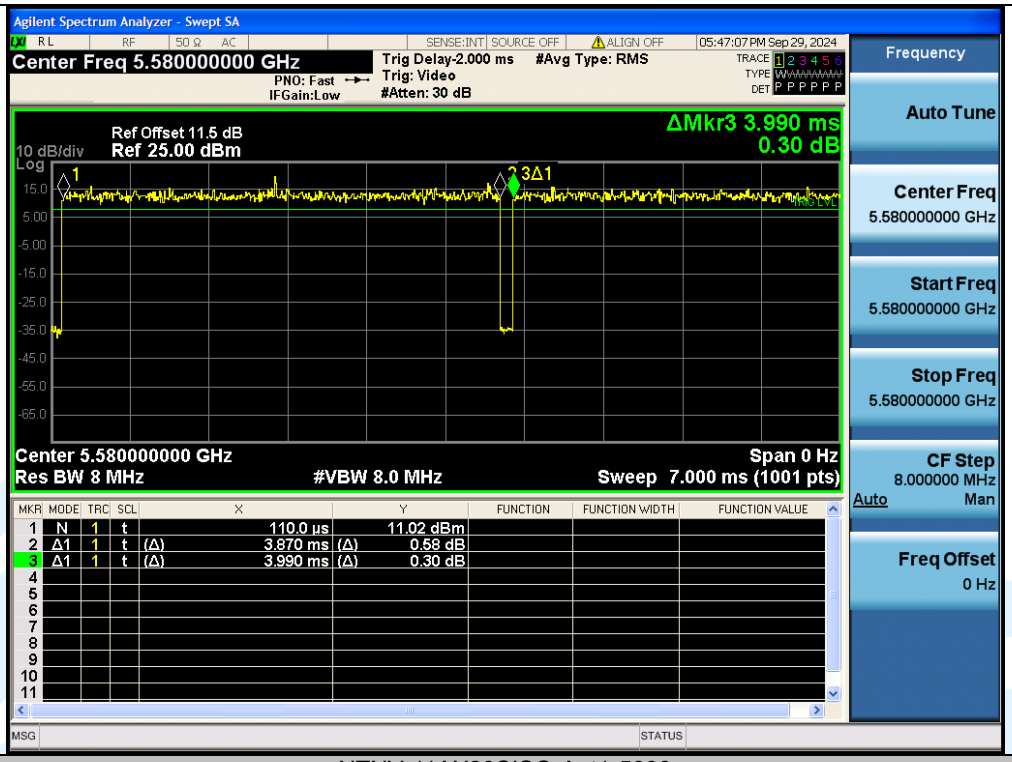

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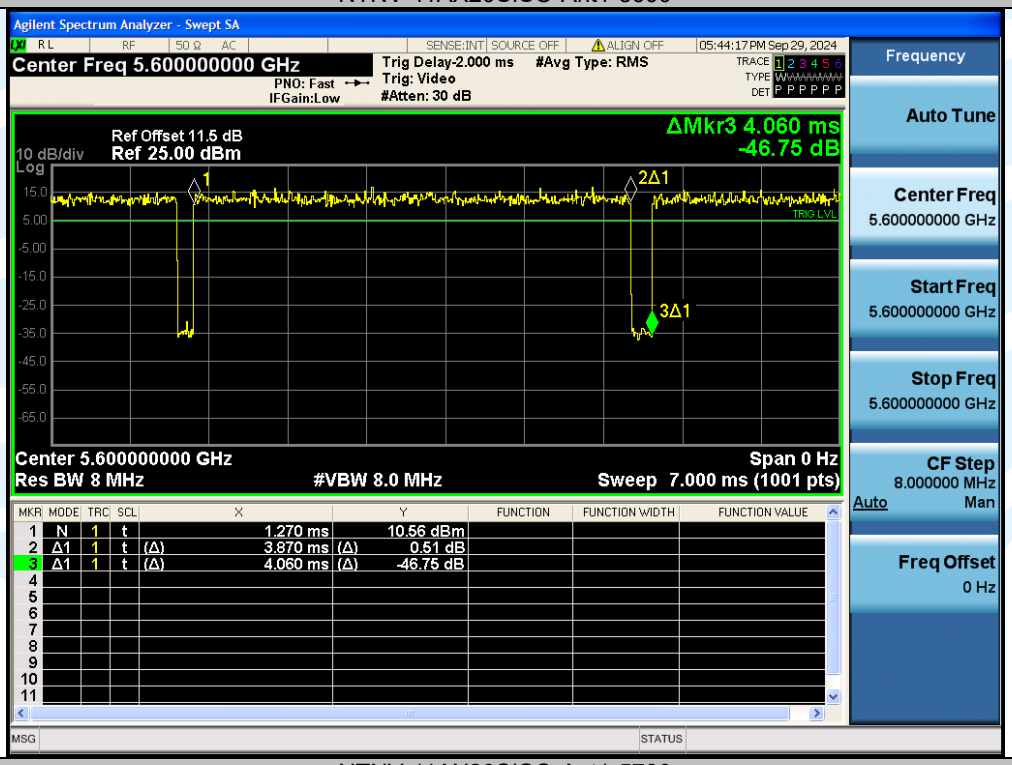

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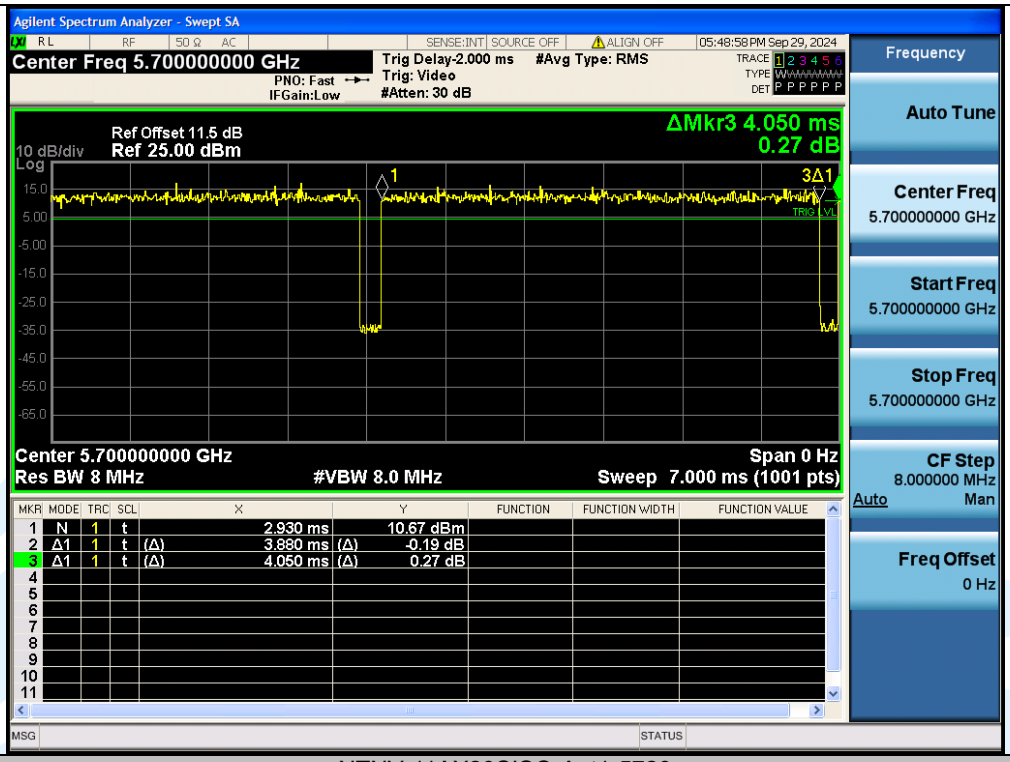

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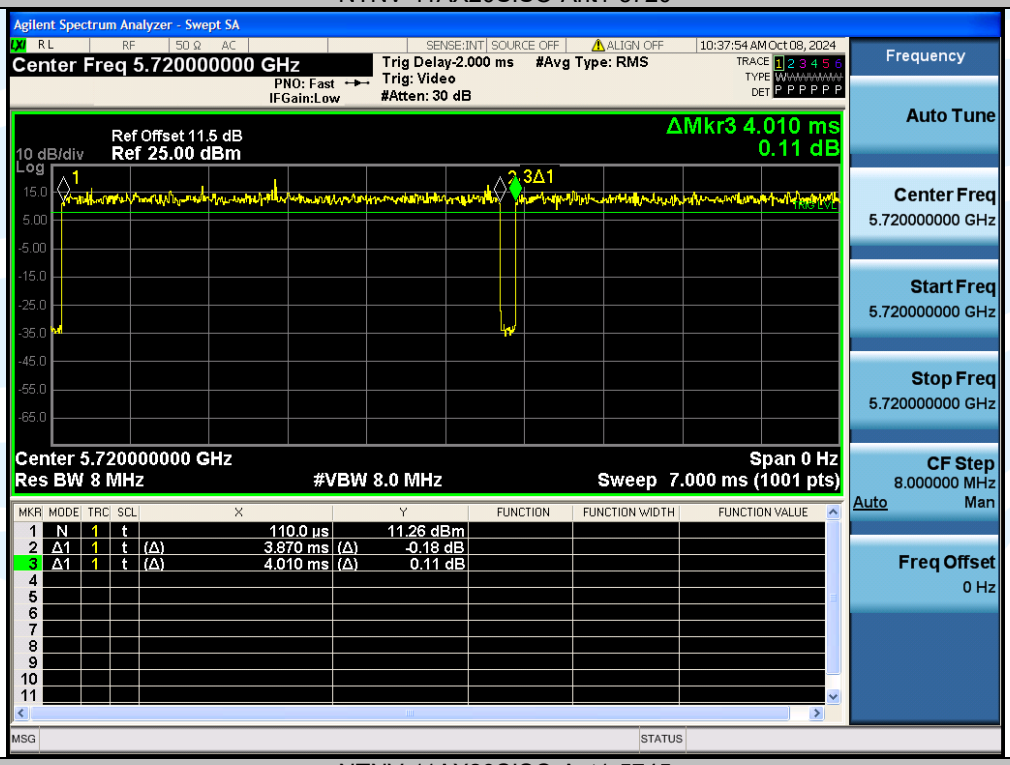

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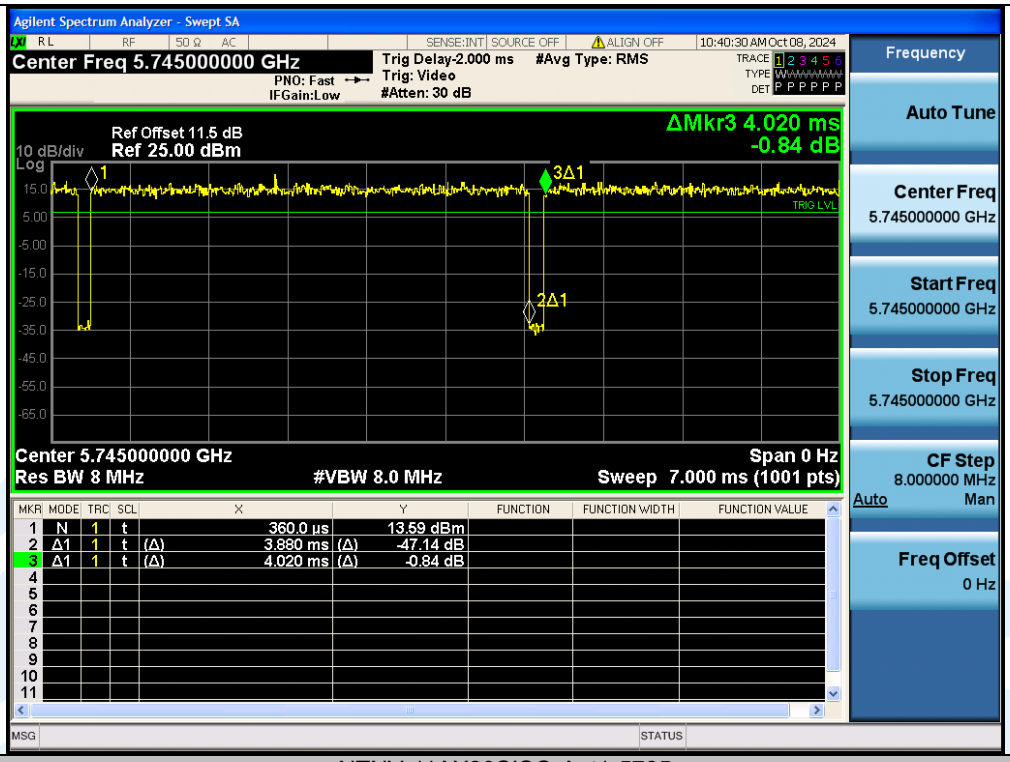

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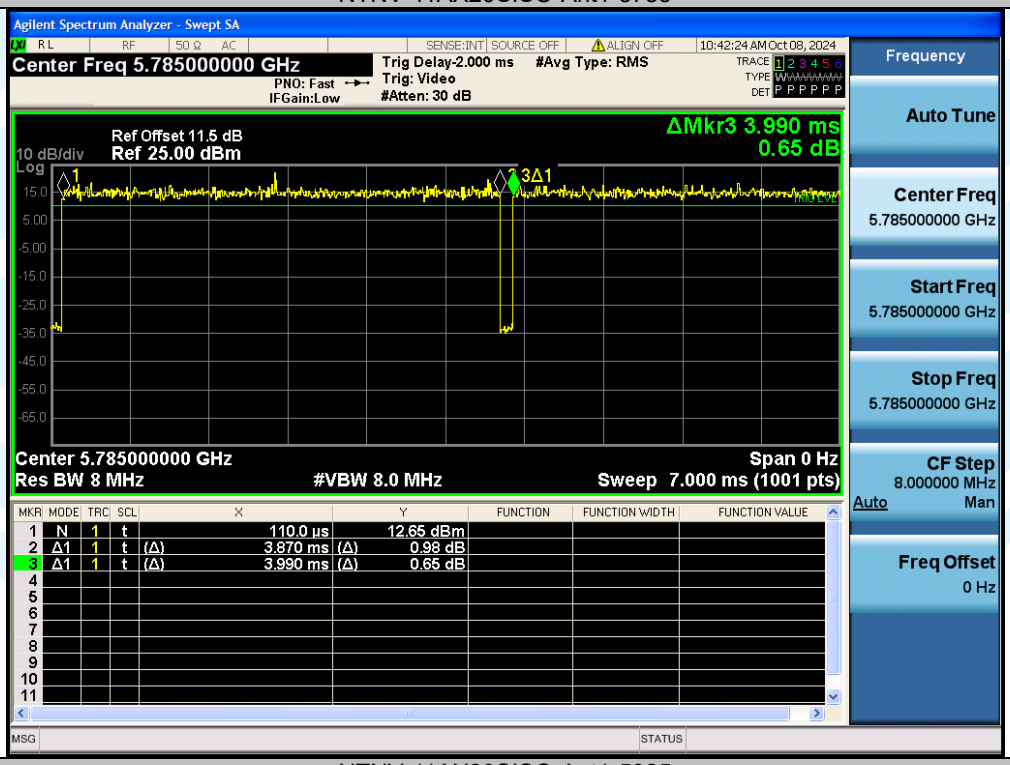

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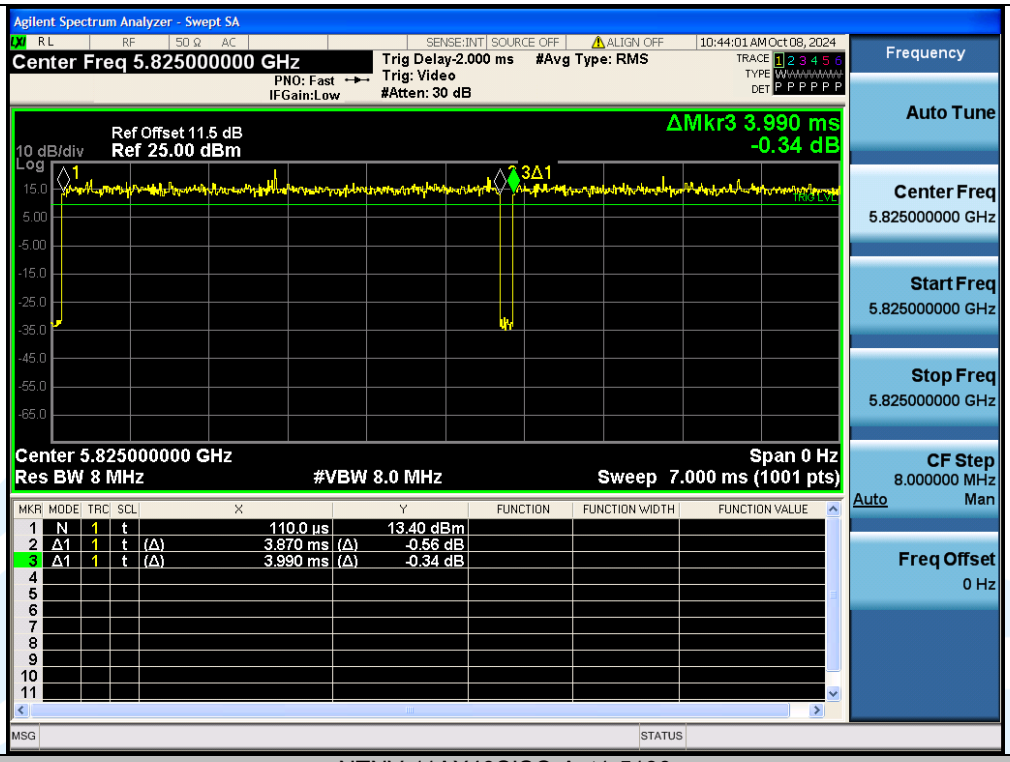

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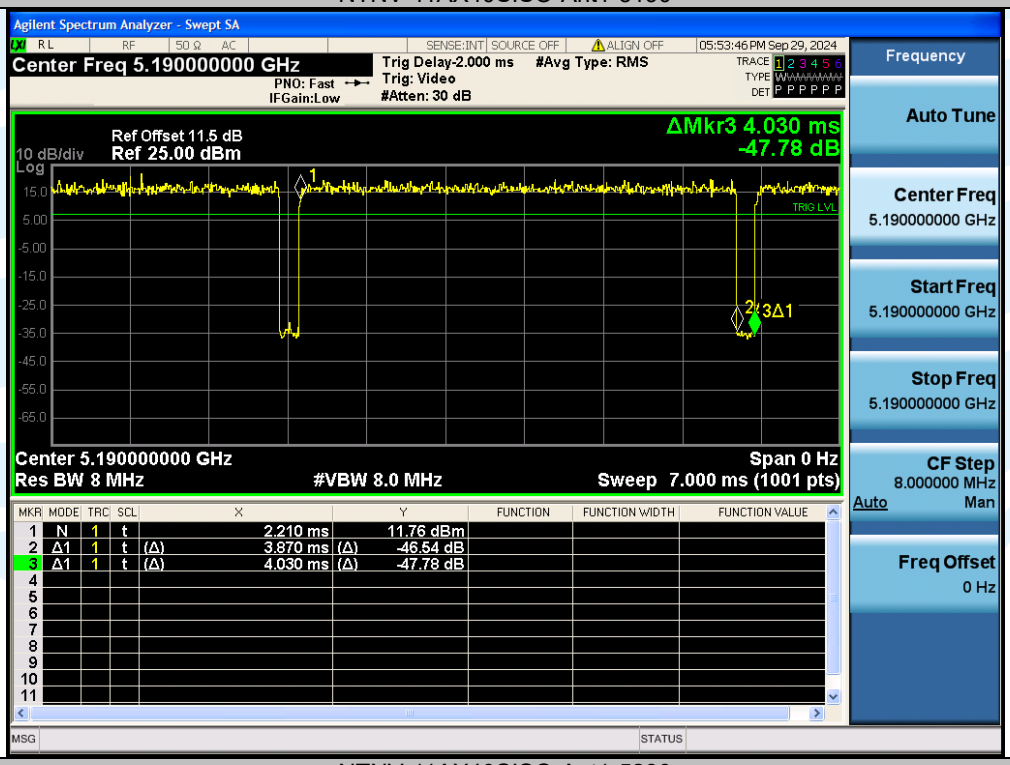

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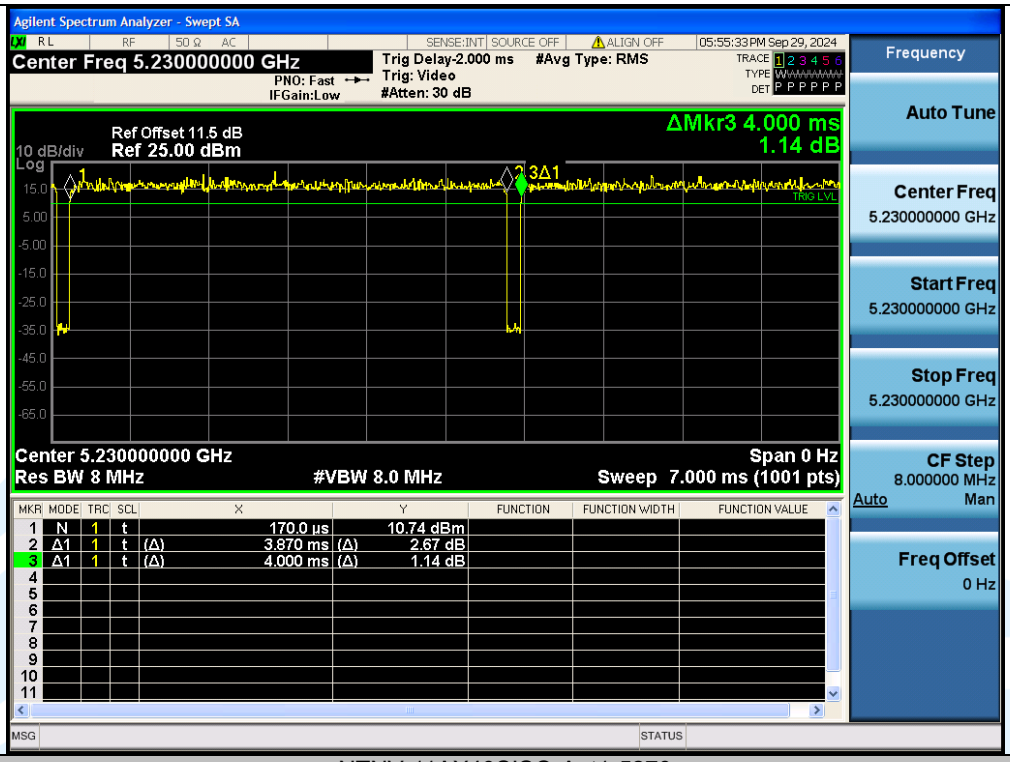

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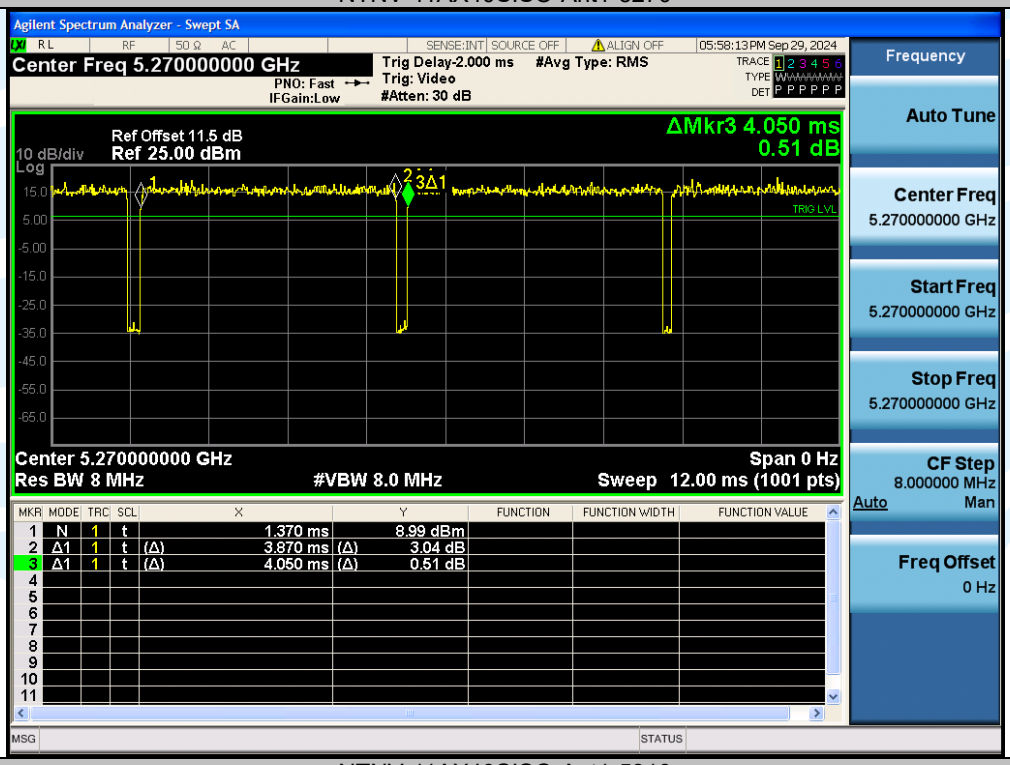

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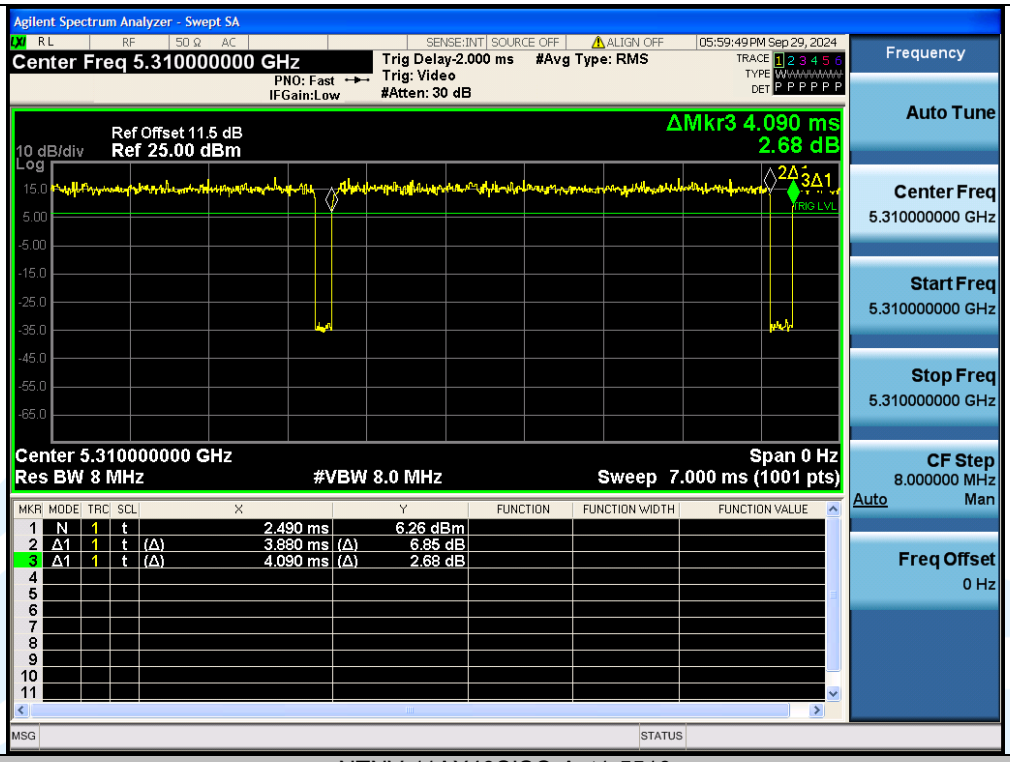

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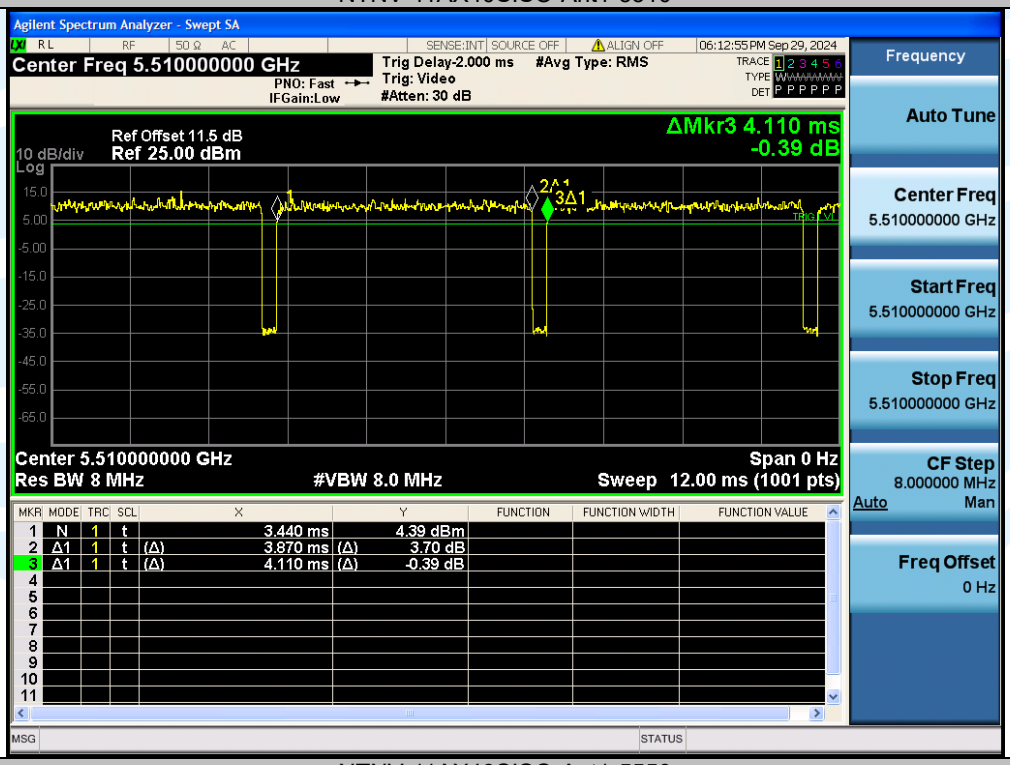

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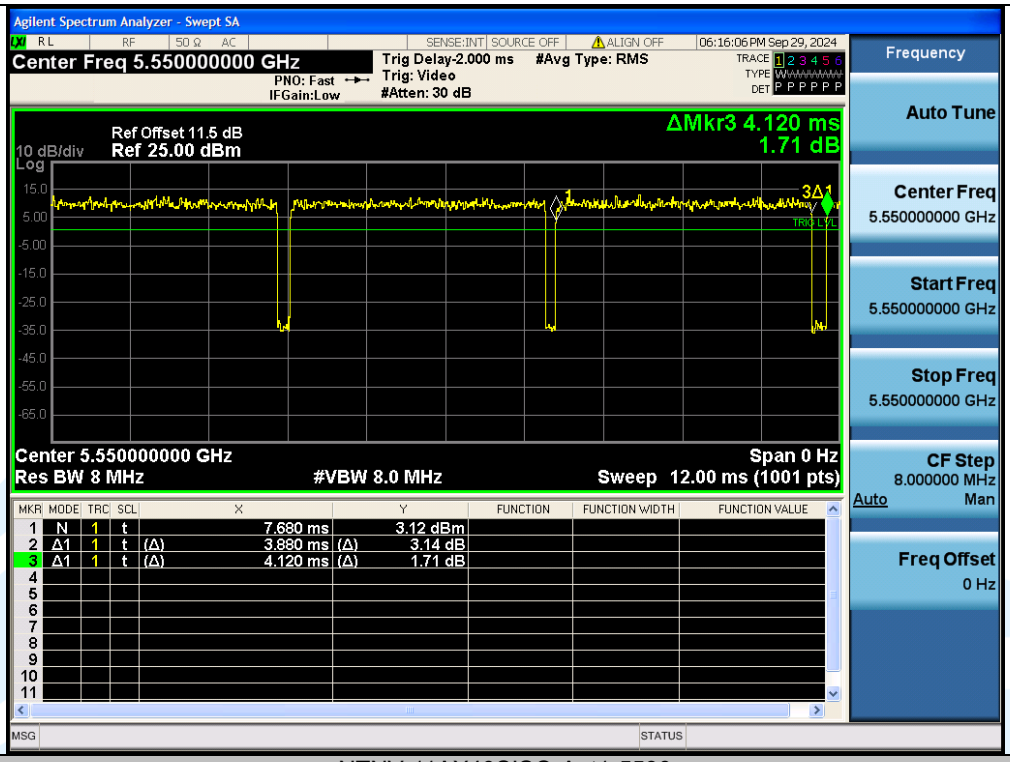

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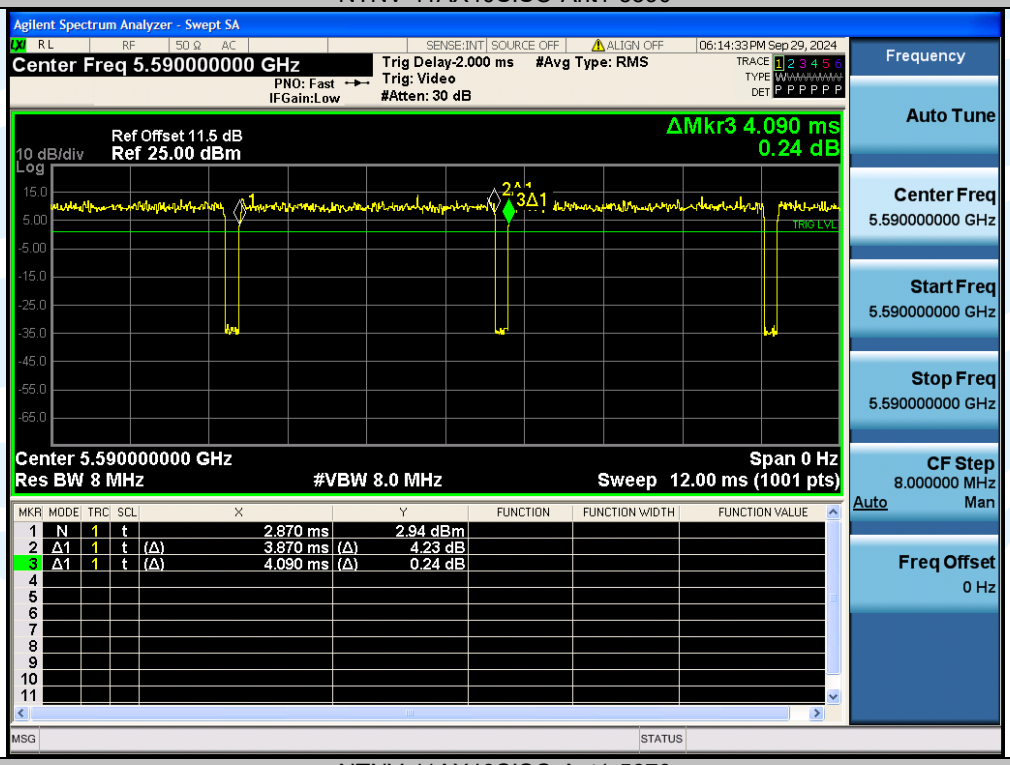

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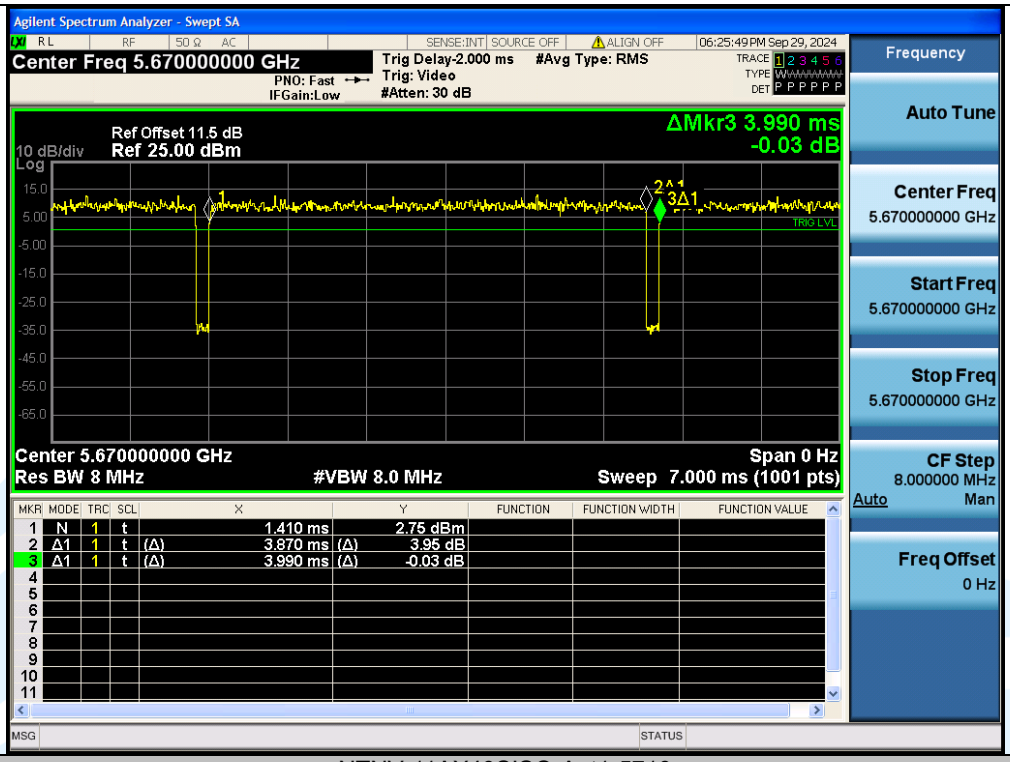

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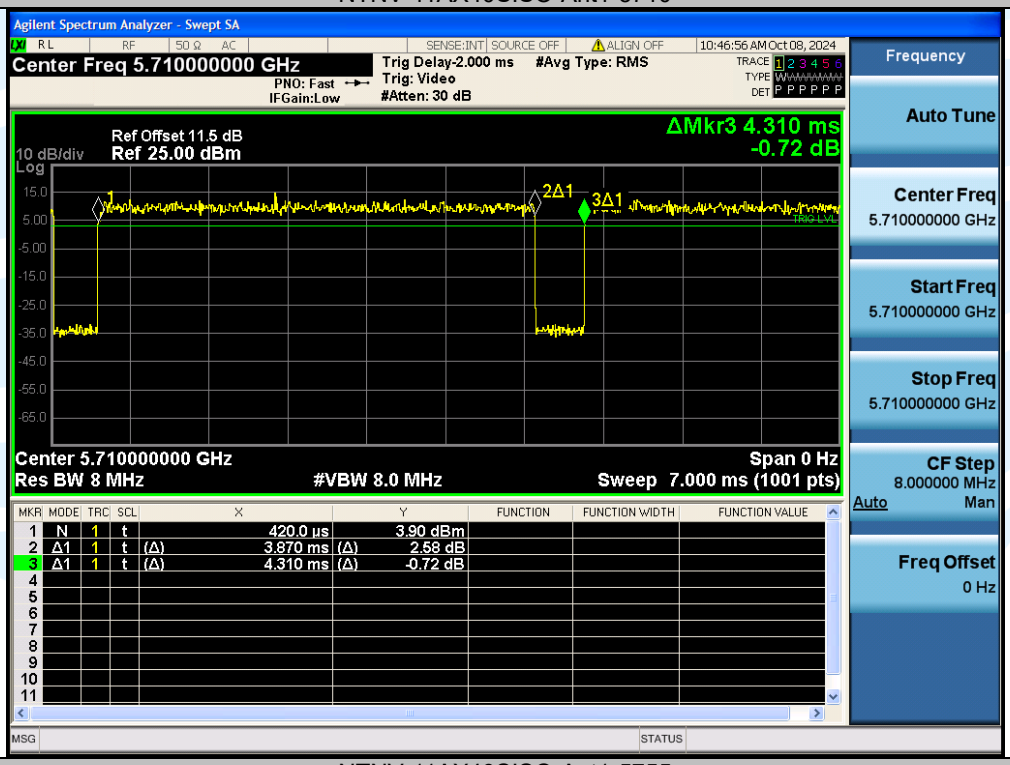

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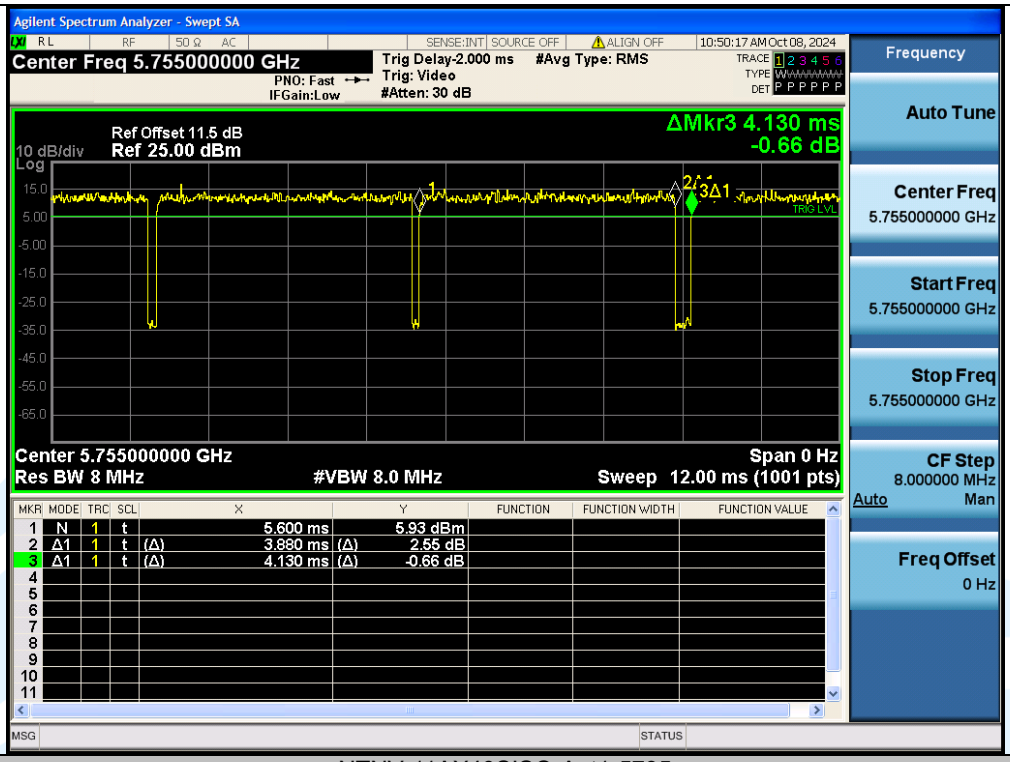

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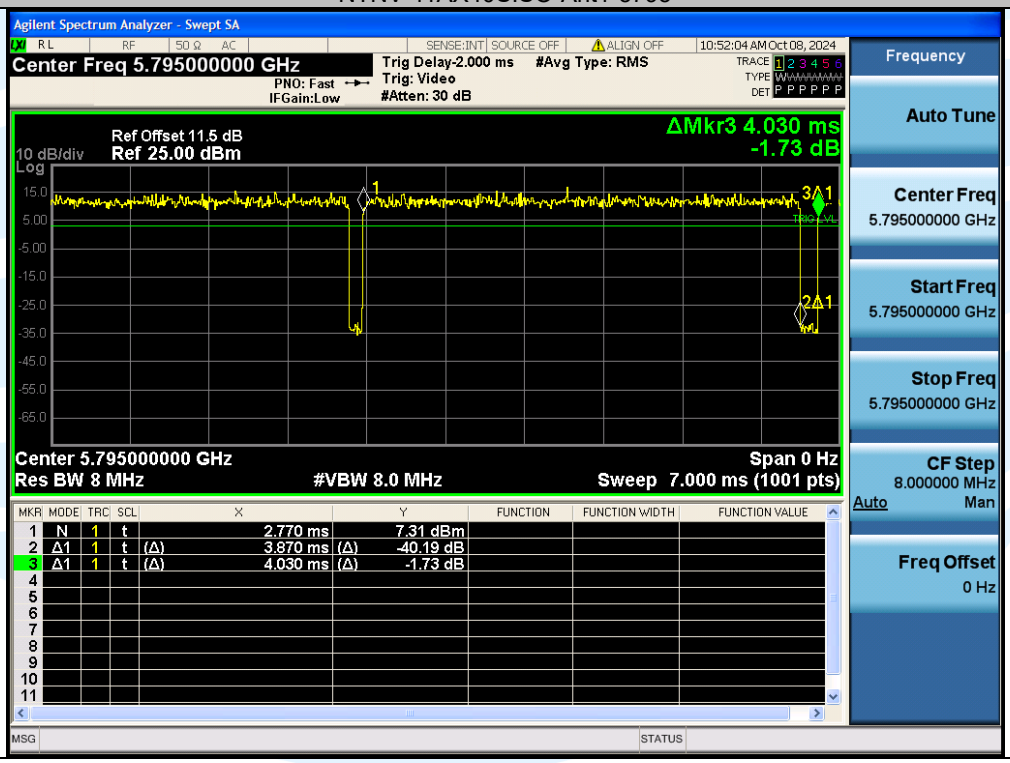


5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

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	RSS-247 Issue 3	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
4	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
5	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices
6	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
7	KDB 905462 D06 802.11 Channel Plans New Rules v02	Operation in U-NII bands -802.11 channel PLAN(§15.407)
8	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
9	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. **RSS-Gen Issue 5, Section 6.8 requirement:** According to RSS-Gen Issue 5, Section 6.8, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns.
EUT Antenna:
Antenna in the interior of the equipment and no consideration of replacement. The gain of the antenna is 5.32 dBi.

5.3 26 DB BANDWIDTH & OCCUPIED BANDWIDTH

Test Requirement:	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(2)(5) RSS-247 Issue 3 Section 6.2.1.2
Test Method:	KDB 789033 D02 v02r01 Section C.1
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:
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 %.

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 & OCCUPIED BANDWIDTH

Test Requirement:	FCC 47 CFR Part 15 Subpart E Section 15.407 (e) RSS-247 Issue 3 Section 6.2.4.1
Test Method:	KDB 789033 D02 v02r01 Section C.2
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.

Occupied Bandwidth

a) Set RBW = 1% to 5% of the occupied bandwidth
b) Set the video bandwidth (VBW) ≥ 3 x RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.

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:	**Please refer to Appendix A**

5.5 MAXIMUM CONDUCTED OUTPUT POWER OR E.I.R.P

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3)
RSS-247 Issue 3 Section 6.2.1.1/6.2.2.1/6.2.3.1/6.2.4.1

Test Method: KDB 789033 D02 v02r01 Section E.3.a (Method PM)

Limits: FCC 47 CFR Part 15 Subpart E

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.

Limits: RSS-247 Issue 3

1. **Frequency band 5150-5250 MHz**
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

2. **Frequency band 5250-5350 MHz**
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Additional requirements
In addition to the above requirements, devices shall comply with the following, where applicable:

a) Outdoor fixed devices with a maximum e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below:

i. -13 dBW/MHz for $0^o \leq \theta < 8^o$

ii. -13 − 0.716 (θ-8) dBW/MHz for $8^o \leq \theta < 40^o$

iii. -35.9 − 1.22 (θ-40) dBW/MHz for $40^o \leq \theta \leq 45^o$

iv. -42 dBW/MHz for $\theta > 45^o$

The measurement procedure defined in Annex A of this document shall be used to verify the compliance to the e.i.r.p. at different elevations.

b) Devices, other than outdoor fixed devices, having an e.i.r.p. greater than 200 mW shall comply with either i. or ii. below:

i. devices shall comply with the e.i.r.p. elevation mask in 6.2.2.3(a); or

ii. devices shall implement a method to permanently reduce their e.i.r.p. via a firmwarefeature in the event that the Department requires it. The test report must demonstratehow the device's power table can be updated to meet this firmware requirement. Themanufacturer shall provide this firmware to update all systems automatically incompliance with the directions received from the Department.

3. **Frequency bands 5470-5600 MHz and 5650-5725 MHz**
The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

4. **Frequency band 5725-5850 MHz**
The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

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

Test Data:

Gain and the maximum output power limit.

RSS-247 Issue 3

Frequency Band	Antenna Gain (dBi)	Power Limits (dBm)
U-NII-1	5.32	23.0
U-NII-2A	5.32	23.0
U-NII-2C	5.32	24.0
U-NII-3	5.32	30.0

FCC 47 CFR Part 15 Subpart E

Frequency Band	Antenna Gain (dBi)	Power Limits (dBm)
U-NII-1	5.32	24.0
U-NII-2A	5.32	24.0
U-NII-2C	5.32	24.0
U-NII-3	5.32	30.0

Frequency band 5150-5350 MHz
RSS-247 Issue 3:
For IEEE 802.11a, the minimum 99% emission bandwidth is 17.642Hz
10 dBm + $10\log_{10}$ (17.642) = 22.47 dBm < 23 dBm
So the 22.47 dBm limit applicable

For IEEE 802.11n-HT20/ ac-VHT20/ax-HE20, the minimum 99% emission bandwidth is 18.695 MHz
10 dBm + $10\log_{10}$ (18.695) = 22.72 dBm < 23 dBm
So the 22.72 dBm limit applicable

For IEEE 802.11n-HT40/ ac-VHT40/ax-HE40, the minimum 99% emission bandwidth is 37.104 MHz
10 dBm + $10\log_{10}$ (37.104) = 25.69 dBm > 23 dBm
So the 23 dBm limit applicable

FCC 47 CFR Part 15 Subpart E:
For IEEE 802.11 a/n/ac/ax, the minimum 26 dB emission bandwidth is 23.20 MHz
11 dBm + $10\log_{10}$ (23.20) = 24.65 dBm > 24 dBm
So the 24 dBm limit applicable

Frequency bands 5470-5725 MHz (RSS-247 Issue 3 Not including 5600-5650 MHz)
RSS-247 Issue 3:
For IEEE 802.11 a, the minimum 99% emission bandwidth is 17.870 MHz
11 dBm + $10\log_{10}$ (17.870) = 23.52 dBm < 24 dBm
So the 23.52 dBm limit applicable

For IEEE 802.11n-HT20/ac-VHT20/ax-HE20, the minimum 99% emission bandwidth is 18.933 MHz
11 dBm + $10\log_{10}$ (18.933) = 23.77 dBm < 24 dBm
So the 23.77 dBm limit applicable

For IEEE 802.11 n-HT40/ac-VHT40/ax-HE40, the minimum 99% emission bandwidth is 37.515 MHz
11 dBm + $10\log_{10}$ (37.515) = 26.74 dBm > 24 dBm
So the 24 dBm limit applicable

EIRP:
For IEEE 802.11 a/n-HT20/ac-VHT20/ax-HE20, the minimum 99% emission bandwidth is 18.933 MHz
17 dBm + $10\log_{10}$ (18.933) = 29.77 dBm
29.77 dBm > 27 dBm
So the 27 dBm limit applicable

For IEEE 802.11 n-HT40/ac-VHT40/ax-HE40, the minimum 99% emission bandwidth is 37.515 MHz
17 dBm + $10\log_{10}$ (37.515) = 32.74 dBm > 27 dBm
So the 27 dBm limit applicable

FCC 47 CFR Part 15 Subpart E:
For IEEE 802.11 a/n/ac/ax, the minimum 26 dB emission bandwidth is 23.87 MHz
11 dBm + $10\log_{10}$ (23.87) = 24.78 dBm > 24 dBm
So the 24 dBm limit applicable

IEEE 802.11a/n/ac

Mode	Band	Channel	CONDUCTED AVG POWER				EIRP			
			Meas Value (dBm)	Corr'd Value (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	EIRP (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	ISED Result
IEEE 802.11a	U-NII-1	36	14.57	14.86	24.00	--	20.18	--	22.47	Pass
		44	14.71	15.00	24.00	--	20.32	--	22.47	Pass
		48	14.62	14.91	24.00	--	20.23	--	22.47	Pass
	U-NII-2A	52	15.58	15.87	21.68	21.15	21.19	--	27.00	Pass
		60	15.19	15.48	21.68	21.15	20.80	--	27.00	Pass
		64	15.05	15.34	21.68	21.15	20.66	--	27.00	Pass
	U-NII-2C	100	10.18	10.47	21.68	21.20	15.79	--	27.00	Pass
		116	10.11	10.40	21.68	21.20	15.72	--	27.00	Pass
		120	9.69	9.98	21.68	--	15.30	--	27.00	Pass
		140	9.86	10.15	21.68	21.20	15.47	--	27.00	Pass
		144	9.91	10.20	21.68	21.20	15.52	--	27.00	Pass
	U-NII-3	144	9.91	10.20	30.00	30.00	15.52	--	36.02	Pass
		149	11.82	12.11	30.00	30.00	17.43	--	36.02	Pass
		157	12.11	12.40	30.00	30.00	17.72	--	36.02	Pass
		165	12.34	12.63	30.00	30.00	17.95	--	36.02	Pass
IEEE 802.11n-HT20	U-NII-1	36	14.68	14.81	24.00	--	20.13	--	22.72	Pass
		44	14.62	14.75	24.00	--	20.07	--	22.72	Pass
		48	14.71	14.84	24.00	--	20.16	--	22.72	Pass
	U-NII-2A	52	15.59	15.72	21.68	21.40	21.04	--	27.00	Pass
		60	15.67	15.80	21.68	21.40	21.12	--	27.00	Pass
		64	15.38	15.51	21.68	21.40	20.83	--	27.00	Pass
	U-NII-2C	100	10.35	10.48	21.68	21.45	15.80	--	27.00	Pass
		116	10.41	10.54	21.68	21.45	15.86	--	27.00	Pass
		120	10.22	10.35	21.68	--	15.67	--	27.00	Pass
		140	10.11	10.24	21.68	21.45	15.56	--	27.00	Pass
		144	10.09	10.22	21.68	21.45	15.54	--	27.00	Pass
	U-NII-3	144	10.09	10.22	30.00	30.00	15.54	--	36.02	Pass
		149	12.07	12.20	30.00	30.00	17.52	--	36.02	Pass
		157	12.43	12.56	30.00	30.00	17.88	--	36.02	Pass
		165	12.69	12.82	30.00	30.00	18.14	--	36.02	Pass
IEEE 802.11n-HT40	U-NII-1	38	16.61	16.78	24.00	--	22.10	--	23.01	Pass
		46	16.59	16.76	24.00	--	22.08	--	23.01	Pass
	U-NII-2A	54	15.89	16.06	21.68	21.68	21.38	--	27.00	Pass
		62	15.09	15.26	21.68	21.68	20.58	--	27.00	Pass
	U-NII-2C	102	10.28	10.45	21.68	21.68	15.77	--	27.00	Pass
		110	10.02	10.19	21.68	21.68	15.51	--	27.00	Pass
		118	10.11	10.28	21.68	--	15.60	--	27.00	Pass
		134	10.02	10.19	21.68	21.68	15.51	--	27.00	Pass
		142	10.06	10.23	21.68	21.68	15.55	--	27.00	Pass
	U-NII-3	142	10.05	10.22	30.00	30.00	15.54	--	36.02	Pass
		151	11.34	11.51	30.00	30.00	16.83	--	36.02	Pass
		159	11.29	11.46	30.00	30.00	16.78	--	36.02	Pass
IEEE 802.11ac-VHT20	U-NII-1	36	14.79	14.97	24.00	--	20.29	--	22.72	Pass
		44	14.84	15.02	24.00	--	20.34	--	22.72	Pass
		48	14.65	14.83	24.00	--	20.15	--	22.72	Pass
	U-NII-2A	52	15.98	16.16	21.68	21.40	21.48	--	27.00	Pass
		60	16.31	16.49	21.68	21.40	21.81	--	27.00	Pass
		64	15.49	15.67	21.68	21.40	20.99	--	27.00	Pass
	U-NII-2C	100	10.21	10.39	21.68	21.45	15.71	--	27.00	Pass
		116	10.55	10.73	21.68	21.45	16.05	--	27.00	Pass
		120	10.49	10.67	21.68	--	15.99	--	27.00	Pass

Mode	Band	Channel	CONDUCTED AVG POWER				EIRP			
			Meas Value (dBm)	Corr'd Value (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	EIRP (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	ISED Result
		140	10.26	10.44	21.68	21.45	15.76	--	27.00	Pass
		144	10.65	10.83	21.68	21.45	16.15	--	27.00	Pass
	U-NII-3	144	10.65	10.83	30.00	30.00	16.15	--	36.02	Pass
		149	10.88	11.06	30.00	30.00	16.38	--	36.02	Pass
		157	11.29	11.47	30.00	30.00	16.79	--	36.02	Pass
		165	11.27	11.45	30.00	30.00	16.77	--	36.02	Pass
IEEE 802.11ac-VHT40	U-NII-1	38	16.95	17.07	24.00	--	22.39	--	23.01	Pass
		46	16.77	16.89	24.00	--	22.21	--	23.01	Pass
	U-NII-2A	54	16.49	16.61	21.68	21.68	21.93	--	27.00	Pass
		62	16.35	16.47	21.68	21.68	21.79	--	27.00	Pass
	U-NII-2C	102	10.88	11.00	21.68	21.68	16.32	--	27.00	Pass
		110	10.41	10.53	21.68	21.68	15.85	--	27.00	Pass
		118	10.64	10.76	21.68	--	16.08	--	27.00	Pass
		134	10.59	10.71	21.68	21.68	16.03	--	27.00	Pass
		142	10.56	10.68	21.68	21.68	16.00	--	27.00	Pass
	U-NII-3	142	10.56	10.68	30.00	30.00	16.00	--	36.02	Pass
		151	11.38	11.50	30.00	30.00	16.82	--	36.02	Pass
		159	11.29	11.41	30.00	30.00	16.73	--	36.02	Pass

IEEE 802.11ax

Mode	Band	Channel	CONDUCTED AVG POWER				EIRP			
			Meas Value (dBm)	Corr'd Value (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	EIRP (dBm)	FCC Limit (dBm)	ISED Limit (dBm)	ISED Result
IEEE 802.11ax-HE20	U-NII-1	36	14.71	14.84	24.00	--	20.16	--	22.72	Pass
		44	14.65	14.78	24.00	--	20.10	--	22.72	Pass
		48	14.66	14.79	24.00	--	20.11	--	22.72	Pass
	U-NII-2A	52	16.69	16.82	21.68	21.40	22.14	--	27.00	Pass
		60	15.73	15.86	21.68	21.40	21.18	--	27.00	Pass
		64	16.64	16.77	21.68	21.40	22.09	--	27.00	Pass
	U-NII-2C	100	10.43	10.56	21.68	21.45	15.88	--	27.00	Pass
		116	10.72	10.85	21.68	21.45	16.17	--	27.00	Pass
		120	10.66	10.79	21.68	21.45	16.11	--	27.00	Pass
		140	10.39	10.52	21.68	21.45	15.84	--	27.00	Pass
		144	10.26	10.39	21.68	21.45	15.71	--	27.00	Pass
	U-NII-3	144	10.26	10.39	30.00	30.00	15.71	--	36.02	Pass
		149	12.85	12.98	30.00	30.00	18.30	--	36.02	Pass
		157	13.02	13.15	30.00	30.00	18.47	--	36.02	Pass
		165	13.22	13.35	30.00	30.00	18.67	--	36.02	Pass
IEEE 802.11ax-HE40	U-NII-1	38	16.62	16.75	24.00	--	22.07	--	22.47	Pass
		46	16.83	16.96	24.00	--	22.28	--	27.00	Pass
	U-NII-2A	54	15.59	15.72	21.68	21.15	21.04	--	27.00	Pass
		62	15.11	15.24	21.68	21.15	20.56	--	27.00	Pass
	U-NII-2C	102	10.26	10.39	21.68	21.20	15.71	--	27.00	Pass
		110	9.95	10.08	21.68	21.20	15.40	--	27.00	Pass
		118	9.84	9.97	21.68	21.20	15.29	--	27.00	Pass
		134	9.76	9.89	21.68	21.20	15.21	--	27.00	Pass
		142	9.98	10.11	21.68	21.20	15.43	--	27.00	Pass
	U-NII-3	142	9.98	10.11	30.00	30.00	15.43	--	36.02	Pass
		151	11.83	11.96	30.00	30.00	17.28	--	36.02	Pass
		159	11.89	12.02	30.00	30.00	17.34	--	36.02	Pass

5.6 PEAK POWER SPECTRAL DENSITY

Test Requirement:	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(3) RSS-247 Issue 3 Section 6.2.1.1/6.2.2.1/6.2.3.1/6.2.4.1
Test Method:	KDB 789033 D02 v02r01 Section F
Limits:	FCC 47 CFR Part 15 Subpart E

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.

Limits: RSS-247 Issue 3

1. **Frequency band 5150-5250 MHz**
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

2. **Frequency band 5250-5350 MHz**
For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Additional requirements
In addition to the above requirements, devices shall comply with the following, where applicable:

a) Outdoor fixed devices with a maximum e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below:

i. -13 dBW/MHz for $0^o \leq \theta < 8^o$

ii. -13 − 0.716 (θ-8) dBW/MHz for $8^o \leq \theta < 40^o$

iii. -35.9 − 1.22 (θ-40) dBW/MHz for $40^o \leq \theta \leq 45^o$

iv. -42 dBW/MHz for $\theta > 45^o$

The measurement procedure defined in Annex A of this document shall be used to verify the compliance to the e.i.r.p. at different elevations.

b) Devices, other than outdoor fixed devices, having an e.i.r.p. greater than 200 mW shall comply with either i. or ii. below:

iii. devices shall comply with the e.i.r.p. elevation mask in 6.2.2.3(a); or

iv. devices shall implement a method to permanently reduce their e.i.r.p. via a firmwarefeature in the event that the Department requires it. The test report must demonstratehow the device's power table can be updated to meet this firmware requirement. Themanufacturer shall provide this firmware to update all systems automatically incompliance with the directions received from the Department.

3. **Frequency bands 5470-5600 MHz and 5650-5725 MHz**
The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

4. **Frequency band 5725-5850 MHz**
The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

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: Transmitter mode

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

Test Data:

Gain and the maximum output power limit.

RSS-247 Issue 3:

Frequency Band	Antenna Gain (dBi)	PSD Limits (dBm/MHz or dBm/500kHz)
U-NII-1	5.32	10.0
U-NII-2A	5.32	10.0
U-NII-2C	5.32	11.0
U-NII-3	5.32	30.0

FCC 47 CFR Part 15 Subpart E:

Frequency Band	Antenna Gain (dBi)	PSD Limits (dBm/MHz or dBm/500kHz)
U-NII-1	5.32	11.0
U-NII-2A	5.32	11.0
U-NII-2C	5.32	11.0
U-NII-3	5.32	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
RSS-247 Issue 3 Section 6.2.1.2/6.2.2.2/6.2.3.2/6.2.4.2

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
RSS-247 Issue 3 Section 6.2.1.2	PK: -27 (dBm/MHz)	PK: 74 (dBμV/m)
RSS-247 Issue 3 Section 6.2.2.2	PK: -27 (dBm/MHz)	PK: 74 (dBμV/m)
RSS-247 Issue 3 Section 6.2.3.2	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
RSS-247 Issue 3 Section 6.2.4.2	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.

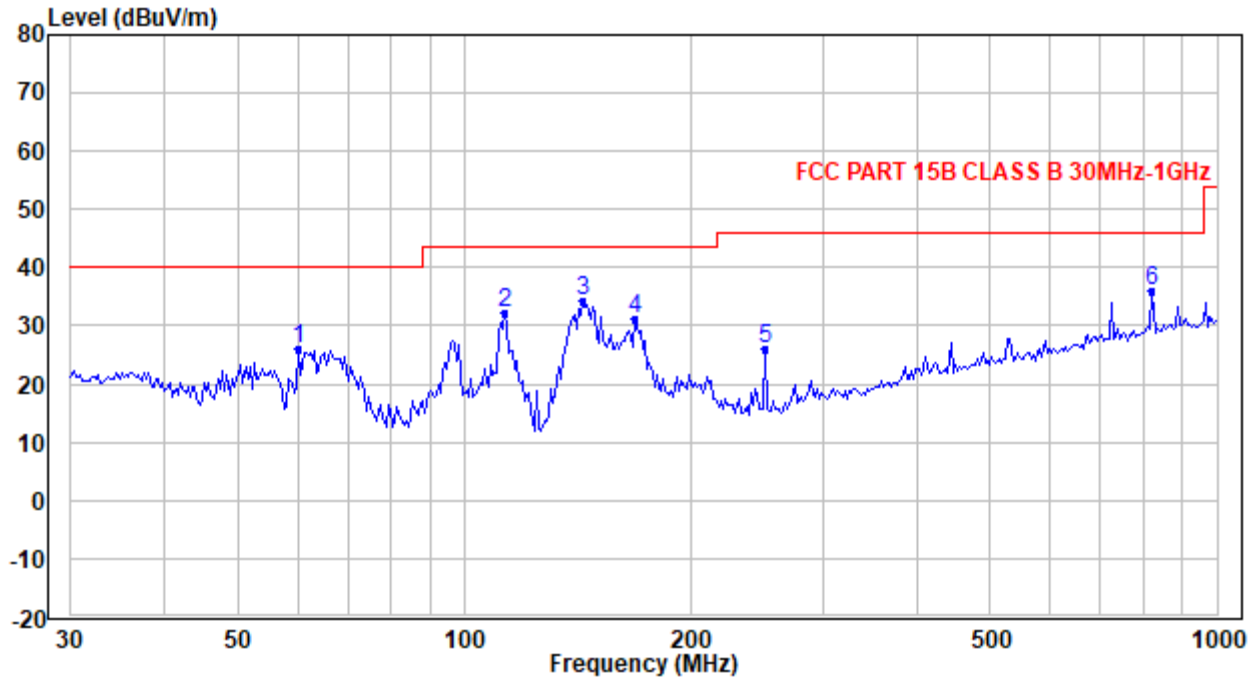
Test Result: Pass

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.

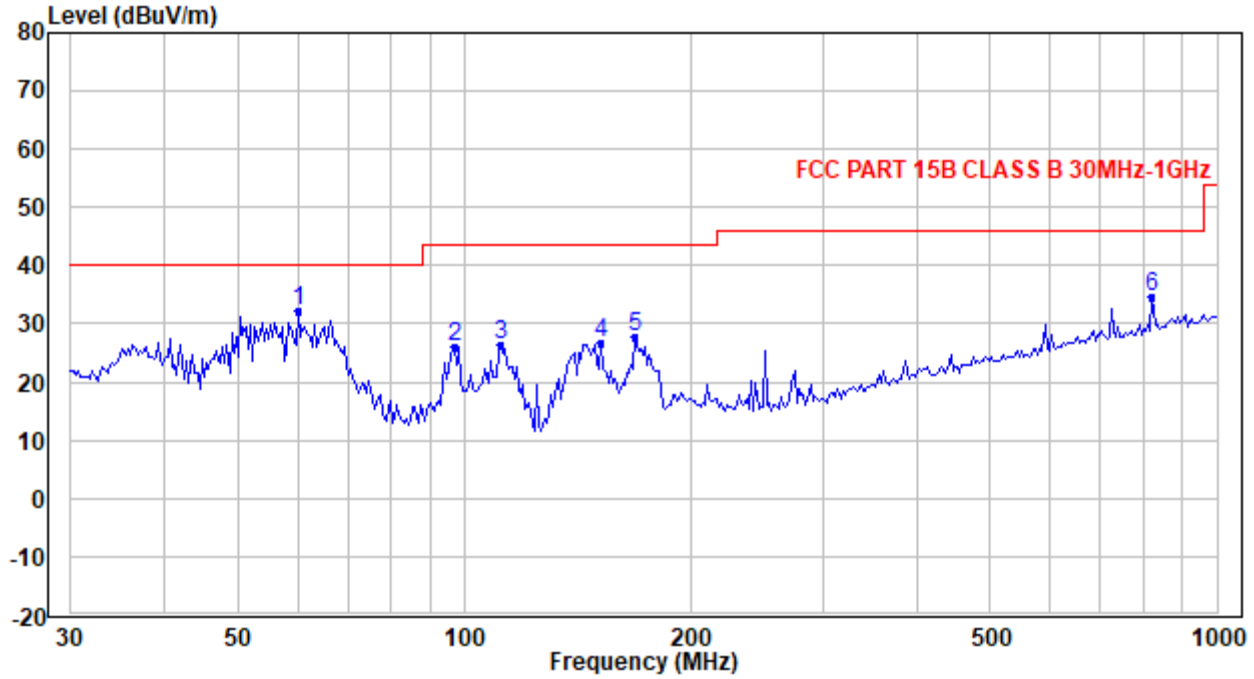
Radiated Emission Test Data (30 MHz ~ 1 GHz Worst Case):
Worst-Case Configuration (IEEE 802.11a_Channel 38)

Horizontal



No.	Frequency (MHz)	Reading (dBμV/m)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	60.153	42.78	-16.88	25.90	40.00	-14.10	QP
2	113.220	47.68	-15.43	32.25	43.50	-11.25	QP
3	143.776	49.36	-14.94	34.42	43.50	-9.08	QP
4	168.997	43.30	-12.16	31.14	43.50	-12.36	QP
5	250.486	36.73	-10.61	26.12	46.00	-19.88	QP
6	821.387	32.37	3.61	35.98	46.00	-10.02	QP

Vertical



No.	Frequency (MHz)	Reading (dBμV/m)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	60.153	49.26	-16.88	32.38	40.00	-7.62	QP
2	97.002	42.17	-16.07	26.10	43.50	-17.40	QP
3	111.640	41.73	-15.32	26.41	43.50	-17.09	QP
4	152.090	41.24	-14.42	26.82	43.50	-16.68	QP
5	168.997	39.83	-12.16	27.67	43.50	-15.83	QP
6	821.387	31.06	3.61	34.67	46.00	-11.33	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	40.1	3.4	43.5	54	-10.5	Average	Horizontal
2	10360	49.8	3.4	53.2	68.2	-15.0	Peak	Horizontal
3	15540	34.3	7.6	41.9	54	-12.1	Average	Horizontal
4	15540	43.7	7.6	51.2	74	-22.8	Peak	Horizontal
5	10360	42.7	3.4	46.1	54	-7.9	Average	Vertical
6	10360	51.0	3.4	54.4	68.2	-13.8	Peak	Vertical
7	15540	33.9	7.6	41.4	54	-12.6	Average	Vertical
8	15540	43.5	7.6	51.1	74	-22.9	Peak	Vertical
IEEE 802.11a_Channel 44								
1	10440	42.1	3.4	45.5	54	-8.6	Average	Horizontal
2	10440	49.7	3.4	53.1	68.2	-15.1	Peak	Horizontal
3	15660	34.3	7.5	41.8	54	-12.3	Average	Horizontal
4	15660	43.4	7.5	50.8	74	-23.2	Peak	Horizontal
5	10440	42.8	3.4	46.2	54	-7.8	Average	Vertical
6	10440	52.9	3.4	56.3	68.2	-11.9	Peak	Vertical
7	15660	34.6	7.5	42.1	54	-11.9	Average	Vertical
8	15660	44.2	7.5	51.7	74	-22.3	Peak	Vertical
IEEE 802.11a_Channel 48								
1	10480	40.8	3.4	44.2	54	-9.8	Average	Horizontal
2	10480	51.4	3.4	54.8	68.2	-13.5	Peak	Horizontal
3	15720	35.8	7.4	43.2	54	-10.8	Average	Horizontal
4	15720	44.7	7.4	52.1	74	-21.9	Peak	Horizontal
5	10480	43.1	3.4	46.5	54	-7.5	Average	Vertical
6	10480	53.2	3.4	56.6	68.2	-11.6	Peak	Vertical
7	15720	35.8	7.4	43.2	54	-10.8	Average	Vertical
8	15720	45.7	7.4	53.1	74	-20.9	Peak	Vertical
IEEE 802.11a_Channel 52								
1	10520	41.0	3.4	44.4	54	-9.7	Average	Horizontal
2	10520	50.9	3.4	54.2	68.2	-14.0	Peak	Horizontal
3	15780	35.4	7.4	42.8	54	-11.3	Average	Horizontal
4	15780	44.7	7.4	52.0	74	-22.0	Peak	Horizontal
5	10520	43.3	3.4	46.7	54	-7.3	Average	Vertical
6	10520	52.0	3.4	55.3	68.2	-12.9	Peak	Vertical
7	15780	36.1	7.4	43.5	54	-10.6	Average	Vertical
8	15780	44.5	7.4	51.8	74	-22.2	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_Channel 60								
1	10600	40.2	3.2	43.4	54	-10.6	Average	Horizontal
2	10600	50.2	3.2	53.4	74	-20.6	Peak	Horizontal
3	15900	35.0	7.2	42.2	54	-11.8	Average	Horizontal
4	15900	44.6	7.2	51.8	74	-22.2	Peak	Horizontal
5	10600	42.7	3.2	45.9	54	-8.1	Average	Vertical
6	10600	55.2	3.2	58.4	74	-15.7	Peak	Vertical
7	15900	35.3	7.2	42.5	54	-11.5	Average	Vertical
8	15900	44.3	7.2	51.5	74	-22.5	Peak	Vertical
IEEE 802.11a_Channel 64								
1	10640	40.4	3.1	43.5	54	-10.5	Average	Horizontal
2	10640	49.6	3.1	52.7	74	-21.3	Peak	Horizontal
3	15960	34.0	7.2	41.2	54	-12.8	Average	Horizontal
4	15960	43.4	7.2	50.6	74	-23.4	Peak	Horizontal
5	10640	43.8	3.1	46.9	54	-7.1	Average	Vertical
6	10640	53.5	3.1	56.6	74	-17.4	Peak	Vertical
7	15960	33.8	7.2	41.0	54	-13.0	Average	Vertical
8	15960	43.1	7.2	50.3	74	-23.7	Peak	Vertical
IEEE 802.11a_Channel 100								
1	11000	36.6	2.4	39.0	54	-15.0	Average	Horizontal
2	11000	50.1	2.4	52.4	74	-21.6	Peak	Horizontal
3	16500	36.6	8.0	44.6	54	-9.4	Average	Horizontal
4	16500	45.9	8.0	53.9	68.2	-14.3	Peak	Horizontal
5	11000	36.5	2.4	38.9	54	-15.1	Average	Vertical
6	11000	50.0	2.4	52.3	74	-21.7	Peak	Vertical
7	16500	35.8	8.0	43.8	54	-10.2	Average	Vertical
8	16500	45.8	8.0	53.8	68.2	-14.4	Peak	Vertical
IEEE 802.11a_Channel 116								
1	11160	39.9	2.3	42.1	54	-11.9	Average	Horizontal
2	11160	48.3	2.3	50.5	74	-23.5	Peak	Horizontal
3	16740	34.5	8.3	42.8	54	-11.2	Average	Horizontal
4	16740	44.4	8.3	52.7	68.2	-15.5	Peak	Horizontal
5	11160	41.4	2.3	43.6	54	-10.4	Average	Vertical
6	11160	48.9	2.3	51.1	74	-22.9	Peak	Vertical
7	16740	33.9	8.3	42.3	54	-11.8	Average	Vertical
8	16740	44.1	8.3	52.4	68.2	-15.8	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 140								
1	11400	45.3	2.1	47.4	54	-6.6	Peak	Horizontal
2	11400	36.3	2.1	38.4	74	-35.6	Average	Horizontal
3	17100	35.4	8.8	44.2	54	-9.8	Average	Horizontal
4	17100	44.6	8.8	53.4	68.2	-14.8	Peak	Horizontal
5	11400	36.8	2.1	39.0	54	-15.1	Average	Vertical
6	11400	45.0	2.1	47.1	74	-26.9	Peak	Vertical
7	17100	35.4	8.8	44.2	54	-9.8	Average	Vertical
8	17100	44.2	8.8	53.0	68.2	-15.2	Peak	Vertical
IEEE 802.11a_Channel 144								
1	11440	36.2	2.1	38.3	54	-15.7	Average	Horizontal
2	11440	46.5	2.1	48.6	74	-25.4	Peak	Horizontal
3	17160	35.2	8.9	44.1	54	-9.9	Average	Horizontal
4	17160	44.3	8.9	53.2	68.2	-15.1	Peak	Horizontal
5	11440	36.2	2.1	38.3	54	-15.7	Average	Vertical
6	11440	46.5	2.1	48.6	74	-25.4	Peak	Vertical
7	17160	35.2	8.9	44.1	54	-9.9	Average	Vertical
8	17160	44.5	8.9	53.4	68.2	-14.8	Peak	Vertical
IEEE 802.11a_Channel 149								
1	11490.000	34.6	2.1	36.7	54	-17.3	Average	Horizontal
2	11490.000	44.1	2.1	46.2	74	-27.8	Peak	Horizontal
3	17235.000	34.6	9.0	43.6	54	-10.4	Average	Horizontal
4	17235.000	43.8	9.0	52.7	68.2	-15.5	Peak	Horizontal
5	11490.000	35.2	2.1	37.3	54	-16.7	Average	Vertical
6	11490.000	44.1	2.1	46.1	74	-27.9	Peak	Vertical
7	17235.000	35.2	9.0	44.2	54	-9.9	Average	Vertical
8	17235.000	44.3	9.0	53.3	68.2	-14.9	Peak	Vertical
IEEE 802.11a_Channel 157								
1	11570.000	35.6	2.1	37.7	54	-16.3	Average	Horizontal
2	11570.000	45.0	2.1	47.0	74	-27.0	Peak	Horizontal
3	17355.000	33.6	9.2	42.8	54	-11.3	Average	Horizontal
4	17355.000	43.2	9.2	52.3	68.2	-15.9	Peak	Horizontal
5	11570.000	35.7	2.1	37.7	54	-16.3	Average	Vertical
6	11570.000	45.5	2.1	47.6	74	-26.4	Peak	Vertical
7	17355.000	33.4	9.2	42.6	54	-11.4	Average	Vertical
8	17355.000	42.7	9.2	51.8	68.2	-16.4	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 165								
1	11650.000	35.67	2.08	37.75	54.00	-16.25	Average	Horizontal
2	11650.000	44.95	2.08	47.03	74.00	-26.97	Peak	Horizontal
3	17475.000	33.33	9.33	42.66	48.20	-5.54	Average	Horizontal
4	17475.000	43.13	9.33	52.46	68.20	-15.74	Peak	Horizontal
5	11650.000	35.77	2.08	37.85	54.00	-16.15	Average	Vertical
6	11650.000	45.62	2.08	47.70	74.00	-26.30	Peak	Vertical
7	17475.000	33.73	9.33	43.06	48.20	-5.14	Average	Vertical
8	17475.000	42.37	9.33	51.70	68.20	-16.50	Peak	Vertical
IEEE 802.11n-HT20_Channel 36								
1	10360	39.4	3.4	42.8	54	-11.3	Average	Horizontal
2	10360	47.0	3.4	50.4	68.2	-17.8	Peak	Horizontal
3	15540	34.3	7.6	41.8	54	-12.2	Average	Horizontal
4	15540	43.7	7.6	51.3	74	-22.7	Peak	Horizontal
5	10360	40.9	3.4	44.2	54	-9.8	Average	Vertical
6	10360	51.4	3.4	54.8	68.2	-13.4	Peak	Vertical
7	15540	34.0	7.6	41.5	54	-12.5	Average	Vertical
8	15540	43.4	7.6	51.0	74	-23.0	Peak	Vertical
IEEE 802.11n-HT20_Channel 44								
1	10440	40.9	3.4	44.3	54	-9.7	Average	Horizontal
2	10440	50.9	3.4	54.2	68.2	-14.0	Peak	Horizontal
3	15660	34.4	7.5	41.9	54	-12.1	Average	Horizontal
4	15660	43.8	7.5	51.2	74	-22.8	Peak	Horizontal
5	10440	42.3	3.4	45.7	54	-8.3	Average	Vertical
6	10440	52.5	3.4	55.9	68.2	-12.3	Peak	Vertical
7	15660	34.8	7.5	42.3	54	-11.7	Average	Vertical
8	15660	43.8	7.5	51.3	74	-22.7	Peak	Vertical
IEEE 802.11n-HT20_Channel 48								
1	10480	40.6	3.4	43.9	54	-10.1	Average	Horizontal
2	10480	48.2	3.4	51.6	68.2	-16.6	Peak	Horizontal
3	15720	35.6	7.4	43.0	54	-11.0	Average	Horizontal
4	15720	45.4	7.4	52.8	74	-21.2	Peak	Horizontal
5	10480	42.9	3.4	46.3	54	-7.7	Average	Vertical
6	10480	53.4	3.4	56.8	68.2	-11.4	Peak	Vertical
7	15720	35.4	7.4	42.8	54	-11.2	Average	Vertical
8	15720	44.6	7.4	52.0	74	-22.1	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-HT20_Channel 52								
1	10520	40.6	3.4	44.0	54	-10.0	Average	Horizontal
2	10520	52.1	3.4	55.4	68.2	-12.8	Peak	Horizontal
3	15780	35.7	7.4	43.1	54	-11.0	Average	Horizontal
4	15780	44.8	7.4	52.2	74	-21.8	Peak	Horizontal
5	10520	42.1	3.4	45.5	54	-8.6	Average	Vertical
6	10520	55.3	3.4	58.6	68.2	-9.6	Peak	Vertical
7	15780	35.9	7.4	43.3	54	-10.7	Average	Vertical
8	15780	45.4	7.4	52.7	74	-21.3	Peak	Vertical
IEEE 802.11n-HT20_Channel 60								
1	10600	39.1	3.2	42.3	54	-11.7	Average	Horizontal
2	10600	48.4	3.2	51.6	74	-22.5	Peak	Horizontal
3	15900	35.0	7.2	42.3	54	-11.7	Average	Horizontal
4	15900	44.6	7.2	51.9	74	-22.1	Peak	Horizontal
5	10600	43.3	3.2	46.5	54	-7.5	Average	Vertical
6	10600	52.4	3.2	55.6	74	-18.4	Peak	Vertical
7	15900	35.3	7.2	42.6	54	-11.5	Average	Vertical
8	15900	44.8	7.2	52.0	74	-22.0	Peak	Vertical
IEEE 802.11n-HT20 _Channel 64								
1	10640	40.2	3.1	43.3	54	-10.7	Average	Horizontal
2	10640	49.8	3.1	52.9	74	-21.1	Peak	Horizontal
3	15960	34.1	7.2	41.3	54	-12.7	Average	Horizontal
4	15960	43.7	7.2	50.9	74	-23.2	Peak	Horizontal
5	10640	44.6	3.1	47.7	54	-6.3	Average	Vertical
6	10640	53.5	3.1	56.6	74	-17.4	Peak	Vertical
7	15960	33.7	7.2	40.9	54	-13.1	Average	Vertical
8	15960	43.0	7.2	50.1	74	-23.9	Peak	Vertical
IEEE 802.11n-HT20_Channel 100								
1	11000	41.0	2.4	43.4	54	-10.6	Average	Horizontal
2	11000	50.2	2.4	52.5	74	-21.5	Peak	Horizontal
3	16500	36.2	8.0	44.2	54	-9.8	Average	Horizontal
4	16500	46.3	8.0	54.3	68.2	-14.0	Peak	Horizontal
5	11000	45.5	2.4	47.9	54	-6.1	Average	Vertical
6	11000	52.6	2.4	54.9	74	-19.1	Peak	Vertical
7	16500	35.5	8.0	43.5	54	-10.5	Average	Vertical
8	16500	45.1	8.0	53.1	68.2	-15.1	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-HT20_Channel 116								
1	11160	39.6	2.3	41.9	54	-12.1	Average	Horizontal
2	11160	48.4	2.3	50.6	74	-23.4	Peak	Horizontal
3	16740	34.1	8.3	42.5	54	-11.6	Average	Horizontal
4	16740	43.1	8.3	51.4	68.2	-16.8	Peak	Horizontal
5	11160	41.6	2.3	43.8	54	-10.2	Average	Vertical
6	11160	49.6	2.3	51.9	74	-22.1	Peak	Vertical
7	16740	34.5	8.3	42.8	54	-11.2	Average	Vertical
8	16740	44.0	8.3	52.3	68.2	-15.9	Peak	Vertical
IEEE 802.11n-HT20_Channel 140								
1	11400	35.1	2.1	37.2	54	-16.8	Average	Horizontal
2	11400	44.7	2.1	46.9	74	-27.2	Peak	Horizontal
3	17100	35.4	8.8	44.2	54	-9.8	Average	Horizontal
4	17100	45.4	8.8	54.2	68.2	-14.0	Peak	Horizontal
5	11400	36.9	2.1	39.0	54	-15.0	Average	Vertical
6	11400	45.2	2.1	47.3	74	-26.7	Peak	Vertical
7	17100	35.5	8.8	44.2	54	-9.8	Average	Vertical
8	17100	44.2	8.8	52.9	68.2	-15.3	Peak	Vertical
IEEE 802.11n-HT20_Channel 144								
1	11440	35.8	2.1	37.8	54	-16.2	Average	Horizontal
2	11440	43.6	2.1	45.7	74	-28.3	Peak	Horizontal
3	17160	34.7	8.9	43.6	54	-10.4	Average	Horizontal
4	17160	44.2	8.9	53.1	68.2	-15.1	Peak	Horizontal
5	11440	35.8	2.1	37.9	54	-16.2	Average	Vertical
6	11440	44.6	2.1	46.7	74	-27.3	Peak	Vertical
7	17160	35.9	8.9	44.8	54	-9.3	Average	Vertical
8	17160	43.9	8.9	52.8	68.2	-15.4	Peak	Vertical
IEEE 802.11n-HT20_Channel 149								
1	11490.000	35.0	2.1	37.1	54	-16.9	Average	Horizontal
2	11490.000	44.4	2.1	46.5	74	-27.6	Peak	Horizontal
3	17235.000	34.5	9.0	43.5	54	-10.6	Average	Horizontal
4	17235.000	44.2	9.0	53.2	68.2	-15.0	Peak	Horizontal
5	11490.000	35.0	2.1	37.1	54	-16.9	Average	Vertical
6	11490.000	44.6	2.1	46.7	74	-27.3	Peak	Vertical
7	17235.000	34.5	9.0	43.5	54	-10.5	Average	Vertical
8	17235.000	43.9	9.0	52.9	68.2	-15.3	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 157								
1	11570.000	35.2	2.1	37.3	54	-16.7	Average	Horizontal
2	11570.000	44.8	2.1	46.9	74	-27.1	Peak	Horizontal
3	17355.000	33.5	9.2	42.7	54	-11.3	Average	Horizontal
4	17355.000	42.7	9.2	51.9	68.2	-16.3	Peak	Horizontal
5	11569.960	44.8	2.1	46.8	54	-7.2	Average	Vertical
6	11570.000	35.8	2.1	37.8	74	-36.2	Peak	Vertical
7	17355.000	33.4	9.2	42.6	54	-11.4	Average	Vertical
8	17355.000	43.1	9.2	52.3	68.2	-16.0	Peak	Vertical
IEEE 802.11n-HT20_Channel 165								
1	11650.000	35.8	2.1	37.9	54	-16.1	Average	Horizontal
2	11650.000	44.8	2.1	46.9	74	-27.1	Peak	Horizontal
3	17475.000	32.9	9.3	42.2	54	-11.8	Average	Horizontal
4	17475.000	42.2	9.3	51.5	68.2	-16.7	Peak	Horizontal
5	11650.000	35.7	2.1	37.8	54	-16.2	Average	Vertical
6	11650.000	45.4	2.1	47.5	74	-26.5	Peak	Vertical
7	17475.000	33.3	9.3	42.6	54	-11.4	Average	Vertical
8	17475.000	42.5	9.3	51.9	68.2	-16.4	Peak	Vertical
IEEE 802.11n-HT40_Channel 38								
1	10380	41.9	3.4	45.3	54	-8.7	Average	Horizontal
2	10380	54.3	3.4	57.7	68.2	-10.5	Peak	Horizontal
3	15570	34.2	7.5	41.8	54	-12.2	Average	Horizontal
4	15570	43.0	7.5	50.5	74	-23.5	Peak	Horizontal
5	10380	43.3	3.4	46.7	54	-7.4	Average	Vertical
6	10380	54.5	3.4	57.8	68.2	-10.4	Peak	Vertical
7	15570	33.8	7.5	41.3	54	-12.7	Average	Vertical
8	15570	43.8	7.5	51.4	74	-22.6	Peak	Vertical
IEEE 802.11n-HT40_Channel 46								
1	10460	41.4	3.4	44.8	54	-9.2	Average	Horizontal
2	10460	49.8	3.4	53.2	68.2	-15.0	Peak	Horizontal
3	15690	35.0	7.4	42.4	54	-11.6	Average	Horizontal
4	15690	44.5	7.4	51.9	74	-22.1	Peak	Horizontal
5	10460	36.9	3.4	40.3	54	-13.7	Average	Vertical
6	10460	46.3	3.4	49.7	68.2	-18.5	Peak	Vertical
7	15690	35.0	7.4	42.4	54	-11.6	Average	Vertical
8	15690	44.2	7.4	51.6	74	-22.4	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 54								
1	10540	39.6	3.3	42.9	54	-11.1	Average	Horizontal
2	10540	49.6	3.3	52.9	68.2	-15.4	Peak	Horizontal
3	15810	35.2	7.3	42.6	54	-11.4	Average	Horizontal
4	15810	44.3	7.3	51.6	74	-22.4	Peak	Horizontal
5	10540	41.9	3.3	45.2	54	-8.8	Average	Vertical
6	10540	51	3.3	54.3	68.2	-13.9	Peak	Vertical
7	15810	35.8	7.3	43.1	54	-10.9	Average	Vertical
8	15810	44.5	7.3	51.9	74	-22.1	Peak	Vertical
IEEE 802.11n-HT40_Channel 62								
1	10620	38.8	3.1	41.9	54	-12.1	Average	Horizontal
2	10620	49.4	3.1	52.5	74	-21.5	Peak	Horizontal
3	15930	34.5	7.2	41.8	54	-12.3	Average	Horizontal
4	15930	44.7	7.2	51.9	74	-22.1	Peak	Horizontal
5	10620	41.2	3.1	44.3	54	-9.7	Average	Vertical
6	10620	51.3	3.1	54.5	74	-19.6	Peak	Vertical
7	15930	34.7	7.2	41.9	54	-12.1	Average	Vertical
8	15930	44.4	7.2	51.7	74	-22.4	Peak	Vertical
IEEE 802.11n-HT40_Channel 102								
1	11020	41.9	2.4	44.3	54	-9.7	Average	Horizontal
2	11020	50.2	2.4	52.6	74	-21.4	Peak	Horizontal
3	16530	35.6	8.0	43.6	54	-10.4	Average	Horizontal
4	16530	46.1	8.0	54.2	68.2	-14.1	Peak	Horizontal
5	11020	42.6	2.4	45.0	54	-9.0	Average	Vertical
6	11020	50.9	2.4	53.2	74	-20.8	Peak	Vertical
7	16530	35.0	8.0	43.0	54	-11.0	Average	Vertical
8	16530	46.0	8.0	54.0	68.2	-14.2	Peak	Vertical
IEEE 802.11n-HT40_Channel 110								
1	11100	40.6	2.3	42.9	54	-11.1	Average	Horizontal
2	11100	49.5	2.3	51.8	74	-22.2	Peak	Horizontal
3	16650	34.4	8.2	42.6	54	-11.4	Average	Horizontal
4	16650	43.6	8.2	51.8	68.2	-16.4	Peak	Horizontal
5	11100	43.2	2.3	45.5	54	-8.5	Average	Vertical
6	11100	50.3	2.3	52.6	74	-21.4	Peak	Vertical
7	16650	34.9	8.2	43.1	54	-10.9	Average	Vertical
8	16650	44.2	8.2	52.4	68.2	-15.8	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_Channel 134								
1	11340	35.4	2.2	37.6	54	-16.5	Average	Horizontal
2	11340	45.1	2.2	47.3	74	-26.8	Peak	Horizontal
3	17010	33.9	8.7	42.5	54	-11.5	Average	Horizontal
4	17010	43.4	8.7	52.1	68.2	-16.1	Peak	Horizontal
5	11340	37.0	2.2	39.1	54	-14.9	Average	Vertical
6	11340	45.0	2.2	47.2	74	-26.8	Peak	Vertical
7	17010	34.3	8.7	43.0	54	-11.0	Average	Vertical
8	17010	43.3	8.7	52.0	68.2	-16.3	Peak	Vertical
IEEE 802.11n-HT40_Channel 142								
1	11420	35.7	2.1	37.8	54	-16.2	Average	Horizontal
2	11420	44.2	2.1	46.3	74	-27.7	Peak	Horizontal
3	17130	35.3	8.8	44.1	54	-9.9	Average	Horizontal
4	17130	45.0	8.8	53.9	68.2	-14.3	Peak	Horizontal
5	11420	36.2	2.1	38.3	54	-15.7	Average	Vertical
6	11420	44.3	2.1	46.4	74	-27.6	Peak	Vertical
7	17130	35.1	8.8	43.9	54	-10.1	Average	Vertical
8	17130	43.9	8.8	52.8	68.2	-15.4	Peak	Vertical
IEEE 802.11n-HT40_Channel 151								
1	11509.600	34.9	2.1	36.9	54	-17.1	Average	Horizontal
2	11510.000	44.1	2.1	46.2	74	-27.8	Peak	Horizontal
3	17265.000	34.5	9.0	43.5	54	-10.5	Average	Horizontal
4	17265.000	42.8	9.0	51.8	68.2	-16.4	Peak	Horizontal
5	11509.600	34.8	2.1	36.9	54	-17.1	Average	Vertical
6	11510.000	44.8	2.1	46.8	74	-27.2	Peak	Vertical
7	17265.000	34.2	9.0	43.3	54	-10.7	Average	Vertical
8	17265.000	44.2	9.0	53.2	68.2	-15.0	Peak	Vertical
IEEE 802.11n-HT40_Channel 159								
1	11590.000	35.1	2.1	37.2	54	-16.8	Average	Horizontal
2	11590.000	44.7	2.1	46.8	74	-27.2	Peak	Horizontal
3	17385.000	33.6	9.2	42.9	54	-11.2	Average	Horizontal
4	17385.000	43.2	9.2	52.4	68.2	-15.8	Peak	Horizontal
5	11590.000	36.3	2.1	38.3	54	-15.7	Average	Vertical
6	11590.000	44.4	2.1	46.5	74	-27.5	Peak	Vertical
7	17385.000	33.1	9.2	42.4	54	-11.7	Average	Vertical
8	17385.000	42.3	9.2	51.5	68.2	-16.7	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 36								
1	10360	41.1	3.4	44.5	54	-9.5	Average	Horizontal
2	10360	51.9	3.4	55.3	68.2	-12.9	Peak	Horizontal
3	15540	33.9	7.6	41.5	54	-12.5	Average	Horizontal
4	15540	43.8	7.6	51.4	74	-22.6	Peak	Horizontal
5	10360	42.9	3.4	46.3	54	-7.7	Average	Vertical
6	10360	55.0	3.4	58.4	68.2	-9.8	Peak	Vertical
7	15540	33.5	7.6	41.0	54	-13.0	Average	Vertical
8	15540	42.9	7.6	50.5	74	-23.5	Peak	Vertical
IEEE 802.11ax-HE20_Channel 44								
1	10440	42.0	3.4	45.4	54	-8.6	Average	Horizontal
2	10440	50.7	3.4	54.1	68.2	-14.1	Peak	Horizontal
3	15660	34.6	7.5	42.0	54	-12.0	Average	Horizontal
4	15660	43.4	7.5	50.8	74	-23.2	Peak	Horizontal
5	10440	42.7	3.4	46.1	54	-7.9	Average	Vertical
6	10440	54.2	3.4	57.6	68.2	-10.6	Peak	Vertical
7	15660	34.1	7.5	41.5	54	-12.5	Average	Vertical
8	15660	43.4	7.5	50.8	74	-23.2	Peak	Vertical
IEEE 802.11ax-HE20_Channel 48								
1	10480	40.8	3.4	44.2	54	-9.8	Average	Horizontal
2	10480	49.8	3.4	53.2	68.2	-15.0	Peak	Horizontal
3	15720	35.5	7.4	42.9	54	-11.1	Average	Horizontal
4	15720	44.4	7.4	51.8	74	-22.2	Peak	Horizontal
5	10480	43.4	3.4	46.8	54	-7.2	Average	Vertical
6	10480	52.1	3.4	55.5	68.2	-12.7	Peak	Vertical
7	15720	35.0	7.4	42.4	54	-11.6	Average	Vertical
8	15720	44.3	7.4	51.7	74	-22.3	Peak	Vertical
IEEE 802.11ax-HE20_Channel 52								
1	10520	41.1	3.4	44.5	54	-9.5	Average	Horizontal
2	10520	49.5	3.4	52.9	68.2	-15.3	Peak	Horizontal
3	15780	35.4	7.4	42.7	54	-11.3	Average	Horizontal
4	15780	45.0	7.4	52.3	74	-21.7	Peak	Horizontal
5	10520	42.4	3.4	45.7	54	-8.3	Average	Vertical
6	10520	53.2	3.4	56.6	68.2	-11.6	Peak	Vertical
7	15780	35.5	7.4	42.8	54	-11.2	Average	Vertical
8	15780	44.0	7.4	51.4	74	-22.6	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 60								
1	10600	40.8	3.2	43.9	54	-10.1	Average	Horizontal
2	10600	49.9	3.2	53.1	74	-20.9	Peak	Horizontal
3	15900	35.3	7.2	42.5	54	-11.5	Average	Horizontal
4	15900	43.8	7.2	51.1	74	-22.9	Peak	Horizontal
5	10600	42.3	3.2	45.5	54	-8.6	Average	Vertical
6	10600	51.3	3.2	54.5	74	-19.5	Peak	Vertical
7	15900	35.4	7.2	42.6	54	-11.4	Average	Vertical
8	15900	44.4	7.2	51.7	74	-22.3	Peak	Vertical
IEEE 802.11ax-HE20_Channel 64								
1	10640	40.6	3.1	43.7	54	-10.3	Average	Horizontal
2	10640	48.8	3.1	51.9	74	-22.1	Peak	Horizontal
3	15960	33.8	7.2	41.0	54	-13.0	Average	Horizontal
4	15960	43.0	7.2	50.2	74	-23.8	Peak	Horizontal
5	10640	44.4	3.1	47.5	54	-6.5	Average	Vertical
6	10640	50.7	3.1	53.8	74	-20.2	Peak	Vertical
7	15960	33.4	7.2	40.6	54	-13.4	Average	Vertical
8	15960	43.2	7.2	50.4	74	-23.6	Peak	Vertical
IEEE 802.11ax-HE20_Channel 100								
1	11000	41.4	2.4	43.7	54	-10.3	Average	Horizontal
2	11000	50.0	2.4	52.4	74	-21.6	Peak	Horizontal
3	16500	35.2	8.0	43.2	54	-10.8	Average	Horizontal
4	16500	44.6	8.0	52.6	68.2	-15.6	Peak	Horizontal
5	11000	44.0	2.4	46.3	54	-7.7	Average	Vertical
6	11000	53.4	2.4	55.8	74	-18.2	Peak	Vertical
7	16500	35.4	8.0	43.4	54	-10.6	Average	Vertical
8	16500	44.0	8.0	52.0	68.2	-16.2	Peak	Vertical
IEEE 802.11ax-HE20_Channel 116								
1	11160	38.8	2.3	41.0	54	-13.0	Average	Horizontal
2	11160	48.0	2.3	50.2	74	-23.8	Peak	Horizontal
3	16740	34.0	8.3	42.3	54	-11.7	Average	Horizontal
4	16740	43.2	8.3	51.5	68.2	-16.7	Peak	Horizontal
5	11160	41.2	2.3	43.4	54	-10.6	Average	Vertical
6	11160	50.3	2.3	52.5	74	-21.5	Peak	Vertical
7	16740	34.0	8.3	42.4	54	-11.7	Average	Vertical
8	16740	43.4	8.3	51.7	68.2	-16.5	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 140								
1	11400	36.1	2.1	38.2	54	-15.8	Average	Horizontal
2	11400	46.5	2.1	48.6	74	-25.4	Peak	Horizontal
3	17100	34.8	8.8	43.6	54	-10.4	Average	Horizontal
4	17100	44.7	8.8	53.5	68.2	-14.7	Peak	Horizontal
5	11400	37.7	2.1	39.8	54	-14.2	Average	Vertical
6	11400	46.2	2.1	48.3	74	-25.7	Peak	Vertical
7	17100	35.0	8.8	43.8	54	-10.2	Average	Vertical
8	17100	45.1	8.8	53.9	68.2	-14.3	Peak	Vertical
IEEE 802.11ax-HE20_Channel 144								
1	11440	36.5	2.1	38.6	54	-15.4	Average	Horizontal
2	11440	45.1	2.1	47.2	74	-26.8	Peak	Horizontal
3	17160	35.1	8.9	44.0	54	-10.1	Average	Horizontal
4	17160	44.7	8.9	53.5	68.2	-14.7	Peak	Horizontal
5	11440	36.5	2.1	38.6	54	-15.4	Average	Vertical
6	11440	45.9	2.1	48.0	74	-26.0	Peak	Vertical
7	17160	34.4	8.9	43.3	54	-10.7	Average	Vertical
8	17160	44.1	8.9	53.0	68.2	-15.2	Peak	Vertical
IEEE 802.11ax-HE20_Channel 149								
1	11490.000	34.3	2.1	36.3	54	-17.7	Average	Horizontal
2	11490.000	44.0	2.1	46.1	74	-27.9	Peak	Horizontal
3	17235.000	34.7	9.0	43.7	54	-10.3	Average	Horizontal
4	17235.000	43.7	9.0	52.7	68.2	-15.5	Peak	Horizontal
5	11490.000	34.6	2.1	36.7	54	-17.3	Average	Vertical
6	11490.000	43.9	2.1	46.0	74	-28.0	Peak	Vertical
7	17235.000	34.8	9.0	43.8	54	-10.2	Average	Vertical
8	17235.000	44.4	9.0	53.4	68.2	-14.8	Peak	Vertical
IEEE 802.11ax-HE20_Channel 157								
1	11570.000	35.2	2.1	37.3	54	-16.7	Average	Horizontal
2	11570.000	45.2	2.1	47.2	74	-26.8	Peak	Horizontal
3	17355.000	33.5	9.2	42.7	54	-11.4	Average	Horizontal
4	17355.000	42.6	9.2	51.7	68.2	-16.5	Peak	Horizontal
5	11570.000	35.0	2.1	37.1	54	-16.9	Average	Vertical
6	11570.000	45.5	2.1	47.6	74	-26.4	Peak	Vertical
7	17355.000	33.1	9.2	42.3	54	-11.7	Average	Vertical
8	17355.000	42.1	9.2	51.2	68.2	-17.0	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 165								
1	11650.000	35.5	2.1	37.6	54	-16.4	Average	Horizontal
2	11650.000	44.9	2.1	47.0	74	-27.0	Peak	Horizontal
3	17475.000	33.0	9.3	42.3	54	-11.7	Average	Horizontal
4	17475.000	42.5	9.3	51.8	68.2	-16.4	Peak	Horizontal
5	11650.000	35.6	2.1	37.7	54	-16.3	Average	Vertical
6	11650.000	45.4	2.1	47.5	74	-26.5	Peak	Vertical
7	17475.000	32.7	9.3	42.0	54	-12.0	Average	Vertical
8	17475.000	42.6	9.3	51.9	68.2	-16.3	Peak	Vertical
IEEE 802.11ax-HE40_Channel 38								
1	10380	36.5	3.4	39.9	54	-14.1	Average	Horizontal
2	10380	45.8	3.4	49.2	68.2	-19.0	Peak	Horizontal
3	15570	34.1	7.5	41.6	54	-12.4	Average	Horizontal
4	15570	43.3	7.5	50.9	74	-23.1	Peak	Horizontal
5	10380	36.2	3.4	39.6	54	-14.4	Average	Vertical
6	10380	44.9	3.4	48.3	68.2	-19.9	Peak	Vertical
7	15570	33.5	7.5	41.0	54	-13.0	Average	Vertical
8	15570	43.2	7.5	50.8	74	-23.2	Peak	Vertical
IEEE 802.11ax-HE40_Channel 46								
1	10460	36.6	3.4	40.0	54	-14.0	Average	Horizontal
2	10460	46.6	3.4	50.0	68.2	-18.2	Peak	Horizontal
3	15690	34.5	7.4	41.9	54	-12.1	Average	Horizontal
4	15690	44.3	7.4	51.7	74	-22.3	Peak	Horizontal
5	10460	36.4	3.4	39.8	54	-14.2	Average	Vertical
6	10460	46.2	3.4	49.6	68.2	-18.6	Peak	Vertical
7	15690	35.2	7.4	42.6	54	-11.4	Average	Vertical
8	15690	44.1	7.4	51.5	74	-22.5	Peak	Vertical
IEEE 802.11ax-HE40_Channel 54								
1	10540	36.1	3.3	39.4	54	-14.6	Average	Horizontal
2	10540	45.1	3.3	48.4	68.2	-19.8	Peak	Horizontal
3	15810	35.7	7.3	43.0	54	-11.0	Average	Horizontal
4	15810	44.6	7.3	51.9	74	-22.1	Peak	Horizontal
5	10540	36.3	3.3	39.6	54	-14.4	Average	Vertical
6	10540	44.7	3.3	48.0	68.2	-20.2	Peak	Vertical
7	15810	35.4	7.3	42.7	54	-11.3	Average	Vertical
8	15810	44.7	7.3	52.0	74	-22.0	Peak	Vertical

No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE40_Channel 62								
1	10620	35.5	3.1	38.7	54	-15.3	Average	Horizontal
2	10620	44.6	3.1	47.7	74	-26.3	Peak	Horizontal
3	15930	34.1	7.2	41.3	54	-12.7	Average	Horizontal
4	15930	43.4	7.2	50.6	74	-23.4	Peak	Horizontal
5	10620	35.2	3.1	38.4	54	-15.6	Average	Vertical
6	10620	44.8	3.1	47.9	74	-26.1	Peak	Vertical
7	15930	34.2	7.2	41.4	54	-12.6	Average	Vertical
8	15930	44.5	7.2	51.7	74	-22.3	Peak	Vertical
IEEE 802.11ax-HE40_Channel 102								
1	11020	37.1	2.4	39.5	54	-14.5	Average	Horizontal
2	11020	46.1	2.4	48.5	74	-25.5	Peak	Horizontal
3	16530	35.1	8.0	43.1	54	-10.9	Average	Horizontal
4	16530	44.8	8.0	52.8	68.2	-15.4	Peak	Horizontal
5	11020	37.2	2.4	39.6	54	-14.5	Average	Vertical
6	11020	47.1	2.4	49.5	74	-24.5	Peak	Vertical
7	16530	35.4	8.0	43.5	54	-10.5	Average	Vertical
8	16530	43.9	8.0	51.9	68.2	-16.3	Peak	Vertical
IEEE 802.11ax-HE40_Channel 110								
1	11100	36.6	2.3	38.9	54	-15.1	Average	Horizontal
2	11100	46.6	2.3	48.9	74	-25.1	Peak	Horizontal
3	16650	34.4	8.2	42.6	54	-11.4	Average	Horizontal
4	16650	44.3	8.2	52.5	68.2	-15.7	Peak	Horizontal
5	11100	36.9	2.3	39.2	54	-14.8	Average	Vertical
6	11100	46.5	2.3	48.8	74	-25.2	Peak	Vertical
7	16650	35.6	8.2	43.8	54	-10.2	Average	Vertical
8	16650	44.4	8.2	52.6	68.2	-15.6	Peak	Vertical
IEEE 802.11ax-HE40_Channel 134								
1	11340	34.4	2.2	36.6	54	-17.4	Average	Horizontal
2	11340	43.6	2.2	45.8	74	-28.2	Peak	Horizontal
3	17010	33.9	8.7	42.6	54	-11.4	Average	Horizontal
4	17010	43.6	8.7	52.3	68.2	-15.9	Peak	Horizontal
5	11340	34.8	2.2	36.9	54	-17.1	Average	Vertical
6	11340	45.4	2.2	47.6	74	-26.4	Peak	Vertical
7	17010	33.7	8.7	42.3	54	-11.7	Average	Vertical
8	17010	43.5	8.7	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 802.11ax-HE40_Channel 142								
1	11420	35.1	2.1	37.2	54	-16.8	Average	Horizontal
2	11420	44.5	2.1	46.6	74	-27.4	Peak	Horizontal
3	17130	35.0	8.8	43.8	54	-10.2	Average	Horizontal
4	17130	44.3	8.8	53.2	68.2	-15.1	Peak	Horizontal
5	11420	34.6	2.1	36.7	54	-17.3	Average	Vertical
6	11420	45.4	2.1	47.5	74	-26.5	Peak	Vertical
7	17130	35.2	8.8	44.1	54	-9.9	Average	Vertical
8	17130	44.5	8.8	53.3	68.2	-14.9	Peak	Vertical
IEEE 802.11ax-HE40_Channel 151								
1	11509.600	43.6	2.1	45.6	54	-8.4	Average	Horizontal
2	11510.000	35.2	2.1	37.3	74	-36.7	Peak	Horizontal
3	17265.000	34.6	9.0	43.7	54	-10.3	Average	Horizontal
4	17265.000	43.6	9.0	52.6	68.2	-15.6	Peak	Horizontal
5	11510.000	35.1	2.1	37.1	54	-16.9	Average	Vertical
6	11510.000	44.7	2.1	46.8	74	-27.3	Peak	Vertical
7	17265.000	34.7	9.0	43.8	54	-10.3	Average	Vertical
8	17265.000	43.8	9.0	52.9	68.2	-15.3	Peak	Vertical
IEEE 802.11ax-HE40_Channel 159								
1	11590.000	35.4	2.1	37.5	54	-16.5	Average	Horizontal
2	11590.000	45.5	2.1	47.6	74	-26.5	Peak	Horizontal
3	17385.000	33.9	9.2	43.1	54	-10.9	Average	Horizontal
4	17385.000	43.2	9.2	52.4	68.2	-15.8	Peak	Horizontal
5	11590.000	35.6	2.1	37.7	54	-16.3	Average	Vertical
6	11590.000	44.7	2.1	46.8	74	-27.2	Peak	Vertical
7	11590.000	33.6	9.2	42.8	54	-11.2	Average	Vertical
8	11590.000	42.8	9.2	52.0	68.2	-16.2	Peak	Vertical

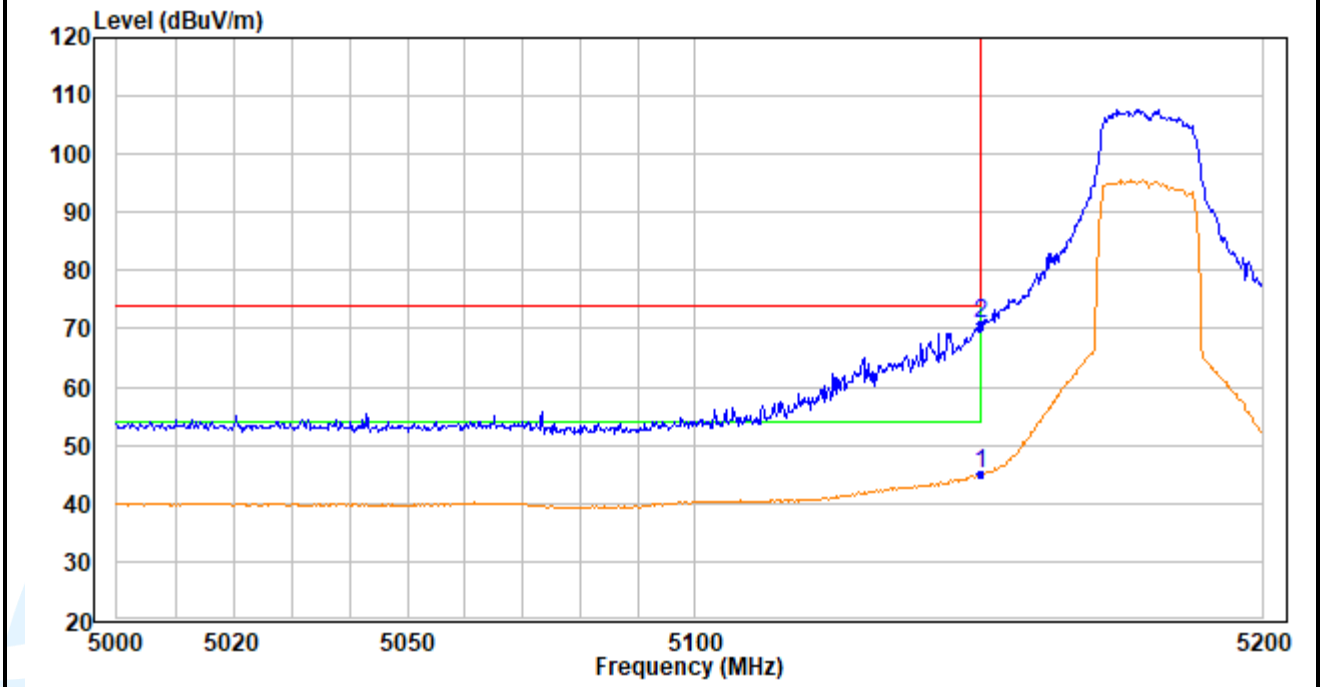
Remark:

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)

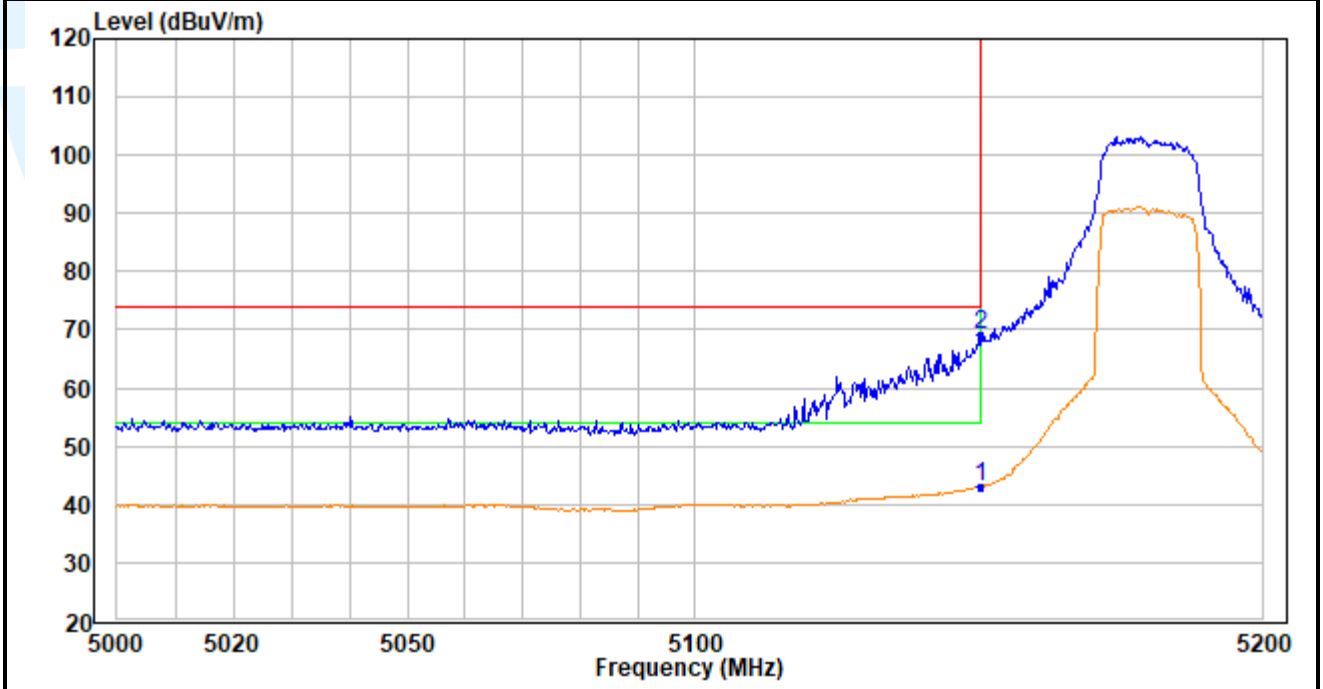
IEEE 802.11a

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



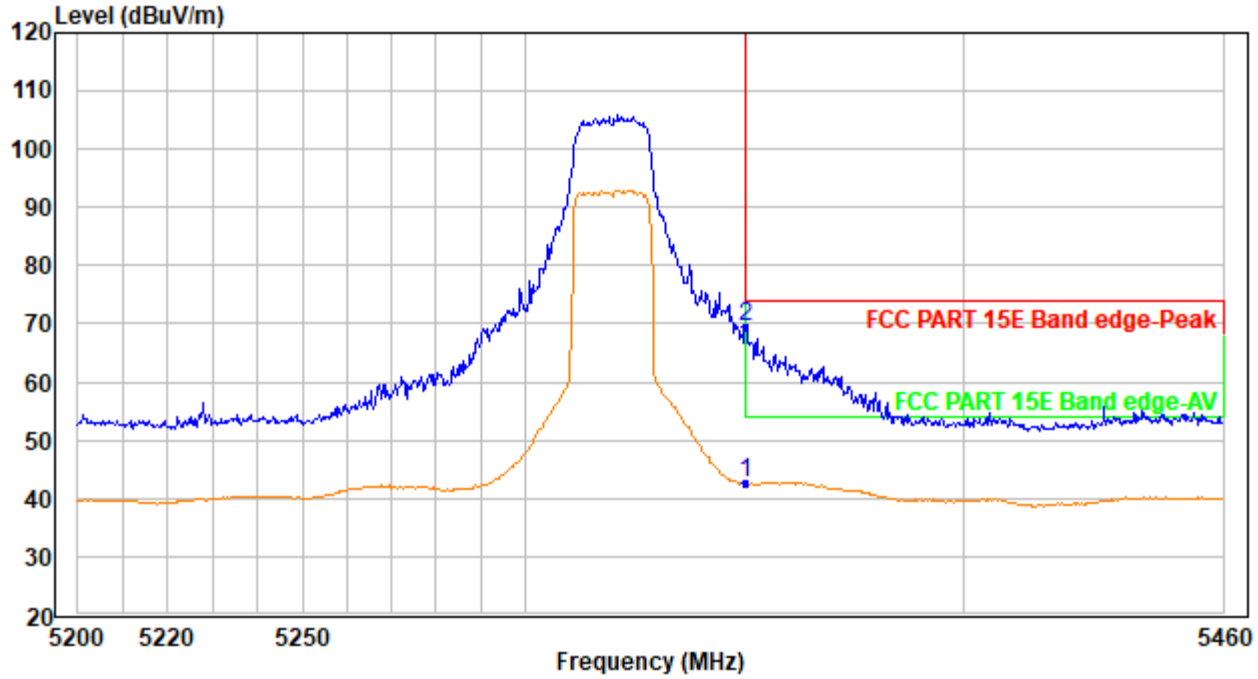
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	70.92	74.00	45.11	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



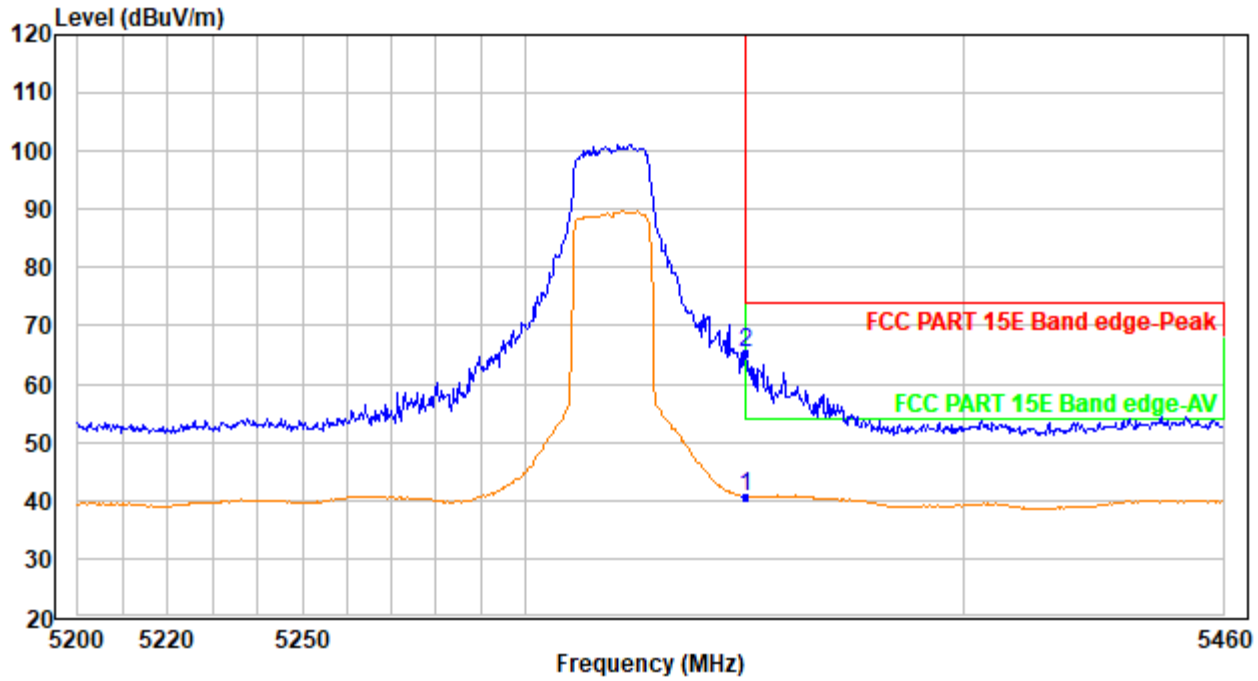
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	69.08	74.00	42.95	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



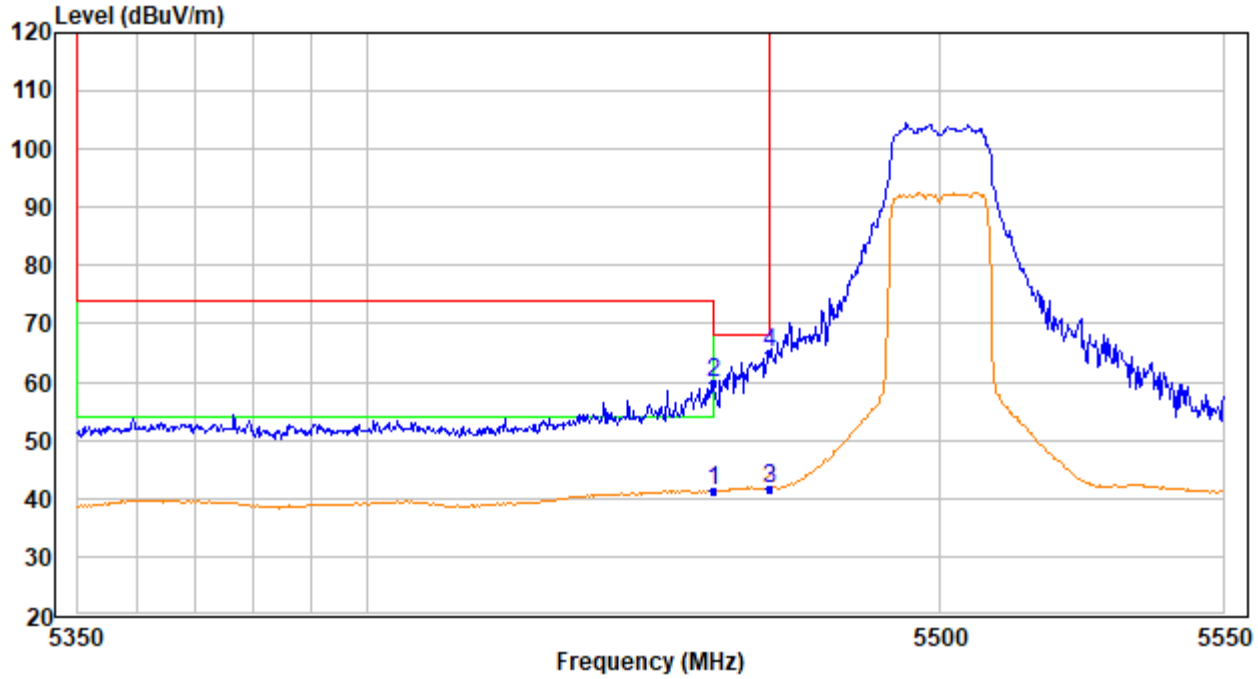
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	69.48	74.00	42.51	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



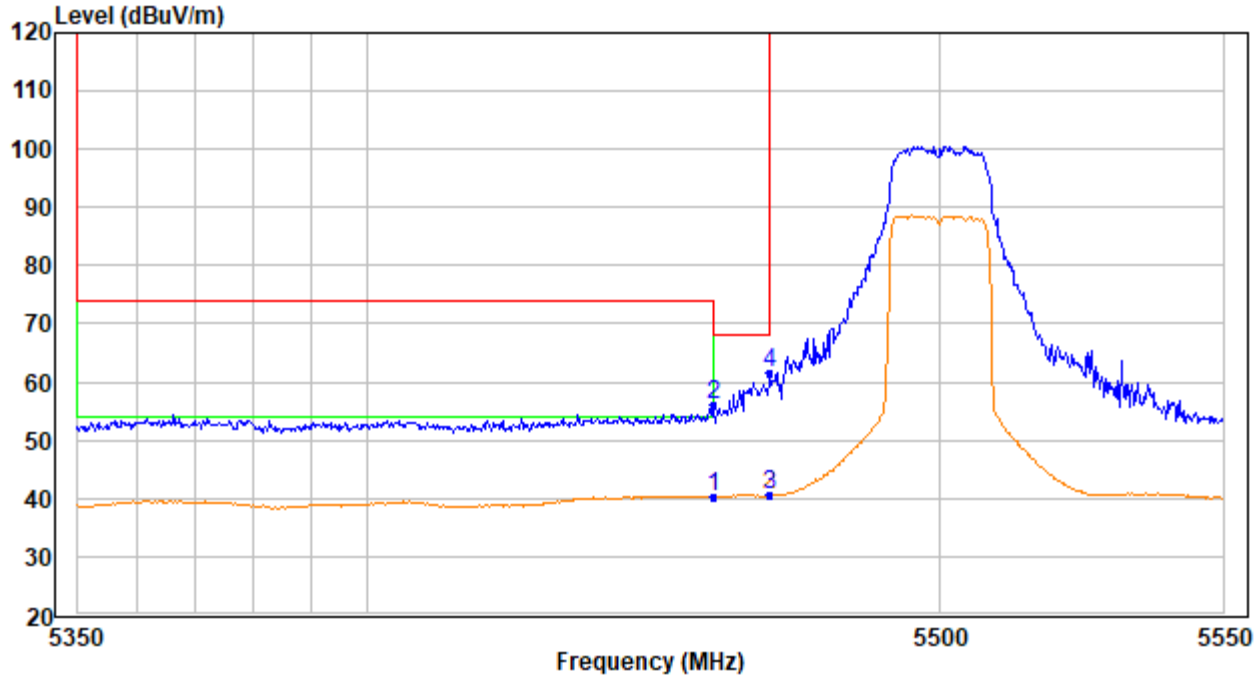
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	65.29	74.00	40.70	54.00	Pass

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



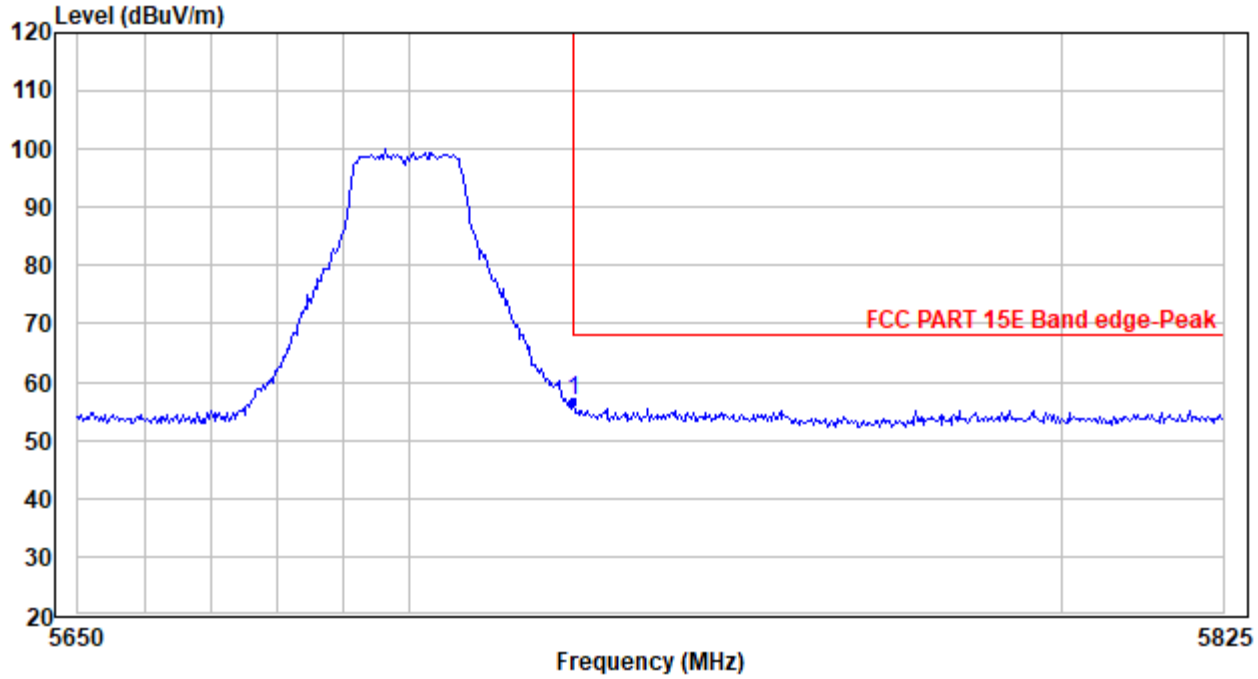
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	60.01	68.20	41.28	54.00	Pass
5470.000	65.04	68.20	41.77	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



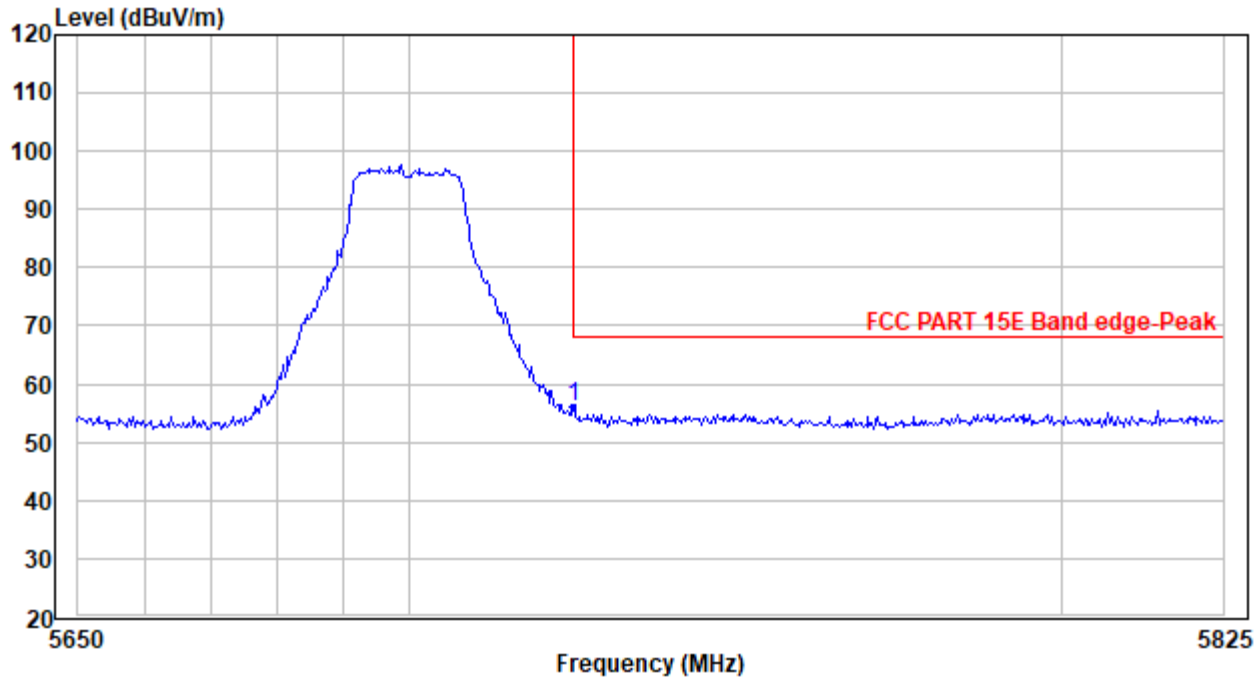
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	56.04	68.20	40.29	54.00	Pass
5470.000	61.73	68.20	40.52	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Horizontal



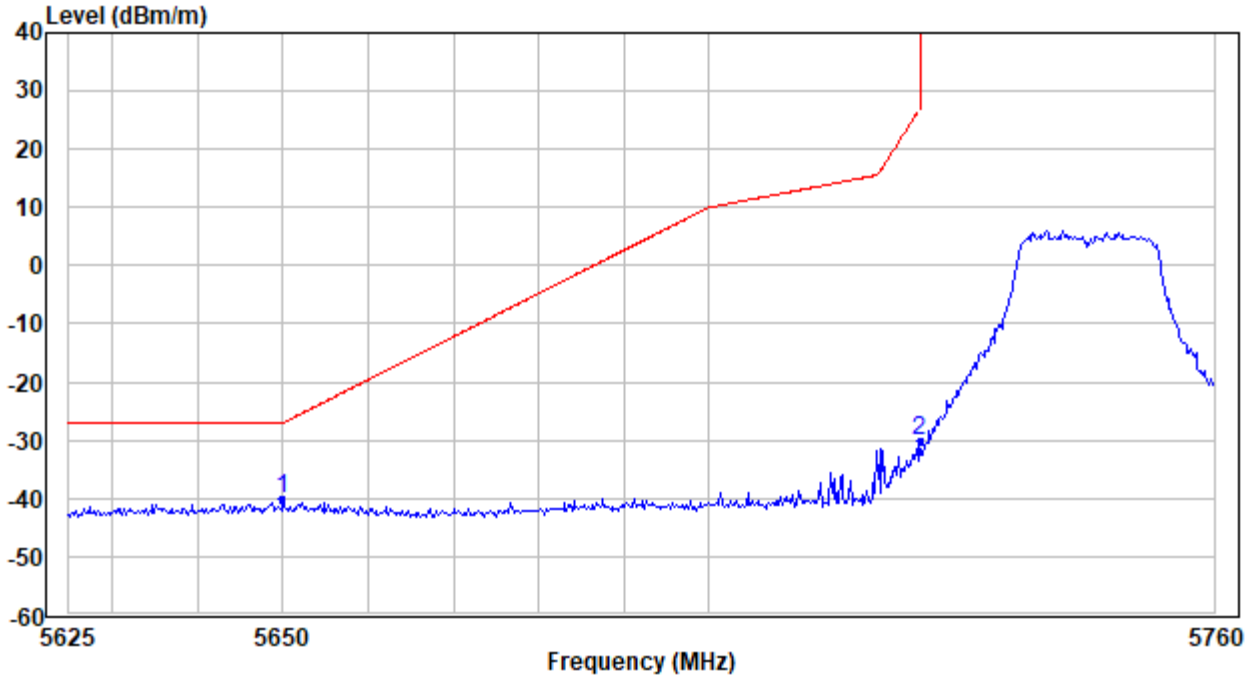
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	56.82	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Vertical



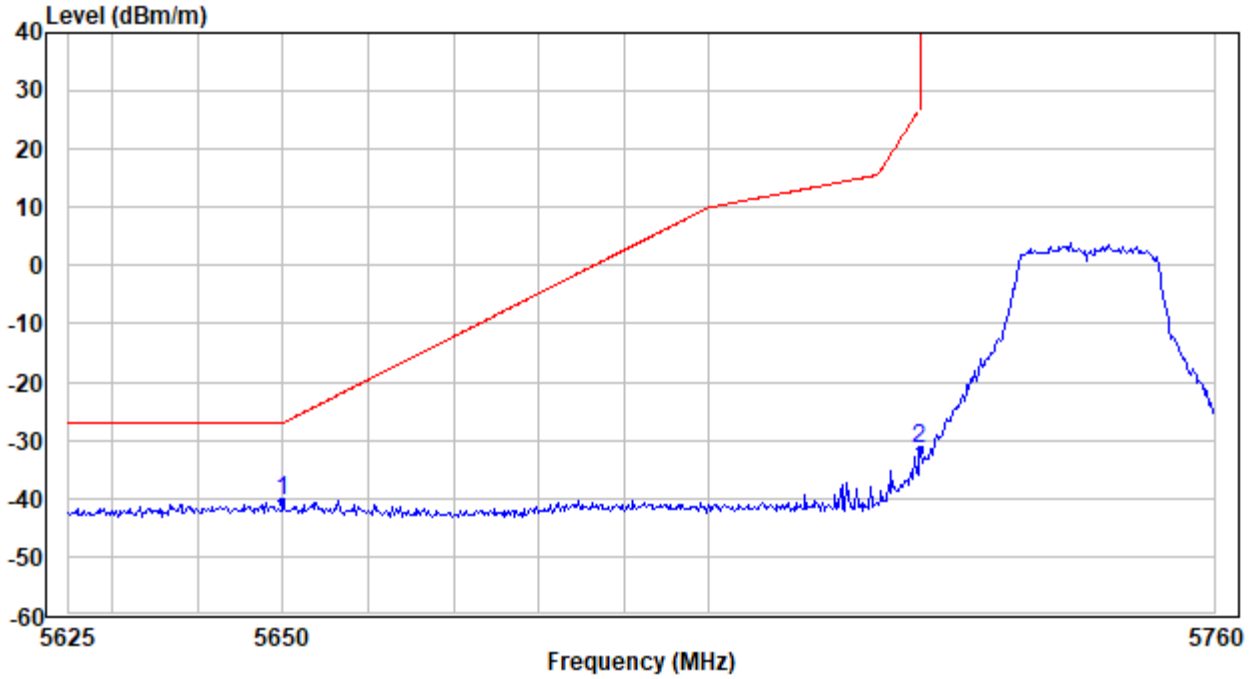
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	56.22	68.20	Pass

Test Channel:	Channel 149	Ant. Polar. :	Horizontal



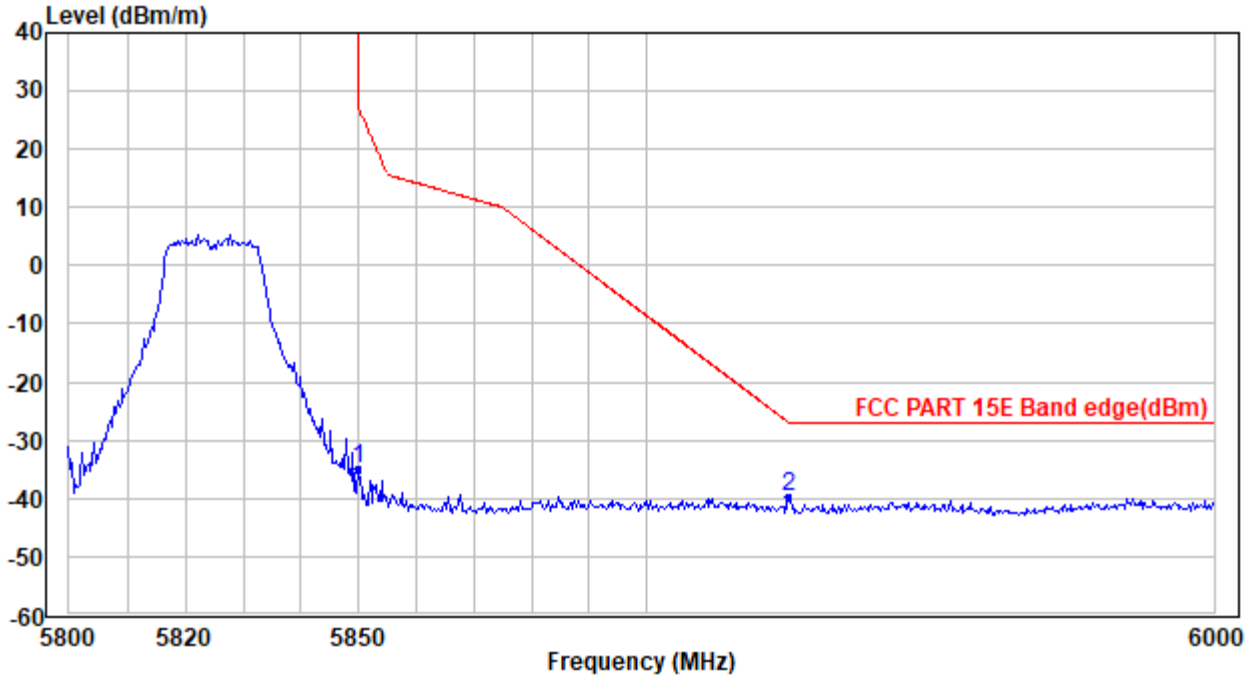
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-40.16	-27.00	Pass
5725.000	-30.07	27.00	Pass

Test Channel:	Channel 149	Ant. Polar. :	Vertical



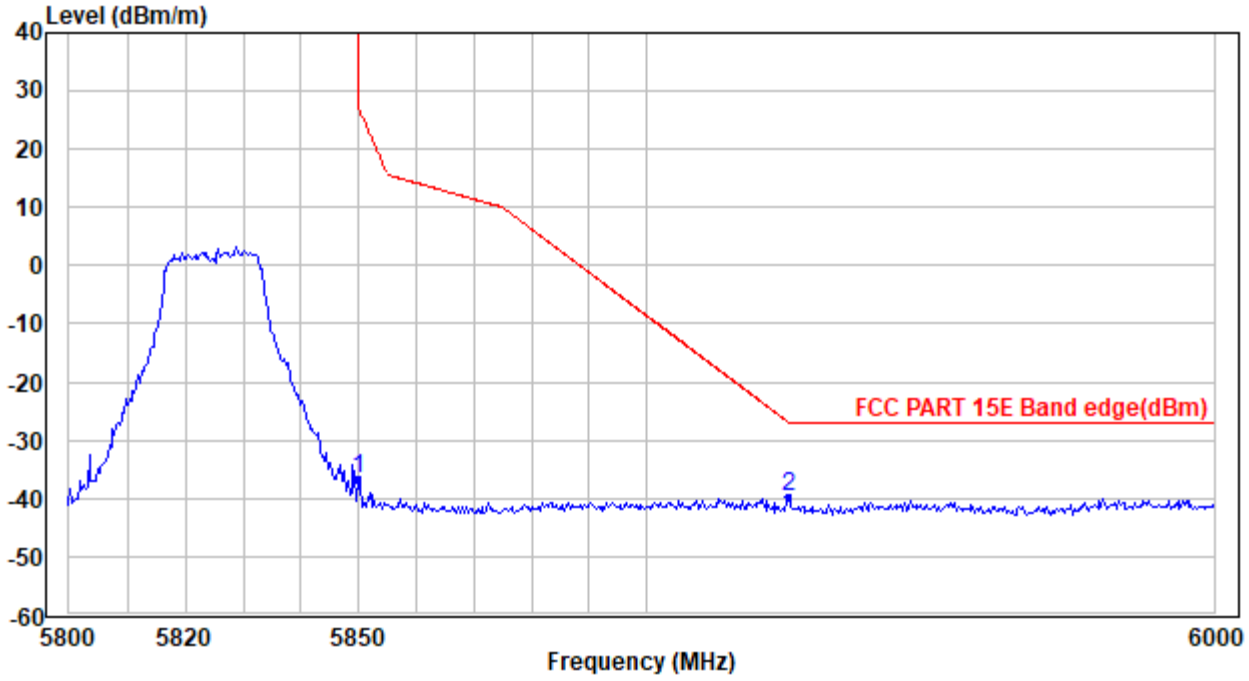
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-40.36	-27.00	Pass
5725.000	-31.62	27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-34.75	27.00	Pass
5925.000	-39.79	-27.00	Pass

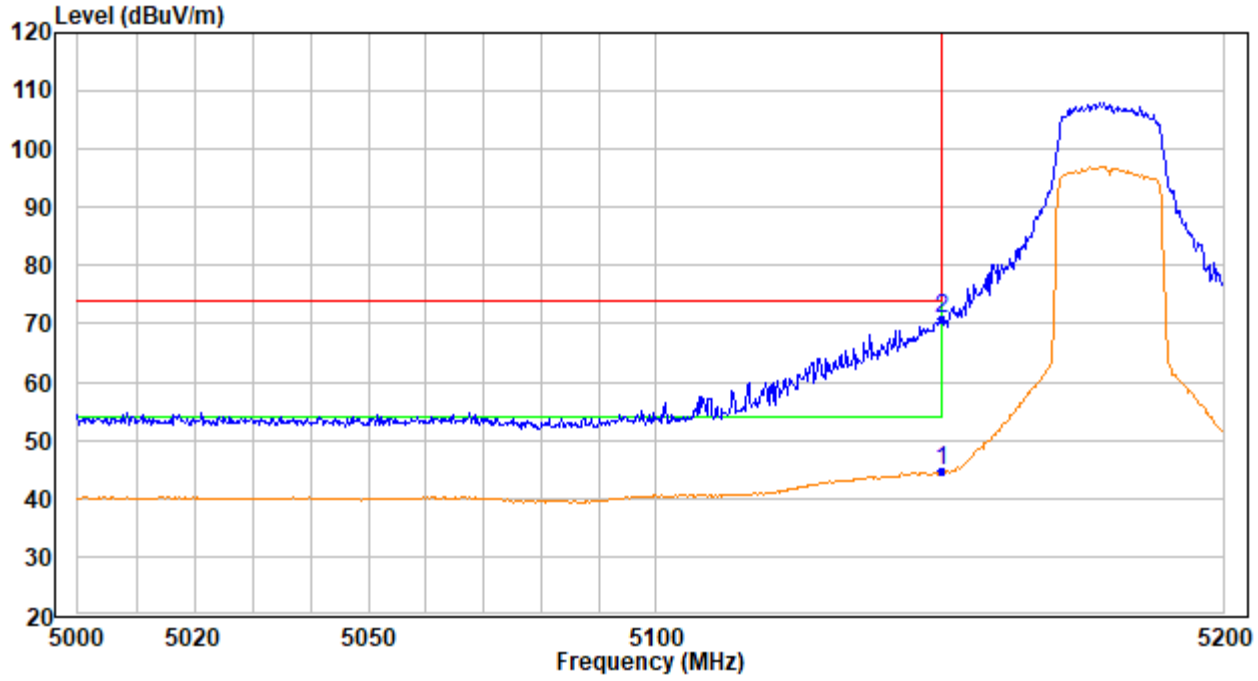
Test Channel:	Channel 165	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-36.53	27.00	Pass
5925.000	-39.72	-27.00	Pass

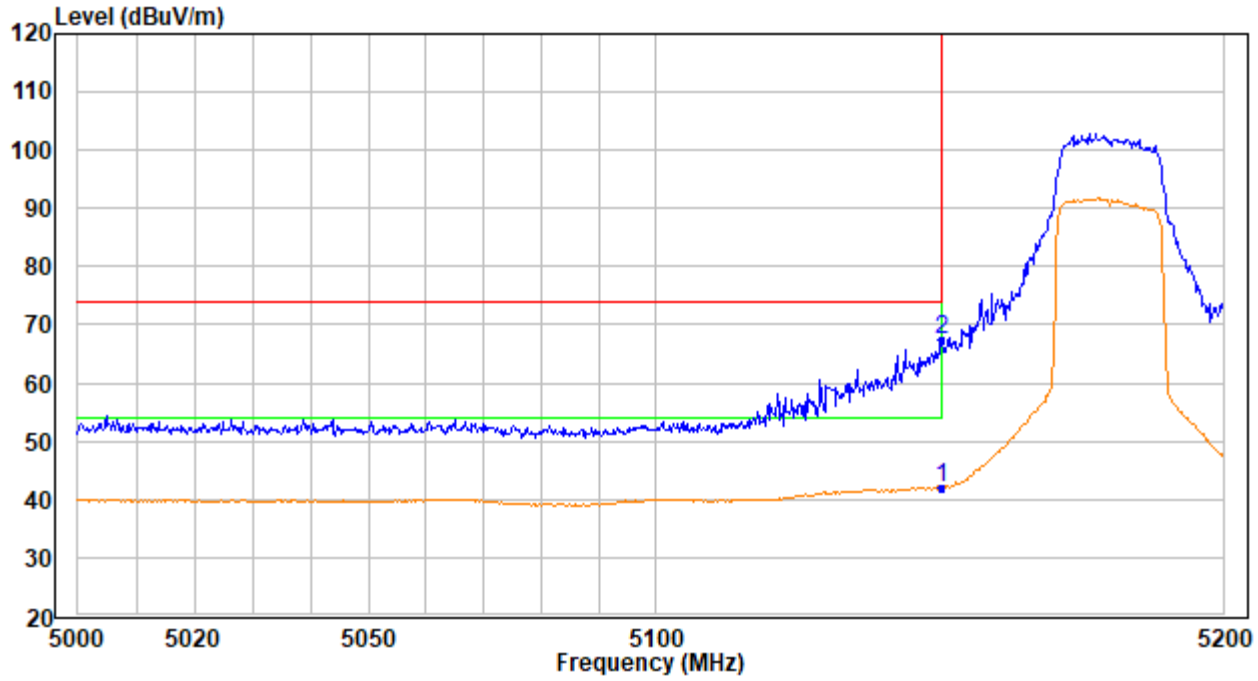
IEEE 802.11n-HT20

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



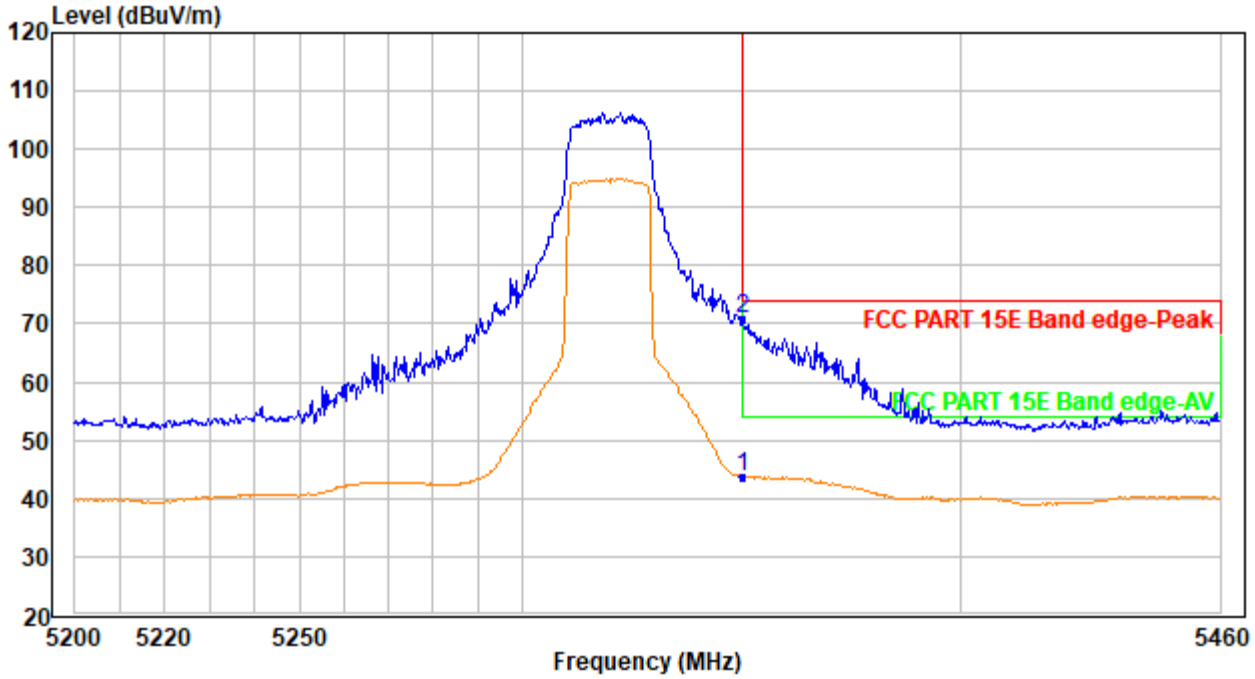
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	70.96	74.00	44.59	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



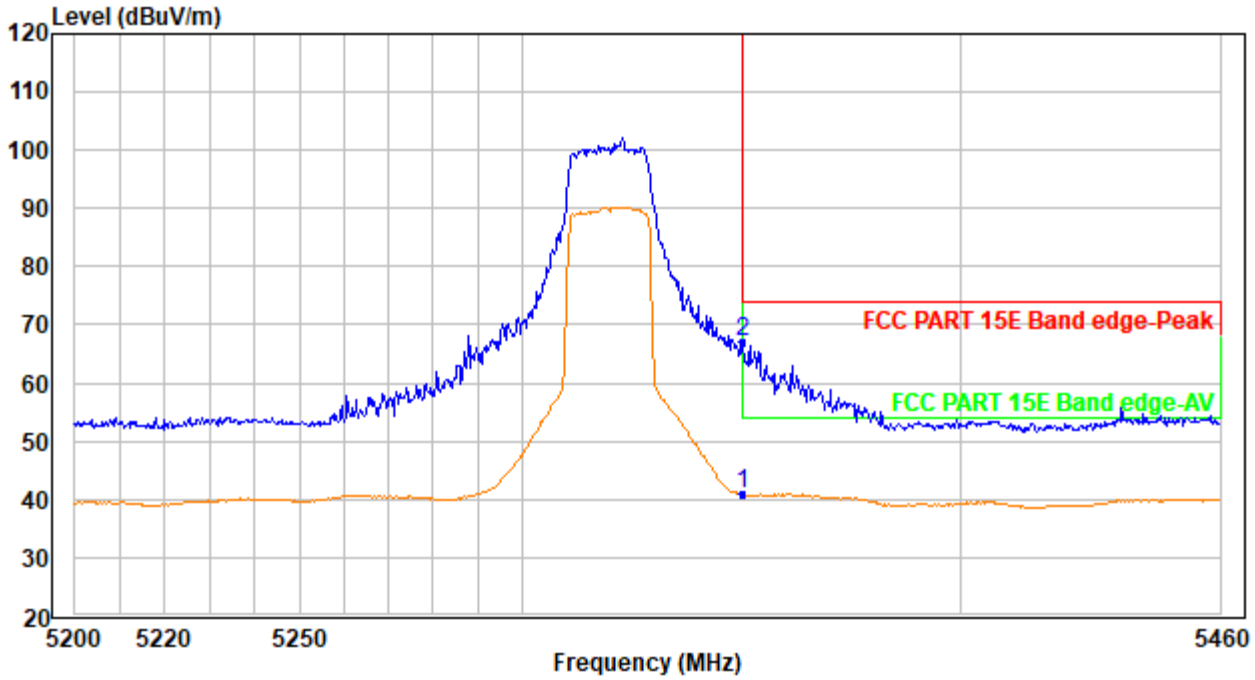
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	67.43	74.00	41.83	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



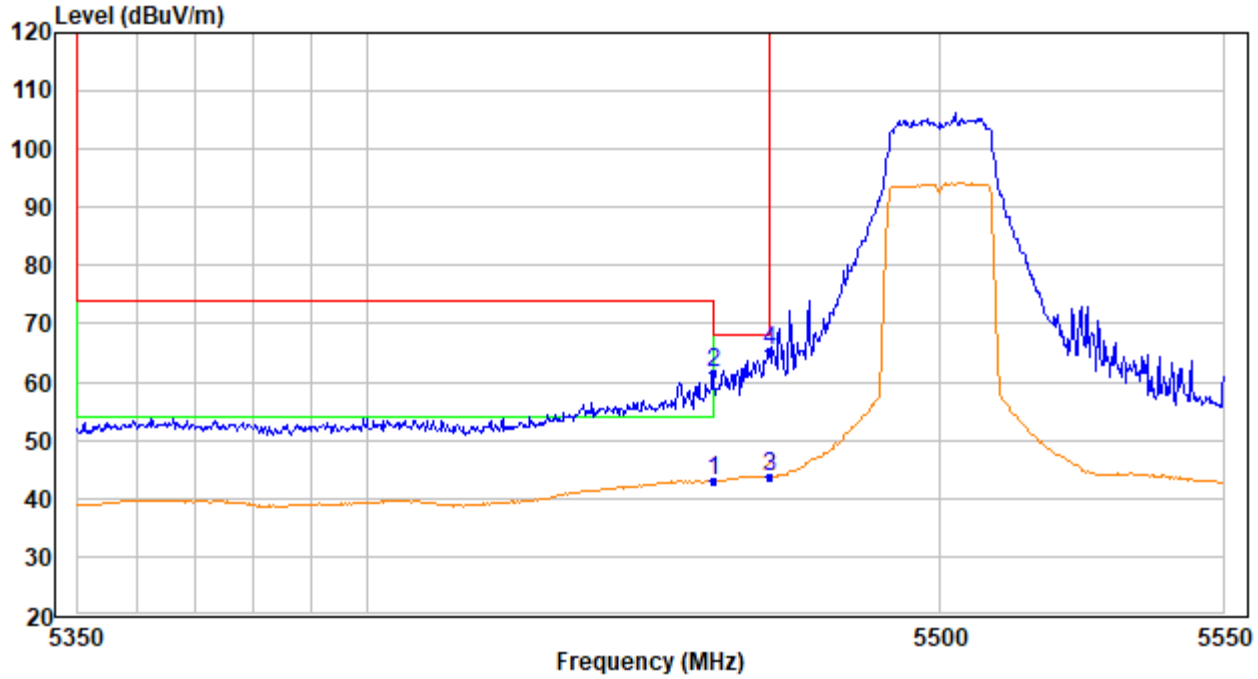
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	70.89	74.00	43.87	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



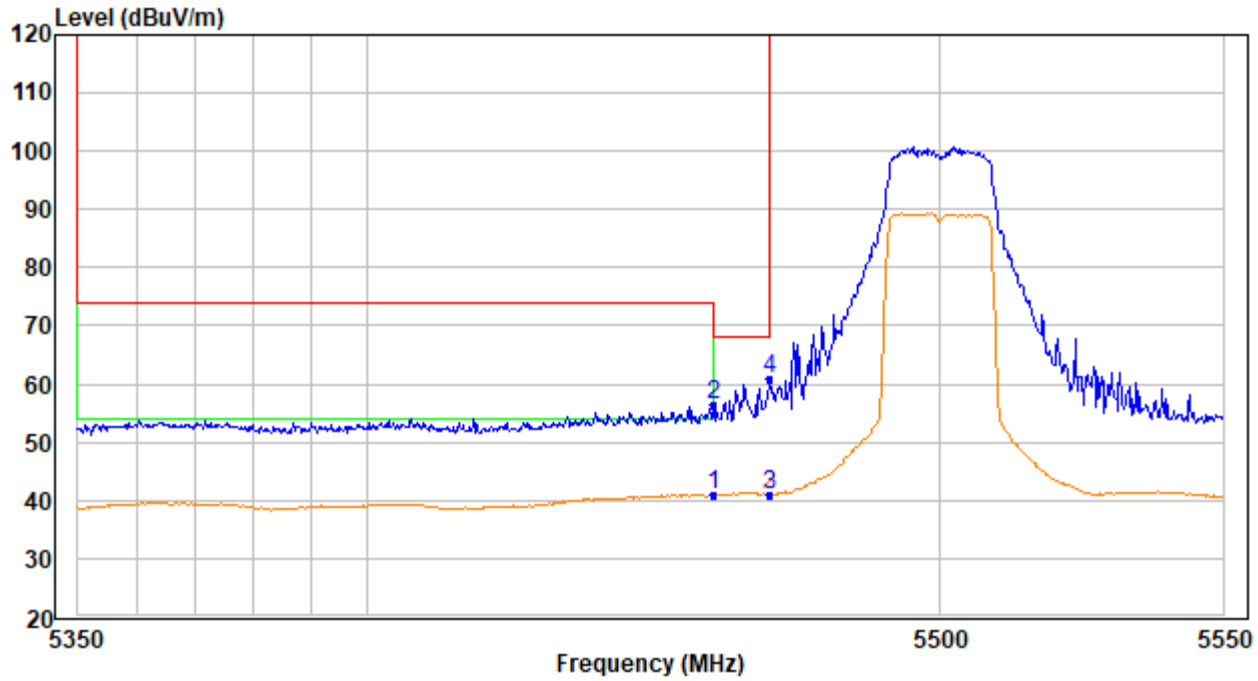
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	67.15	74.00	41.03	54.00	Pass

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



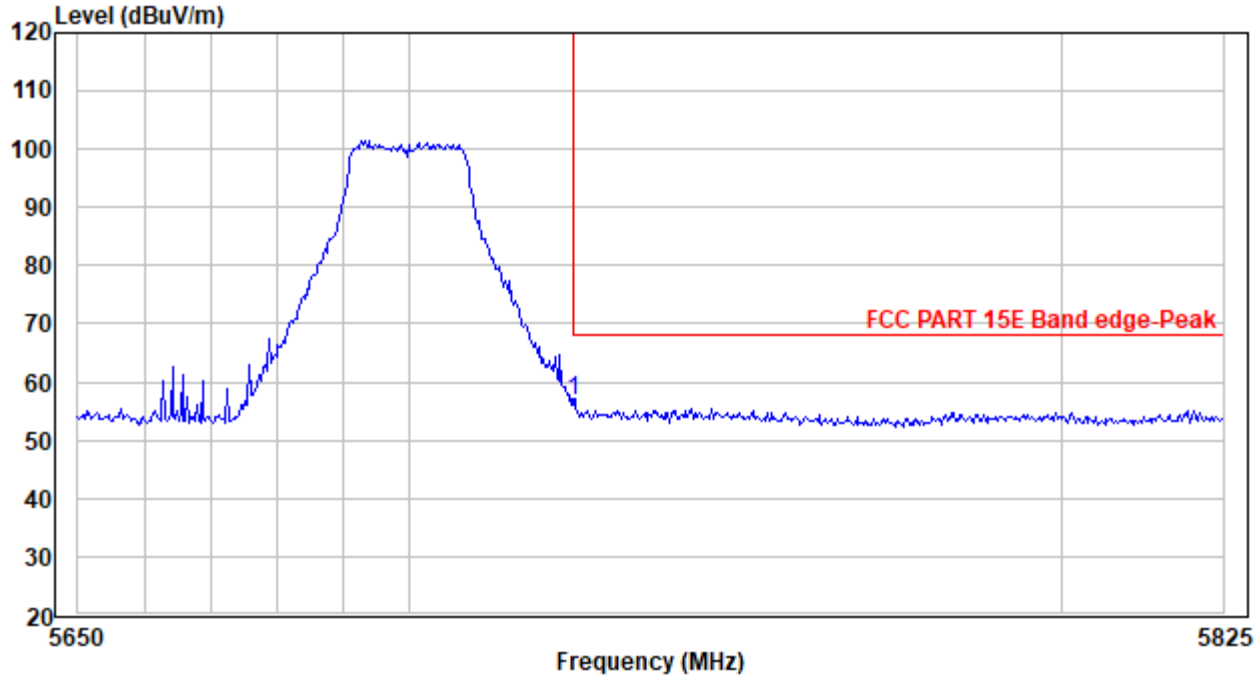
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	61.52	68.20	43.07	54.00	Pass
5470.000	65.26	68.20	43.68	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



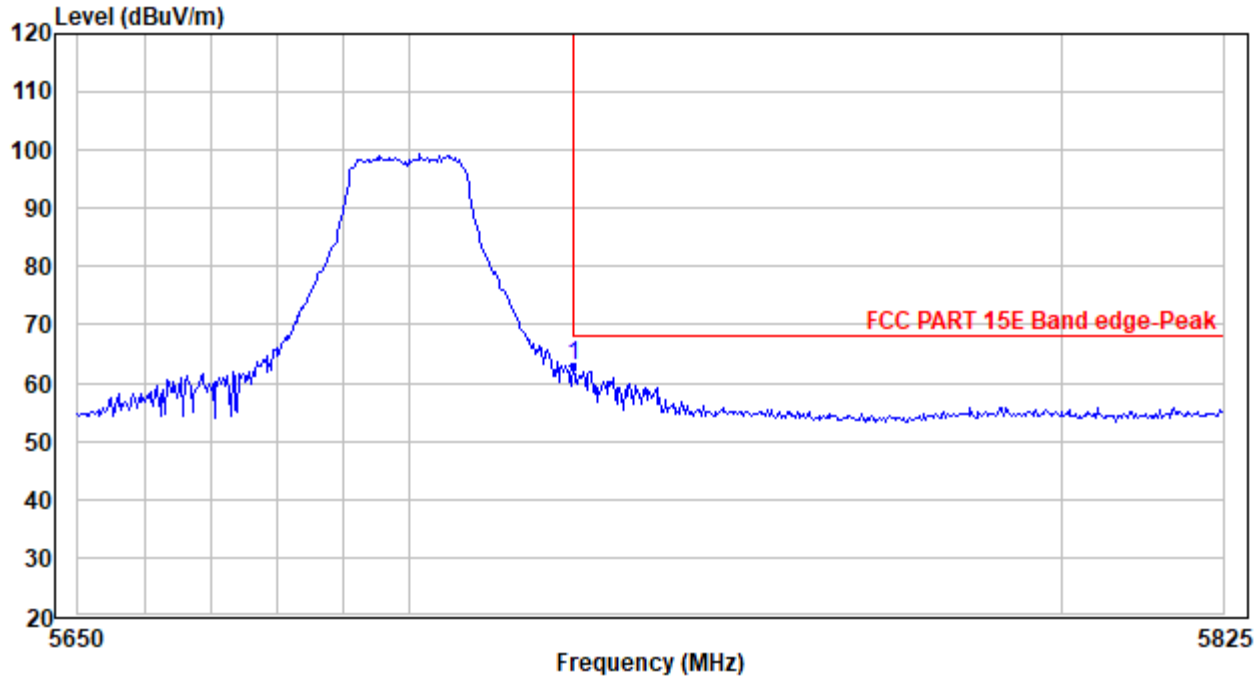
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	56.37	68.20	40.88	54.00	Pass
5470.000	60.78	68.20	41.10	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Horizontal



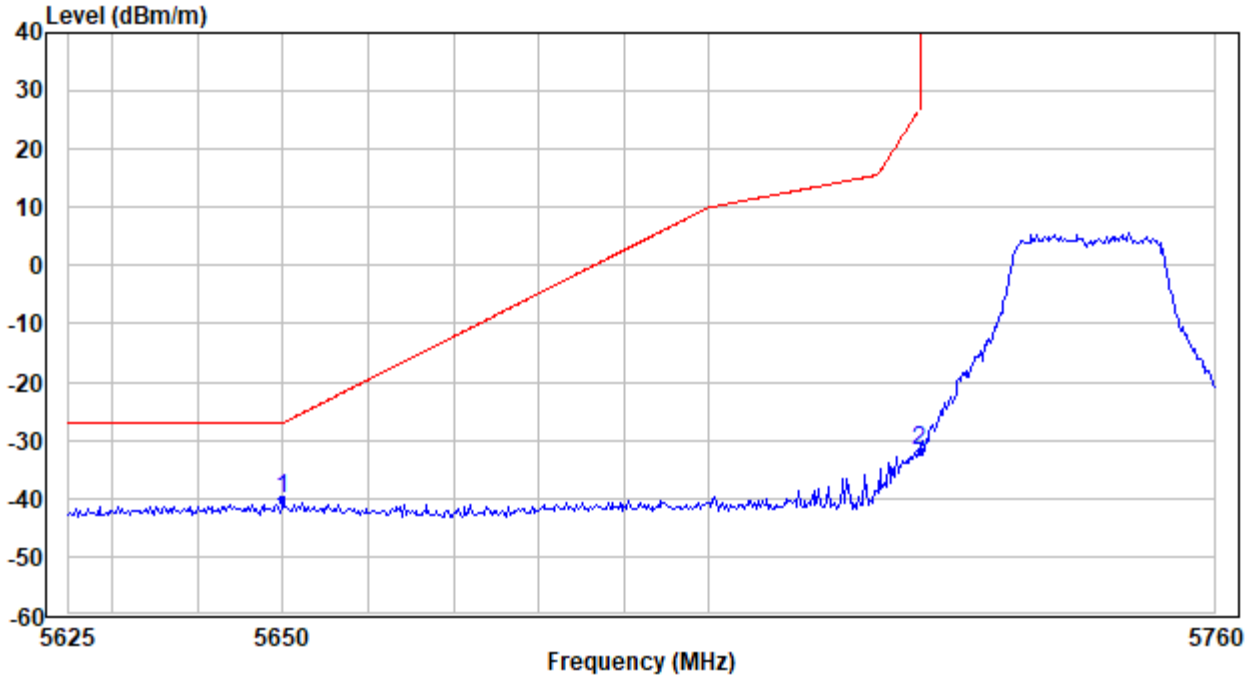
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	56.62	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Vertical



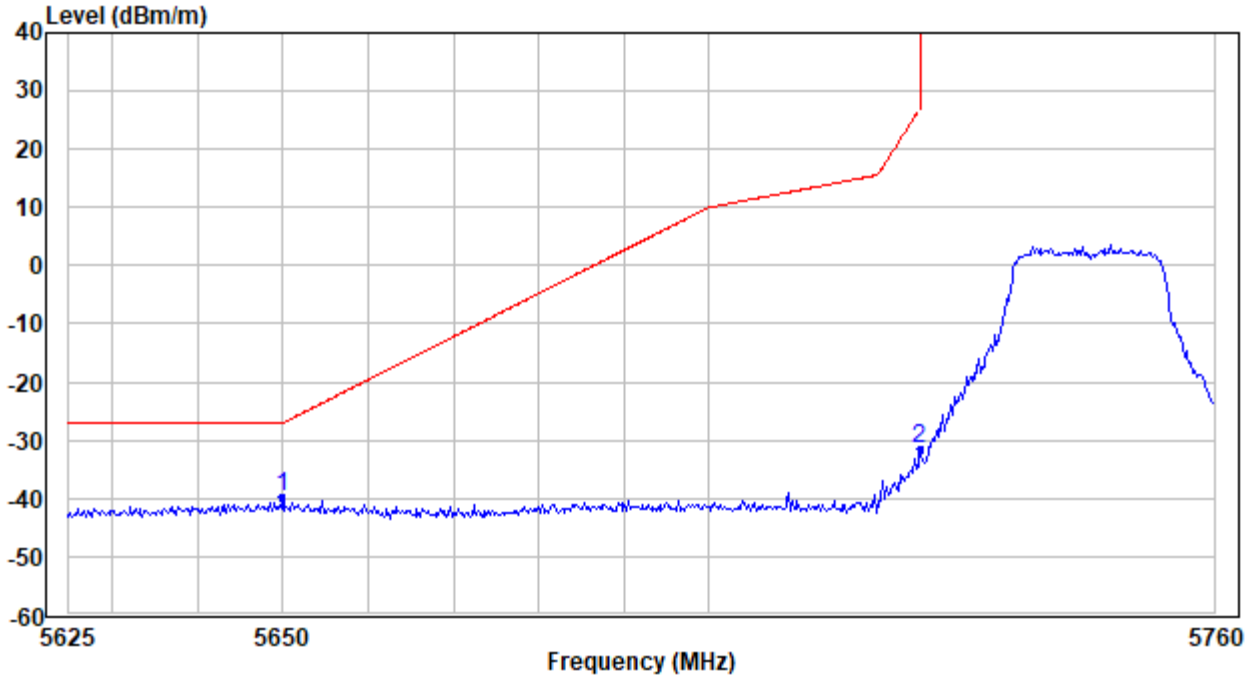
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	62.94	68.20	Pass

Test Channel:	Channel 149	Ant. Polar. :	Horizontal



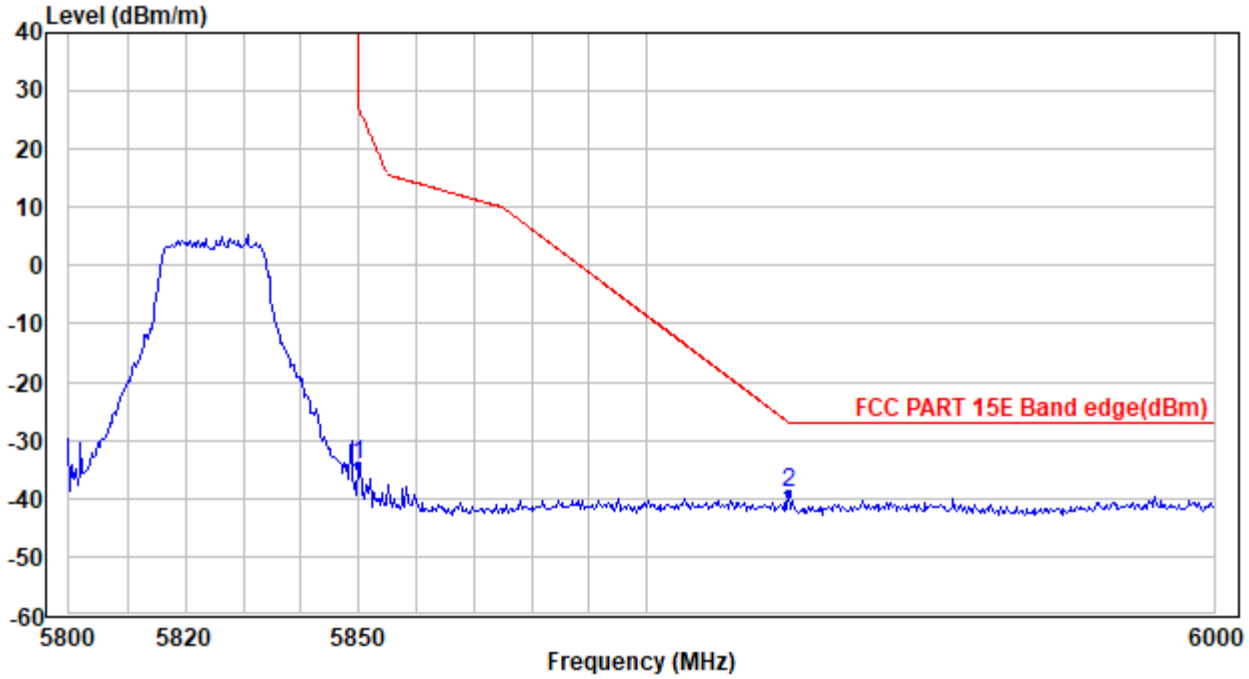
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-40.18	-27.00	Pass
5725.000	-31.69	27.00	Pass

Test Channel:	Channel 149	Ant. Polar. :	Vertical



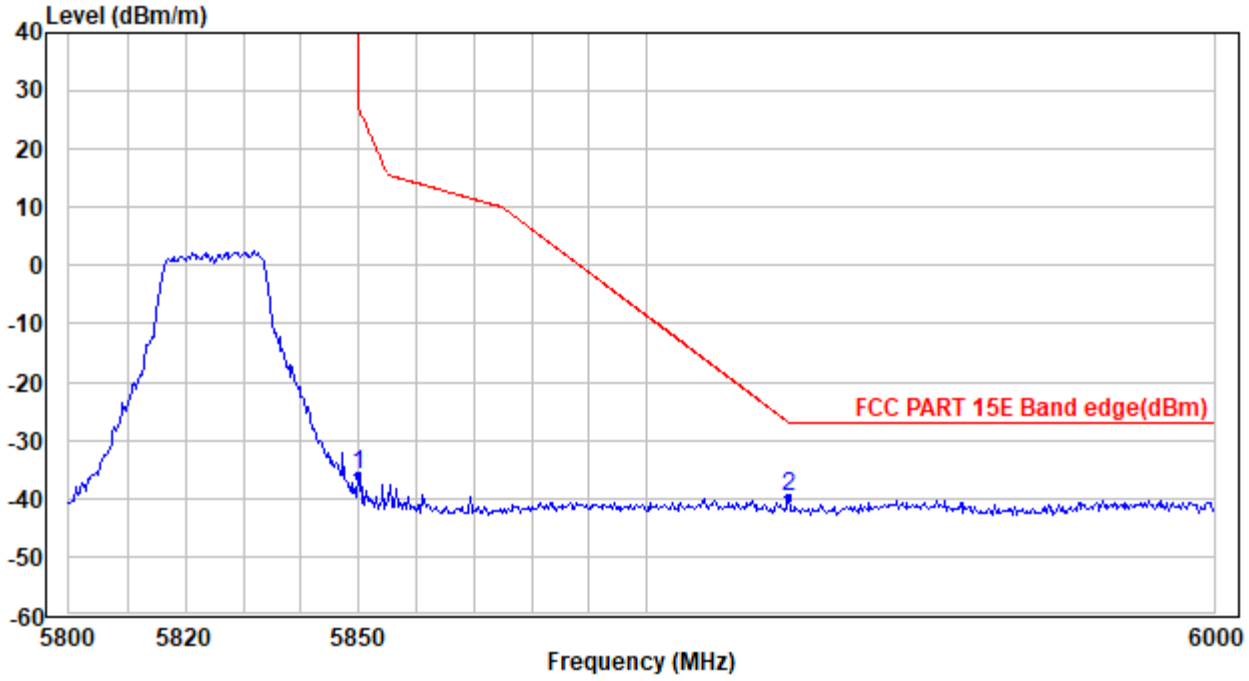
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-39.81	-27.00	Pass
5725.000	-31.37	27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-34.09	27.00	Pass
5925.000	-39.16	-27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-36.01	27.00	Pass
5925.000	-39.89	-27.00	Pass

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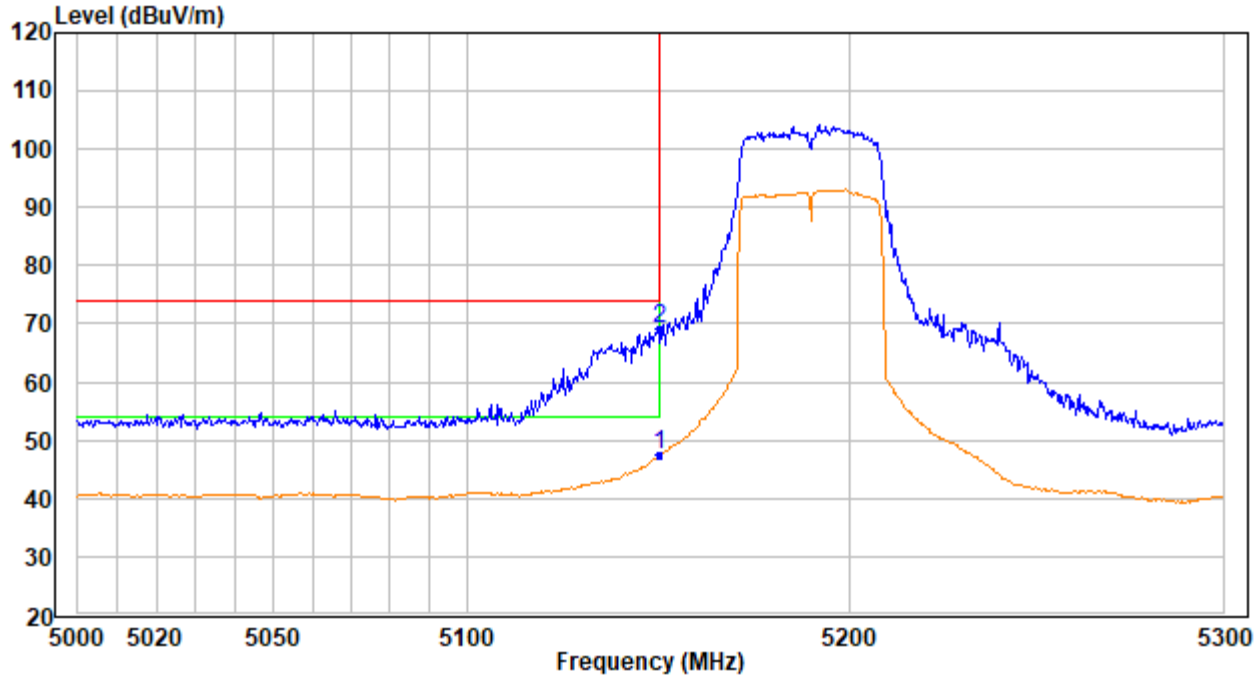
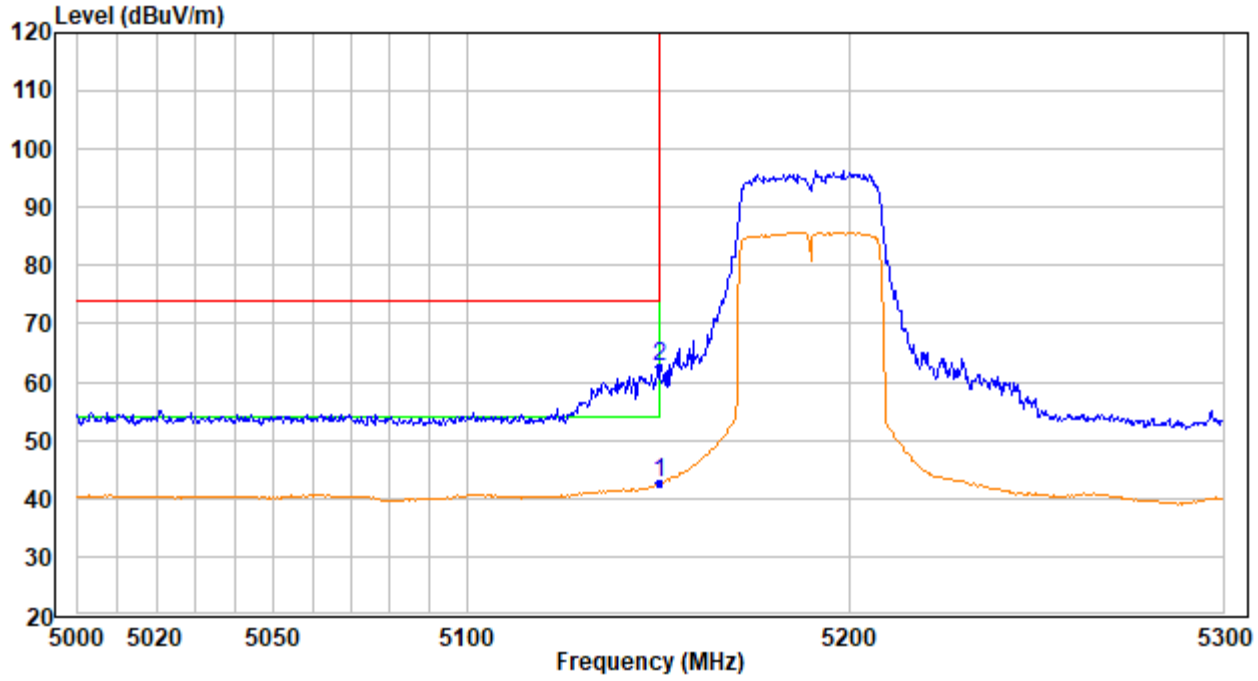
Test Channel:	Channel 38	Ant. Polar. :	Horizontal



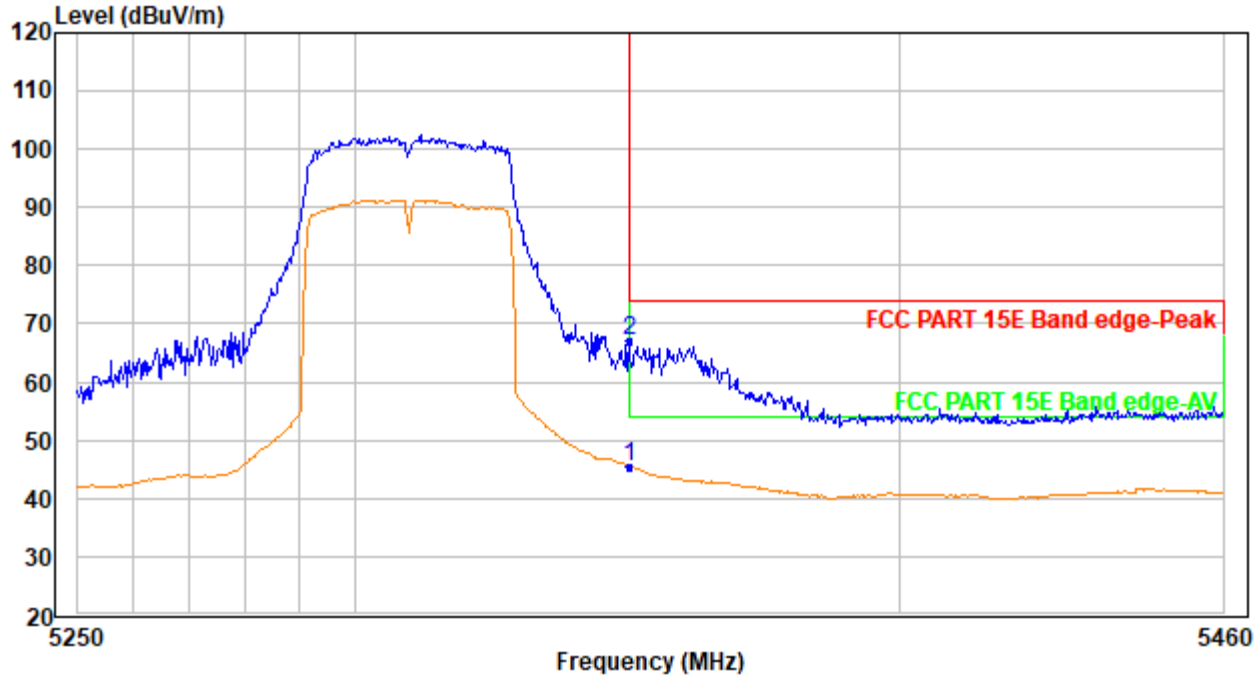
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	69.27	74.00	47.37	54.00	Pass

Test Channel:	Channel 38	Ant. Polar. :	Vertical



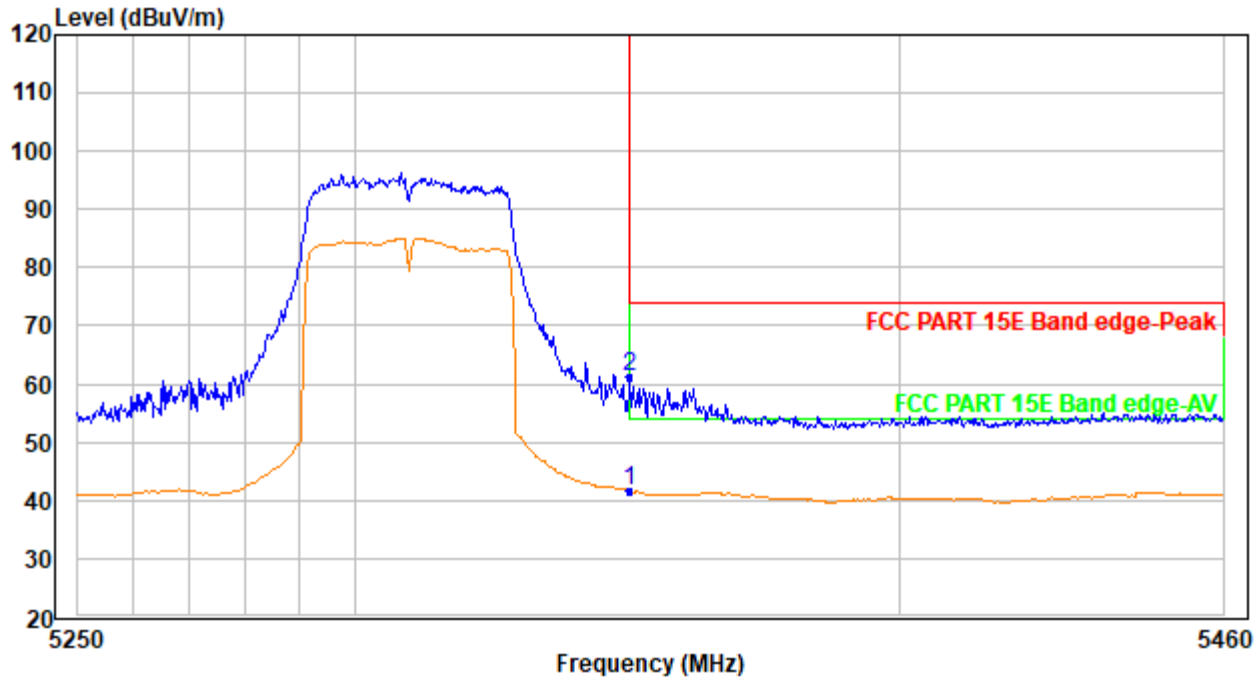
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	62.51	74.00	42.53	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Horizontal



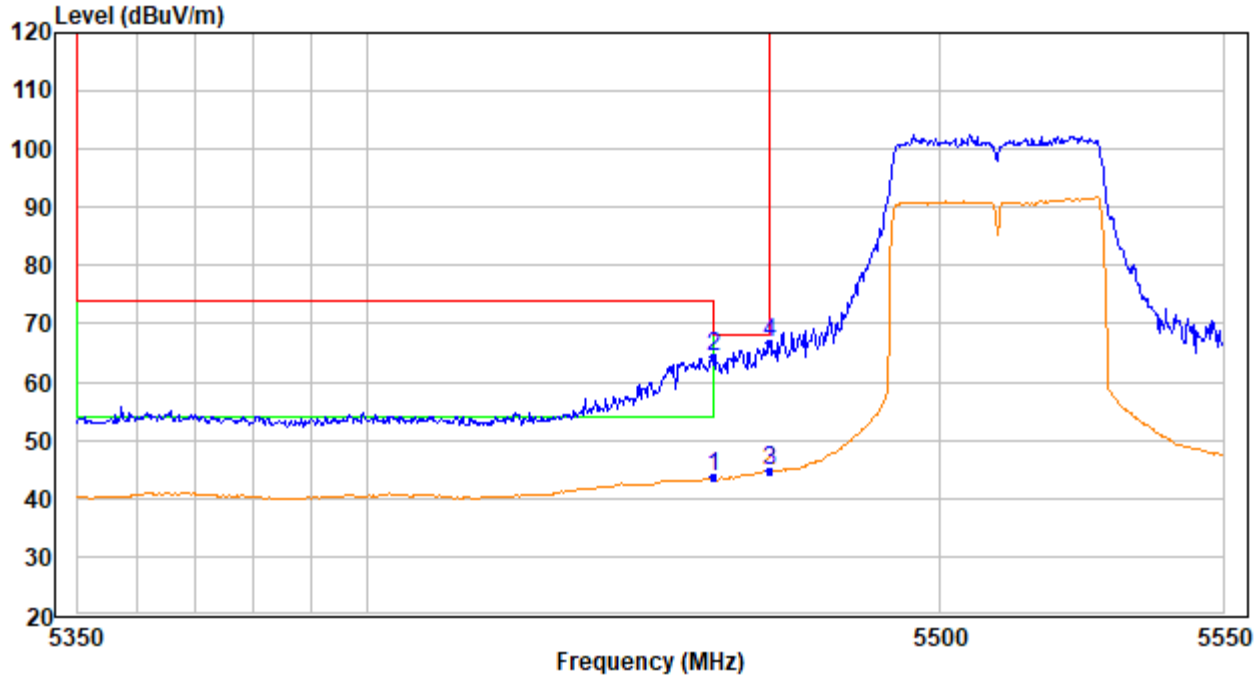
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	66.99	74.00	45.51	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Vertical



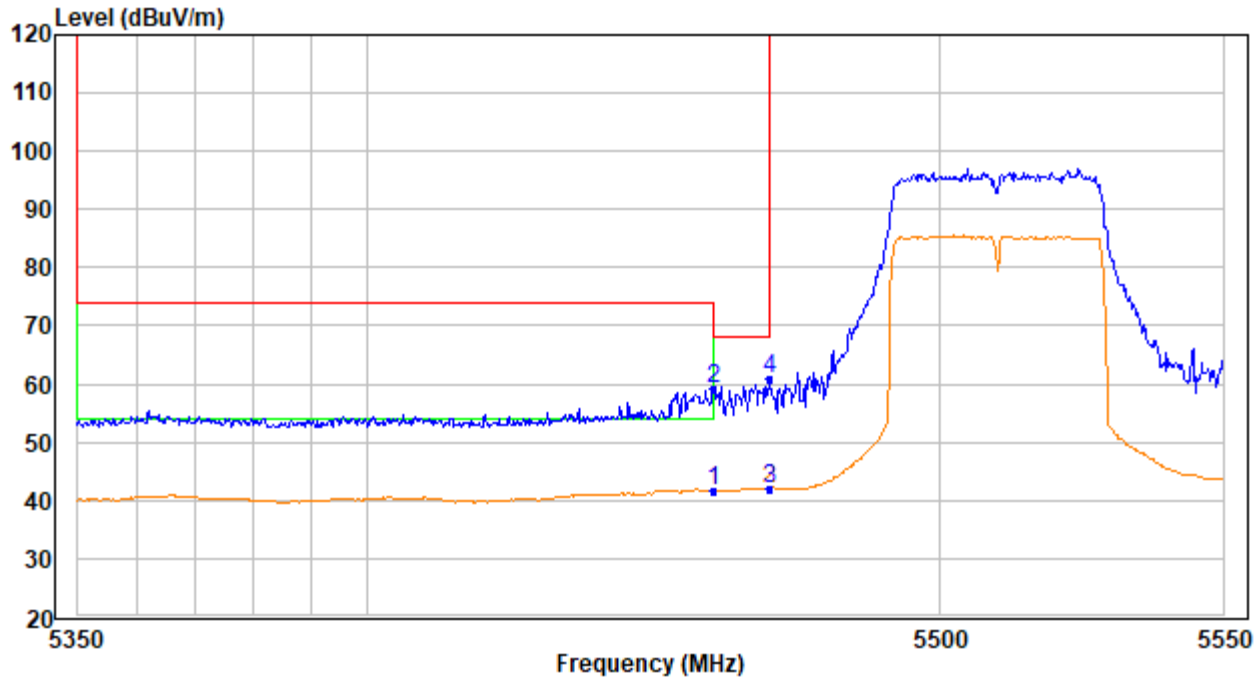
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	61.21	74.00	41.72	54.00	Pass

Test Channel:	Channel 102	Ant. Polar. :	Horizontal



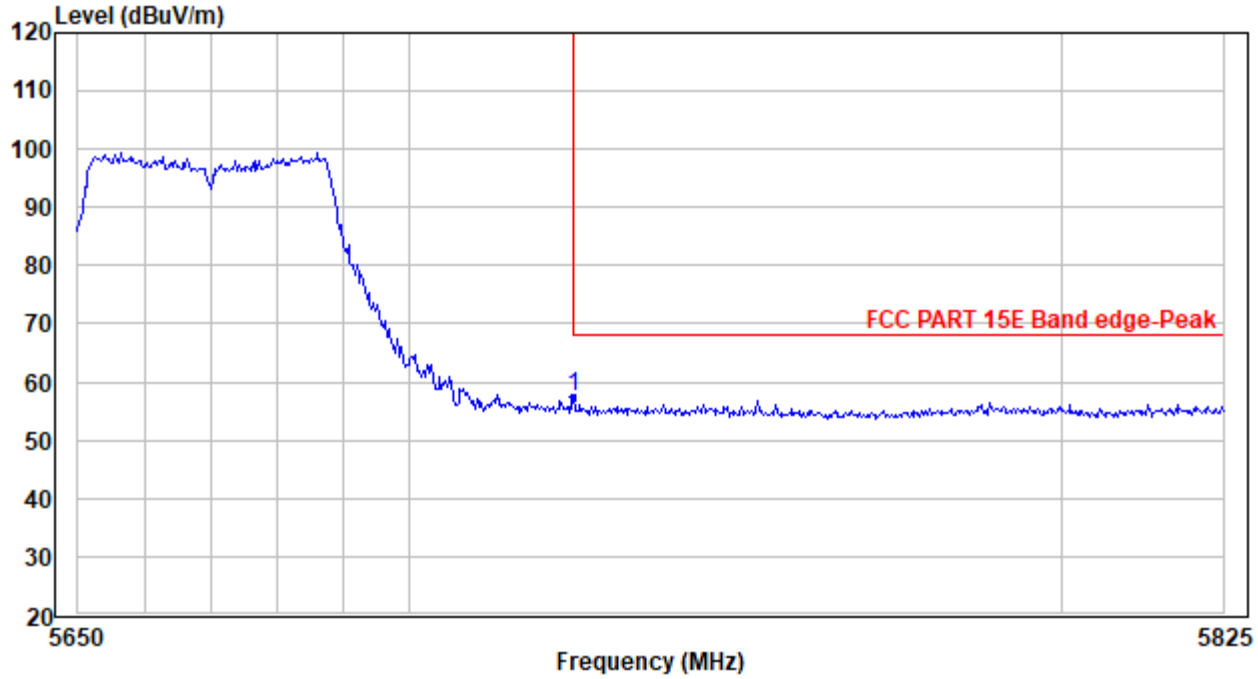
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	64.47	68.20	43.56	54.00	Pass
5470.000	66.65	68.20	44.68	68.20	Pass

Test Channel:	Channel 102	Ant. Polar. :	Vertical



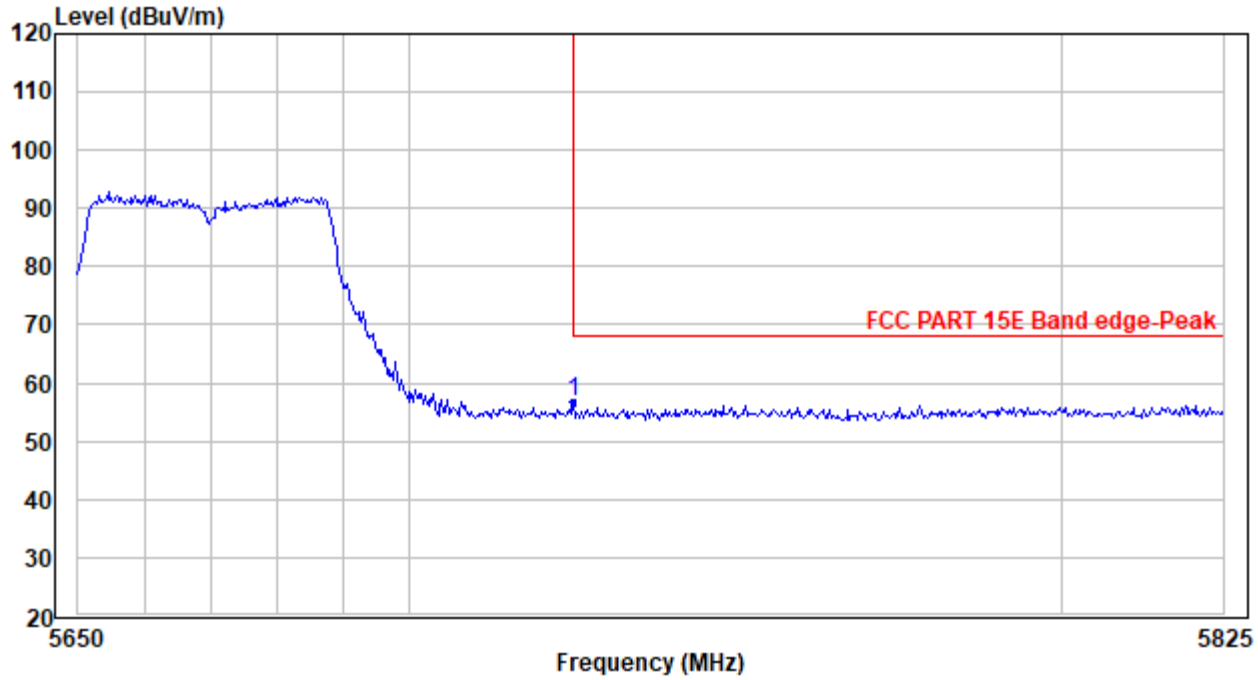
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	59.20	68.20	41.49	54.00	Pass
5470.000	60.88	68.20	42.01	68.20	Pass

Test Channel:	Channel 134	Ant. Polar. :	Horizontal



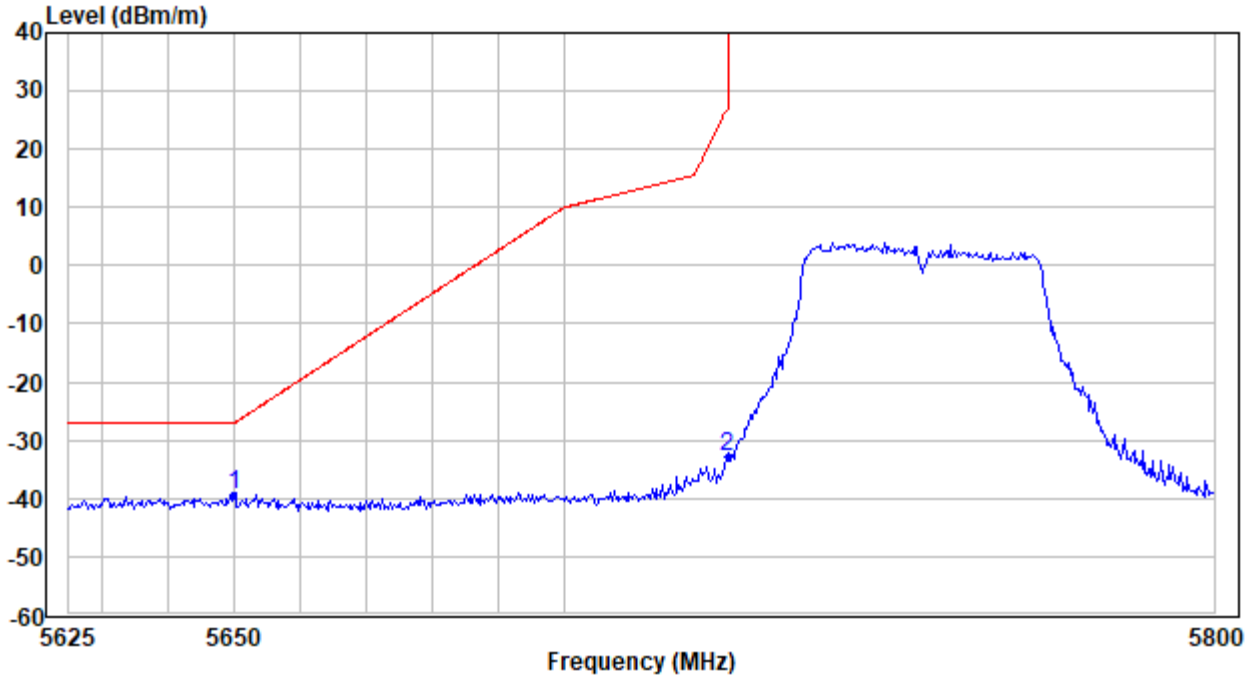
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	57.29	68.20	Pass

Test Channel:	Channel 134	Ant. Polar. :	Vertical



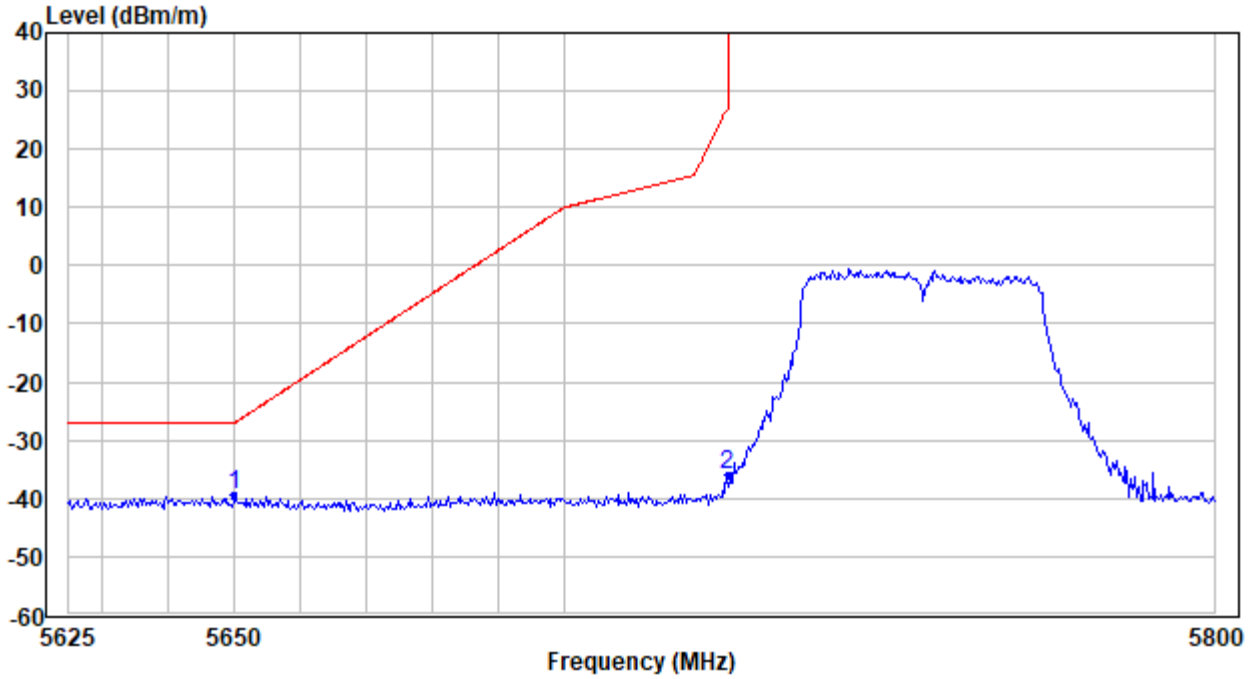
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	56.86	68.20	Pass

Test Channel:	Channel 151	Ant. Polar. :	Horizontal



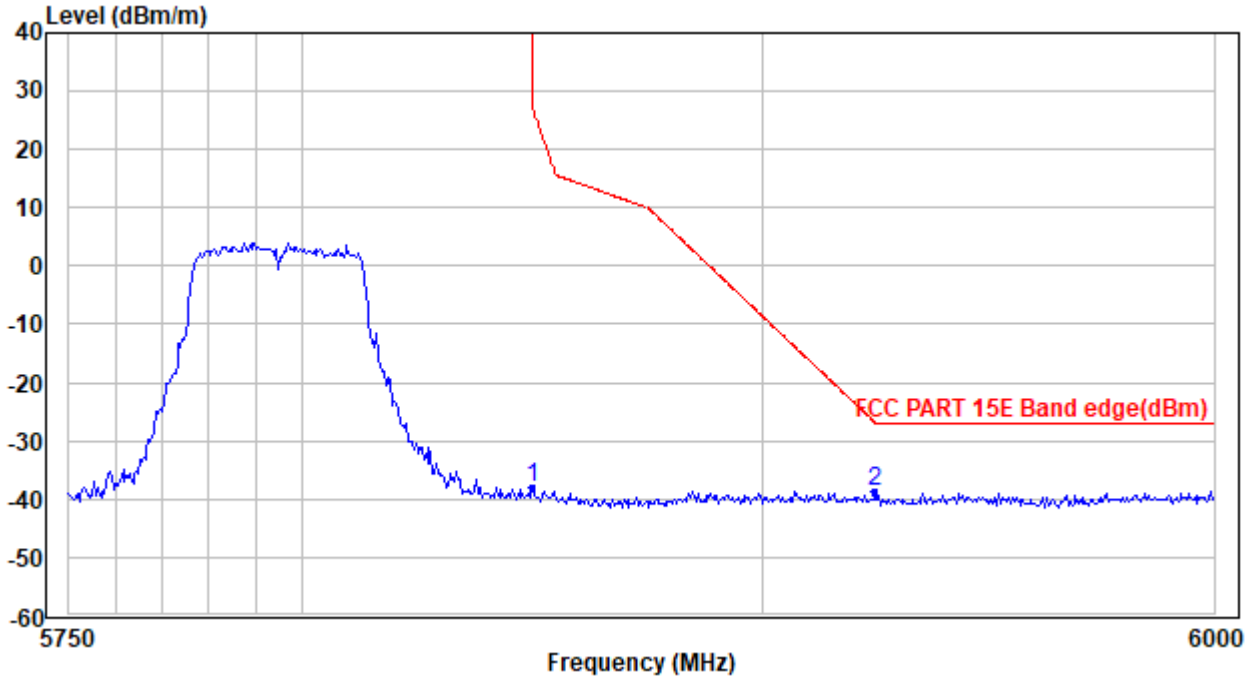
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-39.35	-27.00	Pass
5725.000	-32.70	27.00	Pass

Test Channel:	Channel 151	Ant. Polar. :	Vertical



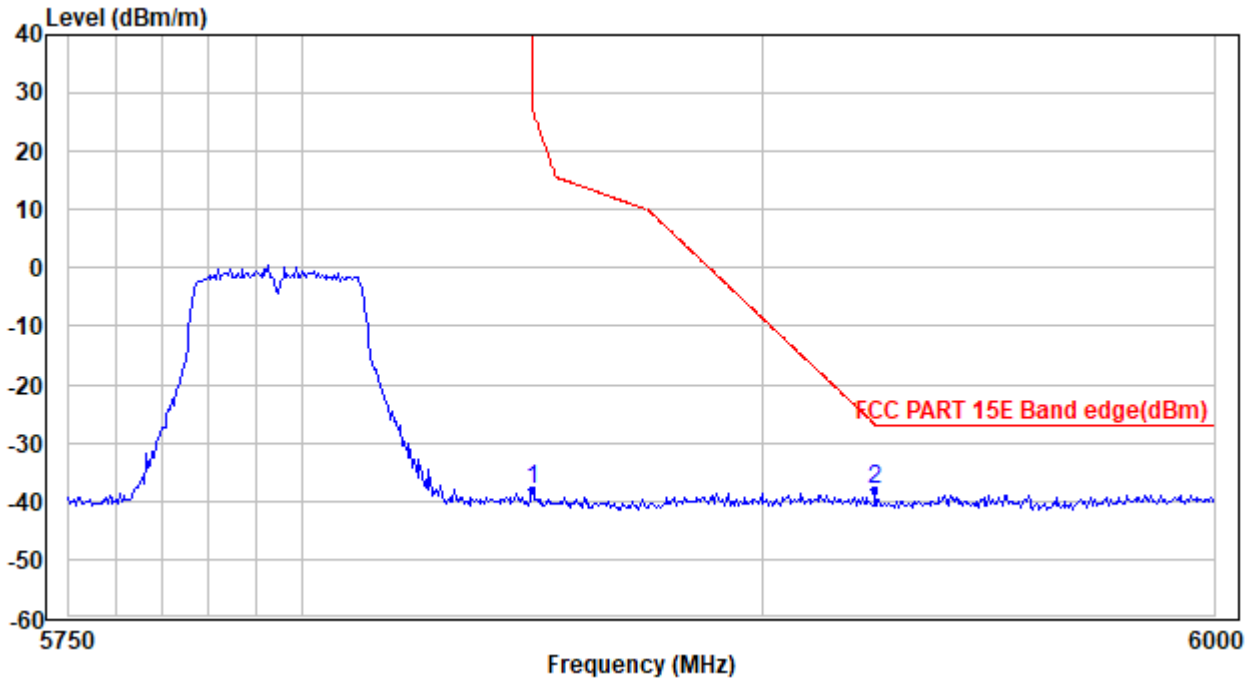
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-39.30	-27.00	Pass
5725.000	-36.10	27.00	Pass

Test Channel:	Channel 159	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-38.00	27.00	Pass
5925.000	-38.68	-27.00	Pass

Test Channel:	Channel 159	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-38.86	27.00	Pass
5925.000	-38.15	-27.00	Pass

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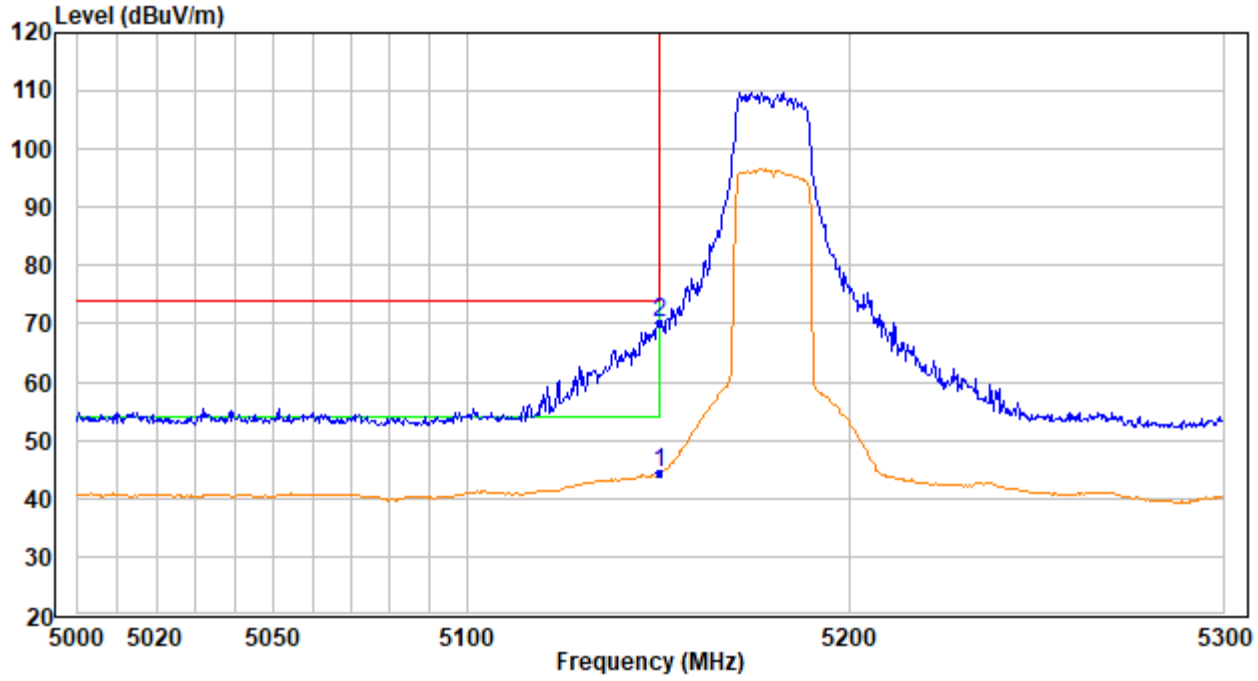
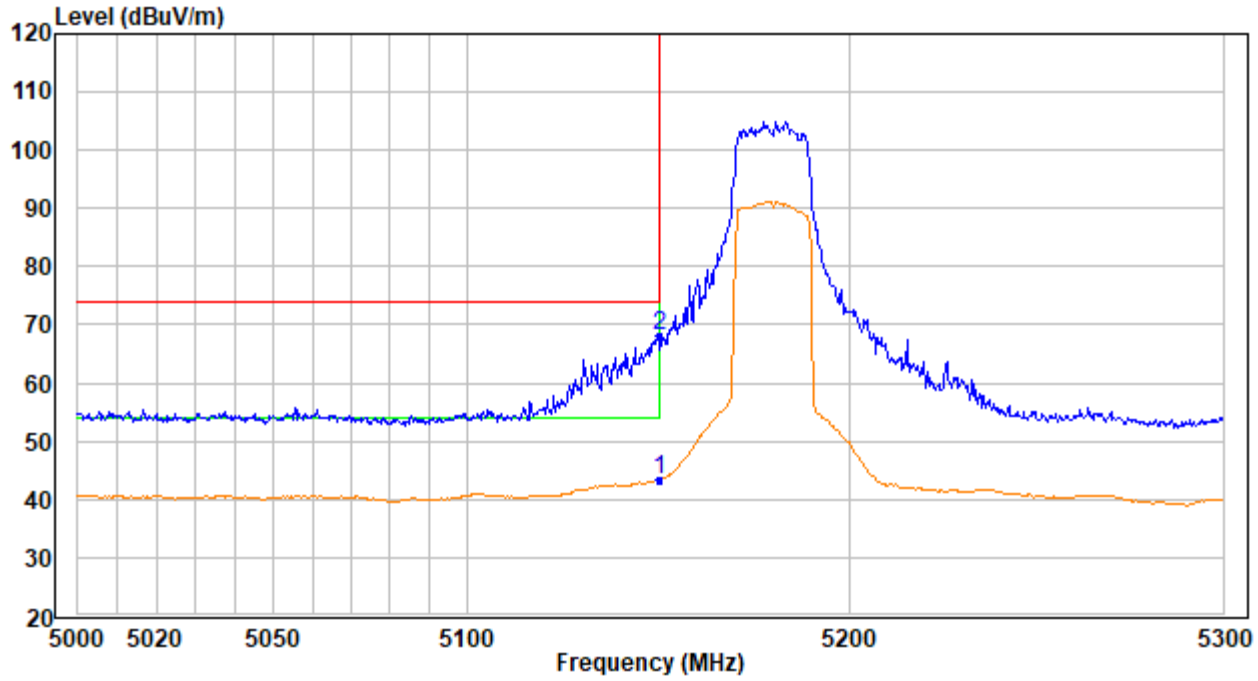
Test Channel:	Channel 36	Ant. Polar. :	Horizontal



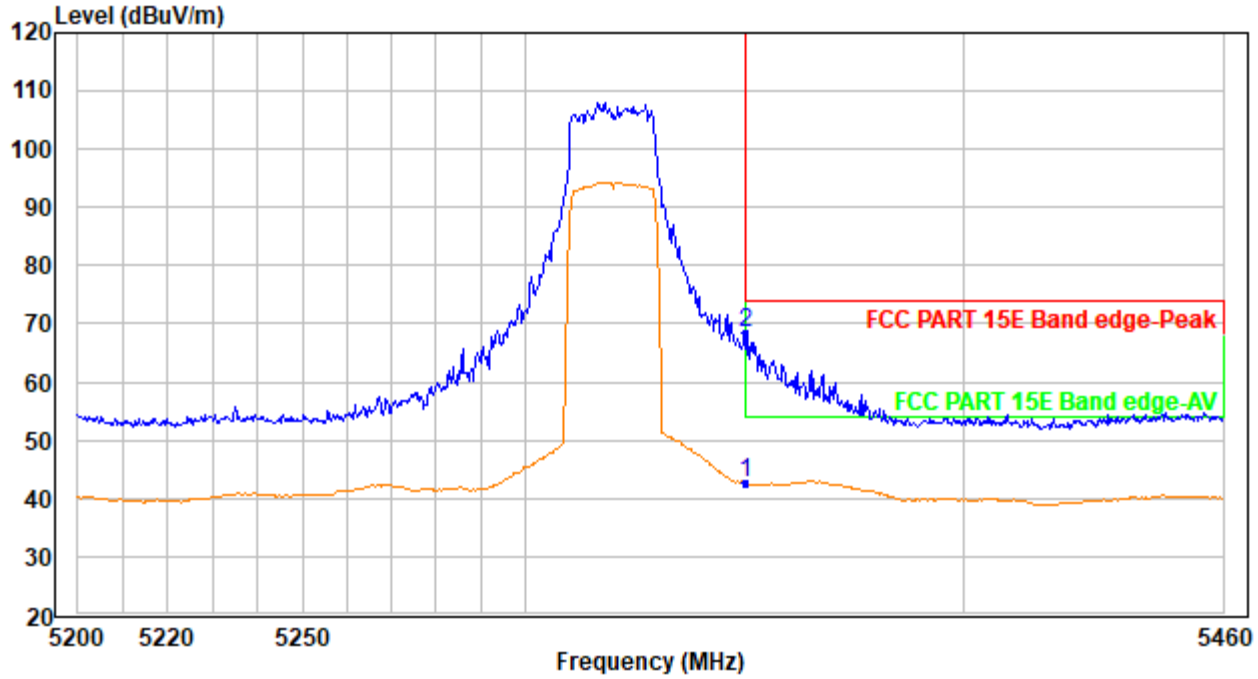
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	70.03	74.00	44.36	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



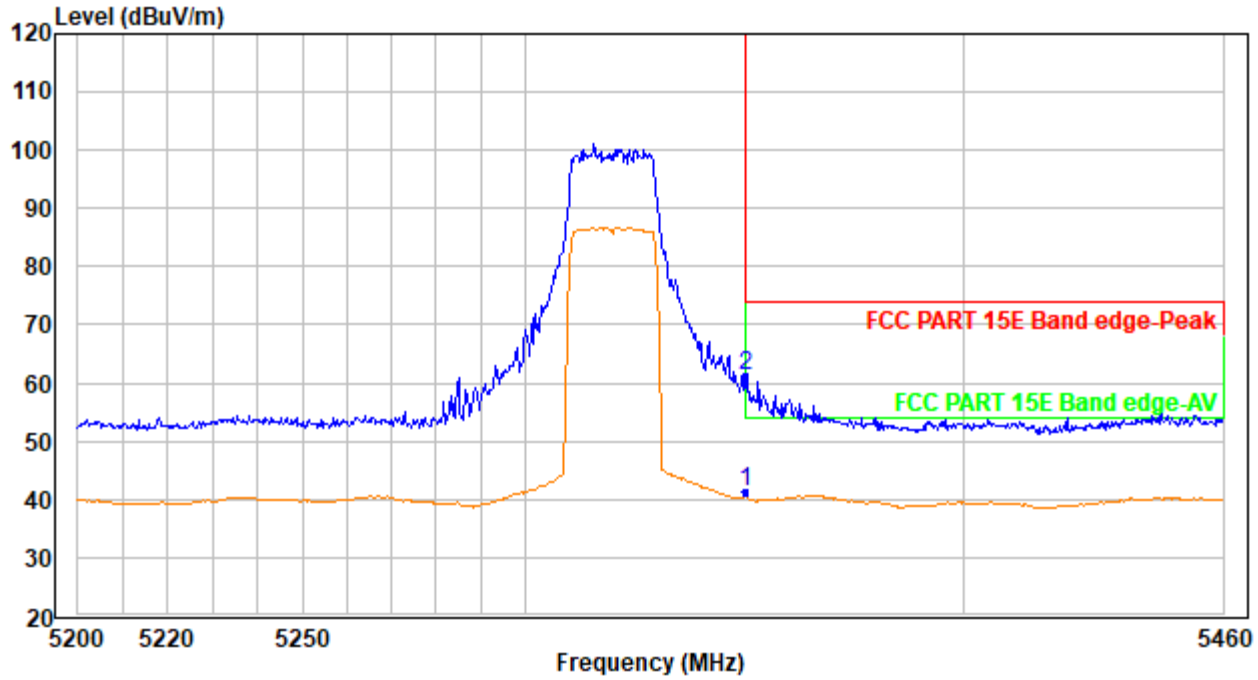
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	68.28	74.00	43.44	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



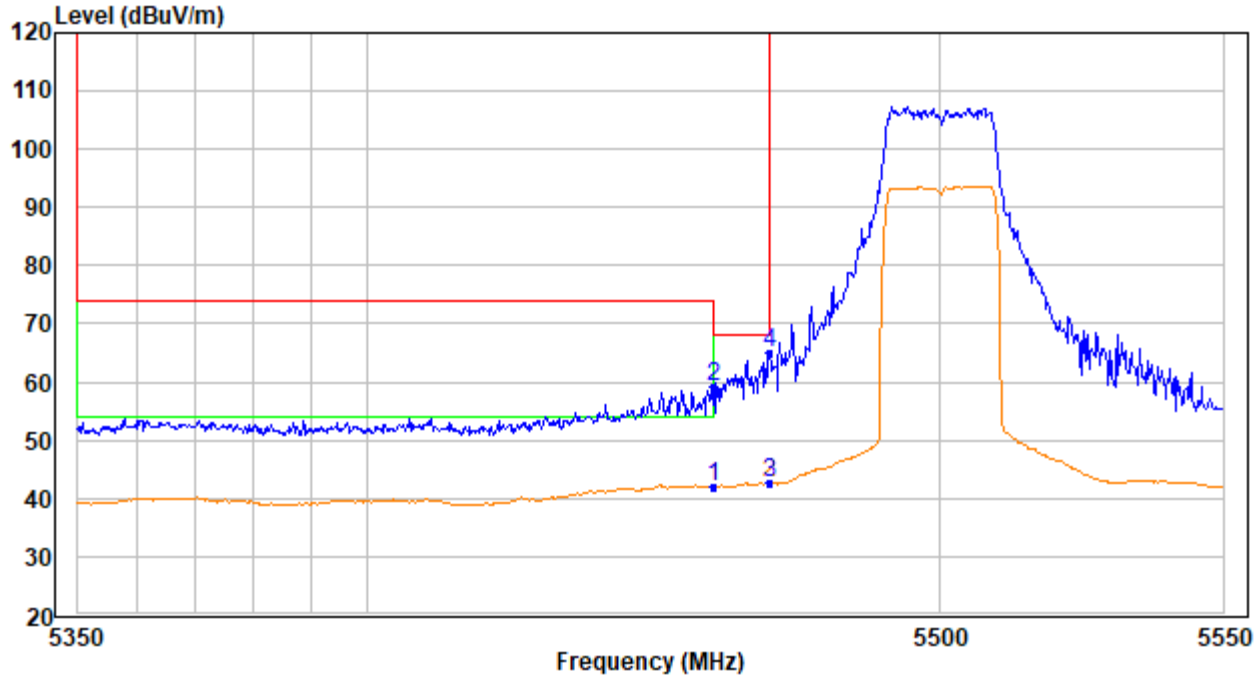
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	68.44	74.00	42.68	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



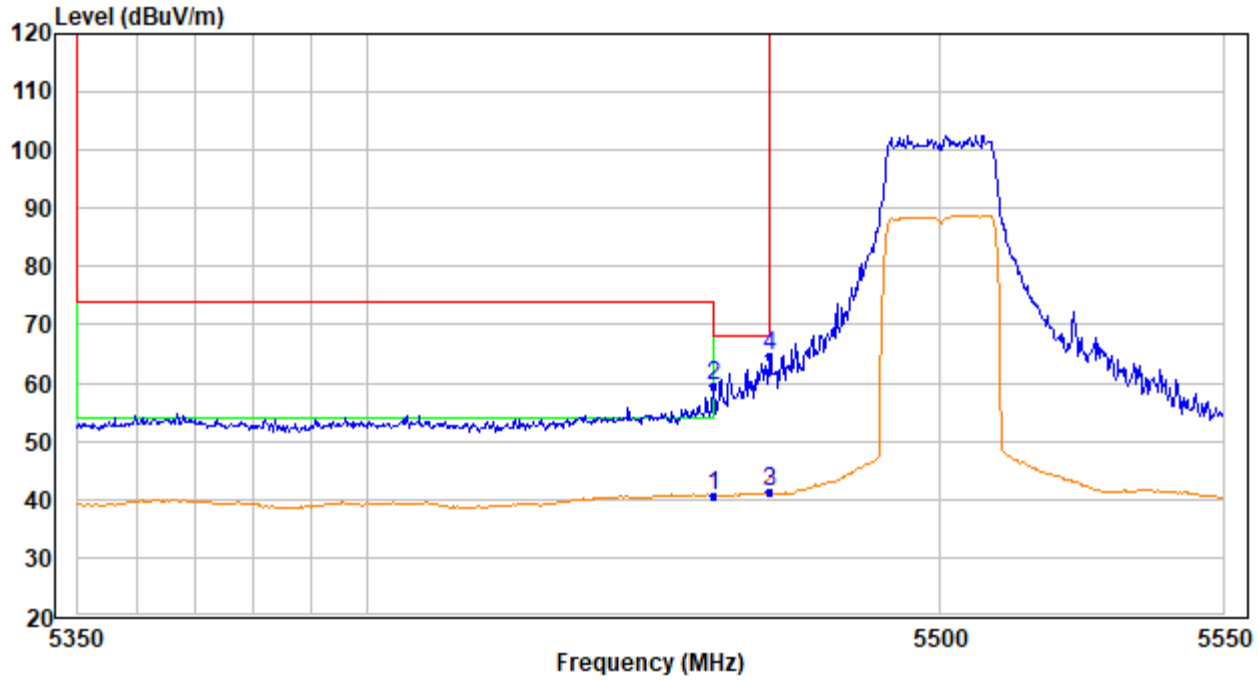
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	61.16	74.00	41.19	54.00	Pass

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



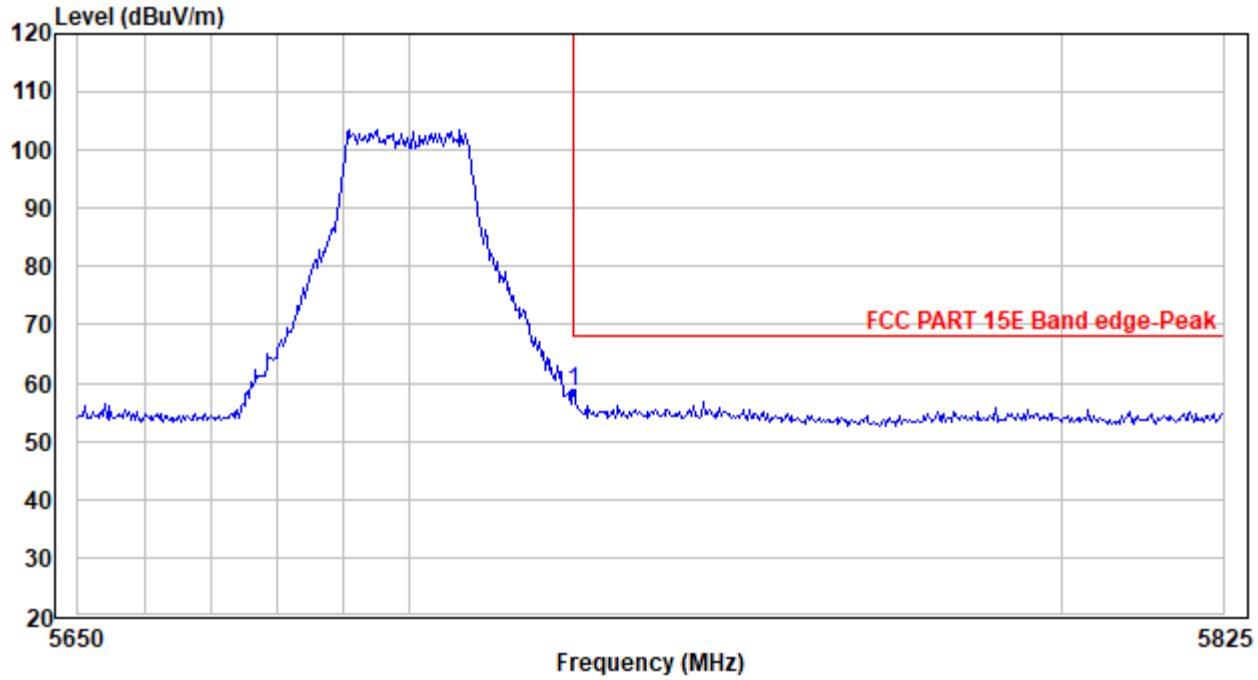
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	59.32	68.20	41.91	54.00	Pass
5470.000	65.00	68.20	42.55	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



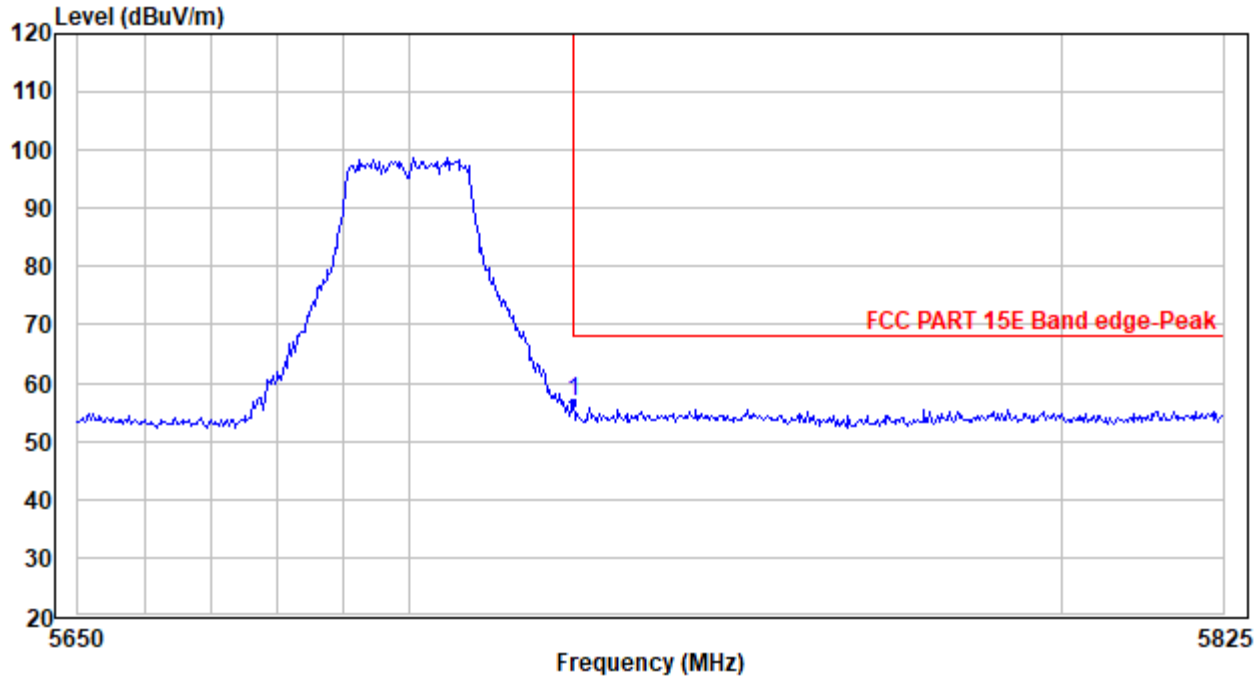
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	59.40	68.20	40.62	54.00	Pass
5470.000	64.55	68.20	41.14	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Horizontal



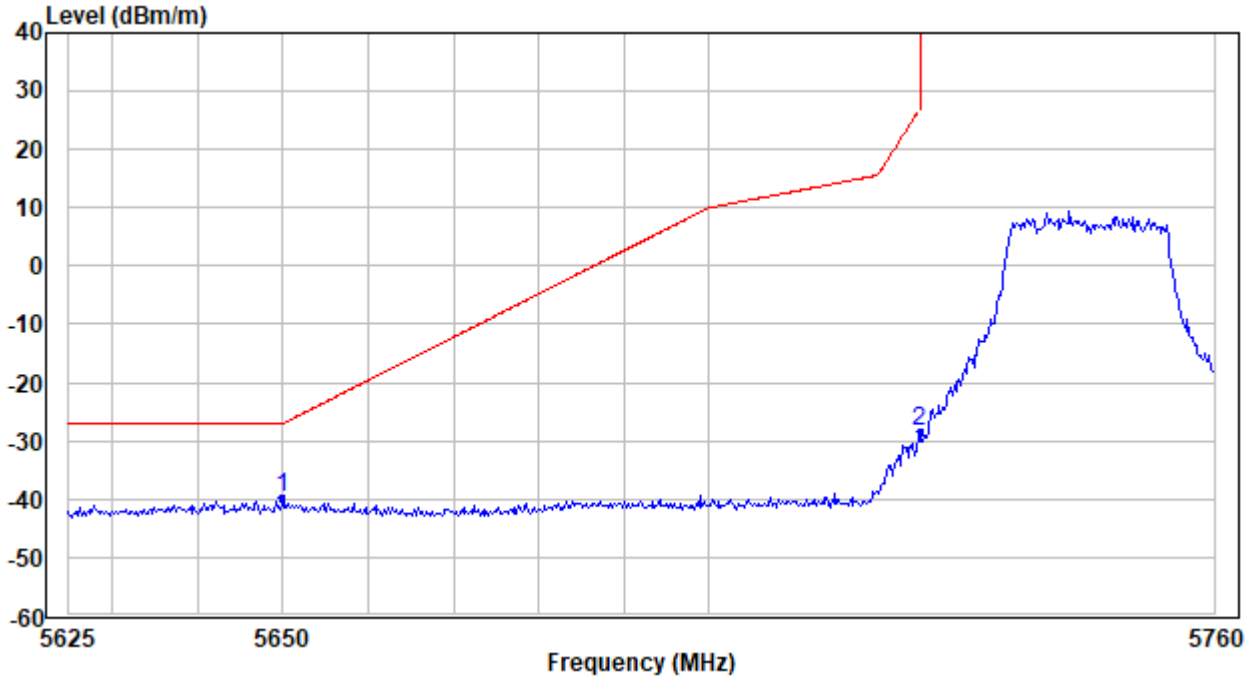
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	58.50	68.20	Pass

Test Channel:	Channel 140	Ant. Polar. :	Vertical



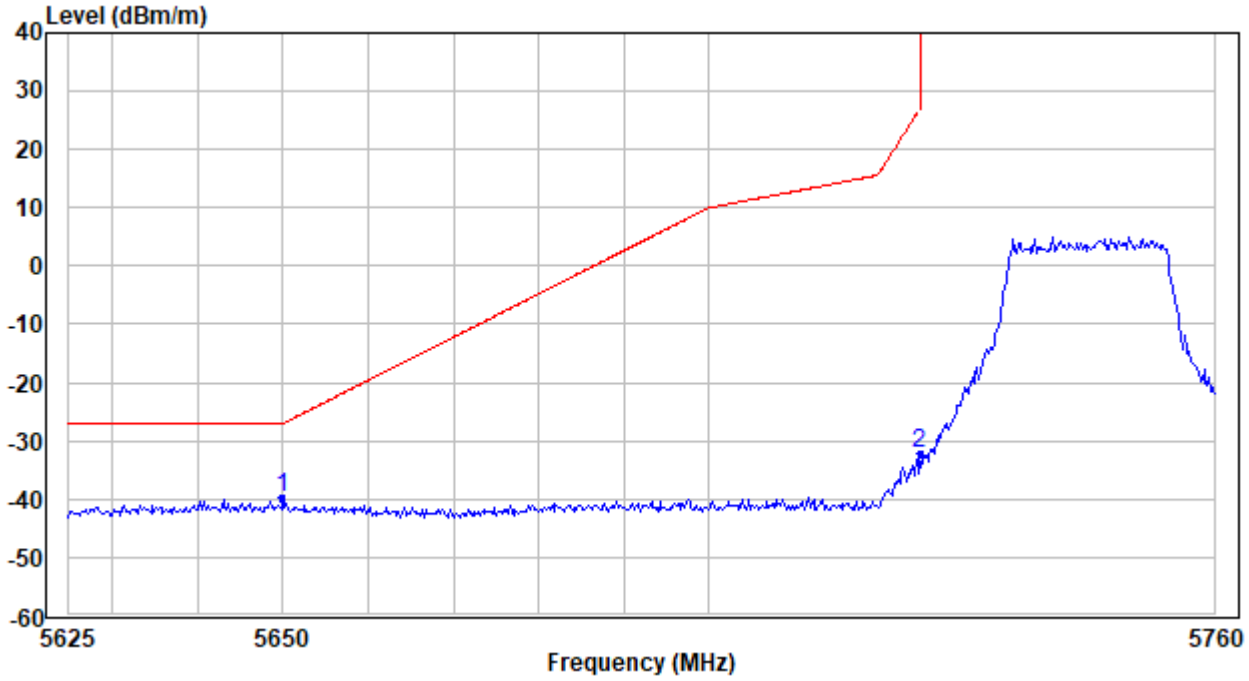
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	56.67	68.20	Pass

Test Channel:	Channel 149	Ant. Polar. :	Horizontal



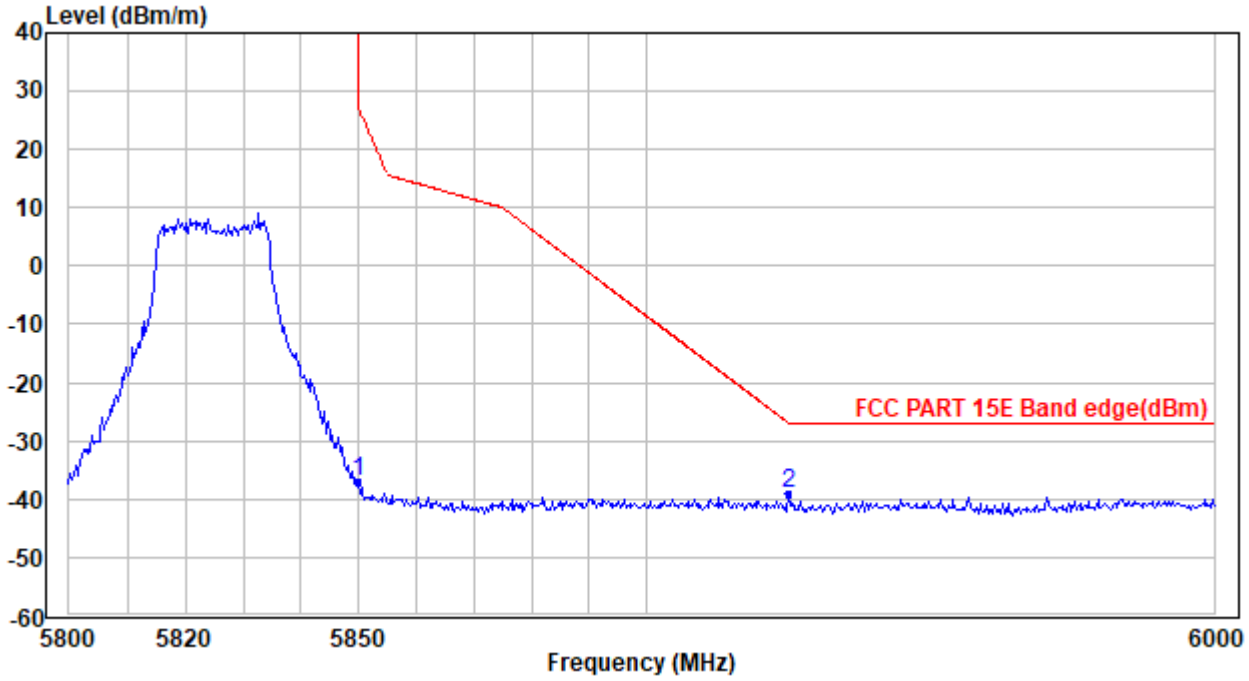
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-39.68	-27.00	Pass
5725.000	-28.28	27.00	Pass

Test Channel:	Channel 149	Ant. Polar. :	Vertical



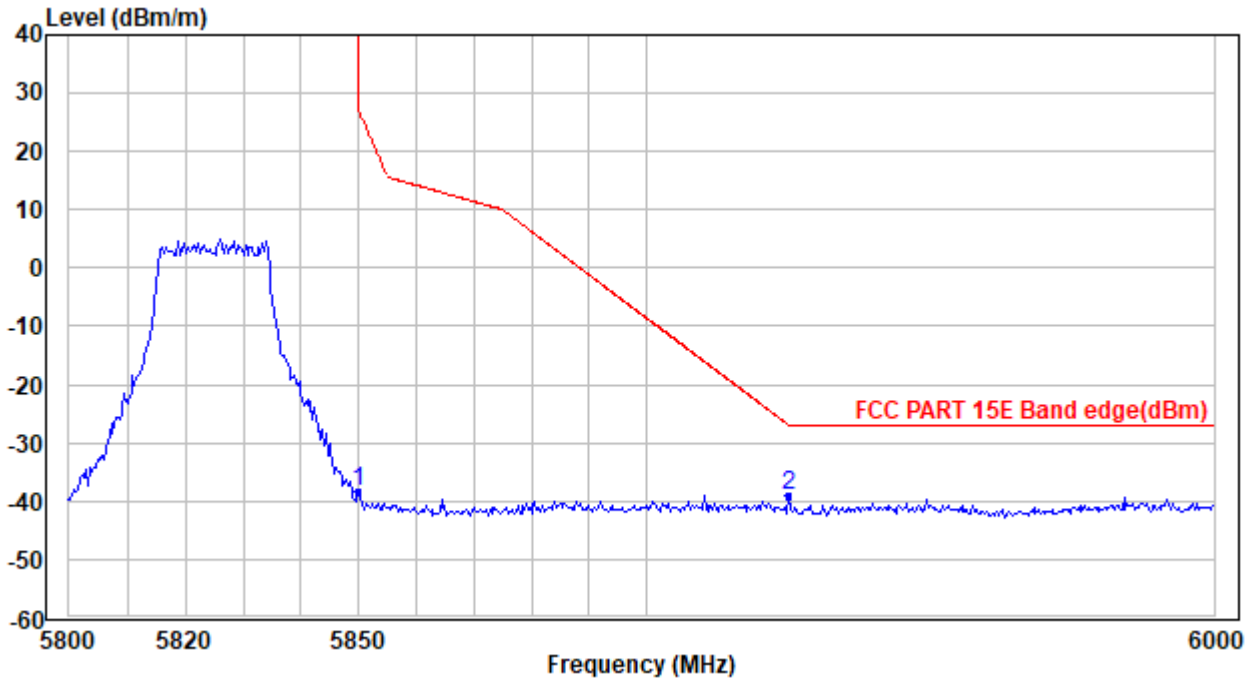
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-39.66	-27.00	Pass
5725.000	-32.28	27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-37.06	27.00	Pass
5925.000	-39.20	-27.00	Pass

Test Channel:	Channel 165	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-38.36	27.00	Pass
5925.000	-38.90	-27.00	Pass

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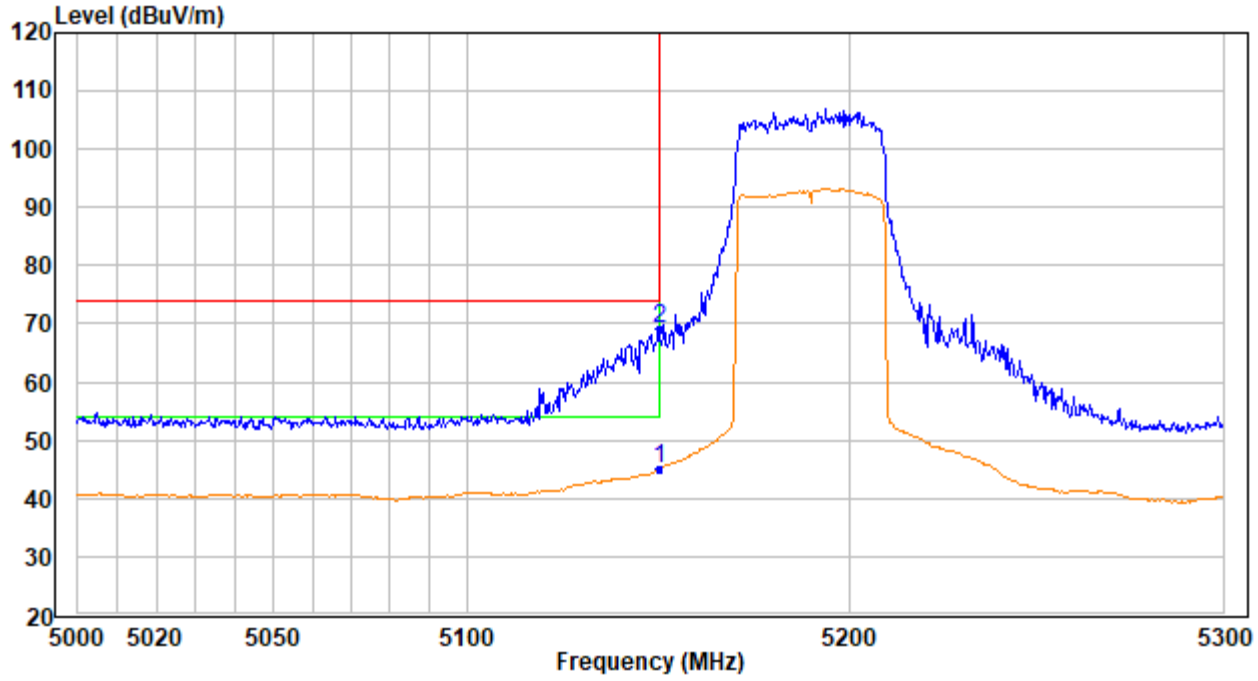
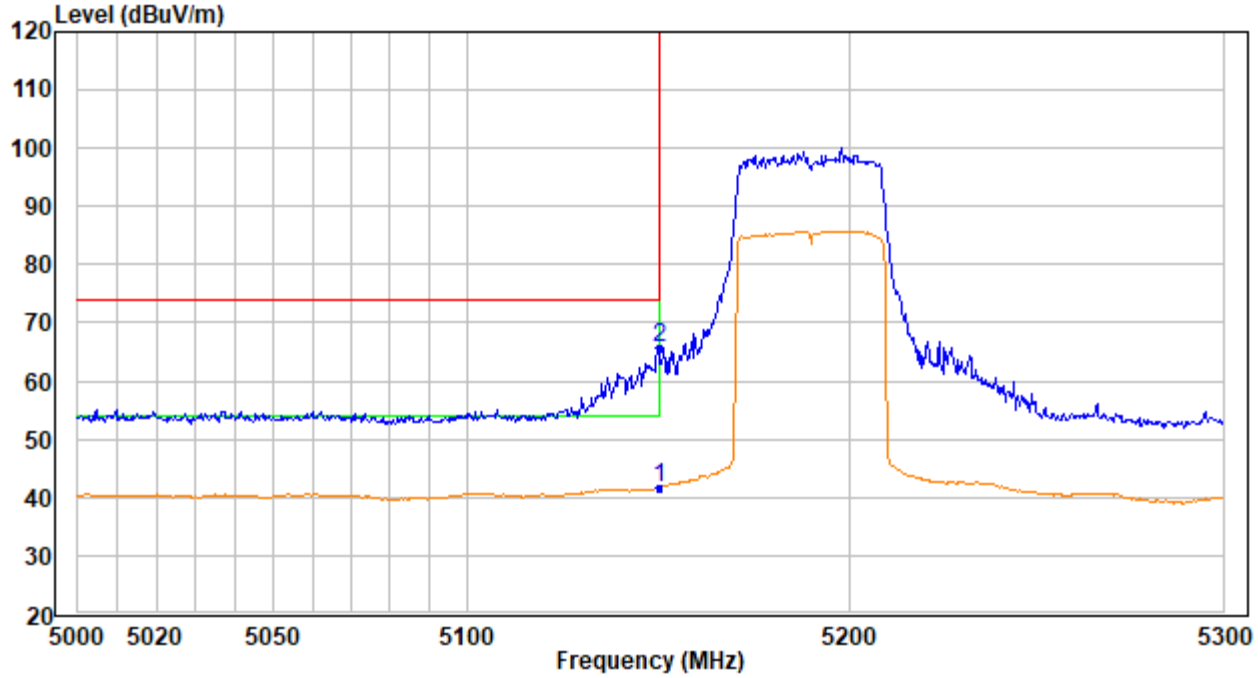
Test Channel:	Channel 38	Ant. Polar. :	Horizontal



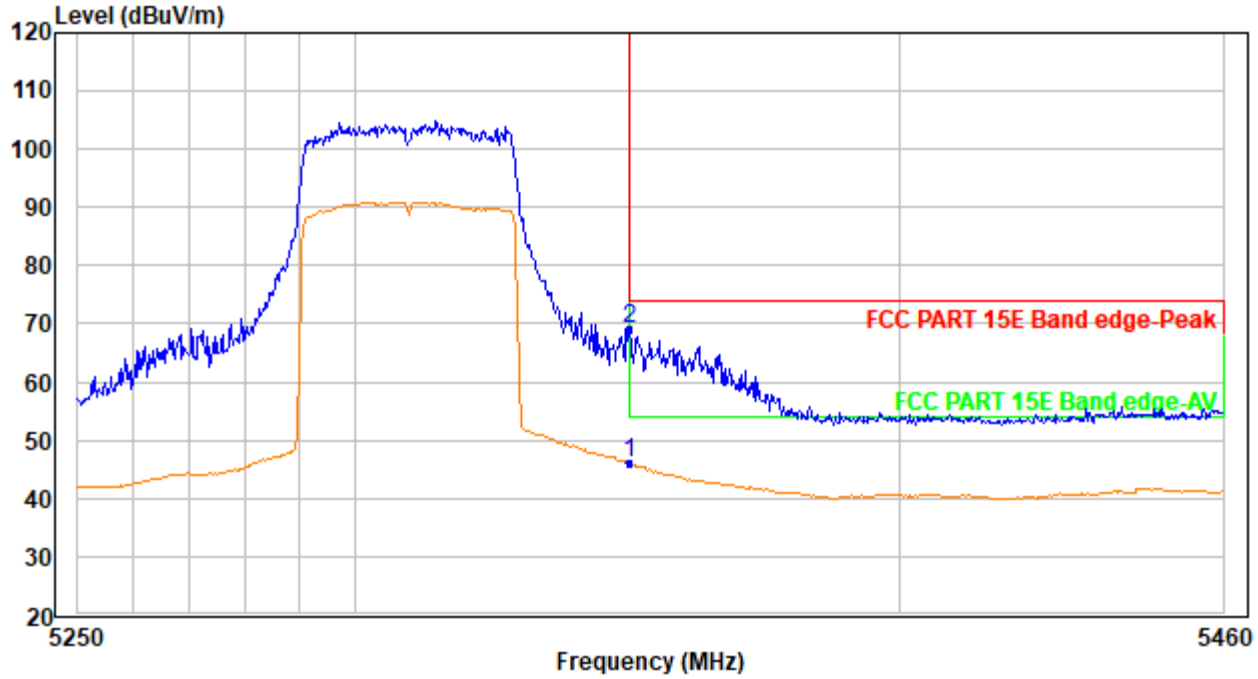
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	69.30	74.00	45.04	54.00	Pass

Test Channel:	Channel 38	Ant. Polar. :	Vertical



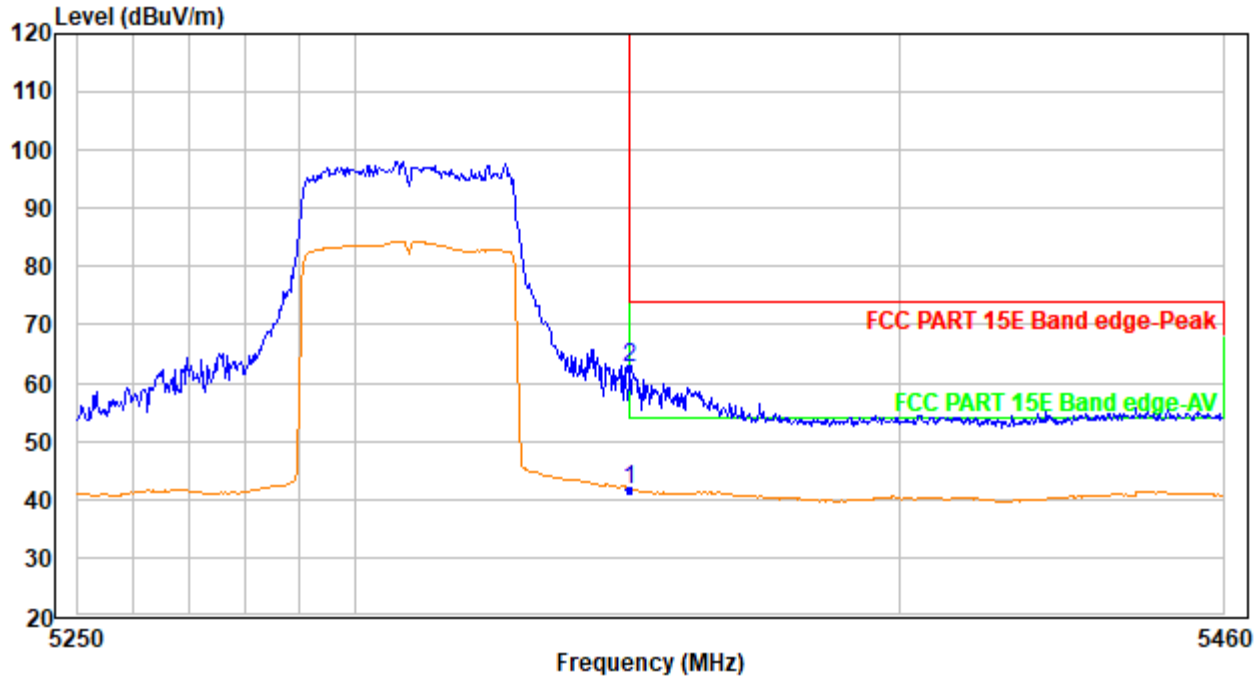
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5150.000	65.67	74.00	41.78	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Horizontal



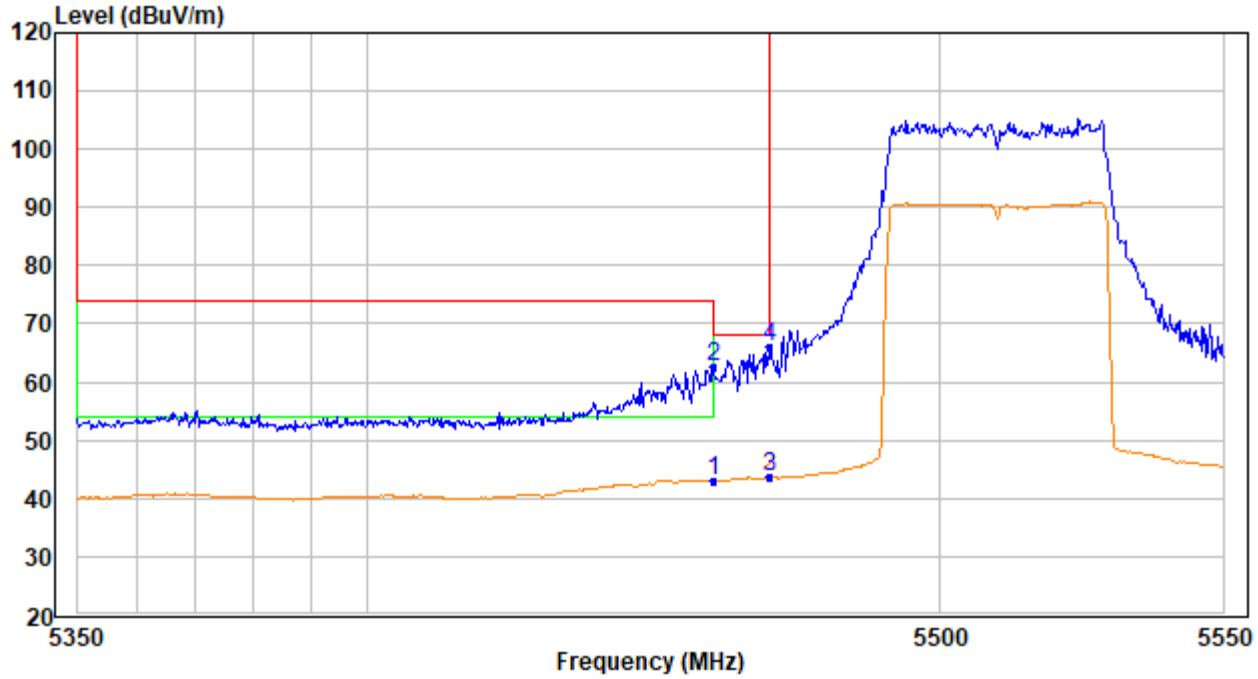
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	69.13	74.00	45.98	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Vertical



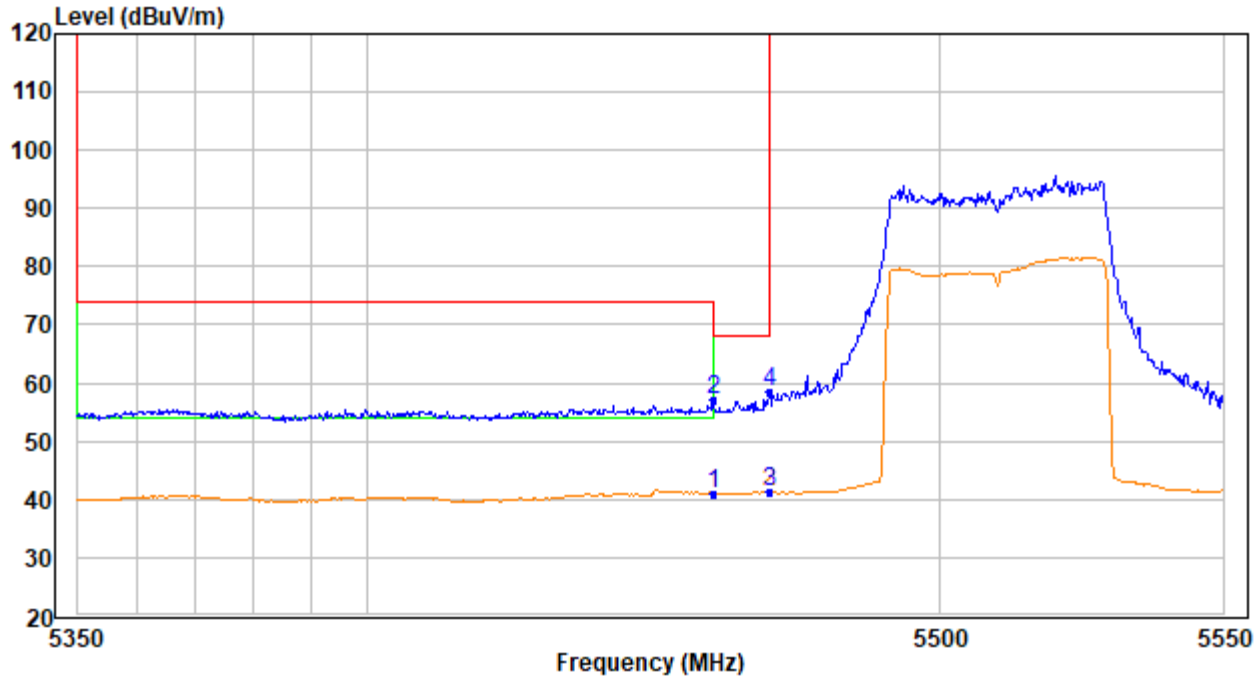
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5350.000	62.46	74.00	41.67	54.00	Pass

Test Channel:	Channel 102	Ant. Polar. :	Horizontal



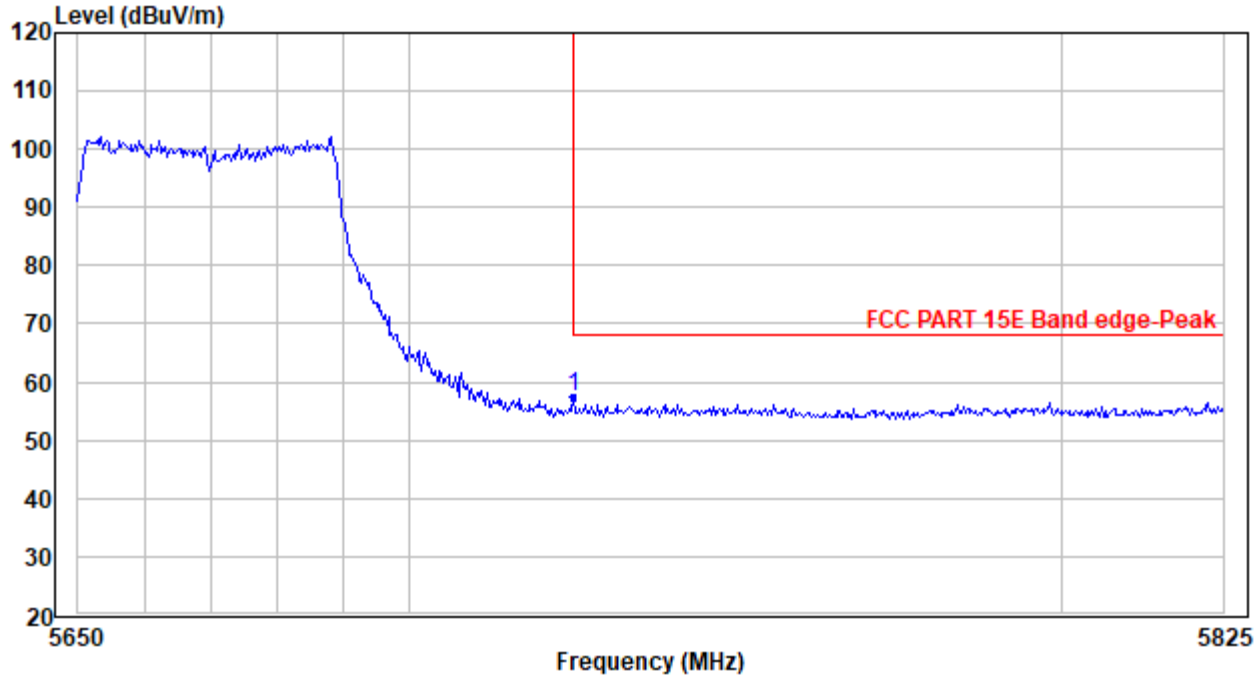
Frequency (MHz)	Peak level (dBμV/m)	Peak Limt (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	62.74	68.20	43.08	54.00	Pass
5470.000	65.95	68.20	43.67	68.20	Pass

Test Channel:	Channel 102	Ant. Polar. :	Vertical



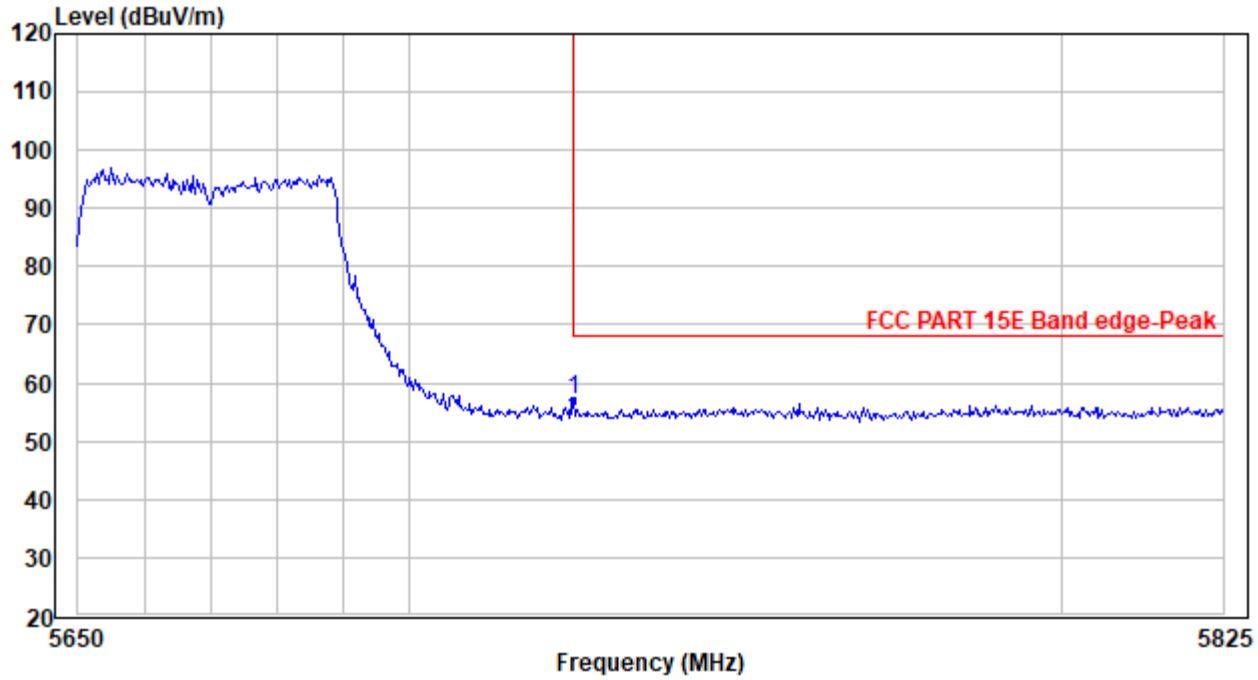
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	AV level (dBμV/m)	AV Limit (dBμV/m)	Conclusion
5460.000	57.15	68.20	41.01	54.00	Pass
5470.000	58.58	68.20	41.25	68.20	Pass

Test Channel:	Channel 134	Ant. Polar. :	Horizontal



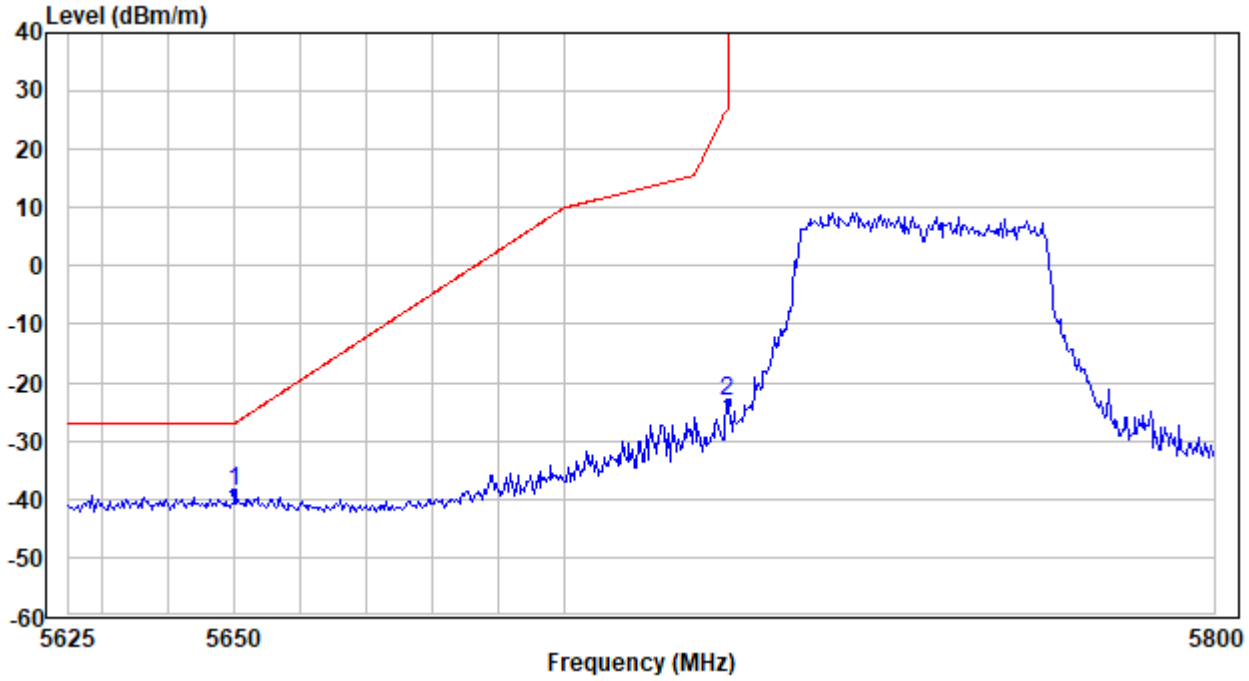
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	57.44	68.20	Pass

Test Channel:	Channel 134	Ant. Polar. :	Vertical



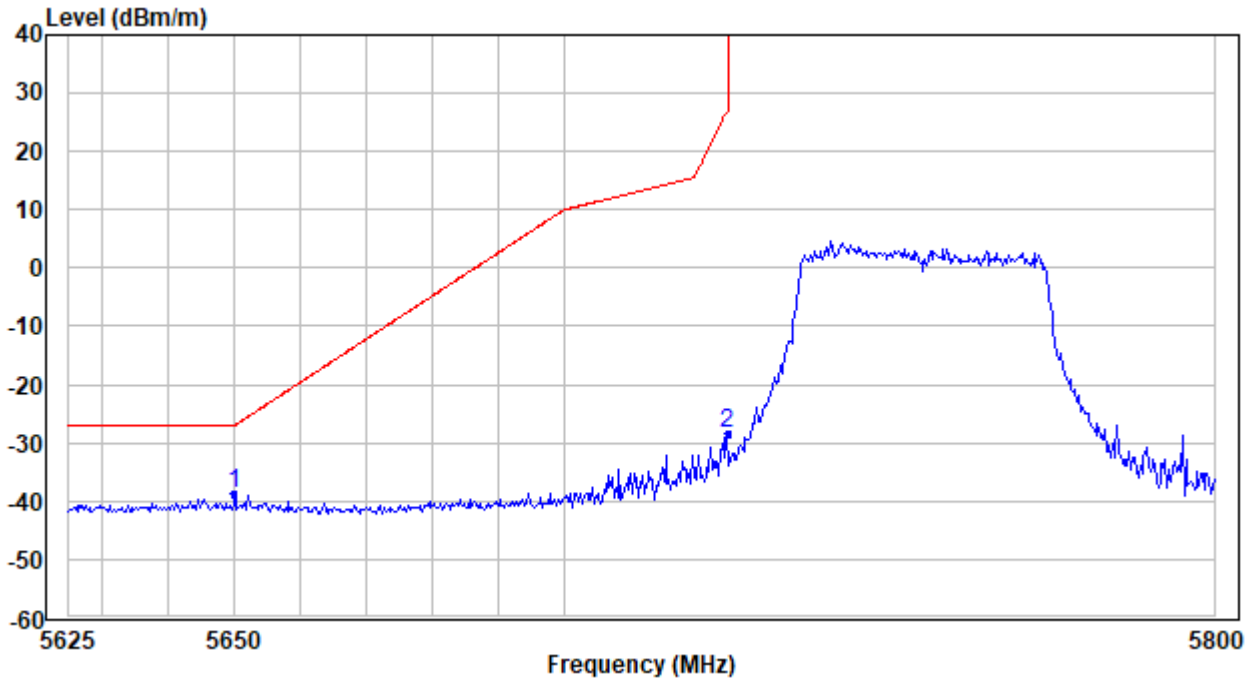
Frequency (MHz)	Peak level (dBμV/m)	Peak Limit (dBμV/m)	Conclusion
5725.000	57.13	68.20	Pass

Test Channel:	Channel 151	Ant. Polar. :	Horizontal



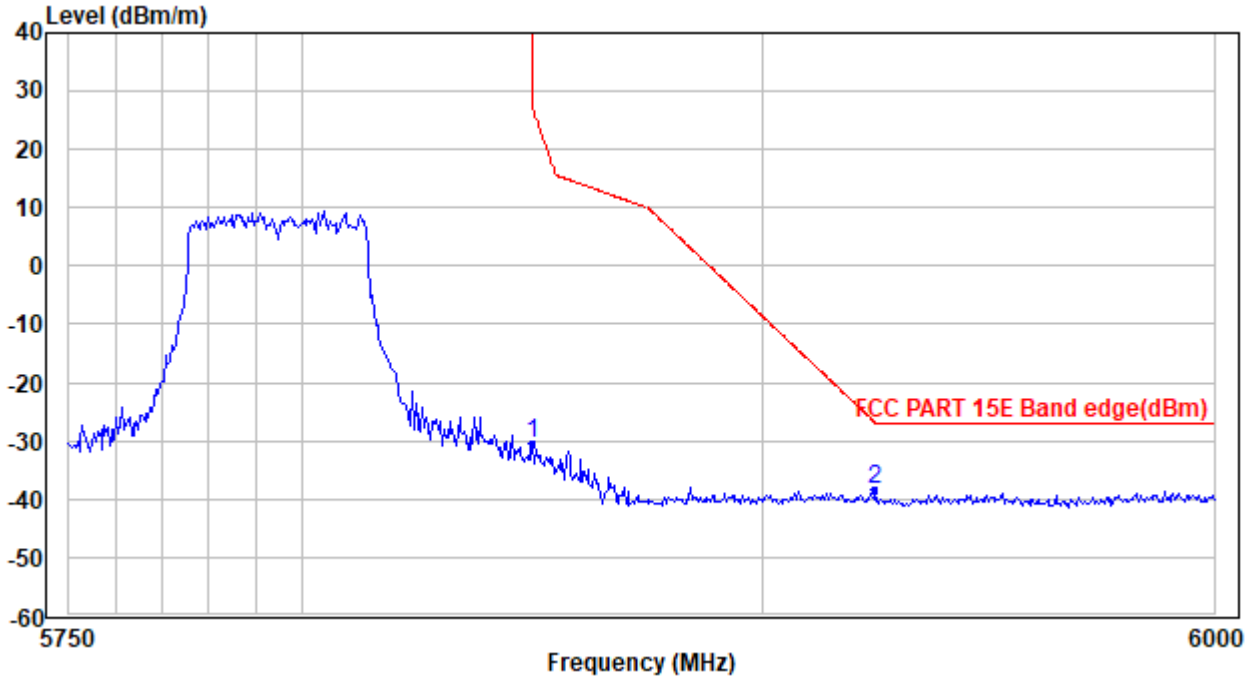
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-38.77	-27.00	Pass
5725.000	-23.09	27.00	Pass

Test Channel:	Channel 151	Ant. Polar. :	Vertical



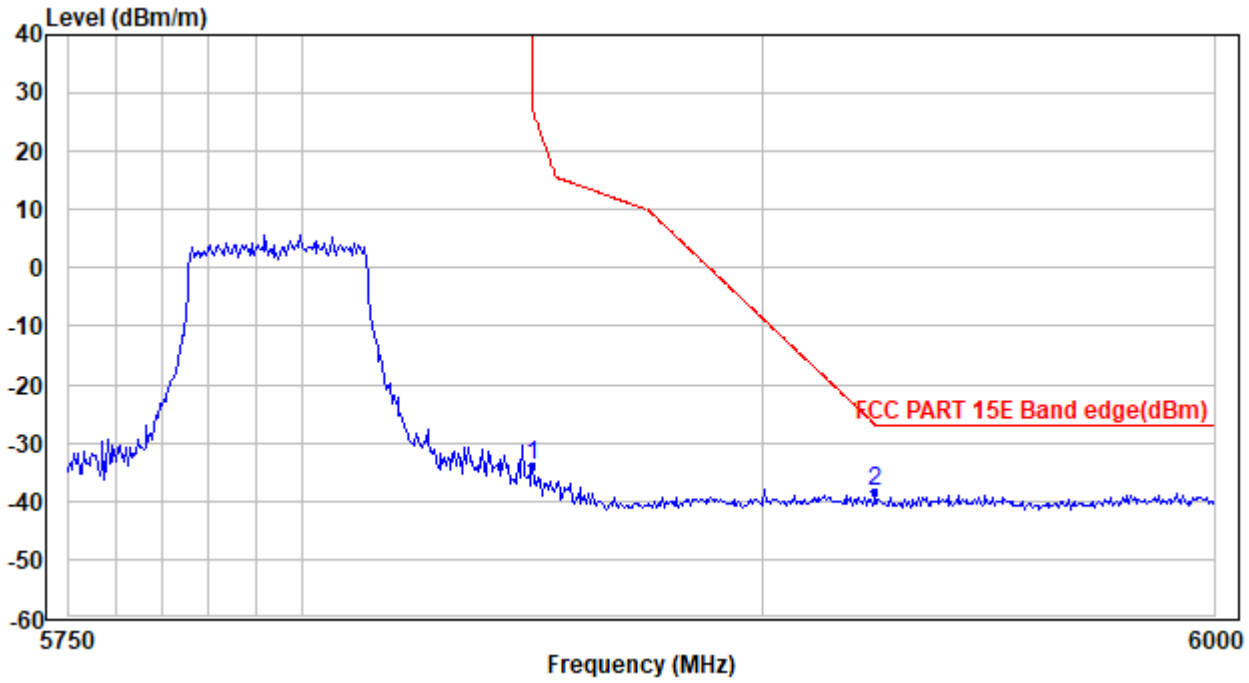
Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5650.000	-38.66	-27.00	Pass
5725.000	-28.50	27.00	Pass

Test Channel:	Channel 159	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-30.46	27.00	Pass
5925.000	-38.50	-27.00	Pass

Test Channel:	Channel 159	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBm)	Peak Limit (dBm)	Conclusion
5850.000	-33.85	27.00	Pass
5925.000	-38.48	-27.00	Pass

5.8 DYNAMIC FREQUENCY SELECTION

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (h)
RSS-247 Issue 3 Section 6.3

Test Method: KDB 905462 D03 Client Without DFS New Rules v01r02

EUT Operating Mode:

DFS Operational mode	Operating Frequency Range	
	5250 MHz to 5350 MHz	5470 MHz to 5725 MHz
Slave without radar Interference detection function	✓	✓

Applicability:

The following table from KDB905462 and the lists of the applicable requirements for the DFS testing.

Applicability of DFS Requirements Prior to Use of a Channel:

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	✓	Not required	Yes
DFS Detection Threshold	✓	Not required	Yes
Channel Availability Check Time	✓	Not required	Not required
U-NII Detection Bandwidth	✓	Not required	Yes

Applicability of DFS requirements during normal operation:

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required
Additional requirements for devices with multiple bandwidth modes	**Master Device or Client with Radar Detection**	**Client Without Radar Detection**
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection:

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

DFS Radar Signal Parameter Values:

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1.)
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2.)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3.)

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

DFS Radar Signal Parameter:

Radar Type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time

Table 1-Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1.	See Note 1.
1	1	Test A Test B	$\text{Roundup}\left\{\begin{matrix}\left(\frac{1}{360}\right)\\ \left(\frac{19\cdot 10^6}{\text{PRI}_{\mu sec}}\right)\end{matrix}\right\}$	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A
A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.
If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.
The aggregate is the average of the percentage of successful detections of short pulse radar types