

8 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

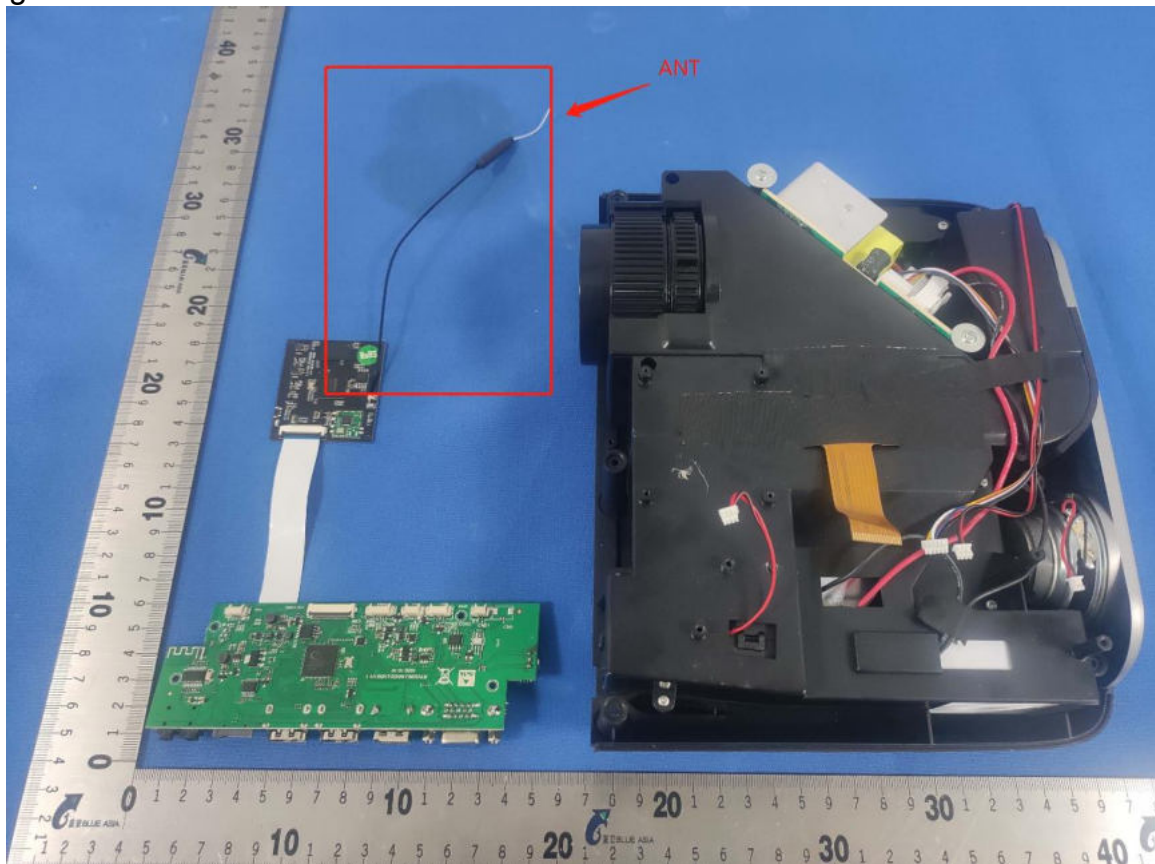
8.1 CONCLUSION

Standard 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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.5dBi.



10 APPENDIX

10.1 APPENDIX : DTS BANDWIDTH

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.640	2407.360	2417.000	≥ 0.5	PASS
		2437	10.120	2431.840	2441.960	≥ 0.5	PASS
		2462	10.120	2456.880	2467.000	≥ 0.5	PASS
11G	Ant1	2412	16.480	2403.720	2420.200	≥ 0.5	PASS
		2437	16.400	2428.720	2445.120	≥ 0.5	PASS
		2462	16.440	2453.720	2470.160	≥ 0.5	PASS
11N20SISO	Ant1	2412	17.280	2403.440	2420.720	≥ 0.5	PASS
		2437	17.640	2428.080	2445.720	≥ 0.5	PASS
		2462	17.720	2453.040	2470.760	≥ 0.5	PASS
11N40SISO	Ant1	2422	35.760	2404.320	2440.080	≥ 0.5	PASS
		2437	35.440	2419.240	2454.680	≥ 0.5	PASS
		2452	35.280	2434.320	2469.600	≥ 0.5	PASS

Test Graphs

11B Ant1 2412



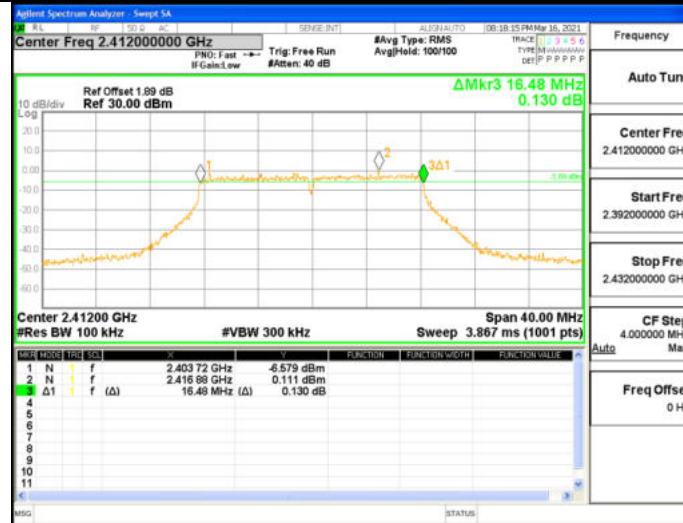
11B Ant1 2437



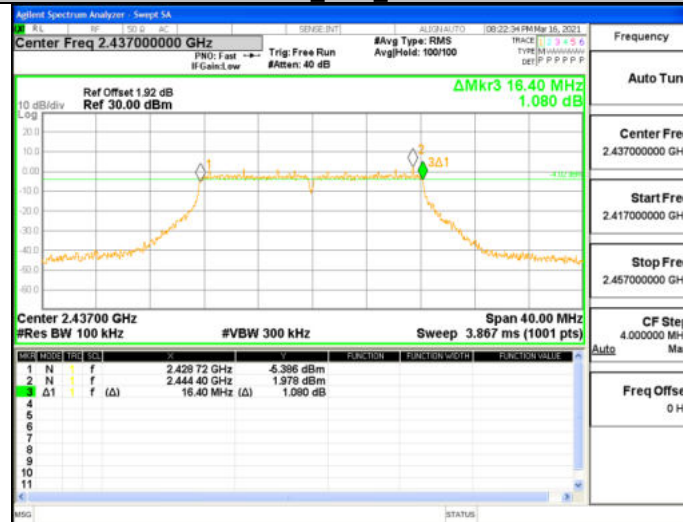
11B Ant1 2462



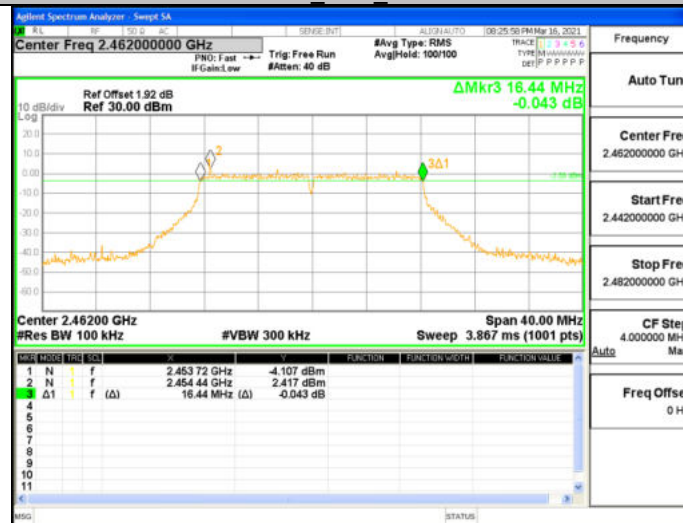
11G Ant1 2412



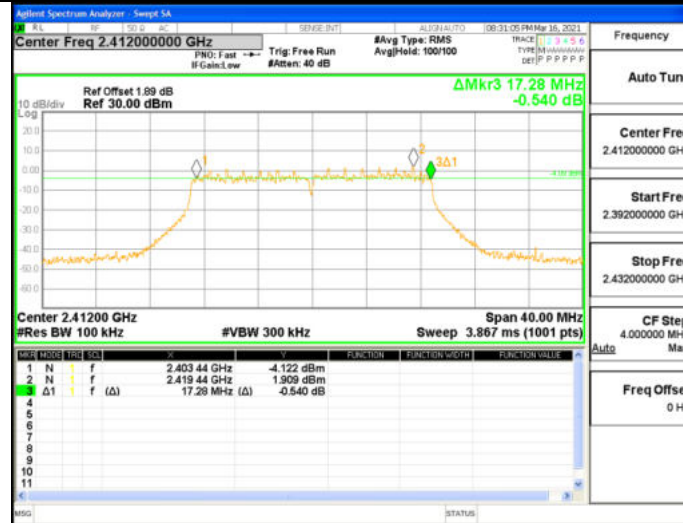
11G Ant1 2437



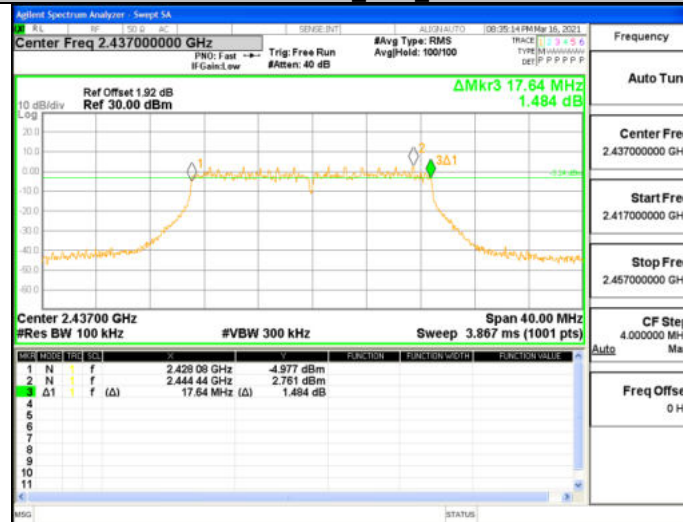
11G Ant1 2462



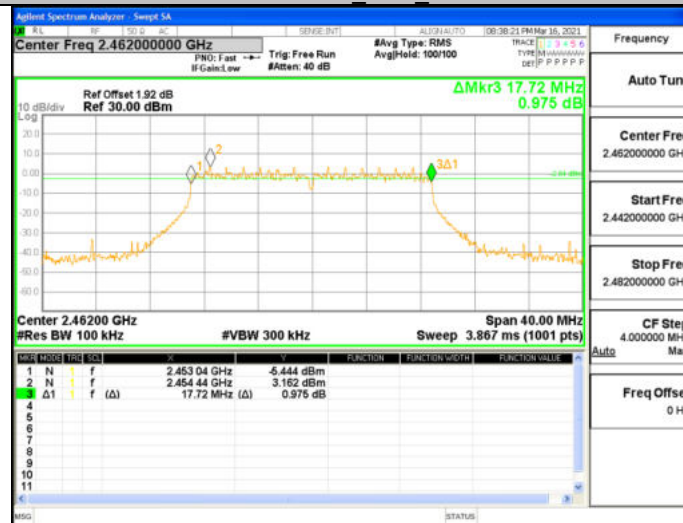
11N20SISO_Ant1_2412



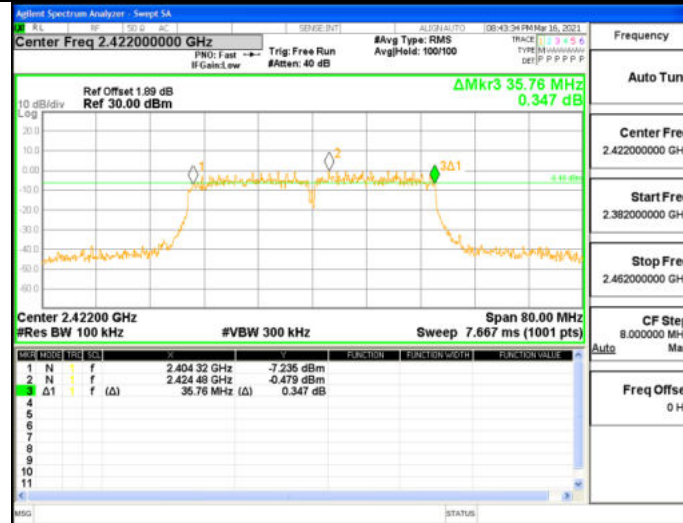
11N20SISO_Ant1_2437



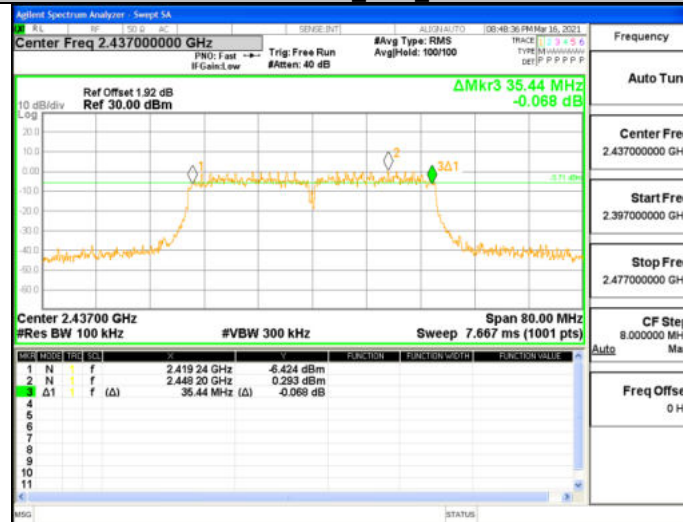
11N20SISO_Ant1_2462



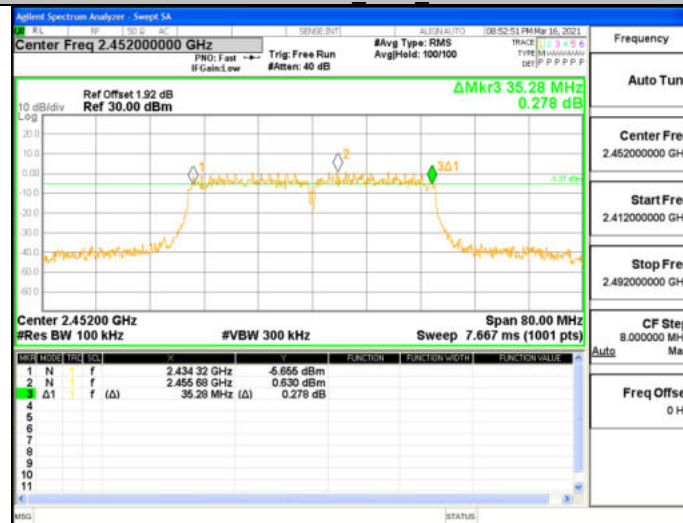
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



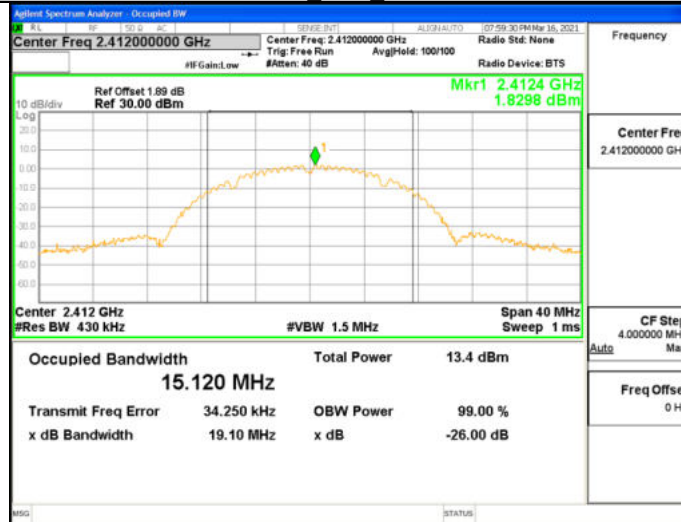
10.2 APPENDIX : OCCUPIED CHANNEL BANDWIDTH

Test Result

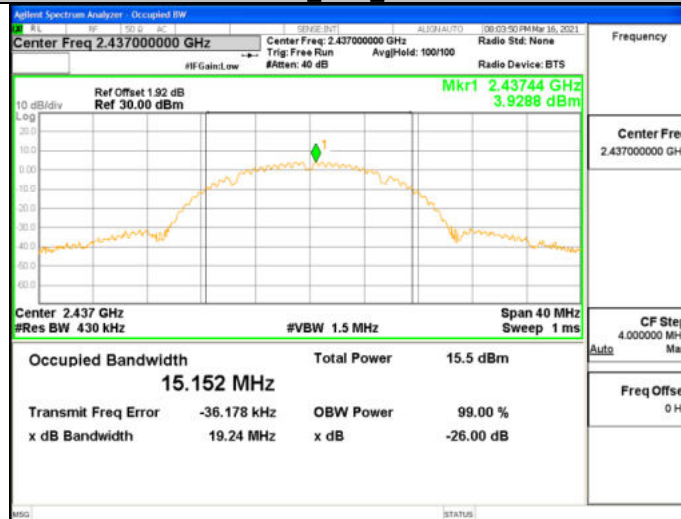
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	15.120	2404.474	2419.594	---	PASS
		2437	15.152	2429.388	2444.540	---	PASS
		2462	15.082	2454.417	2469.499	---	PASS
11G	Ant1	2412	17.093	2403.513	2420.606	---	PASS
		2437	17.034	2428.463	2445.497	---	PASS
		2462	17.118	2453.358	2470.476	---	PASS
11N20SISO	Ant1	2412	17.939	2403.003	2420.942	---	PASS
		2437	17.935	2427.955	2445.890	---	PASS
		2462	17.903	2452.938	2470.841	---	PASS
11N40SISO	Ant1	2422	36.125	2403.989	2440.114	---	PASS
		2437	36.318	2418.857	2455.175	---	PASS
		2452	36.169	2433.873	2470.042	---	PASS

Test Graphs

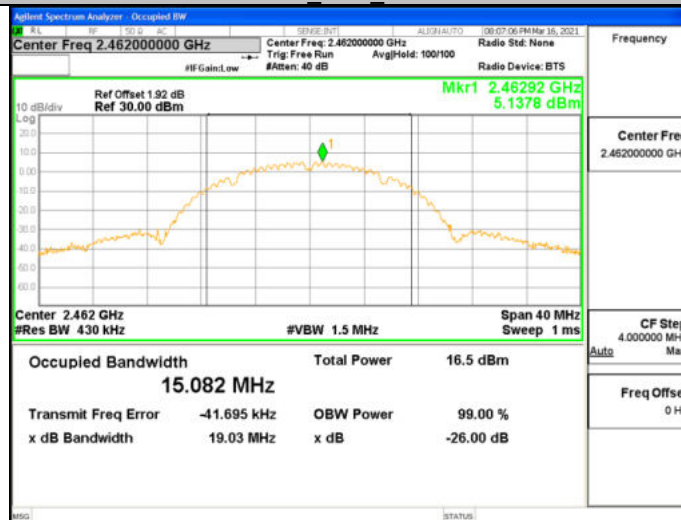
11B Ant1 2412

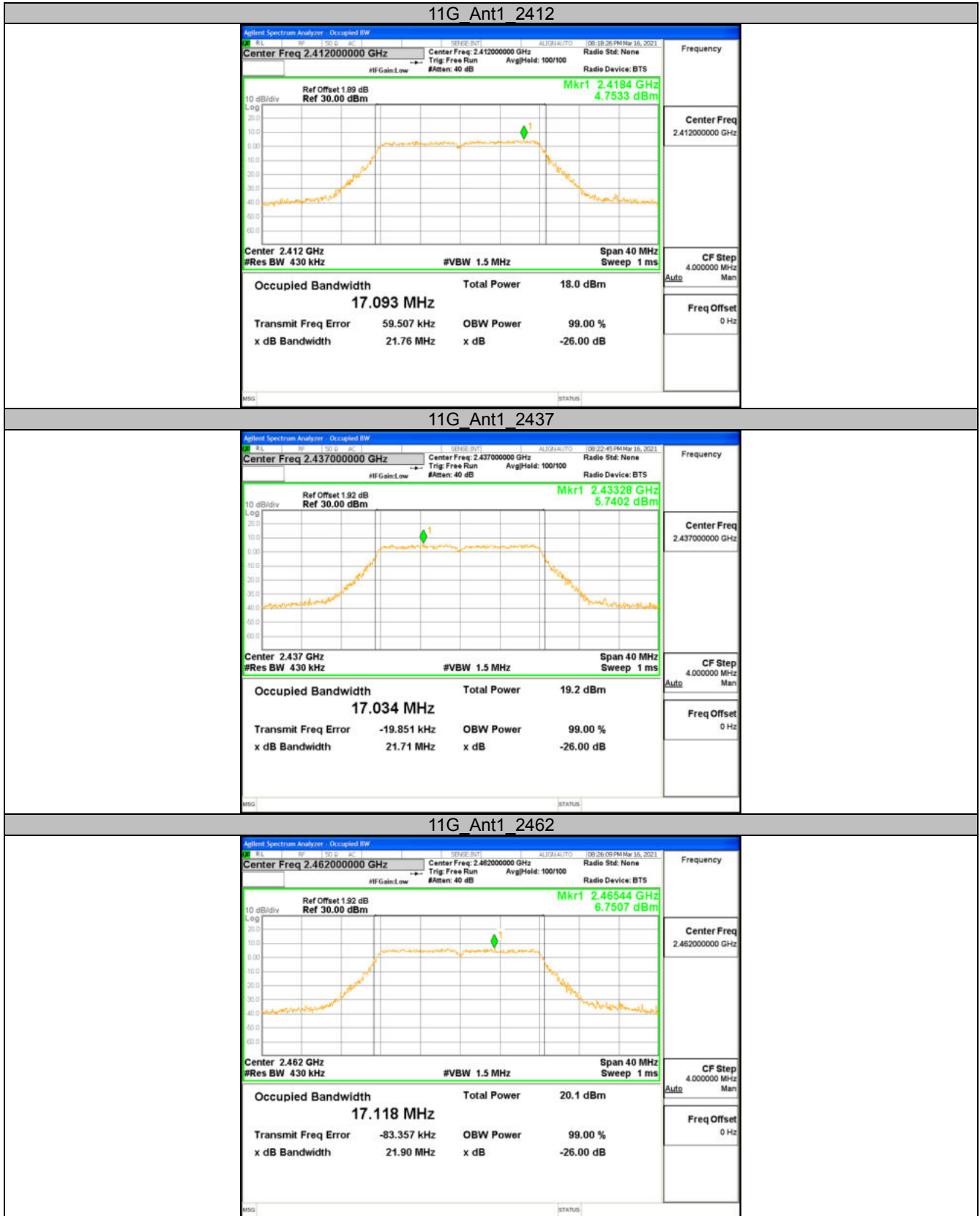


11B Ant1 2437

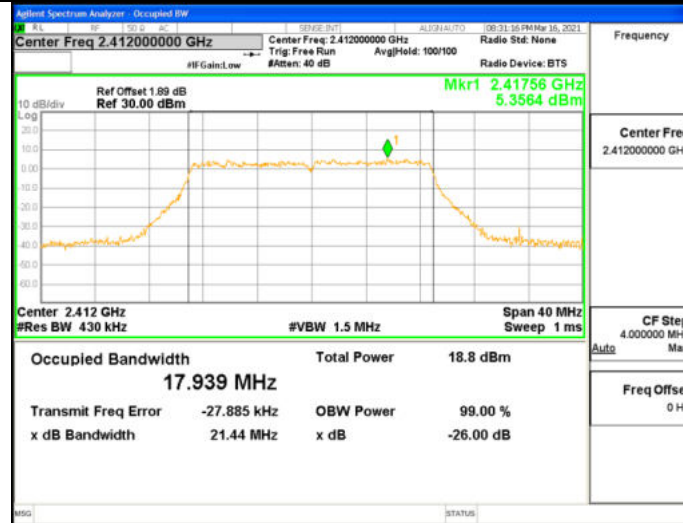


11B Ant1 2462

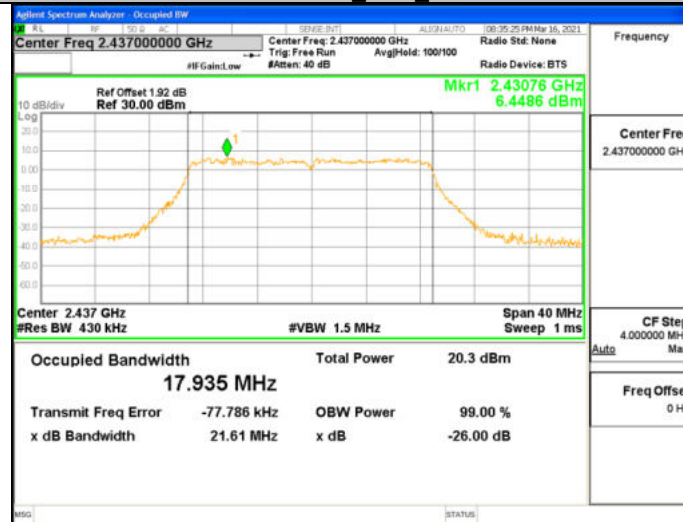




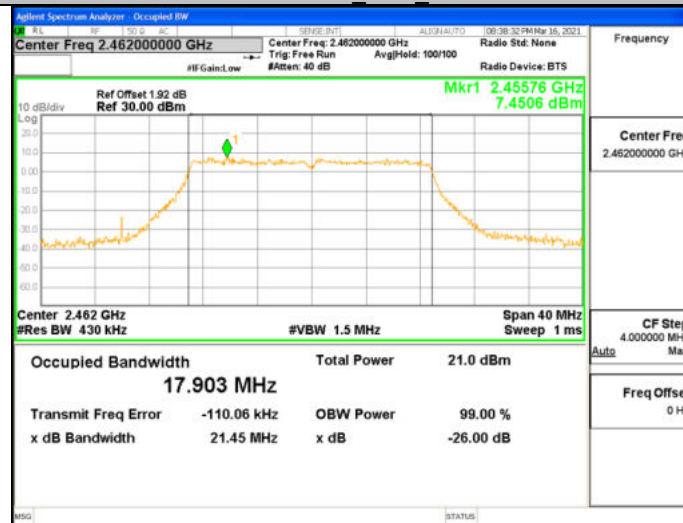
11N20SISO_Ant1_2412



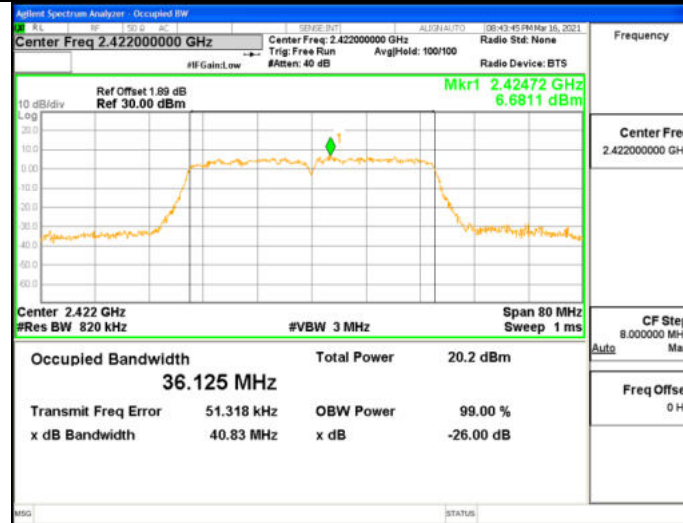
11N20SISO_Ant1_2437



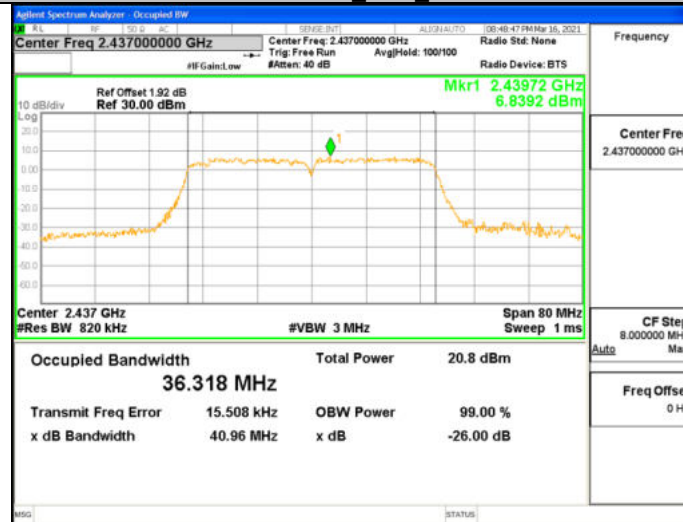
11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



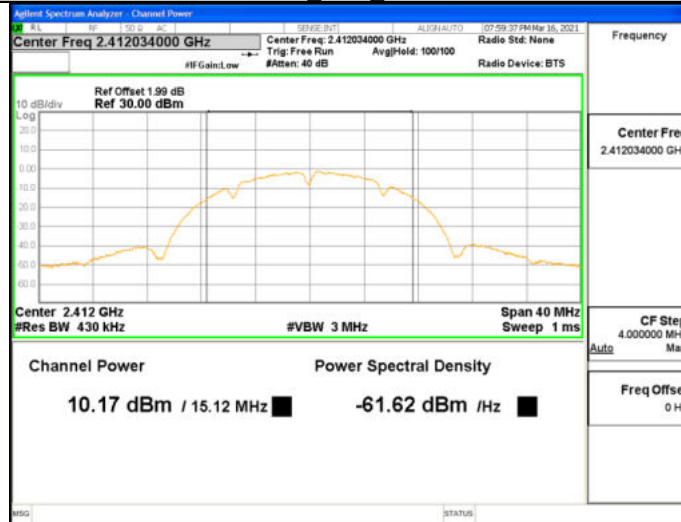
10.3 APPENDIX : MAXIMUM CONDUCTED OUTPUT POWER

Test Result

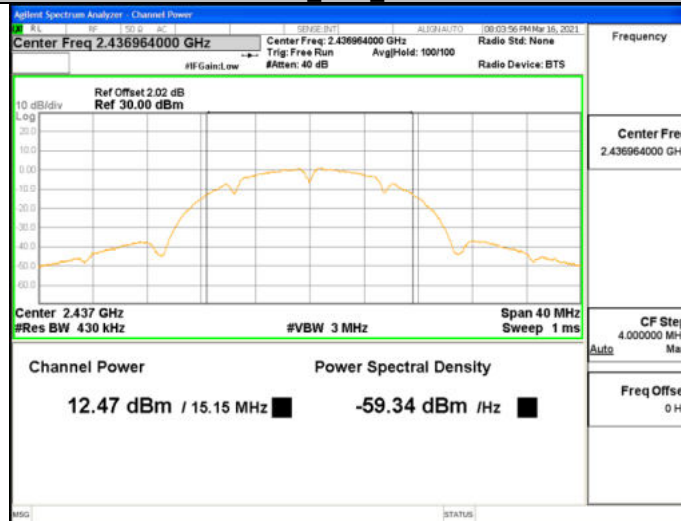
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	10.17	<=30	PASS
		2437	12.47	<=30	PASS
		2462	13.26	<=30	PASS
11G	Ant1	2412	12.01	<=30	PASS
		2437	13.04	<=30	PASS
		2462	14.04	<=30	PASS
11N20SISO	Ant1	2412	12.46	<=30	PASS
		2437	13.92	<=30	PASS
		2462	14.69	<=30	PASS
11N40SISO	Ant1	2422	13.50	<=30	PASS
		2437	14.19	<=30	PASS
		2452	14.64	<=30	PASS

Test Graphs

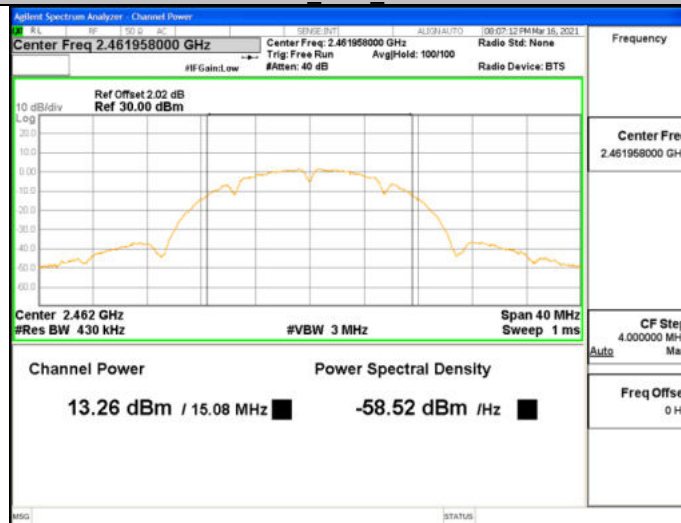
11B Ant1 2412



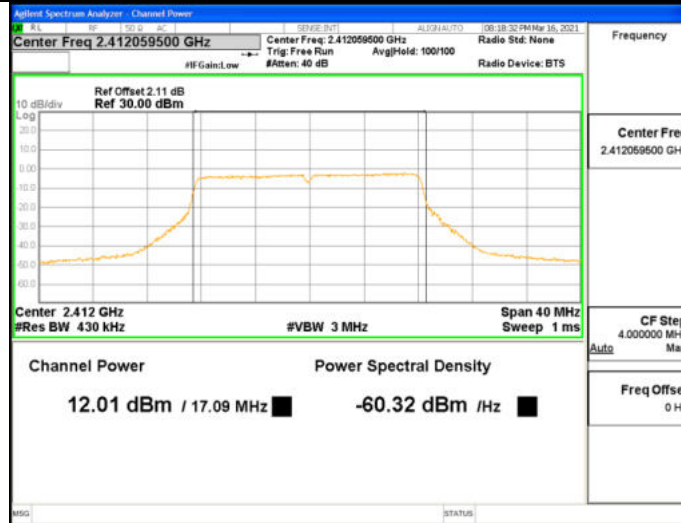
11B Ant1 2437



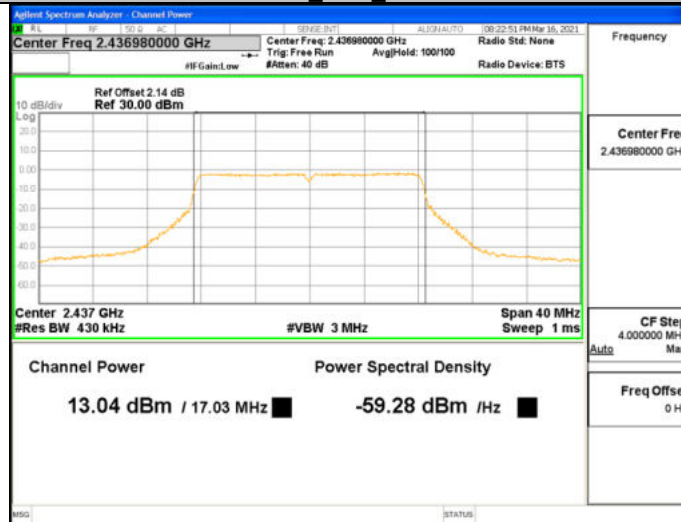
11B Ant1 2462



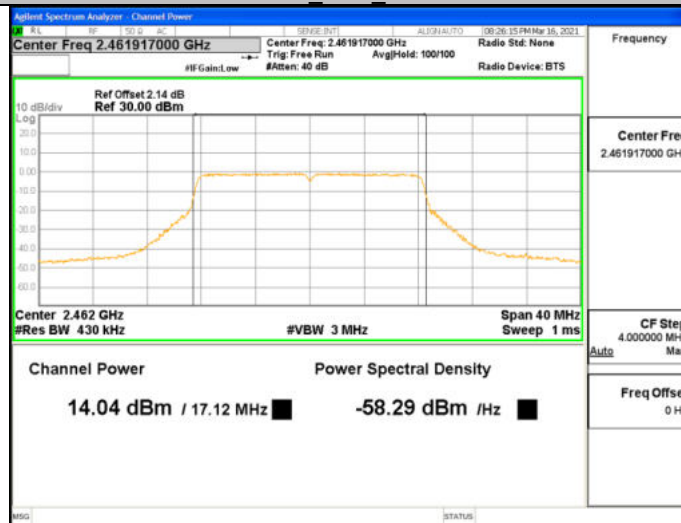
11G_Ant1_2412



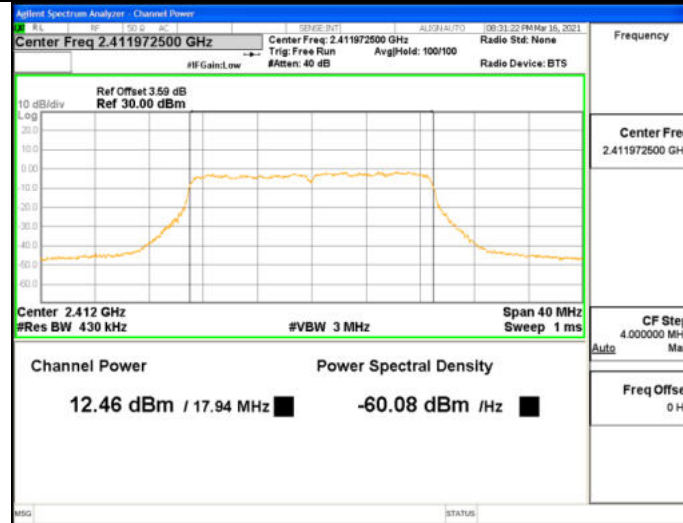
11G_Ant1_2437



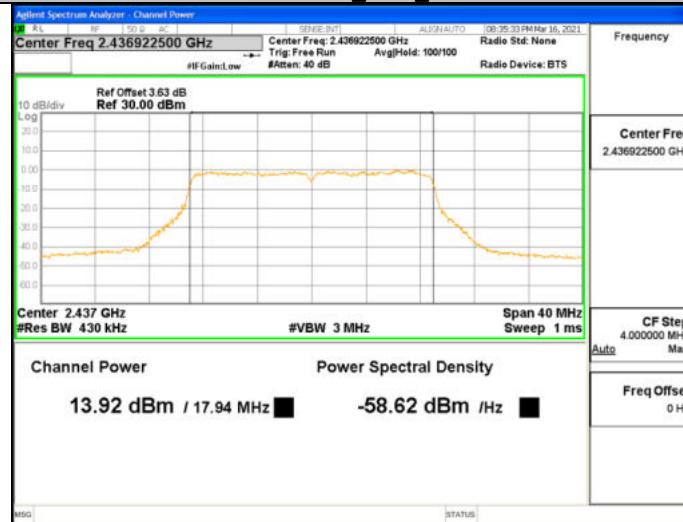
11G_Ant1_2462



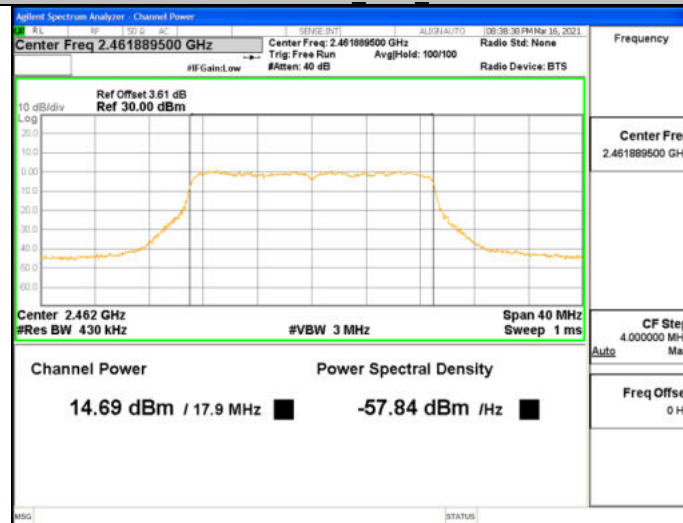
11N20SISO_Ant1_2412



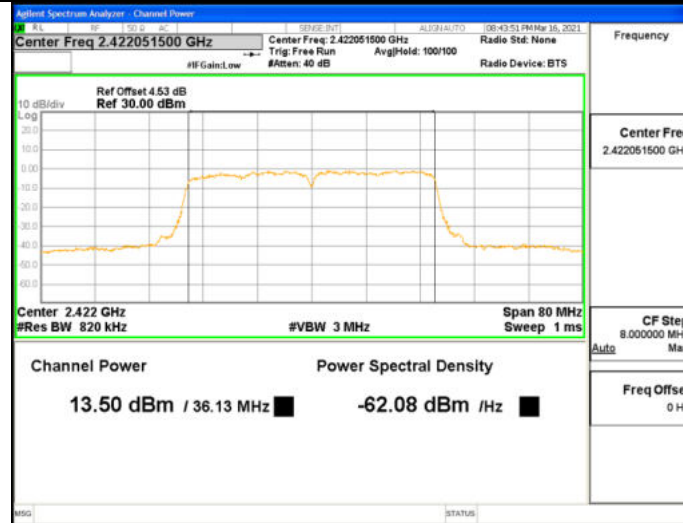
11N20SISO_Ant1_2437



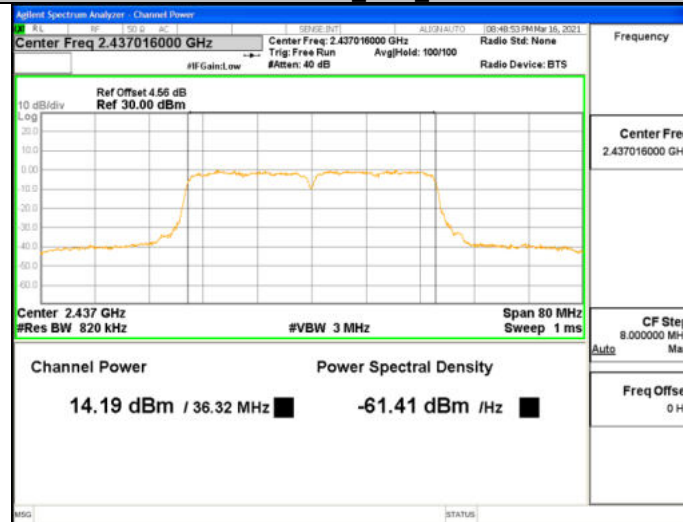
11N20SISO_Ant1_2462



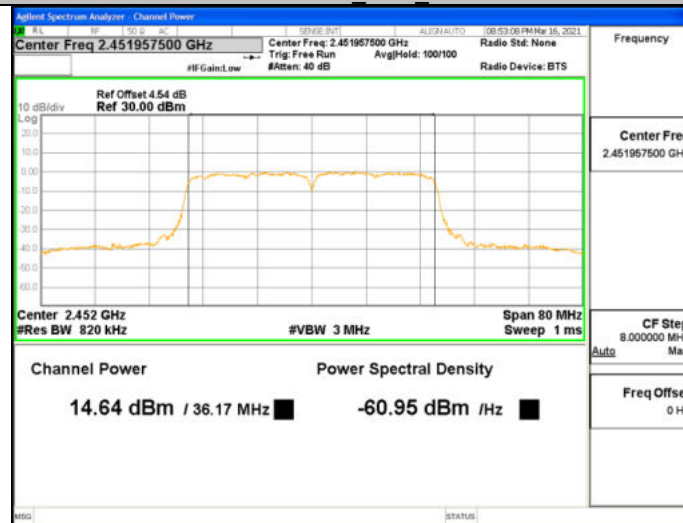
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



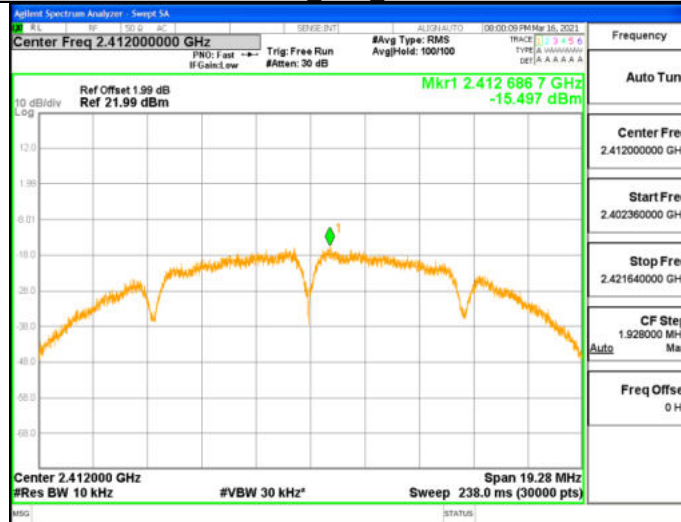
10.4 APPENDIX : MAXIMUM POWER SPECTRAL DENSITY

Test Result

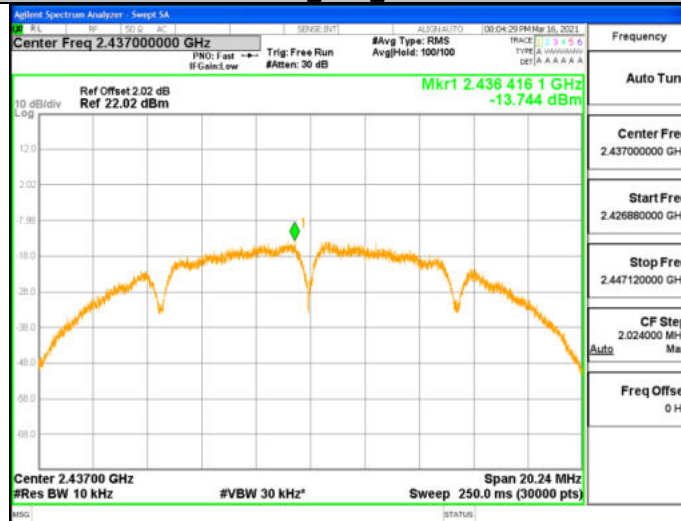
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-15.5	<=8	PASS
		2437	-13.74	<=8	PASS
		2462	-12.7	<=8	PASS
11G	Ant1	2412	-15.68	<=8	PASS
		2437	-14.77	<=8	PASS
		2462	-13.61	<=8	PASS
11N20SISO	Ant1	2412	-11.94	<=8	PASS
		2437	-10.79	<=8	PASS
		2462	-10.47	<=8	PASS
11N40SISO	Ant1	2422	-12.74	<=8	PASS
		2437	-11.61	<=8	PASS
		2452	-11.56	<=8	PASS

Test Graphs

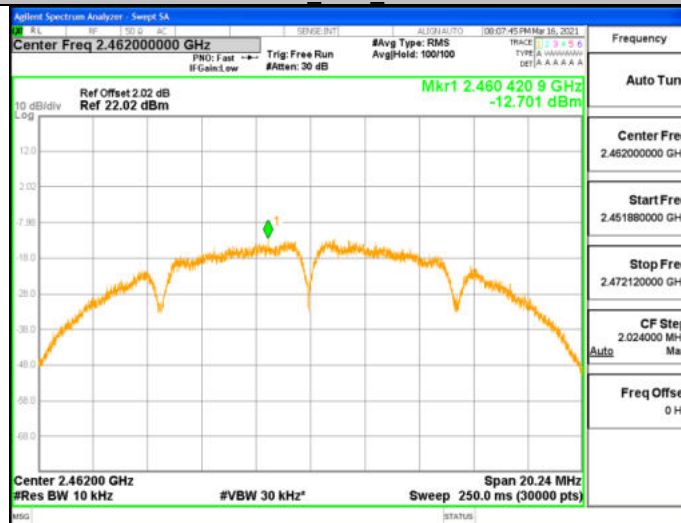
11B Ant1 2412



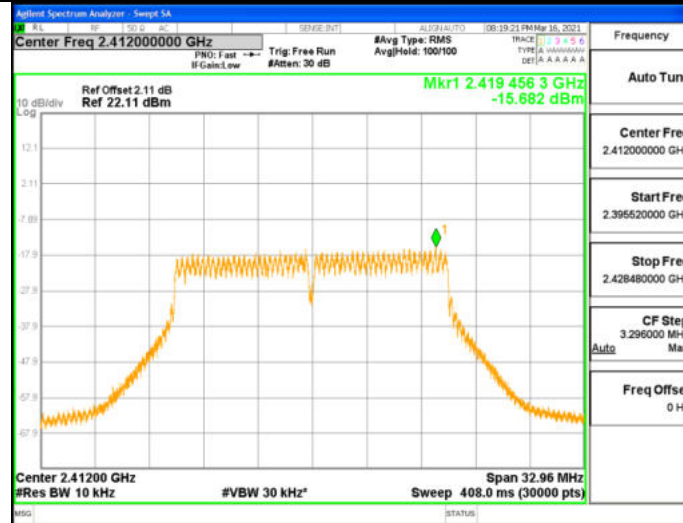
11B Ant1 2437



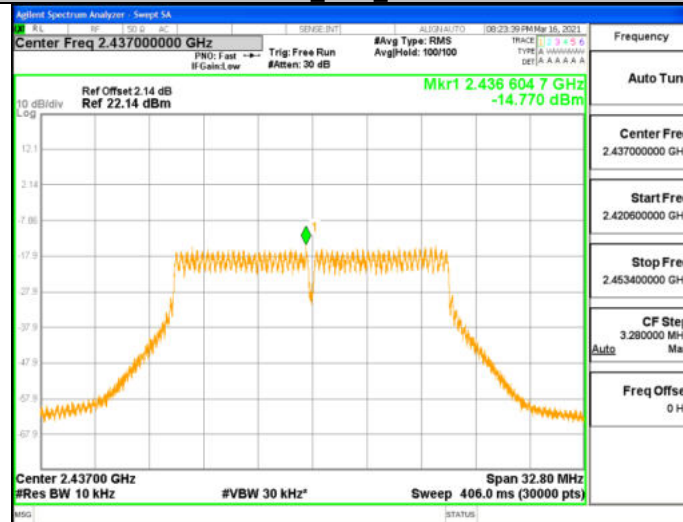
11B Ant1 2462



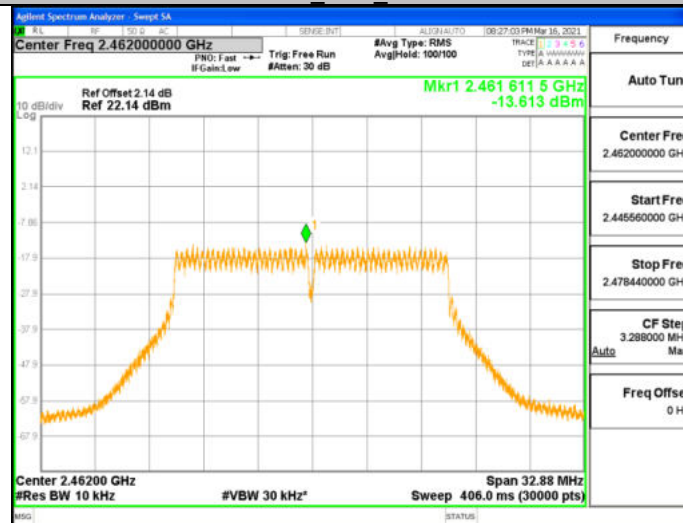
11G Ant1 2412



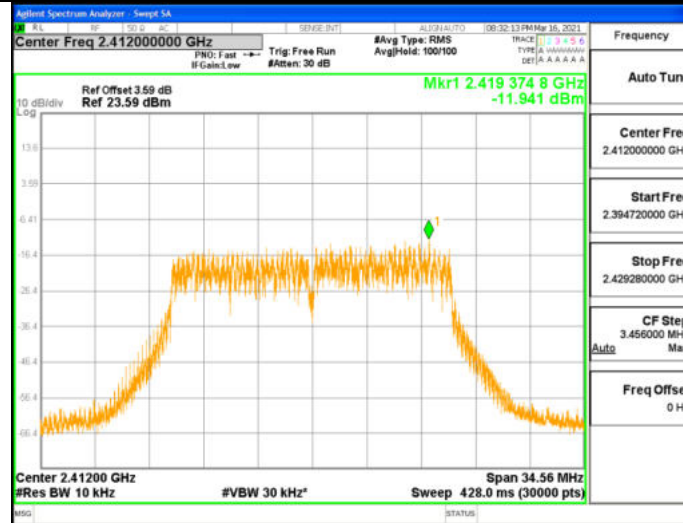
11G Ant1 2437



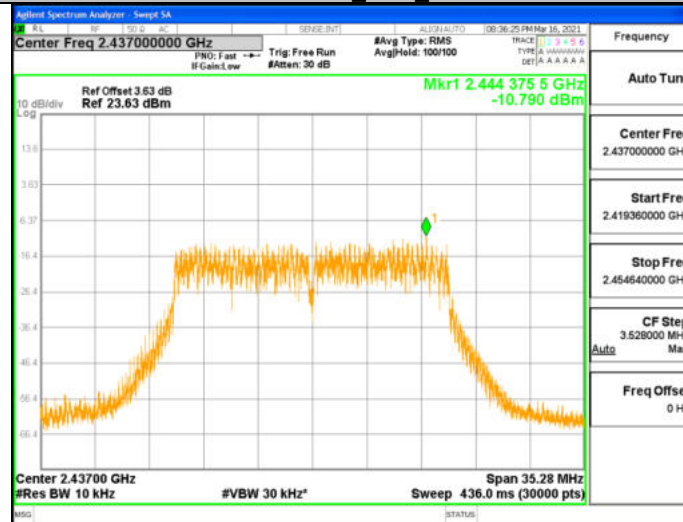
11G Ant1 2462



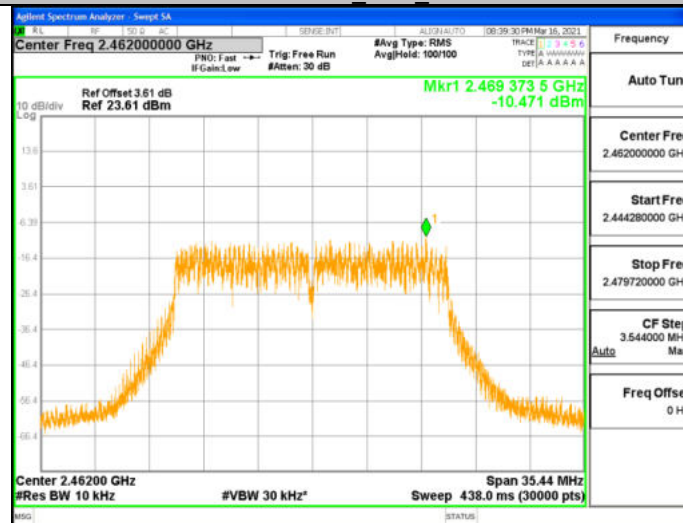
11N20SISO_Ant1_2412



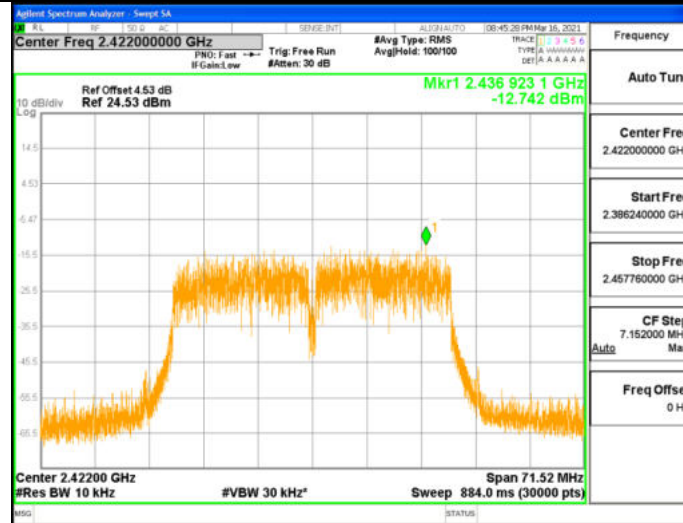
11N20SISO_Ant1_2437



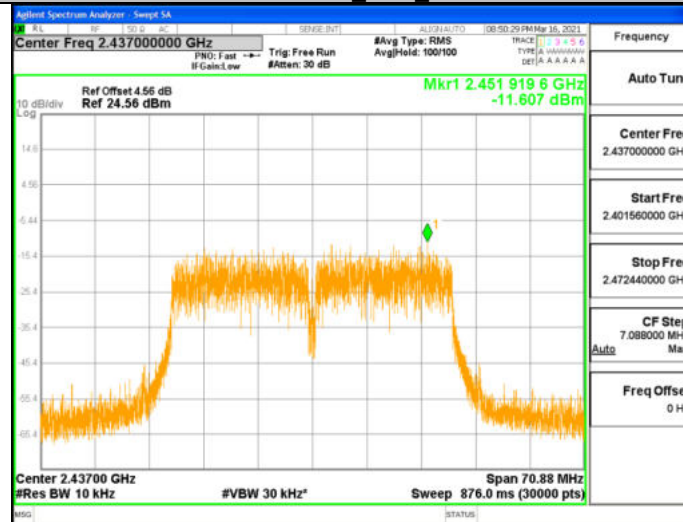
11N20SISO_Ant1_2462



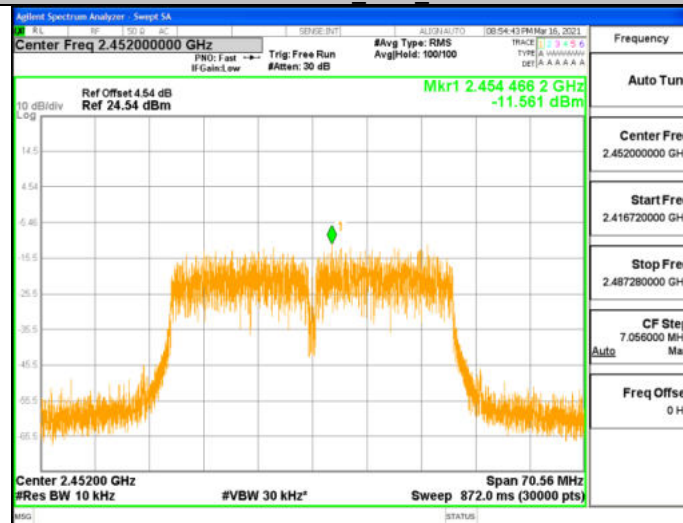
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



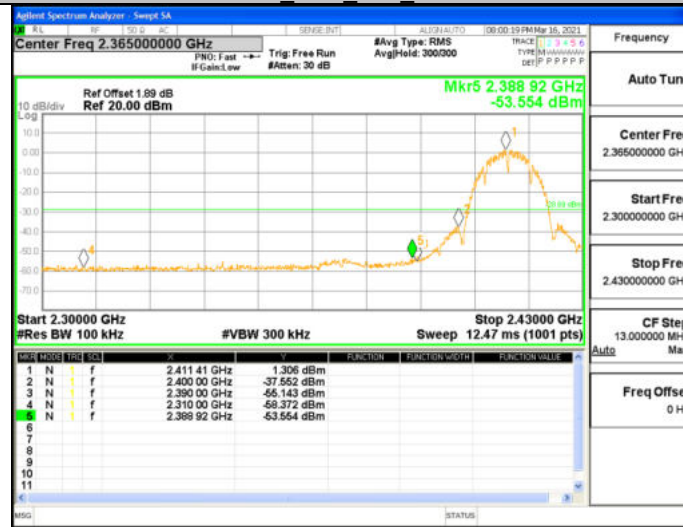
10.5 APPENDIX : BAND EDGE MEASUREMENTS

Test Result

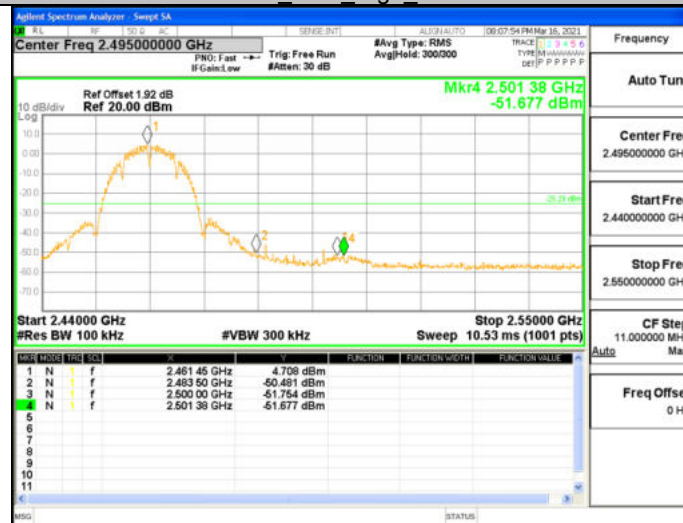
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	1.31	-53.55	<=-28.69	PASS
		High	2462	4.71	-51.68	<=-25.29	PASS
11G	Ant1	Low	2412	0.55	-49.12	<=-29.45	PASS
		High	2462	2.70	-49.2	<=-27.3	PASS
11N20SISO	Ant1	Low	2412	1.88	-41.6	<=-28.12	PASS
		High	2462	3.40	-42.45	<=-26.6	PASS
11N40SISO	Ant1	Low	2422	-0.53	-38.49	<=-30.53	PASS
		High	2452	0.62	-47.01	<=-29.38	PASS

Test Graphs

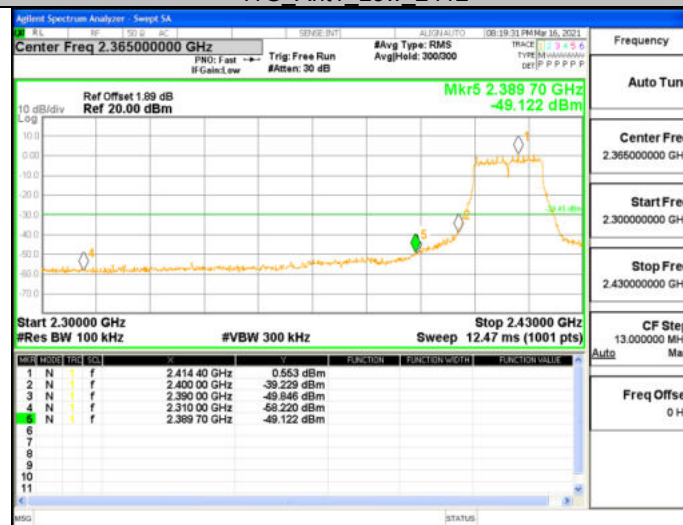
11B Ant1 Low 2412



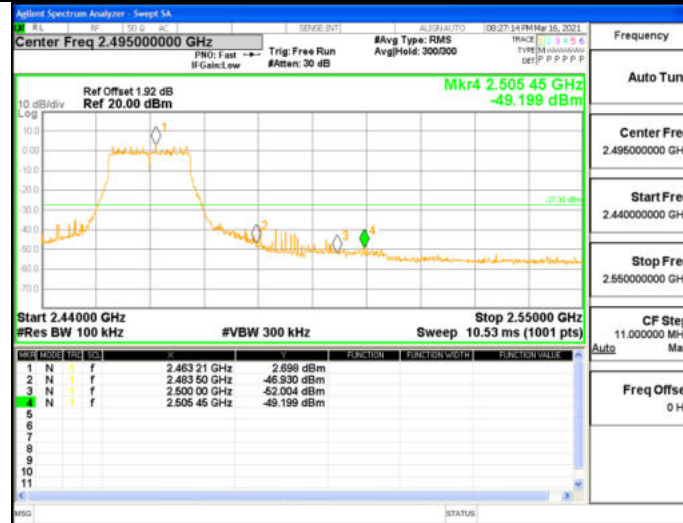
11B Ant1 High 2462



11G Ant1 Low 2412



11G Ant1 High 2462



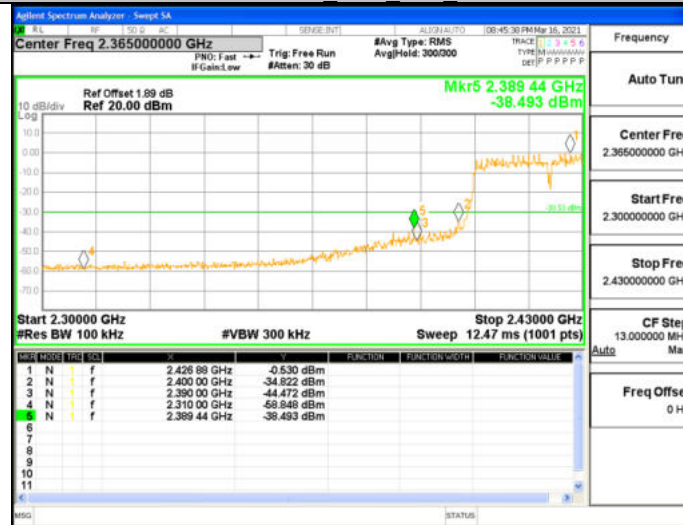
11N20SISO Ant1 Low 2412



11N20SISO Ant1 High 2462



11N40SISO Ant1 Low 2422



11N40SISO Ant1 High 2452



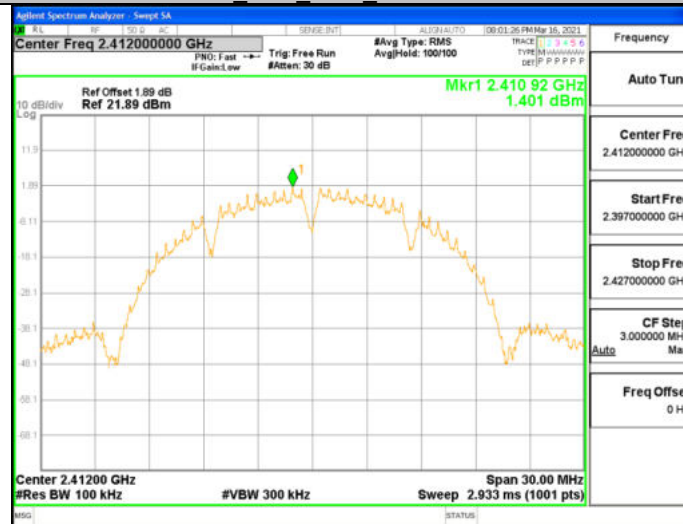
10.6 APPENDIX F: CONDUCTED SPURIOUS EMISSION

Test Result

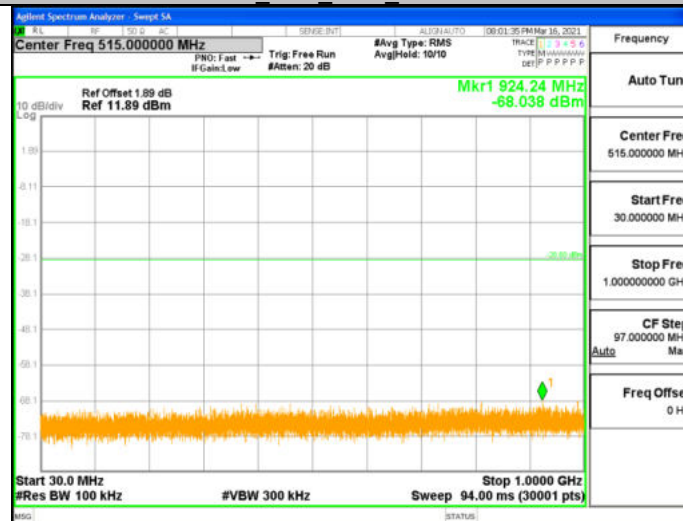
TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	1.40	1.40	---	PASS
			30~1000	30~1000	-68.038	<=-28.599	PASS
			1000~26500	1000~26500	-38.462	<=-28.599	PASS
		2437	Reference	3.56	3.56	---	PASS
			30~1000	30~1000	-67.682	<=-26.436	PASS
			1000~26500	1000~26500	-35.668	<=-26.436	PASS
		2462	Reference	4.68	4.68	---	PASS
			30~1000	30~1000	-66.668	<=-25.321	PASS
			1000~26500	1000~26500	-35.092	<=-25.321	PASS
11G	Ant1	2412	Reference	1.04	1.04	---	PASS
			30~1000	30~1000	-68.44	<=-28.957	PASS
			1000~26500	1000~26500	-42.248	<=-28.957	PASS
		2437	Reference	1.33	1.33	---	PASS
			30~1000	30~1000	-68.443	<=-28.67	PASS
			1000~26500	1000~26500	-40.814	<=-28.67	PASS
		2462	Reference	2.44	2.44	---	PASS
			30~1000	30~1000	-68.413	<=-27.565	PASS
			1000~26500	1000~26500	-43.525	<=-27.565	PASS
11N20SISO	Ant1	2412	Reference	1.67	1.67	---	PASS
			30~1000	30~1000	-68.125	<=-28.327	PASS
			1000~26500	1000~26500	-40.551	<=-28.327	PASS
		2437	Reference	2.80	2.80	---	PASS
			30~1000	30~1000	-67.522	<=-27.196	PASS
			1000~26500	1000~26500	-38.606	<=-27.196	PASS
		2462	Reference	3.47	3.47	---	PASS
			30~1000	30~1000	-68.419	<=-26.532	PASS
			1000~26500	1000~26500	-39.292	<=-26.532	PASS
11N40SISO	Ant1	2422	Reference	-0.53	-0.53	---	PASS
			30~1000	30~1000	-68.141	<=-30.531	PASS
			1000~26500	1000~26500	-47.28	<=-30.531	PASS
		2437	Reference	0.00	0.00	---	PASS
			30~1000	30~1000	-67.763	<=-30.002	PASS
			1000~26500	1000~26500	-42.382	<=-30.002	PASS
		2452	Reference	0.58	0.58	---	PASS
			30~1000	30~1000	-67.931	<=-29.421	PASS
			1000~26500	1000~26500	-42.213	<=-29.421	PASS

Test Graphs

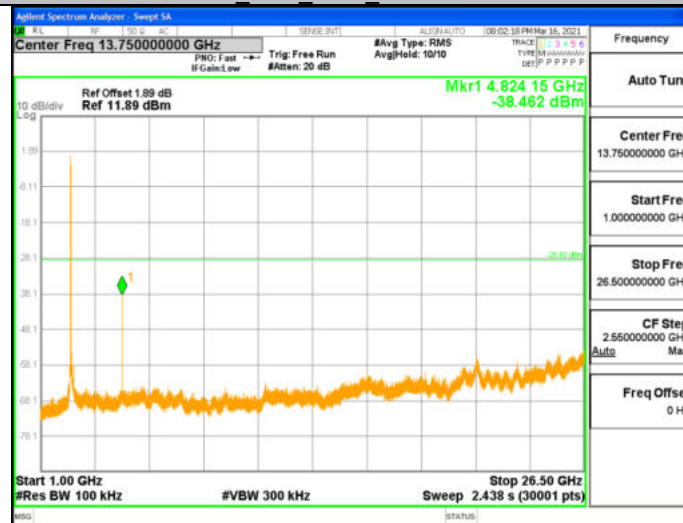
11B_Ant1_2412_0~Reference

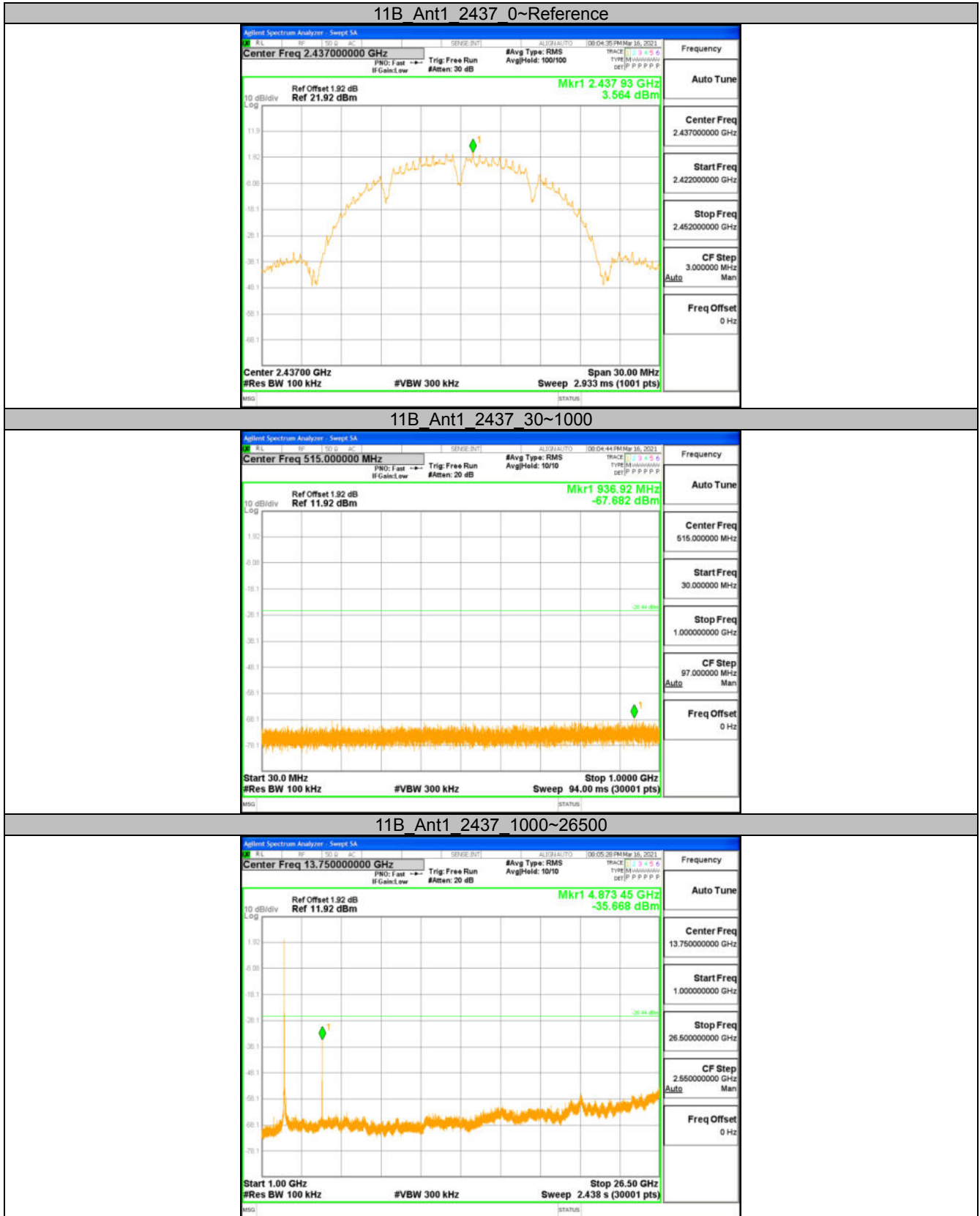


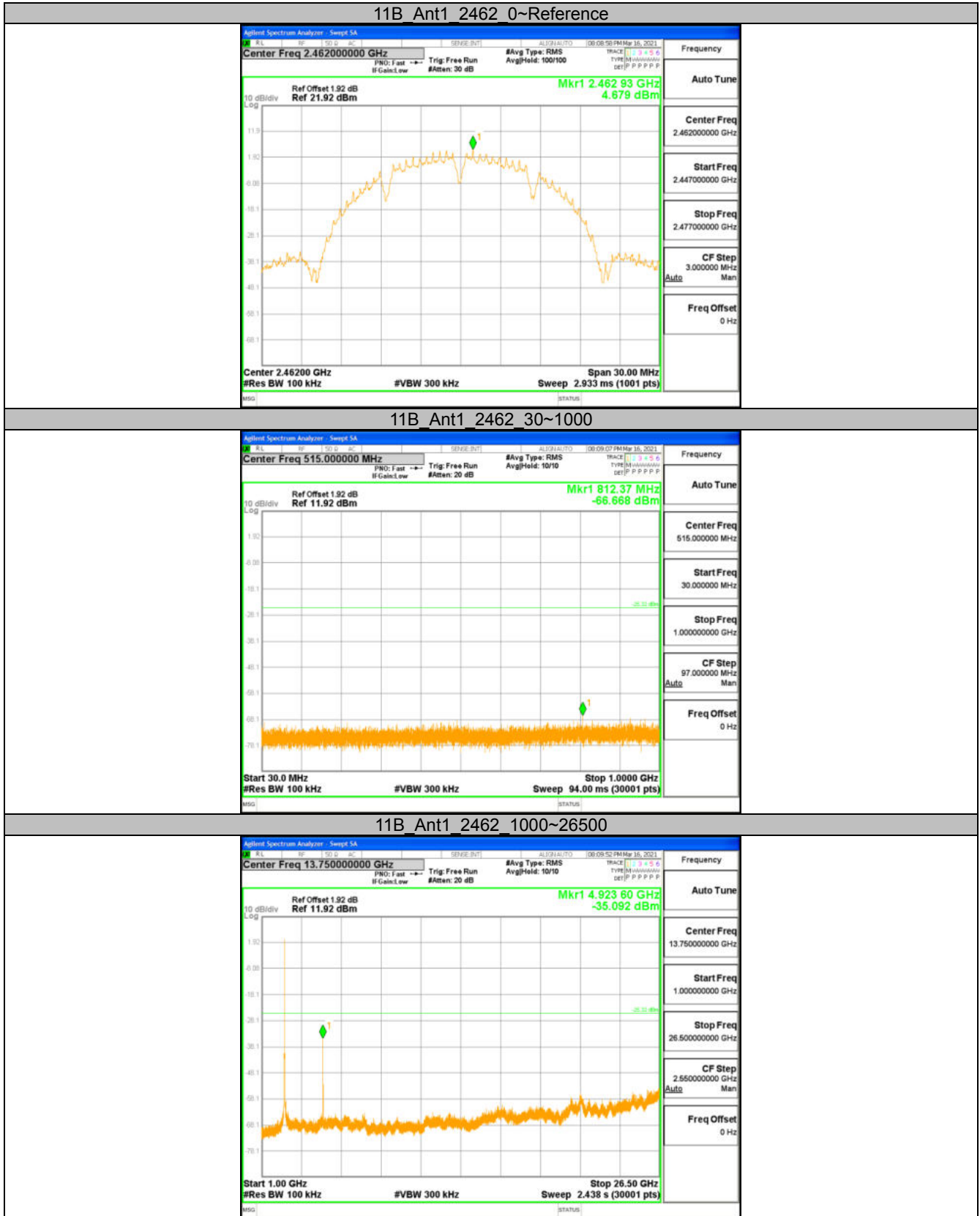
11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500





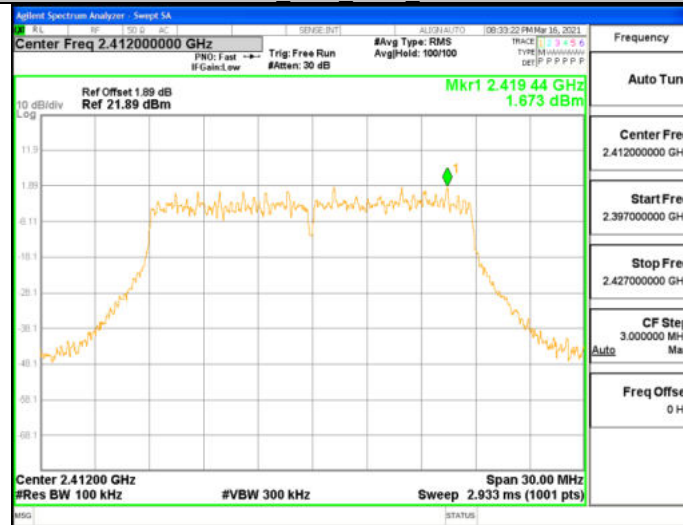




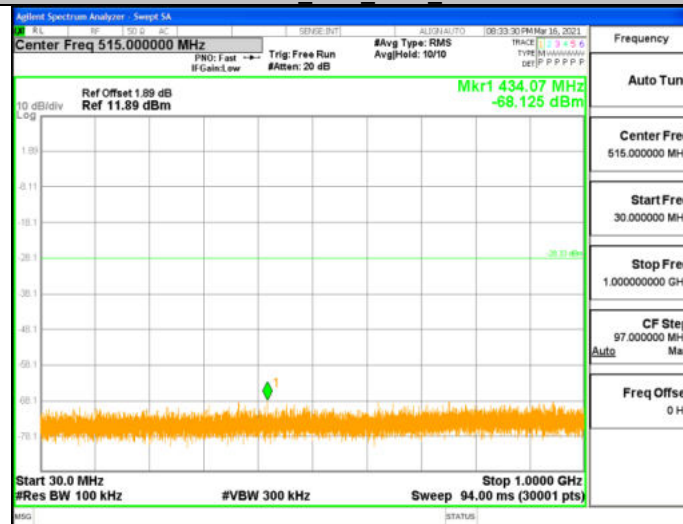




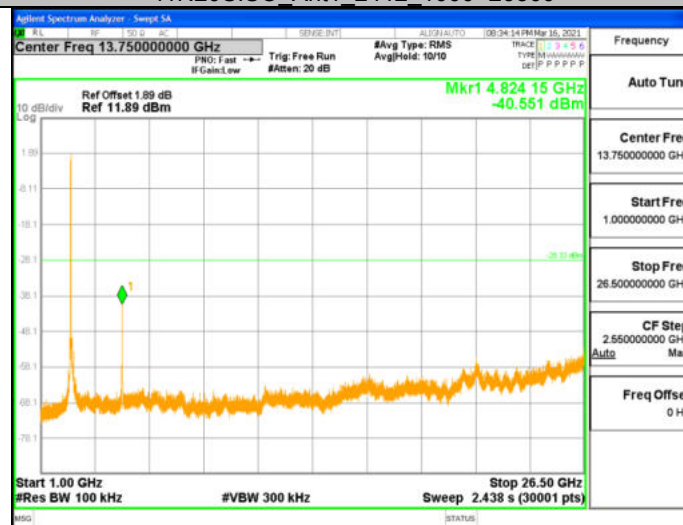
11N20SISO Ant1 2412 0~Reference



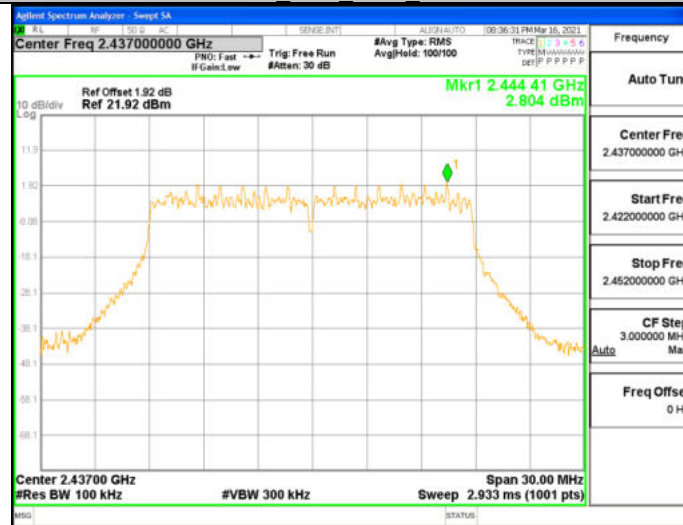
11N20SISO Ant1 2412 30~1000



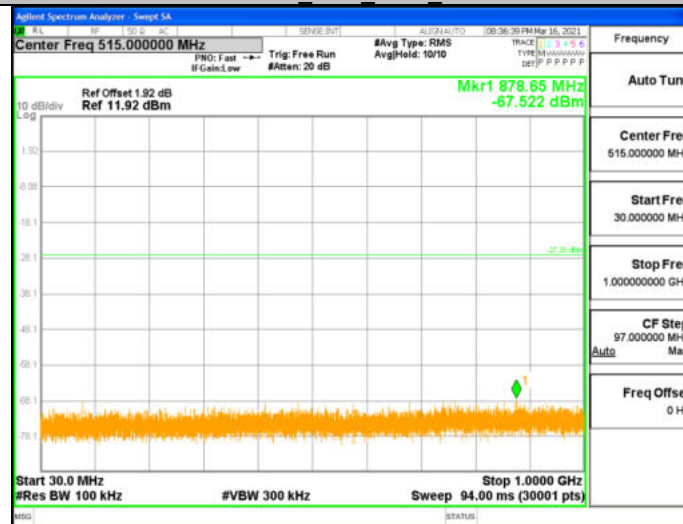
11N20SISO Ant1 2412 1000~26500



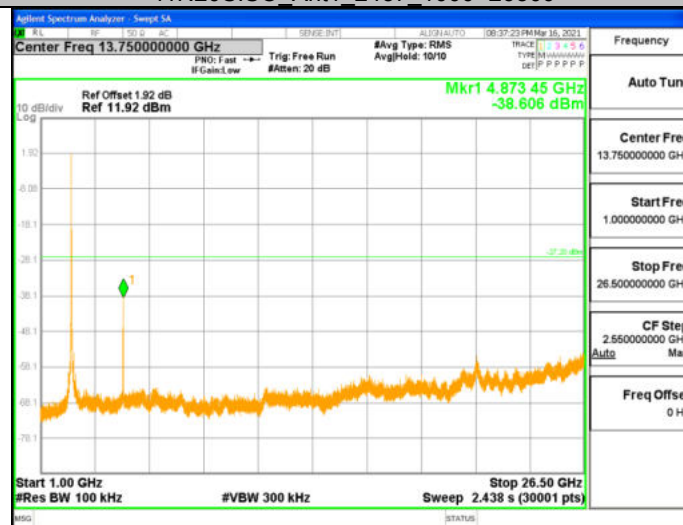
11N20SISO Ant1 2437 0~Reference



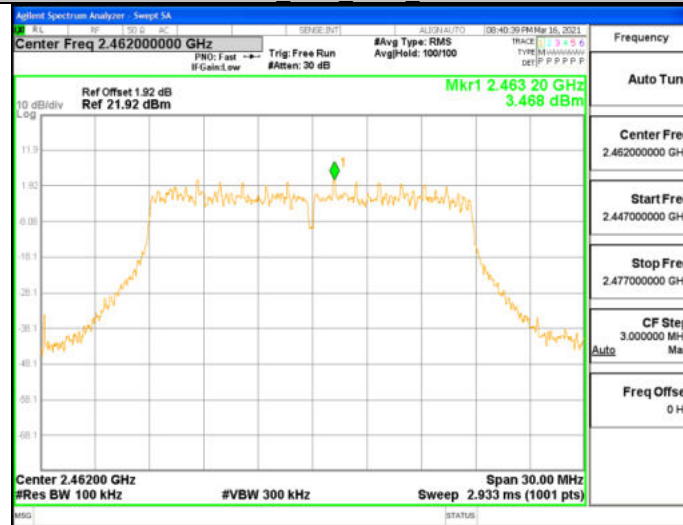
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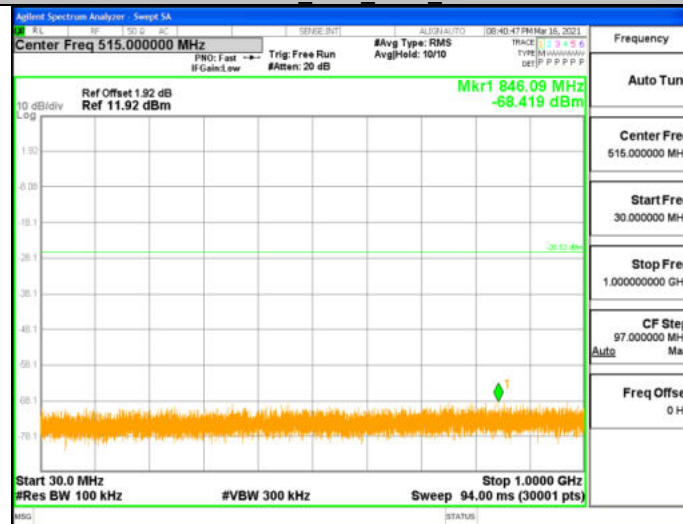
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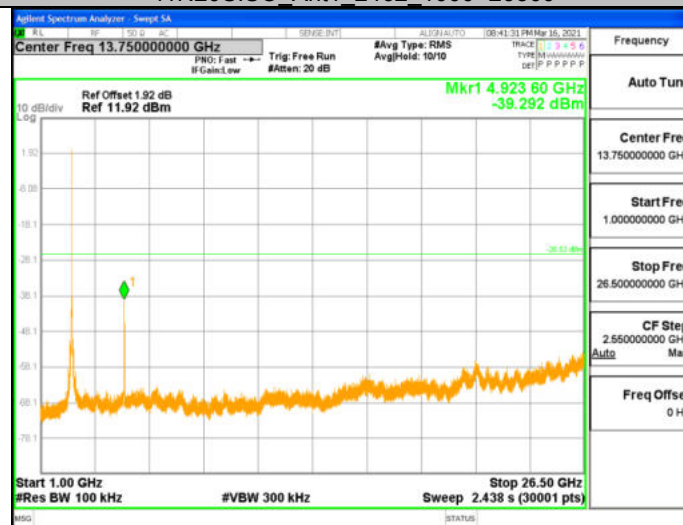
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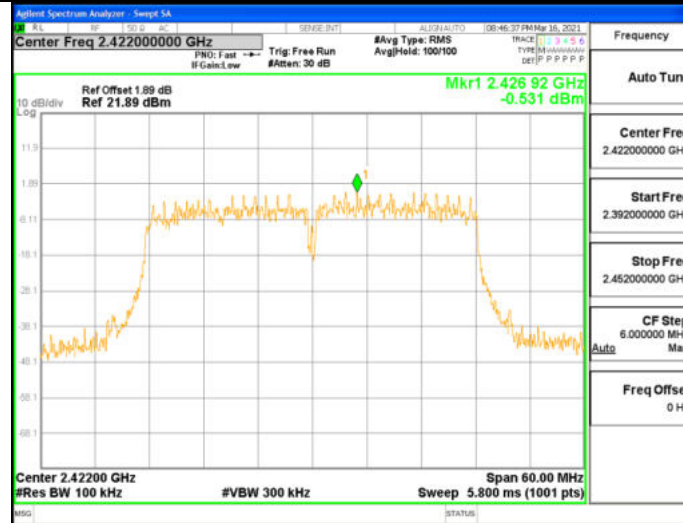
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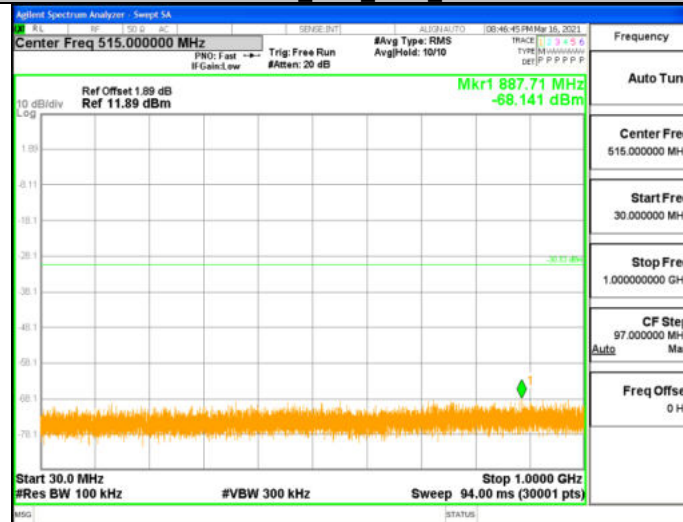
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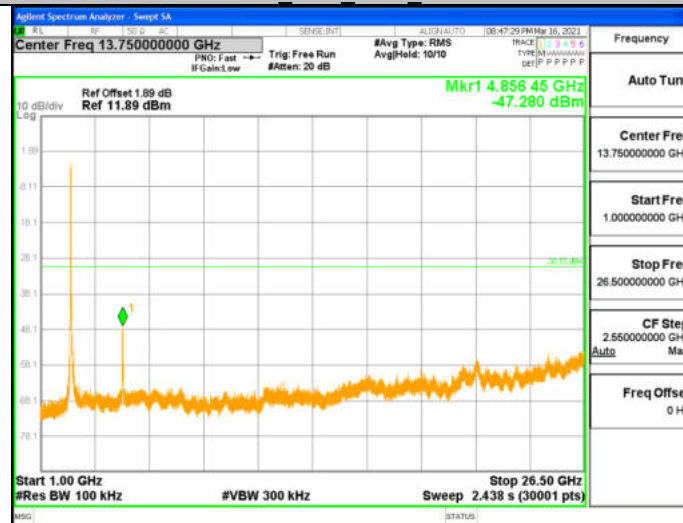
11N40SISO Ant1 2422 0~Reference



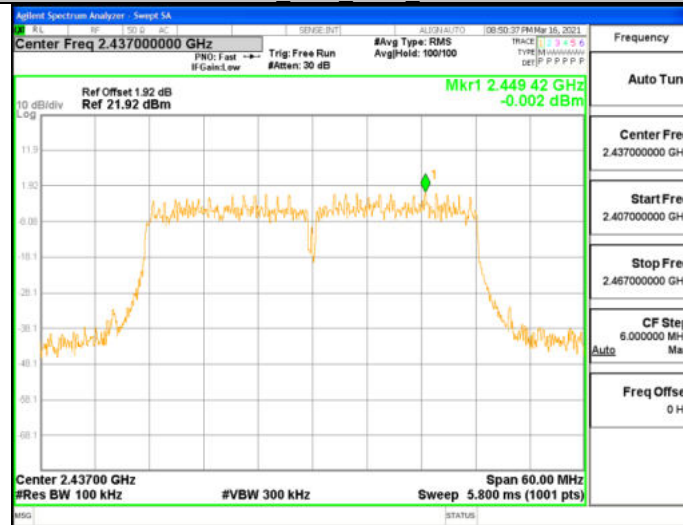
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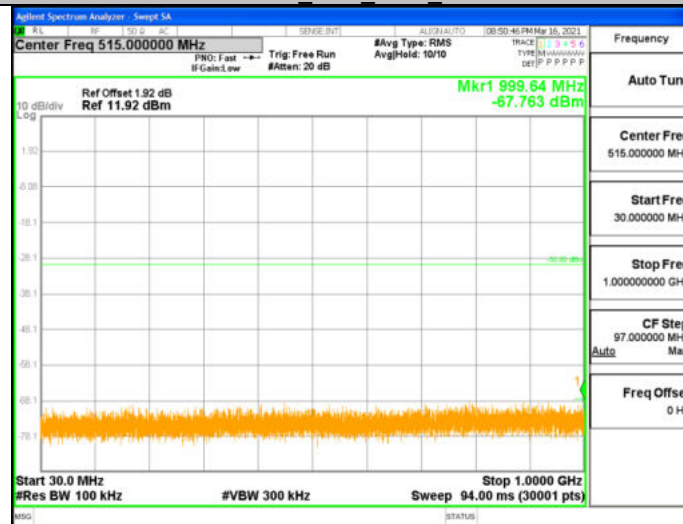
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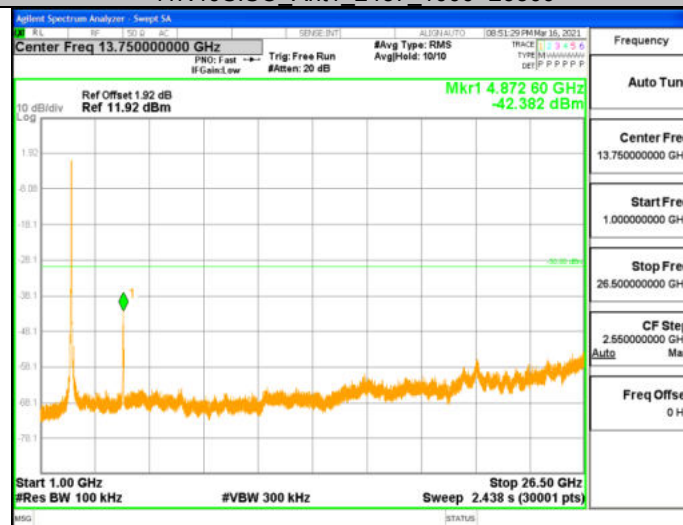
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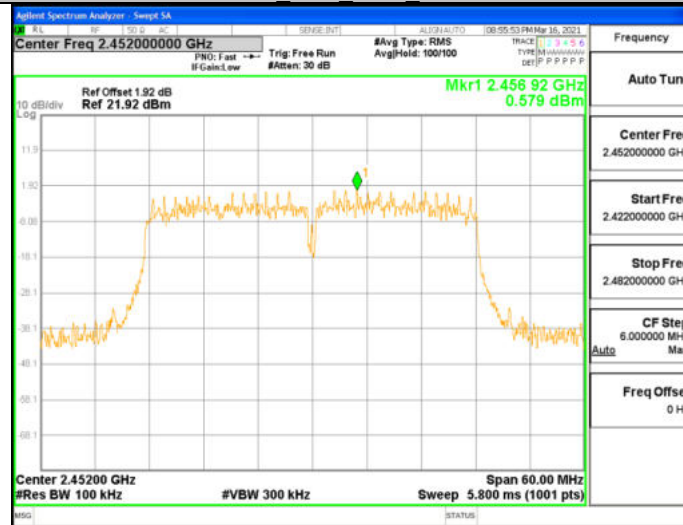
11N40SISO Ant1 2437 30~1000



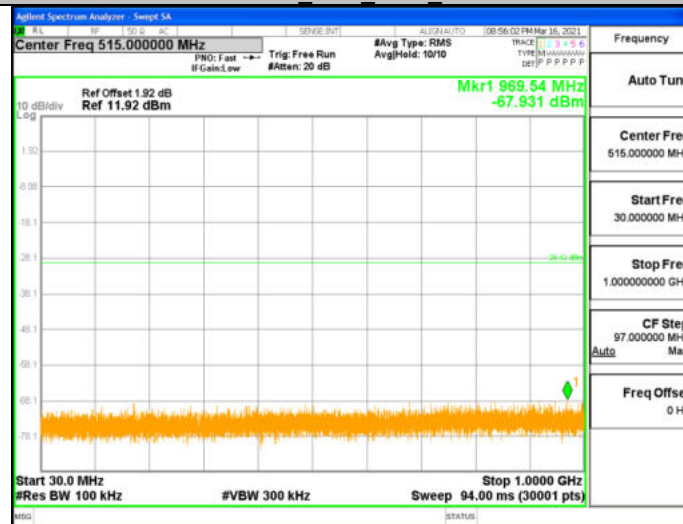
11N40SISO Ant1 2437 1000~26500



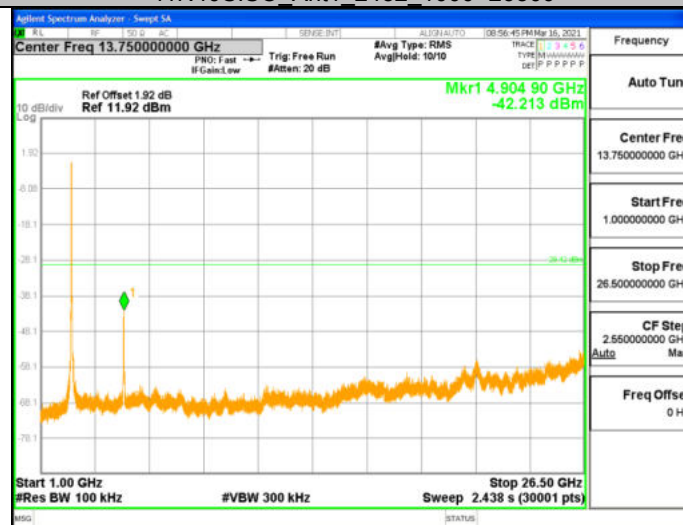
11N40SISO Ant1 2452 0~Reference



11N40SISO Ant1 2452 30~1000



11N40SISO Ant1 2452 1000~26500



APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Radiated Spurious Emissions



Conducted Emissions at AC Power Line (150kHz-30MHz)

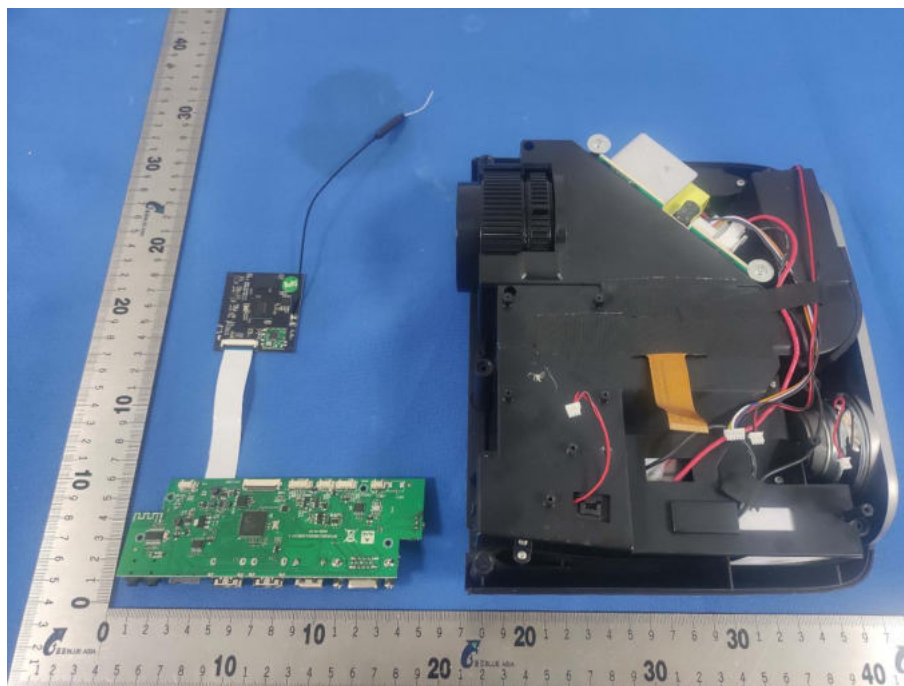
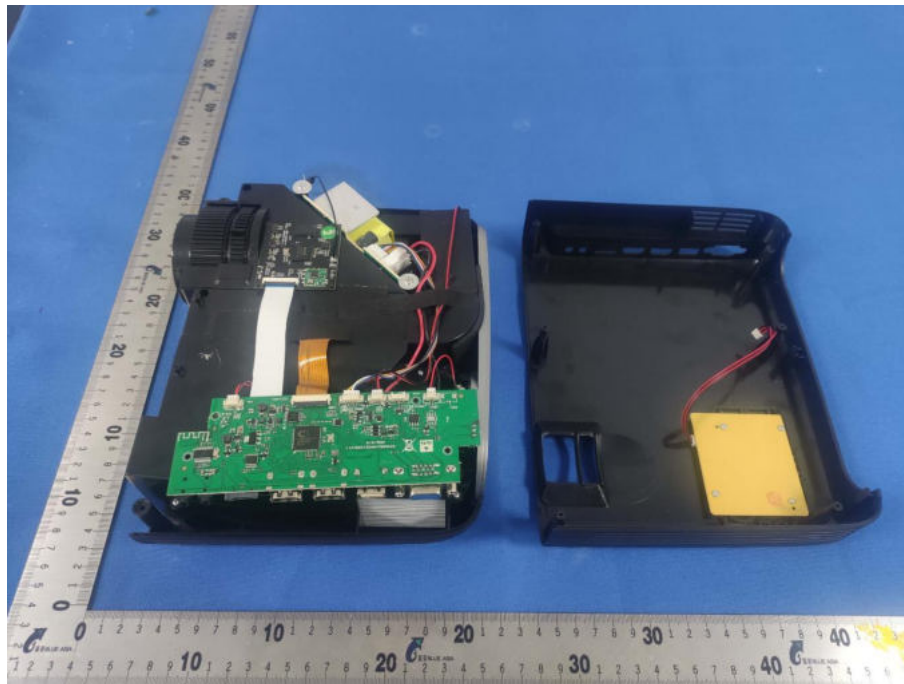


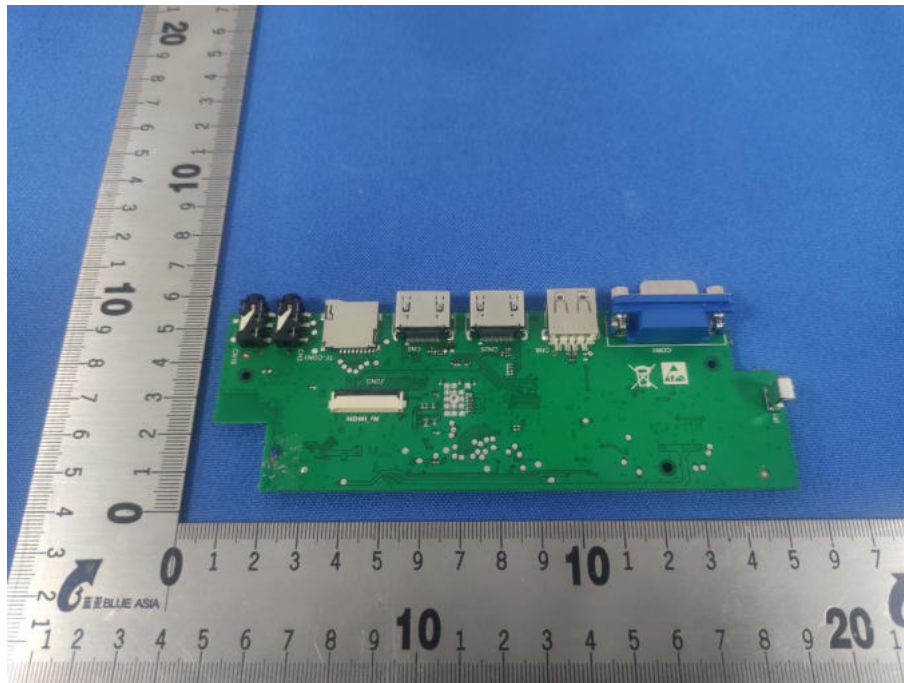
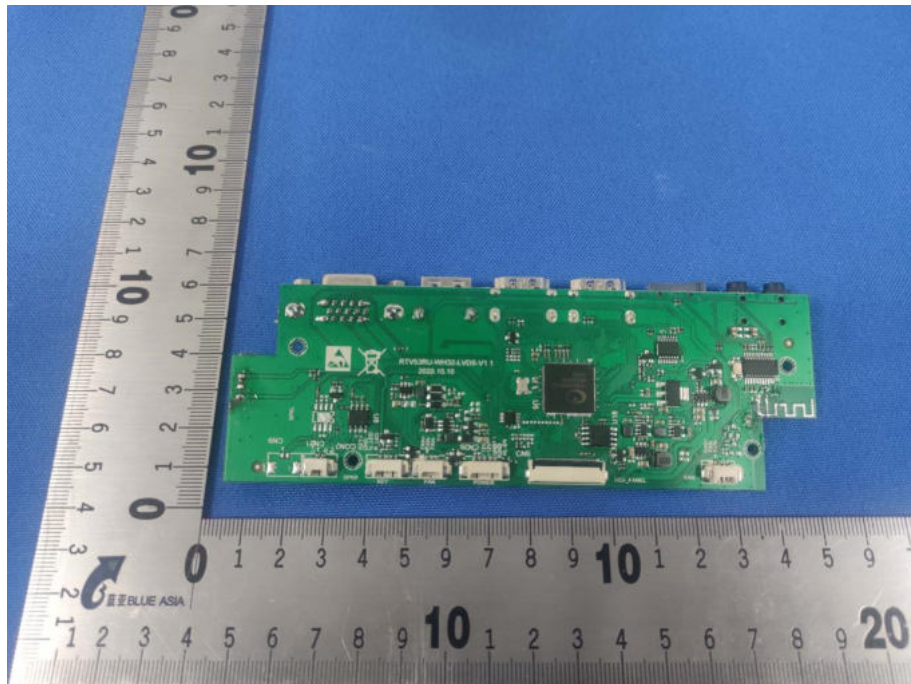
APPENDIX B: PHOTOGRAPHS OF EUT

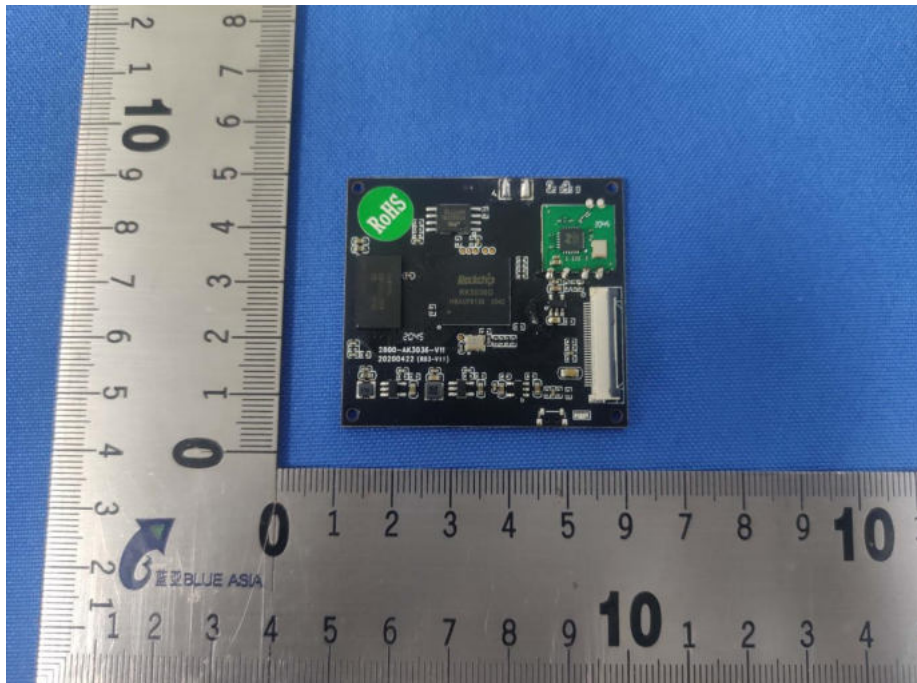
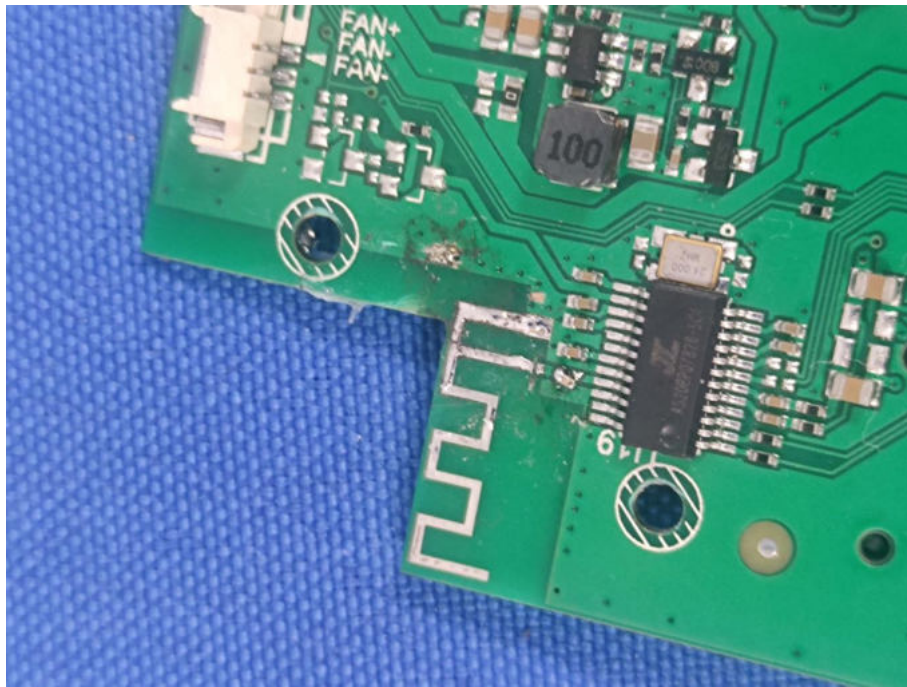


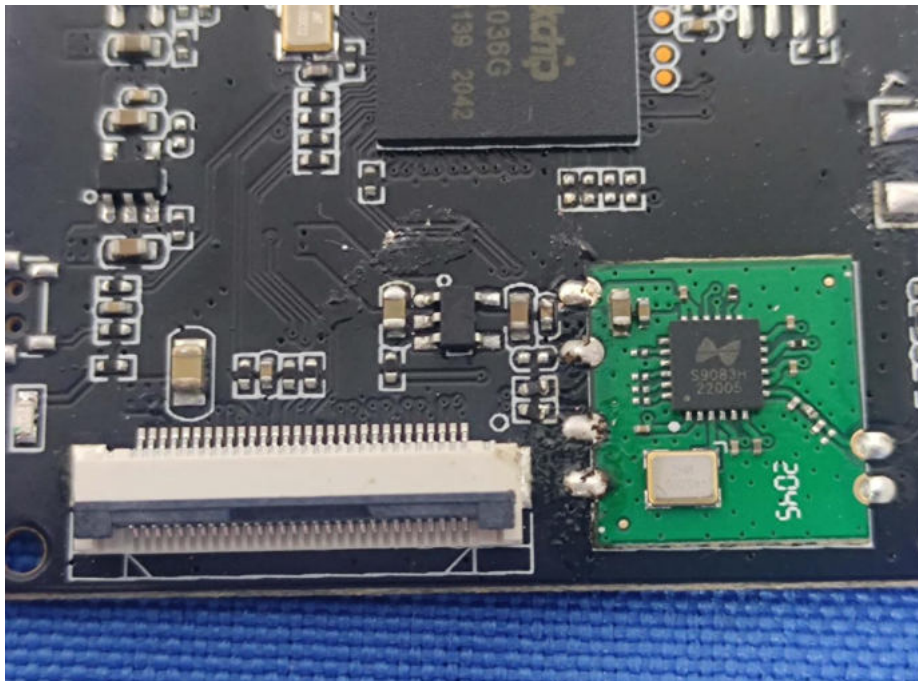
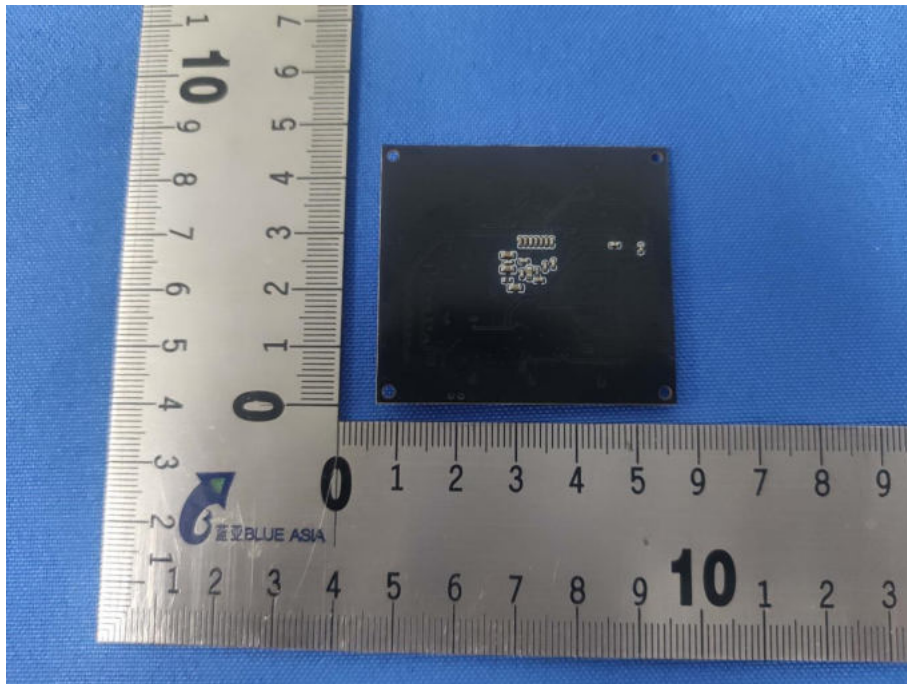


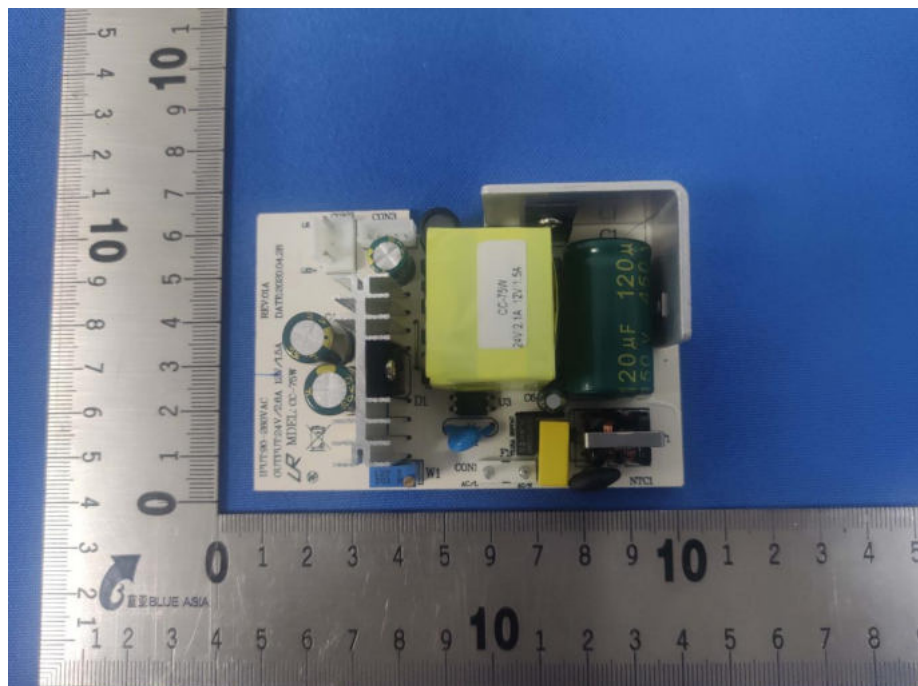
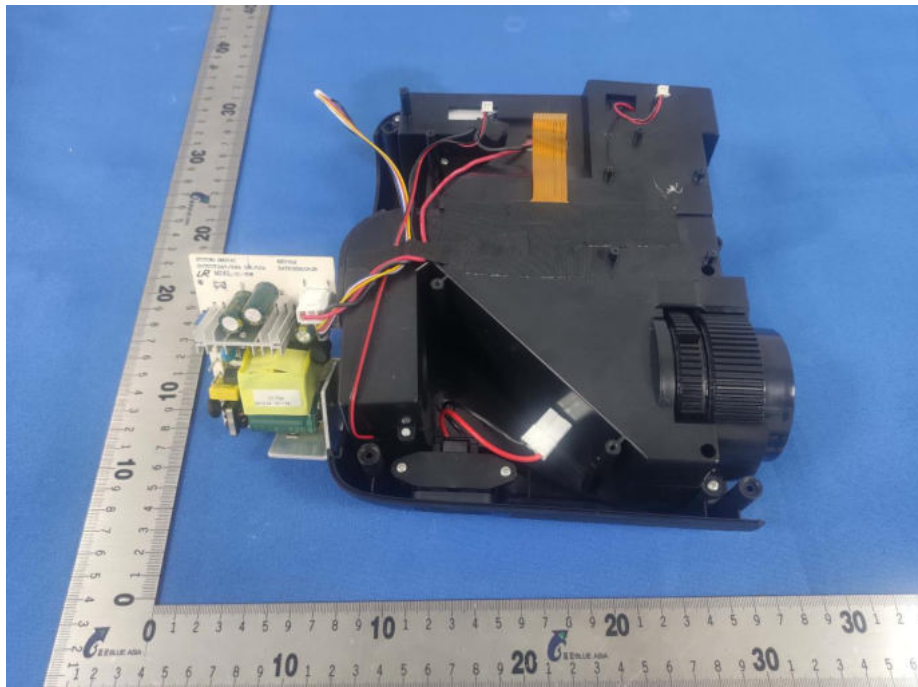


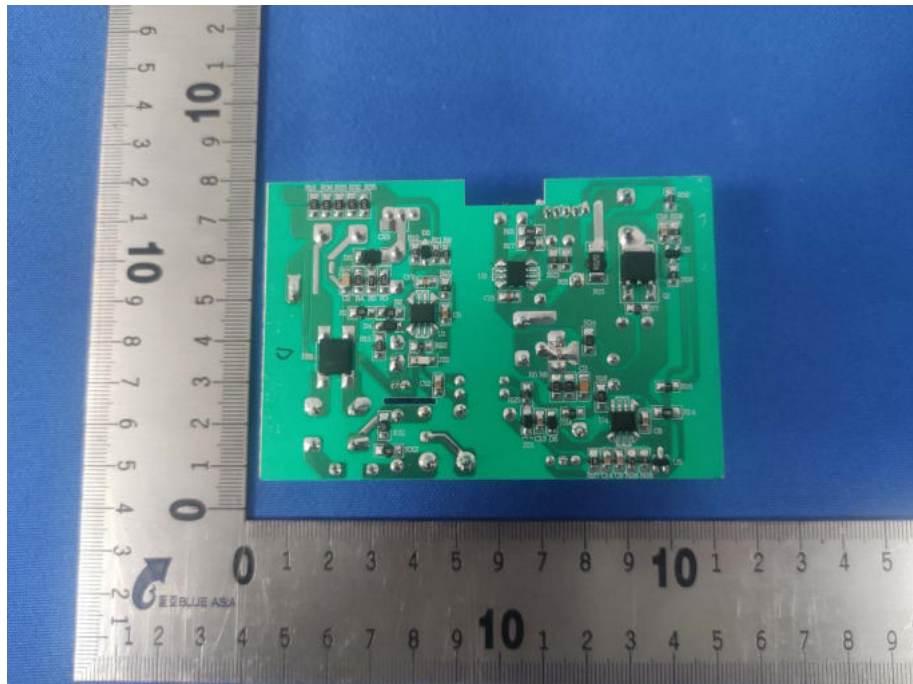












----END OF REPORT----

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