

FCC Appendix RF Test Data

FCC ID : 2BQJF-ES3

Company: : Shenzhen Hengyuan Technology Co., Ltd.

EUT : EmoPal Early Education Companion

Model Number : ES3

Report No. : CTA25052800601

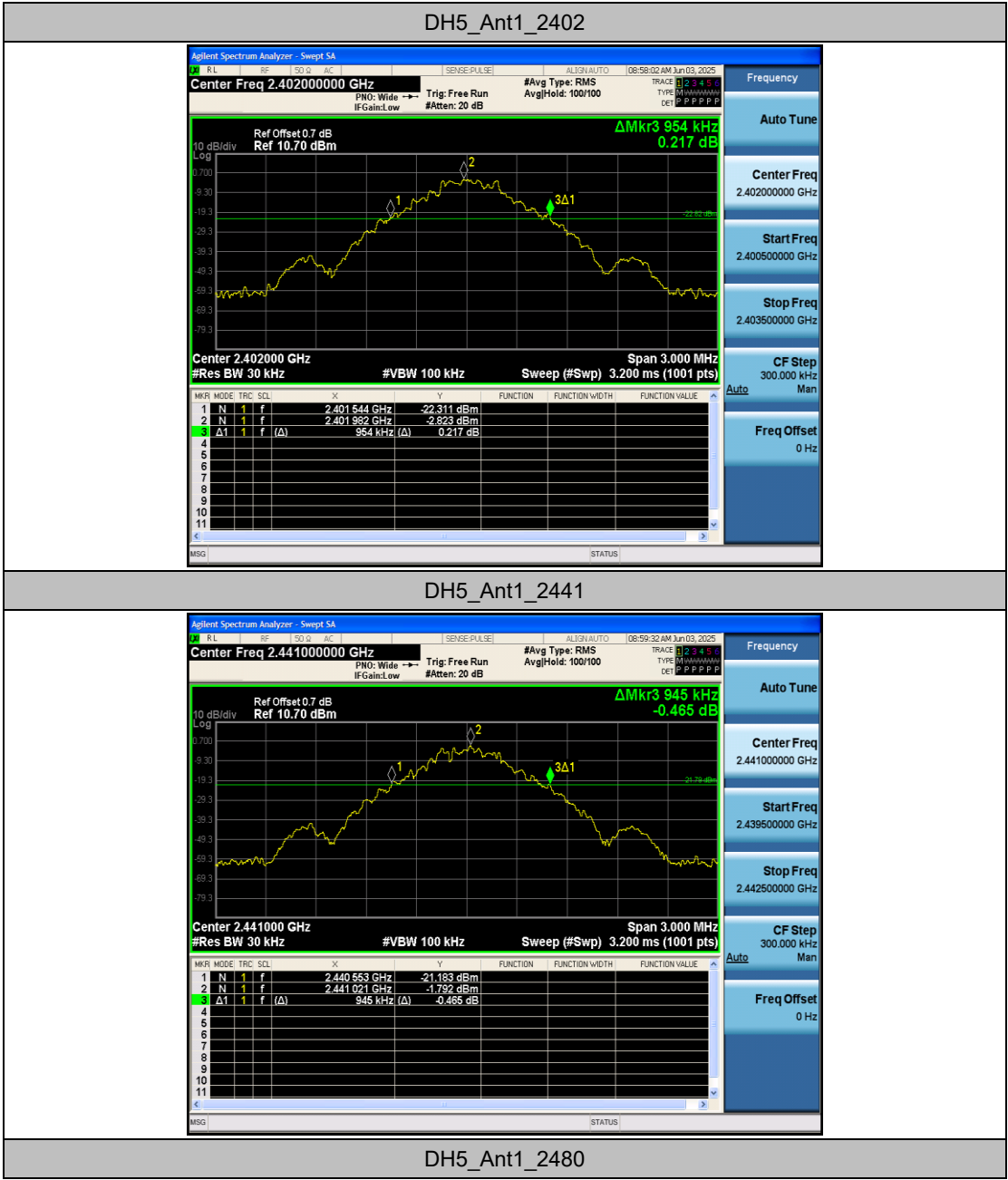
Reviewed By : Eric Wang

Appendix A: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.954	2401.544	2402.498	---	---
		2441	0.945	2440.553	2441.498	---	---
		2480	0.957	2479.544	2480.501	---	---
2DH5	Ant1	2402	1.317	2401.349	2402.666	---	---
		2441	1.332	2440.346	2441.678	---	---
		2480	1.281	2479.382	2480.663	---	---

Test Graphs





2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480

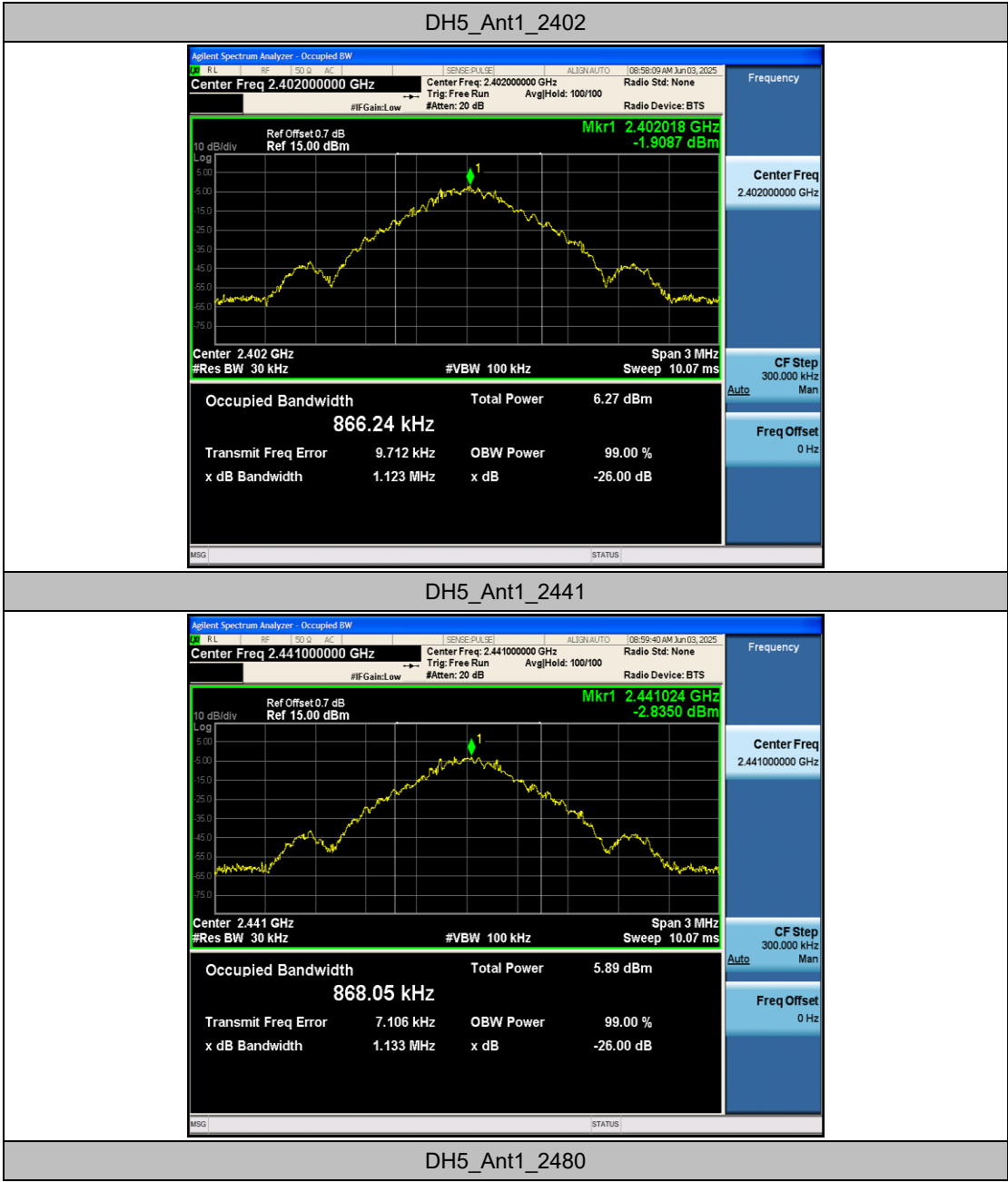


Appendix B: Occupied Channel Bandwidth

Test Result

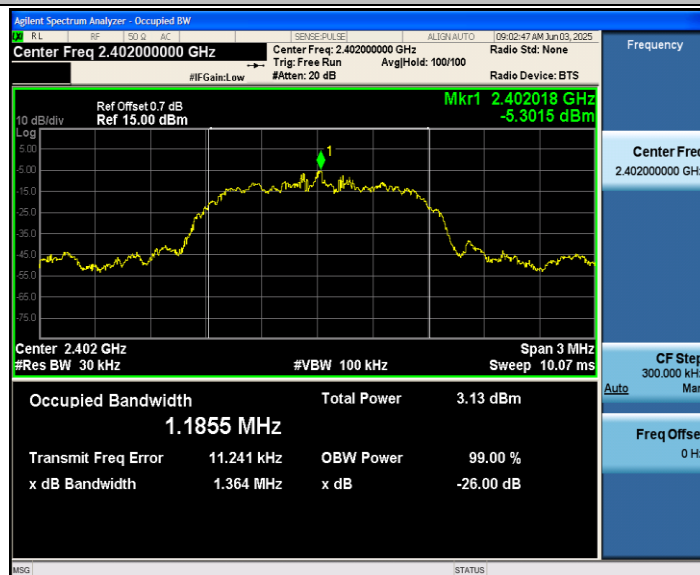
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.86624	2401.5766	2402.4428	---	---
		2441	0.86805	2440.5731	2441.4411	---	---
		2480	0.86794	2479.5752	2480.4431	---	---
2DH5	Ant1	2402	1.1855	2401.4185	2402.6040	---	---
		2441	1.1896	2440.4160	2441.6056	---	---
		2480	1.1859	2479.4185	2480.6044	---	---

Test Graphs

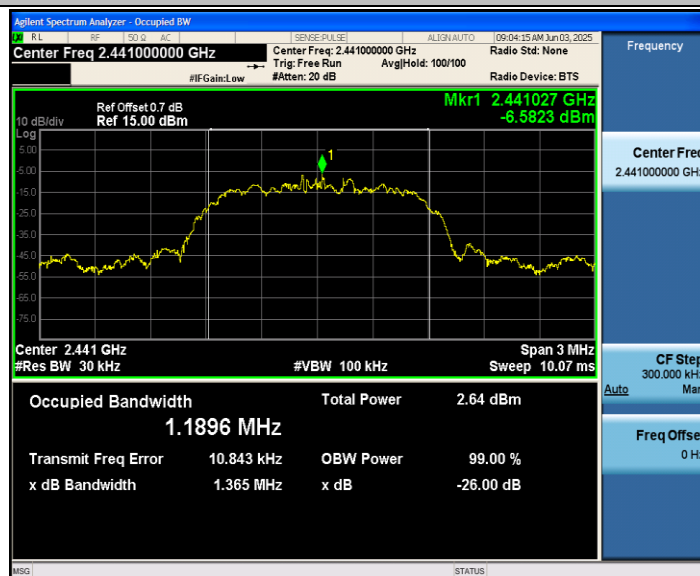




2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	0.27	≤20.97	PASS
		2441	-0.01	≤20.97	PASS
		2480	-0.11	≤20.97	PASS
2DH5	Ant1	2402	-0.52	≤20.97	PASS
		2441	-0.80	≤20.97	PASS
		2480	-0.93	≤20.97	PASS

Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.996	≥ 0.957	PASS
2DH5	Ant1	Hop	0.988	≥ 0.888	PASS

Test Graphs

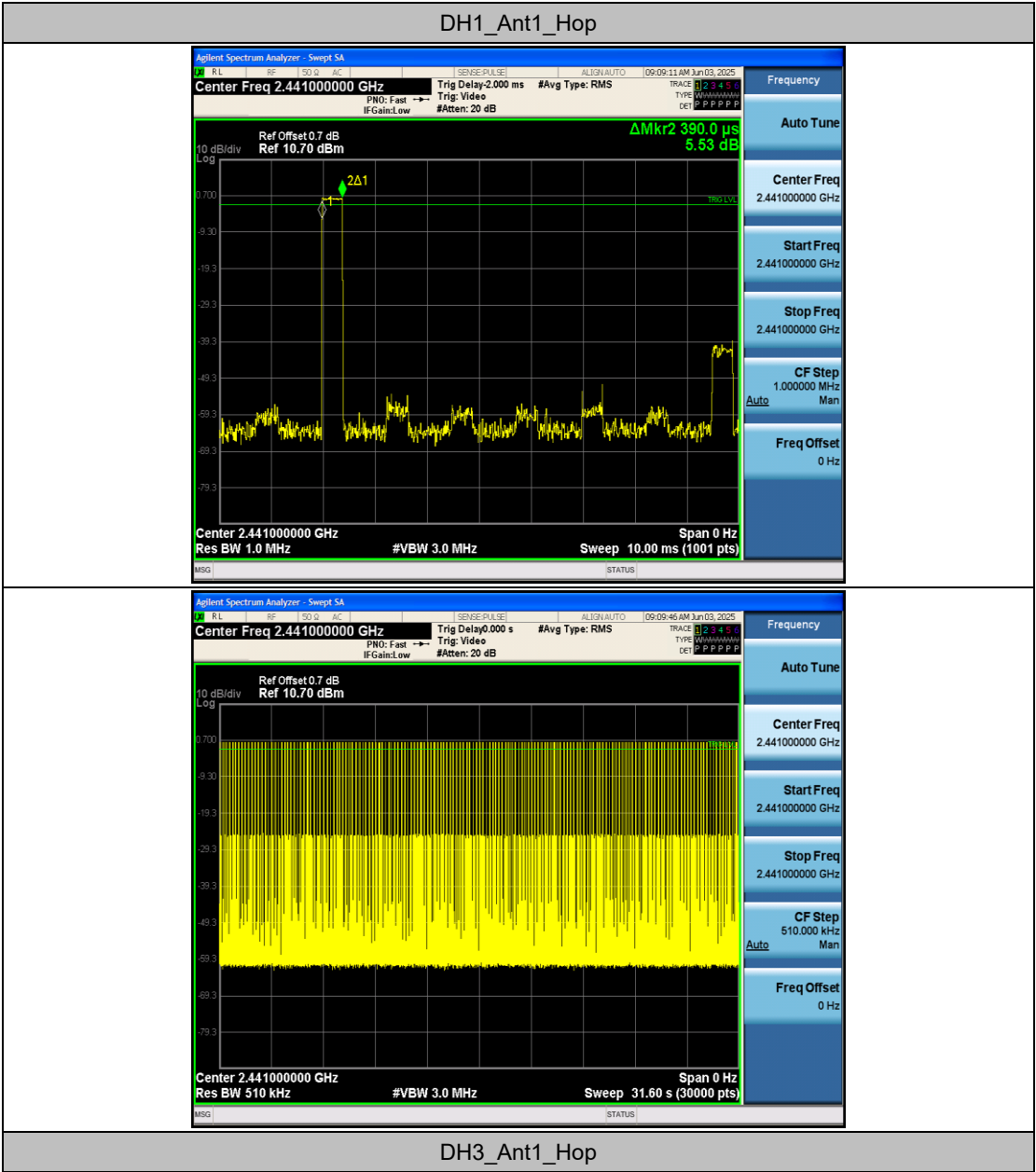


Appendix E: Time of occupancy

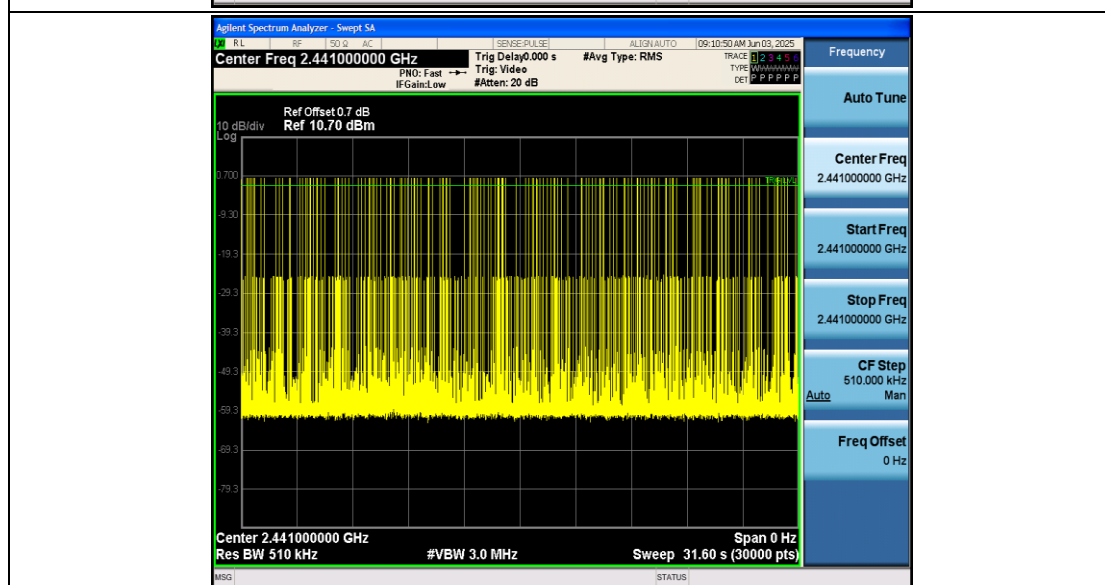
Test Result

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.390	318	0.124	≤0.4	PASS
DH3	Ant1	Hop	1.640	154	0.253	≤0.4	PASS
DH5	Ant1	Hop	2.890	100	0.289	≤0.4	PASS
2DH1	Ant1	Hop	0.400	319	0.128	≤0.4	PASS
2DH3	Ant1	Hop	1.650	156	0.257	≤0.4	PASS
2DH5	Ant1	Hop	2.900	116	0.336	≤0.4	PASS

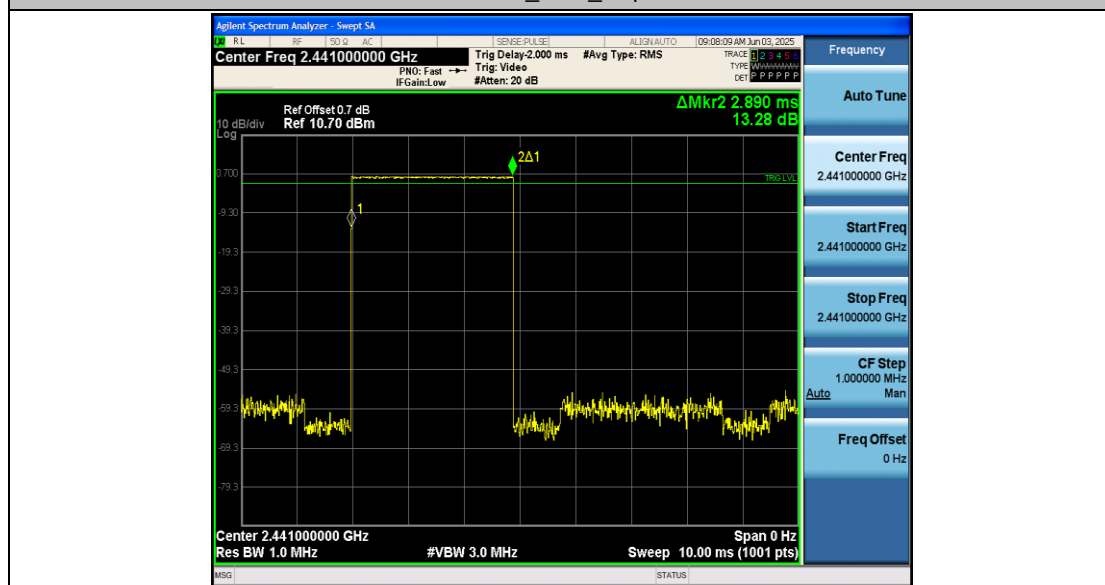
Test Graphs

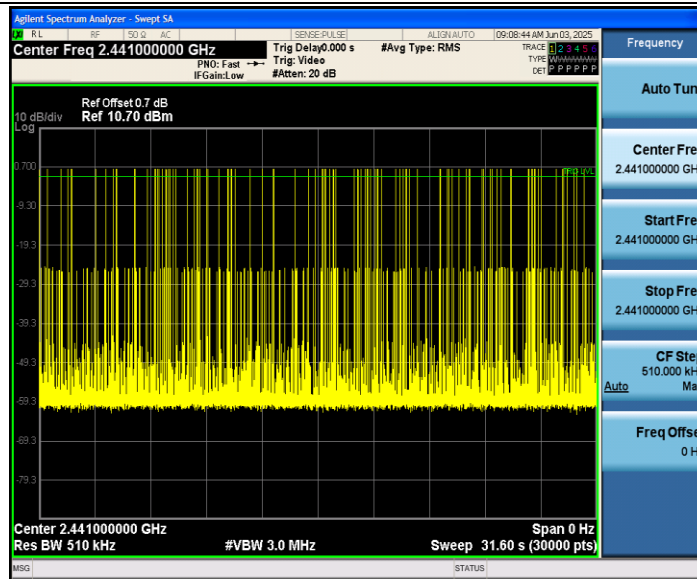


DH3_Ant1_Hop

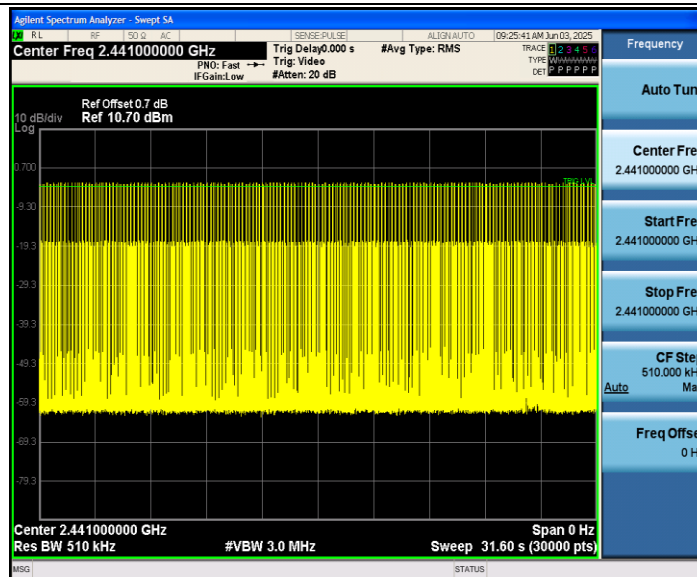


DH5_Ant1_Hop

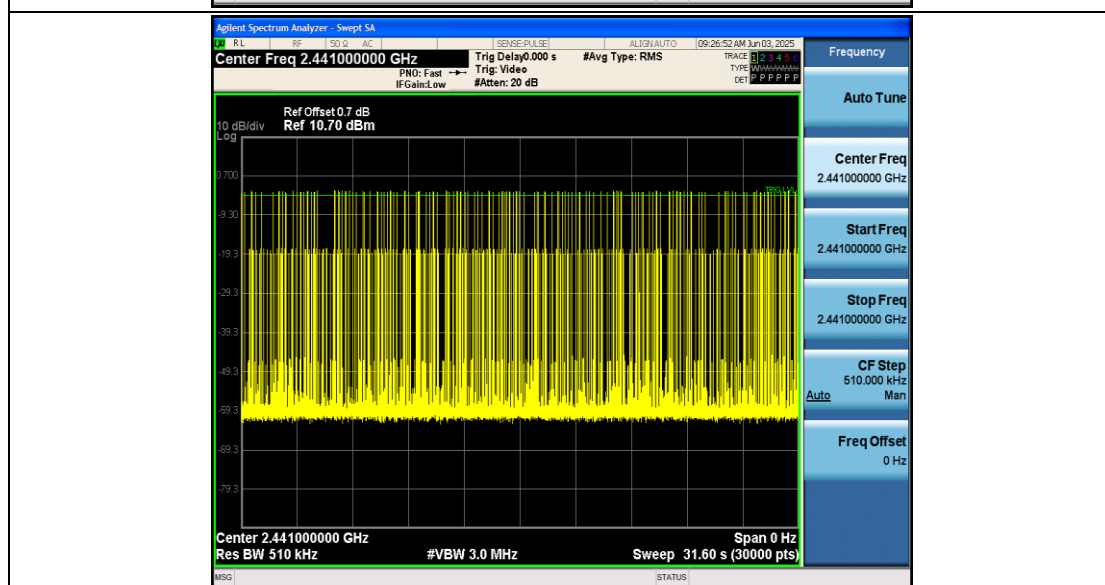
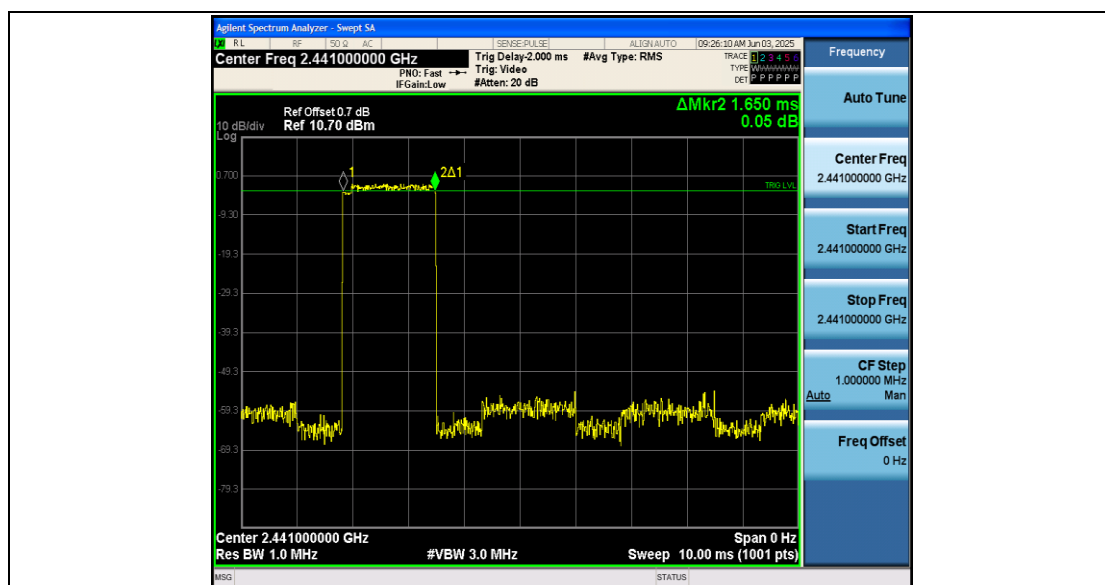




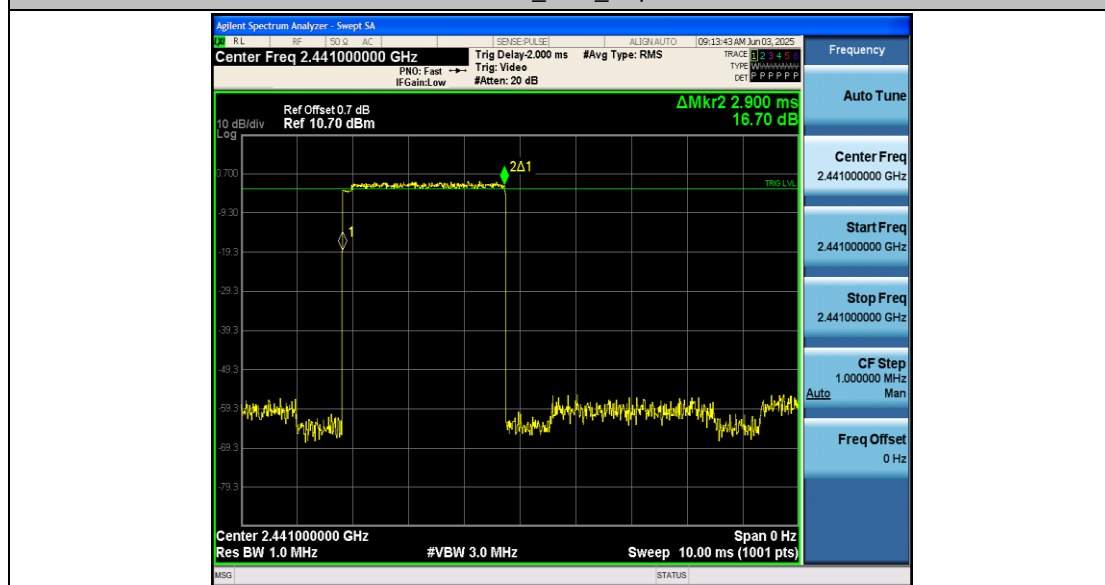
2DH1_Ant1_Hop

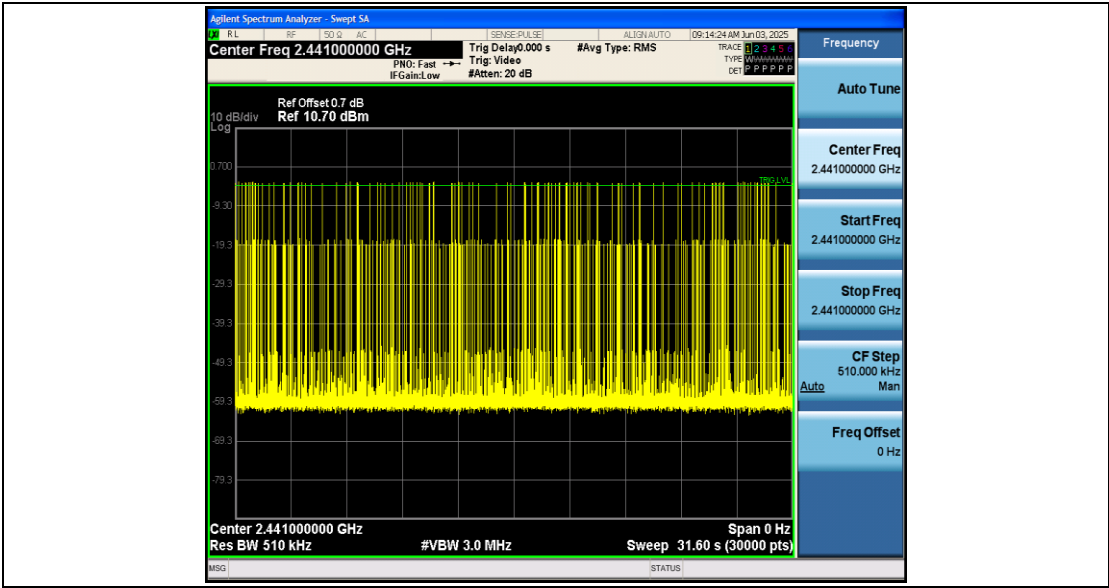


2DH3_Ant1_Hop



2DH5_Ant1_Hop





Appendix F: Number of hopping channels

Test Result

TestMode	Antenna	Freq(MHz)	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

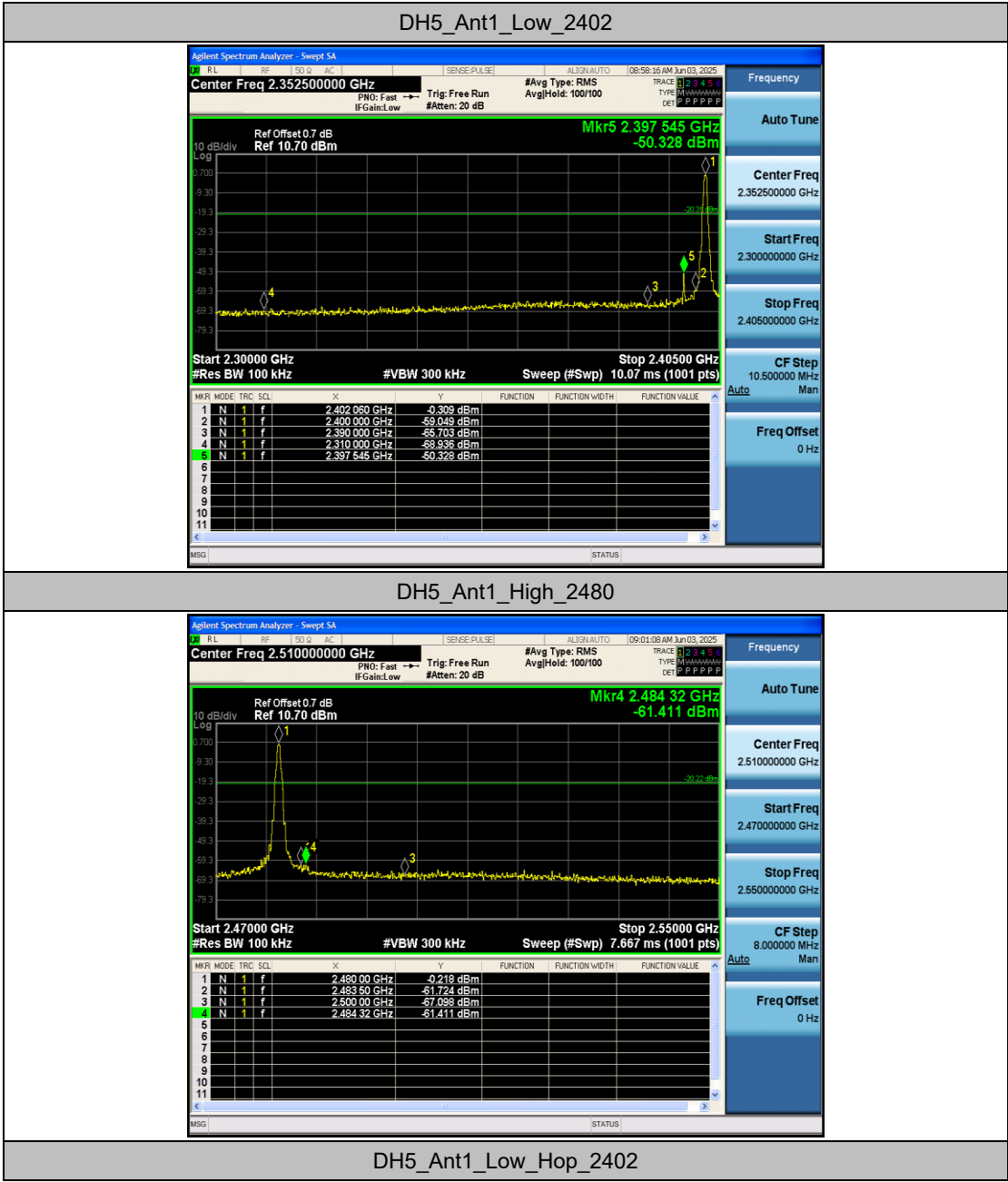


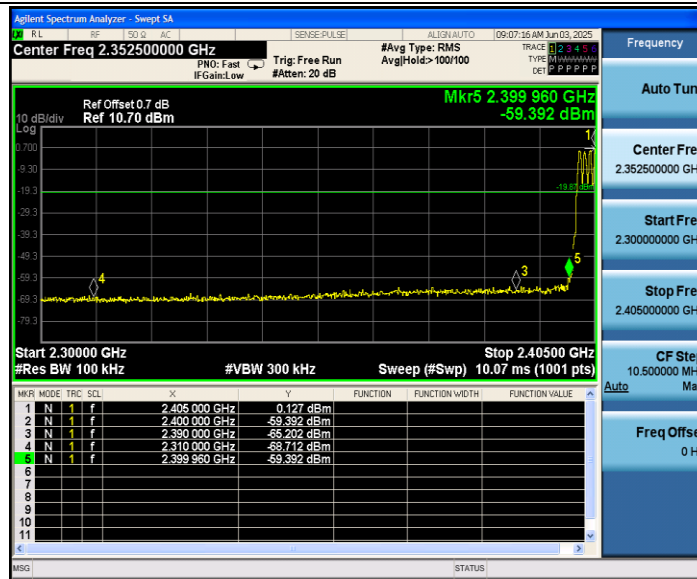
Appendix G: Band edge measurements

Test Result

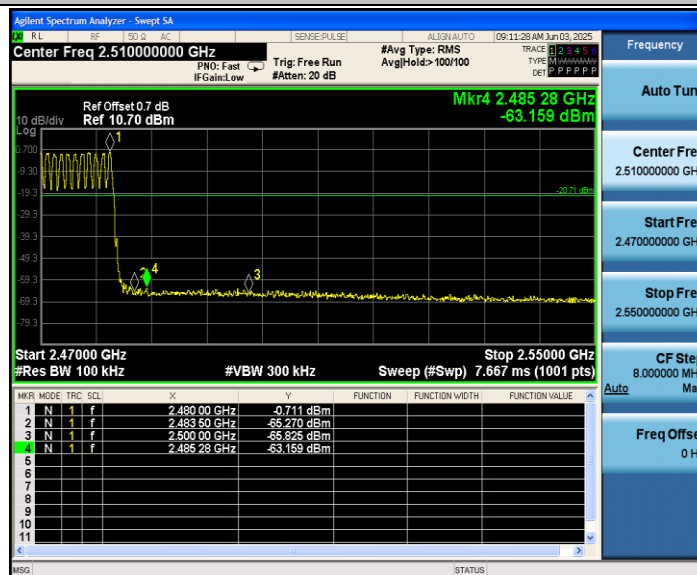
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.31	-50.33	≤-20.31	PASS
		High	2480	-0.22	-61.41	≤-20.22	PASS
		Low	Hop_2402	0.13	-59.39	≤-19.87	PASS
		High	Hop_2480	-0.71	-63.16	≤-20.71	PASS
2DH5	Ant1	Low	2402	-3.98	-61.01	≤-23.98	PASS
		High	2480	-3.69	-62.47	≤-23.69	PASS
		Low	Hop_2402	-5.06	-63.14	≤-25.06	PASS
		High	Hop_2480	-4.03	-63.02	≤-24.03	PASS

Test Graphs

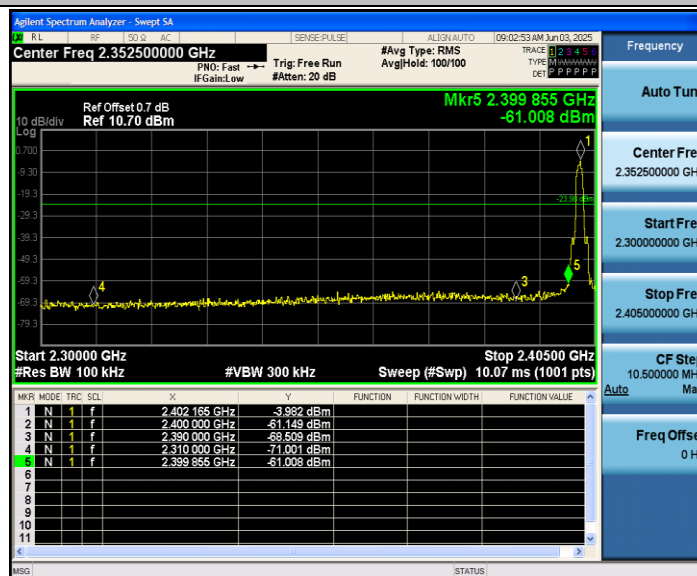




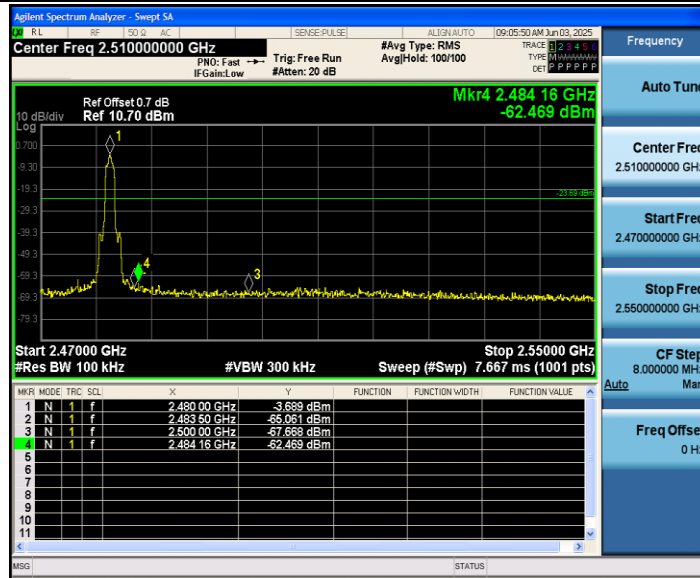
DH5_Ant1_High_Hop_2480



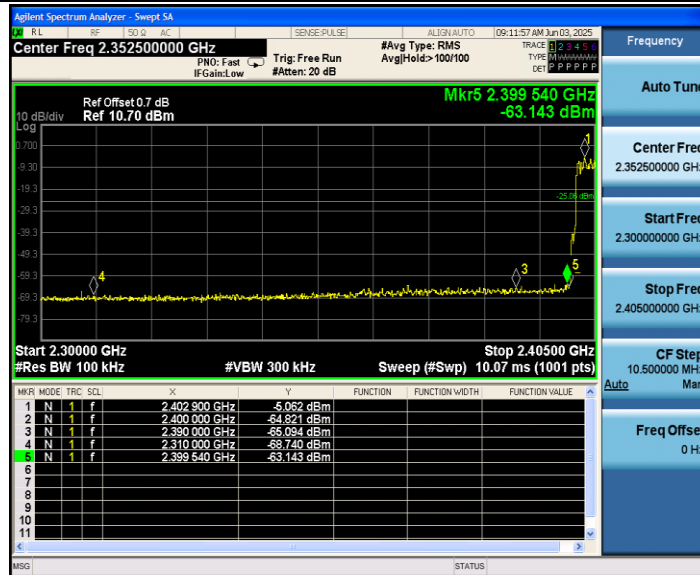
2DH5_Ant1_Low_2402



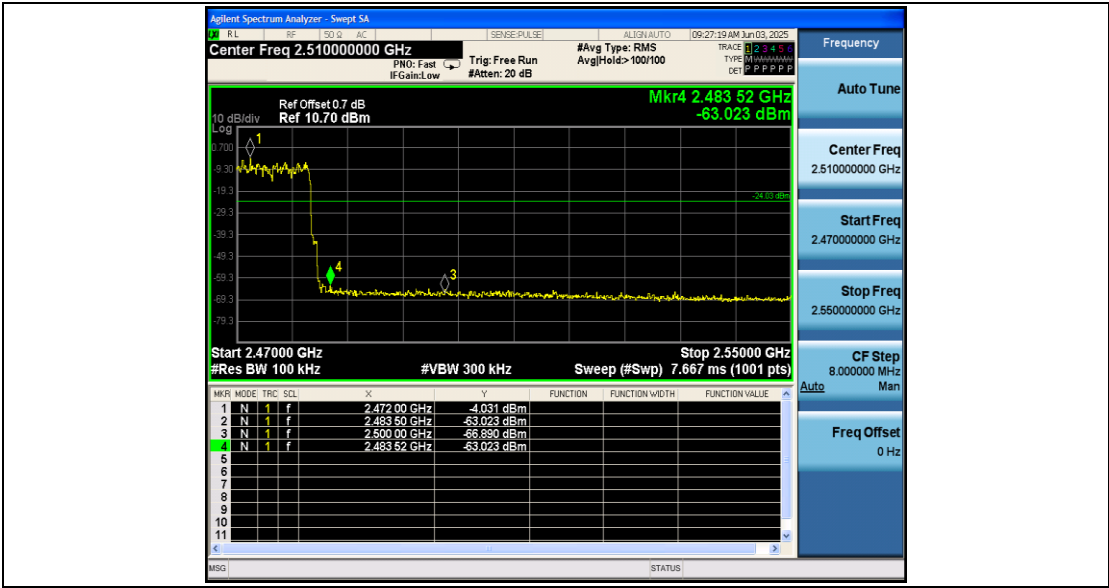
2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402



2DH5_Ant1_High_Hop_2480

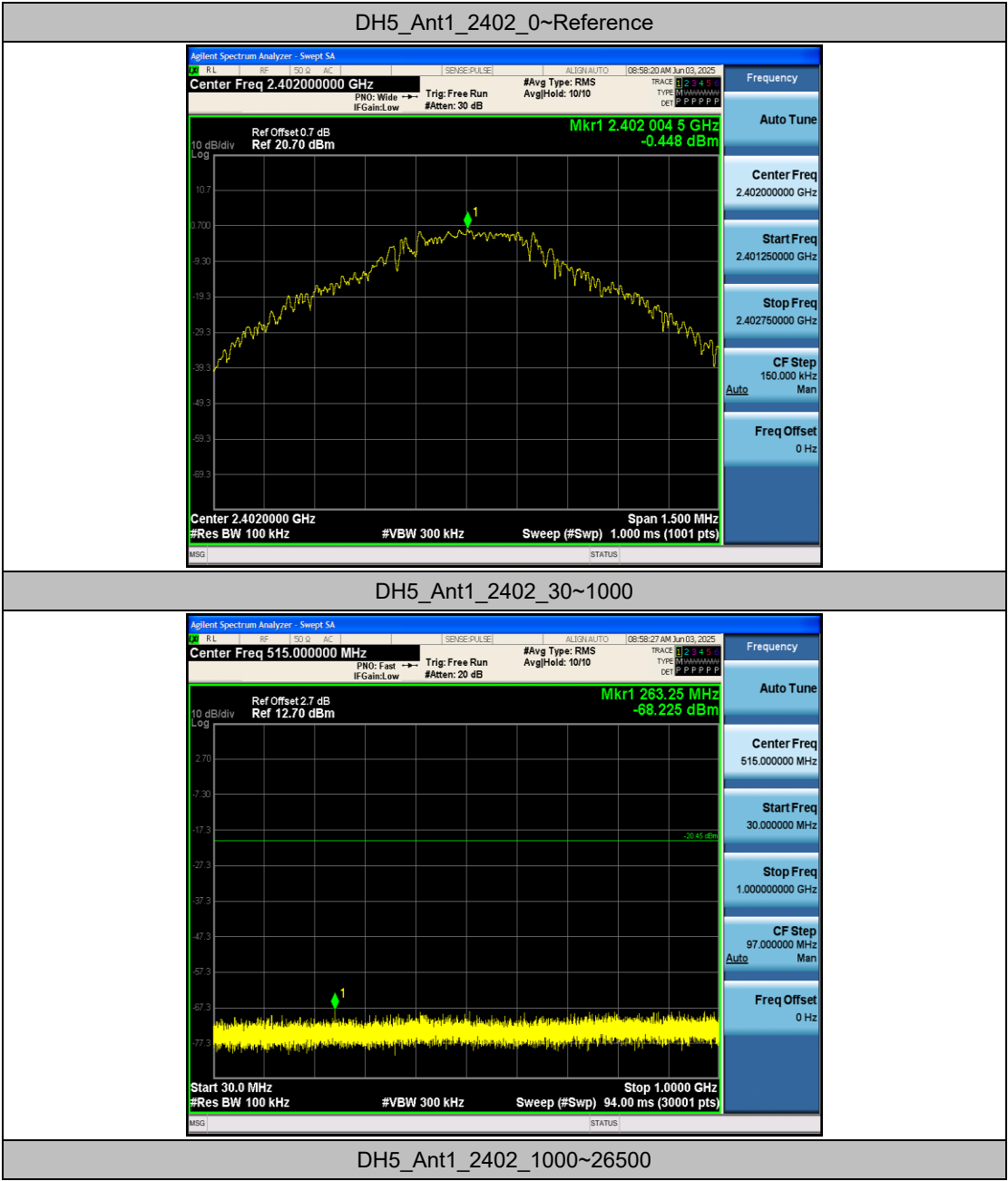


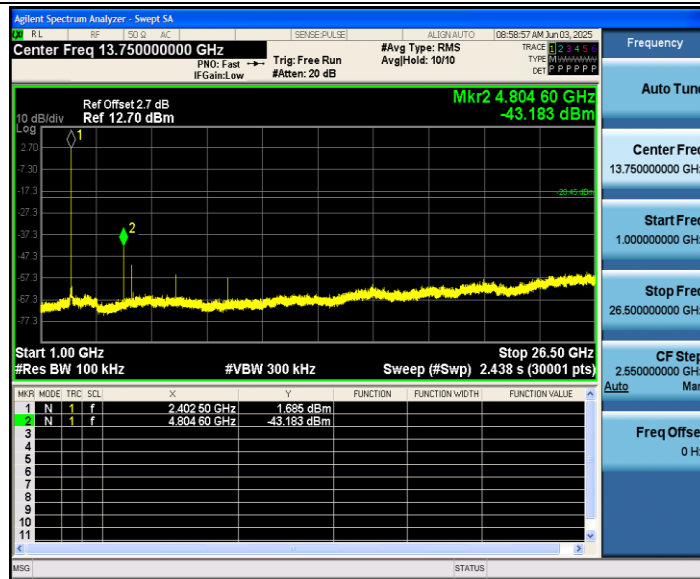
Appendix H: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.45	-0.45	---	PASS
			30~1000	-0.45	-68.23	≤-20.45	PASS
			1000~26500	-0.45	-43.18	≤-20.45	PASS
		2441	Reference	-0.63	-0.63	---	PASS
			30~1000	-0.63	-67.43	≤-20.63	PASS
			1000~26500	-0.63	-43.77	≤-20.63	PASS
		2480	Reference	-0.92	-0.92	---	PASS
			30~1000	-0.92	-67.32	≤-20.92	PASS
			1000~26500	-0.92	-43.93	≤-20.92	PASS
2DH5	Ant1	2402	Reference	-3.33	-3.33	---	PASS
			30~1000	-3.33	-68.2	≤-23.33	PASS
			1000~26500	-3.33	-45.95	≤-23.33	PASS
		2441	Reference	-4.91	-4.91	---	PASS
			30~1000	-4.91	-67.03	≤-24.91	PASS
			1000~26500	-4.91	-46.52	≤-24.91	PASS
		2480	Reference	-5.33	-5.33	---	PASS
			30~1000	-5.33	-67.7	≤-25.33	PASS
			1000~26500	-5.33	-48.75	≤-25.33	PASS

Test Graphs

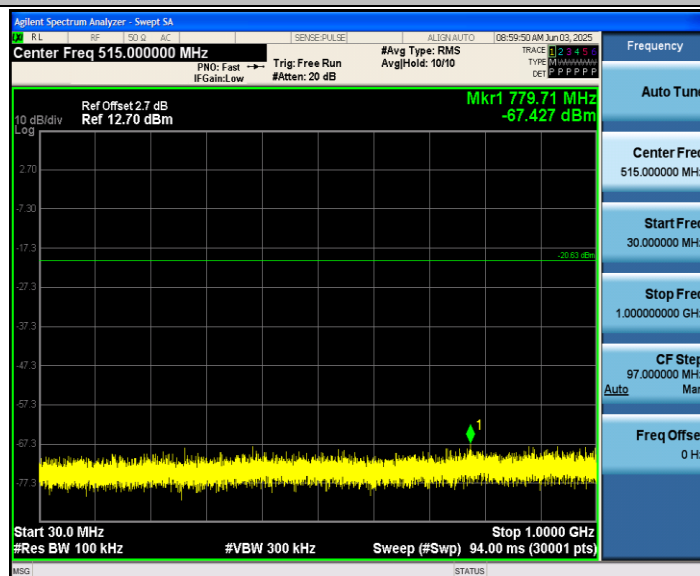




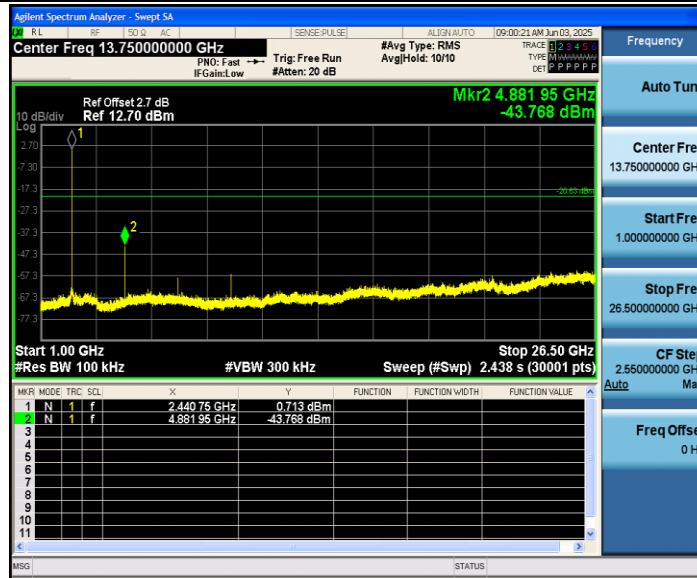
DH5_Ant1_2441_0~Reference



DH5_Ant1_2441_30~1000



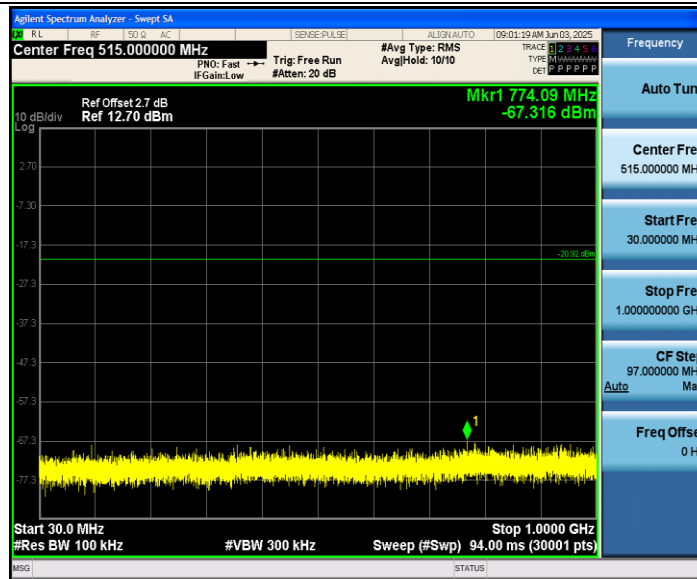
DH5_Ant1_2441_1000~26500



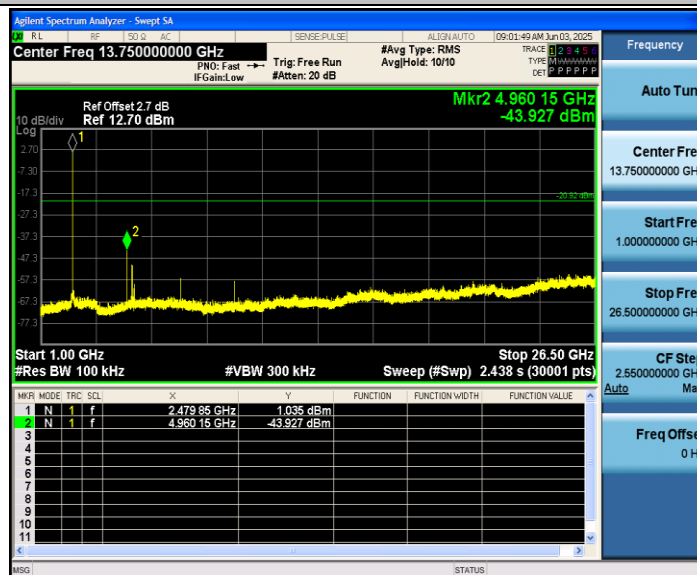
DH5_Ant1_2480_0~Reference



DH5_Ant1_2480_30~1000



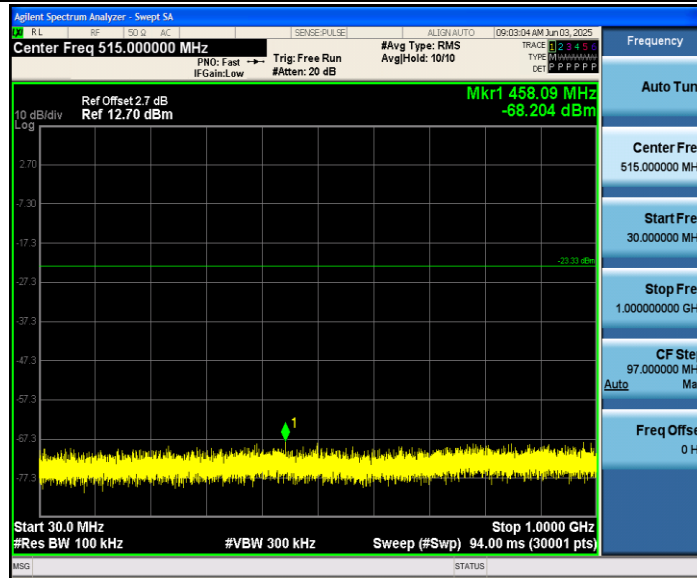
DH5_Ant1_2480_1000~26500



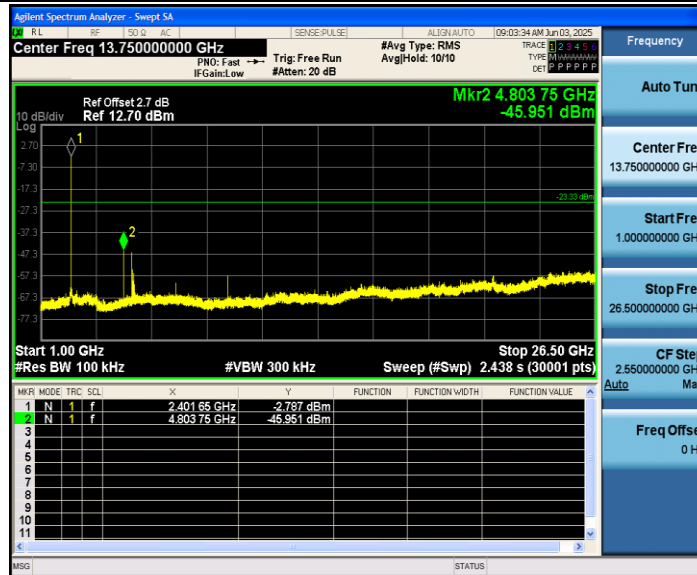
2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000



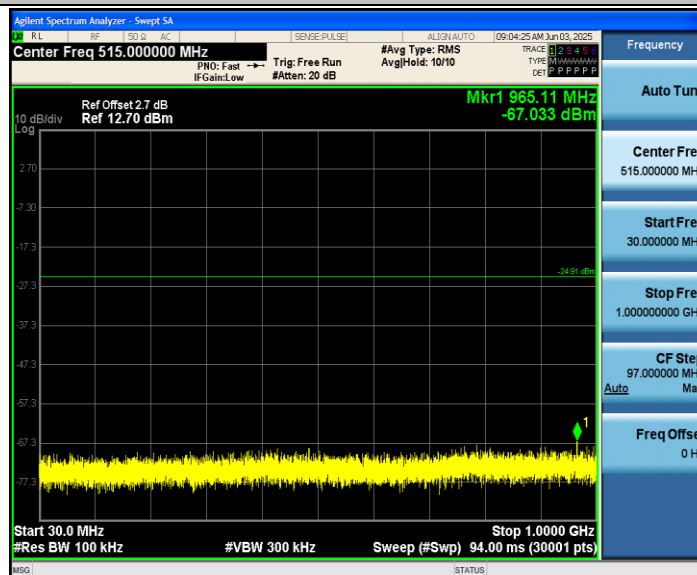
2DH5_Ant1_2402_1000~26500



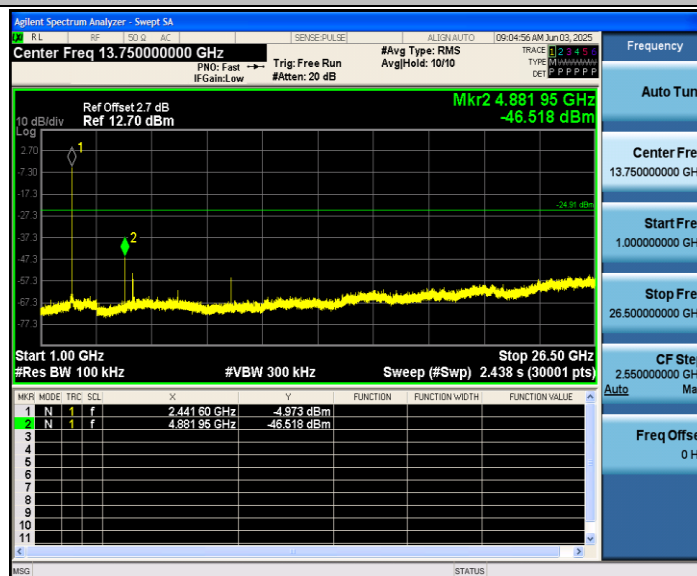
2DH5_Ant1_2441_0~Reference



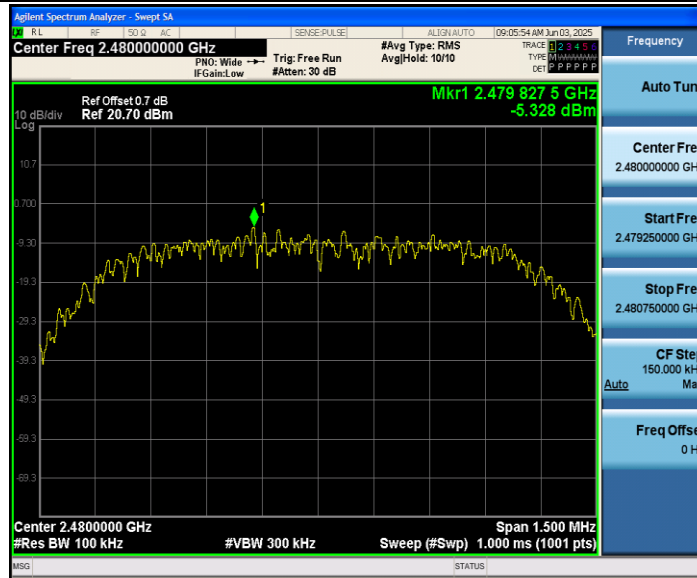
2DH5_Ant1_2441_30~1000



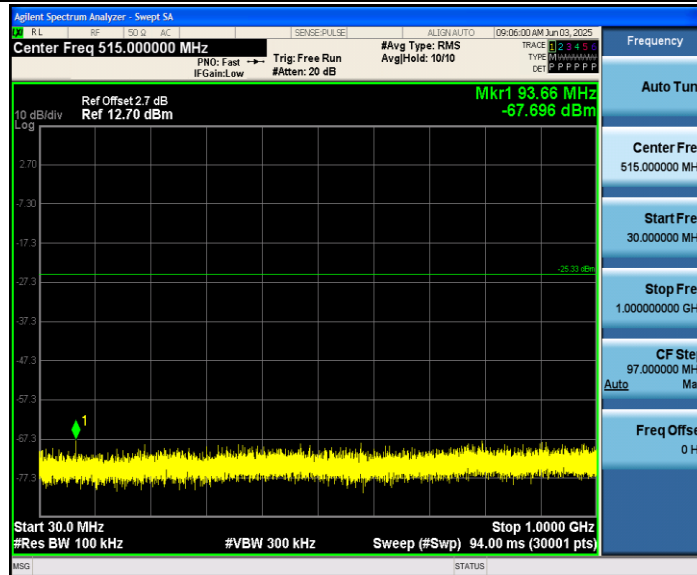
2DH5_Ant1_2441_1000~26500



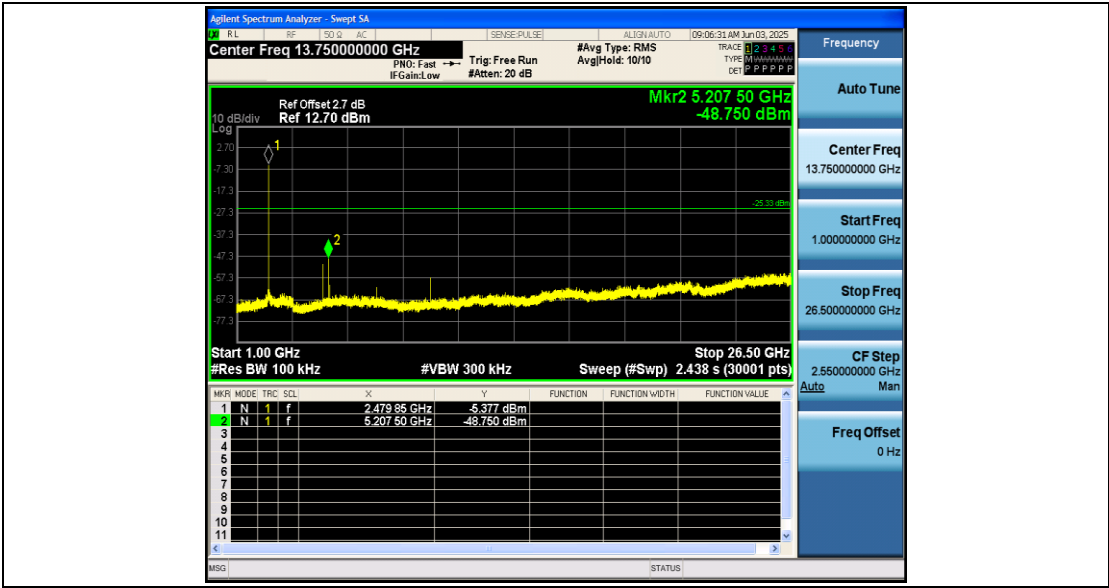
2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000



2DH5_Ant1_2480_1000~26500

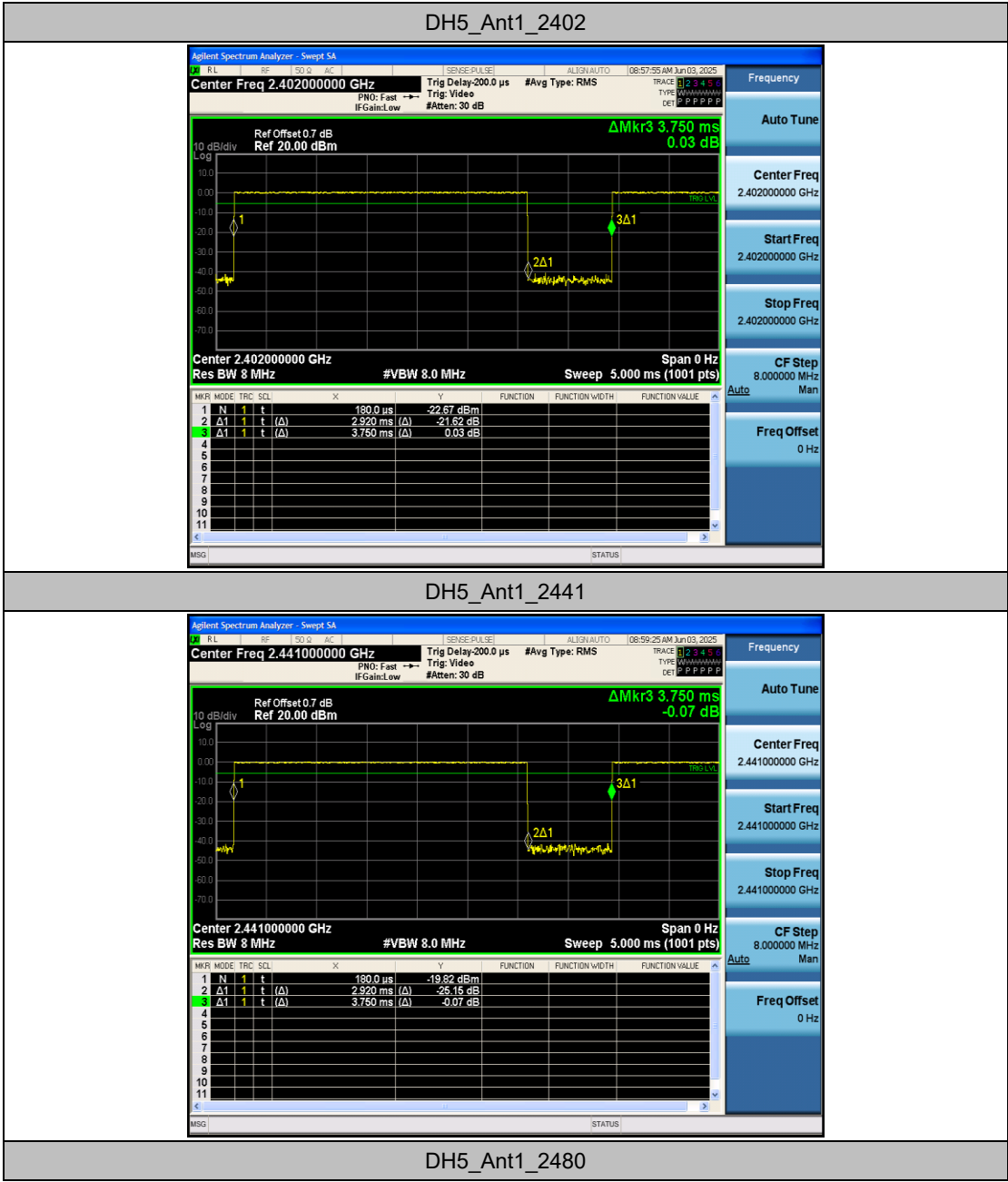


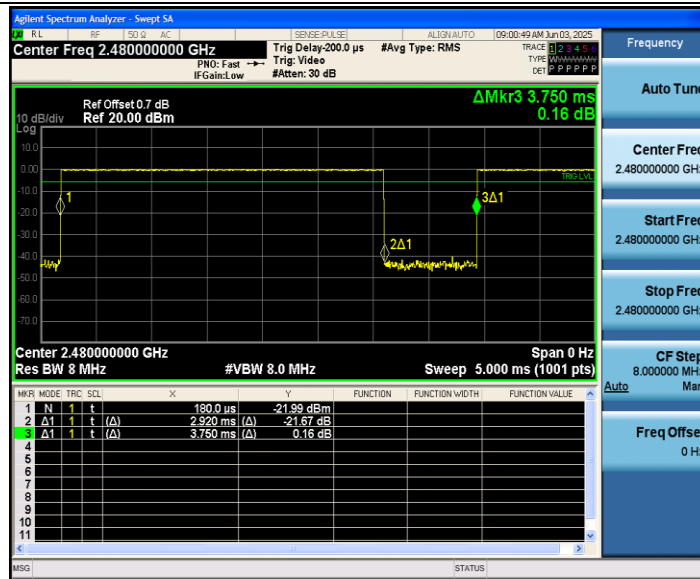
Appendix I: Duty Cycle

Test Result

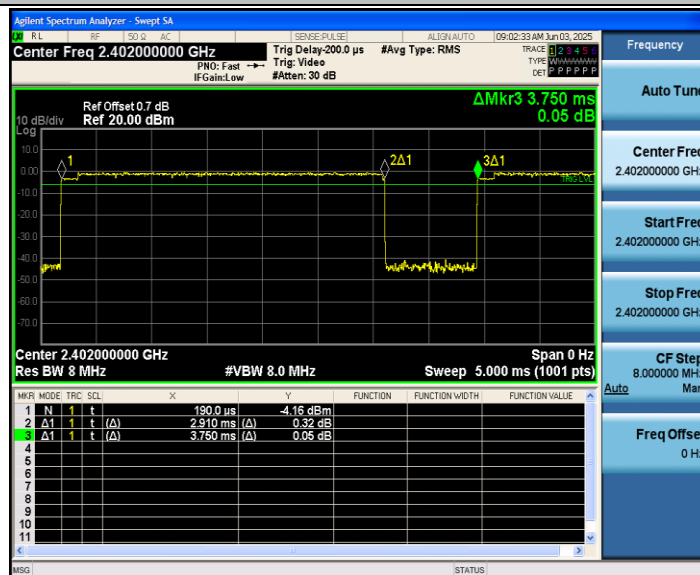
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.92	3.75	77.87	1.09	---	---
		2441	2.92	3.75	77.87	1.09	---	---
		2480	2.92	3.75	77.87	1.09	---	---
2DH5	Ant1	2402	2.91	3.75	77.60	1.10	---	---
		2441	2.91	3.75	77.60	1.10	---	---
		2480	2.92	3.75	77.87	1.09	---	---

Test Graphs

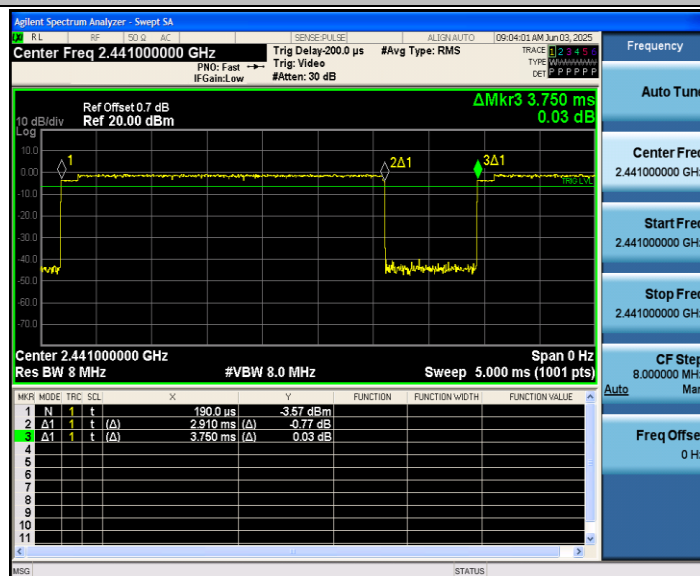




2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480

