



11AX20SISO-Ant1-5200-5360~27000-PASS



11AX20SISO-Ant1-5240-30~5140-PASS



11AX20SISO-Ant1-5240-5360~27000-PASS



11AX20SISO-Ant1-5745-30~5650-PASS



11AX20SISO-Ant1-5745-5925~27000-PASS



11AX20SISO-Ant1-5785-30~5650-PASS



11AX20SISO-Ant1-5785-5925~27000-PASS



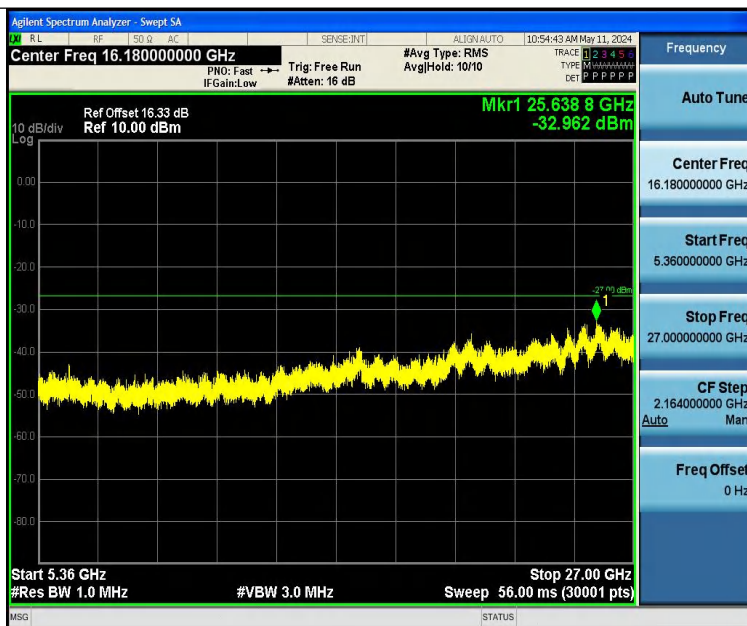
11AX20SISO-Ant1-5825-30~5650-PASS



11AX20SISO-Ant1-5825-5925~27000-PASS



11AX40SISO-Ant1-5190-30~5140-PASS



11AX40SISO-Ant1-5190-5360~27000-PASS



11AX40SISO-Ant1-5230-30~5140-PASS



11AX40SISO-Ant1-5230-5360~27000-PASS



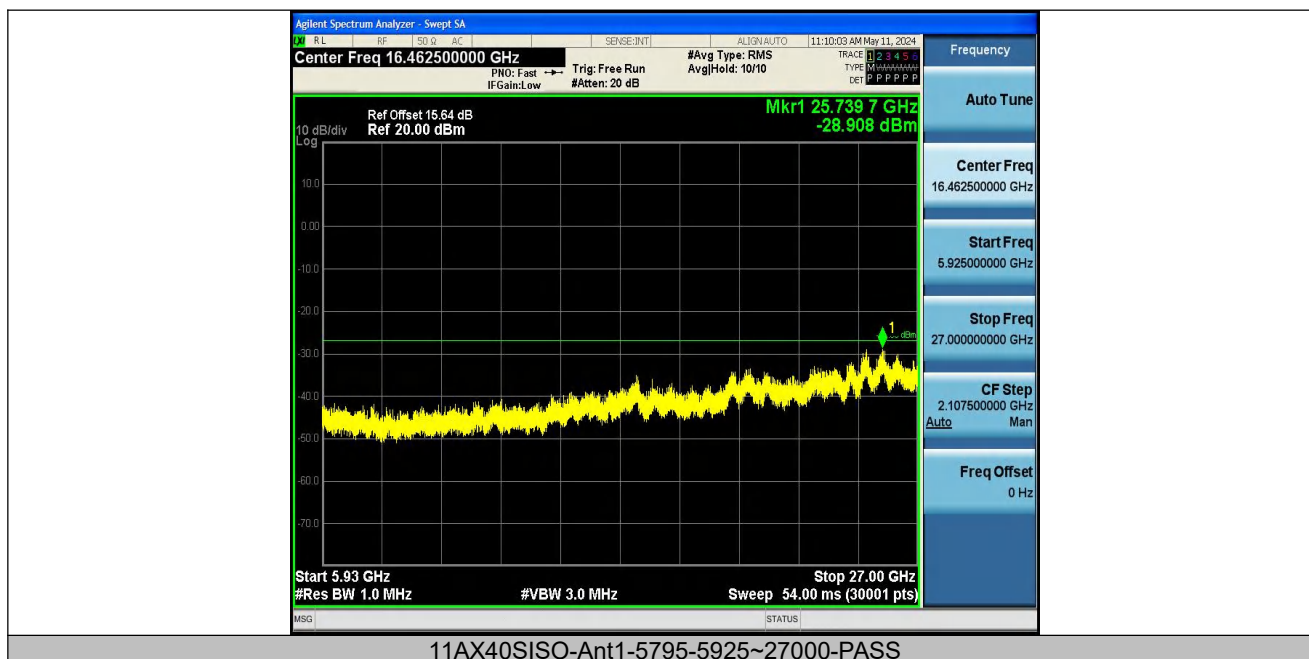
11AX40SISO-Ant1-5755-30~5650-PASS



11AX40SISO-Ant1-5755-5925~27000-PASS



11AX40SISO-Ant1-5795-30~5650-PASS



Note: 27~40GHz at least have 20dB margin. No recording in the test report.



6.6 Band edge measurements

Test Result:

TestMode	Antenna	ChName	Frequency[MHz]	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-40.49	≤-27	PASS
11A	Ant1	High	5240	-39.93	≤-27	PASS
11N20SISO	Ant1	Low	5180	-40.52	≤-27	PASS
11N20SISO	Ant1	High	5240	-40.07	≤-27	PASS
11N40SISO	Ant1	Low	5190	-40.59	≤-27	PASS
11N40SISO	Ant1	High	5230	-40.3	≤-27	PASS
11AC20SISO	Ant1	Low	5180	-39.97	≤-27	PASS
11AC20SISO	Ant1	High	5240	-40.56	≤-27	PASS
11AC40SISO	Ant1	Low	5190	-39.96	≤-27	PASS
11AC40SISO	Ant1	High	5230	-40.39	≤-27	PASS
11AX20SISO	Ant1	Low	5180	-40.62	≤-27	PASS
11AX20SISO	Ant1	High	5240	-40.01	≤-27	PASS
11AX40SISO	Ant1	Low	5190	-39.73	≤-27	PASS
11AX40SISO	Ant1	High	5230	-40.55	≤-27	PASS

TestMode	Antenna	ChName	Frequency[MHz]	FreqRange [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5745	5720~5725	-37.43	≤20.27	PASS
11A	Ant1	Low	5745	5700~5720	-38.93	≤15.59	PASS
11A	Ant1	Low	5745	5650~5700	-42.48	≤7.08	PASS
11A	Ant1	Low	5745	5760~5650	-43.46	≤-27	PASS
11A	Ant1	High	5825	5850~5855	-32.42	≤19.18	PASS
11A	Ant1	High	5825	5855~5875	-35.39	≤10.32	PASS
11A	Ant1	High	5825	5875~5925	-40.55	≤-23.56	PASS
11A	Ant1	High	5825	5925~5935	-41.63	≤-27	PASS
11N20SISO	Ant1	Low	5745	5720~5725	-34.32	≤26.83	PASS
11N20SISO	Ant1	Low	5745	5700~5720	-38.71	≤15.53	PASS
11N20SISO	Ant1	Low	5745	5650~5700	-42.76	≤-17.42	PASS
11N20SISO	Ant1	Low	5745	5760~5650	-44.15	≤-27	PASS
11N20SISO	Ant1	High	5825	5850~5855	-30.81	≤17.03	PASS
11N20SISO	Ant1	High	5825	5855~5875	-35.63	≤10.02	PASS
11N20SISO	Ant1	High	5825	5875~5925	-40.49	≤2.51	PASS
11N20SISO	Ant1	High	5825	5925~5935	-41.45	≤-27	PASS
11N40SISO	Ant1	Low	5755	5720~5725	-35.55	≤24.97	PASS
11N40SISO	Ant1	Low	5755	5700~5720	-36.15	≤14.90	PASS
11N40SISO	Ant1	Low	5755	5650~5700	-42.81	≤-22.21	PASS
11N40SISO	Ant1	Low	5755	5780~5650	-43.81	≤-27	PASS
11N40SISO	Ant1	High	5795	5850~5855	-37.9	≤20.92	PASS
11N40SISO	Ant1	High	5795	5855~5875	-38.02	≤10.55	PASS
11N40SISO	Ant1	High	5795	5875~5925	-41.05	≤6.04	PASS
11N40SISO	Ant1	High	5795	5925~5935	-41.8	≤-27	PASS
11AC20SISO	Ant1	Low	5745	5720~5725	-35.87	≤23.94	PASS
11AC20SISO	Ant1	Low	5745	5700~5720	-38.58	≤15.14	PASS
11AC20SISO	Ant1	Low	5745	5650~5700	-42.82	≤-1.34	PASS
11AC20SISO	Ant1	Low	5745	5760~5650	-43.34	≤-27	PASS

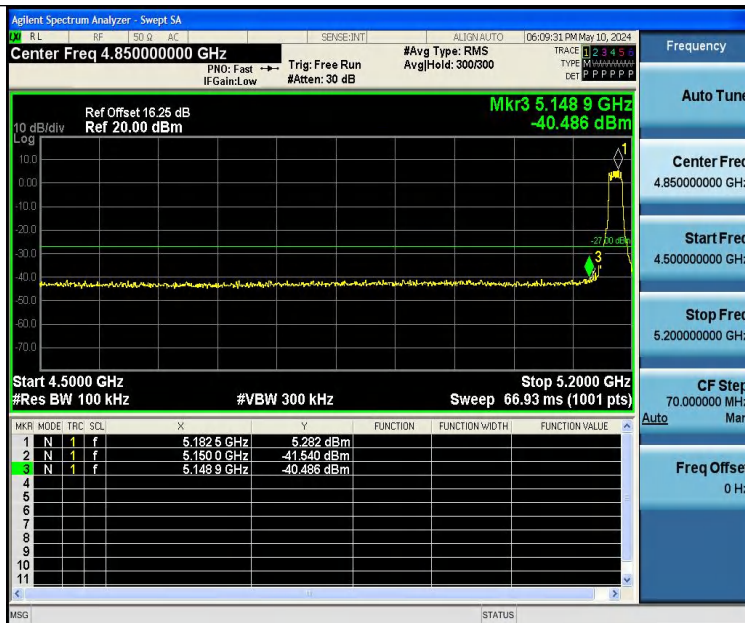


Report No.: PTC24032524401E-FC04

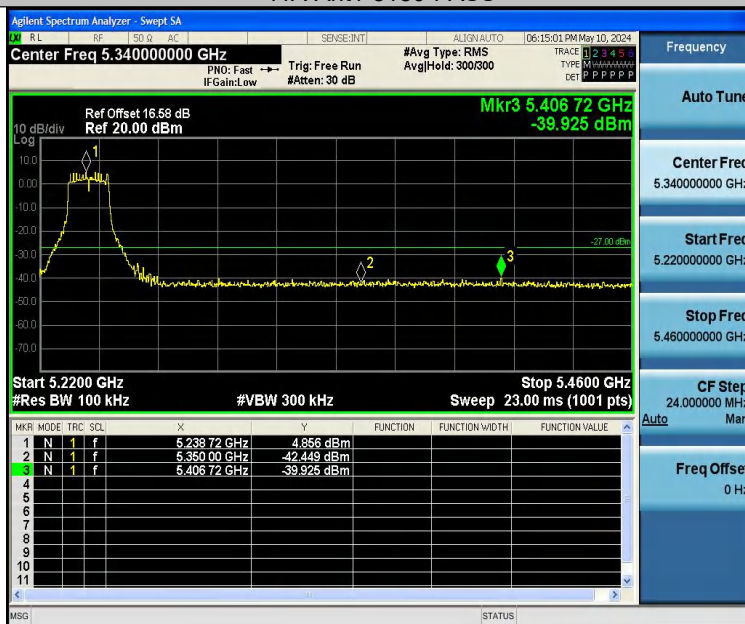
11AC20SIS O	Ant1	High	5825	5850~5855	-30.71	≤16.41	PASS
11AC20SIS O	Ant1	High	5825	5855~5875	-33.78	≤10.51	PASS
11AC20SIS O	Ant1	High	5825	5875~5925	-40.94	≤-17.17	PASS
11AC20SIS O	Ant1	High	5825	5925~5935	-41.59	≤-27	PASS
11AC40SIS O	Ant1	Low	5755	5720~5725	-35.58	≤26.20	PASS
11AC40SIS O	Ant1	Low	5755	5700~5720	-39.17	≤13.76	PASS
11AC40SIS O	Ant1	Low	5755	5650~5700	-42.68	≤4.76	PASS
11AC40SIS O	Ant1	Low	5755	5780~5650	-43.53	≤-27	PASS
11AC40SIS O	Ant1	High	5795	5850~5855	-34.78	≤16.79	PASS
11AC40SIS O	Ant1	High	5795	5855~5875	-37.1	≤12.16	PASS
11AC40SIS O	Ant1	High	5795	5875~5925	-40.25	≤-15.93	PASS
11AC40SIS O	Ant1	High	5795	5925~5935	-41.71	≤-27	PASS
11AX20SIS O	Ant1	Low	5745	5720~5725	-37.37	≤19.75	PASS
11AX20SIS O	Ant1	Low	5745	5700~5720	-39.64	≤15.34	PASS
11AX20SIS O	Ant1	Low	5745	5650~5700	-42.57	≤8.02	PASS
11AX20SIS O	Ant1	Low	5745	5760~5650	-43.86	≤-27	PASS
11AX20SIS O	Ant1	High	5825	5850~5855	-32.63	≤15.79	PASS
11AX20SIS O	Ant1	High	5825	5855~5875	-35.29	≤10.02	PASS
11AX20SIS O	Ant1	High	5825	5875~5925	-40.35	≤-25.96	PASS
11AX20SIS O	Ant1	High	5825	5925~5935	-40.3	≤-27	PASS
11AX40SIS O	Ant1	Low	5755	5720~5725	-36.97	≤19.43	PASS
11AX40SIS O	Ant1	Low	5755	5700~5720	-36.53	≤14.07	PASS
11AX40SIS O	Ant1	Low	5755	5650~5700	-41.34	≤6.86	PASS
11AX40SIS O	Ant1	Low	5755	5780~5650	-44.39	≤-27	PASS
11AX40SIS O	Ant1	High	5795	5850~5855	-35.21	≤16.41	PASS
11AX40SIS O	Ant1	High	5795	5855~5875	-38.13	≤10.36	PASS
11AX40SIS O	Ant1	High	5795	5875~5925	-40.93	≤4.82	PASS
11AX40SIS O	Ant1	High	5795	5925~5935	-41.58	≤-27	PASS



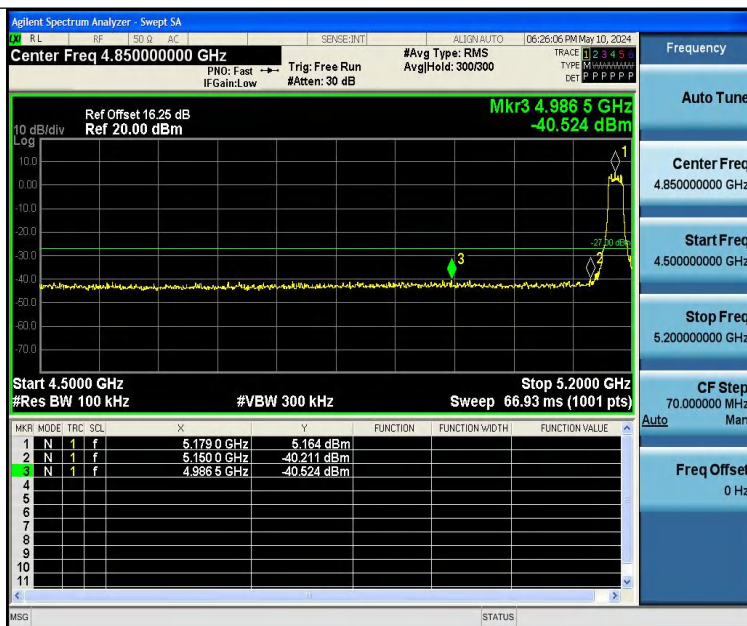
Test Graphs:



11A-Ant1-5180-PASS



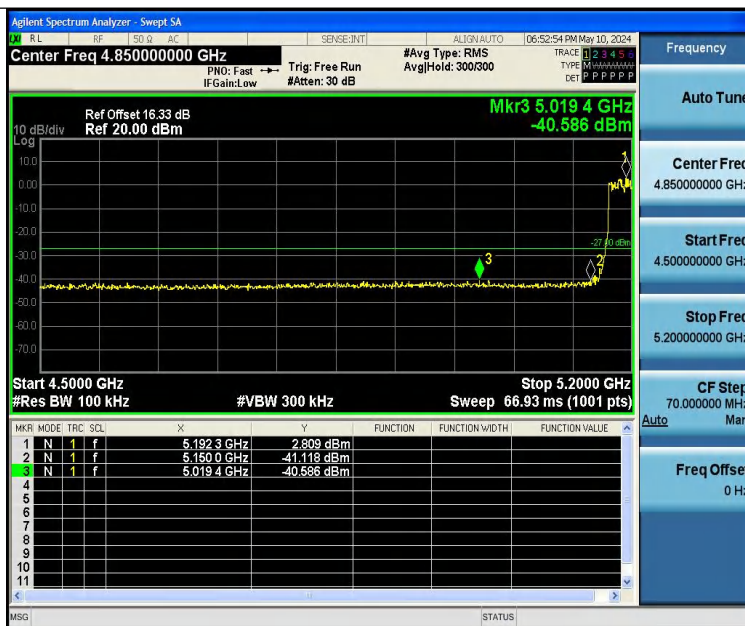
11A-Ant1-5240-PASS



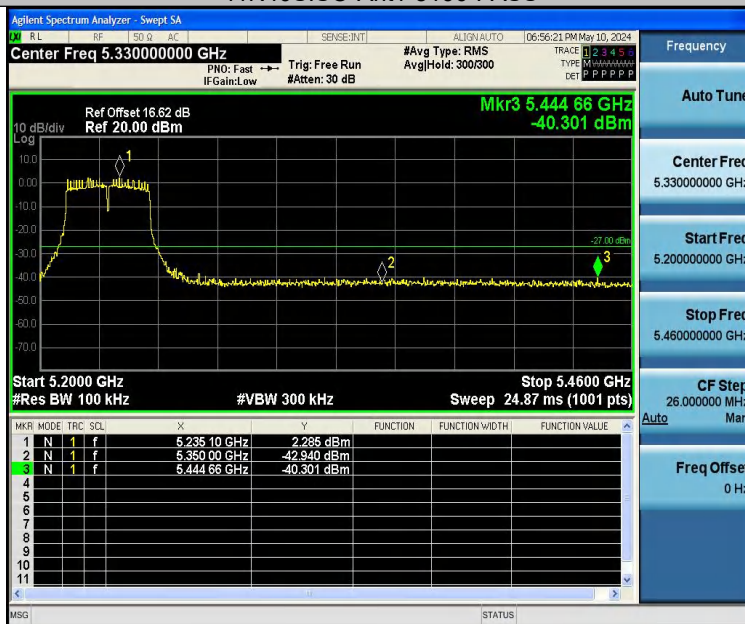
11N20SISO-Ant1-5180-PASS



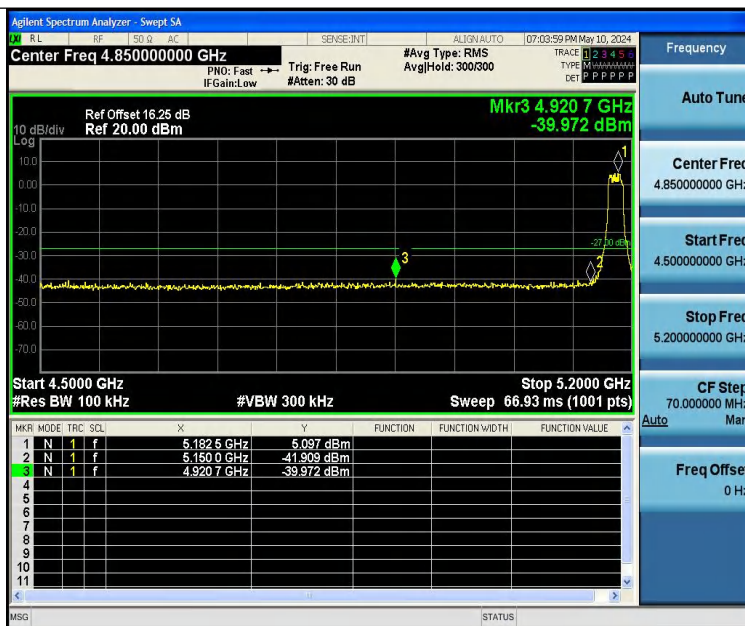
11N20SISO-Ant1-5240-PASS



11N40SISO-Ant1-5190-PASS



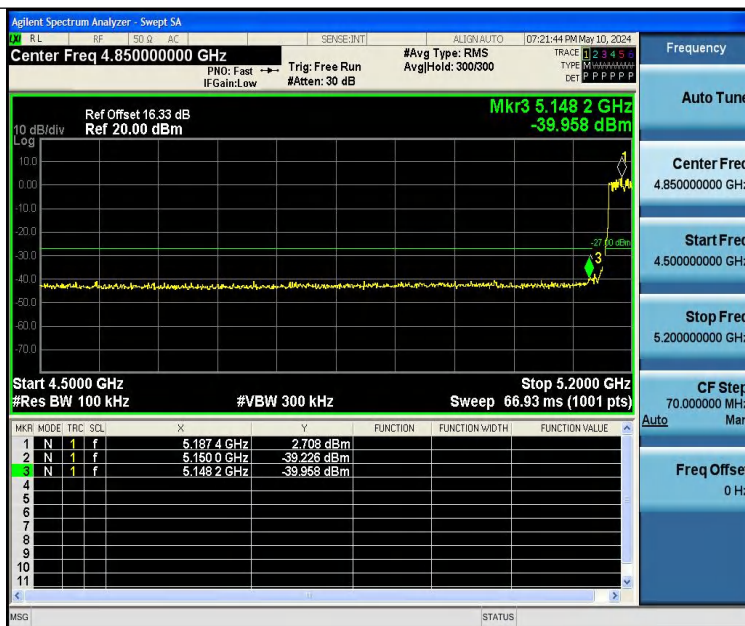
11N40SISO-Ant1-5230-PASS



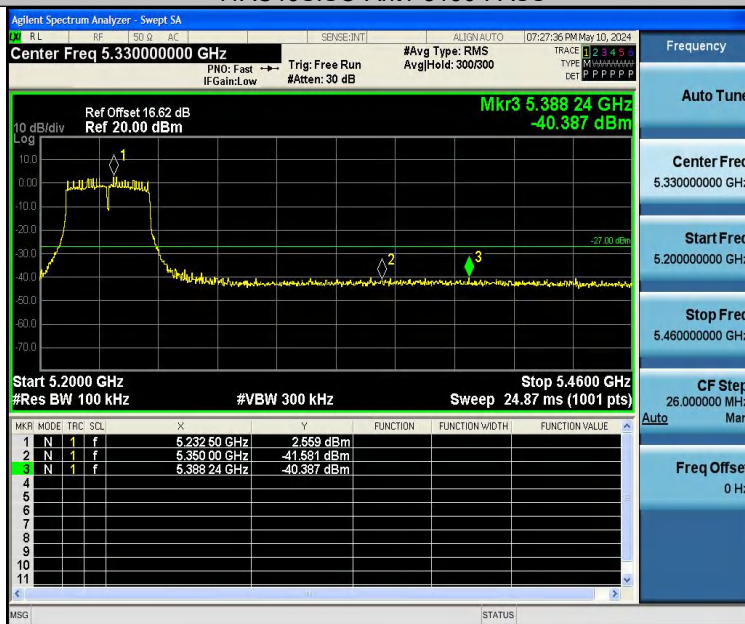
11AC20SISO-Ant1-5180-PASS



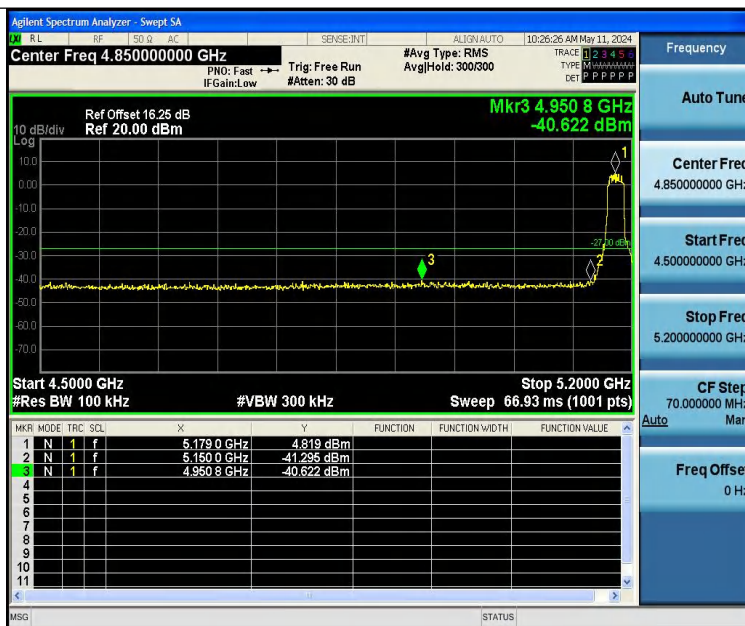
11AC20SISO-Ant1-5240-PASS



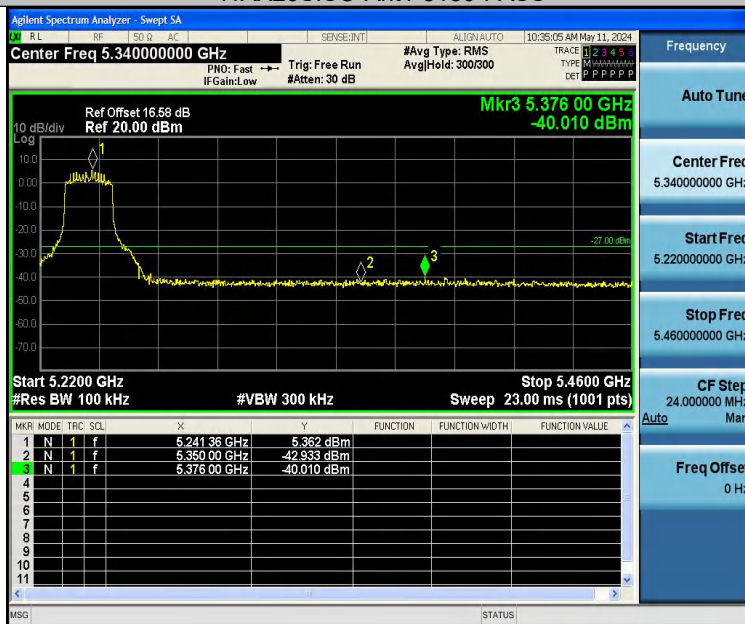
11AC40SISO-Ant1-5190-PASS



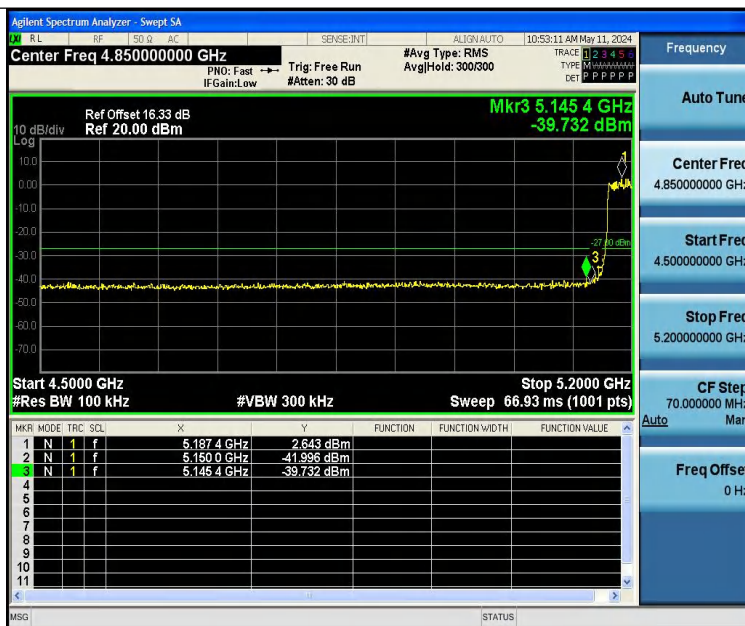
11AC40SISO-Ant1-5230-PASS



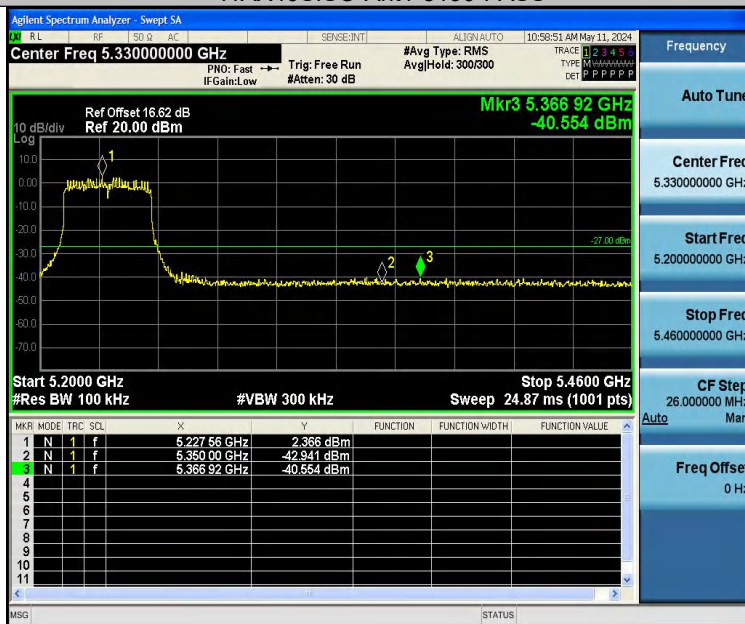
11AX20SISO-Ant1-5180-PASS



11AX20SISO-Ant1-5240-PASS



11AX40SISO-Ant1-5190-PASS



11AX40SISO-Ant1-5230-PASS



Test plots B4:



11A-Ant1-5745-PASS



11A-Ant1-5825-PASS



11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5825-PASS



11N40SISO-Ant1-5755-PASS



11N40SISO-Ant1-5795-PASS



11AC20SISO-Ant1-5745-PASS



11AC20SISO-Ant1-5825-PASS



11AC40SISO-Ant1-5755-PASS



11AC40SISO-Ant1-5795-PASS



11AX20SISO-Ant1-5745-PASS



11AX20SISO-Ant1-5825-PASS



11AX40SISO-Ant1-5755-PASS



11AX40SISO-Ant1-5795-PASS



6.7 Restricted Band

Test Requirement : FCC Part15 E Section 15.407(b)

Test site : Measurement Distance: 3m

Test Limit :	Frequency	Limit (dBUV/m @3m)	Remark
	Above 1GHz	74	Peak Value
		54	Average Value

Test Procedure:

1. The EUT was placed on a styrofoam table which is 1.5m above ground plane.
2. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
8. The test above 1GHz must be use the fully anechoic room, and the test below 1GHz use the half anechoic room

Test Result:

Worst case mode:		802.11a(6Mbps)		Test channel:		36		
NO.	Freq. [MHz]	level [dBμV/m]	Factor [dB]	Emission level [dBμV/m]	Limit [dBμV/m]	Over [dB]	Polarity	Detector Type
1	5150	50.76	6.53	57.29	74	16.71	H	Peak
2	5150	40.08	6.53	46.61	54	7.39	H	Average
3	5150	50.05	6.53	56.58	74	17.42	V	Peak
4	5150	38.11	6.53	44.64	54	9.36	V	Average



Worst case mode:		802.11a(6Mbps)		Test channel:		48		
NO.	Freq. [MHz]	level [dBμV/m]	Factor [dB]	Emission level [dBμV/m]	Limit [dBμV/m]	Over [dB]	Polarity	Detector Type
1	5350	49.99	6.56	56.55	74	17.45	H	Peak
2	5350	40.2	6.56	46.76	54	7.24	H	Average
3	5350	49.69	6.56	56.25	74	17.75	V	Peak
4	5350	38.18	6.56	44.74	54	9.26	V	Average

Worst case mode:		802.11a(6Mbps)		Test channel:		165		
NO.	Freq. [MHz]	level [dBμV/m]	Factor [dB]	Emission level [dBμV/m]	Limit [dBμV/m]	Over [dB]	Polarity	Detector Type
1	5850	49.5	6.64	56.14	74	17.86	H	Peak
2	5850	40.41	6.64	47.05	54	6.95	H	Average
3	5850	49.55	6.64	56.19	74	17.81	V	Peak
4	5850	37.71	6.64	44.35	54	9.65	V	Average

Note: Only recorded the worst case in the report.



7 Emission Bandwidth and Occupied Bandwidth

Test Requirement	: FCC CFR47 Part 15 Section 15.407(a)(e)
Test Method	: ANSI C63.10:2013
Test Limit	According to FCC §15.407(a), The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth. As per FCC §15.407(e): for equipment operating in the band 5725 – 5850 MHz, the minimum 6 dB bandwidth of U-NII devices shall be 500 kHz.

7.1 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01,
Emission Bandwidth (EBW)

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 maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%; 99% Occupied Bandwidth

The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99% occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in II.G.3.d). Measurements of 99% occupied bandwidth may also optionally be used in lieu of the EBW to define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

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

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set $VBW \geq 3 \cdot RBW$
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency.



The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

7.2 Test Result

PASS

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.

26 dB emission bandwidth:

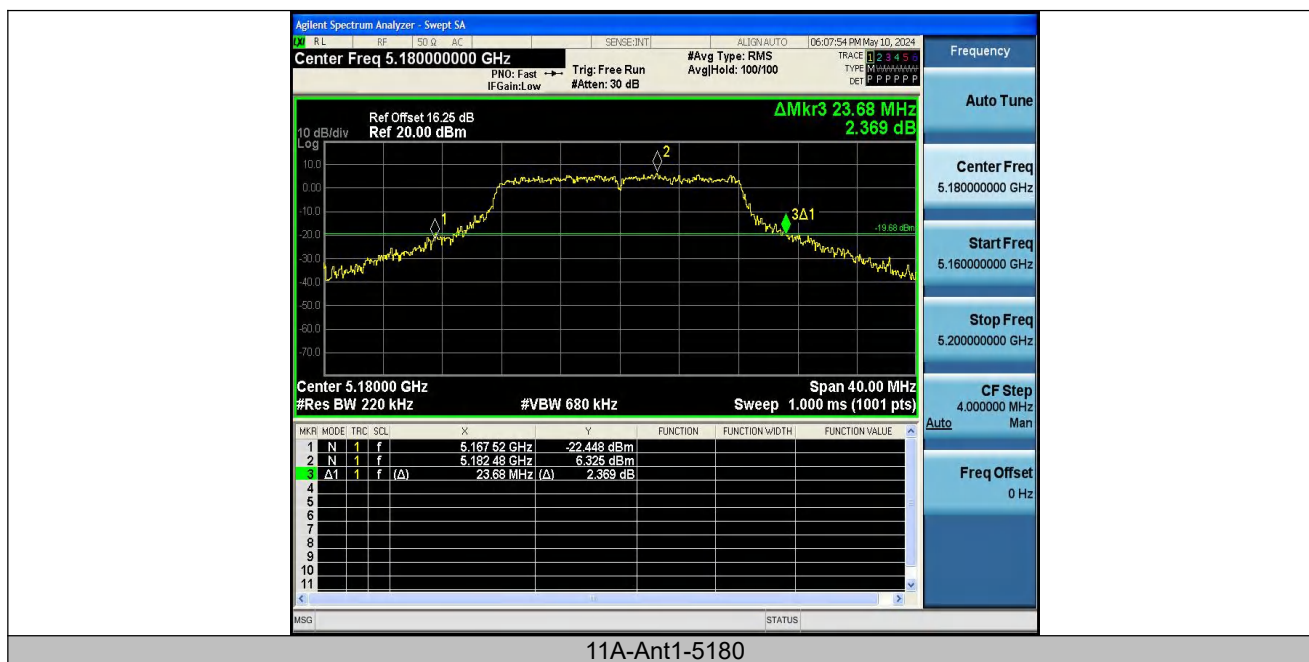
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	23.680	5167.520	5191.200	---	---
11A	Ant1	5200	23.760	5187.960	5211.720	---	---
11A	Ant1	5240	23.200	5228.000	5251.200	---	---
11A	Ant1	5745	24.720	5732.880	5757.600	---	---
11A	Ant1	5785	23.920	5773.400	5797.320	---	---
11A	Ant1	5825	24.240	5812.640	5836.880	---	---
11N20SISO	Ant1	5180	24.520	5167.880	5192.400	---	---
11N20SISO	Ant1	5200	24.760	5187.560	5212.320	---	---
11N20SISO	Ant1	5240	25.040	5227.000	5252.040	---	---
11N20SISO	Ant1	5745	26.400	5732.800	5759.200	---	---
11N20SISO	Ant1	5785	25.120	5772.960	5798.080	---	---
11N20SISO	Ant1	5825	26.640	5812.640	5839.280	---	---
11N40SISO	Ant1	5190	44.880	5168.240	5213.120	---	---
11N40SISO	Ant1	5230	46.080	5206.160	5252.240	---	---
11N40SISO	Ant1	5755	45.600	5733.720	5779.320	---	---
11N40SISO	Ant1	5795	45.280	5772.840	5818.120	---	---
11AC20SISO	Ant1	5180	25.360	5167.600	5192.960	---	---
11AC20SISO	Ant1	5200	23.800	5188.240	5212.040	---	---
11AC20SISO	Ant1	5240	24.480	5227.280	5251.760	---	---
11AC20SISO	Ant1	5745	25.720	5732.960	5758.680	---	---
11AC20SISO	Ant1	5785	24.600	5772.680	5797.280	---	---
11AC20SISO	Ant1	5825	26.040	5812.520	5838.560	---	---
11AC40SISO	Ant1	5190	45.120	5167.680	5212.800	---	---
11AC40SISO	Ant1	5230	45.040	5207.440	5252.480	---	---
11AC40SISO	Ant1	5755	45.040	5733.400	5778.440	---	---
11AC40SISO	Ant1	5795	45.760	5772.040	5817.800	---	---
11AX20SISO	Ant1	5180	22.560	5168.320	5190.880	---	---
11AX20SISO	Ant1	5200	24.840	5187.640	5212.480	---	---
11AX20SISO	Ant1	5240	23.760	5228.320	5252.080	---	---
11AX20SISO	Ant1	5745	25.040	5733.360	5758.400	---	---
11AX20SISO	Ant1	5785	24.400	5772.960	5797.360	---	---
11AX20SISO	Ant1	5825	24.720	5812.640	5837.360	---	---
11AX40SISO	Ant1	5190	43.200	5168.640	5211.840	---	---
11AX40SISO	Ant1	5230	44.160	5208.240	5252.400	---	---
11AX40SISO	Ant1	5755	46.080	5733.080	5779.160	---	---
11AX40SISO	Ant1	5795	45.120	5773.000	5818.120	---	---



minimum 6 dB bandwidth:

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.360	5736.800	5753.160	0.5	PASS
11A	Ant1	5785	16.360	5776.800	5793.160	0.5	PASS
11A	Ant1	5825	16.320	5816.800	5833.120	0.5	PASS
11N20SISO	Ant1	5745	17.560	5736.200	5753.760	0.5	PASS
11N20SISO	Ant1	5785	17.560	5776.200	5793.760	0.5	PASS
11N20SISO	Ant1	5825	17.640	5816.160	5833.800	0.5	PASS
11N40SISO	Ant1	5755	35.680	5737.480	5773.160	0.5	PASS
11N40SISO	Ant1	5795	36.240	5776.840	5813.080	0.5	PASS
11AC20SISO	Ant1	5745	17.600	5736.200	5753.800	0.5	PASS
11AC20SISO	Ant1	5785	17.560	5776.200	5793.760	0.5	PASS
11AC20SISO	Ant1	5825	17.600	5816.160	5833.760	0.5	PASS
11AC40SISO	Ant1	5755	35.040	5738.120	5773.160	0.5	PASS
11AC40SISO	Ant1	5795	35.760	5777.400	5813.160	0.5	PASS
11AX20SISO	Ant1	5745	18.960	5735.520	5754.480	0.5	PASS
11AX20SISO	Ant1	5785	18.760	5775.680	5794.440	0.5	PASS
11AX20SISO	Ant1	5825	18.400	5815.960	5834.360	0.5	PASS
11AX40SISO	Ant1	5755	35.360	5738.680	5774.040	0.5	PASS
11AX40SISO	Ant1	5795	37.760	5776.120	5813.880	0.5	PASS

Test Graphs:



11A-Ant1-5180



11A-Ant1-5200



11A-Ant1-5240



11A-Ant1-5745



11A-Ant1-5785



11A-Ant1-5825



11N20SISO-Ant1-5180



11N20SISO-Ant1-5200



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