

FCC Appendix RF Test Data for BT

FCC ID : 2BA4J-D3102

Company : Hunan Pangao Photoelectric Technology Co. , Ltd.

EUT : ThermNight 4K Thermal & Night Vision Multispectral Scope

Model Number : D3102

Report No. : CTA26051400701

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	0.957	2401.541	2402.498	---	---
		2441	0.960	2440.544	2441.504	---	---
		2480	0.954	2479.544	2480.498	---	---
2DH5	Ant1	2402	1.335	2401.340	2402.675	---	---
		2441	1.290	2440.376	2441.666	---	---
		2480	1.338	2479.343	2480.681	---	---
3DH5	Ant1	2402	1.302	2401.355	2402.657	---	---
		2441	1.308	2440.358	2441.666	---	---
		2480	1.296	2479.364	2480.660	---	---

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



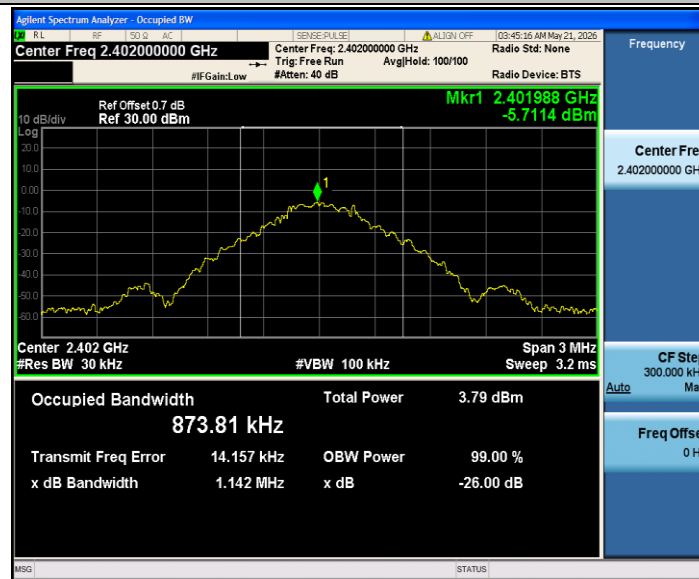
Appendix B: Occupied Channel Bandwidth

Test Result

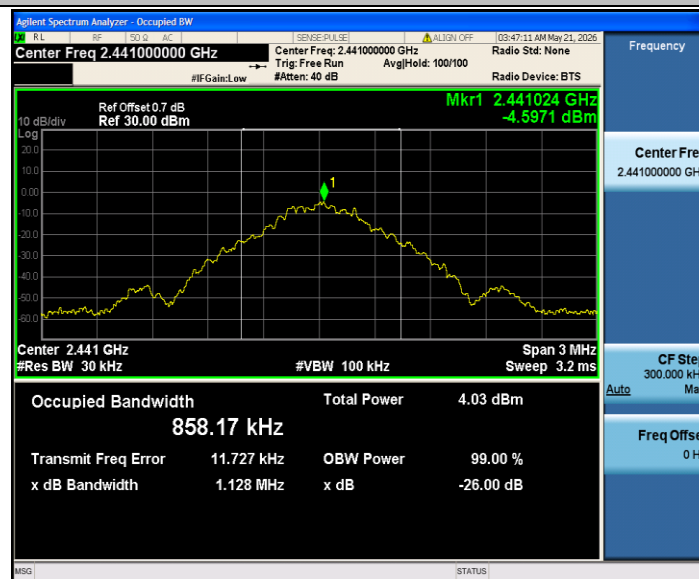
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.87381	2401.5773	2402.4511	---	---
		2441	0.85817	2440.5826	2441.4408	---	---
		2480	0.87144	2479.5799	2480.4513	---	---
2DH5	Ant1	2402	1.1923	2401.4160	2402.6083	---	---
		2441	1.1831	2440.4235	2441.6066	---	---
		2480	1.1817	2479.4222	2480.6039	---	---
3DH5	Ant1	2402	1.1954	2401.4129	2402.6083	---	---
		2441	1.1976	2440.4109	2441.6085	---	---
		2480	1.1848	2479.4232	2480.6080	---	---

Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



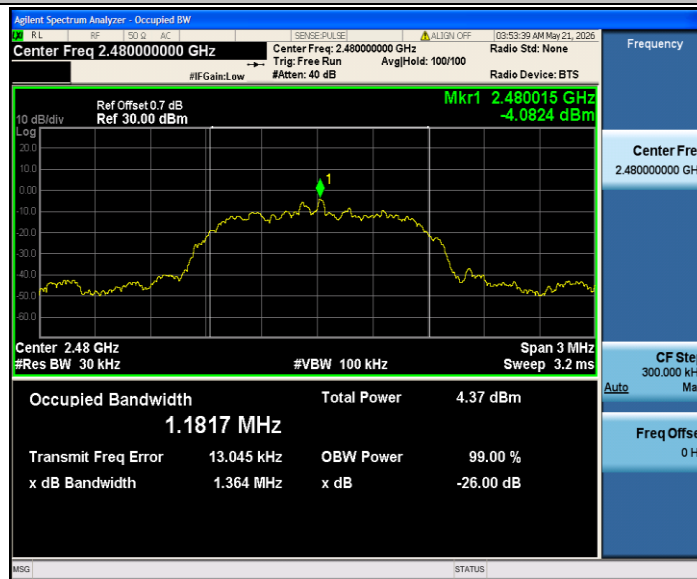
2DH5_Ant1_2402



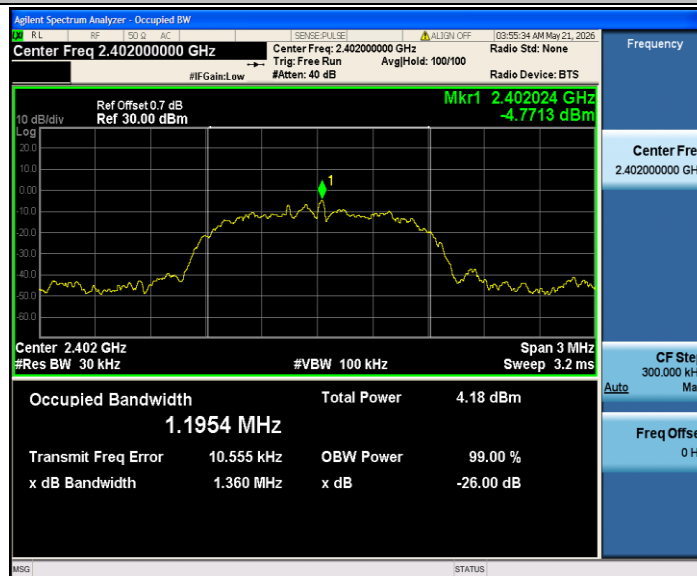
2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix C: Maximum conducted output power

Test Result

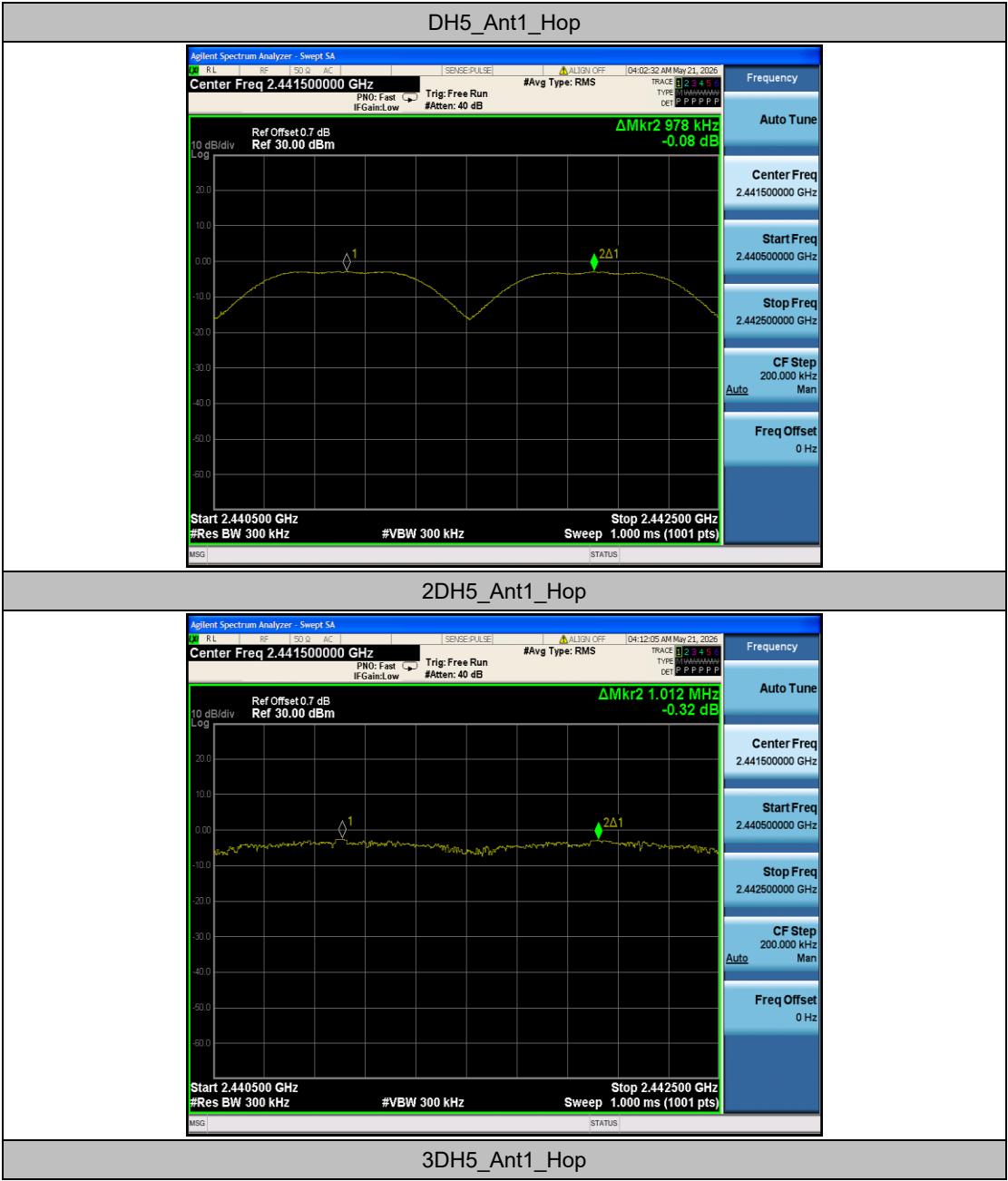
Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	-2.39	≤20.97	PASS
		2441	-2.47	≤20.97	PASS
		2480	-2.44	≤20.97	PASS
2DH5	Ant1	2402	0.19	≤20.97	PASS
		2441	0.11	≤20.97	PASS
		2480	0.25	≤20.97	PASS
3DH5	Ant1	2402	0.65	≤20.97	PASS
		2441	0.49	≤20.97	PASS
		2480	0.59	≤20.97	PASS

Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.978	≥ 0.960	PASS
2DH5	Ant1	Hop	1.012	≥ 0.892	PASS
3DH5	Ant1	Hop	0.996	≥ 0.872	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	0.407	320	0.13	≤0.4	PASS
DH3	Ant1	Hop	1.662	162	0.269	≤0.4	PASS
DH5	Ant1	Hop	2.910	125	0.364	≤0.4	PASS
2DH1	Ant1	Hop	0.415	319	0.132	≤0.4	PASS
2DH3	Ant1	Hop	1.668	154	0.257	≤0.4	PASS
2DH5	Ant1	Hop	2.916	107	0.312	≤0.4	PASS
3DH1	Ant1	Hop	0.415	316	0.131	≤0.4	PASS
3DH3	Ant1	Hop	1.664	156	0.26	≤0.4	PASS
3DH5	Ant1	Hop	2.917	113	0.33	≤0.4	PASS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.441000000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Trig Delay 2.000 ms
Trig: Video
#Ave Type: RMS
#Atten: 40 dB

Frequency

Auto Tune

Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz
Auto Man

Freq Offset 0 Hz

2A1

ΔMkr2 407.0 μs
21.14 dB

Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Sweep 10.13 ms (8000 pts)

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.441000000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Trig Delay 0.000 s
Trig: Video
#Ave Type: RMS
#Atten: 40 dB

Frequency

Auto Tune

Center Freq 2.441000000 GHz

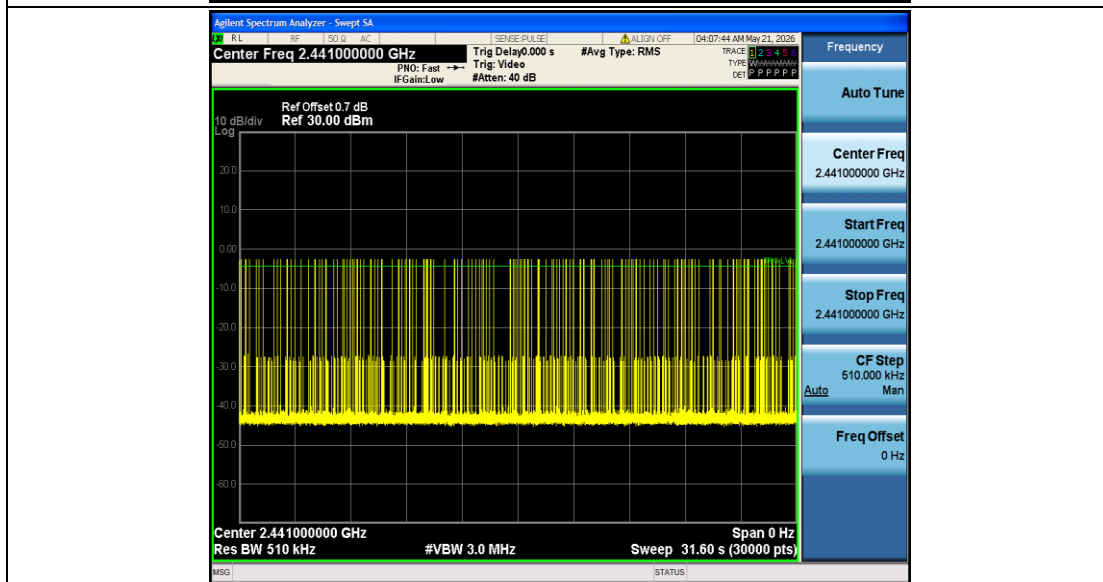
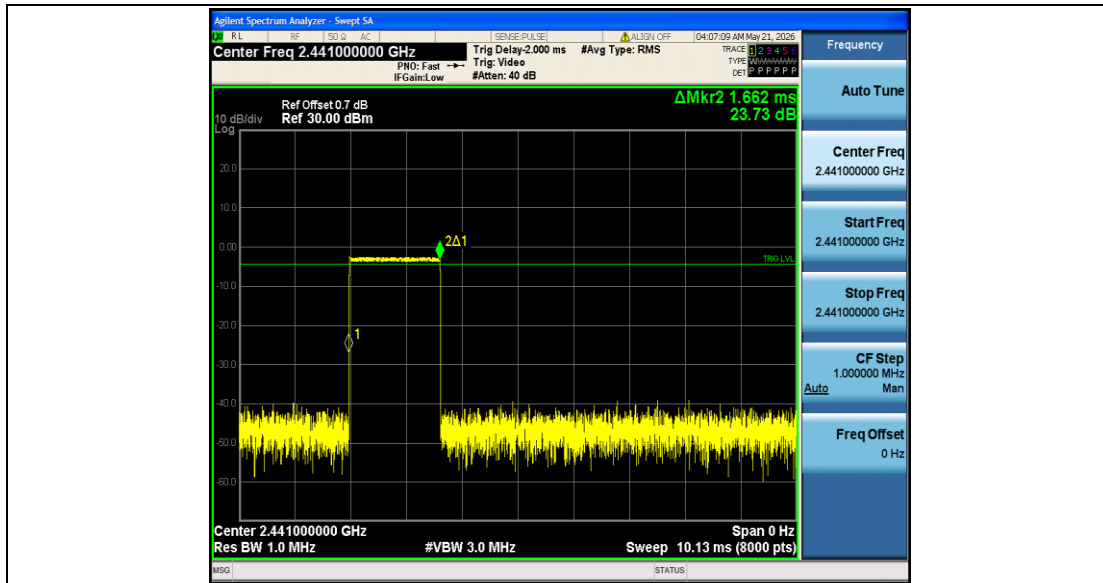
Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

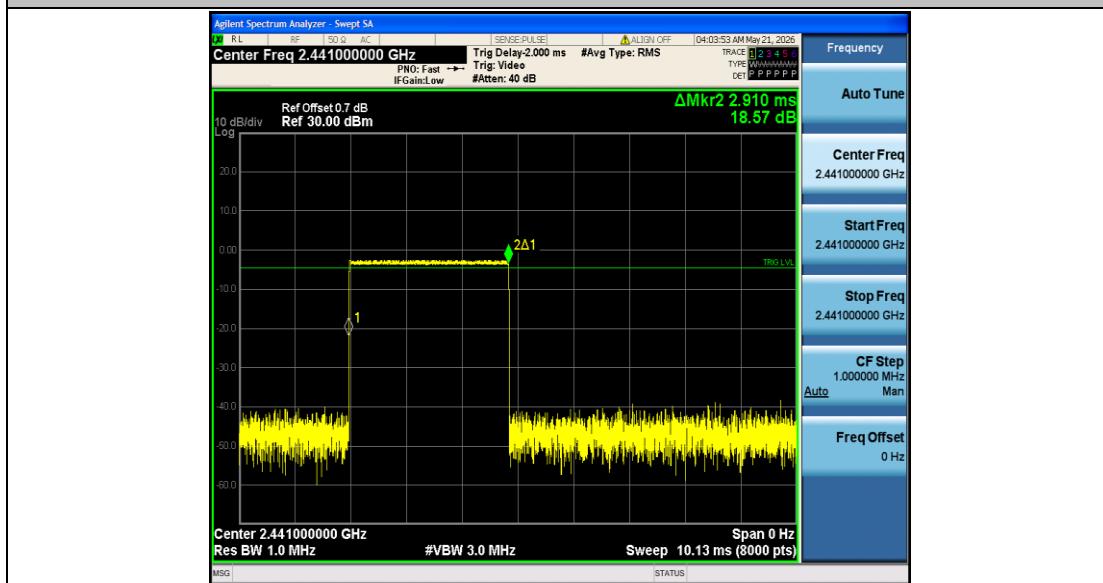
CF Step 510.000 kHz
Auto Man

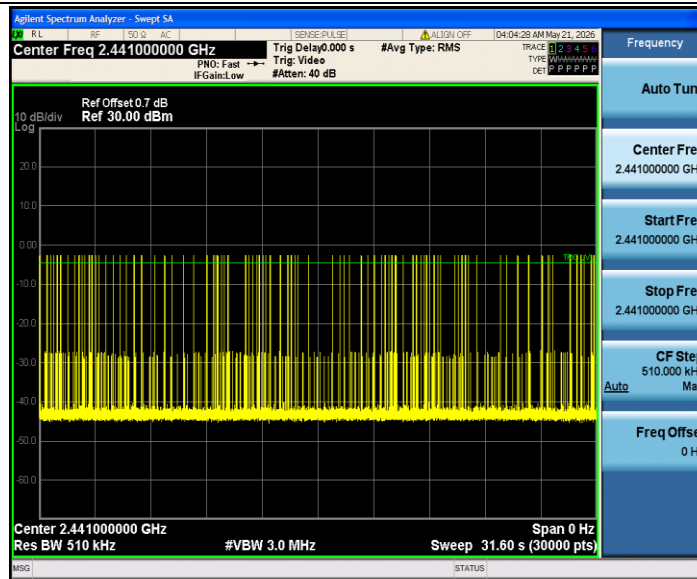
Freq Offset 0 Hz

Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Sweep 31.60 s (30000 pts)

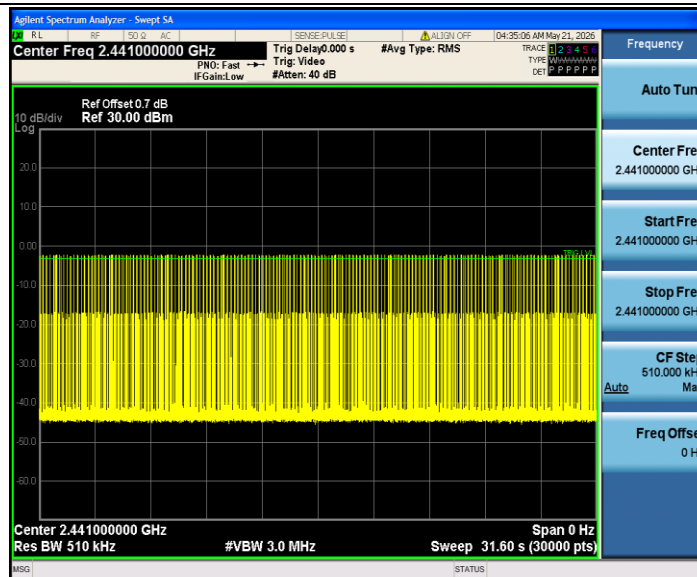
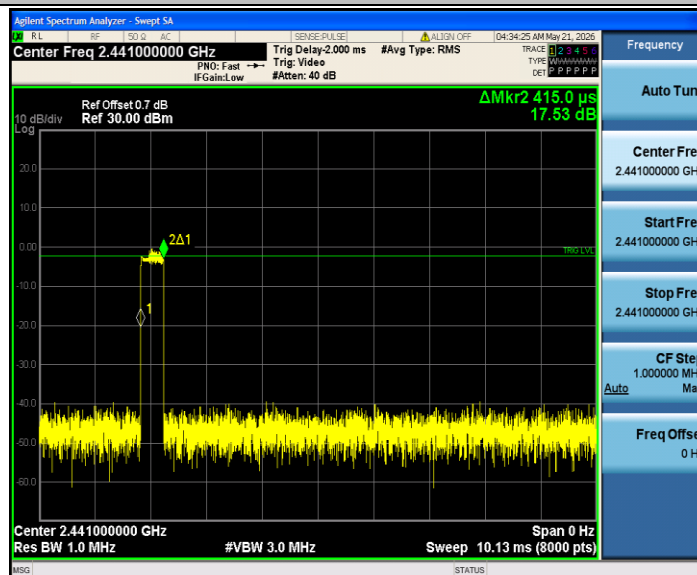


DH5_Ant1_Hop

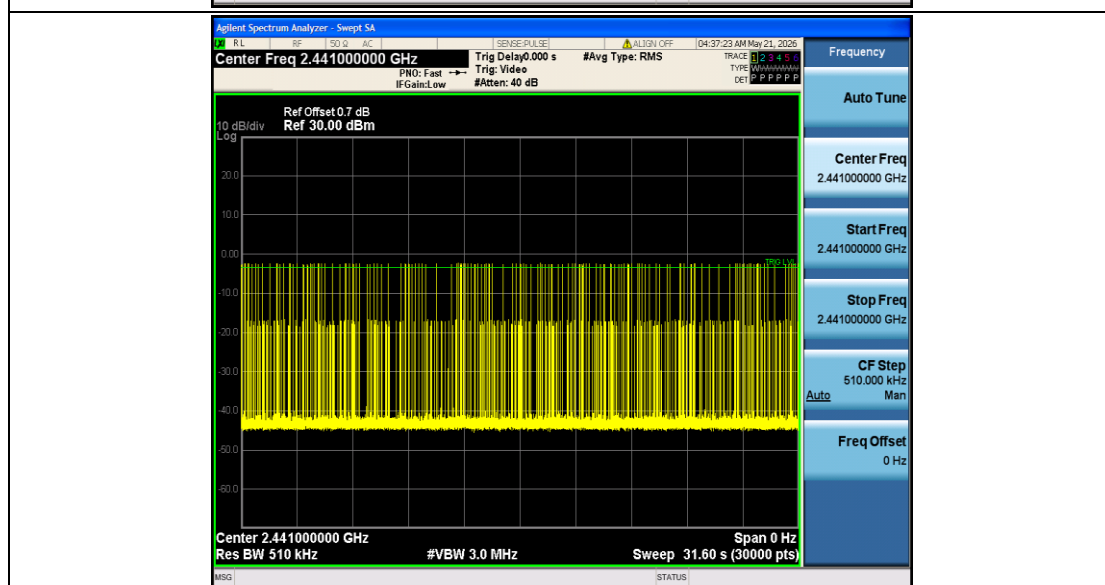
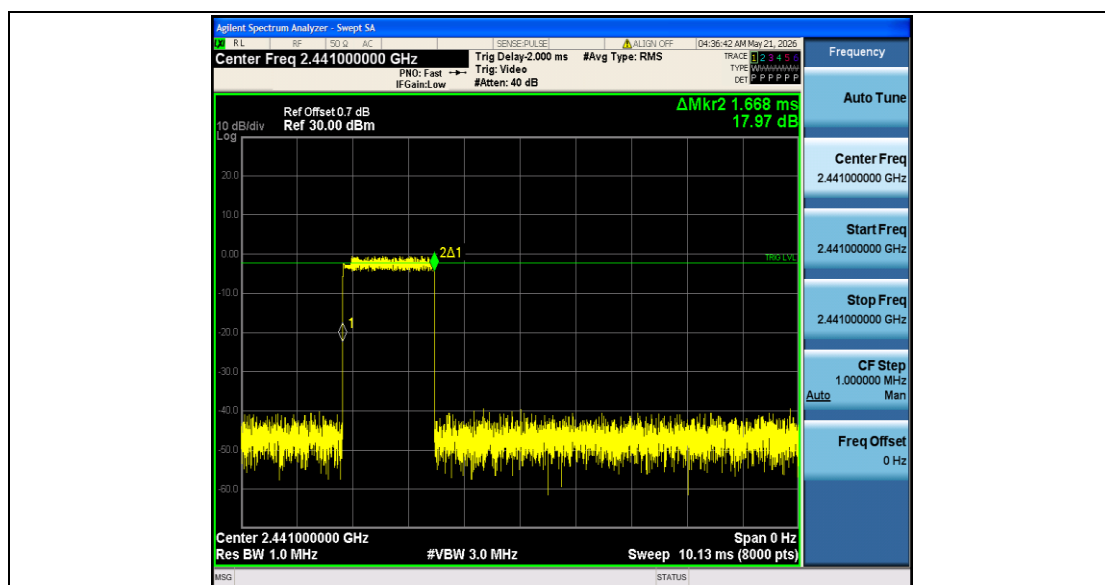




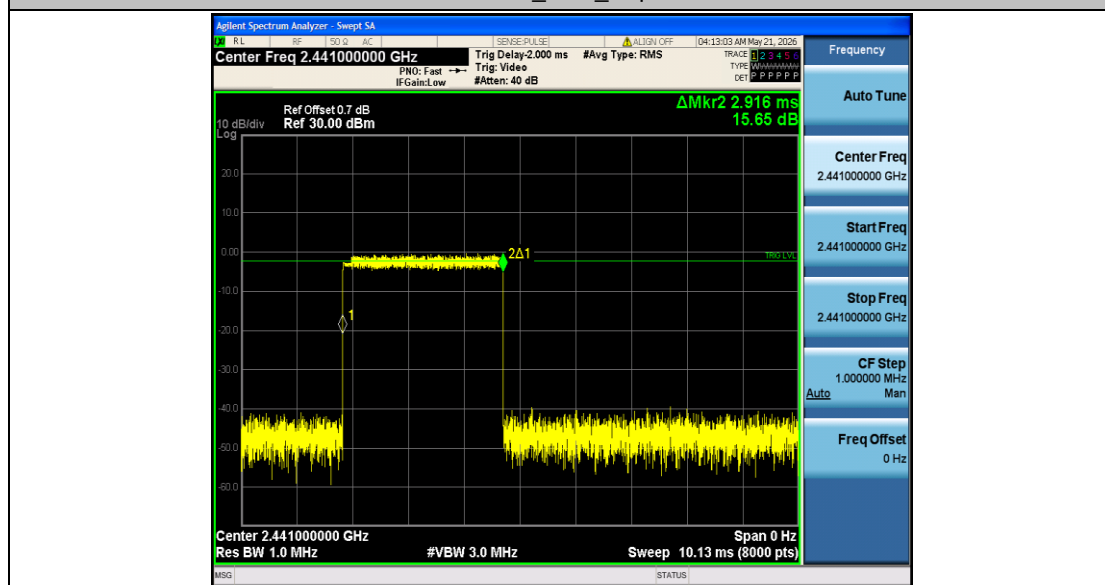
2DH1_Ant1_Hop

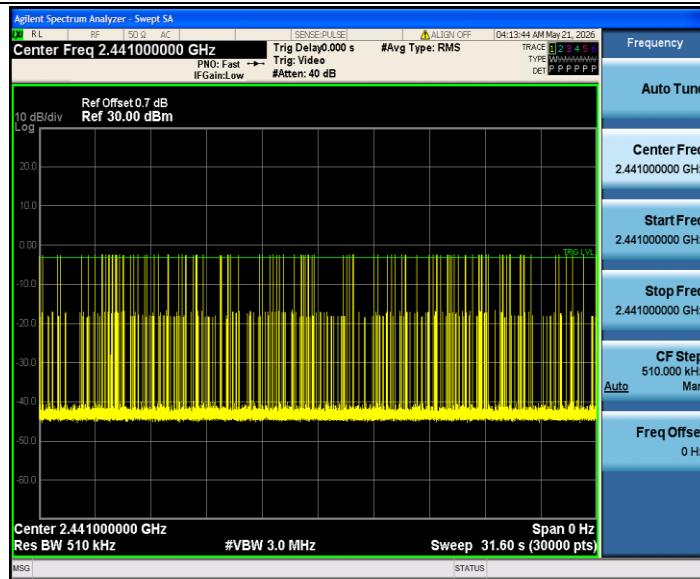


2DH3_Ant1_Hop

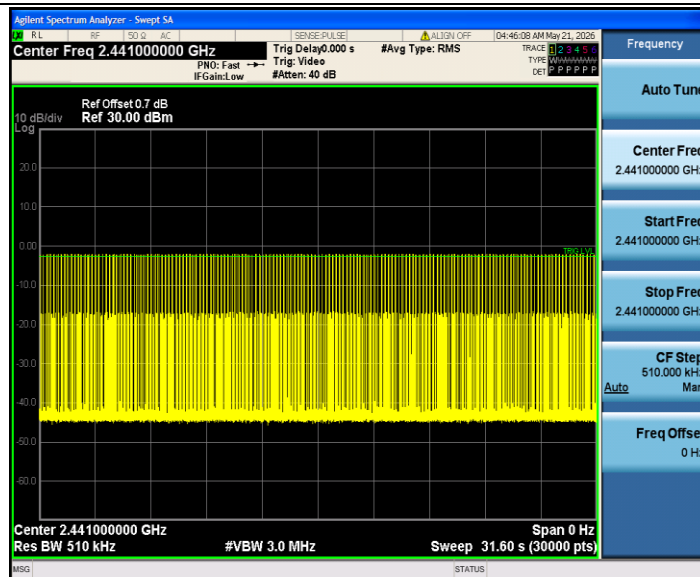
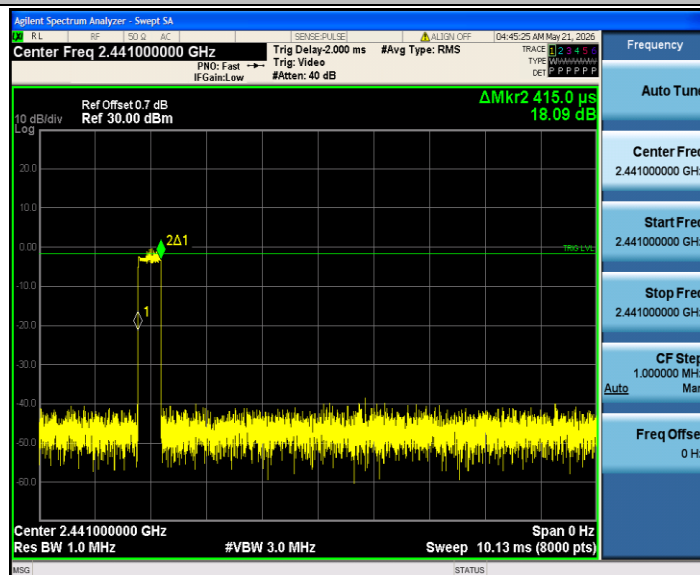


2DH5_Ant1_Hop

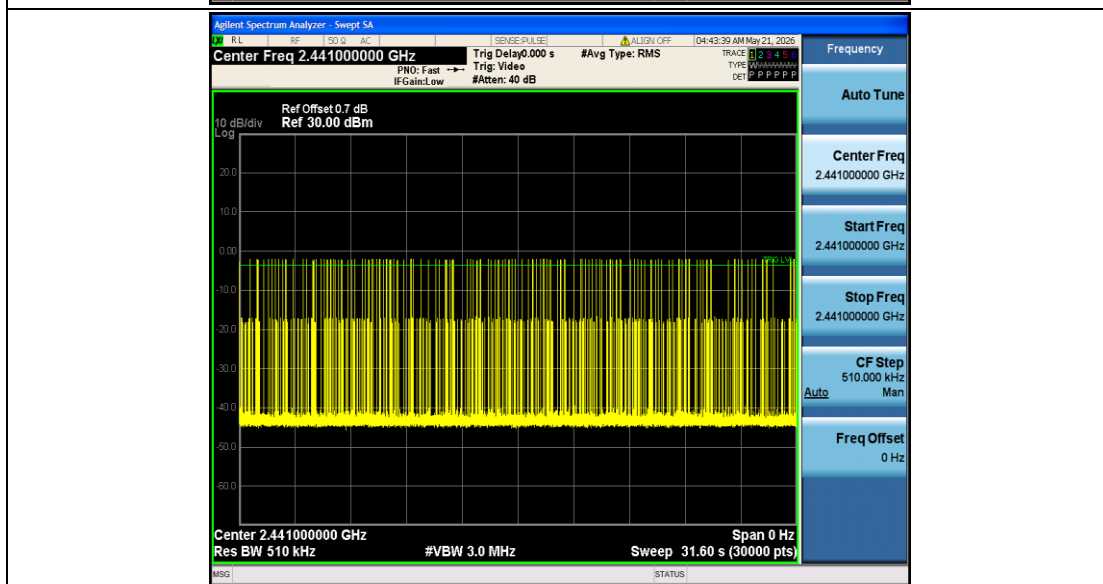
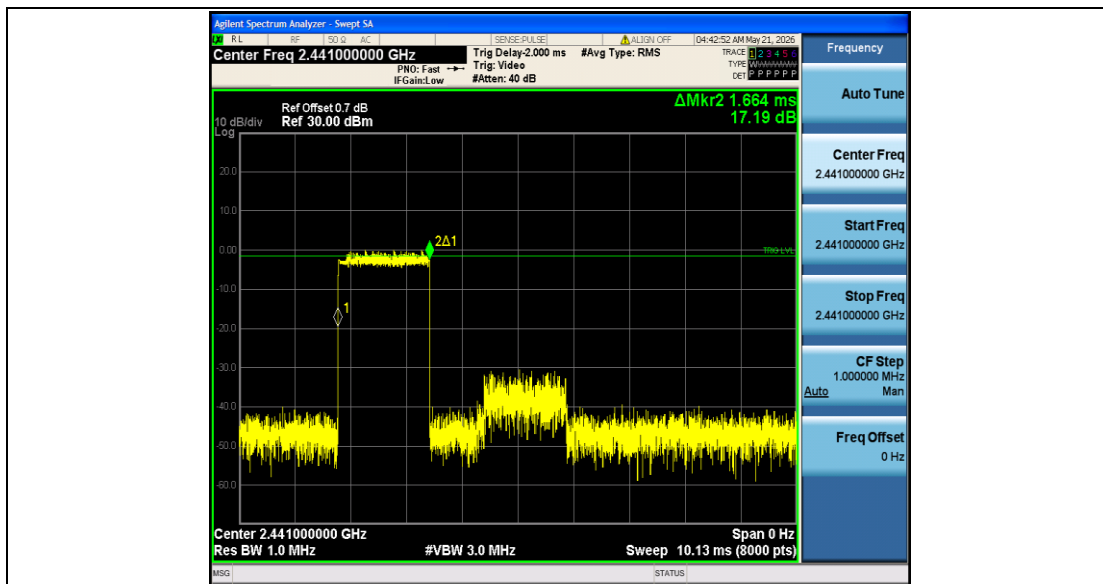




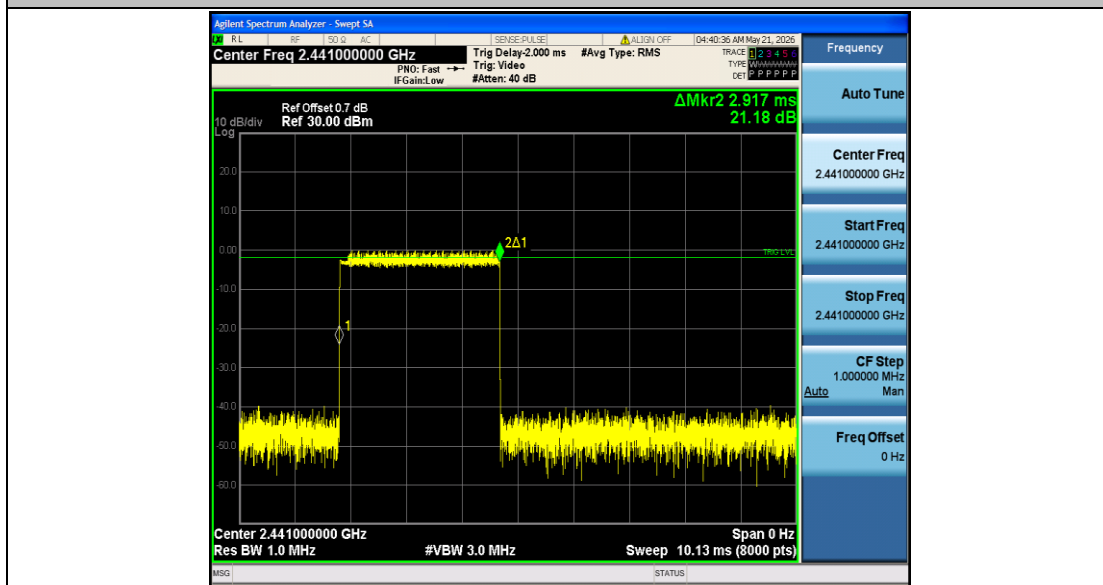
3DH1_Ant1_Hop

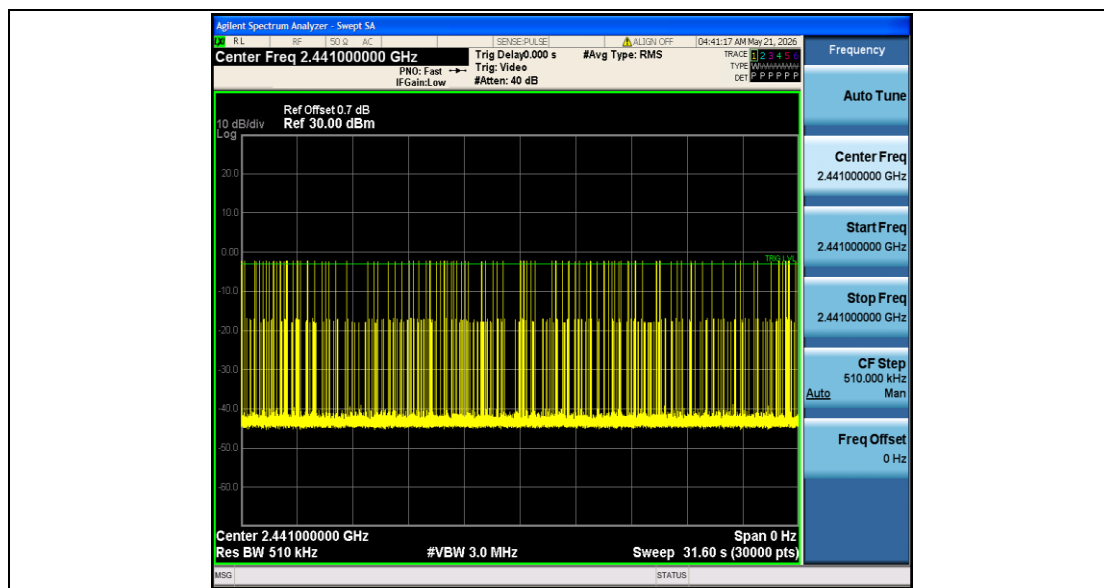


3DH3_Ant1_Hop



3DH5_Ant1_Hop



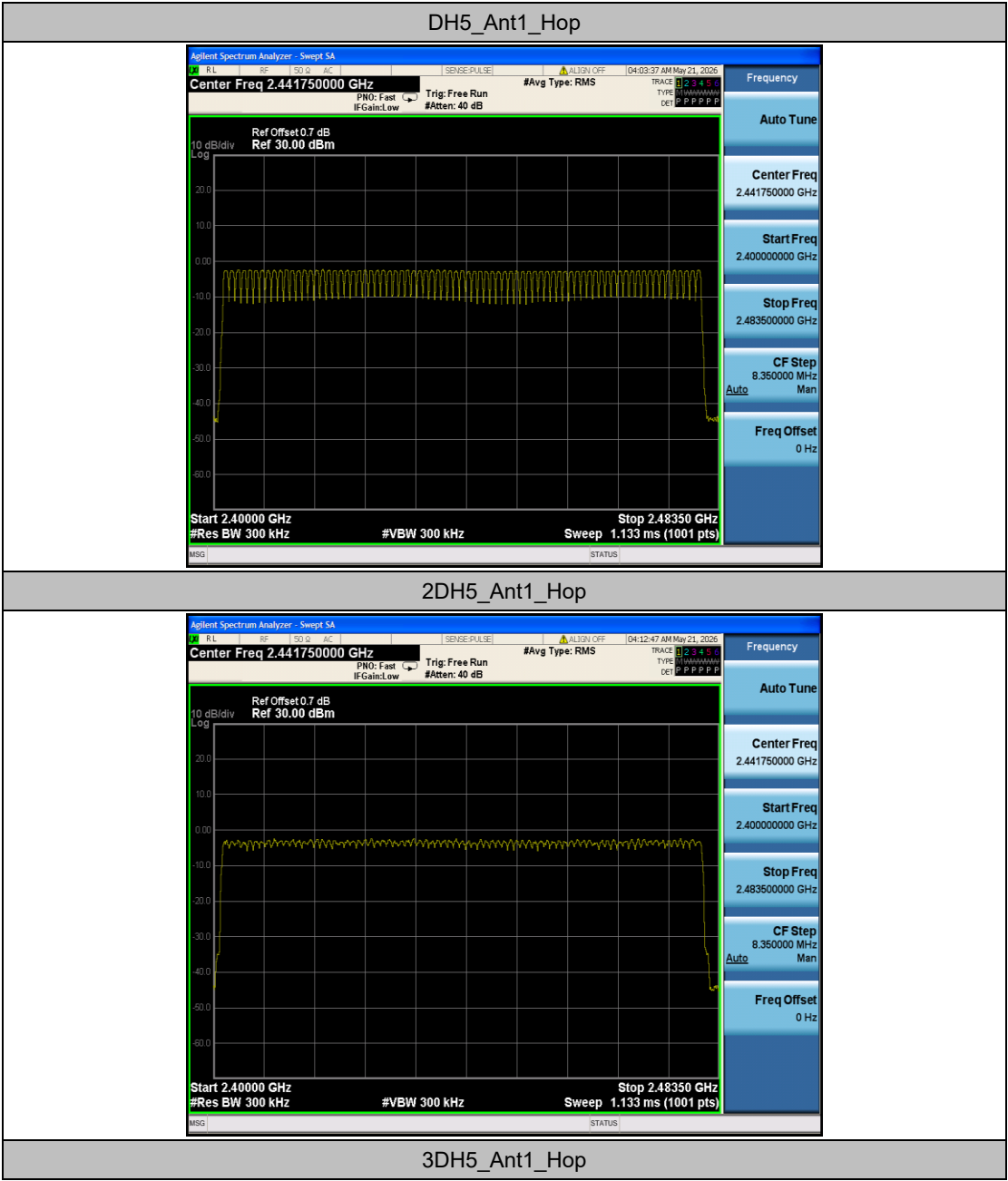


Appendix F: Number of hopping channels

Test Result

TestMode	Antenna	Freq(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

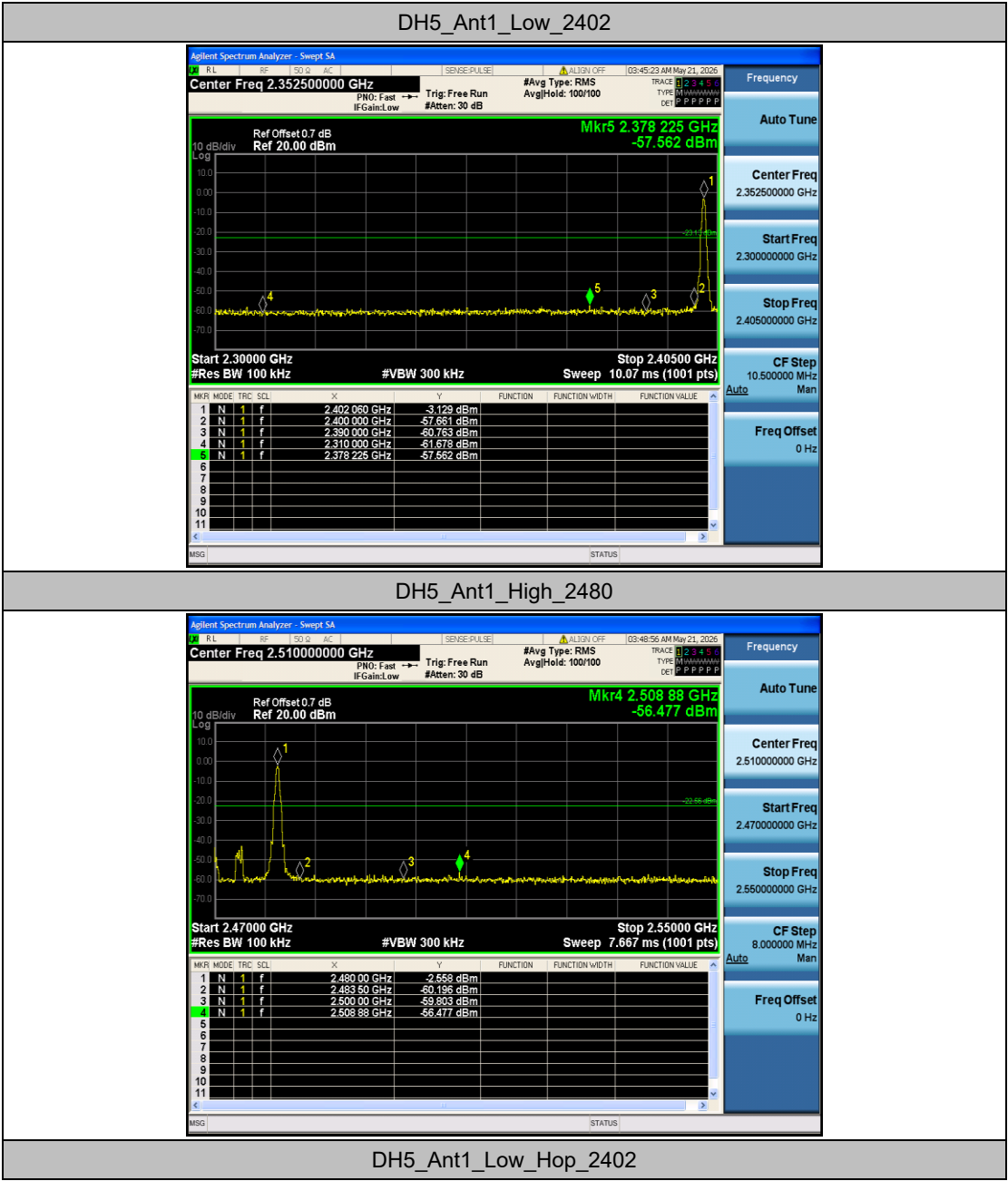


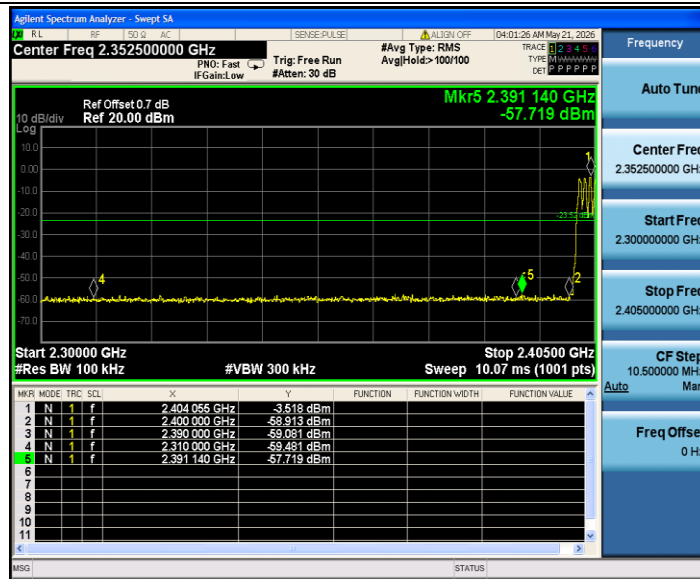
Appendix G: Band edge measurements

Test Result

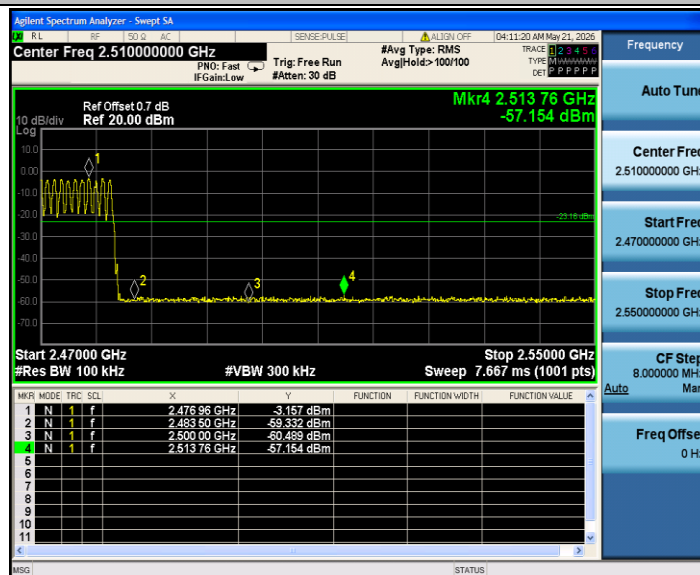
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-3.13	-57.56	≤-23.13	PASS
		High	2480	-2.56	-56.48	≤-22.56	PASS
		Low	Hop_2402	-3.52	-57.72	≤-23.52	PASS
		High	Hop_2480	-3.16	-57.15	≤-23.16	PASS
2DH5	Ant1	Low	2402	-3.58	-54.3	≤-23.58	PASS
		High	2480	-4.04	-56.55	≤-24.04	PASS
		Low	Hop_2402	-5.66	-57.34	≤-25.66	PASS
		High	Hop_2480	-3.32	-56.76	≤-23.32	PASS
3DH5	Ant1	Low	2402	-4.60	-55.85	≤-24.6	PASS
		High	2480	-3.56	-56.83	≤-23.56	PASS
		Low	Hop_2402	-4.95	-57.06	≤-24.95	PASS
		High	Hop_2480	-3.75	-57.49	≤-23.75	PASS

Test Graphs

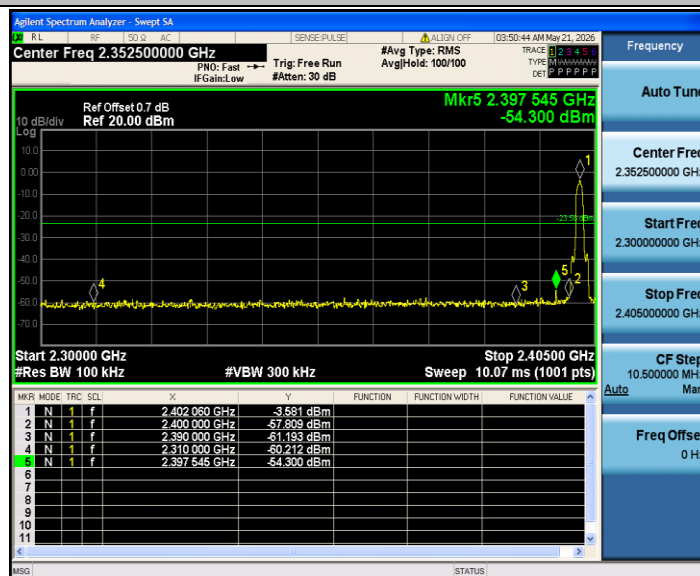




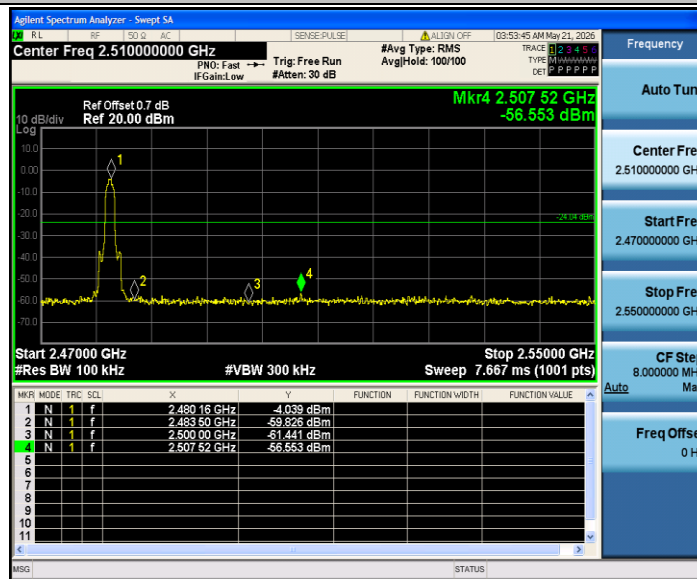
DH5_Ant1_High_Hop_2480



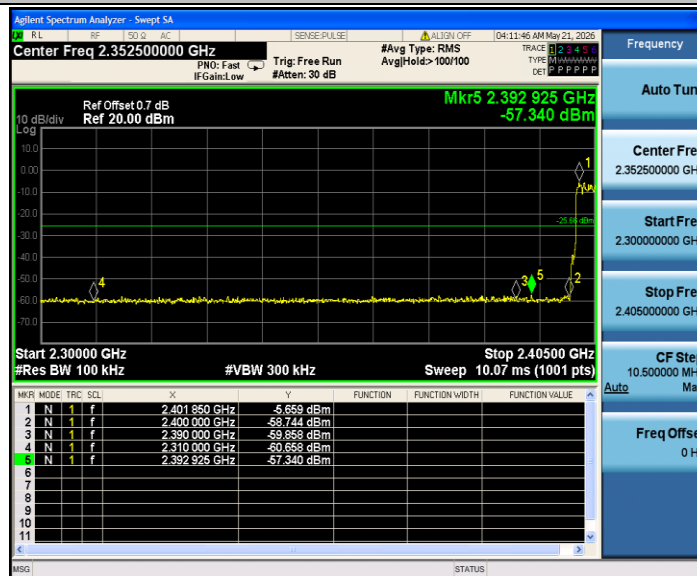
2DH5_Ant1_Low_2402



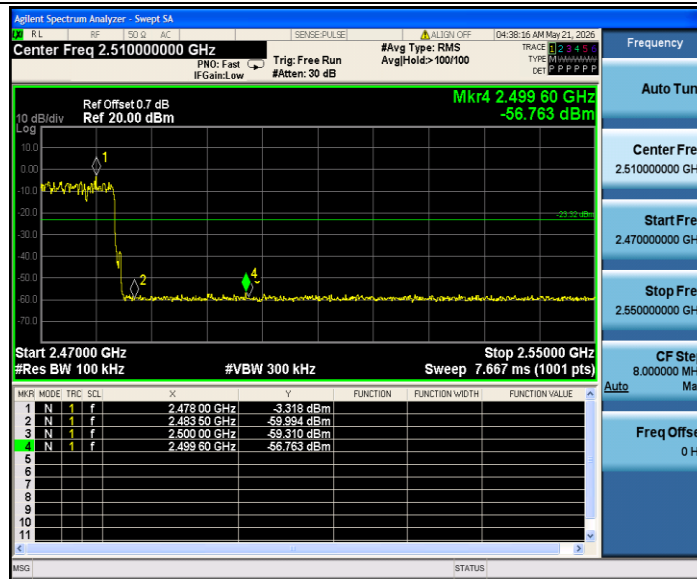
2DH5_Ant1_High_2480



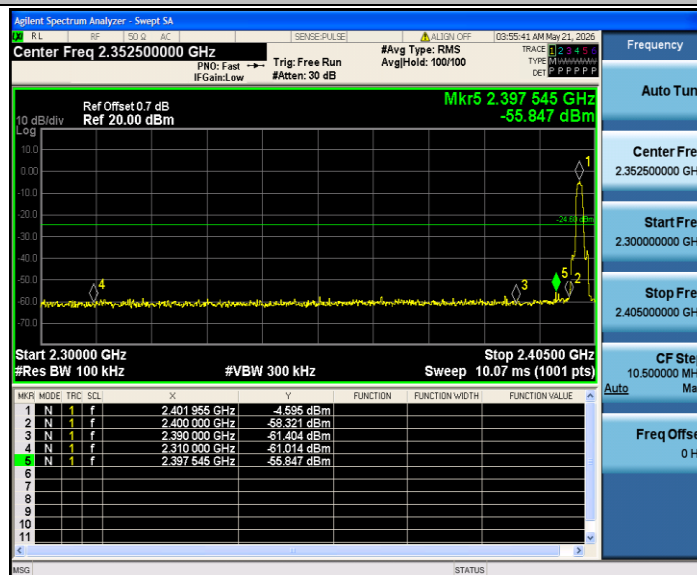
2DH5_Ant1_Low_Hop_2402



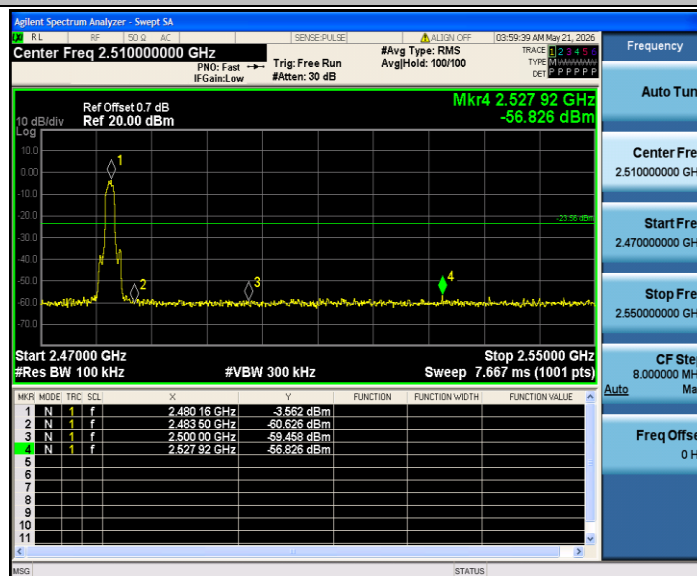
2DH5_Ant1_High_Hop_2480



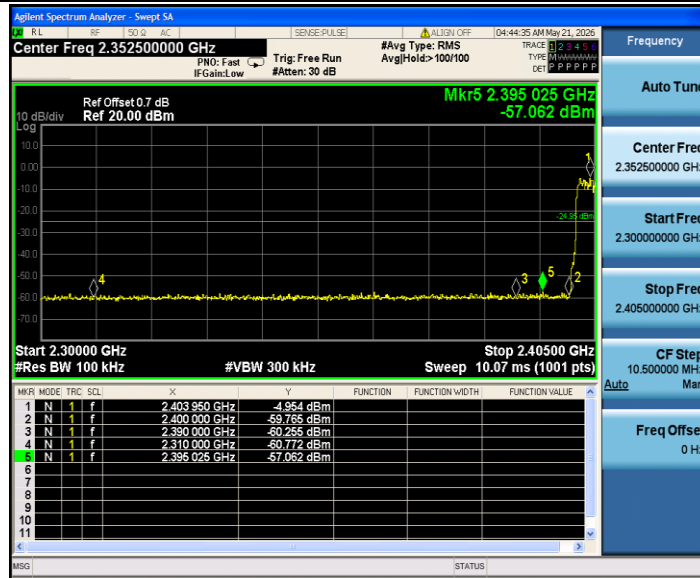
3DH5_Ant1_Low_2402



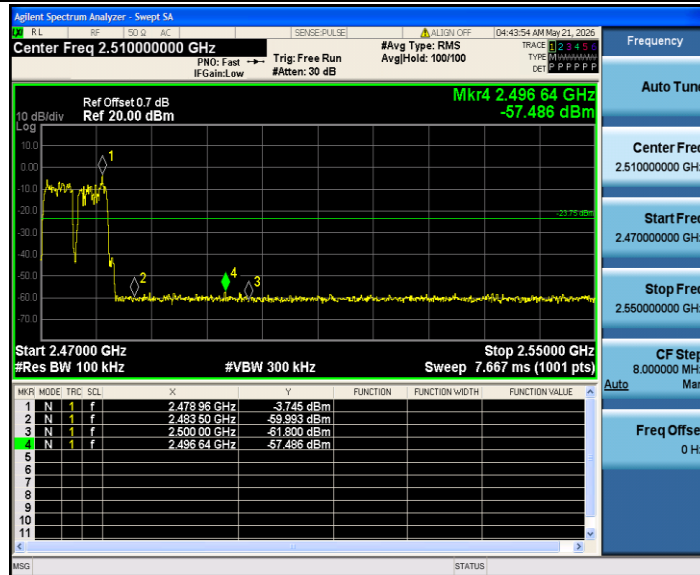
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480

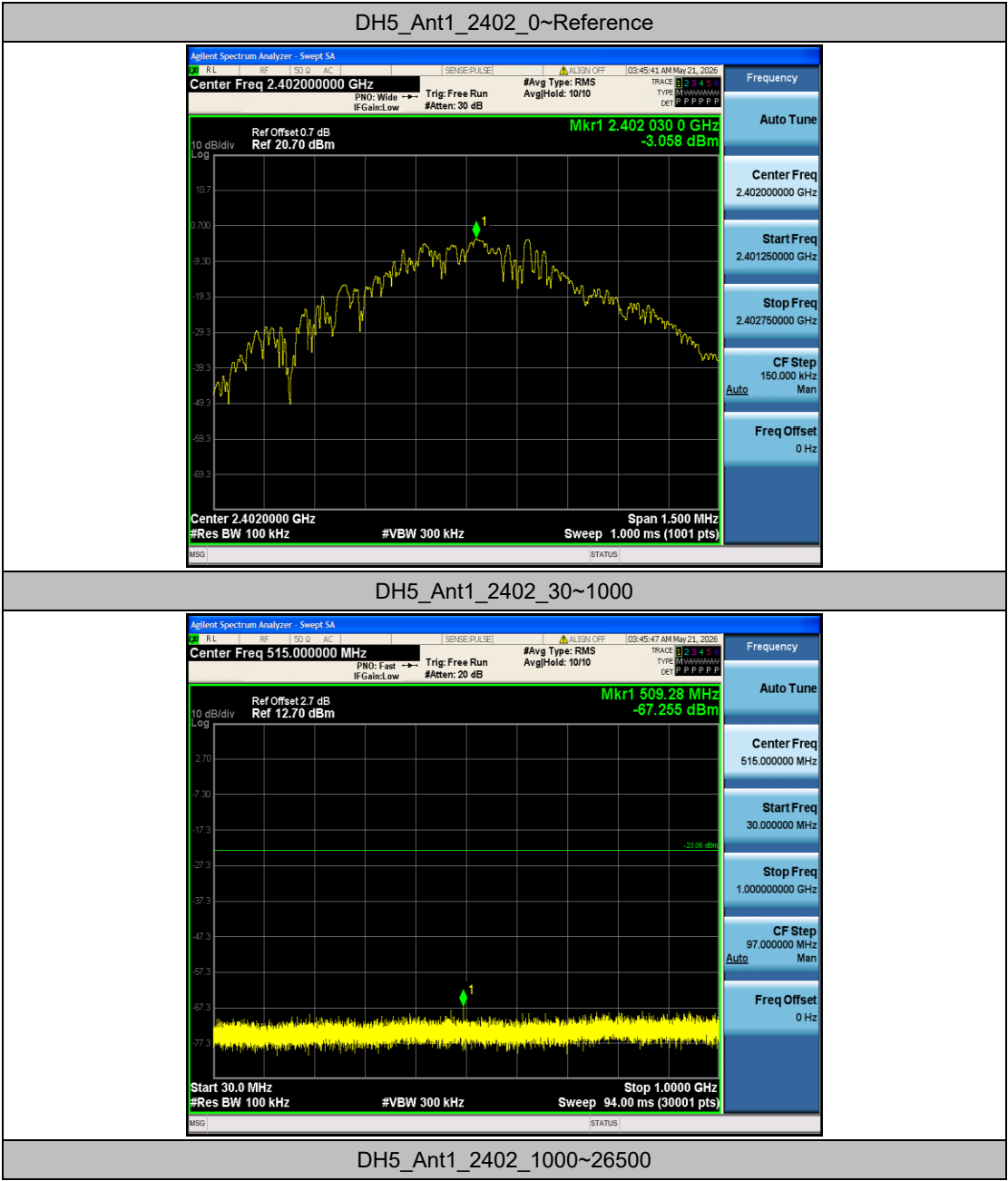


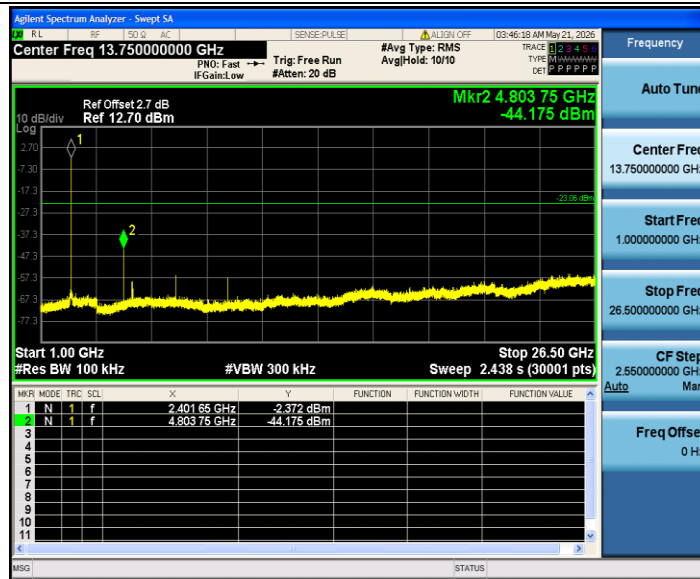
Appendix H: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-3.06	-3.06	---	PASS
			30~1000	-3.06	-67.26	≤-23.06	PASS
			1000~26500	-3.06	-44.18	≤-23.06	PASS
		2441	Reference	-3.71	-3.71	---	PASS
			30~1000	-3.71	-66.91	≤-23.71	PASS
			1000~26500	-3.71	-45.47	≤-23.71	PASS
		2480	Reference	-3.72	-3.72	---	PASS
			30~1000	-3.72	-67.72	≤-23.72	PASS
			1000~26500	-3.72	-45.64	≤-23.72	PASS
2DH5	Ant1	2402	Reference	-4.42	-4.42	---	PASS
			30~1000	-4.42	-68.02	≤-24.42	PASS
			1000~26500	-4.42	-47.47	≤-24.42	PASS
		2441	Reference	-4.05	-4.05	---	PASS
			30~1000	-4.05	-67.02	≤-24.05	PASS
			1000~26500	-4.05	-46.36	≤-24.05	PASS
		2480	Reference	-6.35	-6.35	---	PASS
			30~1000	-6.35	-67.26	≤-26.35	PASS
			1000~26500	-6.35	-46.16	≤-26.35	PASS
3DH5	Ant1	2402	Reference	-5.63	-5.63	---	PASS
			30~1000	-5.63	-67.91	≤-25.63	PASS
			1000~26500	-5.63	-45.88	≤-25.63	PASS
		2441	Reference	-3.65	-3.65	---	PASS
			30~1000	-3.65	-66.53	≤-23.65	PASS
			1000~26500	-3.65	-46.44	≤-23.65	PASS
		2480	Reference	-3.44	-3.44	---	PASS
			30~1000	-3.44	-67.59	≤-23.44	PASS
			1000~26500	-3.44	-48.84	≤-23.44	PASS

Test Graphs

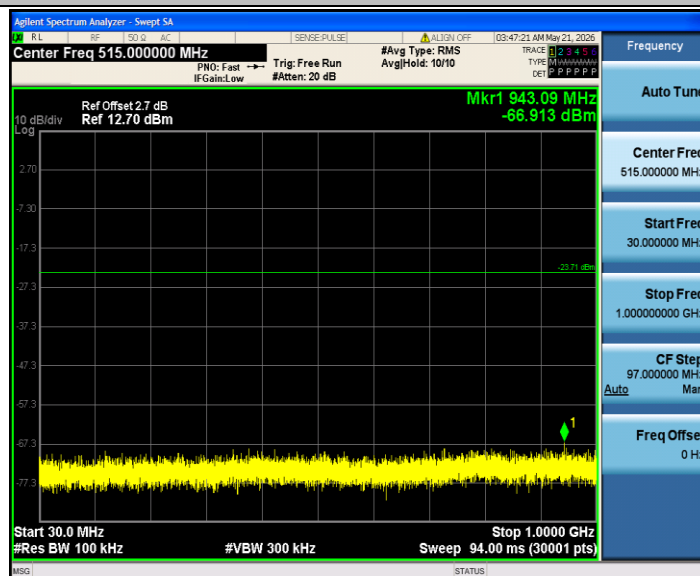




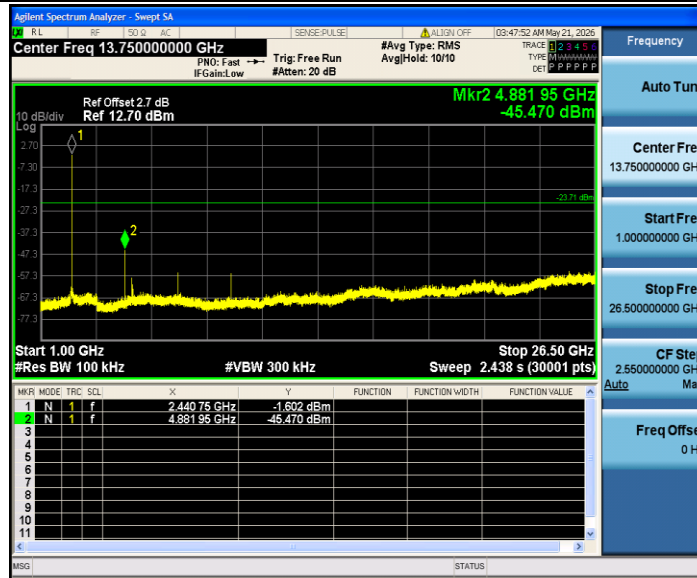
DH5_Ant1_2441_0~Reference



DH5_Ant1_2441_30~1000



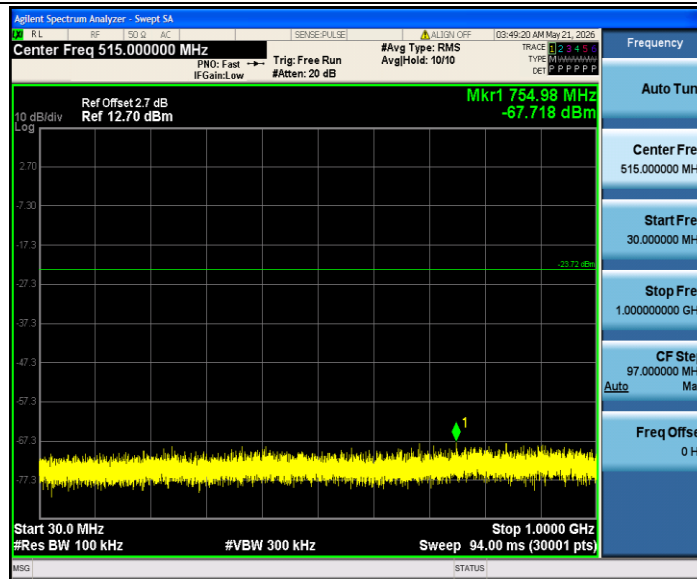
DH5_Ant1_2441_1000~26500



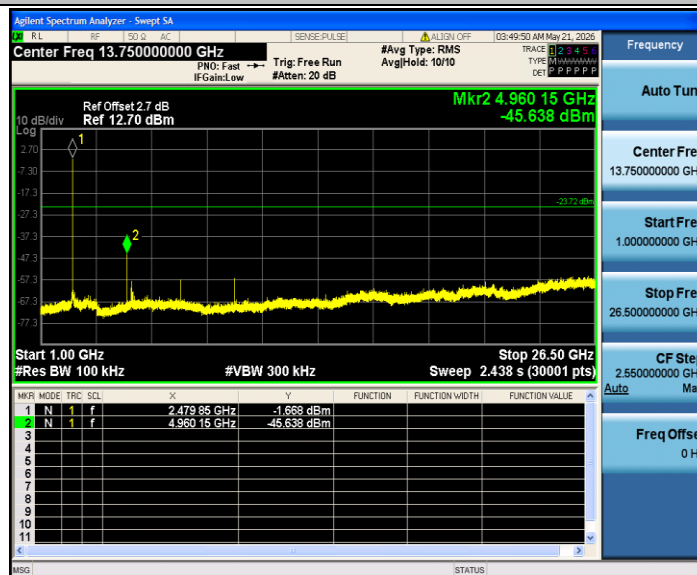
DH5_Ant1_2480_0~Reference



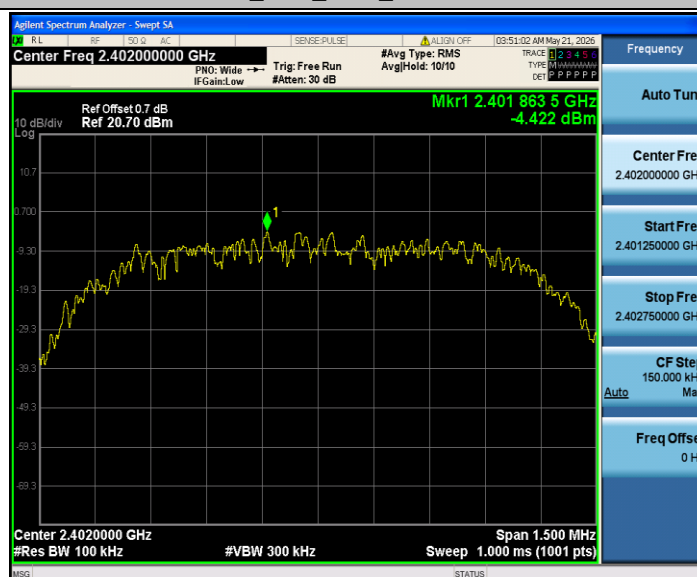
DH5_Ant1_2480_30~1000



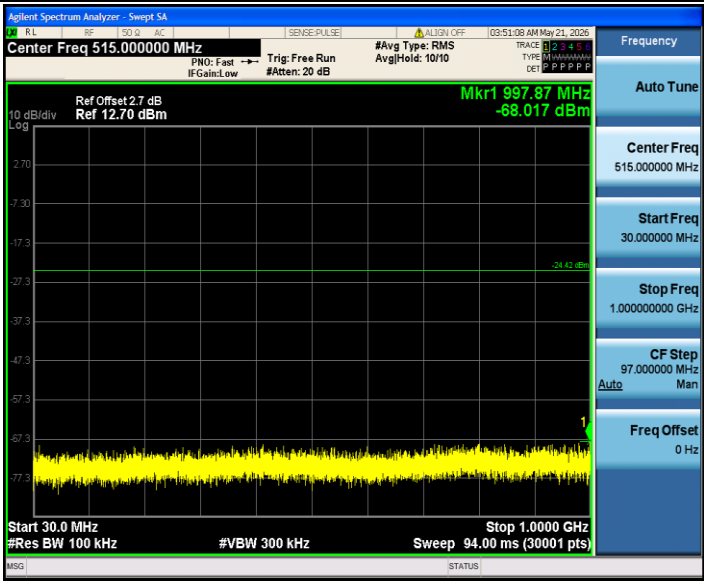
DH5_Ant1_2480_1000~26500



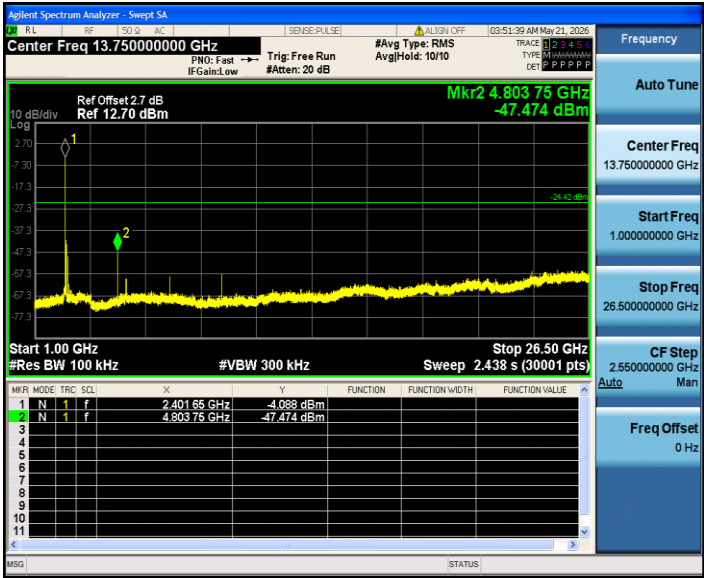
2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000



2DH5_Ant1_2402_1000~26500



2DH5_Ant1_2441_0~Reference