

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

Product Name: Sport Bluetooth Earbuds

Trade Mark: TREBLAB

Test Model: X-Open

FCC ID: 2A889-XOPEN

Environmental Conditions

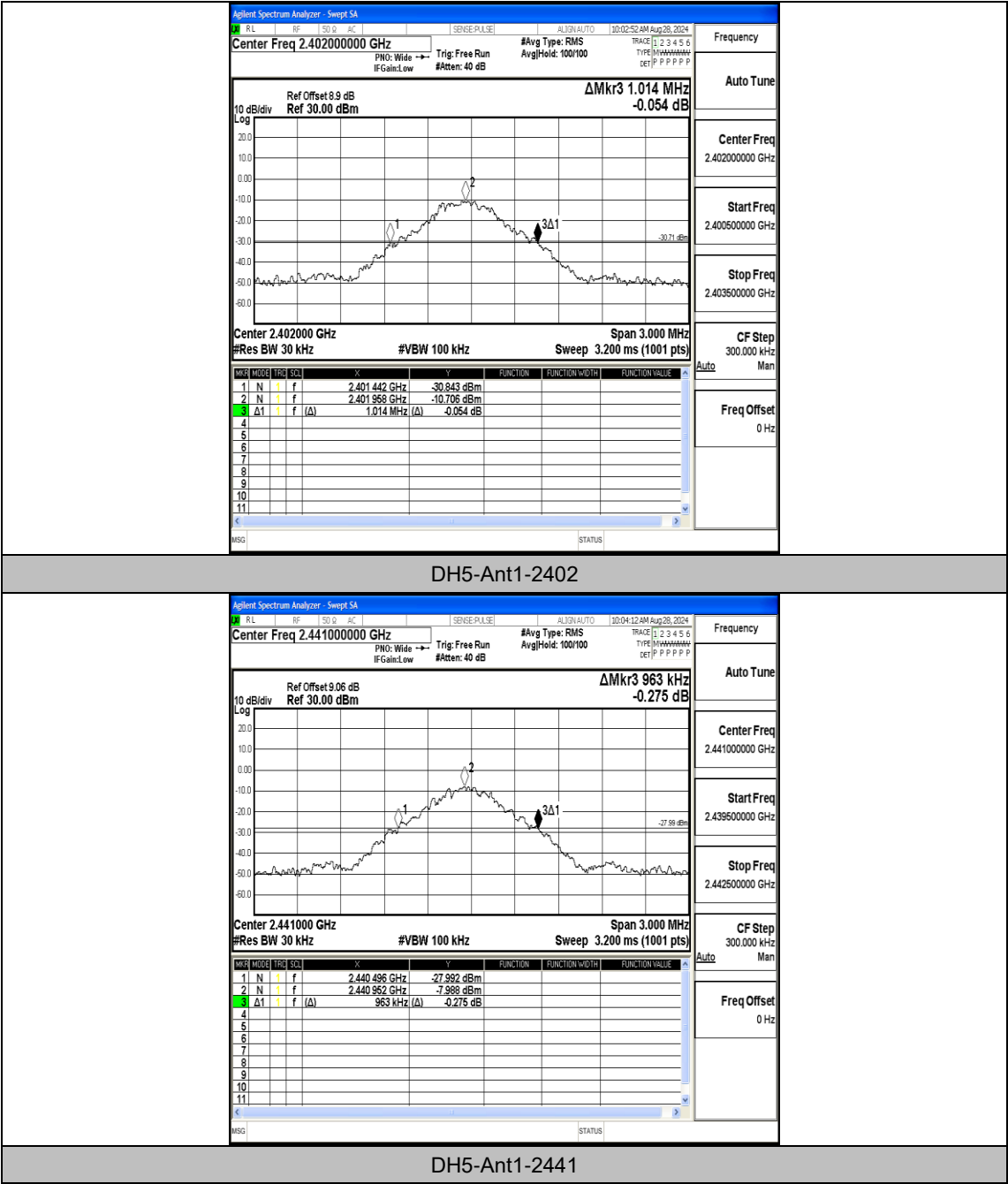
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Hugo Chen
NOTE	N/A

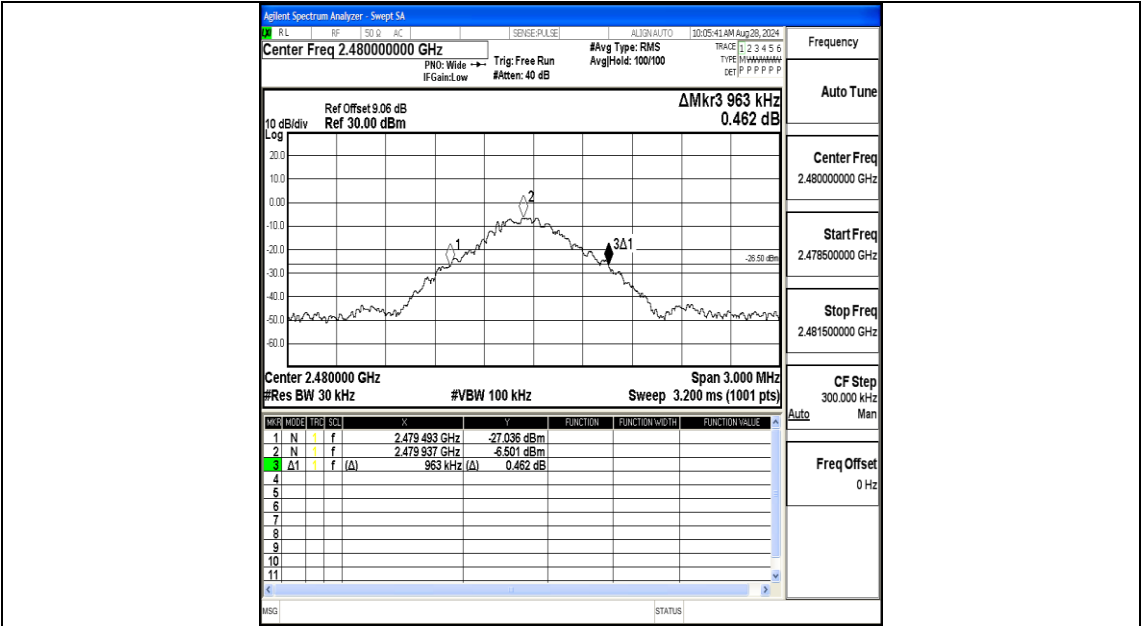
Appendix A: 20dB Emission Bandwidth

Test Result

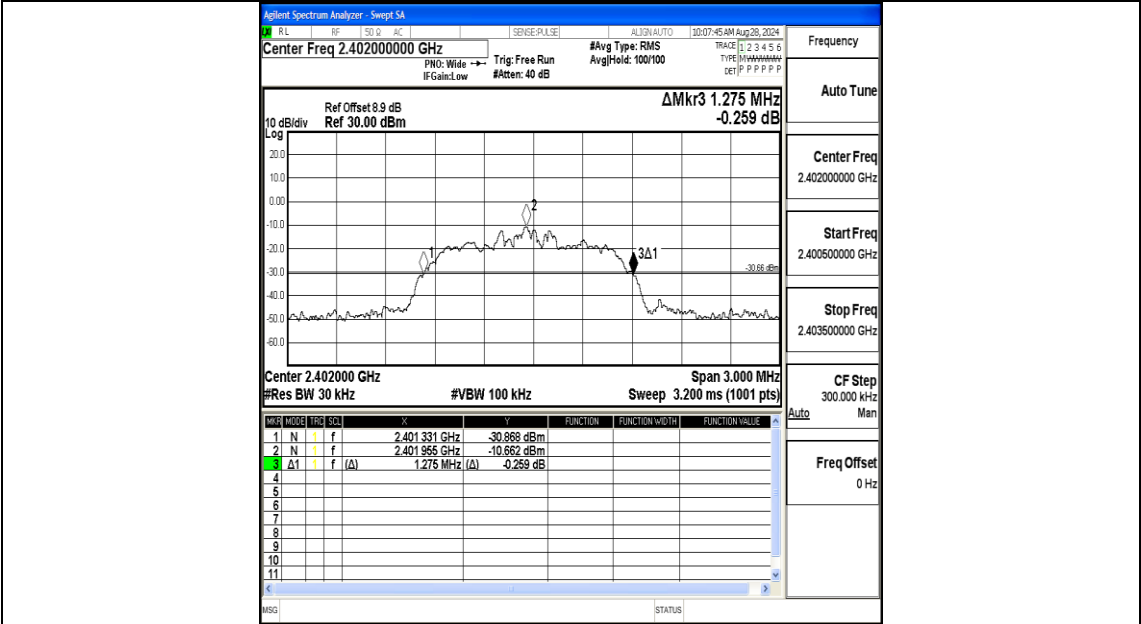
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.014	2401.442	2402.456	---	---
DH5	Ant1	2441	0.963	2440.496	2441.459	---	---
DH5	Ant1	2480	0.963	2479.493	2480.456	---	---
2DH5	Ant1	2402	1.275	2401.331	2402.606	---	---
2DH5	Ant1	2441	1.278	2440.331	2441.609	---	---
2DH5	Ant1	2480	1.323	2479.295	2480.618	---	---
3DH5	Ant1	2402	1.275	2401.325	2402.600	---	---
3DH5	Ant1	2441	1.293	2440.316	2441.609	---	---
3DH5	Ant1	2480	1.290	2479.313	2480.603	---	---

Test Graphs

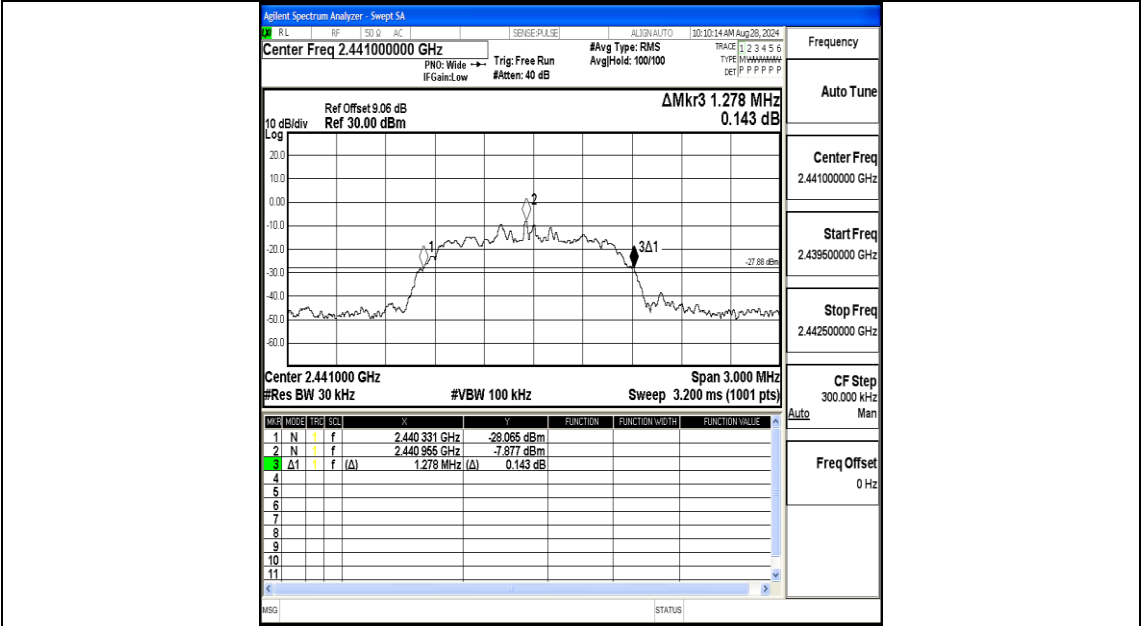




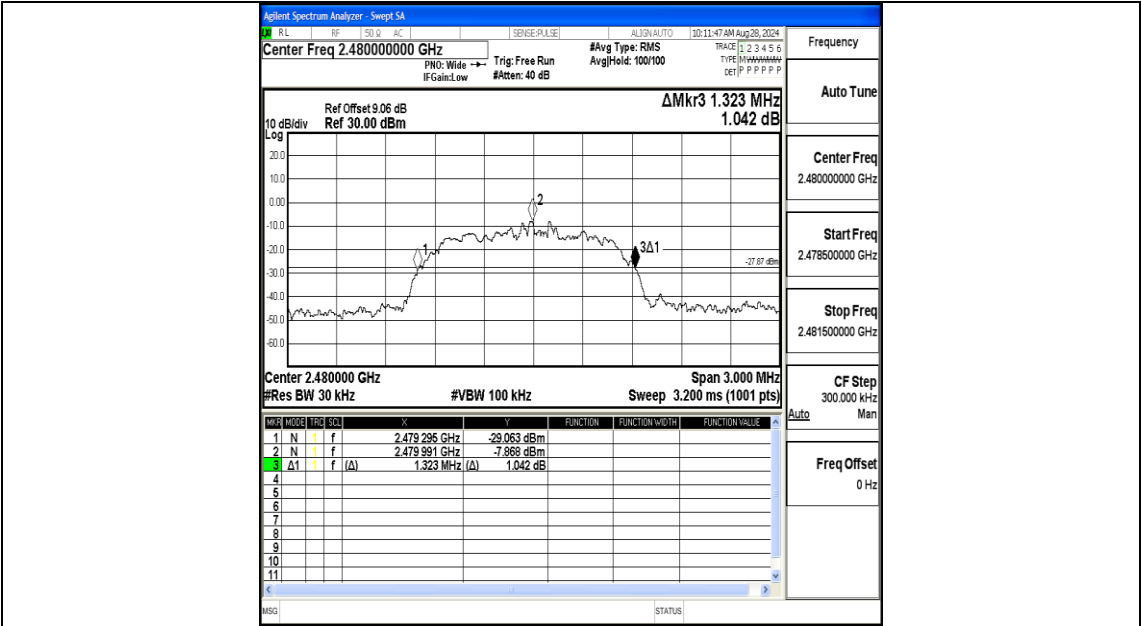
DH5-Ant1-2480



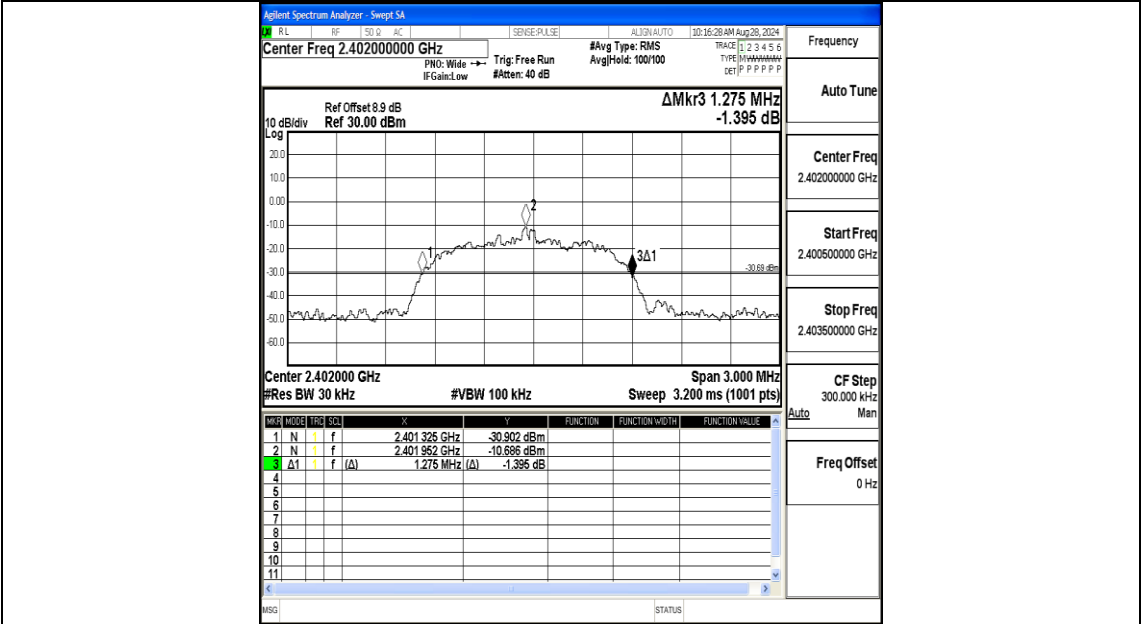
2DH5-Ant1-2402



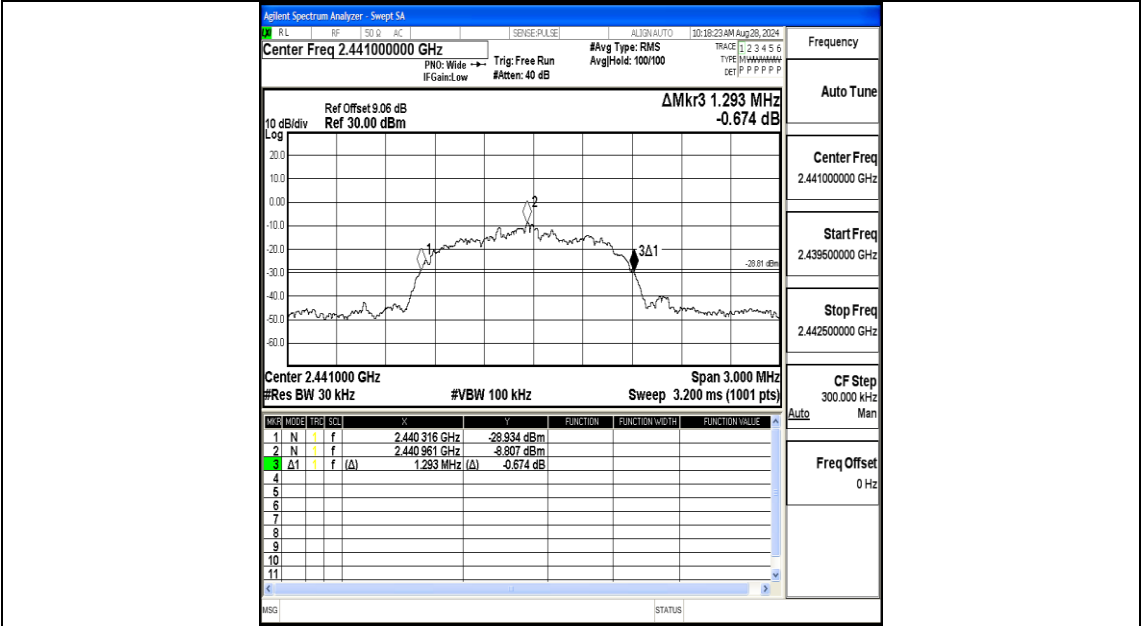
2DH5-Ant1-2441



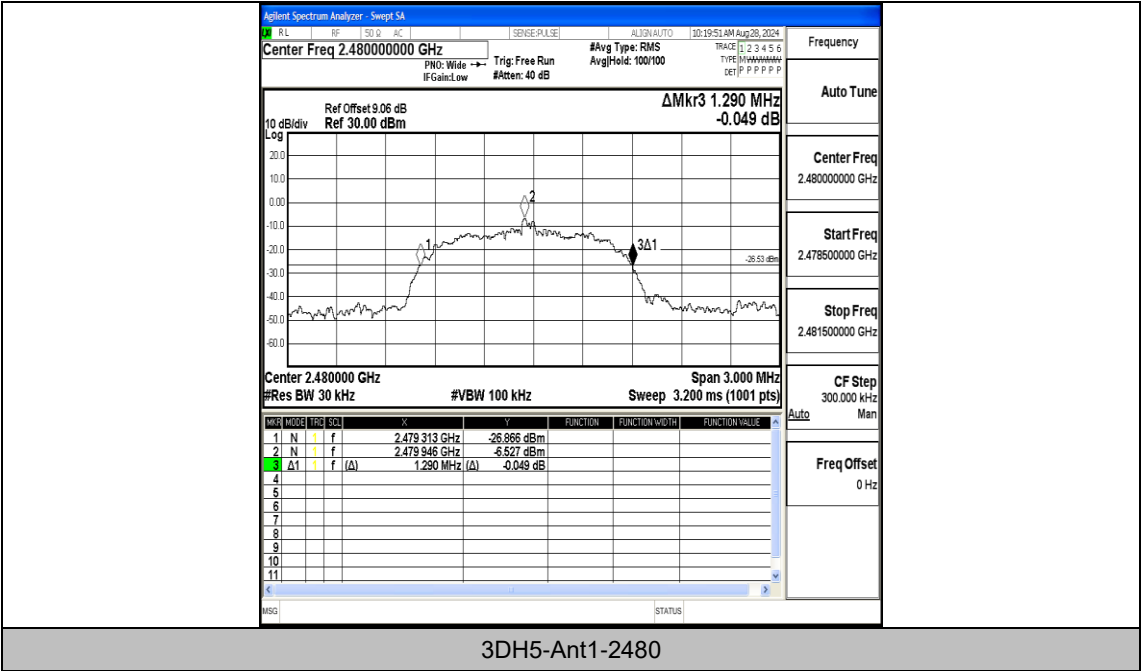
2DH5-Ant1-2480



3DH5-Ant1-2402



3DH5-Ant1-2441

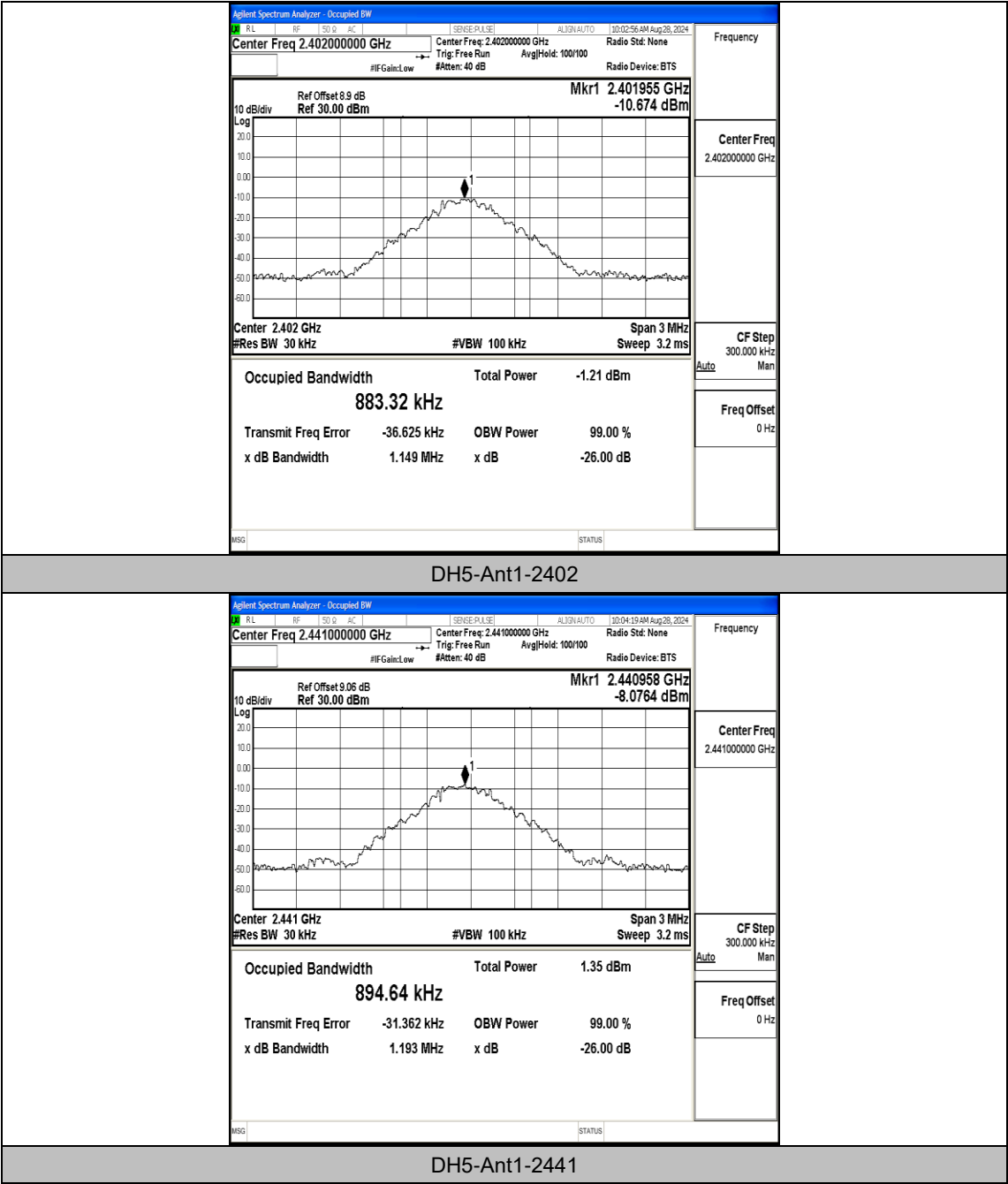


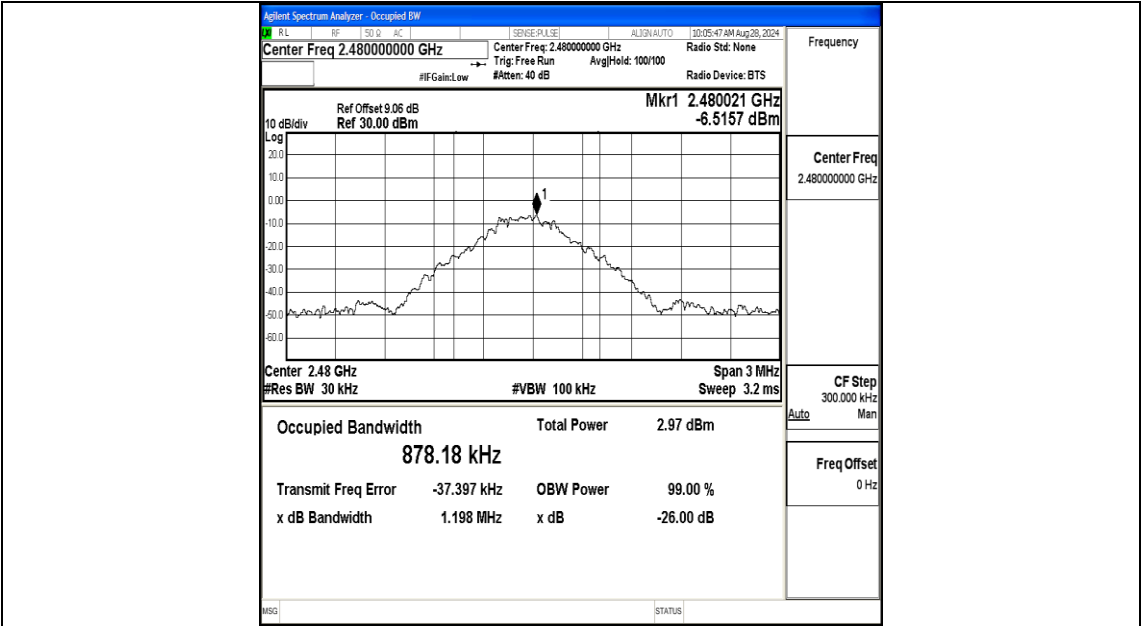
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.88332	2401.5217	2402.4050	---	---
DH5	Ant1	2441	0.89464	2440.5213	2441.4160	---	---
DH5	Ant1	2480	0.87818	2479.5235	2480.4017	---	---
2DH5	Ant1	2402	1.1917	2401.3661	2402.5578	---	---
2DH5	Ant1	2441	1.1917	2440.3628	2441.5545	---	---
2DH5	Ant1	2480	1.1860	2479.3697	2480.5557	---	---
3DH5	Ant1	2402	1.1916	2401.3638	2402.5554	---	---
3DH5	Ant1	2441	1.1945	2440.3618	2441.5563	---	---
3DH5	Ant1	2480	1.1793	2479.3667	2480.5460	---	---

Test Graphs

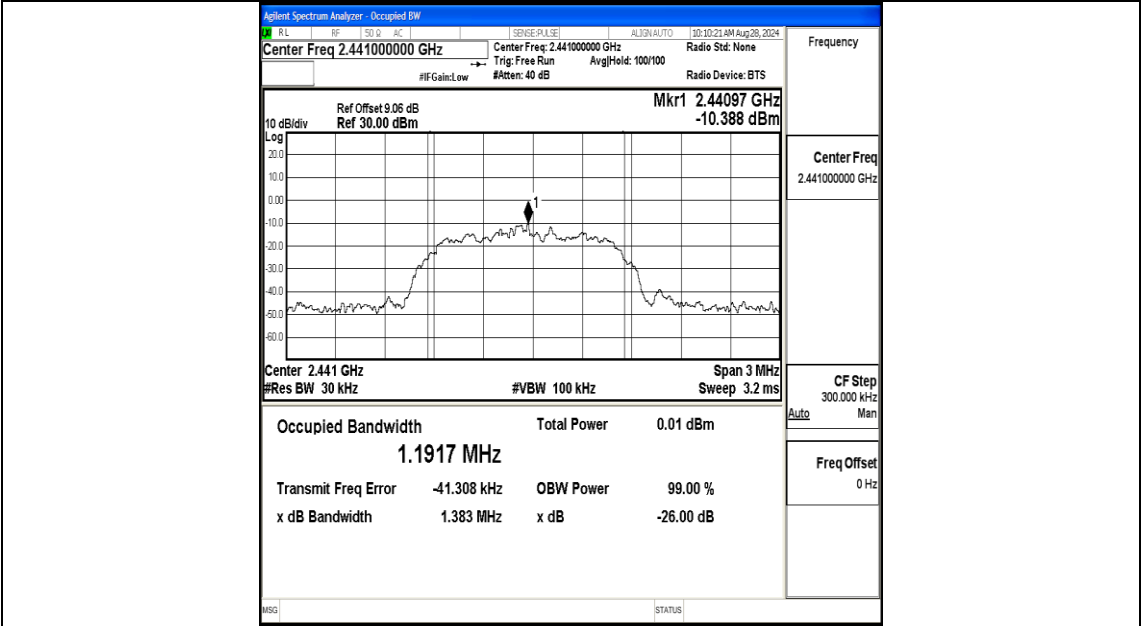




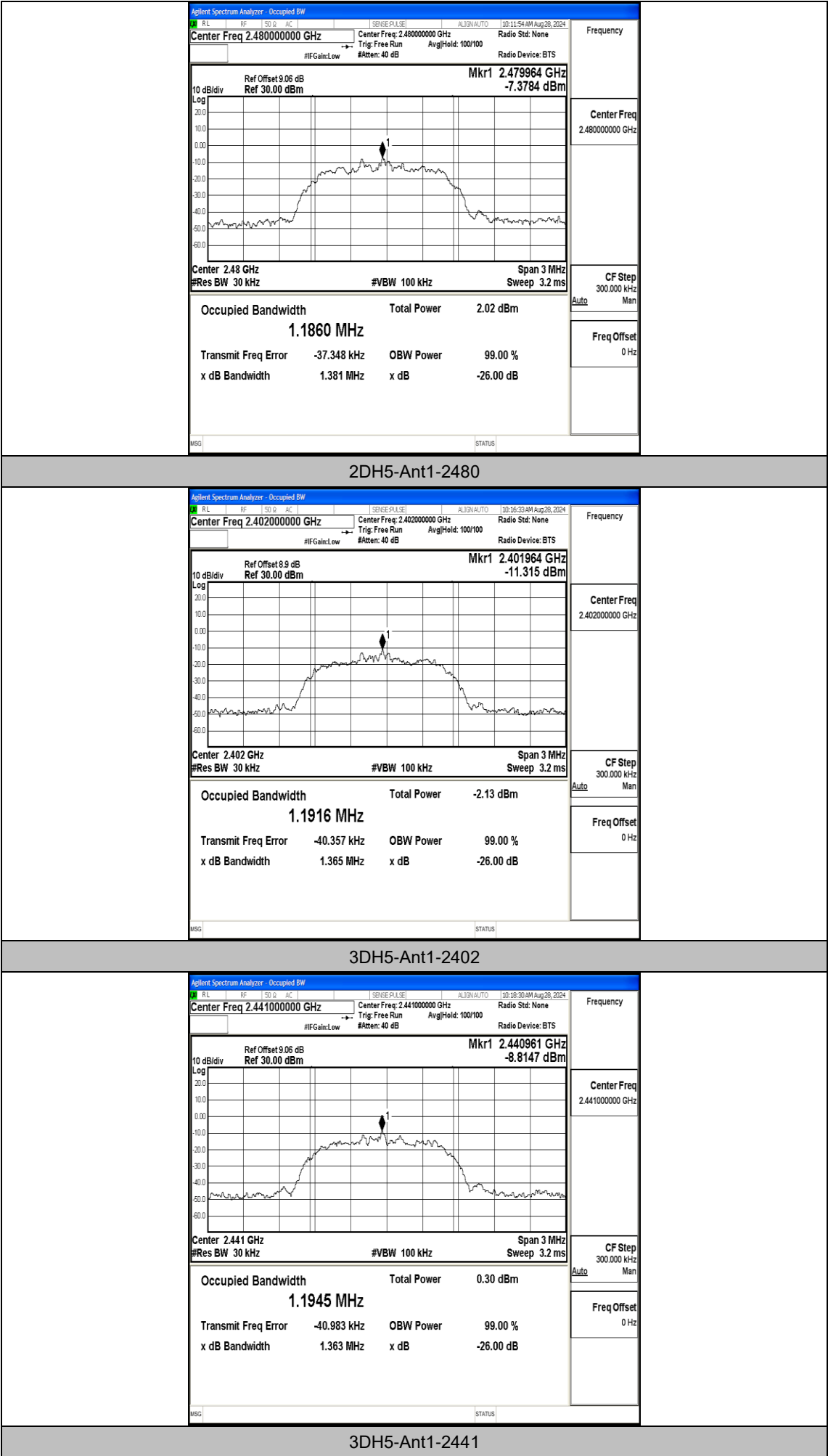
DH5-Ant1-2480

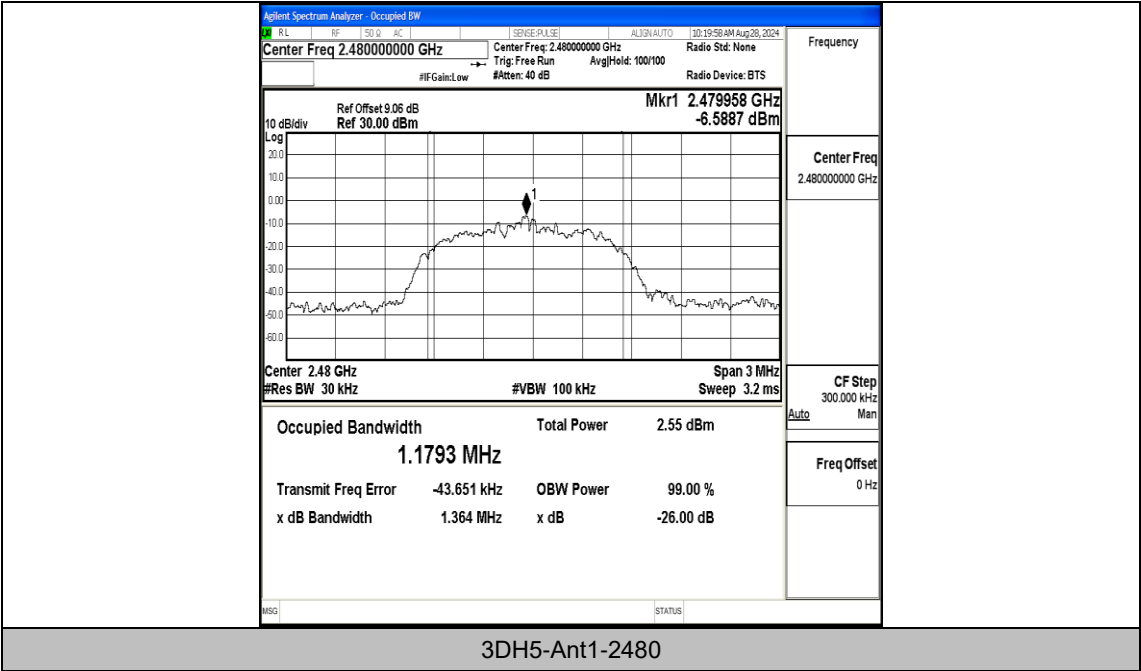


2DH5-Ant1-2402



2DH5-Ant1-2441



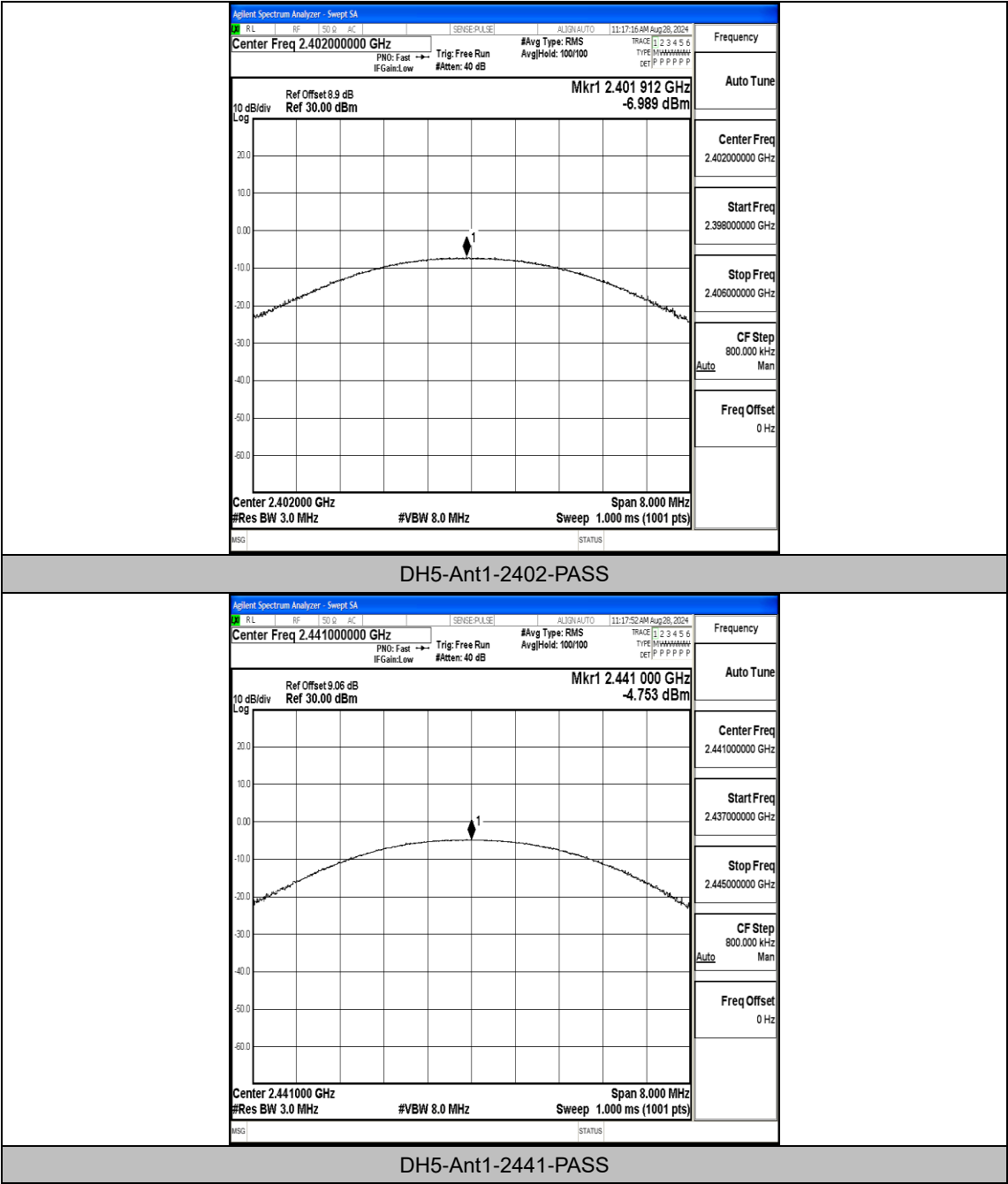


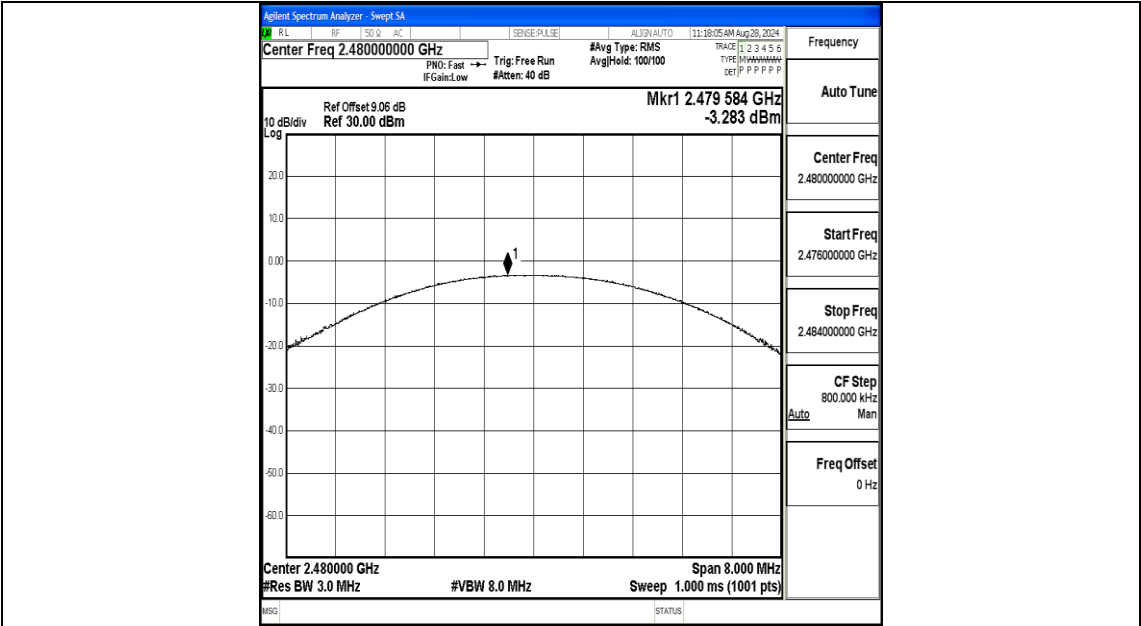
Appendix C: Maximum peak conducted output power

Test Result

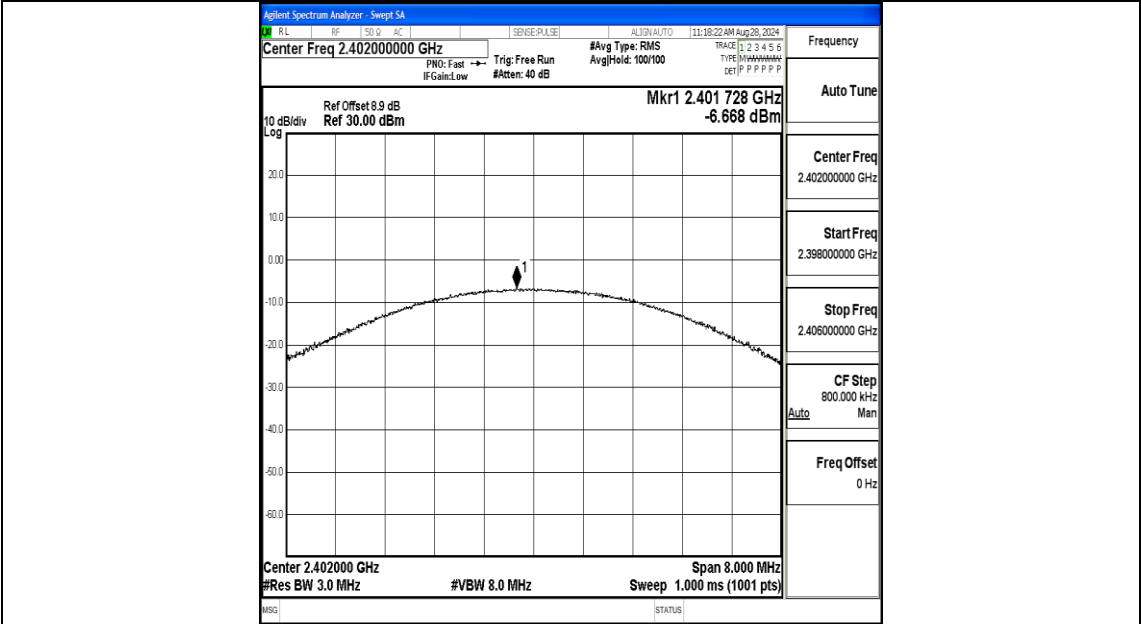
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	-6.99	≤30	PASS
DH5	Ant1	2441	-4.75	≤30	PASS
DH5	Ant1	2480	-3.28	≤30	PASS
2DH5	Ant1	2402	-6.67	≤20.97	PASS
2DH5	Ant1	2441	-4.10	≤20.97	PASS
2DH5	Ant1	2480	-2.93	≤20.97	PASS
3DH5	Ant1	2402	-6.15	≤20.97	PASS
3DH5	Ant1	2441	-3.63	≤20.97	PASS
3DH5	Ant1	2480	-2.77	≤20.97	PASS

Test Graphs

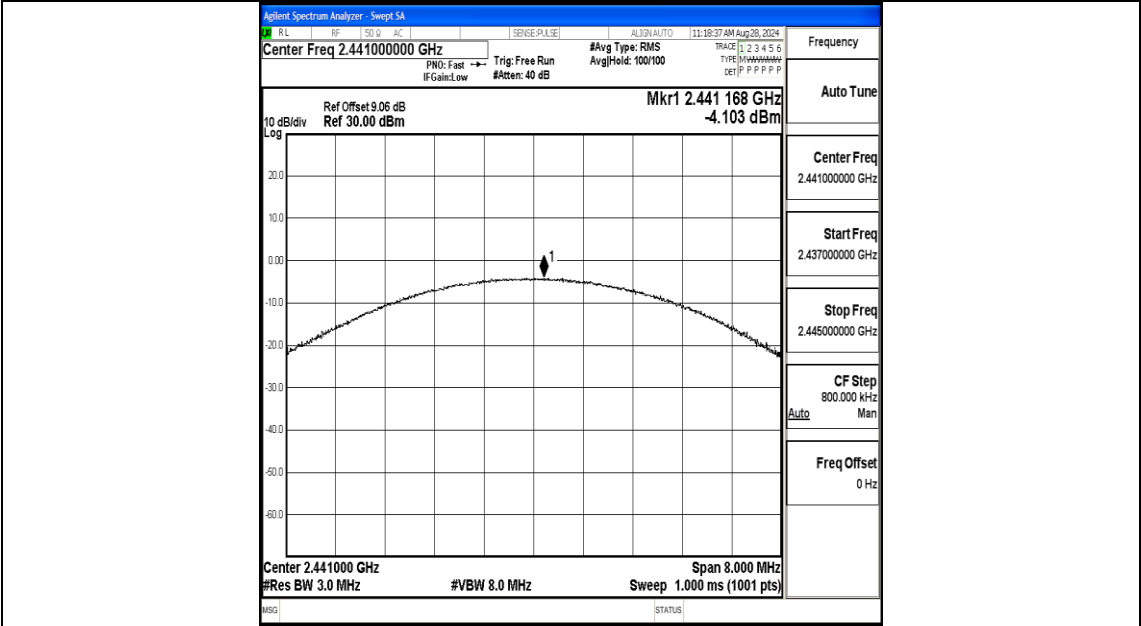




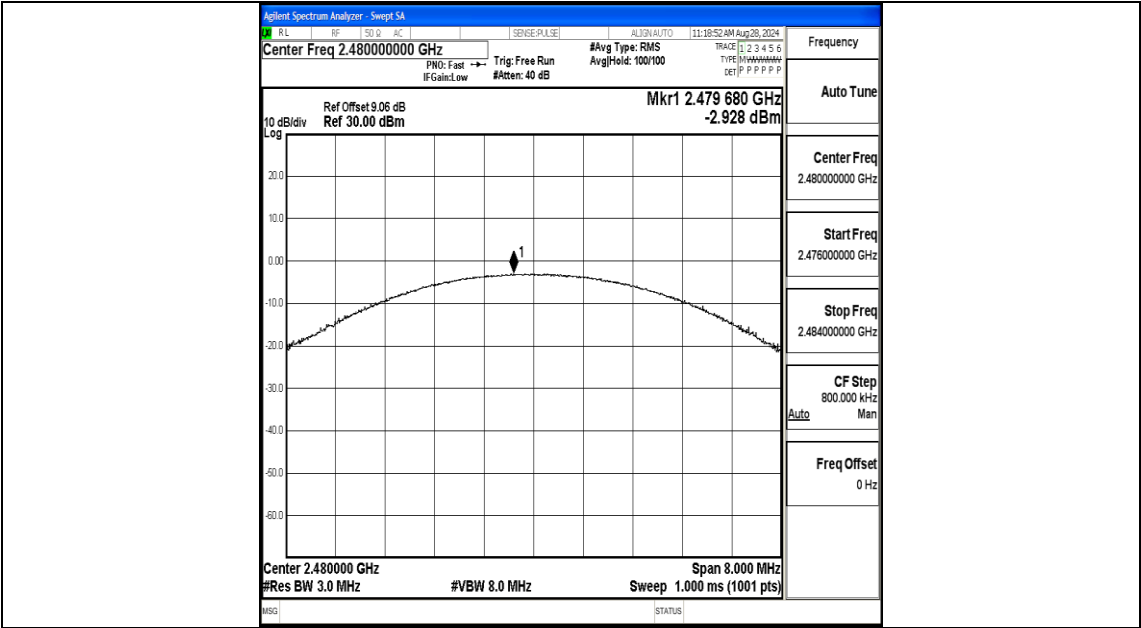
DH5-Ant1-2480-PASS



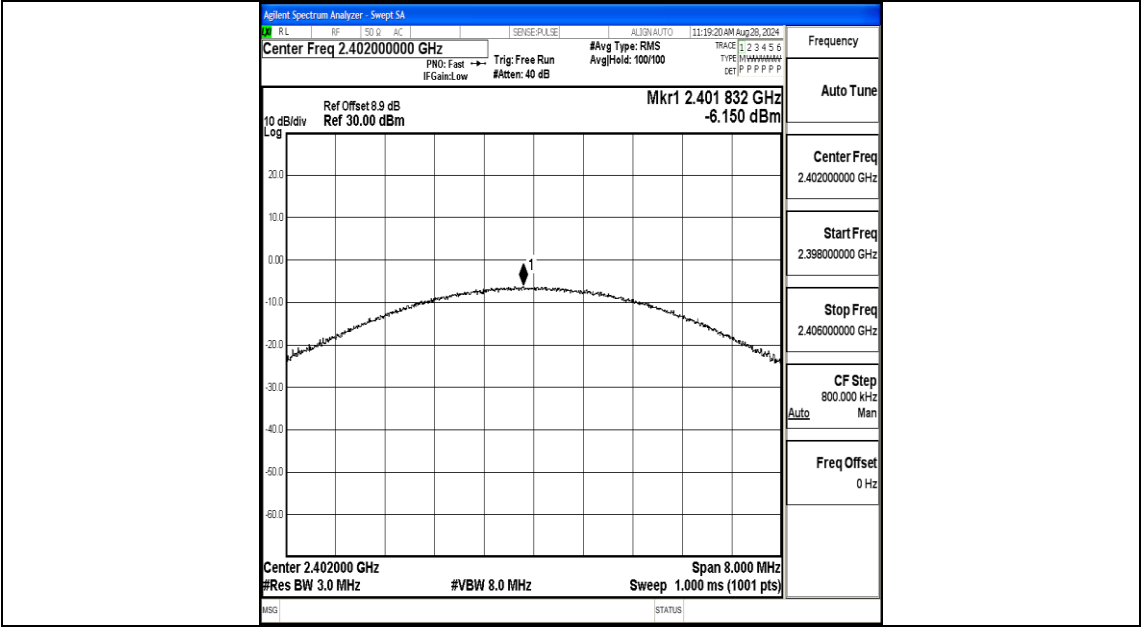
2DH5-Ant1-2402-PASS



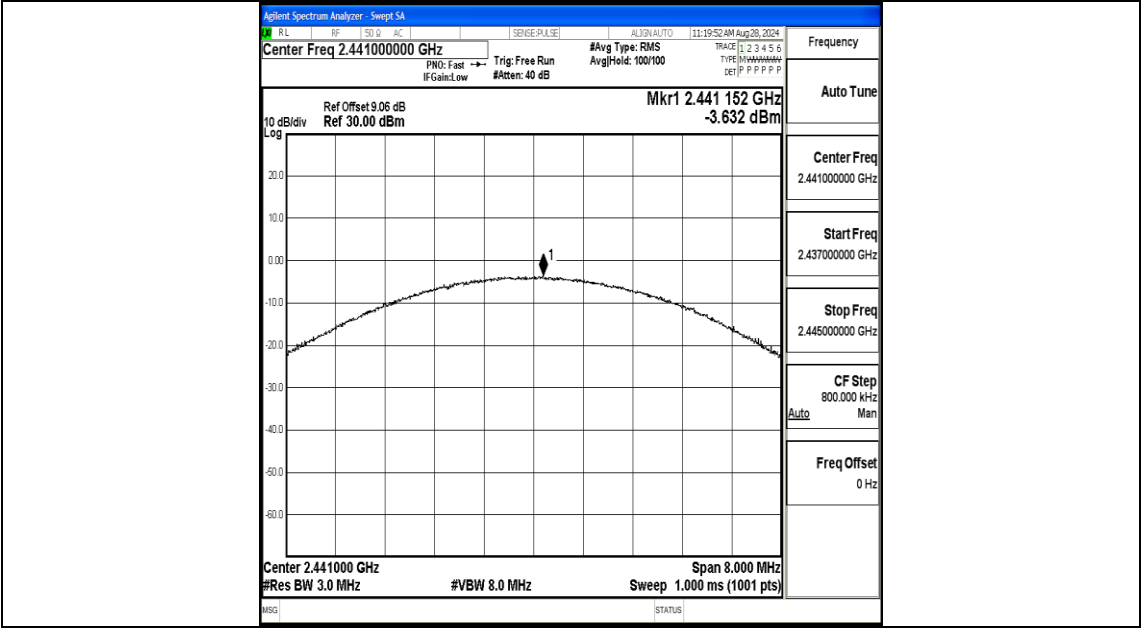
2DH5-Ant1-2441-PASS



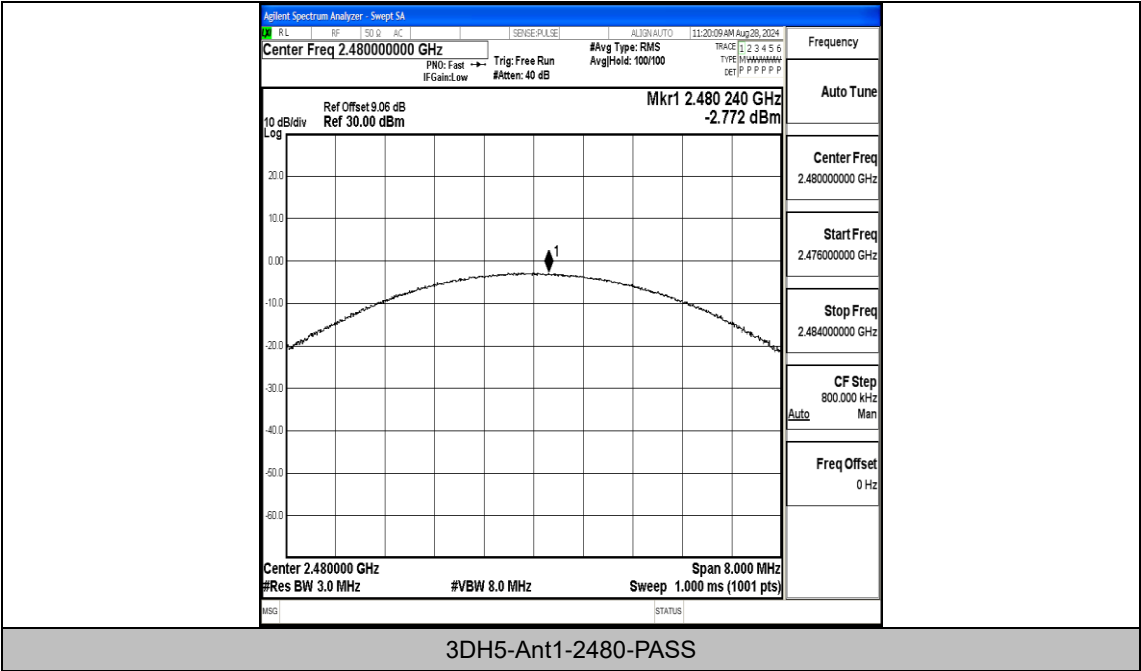
2DH5-Ant1-2480-PASS



3DH5-Ant1-2402-PASS



3DH5-Ant1-2441-PASS

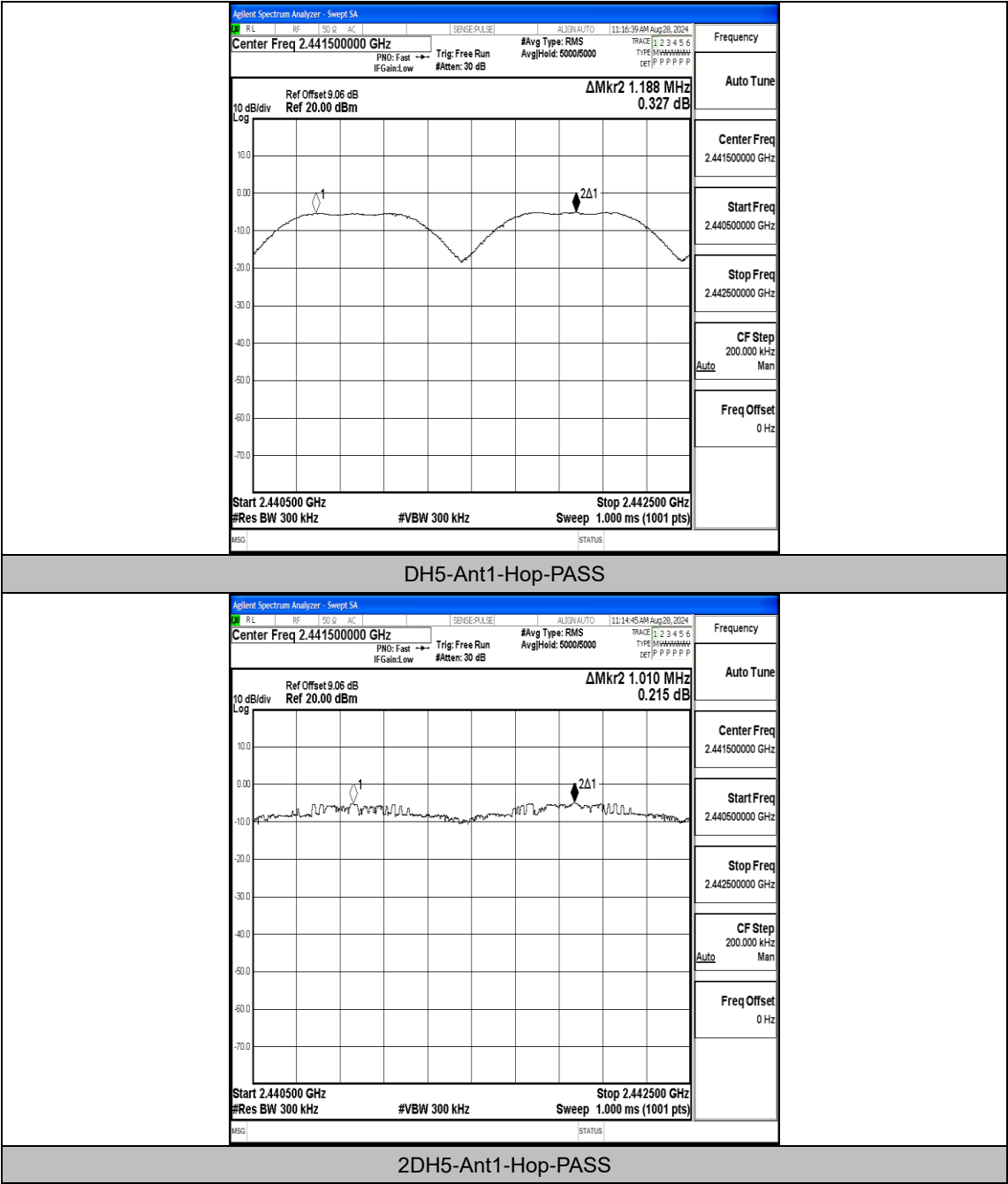


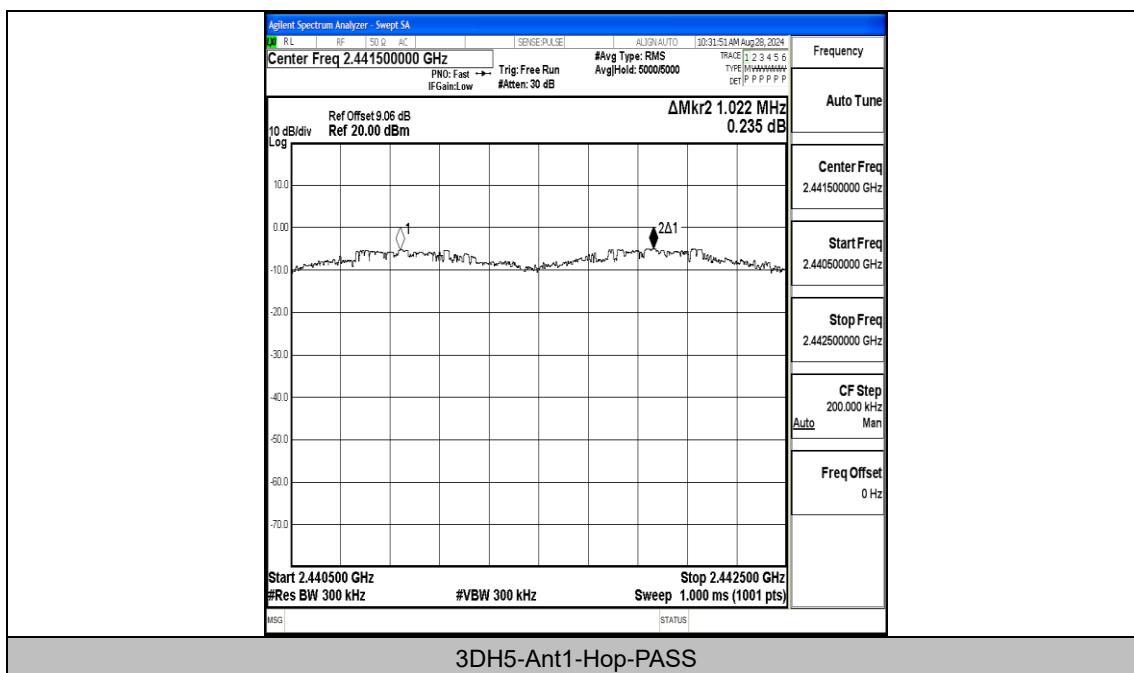
Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.188	≥ 1.014	PASS
2DH5	Ant1	Hop	1.01	≥ 0.882	PASS
3DH5	Ant1	Hop	1.022	≥ 0.862	PASS

Test Graphs



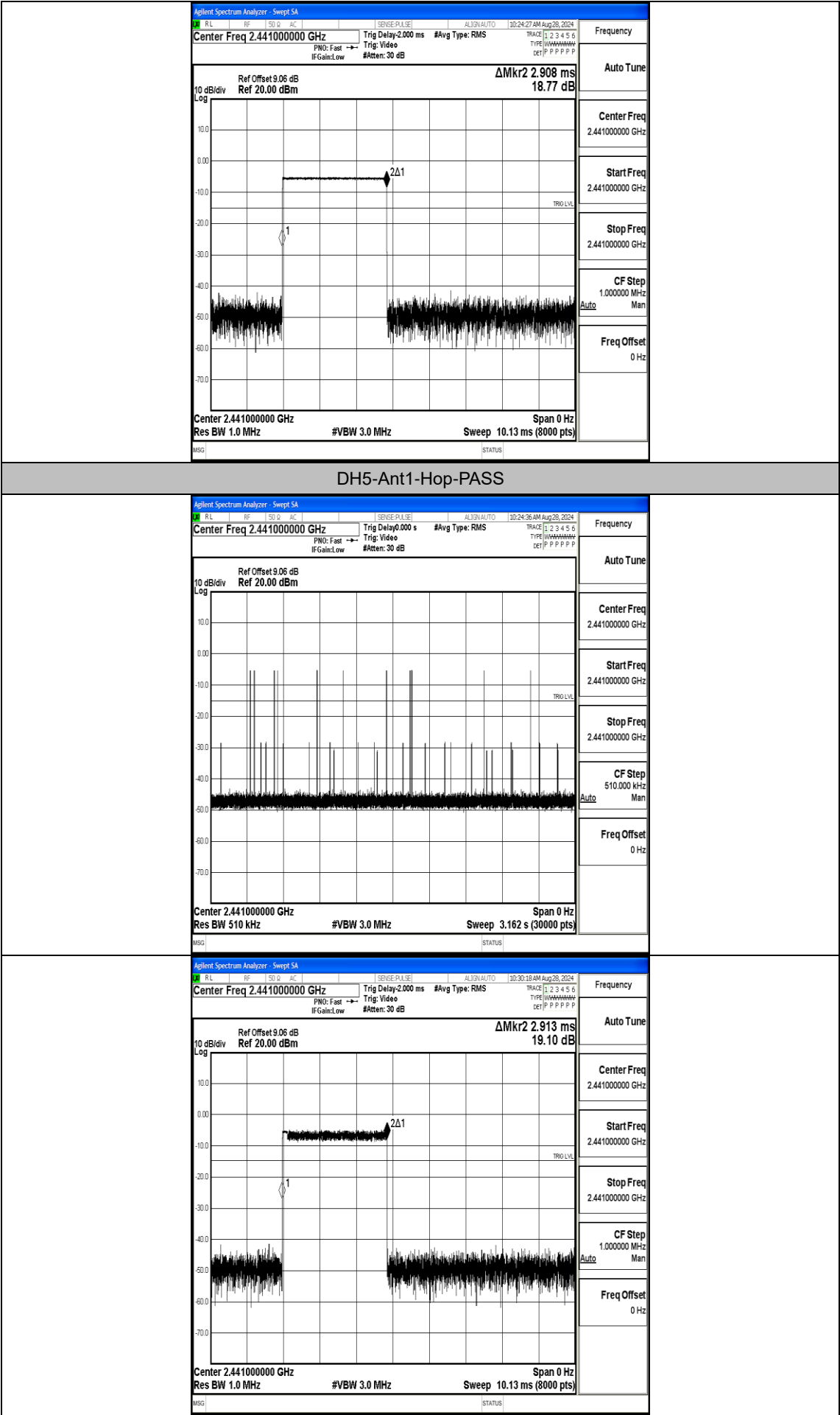


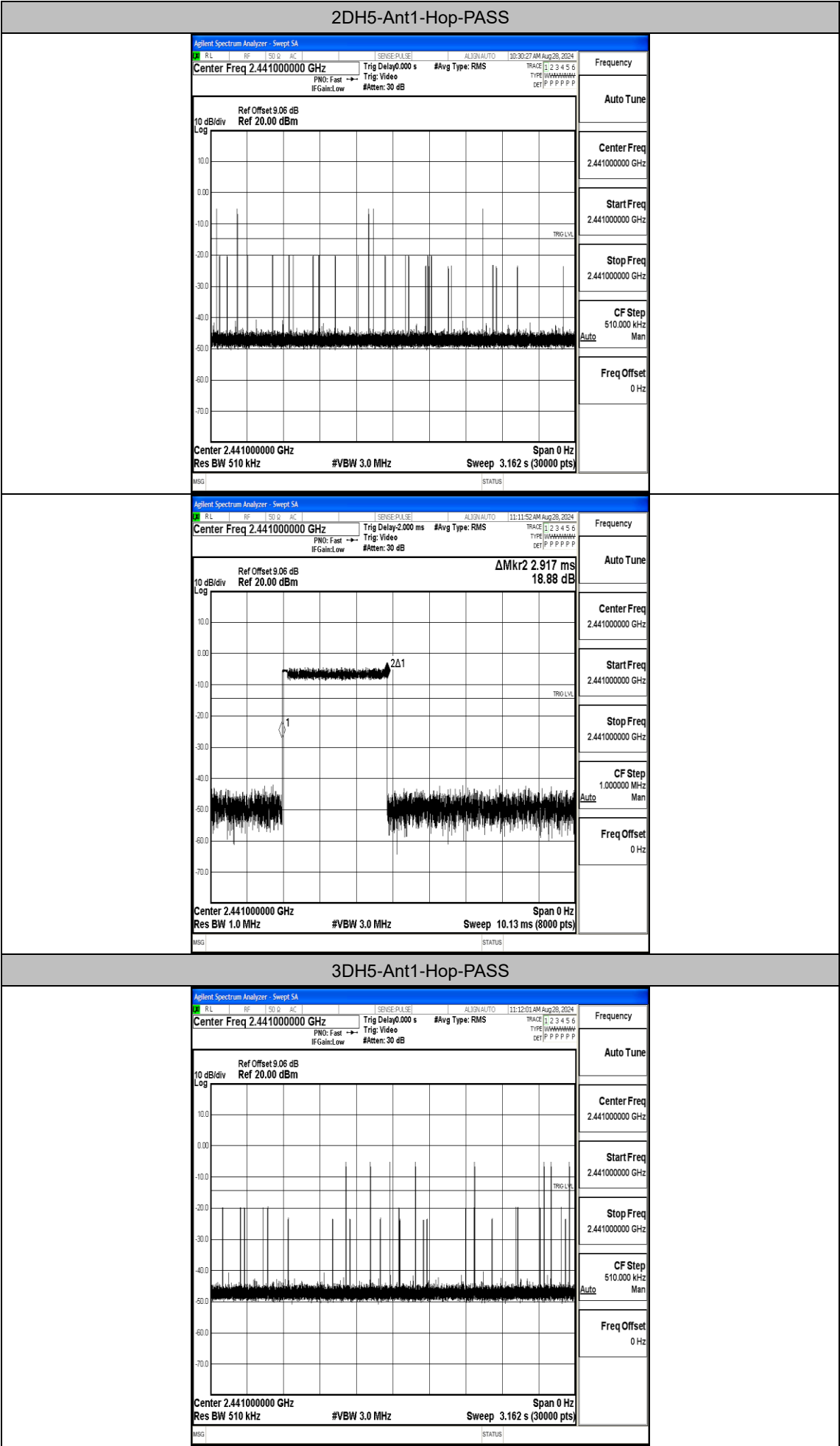
Appendix E: Time of occupancy

Test Result

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.908	120	0.349	≤0.4	PASS
2DH5	Ant1	Hop	2.913	60	0.175	≤0.4	PASS
3DH5	Ant1	Hop	2.917	90	0.263	≤0.4	PASS

Test Graphs





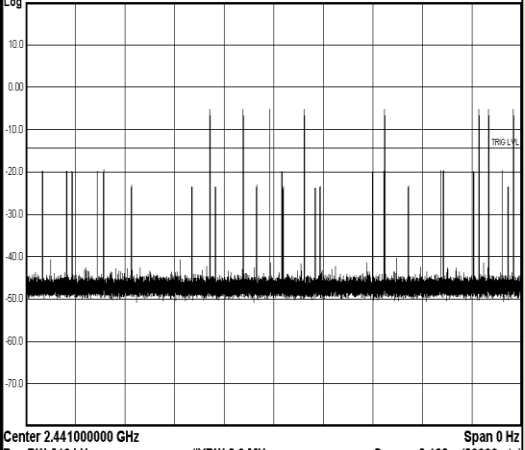
3DH5-Ant1-Hop-PASS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.441000000 GHz

Ref Offset 9.06 dB
Ref 20.00 dBm

10 dB/div
Log



Center 2.441000000 GHz
Res BW 510 kHz

#VBW 3.0 MHz

Sweep 3.162 s (30000 pts)

MSG

STATUS

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

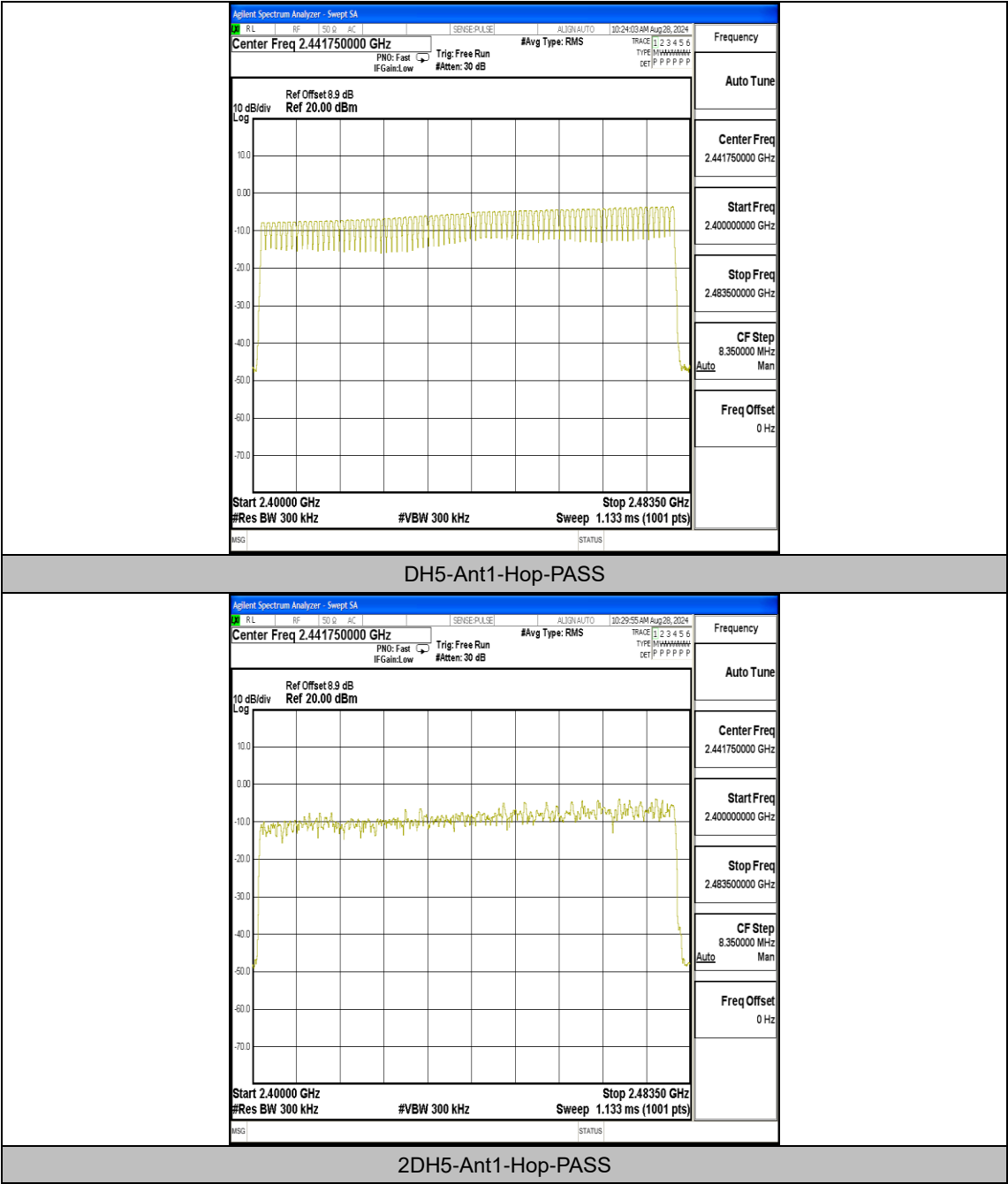
Freq Offset
0 Hz

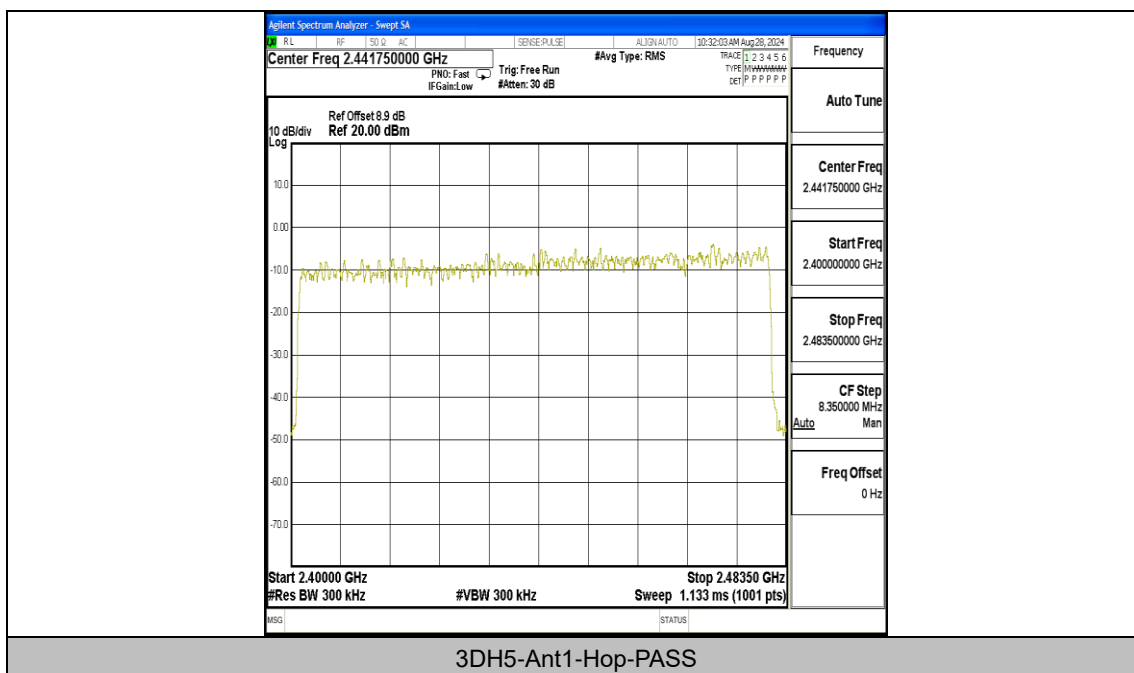
Appendix F: Number of hopping channels

Test Result

TestMode	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



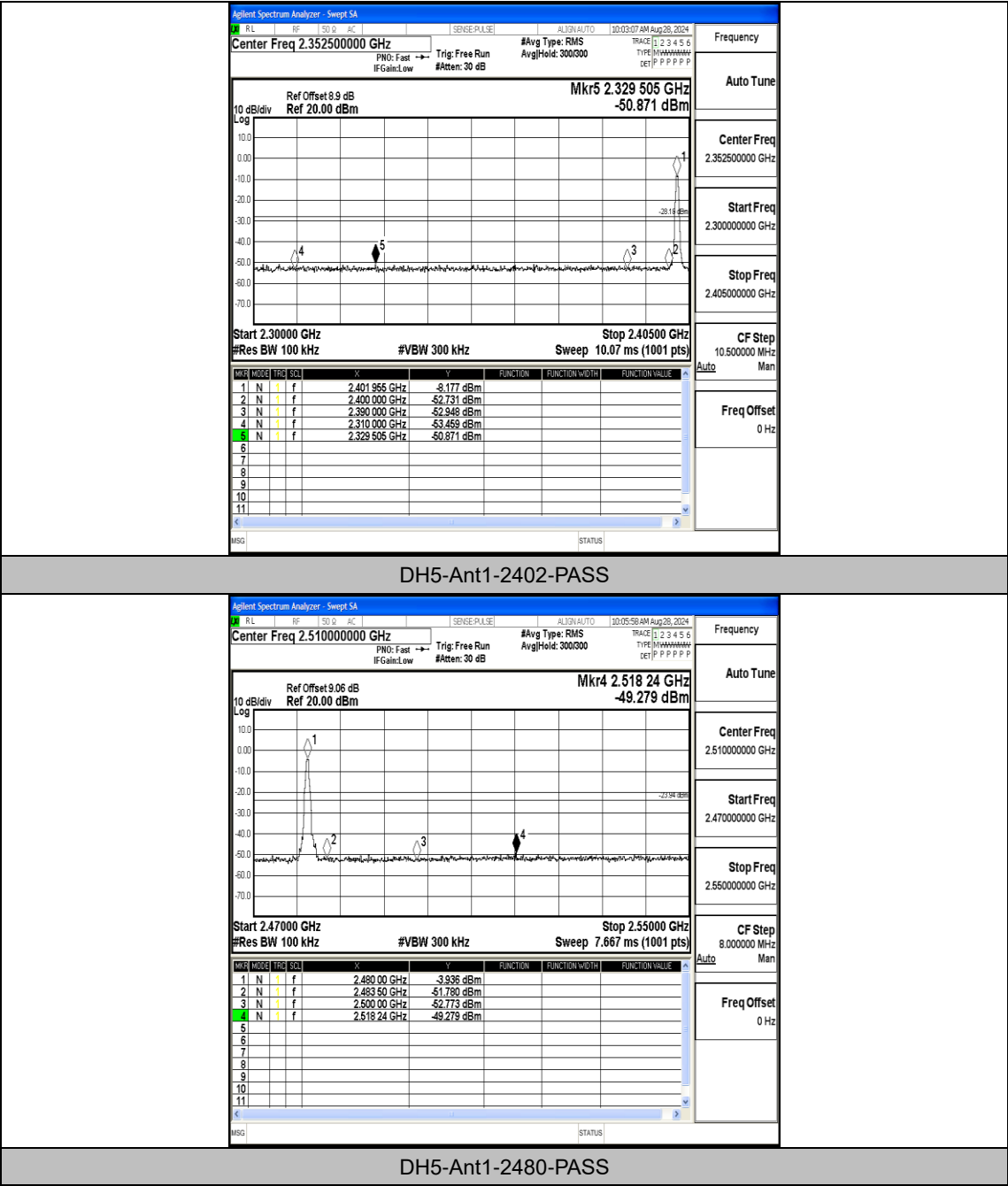


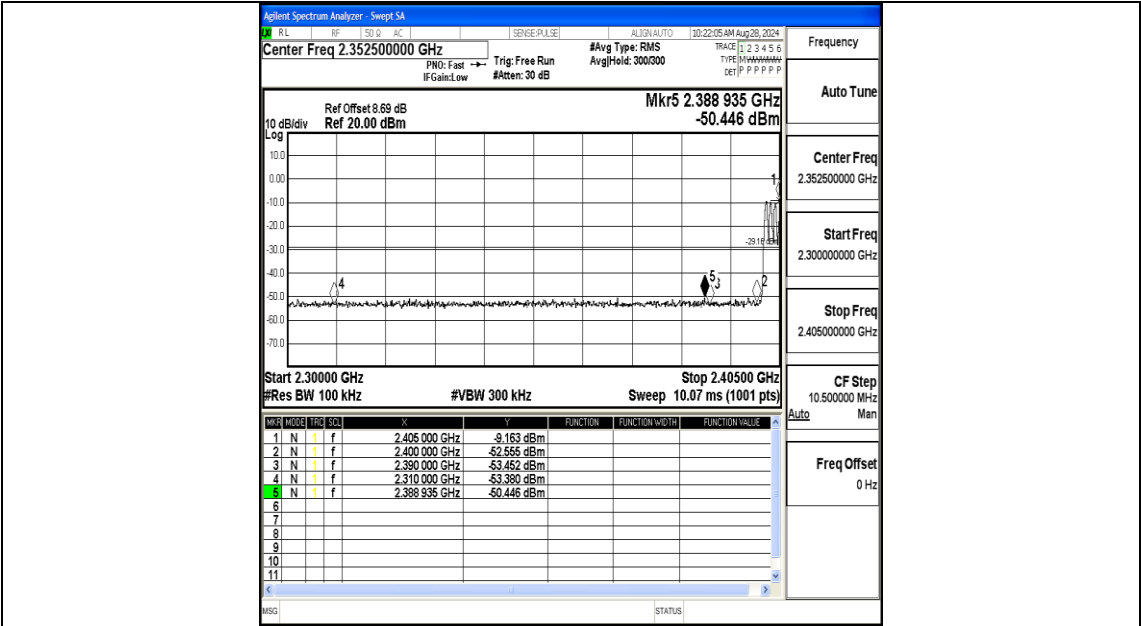
Appendix G: Band edge measurements

Test Result

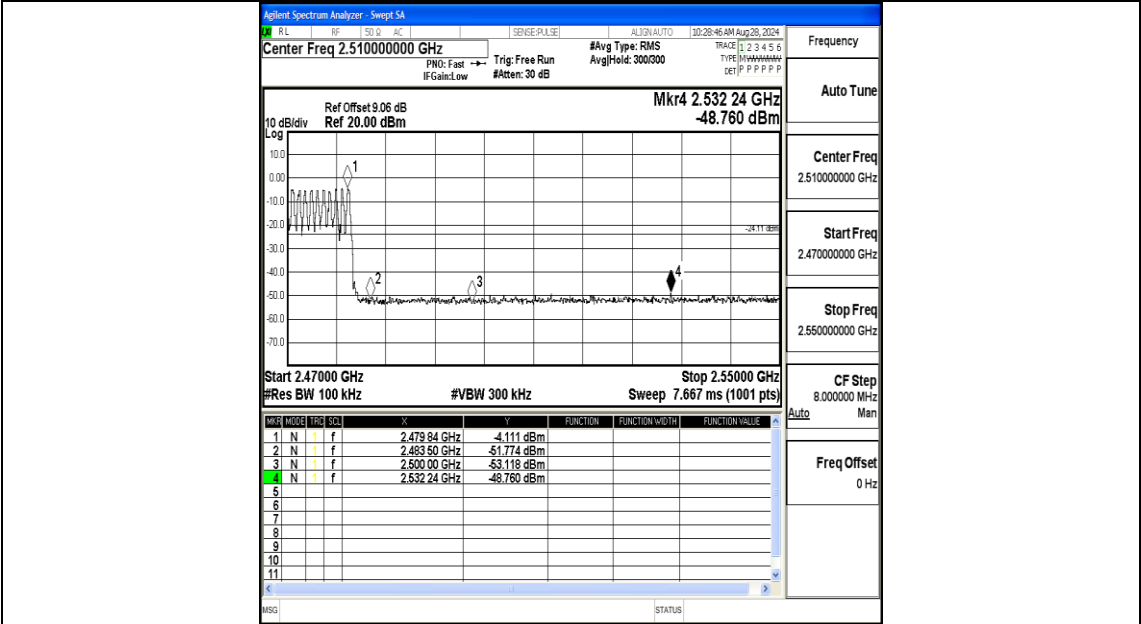
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-8.18	-50.87	≤-28.18	PASS
DH5	Ant1	High	2480	-3.94	-49.28	≤-23.94	PASS
DH5	Ant1	Low	Hop_2402	-9.16	-50.45	≤-29.16	PASS
DH5	Ant1	High	Hop_2480	-4.11	-48.76	≤-24.11	PASS
2DH5	Ant1	Low	2402	-8.35	-49.38	≤-28.35	PASS
2DH5	Ant1	High	2480	-3.99	-48.82	≤-23.99	PASS
2DH5	Ant1	Low	Hop_2402	-9.64	-50.48	≤-29.64	PASS
2DH5	Ant1	High	Hop_2480	-5.78	-48.69	≤-25.78	PASS
3DH5	Ant1	Low	2402	-10.16	-49.72	≤-30.16	PASS
3DH5	Ant1	High	2480	-4.47	-49.38	≤-24.47	PASS
3DH5	Ant1	Low	Hop_2402	-8.81	-50.17	≤-28.81	PASS
3DH5	Ant1	High	Hop_2480	-7.84	-48.74	≤-27.84	PASS

Test Graphs

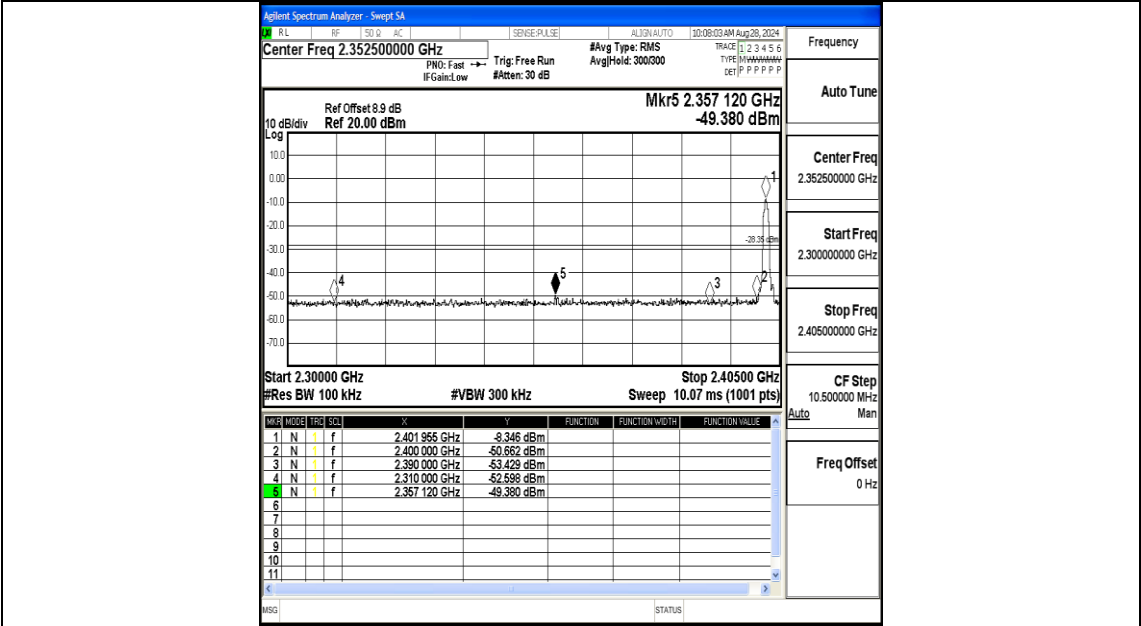




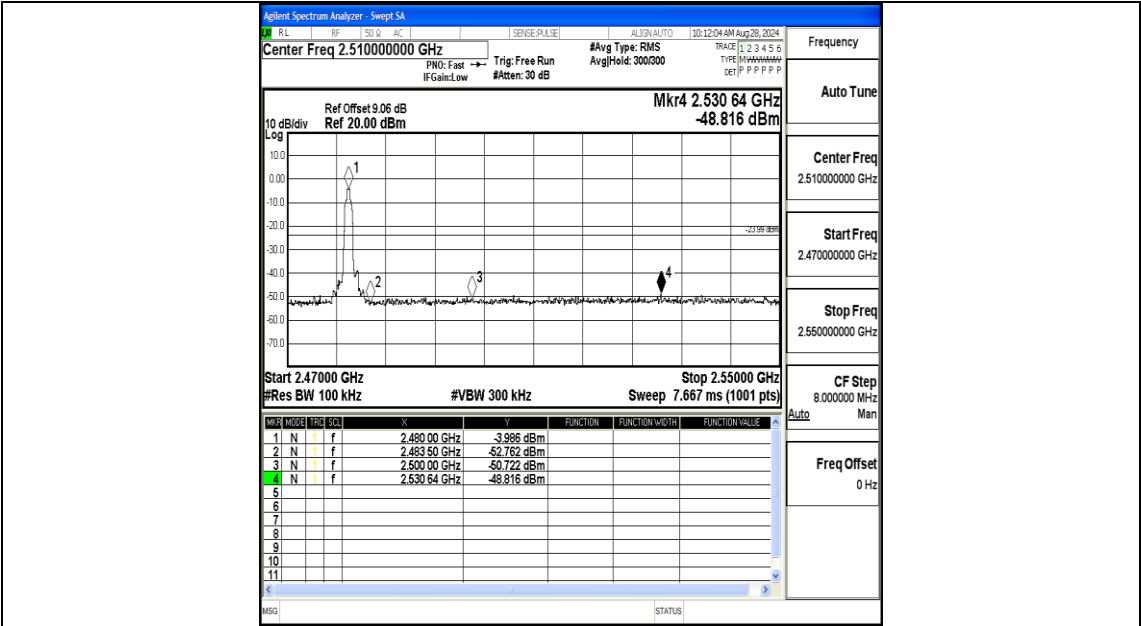
DH5-Ant1-Hop_2402-PASS



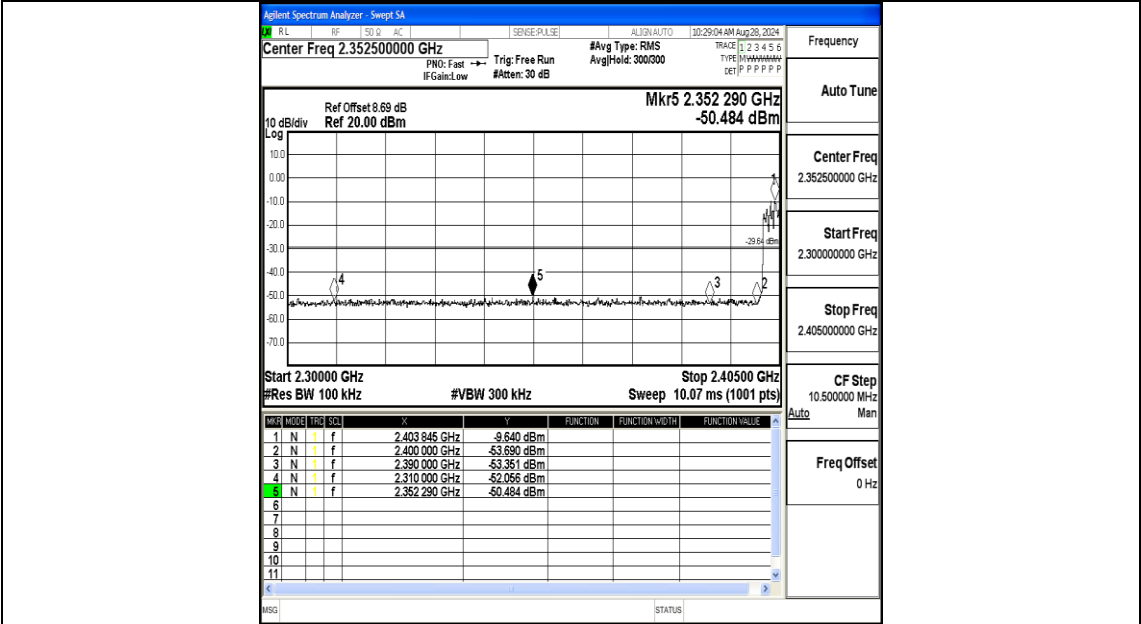
DH5-Ant1-Hop_2480-PASS



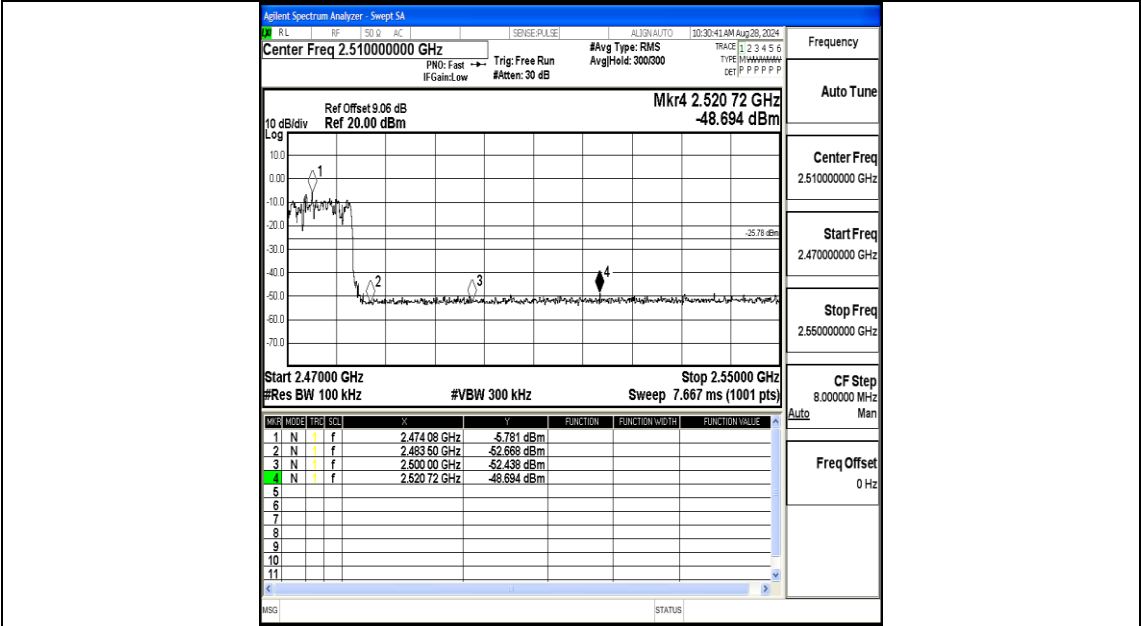
2DH5-Ant1-2402-PASS



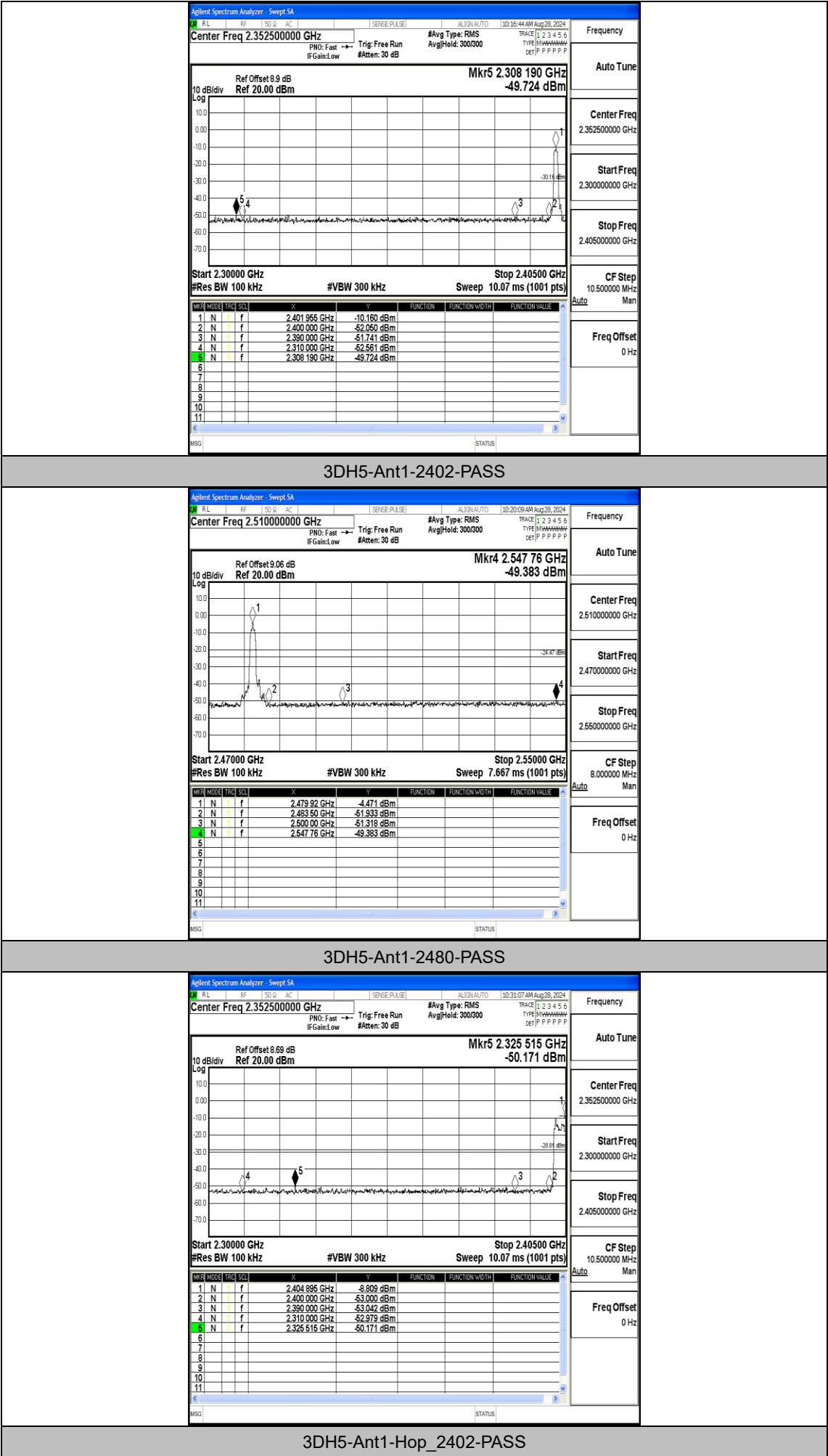
2DH5-Ant1-2480-PASS

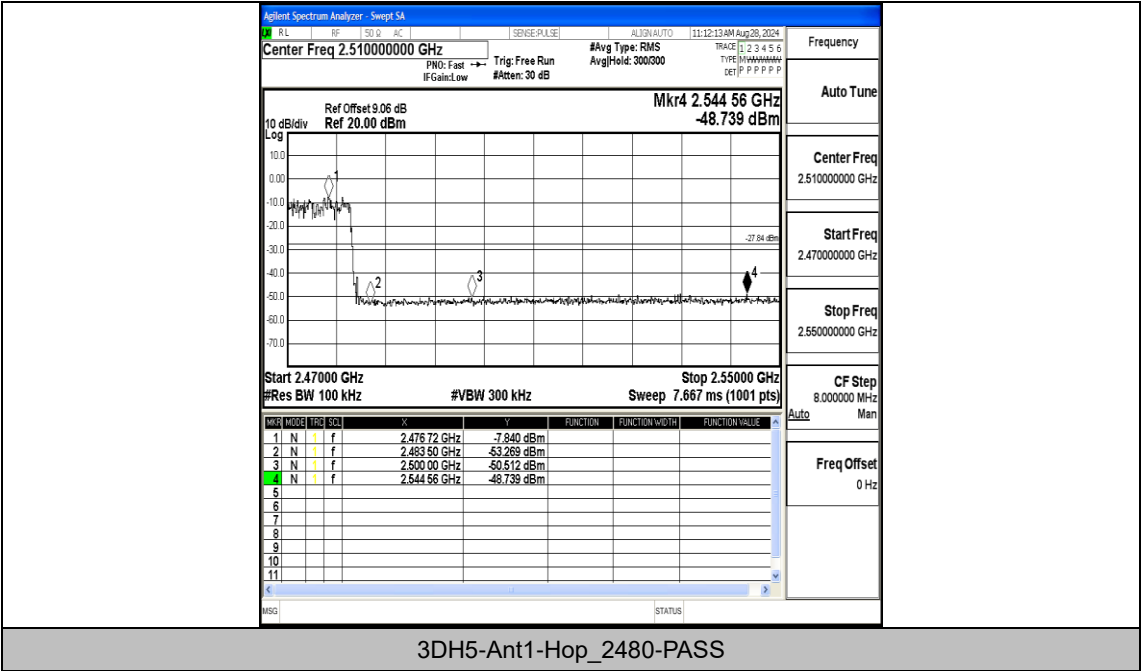


2DH5-Ant1-Hop_2402-PASS



2DH5-Ant1-Hop_2480-PASS

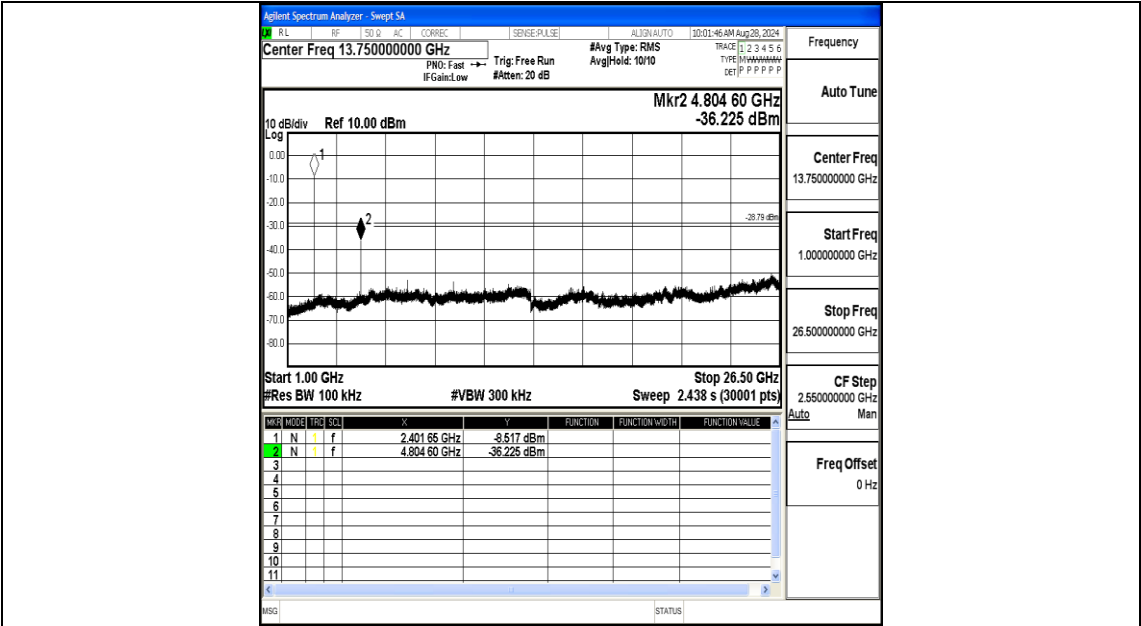




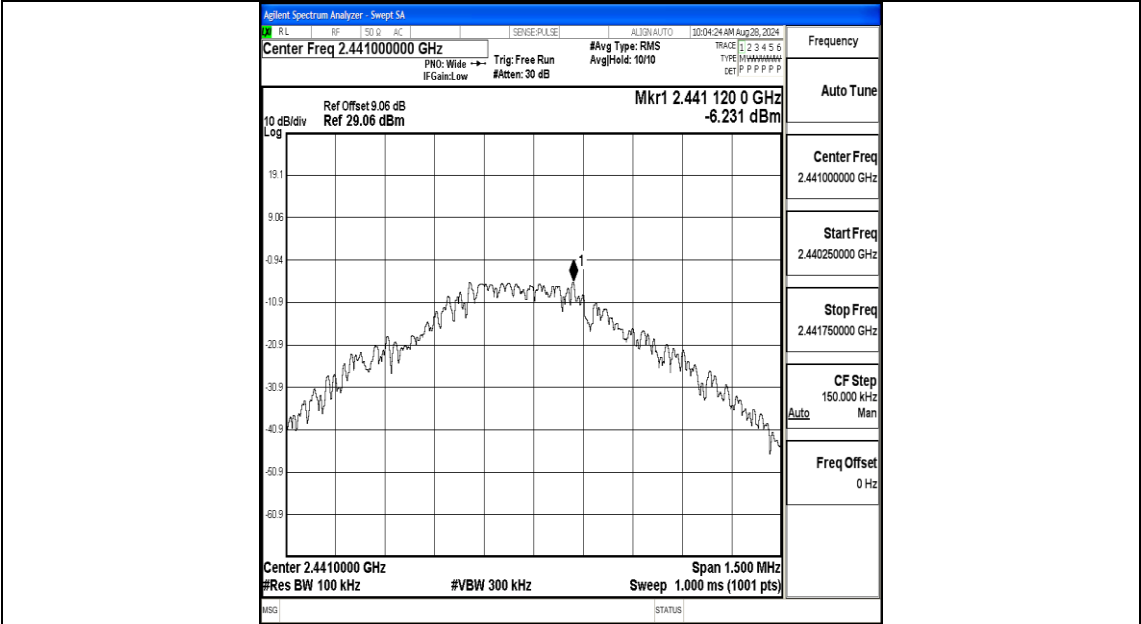
Appendix H: Conducted Spurious Emission

Test Result

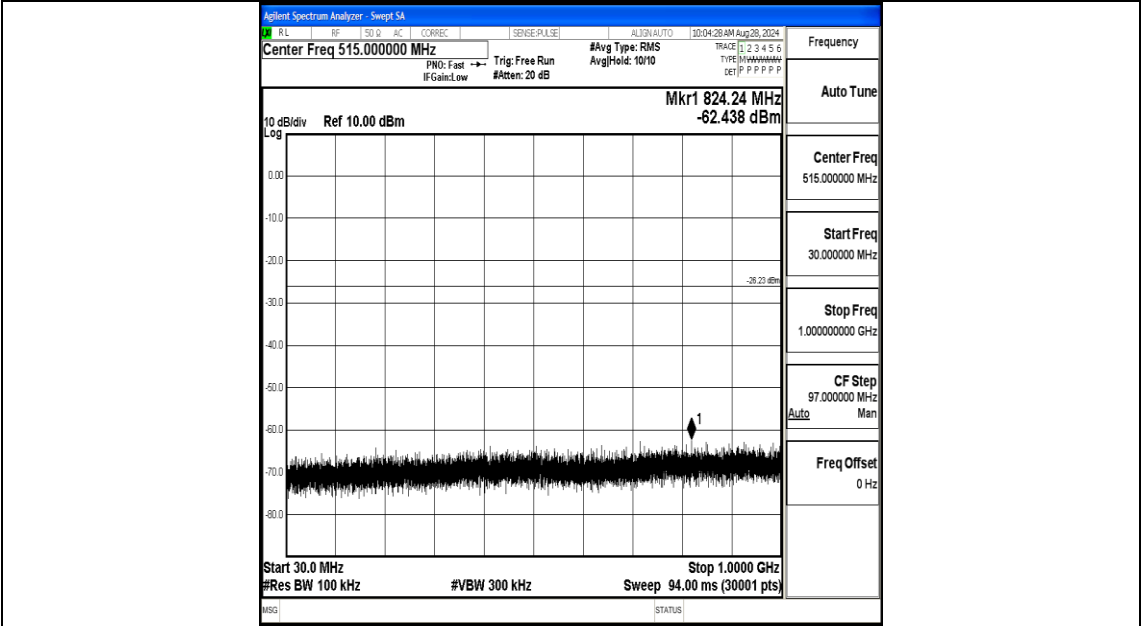
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	-8.79	-8.79	---	PASS
DH5	Ant1	2402	30~1000	-8.79	-62.91	≤-28.79	PASS
DH5	Ant1	2402	1000~26500	-8.79	-36.23	≤-28.79	PASS
DH5	Ant1	2441	0~Reference	-6.23	-6.23	---	PASS
DH5	Ant1	2441	30~1000	-6.23	-62.44	≤-26.23	PASS
DH5	Ant1	2441	1000~26500	-6.23	-35.42	≤-26.23	PASS
DH5	Ant1	2480	0~Reference	-4.49	-4.49	---	PASS
DH5	Ant1	2480	30~1000	-4.49	-63.04	≤-24.49	PASS
DH5	Ant1	2480	1000~26500	-4.49	-34.18	≤-24.49	PASS
2DH5	Ant1	2402	0~Reference	-8.05	-8.05	---	PASS
2DH5	Ant1	2402	30~1000	-8.05	-62.74	≤-28.05	PASS
2DH5	Ant1	2402	1000~26500	-8.05	-39.75	≤-28.05	PASS
2DH5	Ant1	2441	0~Reference	-5.42	-5.42	---	PASS
2DH5	Ant1	2441	30~1000	-5.42	-62.34	≤-25.42	PASS
2DH5	Ant1	2441	1000~26500	-5.42	-39.52	≤-25.42	PASS
2DH5	Ant1	2480	0~Reference	-7.16	-7.16	---	PASS
2DH5	Ant1	2480	30~1000	-7.16	-62.91	≤-27.16	PASS
2DH5	Ant1	2480	1000~26500	-7.16	-39.53	≤-27.16	PASS
3DH5	Ant1	2402	0~Reference	-8.74	-8.74	---	PASS
3DH5	Ant1	2402	30~1000	-8.74	-62.48	≤-28.74	PASS
3DH5	Ant1	2402	1000~26500	-8.74	-35.5	≤-28.74	PASS
3DH5	Ant1	2441	0~Reference	-6.30	-6.30	---	PASS
3DH5	Ant1	2441	30~1000	-6.30	-62.99	≤-26.3	PASS
3DH5	Ant1	2441	1000~26500	-6.30	-40.78	≤-26.3	PASS
3DH5	Ant1	2480	0~Reference	-4.20	-4.20	---	PASS
3DH5	Ant1	2480	30~1000	-4.20	-62.21	≤-24.2	PASS
3DH5	Ant1	2480	1000~26500	-4.20	-37.1	≤-24.2	PASS



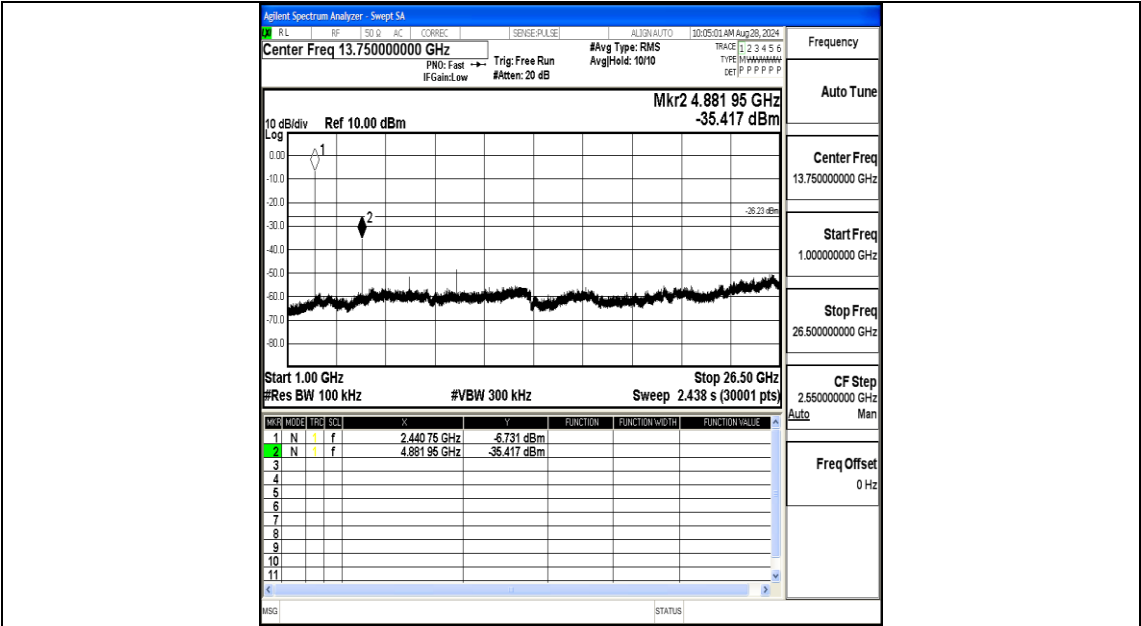
DH5-Ant1-2402-1000~26500-PASS



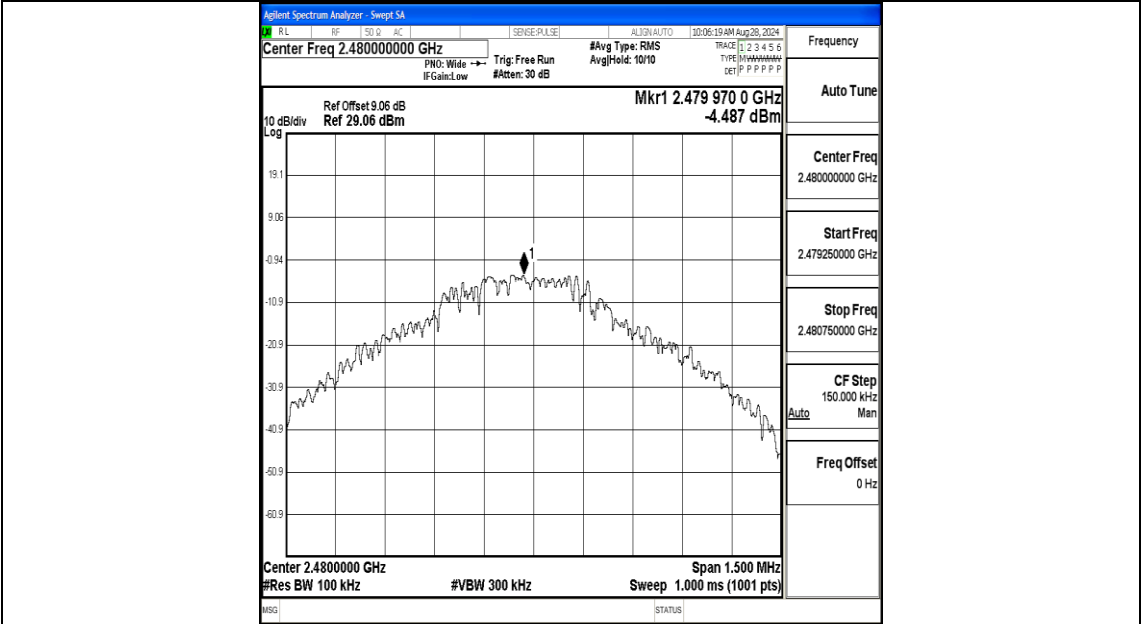
DH5-Ant1-2441-0~Reference-PASS



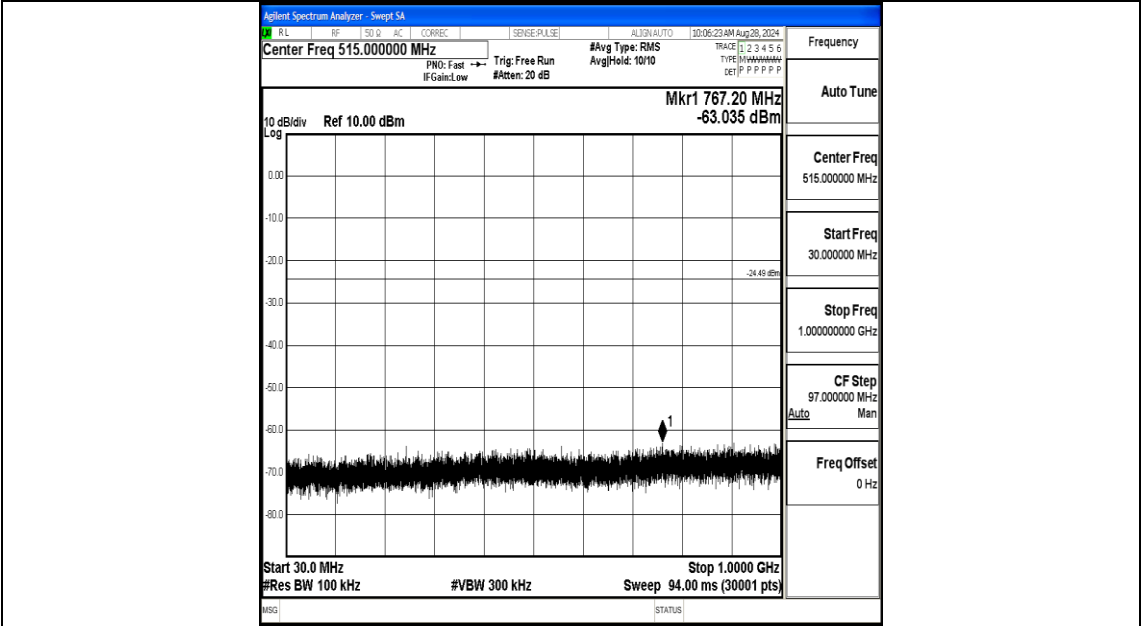
DH5-Ant1-2441-30~1000-PASS



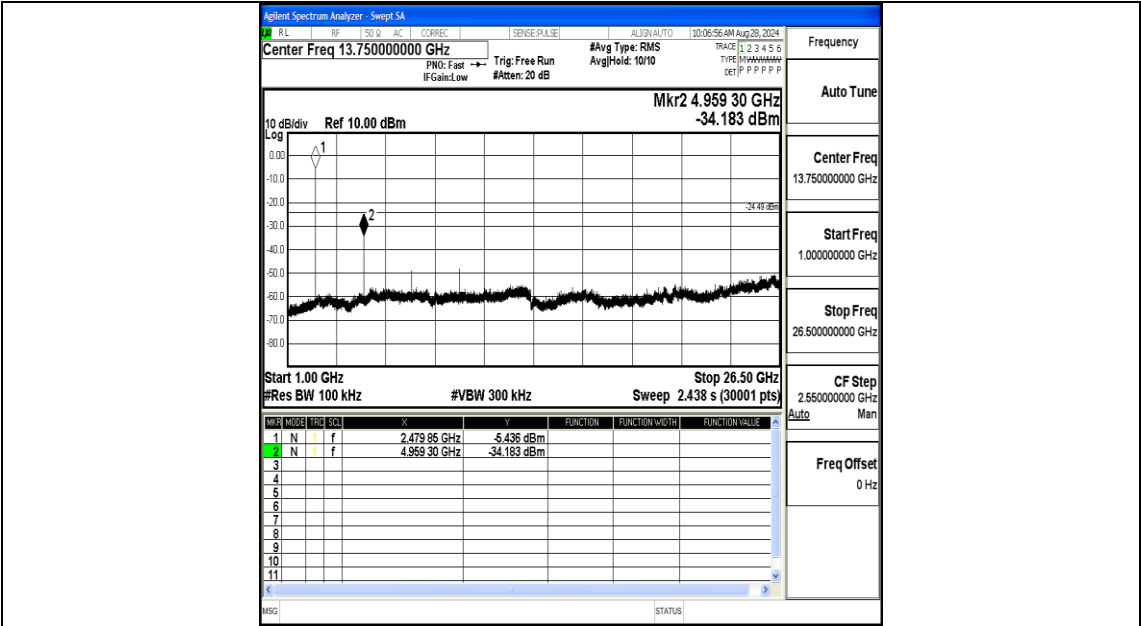
DH5-Ant1-2441-1000~26500-PASS



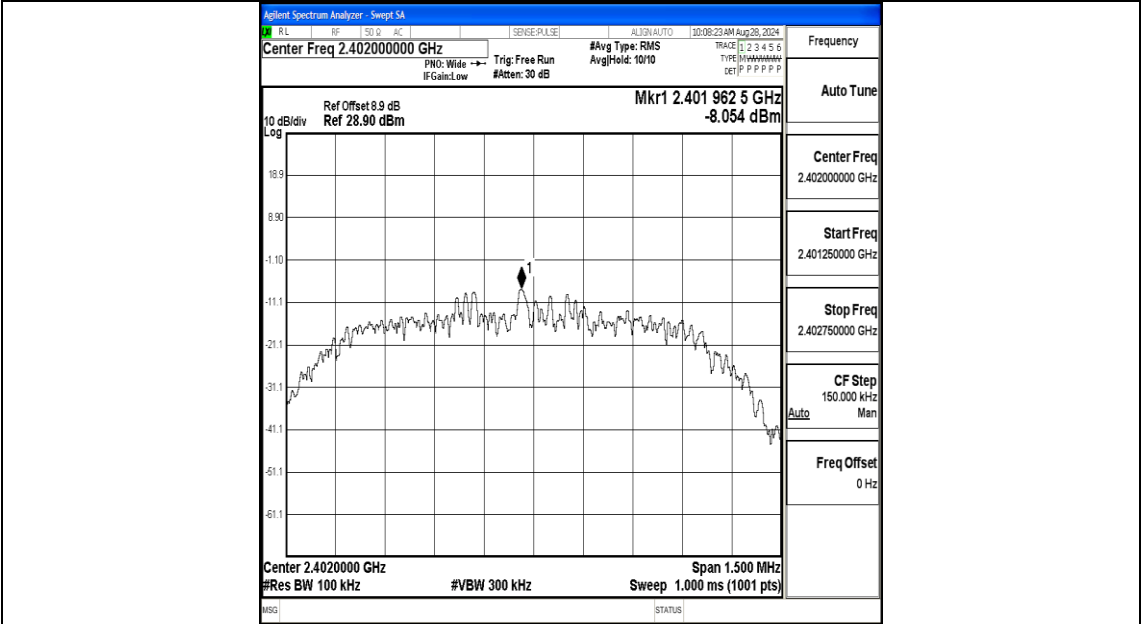
DH5-Ant1-2480-0~Reference-PASS



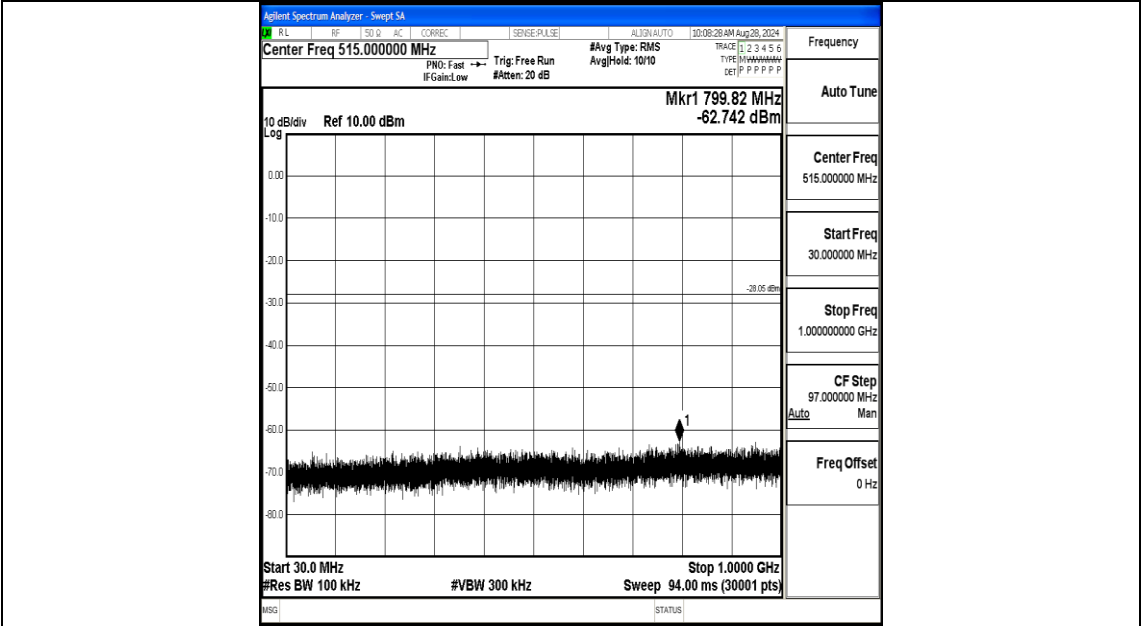
DH5-Ant1-2480-30~1000-PASS



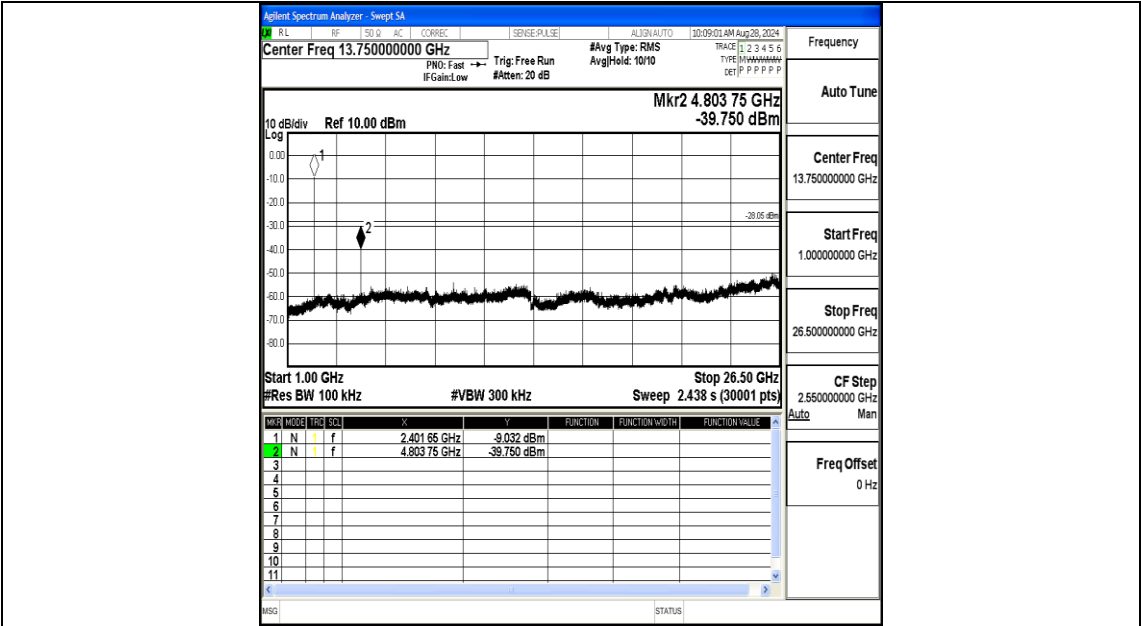
DH5-Ant1-2480-1000~26500-PASS



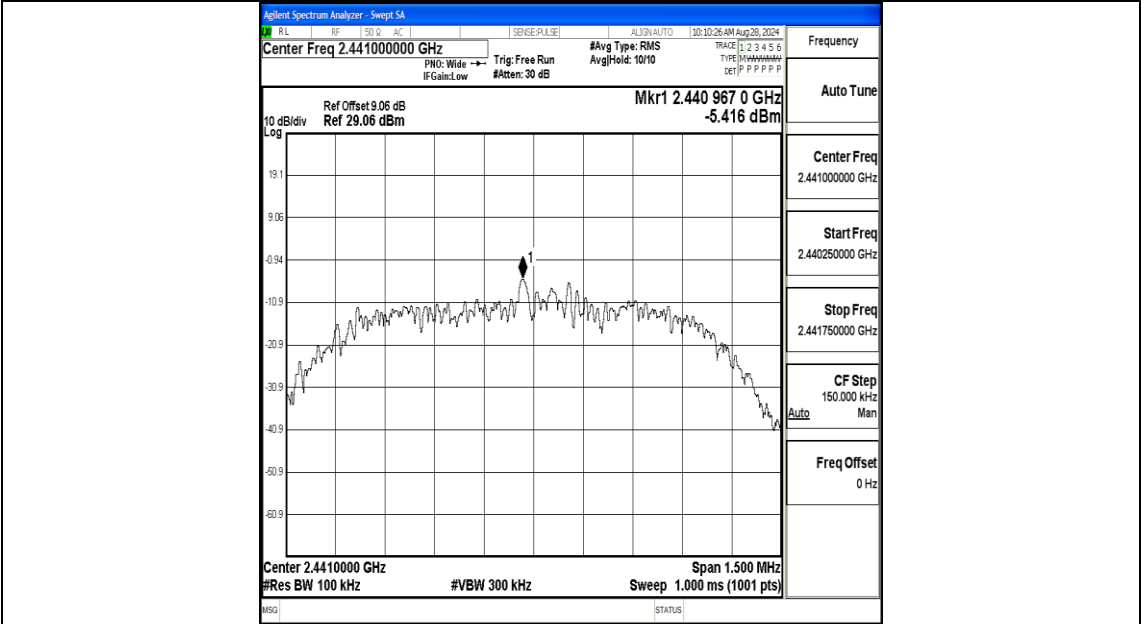
2DH5-Ant1-2402-0~Reference-PASS



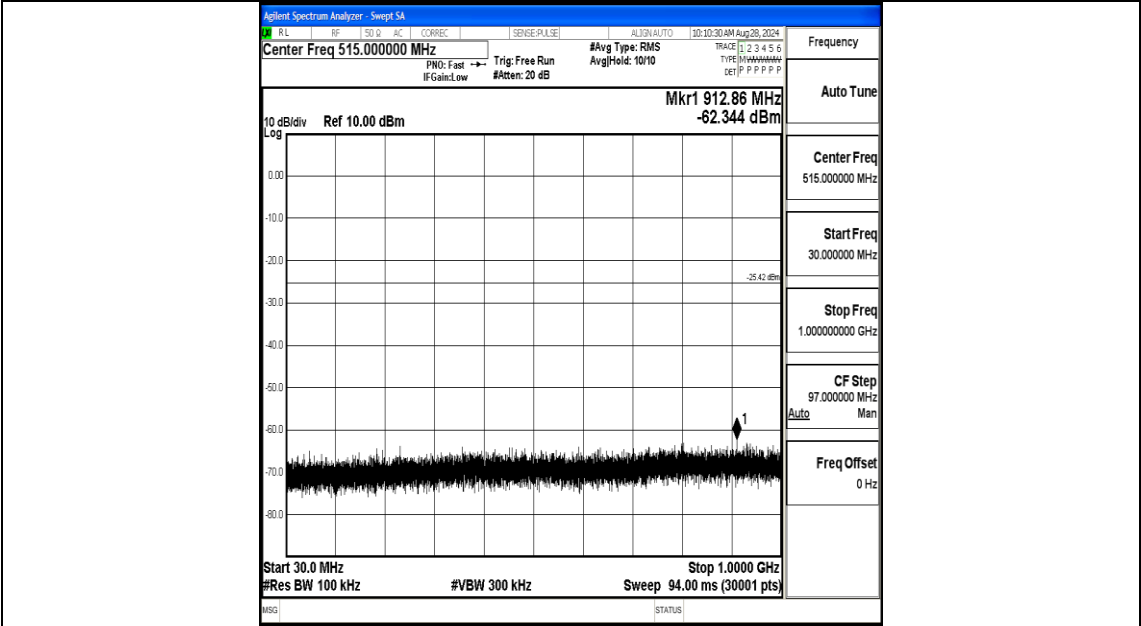
2DH5-Ant1-2402-30~1000-PASS



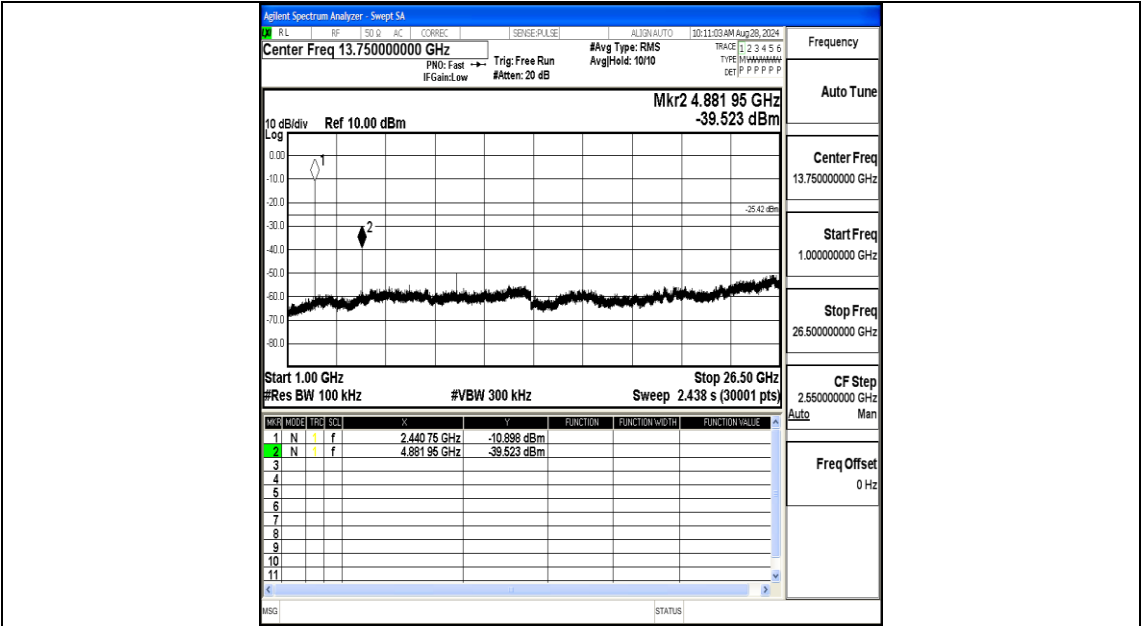
2DH5-Ant1-2402-1000~26500-PASS



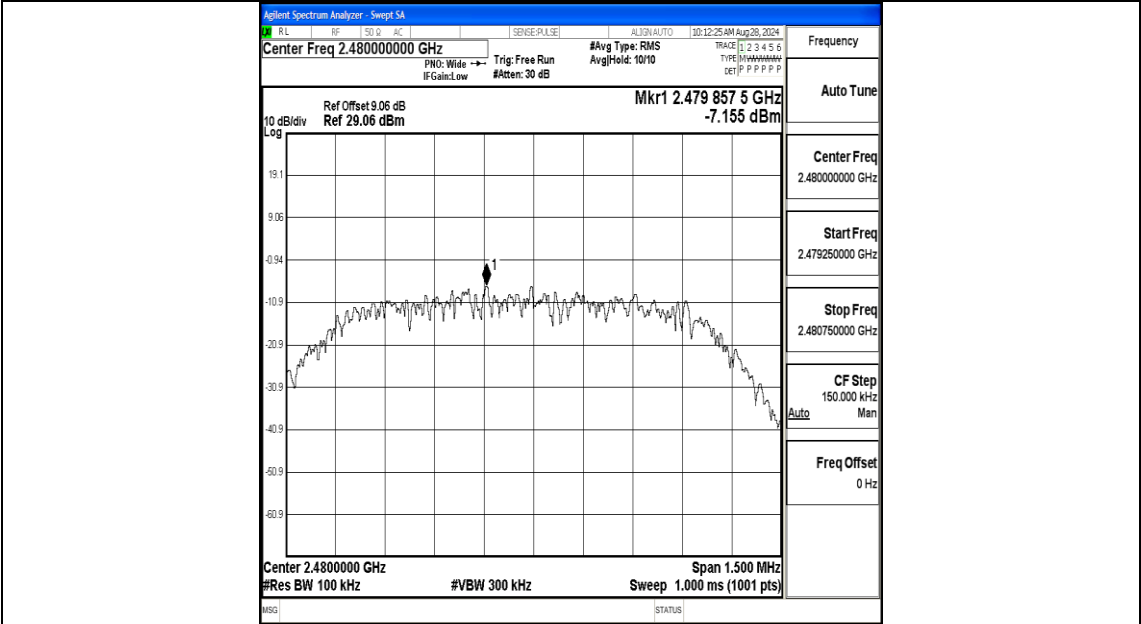
2DH5-Ant1-2441-0~Reference-PASS



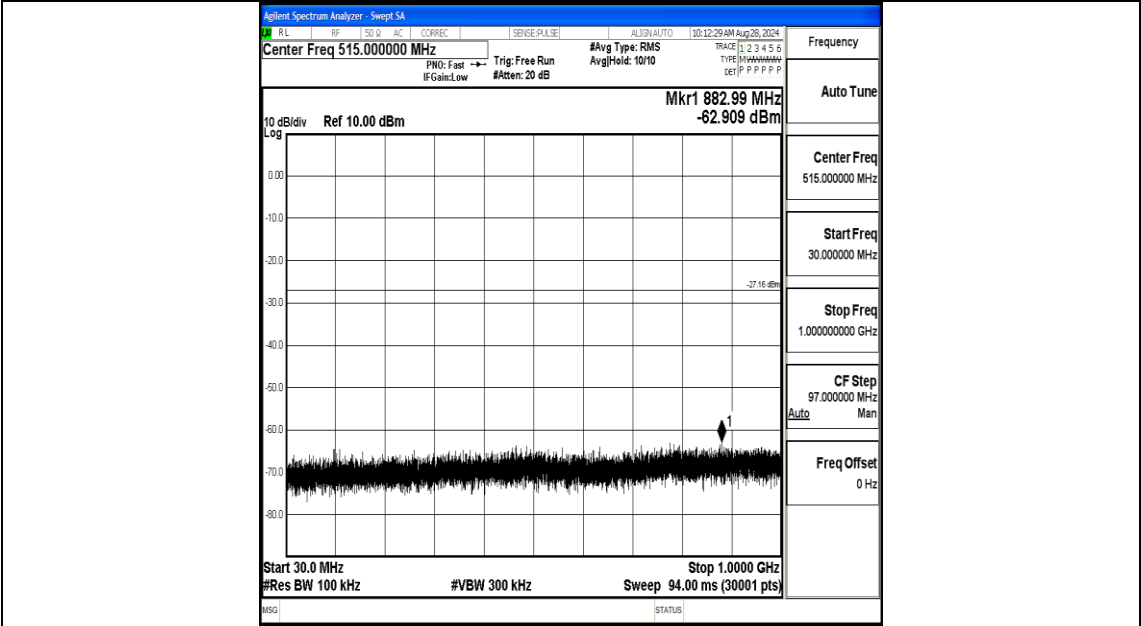
2DH5-Ant1-2441-30~1000-PASS



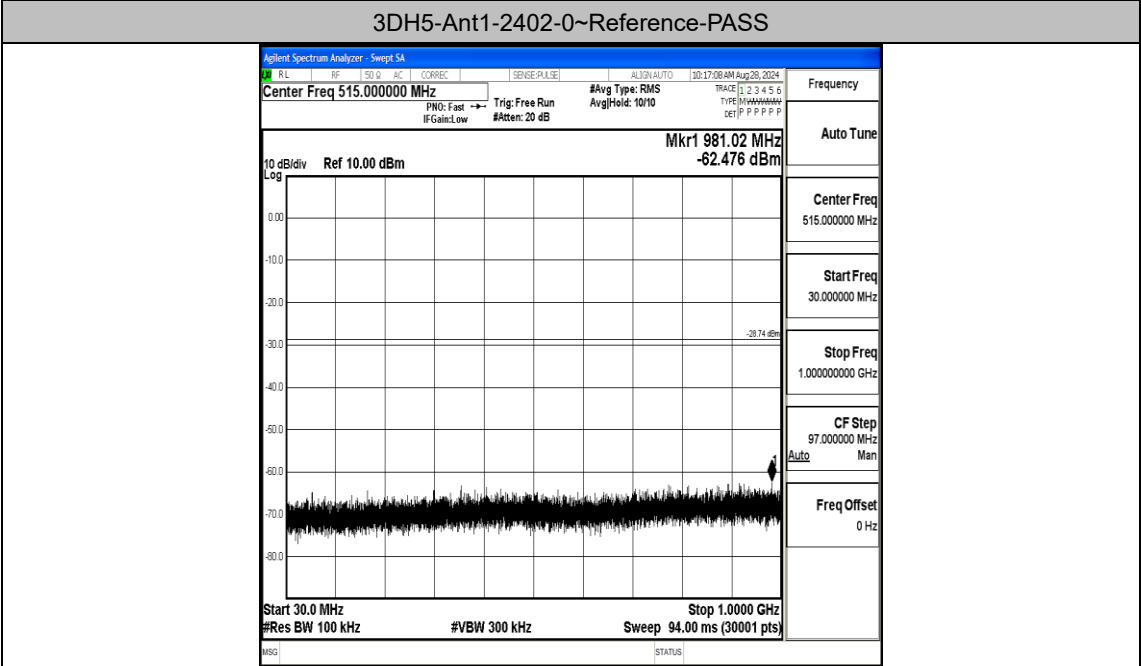
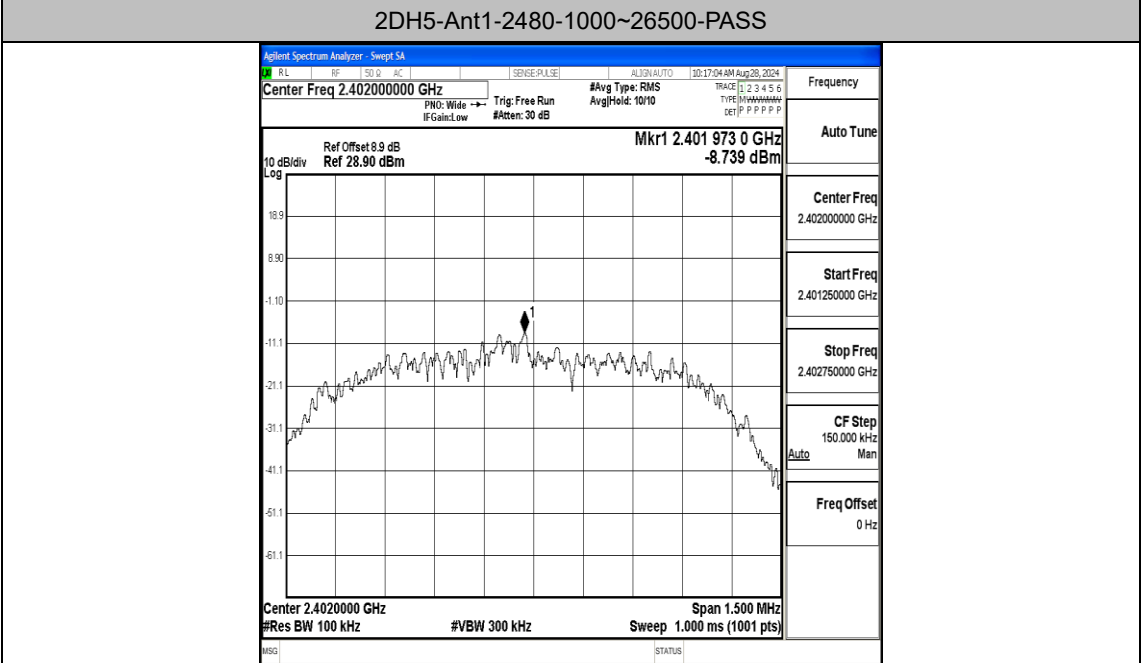
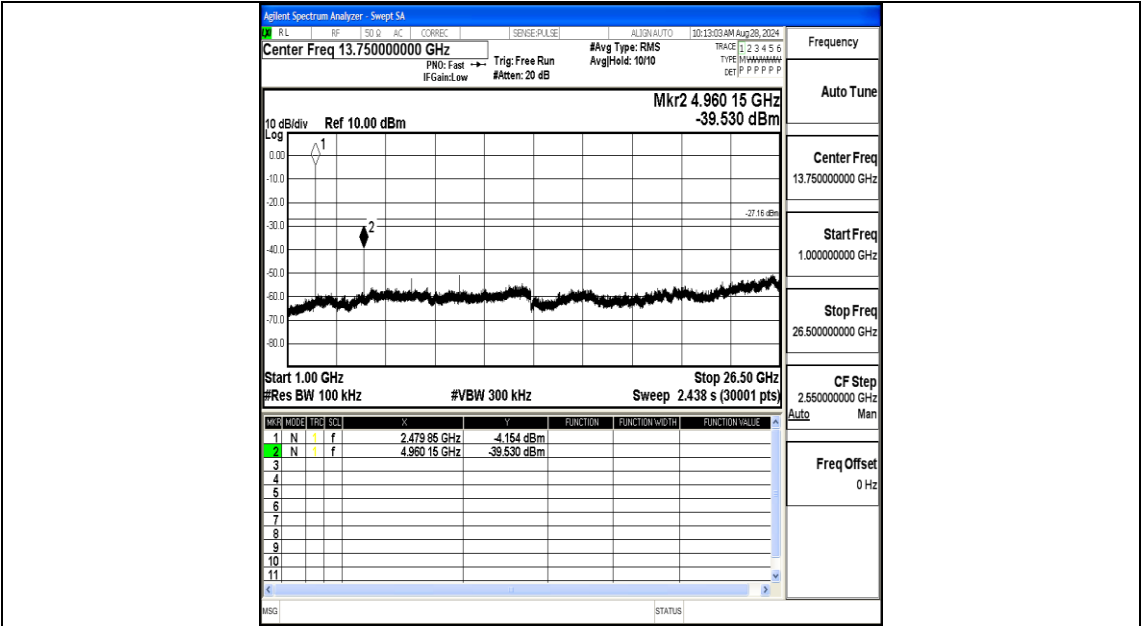
2DH5-Ant1-2441-1000~26500-PASS

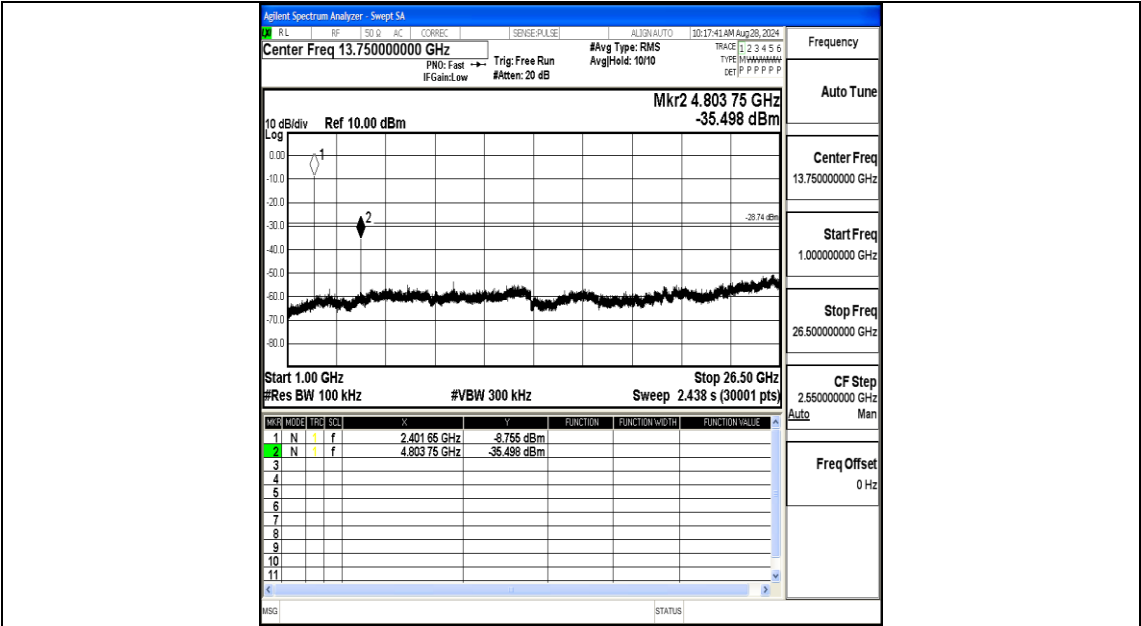


2DH5-Ant1-2480-0~Reference-PASS

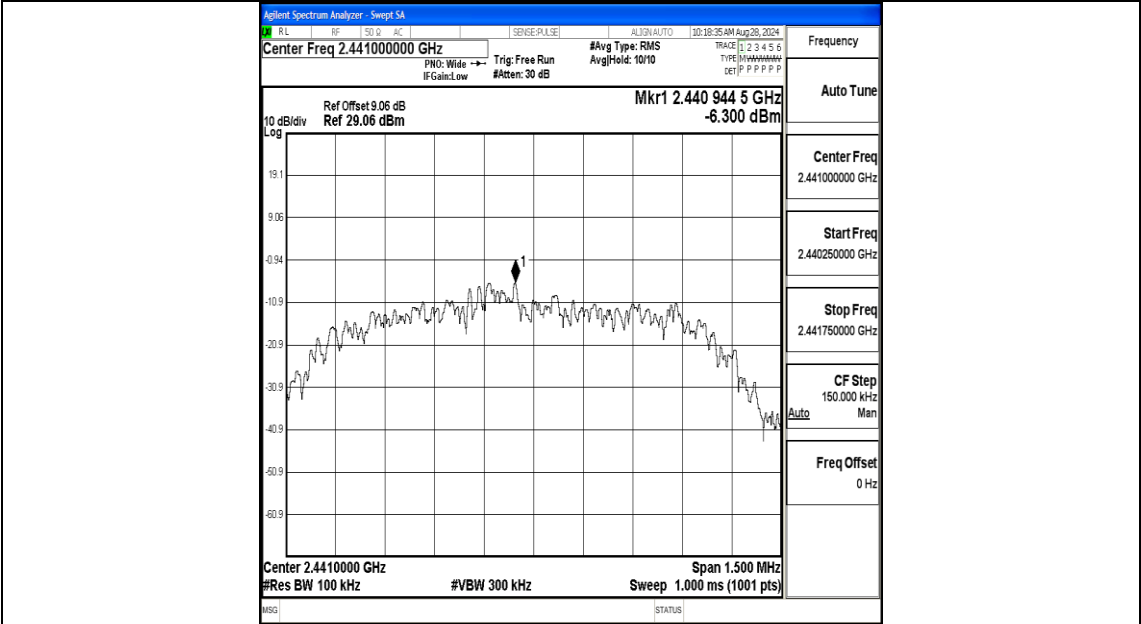


2DH5-Ant1-2480-30~1000-PASS

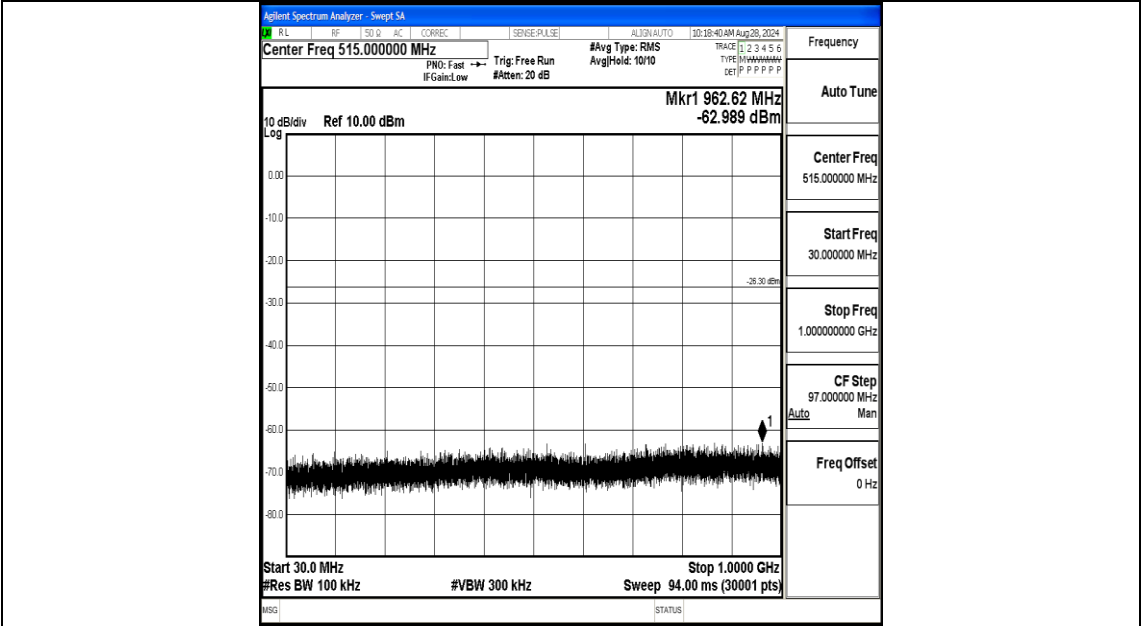




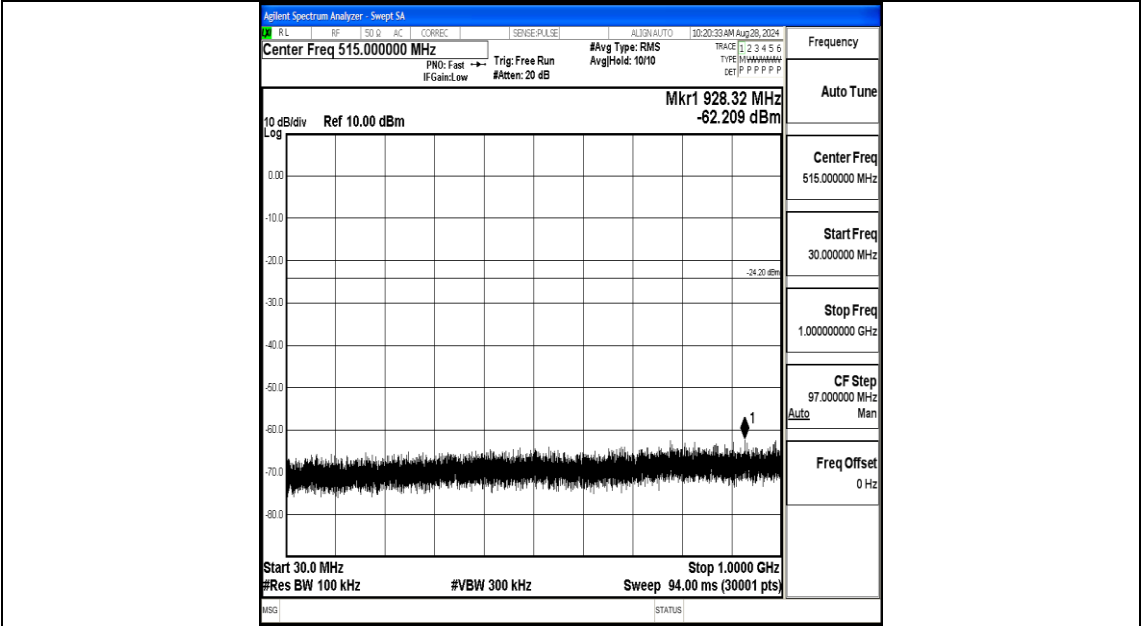
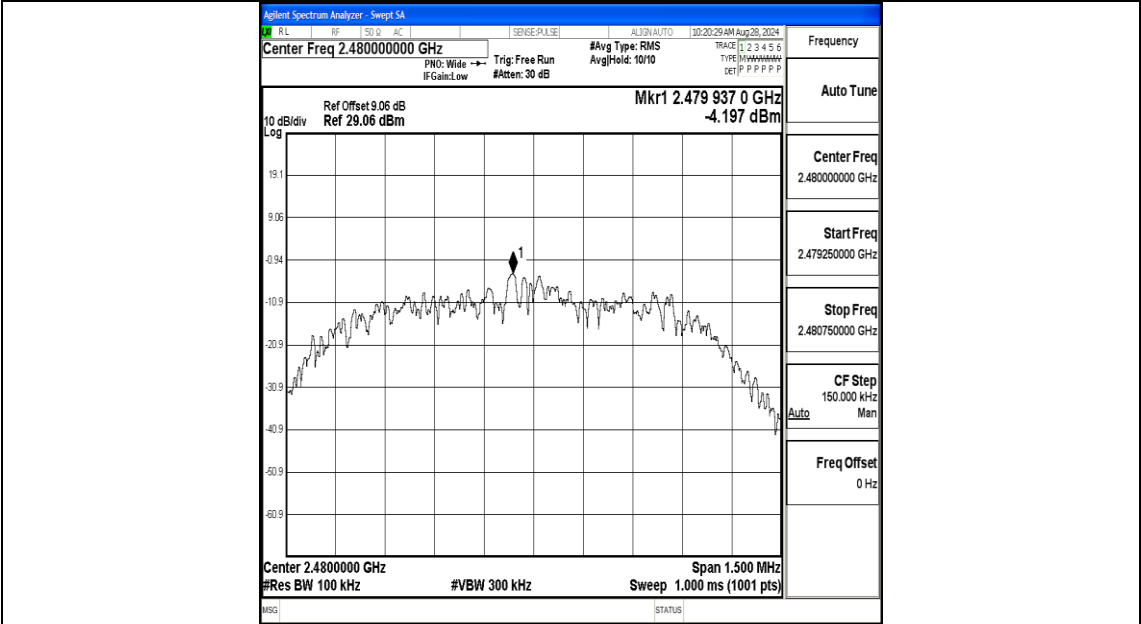
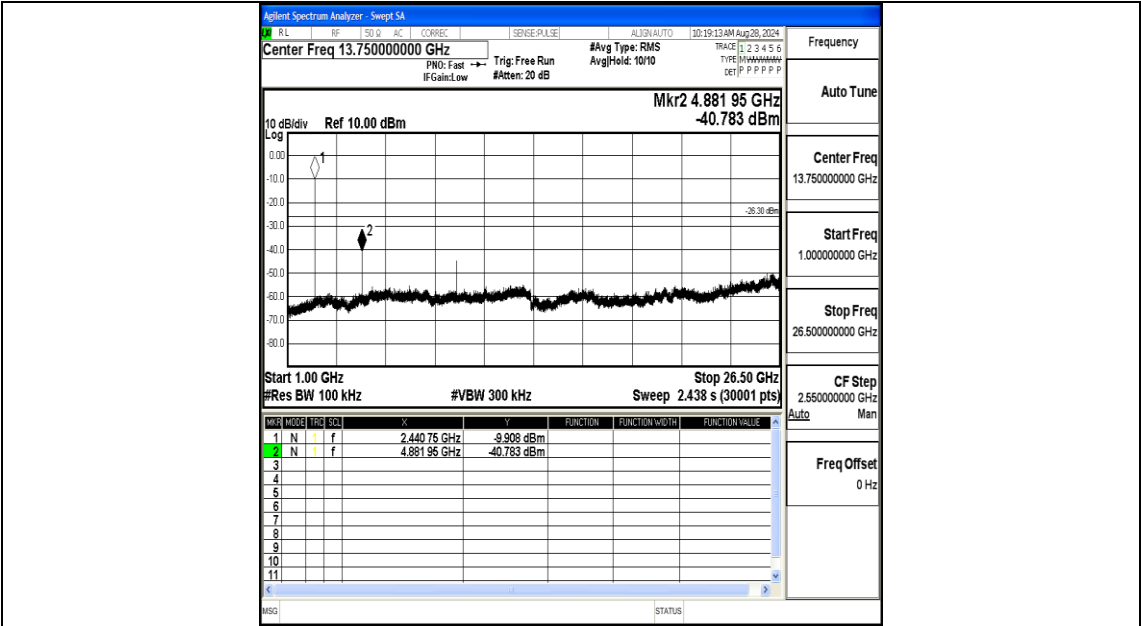
3DH5-Ant1-2402-1000~26500-PASS

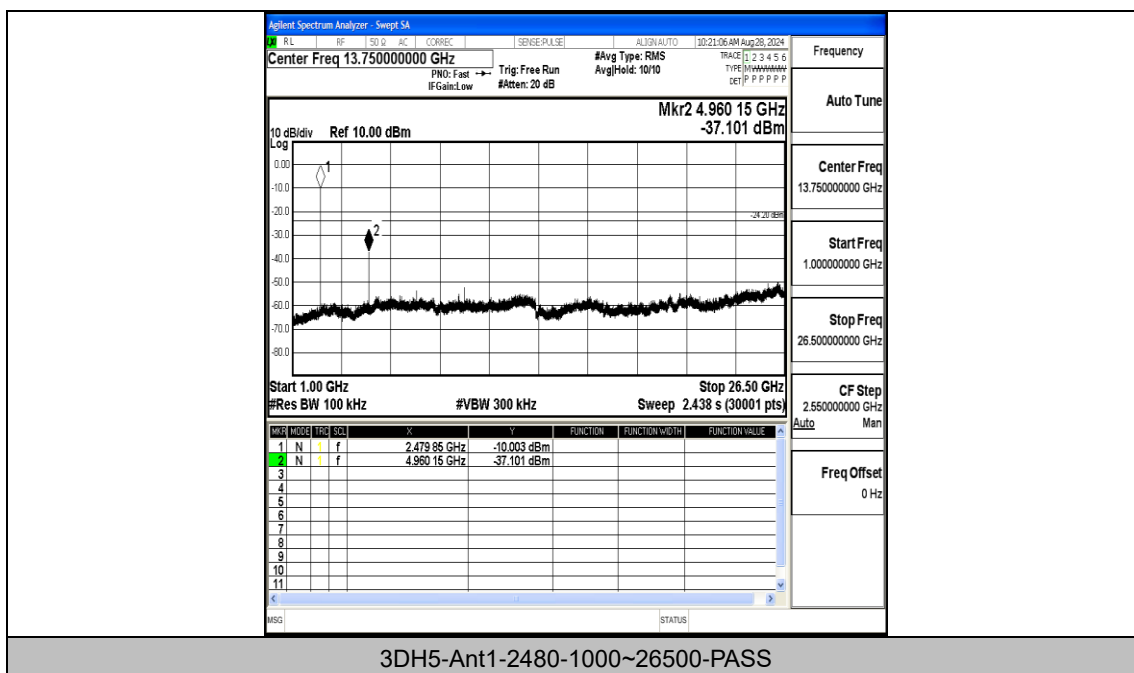


3DH5-Ant1-2441-0~Reference-PASS



3DH5-Ant1-2441-30~1000-PASS



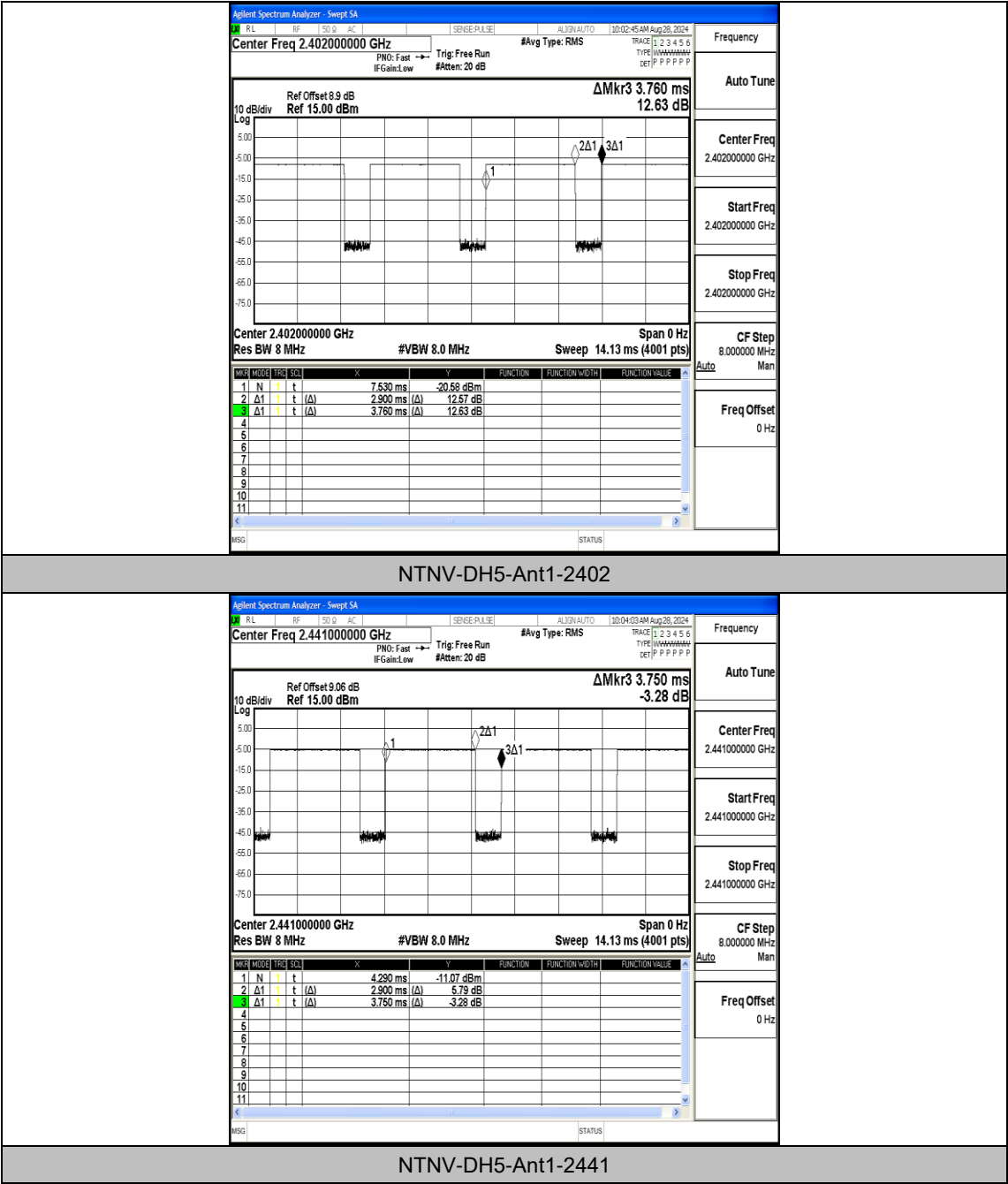


Appendix I: Duty Cycle

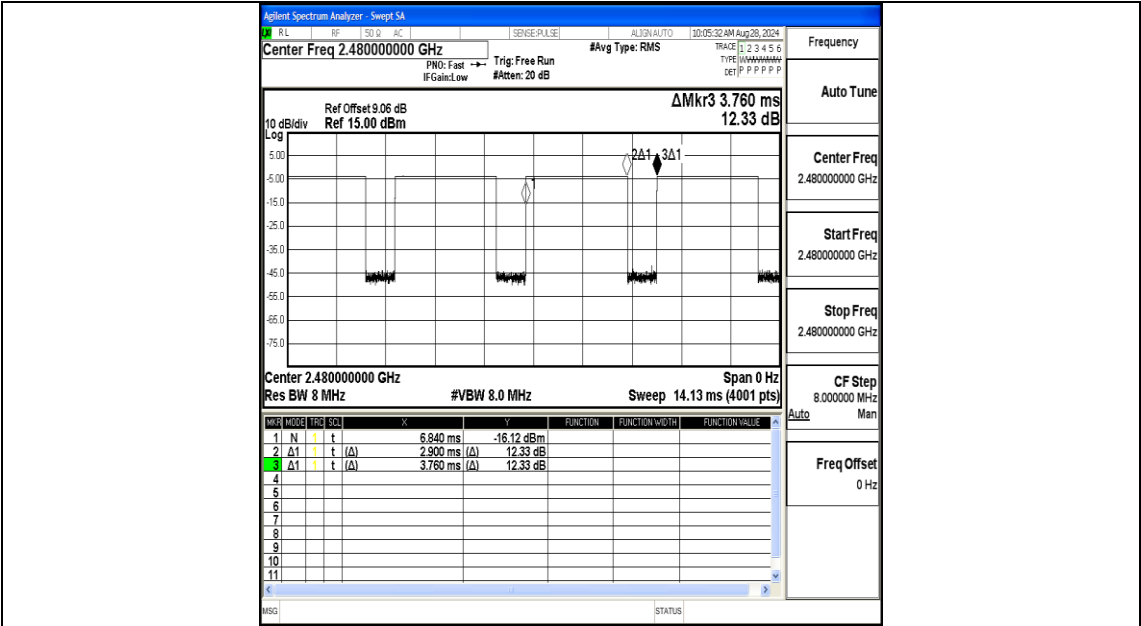
Test Result

TestMode	Antenna	Frequency[MHz]	ON Time[ms]	Period[ms]	Duty Cycle[%]	Duty Cycle Factor[dB]
DH5	Ant1	2402	2.90	3.76	77.13	1.13
DH5	Ant1	2441	2.90	3.75	77.33	1.12
DH5	Ant1	2480	2.90	3.76	77.13	1.13
2DH5	Ant1	2402	2.91	3.75	77.60	1.10
2DH5	Ant1	2441	2.90	3.75	77.33	1.12
2DH5	Ant1	2480	2.91	3.75	77.60	1.10
3DH5	Ant1	2402	2.91	3.75	77.60	1.10
3DH5	Ant1	2441	2.90	3.75	77.33	1.12
3DH5	Ant1	2480	2.91	3.75	77.60	1.10

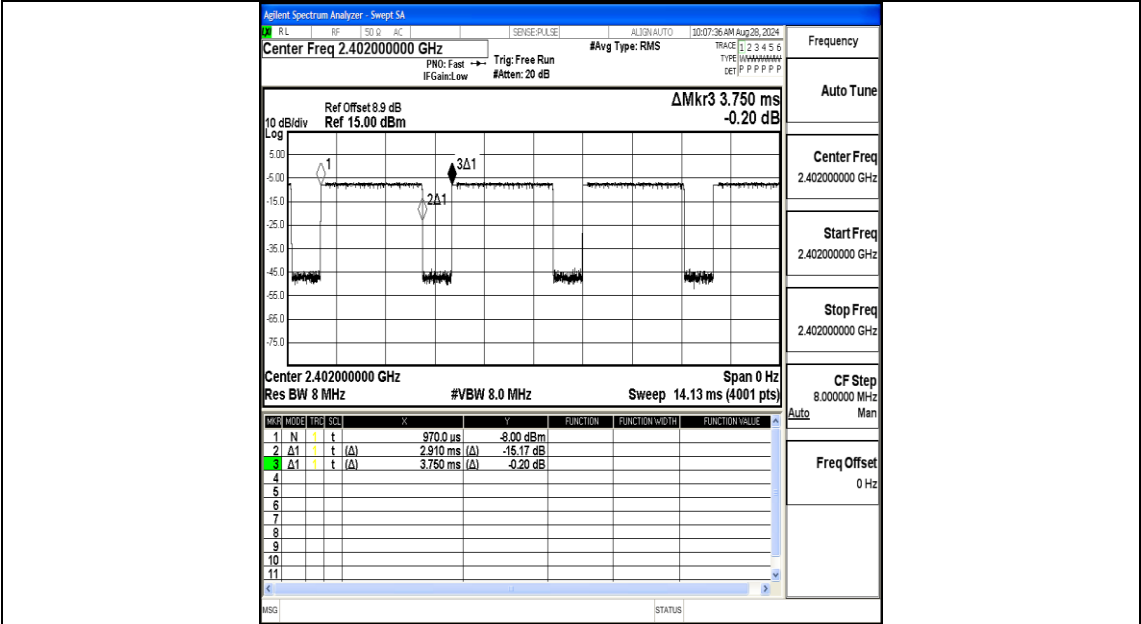
Test Graphs



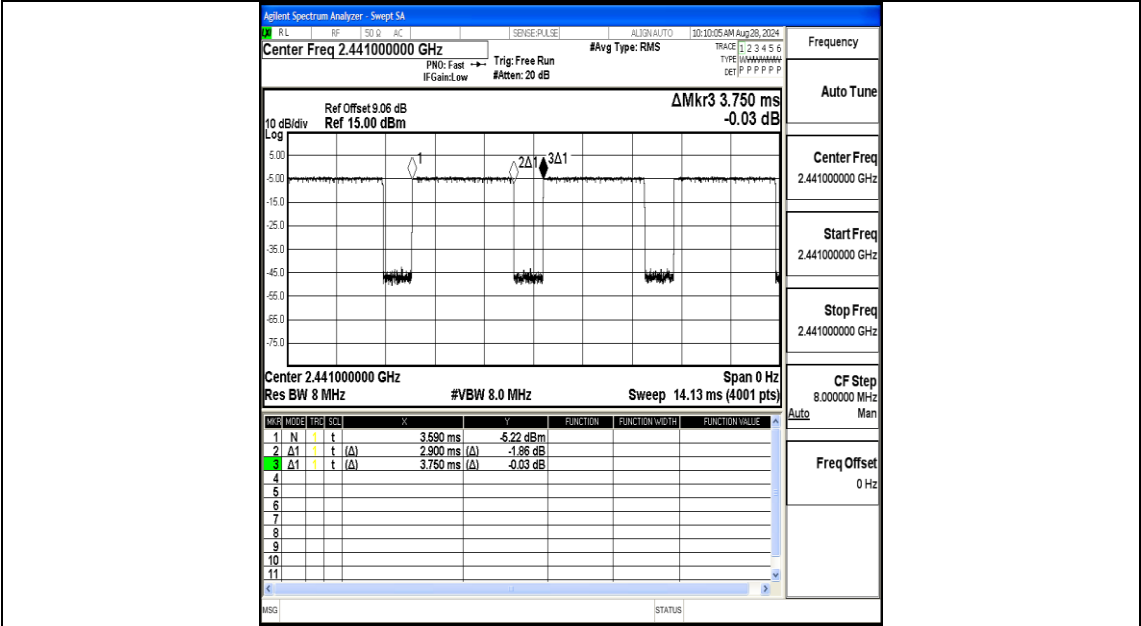
NTNV-DH5-Ant1-2441



NTNV-DH5-Ant1-2480



NTNV-2DH5-Ant1-2402



NTNV-2DH5-Ant1-2441

