

Case No. : <u>CTA24081600101</u>	
Ambient Condition: <u>23</u> °C, <u>51</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.8.14</u>	Test Engineer: <u>Lushan Kong</u>

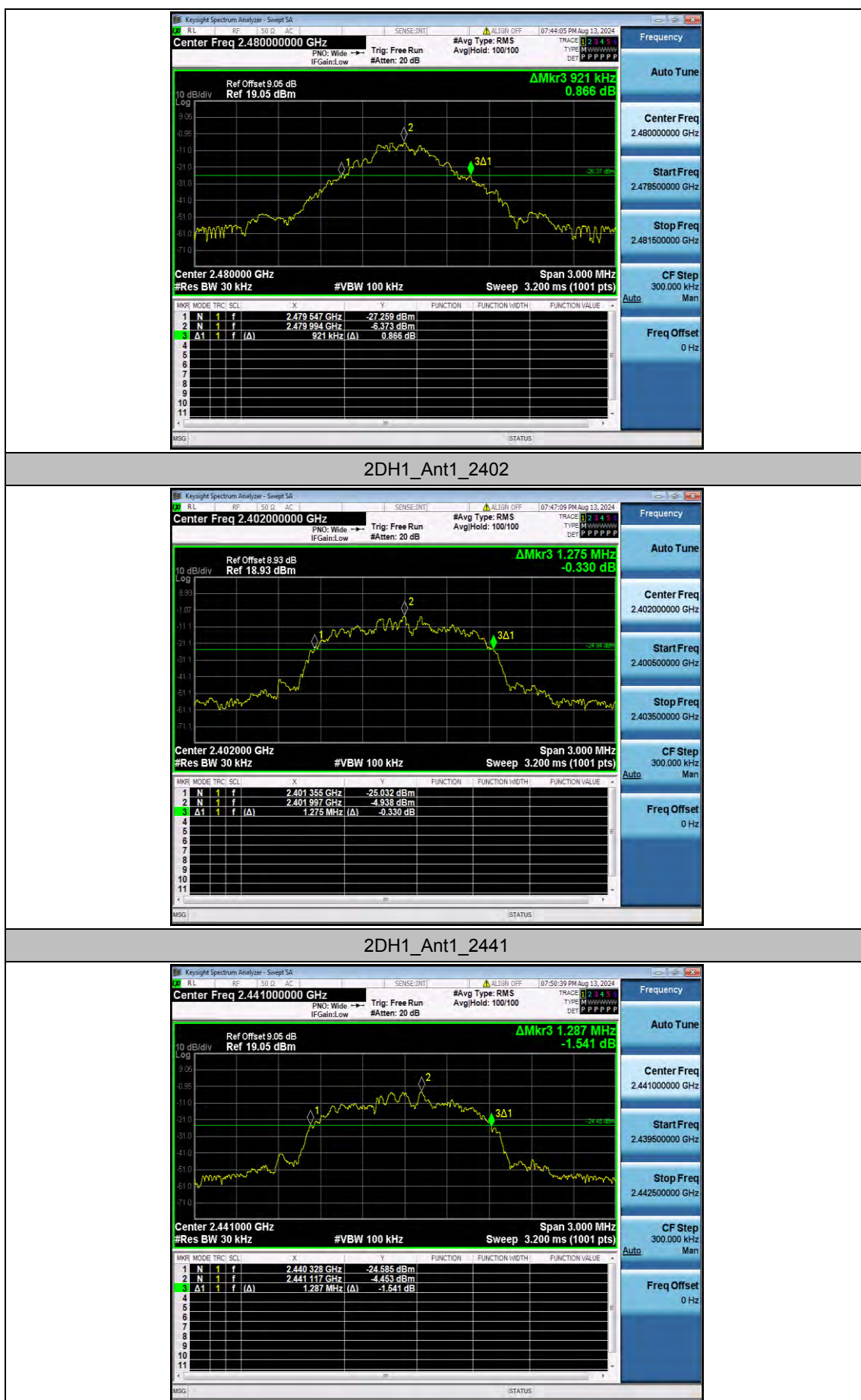
Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.927	2401.535	2402.462	---	---
		2441	0.936	2440.535	2441.471	---	---
		2480	0.921	2479.547	2480.468	---	---
2DH1	Ant1	2402	1.275	2401.355	2402.630	---	---
		2441	1.287	2440.328	2441.615	---	---
		2480	1.299	2479.328	2480.627	---	---
3DH1	Ant1	2402	1.236	2401.379	2402.615	---	---
		2441	1.230	2440.388	2441.618	---	---
		2480	1.224	2479.394	2480.618	---	---

Test Graphs





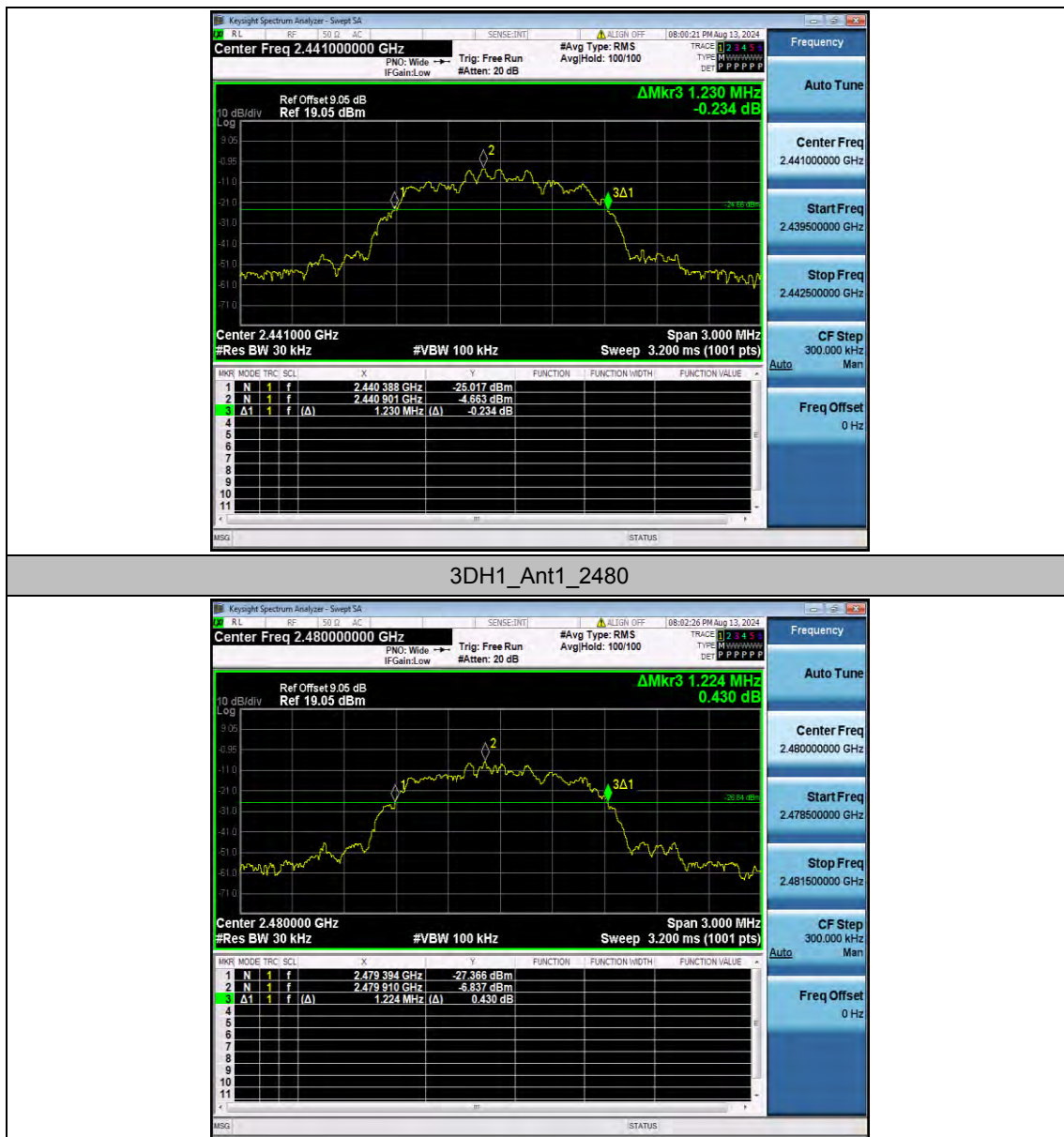
2DH1_Ant1_2480



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	0.83396	2401.5759	2402.4099	---	---
		2441	0.82516	2440.5787	2441.4039	---	---
		2480	0.83186	2479.5696	2480.4015	---	---
2DH1	Ant1	2402	1.1580	2401.4033	2402.5613	---	---
		2441	1.1582	2440.4034	2441.5616	---	---
		2480	1.1592	2479.4024	2480.5616	---	---
3DH1	Ant1	2402	1.1321	2401.4334	2402.5655	---	---
		2441	1.1362	2440.4289	2441.5651	---	---
		2480	1.1527	2479.4249	2480.5776	---	---

Test Graphs

DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



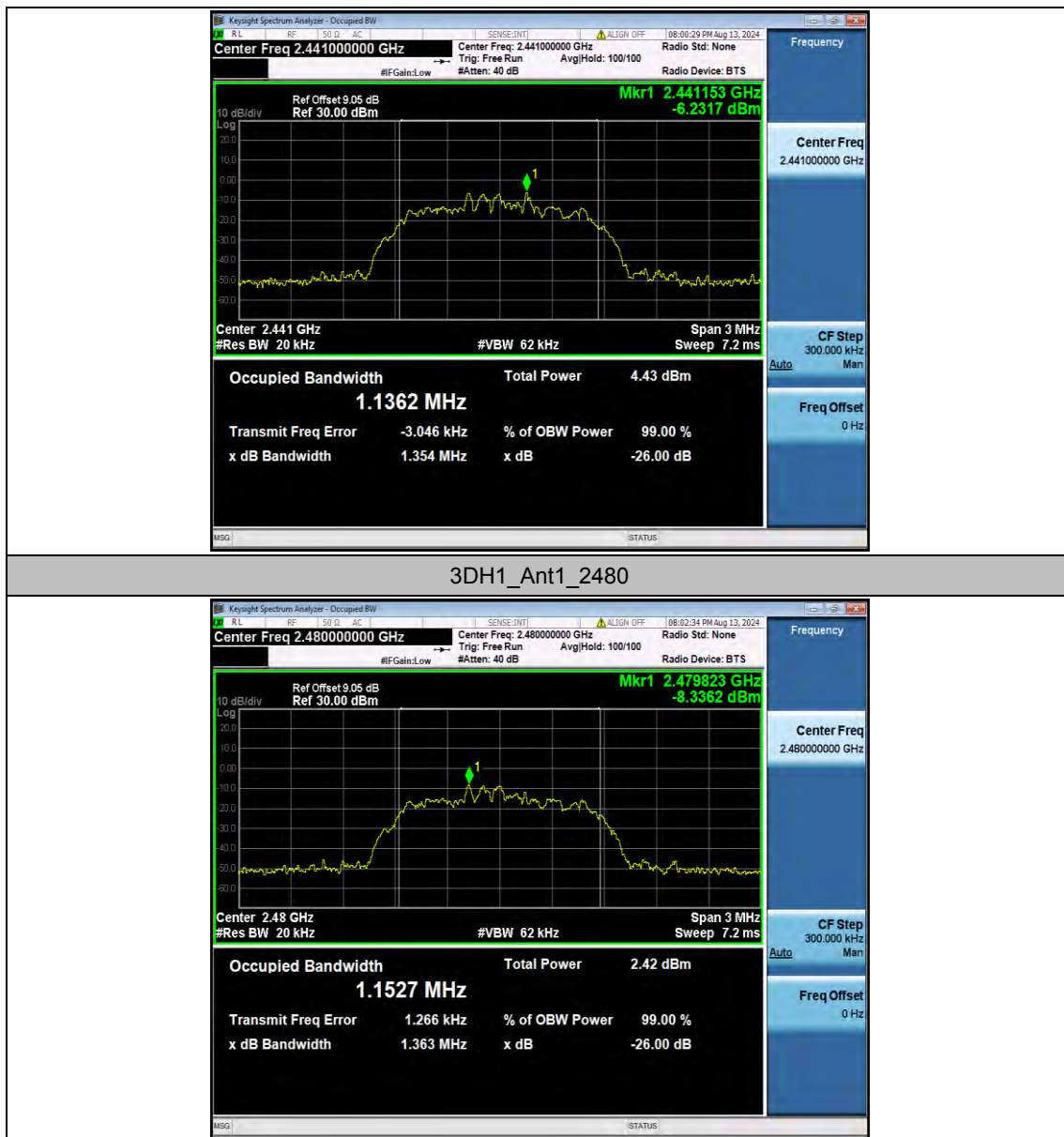
2DH1_Ant1_2480



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	-2.43	≤30.00	PASS
		2441	-1.88	≤30.00	PASS
		2480	-3.50	≤30.00	PASS
2DH1	Ant1	2402	-0.44	≤20.97	PASS
		2441	0.24	≤20.97	PASS
		2480	-1.55	≤20.97	PASS
3DH1	Ant1	2402	0.38	≤20.97	PASS
		2441	0.95	≤20.97	PASS
		2480	-0.90	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	1.158	≥ 0.936	PASS
		Hop_2441	0.994	≥ 0.936	PASS
		Hop_2480	1.174	≥ 0.936	PASS
2DH1	Ant1	Hop_2402	1.282	≥ 0.866	PASS
		Hop_2441	1.298	≥ 0.866	PASS
		Hop_2480	1	≥ 0.866	PASS
3DH1	Ant1	Hop_2402	1.16	≥ 0.824	PASS
		Hop_2441	1.004	≥ 0.824	PASS
		Hop_2480	0.998	≥ 0.824	PASS

Test Graphs

DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



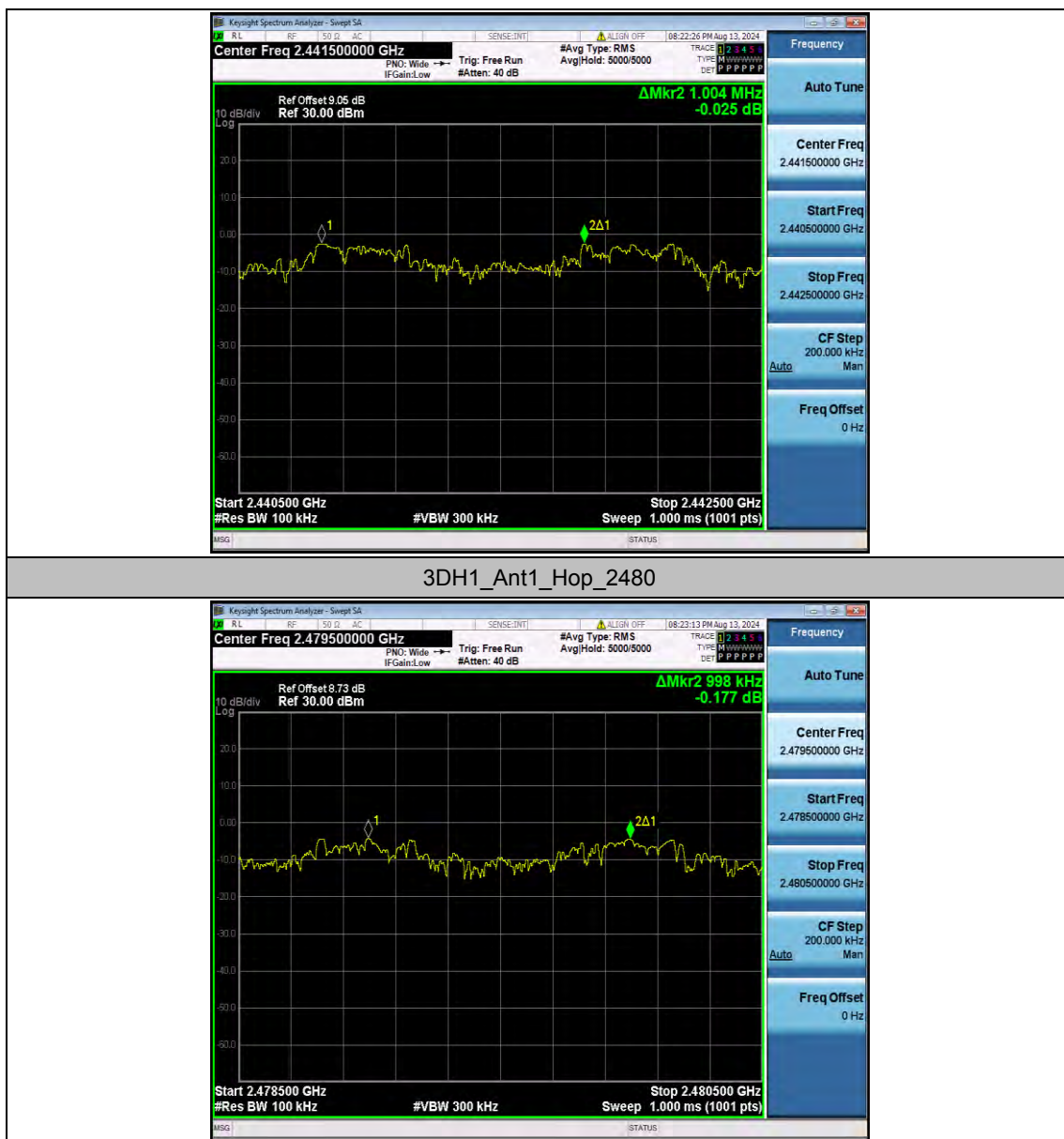
2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441

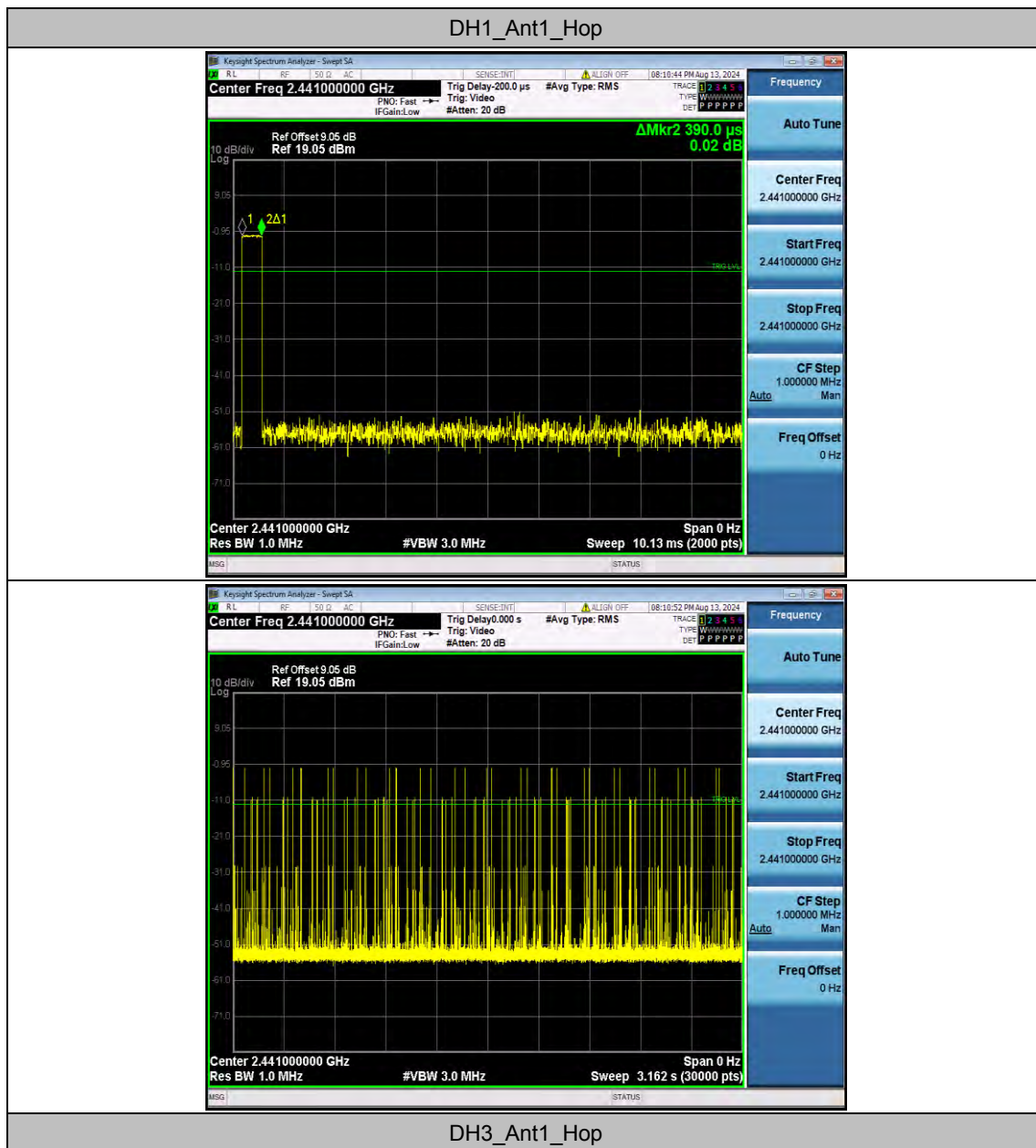


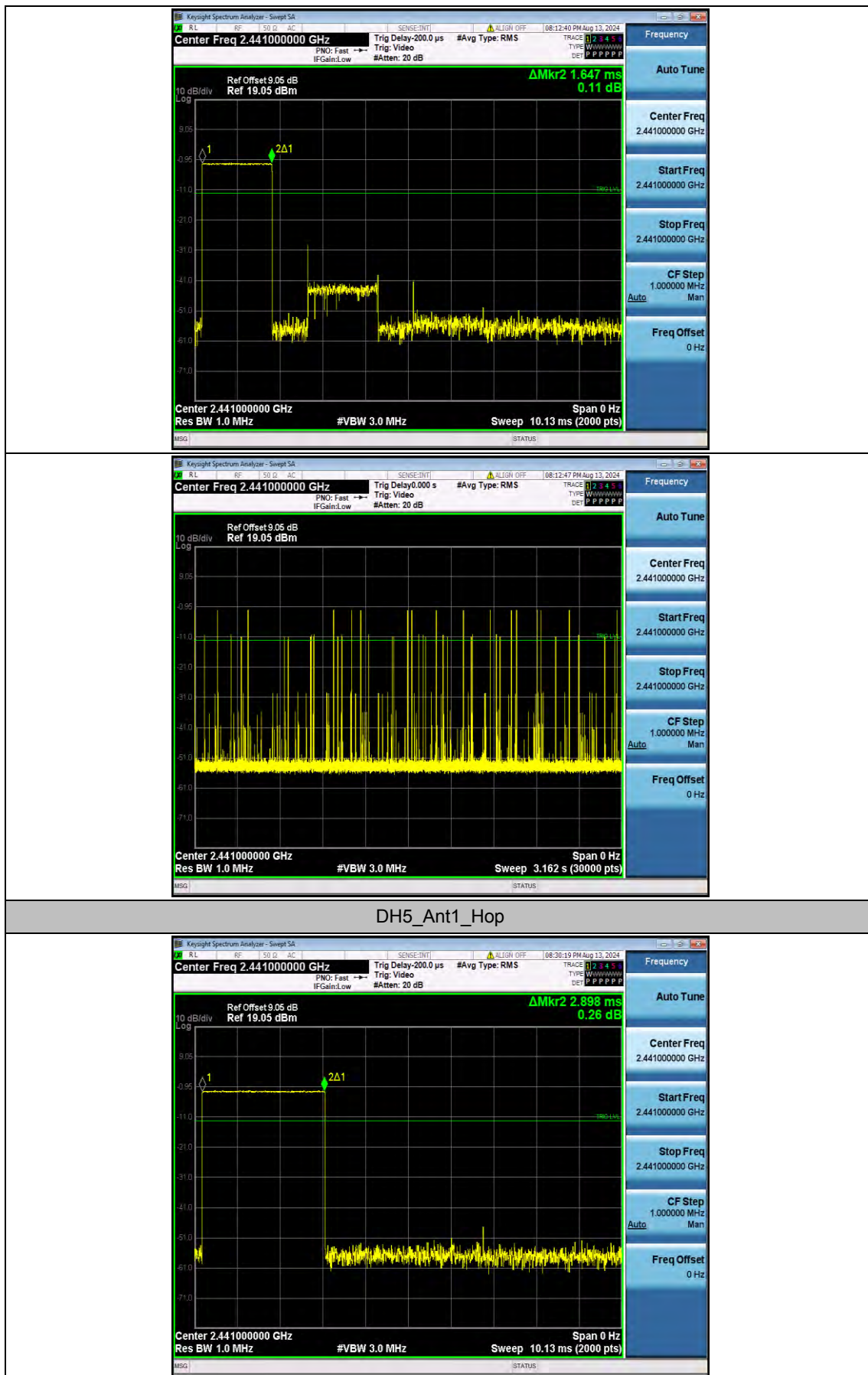
Appendix A.5: Time of occupancy

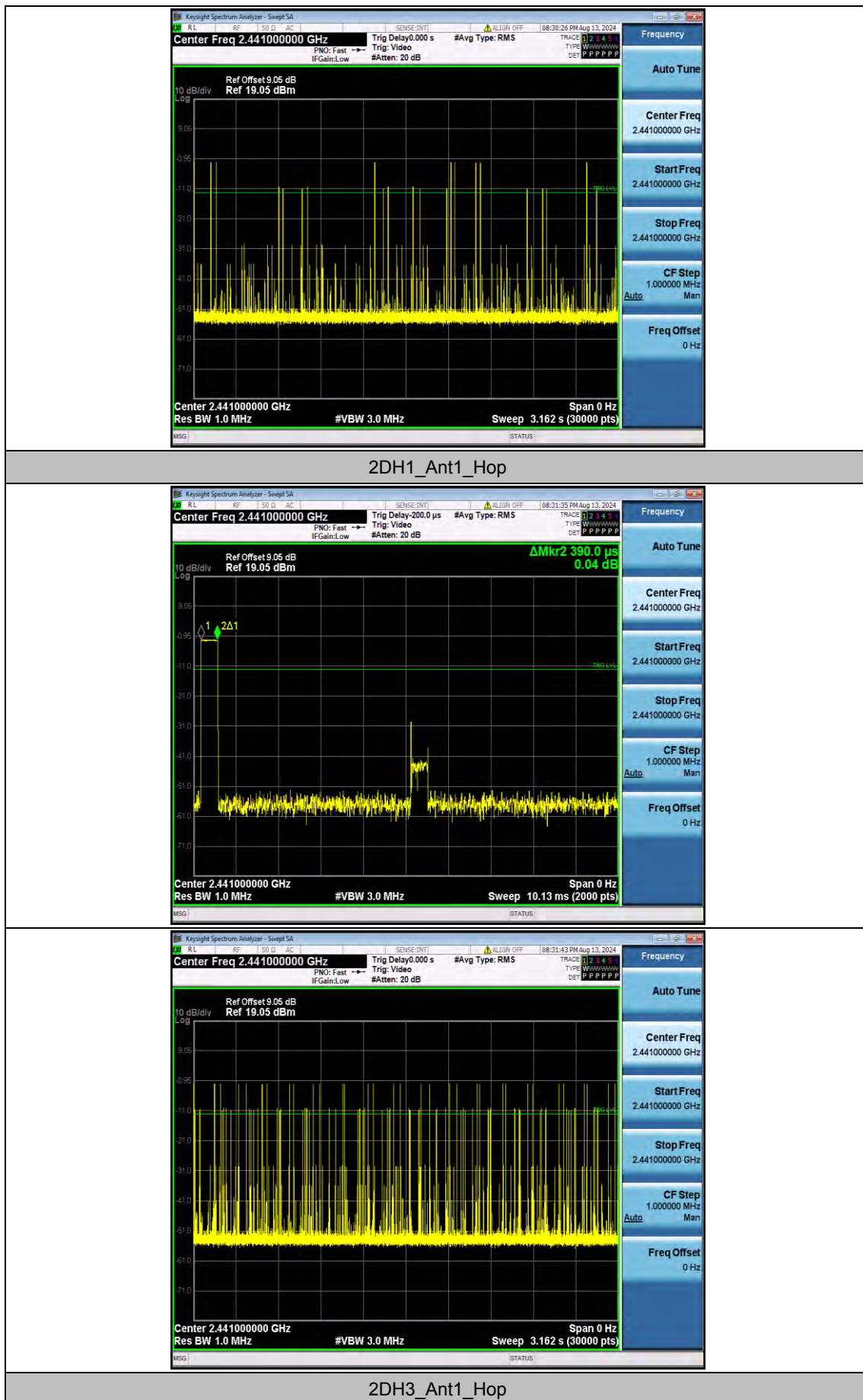
Test Result

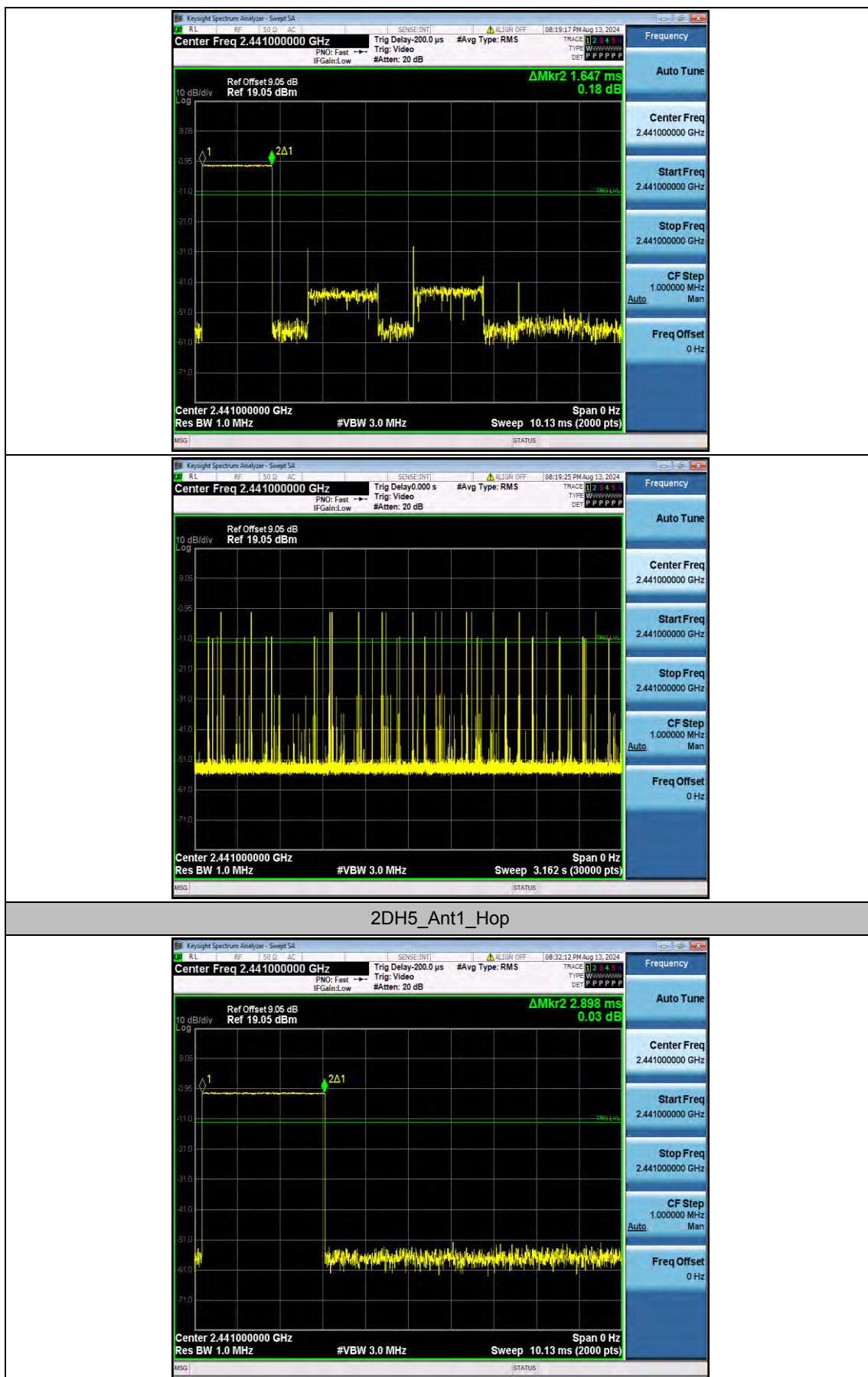
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.390	320	0.125	≤0.4	PASS
DH3	Ant1	Hop	1.647	170	0.28	≤0.4	PASS
DH5	Ant1	Hop	2.898	90	0.261	≤0.4	PASS
2DH1	Ant1	Hop	0.390	330	0.129	≤0.4	PASS
2DH3	Ant1	Hop	1.647	170	0.28	≤0.4	PASS
2DH5	Ant1	Hop	2.898	90	0.261	≤0.4	PASS
3DH1	Ant1	Hop	0.376	320	0.12	≤0.4	PASS
3DH3	Ant1	Hop	1.652	140	0.231	≤0.4	PASS
3DH5	Ant1	Hop	2.898	120	0.348	≤0.4	PASS

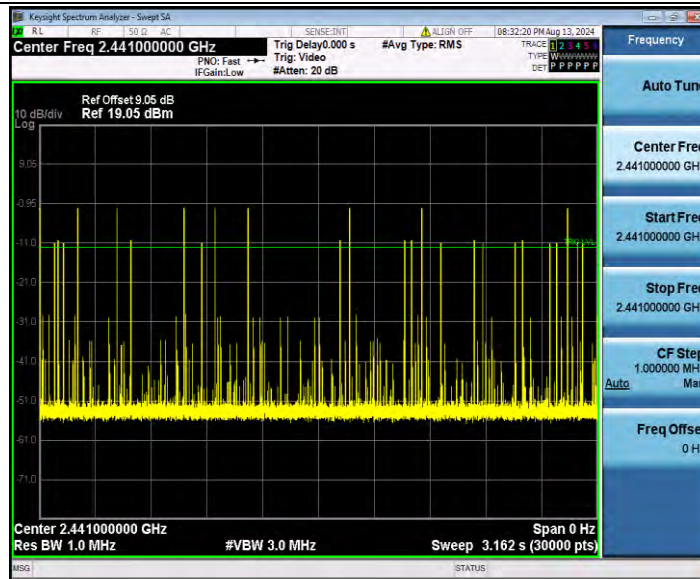
Test Graphs



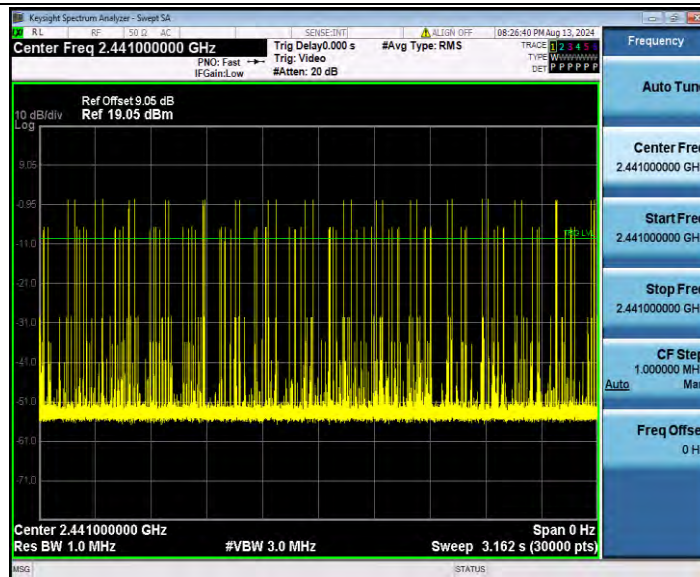
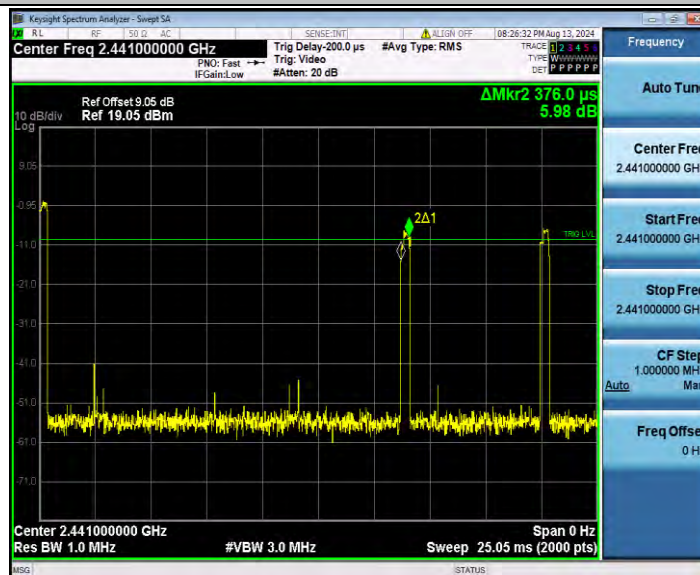




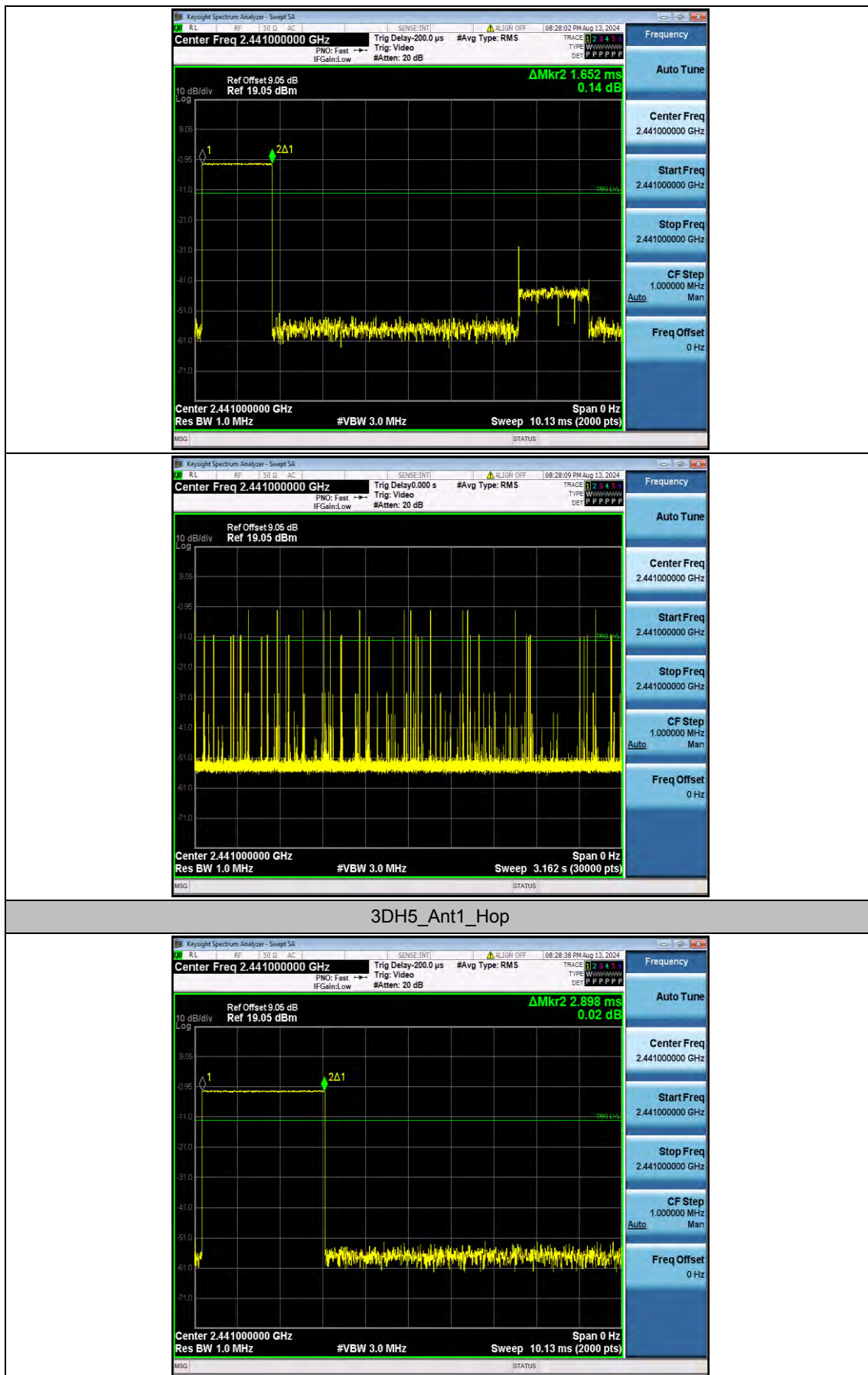


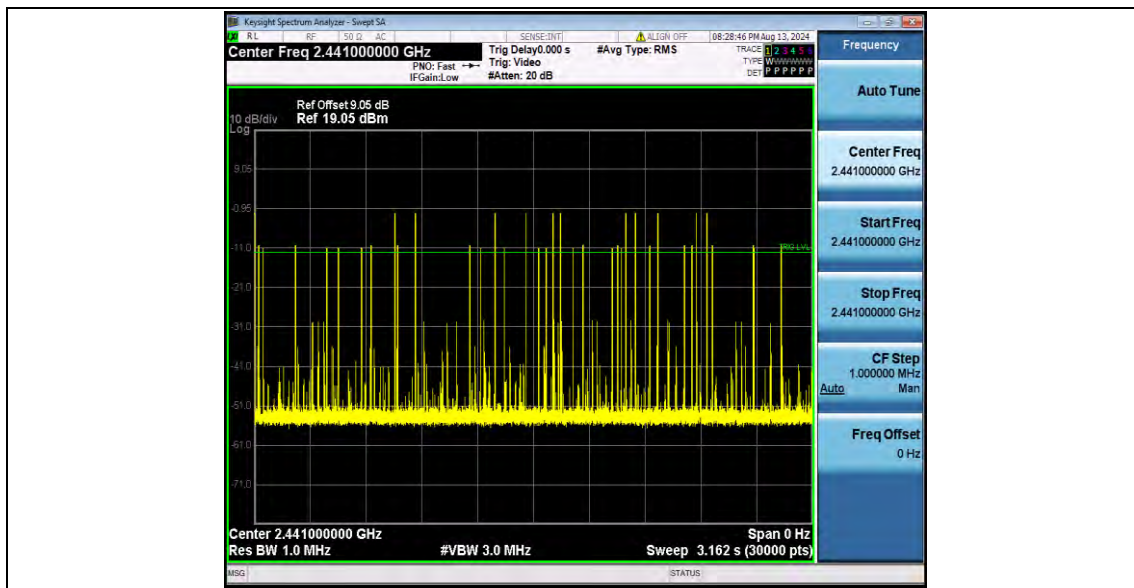


3DH1_Ant1_Hop



3DH3_Ant1_Hop



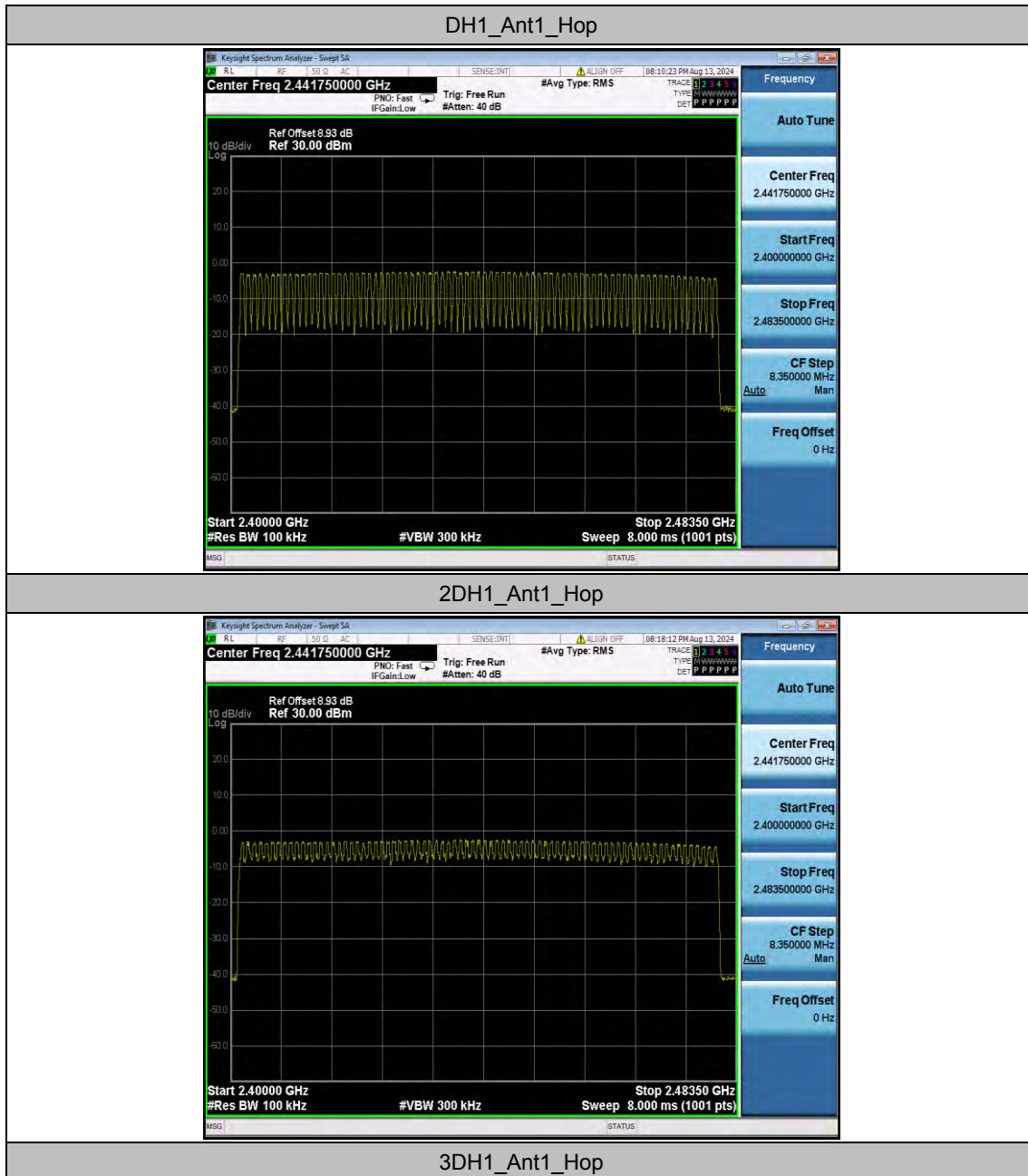


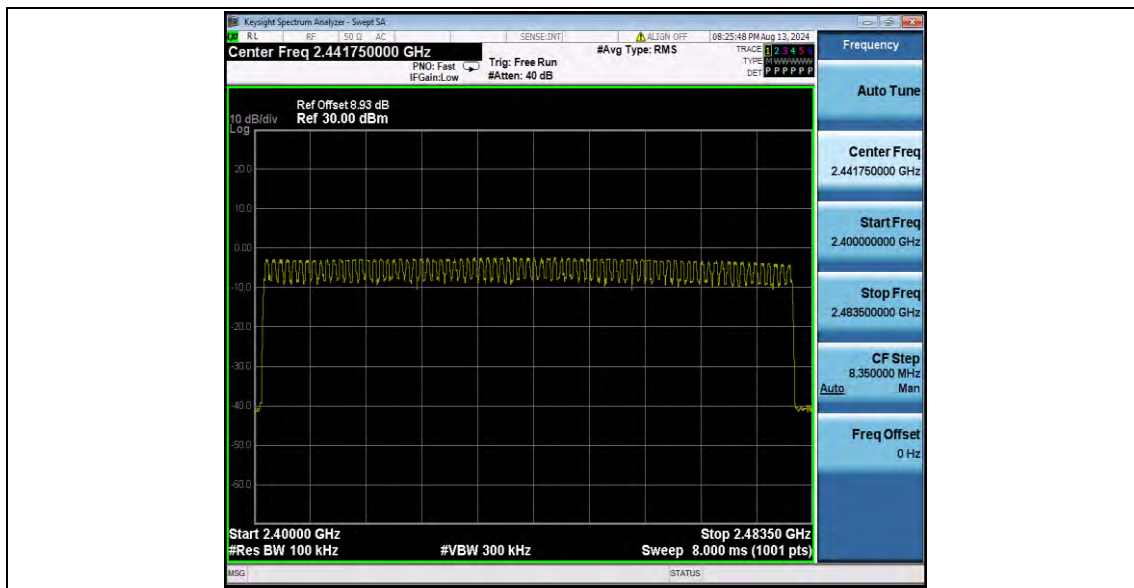
Appendix A.6: Number of hopping channels

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





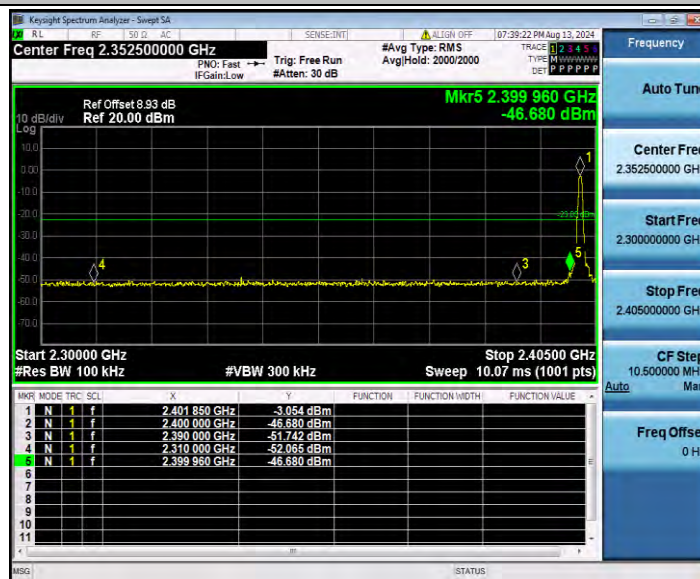
Appendix A.7: Band edge measurements

Test Result

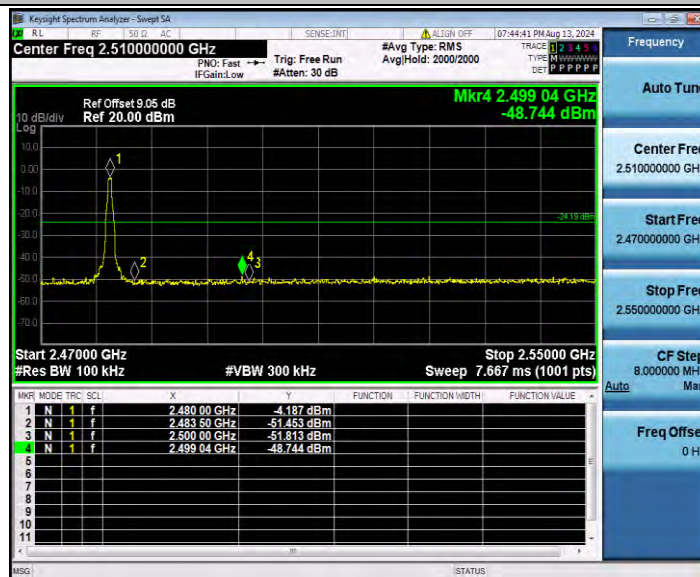
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	-3.05	-46.68	≤ -23.05	PASS
		High	2480	-4.19	-48.74	≤ -24.19	PASS
		Low	Hop_2402	-3.01	-49.6	≤ -23.01	PASS
		High	Hop_2480	-3.37	-48.66	≤ -23.37	PASS
2DH1	Ant1	Low	2402	-2.99	-48.2	≤ -22.99	PASS
		High	2480	-4.01	-48.99	≤ -24.01	PASS
		Low	Hop_2402	-3.18	-49.92	≤ -23.18	PASS
		High	Hop_2480	-3.29	-49.08	≤ -23.29	PASS
3DH1	Ant1	Low	2402	-2.89	-48.13	≤ -22.89	PASS
		High	2480	-3.95	-49.11	≤ -23.95	PASS
		Low	Hop_2402	-3.66	-49.8	≤ -23.66	PASS
		High	Hop_2480	-3.54	-48.67	≤ -23.54	PASS

Test Graphs

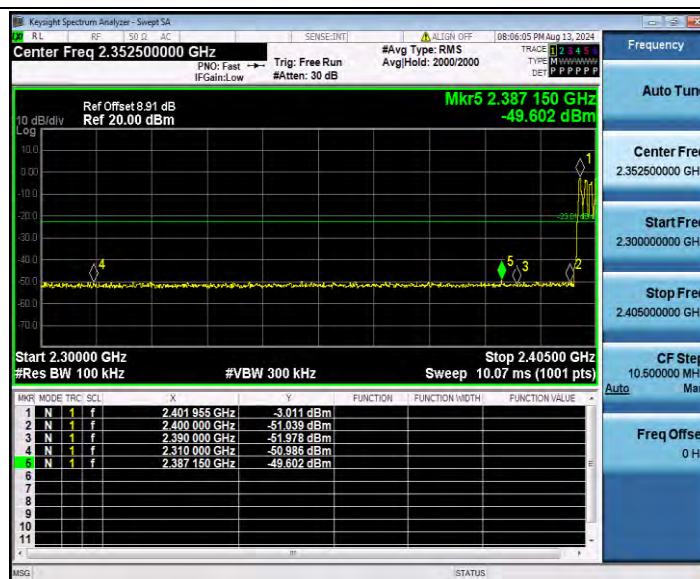
DH1_Ant1_Low_2402



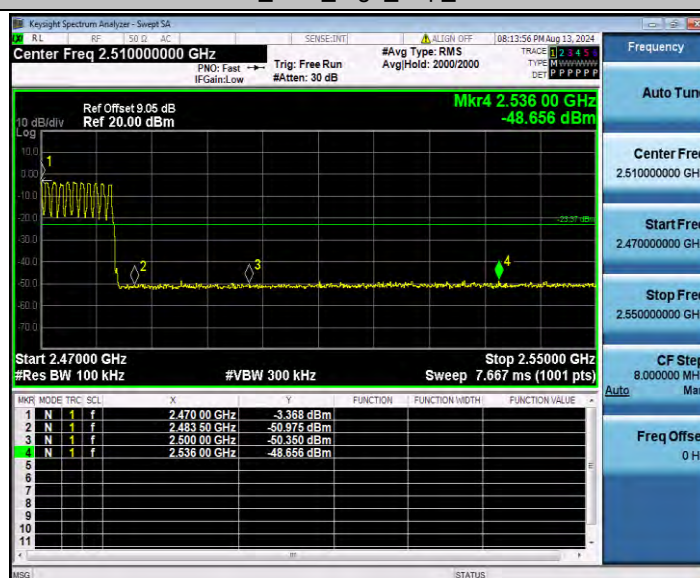
DH1_Ant1_High_2480



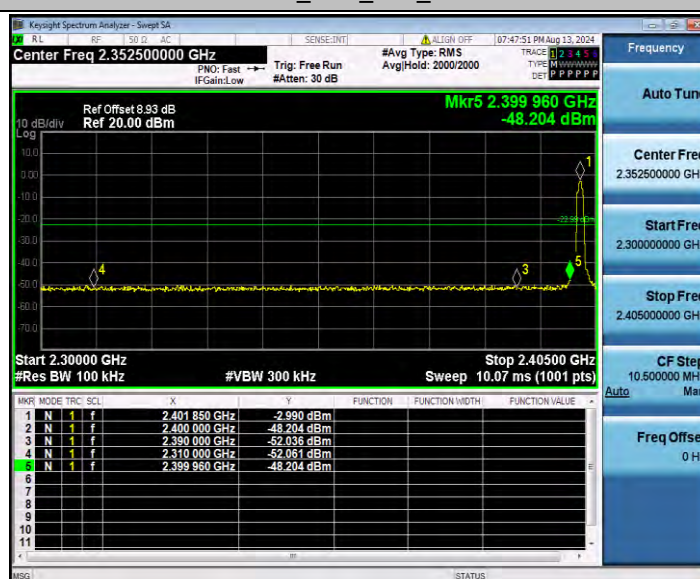
DH1_Ant1_Low_Hop_2402



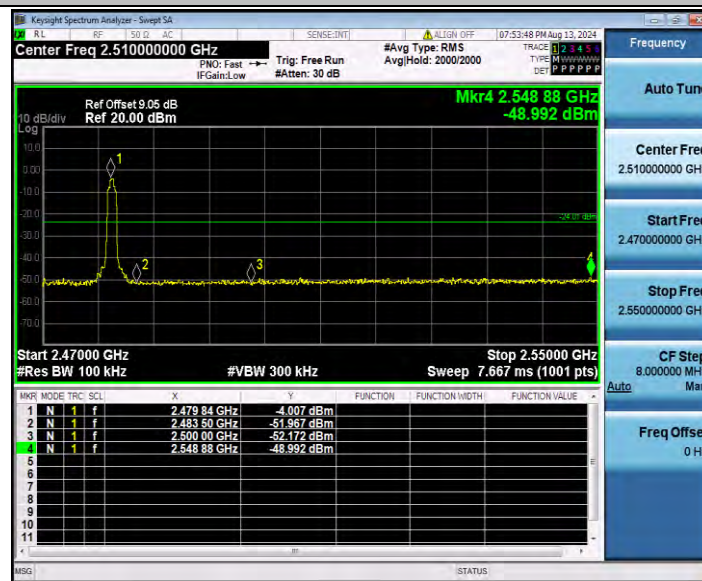
DH1_Ant1_High_Hop_2480



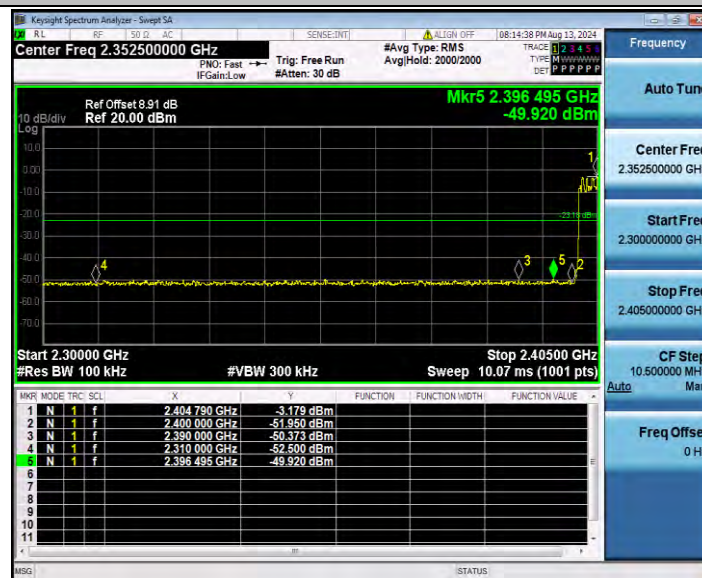
2DH1_Ant1_Low_2402



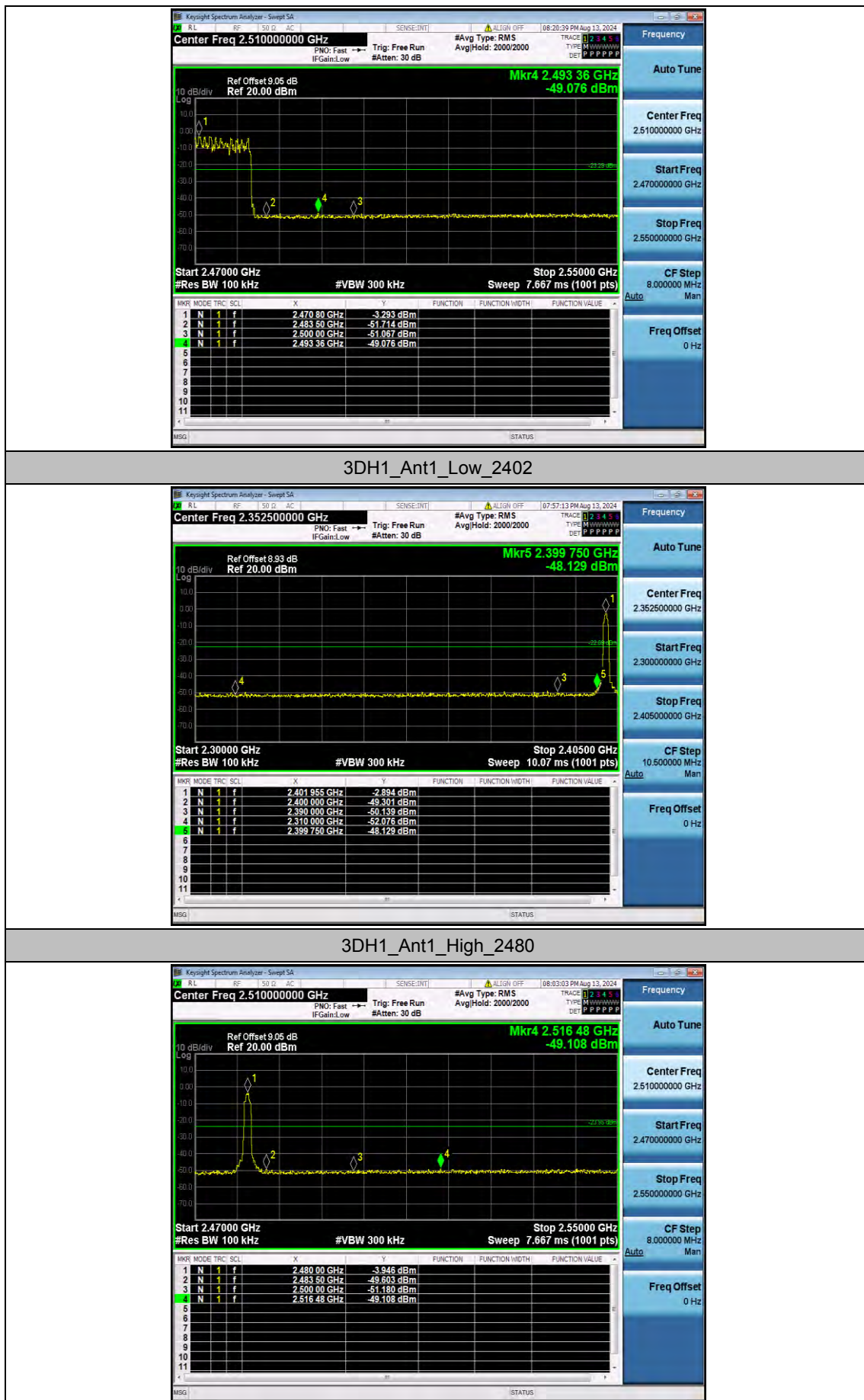
2DH1_Ant1_High_2480



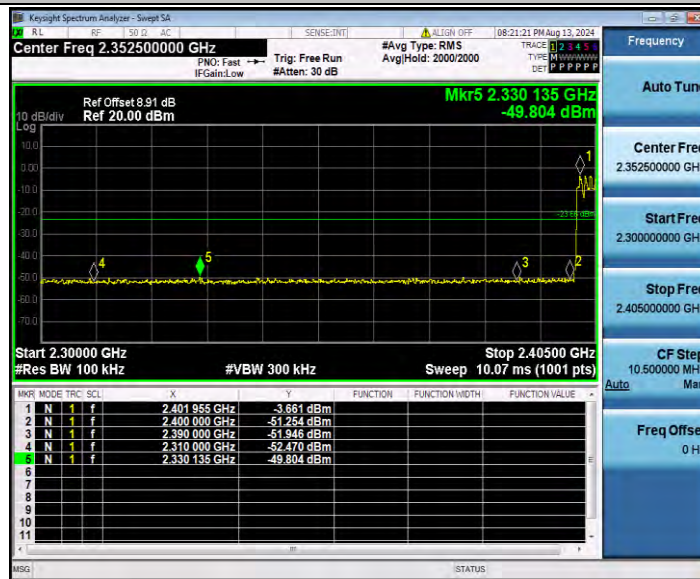
2DH1_Ant1_Low_Hop_2402



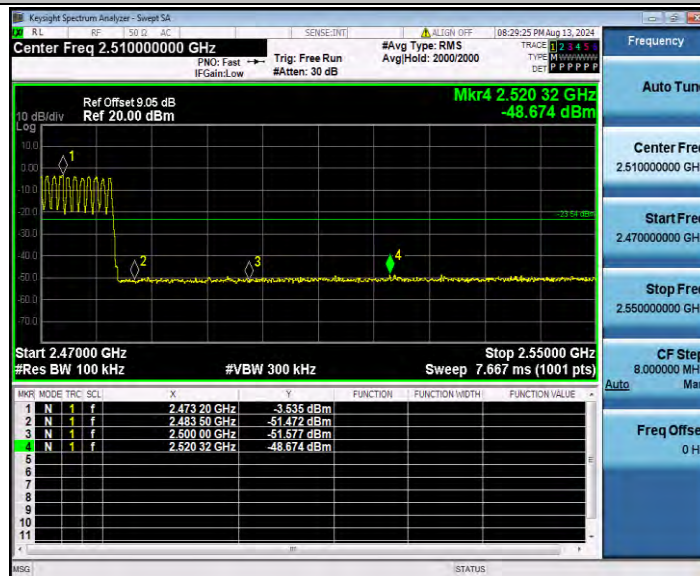
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

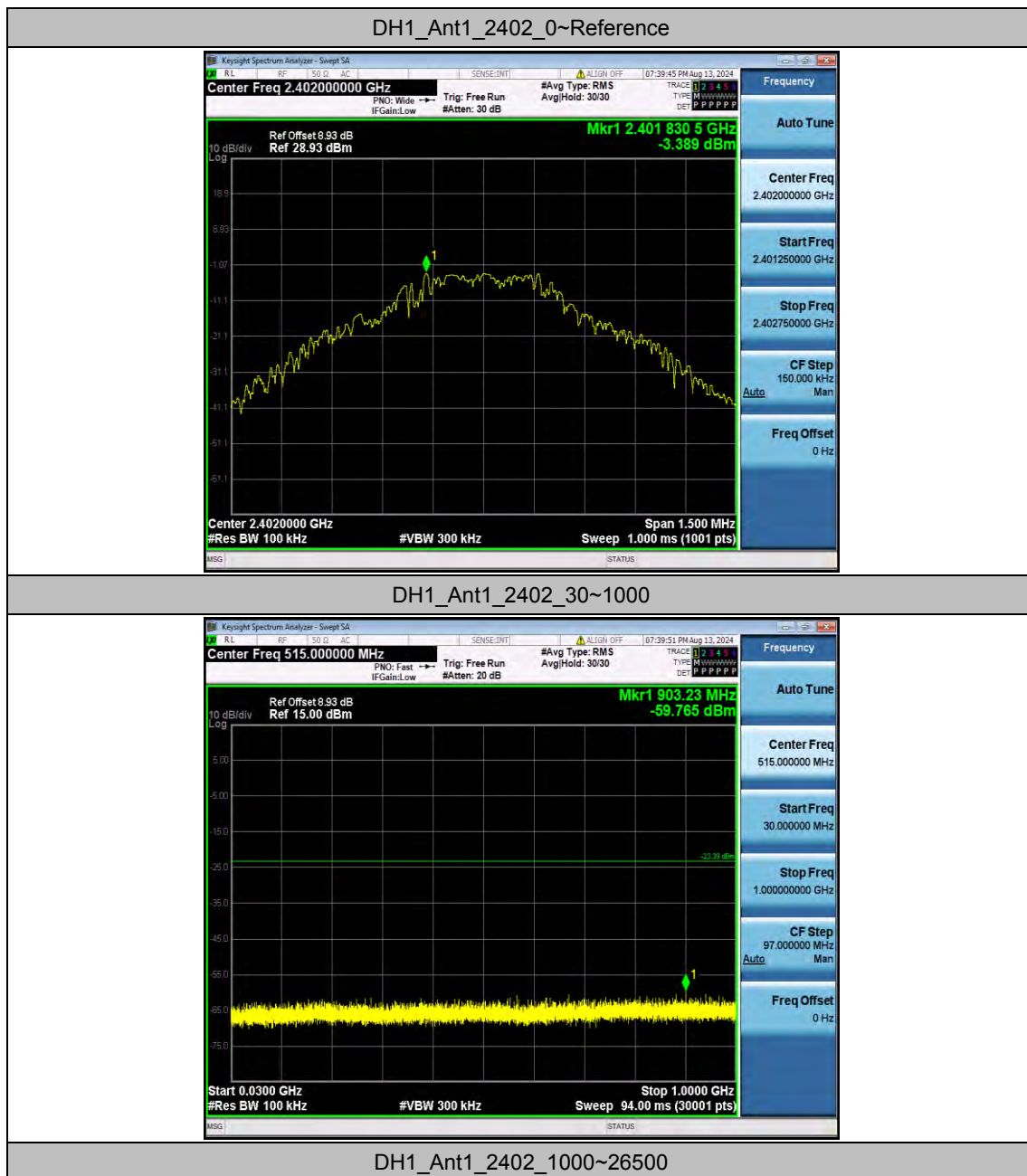


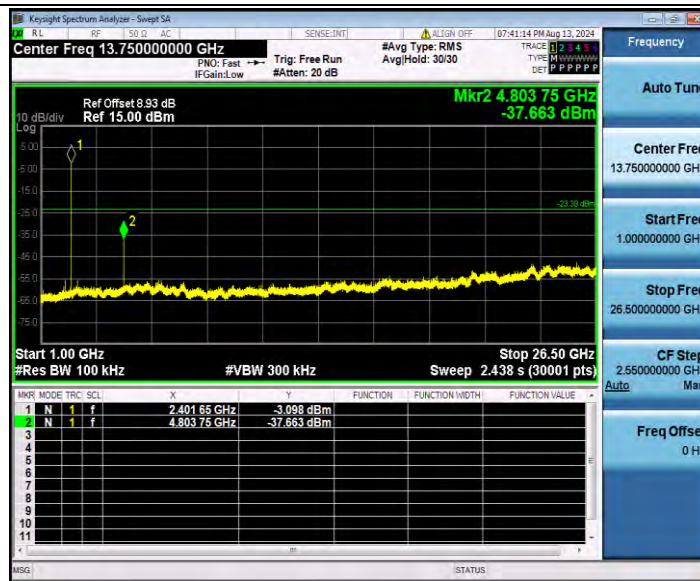
Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	-3.39	-3.39	---	PASS
			30~1000	-3.39	-59.77	≤ -23.39	PASS
			1000~26500	-3.39	-37.66	≤ -23.39	PASS
		2441	Reference	-2.58	-2.58	---	PASS
			30~1000	-2.58	-60.56	≤ -22.58	PASS
			1000~26500	-2.58	-38.78	≤ -22.58	PASS
		2480	Reference	-4.39	-4.39	---	PASS
			30~1000	-4.39	-60.69	≤ -24.39	PASS
			1000~26500	-4.39	-41.11	≤ -24.39	PASS
2DH1	Ant1	2402	Reference	-3.21	-3.21	---	PASS
			30~1000	-3.21	-60.89	≤ -23.21	PASS
			1000~26500	-3.21	-35.03	≤ -23.21	PASS
		2441	Reference	-2.63	-2.63	---	PASS
			30~1000	-2.63	-60.84	≤ -22.63	PASS
			1000~26500	-2.63	-38.14	≤ -22.63	PASS
		2480	Reference	-4.37	-4.37	---	PASS
			30~1000	-4.37	-60.64	≤ -24.37	PASS
			1000~26500	-4.37	-41.41	≤ -24.37	PASS
3DH1	Ant1	2402	Reference	-3.77	-3.77	---	PASS
			30~1000	-3.77	-61.2	≤ -23.77	PASS
			1000~26500	-3.77	-36.87	≤ -23.77	PASS
		2441	Reference	-2.56	-2.56	---	PASS
			30~1000	-2.56	-60.09	≤ -22.56	PASS
			1000~26500	-2.56	-41.03	≤ -22.56	PASS
		2480	Reference	-4.16	-4.16	---	PASS
			30~1000	-4.16	-60.44	≤ -24.16	PASS
			1000~26500	-4.16	-42.17	≤ -24.16	PASS

Test Graphs

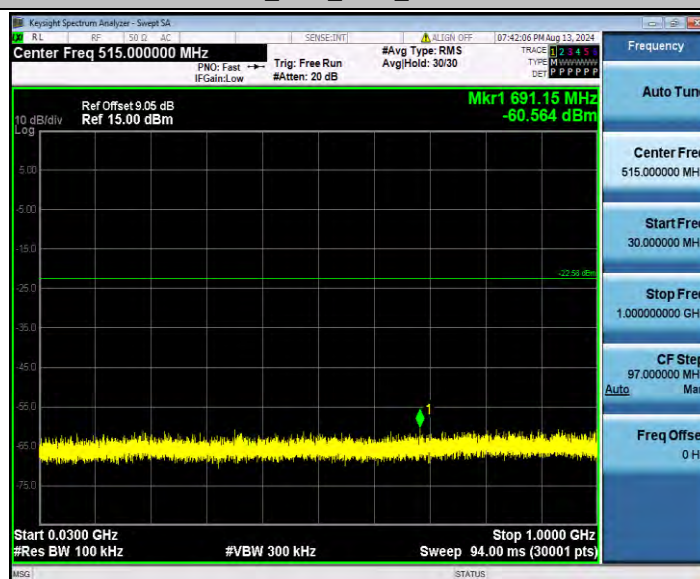




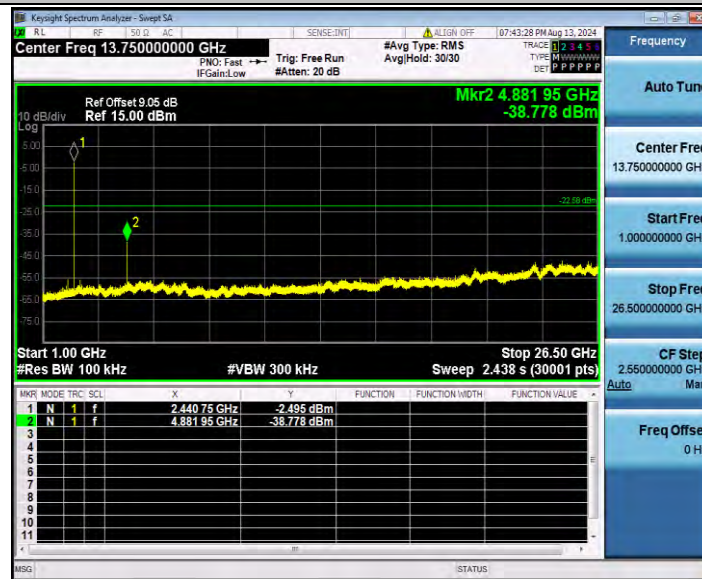
DH1_Ant1_2441_0~Reference



DH1_Ant1_2441_30~1000



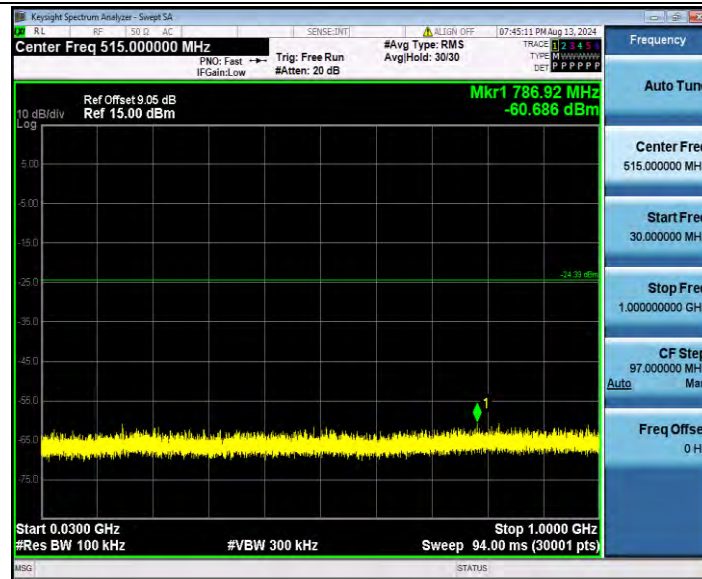
DH1_Ant1_2441_1000~26500



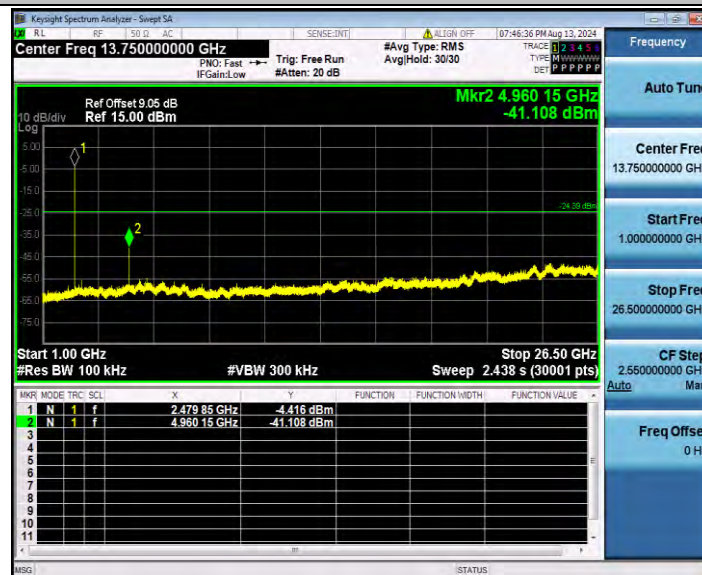
DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

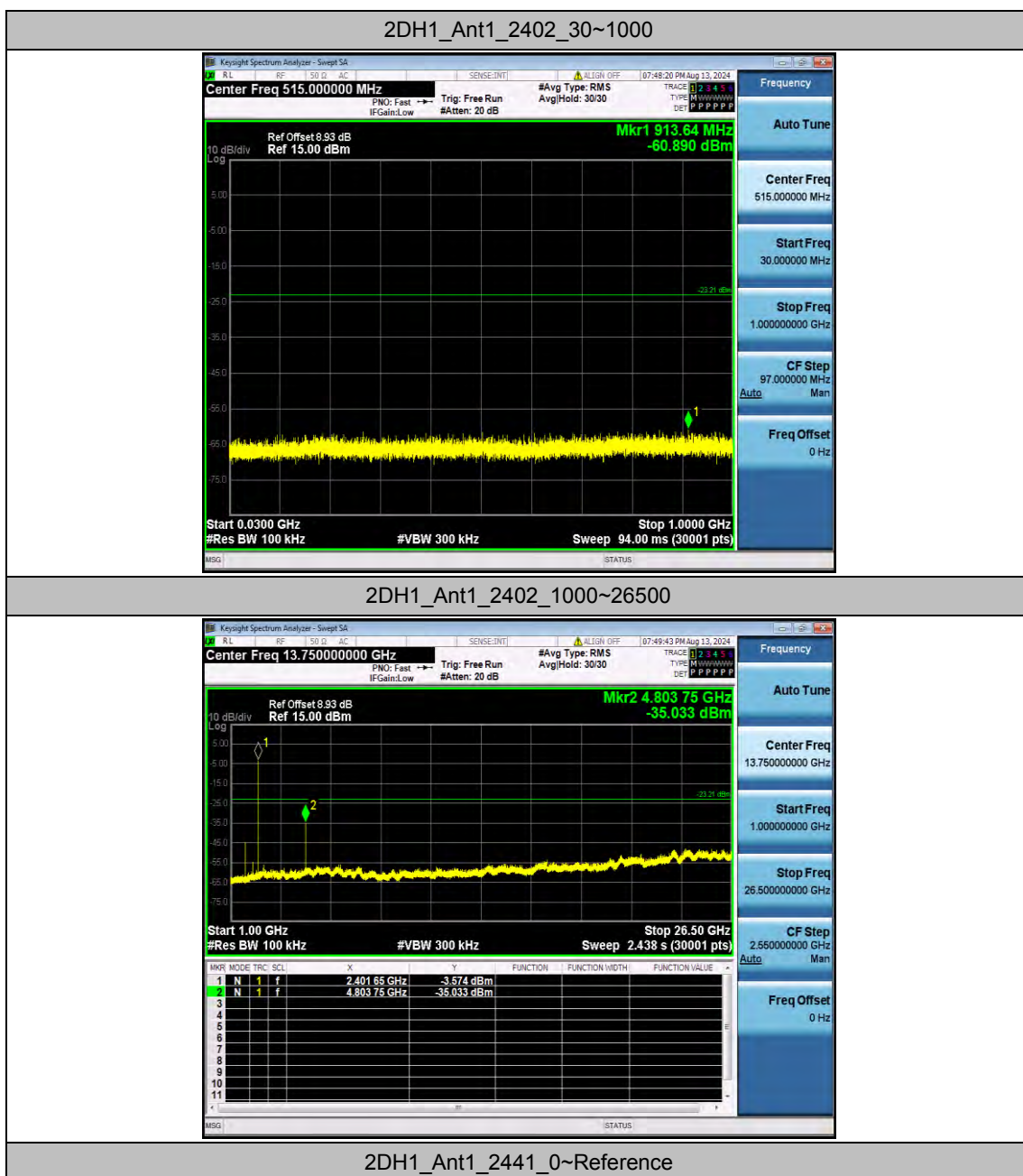


DH1_Ant1_2480_1000~26500



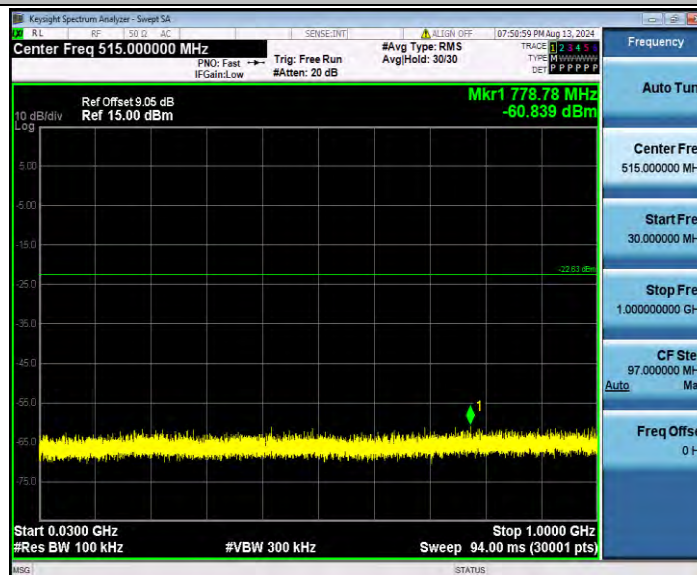
2DH1_Ant1_2402_0~Reference



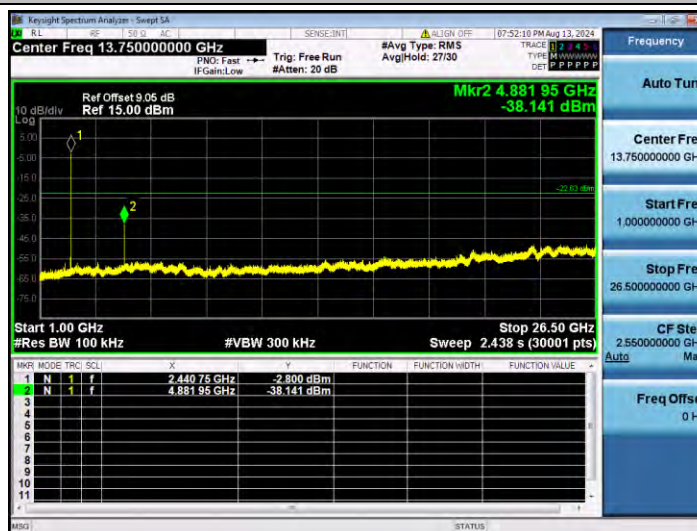




2DH1_Ant1_2441_30~1000



2DH1_Ant1_2441_1000~26500



2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



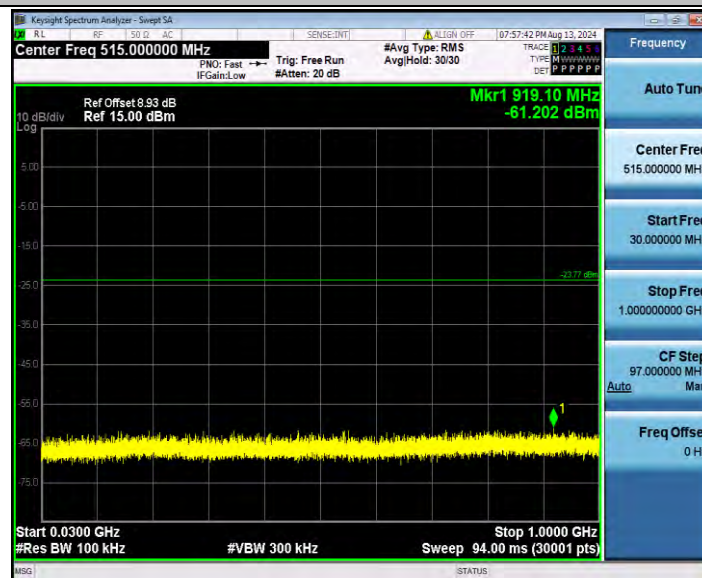
2DH1_Ant1_2480_1000~26500



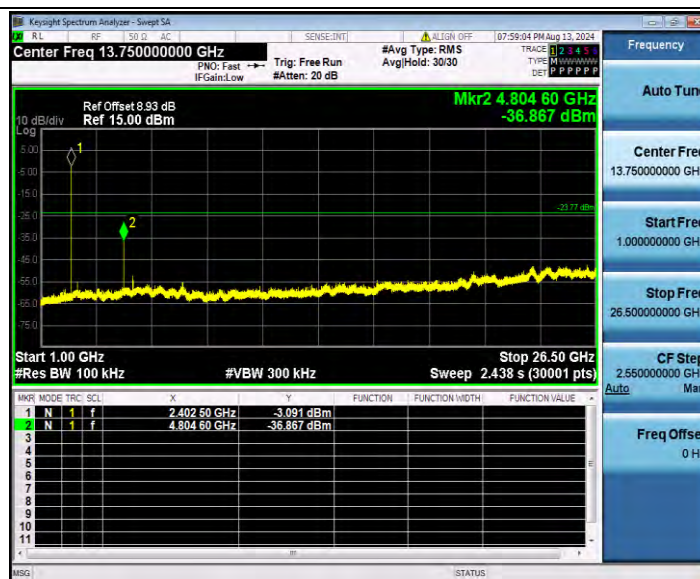
3DH1_Ant1_2402_0~Reference



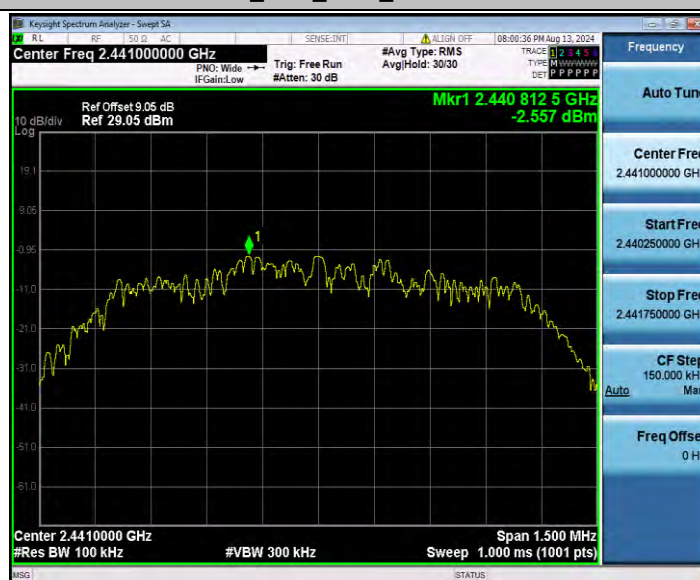
3DH1_Ant1_2402_30~1000



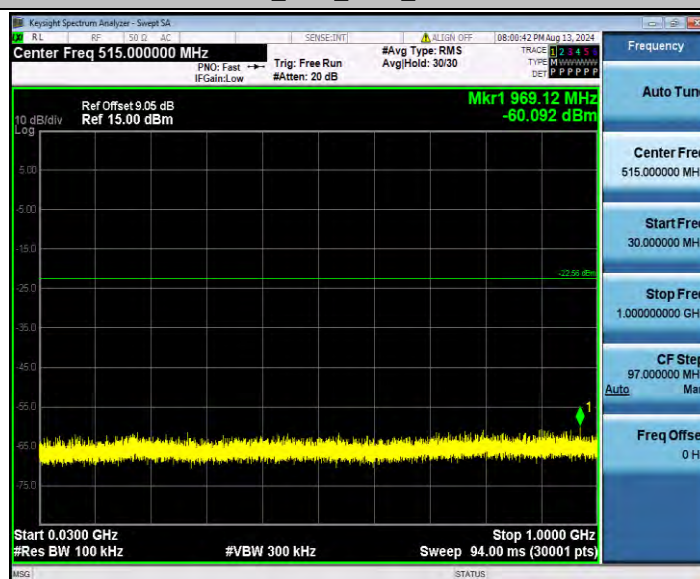
3DH1_Ant1_2402_1000~26500



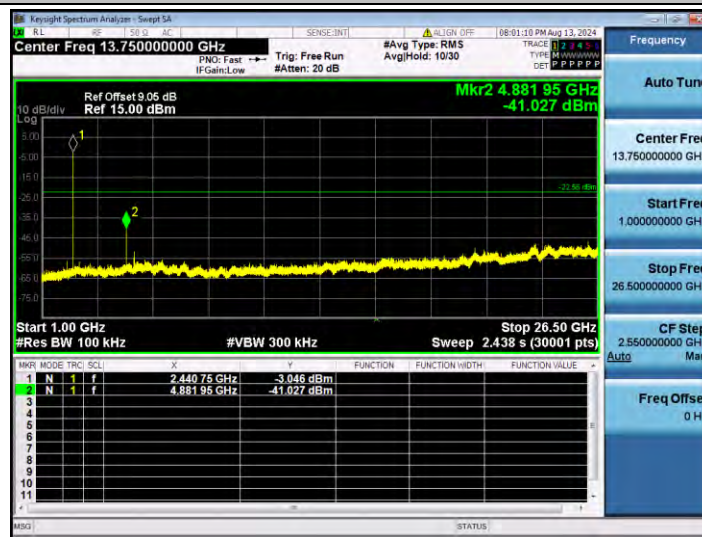
3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000



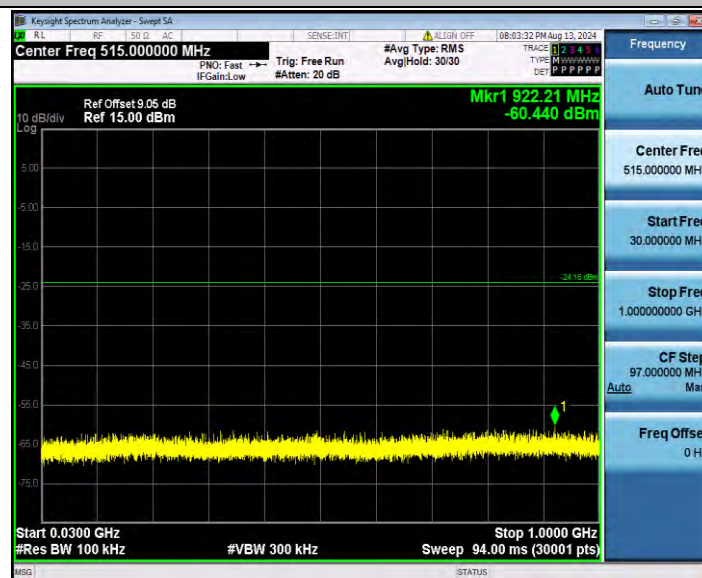
3DH1_Ant1_2441_1000~26500

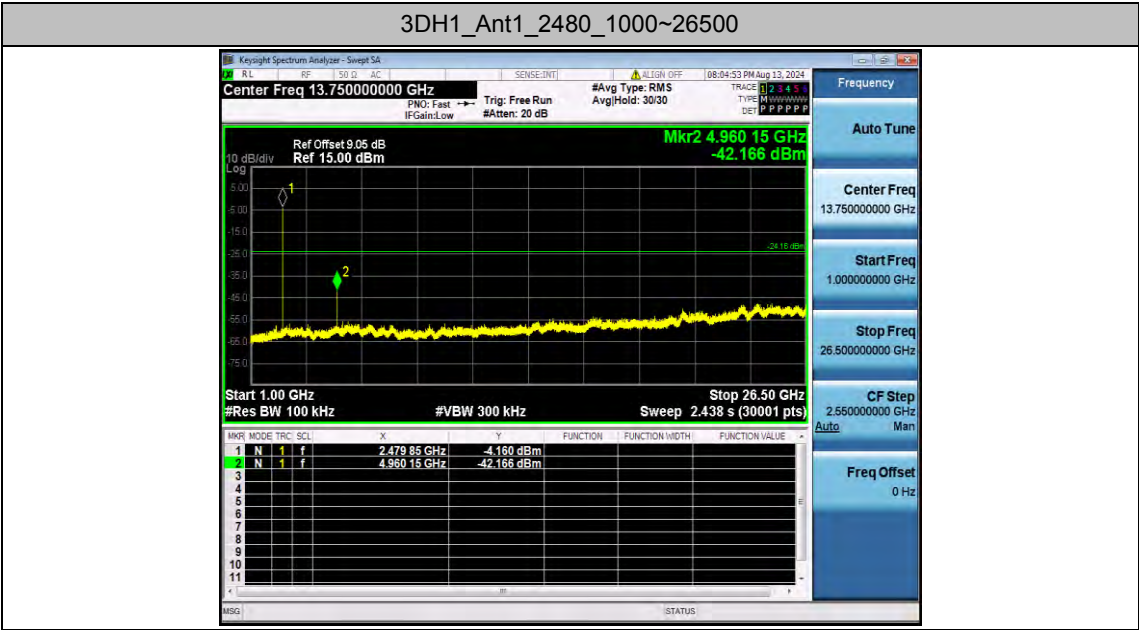


3DH1_Ant1_2480_0~Reference



3DH1_Ant1_2480_30~1000





Appendix A.9: Emissions in Restricted Bands

Test Result

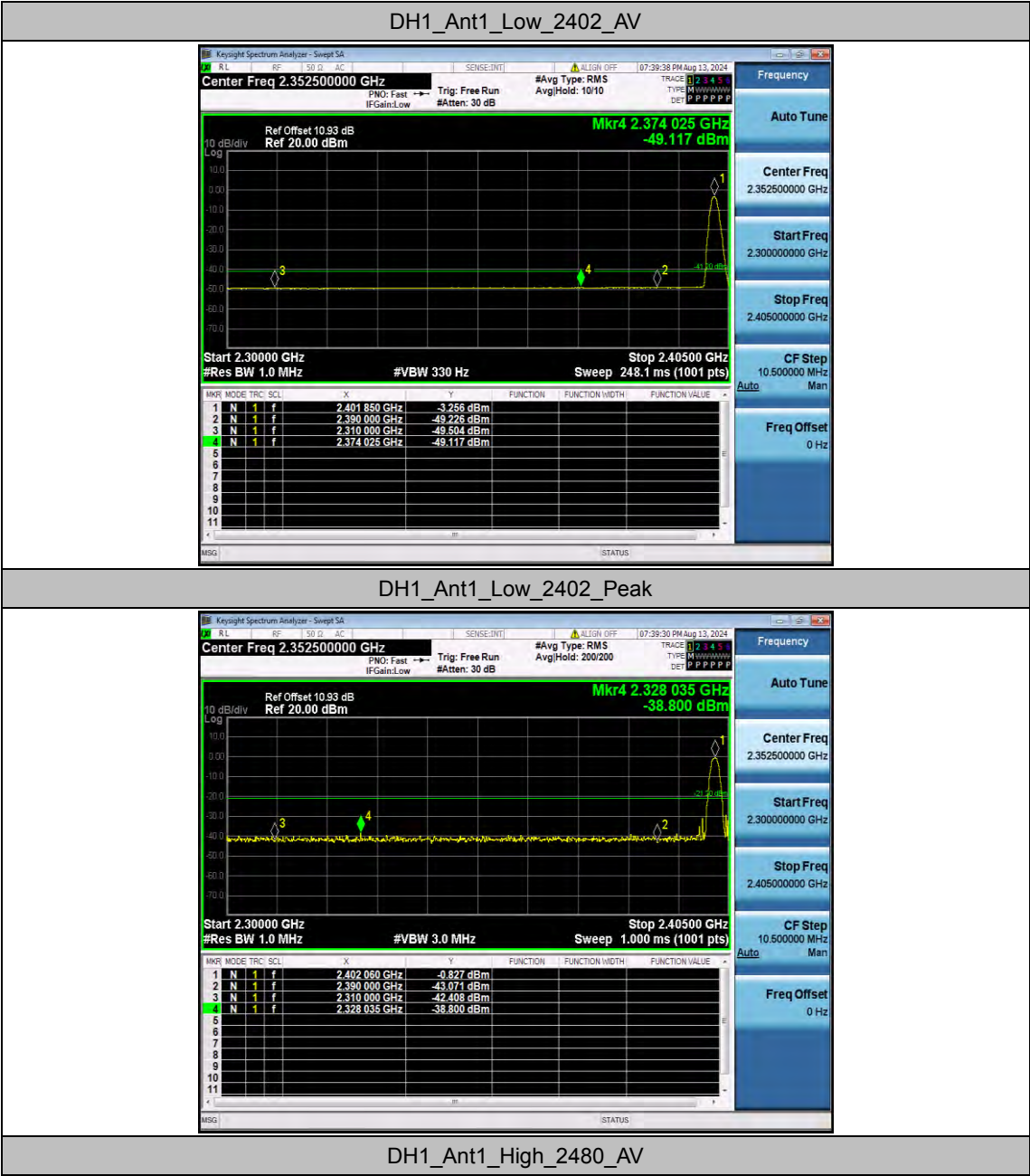
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.5	≤-41.20	45.70	≤54	PASS
				AV	2374.025	-49.12	≤-41.20	46.08	≤54	PASS
				AV	2390.000	-49.23	≤-41.20	45.97	≤54	PASS
				Peak	2310.000	-42.41	≤-21.20	52.79	≤74	PASS
				Peak	2328.035	-38.8	≤-21.20	56.40	≤74	PASS
				Peak	2390.000	-43.07	≤-21.20	52.13	≤74	PASS
		High	2480	AV	2483.500	-49.03	≤-41.20	46.17	≤54	PASS
				AV	2497.360	-48.74	≤-41.20	46.46	≤54	PASS
				AV	2500.000	-48.82	≤-41.20	46.38	≤54	PASS
				Peak	2483.500	-39.94	≤-21.20	55.26	≤74	PASS
				Peak	2483.680	-36.33	≤-21.20	58.87	≤74	PASS
				Peak	2500.000	-40.62	≤-21.20	54.58	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.34	≤-41.20	45.86	≤54	PASS
				AV	2376.545	-49.03	≤-41.20	46.17	≤54	PASS
				AV	2390.000	-49.21	≤-41.20	45.99	≤54	PASS
				Peak	2310.000	-42.28	≤-21.20	52.92	≤74	PASS
				Peak	2313.125	-38.66	≤-21.20	56.54	≤74	PASS
				Peak	2390.000	-41.68	≤-21.20	53.52	≤74	PASS
		High	2480	AV	2483.500	-48.86	≤-41.20	46.34	≤54	PASS
				AV	2496.400	-48.64	≤-41.20	46.56	≤54	PASS
				AV	2500.000	-48.76	≤-41.20	46.44	≤54	PASS
				Peak	2483.500	-41.83	≤-21.20	53.37	≤74	PASS
				Peak	2490.160	-38.65	≤-21.20	56.55	≤74	PASS
				Peak	2500.000	-41.81	≤-21.20	53.39	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.48	≤-41.20	45.72	≤54	PASS
				AV	2387.780	-48.86	≤-41.20	46.34	≤54	PASS
				AV	2390.000	-48.95	≤-41.20	46.25	≤54	PASS
				Peak	2310.000	-40.69	≤-21.20	54.51	≤74	PASS
				Peak	2388.830	-38.68	≤-21.20	56.52	≤74	PASS
				Peak	2390.000	-40.3	≤-21.20	54.90	≤74	PASS
		High	2480	AV	2483.500	-48.79	≤-41.20	46.41	≤54	PASS
				AV	2494.640	-48.53	≤-41.20	46.67	≤54	PASS
				AV	2500.000	-48.76	≤-41.20	46.44	≤54	PASS
				Peak	2483.500	-38.54	≤-21.20	56.66	≤74	PASS
				Peak	2483.520	-38.54	≤-21.20	56.66	≤74	PASS

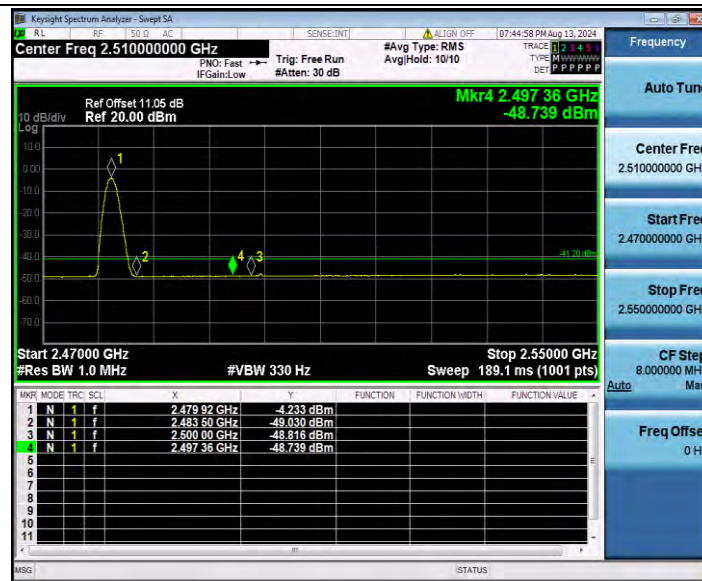
				Peak	2500.000	-40.99	≤-21.20	54.21	≤74	PASS
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Note:

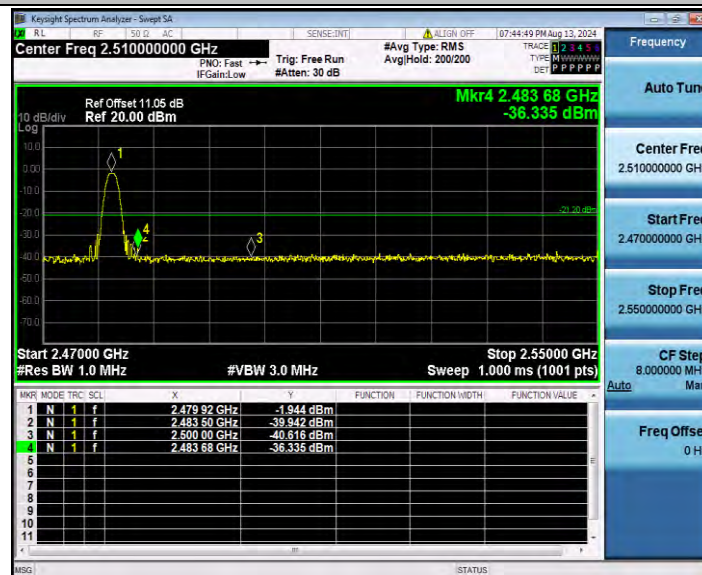
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

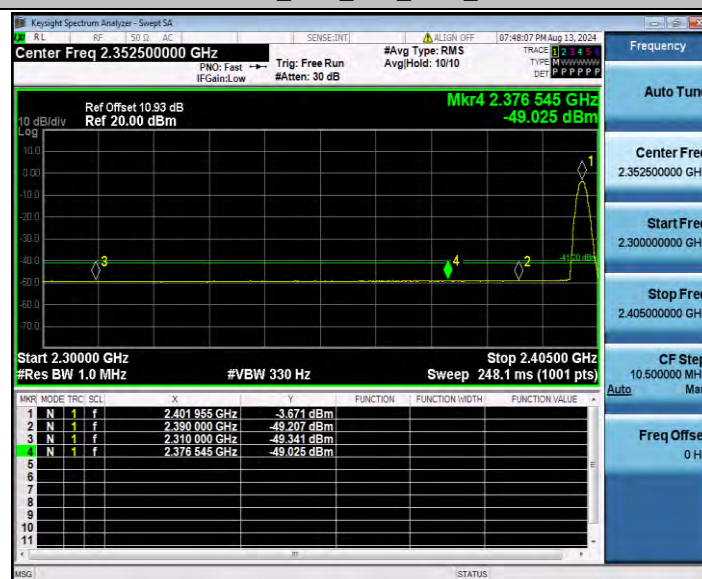




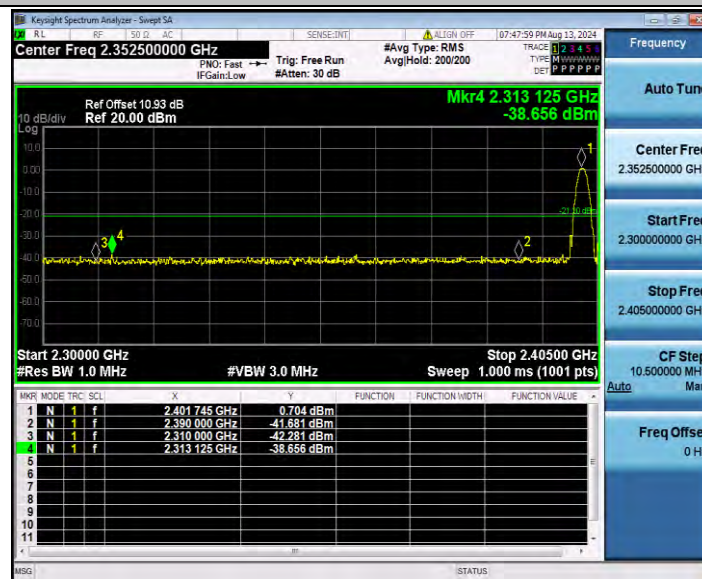
DH1_Ant1_High_2480_Peak



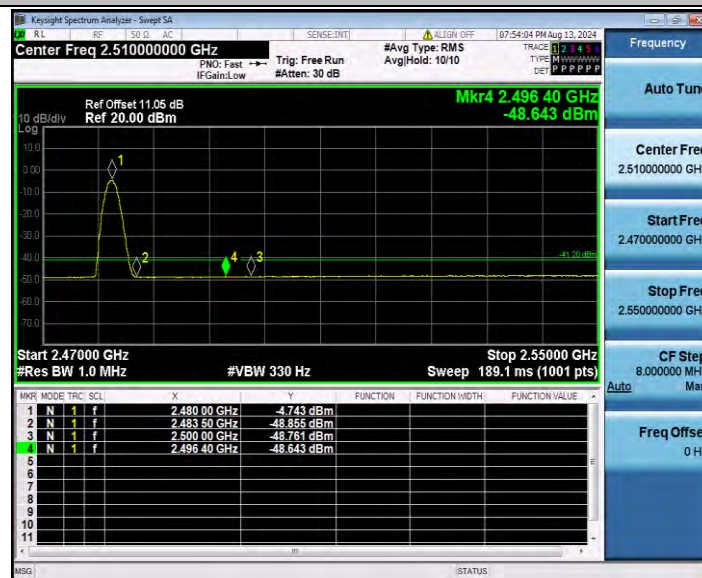
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

