

Case No. : <u>CTA24061300401</u>	
Ambient Condition: <u>23</u> °C, <u>49</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.6.15</u>	Test Engineer: <u>Evan ouyang</u>

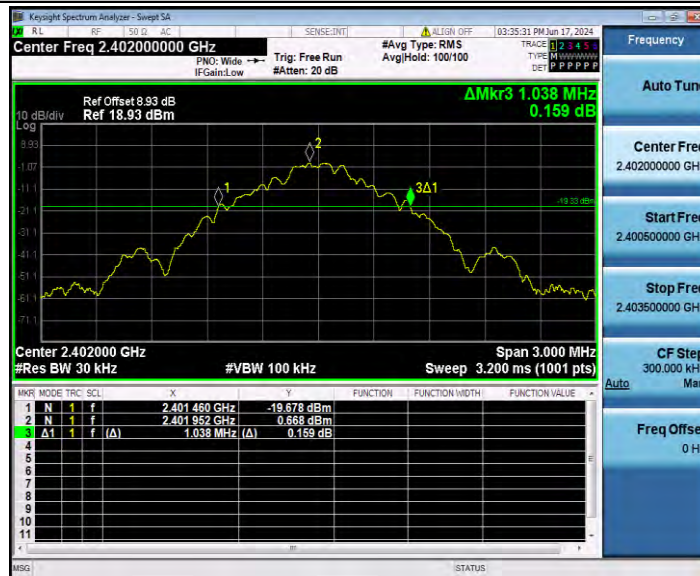
Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]
DH1	Ant1	2402	1.038	2401.460	2402.498
		2441	1.038	2440.460	2441.498
		2480	1.038	2479.460	2480.498
2DH1	Ant1	2402	1.338	2401.310	2402.648
		2441	1.329	2440.316	2441.645
		2480	1.338	2479.310	2480.648
3DH1	Ant1	2402	1.365	2401.316	2402.681
		2441	1.359	2440.316	2441.675
		2480	1.356	2479.316	2480.672

Test Graphs

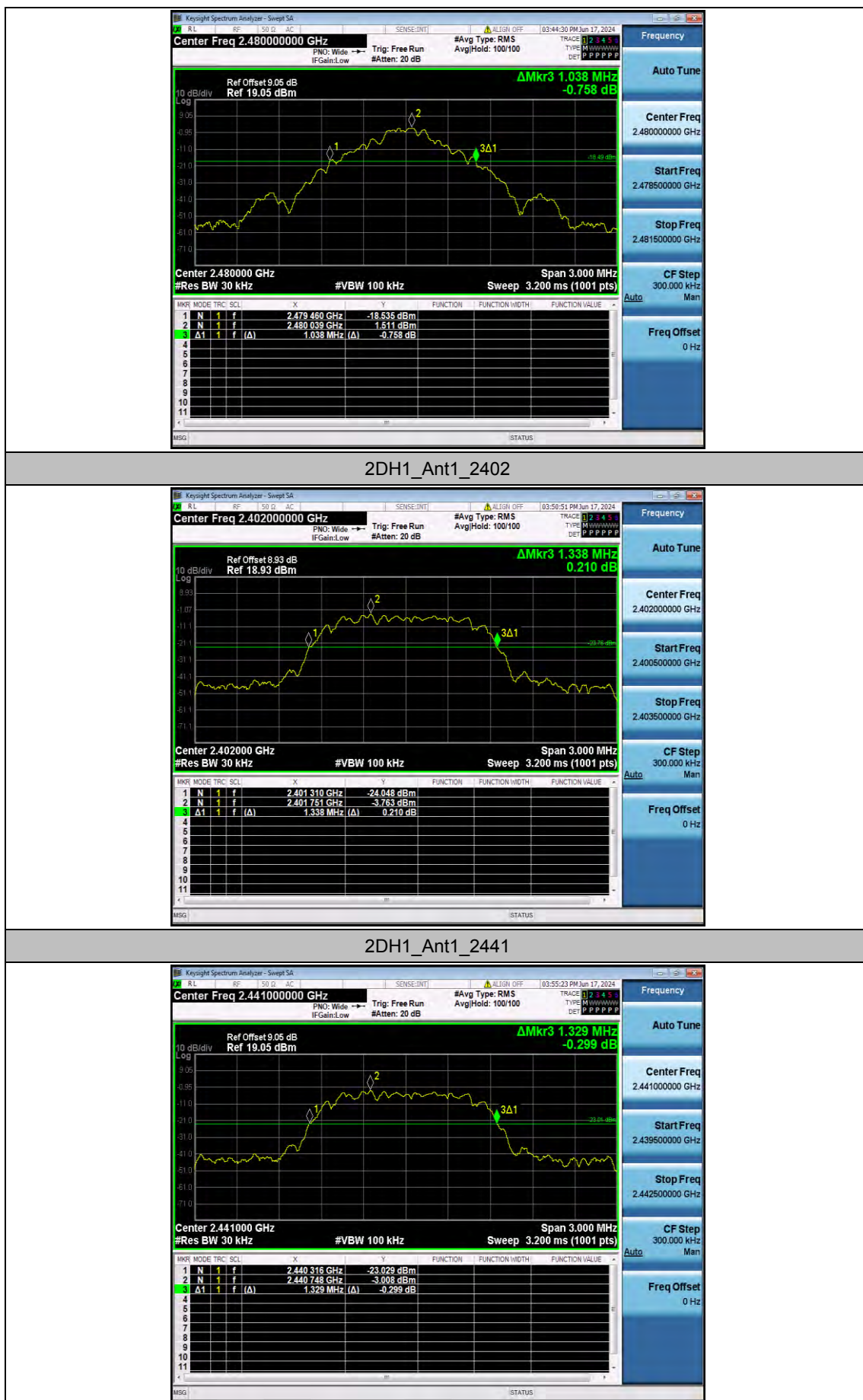
DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



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	0.90197	2401.5511	2402.4531
		2441	0.89384	2440.5513	2441.4452
		2480	0.88983	2479.5505	2480.4403
2DH1	Ant1	2402	1.1835	2401.4020	2402.5855
		2441	1.1836	2440.4021	2441.5857
		2480	1.1841	2479.4015	2480.5856
3DH1	Ant1	2402	1.2254	2401.3712	2402.5966
		2441	1.2243	2440.3712	2441.5955
		2480	1.2252	2479.3698	2480.5950

Test Graphs

DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



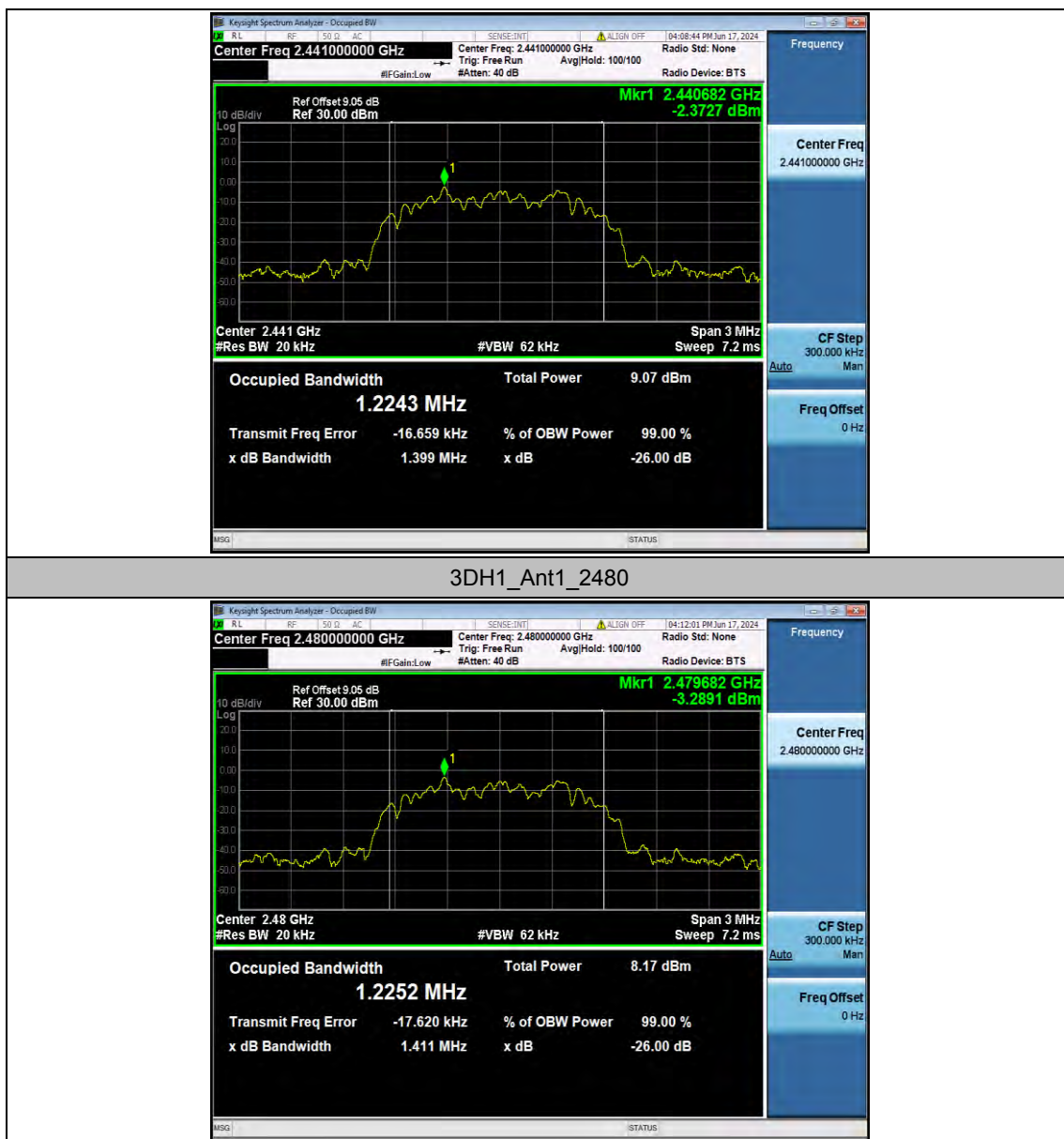
2DH1_Ant1_2480



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	6.21	≤ 20.97	PASS
		2441	7.02	≤ 20.97	PASS
		2480	6.16	≤ 20.97	PASS
2DH1	Ant1	2402	6.12	≤ 20.97	PASS
		2441	6.96	≤ 20.97	PASS
		2480	6.14	≤ 20.97	PASS
3DH1	Ant1	2402	6.51	≤ 20.97	PASS
		2441	7.40	≤ 20.97	PASS
		2480	6.45	≤ 20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	1.006	≥ 0.692	PASS
		Hop_2441	1.338	≥ 0.692	PASS
		Hop_2480	1.328	≥ 0.692	PASS
2DH1	Ant1	Hop_2402	1.17	≥ 0.892	PASS
		Hop_2441	1.004	≥ 0.892	PASS
		Hop_2480	0.982	≥ 0.892	PASS
3DH1	Ant1	Hop_2402	1	≥ 0.910	PASS
		Hop_2441	0.988	≥ 0.910	PASS
		Hop_2480	1.006	≥ 0.910	PASS

Test Graphs

DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



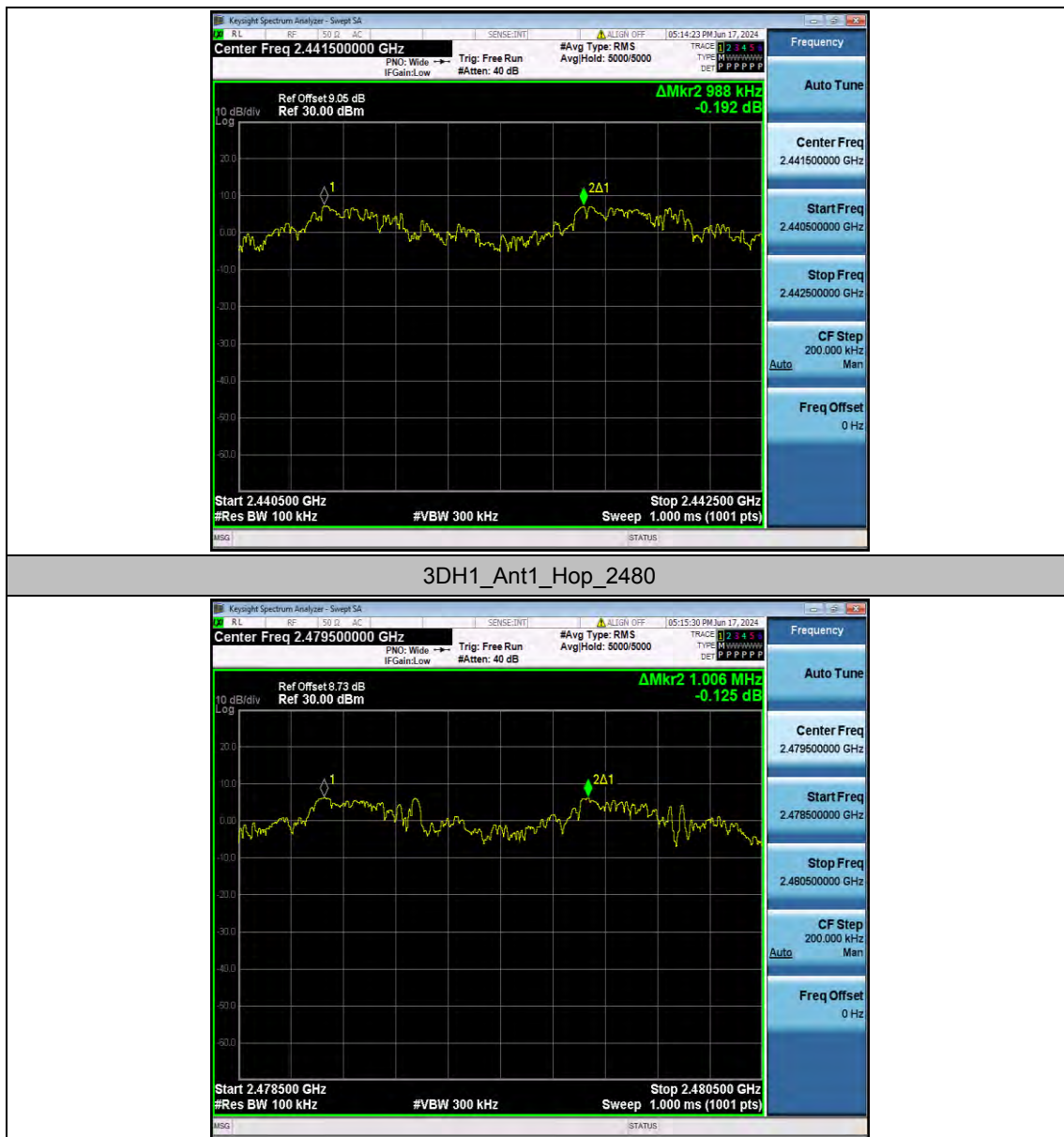
2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441

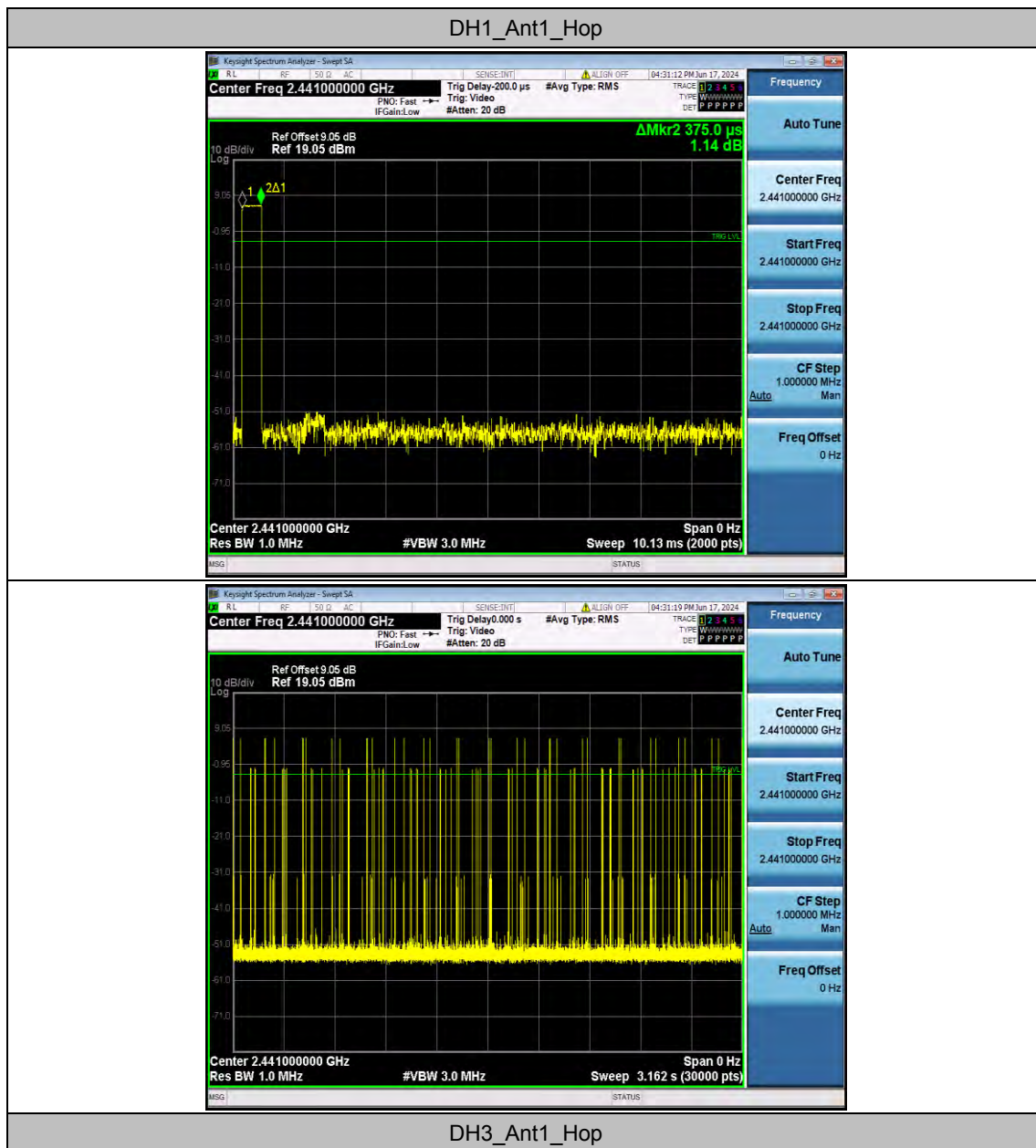


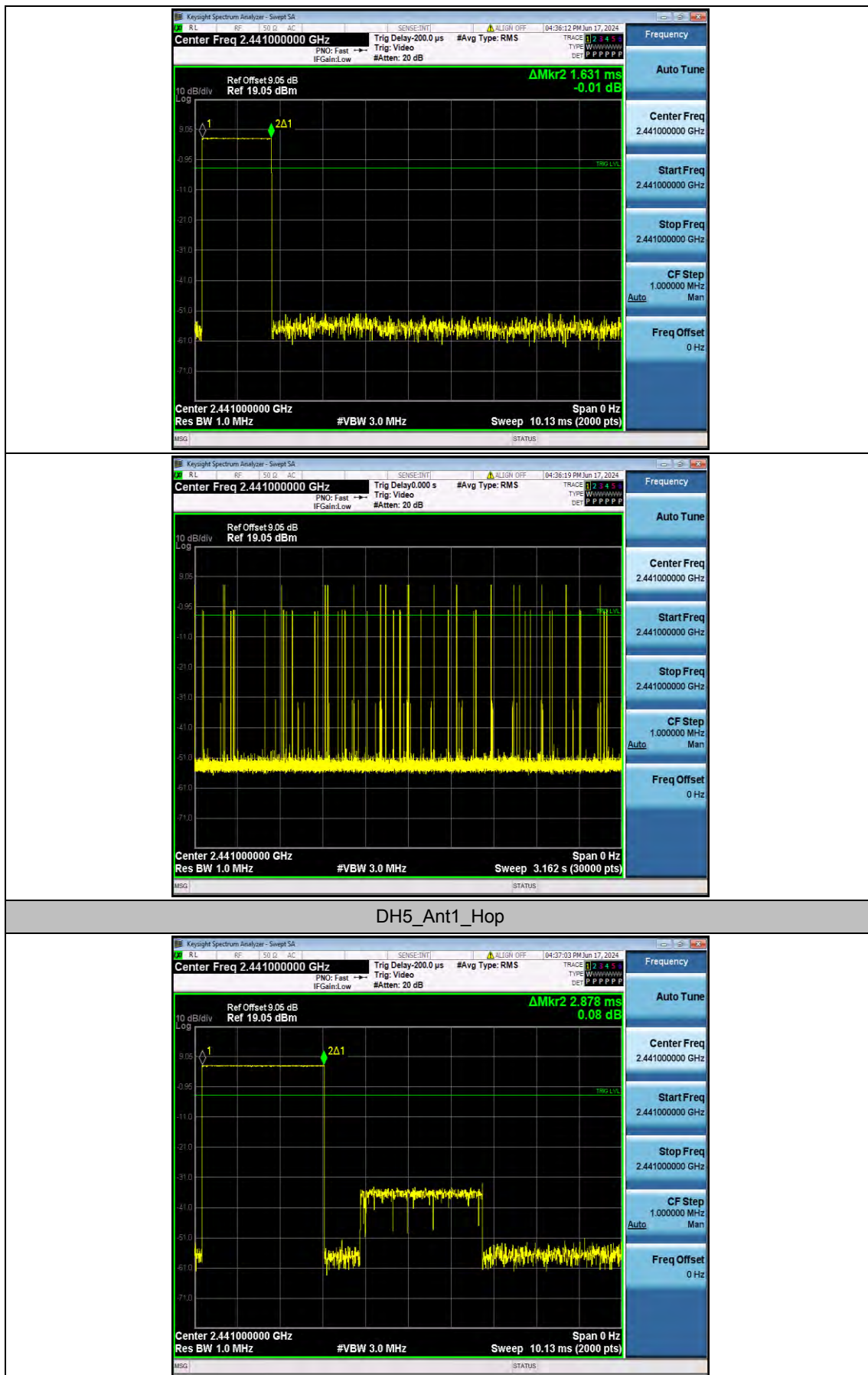
Appendix A.5: Time of occupancy

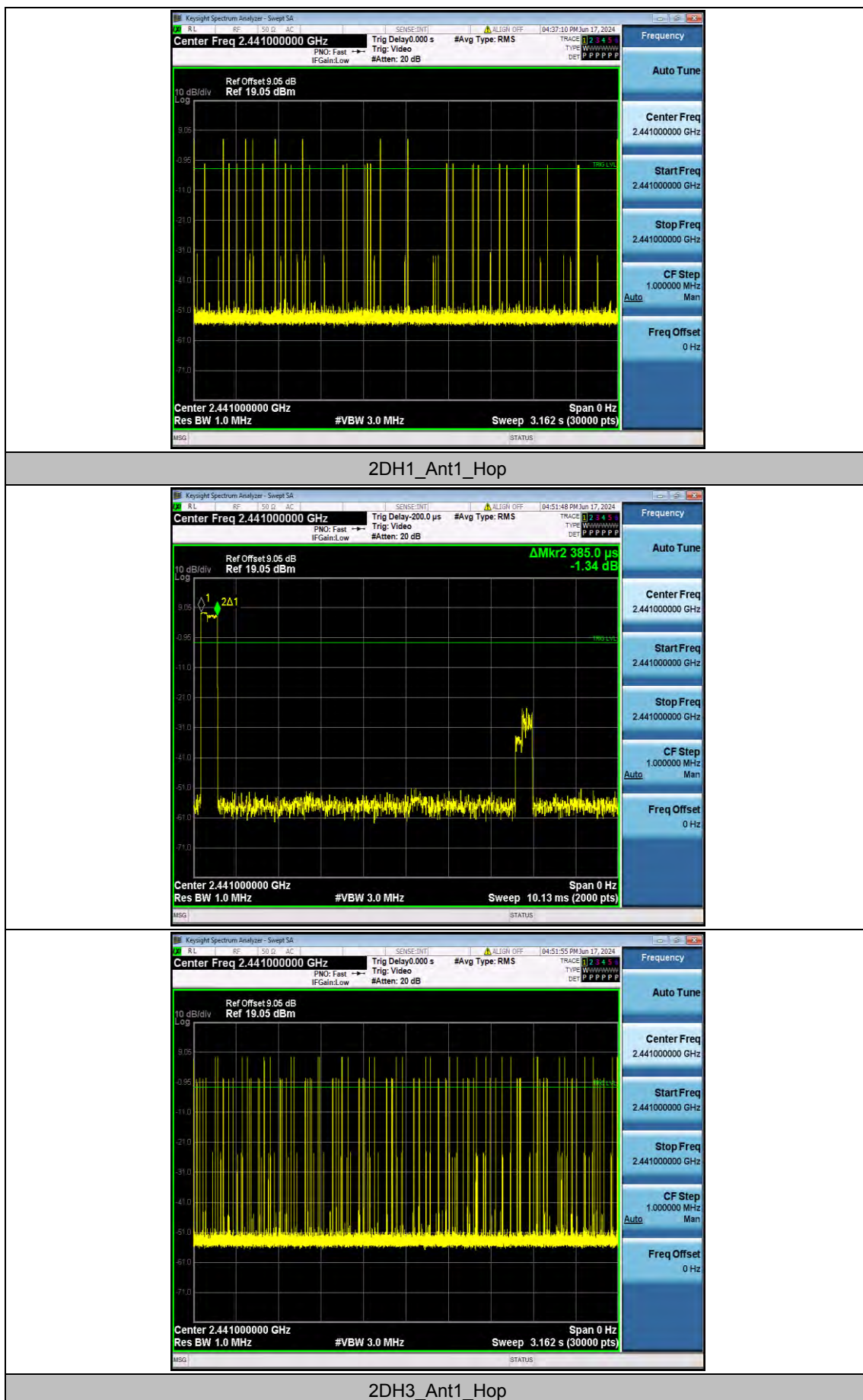
Test Result

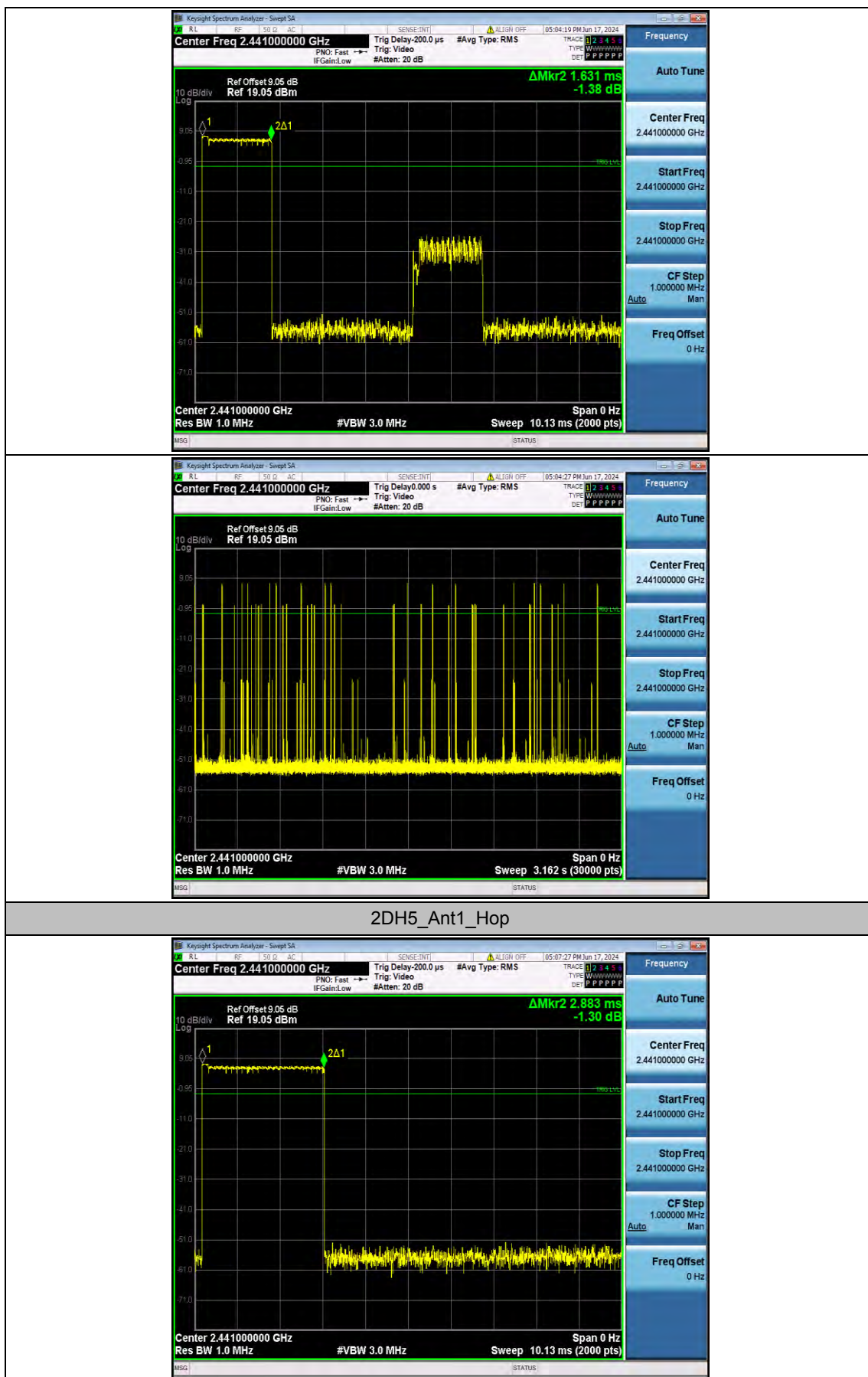
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.375	330	0.124	≤0.4	PASS
DH3	Ant1	Hop	1.631	190	0.31	≤0.4	PASS
DH5	Ant1	Hop	2.878	90	0.259	≤0.4	PASS
2DH1	Ant1	Hop	0.385	330	0.127	≤0.4	PASS
2DH3	Ant1	Hop	1.631	180	0.294	≤0.4	PASS
2DH5	Ant1	Hop	2.883	100	0.288	≤0.4	PASS
3DH1	Ant1	Hop	0.380	330	0.125	≤0.4	PASS
3DH3	Ant1	Hop	1.631	150	0.245	≤0.4	PASS
3DH5	Ant1	Hop	2.888	110	0.318	≤0.4	PASS

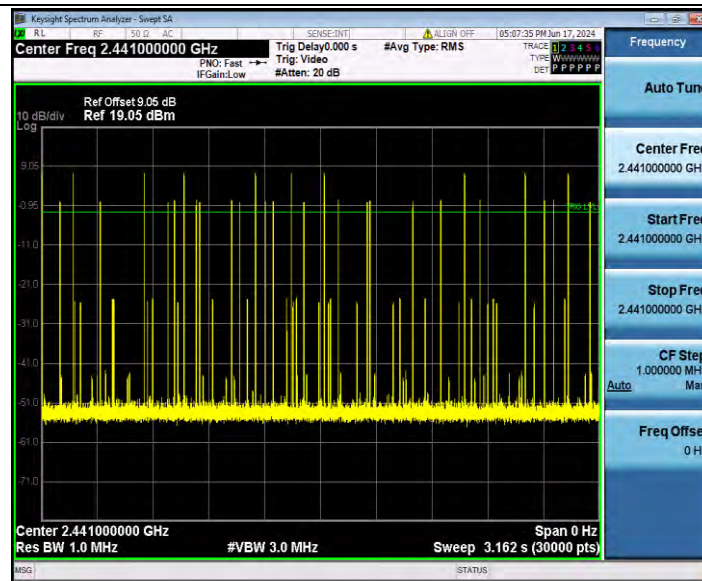
Test Graphs



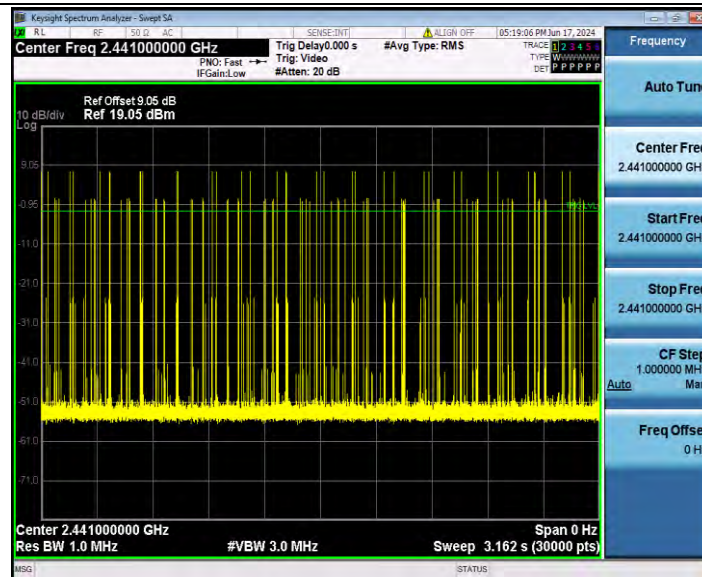
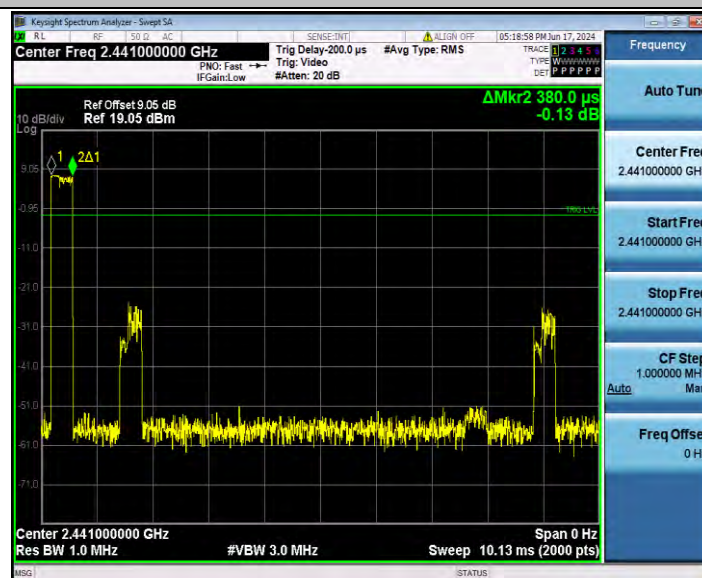




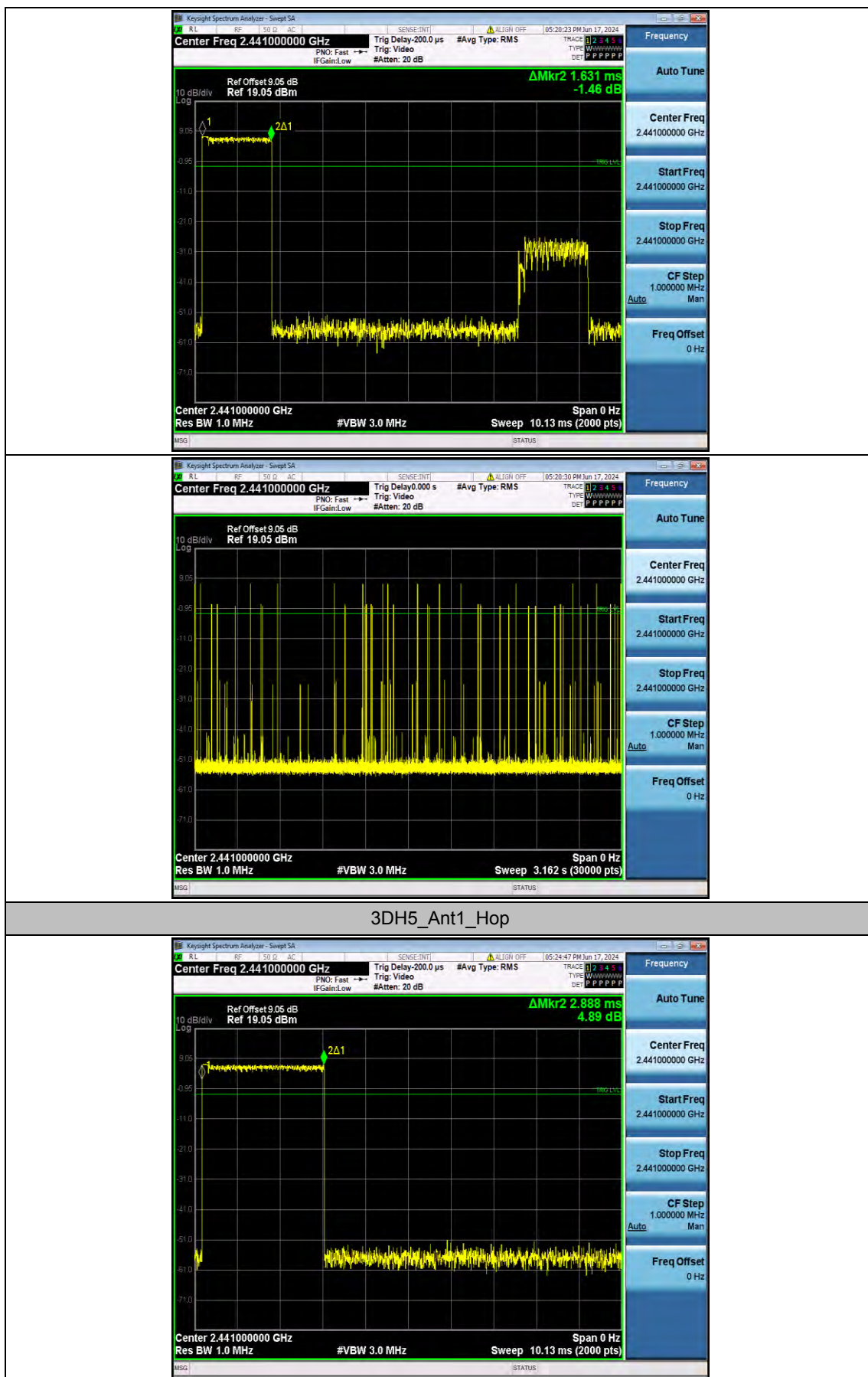


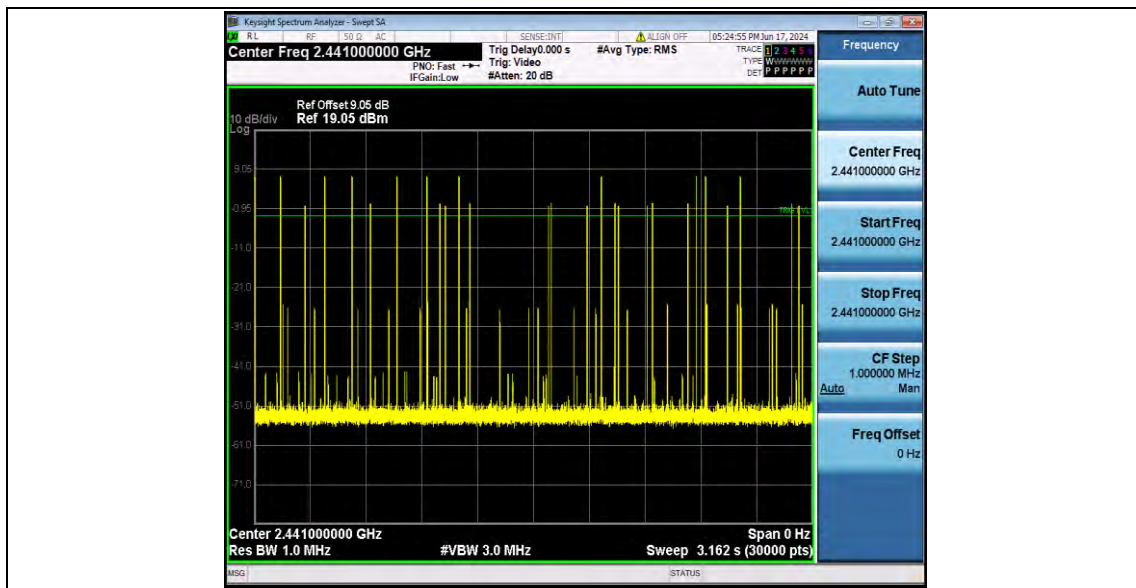


3DH1_Ant1_Hop



3DH3_Ant1_Hop



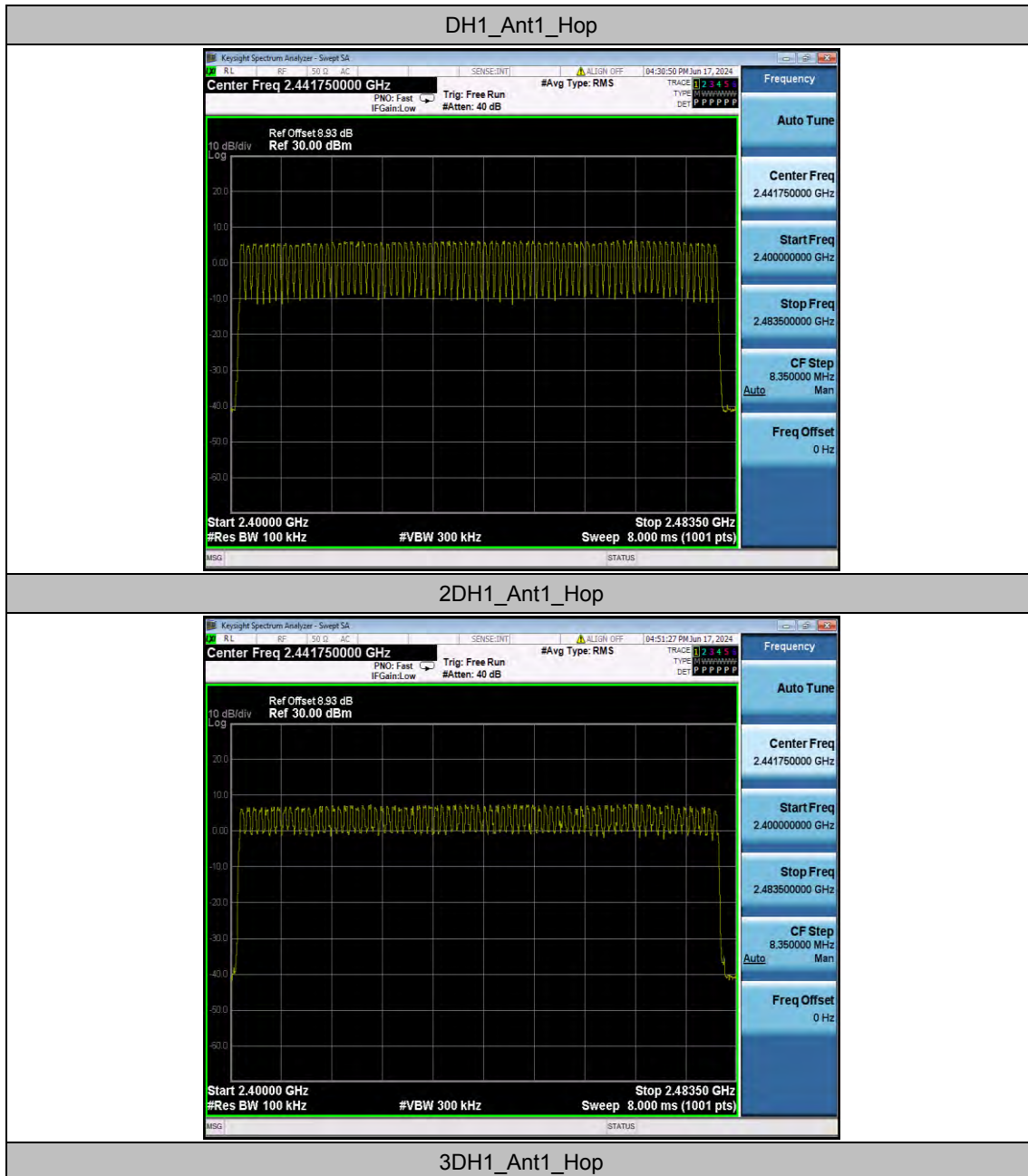


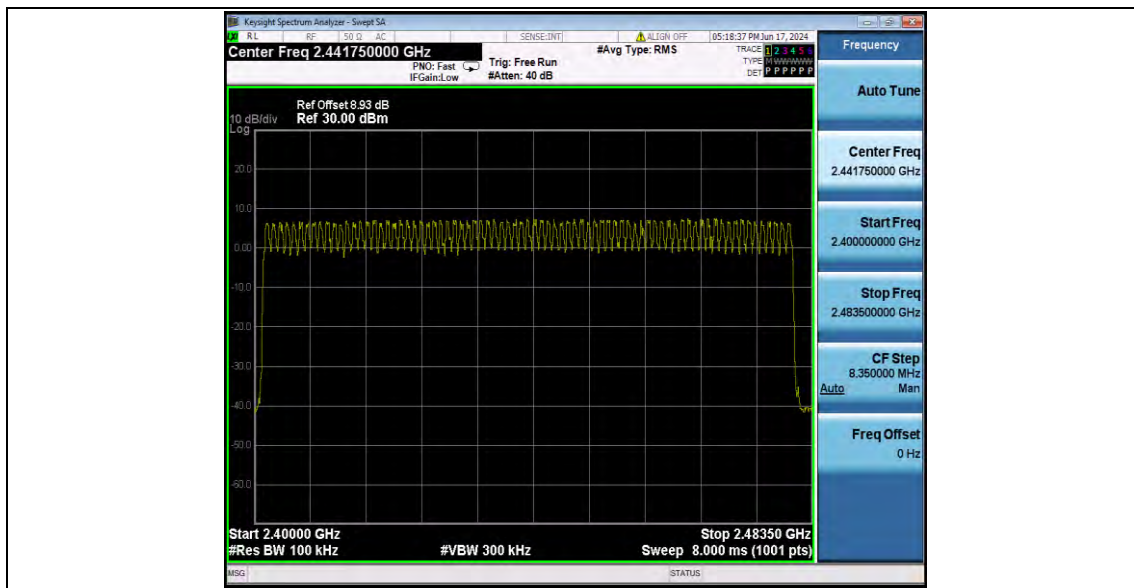
Appendix A.6: Number of hopping channels

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



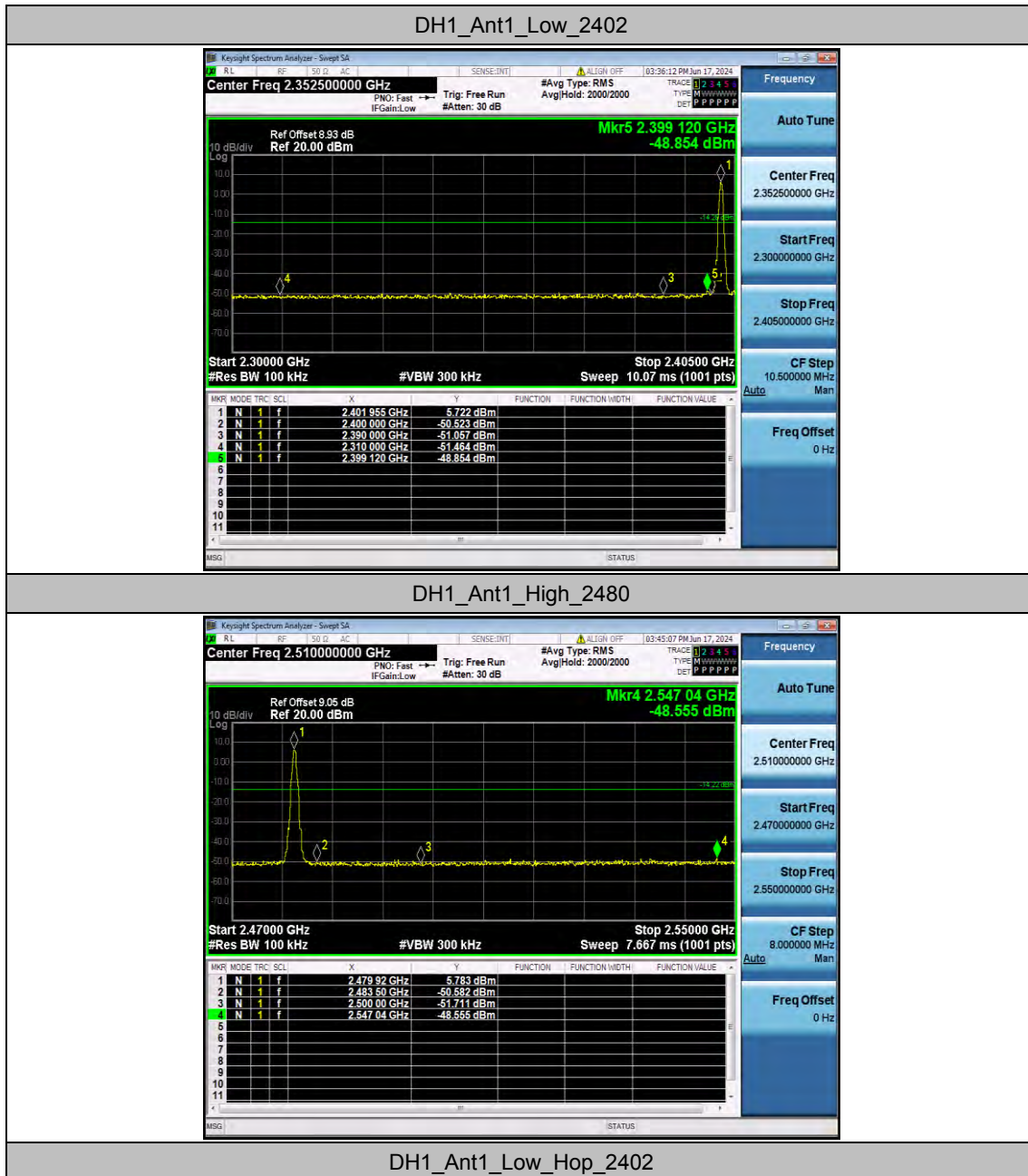


Appendix A.7: Band edge measurements

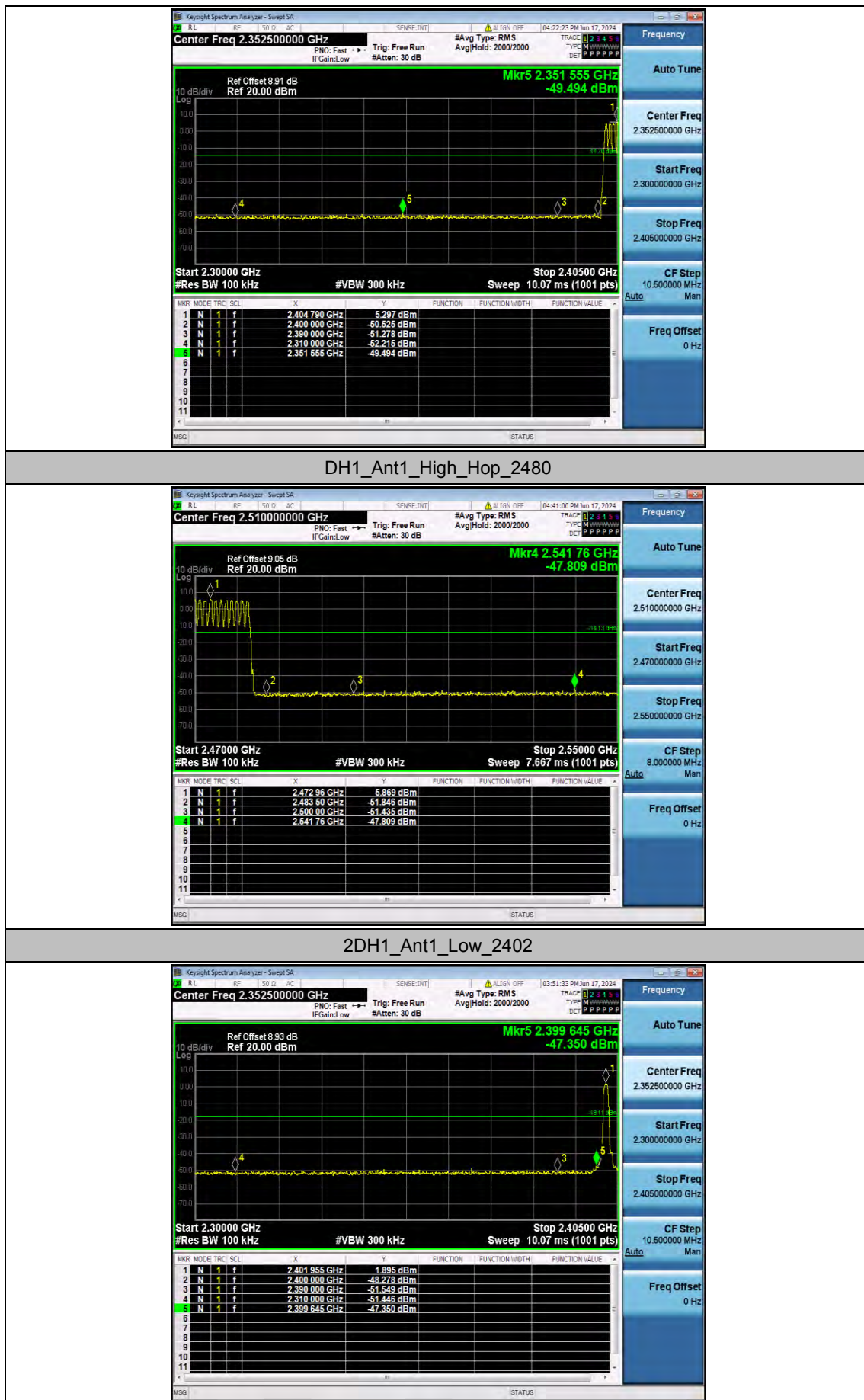
Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	5.72	-48.85	≤ -14.28	PASS
		High	2480	5.78	-48.56	≤ -14.22	PASS
		Low	Hop_2402	5.30	-49.49	≤ -14.7	PASS
		High	Hop_2480	5.87	-47.81	≤ -14.13	PASS
2DH1	Ant1	Low	2402	1.90	-47.35	≤ -18.11	PASS
		High	2480	1.79	-48.18	≤ -18.21	PASS
		Low	Hop_2402	5.03	-49.47	≤ -14.97	PASS
		High	Hop_2480	6.70	-48.62	≤ -13.3	PASS
3DH1	Ant1	Low	2402	1.75	-46.83	≤ -18.25	PASS
		High	2480	1.74	-49.22	≤ -18.26	PASS
		Low	Hop_2402	6.09	-49.41	≤ -13.91	PASS
		High	Hop_2480	6.80	-48.54	≤ -13.2	PASS

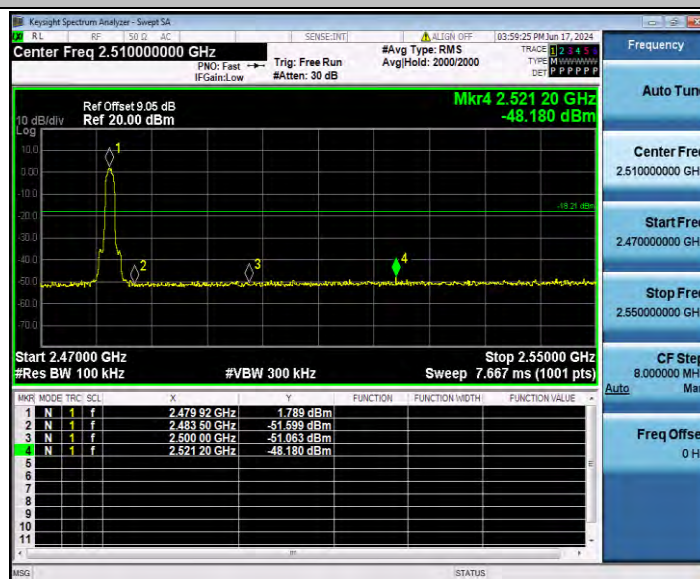
Test Graphs



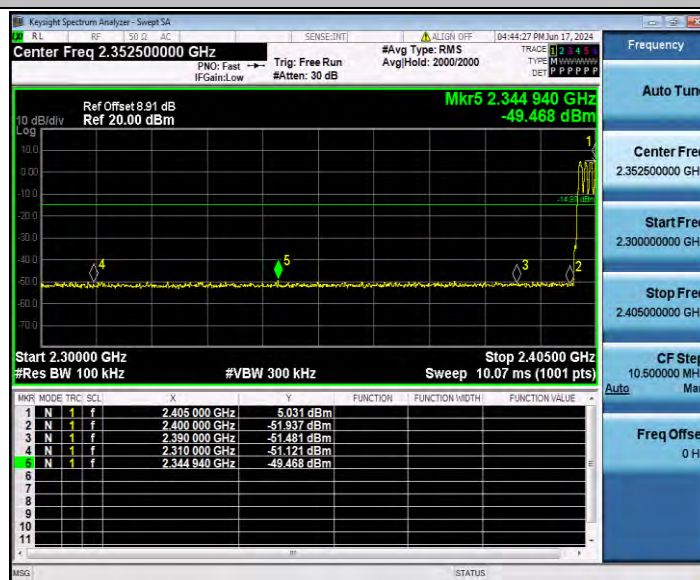
DH1_Ant1_Low_Hop_2402



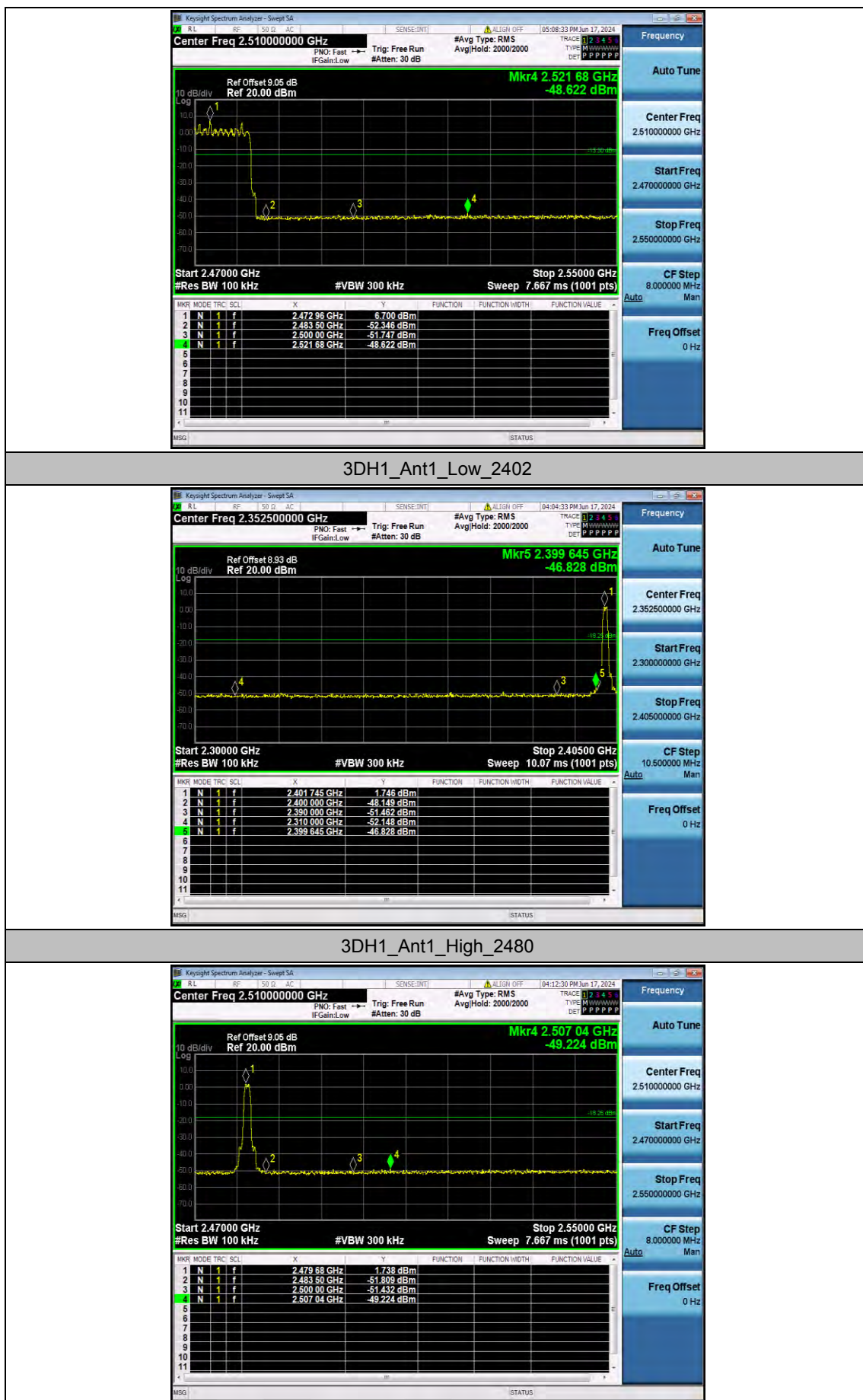
2DH1_Ant1_High_2480



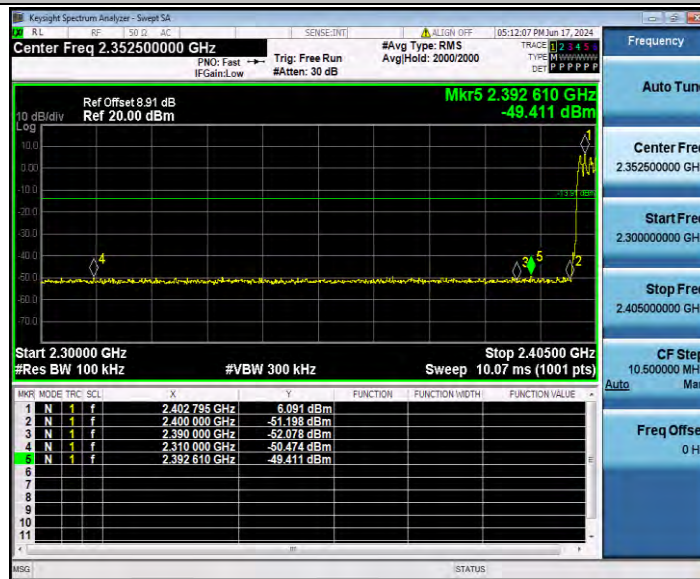
2DH1_Ant1_Low_Hop_2402



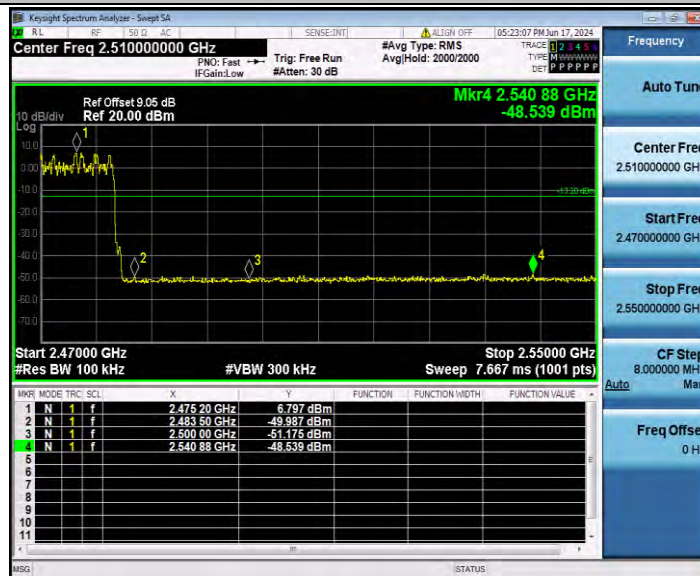
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

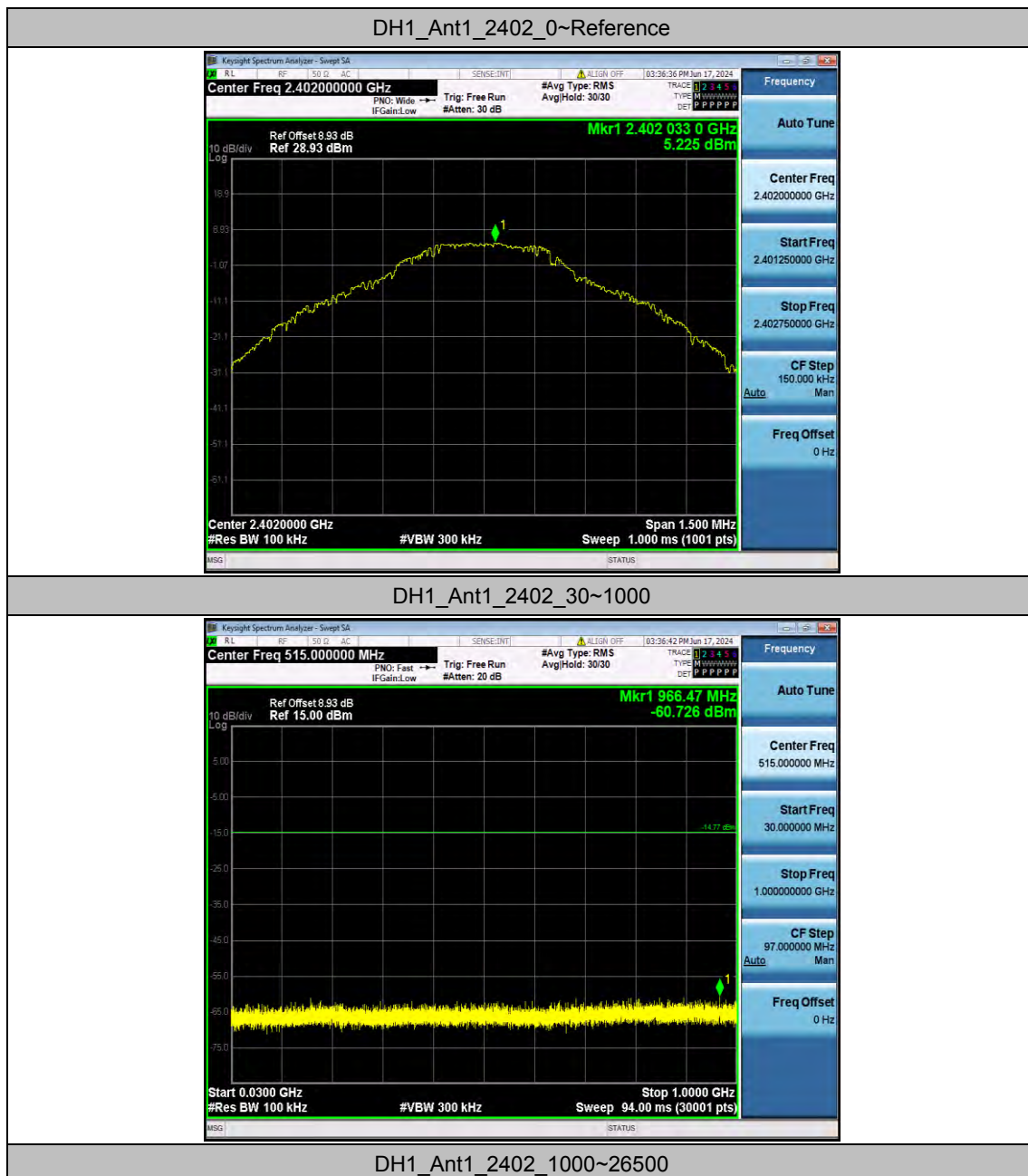


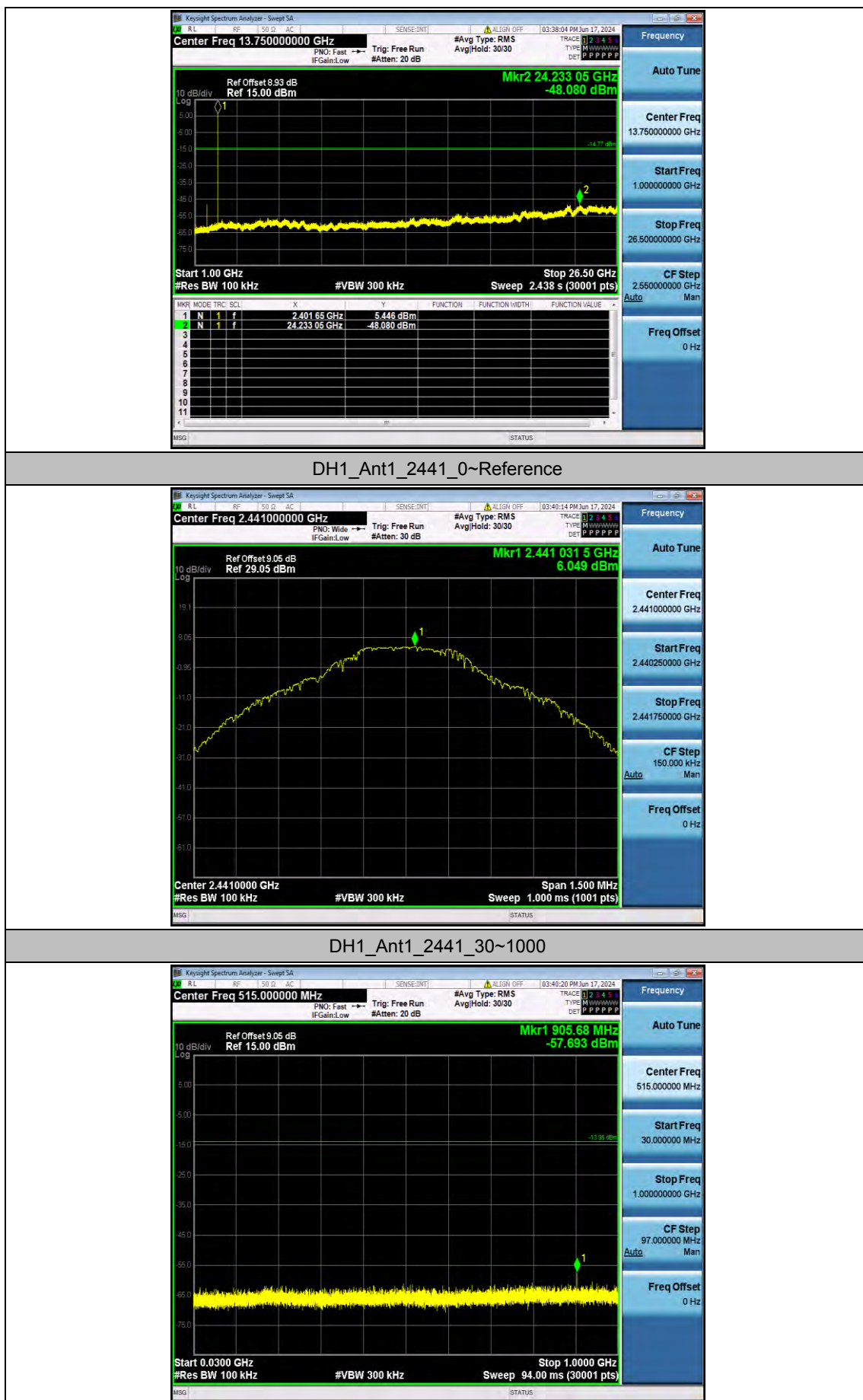
Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	5.23	5.23	---	PASS
			30~1000	5.23	-60.73	≤-14.77	PASS
			1000~26500	5.23	-48.08	≤-14.77	PASS
		2441	Reference	6.05	6.05	---	PASS
			30~1000	6.05	-57.69	≤-13.95	PASS
			1000~26500	6.05	-47.82	≤-13.95	PASS
		2480	Reference	5.20	5.20	---	PASS
			30~1000	5.20	-61.06	≤-14.8	PASS
			1000~26500	5.20	-46.91	≤-14.8	PASS
2DH1	Ant1	2402	Reference	1.21	1.21	---	PASS
			30~1000	1.21	-60.75	≤-18.79	PASS
			1000~26500	1.21	-47.74	≤-18.79	PASS
		2441	Reference	1.91	1.91	---	PASS
			30~1000	1.91	-60.67	≤-18.09	PASS
			1000~26500	1.91	-47.6	≤-18.09	PASS
		2480	Reference	1.16	1.16	---	PASS
			30~1000	1.16	-60.58	≤-18.84	PASS
			1000~26500	1.16	-47.92	≤-18.84	PASS
3DH1	Ant1	2402	Reference	1.52	1.52	---	PASS
			30~1000	1.52	-61.12	≤-18.48	PASS
			1000~26500	1.52	-46.96	≤-18.48	PASS
		2441	Reference	2.36	2.36	---	PASS
			30~1000	2.36	-60.71	≤-17.64	PASS
			1000~26500	2.36	-47.64	≤-17.64	PASS
		2480	Reference	1.50	1.50	---	PASS
			30~1000	1.50	-61.02	≤-18.5	PASS
			1000~26500	1.50	-47.76	≤-18.5	PASS

Test Graphs





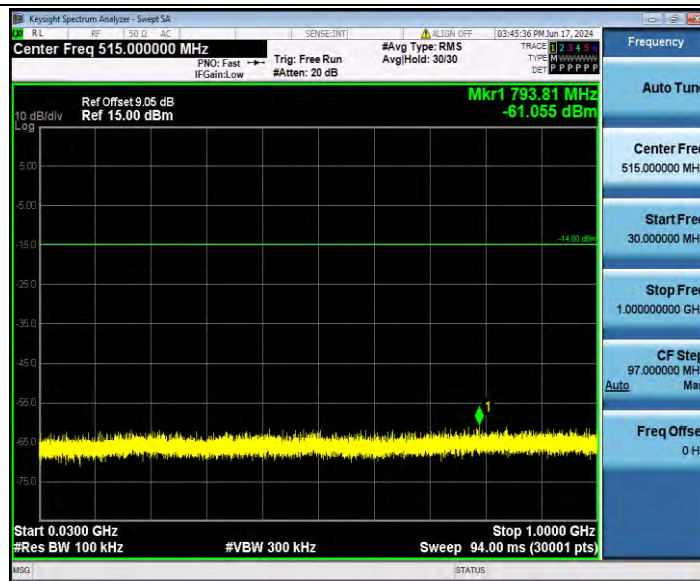
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

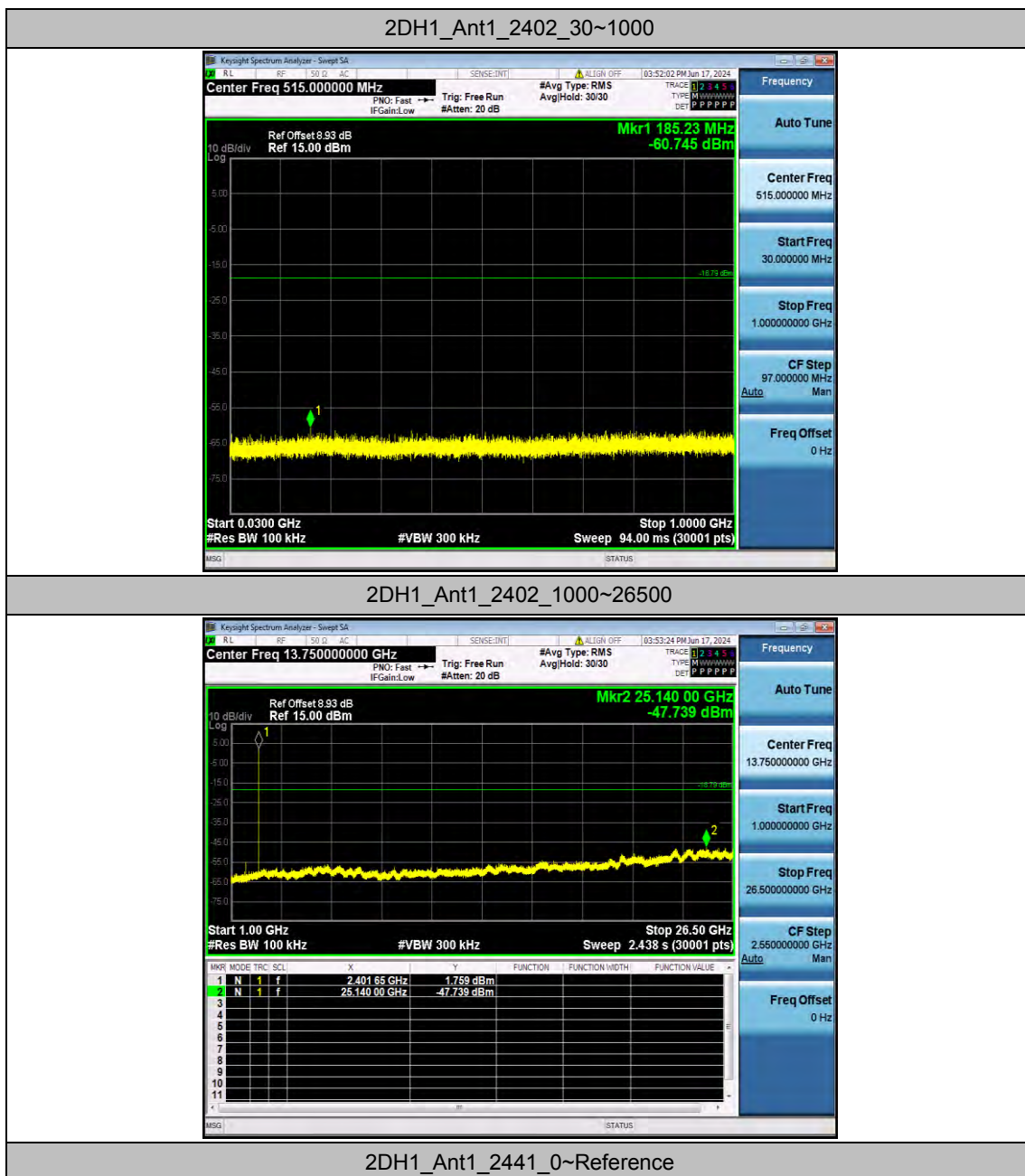


DH1_Ant1_2480_1000~26500



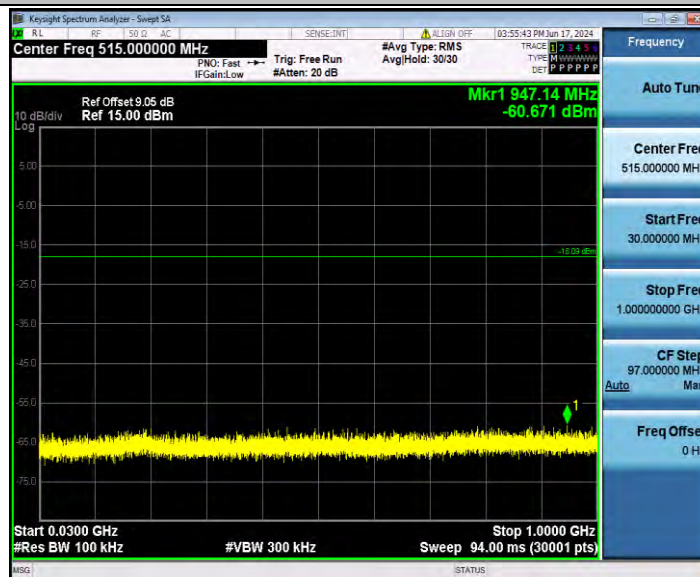
2DH1_Ant1_2402_0~Reference







2DH1_Ant1_2441_30~1000



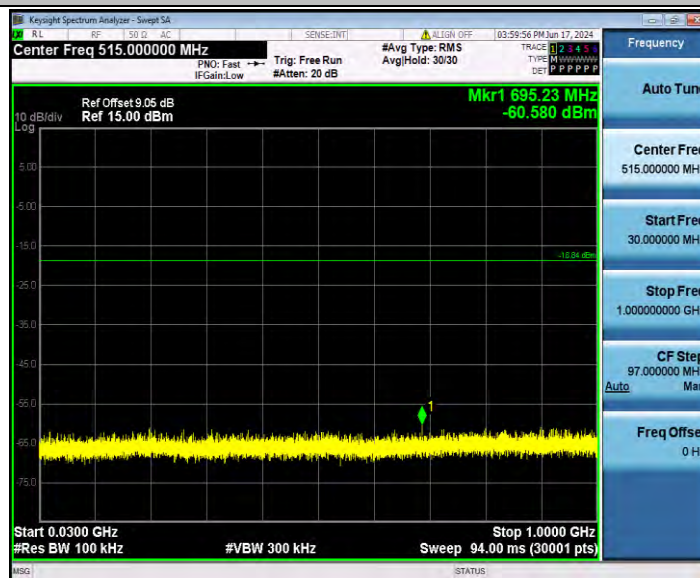
2DH1_Ant1_2441_1000~26500



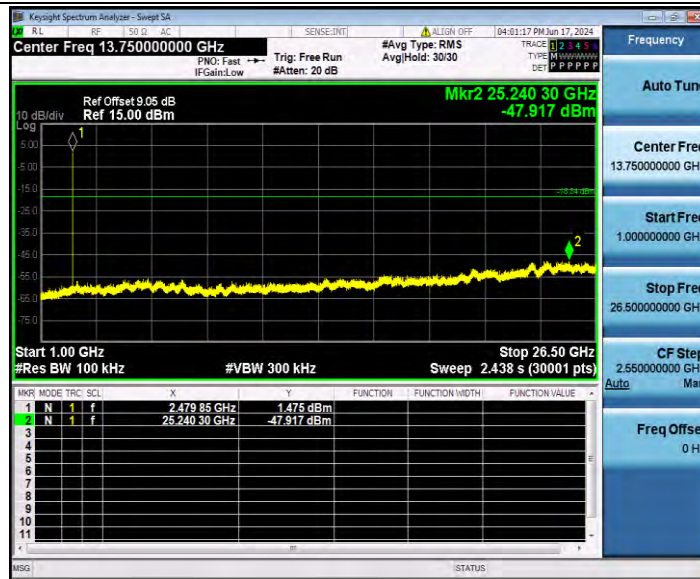
2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



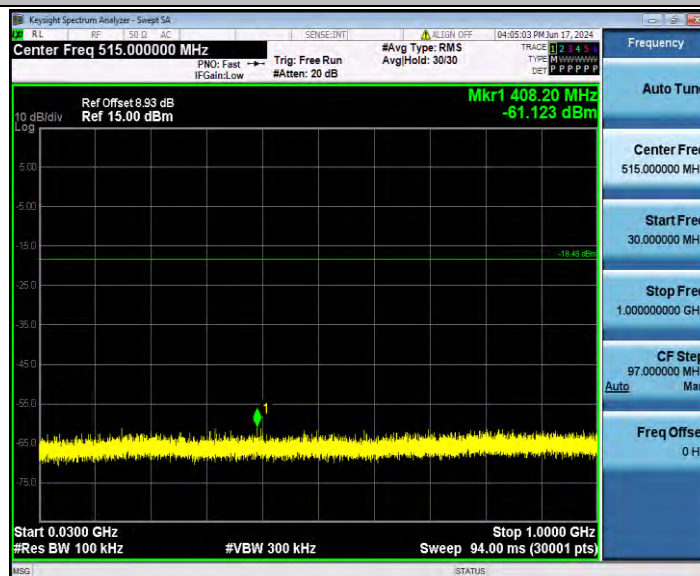
2DH1_Ant1_2480_1000~26500



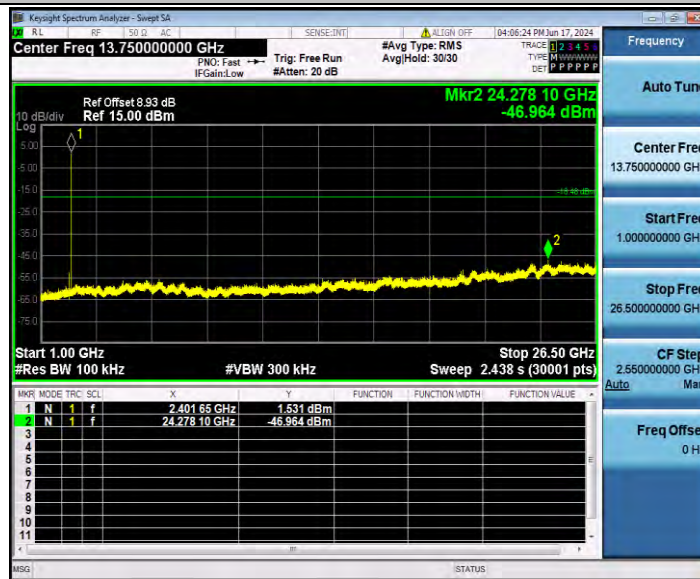
3DH1_Ant1_2402_0~Reference



3DH1_Ant1_2402_30~1000



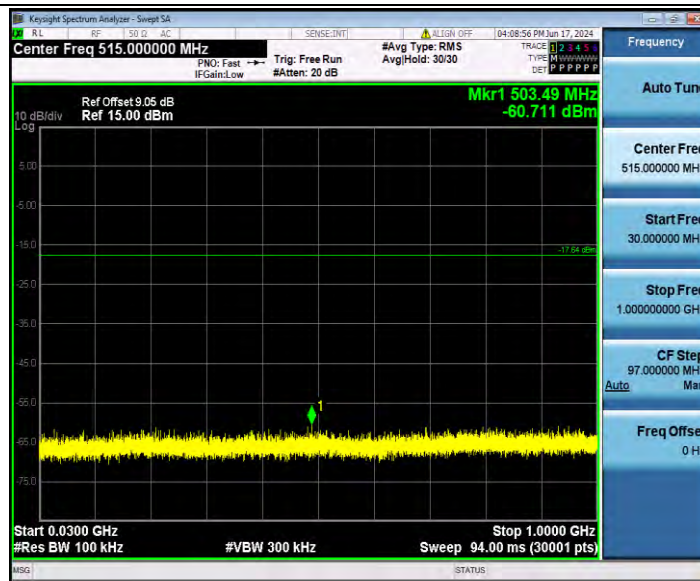
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000

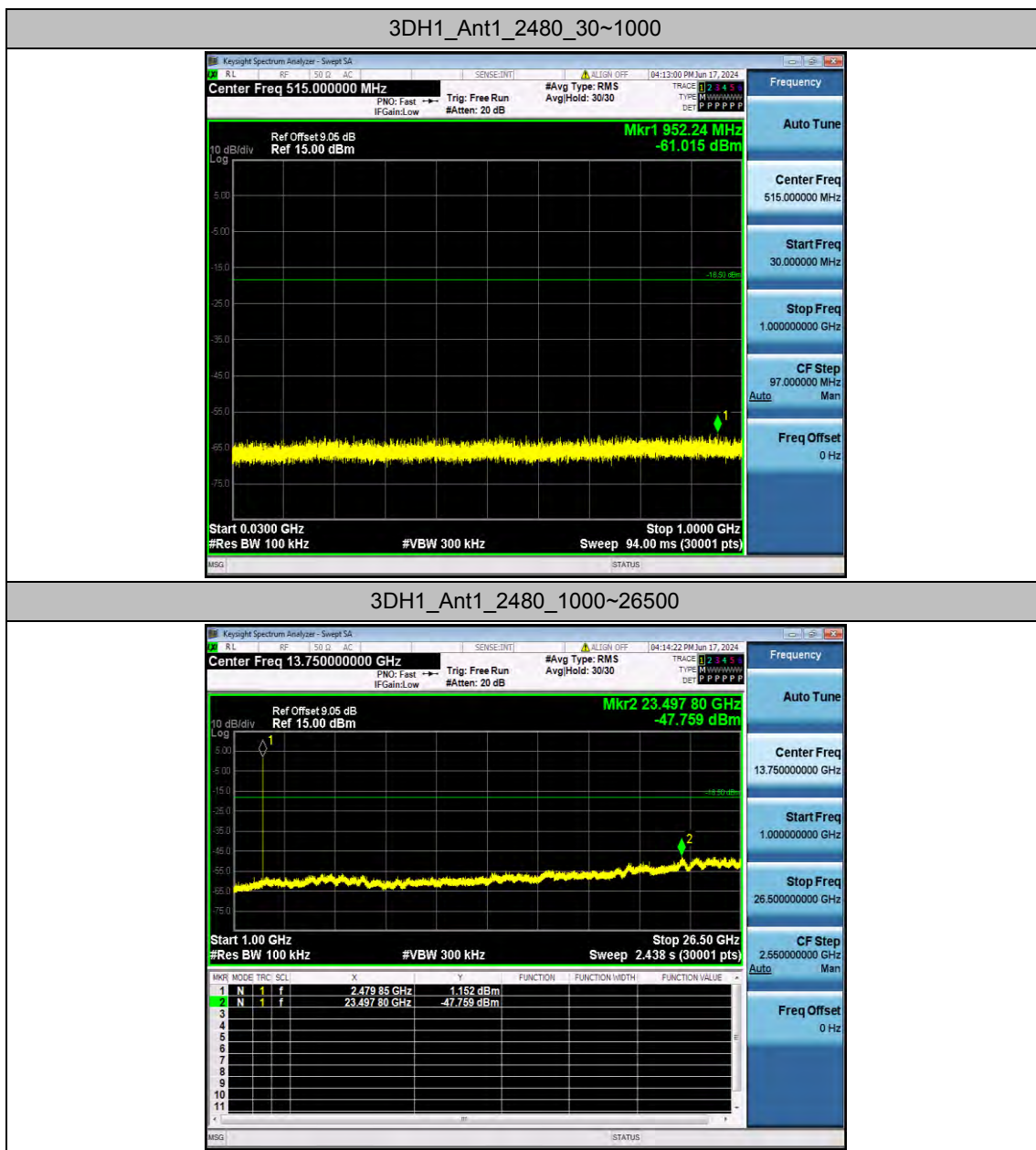


3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference





Appendix A.9: Emissions in Restricted Bands

Test Result

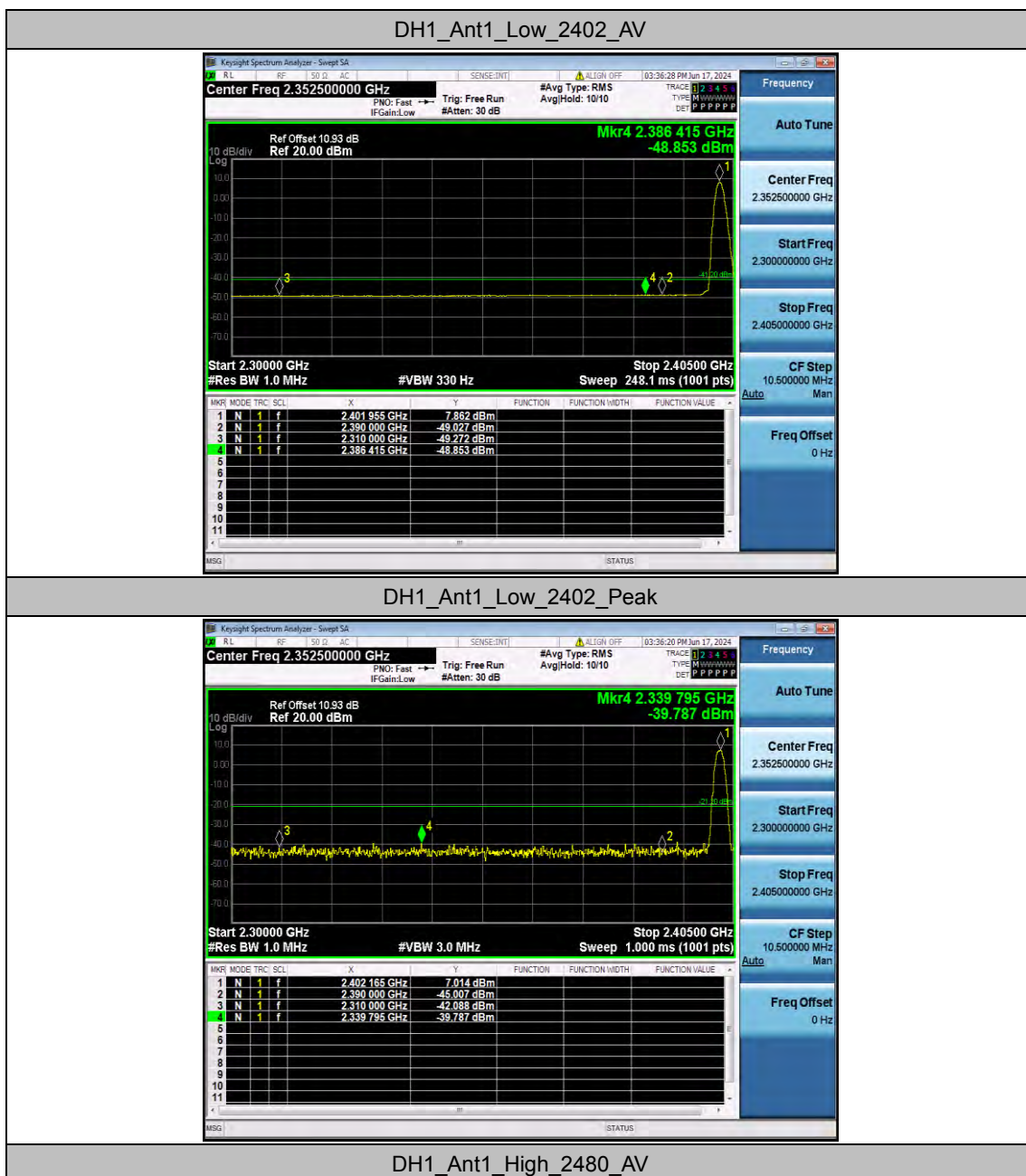
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.27	≤-41.20	45.93	≤54	PASS
				AV	2386.415	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2390.000	-49.03	≤-41.20	46.17	≤54	PASS
				Peak	2310.000	-42.09	≤-21.20	53.11	≤74	PASS
				Peak	2339.795	-39.79	≤-21.20	55.41	≤74	PASS
				Peak	2390.000	-45.01	≤-21.20	50.19	≤74	PASS
		High	2480	AV	2483.500	-46.93	≤-41.20	48.27	≤54	PASS
				AV	2483.520	-46.93	≤-41.20	48.27	≤54	PASS
				AV	2500.000	-48.77	≤-41.20	46.43	≤54	PASS
				Peak	2483.500	-42.85	≤-21.20	52.35	≤74	PASS
				Peak	2484.320	-39.78	≤-21.20	55.42	≤74	PASS
				Peak	2500.000	-42.51	≤-21.20	52.69	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.49	≤-41.20	45.71	≤54	PASS
				AV	2377.385	-48.87	≤-41.20	46.33	≤54	PASS
				AV	2390.000	-48.96	≤-41.20	46.24	≤54	PASS
				Peak	2310.000	-45.18	≤-21.20	50.02	≤74	PASS
				Peak	2322.050	-39.71	≤-21.20	55.49	≤74	PASS
				Peak	2390.000	-44.61	≤-21.20	50.59	≤74	PASS
		High	2480	AV	2483.500	-46.88	≤-41.20	48.32	≤54	PASS
				AV	2483.520	-46.88	≤-41.20	48.32	≤54	PASS
				AV	2500.000	-48.75	≤-41.20	46.45	≤54	PASS
				Peak	2483.500	-43.27	≤-21.20	51.93	≤74	PASS
				Peak	2493.520	-40.78	≤-21.20	54.42	≤74	PASS
				Peak	2500.000	-42.4	≤-21.20	52.80	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.42	≤-41.20	45.78	≤54	PASS
				AV	2382.845	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2390.000	-48.98	≤-41.20	46.22	≤54	PASS
				Peak	2310.000	-46.31	≤-21.20	48.89	≤74	PASS
				Peak	2331.500	-40.91	≤-21.20	54.29	≤74	PASS
				Peak	2390.000	-45.16	≤-21.20	50.04	≤74	PASS
		High	2480	AV	2483.500	-46.92	≤-41.20	48.28	≤54	PASS
				AV	2483.520	-46.92	≤-41.20	48.28	≤54	PASS
				AV	2500.000	-48.77	≤-41.20	46.43	≤54	PASS
				Peak	2483.500	-42.01	≤-21.20	53.19	≤74	PASS

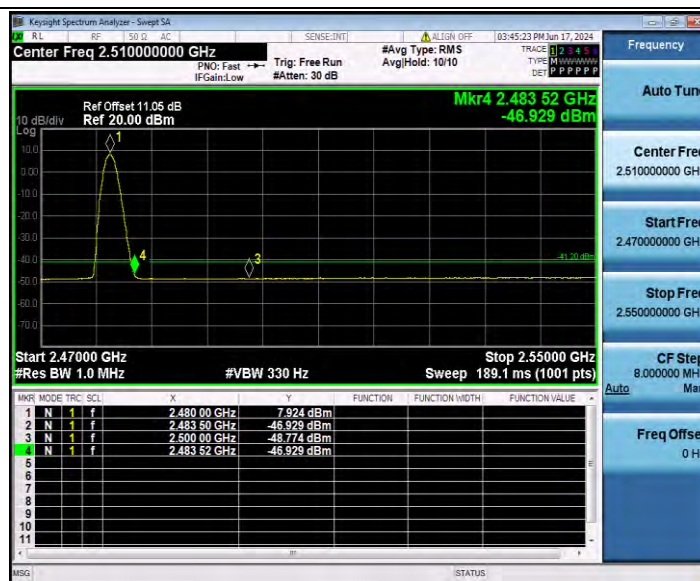
				Peak	2486.400	-38.93	≤-21.20	56.27	≤74	PASS
				Peak	2500.000	-43.76	≤-21.20	51.44	≤74	PASS

Note:

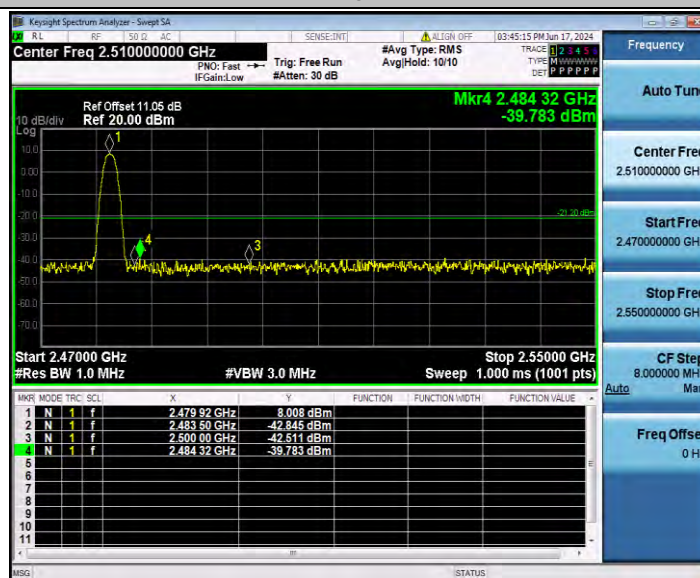
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

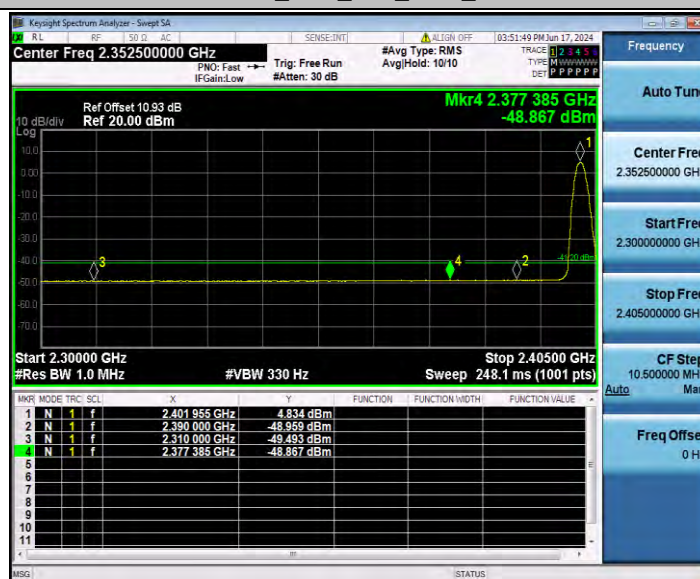




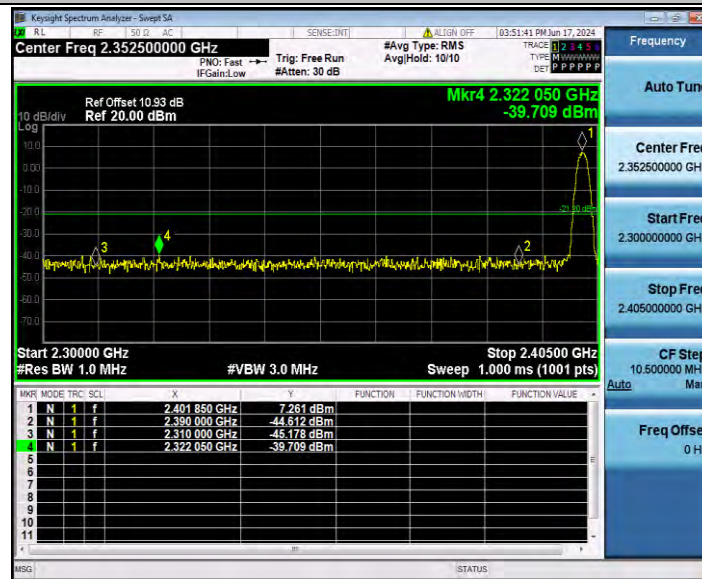
DH1_Ant1_High_2480_Peak



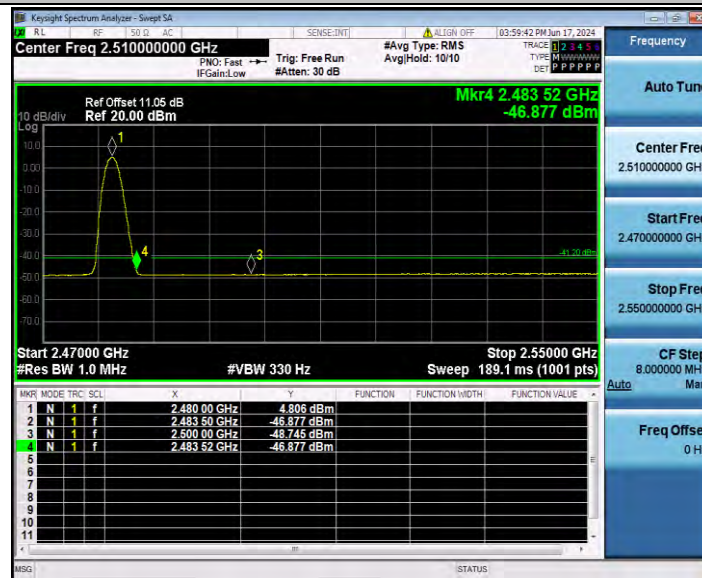
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

