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

Product Name: Wanbo Projector

Trade Mark: wanbo

Test Model: WPF14

FCC ID: 2A7PI-WPF14

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	1.035	2401.448	2402.483	---	---
DH5	Ant1	2441	0.975	2440.511	2441.486	---	---
DH5	Ant1	2480	1.062	2479.448	2480.510	---	---
2DH5	Ant1	2402	1.308	2401.337	2402.645	---	---
2DH5	Ant1	2441	1.296	2440.337	2441.633	---	---
2DH5	Ant1	2480	1.353	2479.310	2480.663	---	---
3DH5	Ant1	2402	1.284	2401.337	2402.621	---	---
3DH5	Ant1	2441	1.293	2440.340	2441.633	---	---
3DH5	Ant1	2480	1.290	2479.337	2480.627	---	---

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

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

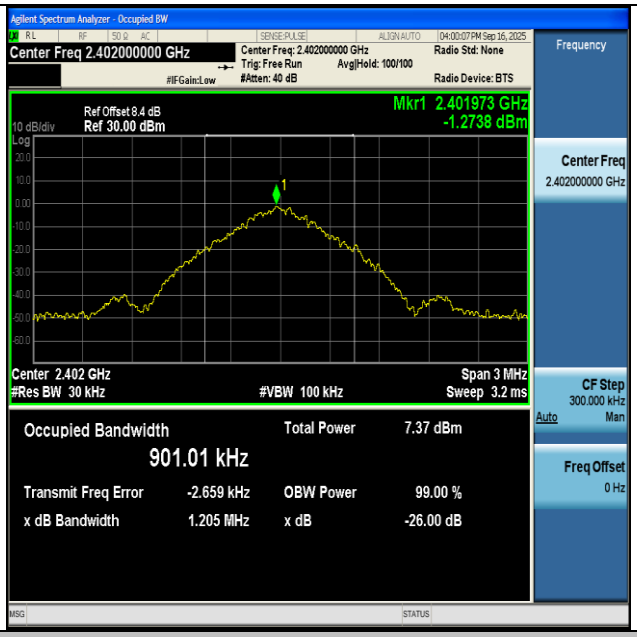
Appendix B: Occupied Channel Bandwidth

Test Result

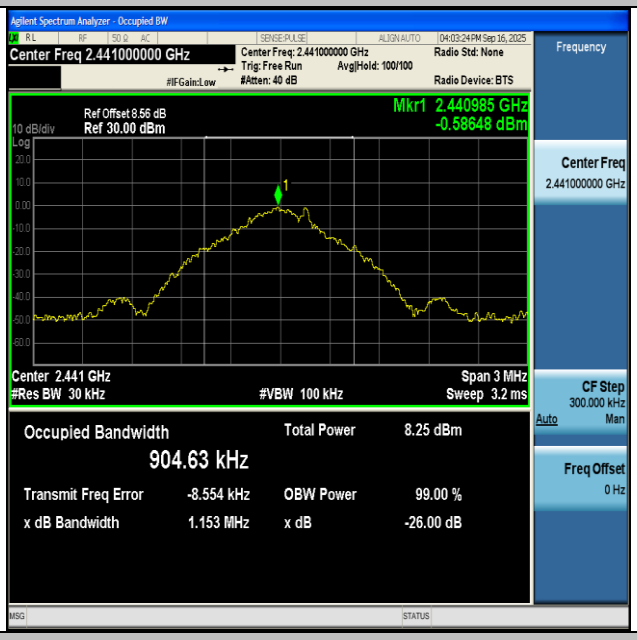
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.90101	2401.5468	2402.4478	---	---
DH5	Ant1	2441	0.90463	2440.5391	2441.4438	---	---
DH5	Ant1	2480	0.89758	2479.5441	2480.4417	---	---
2DH5	Ant1	2402	1.1807	2401.3912	2402.5719	---	---
2DH5	Ant1	2441	1.1813	2440.3941	2441.5754	---	---
2DH5	Ant1	2480	1.1758	2479.3975	2480.5733	---	---
3DH5	Ant1	2402	1.1754	2401.3994	2402.5748	---	---
3DH5	Ant1	2441	1.1746	2440.3936	2441.5682	---	---
3DH5	Ant1	2480	1.1773	2479.4005	2480.5778	---	---

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

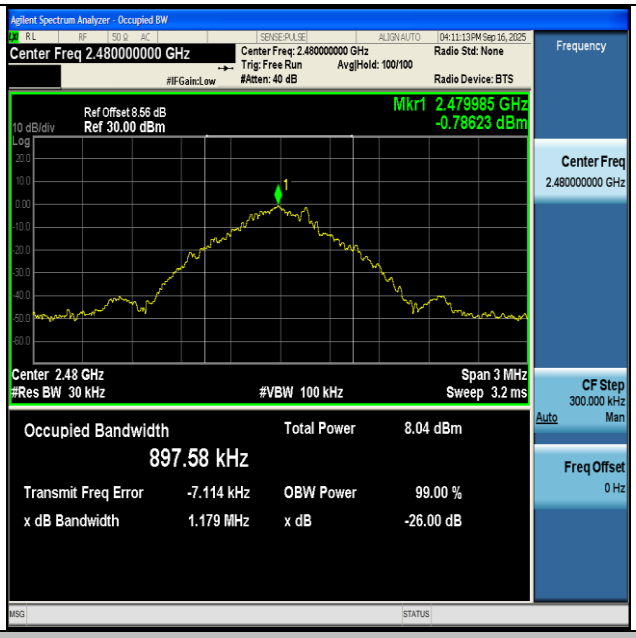
Test Graphs



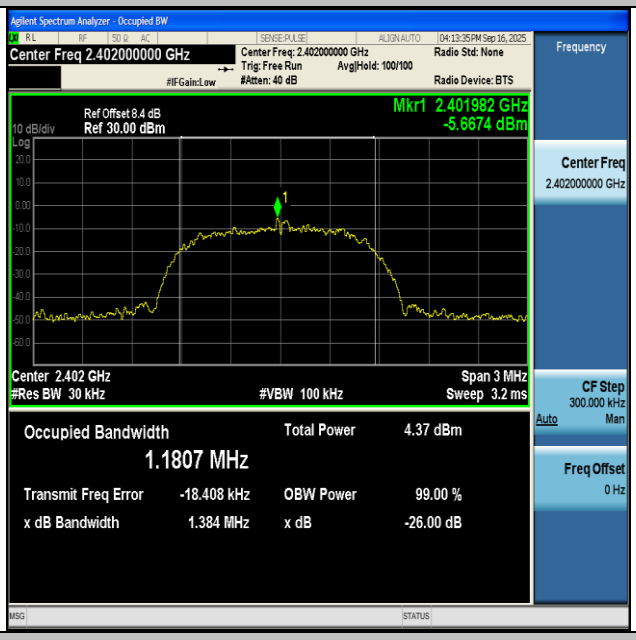
DH5-Ant1-2402



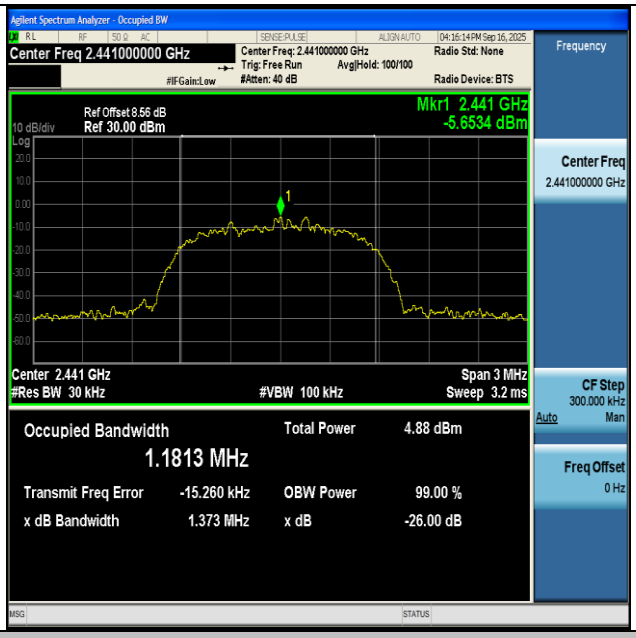
DH5-Ant1-2441



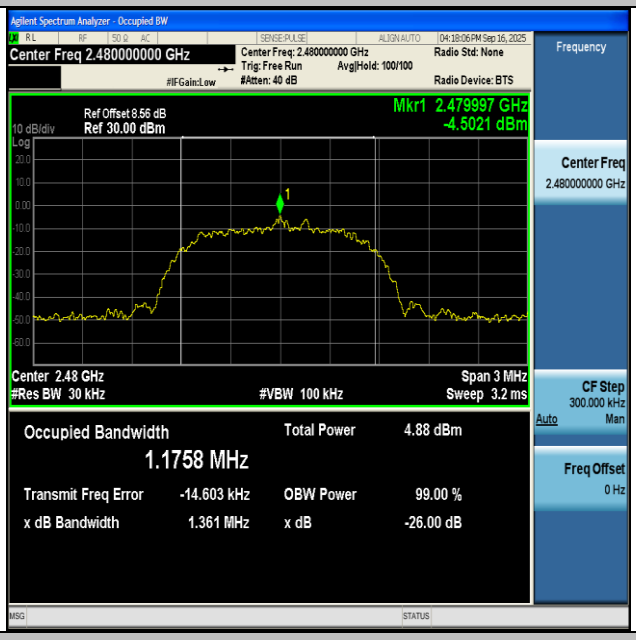
DH5-Ant1-2480



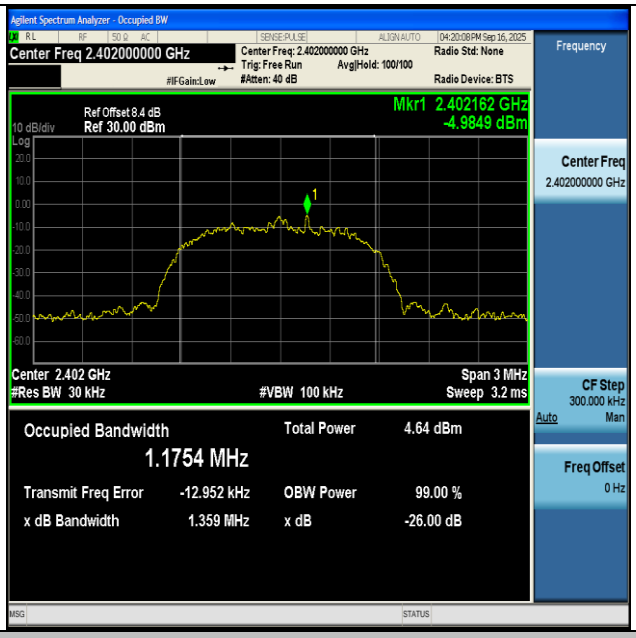
2DH5-Ant1-2402



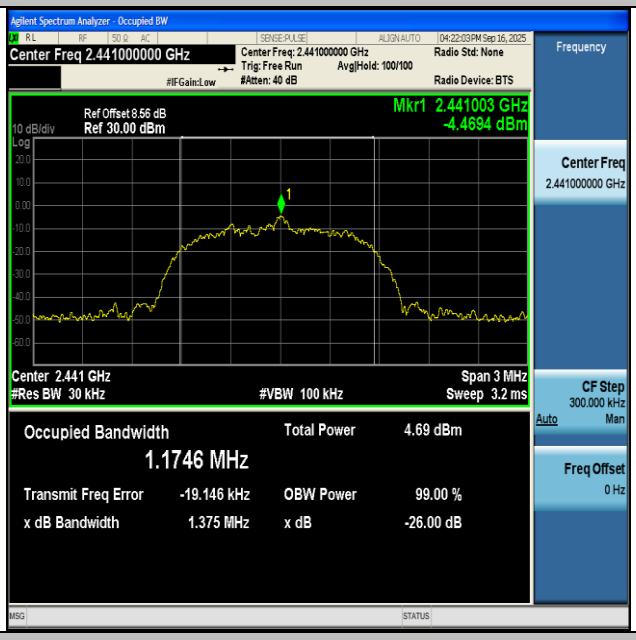
2DH5-Ant1-2441



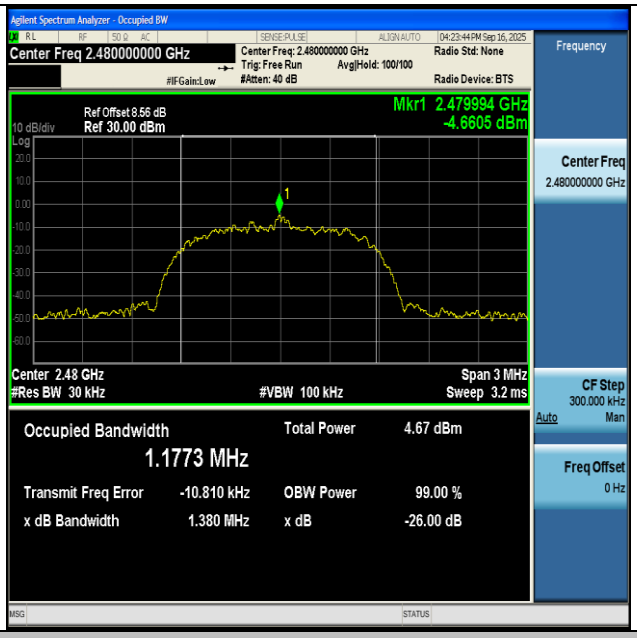
2DH5-Ant1-2480



3DH5-Ant1-2402



3DH5-Ant1-2441



3DH5-Ant1-2480

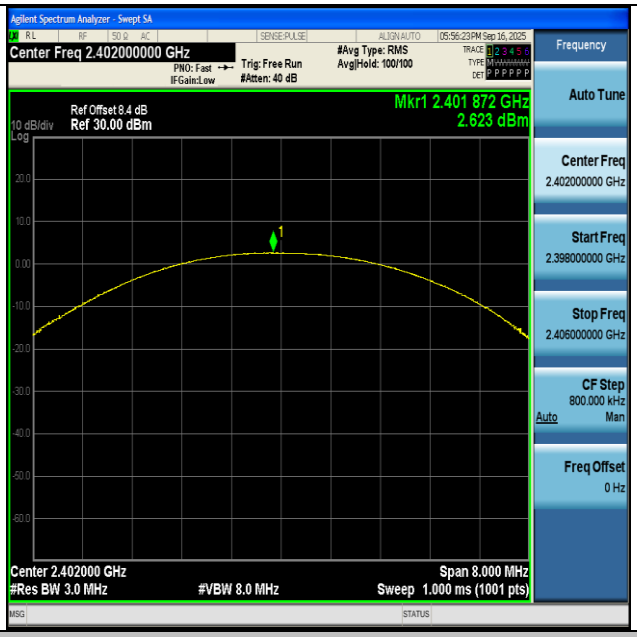
Appendix C: Maximum peak conducted output power

Test Result

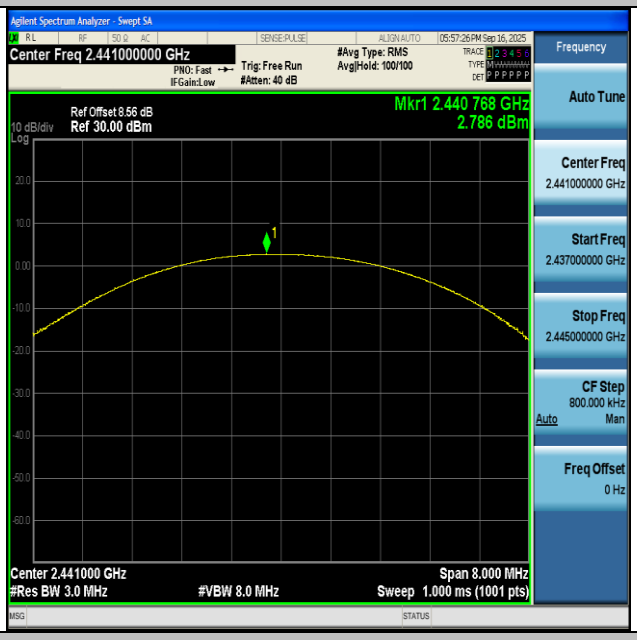
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
DH5	Ant1	2402	2.62	≤20.97	PASS
DH5	Ant1	2441	2.79	≤20.97	PASS
DH5	Ant1	2480	2.68	≤20.97	PASS
2DH5	Ant1	2402	1.18	≤20.97	PASS
2DH5	Ant1	2441	1.40	≤20.97	PASS
2DH5	Ant1	2480	1.33	≤20.97	PASS
3DH5	Ant1	2402	1.73	≤20.97	PASS
3DH5	Ant1	2441	1.97	≤20.97	PASS
3DH5	Ant1	2480	1.78	≤20.97	PASS

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

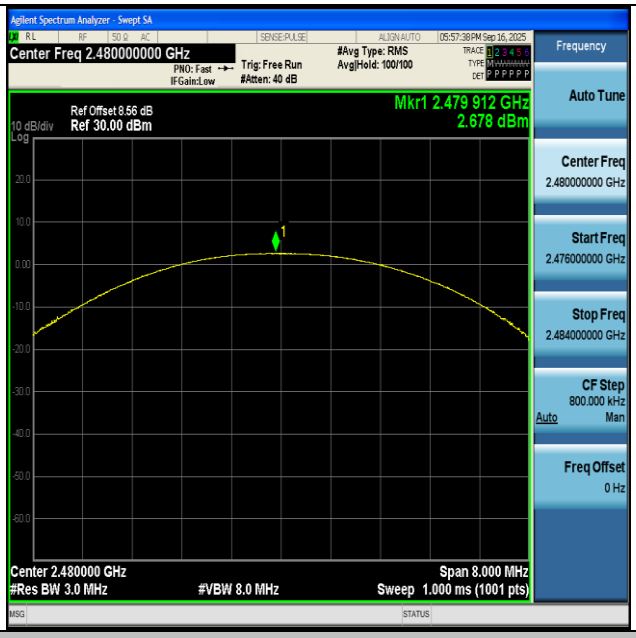
Test Graphs



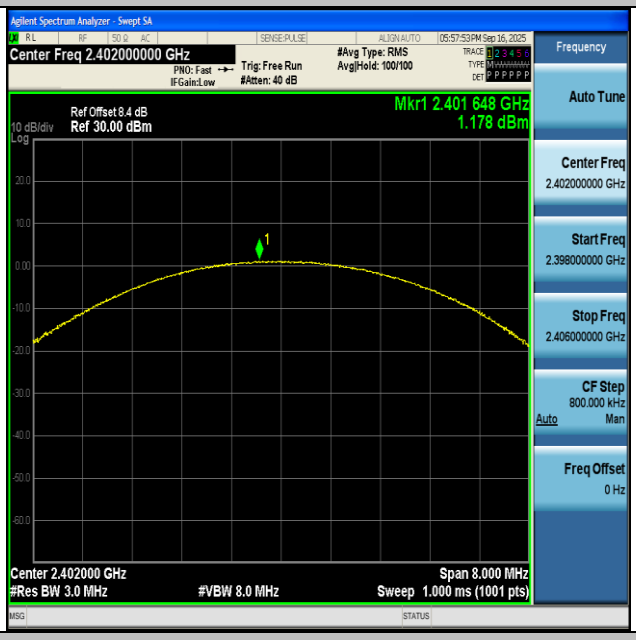
DH5-Ant1-2402-PASS



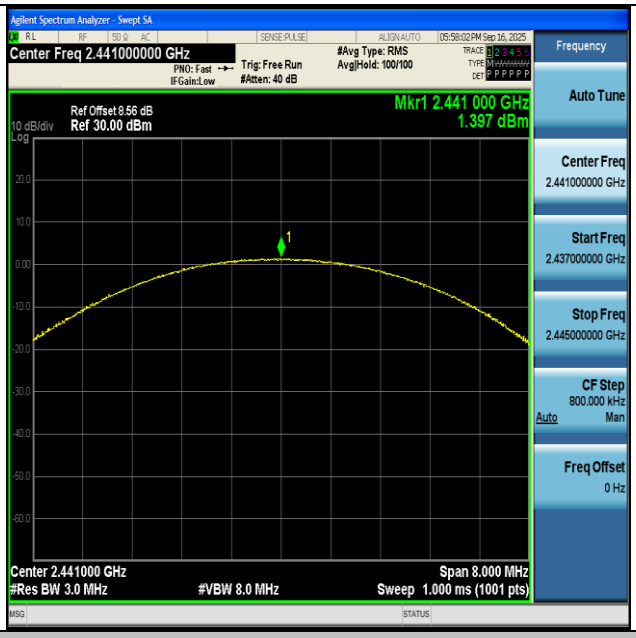
DH5-Ant1-2441-PASS



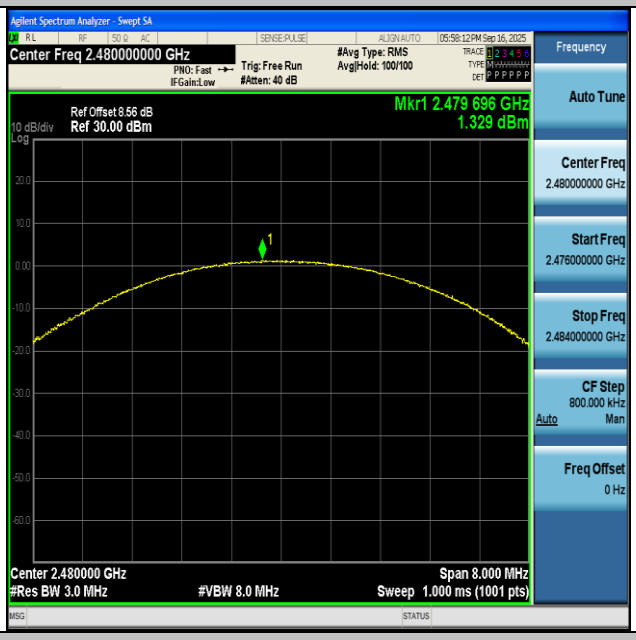
DH5-Ant1-2480-PASS



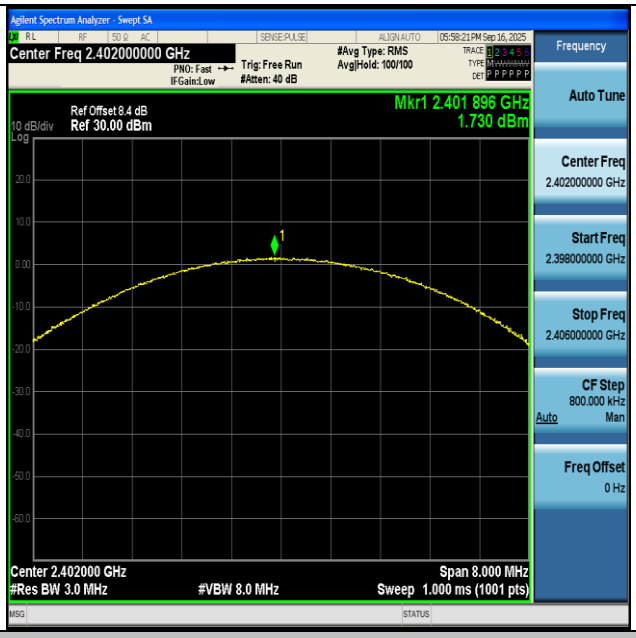
2DH5-Ant1-2402-PASS



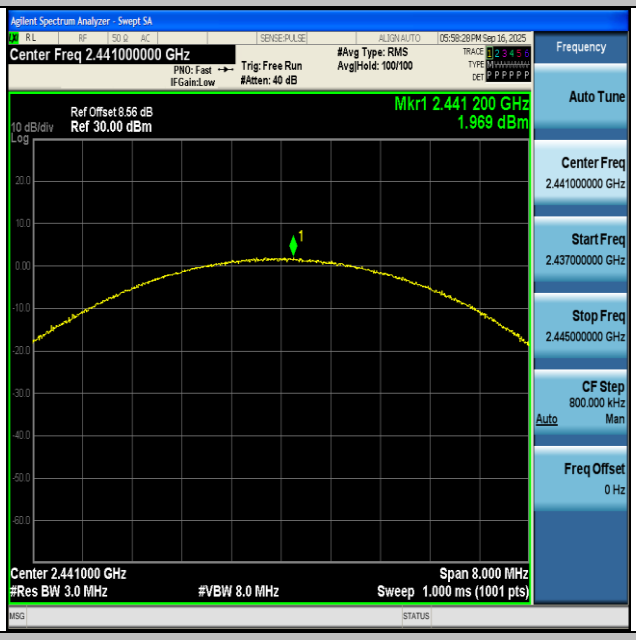
2DH5-Ant1-2441-PASS



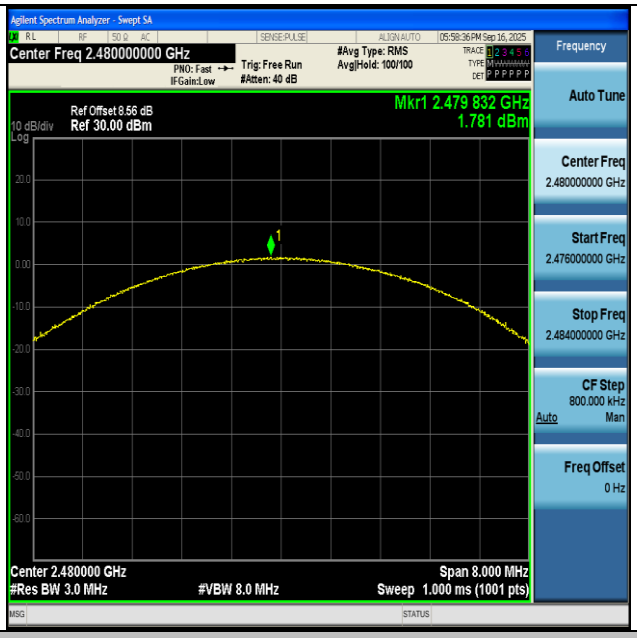
2DH5-Ant1-2480-PASS



3DH5-Ant1-2402-PASS



3DH5-Ant1-2441-PASS



3DH5-Ant1-2480-PASS

Appendix D: Carrier frequency separation

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1.008	≥0.708	PASS
2DH5	Ant1	Hop	0.98	≥0.902	PASS
3DH5	Ant1	Hop	0.986	≥0.862	PASS

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

Test Graphs

DH5-Ant1-Hop-PASS

2DH5-Ant1-Hop-PASS

3DH5-Ant1-Hop-PASS

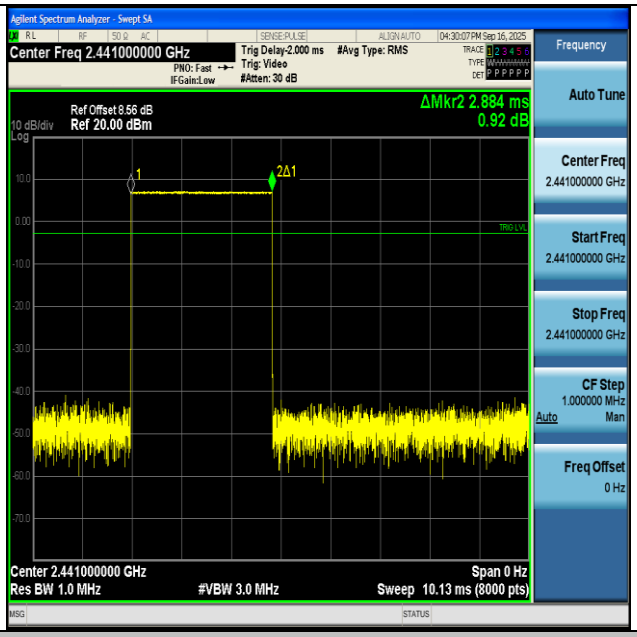
Appendix E: Time of occupancy

Test Result

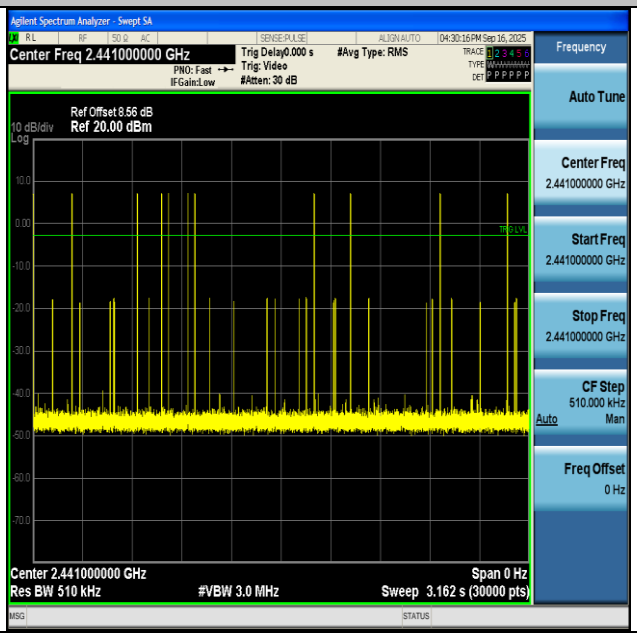
Test Mode	Antenna	Frequency [MHz]	Burst Width [ms]	TotalHops [Num]	Result [s]	Limit [s]	Verdict
DH5	Ant1	Hop	2.884	110	0.317	≤0.4	PASS
2DH5	Ant1	Hop	2.889	110	0.318	≤0.4	PASS
3DH5	Ant1	Hop	2.892	110	0.318	≤0.4	PASS

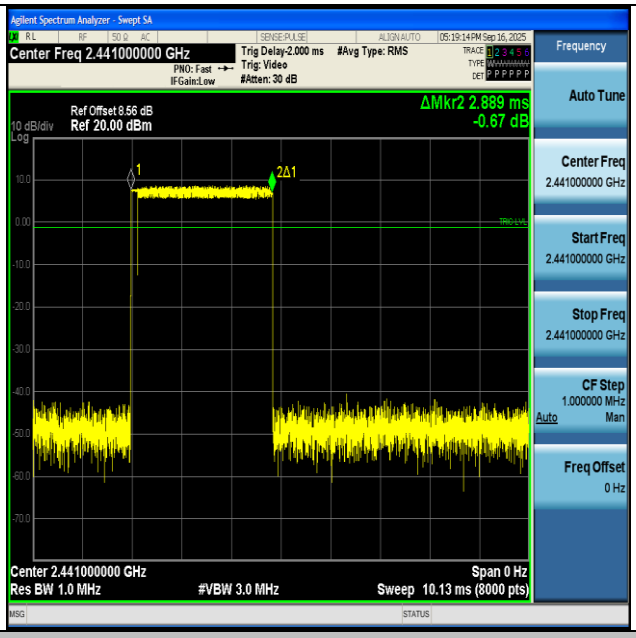
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

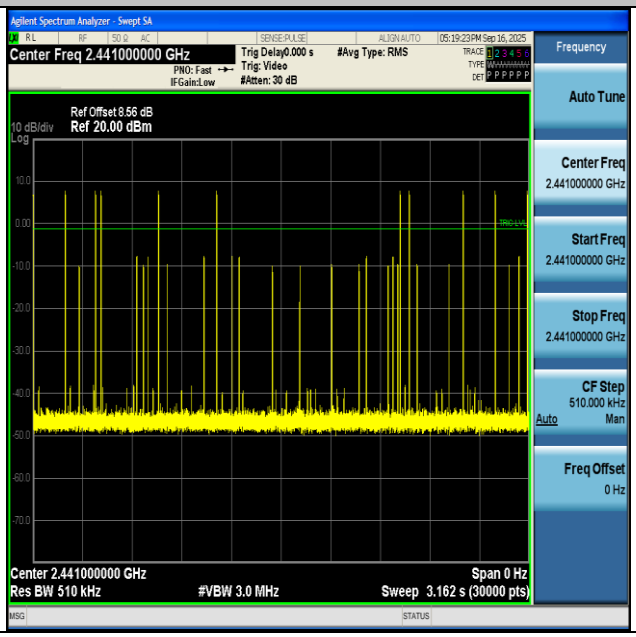


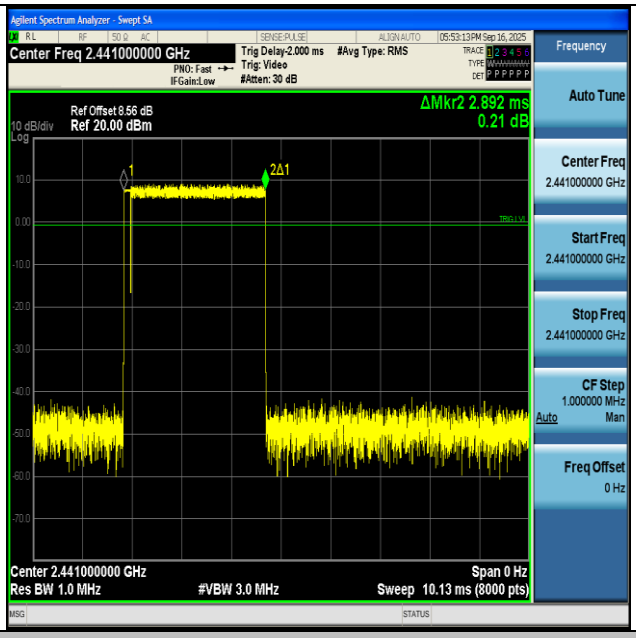
DH5-Ant1-Hop-PASS



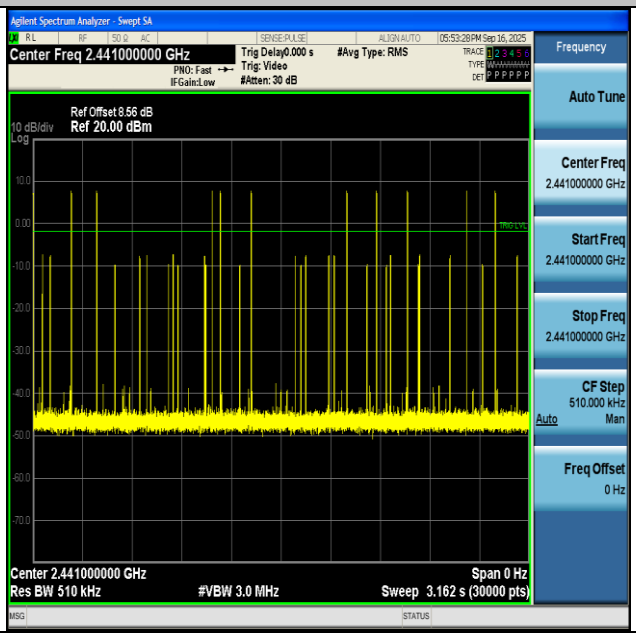


2DH5-Ant1-Hop-PASS





3DH5-Ant1-Hop-PASS



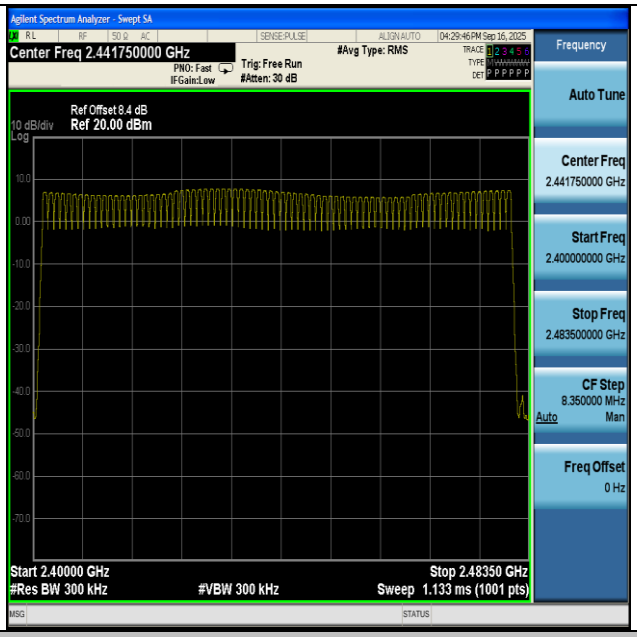
Appendix F: Number of hopping channels

Test Result

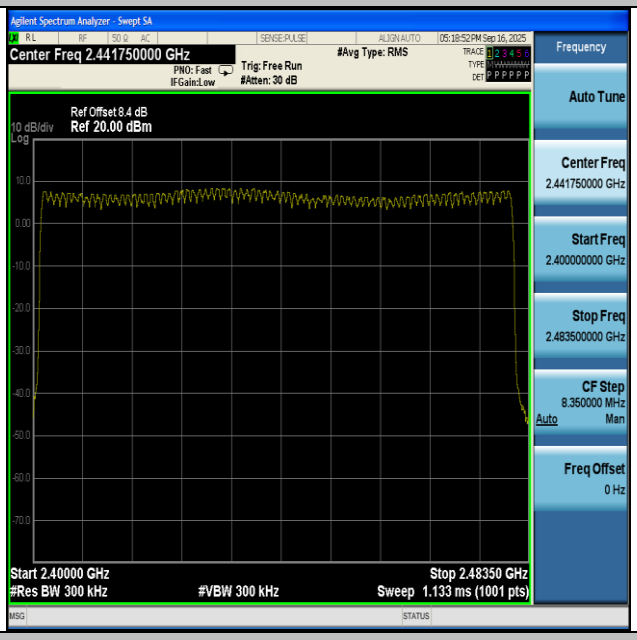
Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

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

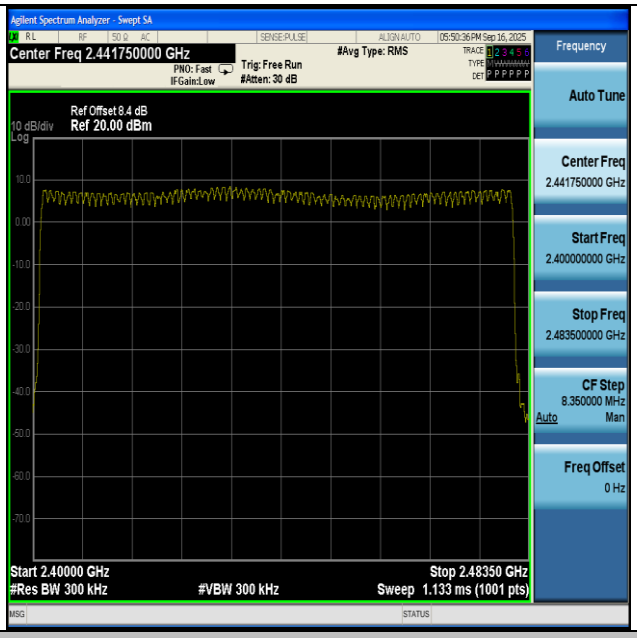
Test Graphs



DH5-Ant1-Hop-PASS



2DH5-Ant1-Hop-PASS



3DH5-Ant1-Hop-PASS

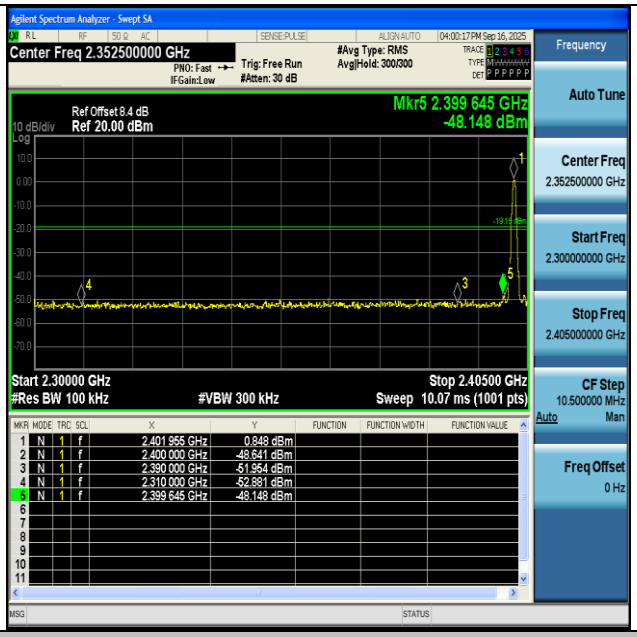
Appendix G: Band edge measurements

Test Result

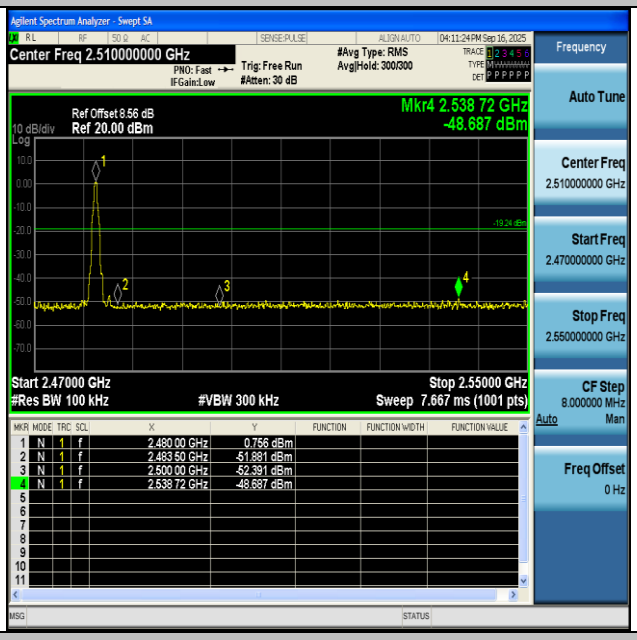
Test Mode	Antenna	Ch.Name	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	0.85	-48.15	≤-19.15	PASS
DH5	Ant1	High	2480	0.76	-48.69	≤-19.24	PASS
DH5	Ant1	Low	Hop_2402	6.19	-49.08	≤-13.81	PASS
DH5	Ant1	High	Hop_2480	6.54	-48.79	≤-13.46	PASS
2DH5	Ant1	Low	2402	-2.12	-48.61	≤-22.12	PASS
2DH5	Ant1	High	2480	-1.83	-49.62	≤-21.83	PASS
2DH5	Ant1	Low	Hop_2402	7.00	-49.81	≤-13.01	PASS
2DH5	Ant1	High	Hop_2480	6.37	-49.17	≤-13.63	PASS
3DH5	Ant1	Low	2402	-2.45	-49.24	≤-22.45	PASS
3DH5	Ant1	High	2480	-2.00	-48.43	≤-22	PASS
3DH5	Ant1	Low	Hop_2402	5.02	-48.25	≤-14.98	PASS
3DH5	Ant1	High	Hop_2480	7.26	-49.32	≤-12.74	PASS

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

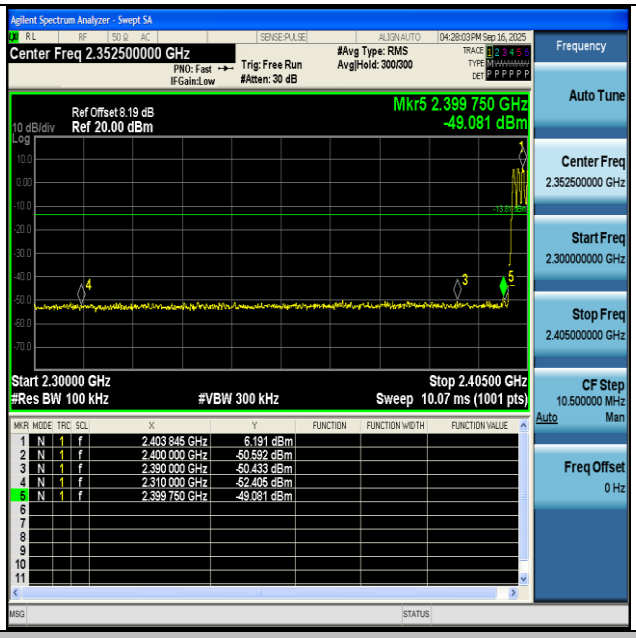
Test Graphs



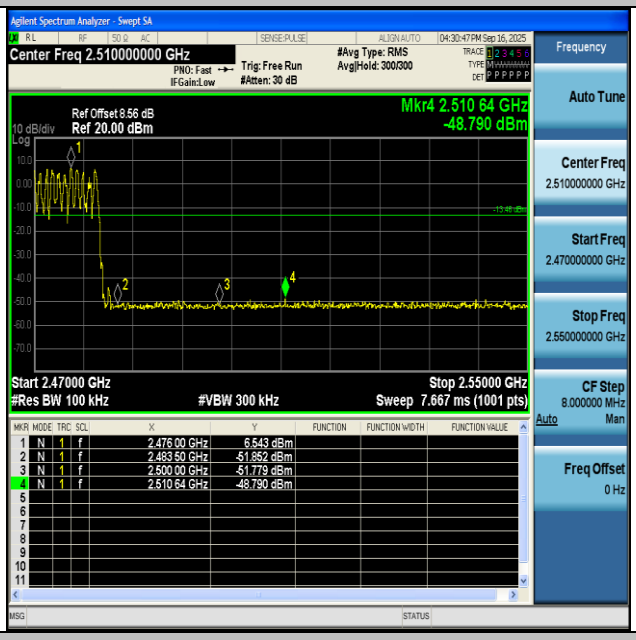
DH5-Ant1-2402-PASS



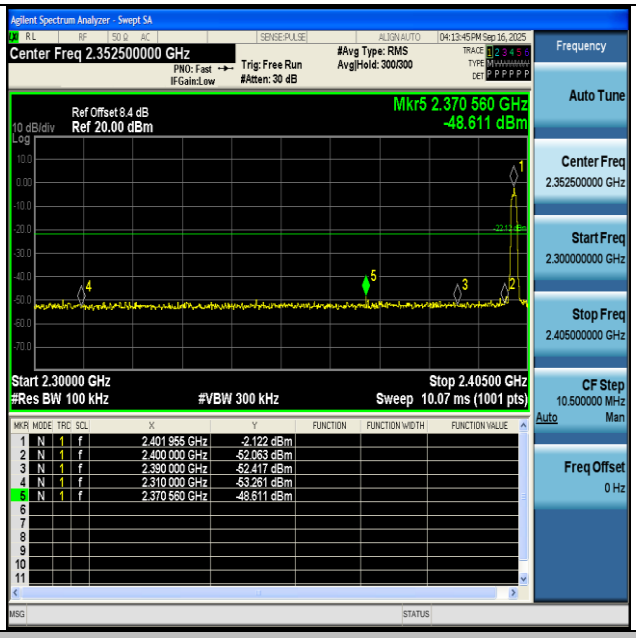
DH5-Ant1-2480-PASS



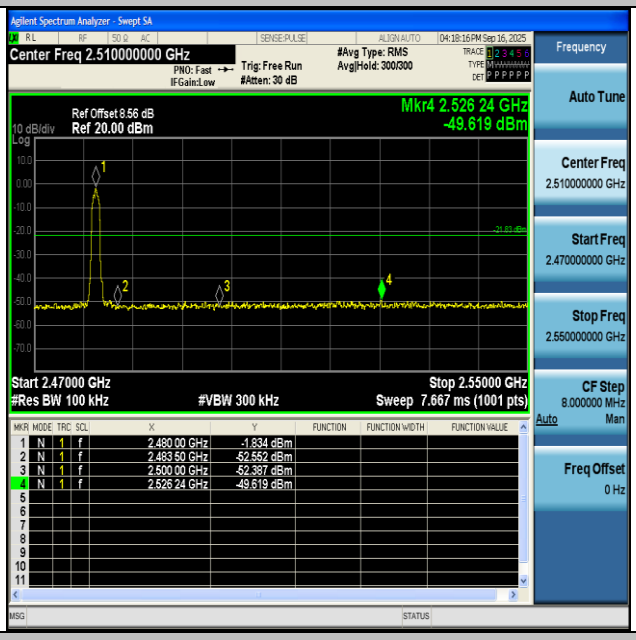
DH5-Ant1-Hop_2402-PASS



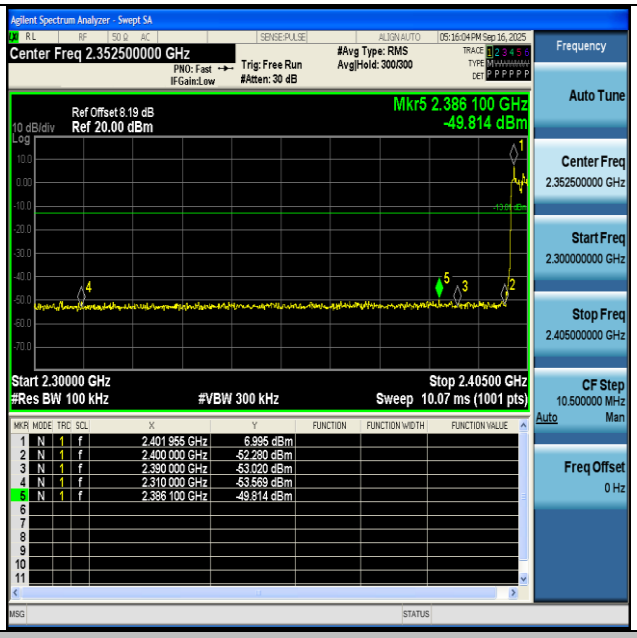
DH5-Ant1-Hop_2480-PASS



2DH5-Ant1-2402-PASS

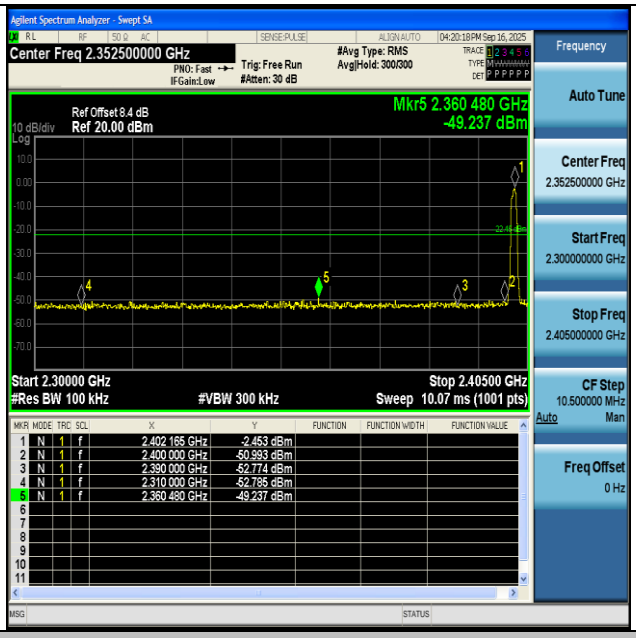


2DH5-Ant1-2480-PASS

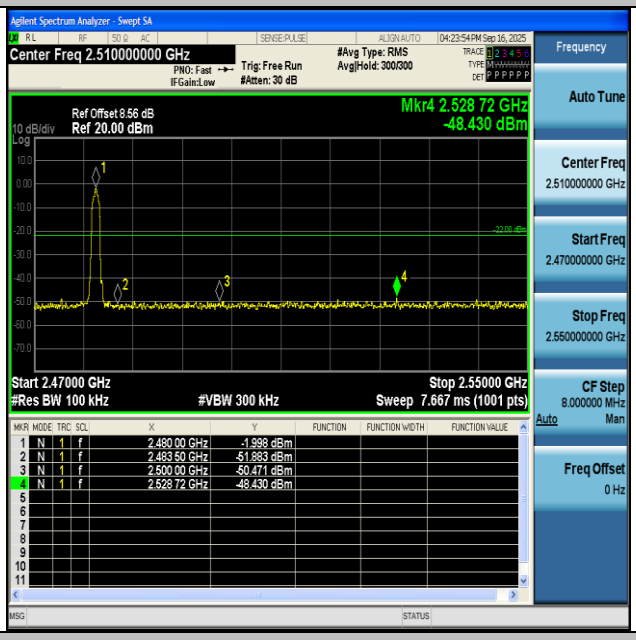


2DH5-Ant1-Hop_2402-PASS

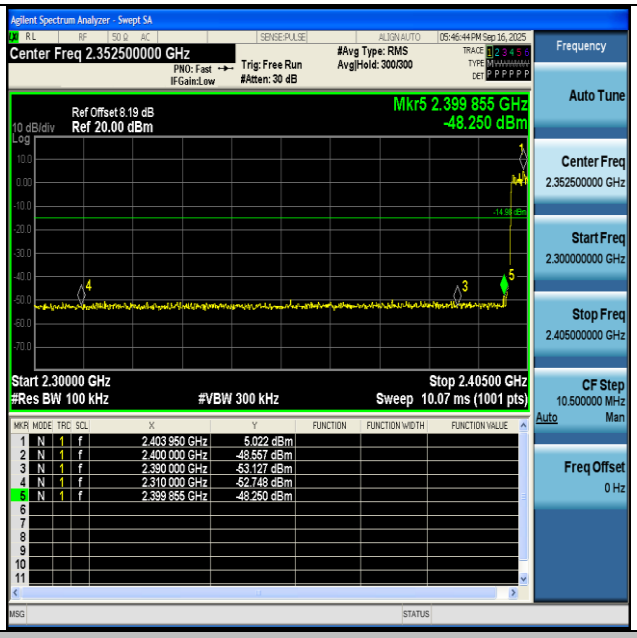
2DH5-Ant1-Hop_2480-PASS



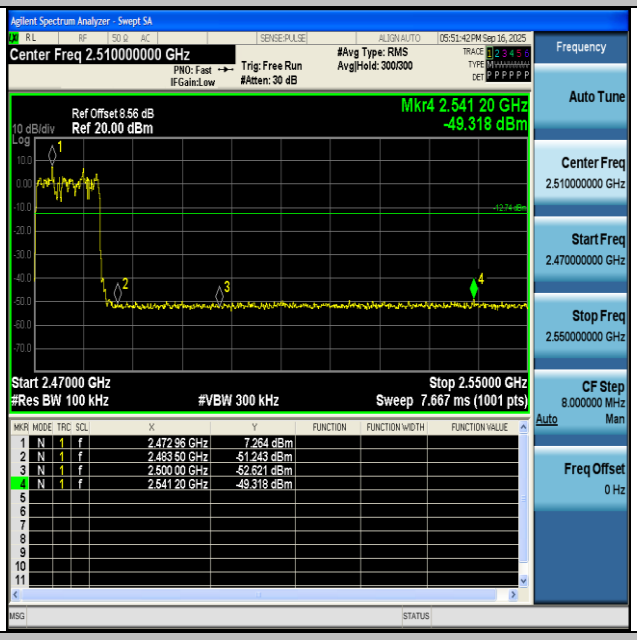
3DH5-Ant1-2402-PASS



3DH5-Ant1-2480-PASS



3DH5-Ant1-Hop_2402-PASS



3DH5-Ant1-Hop_2480-PASS

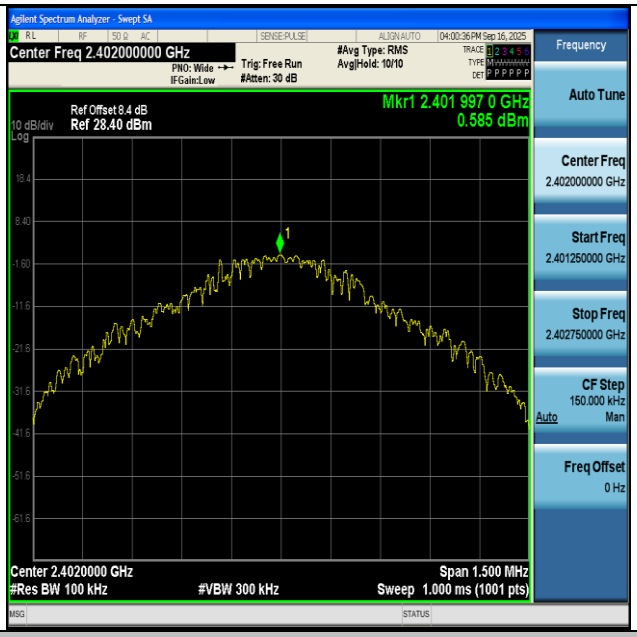
Appendix H: Conducted Spurious Emission

Test Result

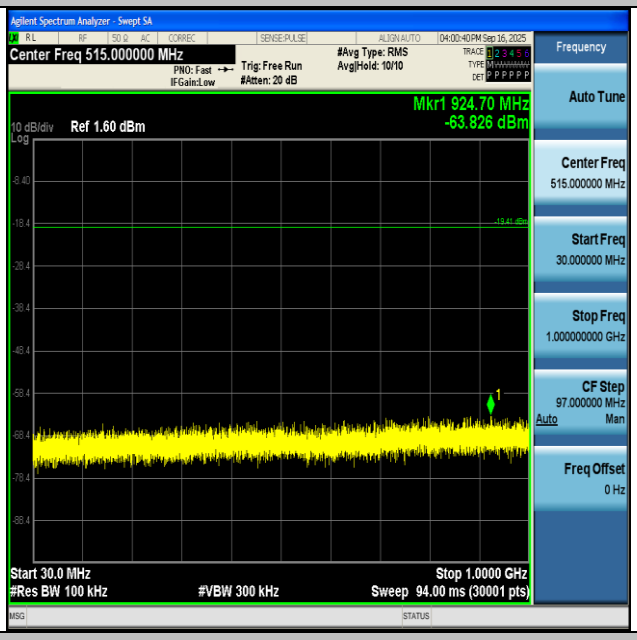
Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	0.59	0.59	---	PASS
DH5	Ant1	2402	30~1000	0.59	-63.83	≤-19.41	PASS
DH5	Ant1	2402	1000~26500	0.59	-45.22	≤-19.41	PASS
DH5	Ant1	2441	0~Reference	-0.02	-0.02	---	PASS
DH5	Ant1	2441	30~1000	-0.02	-63.37	≤-20.02	PASS
DH5	Ant1	2441	1000~26500	-0.02	-45.77	≤-20.02	PASS
DH5	Ant1	2480	0~Reference	0.17	0.17	---	PASS
DH5	Ant1	2480	30~1000	0.17	-63.54	≤-19.83	PASS
DH5	Ant1	2480	1000~26500	0.17	-46.23	≤-19.83	PASS
2DH5	Ant1	2402	0~Reference	-3.46	-3.46	---	PASS
2DH5	Ant1	2402	30~1000	-3.46	-63.18	≤-23.46	PASS
2DH5	Ant1	2402	1000~26500	-3.46	-46.32	≤-23.46	PASS
2DH5	Ant1	2441	0~Reference	-3.99	-3.99	---	PASS
2DH5	Ant1	2441	30~1000	-3.99	-62.13	≤-23.99	PASS
2DH5	Ant1	2441	1000~26500	-3.99	-46.11	≤-23.99	PASS
2DH5	Ant1	2480	0~Reference	-4.78	-4.78	---	PASS
2DH5	Ant1	2480	30~1000	-4.78	-63.27	≤-24.78	PASS
2DH5	Ant1	2480	1000~26500	-4.78	-45.99	≤-24.78	PASS
3DH5	Ant1	2402	0~Reference	-4.64	-4.64	---	PASS
3DH5	Ant1	2402	30~1000	-4.64	-63.16	≤-24.64	PASS
3DH5	Ant1	2402	1000~26500	-4.64	-44.94	≤-24.64	PASS
3DH5	Ant1	2441	0~Reference	-2.17	-2.17	---	PASS
3DH5	Ant1	2441	30~1000	-2.17	-63.39	≤-22.17	PASS
3DH5	Ant1	2441	1000~26500	-2.17	-45.98	≤-22.17	PASS
3DH5	Ant1	2480	0~Reference	-3.45	-3.45	---	PASS
3DH5	Ant1	2480	30~1000	-3.45	-63.17	≤-23.45	PASS
3DH5	Ant1	2480	1000~26500	-3.45	-46.04	≤-23.45	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.

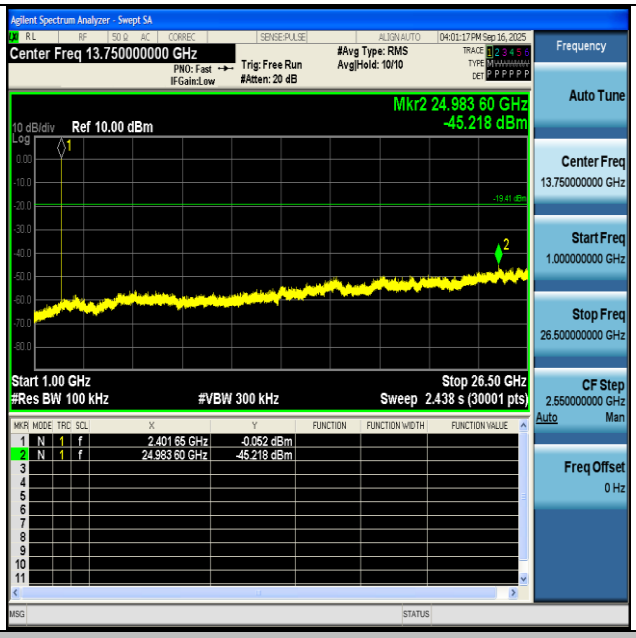
Test Graphs



DH5-Ant1-2402-0~Reference-PASS

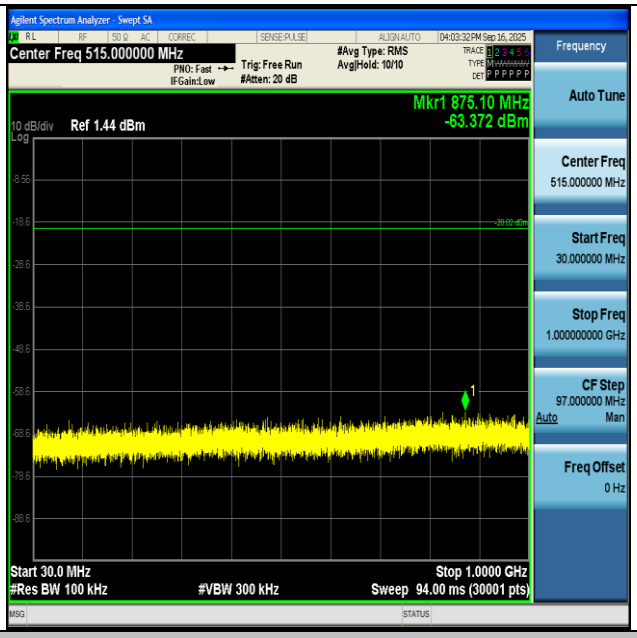


DH5-Ant1-2402-30~1000-PASS

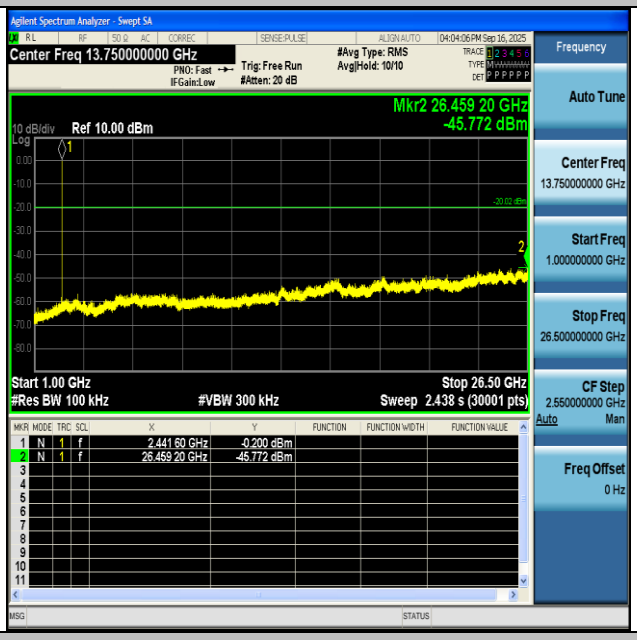


DH5-Ant1-2402-1000~26500-PASS

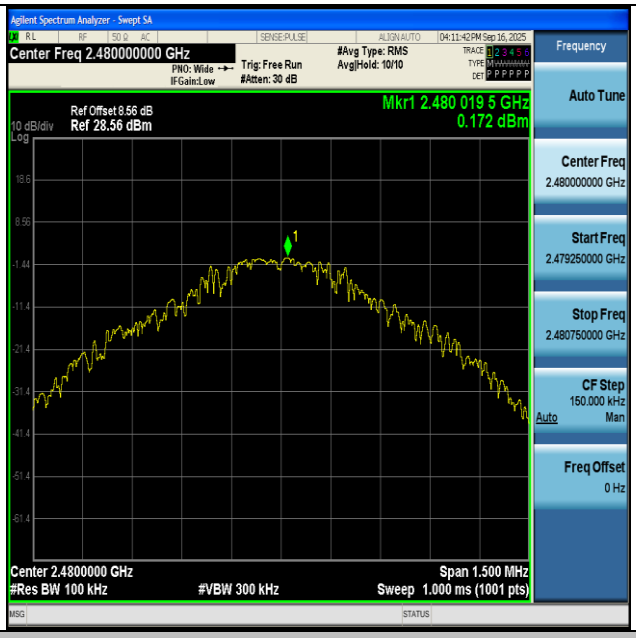
DH5-Ant1-2441-0~Reference-PASS



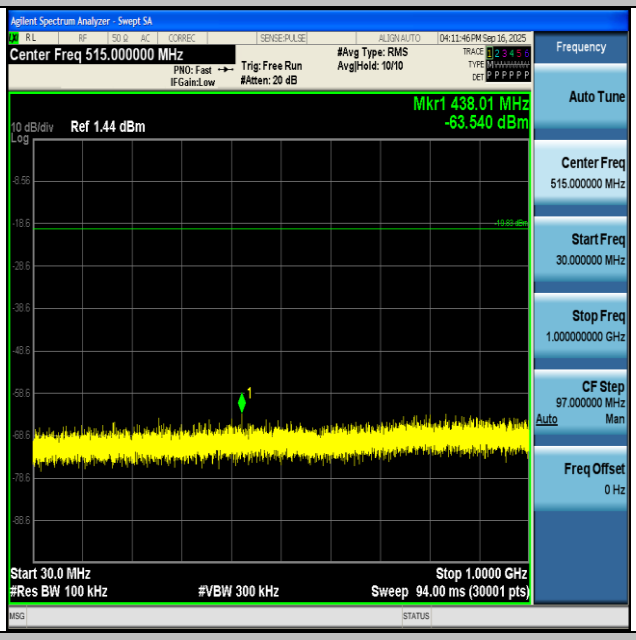
DH5-Ant1-2441-30~1000-PASS



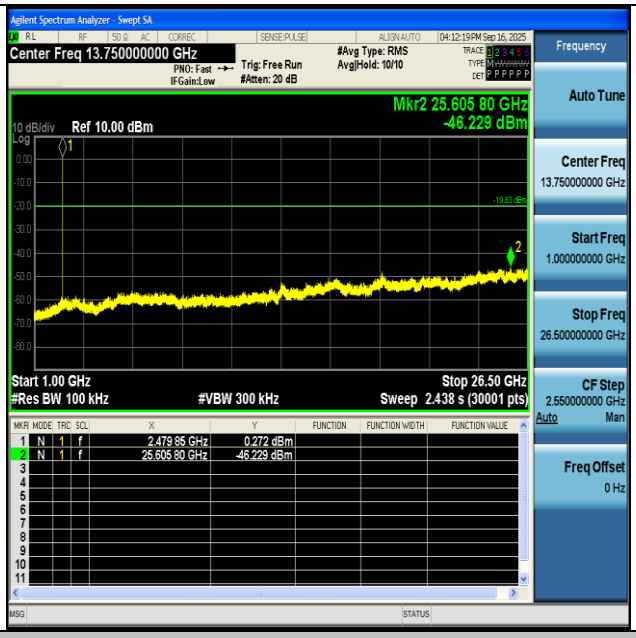
DH5-Ant1-2441-1000~26500-PASS



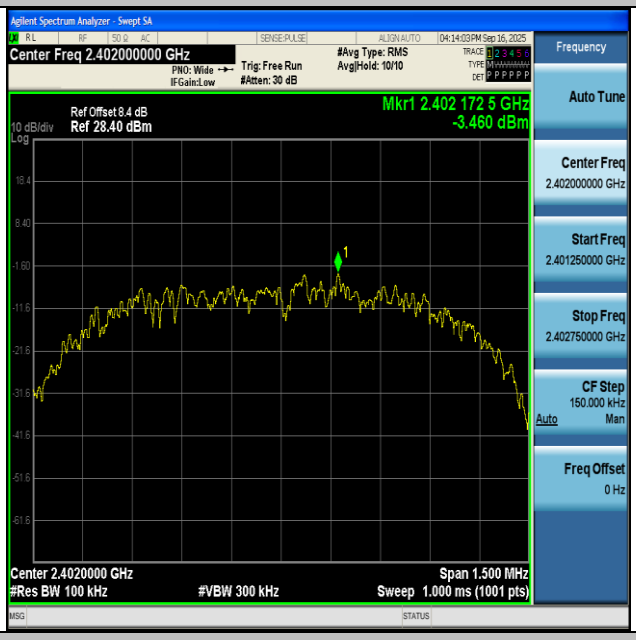
DH5-Ant1-2480-0~Reference-PASS



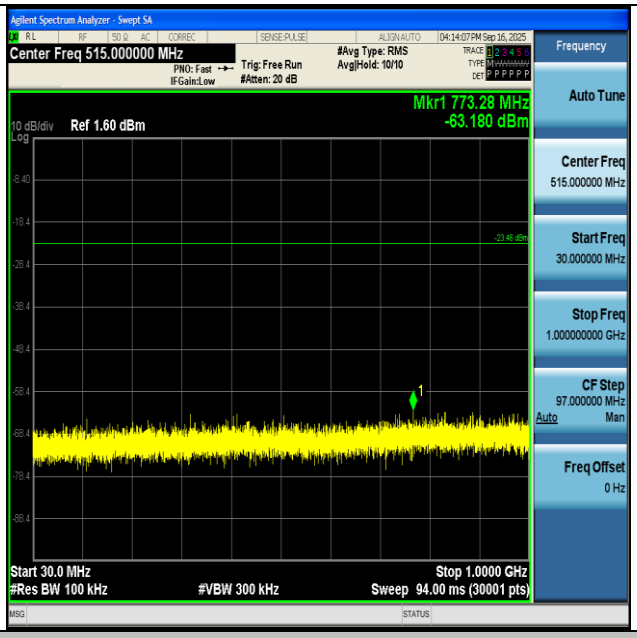
DH5-Ant1-2480-30~1000-PASS



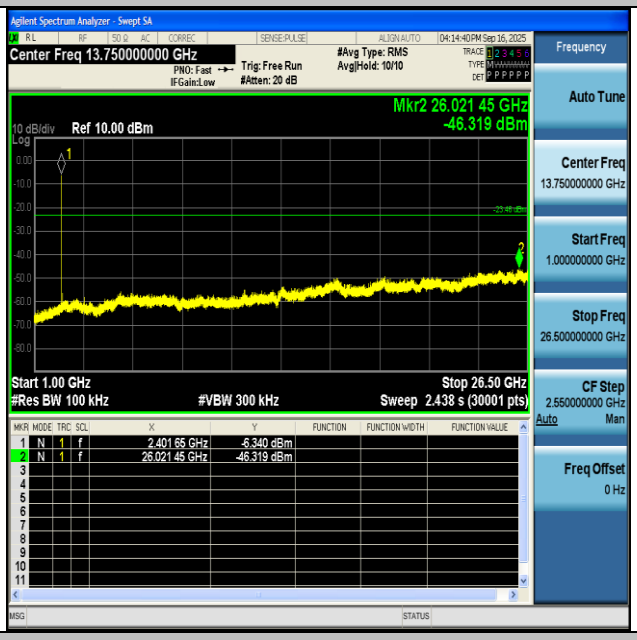
DH5-Ant1-2480-1000~26500-PASS



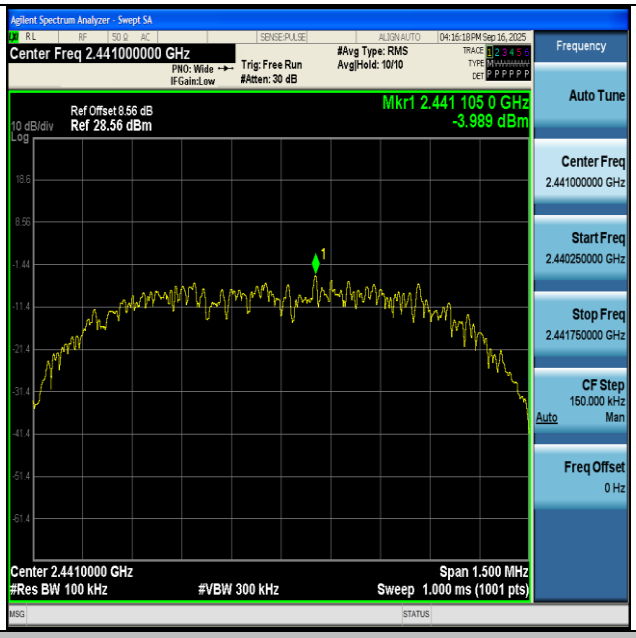
2DH5-Ant1-2402-0~Reference-PASS



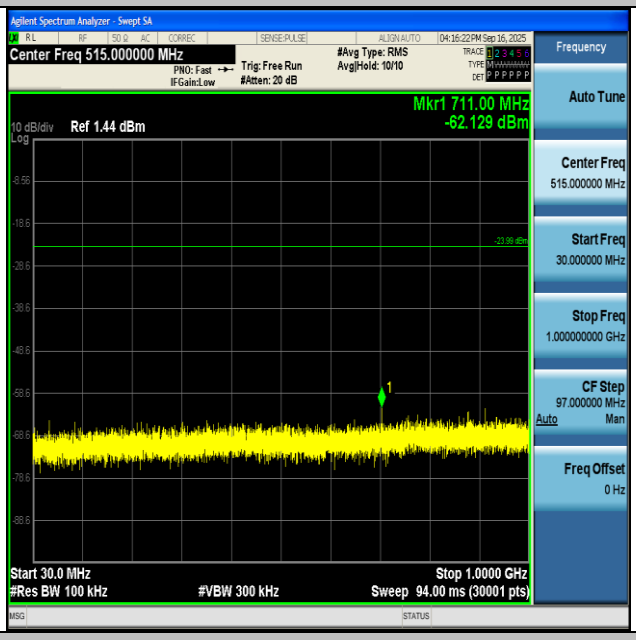
2DH5-Ant1-2402-30~1000-PASS



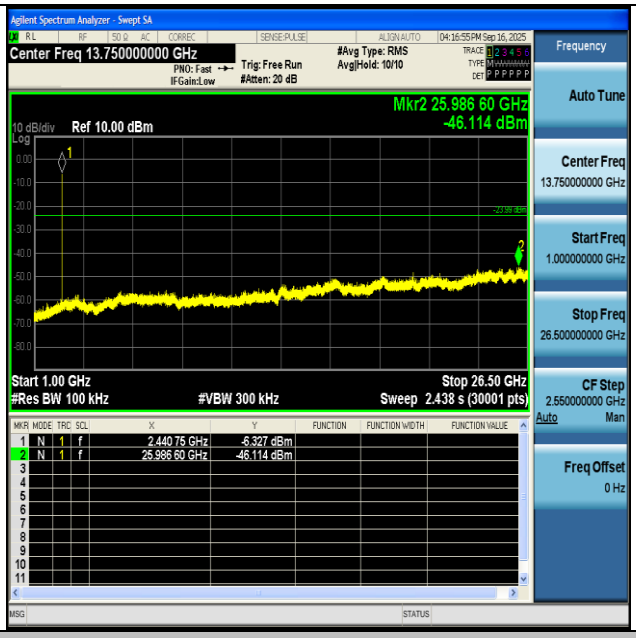
2DH5-Ant1-2402-1000~26500-PASS



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

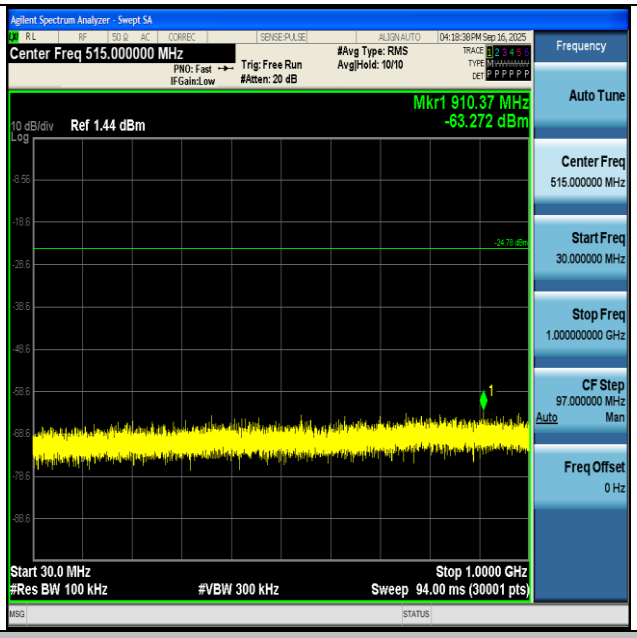


2DH5-Ant1-2441-30~1000-PASS

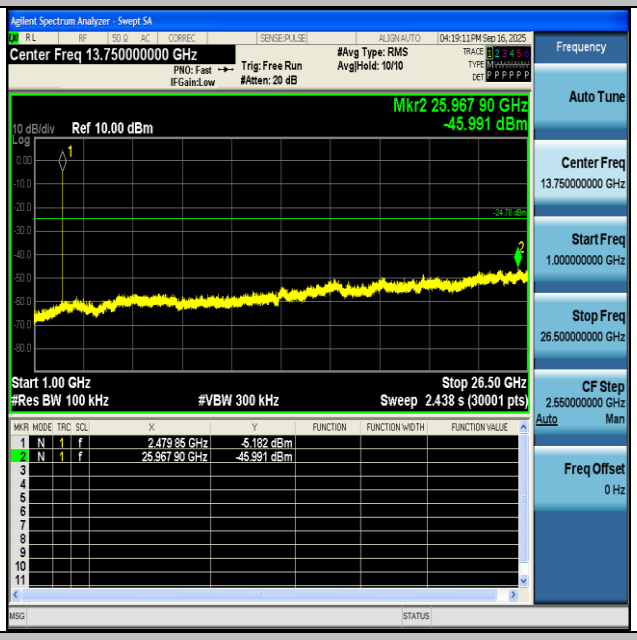


2DH5-Ant1-2441-1000~26500-PASS

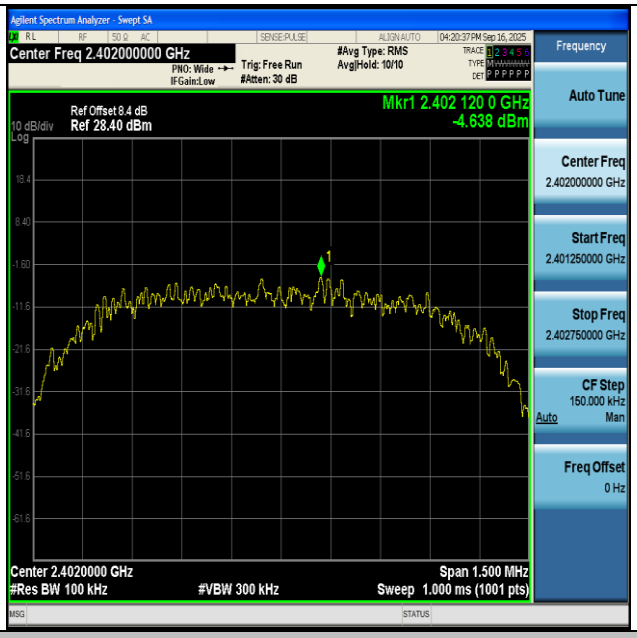
2DH5-Ant1-2480-0~Reference-PASS



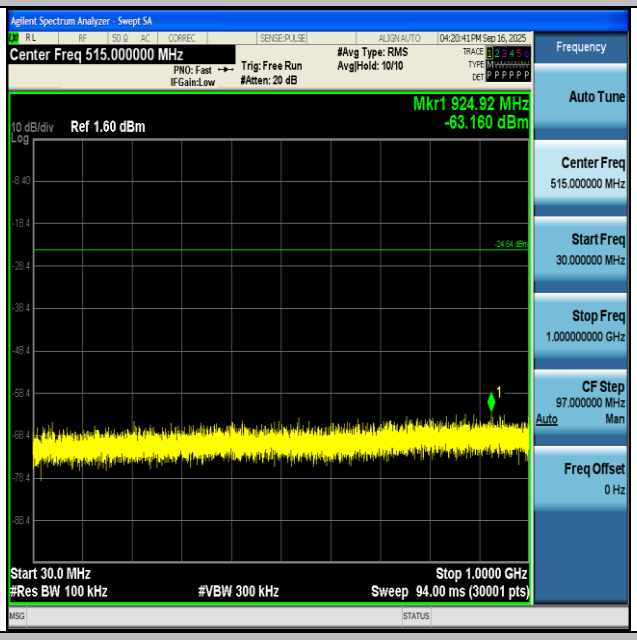
2DH5-Ant1-2480-30~1000-PASS



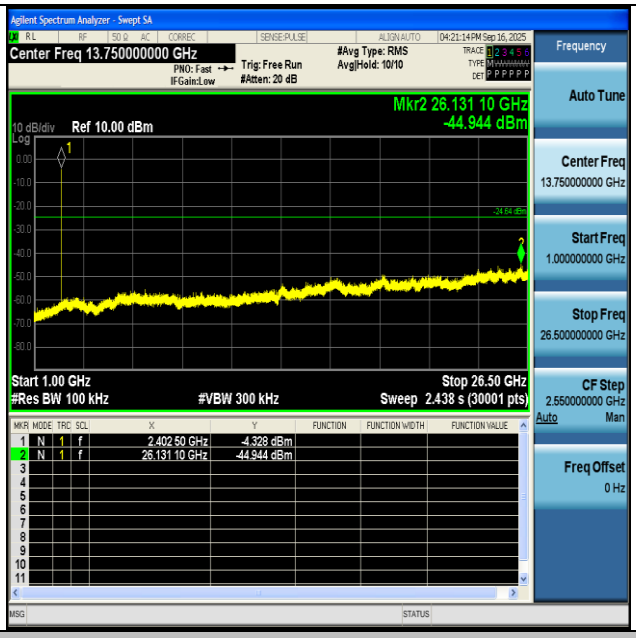
2DH5-Ant1-2480-1000~26500-PASS



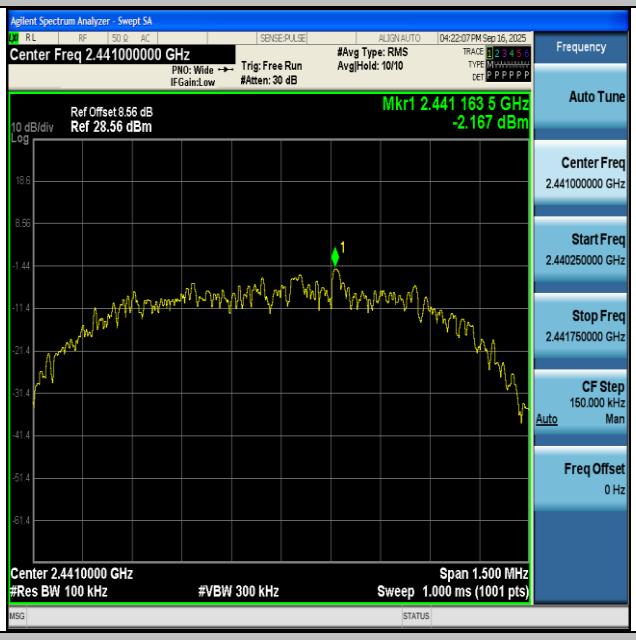
3DH5-Ant1-2402-0~Reference-PASS



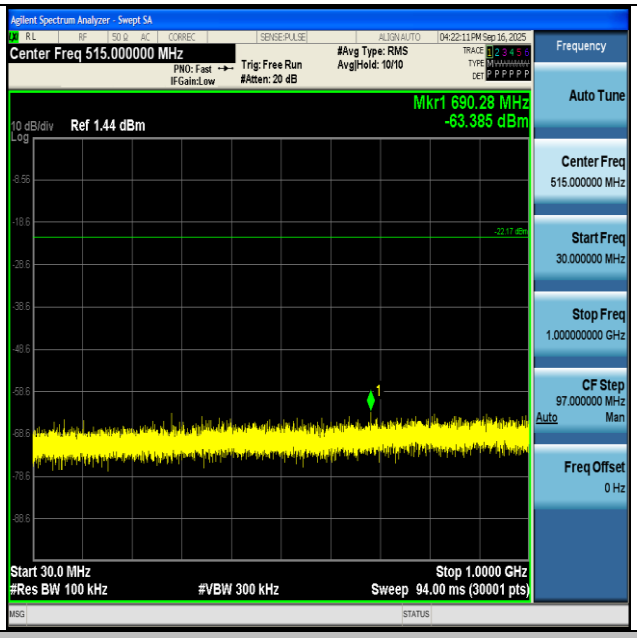
3DH5-Ant1-2402-30~1000-PASS



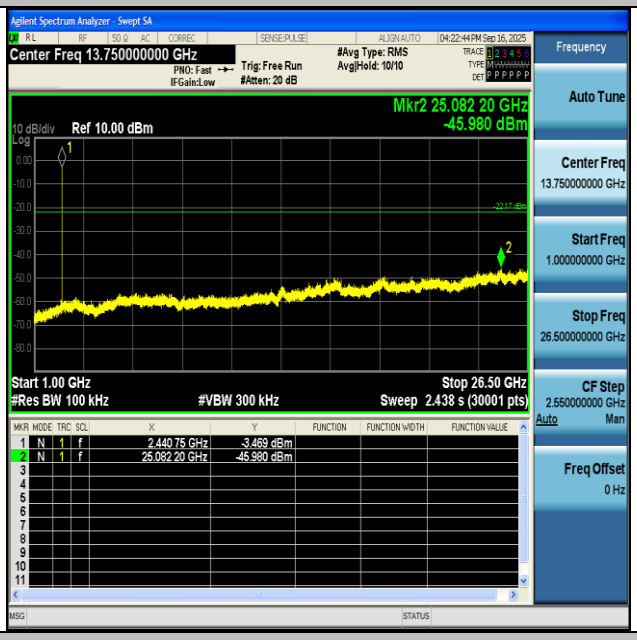
3DH5-Ant1-2402-1000~26500-PASS



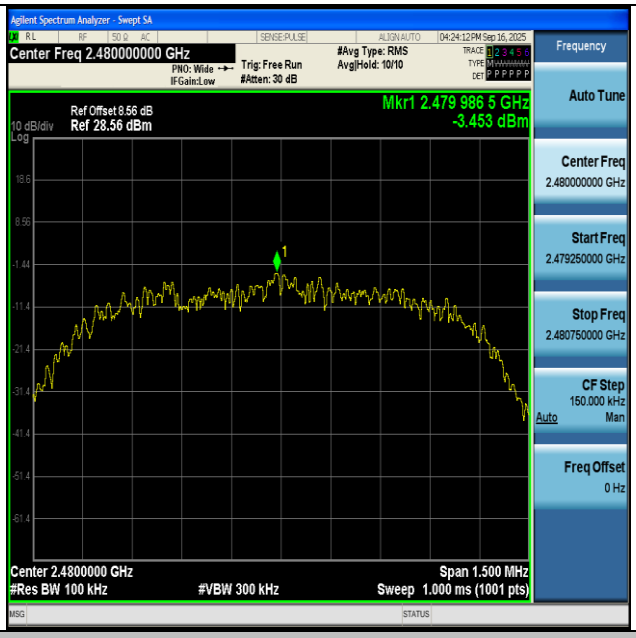
3DH5-Ant1-2441-0~Reference-PASS



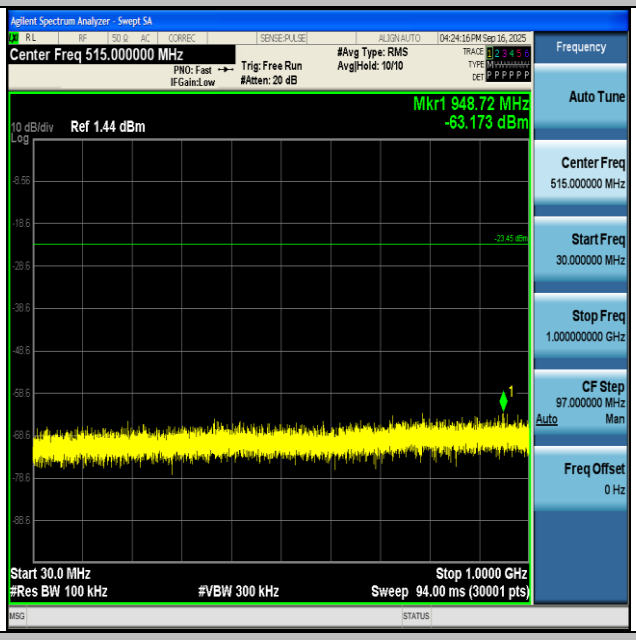
3DH5-Ant1-2441-30~1000-PASS



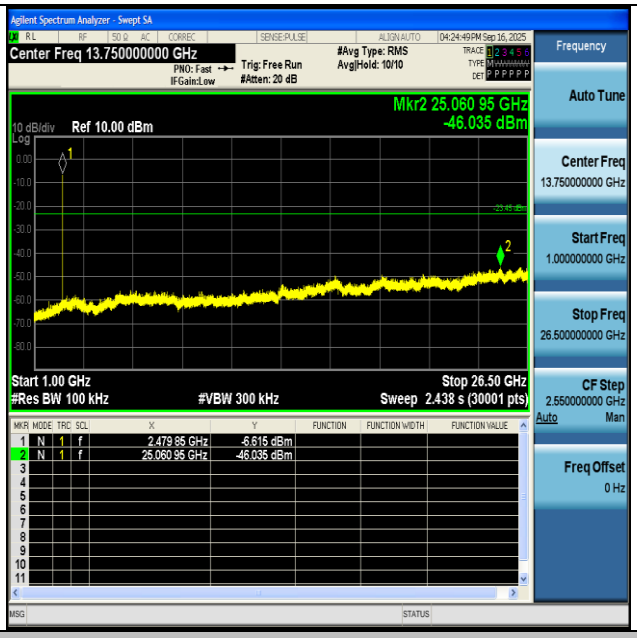
3DH5-Ant1-2441-1000~26500-PASS



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



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



3DH5-Ant1-2480-1000~26500-PASS

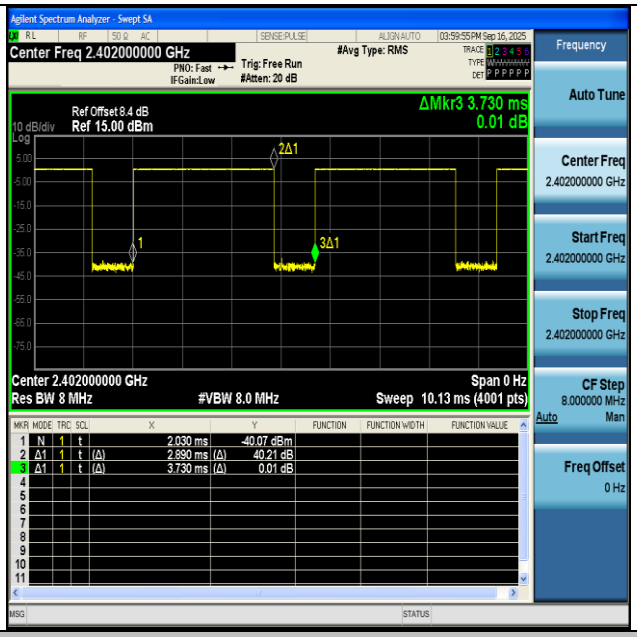
Appendix I: Duty Cycle

Test Result

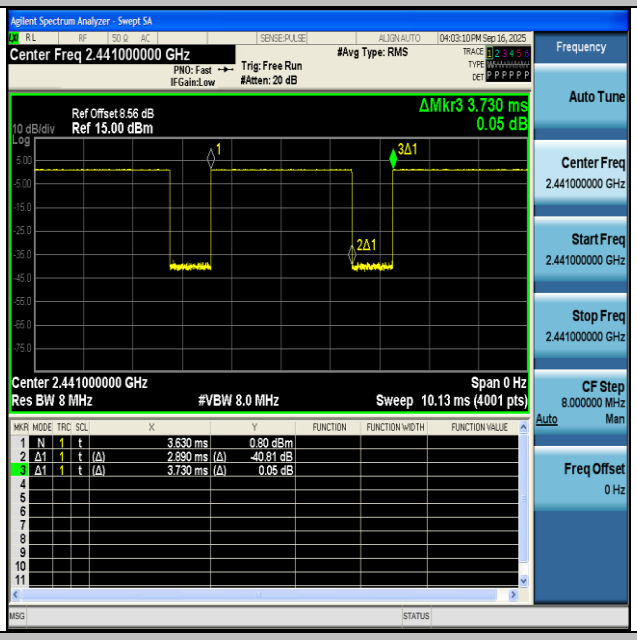
Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
DH5	Ant1	2402	2.89	3.73	77.48	1.11
DH5	Ant1	2441	2.89	3.73	77.48	1.11
DH5	Ant1	2480	2.88	3.73	77.21	1.12
2DH5	Ant1	2402	2.89	3.74	77.27	1.12
2DH5	Ant1	2441	2.89	3.74	77.27	1.12
2DH5	Ant1	2480	2.89	3.73	77.48	1.11
3DH5	Ant1	2402	2.88	3.73	77.21	1.12
3DH5	Ant1	2441	2.89	3.74	77.27	1.12
3DH5	Ant1	2480	2.89	3.74	77.27	1.12

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

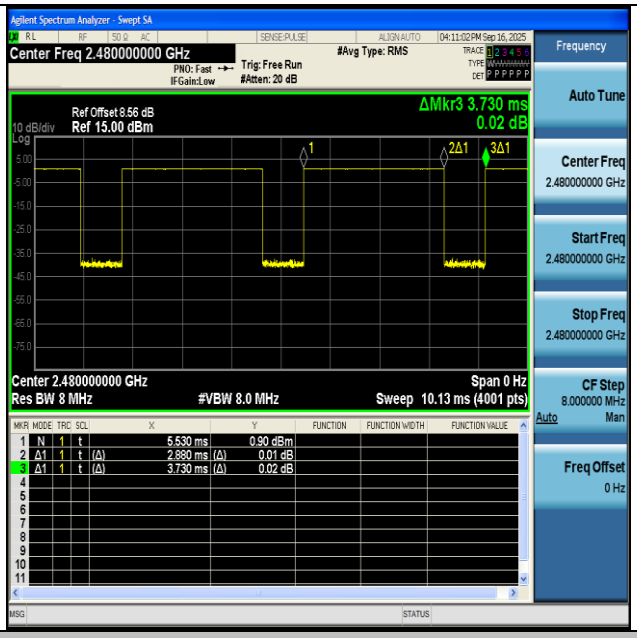
Test Graphs



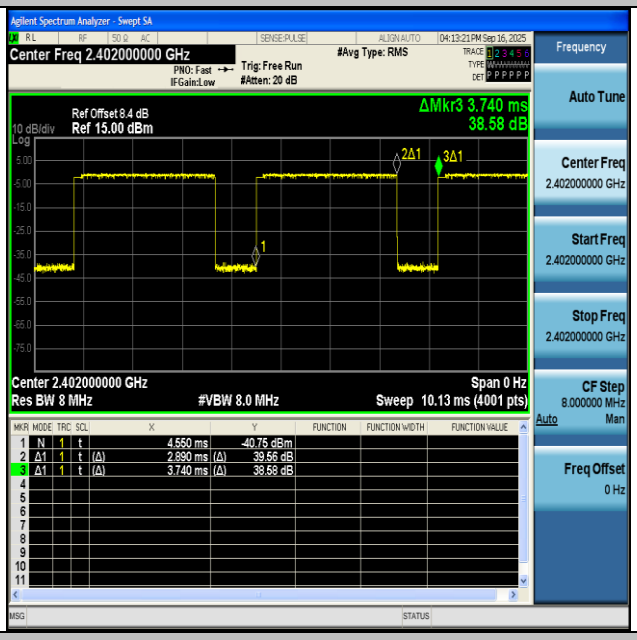
NTNV-DH5-Ant1-2402



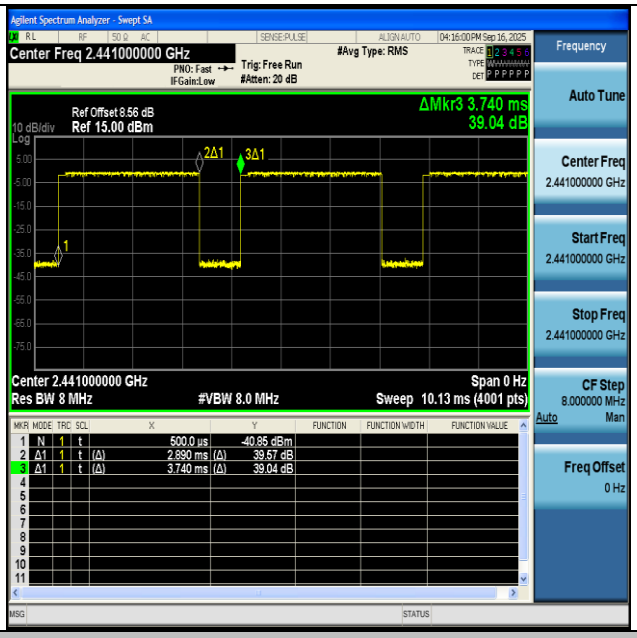
NTNV-DH5-Ant1-2441



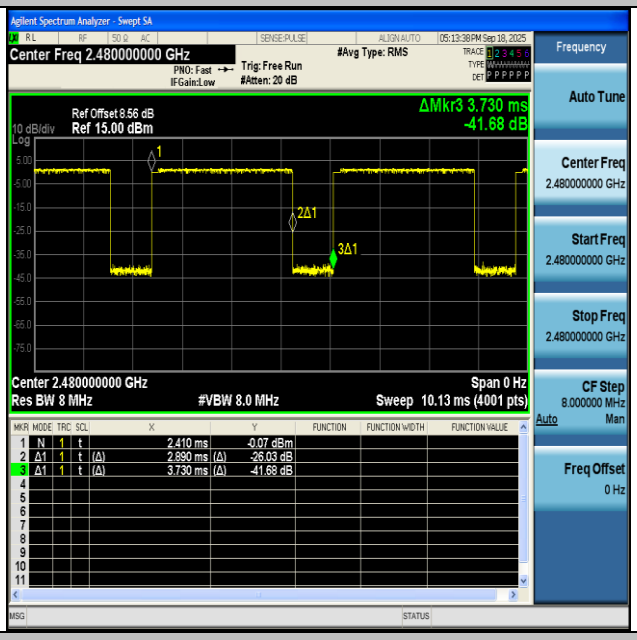
NTNV-DH5-Ant1-2480



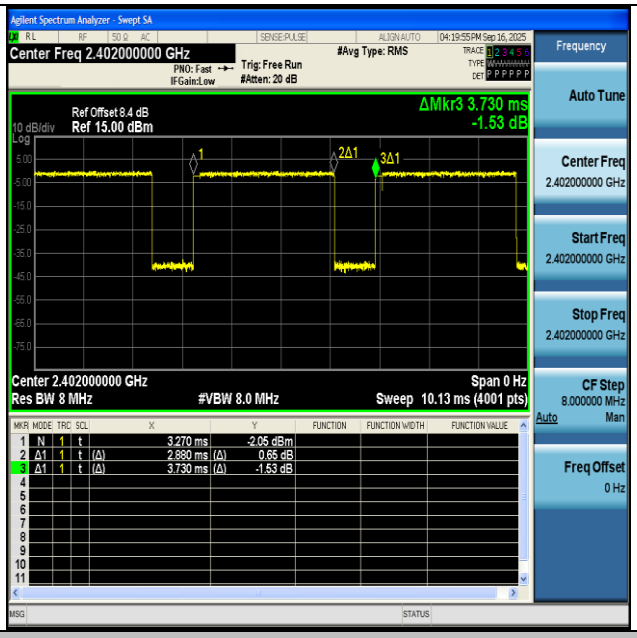
NTNV-2DH5-Ant1-2402



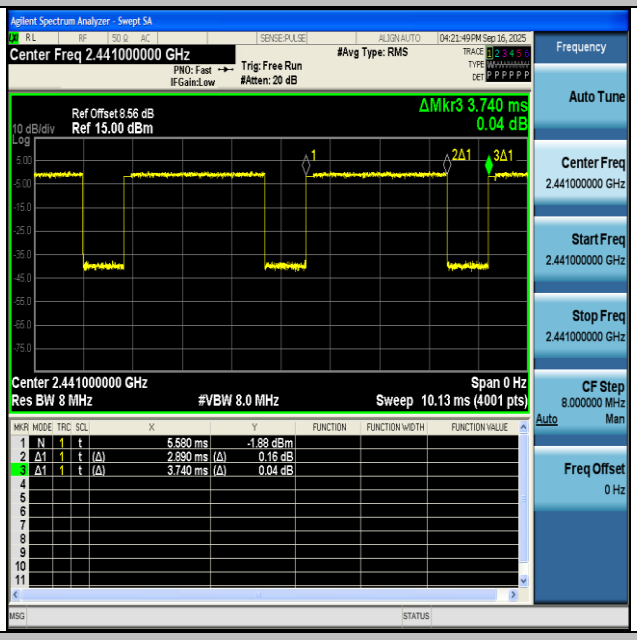
NTNV-2DH5-Ant1-2441



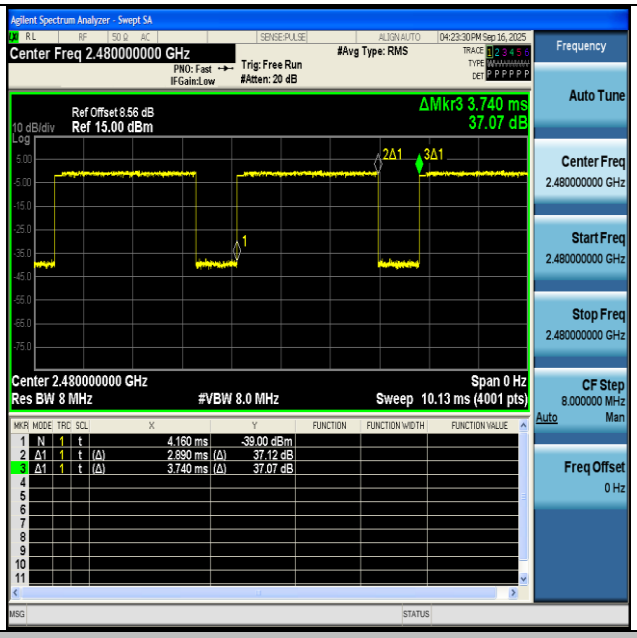
NTNV-2DH5-Ant1-2480



NTNV-3DH5-Ant1-2402



NTNV-3DH5-Ant1-2441



NTNV-3DH5-Ant1-2480