FCC TEST REPORT

Product Name:	Smart Phone
Trade Mark:	BLU
Model No.:	G64
Report Number:	24060411802RFC-4
Test Standards:	FCC 47 CFR Part 15 Subpart E
FCC ID:	YHLBLU64W
Test Result:	PASS
Date of Issue:	August 1, 2024

Prepared for:

BLU Products, Inc.
8600 NW 36th Street, Suite #300 | Miami, FL 33166

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China
TEL: +86-755-2823 0888
FAX: +86-755-2823 0886

Prepared by:	David Chen	Reviewed by:	Henry Lu
	Senior Project Engineer		Team Leader
Approved by:	Robben Chen	Date:	August 1, 2024
	Assistant Manager		

UnionTrust Laboratories

Version

Version No.	Date	Description
V1.0	August 1, 2024	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	BLU Products, Inc.
Address of Applicant:	8600 NW 36th Street, Suite #300 | Miami, FL 33166
Manufacturer:	BLU Products, Inc.
Address of Manufacturer:	8600 NW 36th Street, Suite #300 | Miami, FL 33166

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Smart Phone		
Model No.:	G64		
Trade Mark:	BLU		
DUT Stage:	Identical Prototype		
EUT Supports Function: (Provided by the customer)	GSM Bands:	GSM850/PCS 1900	
	UTRA Bands:	WCDMA Band II/ Band IV/ Band V	
	E-UTRA Bands:	FDD Band 2/ 4/ 5/ 7/ 12/ 17/ 66/ 71	
	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth 5.0	
	5 GHz U-NII Bands:	5 150 MHz to 5 250 MHz	IEEE 802.11a/n/ac
		5 250 MHz to 5 350 MHz	IEEE 802.11a/n/ac
		5 470 MHz to 5 725 MHz	IEEE 802.11a/n/ac
		5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac
	RNSS Band:	1559 MHz to 1610 MHz	BDS/ GPS/ GLONASS/ Galileo/ SBAS
	BSR:	VHF Band II	FM
Software Version:	BLU_G1010_V14.0.03.01_GENERIC_21-05-2024_1645 (Provided by the customer)		
Hardware Version:	FS310-MB-V0.1 (Provided by the customer)		
Sample Received Date:	May 31, 2024		
Sample Tested Date:	June 12, 2024 to July 4, 2024		
Remark: The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.			

1.2.2 Description of Accessories

Adapter	
Model No.:	US-TY-2001
Input:	100-240 V~50/60 Hz 0.3 A
Output:	5.0 V ⎓ 2000 mA

Battery	
Model No.:	C936549500P
Battery Type:	Lithium-ion Battery
Rated Voltage:	3.87 Vdc
Limited Charge Voltage:	4.45 Vdc
Rated Capacity:	4900 mAh

Cable	
Description:	USB Type-C to USB 3.0 Type A Cable
Connector:	USB Type-C / USB 3.0 Type A
Cable Type:	Unshielded without ferrite
Length:	1 Meter

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Frequency Bands:	5150 MHz to 5250 MHz (U-NII-1)				
	5250 MHz to 5350 MHz (U-NII-2A)				
	5470 MHz to 5725 MHz (U-NII-2C)				
	5725 MHz to 5850 MHz (U-NII-3)				
Frequency Ranges:	5180 MHz to 5240 MHz				
	5260 MHz to 5320 MHz				
	5500 MHz to 5700 MHz				
	5745 MHz to 5825 MHz				
Support Standards:	IEEE 802.11a/n/ac				
TPC Function:	Not Support				
DFS Operational mode:	Slave without radar Interference detection function				
Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)				
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz				
	IEEE 802.11n-HT40/ac-VHT40: 40 MHz				
	IEEE 802.11ac-VHT80: 80 MHz				
Data Rate:	IEEE 802.11a: Up to 54 Mbps				
	IEEE 802.11n-HT20: Up to MCS7				
	IEEE 802.11n-HT40: Up to MCS7				
	IEEE 802.11ac-VHT20: Up to MCS8				
	IEEE 802.11ac-VHT40: Up to MCS9				
	IEEE 802.11ac-VHT80: Up to MCS9				
Number of Channels:	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11acVHT80				
	5250 MHz to 5350 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11acVHT80				
	5470 MHz to 5725 MHz: 11 for IEEE 802.11a/n-HT20/ac-VHT20 5 for IEEE 802.11n-HT40/ac-VHT40 2 for IEEE 802.11ac-VHT80				
	5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40/ac-VHT40 1 for IEEE 802.11ac-VHT80				
Antenna Type:	FPCB Antenna				
Antenna Gain: (Provided by the customer)	5150 - 5250 MHz	-1.64 dBi			
	5250 - 5350 MHz	-1.64 dBi			
	5470 - 5725 MHz	-1.64 dBi			
	5725 - 5850 MHz	-1.64 dBi			
Maximum conducted output power (dBm):		**U-NII-1**	**U-NII-2A**	**U-NII-2C**	**U-NII-3**
	IEEE 802.11a:	16.05	16.36	13.00	13.43
	IEEE 802.11n-HT20:	14.97	15.32	12.71	13.37
	IEEE 802.11n-HT40:	15.41	15.71	12.97	12.97

	IEEE 802.11ac-VHT20:	15.11	15.32	13.04	13.49
	IEEE 802.11ac-VHT40:	15.14	15.45	12.56	12.66
	IEEE 802.11ac-VHT80:	15.14	15.89	15.41	15.07
Normal Test Voltage:	3.87 Vdc				

1.4 OTHER INFORMATION

Operation Frequency Each of Channel				
	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
IEEE 802.11a, IEEE 802.11n-HT20, IEEE 802.11ac-VHT20	f = 5000 + 5k, k = 32 + 4n			f = 5000 + 5k, k = 145 + 4n
	n = 1,…, 4	n = 5,…, 8	n = 17,…, 27	n = 1,…, 5
IEEE 802.11n-HT40, IEEE 802.11ac-VHT40	f = 5000 + 5k, k = 30 + 8n			f = 5000 + 5k, k = 143 + 8n
	n = 1, 2	n = 1,…, 5	n = 9,…, 13	n = 1, 2
IEEE 802.11ac-VHT80	f = 5000 + 5k, k = 26 + 16n			f = 5000 + 5k, k = 155
	n = 1	n = 1, 2	n = 5, 6	
Note: **f** is the operating frequency (MHz); **k** is the operating channel.				

1.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	FCC ID	Supplied by
Notebook	DELL	Latitude 3400	16238087894	N/A	UnionTrust
Mouse	DELL	MS111	CN-011D3V-738	N/A	UnionTrust
Wireless Home Router	SAGEMCOM	FAST5280	253703944	VW3FAST5280	UnionTrust
Key-Press Attenuator	Huaxin	KT2.5-90/1S-2S	UTTL-EN023	N/A	UnionTrust
4 Way Divider	WOKEN	0120A040560002D	UTTL-EN028	N/A	UnionTrust

2) Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Antenna Cable	SMA	0.3 Meter	UnionTrust

1.6 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China 518109
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

1.7 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01
Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories
CAB identifier: CN0032

FCC Accredited Lab.
Designation Number: CN1194
Test Firm Registration Number: 259480

1.8 DEVIATION FROM STANDARDS

None.

1.9 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.11 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	Conducted emission 9kHz-150kHz	±3.2 dB
2	Conducted emission 150kHz-30MHz	±2.7 dB
3	Radiated emission 9kHz-30MHz	±4.7 dB
4	Radiated emission 30MHz-1GHz	±4.6 dB
5	Radiated emission 1GHz-18GHz	±4.4 dB
6	Radiated emission 18GHz-26GHz	±4.6 dB
7	Radiated emission 26GHz-40GHz	±4.6 dB
8	Conducted spurious emissions	± 2.7 dB
9	RF Power, Conducted	± 0.68 dB
10	Occupied Bandwidth	± 1.86 %
11	Radio Frequency	5.6 GHz: ± 6.4 x 10^{-8}
12	Transmission Time	± 0.19 %

2. TEST SUMMARY

FCC 47 CFR Part 15 Subpart E Test Cases			
Test Item	**Test Requirement**	**Test Method**	**Result**
Antenna Requirement	FCC 47 CFR Part 15 Subpart C Section 15.203 FCC 47 CFR Part 15 Subpart E Section 15.407(a)(1) (2)	N/A	PASS
26 dB emission bandwidth	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(2)(5)	KDB 789033 D02 v02r01 Section C.1	PASS
6 dB bandwidth	FCC 47 CFR Part 15 Subpart E Section 15.407 (e)	KDB 789033 D02 v02r01 Section C.2	PASS
99% Occupied Bandwidth	N/A	KDB 789033 D02 v02r01 Section D	N/A Note 1
Maximum conducted output power	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3)	KDB 789033 D02 v02r01 Section E.3.a (Method PM)	PASS
Peak Power Spectral Density	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3)	KDB 789033 D02 v02r01 Section F	PASS
Radiated Emissions and Band Edge Measurement	FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(1)(2)(3)(4)(6) FCC 47 CFR Part 15 Subpart C Section 15.209/205	KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6	PASS
Dynamic Frequency Selection	FCC 47 CFR Part 15 Subpart E Section 15.407 (h)	KDB 905462 D03 Client Without DFS New Rules v01r02	PASS
AC Power Line Conducted Emission	FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(6) FCC 47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013, Section 6.2.	PASS
Disclaimer and Explanations: The declared of product specification and data (e.g., antenna gain, RF specification, etc) for EUT presented in the report are provided by the customer, and the customer takes all the responsibilities for the accuracy of product specification.			
Note: 1) No test requirement, for reporting purposes only.			

For Dynamic Frequency Selection

Test Case	Result
Channel Availability Check Time	N/A Note 1
U-NII Detection Bandwidth	N/A Note 1
Channel Closing Transmission Time	PASS
Channel Move Time	PASS
DFS Detection Threshold	N/A Note 1
Non- Occupancy Period	N/A Note 1
Note: 1) The EUT is slave, NA In this whole report not applicable.	

3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
☑	3m SAC	ETS-LINDGREN	3M	Euroshiedpn-CT 001270-1317	11-Nov-2023	10-Nov-2026
☑	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	29-Mar-2024	28-Mar-2025
☑	Receiver	R&S	ESIB26	100114	27-Oct-2023	26-Oct-2024
☐	Loop Antenna	ETS-LINDGREN	6502	00202525	30-Oct-2023	29-Oct-2024
☑	Broadband Antenna	ETS-LINDGREN	3142E	00201566	30-Oct-2023	29-Oct-2024
☑	6dB Attenuator	Talent	RA6A5-N-18	18103001	30-Oct-2023	29-Oct-2024
☑	Preamplifier	HP	8447F	2805A02960	31-Oct-2023	30-Oct-2024
☑	Double-Ridged Waveguide Horn Antenna	ETS-LINDGREN	3117-PA	00201541	16-Apr-2023	15-Apr-2025
☑	Pre-amplifier	ETS-LINDGREN	00118385	00201874	31-Oct-2023	30-Oct-2024
☑	Double-Ridged Waveguide Horn Antenna	ETS-LINDGREN	3116C-PA	00202652	30-Oct-2023	29-Oct-2024
☑	Pre-amplifier	ETS-LINDGREN	00118384	00202652	30-Oct-2023	29-Oct-2024
☑	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☑	Band Rejection Filter (5150MHz~5880MHz)	Micro-Tronics	BRM50716	G186	27-Oct-2023	26-Oct-2024
☑	Test Software	Audix	e3	Software Version: 9.160323		

Conducted Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
☑	Receiver	R&S	ESR7	101181	27-Oct-2023	26-Oct-2024
☑	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	27-Oct-2023	26-Oct-2024
☑	LISN	R&S	ESH2-Z5	860014/024	27-Oct-2023	26-Oct-2024
☐	LISN	ETS-Lindgren	3816/2SH	00201088	27-Oct-2023	26-Oct-2024
☑	Test Software	EZ-EMC	EZ-CON	Software Version: EMC-CON 3A1.1		

RF Conducted Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
☑	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	29-Mar-2024	28-Mar-2025
☐	EXA Spectrum Analyzer	KEYSIGHT	N9020A	MY51286807	27-Oct-2023	26-Oct-2024
☑	USB Wideband Power Sensor	KEYSIGHT	U2021XA	MY55430035	27-Oct-2023	26-Oct-2024
☑	EXG-B RF Analog Signal Generator	KEYSIGHT	N5171B	MY53051777	27-Oct-2023	26-Oct-2024
☑	MXG X-Series RF Vector Signal Generator	KEYSIGHT	N5182B	MY51350267	27-Oct-2023	26-Oct-2024

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

4.1.1 Normal or Extreme Test Conditions

Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage	Relative Humidity (%)
NT/NV	+15 to +35	3.87V Battery	20 to 75
Remark: 1) NV: Normal Voltage; NT: Normal Temperature			

4.1.2 Record of Normal Environment and Test Sample

Test Item	Temp. (°C)	Relative Humidity (%)	Pressure (kPa)	Sample No.	Tested by
AC Power Line Conducted Emission	23.3	55.4	100.5	S202405313546-ZJA06/9	Linson Xie
26 dB emission bandwidth	24.2	45.7	100.1	S202405313546-ZJA02/9	Allen Zhou
Maximum conducted output power					
Peak Power Spectral Density					
6 dB bandwidth					
Dynamic Frequency Selection					
Radiated Emissions and Band Edge Measurement	23.6	54.9	100.6	S202405313546-ZJA06/9	Fire Huo

4.2 TEST CHANNELS

Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
IEEE 802.11a IEEE 802.11n-HT20 IEEE 802.11ac-VHT20	5150 MHz to 5250 MHz	Channel 36	Channel 44	Channel 48
		5180 MHz	5220 MHz	5240 MHz
	5250 MHz to 5350 MHz	Channel 52	Channel 60	Channel 64
		5260 MHz	5300 MHz	5320 MHz
	5470 MHz to 5725 MHz	Channel 100	Channel 116	Channel 140
		5500 MHz	5580 MHz	5700 MHz
	5725 MHz to 5850 MHz	Channel 149	Channel 157	Channel 165
		5745 MHz	5785 MHz	5825 MHz
IEEE 802.11n-HT40 IEEE 802.11ac-VHT40	5150 MHz to 5250 MHz	Channel 38	--	Channel 46
		5190 MHz	--	5230 MHz
	5250 MHz to 5350 MHz	Channel 54	--	Channel 62
		5270 MHz	--	5310 MHz
	5470 MHz to 5725 MHz	Channel 102	Channel 110	Channel 134
		5510 MHz	5550 MHz	5670 MHz
	5725 MHz to 5850 MHz	Channel 151	--	Channel 159
		5755 MHz	--	5795 MHz
IEEE 802.11ac-VHT80	5150 MHz to 5250 MHz	--	Channel 42	--
		--	5210 MHz	--
	5250 MHz to 5350 MHz	--	Channel 58	--
		--	5290 MHz	--
	5470 MHz to 5725 MHz	Channel 106	--	Channel 122
		5530 MHz	--	5610 MHz
	5725 MHz to 5850 MHz	Channel 138	Channel 155	--
		5610 MHz/	5775 MHz	--

4.3 EUT TEST STATUS

Mode	Tx/Rx Function	Description
IEEE 802.11a/n/ac	1Tx/1Rx	1. Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

Power Setting (Provided by the customer)				
Mode	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
IEEE 802.11a	11	11	10	10
IEEE 802.11n-HT20	10	10	10	10
IEEE 802.11n-HT40	10	10	10	10
IEEE 802.11ac-VHT20	10	10	10	10
IEEE 802.11ac-VHT40	10	10	10	10
IEEE 802.11ac-VHT80	12	12	14	14
Test Software (Provided by the customer)				
Engineering mode: *#*#83781#*#*				

4.4 PRE-SCAN

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate. Following data rate was (were) selected for the final test as listed below

Mode	Worst-case data rates
IEEE 802.11a	6 Mbps
IEEE 802.11n-HT20	MCS0
IEEE 802.11n-HT40	MCS0
IEEE 802.11ac-VHT20	MCS0
IEEE 802.11ac-VHT40	MCS0
IEEE 802.11ac-VHT80	MCS0

4.5 TEST SETUP

4.5.1 For Radiated Emissions test setup

Figure 1. Below 30MHz

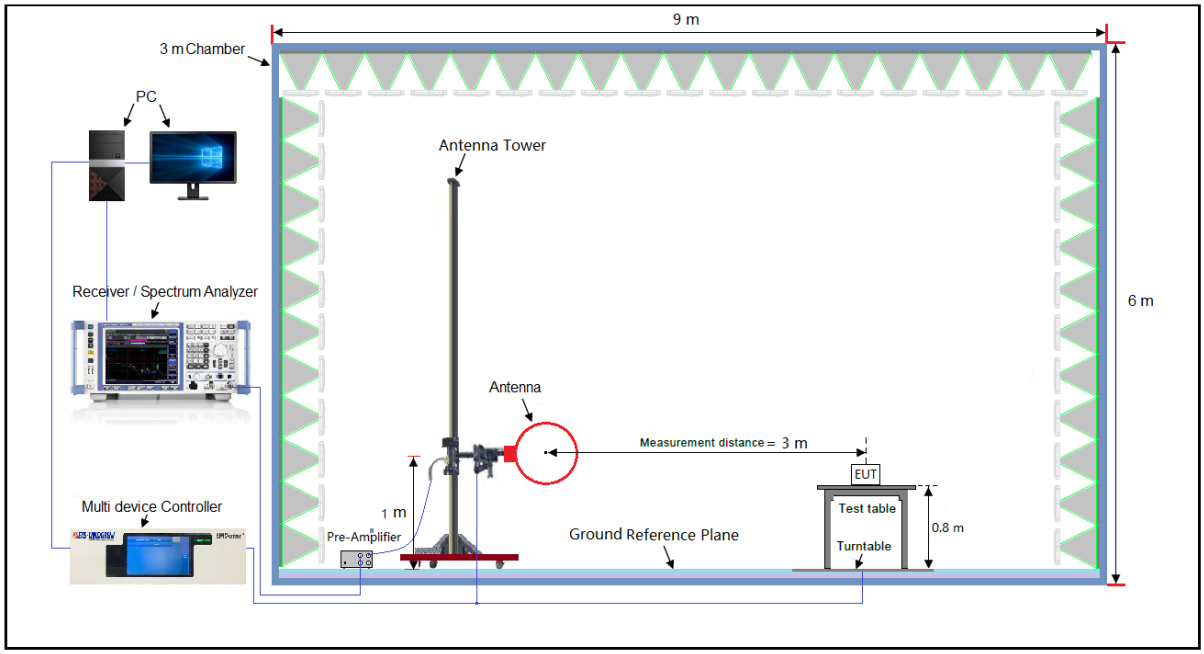


Figure 2. 30MHz to 1GHz

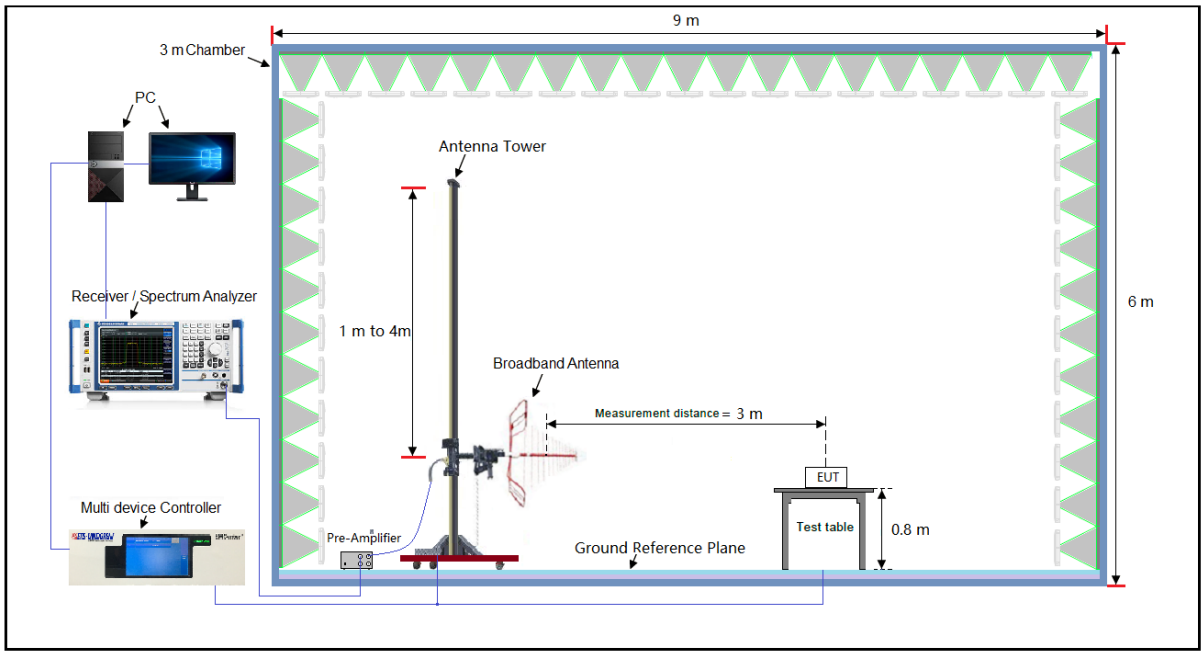
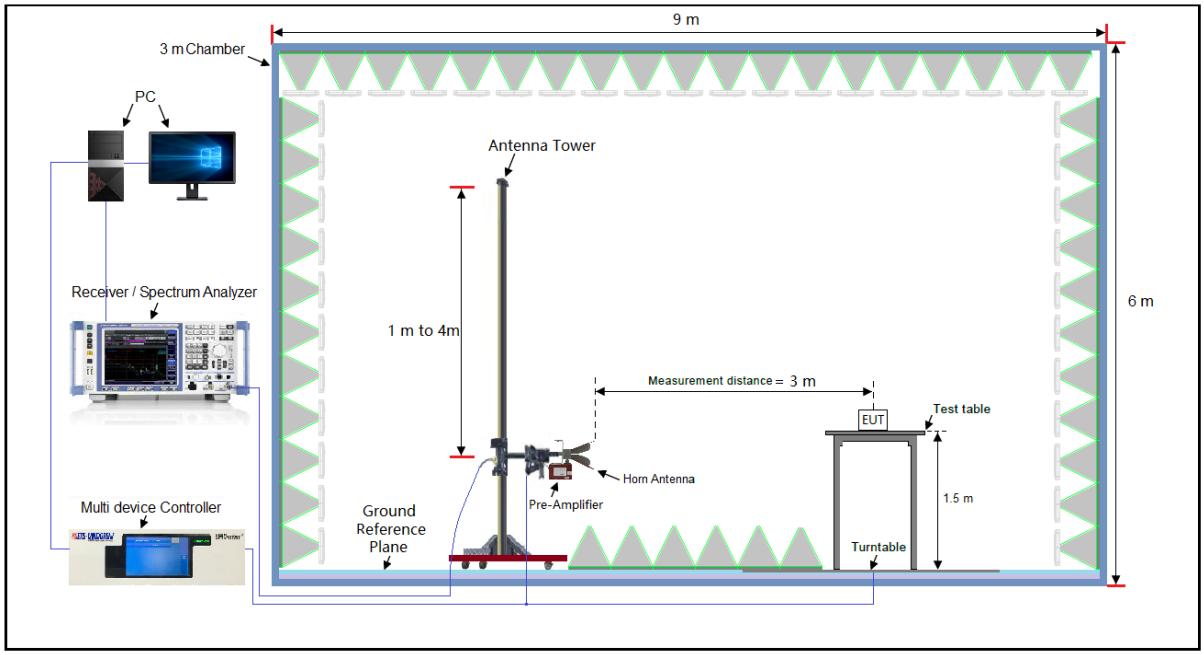
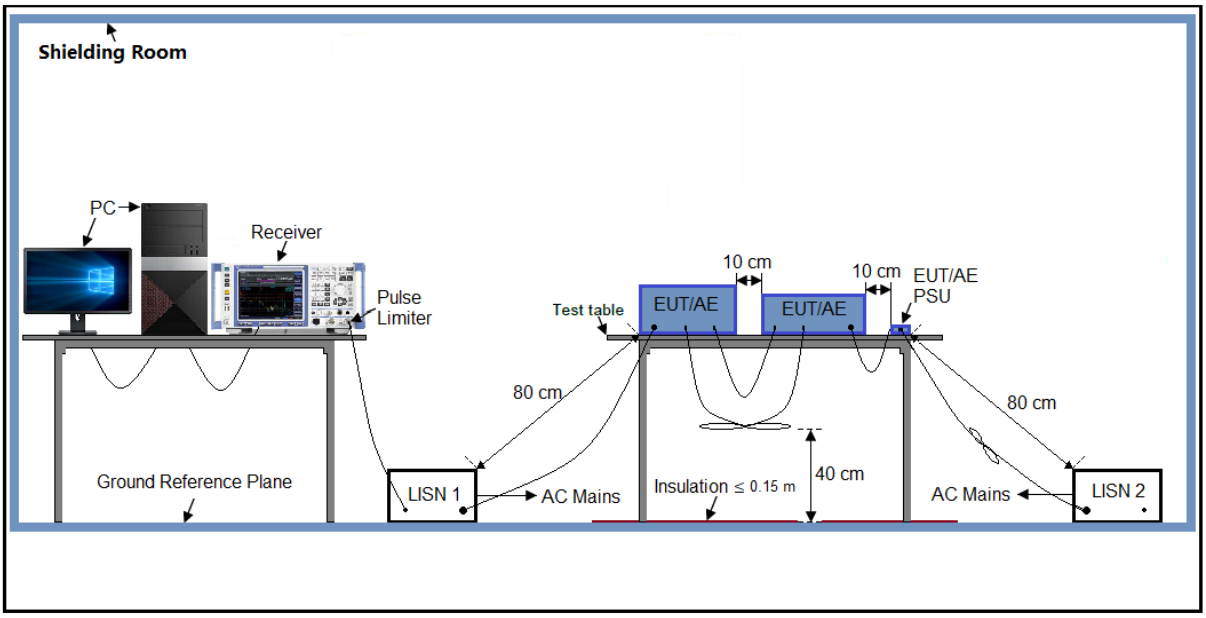


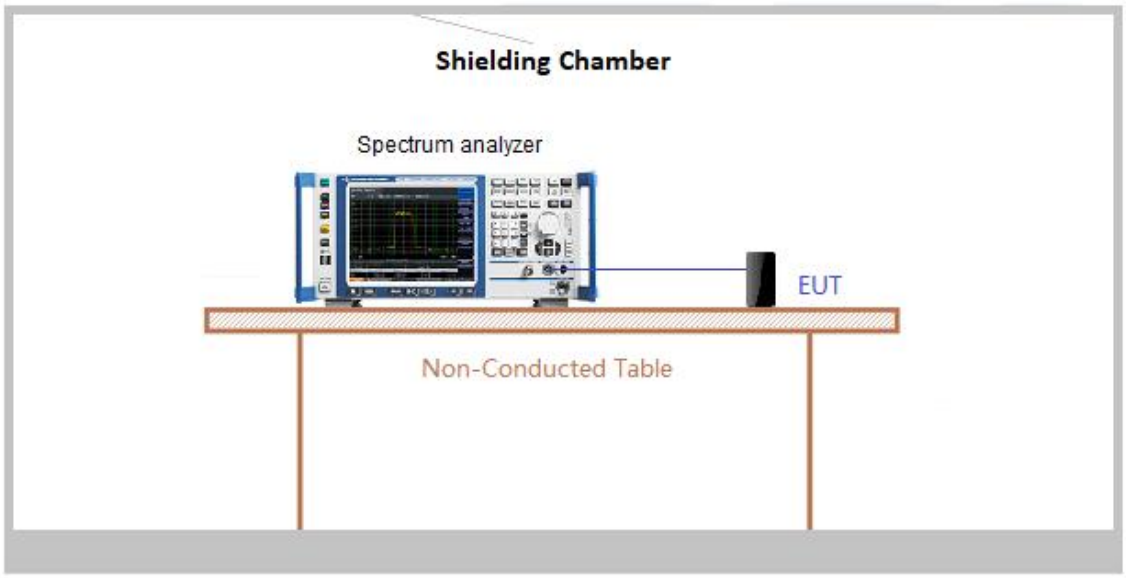
Figure 3. Above 1GHz



4.5.2 For Conducted Emissions test setup



4.5.3 For Conducted RF test setup



Normal Environment

4.6 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 3.87V battery. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Therefore, all final radiated testing was performed with the EUT in orientation.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4.7 DUTY CYCLE

Test Procedure: ANSI C63.10-2013 Clause 12.2.

Test Results

Mode	Data Rates	On Time (msec)	Period (msec)	Duty Cycle (linear)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/T Minimum VBW (kHz)
IEEE 802.11a	6 Mbps	1.360	1.520	0.89	89.47	0.48	0.74
IEEE 802.11n-HT20	MCS 0	1.150	1.300	0.88	88.46	0.53	0.87
IEEE 802.11n-HT40	MCS 0	0.570	0.710	0.80	80.28	0.95	1.75
IEEE 802.11ac-VHT20	MCS 0	1.160	1.310	0.89	88.55	0.53	0.86
IEEE 802.11ac-VHT40	MCS 0	0.580	0.750	0.77	77.33	1.12	1.72
IEEE 802.11ac-VHT80	MCS 0	0.270	0.440	0.61	61.36	2.12	3.70

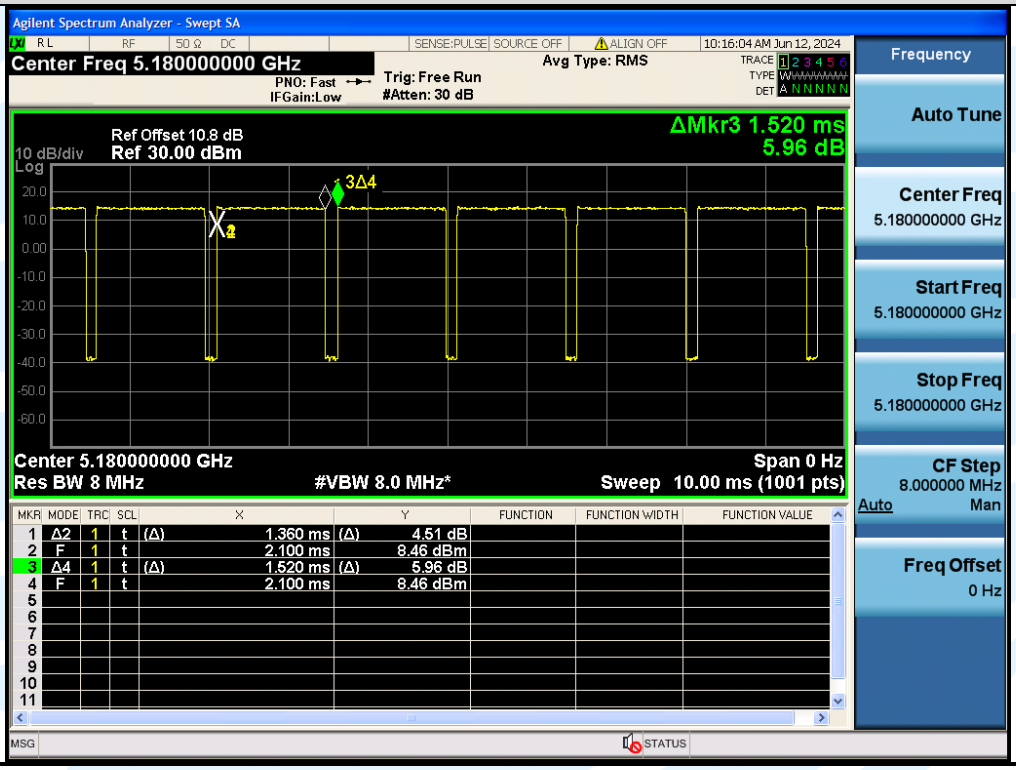
Remark:

1) Duty cycle= On Time/ Period;

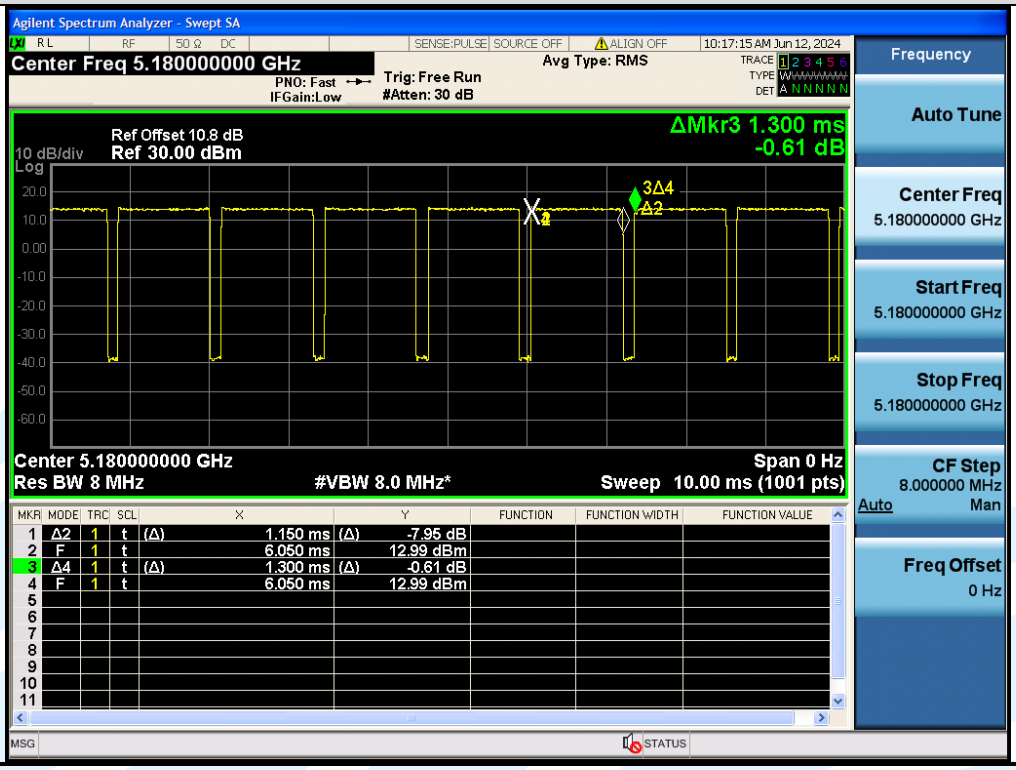
2) Duty Cycle factor = 10 * log(1/ Duty cycle);

The test plots as follows

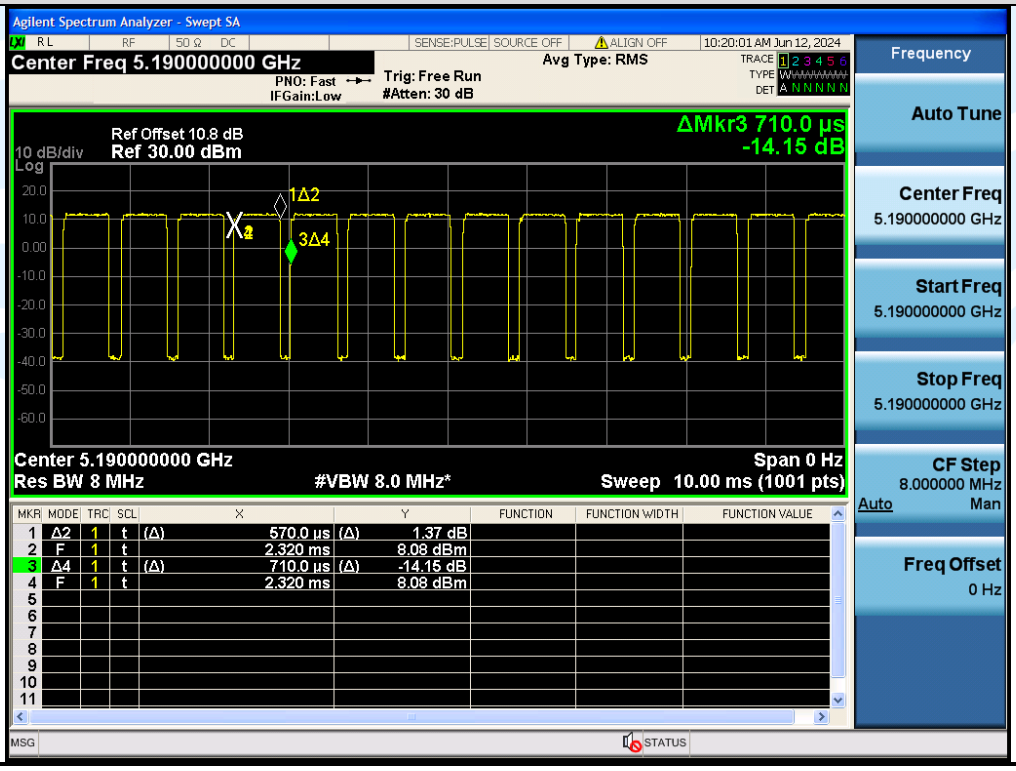
IEEE 802.11a



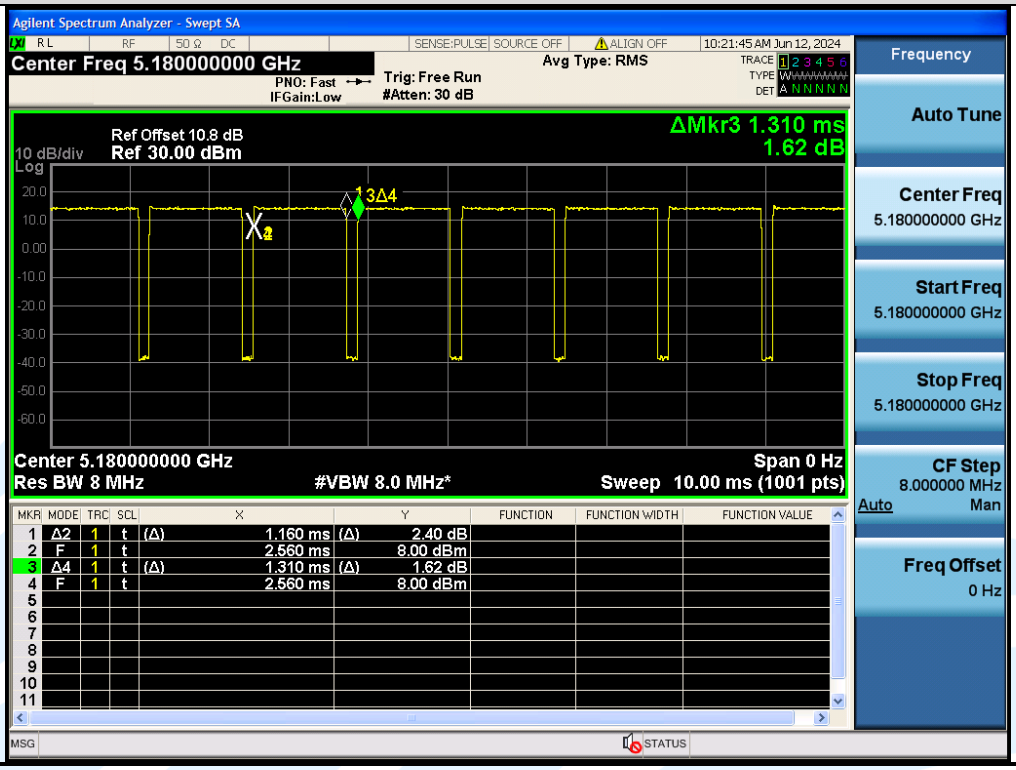
IEEE 802.11n-HT20



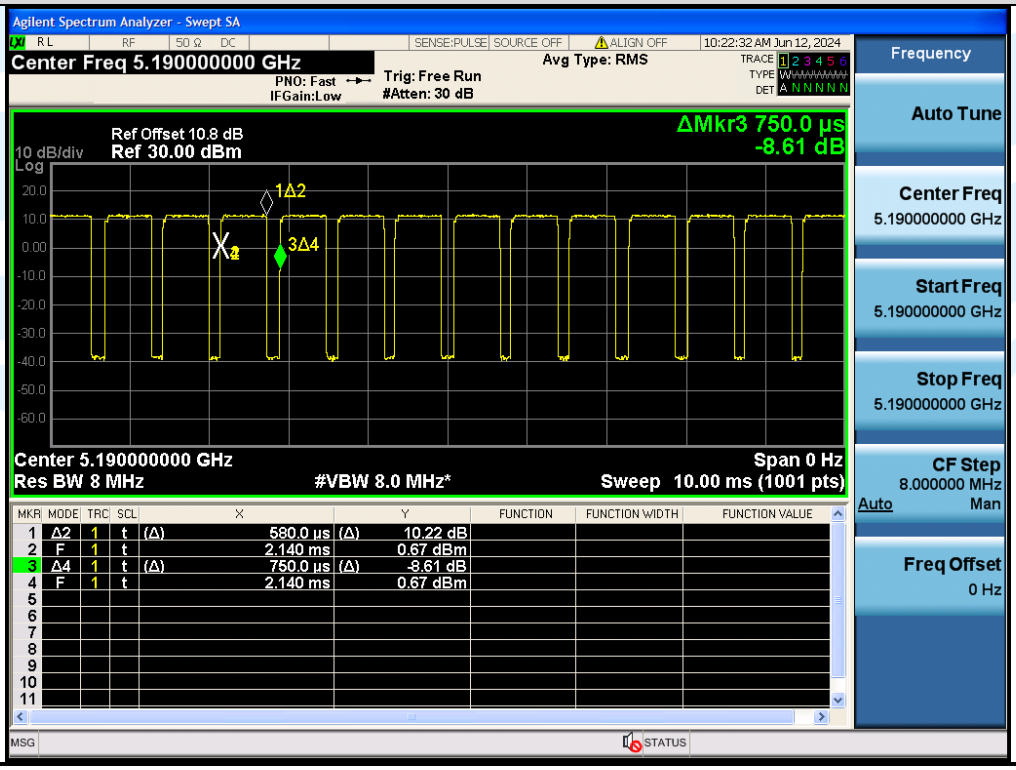
IEEE 802.11n-HT40



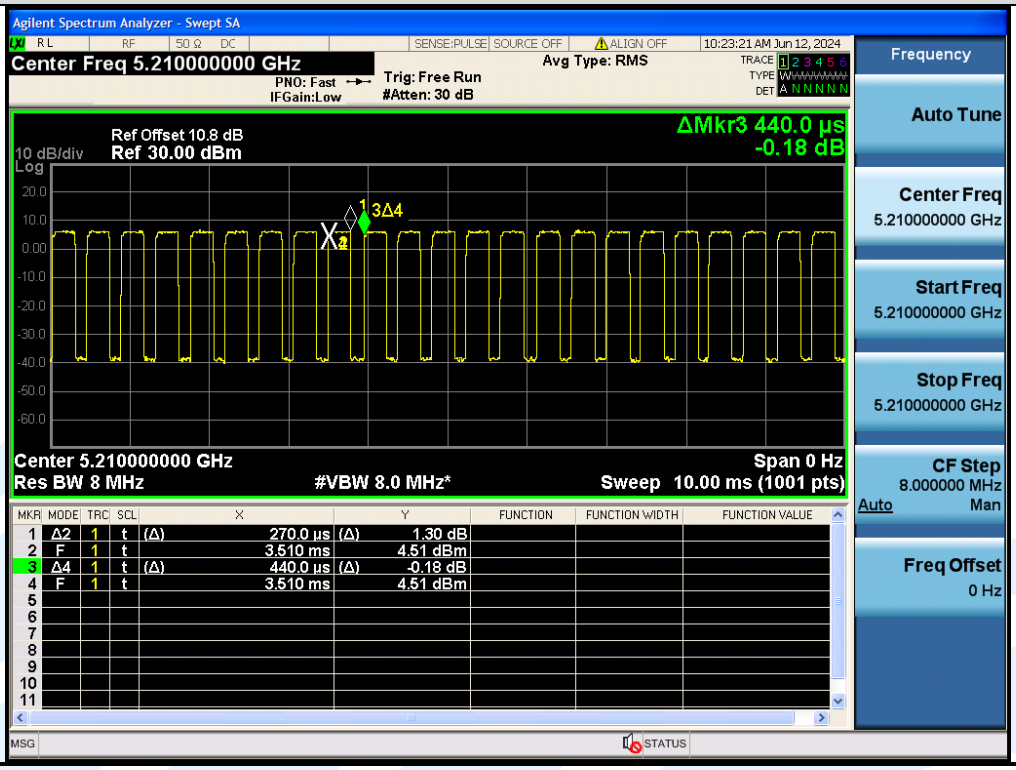
IEEE 802.11ac-VHT20



IEEE 802.11ac-VHT40



IEEE 802.11ac-VHT80



5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

5.1 REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices
4	KDB 789033 D02 General UNII Test Procedures New Rules v02r01	Guidelines for compliance testing of unlicensed national information infrastructure (U-NII) device part 15, subpart E
5	KDB 905462 D06 802.11 Channel Plans New Rules v02	Operation in U-NII bands -802.11 channel PLAN(§15.407)
6	KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02	Compliance measurement procedures for Unlicensed –National Information Infrastructure devices operates in the frequency bands 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz bands incorporating dynamic frequency selection
7	KDB 905462 D03 Client Without DFS New Rules v01r02	U-NII client devices without radar detection capability

5.2 ANTENNA REQUIREMENT

Standard Requirement
15.203 requirement: 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, 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. **15.407(a)(1) (2) requirement:** The conducted output power limit specified in paragraph (a) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (a) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
EUT Antenna:
Antenna in the interior of the equipment and no consideration of replacement. The max gain of the antenna is -1.64 dBi.

5.3 26 DB BANDWIDTH & 99% OCCUPIED BANDWIDTH

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (a) (2)(5)

Test Method: KDB 789033 D02 v02r01 Section C.1
KDB 789033 D02 v02r01 Section D

Limit: None; for reporting purposes only.

Test Procedure:

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum analyzer.

Spectrum analyzer according to the following Settings:

26dB Bandwidth

a) Set RBW = approximately 1 % of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) 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 %.

99% Occupied Bandwidth

a) Set center frequency to the nominal EUT channel center frequency.
b) Set span = 1.5 times to 5.0 times the OBW.
c) Set RBW = 1% to 5% of the OBW
d) Set VBW ≥ 3 x RBW
e) 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.
f) Use the 99% power bandwidth function of the instrument (if available).
g) 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.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.5.3 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: **Please refer to Appendix A**

5.46 DB BANDWIDTH & 99% OCCUPIED BANDWIDTH

Test Requirement: FCC 47 CFR Part 15 Subpart C Section 15.407 (e)

Test Method: KDB 789033 D02 v02r01Section C.2
KDB 789033 D02 v02r01 Section D

Limit: Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure:

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer.

Spectrum analyzer according to the following Settings:

6dB Bandwidth

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 * 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.

99% Occupied Bandwidth

h) Set center frequency to the nominal EUT channel center frequency.
i) Set span = 1.5 times to 5.0 times the OBW.
j) Set RBW = 1% to 5% of the OBW
k) Set VBW ≥ 3 x RBW
l) 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.
m) Use the 99% power bandwidth function of the instrument (if available).

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.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.5.3 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: **Please refer to Appendix A**

5.5 MAXIMUM CONDUCTED OUTPUT POWER

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3)
Test Method: KDB 789033 D02 v02r01 Section E.3.a(Method PM)
Limits:

1. For the band 5.15-5.25 GHz.
   (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

   (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

   (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

   (iv) For 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. In addition, 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 conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, 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 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure:

1. Connected the EUT's antenna port to measure device by 10dB attenuator.
2. Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of Tx on burst.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.5.3 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

Test Results: Pass

Antenna gain and the maximum output power limit.

Frequency Band	Antenna Gain (dBi)	Peak Power Limits (dBm)
U-NII-1	-1.64	24.0
U-NII-2A	-1.64	24.0
U-NII-2C	-1.64	24.0
U-NII-3	-1.64	30.0

For U-NII-1 Band:

Mode	Channel/ Frequency (MHz)	Maximum conducted output power (dBm)		Limit (dBm)	Result
		Meas Power	Corr'd Power		
IEEE 802.11a	36 (5180)	14.75	15.23	24	Pass
	44 (5220)	15.26	15.74	24	Pass
	48 (5240)	15.57	16.05	24	Pass
IEEE 802.11n-HT20	36 (5180)	13.59	14.12	24	Pass
	44 (5220)	13.95	14.48	24	Pass
	48 (5240)	14.44	14.97	24	Pass
IEEE 802.11n-HT40	38 (5190)	13.93	14.88	24	Pass
	46 (5230)	14.46	15.41	24	Pass
IEEE 802.11ac-VHT20	36 (5180)	13.51	14.04	24	Pass
	44 (5220)	14.05	14.58	24	Pass
	48 (5240)	14.58	15.11	24	Pass
IEEE 802.11ac-VHT40	38 (5190)	13.47	14.59	24	Pass
	46 (5230)	14.02	15.14	24	Pass
IEEE 802.11ac-VHT80	42 (5210)	13.02	15.14	24	Pass

Remark:

1. Corr'd Power = Meas Power + Duty Cycle Factor

For U-NII-2A Band:

Mode	Channel/ Frequency (MHz)	Maximum conducted output power (dBm)		Limit (dBm)	Result
		Meas Power	Corr'd Power		
IEEE 802.11a	52 (5260)	15.55	16.03	24	Pass
	60 (5300)	15.88	16.36	24	Pass
	64 (5320)	15.77	16.25	24	Pass
IEEE 802.11n-HT20	52 (5260)	14.49	15.02	24	Pass
	60 (5300)	14.79	15.32	24	Pass
	64 (5320)	14.72	15.25	24	Pass
IEEE 802.11n-HT40	54 (5270)	14.76	15.71	24	Pass
	62 (5310)	14.24	15.19	24	Pass
IEEE 802.11ac-VHT20	52 (5260)	14.46	14.99	24	Pass
	60 (5300)	14.79	15.32	24	Pass
	64 (5320)	14.64	15.17	24	Pass
IEEE 802.11ac-VHT40	54 (5270)	14.33	15.45	24	Pass
	62 (5310)	13.82	14.94	24	Pass
IEEE 802.11ac-VHT80	58 (5290)	13.77	15.89	24	Pass

Remark:

1. Corr'd Power = Meas Power + Duty Cycle Factor

Note:

For IEEE 802.11 a, the minimum 26 dB emission bandwidth is 26.18 MHz
11 dBm + $10\log_{10}(26.18)$ = 25.18 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For IEEE 802.11n-HT20/ac-VHT20, the minimum 26 dB emission bandwidth is 25.79 MHz
11 dBm + $10\log_{10}(25.79)$ = 25.11 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For IEEE 802.11n-HT40/ac-VHT40/ac-VHT80, the minimum 26 dB emission bandwidth is 43.23 MHz
11 dBm + $10\log_{10}(43.23)$ = 27.36 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For U-NII-2C Band:

Mode	Channel/ Frequency (MHz)	Maximum conducted output power (dBm)		Limit (dBm)	Result
		Meas Power	Corr'd Power		
IEEE 802.11a	100 (5500)	12.52	13.00	24	Pass
	120 (5600)	11.88	12.36	24	Pass
	140 (5700)	12.23	12.71	24	Pass
IEEE 802.11n-HT20	100 (5500)	12.15	12.68	24	Pass
	120 (5600)	11.88	12.41	24	Pass
	140 (5700)	12.18	12.71	24	Pass
IEEE 802.11n-HT40	102 (5510)	11.96	12.91	24	Pass
	118 (5590)	11.89	12.84	24	Pass
	134 (5670)	12.02	12.97	24	Pass
IEEE 802.11ac-VHT20	100 (5500)	12.51	13.04	24	Pass
	120 (5600)	11.87	12.40	24	Pass
	140 (5700)	12.21	12.74	24	Pass
IEEE 802.11ac-VHT40	102 (5510)	11.44	12.56	24	Pass
	118 (5590)	11.25	12.37	24	Pass
	134 (5670)	11.44	12.56	24	Pass
IEEE 802.11ac-VHT80	106 (5530)	13.29	15.41	24	Pass
	122 (5610)	13.05	15.17	24	Pass

Remark:

1. Corr'd Power = Meas Power + Duty Cycle Factor

Note:

For IEEE 802.11 a, the minimum 26 dB emission bandwidth is 25.26 MHz
11 dBm + $10\log_{10}(25.26)$ = 25.02 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For IEEE 802.11n-HT20/ac-VHT20, the minimum 26 dB emission bandwidth is 26.14 MHz
11 dBm + $10\log_{10}(26.14)$ = 25.17 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For IEEE 802.11n-HT40/ac-VHT40/ac-VHT80, the minimum 26 dB emission bandwidth is 45.93 MHz
11 dBm + $10\log_{10}(45.93)$ = 27.62 dBm > 24 dBm (250mW)
So the 24 dB limit applicable

For U-NII-3 Band:

Mode	Channel/ Frequency (MHz)	Maximum conducted output power (dBm)		Limit (dBm)	Result
		Meas Power	Corr'd Power		
IEEE 802.11a	149 (5745)	12.07	12.55	30	Pass
	157 (5785)	11.84	12.32	30	Pass
	165 (5825)	12.95	13.43	30	Pass
IEEE 802.11n-HT20	149 (5745)	11.89	12.42	30	Pass
	157 (5785)	11.79	12.32	30	Pass
	165 (5825)	12.84	13.37	30	Pass
IEEE 802.11n-HT40	151 (5755)	11.69	12.64	30	Pass
	159 (5795)	12.02	12.97	30	Pass
IEEE 802.11ac-VHT20	149 (5745)	11.86	12.39	30	Pass
	157 (5785)	11.84	12.37	30	Pass
	165 (5825)	12.96	13.49	30	Pass
IEEE 802.11ac-VHT40	151 (5755)	11.22	12.34	30	Pass
	159 (5795)	11.54	12.66	30	Pass
IEEE 802.11ac-VHT80	155 (5775)	12.95	15.07	30	Pass

Remark:

1. Corr'd Power = Meas Power + Duty Cycle Factor

5.6 PEAK POWER SPECTRAL DENSITY

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3)

Test Method: KDB 789033 D02 v02r01 Section F

Limits:

1. For the band 5.15-5.25 GHz.
   (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

   (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

   (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

   (iv) For 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. In addition, 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 conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, 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 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure:

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer.

Spectrum analyzer according to the following Settings:

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

Using method SA-2

a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 1 MHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Sweep time = auto, trigger set to “free run”.
d) Trace average at least 100 traces in power averaging mode.
e) Record the max value and add 10 log (1/duty cycle)

2. For U-NII-3 band:

a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 500 kHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
d) Sweep time = auto, trigger set to “free run”.
e) Trace average at least 100 traces in power averaging mode.
f) Record the max value and add 10 log (1/duty cycle)

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.5.3 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: **Please refer to Appendix A**

Antenna gain and the maximum output power limit.

Frequency Band	Antenna Gain (dBi)	PSD Limits (dBm/MHz or dBm/500kHz)
U-NII-1	-1.64	11.0
U-NII-2C	-1.64	11.0
U-NII-2A	-1.64	11.0
U-NII-3	-1.64	30.0

5.7 RADIATED EMISSIONS AND BAND EDGE MEASUREMENT

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(1)(2)(3)(4)(6)
FCC 47 CFR Part 15 Subpart C Section 15.209/205

Test Method: KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6

Receiver Setup:

Frequency	RBW
0.009 MHz-0.150 MHz	200/300 kHz
0.150 MHz -30 MHz	9/10 kHz
30 MHz-1 GHz	100/120 kHz
Above 1 GHz	1 MHz

Limits:

1. Limits of Radiated Emission and Band edge Measurement

Radiated emissions that fall in the restricted bands must comply with the general emissions limits in 15.209(a) as below table. Other emissions shall be at least 20 dB below the highest level of the desired power.

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009 MHz-0.490 MHz	2400/F(kHz)	--	--	300
0.490 MHz-1.705 MHz	24000/F(kHz)	--	--	30
1.705 MHz-30 MHz	30	--	--	30
30 MHz-88 MHz	100	40.0	Quasi-peak	3
88 MHz-216 MHz	150	43.5	Quasi-peak	3
216 MHz-960 MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1 GHz	500	54.0	Average	3

Remark:

a. The lower limit shall apply at the transition frequencies.
b. Emission level (dBuV/m) = 20 log Emission level (uV/m).
c. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

2. Limits of Unwanted Emission Out of the Restricted Bands

Applicable To	Limit	
789033 D02 General U-NII Test Procedures New Rules v01r04	Field Strength at 3 m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
FCC Part 15.407 (b)(1)	PK: -27 (dBm/MHz)	PK: 74 (dBμV/m)
FCC Part 15.407 (b)(2)	PK: -27 (dBm/MHz)	PK: 74 (dBμV/m)
FCC Part 15.407 (b)(3)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
FCC Part 15.407 (b)(4)	27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;	PK: 68.2 (dBμV/m)
	15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;	
	10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges;	
	-27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.	

Test Setup: Refer to section 4.5.1 for details.

Test Procedures:

1. The EUT was placed on the top of a rotating table 0.8 meters (for below 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
6. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Remark:

a) The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
b) The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
c) The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for RMS Average (Duty cycle < 98 %) for Average detection (AV) at frequency above 1 GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
d) The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) or ≥ 1/T(duty cycle is < 98%) for Average detection (AV) at frequency above 1 GHz.
e) All modes of operation were investigated and the worst-case emissions are reported.

Equipment Used: Refer to section 3 for details.

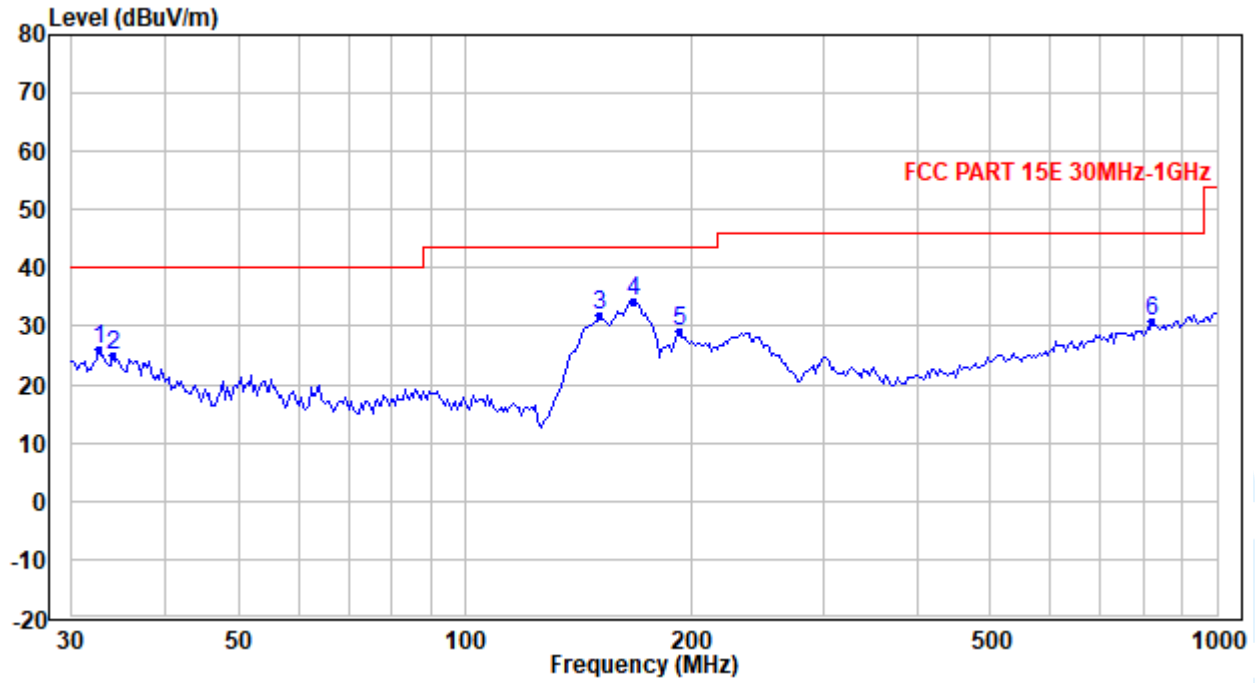
Test Result: Pass

The measurement data as follows:

Radiated Emission Test Data (9 kHz ~ 30 MHz):
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

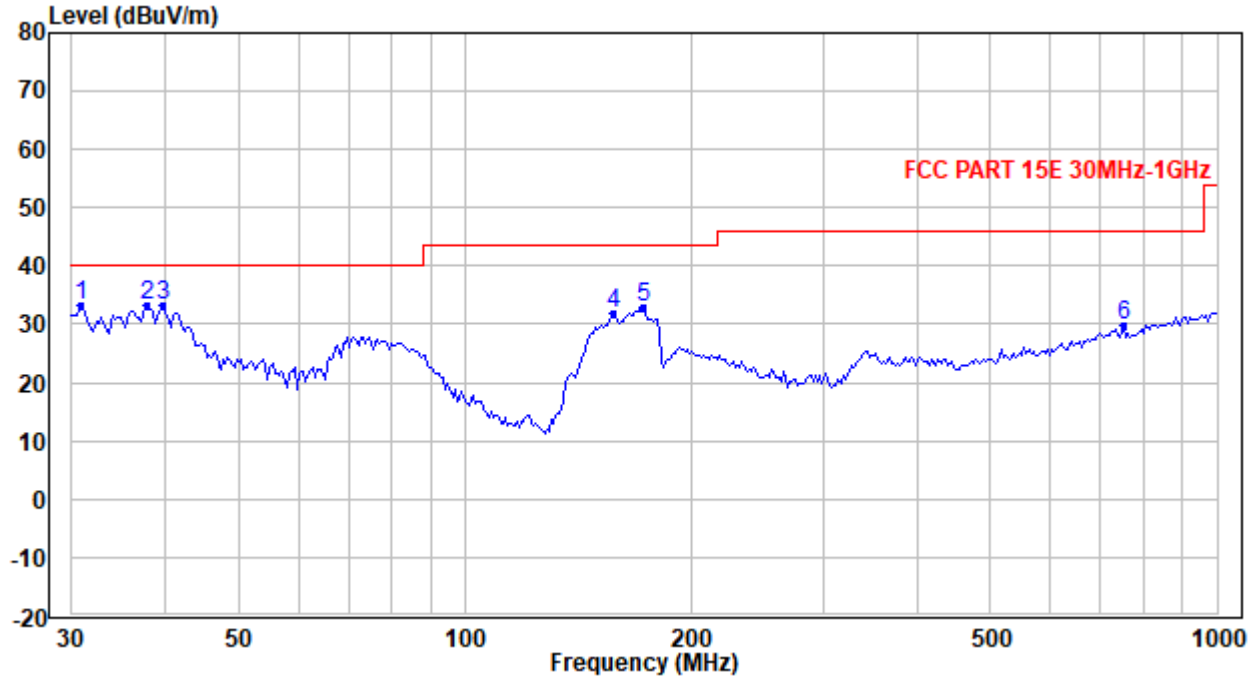
Radiated Emission Test Data (30 MHz ~ 1 GHz):
IEEE 802.11a_5300MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	32.640	32.43	-6.30	26.13	40.00	-13.87	QP
2	34.045	31.49	-6.58	24.91	40.00	-15.09	QP
3	151.025	46.51	-14.51	32.00	43.50	-11.50	QP
4	167.814	46.54	-12.22	34.32	43.50	-9.18	QP
5	193.137	40.36	-11.38	28.98	43.50	-14.52	QP
6	821.387	27.25	3.61	30.86	46.00	-15.14	QP

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.855	39.00	-5.68	33.32	40.00	-6.68	QP
2	37.830	40.48	-7.23	33.25	40.00	-6.75	QP
3	39.737	42.08	-8.67	33.41	40.00	-6.59	QP
4	157.529	46.21	-14.34	31.87	43.50	-11.63	QP
5	172.598	44.41	-11.56	32.85	43.50	-10.65	QP
6	749.676	27.68	2.08	29.76	46.00	-16.24	QP

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_Channel 36								
1	10360	34.6	3.4	38.0	54	-16.0	Average	Horizontal
2	10360	47.4	3.4	50.8	68.2	-17.5	Peak	Horizontal
3	15540	32.1	7.6	39.7	54	-14.3	Average	Horizontal
4	15540	44.3	7.6	51.8	74	-22.2	Peak	Horizontal
5	10360	34.8	3.4	38.1	54	-15.9	Average	Vertical
6	10360	47.4	3.4	50.8	68.2	-17.4	Peak	Vertical
7	15540	32.2	7.6	39.8	54	-14.3	Average	Vertical
8	15540	44.4	7.6	52.0	74	-22.0	Peak	Vertical
IEEE 802.11a_Channel 44								
1	10440	34.6	3.4	38.0	54	-16.0	Average	Horizontal
2	10440	46.2	3.4	49.6	68.2	-18.6	Peak	Horizontal
3	15660	32.6	7.5	40.0	54	-14.0	Average	Horizontal
4	15660	44.9	7.5	52.4	74	-21.6	Peak	Horizontal
5	10440	34.6	3.4	38.0	54	-16.0	Average	Vertical
6	10440	47.2	3.4	50.6	68.2	-17.6	Peak	Vertical
7	15660	32.7	7.5	40.1	54	-13.9	Average	Vertical
8	15660	44.9	7.5	52.4	74	-21.6	Peak	Vertical
IEEE 802.11a_Channel 48								
1	10480	34.0	3.4	37.4	54	-16.6	Average	Horizontal
2	10480	46.5	3.4	49.9	68.2	-18.3	Peak	Horizontal
3	15720	32.4	7.4	39.8	54	-14.2	Average	Horizontal
4	15720	45.1	7.4	52.5	74	-21.5	Peak	Horizontal
5	10480	33.8	3.4	37.2	54	-16.8	Average	Vertical
6	10480	47.0	3.4	50.4	68.2	-17.9	Peak	Vertical
7	15720	32.5	7.4	39.9	54	-14.1	Average	Vertical
8	15720	45.6	7.4	53.0	74	-21.0	Peak	Vertical
IEEE 802.11a_Channel 52								
1	10520	33.9	3.4	37.3	54	-16.7	Average	Horizontal
2	10520	47.4	3.4	50.8	68.2	-17.4	Peak	Horizontal
3	15780	32.9	7.4	40.2	54	-13.8	Average	Horizontal
4	15780	47.5	7.4	54.8	74	-19.2	Peak	Horizontal
5	10520	33.9	3.4	37.3	54	-16.8	Average	Vertical
6	10520	46.5	3.4	49.9	68.2	-18.3	Peak	Vertical
7	15780	32.6	7.4	39.9	54	-14.1	Average	Vertical
8	15780	45.8	7.4	53.2	74	-20.8	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_Channel 60								
1	10600	33.7	3.2	36.9	54	-17.2	Average	Horizontal
2	10600	46.9	3.2	50.0	74	-24.0	Peak	Horizontal
3	15900	31.1	7.2	38.3	54	-15.7	Average	Horizontal
4	15900	43.8	7.2	51.1	74	-23.0	Peak	Horizontal
5	10600	33.8	3.2	37.0	54	-17.0	Average	Vertical
6	10600	46.2	3.2	49.4	74	-24.6	Peak	Vertical
7	15900	31.1	7.2	38.4	54	-15.6	Average	Vertical
8	15900	44.3	7.2	51.5	74	-22.5	Peak	Vertical
IEEE 802.11a_Channel 64								
1	10640	33.7	3.1	36.8	54	-17.2	Average	Horizontal
2	10640	45.8	3.1	48.9	74	-25.1	Peak	Horizontal
3	15960	31.9	7.2	39.1	54	-14.9	Average	Horizontal
4	15960	48.2	7.2	55.3	74	-18.7	Peak	Horizontal
5	10640	33.8	3.1	36.9	54	-17.2	Average	Vertical
6	10640	47.6	3.1	50.7	74	-23.3	Peak	Vertical
7	15960	31.3	7.2	38.5	54	-15.6	Average	Vertical
8	15960	44.8	7.2	52.0	74	-22.1	Peak	Vertical
IEEE 802.11a_Channel 100								
1	11000	34.3	2.4	36.6	54	-17.4	Average	Horizontal
2	11000	47.3	2.4	49.6	74	-24.4	Peak	Horizontal
3	16500	31.9	8.0	39.9	54	-14.1	Average	Horizontal
4	16500	44.3	8.0	52.3	68.2	-15.9	Peak	Horizontal
5	11000	34.5	2.4	36.9	54	-17.1	Average	Vertical
6	11000	47.6	2.4	50.0	74	-24.0	Peak	Vertical
7	16500	32.0	8.0	40.0	54	-14.0	Average	Vertical
8	16500	44.4	8.0	52.4	68.2	-15.8	Peak	Vertical
IEEE 802.11a_Channel 120								
1	11200	33.8	2.2	36.1	54	-17.9	Average	Horizontal
2	11200	46.0	2.2	48.3	74	-25.7	Peak	Horizontal
3	16800	31.8	8.4	40.2	54	-13.8	Average	Horizontal
4	16800	45.0	8.4	53.4	68.2	-14.8	Peak	Horizontal
5	11200	33.9	2.2	36.1	54	-17.9	Average	Vertical
6	11200	45.7	2.2	48.0	74	-26.1	Peak	Vertical
7	16800	32.0	8.4	40.4	54	-13.6	Average	Vertical
8	16800	45.4	8.4	53.7	68.2	-14.5	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_Channel 140								
1	11400	33.6	2.1	35.7	54	-18.3	Average	Horizontal
2	11400	46.3	2.1	48.4	74	-25.6	Peak	Horizontal
3	17100	31.7	8.8	40.4	54	-13.6	Average	Horizontal
4	17100	45.2	8.8	54.0	68.2	-14.2	Peak	Horizontal
5	11400	33.2	2.1	35.3	54	-18.7	Average	Vertical
6	11400	45.7	2.1	47.8	74	-26.2	Peak	Vertical
7	17100	31.7	8.8	40.4	54	-13.6	Average	Vertical
8	17100	44.6	8.8	53.4	68.2	-14.8	Peak	Vertical
IEEE 802.11a_Channel 149								
1	11490	33.0	2.1	35.1	54	-19.0	Average	Horizontal
2	11490	46.4	2.1	48.4	74	-25.6	Peak	Horizontal
3	17235	31.1	9.0	40.1	54	-13.9	Average	Horizontal
4	17235	44.1	9.0	53.1	68.2	-15.1	Peak	Horizontal
5	11490	32.9	2.1	35.0	54	-19.0	Average	Vertical
6	11490	44.5	2.1	46.5	74	-27.5	Peak	Vertical
7	17235	31.2	9.0	40.2	54	-13.8	Average	Vertical
8	17235	43.3	9.0	52.3	68.2	-16.0	Peak	Vertical
IEEE 802.11a_Channel 157								
1	11570	33.4	2.1	35.4	54	-18.6	Average	Horizontal
2	11570	46.0	2.1	48.0	74	-26.0	Peak	Horizontal
3	17355	31.2	9.2	40.4	54	-13.6	Average	Horizontal
4	17355	43.5	9.2	52.6	68.2	-15.6	Peak	Horizontal
5	11570	33.0	2.1	35.0	54	-19.0	Average	Vertical
6	11570	46.0	2.1	48.0	74	-26.0	Peak	Vertical
7	17355	31.4	9.2	40.6	54	-13.4	Average	Vertical
8	17355	44.4	9.2	53.6	68.2	-14.6	Peak	Vertical
IEEE 802.11a_Channel 165								
1	11650	34.2	2.1	36.3	54	-17.7	Average	Horizontal
2	11650	48.0	2.1	50.0	74	-24.0	Peak	Horizontal
3	17475	30.6	9.3	39.9	54	-14.1	Average	Horizontal
4	17475	42.9	9.3	52.2	68.2	-16.0	Peak	Horizontal
5	11650	34.2	2.1	36.3	54	-17.7	Average	Vertical
6	11650	47.0	2.1	49.1	74	-24.9	Peak	Vertical
7	17475	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	17475	43.3	9.3	52.6	68.2	-15.6	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_Channel 36								
1	10360	33.8	2.1	35.9	54	-18.2	Average	Horizontal
2	10360	45.8	2.1	47.8	68.2	-20.4	Peak	Horizontal
3	15540	30.9	9.3	40.3	54	-13.7	Average	Horizontal
4	15540	43.1	9.3	52.4	74	-21.6	Peak	Horizontal
5	10360	33.8	2.1	35.9	54	-18.1	Average	Vertical
6	10360	46.3	2.1	48.4	68.2	-19.8	Peak	Vertical
7	15540	30.9	9.3	40.3	54	-13.7	Average	Vertical
8	15540	43.2	9.3	52.6	74	-21.4	Peak	Vertical
IEEE 802.11n-HT20_Channel 44								
1	10440	33.8	2.1	35.9	54	-18.1	Average	Horizontal
2	10440	46.0	2.1	48.1	68.2	-20.1	Peak	Horizontal
3	15660	31.0	9.3	40.3	54	-13.7	Average	Horizontal
4	15660	43.9	9.3	53.2	74	-20.8	Peak	Horizontal
5	10440	33.7	2.1	35.8	54	-18.2	Average	Vertical
6	10440	46.5	2.1	48.5	68.2	-19.7	Peak	Vertical
7	15660	30.9	9.3	40.3	54	-13.7	Average	Vertical
8	15660	43.7	9.3	53.0	74	-21.0	Peak	Vertical
IEEE 802.11n-HT20_Channel 48								
1	10480	33.9	2.1	36.0	54	-18.0	Average	Horizontal
2	10480	46.8	2.1	48.9	68.2	-19.3	Peak	Horizontal
3	15720	31.0	9.3	40.4	54	-13.7	Average	Horizontal
4	15720	44.2	9.3	53.5	74	-20.5	Peak	Horizontal
5	10480	34.0	2.1	36.1	54	-17.9	Average	Vertical
6	10480	46.1	2.1	48.2	68.2	-20.0	Peak	Vertical
7	15720	31.0	9.3	40.4	54	-13.7	Average	Vertical
8	15720	45.0	9.3	54.3	74	-19.7	Peak	Vertical
IEEE 802.11n-HT20_Channel 52								
1	10520	33.5	2.1	35.6	54	-18.4	Average	Horizontal
2	10520	46.4	2.1	48.4	68.2	-19.8	Peak	Horizontal
3	15780	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	15780	42.9	9.3	52.2	74	-21.8	Peak	Horizontal
5	10520	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	10520	46.1	2.1	48.1	68.2	-20.1	Peak	Vertical
7	15780	30.8	9.3	40.2	54	-13.9	Average	Vertical
8	15780	43.5	9.3	52.8	74	-21.2	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_Channel 60								
1	10600	33.4	2.1	35.4	54	-18.6	Average	Horizontal
2	10600	45.8	2.1	47.8	74	-26.2	Peak	Horizontal
3	15900	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	15900	44.0	9.3	53.3	74	-20.7	Peak	Horizontal
5	10600	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	10600	46.7	2.1	48.8	74	-25.2	Peak	Vertical
7	15900	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	15900	45.1	9.3	54.4	74	-19.6	Peak	Vertical
IEEE 802.11n-HT20_Channel 64								
1	10640	33.4	2.1	35.5	54	-18.5	Average	Horizontal
2	10640	46.8	2.1	48.9	74	-25.2	Peak	Horizontal
3	15960	30.7	9.3	40.1	54	-13.9	Average	Horizontal
4	15960	43.5	9.3	52.8	74	-21.2	Peak	Horizontal
5	10640	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	10640	45.9	2.1	48.0	74	-26.0	Peak	Vertical
7	15960	30.8	9.3	40.2	54	-13.9	Average	Vertical
8	15960	43.2	9.3	52.6	74	-21.5	Peak	Vertical
IEEE 802.11n-HT20_Channel 100								
1	11000	33.4	2.1	35.5	54	-18.5	Average	Horizontal
2	11000	45.1	2.1	47.2	74	-26.8	Peak	Horizontal
3	16500	30.8	9.3	40.1	54	-13.9	Average	Horizontal
4	16500	43.4	9.3	52.7	68.2	-15.5	Peak	Horizontal
5	11000	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	11000	46.2	2.1	48.3	74	-25.7	Peak	Vertical
7	16500	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	16500	43.4	9.3	52.8	68.2	-15.4	Peak	Vertical
IEEE 802.11n-HT20 _Channel 120								
1	11200	33.4	2.1	35.5	54	-18.5	Average	Horizontal
2	11200	45.8	2.1	47.8	74	-26.2	Peak	Horizontal
3	16800	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	16800	43.6	9.3	53.0	68.2	-15.3	Peak	Horizontal
5	11200	33.5	2.1	35.6	54	-18.4	Average	Vertical
6	11200	45.8	2.1	47.9	74	-26.1	Peak	Vertical
7	16800	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	16800	43.0	9.3	52.3	68.2	-15.9	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_Channel 140								
1	11400	33.4	2.1	35.4	54	-18.6	Average	Horizontal
2	11400	45.9	2.1	48.0	74	-26.0	Peak	Horizontal
3	17100	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	17100	43.5	9.3	52.8	68.2	-15.4	Peak	Horizontal
5	11400	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	11400	45.6	2.1	47.7	74	-26.3	Peak	Vertical
7	17100	30.8	9.3	40.1	54	-13.9	Average	Vertical
8	17100	43.0	9.3	52.4	68.2	-15.8	Peak	Vertical
IEEE 802.11n-HT20_Channel 149								
1	11490	33.4	2.1	35.4	54	-18.6	Average	Horizontal
2	11490	45.7	2.1	47.8	74	-26.2	Peak	Horizontal
3	17235	30.7	9.3	40.1	54	-13.9	Average	Horizontal
4	17235	43.4	9.3	52.7	68.2	-15.5	Peak	Horizontal
5	11490	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	11490	46.3	2.1	48.4	74	-25.6	Peak	Vertical
7	17235	30.8	9.3	40.2	54	-13.9	Average	Vertical
8	17235	43.2	9.3	52.6	68.2	-15.7	Peak	Vertical
IEEE 802.11n-HT20_Channel 157								
1	11570	33.5	2.1	35.6	54	-18.5	Average	Horizontal
2	11570	45.6	2.1	47.7	74	-26.3	Peak	Horizontal
3	17355	30.7	9.3	40.1	54	-13.9	Average	Horizontal
4	17355	43.1	9.3	52.5	68.2	-15.8	Peak	Horizontal
5	11570	33.5	2.1	35.6	54	-18.4	Average	Vertical
6	11570	45.9	2.1	48.0	74	-26.0	Peak	Vertical
7	17355	30.8	9.3	40.2	54	-13.9	Average	Vertical
8	17355	43.0	9.3	52.4	68.2	-15.8	Peak	Vertical
IEEE 802.11n-HT20_Channel 165								
1	11650	35.5	2.1	37.5	54	-16.5	Average	Horizontal
2	11650	49.8	2.1	51.8	74	-22.2	Peak	Horizontal
3	17475	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	17475	42.9	9.3	52.2	68.2	-16.0	Peak	Horizontal
5	11650	33.6	2.1	35.7	54	-18.3	Average	Vertical
6	11650	46.0	2.1	48.1	74	-26.0	Peak	Vertical
7	17475	30.8	9.3	40.1	54	-13.9	Average	Vertical
8	17475	42.8	9.3	52.1	68.2	-16.1	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_Channel 38								
1	10380	33.7	2.1	35.8	54	-18.2	Average	Horizontal
2	10380	46.6	2.1	48.6	68.2	-19.6	Peak	Horizontal
3	15570	30.9	9.3	40.2	54	-13.8	Average	Horizontal
4	15570	43.9	9.3	53.2	74	-20.8	Peak	Horizontal
5	10380	33.7	2.1	35.8	54	-18.2	Average	Vertical
6	10380	46.3	2.1	48.4	68.2	-19.8	Peak	Vertical
7	15570	30.9	9.3	40.2	54	-13.8	Average	Vertical
8	15570	43.4	9.3	52.8	74	-21.2	Peak	Vertical
IEEE 802.11n-HT40_Channel 46								
1	10460	33.4	2.1	35.5	54	-18.5	Average	Horizontal
2	10460	45.6	2.1	47.7	68.2	-20.5	Peak	Horizontal
3	15690	30.8	9.3	40.2	54	-13.9	Average	Horizontal
4	15690	43.4	9.3	52.7	74	-21.3	Peak	Horizontal
5	10460	33.4	2.1	35.5	54	-18.5	Average	Vertical
6	10460	46.2	2.1	48.3	68.2	-20.0	Peak	Vertical
7	15690	30.8	9.3	40.2	54	-13.9	Average	Vertical
8	15690	44.2	9.3	53.6	74	-20.4	Peak	Vertical
IEEE 802.11n-HT40_Channel 54								
1	10540	33.4	2.1	35.5	54	-18.5	Average	Horizontal
2	10540	46.1	2.1	48.1	68.2	-20.1	Peak	Horizontal
3	15810	30.7	9.3	40.1	54	-13.9	Average	Horizontal
4	15810	43.4	9.3	52.7	74	-21.3	Peak	Horizontal
5	10540	33.4	2.1	35.4	54	-18.6	Average	Vertical
6	10540	45.6	2.1	47.7	68.2	-20.5	Peak	Vertical
7	15810	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	15810	43.3	9.3	52.6	74	-21.4	Peak	Vertical
IEEE 802.11n-HT40 _Channel 62								
1	10620	33.3	2.1	35.3	54	-18.7	Average	Horizontal
2	10620	45.4	2.1	47.5	74	-26.5	Peak	Horizontal
3	15930	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	15930	43.6	9.3	52.9	74	-21.1	Peak	Horizontal
5	10620	33.3	2.1	35.4	54	-18.6	Average	Vertical
6	10620	45.7	2.1	47.7	74	-26.3	Peak	Vertical
7	15930	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	15930	43.7	9.3	53.0	74	-21.0	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_Channel 102								
1	11020	33.3	2.1	35.4	54	-18.6	Average	Horizontal
2	11020	46.1	2.1	48.1	74	-25.9	Peak	Horizontal
3	16530	30.7	9.3	40.1	54	-13.9	Average	Horizontal
4	16530	43.4	9.3	52.7	68.2	-15.5	Peak	Horizontal
5	11020	33.3	2.1	35.4	54	-18.6	Average	Vertical
6	11020	45.3	2.1	47.3	74	-26.7	Peak	Vertical
7	16530	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	16530	43.2	9.3	52.6	68.2	-15.7	Peak	Vertical
IEEE 802.11n-HT40_Channel 118								
1	11180	33.3	2.1	35.4	54	-18.6	Average	Horizontal
2	11180	45.9	2.1	48.0	74	-26.0	Peak	Horizontal
3	16770	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	16770	43.1	9.3	52.4	68.2	-15.8	Peak	Horizontal
5	11180	33.2	2.1	35.3	54	-18.7	Average	Vertical
6	11180	45.9	2.1	48.0	74	-26.0	Peak	Vertical
7	16770	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	16770	43.5	9.3	52.9	68.2	-15.3	Peak	Vertical
IEEE 802.11n-HT40_Channel 134								
1	11340	33.3	2.1	35.3	54	-18.7	Average	Horizontal
2	11340	45.7	2.1	47.8	74	-26.2	Peak	Horizontal
3	17010	30.6	9.3	39.9	54	-14.1	Average	Horizontal
4	17010	43.2	9.3	52.6	68.2	-15.6	Peak	Horizontal
5	11340	33.2	2.1	35.3	54	-18.7	Average	Vertical
6	11340	46.0	2.1	48.1	74	-25.9	Peak	Vertical
7	17010	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	17010	43.0	9.3	52.3	68.2	-15.9	Peak	Vertical
IEEE 802.11n-HT40_Channel 151								
1	11510	33.3	2.1	35.4	54	-18.6	Average	Horizontal
2	11510	45.9	2.1	48.0	74	-26.0	Peak	Horizontal
3	17265	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	17265	42.9	9.3	52.2	68.2	-16.0	Peak	Horizontal
5	11510	33.2	2.1	35.3	54	-18.7	Average	Vertical
6	11510	46.6	2.1	48.7	74	-25.3	Peak	Vertical
7	17265	30.6	9.3	39.9	54	-14.1	Average	Vertical
8	17265	43.0	9.3	52.3	68.2	-15.9	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_Channel 159								
1	11590	33.3	2.1	35.4	54	-18.6	Average	Horizontal
2	11590	45.4	2.1	47.4	74	-26.6	Peak	Horizontal
3	17385	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	17385	43.1	9.3	52.5	68.2	-15.7	Peak	Horizontal
5	11590	33.3	2.1	35.4	54	-18.6	Average	Vertical
6	11590	45.6	2.1	47.6	74	-26.4	Peak	Vertical
7	17385	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	17385	43.9	9.3	53.2	68.2	-15.0	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT80_Channel 42								
1	10420	33.3	2.1	35.4	54	-18.6	Average	Horizontal
2	10420	45.7	2.1	47.8	68.2	-20.4	Peak	Horizontal
3	15630	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	15630	43.9	9.3	53.3	74	-20.7	Peak	Horizontal
5	10420	33.3	2.1	35.4	54	-18.6	Average	Vertical
6	10420	46.2	2.1	48.3	68.2	-19.9	Peak	Vertical
7	15630	30.7	9.3	40.1	54	-13.9	Average	Vertical
8	15630	43.0	9.3	52.3	74	-21.7	Peak	Vertical
IEEE 802.11ac-VHT80_Channel 58								
1	10580	33.3	2.1	35.3	54	-18.7	Average	Horizontal
2	10580	46.6	2.1	48.7	68.2	-19.5	Peak	Horizontal
3	15870	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	15870	42.9	9.3	52.2	74	-21.8	Peak	Horizontal
5	10580	33.3	2.1	35.4	54	-18.6	Average	Vertical
6	10580	45.9	2.1	48.0	68.2	-20.3	Peak	Vertical
7	15870	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	15870	43.2	9.3	52.6	74	-21.4	Peak	Vertical
IEEE 802.11ac-VHT80_Channel 106								
1	11060	33.2	2.1	35.3	54	-18.7	Average	Horizontal
2	11060	45.5	2.1	47.6	74	-26.4	Peak	Horizontal
3	16590	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	16590	43.5	9.3	52.8	68.2	-15.4	Peak	Horizontal
5	11060	33.3	2.1	35.3	54	-18.7	Average	Vertical
6	11060	45.8	2.1	47.8	74	-26.2	Peak	Vertical
7	16590	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	16590	42.9	9.3	52.2	68.2	-16.0	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT80_Channel 122								
1	11220	33.2	2.1	35.3	54	-18.7	Average	Horizontal
2	11220	46.0	2.1	48.1	74	-25.9	Peak	Horizontal
3	16830	30.7	9.3	40.0	54	-14.0	Average	Horizontal
4	16830	42.9	9.3	52.2	68.2	-16.0	Peak	Horizontal
5	11220	33.2	2.1	35.3	54	-18.7	Average	Vertical
6	11220	45.7	2.1	47.8	74	-26.2	Peak	Vertical
7	16830	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	16830	43.8	9.3	53.1	68.2	-15.1	Peak	Vertical
IEEE 802.11ac-VHT80_Channel 155								
1	11550	33.1	2.1	35.2	54	-18.8	Average	Horizontal
2	11550	46.2	2.1	48.2	74	-25.8	Peak	Horizontal
3	17325	30.6	9.3	39.9	54	-14.1	Average	Horizontal
4	17325	43.3	9.3	52.6	68.2	-15.6	Peak	Horizontal
5	11550	33.2	2.1	35.2	54	-18.8	Average	Vertical
6	11550	46.3	2.1	48.4	74	-25.7	Peak	Vertical
7	17325	30.7	9.3	40.0	54	-14.0	Average	Vertical
8	17325	43.4	9.3	52.7	68.2	-15.5	Peak	Vertical

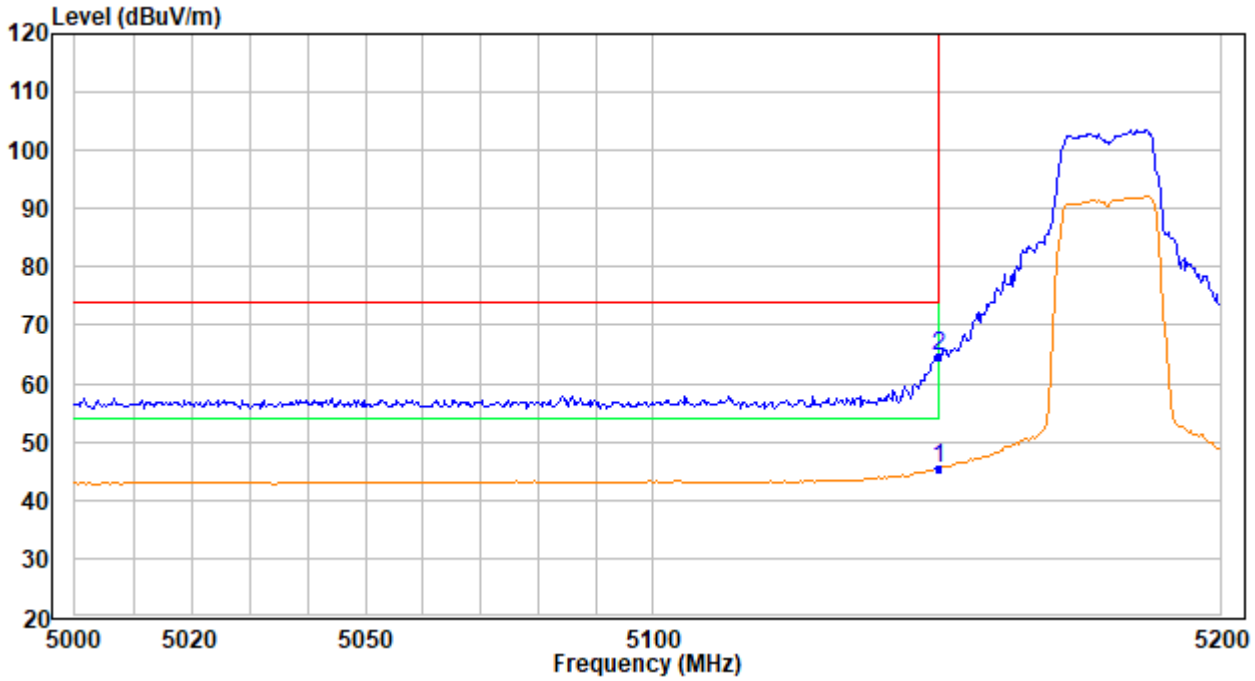
Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

Band Edge Measurements (Radiated): Worst-Case Configuration

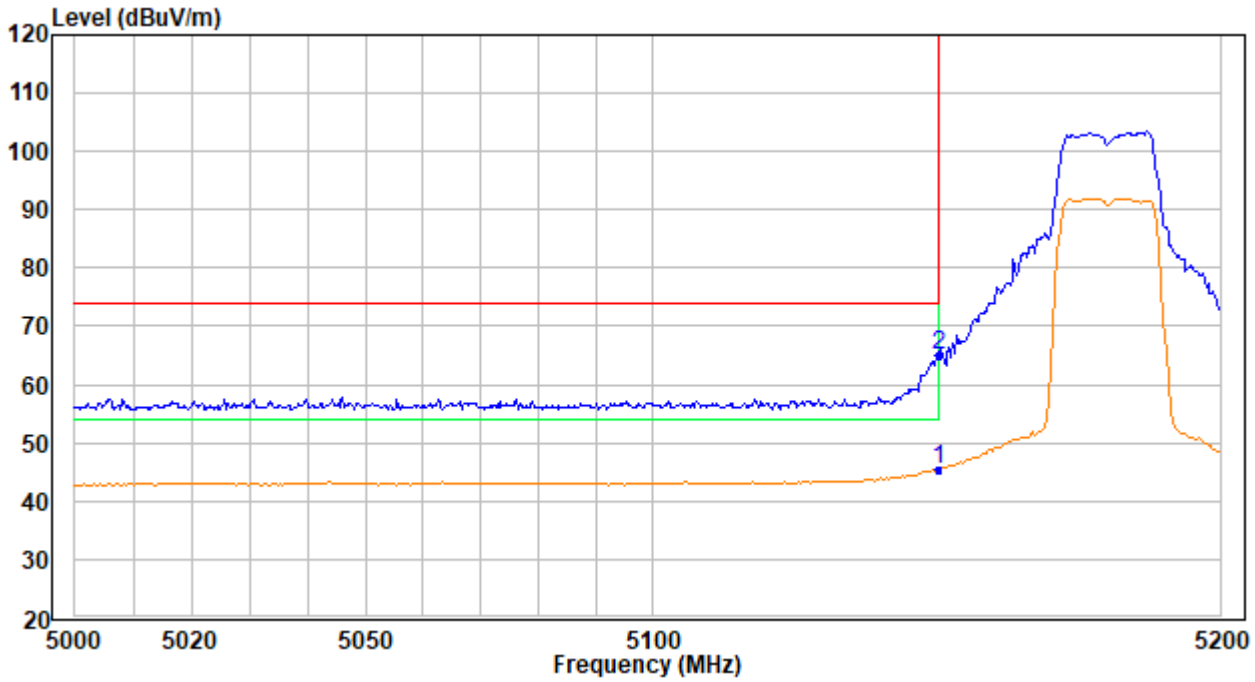
IEEE 802.11a

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



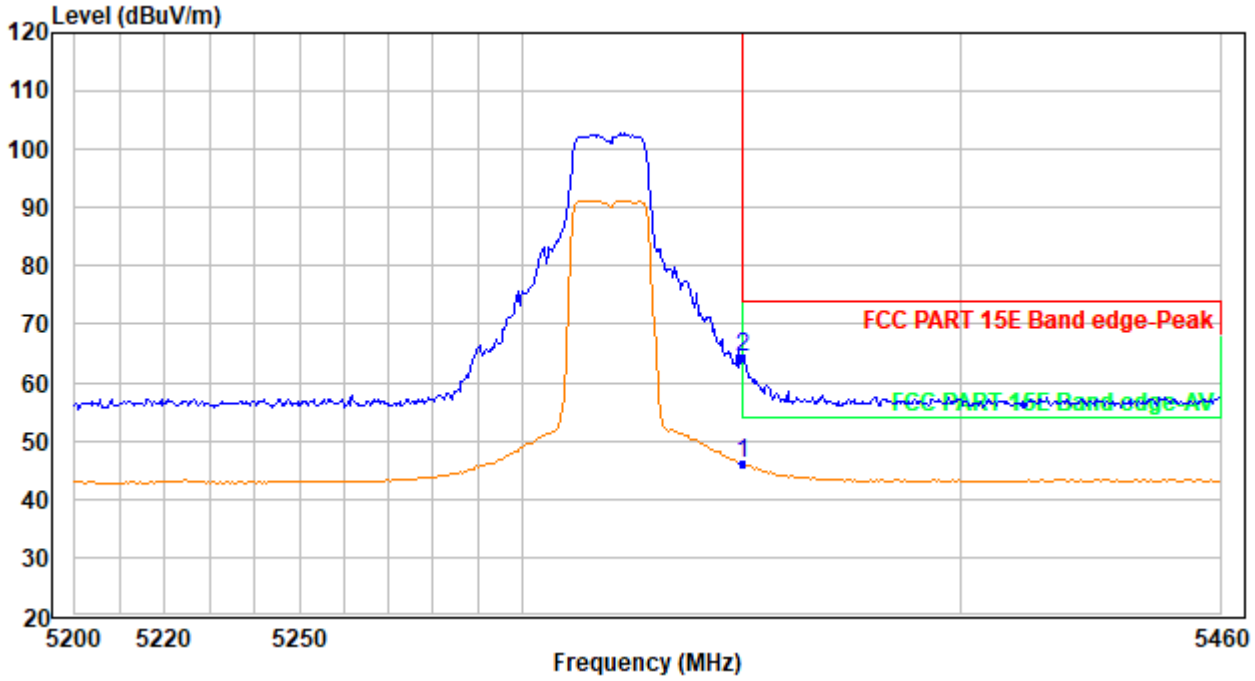
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	64.72	74.00	45.40	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



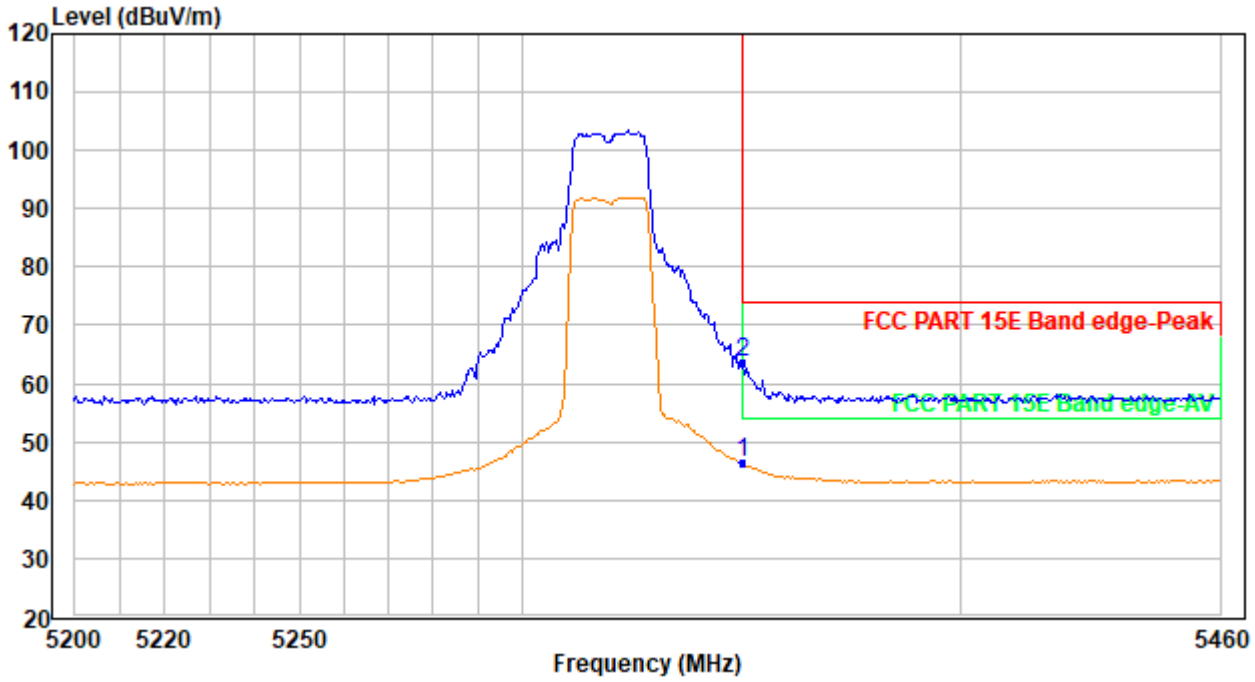
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	65.00	74.00	45.50	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



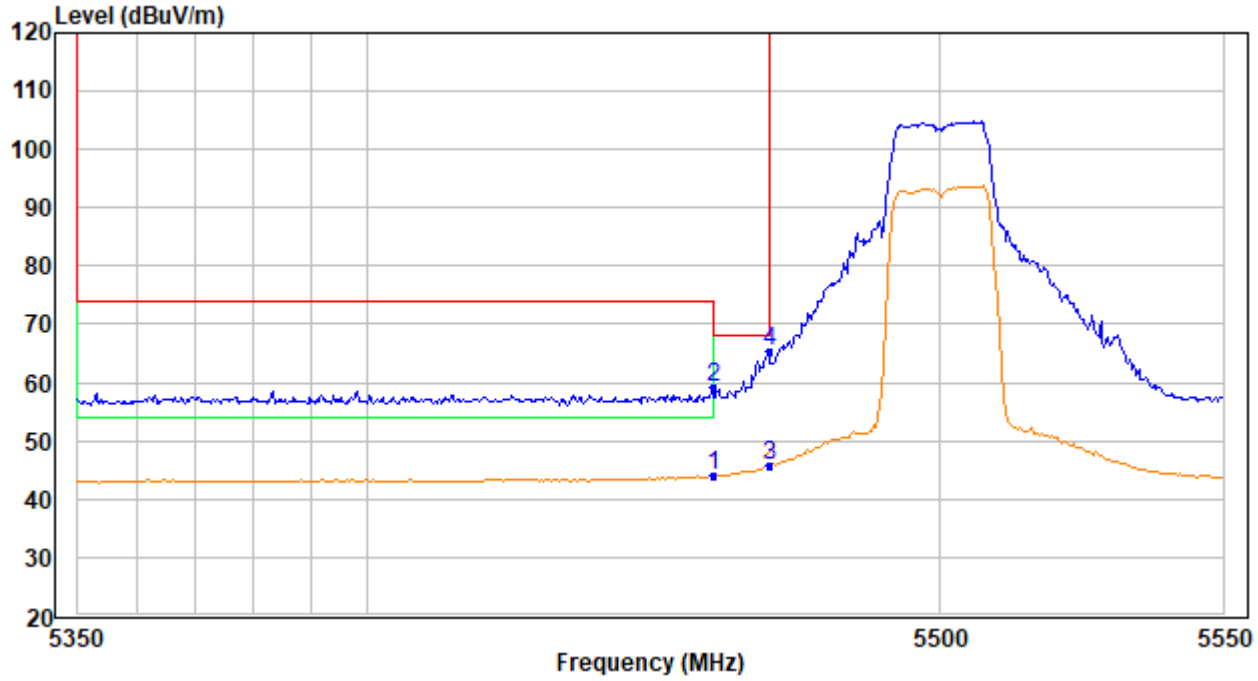
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	64.32	74.00	46.02	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



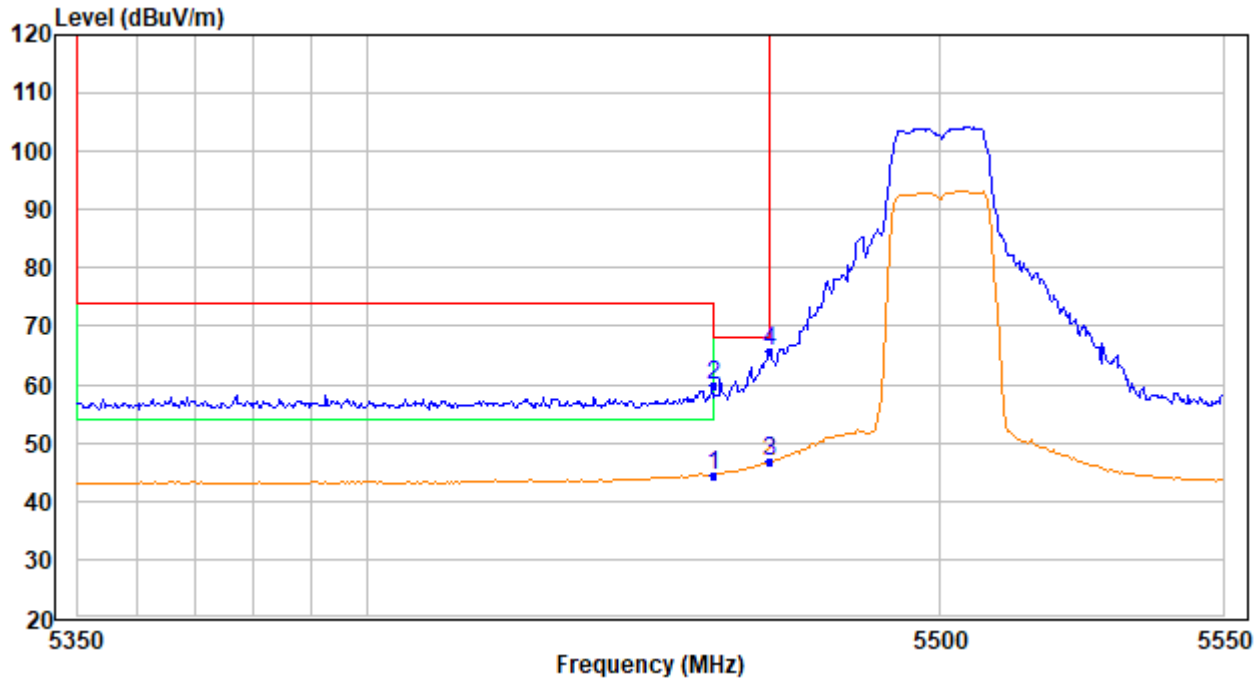
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	63.49	74.00	46.39	54.00	Pass

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



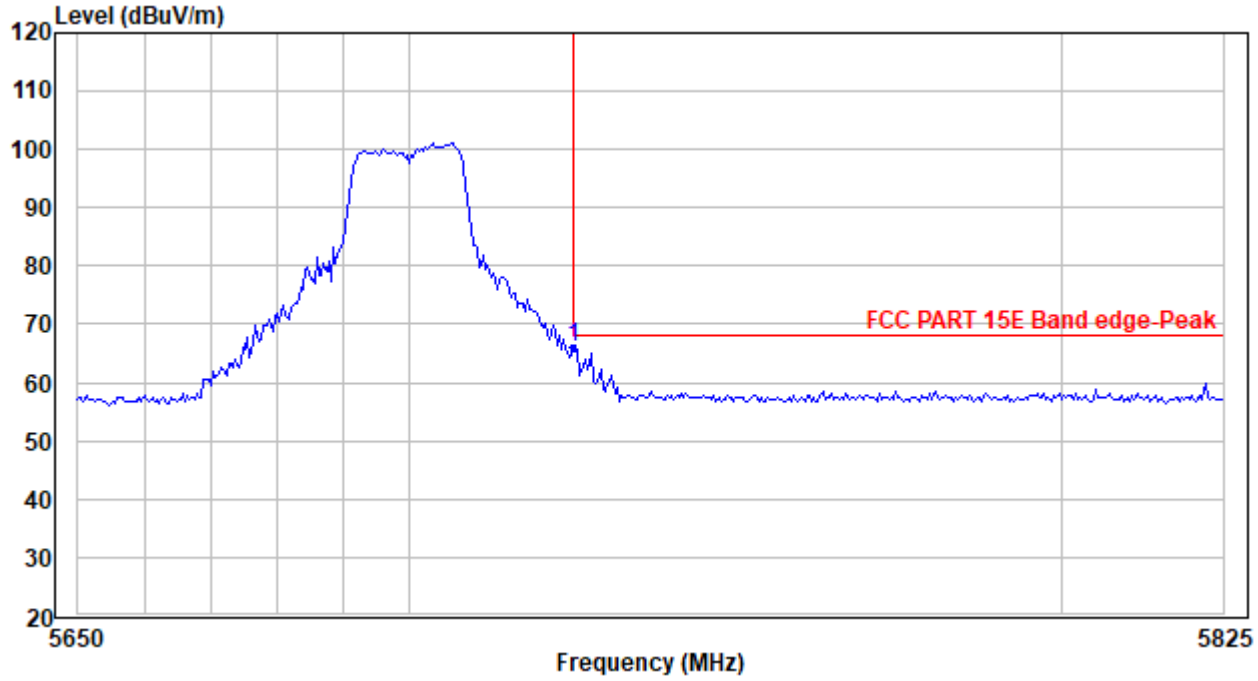
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	59.03	68.20	43.91	54.00	Pass
5470.000	65.35	68.20	45.68	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



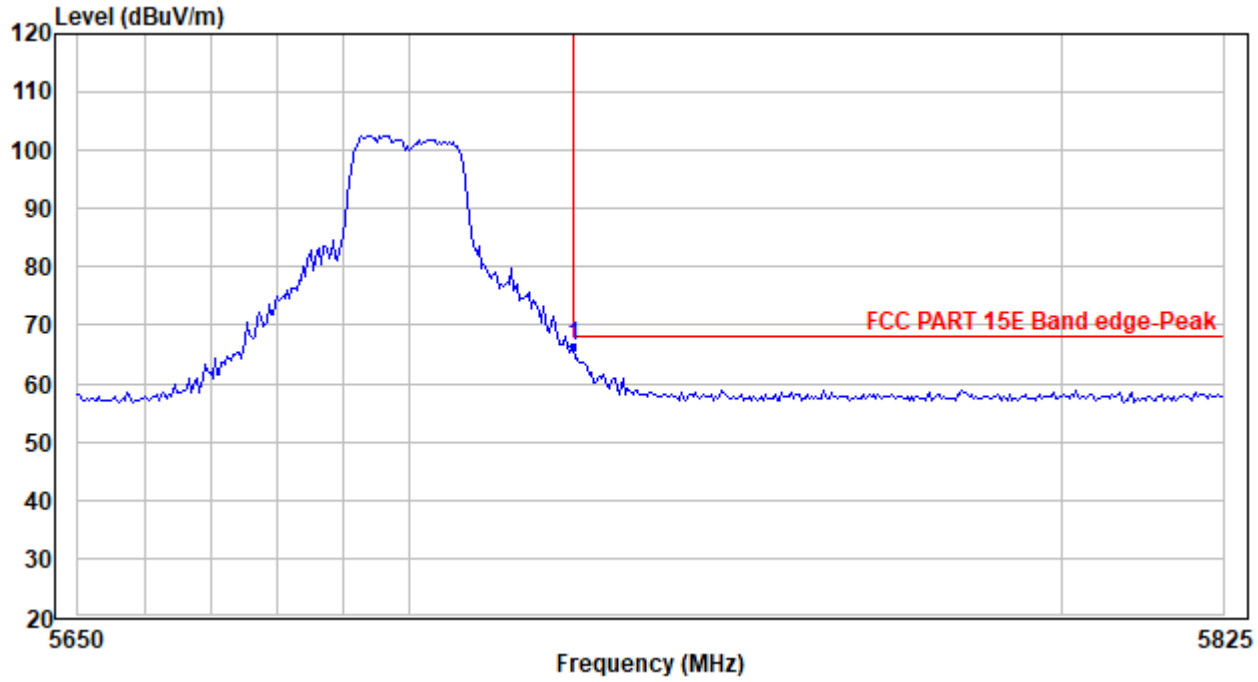
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	59.83	68.20	44.54	54.00	Pass
5470.000	65.80	68.20	46.73	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Horizontal



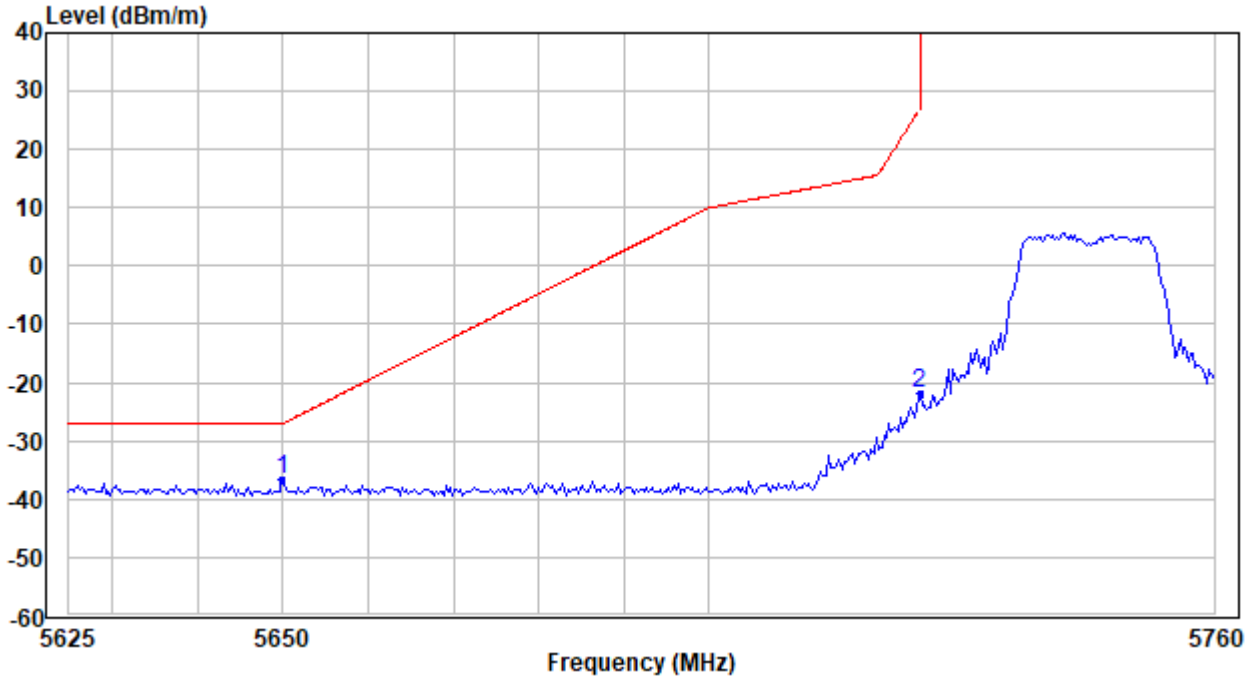
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Conclusion
5725.000	66.12	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Vertical



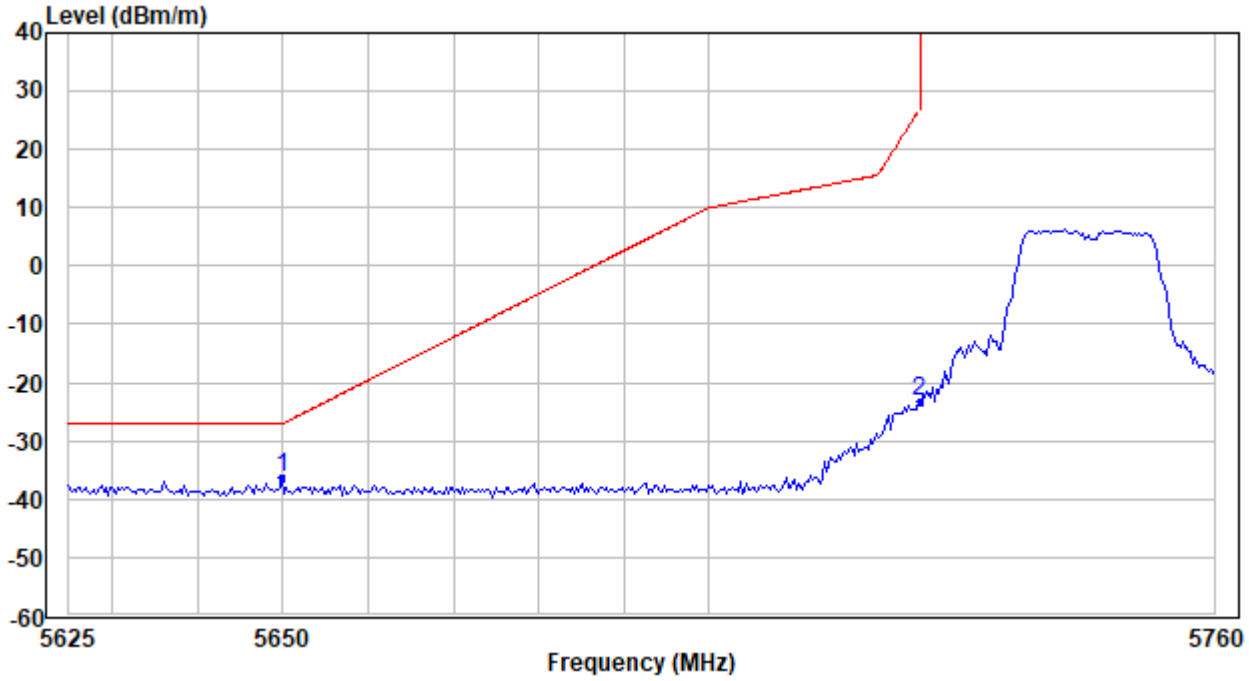
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Conclusion
5725.000	66.26	68.20	Pass

Test Channel:	Channel 149	Ant. Polar. :	Horizontal



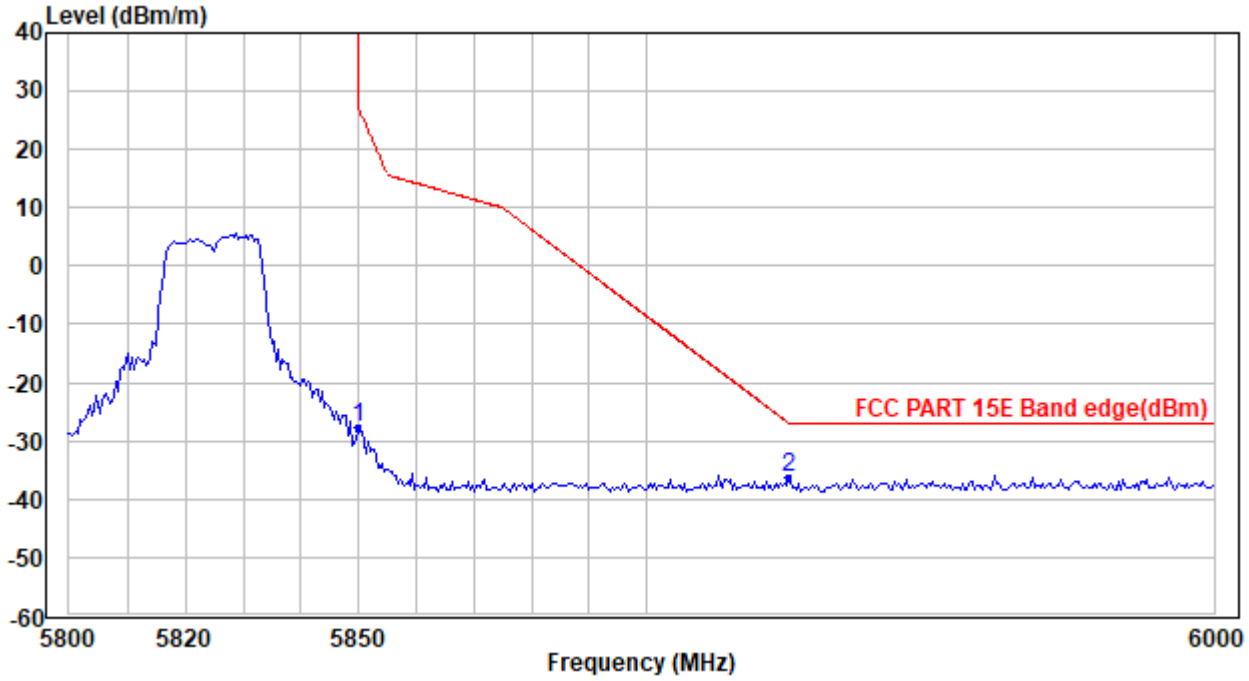
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-36.75	-27.00	Pass
5725.000	-21.98	27.00	Pass

Test Channel:	Channel 149	Ant. Polar. :	Vertical



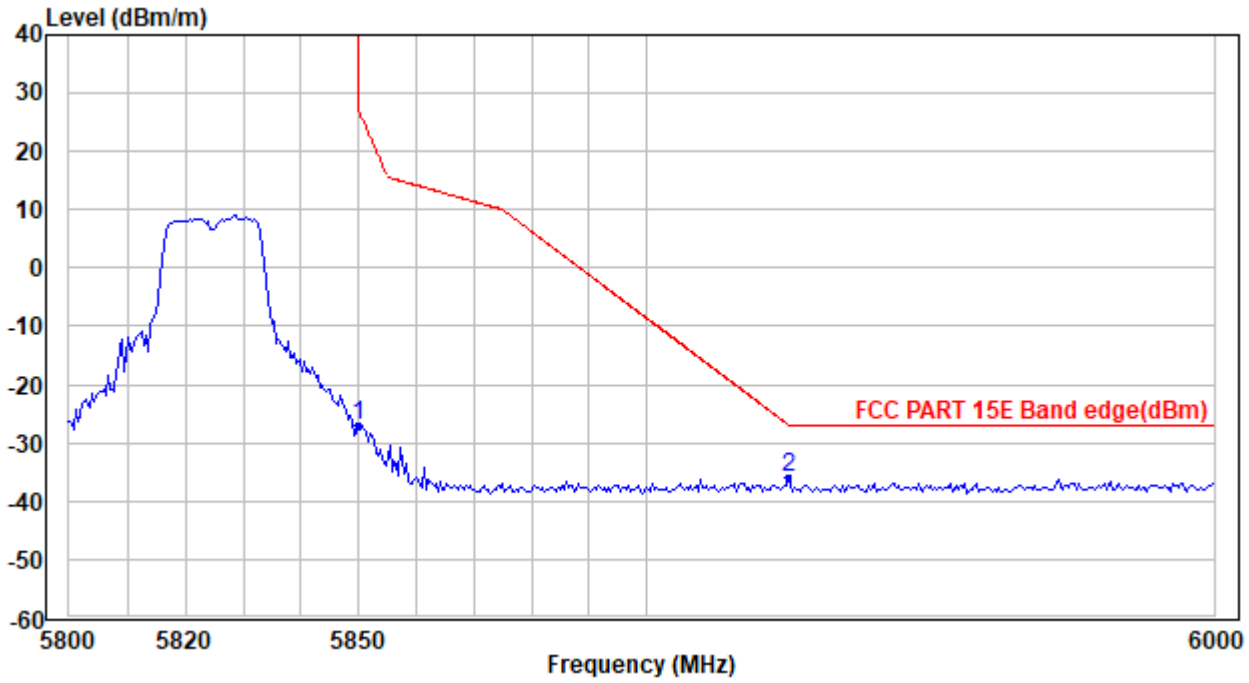
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-36.38	-27.00	Pass
5725.000	-23.25	27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-27.64	27.00	Pass
5925.000	-36.19	-27.00	Pass

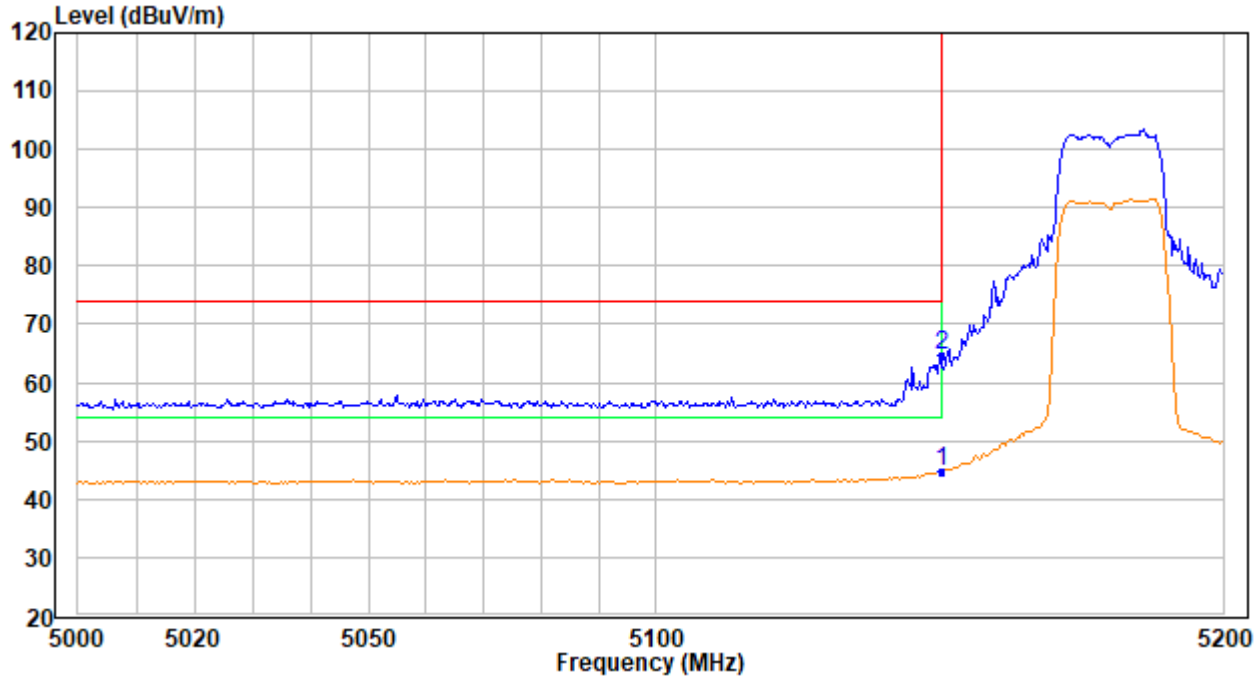
Test Channel:	Channel 165	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-27.04	27.00	Pass
5925.000	-35.85	-27.00	Pass

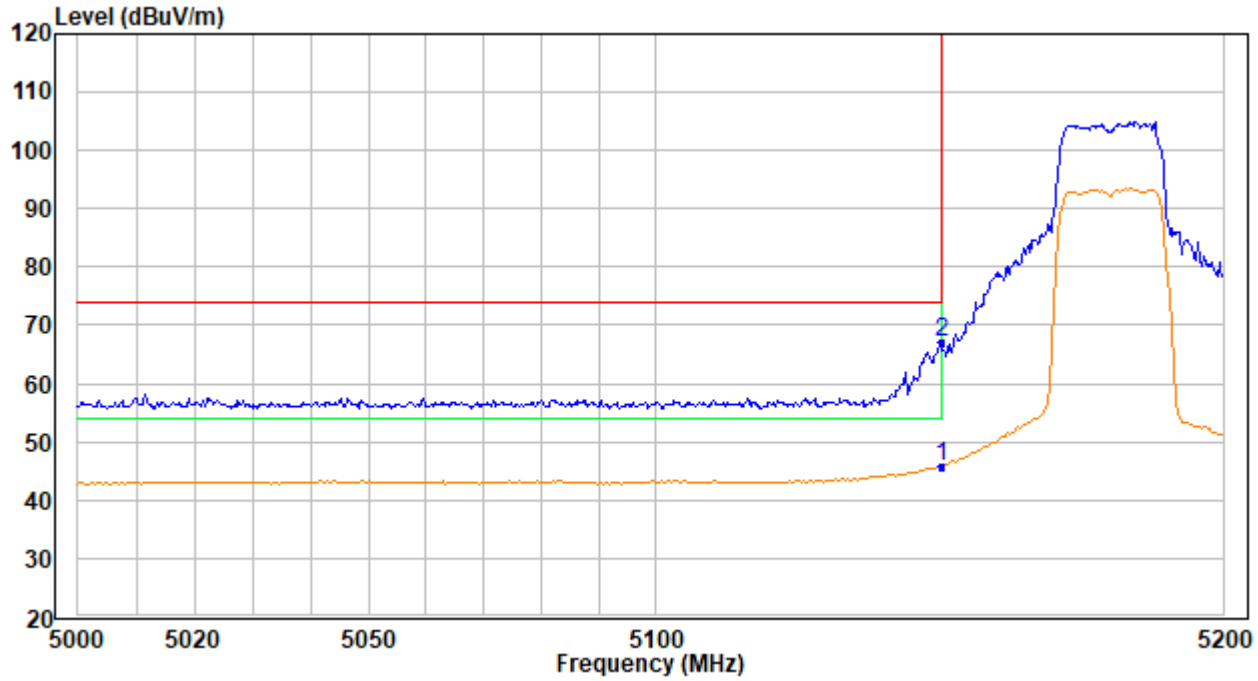
IEEE 802.11n-HT20

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



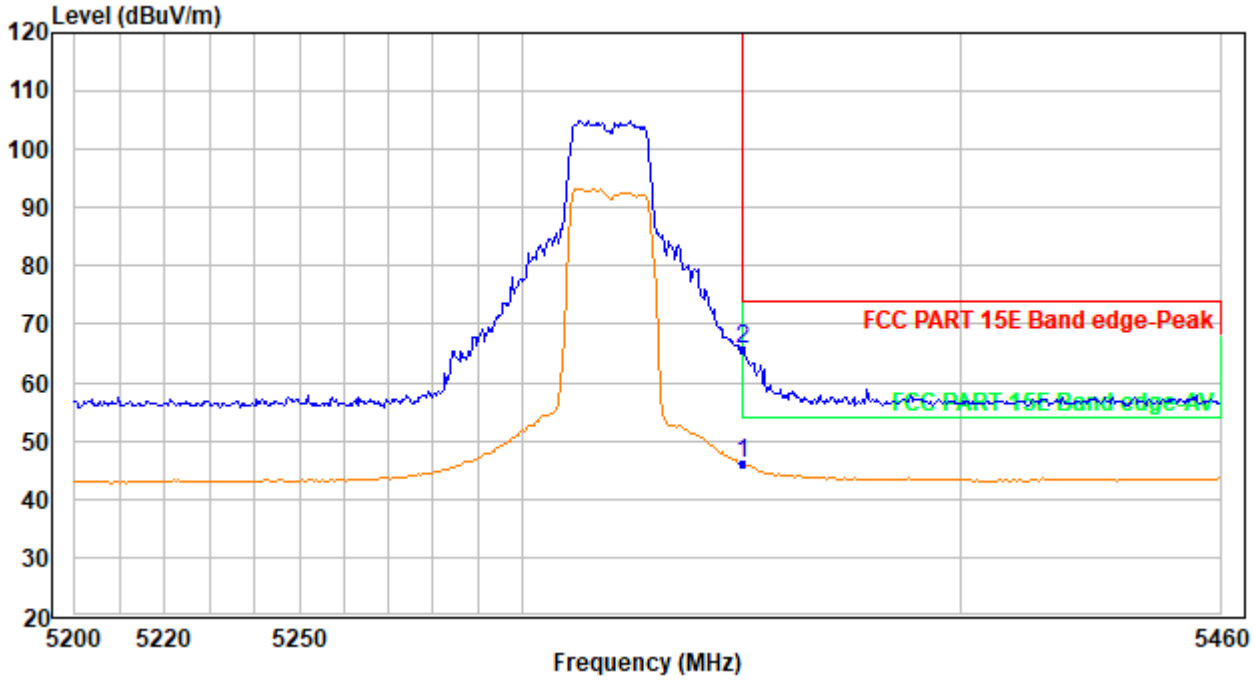
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	64.83	74.00	44.74	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



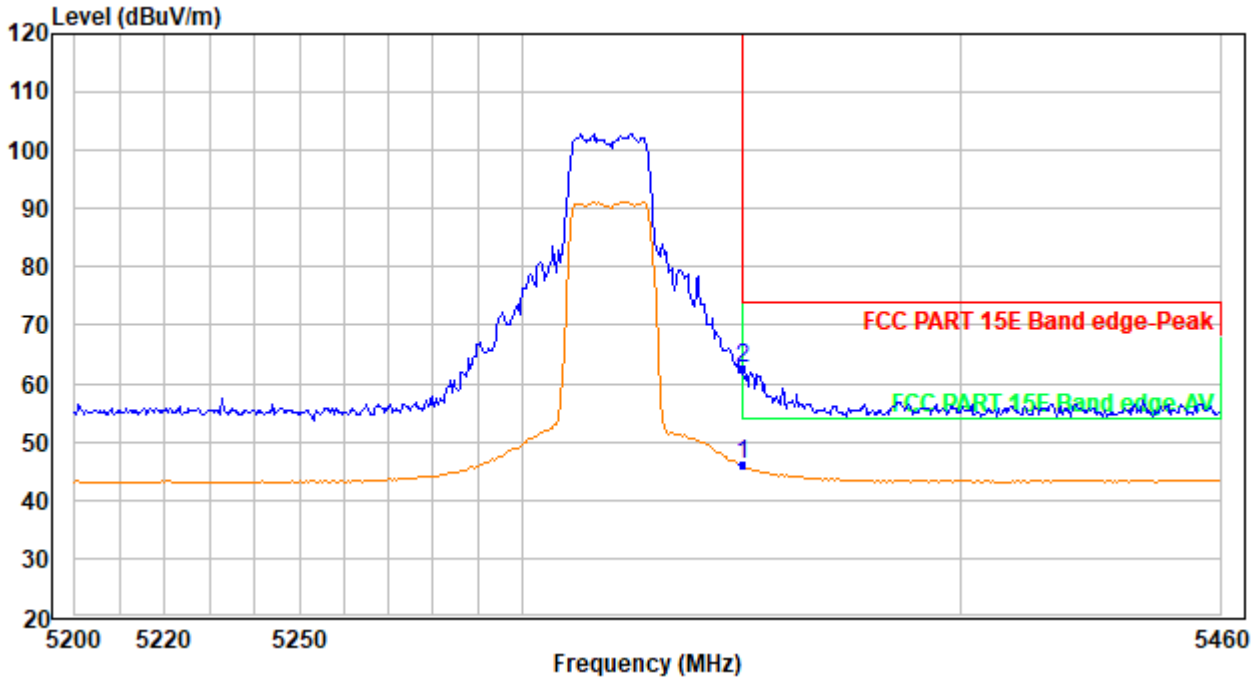
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	66.99	74.00	45.80	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



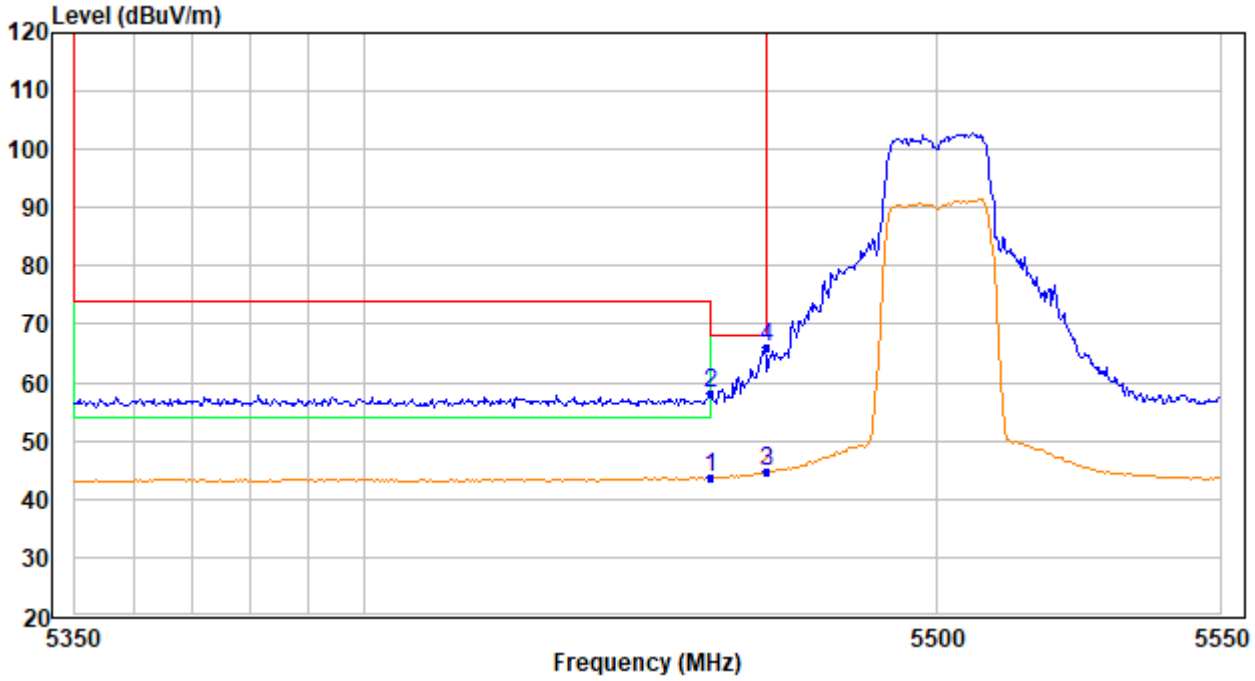
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	65.57	74.00	46.13	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



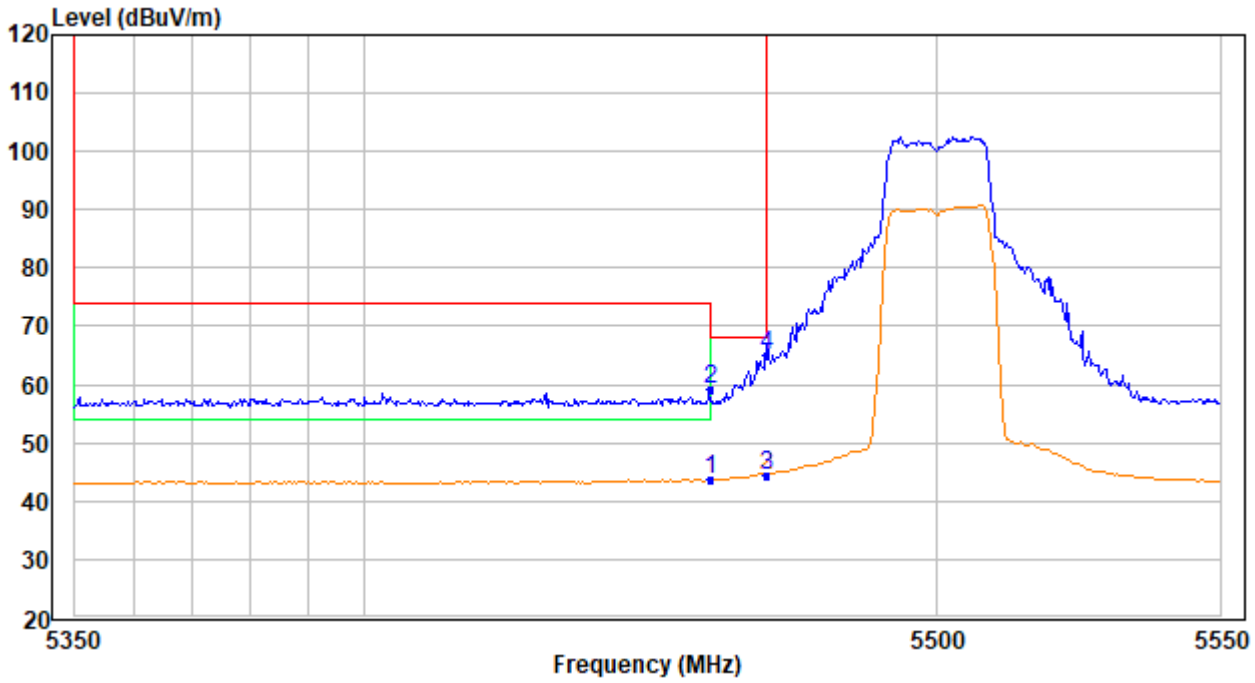
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	62.52	74.00	46.03	54.00	Pass

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



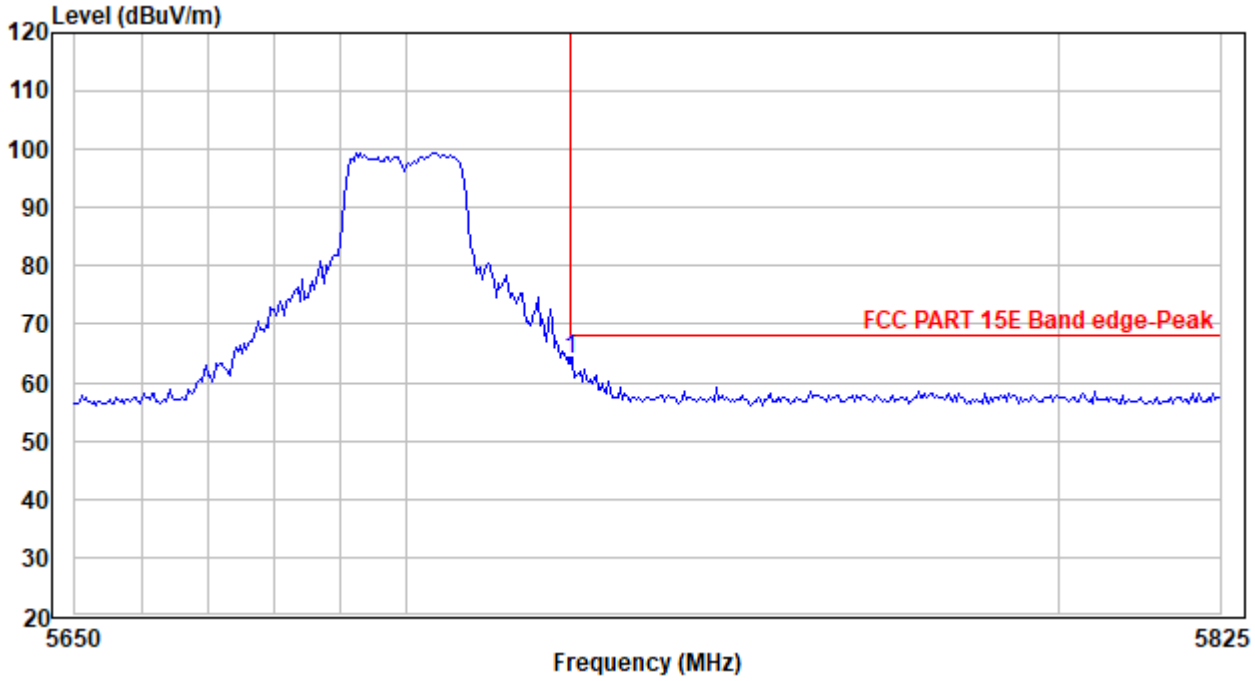
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	58.07	68.20	43.72	54.00	Pass
5470.000	66.02	68.20	44.61	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



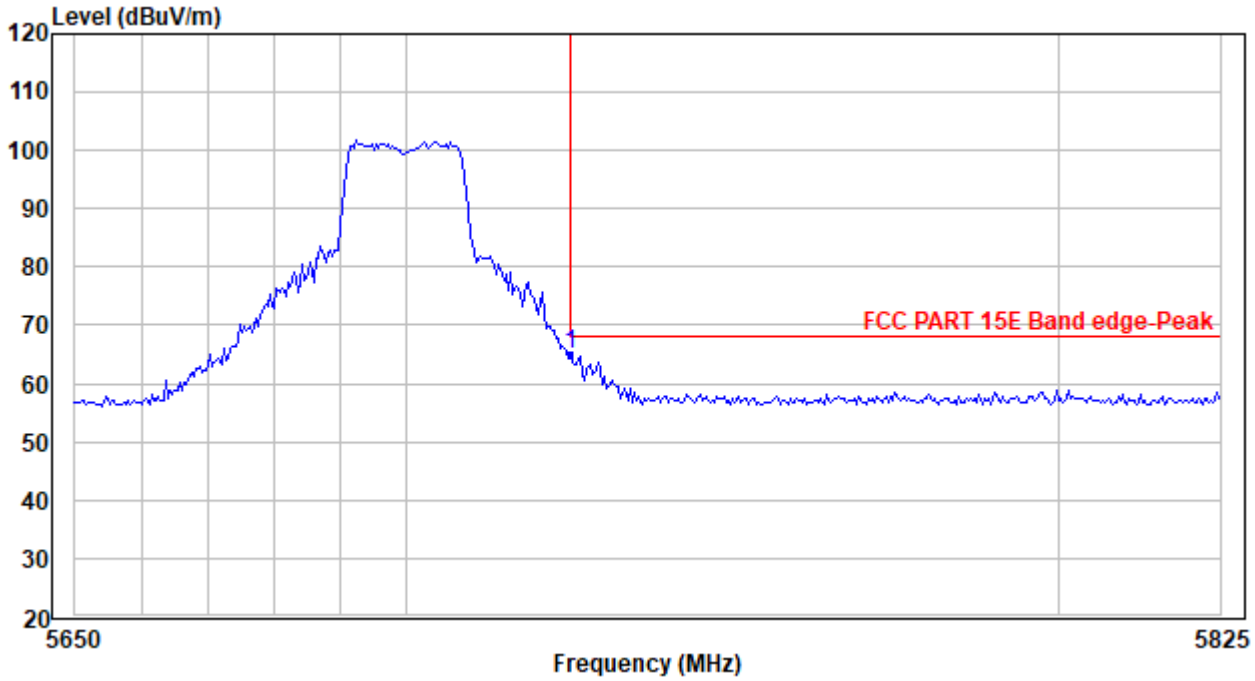
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	59.15	68.20	43.73	54.00	Pass
5470.000	64.88	68.20	44.55	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Horizontal



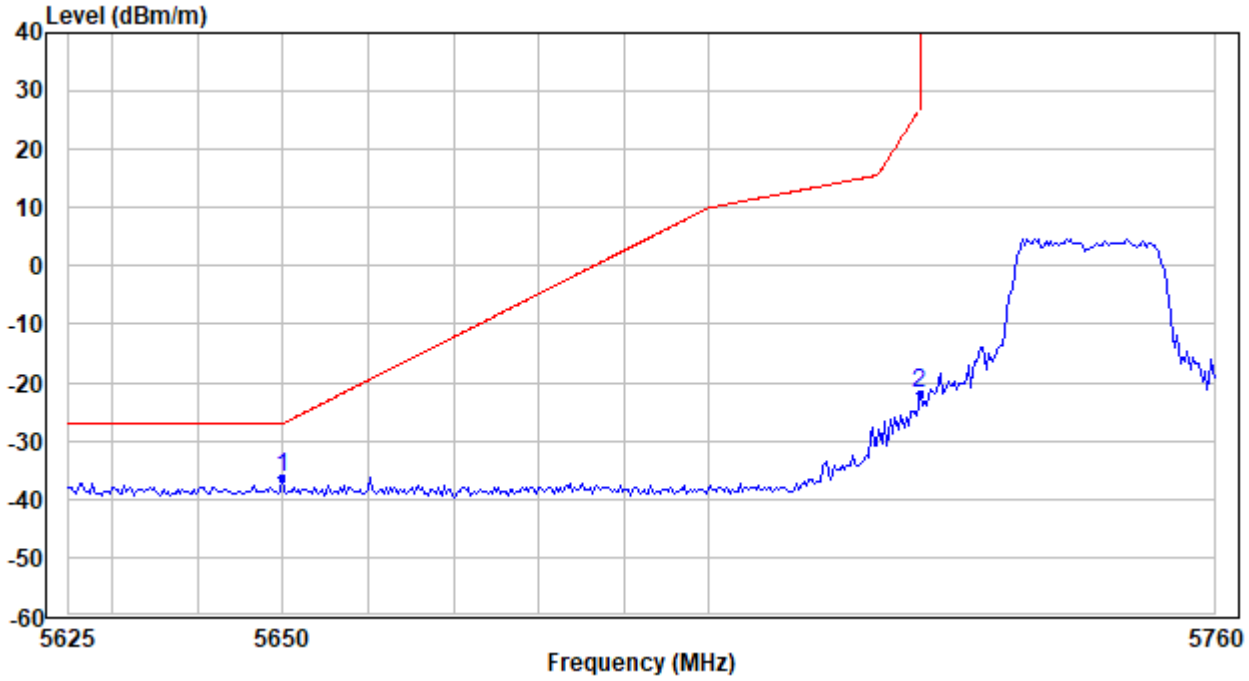
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Conclusion
5725.000	64.13	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Vertical



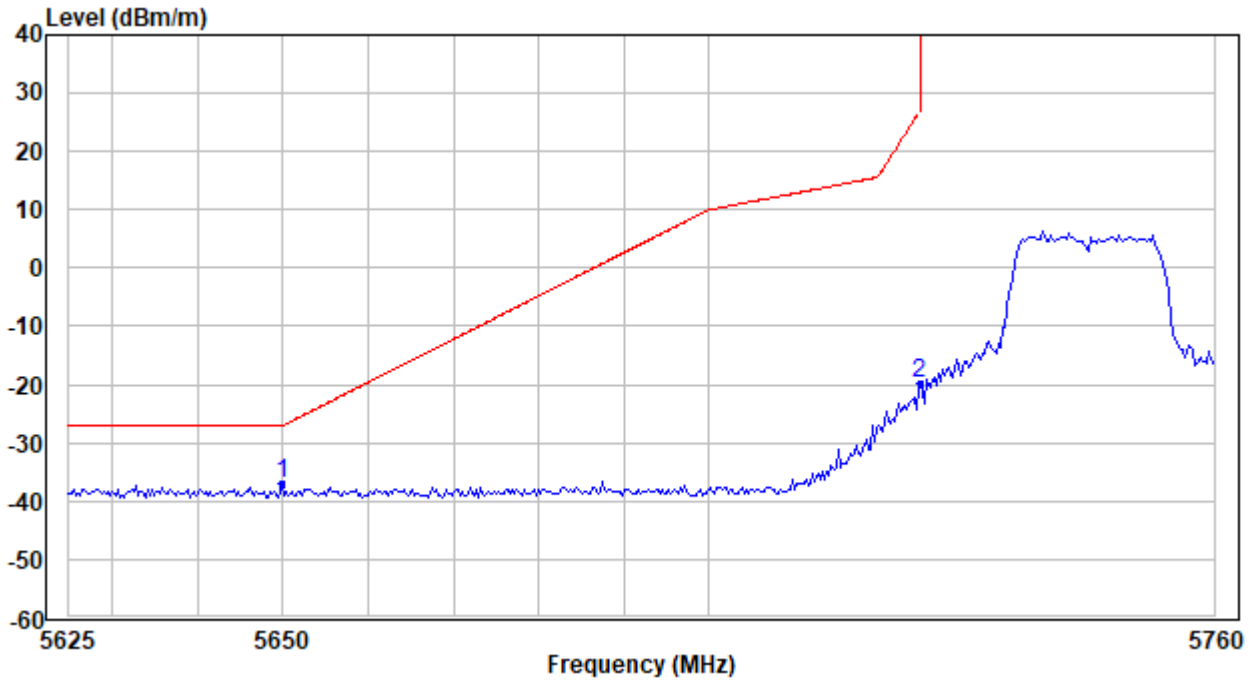
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	Conclusion
5725.000	65.13	68.20	Pass

Test Channel:	Channel 149	Ant. Polar. :	Horizontal



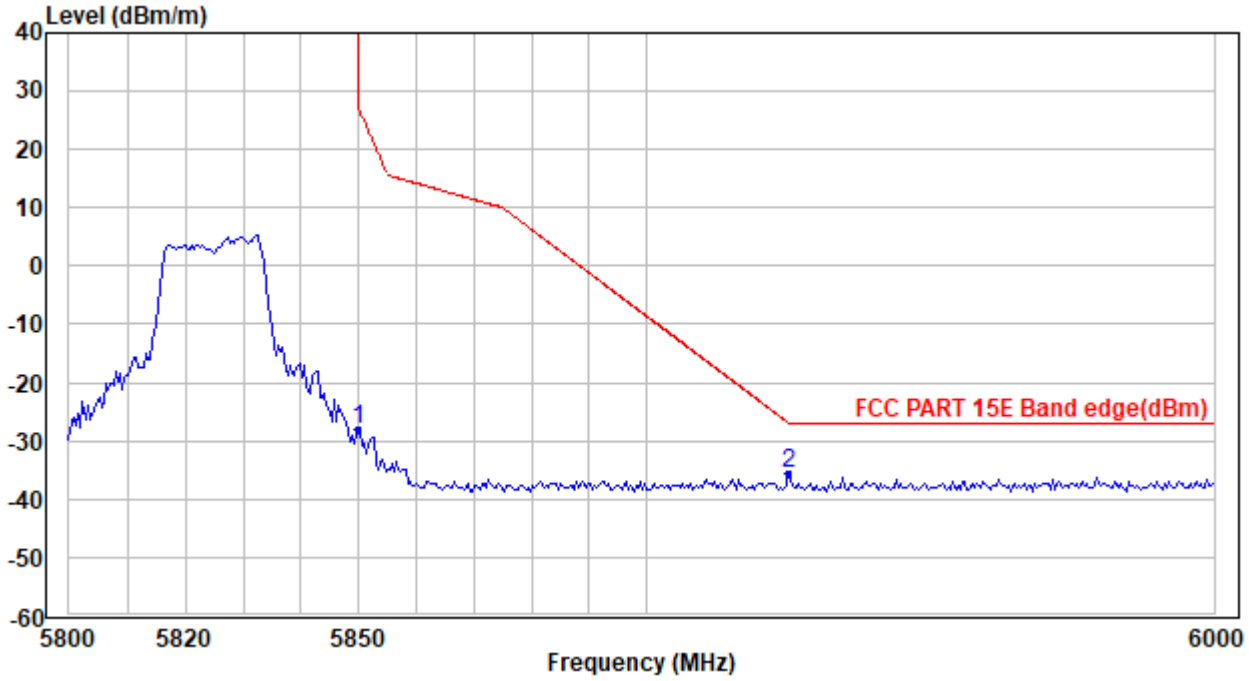
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-36.39	-27.00	Pass
5725.000	-21.76	27.00	Pass

Test Channel:	Channel 149	Ant. Polar. :	Vertical



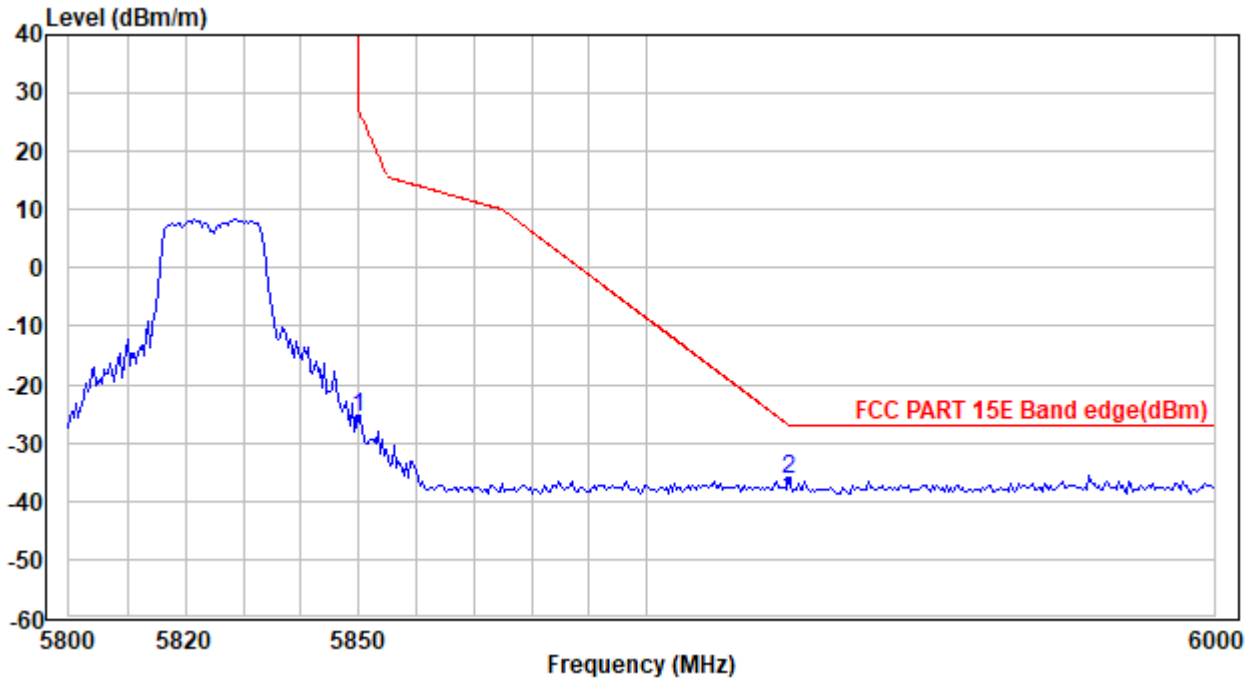
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-37.14	-27.00	Pass
5725.000	-19.91	27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-27.98	27.00	Pass
5925.000	-35.61	-27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-25.69	27.00	Pass
5925.000	-36.32	-27.00	Pass

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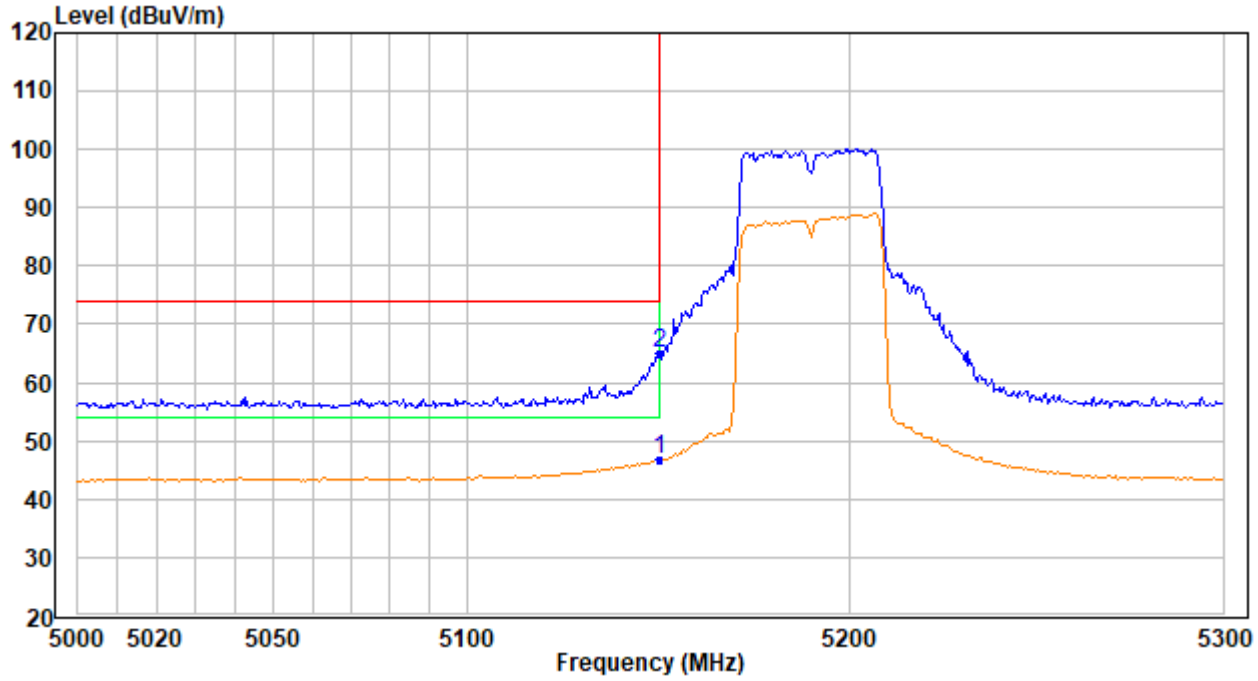
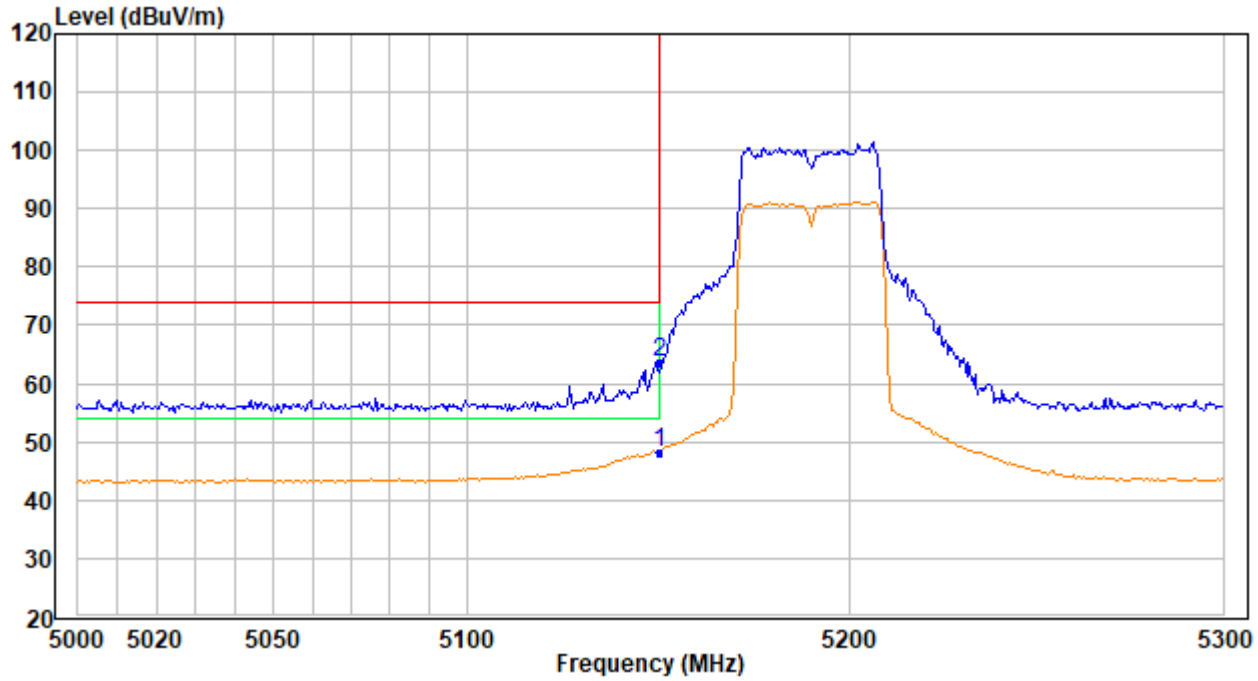
Test Channel:	Channel 38	Ant. Polar. :	Horizontal



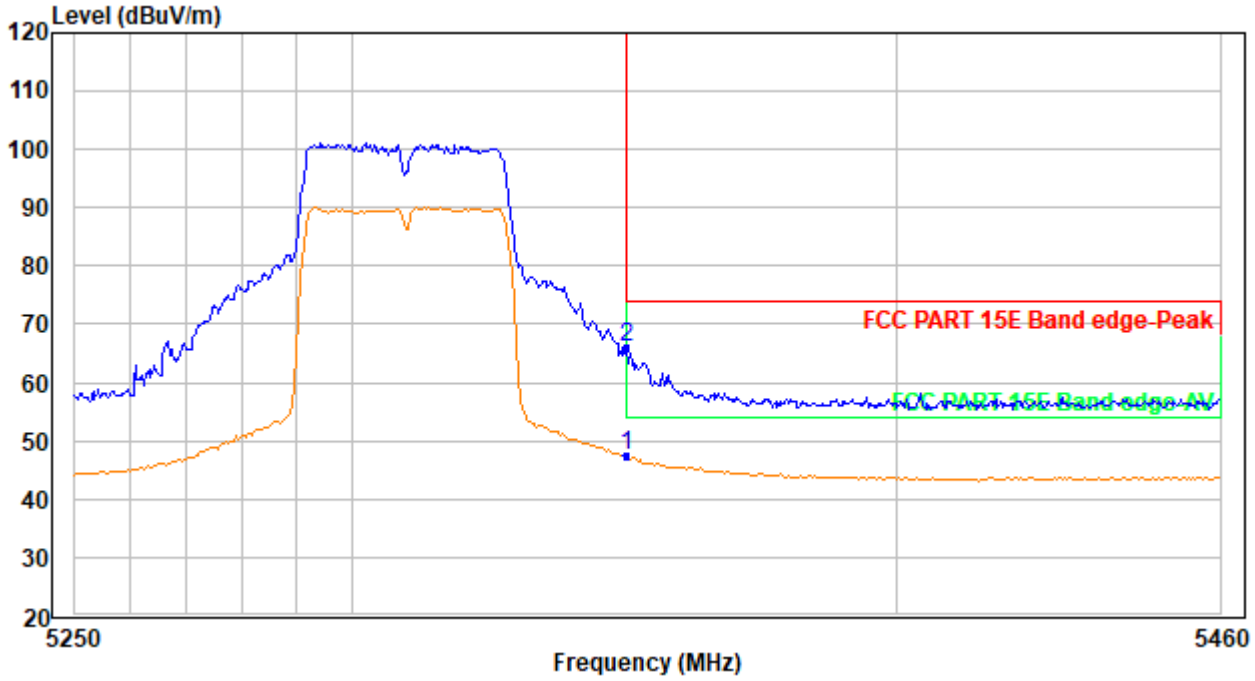
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	64.85	74.00	46.77	54.00	Pass

Test Channel:	Channel 38	Ant. Polar. :	Vertical



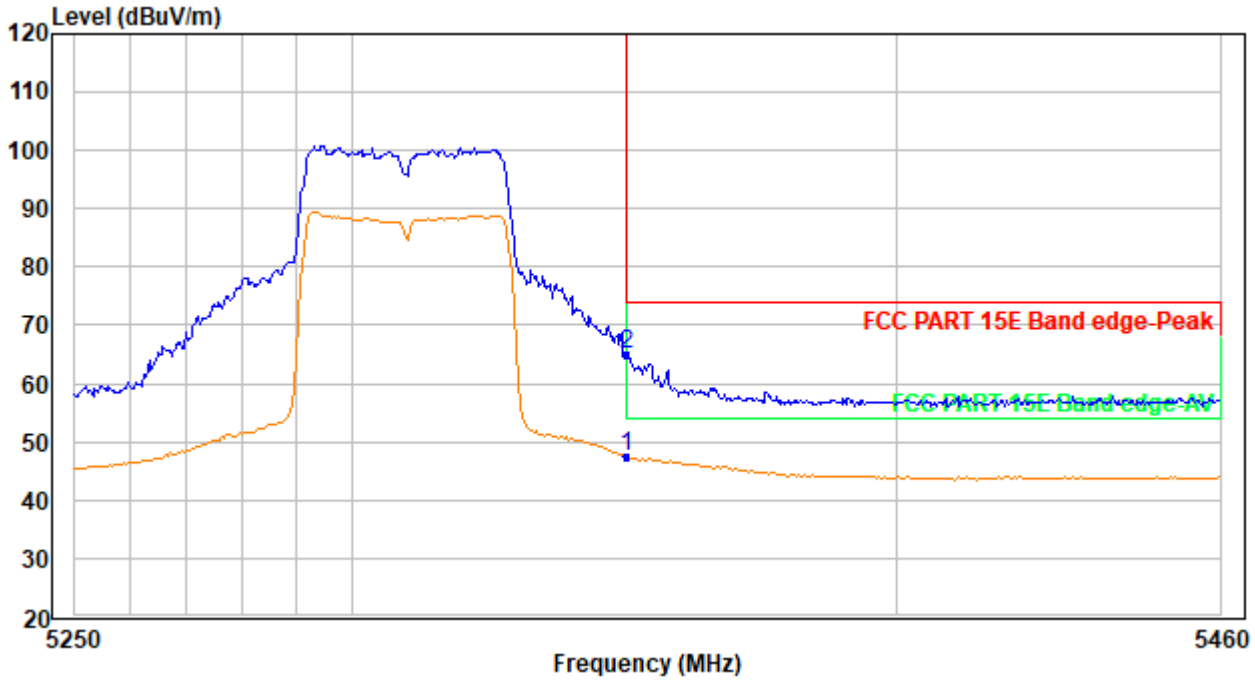
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.000	63.52	74.00	48.33	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Horizontal



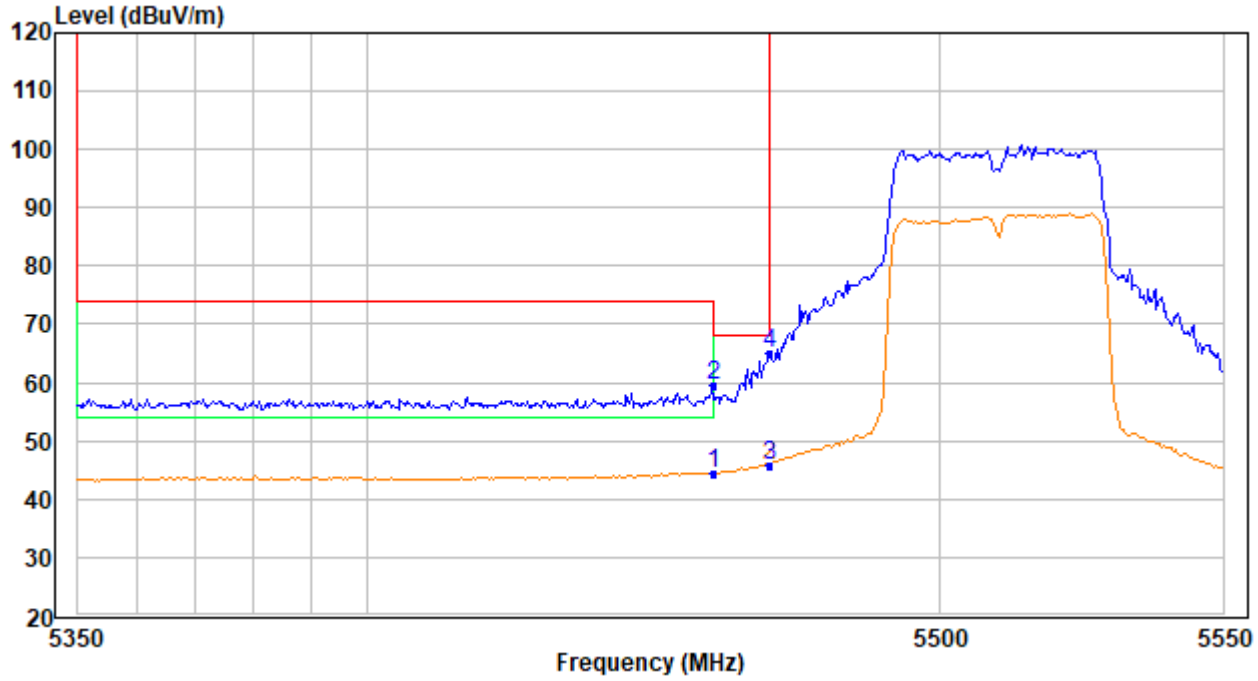
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	65.92	74.00	47.54	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Vertical



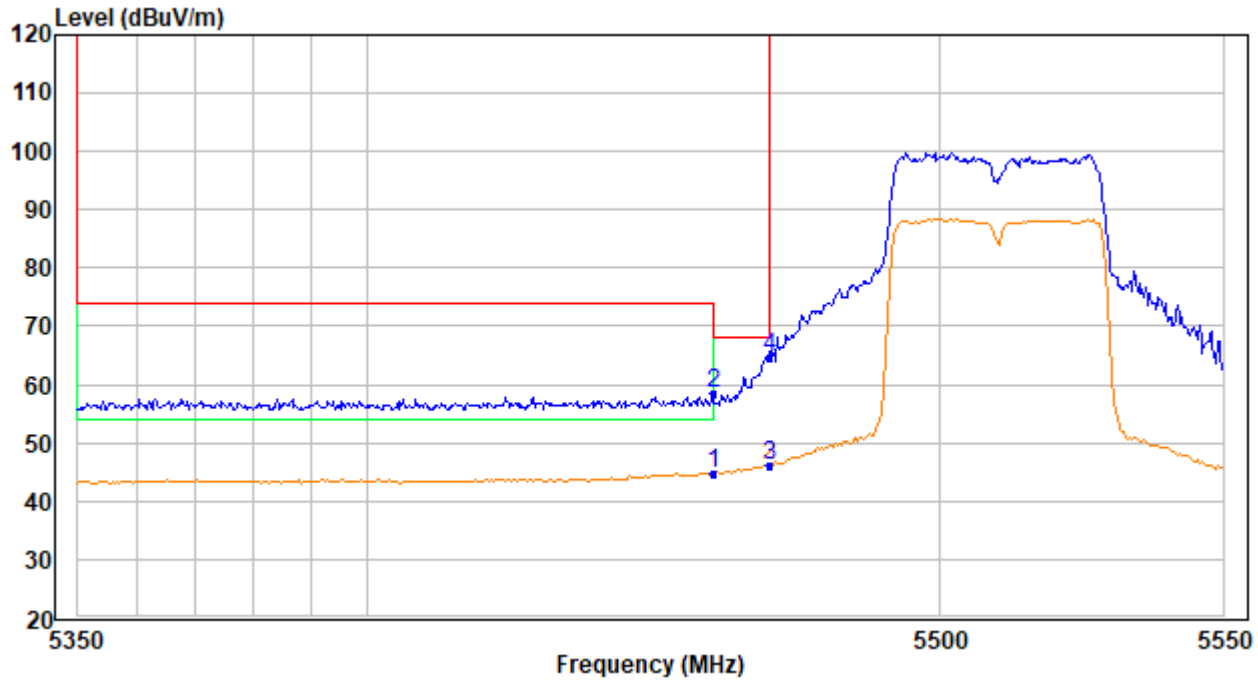
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.000	65.15	74.00	47.39	54.00	Pass

Test Channel:	Channel 102	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	59.42	68.20	44.51	54.00	Pass
5470.000	64.86	68.20	45.78	68.20	Pass

Test Channel:	Channel 102	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	58.59	68.20	44.72	54.00	Pass
5470.000	64.78	68.20	46.27	68.20	Pass