



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

Product Name: WIRELESS SPEAKER

Trade Mark: /

Test Model: HAE615A/B/X

FCC ID: 2BYMF-HAE615ABX

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A: 20 dB Emission Bandwidth and Occupied Bandwidth

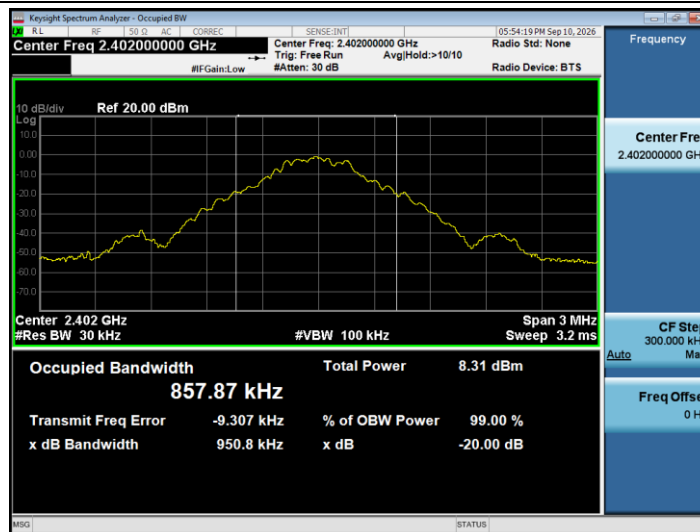
Test Result

Test Mode	Antenna	Frequency [MHz]	20 dB EBW [MHz]	Occupied BW [MHz]	Verdict
DH5	Ant1	2402	0.951	0.858	PASS
	Ant1	2441	0.952	0.860	PASS
	Ant1	2480	0.950	0.862	PASS
2DH5	Ant1	2402	1.279	1.174	PASS
	Ant1	2441	1.276	1.173	PASS
	Ant1	2480	1.277	1.174	PASS
3DH5	Ant1	2402	1.291	1.178	PASS
	Ant1	2441	1.291	1.177	PASS
	Ant1	2480	1.292	1.177	PASS

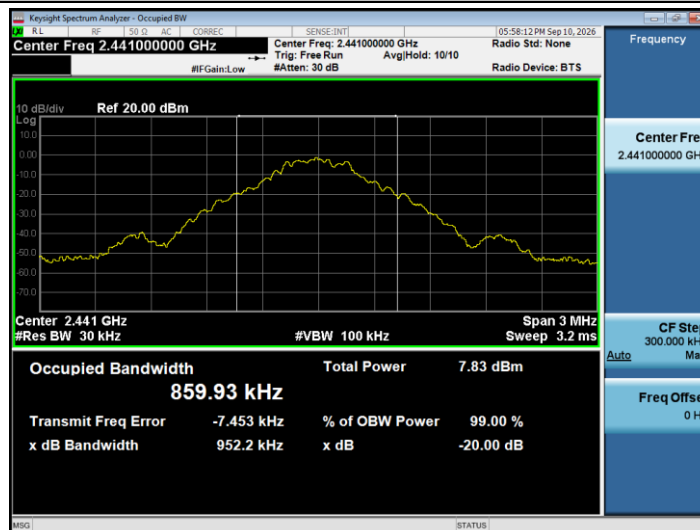




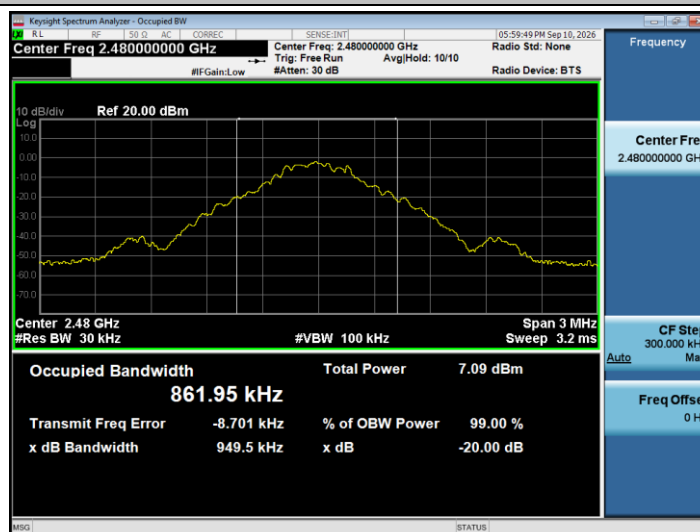
Test Graphs



DH5_Ant1_2402

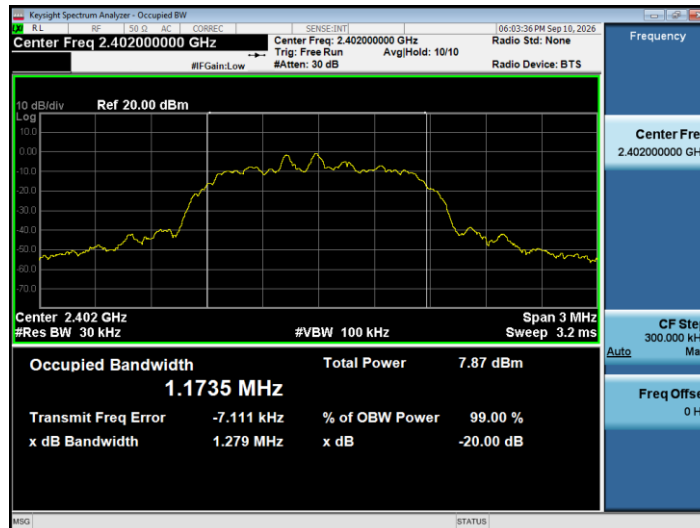


DH5_Ant1_2441

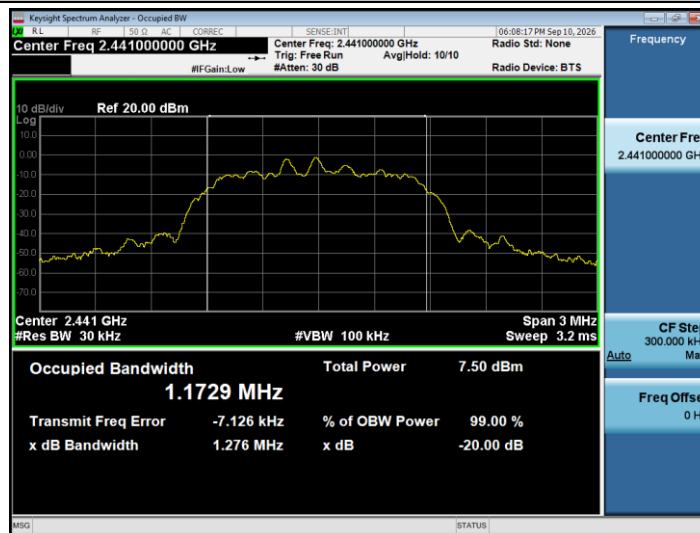


DH5_Ant1_2480

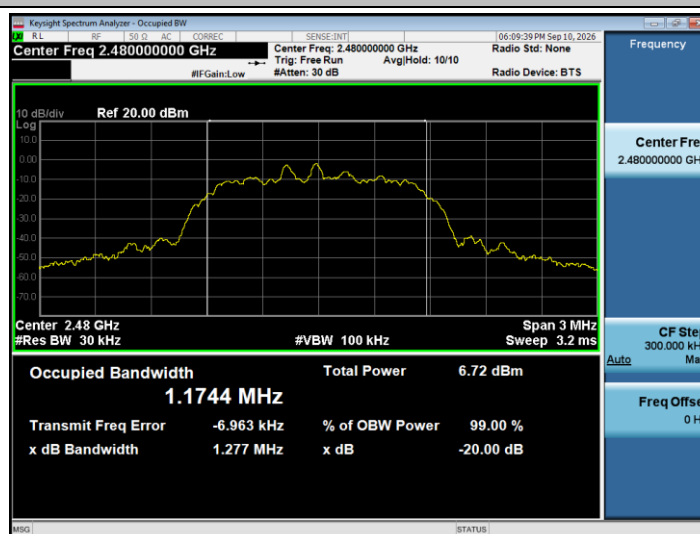




2DH5_Ant1_2402

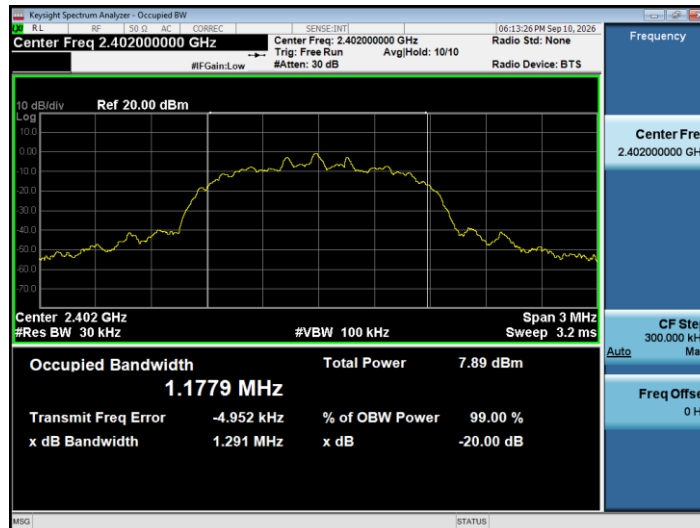


2DH5_Ant1_2441

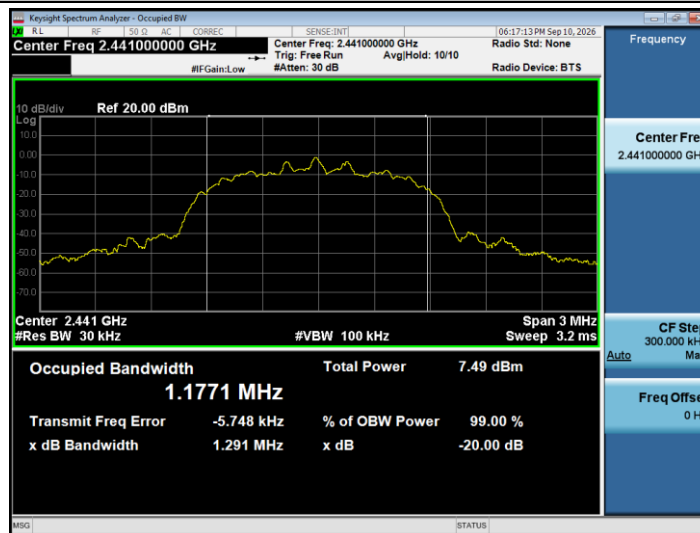


2DH5_Ant1_2480

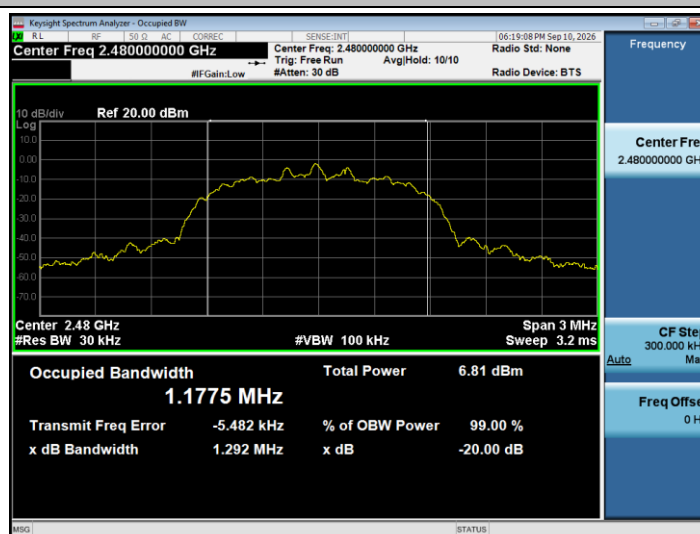




3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480





Appendix B: Maximum peak conducted output power

Test Result

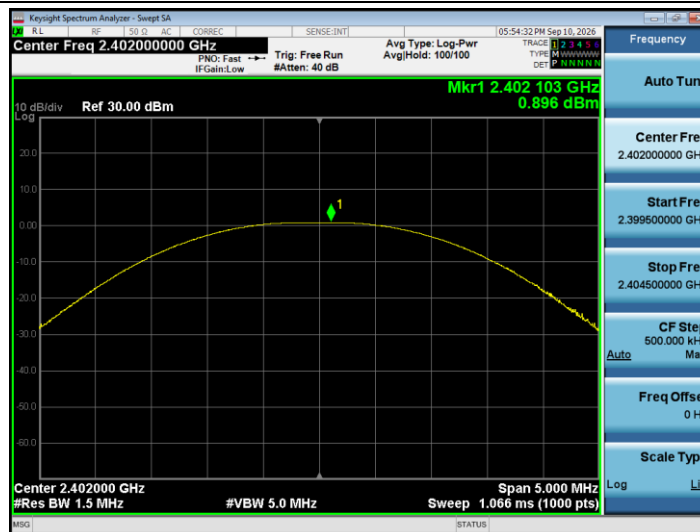
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
DH5	Ant1	2402	0.896	≤30.00	PASS
	Ant1	2441	0.481	≤30.00	PASS
	Ant1	2480	-0.219	≤30.00	PASS
2DH5	Ant1	2402	1.760	≤20.97	PASS
	Ant1	2441	1.339	≤20.97	PASS
	Ant1	2480	0.649	≤20.97	PASS
3DH5	Ant1	2402	2.141	≤20.97	PASS
	Ant1	2441	1.701	≤20.97	PASS
	Ant1	2480	1.008	≤20.97	PASS

Note: All reported measurement levels include compensation for cable loss and external attenuation, applied using the spectrum analyzer's input correction function.

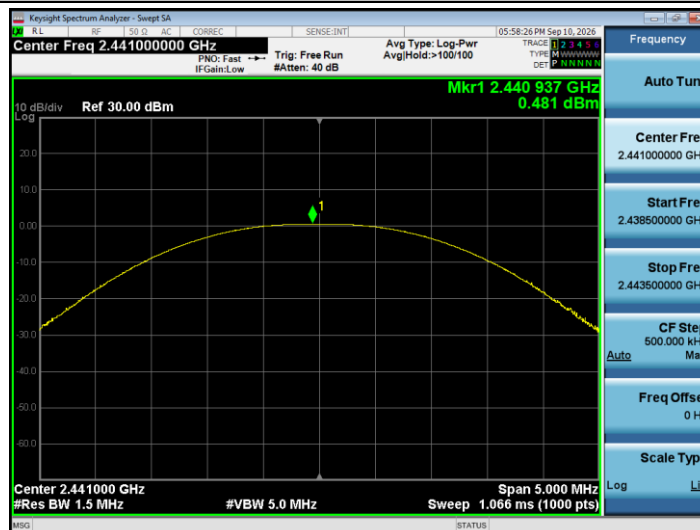




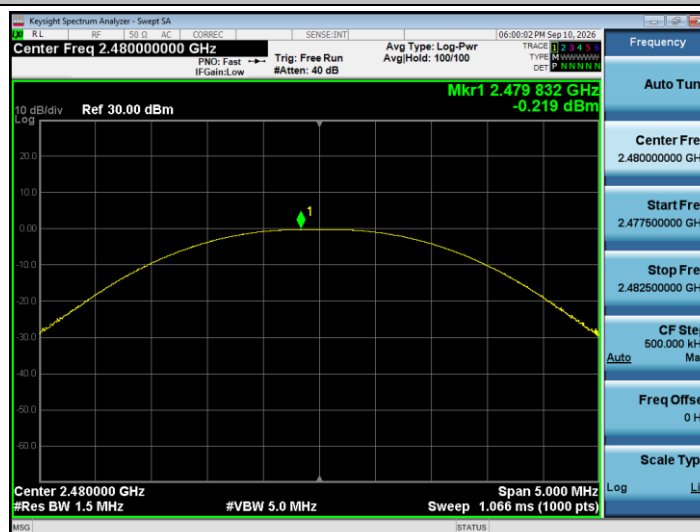
Test Graphs



DH5_Ant1_2402

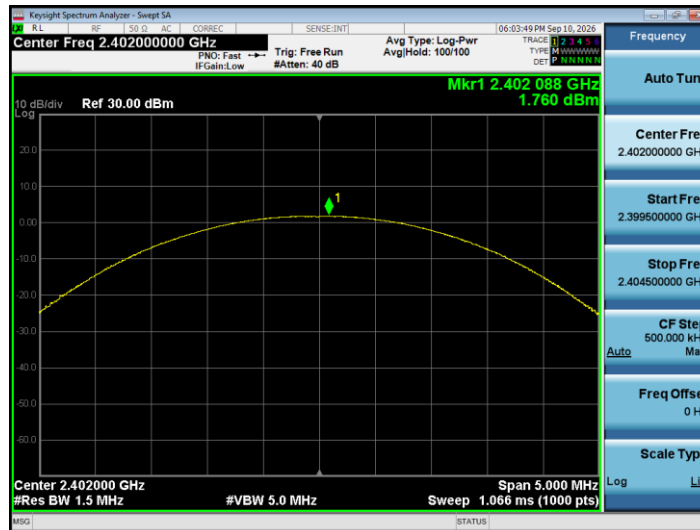


DH5_Ant1_2441

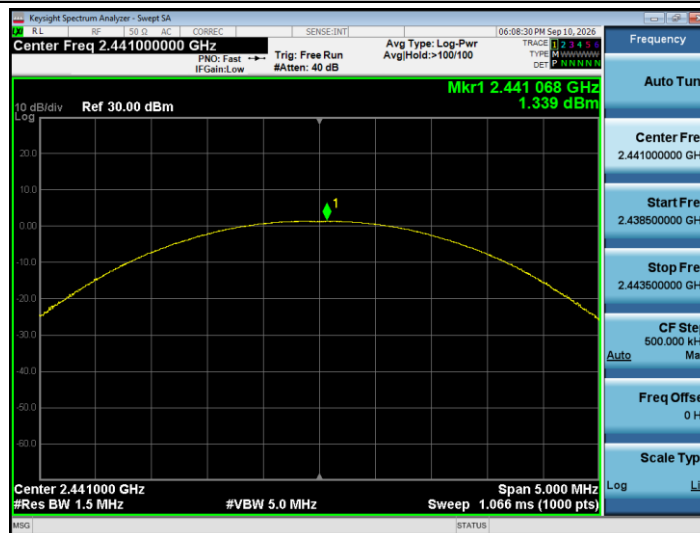


DH5_Ant1_2480

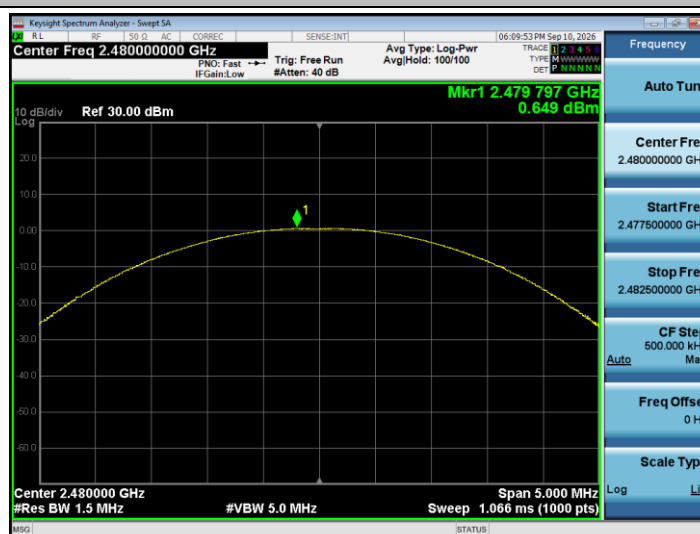




2DH5_Ant1_2402

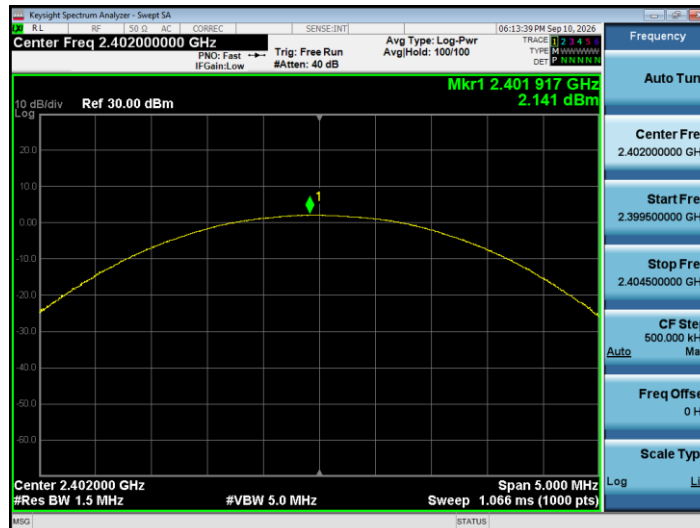


2DH5_Ant1_2441

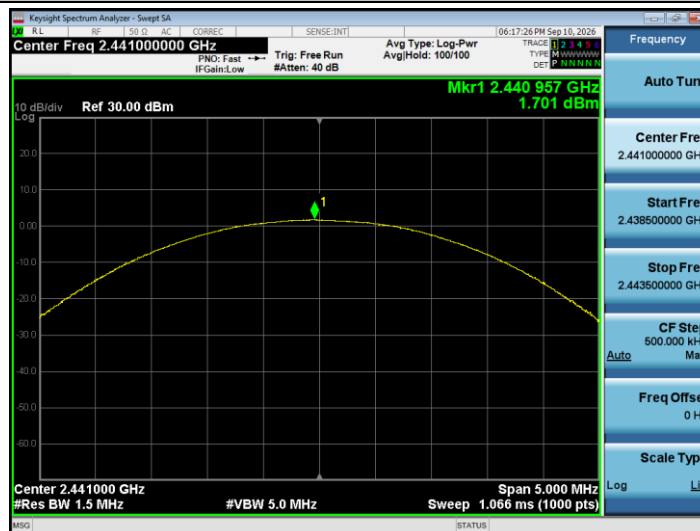


2DH5_Ant1_2480

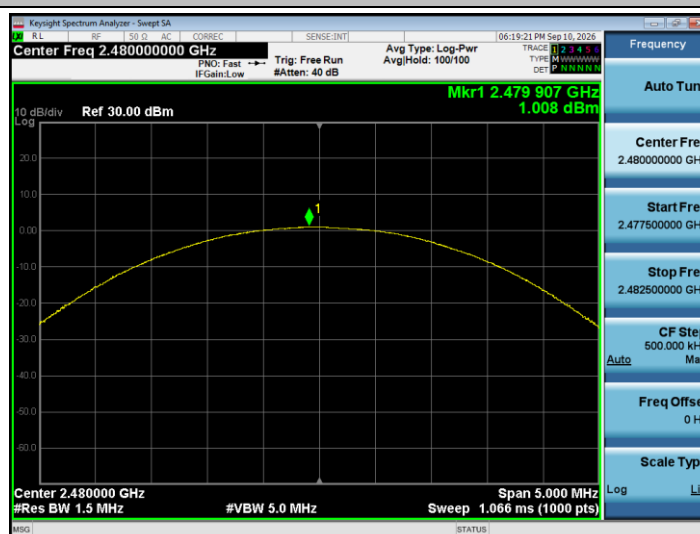




3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480





Appendix C: Carrier frequency separation

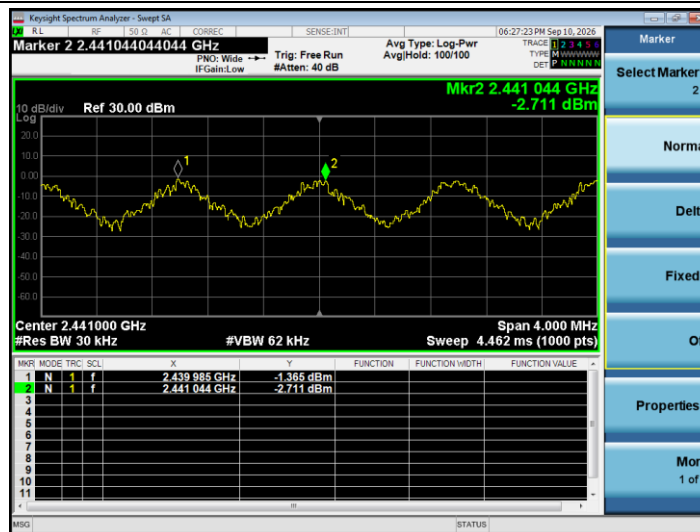
Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1.059	≥ 0.635	PASS
2DH5	Ant1	Hop	1.023	≥ 0.853	PASS
3DH5	Ant1	Hop	0.963	≥ 0.861	PASS

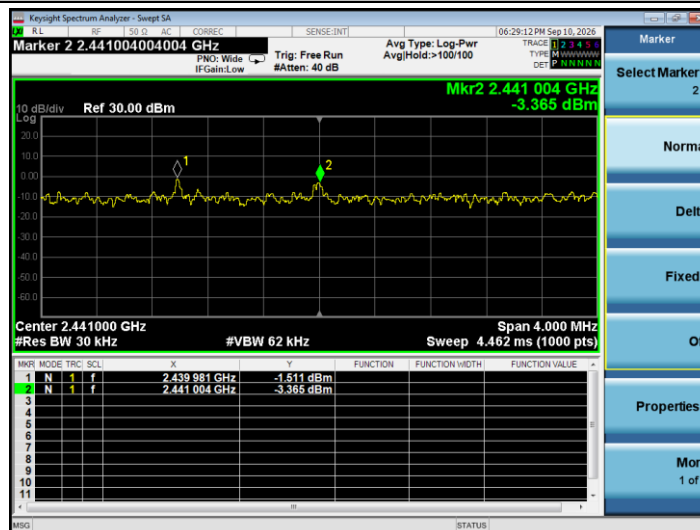




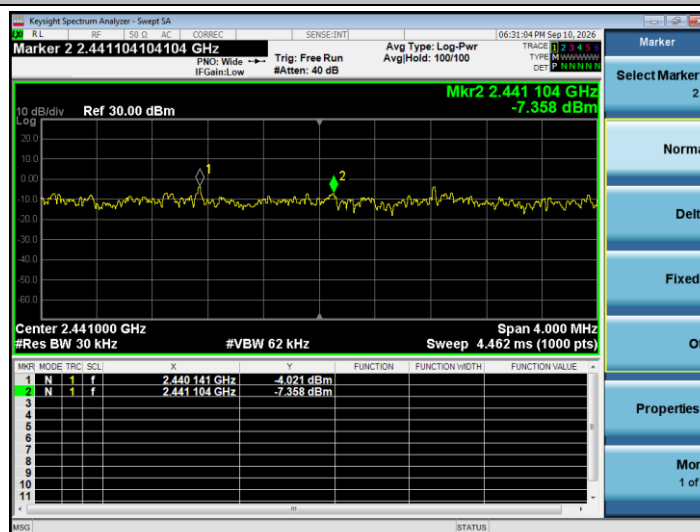
Test Graphs



DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop







Appendix D: Time of occupancy

Test Result

Test Mode	Antenna	Frequency [MHz]	Burst Width [ms]	Num Hops [Num]	Result [s]	Limit [s]	Verdict
DH5	Ant1	Hop_2402	2.887	30	0.346	≤0.4	PASS
	Ant1	Hop_2441	2.887	29	0.335	≤0.4	PASS
	Ant1	Hop_2480	2.887	30	0.346	≤0.4	PASS

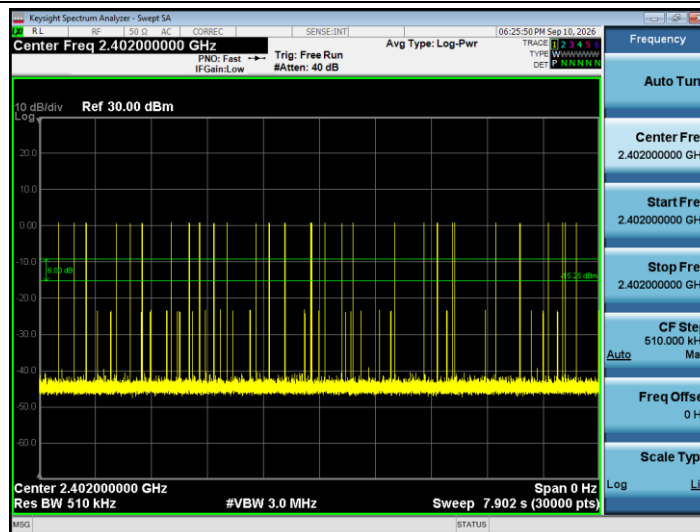
Note 1: Result = Burst Width * Num Hops * 31.6/7.9

Note 2: DH5 mode was selected for the dwell time measurement as it represents the worst-case condition with the longest transmission duration.

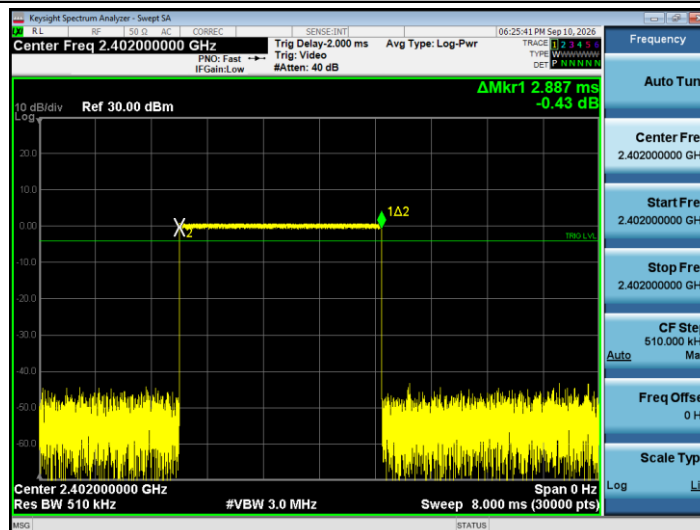




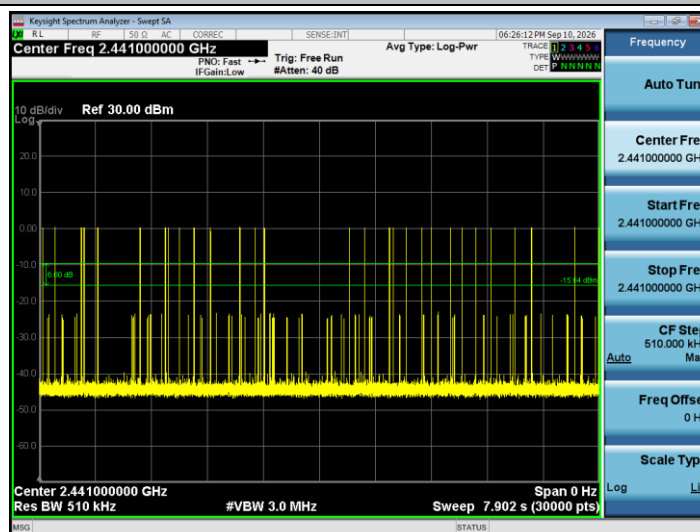
Test Graphs



DH5_Ant1_2402

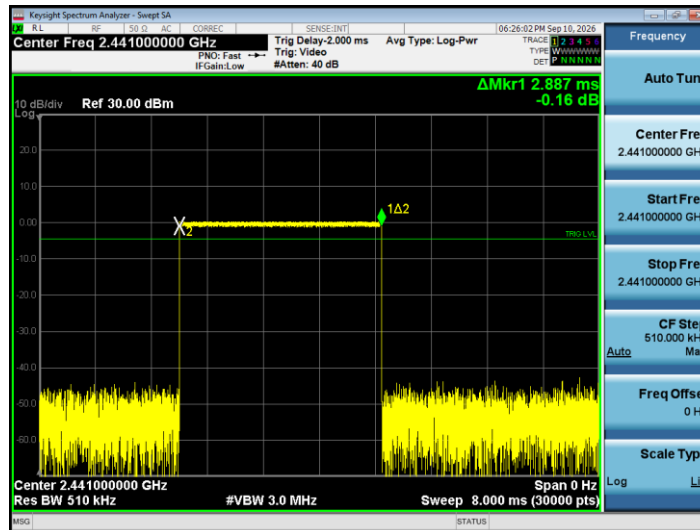


DH5_Ant1_2402

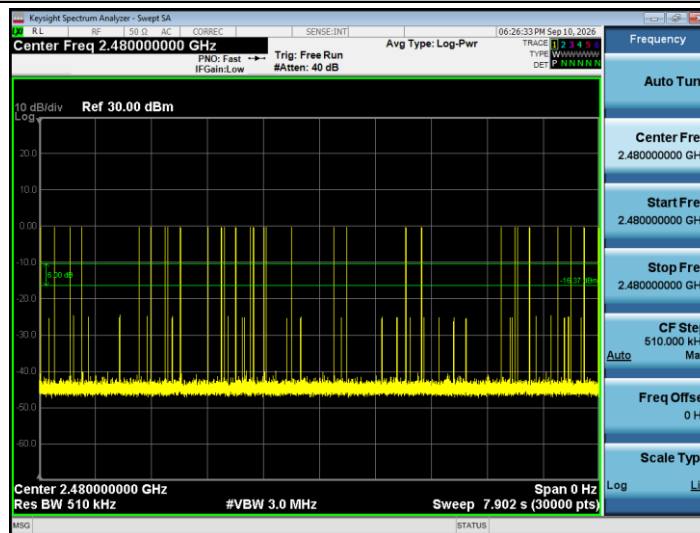


DH5_Ant1_2441

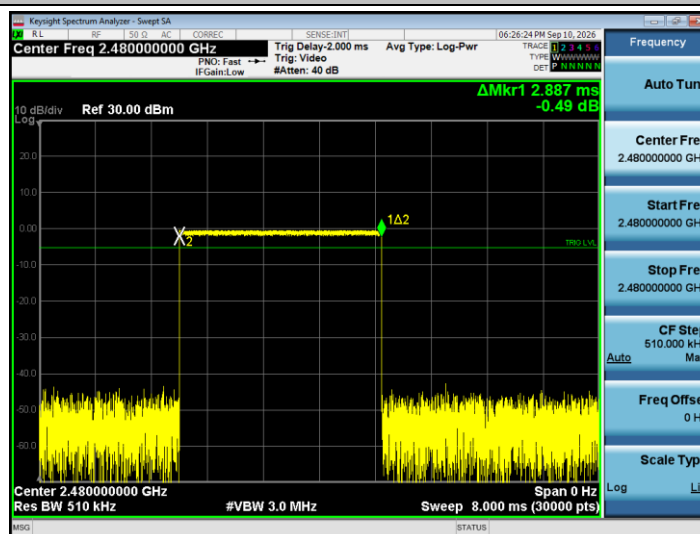




DH5_Ant1_2441



DH5_Ant1_2480



DH5_Ant1_2480





Appendix E: Number of hopping channels

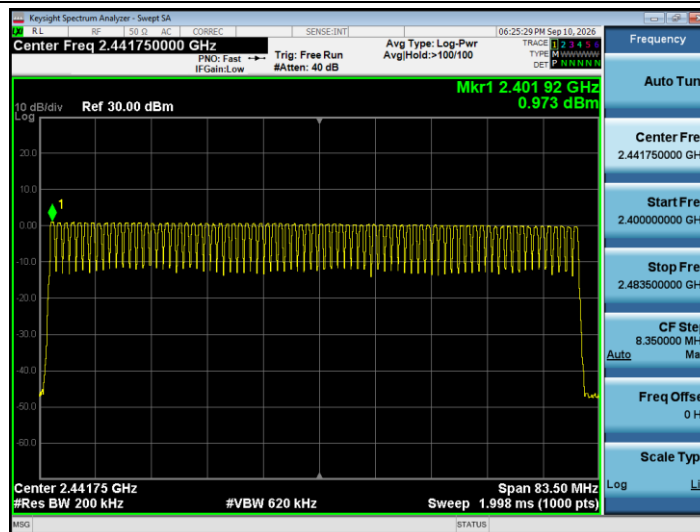
Test Result

Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

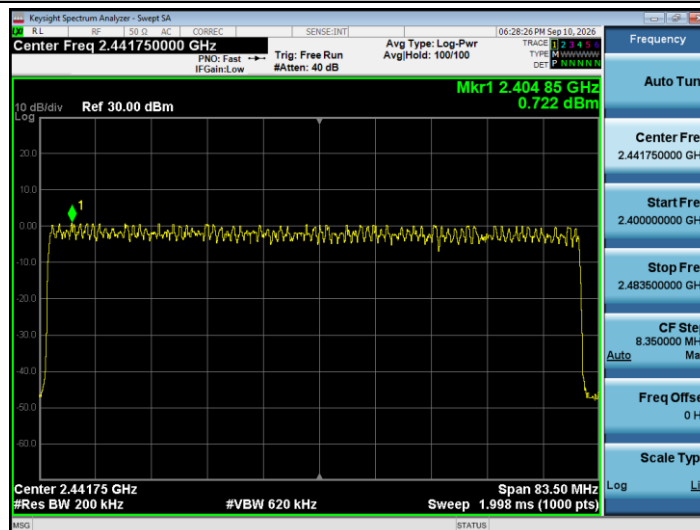




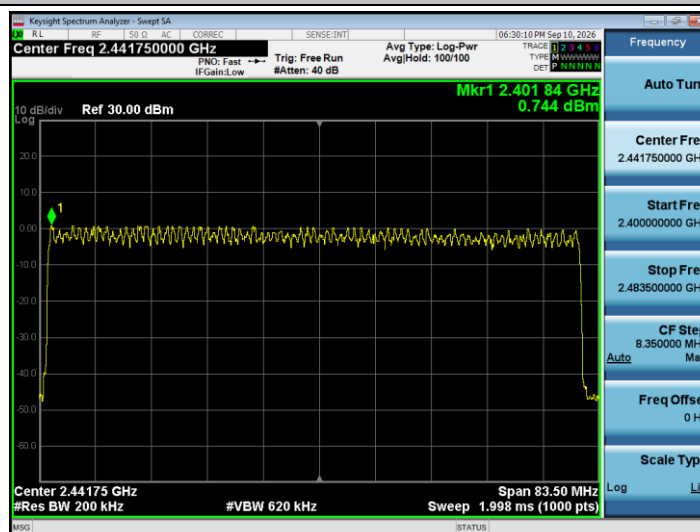
Test Graphs



DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop







Appendix F: Band edge measurements

Test Result

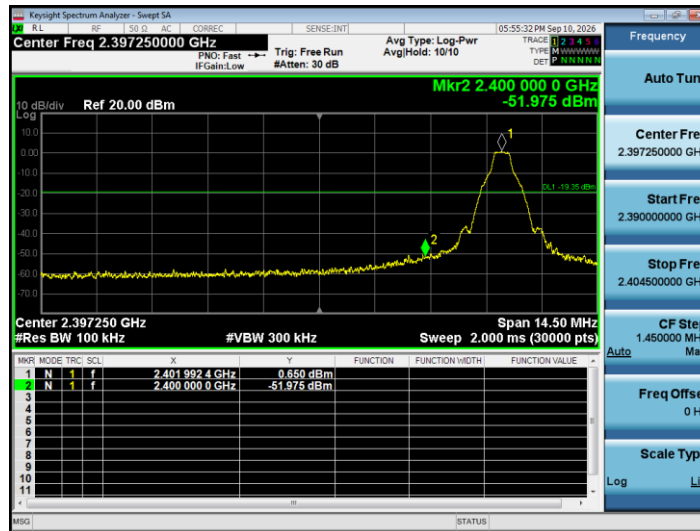
Test Mode	Antenna	Ch.Name	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.65	-51.98	≤ -19.35	PASS
	Ant1	High	2480	-0.50	-58.85	≤ -20.50	PASS
	Ant1	Low	Hop_2402	0.15	-57.31	≤ -19.85	PASS
	Ant1	High	Hop_2480	-1.03	-56.54	≤ -21.03	PASS
2DH5	Ant1	Low	2402	0.75	-51.93	≤ -19.25	PASS
	Ant1	High	2480	-0.37	-58.29	≤ -20.37	PASS
	Ant1	Low	Hop_2402	-0.30	-53.12	≤ -20.30	PASS
	Ant1	High	Hop_2480	-2.60	-61.32	≤ -22.60	PASS
3DH5	Ant1	Low	2402	0.75	-51.54	≤ -19.25	PASS
	Ant1	High	2480	-0.45	-59.94	≤ -20.45	PASS
	Ant1	Low	Hop_2402	0.53	-51.45	≤ -19.47	PASS
	Ant1	High	Hop_2480	-0.71	-59.04	≤ -20.71	PASS

Note: All reported measurement levels include compensation for cable loss and external attenuation, applied using the spectrum analyzer's input correction function.

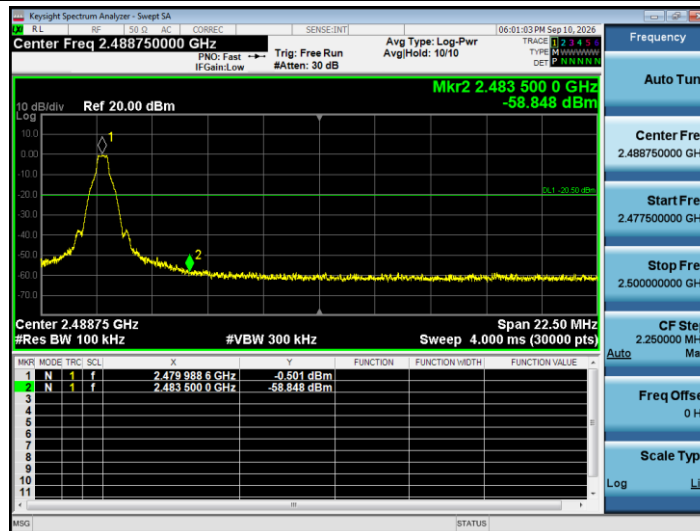




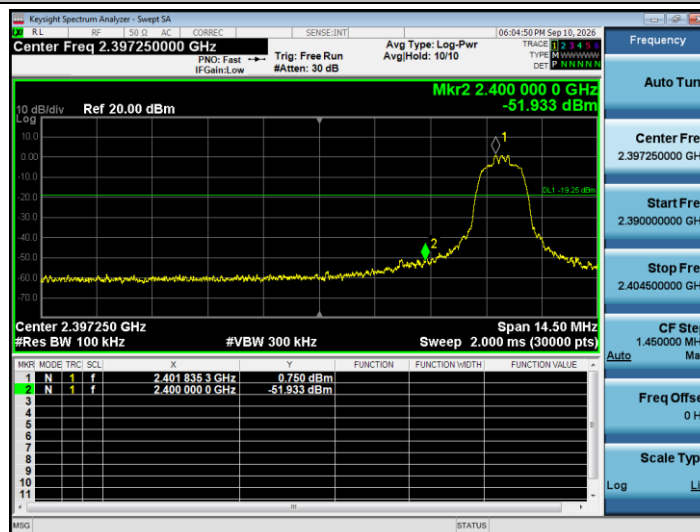
Test Graphs



DH5_Ant1_2402_Low

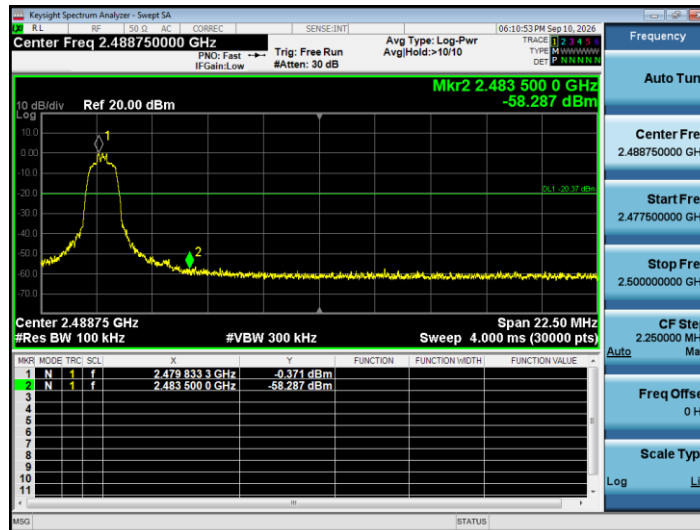


DH5_Ant1_2480_High

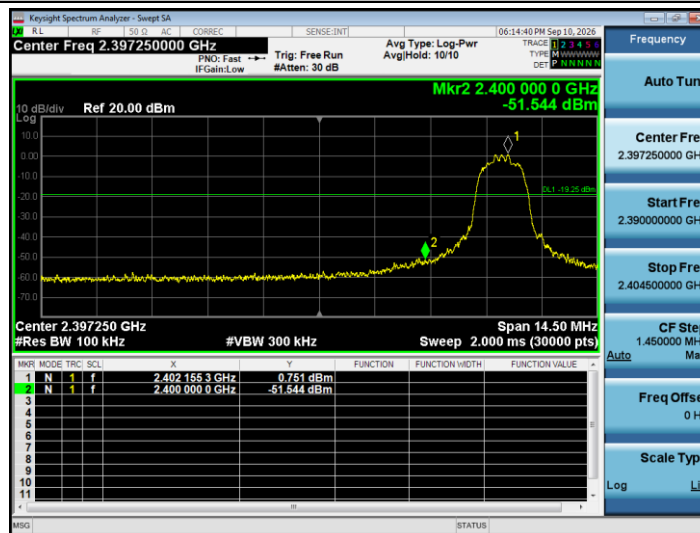


2DH5_Ant1_2402_Low

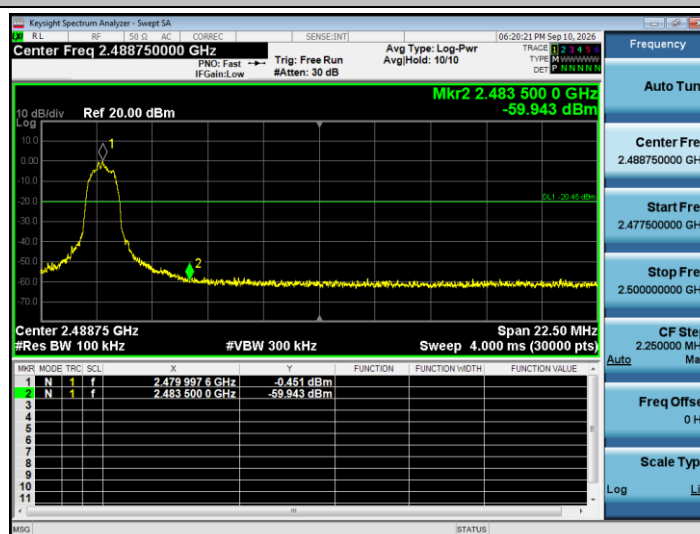




2DH5_Ant1_2480_High

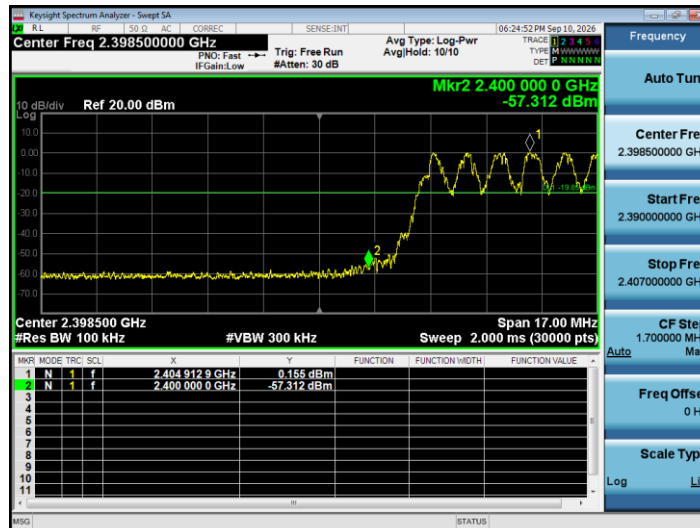


3DH5_Ant1_2402_Low

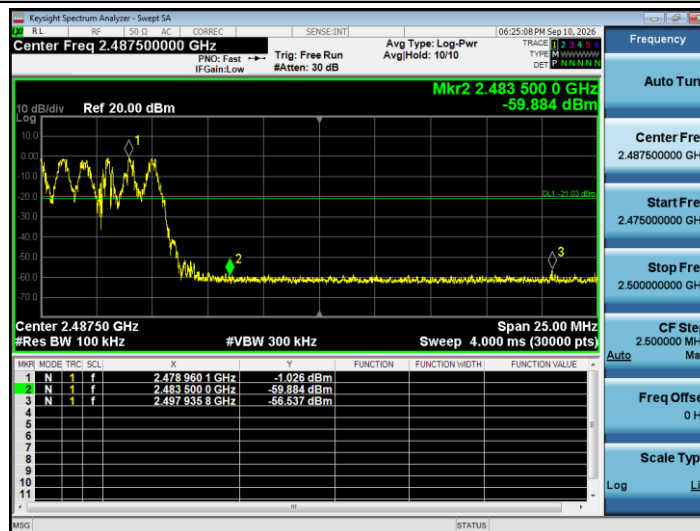


3DH5_Ant1_2480_High

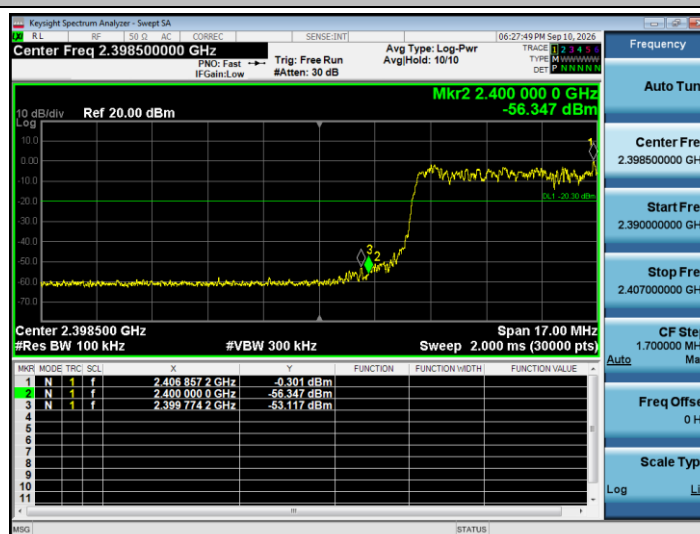




DH5_Ant1_Hop_Low

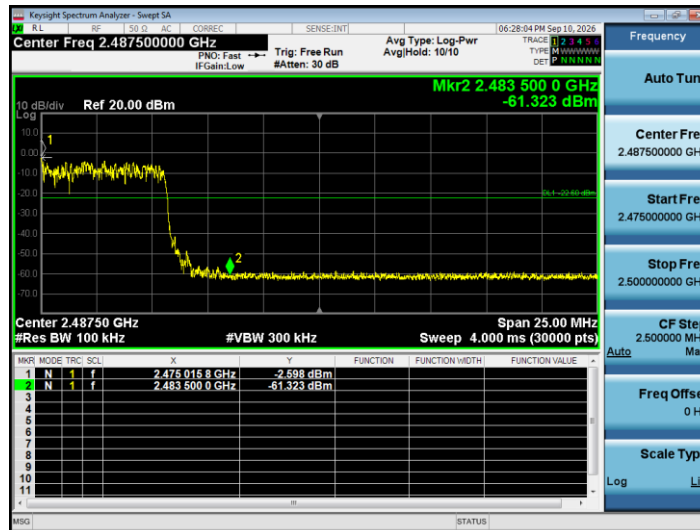


DH5_Ant1_Hop_High

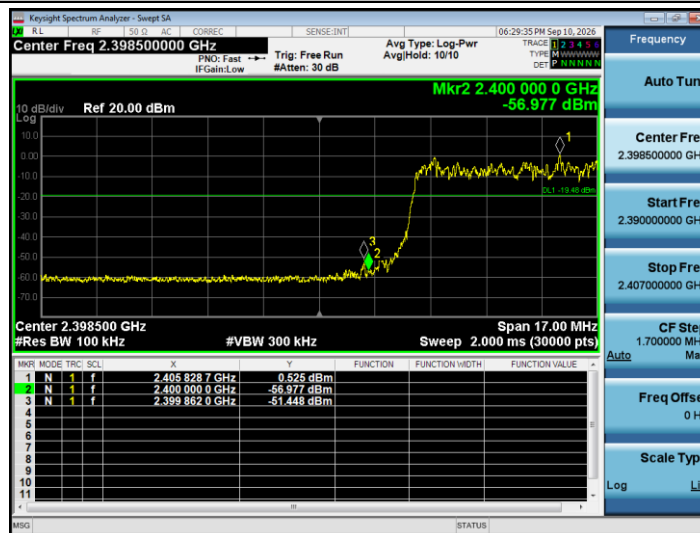


2DH5_Ant1_Hop_Low

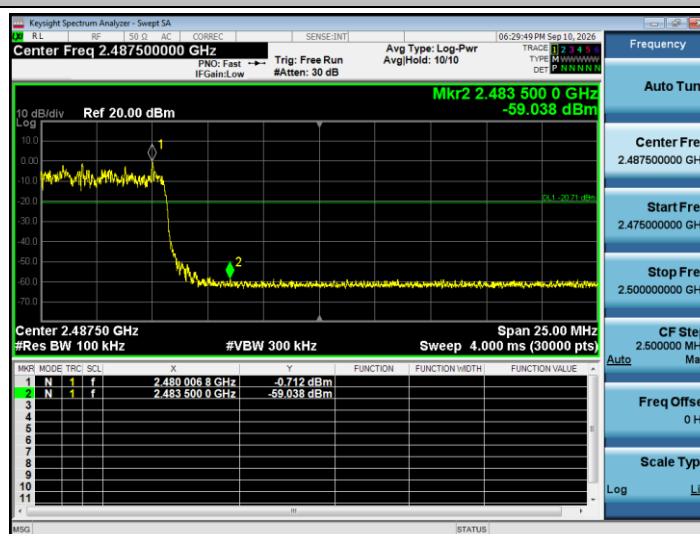




2DH5_Ant1_Hop_High



3DH5_Ant1_Hop_Low



3DH5_Ant1_Hop_High





Appendix G: Conducted Spurious Emission

Test Result

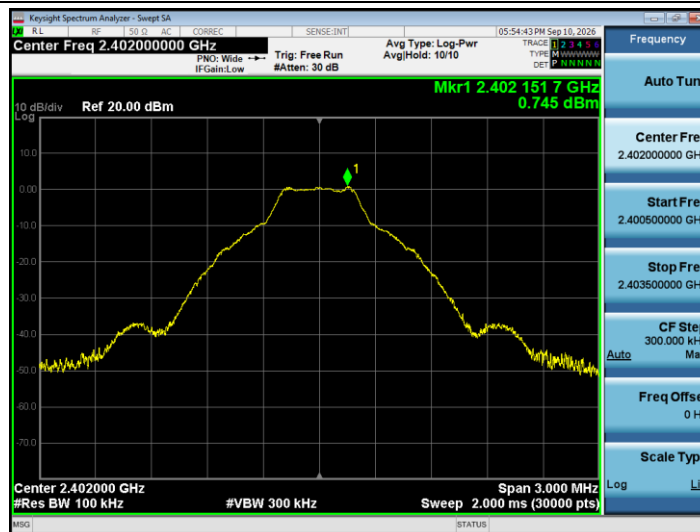
Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	0.74	0.74	---	PASS
	Ant1	2402	30~1000	0.74	-59.27	≤-19.26	PASS
	Ant1	2402	1000~26500	0.74	-47.04	≤-19.26	PASS
	Ant1	2441	0~Reference	0.31	0.31	---	PASS
	Ant1	2441	30~1000	0.31	-59.58	≤-19.69	PASS
	Ant1	2441	1000~26500	0.31	-46.13	≤-19.69	PASS
	Ant1	2480	0~Reference	-0.40	-0.40	---	PASS
	Ant1	2480	30~1000	-0.40	-59.65	≤-20.40	PASS
	Ant1	2480	1000~26500	-0.40	-46.15	≤-20.40	PASS
2DH5	Ant1	2402	0~Reference	0.79	0.79	---	PASS
	Ant1	2402	30~1000	0.79	-59.48	≤-19.21	PASS
	Ant1	2402	1000~26500	0.79	-48.04	≤-19.21	PASS
	Ant1	2441	0~Reference	0.31	0.31	---	PASS
	Ant1	2441	30~1000	0.31	-59.72	≤-19.69	PASS
	Ant1	2441	1000~26500	0.31	-47.88	≤-19.69	PASS
	Ant1	2480	0~Reference	-0.35	-0.35	---	PASS
	Ant1	2480	30~1000	-0.35	-58.32	≤-20.35	PASS
	Ant1	2480	1000~26500	-0.35	-48.06	≤-20.35	PASS
3DH5	Ant1	2402	0~Reference	0.67	0.67	---	PASS
	Ant1	2402	30~1000	0.67	-59.08	≤-19.33	PASS
	Ant1	2402	1000~26500	0.67	-45.68	≤-19.33	PASS
	Ant1	2441	0~Reference	0.30	0.30	---	PASS
	Ant1	2441	30~1000	0.30	-58.46	≤-19.70	PASS
	Ant1	2441	1000~26500	0.30	-48.30	≤-19.70	PASS
	Ant1	2480	0~Reference	-0.36	-0.36	---	PASS
	Ant1	2480	30~1000	-0.36	-58.87	≤-20.36	PASS
	Ant1	2480	1000~26500	-0.36	-47.47	≤-20.36	PASS

Note: All reported measurement levels include compensation for cable loss and external attenuation, applied using the spectrum analyzer's input correction function.

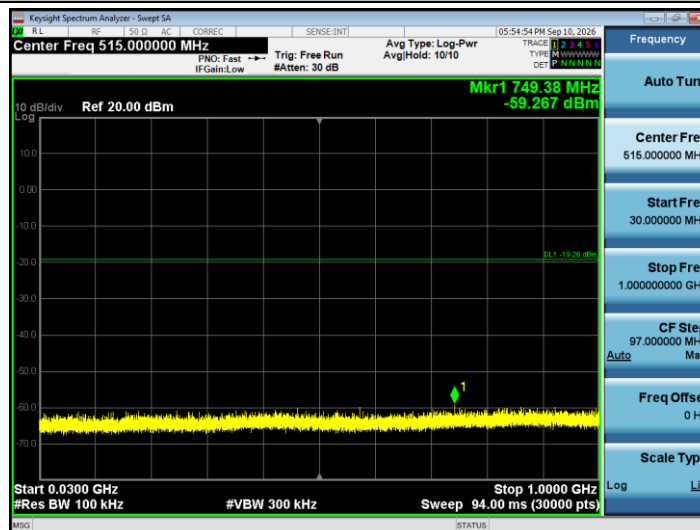




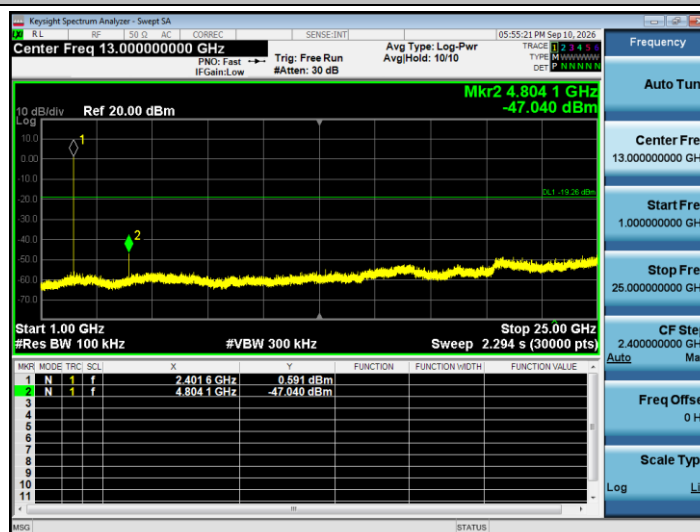
Test Graphs



DH5_Ant1_2402

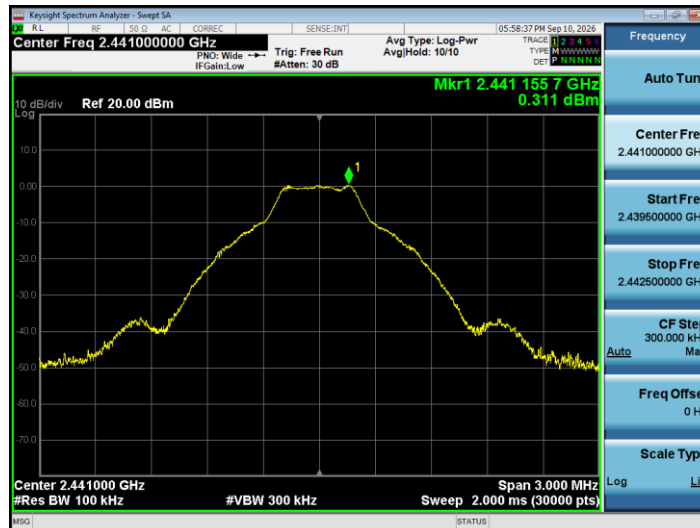


DH5_Ant1_2402

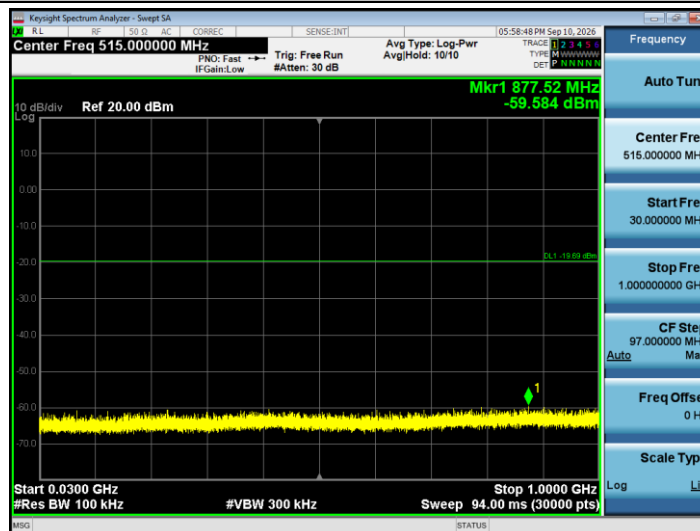


DH5_Ant1_2402

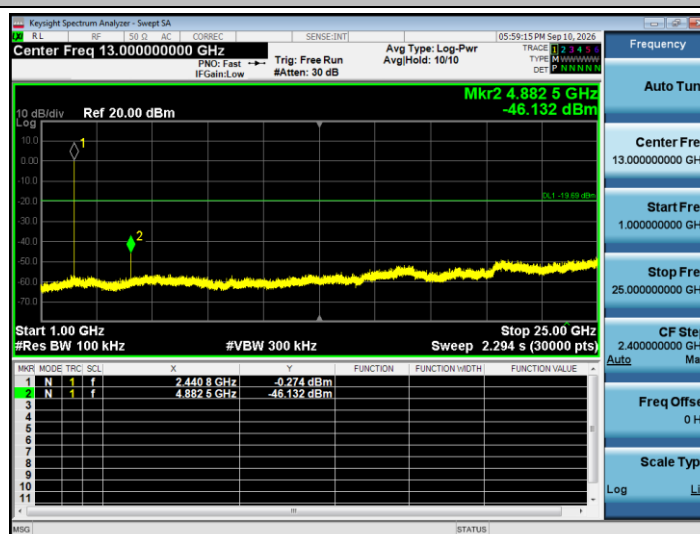




DH5_Ant1_2441

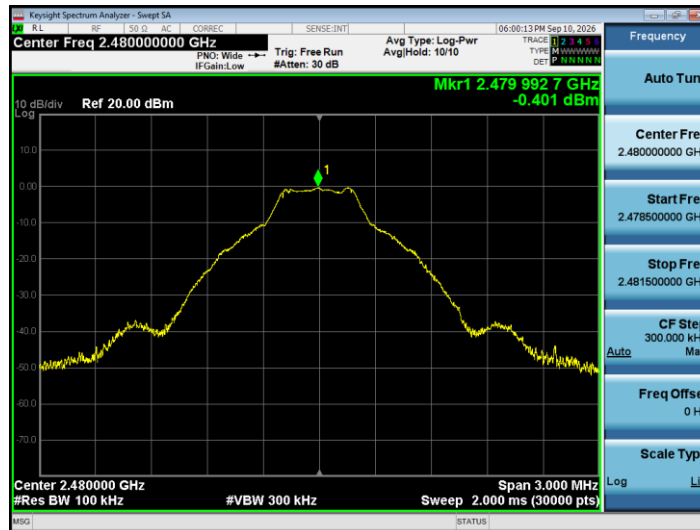


DH5_Ant1_2441

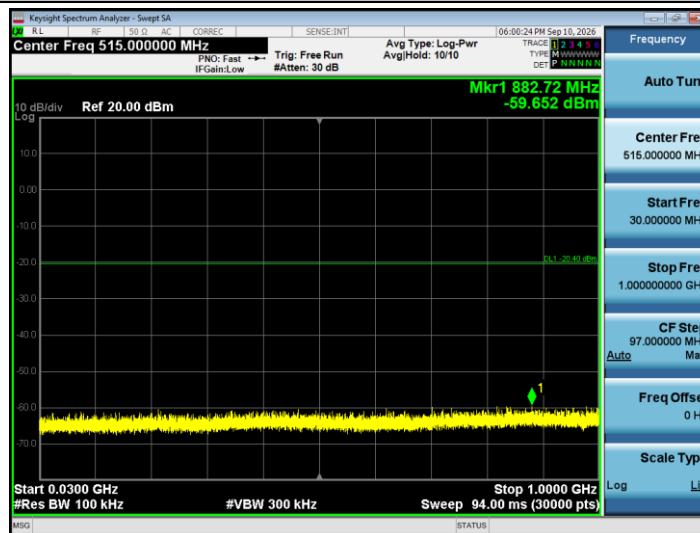


DH5_Ant1_2441

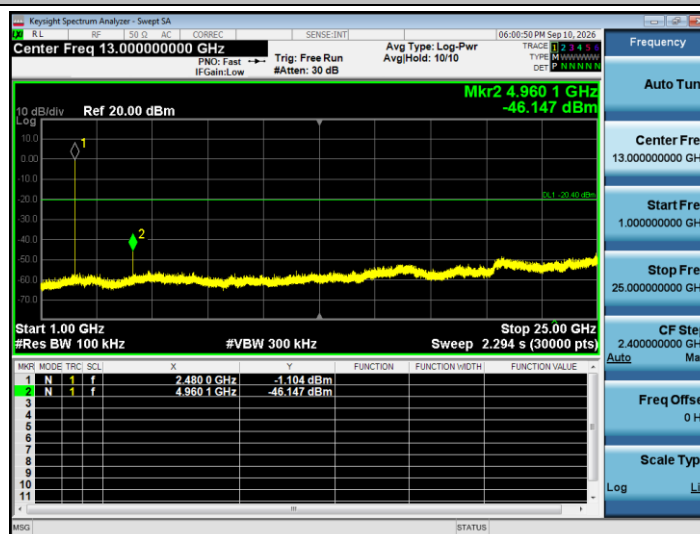




DH5_Ant1_2480

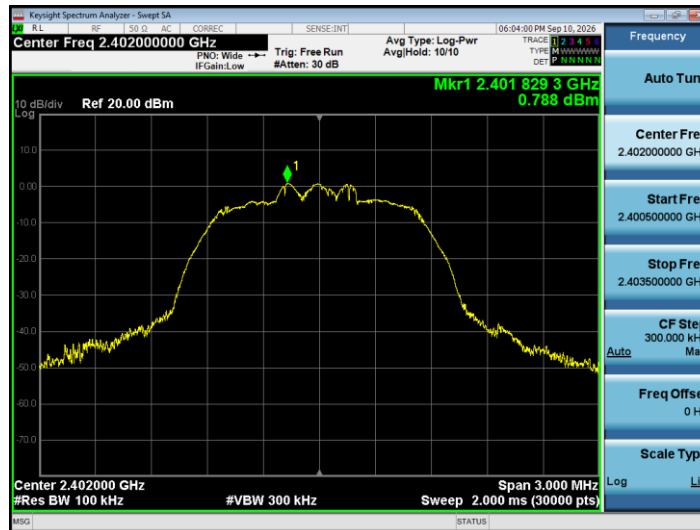


DH5_Ant1_2480

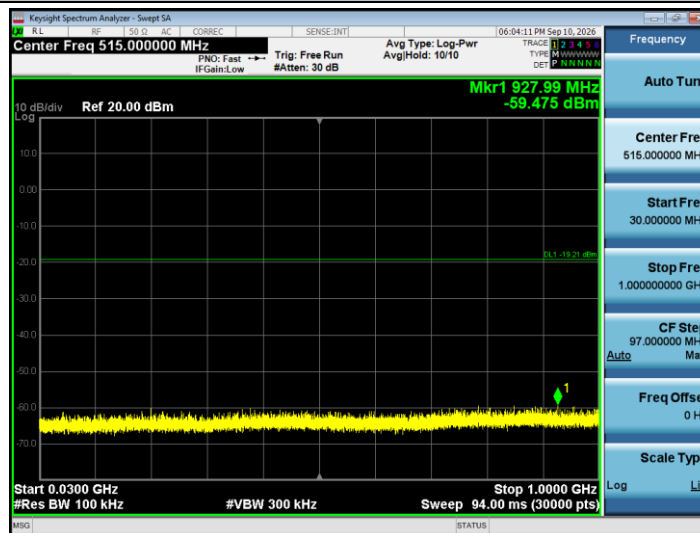


DH5_Ant1_2480

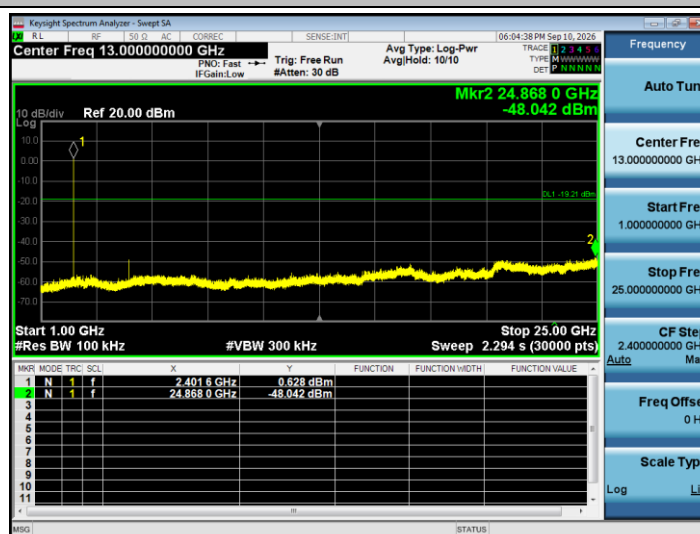




2DH5_Ant1_2402

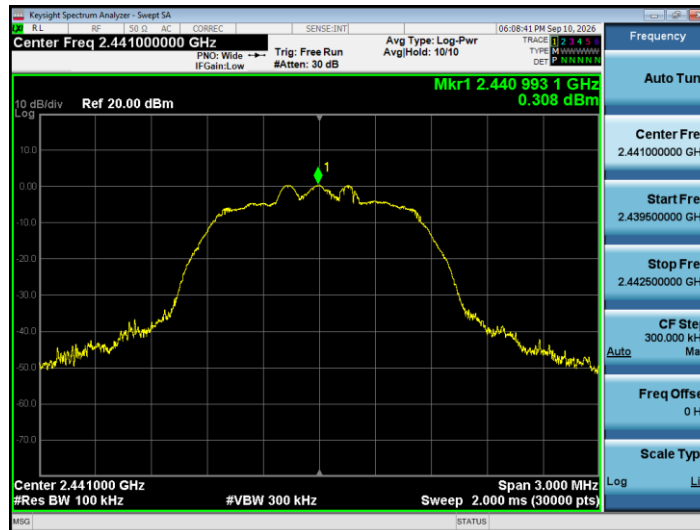


2DH5_Ant1_2402

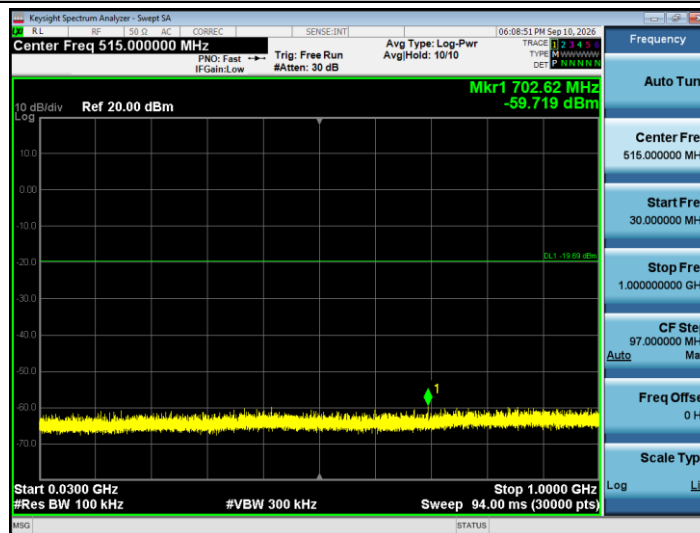


2DH5_Ant1_2402

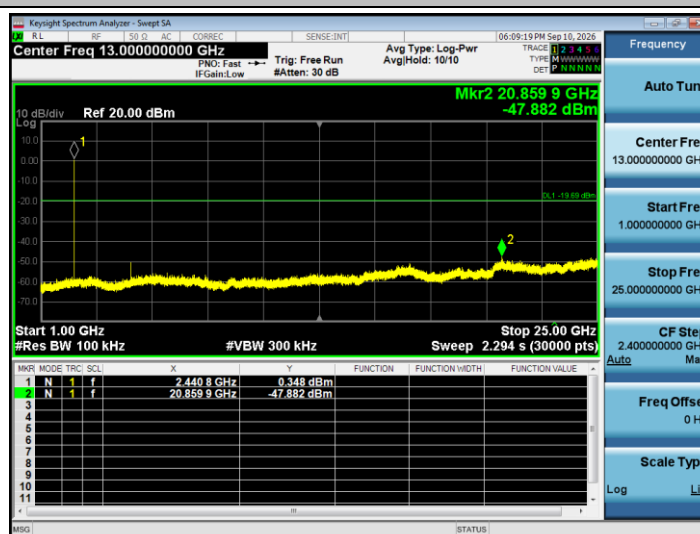




2DH5_Ant1_2441

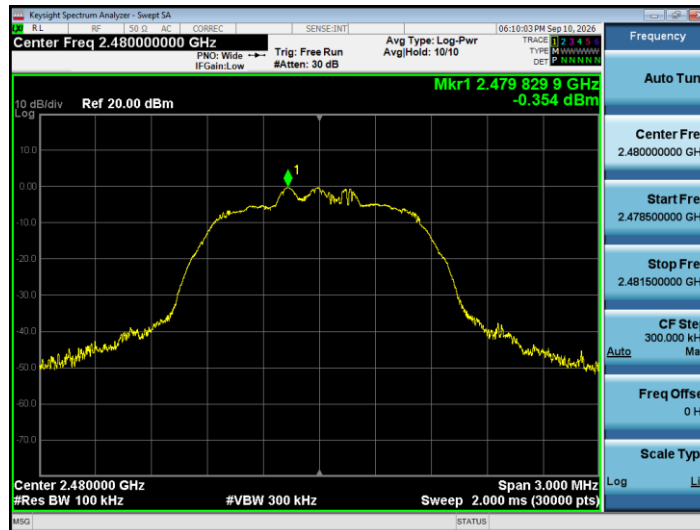


2DH5_Ant1_2441

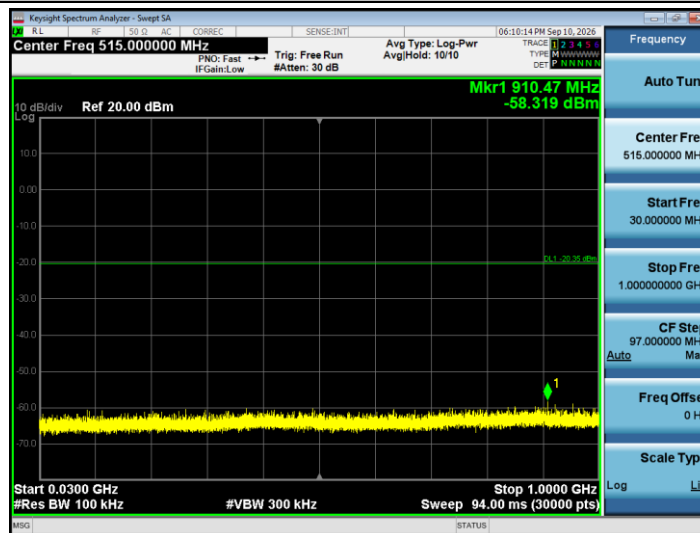


2DH5_Ant1_2441

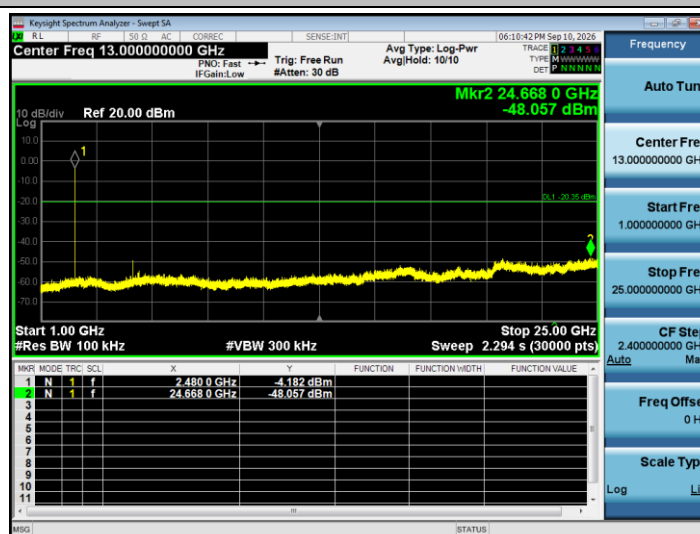




2DH5_Ant1_2480

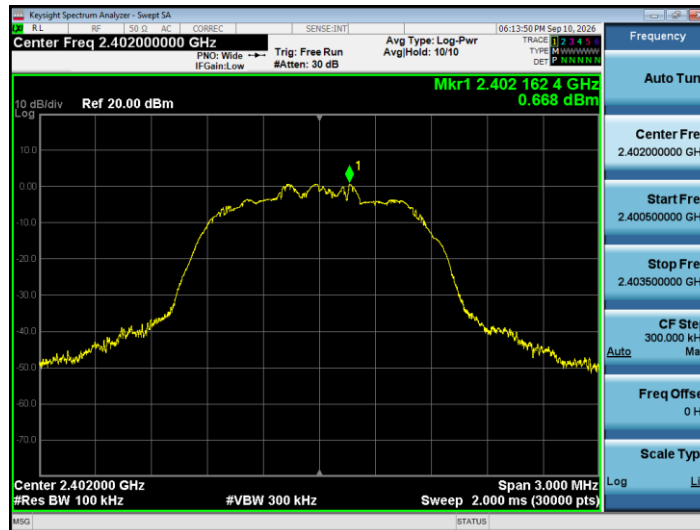


2DH5_Ant1_2480

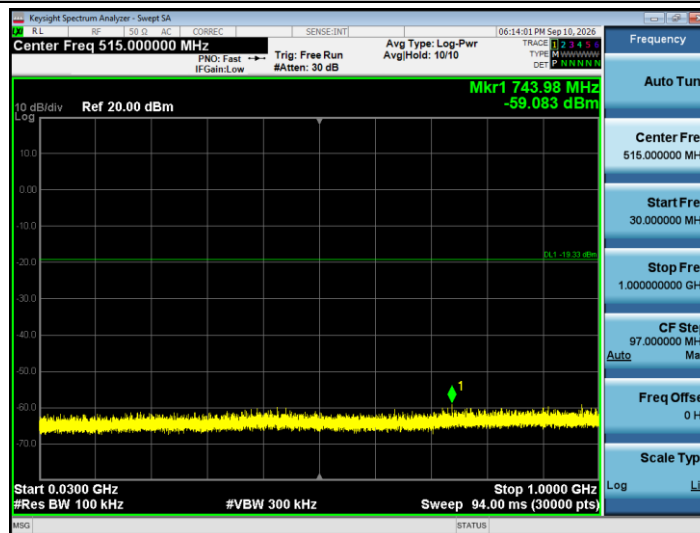


2DH5_Ant1_2480

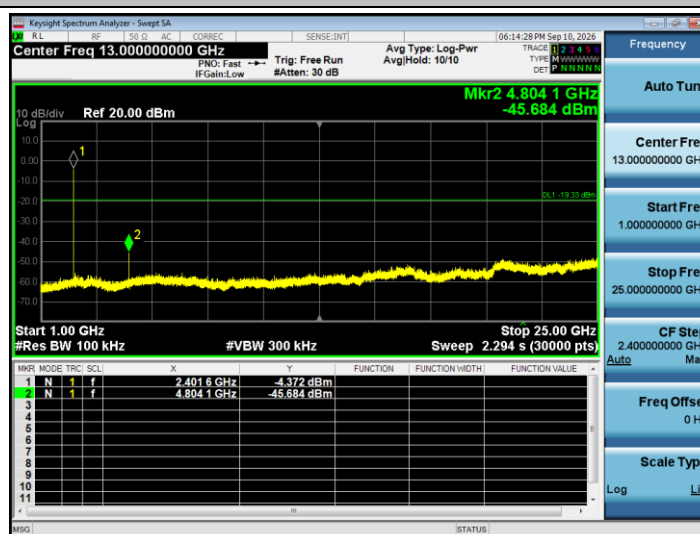




3DH5_Ant1_2402



3DH5_Ant1_2402



3DH5_Ant1_2402

