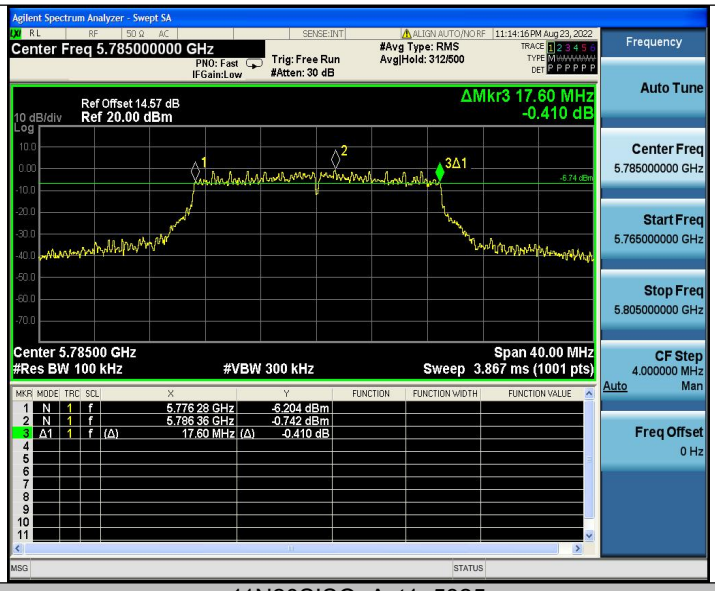
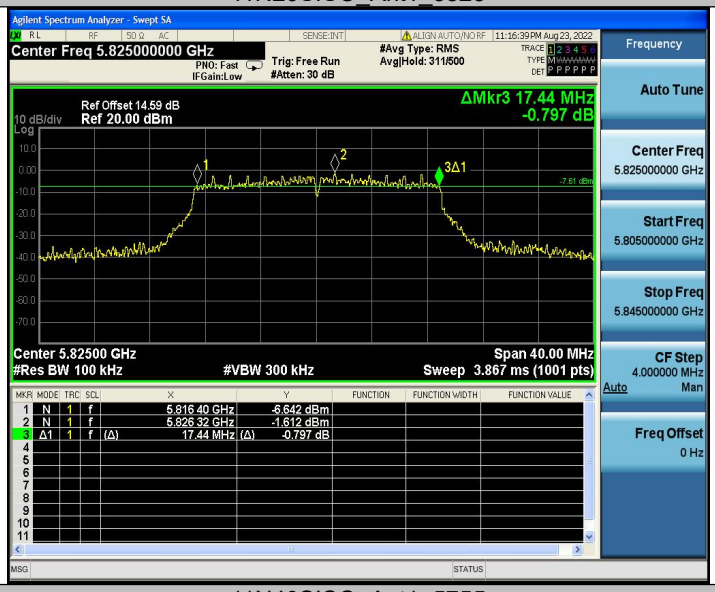
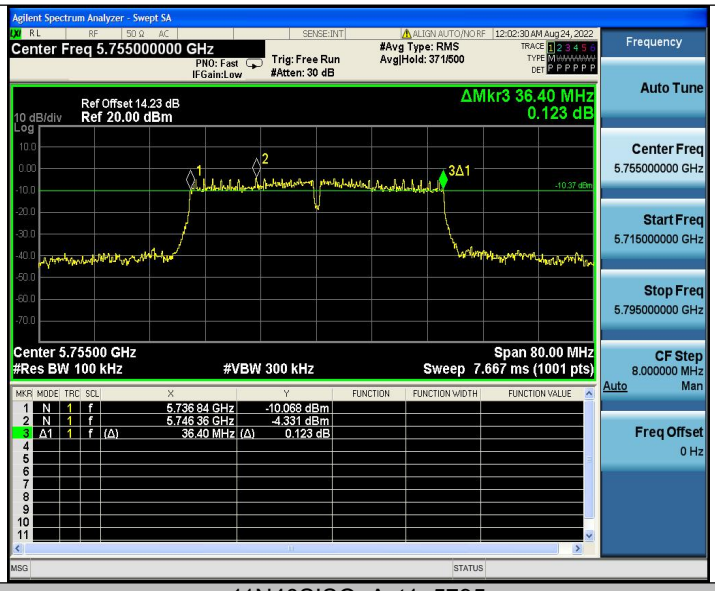


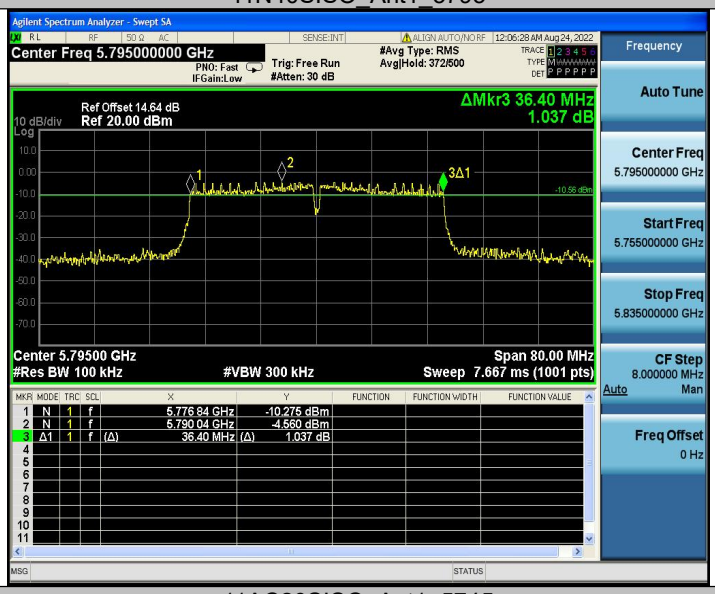
11N20SISO_Ant1_5825



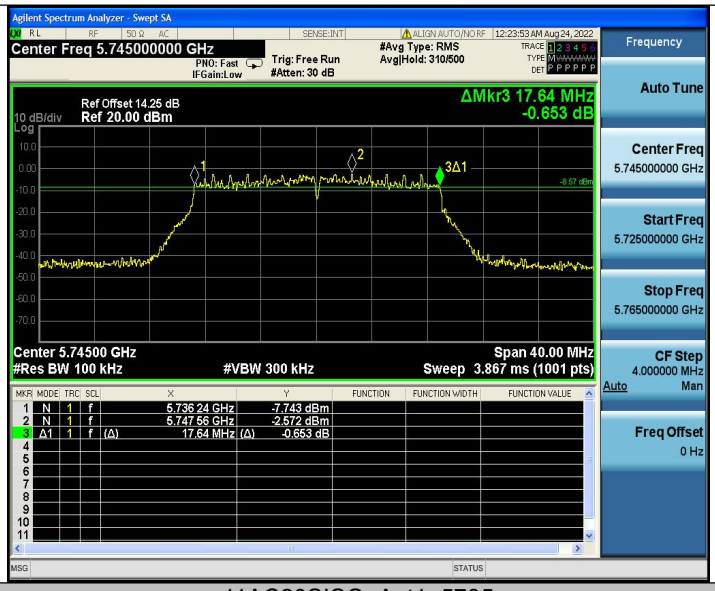
11N40SISO_Ant1_5755



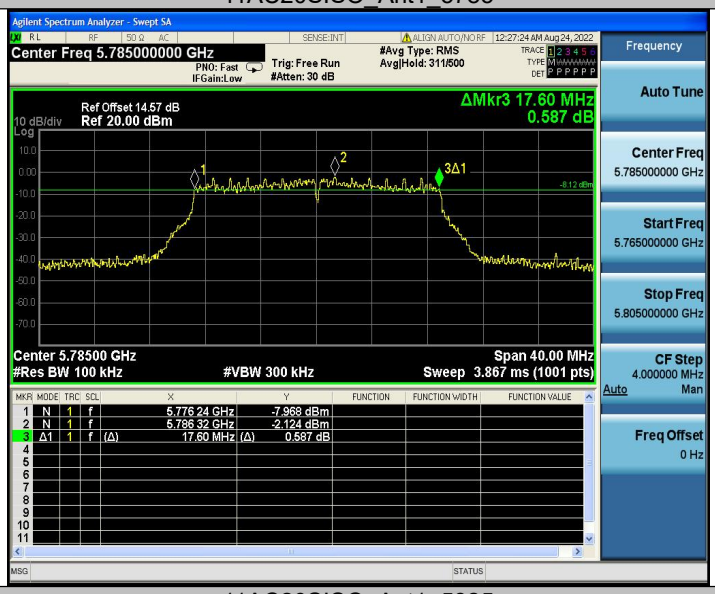
11N40SISO_Ant1_5795



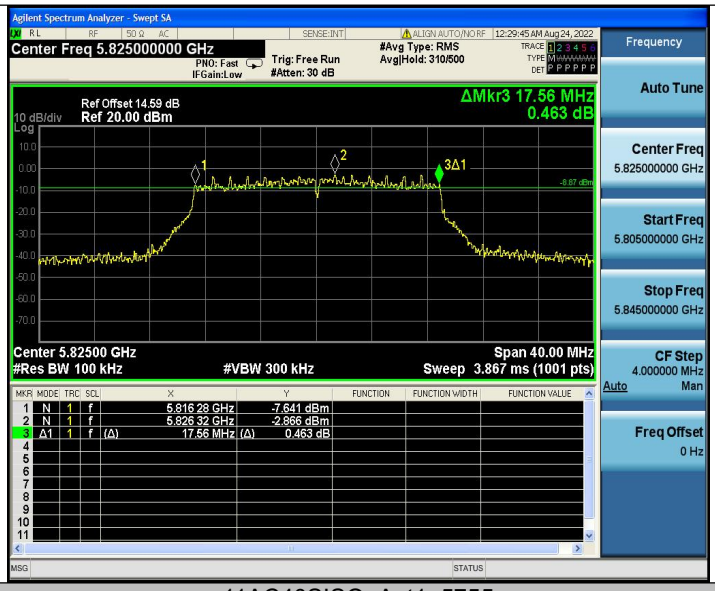
11AC20SISO_Ant1_5745



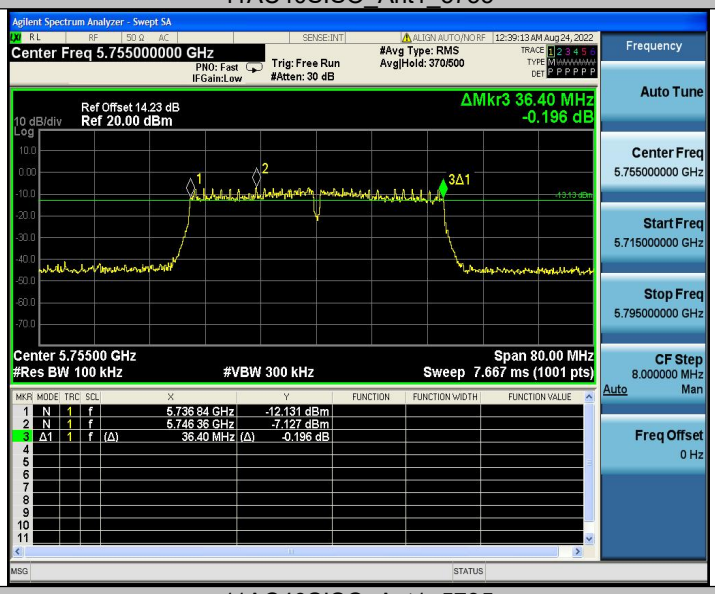
11AC20SISO_Ant1_5785



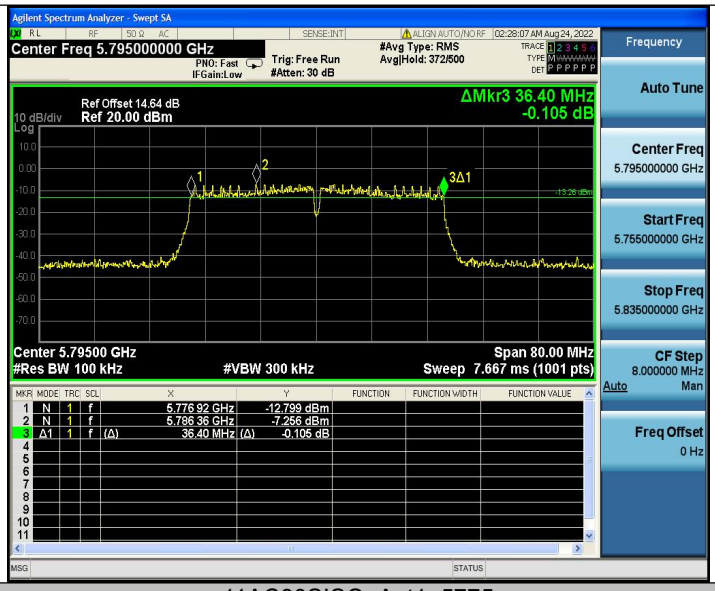
11AC20SISO_Ant1_5825



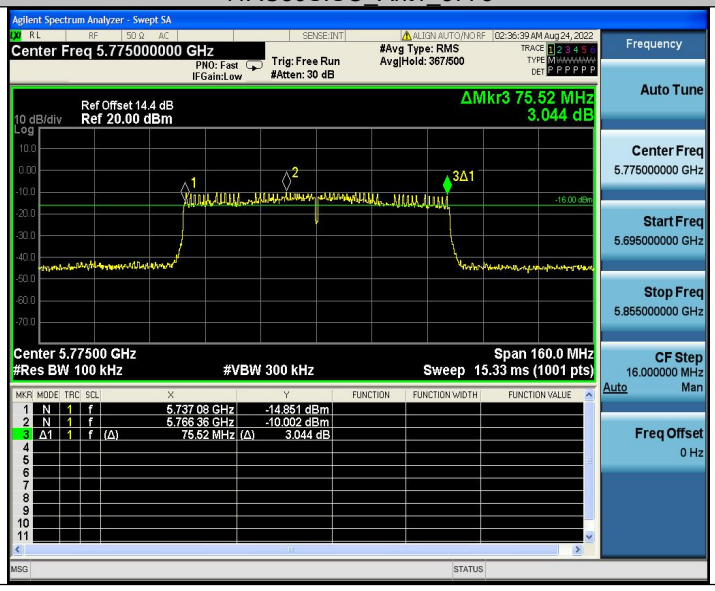
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



8 Maximum Conducted Output Power

Test Requirement	:	FCC CFR47 Part 15 Section 15.247
Test Method	:	ANSI C63.10:2013
Test Limit	:	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. 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.

8.1 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, The use Power Meter 1. Place the EUT on a bench and set it in transmitting mode. 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Power meter.

8.2 Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	10.69	≤23.98	PASS
		5220	11.85	≤23.98	PASS
		5240	12.76	≤23.98	PASS
		5745	10.91	≤30.00	PASS
		5785	11.08	≤30.00	PASS
		5825	10.17	≤30.00	PASS
11N20SISO	Ant1	5180	9.55	≤23.98	PASS
		5220	11.19	≤23.98	PASS
		5240	11.21	≤23.98	PASS
		5745	9.63	≤30.00	PASS
		5785	9.84	≤30.00	PASS
		5825	9.12	≤30.00	PASS
11N40SISO	Ant1	5190	9.68	≤23.98	PASS
		5230	10.94	≤23.98	PASS
		5755	9.58	≤30.00	PASS
		5795	9.63	≤30.00	PASS
11AC20SISO	Ant1	5180	8.01	≤23.98	PASS
		5220	9.11	≤23.98	PASS
		5240	9.87	≤23.98	PASS
		5745	8.66	≤30.00	PASS
		5785	8.48	≤30.00	PASS
		5825	8.00	≤30.00	PASS
11AC40SISO	Ant1	5190	6.77	≤23.98	PASS
		5230	7.64	≤23.98	PASS
		5755	6.85	≤30.00	PASS
		5795	6.81	≤30.00	PASS
11AC80SISO	Ant1	5210	6.65	≤23.98	PASS
		5775	6.75	≤30.00	PASS

Note. The Duty Cycle Factor is included in the test graphs parameter Settings.

Test Graphs:

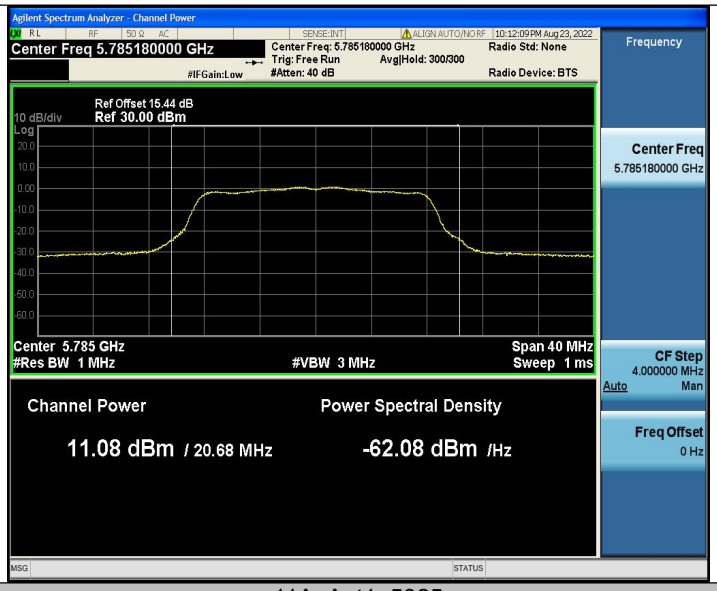
11A_Ant1_5180

11A_Ant1_5220

11A_Ant1_5240

11A_Ant1_5745

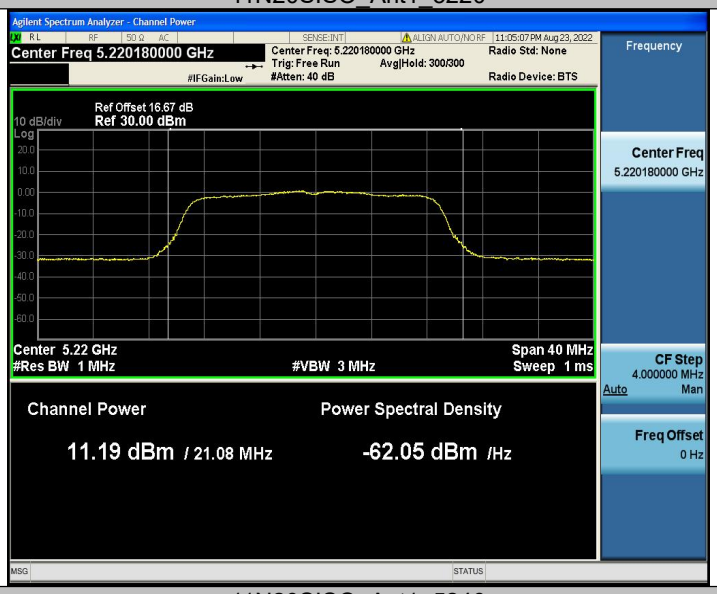
11A_Ant1_5785



11A_Ant1_5825

11N20SISO_Ant1_5180

11N20SISO_Ant1_5220



11N20SISO_Ant1_5240

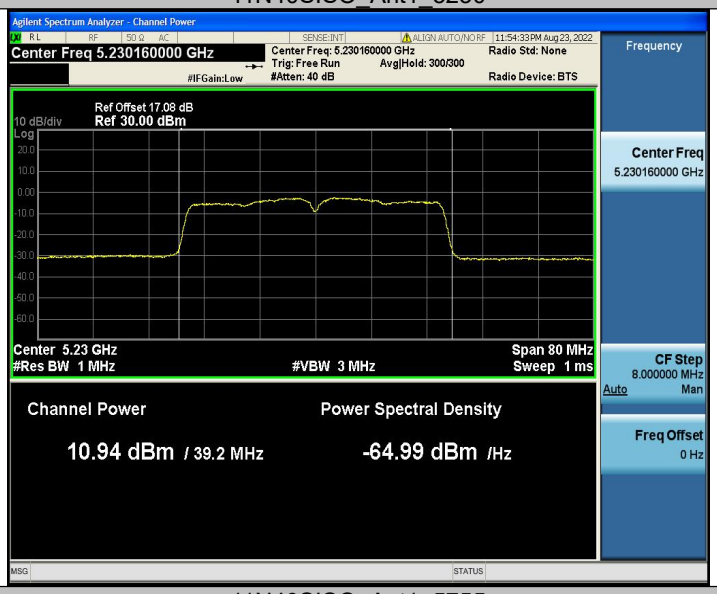
11N20SISO_Ant1_5745

11N20SISO_Ant1_5785

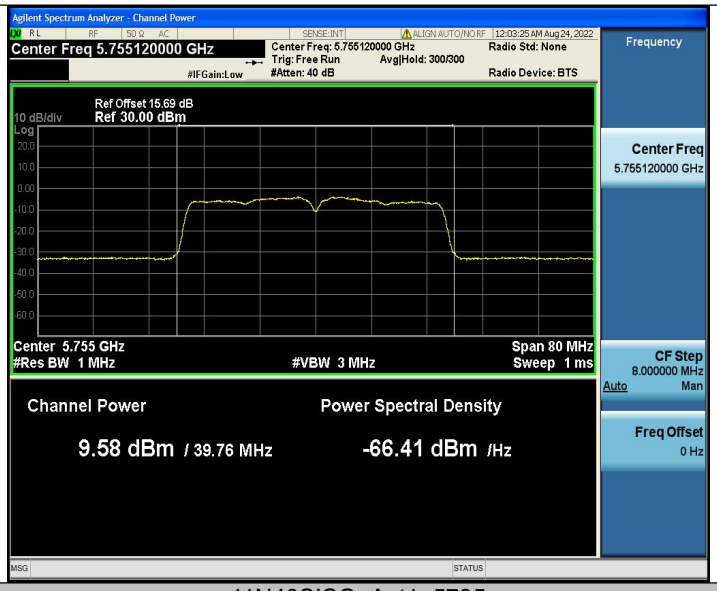
11N20SISO_Ant1_5825

11N40SISO_Ant1_5190

11N40SISO_Ant1_5230



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795

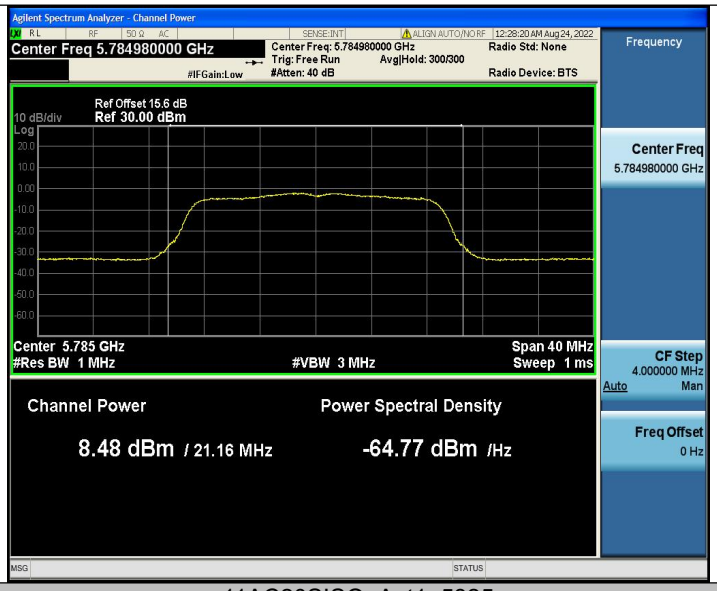
11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5220

11AC20SISO_Ant1_5240

11AC20SISO_Ant1_5745

11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825

11AC40SISO_Ant1_5190

11AC40SISO_Ant1_5230

11AC40SISO_Ant1_5755

11AC40SISO_Ant1_5795

11AC80SISO_Ant1_5210

11AC80SISO_Ant1_5775

9 Power Spectral density

Test Requirement	:	FCC CFR47 Part 15 Section 15.2407(a)
Test Method	:	ANSI C63.10:2013
Test Limit	:	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.. 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-kHzband. 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-tomultipoint 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

9.1 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI 63.10: 2013 Sec 10.3.7.For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set the RBW to 1 MHz.

b) Set the VBW to be at least 1 MHz (a VBW of 3 MHz is desirable).

c) Set the frequency span to examine the spectrum across a convenient frequency segment (e.g., 600 MHz).

d) Select the power averaging (rms) detector.

e) Set the sweep time so that there is no more than a 1 ms integration period over each measurement bin.

f) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

9.2 Test Result

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations / data rates and antenna ports.

Following channel was selected for the final test as listed below

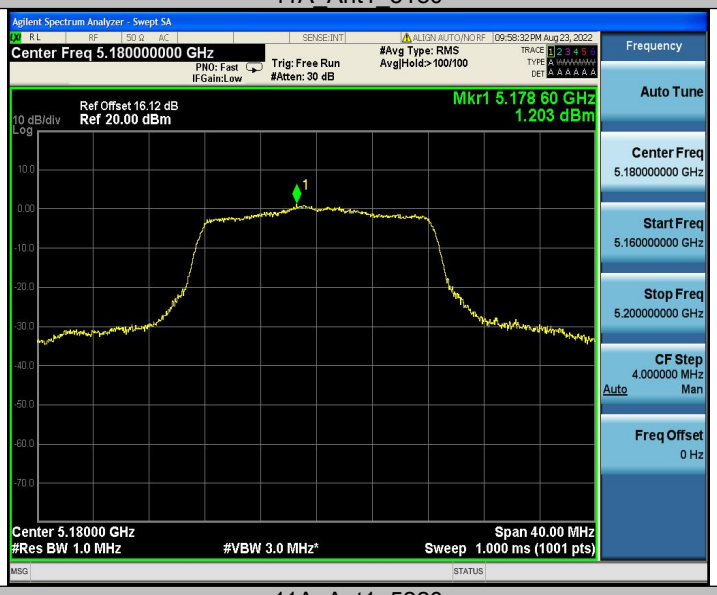
TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	1.31	≤11.00	PASS
		5220	2.13	≤11.00	PASS
		5240	2.89	≤11.00	PASS
		5745	-1.02	≤30.00	PASS
		5785	-0.91	≤30.00	PASS
		5825	-2.26	≤30.00	PASS
11N20SISO	Ant1	5180	-0.76	≤11.00	PASS
		5220	0.83	≤11.00	PASS
		5240	0.99	≤11.00	PASS
		5745	-2.97	≤30.00	PASS
		5785	-2.65	≤30.00	PASS
		5825	-3.96	≤30.00	PASS
11N40SISO	Ant1	5190	-3.18	≤11.00	PASS
		5230	-2.33	≤11.00	PASS
		5755	-5.8	≤30.00	PASS
		5795	-6.34	≤30.00	PASS
11AC20SISO	Ant1	5180	-2.4	≤11.00	PASS
		5220	-0.69	≤11.00	PASS
		5240	-0.24	≤11.00	PASS
		5745	-3.88	≤30.00	PASS
		5785	-4.12	≤30.00	PASS
		5825	-4.68	≤30.00	PASS
11AC40SISO	Ant1	5190	-6.42	≤11.00	PASS
		5230	-5.46	≤11.00	PASS
		5755	-9	≤30.00	PASS
		5795	-8.53	≤30.00	PASS
11AC80SISO	Ant1	5210	-8.9	≤11.00	PASS
		5775	-11.81	≤30.00	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2. The Duty Cycle Factor is included in the test graphs parameter Settings.

Test Graphs:

11A_Ant1_5180



11A_Ant1_5220

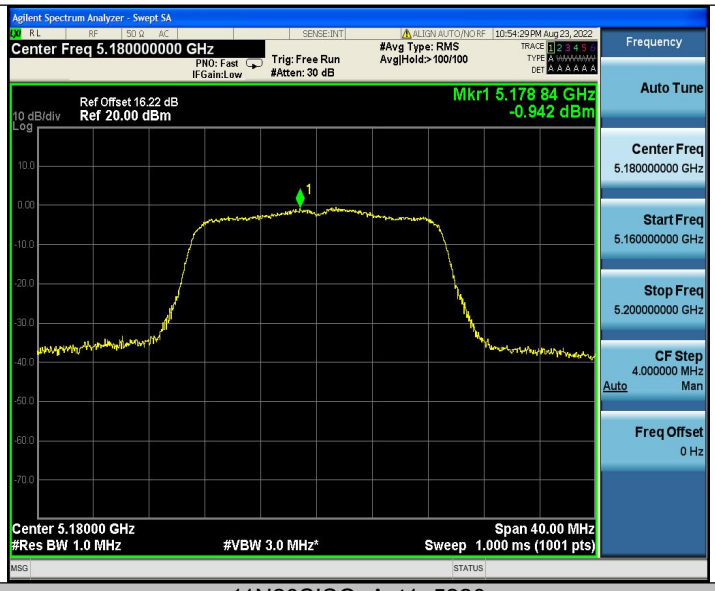
11A_Ant1_5240

11A_Ant1_5745

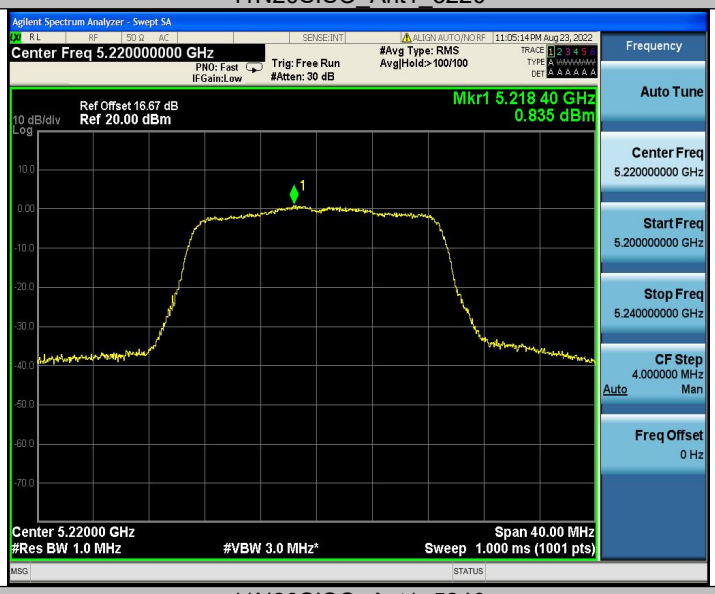
11A_Ant1_5785

11A_Ant1_5825

11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240