

Case No. : CTA24050902601	
Ambient Condition: 23 °C, 49 %RH	
According Standard: ■Part15C	
Test Date: 2024.4.16	Test Engineer: Evan ouyang

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	0.834	2401.562	2402.396	---	---
		2441	0.855	2440.559	2441.414	---	---
		2480	0.792	2479.601	2480.393	---	---
2DH1	Ant1	2402	1.197	2401.373	2402.570	---	---
		2441	1.227	2440.373	2441.600	---	---
		2480	1.236	2479.373	2480.609	---	---
3DH1	Ant1	2402	1.224	2401.397	2402.621	---	---
		2441	1.221	2440.397	2441.618	---	---
		2480	1.218	2479.403	2480.621	---	---

Test Graphs

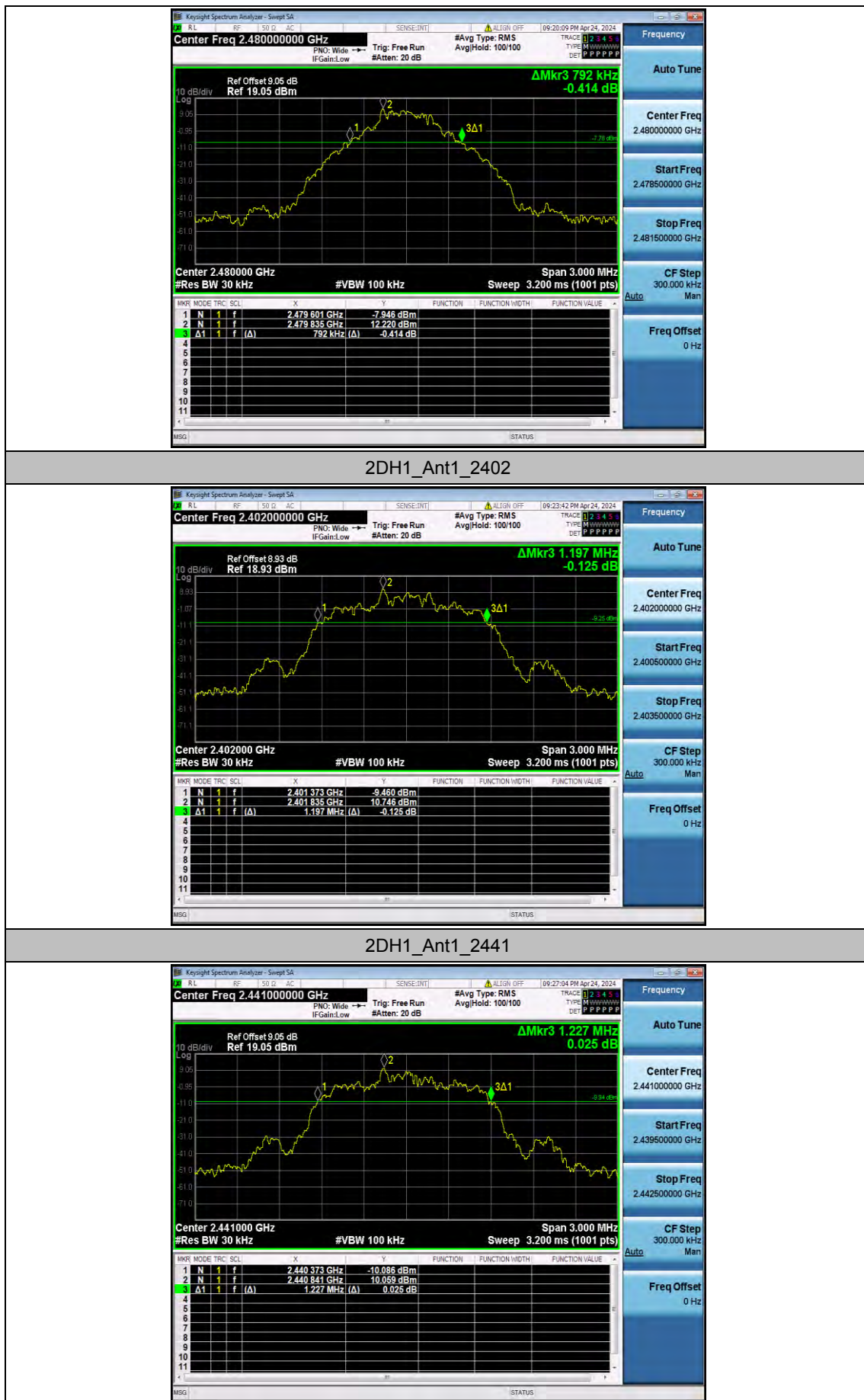
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



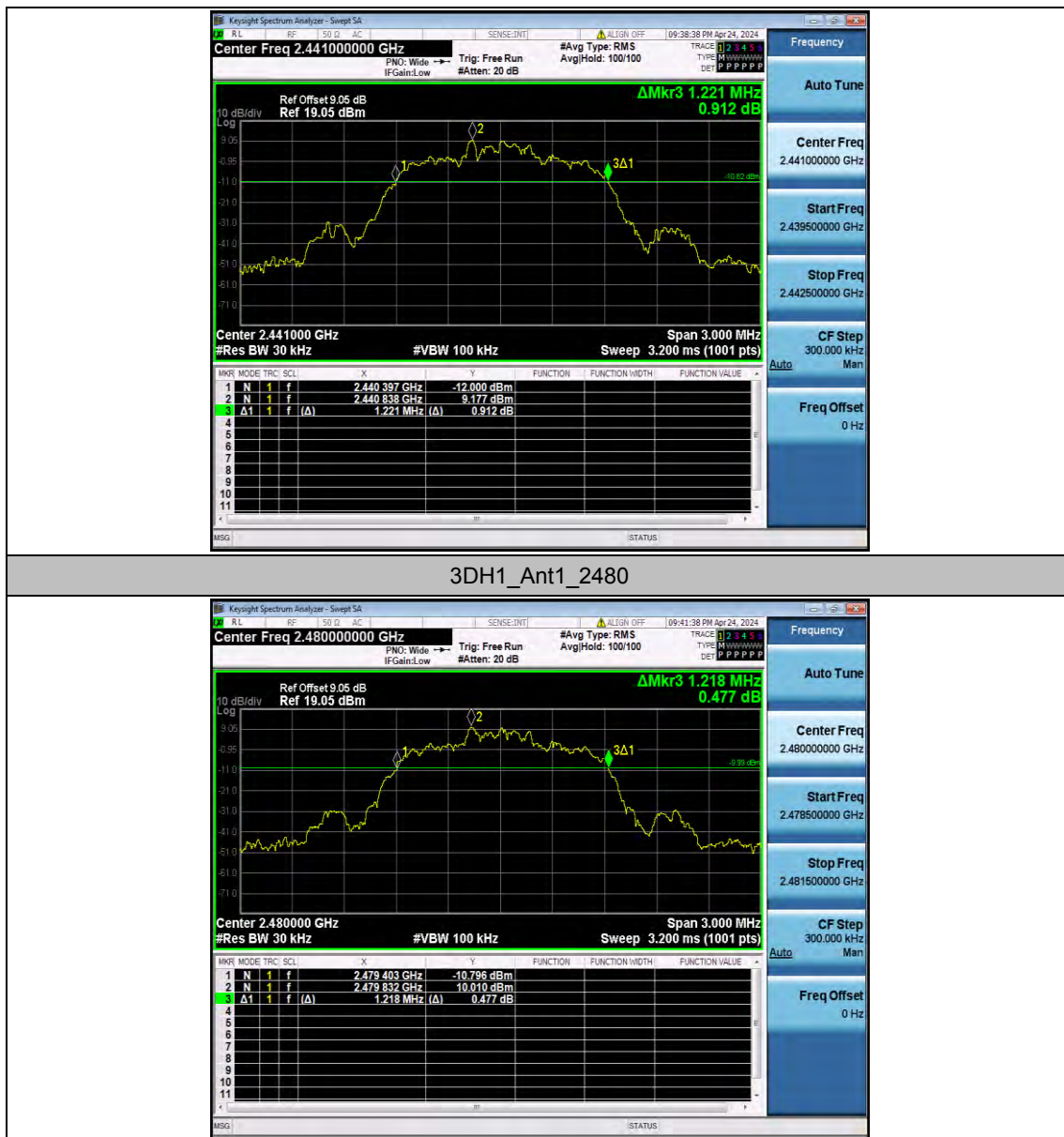
2DH1_Ant1_2480



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	0.71362	2401.6300	2402.3436	---	---
		2441	0.71091	2440.6363	2441.3473	---	---
		2480	0.70822	2479.6332	2480.3414	---	---
2DH1	Ant1	2402	1.1363	2401.4302	2402.5665	---	---
		2441	1.1275	2440.4313	2441.5588	---	---
		2480	1.1319	2479.4291	2480.5610	---	---
3DH1	Ant1	2402	1.1265	2401.4400	2402.5665	---	---
		2441	1.1252	2440.4421	2441.5673	---	---
		2480	1.1302	2479.4406	2480.5708	---	---

Test Graphs

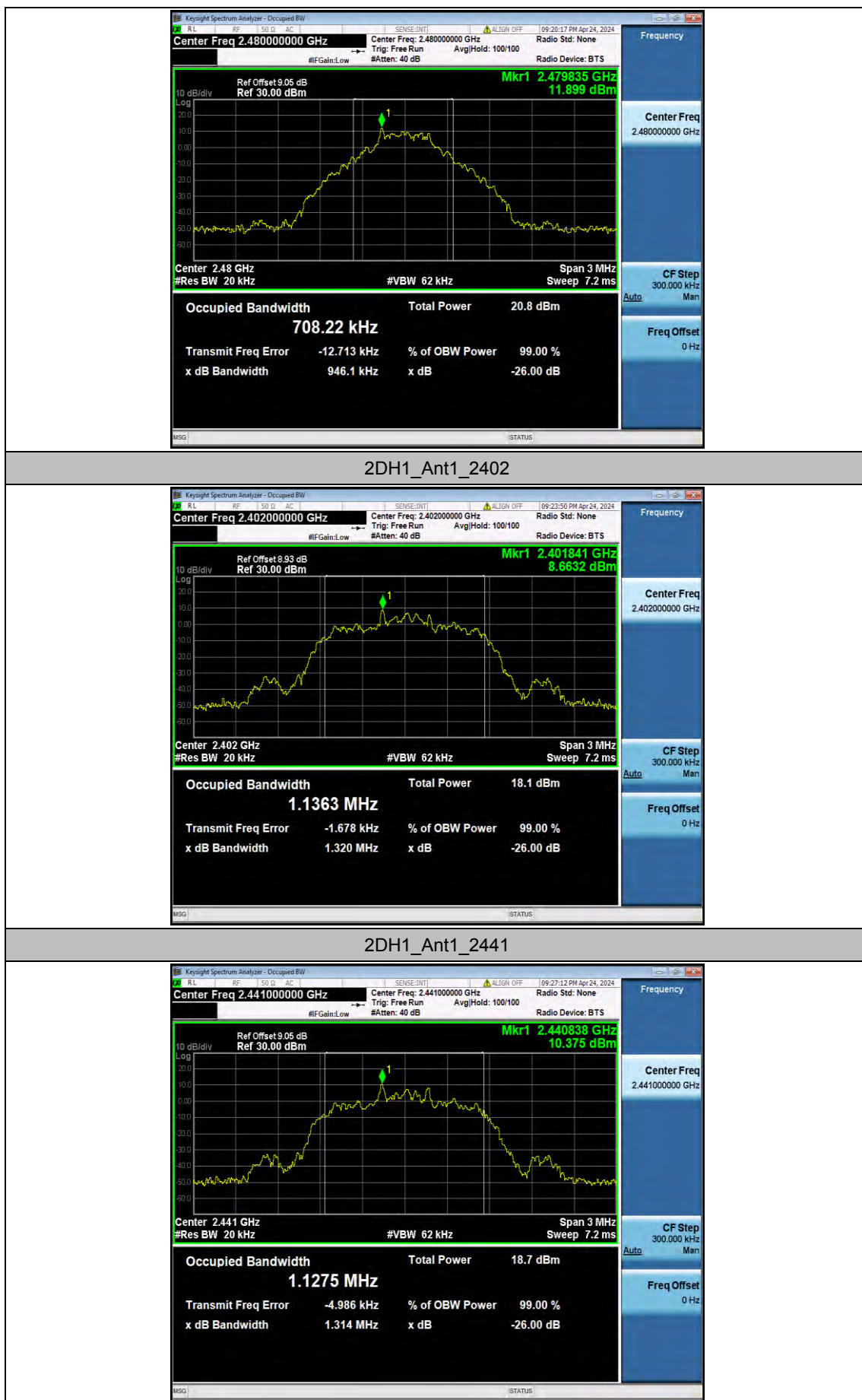
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



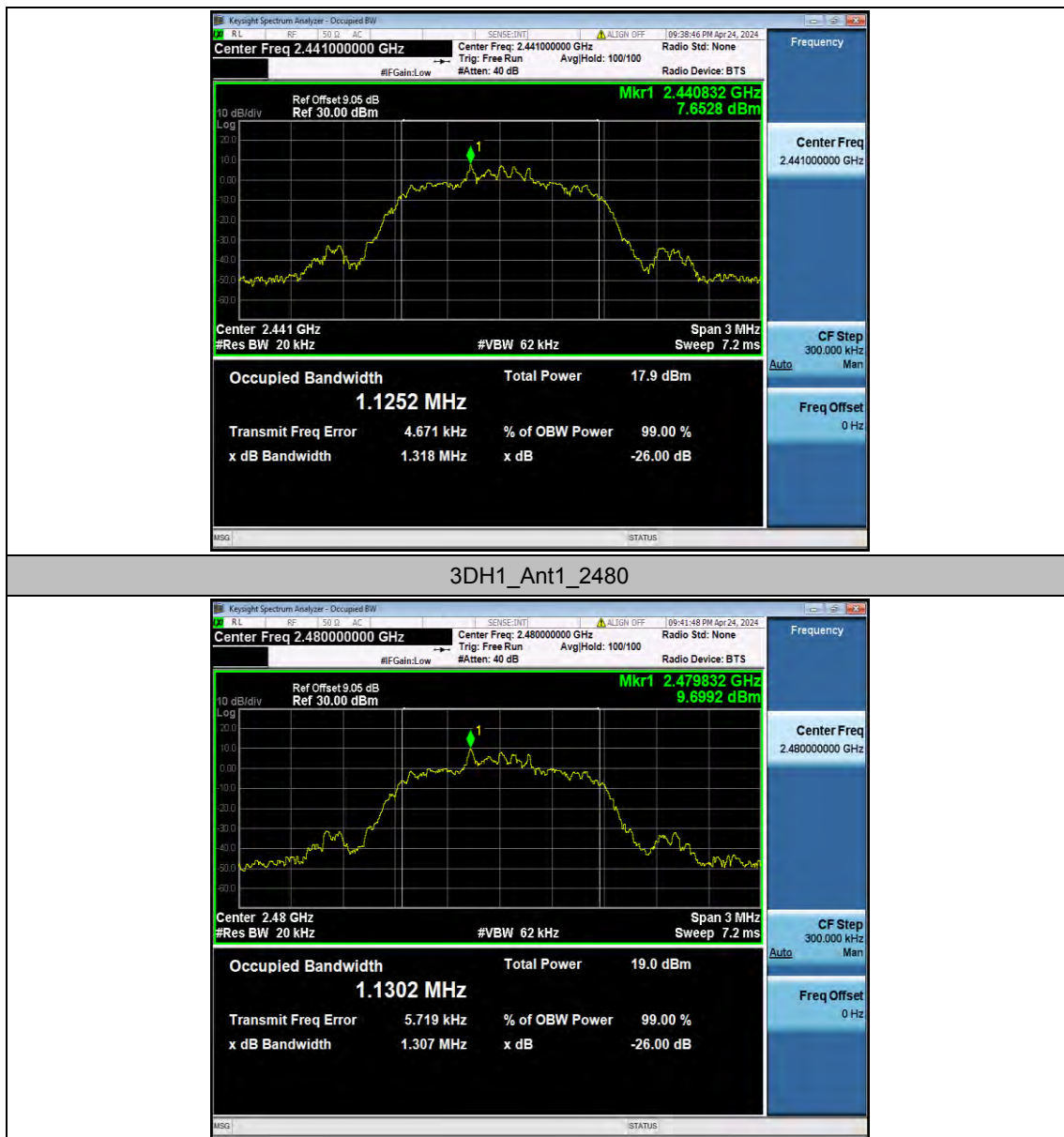
2DH1_Ant1_2480



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	13.93	≤20.97	PASS
		2441	14.08	≤20.97	PASS
		2480	14.97	≤20.97	PASS
2DH1	Ant1	2402	13.03	≤20.97	PASS
		2441	13.28	≤20.97	PASS
		2480	14.19	≤20.97	PASS
3DH1	Ant1	2402	12.97	≤20.97	PASS
		2441	13.20	≤20.97	PASS
		2480	14.07	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.686	≥ 0.570	PASS
		Hop_2441	1.218	≥ 0.570	PASS
		Hop_2480	0.998	≥ 0.570	PASS
2DH1	Ant1	Hop_2402	1.024	≥ 0.824	PASS
		Hop_2441	0.996	≥ 0.824	PASS
		Hop_2480	1	≥ 0.824	PASS
3DH1	Ant1	Hop_2402	1.01	≥ 0.816	PASS
		Hop_2441	0.852	≥ 0.816	PASS
		Hop_2480	0.98	≥ 0.816	PASS

Test Graphs

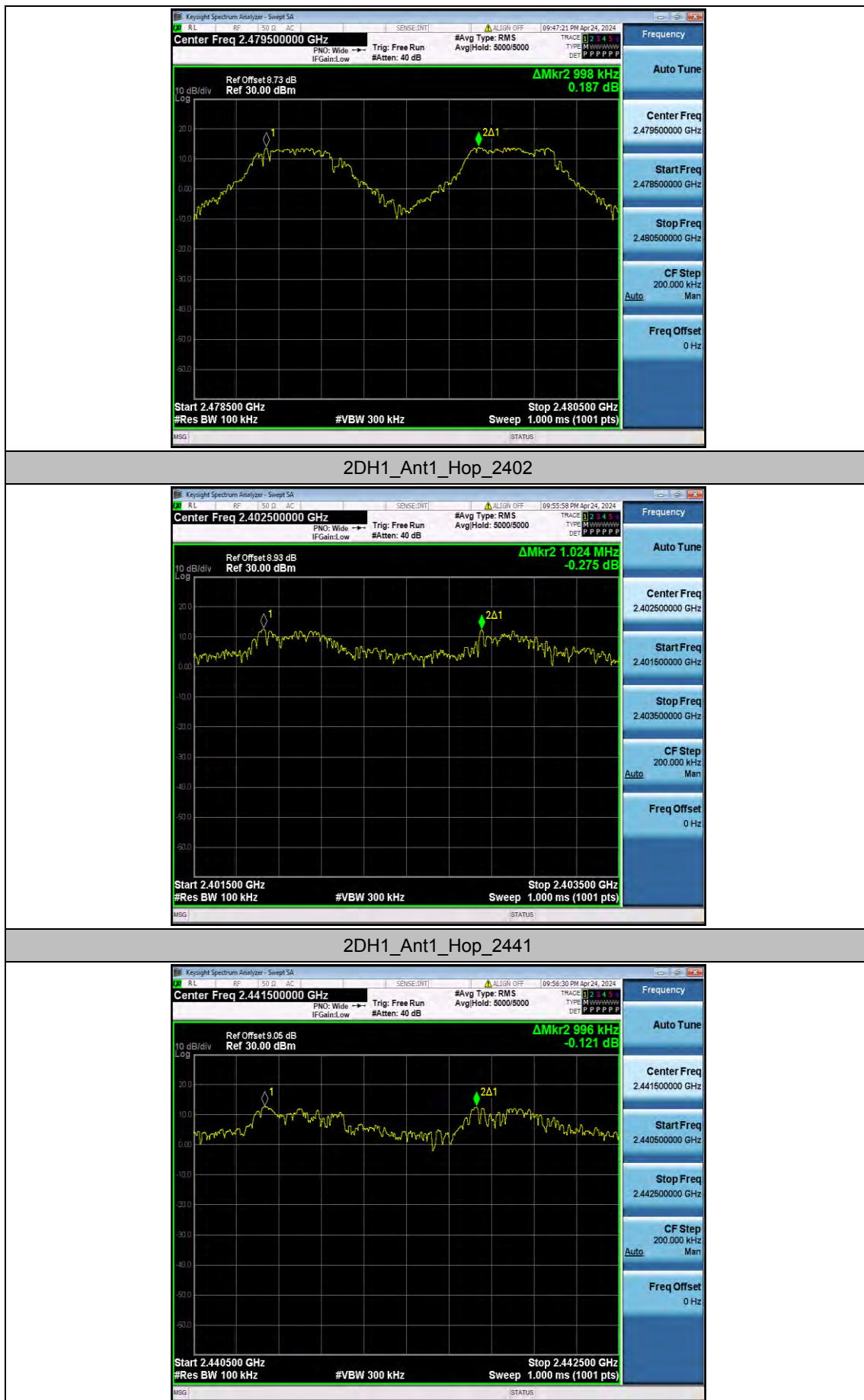
DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



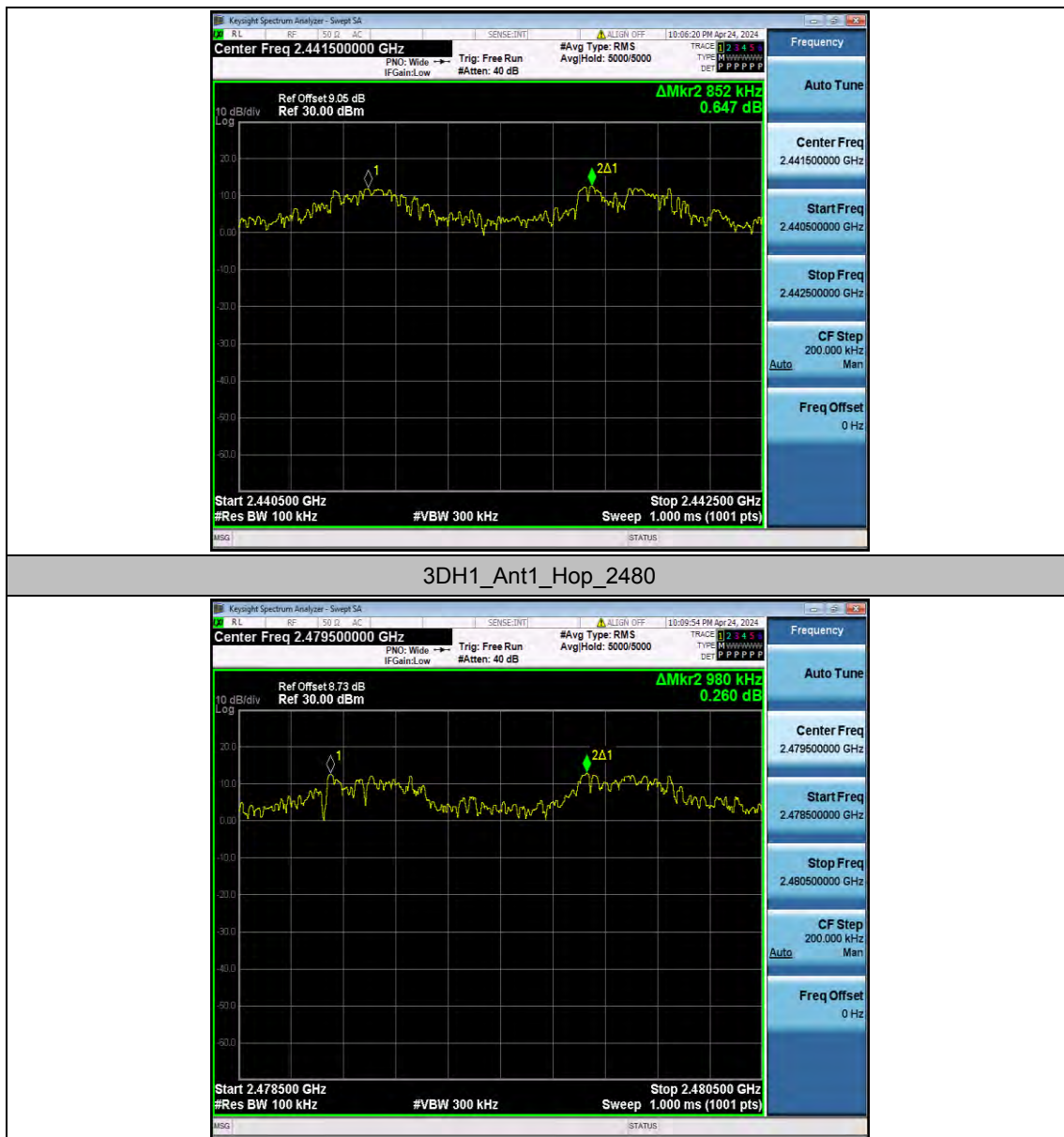
2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441

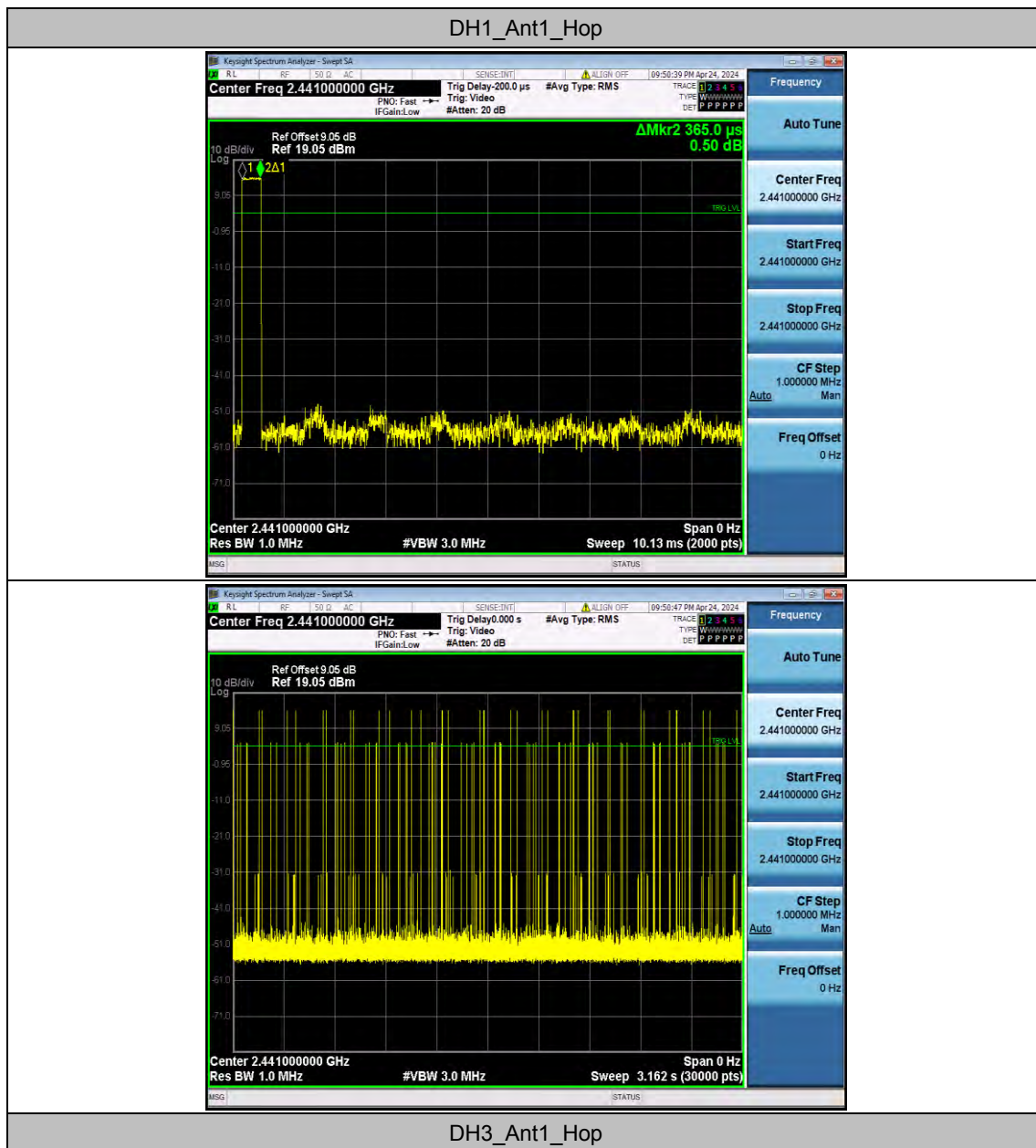


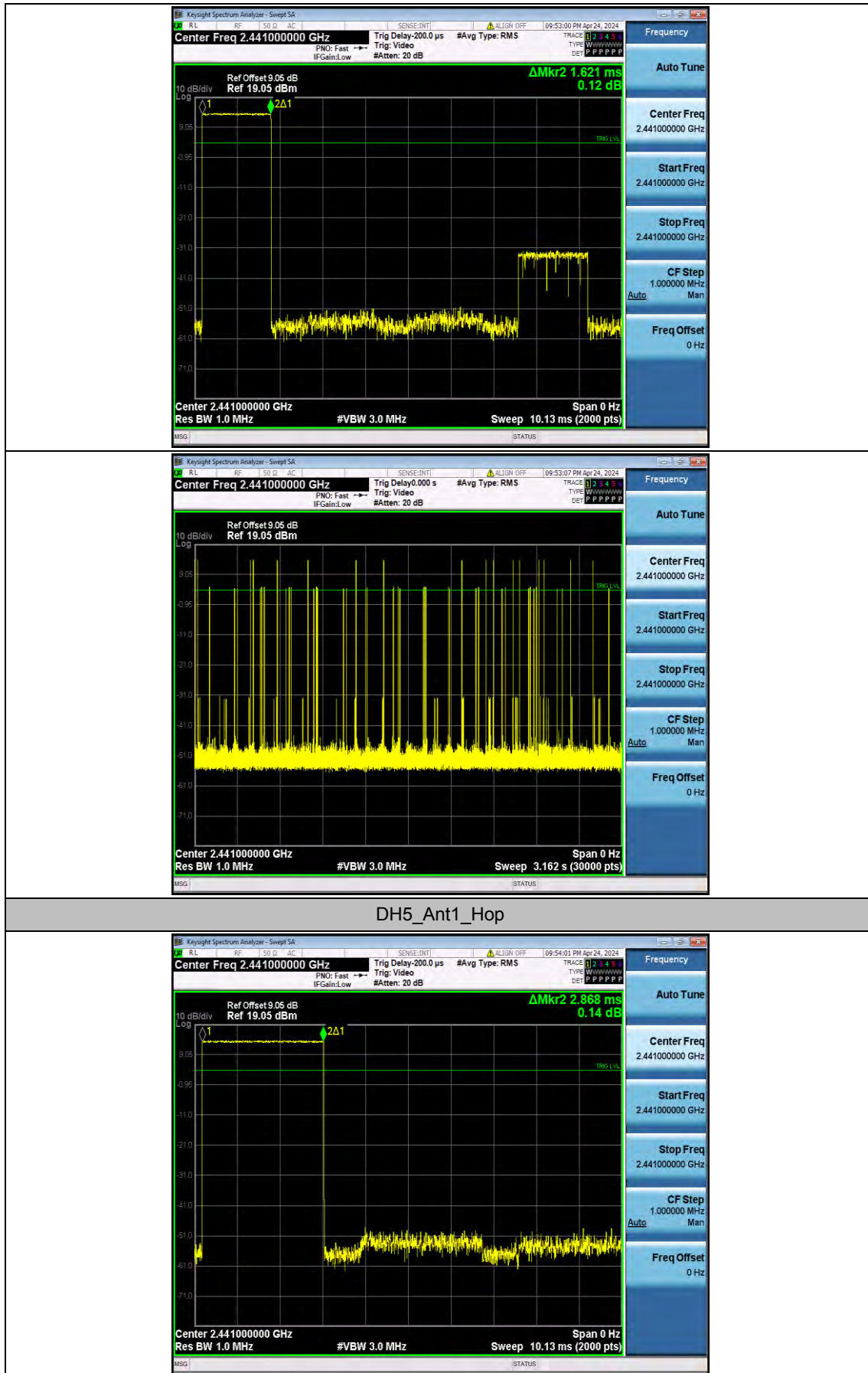
Appendix A.5: Time of occupancy

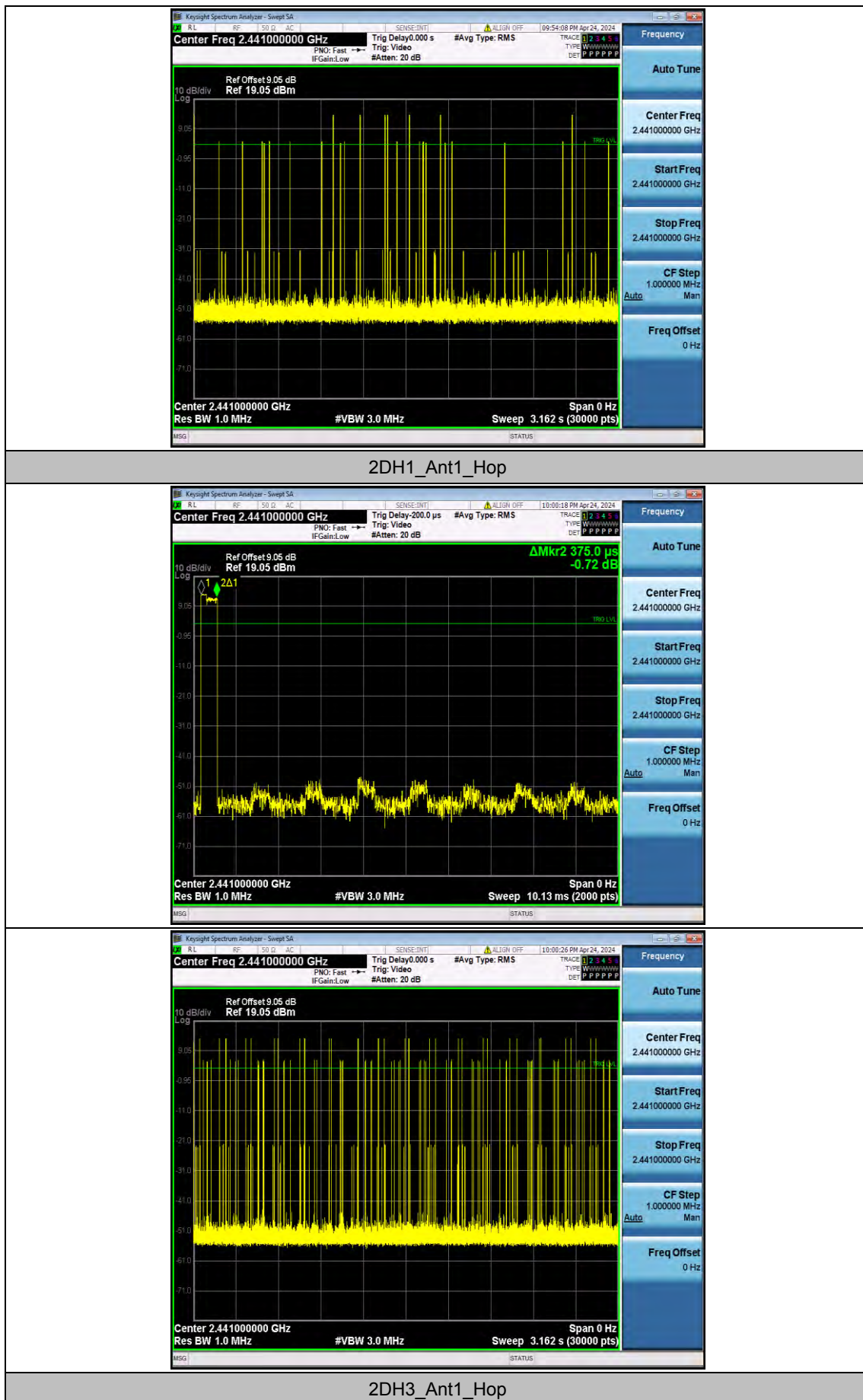
Test Result

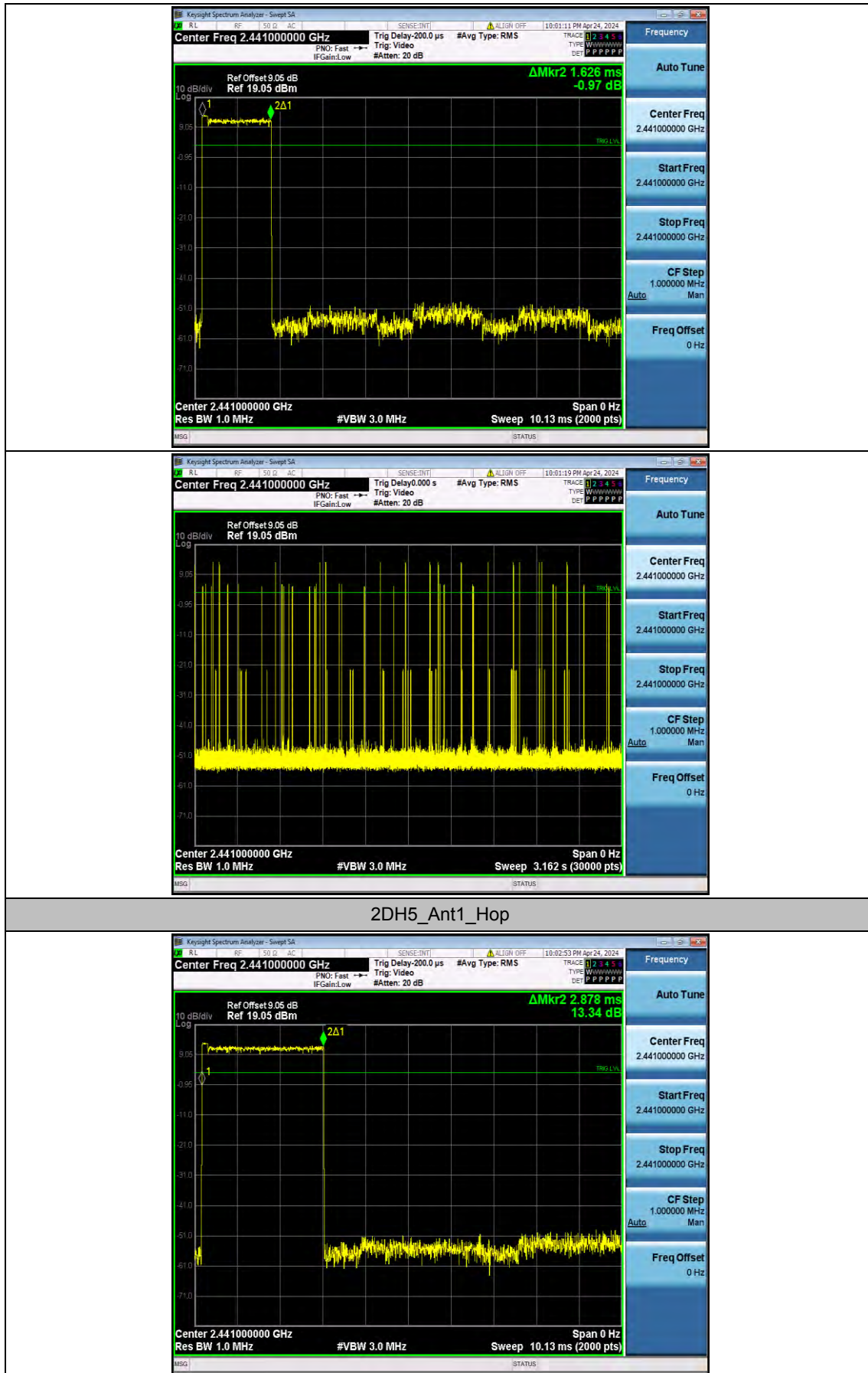
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.365	330	0.12	≤0.4	PASS
DH3	Ant1	Hop	1.621	170	0.276	≤0.4	PASS
DH5	Ant1	Hop	2.868	80	0.229	≤0.4	PASS
2DH1	Ant1	Hop	0.375	320	0.12	≤0.4	PASS
2DH3	Ant1	Hop	1.626	170	0.276	≤0.4	PASS
2DH5	Ant1	Hop	2.878	120	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	2.873	120	0.345	≤0.4	PASS

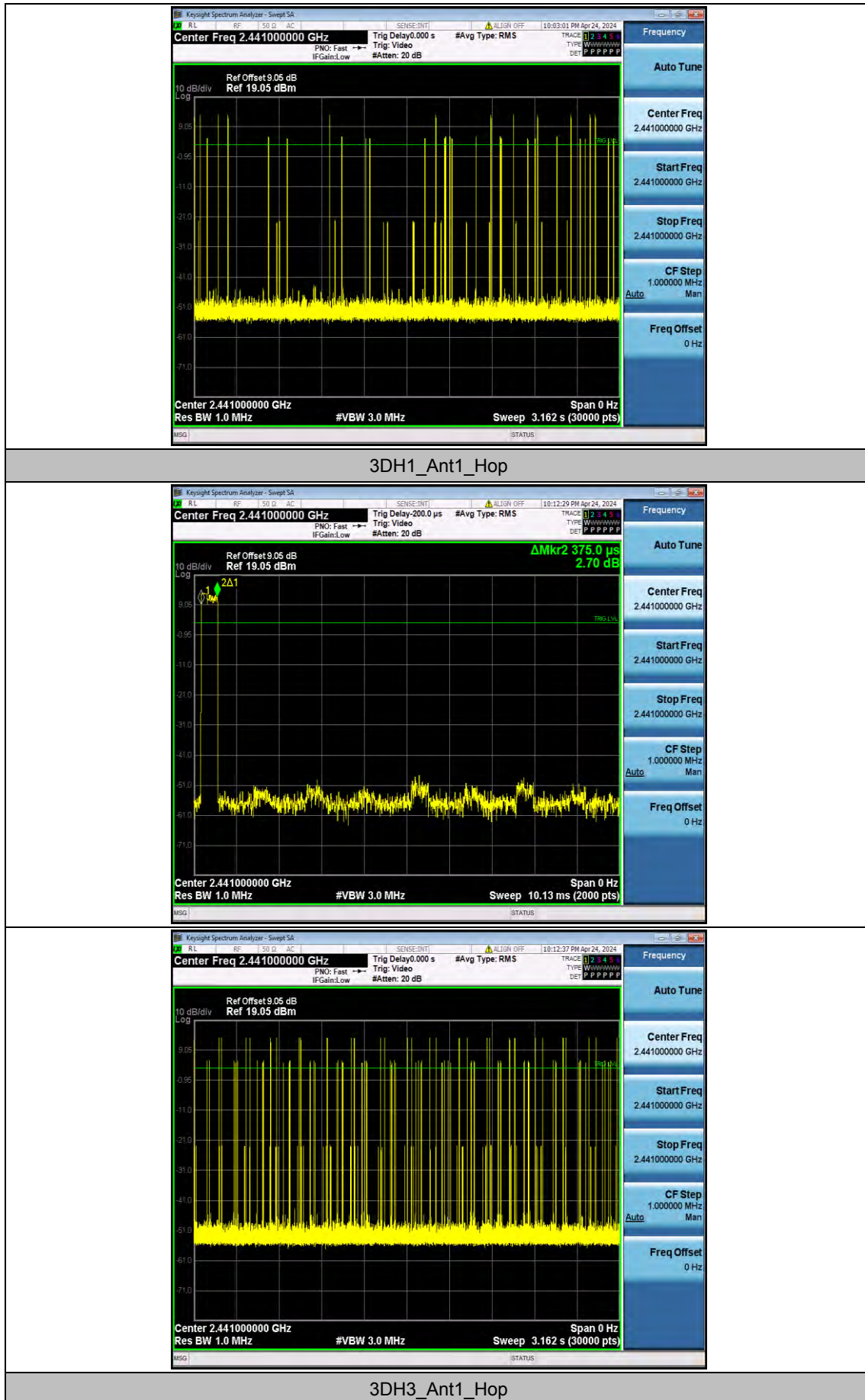
Test Graphs

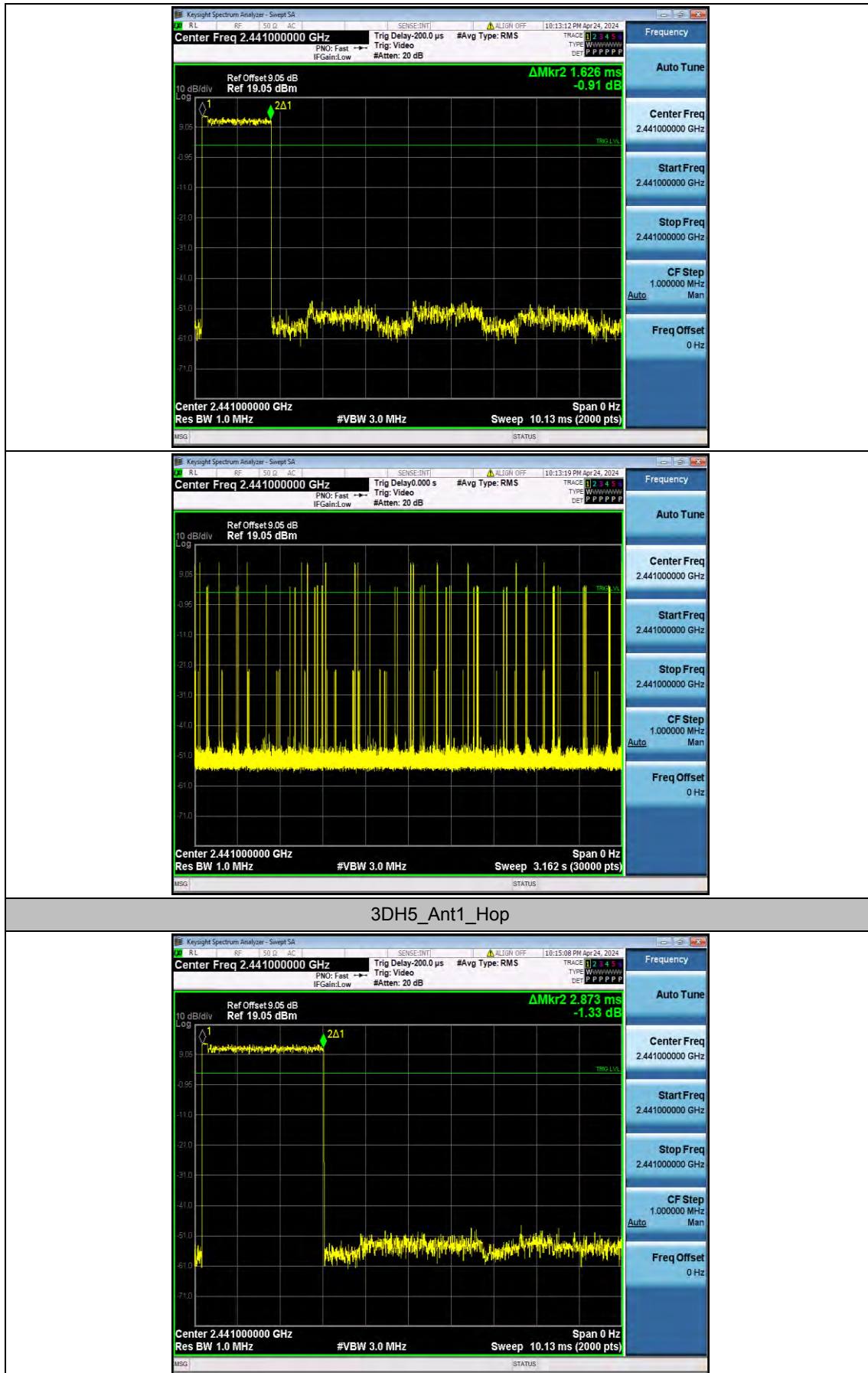


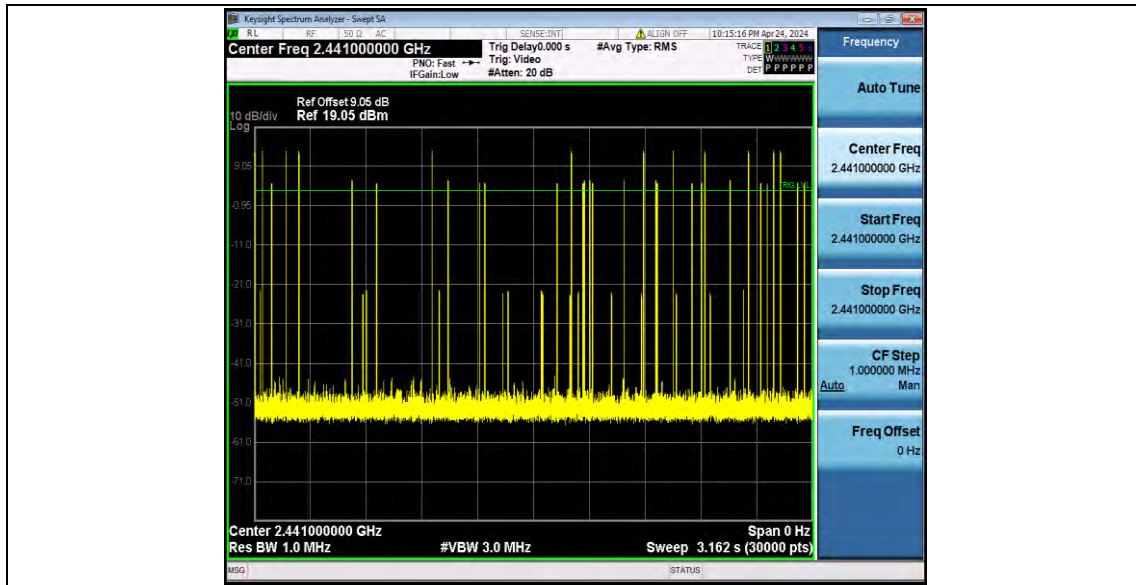










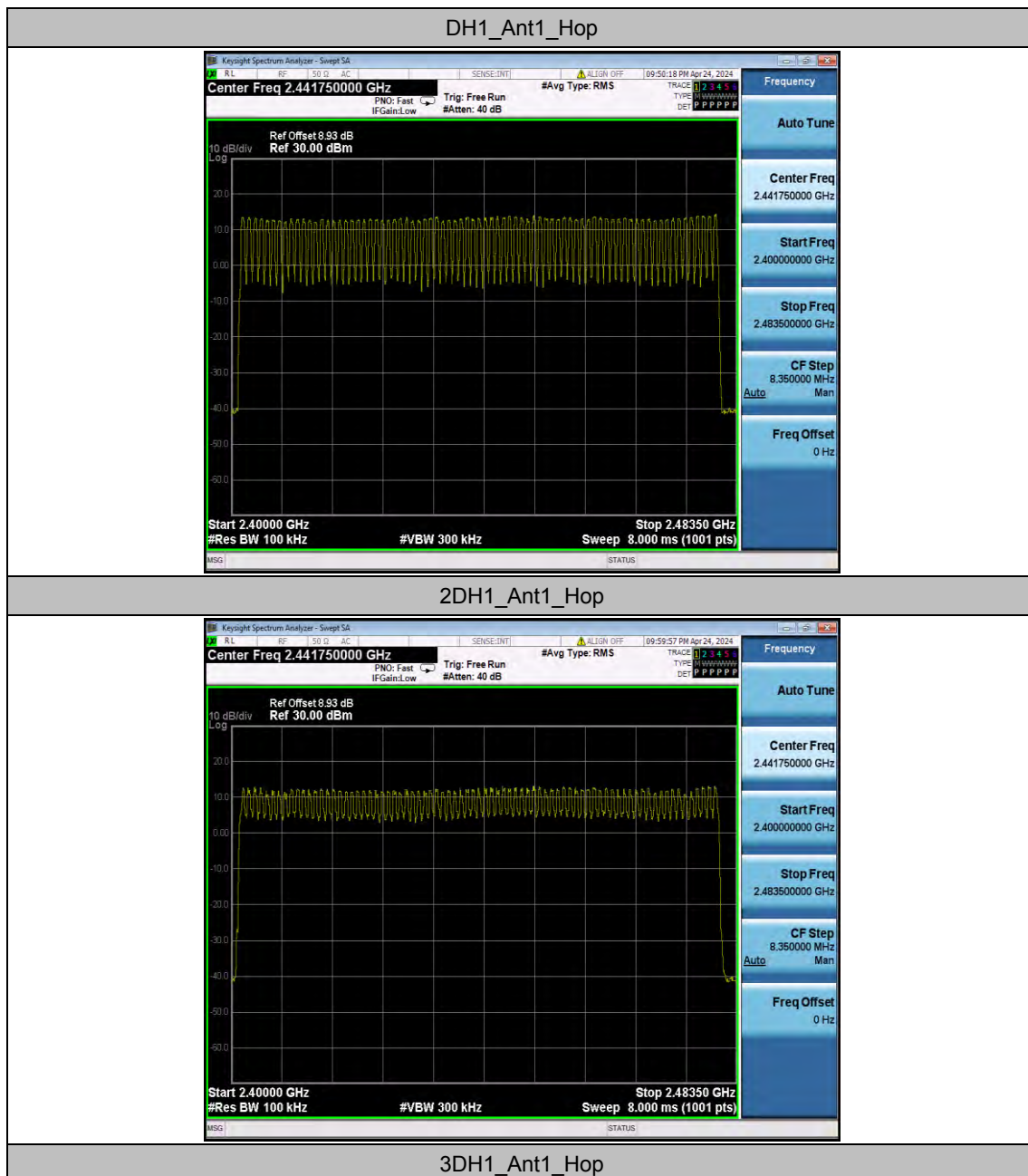


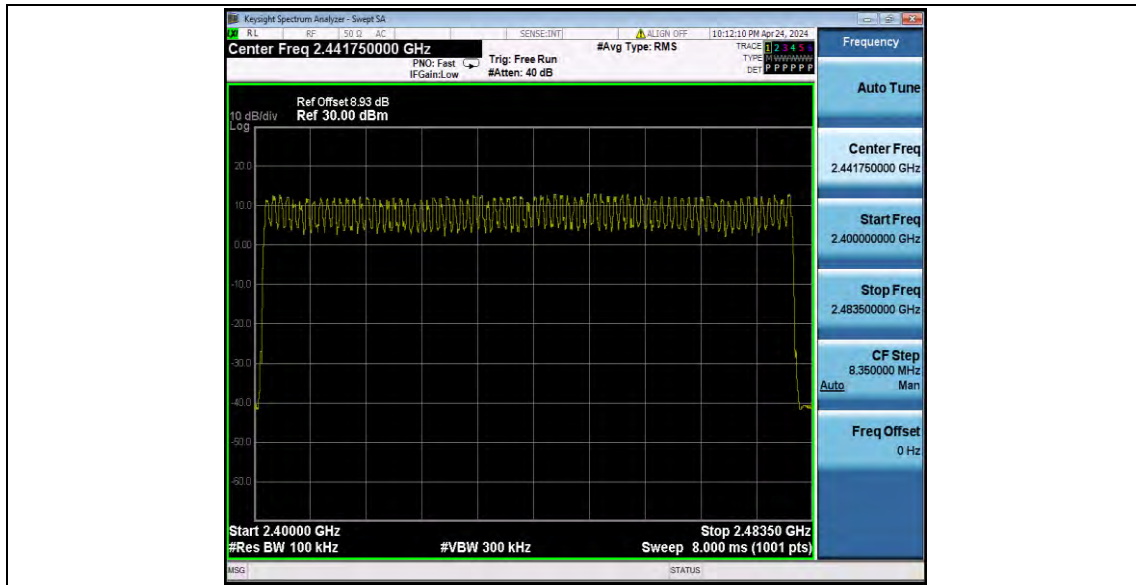
Appendix A.6: Number of hopping channels

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



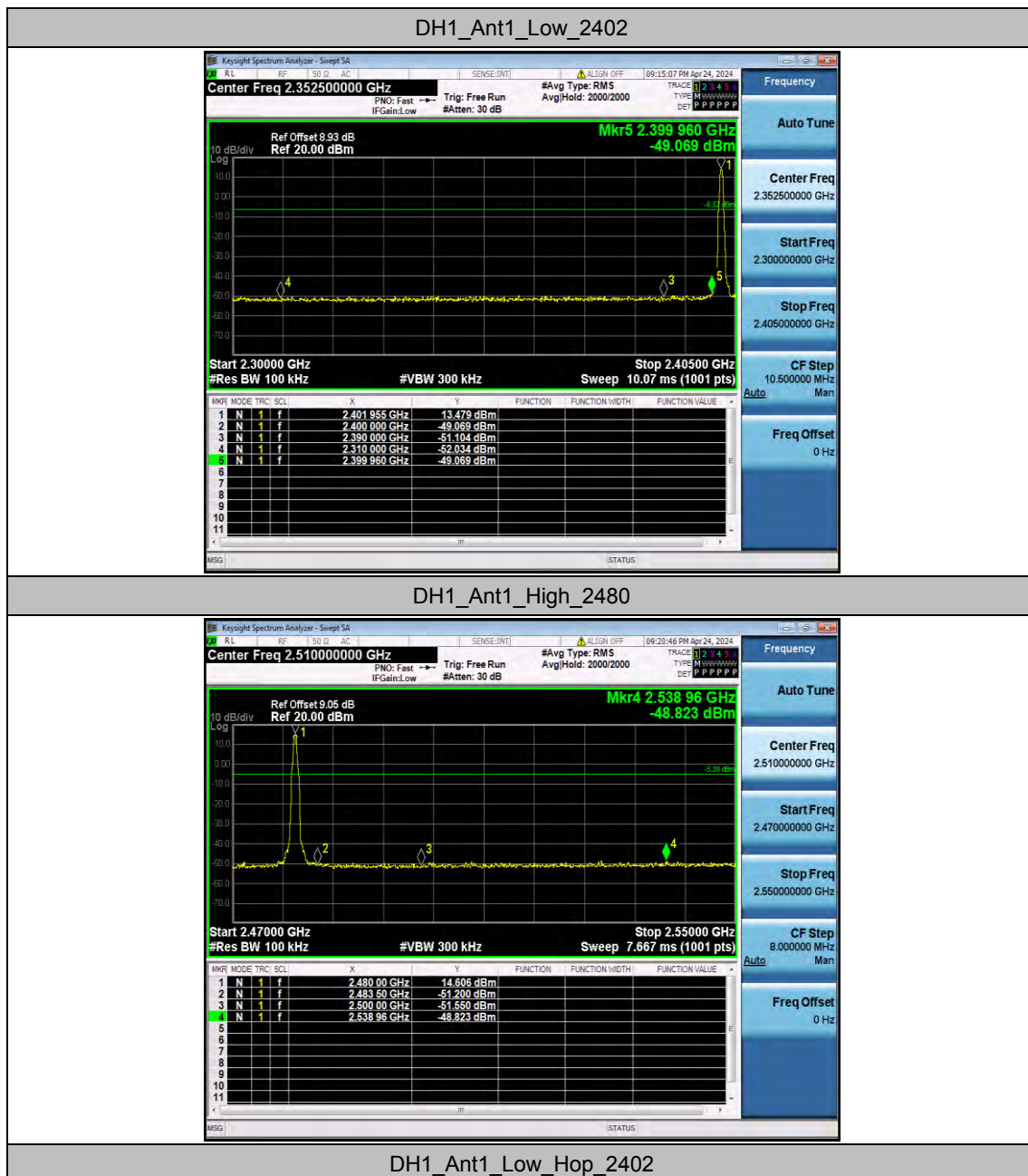


Appendix A.7: Band edge measurements

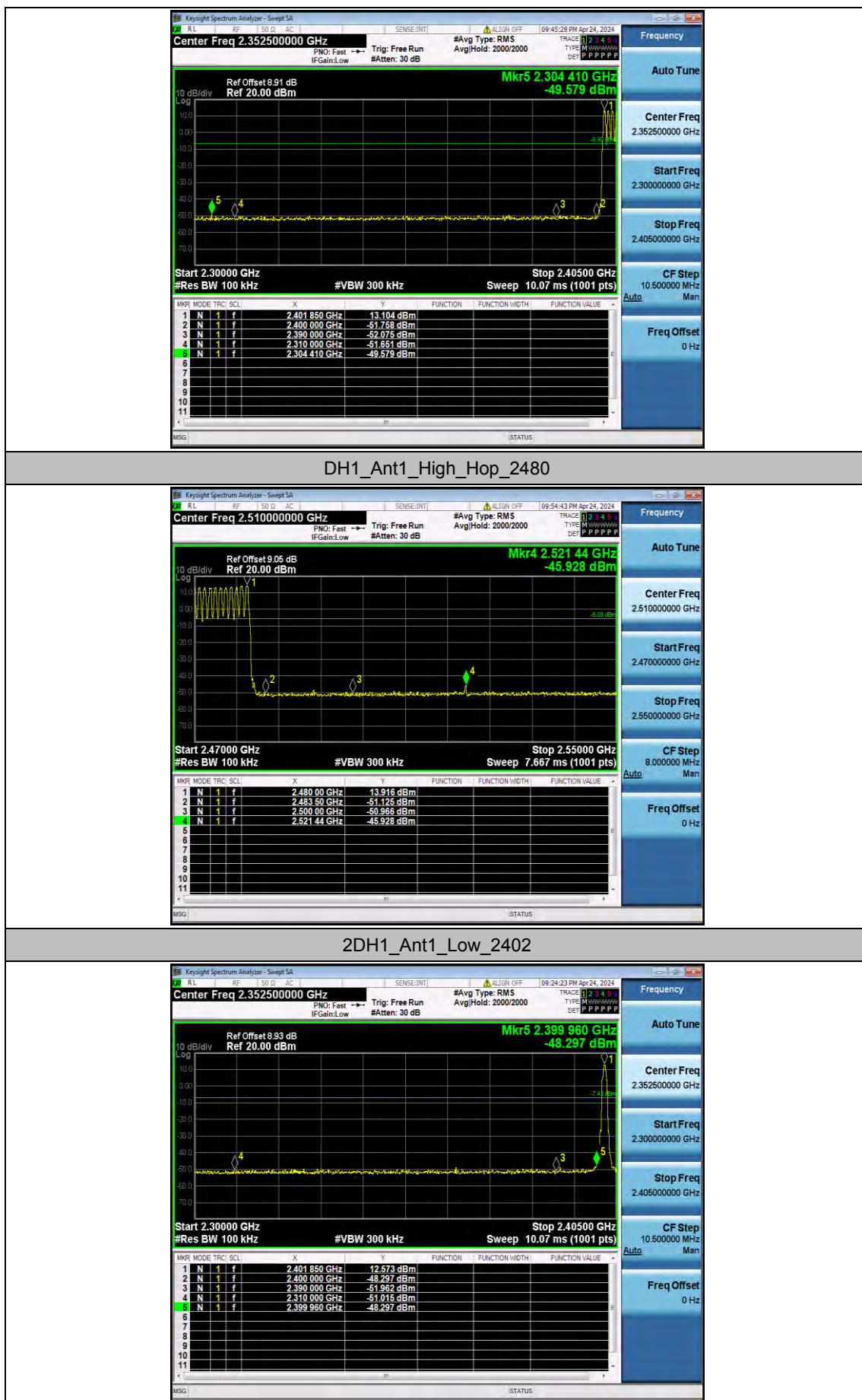
Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	13.48	-49.07	≤ -6.52	PASS
		High	2480	14.61	-48.82	≤ -5.39	PASS
		Low	Hop_2402	13.10	-49.58	≤ -6.9	PASS
		High	Hop_2480	13.92	-45.93	≤ -6.08	PASS
2DH1	Ant1	Low	2402	12.57	-48.3	≤ -7.43	PASS
		High	2480	13.71	-48.84	≤ -6.29	PASS
		Low	Hop_2402	12.54	-49.89	≤ -7.46	PASS
		High	Hop_2480	13.11	-48.07	≤ -6.89	PASS
3DH1	Ant1	Low	2402	12.50	-47.18	≤ -7.5	PASS
		High	2480	13.65	-48.49	≤ -6.35	PASS
		Low	Hop_2402	12.52	-49.04	≤ -7.48	PASS
		High	Hop_2480	12.45	-48.72	≤ -7.55	PASS

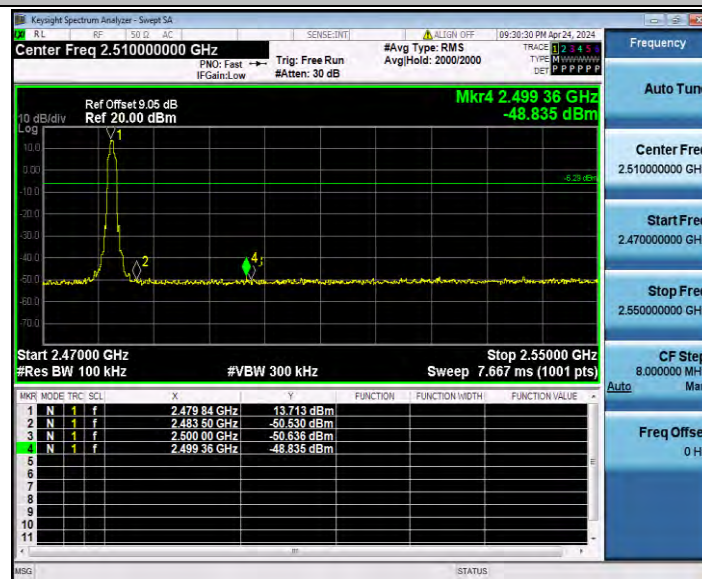
Test Graphs



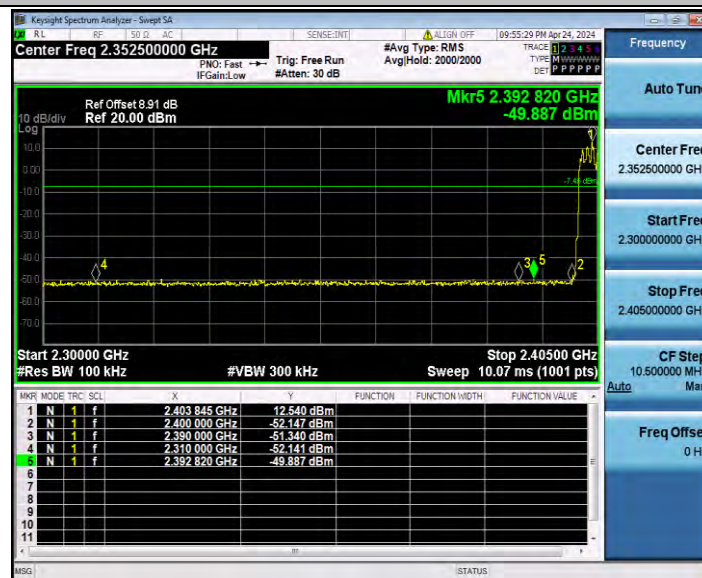
DH1_Ant1_Low_Hop_2402



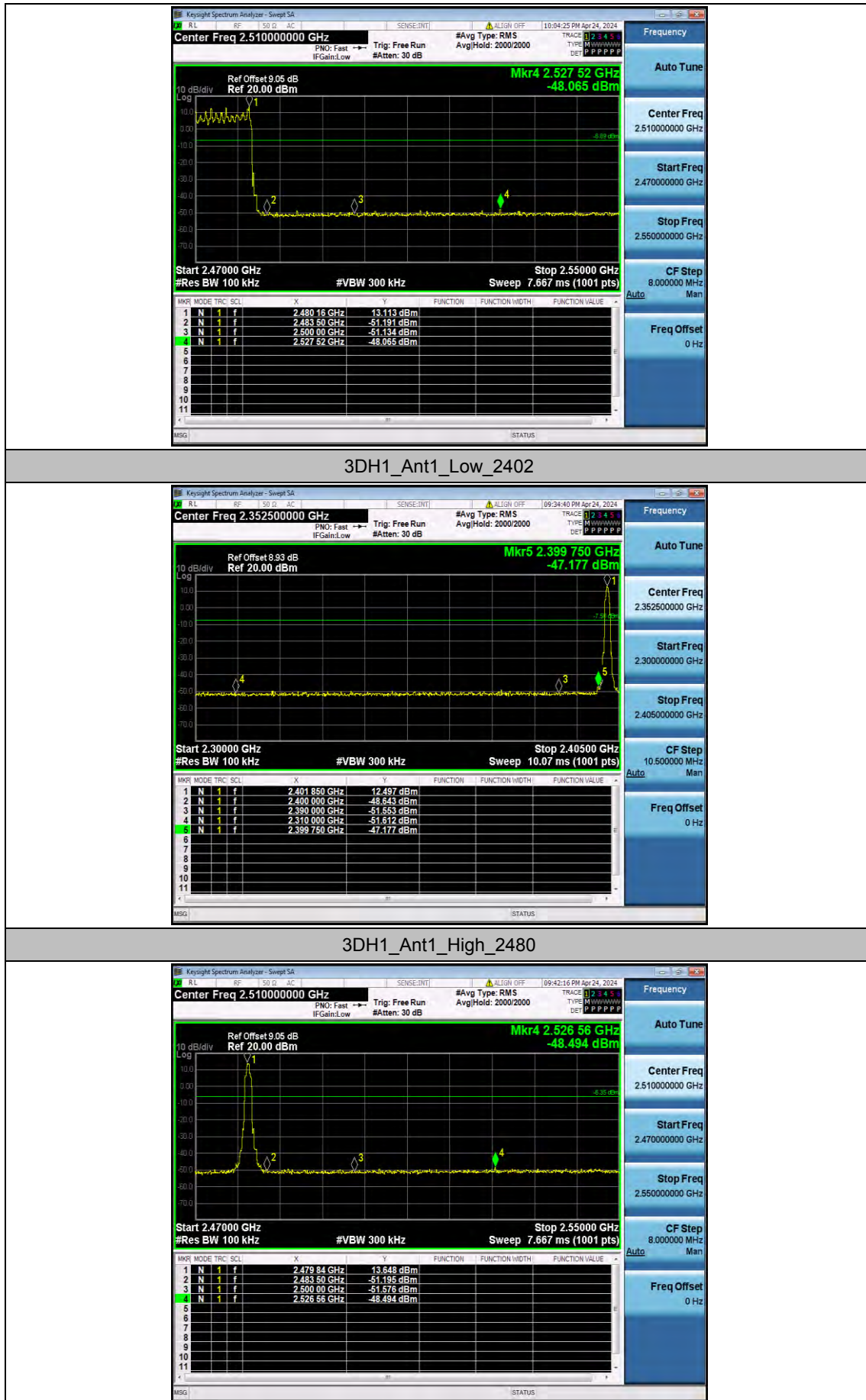
2DH1_Ant1_High_2480



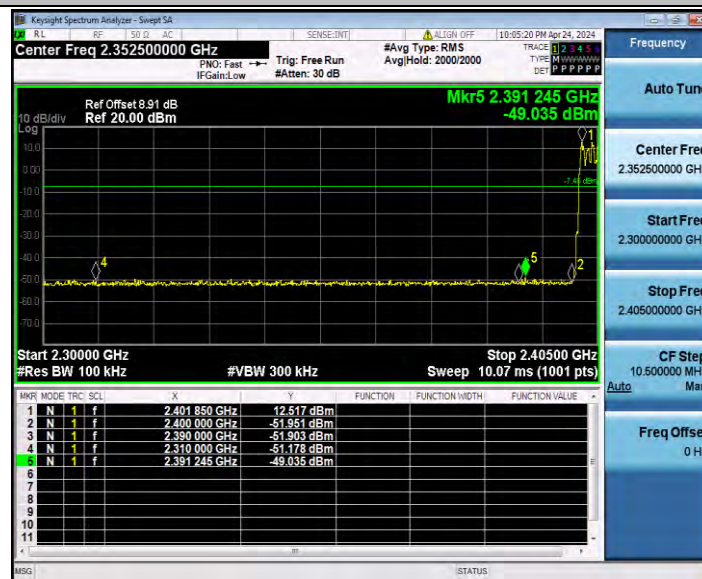
2DH1_Ant1_Low_Hop_2402



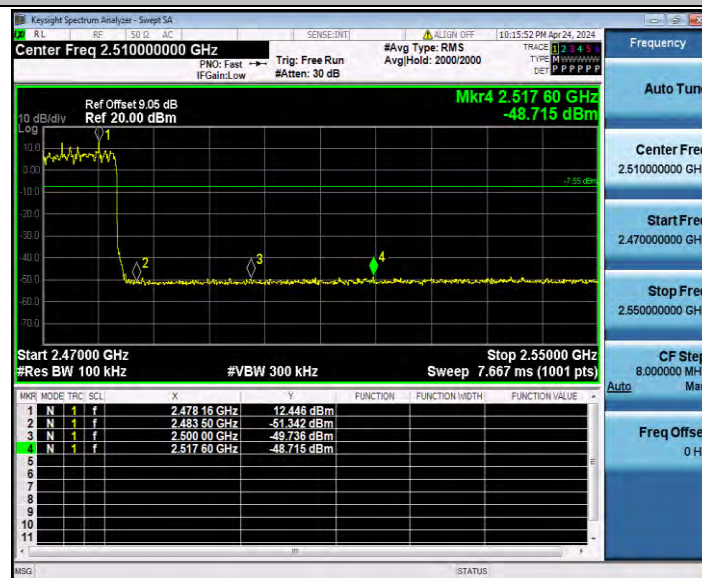
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

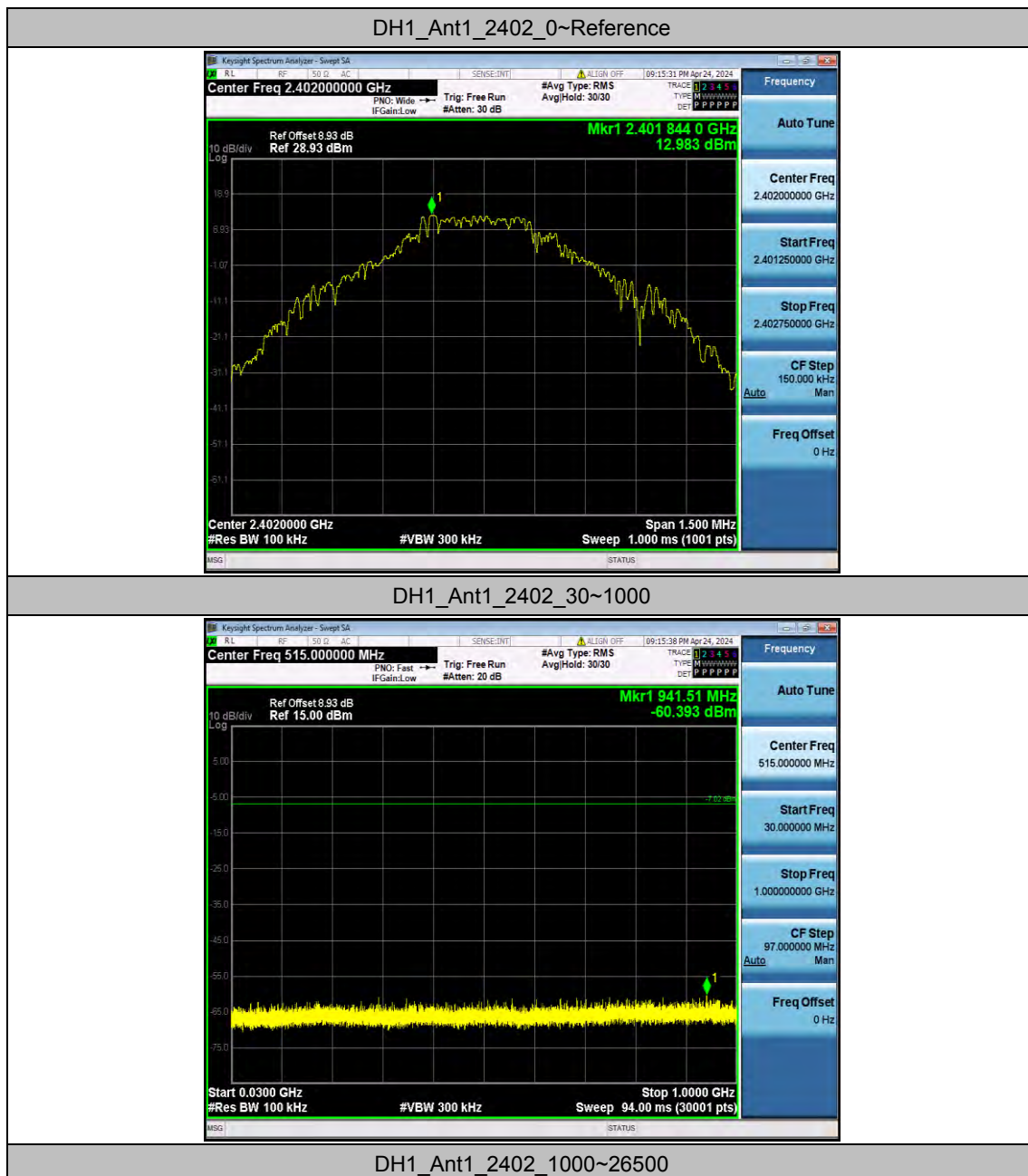


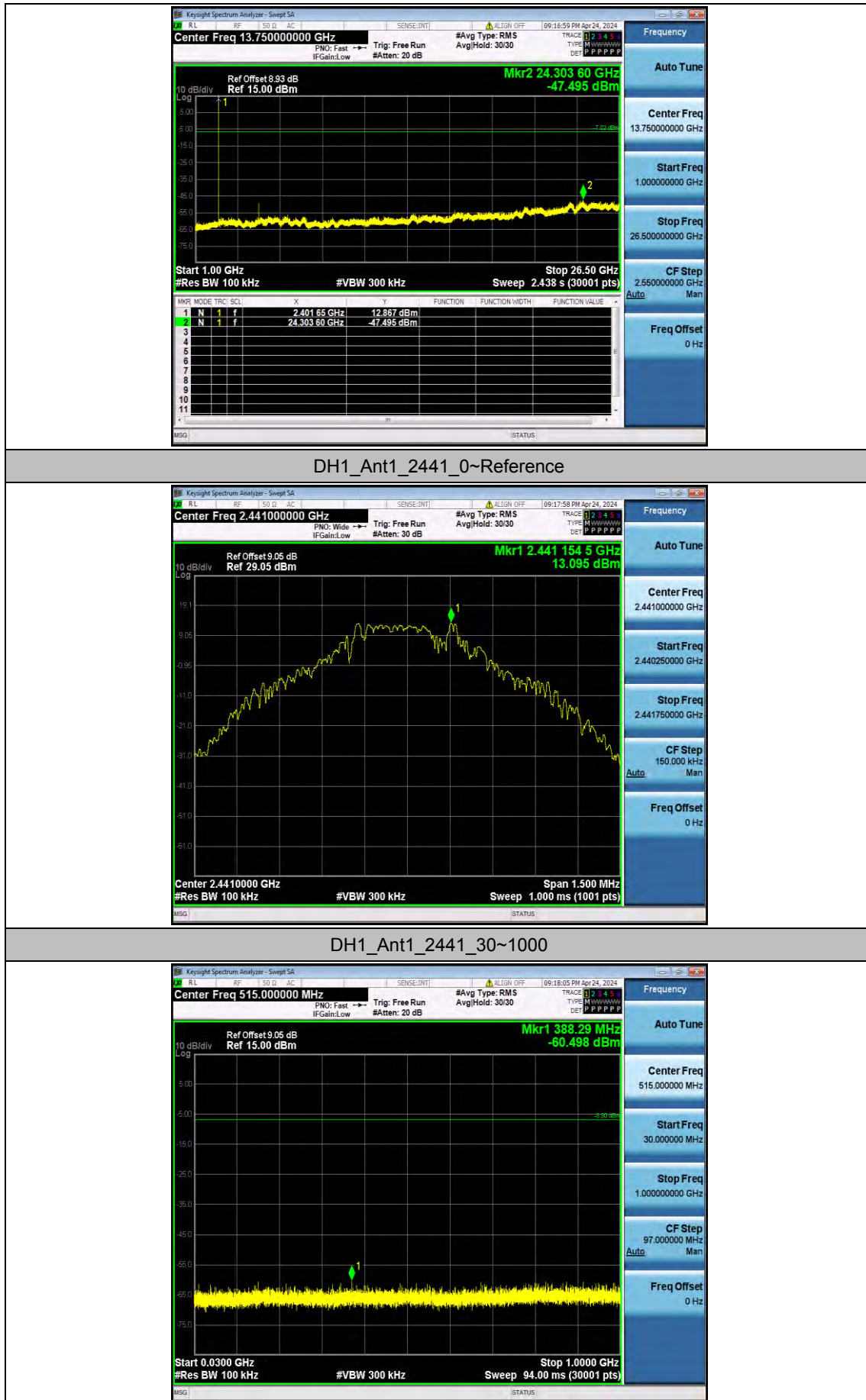
Appendix A.8: Conducted Spurious Emission

Test Result

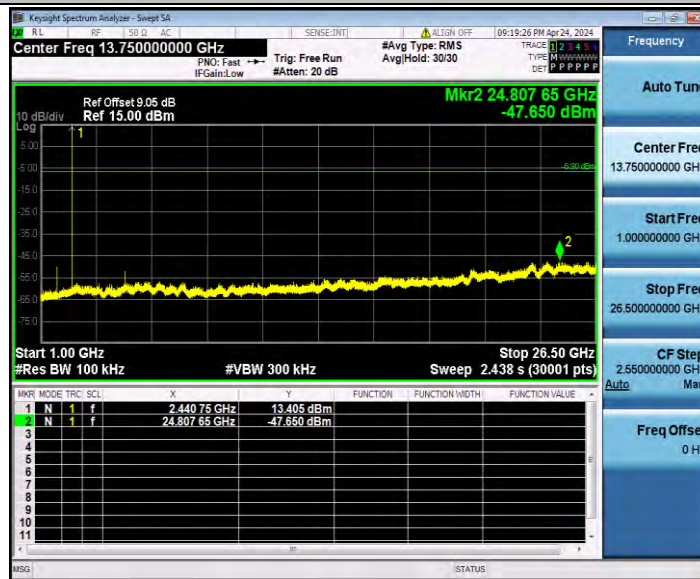
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	12.98	12.98	---	PASS
			30~1000	12.98	-60.39	≤ -7.02	PASS
			1000~26500	12.98	-47.5	≤ -7.02	PASS
		2441	Reference	13.10	13.10	---	PASS
			30~1000	13.10	-60.5	≤ -6.9	PASS
			1000~26500	13.10	-47.65	≤ -6.9	PASS
		2480	Reference	13.65	13.65	---	PASS
			30~1000	13.65	-59.97	≤ -6.35	PASS
			1000~26500	13.65	-47.57	≤ -6.35	PASS
2DH1	Ant1	2402	Reference	11.92	11.92	---	PASS
			30~1000	11.92	-60.44	≤ -8.08	PASS
			1000~26500	11.92	-48.03	≤ -8.08	PASS
		2441	Reference	12.61	12.61	---	PASS
			30~1000	12.61	-49.73	≤ -7.39	PASS
			1000~26500	12.61	-47.79	≤ -7.39	PASS
		2480	Reference	13.29	13.29	---	PASS
			30~1000	13.29	-60.24	≤ -6.71	PASS
			1000~26500	13.29	-48.07	≤ -6.71	PASS
3DH1	Ant1	2402	Reference	12.42	12.42	---	PASS
			30~1000	12.42	-61.38	≤ -7.58	PASS
			1000~26500	12.42	-47.46	≤ -7.58	PASS
		2441	Reference	11.92	11.92	---	PASS
			30~1000	11.92	-60.82	≤ -8.08	PASS
			1000~26500	11.92	-47.22	≤ -8.08	PASS
		2480	Reference	12.80	12.80	---	PASS
			30~1000	12.80	-60.53	≤ -7.2	PASS
			1000~26500	12.80	-47.74	≤ -7.2	PASS

Test Graphs





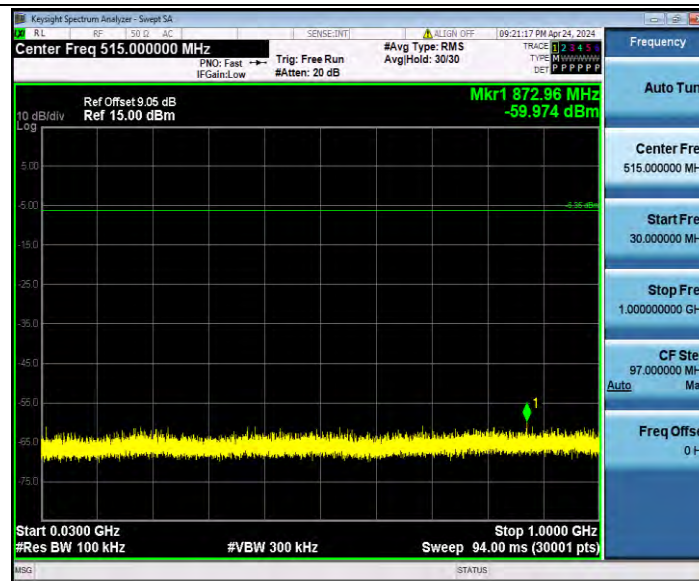
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



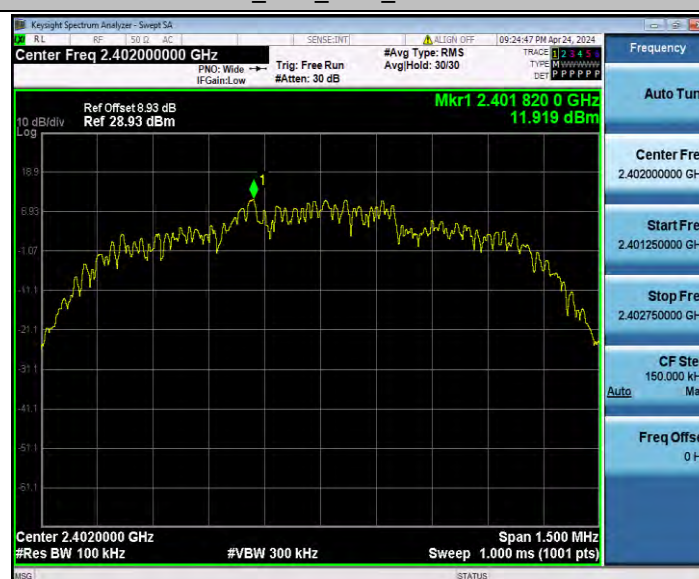
DH1_Ant1_2480_30~1000

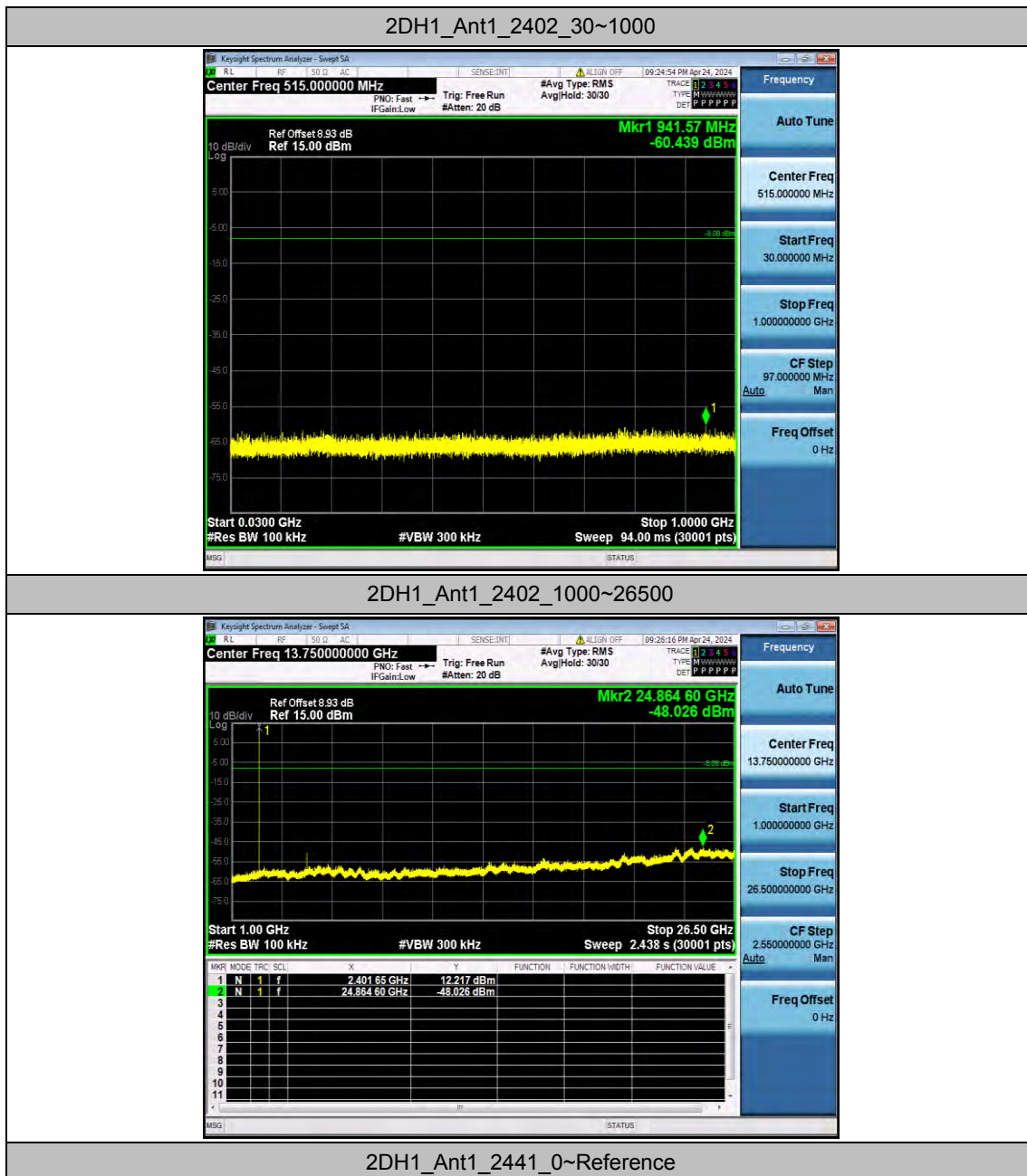


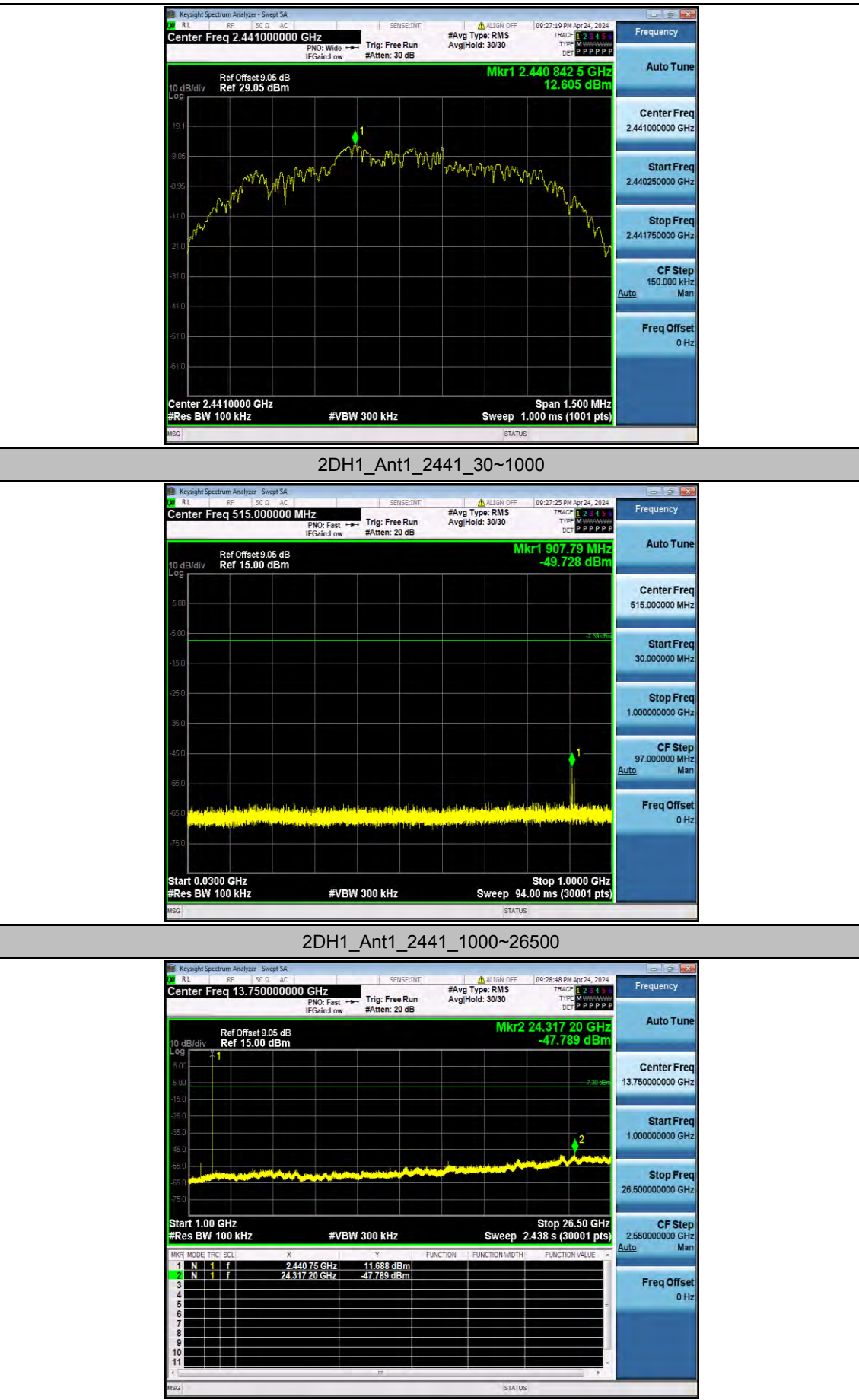
DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference



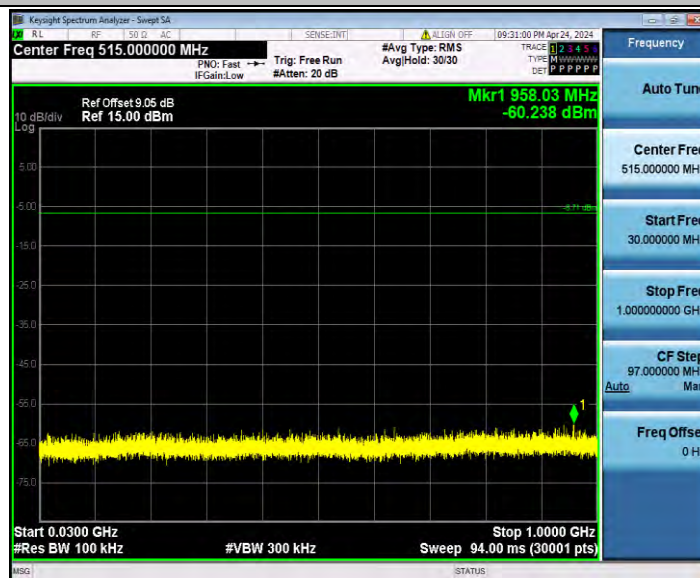




2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



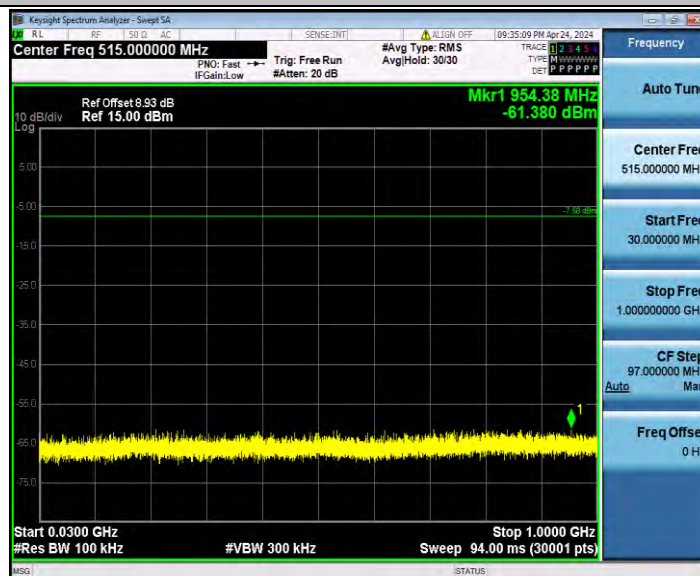
2DH1_Ant1_2480_1000~26500



3DH1_Ant1_2402_0~Reference



3DH1_Ant1_2402_30~1000



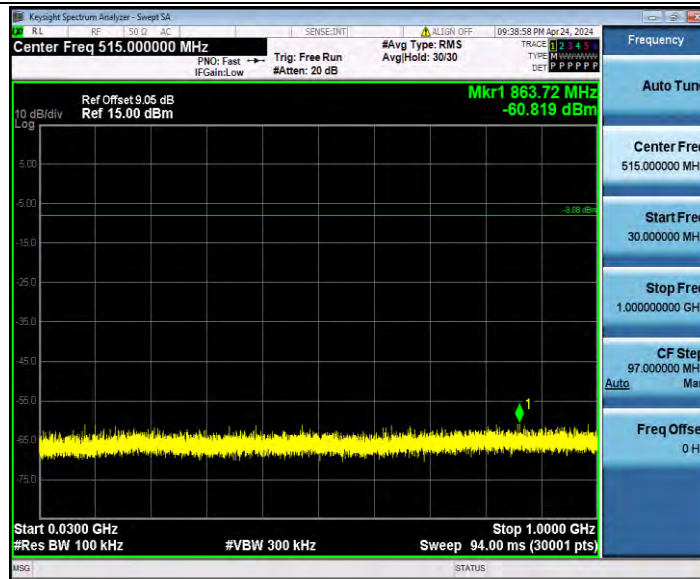
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000

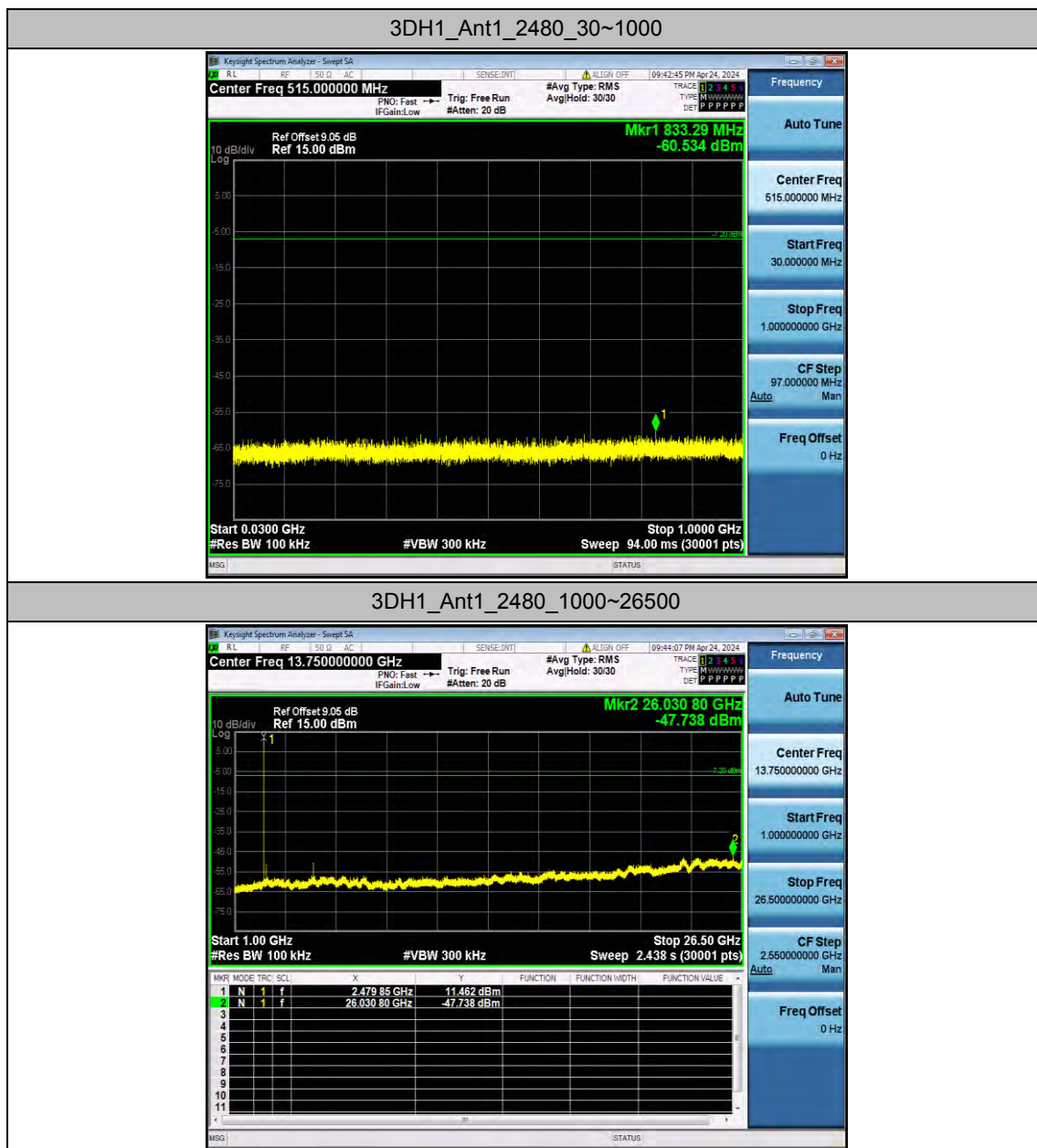


3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference





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	-49.39	≤-41.20	45.81	≤54	PASS
				AV	2389.565	-48.8	≤-41.20	46.40	≤54	PASS
				AV	2390.000	-49	≤-41.20	46.20	≤54	PASS
				Peak	2310.000	-41.9	≤-21.20	53.30	≤74	PASS
				Peak	2354.390	-38.2	≤-21.20	57.00	≤74	PASS
				Peak	2390.000	-42.1	≤-21.20	53.10	≤74	PASS
		High	2480	AV	2483.500	-45.56	≤-41.20	49.64	≤54	PASS
				AV	2483.520	-45.56	≤-41.20	49.64	≤54	PASS
				AV	2500.000	-48.77	≤-41.20	46.43	≤54	PASS
				Peak	2483.500	-40.48	≤-21.20	54.72	≤74	PASS
				Peak	2492.640	-38.8	≤-21.20	56.40	≤74	PASS
				Peak	2500.000	-41.58	≤-21.20	53.62	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.22	≤-41.20	45.98	≤54	PASS
				AV	2384.735	-48.83	≤-41.20	46.37	≤54	PASS
				AV	2390.000	-48.91	≤-41.20	46.29	≤54	PASS
				Peak	2310.000	-41.19	≤-21.20	54.01	≤74	PASS
				Peak	2386.100	-38.6	≤-21.20	56.60	≤74	PASS
				Peak	2390.000	-39.98	≤-21.20	55.22	≤74	PASS
		High	2480	AV	2483.500	-45.59	≤-41.20	49.61	≤54	PASS
				AV	2483.520	-45.59	≤-41.20	49.61	≤54	PASS
				AV	2500.000	-48.76	≤-41.20	46.44	≤54	PASS
				Peak	2483.500	-41.67	≤-21.20	53.53	≤74	PASS
				Peak	2492.960	-38.16	≤-21.20	57.04	≤74	PASS
				Peak	2500.000	-41.25	≤-21.20	53.95	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.28	≤-41.20	45.92	≤54	PASS
				AV	2383.055	-48.83	≤-41.20	46.37	≤54	PASS
				AV	2390.000	-48.85	≤-41.20	46.35	≤54	PASS
				Peak	2310.000	-41.68	≤-21.20	53.52	≤74	PASS
				Peak	2316.905	-38.47	≤-21.20	56.73	≤74	PASS
				Peak	2390.000	-42.15	≤-21.20	53.05	≤74	PASS
		High	2480	AV	2483.500	-45.78	≤-41.20	49.42	≤54	PASS
				AV	2483.520	-45.78	≤-41.20	49.42	≤54	PASS
				AV	2500.000	-48.71	≤-41.20	46.49	≤54	PASS
				Peak	2483.500	-38.74	≤-21.20	56.46	≤74	PASS
				Peak	2493.200	-38.08	≤-21.20	57.12	≤74	PASS

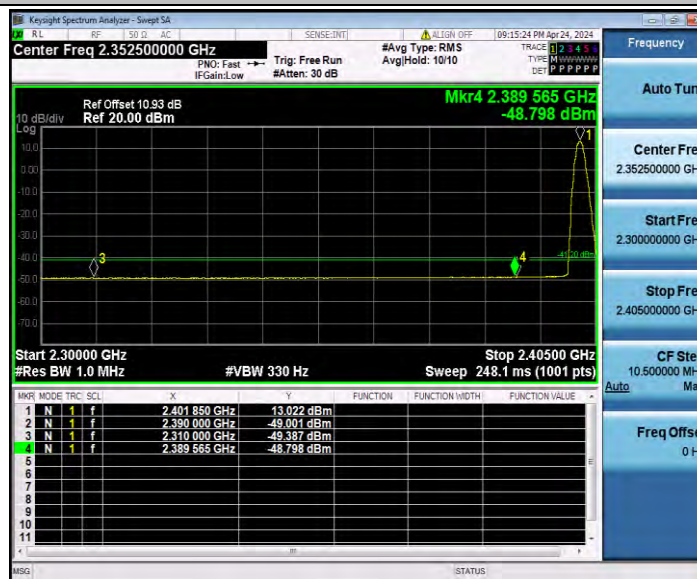
				Peak	2500.000	-41.6	≤ -21.20	53.60	≤ 74	PASS
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Note:

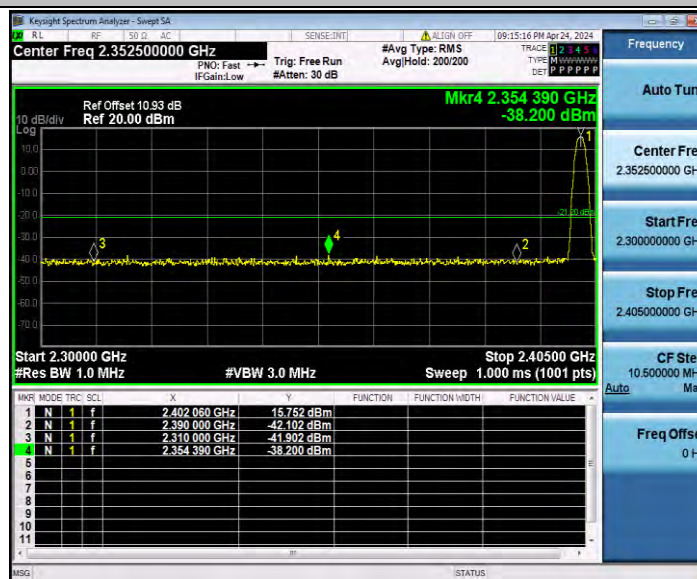
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

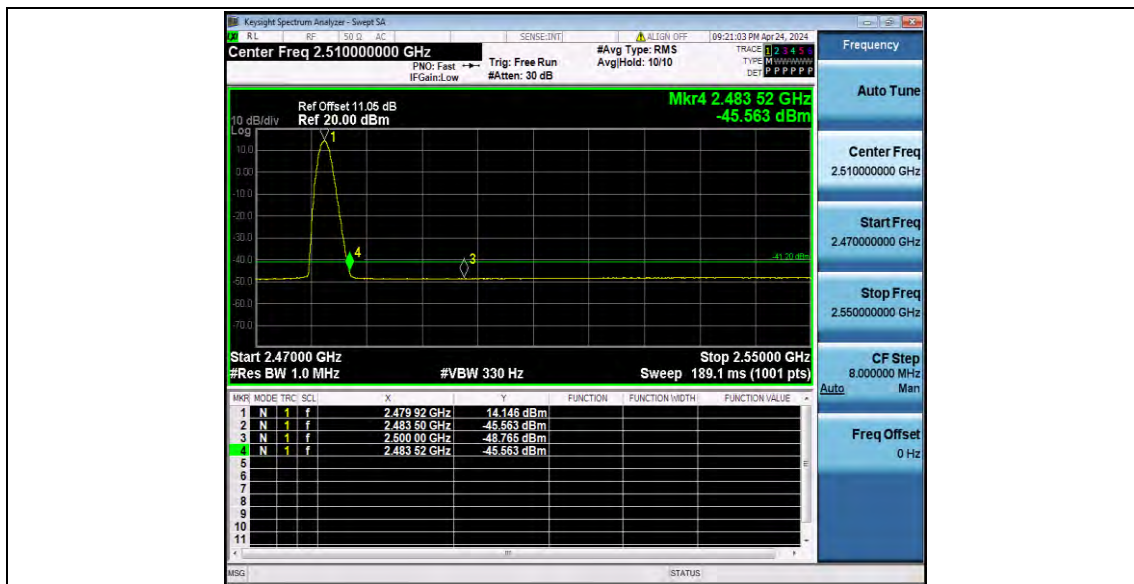
DH1_Ant1_Low_2402_AV



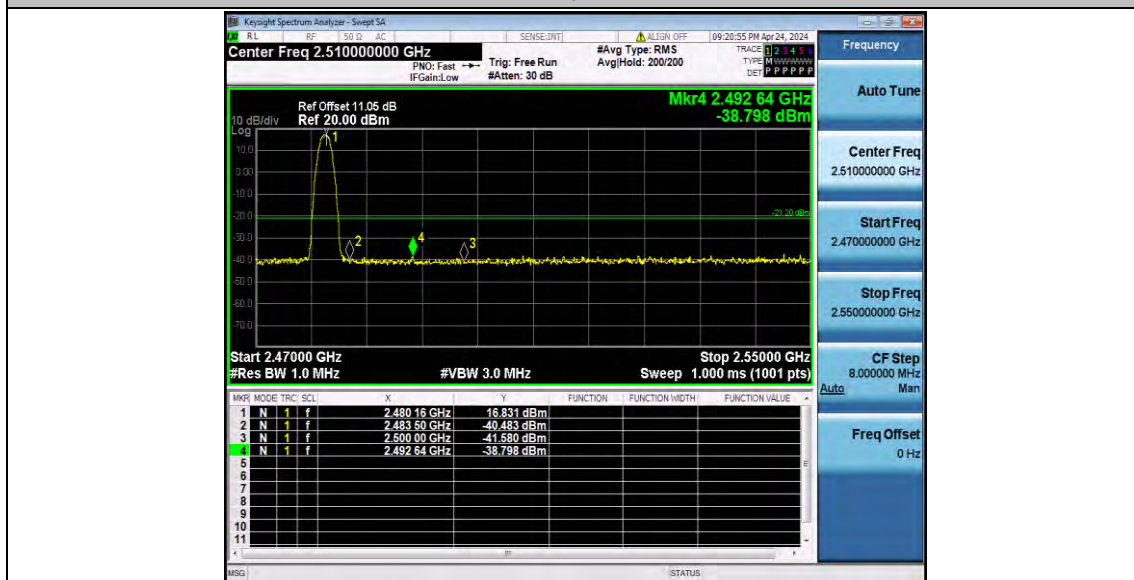
DH1_Ant1_Low_2402_Peak



DH1_Ant1_High_2480_AV



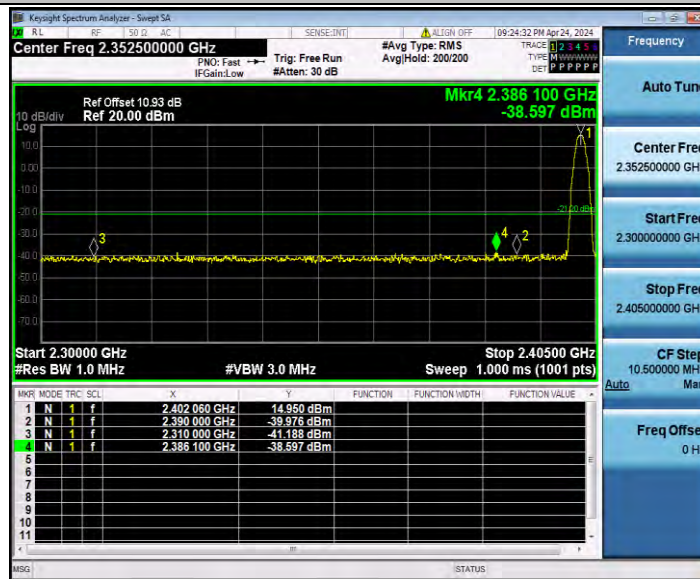
DH1_Ant1_High_2480_Peak



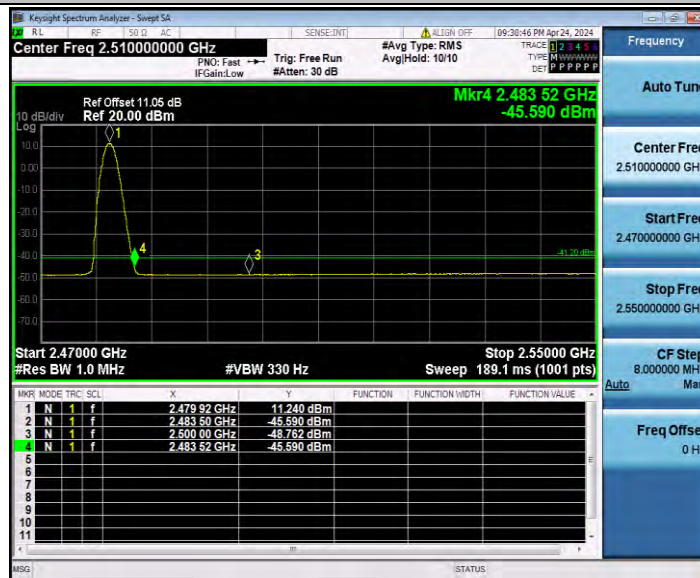
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

