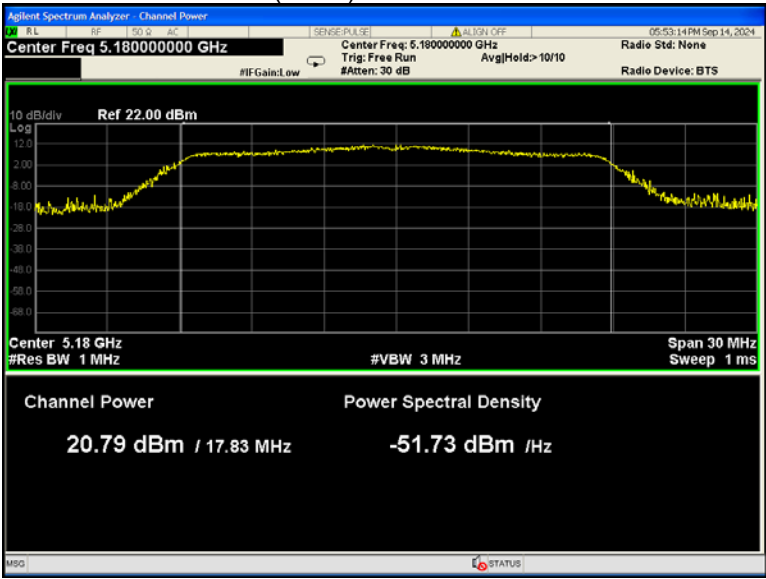
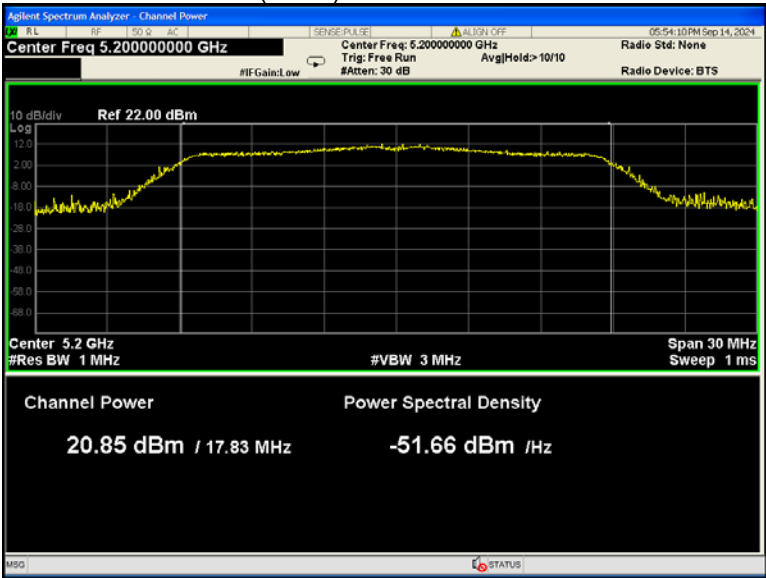


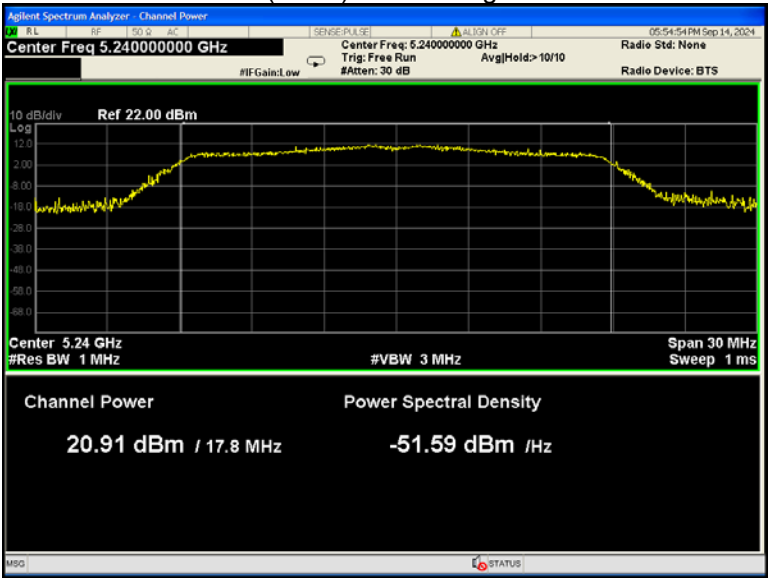
802.11ac(HT20) U-NII-1 Low channel



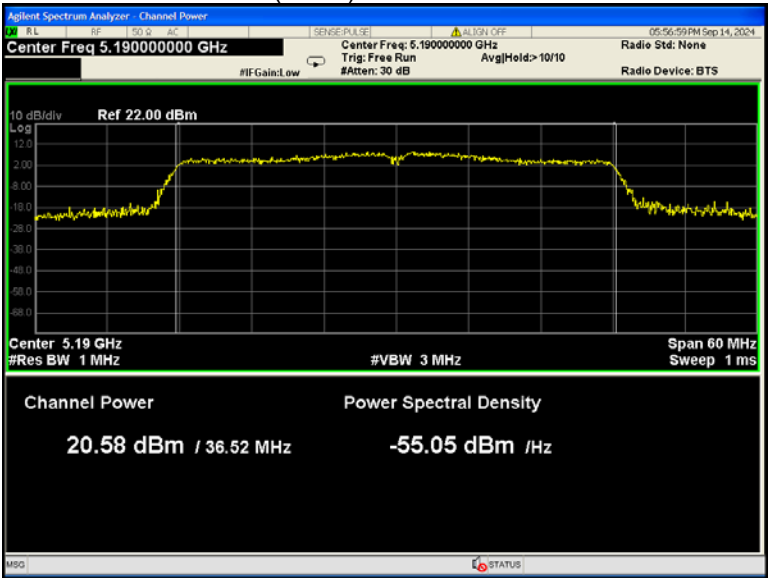
802.11ac(HT20) U-NII-1 Middle channel



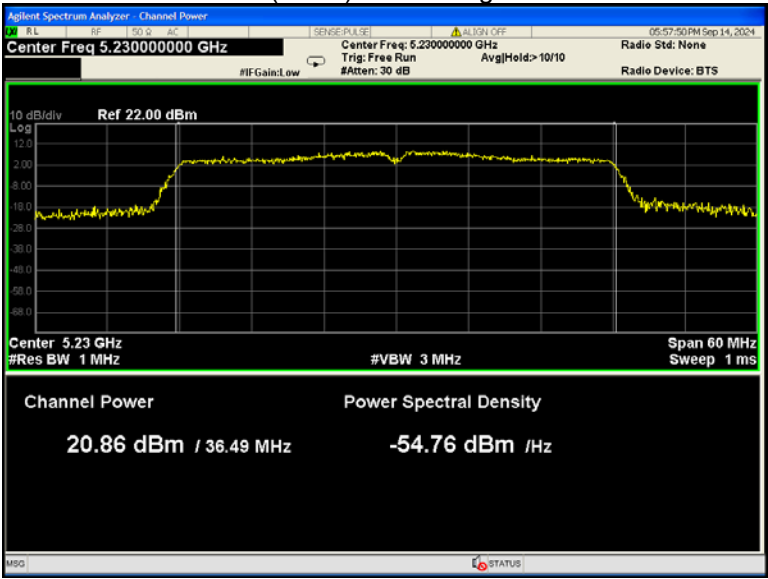
802.11ac(HT20) U-NII-1 High channel



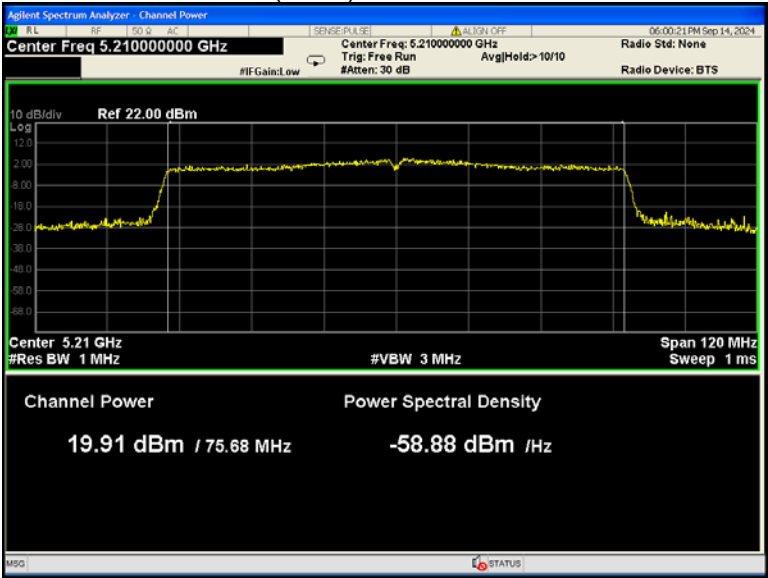
802.11ac(HT40) U-NII-1 Low channel



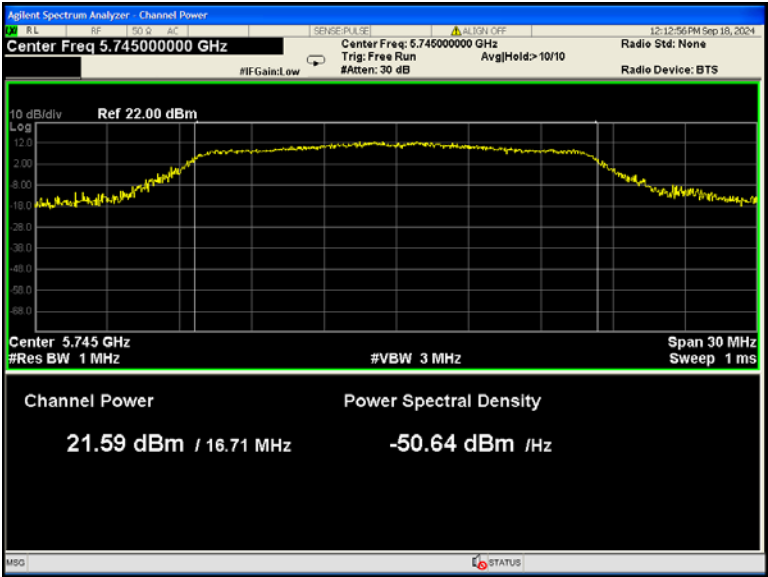
802.11ac(HT40) U-NII-1 High channel



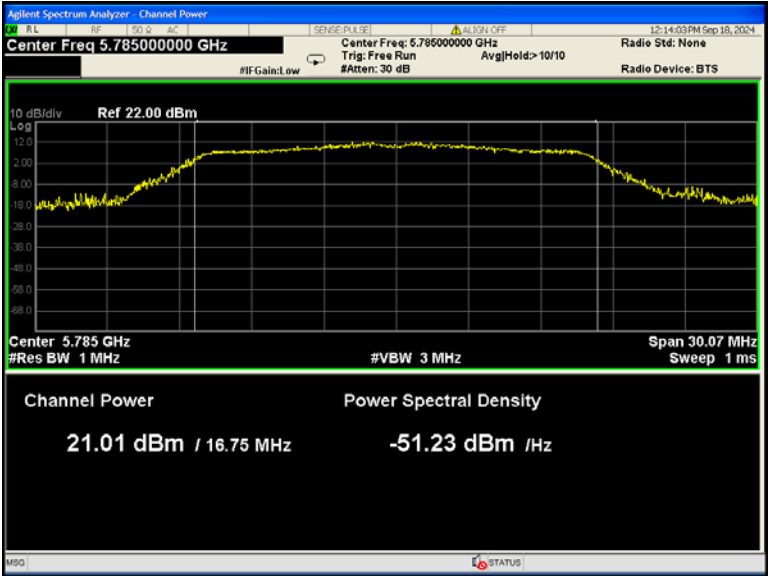
802.11ac(HT80) U-NII-1 Low channel



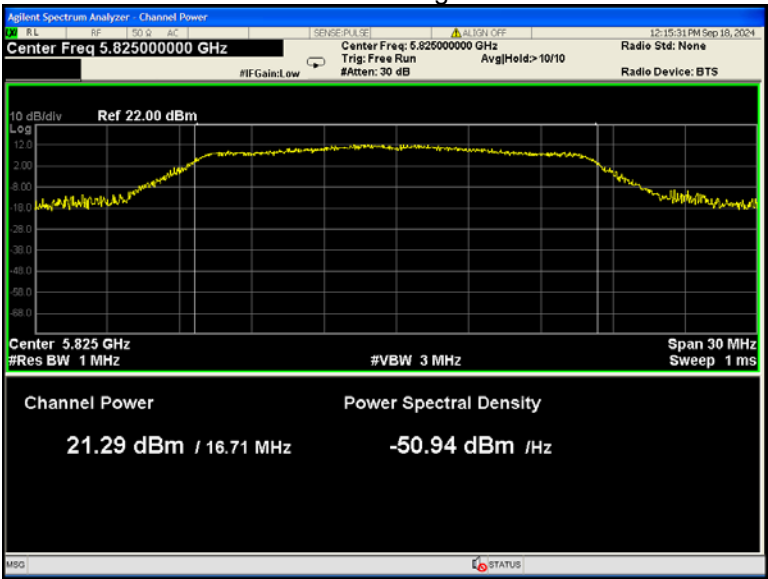
802.11a U-NII-3 Low channel



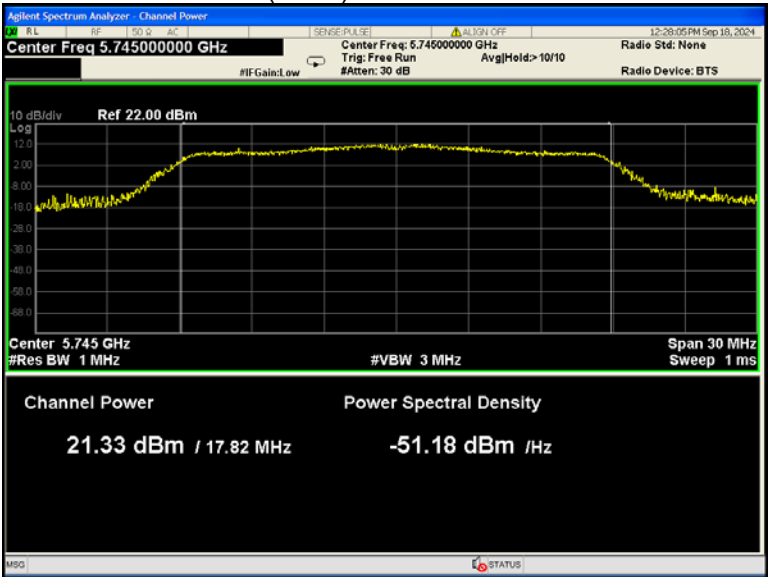
802.11a U-NII-3 Middle channel



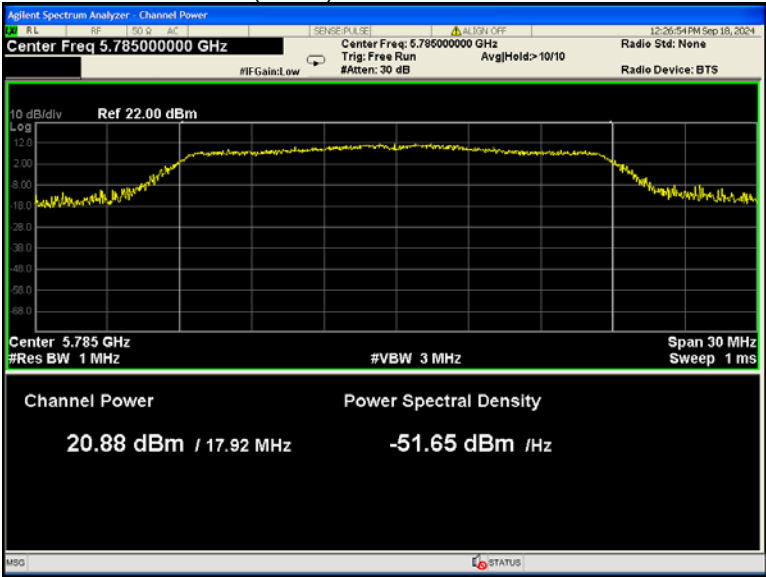
802.11a U-NII-3 High channel



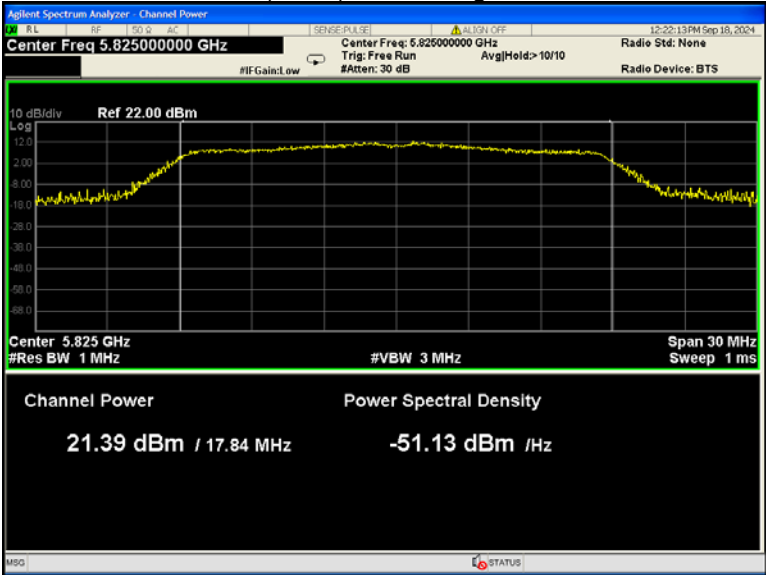
802.11n(HT20) U-NII-3 Low channel



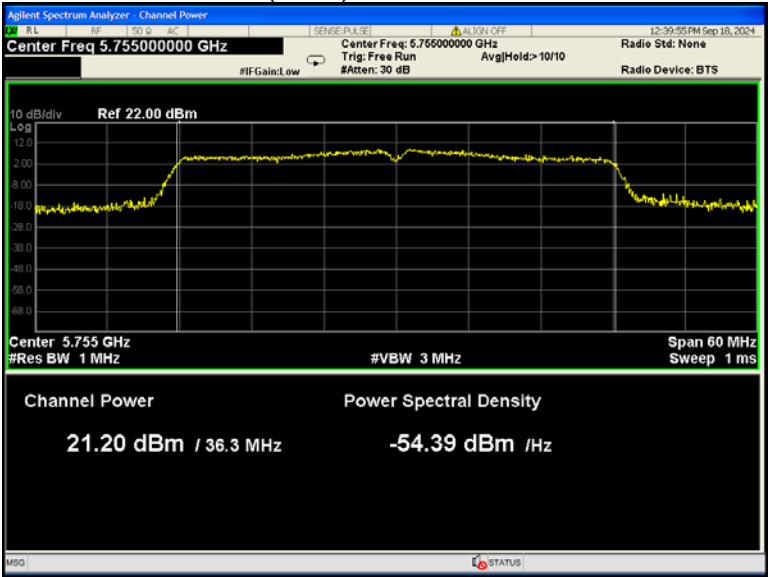
802.11n(HT20) U-NII-3 Middle channel



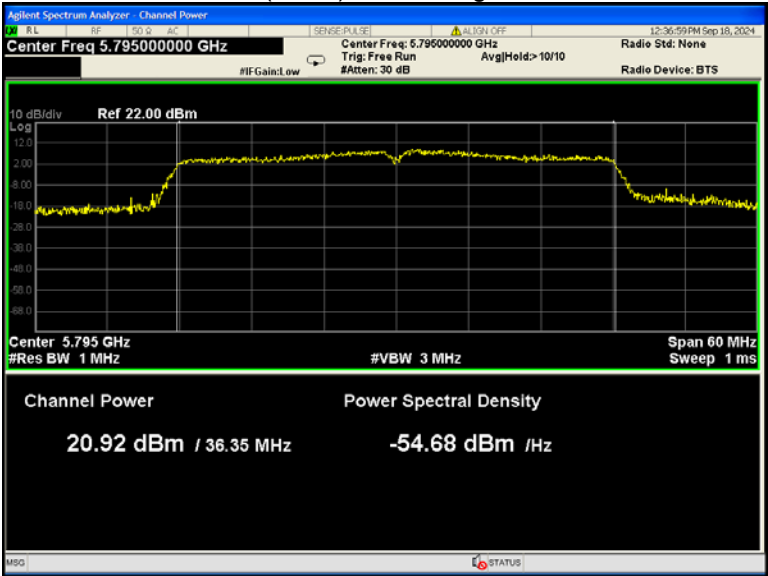
802.11n(HT20) U-NII-3 High channel



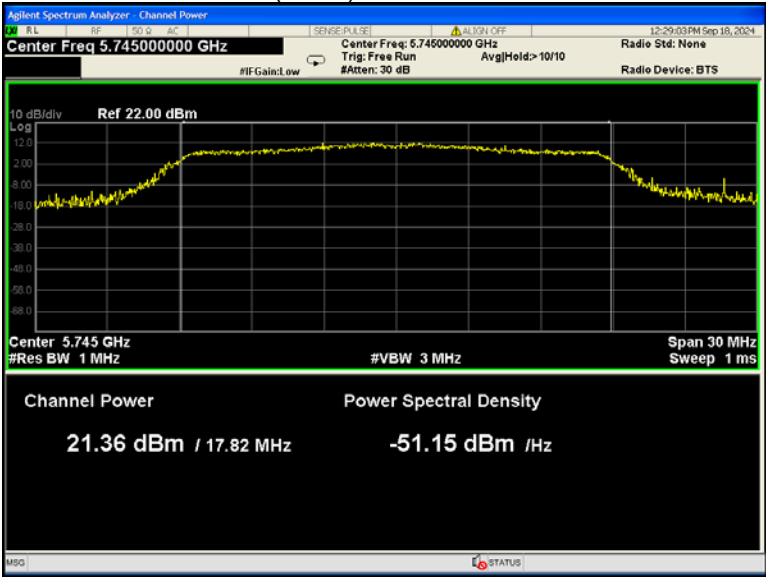
802.11n(HT40) U-NII-3 Low channel



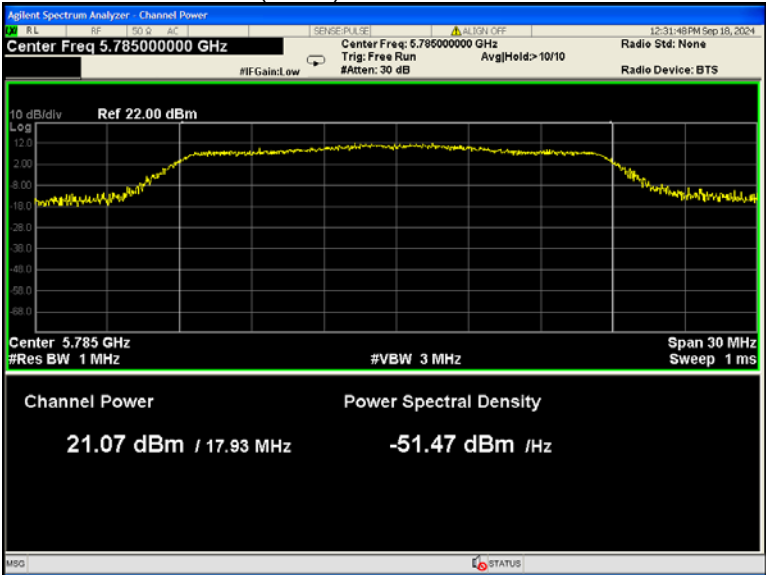
802.11n(HT40) U-NII-3 High channel



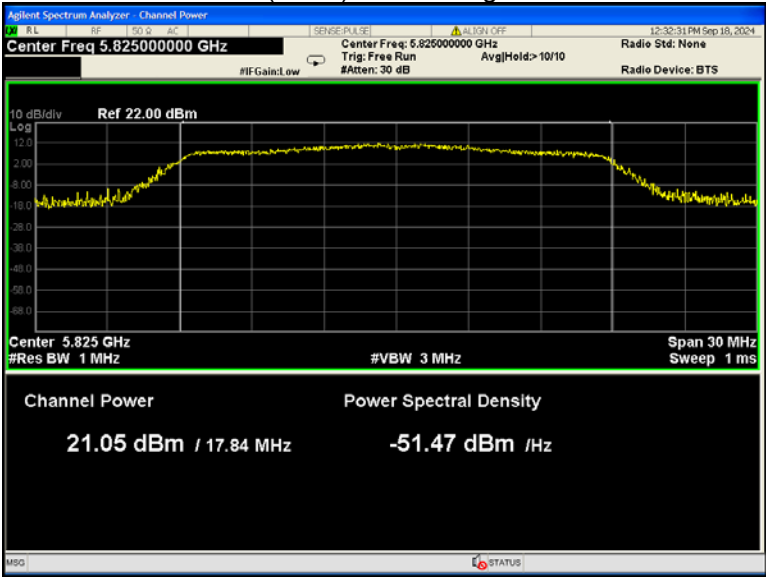
802.11ac(HT20) U-NII-3 Low channel



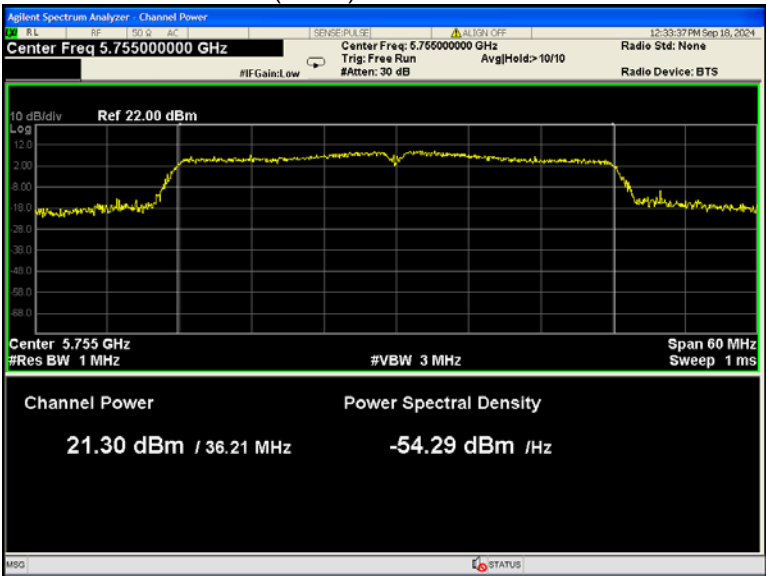
802.11ac(HT20) U-NII-3 Middle channel



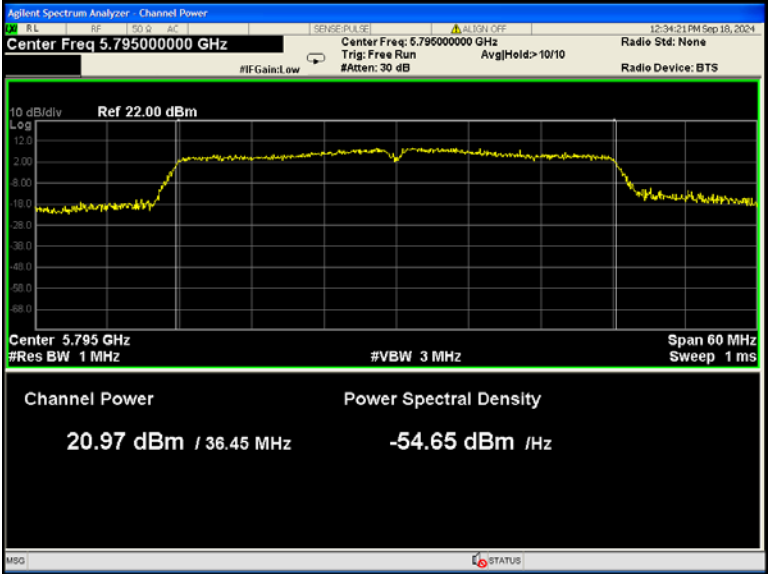
802.11ac(HT20) U-NII-3 High channel



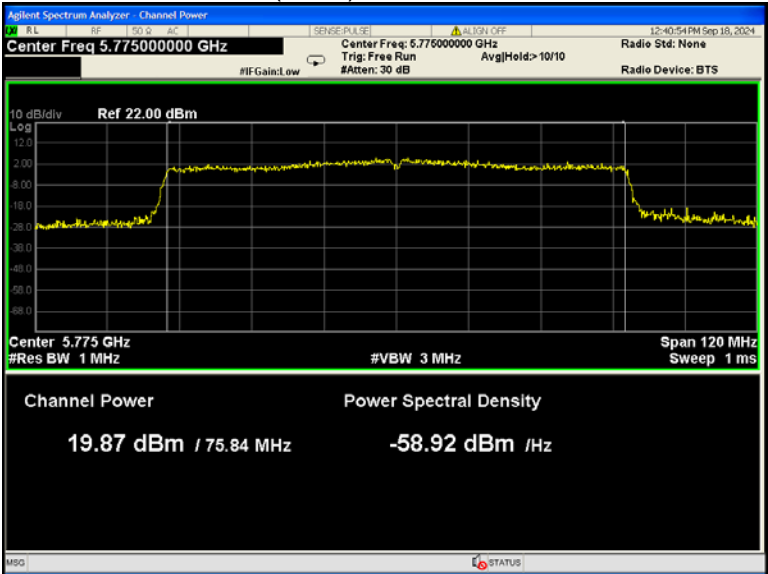
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-3 Low channel



14 Power Spectral density

Test Requirement:	FCC 47CFR Part 15 Section 15.407(a)
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Test Limit:	$\leq 11\text{dBm/MHz}$ for Operation in the U-NII-1(5150MHz-5250MHz,5250-5350MHz and 5470-5725MHz)of device; $\leq 30\text{dBm/500kHz}$ for Operation in the U-NII-3(5725MHz-5850MHz)of device
Test Result:	PASS

14.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer:
U-NII-1
RBW = 1MHz, VBW $\geq 3 \times$ RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.
U-NII-3
RBW = 510KHz, VBW $\geq 3 \times$ RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section
Submit this plot.

14.2 Test Result

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-1	802.11a	Low	7.415	0.19	7.605
		Middle	7.677		7.867
		High	7.654		7.844
	802.11n(HT20)	Low	7.559	0.18	7.739
		Middle	7.196		7.376
		High	7.34		7.52
	802.11n(HT40)	Low	4.569	0.29	4.859
		High	4.27		4.56
	802.11ac(HT20)	Low	7.164	0.20	7.364
		Middle	7.199		7.399
		High	7.339		7.539
	802.11ac(HT40)	Low	4.499	0.30	4.799
		High	4.587		4.887
	802.11ac(HT80)	Middle	0.443	0.54	0.983

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-3	802.11a	Low	10.462	0.14	10.602
		Middle	10.081		10.221
		High	10.304		10.444
	802.11n(HT20)	Low	10.032	0.18	10.212
		Middle	9.775		9.955
		High	9.889		10.069
	802.11n(HT40)	Low	6.754	0.28	7.034
		High	6.608		6.888
	802.11ac(HT20)	Low	10.28	1.09	11.37
		Middle	9.309		10.399
		High	9.474		10.564
	802.11ac(HT40)	Low	7.11	0.35	7.46

		High	6.687		7.037
	802.11ac(HT80)	Middle	2.836	0.56	3.396

Note:

1. Conducted Output Power Spectral Density = Measurements + Duty Cycle Factor

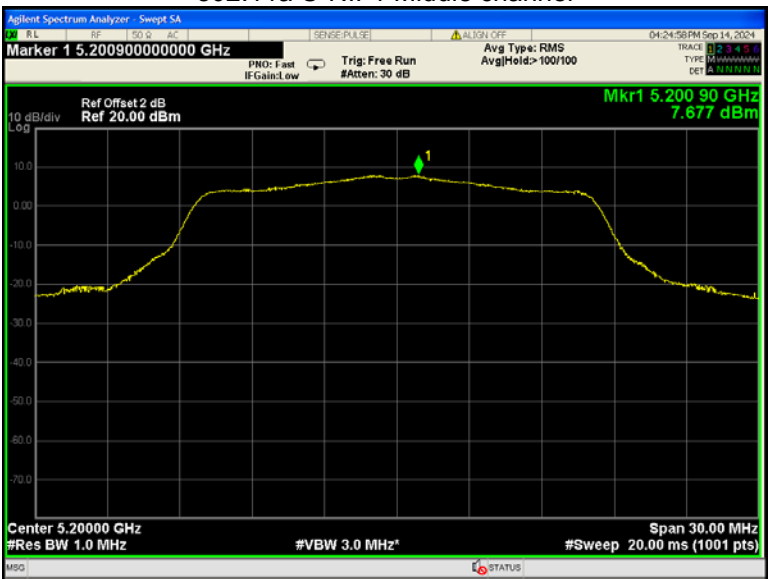
* All transmit signals are completely uncorrelated with each other, Directional gain = G_{ANT} which is less than 6dBi. So the limit does not be reduced.

Test result plots shown as follows:

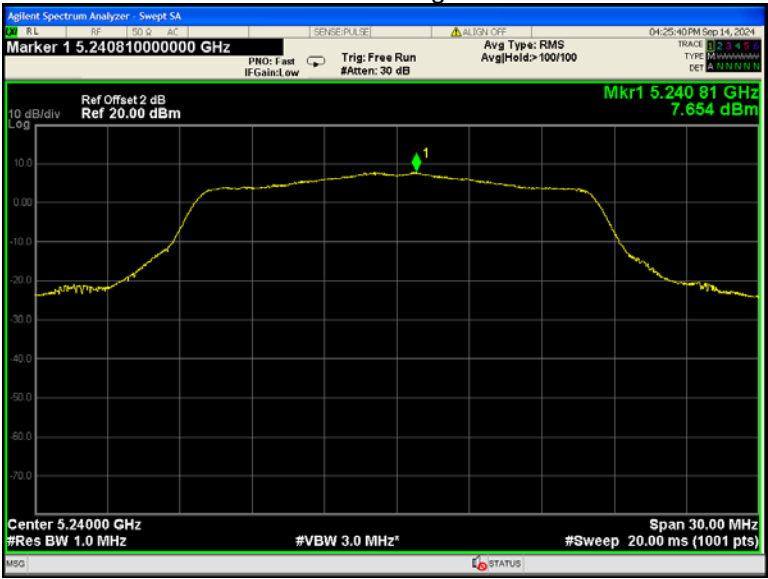
802.11a U-NII-1 Low channel



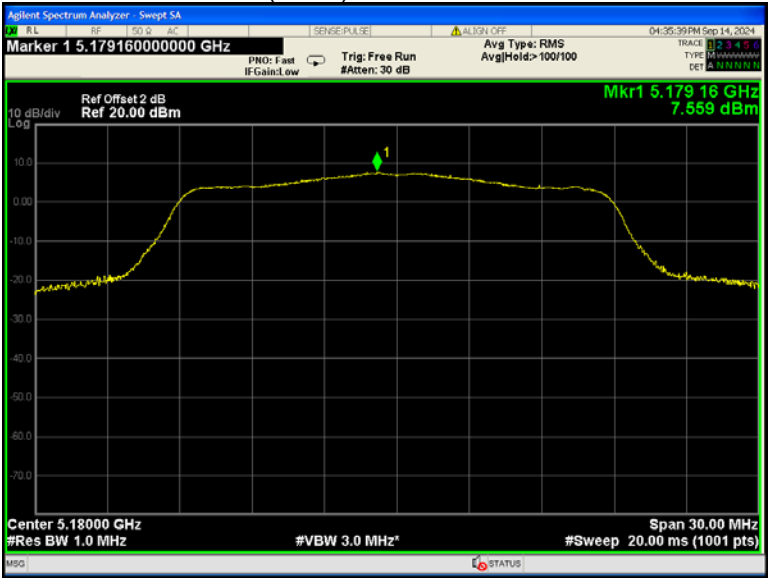
802.11a U-NII-1 Middle channel



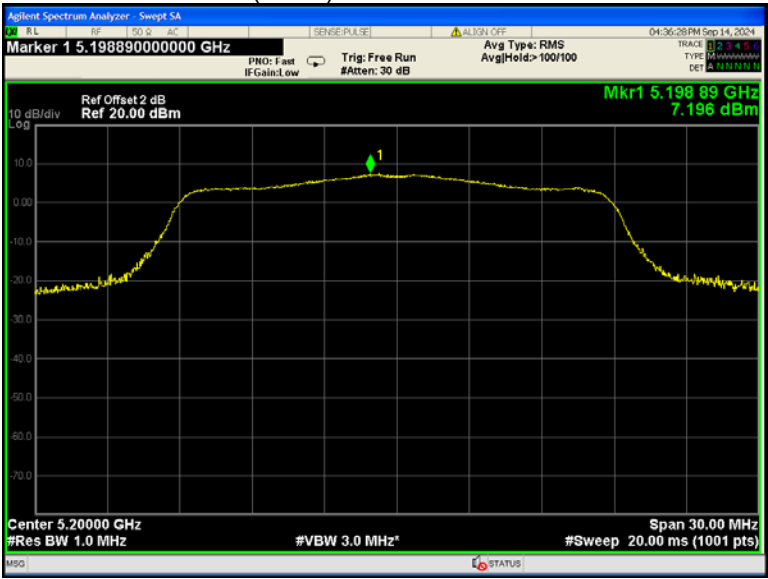
802.11a U-NII-1 High channel



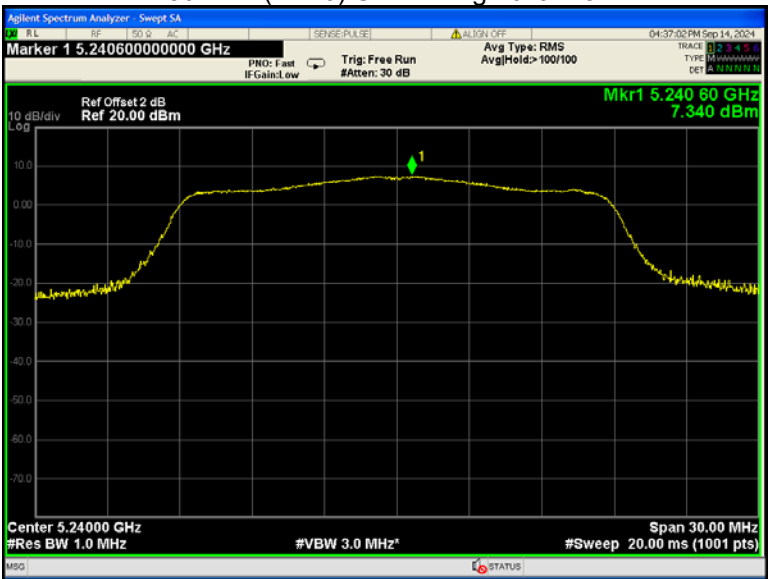
802.11n(HT20) U-NII-1 Low channel



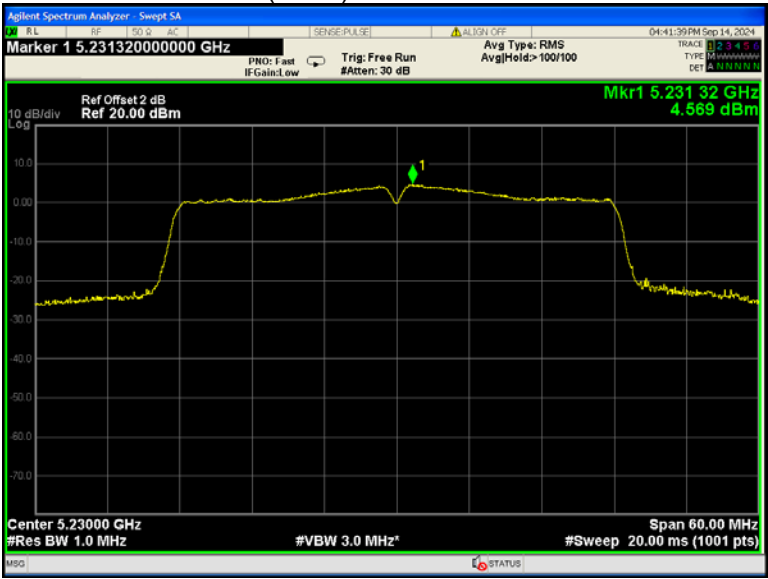
802.11n(HT20) U-NII-1 Middle channel



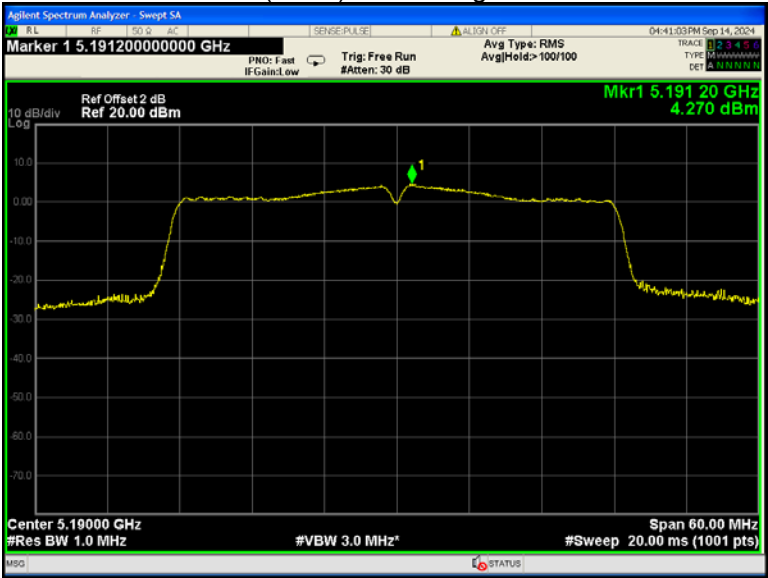
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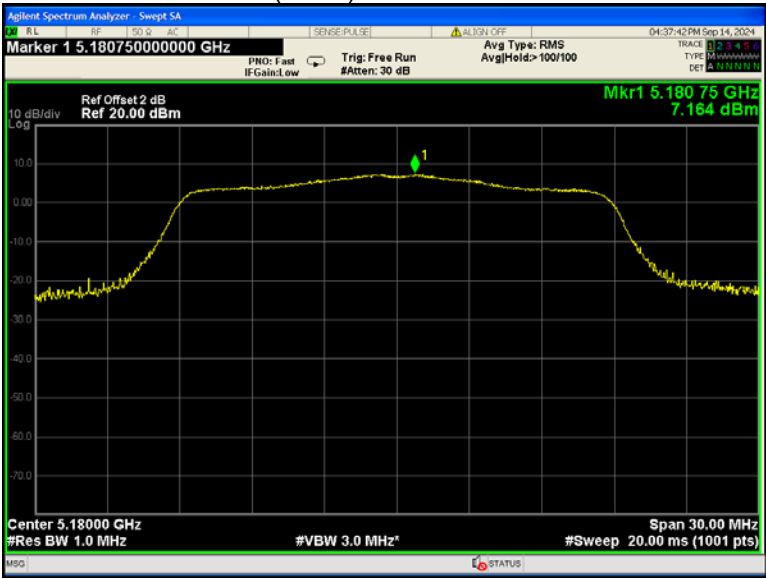
802.11n(HT40) U-NII-1 Low channel



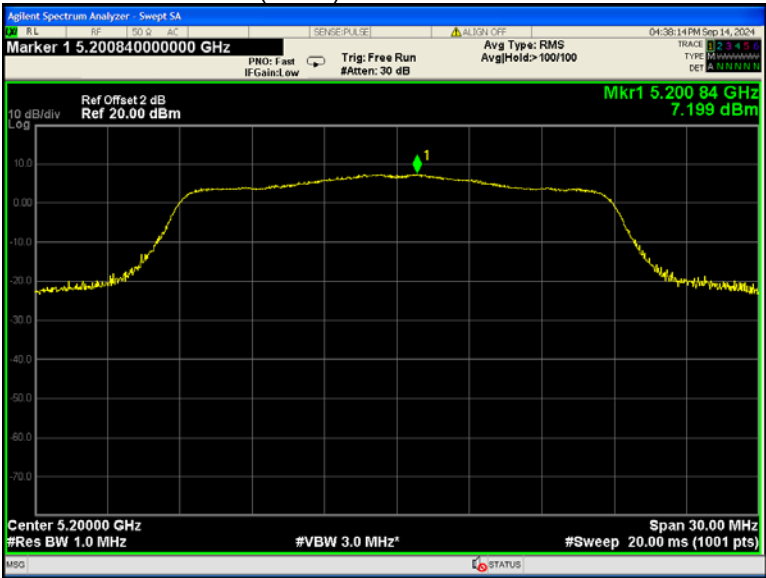
802.11n(HT40) U-NII-1 High channel



802.11ac(HT20) U-NII-1 Low channel



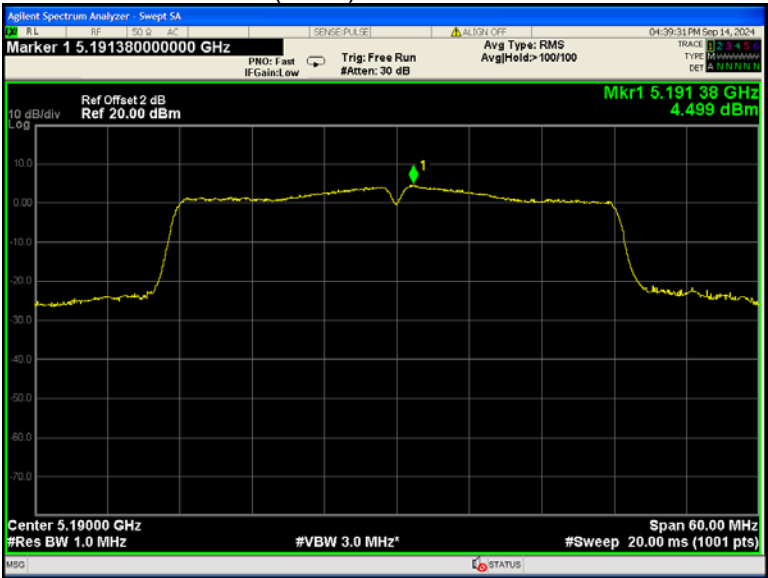
802.11ac(HT20) U-NII-1 Middle channel



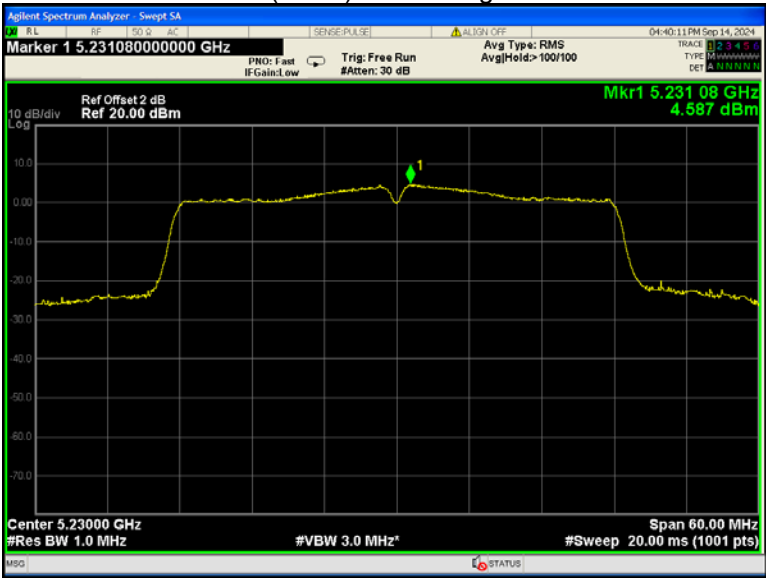
802.11ac(HT20) U-NII-1 High channel



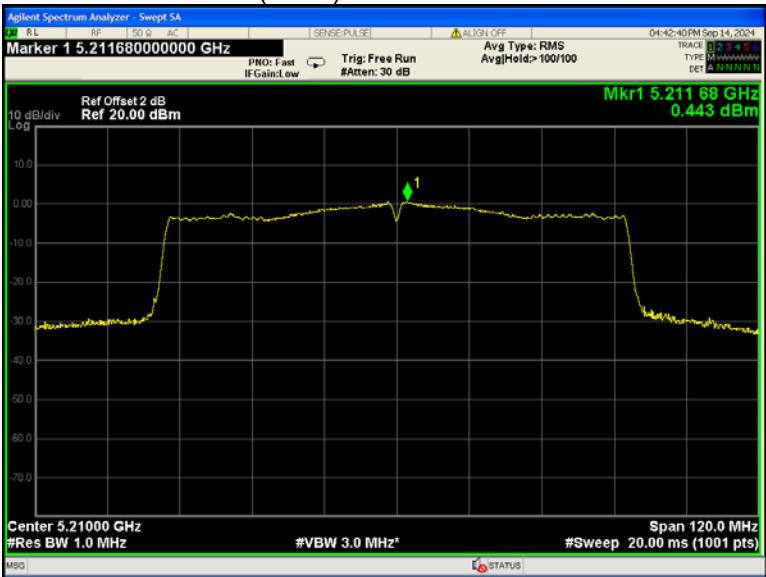
802.11ac(HT40) U-NII-1 Low channel



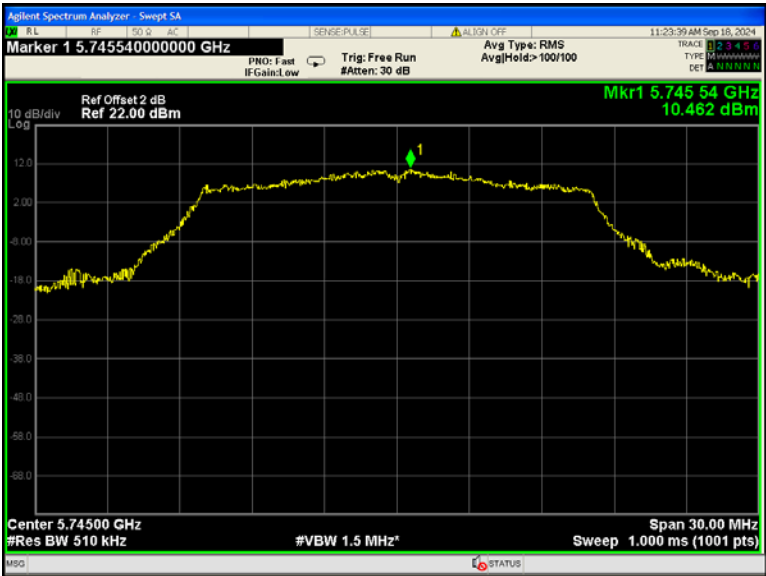
802.11ac(HT40) U-NII-1 High channel



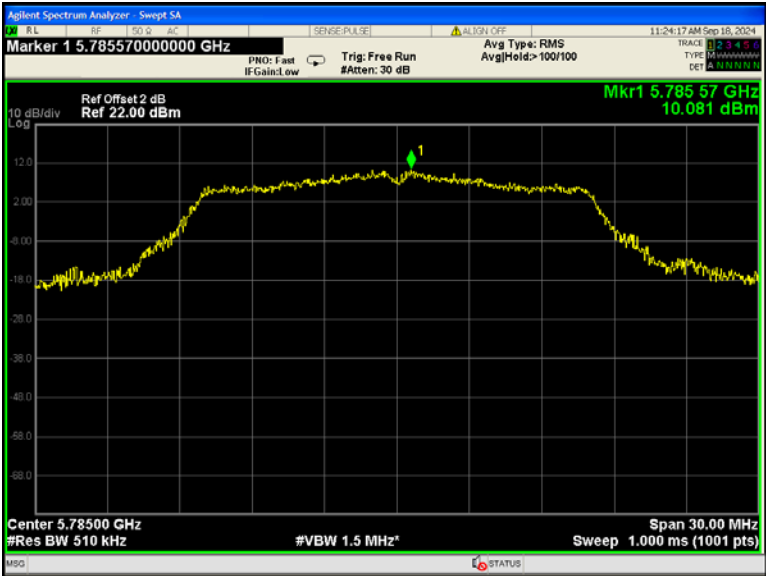
802.11ac(HT80) U-NII-1 Middle channel



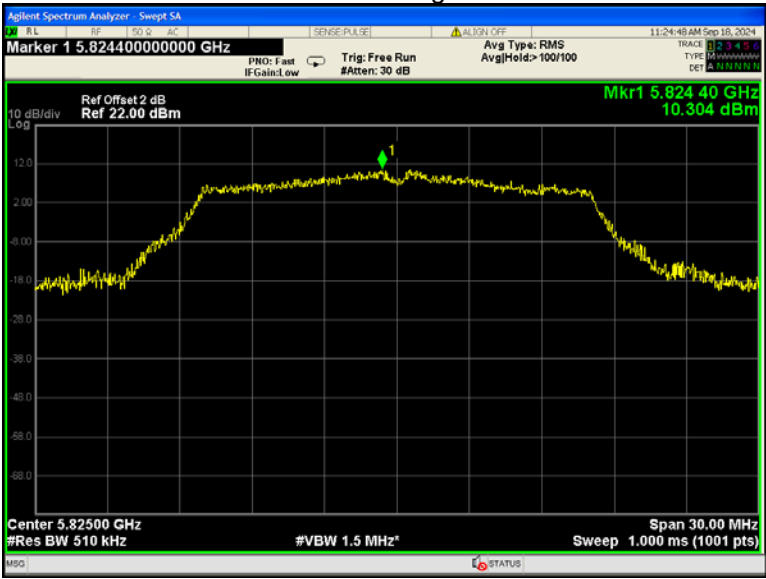
802.11a U-NII-3 Low channel



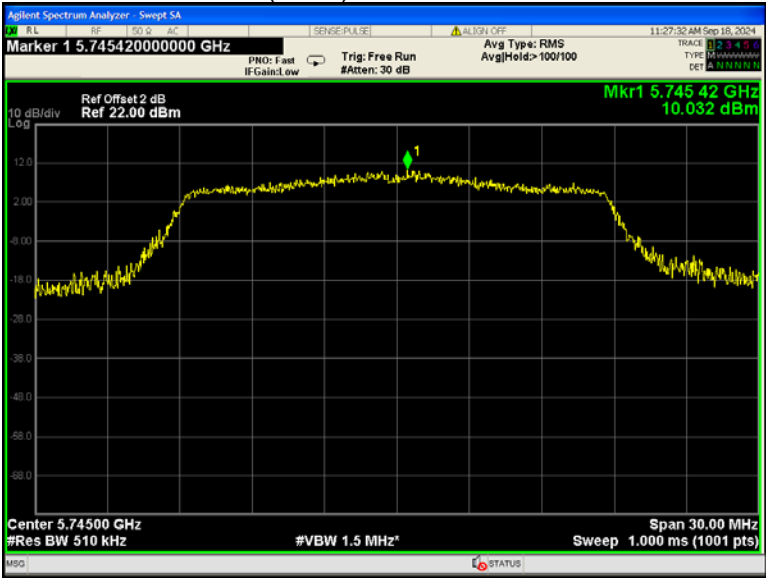
802.11a U-NII-3 Middle channel



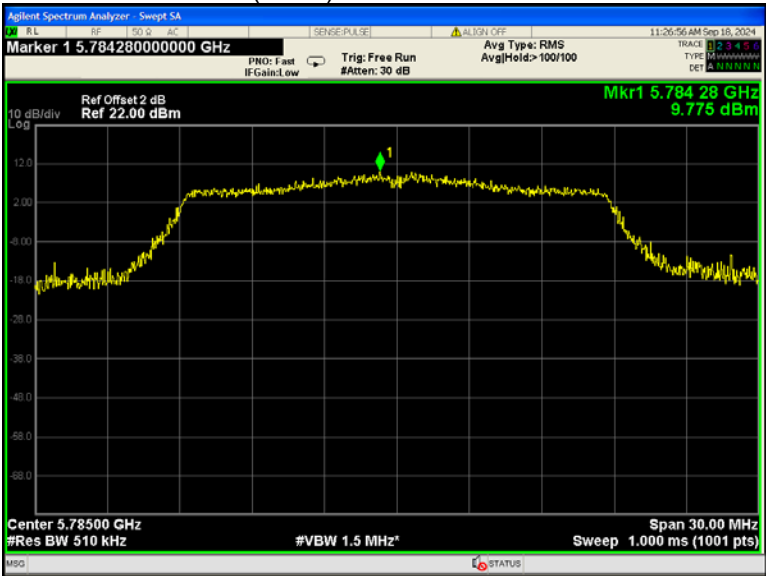
802.11a U-NII-3 High channel



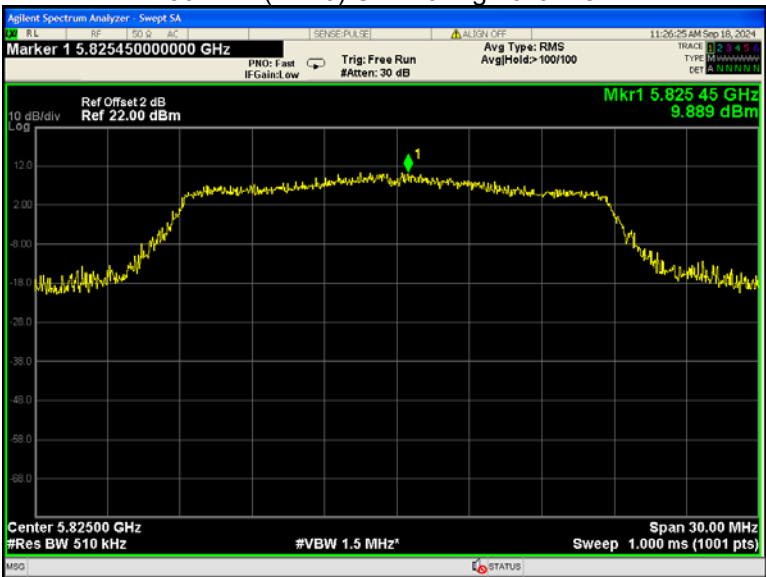
802.11n(HT20) U-NII-3 Low channel



802.11n(HT20) U-NII-3 Middle channel



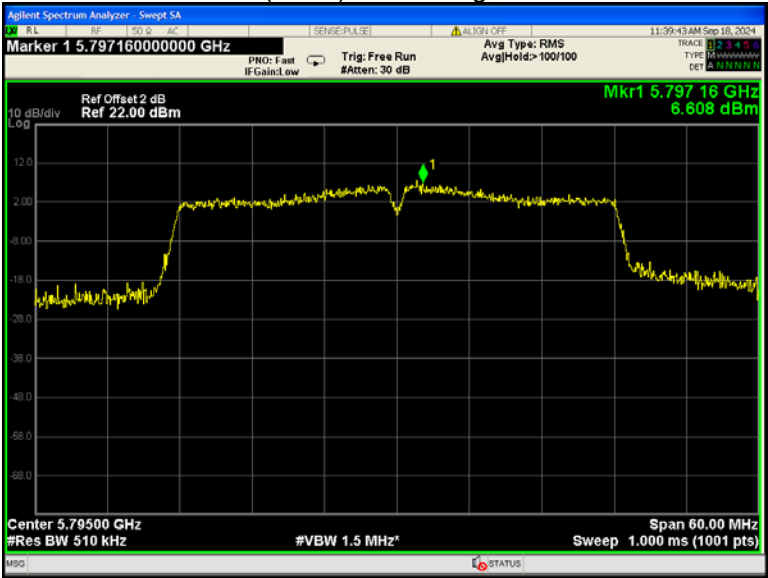
802.11n(HT20) U-NII-3 High channel



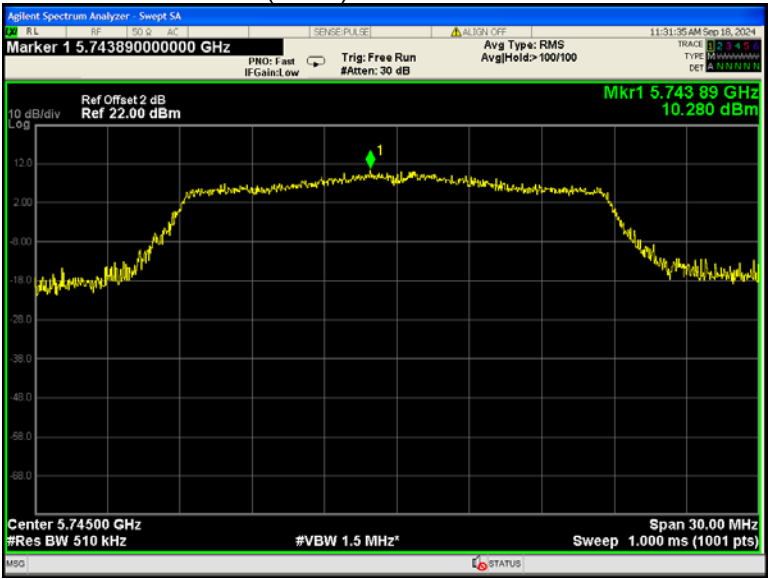
802.11n(HT40) U-NII-3 Low channel



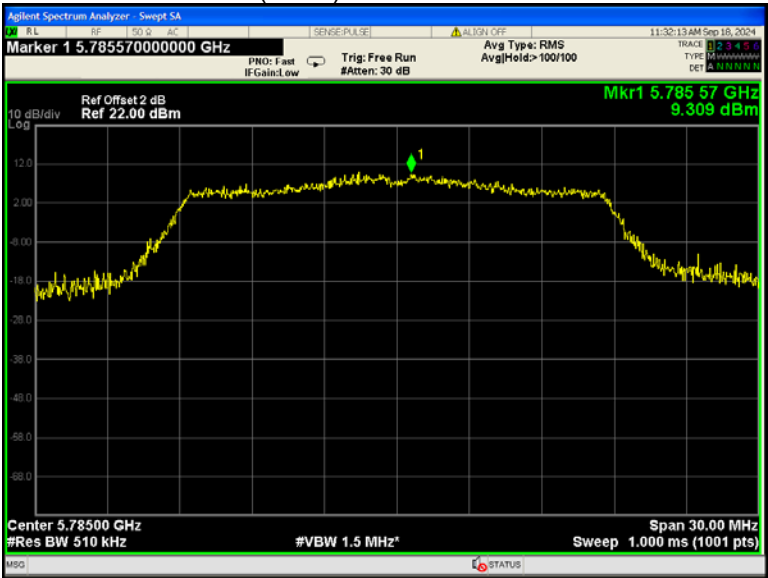
802.11n(HT40) U-NII-3 High channel



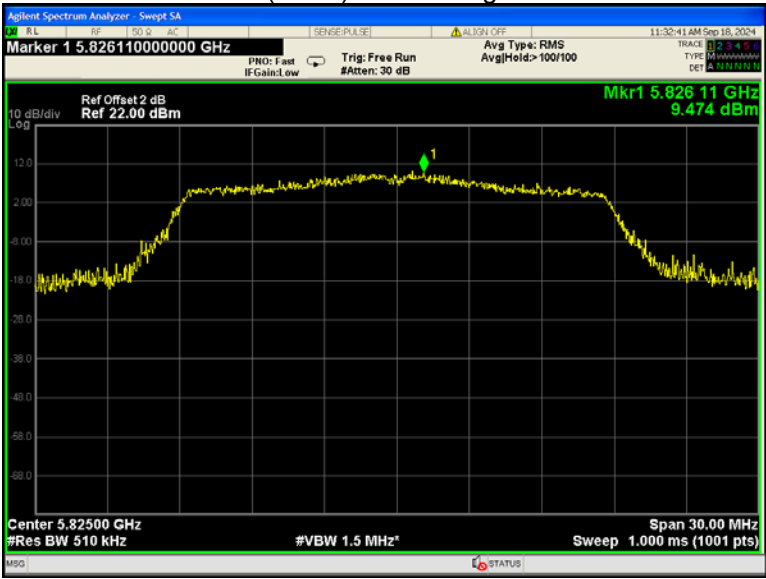
802.11ac(HT20) U-NII-13 Low channel



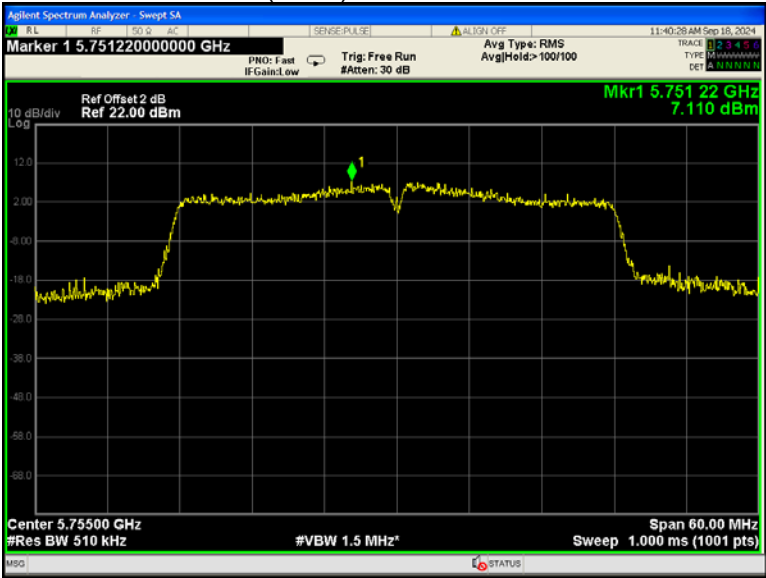
802.11ac(HT20) U-NII-3 Middle channel



802.11ac(HT20) U-NII-3 High channel



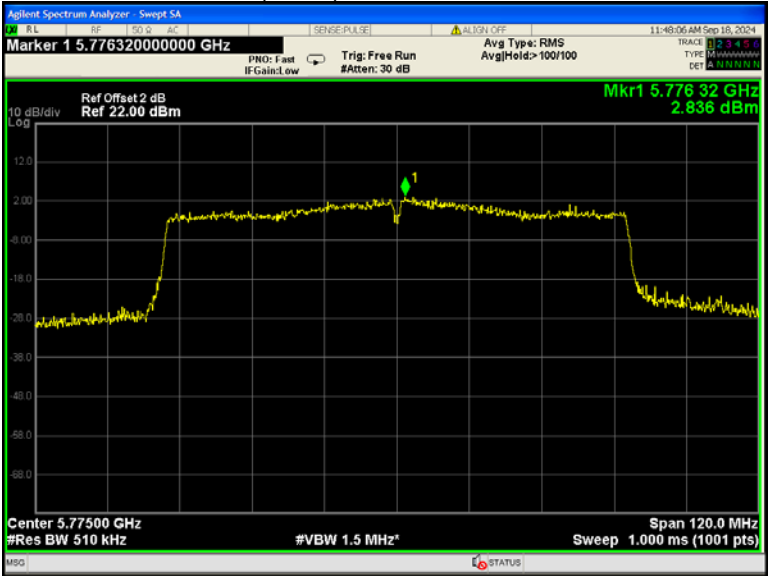
802.11ac(HT40) U-NII-13 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-1 Middle channel



15 Frequency Stability

Test Requirement:	FCC 47CFR Part 15 Section 15.407(g)
Test Method:	ANSI C63.10:2013
Test Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual or 20ppm.
Test Result:	PASS

15.1 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
EUT have transmitted absence of unmodulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
2. Extreme temperature rule is $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

15.2 Test Result

U-NII-1 Test Frequency: 5180MHz				
Temperature	Power Supply	Frequency Error	Frequency Error	Limit
(°C)	(VAC)	(MHz)	(ppm)	(ppm)
50	120	0.0029	0.49	20.00
40		0.0001	0.03	20.00
30		0.0095	1.64	20.00
20		0.0037	0.64	20.00
10		0.0118	2.05	20.00
0		-0.0015	-0.25	20.00
-10		0.0083	1.43	20.00
20	102	0.0001	0.01	20.00
20	138	0.0030	0.51	20.00

U-NII-3 Test Frequency: 5785MHz				
Temperature	Power Supply	Frequency Error	Frequency Error	Limit
(°C)	(VAC)	(MHz)	(ppm)	(ppm)
50	120	0.0080	1.39	20.00
40		0.0077	1.34	20.00
30		0.0075	1.30	20.00
20		0.0014	0.24	20.00
10		-0.0003	-0.05	20.00
0		-0.0039	-0.68	20.00
-10		0.0027	0.48	20.00
20	102	0.0045	0.77	20.00
20	138	0.0084	1.45	20.00

16 Antenna 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 shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

This product has an External antenna with RP-SMA connector fulfil the requirement of this section.

Note: Please refer to EUT photos for more details.

17 RF Exposure

Remark: refer to MPE test report: WTD24D08203365W008.

18 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-EVB624-Photos.

=====End of Report=====