

Case No. : <u>GTS20240102003-1-1</u>
Ambient Condition: <u>23</u> °C, <u>48</u> %RH
According Standard: ■Part15C
Test Date: <u>2024.1.5</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]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.861	2401.559	2402.420	---	---
		2441	0.864	2440.550	2441.414	---	---
		2480	0.855	2479.550	2480.405	---	---
2DH1	Ant1	2402	1.230	2401.385	2402.615	---	---
		2441	1.263	2440.361	2441.624	---	---
		2480	1.263	2479.361	2480.624	---	---
3DH1	Ant1	2402	1.266	2401.364	2402.630	---	---
		2441	1.257	2440.376	2441.633	---	---
		2480	1.257	2479.382	2480.639	---	---

Test Graphs





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]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.85799	2401.5678	2402.4258	---	---
		2441	0.87052	2440.5649	2441.4354	---	---
		2480	0.86327	2479.5681	2480.4314	---	---
2DH1	Ant1	2402	1.1664	2401.4131	2402.5795	---	---
		2441	1.1665	2440.4062	2441.5727	---	---
		2480	1.1637	2479.4079	2480.5716	---	---
3DH1	Ant1	2402	1.1698	2401.4061	2402.5759	---	---
		2441	1.1616	2440.4139	2441.5755	---	---
		2480	1.1664	2479.4109	2480.5773	---	---

Test Graphs





2DH1_Ant1_2402



2DH1_Ant1_2441



2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



3DH1_Ant1_2480



Appendix A.3: Maximum conducted output power

Test Result Peak

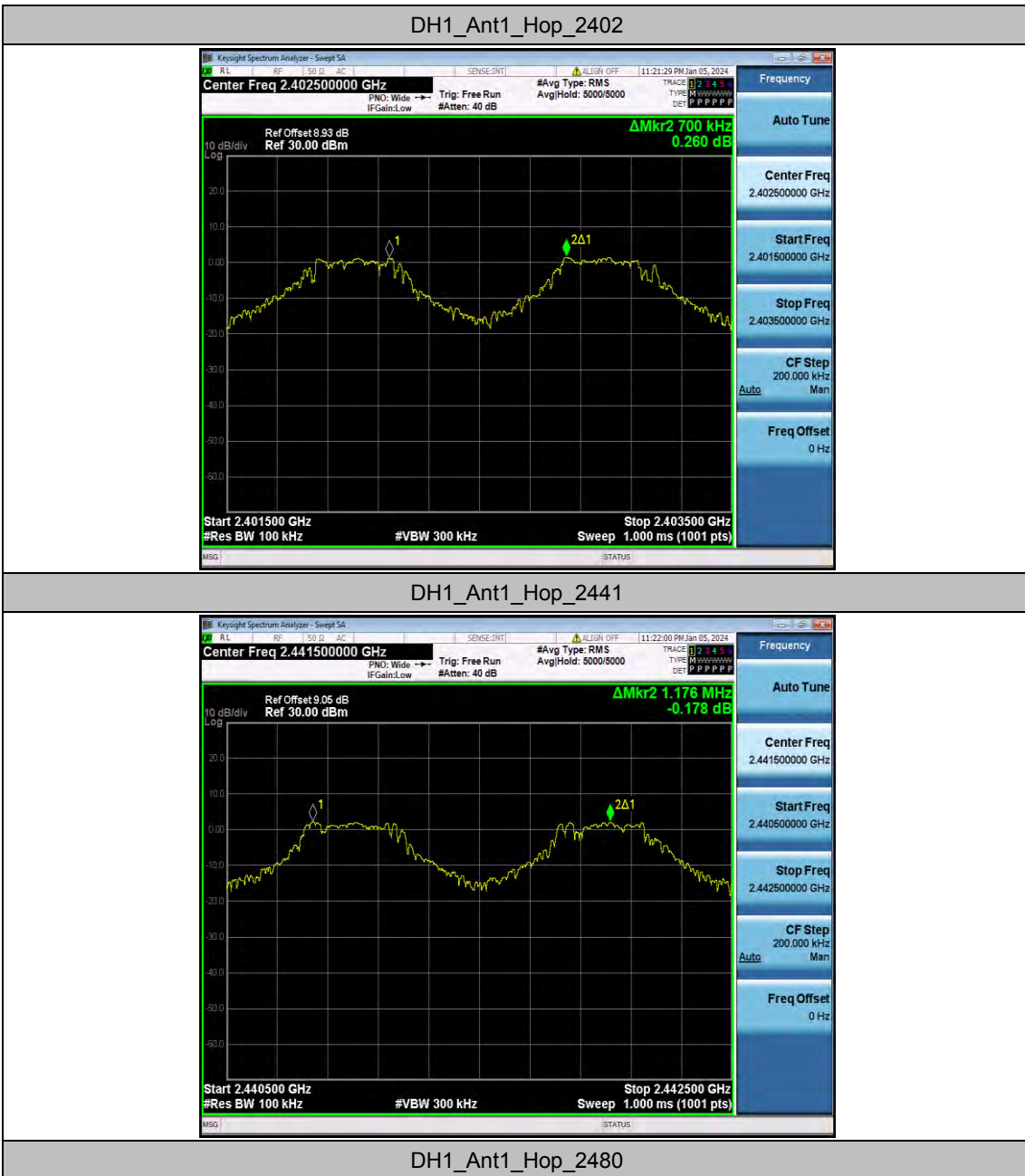
Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH1	Ant1	2402	2.34	≤20.97	PASS
		2441	2.91	≤20.97	PASS
		2480	2.74	≤20.97	PASS
2DH1	Ant1	2402	3.24	≤20.97	PASS
		2441	3.43	≤20.97	PASS
		2480	3.32	≤20.97	PASS
3DH1	Ant1	2402	2.83	≤20.97	PASS
		2441	3.70	≤20.97	PASS
		2480	3.42	≤20.97	PASS

Appendix A.4: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Hop_2402	0.7	≥ 0.576	PASS
		Hop_2441	1.176	≥ 0.864	PASS
		Hop_2480	1.3	≥ 0.864	PASS
2DH1	Ant1	Hop_2402	0.876	≥ 0.842	PASS
		Hop_2441	1.142	≥ 0.842	PASS
		Hop_2480	1.178	≥ 0.842	PASS
3DH1	Ant1	Hop_2402	1.022	≥ 0.844	PASS
		Hop_2441	1	≥ 0.844	PASS
		Hop_2480	1	≥ 0.844	PASS

Test Graphs





2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441



3DH1_Ant1_Hop_2480

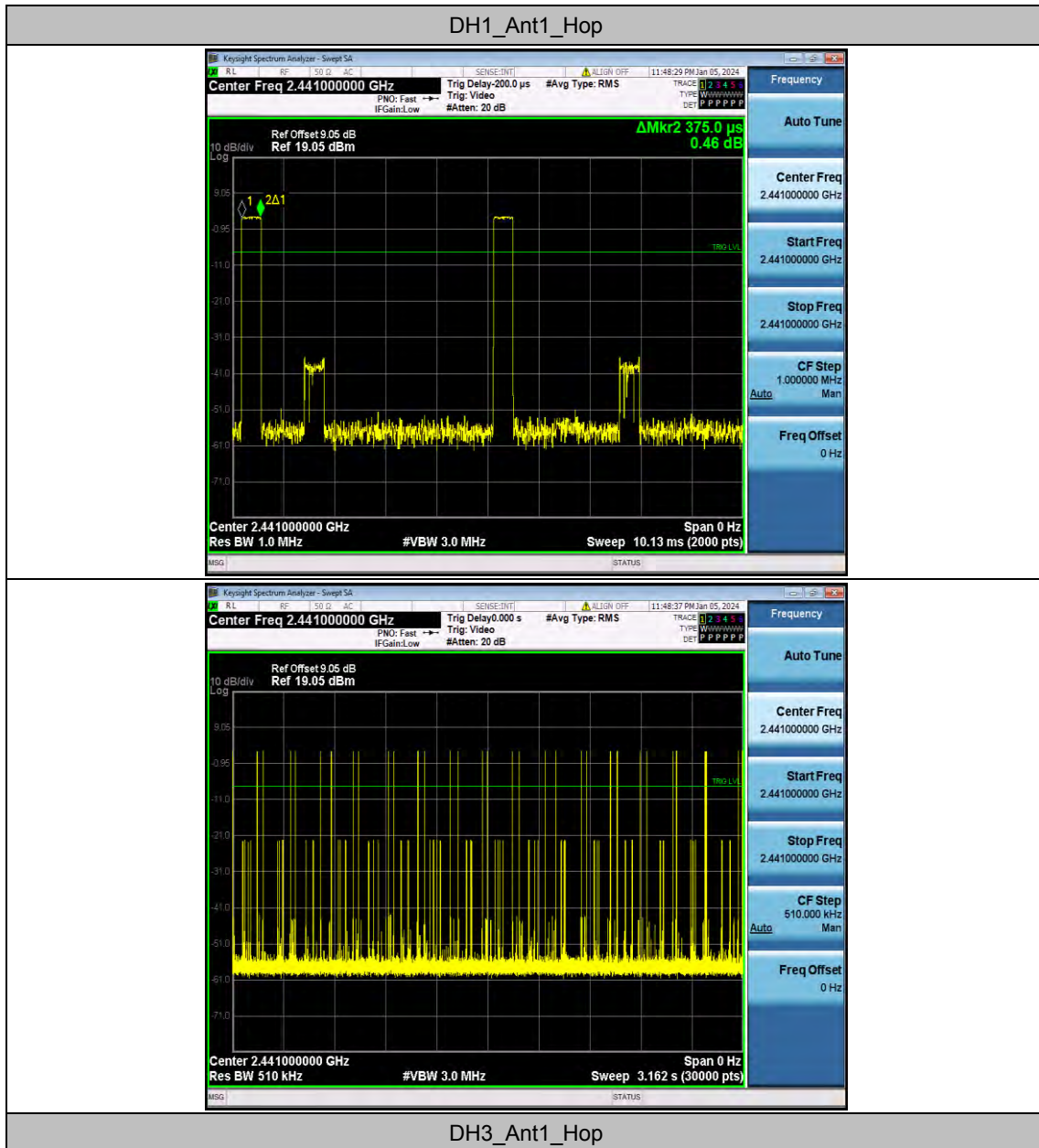


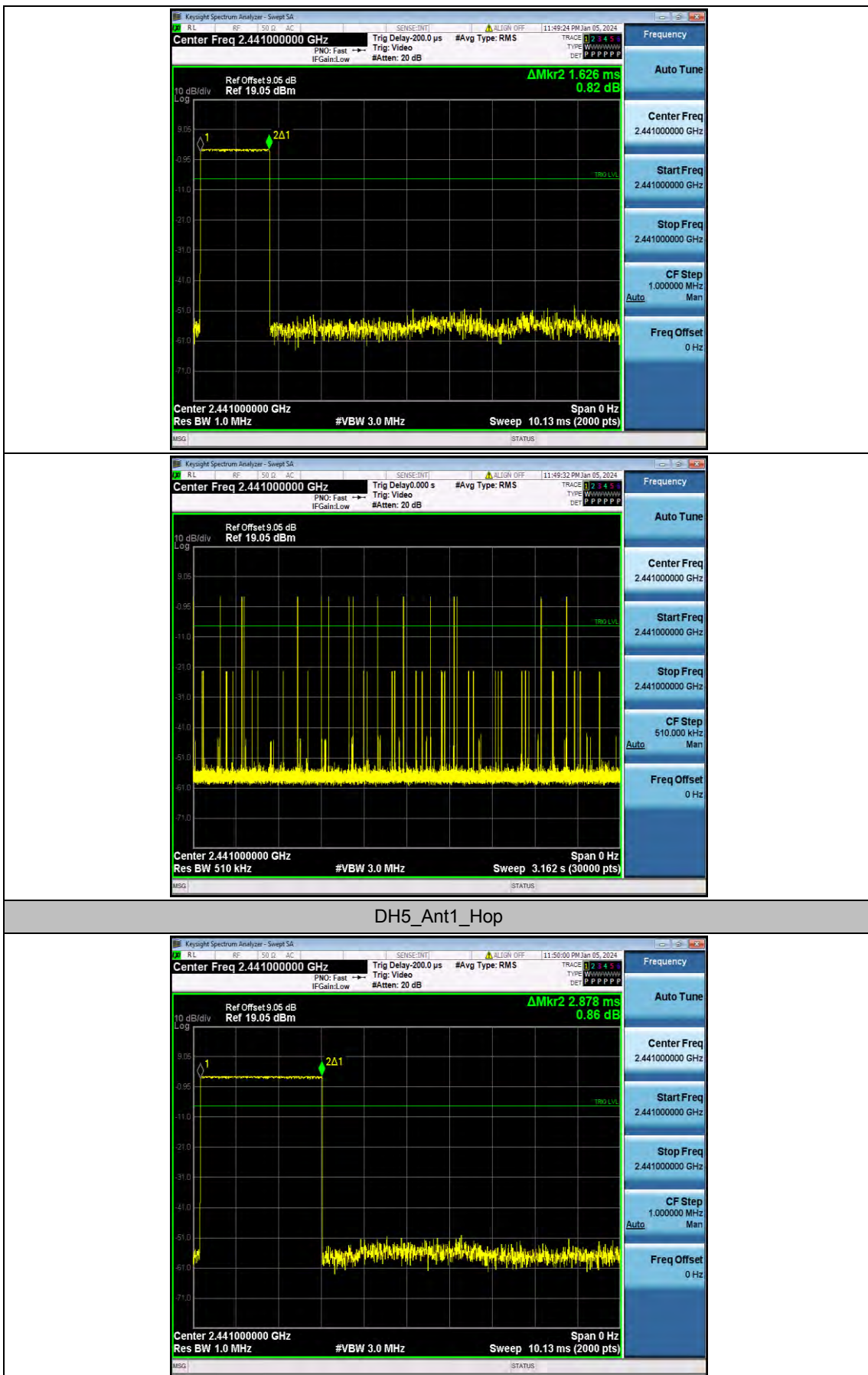
Appendix A.5: Time of occupancy

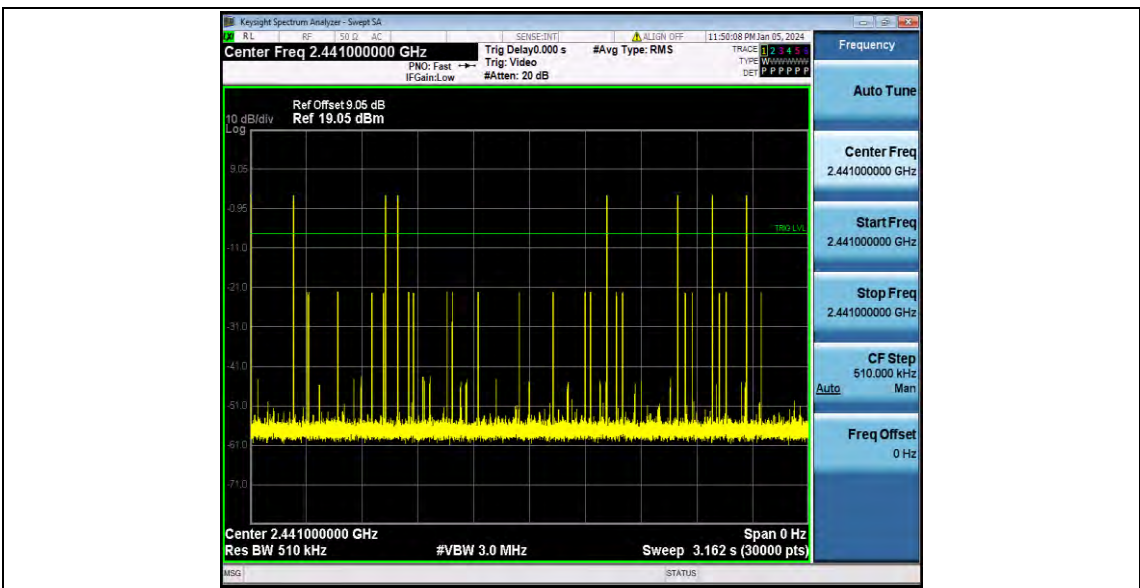
Test Result

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	1.626	160	0.26	≤0.4	PASS
DH5	Ant1	Hop	2.878	80	0.23	≤0.4	PASS
2DH1	Ant1	Hop	0.380	320	0.122	≤0.4	PASS
2DH3	Ant1	Hop	1.631	180	0.294	≤0.4	PASS
2DH5	Ant1	Hop	2.883	120	0.346	≤0.4	PASS
3DH1	Ant1	Hop	0.362	330	0.119	≤0.4	PASS
3DH3	Ant1	Hop	1.612	170	0.274	≤0.4	PASS
3DH5	Ant1	Hop	2.870	130	0.373	≤0.4	PASS

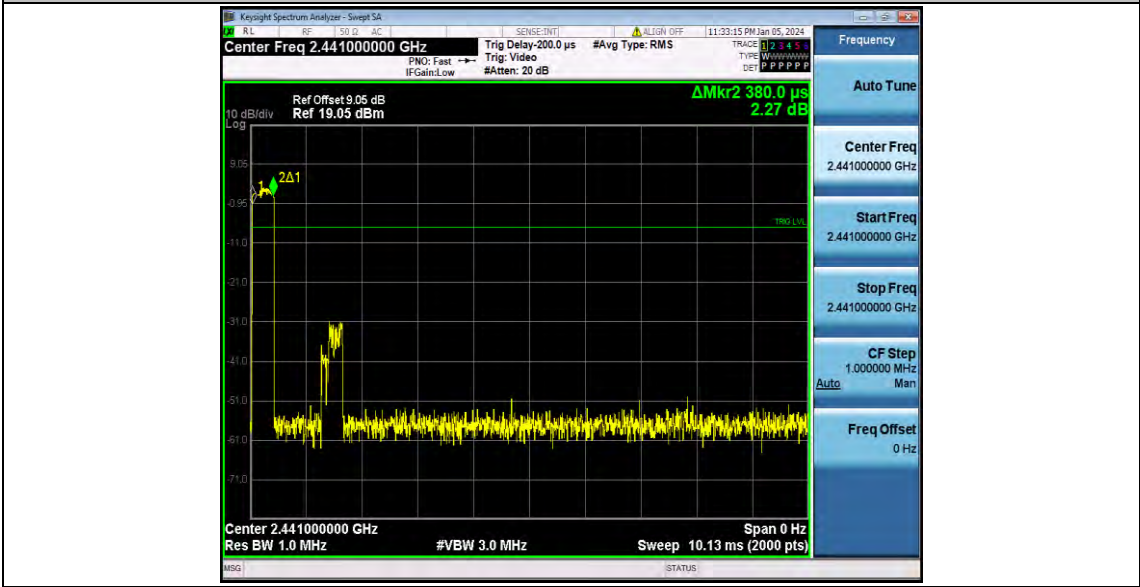
Test Graphs



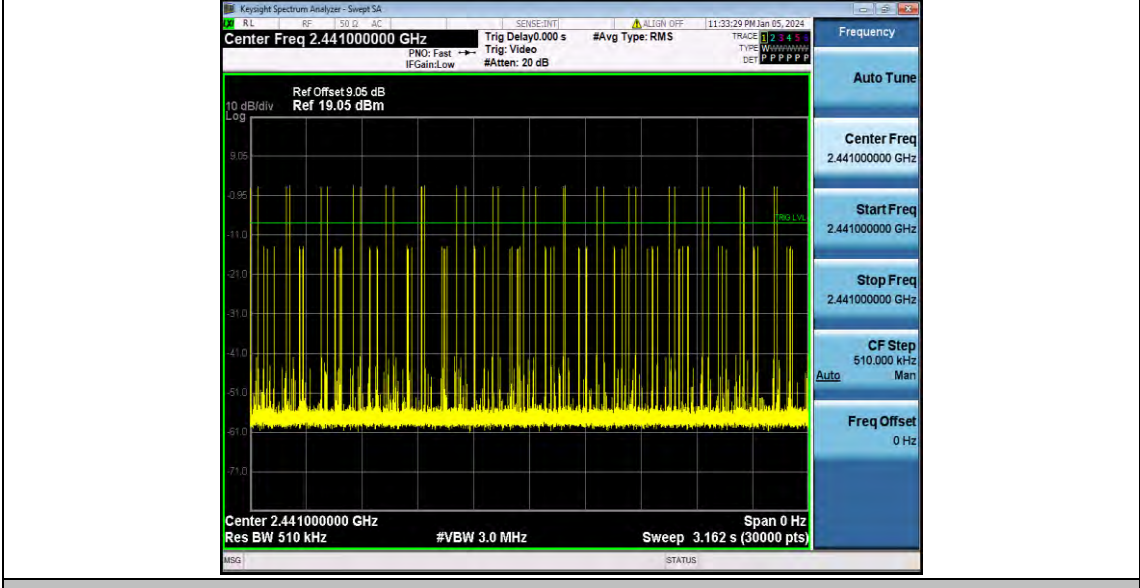


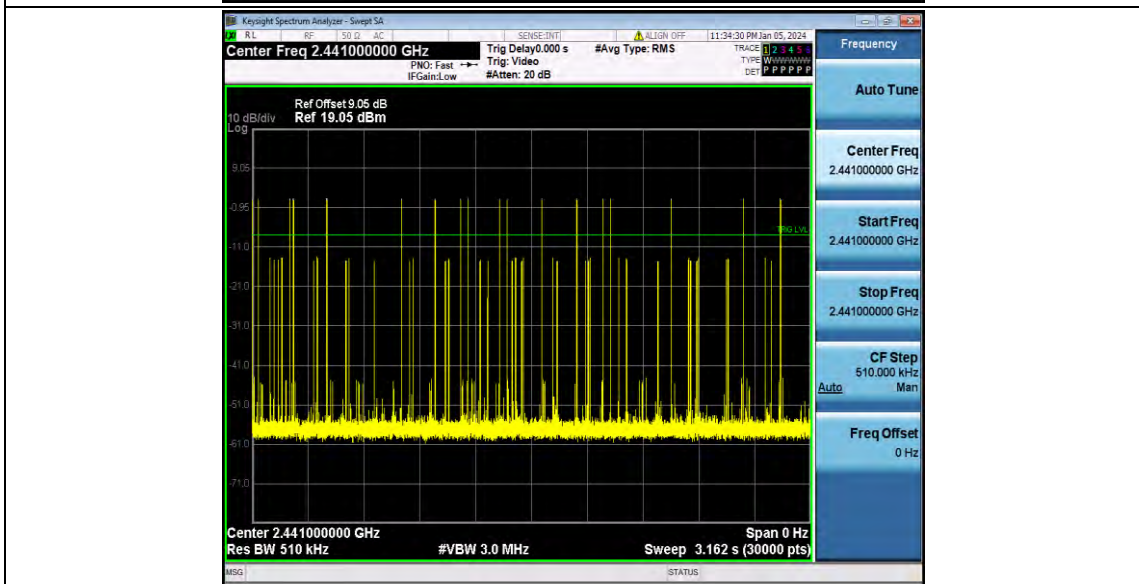
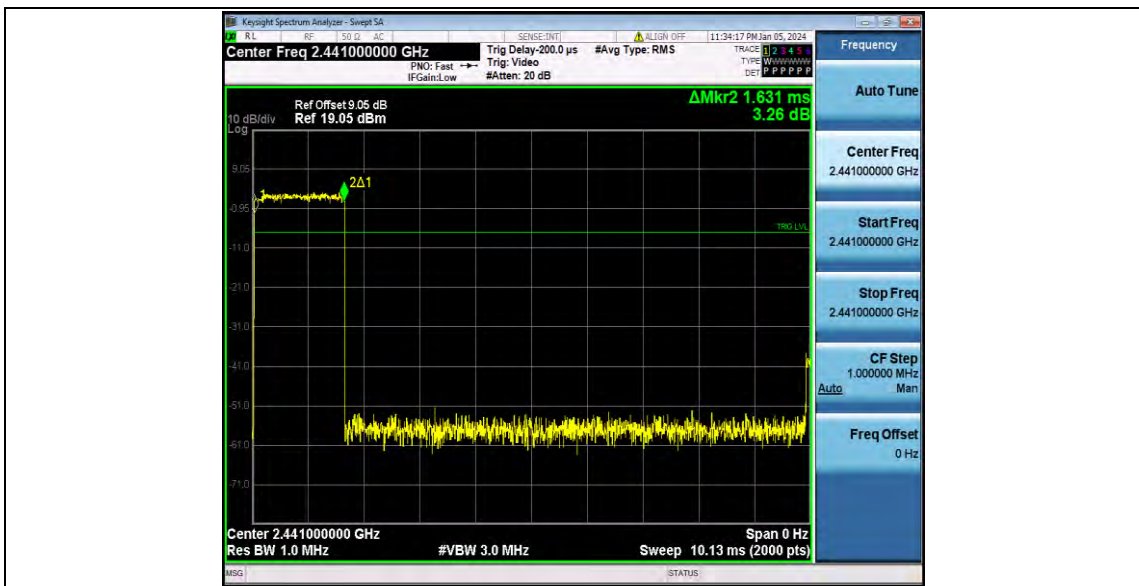


2DH1_Ant1_Hop

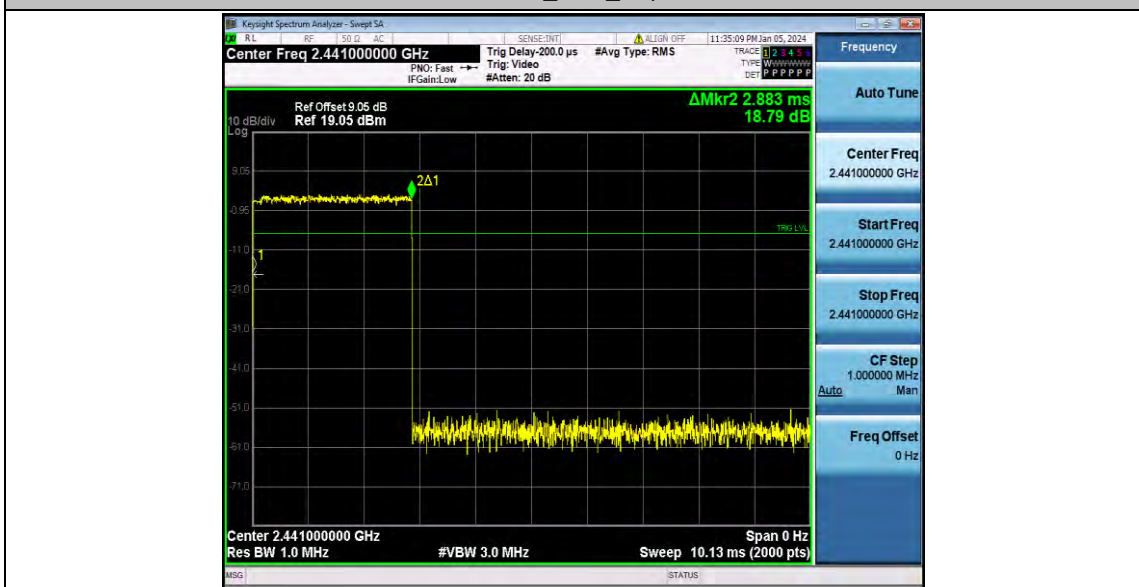


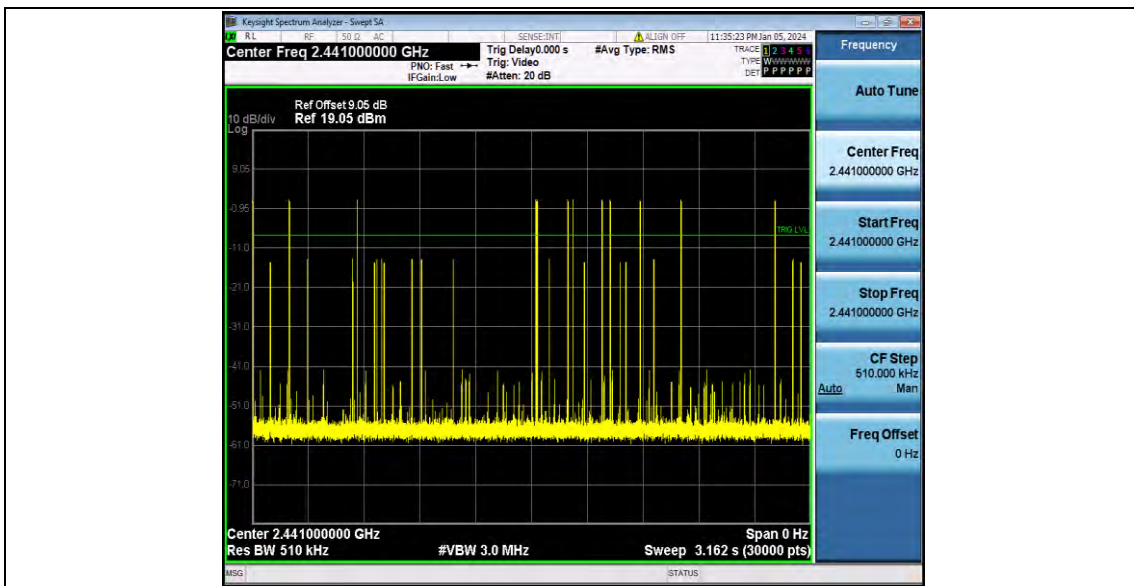
2DH3_Ant1_Hop



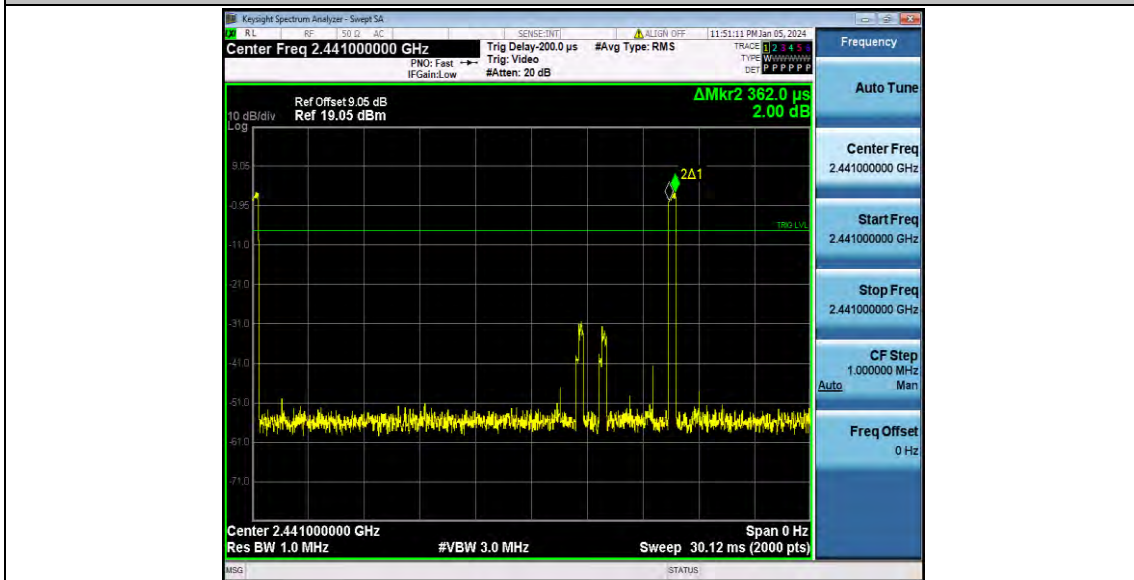


2DH5_Ant1_Hop

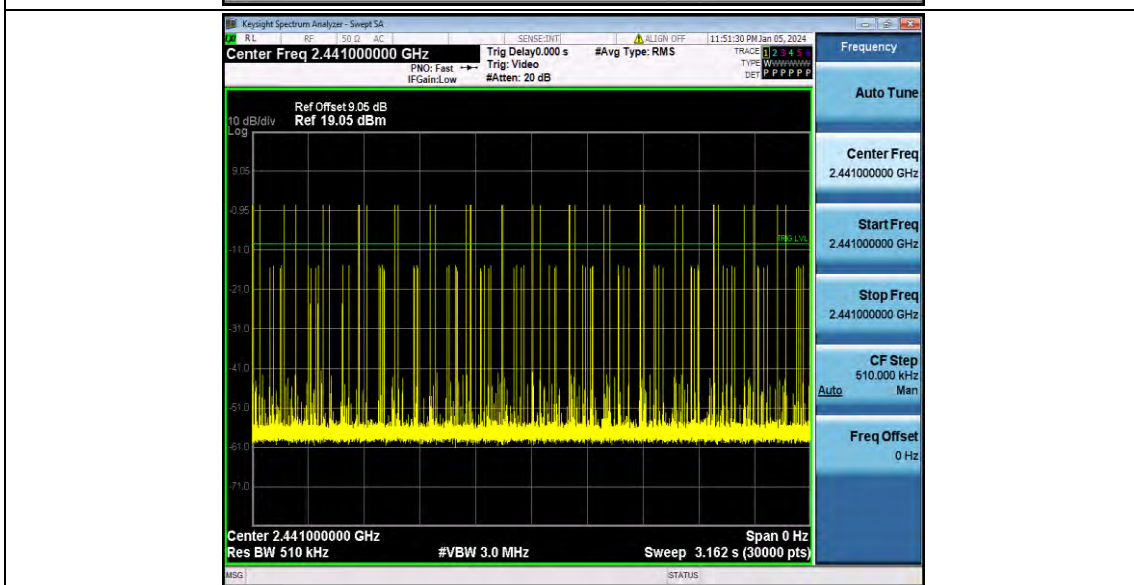


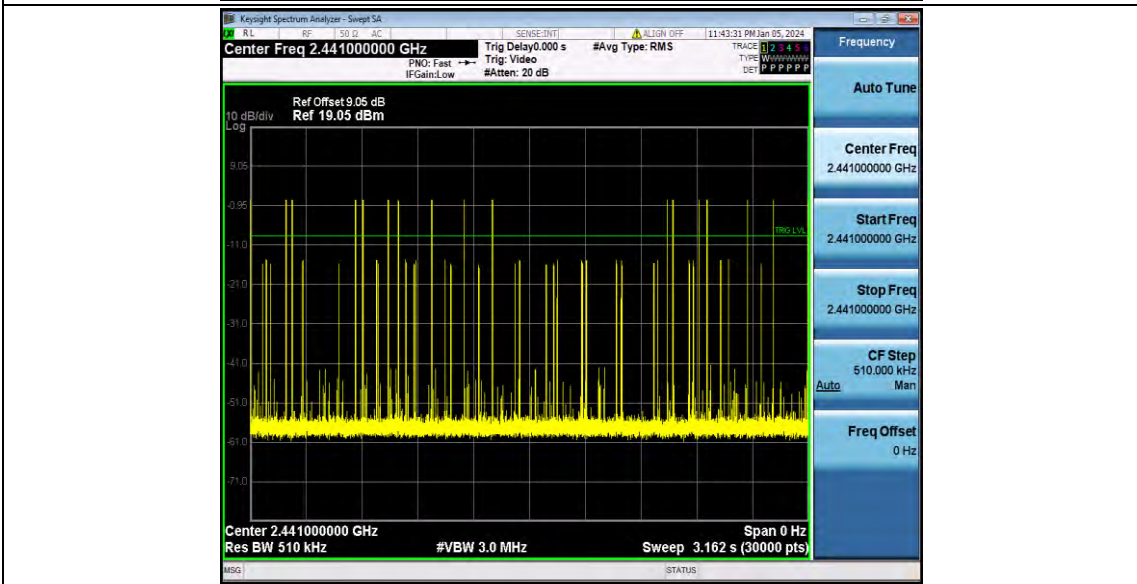
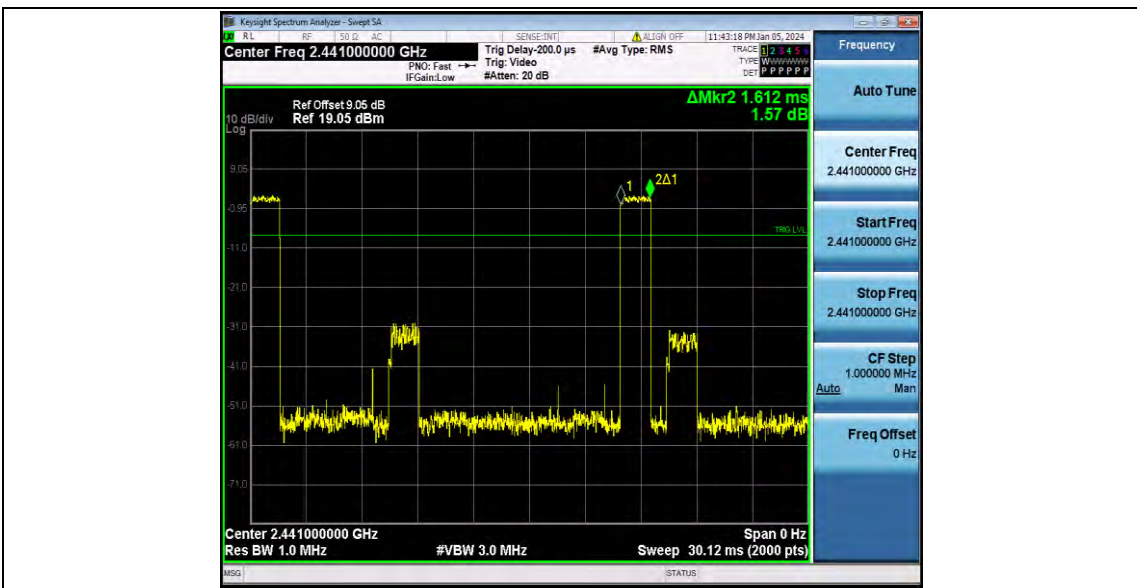


3DH1_Ant1_Hop

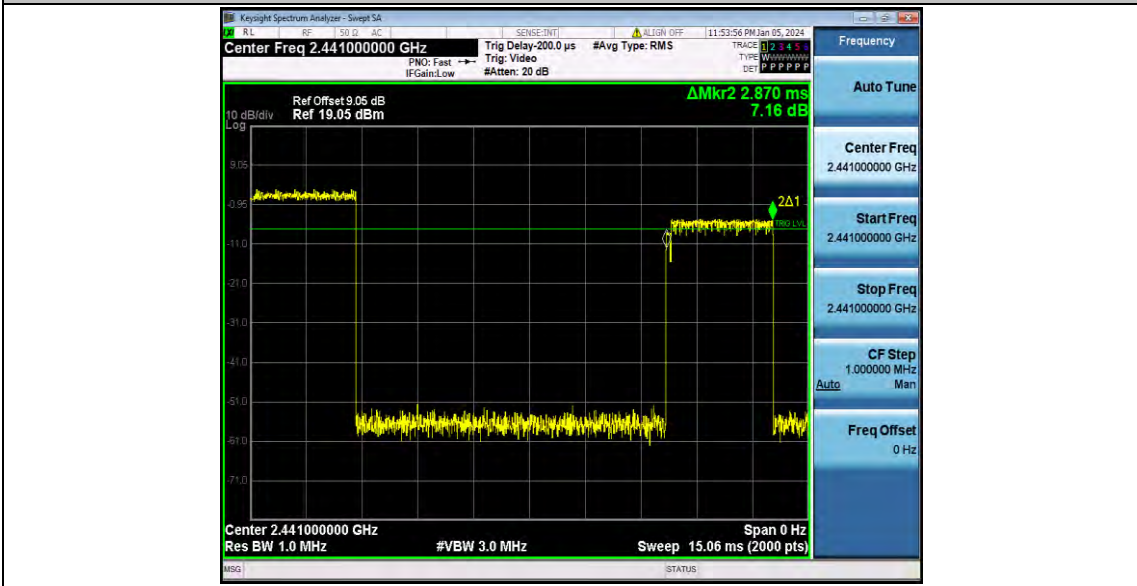


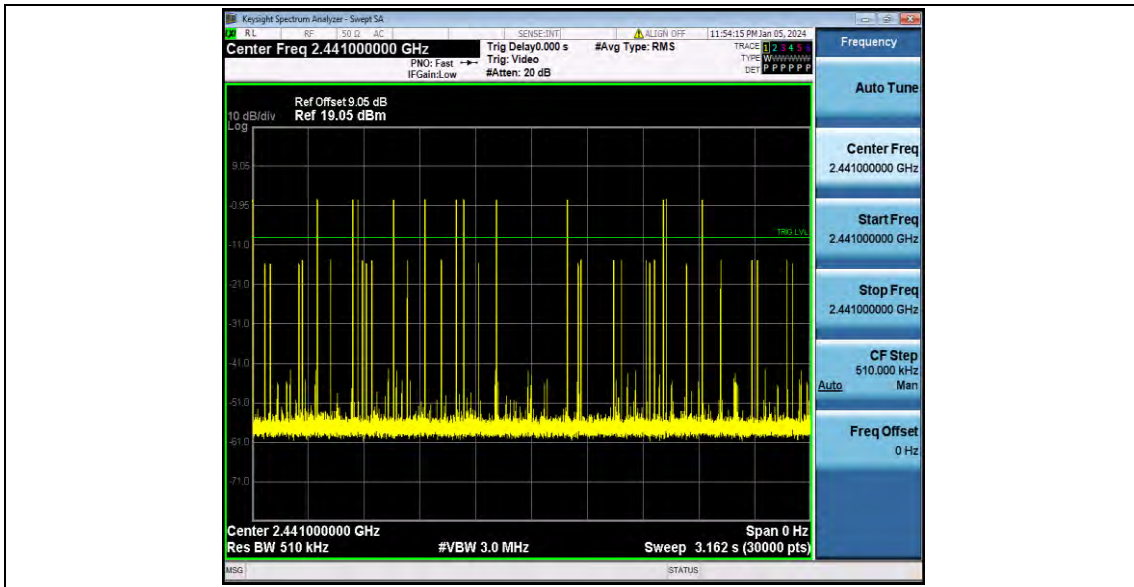
3DH3_Ant1_Hop





3DH5_Ant1_Hop



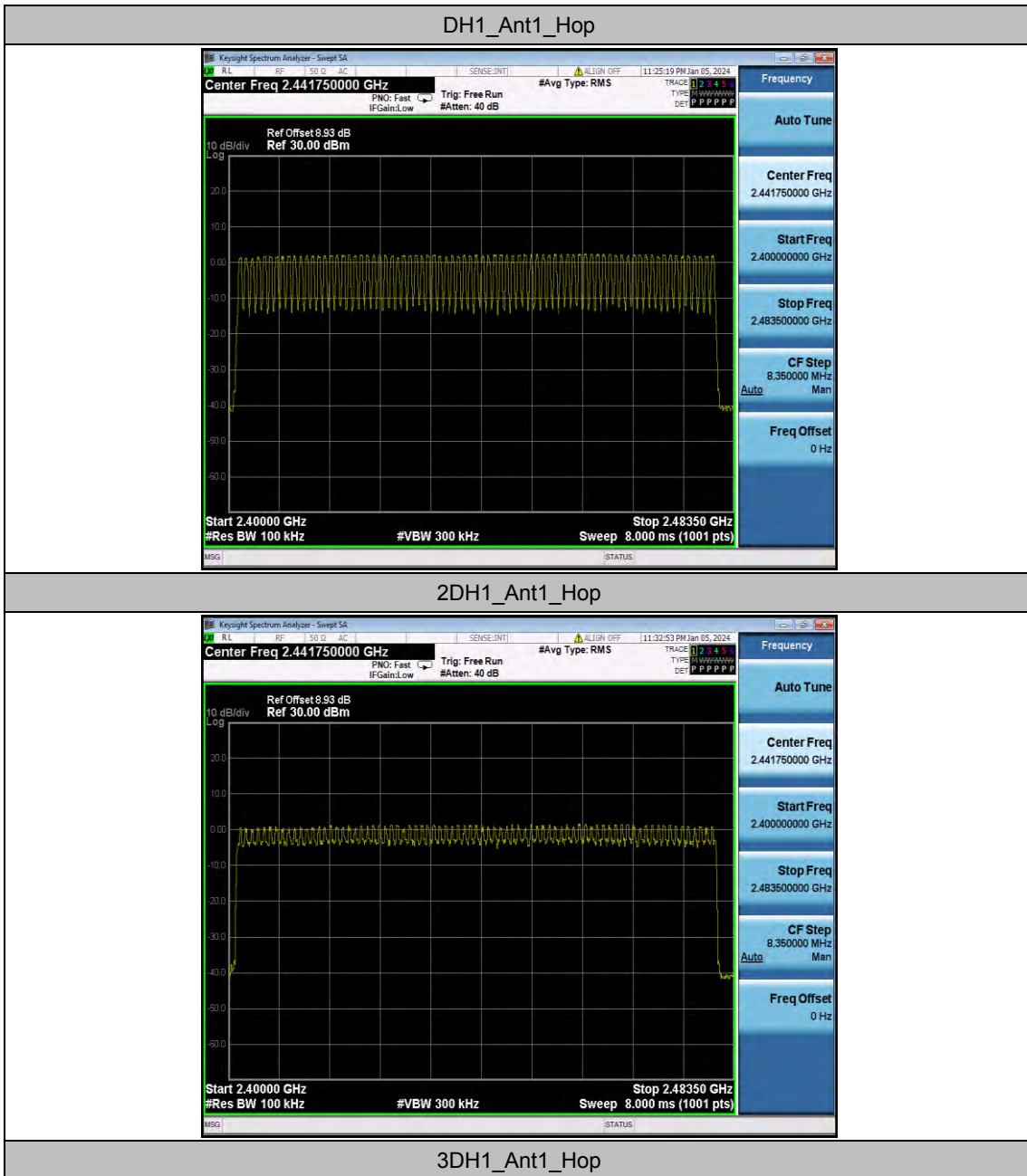


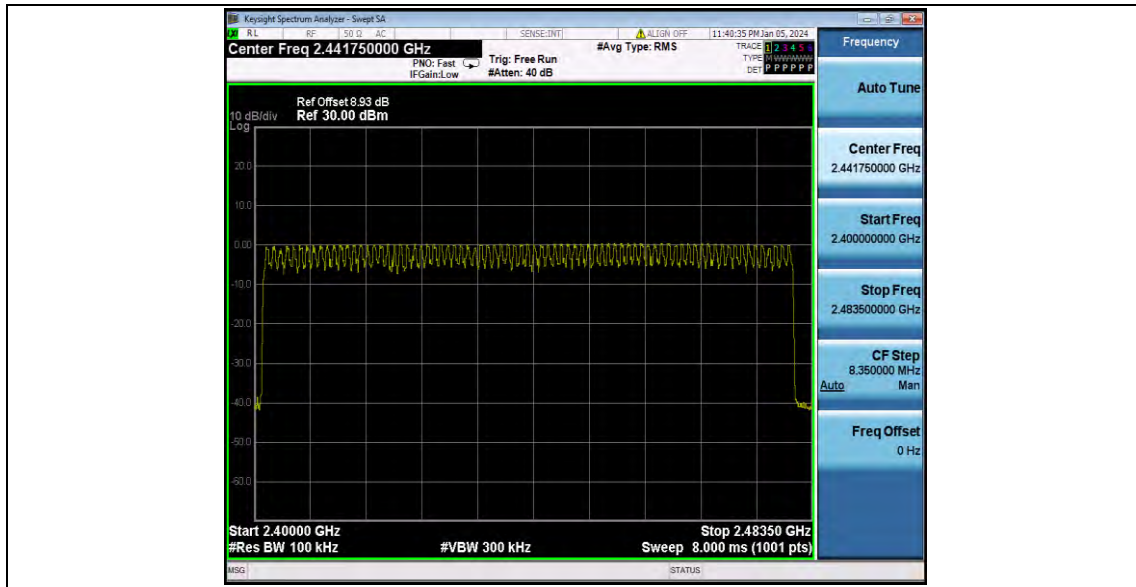
Appendix A.6: Number of hopping channels

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



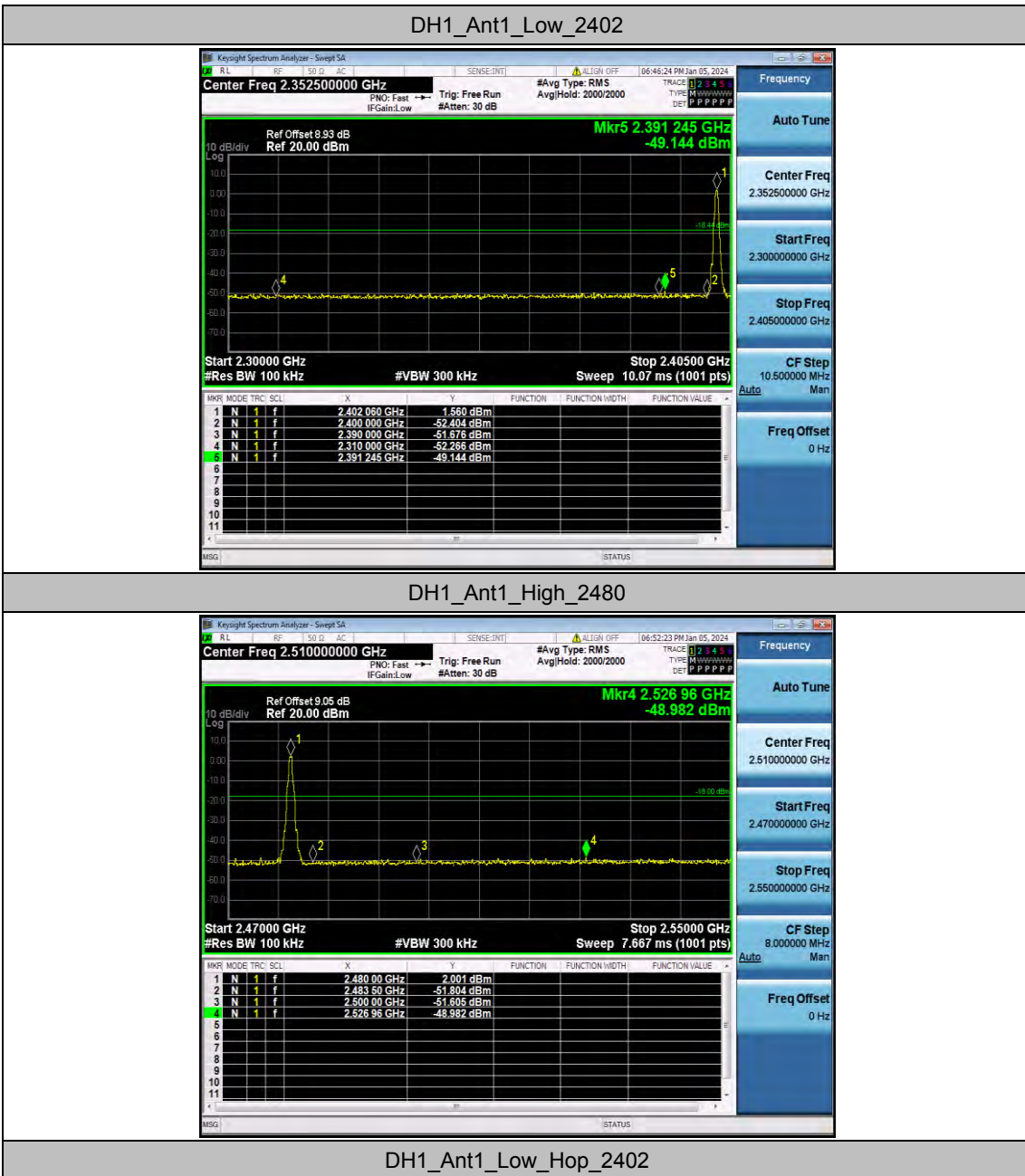


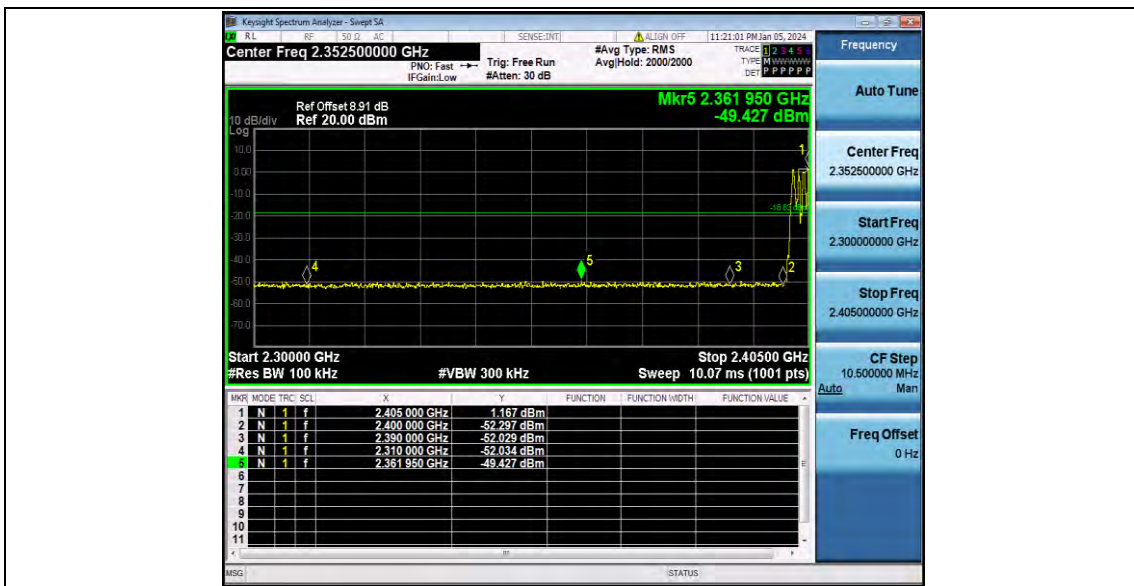
Appendix A.7: Band edge measurements

Test Result

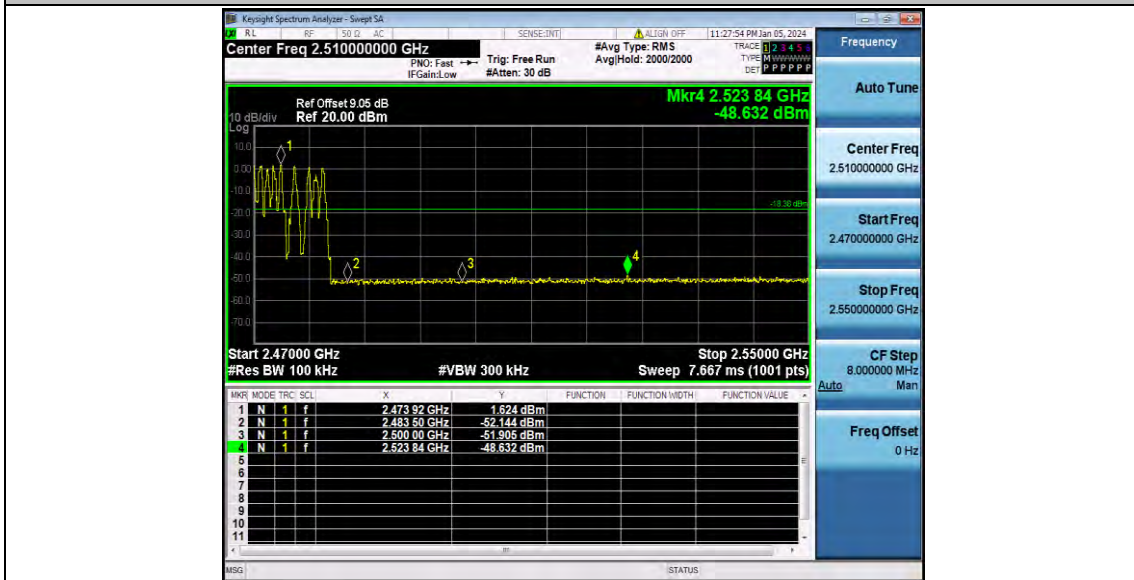
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	Low	2402	1.56	-49.14	≤-18.44	PASS
		High	2480	2.00	-48.98	≤-18	PASS
		Low	Hop_2402	1.17	-49.43	≤-18.83	PASS
		High	Hop_2480	1.62	-48.63	≤-18.38	PASS
2DH1	Ant1	Low	2402	0.73	-49.11	≤-19.27	PASS
		High	2480	0.81	-49.01	≤-19.19	PASS
		Low	Hop_2402	0.20	-49.23	≤-19.8	PASS
		High	Hop_2480	0.86	-48.89	≤-19.14	PASS
3DH1	Ant1	Low	2402	0.44	-49.57	≤-19.56	PASS
		High	2480	1.02	-48.53	≤-18.98	PASS
		Low	Hop_2402	-0.31	-49.15	≤-20.31	PASS
		High	Hop_2480	-0.57	-48.45	≤-20.57	PASS

Test Graphs

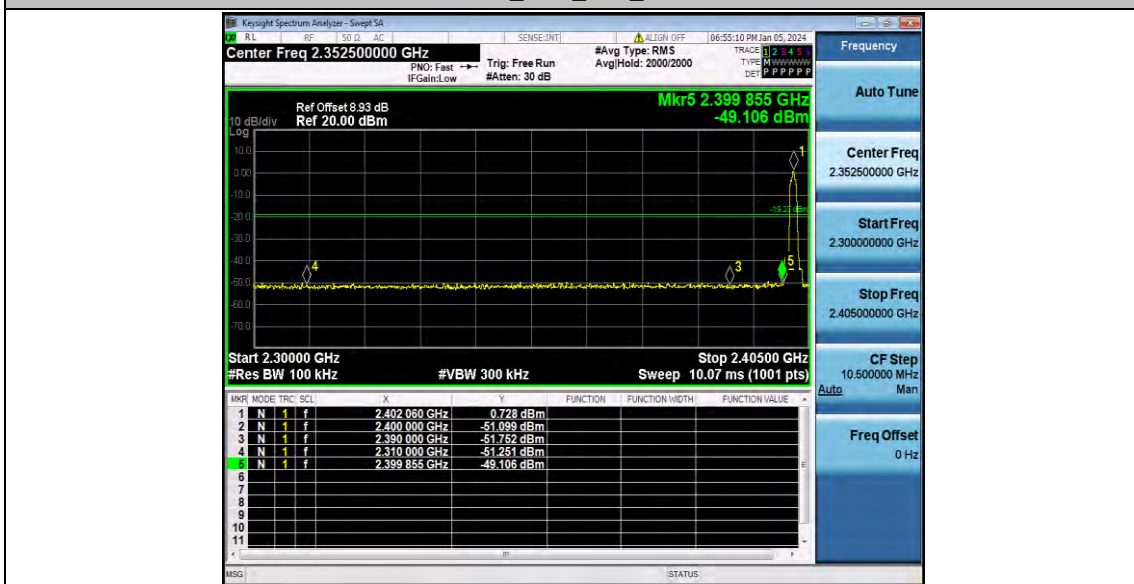




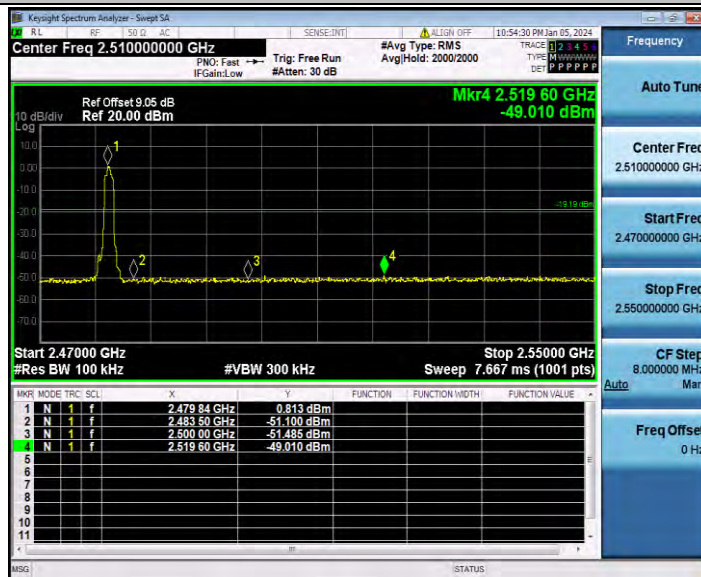
DH1_Ant1_High_Hop_2480



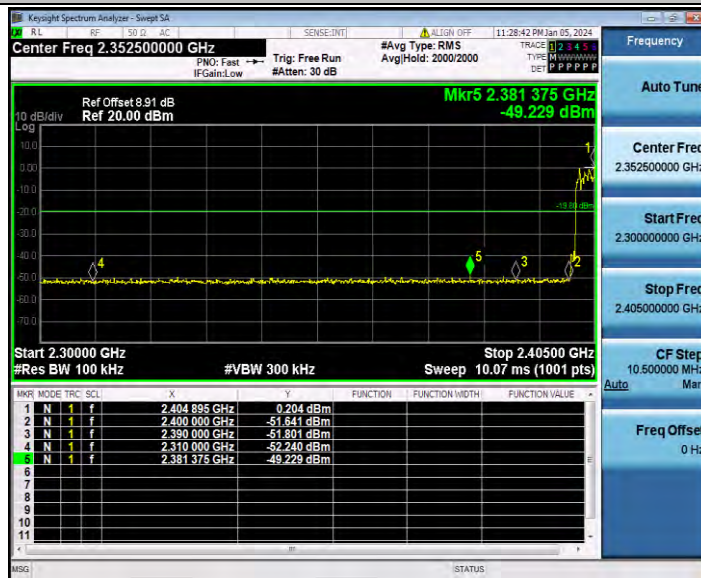
2DH1_Ant1_Low_2402



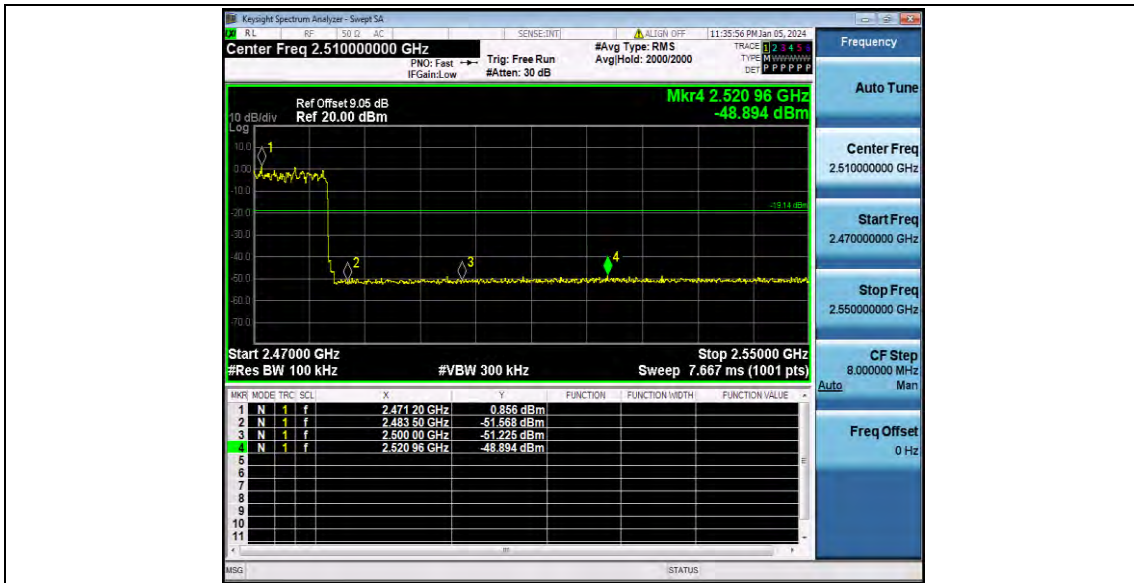
2DH1_Ant1_High_2480



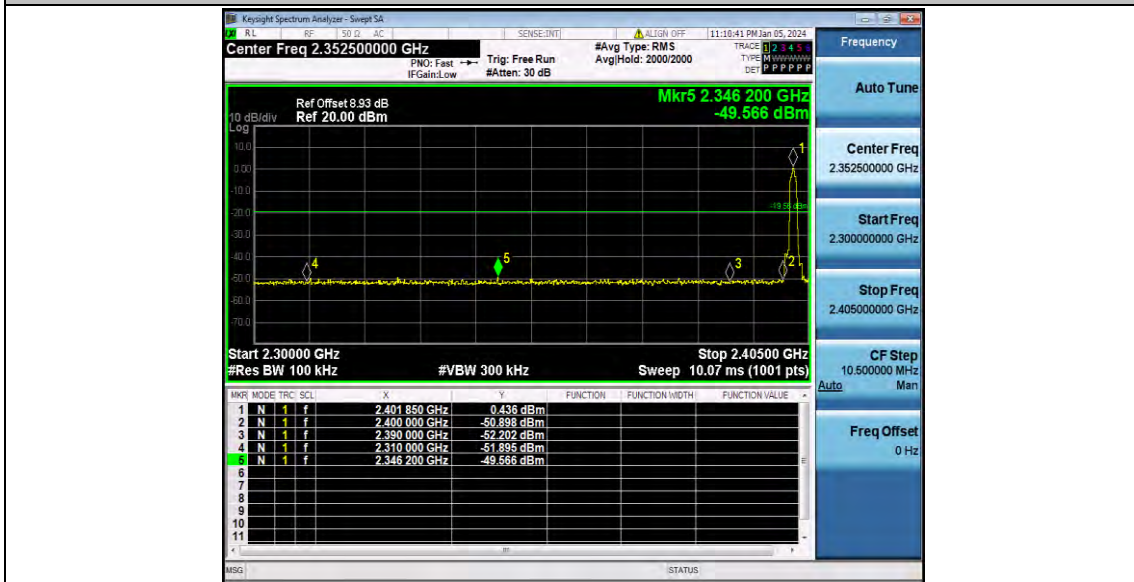
2DH1_Ant1_Low_Hop_2402



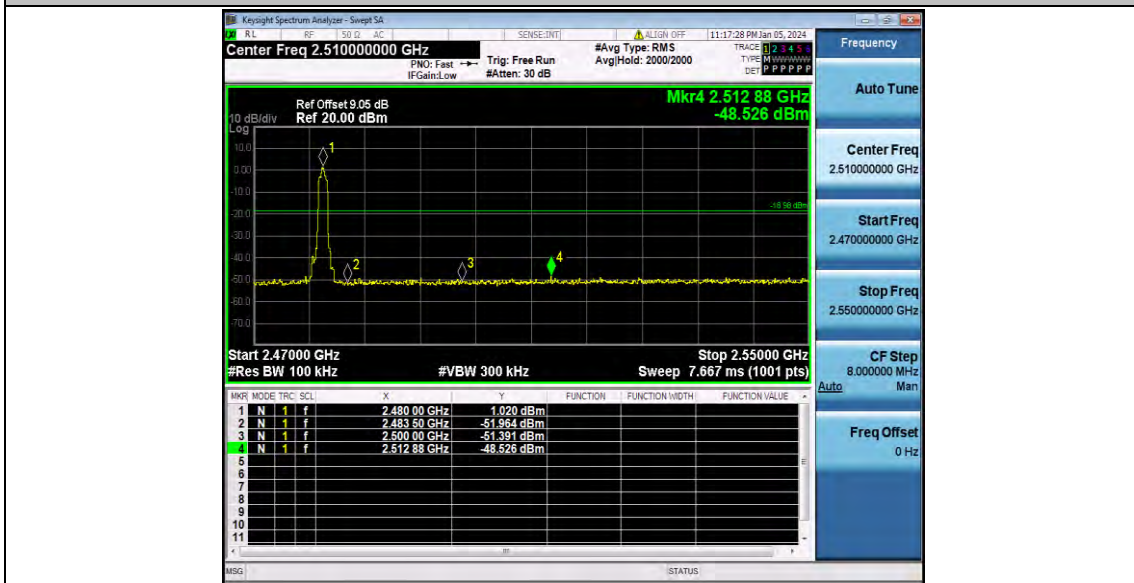
2DH1_Ant1_High_Hop_2480



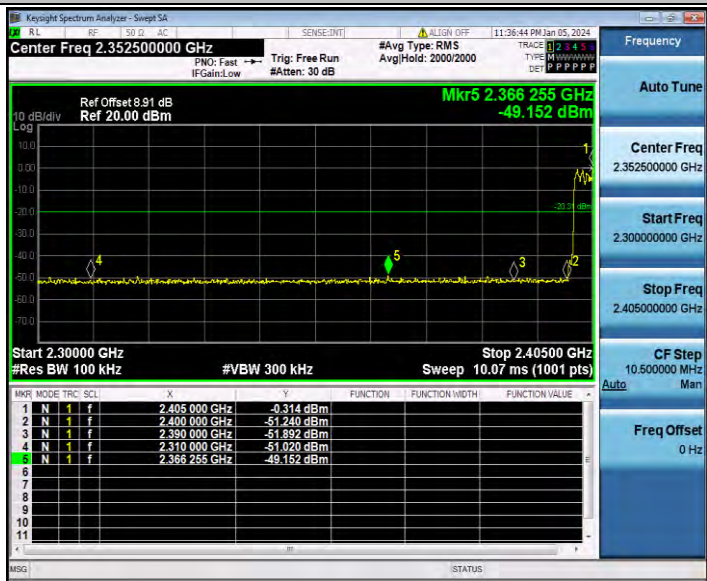
3DH1_Ant1_Low_2402



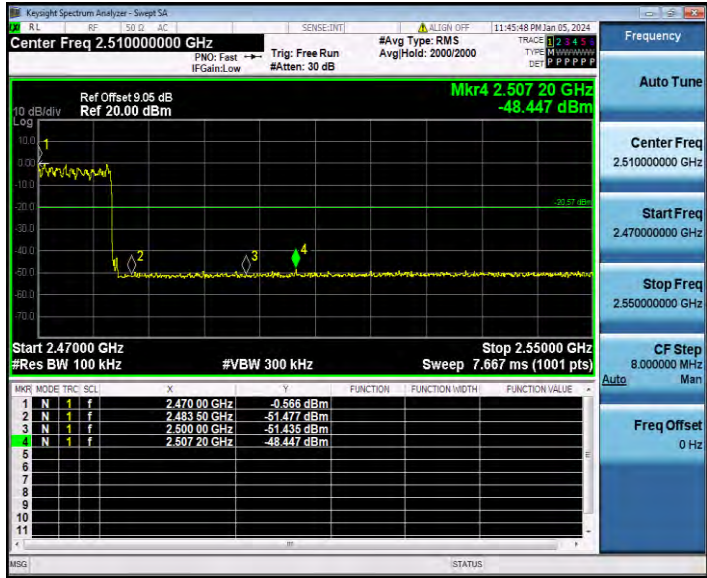
3DH1_Ant1_High_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

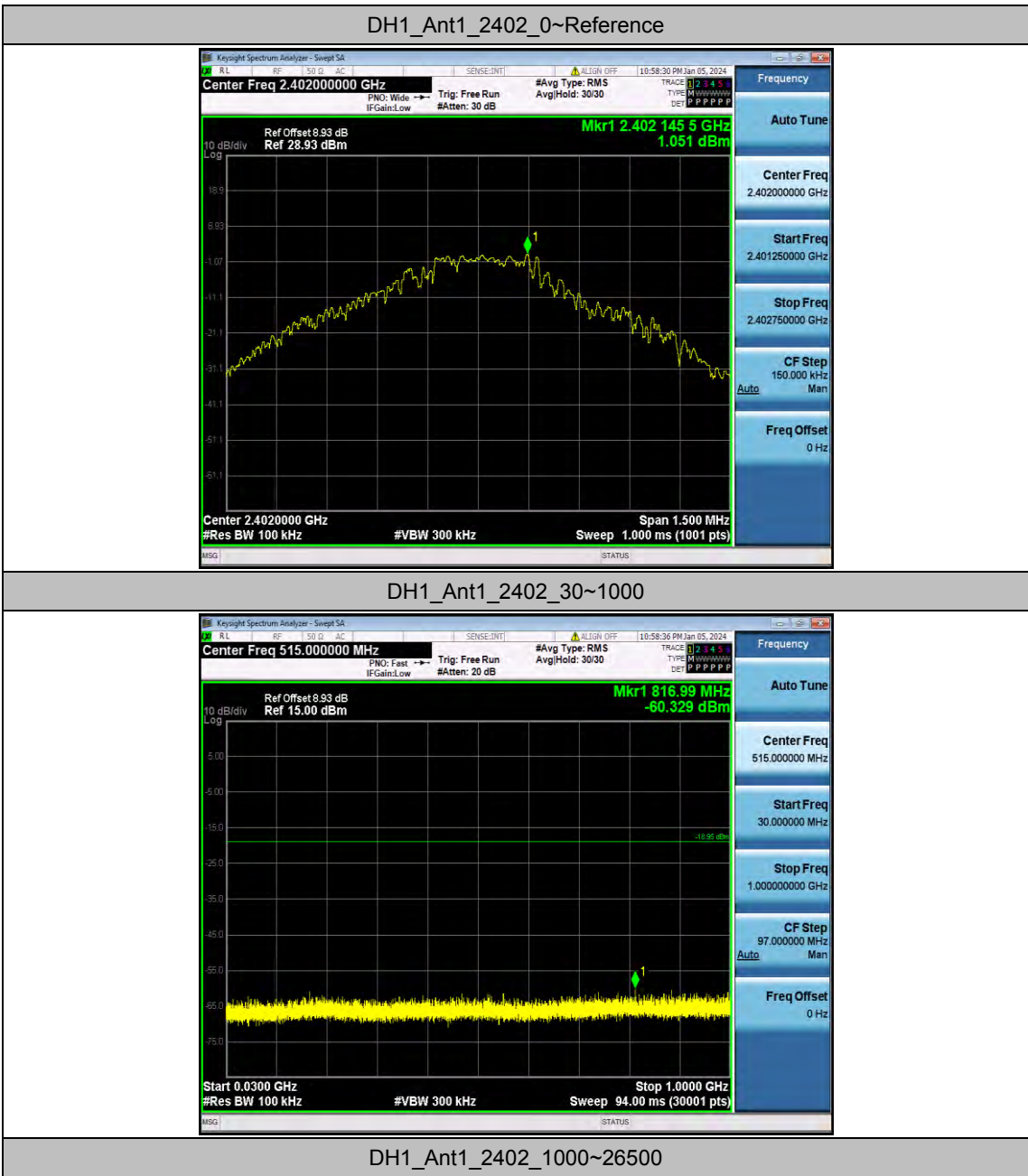


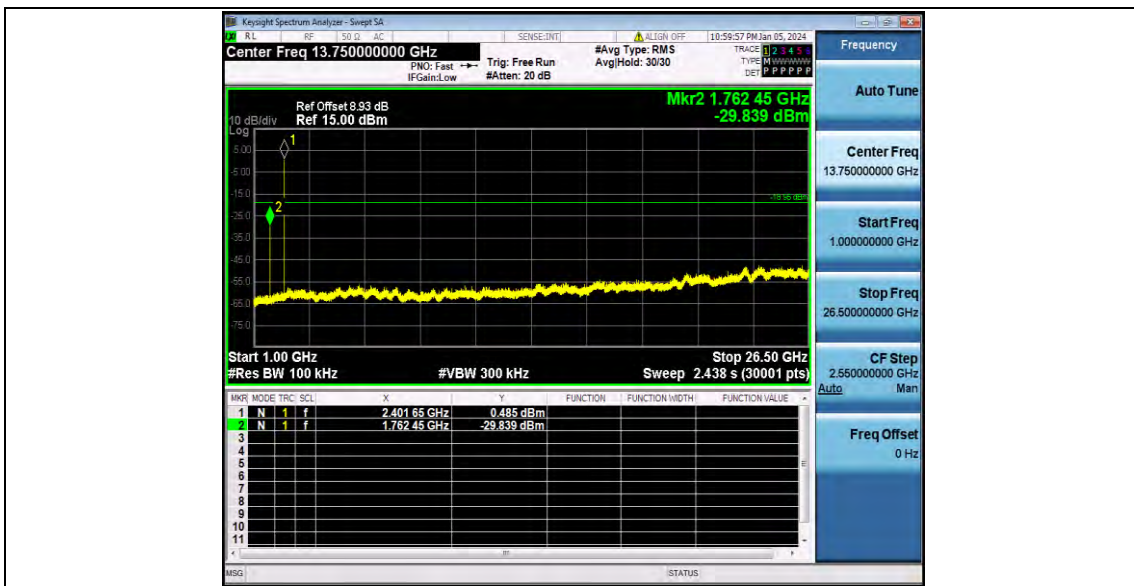
Appendix A.8: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH1	Ant1	2402	Reference	1.05	1.05	---	PASS
			30~1000	1.05	-60.33	≤-18.95	PASS
			1000~26500	1.05	-29.84	≤-18.95	PASS
		2441	Reference	1.58	1.58	---	PASS
			30~1000	1.58	-60.37	≤-18.42	PASS
			1000~26500	1.58	-27.91	≤-18.42	PASS
		2480	Reference	1.39	1.39	---	PASS
			30~1000	1.39	-60.78	≤-18.61	PASS
			1000~26500	1.39	-29	≤-18.61	PASS
2DH1	Ant1	2402	Reference	0.31	0.31	---	PASS
			30~1000	0.31	-59.31	≤-19.69	PASS
			1000~26500	0.31	-28.97	≤-19.69	PASS
		2441	Reference	0.71	0.71	---	PASS
			30~1000	0.71	-61	≤-19.29	PASS
			1000~26500	0.71	-29.11	≤-19.29	PASS
		2480	Reference	0.31	0.31	---	PASS
			30~1000	0.31	-59.97	≤-19.69	PASS
			1000~26500	0.31	-27.69	≤-19.69	PASS
3DH1	Ant1	2402	Reference	0.29	0.29	---	PASS
			30~1000	0.29	-60.26	≤-19.71	PASS
			1000~26500	0.29	-34.73	≤-19.71	PASS
		2441	Reference	1.08	1.08	---	PASS
			30~1000	1.08	-60.77	≤-18.92	PASS
			1000~26500	1.08	-35.56	≤-18.92	PASS
		2480	Reference	0.24	0.24	---	PASS
			30~1000	0.24	-60.75	≤-19.76	PASS
			1000~26500	0.24	-26.63	≤-19.76	PASS

Test Graphs

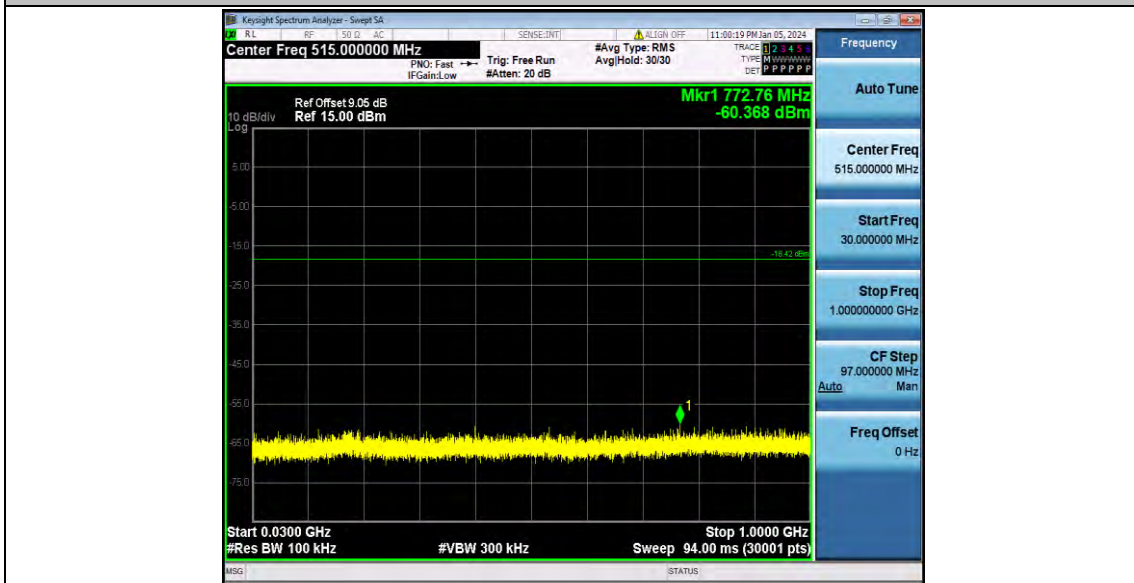




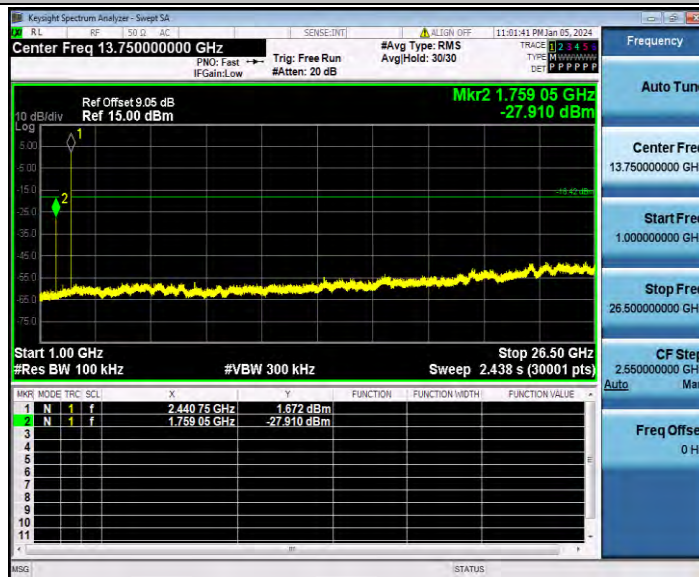
DH1_Ant1_2441_0~Reference



DH1_Ant1_2441_30~1000



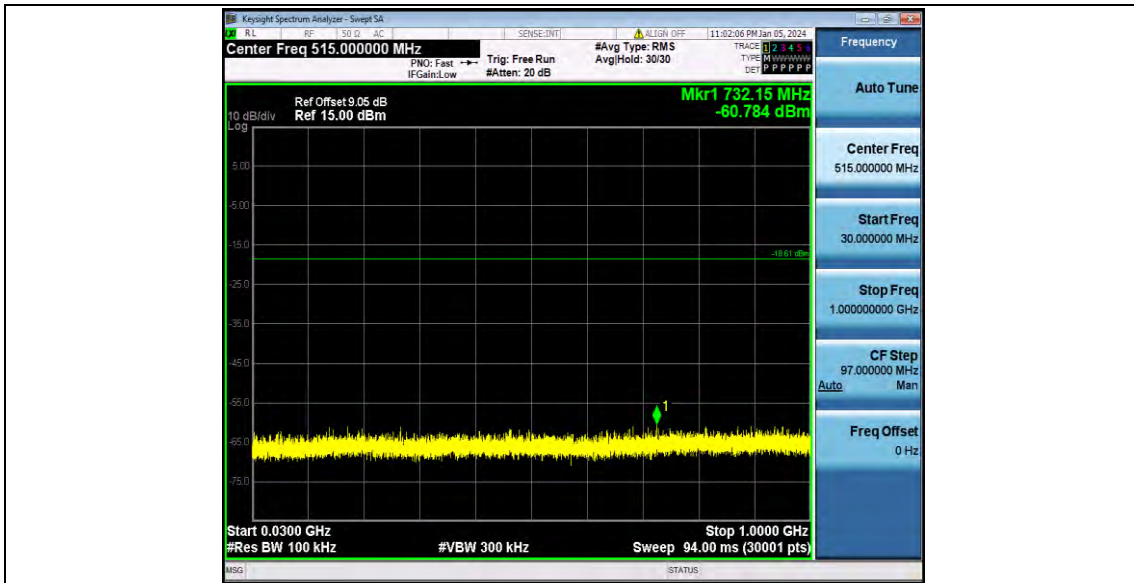
DH1_Ant1_2441_1000~26500



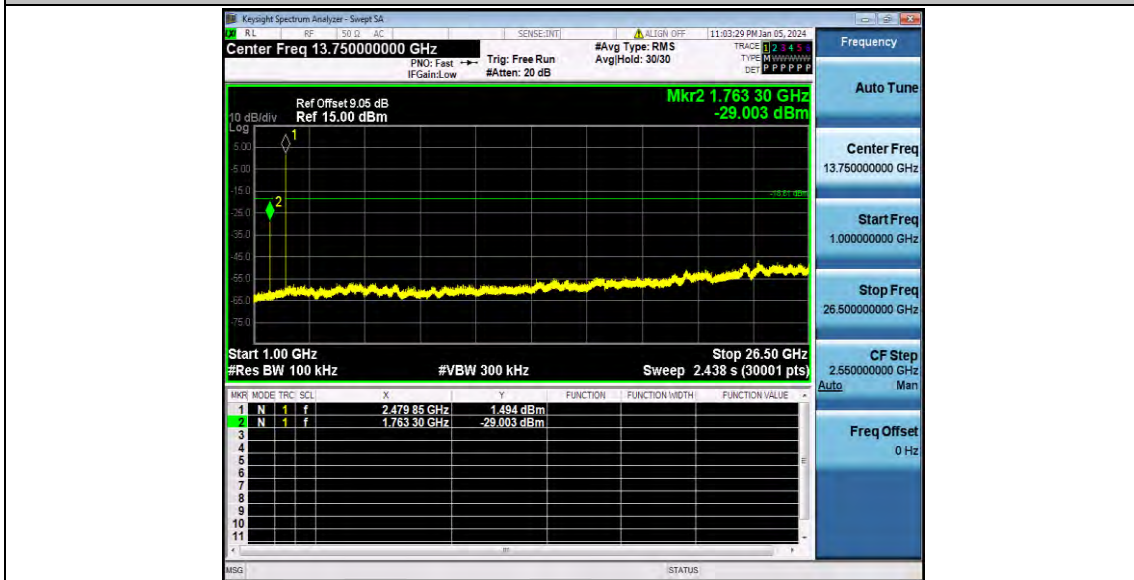
DH1_Ant1_2480_0~Reference



DH1_Ant1_2480_30~1000



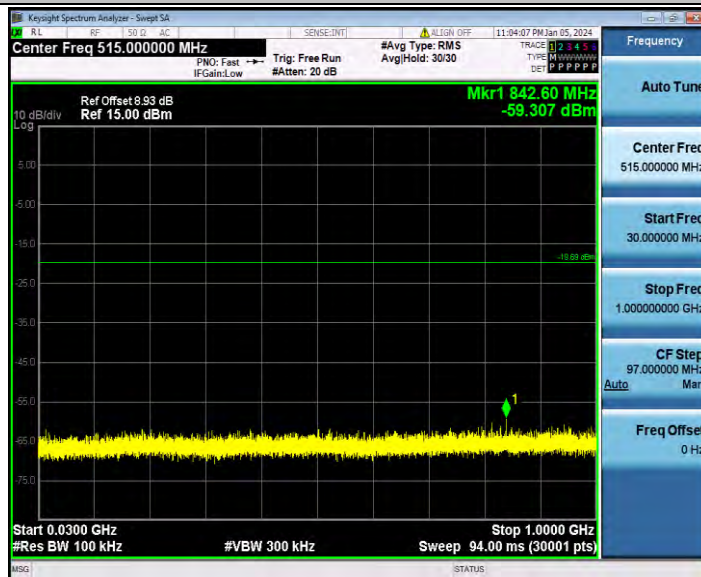
DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference



2DH1_Ant1_2402_30~1000



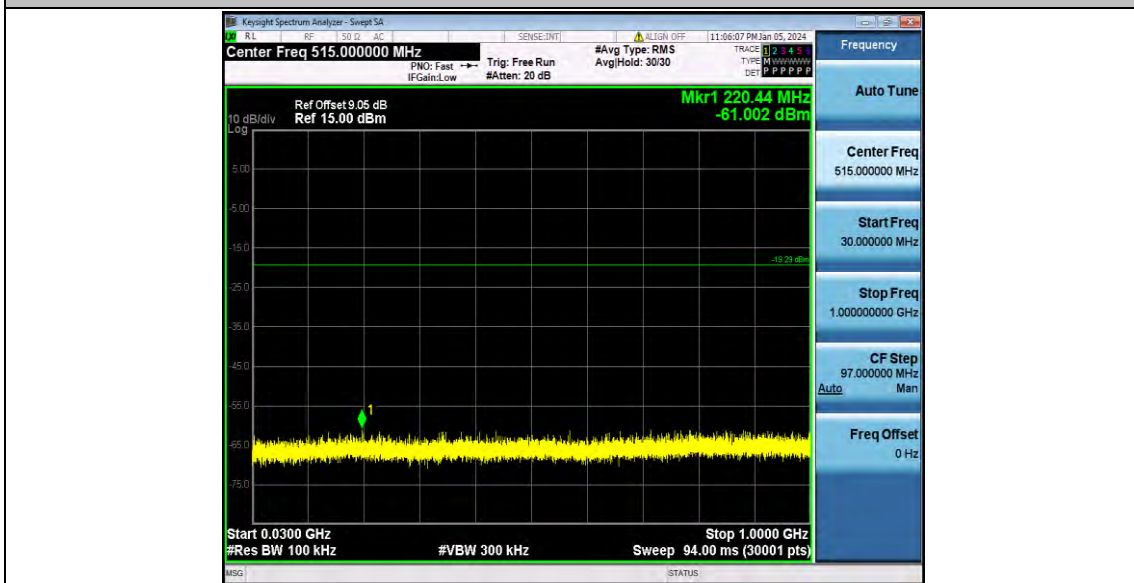
2DH1_Ant1_2402_1000~26500



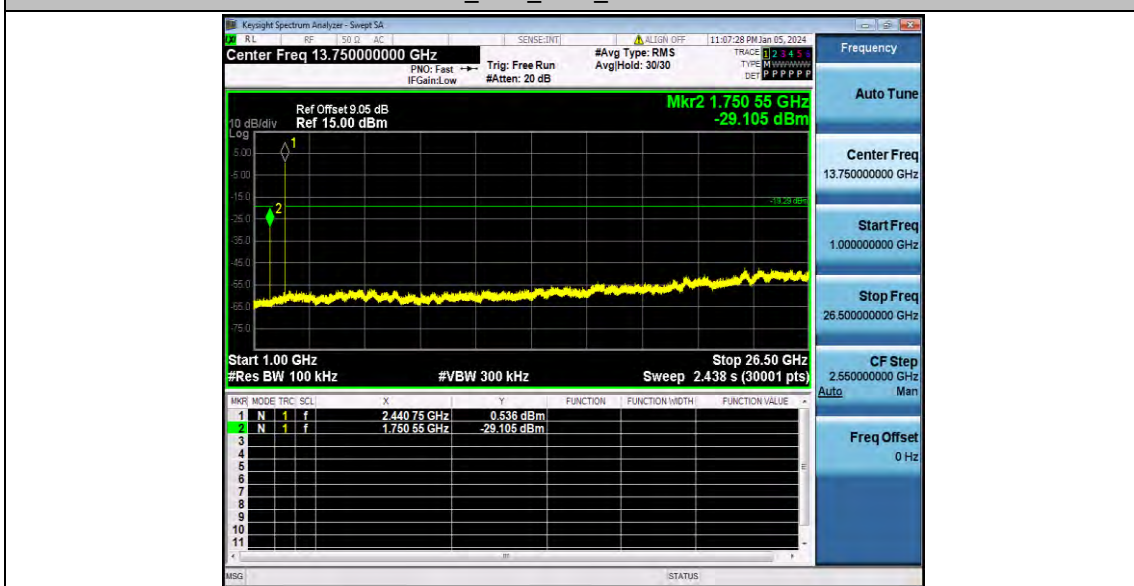
2DH1_Ant1_2441_0~Reference



2DH1_Ant1_2441_30~100



2DH1_Ant1_2441_1000~26500



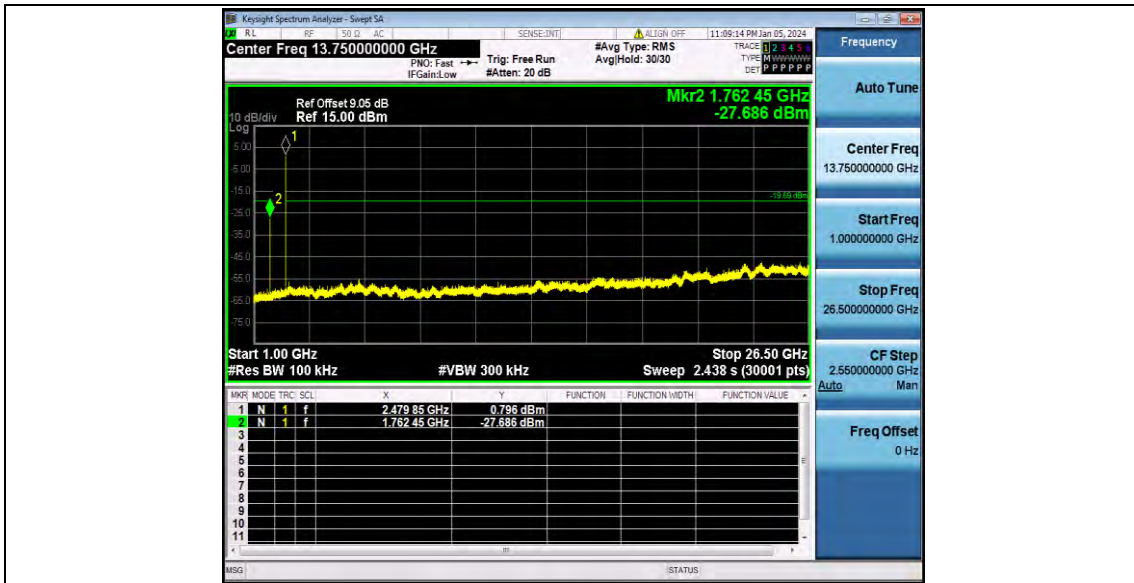
2DH1_Ant1_2480_0~Reference



2DH1_Ant1_2480_30~1000



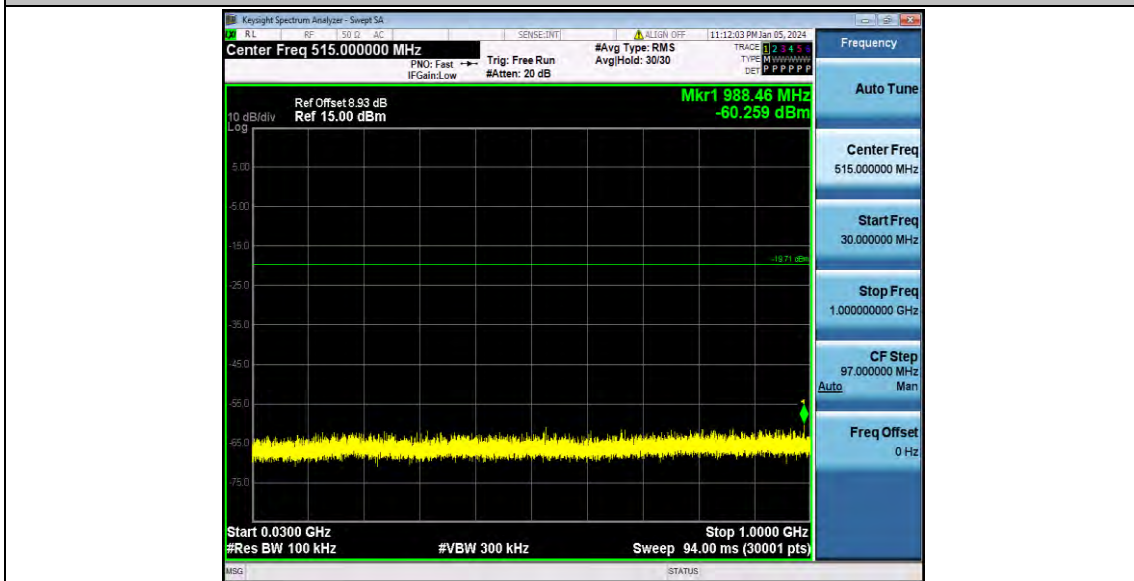
2DH1_Ant1_2480_1000~26500



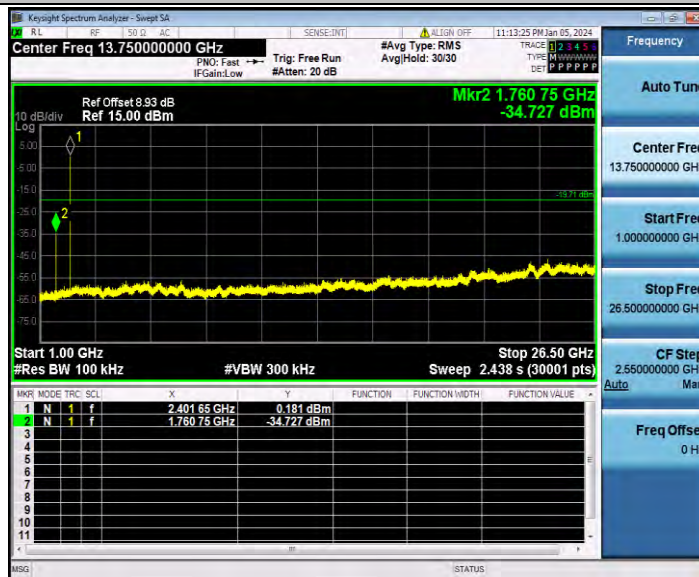
3DH1_Ant1_2402_0~Reference



3DH1_Ant1_2402_30~1000



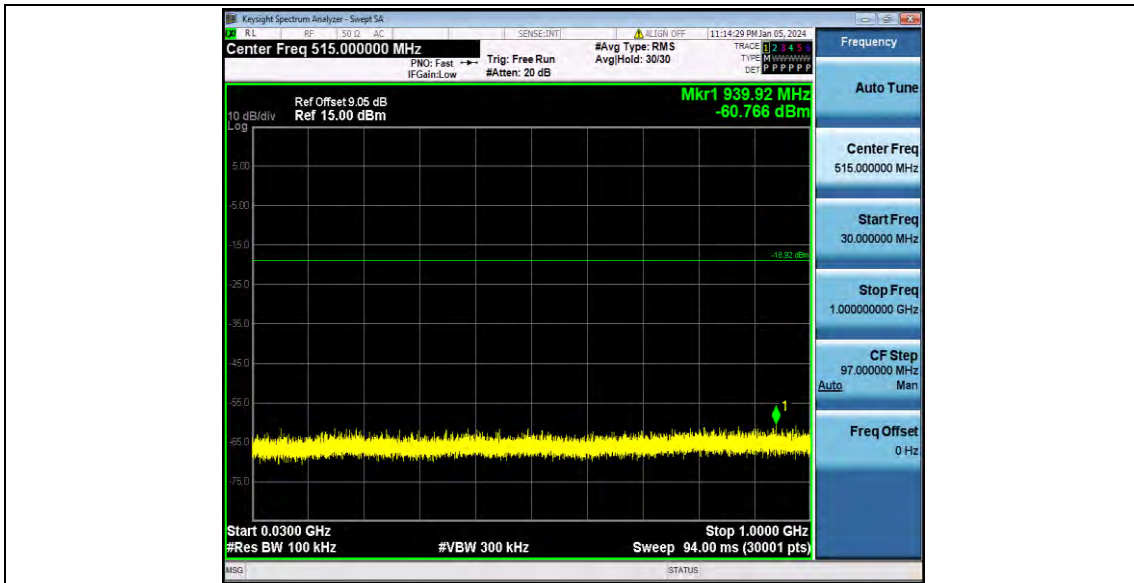
3DH1_Ant1_2402_1000~26500



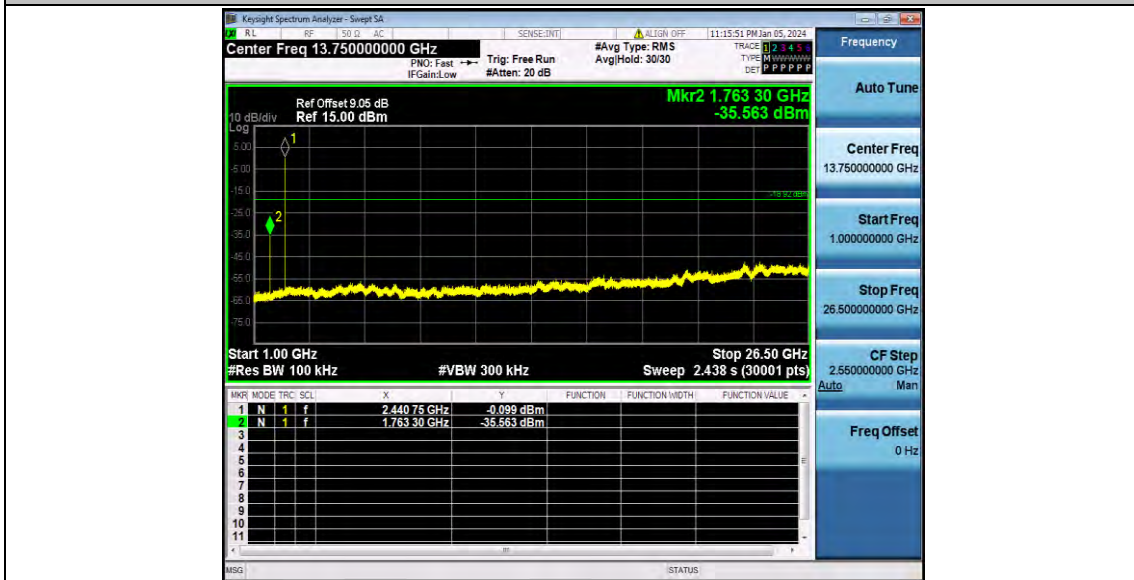
3DH1_Ant1_2441_0~Reference



3DH1_Ant1_2441_30~1000



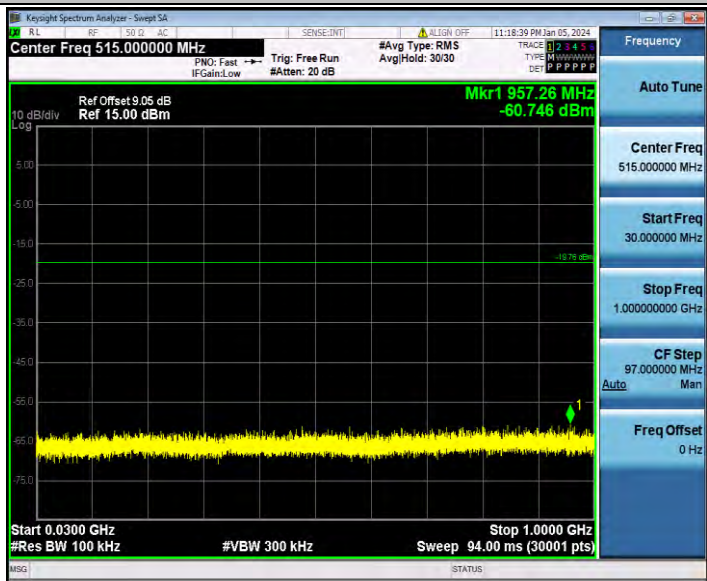
3DH1_Ant1_2441_1000~26500



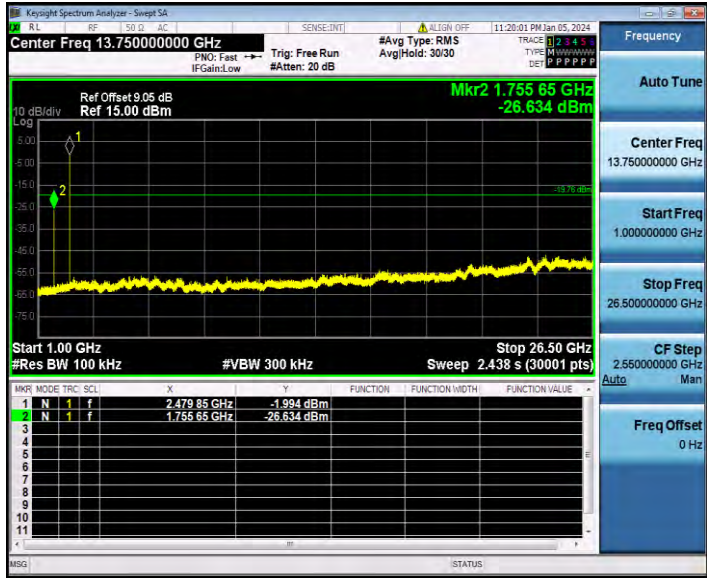
3DH1_Ant1_2480_0~Reference



3DH1_Ant1_2480_30~1000



3DH1_Ant1_2480_1000~26500



Appendix A.9: Emissions in Restricted Bands

Test Result

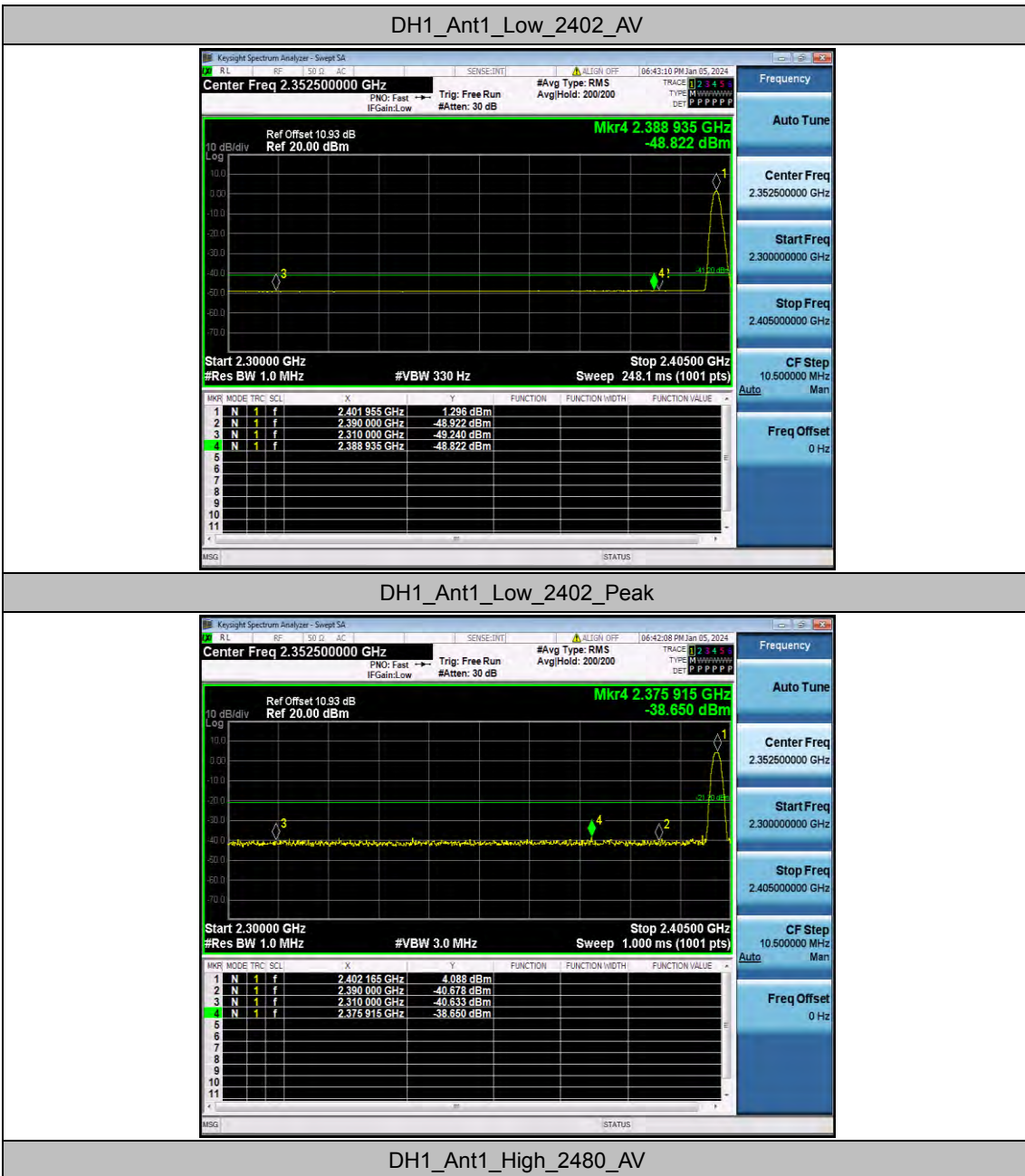
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH1	Ant1	Low	2402	AV	2310.000	-49.24	≤-41.20	45.96	≤54	PASS
				AV	2388.935	-48.82	≤-41.20	46.38	≤54	PASS
				AV	2390.000	-48.92	≤-41.20	46.28	≤54	PASS
				Peak	2310.000	-40.63	≤-21.20	54.57	≤74	PASS
				Peak	2375.915	-38.65	≤-21.20	56.55	≤74	PASS
				Peak	2390.000	-40.68	≤-21.20	54.52	≤74	PASS
		High	2480	AV	2483.500	-48.49	≤-41.20	46.71	≤54	PASS
				AV	2483.520	-48.49	≤-41.20	46.71	≤54	PASS
				AV	2500.000	-48.63	≤-41.20	46.57	≤54	PASS
				Peak	2483.500	-41.2	≤-21.20	54.00	≤74	PASS
				Peak	2494.960	-38.6	≤-21.20	56.60	≤74	PASS
				Peak	2500.000	-41.39	≤-21.20	53.81	≤74	PASS
2DH1	Ant1	Low	2402	AV	2310.000	-49.31	≤-41.20	45.89	≤54	PASS
				AV	2389.670	-48.87	≤-41.20	46.33	≤54	PASS
				AV	2390.000	-48.96	≤-41.20	46.24	≤54	PASS
				Peak	2310.000	-42.3	≤-21.20	52.90	≤74	PASS
				Peak	2358.275	-38.69	≤-21.20	56.51	≤74	PASS
				Peak	2390.000	-39.54	≤-21.20	55.66	≤74	PASS
		High	2480	AV	2483.500	-48.57	≤-41.20	46.63	≤54	PASS
				AV	2498.160	-48.55	≤-41.20	46.65	≤54	PASS
				AV	2500.000	-48.59	≤-41.20	46.61	≤54	PASS
				Peak	2483.500	-41.48	≤-21.20	53.72	≤74	PASS
				Peak	2489.440	-38.29	≤-21.20	56.91	≤74	PASS
				Peak	2500.000	-39.89	≤-21.20	55.31	≤74	PASS
3DH1	Ant1	Low	2402	AV	2310.000	-49.22	≤-41.20	45.98	≤54	PASS
				AV	2389.985	-48.89	≤-41.20	46.31	≤54	PASS
				AV	2390.000	-48.89	≤-41.20	46.31	≤54	PASS
				Peak	2310.000	-41.52	≤-21.20	53.68	≤74	PASS
				Peak	2350.190	-38.73	≤-21.20	56.47	≤74	PASS
				Peak	2390.000	-42.1	≤-21.20	53.10	≤74	PASS
		High	2480	AV	2483.500	-48.5	≤-41.20	46.70	≤54	PASS
				AV	2483.520	-48.5	≤-41.20	46.70	≤54	PASS
				AV	2500.000	-48.61	≤-41.20	46.59	≤54	PASS
				Peak	2483.500	-42.54	≤-21.20	52.66	≤74	PASS
Peak	2491.760	-38.93	≤-21.20	56.27	≤74	PASS				

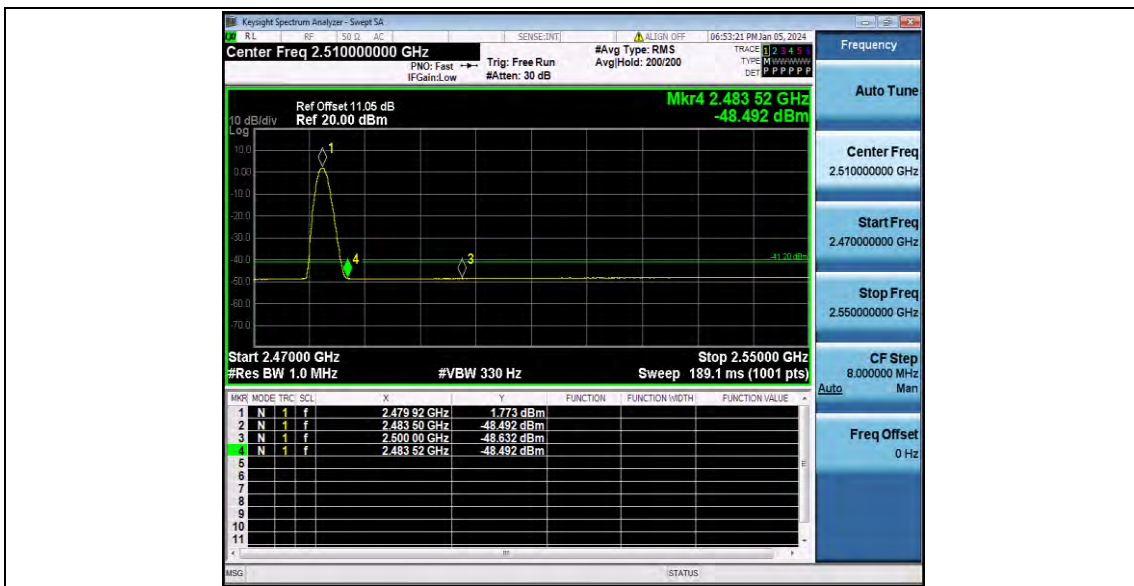
				Peak	2500.000	-42.42	≤-21.20	52.78	≤74	PASS
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Note:

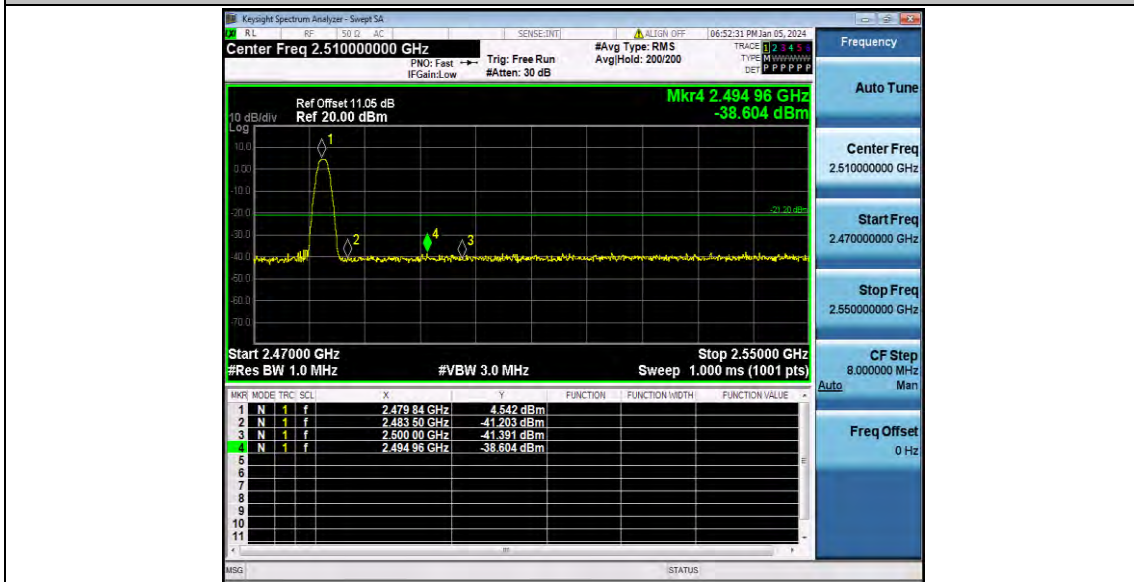
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

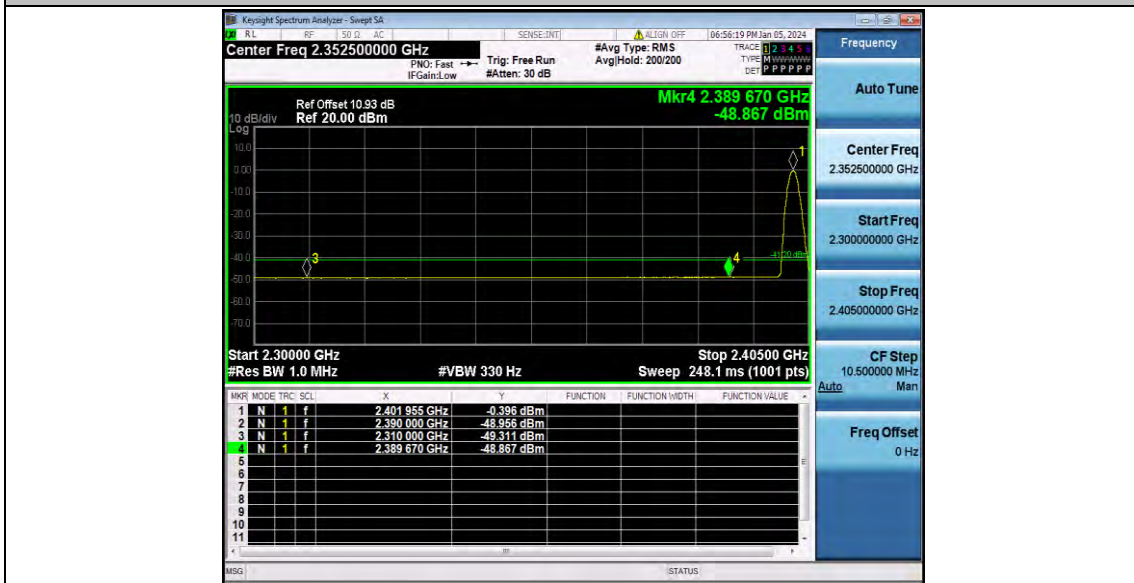




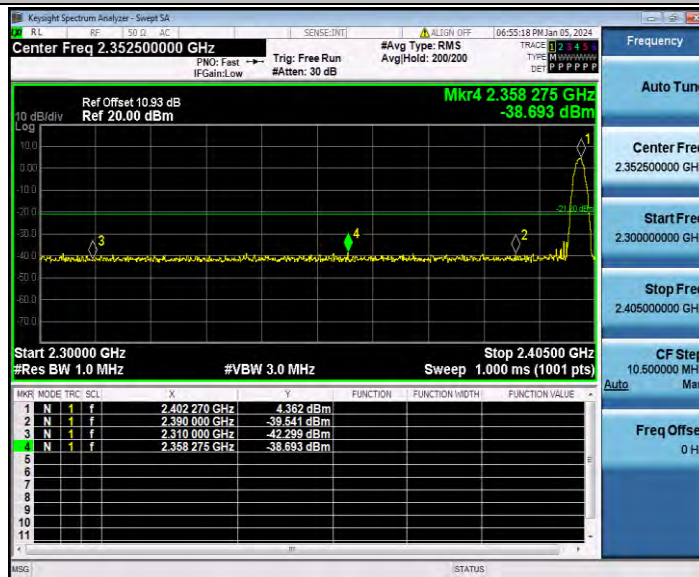
DH1_Ant1_High_2480_Peak



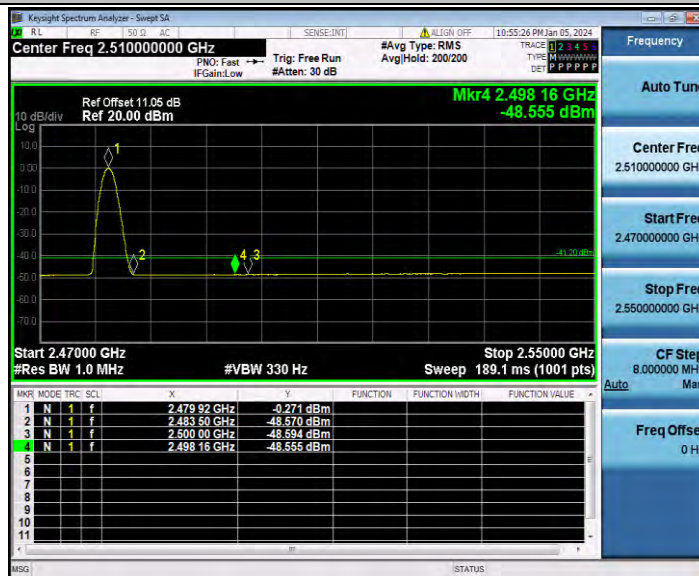
2DH1_Ant1_Low_2402_AV



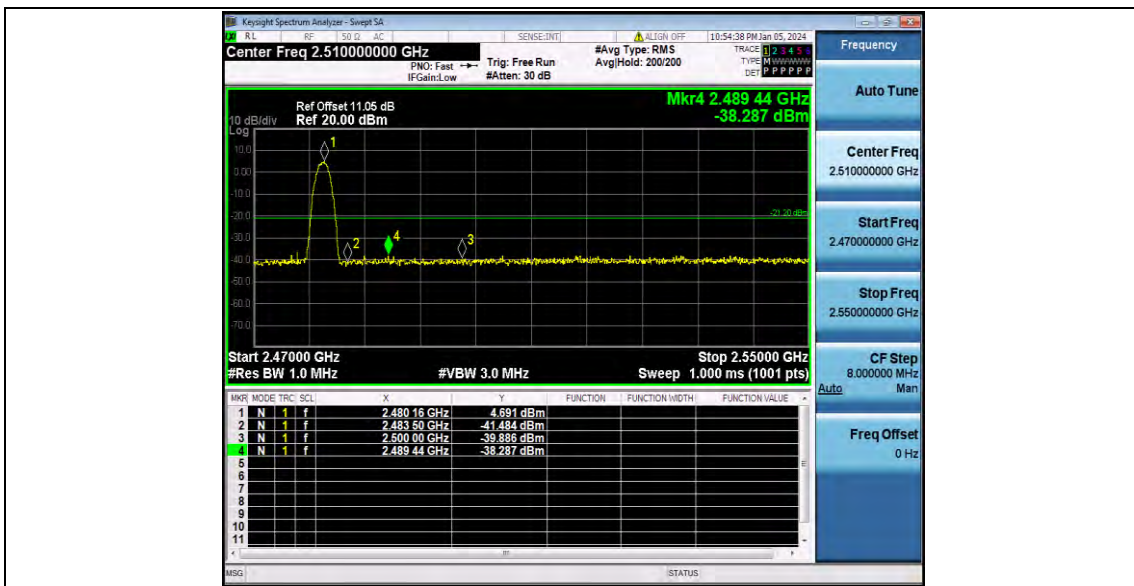
2DH1_Ant1_Low_2402_Peak



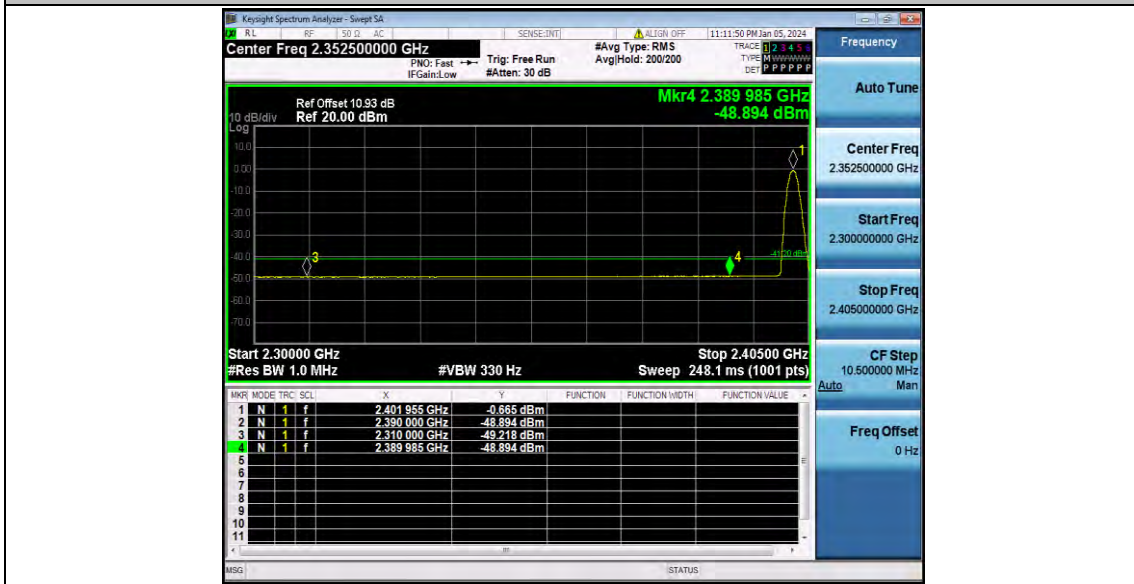
2DH1_Ant1_High_2480_AV



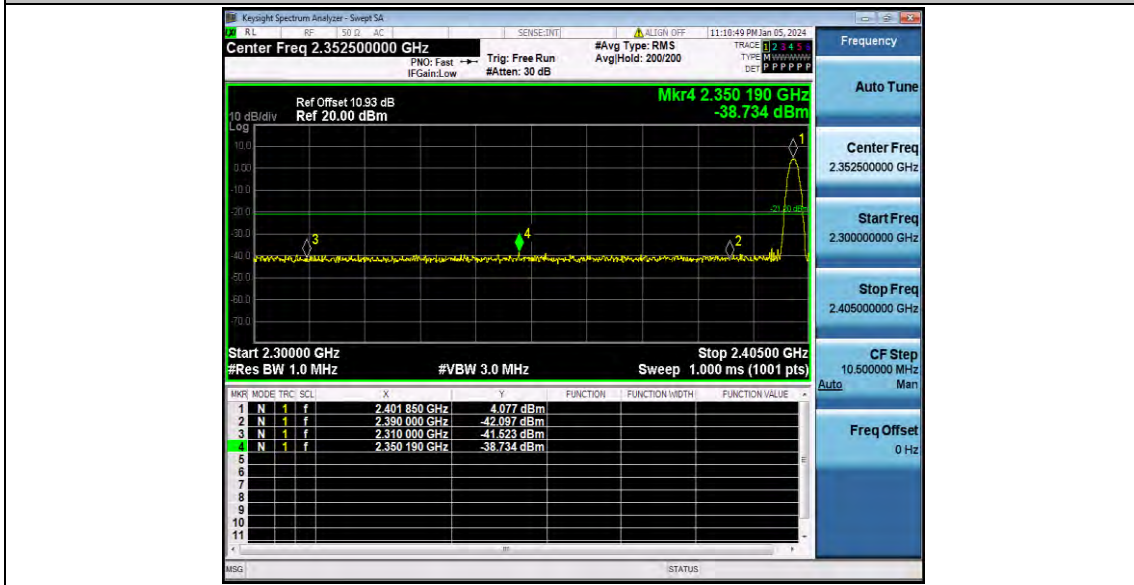
2DH1_Ant1_High_2480_Peak



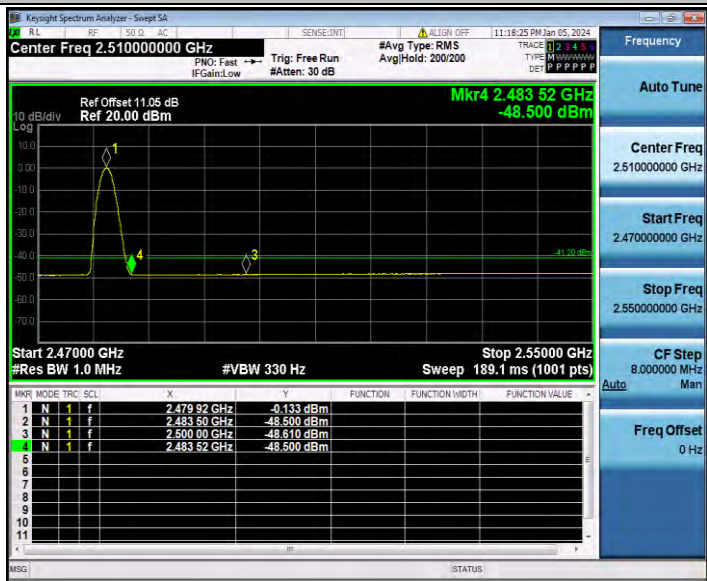
3DH1_Ant1_Low_2402_AV



3DH1_Ant1_Low_2402_Peak



3DH1_Ant1_High_2480_AV



3DH1_Ant1_High_2480_Peak

