



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

Product Name: Bluetooth 5.0 Receiver

Trade Mark: RECOIL

Test Model: BTR-20

FCC ID: 2BTKR-BTR-20

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	0.858	2401.544	2402.402	---	---
DH5	Ant1	2441	0.864	2440.541	2441.405	---	---
DH5	Ant1	2480	0.834	2479.556	2480.390	---	---
2DH5	Ant1	2402	1.326	2401.325	2402.651	---	---
2DH5	Ant1	2441	1.281	2440.358	2441.639	---	---
2DH5	Ant1	2480	1.272	2479.361	2480.633	---	---
3DH5	Ant1	2402	1.293	2401.340	2402.633	---	---
3DH5	Ant1	2441	1.278	2440.343	2441.621	---	---
3DH5	Ant1	2480	1.287	2479.340	2480.627	---	---

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	0.75989	2401.6113	2402.3712	---	---
DH5	Ant1	2441	0.74673	2440.6179	2441.3646	---	---
DH5	Ant1	2480	0.76243	2479.6123	2480.3747	---	---
2DH5	Ant1	2402	1.1726	2401.3999	2402.5725	---	---
2DH5	Ant1	2441	1.1623	2440.4046	2441.5669	---	---
2DH5	Ant1	2480	1.1545	2479.4105	2480.5650	---	---
3DH5	Ant1	2402	1.1724	2401.4053	2402.5777	---	---
3DH5	Ant1	2441	1.1628	2440.4087	2441.5715	---	---
3DH5	Ant1	2480	1.1598	2479.4145	2480.5743	---	---

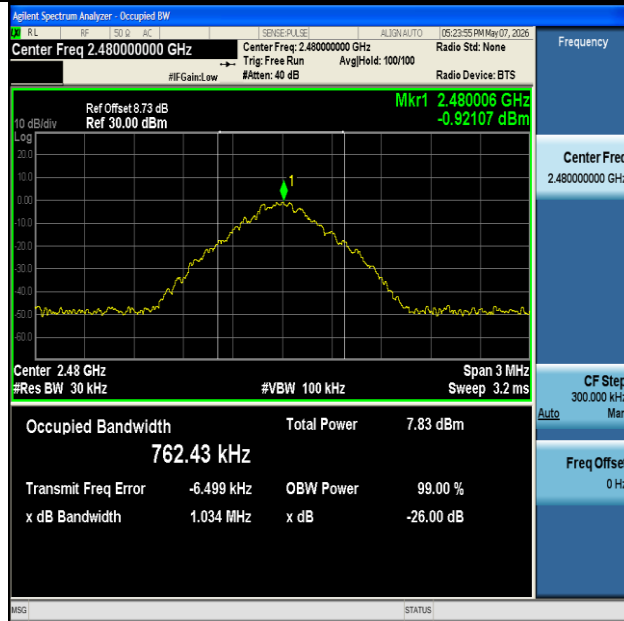
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



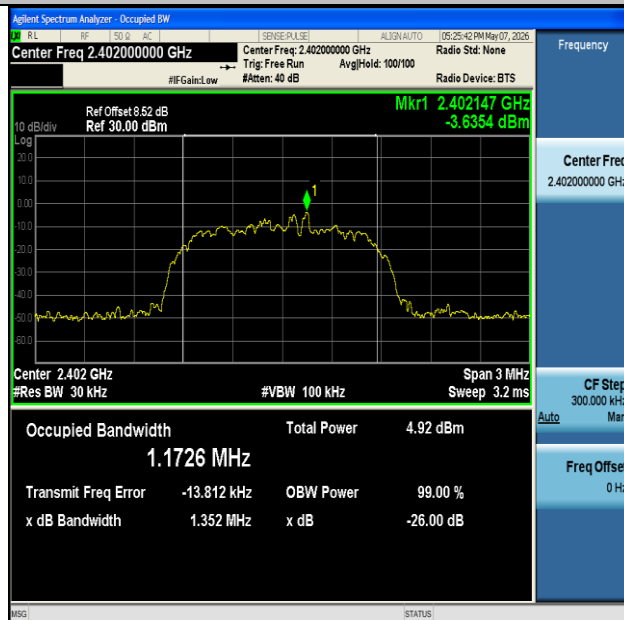


Test Graphs



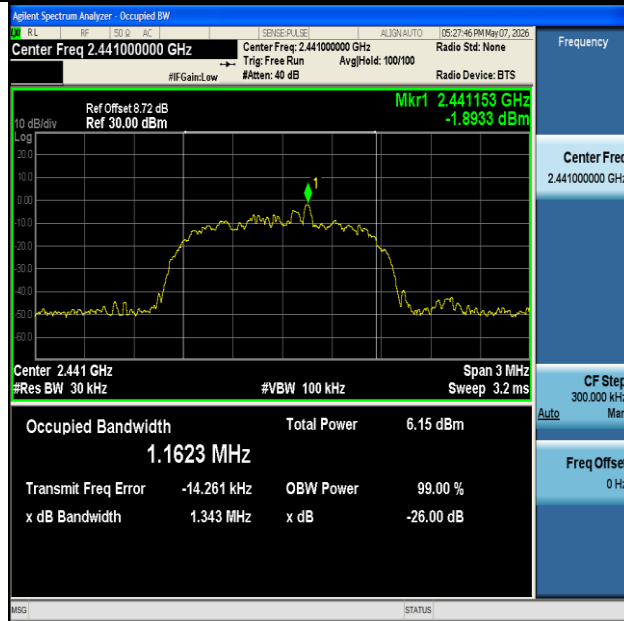


DH5-Ant1-2480



2DH5-Ant1-2402



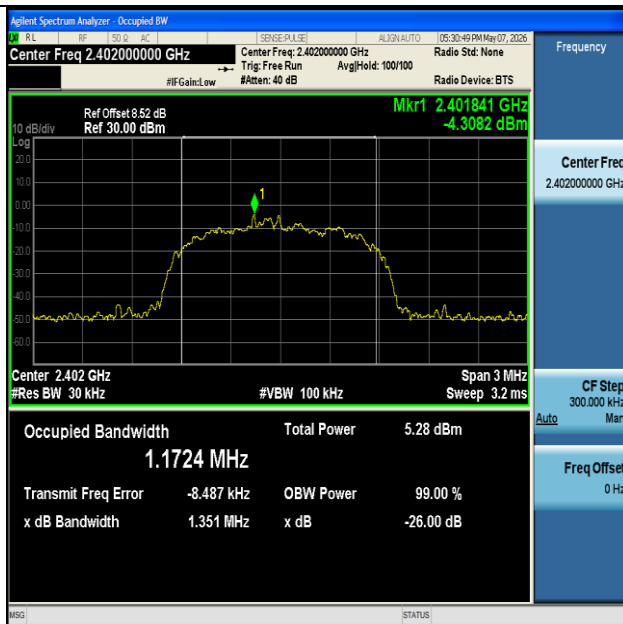


2DH5-Ant1-2441

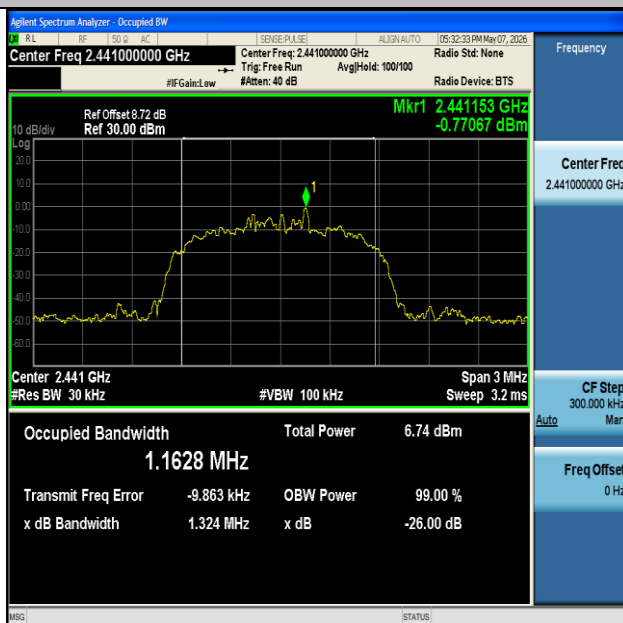


2DH5-Ant1-2480



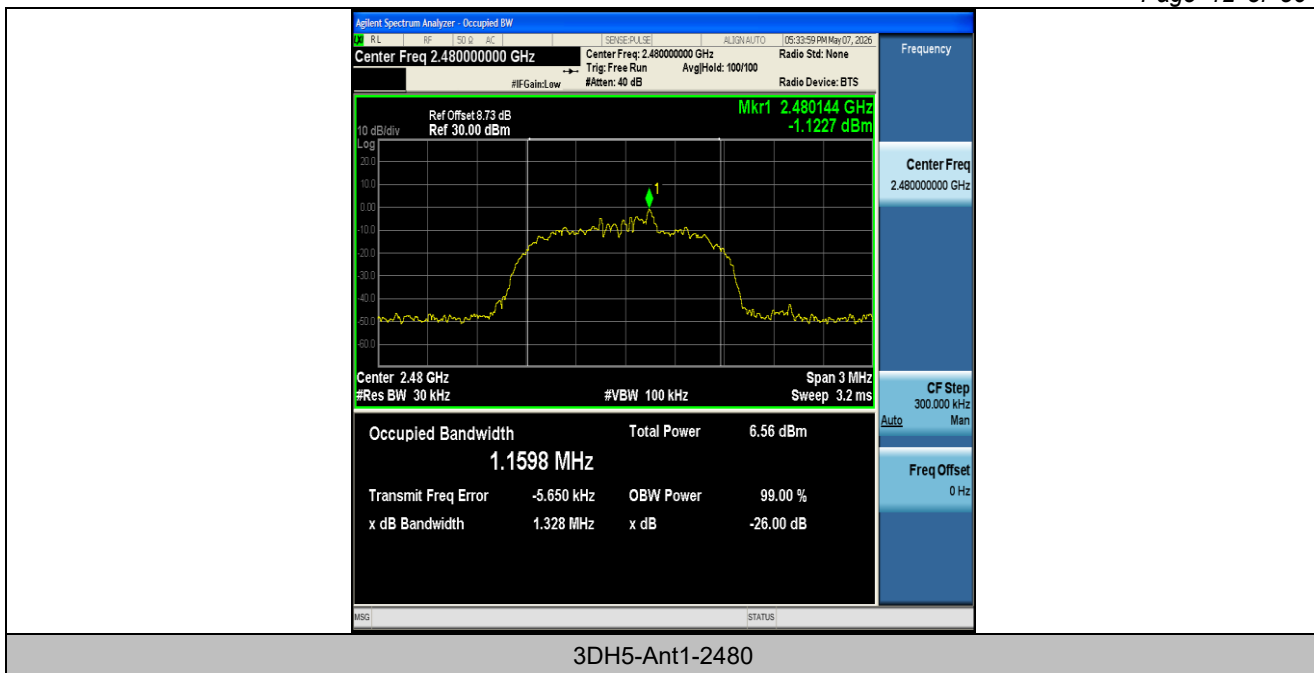


3DH5-Ant1-2402



3DH5-Ant1-2441







Appendix C: Maximum peak conducted output power

Test Result

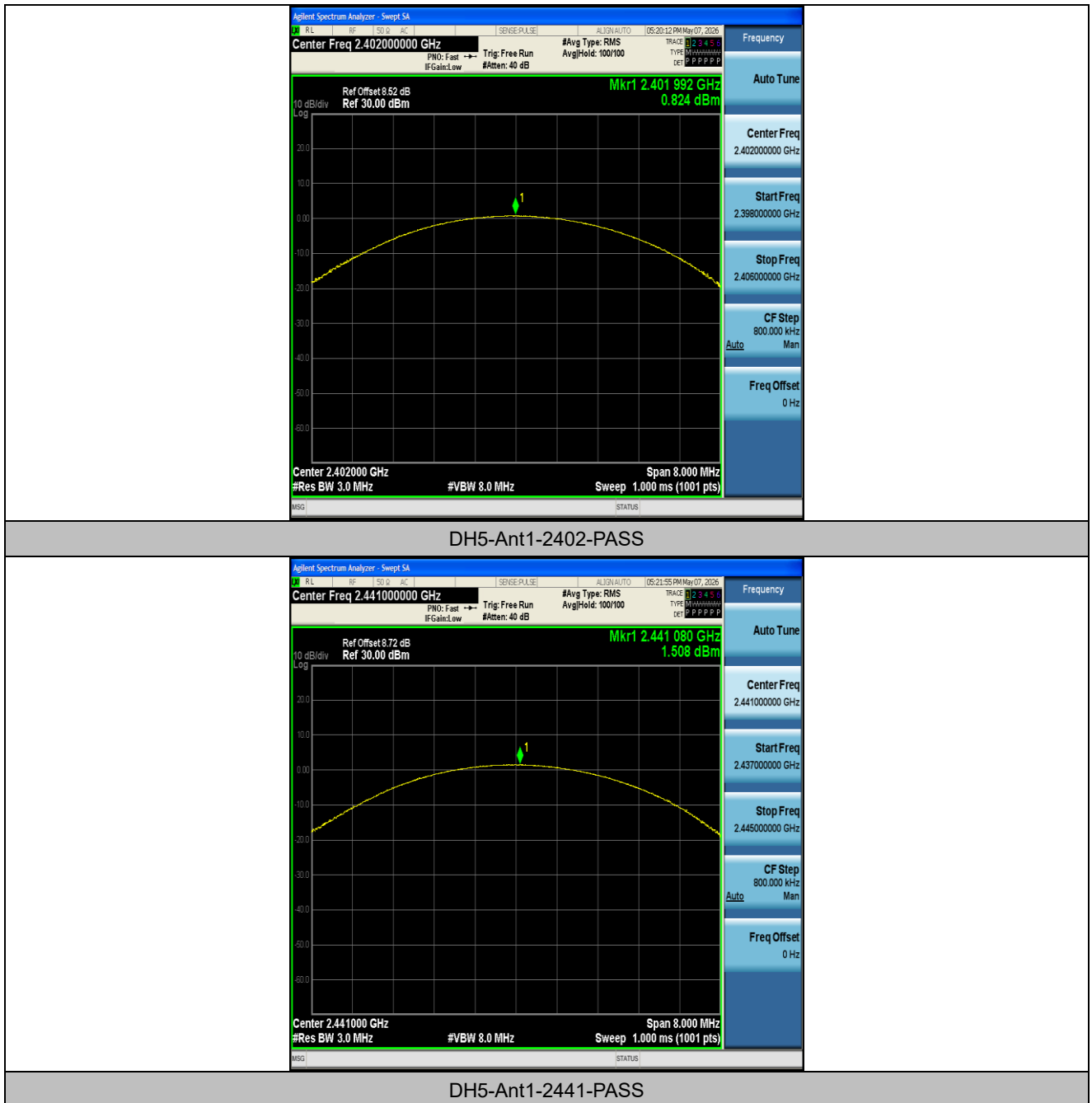
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
DH5	Ant1	2402	0.82	≤30	PASS
DH5	Ant1	2441	1.51	≤30	PASS
DH5	Ant1	2480	1.78	≤30	PASS
2DH5	Ant1	2402	0.68	≤20.97	PASS
2DH5	Ant1	2441	1.44	≤20.97	PASS
2DH5	Ant1	2480	1.76	≤20.97	PASS
3DH5	Ant1	2402	0.95	≤20.97	PASS
3DH5	Ant1	2441	1.67	≤20.97	PASS
3DH5	Ant1	2480	1.82	≤20.97	PASS

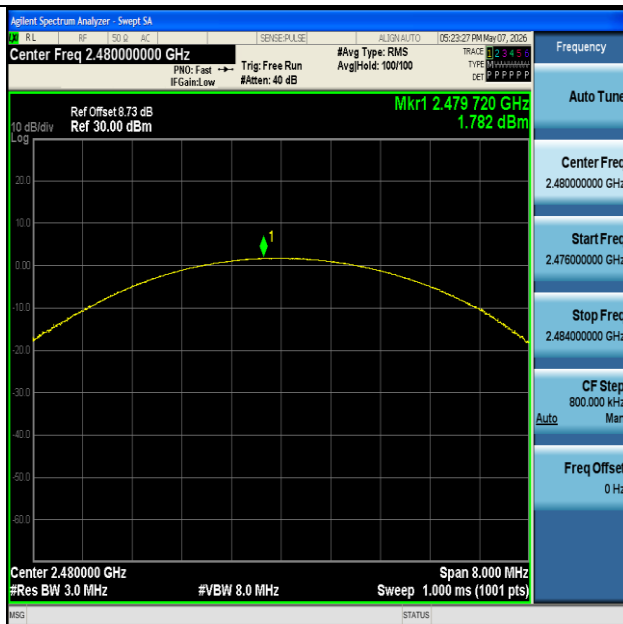
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



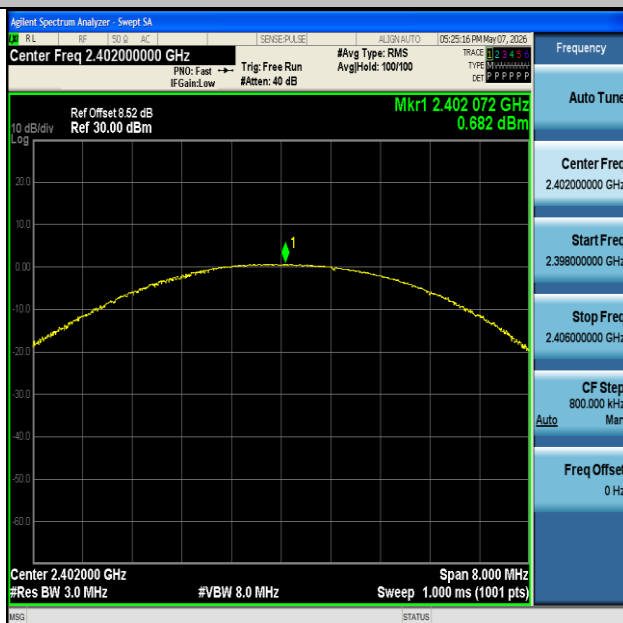


Test Graphs



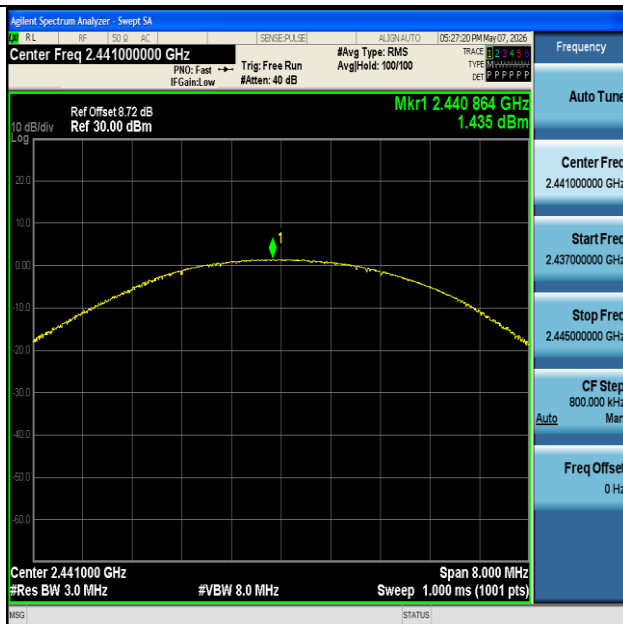


DH5-Ant1-2480-PASS

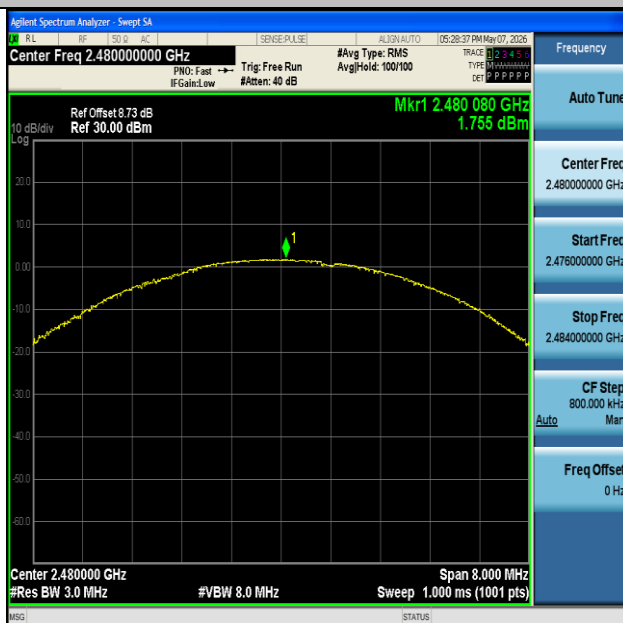


2DH5-Ant1-2402-PASS



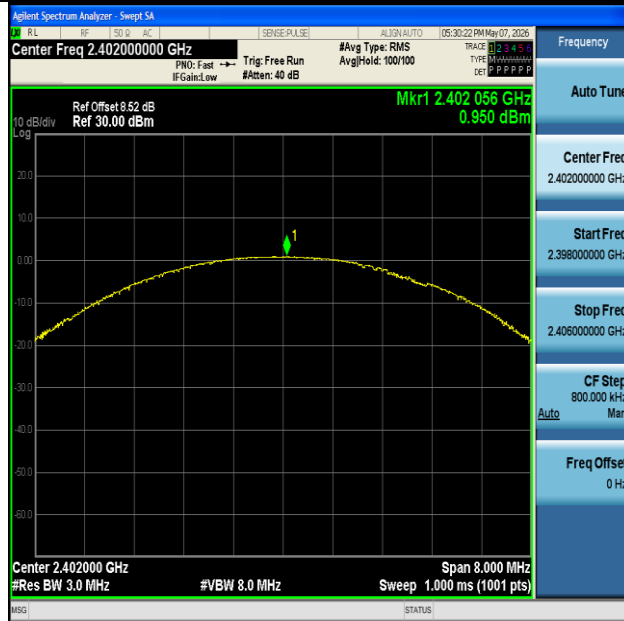


2DH5-Ant1-2441-PASS



2DH5-Ant1-2480-PASS



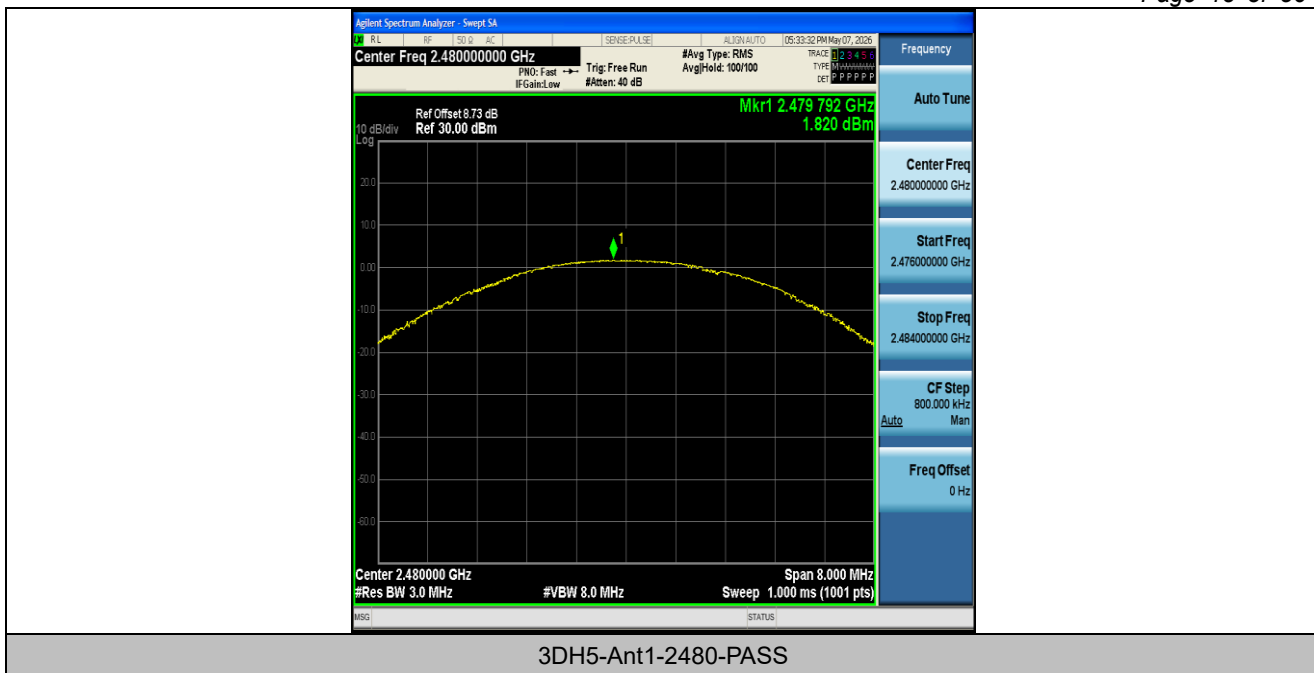


3DH5-Ant1-2402-PASS



3DH5-Ant1-2441-PASS







Appendix D: Carrier frequency separation

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	0.97	≥ 0.864	PASS
2DH5	Ant1	Hop	1.028	≥ 0.884	PASS
3DH5	Ant1	Hop	1.006	≥ 0.862	PASS

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





Test Graphs





3DH5-Ant1-Hop-PASS



Appendix E: Time of occupancy

Test Result

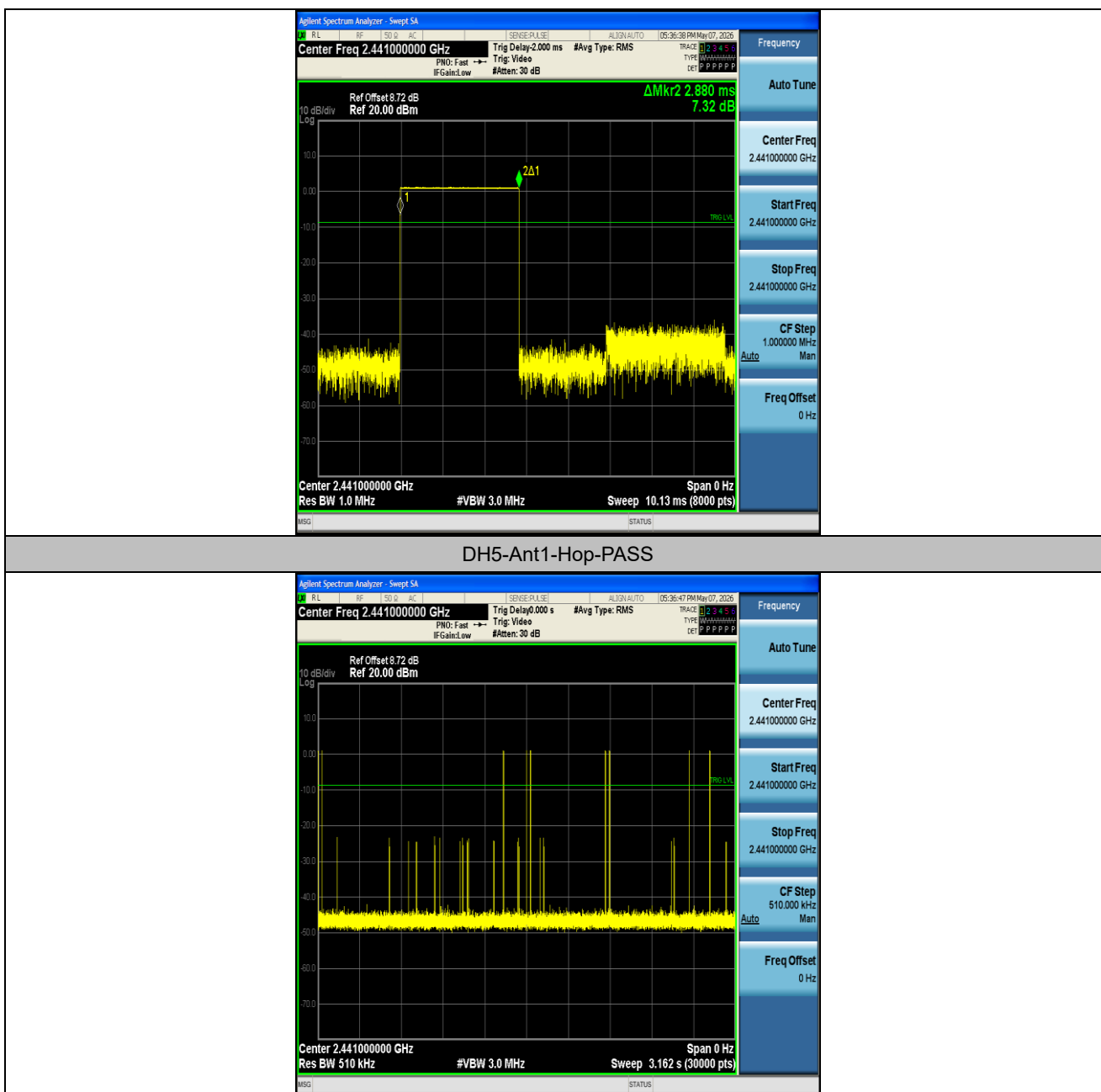
Test Mode	Antenna	Frequency [MHz]	Burst Width [ms]	TotalHops [Num]	Result [s]	Limit [s]	Verdict
DH5	Ant1	Hop	2.880	90	0.259	≤0.4	PASS
2DH5	Ant1	Hop	2.884	80	0.231	≤0.4	PASS
3DH5	Ant1	Hop	2.887	70	0.202	≤0.4	PASS

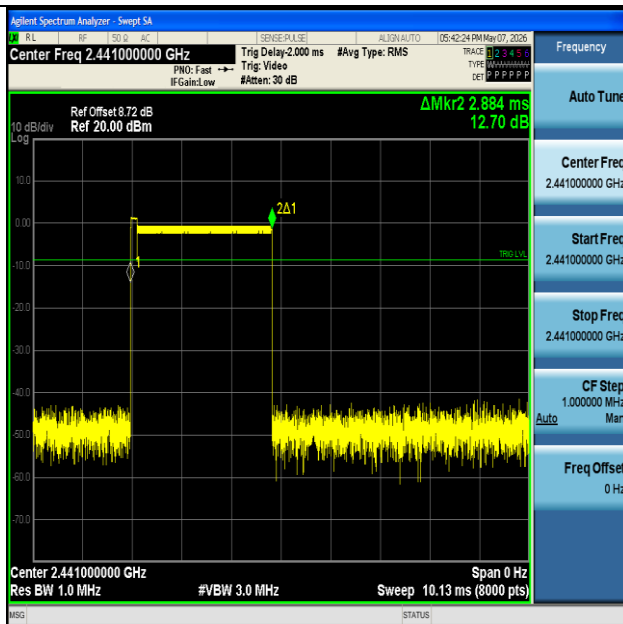
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



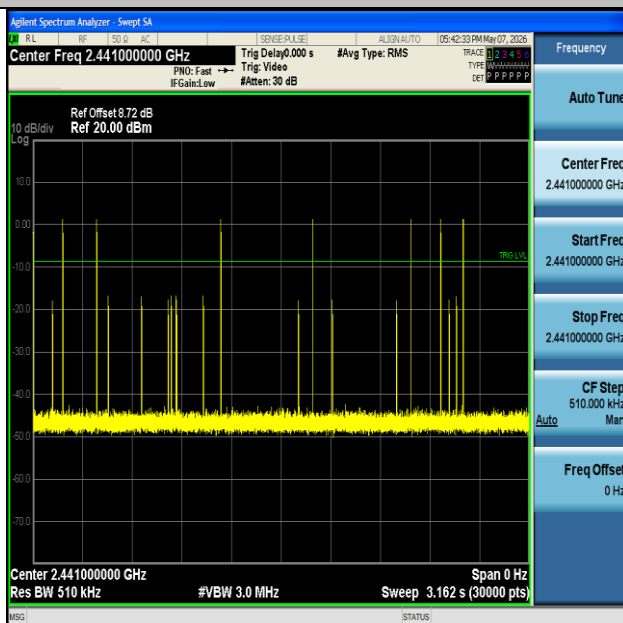


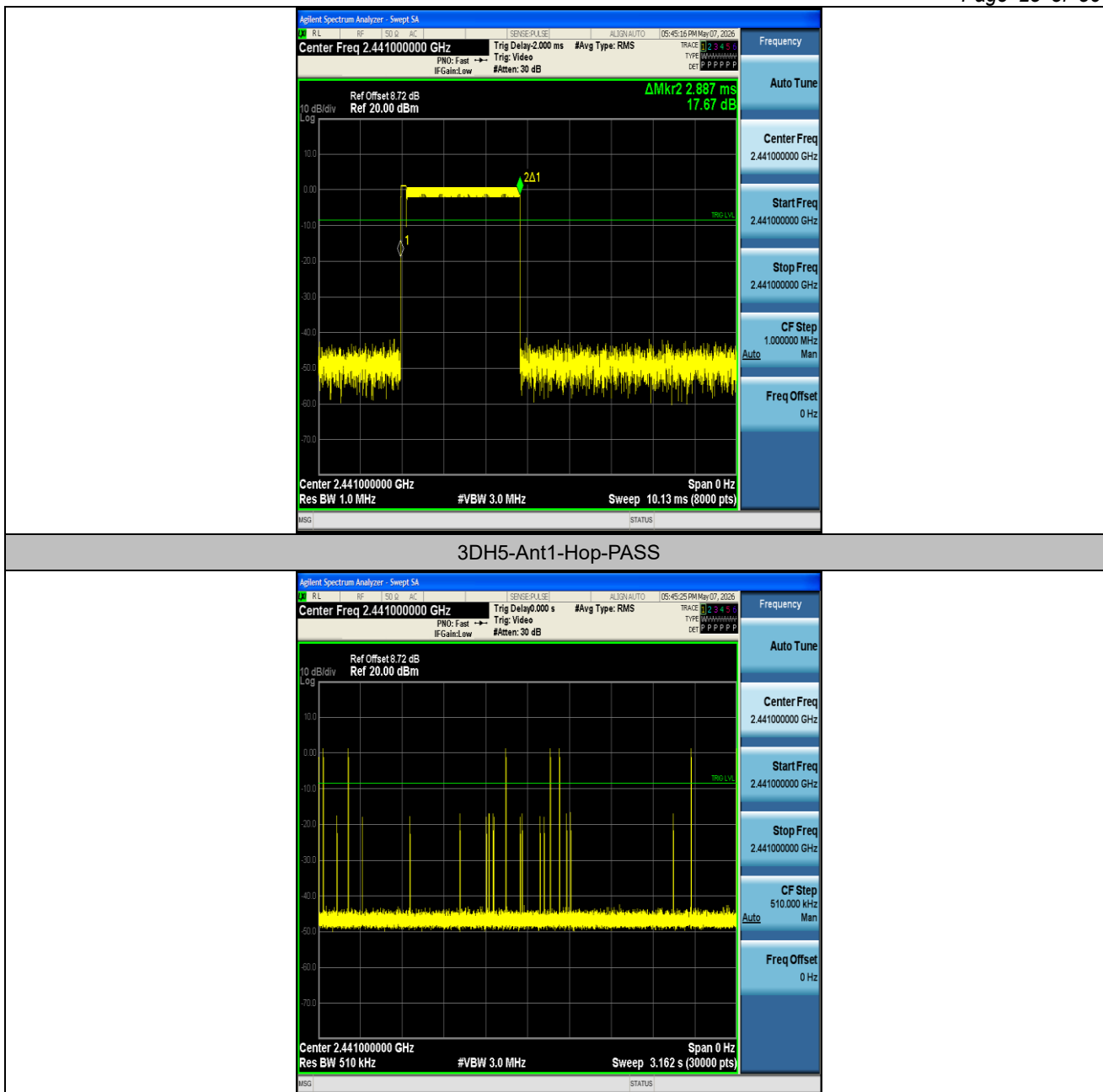
Test Graphs





2DH5-Ant1-Hop-PASS







Appendix F: Number of hopping channels

Test Result

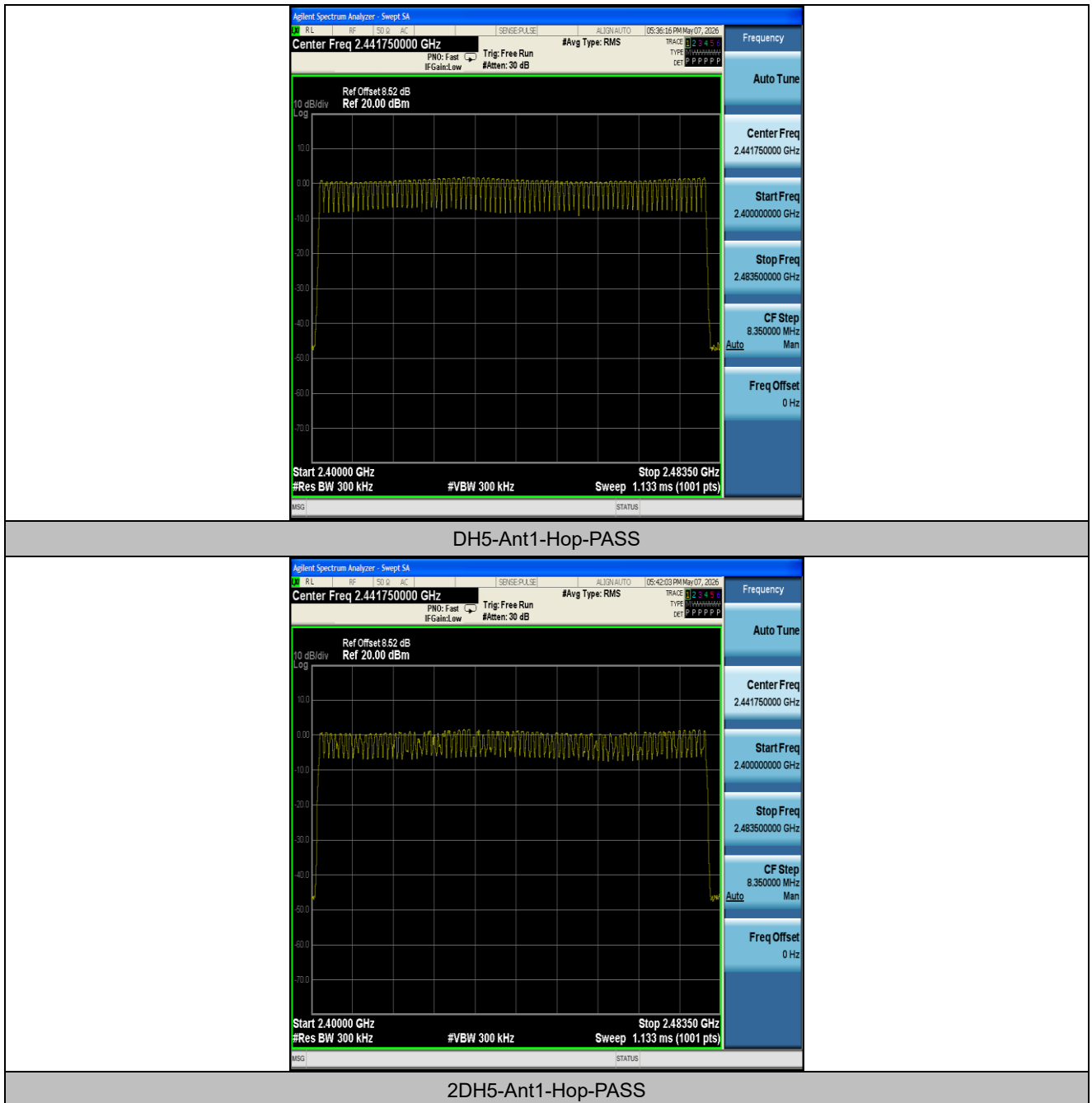
Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

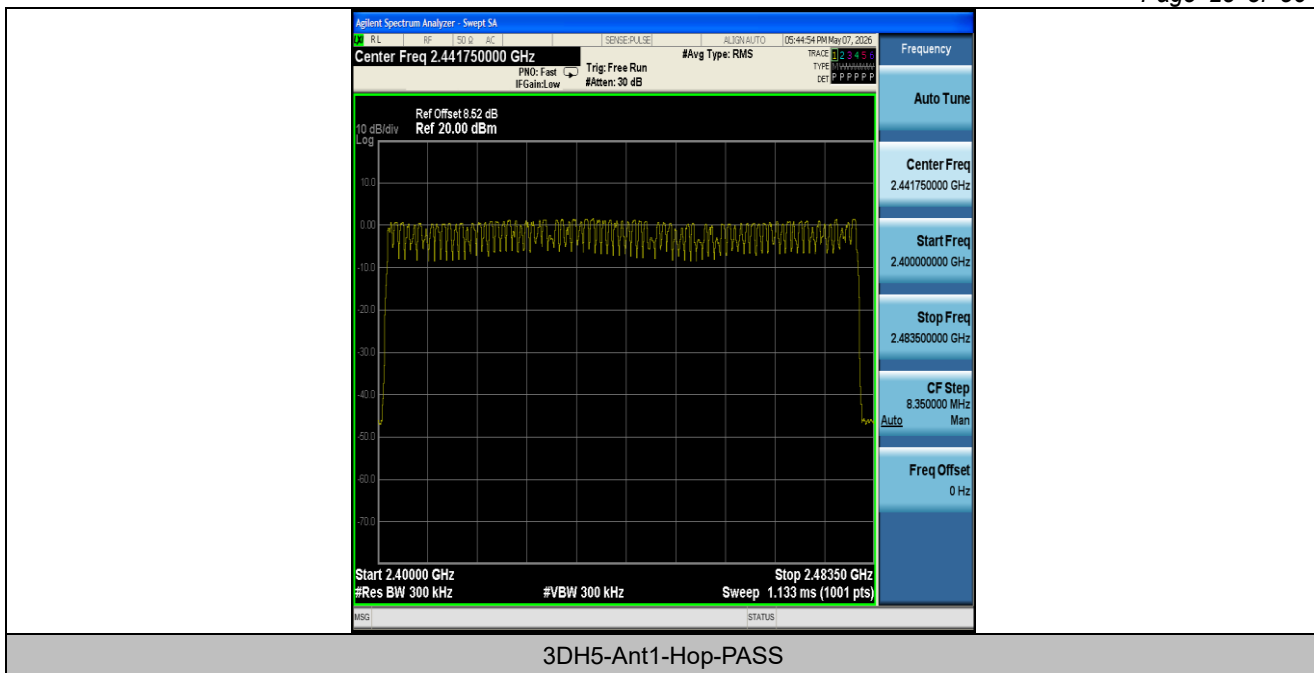
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs







Appendix G: Band edge measurements

Test Result

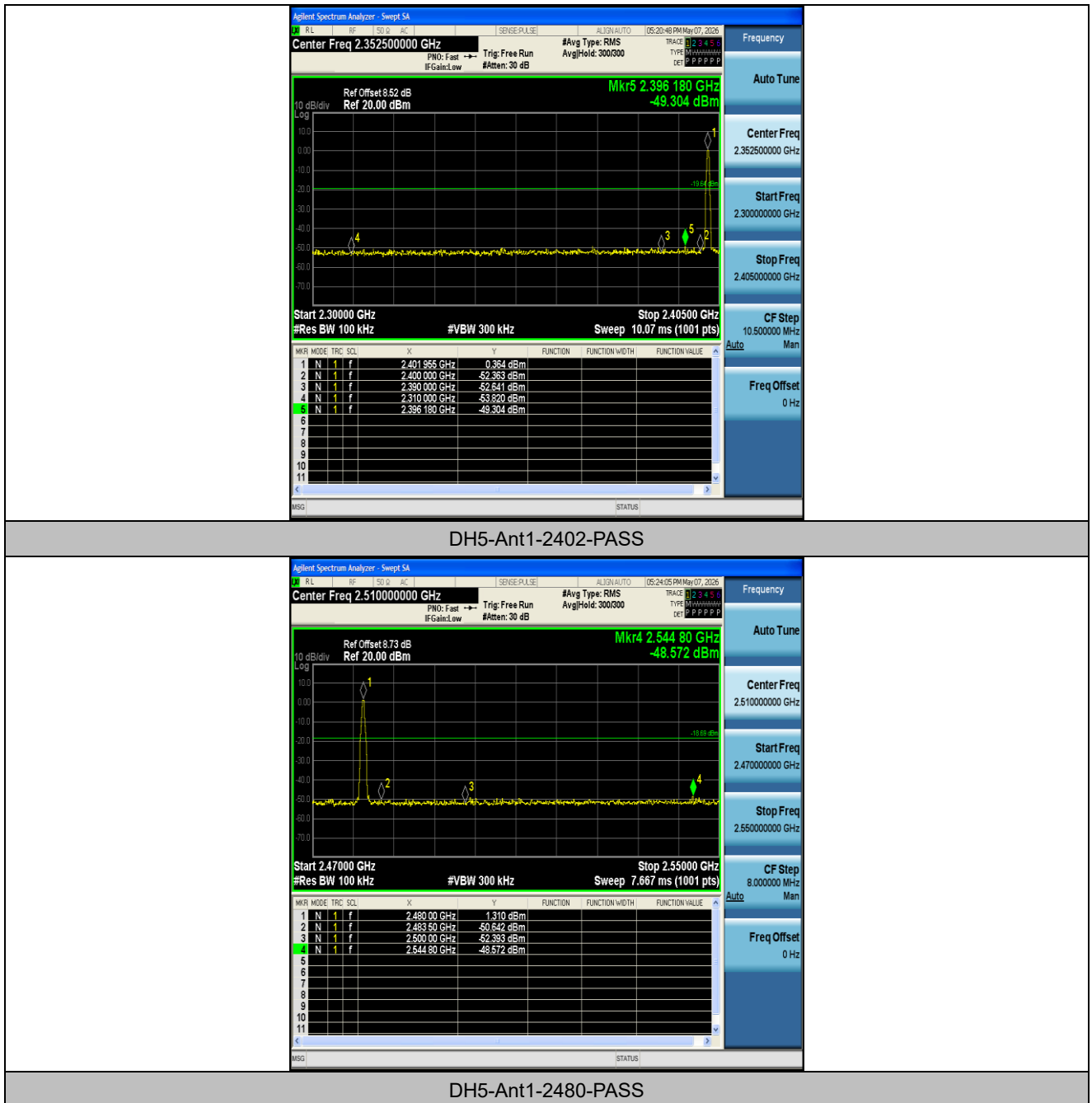
Test Mode	Antenna	Ch.Name	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.36	-49.3	≤-19.64	PASS
DH5	Ant1	High	2480	1.31	-48.57	≤-18.69	PASS
DH5	Ant1	Low	Hop_2402	-3.23	-49.31	≤-23.23	PASS
DH5	Ant1	High	Hop_2480	0.38	-48.59	≤-19.62	PASS
2DH5	Ant1	Low	2402	0.30	-49.85	≤-19.7	PASS
2DH5	Ant1	High	2480	-1.09	-48.97	≤-21.09	PASS
2DH5	Ant1	Low	Hop_2402	-8.22	-49.76	≤-28.22	PASS
2DH5	Ant1	High	Hop_2480	-0.80	-48.56	≤-20.8	PASS
3DH5	Ant1	Low	2402	-0.04	-49.98	≤-20.04	PASS
3DH5	Ant1	High	2480	1.56	-48.67	≤-18.44	PASS
3DH5	Ant1	Low	Hop_2402	-5.69	-49.53	≤-25.69	PASS
3DH5	Ant1	High	Hop_2480	-1.76	-48.49	≤-21.76	PASS

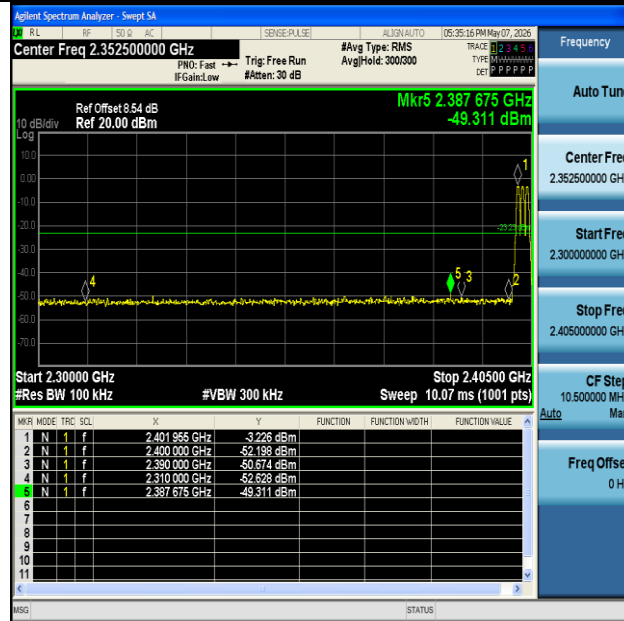
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



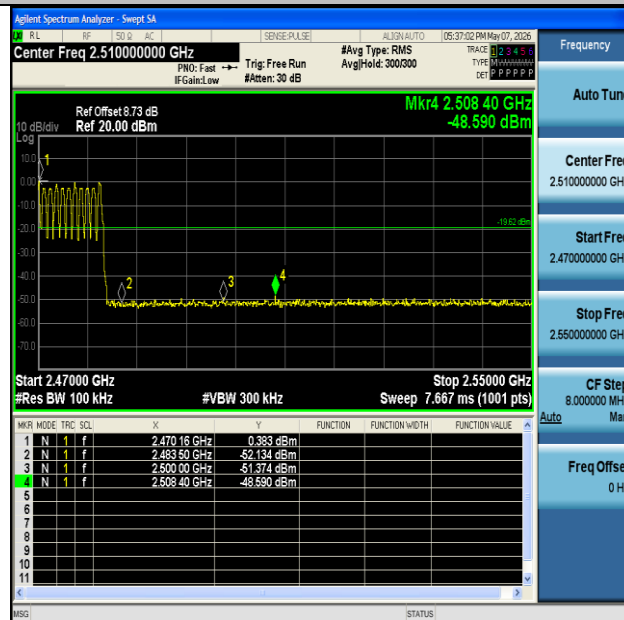


Test Graphs



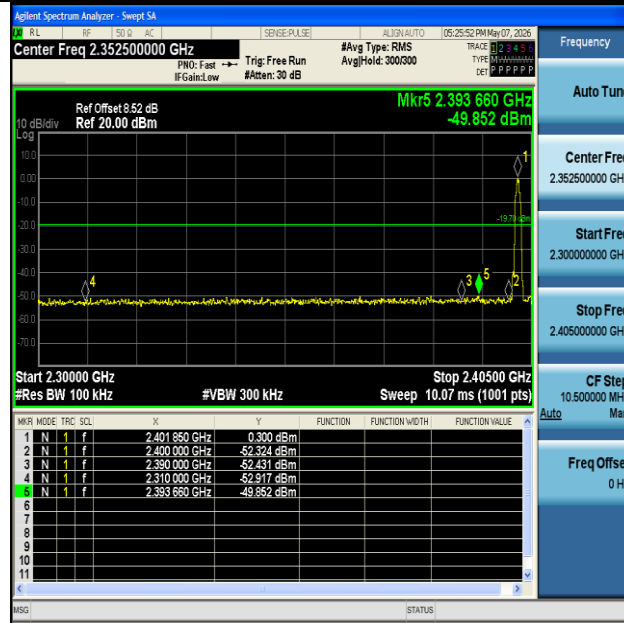


DH5-Ant1-Hop_2402-PASS

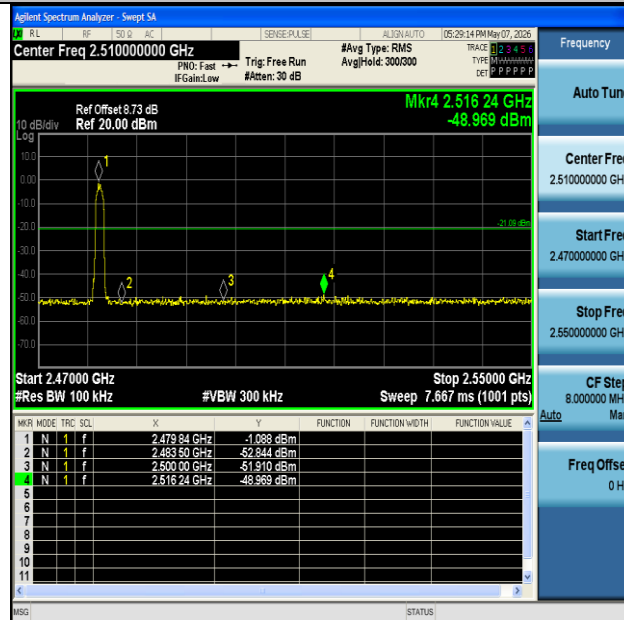


DH5-Ant1-Hop_2480-PASS



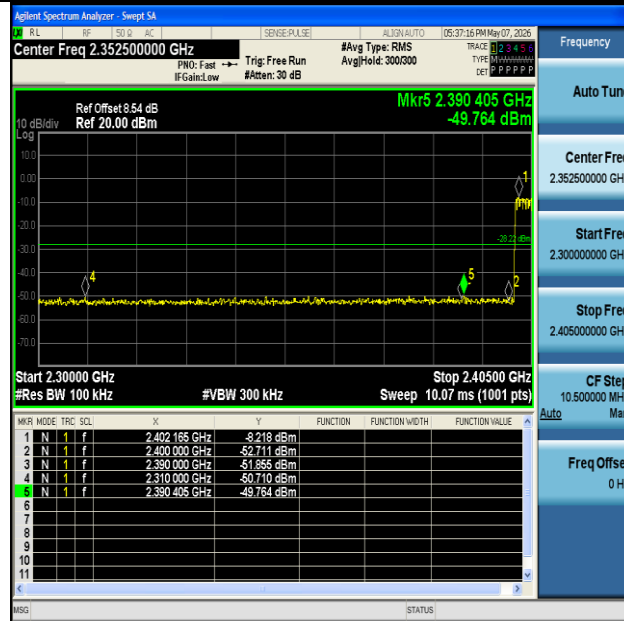


2DH5-Ant1-2402-PASS

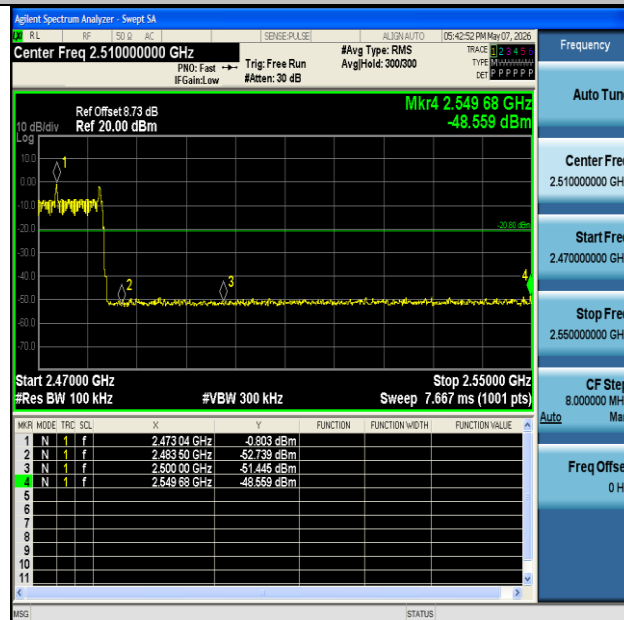


2DH5-Ant1-2480-PASS



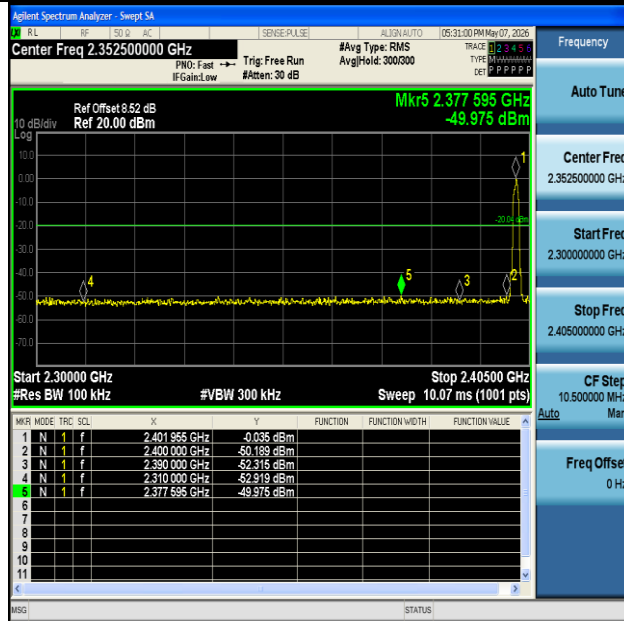


2DH5-Ant1-Hop_2402-PASS

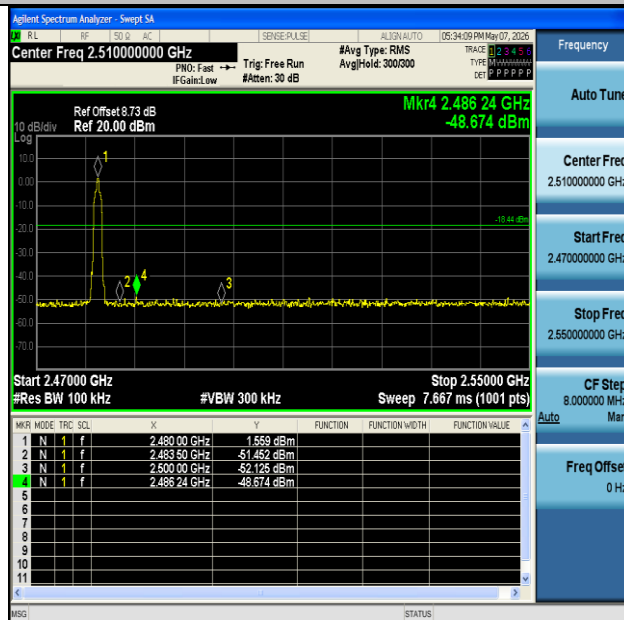


2DH5-Ant1-Hop_2480-PASS



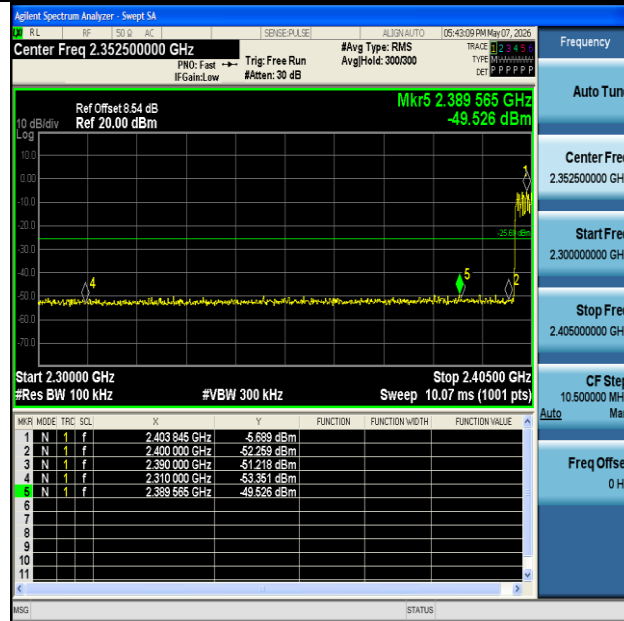


3DH5-Ant1-2402-PASS

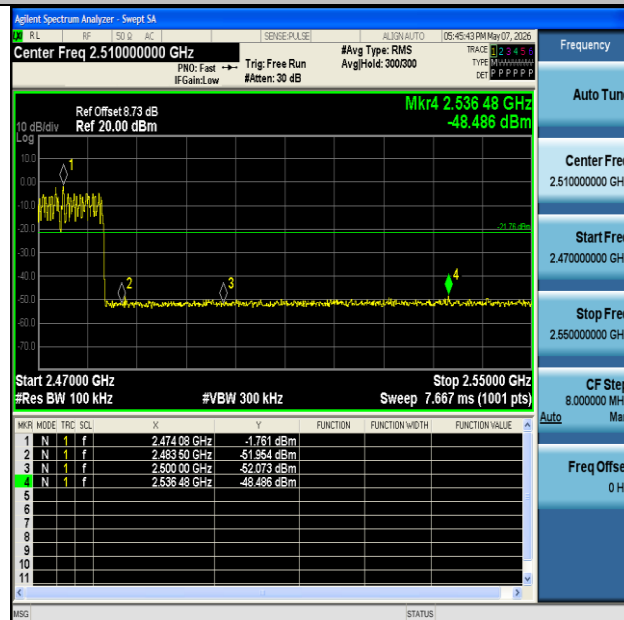


3DH5-Ant1-2480-PASS





3DH5-Ant1-Hop_2402-PASS



3DH5-Ant1-Hop_2480-PASS





Appendix H: Conducted Spurious Emission

Test Result

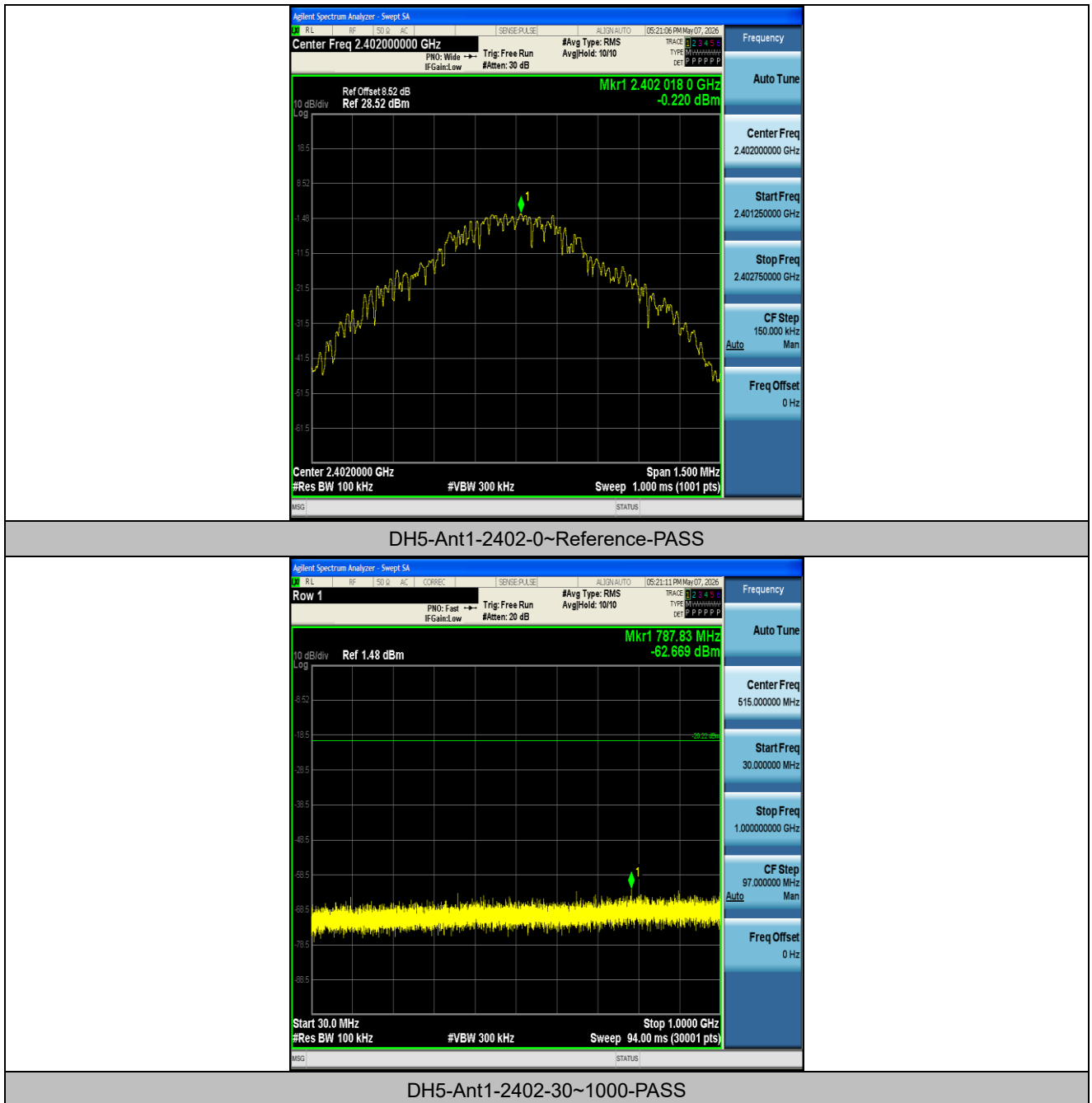
Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	-0.22	-0.22	---	PASS
DH5	Ant1	2402	30~1000	-0.22	-62.67	≤-20.22	PASS
DH5	Ant1	2402	1000~26500	-0.22	-37.69	≤-20.22	PASS
DH5	Ant1	2441	0~Reference	0.50	0.50	---	PASS
DH5	Ant1	2441	30~1000	0.50	-63.2	≤-19.5	PASS
DH5	Ant1	2441	1000~26500	0.50	-37.15	≤-19.5	PASS
DH5	Ant1	2480	0~Reference	0.80	0.80	---	PASS
DH5	Ant1	2480	30~1000	0.80	-63.31	≤-19.2	PASS
DH5	Ant1	2480	1000~26500	0.80	-37.94	≤-19.2	PASS
2DH5	Ant1	2402	0~Reference	-4.48	-4.48	---	PASS
2DH5	Ant1	2402	30~1000	-4.48	-63.44	≤-24.48	PASS
2DH5	Ant1	2402	1000~26500	-4.48	-37.94	≤-24.48	PASS
2DH5	Ant1	2441	0~Reference	-4.20	-4.20	---	PASS
2DH5	Ant1	2441	30~1000	-4.20	-62.2	≤-24.2	PASS
2DH5	Ant1	2441	1000~26500	-4.20	-37.83	≤-24.2	PASS
2DH5	Ant1	2480	0~Reference	-2.49	-2.49	---	PASS
2DH5	Ant1	2480	30~1000	-2.49	-63.31	≤-22.49	PASS
2DH5	Ant1	2480	1000~26500	-2.49	-38.34	≤-22.49	PASS
3DH5	Ant1	2402	0~Reference	-0.85	-0.85	---	PASS
3DH5	Ant1	2402	30~1000	-0.85	-63.43	≤-20.85	PASS
3DH5	Ant1	2402	1000~26500	-0.85	-37.39	≤-20.85	PASS
3DH5	Ant1	2441	0~Reference	-1.65	-1.65	---	PASS
3DH5	Ant1	2441	30~1000	-1.65	-62.94	≤-21.65	PASS
3DH5	Ant1	2441	1000~26500	-1.65	-36.8	≤-21.65	PASS
3DH5	Ant1	2480	0~Reference	-3.40	-3.40	---	PASS
3DH5	Ant1	2480	30~1000	-3.40	-63.31	≤-23.4	PASS
3DH5	Ant1	2480	1000~26500	-3.40	-38.36	≤-23.4	PASS

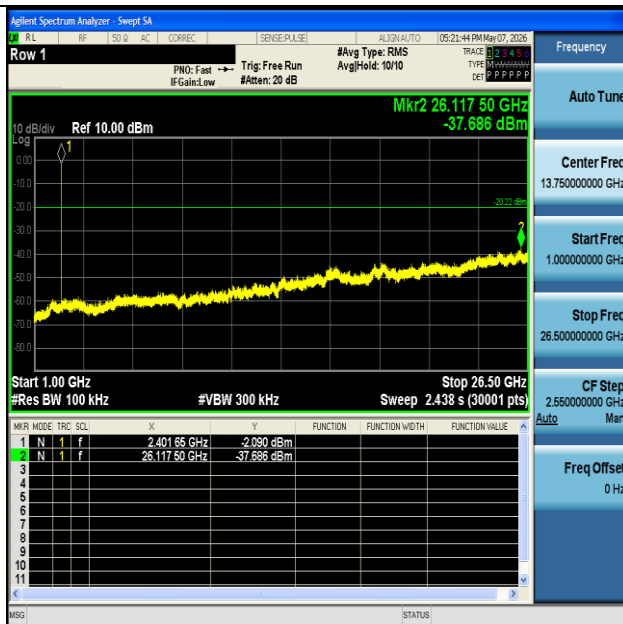
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.



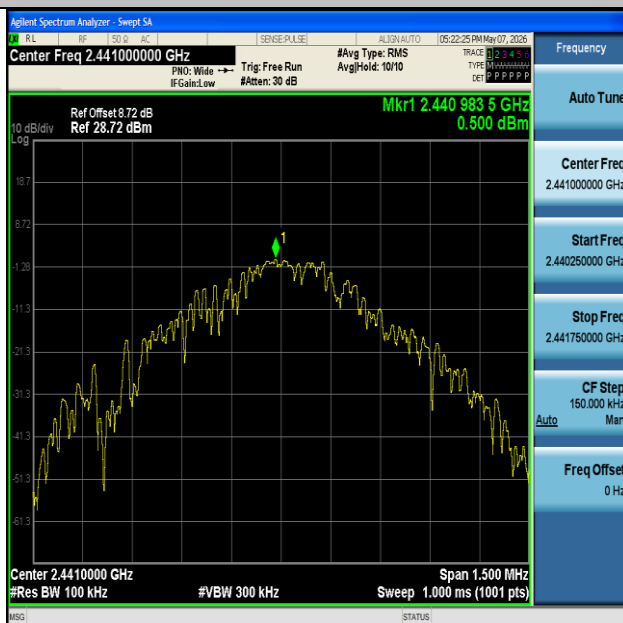


Test Graphs



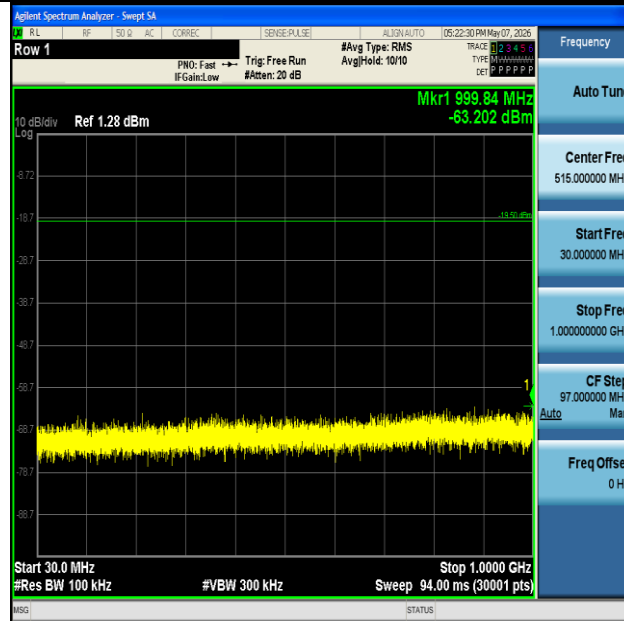


DH5-Ant1-2402-1000~26500-PASS



DH5-Ant1-2441-0~Reference-PASS





DH5-Ant1-2441-30~1000-PASS

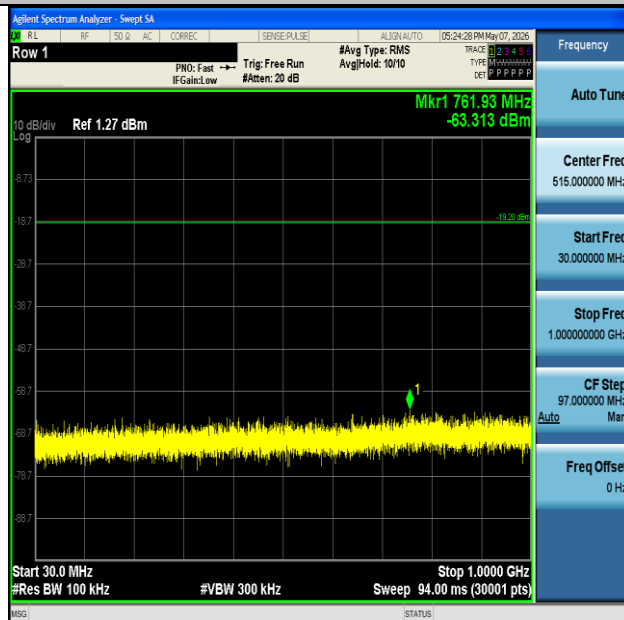


DH5-Ant1-2441-1000~26500-PASS



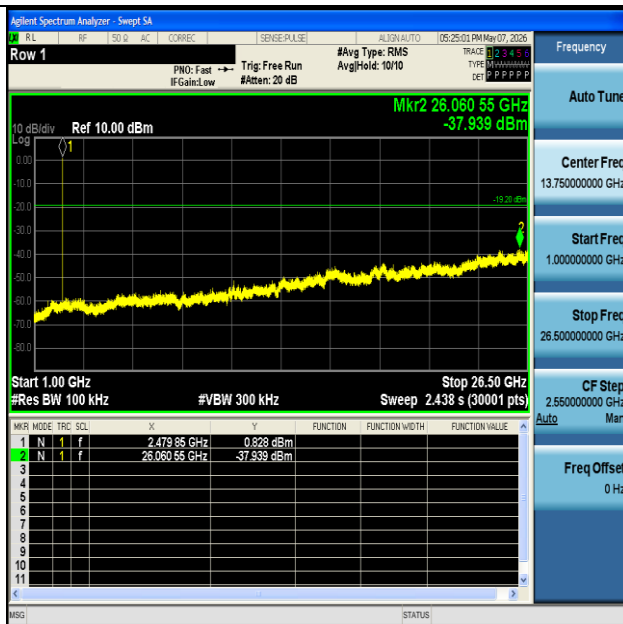


DH5-Ant1-2480-0~Reference-PASS

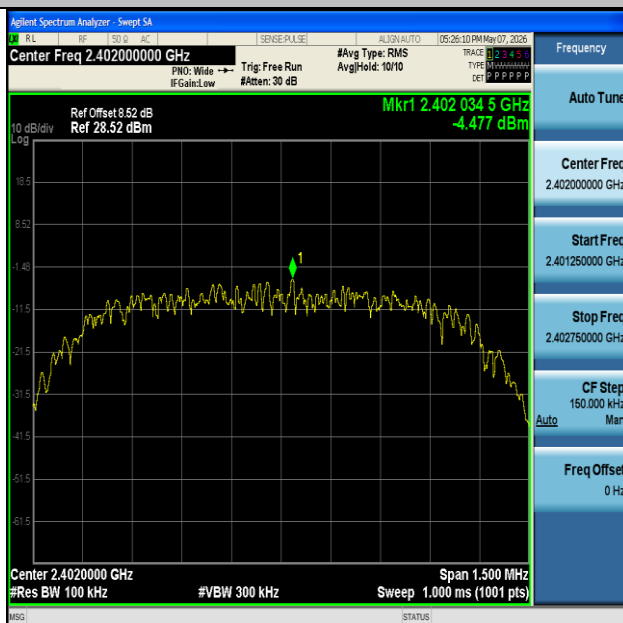


DH5-Ant1-2480-30~1000-PASS



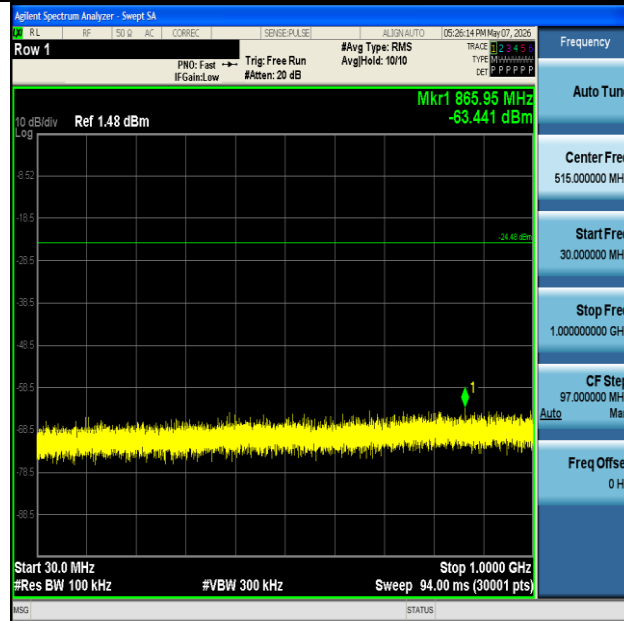


DH5-Ant1-2480-1000~26500-PASS



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



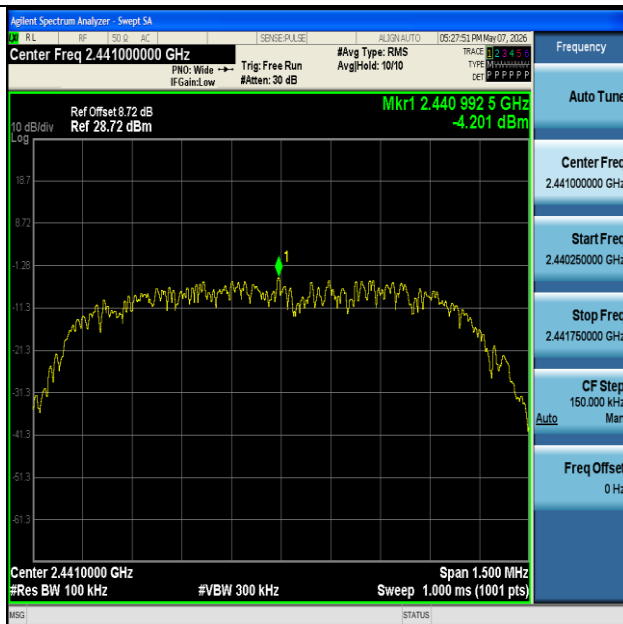


2DH5-Ant1-2402-30~1000-PASS

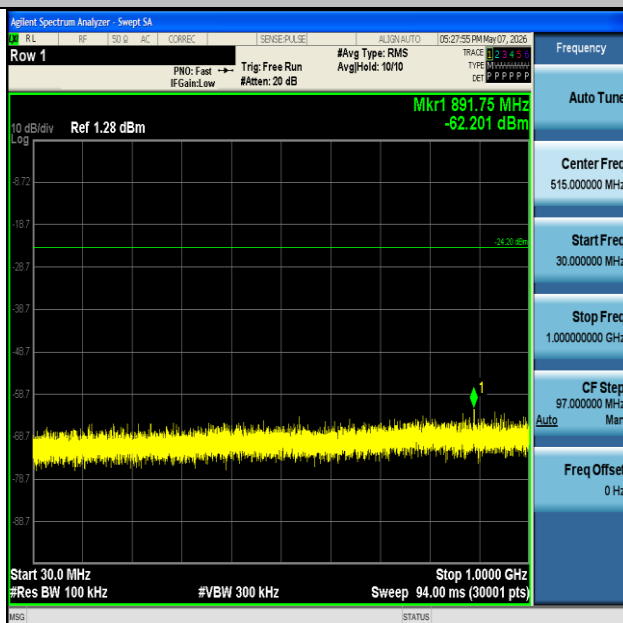


2DH5-Ant1-2402-1000~26500-PASS



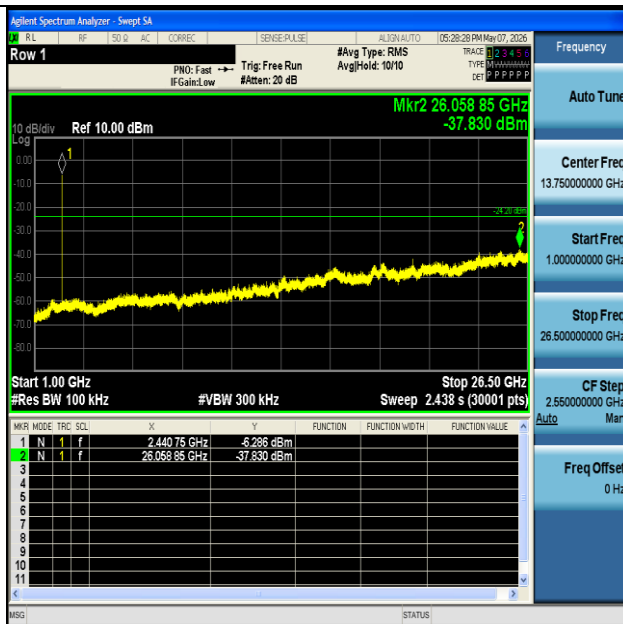


2DH5-Ant1-2441-0~Reference-PASS

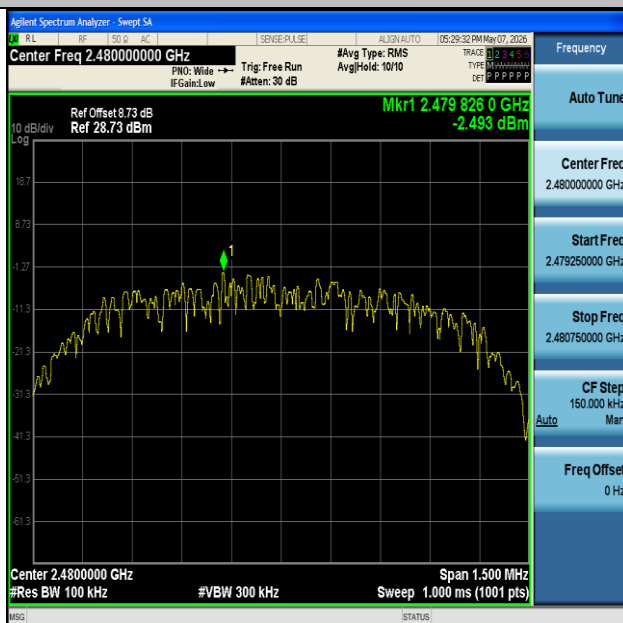


2DH5-Ant1-2441-30~1000-PASS





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



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





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

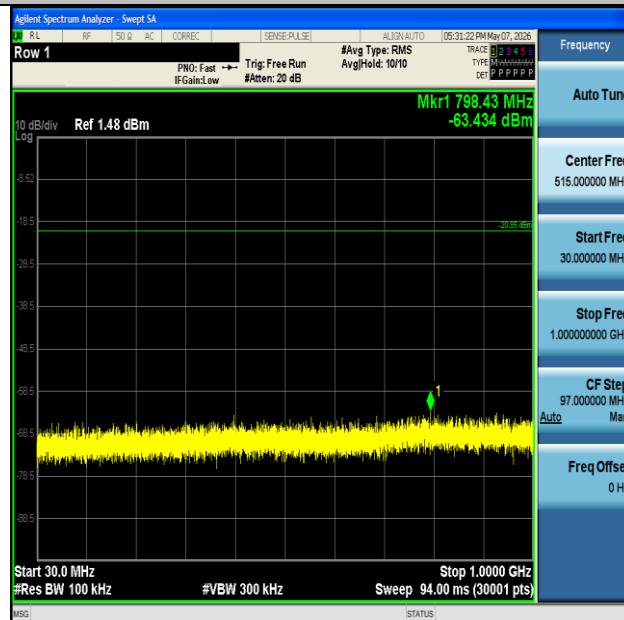


2DH5-Ant1-2480-1000~26500-PASS



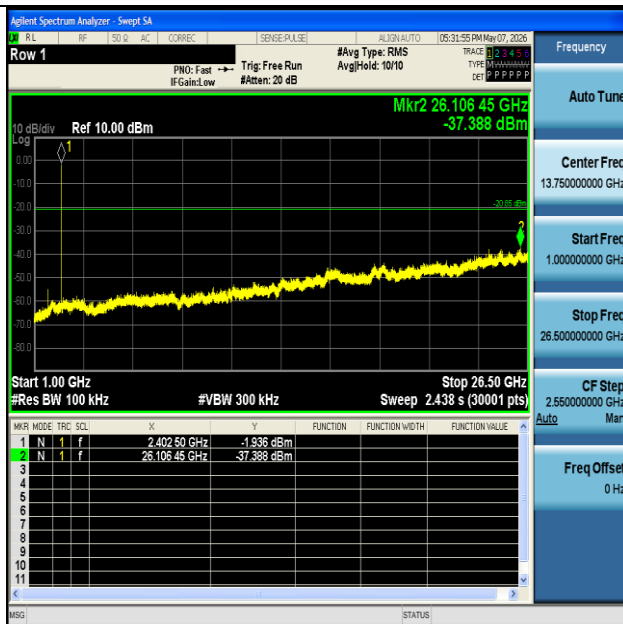


3DH5-Ant1-2402-0~Reference-PASS

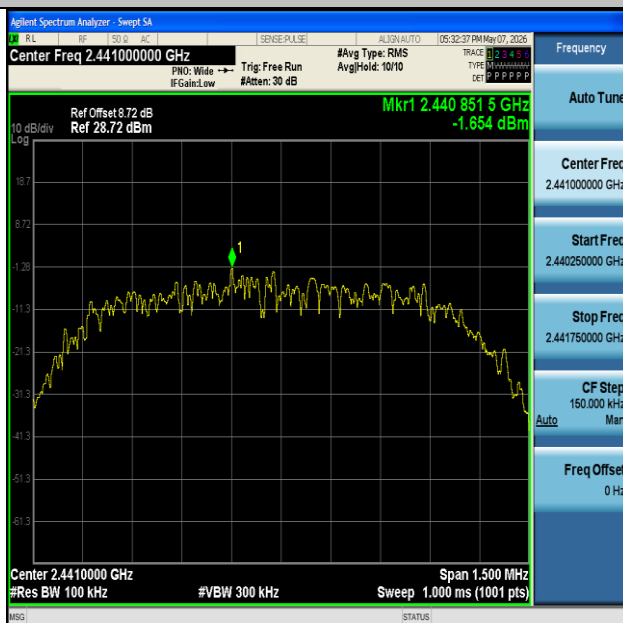


3DH5-Ant1-2402-30~1000-PASS



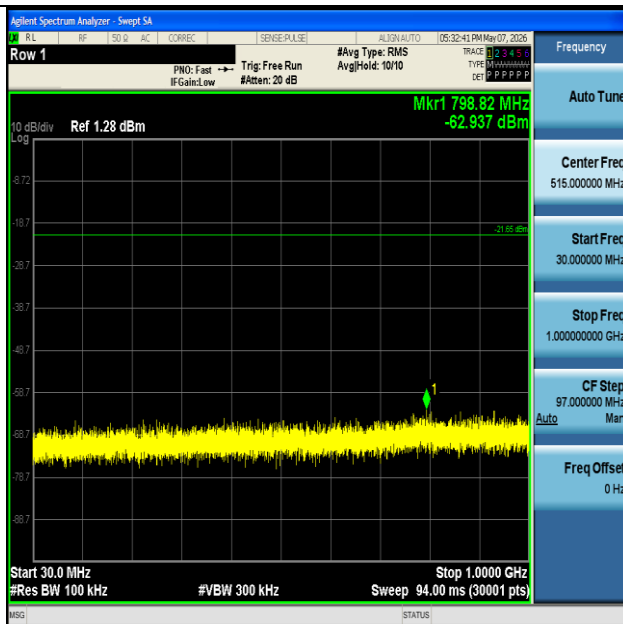


3DH5-Ant1-2402-1000~26500-PASS

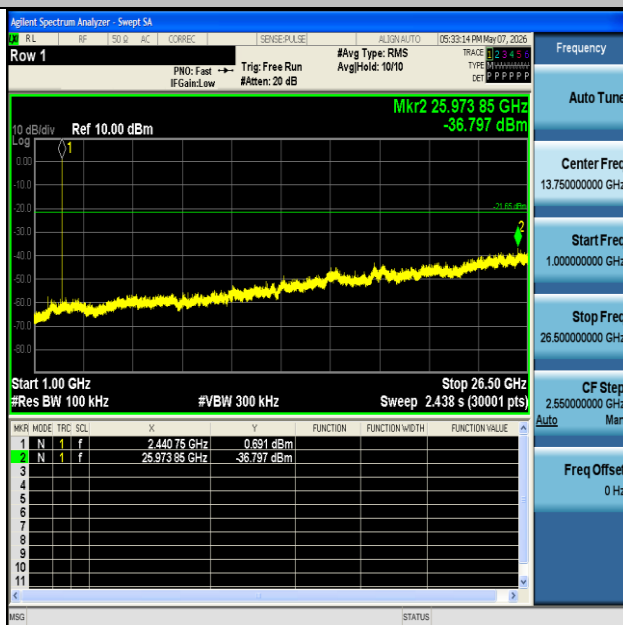


3DH5-Ant1-2441-0~Reference-PASS





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



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



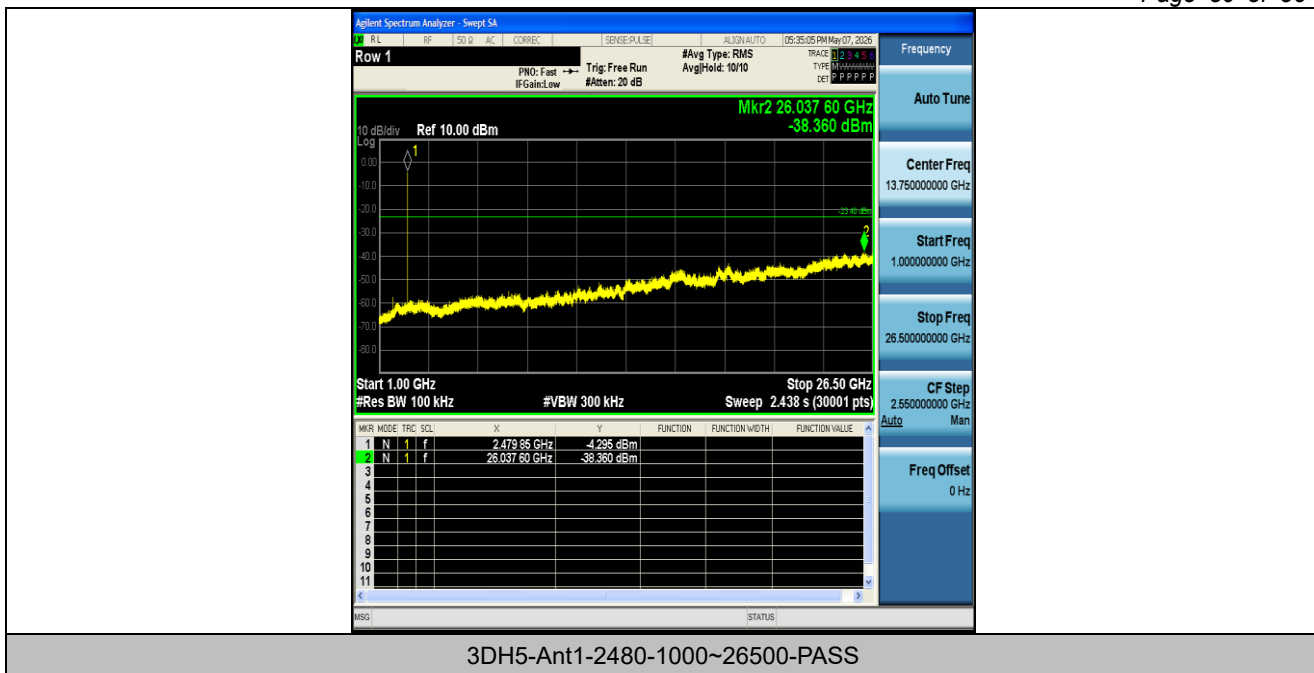


3DH5-Ant1-2480-0~Reference-PASS



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	2.88	5.00	57.60	2.40
DH5	Ant1	2441	2.89	5.00	57.80	2.38
DH5	Ant1	2480	2.88	5.00	57.60	2.40
2DH5	Ant1	2402	2.89	5.00	57.80	2.38
2DH5	Ant1	2441	2.88	5.00	57.60	2.40
2DH5	Ant1	2480	2.89	5.00	57.80	2.38
3DH5	Ant1	2402	2.89	5.00	57.80	2.38
3DH5	Ant1	2441	2.88	5.00	57.60	2.40
3DH5	Ant1	2480	2.89	5.00	57.80	2.38

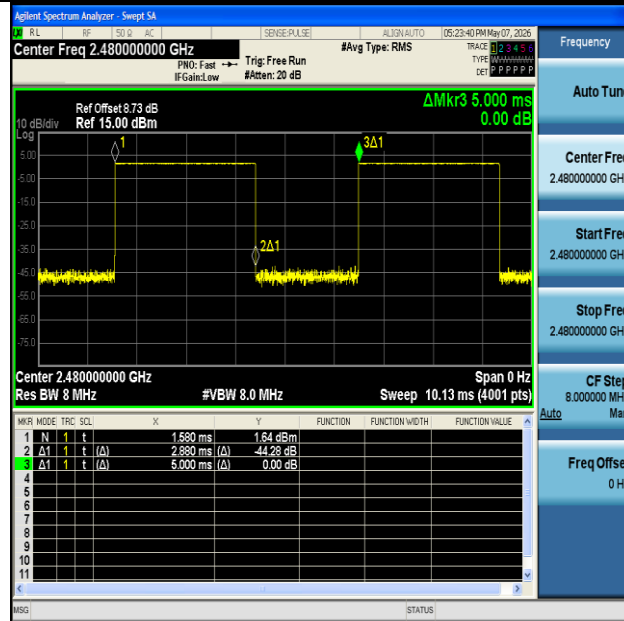
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



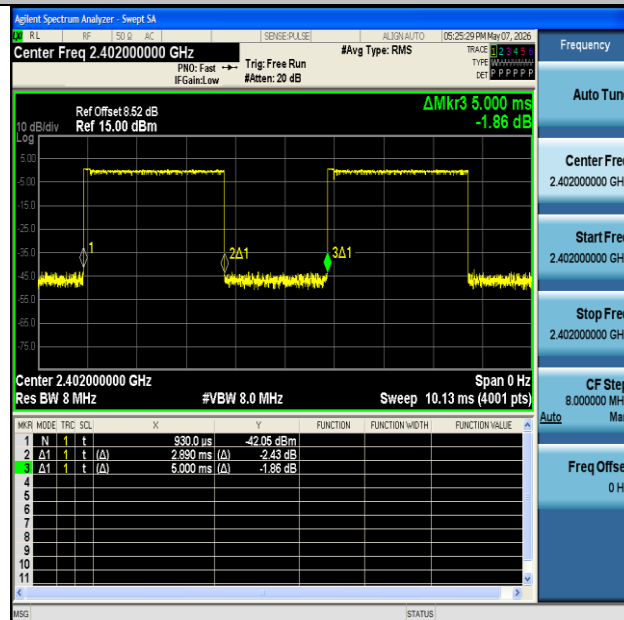


Test Graphs



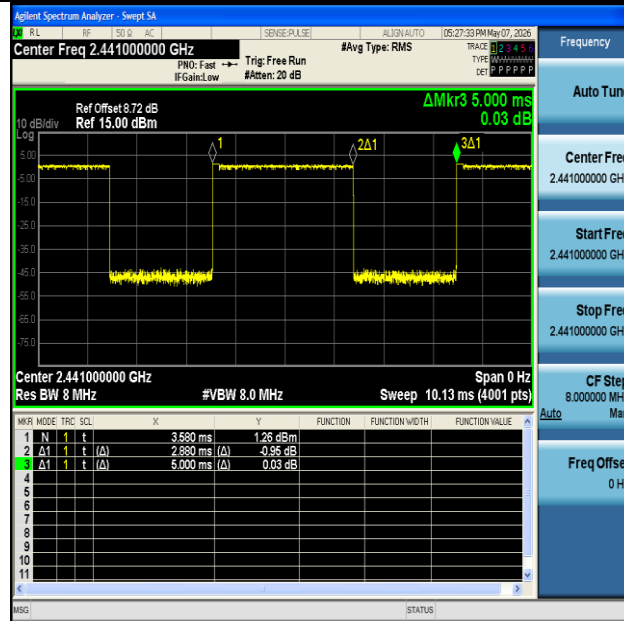


NTNV-DH5-Ant1-2480

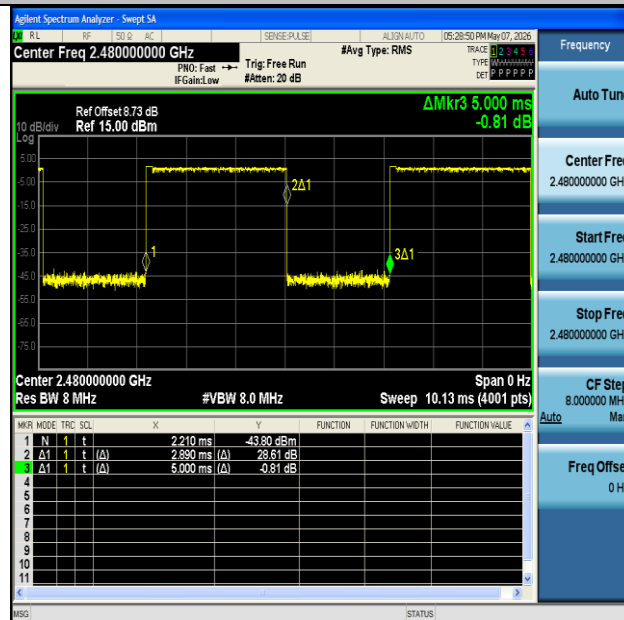


NTNV-2DH5-Ant1-2402



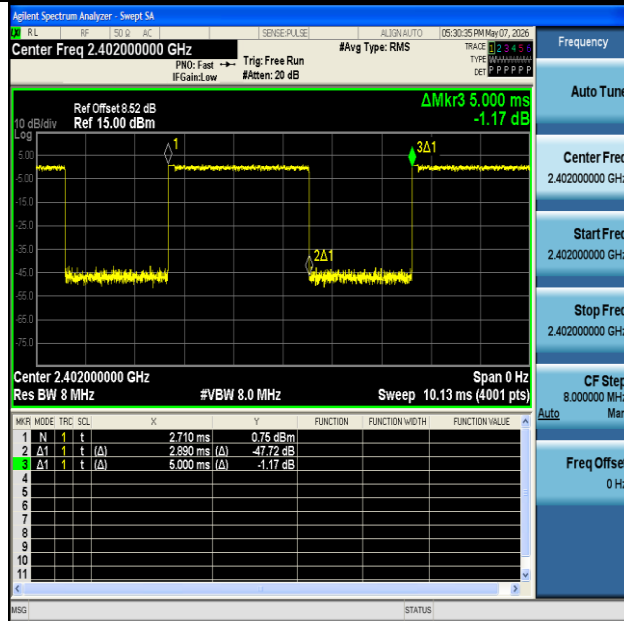


NTNV-2DH5-Ant1-2441

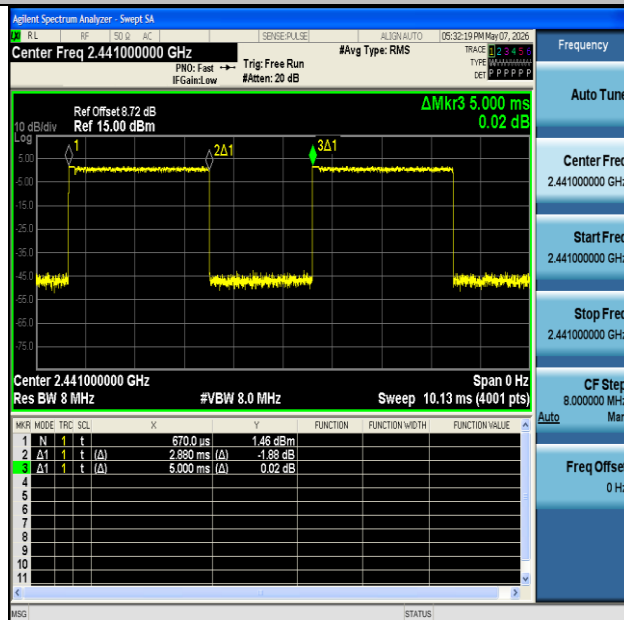


NTNV-2DH5-Ant1-2480



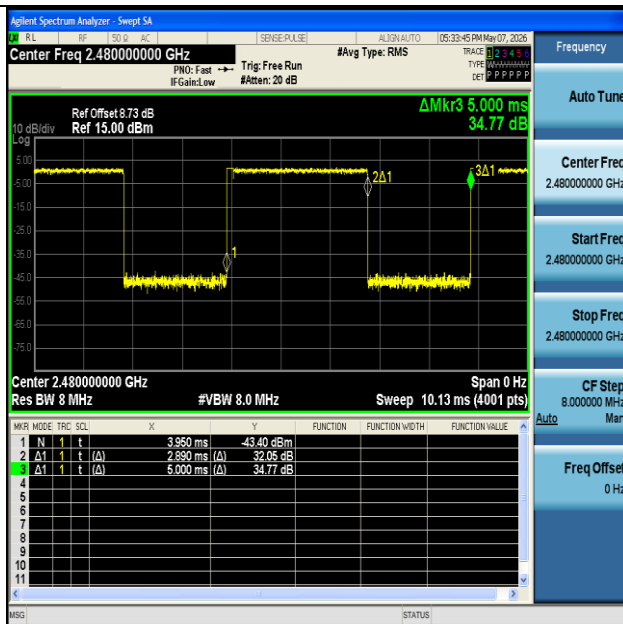


NTNV-3DH5-Ant1-2402



NTNV-3DH5-Ant1-2441





NTNV-3DH5-Ant1-2480

