

Case No. : <u>CTA24071502201</u>	
Ambient Condition: <u>23</u> °C, <u>51</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.8.6</u>	Test Engineer: <u>Lushan Kong</u>

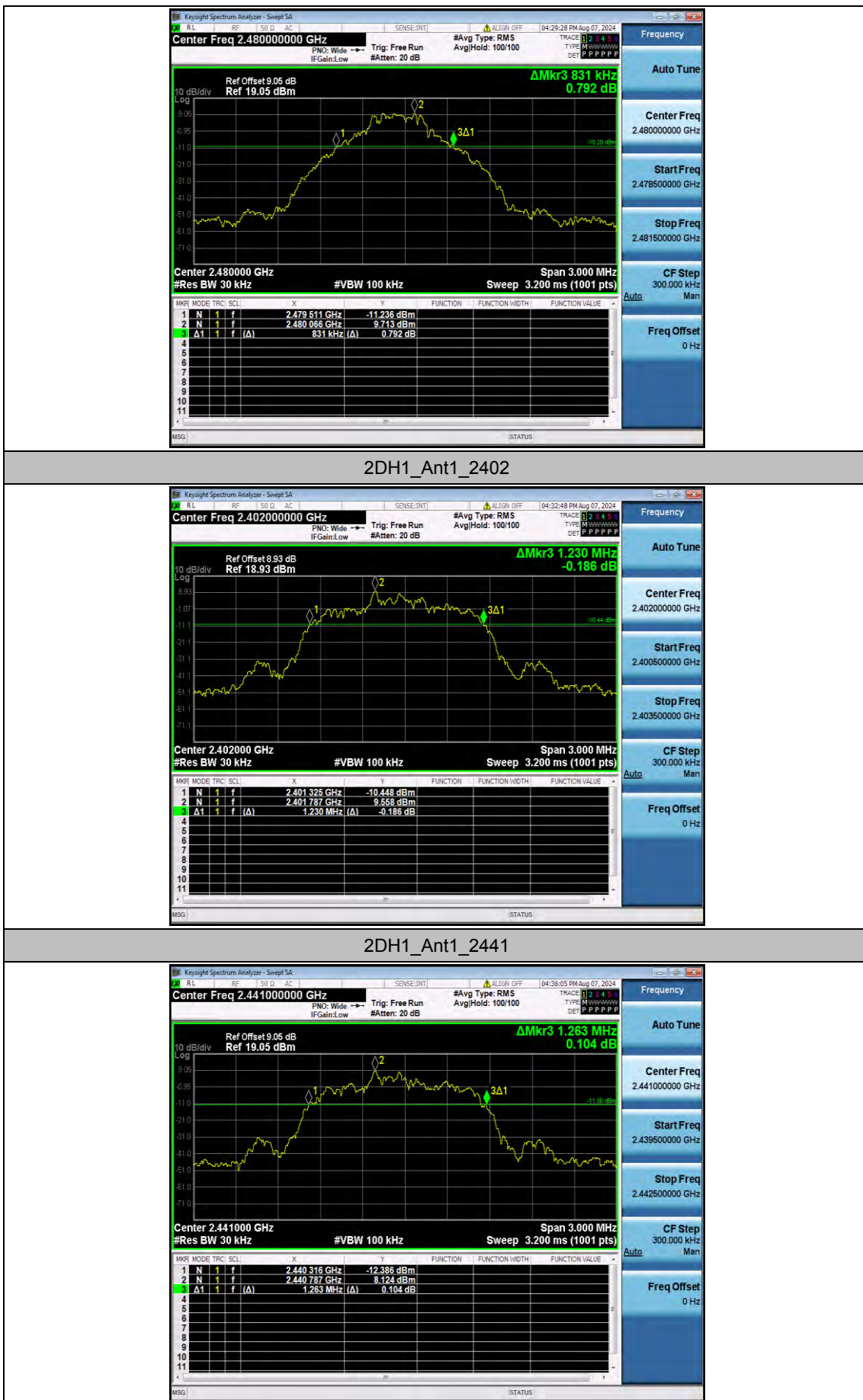
Appendix A.1: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.777	2401.550	2402.327	---	---
		2441	0.795	2440.556	2441.351	---	---
		2480	0.831	2479.511	2480.342	---	---
2DH1	Ant1	2402	1.230	2401.325	2402.555	---	---
		2441	1.263	2440.316	2441.579	---	---
		2480	1.215	2479.337	2480.552	---	---
3DH1	Ant1	2402	1.221	2401.346	2402.567	---	---
		2441	1.230	2440.343	2441.573	---	---
		2480	1.227	2479.340	2480.567	---	---

Test Graphs





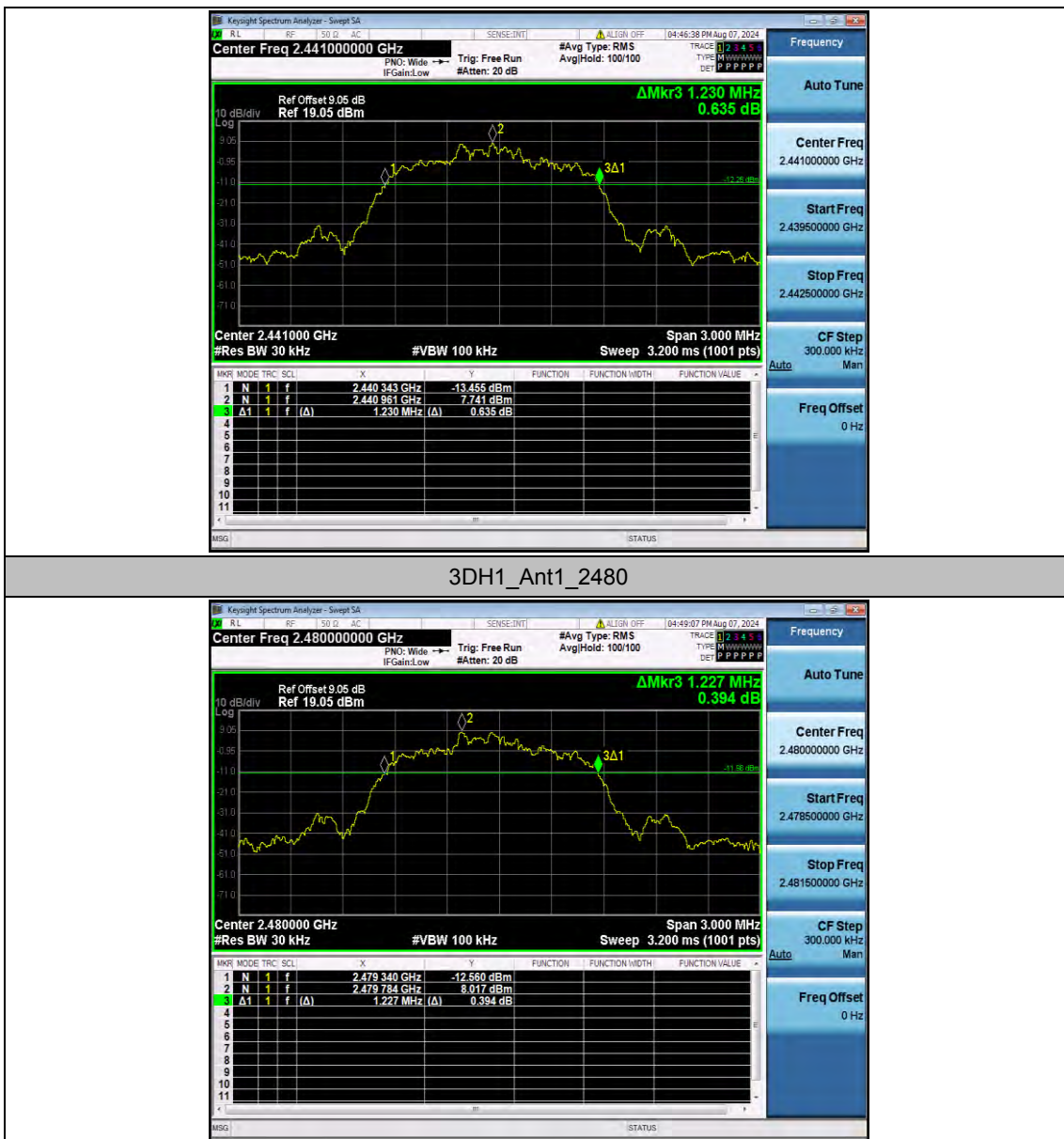
2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



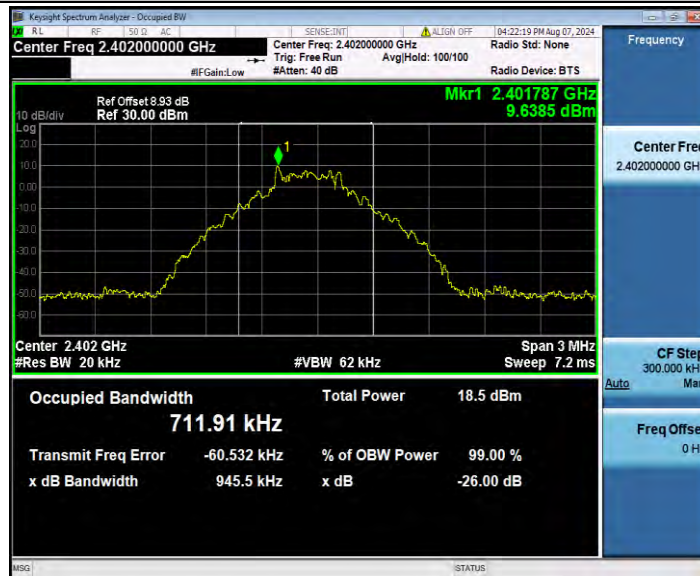
Appendix A.2: Occupied Channel Bandwidth

Test Result

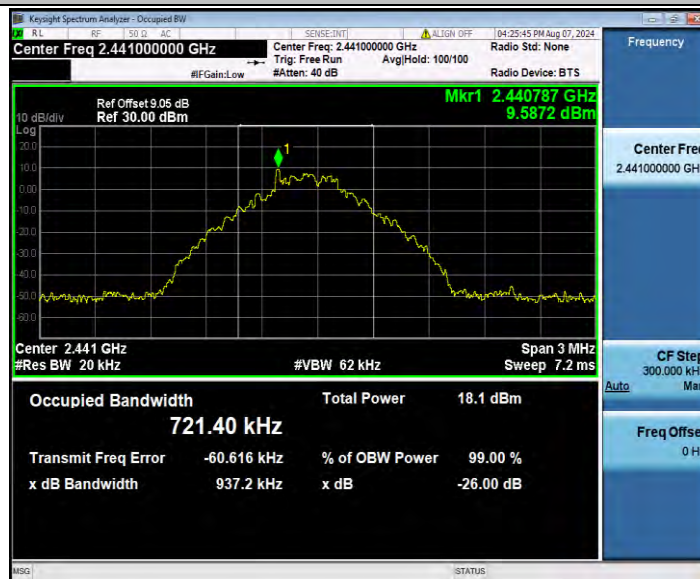
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.71191	2401.5835	2402.2954	---	---
		2441	0.72140	2440.5787	2441.3001	---	---
		2480	0.71905	2479.5782	2480.2972	---	---
2DH1	Ant1	2402	1.1361	2401.3802	2402.5163	---	---
		2441	1.1258	2440.3860	2441.5118	---	---
		2480	1.1278	2479.3780	2480.5058	---	---
3DH1	Ant1	2402	1.1289	2401.3907	2402.5196	---	---
		2441	1.1327	2440.3899	2441.5226	---	---
		2480	1.1318	2479.3889	2480.5207	---	---

Test Graphs

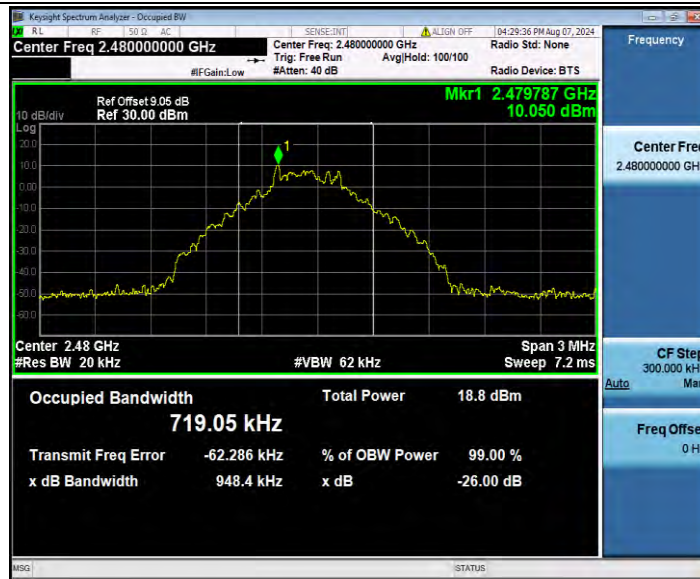
DH1_Ant1_2402



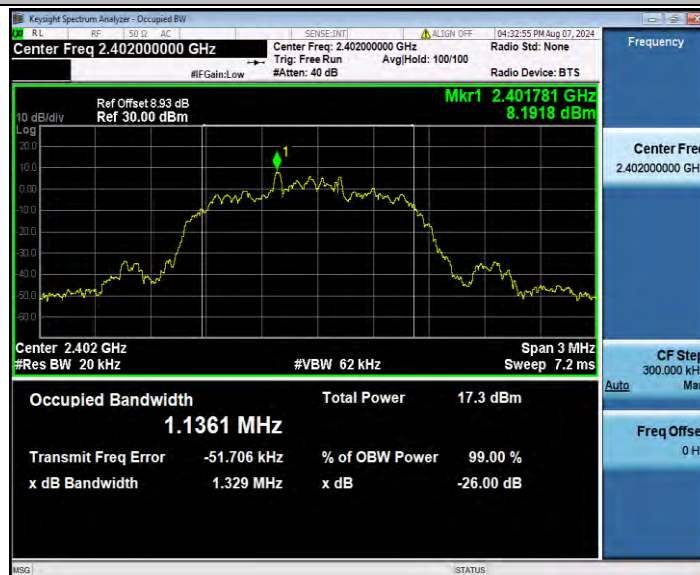
DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



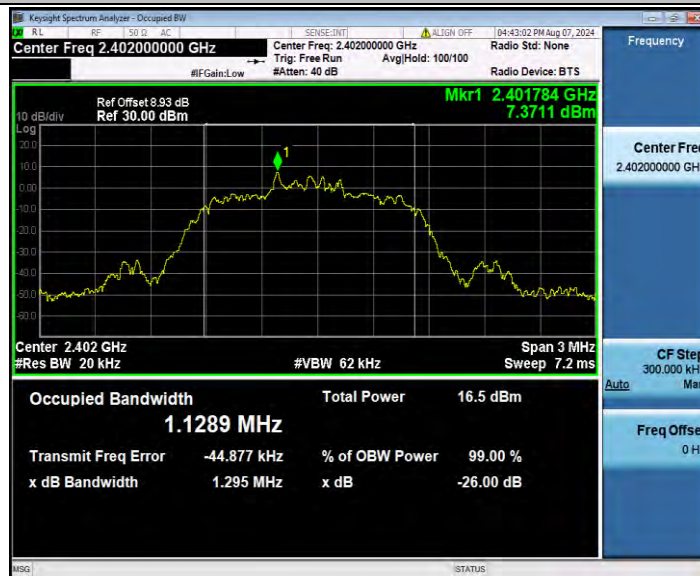
2DH1_Ant1_2441



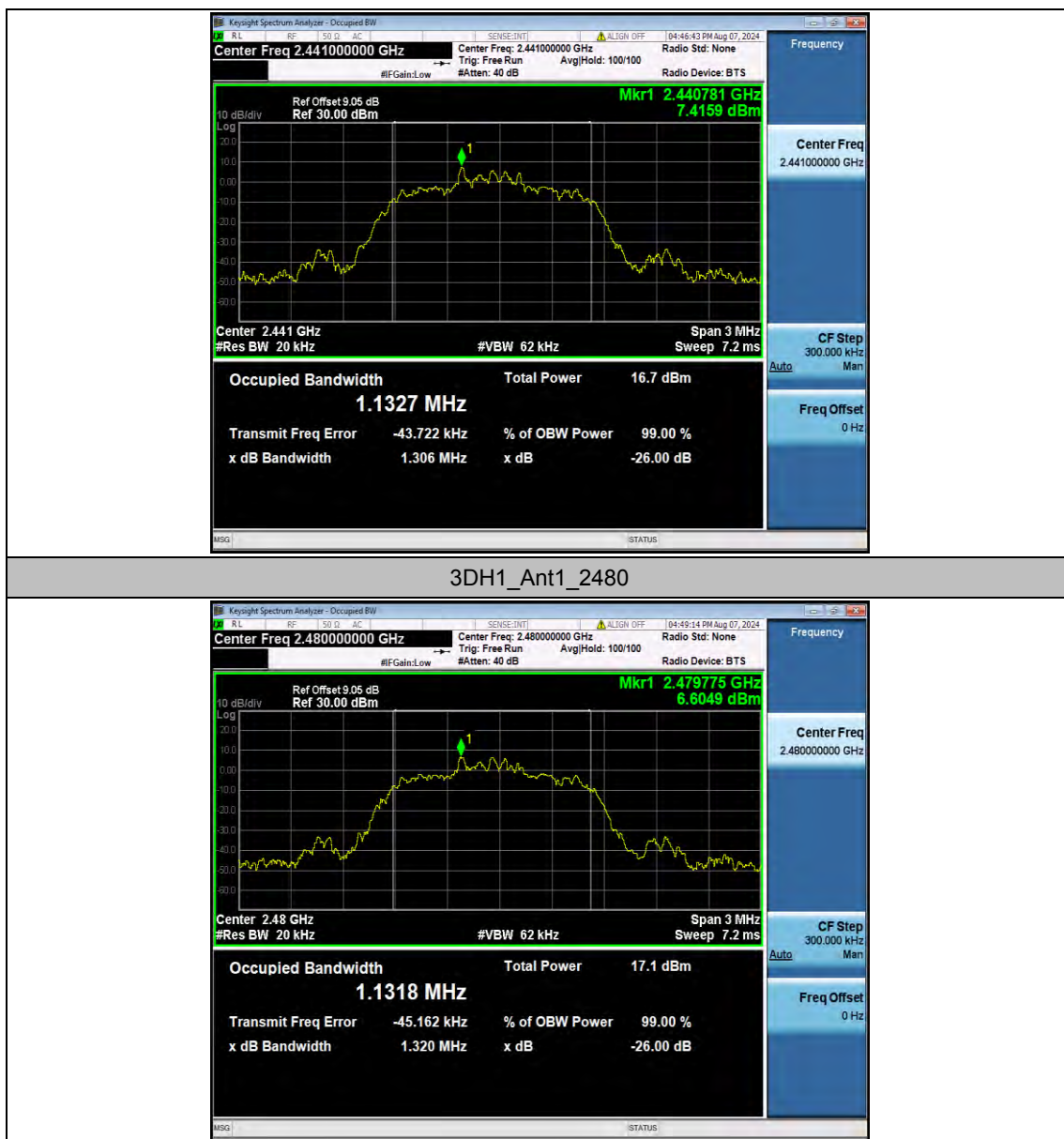
2DH1_Ant1_2480



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	12.25	≤30.00	PASS
		2441	12.13	≤30.00	PASS
		2480	13.55	≤30.00	PASS
2DH1	Ant1	2402	11.41	≤20.97	PASS
		2441	11.30	≤20.97	PASS
		2480	12.85	≤20.97	PASS
3DH1	Ant1	2402	11.20	≤20.97	PASS
		2441	11.13	≤20.97	PASS
		2480	12.66	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.978	≥ 0.831	PASS
		Hop_2441	0.992	≥ 0.831	PASS
		Hop_2480	1.012	≥ 0.831	PASS
2DH1	Ant1	Hop_2402	0.99	≥ 0.842	PASS
		Hop_2441	1.002	≥ 0.842	PASS
		Hop_2480	0.998	≥ 0.842	PASS
3DH1	Ant1	Hop_2402	0.992	≥ 0.820	PASS
		Hop_2441	1.18	≥ 0.820	PASS
		Hop_2480	0.968	≥ 0.820	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

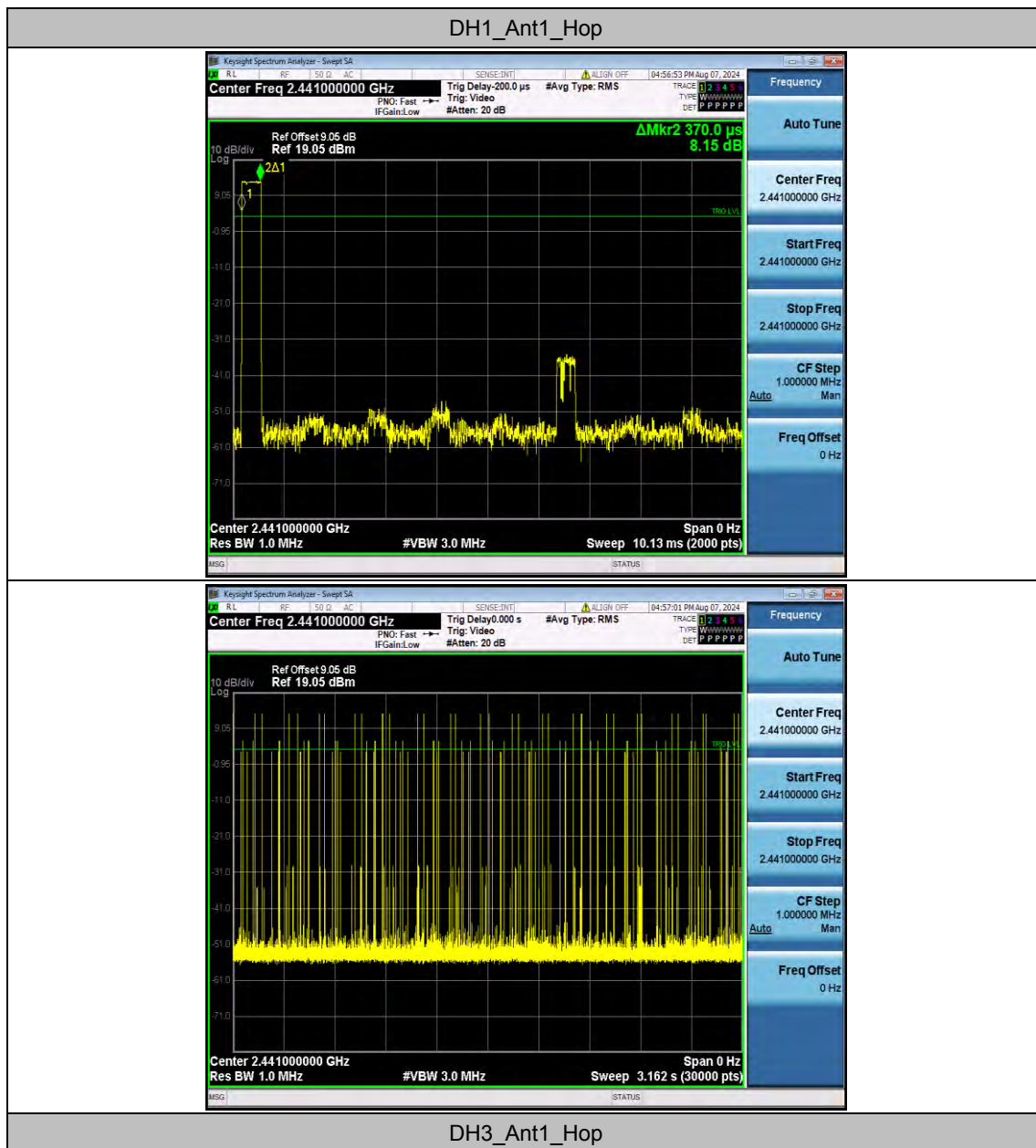


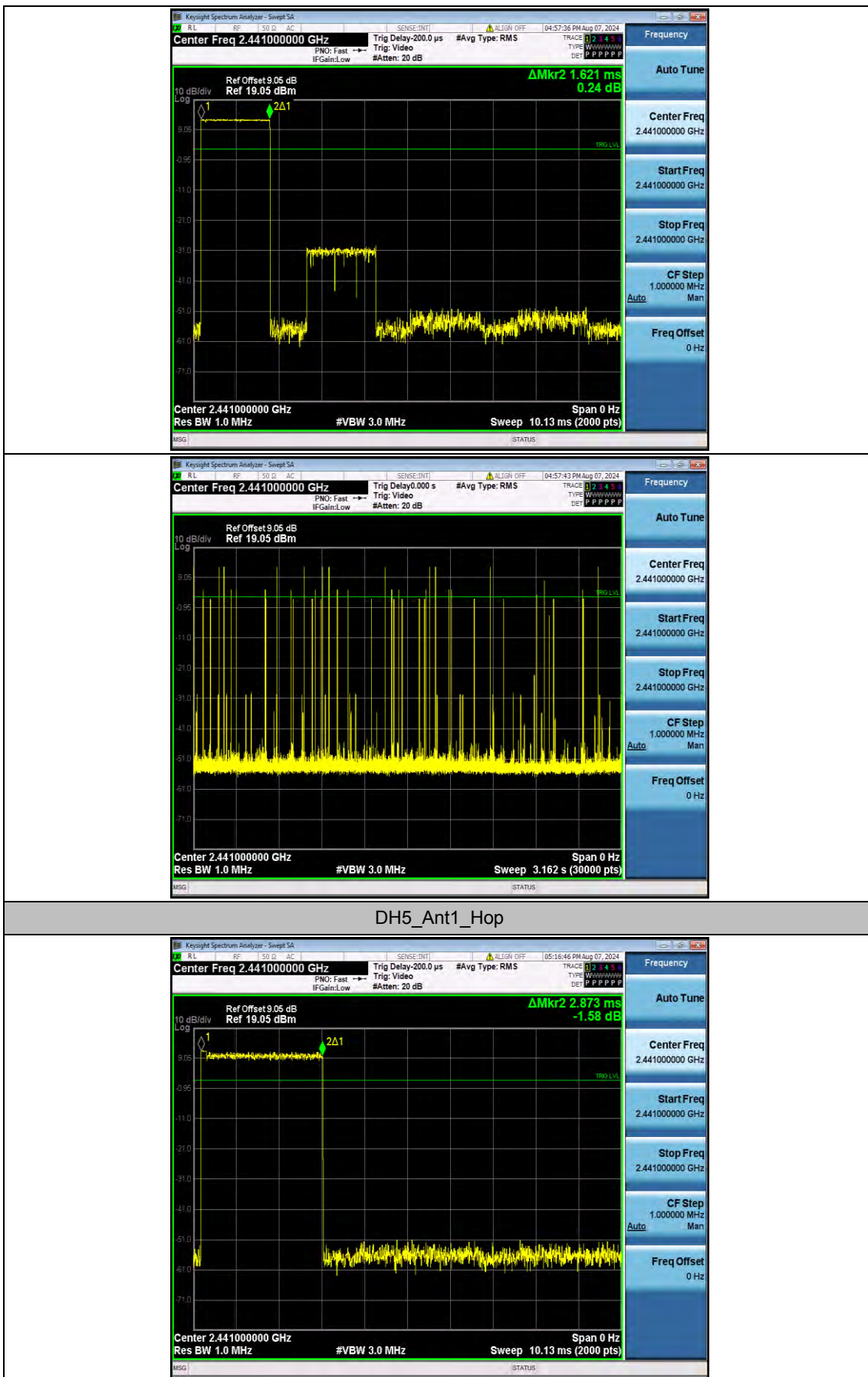
Appendix A.5: Time of occupancy

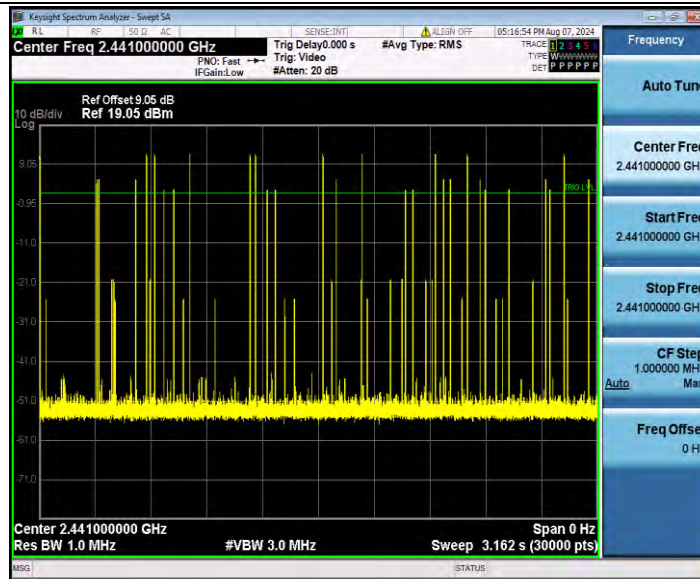
Test Result

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.370	330	0.122	≤0.4	PASS
DH3	Ant1	Hop	1.621	130	0.211	≤0.4	PASS
DH5	Ant1	Hop	2.873	110	0.316	≤0.4	PASS
2DH1	Ant1	Hop	0.375	320	0.12	≤0.4	PASS
2DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
2DH5	Ant1	Hop	2.878	130	0.374	≤0.4	PASS
3DH1	Ant1	Hop	0.370	330	0.122	≤0.4	PASS
3DH3	Ant1	Hop	1.626	160	0.26	≤0.4	PASS
3DH5	Ant1	Hop	2.878	130	0.374	≤0.4	PASS

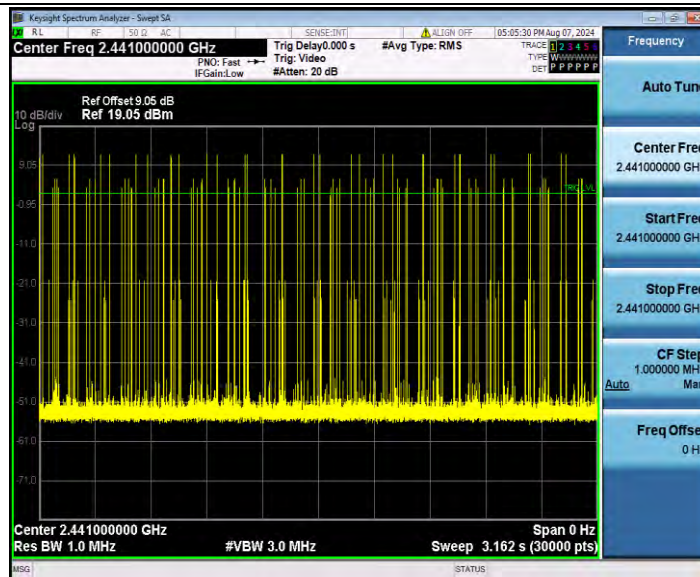
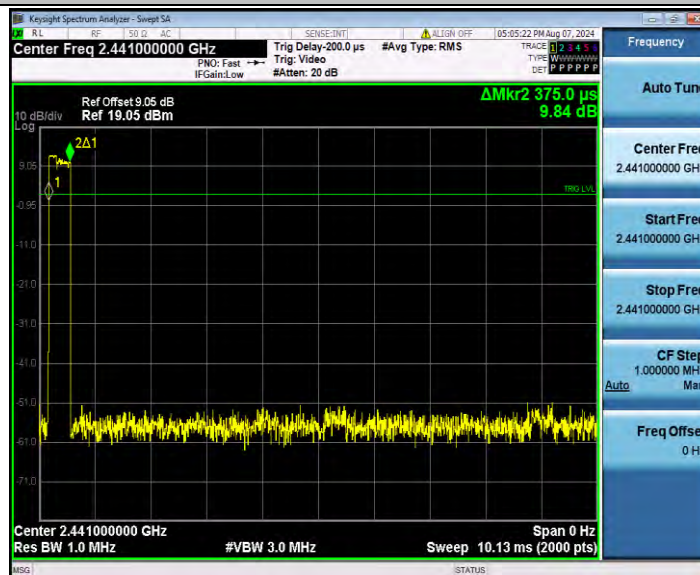
Test Graphs



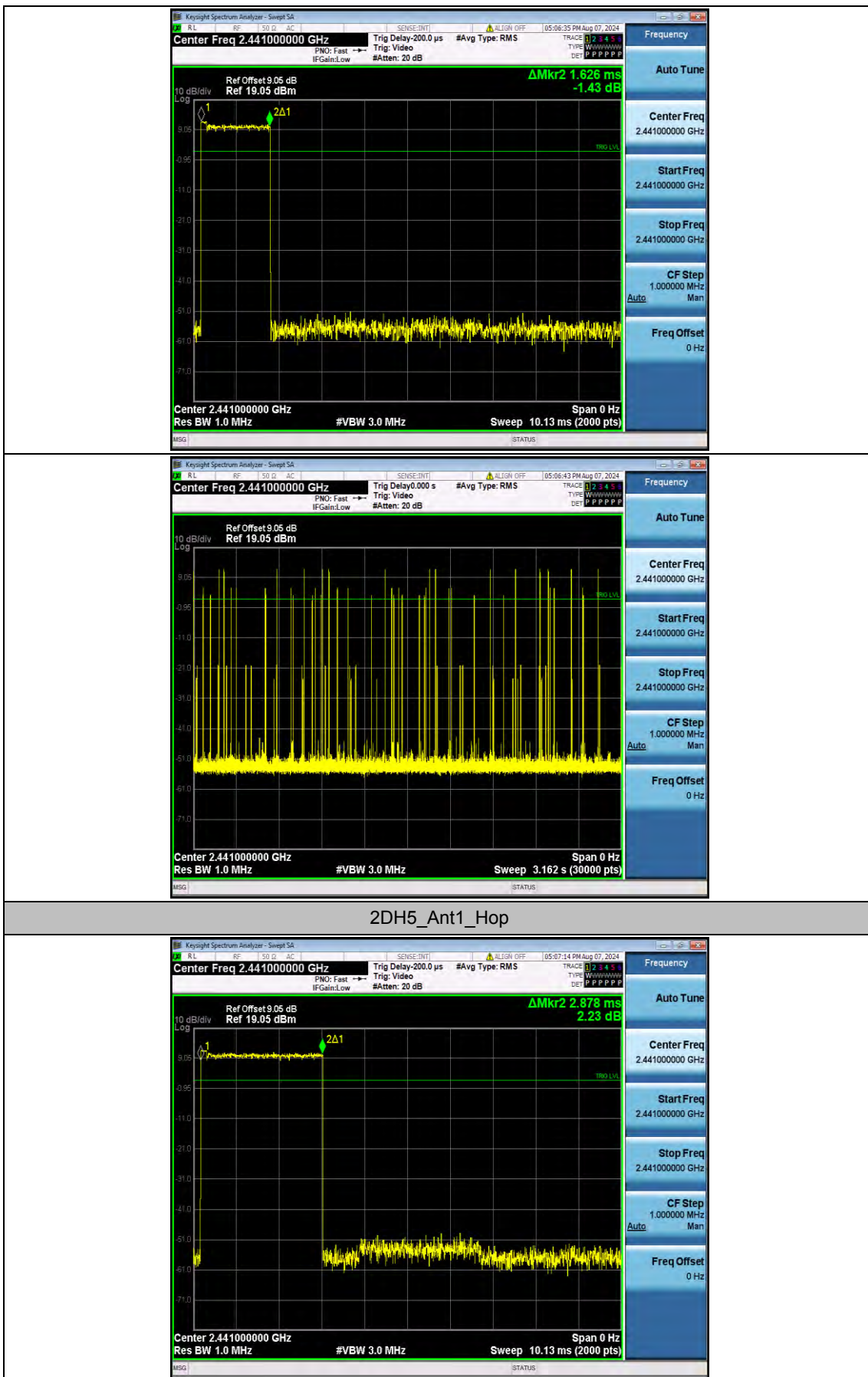


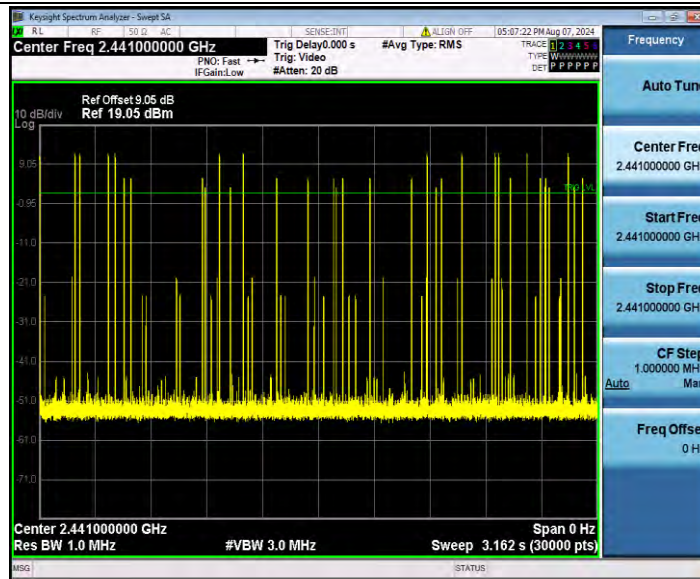


2DH1_Ant1_Hop

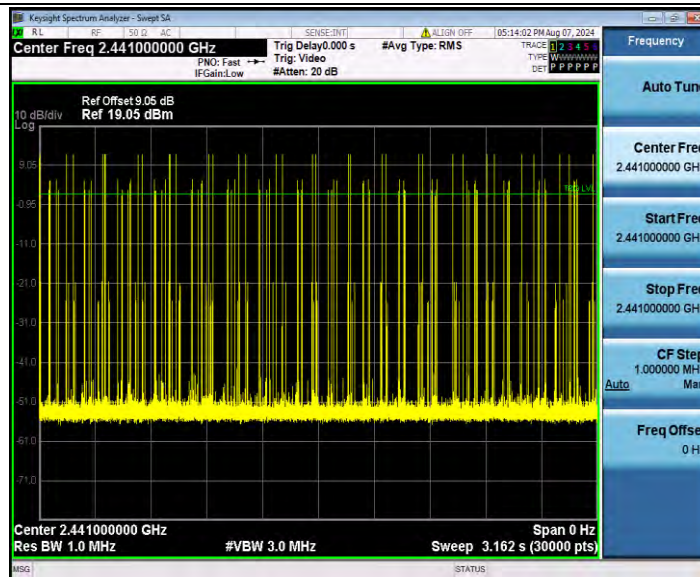
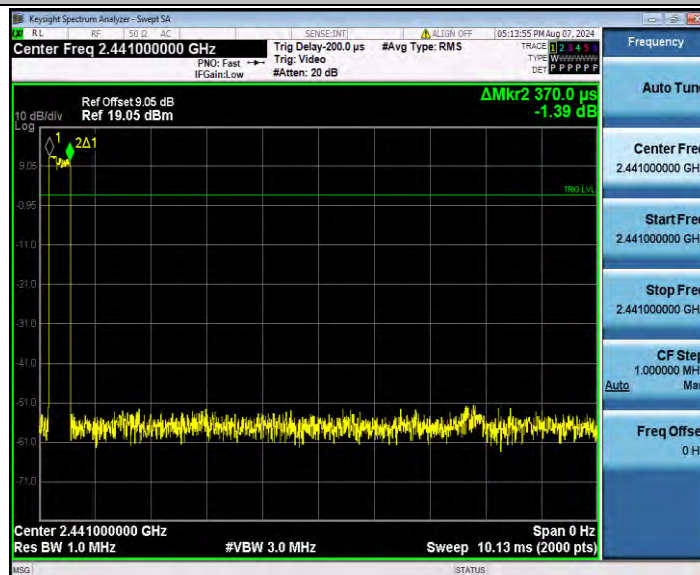


2DH3_Ant1_Hop

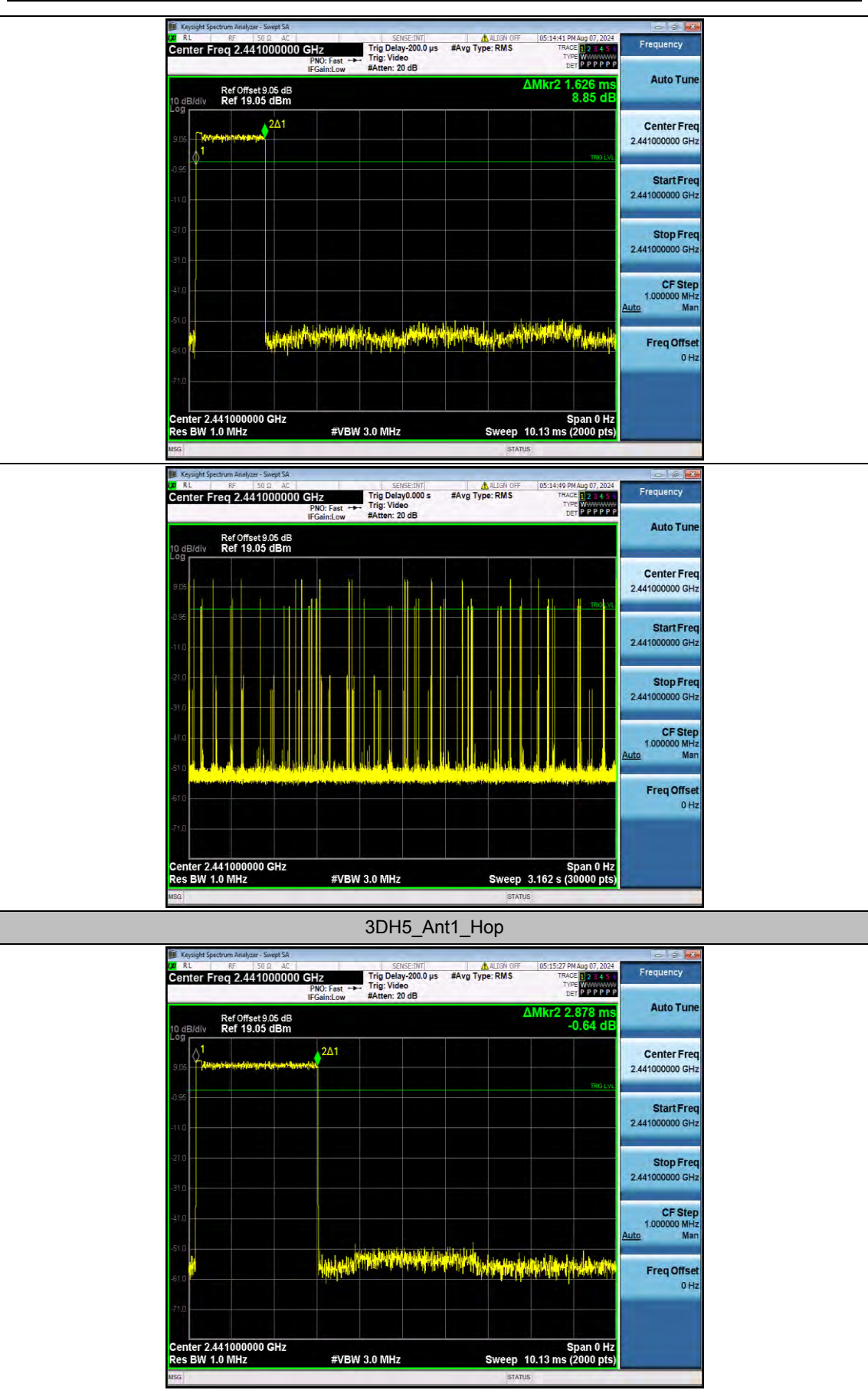


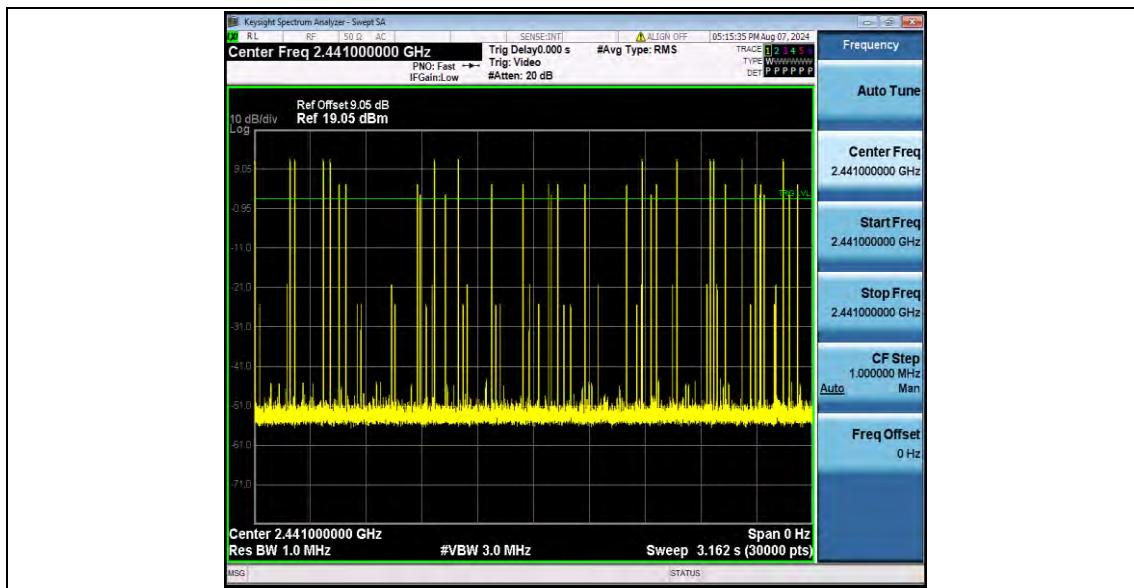


3DH1_Ant1_Hop



3DH3_Ant1_Hop



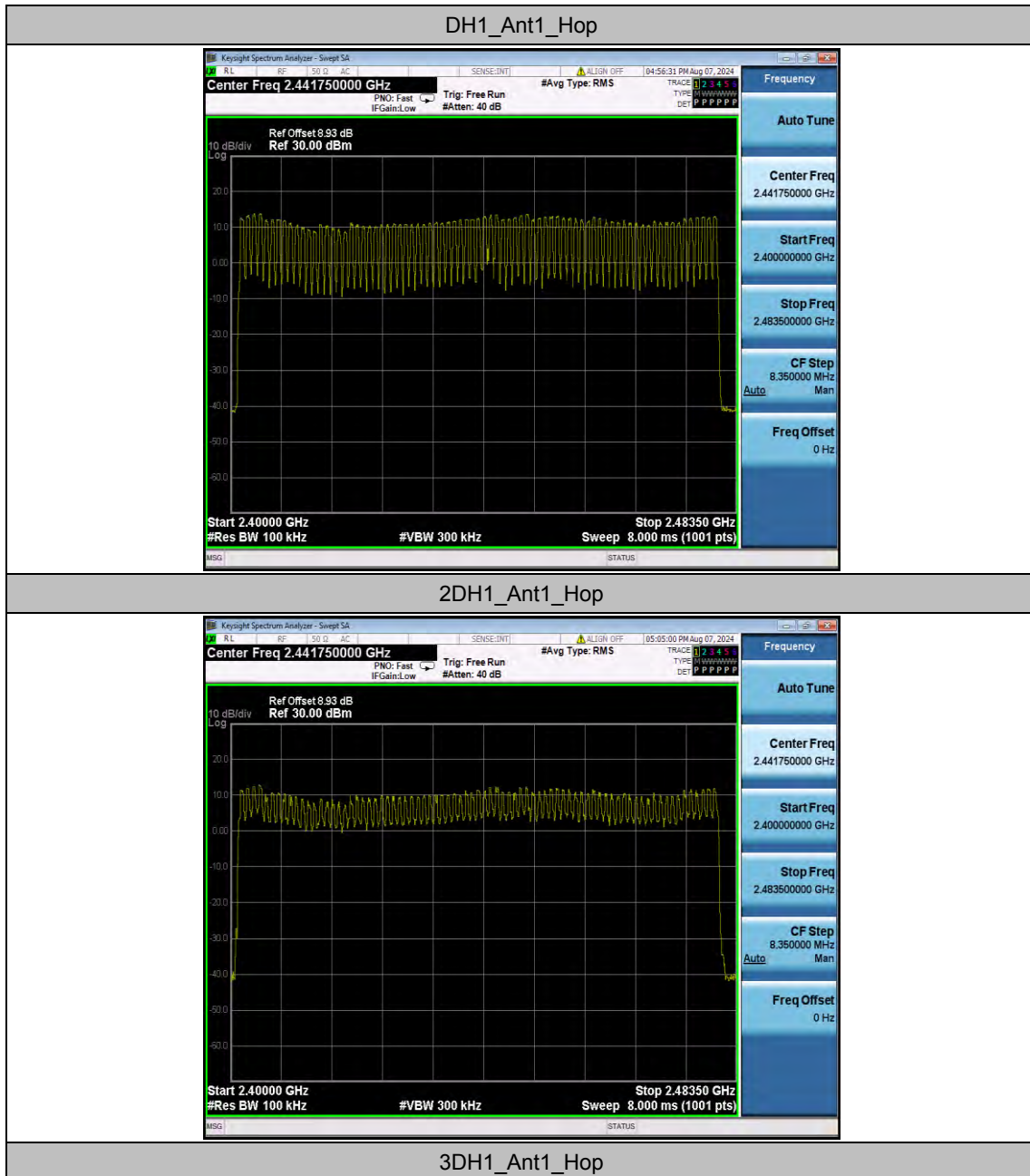


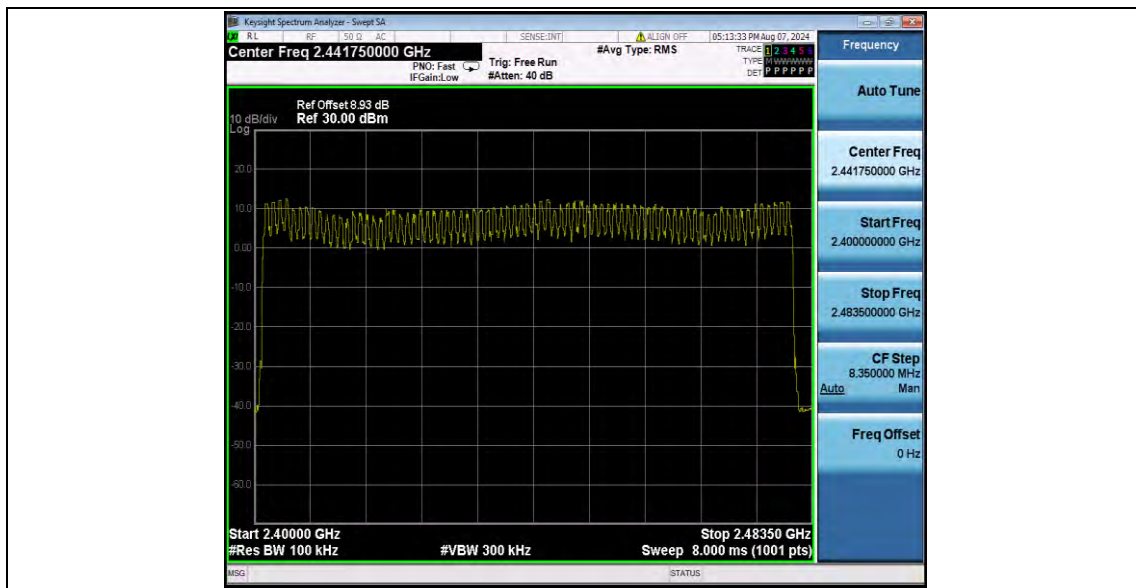
Appendix A.6: Number of hopping channels

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





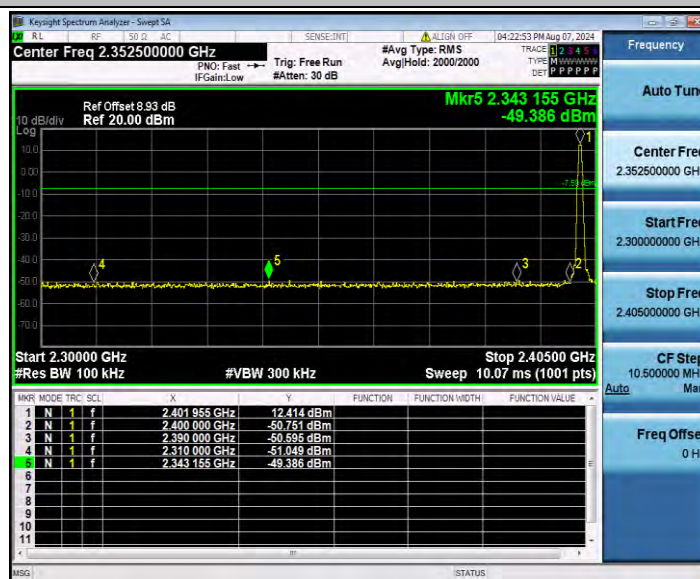
Appendix A.7: Band edge measurements

Test Result

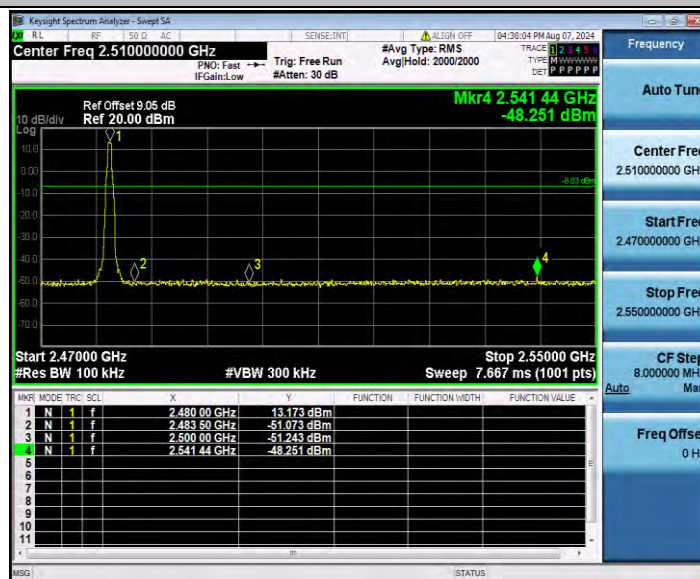
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	12.41	-49.39	≤ -7.59	PASS
		High	2480	13.17	-48.25	≤ -6.83	PASS
		Low	Hop_2402	12.91	-49.23	≤ -7.09	PASS
		High	Hop_2480	12.54	-49.13	≤ -7.46	PASS
2DH1	Ant1	Low	2402	11.98	-49.08	≤ -8.02	PASS
		High	2480	12.55	-48.88	≤ -7.45	PASS
		Low	Hop_2402	12.57	-49.18	≤ -7.43	PASS
		High	Hop_2480	11.67	-48.08	≤ -8.33	PASS
3DH1	Ant1	Low	2402	11.76	-48.29	≤ -8.24	PASS
		High	2480	12.30	-47.94	≤ -7.7	PASS
		Low	Hop_2402	11.83	-49.96	≤ -8.17	PASS
		High	Hop_2480	10.42	-49.24	≤ -9.58	PASS

Test Graphs

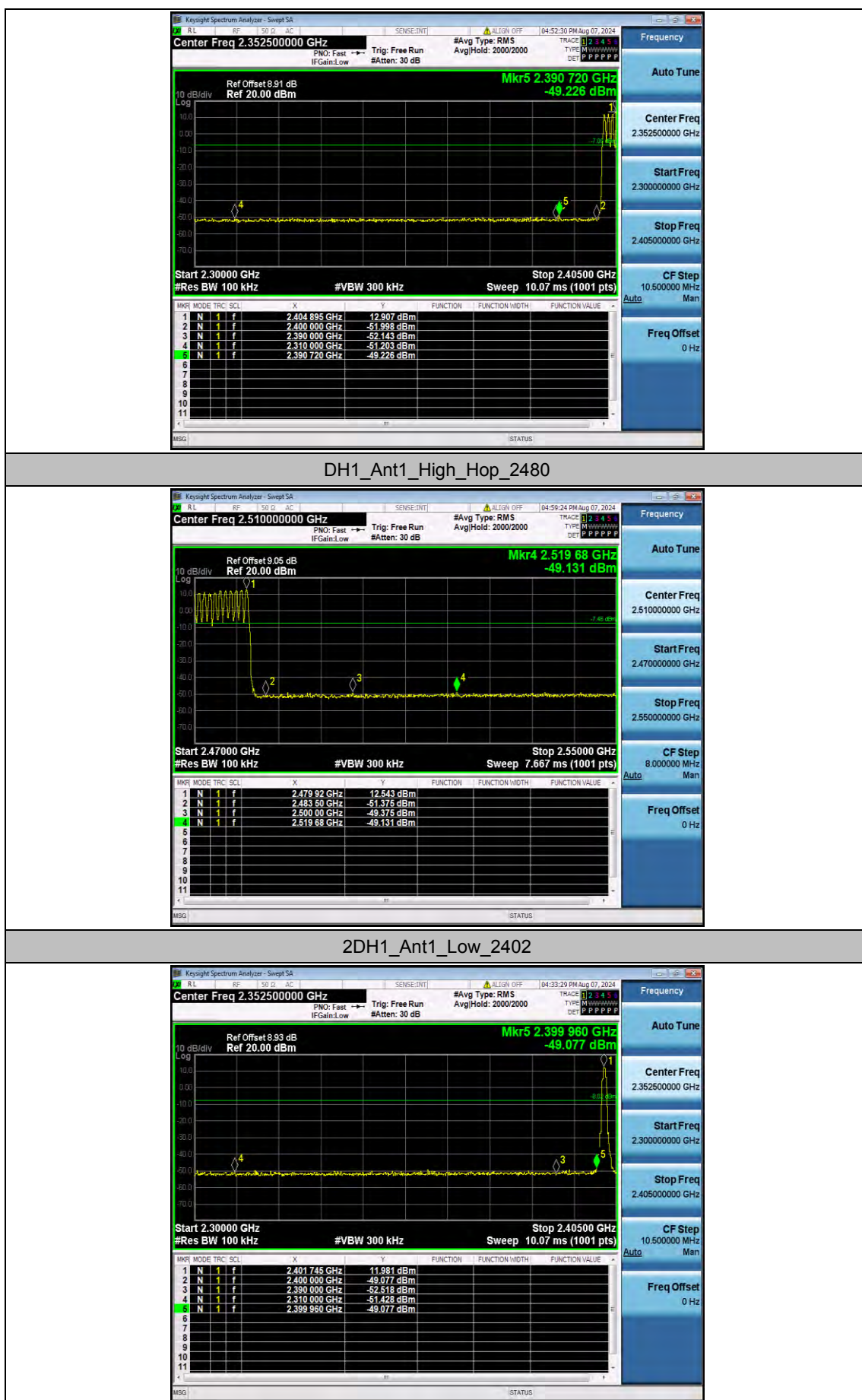
DH1_Ant1_Low_2402



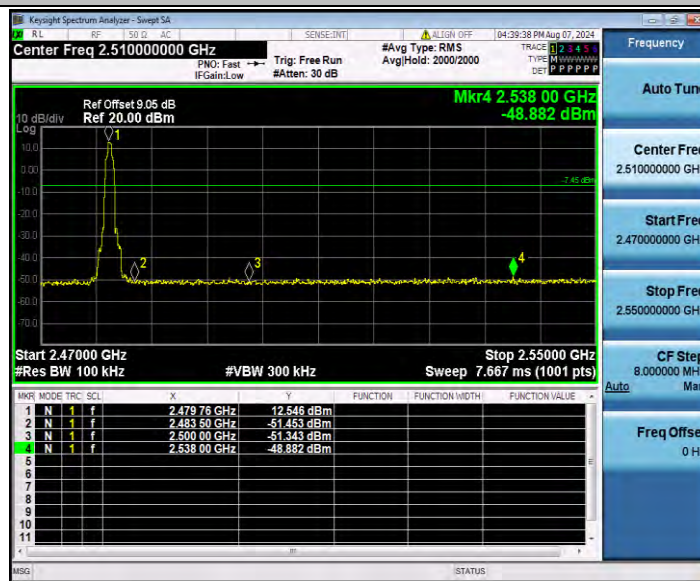
DH1_Ant1_High_2480



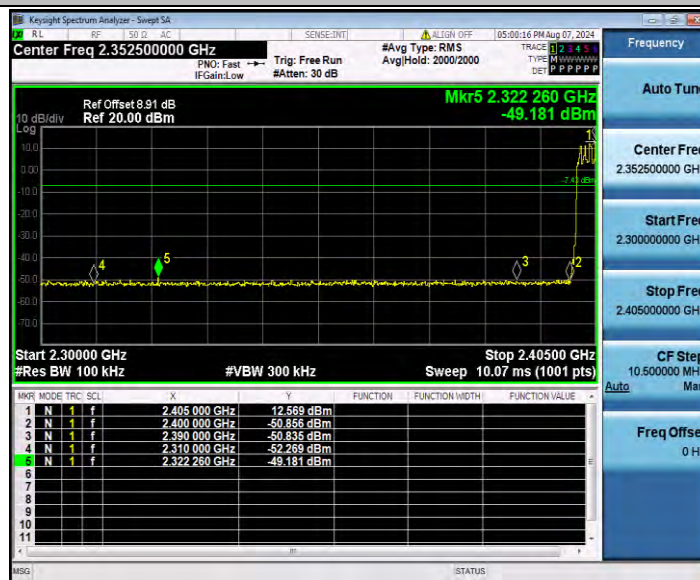
DH1_Ant1_Low_Hop_2402



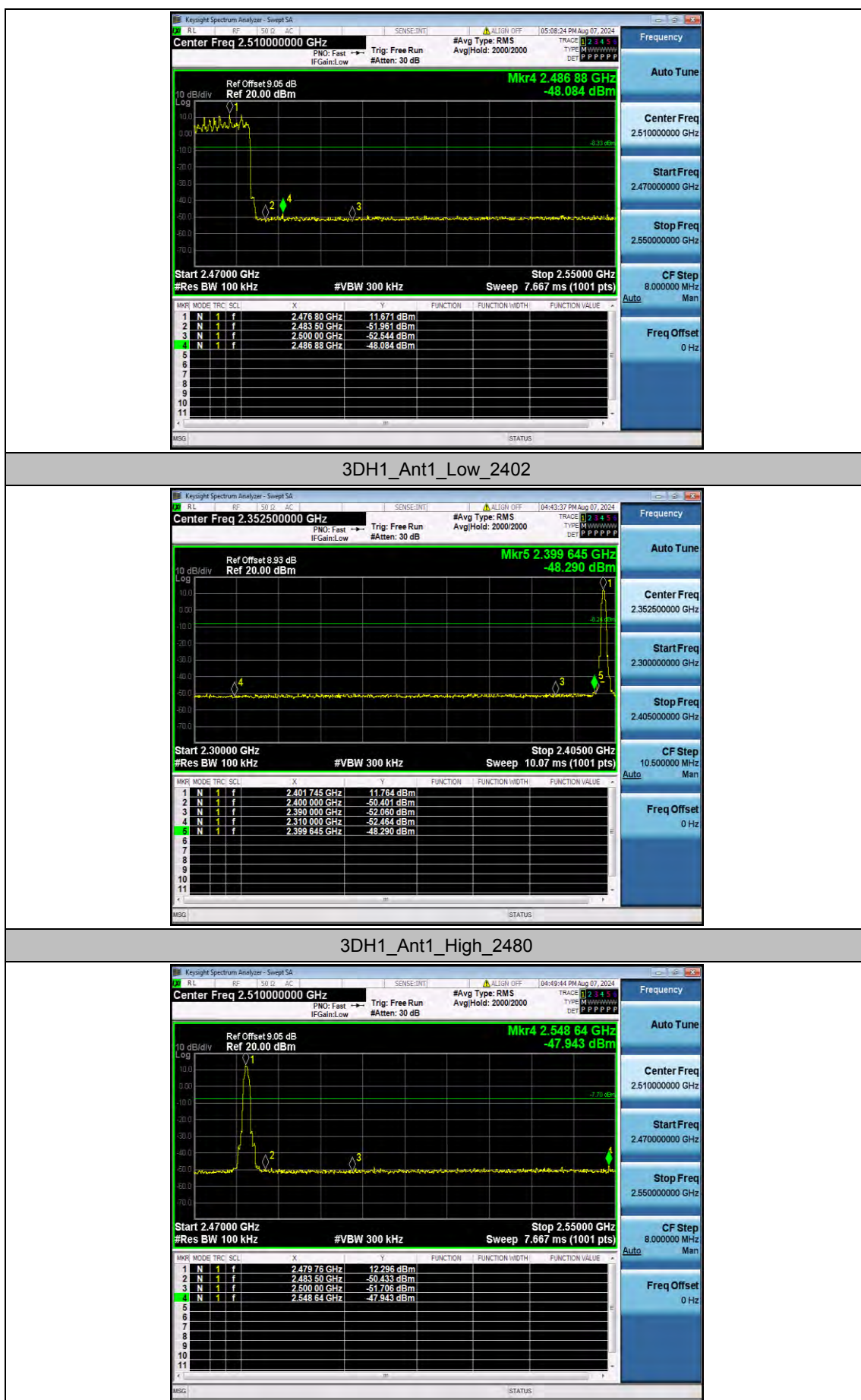
2DH1_Ant1_High_2480



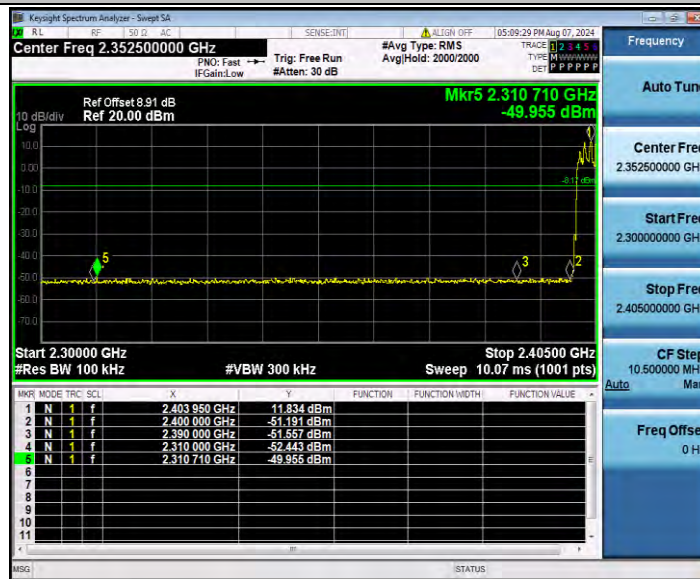
2DH1_Ant1_Low_Hop_2402



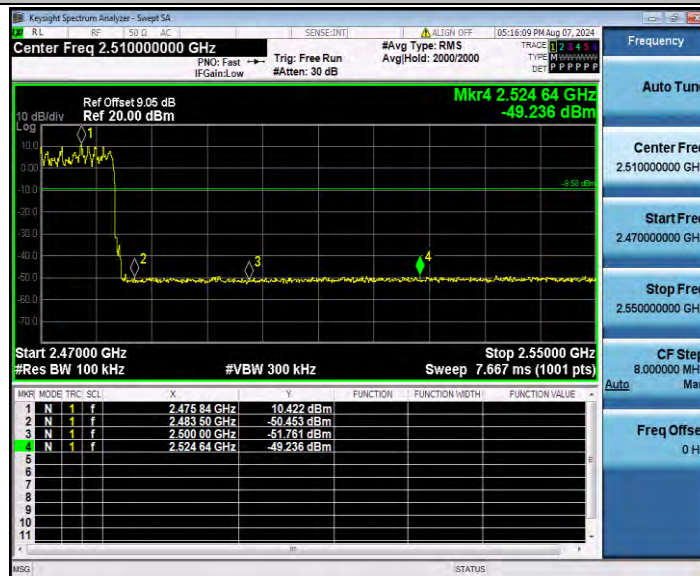
2DH1_Ant1_High_Hop_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

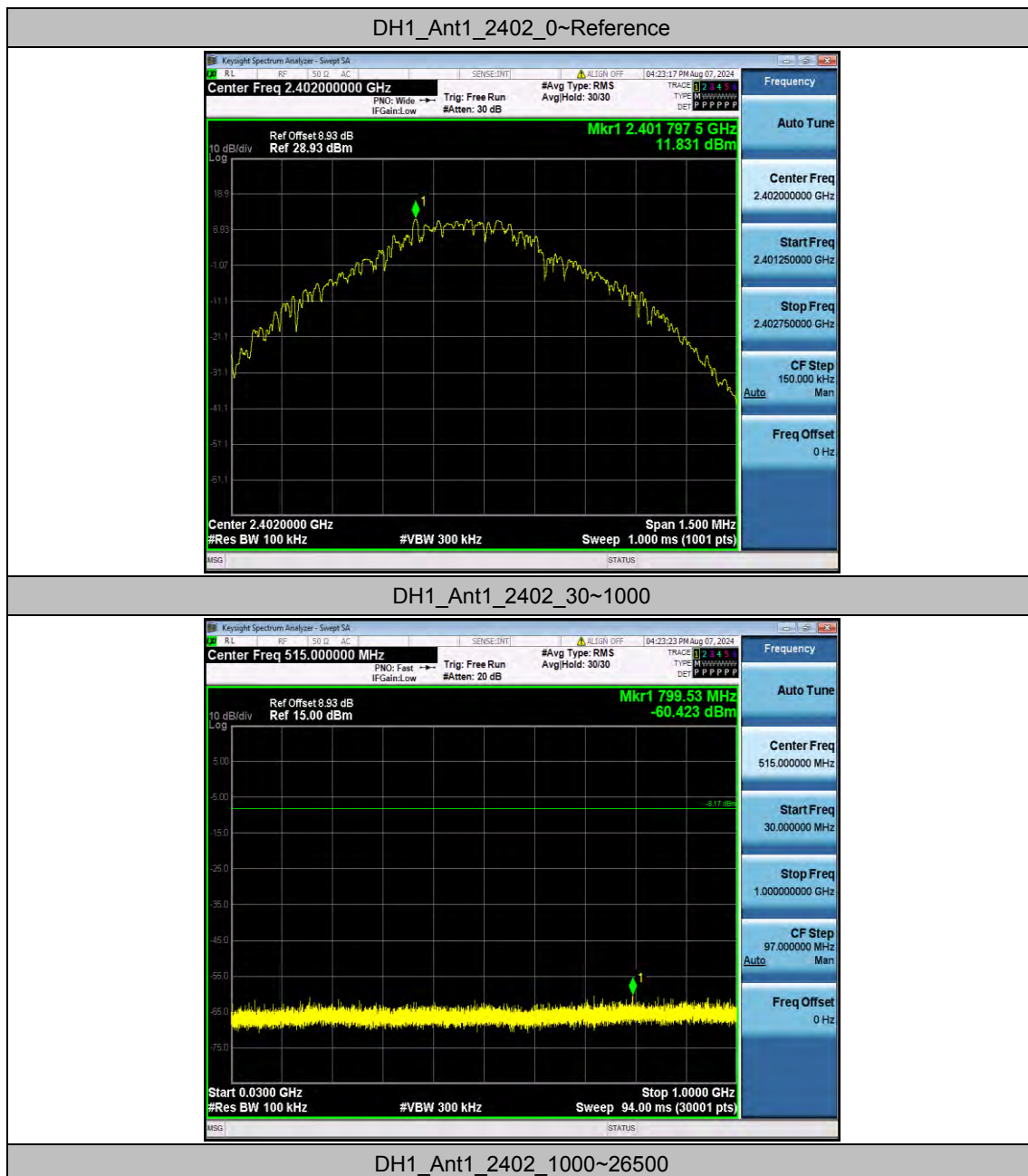


Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	11.83	11.83	---	PASS
			30~1000	11.83	-60.42	≤ -8.17	PASS
			1000~26500	11.83	-47.72	≤ -8.17	PASS
		2441	Reference	11.85	11.85	---	PASS
			30~1000	11.85	-60.43	≤ -8.15	PASS
			1000~26500	11.85	-44.16	≤ -8.15	PASS
		2480	Reference	12.92	12.92	---	PASS
			30~1000	12.92	-61.28	≤ -7.08	PASS
			1000~26500	12.92	-46.16	≤ -7.08	PASS
2DH1	Ant1	2402	Reference	11.24	11.24	---	PASS
			30~1000	11.24	-60.41	≤ -8.76	PASS
			1000~26500	11.24	-48.5	≤ -8.76	PASS
		2441	Reference	11.38	11.38	---	PASS
			30~1000	11.38	-60.68	≤ -8.62	PASS
			1000~26500	11.38	-44.27	≤ -8.62	PASS
		2480	Reference	12.42	12.42	---	PASS
			30~1000	12.42	-60.52	≤ -7.58	PASS
			1000~26500	12.42	-47.69	≤ -7.58	PASS
3DH1	Ant1	2402	Reference	11.49	11.49	---	PASS
			30~1000	11.49	-61.15	≤ -8.51	PASS
			1000~26500	11.49	-47.32	≤ -8.51	PASS
		2441	Reference	10.44	10.44	---	PASS
			30~1000	10.44	-60.79	≤ -9.56	PASS
			1000~26500	10.44	-46.63	≤ -9.56	PASS
		2480	Reference	12.25	12.25	---	PASS
			30~1000	12.25	-60.51	≤ -7.75	PASS
			1000~26500	12.25	-47.79	≤ -7.75	PASS

Test Graphs

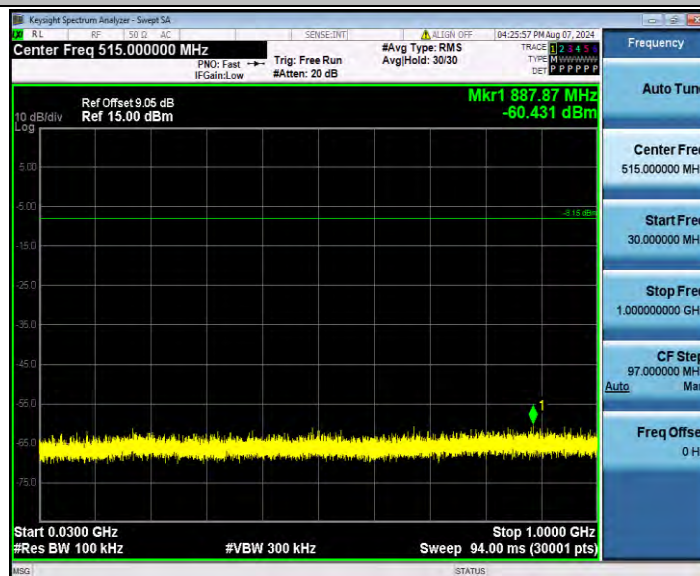




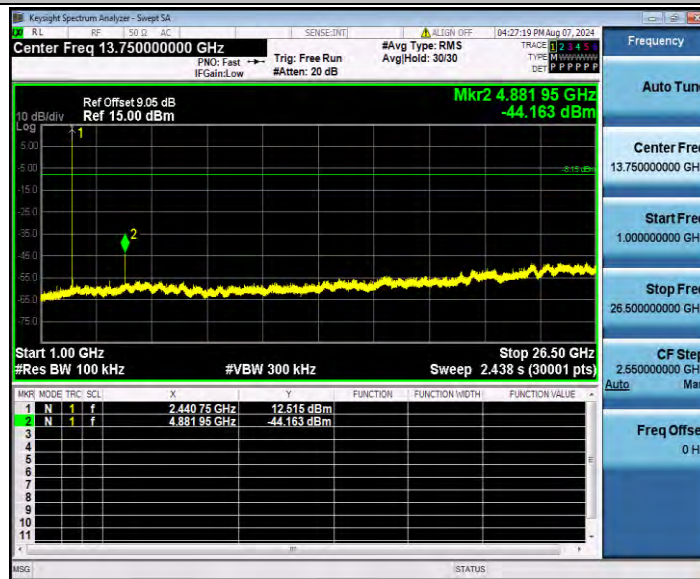
DH1_Ant1_2441_0~Reference



DH1_Ant1_2441_30~1000



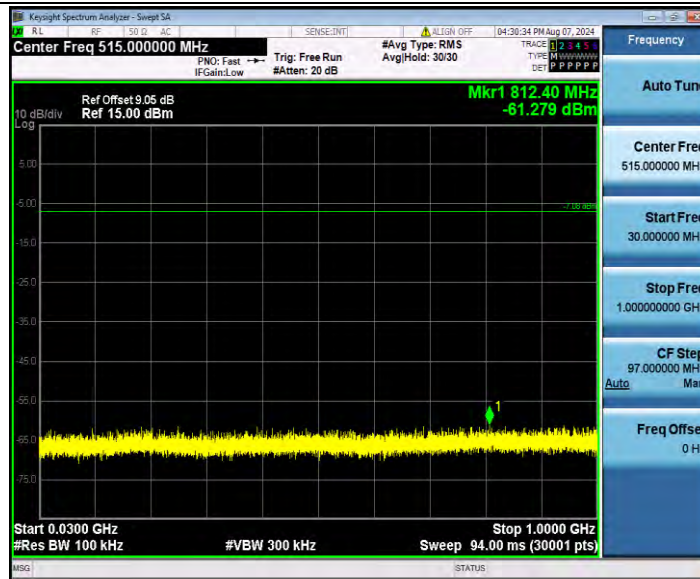
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000

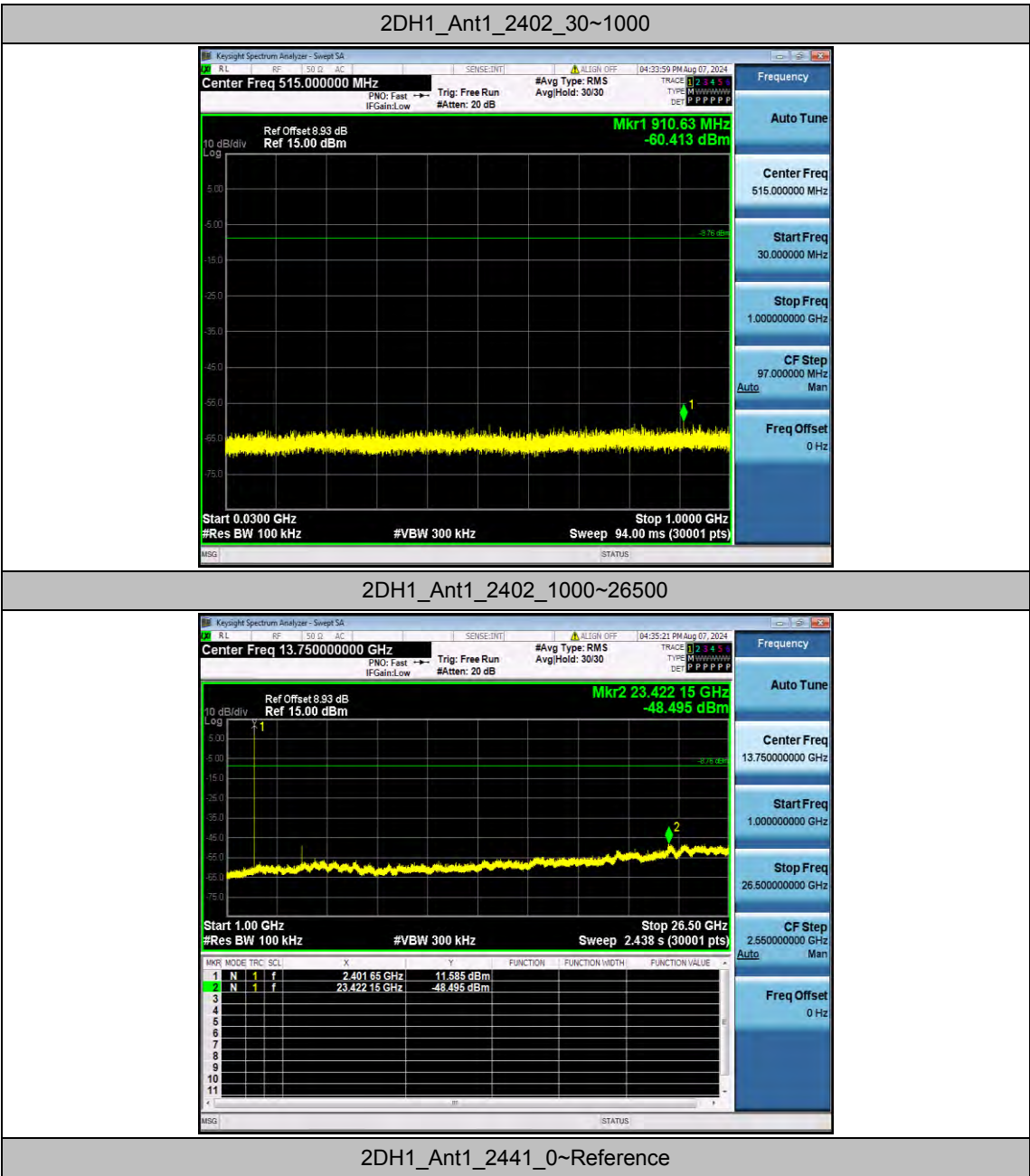


DH1_Ant1_2480_1000~26500



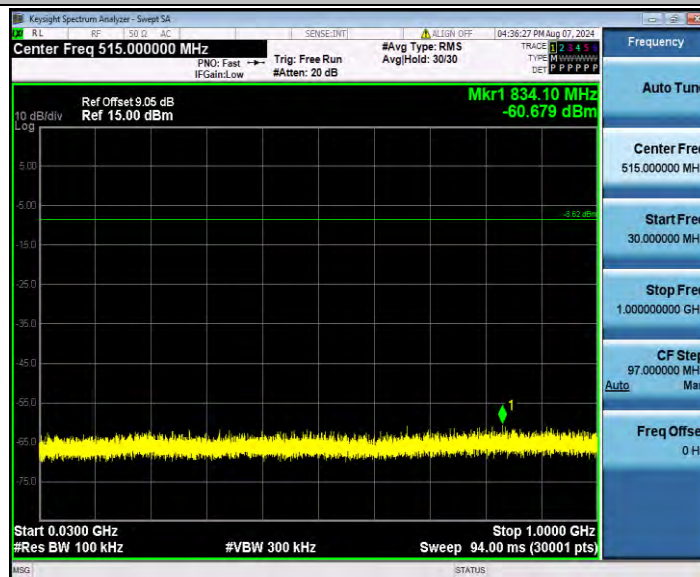
2DH1_Ant1_2402_0~Reference







2DH1_Ant1_2441_30~1000



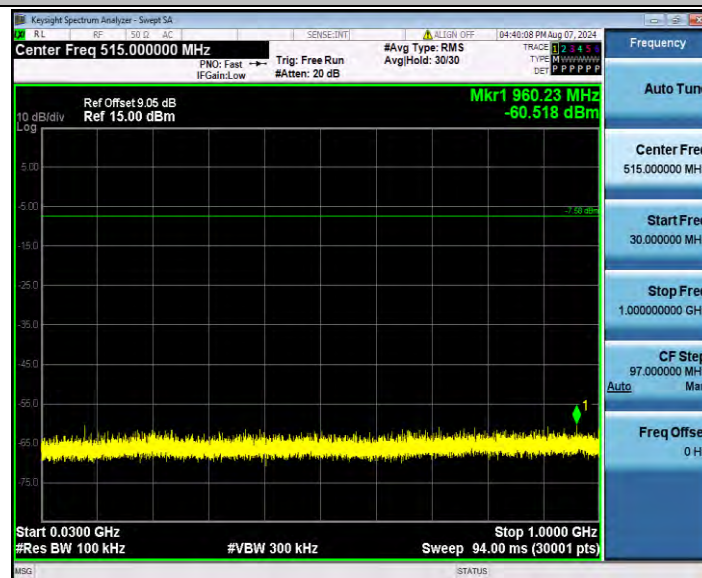
2DH1_Ant1_2441_1000~26500



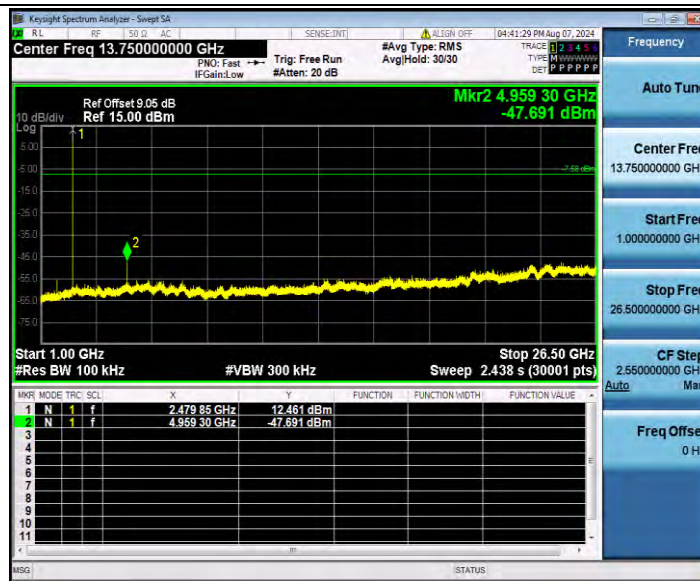
2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



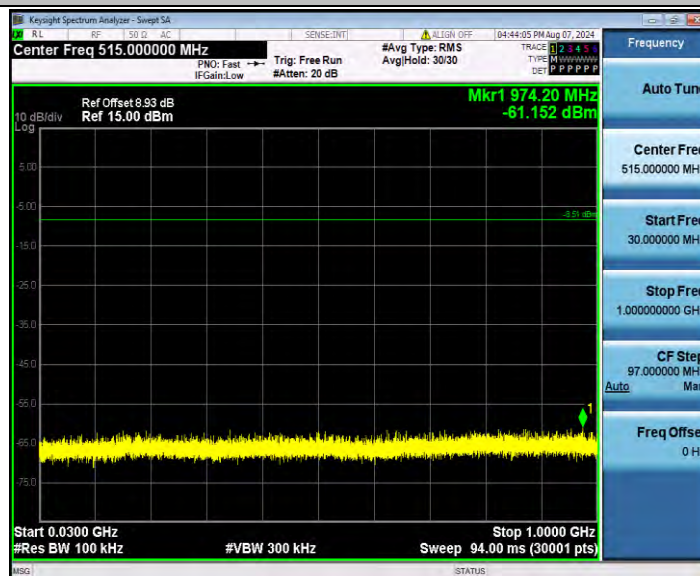
2DH1_Ant1_2480_1000~26500



3DH1_Ant1_2402_0~Reference



3DH1_Ant1_2402_30~1000



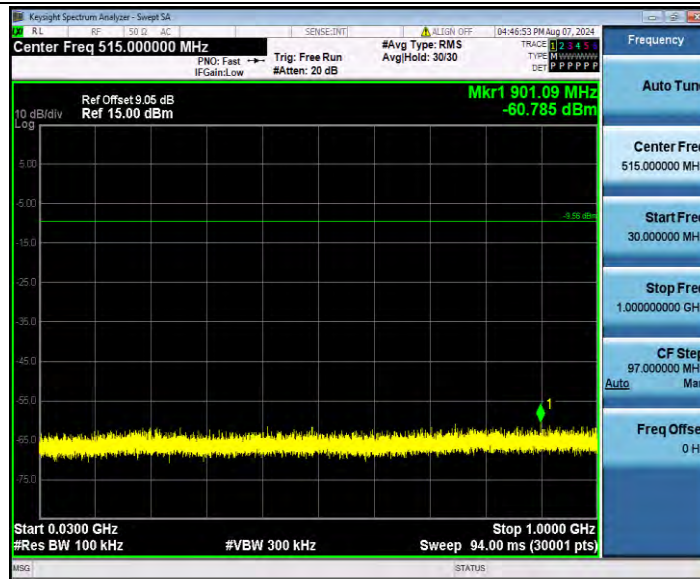
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000

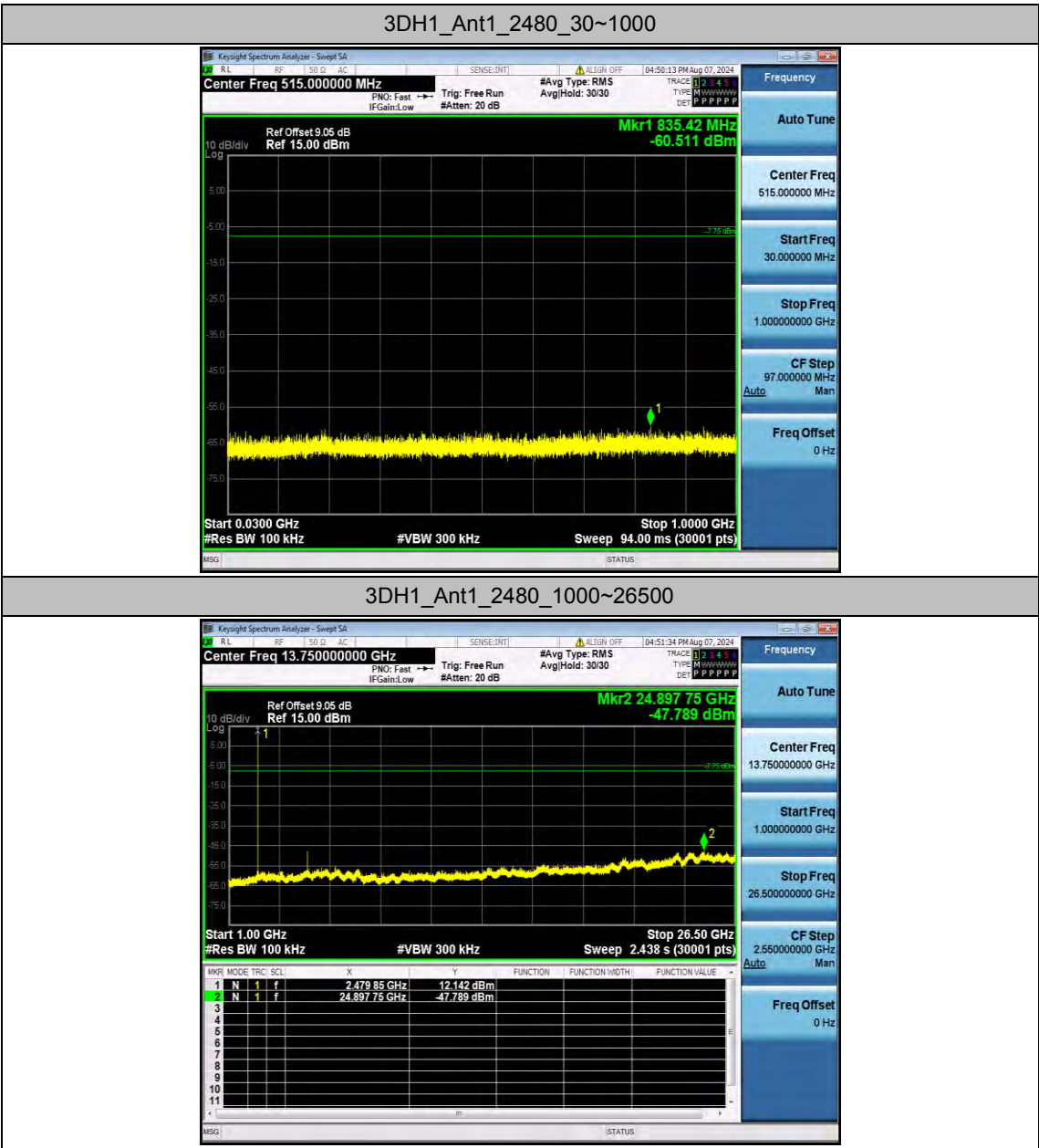


3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference





Appendix A.9: Emissions in Restricted Bands

Test Result

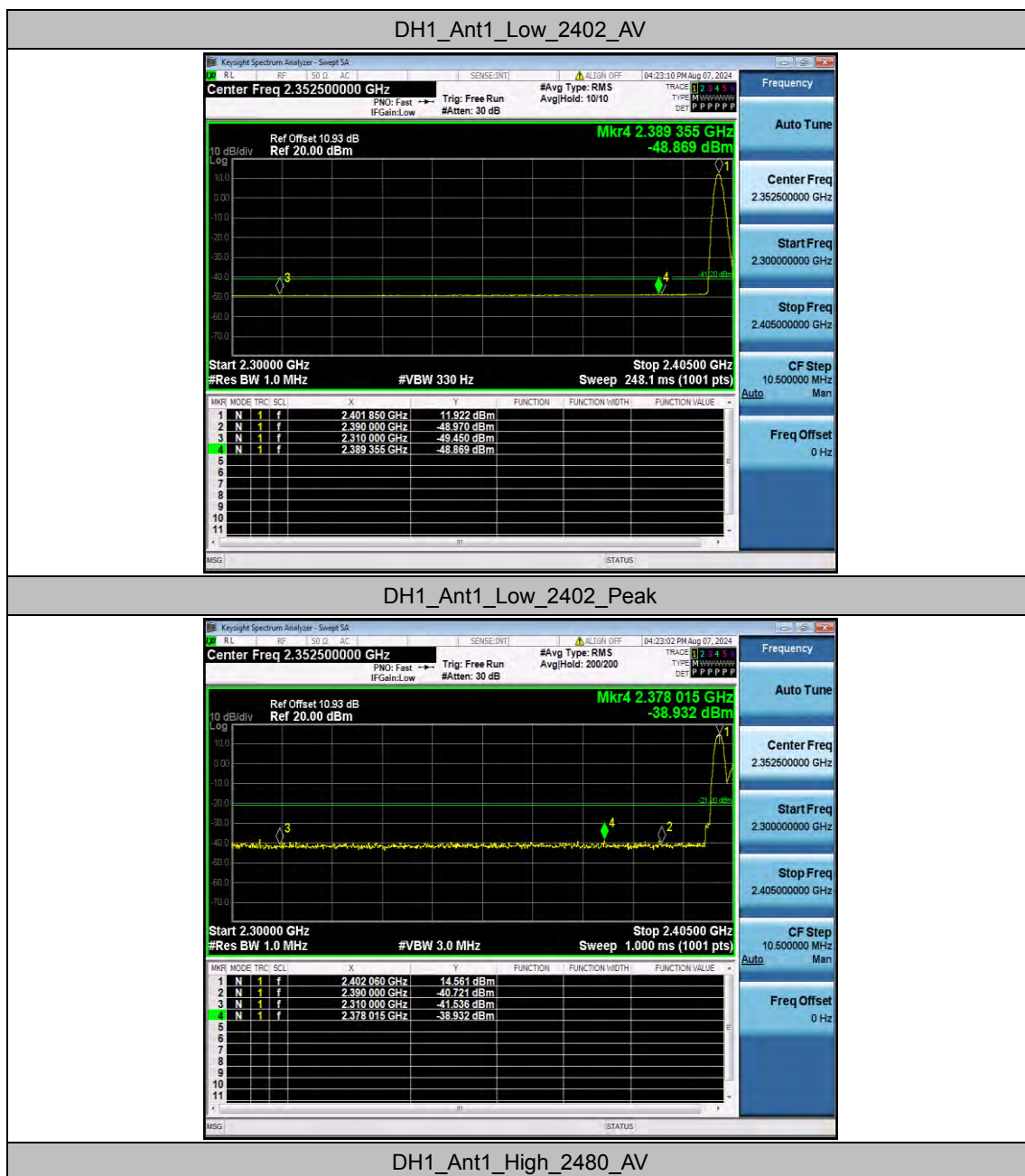
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.45	≤-41.20	45.75	≤54	PASS
				AV	2389.355	-48.87	≤-41.20	46.33	≤54	PASS
				AV	2390.000	-48.97	≤-41.20	46.23	≤54	PASS
				Peak	2310.000	-41.54	≤-21.20	53.66	≤74	PASS
				Peak	2378.015	-38.93	≤-21.20	56.27	≤74	PASS
				Peak	2390.000	-40.72	≤-21.20	54.48	≤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	-40.92	≤-21.20	54.28	≤74	PASS
				Peak	2488.240	-38.86	≤-21.20	56.34	≤74	PASS
				Peak	2500.000	-41.33	≤-21.20	53.87	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.46	≤-41.20	45.74	≤54	PASS
				AV	2384.525	-48.98	≤-41.20	46.22	≤54	PASS
				AV	2390.000	-49	≤-41.20	46.20	≤54	PASS
				Peak	2310.000	-40.27	≤-21.20	54.93	≤74	PASS
				Peak	2357.225	-38.37	≤-21.20	56.83	≤74	PASS
				Peak	2390.000	-41.24	≤-21.20	53.96	≤74	PASS
		High	2480	AV	2483.500	-46.65	≤-41.20	48.55	≤54	PASS
				AV	2483.520	-46.65	≤-41.20	48.55	≤54	PASS
				AV	2500.000	-48.72	≤-41.20	46.48	≤54	PASS
				Peak	2483.500	-41.02	≤-21.20	54.18	≤74	PASS
				Peak	2486.480	-38.76	≤-21.20	56.44	≤74	PASS
				Peak	2500.000	-41.33	≤-21.20	53.87	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.49	≤-41.20	45.71	≤54	PASS
				AV	2387.675	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2390.000	-49.06	≤-41.20	46.14	≤54	PASS
				Peak	2310.000	-42.42	≤-21.20	52.78	≤74	PASS
				Peak	2363.210	-38.75	≤-21.20	56.45	≤74	PASS
				Peak	2390.000	-41.6	≤-21.20	53.60	≤74	PASS
		High	2480	AV	2483.500	-46.81	≤-41.20	48.39	≤54	PASS
				AV	2483.520	-46.81	≤-41.20	48.39	≤54	PASS
				AV	2500.000	-48.74	≤-41.20	46.46	≤54	PASS
				Peak	2483.500	-41.81	≤-21.20	53.39	≤74	PASS
				Peak	2484.800	-37.49	≤-21.20	57.71	≤74	PASS

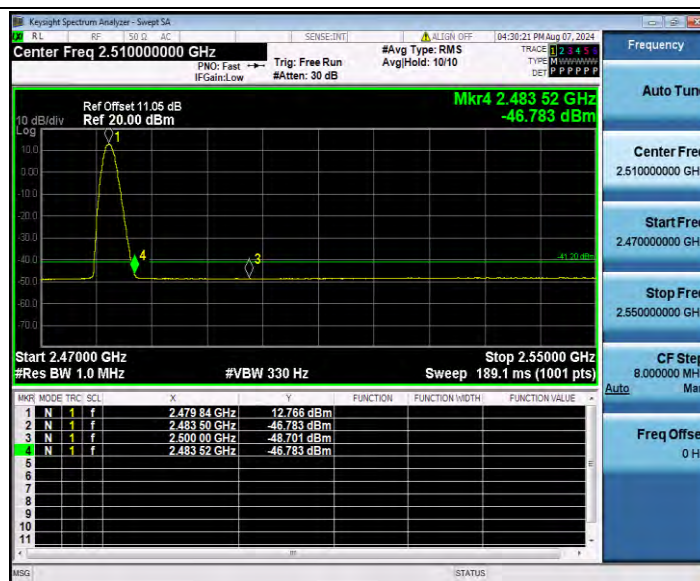
				Peak	2500.000	-40.42	≤ -21.20	54.78	≤ 74	PASS
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Note:

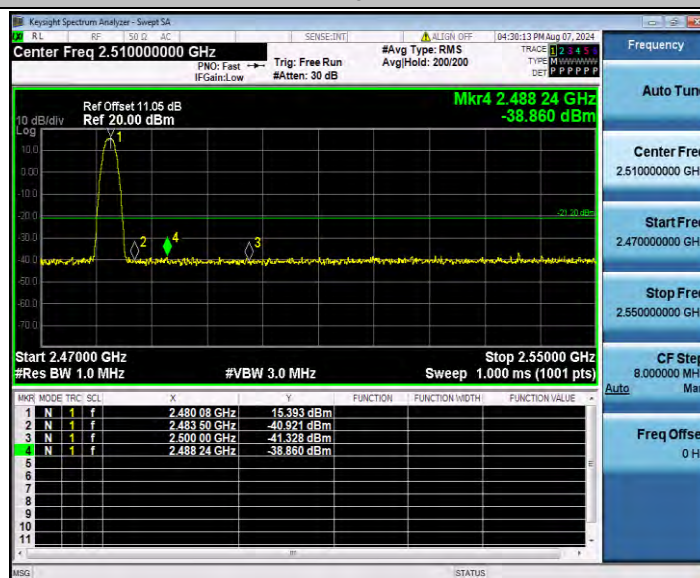
1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

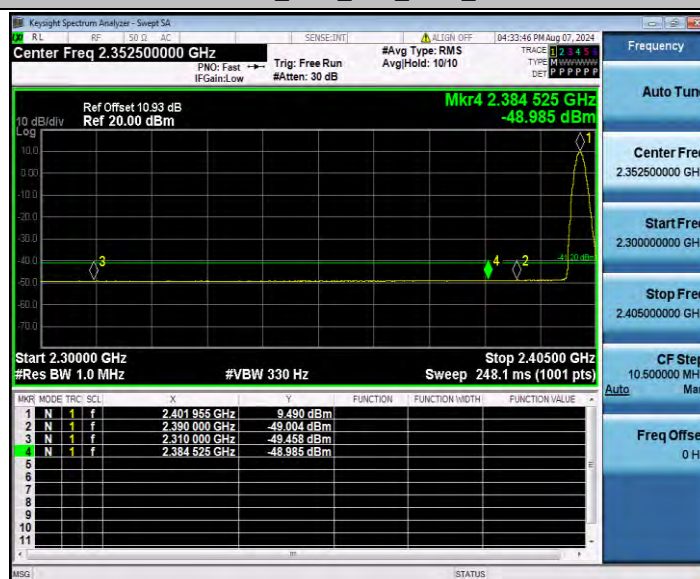




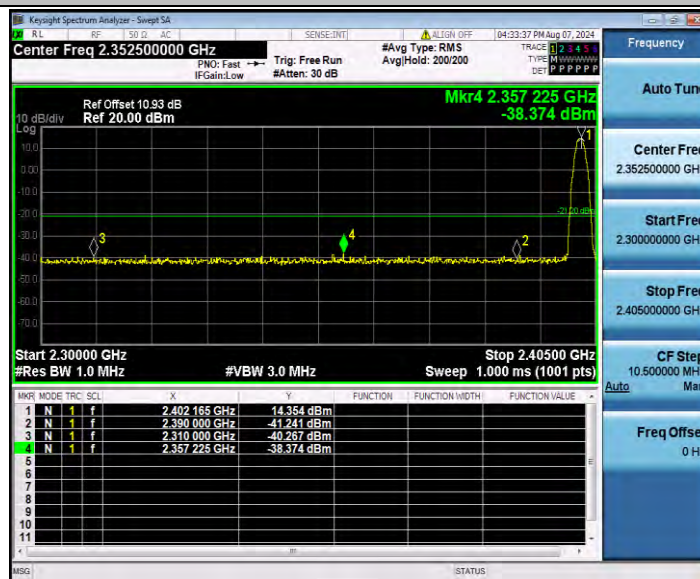
DH1_Ant1_High_2480_Peak



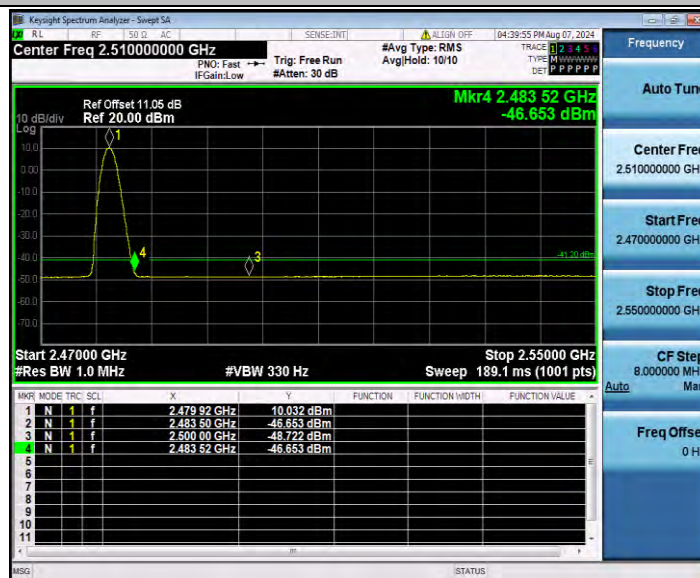
2DH1_Ant1_Low_2402_AV



2DH1_Ant1_Low_2402_Peak



2DH1_Ant1_High_2480_AV



2DH1_Ant1_High_2480_Peak

