

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

Product Name: True Wireless Stereo earphones

Trade Mark: /

Test Model: Z1 TWS

FCC ID: 2BRB3-Z1TWS

Environmental Conditions

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

Appendix A: 20dB Emission Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	20db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	1.044	2401.472	2402.516	---	---
DH5	Ant1	2441	1.032	2440.481	2441.513	---	---
DH5	Ant1	2480	1.023	2479.487	2480.510	---	---
2DH5	Ant1	2402	1.332	2401.328	2402.660	---	---
2DH5	Ant1	2441	1.332	2440.328	2441.660	---	---
2DH5	Ant1	2480	1.323	2479.334	2480.657	---	---

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs





DH5-Ant1-2480



2DH5-Ant1-2402



2DH5-Ant1-2441



2DH5-Ant1-2480

Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.94153	2401.5207	2402.4622	---	---
DH5	Ant1	2441	0.93567	2440.5212	2441.4569	---	---
DH5	Ant1	2480	0.93608	2479.5225	2480.4586	---	---
2DH5	Ant1	2402	1.2269	2401.3847	2402.6116	---	---
2DH5	Ant1	2441	1.2052	2440.3932	2441.5984	---	---
2DH5	Ant1	2480	1.1870	2479.4020	2480.5890	---	---

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

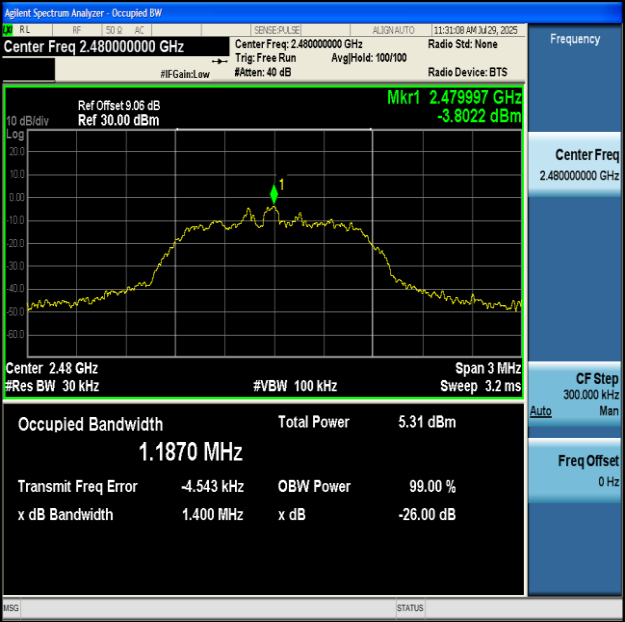
Test Graphs







2DH5-Ant1-2441



2DH5-Ant1-2480

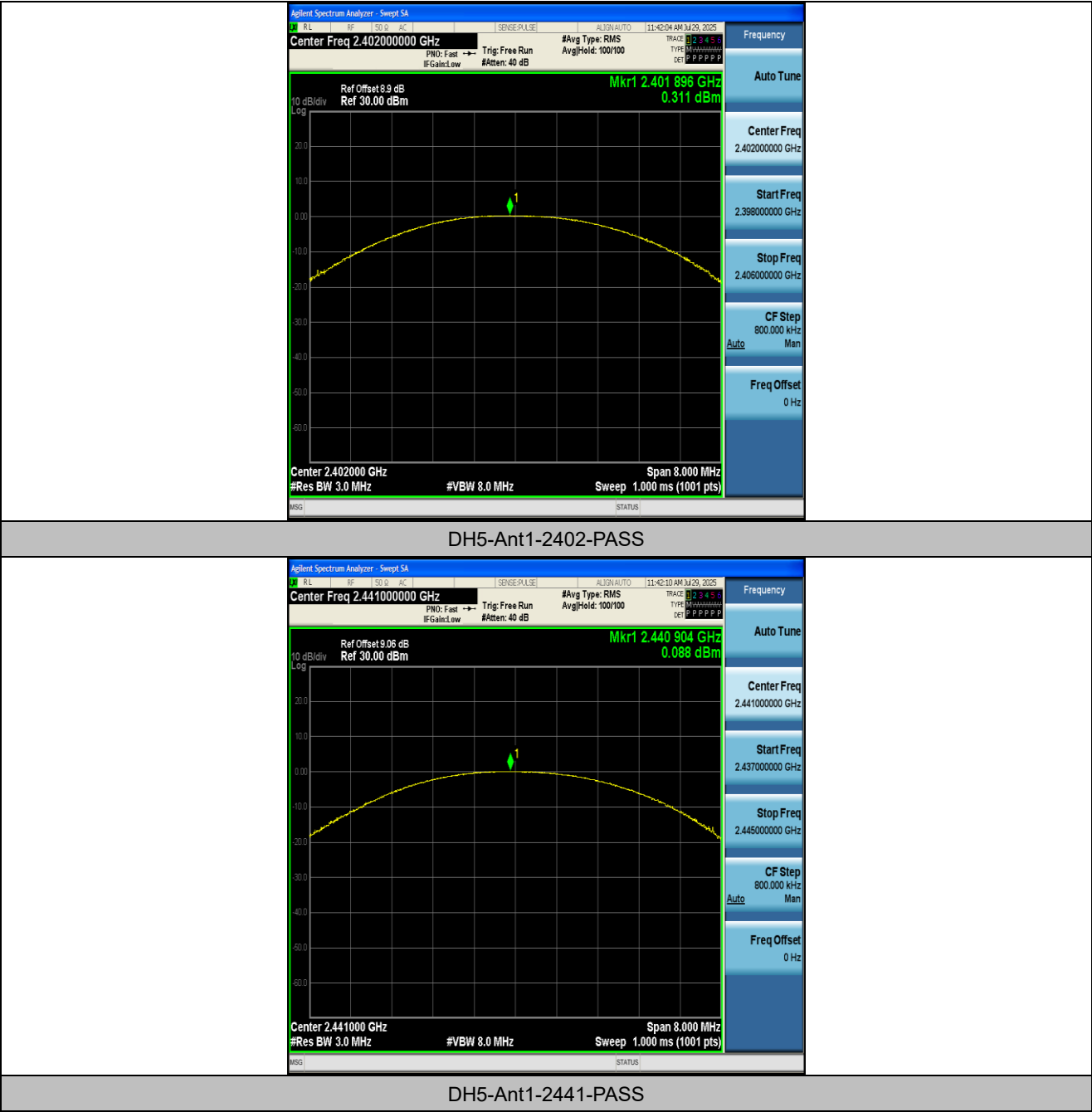
Appendix C: Maximum peak conducted output power

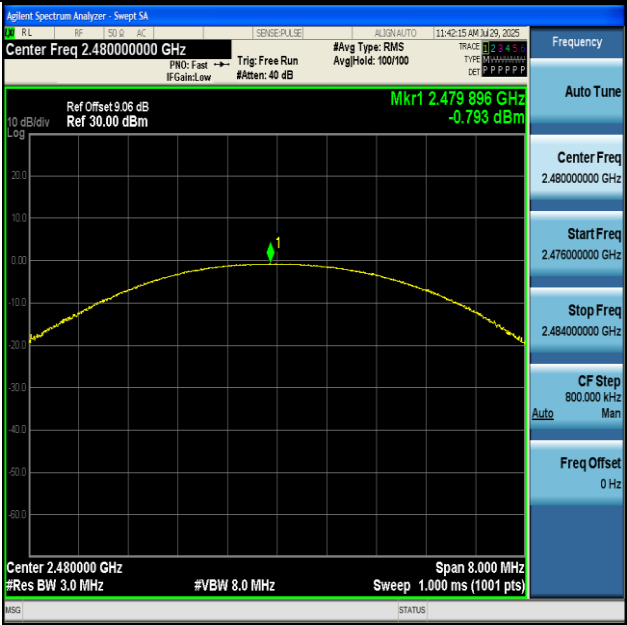
Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
DH5	Ant1	2402	0.31	≤20.97	PASS
DH5	Ant1	2441	0.09	≤20.97	PASS
DH5	Ant1	2480	-0.79	≤20.97	PASS
2DH5	Ant1	2402	1.05	≤20.97	PASS
2DH5	Ant1	2441	0.85	≤20.97	PASS
2DH5	Ant1	2480	-0.01	≤20.97	PASS

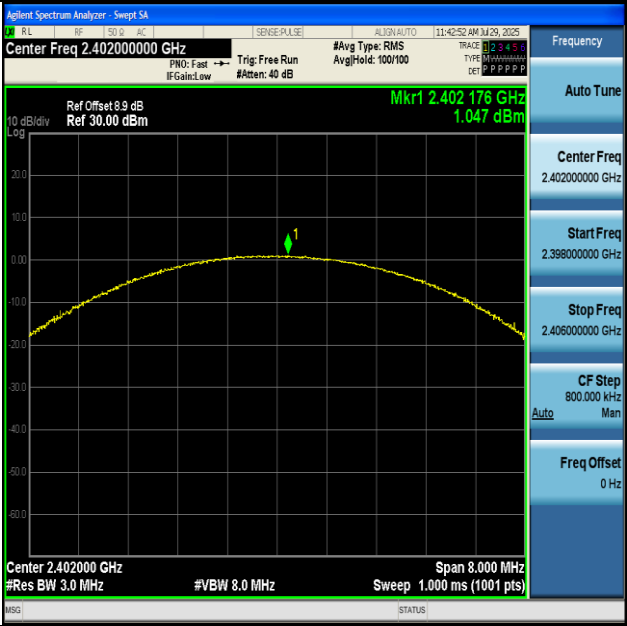
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

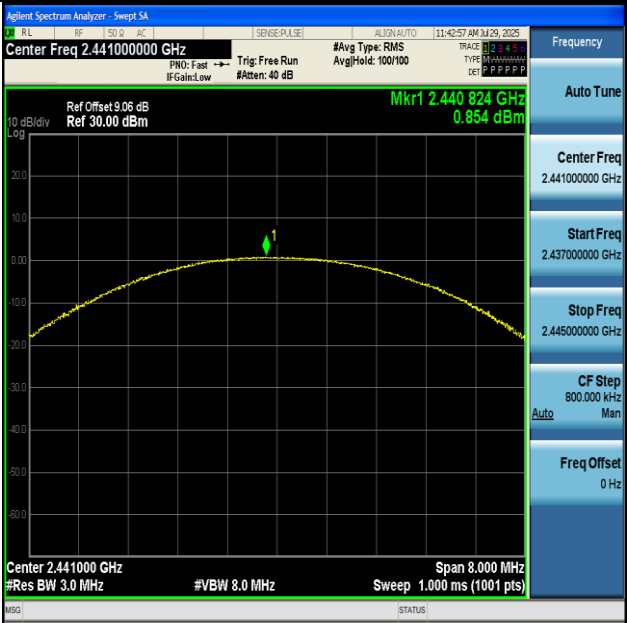




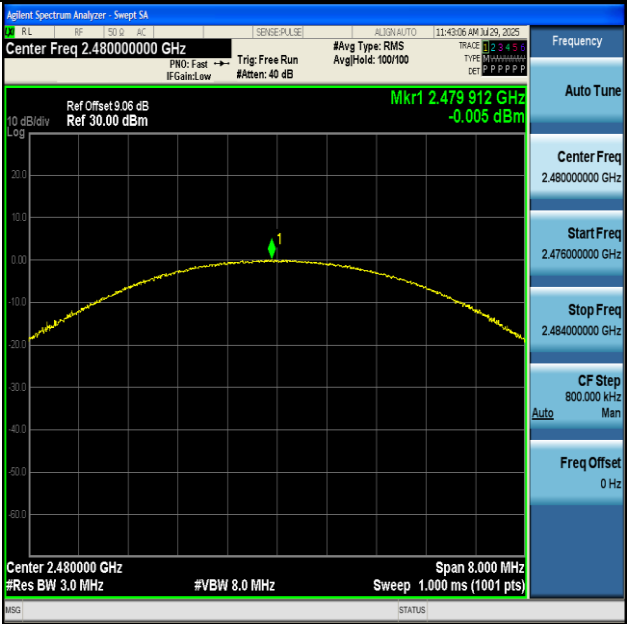
DH5-Ant1-2480-PASS



2DH5-Ant1-2402-PASS



2DH5-Ant1-2441-PASS



2DH5-Ant1-2480-PASS

Appendix D: Carrier frequency separation

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1.004	≥0.696	PASS
2DH5	Ant1	Hop	1.028	≥0.888	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs



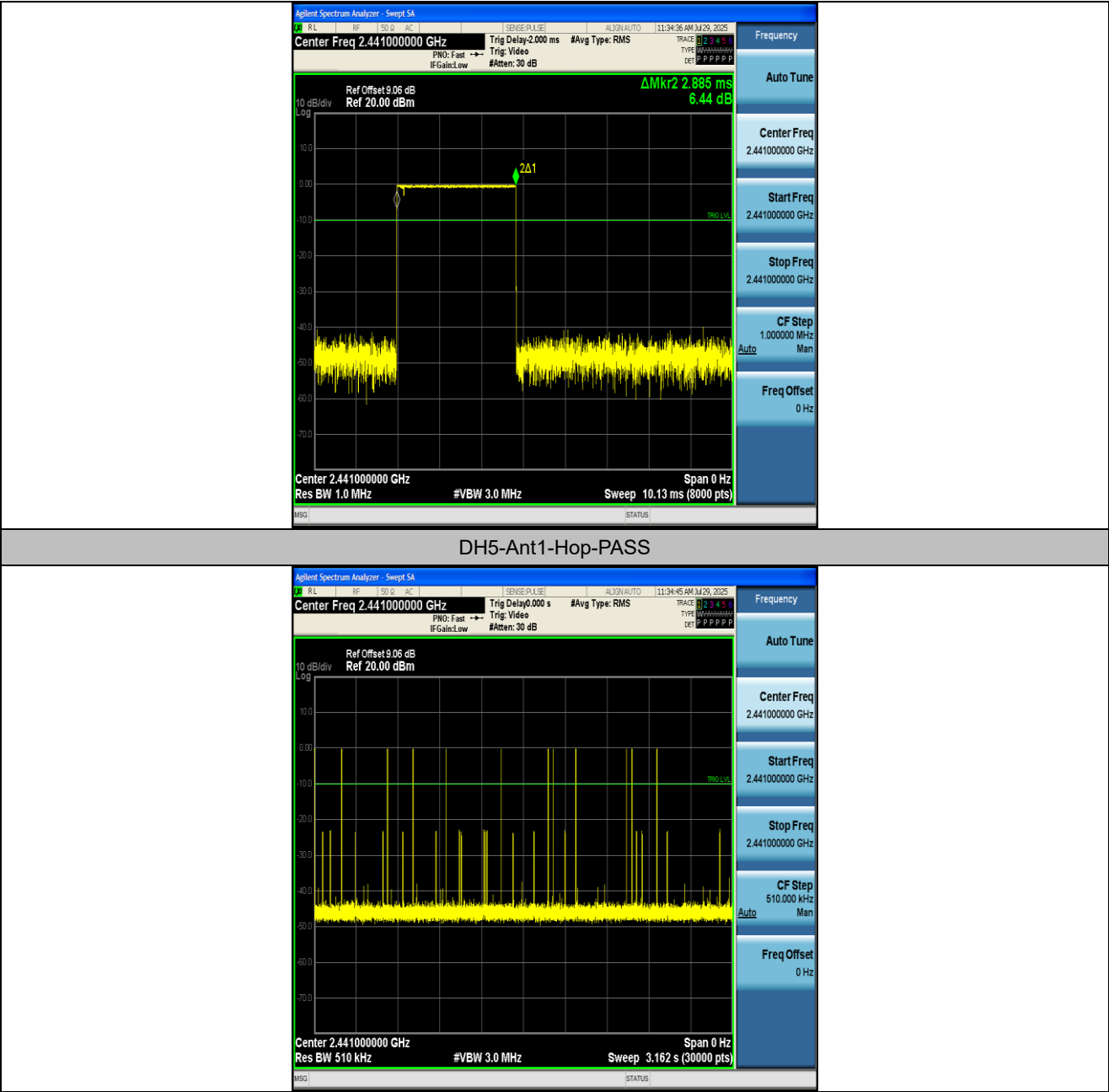
Appendix E: Time of occupancy

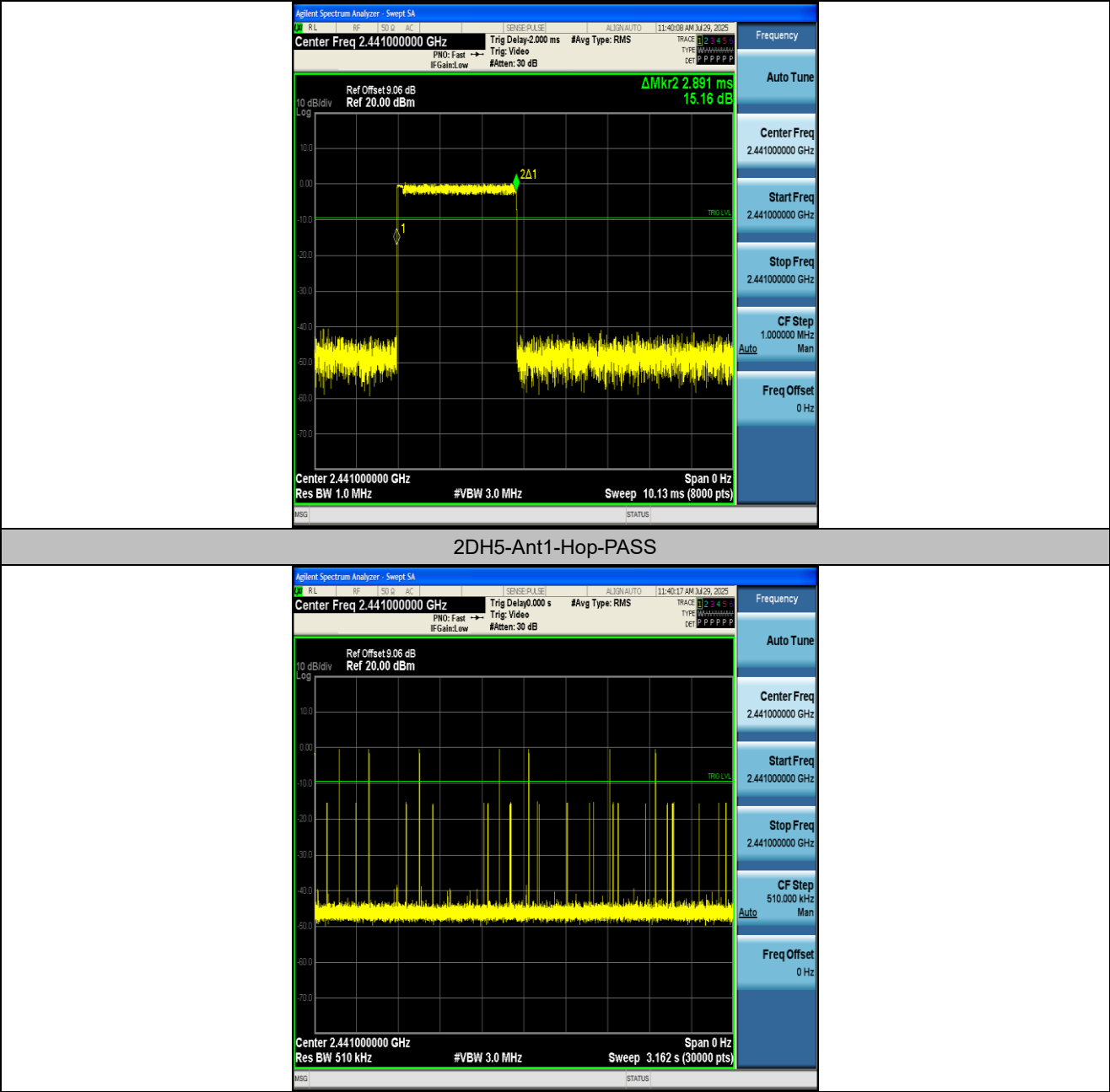
Test Result

Test Mode	Antenna	Frequency [MHz]	Burst Width [ms]	TotalHops [Num]	Result [s]	Limit [s]	Verdict
DH5	Ant1	Hop	2.885	120	0.346	≤0.4	PASS
2DH5	Ant1	Hop	2.891	80	0.231	≤0.4	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs





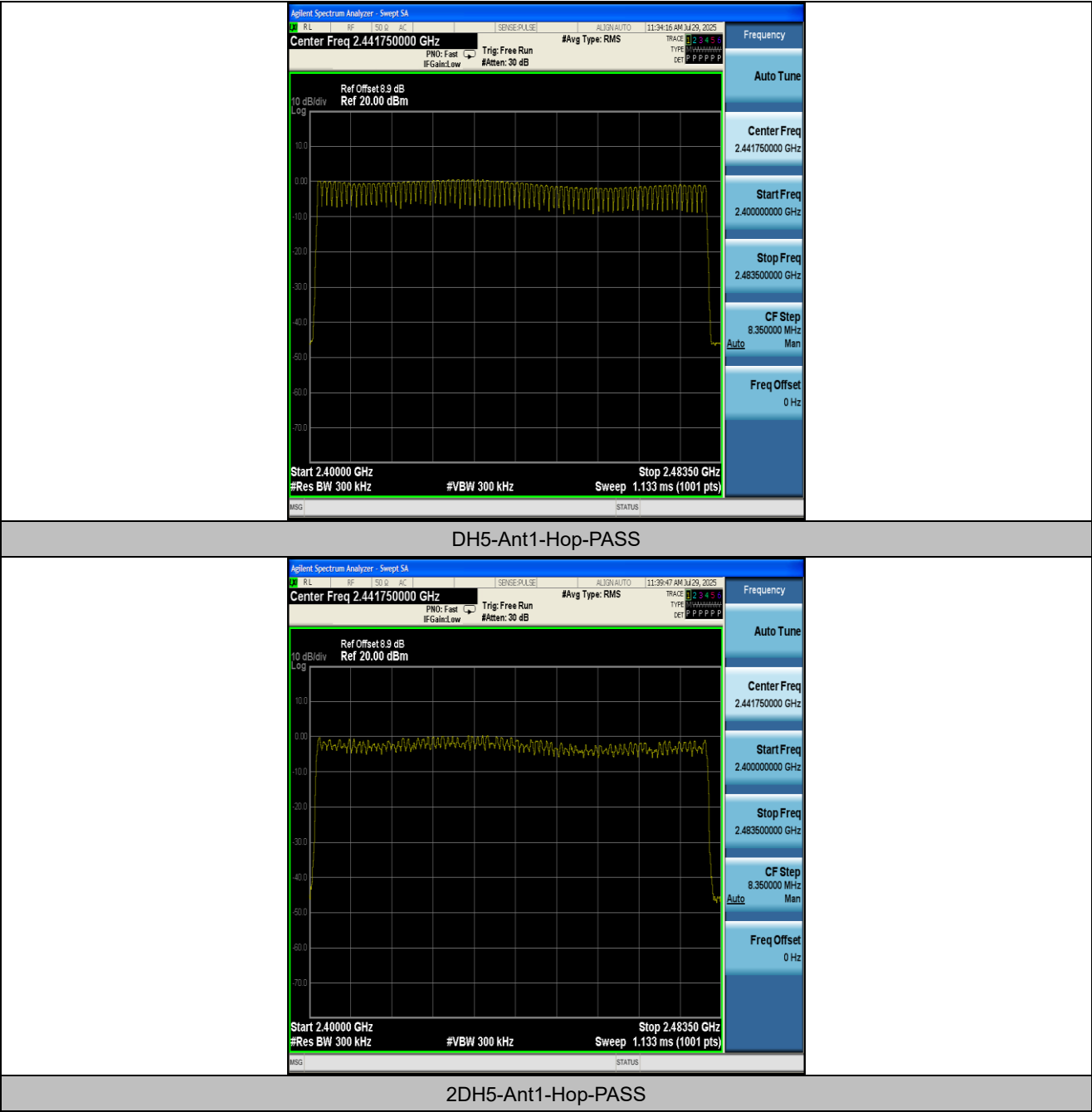
Appendix F: Number of hopping channels

Test Result

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

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs



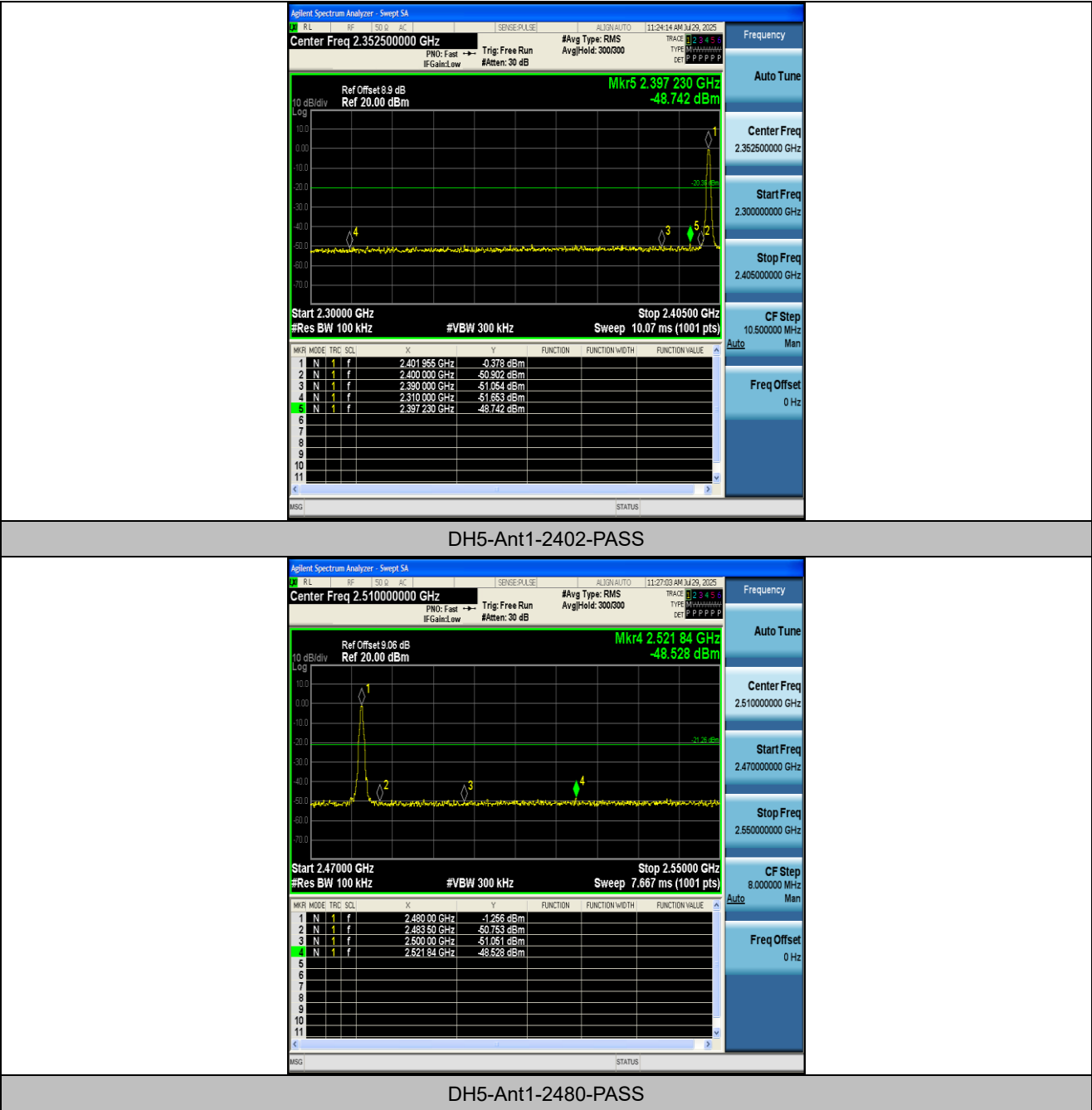
Appendix G: Band edge measurements

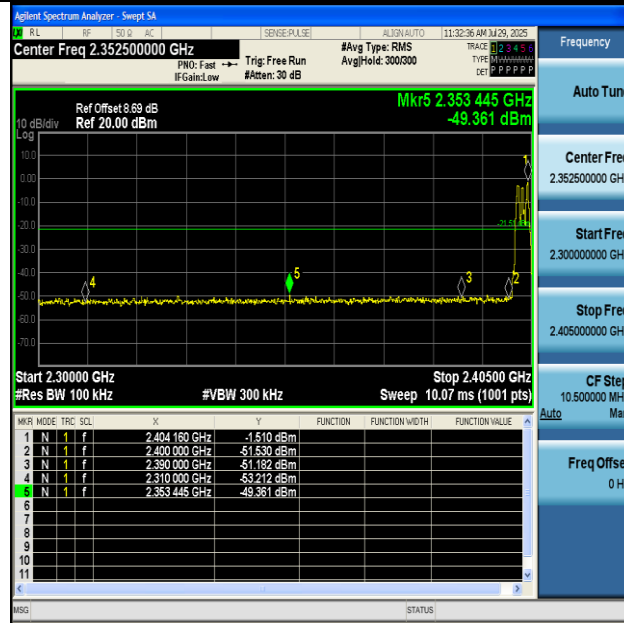
Test Result

Test Mode	Antenna	Ch.Name	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.38	-48.74	≤-20.38	PASS
DH5	Ant1	High	2480	-1.26	-48.53	≤-21.26	PASS
DH5	Ant1	Low	Hop_2402	-1.51	-49.36	≤-21.51	PASS
DH5	Ant1	High	Hop_2480	-1.25	-48.67	≤-21.25	PASS
2DH5	Ant1	Low	2402	-0.22	-49.2	≤-20.22	PASS
2DH5	Ant1	High	2480	-1.24	-48.66	≤-21.24	PASS
2DH5	Ant1	Low	Hop_2402	-4.23	-49.3	≤-24.23	PASS
2DH5	Ant1	High	Hop_2480	-4.75	-48.39	≤-24.75	PASS

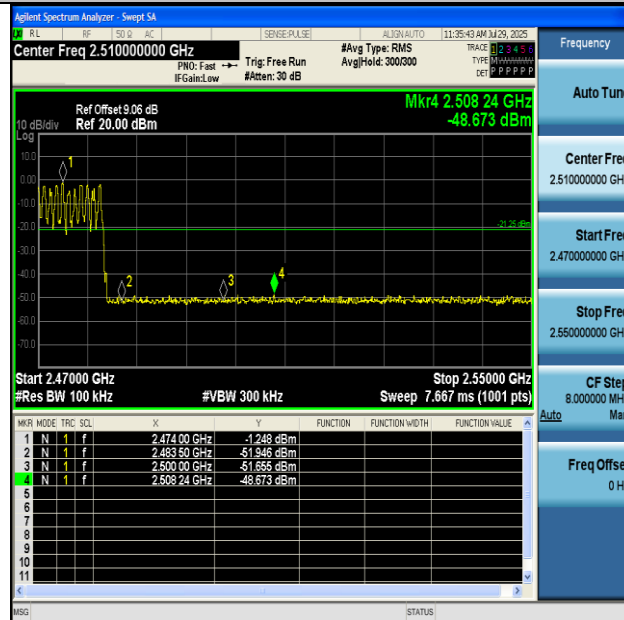
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

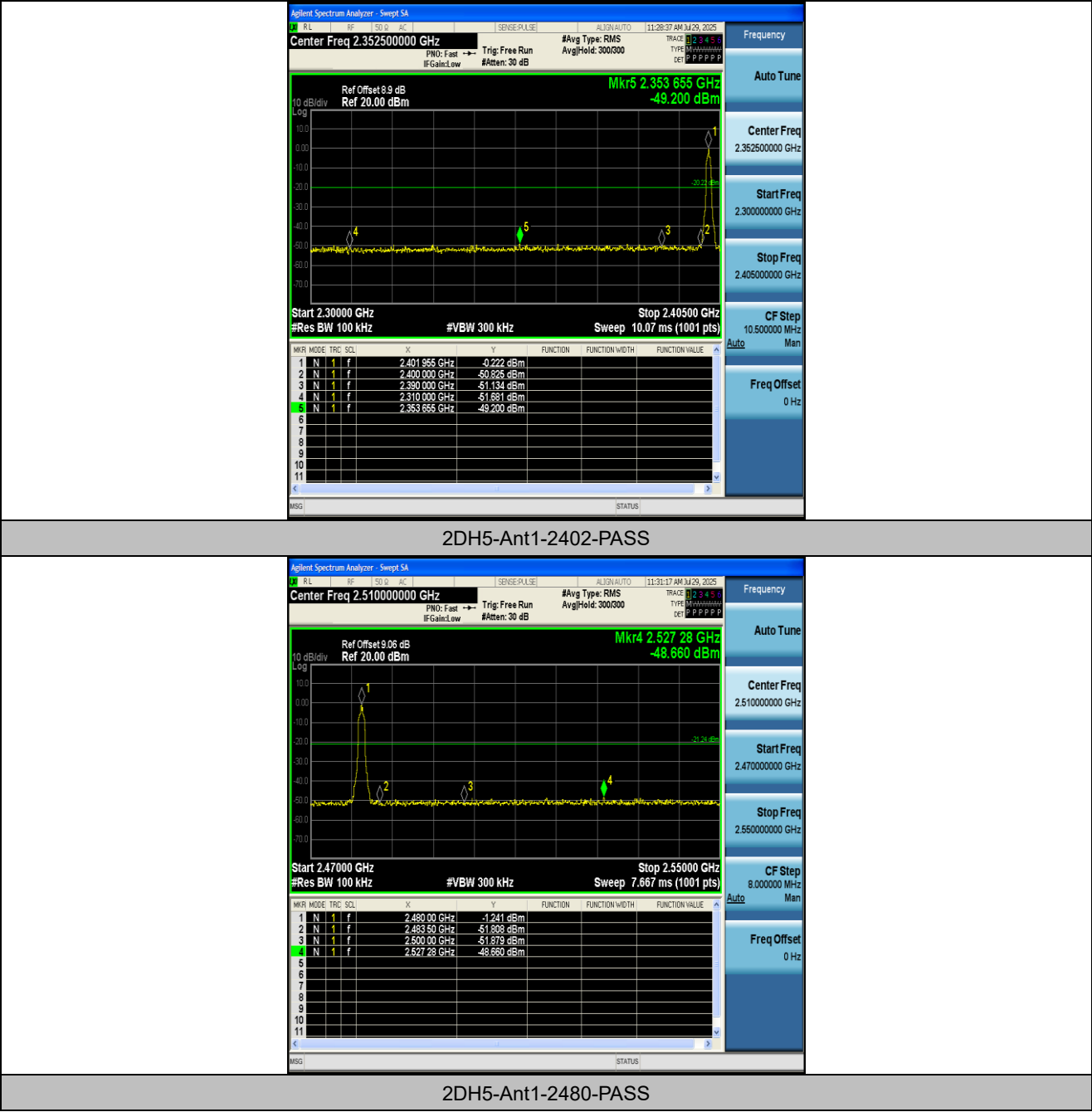


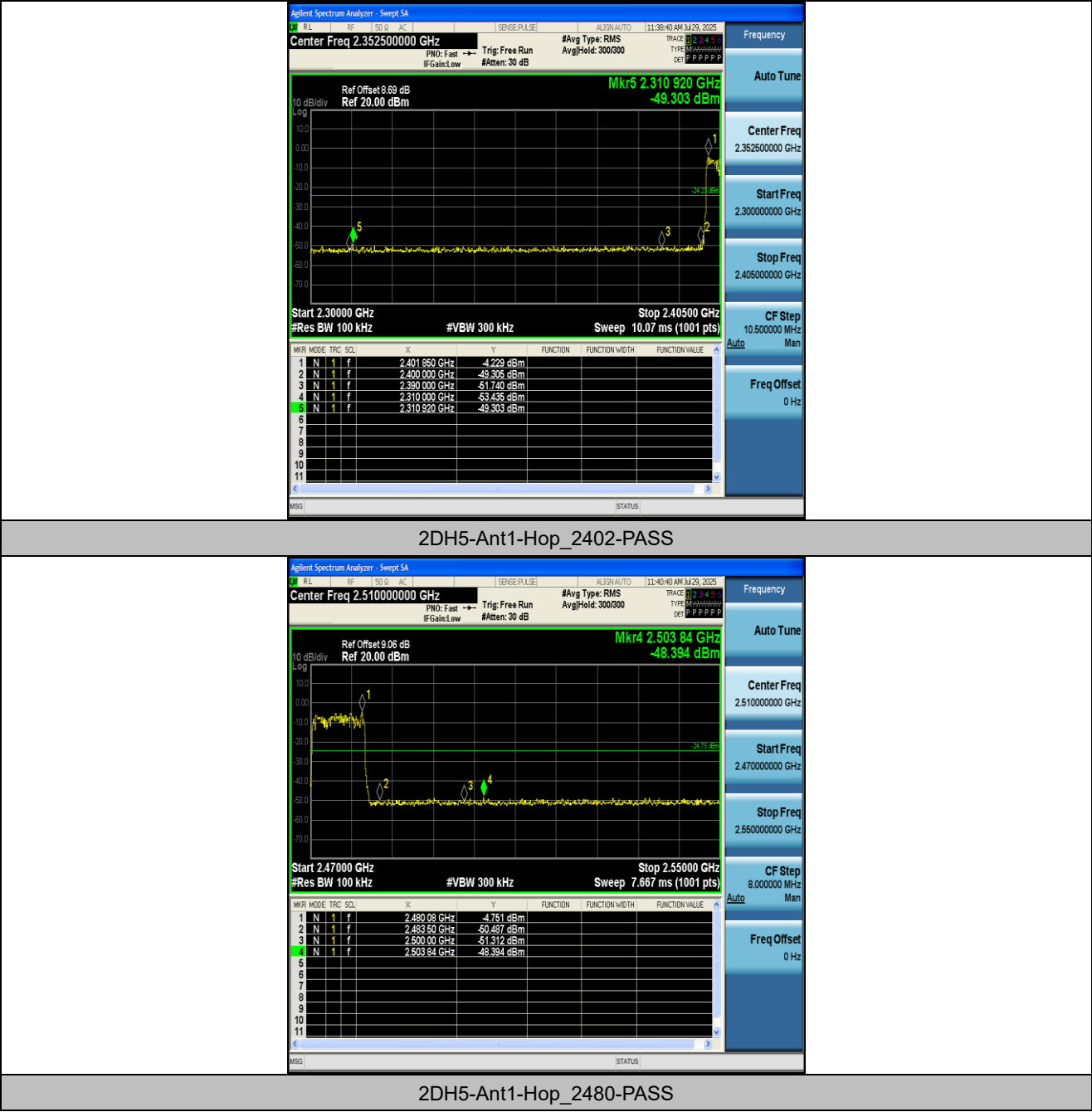


DH5-Ant1-Hop_2402-PASS



DH5-Ant1-Hop_2480-PASS





Appendix H: Conducted Spurious Emission

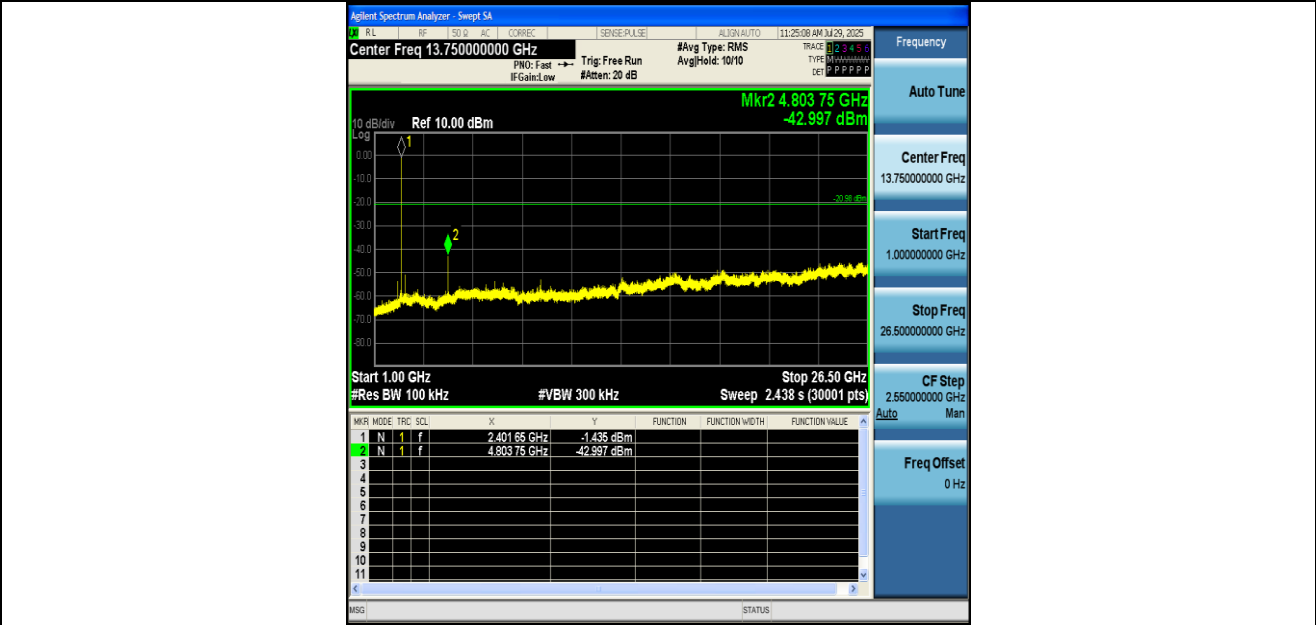
Test Result

Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	-0.98	-0.98	---	PASS
DH5	Ant1	2402	30~1000	-0.98	-61.96	≤-20.98	PASS
DH5	Ant1	2402	1000~26500	-0.98	-43	≤-20.98	PASS
DH5	Ant1	2441	0~Reference	-1.22	-1.22	---	PASS
DH5	Ant1	2441	30~1000	-1.22	-62.32	≤-21.22	PASS
DH5	Ant1	2441	1000~26500	-1.22	-41.36	≤-21.22	PASS
DH5	Ant1	2480	0~Reference	-2.07	-2.07	---	PASS
DH5	Ant1	2480	30~1000	-2.07	-62.59	≤-22.07	PASS
DH5	Ant1	2480	1000~26500	-2.07	-40.96	≤-22.07	PASS
2DH5	Ant1	2402	0~Reference	-2.40	-2.40	---	PASS
2DH5	Ant1	2402	30~1000	-2.40	-62.82	≤-22.4	PASS
2DH5	Ant1	2402	1000~26500	-2.40	-41.85	≤-22.4	PASS
2DH5	Ant1	2441	0~Reference	-0.82	-0.82	---	PASS
2DH5	Ant1	2441	30~1000	-0.82	-62.99	≤-20.82	PASS
2DH5	Ant1	2441	1000~26500	-0.82	-41.13	≤-20.82	PASS
2DH5	Ant1	2480	0~Reference	-1.49	-1.49	---	PASS
2DH5	Ant1	2480	30~1000	-1.49	-63.07	≤-21.49	PASS
2DH5	Ant1	2480	1000~26500	-1.49	-40.74	≤-21.49	PASS

Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.

Test Graphs

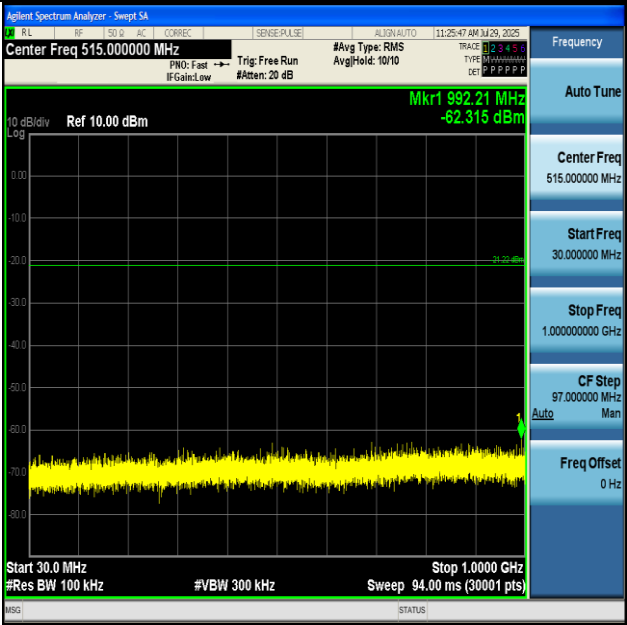




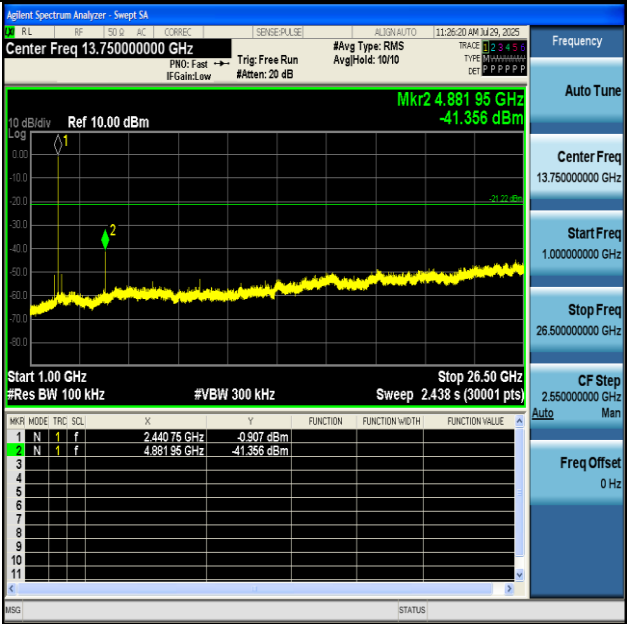
DH5-Ant1-2402-1000~26500-PASS



DH5-Ant1-2441-0~Reference-PASS



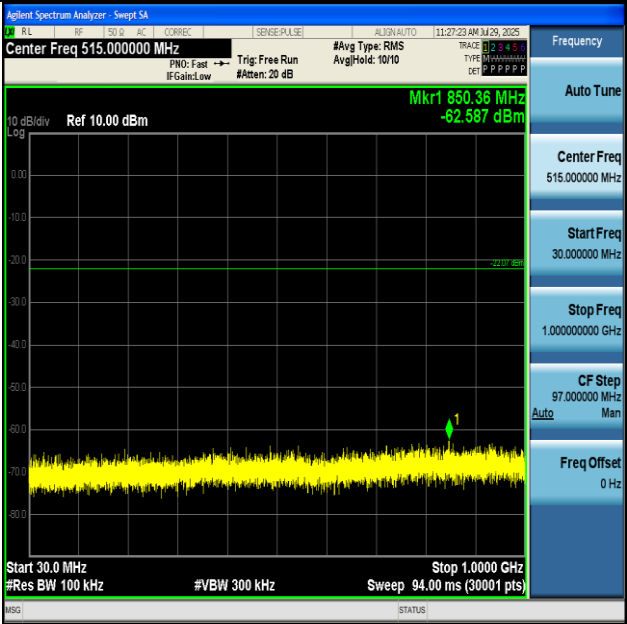
DH5-Ant1-2441-30~1000-PASS



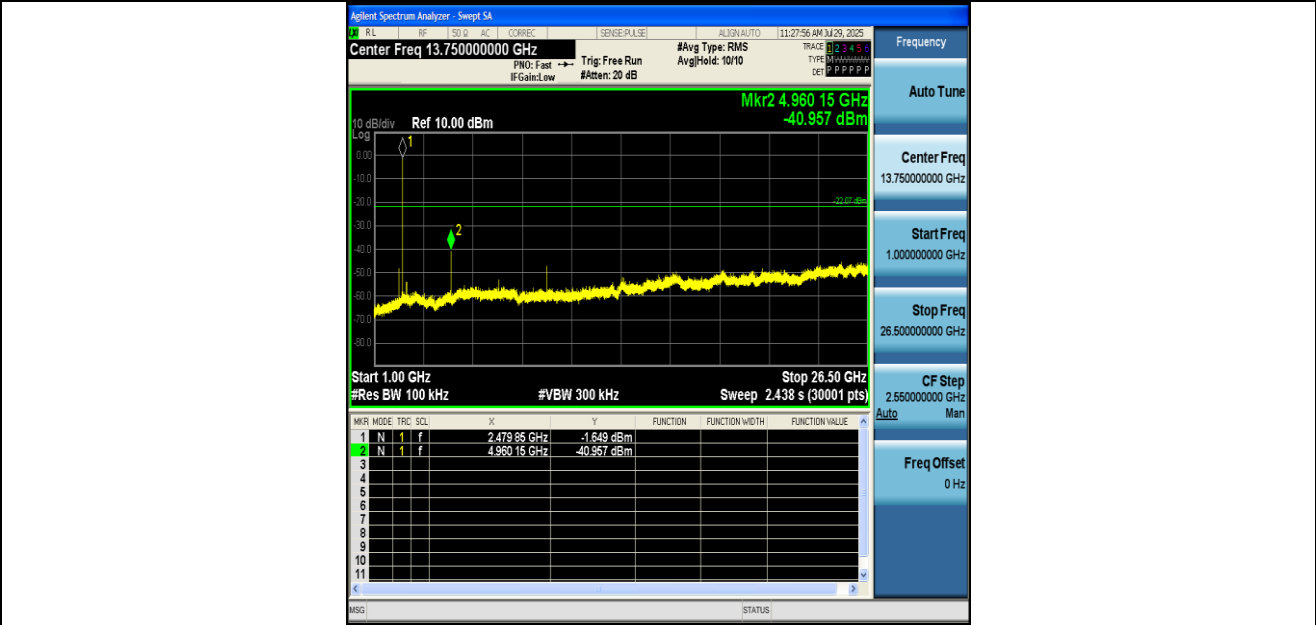
DH5-Ant1-2441-1000~26500-PASS



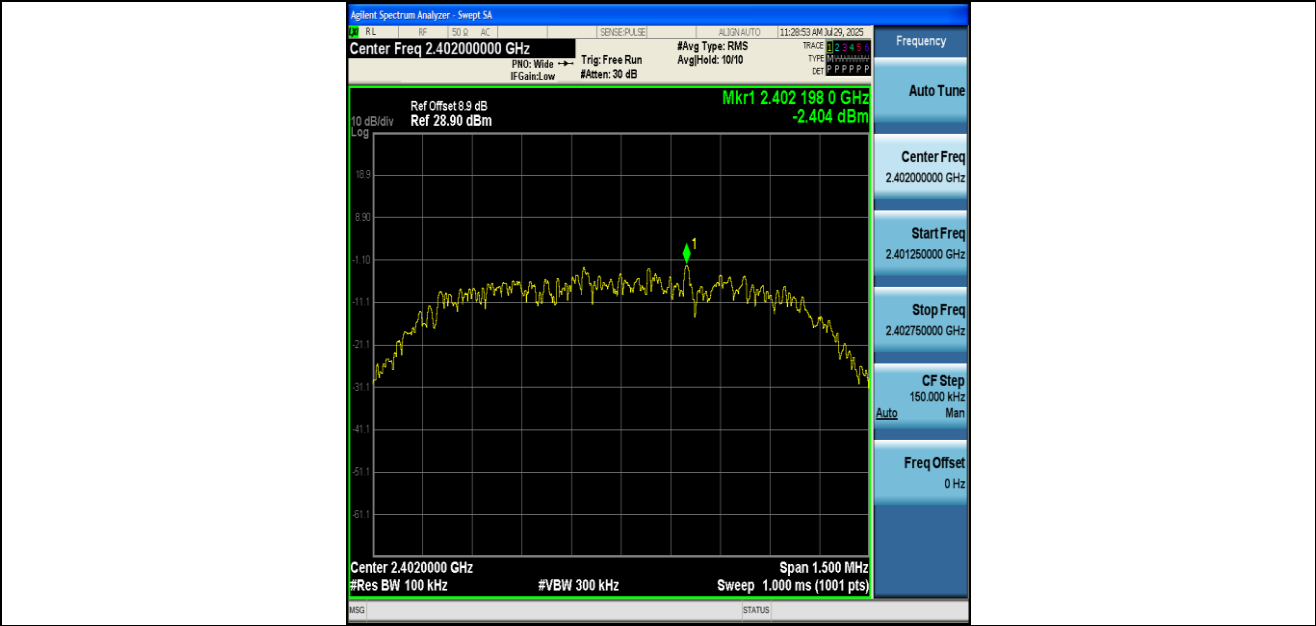
DH5-Ant1-2480-0~Reference-PASS



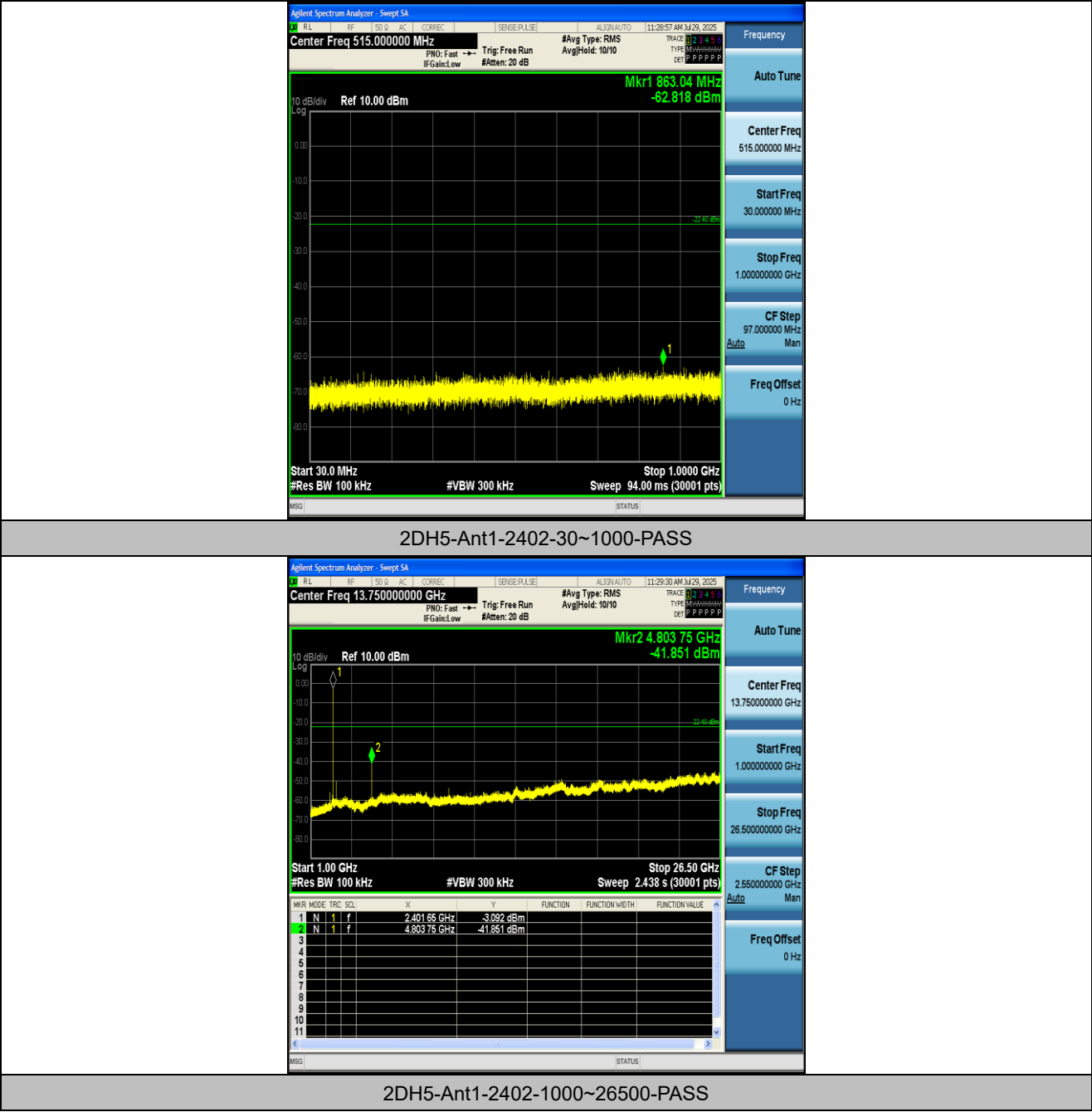
DH5-Ant1-2480-30~1000-PASS

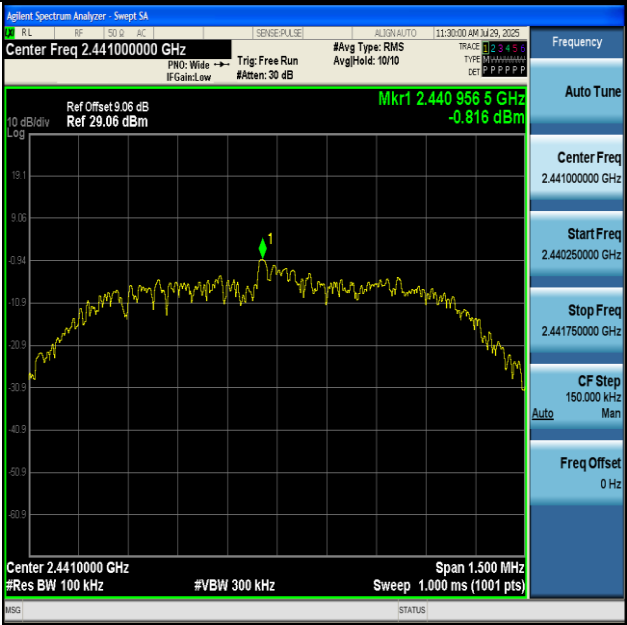


DH5-Ant1-2480-1000~26500-PASS

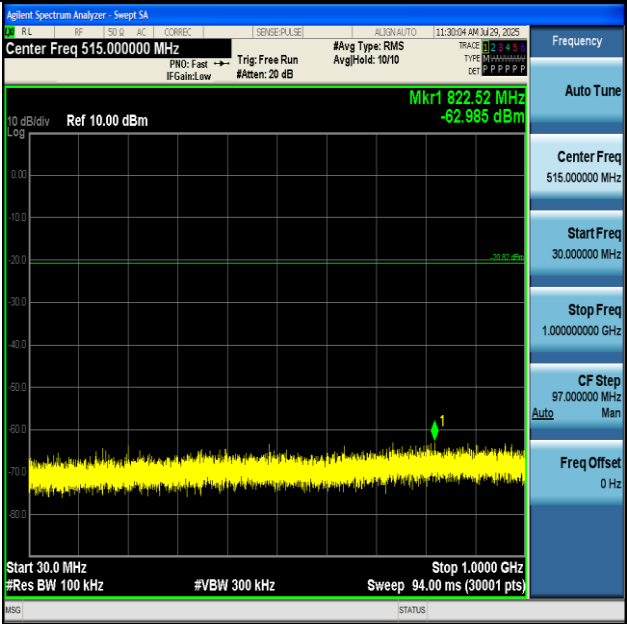


2DH5-Ant1-2402-0~Reference-PASS

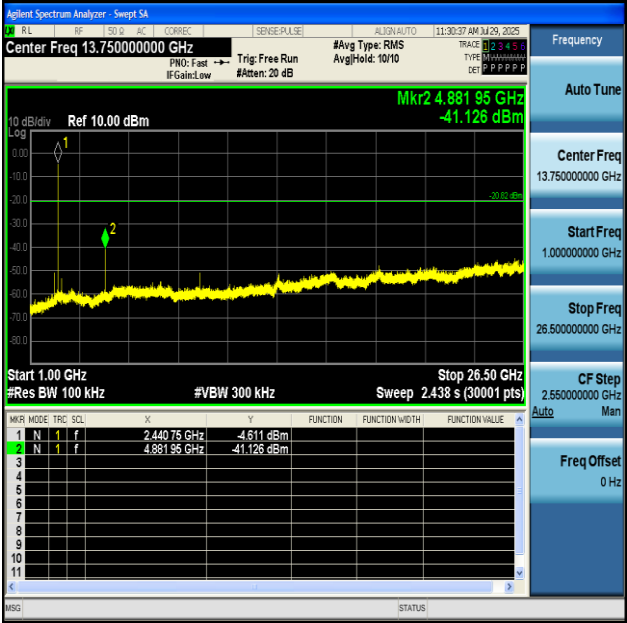




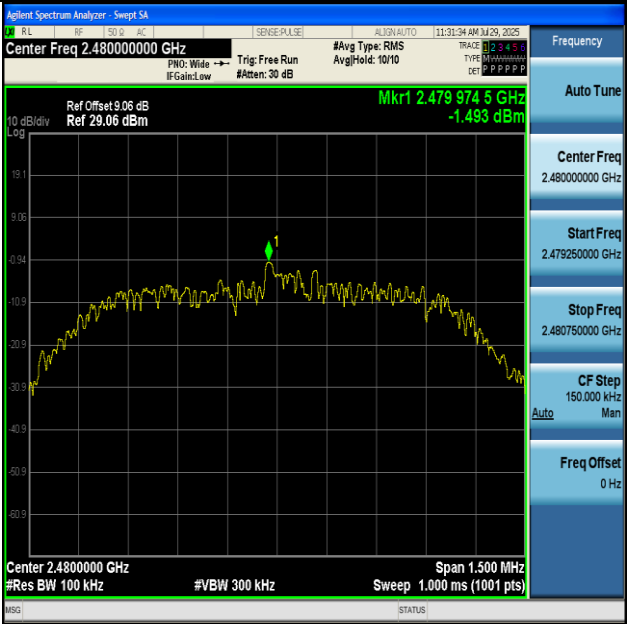
2DH5-Ant1-2441-0~Reference-PASS



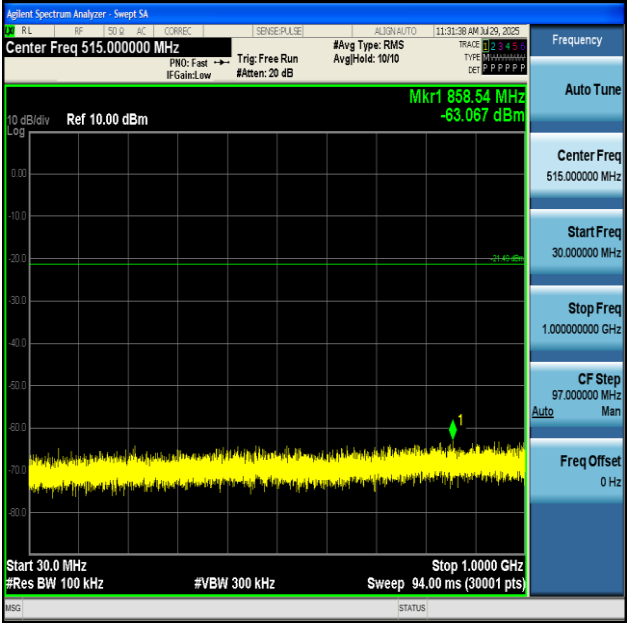
2DH5-Ant1-2441-30~1000-PASS



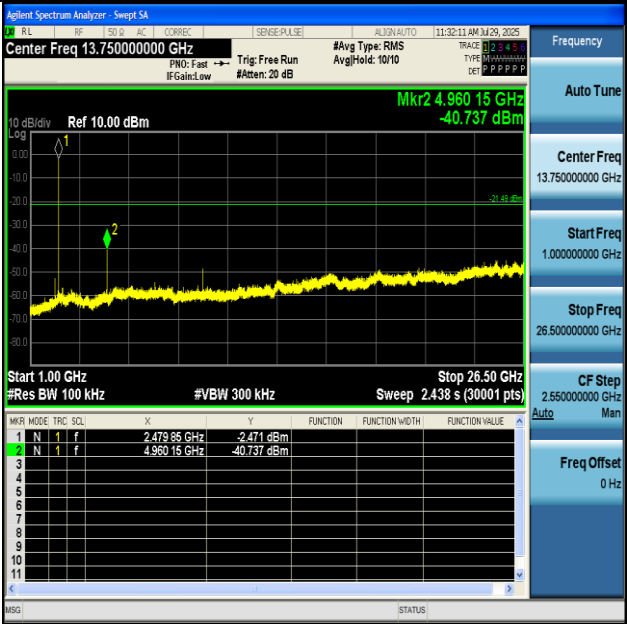
2DH5-Ant1-2441-1000~26500-PASS



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



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



2DH5-Ant1-2480-1000~26500-PASS

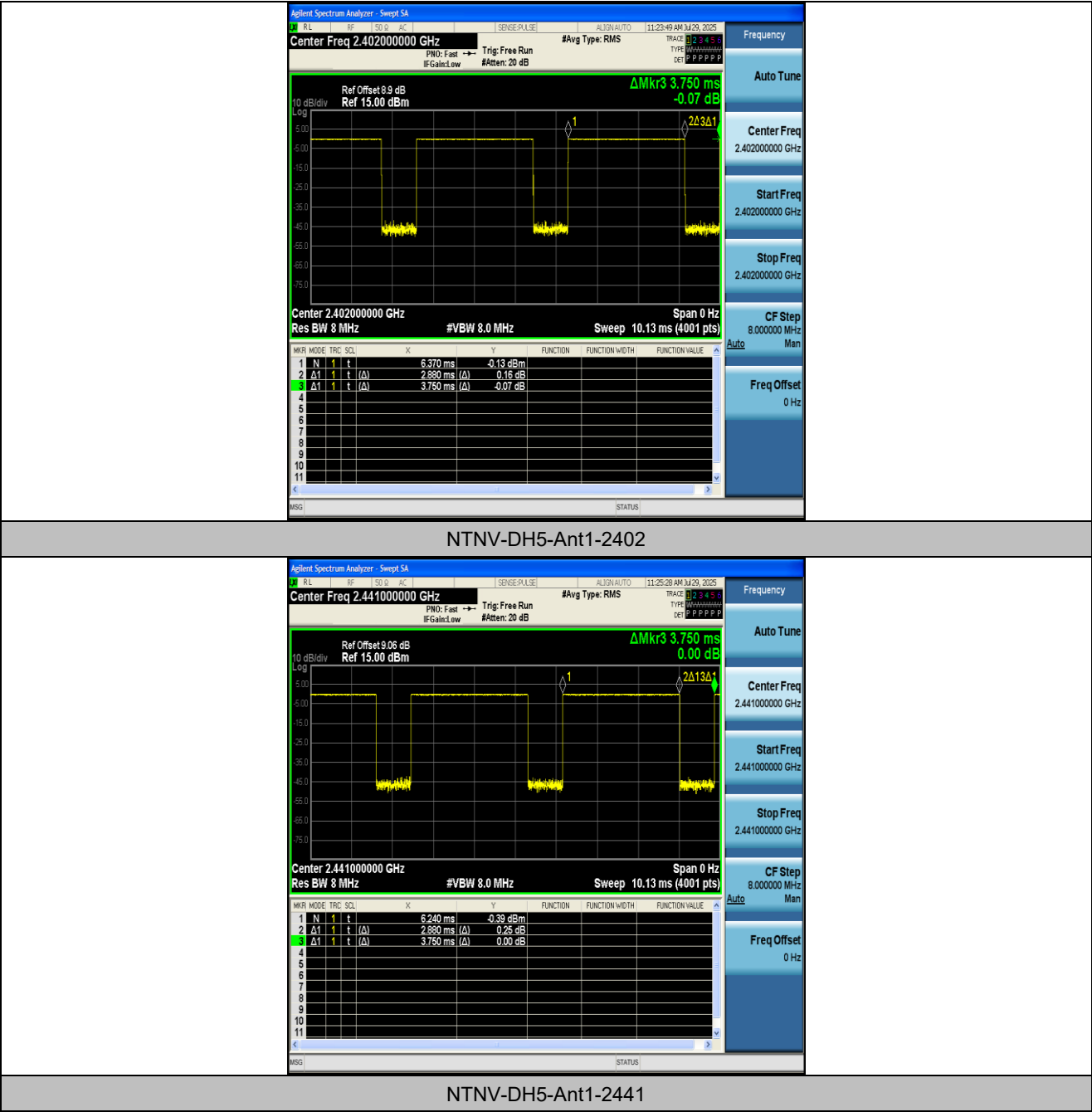
Appendix I: Duty Cycle

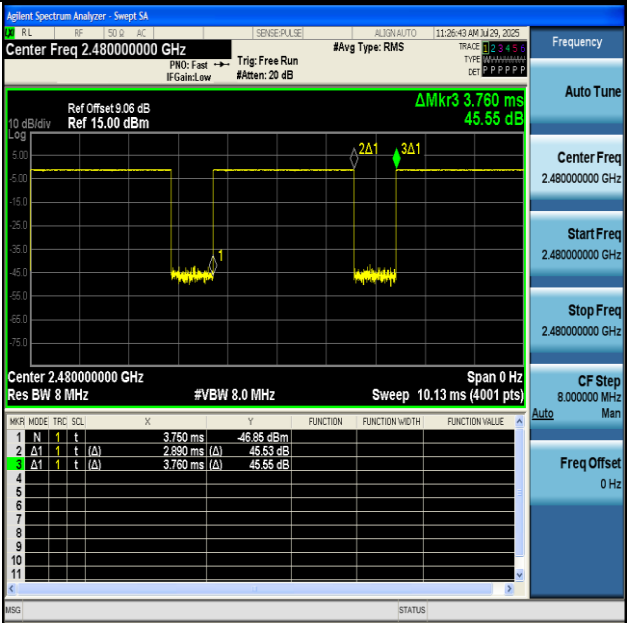
Test Result

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
DH5	Ant1	2402	2.88	3.75	76.80	1.15
DH5	Ant1	2441	2.88	3.75	76.80	1.15
DH5	Ant1	2480	2.89	3.76	76.86	1.14
2DH5	Ant1	2402	2.89	3.75	77.07	1.13
2DH5	Ant1	2441	2.89	3.75	77.07	1.13
2DH5	Ant1	2480	2.89	3.75	77.07	1.13

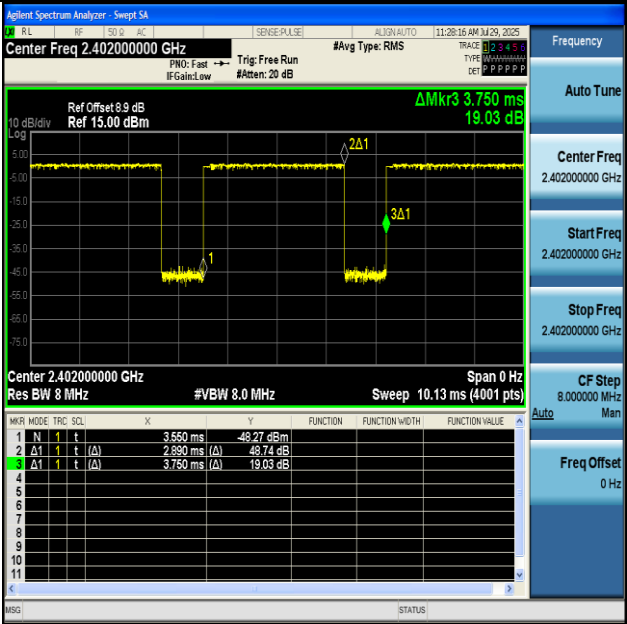
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

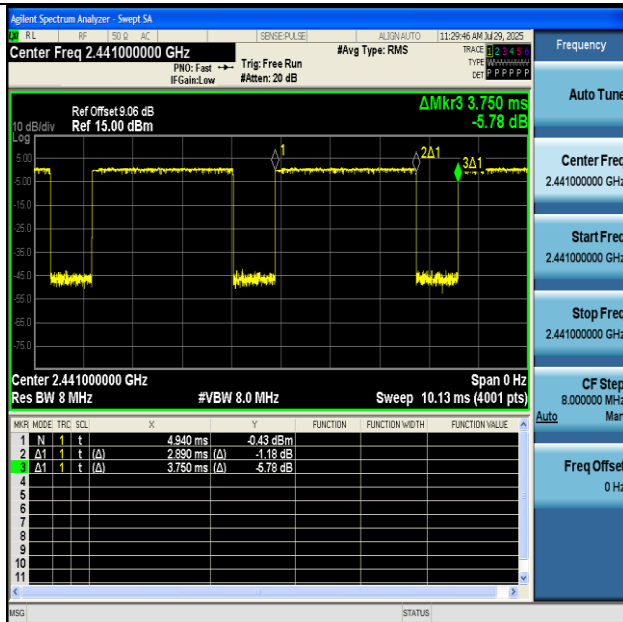




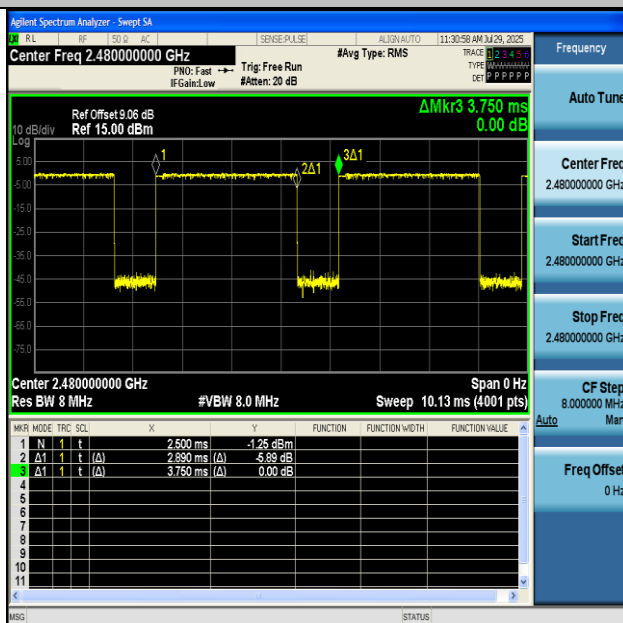
NTNV-DH5-Ant1-2480



NTNV-2DH5-Ant1-2402



NTNV-2DH5-Ant1-2441



NTNV-2DH5-Ant1-2480