

Case No. : <u>CTA24071501701</u>	
Ambient Condition: <u>24</u> °C, <u>52</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.7.30</u>	Test Engineer: <u>Lushan Kong</u>

Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.933	2401.544	2402.477	---	---
		2441	0.939	2440.541	2441.480	---	---
		2480	1.035	2479.463	2480.498	---	---
2DH1	Ant1	2402	1.263	2401.361	2402.624	---	---
		2441	1.245	2440.370	2441.615	---	---
		2480	1.269	2479.358	2480.627	---	---
3DH1	Ant1	2402	1.254	2401.370	2402.624	---	---
		2441	1.239	2440.379	2441.618	---	---
		2480	1.278	2479.355	2480.633	---	---

Test Graphs

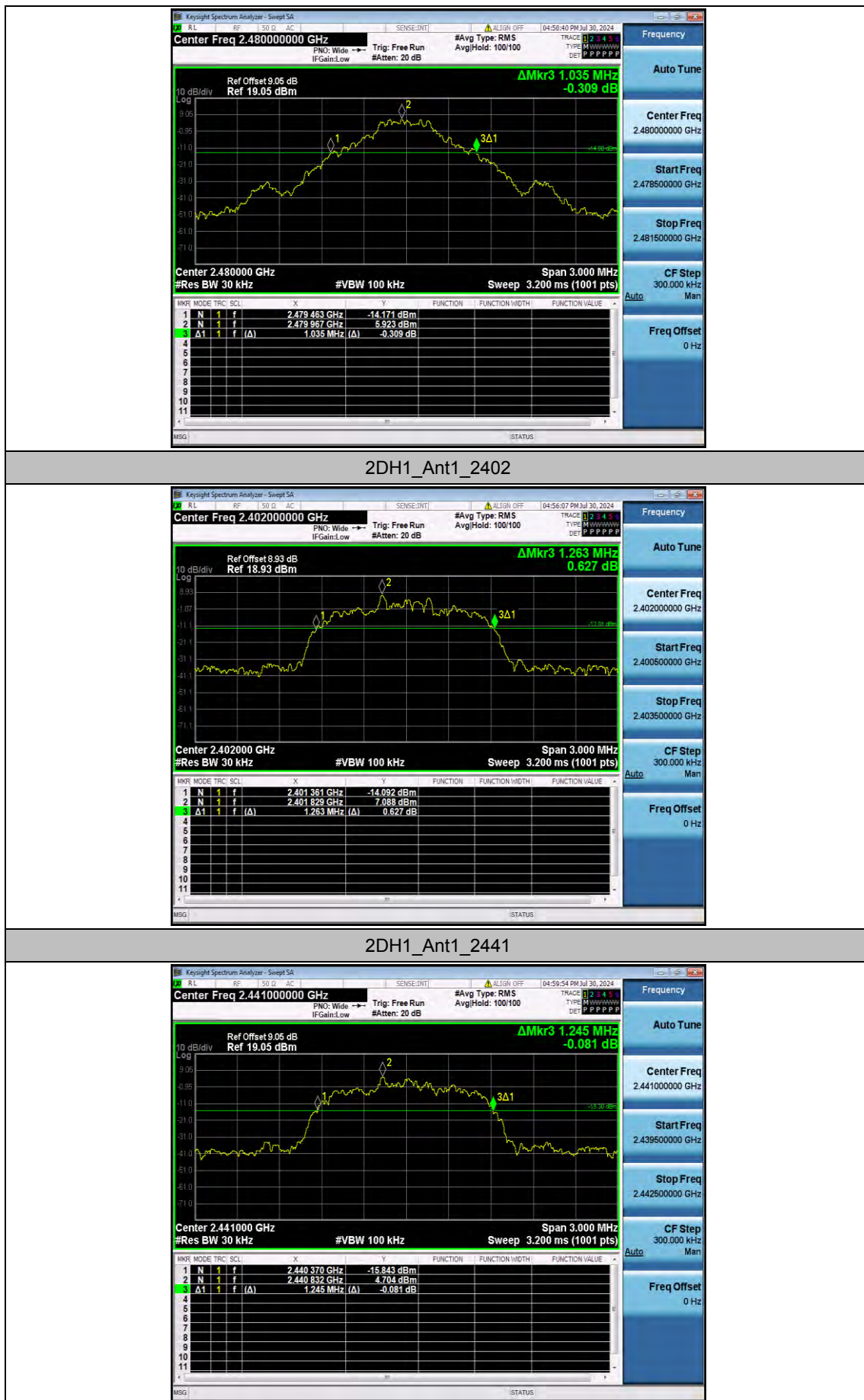
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



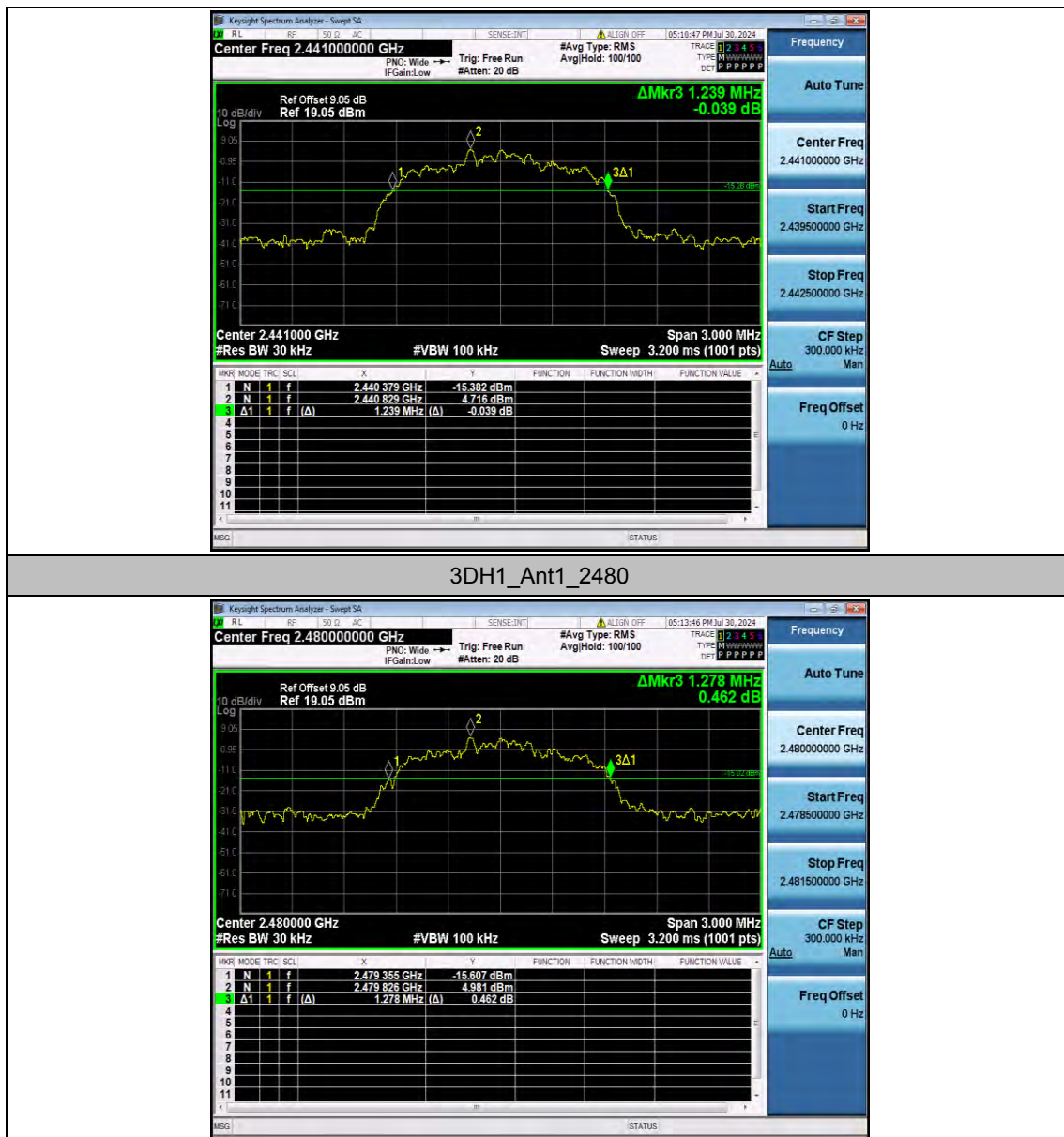
2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



Appendix A.2: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.85377	2401.5609	2402.4146	---	---
		2441	0.84540	2440.5716	2441.4170	---	---
		2480	0.86525	2479.5592	2480.4244	---	---
2DH1	Ant1	2402	1.1553	2401.4079	2402.5632	---	---
		2441	1.1601	2440.4098	2441.5699	---	---
		2480	1.1712	2479.4054	2480.5766	---	---
3DH1	Ant1	2402	1.1590	2401.4240	2402.5830	---	---
		2441	1.1538	2440.4264	2441.5802	---	---
		2480	1.1653	2479.4226	2480.5879	---	---

Test Graphs

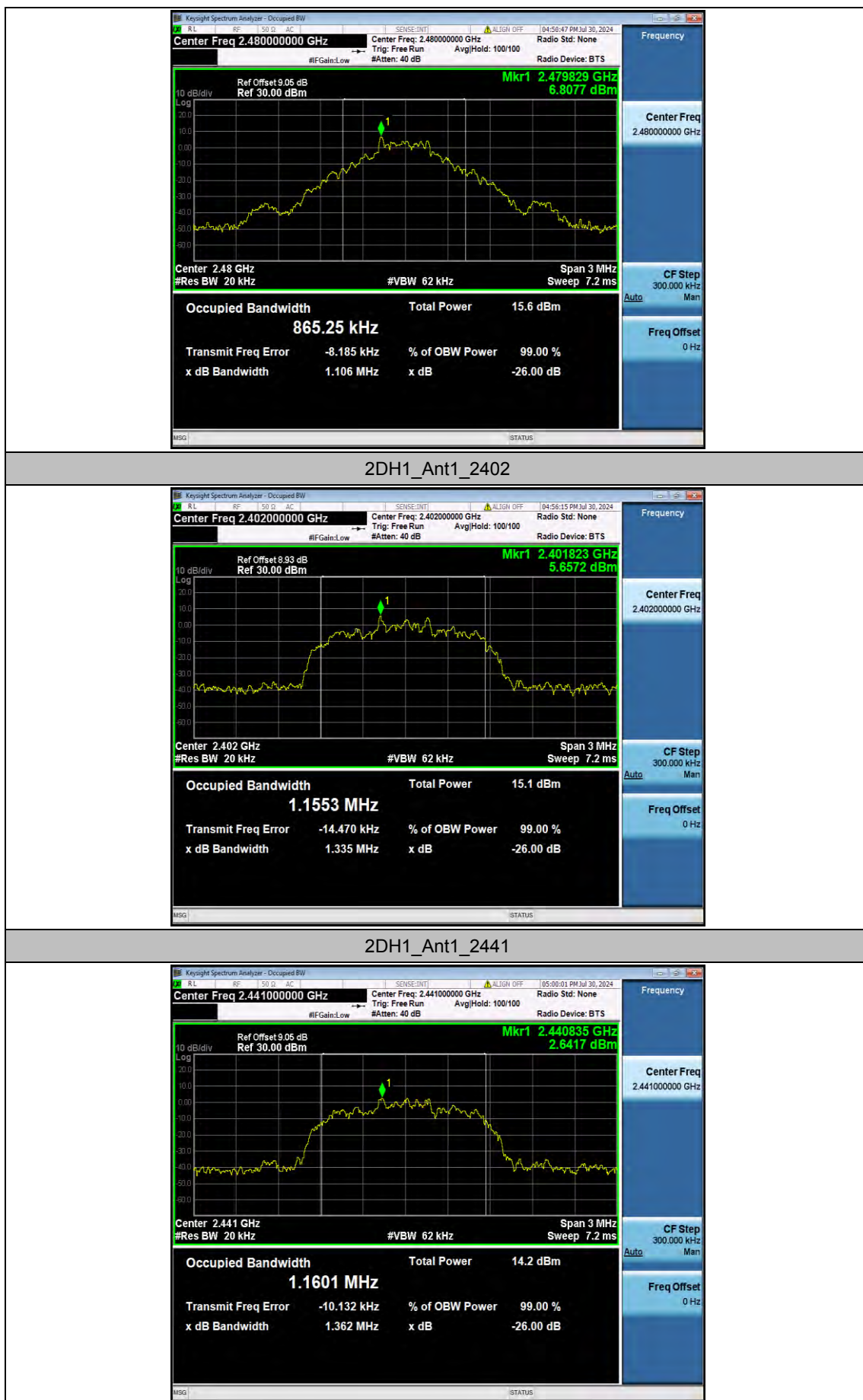
DH1_Ant1_2402



DH1_Ant1_2441



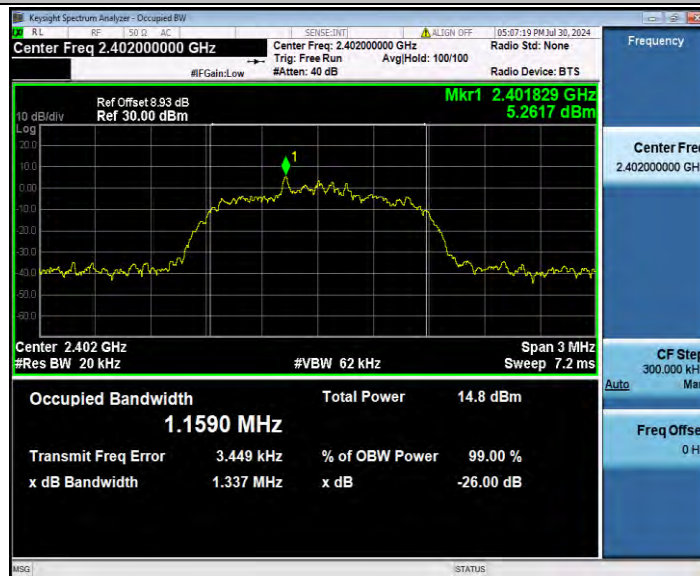
DH1_Ant1_2480



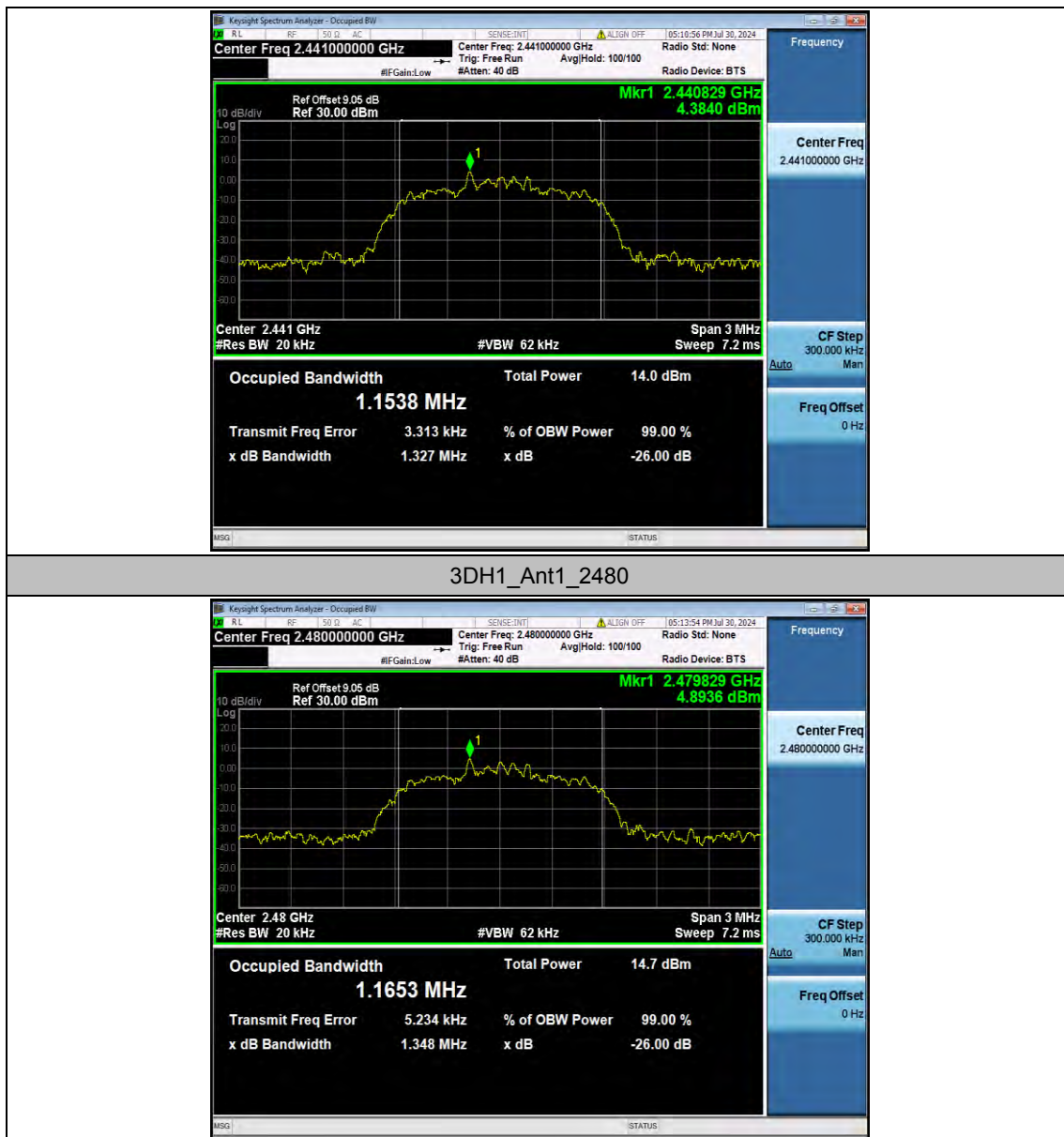
2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



Appendix A.3: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH1	Ant1	2402	10.11	≤ 20.97	PASS
		2441	9.36	≤ 20.97	PASS
		2480	9.86	≤ 20.97	PASS
2DH1	Ant1	2402	9.65	≤ 20.97	PASS
		2441	8.88	≤ 20.97	PASS
		2480	9.47	≤ 20.97	PASS
3DH1	Ant1	2402	10.10	≤ 20.97	PASS
		2441	9.30	≤ 20.97	PASS
		2480	9.65	≤ 20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.858	≥ 0.690	PASS
		Hop_2441	0.84	≥ 0.690	PASS
		Hop_2480	0.852	≥ 0.690	PASS
2DH1	Ant1	Hop_2402	1.036	≥ 0.846	PASS
		Hop_2441	1.006	≥ 0.846	PASS
		Hop_2480	1.012	≥ 0.846	PASS
3DH1	Ant1	Hop_2402	1.004	≥ 0.852	PASS
		Hop_2441	1.198	≥ 0.852	PASS
		Hop_2480	1.012	≥ 0.852	PASS

Test Graphs

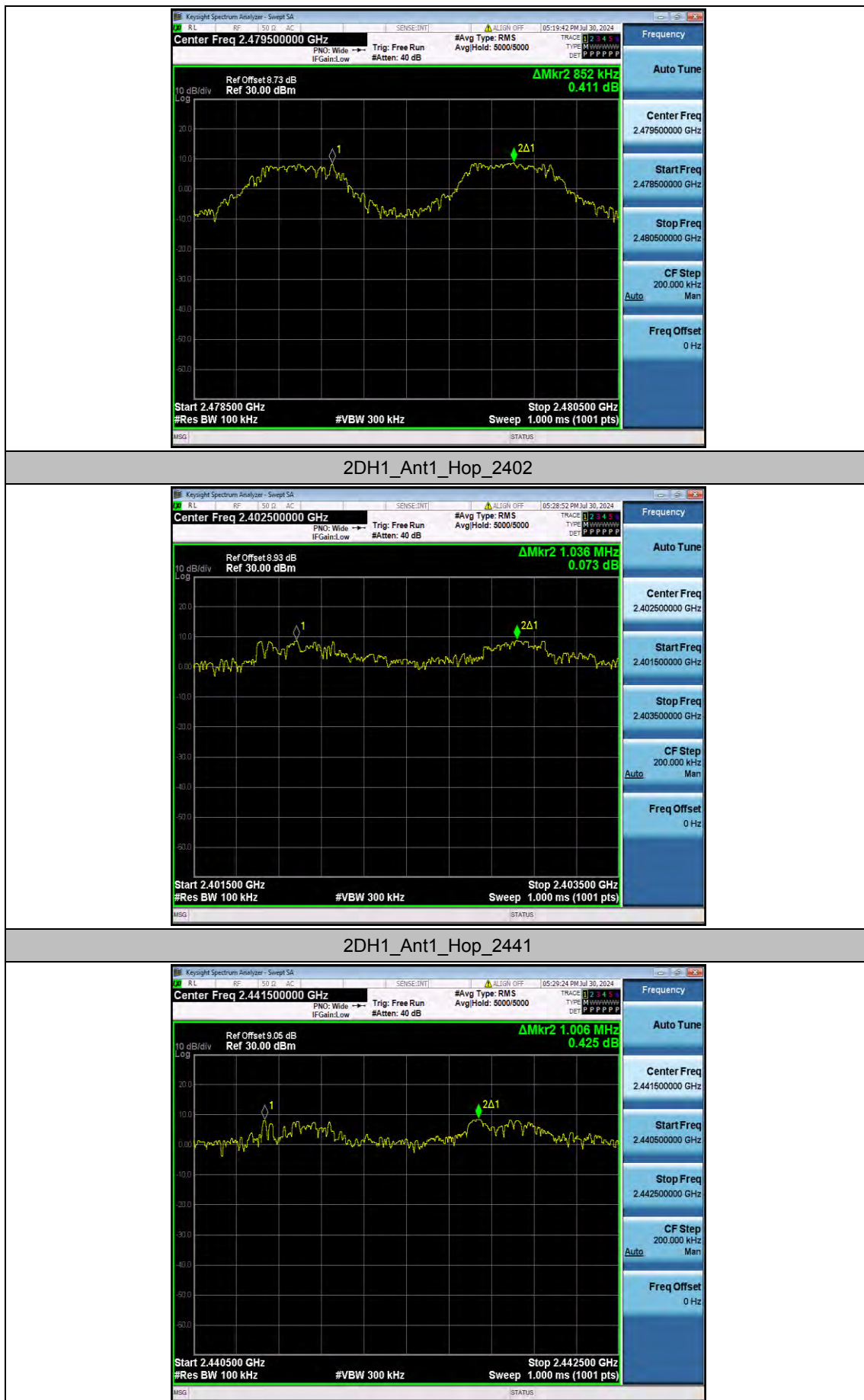
DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441

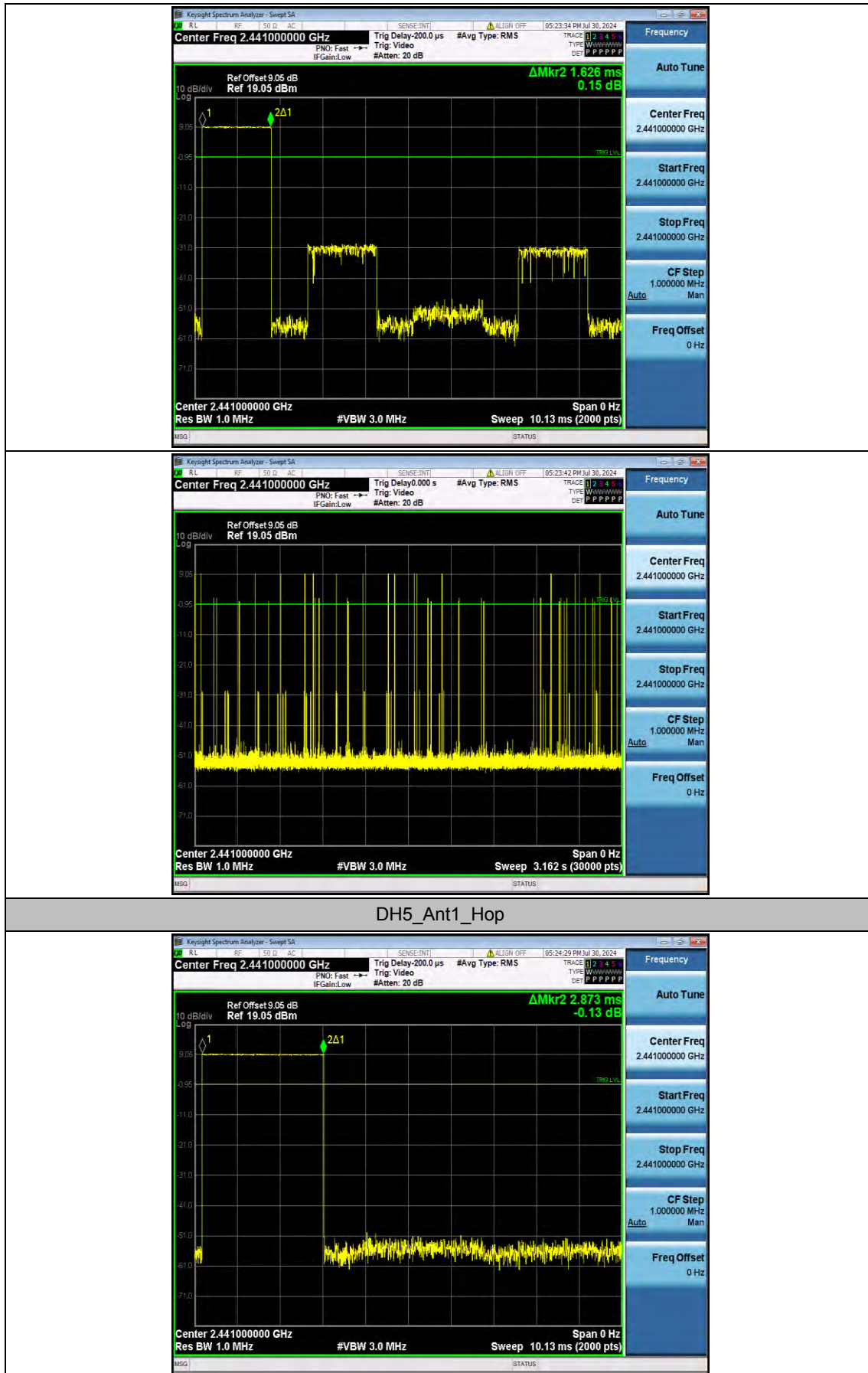


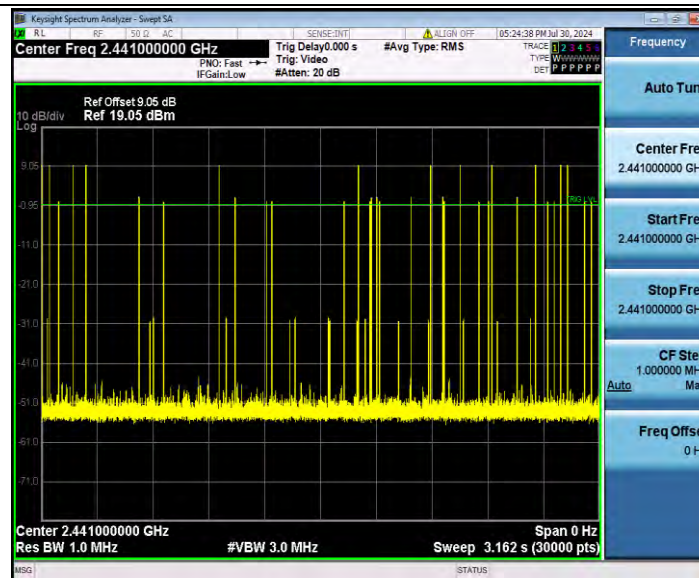


Appendix A.5: Time of occupancy

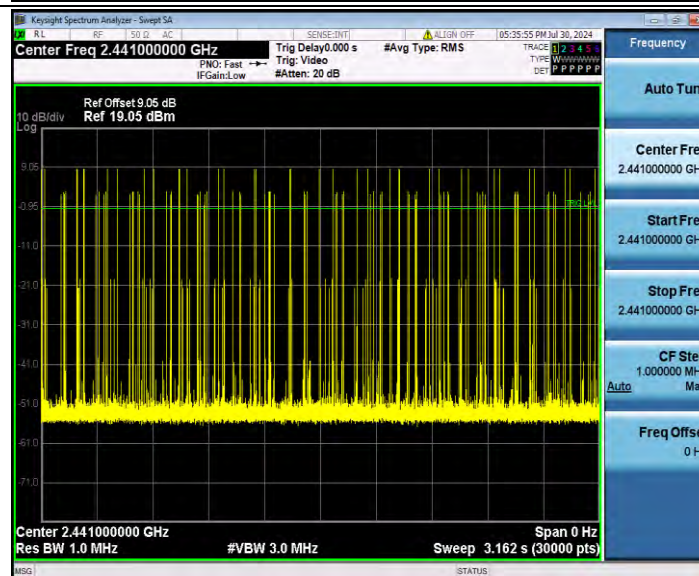
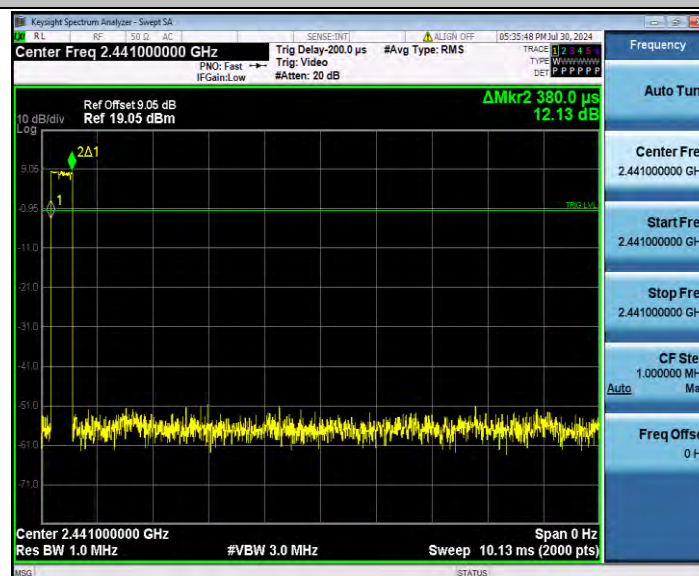
Test Result

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.365	330	0.12	≤0.4	PASS
DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
DH5	Ant1	Hop	2.873	120	0.345	≤0.4	PASS
2DH1	Ant1	Hop	0.380	650	0.247	≤0.4	PASS
2DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
2DH5	Ant1	Hop	2.873	120	0.345	≤0.4	PASS
3DH1	Ant1	Hop	0.375	320	0.12	≤0.4	PASS
3DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
3DH5	Ant1	Hop	2.878	100	0.288	≤0.4	PASS

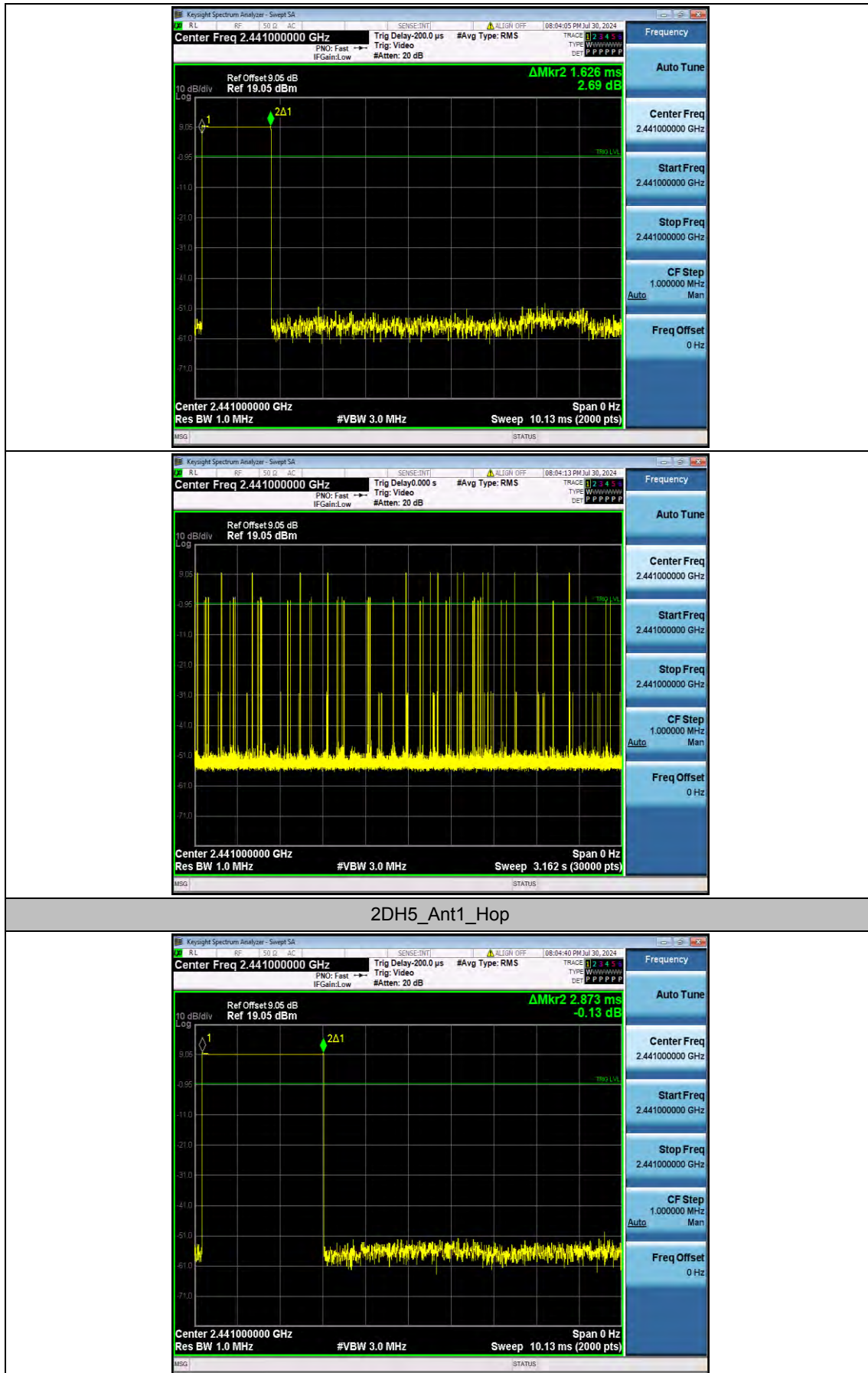


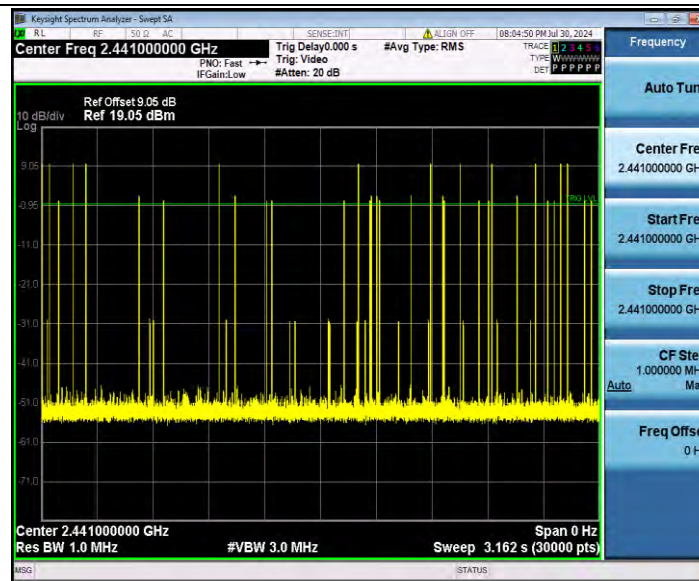


2DH1_Ant1_Hop

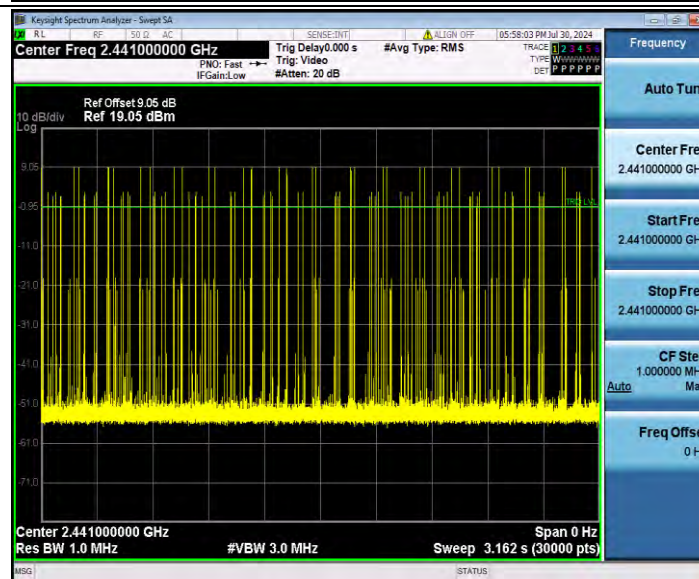
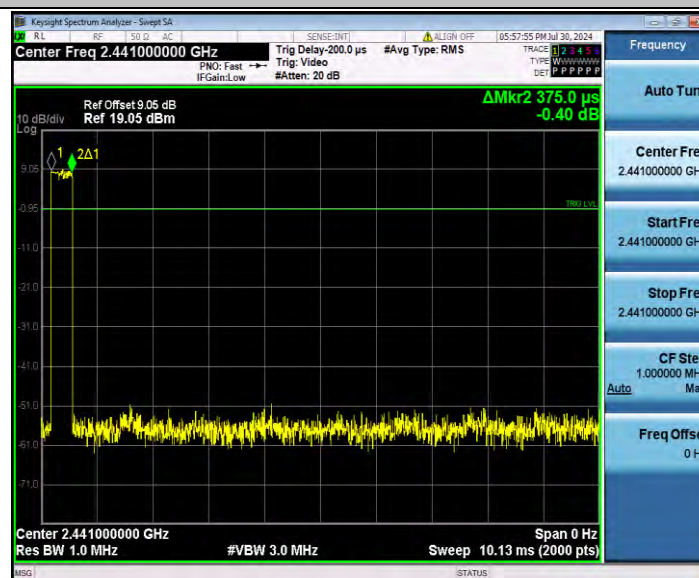


2DH3_Ant1_Hop

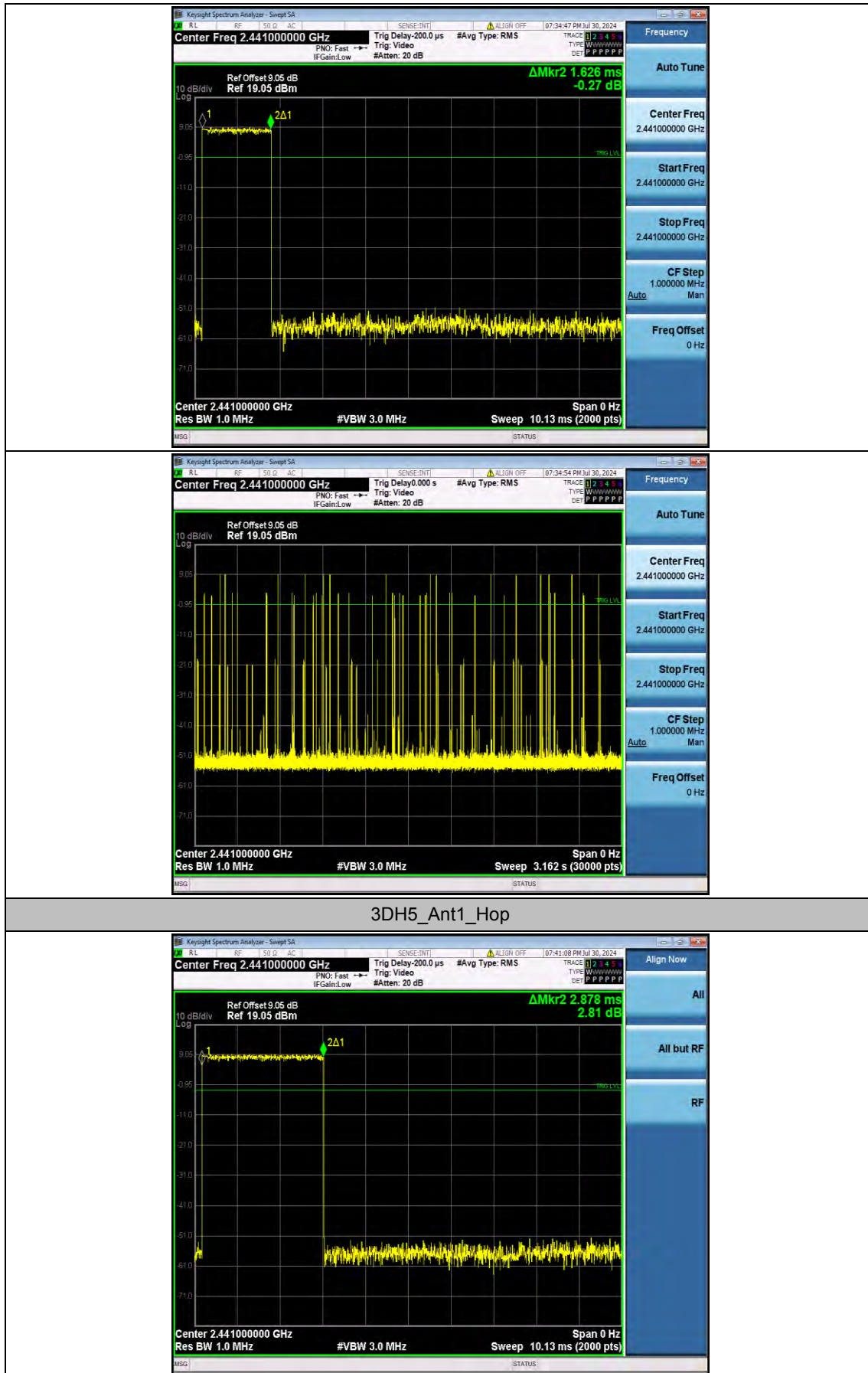


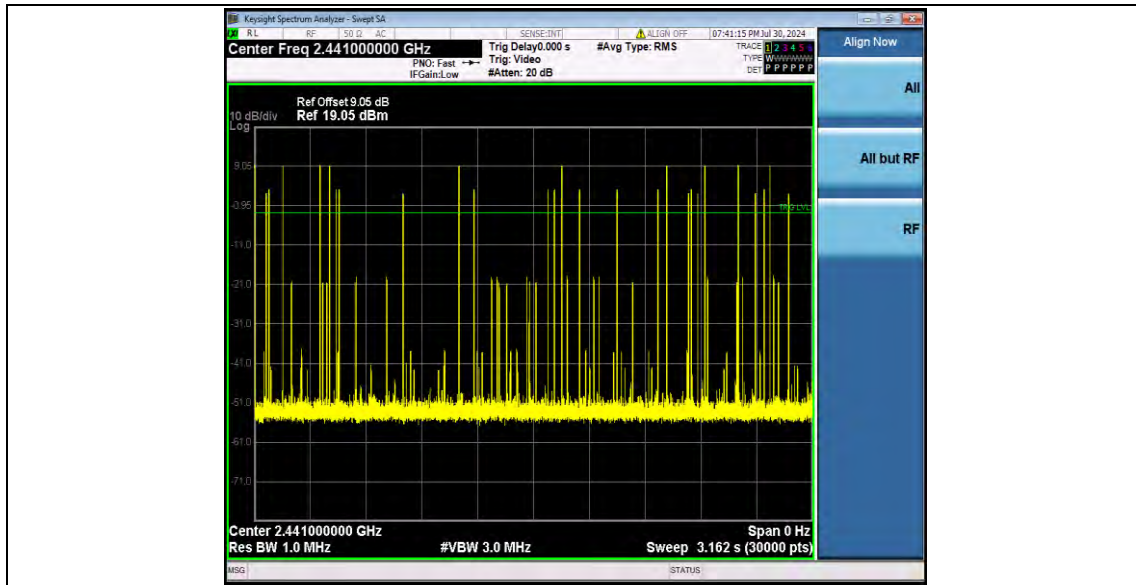


3DH1_Ant1_Hop



3DH3_Ant1_Hop



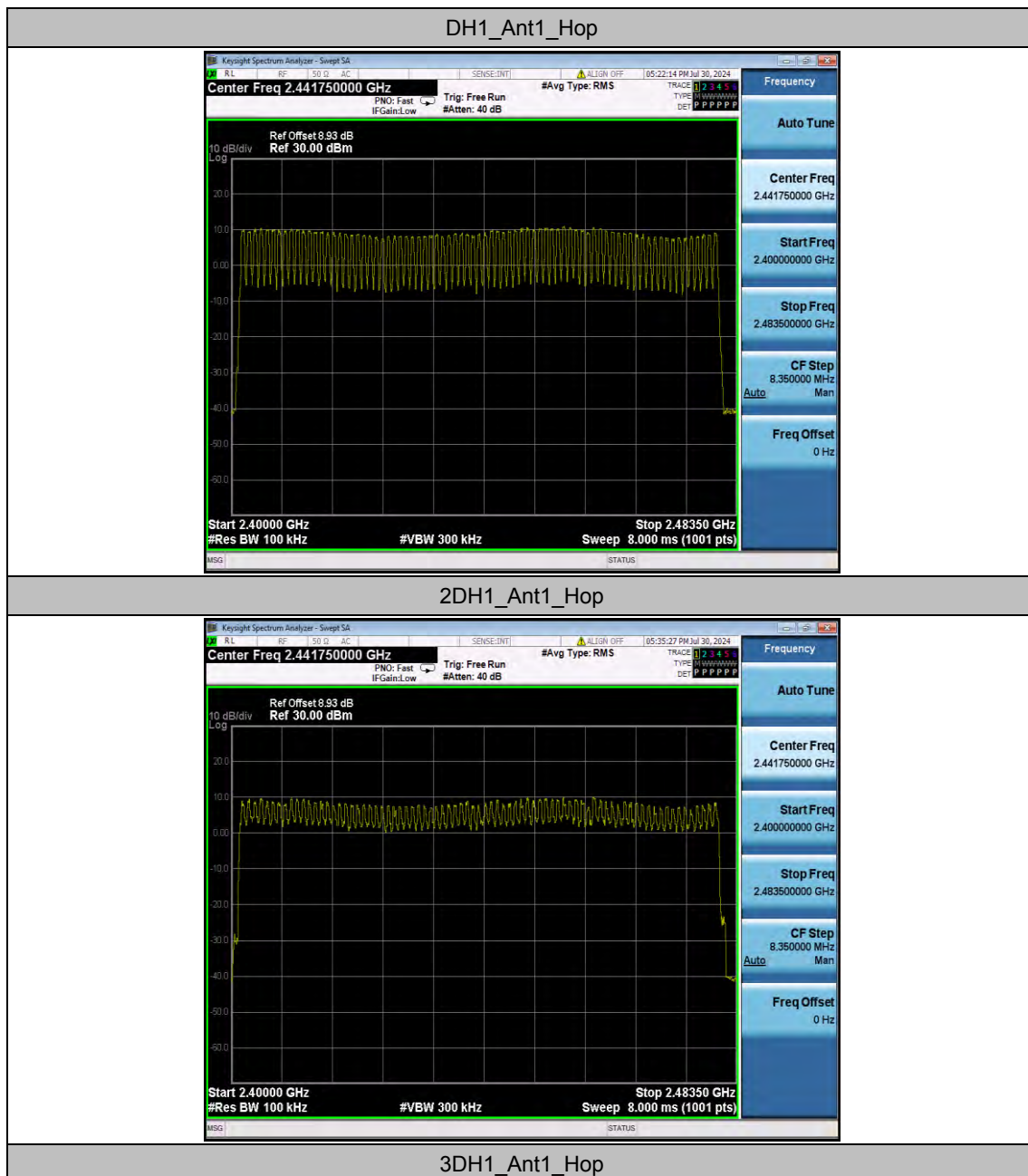


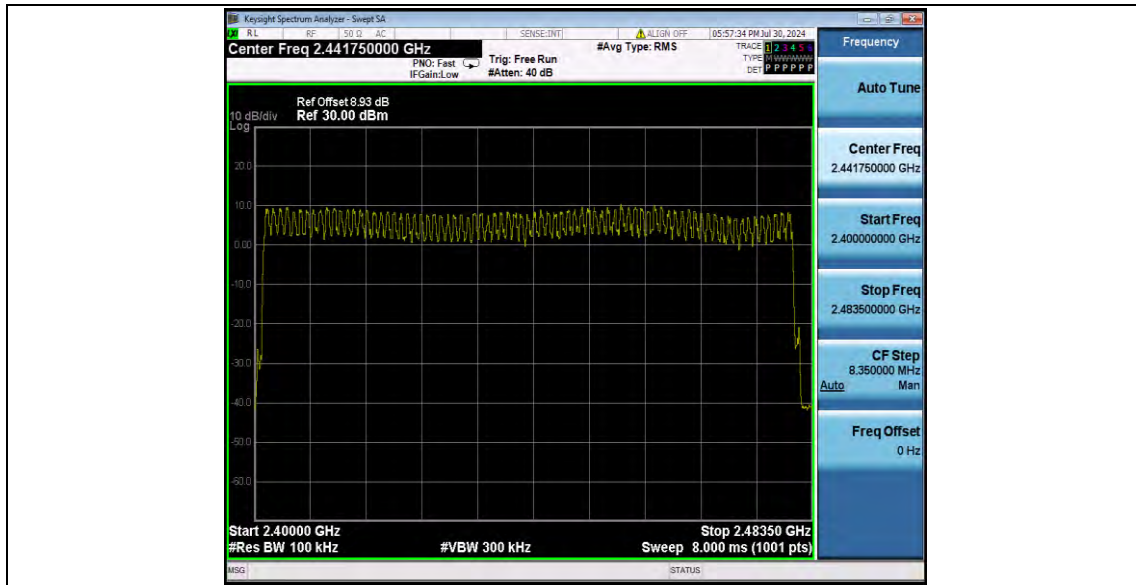
Appendix A.6: Number of hopping channels

Test Result

TestMode	Antenna	Freq(MHz)	Result[Num]	Limit[Num]	Verdict
DH1	Ant1	Hop	79	≥15	PASS
2DH1	Ant1	Hop	79	≥15	PASS
3DH1	Ant1	Hop	79	≥15	PASS

Test Graphs



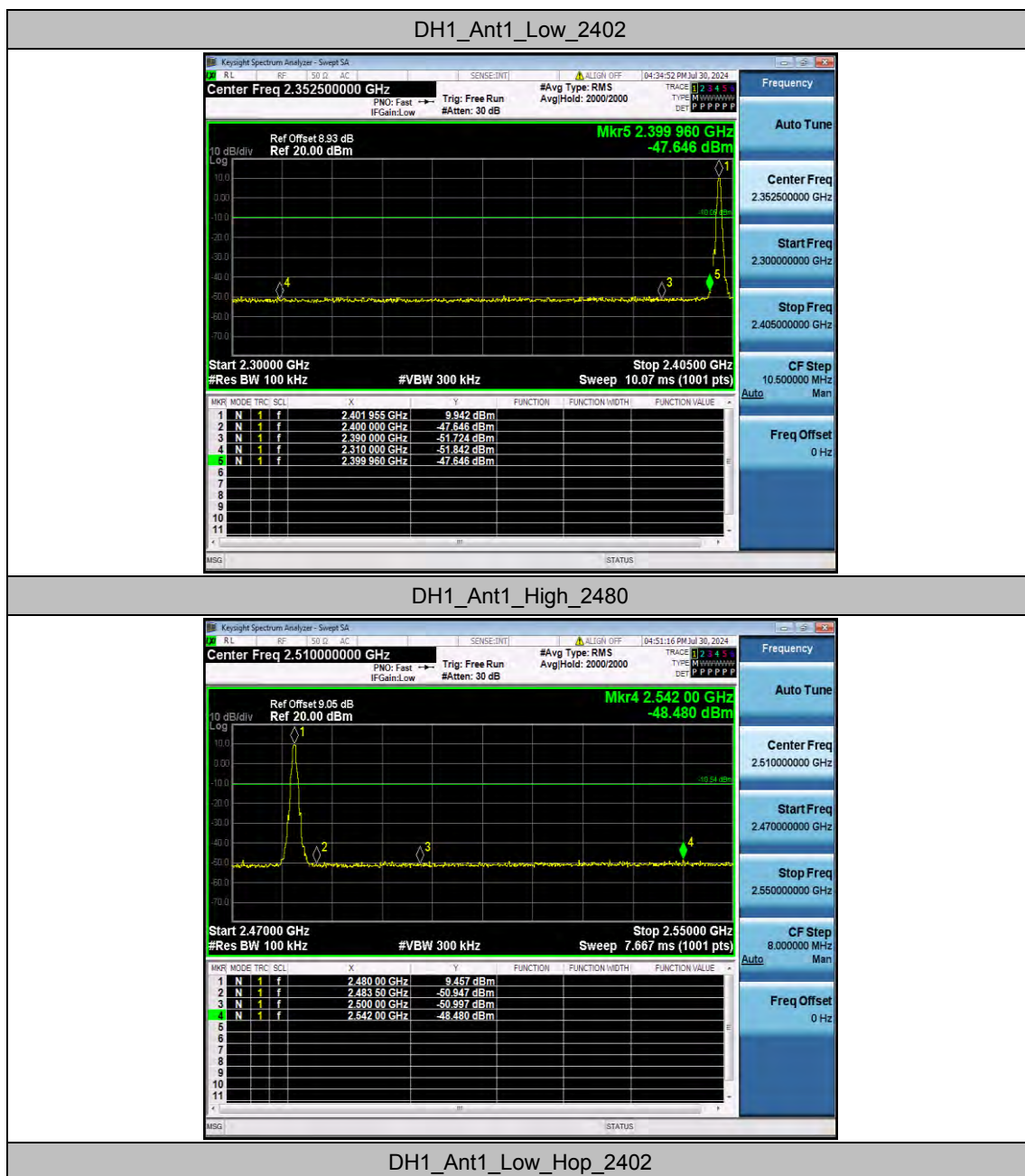


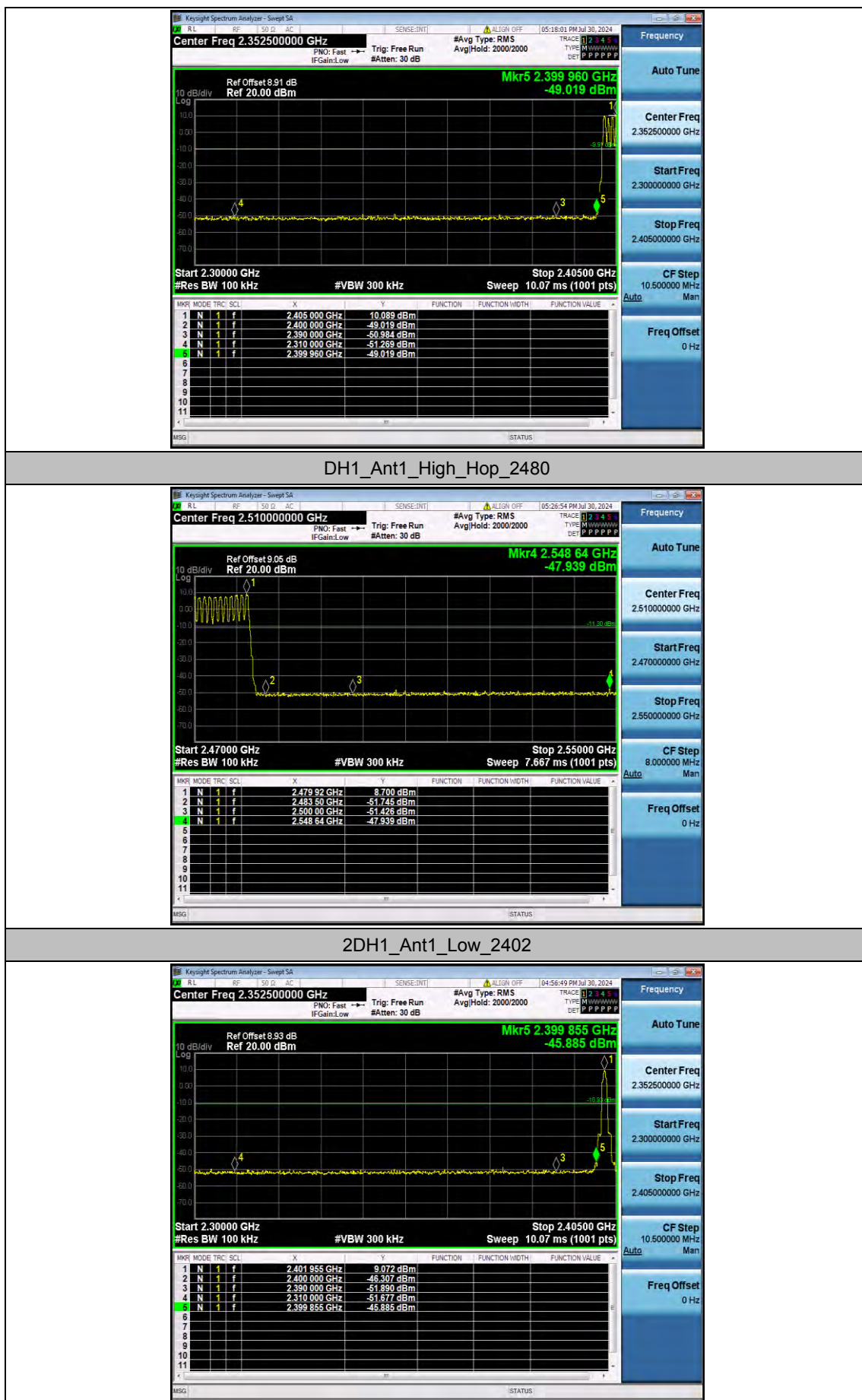
Appendix A.7: Band edge measurements

Test Result

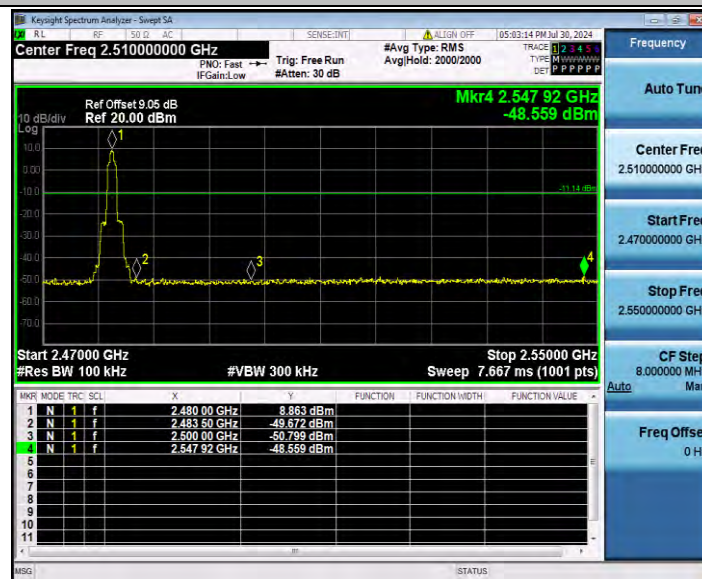
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	9.94	-47.65	≤ -10.06	PASS
		High	2480	9.46	-48.48	≤ -10.54	PASS
		Low	Hop_2402	10.09	-49.02	≤ -9.91	PASS
		High	Hop_2480	8.70	-47.94	≤ -11.3	PASS
2DH1	Ant1	Low	2402	9.07	-45.89	≤ -10.93	PASS
		High	2480	8.86	-48.56	≤ -11.14	PASS
		Low	Hop_2402	9.39	-47.15	≤ -10.61	PASS
		High	Hop_2480	6.95	-48.71	≤ -13.05	PASS
3DH1	Ant1	Low	2402	9.16	-46.34	≤ -10.85	PASS
		High	2480	8.96	-48.86	≤ -11.04	PASS
		Low	Hop_2402	8.82	-47.96	≤ -11.19	PASS
		High	Hop_2480	7.13	-48.83	≤ -12.87	PASS

Test Graphs

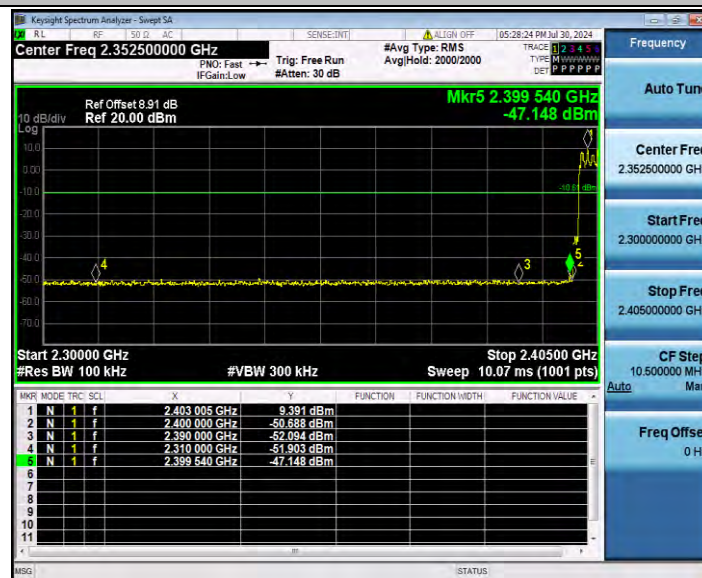




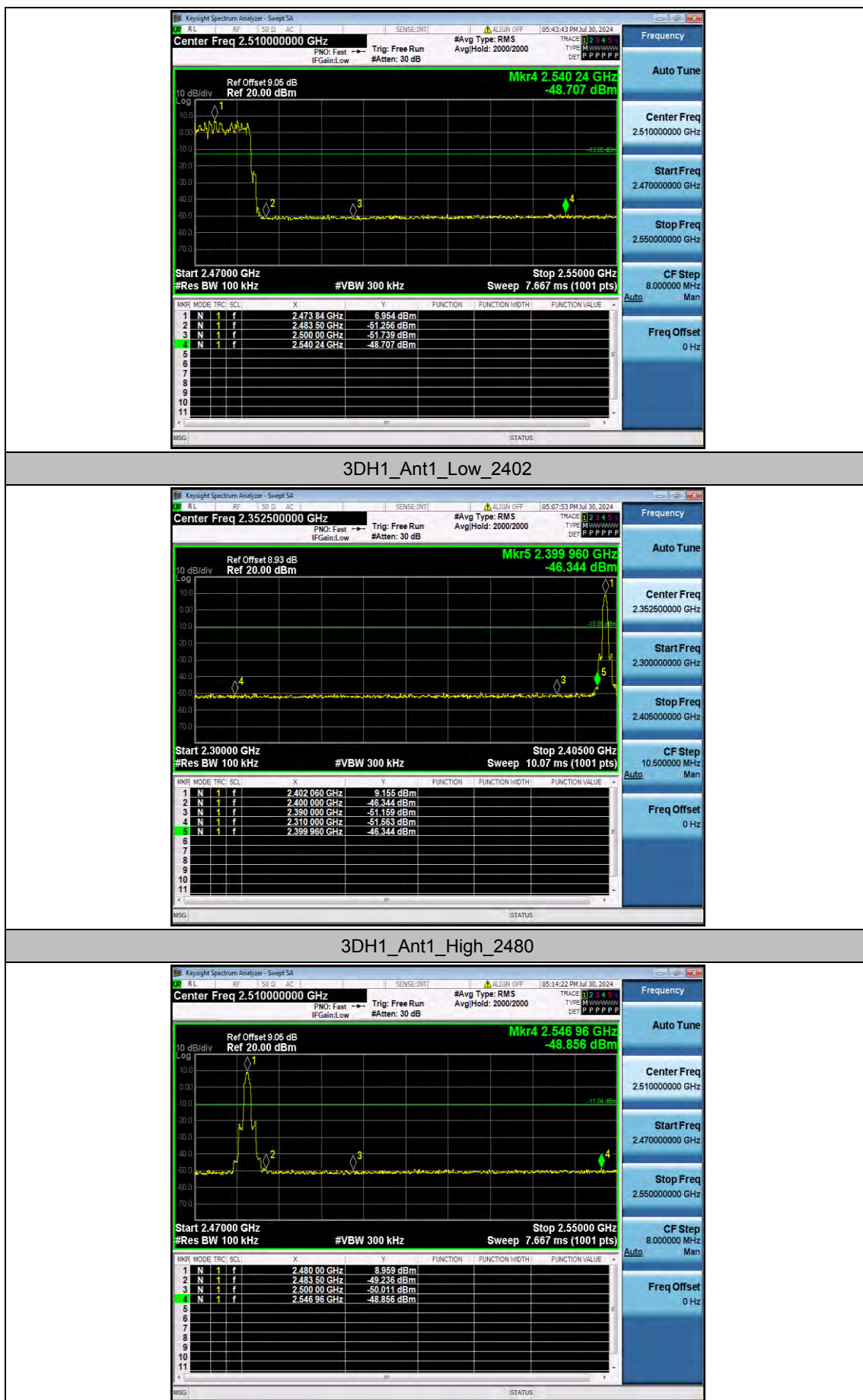
2DH1_Ant1_High_2480



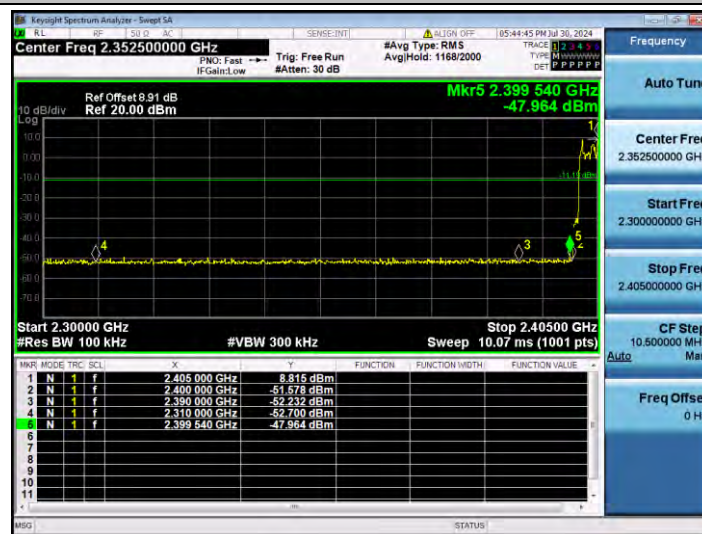
2DH1_Ant1_Low_Hop_2402



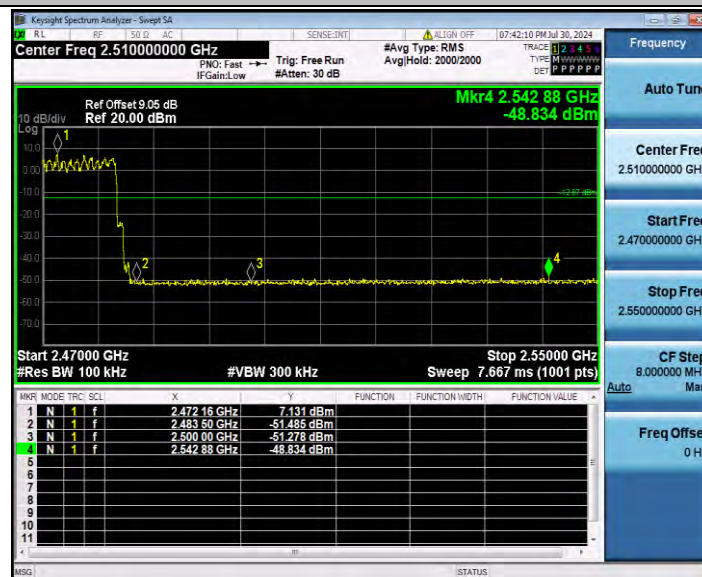
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

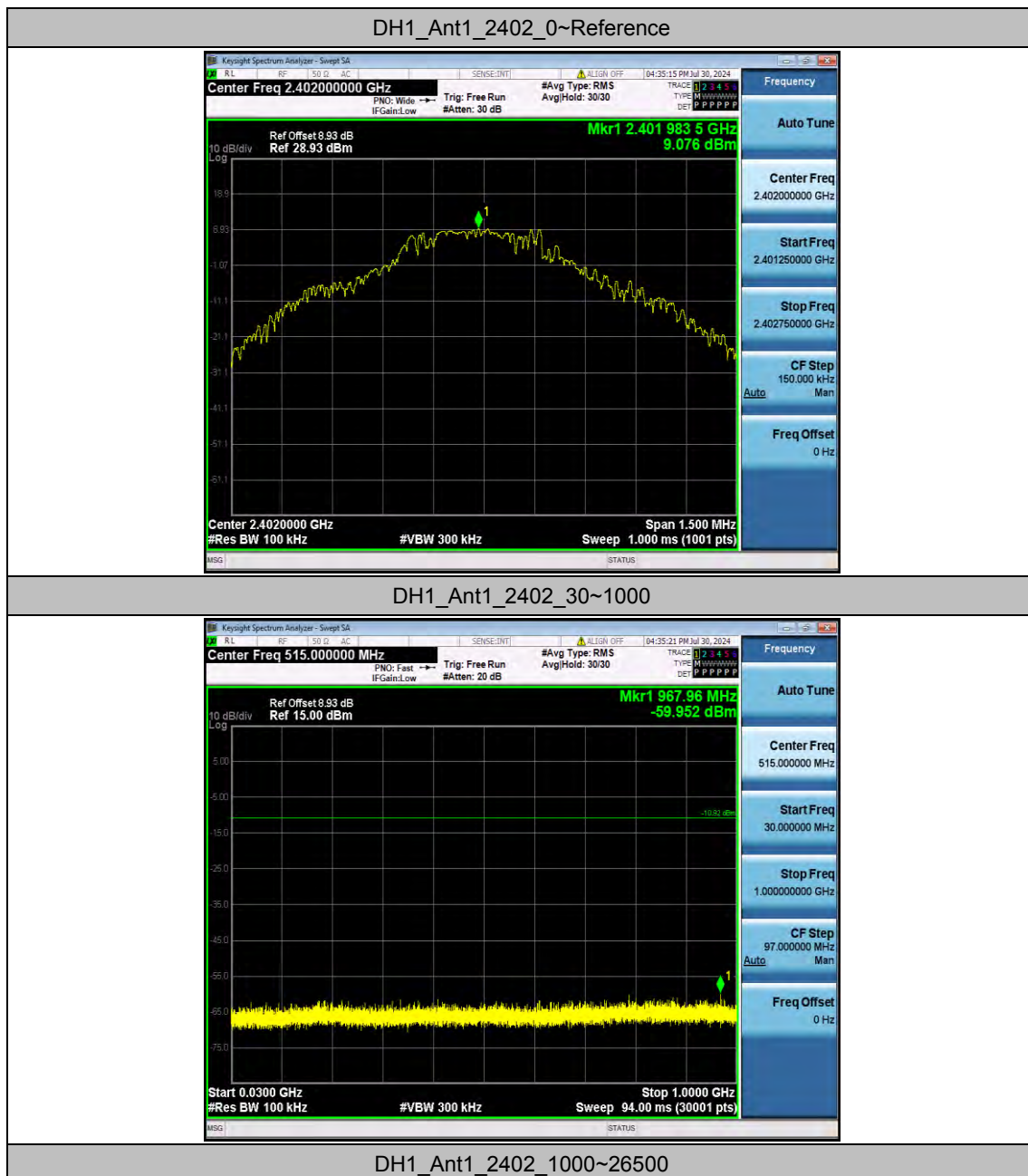


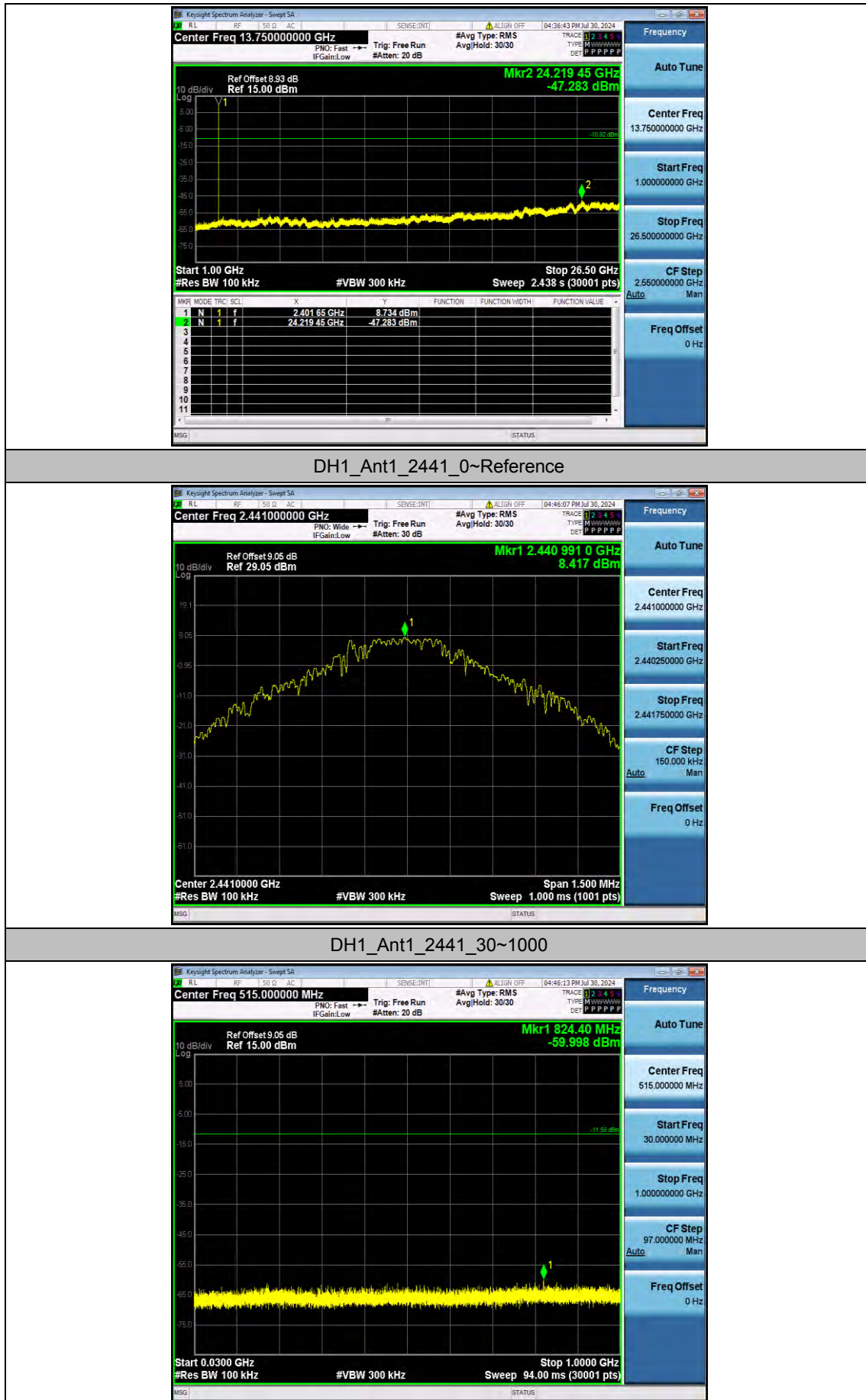
Appendix A.8: Conducted Spurious Emission

Test Result

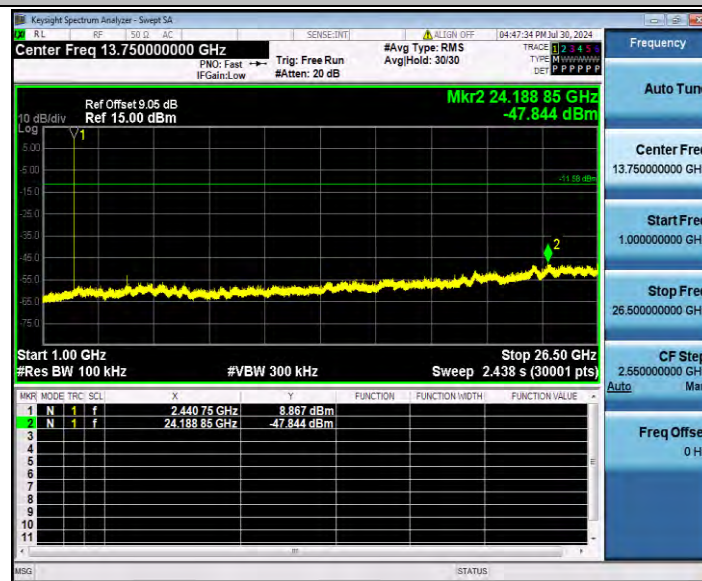
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	9.08	9.08	---	PASS
			30~1000	9.08	-59.95	≤ -10.92	PASS
			1000~26500	9.08	-47.28	≤ -10.92	PASS
		2441	Reference	8.42	8.42	---	PASS
			30~1000	8.42	-60	≤ -11.58	PASS
			1000~26500	8.42	-47.84	≤ -11.58	PASS
		2480	Reference	9.03	9.03	---	PASS
			30~1000	9.03	-60.55	≤ -10.97	PASS
			1000~26500	9.03	-47.98	≤ -10.97	PASS
2DH1	Ant1	2402	Reference	8.12	8.12	---	PASS
			30~1000	8.12	-59.69	≤ -11.88	PASS
			1000~26500	8.12	-47.6	≤ -11.88	PASS
		2441	Reference	7.92	7.92	---	PASS
			30~1000	7.92	-59.01	≤ -12.08	PASS
			1000~26500	7.92	-47.86	≤ -12.08	PASS
		2480	Reference	8.48	8.48	---	PASS
			30~1000	8.48	-58.33	≤ -11.52	PASS
			1000~26500	8.48	-47.38	≤ -11.52	PASS
3DH1	Ant1	2402	Reference	8.88	8.88	---	PASS
			30~1000	8.88	-59.51	≤ -11.12	PASS
			1000~26500	8.88	-47.73	≤ -11.12	PASS
		2441	Reference	7.79	7.79	---	PASS
			30~1000	7.79	-55.78	≤ -12.21	PASS
			1000~26500	7.79	-47.38	≤ -12.21	PASS
		2480	Reference	7.95	7.95	---	PASS
			30~1000	7.95	-60.03	≤ -12.05	PASS
			1000~26500	7.95	-46.39	≤ -12.05	PASS

Test Graphs





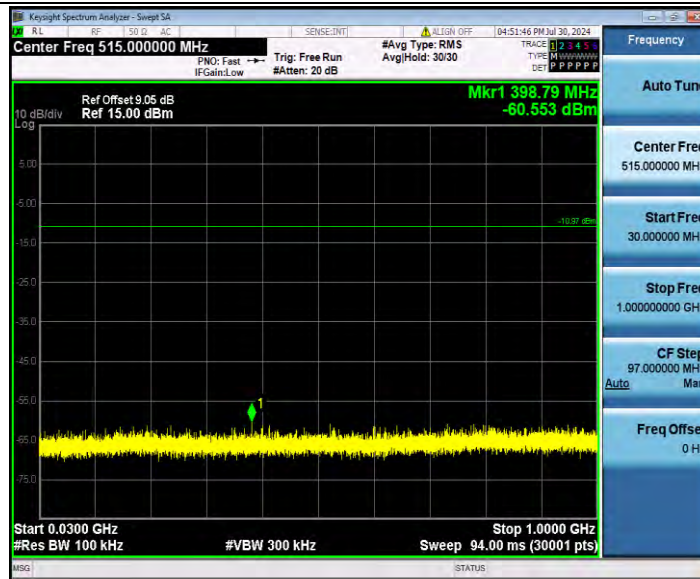
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

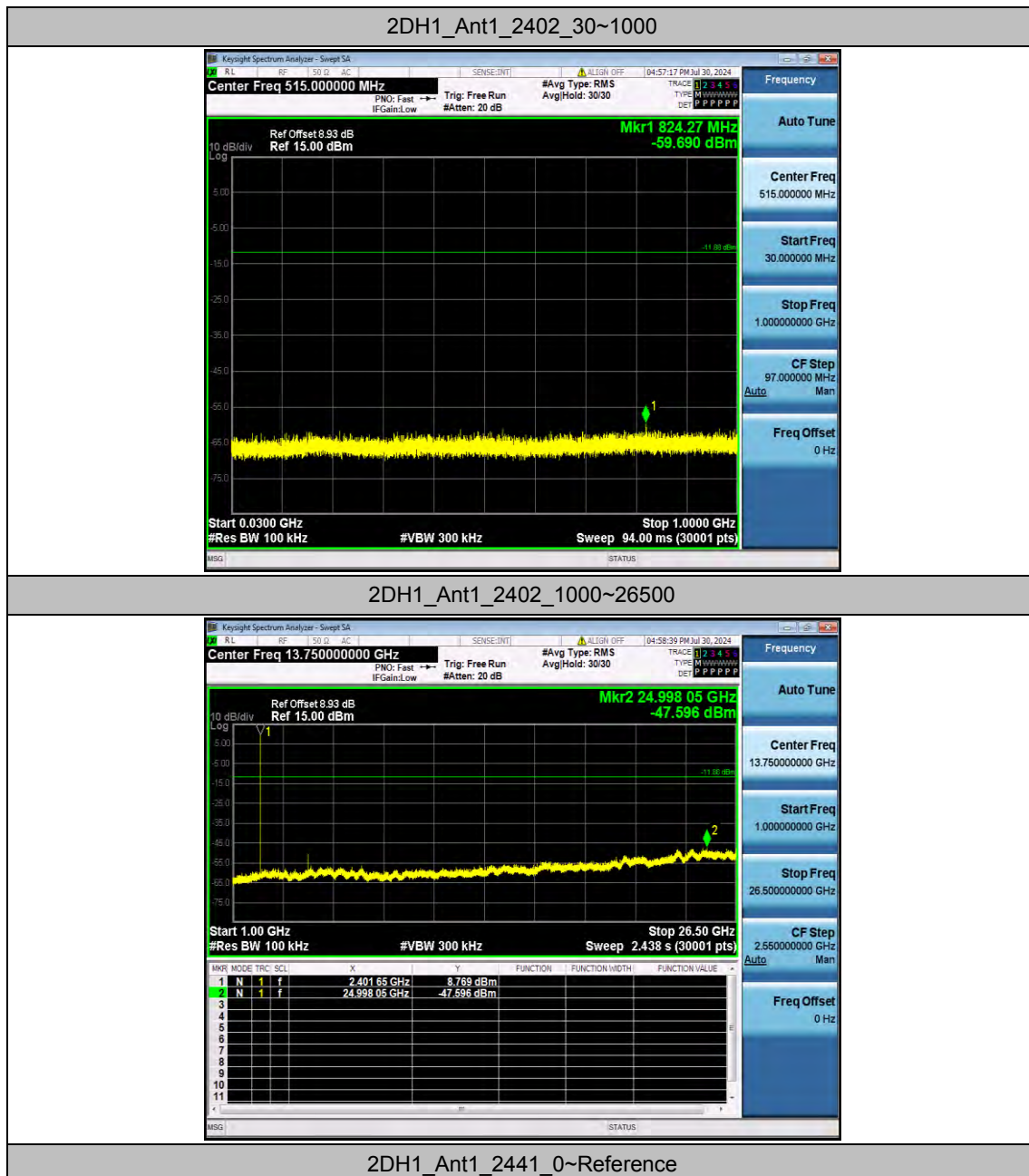


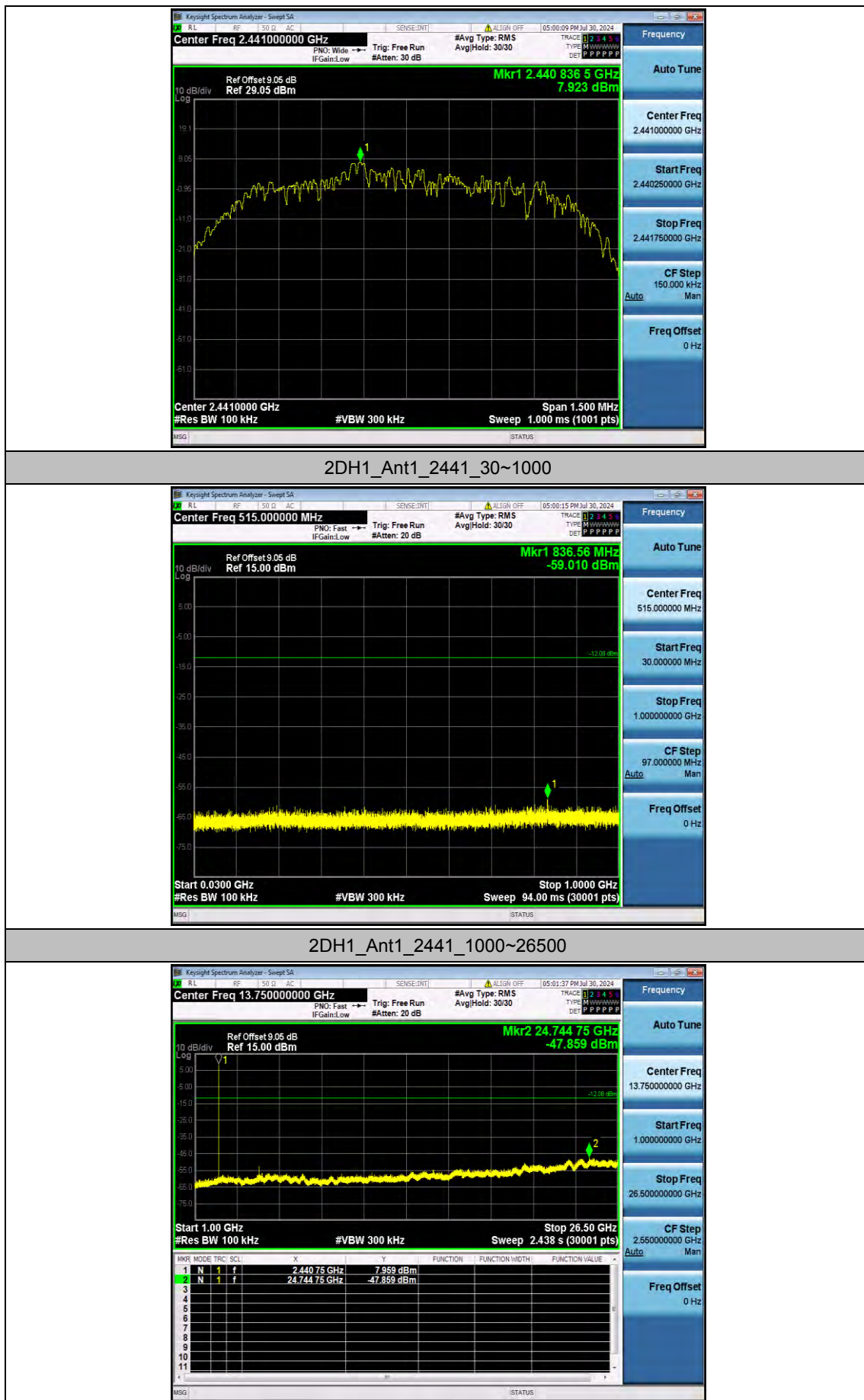
DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference



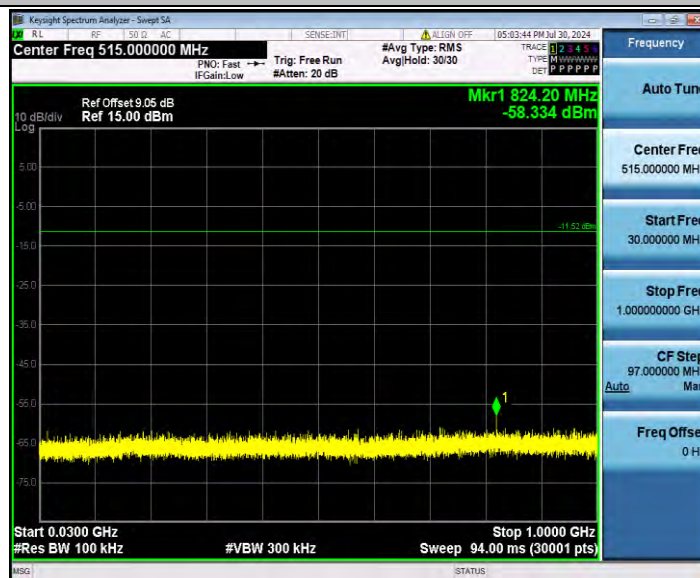




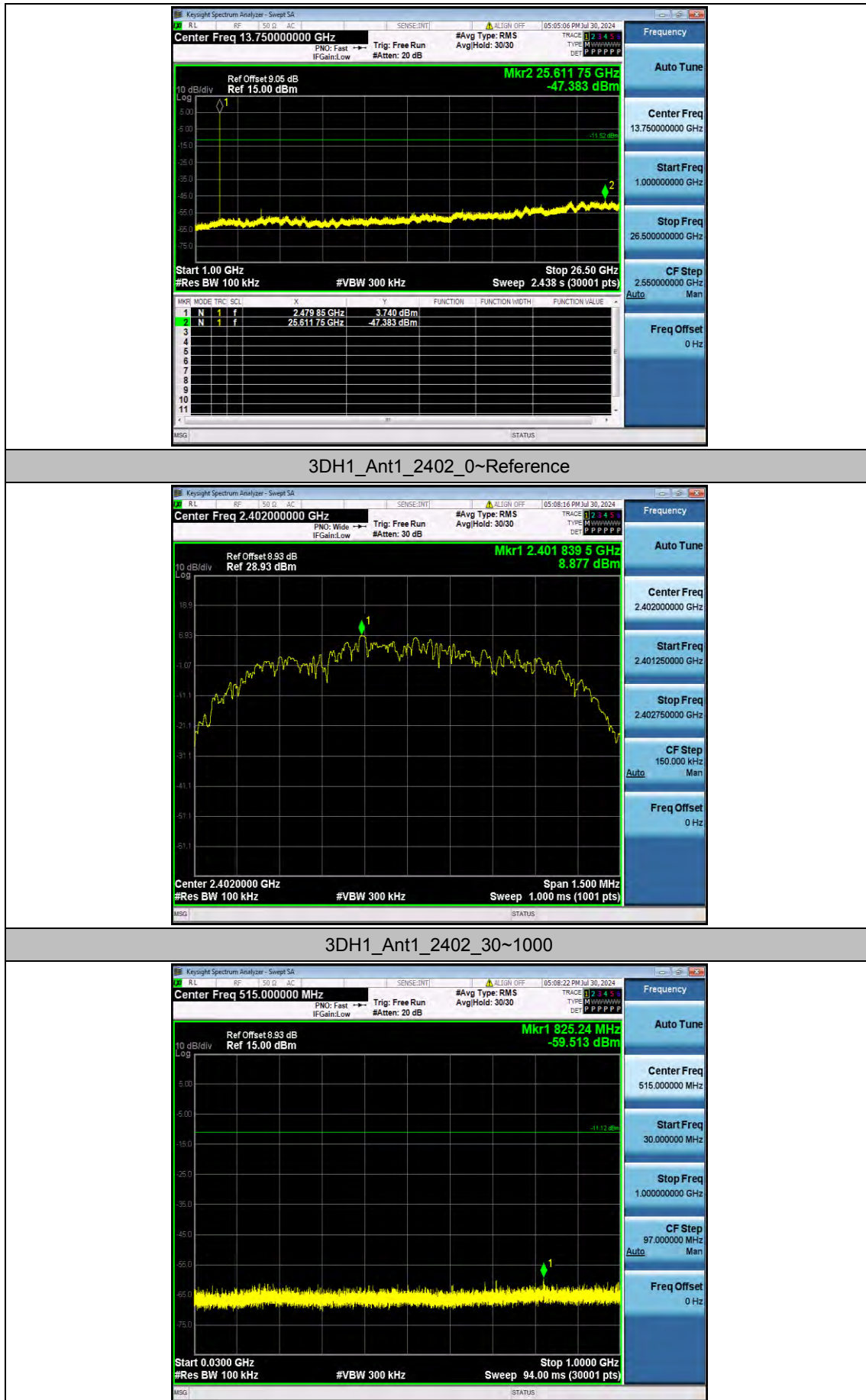
2DH1_Ant1_2480_0~Reference



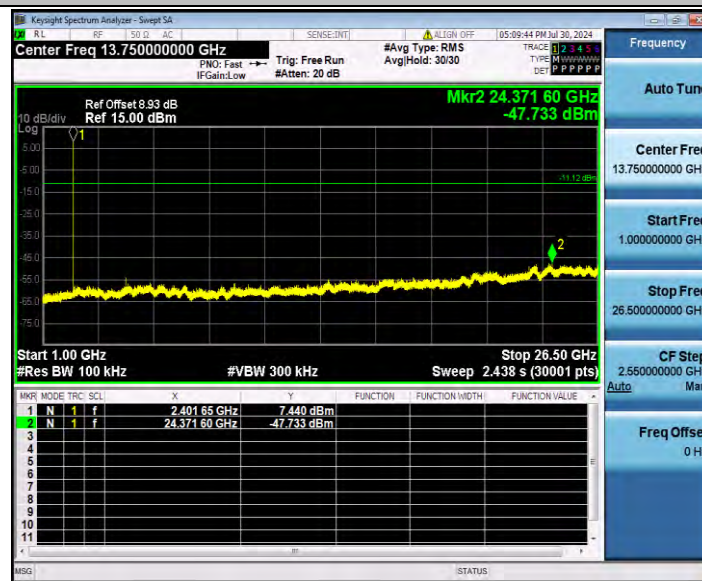
2DH1_Ant1_2480_30~1000



2DH1_Ant1_2480_1000~26500



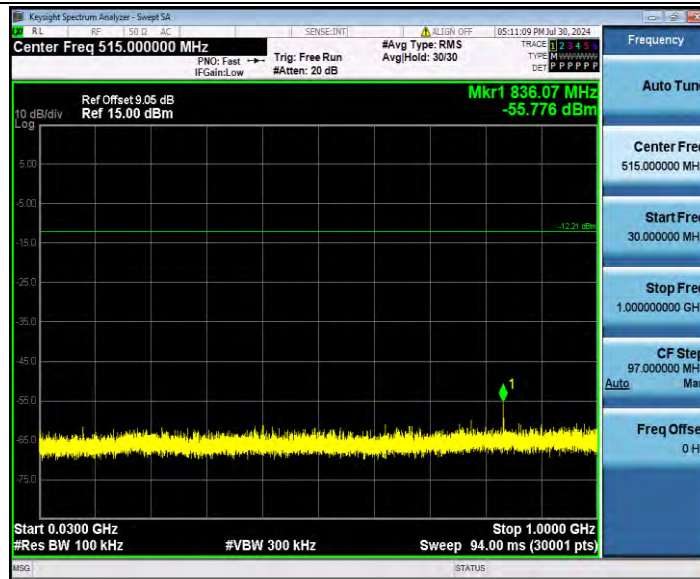
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000

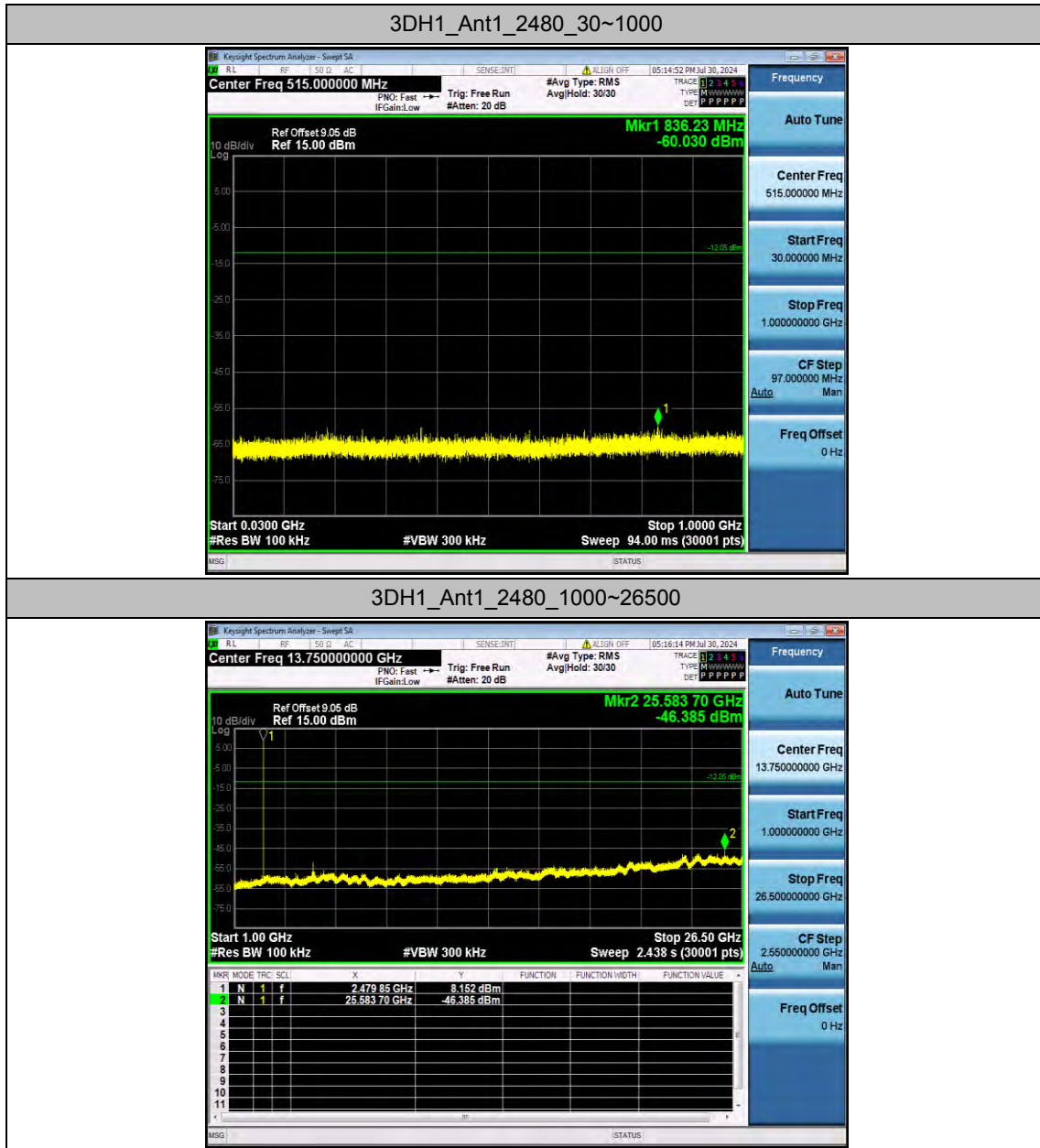


3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference





Appendix A.9: Emissions in Restricted Bands

Test Result

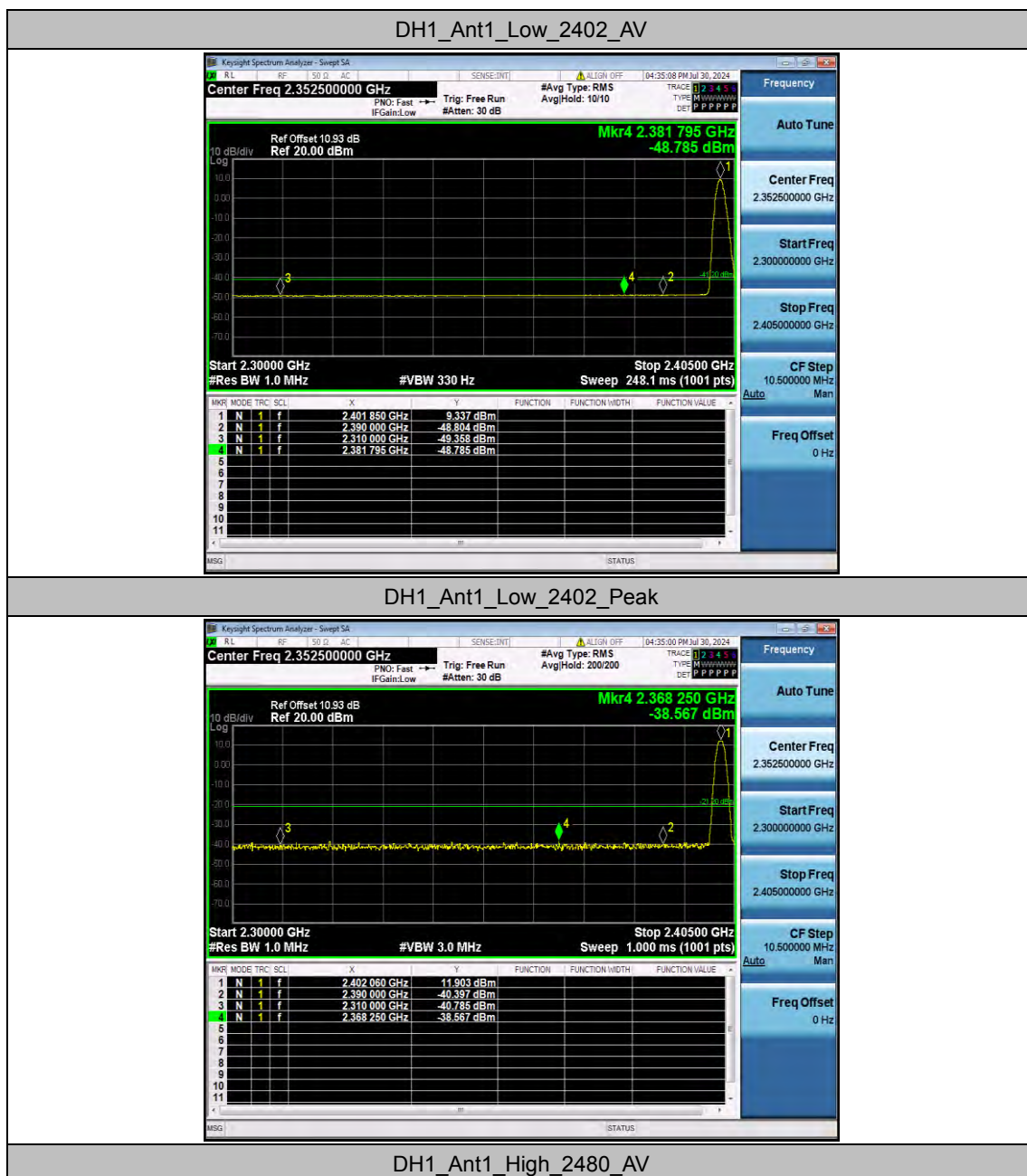
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.36	≤-41.20	45.84	≤54	PASS
				AV	2381.795	-48.78	≤-41.20	46.42	≤54	PASS
				AV	2390.000	-48.8	≤-41.20	46.40	≤54	PASS
				Peak	2310.000	-40.79	≤-21.20	54.41	≤74	PASS
				Peak	2368.250	-38.57	≤-21.20	56.63	≤74	PASS
				Peak	2390.000	-40.4	≤-21.20	54.80	≤74	PASS
		High	2480	AV	2483.500	-47.44	≤-41.20	47.76	≤54	PASS
				AV	2483.520	-47.43	≤-41.20	47.77	≤54	PASS
				AV	2500.000	-48.69	≤-41.20	46.51	≤54	PASS
				Peak	2483.500	-41.81	≤-21.20	53.39	≤74	PASS
				Peak	2498.320	-38.39	≤-21.20	56.81	≤74	PASS
				Peak	2500.000	-40.97	≤-21.20	54.23	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.54	≤-41.20	45.66	≤54	PASS
				AV	2388.830	-49.11	≤-41.20	46.09	≤54	PASS
				AV	2390.000	-49.17	≤-41.20	46.03	≤54	PASS
				Peak	2310.000	-41.46	≤-21.20	53.74	≤74	PASS
				Peak	2350.295	-39.35	≤-21.20	55.85	≤74	PASS
				Peak	2390.000	-40.41	≤-21.20	54.79	≤74	PASS
		High	2480	AV	2483.500	-46.78	≤-41.20	48.42	≤54	PASS
				AV	2483.520	-46.78	≤-41.20	48.42	≤54	PASS
				AV	2500.000	-48.7	≤-41.20	46.50	≤54	PASS
				Peak	2483.500	-40.7	≤-21.20	54.50	≤74	PASS
				Peak	2491.440	-37.41	≤-21.20	57.79	≤74	PASS
				Peak	2500.000	-40.76	≤-21.20	54.44	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.63	≤-41.20	45.57	≤54	PASS
				AV	2389.670	-49.09	≤-41.20	46.11	≤54	PASS
				AV	2390.000	-49.18	≤-41.20	46.02	≤54	PASS
				Peak	2310.000	-42.54	≤-21.20	52.66	≤74	PASS
				Peak	2331.185	-38.87	≤-21.20	56.33	≤74	PASS
				Peak	2390.000	-41.09	≤-21.20	54.11	≤74	PASS
		High	2480	AV	2483.500	-46.76	≤-41.20	48.44	≤54	PASS
				AV	2483.520	-46.76	≤-41.20	48.44	≤54	PASS
				AV	2500.000	-48.66	≤-41.20	46.54	≤54	PASS
				Peak	2483.500	-38.65	≤-21.20	56.55	≤74	PASS
				Peak	2483.600	-35.78	≤-21.20	59.42	≤74	PASS

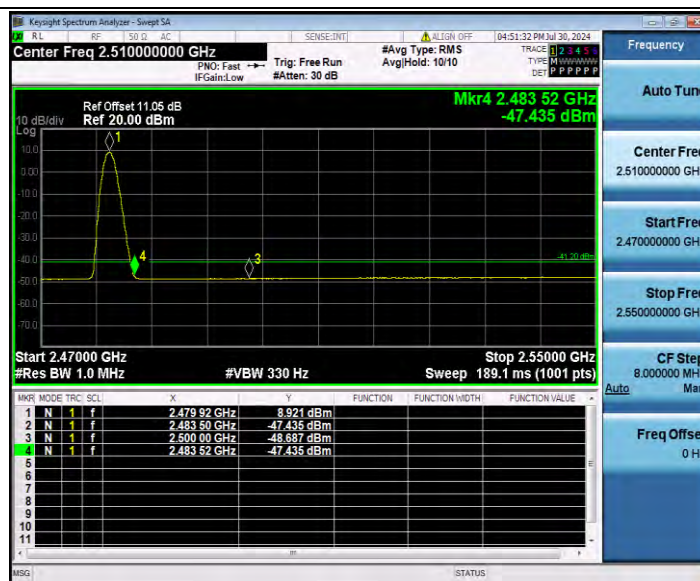
				Peak	2500.000	-41.47	≤-21.20	53.73	≤74	PASS
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Note:

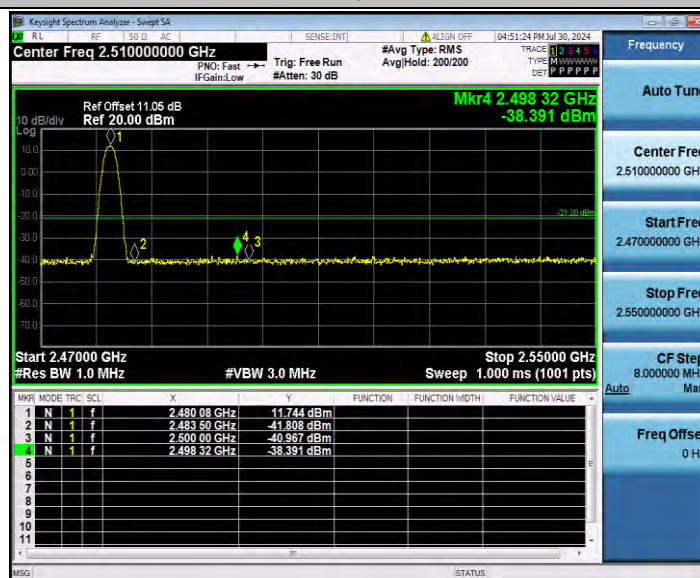
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

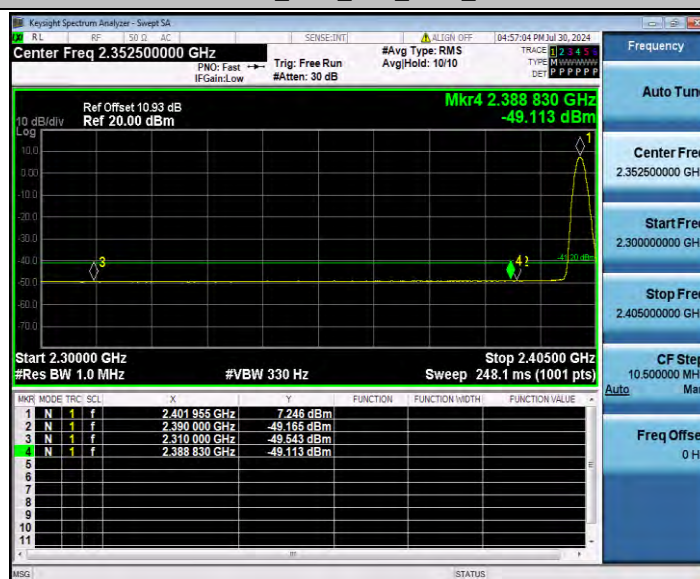




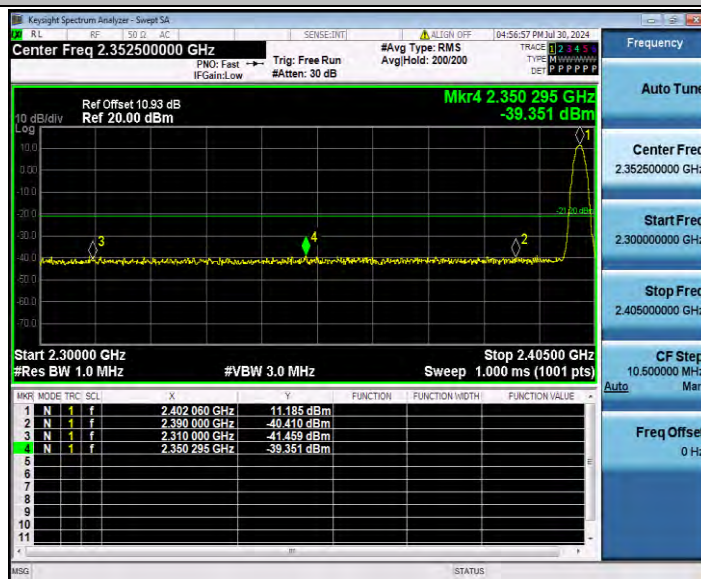
DH1_Ant1_High_2480_Peak



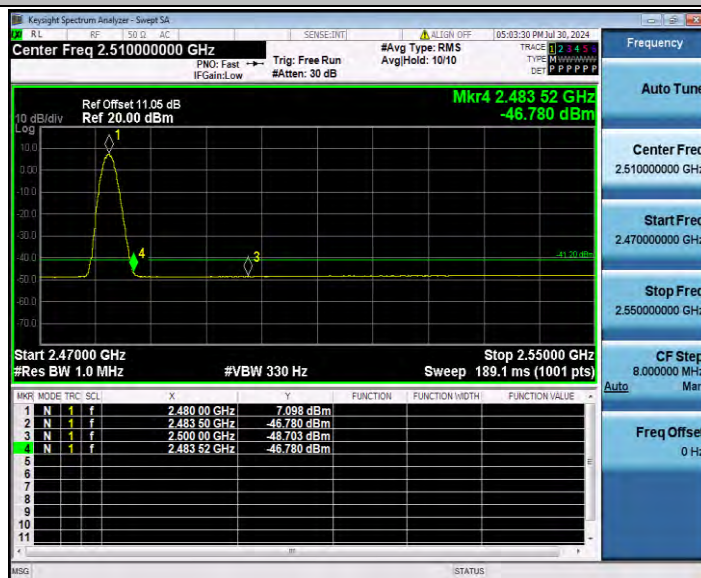
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

