

Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Smart visual ear-clean Rod

Test Model: X3

Environmental Conditions

Temperature:	23.6° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

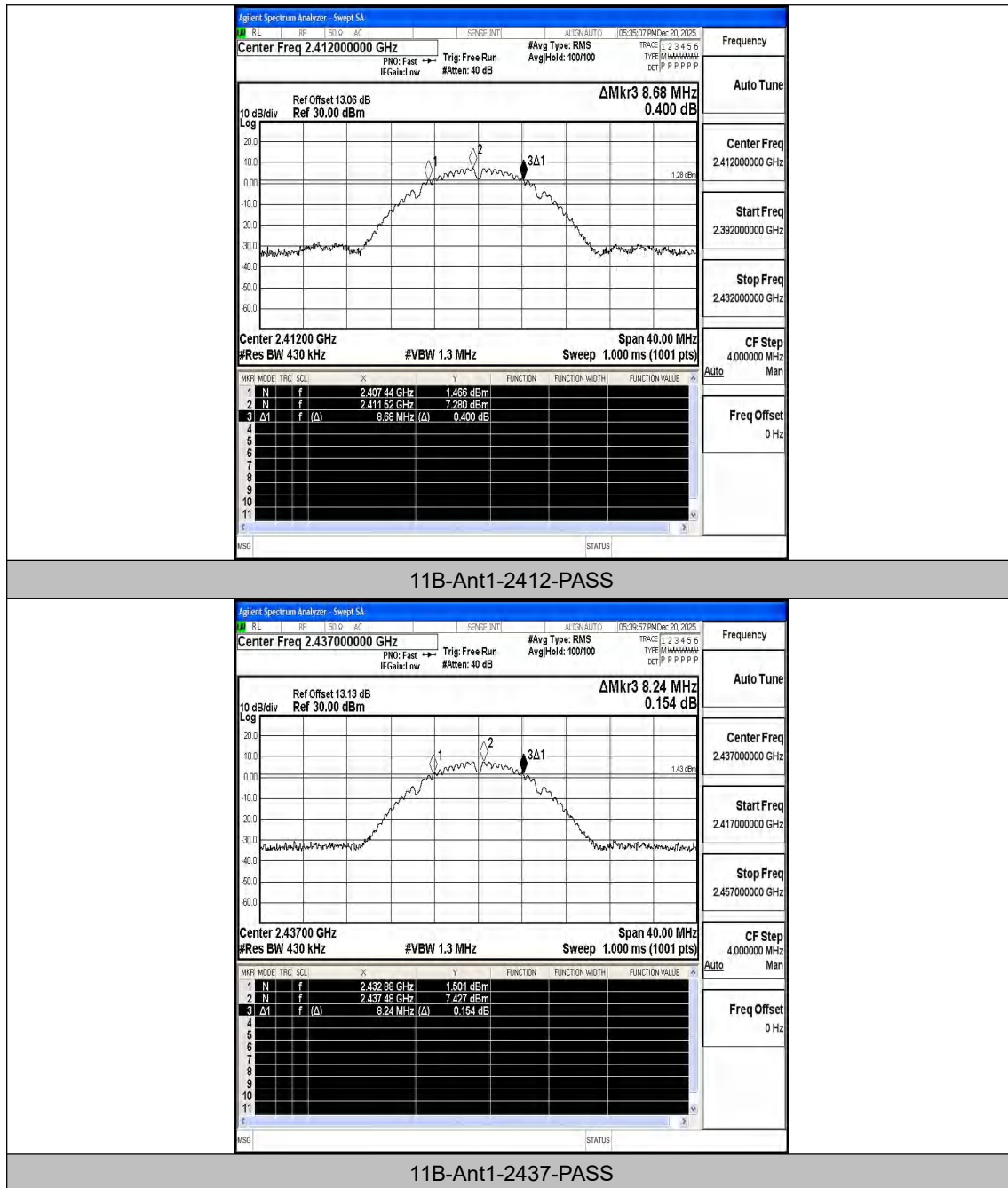
A.1 DTS Bandwidth

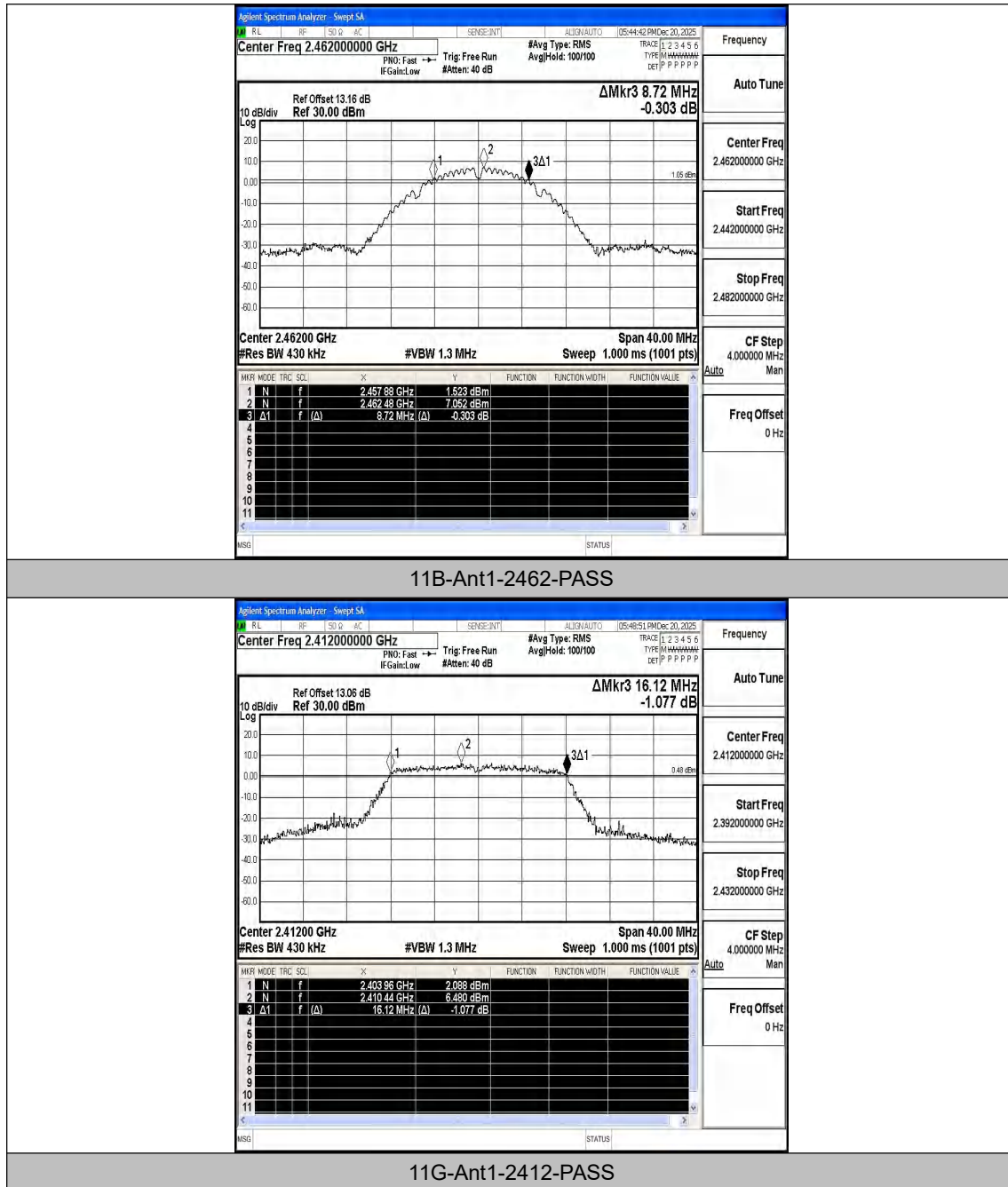
Test Result

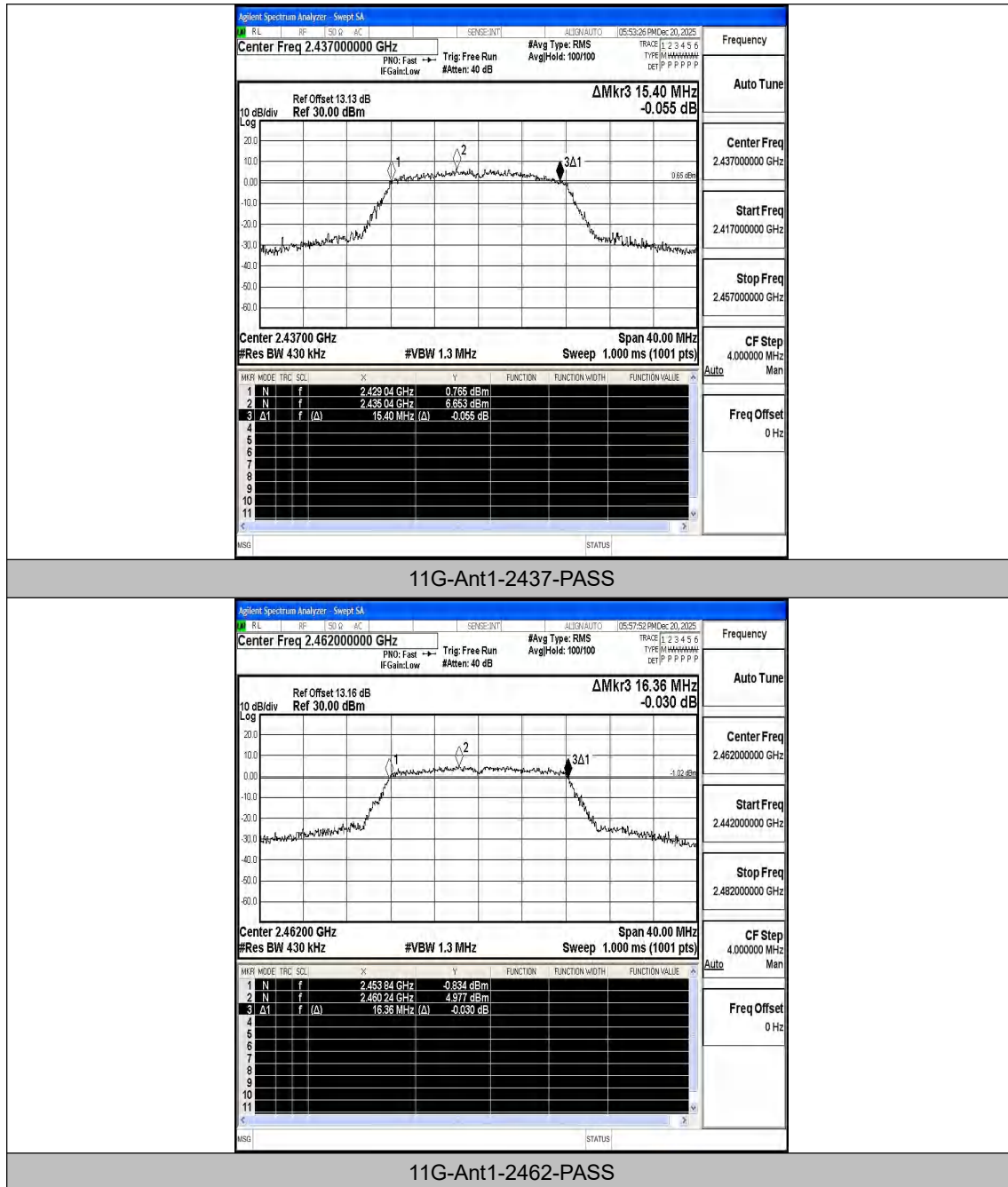
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.680	2407.440	2416.120	0.5	PASS
11B	Ant1	2437	8.240	2432.880	2441.120	0.5	PASS
11B	Ant1	2462	8.720	2457.880	2466.600	0.5	PASS
11G	Ant1	2412	16.120	2403.960	2420.080	0.5	PASS
11G	Ant1	2437	15.400	2429.040	2444.440	0.5	PASS
11G	Ant1	2462	16.360	2453.840	2470.200	0.5	PASS
11N20SISO	Ant1	2412	17.480	2403.200	2420.680	0.5	PASS
11N20SISO	Ant1	2437	16.840	2428.640	2445.480	0.5	PASS
11N20SISO	Ant1	2462	17.440	2453.280	2470.720	0.5	PASS
11N40SISO	Ant1	2422	36.000	2404.080	2440.080	0.5	PASS
11N40SISO	Ant1	2437	33.360	2419.960	2453.320	0.5	PASS
11N40SISO	Ant1	2452	35.760	2433.920	2469.680	0.5	PASS

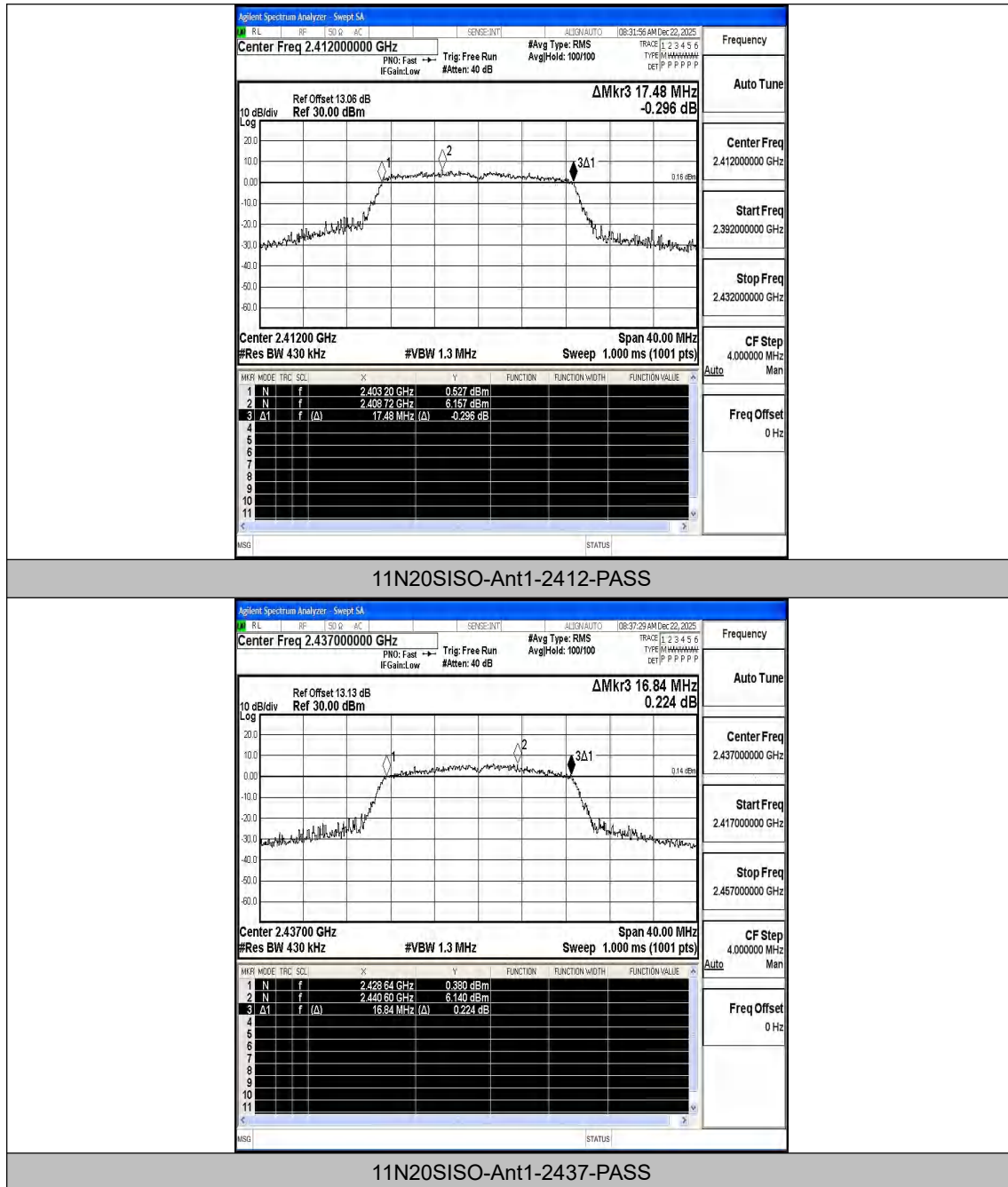
Note :offset=System attenuation +cabal loss

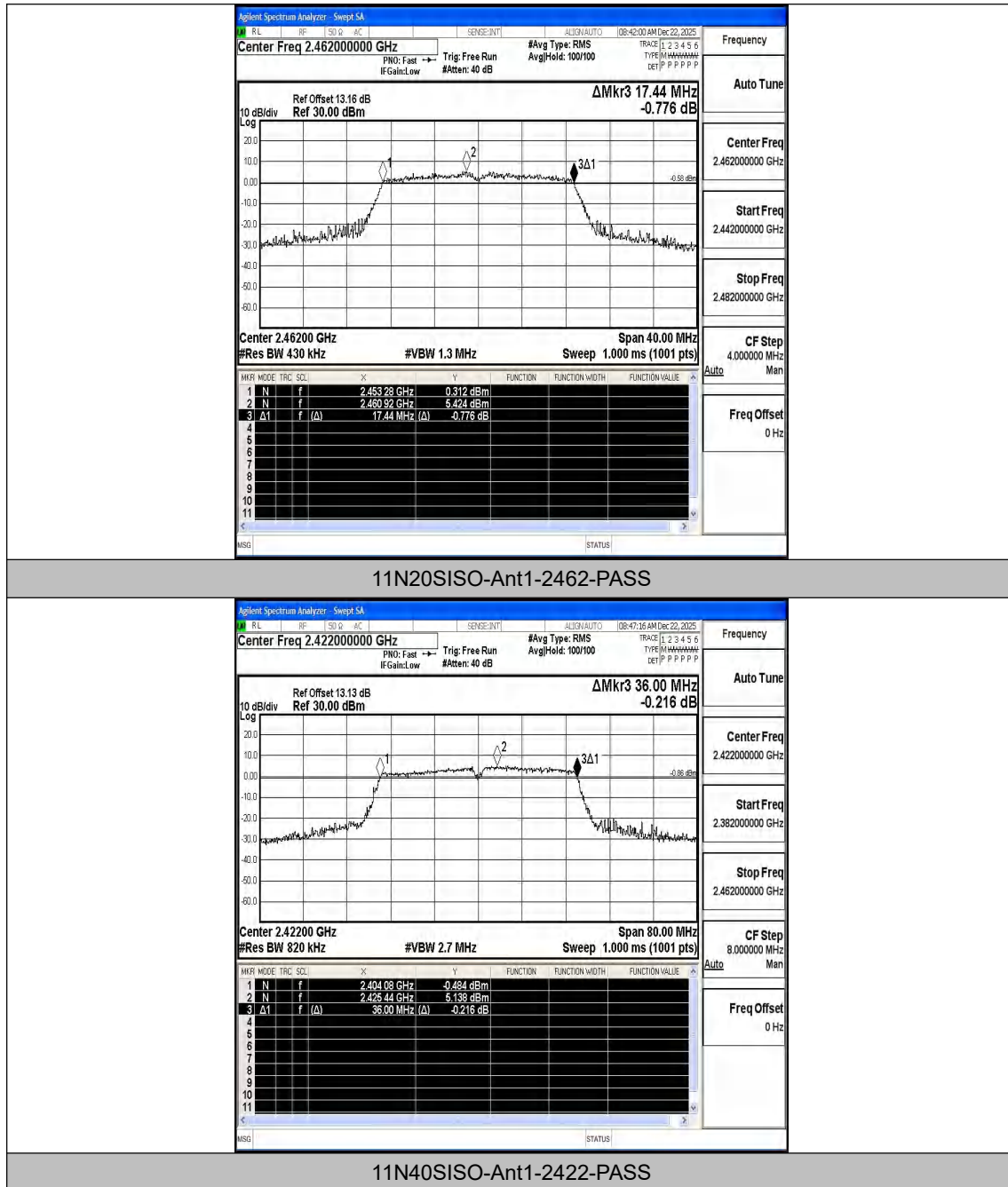
Test Graphs

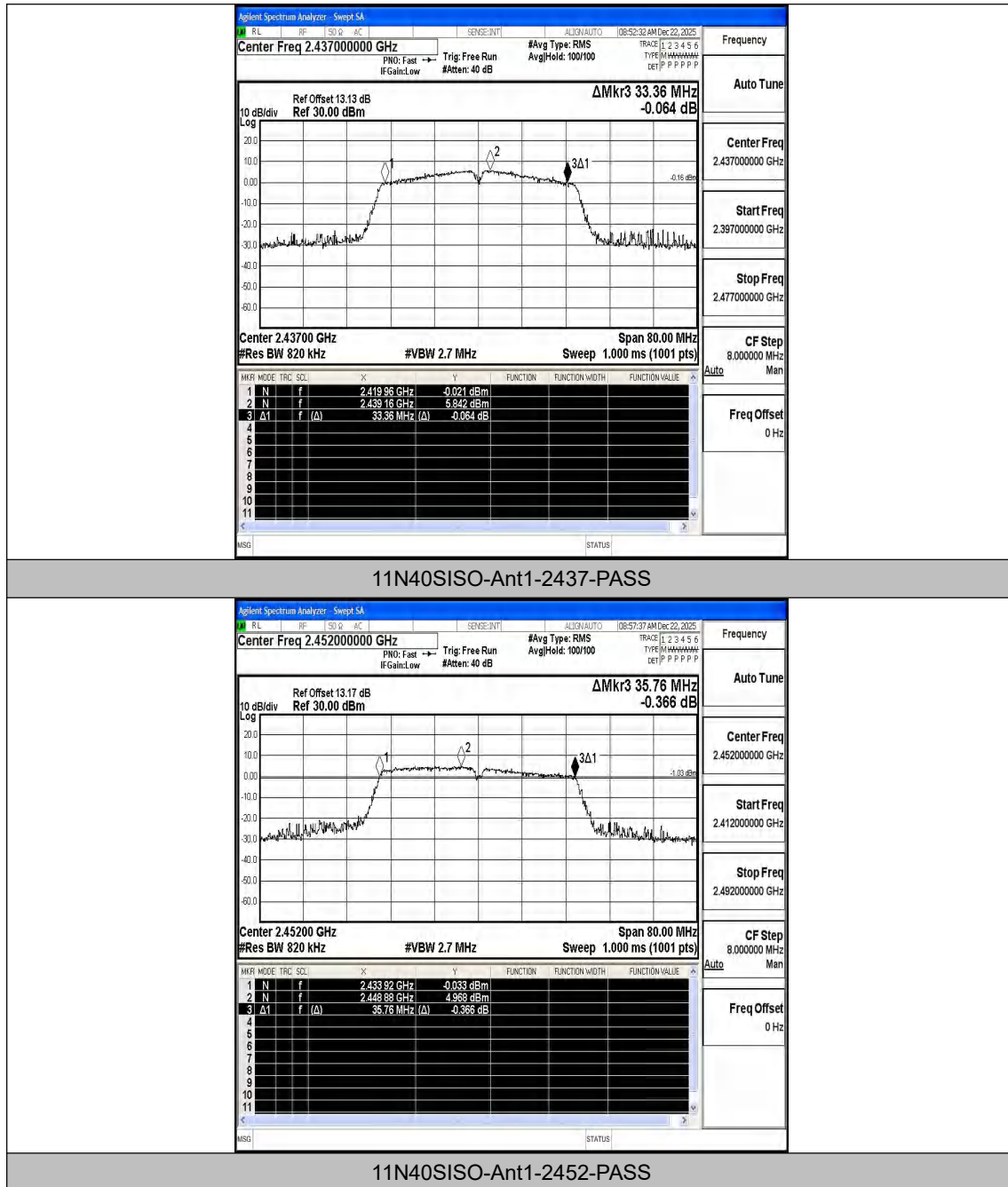












A.2 Maximum Average Conducted Output Power

Test Result Average

Test Mode	Antenna	Frequency[MHz]	Average power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	12.15	≤30.00	PASS
11B	Ant1	2437	12.05	≤30.00	PASS
11B	Ant1	2462	12.02	≤30.00	PASS
11G	Ant1	2412	12.21	≤30.00	PASS
11G	Ant1	2437	12.86	≤30.00	PASS
11G	Ant1	2462	12.53	≤30.00	PASS
11N20SISO	Ant1	2412	12.92	≤30.00	PASS
11N20SISO	Ant1	2437	12.74	≤30.00	PASS
11N20SISO	Ant1	2462	12.49	≤30.00	PASS
11N40SISO	Ant1	2422	12.20	≤30.00	PASS
11N40SISO	Ant1	2437	12.21	≤30.00	PASS
11N40SISO	Ant1	2452	12.05	≤30.00	PASS

Note :offset=System attenuation +cabal loss

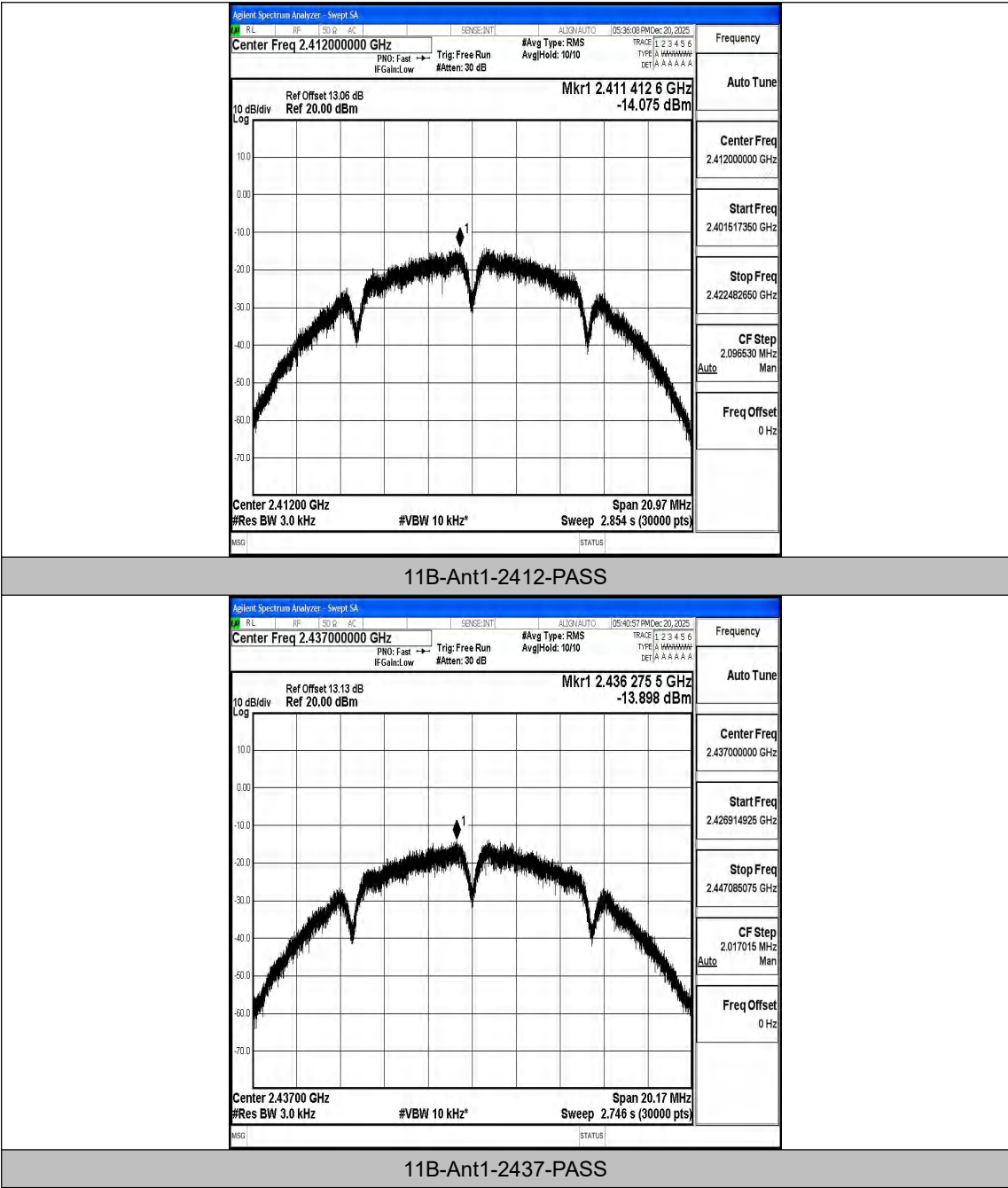
A.3 Maximum power spectral density

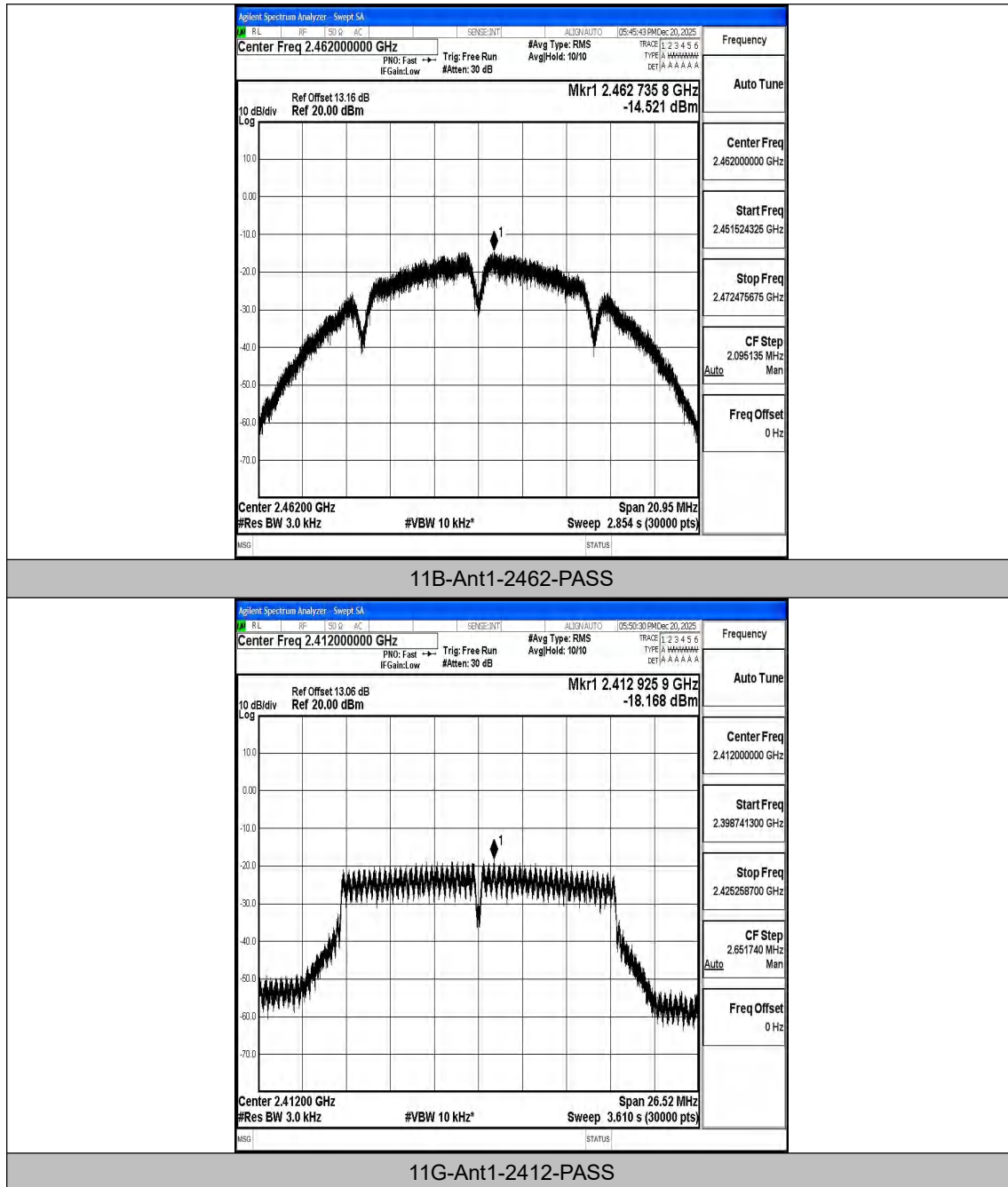
Test Result

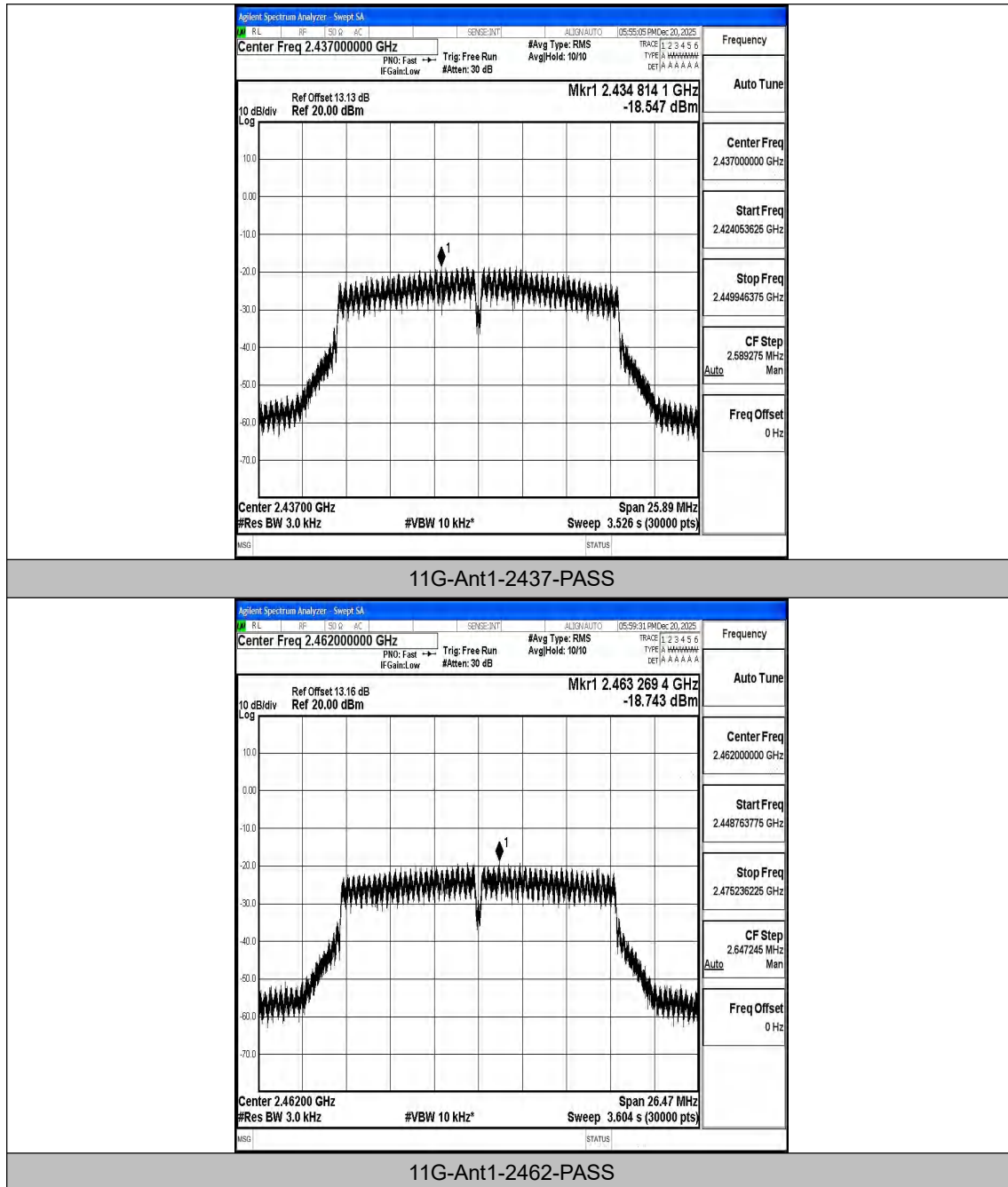
TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-14.06	≤8.00	PASS
11B	Ant1	2437	-13.88	≤8.00	PASS
11B	Ant1	2462	-14.50	≤8.00	PASS
11G	Ant1	2412	-18.05	≤8.00	PASS
11G	Ant1	2437	-18.43	≤8.00	PASS
11G	Ant1	2462	-18.59	≤8.00	PASS
11N20SISO	Ant1	2412	-18.62	≤8.00	PASS
11N20SISO	Ant1	2437	-17.67	≤8.00	PASS
11N20SISO	Ant1	2462	-18.41	≤8.00	PASS
11N40SISO	Ant1	2422	-21.86	≤8.00	PASS
11N40SISO	Ant1	2437	-20.66	≤8.00	PASS
11N40SISO	Ant1	2452	-21.73	≤8.00	PASS

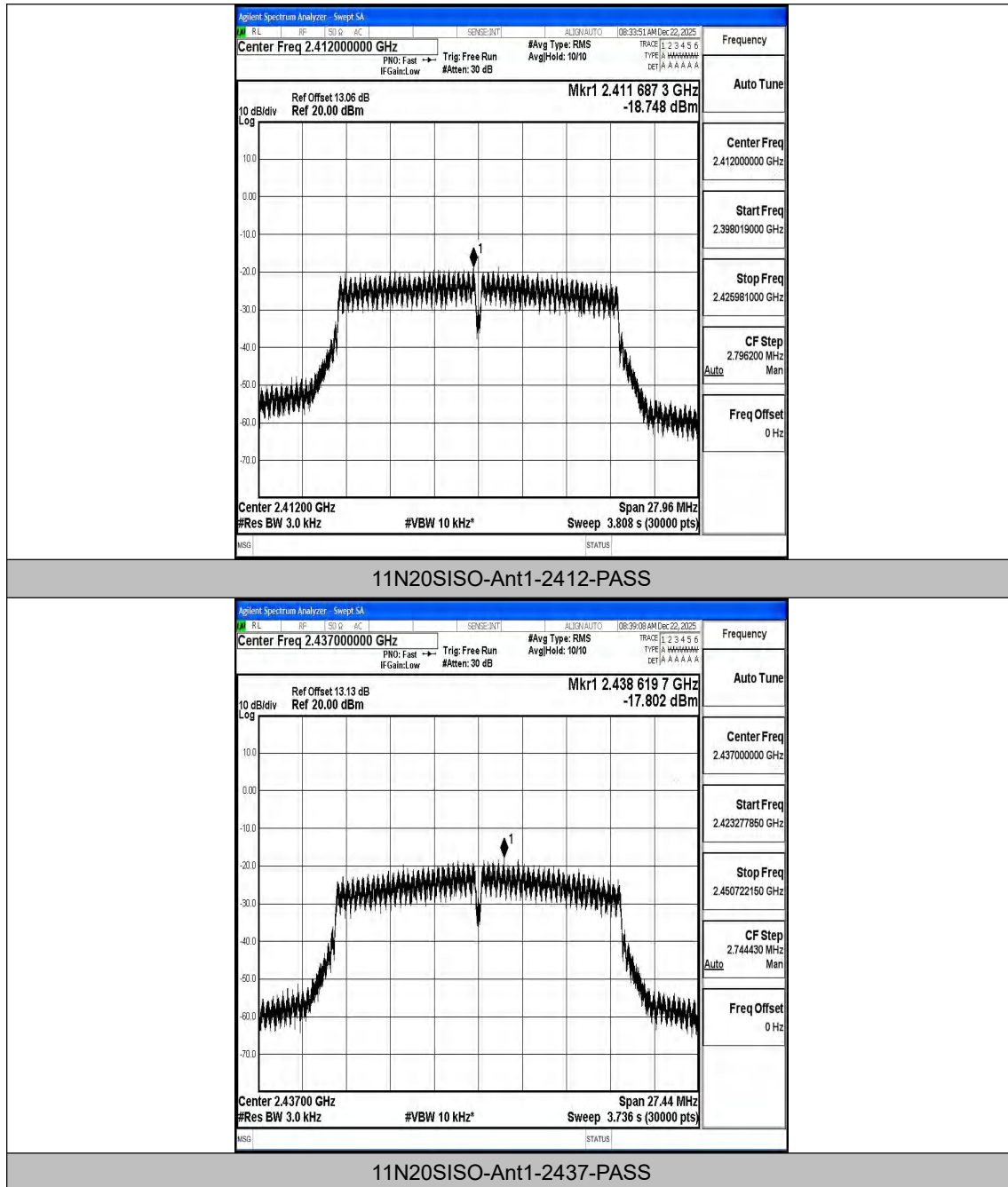
Note :offset=System attenuation +cabal loss

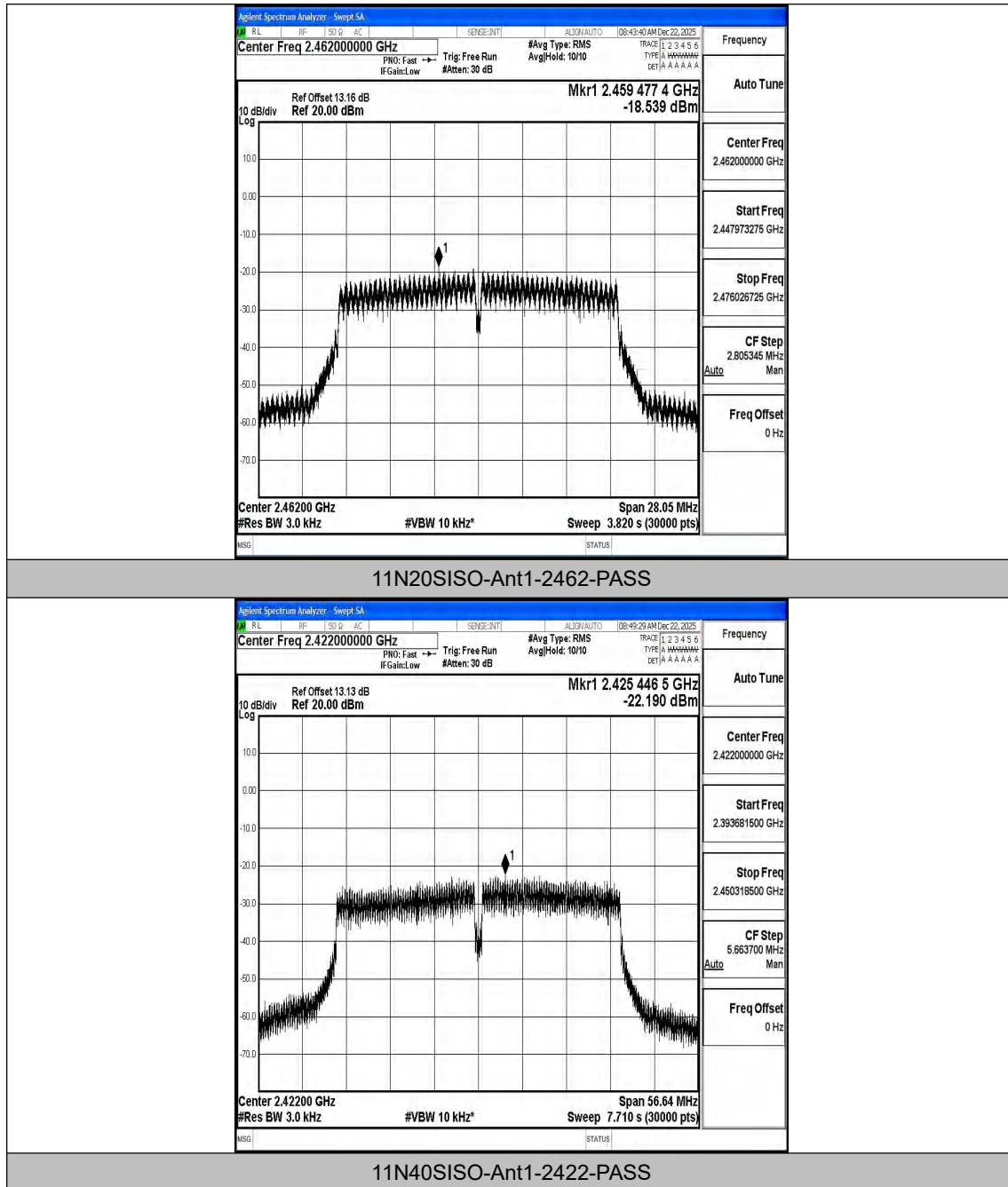
Test Graphs

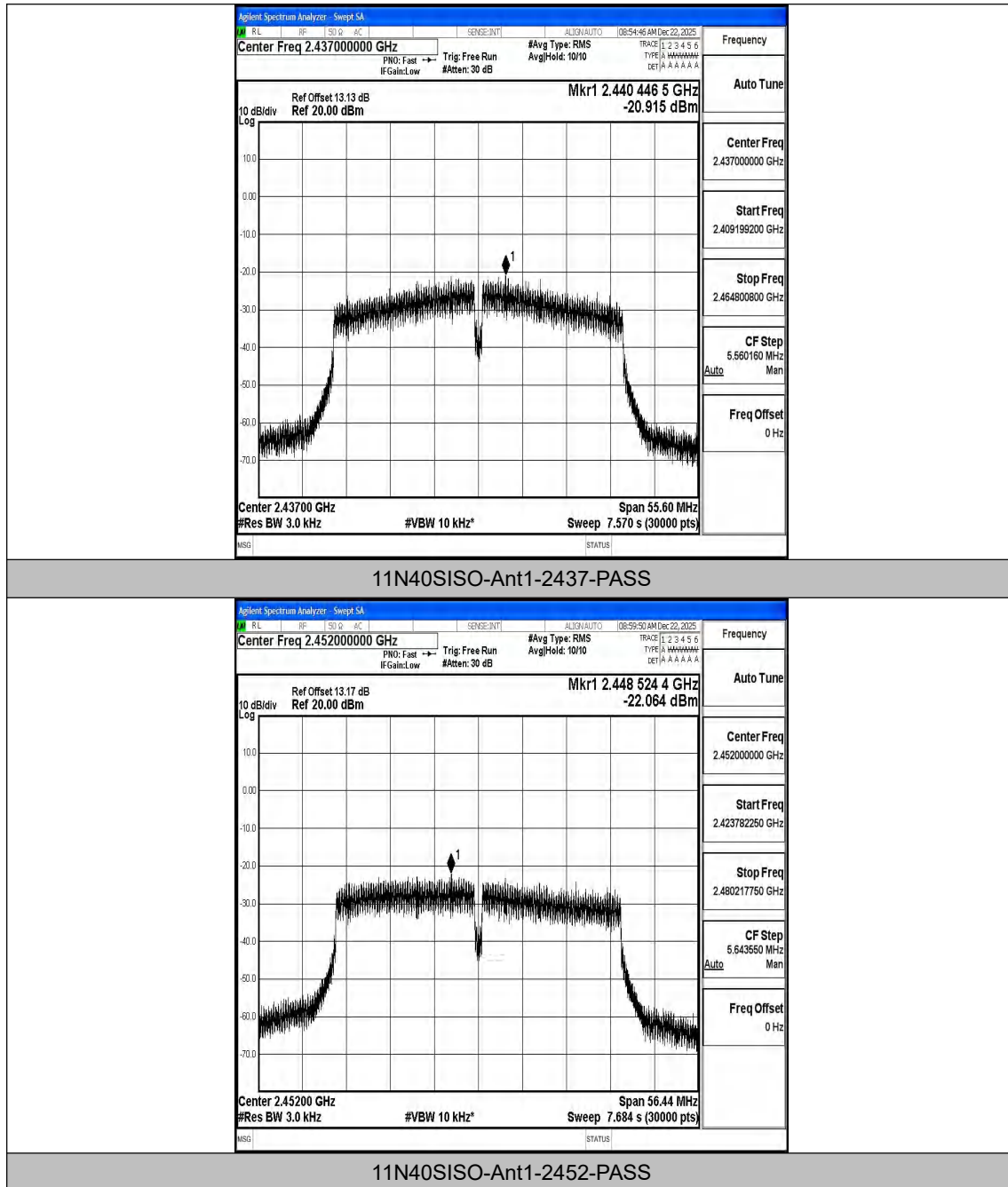












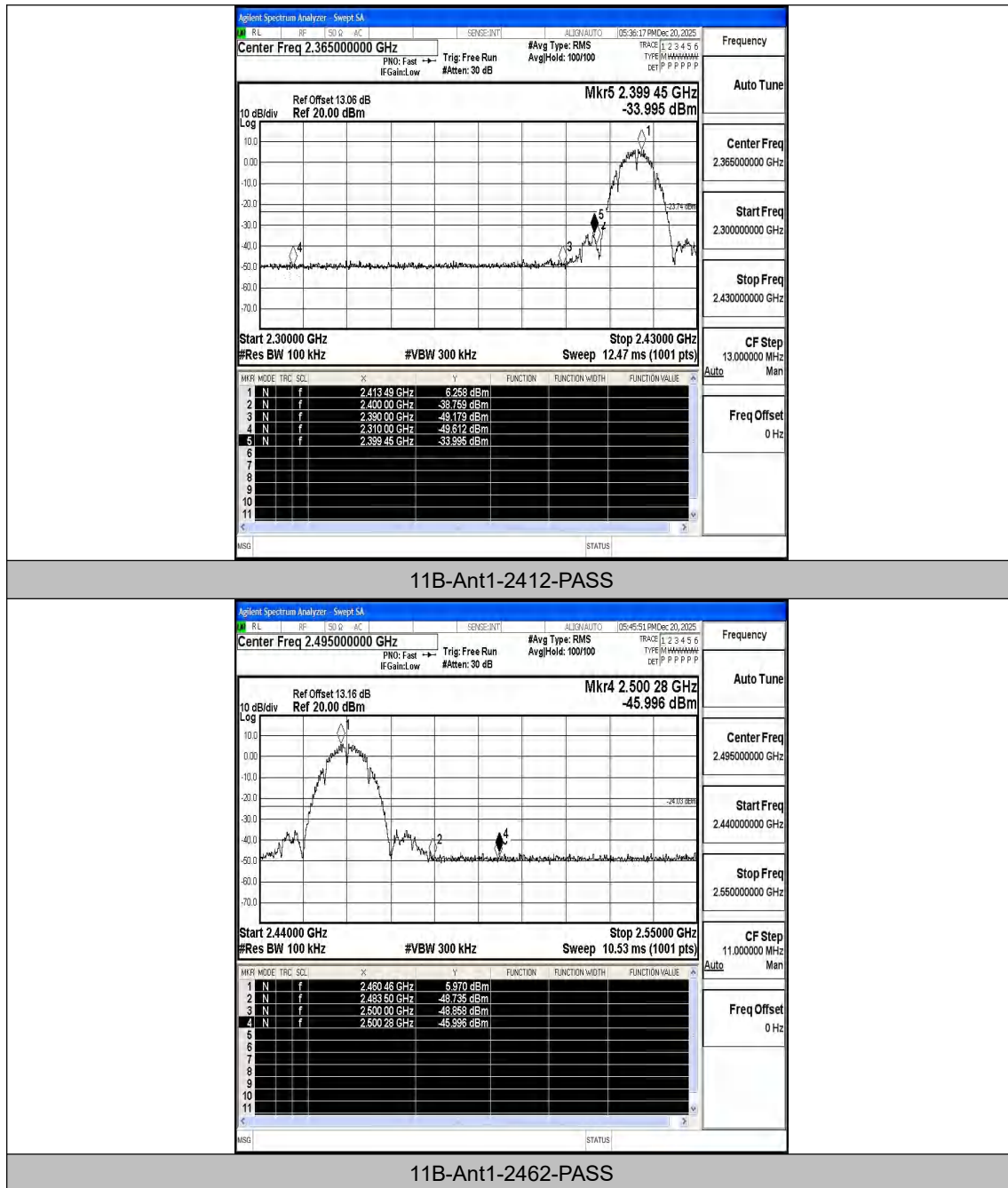
A.4 Band edge measurements

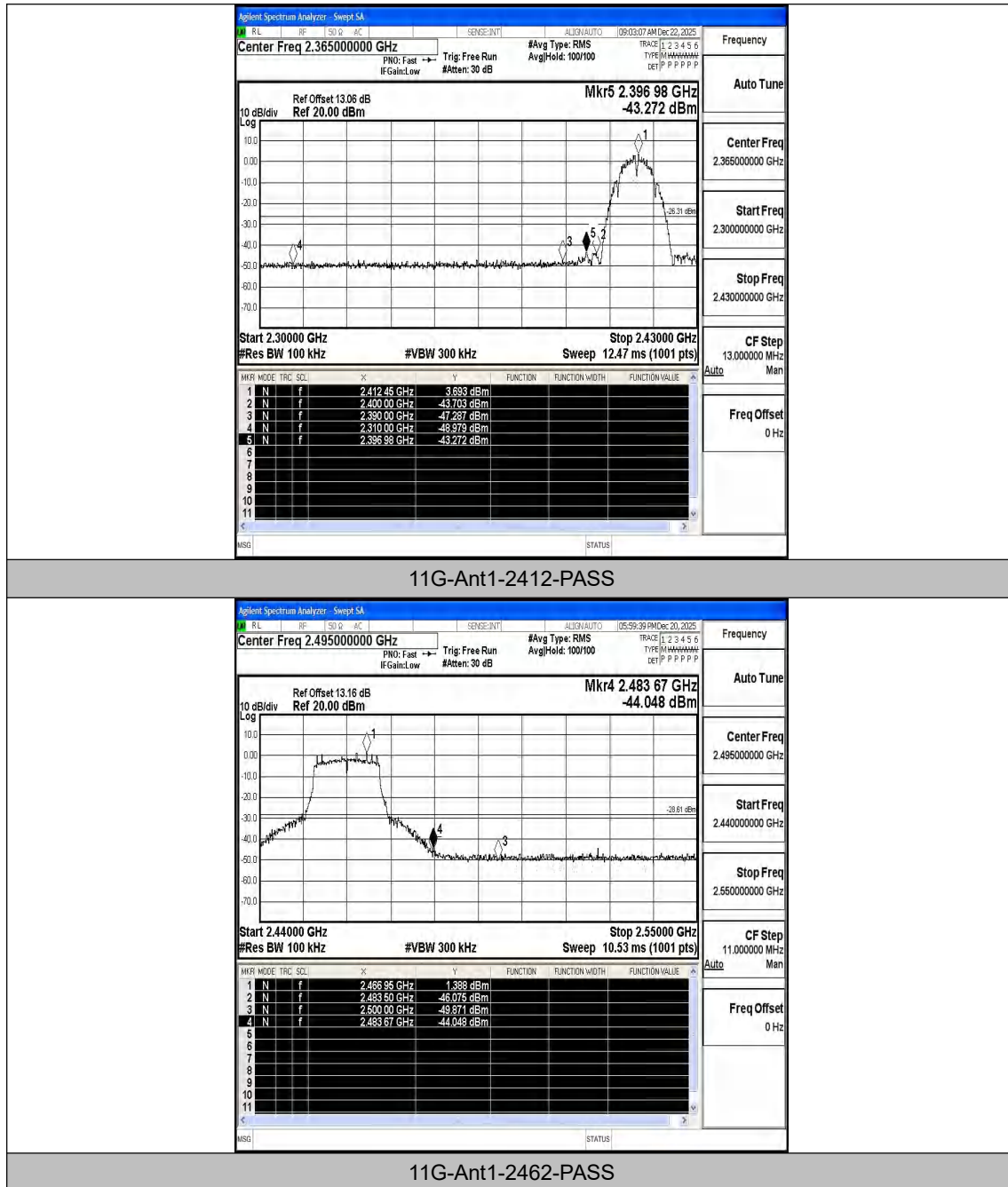
Test Result

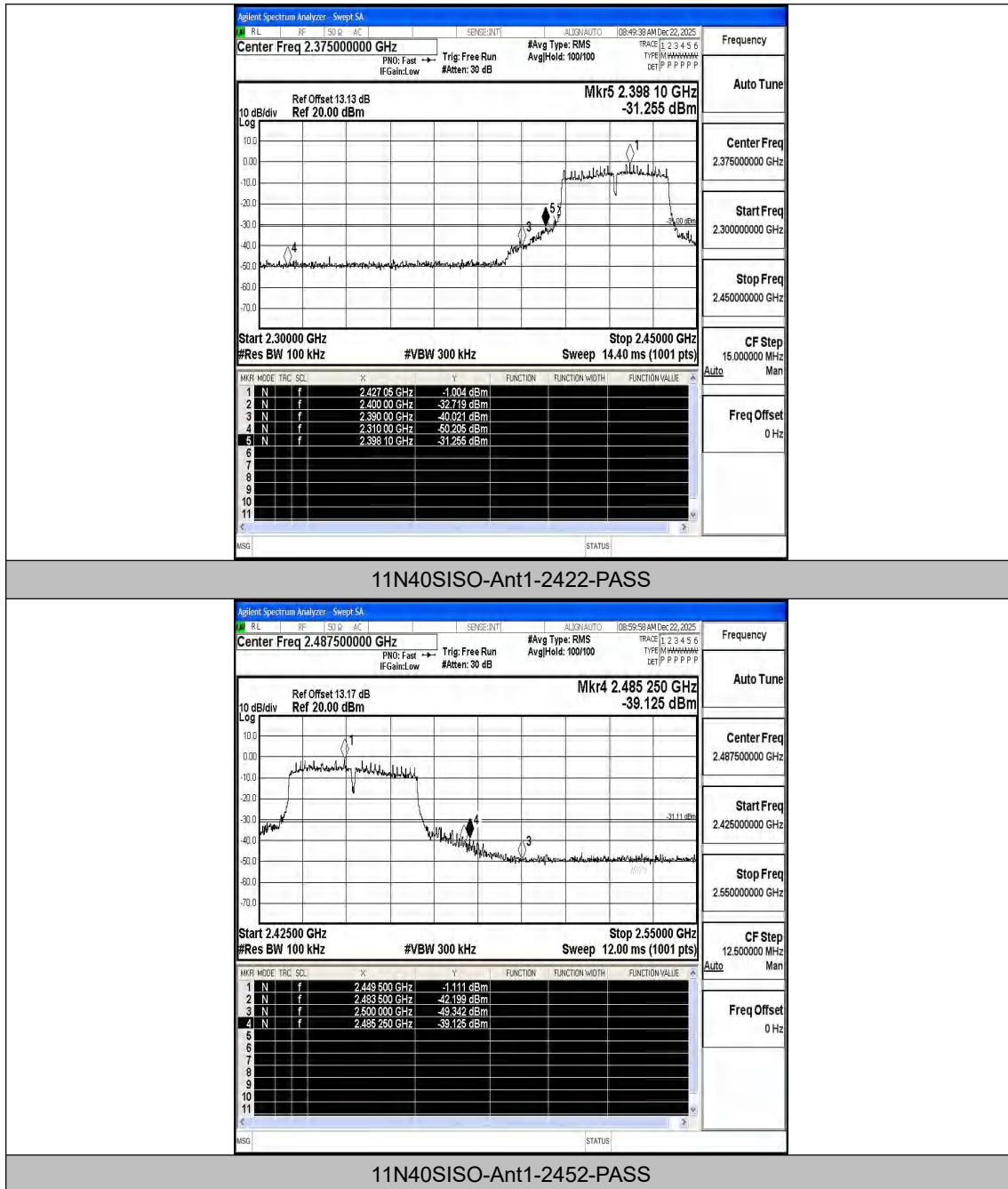
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	6.26	-34	≤-23.74	PASS
11B	Ant1	High	2462	5.97	-46	≤-24.03	PASS
11G	Ant1	Low	2412	3.69	-43.27	≤-26.31	PASS
11G	Ant1	High	2462	1.39	-44.05	≤-28.61	PASS
11N20SISO	Ant1	Low	2412	-2.06	-35.63	≤-32.06	PASS
11N20SISO	Ant1	High	2462	2.19	-43.06	≤-27.81	PASS
11N40SISO	Ant1	Low	2422	-1.00	-31.26	≤-31	PASS
11N40SISO	Ant1	High	2452	-1.11	-39.13	≤-31.11	PASS

Note :offset=System attenuation +cabal loss

Test Graphs







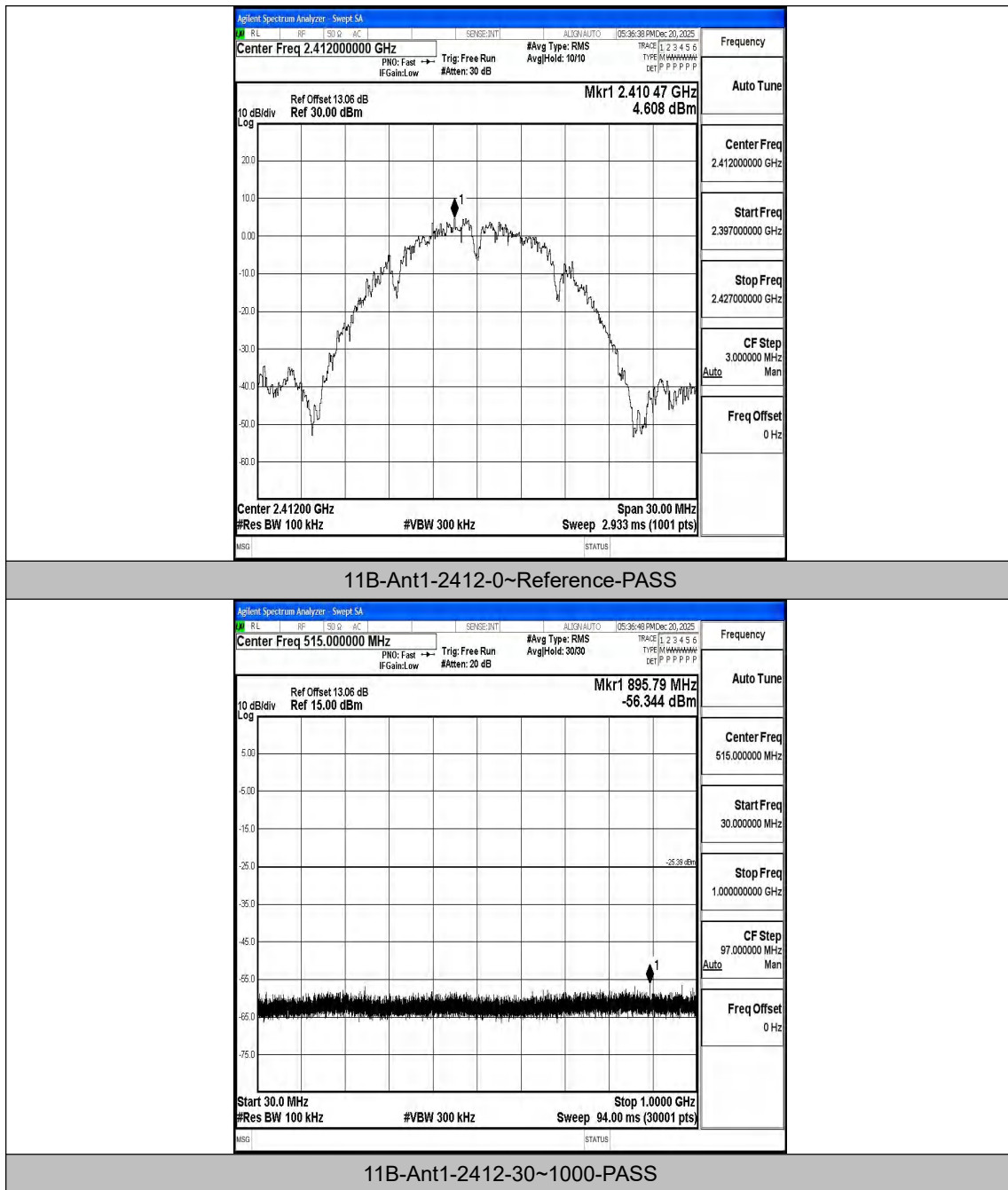
A.5 Conducted Spurious Emission

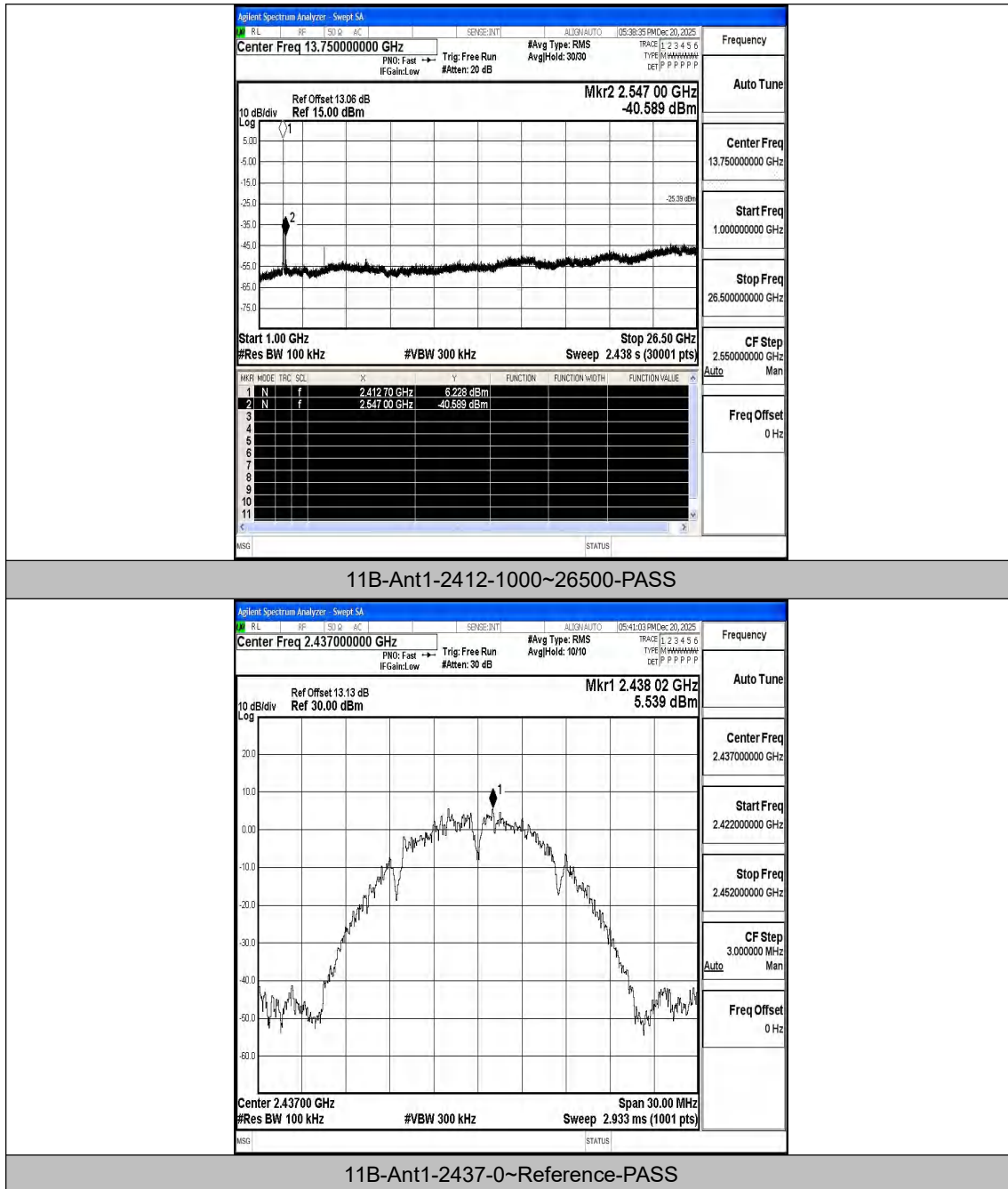
Test Result

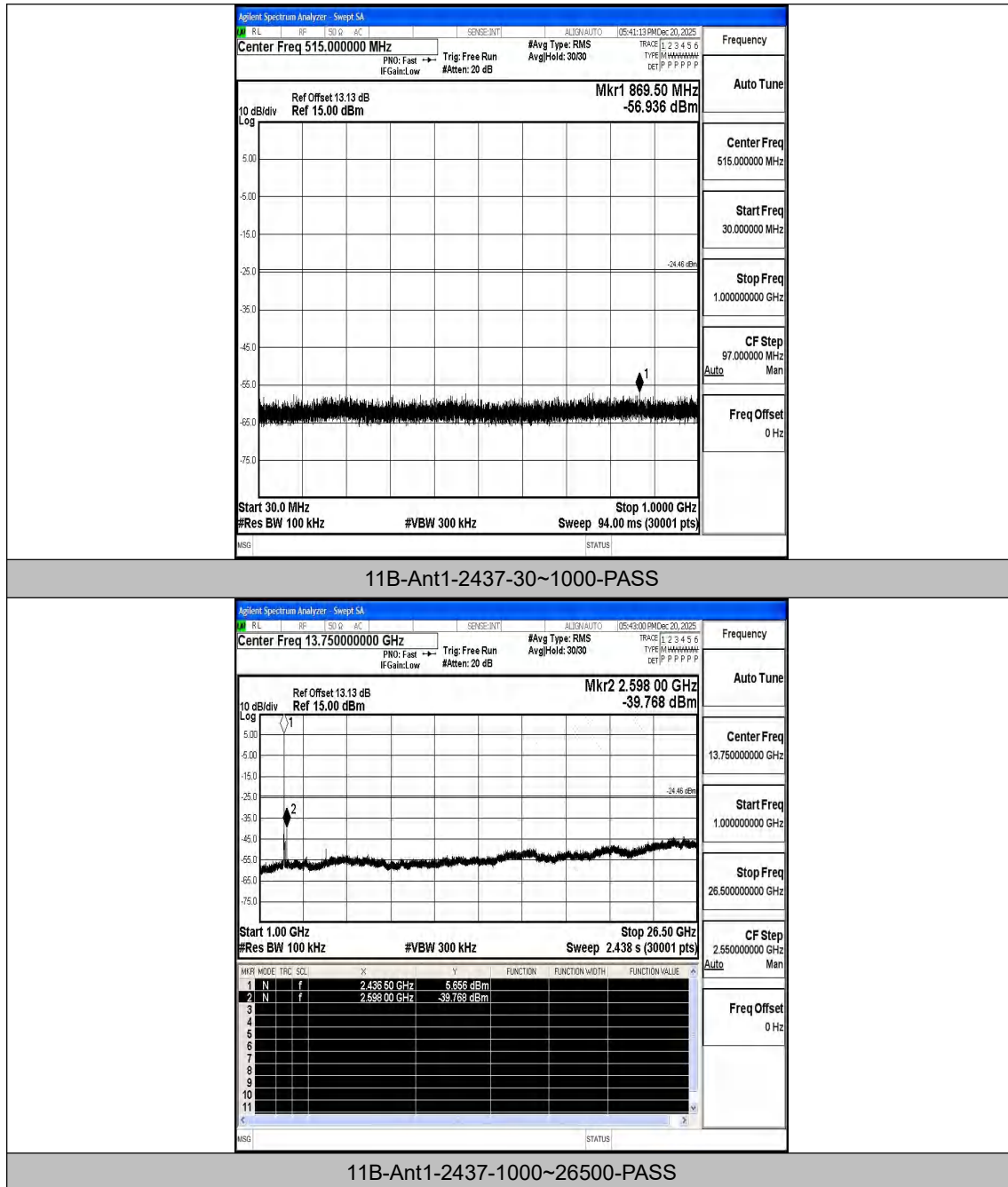
TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	4.61	4.61	---	PASS
11B	Ant1	2412	30~1000	4.61	-56.34	≤-25.39	PASS
11B	Ant1	2412	1000~26500	4.61	-40.59	≤-25.39	PASS
11B	Ant1	2437	0~Reference	5.54	5.54	---	PASS
11B	Ant1	2437	30~1000	5.54	-56.94	≤-24.46	PASS
11B	Ant1	2437	1000~26500	5.54	-39.77	≤-24.46	PASS
11B	Ant1	2462	0~Reference	6.34	6.34	---	PASS
11B	Ant1	2462	30~1000	6.34	-56.53	≤-23.66	PASS
11B	Ant1	2462	1000~26500	6.34	-43.76	≤-23.66	PASS
11G	Ant1	2412	0~Reference	-0.60	-0.60	---	PASS
11G	Ant1	2412	30~1000	-0.60	-56.82	≤-30.6	PASS
11G	Ant1	2412	1000~26500	-0.60	-43.83	≤-30.6	PASS
11G	Ant1	2437	0~Reference	-0.84	-0.84	---	PASS
11G	Ant1	2437	30~1000	-0.84	-56.65	≤-30.84	PASS
11G	Ant1	2437	1000~26500	-0.84	-44.4	≤-30.84	PASS
11G	Ant1	2462	0~Reference	-1.96	-1.96	---	PASS
11G	Ant1	2462	30~1000	-1.96	-56.76	≤-31.96	PASS
11G	Ant1	2462	1000~26500	-1.96	-44.43	≤-31.96	PASS
11N20SISO	Ant1	2412	0~Reference	-1.77	-1.77	---	PASS
11N20SISO	Ant1	2412	30~1000	-1.77	-56.77	≤-31.77	PASS
11N20SISO	Ant1	2412	1000~26500	-1.77	-44.59	≤-31.77	PASS
11N20SISO	Ant1	2437	0~Reference	1.28	1.28	---	PASS
11N20SISO	Ant1	2437	30~1000	1.28	-56.84	≤-28.72	PASS
11N20SISO	Ant1	2437	1000~26500	1.28	-44.13	≤-28.72	PASS
11N20SISO	Ant1	2462	0~Reference	-1.63	-1.63	---	PASS
11N20SISO	Ant1	2462	30~1000	-1.63	-56.69	≤-31.63	PASS
11N20SISO	Ant1	2462	1000~26500	-1.63	-44.79	≤-31.63	PASS
11N40SISO	Ant1	2422	0~Reference	-1.59	-1.59	---	PASS
11N40SISO	Ant1	2422	30~1000	-1.59	-56.01	≤-31.59	PASS
11N40SISO	Ant1	2422	1000~26500	-1.59	-44.46	≤-31.59	PASS
11N40SISO	Ant1	2437	0~Reference	-0.04	-0.04	---	PASS
11N40SISO	Ant1	2437	30~1000	-0.04	-56.73	≤-30.04	PASS
11N40SISO	Ant1	2437	1000~26500	-0.04	-44.93	≤-30.04	PASS
11N40SISO	Ant1	2452	0~Reference	-1.95	-1.95	---	PASS
11N40SISO	Ant1	2452	30~1000	-1.95	-55.71	≤-31.95	PASS

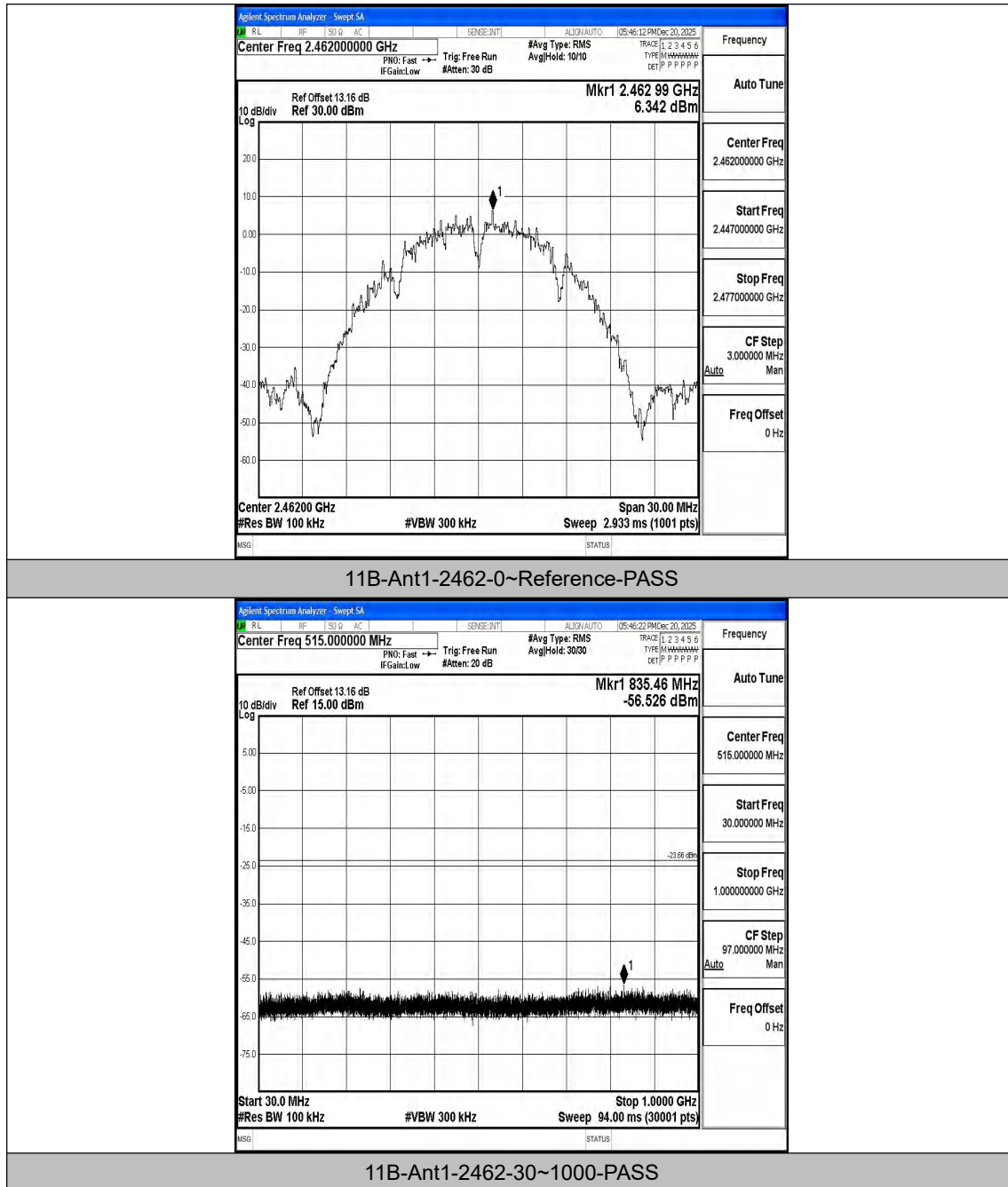
11N40SISO	Ant1	2452	1000~26500	-1.95	-44.11	≤-31.95	PASS
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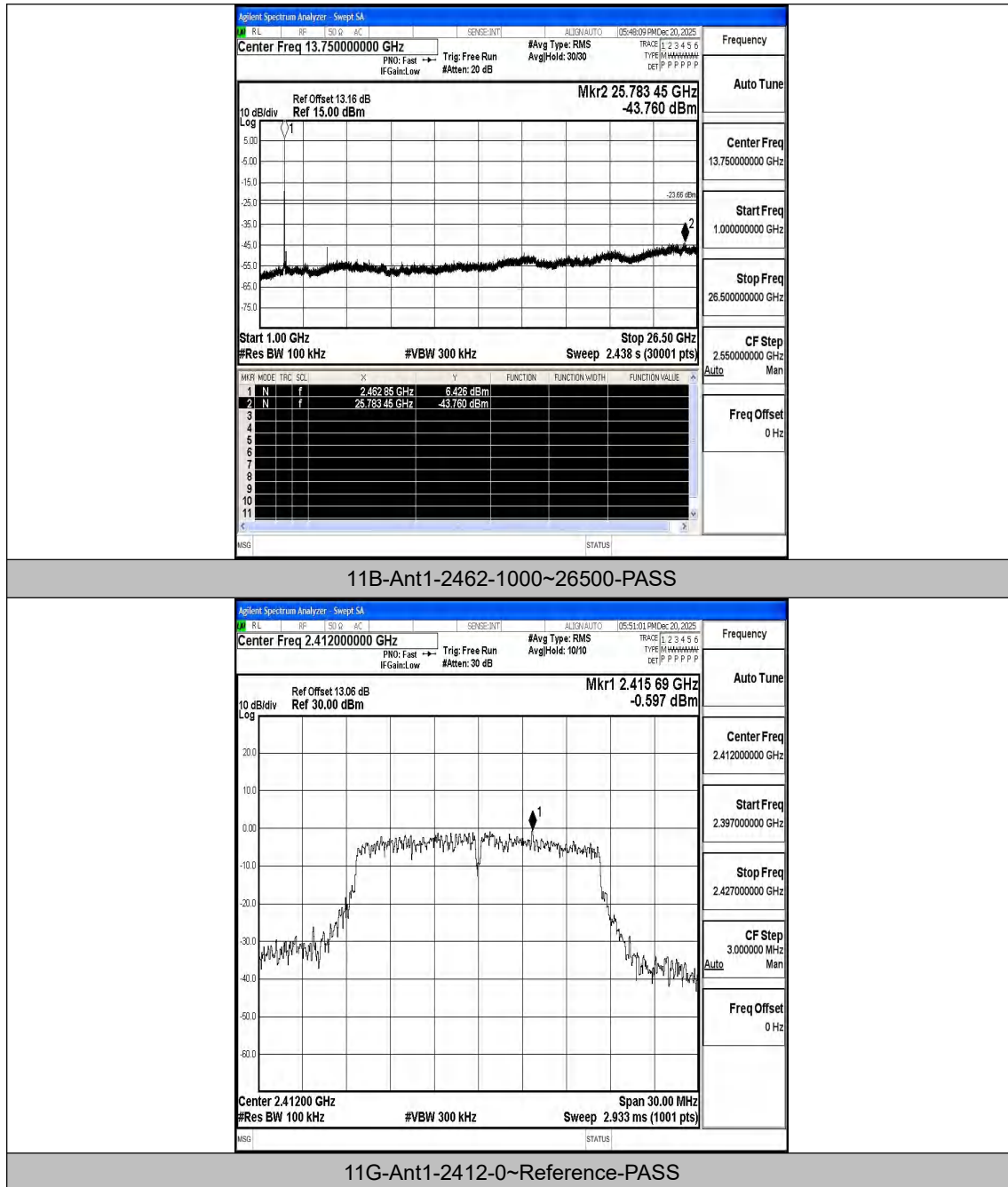
Test Graphs

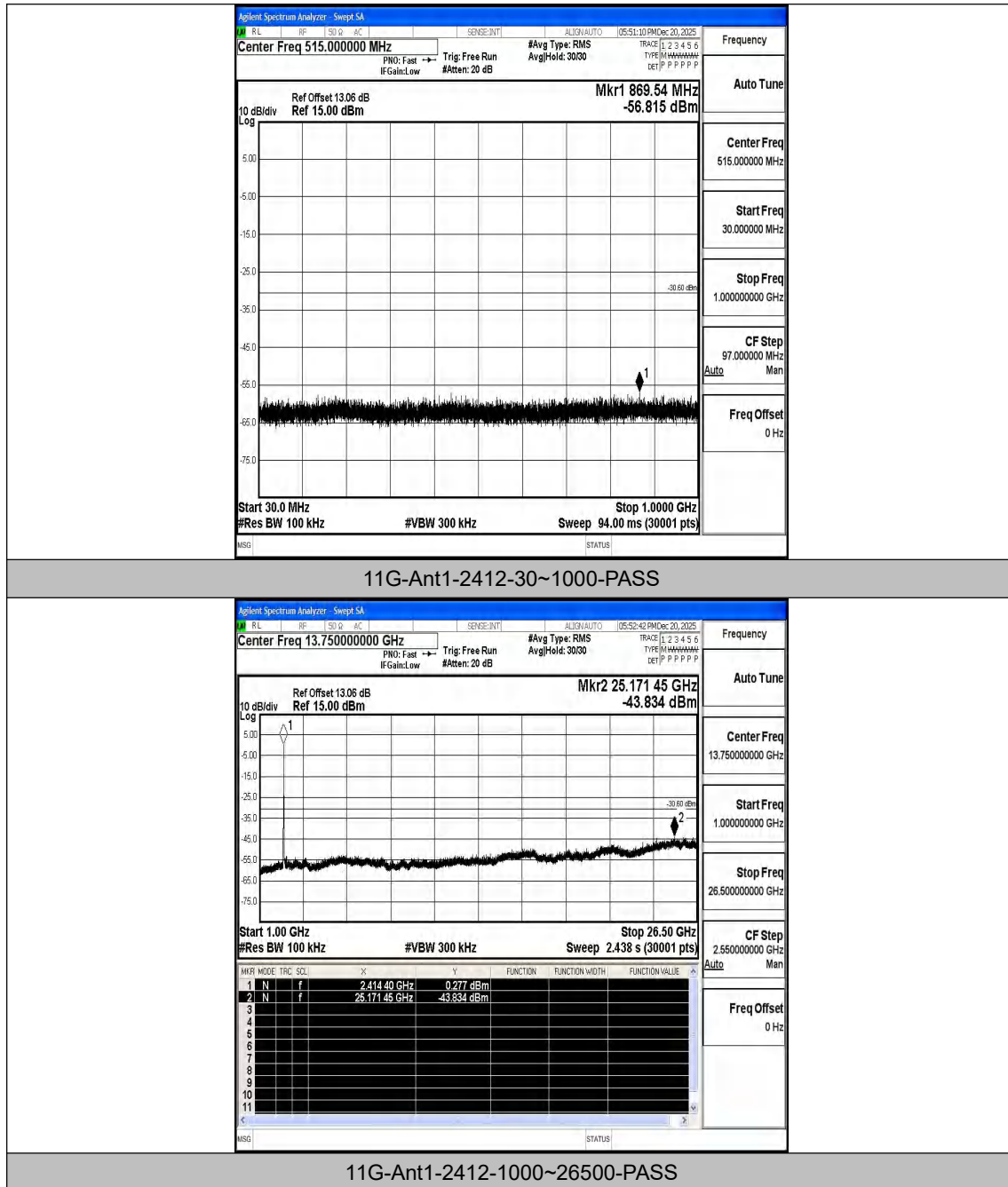


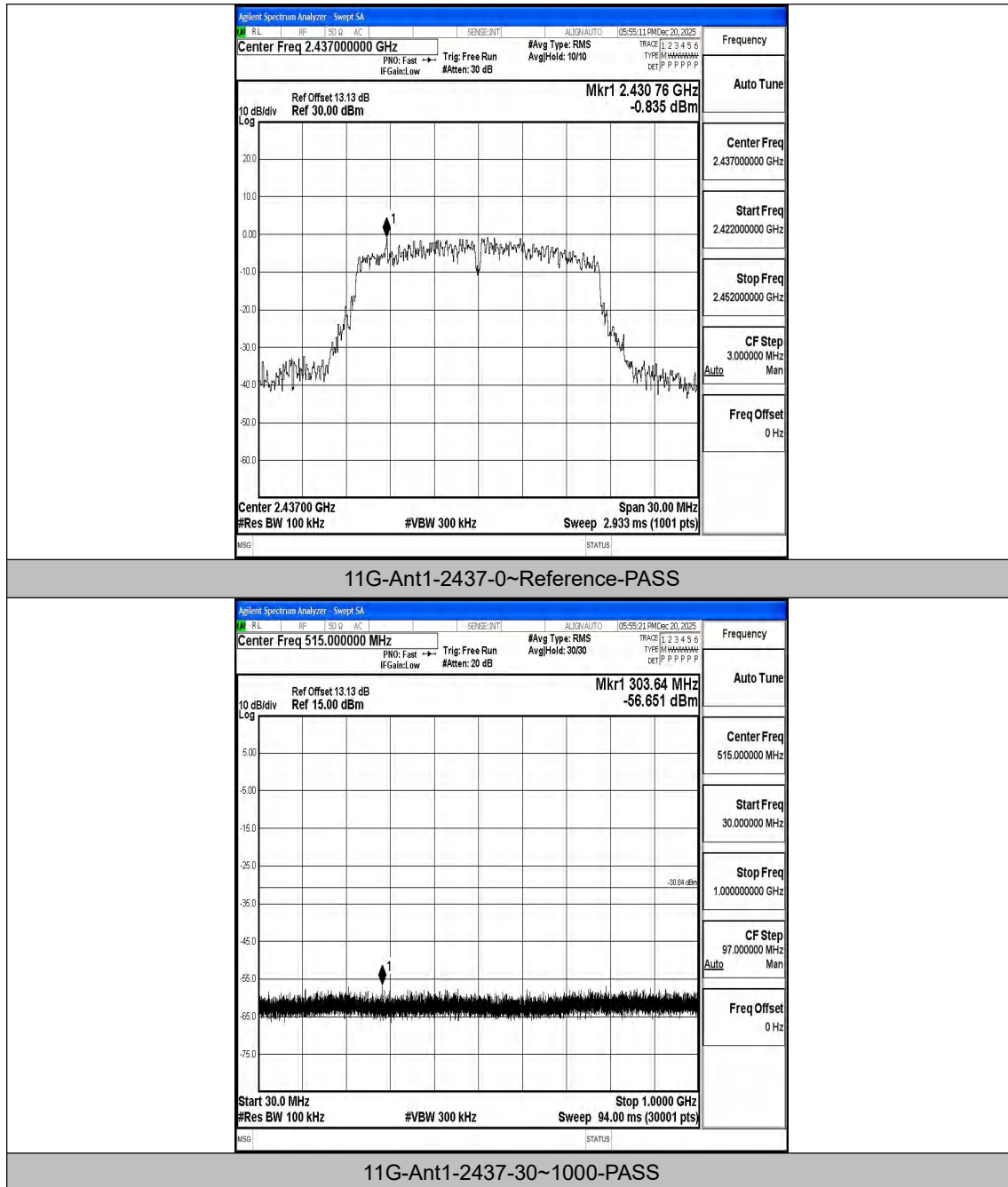


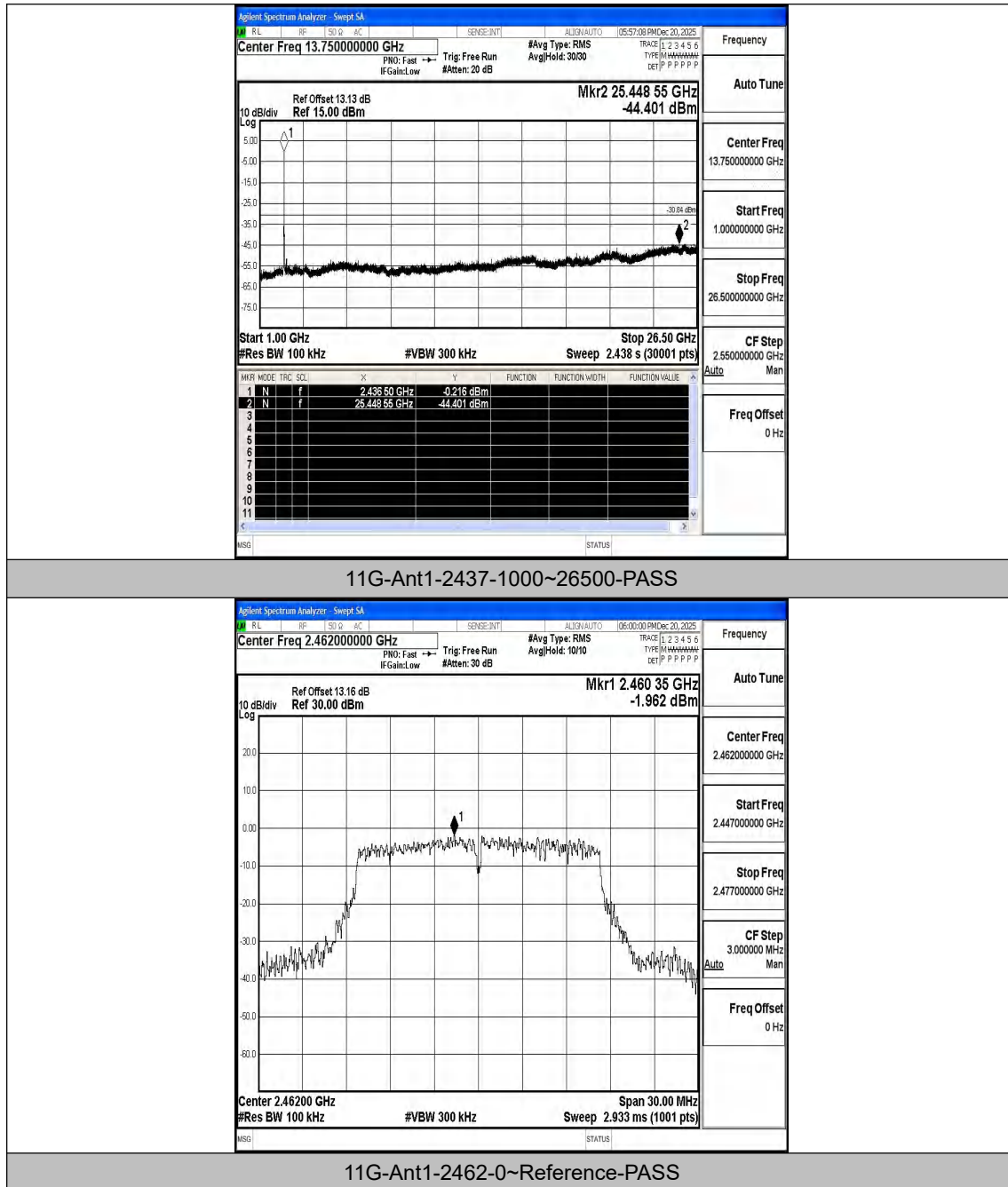


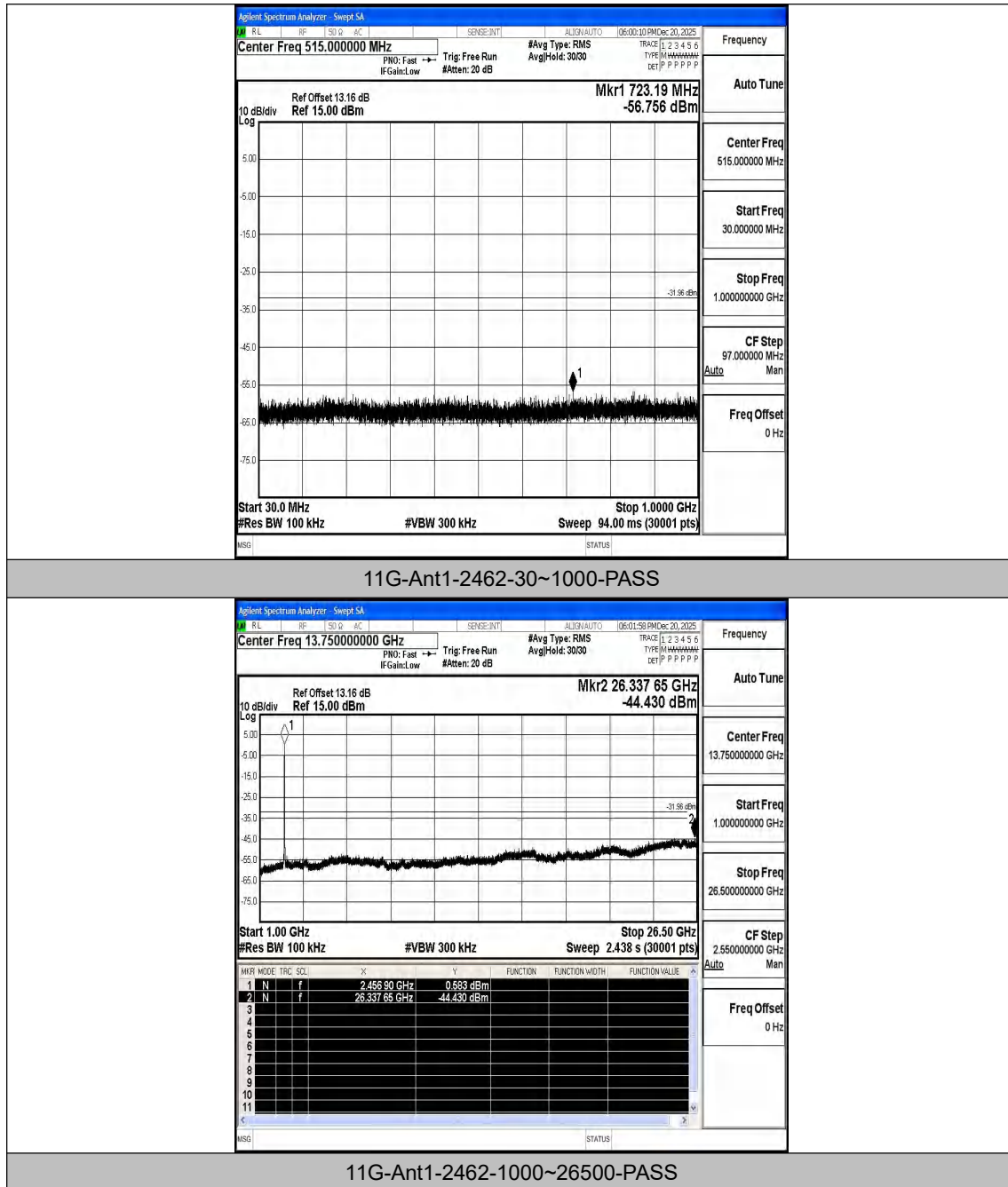


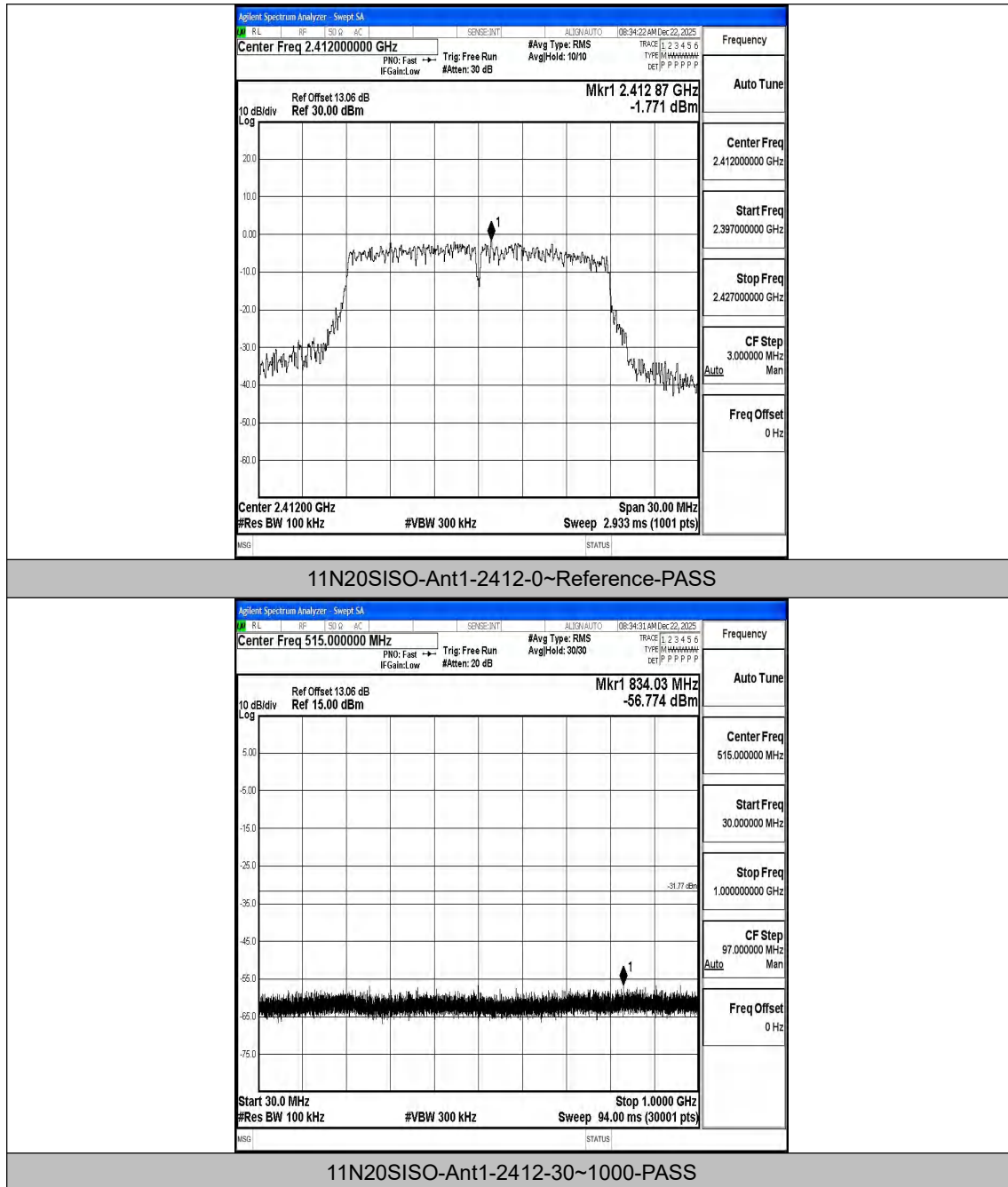


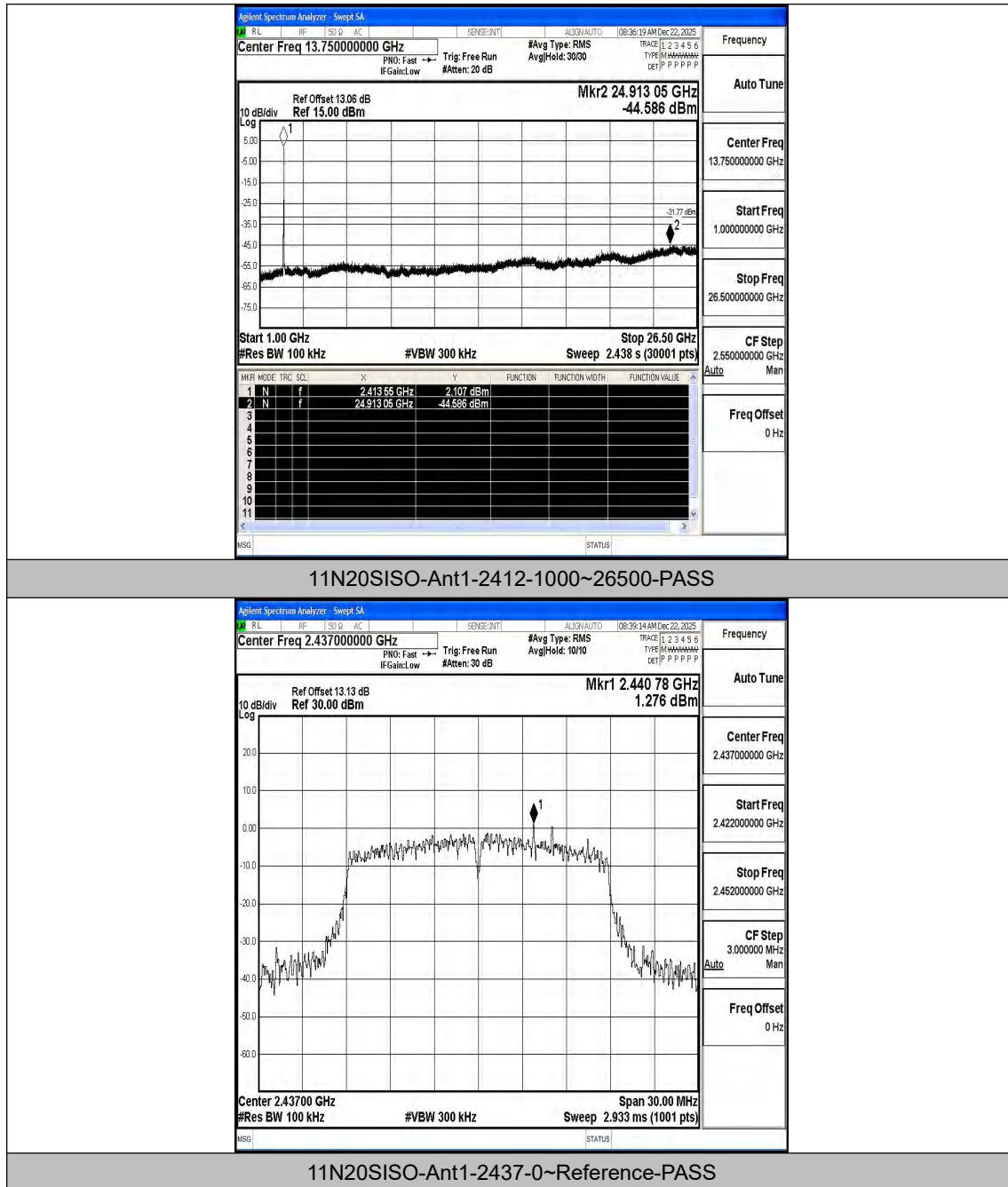


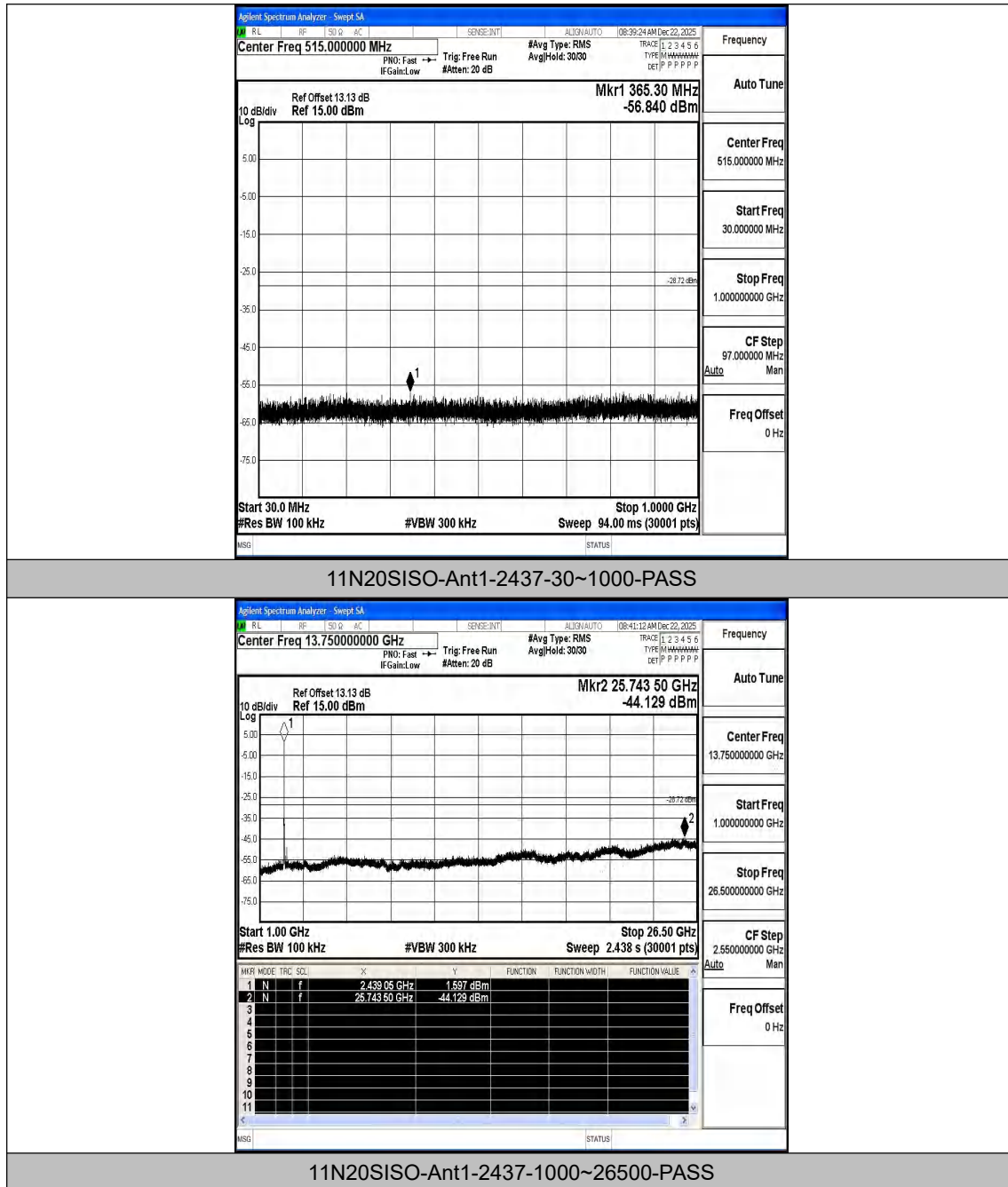


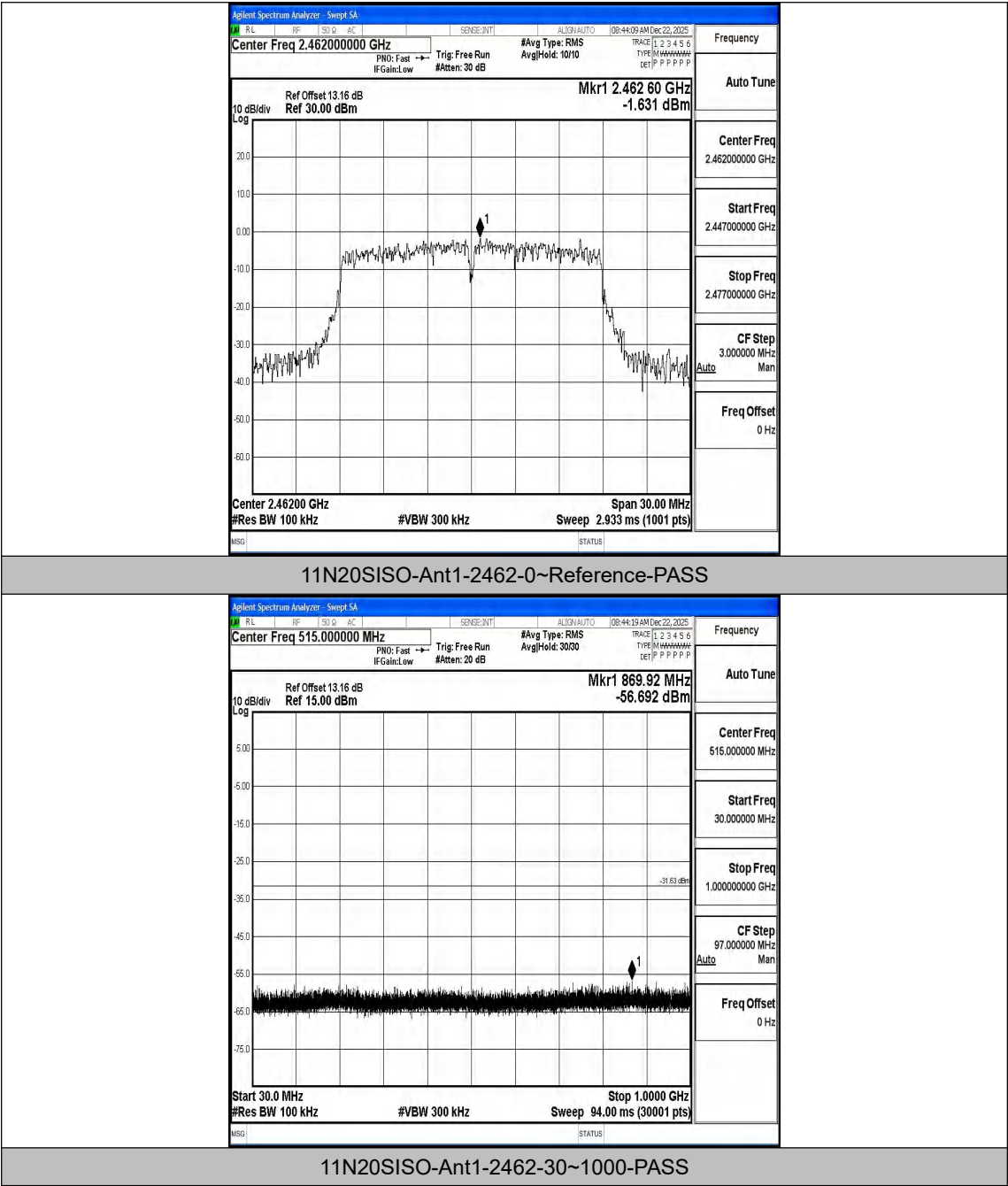


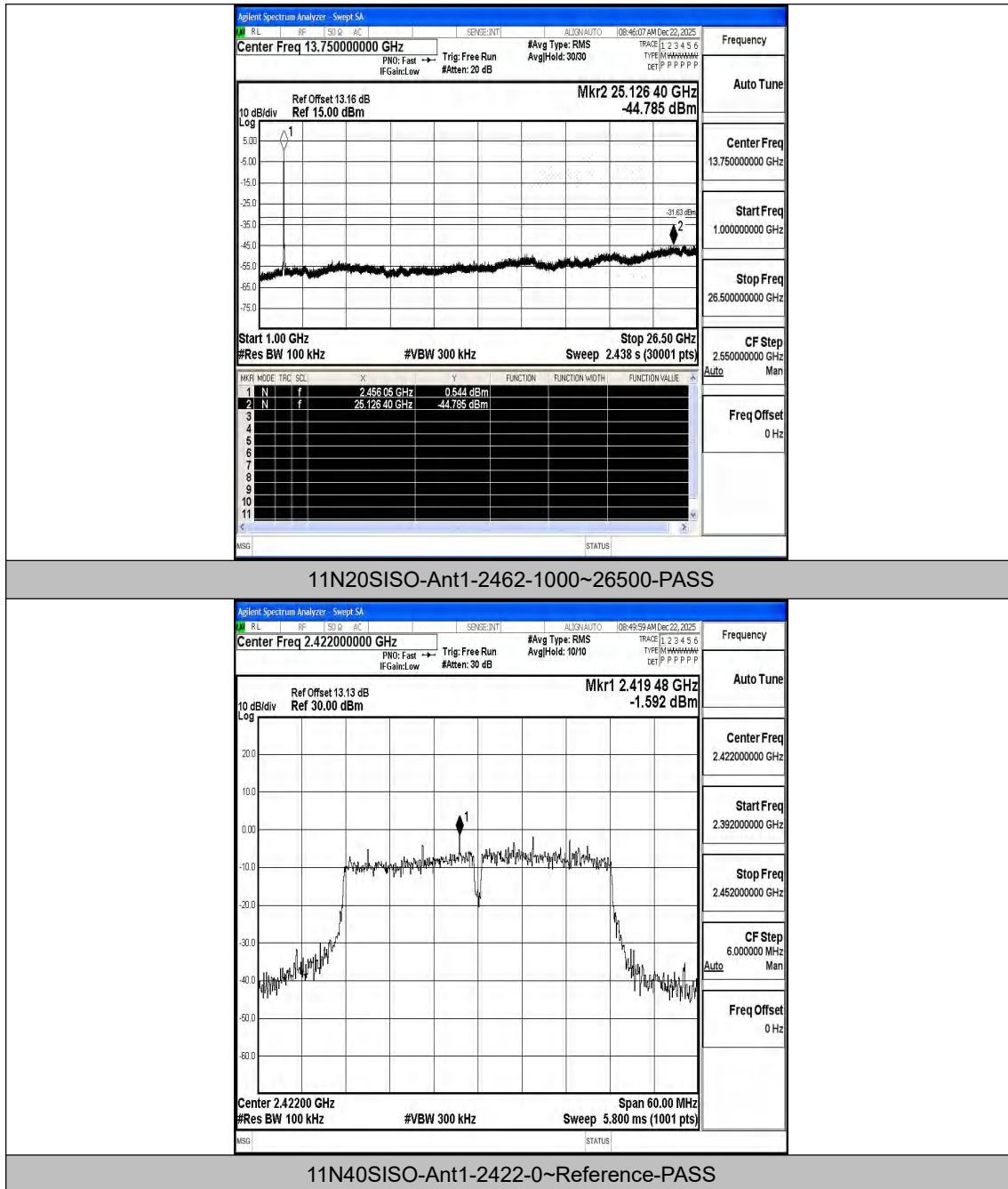


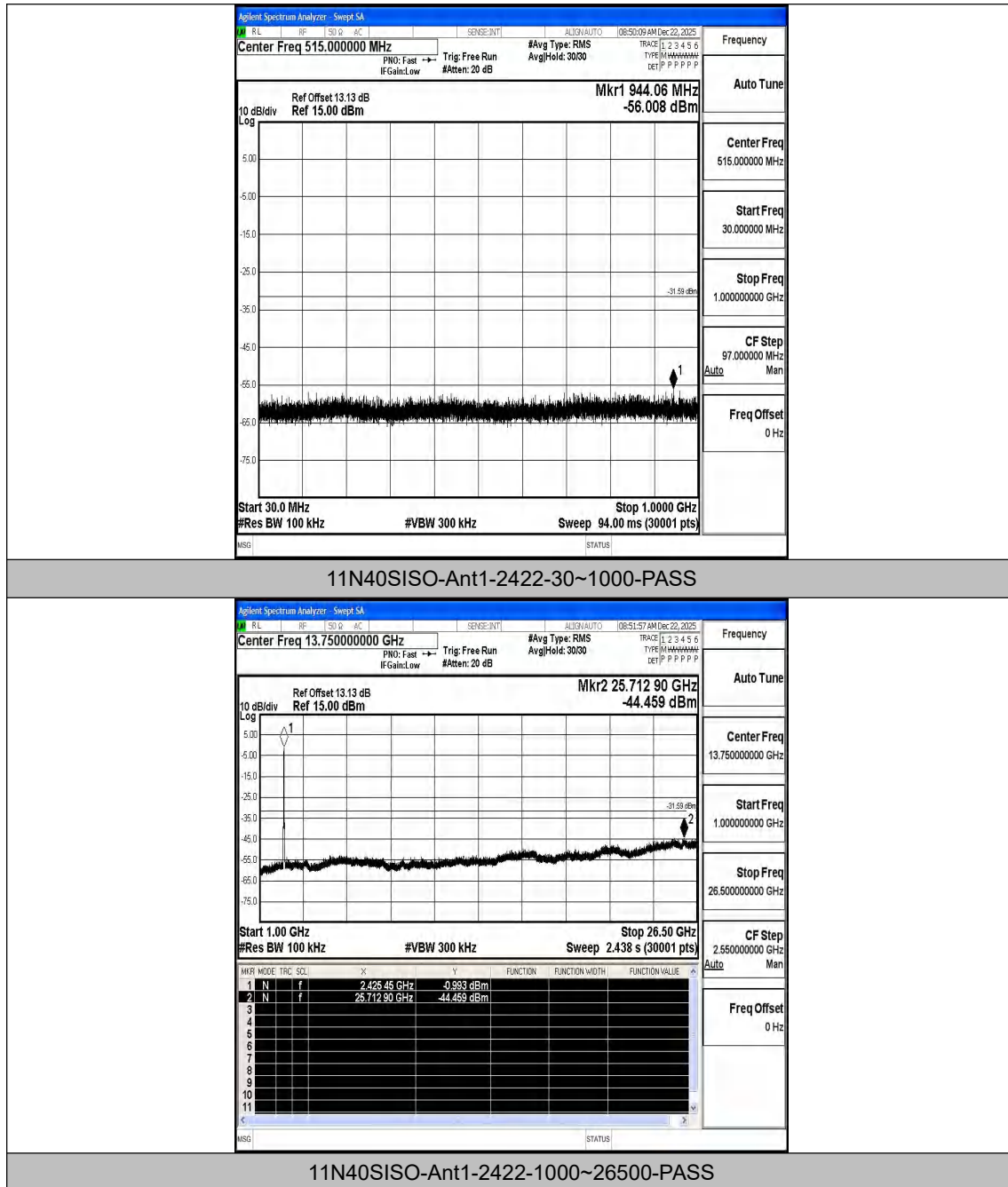


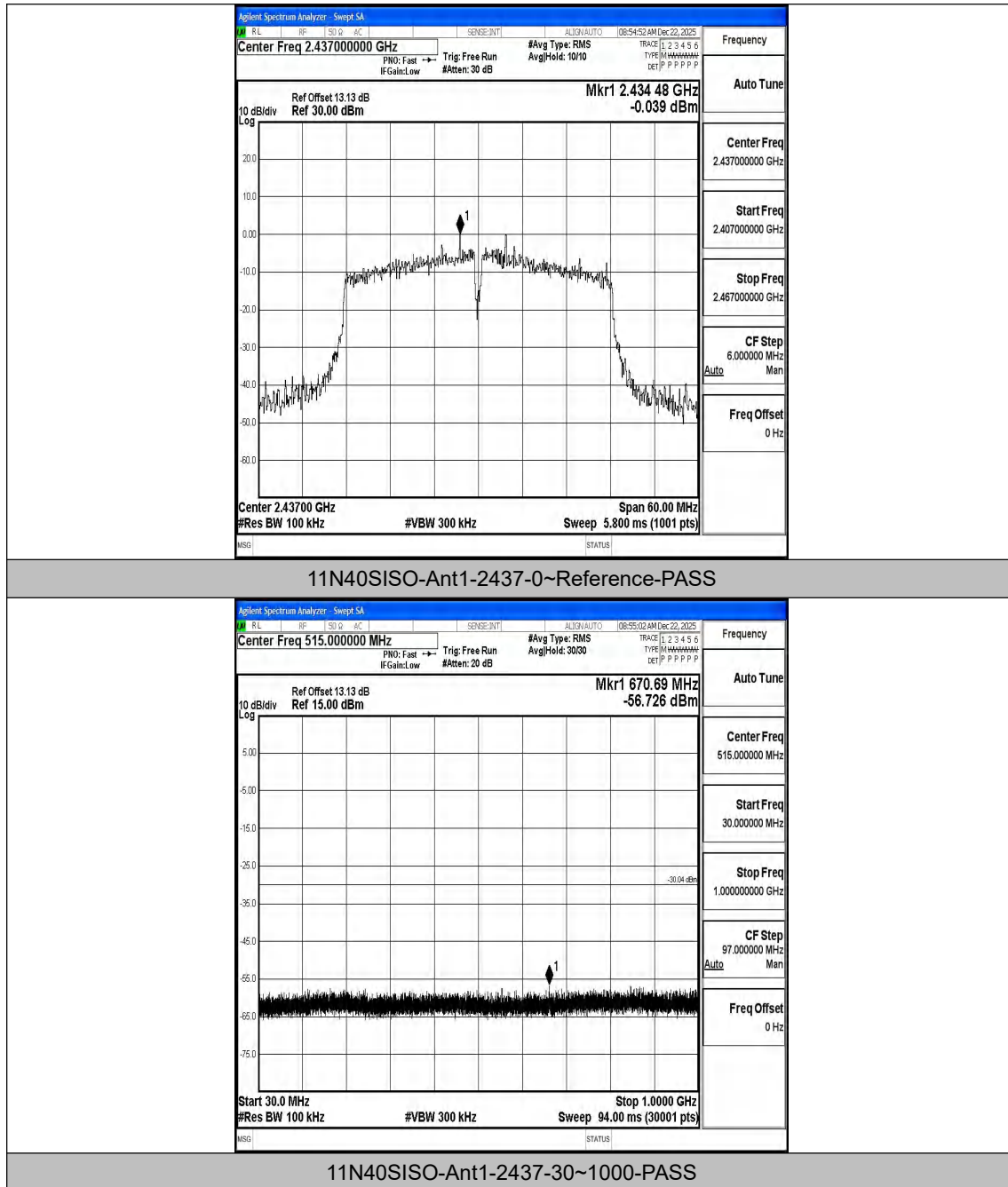


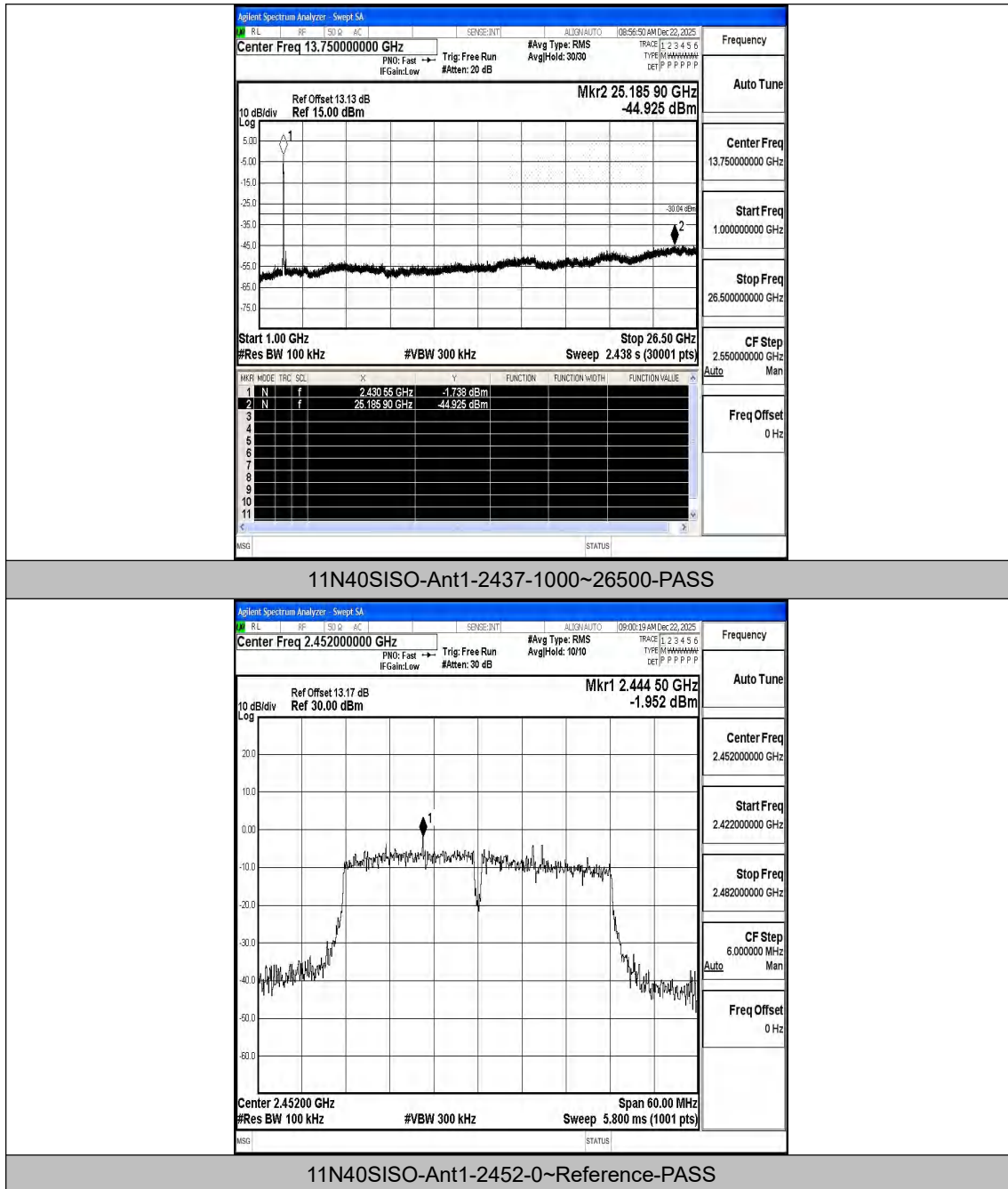


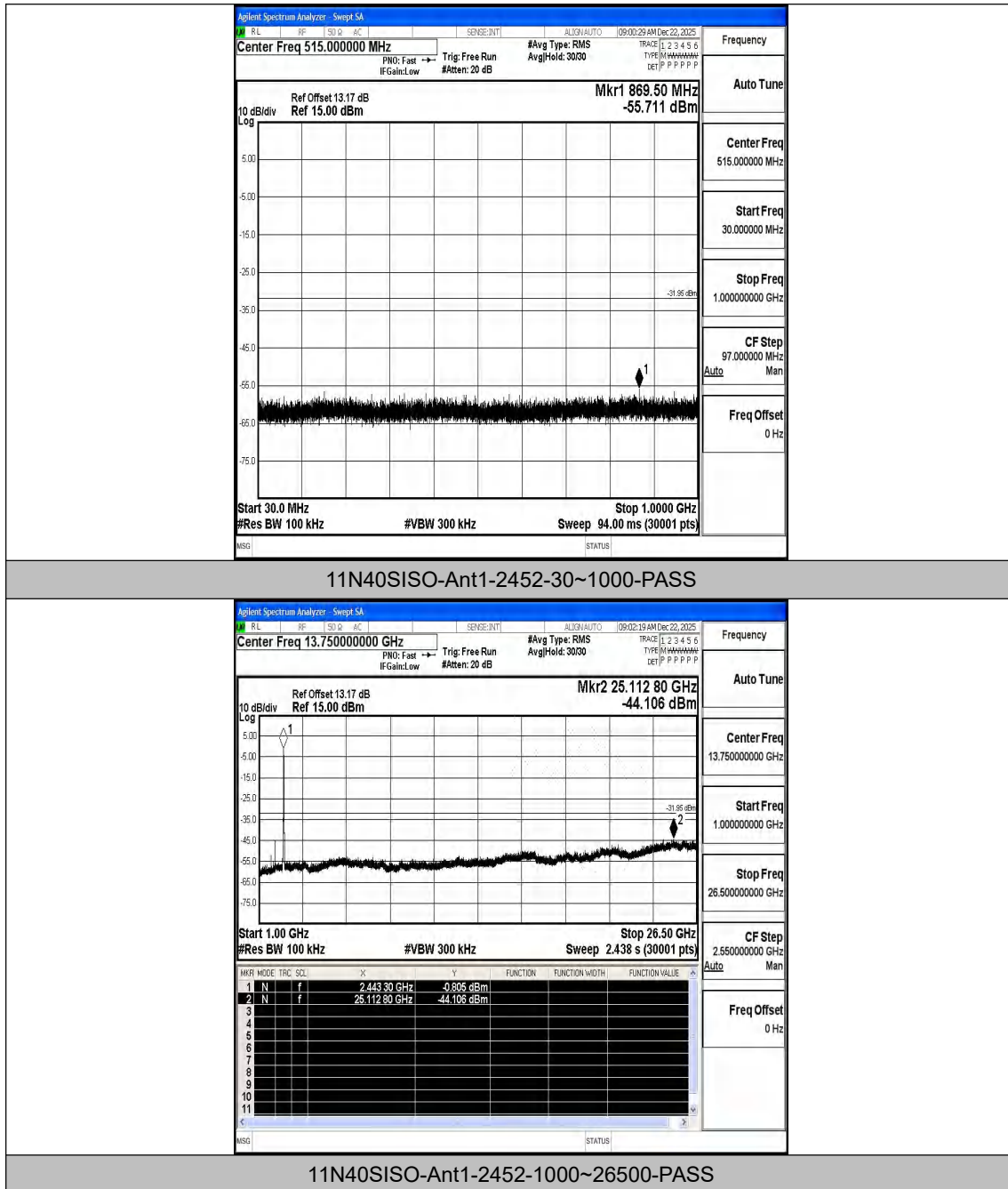












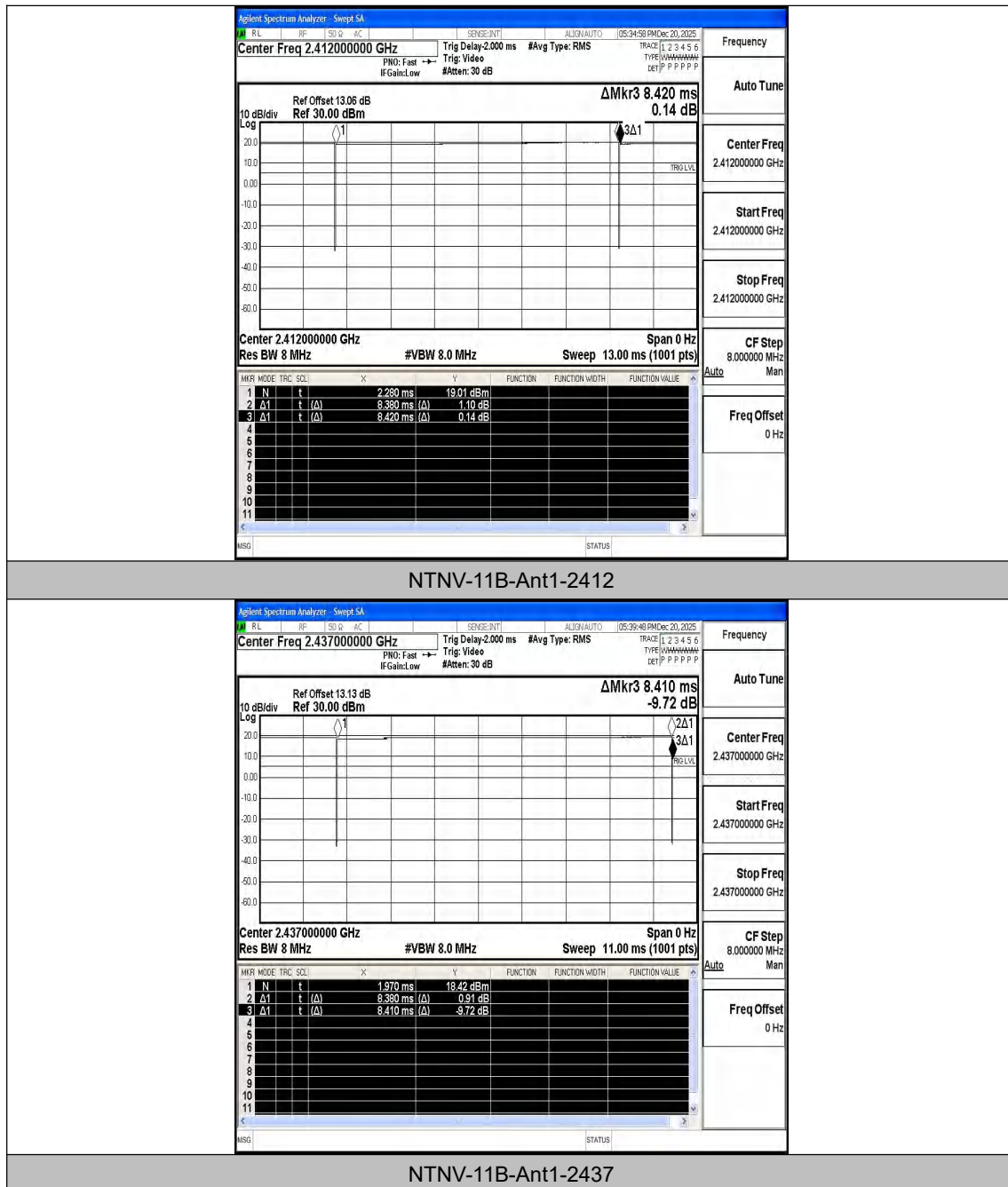
A.6 Duty Cycle

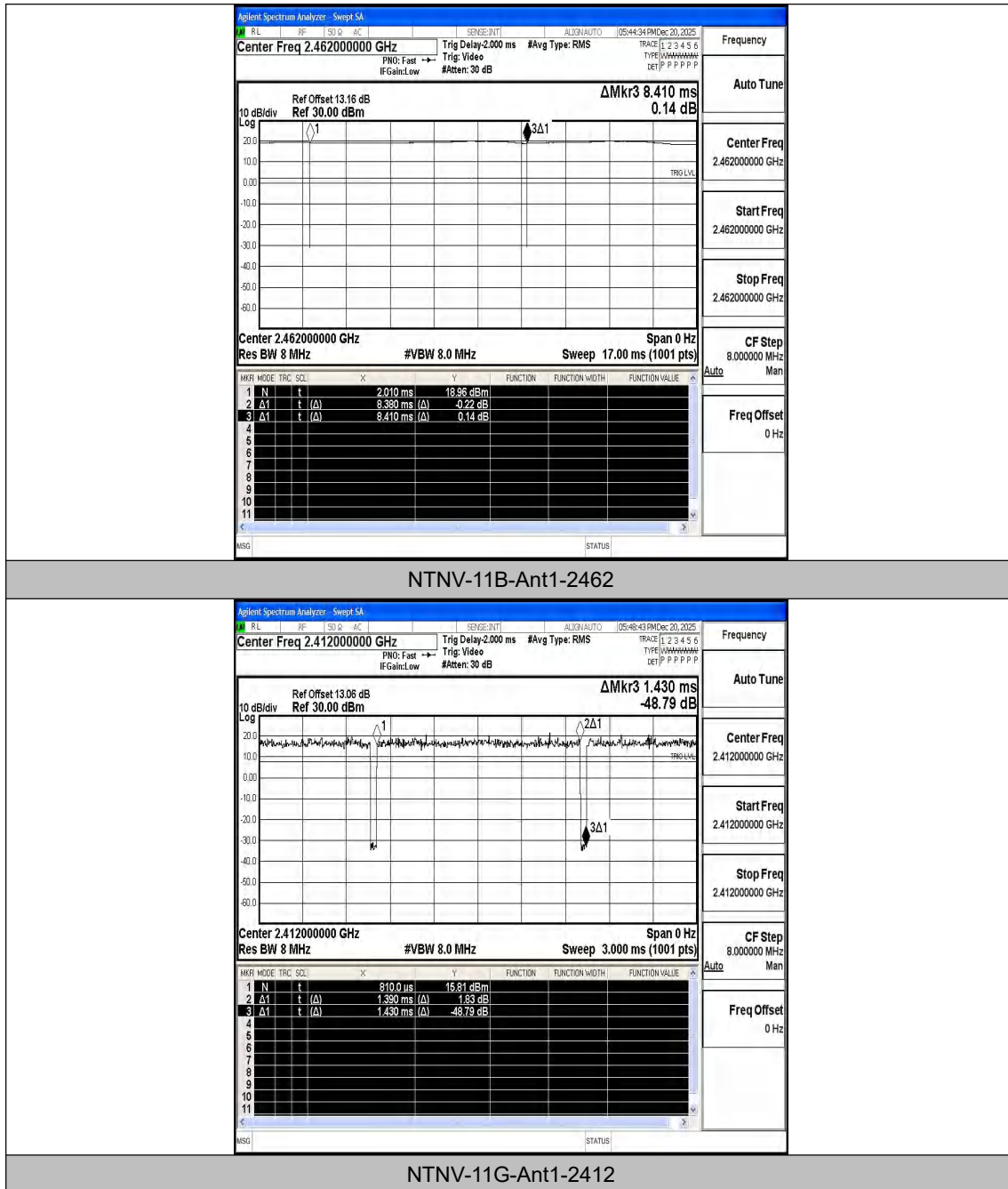
Test Result

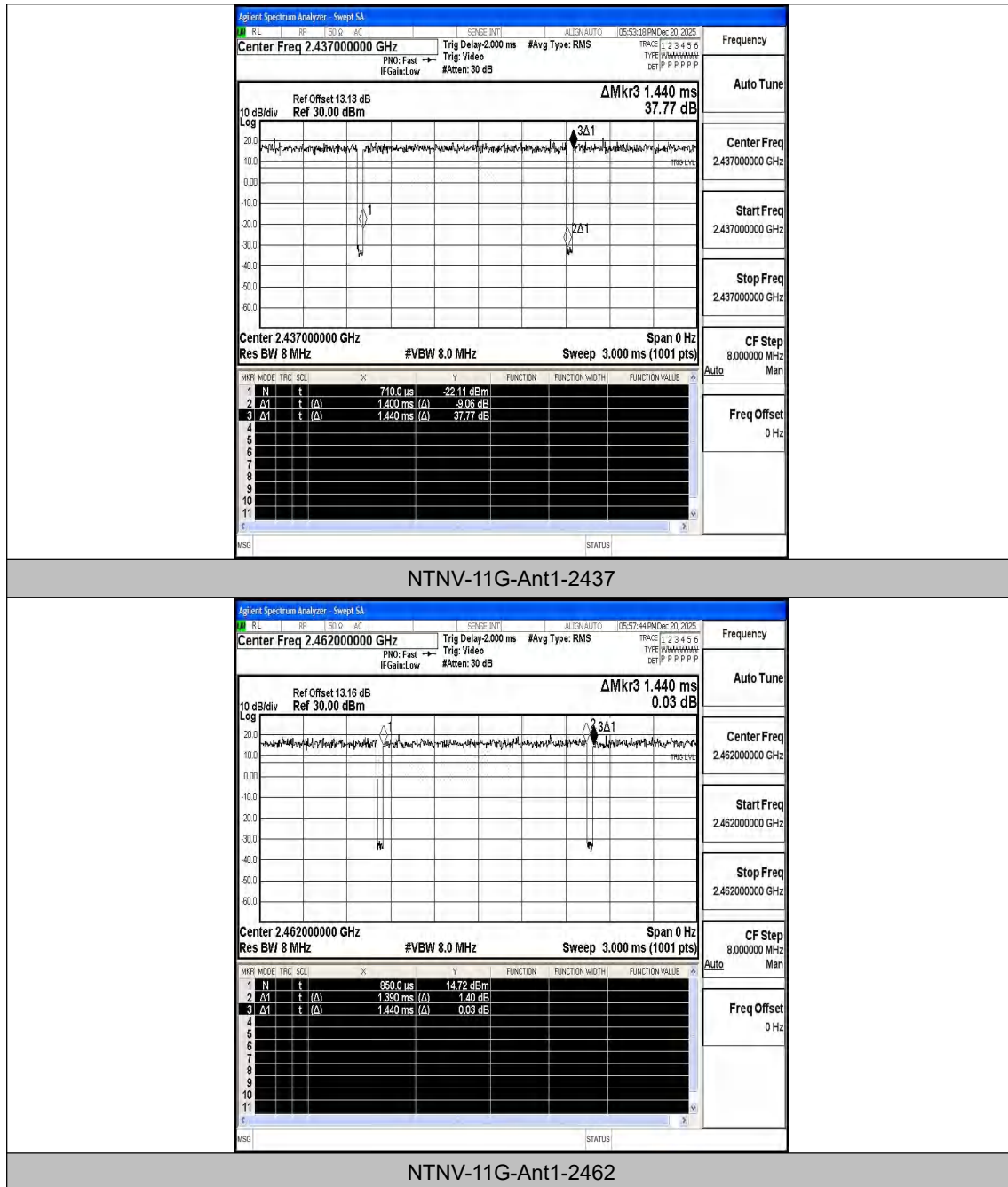
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	8.38	8.42	99.52	0.02
11B	Ant1	2437	8.38	8.41	99.64	0.02
11B	Ant1	2462	8.38	8.41	99.64	0.02
11G	Ant1	2412	1.39	1.43	97.20	0.12
11G	Ant1	2437	1.40	1.44	97.22	0.12
11G	Ant1	2462	1.39	1.44	96.53	0.15
11N20SISO	Ant1	2412	1.30	1.34	97.01	0.13
11N20SISO	Ant1	2437	1.30	1.34	97.01	0.13
11N20SISO	Ant1	2462	1.30	1.34	97.01	0.13
11N40SISO	Ant1	2422	0.64	0.69	92.75	0.33
11N40SISO	Ant1	2437	0.65	0.69	94.20	0.26
11N40SISO	Ant1	2452	0.64	0.69	92.75	0.33

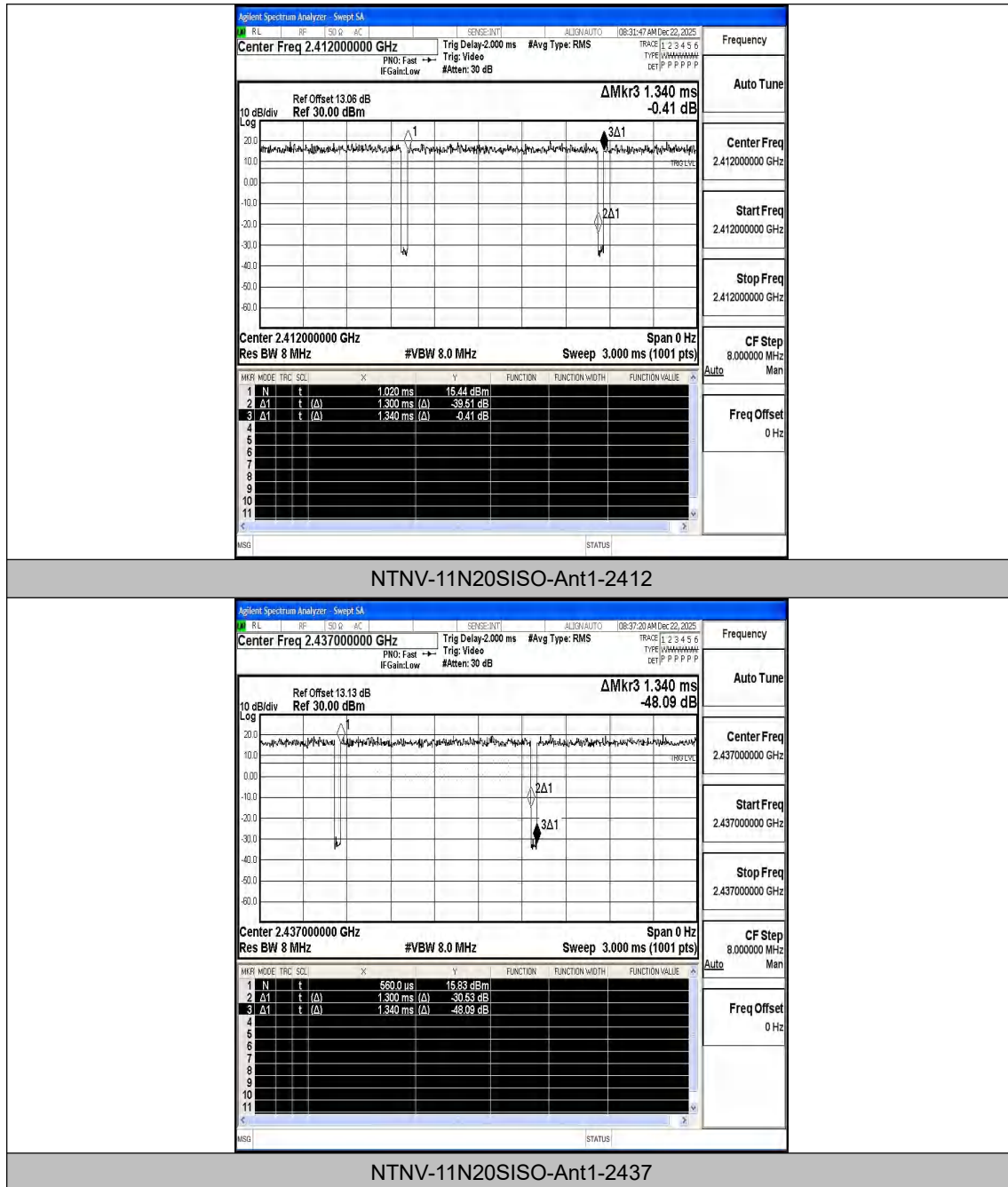
Note :offset=System attenuation +cabal loss

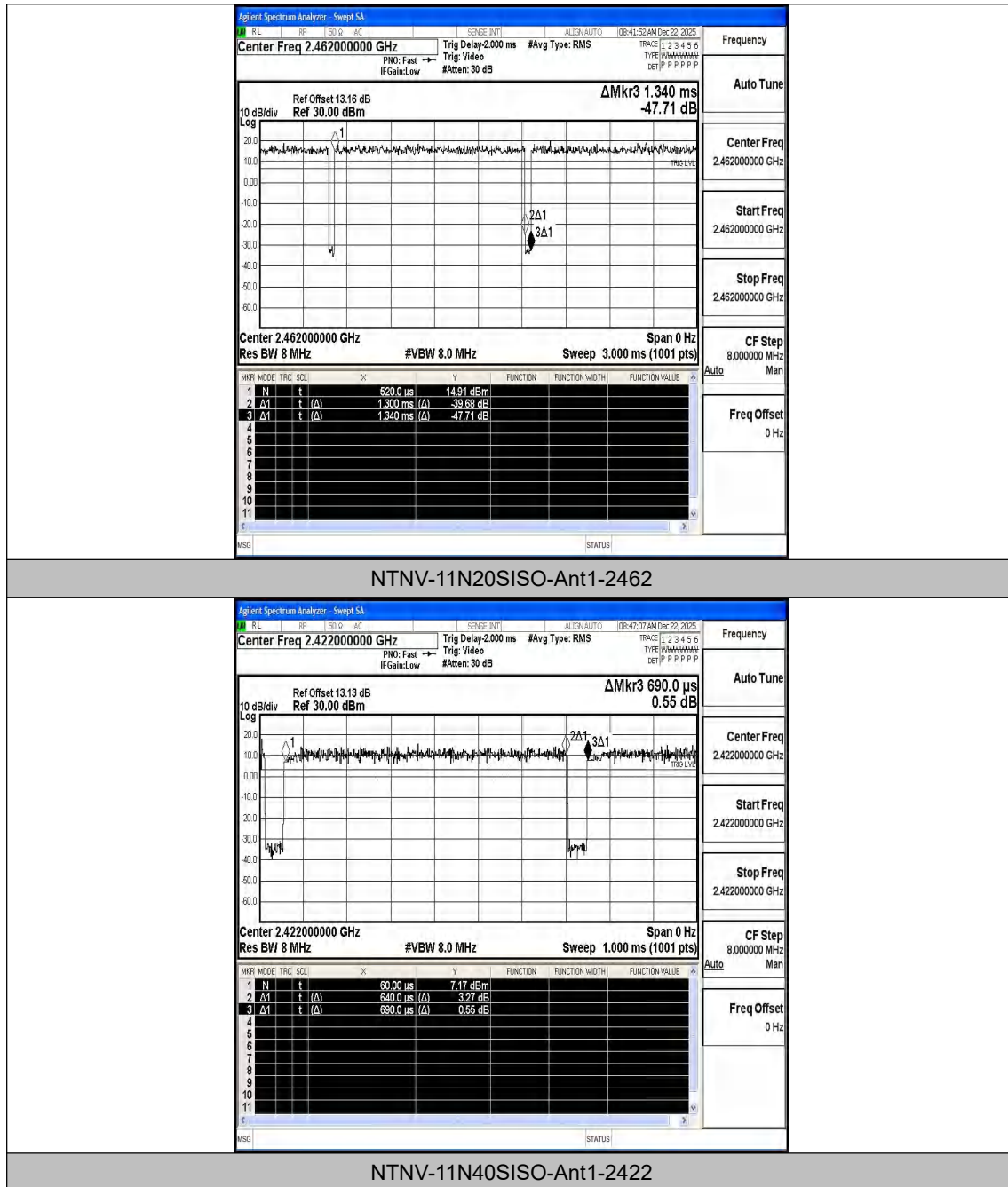
Test Graphs

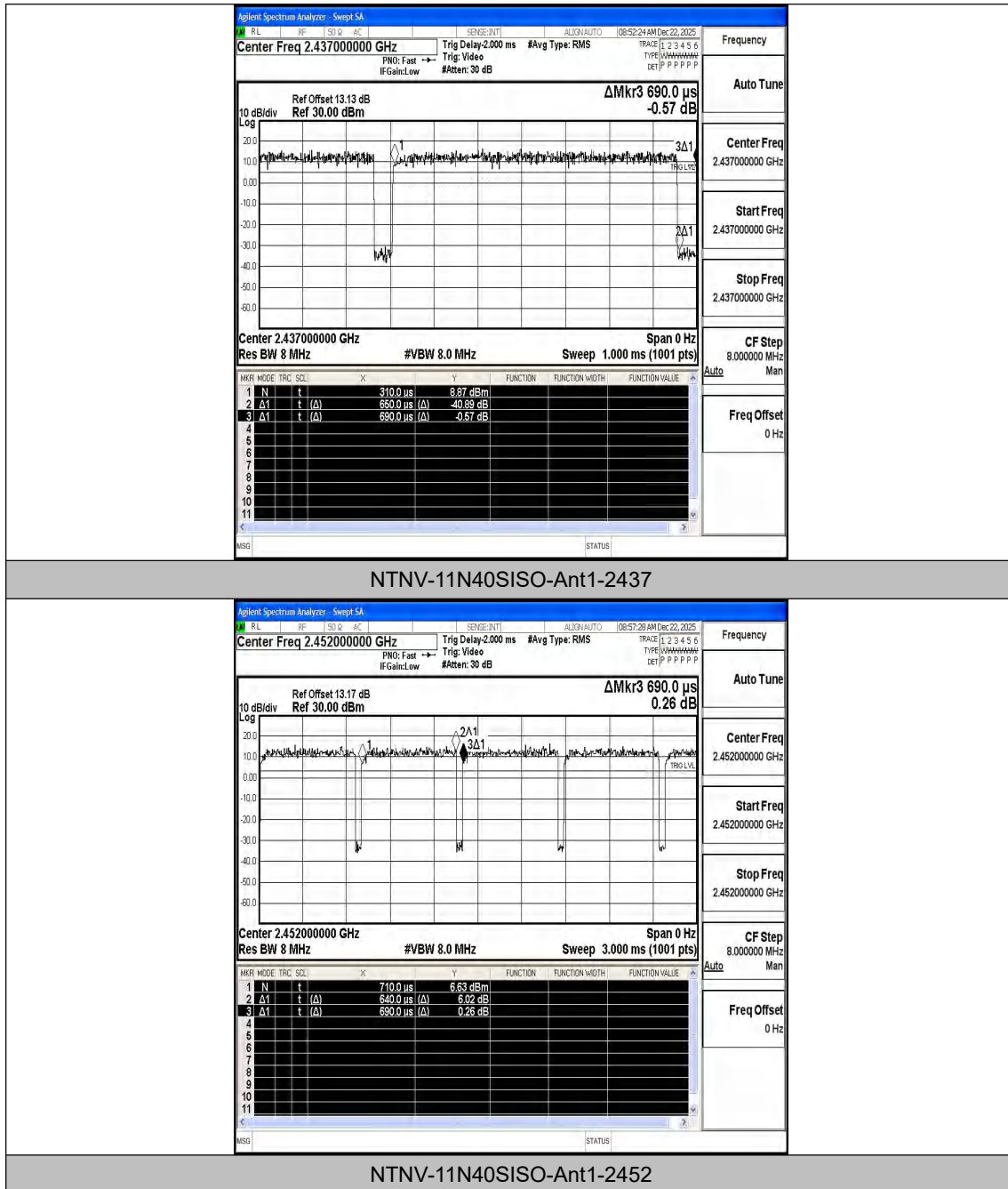












A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	Peak	2390.000	-46.62	≤-21.20	48.58	≤74	PASS
11B	Ant1	Low	2412	Peak	2310.000	-52	≤-21.20	43.20	≤74	PASS
11B	Ant1	Low	2412	Peak	2386.450	-43.9	≤-21.20	51.30	≤74	PASS
11B	Ant1	Low	2412	AV	2390.000	-52.7	≤-41.20	42.50	≤54	PASS
11B	Ant1	Low	2412	AV	2310.000	-56.34	≤-41.20	38.86	≤54	PASS
11B	Ant1	Low	2412	AV	2386.190	-50.04	≤-41.20	45.16	≤54	PASS
11B	Ant1	High	2462	Peak	2483.500	-45.02	≤-21.20	50.18	≤74	PASS
11B	Ant1	High	2462	Peak	2500.000	-48.05	≤-21.20	47.15	≤74	PASS
11B	Ant1	High	2462	Peak	2486.530	-43.7	≤-21.20	51.50	≤74	PASS
11B	Ant1	High	2462	AV	2483.500	-50.39	≤-41.20	44.81	≤54	PASS
11B	Ant1	High	2462	AV	2500.000	-55.95	≤-41.20	39.25	≤54	PASS
11B	Ant1	High	2462	AV	2483.670	-50.59	≤-41.20	44.61	≤54	PASS
11G	Ant1	Low	2412	Peak	2390.000	-28.88	≤-21.20	66.32	≤74	PASS
11G	Ant1	Low	2412	Peak	2310.000	-48.77	≤-21.20	46.43	≤74	PASS
11G	Ant1	Low	2412	Peak	2389.960	-28.88	≤-21.20	66.32	≤74	PASS
11G	Ant1	Low	2412	AV	2390.000	-42.52	≤-41.20	52.68	≤54	PASS
11G	Ant1	Low	2412	AV	2310.000	-56.62	≤-41.20	38.58	≤54	PASS
11G	Ant1	Low	2412	AV	2389.830	-42.03	≤-41.20	53.17	≤54	PASS
11G	Ant1	High	2462	Peak	2483.500	-34.44	≤-21.20	60.76	≤74	PASS
11G	Ant1	High	2462	Peak	2500.000	-46.48	≤-21.20	48.72	≤74	PASS
11G	Ant1	High	2462	Peak	2484.110	-33.95	≤-21.20	61.25	≤74	PASS
11G	Ant1	High	2462	AV	2483.500	-44.35	≤-41.20	50.85	≤54	PASS
11G	Ant1	High	2462	AV	2500.000	-55.71	≤-41.20	39.49	≤54	PASS
11G	Ant1	High	2462	AV	2483.670	-45.05	≤-41.20	50.15	≤54	PASS
11N20SISO	Ant1	Low	2412	Peak	2390.000	-37.31	≤-21.20	57.89	≤74	PASS
11N20SISO	Ant1	Low	2412	Peak	2310.000	-48.77	≤-21.20	46.43	≤74	PASS
11N20SISO	Ant1	Low	2412	Peak	2389.050	-34.07	≤-21.20	61.13	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2390.000	-49.17	≤-41.20	46.03	≤54	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-57.01	≤-41.20	38.19	≤54	PASS
11N20SISO	Ant1	Low	2412	AV	2389.180	-48.52	≤-41.20	46.68	≤54	PASS
11N20SISO	Ant1	High	2462	Peak	2483.500	-31.08	≤-21.20	64.12	≤74	PASS
11N20SISO	Ant1	High	2462	Peak	2500.000	-48.45	≤-21.20	46.75	≤74	PASS
11N20SISO	Ant1	High	2462	Peak	2484.550	-30.92	≤-21.20	64.28	≤74	PASS
11N20SISO	Ant1	High	2462	AV	2483.500	-41.31	≤-41.20	53.89	≤54	PASS
11N20SISO	Ant1	High	2462	AV	2500.000	-55.05	≤-41.20	40.15	≤54	PASS

11N20SISO	Ant1	High	2462	AV	2483.560	-42.35	≤-41.20	52.85	≤54	PASS
11N40SISO	Ant1	Low	2422	Peak	2390.000	-38.39	≤-21.20	56.81	≤74	PASS
11N40SISO	Ant1	Low	2422	Peak	2310.000	-48.86	≤-21.20	46.34	≤74	PASS
11N40SISO	Ant1	Low	2422	Peak	2389.550	-29.66	≤-21.20	65.54	≤74	PASS
11N40SISO	Ant1	Low	2422	AV	2390.000	-49.03	≤-41.20	46.17	≤54	PASS
11N40SISO	Ant1	Low	2422	AV	2310.000	-56.02	≤-41.20	39.18	≤54	PASS
11N40SISO	Ant1	Low	2422	AV	2389.700	-45.34	≤-41.20	49.86	≤54	PASS
11N40SISO	Ant1	High	2452	Peak	2483.500	-39.63	≤-21.20	55.57	≤74	PASS
11N40SISO	Ant1	High	2452	Peak	2500.000	-47.43	≤-21.20	47.77	≤74	PASS
11N40SISO	Ant1	High	2452	Peak	2484.250	-31.7	≤-21.20	63.50	≤74	PASS
11N40SISO	Ant1	High	2452	AV	2483.500	-50.1	≤-41.20	45.10	≤54	PASS
11N40SISO	Ant1	High	2452	AV	2500.000	-55.77	≤-41.20	39.43	≤54	PASS
11N40SISO	Ant1	High	2452	AV	2485.500	-48.4	≤-41.20	46.80	≤54	PASS

Note :offset=System attenuation +cable loss

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

