

RF Test Data for RLAN(5.2G) (Conducted Measurement)

Product Name: WIFI TOUCH SCREEN KARAOKE SYSTEM

Trade Mark: Singing Machine

Test Model: ISM9015

FCC ID: 2AAXO-ISM9015

Environmental Conditions

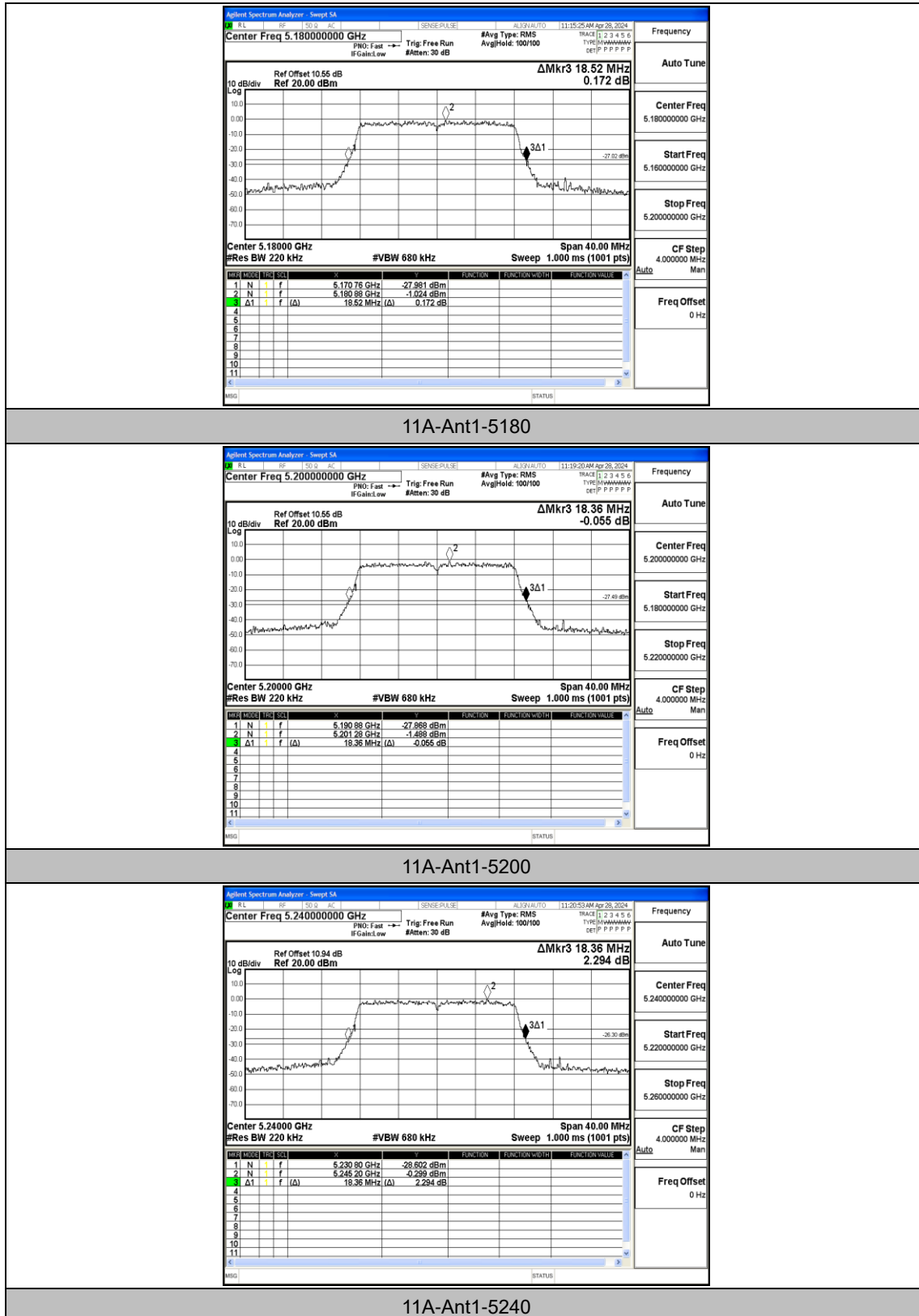
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Hugo Chen
NOTE	N/A

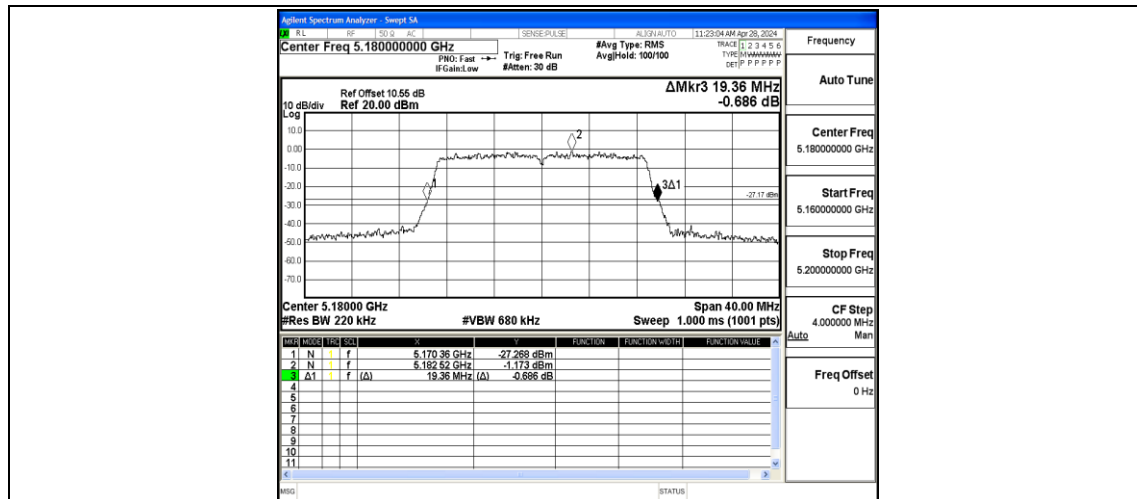
Appendix A1: Emission Bandwidth

Test Result

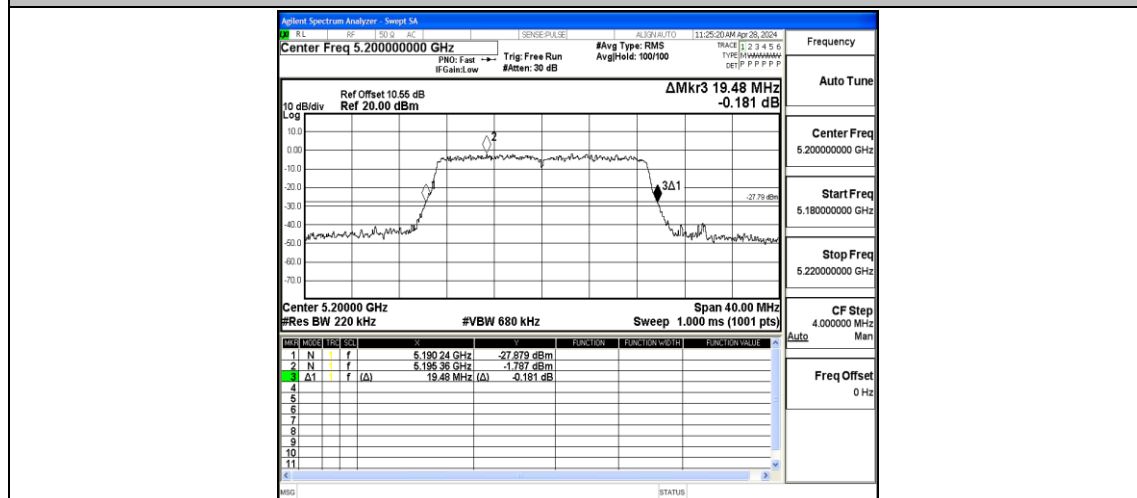
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	18.520	5170.760	5189.280	---	---
11A	Ant1	5200	18.360	5190.880	5209.240	---	---
11A	Ant1	5240	18.360	5230.800	5249.160	---	---
11N20SISO	Ant1	5180	19.360	5170.360	5189.720	---	---
11N20SISO	Ant1	5200	19.480	5190.240	5209.720	---	---
11N20SISO	Ant1	5240	19.400	5230.360	5249.760	---	---
11AC20SISO	Ant1	5180	19.400	5170.280	5189.680	---	---
11AC20SISO	Ant1	5200	19.000	5190.480	5209.480	---	---
11AC20SISO	Ant1	5240	19.200	5230.400	5249.600	---	---

Test Graphs

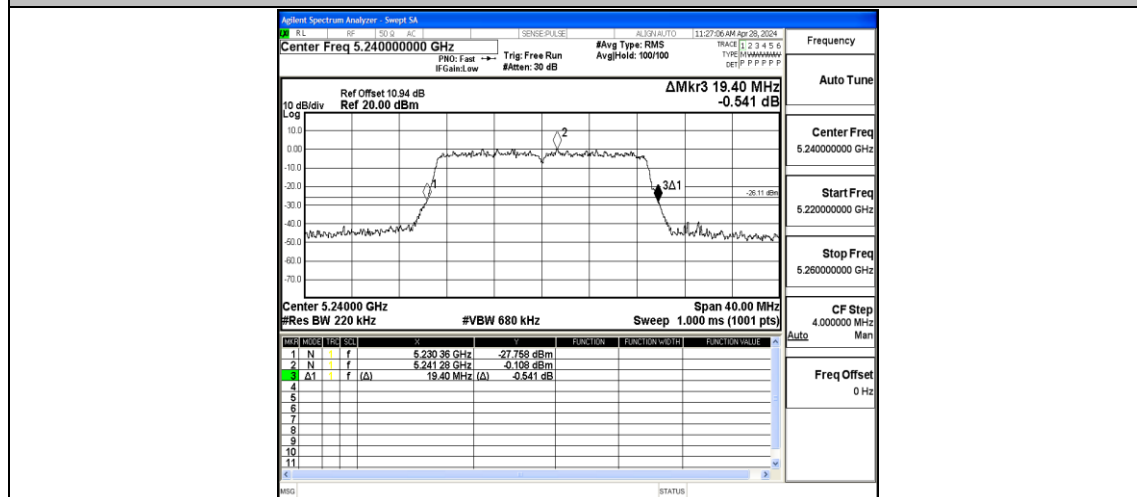




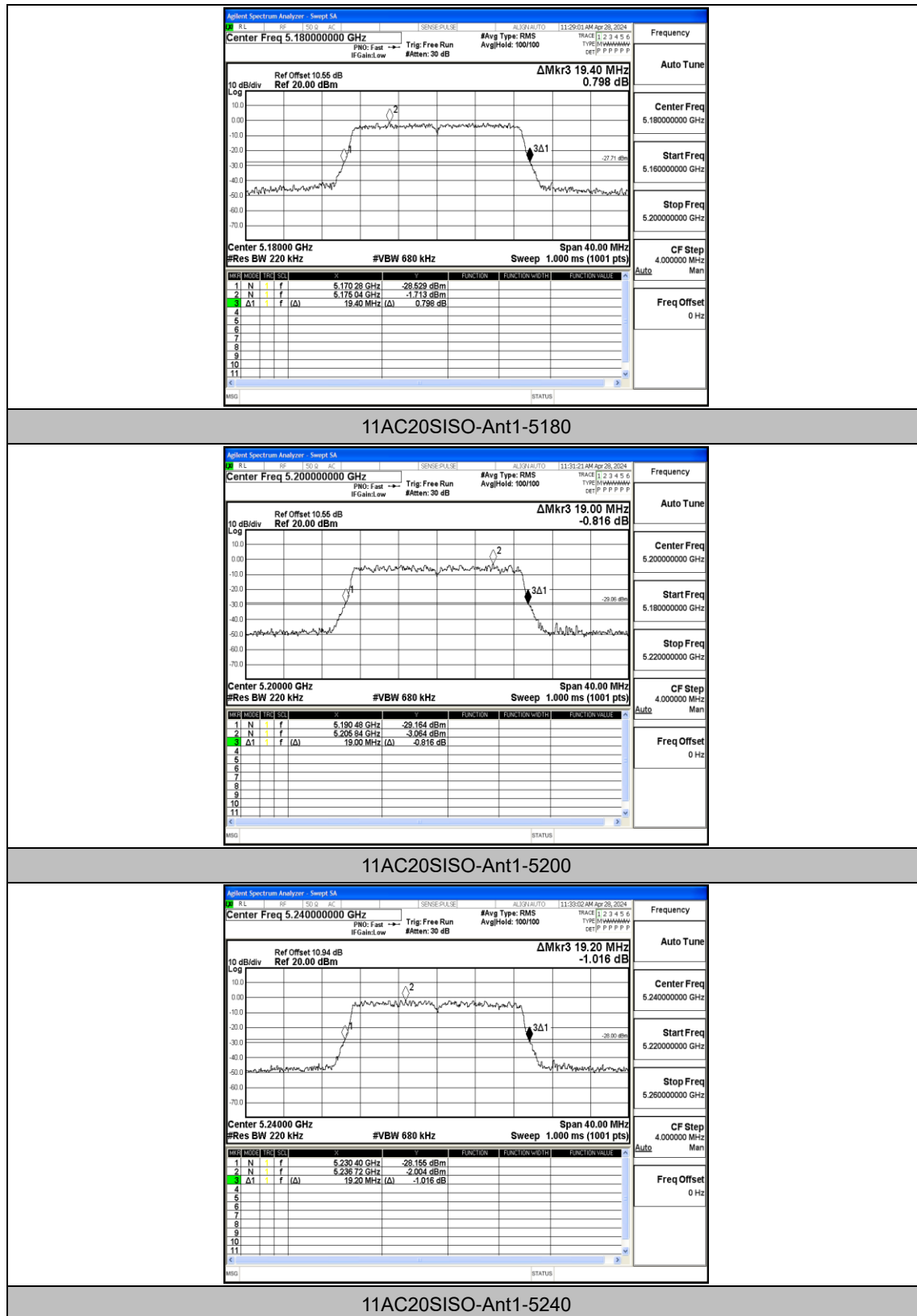
11N20SISO-Ant1-5180



11N20SISO-Ant1-5200



11N20SISO-Ant1-5240

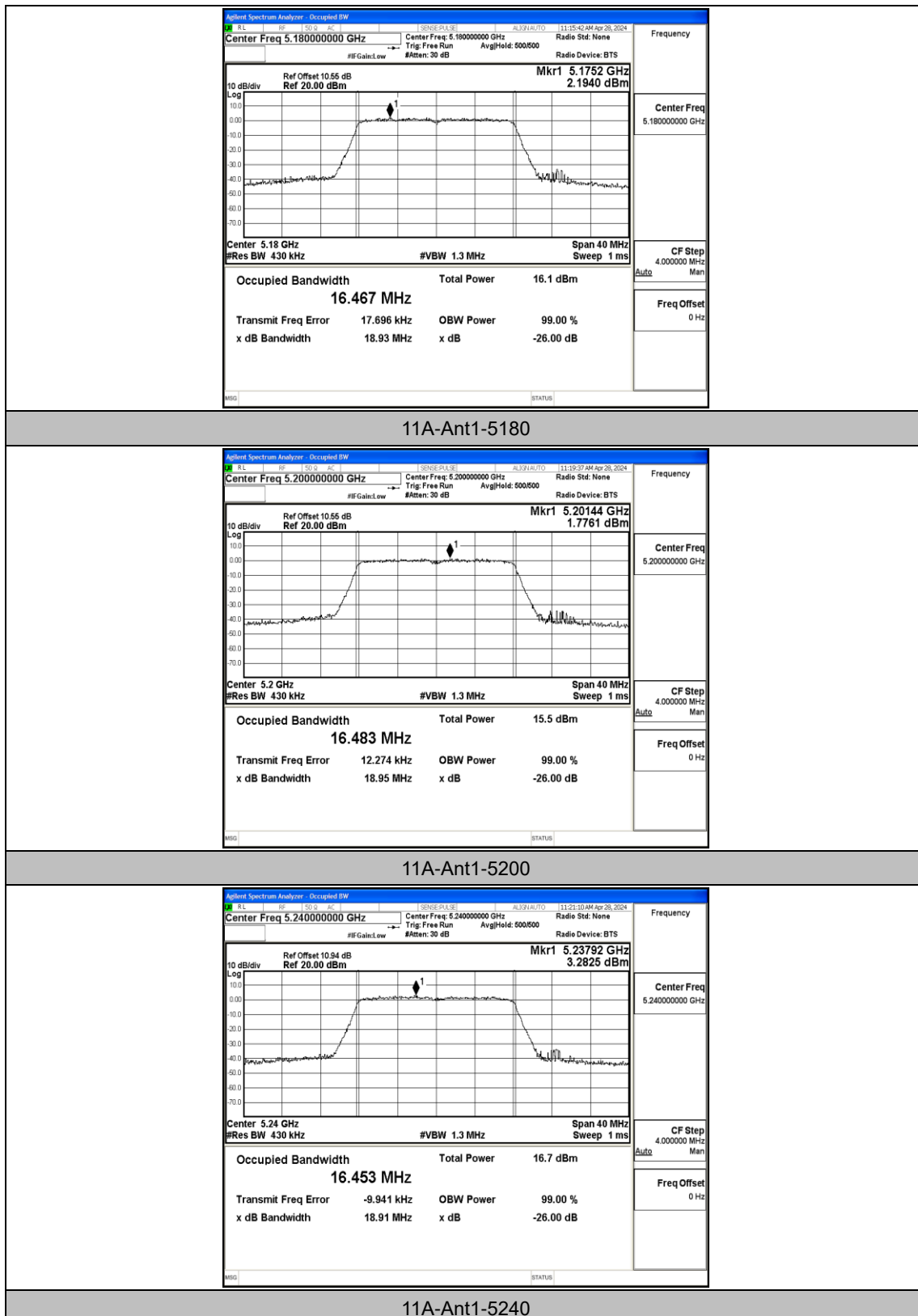


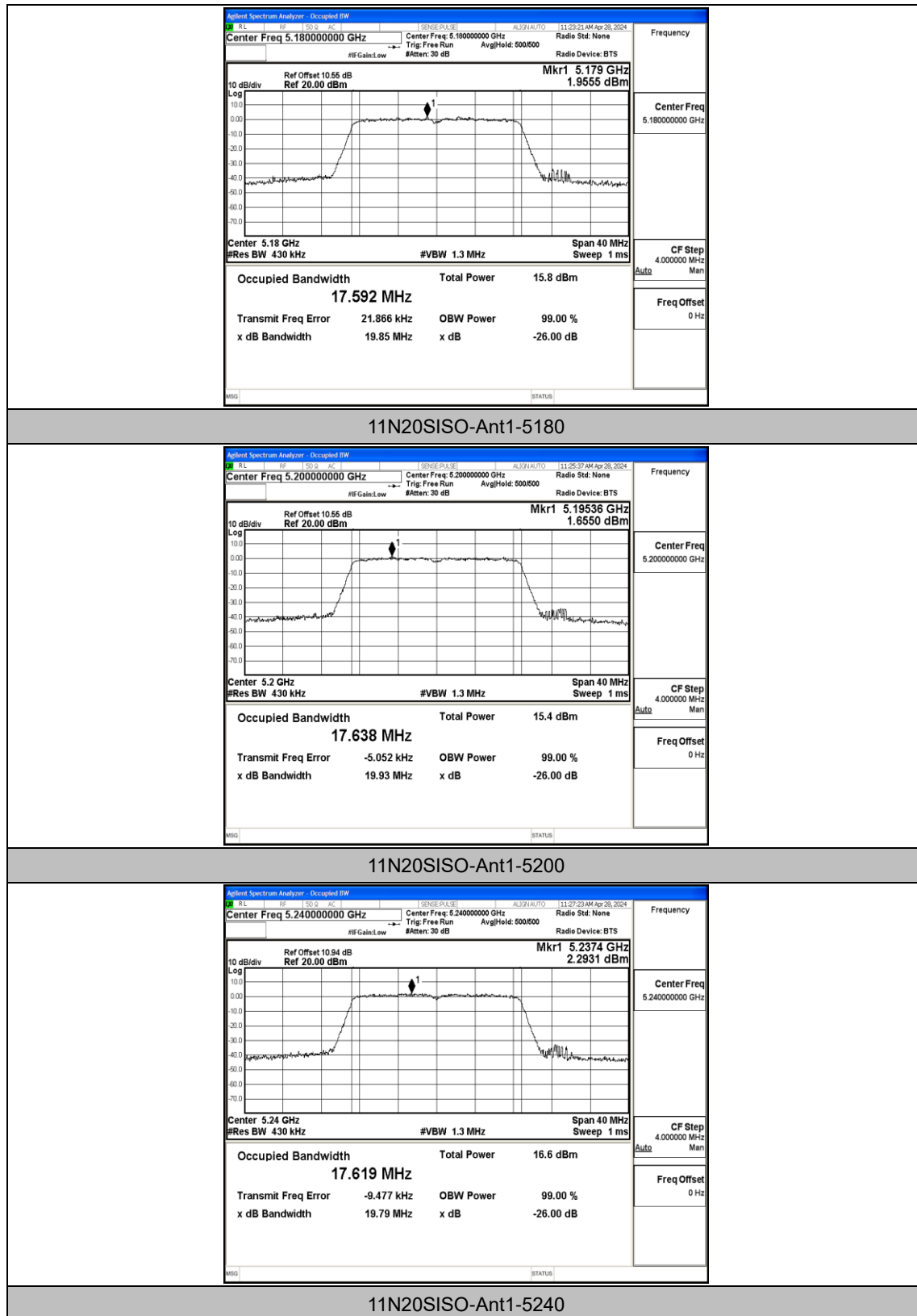
Appendix A2: Occupied channel bandwidth

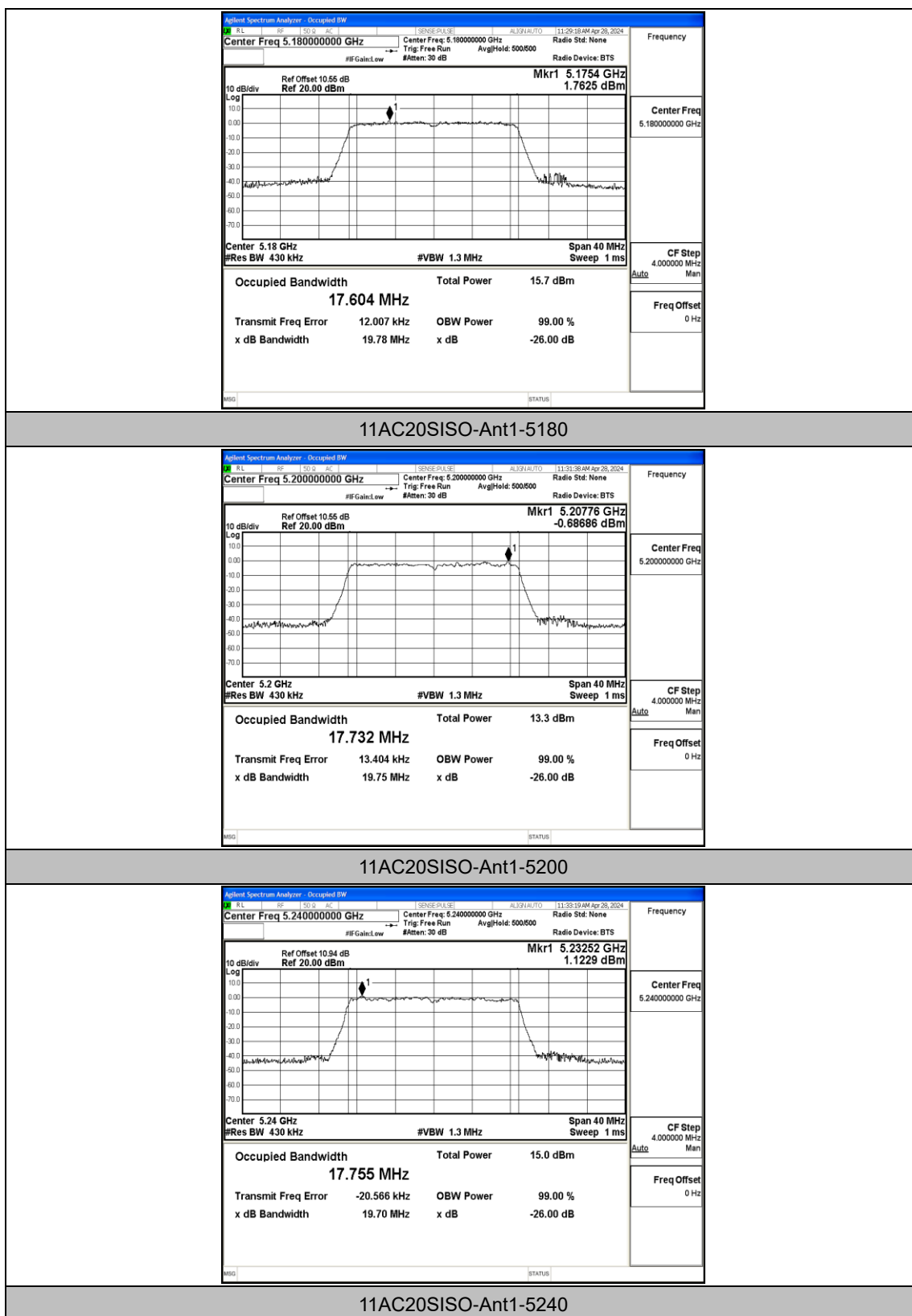
Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	16.467	5171.7842	5188.2512	---	---
11A	Ant1	5200	16.483	5191.7708	5208.2538	---	---
11A	Ant1	5240	16.453	5231.7636	5248.2166	---	---
11N20SISO	Ant1	5180	17.592	5171.2259	5188.8179	---	---
11N20SISO	Ant1	5200	17.638	5191.1760	5208.8140	---	---
11N20SISO	Ant1	5240	17.619	5231.1810	5248.8000	---	---
11AC20SISO	Ant1	5180	17.604	5171.2100	5188.8140	---	---
11AC20SISO	Ant1	5200	17.732	5191.1474	5208.8794	---	---
11AC20SISO	Ant1	5240	17.755	5231.1019	5248.8569	---	---

Test Graphs







Appendix B: Maximum conducted output power

Test Result

TestMode	Antenna	Frequency[MHz]	Conducted Power[dBm]	Conducted Limit[dBm]	Verdict
11A	Ant1	5180	9.36	≤23.98	PASS
11A	Ant1	5200	8.90	≤23.98	PASS
11A	Ant1	5240	10.15	≤23.98	PASS
11N20SISO	Ant1	5180	9.05	≤23.98	PASS
11N20SISO	Ant1	5200	8.79	≤23.98	PASS
11N20SISO	Ant1	5240	9.93	≤23.98	PASS
11AC20SISO	Ant1	5180	9.25	≤23.98	PASS
11AC20SISO	Ant1	5200	7.26	≤23.98	PASS
11AC20SISO	Ant1	5240	8.89	≤23.98	PASS

Note: The Duty Cycle Factor is compensated in the result.

Appendix C: Maximum power spectral density

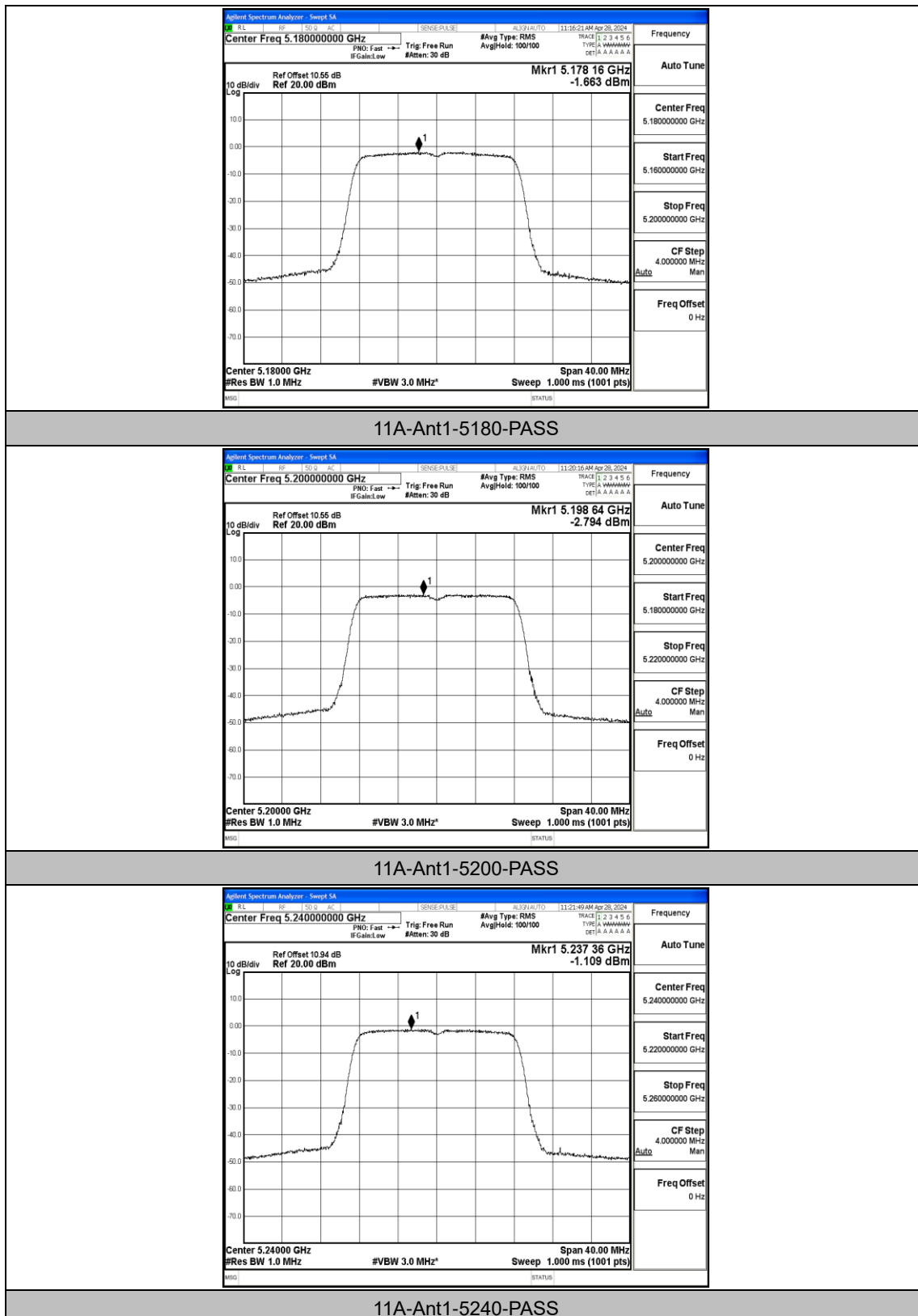
Test Result

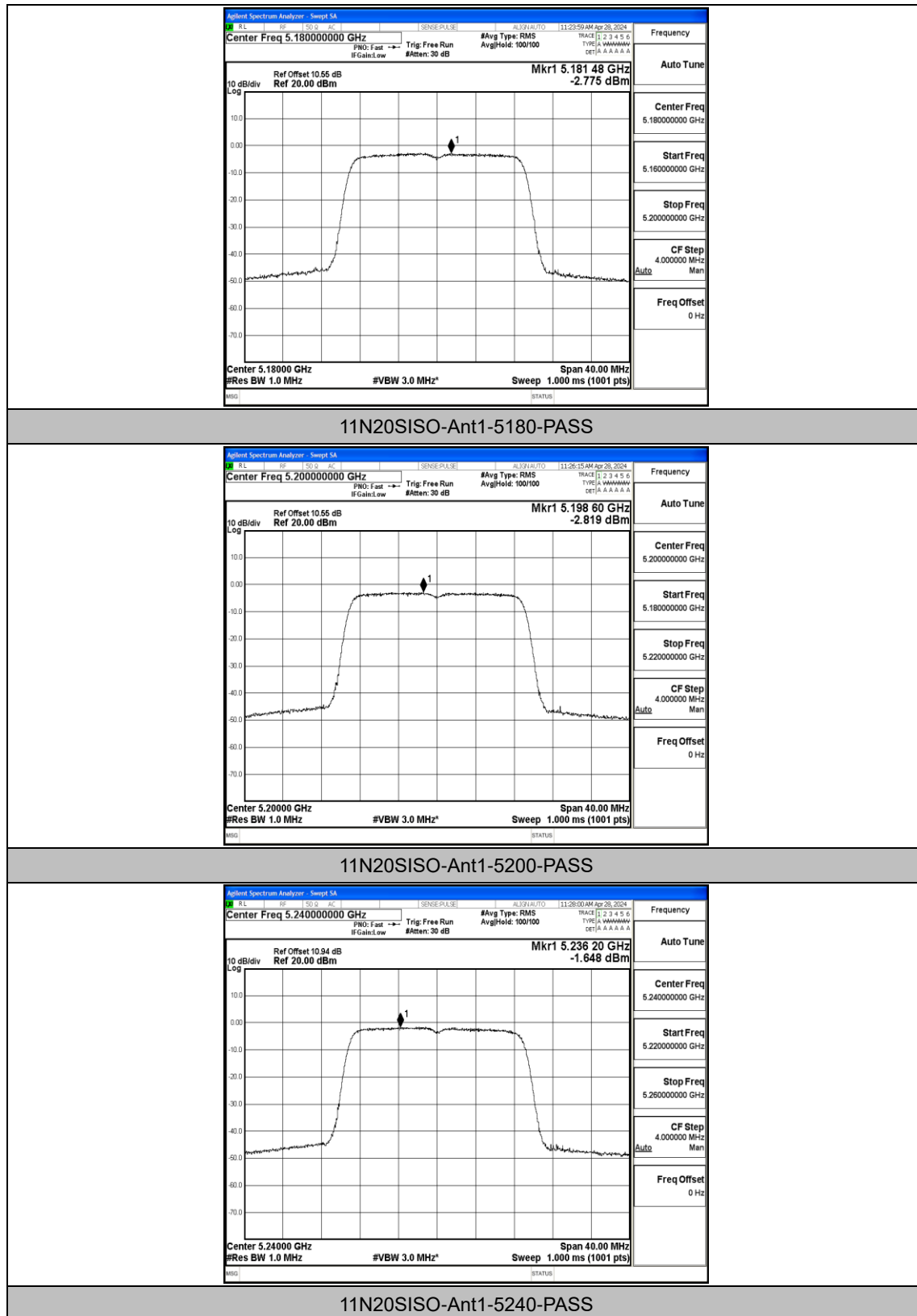
TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-1.28	≤11.00	PASS
11A	Ant1	5200	-2.33	≤11.00	PASS
11A	Ant1	5240	-0.67	≤11.00	PASS
11N20SISO	Ant1	5180	-2.43	≤11.00	PASS
11N20SISO	Ant1	5200	-2.35	≤11.00	PASS
11N20SISO	Ant1	5240	-1.37	≤11.00	PASS
11AC20SISO	Ant1	5180	-2.14	≤11.00	PASS
11AC20SISO	Ant1	5200	-2.99	≤11.00	PASS
11AC20SISO	Ant1	5240	-2.03	≤11.00	PASS

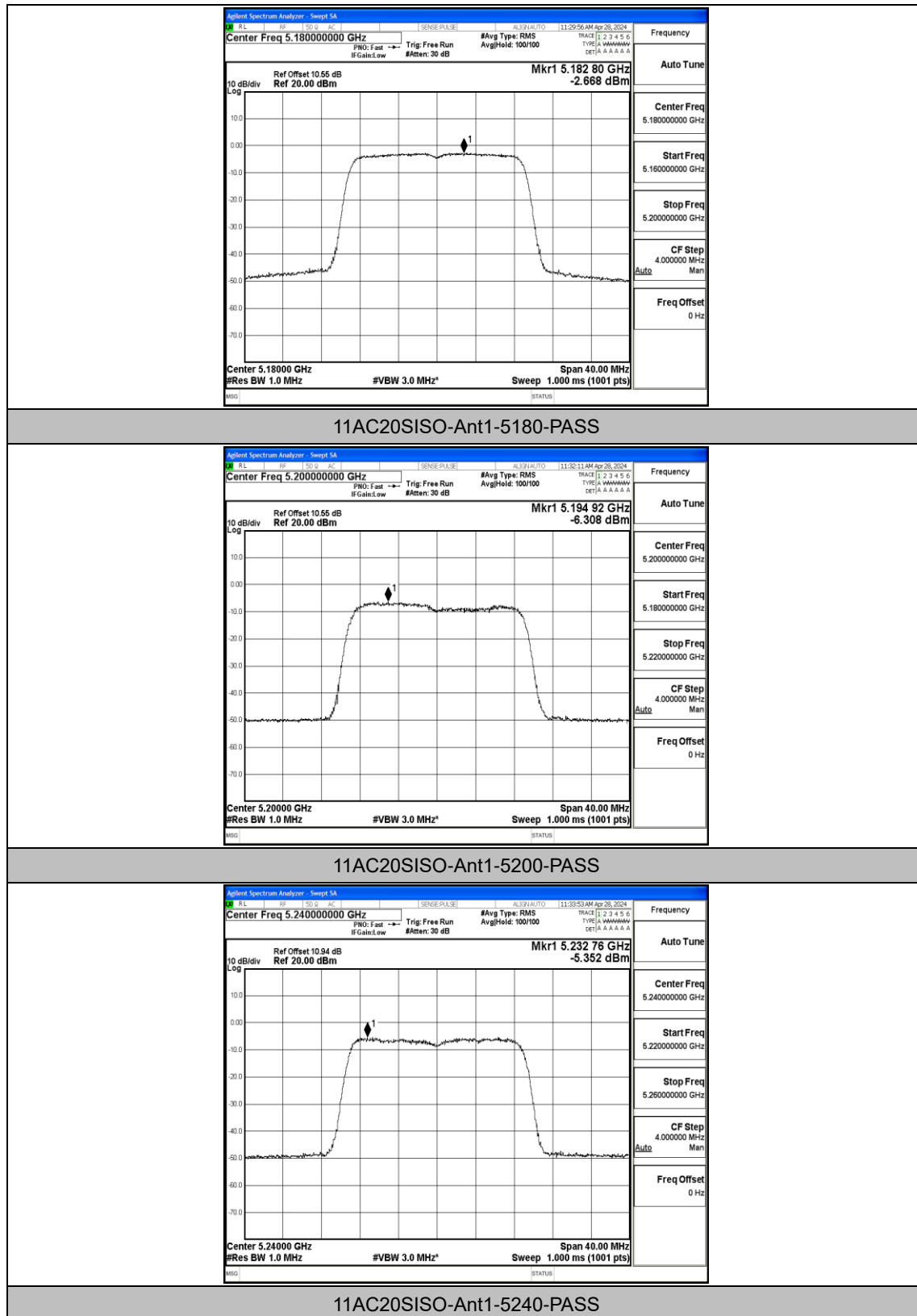
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2.The Duty Cycle Factor and RBW Factor is compensated in the result.

Test Graphs





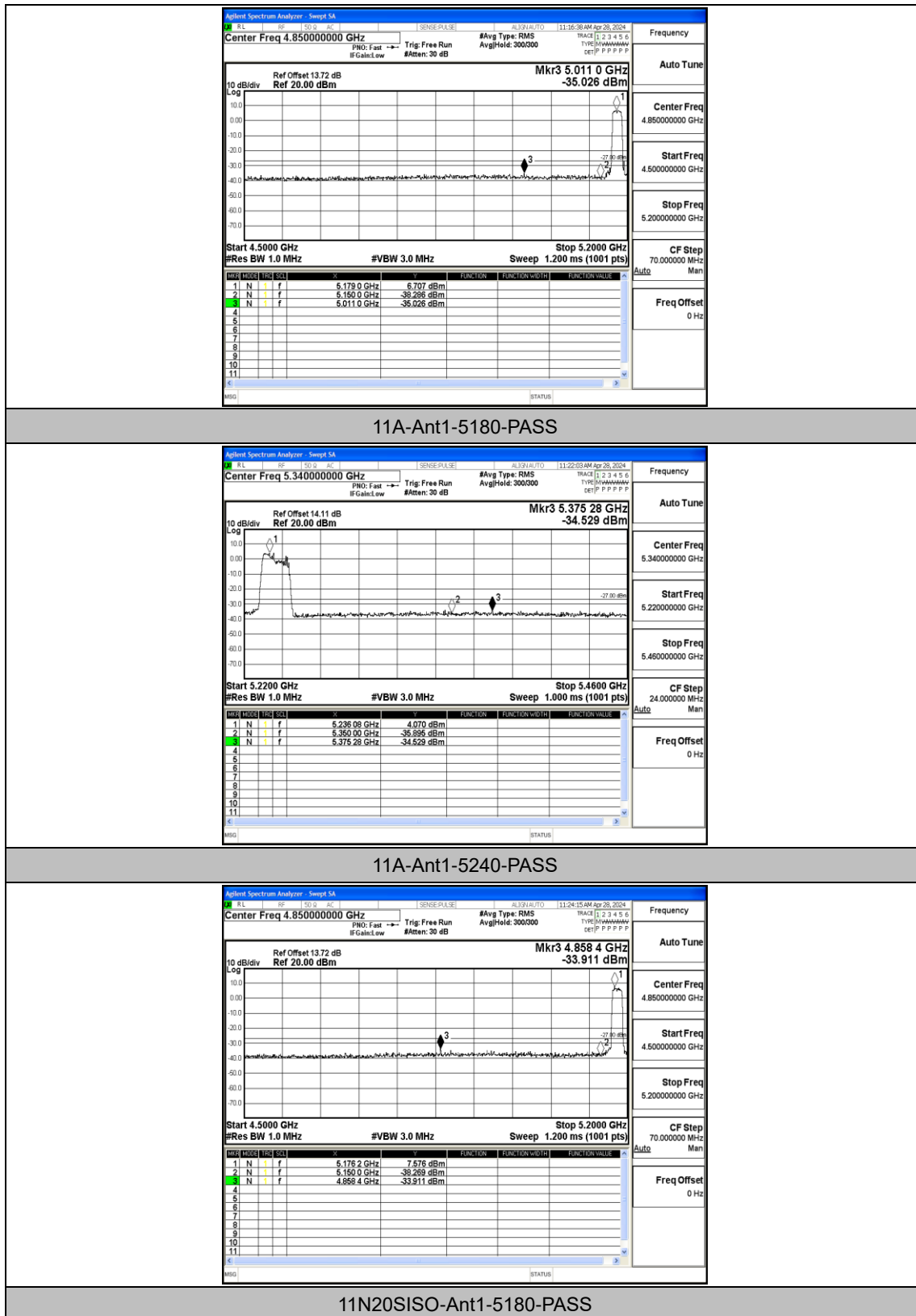


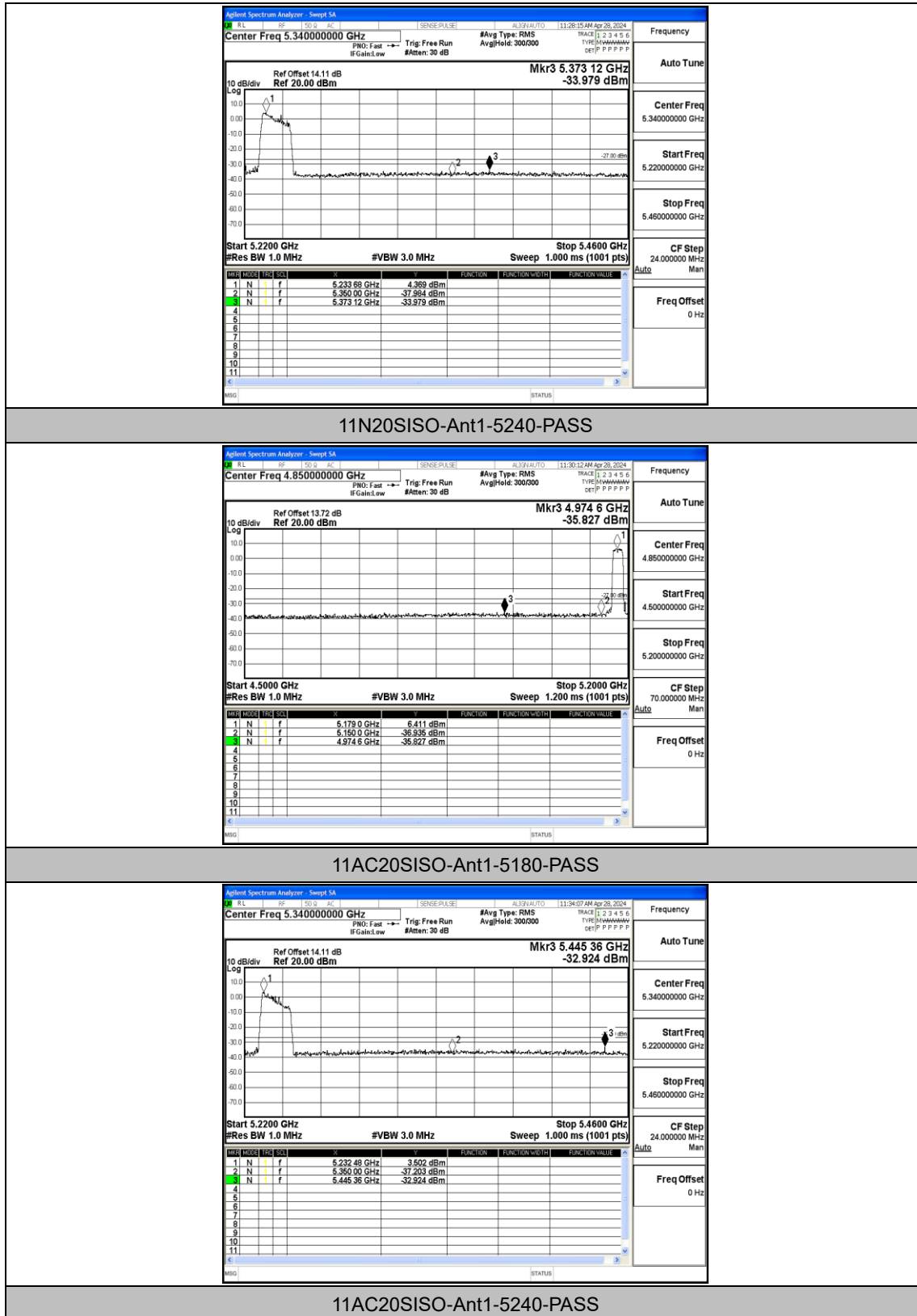
Appendix D: Band edge measurements

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-35.03	≤-27	PASS
11A	Ant1	High	5240	-34.53	≤-27	PASS
11N20SISO	Ant1	Low	5180	-33.91	≤-27	PASS
11N20SISO	Ant1	High	5240	-33.98	≤-27	PASS
11AC20SISO	Ant1	Low	5180	-35.83	≤-27	PASS
11AC20SISO	Ant1	High	5240	-32.92	≤-27	PASS

Test Graphs





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 (Dregree)	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 (Dregree)	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 (Dregree)	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 (Dregree)	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

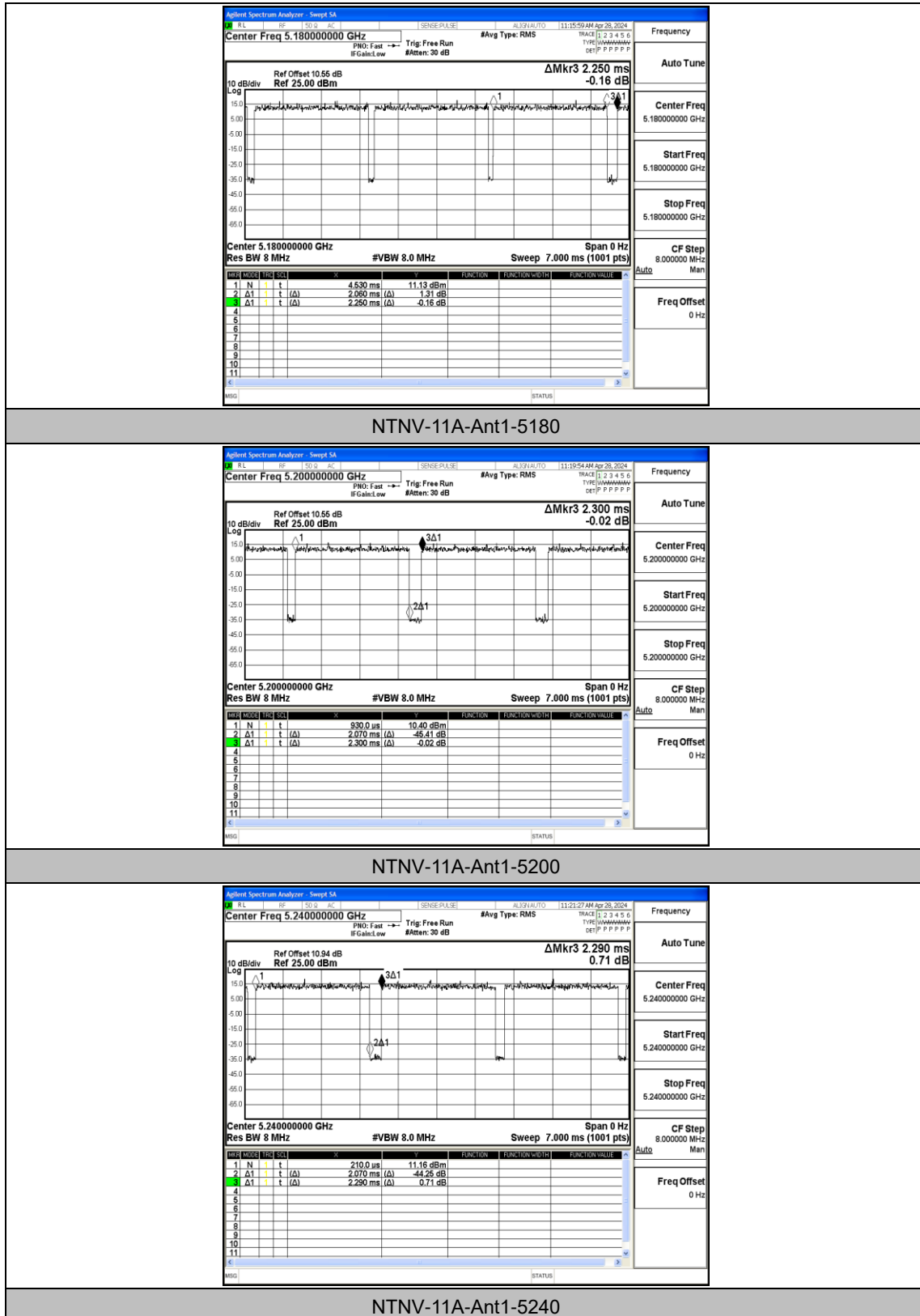
Frequency (MHz)	Enviroment Temperature (Dregree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5210	20	132	5210.091640	5150 – 5250	PASS
5210	20	108	5210.043473	5150 – 5250	PASS
5210	50	120	5210.032886	5150 – 5250	PASS
5210	40	120	5210.027515	5150 – 5250	PASS
5210	30	120	5210.042971	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

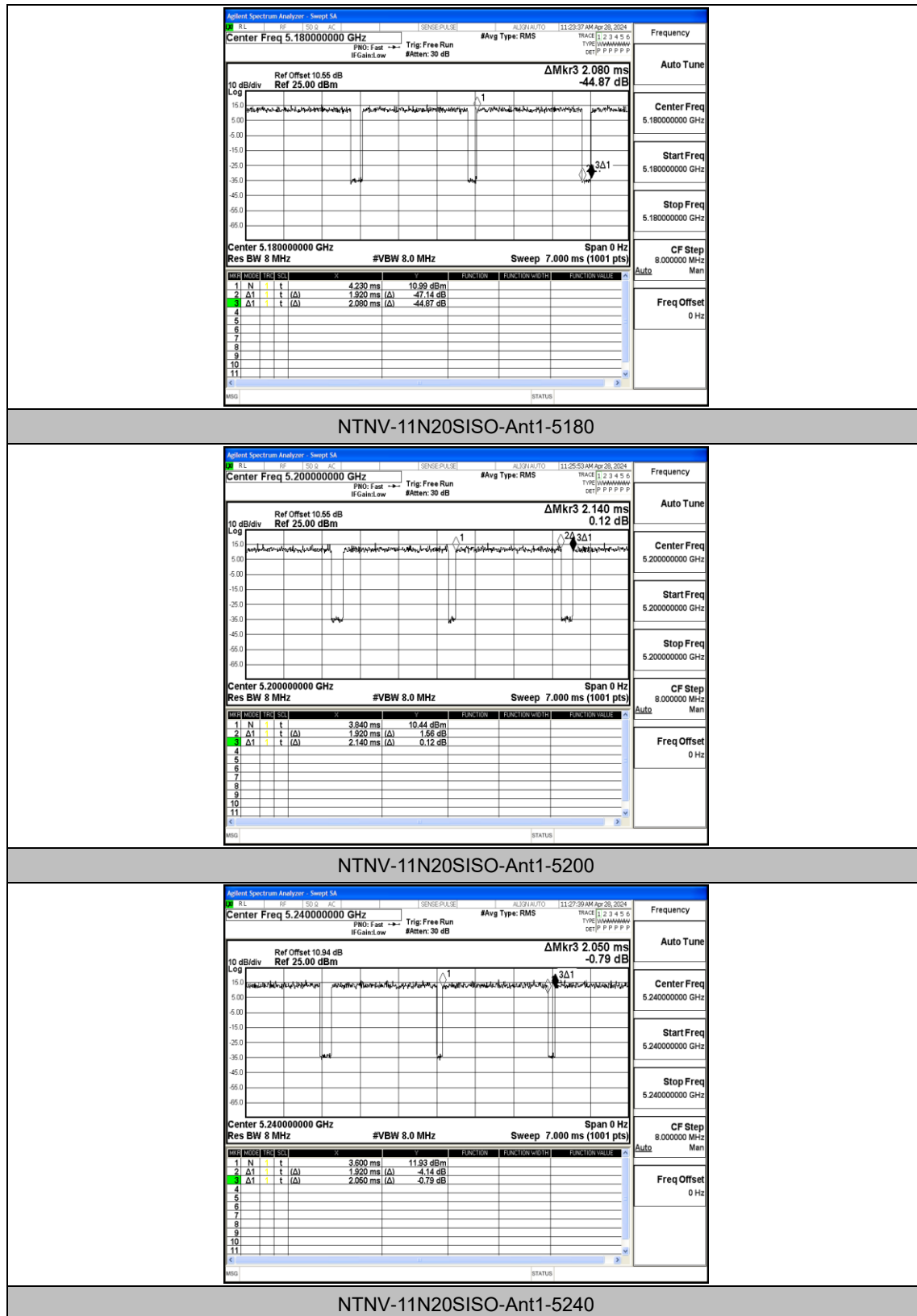
Appendix F: Duty Cycle

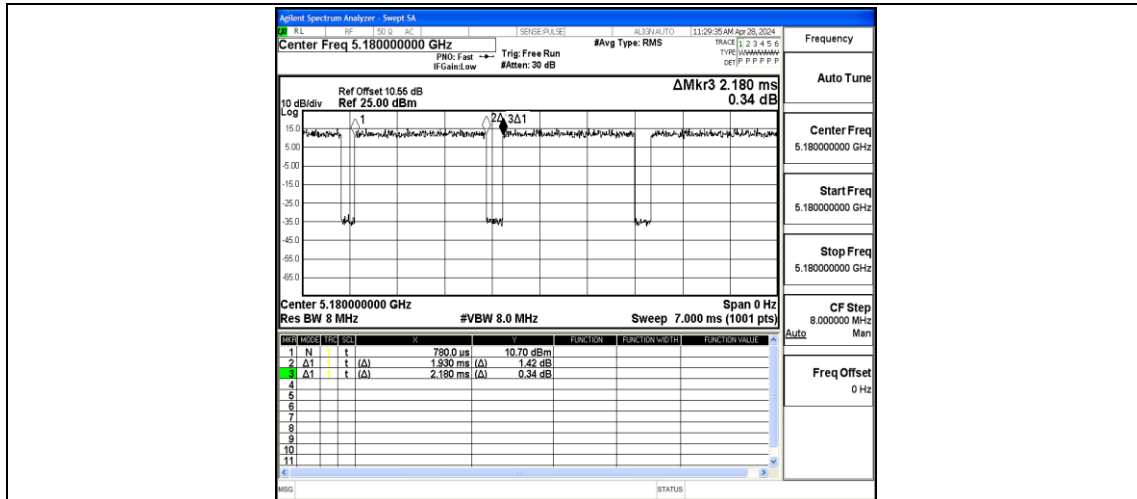
Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Dc Factor [%]	1/T [kHz]
11A	Ant1	5180	2.06	2.25	91.56	0.38	0.49
11A	Ant1	5200	2.07	2.30	90.00	0.46	0.48
11A	Ant1	5240	2.07	2.29	90.39	0.44	0.48
11N20SISO	Ant1	5180	1.92	2.08	92.31	0.35	0.52
11N20SISO	Ant1	5200	1.92	2.14	89.72	0.47	0.52
11N20SISO	Ant1	5240	1.92	2.05	93.66	0.28	0.52
11AC20SISO	Ant1	5180	1.93	2.18	88.53	0.53	0.52
11AC20SISO	Ant1	5200	0.20	0.43	46.51	3.32	5.00
11AC20SISO	Ant1	5240	0.20	0.43	46.51	3.32	5.00

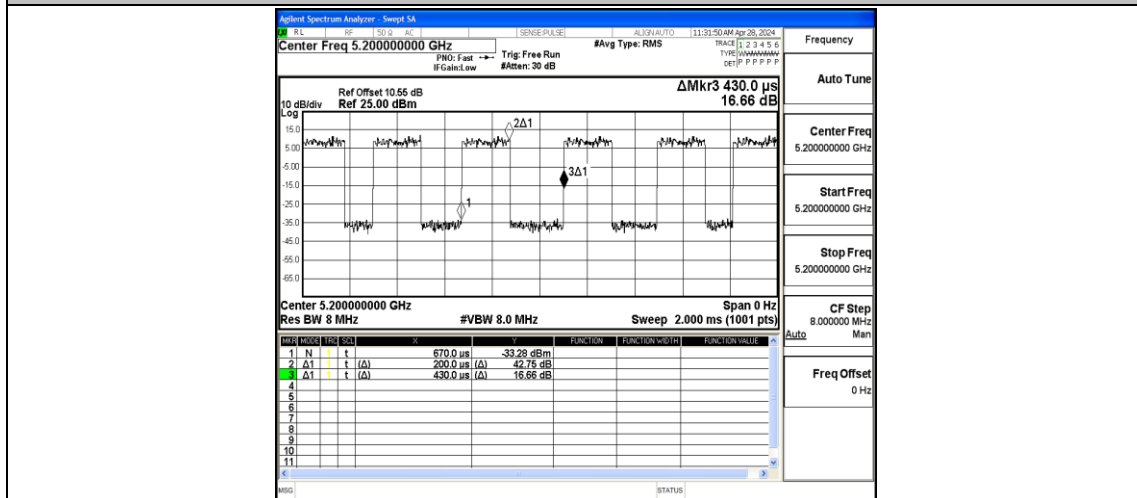
Test Graphs



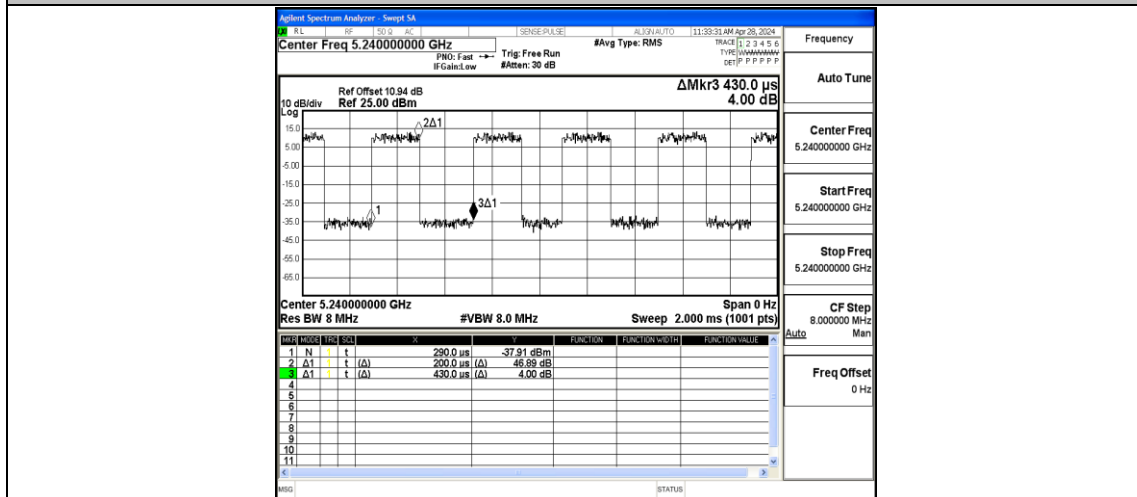




NTNV-11AC20SISO-Ant1-5180



NTNV-11AC20SISO-Ant1-5200



NTNV-11AC20SISO-Ant1-5240