

Case No. : <u>CTA24053000401</u>	
Ambient Condition: <u>24</u> °C, <u>49</u> %RH	
According Standard: <u>■Part15C</u>	
Test Date: <u>2024.5.28</u>	Test Engineer: <u>Evan ouyang</u>

Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]
DH1	Ant1	2402	0.834	2401.568	2402.402
		2441	0.846	2440.565	2441.411
		2480	0.834	2479.568	2480.402
2DH1	Ant1	2402	1.257	2401.373	2402.630
		2441	1.197	2440.418	2441.615
		2480	1.215	2479.388	2480.603
3DH1	Ant1	2402	1.218	2401.403	2402.621
		2441	1.227	2440.403	2441.630
		2480	1.224	2479.406	2480.630

Test Graphs

DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



3DH1_Ant1_2480



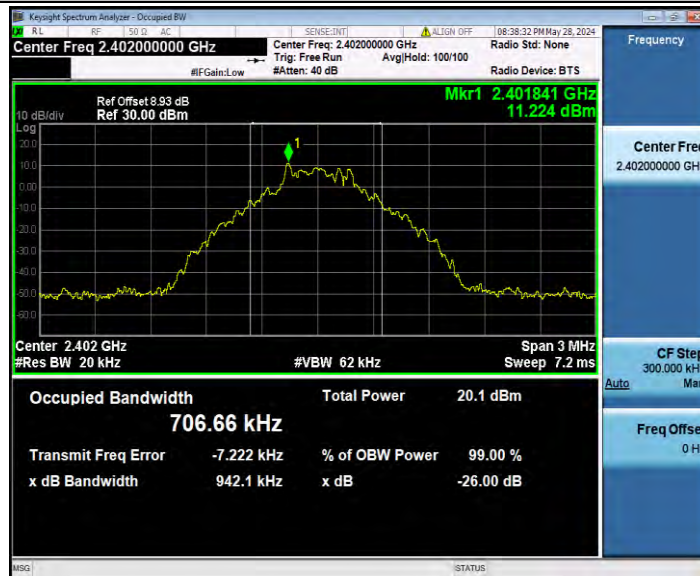
Appendix A.2: Occupied Channel Bandwidth

Test Result

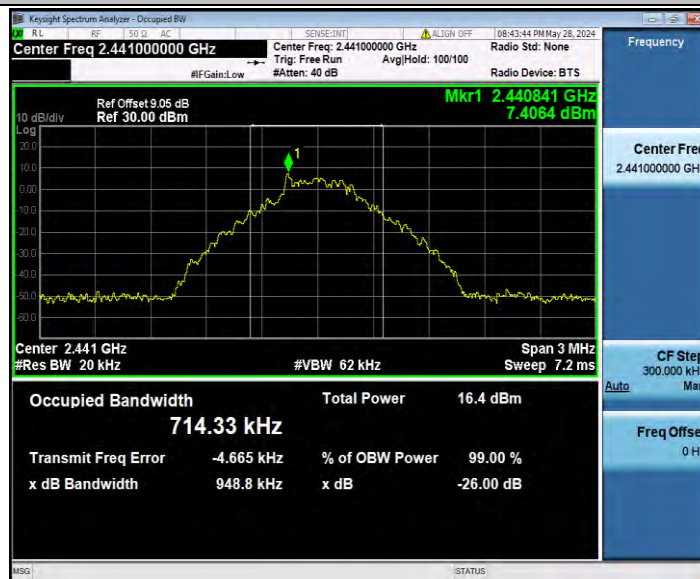
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
DH1	Ant1	2402	0.70666	2401.6395	2402.3461
		2441	0.71433	2440.6382	2441.3525
		2480	0.70643	2479.6429	2480.3493
2DH1	Ant1	2402	1.1317	2401.4369	2402.5686
		2441	1.1367	2440.4359	2441.5726
		2480	1.1249	2479.4442	2480.5691
3DH1	Ant1	2402	1.1295	2401.4477	2402.5772
		2441	1.1323	2440.4476	2441.5799
		2480	1.1297	2479.4486	2480.5783

Test Graphs

DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



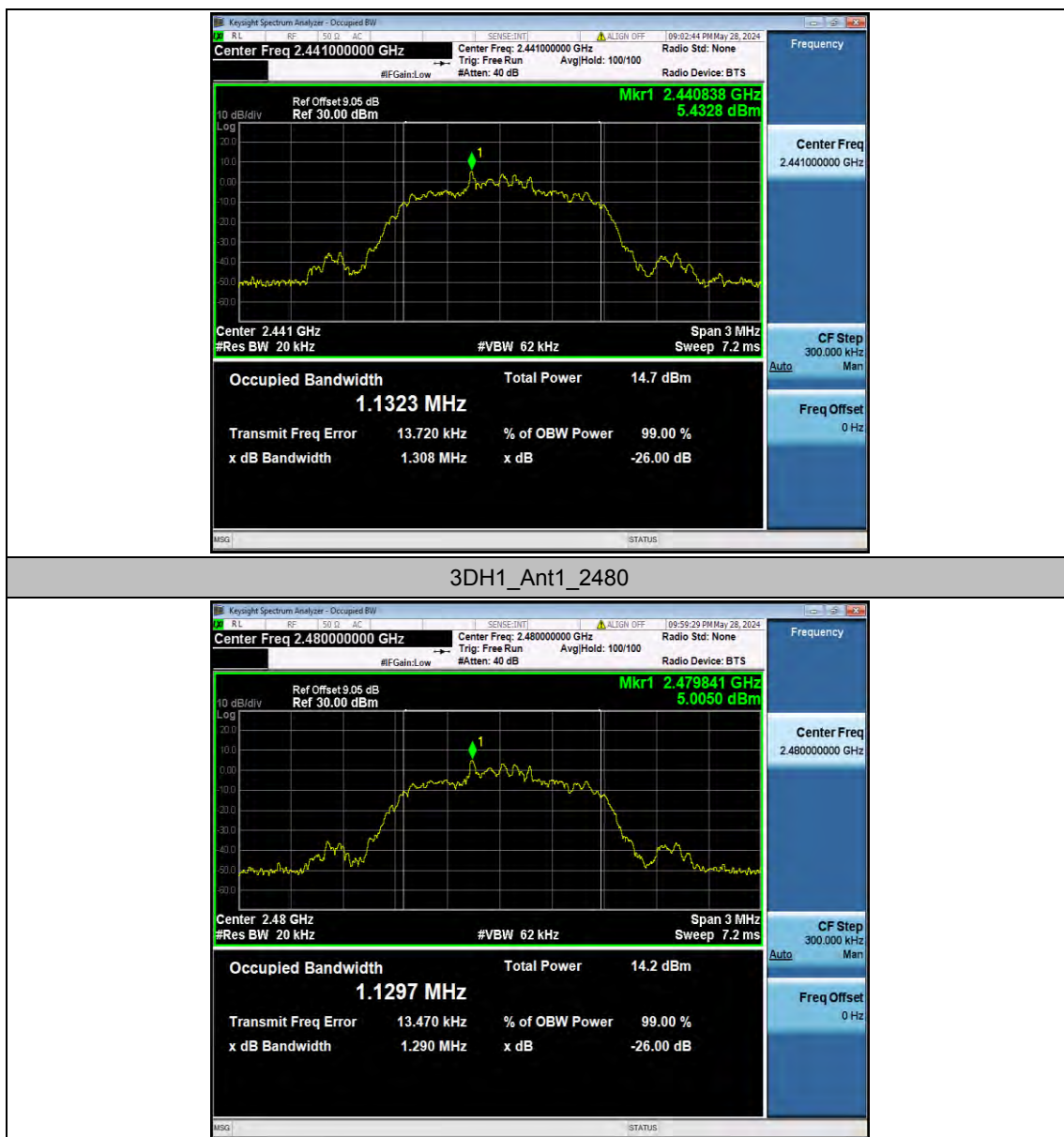
2DH1_Ant1_2480



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	9.17	≤20.97	PASS
		2441	9.64	≤20.97	PASS
		2480	9.94	≤20.97	PASS
2DH1	Ant1	2402	10.38	≤20.97	PASS
		2441	9.76	≤20.97	PASS
		2480	9.10	≤20.97	PASS
3DH1	Ant1	2402	10.37	≤20.97	PASS
		2441	9.77	≤20.97	PASS
		2480	9.10	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.84	≥ 0.564	PASS
		Hop_2441	1.124	≥ 0.564	PASS
		Hop_2480	0.84	≥ 0.564	PASS
2DH1	Ant1	Hop_2402	1.004	≥ 0.838	PASS
		Hop_2441	1.004	≥ 0.838	PASS
		Hop_2480	1.002	≥ 0.838	PASS
3DH1	Ant1	Hop_2402	1.008	≥ 0.818	PASS
		Hop_2441	1.164	≥ 0.818	PASS
		Hop_2480	1.152	≥ 0.818	PASS

Test Graphs

DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



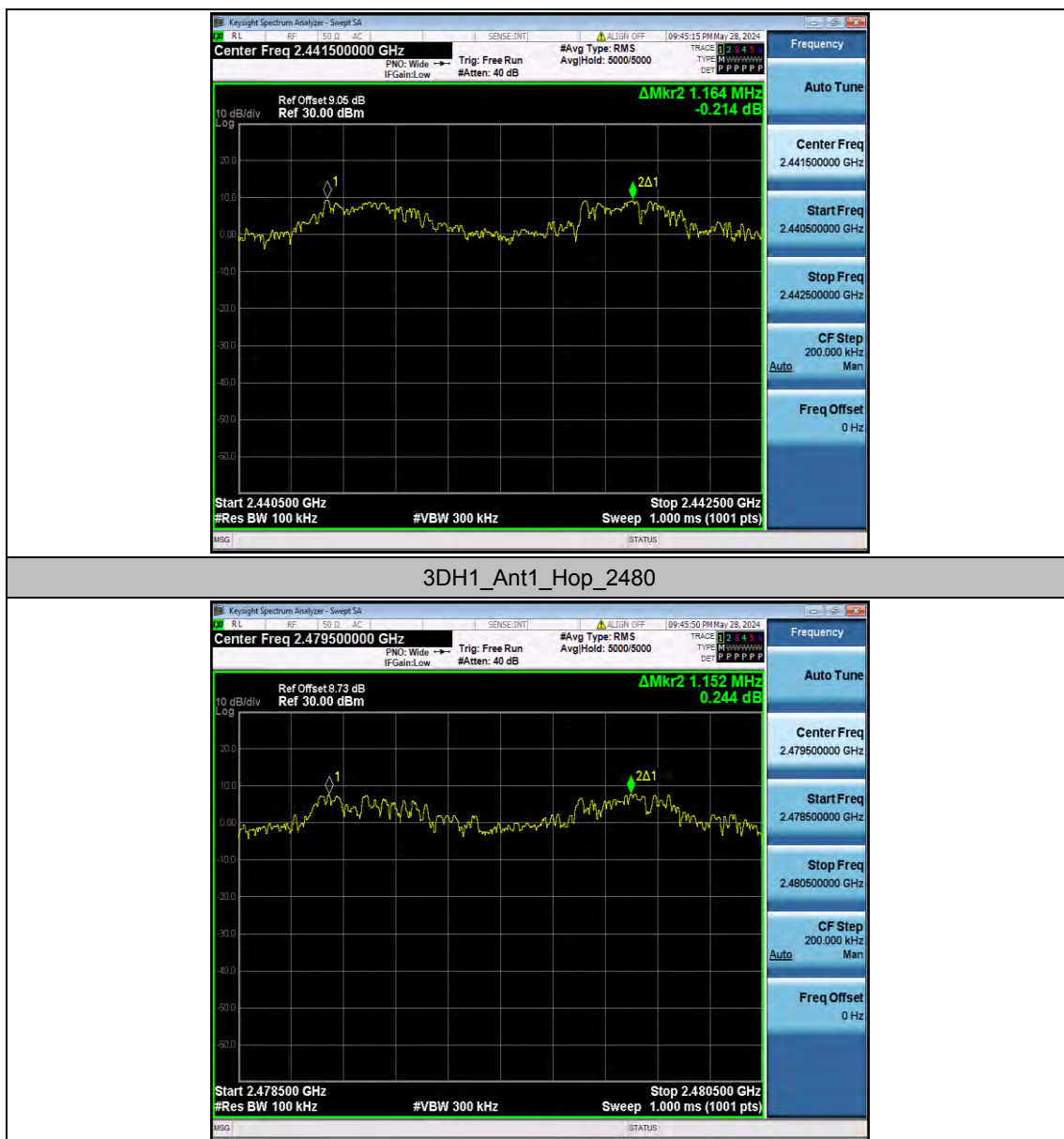
2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441

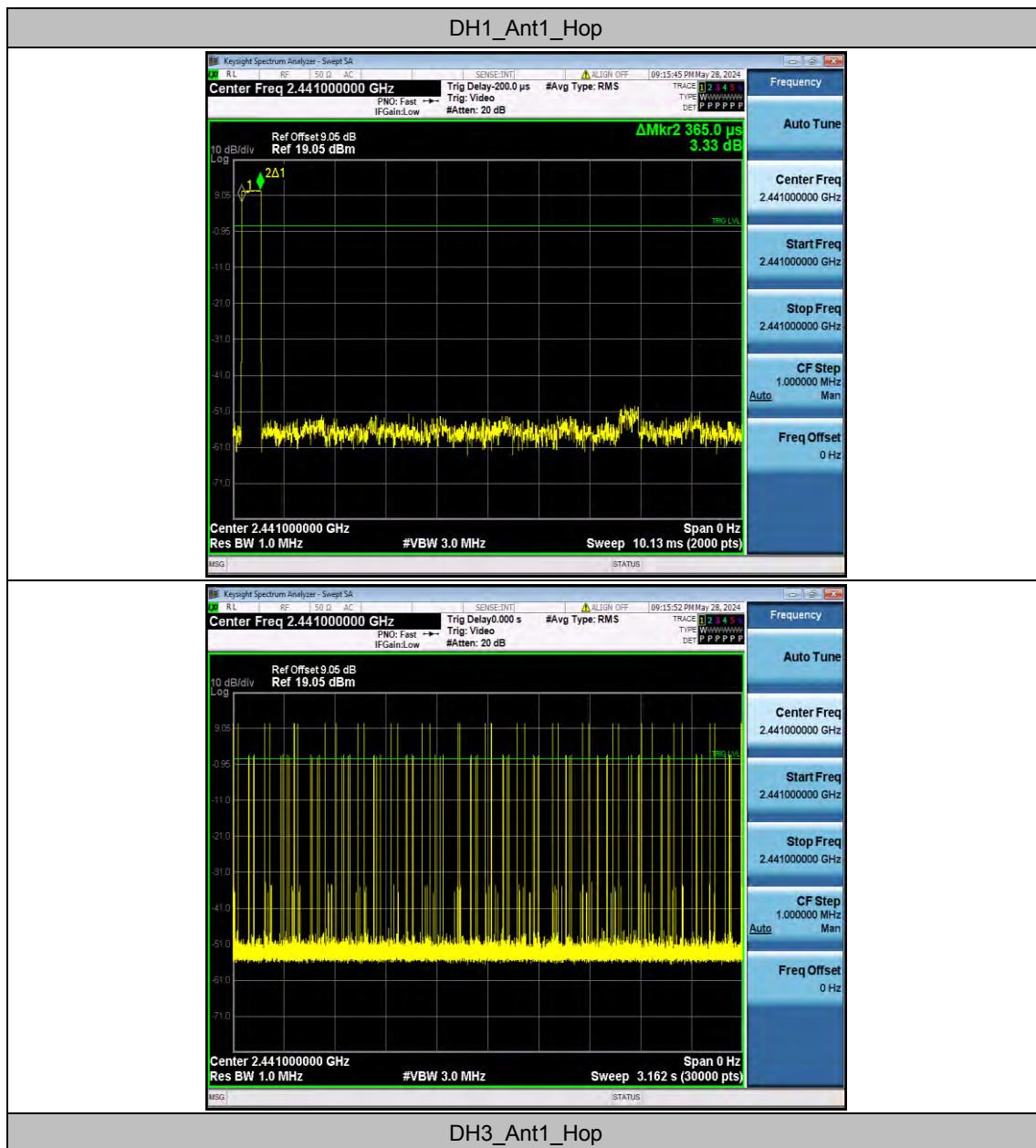


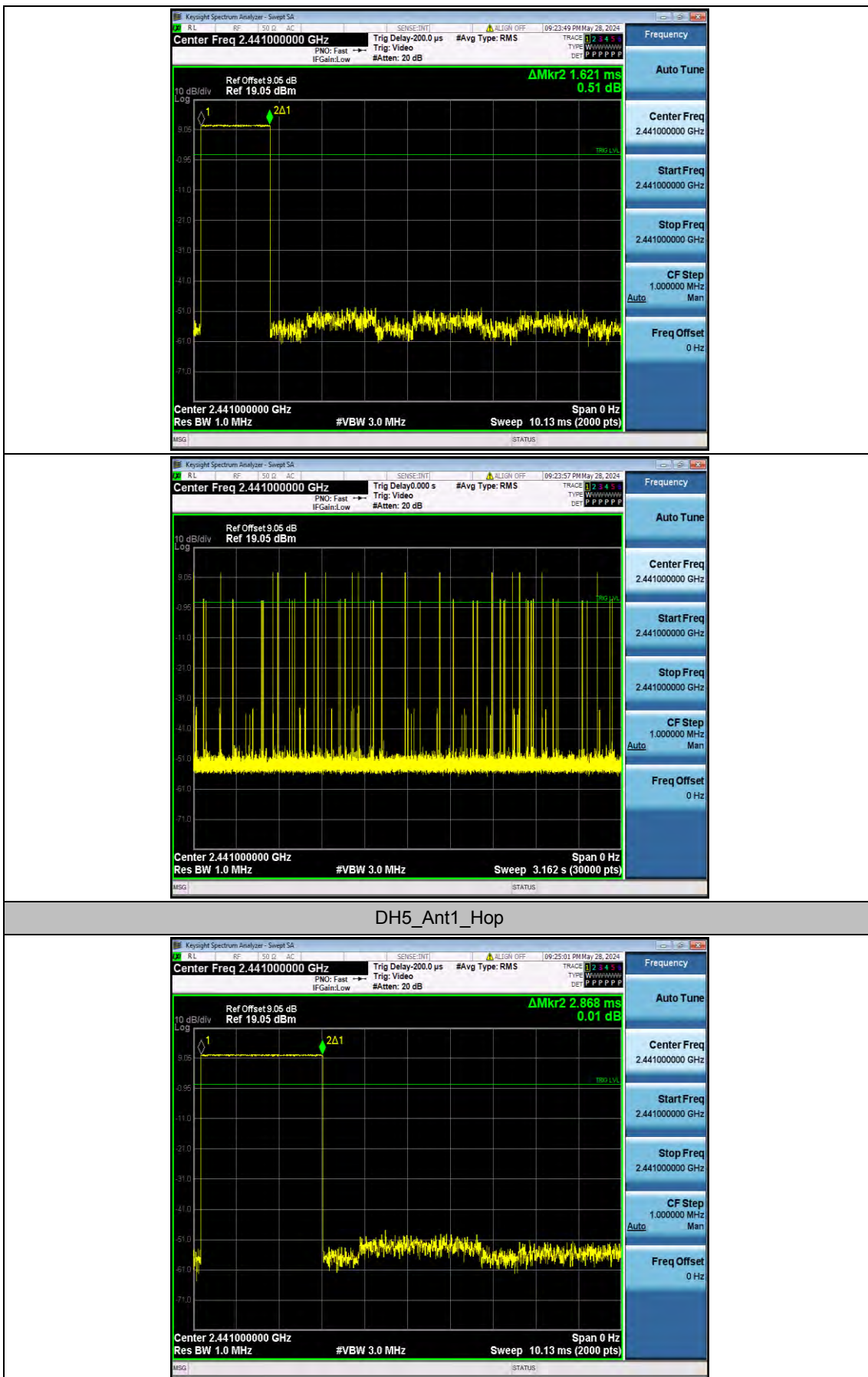
Appendix A.5: Time of occupancy

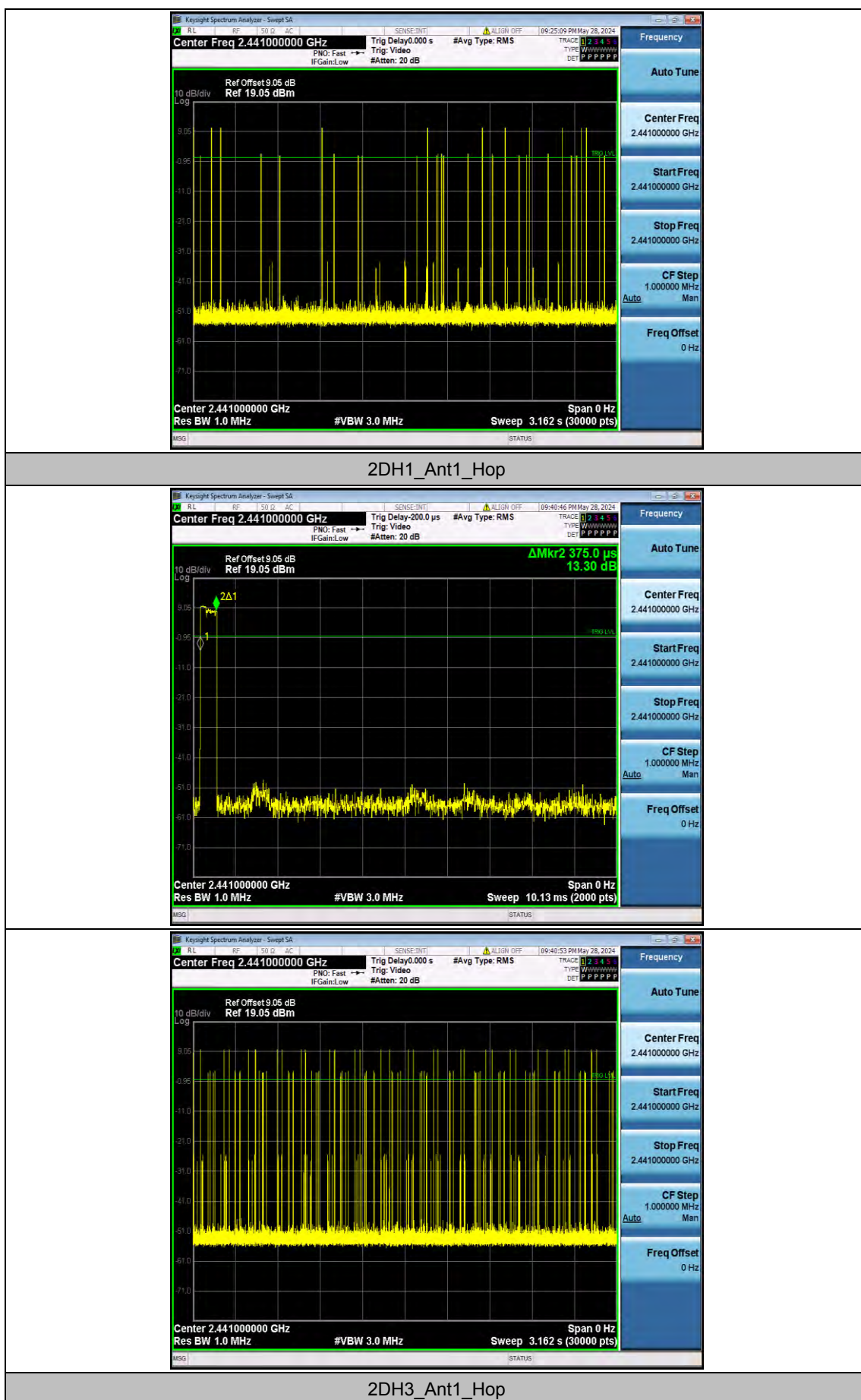
Test Result

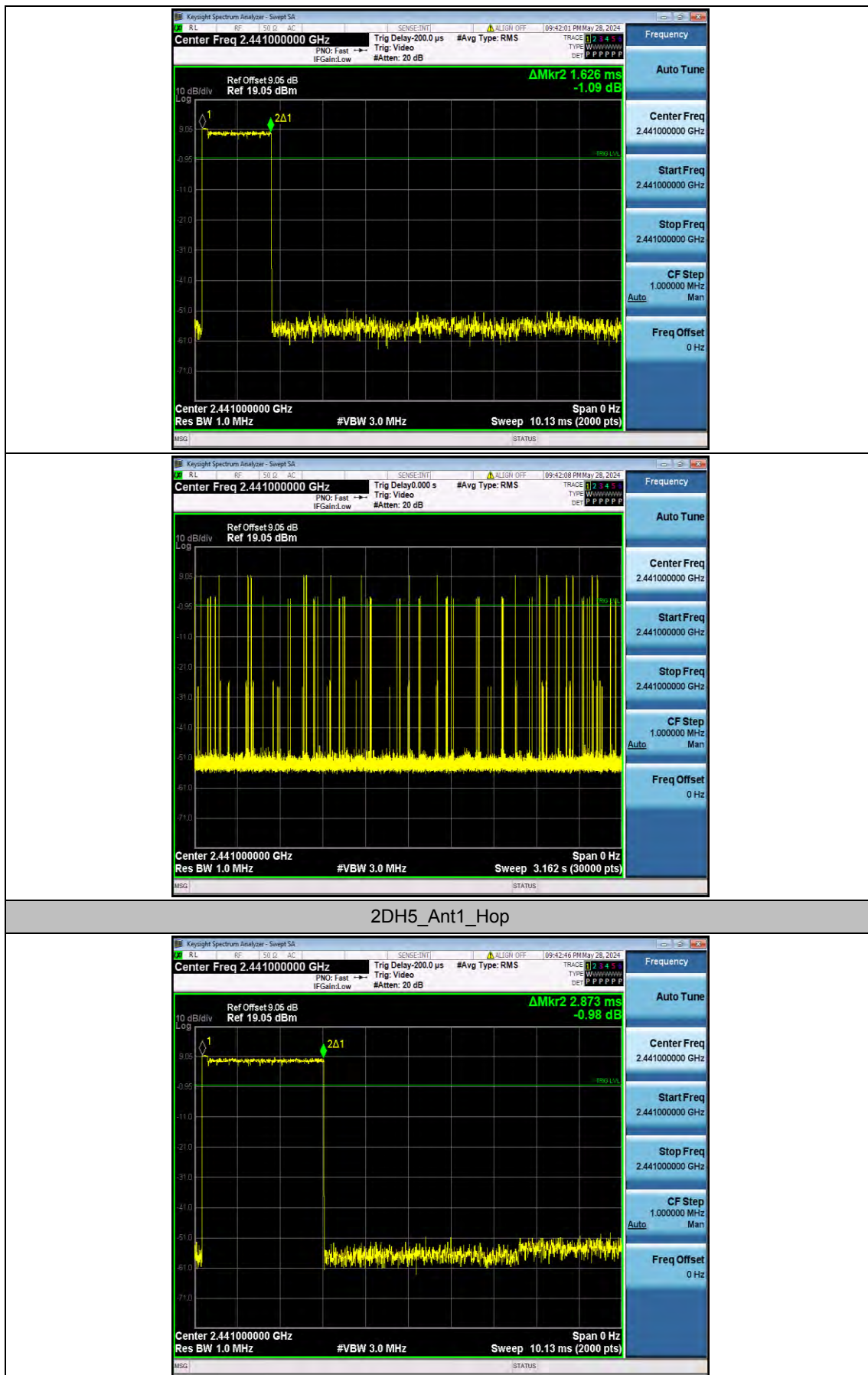
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.365	330	0.12	≤0.4	PASS
DH3	Ant1	Hop	1.621	160	0.259	≤0.4	PASS
DH5	Ant1	Hop	2.868	110	0.315	≤0.4	PASS
2DH1	Ant1	Hop	0.375	320	0.12	≤0.4	PASS
2DH3	Ant1	Hop	1.626	180	0.293	≤0.4	PASS
2DH5	Ant1	Hop	2.873	110	0.316	≤0.4	PASS
3DH1	Ant1	Hop	0.375	330	0.124	≤0.4	PASS
3DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
3DH5	Ant1	Hop	2.878	80	0.23	≤0.4	PASS

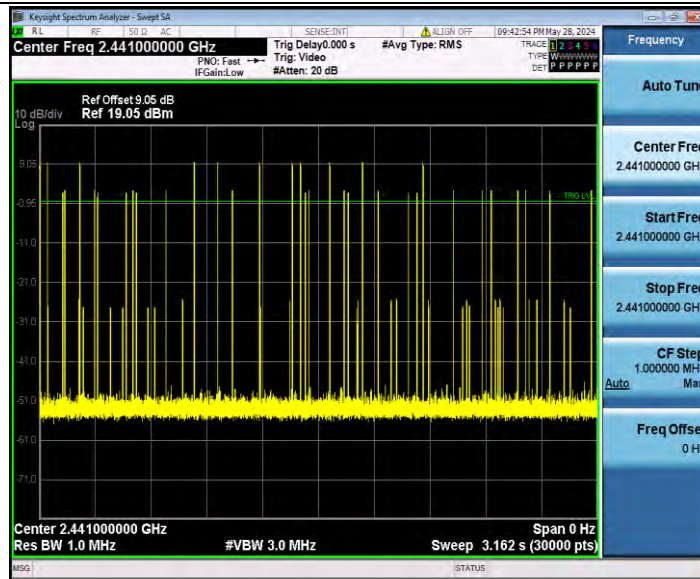
Test Graphs



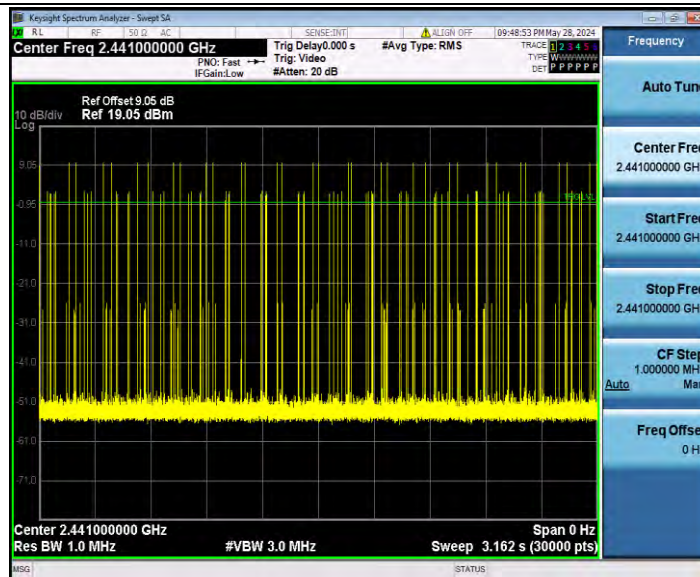
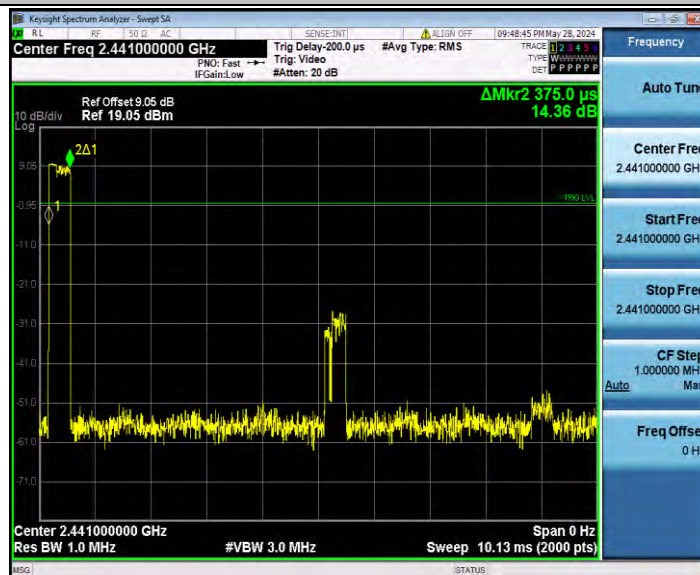




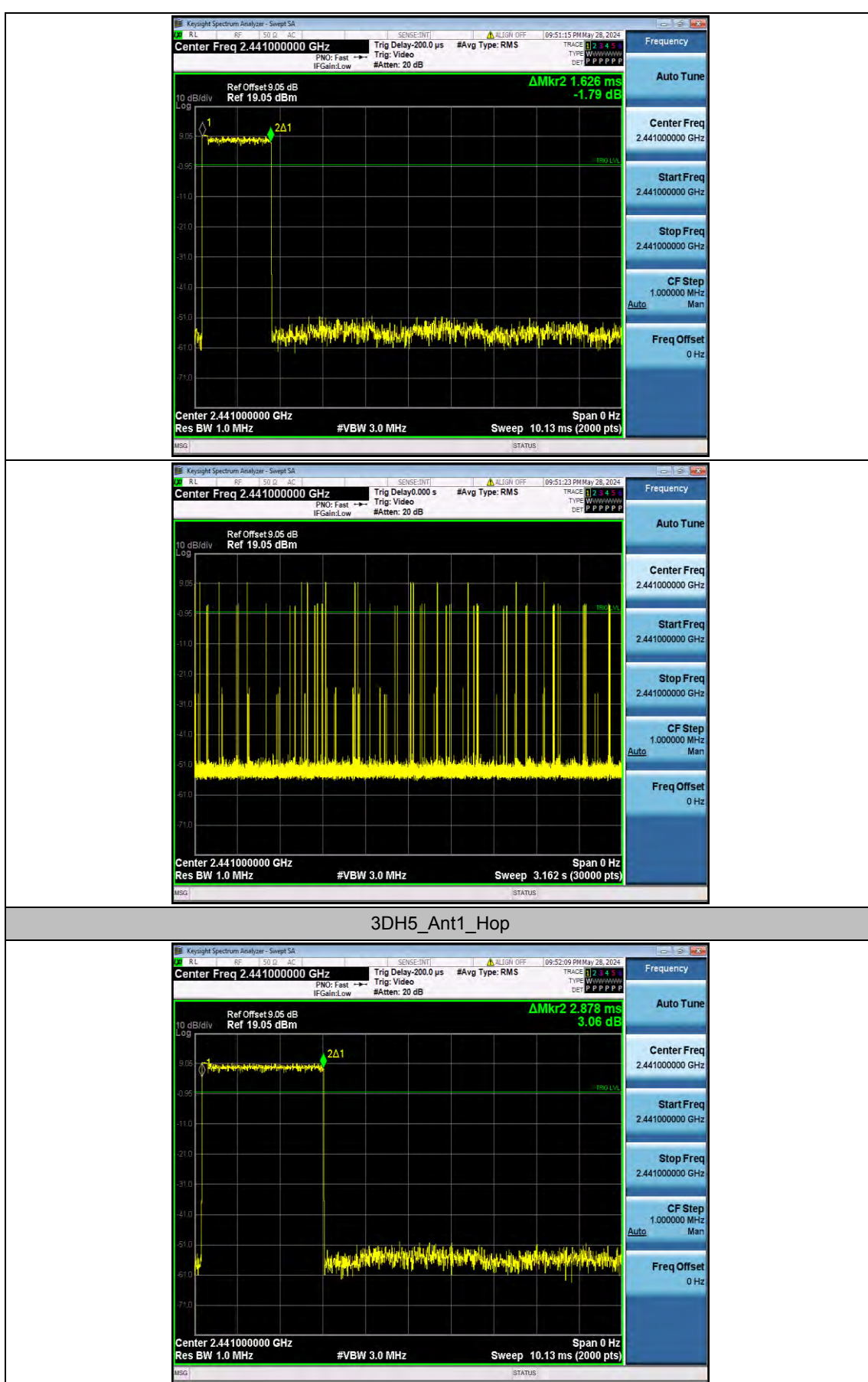


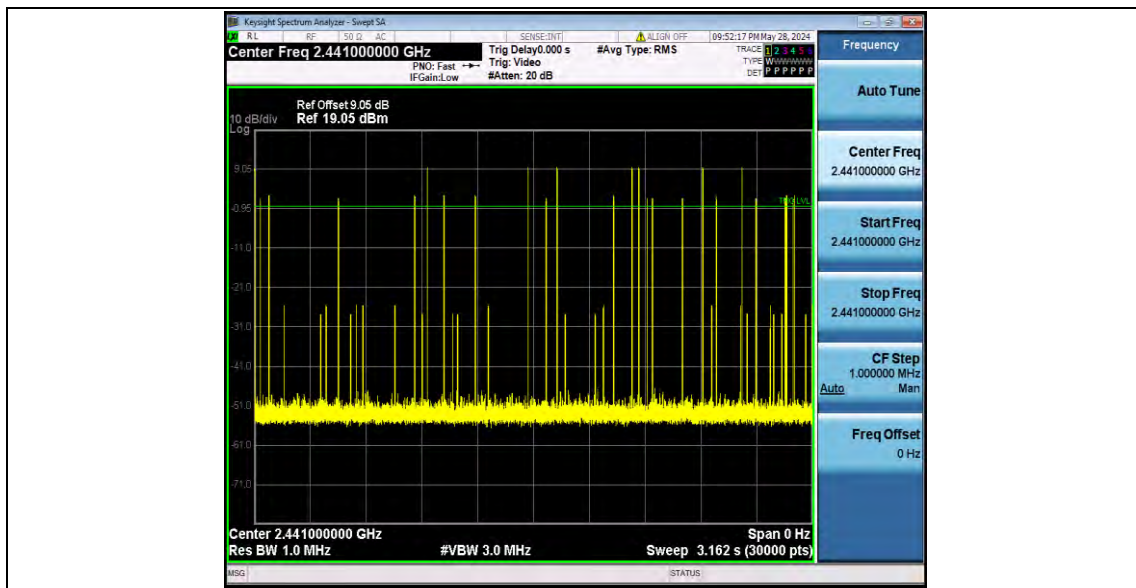


3DH1_Ant1_Hop



3DH3_Ant1_Hop



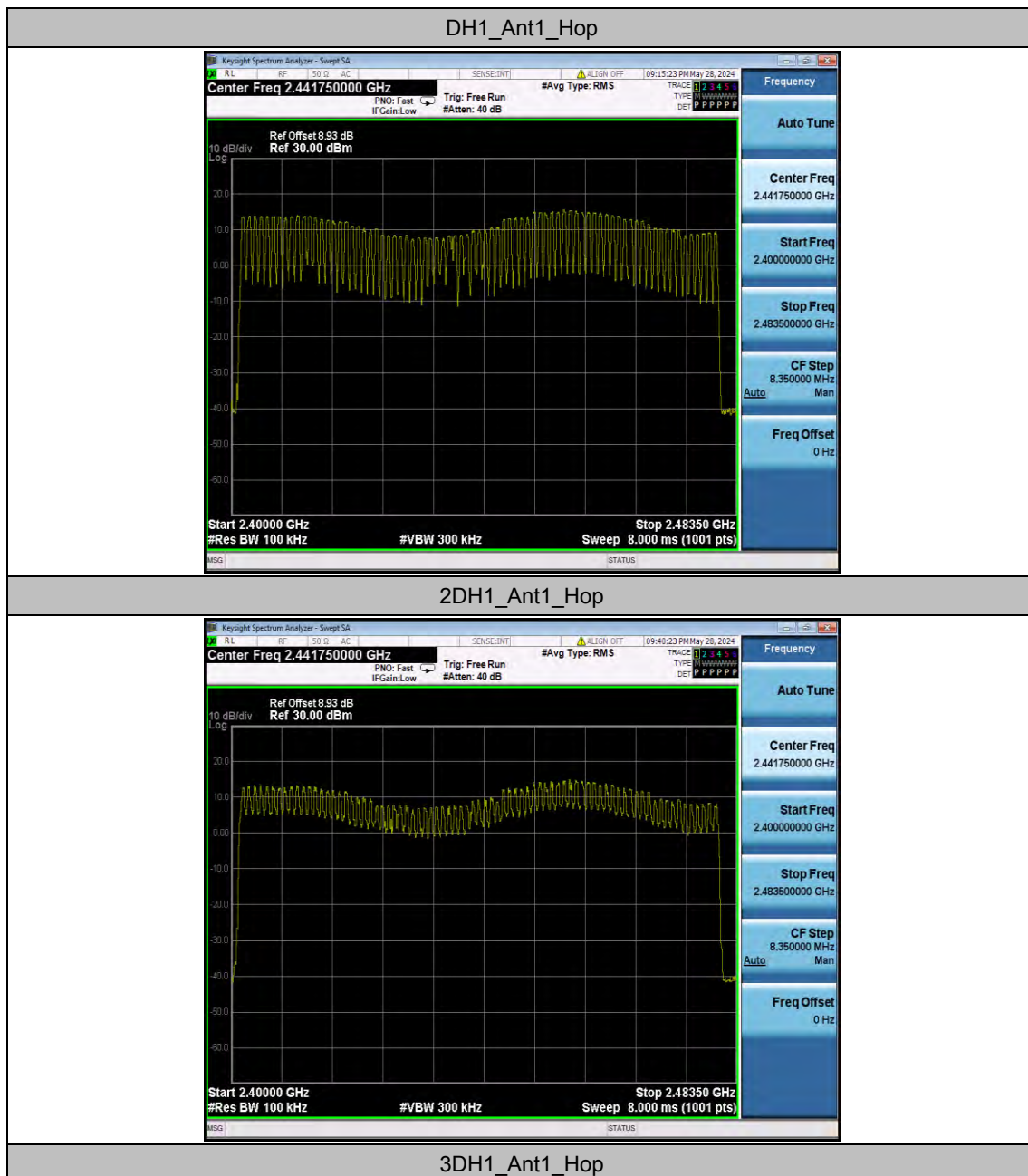


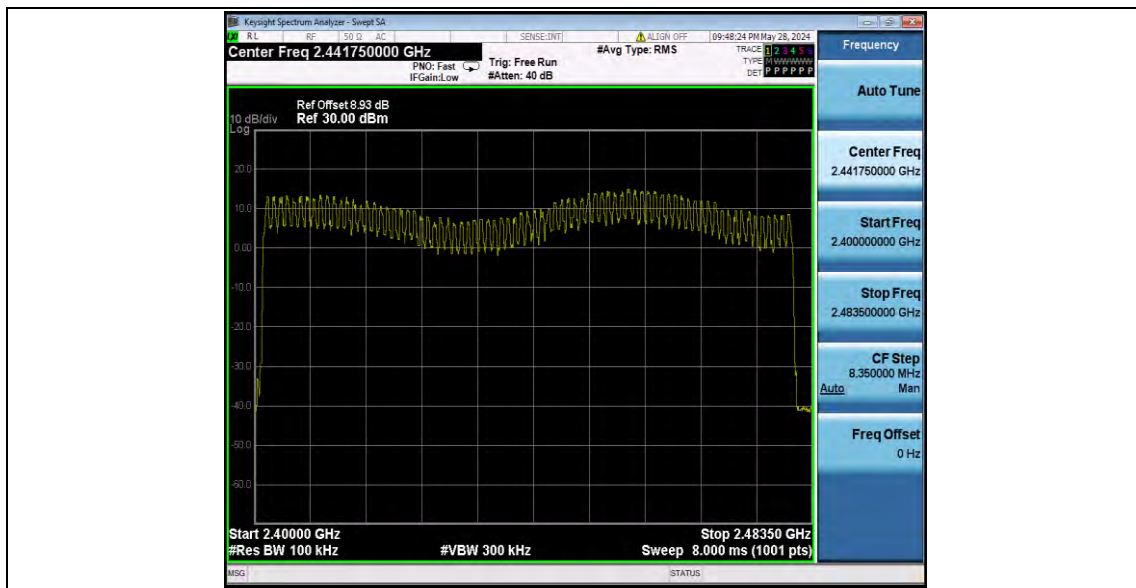
Appendix A.6: Number of hopping channels

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





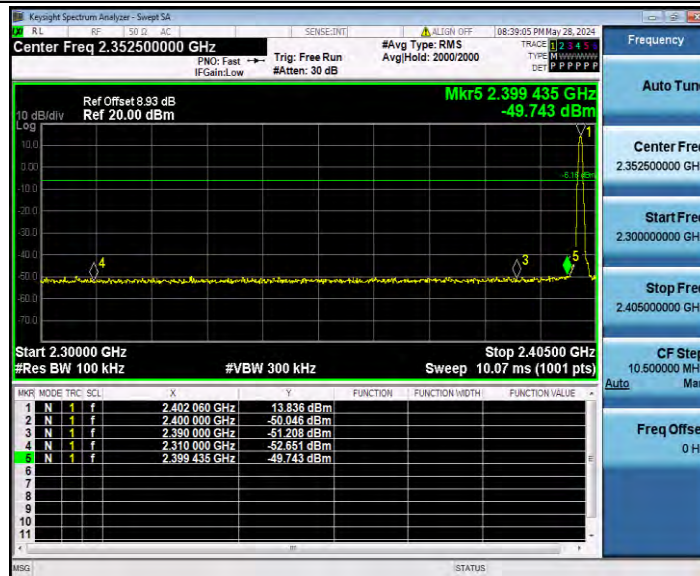
Appendix A.7: Band edge measurements

Test Result

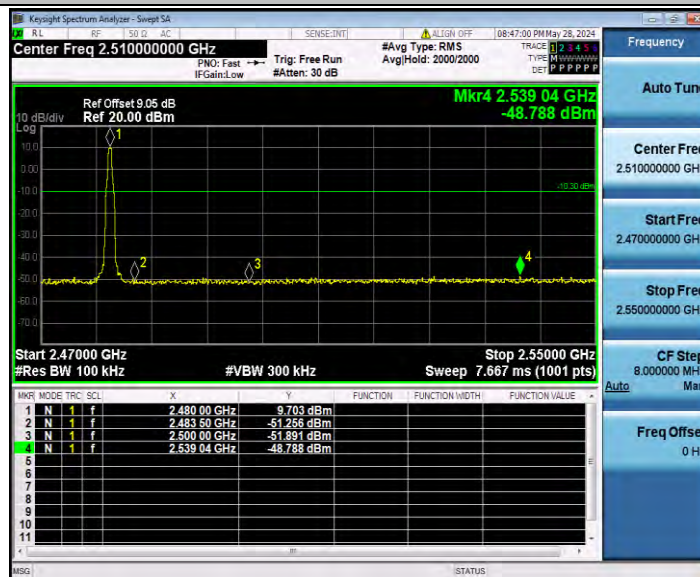
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	13.84	-49.74	≤ -6.16	PASS
		High	2480	9.70	-48.79	≤ -10.3	PASS
		Low	Hop_2402	14.03	-48.93	≤ -5.97	PASS
		High	Hop_2480	10.01	-48.98	≤ -9.99	PASS
2DH1	Ant1	Low	2402	13.08	-45.33	≤ -6.92	PASS
		High	2480	8.76	-48.49	≤ -11.24	PASS
		Low	Hop_2402	13.11	-49.47	≤ -6.89	PASS
		High	Hop_2480	7.84	-47.5	≤ -12.16	PASS
3DH1	Ant1	Low	2402	13.05	-47.78	≤ -6.95	PASS
		High	2480	8.85	-48.88	≤ -11.15	PASS
		Low	Hop_2402	10.87	-49.8	≤ -9.13	PASS
		High	Hop_2480	8.68	-48.95	≤ -11.33	PASS

Test Graphs

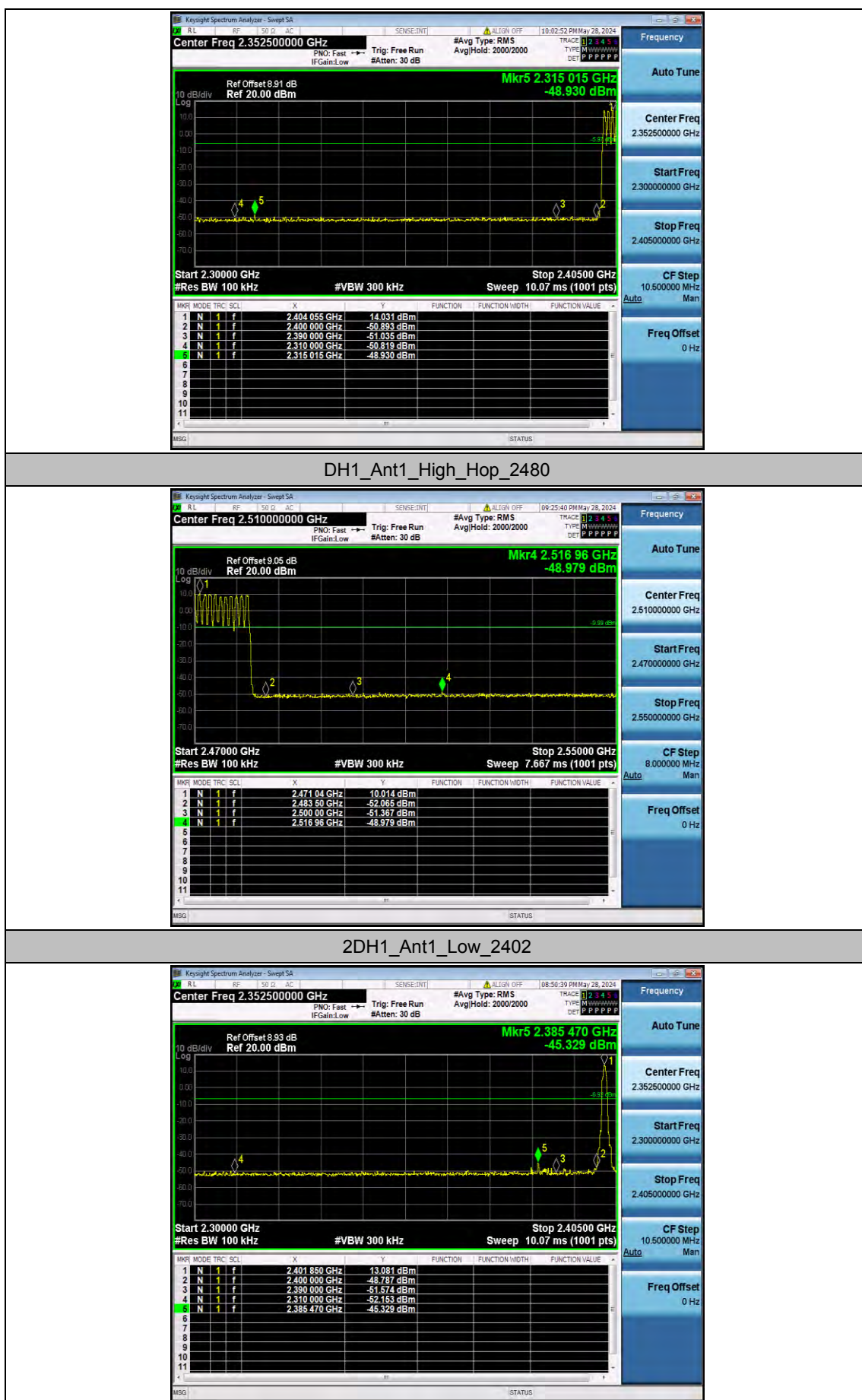
DH1_Ant1_Low_2402



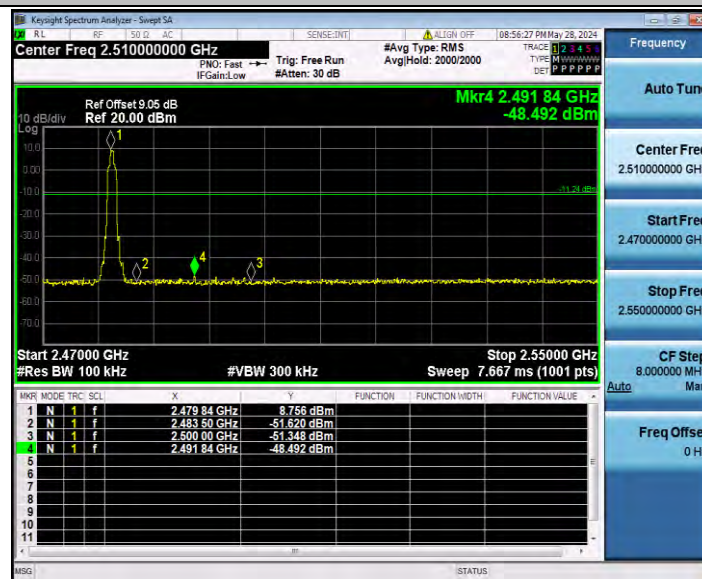
DH1_Ant1_High_2480



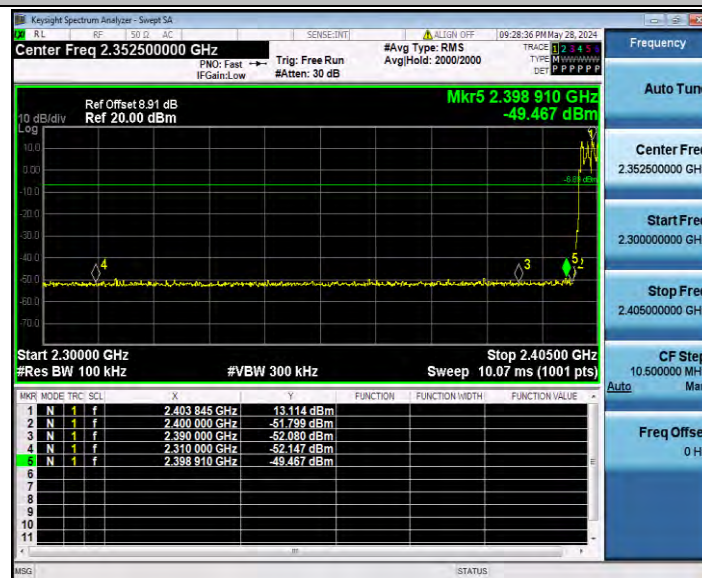
DH1_Ant1_Low_Hop_2402



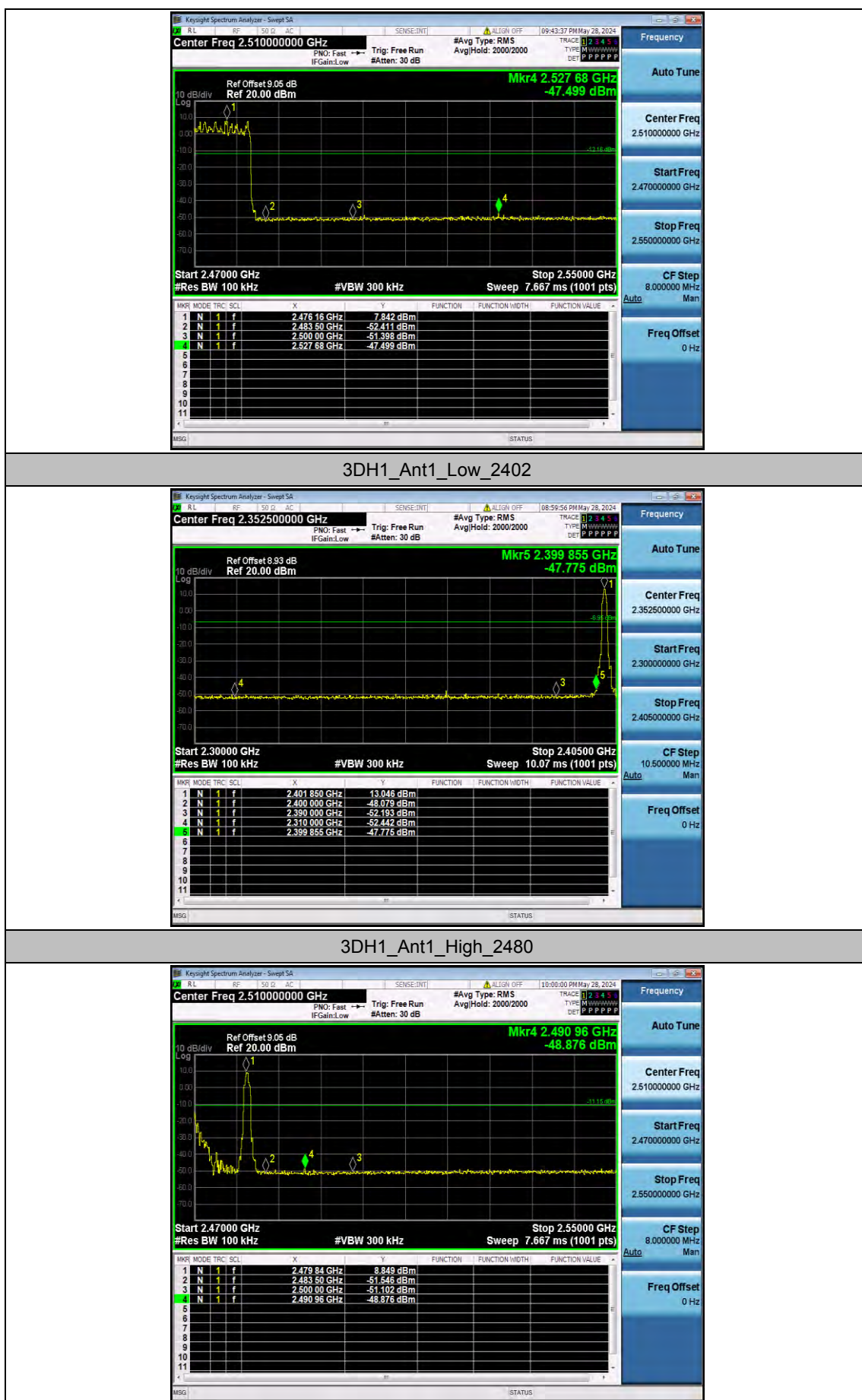
2DH1_Ant1_High_2480



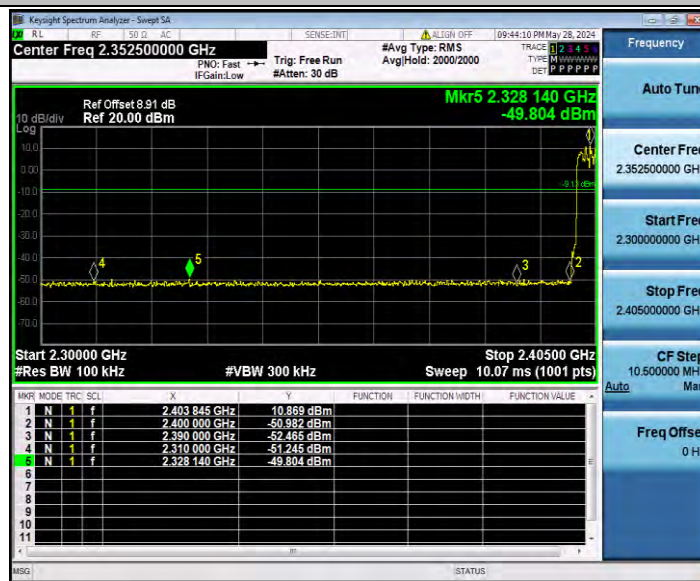
2DH1_Ant1_Low_Hop_2402



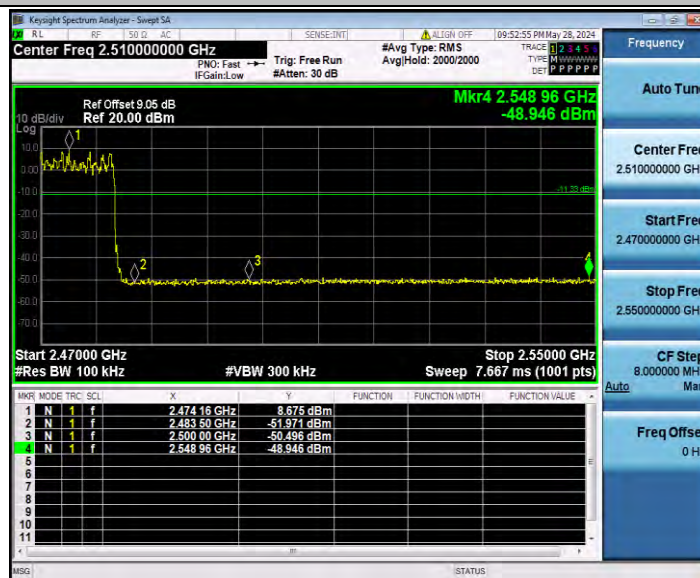
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

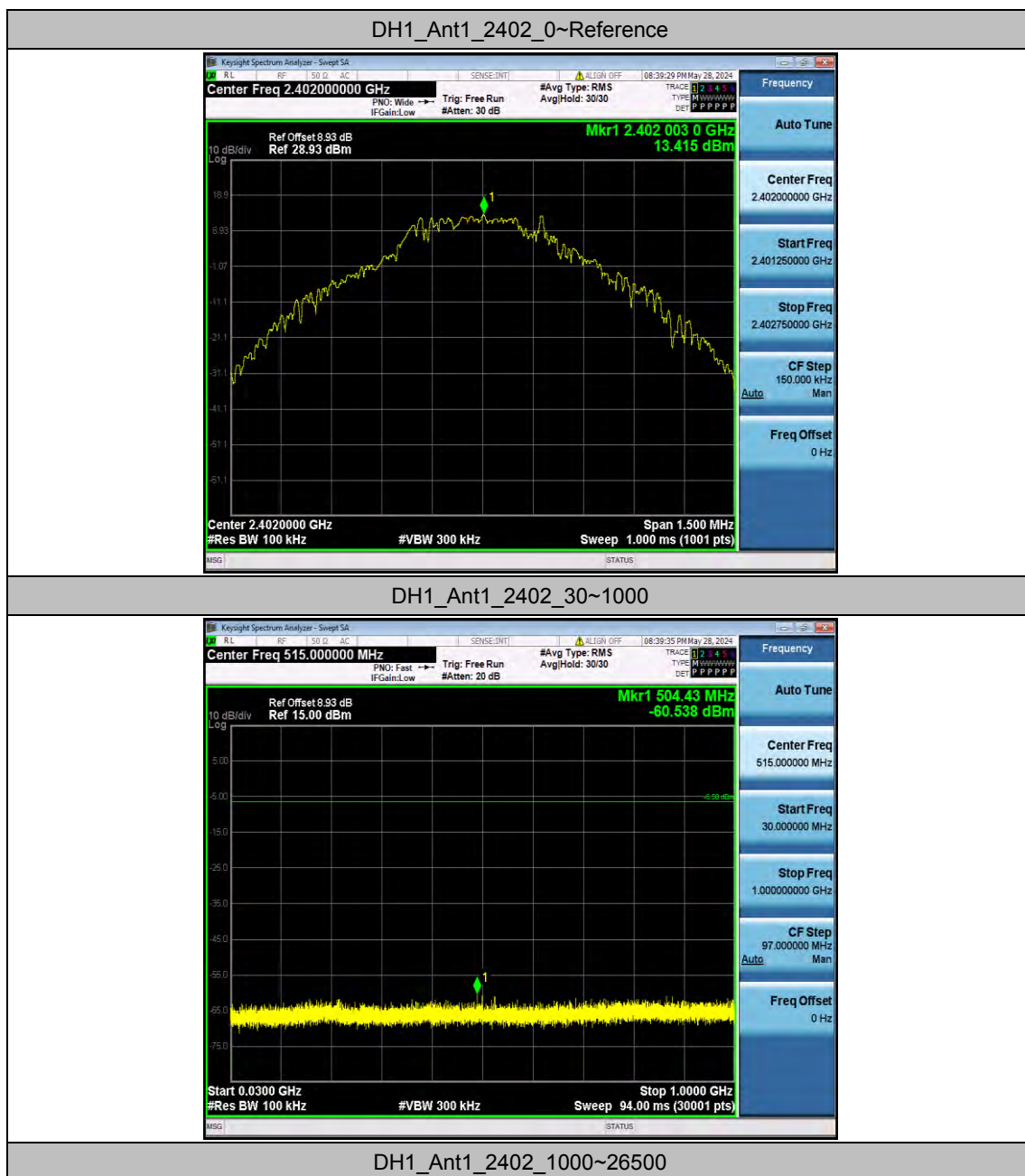


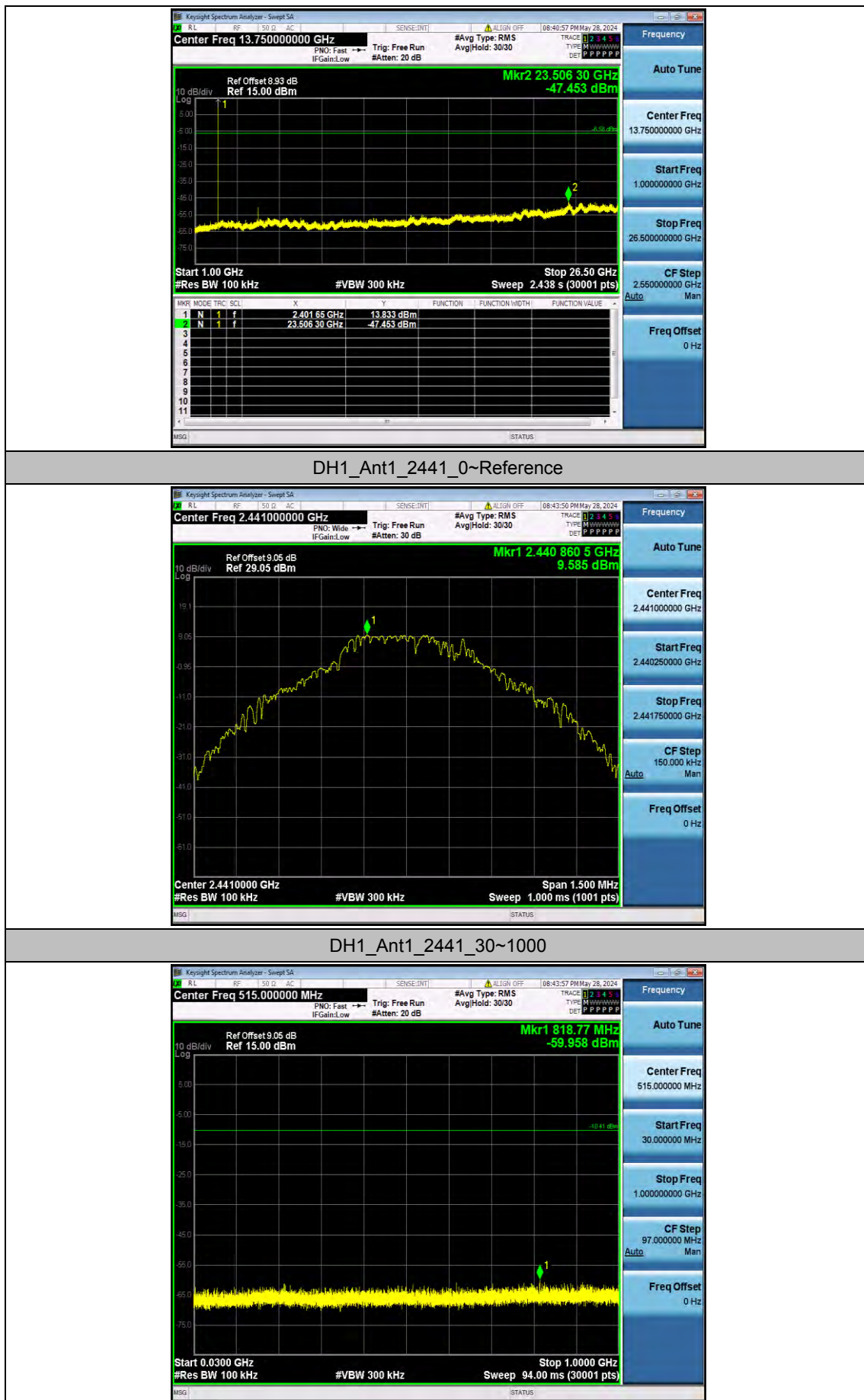
Appendix A.8: Conducted Spurious Emission

Test Result

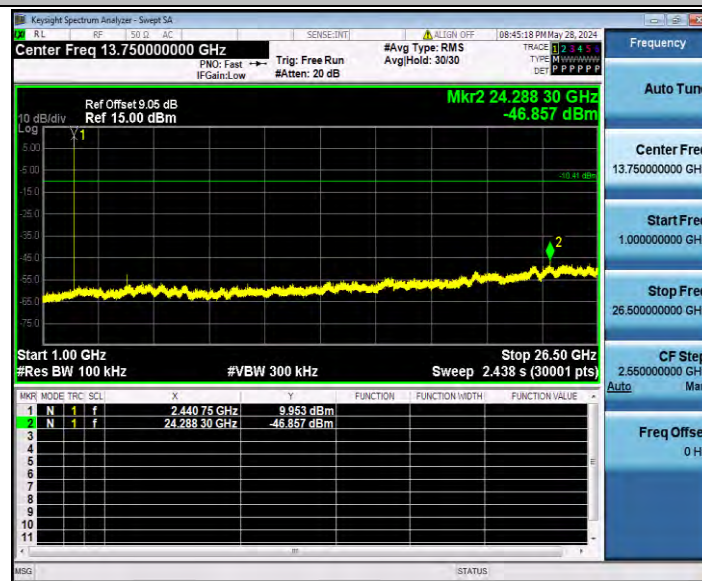
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	13.42	13.42	---	PASS
			30~1000	13.42	-60.54	≤ -6.58	PASS
			1000~26500	13.42	-47.45	≤ -6.58	PASS
		2441	Reference	9.59	9.59	---	PASS
			30~1000	9.59	-59.96	≤ -10.41	PASS
			1000~26500	9.59	-46.86	≤ -10.41	PASS
		2480	Reference	9.05	9.05	---	PASS
			30~1000	9.05	-59.92	≤ -10.95	PASS
			1000~26500	9.05	-47.8	≤ -10.95	PASS
2DH1	Ant1	2402	Reference	12.71	12.71	---	PASS
			30~1000	12.71	-60.8	≤ -7.29	PASS
			1000~26500	12.71	-46.81	≤ -7.29	PASS
		2441	Reference	8.62	8.62	---	PASS
			30~1000	8.62	-60.2	≤ -11.38	PASS
			1000~26500	8.62	-47.33	≤ -11.38	PASS
		2480	Reference	8.68	8.68	---	PASS
			30~1000	8.68	-59.66	≤ -11.32	PASS
			1000~26500	8.68	-47.1	≤ -11.32	PASS
3DH1	Ant1	2402	Reference	12.27	12.27	---	PASS
			30~1000	12.27	-60.48	≤ -7.73	PASS
			1000~26500	12.27	-47.85	≤ -7.73	PASS
		2441	Reference	8.86	8.86	---	PASS
			30~1000	8.86	-60.56	≤ -11.14	PASS
			1000~26500	8.86	-48.08	≤ -11.14	PASS
		2480	Reference	8.80	8.80	---	PASS
			30~1000	8.80	-60.86	≤ -11.2	PASS
			1000~26500	8.80	-47.51	≤ -11.2	PASS

Test Graphs





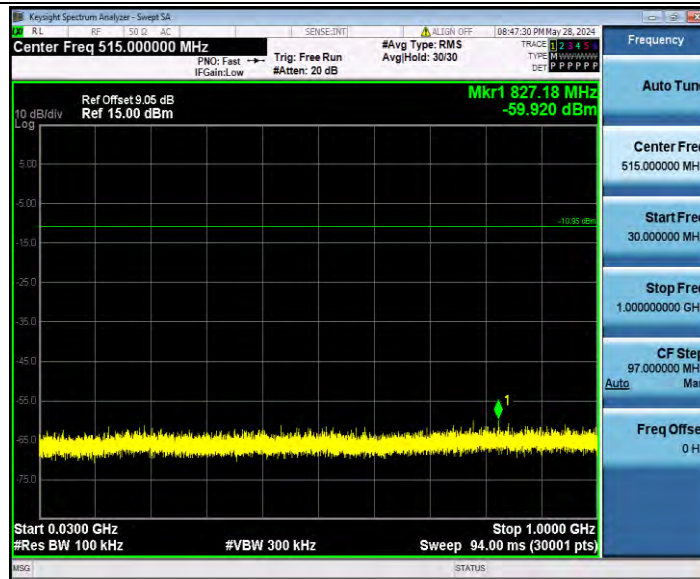
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

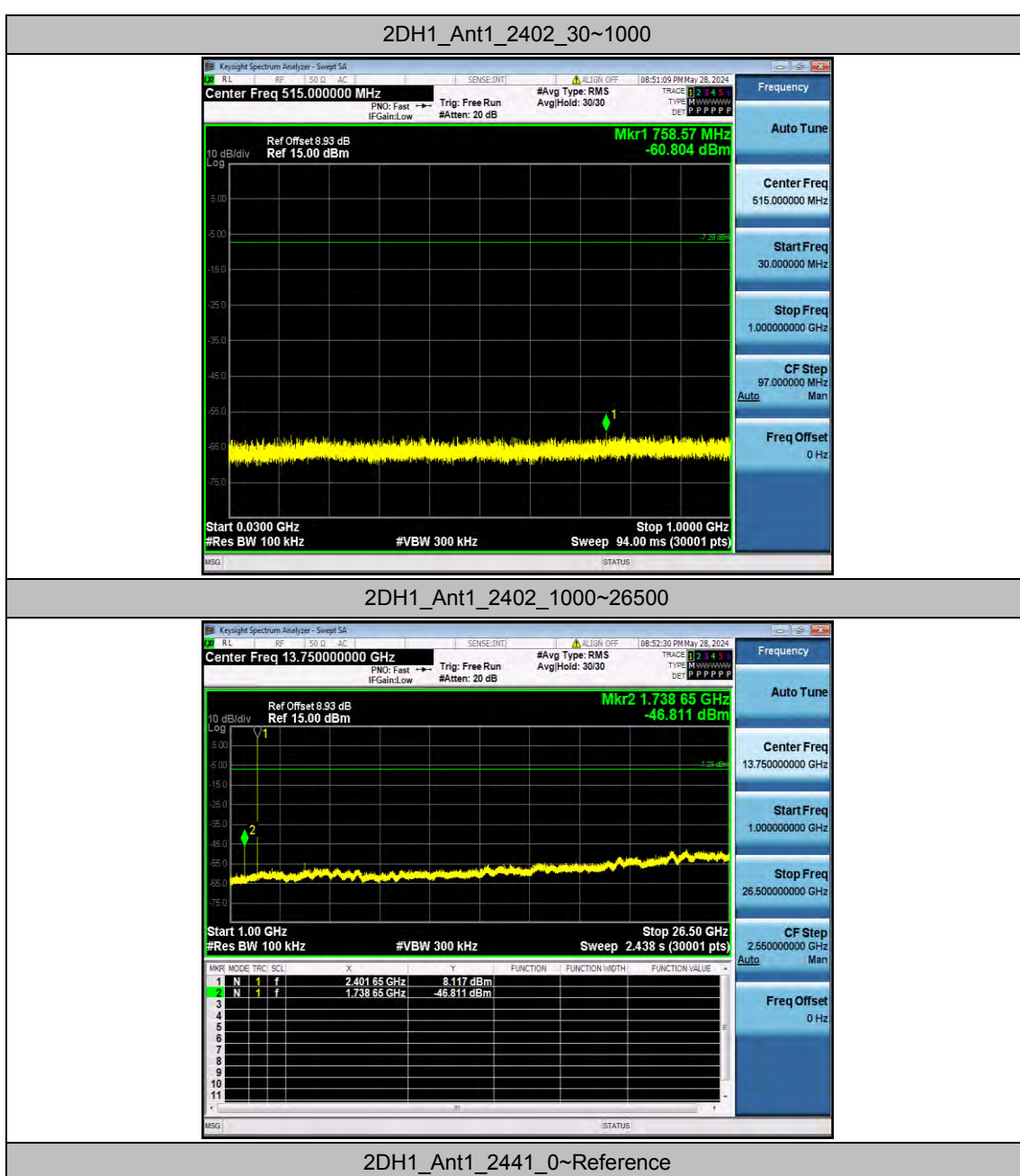


DH1_Ant1_2480_1000~26500



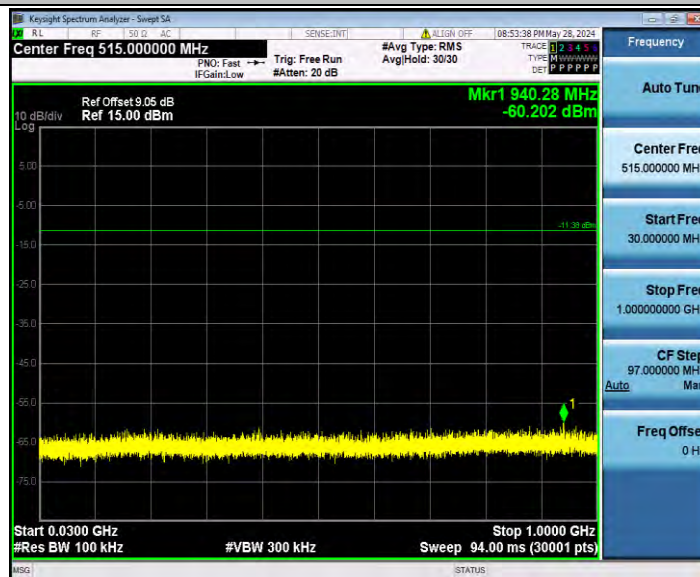
2DH1_Ant1_2402_0~Reference







2DH1_Ant1_2441_30~1000



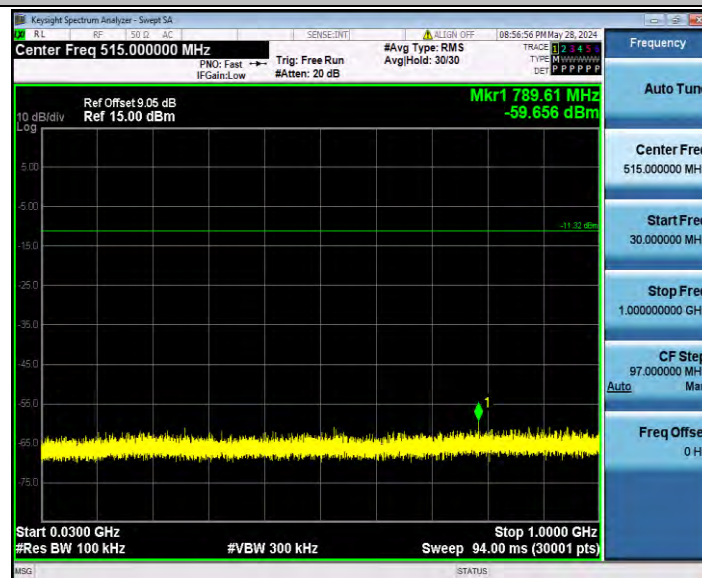
2DH1_Ant1_2441_1000~26500



2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



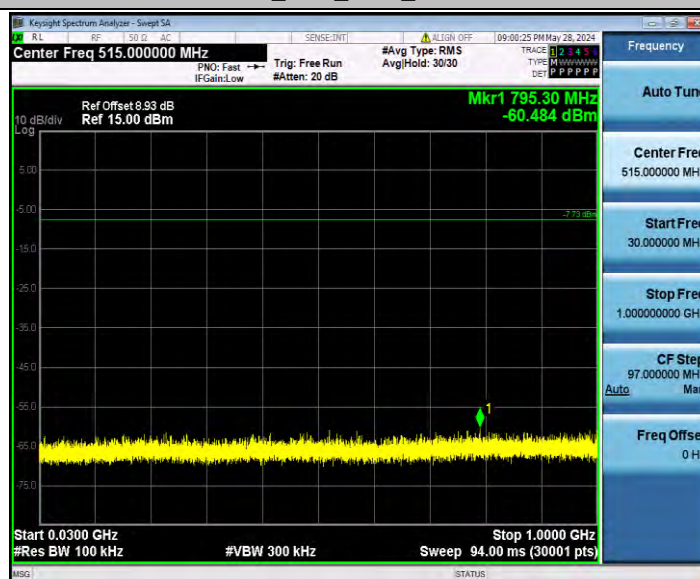
2DH1_Ant1_2480_1000~26500



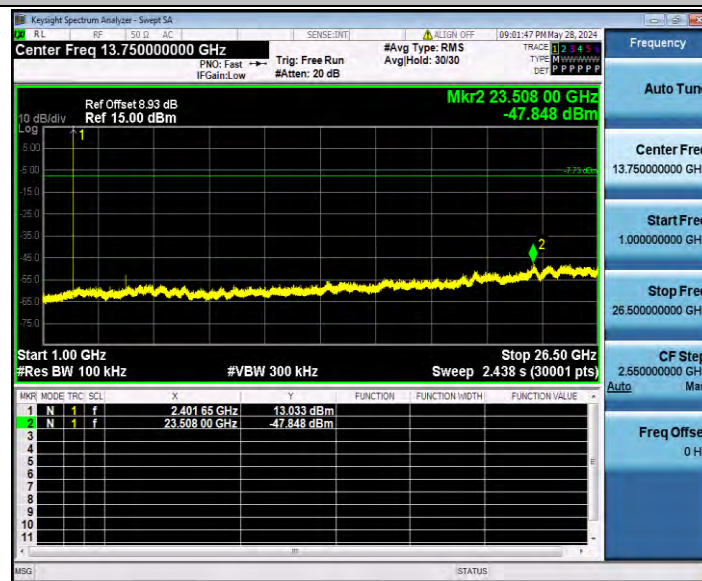
3DH1_Ant1_2402_0~Reference



3DH1_Ant1_2402_30~1000



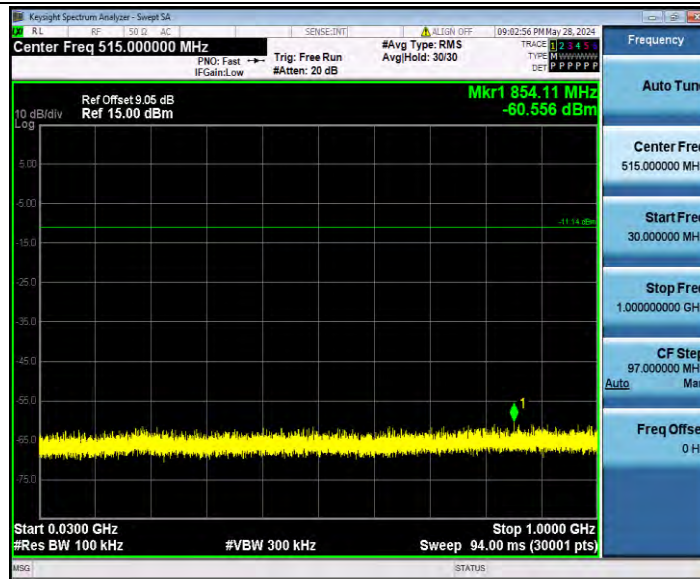
3DH1_Ant1_2402_1000~26500



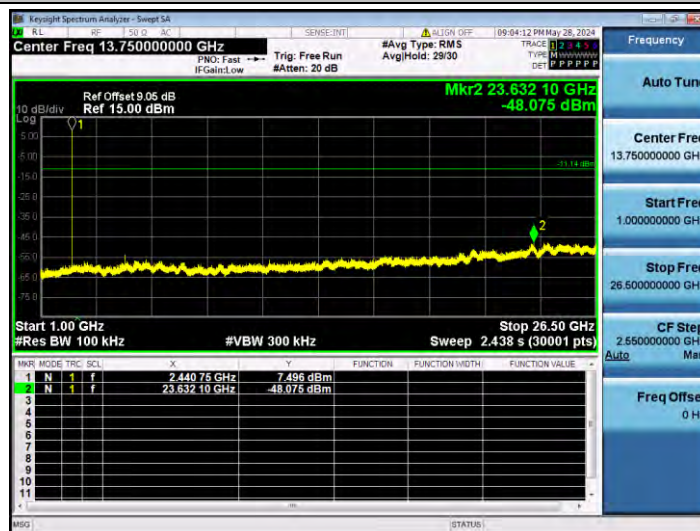
3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000



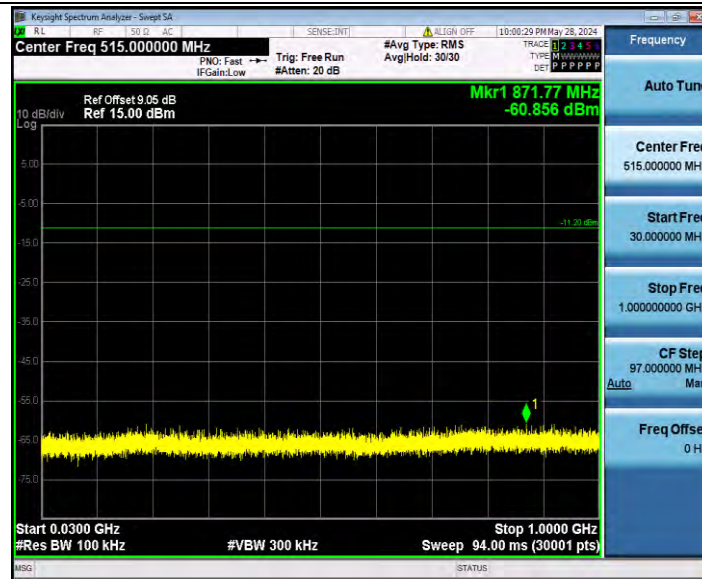
3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference



3DH1_Ant1_2480_30~1000



3DH1_Ant1_2480_1000~26500



Appendix A.9: Emissions in Restricted Bands

Test Result

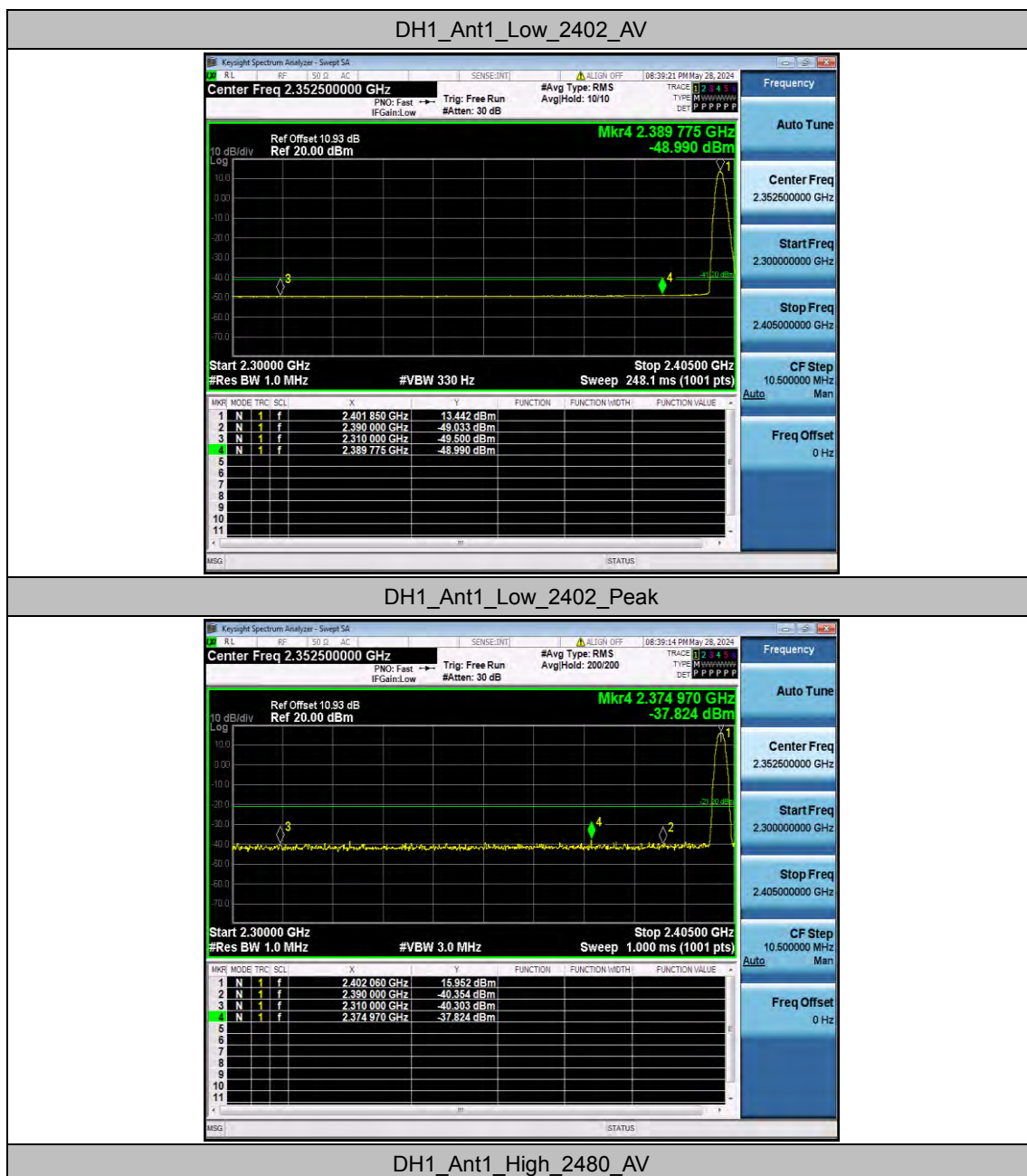
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.5	≤-41.20	45.70	≤54	PASS
				AV	2389.775	-48.99	≤-41.20	46.21	≤54	PASS
				AV	2390.000	-49.03	≤-41.20	46.17	≤54	PASS
				Peak	2310.000	-40.3	≤-21.20	54.90	≤74	PASS
				Peak	2374.970	-37.82	≤-21.20	57.38	≤74	PASS
				Peak	2390.000	-40.35	≤-21.20	54.85	≤74	PASS
		High	2480	AV	2483.500	-47.59	≤-41.20	47.61	≤54	PASS
				AV	2483.520	-47.59	≤-41.20	47.61	≤54	PASS
				AV	2500.000	-48.65	≤-41.20	46.55	≤54	PASS
				Peak	2483.500	-40.94	≤-21.20	54.26	≤74	PASS
				Peak	2487.760	-39.12	≤-21.20	56.08	≤74	PASS
				Peak	2500.000	-40.02	≤-21.20	55.18	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.51	≤-41.20	45.69	≤54	PASS
				AV	2389.670	-49.02	≤-41.20	46.18	≤54	PASS
				AV	2390.000	-49.21	≤-41.20	45.99	≤54	PASS
				Peak	2310.000	-41.63	≤-21.20	53.57	≤74	PASS
				Peak	2364.890	-39.31	≤-21.20	55.89	≤74	PASS
				Peak	2390.000	-41.47	≤-21.20	53.73	≤74	PASS
		High	2480	AV	2483.500	-47.49	≤-41.20	47.71	≤54	PASS
				AV	2483.520	-47.49	≤-41.20	47.71	≤54	PASS
				AV	2500.000	-48.6	≤-41.20	46.60	≤54	PASS
				Peak	2483.500	-41.35	≤-21.20	53.85	≤74	PASS
				Peak	2486.800	-38.27	≤-21.20	56.93	≤74	PASS
				Peak	2500.000	-40.82	≤-21.20	54.38	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.61	≤-41.20	45.59	≤54	PASS
				AV	2388.515	-49.04	≤-41.20	46.16	≤54	PASS
				AV	2390.000	-49.18	≤-41.20	46.02	≤54	PASS
				Peak	2310.000	-41.28	≤-21.20	53.92	≤74	PASS
				Peak	2386.520	-38.93	≤-21.20	56.27	≤74	PASS
				Peak	2390.000	-40.94	≤-21.20	54.26	≤74	PASS
		High	2480	AV	2483.500	-47.71	≤-41.20	47.49	≤54	PASS
				AV	2483.520	-47.71	≤-41.20	47.49	≤54	PASS
				AV	2500.000	-48.67	≤-41.20	46.53	≤54	PASS
				Peak	2483.500	-40.57	≤-21.20	54.63	≤74	PASS
				Peak	2493.360	-38.12	≤-21.20	57.08	≤74	PASS

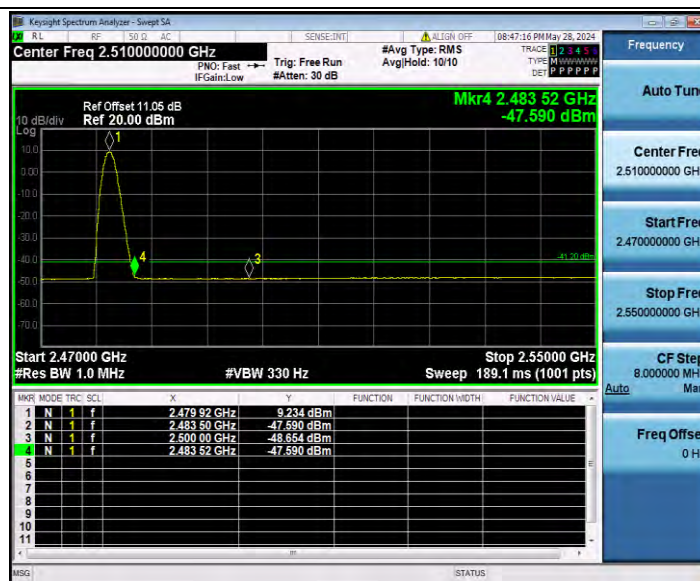
				Peak	2500.000	-40.19	≤-21.20	55.01	≤74	PASS
--	--	--	--	------	----------	--------	---------	-------	-----	------

Note:

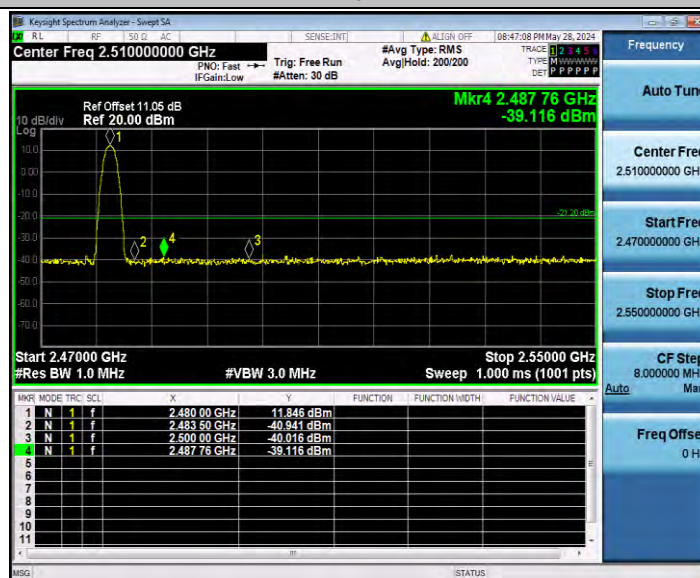
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

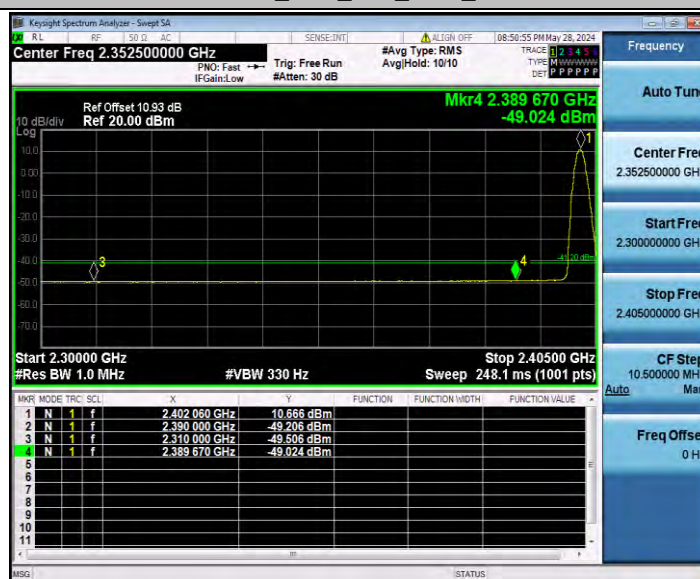




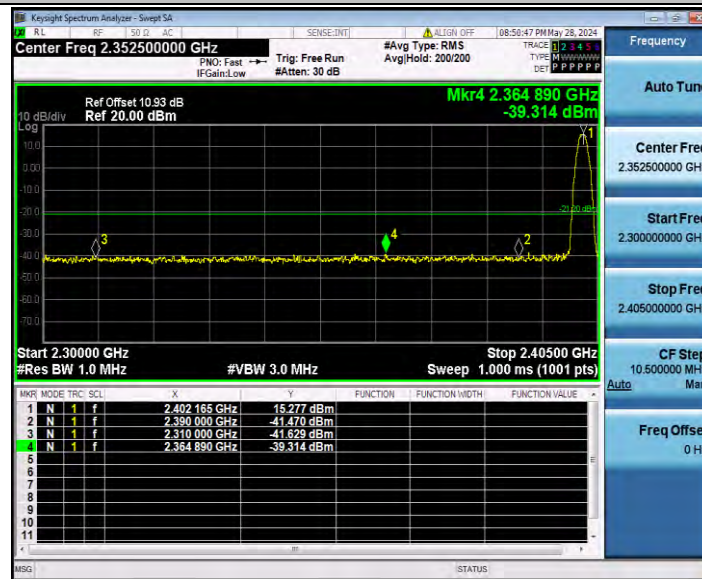
DH1_Ant1_High_2480_Peak



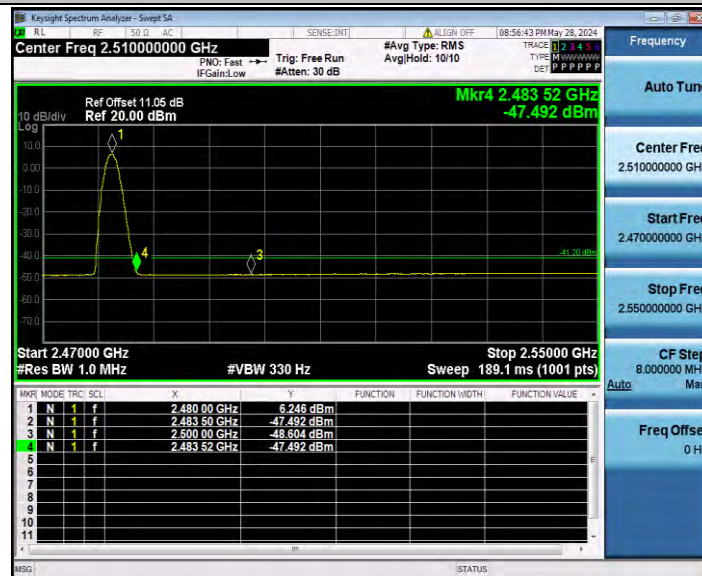
2DH1_Ant1_Low_2402_AV



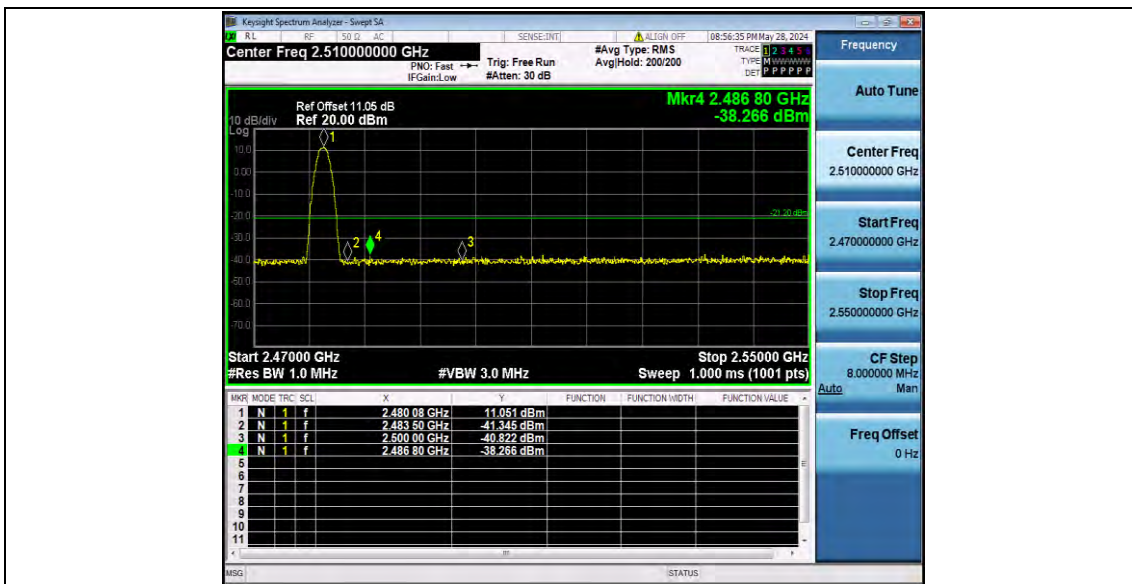
2DH1_Ant1_Low_2402_Peak



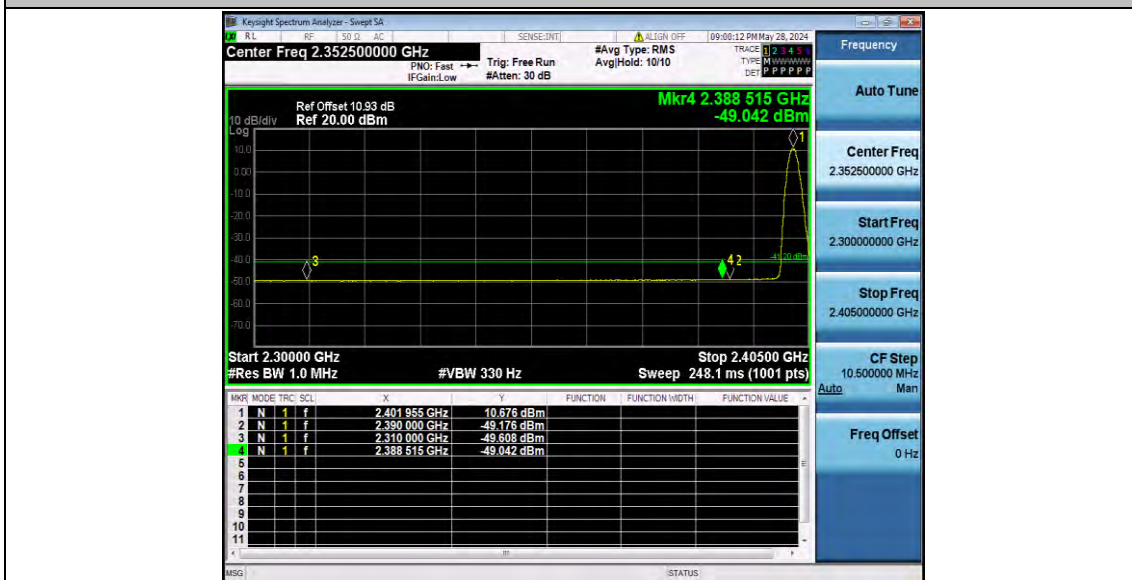
2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak



3DH1_Ant1_Low_2402_AV



3DH1_Ant1_Low_2402_Peak

