

RF Test Data for RLAN(5. 8G) (Conducted Measurement)**Product Name: WIFI TOUCH SCREEN KARAOKE SYSTEM****Trade Mark: singing machine****Test Model: ISM9033****FCC ID: 2AAXO-ISM9033****Environmental Conditions**

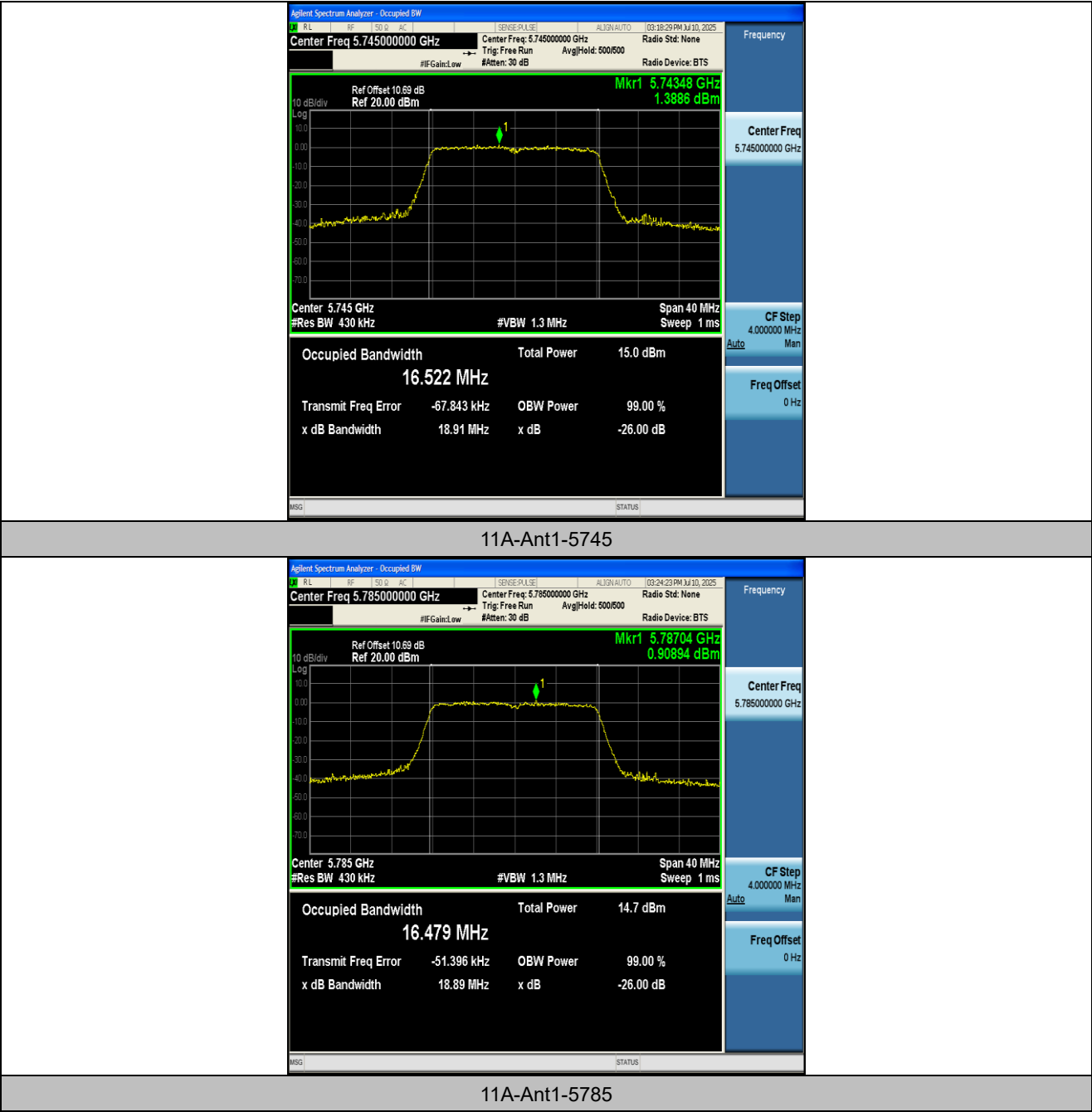
Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A2: Occupied channel bandwidth**Test Result**

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5745	16.522	5736.6712	5753.1932	---	---
11A	Ant1	5785	16.479	5776.7091	5793.1881	---	---
11A	Ant1	5825	16.489	5816.7048	5833.1938	---	---
11N20SISO	Ant1	5745	17.655	5736.1152	5753.7702	---	---
11N20SISO	Ant1	5785	17.626	5776.1287	5793.7547	---	---
11N20SISO	Ant1	5825	17.606	5816.1719	5833.7779	---	---
11AC20SISO	Ant1	5745	17.663	5736.1133	5753.7763	---	---
11AC20SISO	Ant1	5785	17.658	5776.1008	5793.7588	---	---
11AC20SISO	Ant1	5825	17.618	5816.1463	5833.7643	---	---

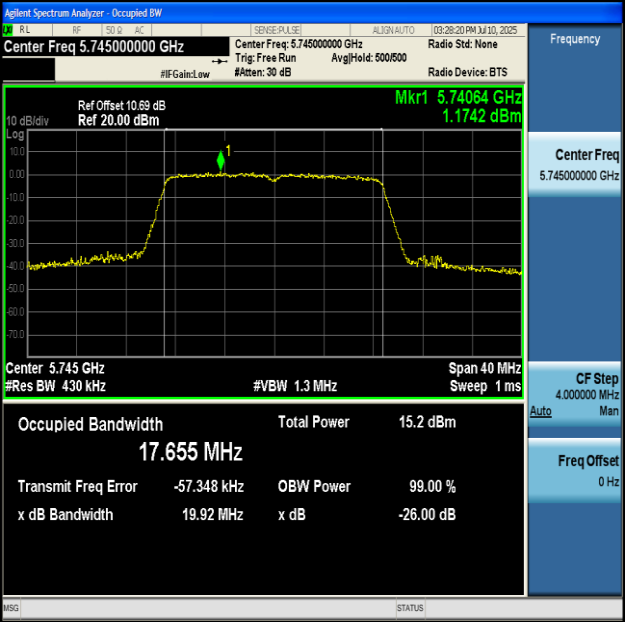
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

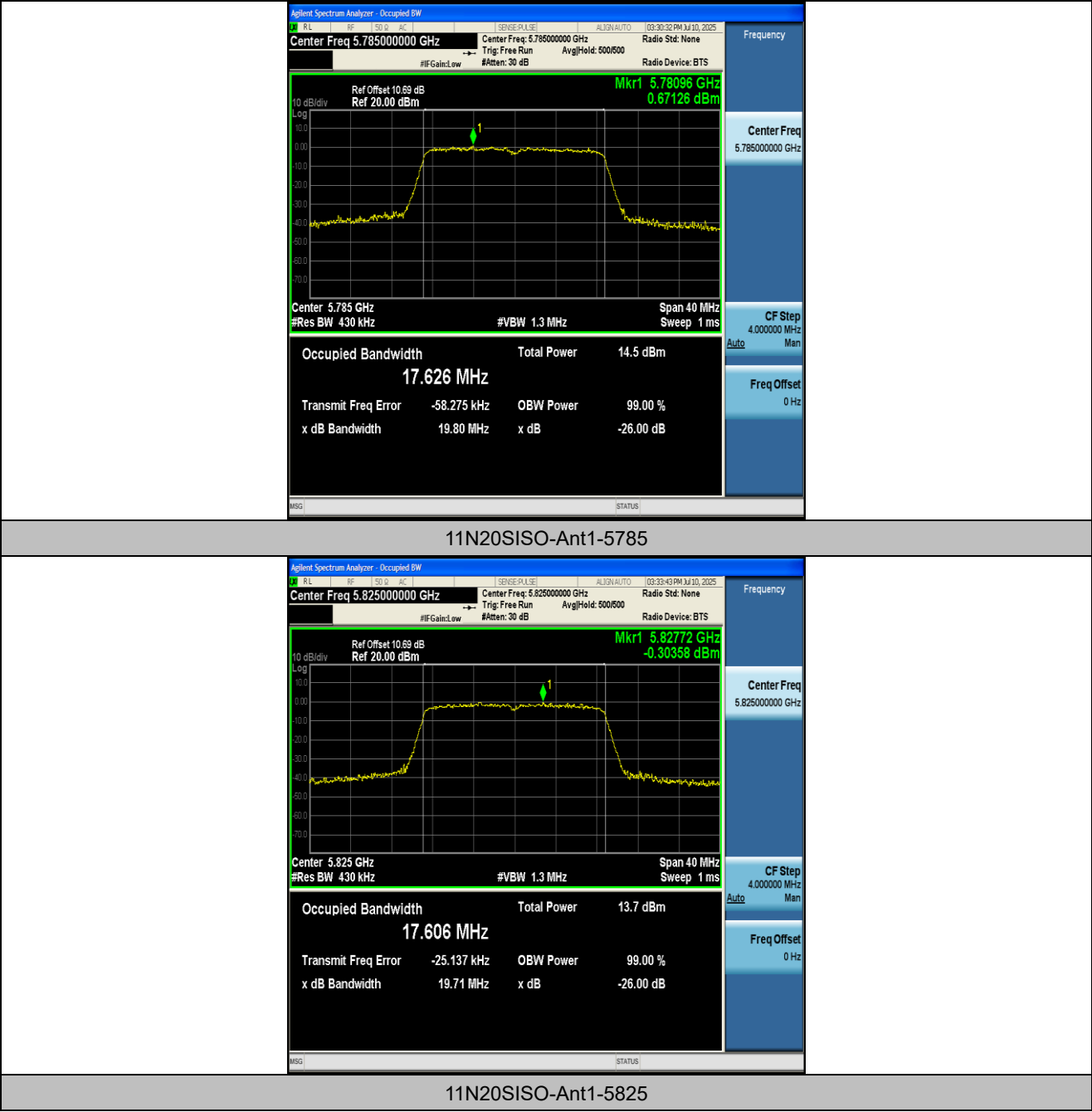


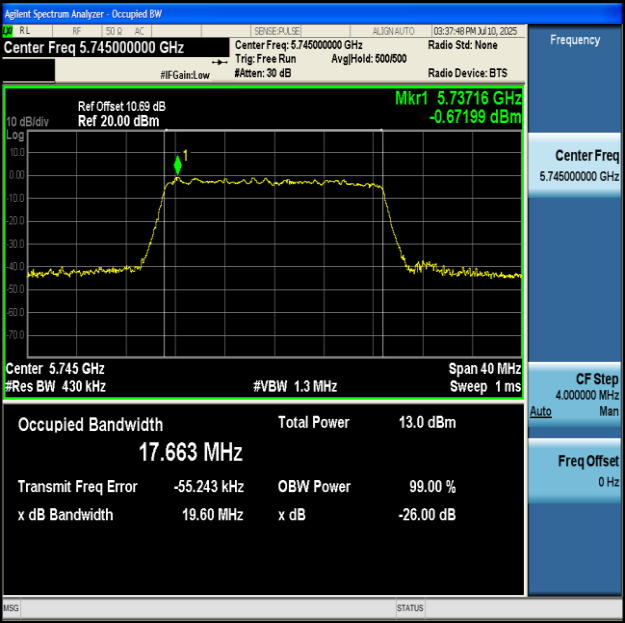


11A-Ant1-5825

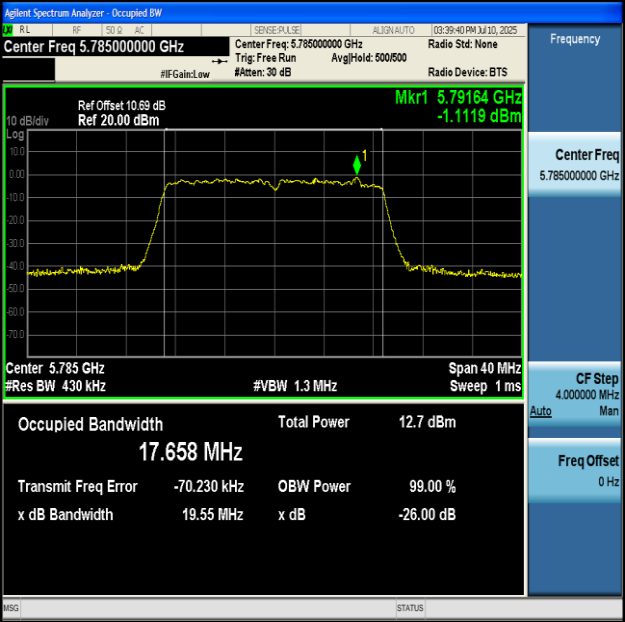


11N20SISO-Ant1-5745

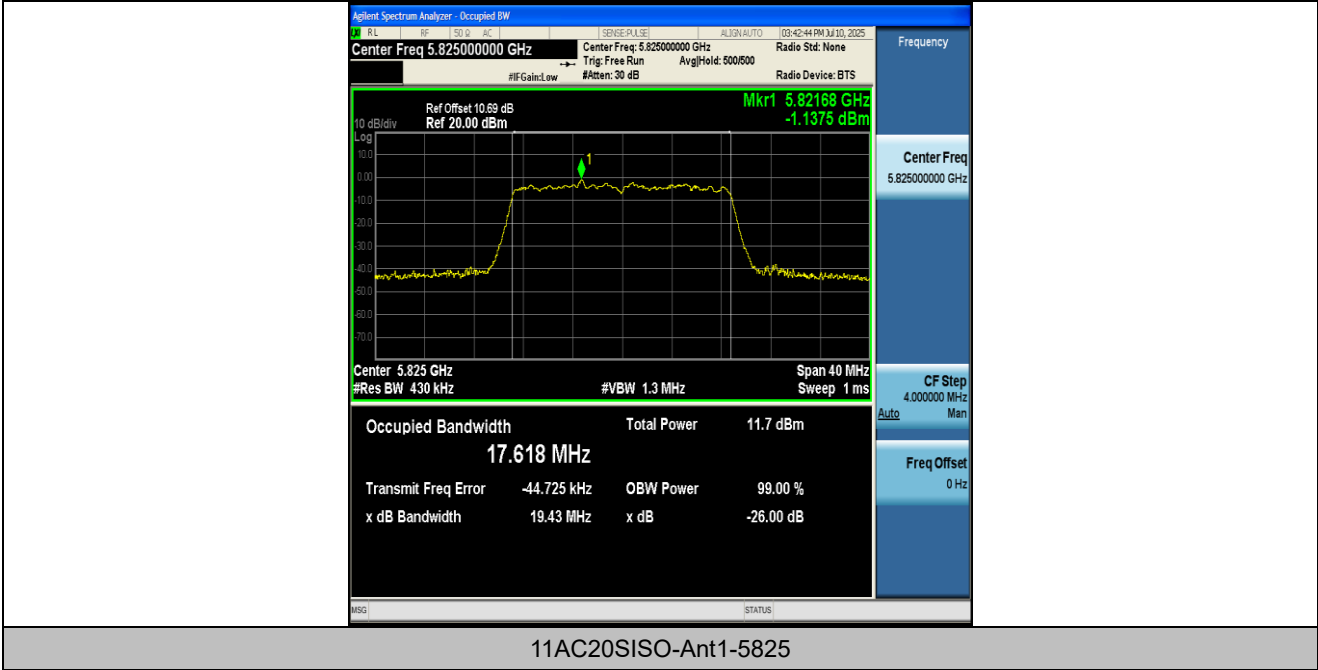




11AC20SISO-Ant1-5745



11AC20SISO-Ant1-5785



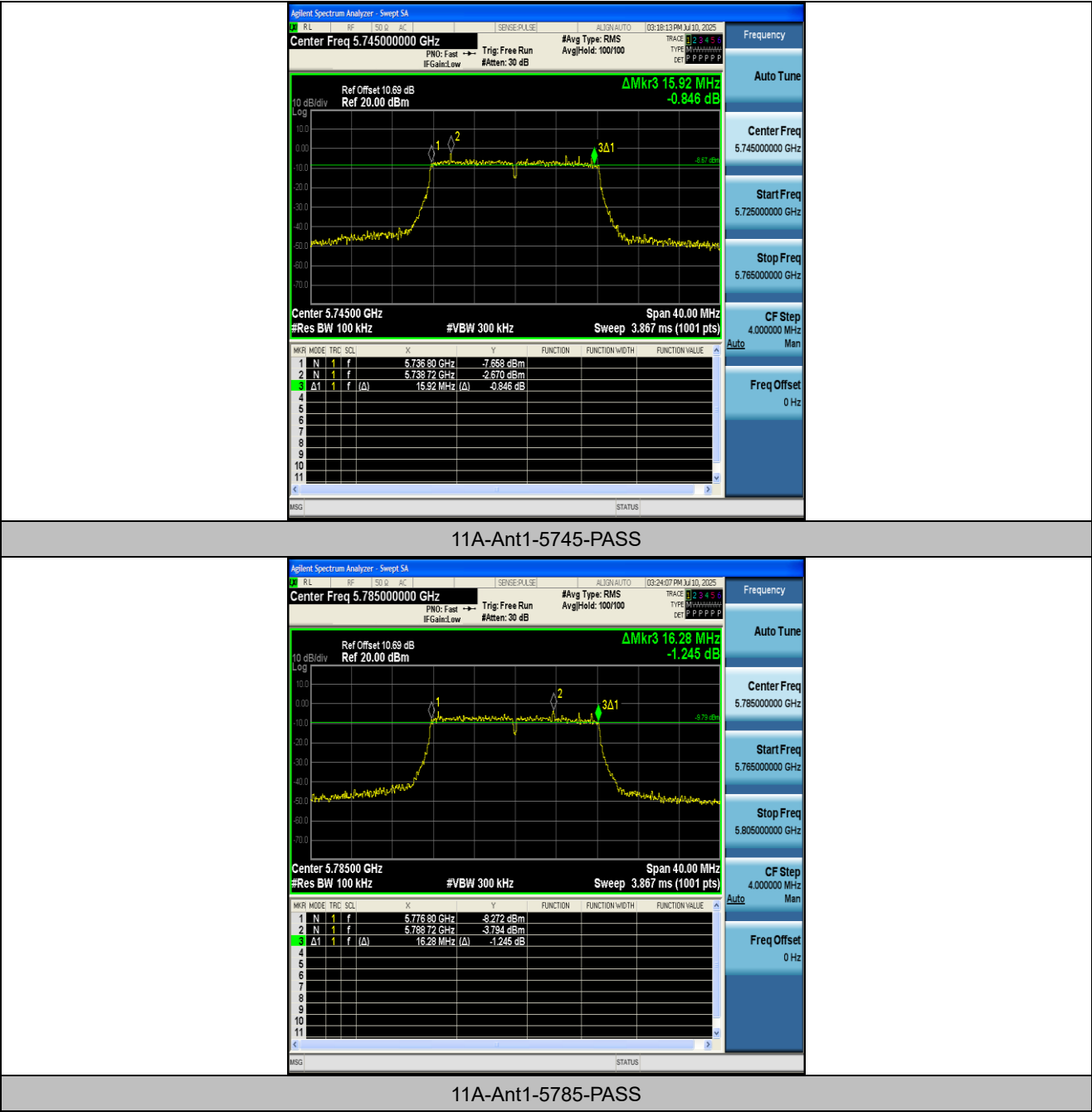
Appendix A: Min emission bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	6db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5745	15.920	5736.800	5752.720	0.5	PASS
11A	Ant1	5785	16.280	5776.800	5793.080	0.5	PASS
11A	Ant1	5825	16.320	5816.800	5833.120	0.5	PASS
11N20SISO	Ant1	5745	17.280	5736.160	5753.440	0.5	PASS
11N20SISO	Ant1	5785	17.160	5776.160	5793.320	0.5	PASS
11N20SISO	Ant1	5825	17.160	5816.200	5833.360	0.5	PASS
11AC20SISO	Ant1	5745	17.520	5736.160	5753.680	0.5	PASS
11AC20SISO	Ant1	5785	16.640	5776.120	5792.760	0.5	PASS
11AC20SISO	Ant1	5825	17.560	5816.160	5833.720	0.5	PASS

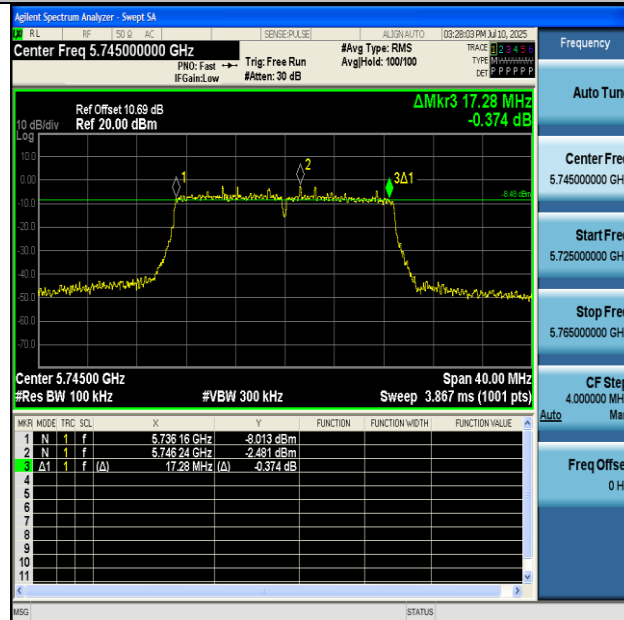
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

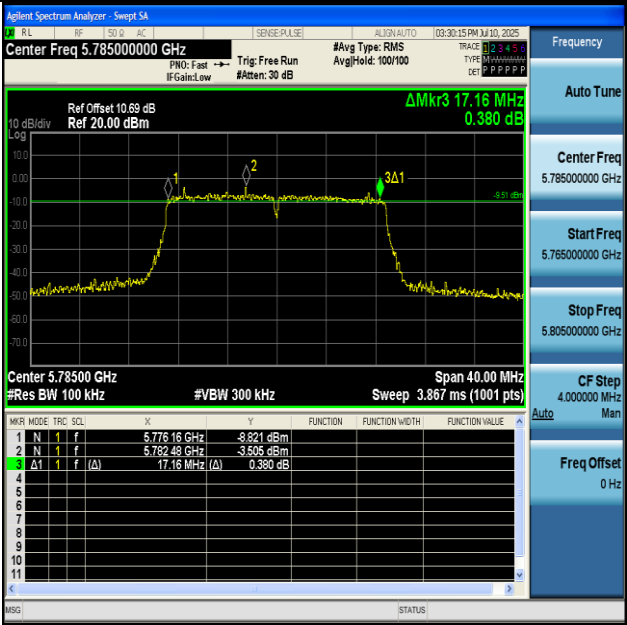




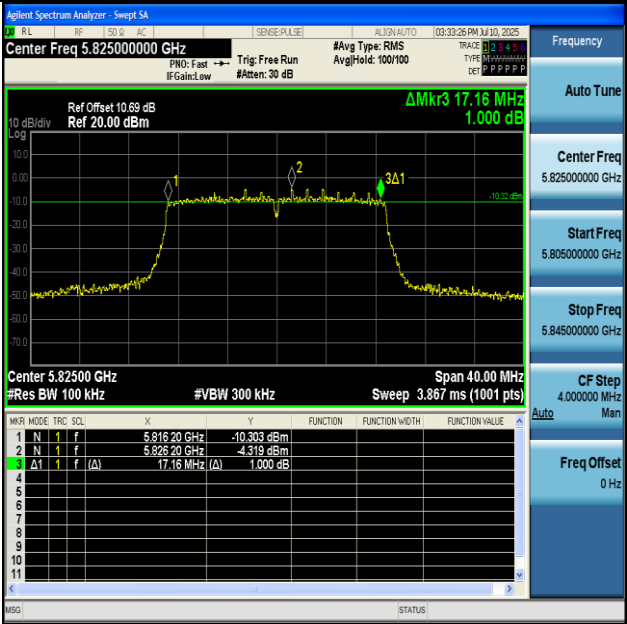
11A-Ant1-5825-PASS



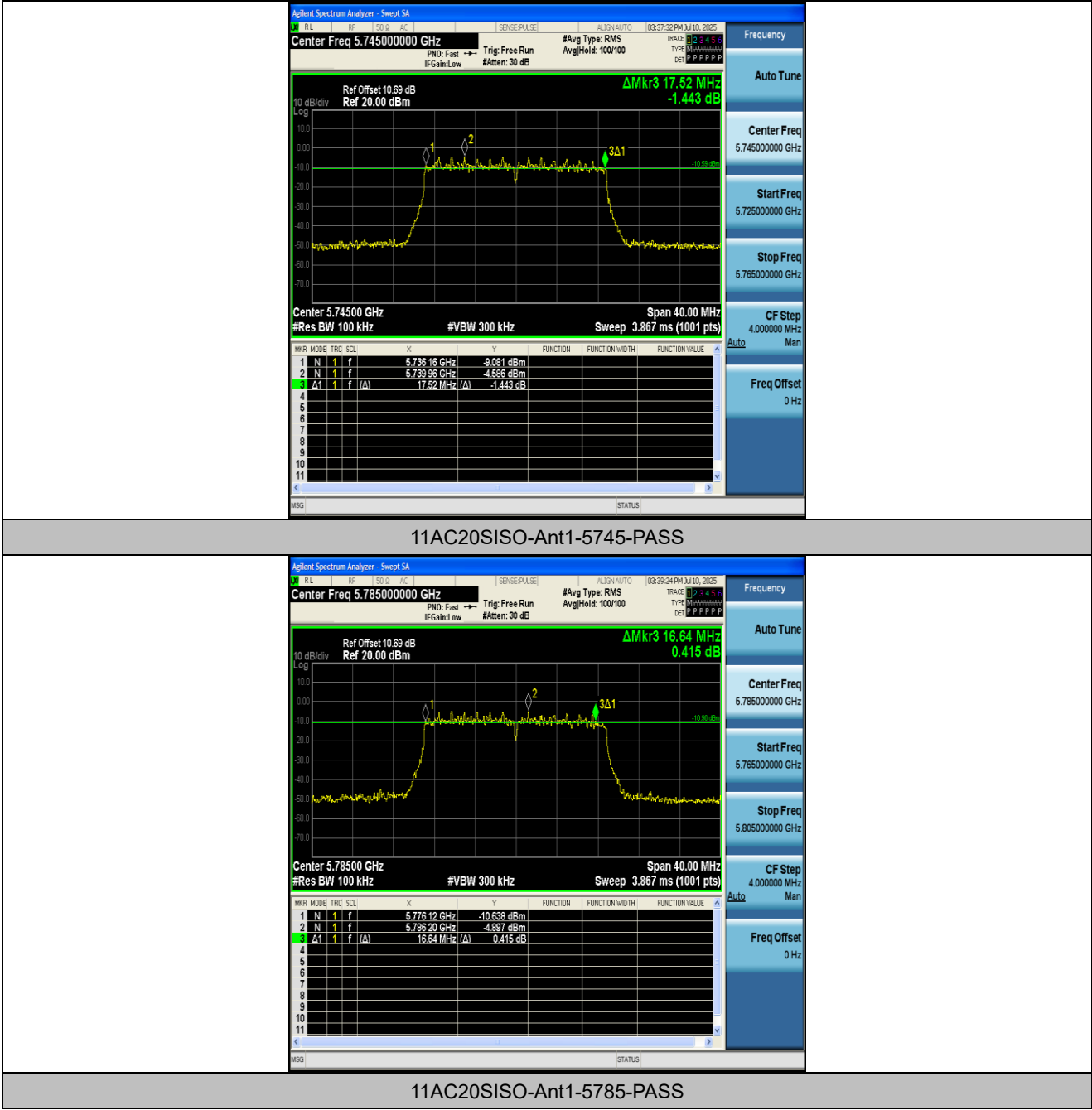
11N20SISO-Ant1-5745-PASS

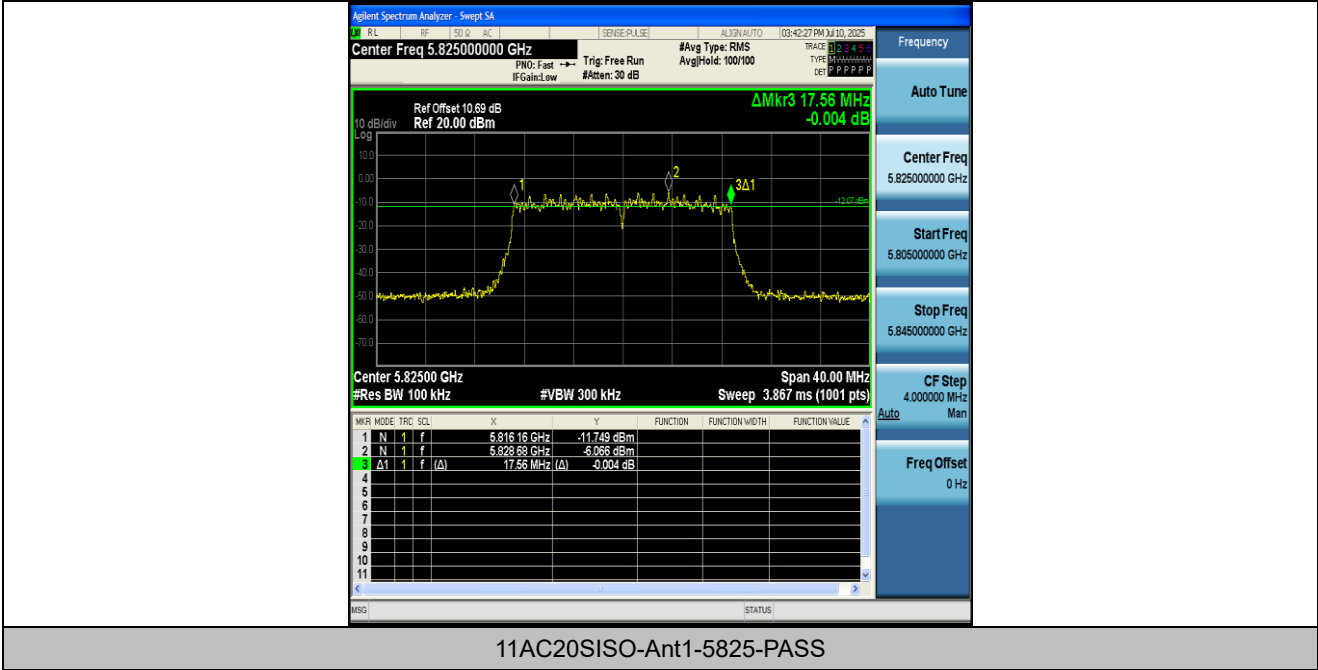


11N20SISO-Ant1-5785-PASS



11N20SISO-Ant1-5825-PASS





Appendix B: Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Power [dBm]	Conducted Limit [dBm]	Verdict
11A	Ant1	5745	8.49	≤30.00	PASS
11A	Ant1	5785	8.12	≤30.00	PASS
11A	Ant1	5825	6.98	≤30.00	PASS
11N20SISO	Ant1	5745	8.69	≤30.00	PASS
11N20SISO	Ant1	5785	7.97	≤30.00	PASS
11N20SISO	Ant1	5825	7.11	≤30.00	PASS
11AC20SISO	Ant1	5745	6.61	≤30.00	PASS
11AC20SISO	Ant1	5785	5.97	≤30.00	PASS
11AC20SISO	Ant1	5825	5.83	≤30.00	PASS

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

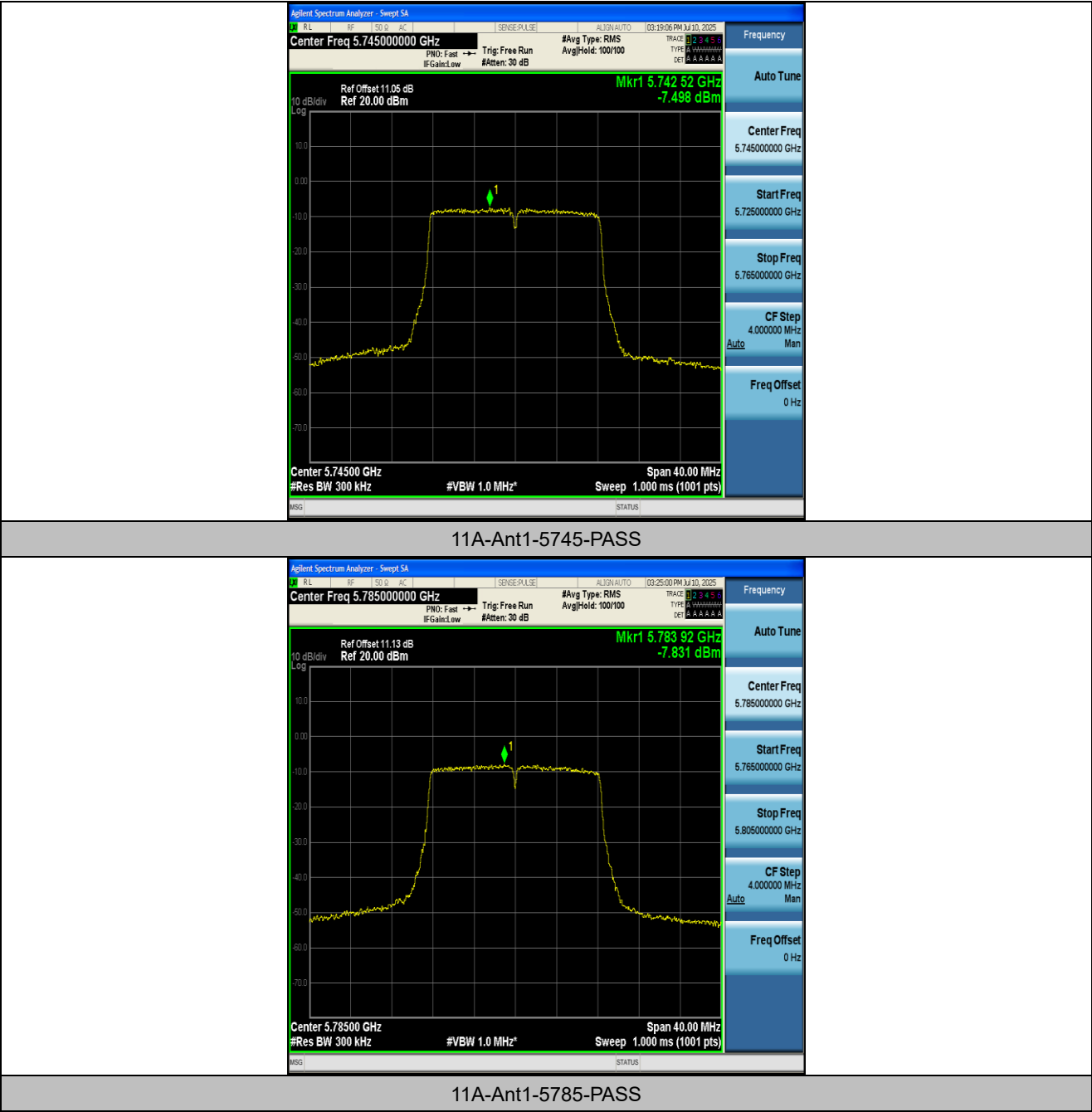
Appendix C: Maximum power spectral density

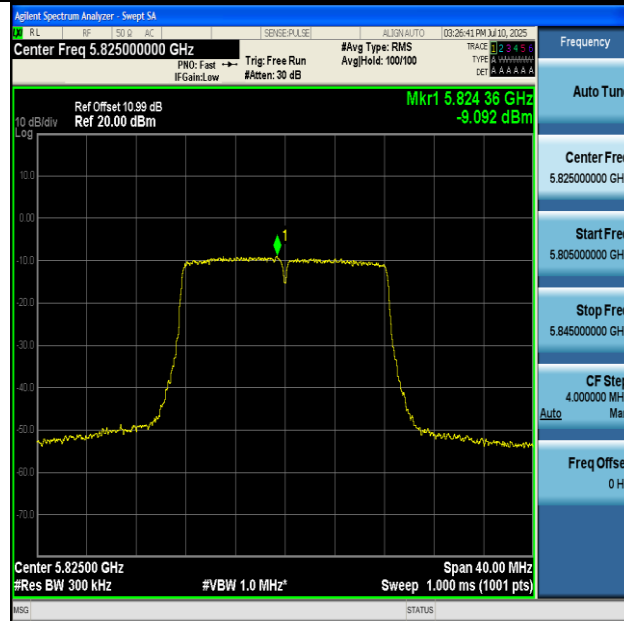
Test Result

Frequency [MHz]	Test Mode	Antenna	Result [dBm/300K Hz]	Result [dBm/500K Hz]	DC Factor [dB]	RBW Factor [dB]	Limit [dBm/500K Hz]	Verdict
5745	11A	Ant1	-9.72	-7.50	0.36	2.22	≤30.00	PASS
5785	11A	Ant1	-10.05	-7.83	0.44	2.22	≤30.00	PASS
5825	11A	Ant1	-11.31	-9.09	0.3	2.22	≤30.00	PASS
5745	11N20SI SO	Ant1	-9.89	-7.67	0.45	2.22	≤30.00	PASS
5785	11N20SI SO	Ant1	-10.23	-8.01	0.37	2.22	≤30.00	PASS
5825	11N20SI SO	Ant1	-11.25	-9.03	0.45	2.22	≤30.00	PASS
5745	11AC20 SISO	Ant1	-11.18	-8.96	2.9	2.22	≤30.00	PASS
5785	11AC20 SISO	Ant1	-11.39	-9.17	2.79	2.22	≤30.00	PASS
5825	11AC20 SISO	Ant1	-11.73	-9.51	3.52	2.22	≤30.00	PASS

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

Test Graphs

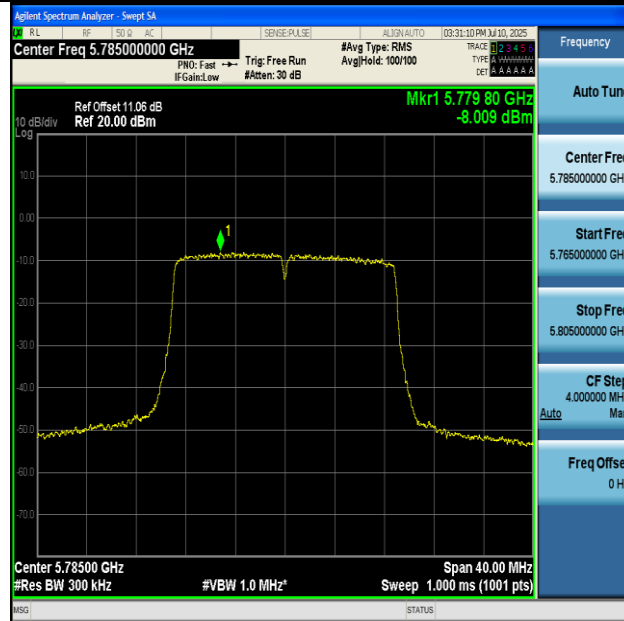




11A-Ant1-5825-PASS



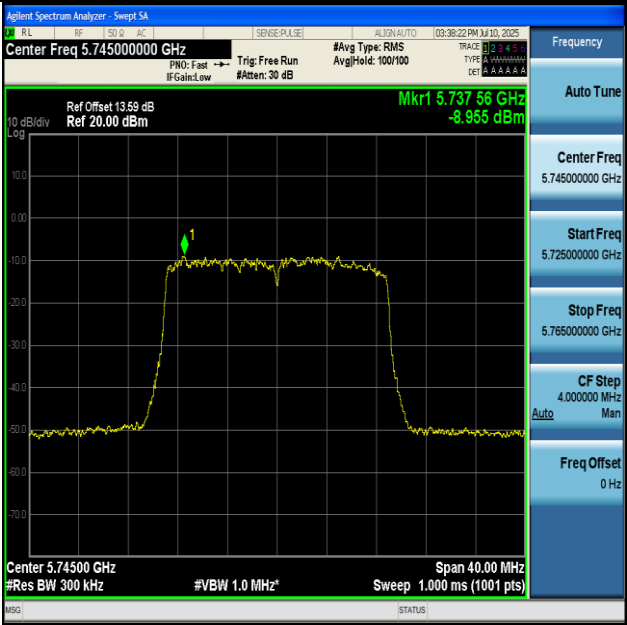
11N20SISO-Ant1-5745-PASS



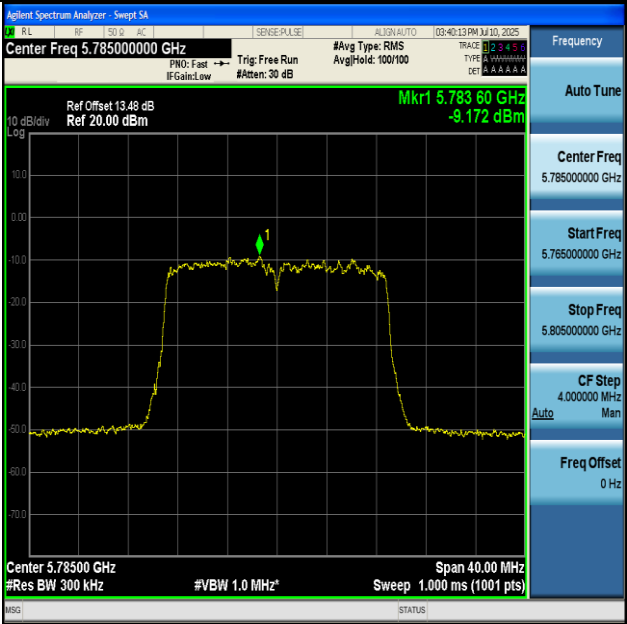
11N20SISO-Ant1-5785-PASS



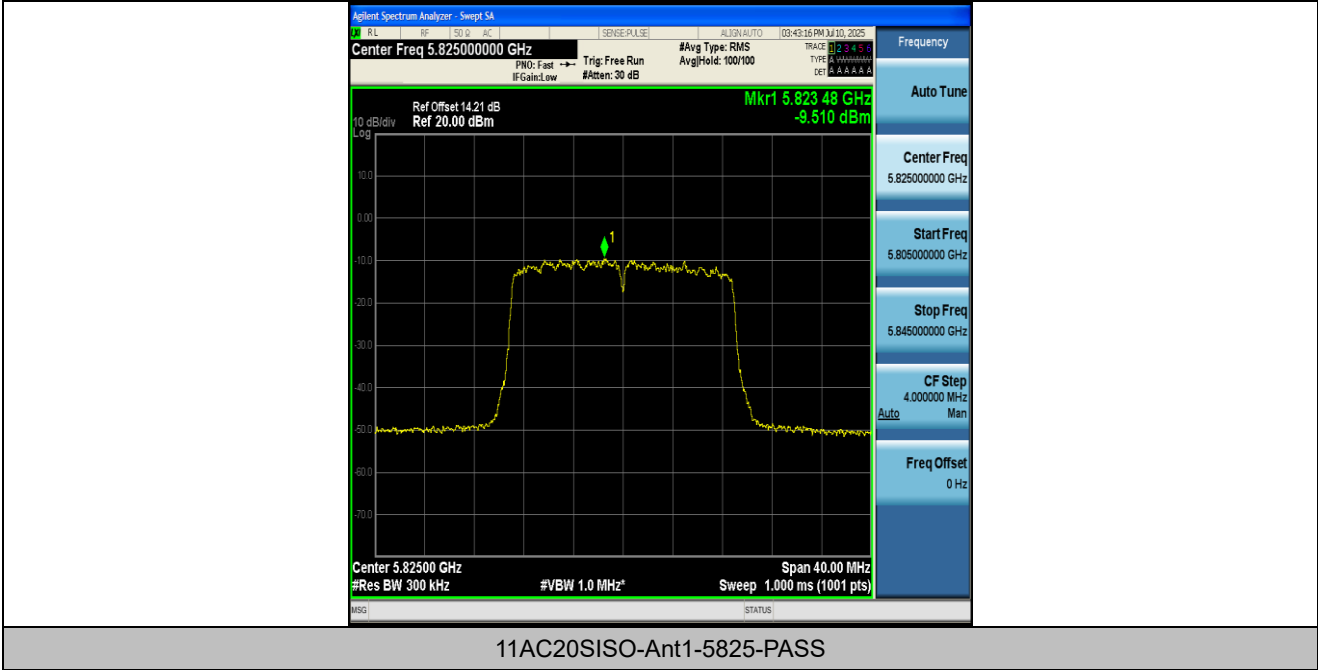
11N20SISO-Ant1-5825-PASS



11AC20SISO-Ant1-5745-PASS



11AC20SISO-Ant1-5785-PASS



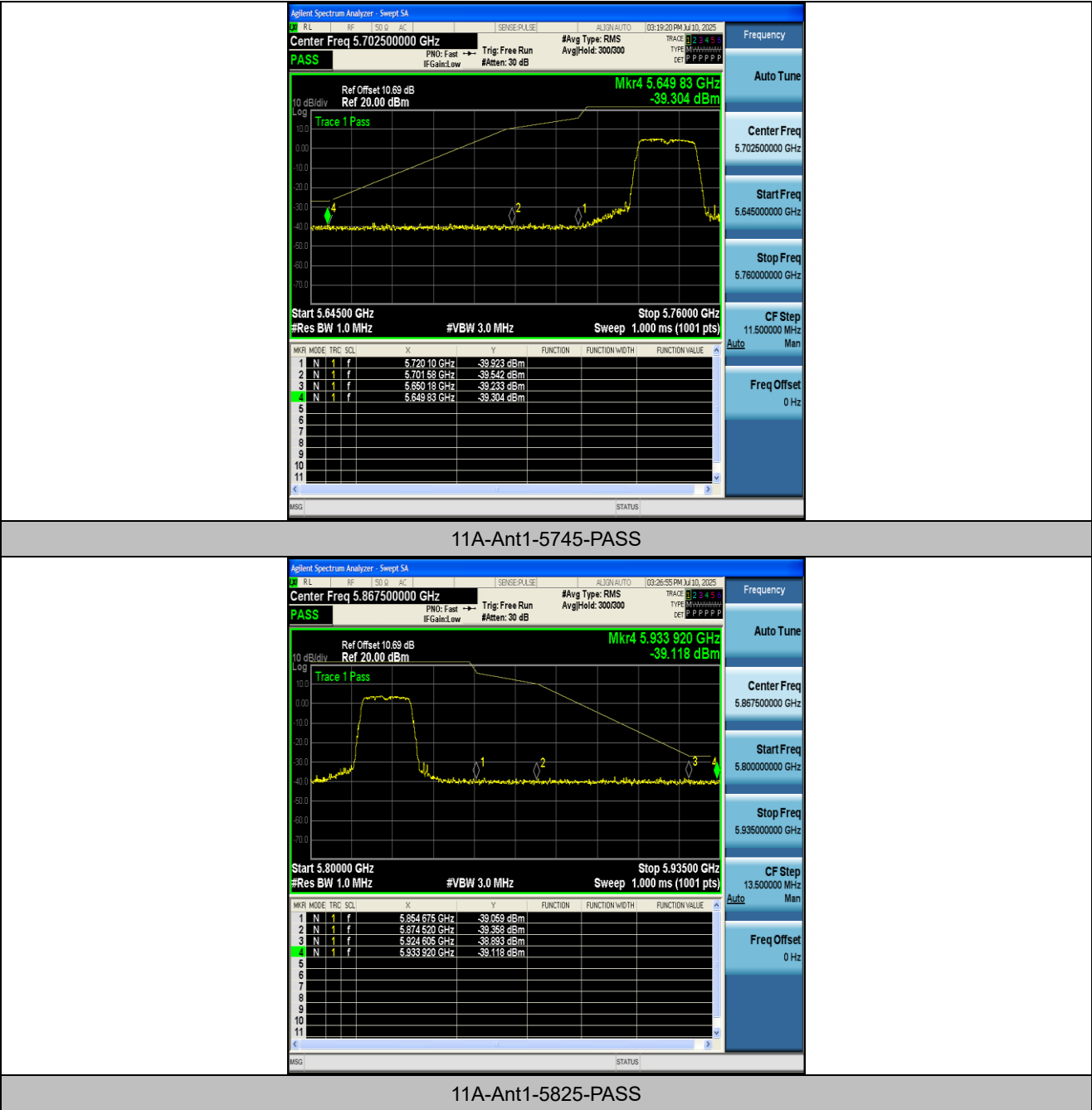
Appendix D: Band edge measurements

Test Result

Test Mode	Antenna	Ch. Name	Frequency [MHz]	Freq. Range [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5745	5720~5725	-39.92	≤15.82	PASS
11A	Ant1	Low	5745	5700~5720	-39.54	≤10.44	PASS
11A	Ant1	Low	5745	5650~5700	-39.23	≤-26.87	PASS
11A	Ant1	Low	5745	5760~5650	-39.3	≤-27	PASS
11A	Ant1	High	5825	5850~5855	-39.06	≤16.34	PASS
11A	Ant1	High	5825	5855~5875	-39.36	≤10.13	PASS
11A	Ant1	High	5825	5875~5925	-38.89	≤-26.71	PASS
11A	Ant1	High	5825	5925~5935	-39.12	≤-27	PASS
11N20SISO	Ant1	Low	5745	5720~5725	-39.07	≤16.08	PASS
11N20SISO	Ant1	Low	5745	5700~5720	-38.3	≤10.70	PASS
11N20SISO	Ant1	Low	5745	5650~5700	-39.23	≤-26.53	PASS
11N20SISO	Ant1	Low	5745	5760~5650	-38.13	≤-27	PASS
11N20SISO	Ant1	High	5825	5850~5855	-38.83	≤15.73	PASS
11N20SISO	Ant1	High	5825	5855~5875	-38.5	≤10.32	PASS
11N20SISO	Ant1	High	5825	5875~5925	-39.69	≤-26.91	PASS
11N20SISO	Ant1	High	5825	5925~5935	-38.7	≤-27	PASS
11AC20SISO	Ant1	Low	5745	5720~5725	-39.83	≤15.82	PASS
11AC20SISO	Ant1	Low	5745	5700~5720	-39.74	≤10.25	PASS
11AC20SISO	Ant1	Low	5745	5650~5700	-39.39	≤-26.10	PASS
11AC20SISO	Ant1	Low	5745	5760~5650	-39.13	≤-27	PASS
11AC20SISO	Ant1	High	5825	5850~5855	-39.66	≤16.96	PASS
11AC20SISO	Ant1	High	5825	5855~5875	-38.56	≤10.51	PASS
11AC20SISO	Ant1	High	5825	5875~5925	-38.48	≤-26.71	PASS
11AC20SISO	Ant1	High	5825	5925~5935	-38.92	≤-27	PASS

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

Test Graphs

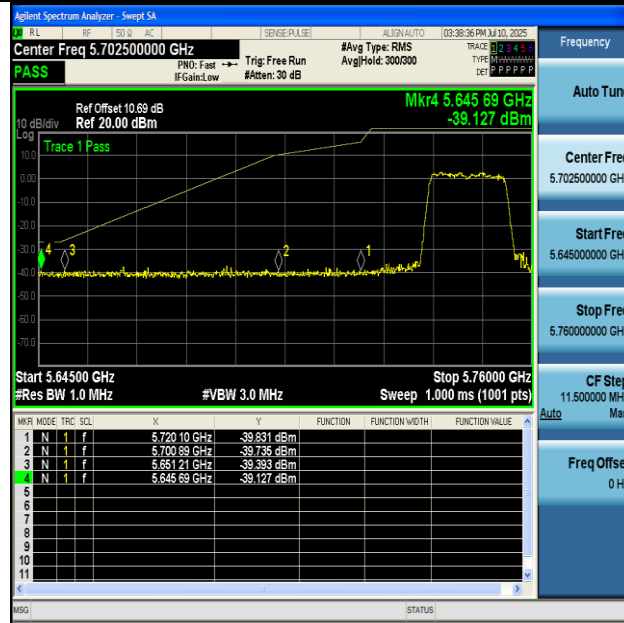




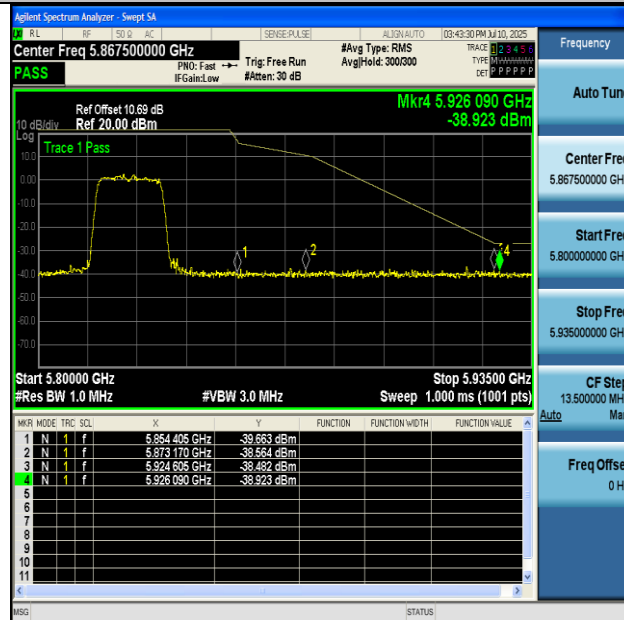
11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5825-PASS



11AC20SISO-Ant1-5745-PASS



11AC20SISO-Ant1-5825-PASS

Appendix E: Frequency Stability

Test Result

Ant1

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5745	20	132	5744.900978	5725 – 5850	PASS
5745	20	108	5745.041039	5725 – 5850	PASS
5745	50	120	5744.933548	5725 – 5850	PASS
5745	40	120	5745.050945	5725 – 5850	PASS
5745	30	120	5745.009926	5725 – 5850	PASS
5745	20	120	5744.907202	5725 – 5850	PASS
5745	10	120	5745.076732	5725 – 5850	PASS
5745	0	120	5745.084333	5725 – 5850	PASS
5745	-10	120	5744.903159	5725 – 5850	PASS
5745	-20	120	5745.033055	5725 – 5850	PASS
5745	-30	120	5745.059729	5725 – 5850	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5785	20	132	5784.918658	5725 – 5850	PASS
5785	20	108	5784.976167	5725 – 5850	PASS
5785	50	120	5785.027551	5725 – 5850	PASS
5785	40	120	5784.962090	5725 – 5850	PASS
5785	30	120	5784.990629	5725 – 5850	PASS
5785	20	120	5784.998354	5725 – 5850	PASS
5785	10	120	5785.012681	5725 – 5850	PASS
5785	0	120	5785.059765	5725 – 5850	PASS
5785	-10	120	5784.912339	5725 – 5850	PASS
5785	-20	120	5785.074352	5725 – 5850	PASS
5785	-30	120	5784.912952	5725 – 5850	PASS

Ant1

Frequency (MHz)	Enviroment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5825	20	132	5824.902968	5725 – 5850	PASS
5825	20	108	5824.910994	5725 – 5850	PASS
5825	50	120	5824.955446	5725 – 5850	PASS
5825	40	120	5824.950636	5725 – 5850	PASS
5825	30	120	5824.982370	5725 – 5850	PASS
5825	20	120	5825.085909	5725 – 5850	PASS
5825	10	120	5824.906989	5725 – 5850	PASS
5825	0	120	5825.008848	5725 – 5850	PASS
5825	-10	120	5824.975844	5725 – 5850	PASS
5825	-20	120	5824.953194	5725 – 5850	PASS
5825	-30	120	5825.032182	5725 – 5850	PASS

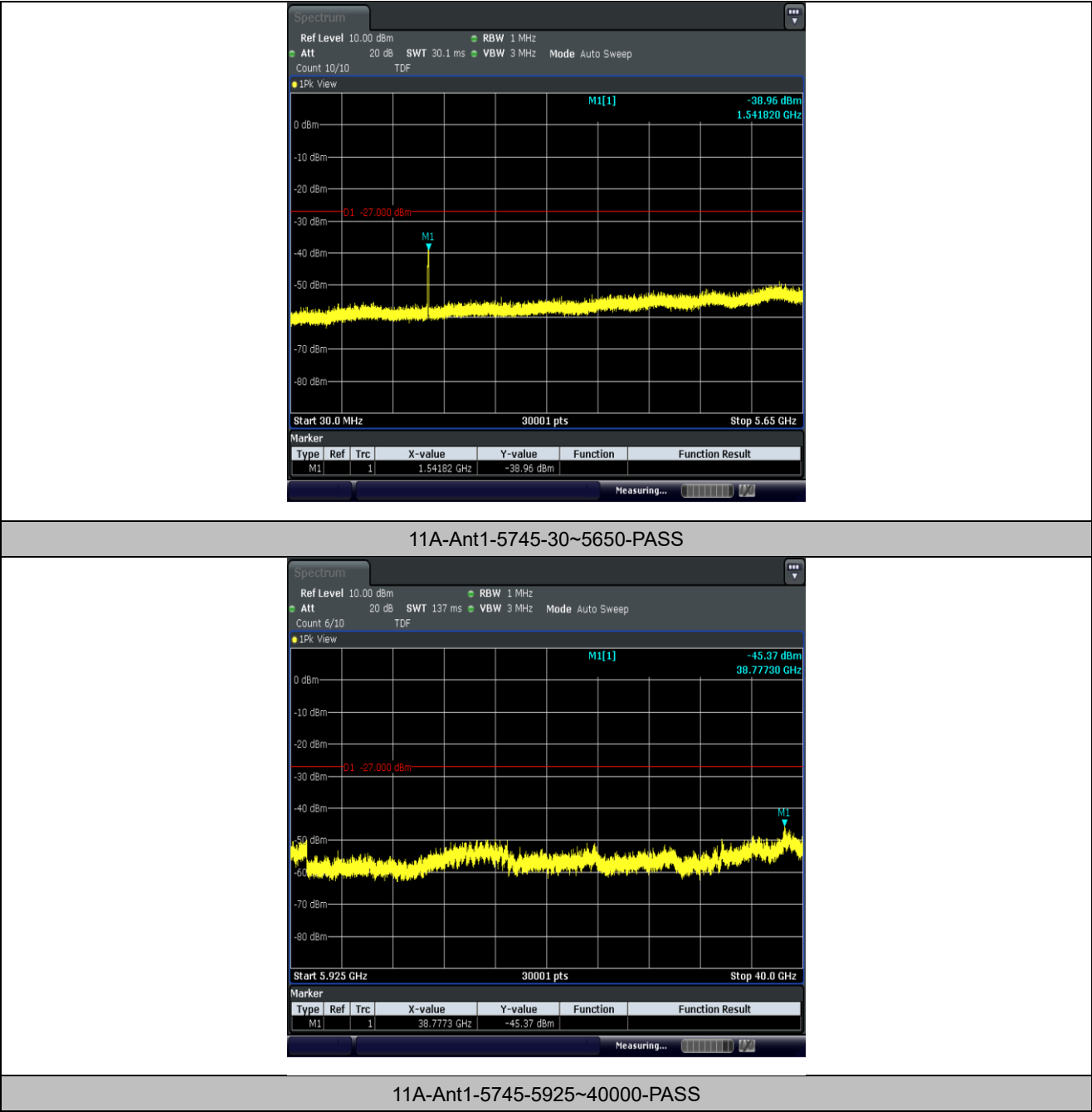
Appendix F: Conducted Spurious Emission

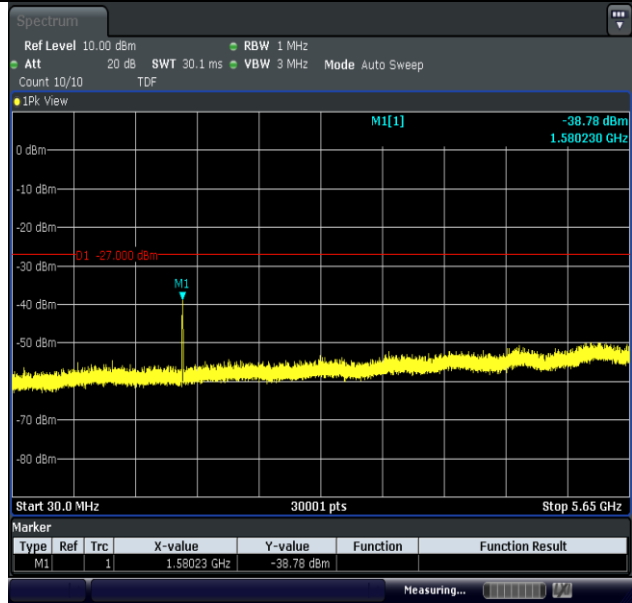
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	Max. Fre [MHz]	Max. Level [dBm]	Limit [dBm]	Verdict
11A	Ant1	5745	30~5650	1541.82	-38.96	≤-27	PASS
11A	Ant1	5745	5925~40000	38777.3	-45.37	≤-27	PASS
11A	Ant1	5785	30~5650	1580.23	-38.78	≤-27	PASS
11A	Ant1	5785	5925~40000	38730.7	-45.7	≤-27	PASS
11A	Ant1	5825	30~5650	1618.63	-43.27	≤-27	PASS
11A	Ant1	5825	5925~40000	39118.1	-46.73	≤-27	PASS
11N20SISO	Ant1	5745	30~5650	1539.58	-38.38	≤-27	PASS
11N20SISO	Ant1	5745	5925~40000	38710.3	-46.39	≤-27	PASS
11N20SISO	Ant1	5785	30~5650	1580.6	-40.25	≤-27	PASS
11N20SISO	Ant1	5785	5925~40000	38748.9	-46.17	≤-27	PASS
11N20SISO	Ant1	5825	30~5650	1616.19	-43.15	≤-27	PASS
11N20SISO	Ant1	5825	5925~40000	39411.1	-46.3	≤-27	PASS
11AC20SISO	Ant1	5745	30~5650	1541.07	-41.24	≤-27	PASS
11AC20SISO	Ant1	5745	5925~40000	38801.2	-46.58	≤-27	PASS
11AC20SISO	Ant1	5785	30~5650	1581.35	-46.46	≤-27	PASS
11AC20SISO	Ant1	5785	5925~40000	39065.8	-46.94	≤-27	PASS
11AC20SISO	Ant1	5825	30~5650	1621.06	-48.18	≤-27	PASS
11AC20SISO	Ant1	5825	5925~40000	39118.1	-46.74	≤-27	PASS

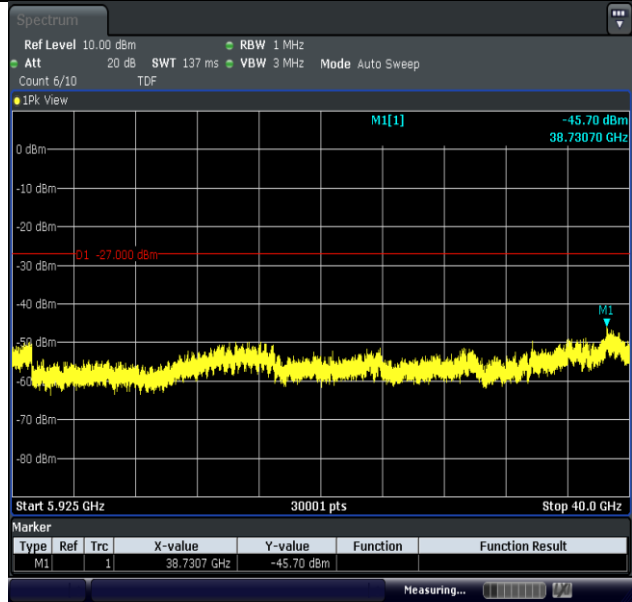
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 40 GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.

Test Graphs

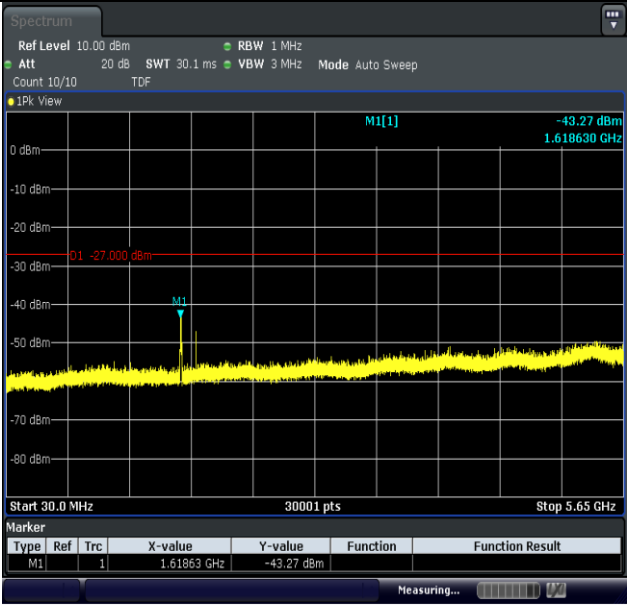




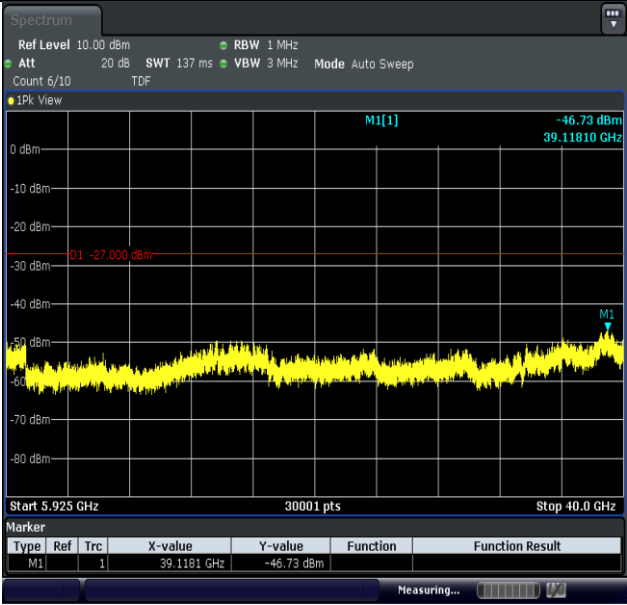
11A-Ant1-5785-30~5650-PASS



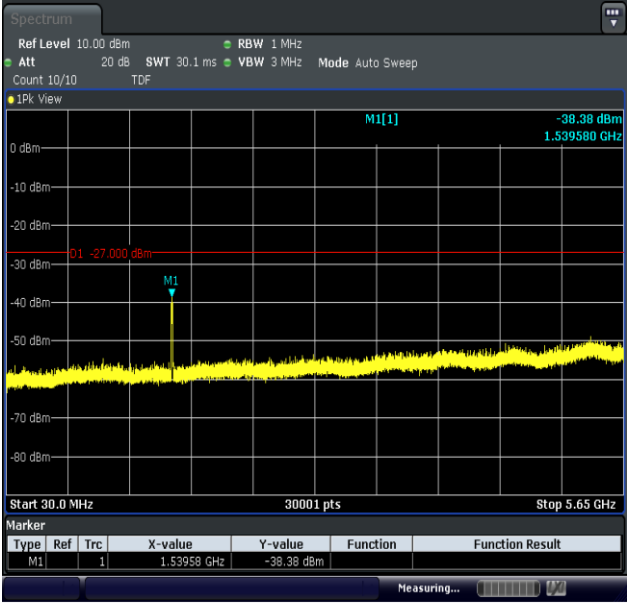
11A-Ant1-5785-5925~40000-PASS



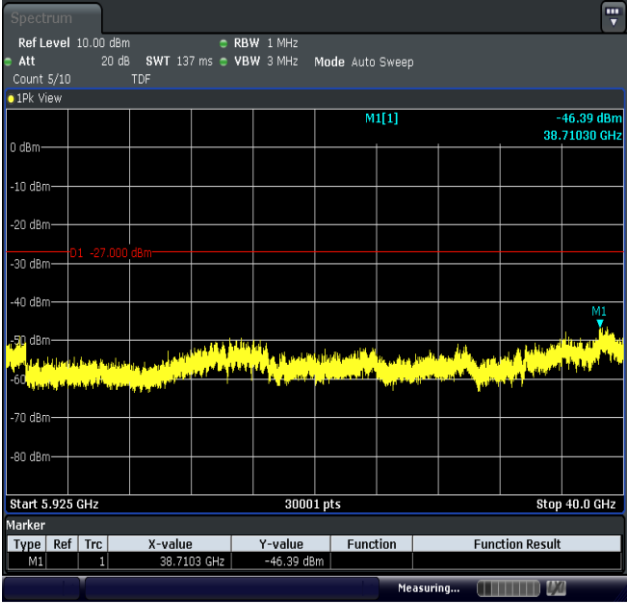
11A-Ant1-5825-30~5650-PASS



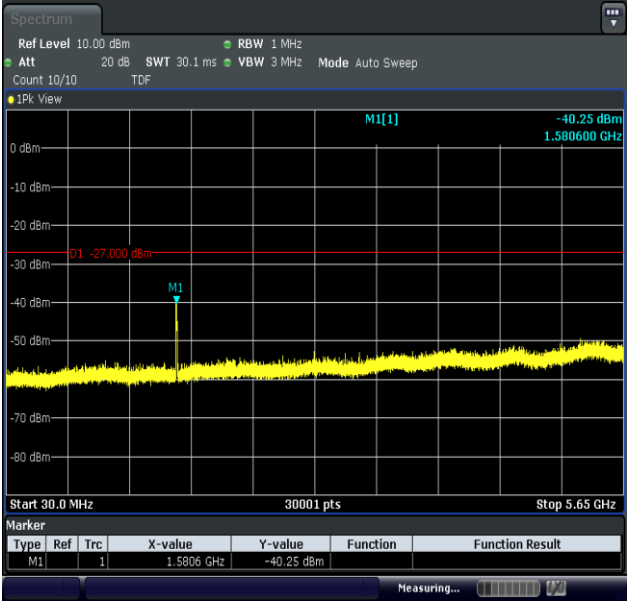
11A-Ant1-5825-5925~40000-PASS



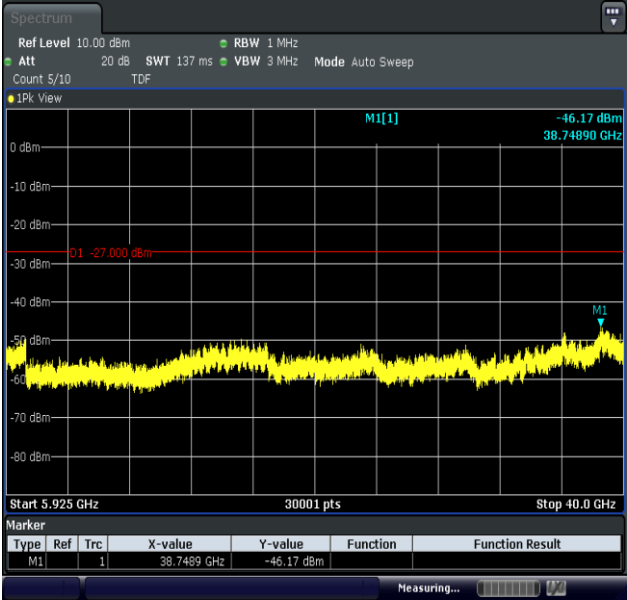
11N20SISO-Ant1-5745-30~5650-PASS



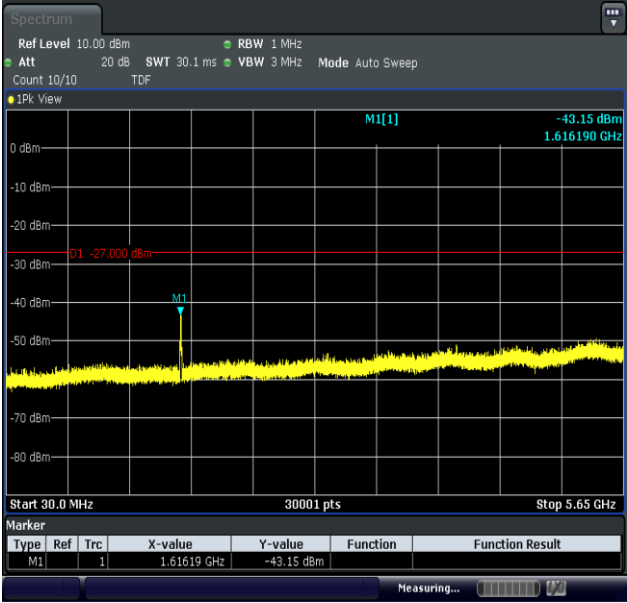
11N20SISO-Ant1-5745-5925~40000-PASS



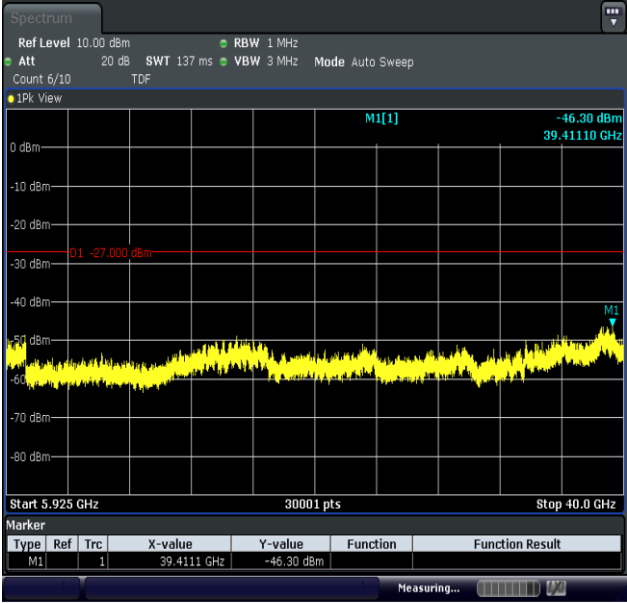
11N20SISO-Ant1-5785-30~5650-PASS



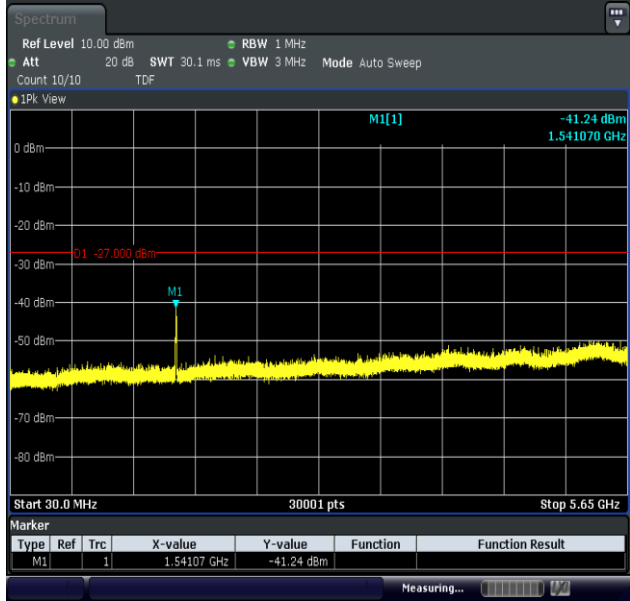
11N20SISO-Ant1-5785-5925~40000-PASS



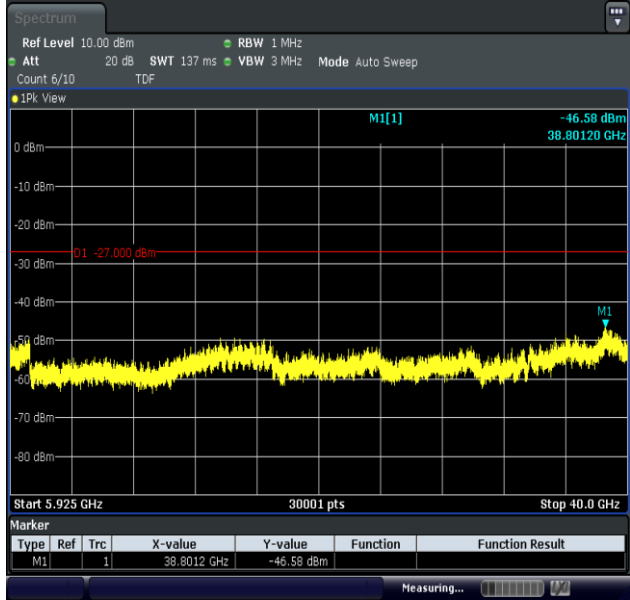
11N20SISO-Ant1-5825-30~5650-PASS



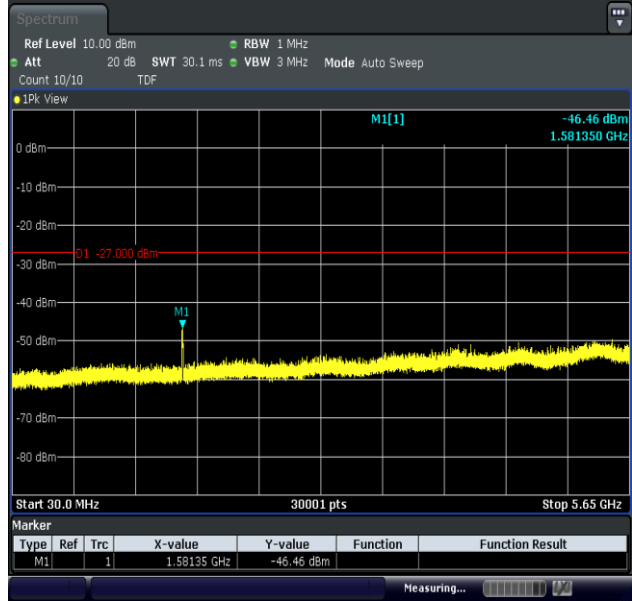
11N20SISO-Ant1-5825-5925~40000-PASS



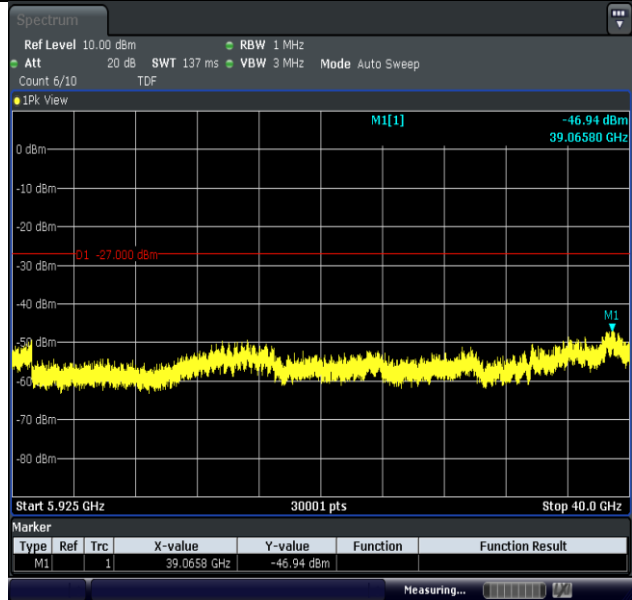
11AC20SISO-Ant1-5745-30~5650-PASS



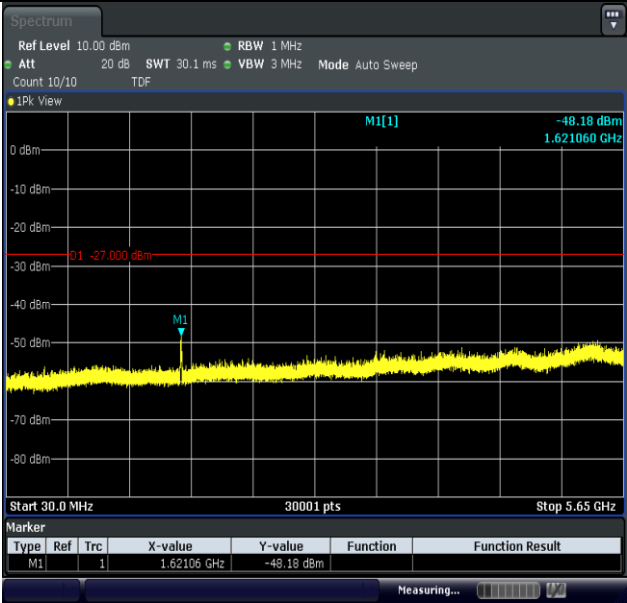
11AC20SISO-Ant1-5745-5925~40000-PASS



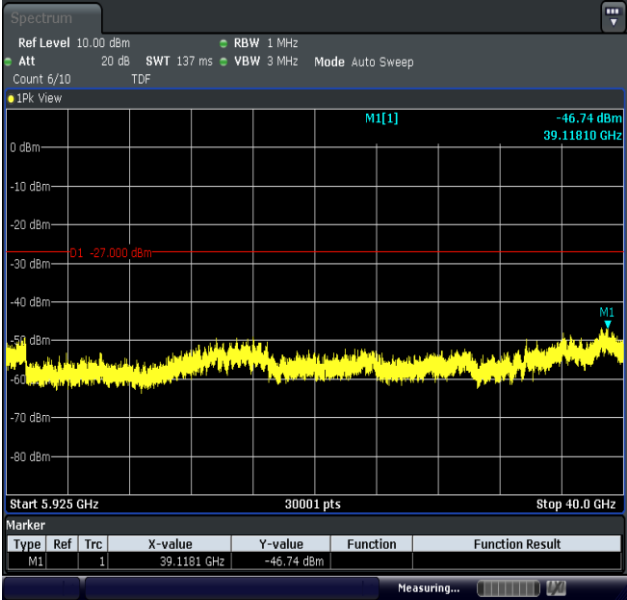
11AC20SISO-Ant1-5785-30~5650-PASS



11AC20SISO-Ant1-5785-5925~40000-PASS



11AC20SISO-Ant1-5825-30~5650-PASS



11AC20SISO-Ant1-5825-5925~40000-PASS

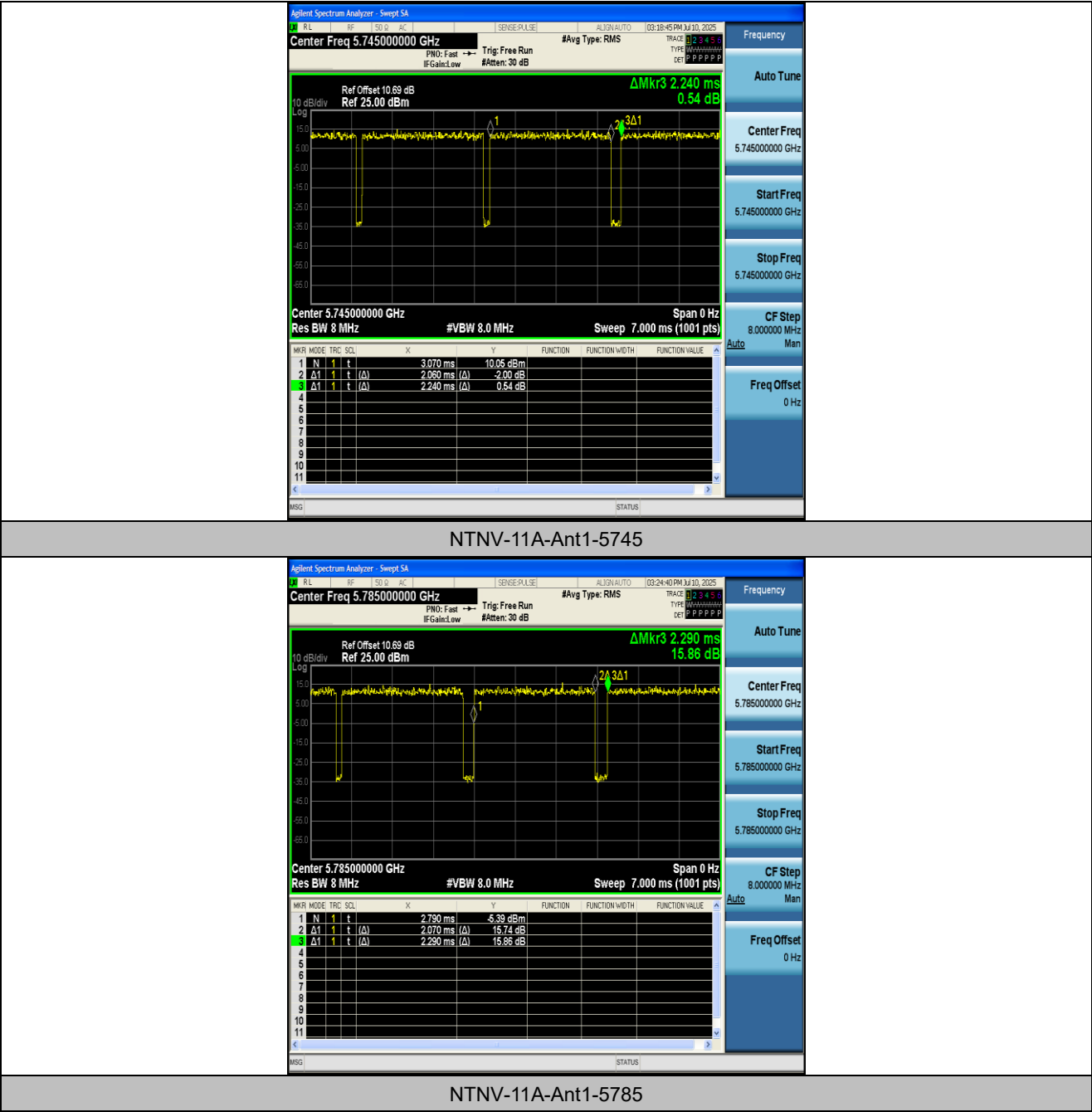
Appendix G: Duty Cycle

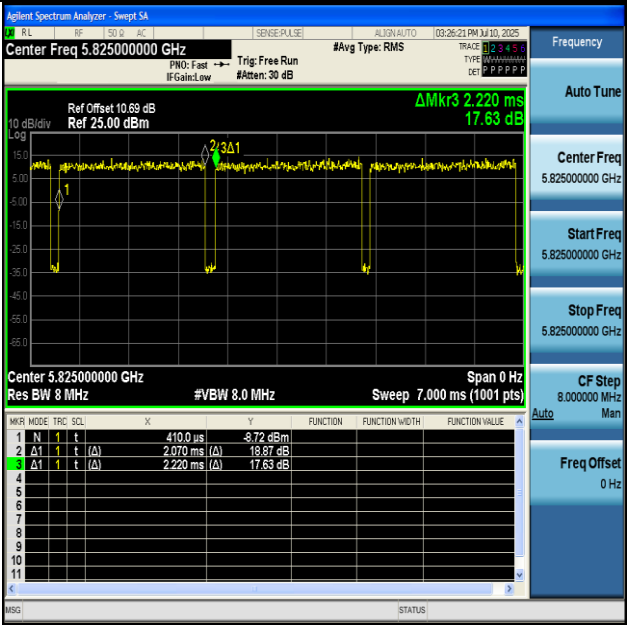
Test Result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Dc. Factor [%]	1/T
11A	Ant1	5745	2.06	2.24	91.96	0.36	0.49
11A	Ant1	5785	2.07	2.29	90.39	0.44	0.48
11A	Ant1	5825	2.07	2.22	93.24	0.30	0.48
11N20SISO	Ant1	5745	1.93	2.14	90.19	0.45	0.52
11N20SISO	Ant1	5785	1.92	2.09	91.87	0.37	0.52
11N20SISO	Ant1	5825	1.93	2.14	90.19	0.45	0.52
11AC20SISO	Ant1	5745	0.20	0.39	51.28	2.90	5.00
11AC20SISO	Ant1	5785	0.20	0.38	52.63	2.79	5.00
11AC20SISO	Ant1	5825	0.20	0.45	44.44	3.52	5.00

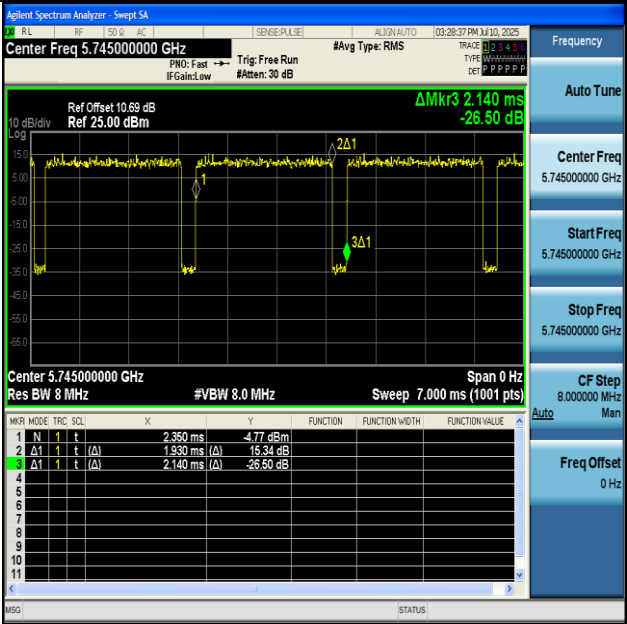
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

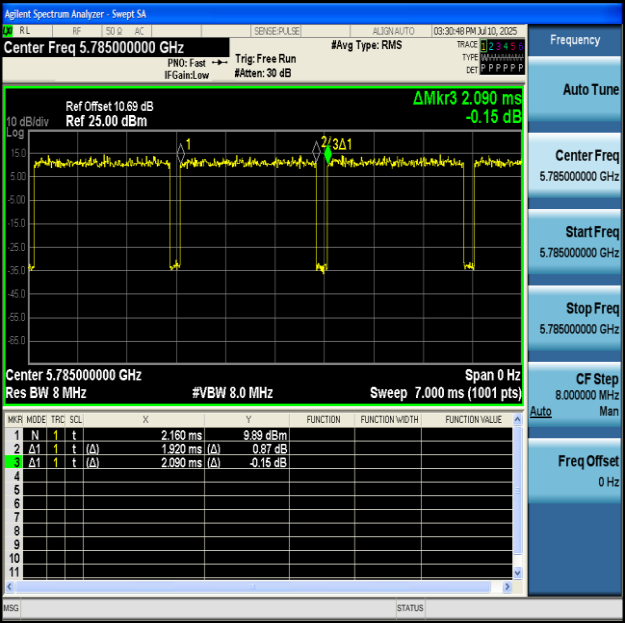




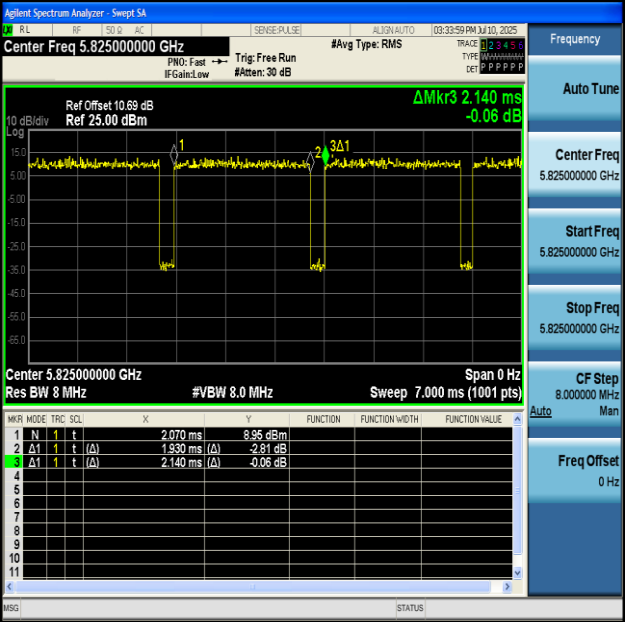
NTNV-11A-Ant1-5825



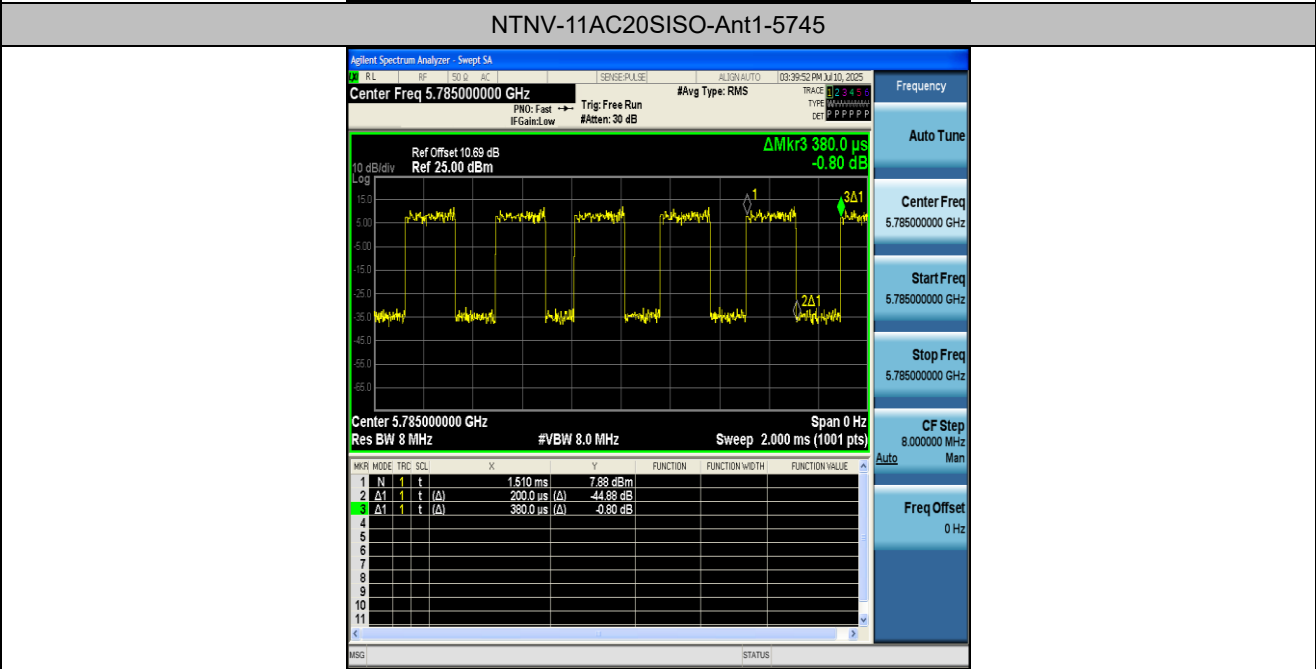
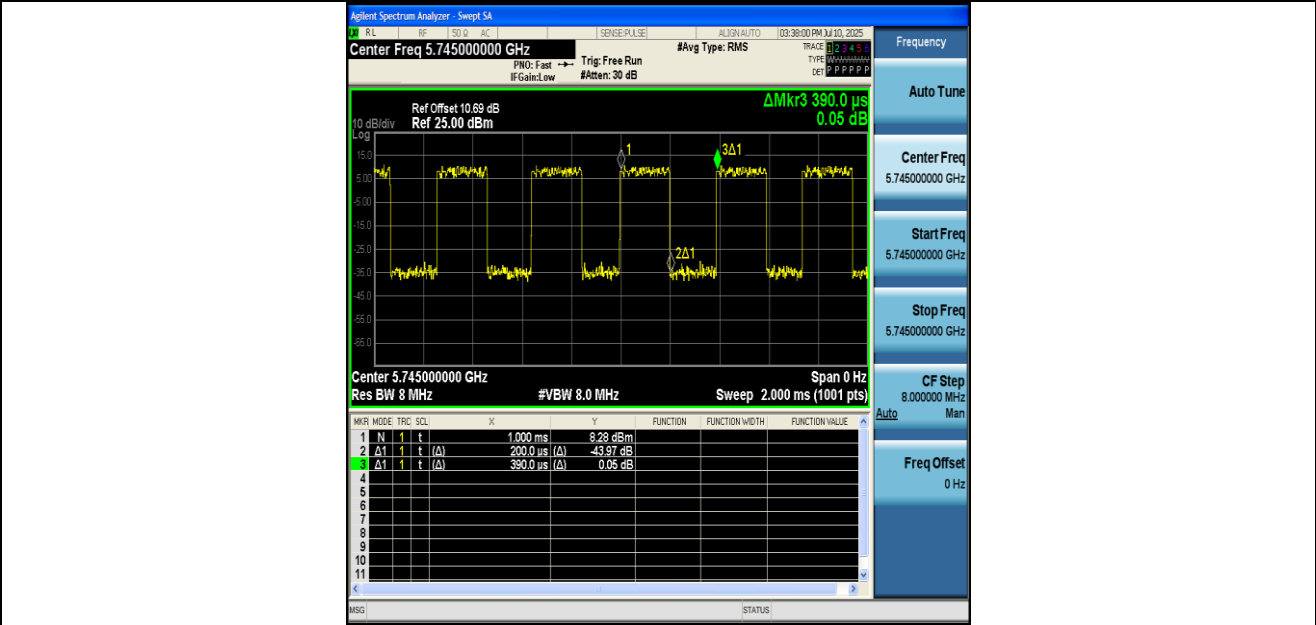
NTNV-11N20SISO-Ant1-5745



NTNV-11N20SISO-Ant1-5785



NTNV-11N20SISO-Ant1-5825





NTNV-11AC20SISO-Ant1-5825