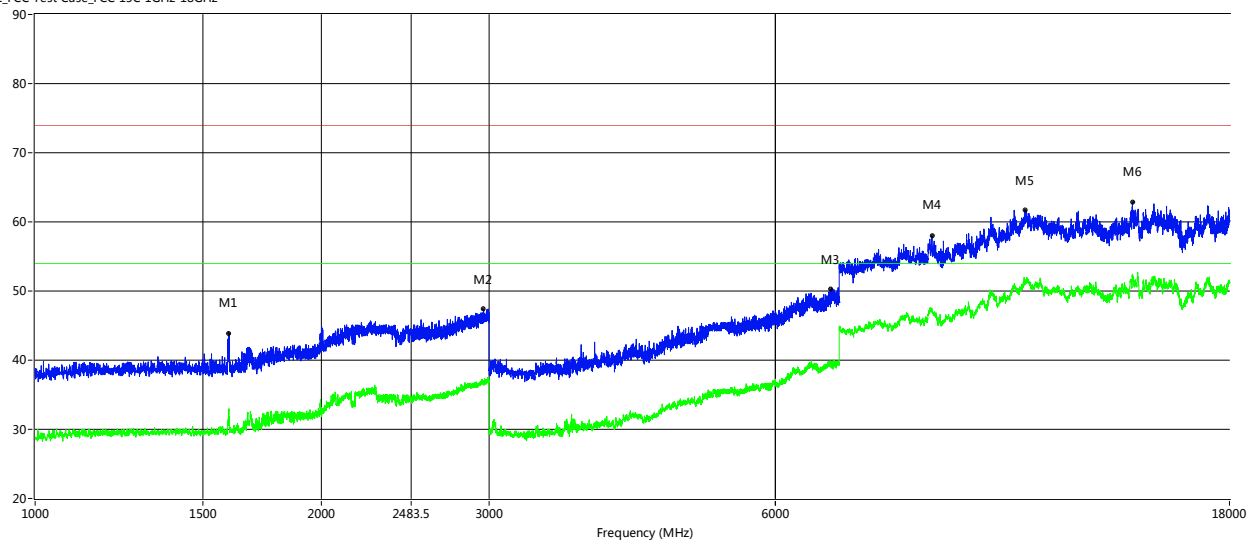
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1433.500	40.71	29.69	-0.61	74.0	54.0	-24.31	122.10	100	Pass
2954.500	47.45	36.79	5.91	74.0	54.0	-17.21	320.00	100	Pass
6532.000	50.70	39.25	-0.42	74.0	54.0	-14.75	25.20	100	Pass
8713.250	57.73	47.20	5.12	74.0	54.0	-6.80	158.50	100	Pass
10995.750	61.99	51.33	10.19	74.0	54.0	-2.67	132.60	100	Pass
14977.750	62.69	52.18	10.28	74.0	54.0	-1.82	98.30	100	Pass

Vertical

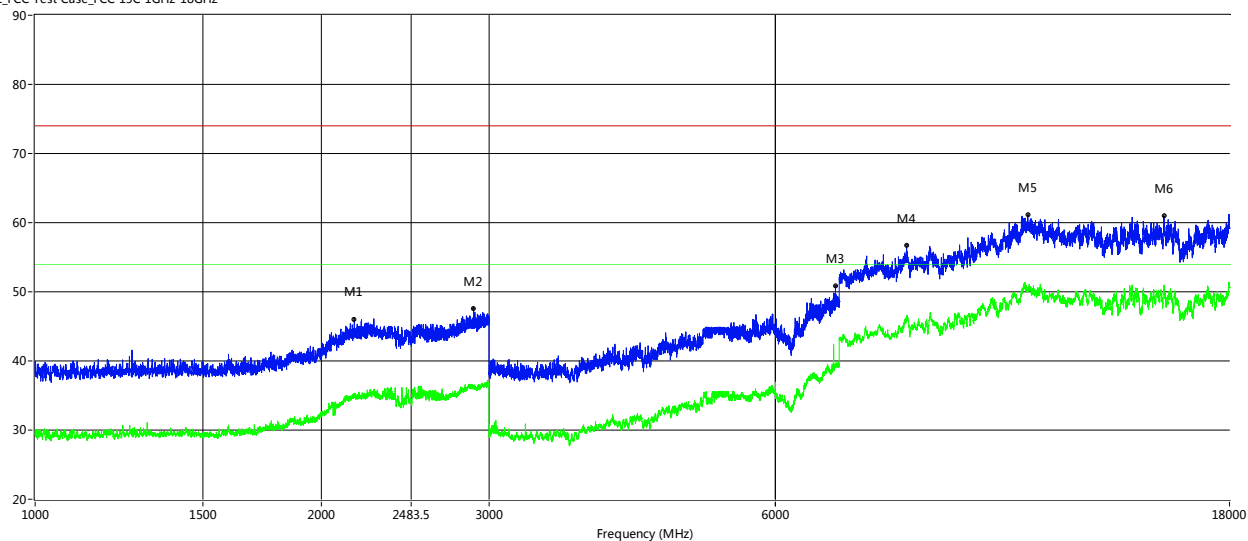
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1598.500	43.90	32.98	-0.49	74.0	54.0	-21.02	36.90	100	Pass
2961.000	47.37	36.75	5.94	74.0	54.0	-17.25	95.90	100	Pass
6858.000	50.26	39.50	0.25	74.0	54.0	-14.50	0.00	100	Pass
8762.750	58.06	46.93	4.97	74.0	54.0	-7.07	349.40	100	Pass
10976.500	61.72	51.68	10.04	74.0	54.0	-2.32	5.00	100	Pass
14235.250	62.82	52.38	11.33	74.0	54.0	-1.62	66.60	100	Pass

802.11a-M
Horizontal

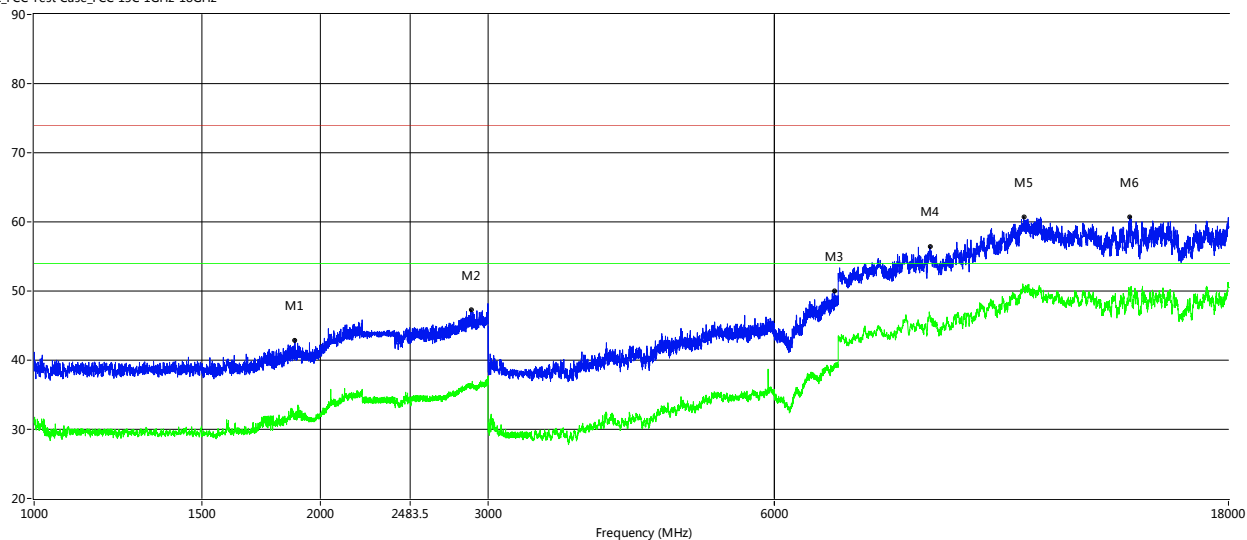
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2165.000	45.98	35.04	4.47	74.0	54.0	-18.96	131.10	100	Pass
2890.500	47.55	36.32	5.61	74.0	54.0	-17.68	167.50	100	Pass
6938.000	50.87	39.31	0.49	74.0	54.0	-14.69	259.20	100	Pass
8243.000	56.65	46.01	4.22	74.0	54.0	-7.99	6.60	100	Pass
11050.750	61.11	50.53	9.95	74.0	54.0	-3.47	99.20	100	Pass
15362.750	60.98	50.77	10.59	74.0	54.0	-3.23	28.80	100	Pass

Vertical

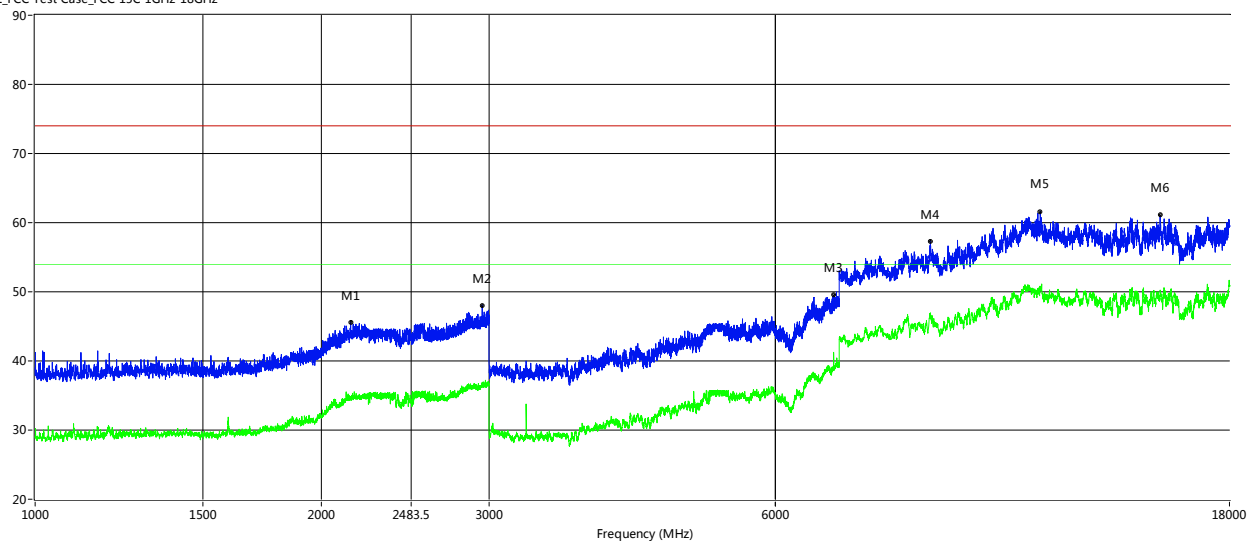
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1880.000	42.90	32.17	0.82	74.0	54.0	-21.83	167.10	100	Pass
2878.500	47.34	36.31	5.61	74.0	54.0	-17.69	237.50	100	Pass
6934.000	50.05	39.33	0.48	74.0	54.0	-14.67	198.70	100	Pass
8740.750	56.44	46.48	5.03	74.0	54.0	-7.52	73.90	100	Pass
10968.250	60.75	50.60	9.98	74.0	54.0	-3.40	59.40	100	Pass
14169.250	60.78	50.19	11.09	74.0	54.0	-3.81	181.10	100	Pass

802.11a-H Horizontal

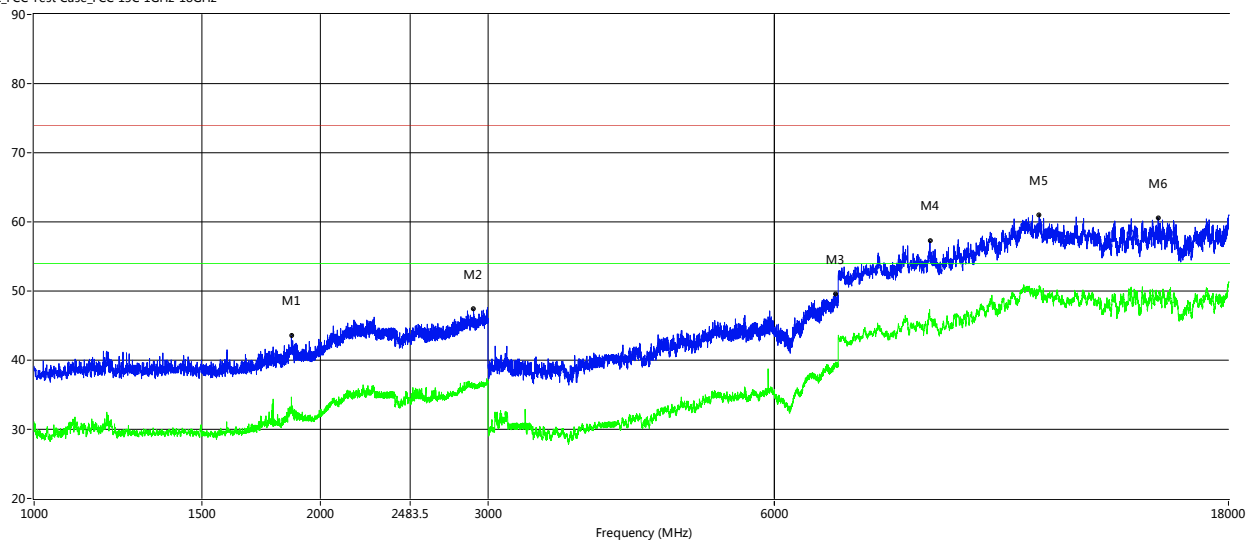
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2146.000	45.63	34.52	4.57	74.0	54.0	-19.48	3.80	100	Pass
2951.000	48.07	36.38	5.90	74.0	54.0	-17.62	1.40	100	Pass
6907.000	49.51	41.25	0.46	74.0	54.0	-12.75	204.20	100	Pass
8729.750	57.31	46.67	5.07	74.0	54.0	-7.33	350.00	100	Pass
11389.000	61.60	50.64	9.72	74.0	54.0	-3.36	61.60	100	Pass
15219.750	61.07	49.88	10.83	74.0	54.0	-4.12	143.70	100	Pass

Vertical

RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1864.000	43.54	34.66	0.80	74.0	54.0	-19.34	199.00	100	Pass
2897.000	47.38	36.18	5.61	74.0	54.0	-17.82	0.40	100	Pass
6956.000	49.64	39.36	0.50	74.0	54.0	-14.64	121.50	100	Pass
8740.750	57.22	46.34	5.03	74.0	54.0	-7.66	39.70	100	Pass
11386.250	61.07	50.76	9.71	74.0	54.0	-3.24	342.90	100	Pass
15184.000	60.60	49.05	10.92	74.0	54.0	-4.95	241.60	100	Pass

Note:

1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

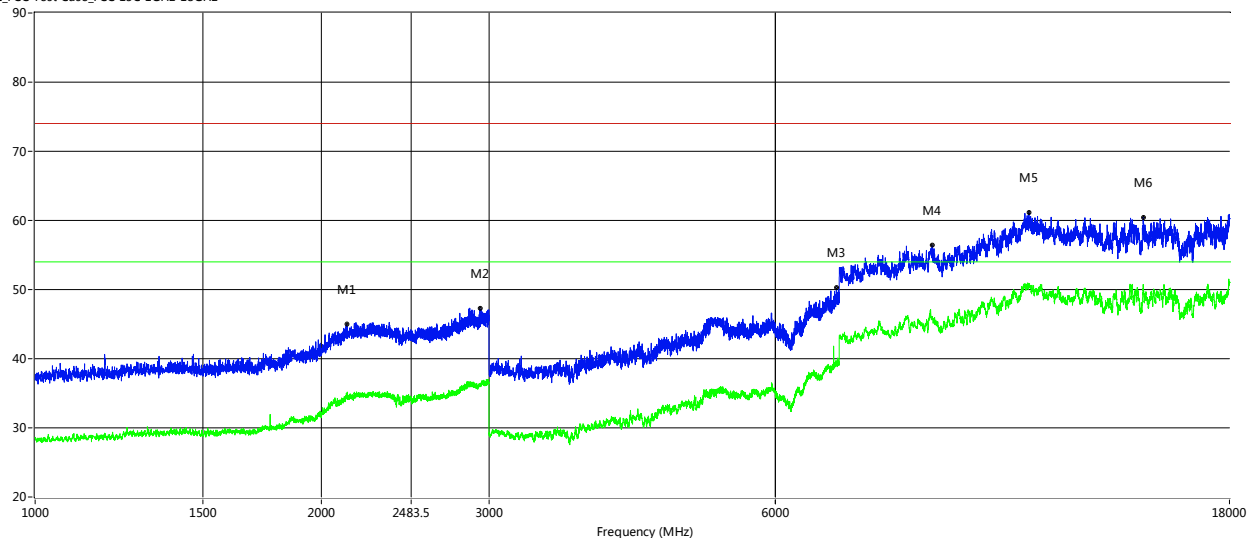
Emission Level = Reading + Factor.

2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

U-NII-3 (5.725-5.850) GHz

802.11a-L
Horizontal

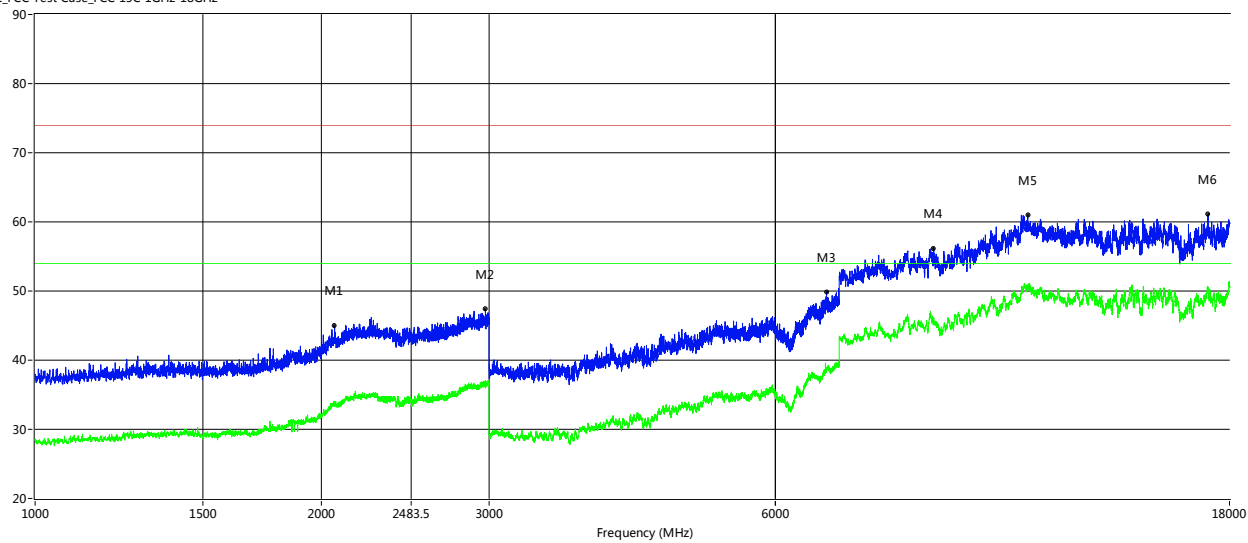
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2125.000	44.94	34.80	4.21	74.0	54.0	-19.20	355.50	100	Pass
2934.500	47.24	36.01	5.81	74.0	54.0	-17.99	188.50	100	Pass
6953.000	50.26	39.29	0.50	74.0	54.0	-14.71	200.80	100	Pass
8768.250	56.36	45.87	4.95	74.0	54.0	-8.13	317.00	100	Pass
11081.000	61.20	50.51	9.78	74.0	54.0	-3.49	1.30	100	Pass
14612.000	60.50	50.74	11.15	74.0	54.0	-3.26	357.40	100	Pass

Vertical

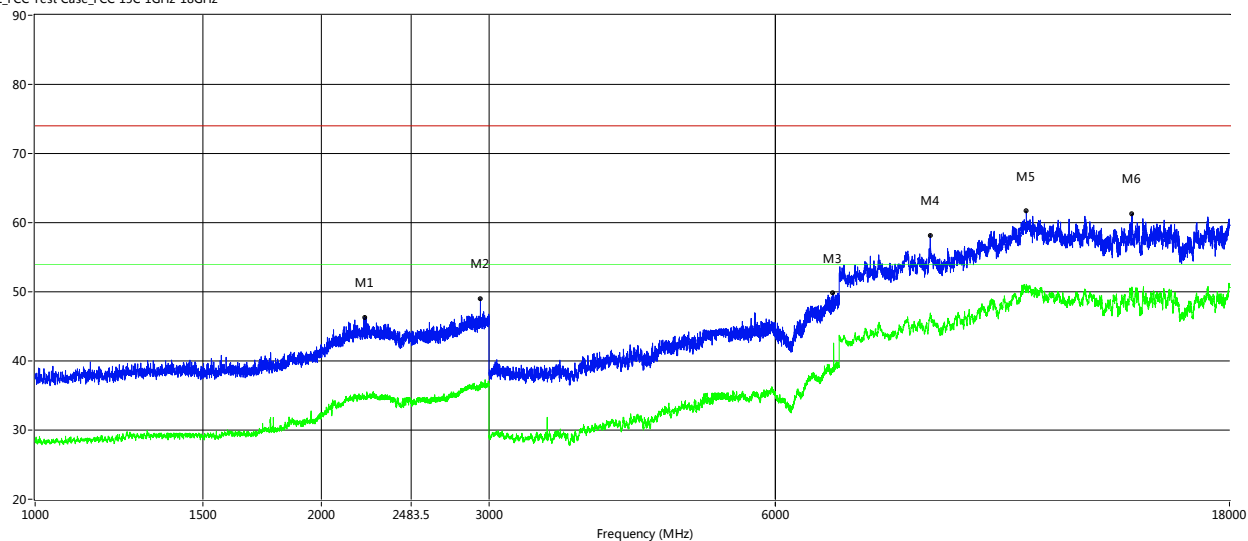
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2064.500	45.04	33.76	3.10	74.0	54.0	-20.24	204.80	100	Pass
2974.000	47.39	37.06	6.00	74.0	54.0	-16.94	151.40	100	Pass
6790.000	49.92	38.76	-0.06	74.0	54.0	-15.24	106.70	100	Pass
8801.250	56.19	46.13	4.84	74.0	54.0	-7.87	218.40	100	Pass
11047.999	61.04	50.68	9.96	74.0	54.0	-3.32	92.80	100	Pass
17089.750	61.08	50.30	10.41	74.0	54.0	-3.70	194.40	100	Pass

802.11a-M Horizontal

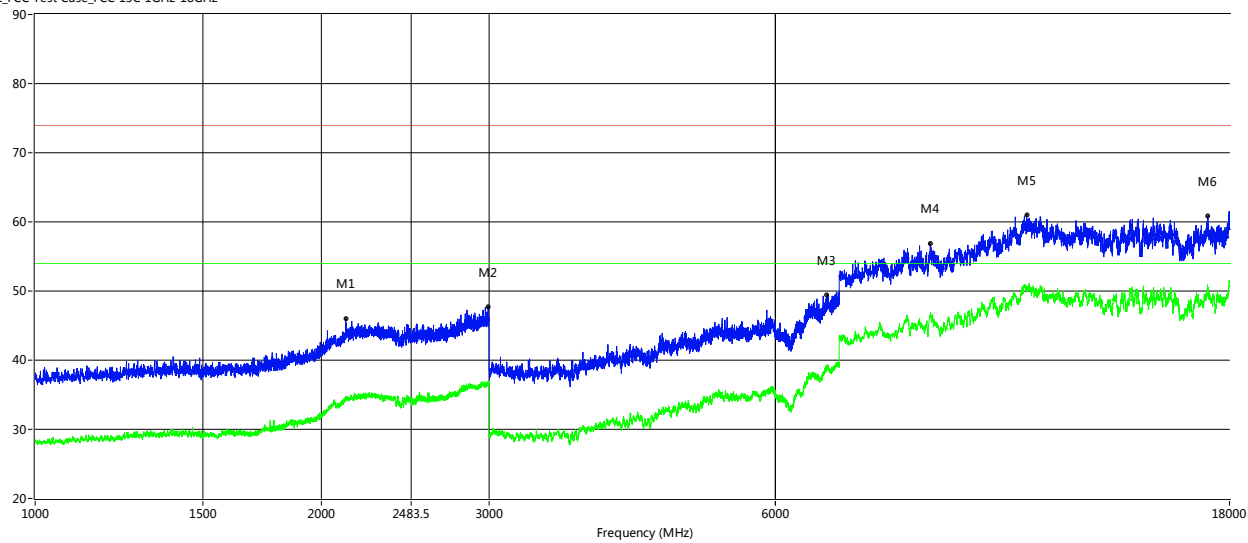
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2221.500	46.34	34.75	4.33	74.0	54.0	-19.25	0.60	100	Pass
2938.000	48.99	36.72	5.83	74.0	54.0	-17.28	122.10	100	Pass
6895.000	49.80	38.67	0.44	74.0	54.0	-15.33	210.50	100	Pass
8727.000	58.19	46.89	5.08	74.0	54.0	-7.11	16.50	100	Pass
11012.250	61.66	51.08	10.15	74.0	54.0	-2.92	305.60	100	Pass
14218.750	61.28	50.66	11.46	74.0	54.0	-3.34	0.40	100	Pass

Vertical

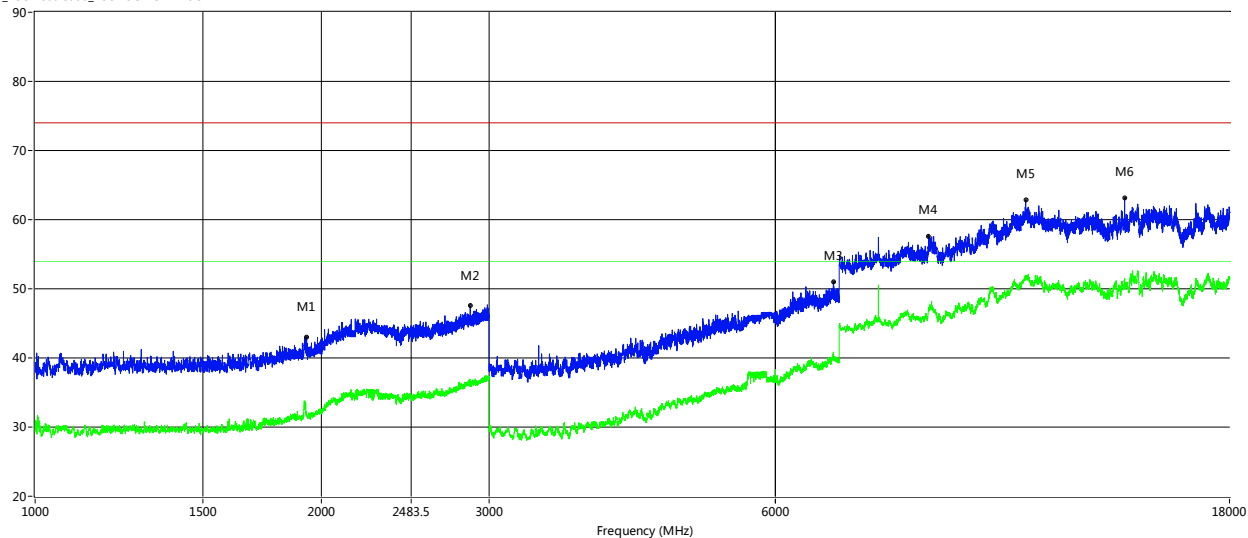
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
2120.500	45.99	34.36	4.14	74.0	54.0	-19.64	299.00	100	Pass
2994.000	47.72	36.65	6.08	74.0	54.0	-17.35	111.60	100	Pass
6795.000	49.41	38.73	-0.05	74.0	54.0	-15.27	78.60	100	Pass
8727.000	56.81	46.17	5.08	74.0	54.0	-7.83	248.10	100	Pass
11017.750	61.04	50.10	10.12	74.0	54.0	-3.90	324.10	100	Pass
17087.000	60.82	50.41	10.39	74.0	54.0	-3.59	68.10	100	Pass

802.11a-H Horizontal

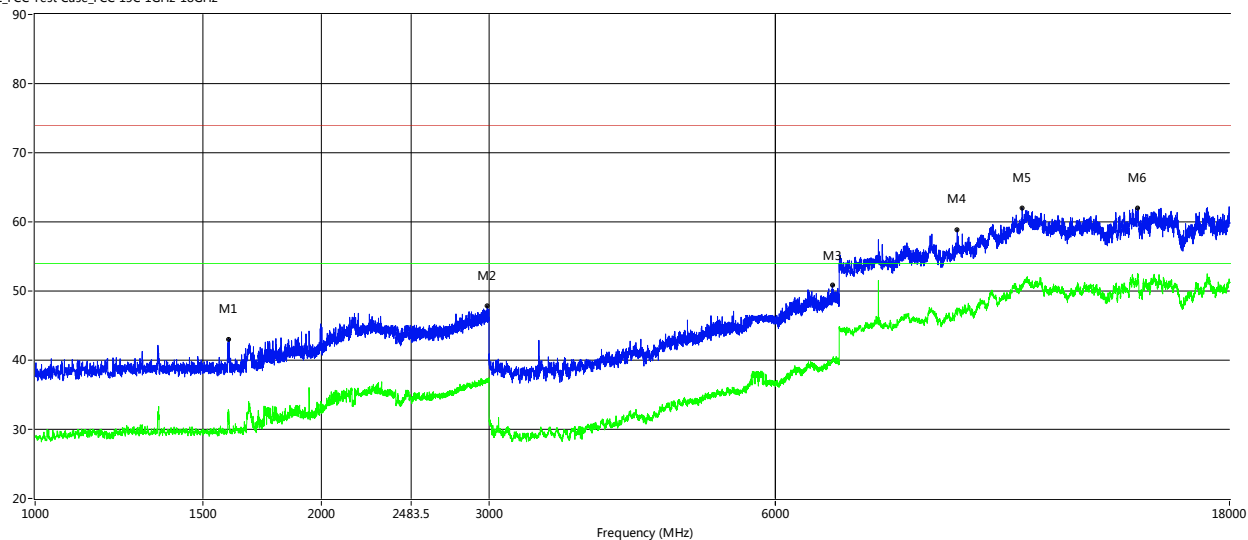
RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1929.500	43.03	31.80	0.96	74.0	54.0	-22.20	275.90	100	Pass
2866.500	47.52	36.60	5.61	74.0	54.0	-17.40	11.60	100	Pass
6903.000	51.01	39.99	0.46	74.0	54.0	-14.01	246.50	100	Pass
8696.750	57.58	46.73	5.12	74.0	54.0	-7.27	164.80	100	Pass
10993.000	62.81	51.66	10.17	74.0	54.0	-2.34	111.10	100	Pass
13968.500	63.11	51.50	10.40	74.0	54.0	-2.50	273.80	100	Pass

Vertical

RE_FCC Test Case_FCC 15C 1GHz-18GHz



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	Verdict
1599.000	43.06	31.57	-0.49	74.0	54.0	-22.43	152.60	100	Pass
2986.500	47.84	37.01	6.05	74.0	54.0	-16.99	236.30	100	Pass
6886.000	50.84	40.00	0.39	74.0	54.0	-14.00	190.10	100	Pass
9315.500	58.91	46.88	5.34	74.0	54.0	-7.12	17.70	100	Pass
10902.250	62.00	51.00	9.47	74.0	54.0	-3.00	134.80	100	Pass
14414.000	62.02	52.11	11.26	74.0	54.0	-1.89	114.70	100	Pass

Note:

1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

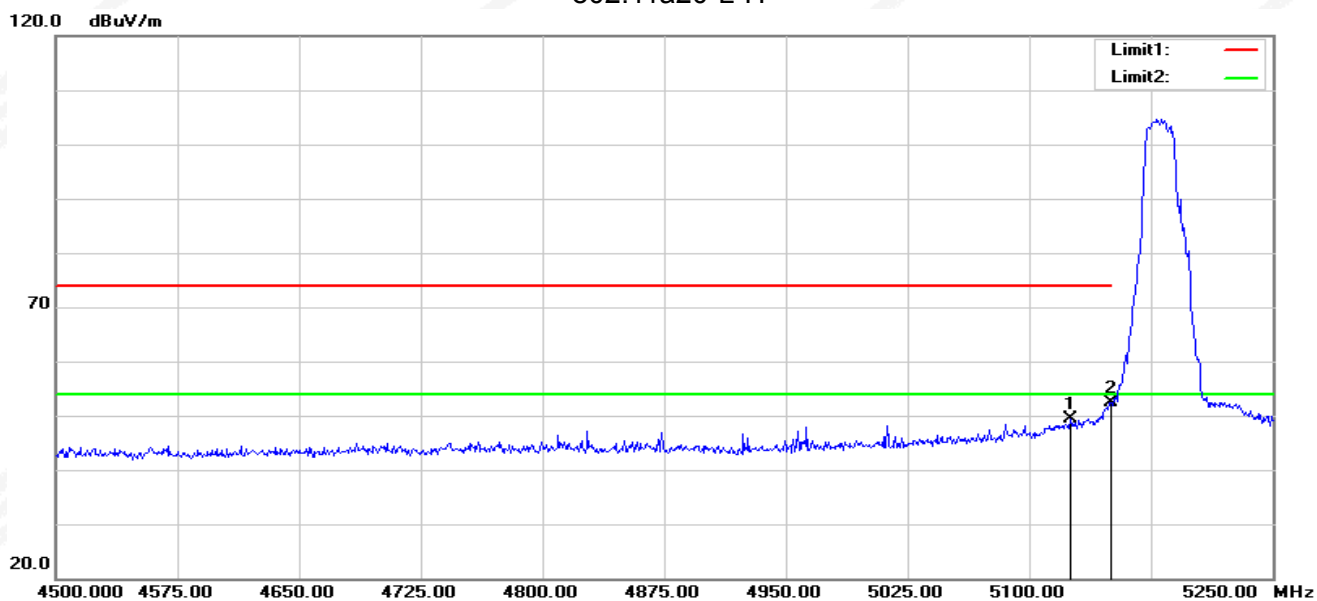
Emission Level = Reading + Factor.

2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

3.2.9 RESTRICTED FREQUENCY BANDS AND BAND EDGE

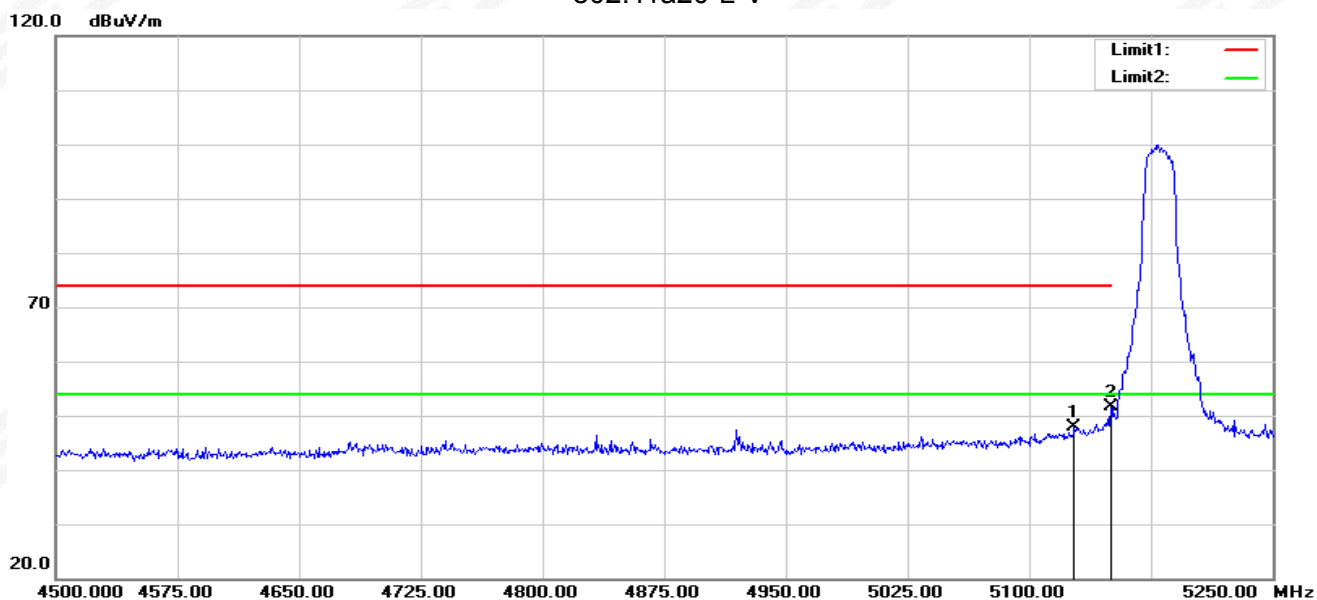
U-NII-1 5150-5250MHz

802.11a20-L-H



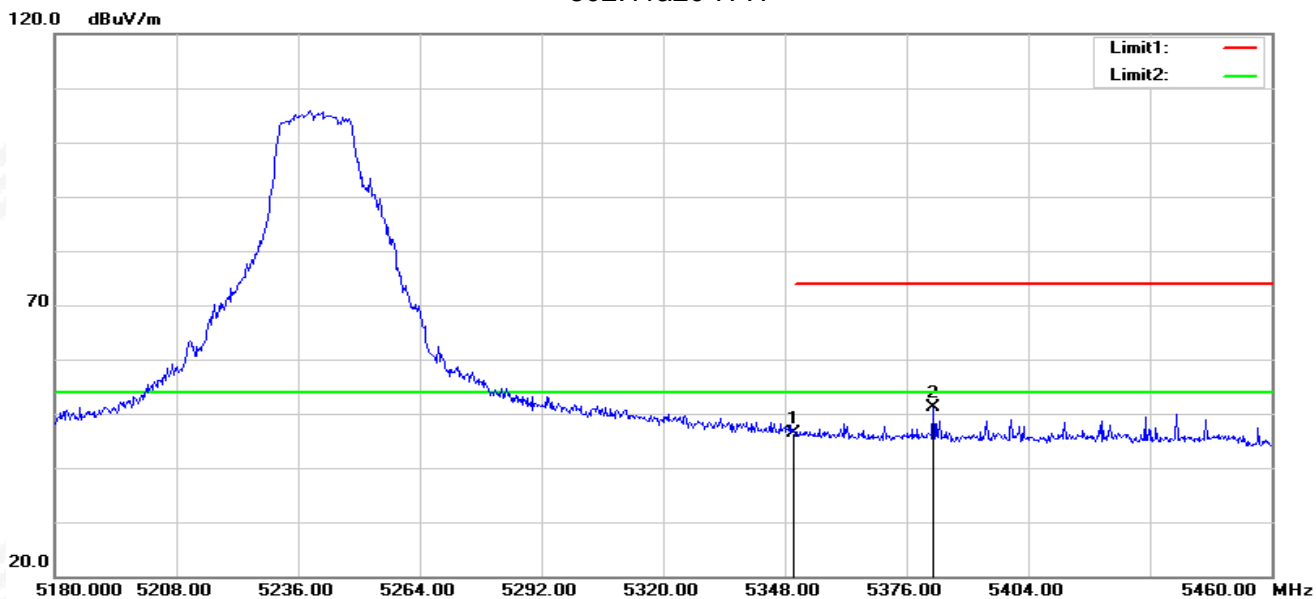
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5125.500	55.01	-5.74	49.27	74.00	-24.73	peak
2	5150.000	58.10	-5.73	52.37	74.00	-21.63	peak

802.11a20-L-V



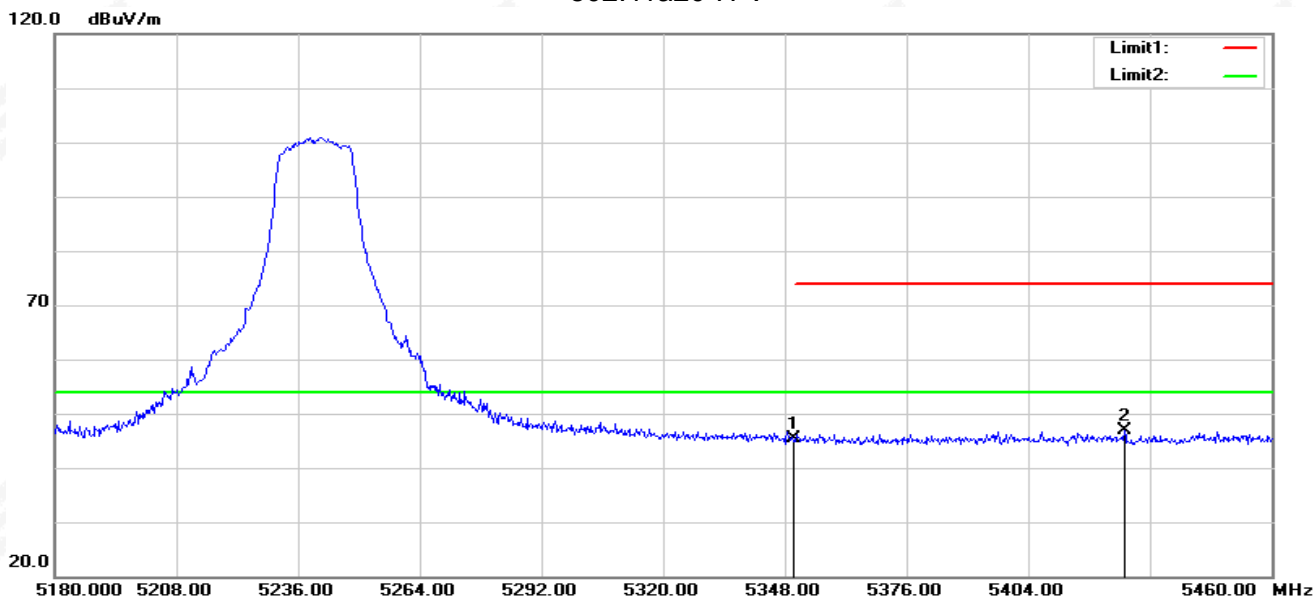
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5127.750	53.60	-5.74	47.86	74.00	-26.14	peak
2	5150.000	57.24	-5.73	51.51	74.00	-22.49	peak

802.11a20-H-H



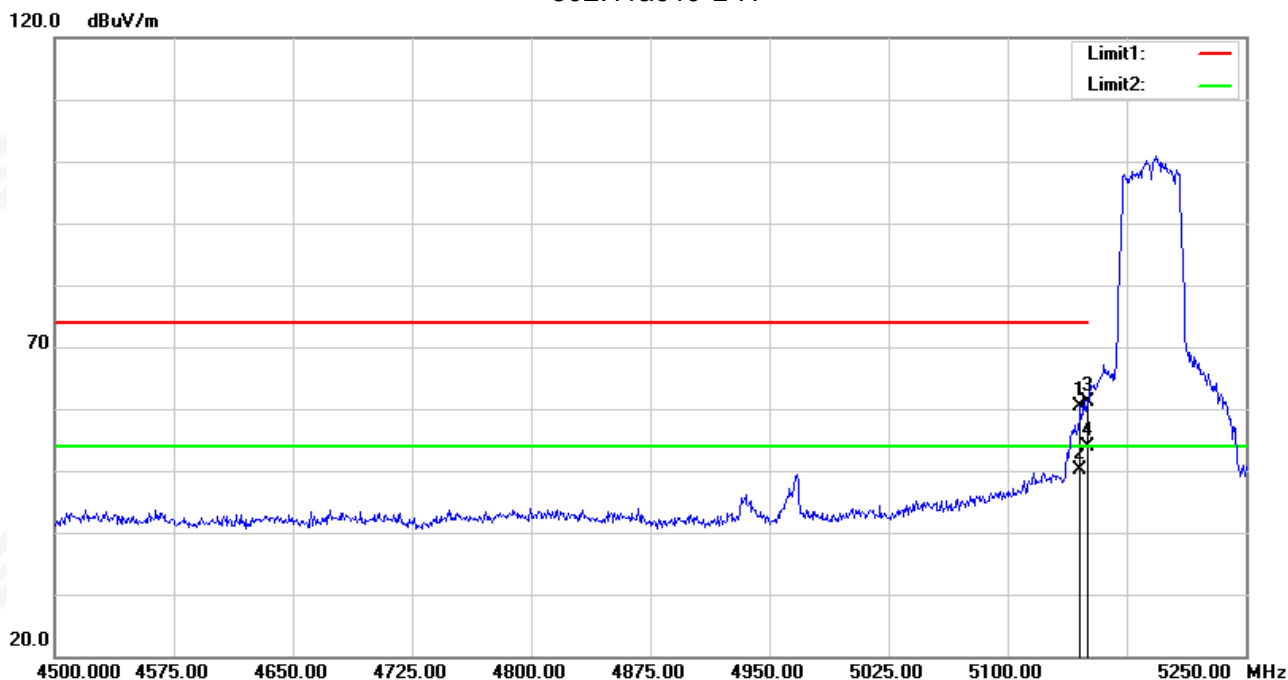
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.67	-5.23	46.44	74.00	-27.56	peak
2	5382.160	56.27	-5.24	51.03	74.00	-22.97	peak

802.11a20-H-V



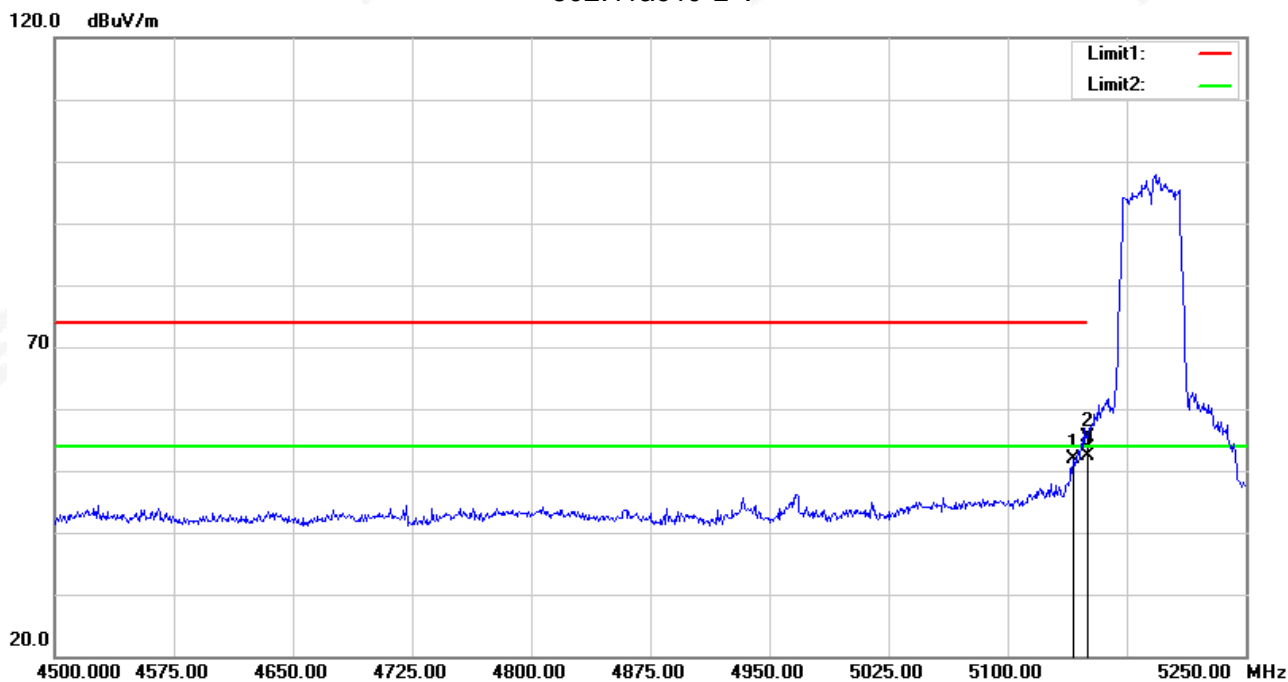
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.65	-5.23	45.42	74.00	-28.58	peak
2	5426.120	51.99	-5.19	46.80	74.00	-27.20	peak

802.11ac40-L-H



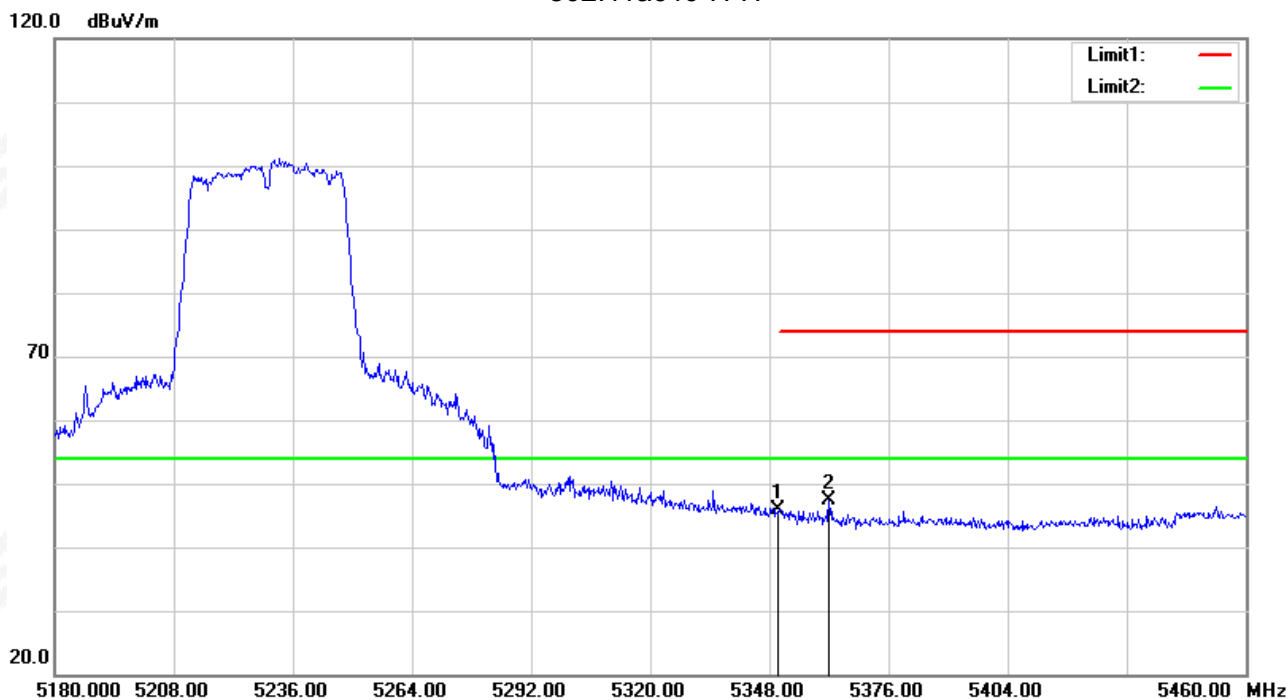
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.750	66.10	-5.73	60.37	74.00	-13.63	peak
2	5145.750	55.89	-5.73	50.16	54.00	-3.84	AVG
3	5150.000	66.80	-5.73	61.07	74.00	-12.93	peak
4	5150.000	59.60	-5.73	53.87	54.00	-0.13	AVG

802.11ac40-L-V



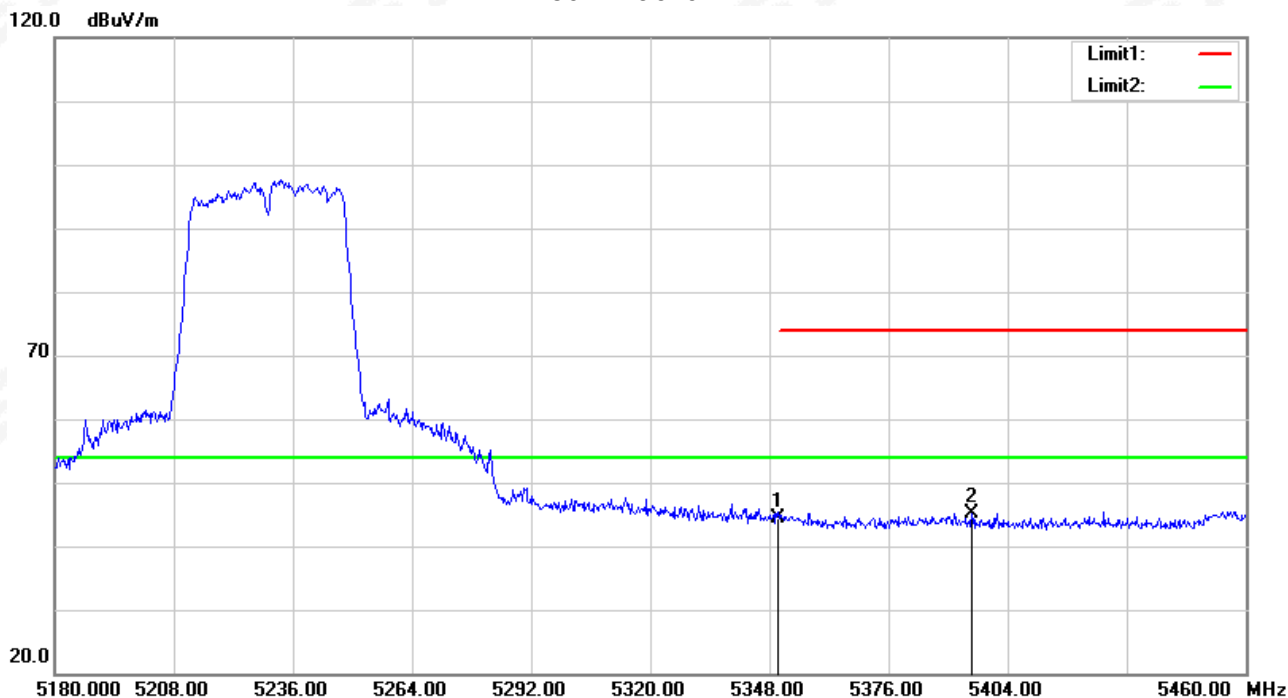
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5141.250	57.66	-5.74	51.92	74.00	-22.08	peak
2	5150.000	61.20	-5.73	55.47	74.00	-18.53	peak
3	5150.000	58.20	-5.73	52.47	54.00	-1.53	AVG

802.11ac40-H-H



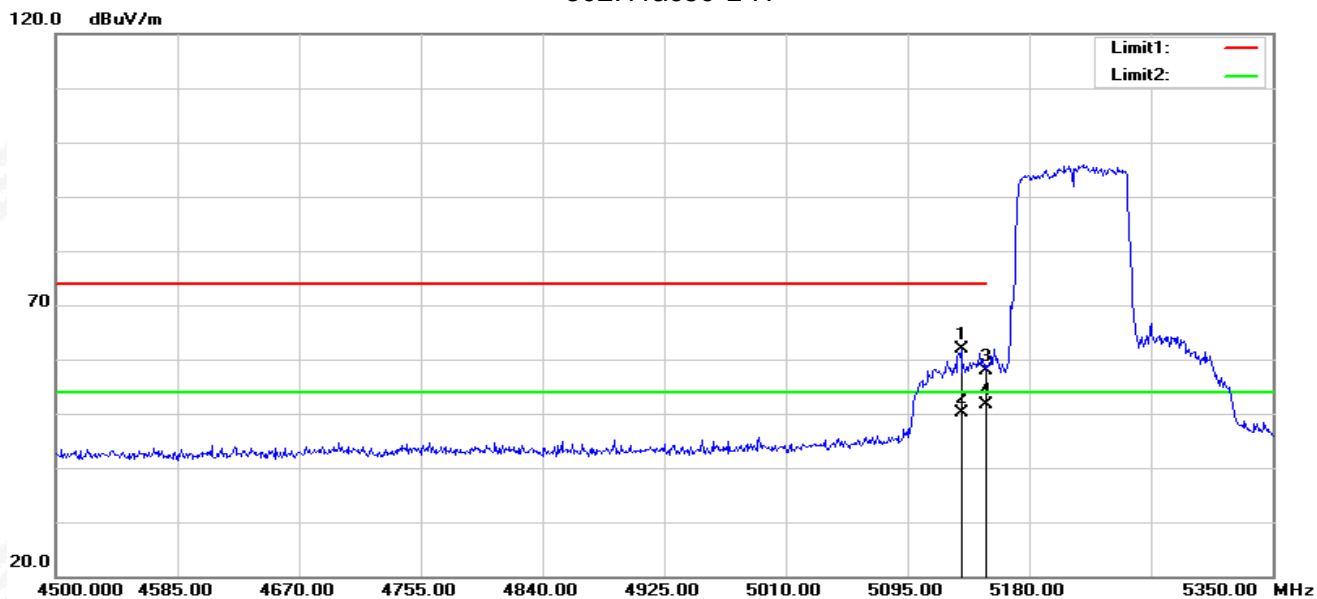
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.13	-5.23	45.90	74.00	-28.10	peak
2	5362.000	52.51	-5.23	47.28	74.00	-26.72	peak

802.11ac40-H-V



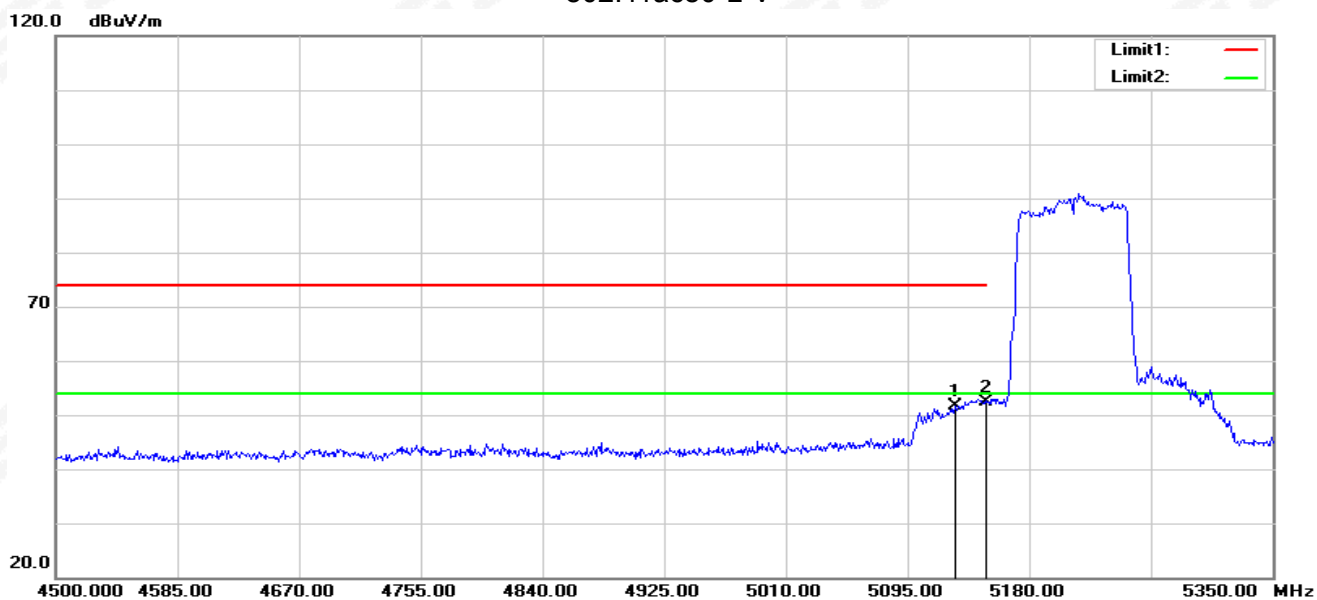
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.64	-5.23	44.41	74.00	-29.59	peak
2	5395.600	50.40	-5.24	45.16	74.00	-28.84	peak

802.11ac80-L-H



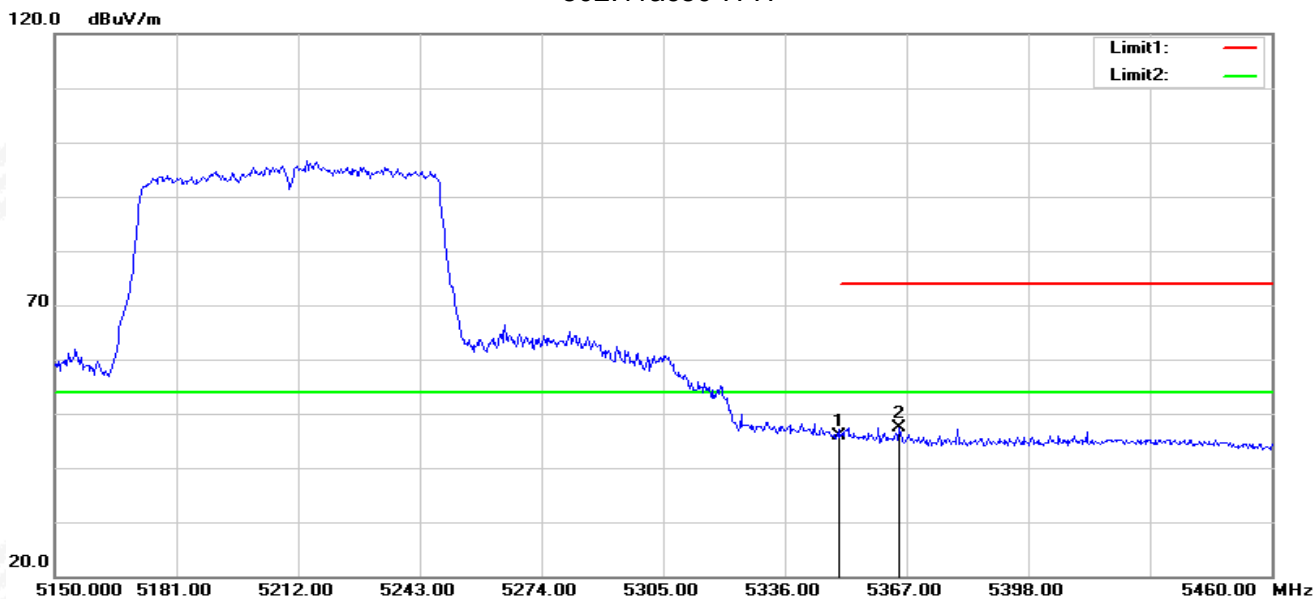
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5132.400	67.57	-5.73	61.84	74.00	-12.16	peak
2	5132.400	55.86	-5.73	50.13	54.00	-3.87	AVG
3	5150.000	63.62	-5.73	57.89	74.00	-16.11	peak
4	5150.000	57.32	-5.73	51.59	54.00	-2.41	AVG

802.11ac80-L-V



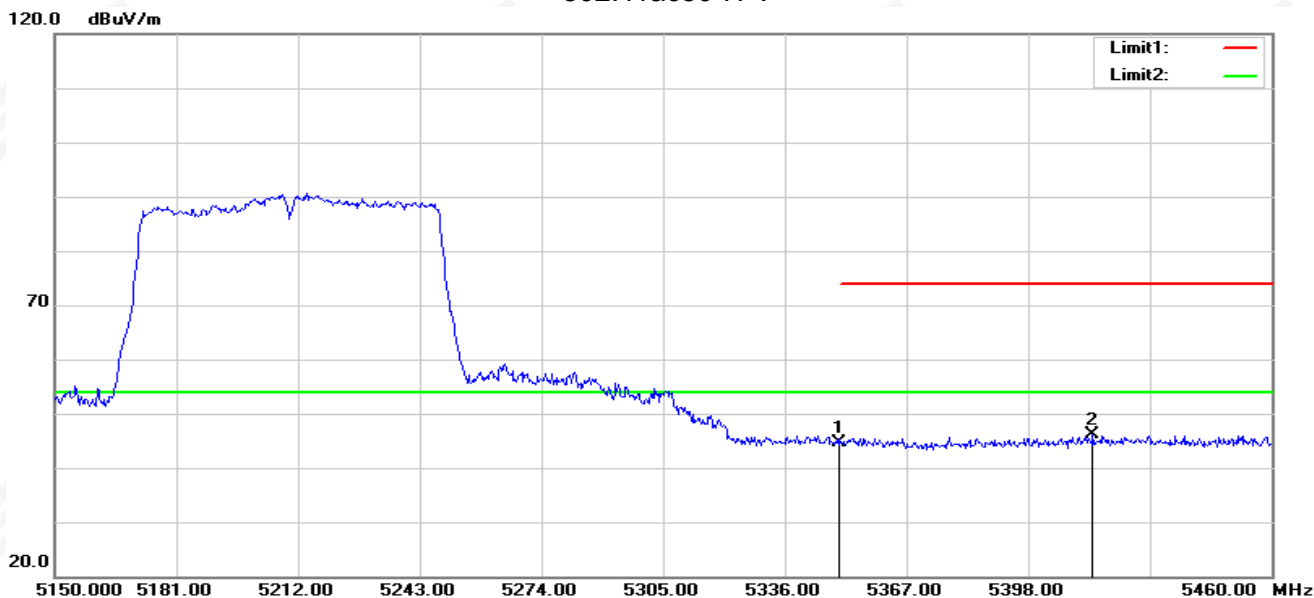
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5128.150	57.43	-5.74	51.69	74.00	-22.31	peak
2	5150.000	58.15	-5.73	52.42	74.00	-21.58	peak

802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.20	-5.23	45.97	74.00	-28.03	peak
2	5365.140	52.63	-5.24	47.39	74.00	-26.61	peak

802.11ac80-H-V

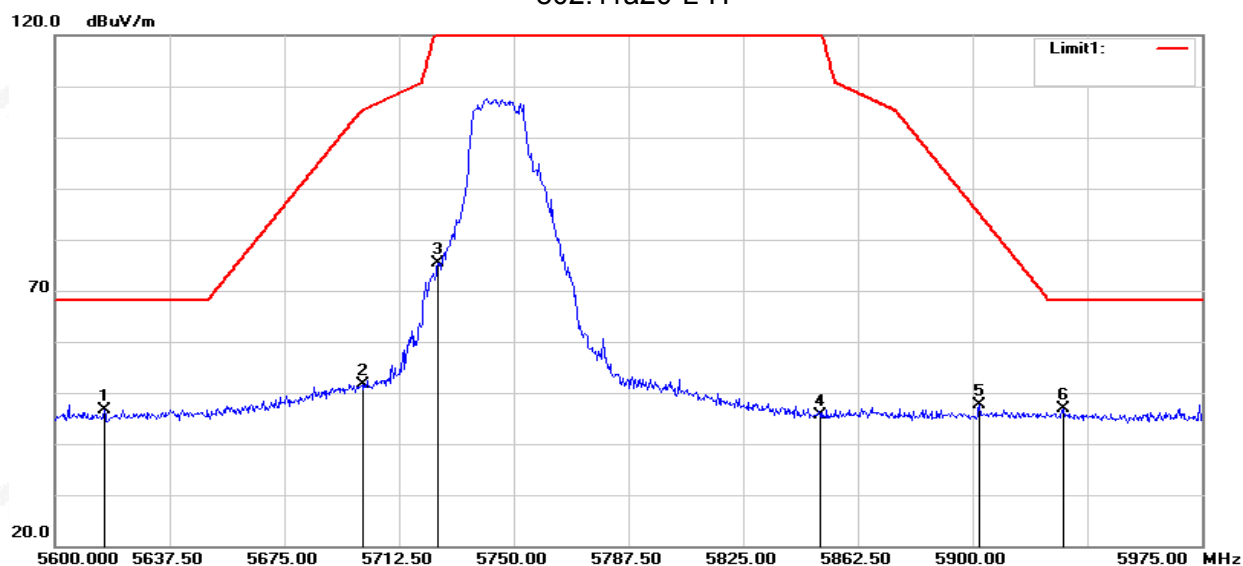


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.97	-5.23	44.74	74.00	-29.26	peak
2	5414.430	51.27	-5.22	46.05	74.00	-27.95	peak

Note: All modes have been tested. Only the worst mode shown in the report.

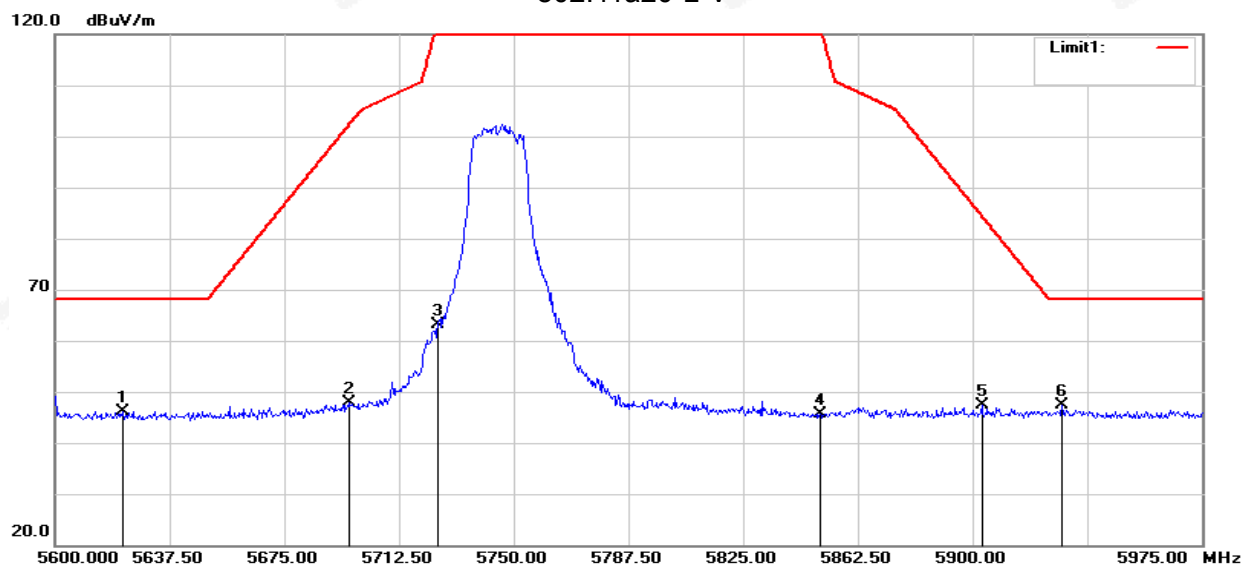
U-NII-3 (5.725-5.85 GHz)

802.11a20-L-H



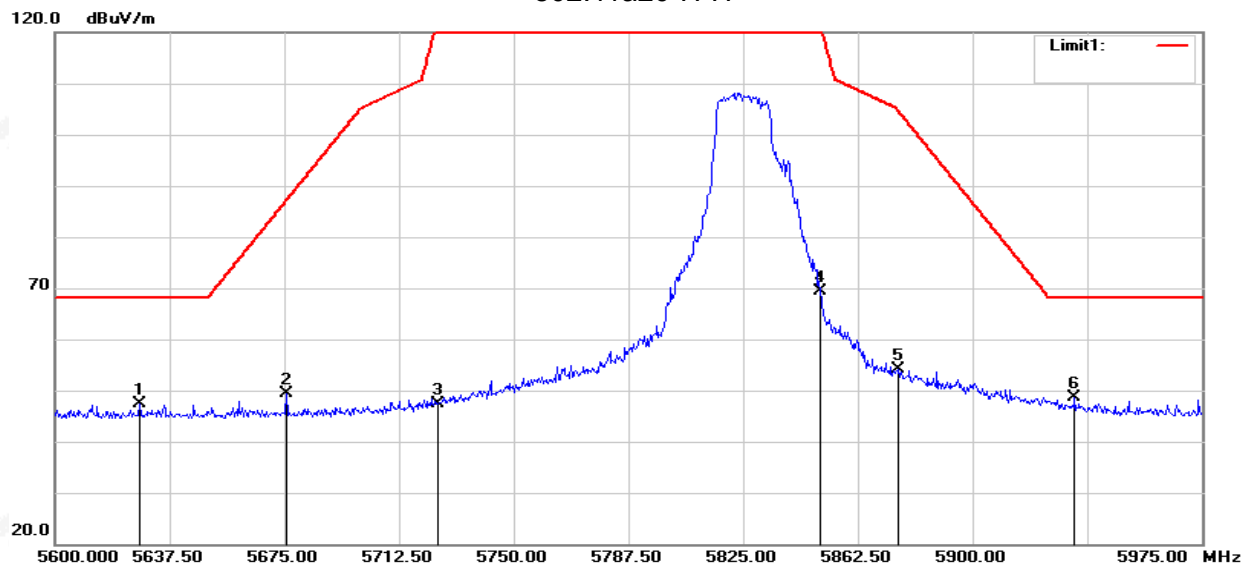
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5616.125	51.42	-4.69	46.73	68.20	-21.47	peak
2	5700.500	56.36	-4.66	51.70	105.34	-53.64	peak
3	5725.000	79.99	-4.57	75.42	122.20	-46.78	peak
4	5850.000	49.70	-4.10	45.60	122.20	-76.60	peak
5	5902.250	51.45	-3.89	47.56	85.03	-37.47	peak
6	5929.625	50.75	-3.93	46.82	68.20	-21.38	peak

802.11a20-L-V



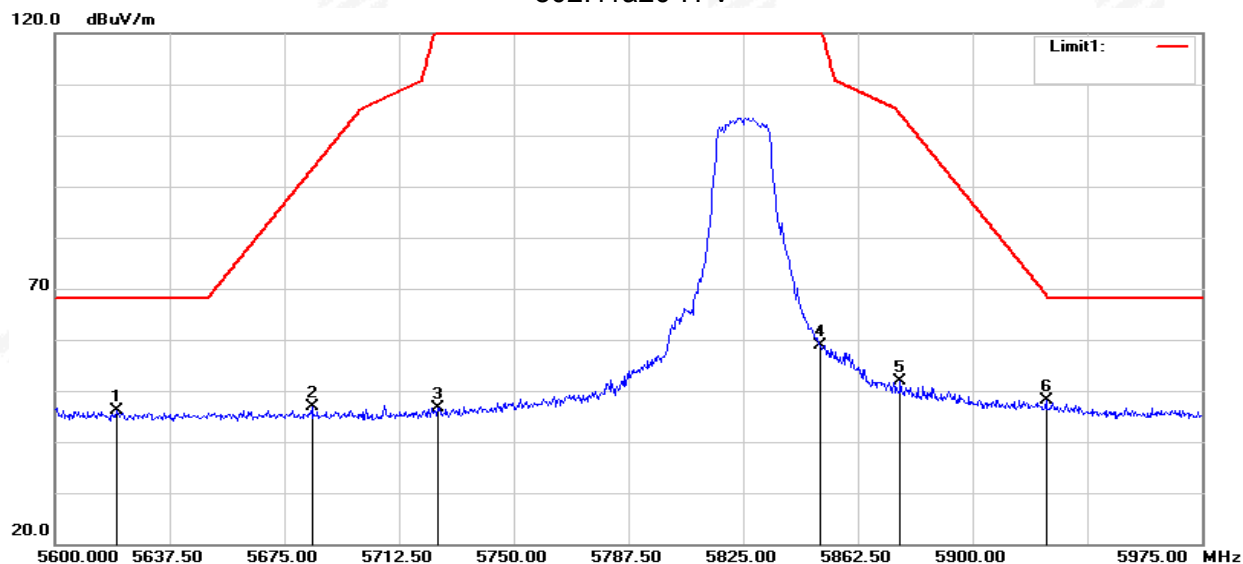
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5622.125	50.82	-4.69	46.13	68.20	-22.07	peak
2	5696.375	52.50	-4.67	47.83	102.52	-54.69	peak
3	5725.000	67.79	-4.57	63.22	122.20	-58.98	peak
4	5850.000	49.73	-4.10	45.63	122.20	-76.57	peak
5	5903.000	51.29	-3.89	47.40	84.48	-37.08	peak
6	5929.250	51.27	-3.93	47.34	68.20	-20.86	peak

802.11a20-H-H



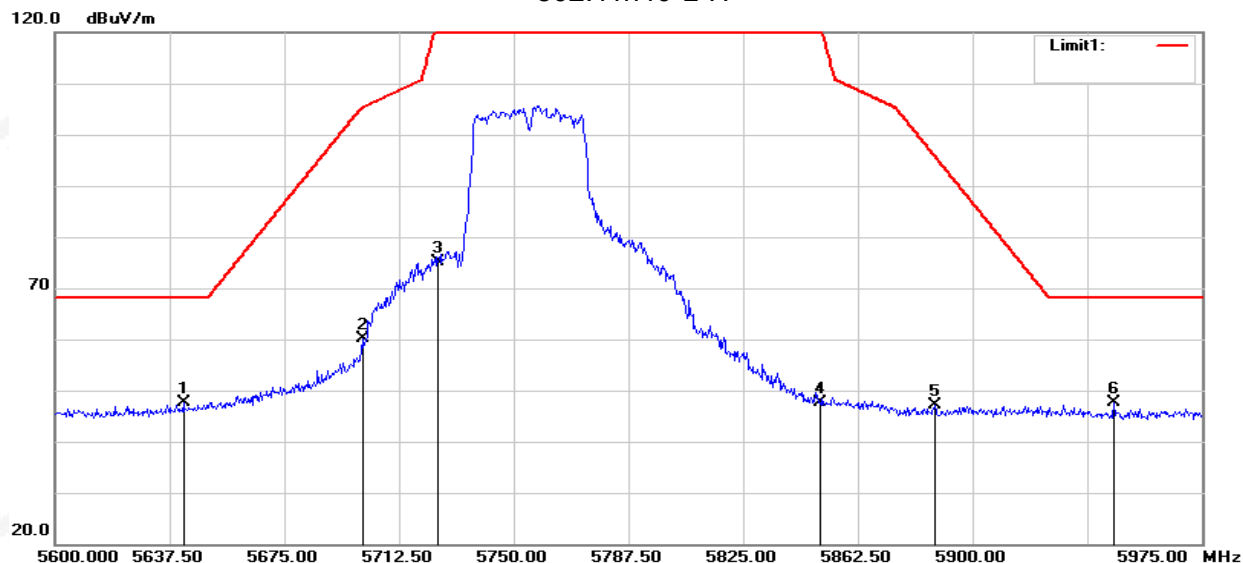
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5627.750	51.96	-4.69	47.27	68.20	-20.93	peak
2	5675.750	53.98	-4.67	49.31	87.26	-37.95	peak
3	5725.000	51.96	-4.57	47.39	122.20	-74.81	peak
4	5850.000	73.53	-4.10	69.43	122.20	-52.77	peak
5	5875.625	58.20	-3.99	54.21	104.74	-50.53	peak
6	5933.375	52.53	-3.94	48.59	68.20	-19.61	peak

802.11a20-H-V



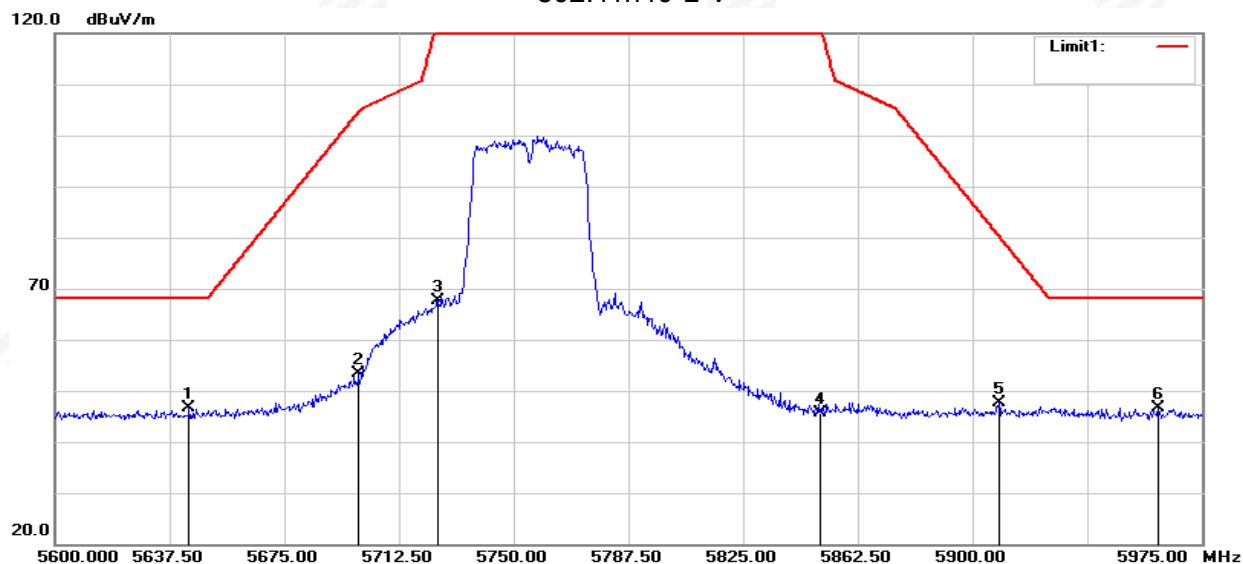
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5620.250	50.84	-4.69	46.15	68.20	-22.05	peak
2	5684.000	51.47	-4.67	46.80	93.36	-46.56	peak
3	5725.000	51.22	-4.57	46.65	122.20	-75.55	peak
4	5850.000	63.00	-4.10	58.90	122.20	-63.30	peak
5	5876.375	55.97	-3.99	51.98	104.18	-52.20	peak
6	5924.000	51.99	-3.92	48.07	68.94	-20.87	peak

802.11n40-L-H



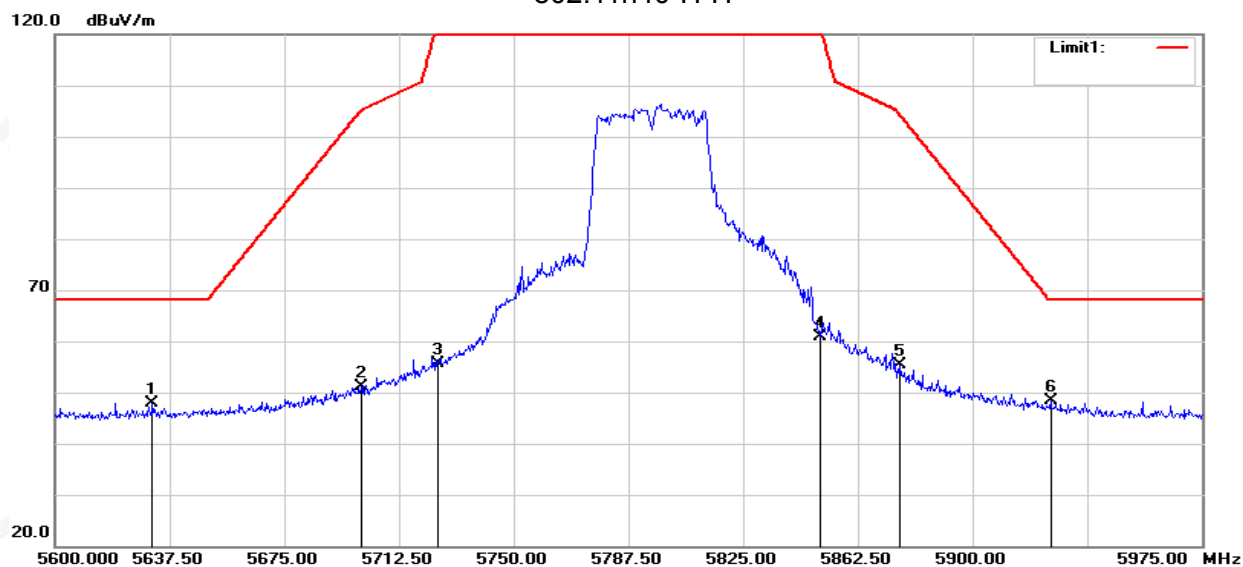
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5642.000	52.40	-4.68	47.72	68.20	-20.48	peak
2	5700.500	64.69	-4.66	60.03	105.34	-45.31	peak
3	5725.000	79.62	-4.57	75.05	122.20	-47.15	peak
4	5850.000	51.61	-4.10	47.51	122.20	-74.69	peak
5	5887.625	50.97	-3.93	47.04	95.86	-48.82	peak
6	5946.125	51.70	-3.96	47.74	68.20	-20.46	peak

802.11n40-L-V



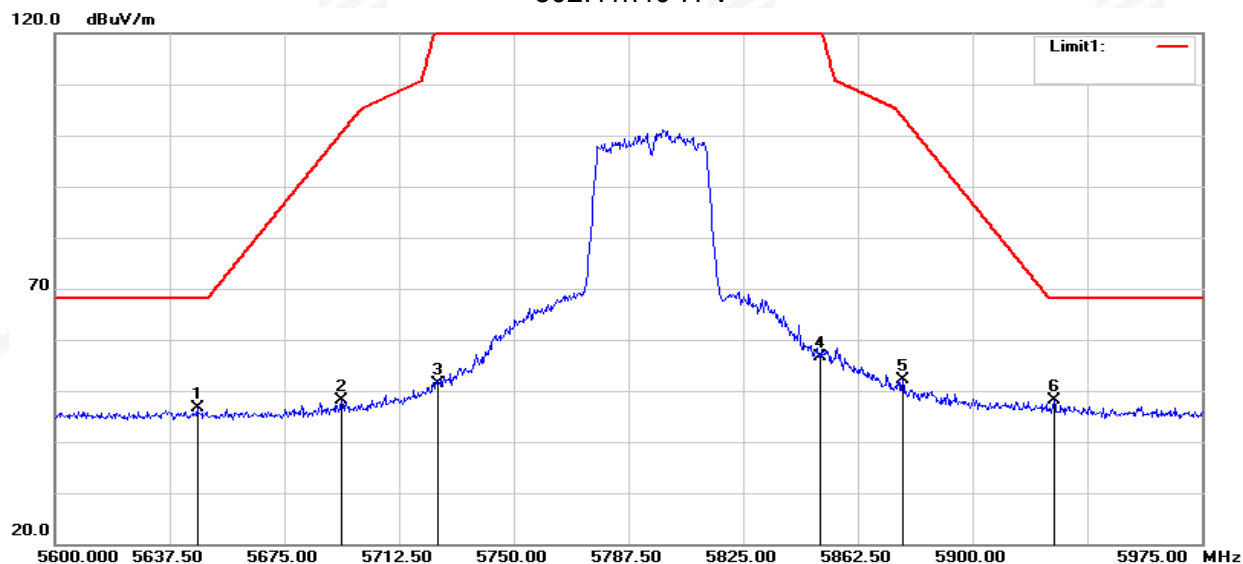
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5643.875	51.21	-4.68	46.53	68.20	-21.67	peak
2	5699.375	58.05	-4.66	53.39	104.74	-51.35	peak
3	5725.000	72.22	-4.57	67.65	122.20	-54.55	peak
4	5850.000	49.85	-4.10	45.75	122.20	-76.45	peak
5	5908.625	51.42	-3.90	47.52	80.32	-32.80	peak
6	5960.750	50.58	-3.98	46.60	68.20	-21.60	peak

802.11n40-H-H



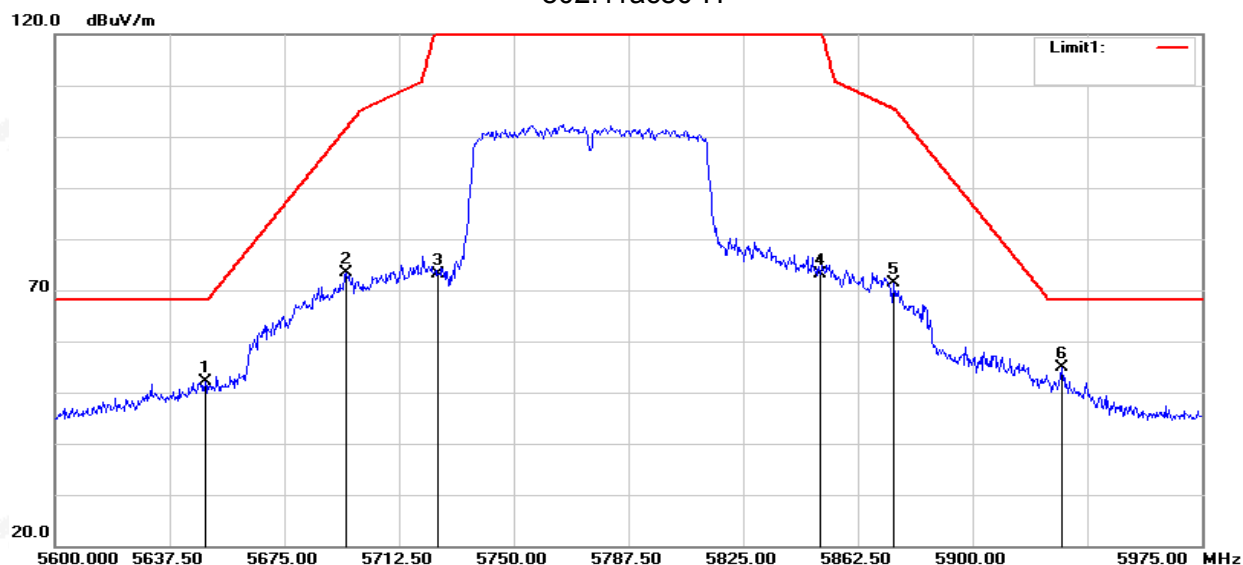
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5631.875	52.61	-4.69	47.92	68.20	-20.28	peak
2	5700.125	55.72	-4.66	51.06	105.23	-54.17	peak
3	5725.000	60.30	-4.57	55.73	122.20	-66.47	peak
4	5850.000	64.93	-4.10	60.83	122.20	-61.37	peak
5	5876.375	59.38	-3.99	55.39	104.18	-48.79	peak
6	5925.500	52.33	-3.92	48.41	68.20	-19.79	peak

802.11n40-H-V



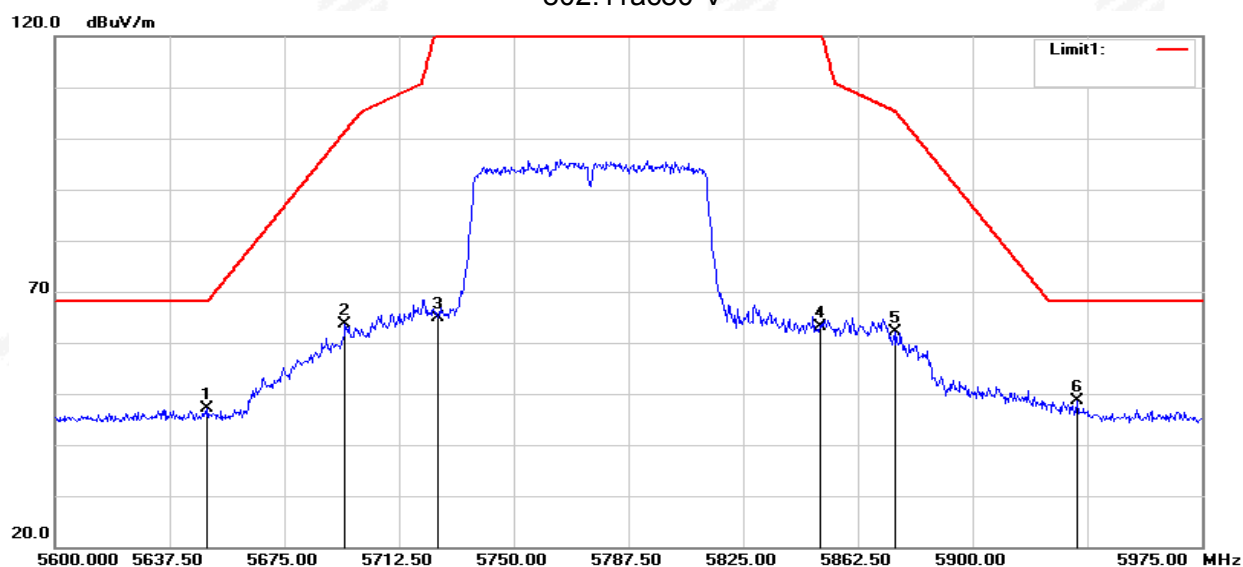
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5646.500	51.21	-4.69	46.52	68.20	-21.68	peak
2	5693.750	52.71	-4.66	48.05	100.58	-52.53	peak
3	5725.000	55.83	-4.57	51.26	122.20	-70.94	peak
4	5850.000	60.65	-4.10	56.55	122.20	-65.65	peak
5	5877.125	56.02	-3.98	52.04	103.63	-51.59	peak
6	5926.625	51.96	-3.93	48.03	68.20	-20.17	peak

802.11ac80-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.125	56.80	-4.68	52.12	68.20	-16.08	peak
2	5695.250	77.95	-4.66	73.29	101.69	-28.40	peak
3	5725.000	77.68	-4.57	73.11	122.20	-49.09	peak
4	5850.000	77.14	-4.10	73.04	122.20	-49.16	peak
5	5874.125	75.47	-3.99	71.48	105.45	-33.97	peak
6	5929.250	58.79	-3.93	54.86	68.20	-13.34	peak

802.11ac80-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.875	51.72	-4.68	47.04	68.20	-21.16	peak
2	5694.875	68.27	-4.66	63.61	101.41	-37.80	peak
3	5725.000	69.49	-4.57	64.92	122.20	-57.28	peak
4	5850.000	67.32	-4.10	63.22	122.20	-58.98	peak
5	5874.875	66.03	-3.99	62.04	105.23	-43.19	peak
6	5934.125	52.67	-3.94	48.73	68.20	-19.47	peak

Note: All modes have been tested. Only the worst mode shown in the report.

4. POWER SPECTRAL DENSITY TEST

4.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.*, 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP**4.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

Note: The test data please reference to attachment “STS2309309W13_Appendix 5G WIFI”.

5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

5.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW $\geq$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

Note: The test data please reference to attachment "STS2309309W13_Appendix 5G WIFI".

5.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

The following procedure shall be used for measuring (99 %) power bandwidth.

5.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
The following procedure shall be used for measuring (99 %) power bandwidth:
 1. Set center frequency to the nominal EUT channel center frequency.
 2. Set span = 1.5 times to 5.0 times the OBW.
 3. Set RBW = 1 % to 5 % of the OBW
 4. Set VBW $\geq 3 \cdot$ RBW
 5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
 6. Use the 99 % power bandwidth function of the instrument (if available).
 7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP



5.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.2.5 TEST RESULTS

Note: The test data please reference to attachment "STS2309309W13_Appendix 5G WIFI".

5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

5.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
 - a) Set RBW = 100 kHz.
 - b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - c) Detector = Peak.
 - d) Trace mode = max hold.
 - e) Sweep = auto couple.
 - f) Allow the trace to stabilize.
 - g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP



5.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.3.5 TEST RESULTS

Note: The test data please reference to attachment "STS2309309W13_Appendix 5G WIFI".

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz, If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

FCC Part15 (15.407) , Subpart E				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(a) (1) (iv)	Peak Output Power	0.25 watt	5150-5250	PASS
		The lesser of 250 mW or $11 \text{ dBm} + 10 \log (26 \text{ dB emission bandwidth})$	5250-5350 5470-5725	
15.407(a) (3)		1 watt	5725-5895	

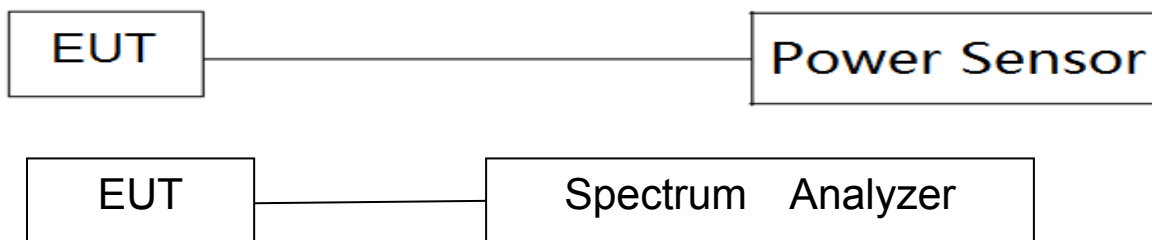
6.2 TEST PROCEDURE

The EUT was directly connected to the Power Sensor&PC

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

Note: The test data please reference to attachment "STS2309309W13_Appendix 5G WIFI".

7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

8.2 EUT ANTENNA

The EUT antenna is SR42W009 SMD Antenna. It comply with the standard requirement.



APPENDIX - PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****