



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

Product Name: GMRS Radio

Trade Mark: MIDLAND

Test Model: MXT295

FCC ID: MMAMXT295

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: 20dB Emission Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	20db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.942	2401.505	2402.447	---	---
DH5	Ant1	2441	0.936	2440.505	2441.441	---	---
DH5	Ant1	2480	0.936	2479.502	2480.438	---	---
2DH5	Ant1	2402	1.275	2401.334	2402.609	---	---
2DH5	Ant1	2441	1.326	2440.301	2441.627	---	---
2DH5	Ant1	2480	1.314	2479.298	2480.612	---	---
3DH5	Ant1	2402	1.239	2401.373	2402.612	---	---
3DH5	Ant1	2441	1.224	2440.382	2441.606	---	---
3DH5	Ant1	2480	1.209	2479.385	2480.594	---	---

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





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

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.85433	2401.5381	2402.3924	---	---
DH5	Ant1	2441	0.85618	2440.5400	2441.3961	---	---
DH5	Ant1	2480	0.84153	2479.5430	2480.3845	---	---
2DH5	Ant1	2402	1.1745	2401.3791	2402.5536	---	---
2DH5	Ant1	2441	1.1904	2440.3703	2441.5607	---	---
2DH5	Ant1	2480	1.2098	2479.3670	2480.5768	---	---
3DH5	Ant1	2402	1.1350	2401.4124	2402.5474	---	---
3DH5	Ant1	2441	1.1290	2440.4173	2441.5463	---	---
3DH5	Ant1	2480	1.1342	2479.4121	2480.5463	---	---

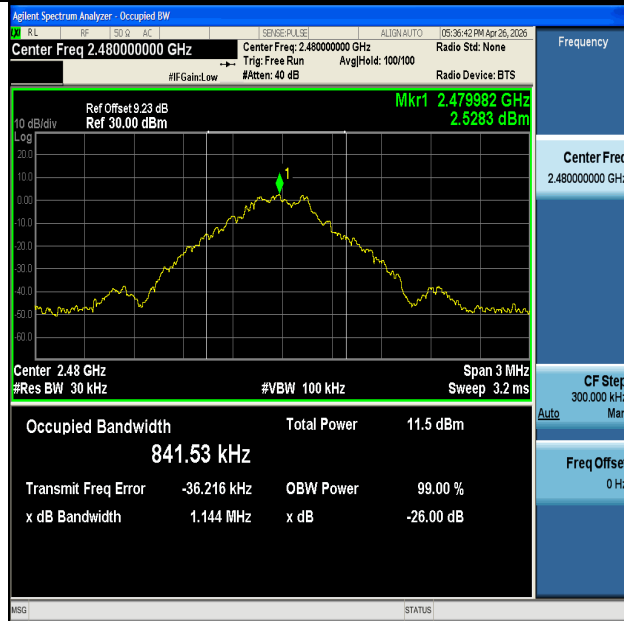
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs





DH5-Ant1-2480



2DH5-Ant1-2402





2DH5-Ant1-2441



2DH5-Ant1-2480



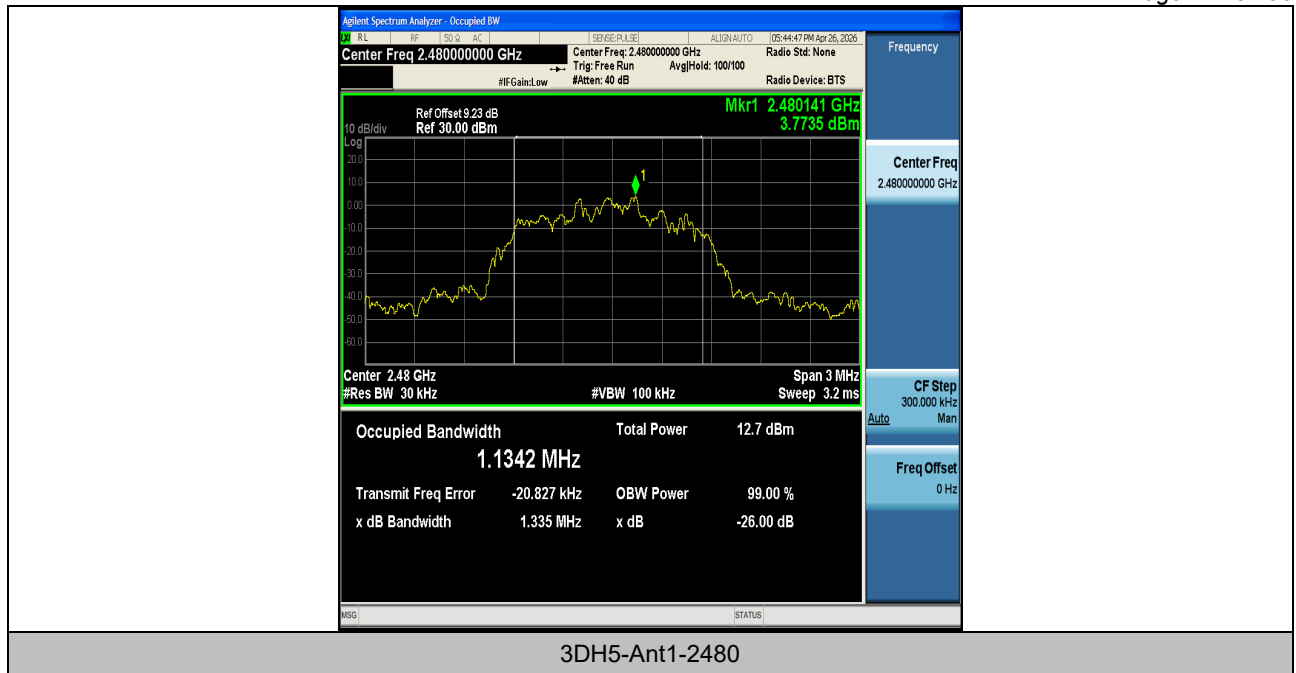


3DH5-Ant1-2402



3DH5-Ant1-2441







Appendix C: Maximum peak conducted output power

Test Result

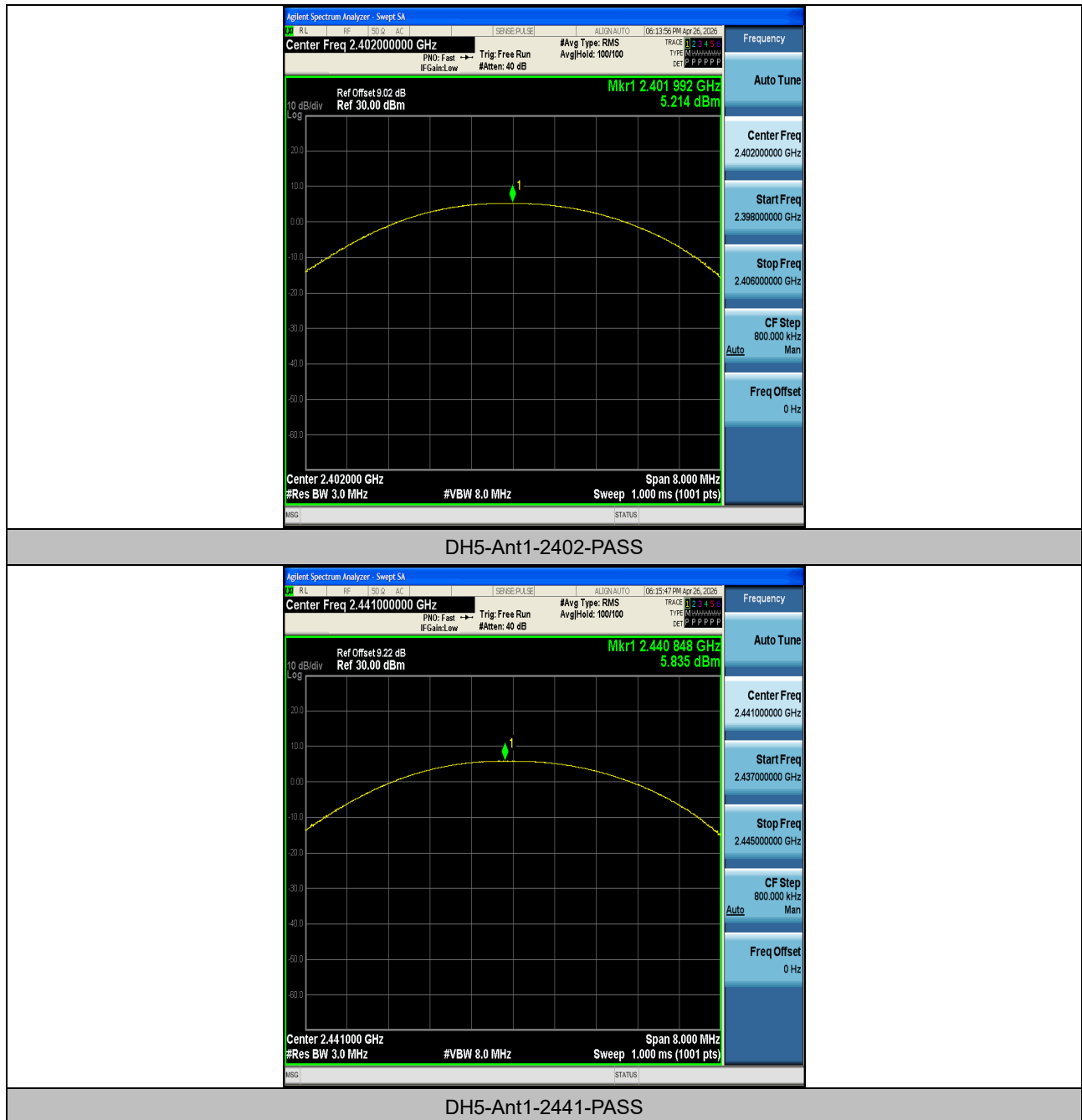
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
DH5	Ant1	2402	5.21	≤30	PASS
DH5	Ant1	2441	5.84	≤30	PASS
DH5	Ant1	2480	5.90	≤30	PASS
2DH5	Ant1	2402	7.25	≤20.97	PASS
2DH5	Ant1	2441	7.91	≤20.97	PASS
2DH5	Ant1	2480	8.04	≤20.97	PASS
3DH5	Ant1	2402	7.85	≤20.97	PASS
3DH5	Ant1	2441	8.56	≤20.97	PASS
3DH5	Ant1	2480	8.75	≤20.97	PASS

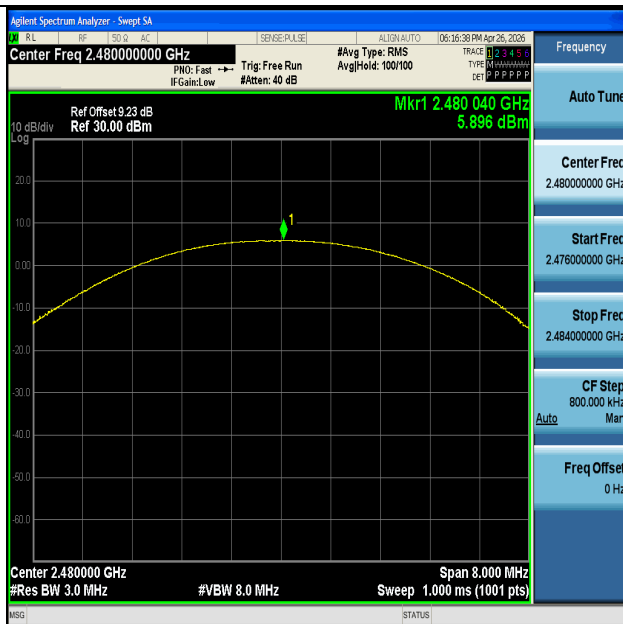
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



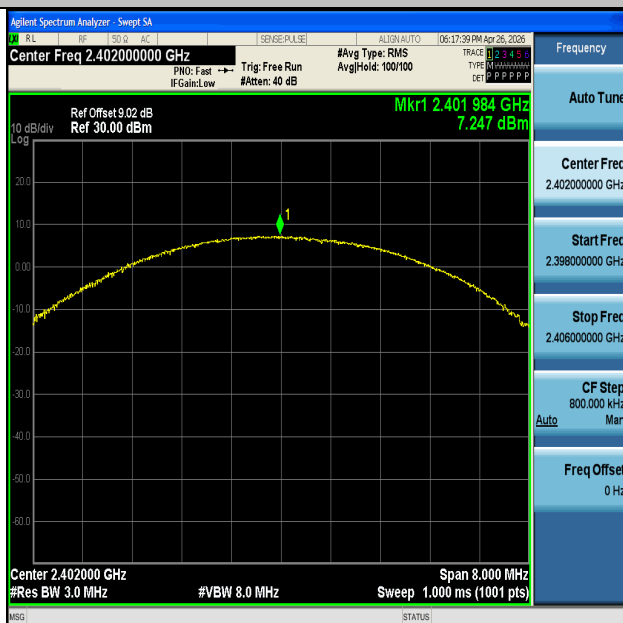


Test Graphs



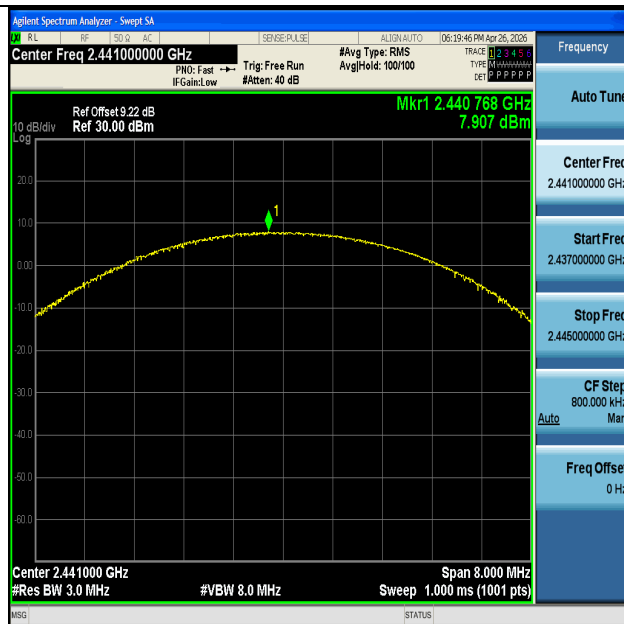


DH5-Ant1-2480-PASS

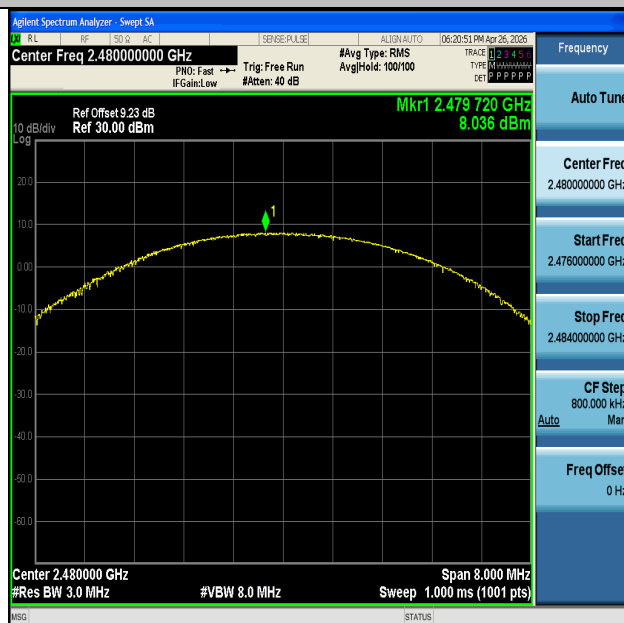


2DH5-Ant1-2402-PASS



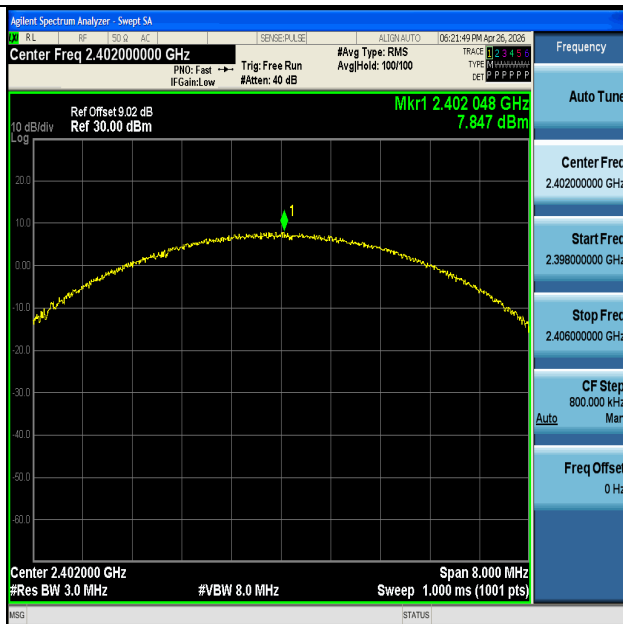


2DH5-Ant1-2441-PASS

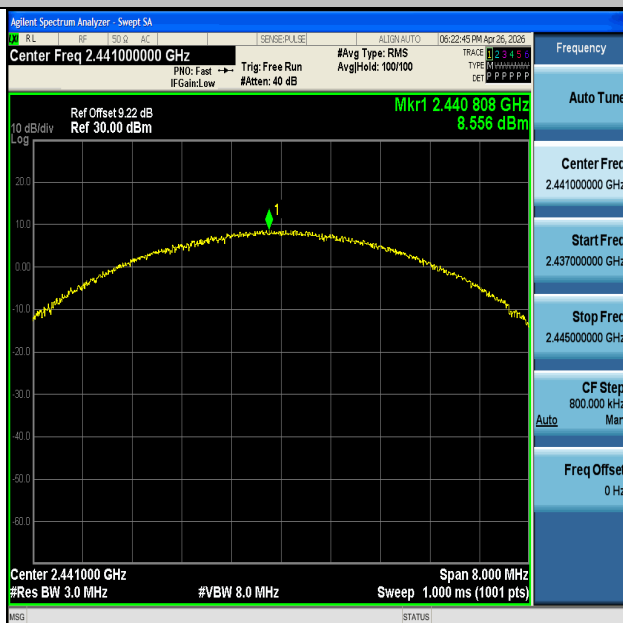


2DH5-Ant1-2480-PASS



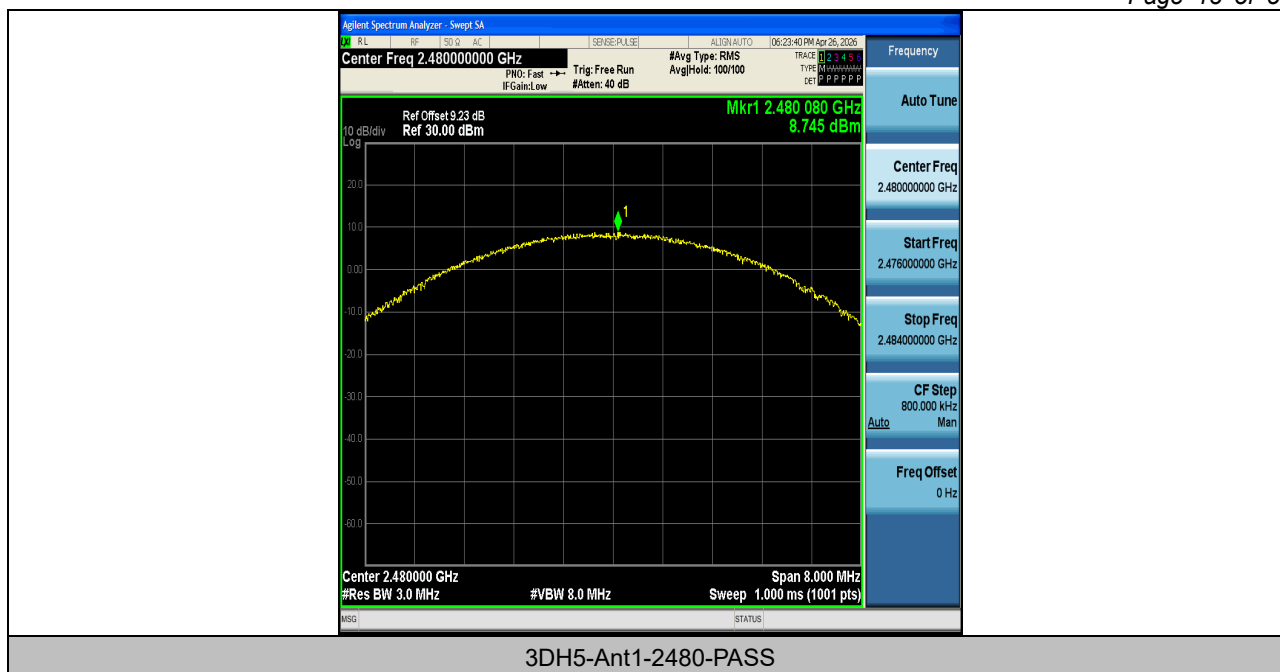


3DH5-Ant1-2402-PASS



3DH5-Ant1-2441-PASS







Appendix D: Carrier frequency separation

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1.01	≥0.942	PASS
2DH5	Ant1	Hop	0.998	≥0.884	PASS
3DH5	Ant1	Hop	0.99	≥0.826	PASS

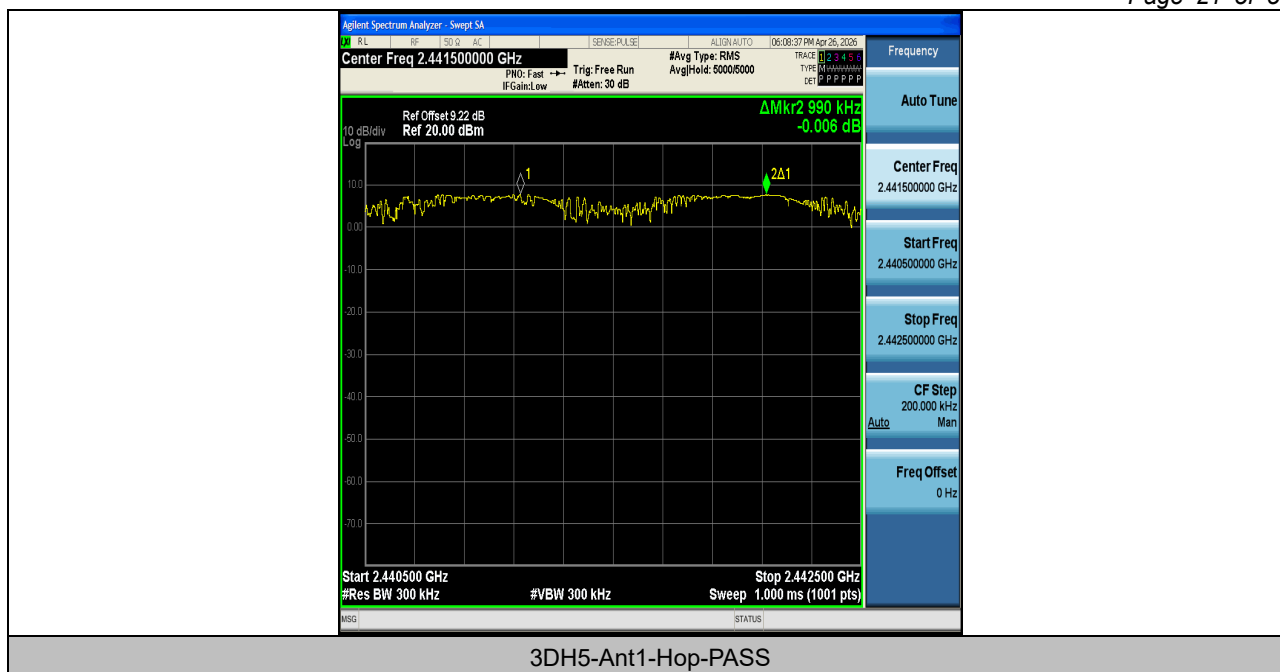
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs







Appendix E: Time of occupancy

Test Result

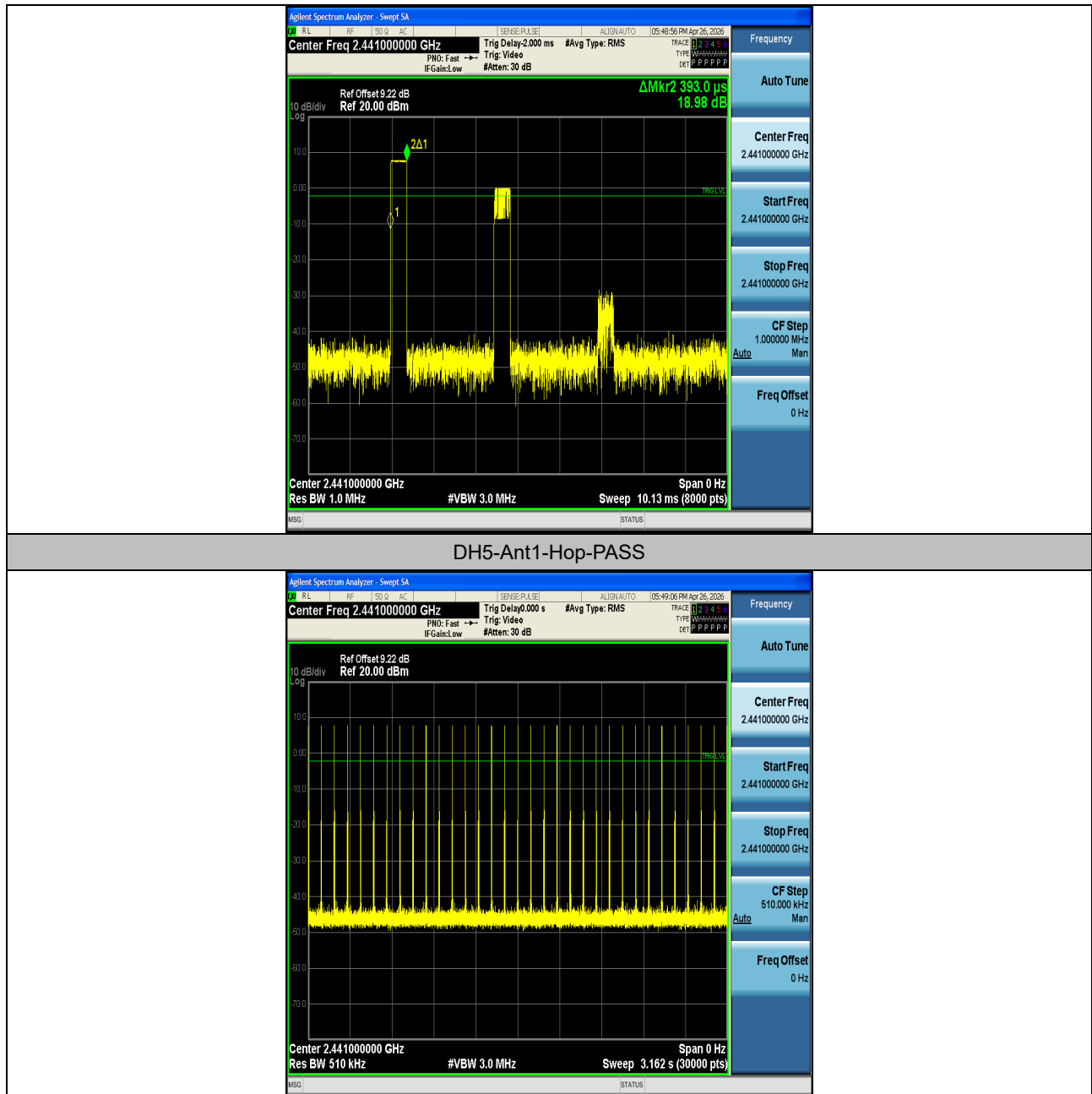
Test Mode	Antenna	Frequency [MHz]	Burst Width [ms]	TotalHops [Num]	Result [s]	Limit [s]	Verdict
DH5	Ant1	Hop	0.393	330	0.13	≤0.4	PASS
2DH5	Ant1	Hop	0.288	330	0.095	≤0.4	PASS
3DH5	Ant1	Hop	0.244	330	0.081	≤0.4	PASS

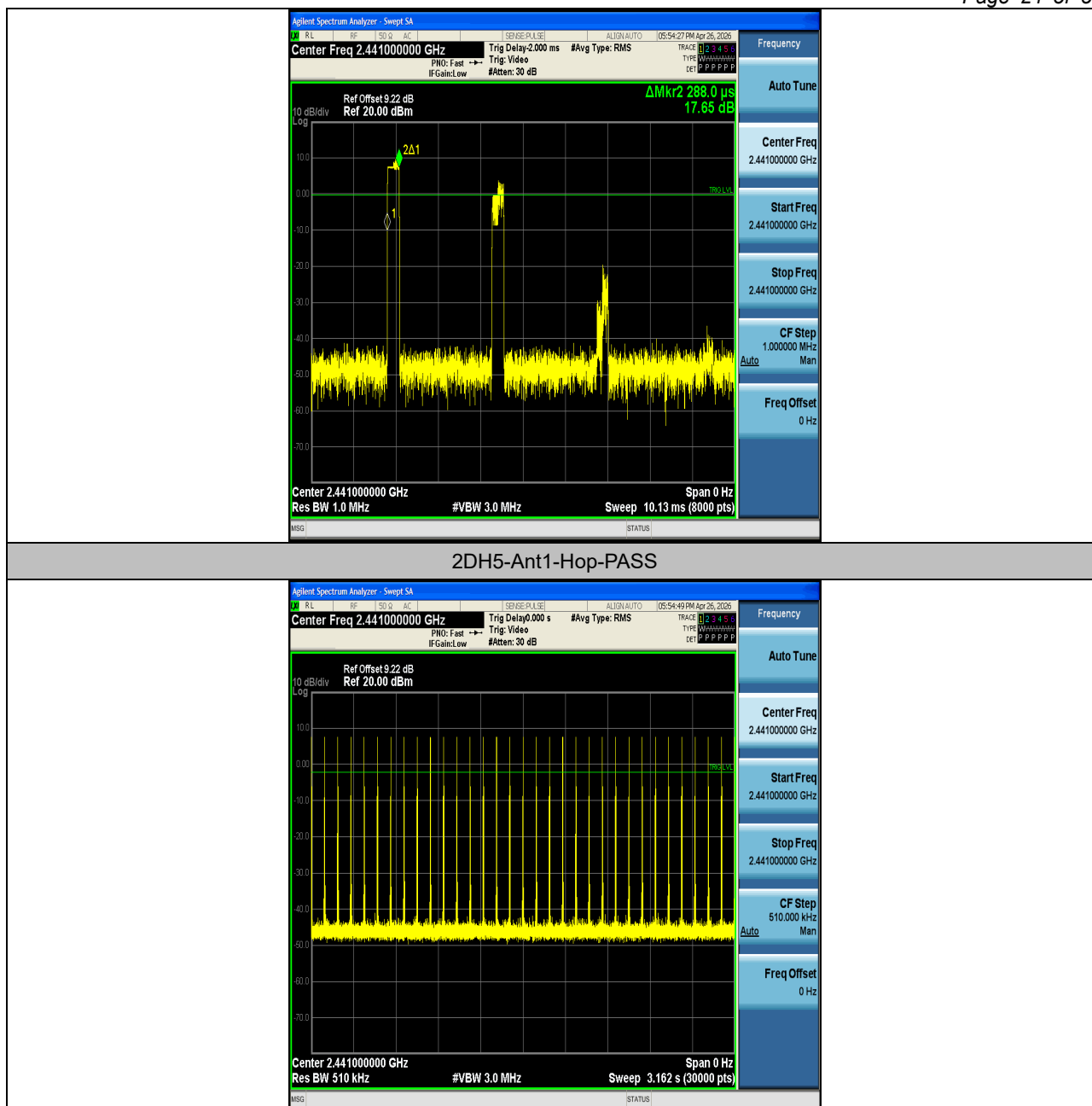
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

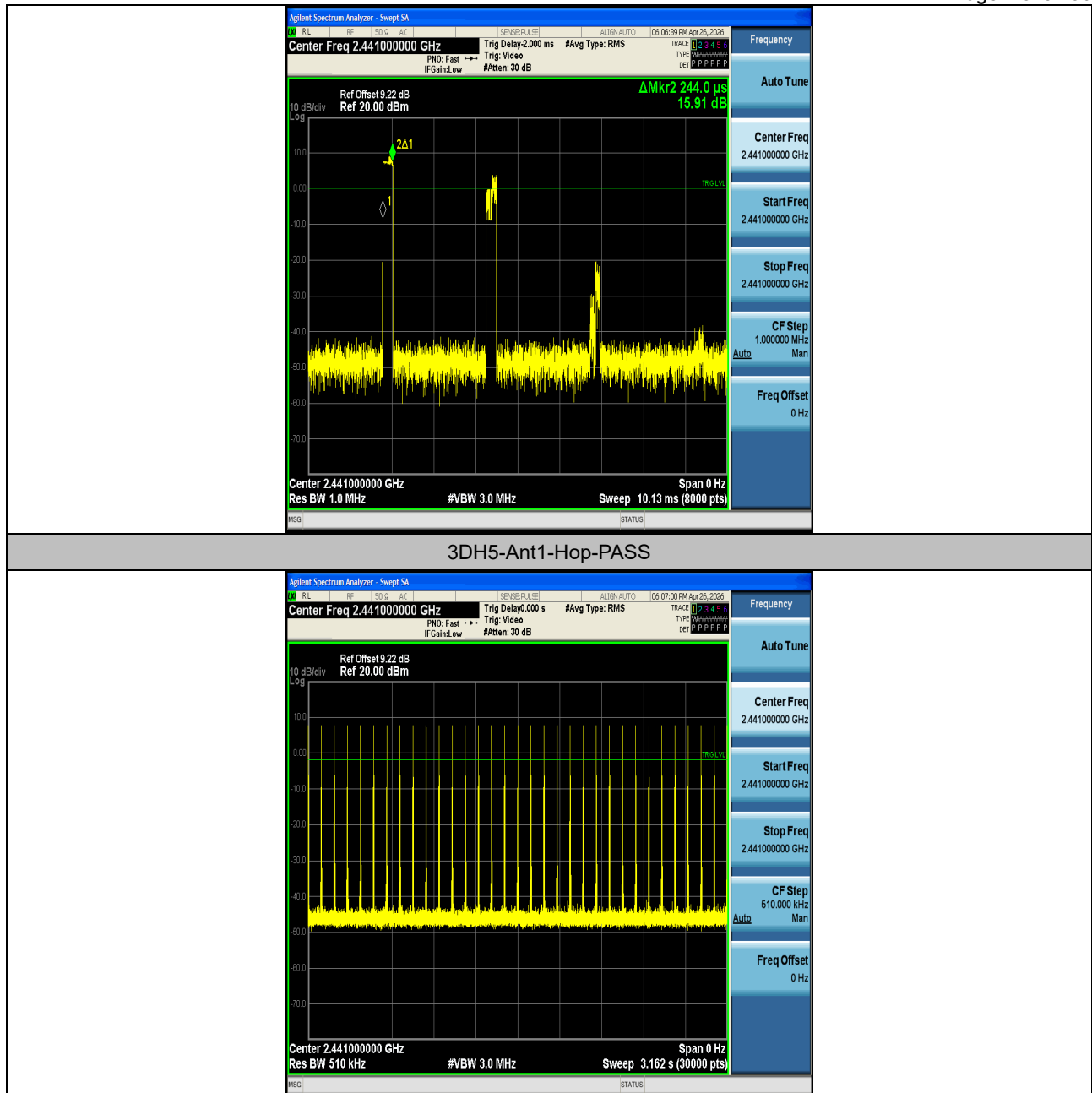




Test Graphs









Appendix F: Number of hopping channels

Test Result

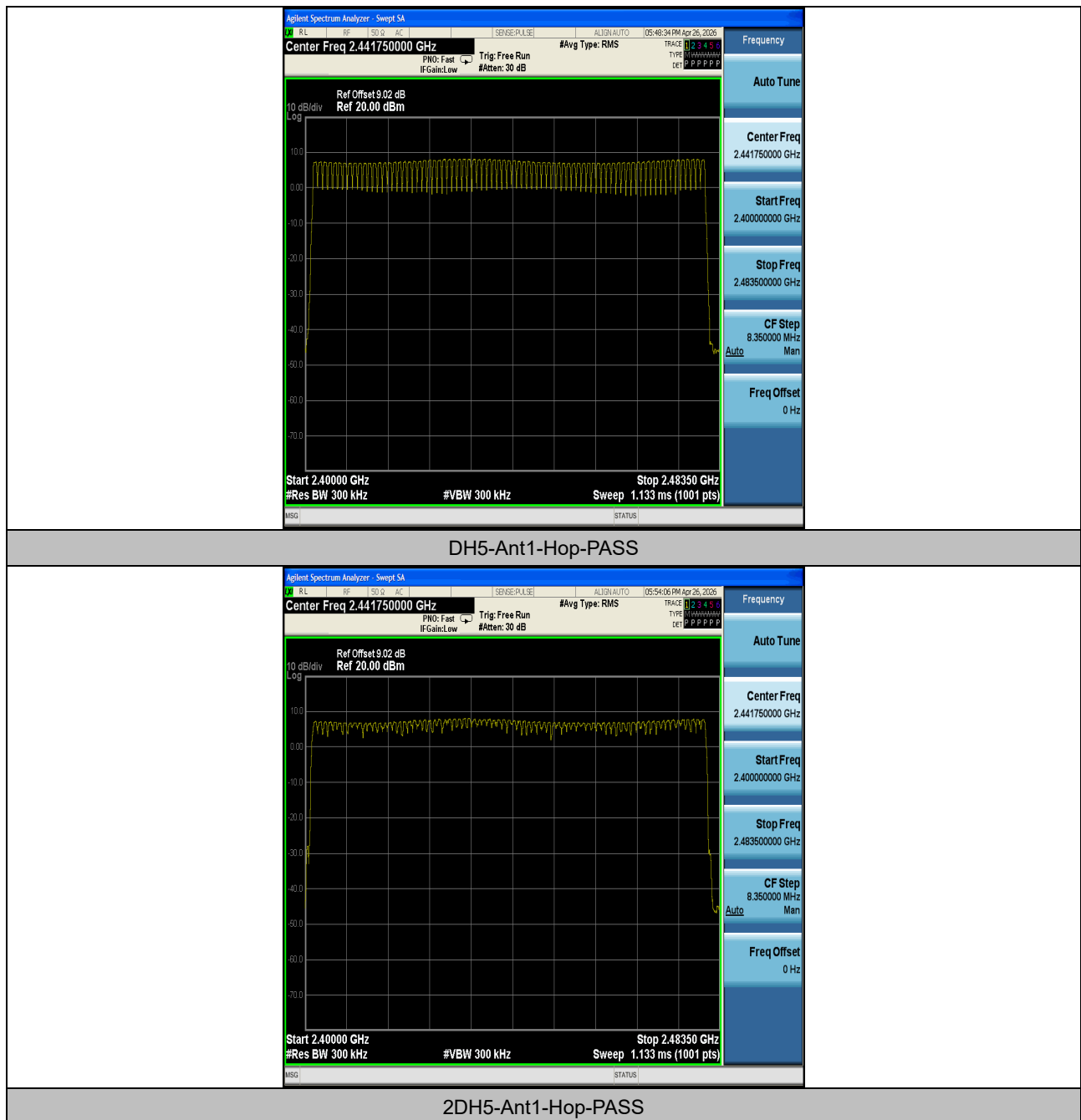
Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

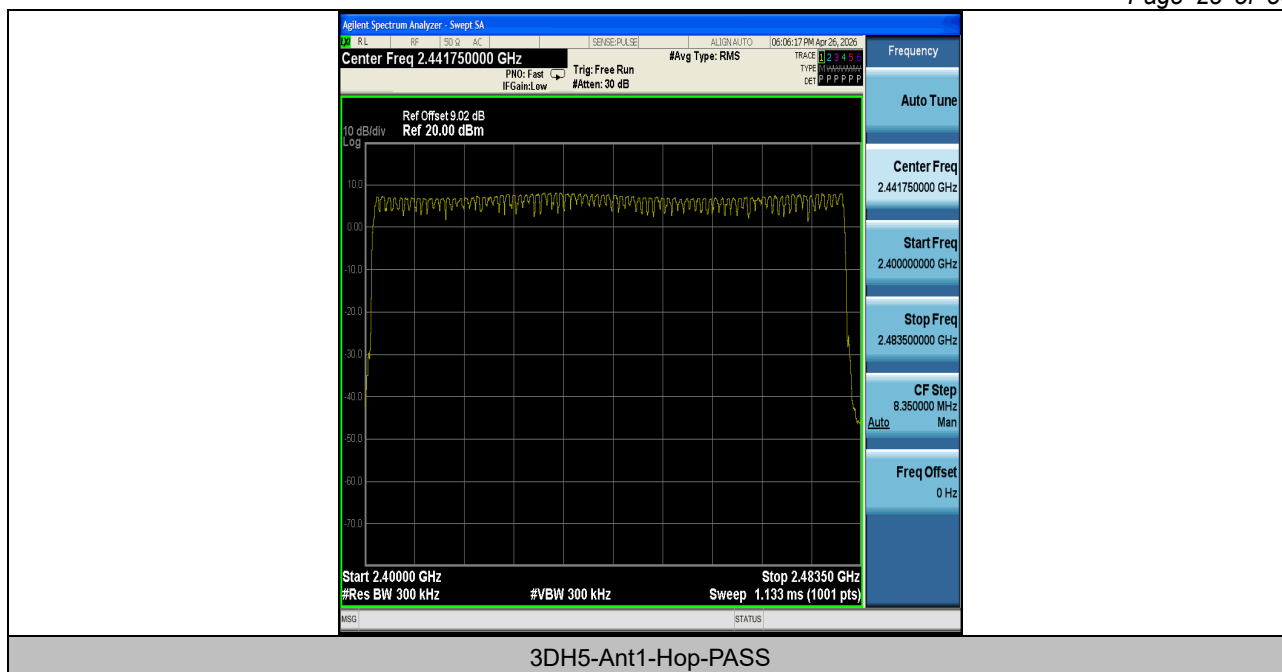
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs







Appendix G: Band edge measurements

Test Result

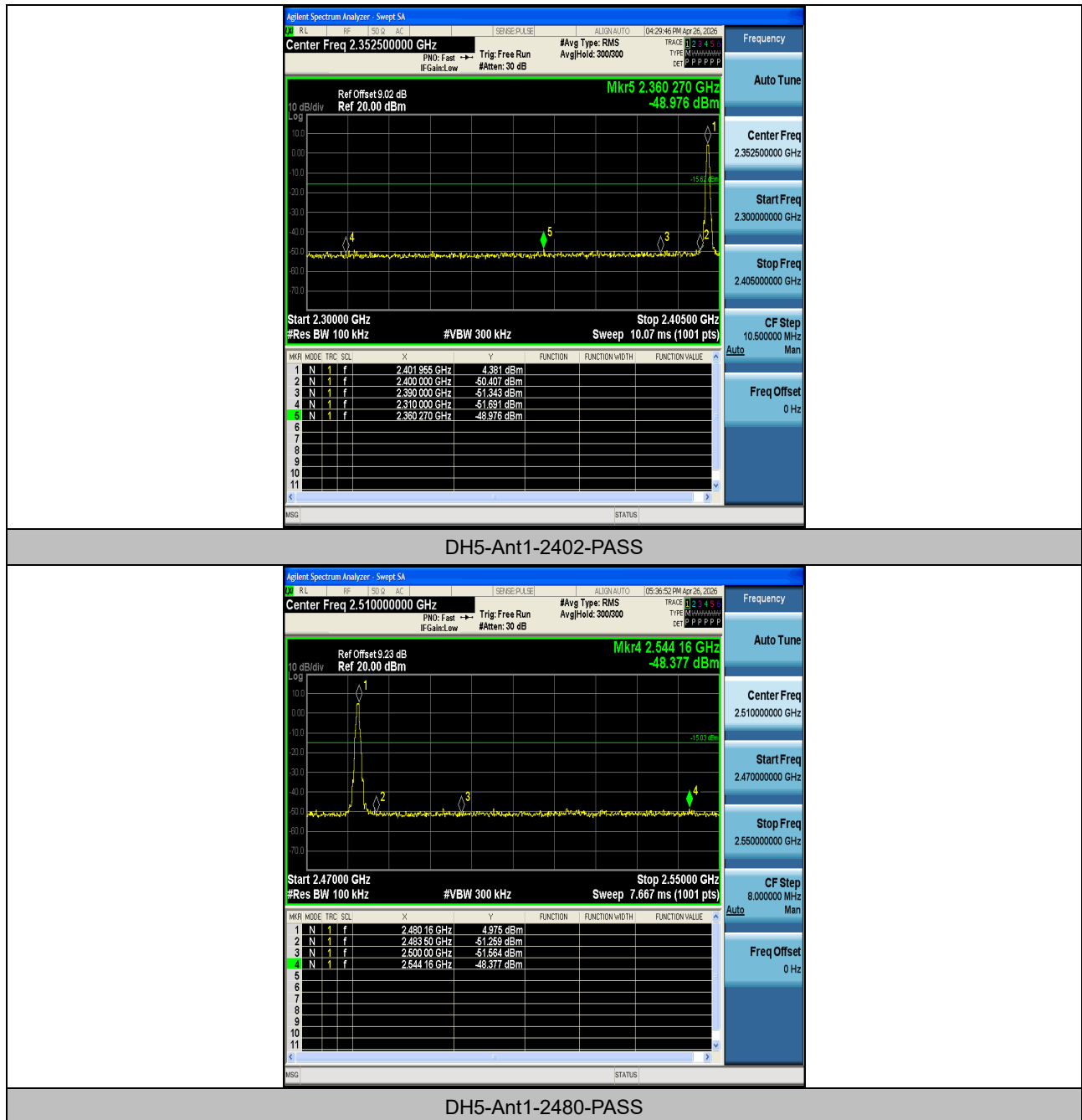
Test Mode	Antenna	Ch.Name	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	4.38	-48.98	≤-15.62	PASS
DH5	Ant1	High	2480	4.98	-48.38	≤-15.03	PASS
DH5	Ant1	Low	Hop_2402	6.65	-48.2	≤-13.35	PASS
DH5	Ant1	High	Hop_2480	7.87	-39.63	≤-12.13	PASS
2DH5	Ant1	Low	2402	4.07	-49.25	≤-15.93	PASS
2DH5	Ant1	High	2480	5.68	-47.49	≤-14.32	PASS
2DH5	Ant1	Low	Hop_2402	7.06	-47.6	≤-12.94	PASS
2DH5	Ant1	High	Hop_2480	7.46	-44.82	≤-12.54	PASS
3DH5	Ant1	Low	2402	4.93	-48.28	≤-15.07	PASS
3DH5	Ant1	High	2480	5.82	-47.93	≤-14.18	PASS
3DH5	Ant1	Low	Hop_2402	6.89	-45.01	≤-13.11	PASS
3DH5	Ant1	High	Hop_2480	8.18	-46.07	≤-11.82	PASS

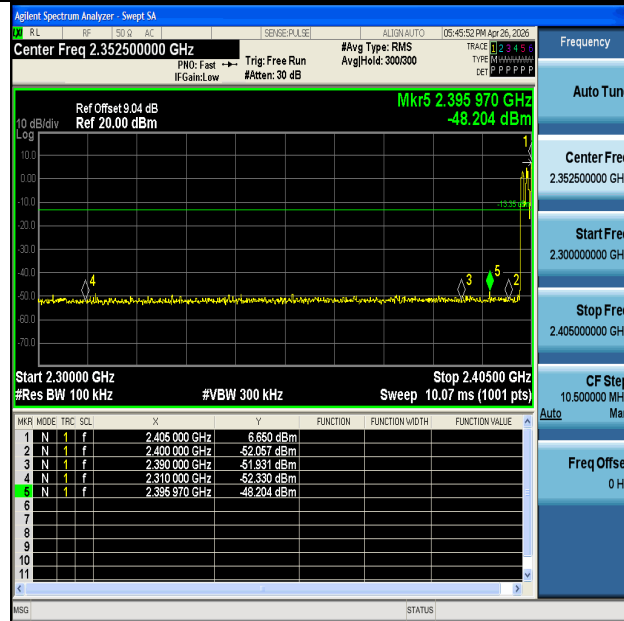
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



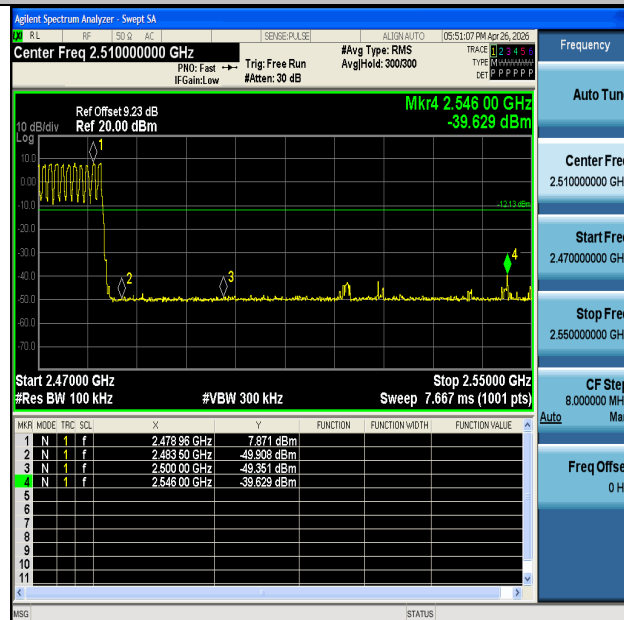


Test Graphs



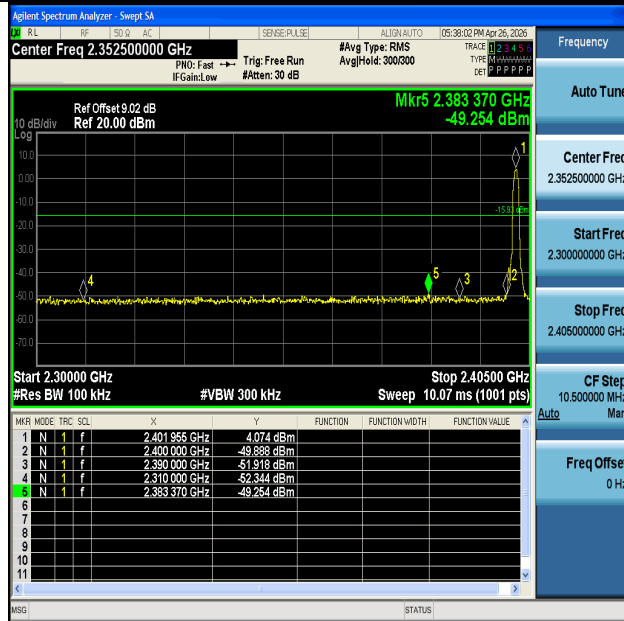


DH5-Ant1-Hop_2402-PASS

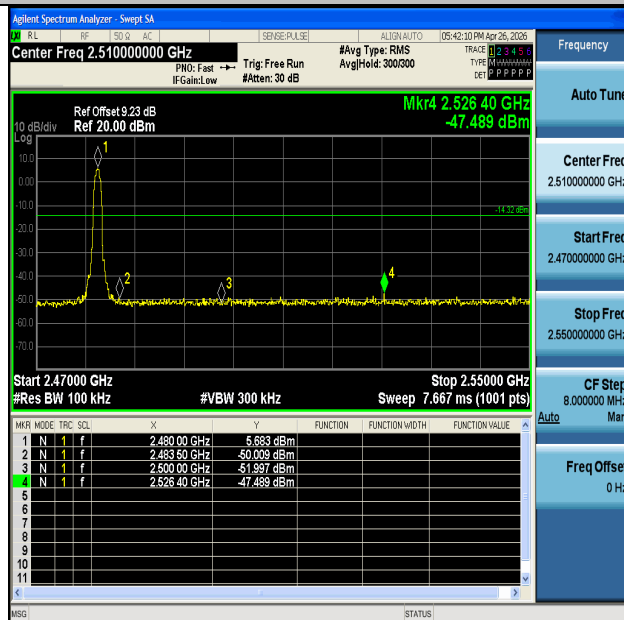


DH5-Ant1-Hop_2480-PASS



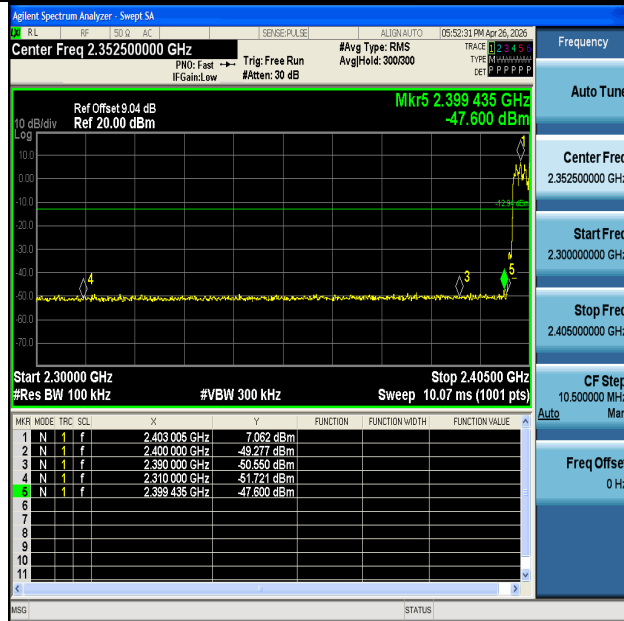


2DH5-Ant1-2402-PASS

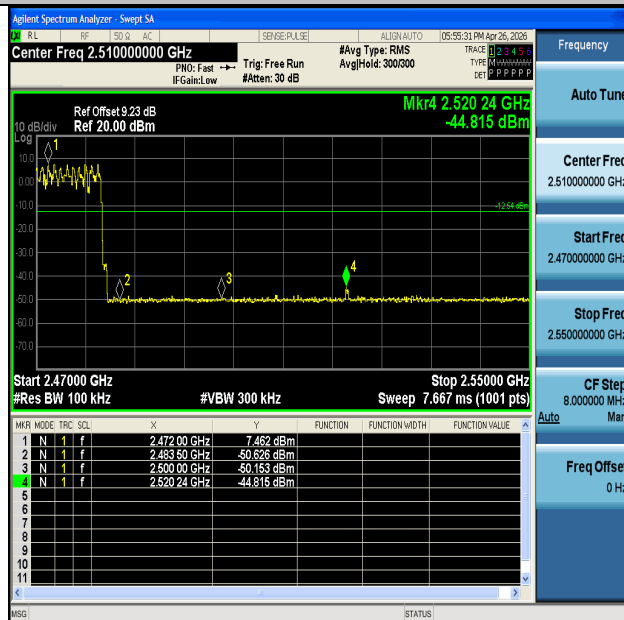


2DH5-Ant1-2480-PASS



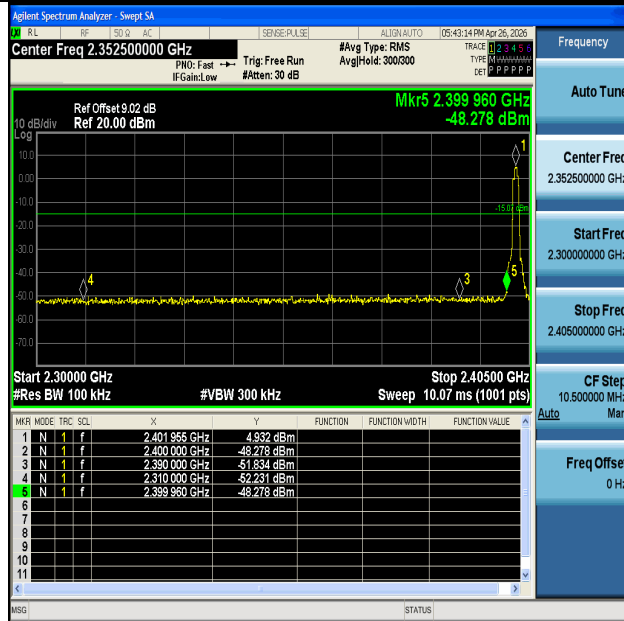


2DH5-Ant1-Hop_2402-PASS

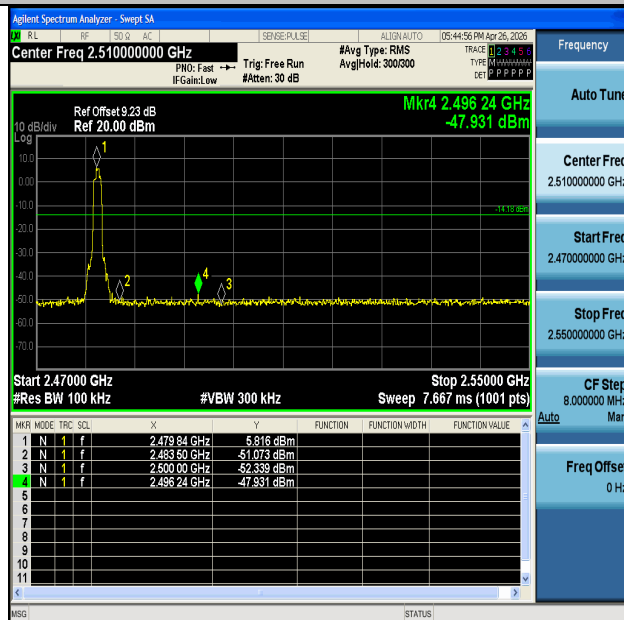


2DH5-Ant1-Hop_2480-PASS



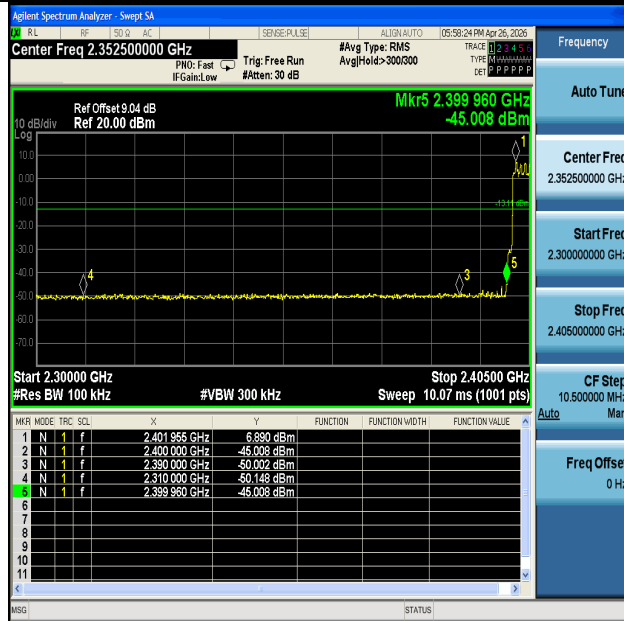


3DH5-Ant1-2402-PASS

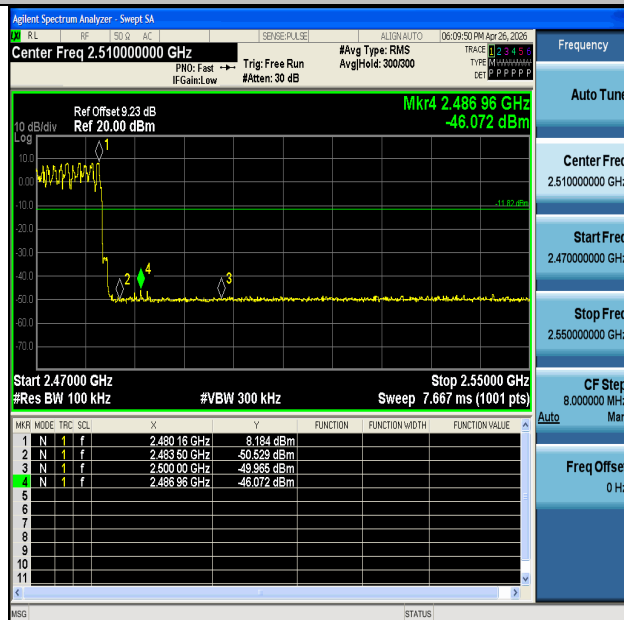


3DH5-Ant1-2480-PASS





3DH5-Ant1-Hop_2402-PASS



3DH5-Ant1-Hop_2480-PASS





Appendix H: Conducted Spurious Emission

Test Result

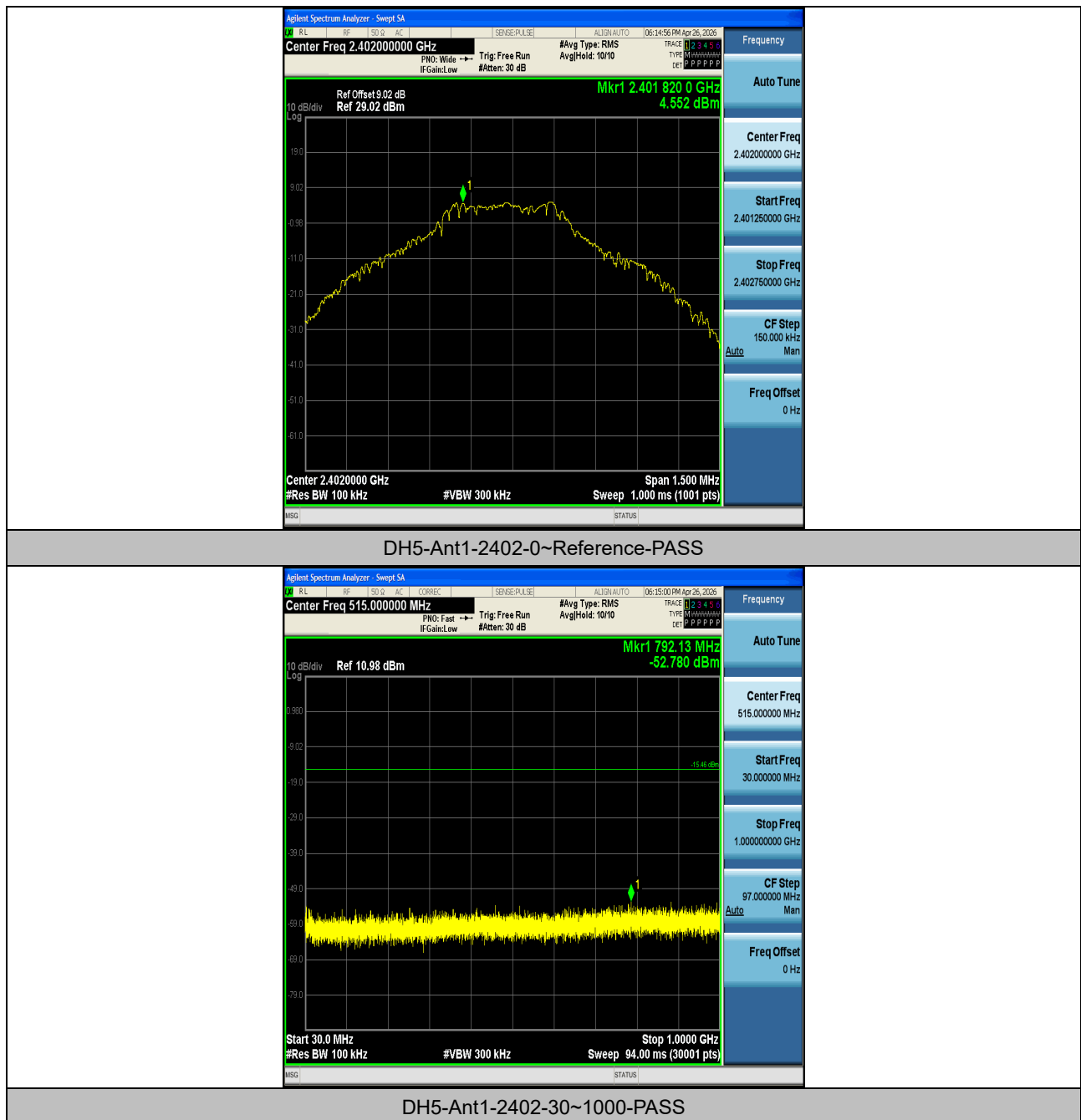
Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	4.54	4.54	---	PASS
DH5	Ant1	2402	30~1000	4.54	-52.78	≤-15.46	PASS
DH5	Ant1	2402	1000~26500	4.54	-27	≤-15.46	PASS
DH5	Ant1	2441	0~Reference	4.92	4.92	---	PASS
DH5	Ant1	2441	30~1000	4.92	-53.28	≤-15.08	PASS
DH5	Ant1	2441	1000~26500	4.92	-27.6	≤-15.08	PASS
DH5	Ant1	2480	0~Reference	5.27	5.27	---	PASS
DH5	Ant1	2480	30~1000	5.27	-52.39	≤-14.73	PASS
DH5	Ant1	2480	1000~26500	5.27	-27.32	≤-14.73	PASS
2DH5	Ant1	2402	0~Reference	3.68	3.68	---	PASS
2DH5	Ant1	2402	30~1000	3.68	-52.12	≤-16.32	PASS
2DH5	Ant1	2402	1000~26500	3.68	-27.39	≤-16.32	PASS
2DH5	Ant1	2441	0~Reference	5.58	5.58	---	PASS
2DH5	Ant1	2441	30~1000	5.58	-52.8	≤-14.42	PASS
2DH5	Ant1	2441	1000~26500	5.58	-27.31	≤-14.42	PASS
2DH5	Ant1	2480	0~Reference	5.56	5.56	---	PASS
2DH5	Ant1	2480	30~1000	5.56	-52.79	≤-14.44	PASS
2DH5	Ant1	2480	1000~26500	5.56	-27.45	≤-14.44	PASS
3DH5	Ant1	2402	0~Reference	4.79	4.79	---	PASS
3DH5	Ant1	2402	30~1000	4.79	-52.29	≤-15.21	PASS
3DH5	Ant1	2402	1000~26500	4.79	-27.17	≤-15.21	PASS
3DH5	Ant1	2441	0~Reference	4.36	4.36	---	PASS
3DH5	Ant1	2441	30~1000	4.36	-52.28	≤-15.64	PASS
3DH5	Ant1	2441	1000~26500	4.36	-27.48	≤-15.64	PASS
3DH5	Ant1	2480	0~Reference	5.26	5.26	---	PASS
3DH5	Ant1	2480	30~1000	5.26	-52.31	≤-14.74	PASS
3DH5	Ant1	2480	1000~26500	5.26	-27.34	≤-14.74	PASS

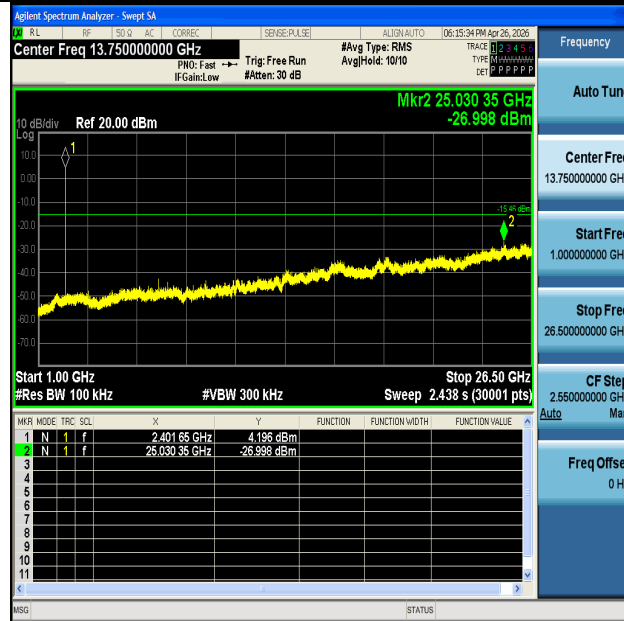
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.





Test Graphs



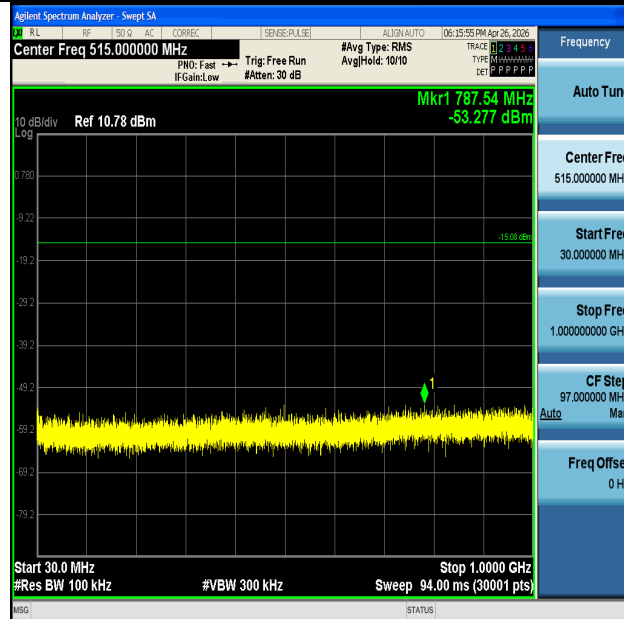


DH5-Ant1-2402-1000~26500-PASS



DH5-Ant1-2441-0~Reference-PASS





DH5-Ant1-2441-30~1000-PASS

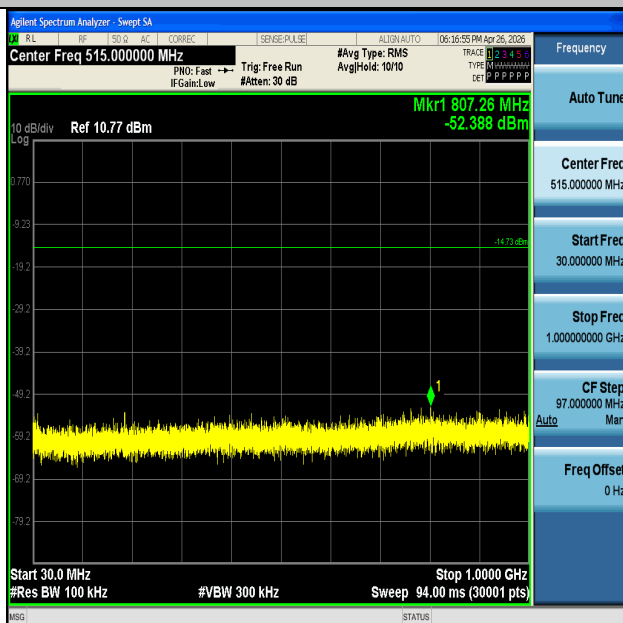


DH5-Ant1-2441-1000~26500-PASS



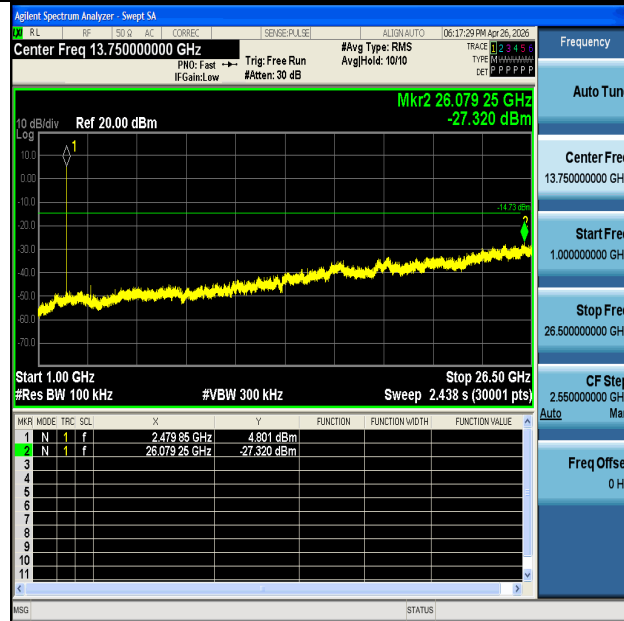


DH5-Ant1-2480-0~Reference-PASS

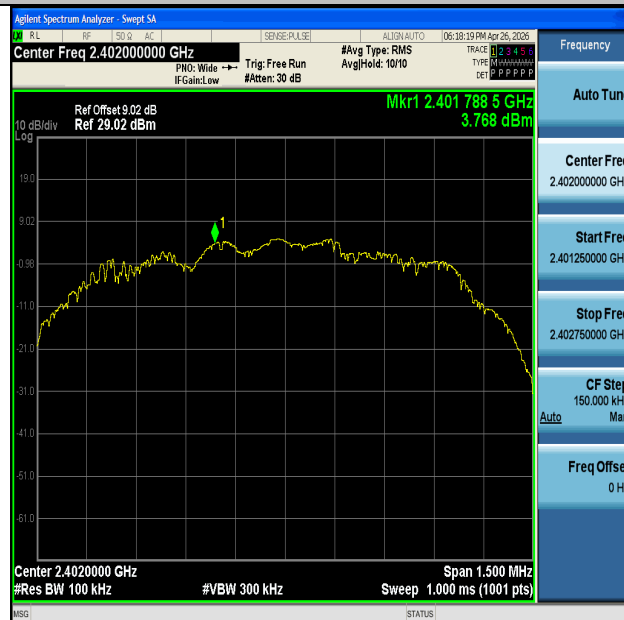


DH5-Ant1-2480-30~1000-PASS



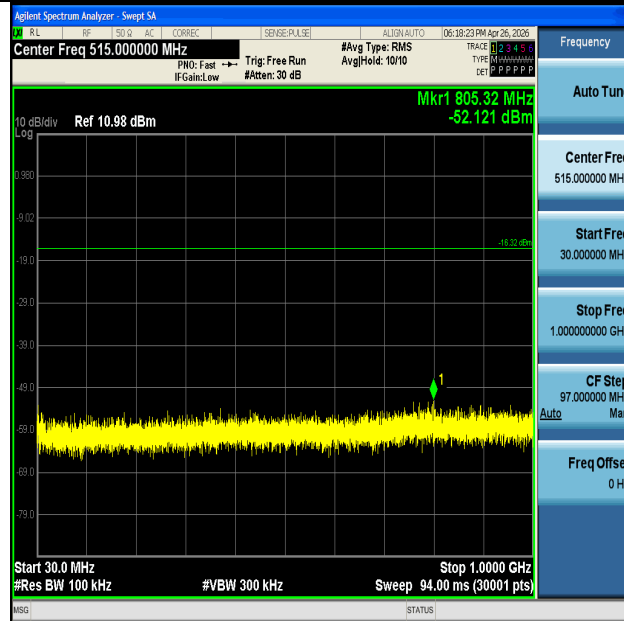


DH5-Ant1-2480-1000~26500-PASS

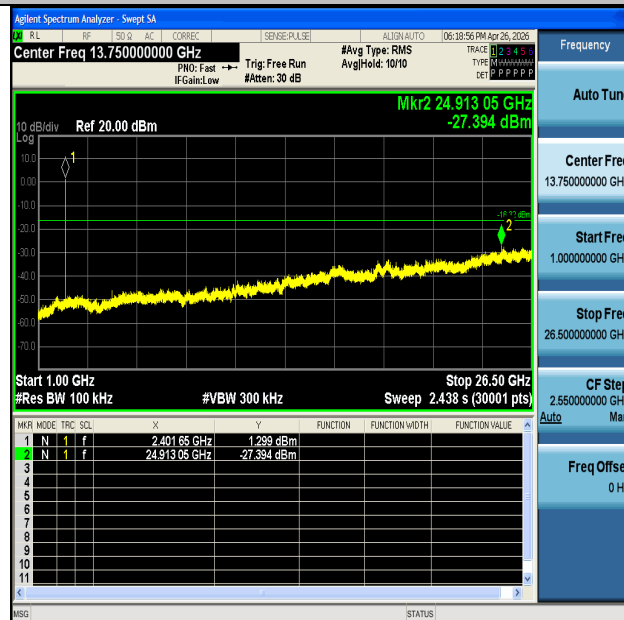


2DH5-Ant1-2402-0~Reference-PASS





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

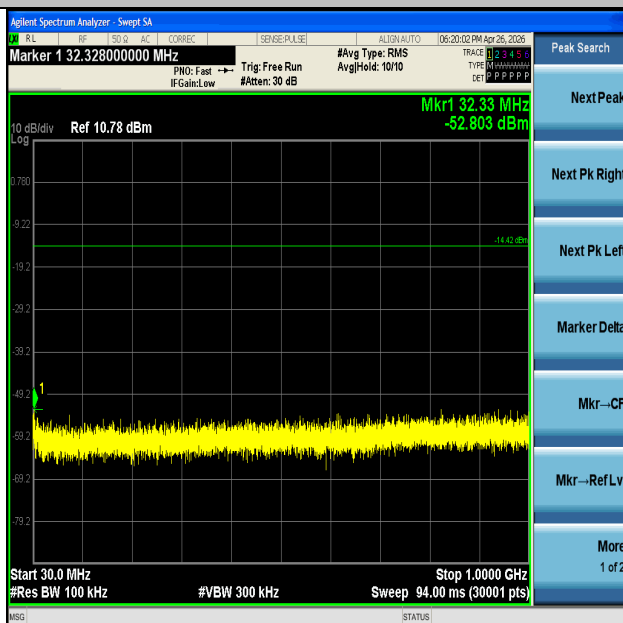


2DH5-Ant1-2402-1000~26500-PASS





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



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



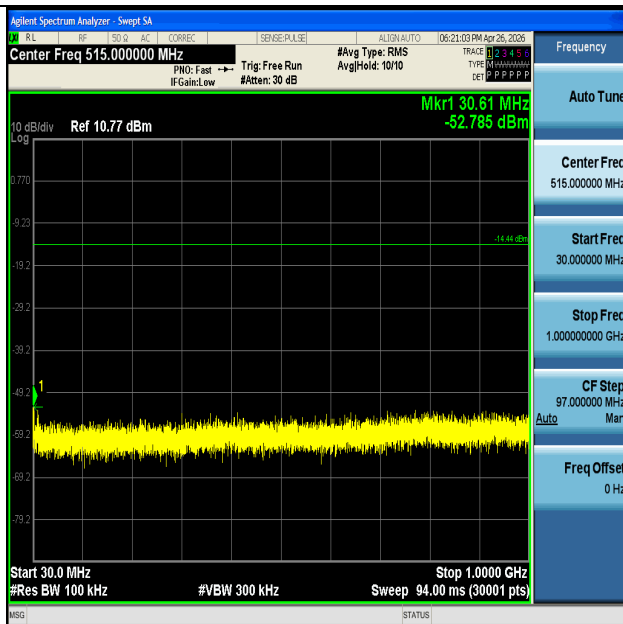


2DH5-Ant1-2441-1000~26500-PASS

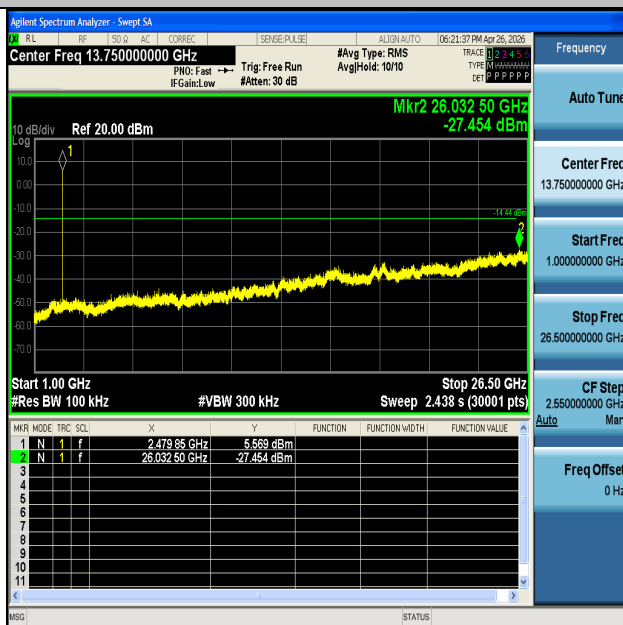


2DH5-Ant1-2480-0~Reference-PASS





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

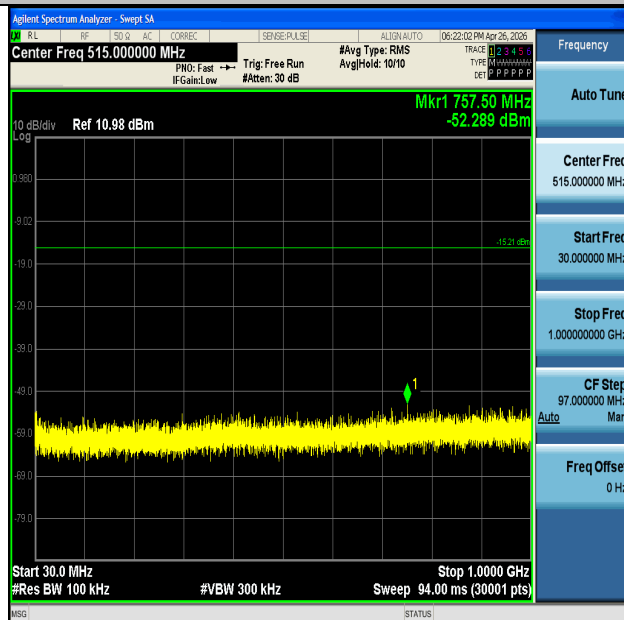


2DH5-Ant1-2480-1000~26500-PASS



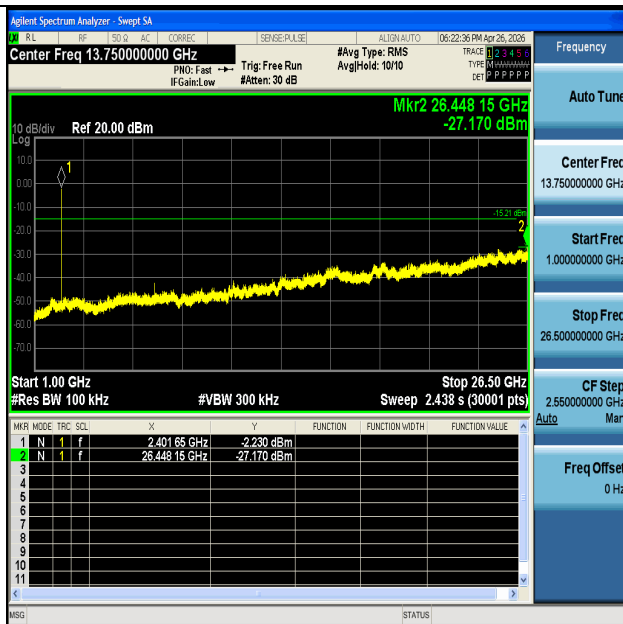


3DH5-Ant1-2402-0~Reference-PASS

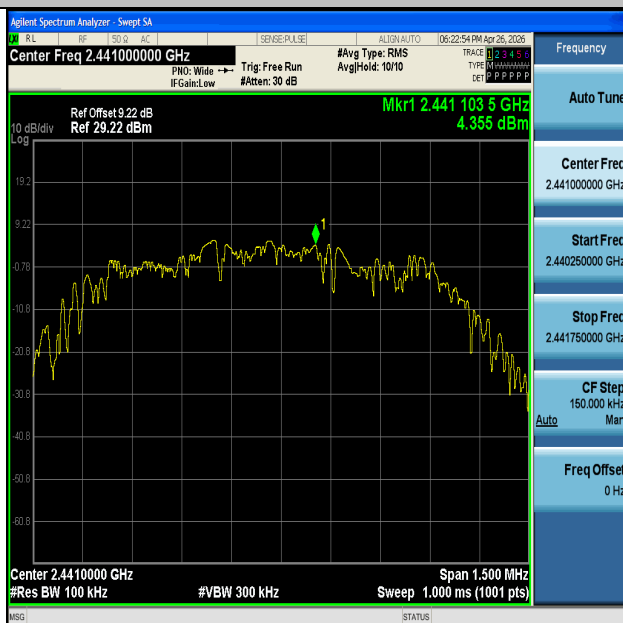


3DH5-Ant1-2402-30~1000-PASS



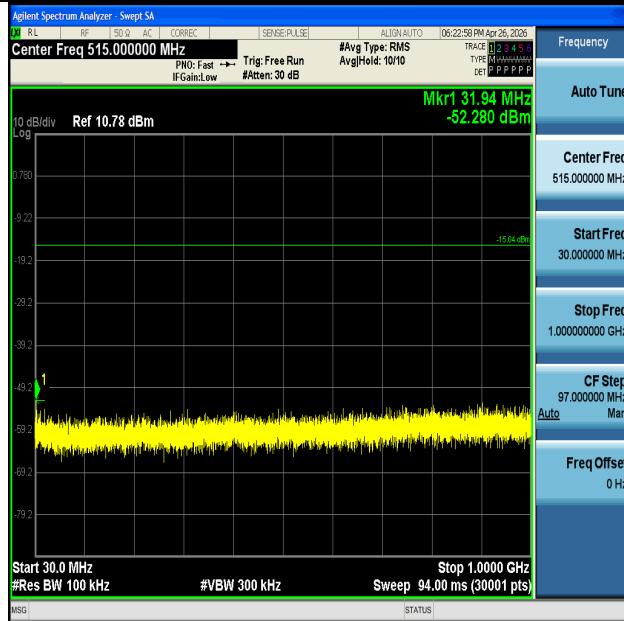


3DH5-Ant1-2402-1000~26500-PASS

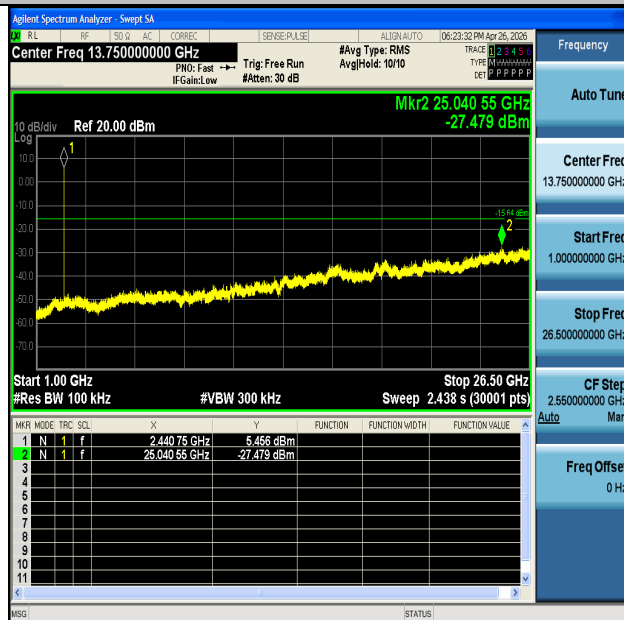


3DH5-Ant1-2441-0~Reference-PASS





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

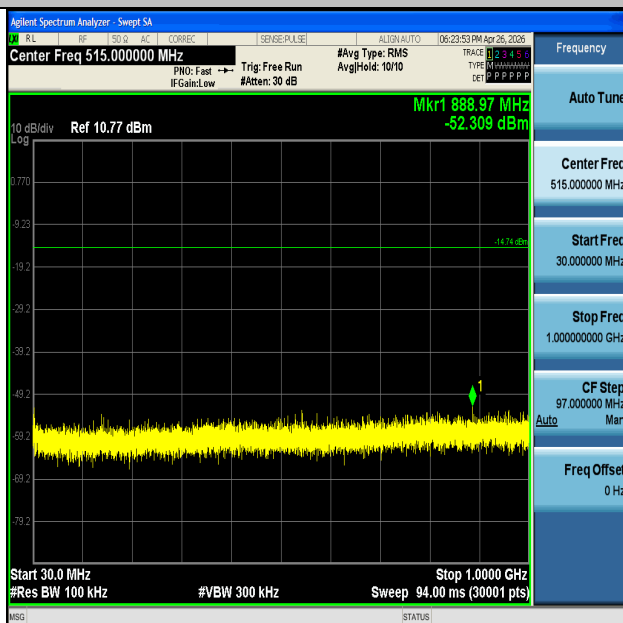


3DH5-Ant1-2441-1000~26500-PASS



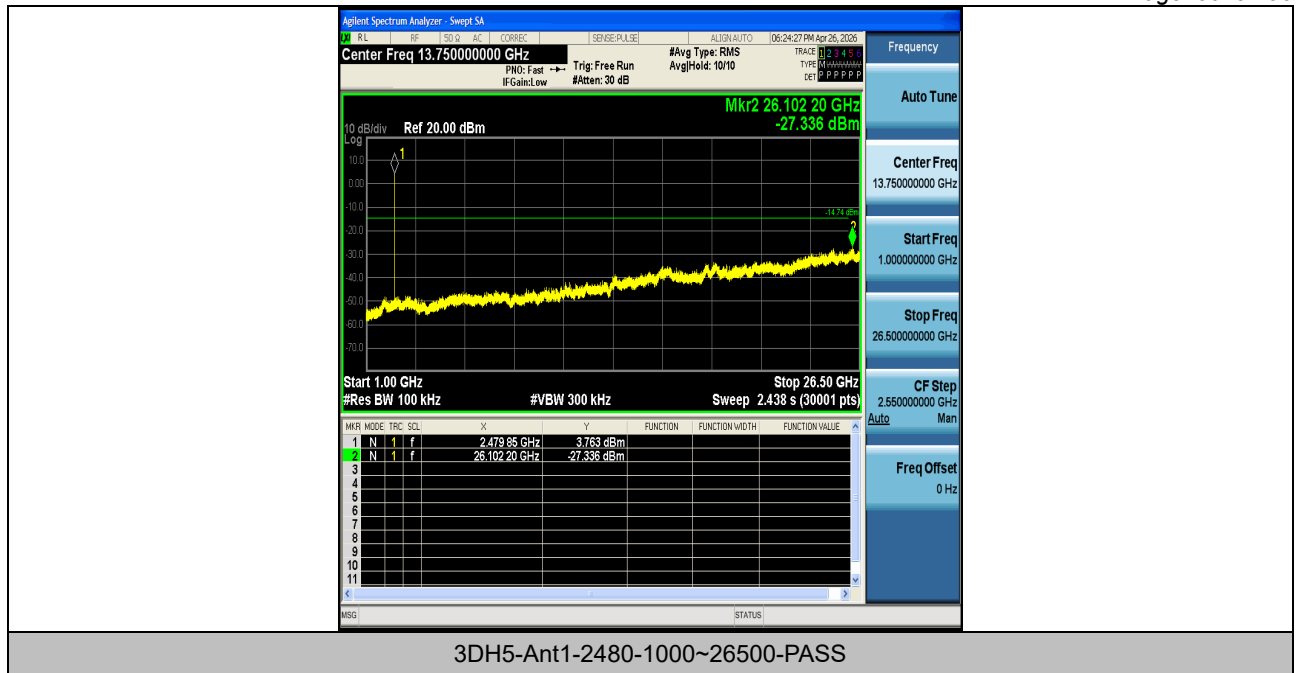


3DH5-Ant1-2480-0~Reference-PASS



3DH5-Ant1-2480-30~1000-PASS







Appendix I: Duty Cycle

Test Result

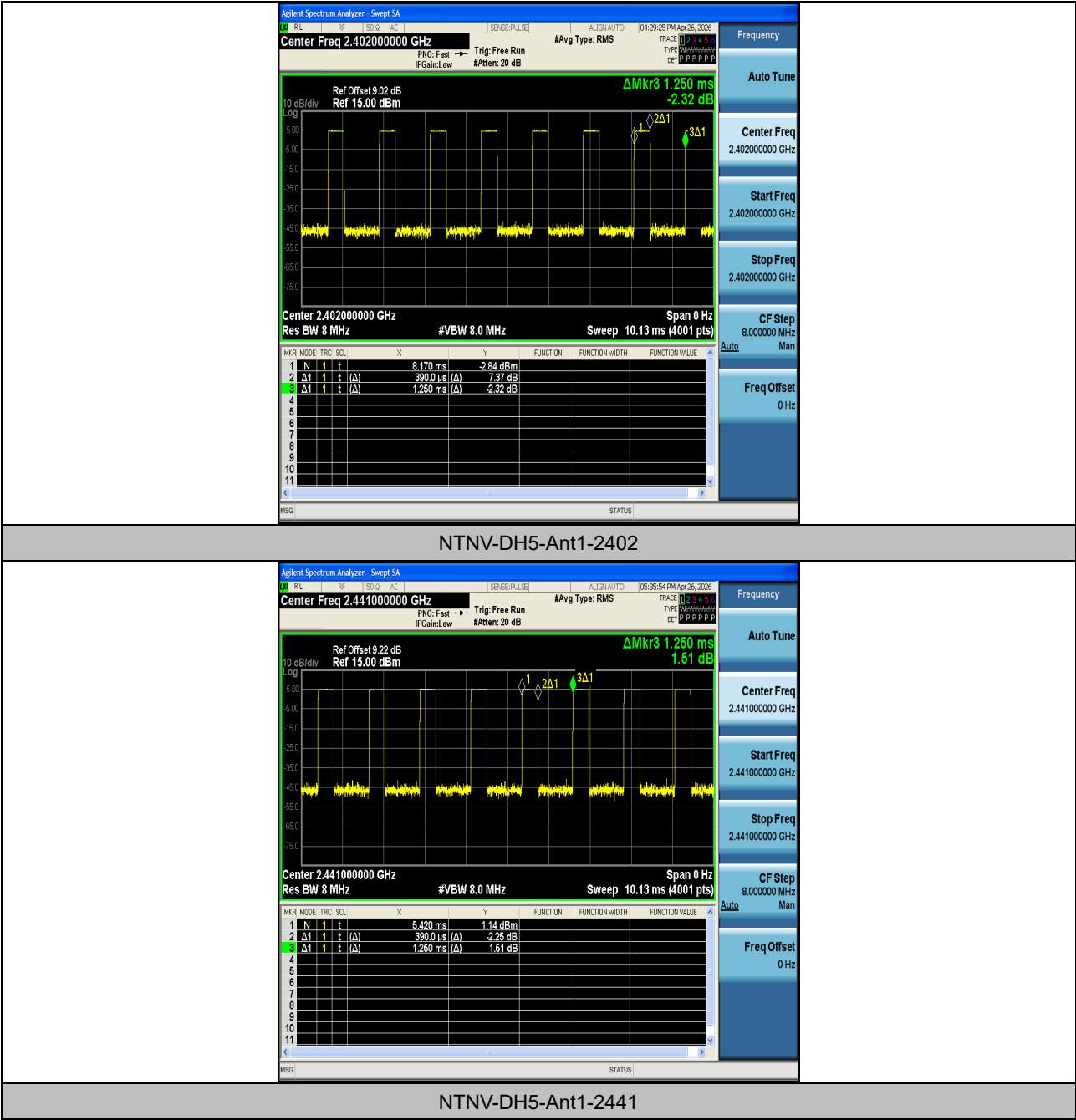
Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
DH5	Ant1	2402	0.39	1.25	31.20	5.06
DH5	Ant1	2441	0.39	1.25	31.20	5.06
DH5	Ant1	2480	0.39	1.25	31.20	5.06
2DH5	Ant1	2402	0.28	1.25	22.40	6.50
2DH5	Ant1	2441	0.28	1.25	22.40	6.50
2DH5	Ant1	2480	0.27	1.24	21.77	6.62
3DH5	Ant1	2402	0.23	1.25	18.40	7.35
3DH5	Ant1	2441	0.24	1.25	19.20	7.17
3DH5	Ant1	2480	0.24	1.25	19.20	7.17

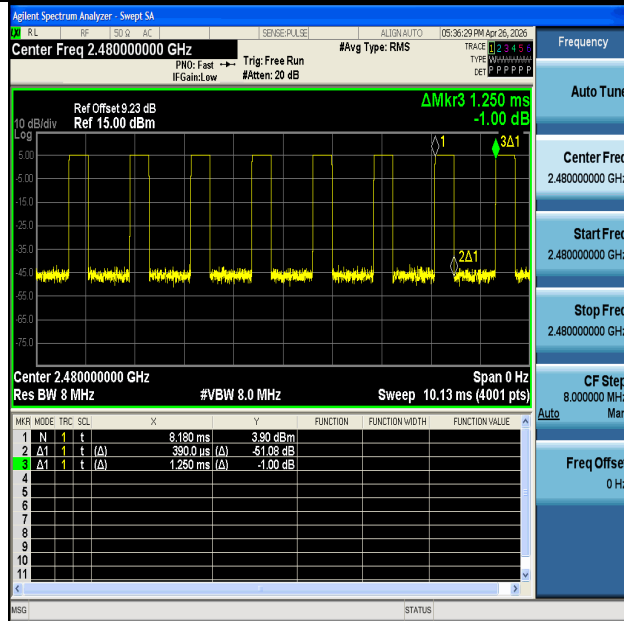
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



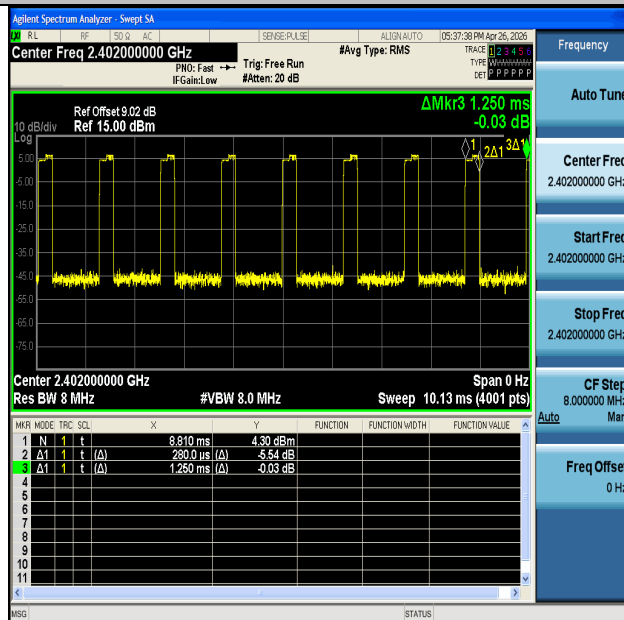


Test Graphs



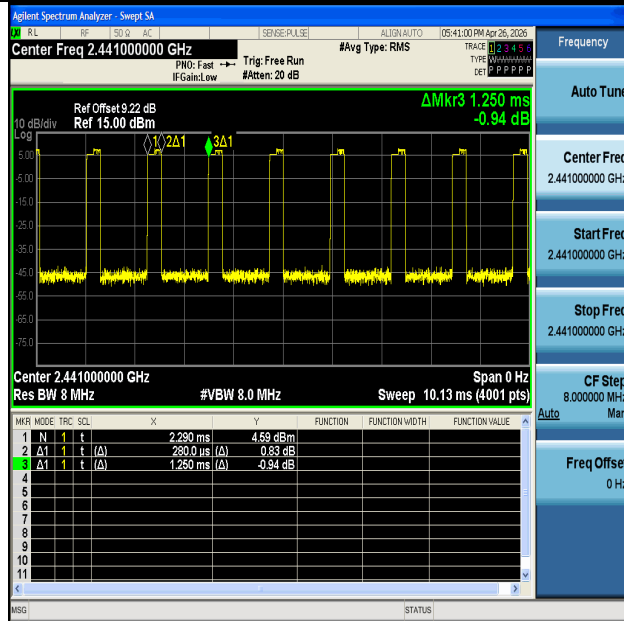


NTNV-DH5-Ant1-2480

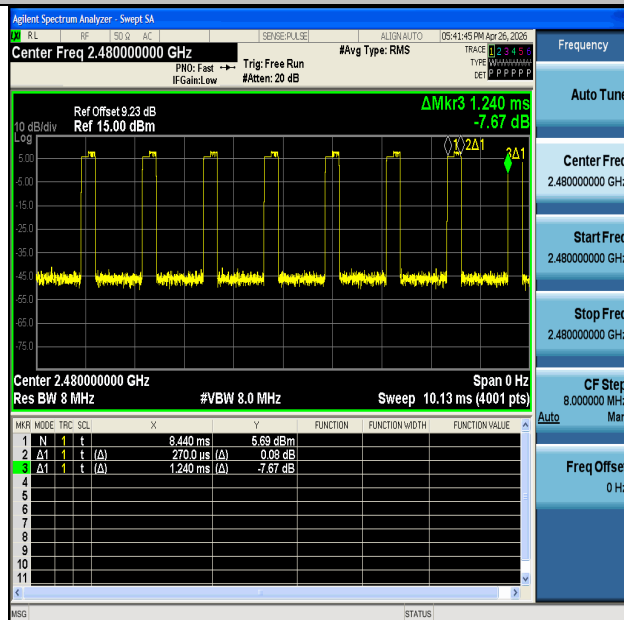


NTNV-2DH5-Ant1-2402



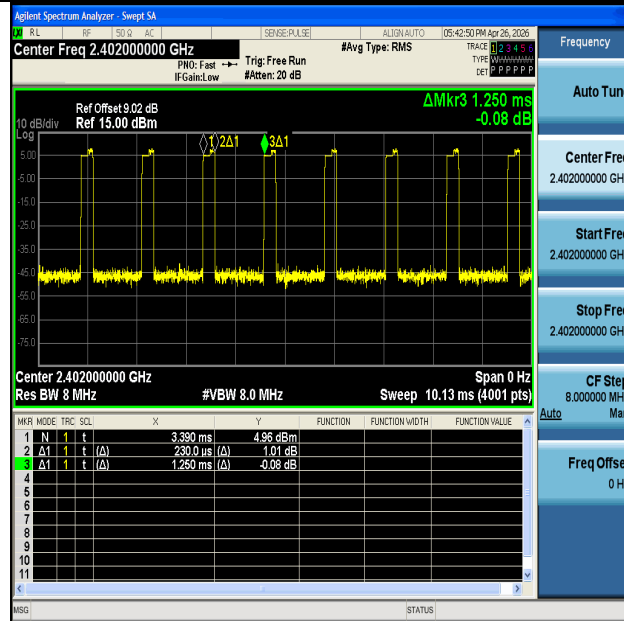


NTNV-2DH5-Ant1-2441

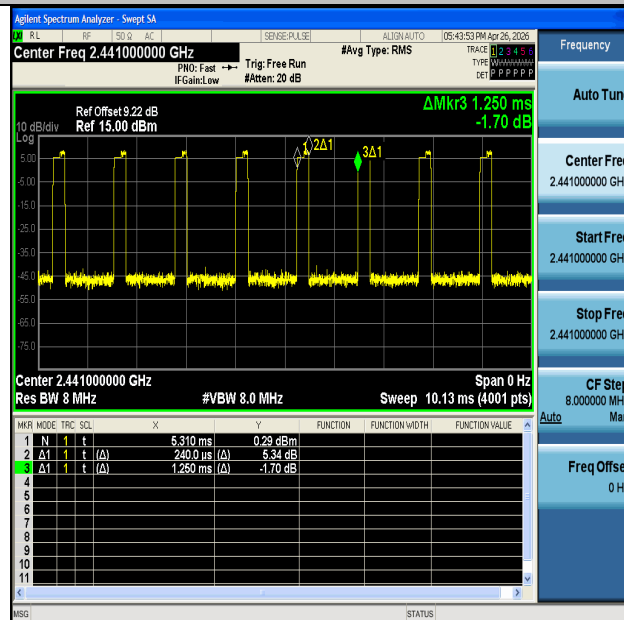


NTNV-2DH5-Ant1-2480





NTNV-3DH5-Ant1-2402



NTNV-3DH5-Ant1-2441



