

Appendix Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: TWS Bluetooth headset

Trade Mark: N/A

Test Model: TWS-S19

FCC ID: 2A96C-S19

Environmental Conditions

Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

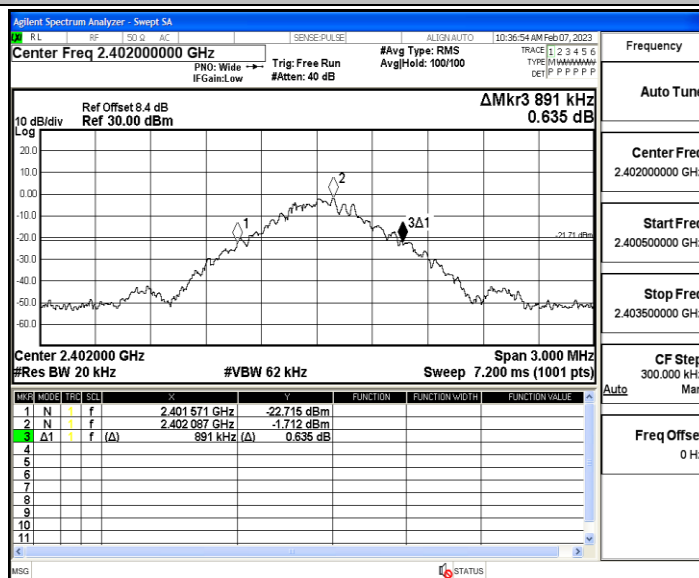
Appendix A: 20dB Emission Bandwidth

Test Result

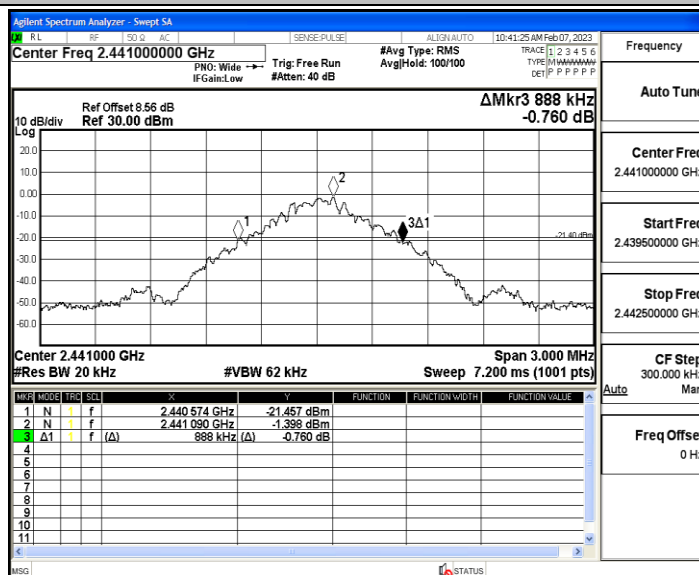
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.891	2401.571	2402.462	---	---
		2441	0.888	2440.574	2441.462	---	---
		2480	0.882	2479.580	2480.462	---	---
2DH5	Ant1	2402	1.320	2401.370	2402.690	---	---
		2441	1.314	2440.373	2441.687	---	---
		2480	1.317	2479.373	2480.690	---	---
3DH5	Ant1	2402	1.263	2401.394	2402.657	---	---
		2441	1.269	2440.391	2441.660	---	---
		2480	1.251	2479.406	2480.657	---	---

Test Graphs

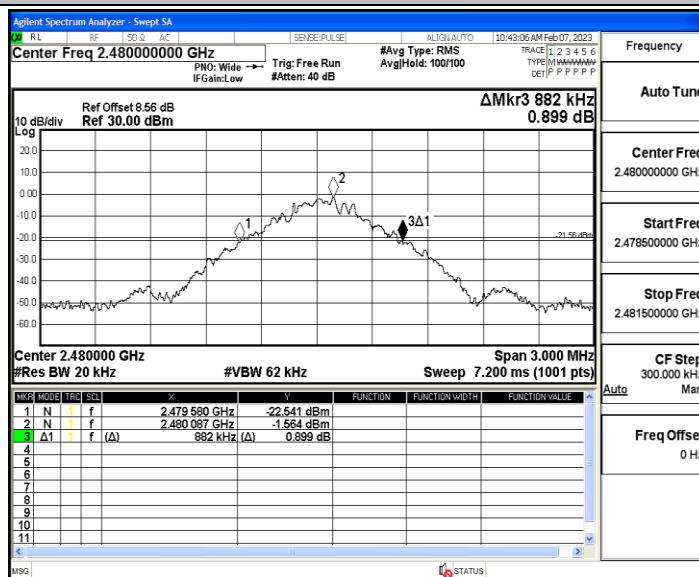
DH5_Ant1_2402



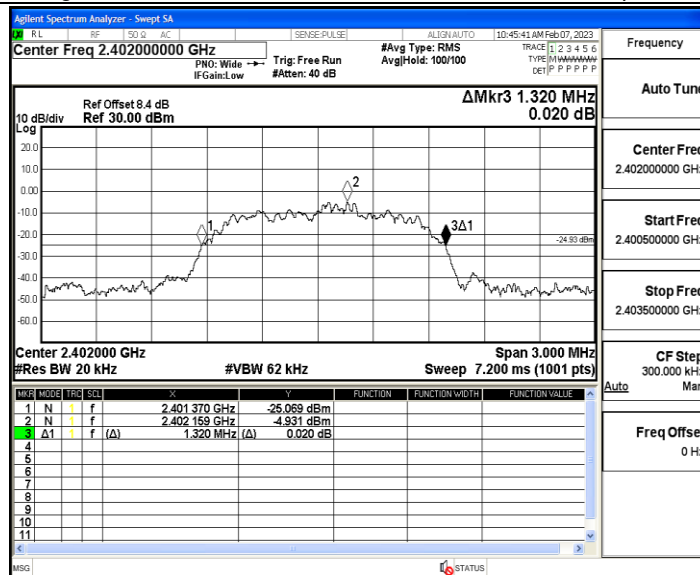
DH5_Ant1_2441



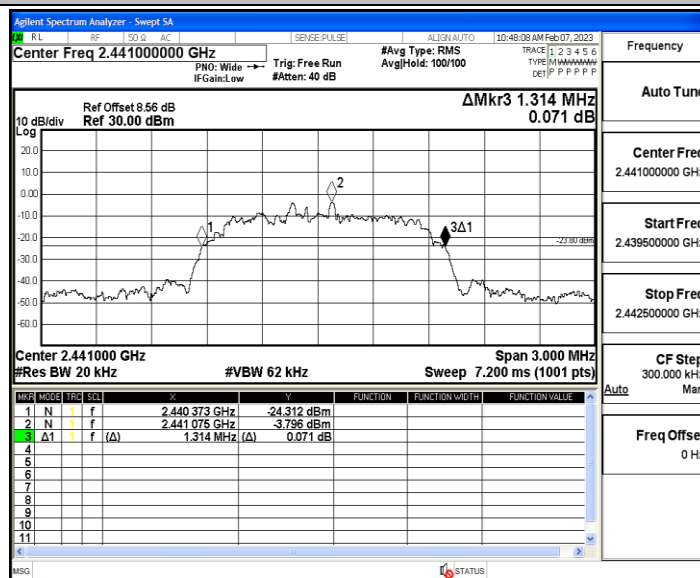
DH5_Ant1_2480



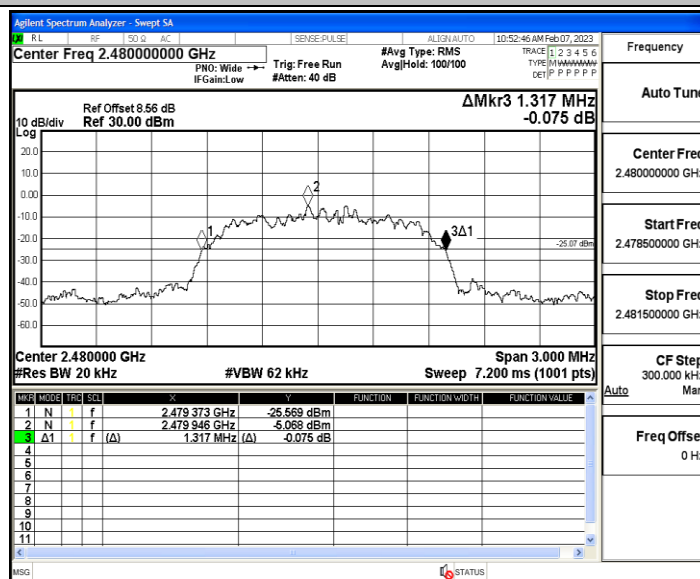
2DH5_Ant1_2402



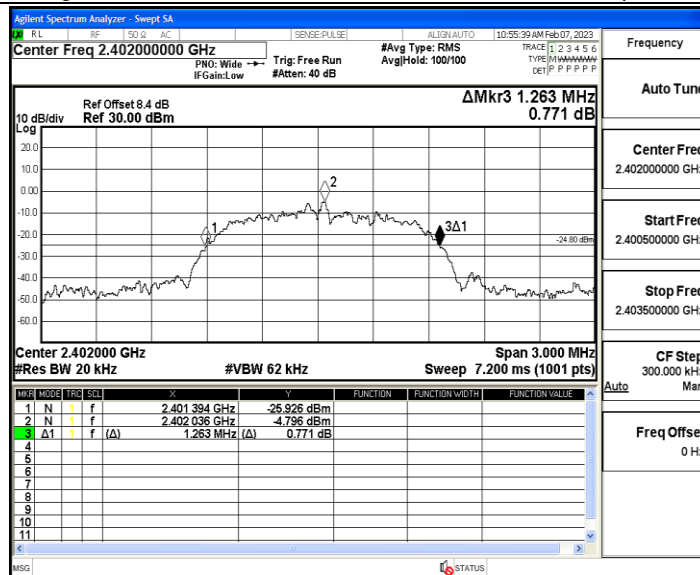
2DH5_Ant1_2441



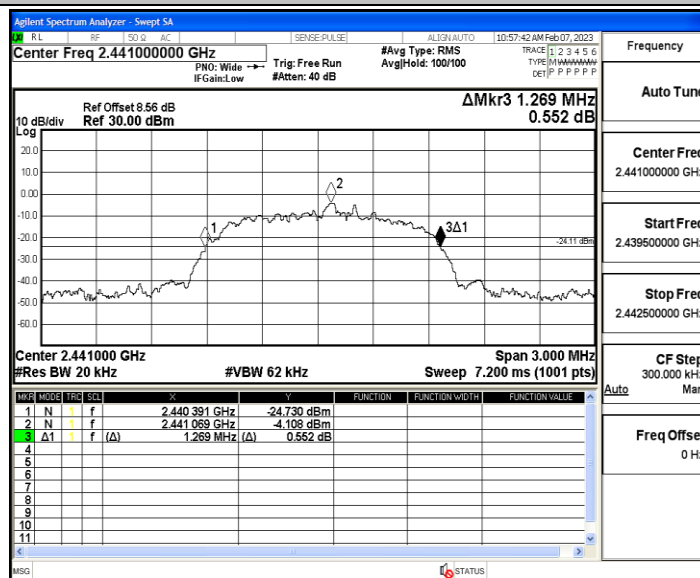
2DH5_Ant1_2480



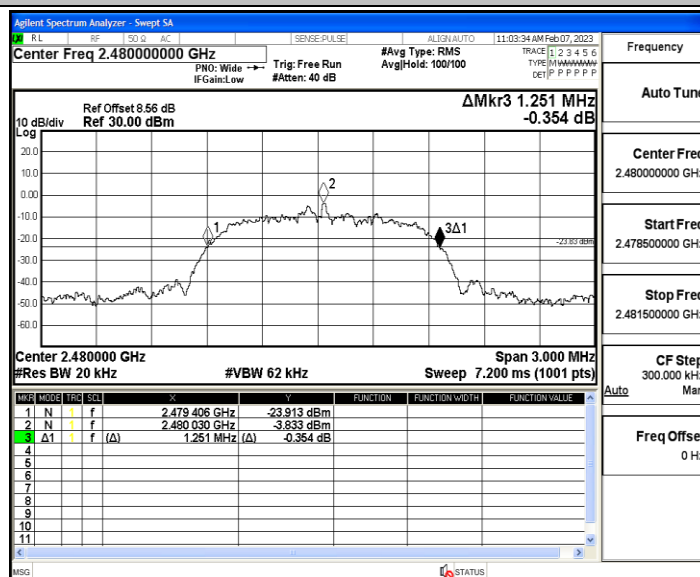
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



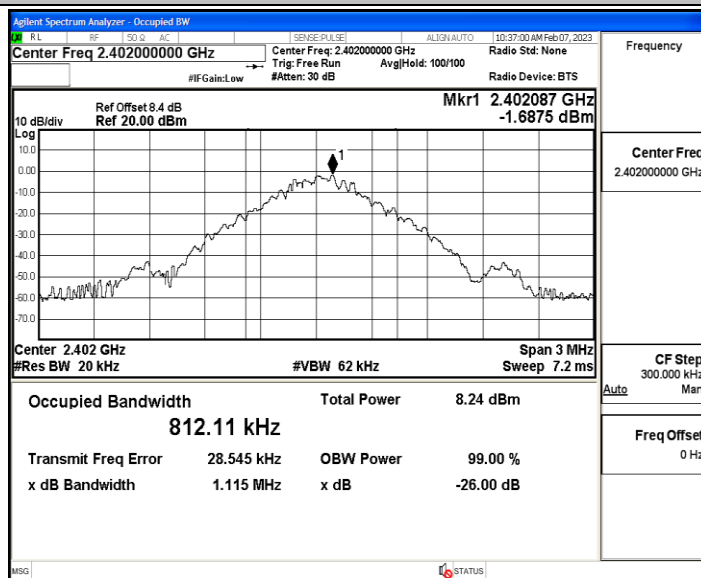
Appendix B: Occupied Channel Bandwidth

Test Result

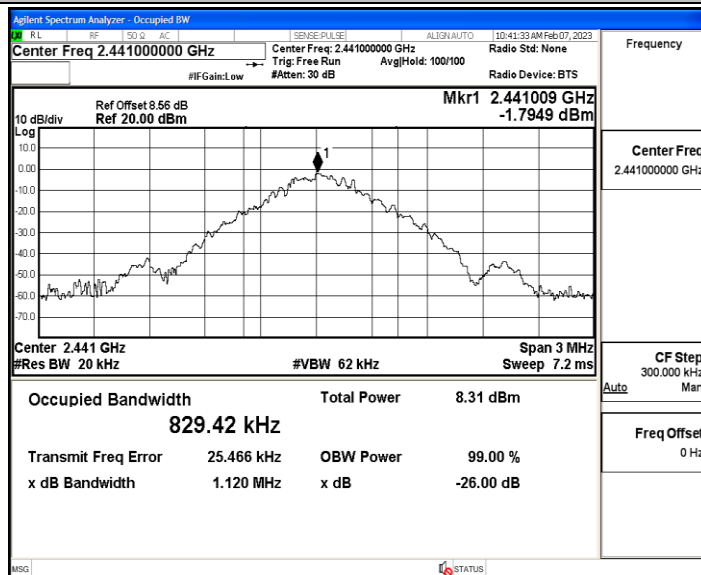
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.81211	2401.6225	2402.4346	---	---
		2441	0.82942	2440.6108	2441.4402	---	---
		2480	0.81237	2479.6233	2480.4356	---	---
2DH5	Ant1	2402	1.1613	2401.4468	2402.6081	---	---
		2441	1.1657	2440.4446	2441.6103	---	---
		2480	1.1602	2479.4490	2480.6092	---	---
3DH5	Ant1	2402	1.1617	2401.4451	2402.6068	---	---
		2441	1.1633	2440.4442	2441.6075	---	---
		2480	1.1674	2479.4427	2480.6101	---	---

Test Graphs

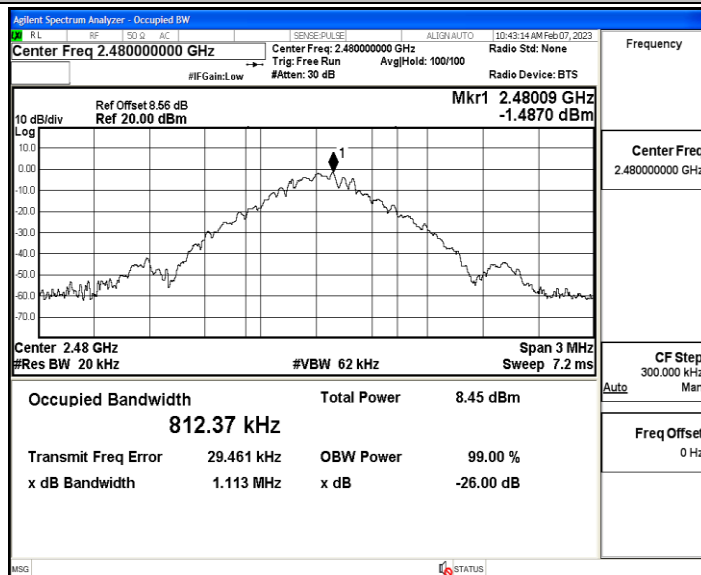
DH5_Ant1_2402



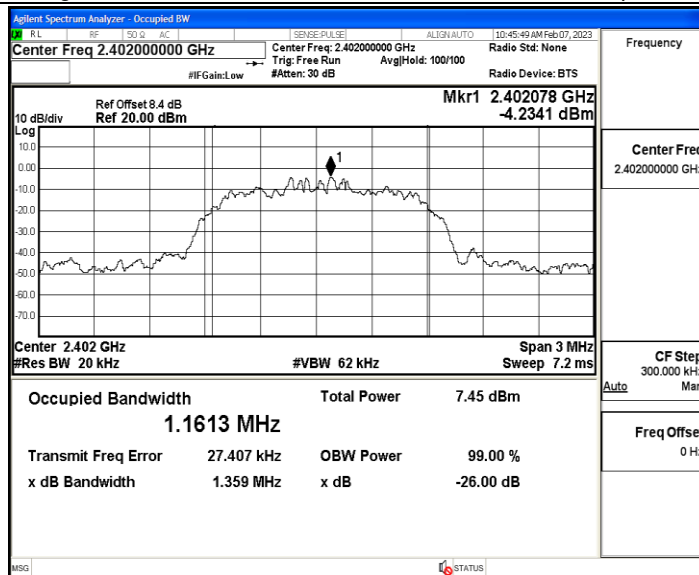
DH5_Ant1_2441



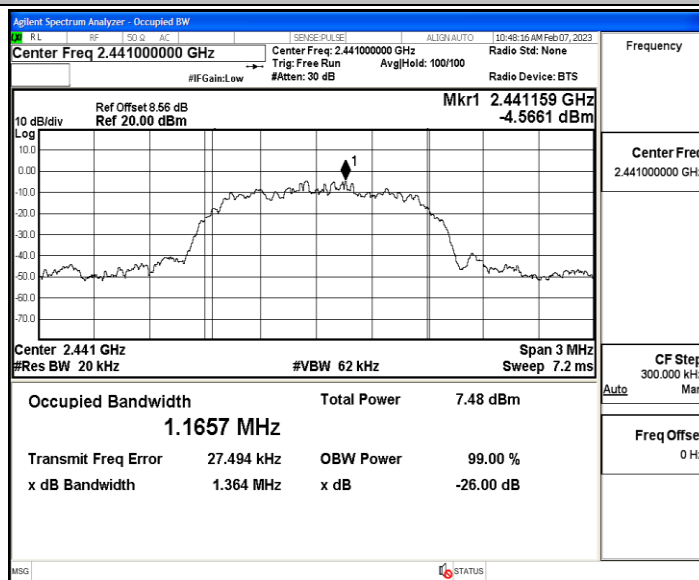
DH5_Ant1_2480



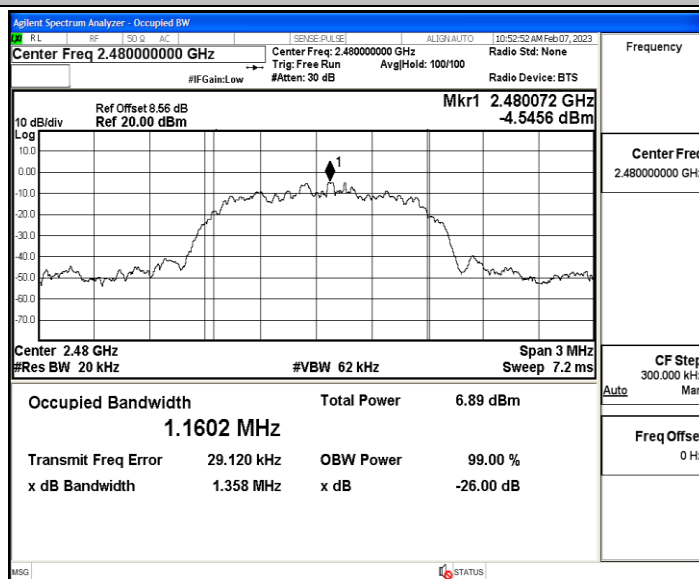
2DH5_Ant1_2402



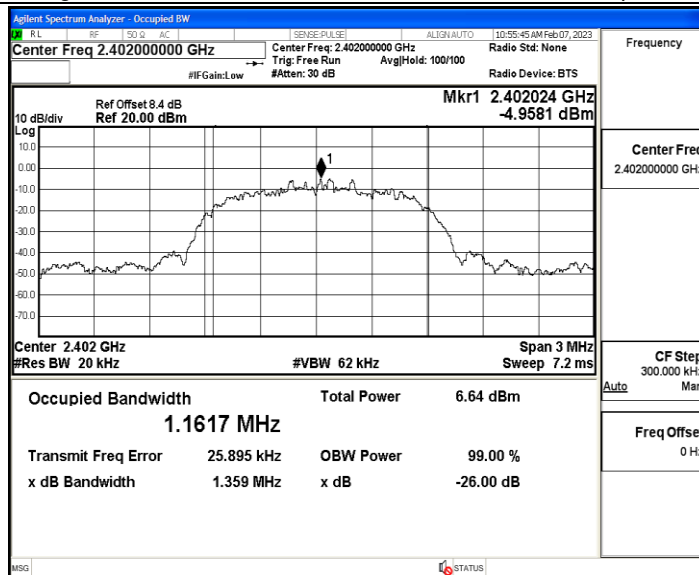
2DH5_Ant1_2441



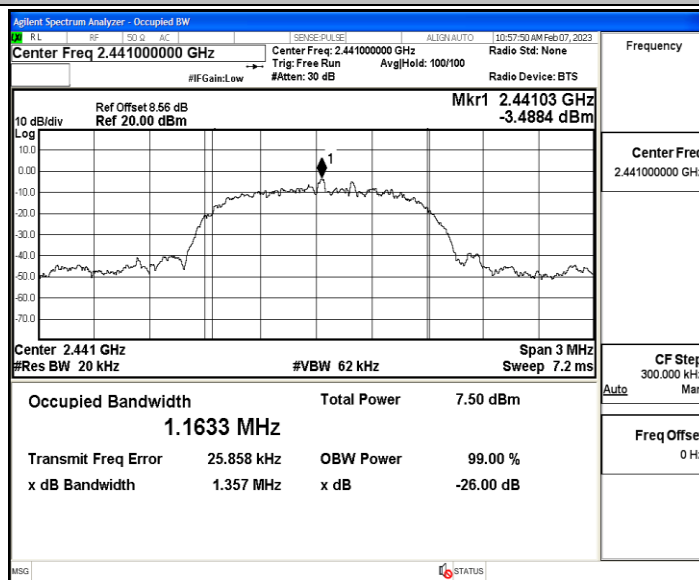
2DH5_Ant1_2480



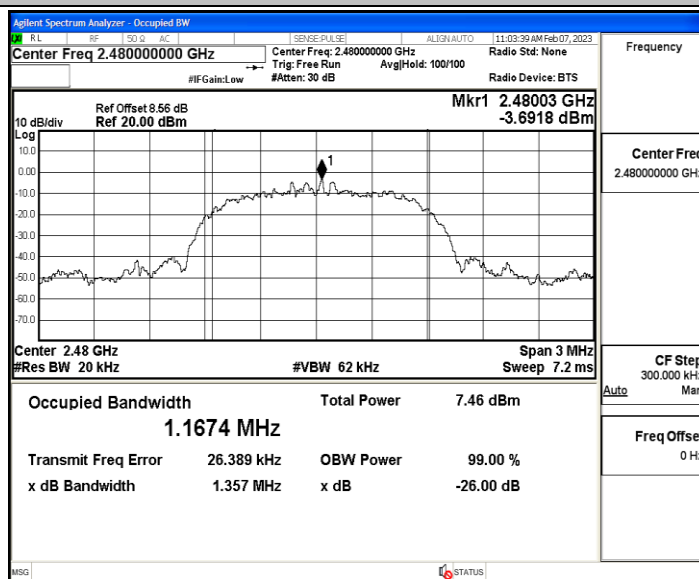
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



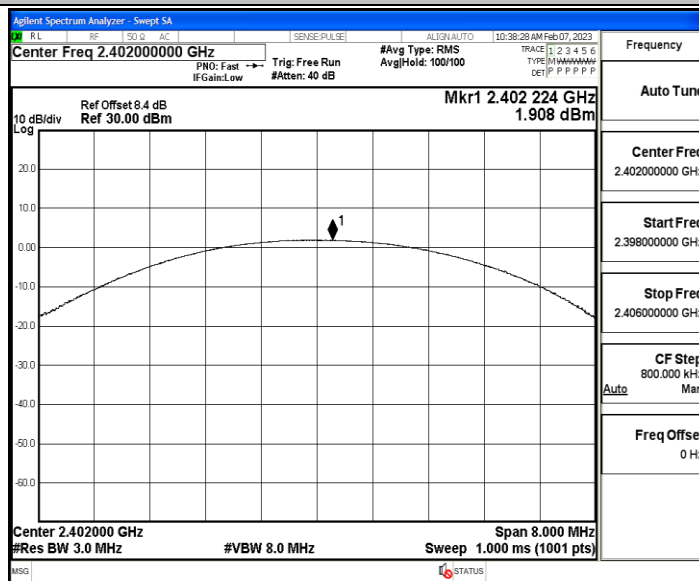
Appendix C: Maximum Peak conducted output power

Test Result

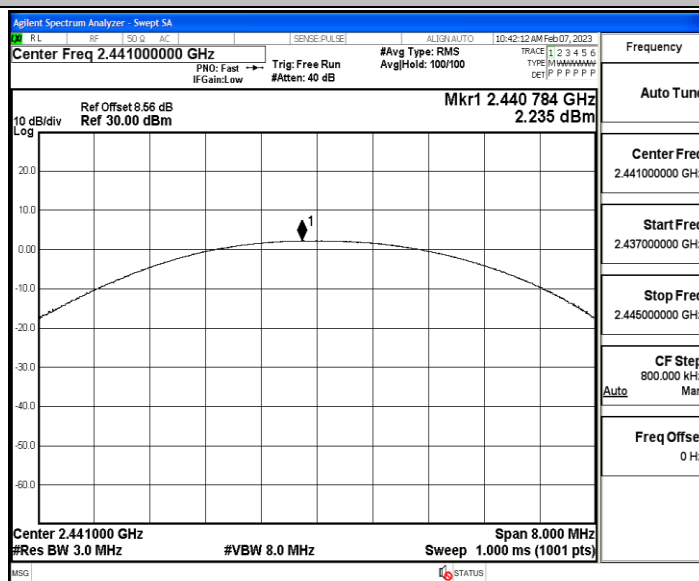
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	1.91	≤30	PASS
		2441	2.24	≤30	PASS
		2480	2.13	≤30	PASS
2DH5	Ant1	2402	2.37	≤20.97	PASS
		2441	2.23	≤20.97	PASS
		2480	1.86	≤20.97	PASS
3DH5	Ant1	2402	2.27	≤20.97	PASS
		2441	2.39	≤20.97	PASS
		2480	2.32	≤20.97	PASS

Test Graphs

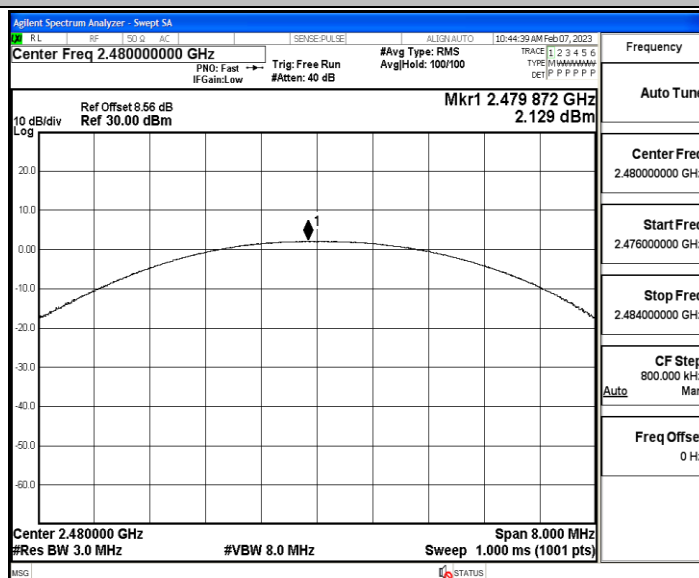
DH5_Ant1_2402



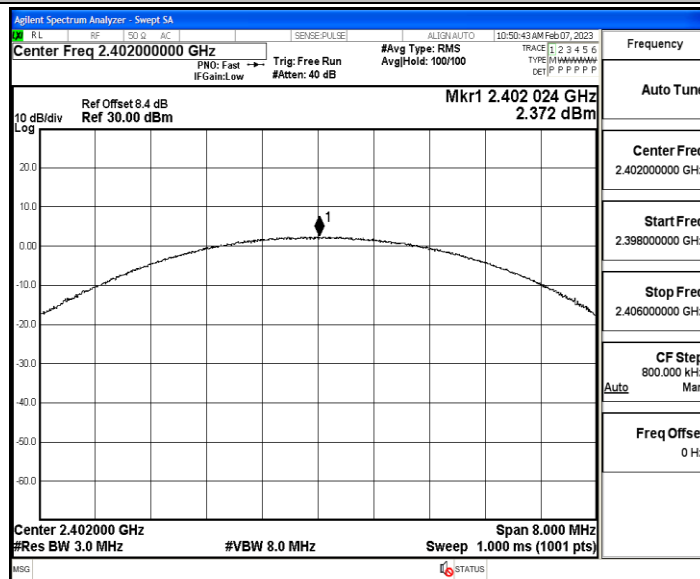
DH5_Ant1_2441



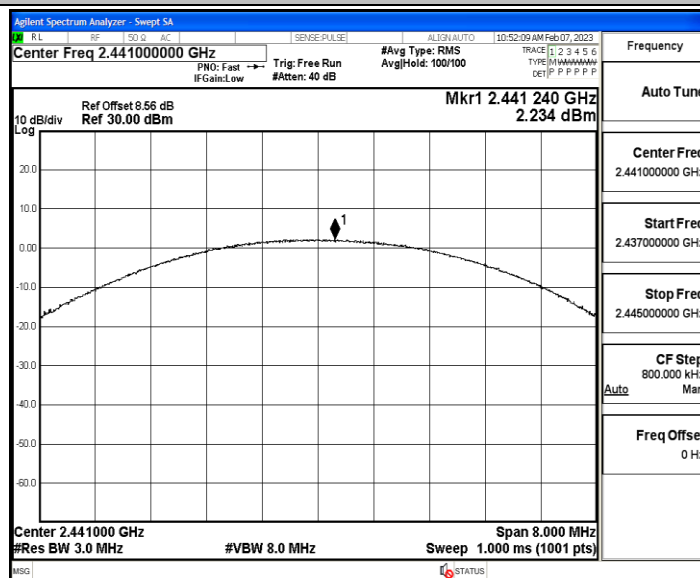
DH5_Ant1_2480



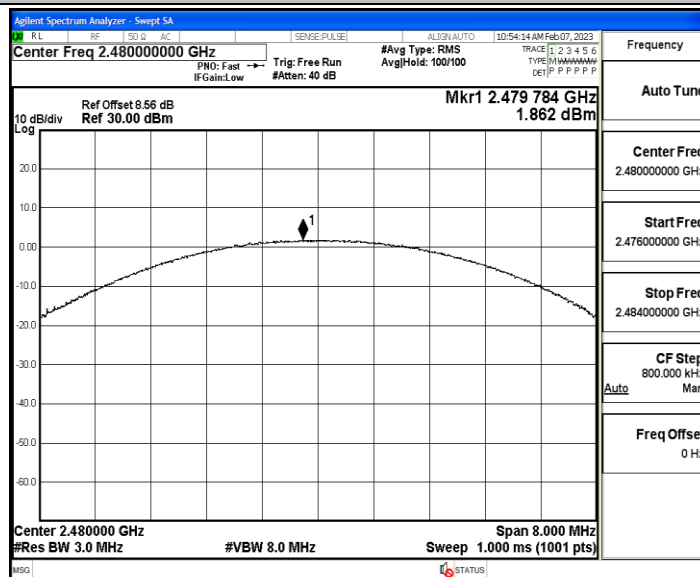
2DH5_Ant1_2402



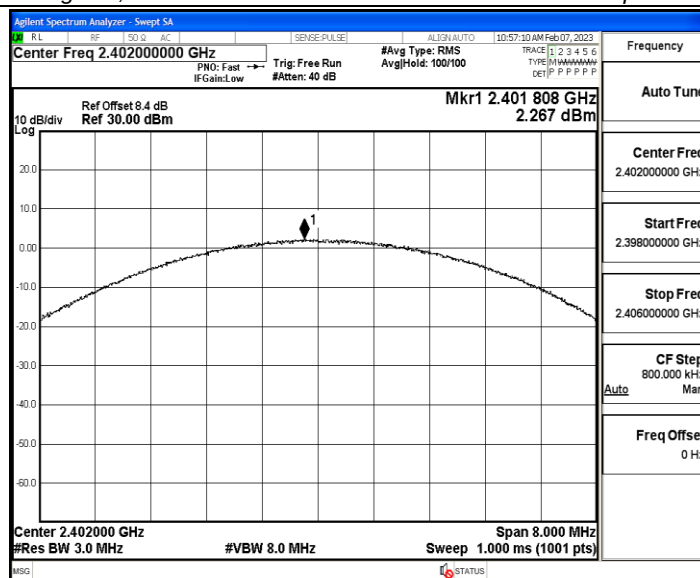
2DH5_Ant1_2441



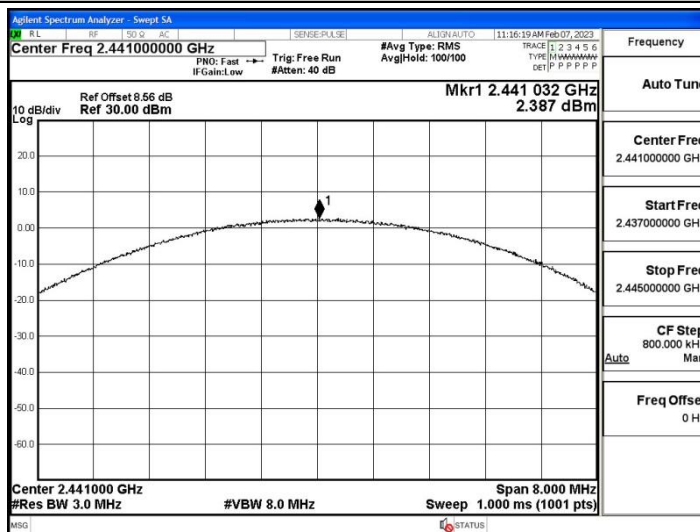
2DH5_Ant1_2480



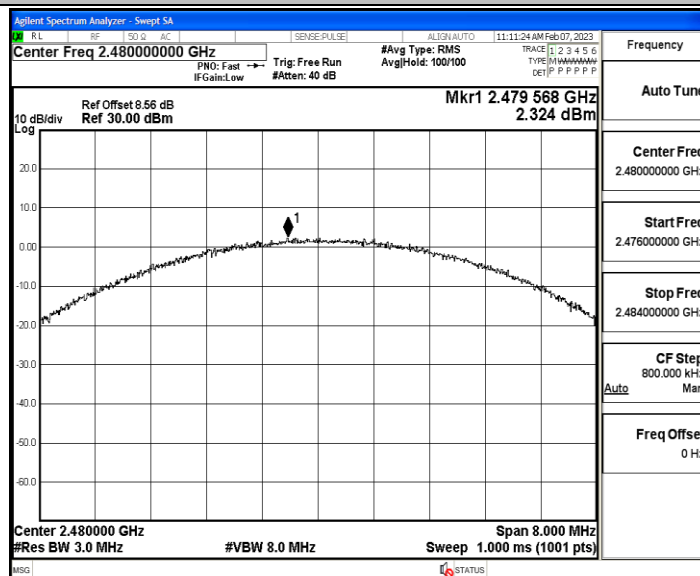
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480

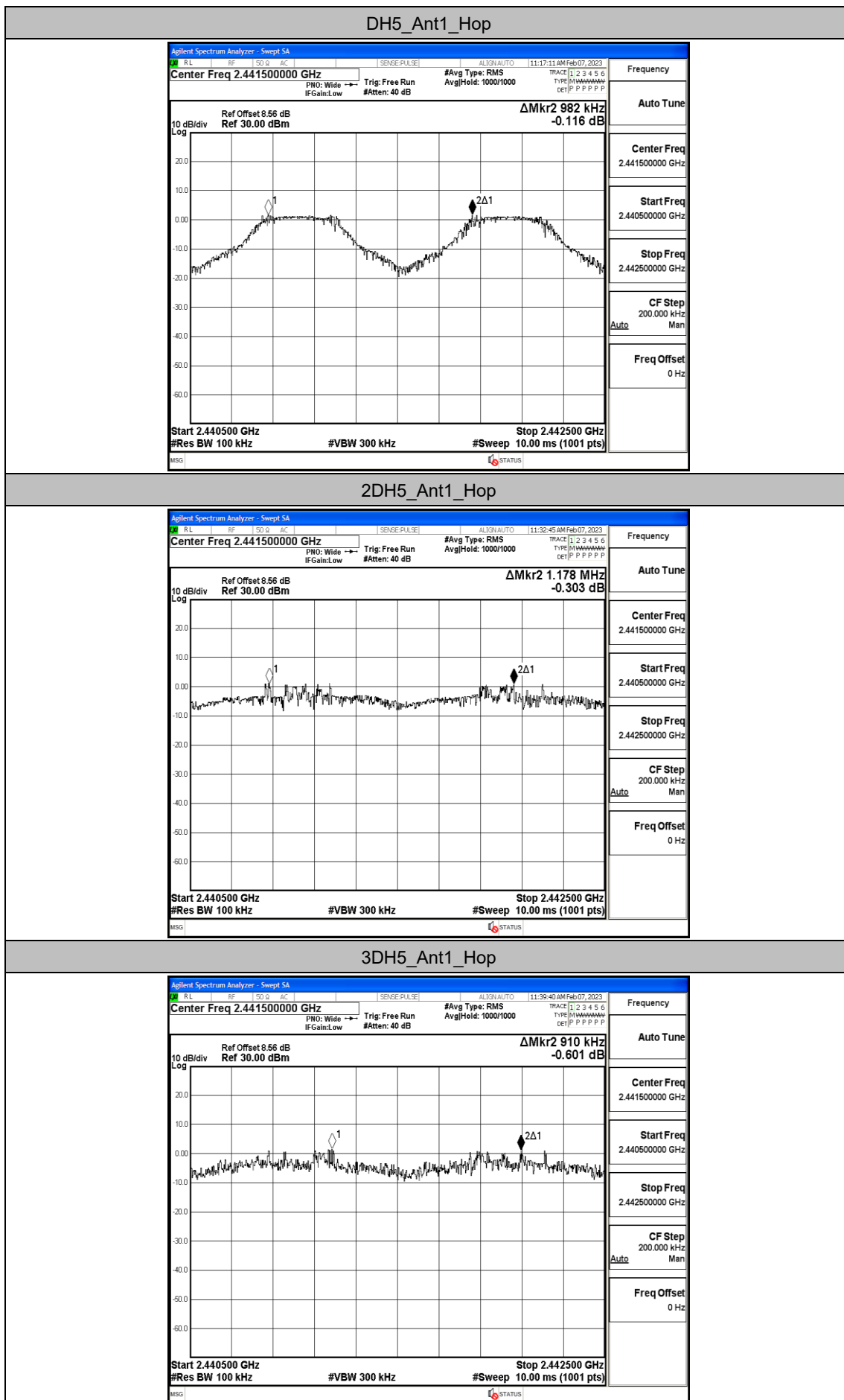


Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.982	≥ 0.891	PASS
2DH5	Ant1	Hop	1.178	≥ 0.880	PASS
3DH5	Ant1	Hop	0.91	≥ 0.846	PASS

Test Graphs

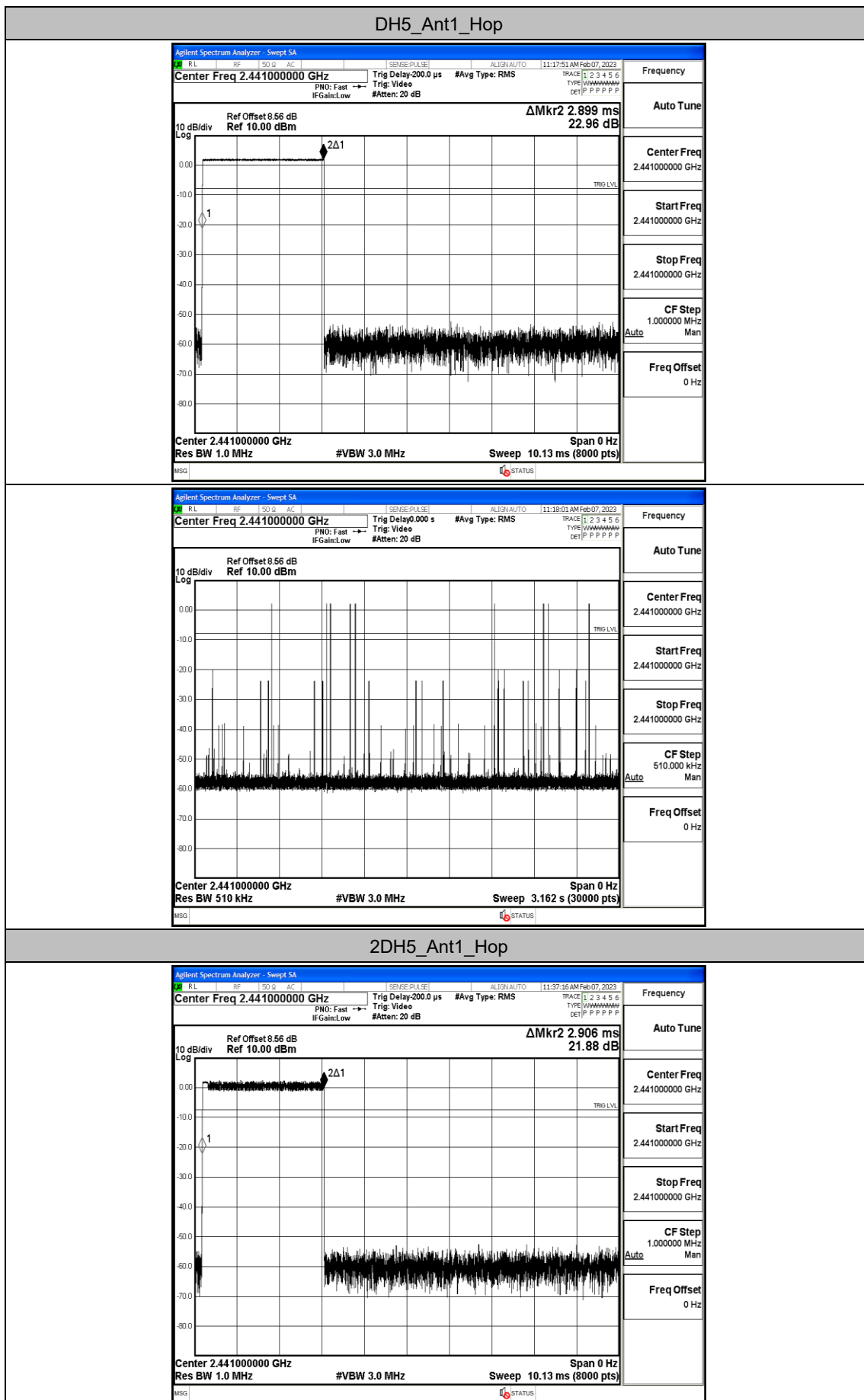


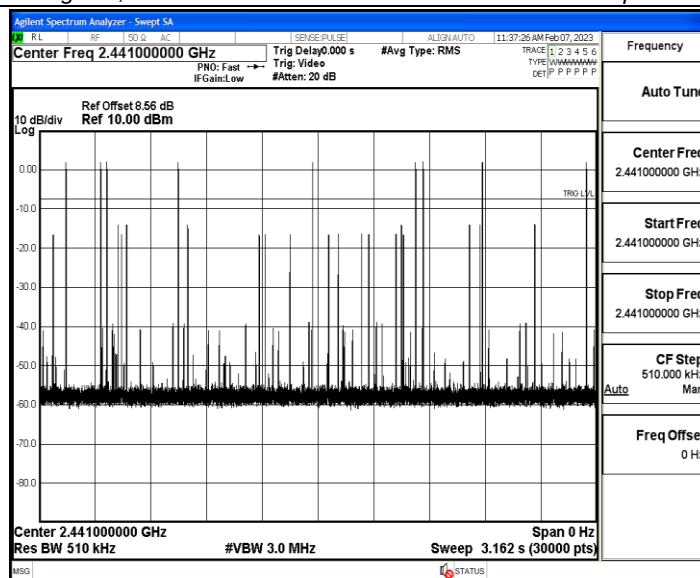
Appendix E: Time of occupancy

Test Result

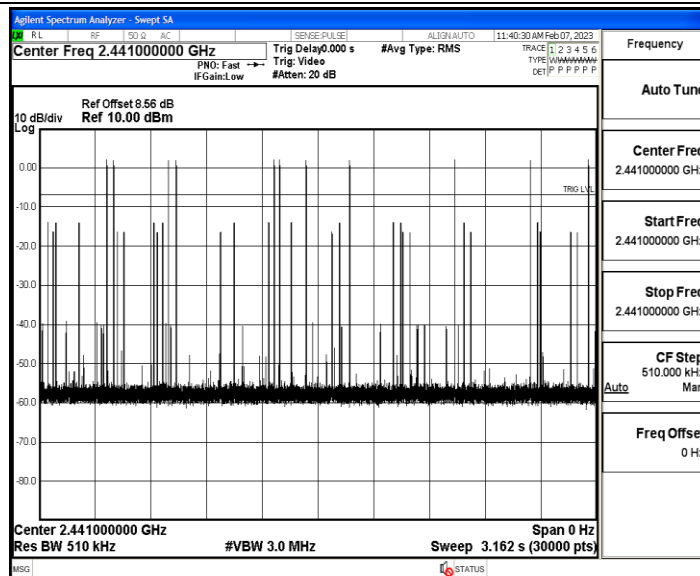
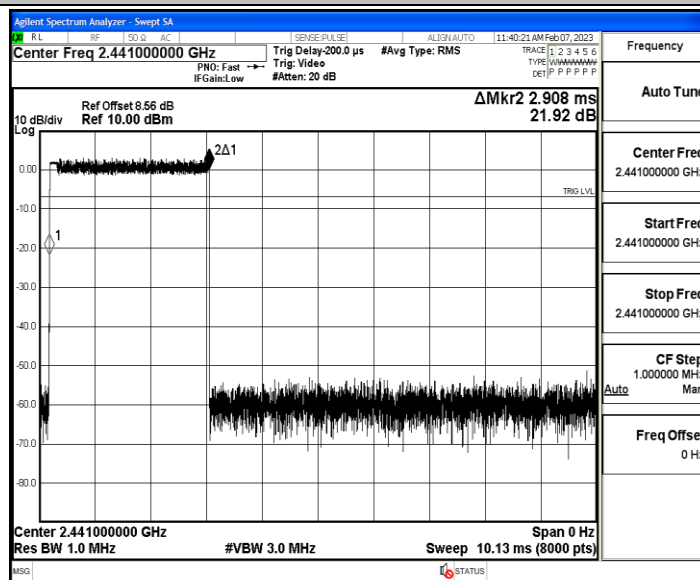
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.899	100	0.29	≤0.4	PASS
2DH5	Ant1	Hop	2.906	100	0.291	≤0.4	PASS
3DH5	Ant1	Hop	2.908	120	0.349	≤0.4	PASS

Test Graphs





3DH5_Ant1_Hop



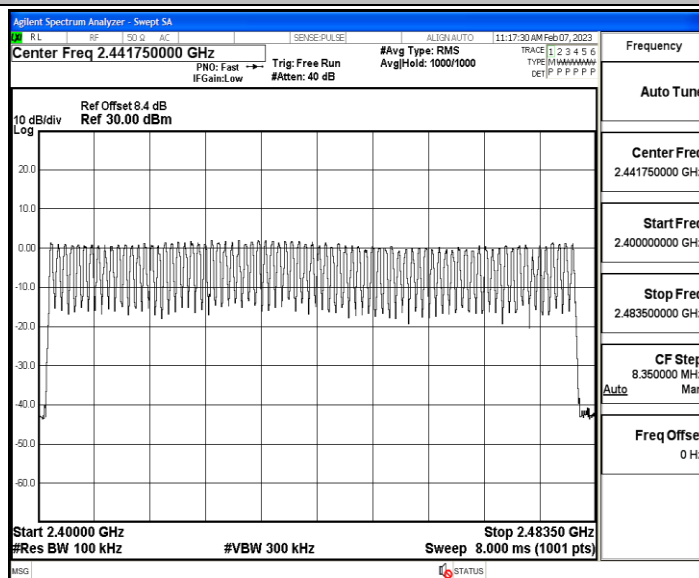
Appendix F: Number of hopping channels

Test Result

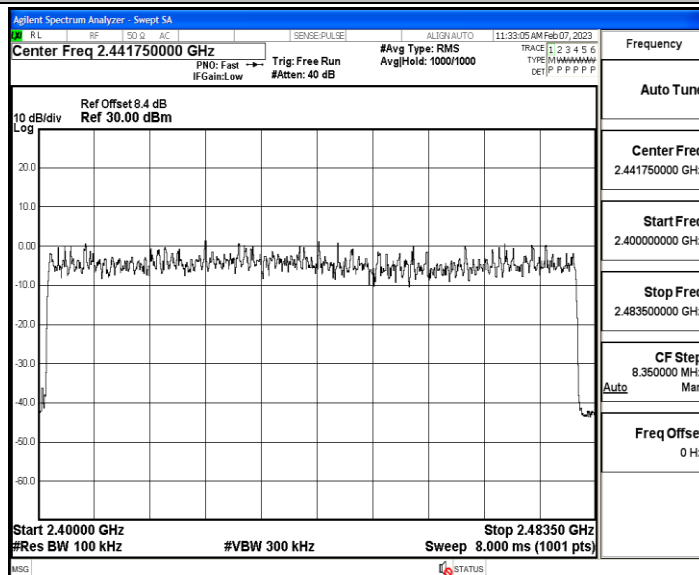
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

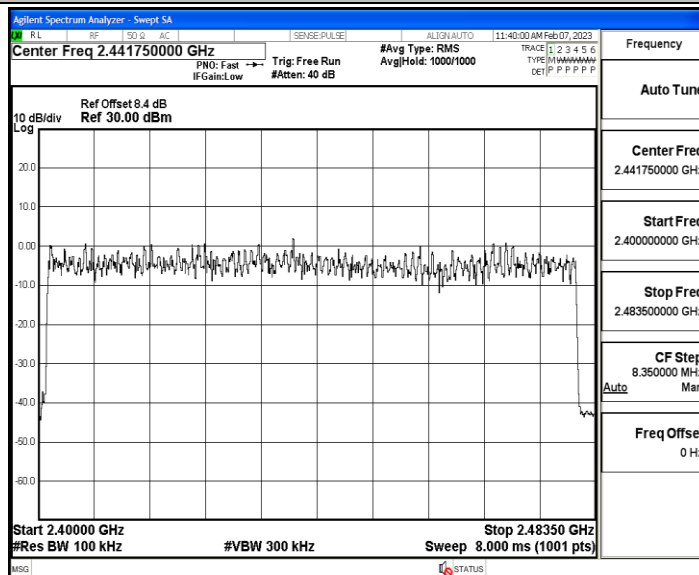
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop



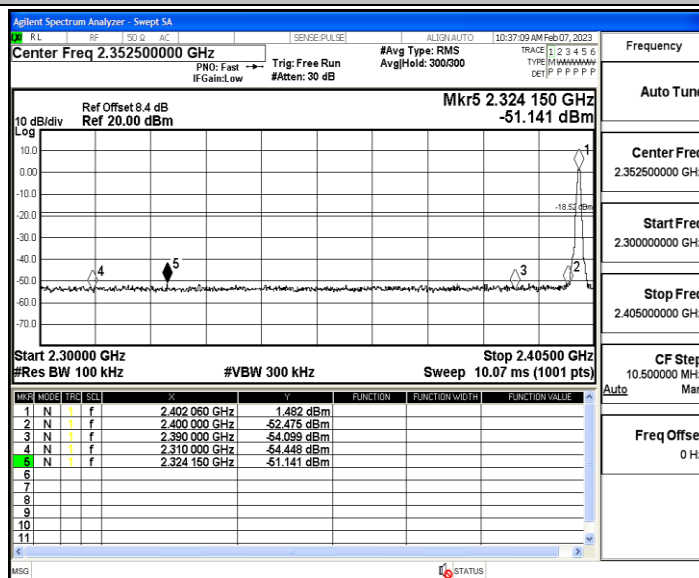
Appendix G: Band edge measurements

Test Result

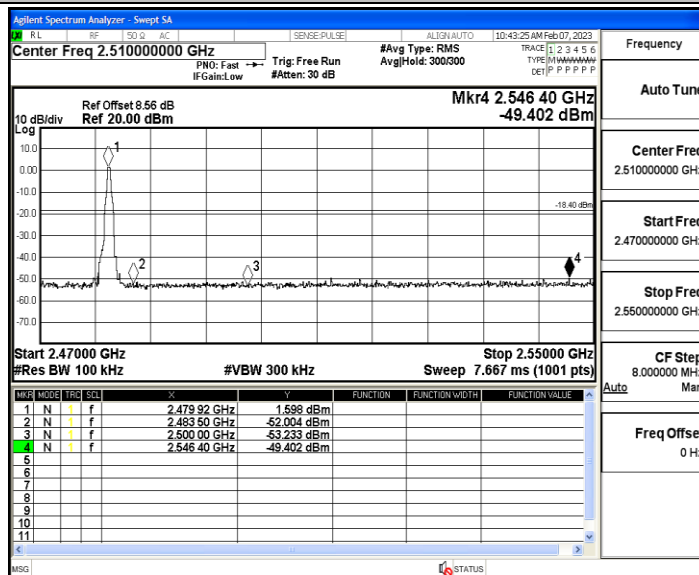
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	1.48	-51.14	≤-18.52	PASS
		High	2480	1.60	-49.4	≤-18.4	PASS
		Low	Hop_2402	1.02	-50.77	≤-18.98	PASS
		High	Hop_2480	1.64	-50	≤-18.36	PASS
2DH5	Ant1	Low	2402	0.87	-50.73	≤-19.13	PASS
		High	2480	0.07	-49.97	≤-19.93	PASS
		Low	Hop_2402	0.62	-51.17	≤-19.38	PASS
		High	Hop_2480	0.50	-49.67	≤-19.5	PASS
3DH5	Ant1	Low	2402	-0.25	-51.15	≤-20.25	PASS
		High	2480	-0.09	-49.73	≤-20.09	PASS
		Low	Hop_2402	-2.71	-51.34	≤-22.71	PASS
		High	Hop_2480	0.70	-49.61	≤-19.3	PASS

Test Graphs

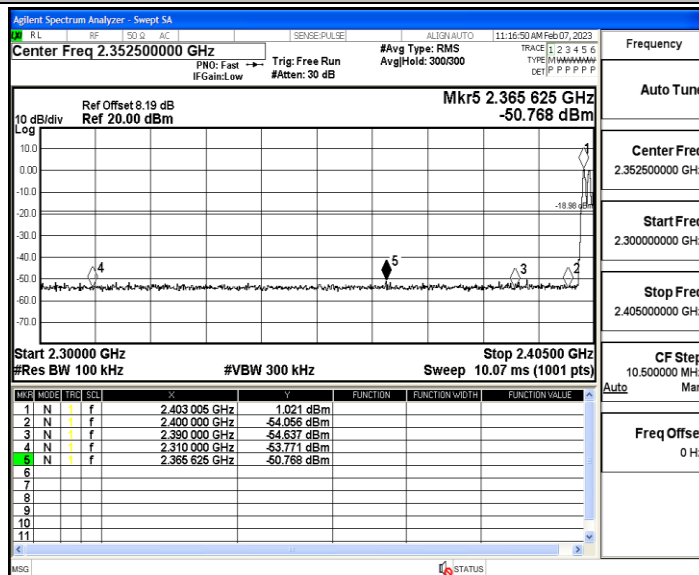
DH5_Ant1_Low_2402



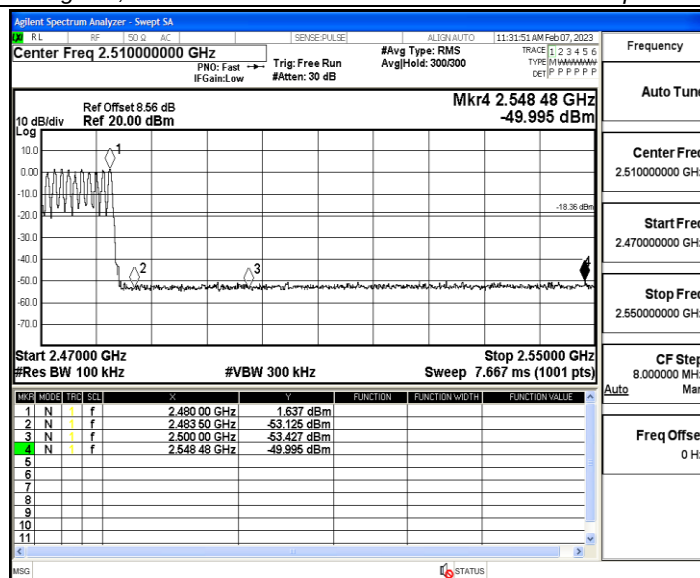
DH5_Ant1_High_2480



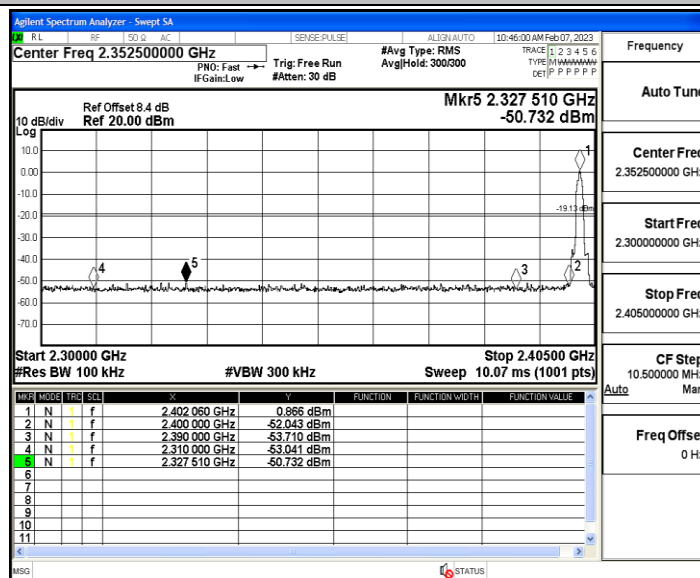
DH5_Ant1_Low_Hop_2402



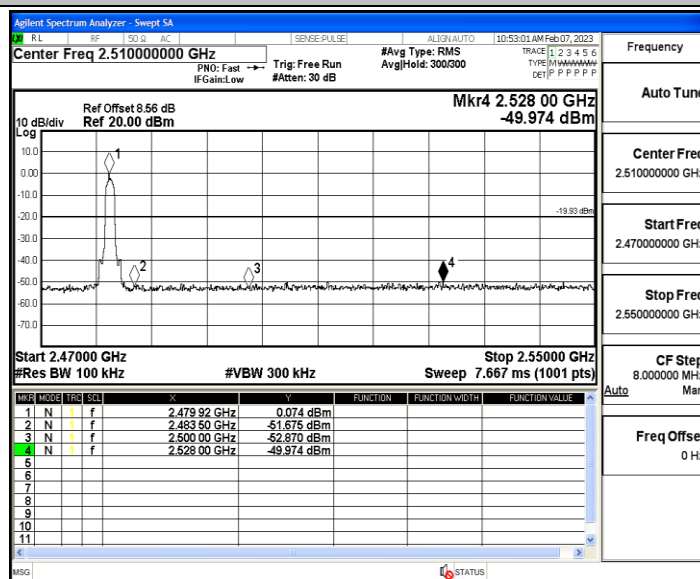
DH5_Ant1_High_Hop_2480



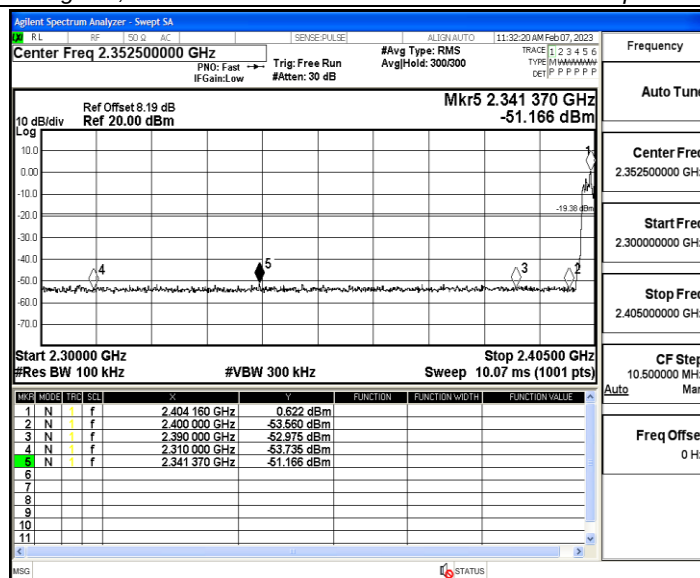
2DH5_Ant1_Low_2402



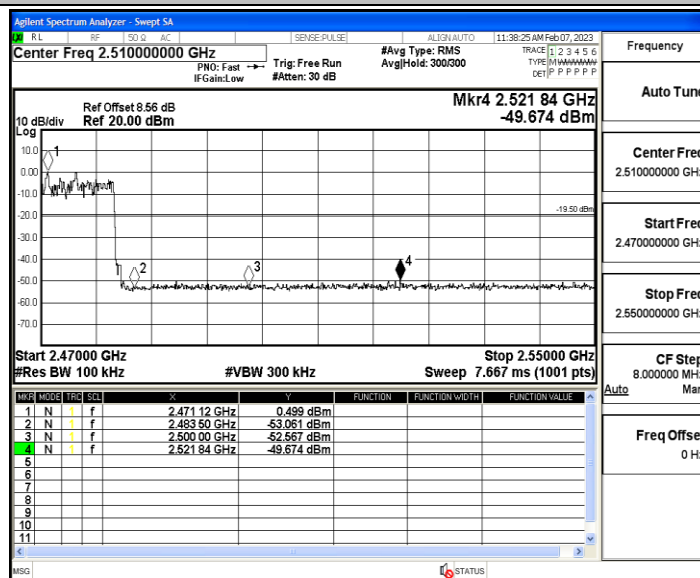
2DH5_Ant1_High_2480



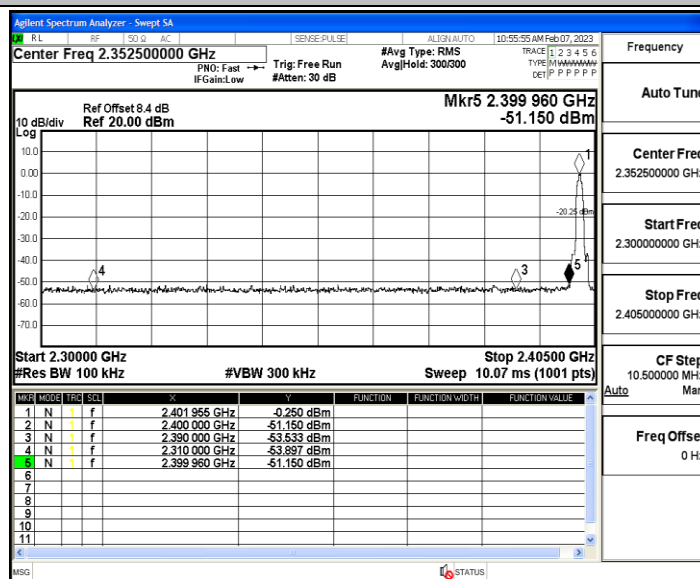
2DH5_Ant1_Low_Hop_2402



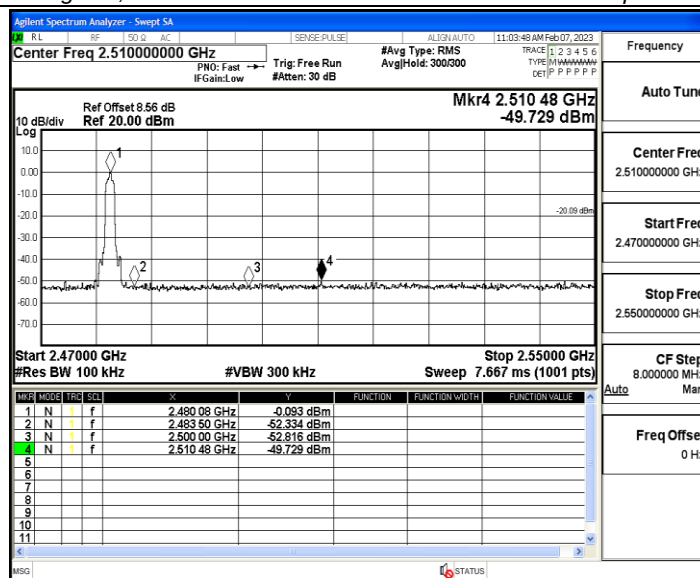
2DH5_Ant1_High_Hop_2480



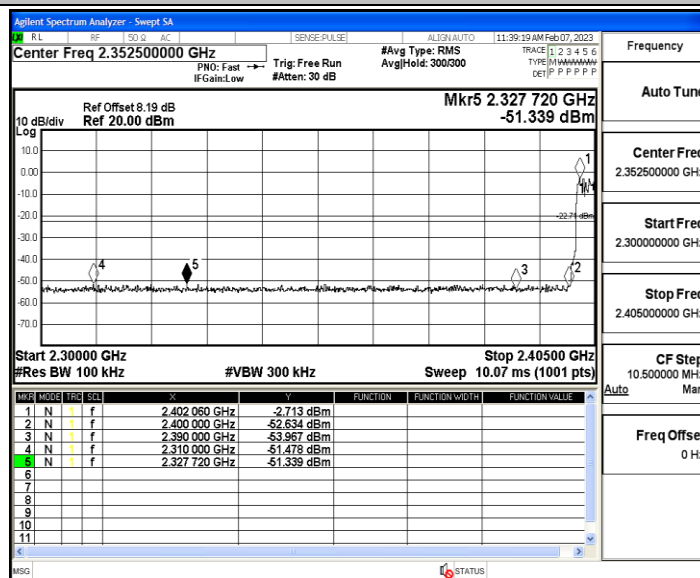
3DH5_Ant1_Low_2402



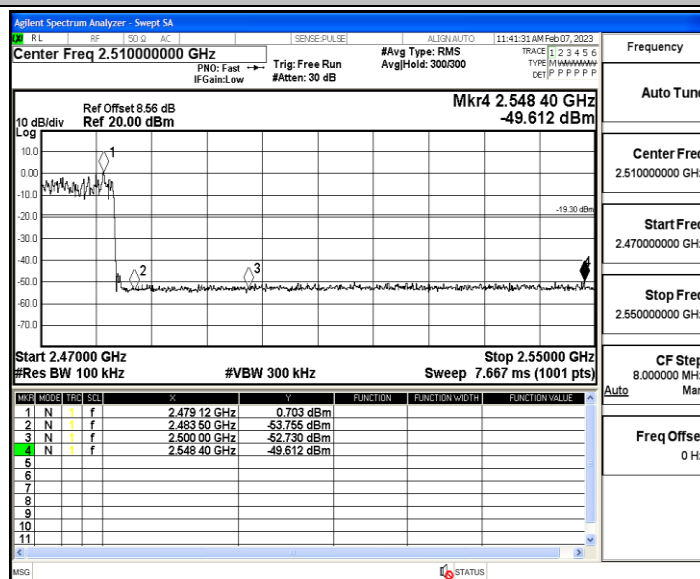
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



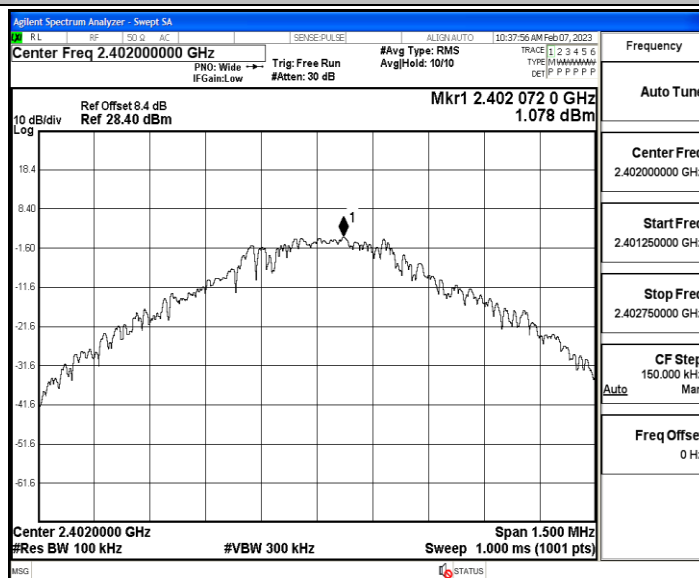
Appendix H: Conducted Spurious Emission

Test Result

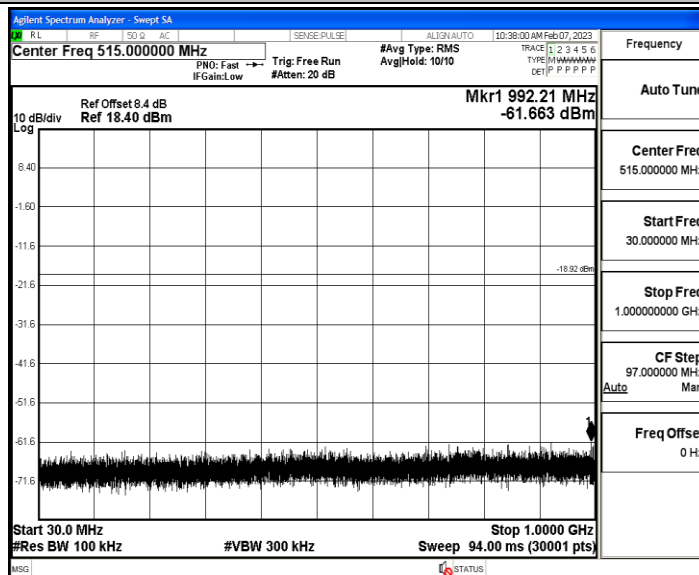
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	1.08	1.08	---	PASS
			30~1000	1.08	-61.66	≤-18.92	PASS
			1000~26500	1.08	-44.16	≤-18.92	PASS
		2441	Reference	1.26	1.26	---	PASS
			30~1000	1.26	-61.12	≤-18.74	PASS
			1000~26500	1.26	-44.76	≤-18.74	PASS
		2480	Reference	1.15	1.15	---	PASS
			30~1000	1.15	-62.28	≤-18.85	PASS
			1000~26500	1.15	-47.21	≤-18.85	PASS
2DH5	Ant1	2402	Reference	-1.53	-1.53	---	PASS
			30~1000	-1.53	-61.78	≤-21.53	PASS
			1000~26500	-1.53	-47.67	≤-21.53	PASS
		2441	Reference	1.11	1.11	---	PASS
			30~1000	1.11	-61.04	≤-18.89	PASS
			1000~26500	1.11	-48.37	≤-18.89	PASS
		2480	Reference	0.40	0.40	---	PASS
			30~1000	0.40	-61.88	≤-19.6	PASS
			1000~26500	0.40	-48.46	≤-19.6	PASS
3DH5	Ant1	2402	Reference	-3.36	-3.36	---	PASS
			30~1000	-3.36	-52.48	≤-23.36	PASS
			1000~26500	-3.36	-46.98	≤-23.36	PASS
		2441	Reference	1.00	1.00	---	PASS
			30~1000	1.00	-54.97	≤-19	PASS
			1000~26500	1.00	-49.43	≤-19	PASS
		2480	Reference	-1.78	-1.78	---	PASS
			30~1000	-1.78	-54.64	≤-21.78	PASS
			1000~26500	-1.78	-48.36	≤-21.78	PASS

Test Graphs

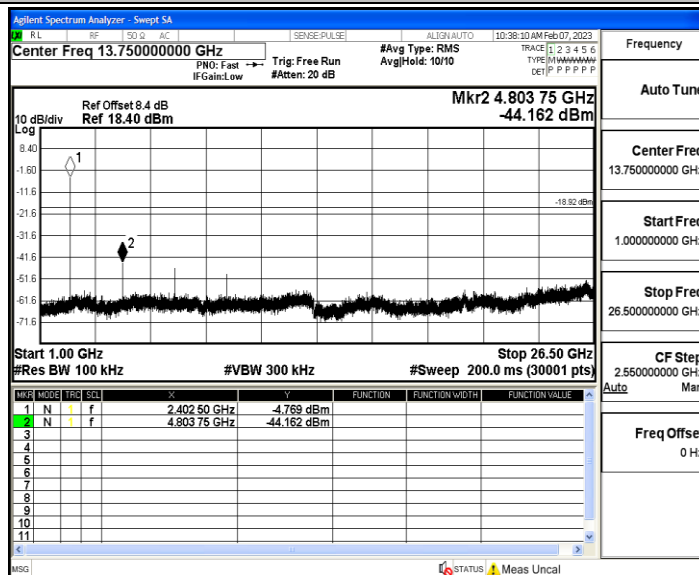
DH5_Ant1_2402_0~Reference



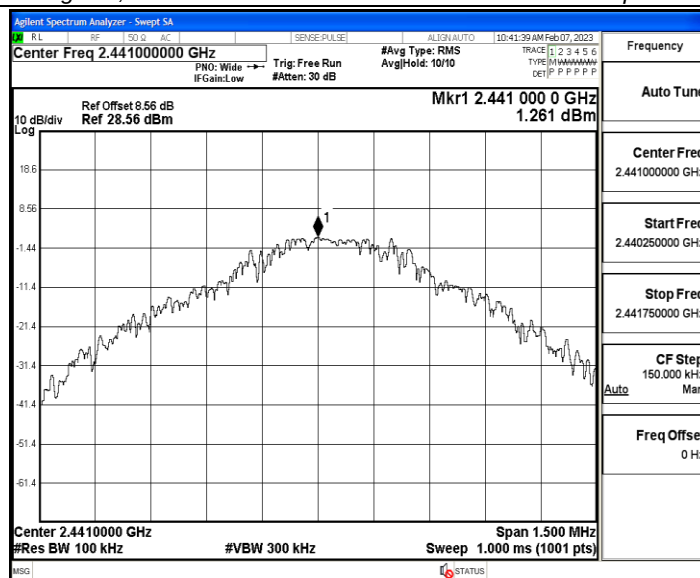
DH5_Ant1_2402_30~1000



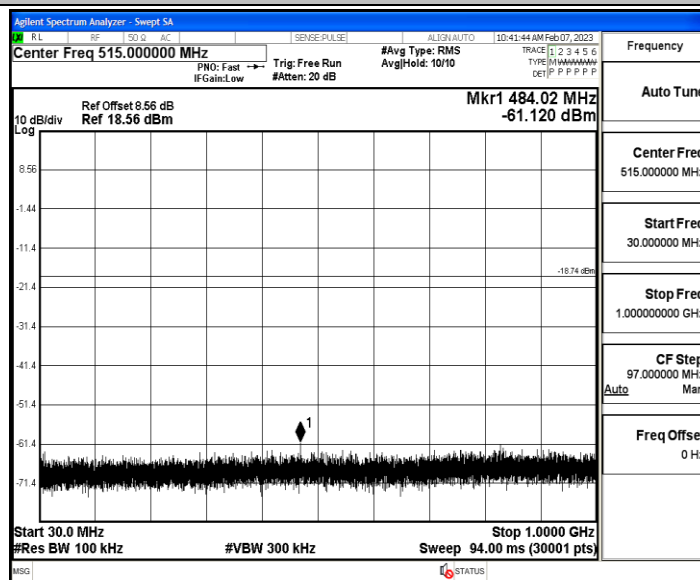
DH5_Ant1_2402_1000~26500



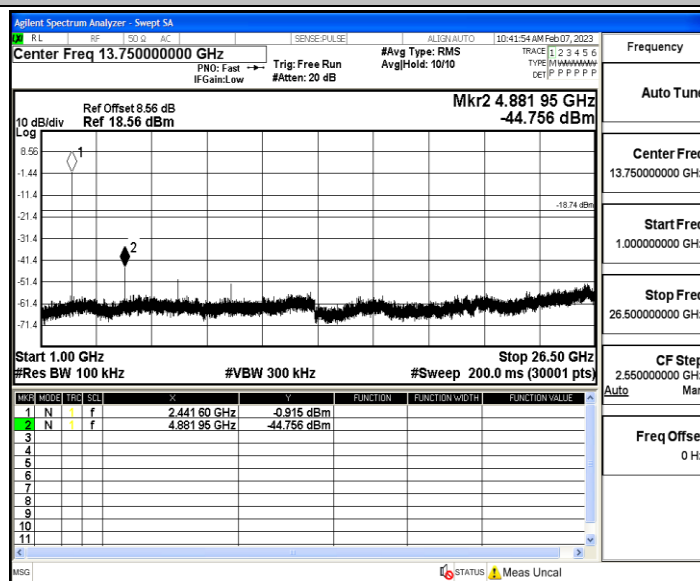
DH5_Ant1_2441_0~Reference



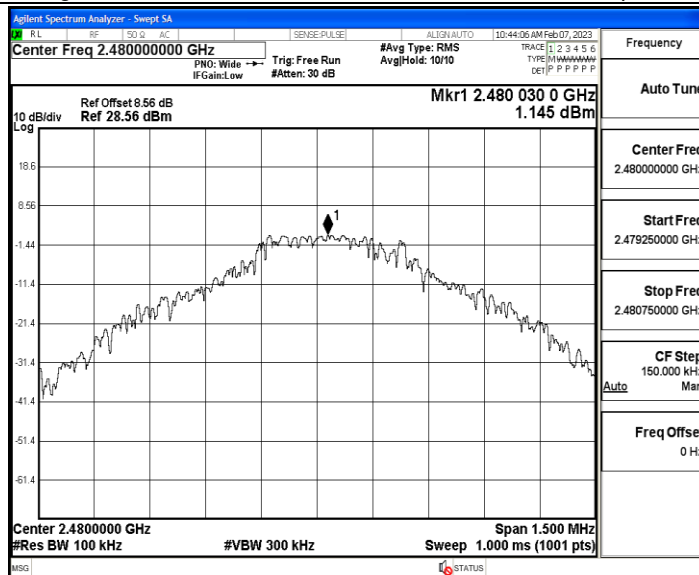
DH5_Ant1_2441_30~1000



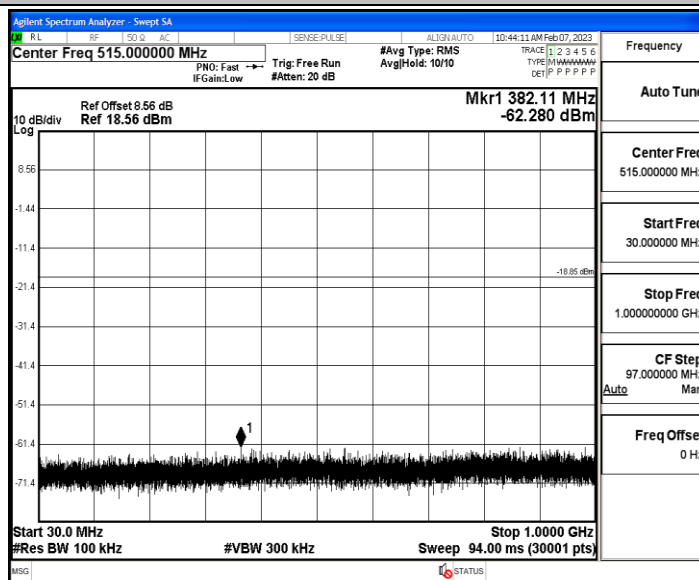
DH5_Ant1_2441_1000~26500



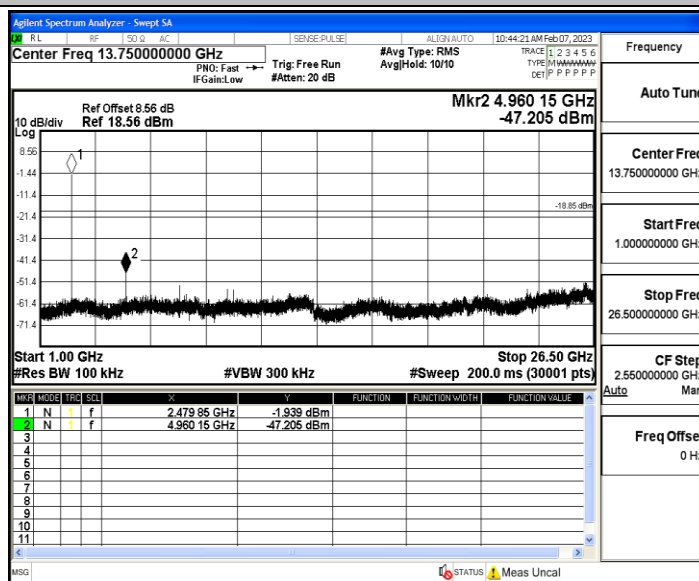
DH5_Ant1_2480_0~Reference



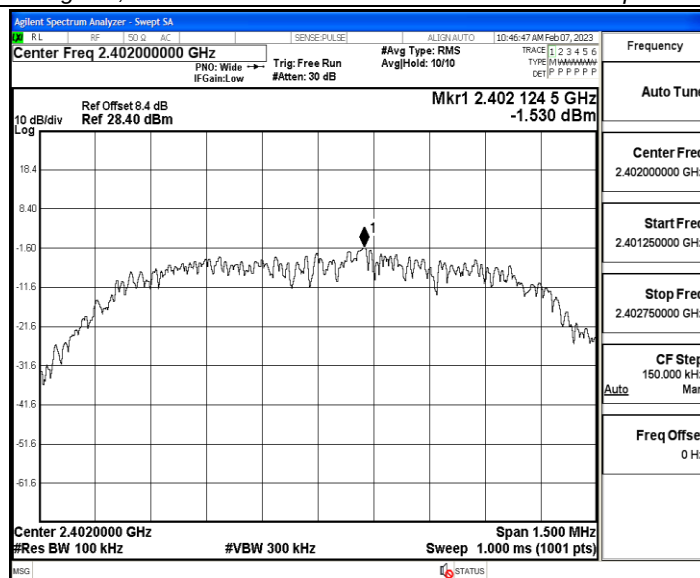
DH5_Ant1_2480_30~1000



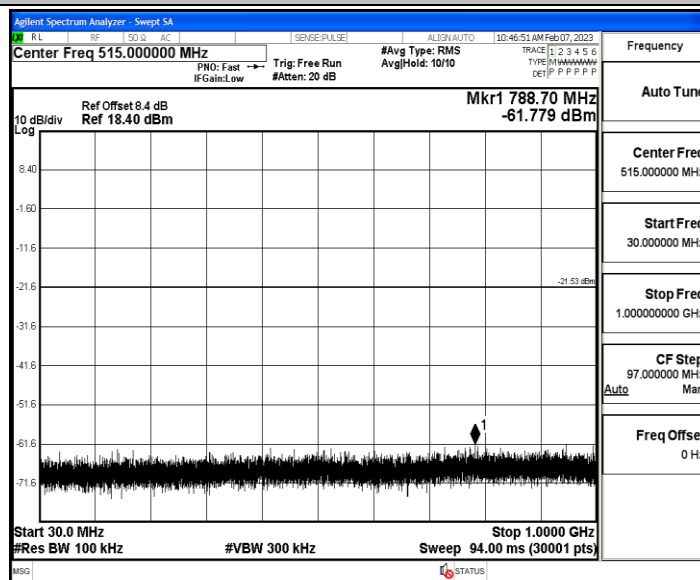
DH5_Ant1_2480_1000~26500



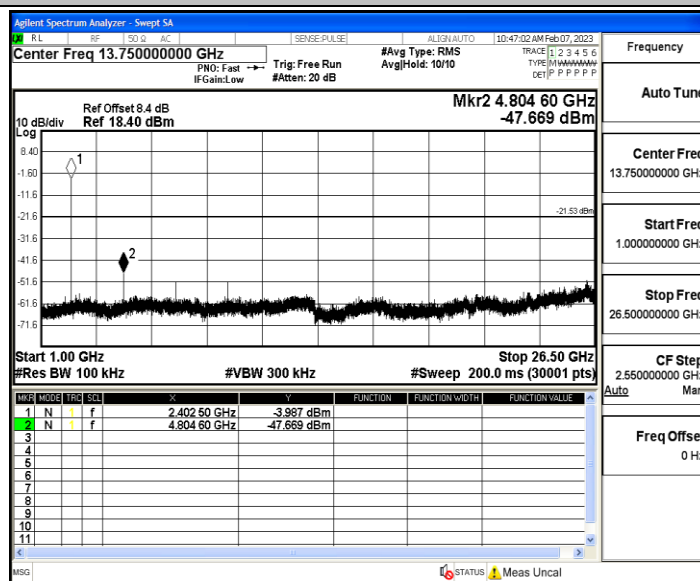
2DH5_Ant1_2402_0~Reference



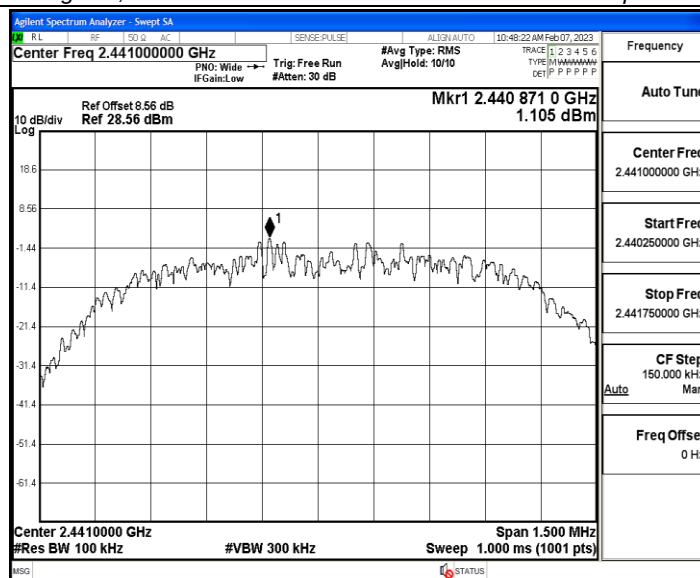
2DH5_Ant1_2402_30~1000



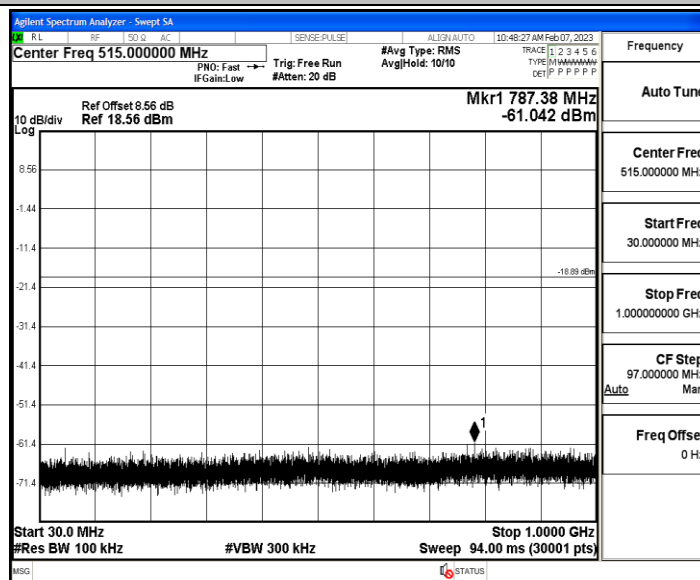
2DH5_Ant1_2402_1000~26500



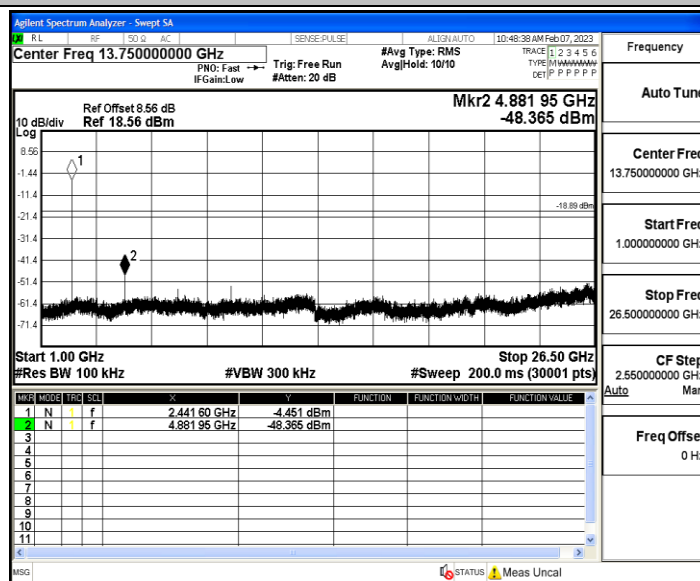
2DH5_Ant1_2441_0~Reference



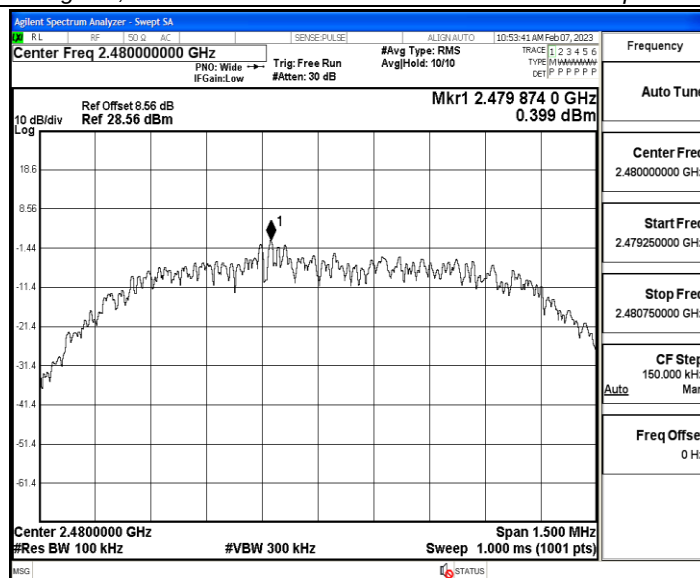
2DH5_Ant1_2441_30~1000



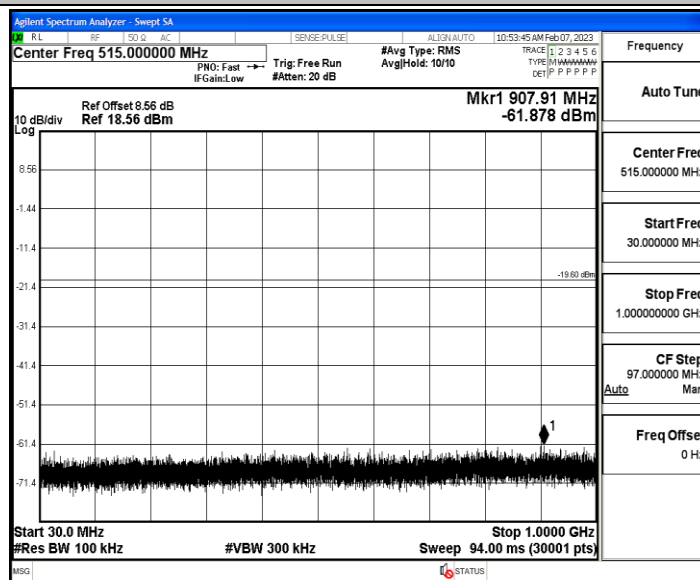
2DH5_Ant1_2441_1000~26500



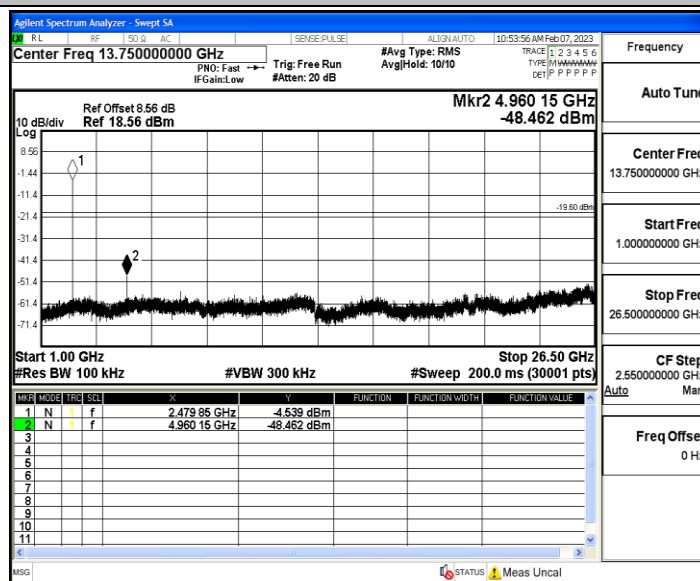
2DH5_Ant1_2480_0~Reference



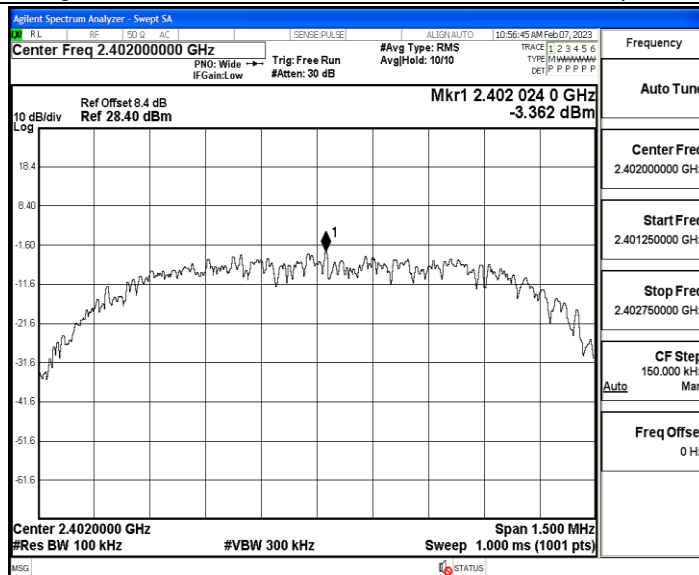
2DH5_Ant1_2480_30~1000



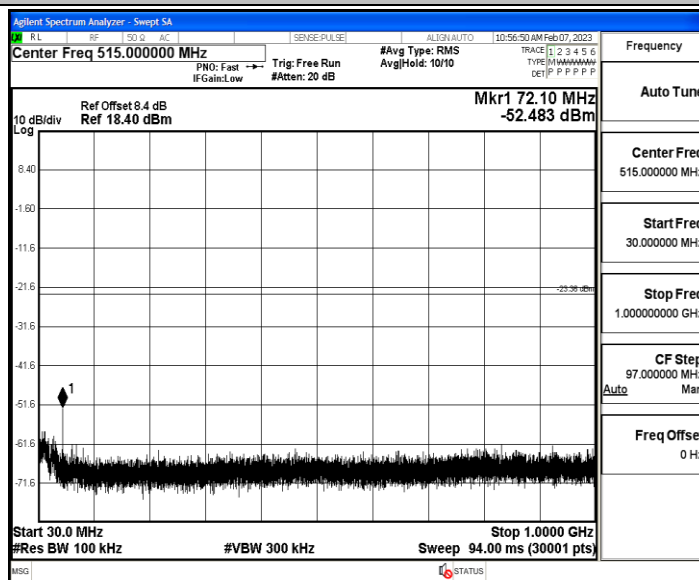
2DH5_Ant1_2480_1000~26500



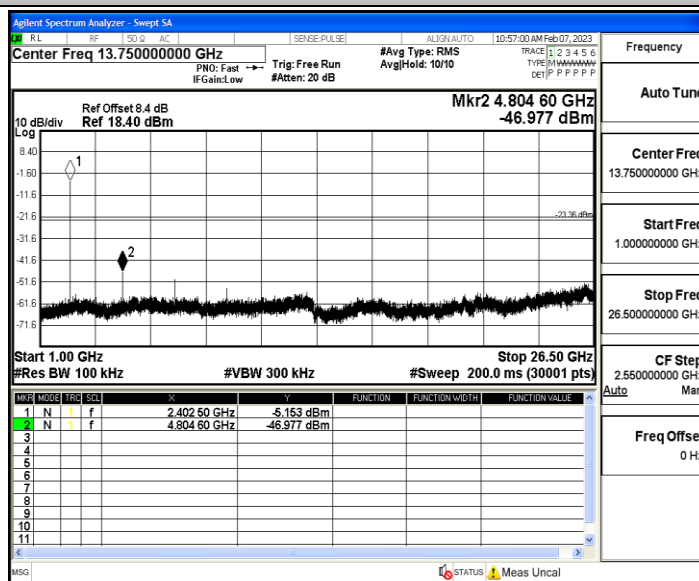
3DH5_Ant1_2402_0~Reference



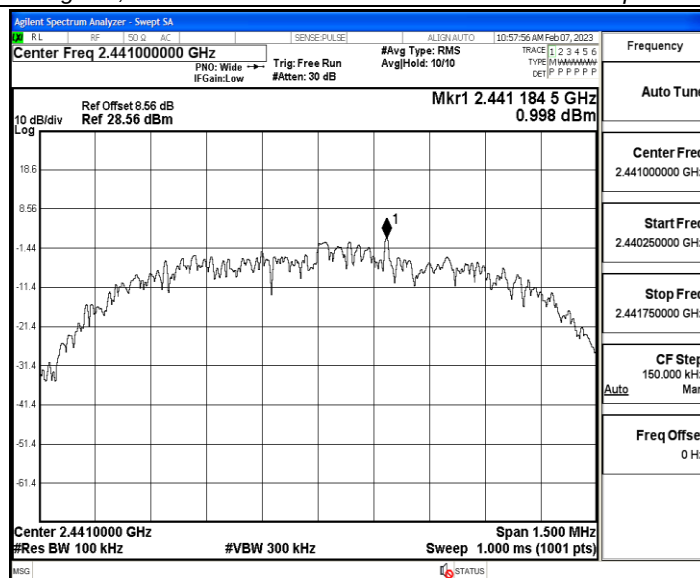
3DH5_Ant1_2402_30~1000



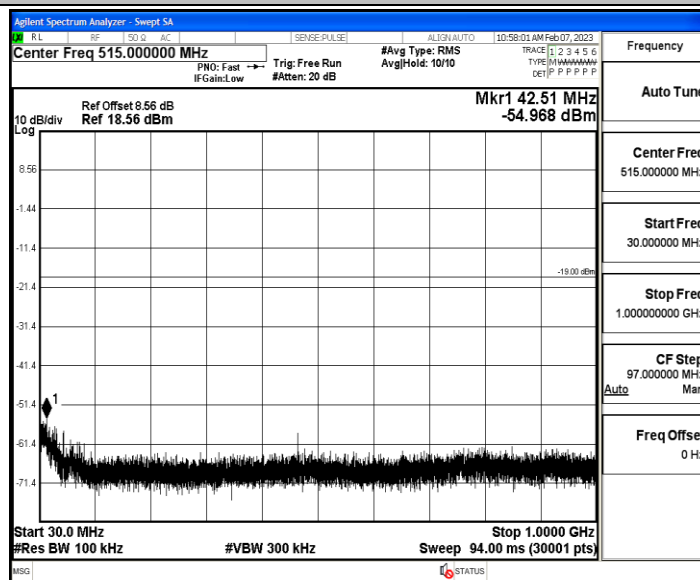
3DH5_Ant1_2402_1000~26500



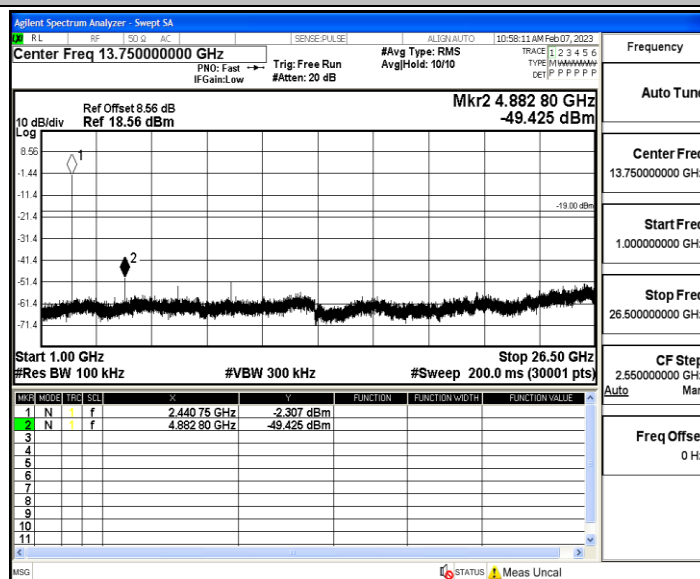
3DH5_Ant1_2441_0~Reference



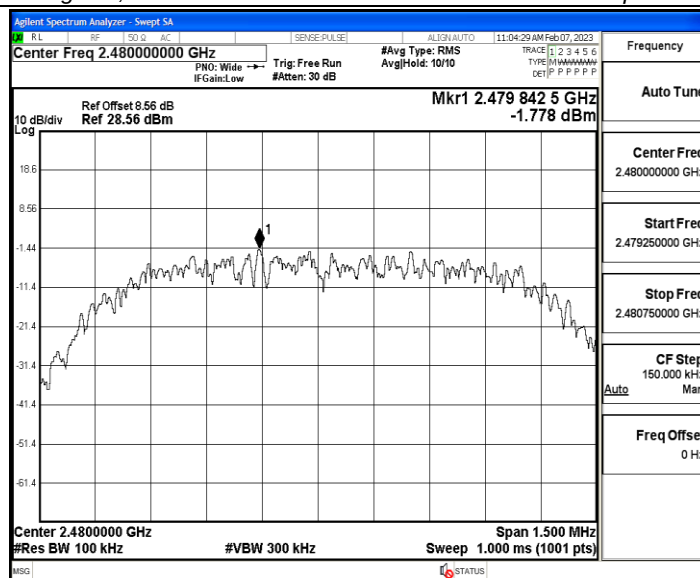
3DH5_Ant1_2441_30~1000



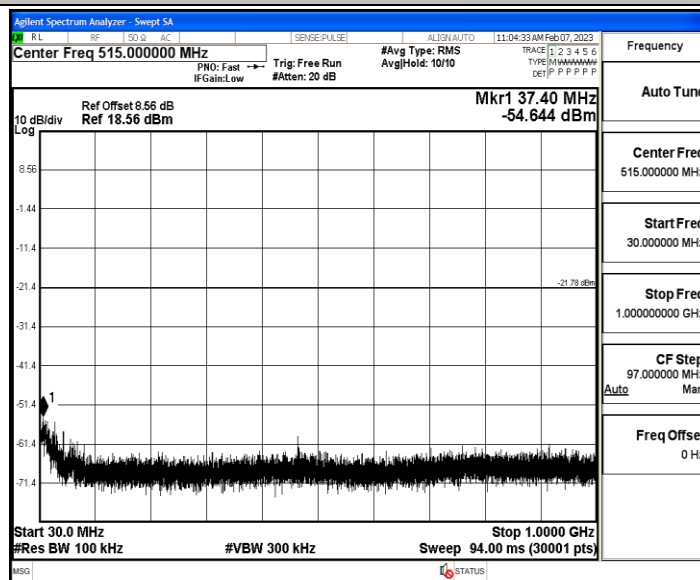
3DH5_Ant1_2441_1000~26500



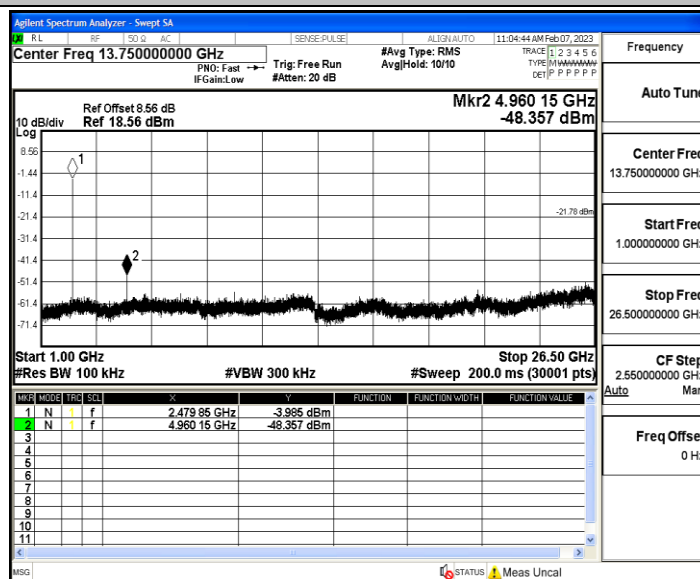
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



Appendix I: Duty Cycle

Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
DH5	Ant1	2402	2.90	3.75	77.33	0.34
		2441	2.90	3.75	77.33	0.34
		2480	2.90	3.75	77.33	0.34
2DH5	Ant1	2402	2.91	3.75	77.60	0.34
		2441	2.91	3.75	77.60	0.34
		2480	2.91	3.75	77.60	0.34
3DH5	Ant1	2402	2.91	3.75	77.60	0.34
		2441	2.90	3.74	77.54	0.34
		2480	2.90	3.74	77.54	0.34