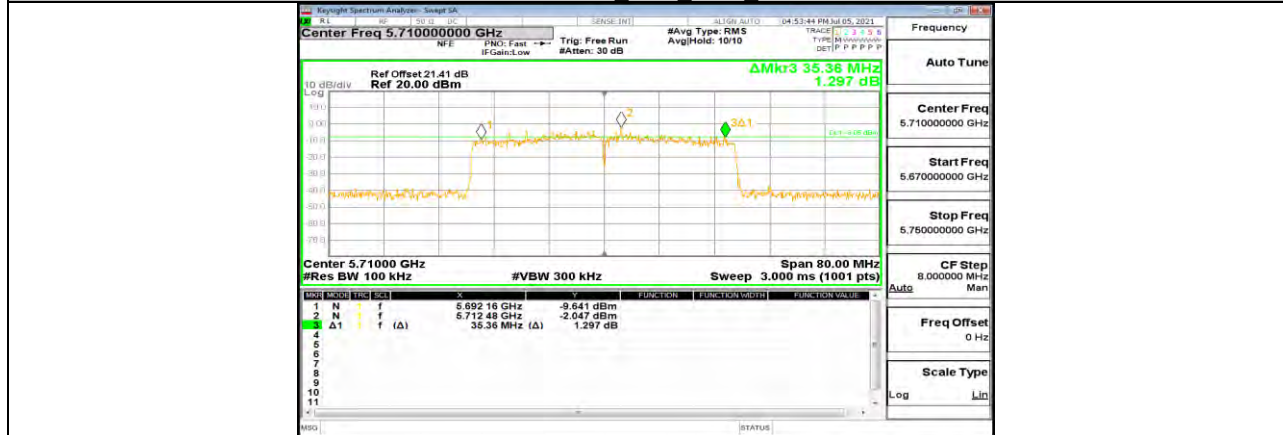


11AX20MIMO Ant2 5825



11AX40MIMO Ant1 5710 UNII-3



11AX40MIMO Ant2 5710 UNII-3









13.4. Appendix B: Maximum AVG conducted output power

13.4.1. Test Result

Test Mode	Channel	AVG Conducted Power (dBm)			FCC Limit (dBm)
		ANT0	ANT1	Total	
11A20	5180	15.48	14.91	/	24
	5200	15.72	15.04	/	24
	5240	16.19	15.52	/	24
	5260	15.80	15.49	/	24
	5280	16.09	15.86	/	24
	5320	16.13	15.89	/	24
	5500	13.51	13.46	/	24
	5580	13.62	12.94	/	24
	5700	12.46	11.94	/	24
	5720-UNII-2C	11.90	11.73	/	24
	5720-UNII-3	5.06	5.05	/	30
	5745	15.72	15.71	/	30
	5785	15.97	15.79	/	30
	5825	16.35	16.01	/	30
11N20MIMO	5180	12.94	12.64	15.80	24
	5200	13.60	13.20	16.41	24
	5240	13.94	14.11	17.04	24
	5260	14.94	14.93	17.95	24
	5280	15.39	15.25	18.33	24
	5320	14.96	15.21	18.10	24
	5500	12.14	11.89	15.03	24
	5580	13.60	12.92	16.28	24
	5700	12.60	12.38	15.50	24
	5720-UNII-2C	12.27	12.03	15.16	24
	5720-UNII-3	5.78	5.95	8.88	30
	5745	15.07	14.85	17.97	30
	5785	15.00	14.94	17.98	30
	5825	15.40	15.06	18.24	30
11N40MIMO	5190	13.20	12.88	16.05	24
	5230	14.72	14.22	17.49	24
	5270	15.46	15.20	18.34	24
	5310	14.55	14.88	17.73	24
	5510	15.46	15.45	18.47	24
	5550	15.75	14.57	18.21	24



	5670	15.86	15.10	18.51	24
	5710-UNII-2C	15.69	16.05	18.88	24
	5710-UNII-3	2.39	2.15	5.28	30
	5755	15.30	14.86	18.10	30
	5795	14.92	14.85	17.90	30
11AC80MIMO	5210	14.54	14.13	17.35	24
	5290	13.86	14.05	16.97	24
	5530	11.24	10.41	13.86	24
	5610	12.37	11.62	15.02	24
	5690-UNII-2C	10.56	10.33	13.46	24
	5690-UNII-3	-5.28	-5.63	-2.44	30
	5775	14.56	14.25	17.42	30
11AX20MIMO	5180	13.41	12.67	16.07	24
	5200	13.37	12.89	16.15	24
	5240	13.53	13.20	16.38	24
	5260	13.47	13.45	16.47	24
	5280	13.76	13.60	16.69	24
	5320	13.56	13.62	16.60	24
	5500	13.40	12.62	16.04	24
	5580	13.33	12.82	16.09	24
	5700	13.40	12.81	16.13	24
	5720-UNII-2C	12.27	12.08	15.19	24
	5720-UNII-3	6.73	6.23	9.50	30
	5745	13.33	12.75	16.06	30
	5785	13.48	12.98	16.25	30
	5825	13.80	13.21	16.53	30
11AX40MIMO	5190	13.35	12.78	16.08	24
	5230	13.52	13.14	16.34	24
	5270	13.52	13.45	16.50	24
	5310	13.22	13.26	16.25	24
	5510	13.46	12.61	16.07	24
	5550	13.67	12.89	16.31	24
	5670	13.46	13.03	16.26	24
	5710-UNII-2C	12.72	12.52	15.63	24
	5710-UNII-3	0.99	0.67	3.84	30
	5755	13.39	12.81	16.12	30
	5795	13.43	12.94	16.20	30
11AX80MIMO	5210	13.27	12.89	16.09	24
	5290	13.57	13.55	16.57	24
	5530	11.66	10.55	14.15	24
	5610	12.63	11.87	15.28	24



	5690-UNII-2C	10.65	10.42	13.55	24
	5690-UNII-3	-4.35	-4.52	-1.42	30
	5775	13.52	12.67	16.13	30

Note: 1. Conducted Power=Meas. Level+ Correction Factor

2. The Duty Cycle Factor (refer to section 7.1) had already compensated to the test data.



13.5. Appendix C: Maximum power spectral density

13.5.1. Test Result

Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A20	Ant0	5180	4.16	<=11	PASS
		5200	5.11	<=11	PASS
		5240	4.97	<=11	PASS
		5260	5.54	<=11	PASS
		5280	5.16	<=11	PASS
		5320	5.46	<=11	PASS
		5500	3.55	<=11	PASS
		5580	3.63	<=11	PASS
		5700	2.63	<=11	PASS
		5720 UNII-2C	2.35	<=11	PASS
	Ant1	5720 UNII-2C	2.22	<=11	PASS
	Ant0	5720 UNII-3	-1.37	<=11	PASS
	Ant1	5720 UNII-3	-1.94	<=11	PASS
	Ant0	5745	3	<=30	PASS
5785		3.55	<=30	PASS	
5825		3.22	<=30	PASS	
11N20MIMO	Ant0	5180	2.2	<=11	PASS
	Ant1	5180	2.14	<=11	PASS
	total	5180	5.18	<=11	PASS
	Ant0	5200	4.06	<=11	PASS
	Ant1	5200	3.59	<=11	PASS
	total	5200	6.84	<=11	PASS
	Ant0	5240	4.27	<=11	PASS
	Ant1	5240	4.24	<=11	PASS
	total	5240	7.27	<=11	PASS
	Ant0	5260	5.45	<=11	PASS
	Ant1	5260	5.57	<=11	PASS
	total	5260	8.52	<=11	PASS
	Ant0	5280	5.21	<=11	PASS
	Ant1	5280	5.11	<=11	PASS
	total	5280	8.17	<=11	PASS
	Ant0	5320	4.6	<=11	PASS
	Ant1	5320	5.56	<=11	PASS
	total	5320	8.12	<=11	PASS
	Ant0	5500	2.76	<=11	PASS
	Ant1	5500	1.87	<=11	PASS
	total	5500	5.35	<=11	PASS
	Ant0	5580	3.81	<=11	PASS
	Ant1	5580	2.72	<=11	PASS
	total	5580	6.31	<=11	PASS
	Ant0	5700	2.74	<=11	PASS
	Ant1	5700	2.55	<=11	PASS
	total	5700	5.66	<=11	PASS
	Ant0	5720 UNII-2C	2.74	<=11	PASS
	Ant1	5720 UNII-2C	2.18	<=11	PASS
	total	5720 UNII-2C	5.48	<=11	PASS
	Ant0	5720 UNII-3	-1.64	<=11	PASS
	Ant1	5720 UNII-3	-2.16	<=11	PASS
	total	5720 UNII-3	1.12	<=11	PASS
	Ant0	5745	2.18	<=30	PASS
	Ant1	5745	1.9	<=30	PASS
	total	5745	5.05	<=30	PASS
	Ant0	5785	2.66	<=30	PASS



	Ant1	5785	2.27	<=30	PASS
	total	5785	5.48	<=30	PASS
	Ant0	5825	2.2	<=30	PASS
	Ant1	5825	2.44	<=30	PASS
	total	5825	5.33	<=30	PASS
11N40MIMO	Ant0	5190	1.29	<=11	PASS
	Ant1	5190	0.73	<=11	PASS
	total	5190	4.03	<=11	PASS
	Ant0	5230	2.28	<=11	PASS
	Ant1	5230	1.29	<=11	PASS
	total	5230	4.82	<=11	PASS
	Ant0	5270	3.87	<=11	PASS
	Ant1	5270	3.75	<=11	PASS
	total	5270	6.82	<=11	PASS
	Ant0	5310	2.41	<=11	PASS
	Ant1	5310	2.52	<=11	PASS
	total	5310	5.48	<=11	PASS
	Ant0	5510	3.46	<=11	PASS
	Ant1	5510	2.65	<=11	PASS
	total	5510	6.08	<=11	PASS
	Ant0	5550	2.99	<=11	PASS
	Ant1	5550	2.6	<=11	PASS
	total	5550	5.81	<=11	PASS
	Ant0	5670	2.88	<=11	PASS
	Ant1	5670	2.79	<=11	PASS
	total	5670	5.85	<=11	PASS
	Ant0	5710 UNII-2C	3.52	<=11	PASS
	Ant1	5710 UNII-2C	3.25	<=11	PASS
	total	5710 UNII-2C	6.40	<=11	PASS
	Ant0	5710 UNII-3	-4.03	<=11	PASS
	Ant1	5710 UNII-3	-3.72	<=11	PASS
	total	5710 UNII-3	-0.86	<=11	PASS
	Ant0	5755	0.23	<=30	PASS
	Ant1	5755	-0.43	<=30	PASS
	total	5755	2.92	<=30	PASS
	Ant0	5795	0.57	<=30	PASS
	Ant1	5795	-0.12	<=30	PASS
	total	5795	3.25	<=30	PASS
11AC80MIMO	Ant0	5210	-0.6	<=11	PASS
	Ant1	5210	-1.35	<=11	PASS
	total	5210	2.05	<=11	PASS
	Ant0	5290	-2.05	<=11	PASS
	Ant1	5290	-2.55	<=11	PASS
	total	5290	0.72	<=11	PASS
	Ant0	5530	-4.13	<=11	PASS
	Ant1	5530	-5.22	<=11	PASS
	total	5530	-1.63	<=11	PASS
	Ant0	5610	-3.19	<=11	PASS
	Ant1	5610	-3.62	<=11	PASS
	total	5610	-0.39	<=11	PASS
	Ant0	5690 UNII-2C	-5	<=11	PASS
	Ant1	5690 UNII-2C	-5.49	<=11	PASS
	total	5690 UNII-2C	-2.23	<=11	PASS
	Ant0	5690 UNII-3	-11.44	<=11	PASS
	Ant1	5690 UNII-3	-11.66	<=11	PASS
	total	5690 UNII-3	-8.54	<=11	PASS
	Ant0	5775	-3.5	<=30	PASS
	Ant1	5775	-3.75	<=30	PASS
	total	5775	-0.61	<=30	PASS
11AX20MIMO	Ant0	5180	2.8	<=11	PASS



	Ant1	5180	2.3	<=11	PASS
	total	5180	5.57	<=11	PASS
	Ant0	5200	2.72	<=11	PASS
	Ant1	5200	2.75	<=11	PASS
	total	5200	5.75	<=11	PASS
	Ant0	5240	3.35	<=11	PASS
	Ant1	5240	2.69	<=11	PASS
	total	5240	6.04	<=11	PASS
	Ant0	5260	3.2	<=11	PASS
	Ant1	5260	2.99	<=11	PASS
	total	5260	6.11	<=11	PASS
	Ant0	5280	3.28	<=11	PASS
	Ant1	5280	3.16	<=11	PASS
	total	5280	6.23	<=11	PASS
	Ant0	5320	2.46	<=11	PASS
	Ant1	5320	2.86	<=11	PASS
	total	5320	5.67	<=11	PASS
	Ant0	5500	2.68	<=11	PASS
	Ant1	5500	2.02	<=11	PASS
	total	5500	5.37	<=11	PASS
	Ant0	5580	3.71	<=11	PASS
	Ant1	5580	2.68	<=11	PASS
	total	5580	6.24	<=11	PASS
	Ant0	5700	2.34	<=11	PASS
	Ant1	5700	2.86	<=11	PASS
	total	5700	5.62	<=11	PASS
	Ant0	5720 UNII-2C	2.85	<=11	PASS
	Ant1	5720 UNII-2C	3.03	<=11	PASS
	total	5720 UNII-2C	5.95	<=11	PASS
	Ant0	5720 UNII-3	-0.56	<=11	PASS
	Ant1	5720 UNII-3	-1.31	<=11	PASS
	total	5720 UNII-3	2.09	<=11	PASS
	Ant0	5745	0.37	<=30	PASS
	Ant1	5745	-1.11	<=30	PASS
	total	5745	2.70	<=30	PASS
	Ant0	5785	0.04	<=30	PASS
	Ant1	5785	-0.4	<=30	PASS
	total	5785	2.84	<=30	PASS
	Ant0	5825	0.01	<=30	PASS
	Ant1	5825	-0.32	<=30	PASS
	total	5825	2.86	<=30	PASS
11AX40MIMO	Ant0	5190	-0.11	<=11	PASS
	Ant1	5190	0.27	<=11	PASS
	total	5190	3.09	<=11	PASS
	Ant0	5230	0.37	<=11	PASS
	Ant1	5230	-0.23	<=11	PASS
	total	5230	3.09	<=11	PASS
	Ant0	5270	0.27	<=11	PASS
	Ant1	5270	0.85	<=11	PASS
	total	5270	3.58	<=11	PASS
	Ant0	5310	0.59	<=11	PASS
	Ant1	5310	-0.05	<=11	PASS
	total	5310	3.29	<=11	PASS
	Ant0	5510	0.43	<=11	PASS
	Ant1	5510	-0.35	<=11	PASS
	total	5510	3.07	<=11	PASS
	Ant0	5550	0.86	<=11	PASS
	Ant1	5550	0.49	<=11	PASS
	total	5550	3.69	<=11	PASS
	Ant0	5670	-0.21	<=11	PASS



	Ant1	5670	-0.71	<=11	PASS
	total	5670	2.56	<=11	PASS
	Ant0	5710 UNII-2C	-0.03	<=11	PASS
	Ant1	5710 UNII-2C	-0.57	<=11	PASS
	total	5710 UNII-2C	2.72	<=11	PASS
	Ant0	5710 UNII-3	-6.39	<=11	PASS
	Ant1	5710 UNII-3	-6.66	<=11	PASS
	total	5710 UNII-3	-3.51	<=11	PASS
	Ant0	5755	-2.45	<=30	PASS
	Ant1	5755	-3.33	<=30	PASS
	total	5755	0.14	<=30	PASS
	Ant0	5795	-2.65	<=30	PASS
	Ant1	5795	-2.83	<=30	PASS
	total	5795	0.27	<=30	PASS
11AX80MIMO	Ant0	5210	-2.63	<=11	PASS
	Ant1	5210	-3.3	<=11	PASS
	total	5210	0.06	<=11	PASS
	Ant0	5290	-2.54	<=11	PASS
	Ant1	5290	-3.32	<=11	PASS
	total	5290	0.10	<=11	PASS
	Ant0	5530	-3.46	<=11	PASS
	Ant1	5530	-4.02	<=11	PASS
	total	5530	-0.72	<=11	PASS
	Ant0	5610	-2.88	<=11	PASS
	Ant1	5610	-3.06	<=11	PASS
	total	5610	0.04	<=11	PASS
	Ant0	5690 UNII-2C	-4.7	<=11	PASS
	Ant1	5690 UNII-2C	-6.11	<=11	PASS
	total	5690 UNII-2C	-2.34	<=11	PASS
	Ant0	5690 UNII-3	-12.13	<=11	PASS
	Ant1	5690 UNII-3	-13.19	<=11	PASS
	total	5690 UNII-3	-9.62	<=11	PASS
	Ant0	5775	-6.04	<=30	PASS
	Ant1	5775	-5.98	<=30	PASS
	total	5775	-3.00	<=30	PASS

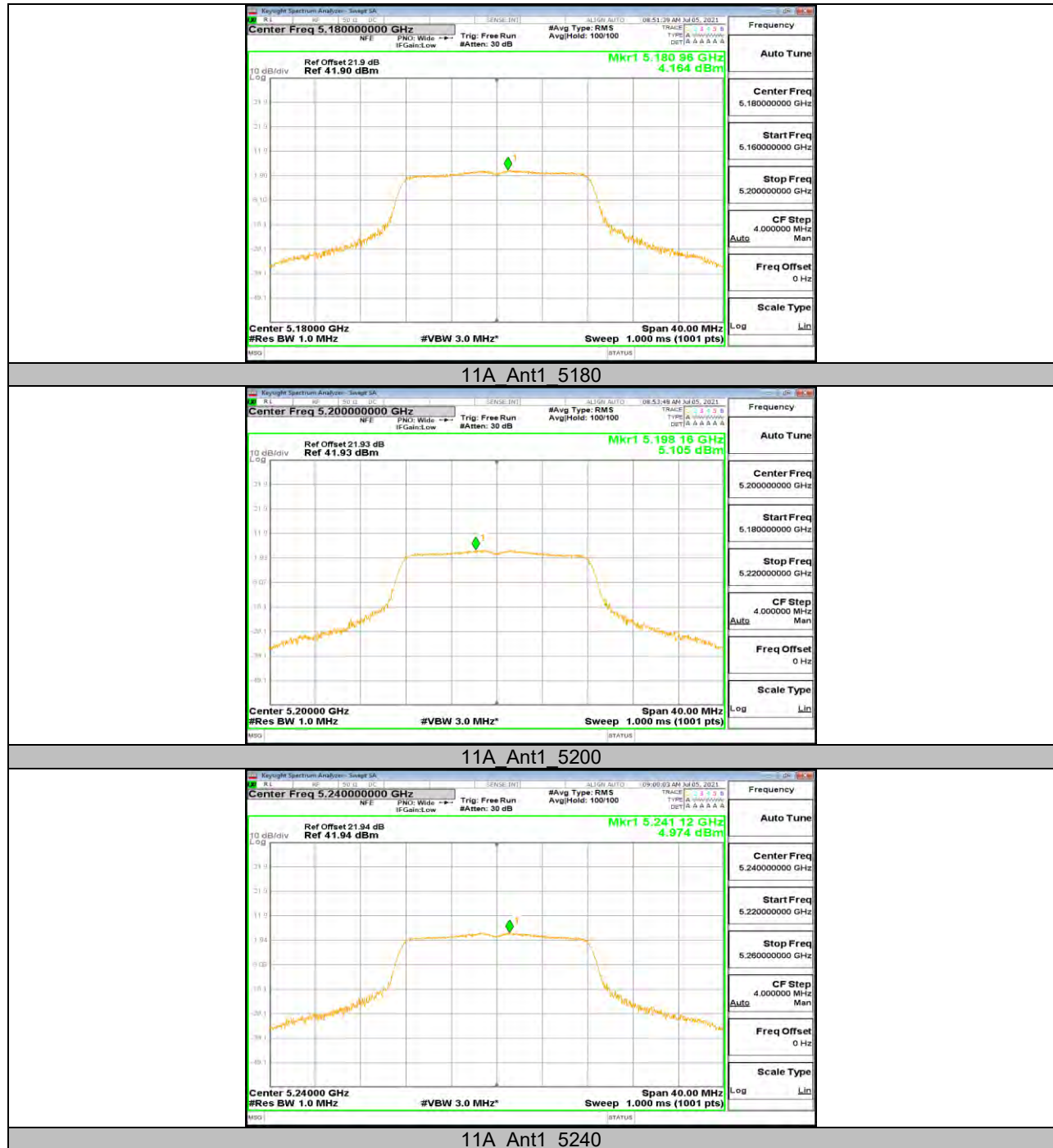
Note : 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

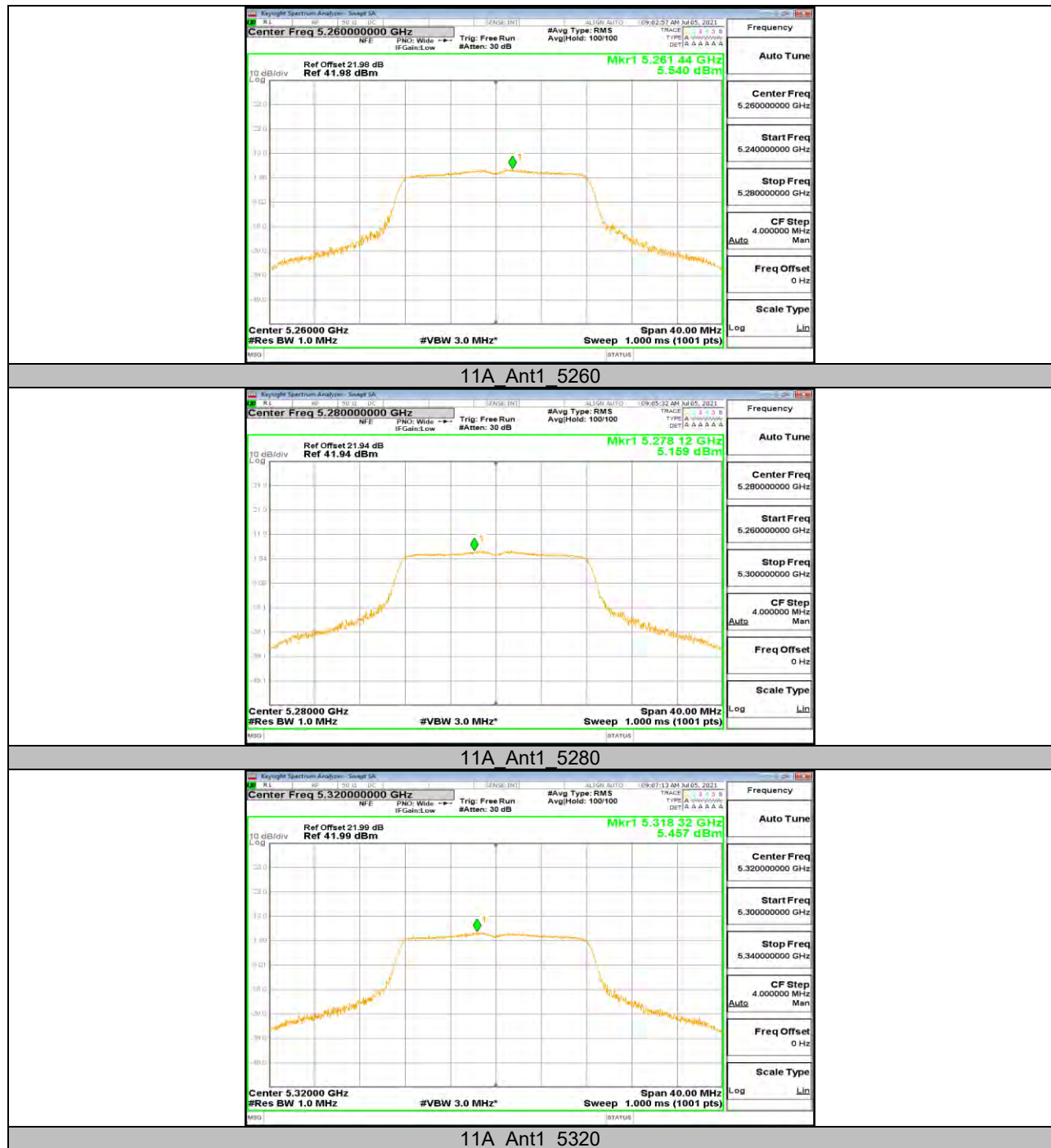
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

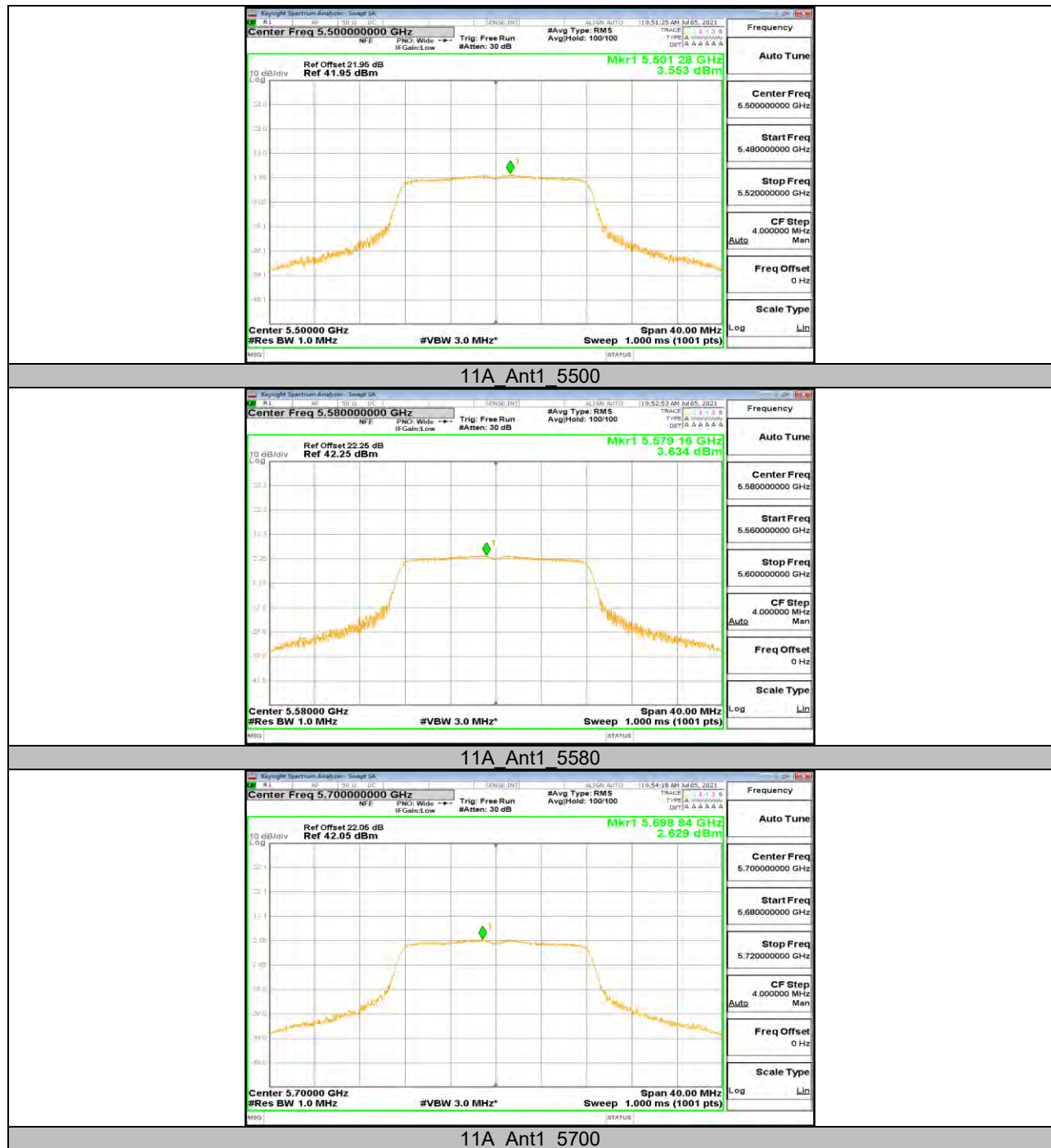
3. Note: All the modes, channels and antennas had been tested, but only the worst data was recorded in the report.

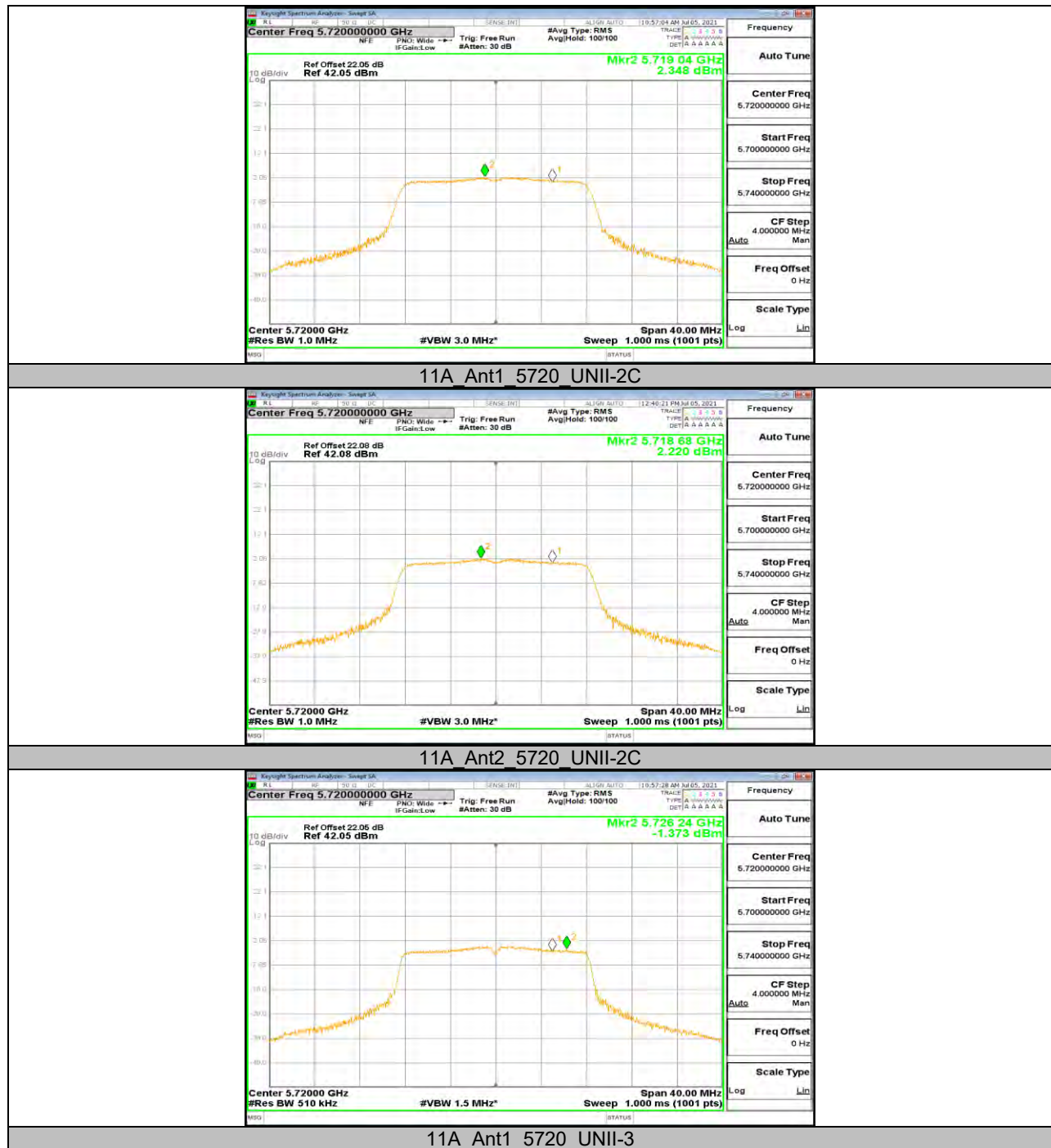


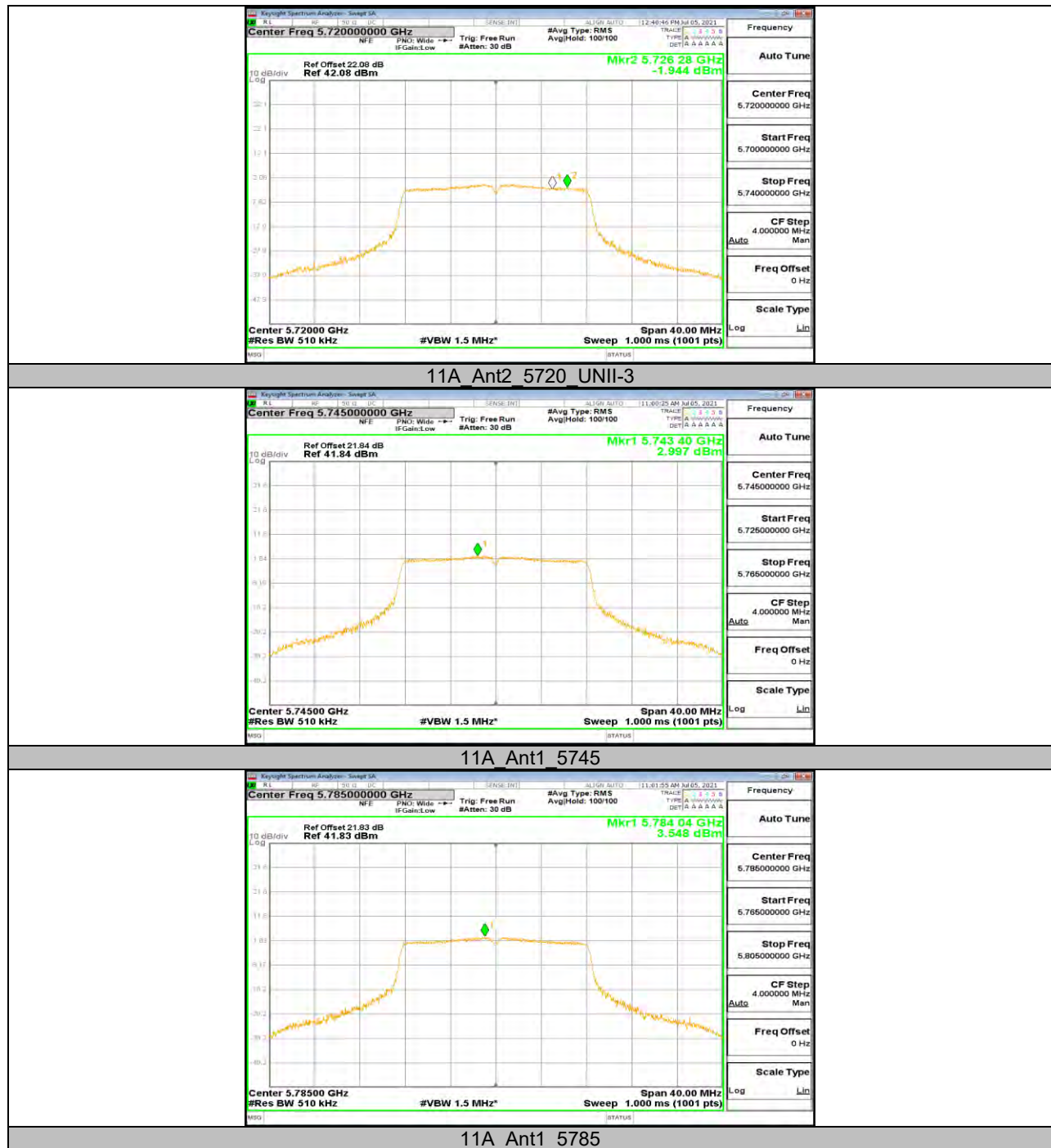
13.5.2. Test Graphs

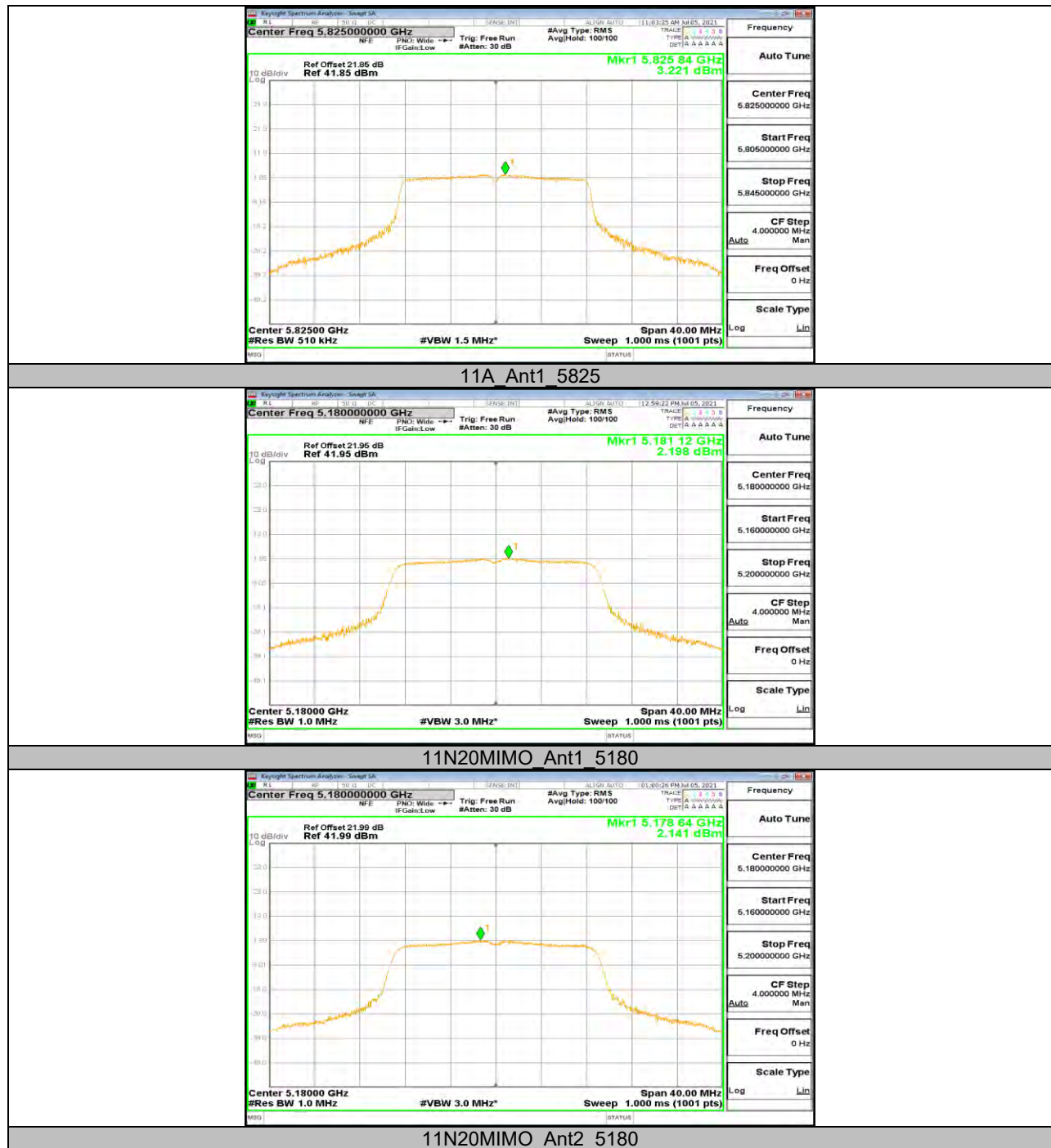


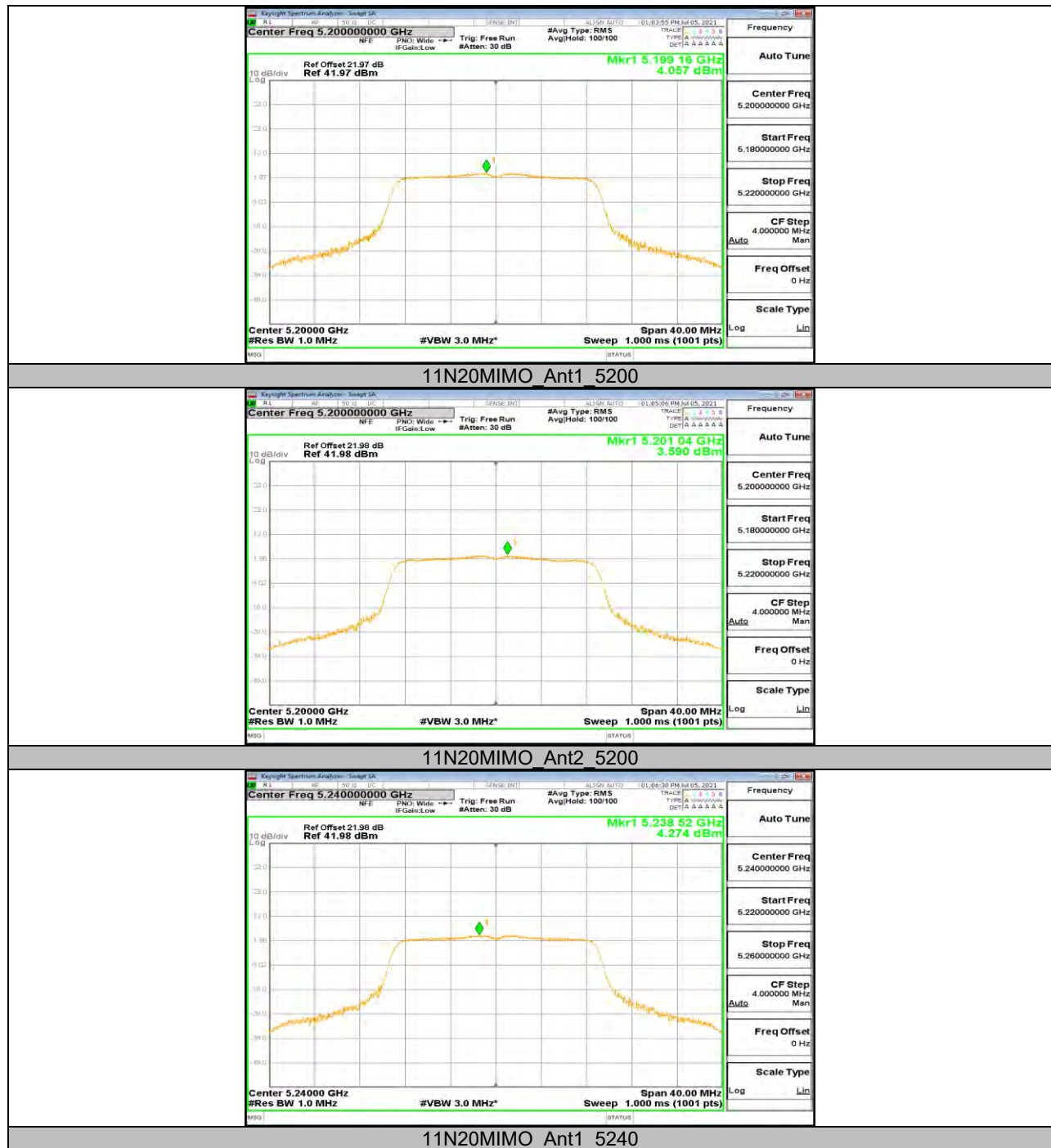


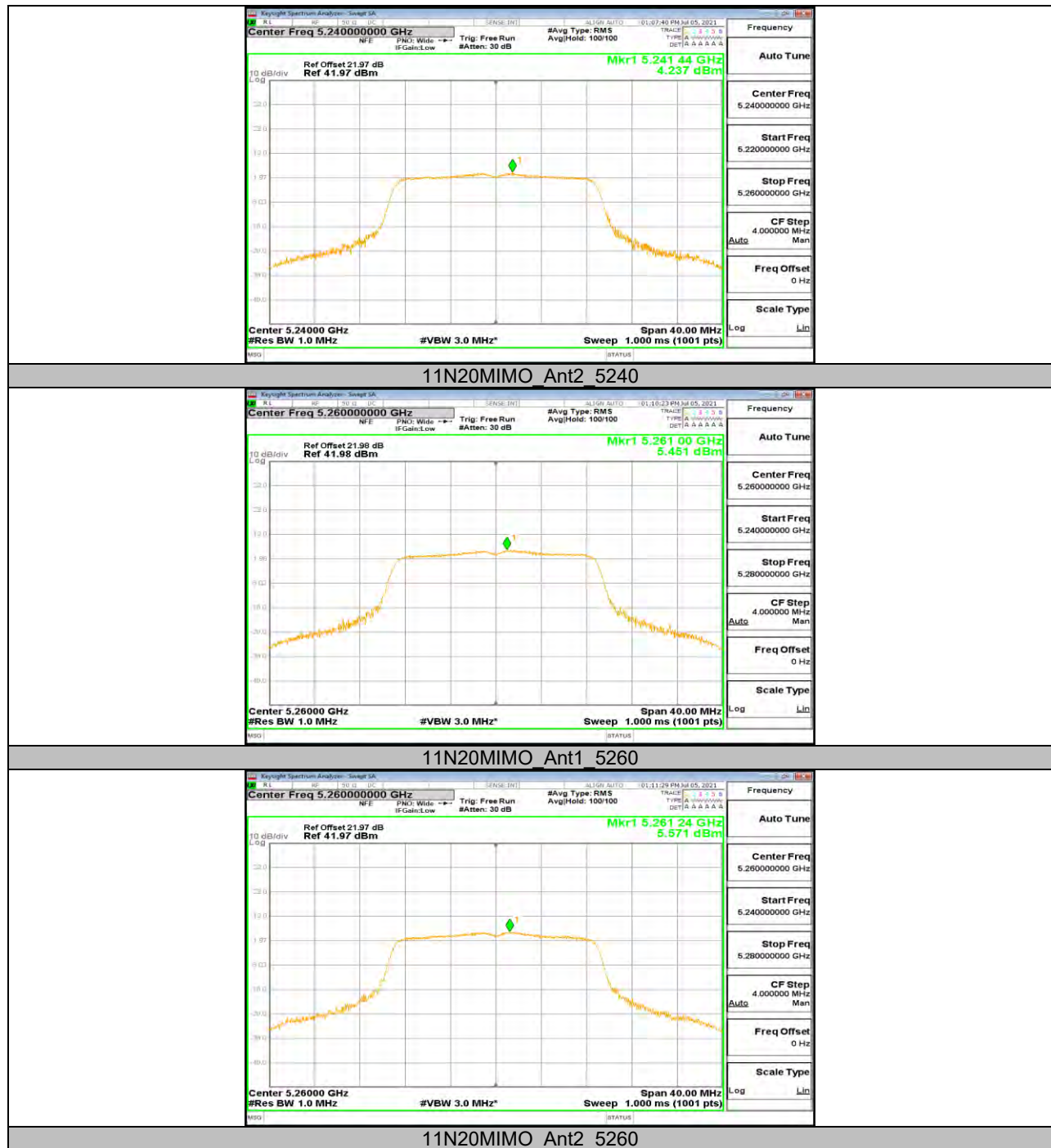


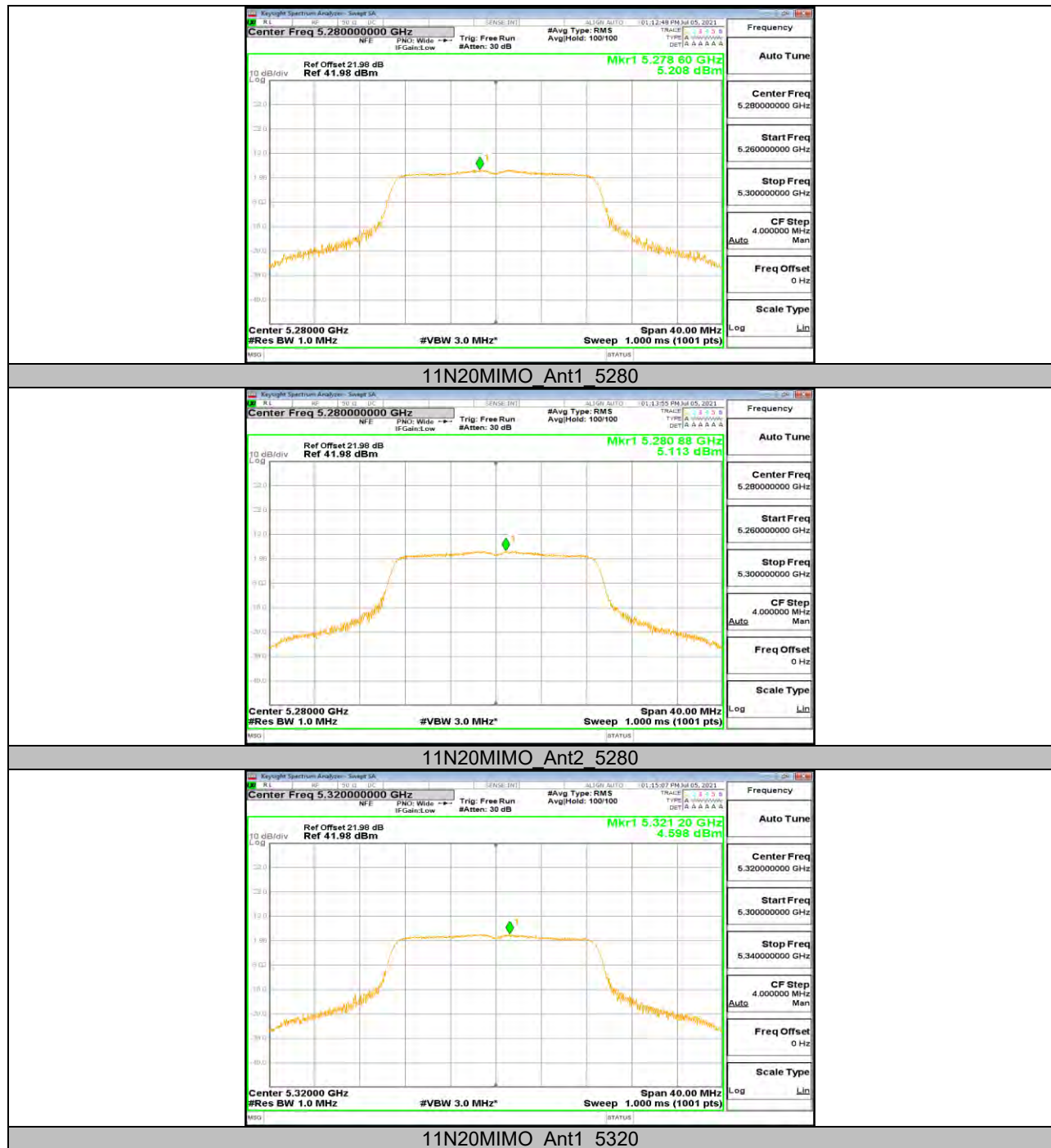


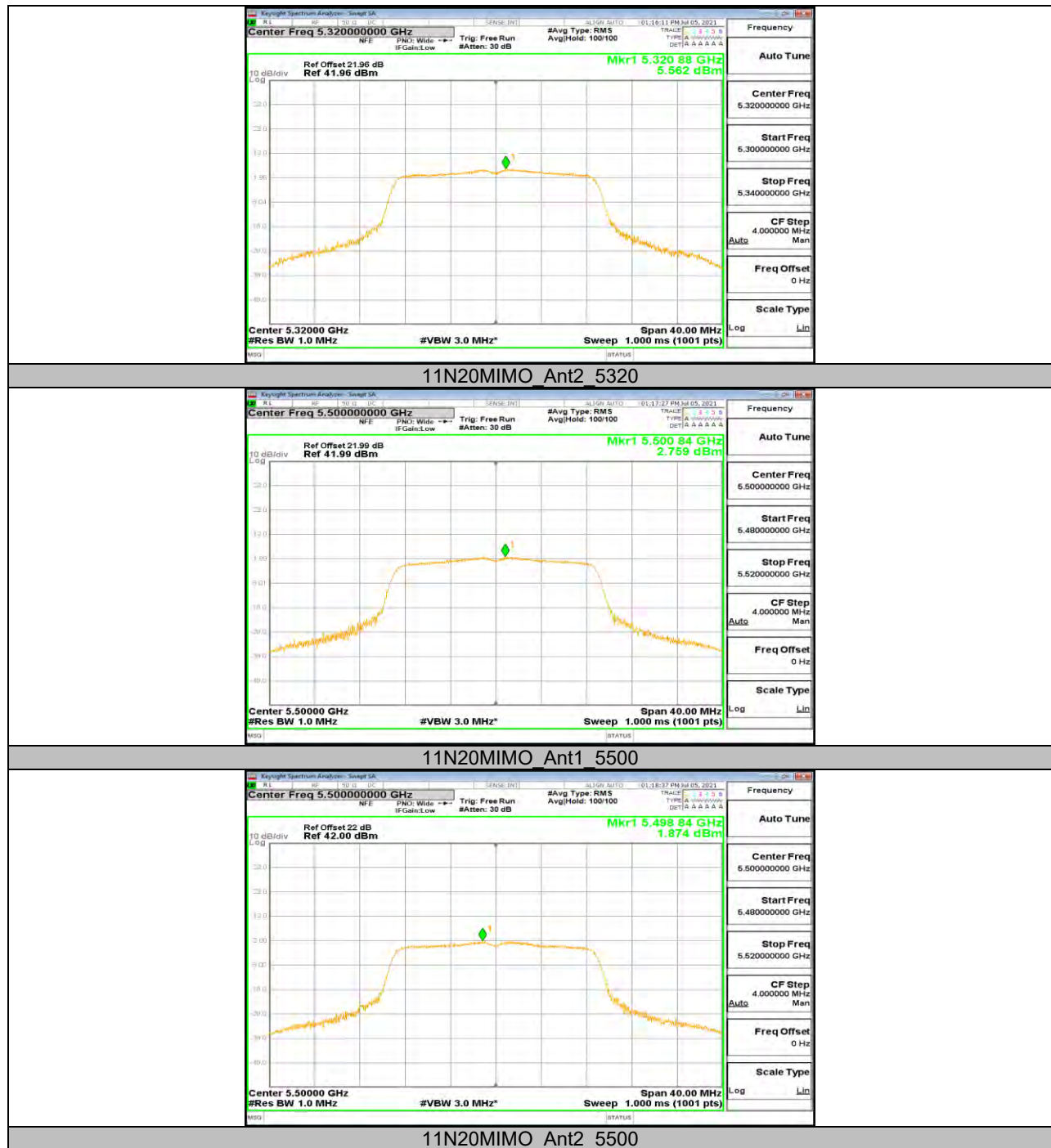


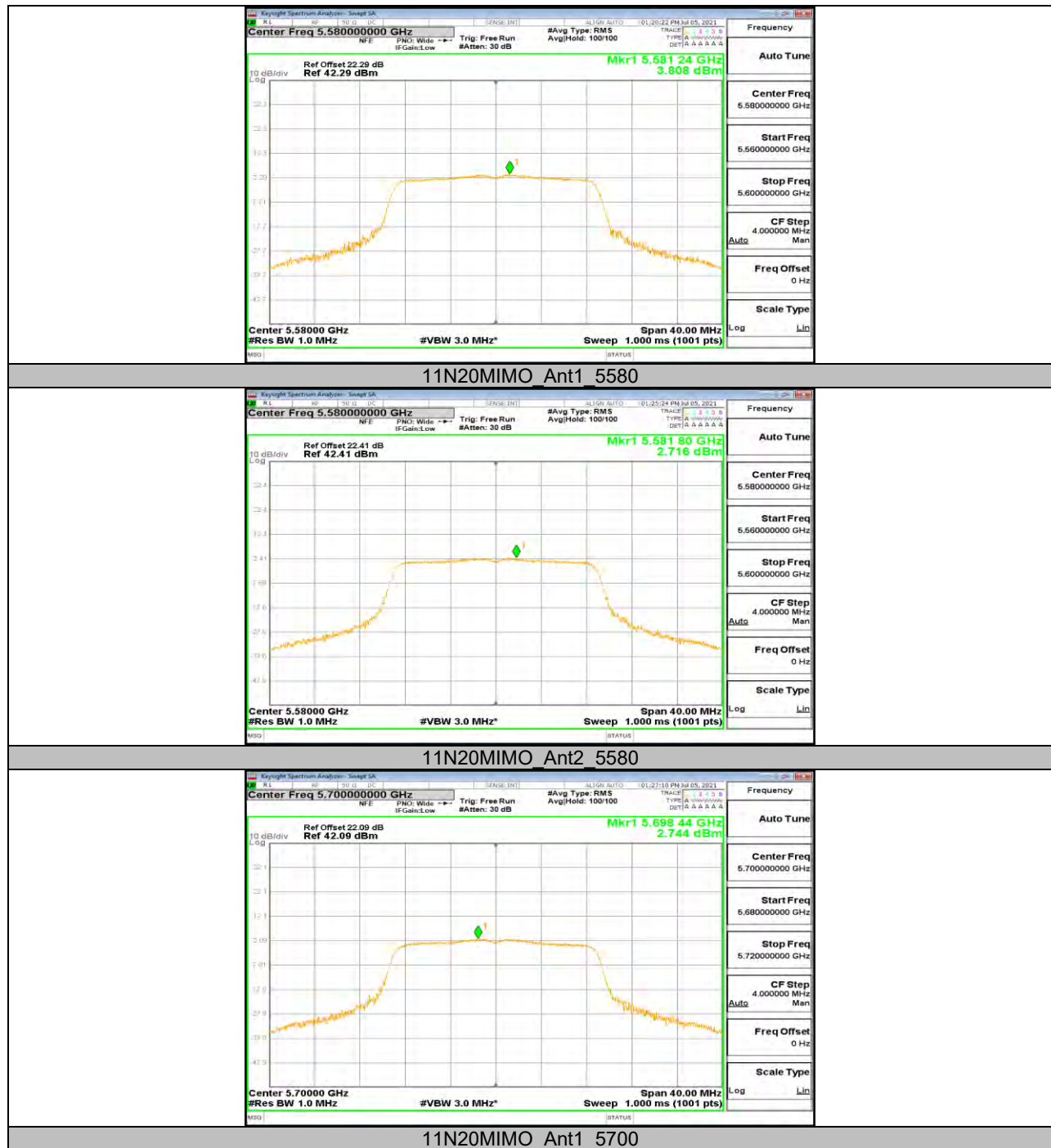


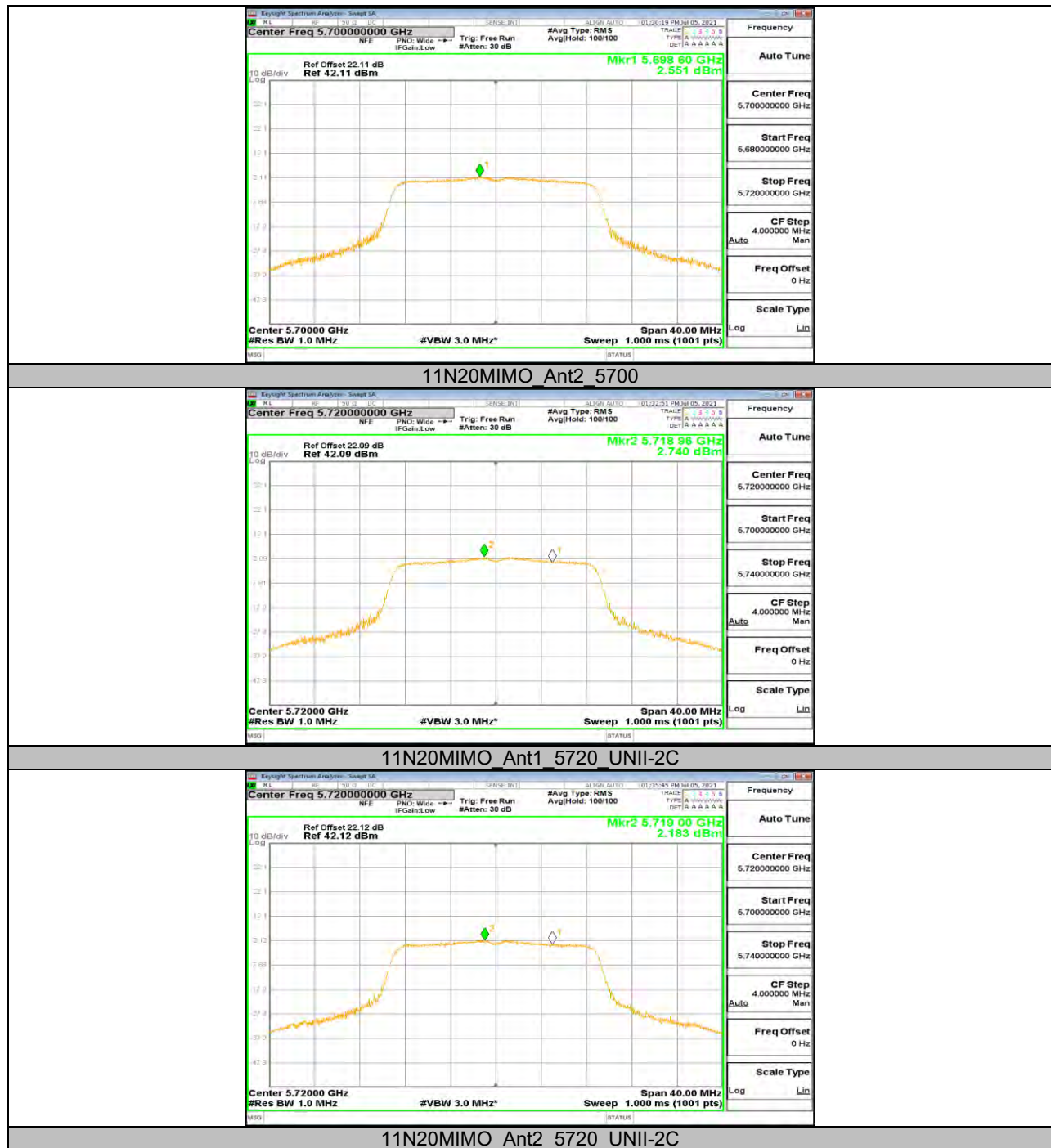


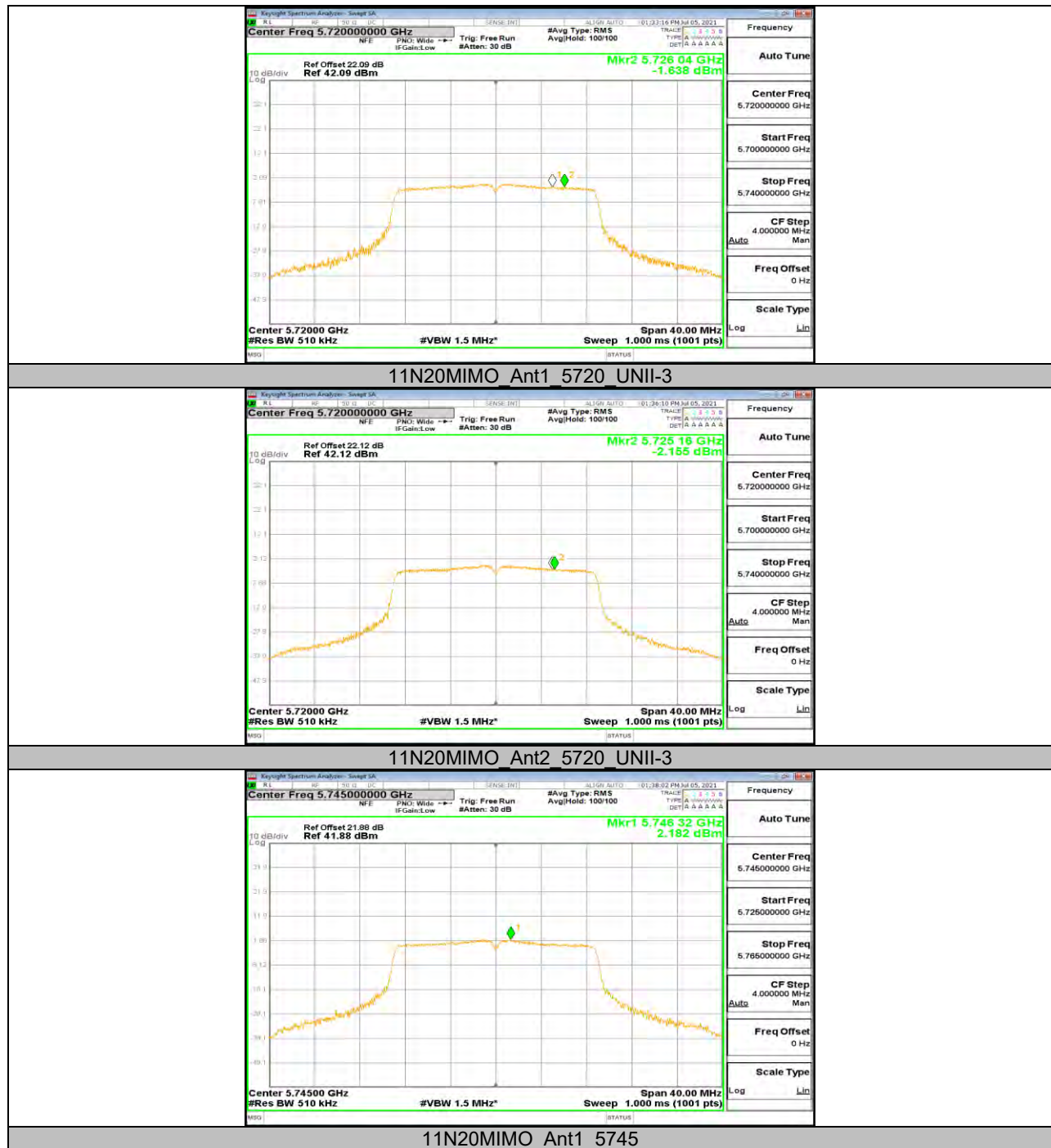


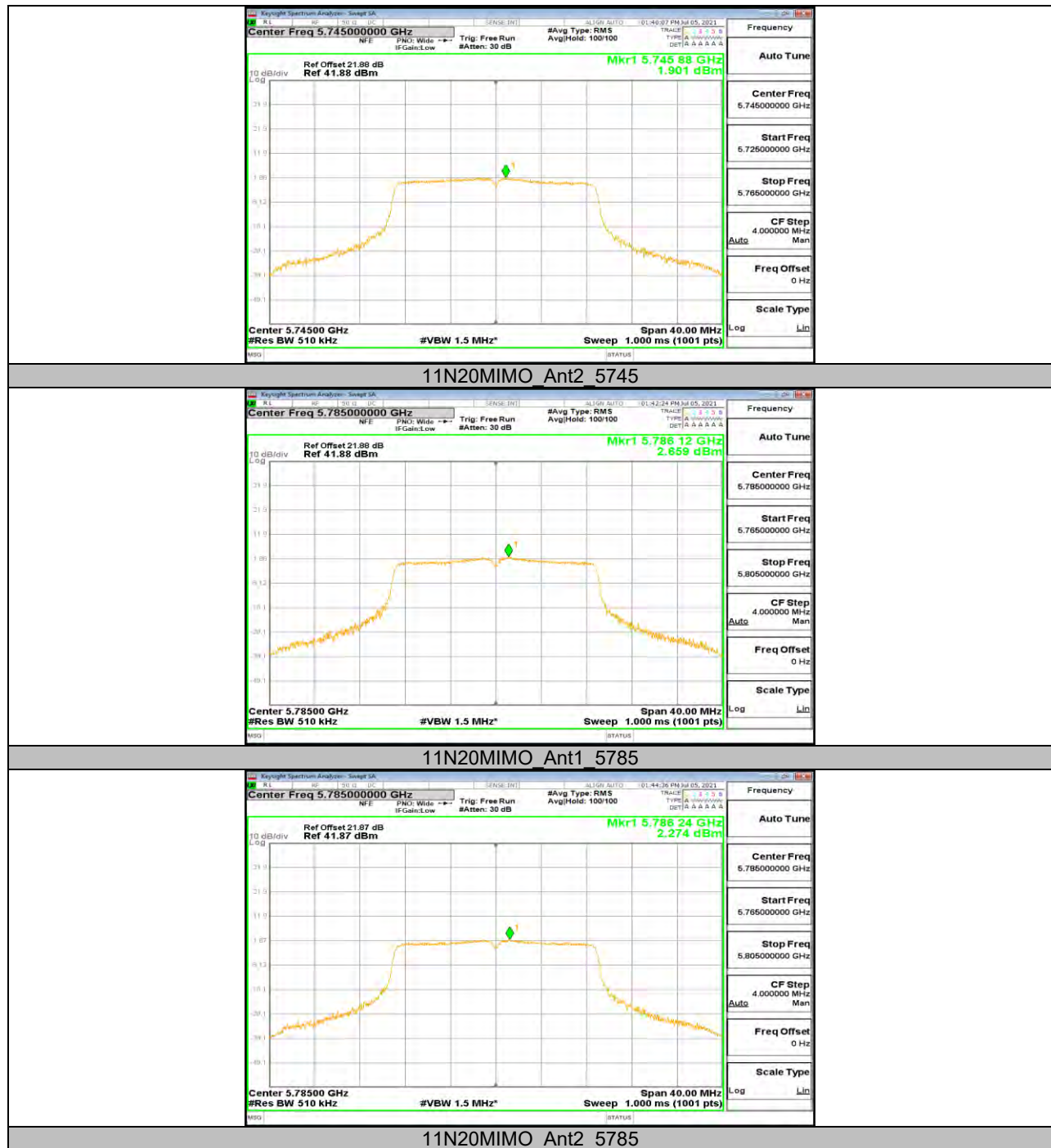


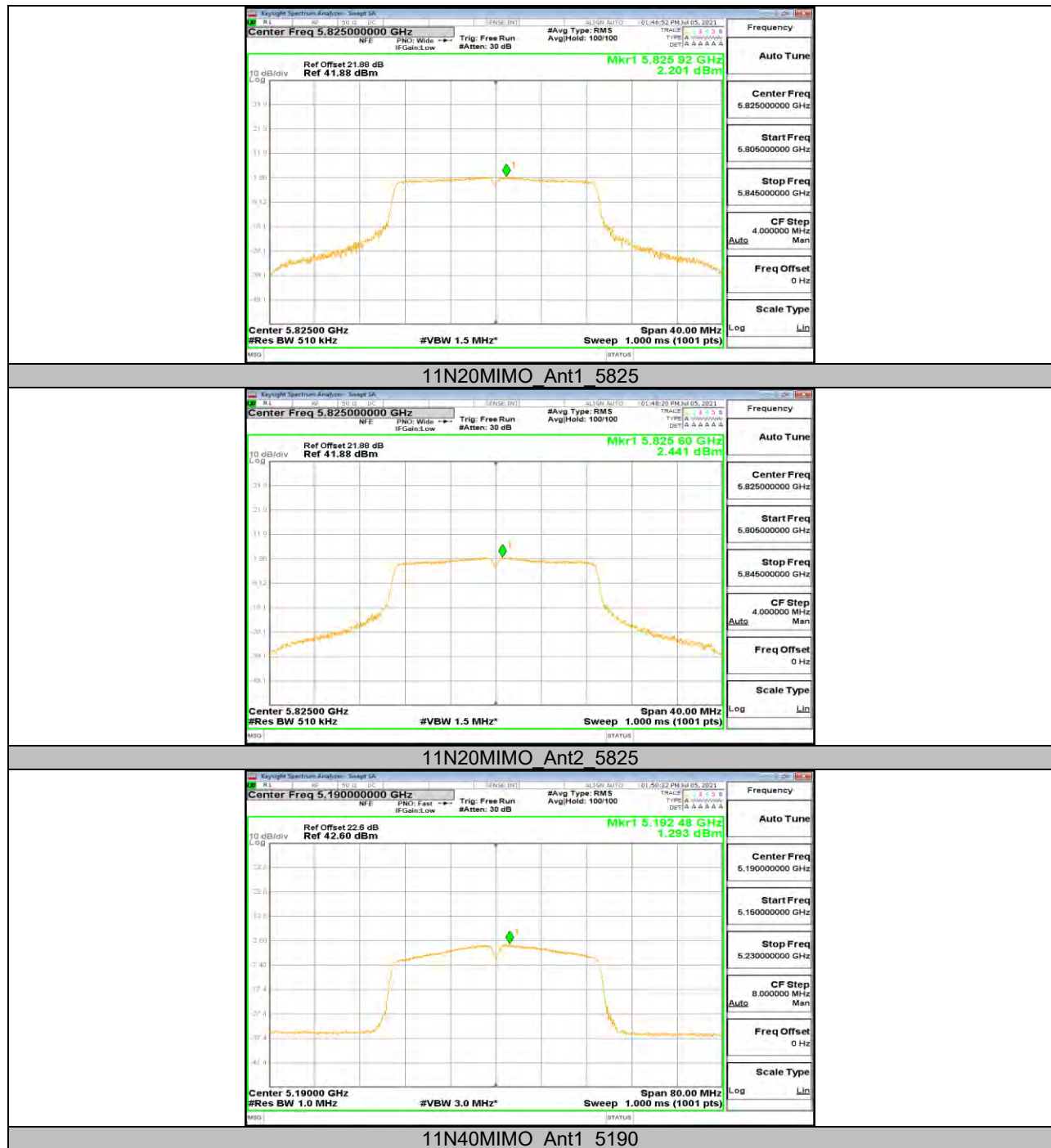


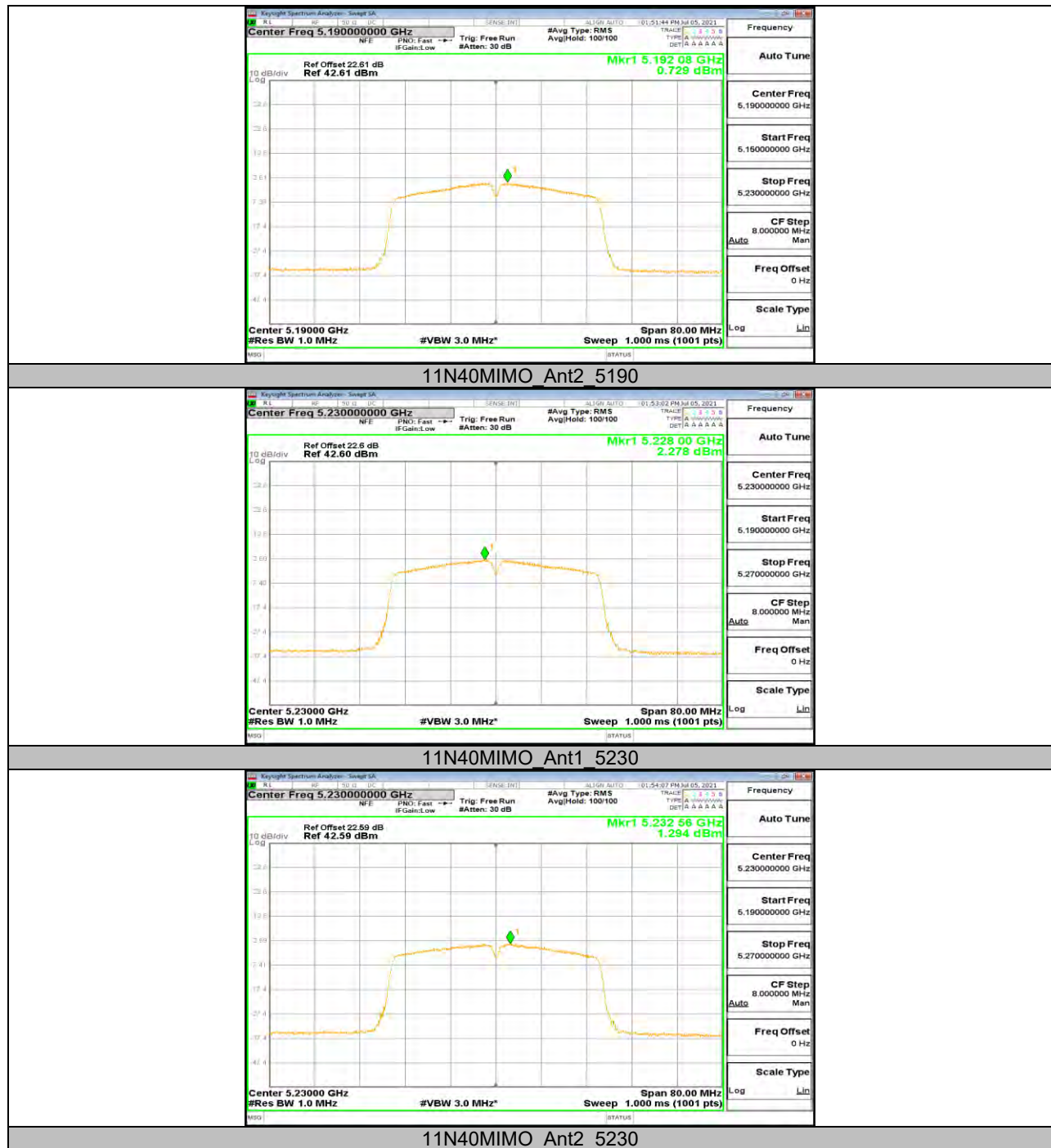


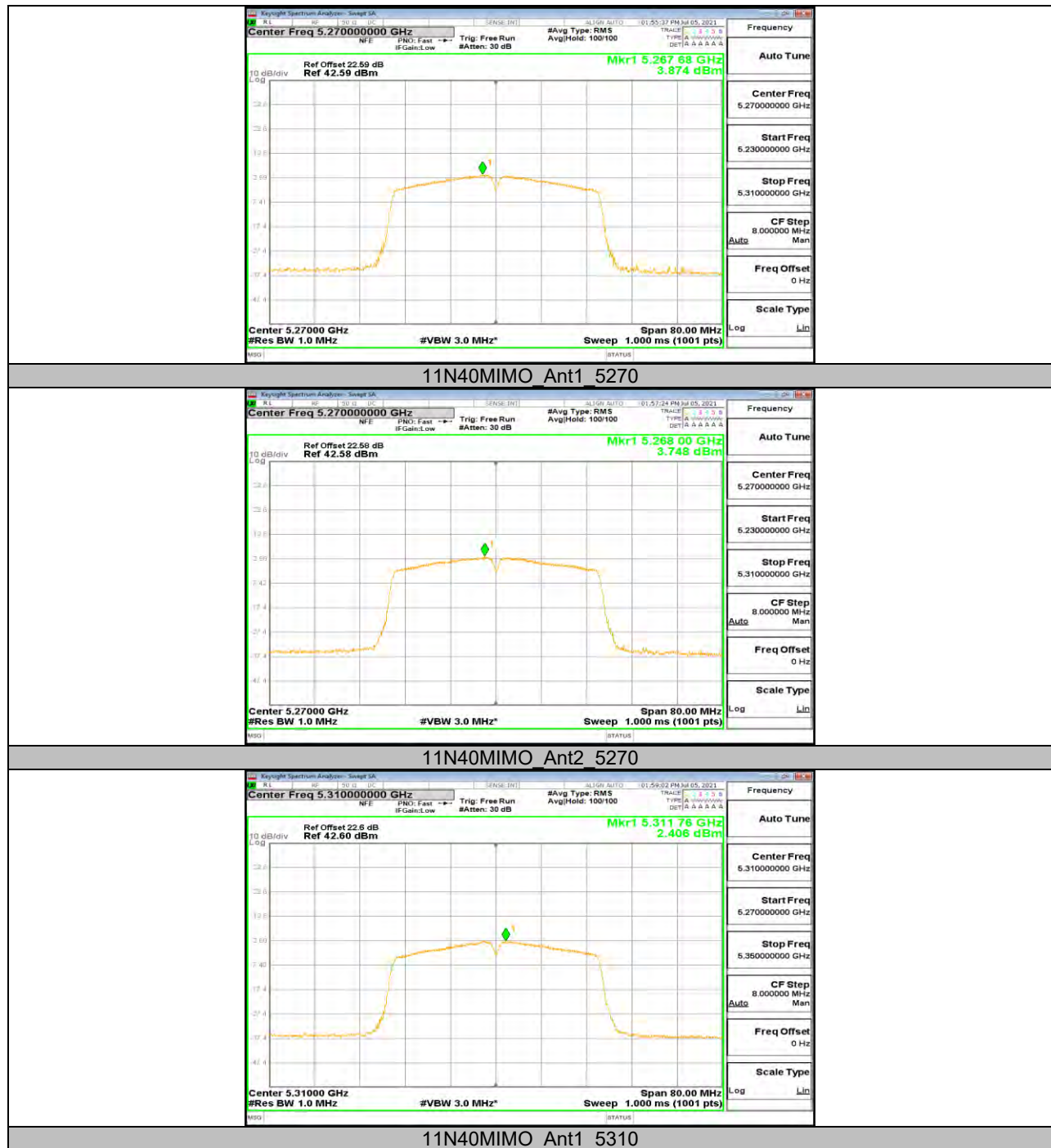


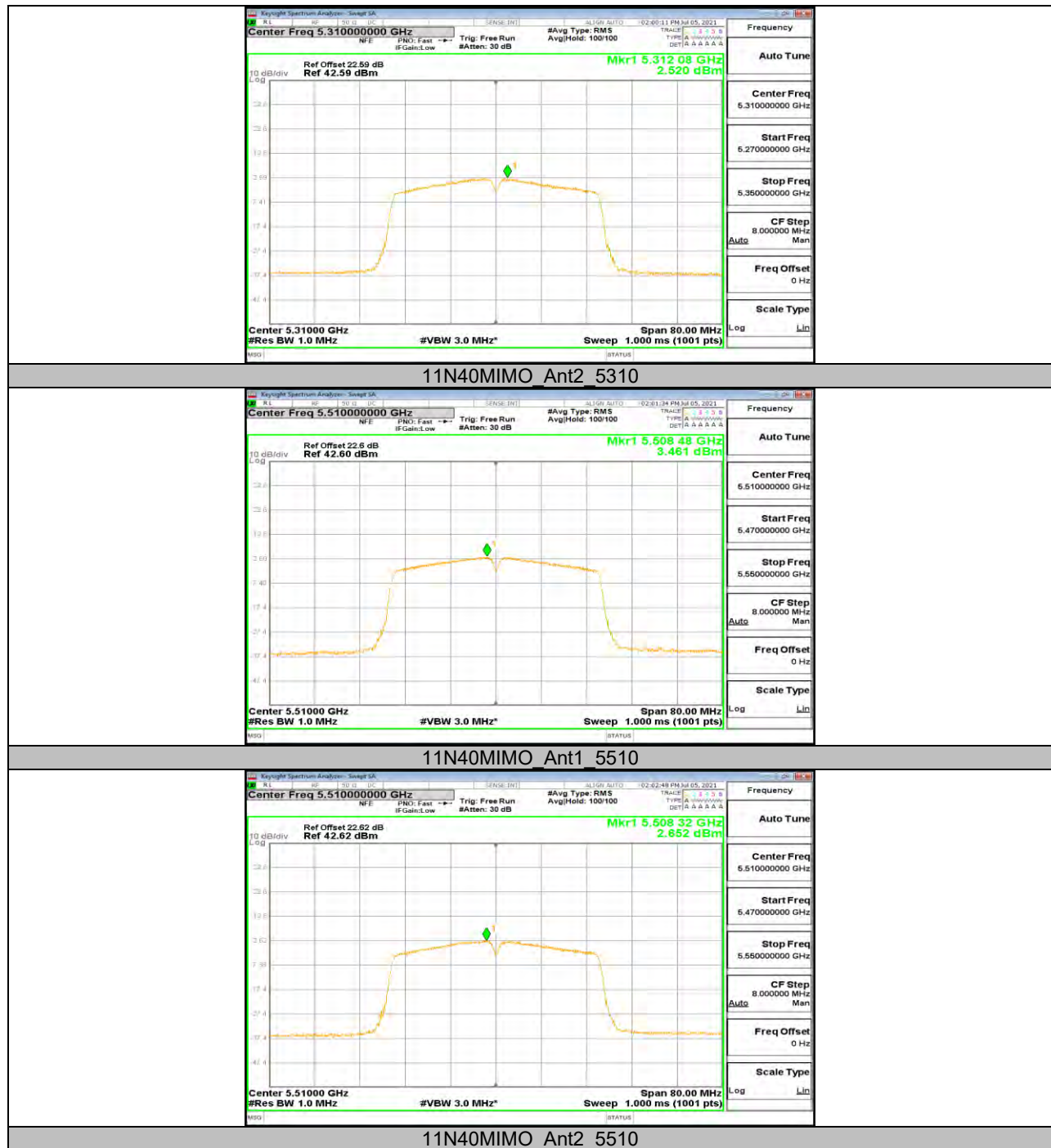


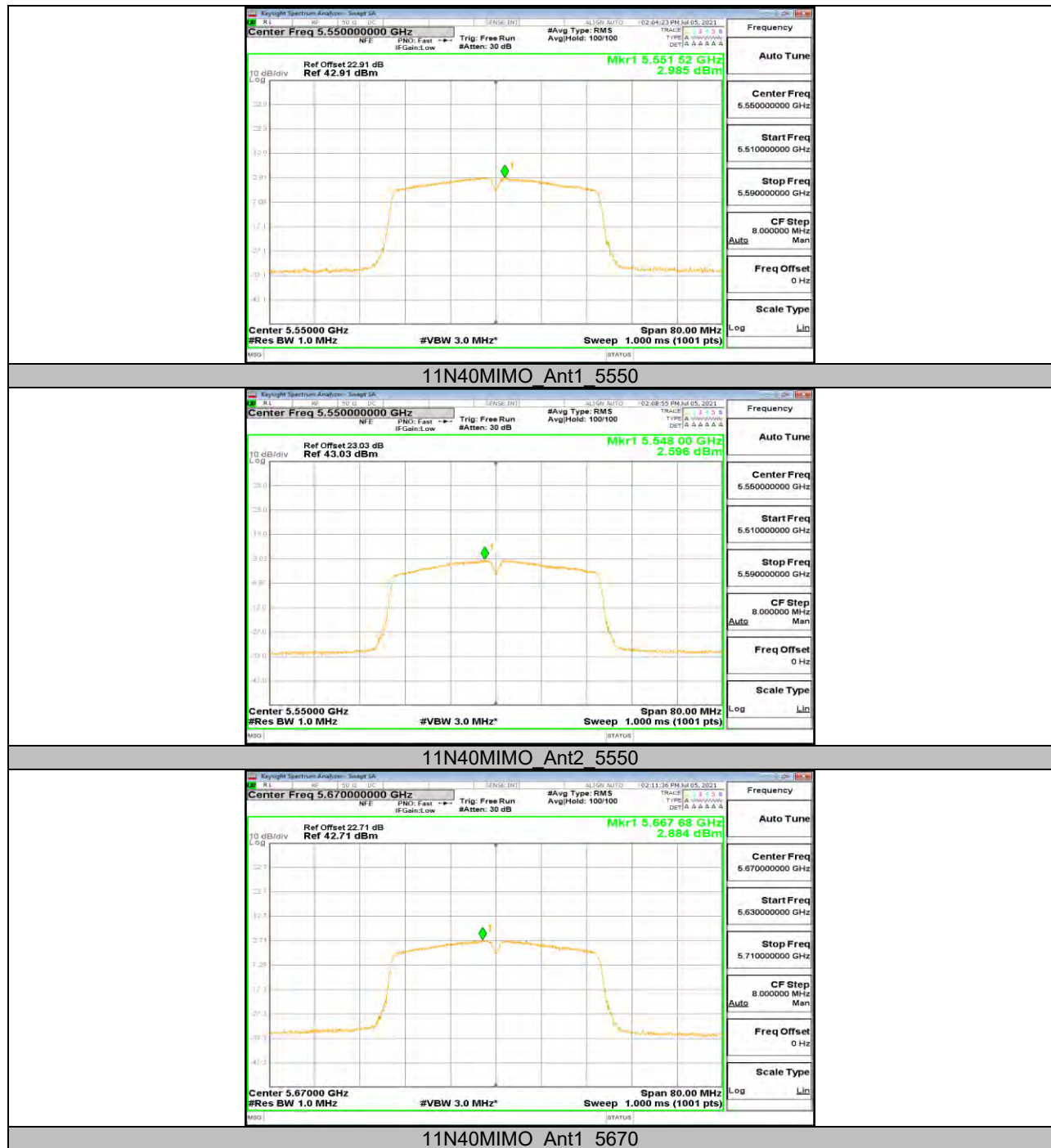


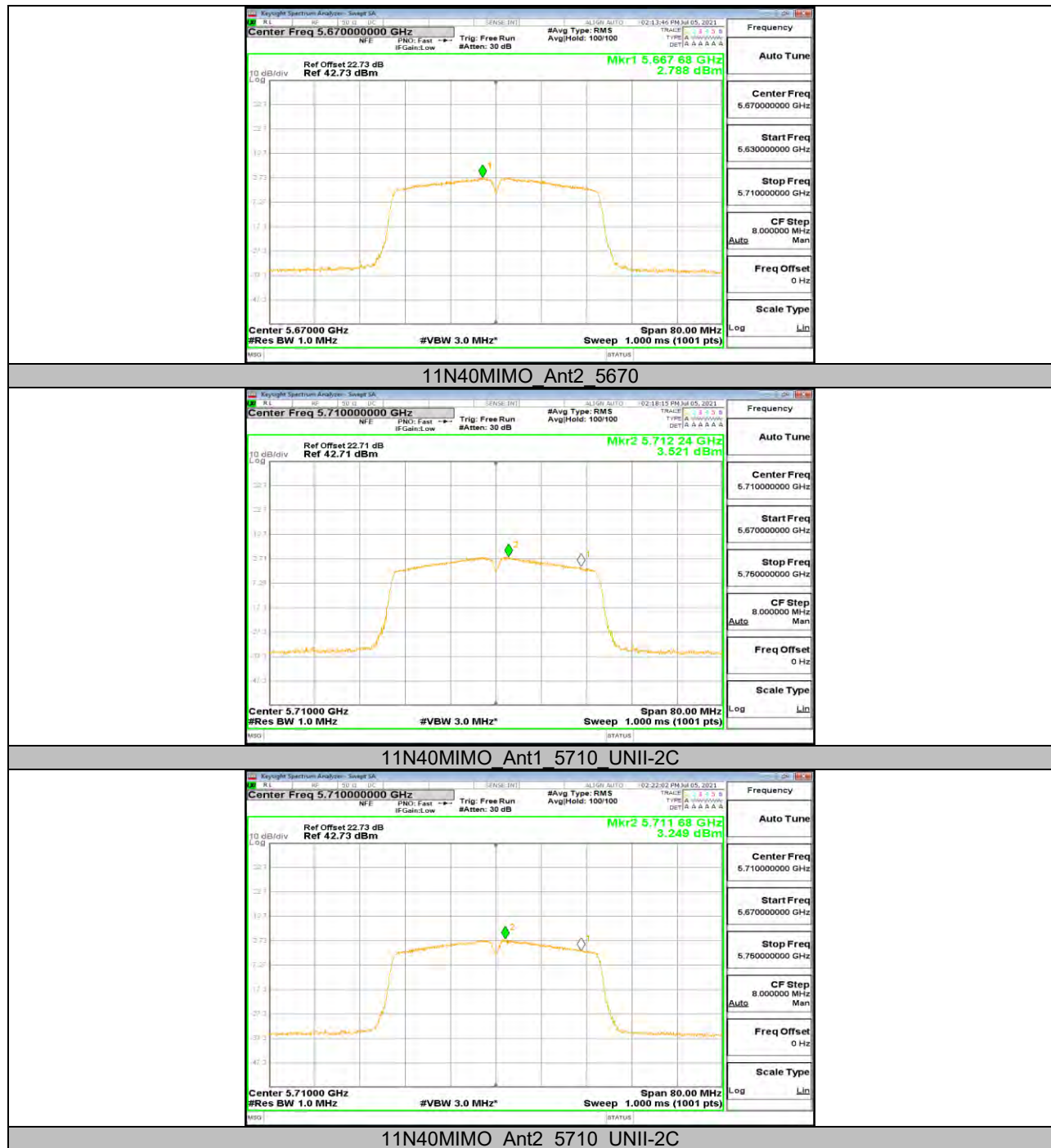


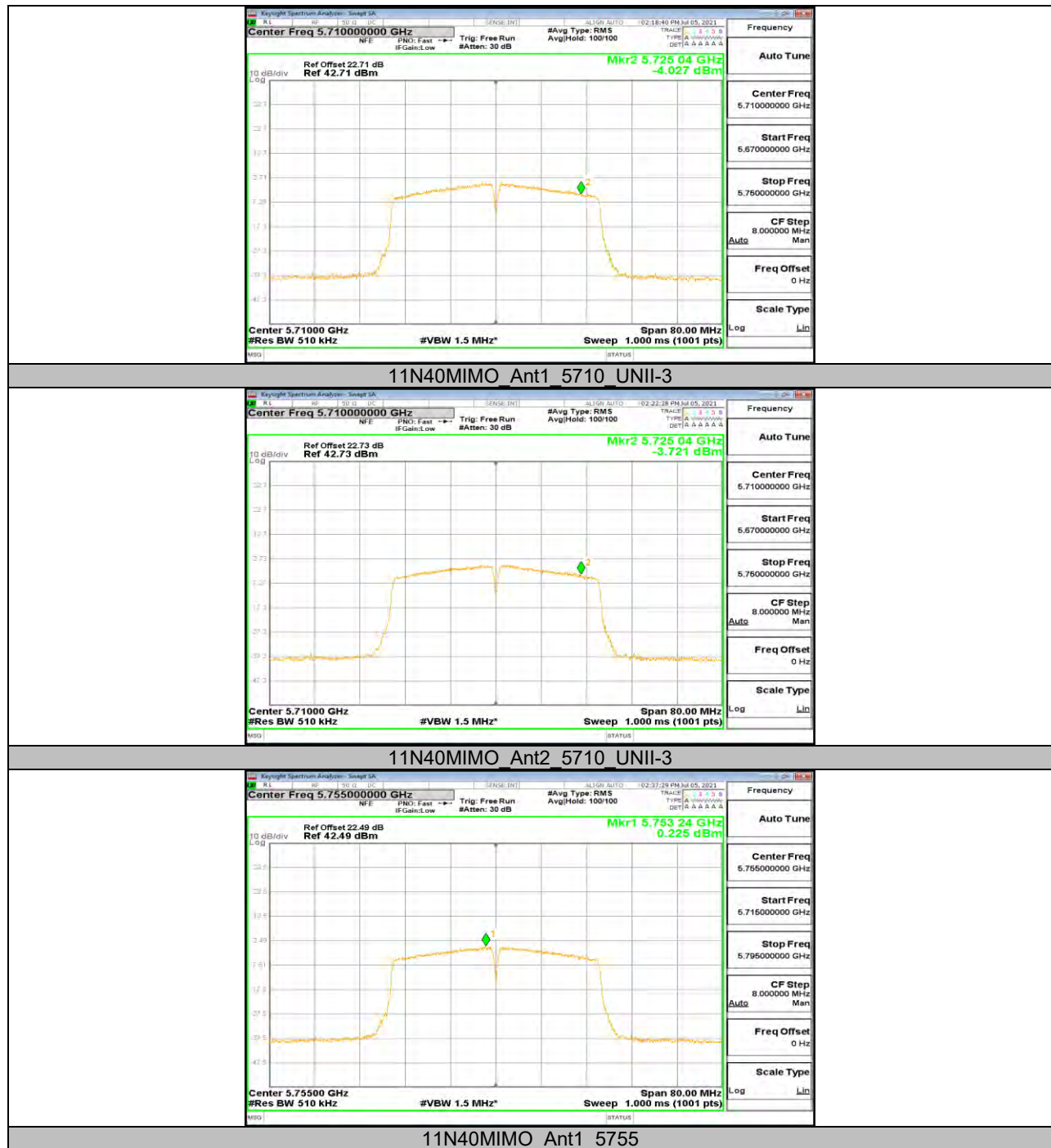


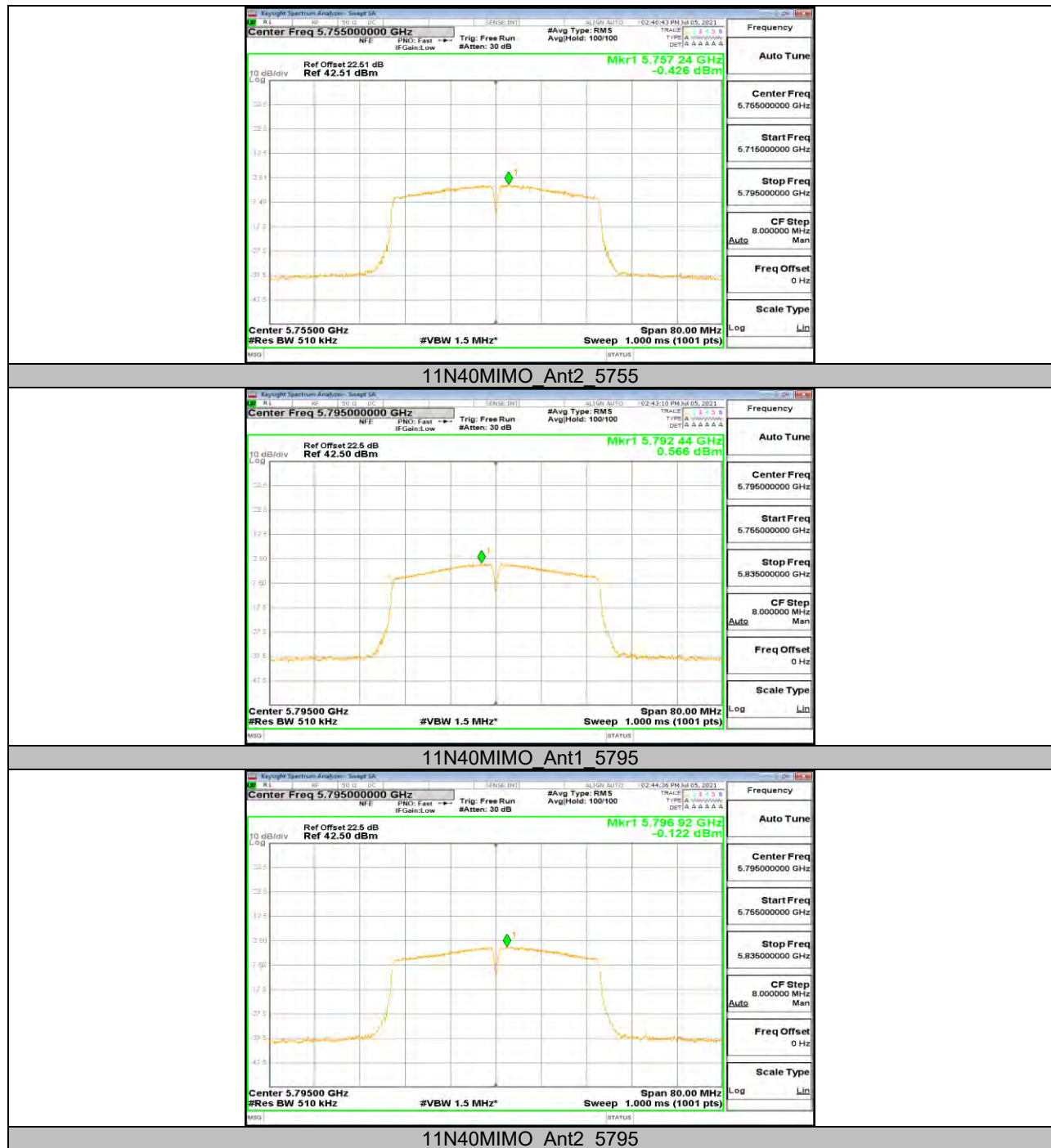








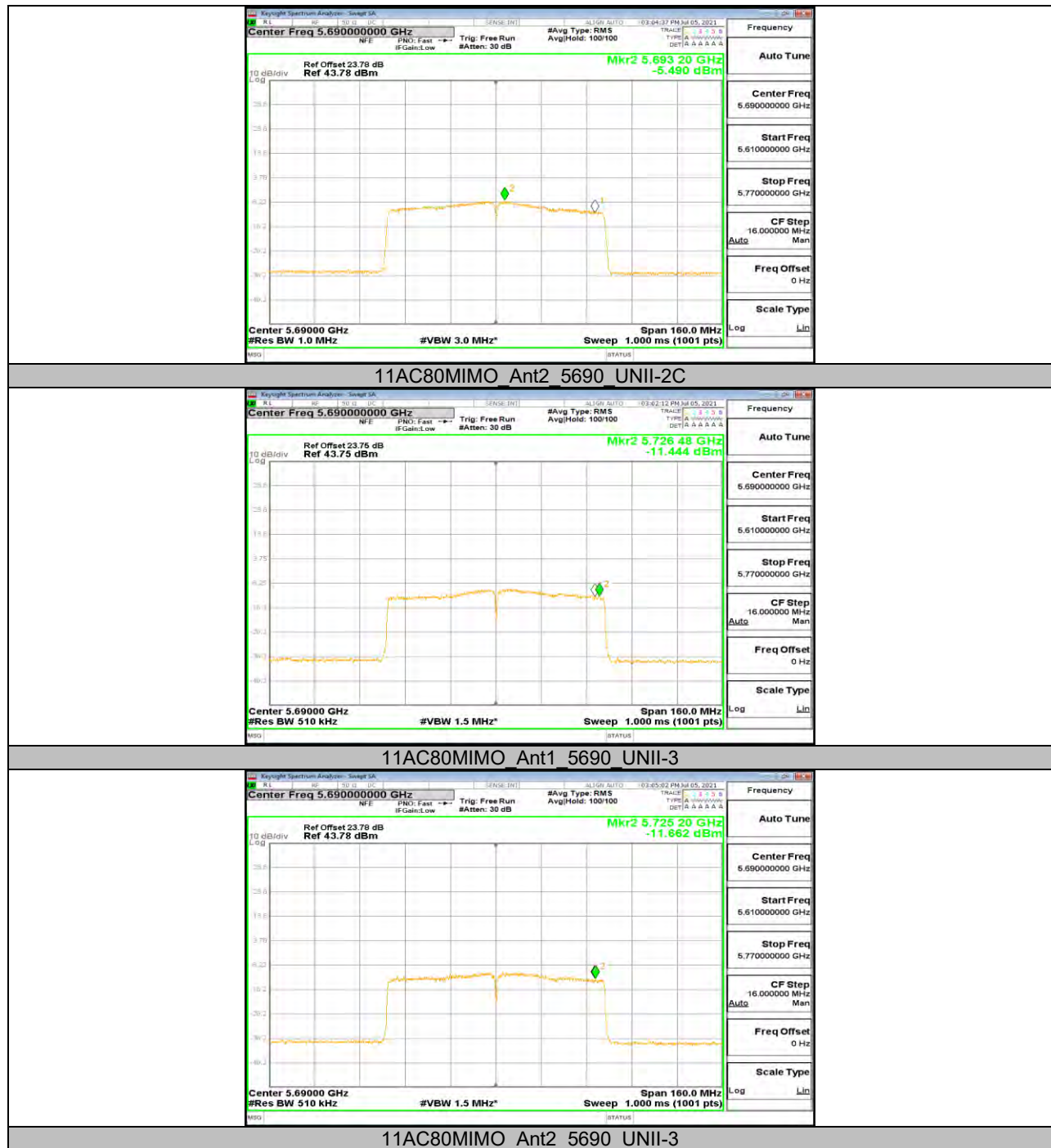


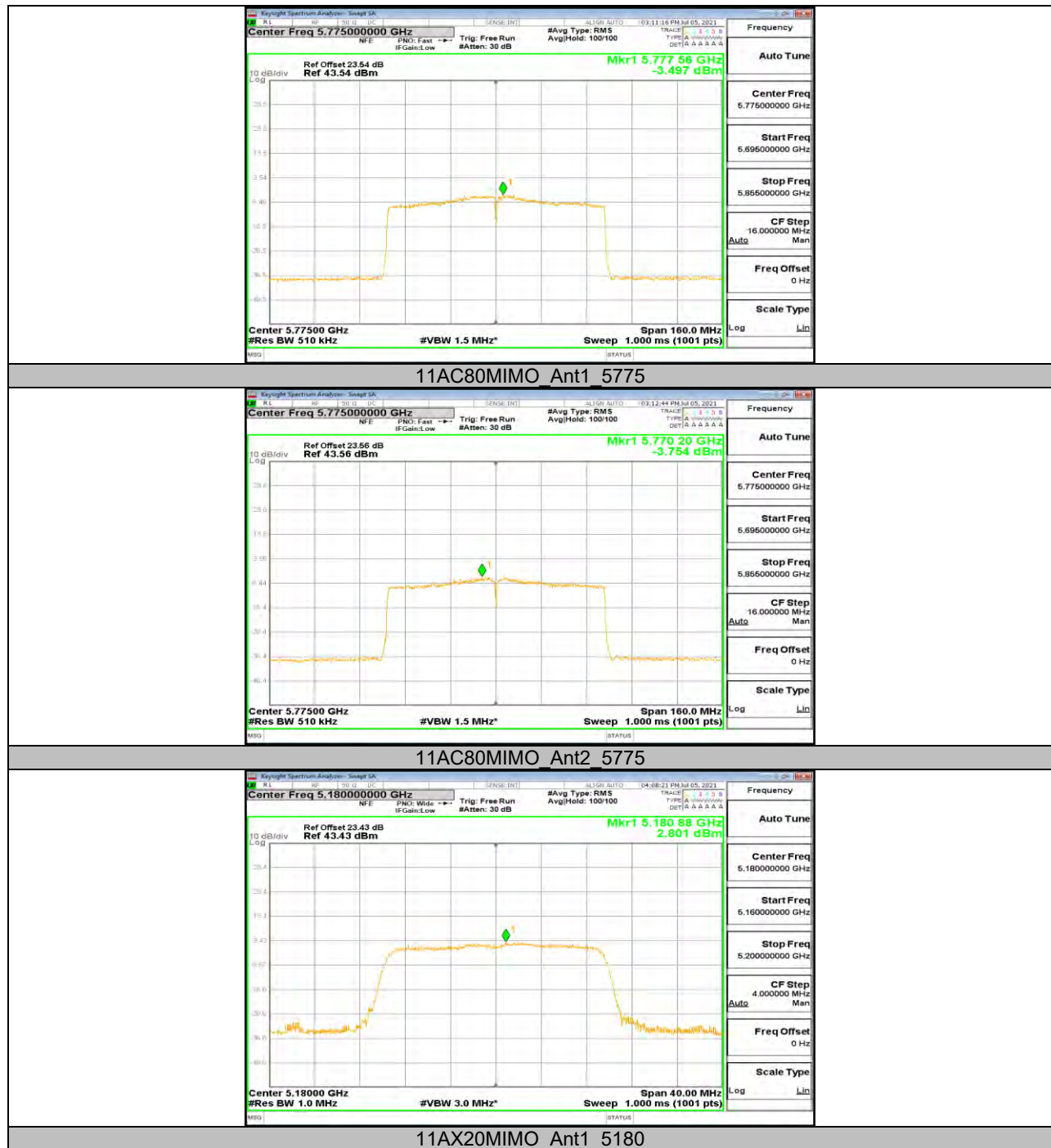


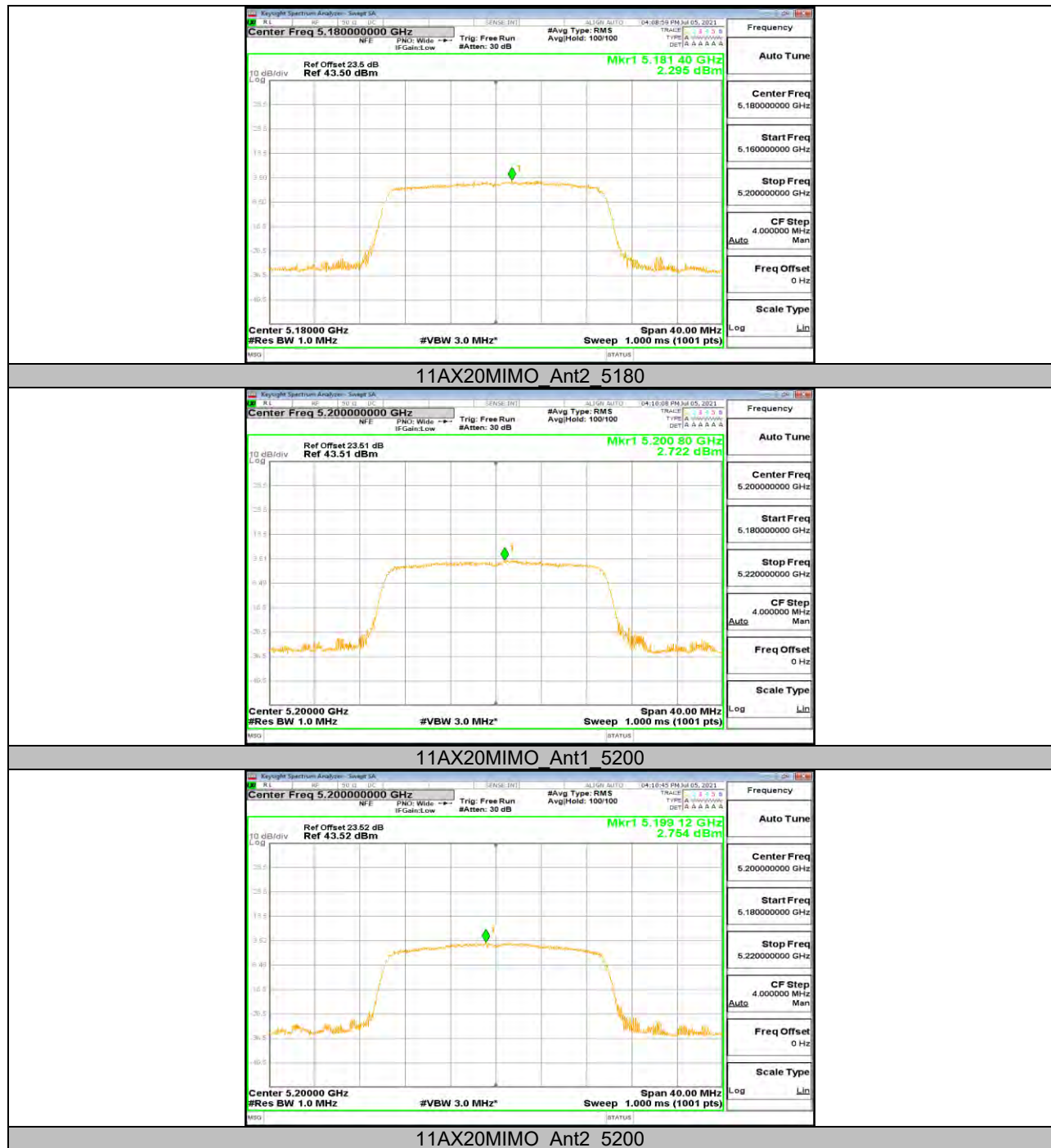


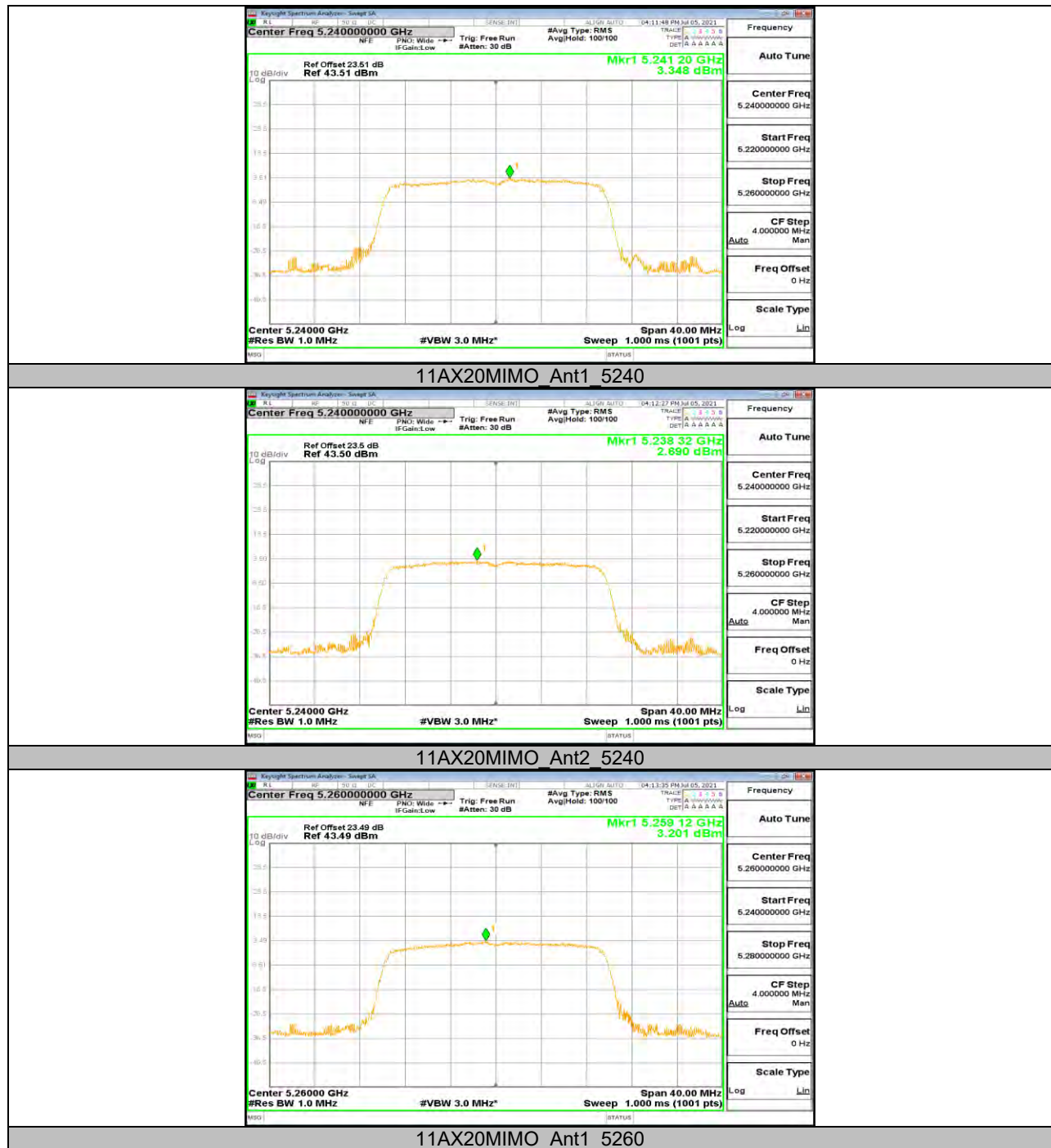


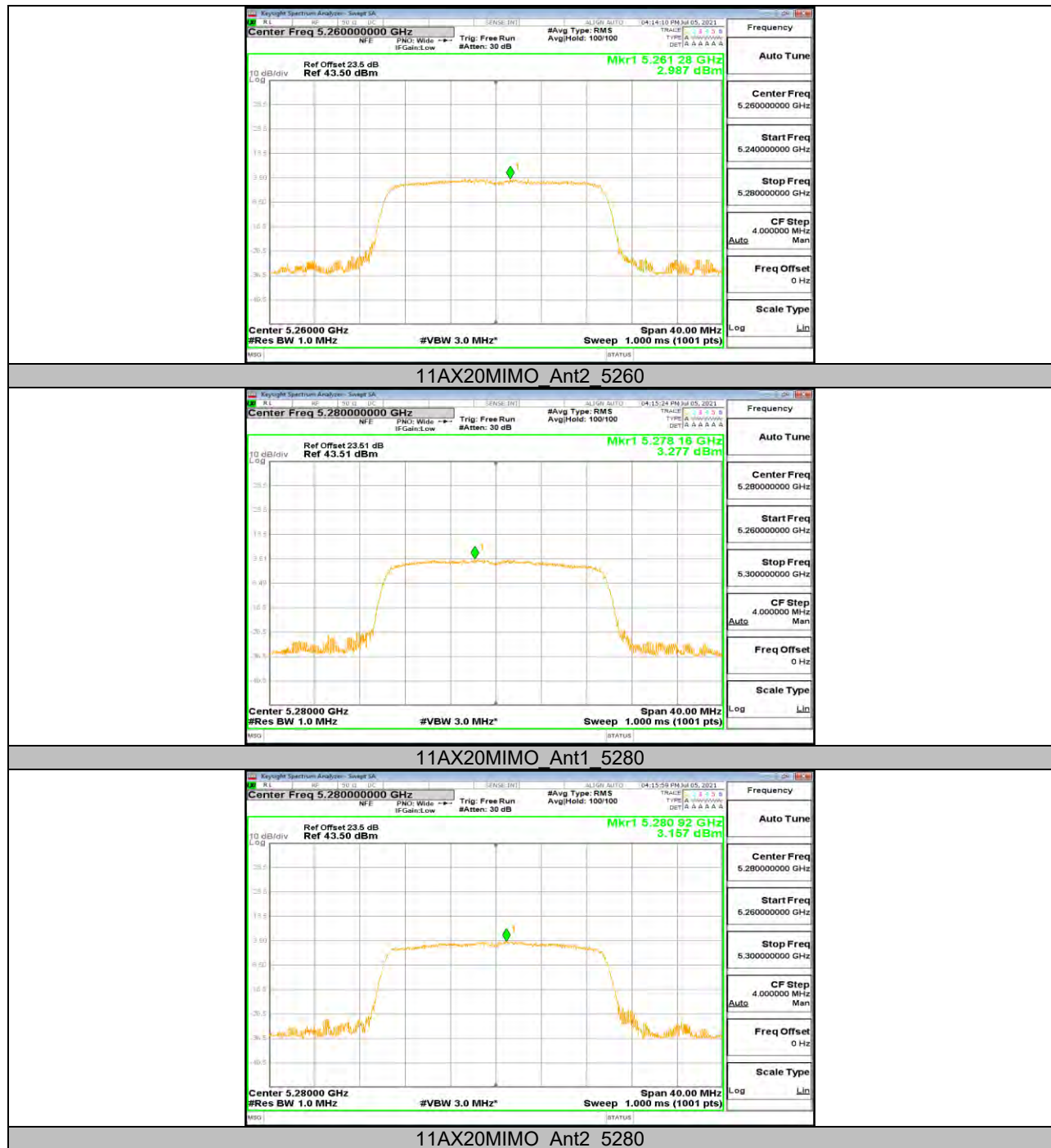


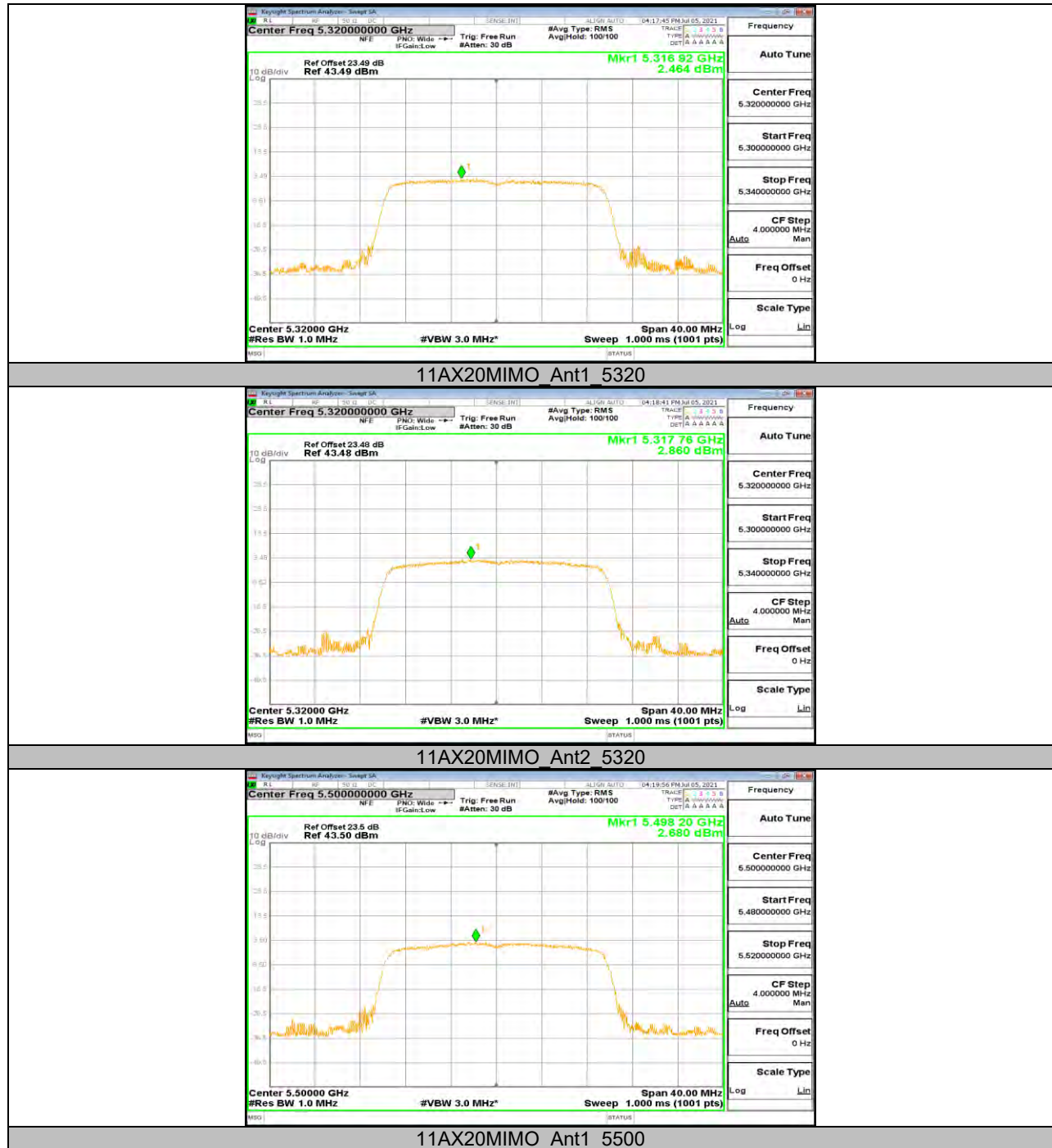


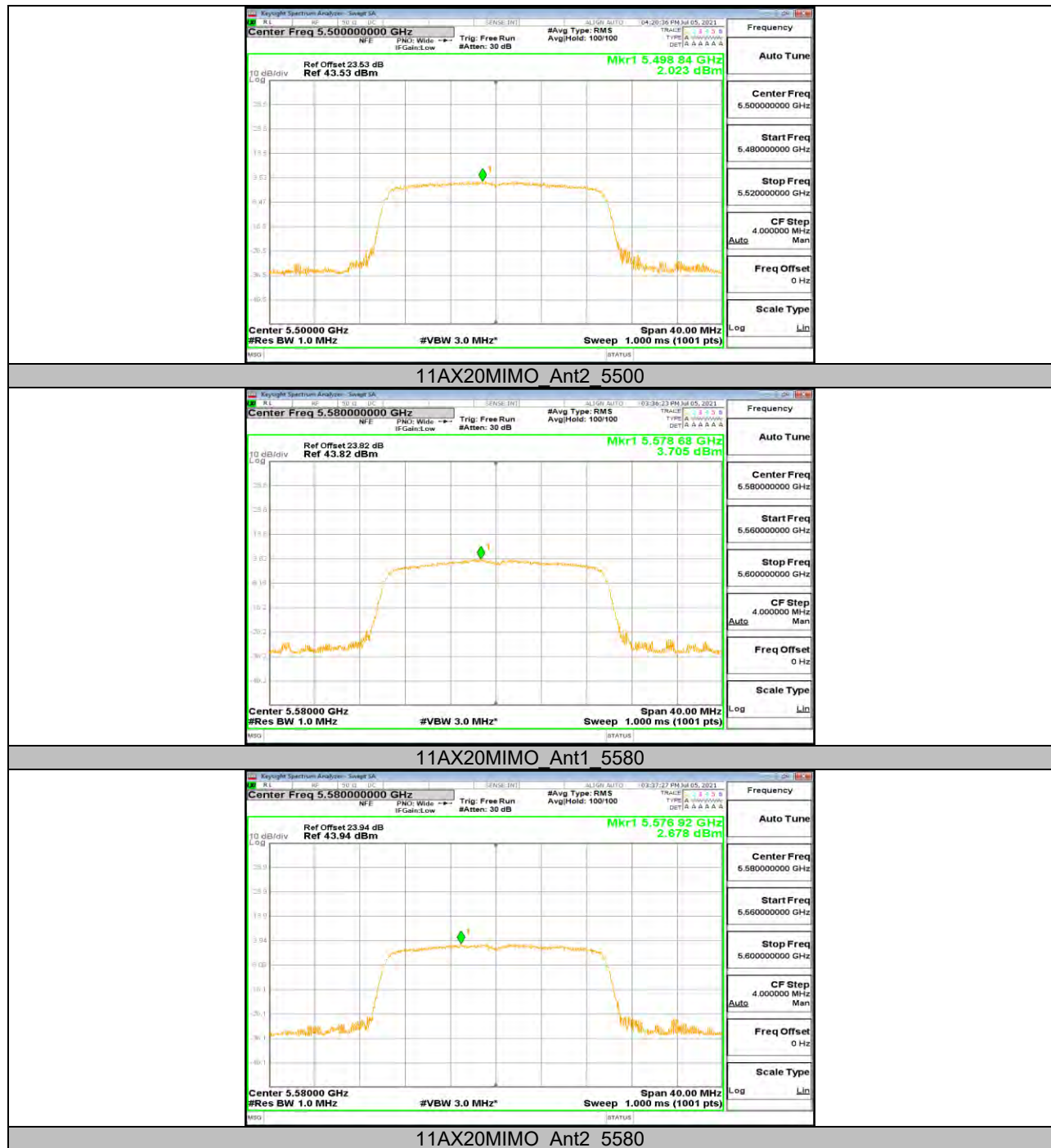


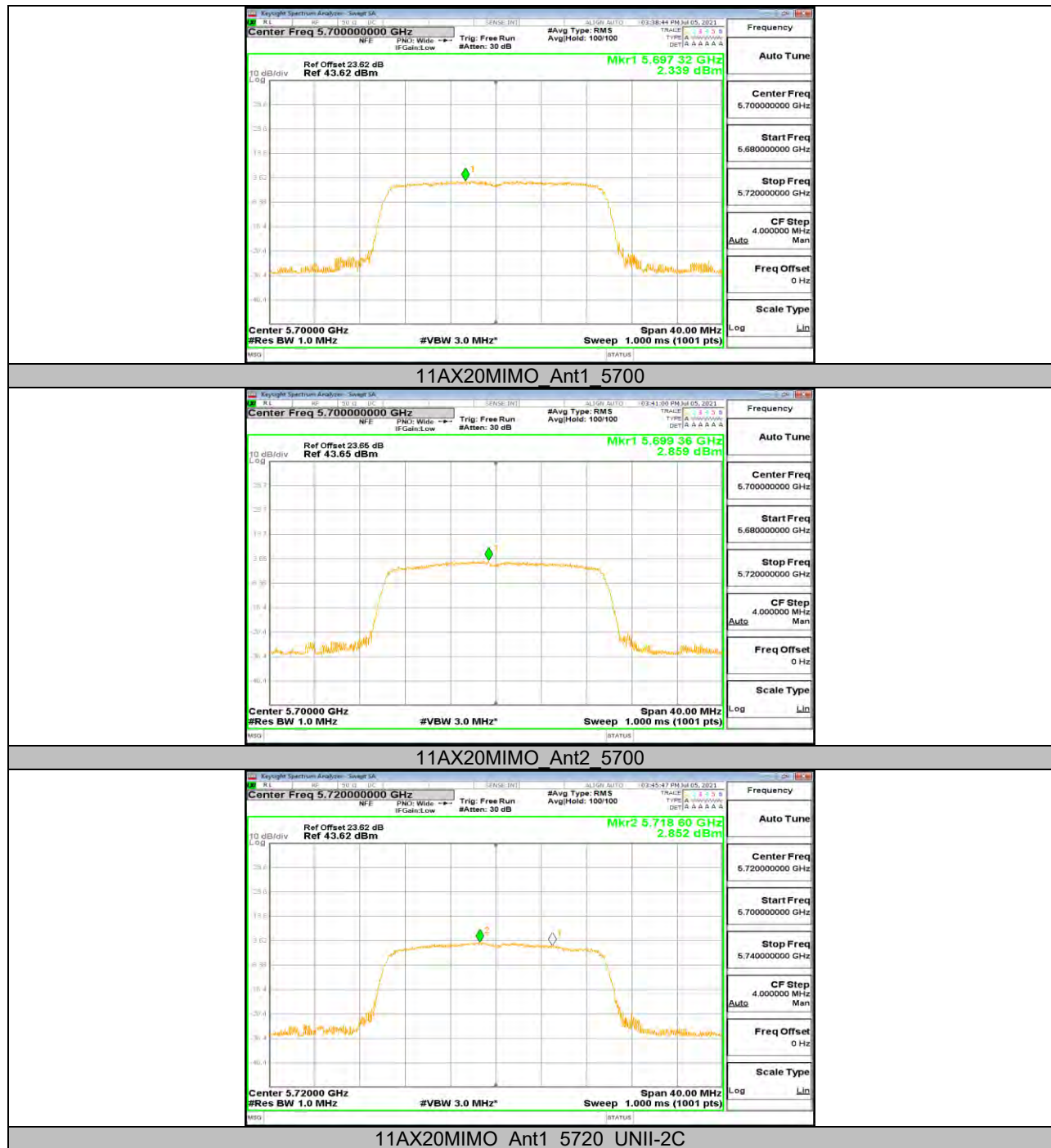


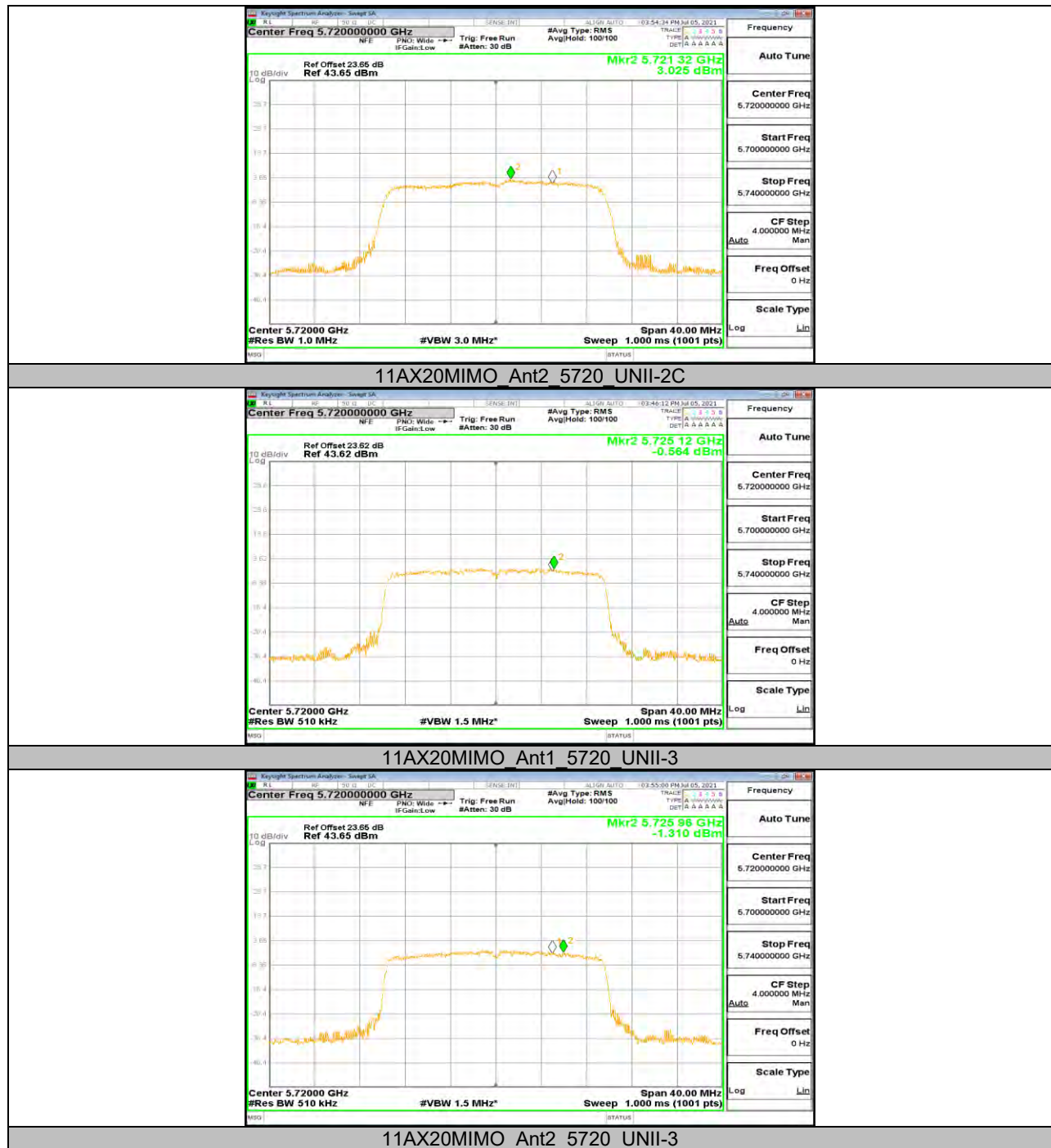


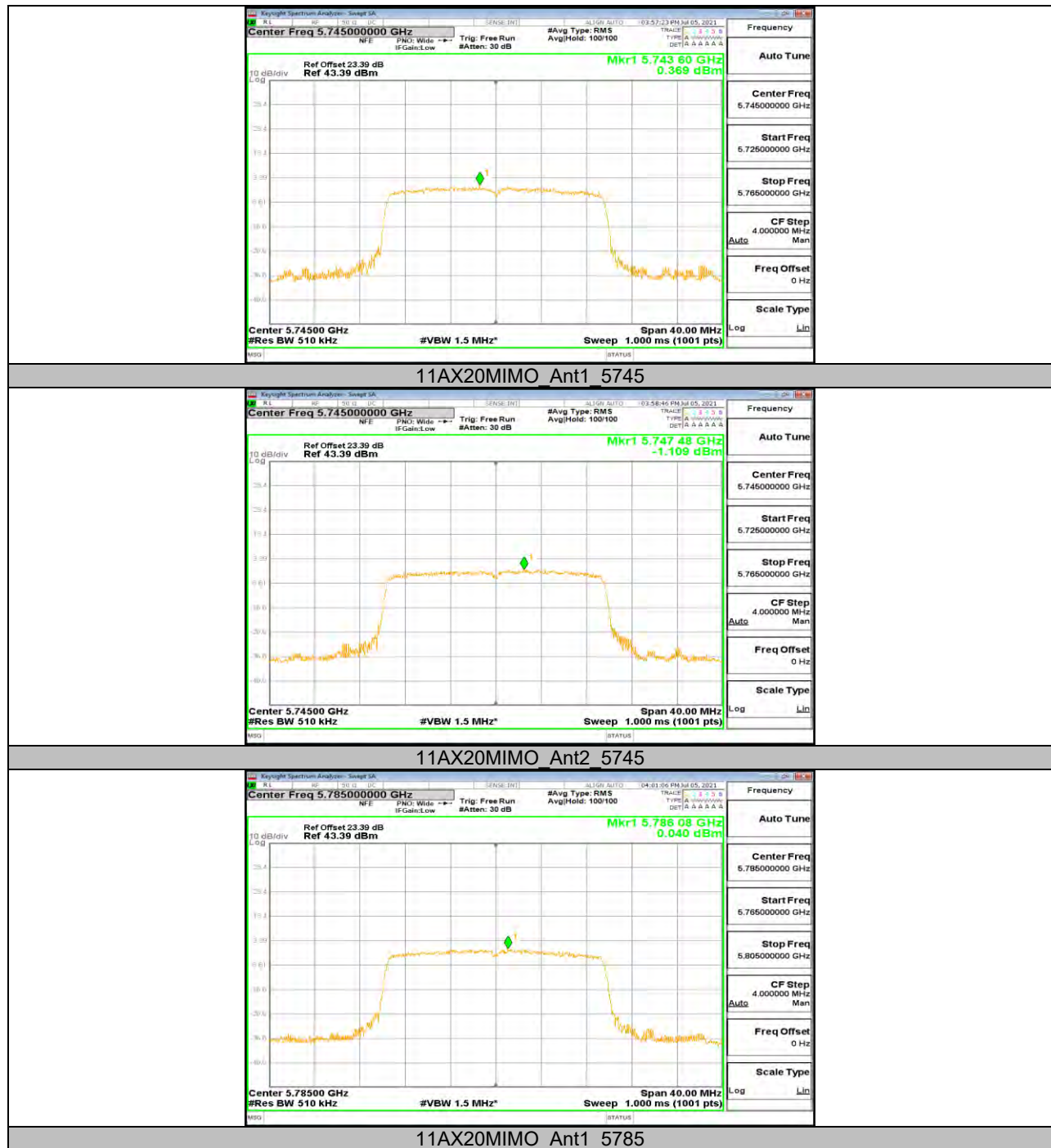


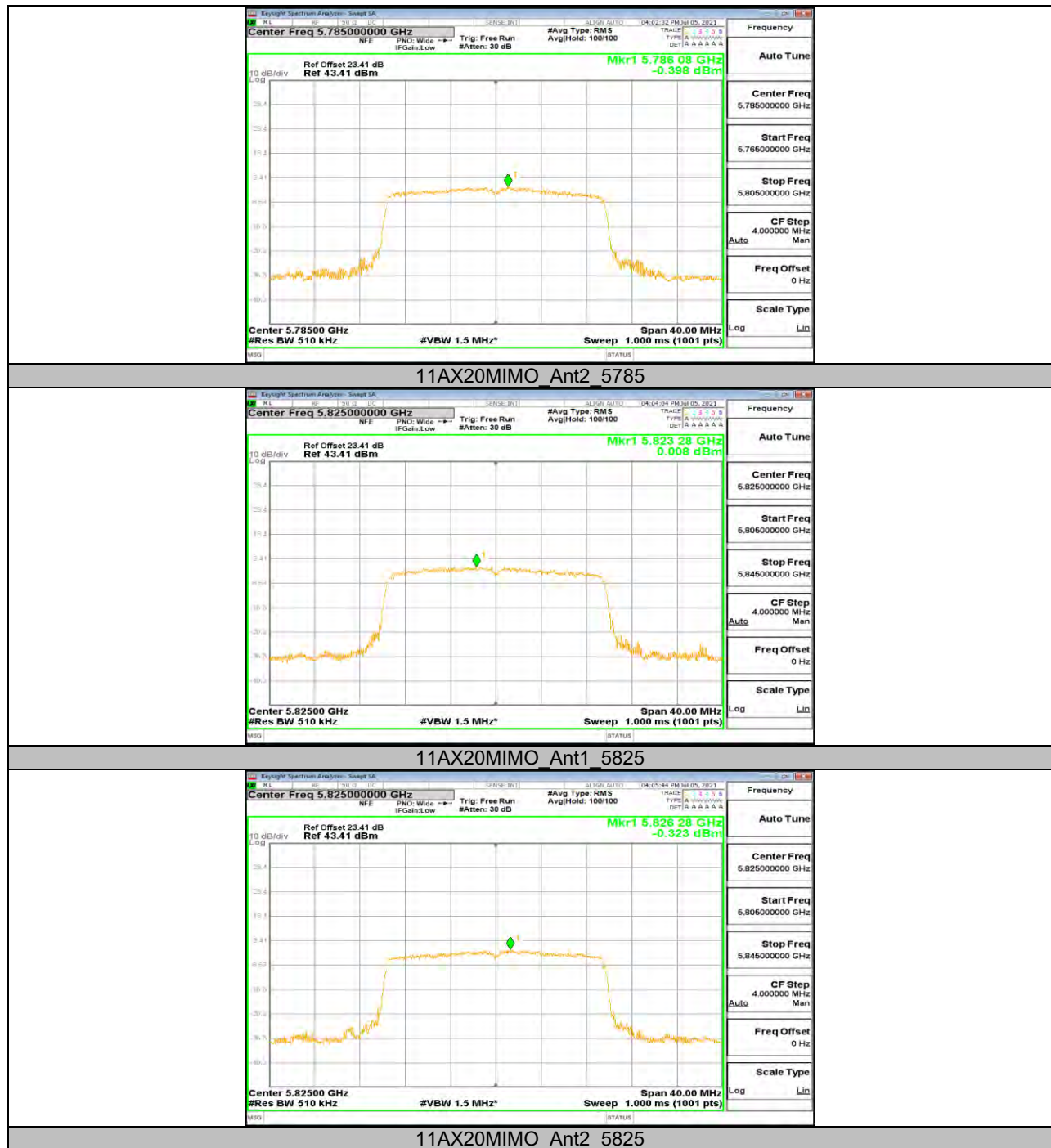








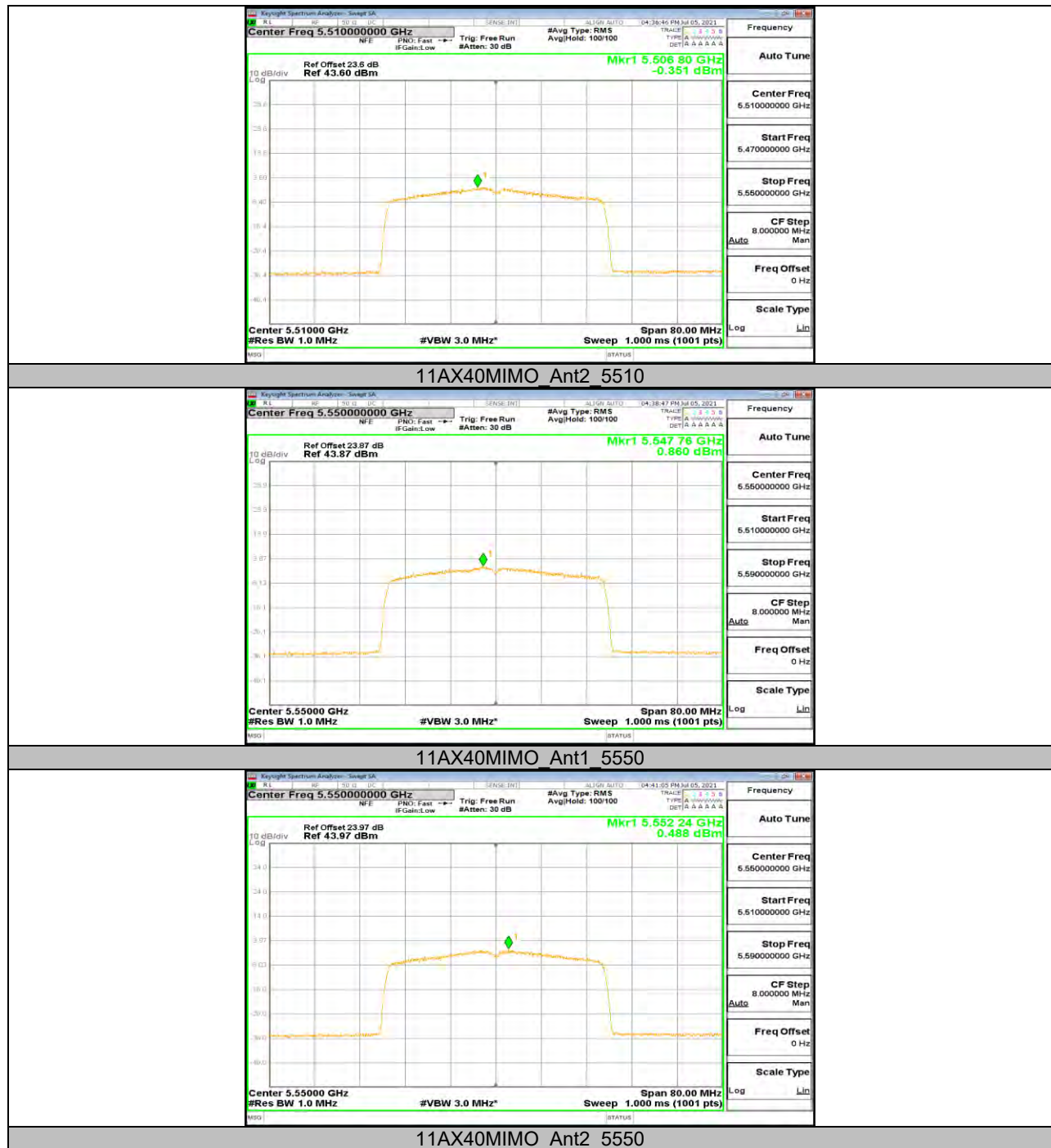






























13.6. Appendix D: Duty Cycle

13.6.1. Test Result

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11A20	1.40	1.62	0.8642	86.42	0.63	0.71	1
11N20MIMO	1.30	1.52	0.8553	85.53	0.68	0.77	1
11N40MIMO	0.64	0.87	0.7356	73.56	1.33	1.56	2
11AX20MIMO	0.31	0.51	0.6078	60.78	2.16	3.23	4
11AX40MIMO	0.31	0.52	0.5962	59.62	2.25	3.23	4
11AX80MIMO	0.30	0.52	0.5769	57.69	2.39	3.33	4

Note:

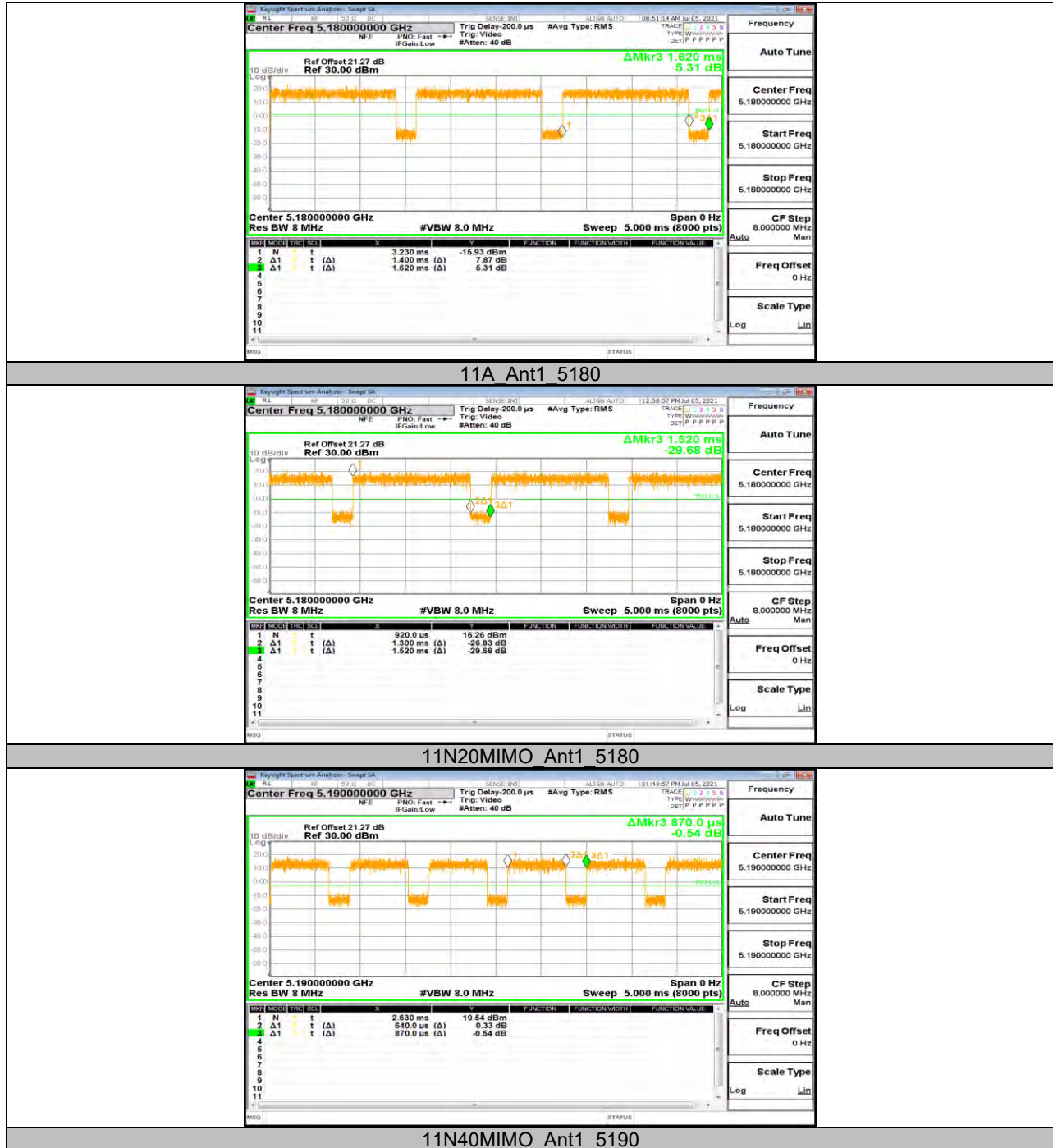
Duty Cycle Correction Factor= $10\log(1/x)$.

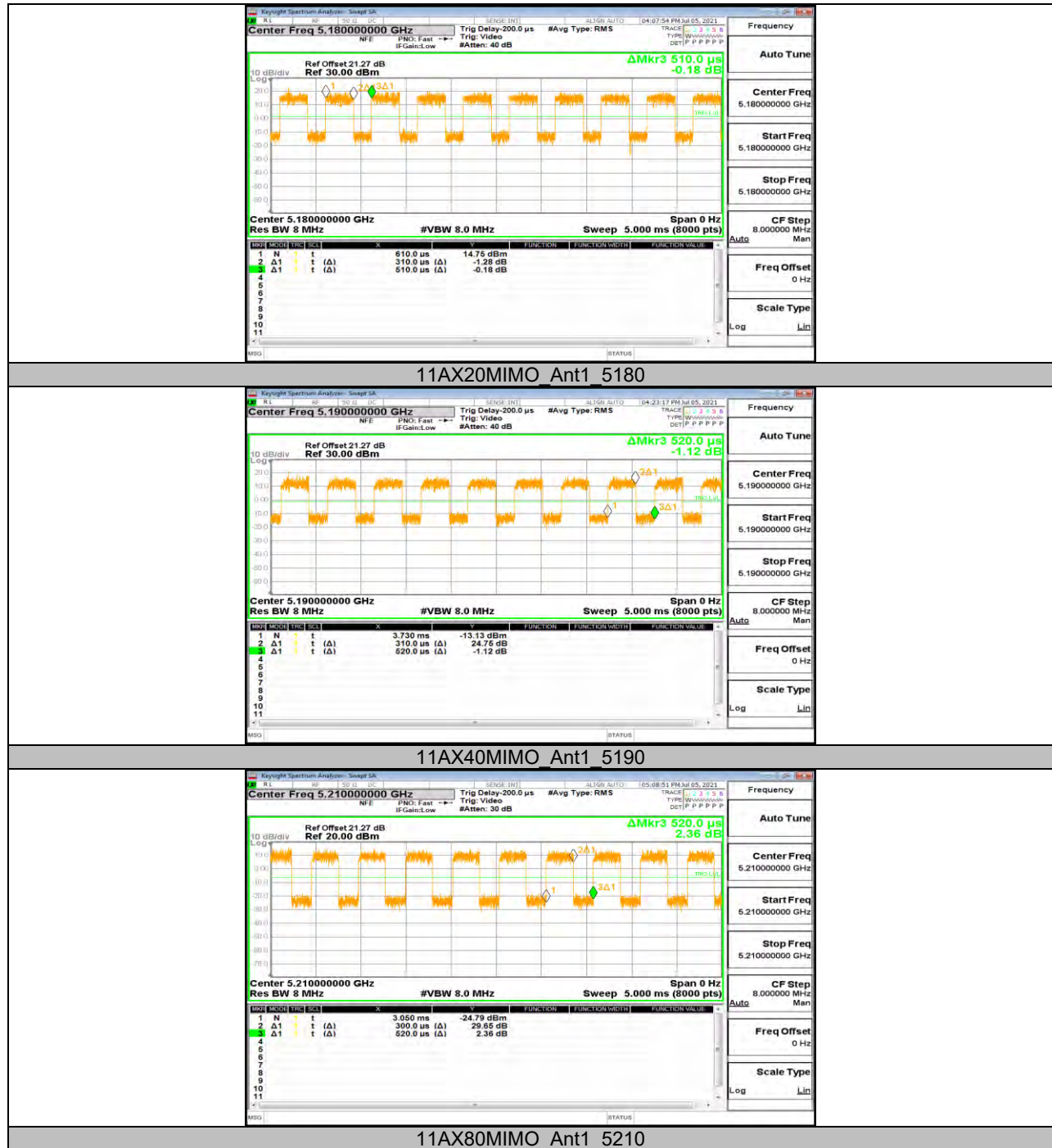
Where: x is Duty Cycle (Linear)

Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.

13.6.2. Test Graphs





**13.7. Appendix E: Frequency Stability****13.7.1. Test Result**

Frequency Error vs. Voltage									
802.11a20:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5200.0232	4.46	5200.0066	1.26	5199.9789	-4.06	5200.0001	0.03
TN	VN	5199.9900	-1.93	5200.0241	4.64	5200.0215	4.13	5200.0157	3.01
TN	VH	5200.0071	1.37	5199.9954	-0.88	5199.9999	-0.01	5200.0068	1.30
Frequency Error vs. Temperature									
802.11a20:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
70	VN	5199.9849	-2.90	5199.9993	-0.13	5200.0173	3.33	5199.9810	-3.65
60	VN	5200.0003	0.05	5200.0173	3.33	5200.0085	1.63	5199.9928	-1.38
50	VN	5199.9907	-1.78	5200.0040	0.77	5199.9835	-3.16	5200.0220	4.24
40	VN	5200.0111	2.14	5200.0136	2.62	5200.0044	0.85	5200.0185	3.55
30	VN	5199.9849	-2.90	5199.9993	-0.13	5200.0173	3.33	5199.9810	-3.65
20	VN	5200.0010	0.20	5199.9905	-1.82	5199.9862	-2.66	5199.9771	-4.41
10	VN	5199.9999	-0.03	5200.0133	2.56	5199.9784	-4.16	5200.0225	4.32
0	VN	5200.0018	0.34	5200.0168	3.22	5200.0005	0.09	5200.0060	1.15



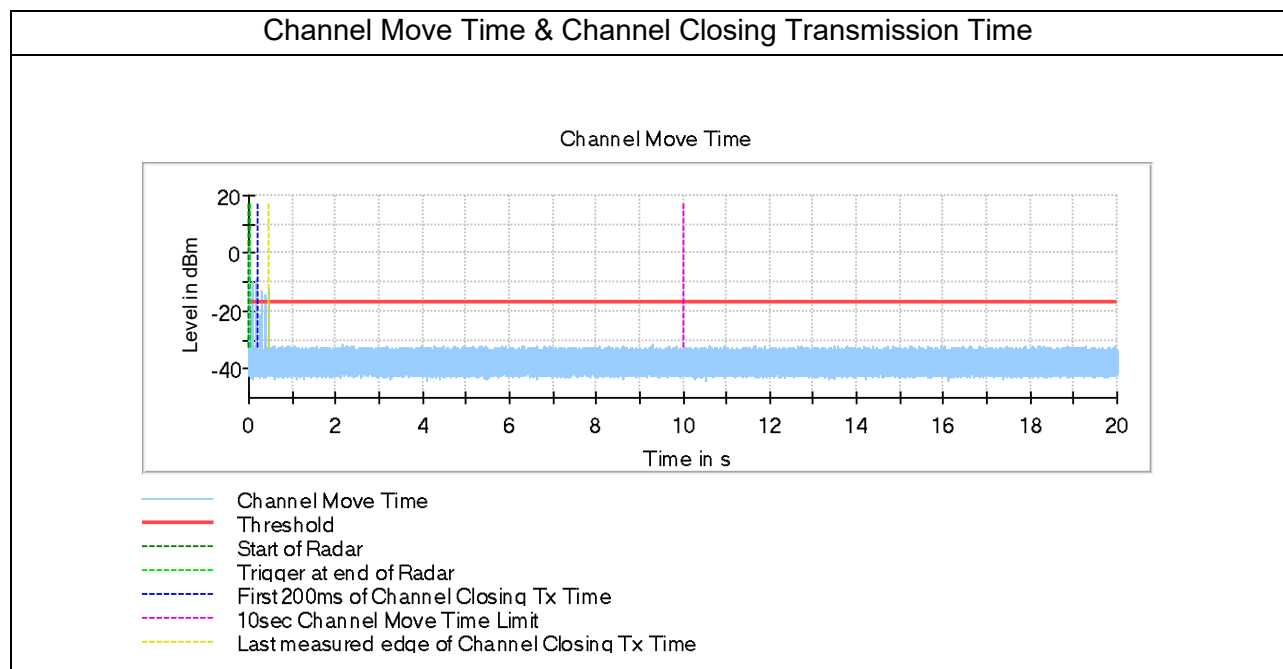
Frequency Error vs. Voltage									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5824.9908	-1.57	5824.9937	-1.08	5825.0201	3.45	5824.9778	-3.81
TN	VN	5824.9775	-3.86	5824.9857	-2.46	5825.0215	3.69	5824.9937	-1.08
TN	VH	5825.0021	0.36	5824.9798	-3.46	5825.0034	0.58	5825.0169	2.91
Frequency Error vs. Temperature									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
70	VN	5825.0140	2.41	5824.9896	-1.78	5825.0141	2.43	5824.9841	-2.74
60	VN	5825.0037	0.63	5824.9954	-0.80	5825.0070	1.21	5824.9780	-3.78
50	VN	5824.9947	-0.92	5824.9908	-1.57	5824.9892	-1.85	5825.0040	0.69
40	VN	5824.9814	-3.20	5824.9996	-0.06	5824.9795	-3.52	5825.0016	0.28
30	VN	5824.9992	-0.13	5824.9908	-1.59	5825.0014	0.24	5825.0144	2.48
20	VN	5825.0140	2.41	5824.9896	-1.78	5825.0141	2.43	5824.9841	-2.74
10	VN	5824.9877	-2.11	5825.0000	0.00	5825.0172	2.96	5824.9792	-3.57
0	VN	5824.9885	-1.97	5824.9934	-1.14	5824.9895	-1.81	5825.0191	3.28

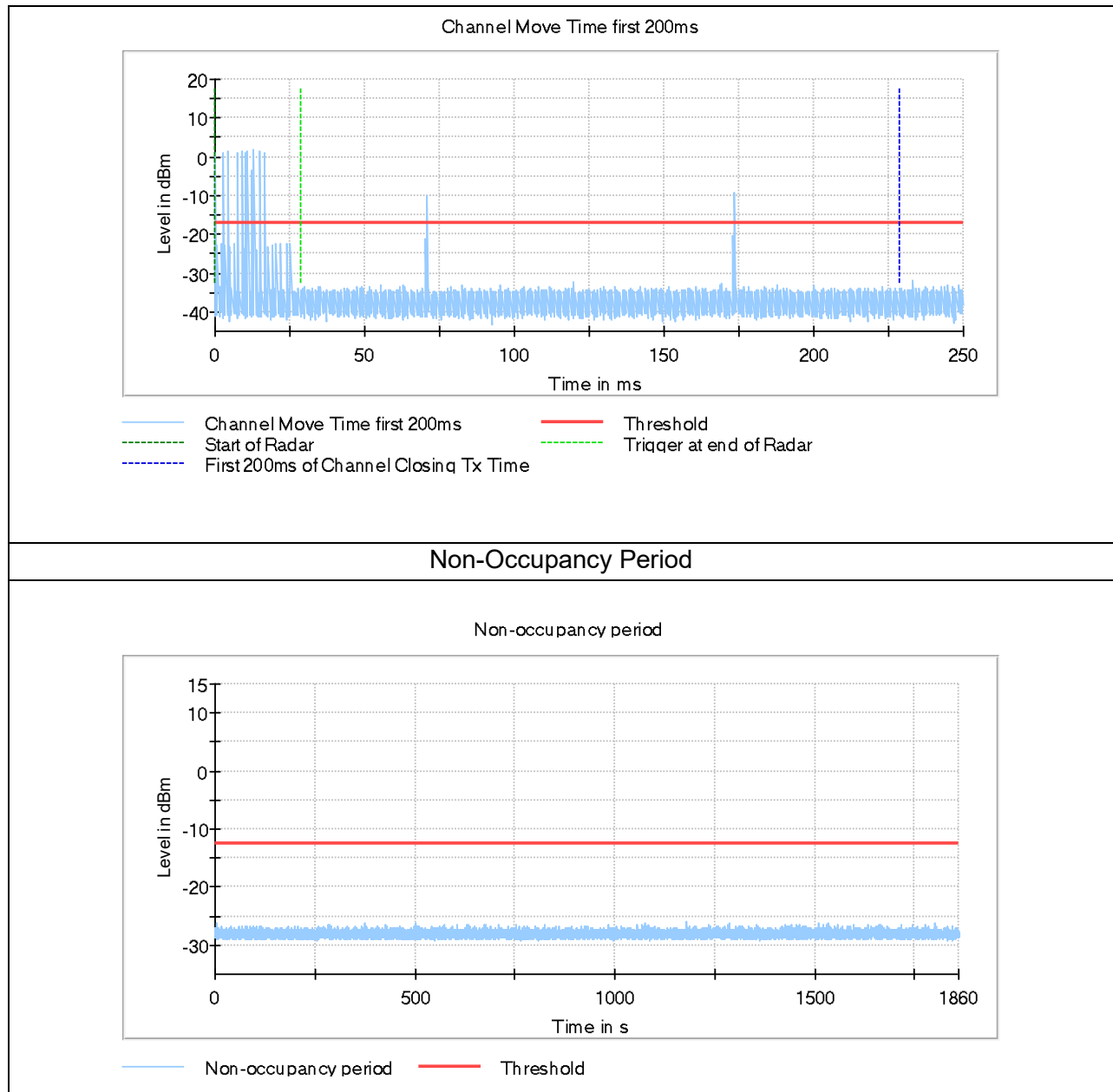
Note: All antennas and test modes have been tested, only the worst data record in the report.

13.8. Appendix F: DYNAMIC FREQUENCY SELECTION

802.11ac VHT80 Mode

BW/Channel	Test Item	Test Result	Limit	Results
80MHz / 5530MHz	Channel Move Time	0.452S	< 10 s	pass
	Channel Closing Transmission Time	0.024S	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period.	pass
	Non-Occupancy Period	Nothing appears	If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.	pass





END OF REPORT