

Applicant: Hypercel Corporation

Case No. : TH2401034-C01

EUT: Bluetooth Headphone

M/N: Pulse

Standard:FCC Part15 Subpart C, Section 15.247

Test Power Supply: NA

Ambient Condition: 26.1 °C, 47 %RH, 101.325 kPa

Test Date: 2024.01.09

Test Engineer: Blue

Appendix A: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.957	---			---
		2441	0.969	---			---
		2480	0.909	---			---
2DH5	Ant1	2402	1.404	---			---
		2441	1.344	---			---
		2480	1.350	---			---
3DH5	Ant1	2402	1.356	---			---
		2441	1.290	---			---
		2480	1.323	---			---

Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.82116	2401.5590	2402.3802	---	---
		2441	0.87253	2440.5293	2441.4019	---	---
		2480	0.79300	2479.5788	2480.3718	---	---
2DH5	Ant1	2402	1.2311	2401.3488	2402.5799	---	---
		2441	1.2060	2440.3575	2441.5635	---	---
		2480	1.1567	2479.4014	2480.5581	---	---
3DH5	Ant1	2402	1.2310	2401.3561	2402.5871	---	---
		2441	1.2507	2440.3532	2441.6039	---	---
		2480	1.1682	2479.4001	2480.5683	---	---

Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Channel	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	2.99	≤20.97	PASS
		2441	3.27	≤20.97	PASS
		2480	2.71	≤20.97	PASS
2DH5	Ant1	2402	3.92	≤20.97	PASS
		2441	4.12	≤20.97	PASS
		2480	3.54	≤20.97	PASS
3DH5	Ant1	2402	4.35	≤20.97	PASS
		2441	4.57	≤20.97	PASS
		2480	3.91	≤20.97	PASS

Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	0.982	≥ 0.969	PASS
2DH5	Ant1	Hop	0.99	≥ 0.936	PASS
3DH5	Ant1	Hop	1.012	≥ 0.904	PASS

Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop



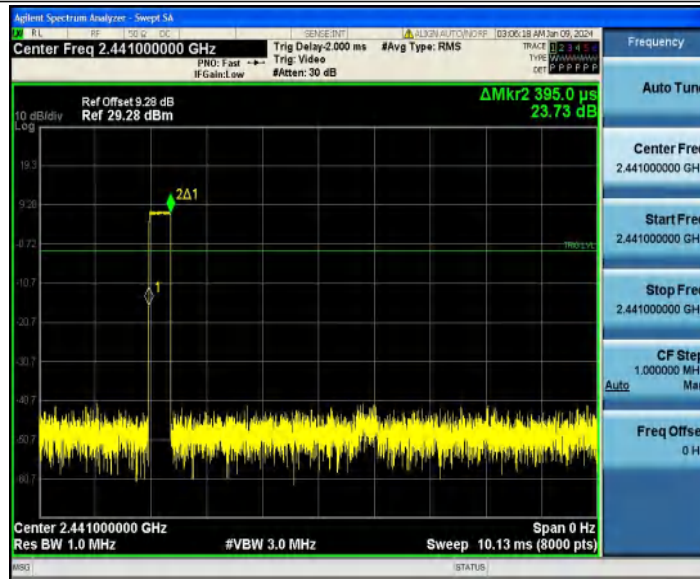
Appendix E: Time of occupancy

Test Result

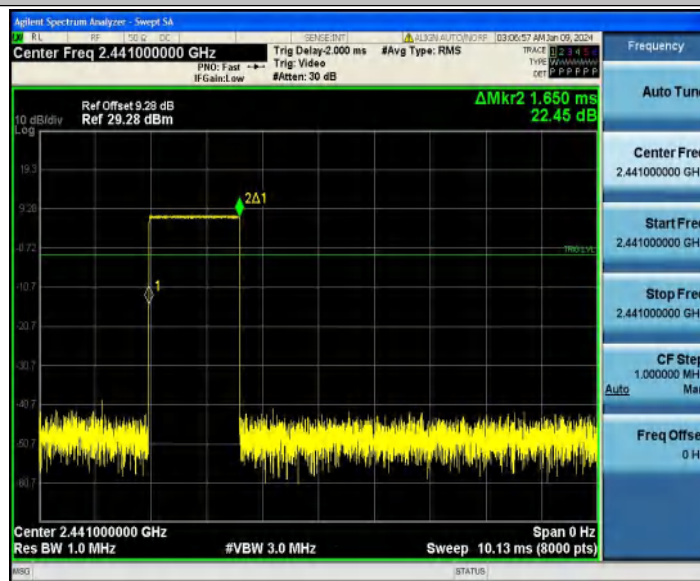
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.395	320	0.126	≤0.4	PASS
DH3	Ant1	Hop	1.650	160	0.264	≤0.4	PASS
DH5	Ant1	Hop	2.899	106.67	0.309	≤0.4	PASS
2DH1	Ant1	Hop	0.405	320	0.13	≤0.4	PASS
2DH3	Ant1	Hop	1.657	160	0.265	≤0.4	PASS
2DH5	Ant1	Hop	2.904	106.67	0.31	≤0.4	PASS
3DH1	Ant1	Hop	0.407	320	0.13	≤0.4	PASS
3DH3	Ant1	Hop	1.657	160	0.265	≤0.4	PASS
3DH5	Ant1	Hop	2.908	106.67	0.31	≤0.4	PASS

Test Graphs

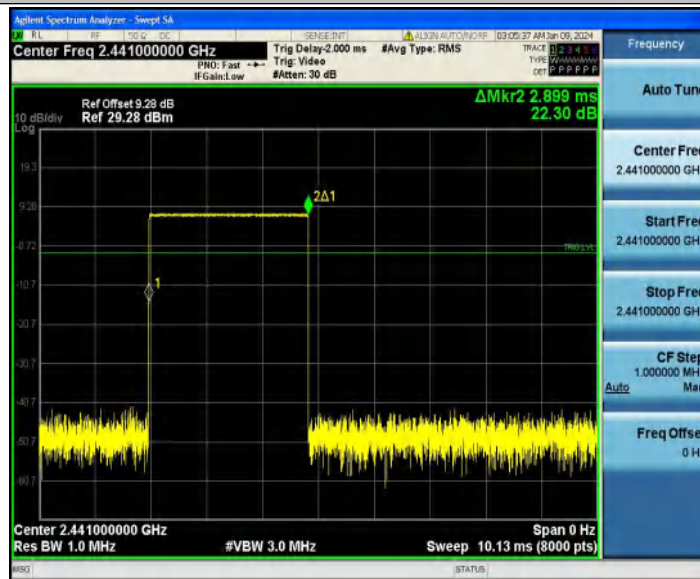
DH1_Ant1_Hop



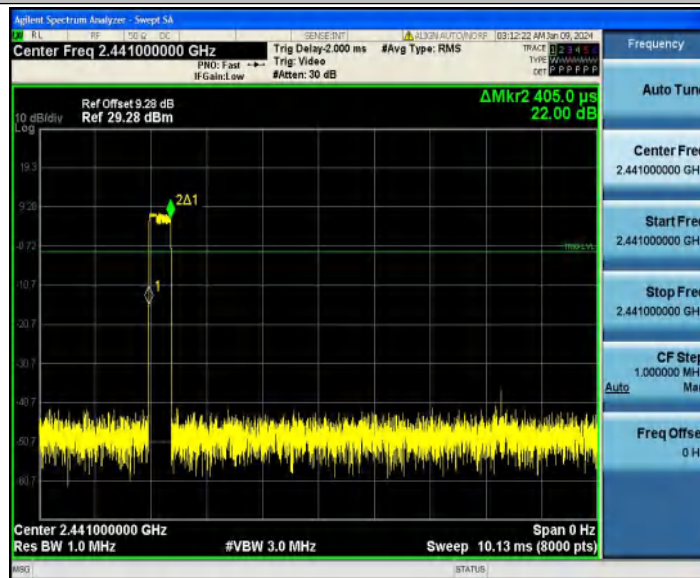
DH3_Ant1_Hop



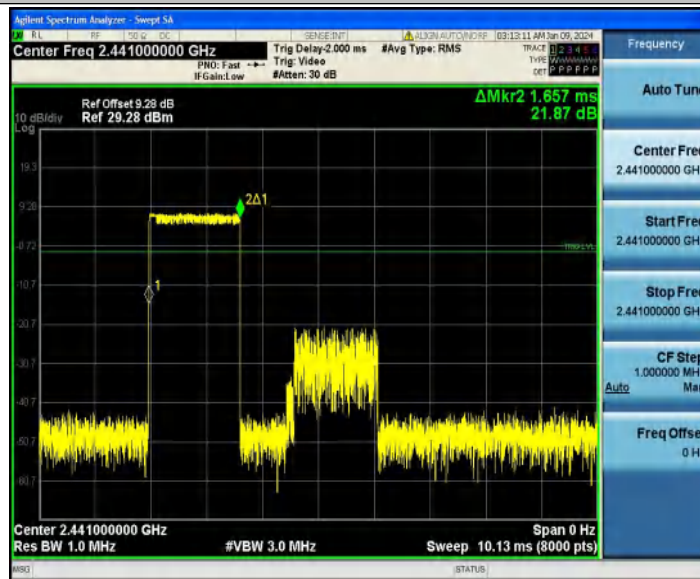
DH5_Ant1_Hop



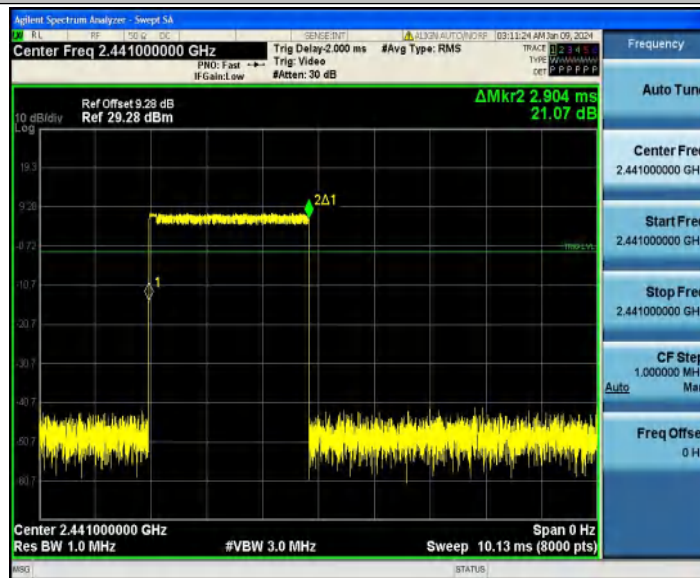
2DH1_Ant1_Hop



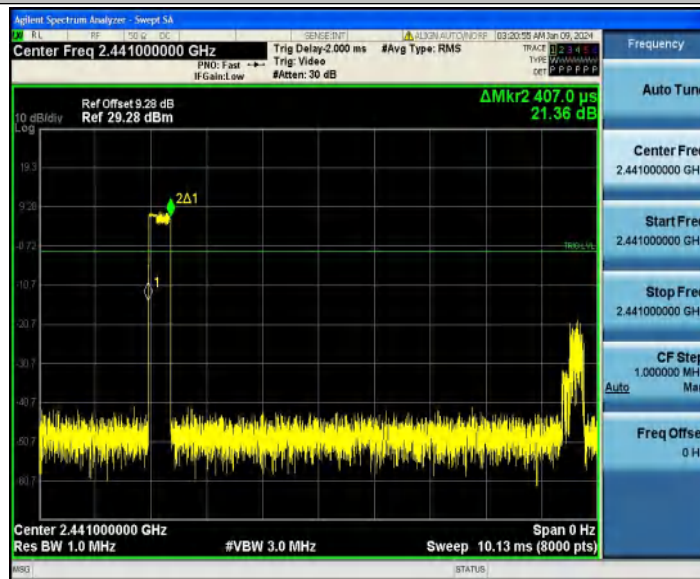
2DH3_Ant1_Hop



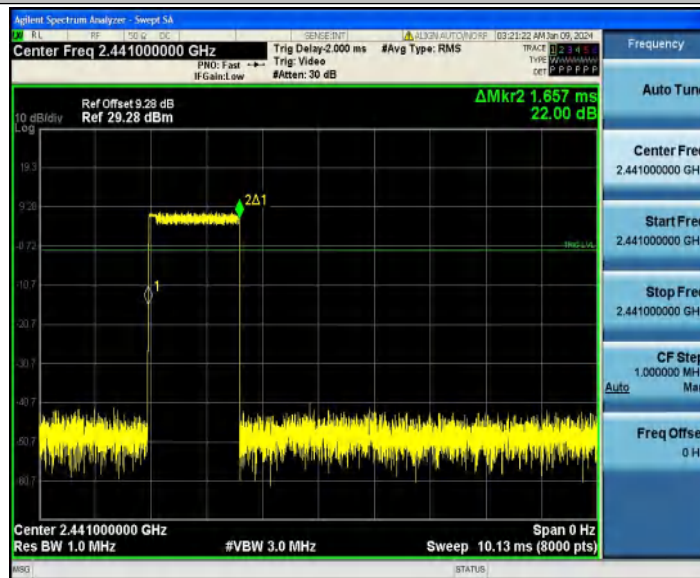
2DH5_Ant1_Hop



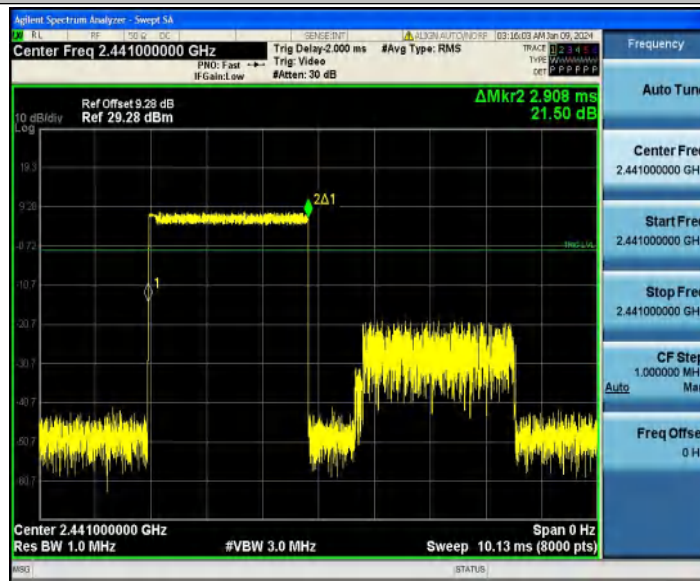
3DH1_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop



Appendix F: Number of hopping channels

Test Result

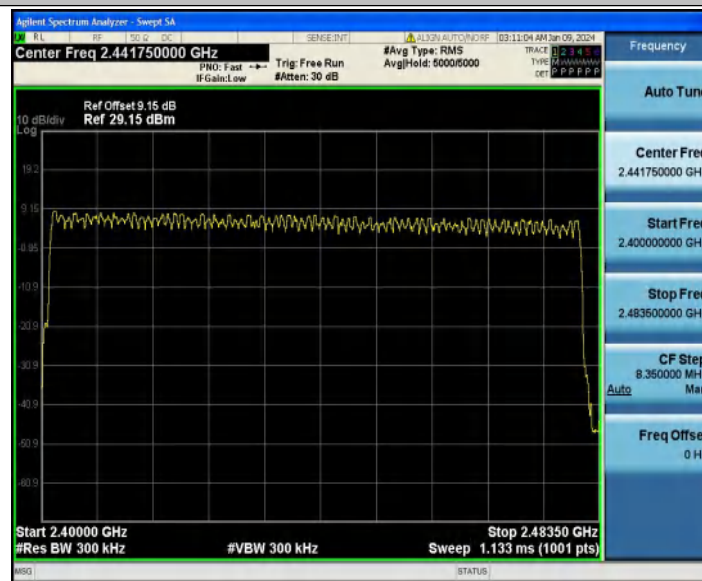
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

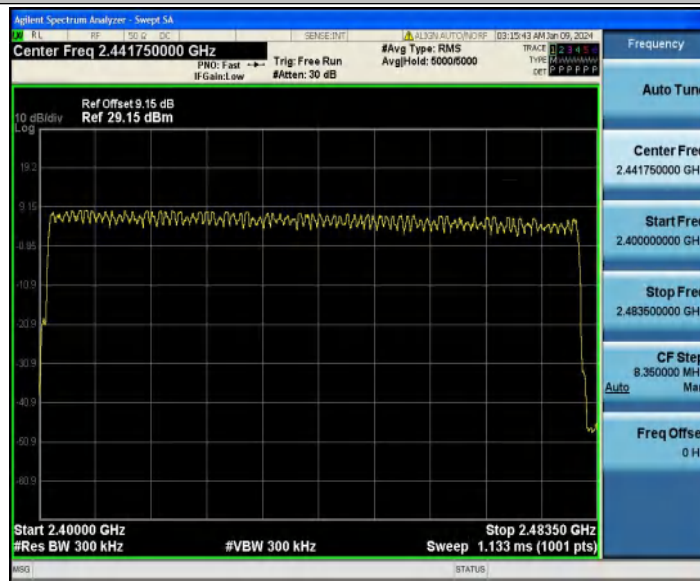
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop



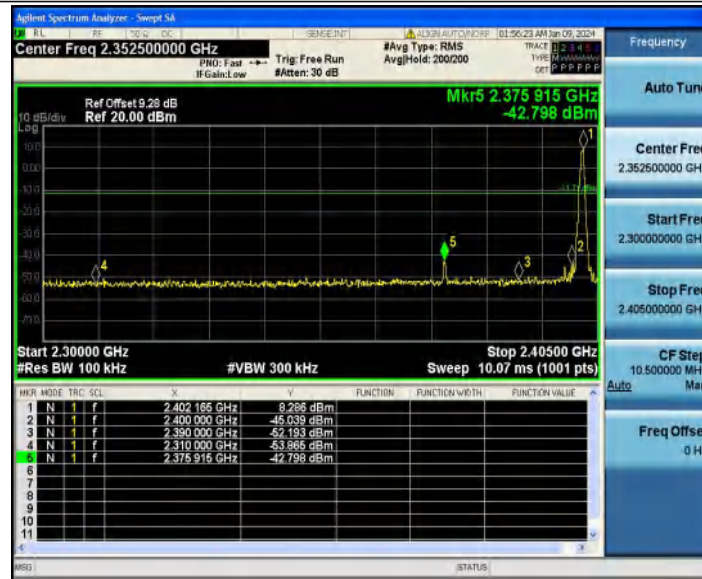
Appendix G: Band edge measurements

Test Result

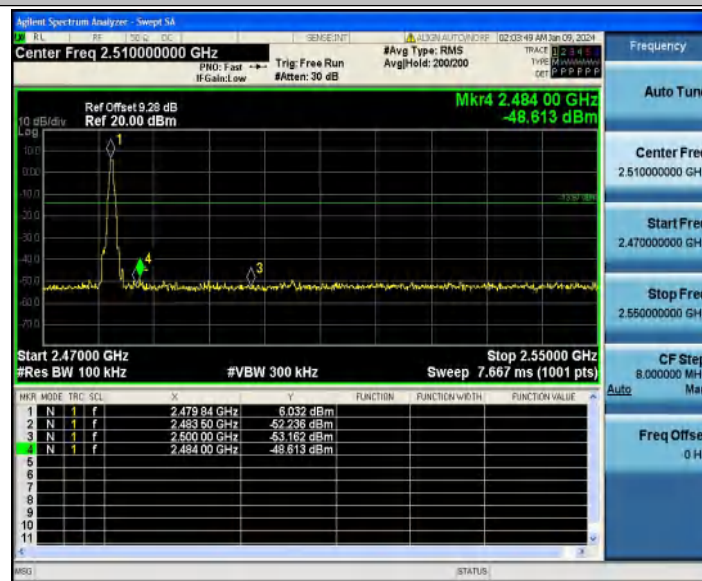
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	8.29	-42.8	≤-11.71	PASS
		High	2480	6.03	-48.61	≤-13.97	PASS
		Low	Hop_2402	7.57	-44.92	≤-12.43	PASS
		High	Hop_2480	5.96	-49.3	≤-14.04	PASS
2DH5	Ant1	Low	2402	-2.89	-50.54	≤-11.6	PASS
		High	2480	4.34	-50.1	≤-15.66	PASS
		Low	Hop_2402	7.18	-45.68	≤-12.82	PASS
		High	Hop_2480	4.83	-50.23	≤-15.17	PASS
3DH5	Ant1	Low	2402	8.07	-37.70	≤-11.93	PASS
		High	2480	6.11	-49.74	≤-13.89	PASS
		Low	Hop_2402	4.01	-46.68	≤-15.99	PASS
		High	Hop_2480	3.37	-50.1	≤-16.63	PASS

Test Graphs

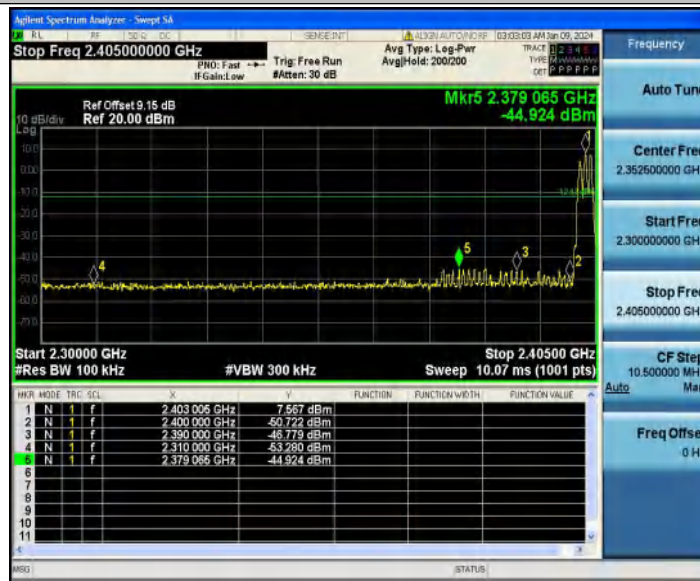
DH5_Ant1_Low_2402



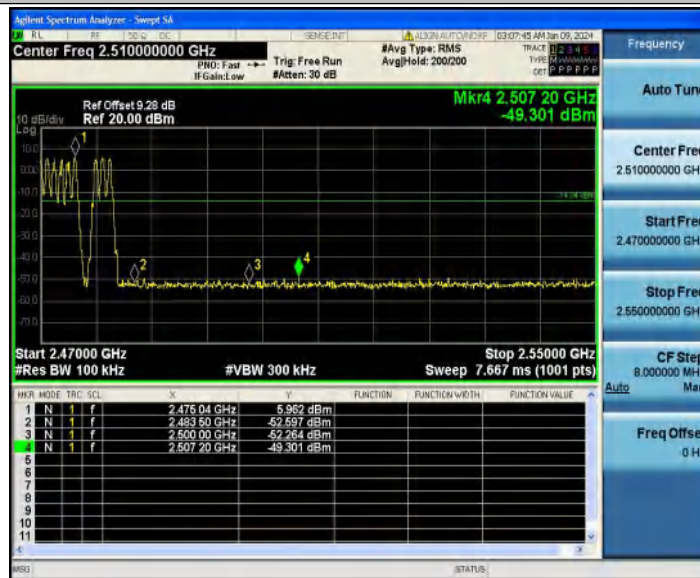
DH5_Ant1_High_2480



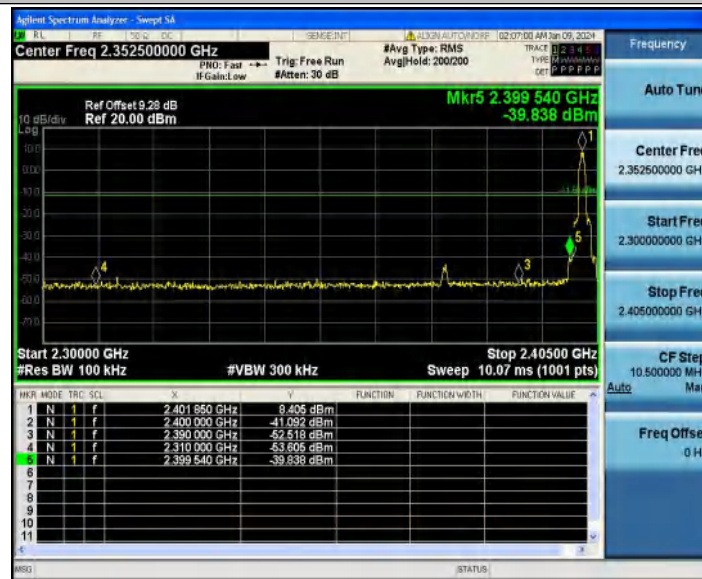
DH5_Ant1_Low_Hop_2402



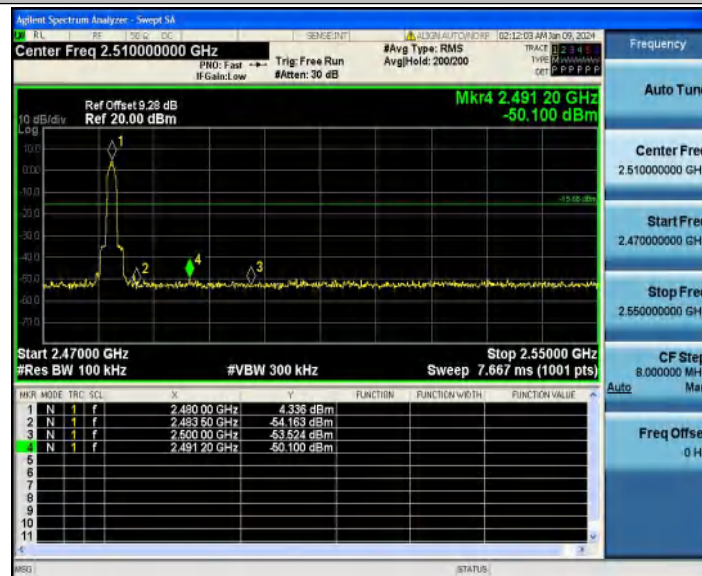
DH5_Ant1_High_Hop_2480



2DH5_Ant1_Low_2402



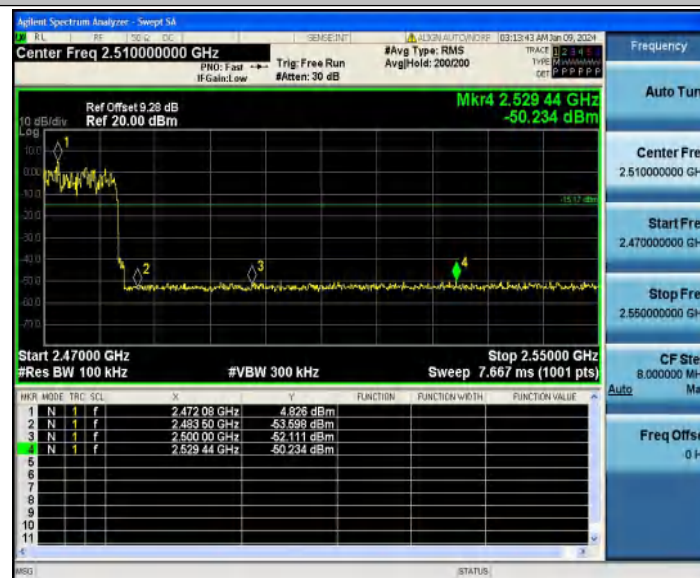
2DH5_Ant1_High_2480



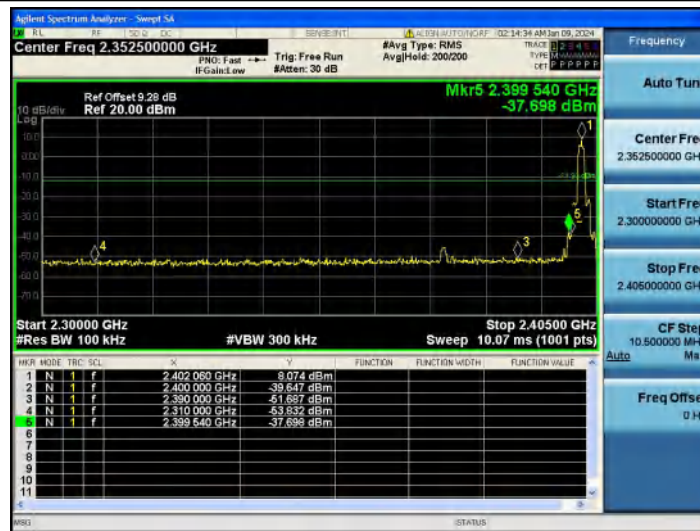
2DH5_Ant1_Low_Hop_2402



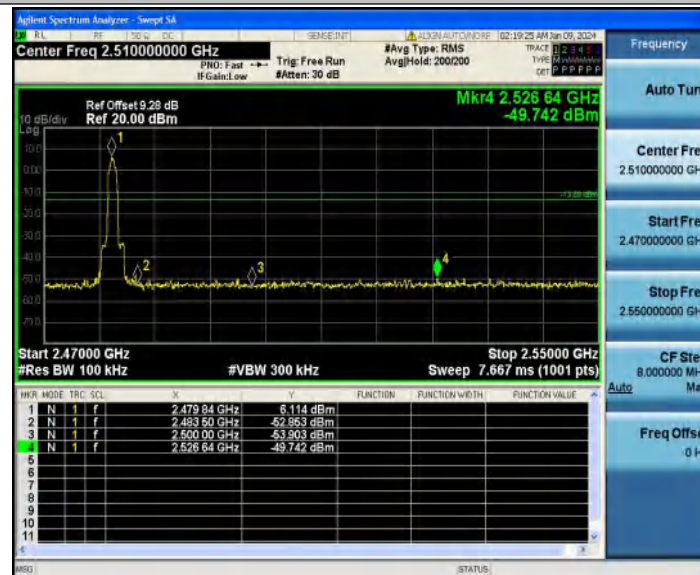
2DH5_Ant1_High_Hop_2480



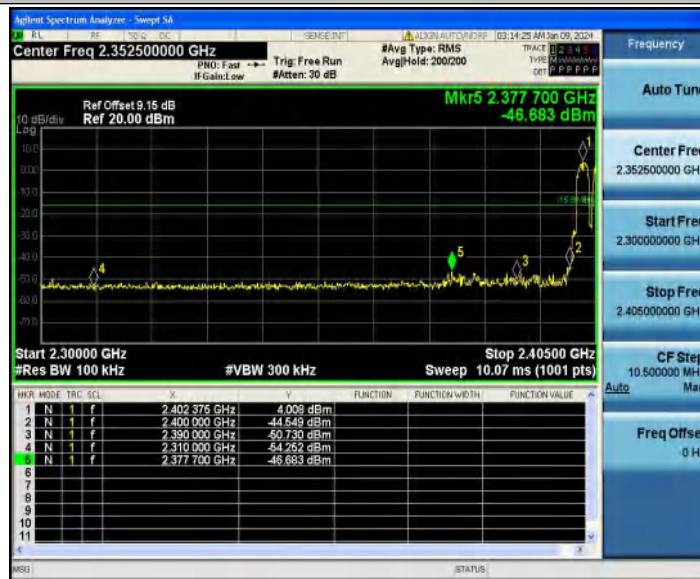
3DH5_Ant1_Low_2402



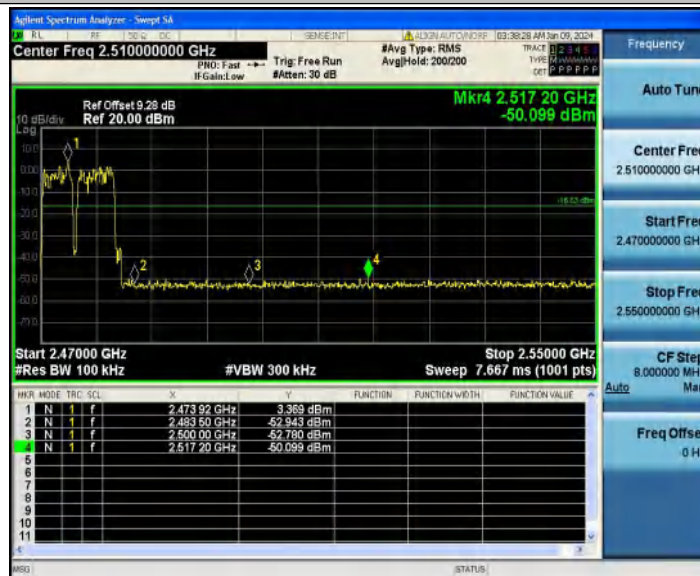
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



Appendix H: Conducted Spurious Emission

Test Result

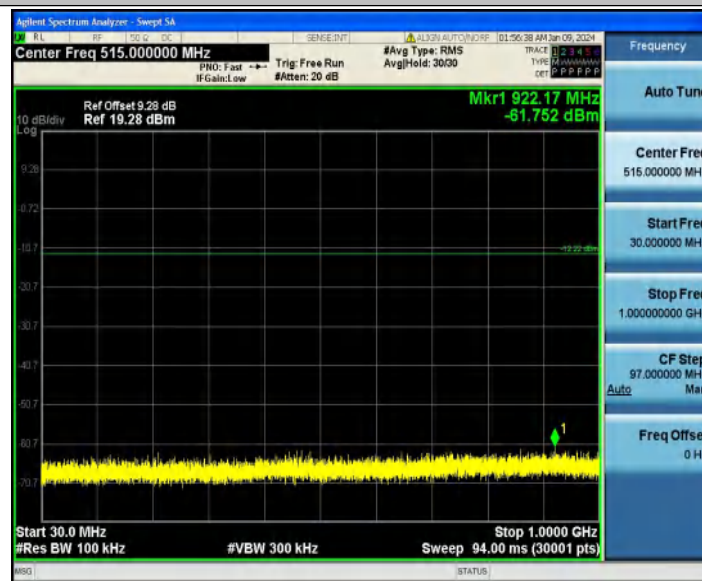
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	7.78	7.78	---	PASS
			30~1000	7.78	-61.75	≤-12.22	PASS
			1000~26500	7.78	-30.26	≤-12.22	PASS
		2441	Reference	6.79	6.79	---	PASS
			30~1000	6.79	-60.54	≤-13.21	PASS
			1000~26500	6.79	-34.26	≤-13.21	PASS
		2480	Reference	5.48	5.48	---	PASS
			30~1000	5.48	-61.52	≤-14.52	PASS
			1000~26500	5.48	-35.91	≤-14.52	PASS
2DH5	Ant1	2402	Reference	4.14	4.14	---	PASS
			30~1000	4.14	-61.47	≤-15.86	PASS
			1000~26500	4.14	-31.75	≤-15.86	PASS
		2441	Reference	5.56	5.56	---	PASS
			30~1000	5.56	-56.77	≤-14.44	PASS
			1000~26500	5.56	-34.7	≤-14.44	PASS
		2480	Reference	5.32	5.32	---	PASS
			30~1000	5.32	-61.61	≤-14.68	PASS
			1000~26500	5.32	-38.33	≤-14.68	PASS
3DH5	Ant1	2402	Reference	6.18	6.18	---	PASS
			30~1000	6.18	-61.38	≤-13.82	PASS
			1000~26500	6.18	-33.31	≤-13.82	PASS
		2441	Reference	6.88	6.88	---	PASS
			30~1000	6.88	-61.08	≤-13.12	PASS
			1000~26500	6.88	-36.6	≤-13.12	PASS
		2480	Reference	2.66	2.66	---	PASS
			30~1000	2.66	-61.38	≤-17.34	PASS
			1000~26500	2.66	-38.42	≤-17.34	PASS

Test Graphs

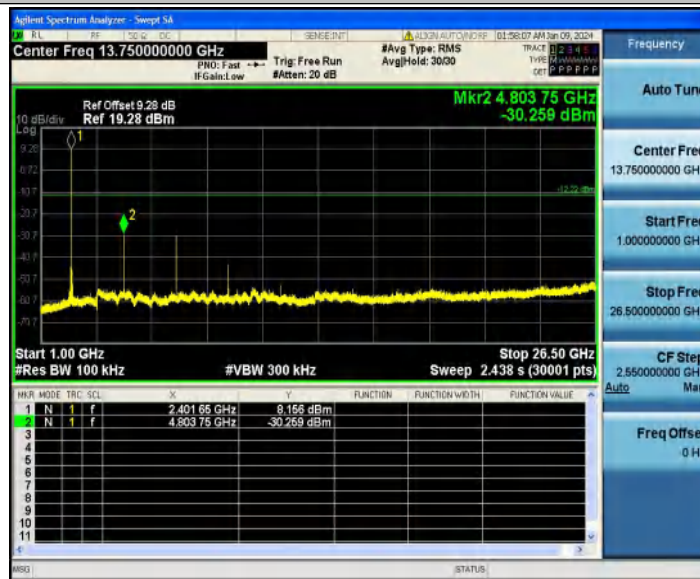
DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000



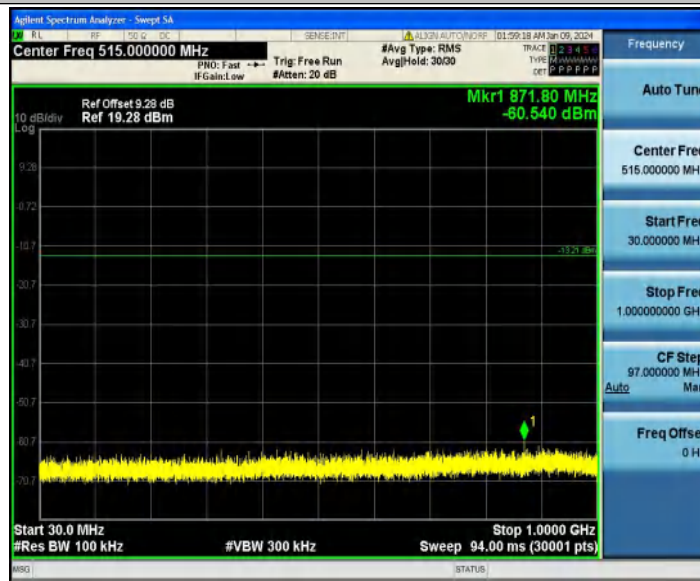
DH5_Ant1_2402_1000~26500



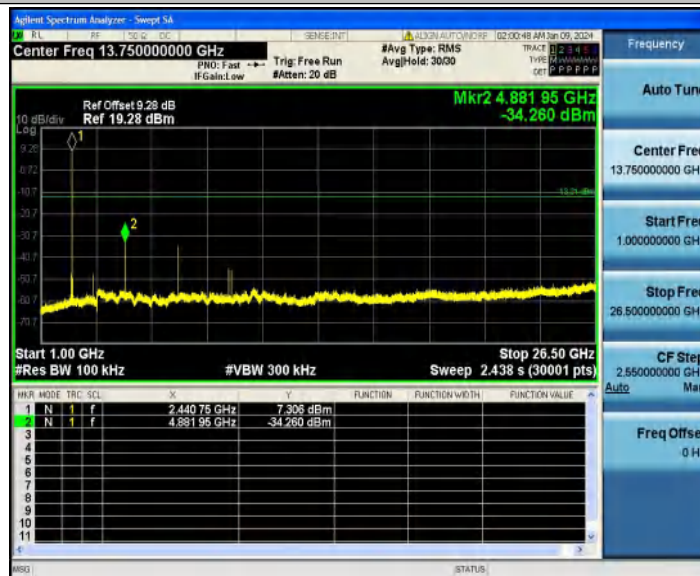
DH5_Ant1_2441_0~Reference



DH5_Ant1_2441_30~1000



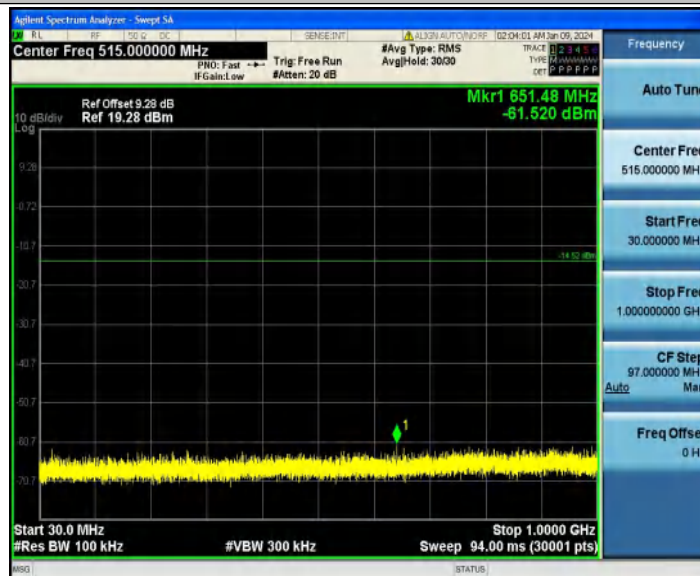
DH5_Ant1_2441_1000~26500



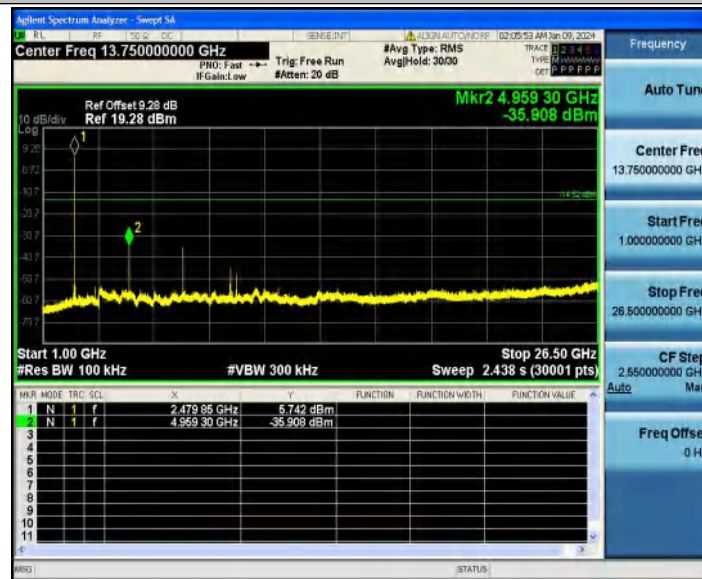
DH5_Ant1_2480_0~Reference



DH5_Ant1_2480_30~1000



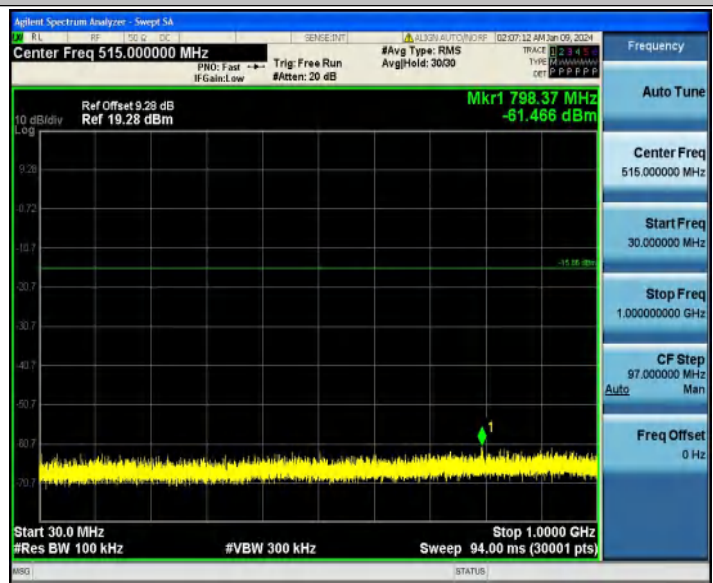
DH5_Ant1_2480_1000~26500



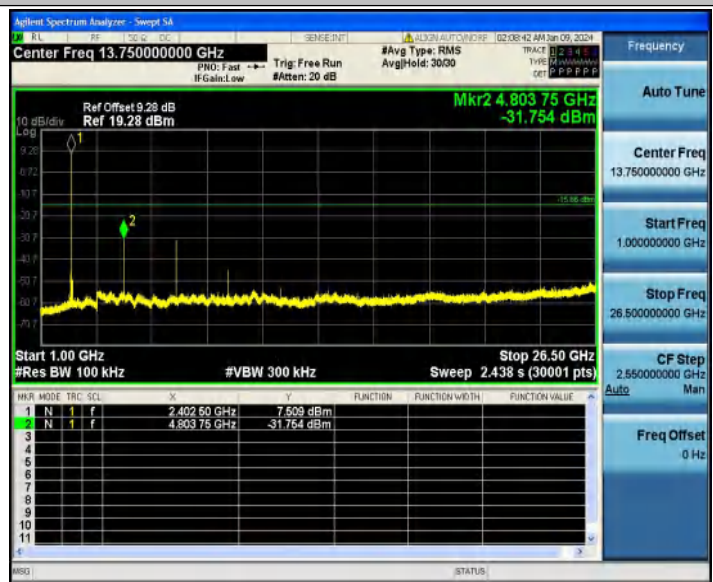
2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000



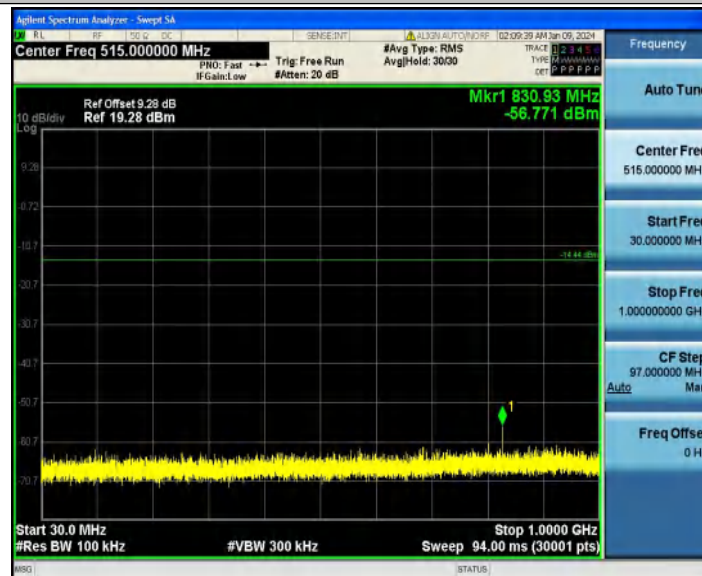
2DH5_Ant1_2402_1000~26500



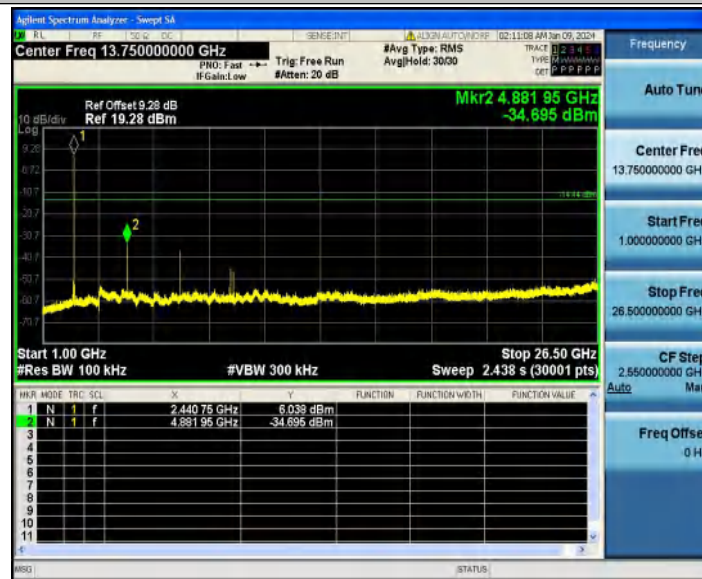
2DH5_Ant1_2441_0~Reference



2DH5_Ant1_2441_30~1000



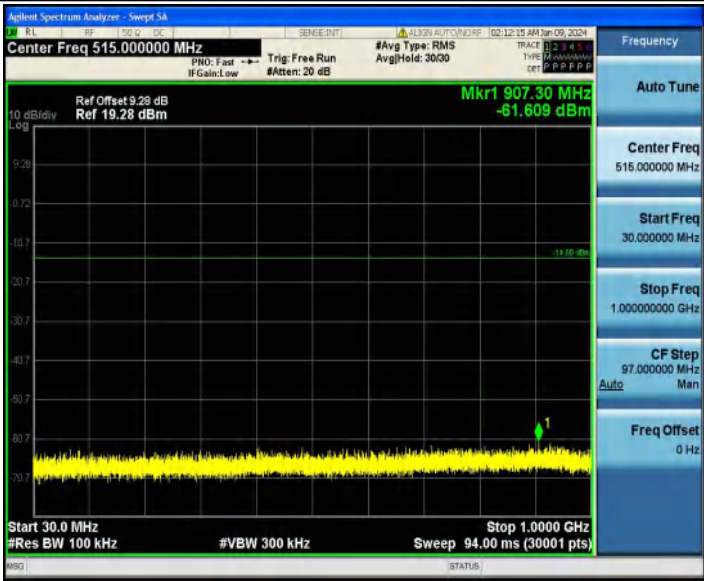
2DH5_Ant1_2441_1000~26500



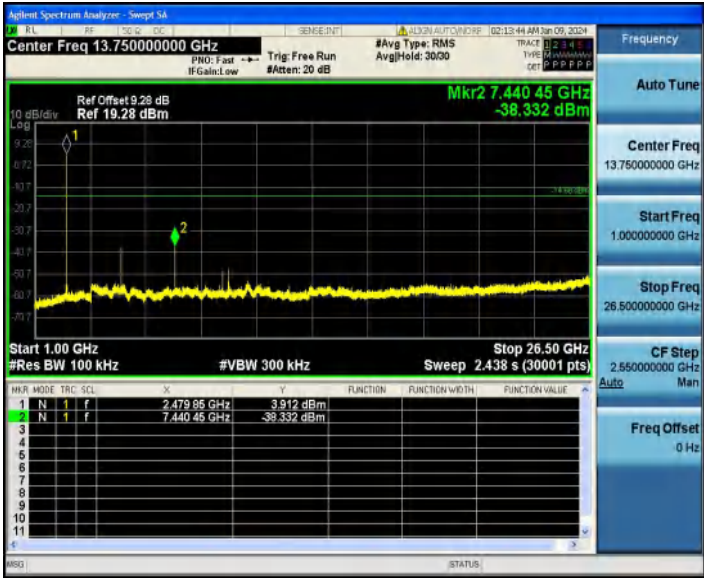
2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000



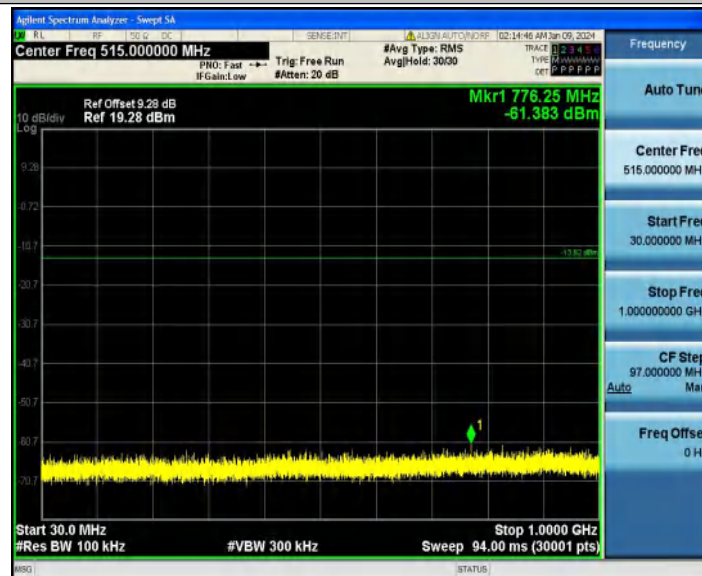
2DH5_Ant1_2480_1000~26500



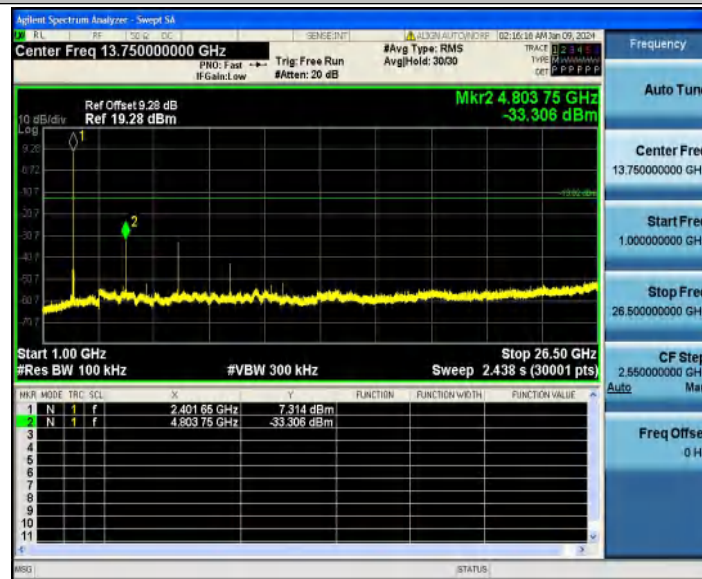
3DH5_Ant1_2402_0~Reference



3DH5_Ant1_2402_30~1000



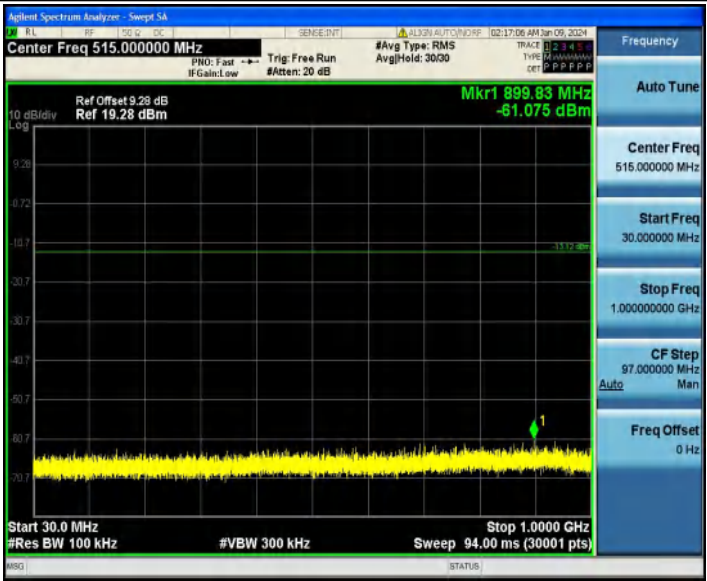
3DH5_Ant1_2402_1000~26500



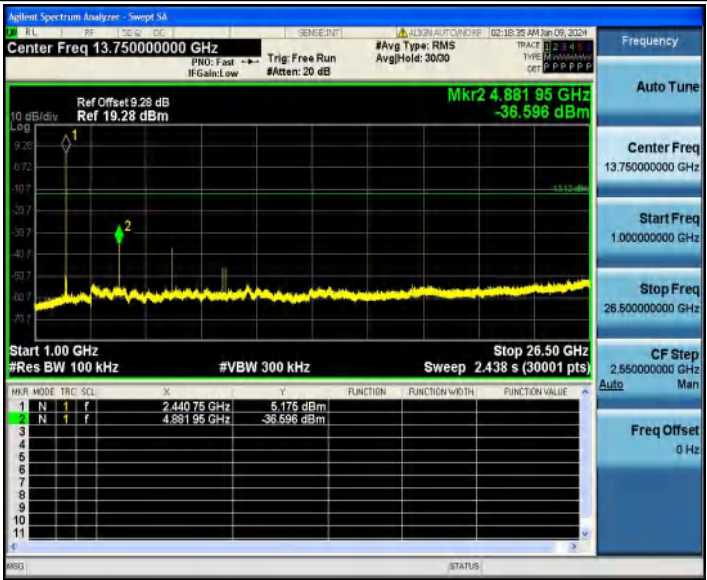
3DH5_Ant1_2441_0~Reference



3DH5_Ant1_2441_30~1000



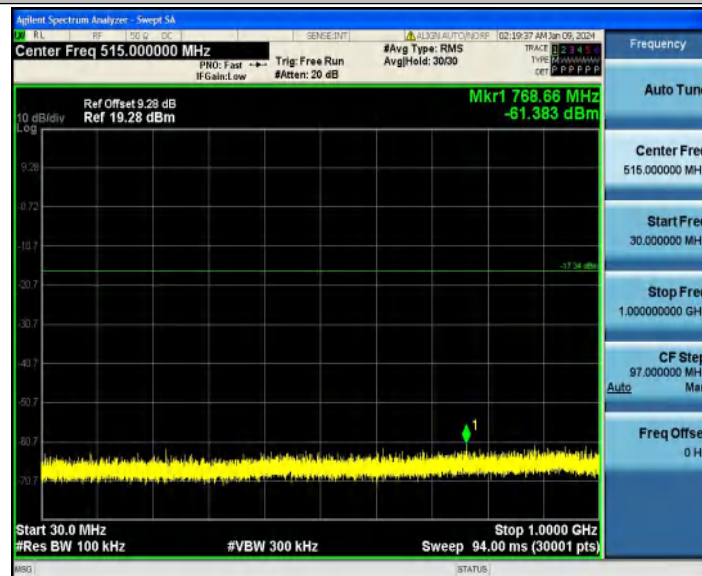
3DH5_Ant1_2441_1000~26500



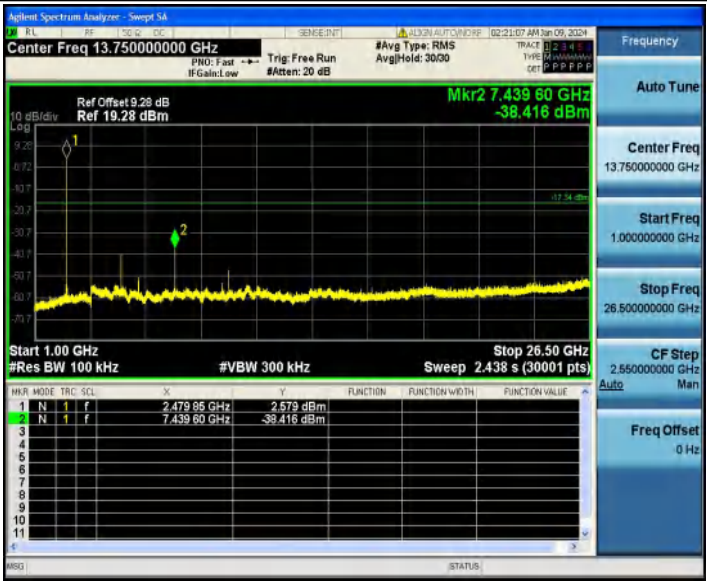
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



Appendix I: Duty Cycle

Test Result

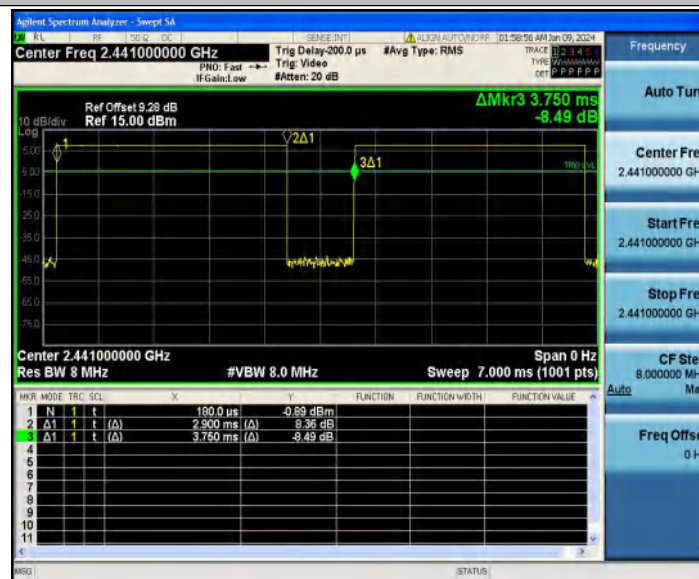
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.90	3.75	0.7733	77.33	1.12	---	---
		2441	2.90	3.75	0.7733	77.33	1.12	---	---
		2480	2.90	3.75	0.7733	77.33	1.12	---	---
2DH5	Ant1	2402	2.91	3.75	0.7760	77.60	1.10	---	---
		2441	2.90	3.74	0.7754	77.54	1.10	---	---
		2480	2.91	3.76	0.7739	77.39	1.11	---	---
3DH5	Ant1	2402	2.91	3.74	0.7781	77.81	1.09	---	---
		2441	2.91	3.75	0.7760	77.60	1.10	---	---
		2480	2.91	3.74	0.7781	77.81	1.09	---	---

Test Graphs

DH5_Ant1_2402



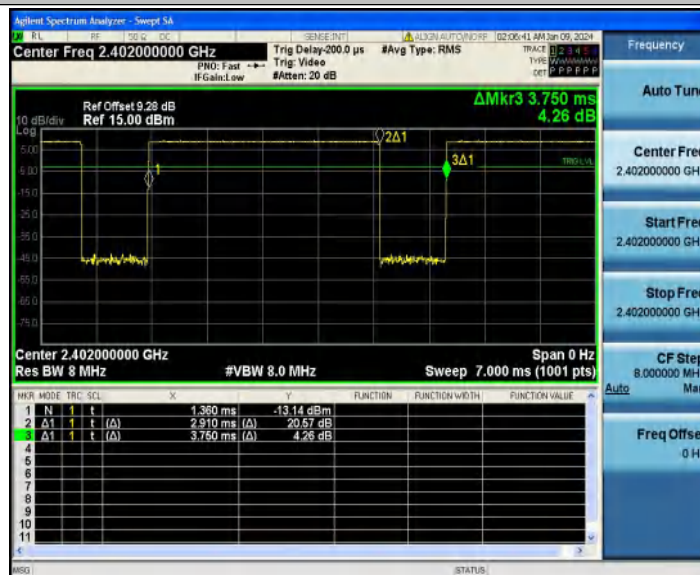
DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



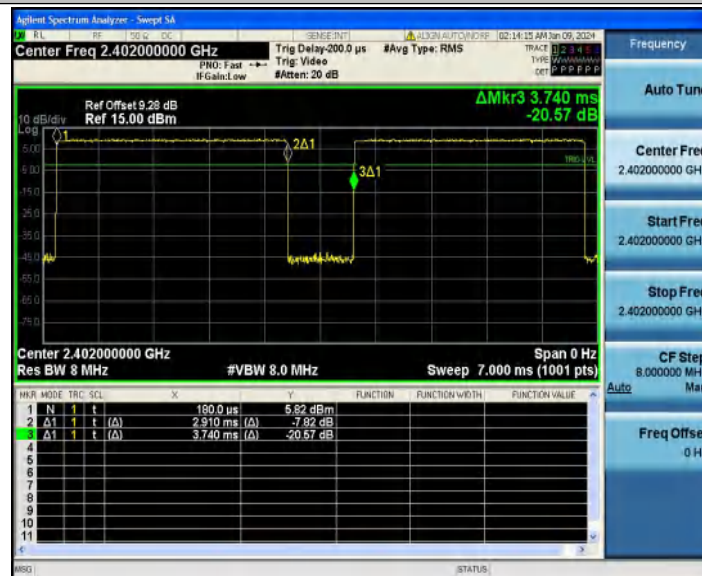
2DH5_Ant1_2441



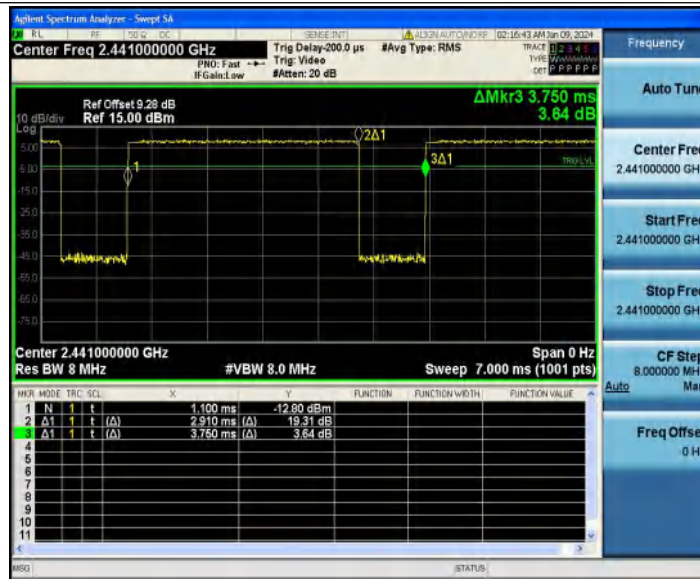
2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3D15_Ant1_2480

