



RF Test Data for RLAN(UNII-1) (Conducted Measurement)

Product Name: ROLLING

Trade Mark: SYLVOX, ZINVAX, MISTAAD, GOTHOT, VUESTATION, KONTECH

Test Model: RL32K1A3GA

FCC ID: 2AZTZ-RL32K1A3GA

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A1: Emission Bandwidth

Test Result

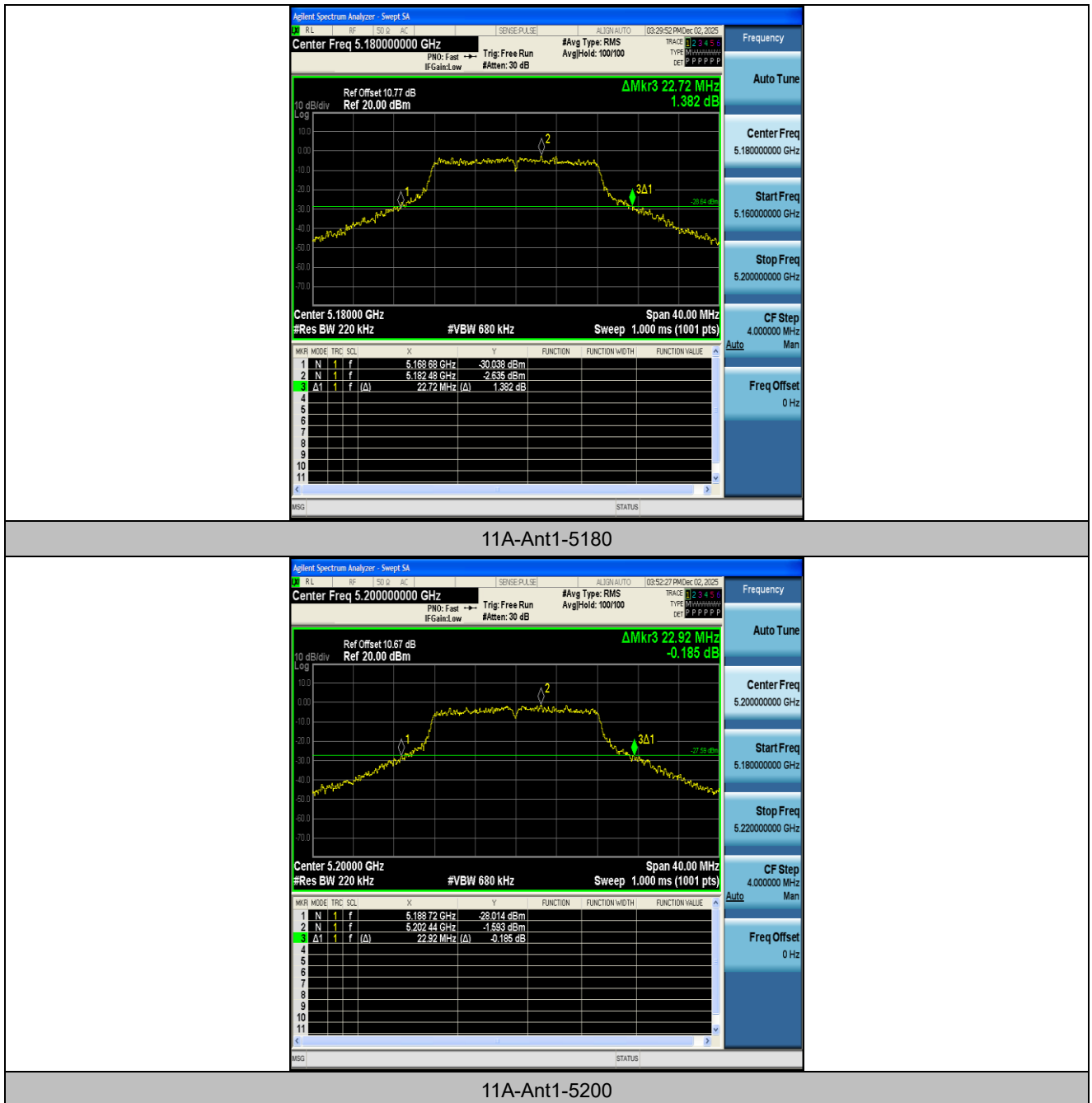
Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	22.720	5168.680	5191.400	---	---
11A	Ant1	5200	22.920	5188.720	5211.640	---	---
11A	Ant1	5240	24.040	5228.200	5252.240	---	---
11N20SISO	Ant1	5180	23.920	5167.920	5191.840	---	---
11N20SISO	Ant1	5200	22.320	5189.240	5211.560	---	---
11N20SISO	Ant1	5240	23.480	5228.400	5251.880	---	---
11N40SISO	Ant1	5190	41.040	5169.680	5210.720	---	---
11N40SISO	Ant1	5230	41.520	5209.760	5251.280	---	---
11AC20SISO	Ant1	5180	23.200	5168.640	5191.840	---	---
11AC20SISO	Ant1	5200	24.240	5188.000	5212.240	---	---
11AC20SISO	Ant1	5240	24.040	5227.920	5251.960	---	---
11AC40SISO	Ant1	5190	41.360	5169.360	5210.720	---	---
11AC40SISO	Ant1	5230	40.800	5209.680	5250.480	---	---
11AC80SISO	Ant1	5210	86.080	5165.680	5251.760	---	---

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs





11A-Ant1-5240



11N20SISO-Ant1-5180





11N20SISO-Ant1-5200



11N20SISO-Ant1-5240





11N40SISO-Ant1-5190



11N40SISO-Ant1-5230





11AC20SISO-Ant1-5180



11AC20SISO-Ant1-5200





11AC20SISO-Ant1-5240

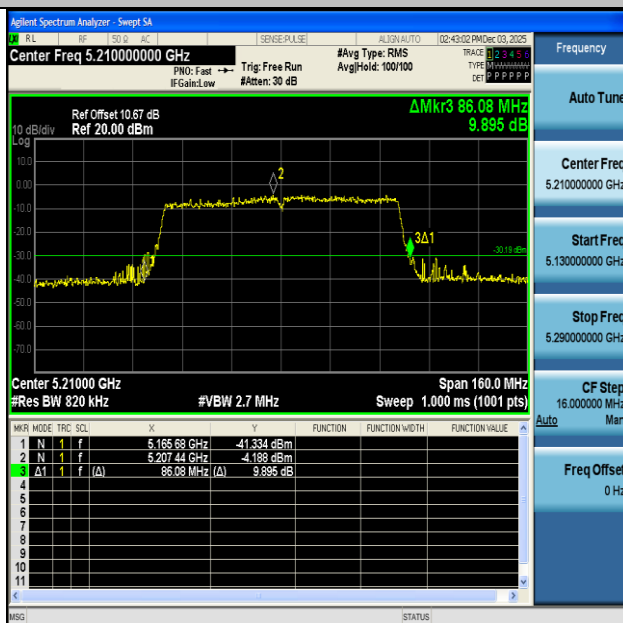


11AC40SISO-Ant1-5190





11AC40SISO-Ant1-5230



11AC80SISO-Ant1-5210





Appendix A2: Occupied channel bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	17.171	5171.3987	5188.5697	---	---
11A	Ant1	5200	16.989	5191.5634	5208.5524	---	---
11A	Ant1	5240	17.084	5231.5225	5248.6065	---	---
11N20SISO	Ant1	5180	18.260	5170.8462	5189.1062	---	---
11N20SISO	Ant1	5200	18.074	5190.9967	5209.0707	---	---
11N20SISO	Ant1	5240	18.204	5230.9427	5249.1467	---	---
11N40SISO	Ant1	5190	36.596	5171.8070	5208.4030	---	---
11N40SISO	Ant1	5230	36.629	5211.8040	5248.4330	---	---
11AC20SISO	Ant1	5180	18.175	5170.8848	5189.0598	---	---
11AC20SISO	Ant1	5200	18.163	5190.9670	5209.1300	---	---
11AC20SISO	Ant1	5240	18.170	5230.9211	5249.0911	---	---
11AC40SISO	Ant1	5190	36.590	5171.7655	5208.3555	---	---
11AC40SISO	Ant1	5230	36.474	5211.8716	5248.3456	---	---
11AC80SISO	Ant1	5210	76.045	5172.2840	5248.3290	---	---

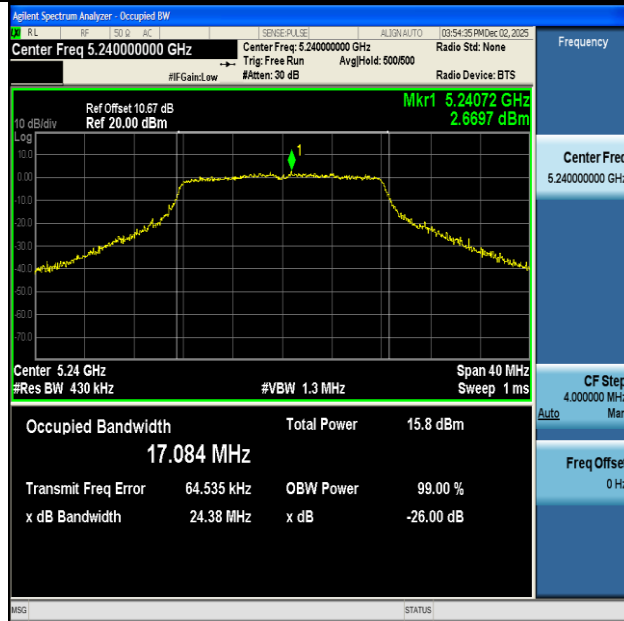
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



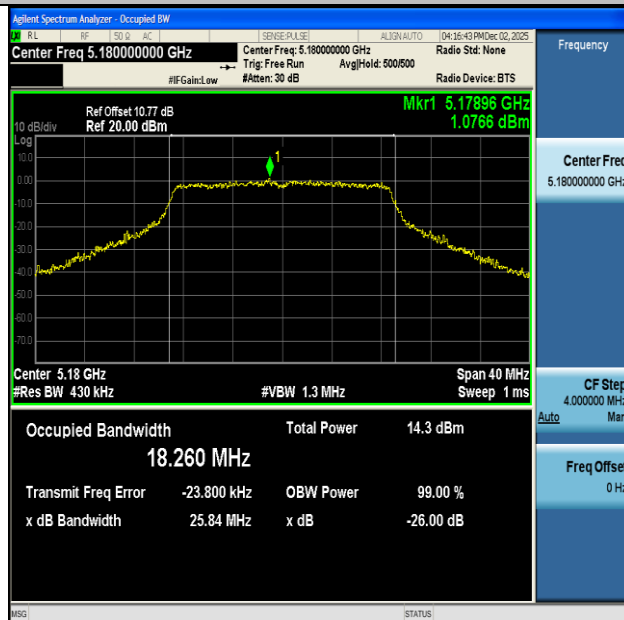


Test Graphs



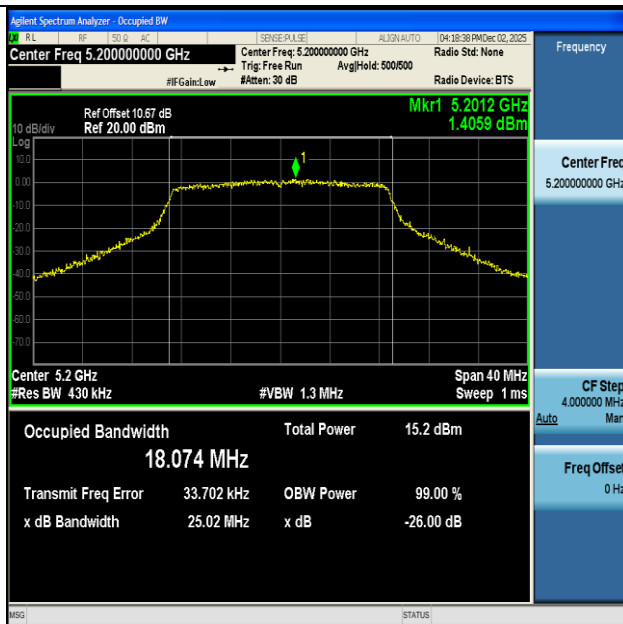


11A-Ant1-5240

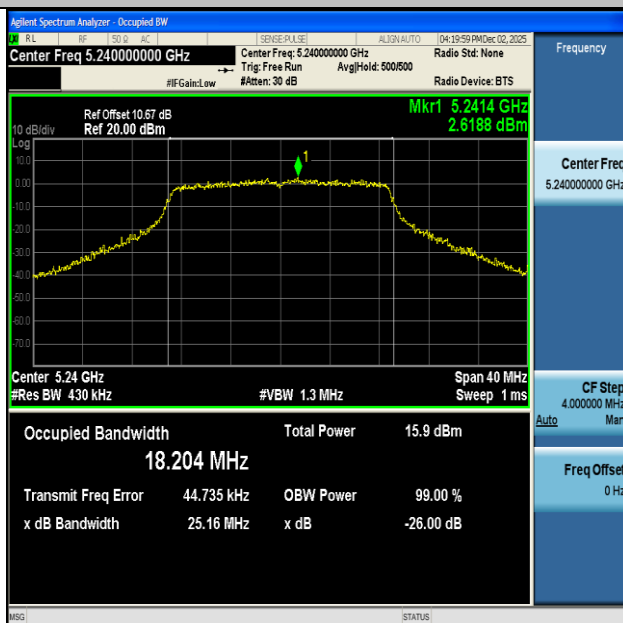


11N20SISO-Ant1-5180



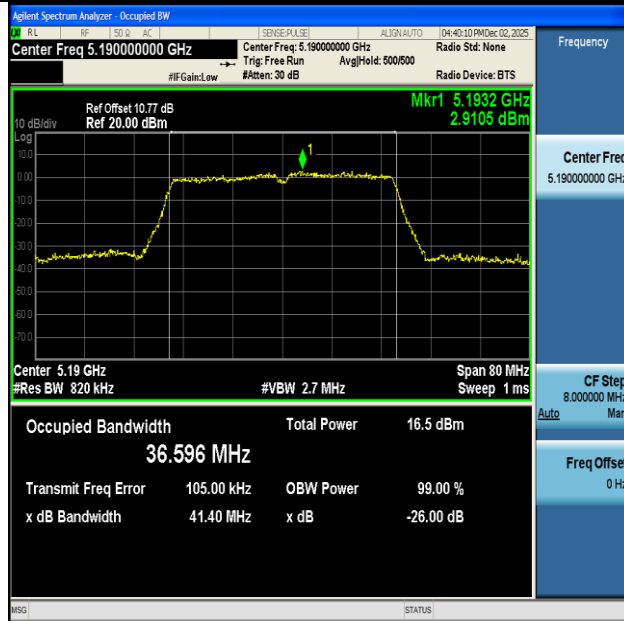


11N20SISO-Ant1-5200



11N20SISO-Ant1-5240



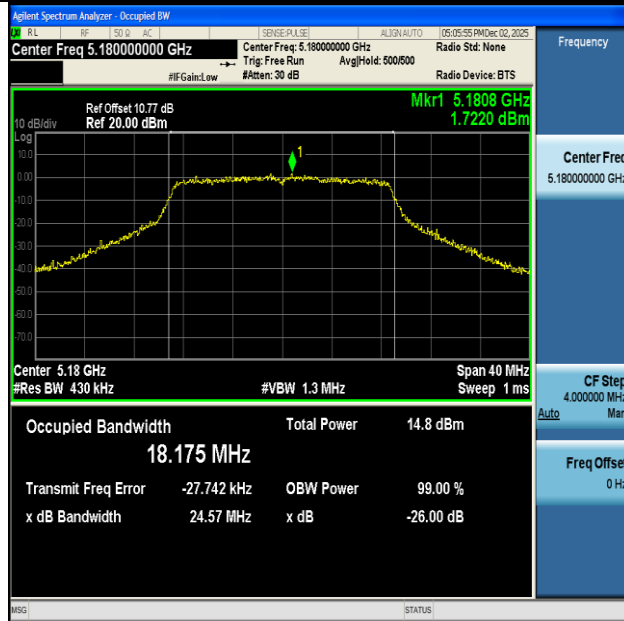


11N40SISO-Ant1-5190

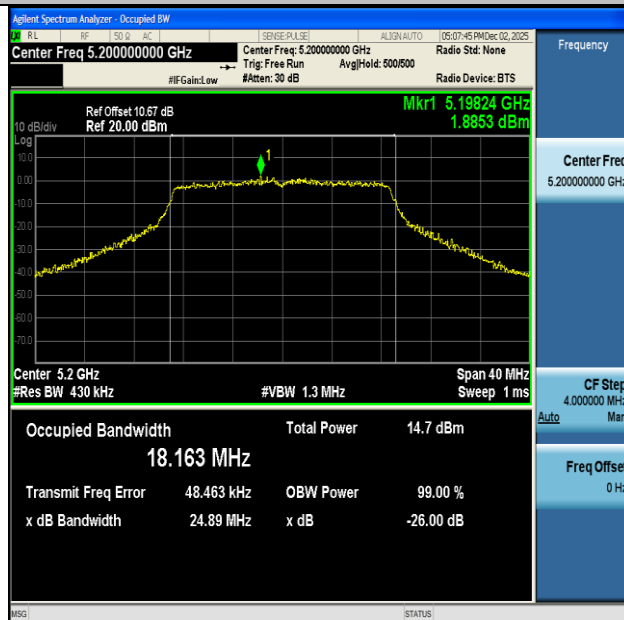


11N40SISO-Ant1-5230



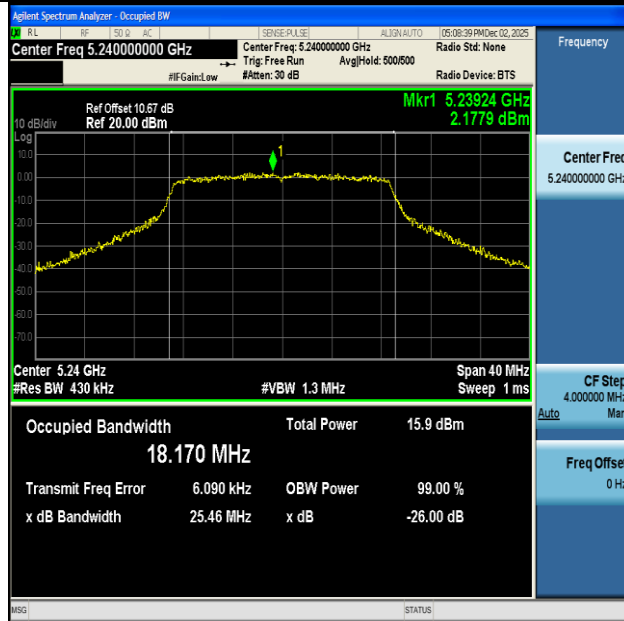


11AC20SISO-Ant1-5180



11AC20SISO-Ant1-5200



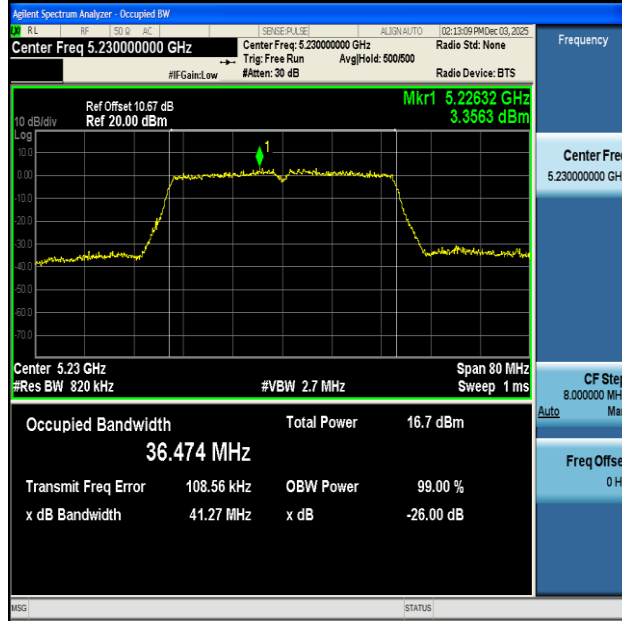


11AC20SISO-Ant1-5240

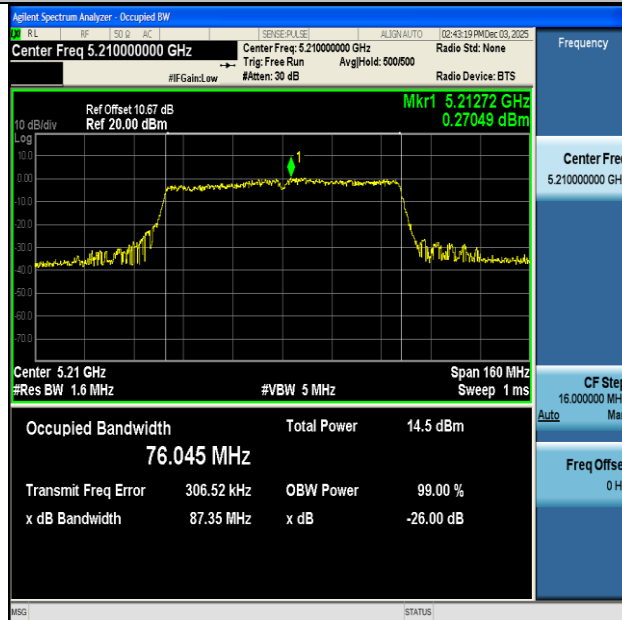


11AC40SISO-Ant1-5190





11AC40SISO-Ant1-5230



11AC80SISO-Ant1-5210





Appendix B: Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Power [dBm]	Conducted Limit [dBm]	Verdict
11A	Ant1	5180	7.05	≤23.98	PASS
11A	Ant1	5200	8.11	≤23.98	PASS
11A	Ant1	5240	8.85	≤23.98	PASS
11N20SISO	Ant1	5180	6.99	≤23.98	PASS
11N20SISO	Ant1	5200	7.94	≤23.98	PASS
11N20SISO	Ant1	5240	8.70	≤23.98	PASS
11N40SISO	Ant1	5190	8.35	≤23.98	PASS
11N40SISO	Ant1	5230	8.96	≤23.98	PASS
11AC20SISO	Ant1	5180	7.49	≤23.98	PASS
11AC20SISO	Ant1	5200	7.41	≤23.98	PASS
11AC20SISO	Ant1	5240	8.59	≤23.98	PASS
11AC40SISO	Ant1	5190	7.95	≤23.98	PASS
11AC40SISO	Ant1	5230	8.75	≤23.98	PASS
11AC80SISO	Ant1	5210	5.57	≤23.98	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)

The offset (dB) is already compensated in the result.





Appendix C: Maximum power spectral density

Test Result

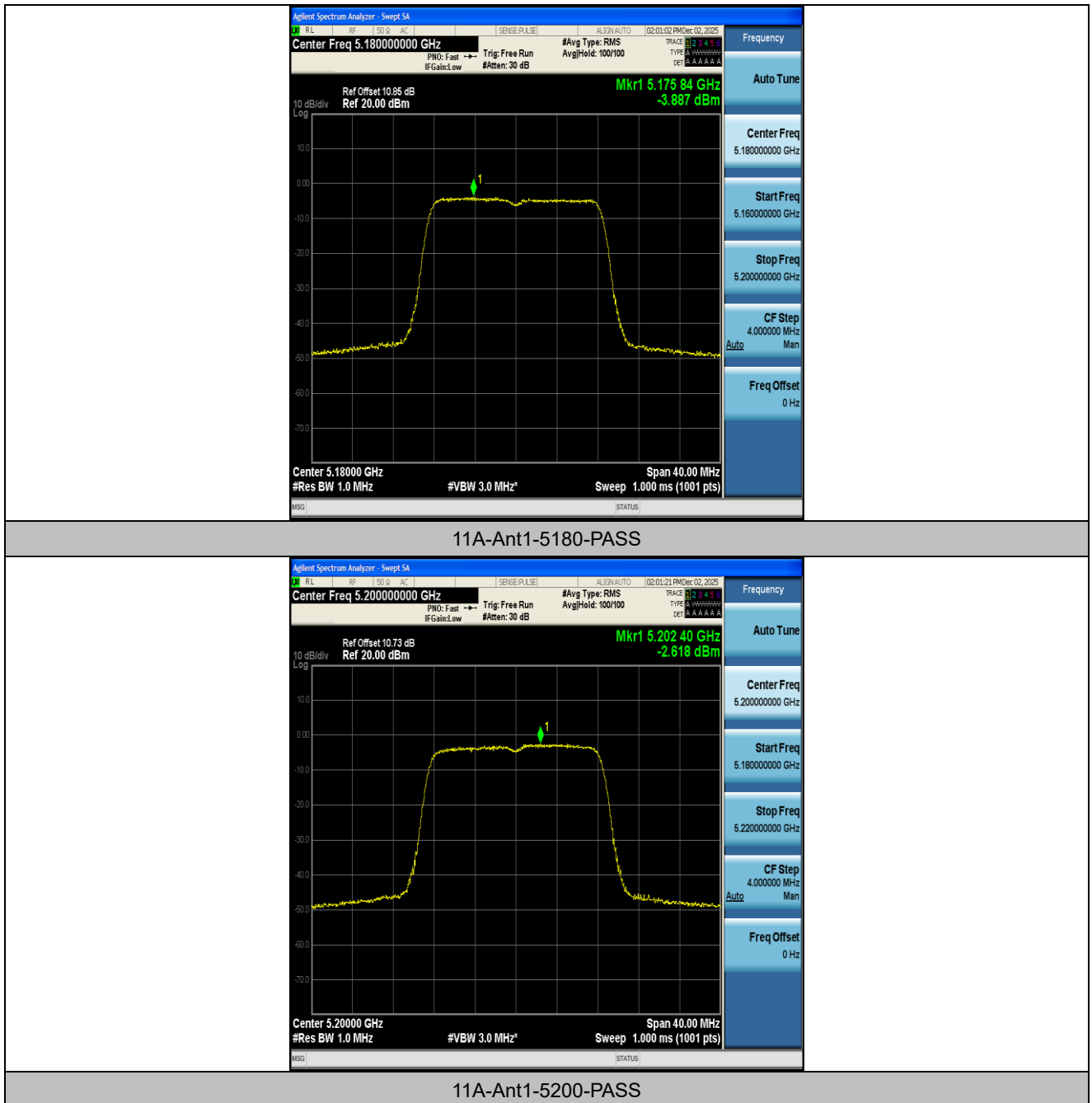
Test Mode	Antenna	Frequency [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	-3.89	≤11.00	PASS
11A	Ant1	5200	-2.62	≤11.00	PASS
11A	Ant1	5240	-2.43	≤11.00	PASS
11N20SISO	Ant1	5180	-4.41	≤11.00	PASS
11N20SISO	Ant1	5200	-2.68	≤11.00	PASS
11N20SISO	Ant1	5240	-2.71	≤11.00	PASS
11N40SISO	Ant1	5190	-6.61	≤11.00	PASS
11N40SISO	Ant1	5230	-6.35	≤11.00	PASS
11AC20SISO	Ant1	5180	-4.22	≤11.00	PASS
11AC20SISO	Ant1	5200	-2.78	≤11.00	PASS
11AC20SISO	Ant1	5240	-2.92	≤11.00	PASS
11AC40SISO	Ant1	5190	-6.80	≤11.00	PASS
11AC40SISO	Ant1	5230	-6.58	≤11.00	PASS
11AC80SISO	Ant1	5210	-7.79	≤11.00	PASS

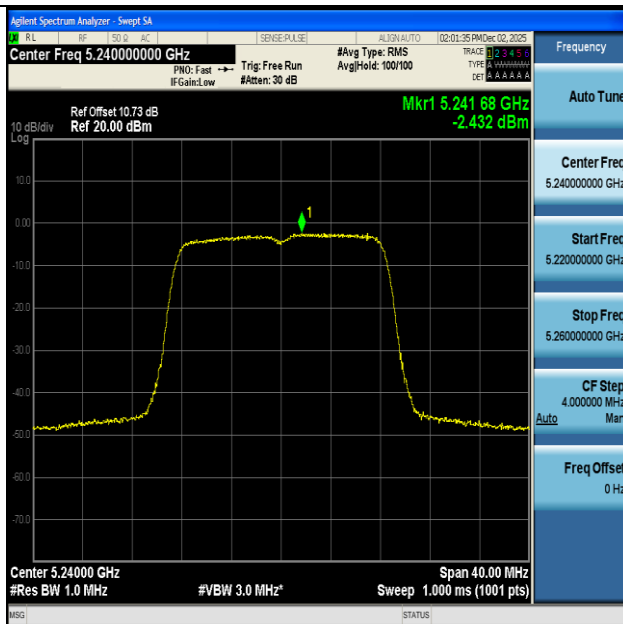
Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)



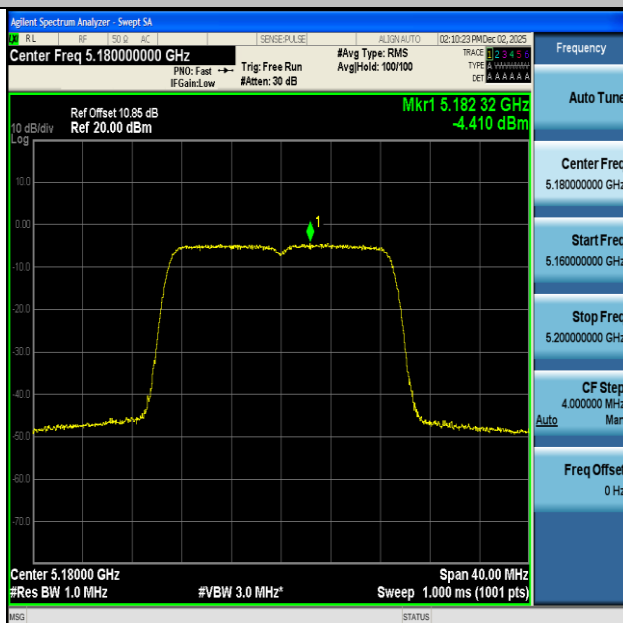


Test Graphs



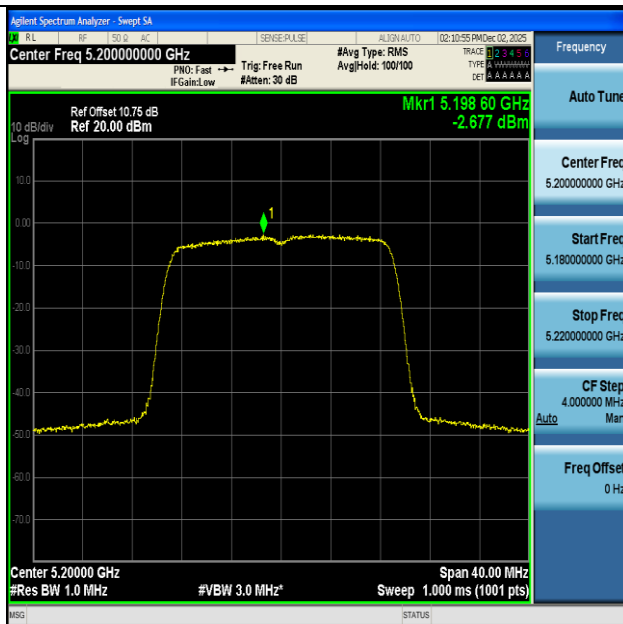


11A-Ant1-5240-PASS

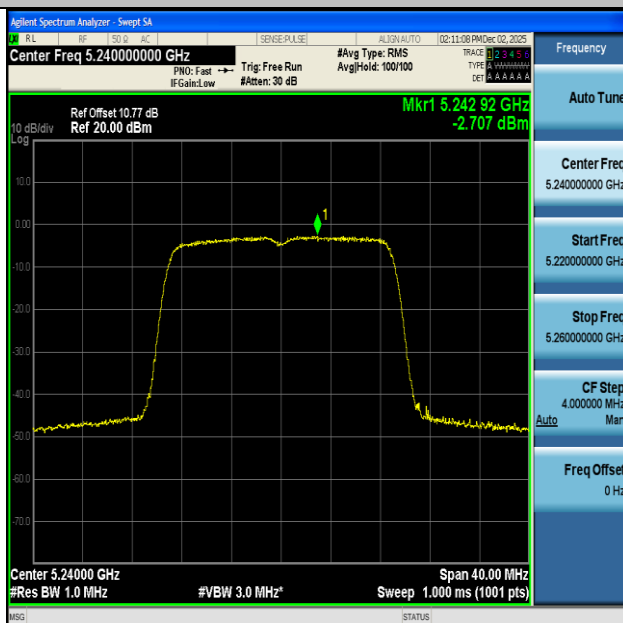


11N20SISO-Ant1-5180-PASS



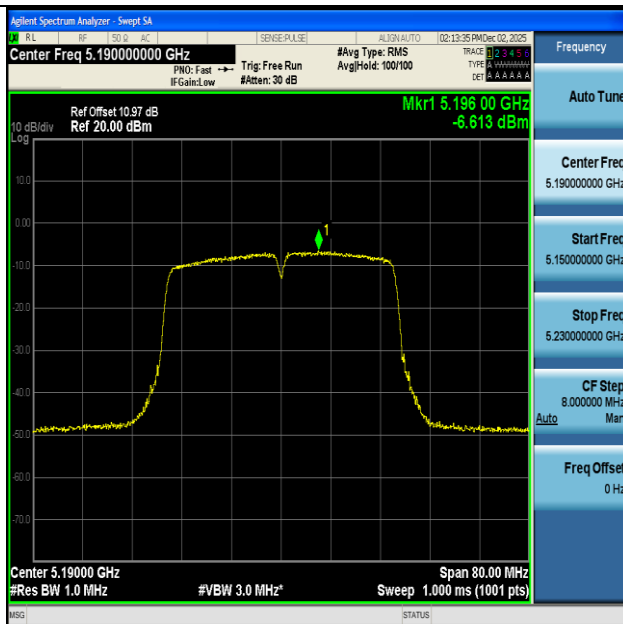


11N20SISO-Ant1-5200-PASS

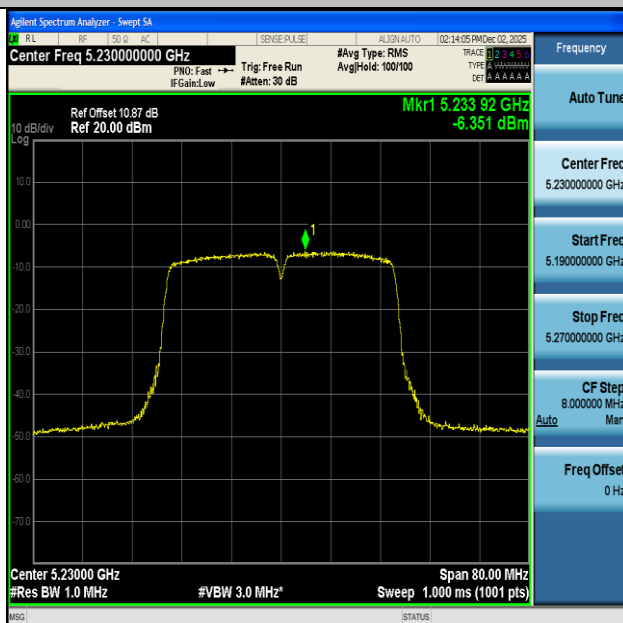


11N20SISO-Ant1-5240-PASS



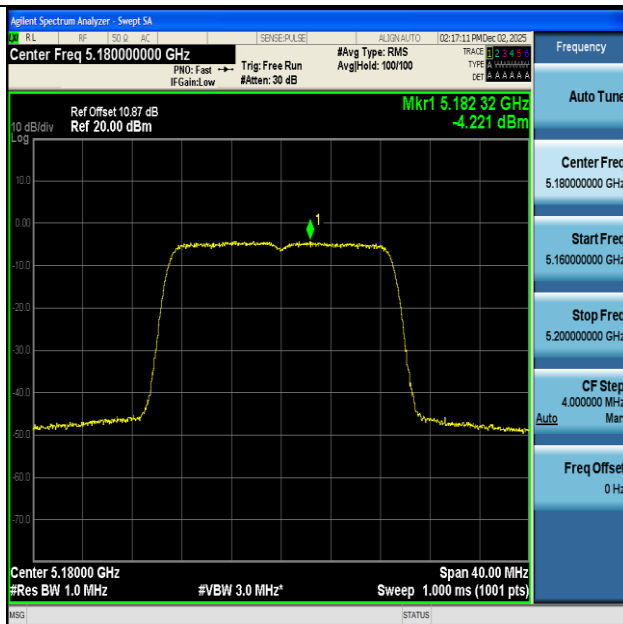


11N40SISO-Ant1-5190-PASS

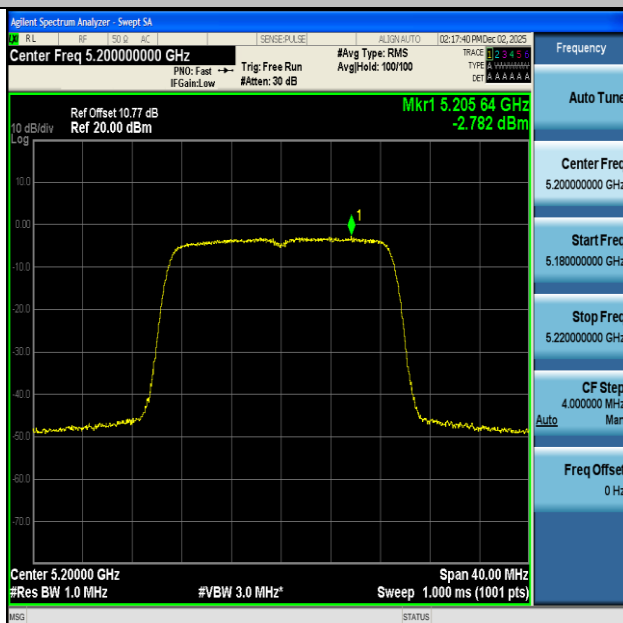


11N40SISO-Ant1-5230-PASS



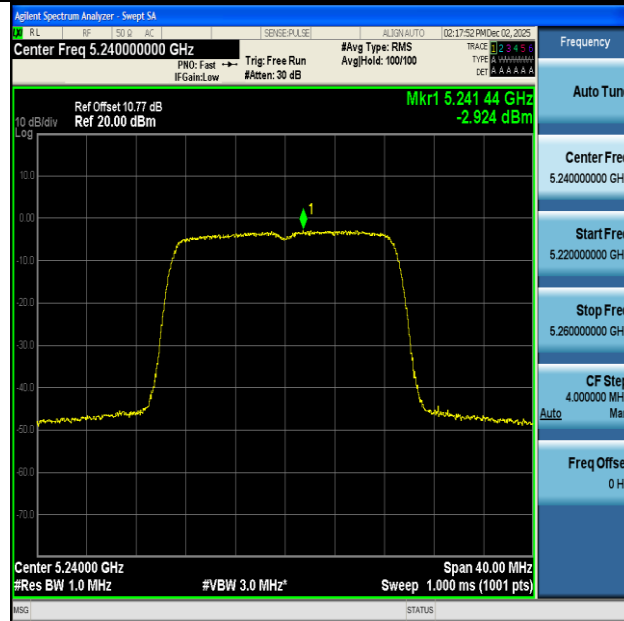


11AC20SISO-Ant1-5180-PASS

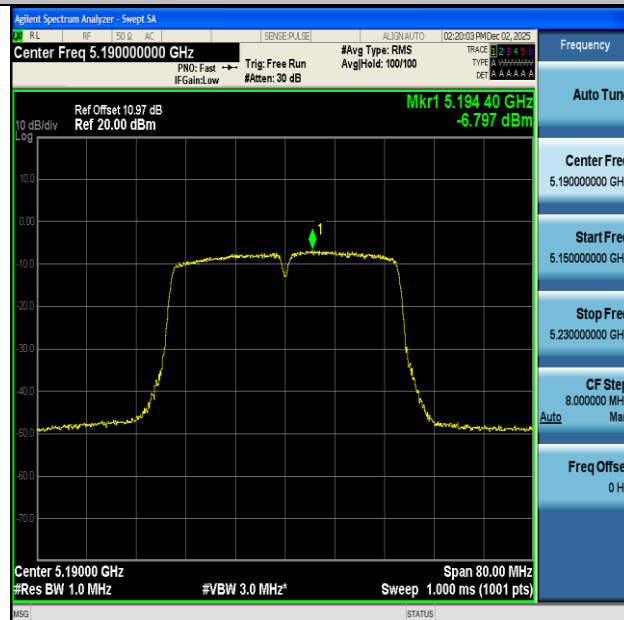


11AC20SISO-Ant1-5200-PASS



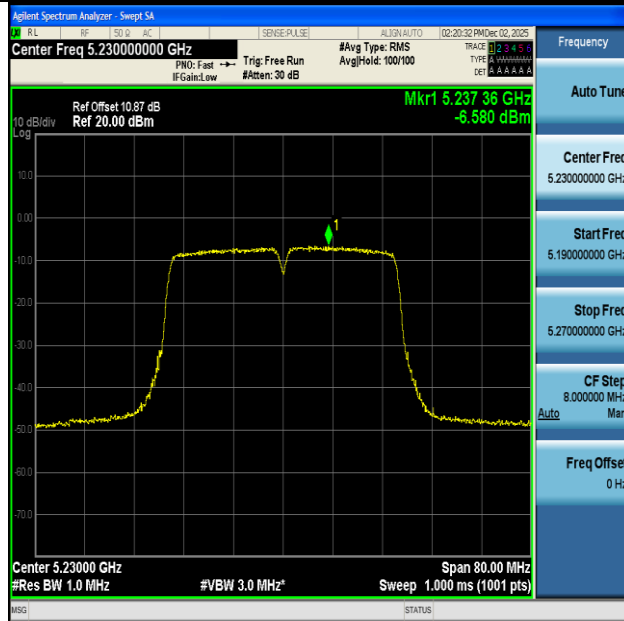


11AC20SISO-Ant1-5240-PASS

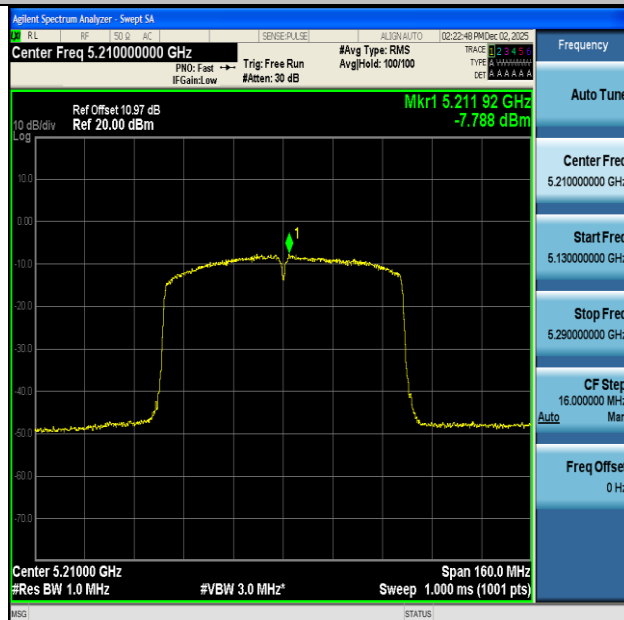


11AC40SISO-Ant1-5190-PASS





11AC40SISO-Ant1-5230-PASS



11AC80SISO-Ant1-5210-PASS





Appendix D: Band edge measurements

Test Result

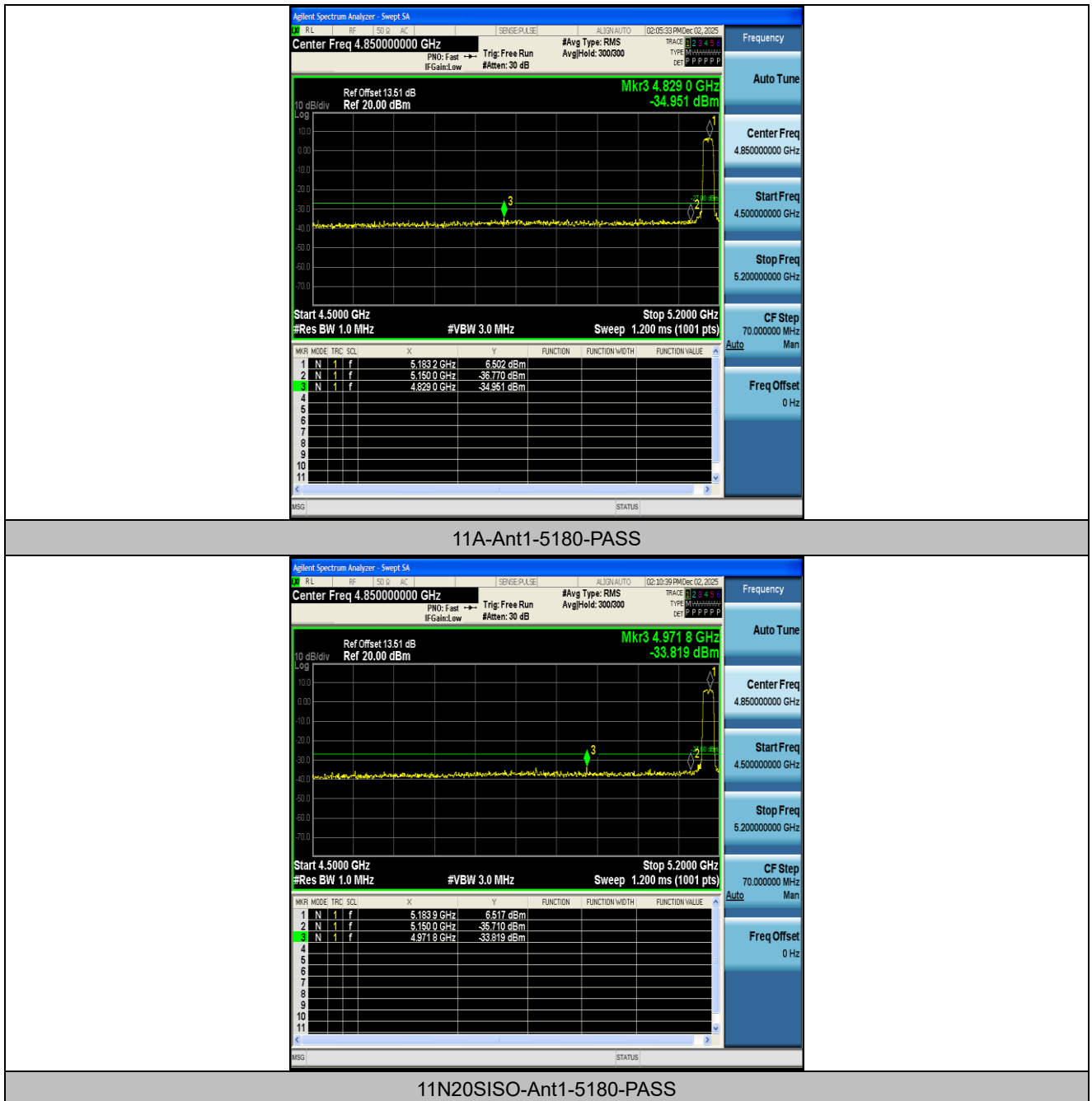
Test Mode	Antenna	Ch. Name	Frequency [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5180	-34.95	≤ -27	PASS
11N20SISO	Ant1	Low	5180	-33.82	≤ -27	PASS
11N40SISO	Ant1	Low	5190	-34.31	≤ -27	PASS
11AC20SISO	Ant1	Low	5180	-35.1	≤ -27	PASS
11AC40SISO	Ant1	Low	5190	-34.99	≤ -27	PASS
11AC80SISO	Ant1	Low	5210	-34.55	≤ -27	PASS

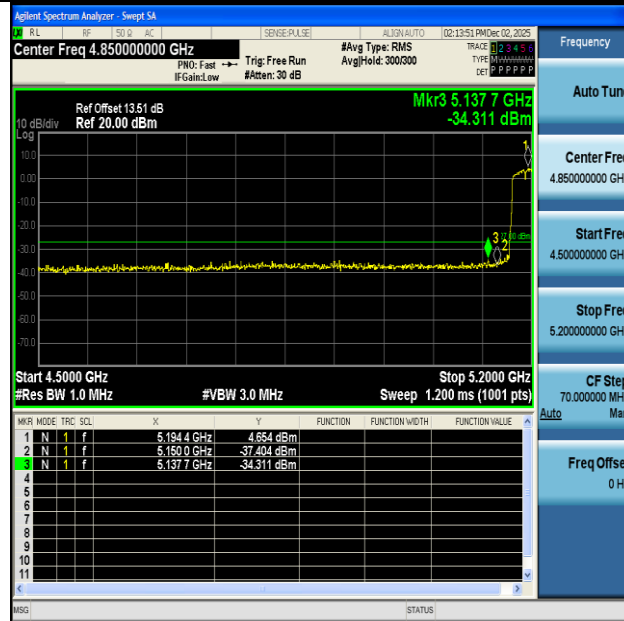
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)+antenna gain(dBi)



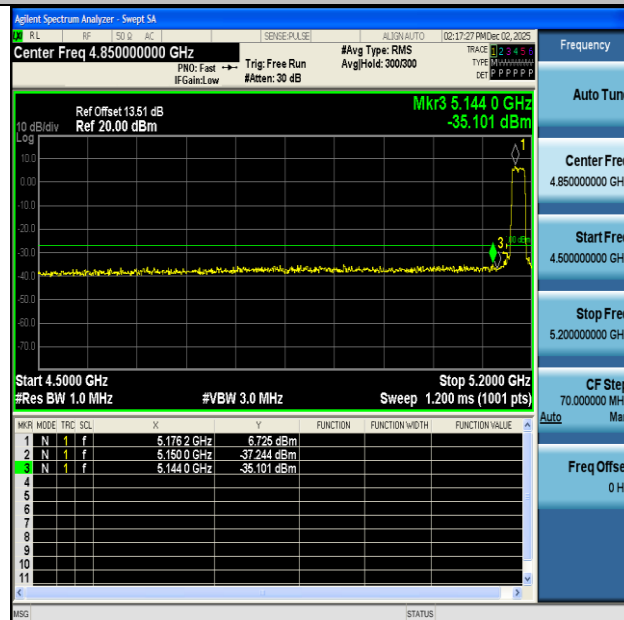


Test Graphs



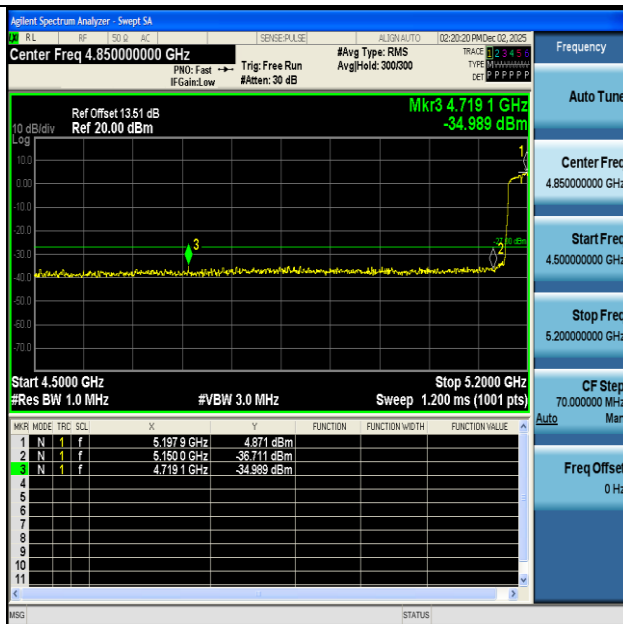


11N40SISO-Ant1-5190-PASS

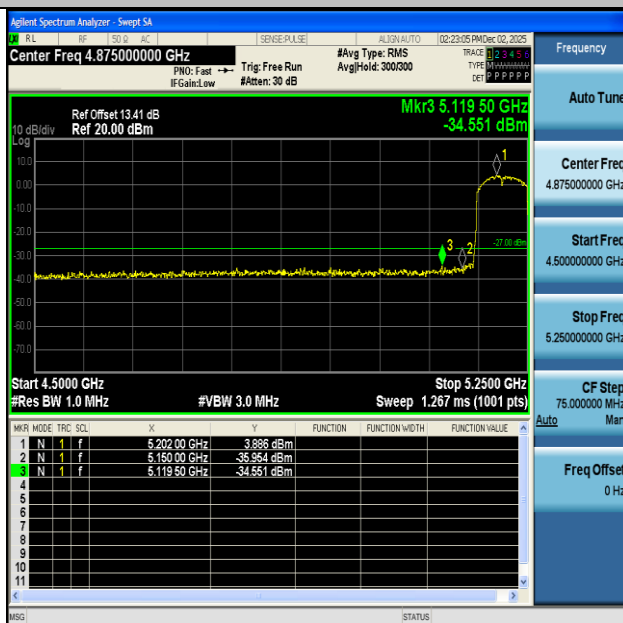


11AC20SISO-Ant1-5180-PASS





11AC40SISO-Ant1-5190-PASS



11AC80SISO-Ant1-5210-PASS





Appendix E: Frequency Stability

Test Result

Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5180	20	132	5180.005129	5150 – 5250	PASS
5180	20	108	5179.969335	5150 – 5250	PASS
5180	50	120	5180.034933	5150 – 5250	PASS
5180	40	120	5179.961207	5150 – 5250	PASS
5180	30	120	5179.944016	5150 – 5250	PASS
5180	20	120	5179.953366	5150 – 5250	PASS
5180	10	120	5179.926704	5150 – 5250	PASS
5180	0	120	5179.968161	5150 – 5250	PASS
5180	-10	120	5180.093015	5150 – 5250	PASS
5180	-20	120	5179.977630	5150 – 5250	PASS
5180	-30	120	5179.939434	5150 – 5250	PASS





Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5200	20	132	5199.946412	5150 – 5250	PASS
5200	20	108	5200.094176	5150 – 5250	PASS
5200	50	120	5200.039637	5150 – 5250	PASS
5200	40	120	5199.934464	5150 – 5250	PASS
5200	30	120	5200.037124	5150 – 5250	PASS
5200	20	120	5200.046432	5150 – 5250	PASS
5200	10	120	5199.944760	5150 – 5250	PASS
5200	0	120	5199.947695	5150 – 5250	PASS
5200	-10	120	5199.921535	5150 – 5250	PASS
5200	-20	120	5200.068697	5150 – 5250	PASS
5200	-30	120	5200.019136	5150 – 5250	PASS





Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5240	20	132	5240.022422	5150 – 5250	PASS
5240	20	108	5239.979973	5150 – 5250	PASS
5240	50	120	5239.911140	5150 – 5250	PASS
5240	40	120	5240.011221	5150 – 5250	PASS
5240	30	120	5240.076001	5150 – 5250	PASS
5240	20	120	5240.097196	5150 – 5250	PASS
5240	10	120	5239.964981	5150 – 5250	PASS
5240	0	120	5239.934266	5150 – 5250	PASS
5240	-10	120	5239.964559	5150 – 5250	PASS
5240	-20	120	5240.005501	5150 – 5250	PASS
5240	-30	120	5239.949387	5150 – 5250	PASS





Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5190	20	132	5190.087750	5150 – 5250	PASS
5190	20	108	5189.930950	5150 – 5250	PASS
5190	50	120	5189.928768	5150 – 5250	PASS
5190	40	120	5189.971984	5150 – 5250	PASS
5190	30	120	5189.981768	5150 – 5250	PASS
5190	20	120	5190.087799	5150 – 5250	PASS
5190	10	120	5190.093155	5150 – 5250	PASS
5190	0	120	5190.012565	5150 – 5250	PASS
5190	-10	120	5190.021701	5150 – 5250	PASS
5190	-20	120	5189.987662	5150 – 5250	PASS
5190	-30	120	5190.027504	5150 – 5250	PASS





Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5230	20	132	5229.942115	5150 – 5250	PASS
5230	20	108	5229.909968	5150 – 5250	PASS
5230	50	120	5230.079754	5150 – 5250	PASS
5230	40	120	5230.049069	5150 – 5250	PASS
5230	30	120	5230.053682	5150 – 5250	PASS
5230	20	120	5229.996703	5150 – 5250	PASS
5230	10	120	5230.037926	5150 – 5250	PASS
5230	0	120	5230.058278	5150 – 5250	PASS
5230	-10	120	5230.070241	5150 – 5250	PASS
5230	-20	120	5229.960882	5150 – 5250	PASS
5230	-30	120	5229.926624	5150 – 5250	PASS





Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5210	20	132	5210.091640	5150 – 5250	PASS
5210	20	108	5210.043473	5150 – 5250	PASS
5210	50	120	5210.032886	5150 – 5250	PASS
5210	40	120	5210.027515	5150 – 5250	PASS
5210	30	120	5210.042971	5150 – 5250	PASS
5210	20	120	5209.971419	5150 – 5250	PASS
5210	10	120	5210.047780	5150 – 5250	PASS
5210	0	120	5209.997254	5150 – 5250	PASS
5210	-10	120	5209.970826	5150 – 5250	PASS
5210	-20	120	5209.927968	5150 – 5250	PASS
5210	-30	120	5210.061009	5150 – 5250	PASS





Appendix F: Duty Cycle

Test Result

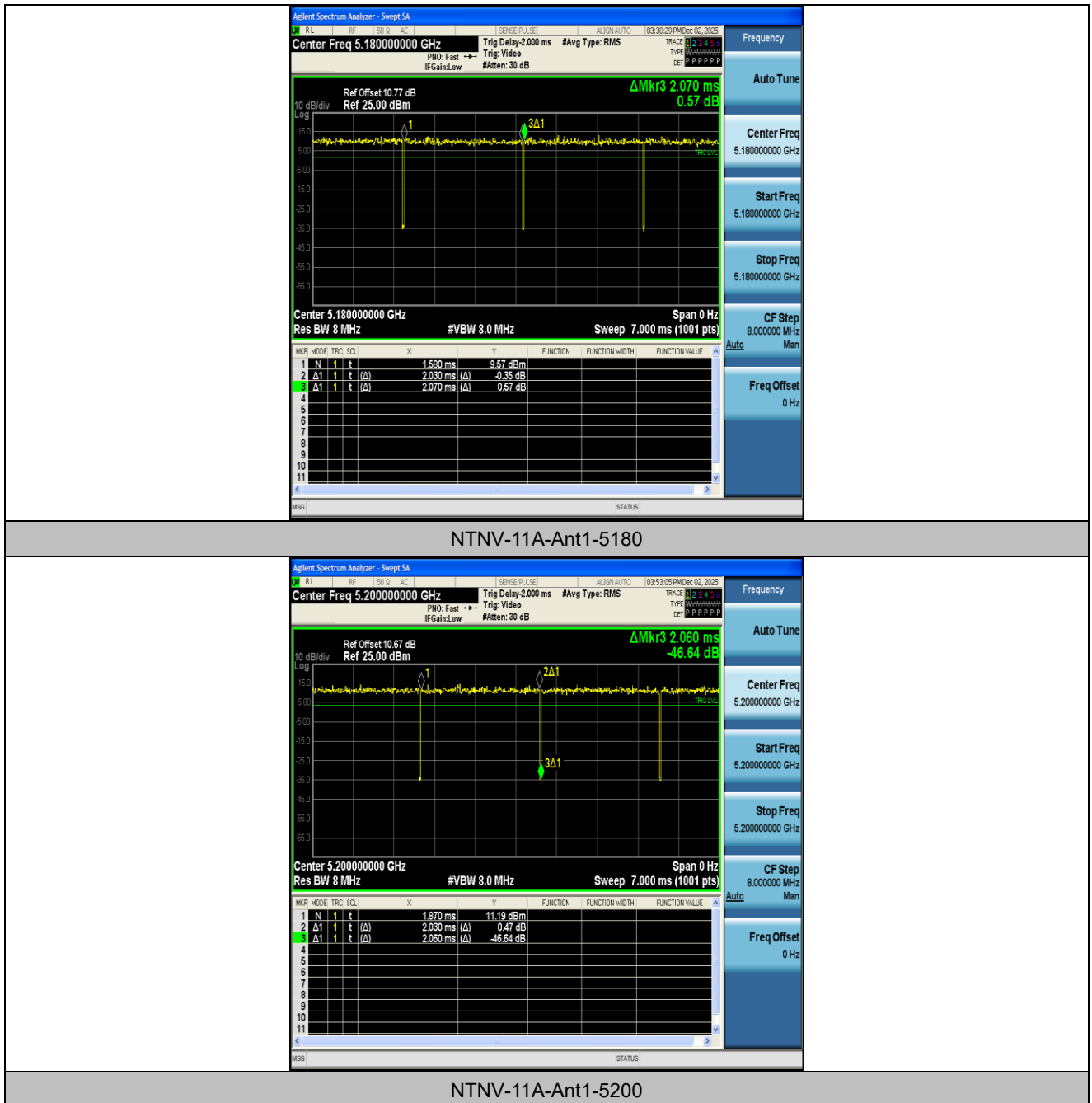
Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Dc. Factor [%]	1/T [kHz]
11A	Ant1	5180	2.03	2.07	98.07	0.08	0.49
11A	Ant1	5200	2.03	2.06	98.54	0.06	0.49
11A	Ant1	5240	2.03	2.06	98.54	0.06	0.49
11N20SISO	Ant1	5180	1.71	1.74	98.28	0.08	0.58
11N20SISO	Ant1	5200	1.71	1.74	98.28	0.08	0.58
11N20SISO	Ant1	5240	1.70	1.74	97.70	0.10	0.59
11N40SISO	Ant1	5190	0.84	0.88	95.45	0.20	1.19
11N40SISO	Ant1	5230	0.84	0.88	95.45	0.20	1.19
11AC20SISO	Ant1	5180	1.70	1.74	97.70	0.10	0.59
11AC20SISO	Ant1	5200	1.70	1.74	97.70	0.10	0.59
11AC20SISO	Ant1	5240	1.70	1.74	97.70	0.10	0.59
11AC40SISO	Ant1	5190	0.84	0.88	95.45	0.20	1.19
11AC40SISO	Ant1	5230	0.84	0.88	95.45	0.20	1.19
11AC80SISO	Ant1	5210	0.42	0.45	93.33	0.30	2.38

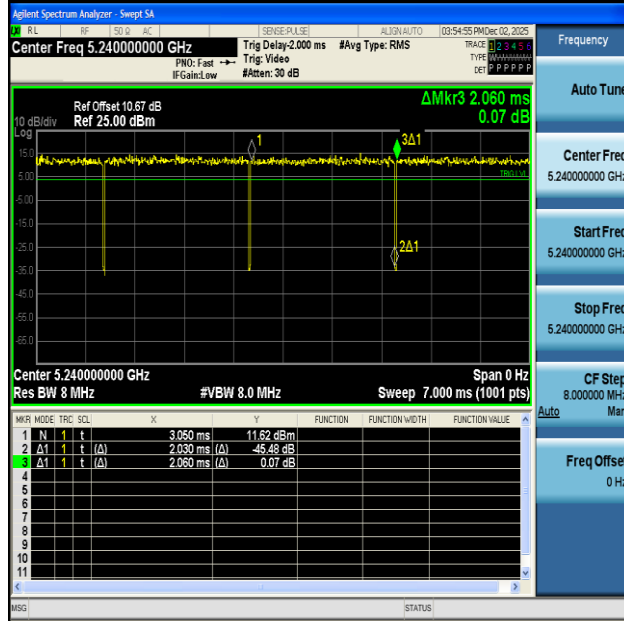
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



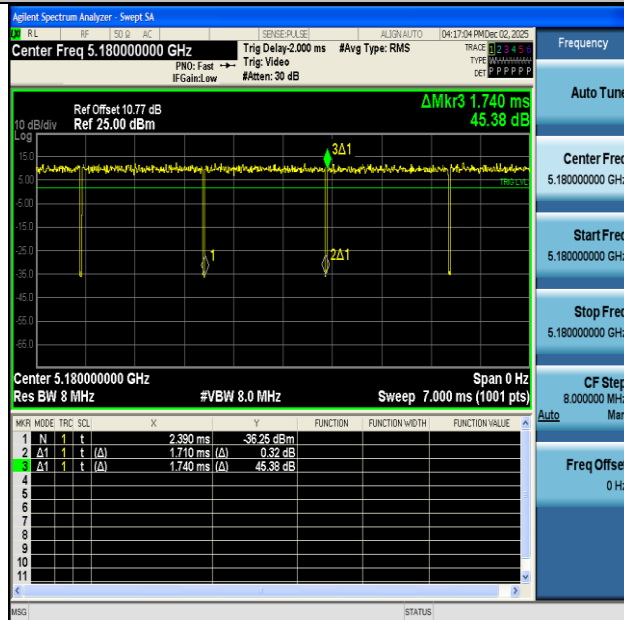


Test Graphs



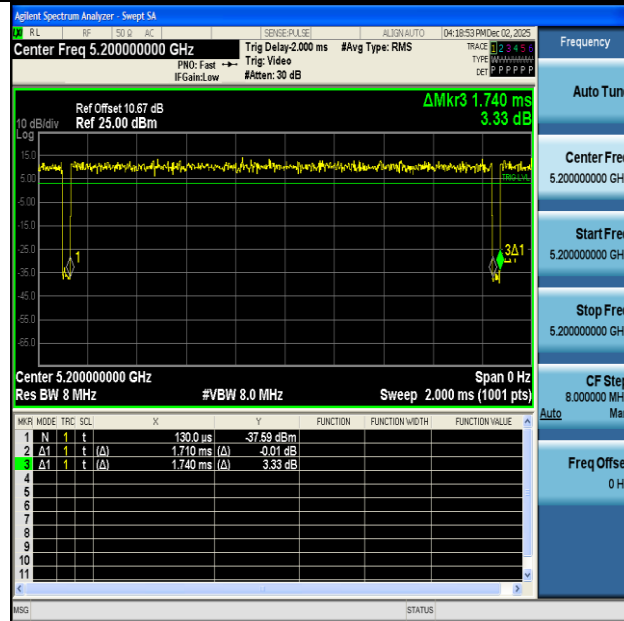


NTNV-11A-Ant1-5240

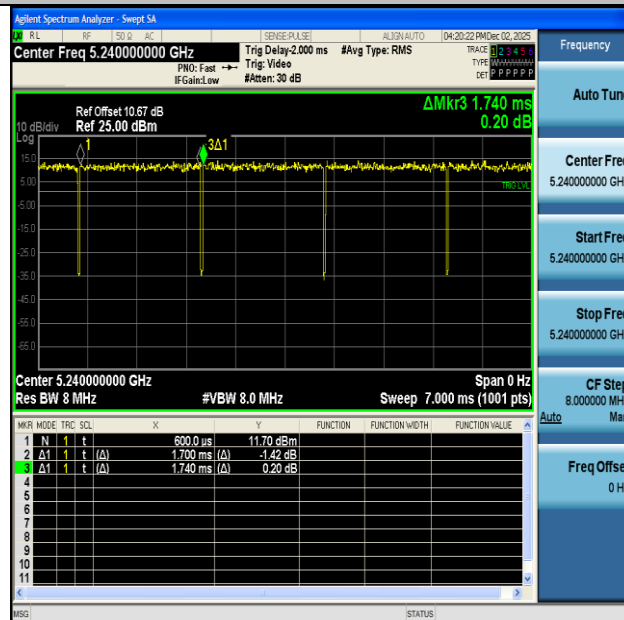


NTNV-11N20SISO-Ant1-5180



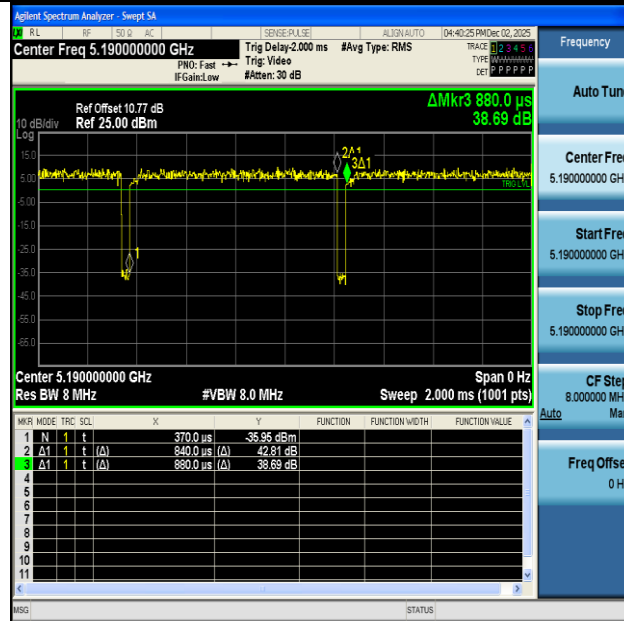


NTVN-11N20SISO-Ant1-5200

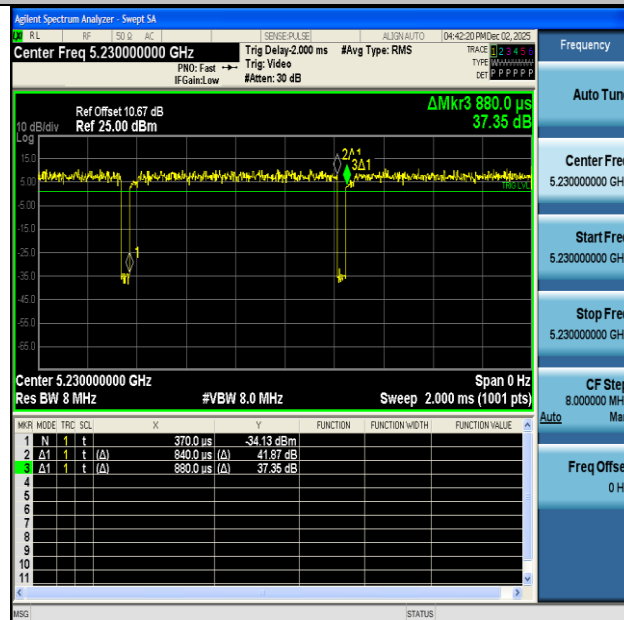


NTVN-11N20SISO-Ant1-5240



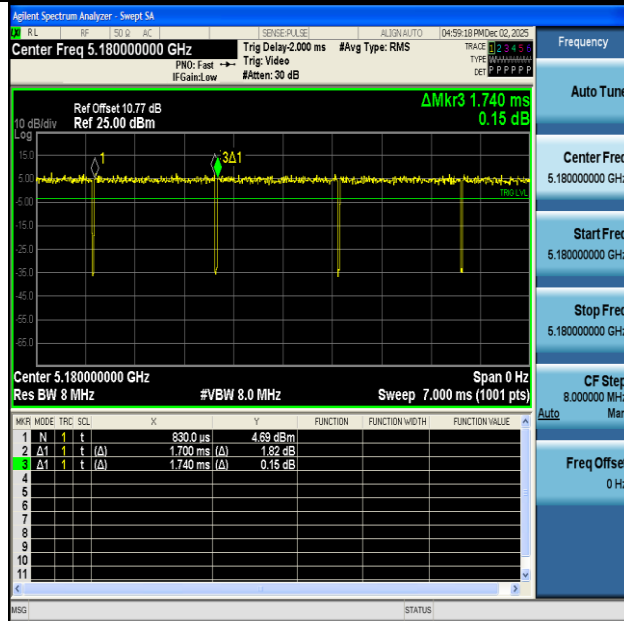


NTNV-11N40SISO-Ant1-5190

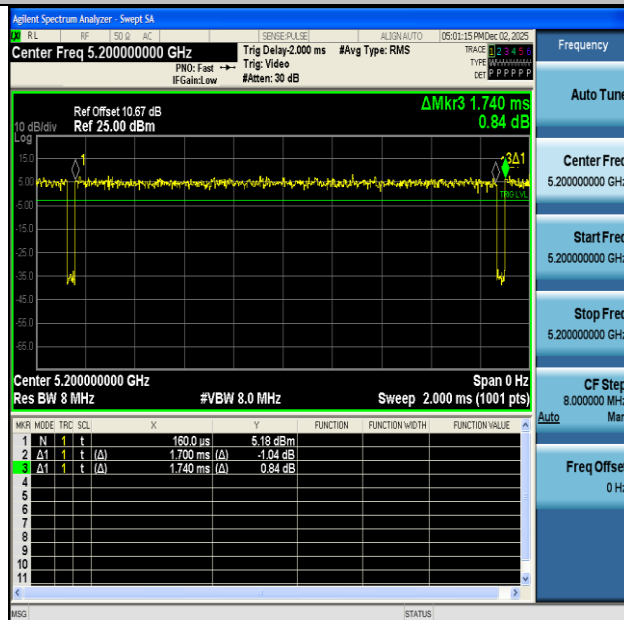


NTNV-11N40SISO-Ant1-5230



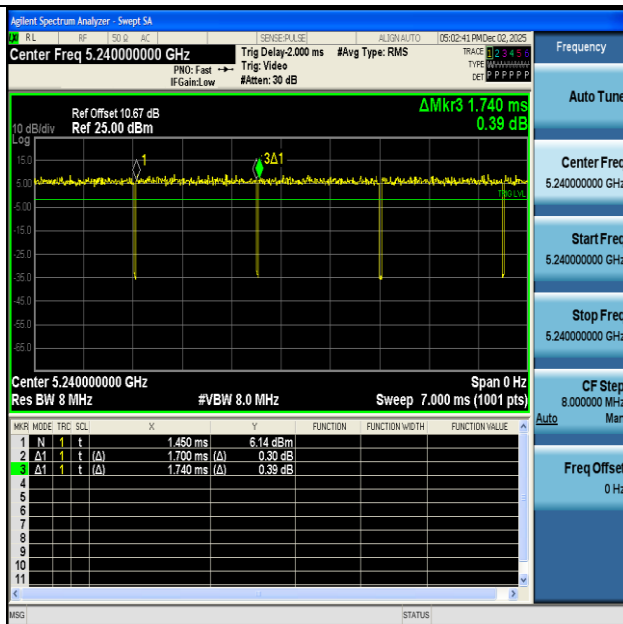


NTNV-11AC20SISO-Ant1-5180

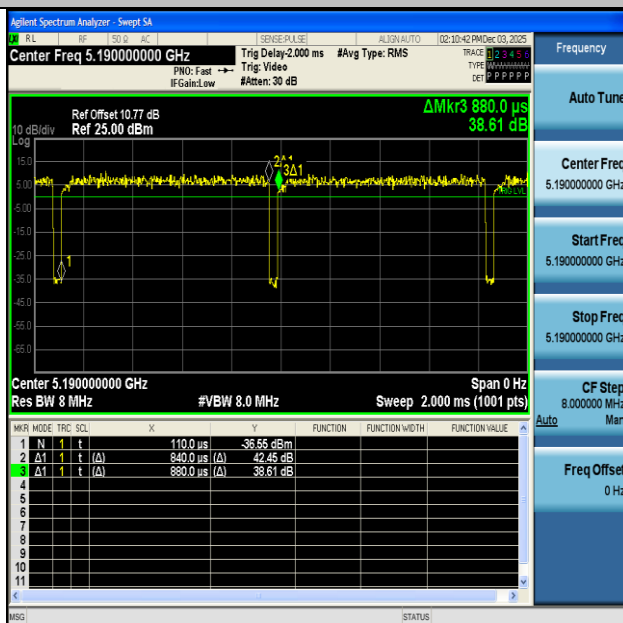


NTNV-11AC20SISO-Ant1-5200



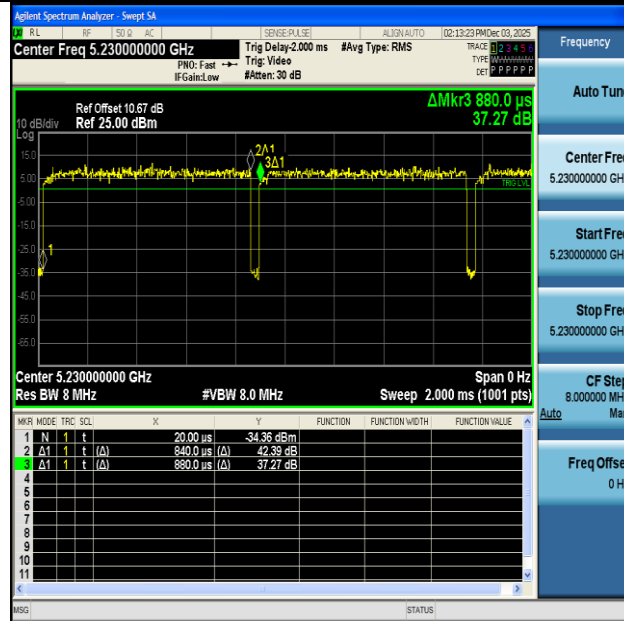


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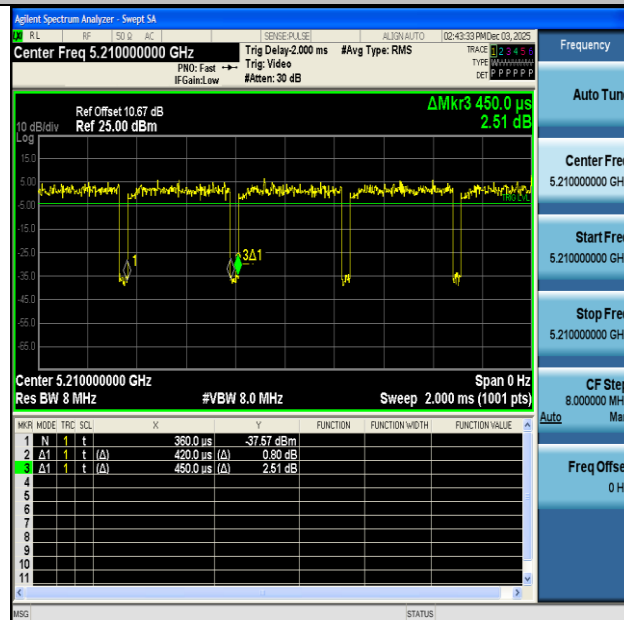


NTNV-11AC40SISO-Ant1-5190





NTNV-11AC40SISO-Ant1-5230



NTNV-11AC80SISO-Ant1-5210

