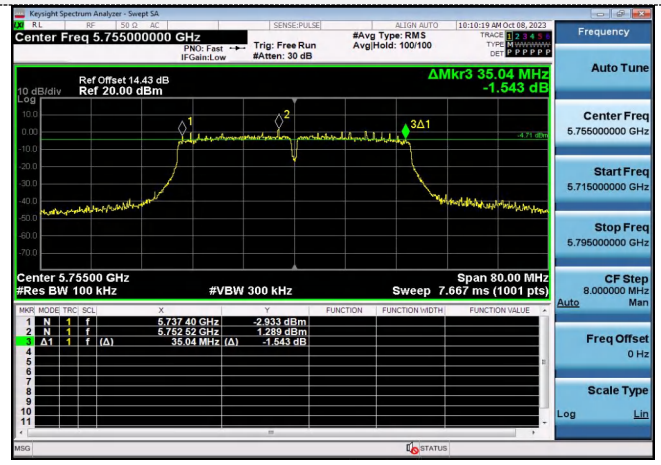
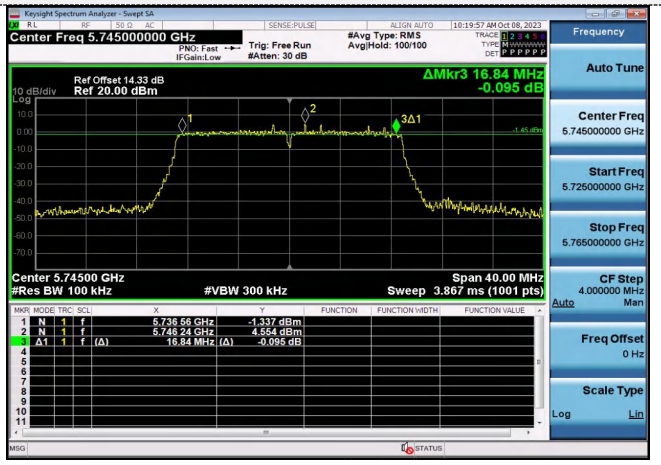
802.11n(HT40)

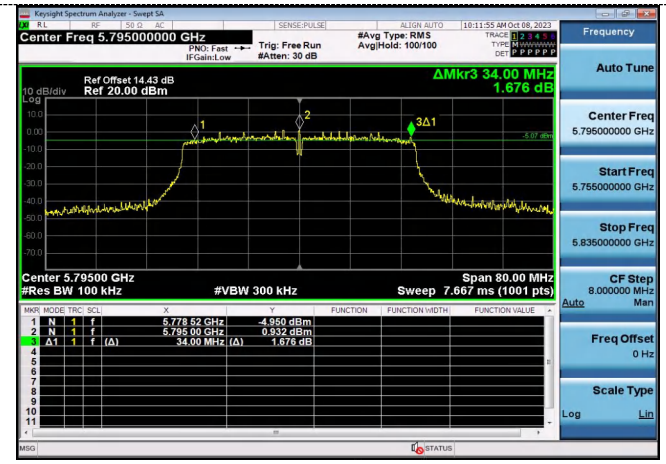


CH151

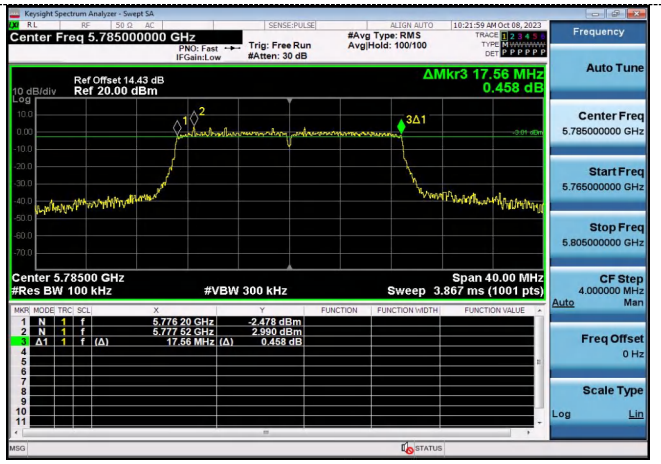
802.11ac(VHT20)



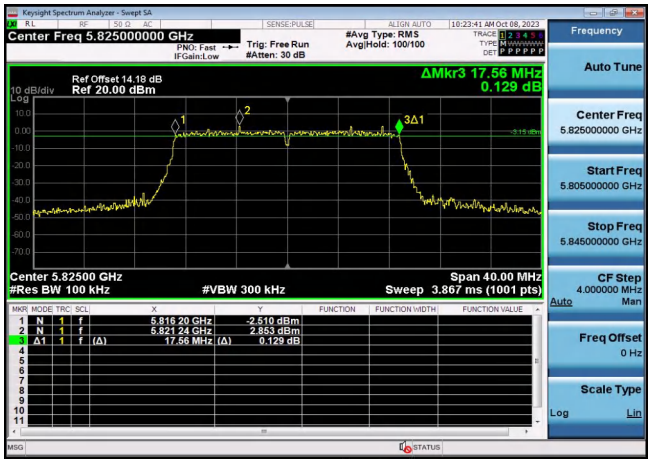
CH149



CH159

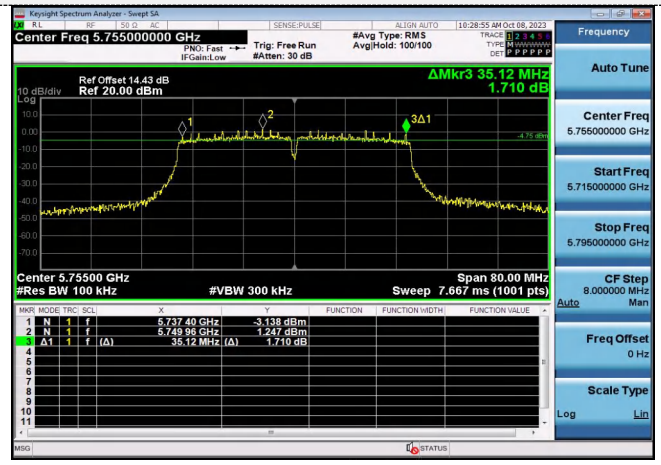


CH157



CH165

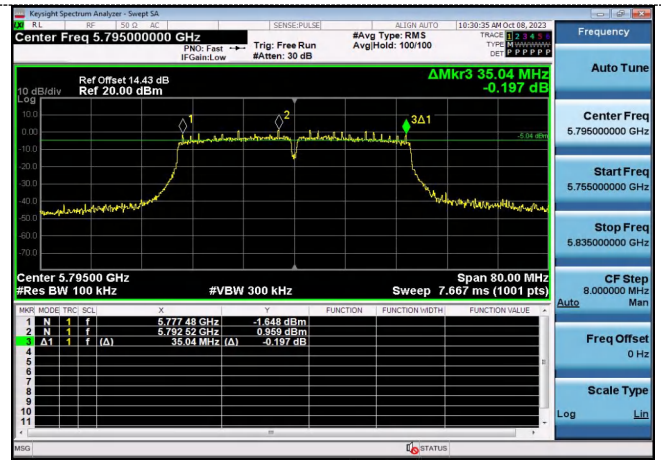
802.11ac(VHT40)



802.11ac(VHT80)

CH151

CH155



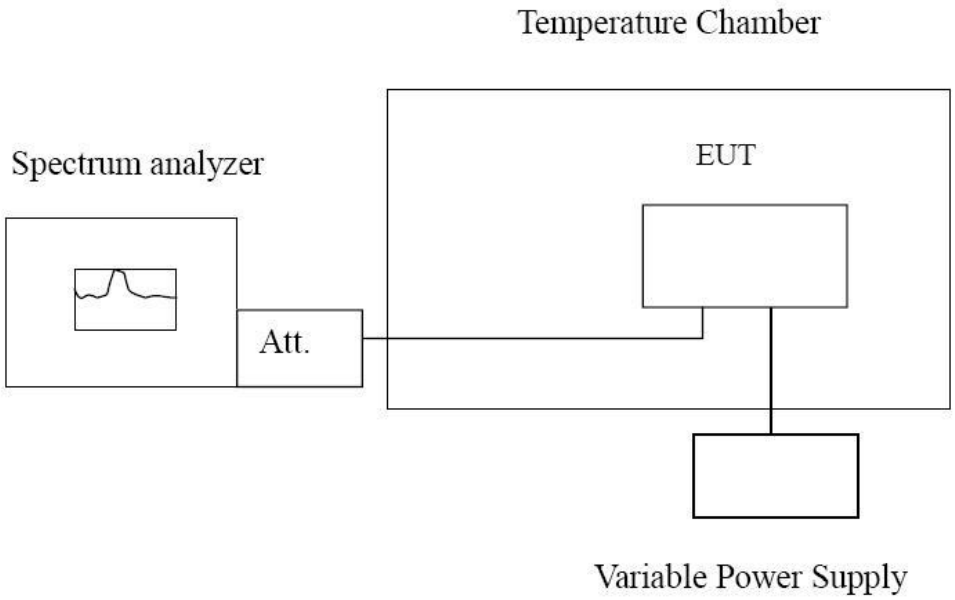
CH159

4.7 Frequency Stability

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.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

Frequency Stability under Voltage Variations:
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

TEST RESULTS

Record worst case as below:

Ant 1

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
230	-30	154.68	0.02986	Within the band of operation	Pass
	-20	147.53	0.02848		
	-10	135.84	0.02622		
	0	141.62	0.02734		
	10	130.84	0.02526		
	20	129.41	0.02498		
	30	138.74	0.02678		
	40	144.62	0.02792		
	50	150.78	0.02911		
253	25	137.69	0.02658		
208	25	132.47	0.02557		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
230	-30	142.61	0.02482	Within the band of operation	Pass
	-20	134.73	0.02345		
	-10	146.82	0.02556		
	0	135.65	0.02361		
	10	134.21	0.02336		
	20	128.63	0.02239		
	30	124.82	0.02173		
	40	136.67	0.02379		
	50	141.57	0.02464		
253	25	144.97	0.02523		
208	25	138.54	0.02411		

Ant 2

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
230	-30	127.54	0.02462	Within the band of operation	Pass
	-20	148.25	0.02862		
	-10	140.36	0.02710		
	0	126.85	0.02449		
	10	133.42	0.02576		
	20	141.55	0.02733		
	30	137.85	0.02661		
	40	132.46	0.02557		
	50	124.31	0.02400		
253	25	137.64	0.02657		
208	25	140.52	0.02713		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
230	-30	132.61	0.02308	Within the band of operation	Pass
	-20	127.65	0.02222		
	-10	134.54	0.02342		
	0	130.82	0.02277		
	10	143.16	0.02492		
	20	140.27	0.02442		
	30	139.45	0.02427		
	40	127.68	0.02222		
	50	122.54	0.02133		
253	25	134.68	0.02344		
208	25	142.71	0.02484		

4.8 Automatically Discontinue Transmission

Standard Applicable

FCC CFR Title 47 Part 15 Subpart C Section 15.407(c):

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

Test Result:

Declared by applicants that the device will automatically discontinue transmission in case of either absence of information to transmit or operational failure.

4.9 Band edge for RF Conducted Emissions

Limit

1) For transmitters operating in the 5.15 – 5.25 GHz band: All emissions outside of the 5.15 – 5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

2) For transmitters operating solely in the 5.725 – 5.850 GHz band.

All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Test Procedure

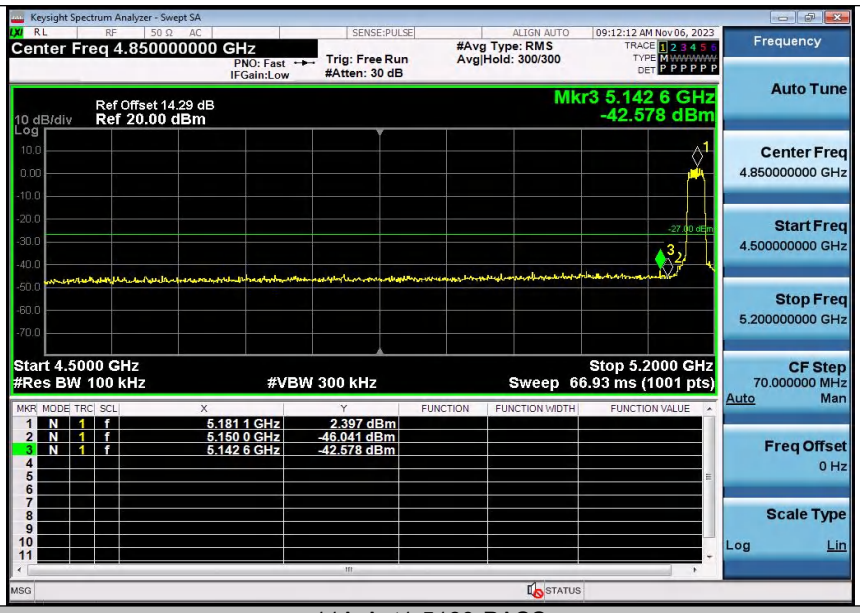
Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold.

Test Configuration

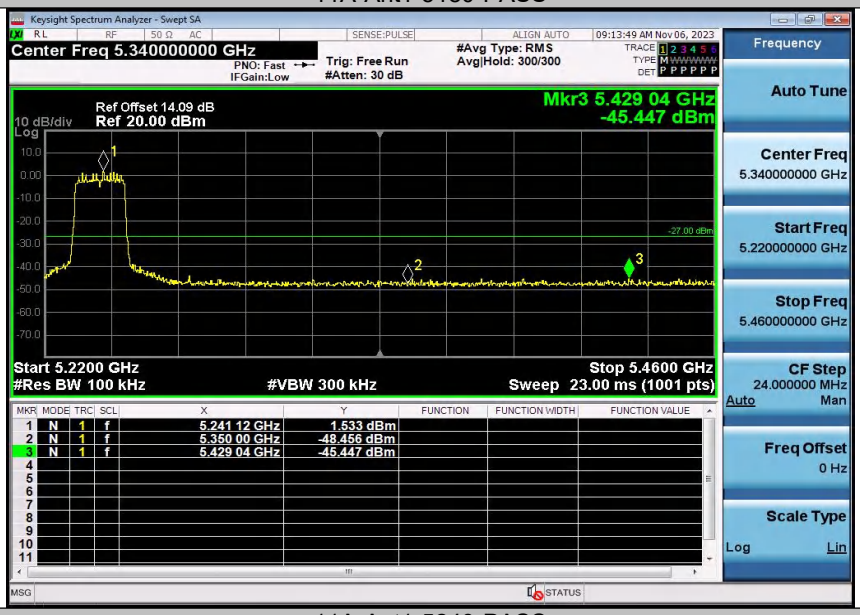
Test Results

Test plot as follows:

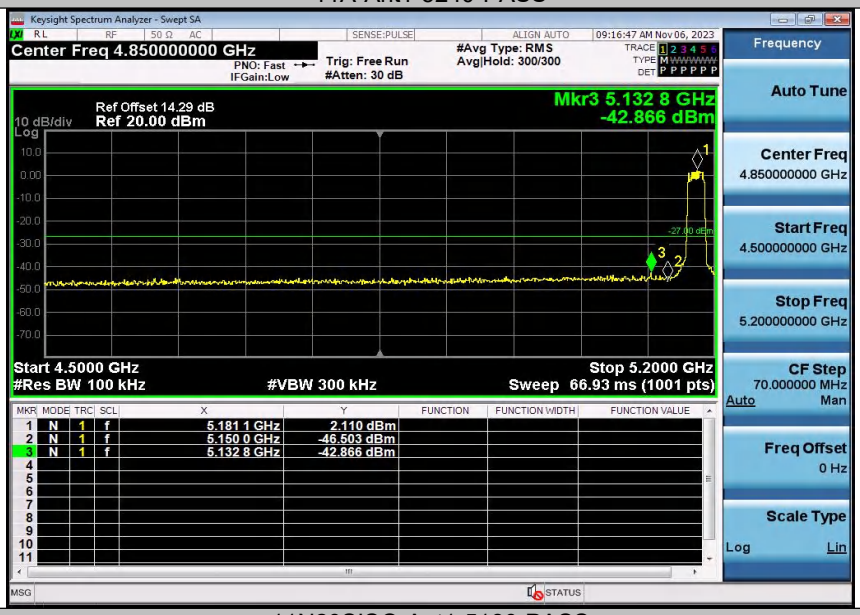
Ant 1



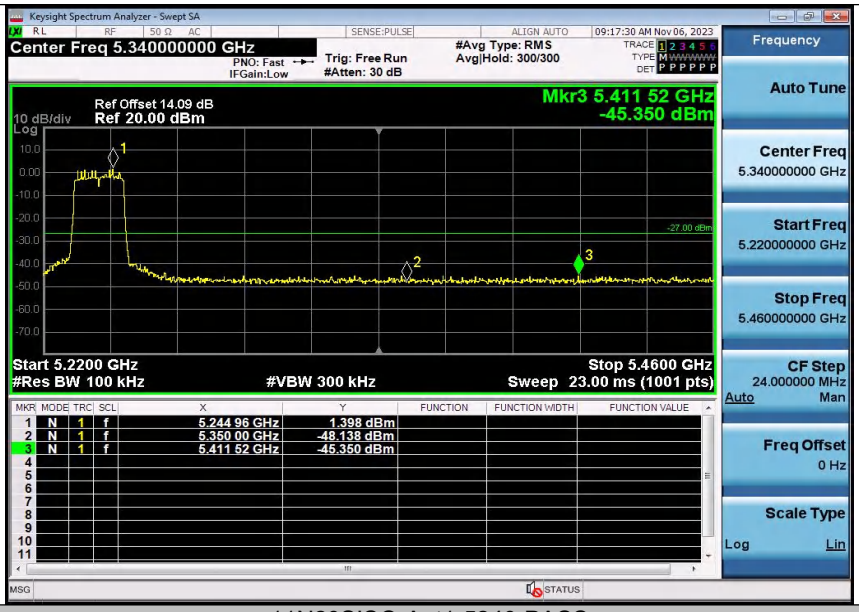
11A-Ant1-5180-PASS



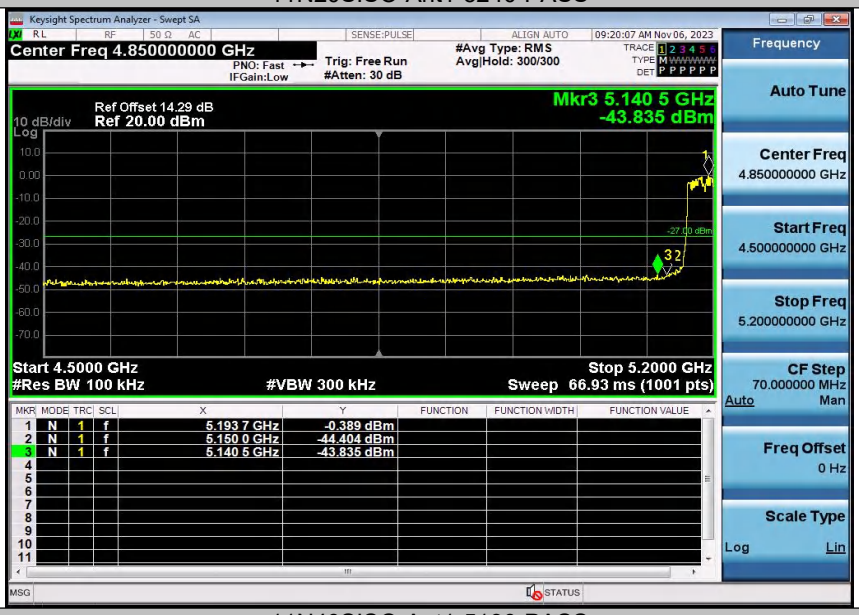
11A-Ant1-5240-PASS



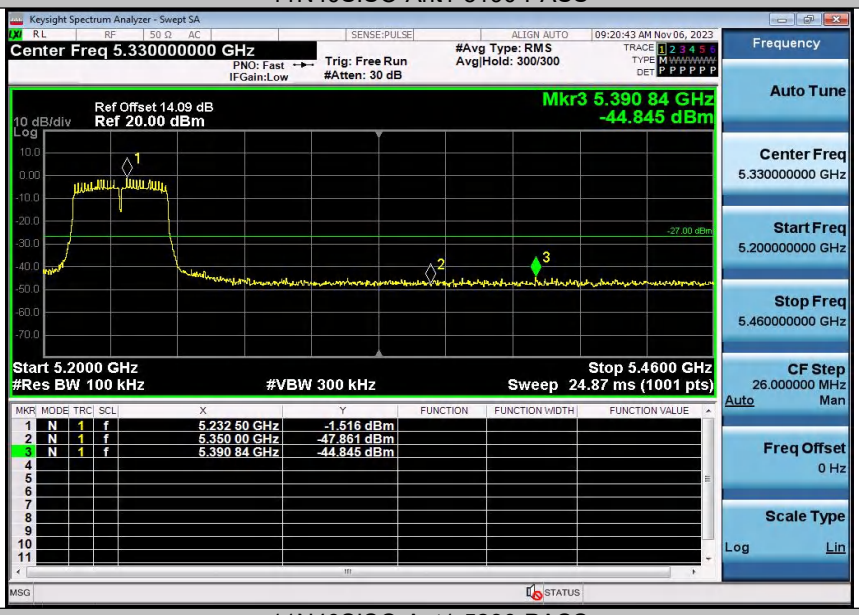
11N20SISO-Ant1-5180-PASS



11N20SISO-Ant1-5240-PASS



11N40SISO-Ant1-5190-PASS



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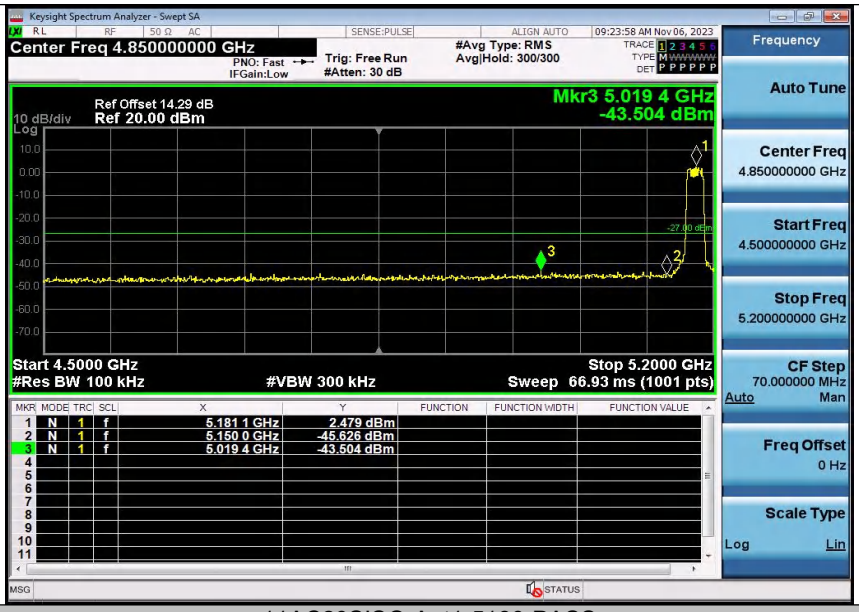
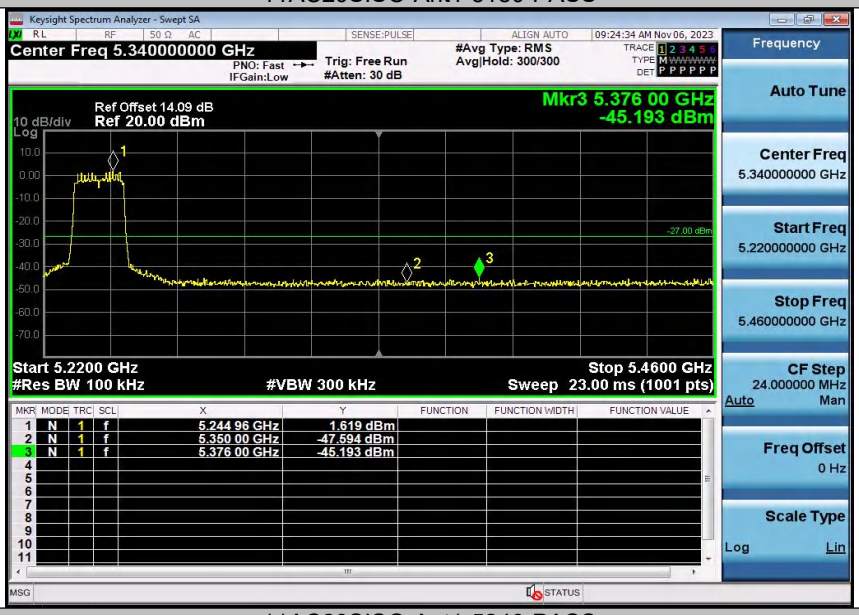
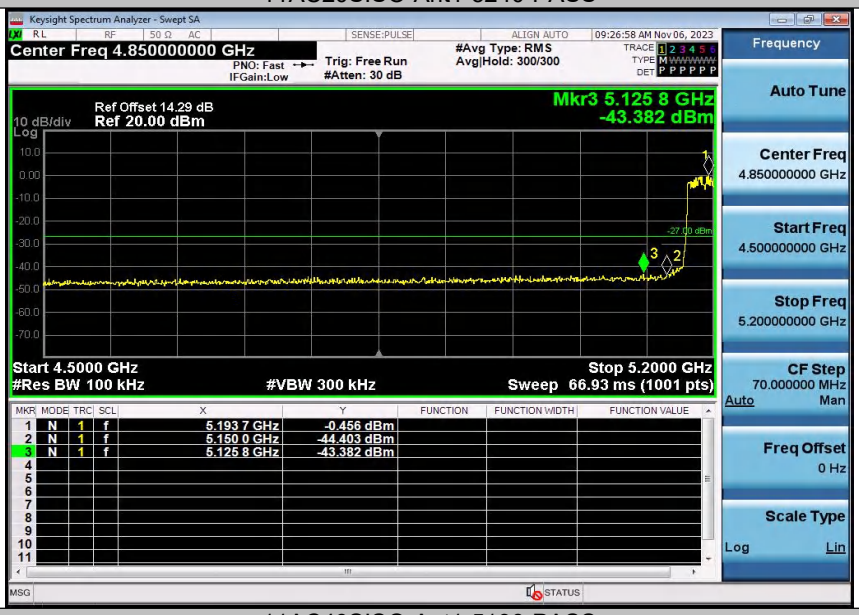


11AC20SISO-Ant1-5180-PASS



11AC20SISO-Ant1-5240-PASS



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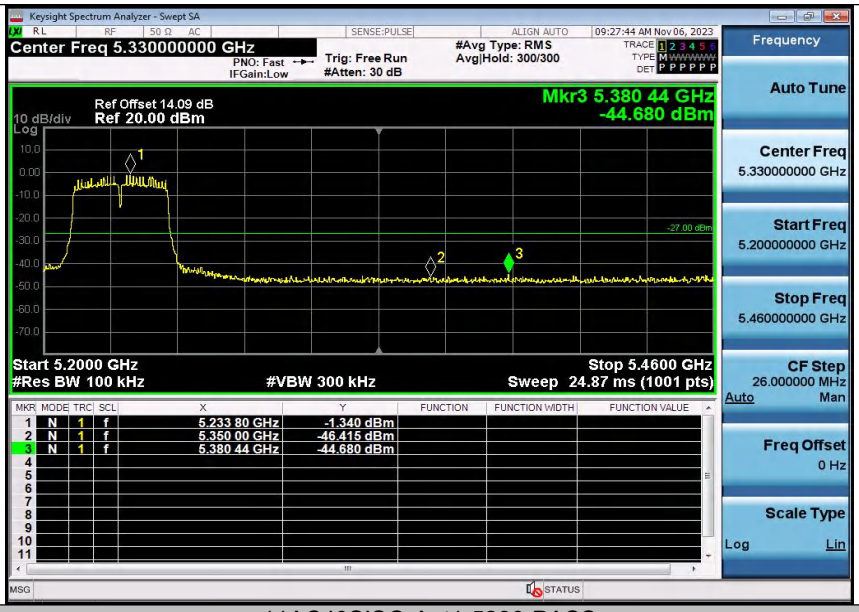

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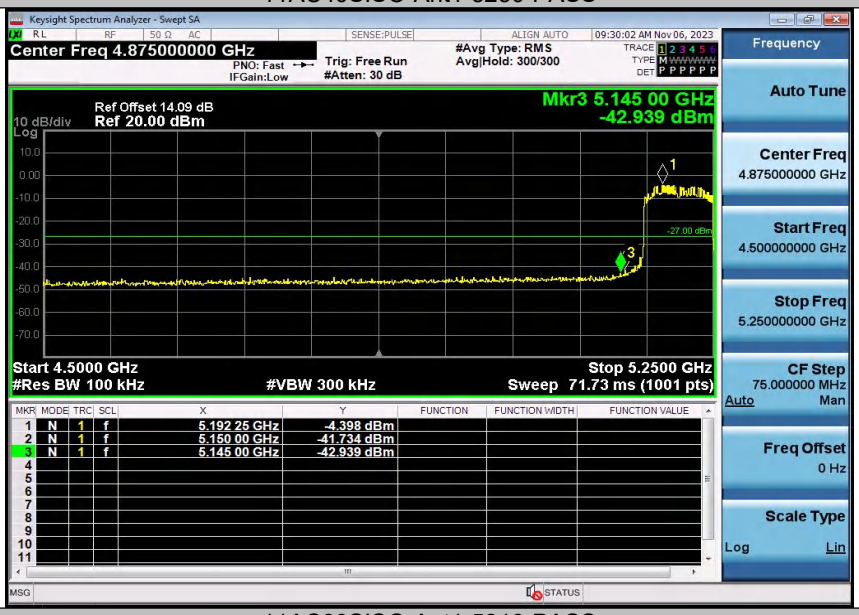

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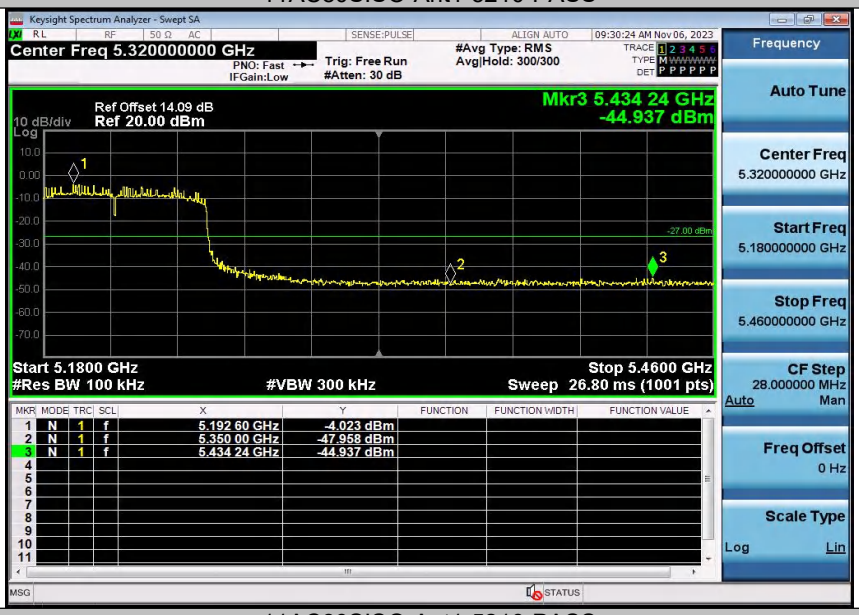
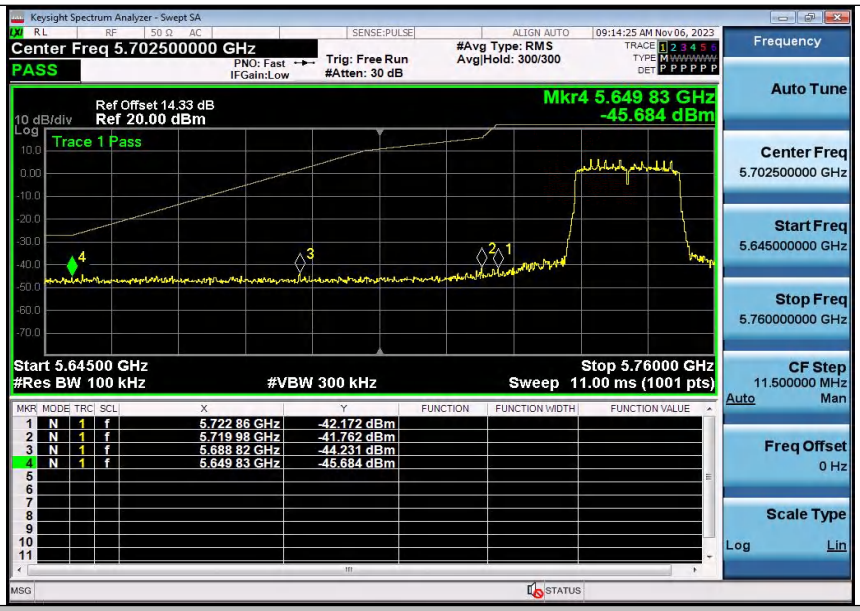
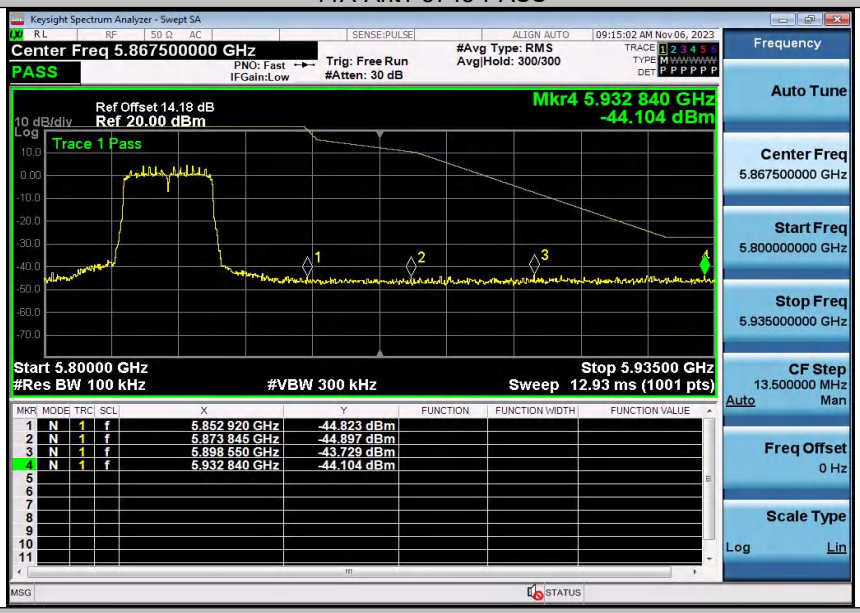


11AC80SISO-Ant1-5210-PASS



11A-Ant1-5745-PASS



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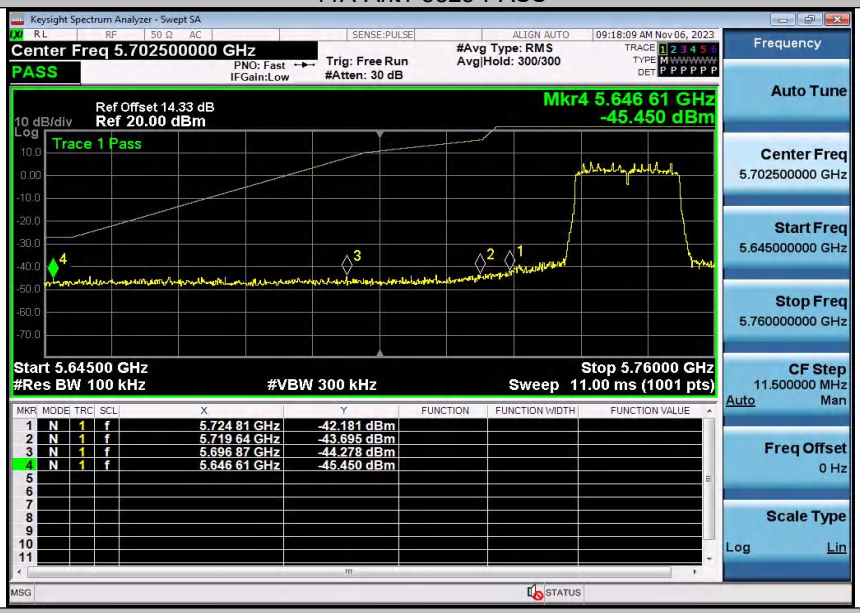
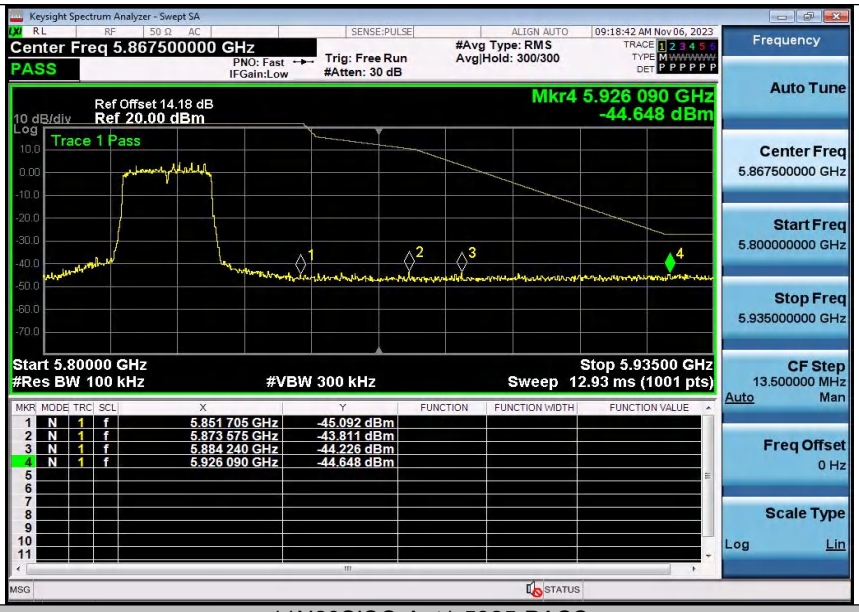


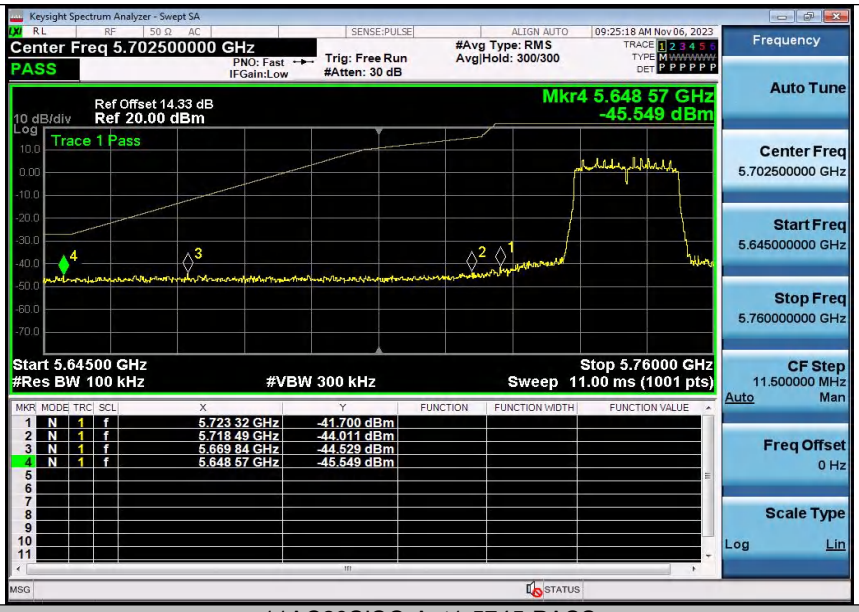
11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5825-PASS

11N40SISO-Ant1-5755-PASS

11N40SISO-Ant1-5795-PASS



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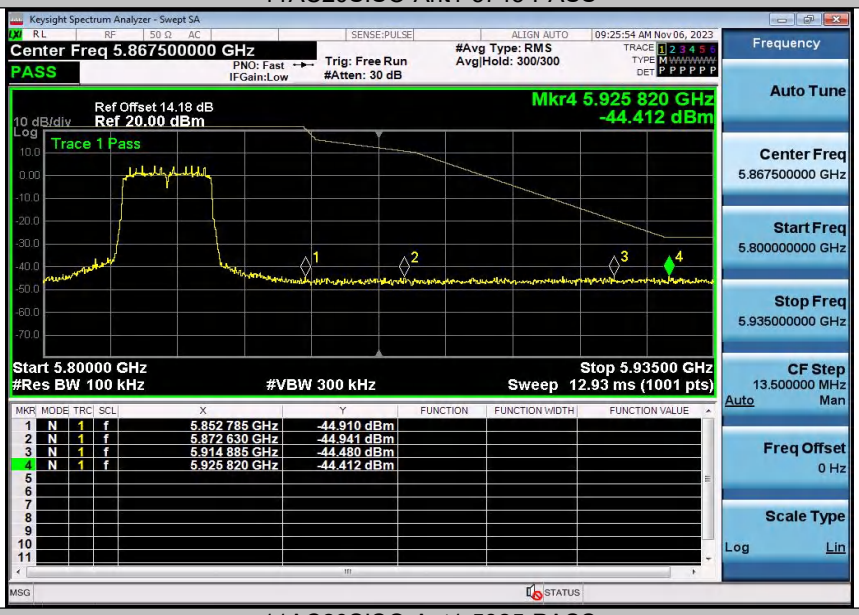

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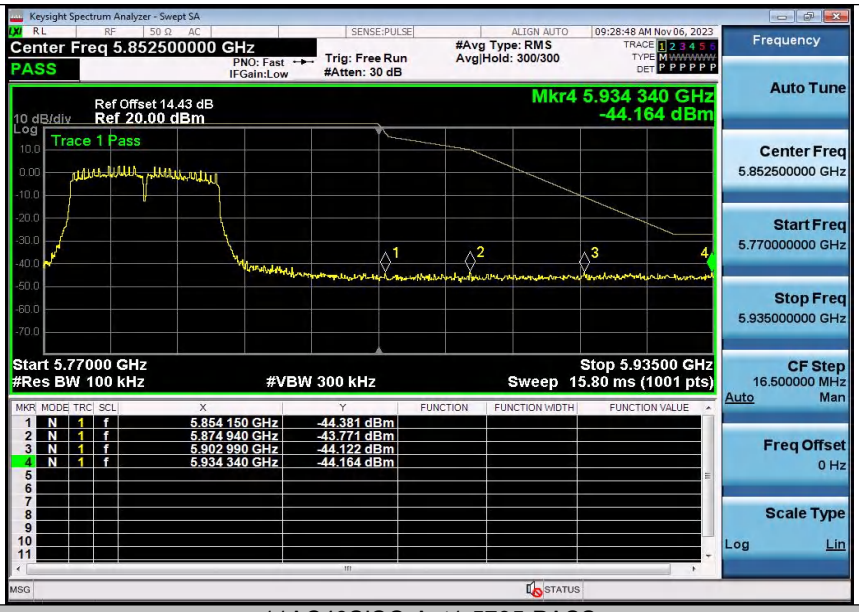
11AC40SISO-Ant1-5755-PASS



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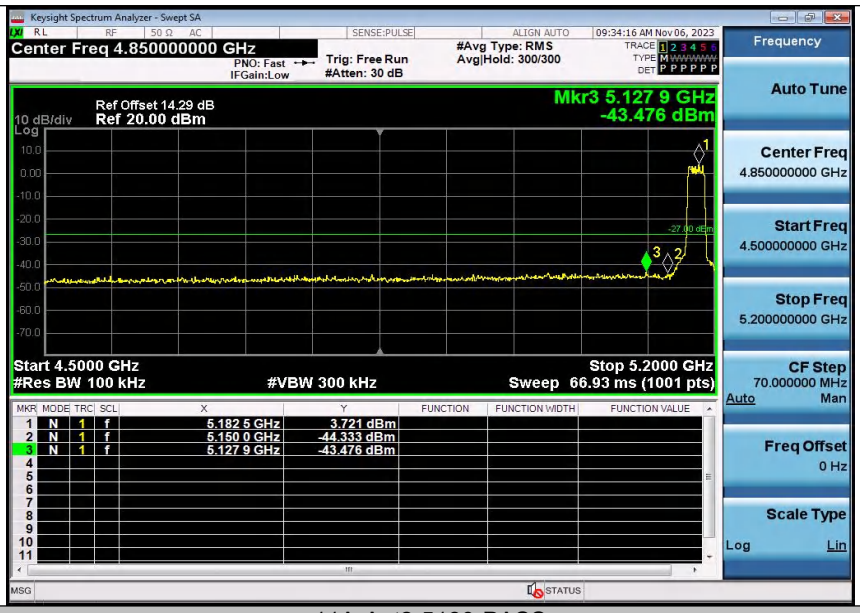
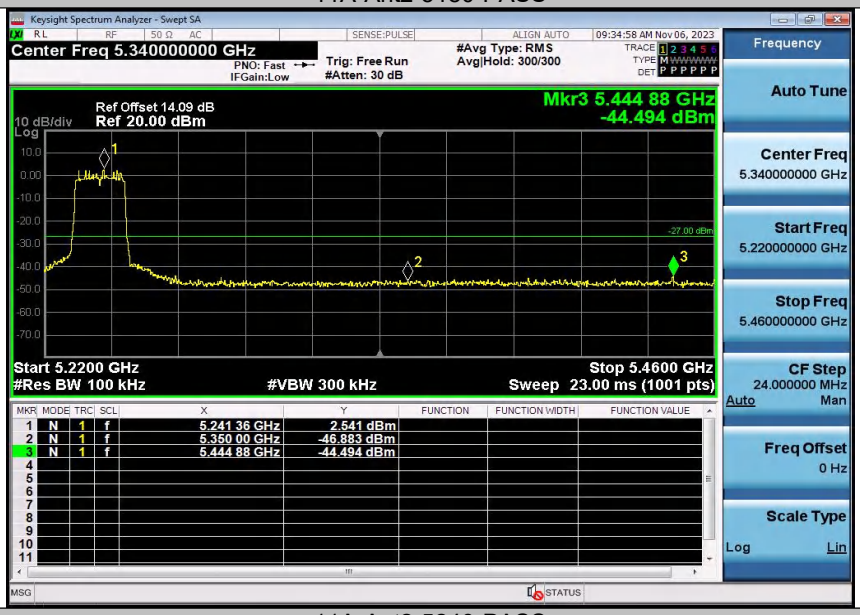
11AC80SISO-Ant1-5775-PASS

11AC80SISO-Ant1-5775-PASS

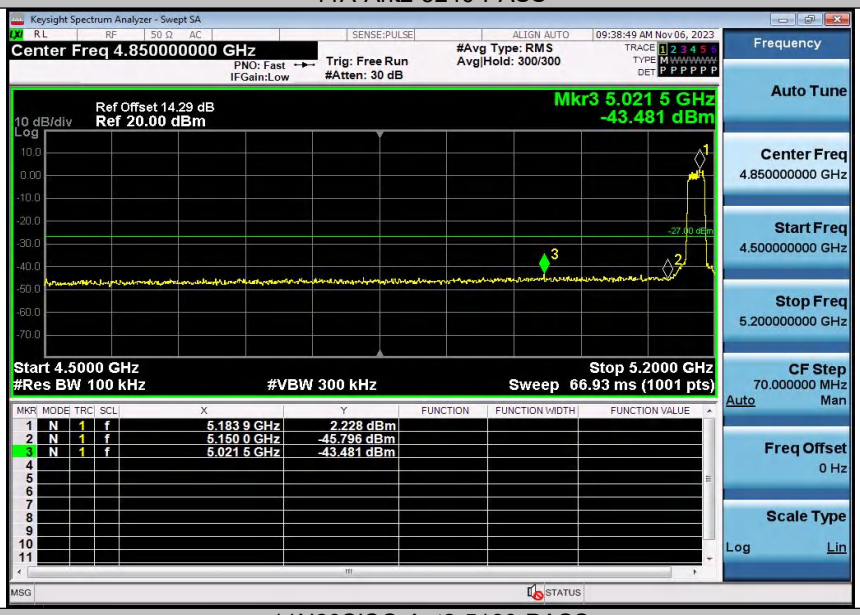
Ant 2



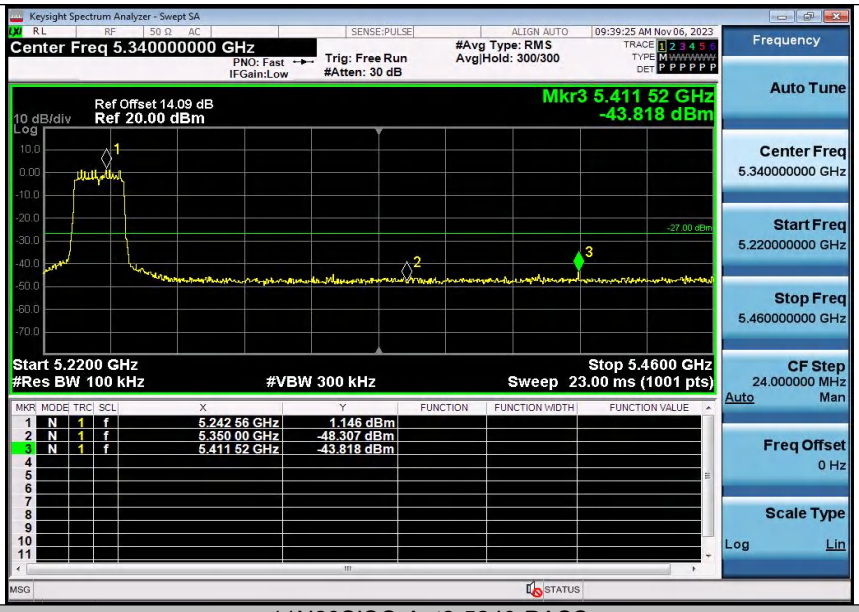
11A-Ant2-5180-PASS



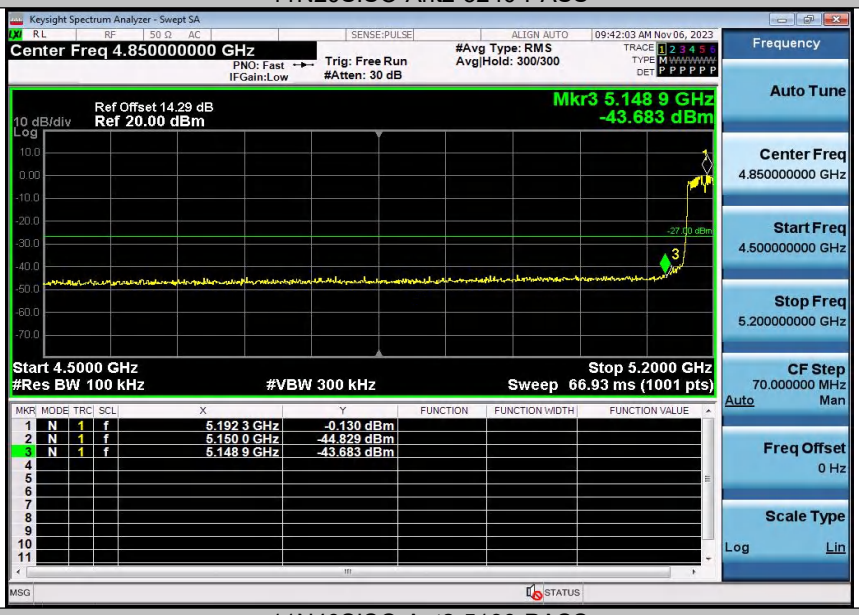
11A-Ant2-5240-PASS



11N20SISO-Ant2-5180-PASS



11N20SISO-Ant2-5240-PASS



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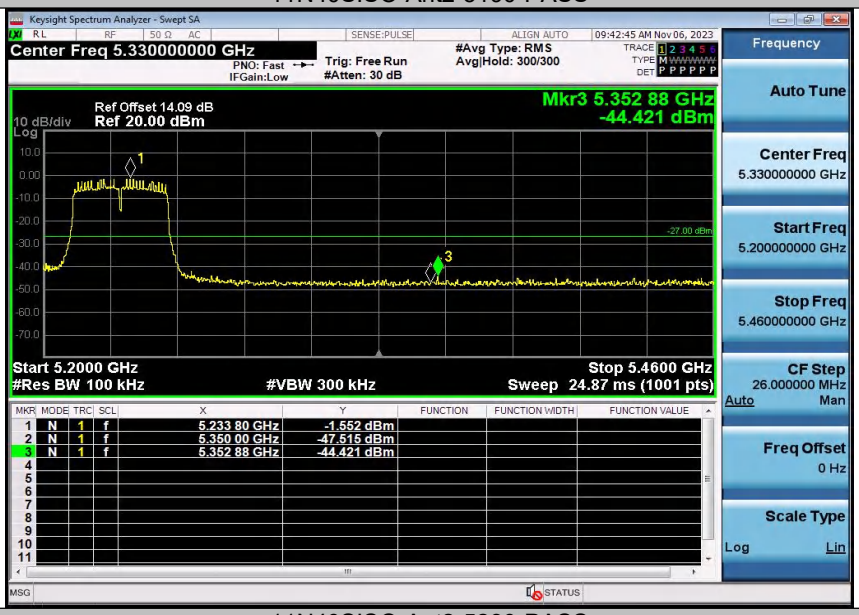

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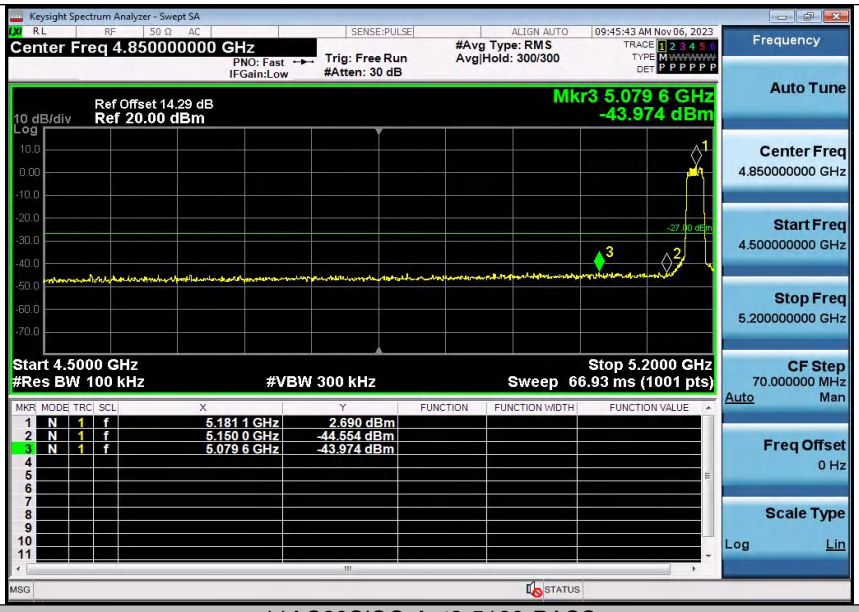

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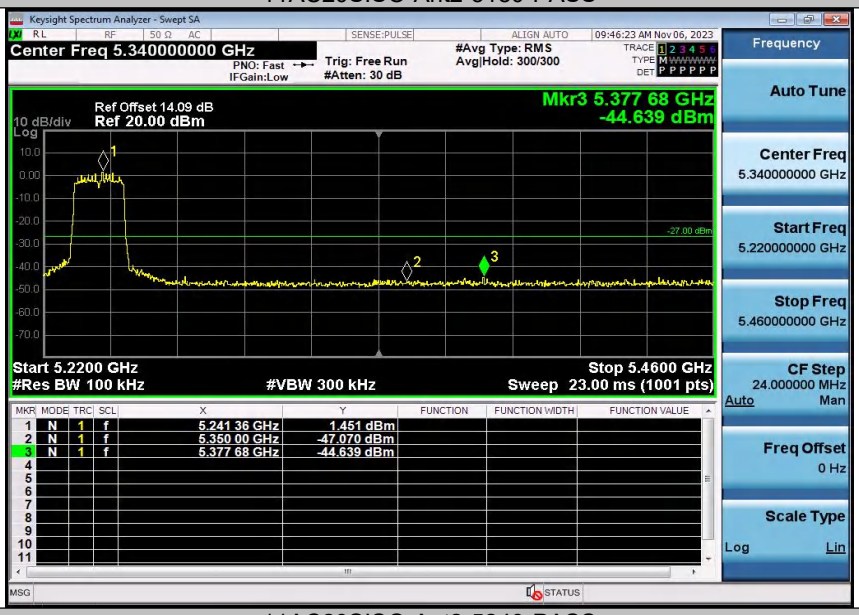

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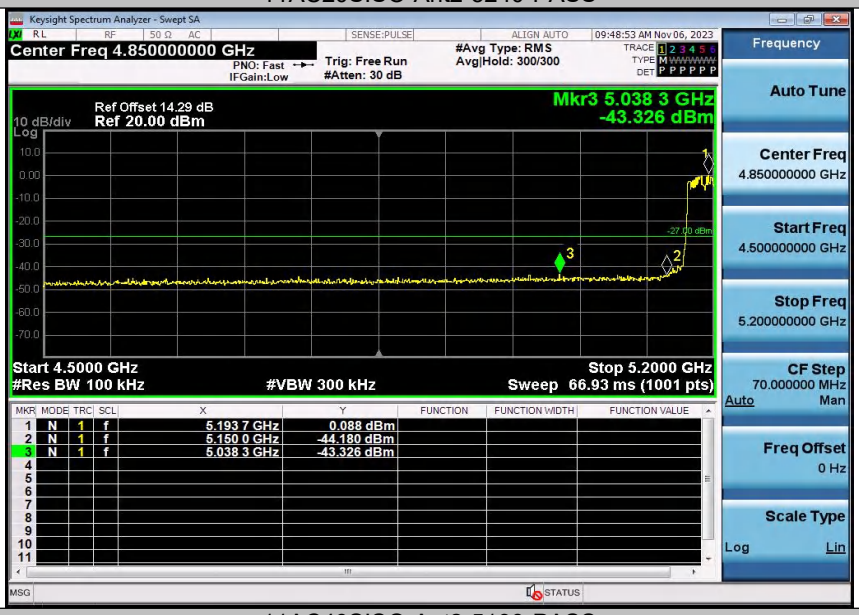
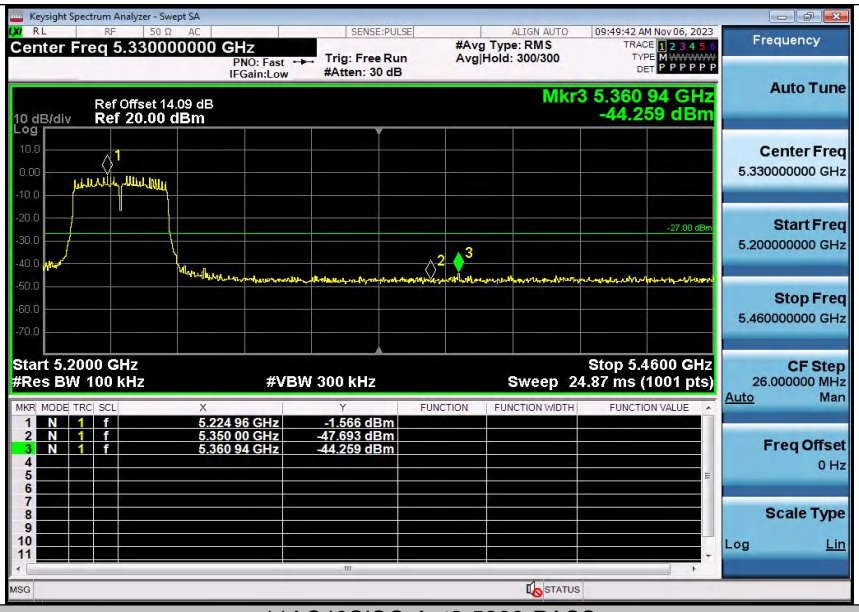


11AC40SISO-Ant2-5190-PASS



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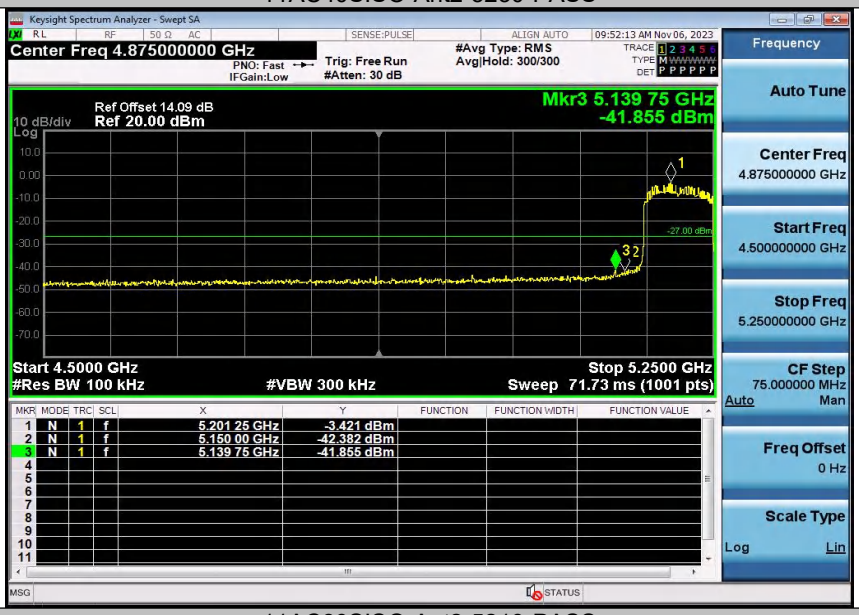
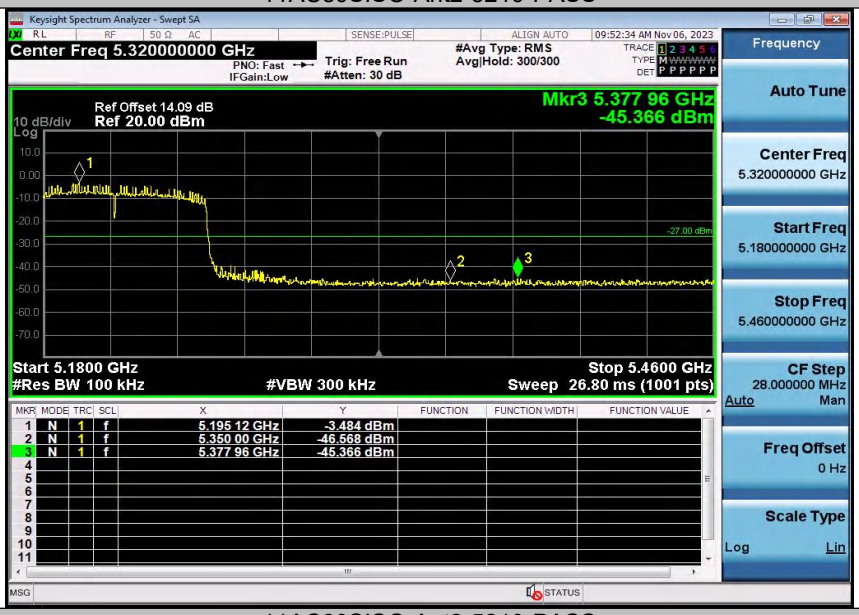


11AC80SISO-Ant2-5210-PASS

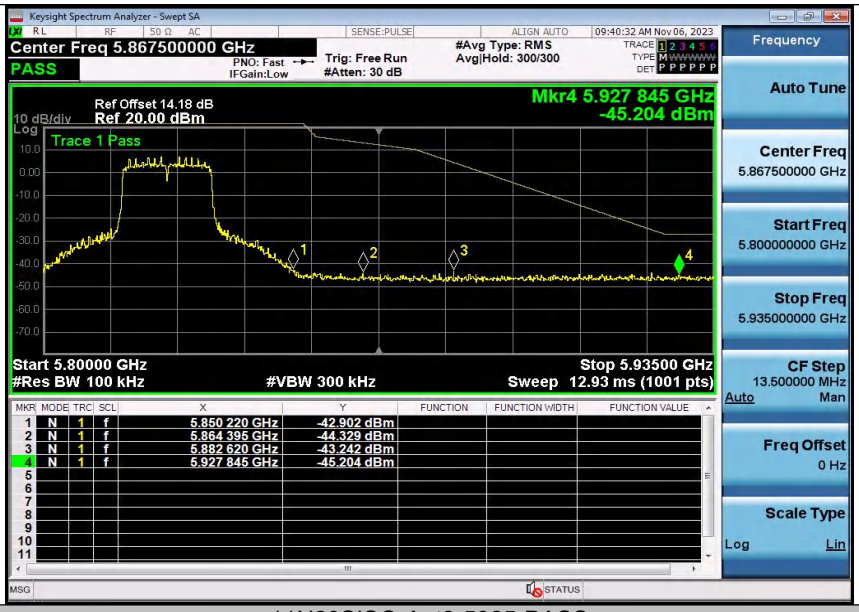


11AC80SISO-Ant2-5210-PASS

11A-Ant2-5745-PASS

11A-Ant2-5825-PASS

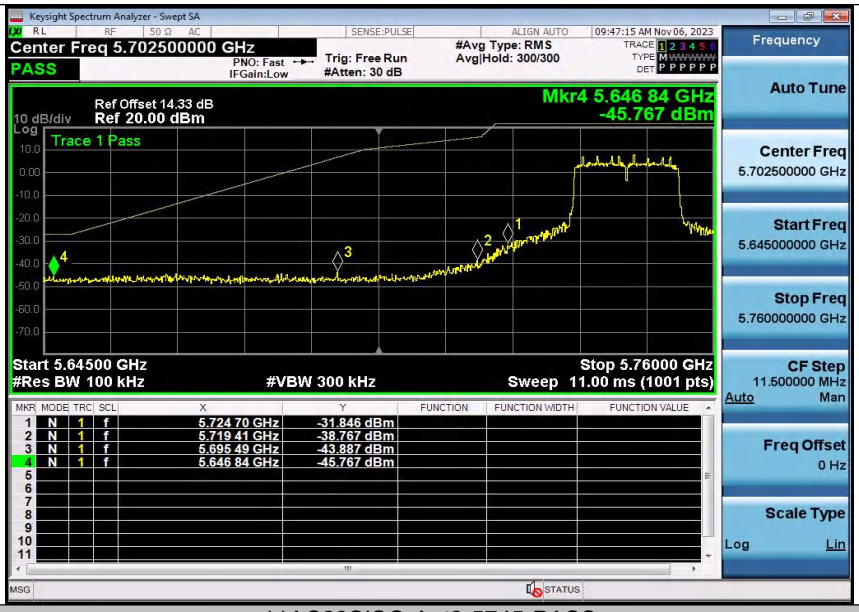
11N20SISO-Ant2-5745-PASS



11N20SISO-Ant2-5825-PASS

11N40SISO-Ant2-5755-PASS

11N40SISO-Ant2-5795-PASS



11AC20SISO-Ant2-5745-PASS

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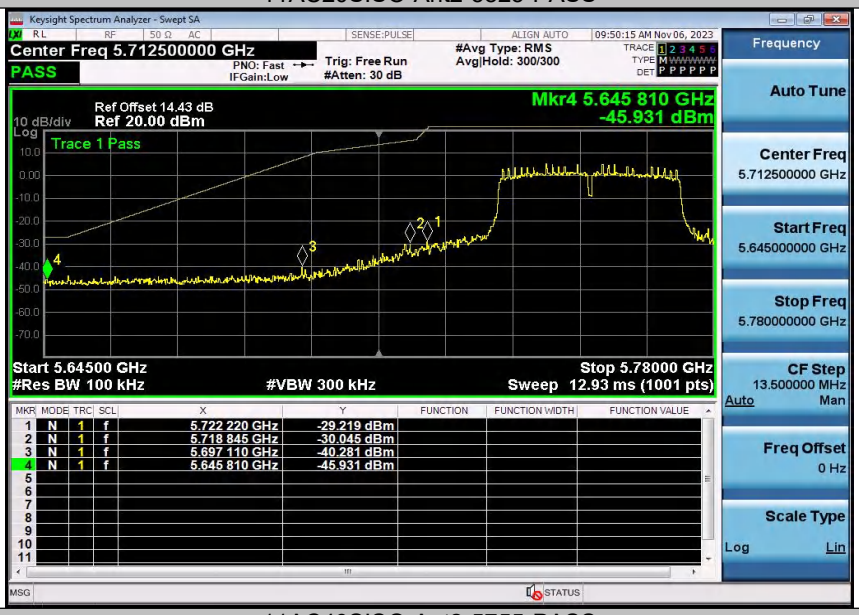


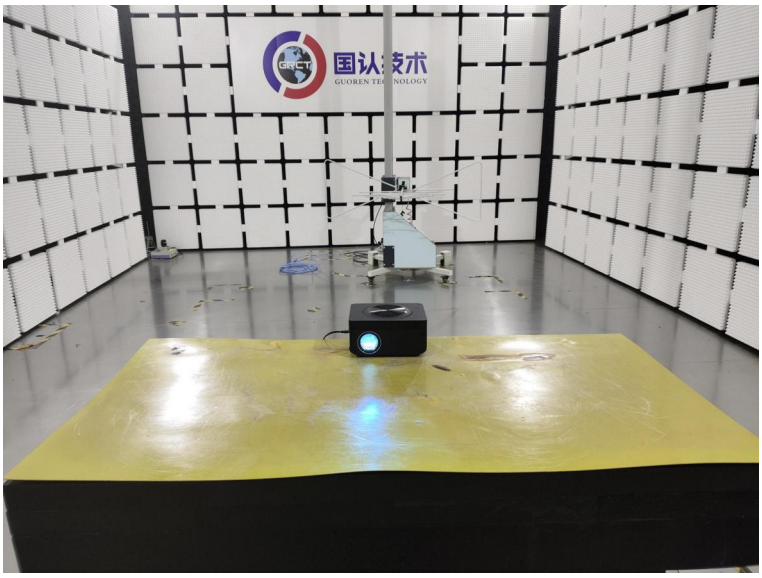
11AC40SISO-Ant2-5755-PASS

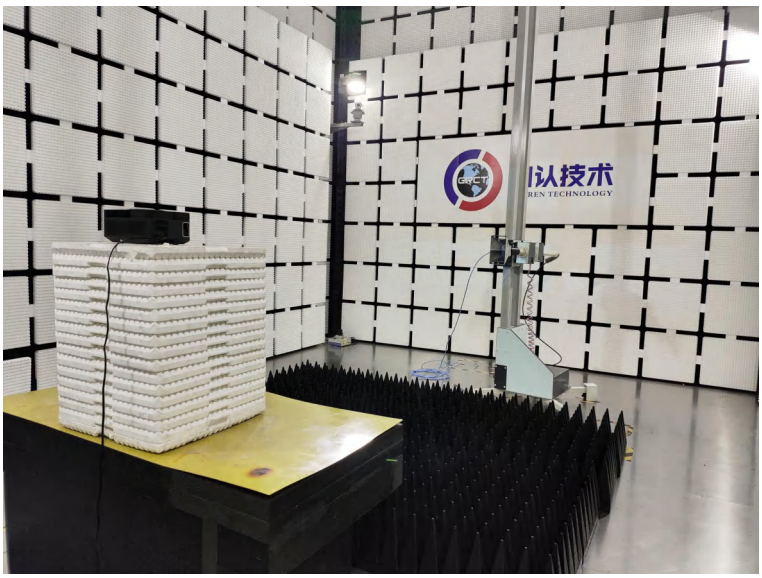
11AC40SISO-Ant2-5795-PASS

11AC80SISO-Ant2-5775-PASS

11AC80SISO-Ant2-5775-PASS

5 Test Setup Photos of the EUT





6 Photos of the EUT

Reference to the test report No. **GRCTR230902011-01.**

********** End of Report **********