

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

Product Name: Wanbo Projector

Trade Mark: Wanbo

Test Model: WPA34

FCC ID: 2A7PIX5PRO

Environmental Conditions

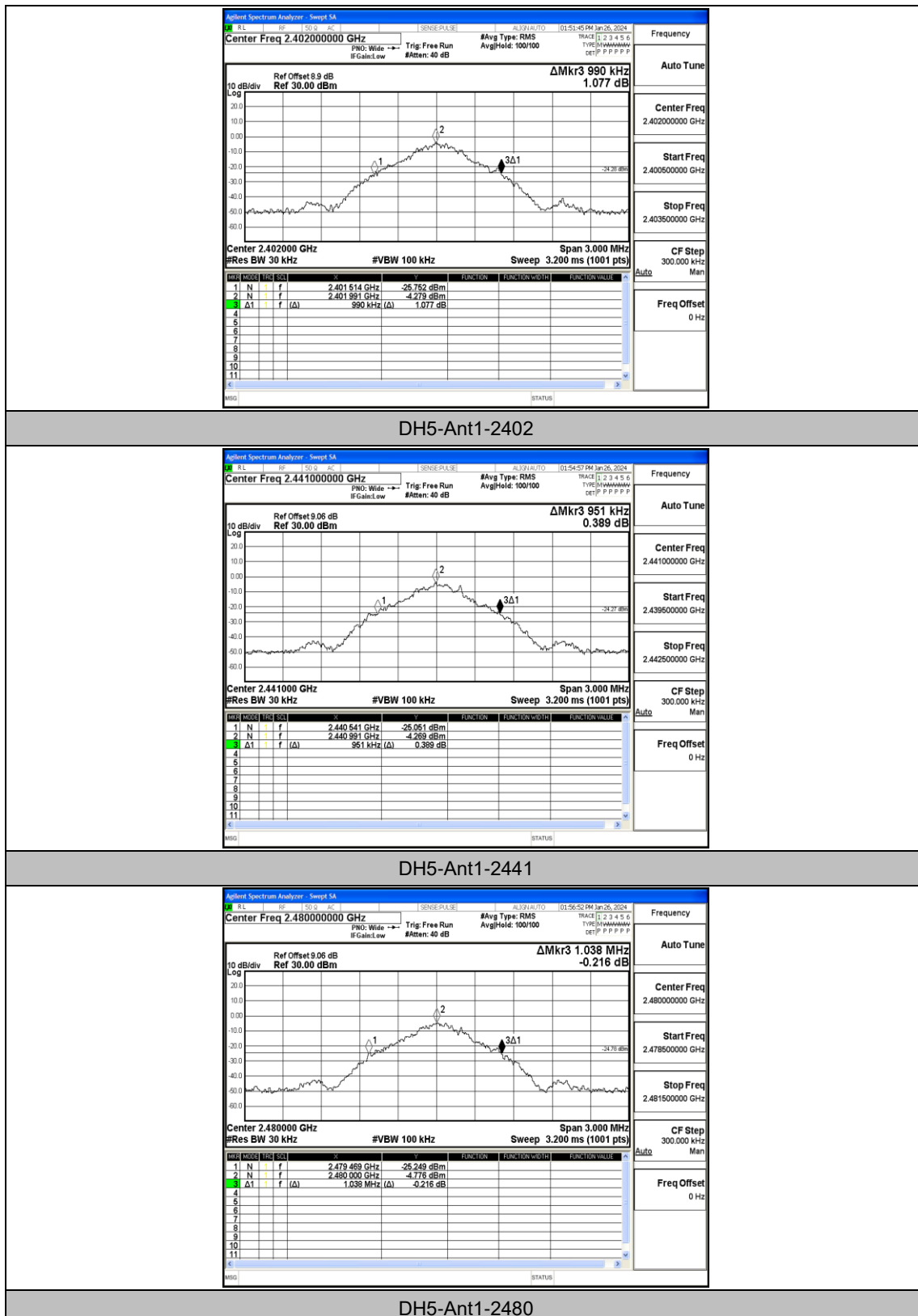
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

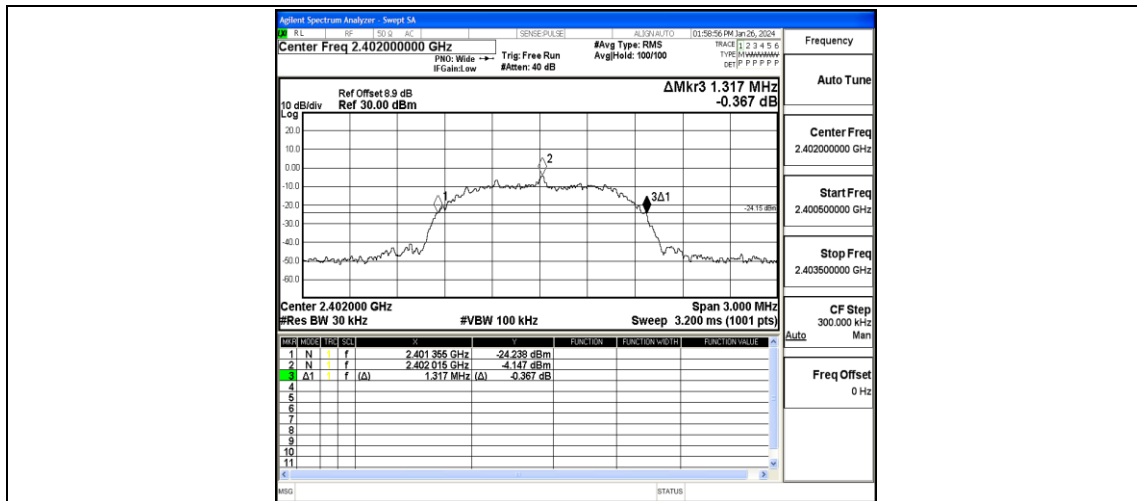
Appendix A: 20dB Emission Bandwidth

Test Result

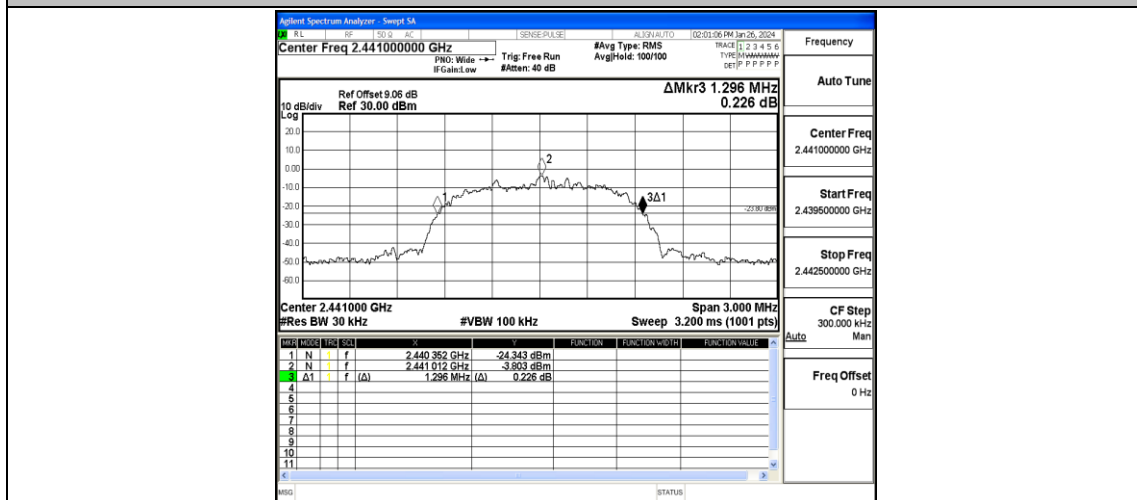
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.990	2401.514	2402.504	---	---
DH5	Ant1	2441	0.951	2440.541	2441.492	---	---
DH5	Ant1	2480	1.038	2479.469	2480.507	---	---
2DH5	Ant1	2402	1.317	2401.355	2402.672	---	---
2DH5	Ant1	2441	1.296	2440.352	2441.648	---	---
2DH5	Ant1	2480	1.296	2479.355	2480.651	---	---
3DH5	Ant1	2402	1.293	2401.355	2402.648	---	---
3DH5	Ant1	2441	1.299	2440.355	2441.654	---	---
3DH5	Ant1	2480	1.278	2479.370	2480.648	---	---

Test Graphs

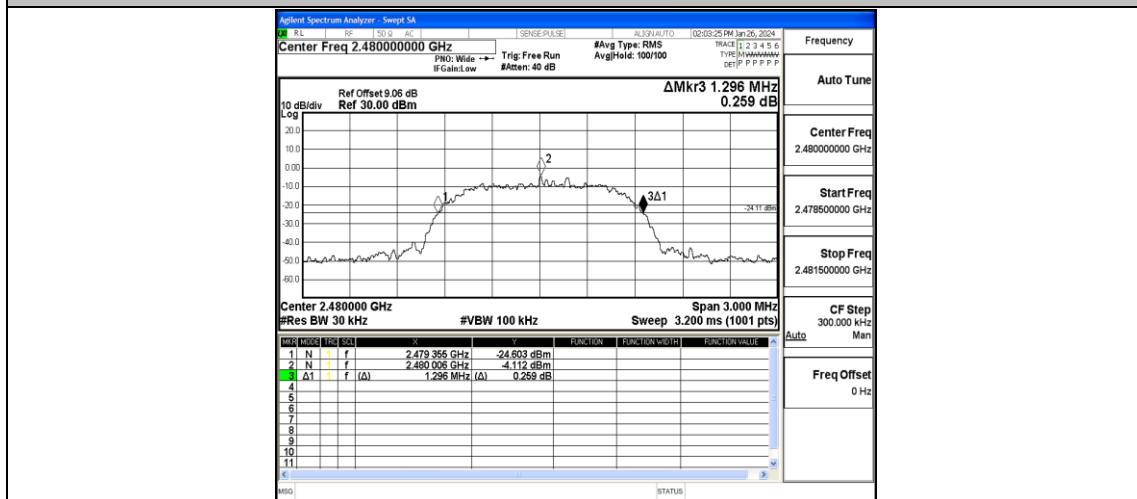




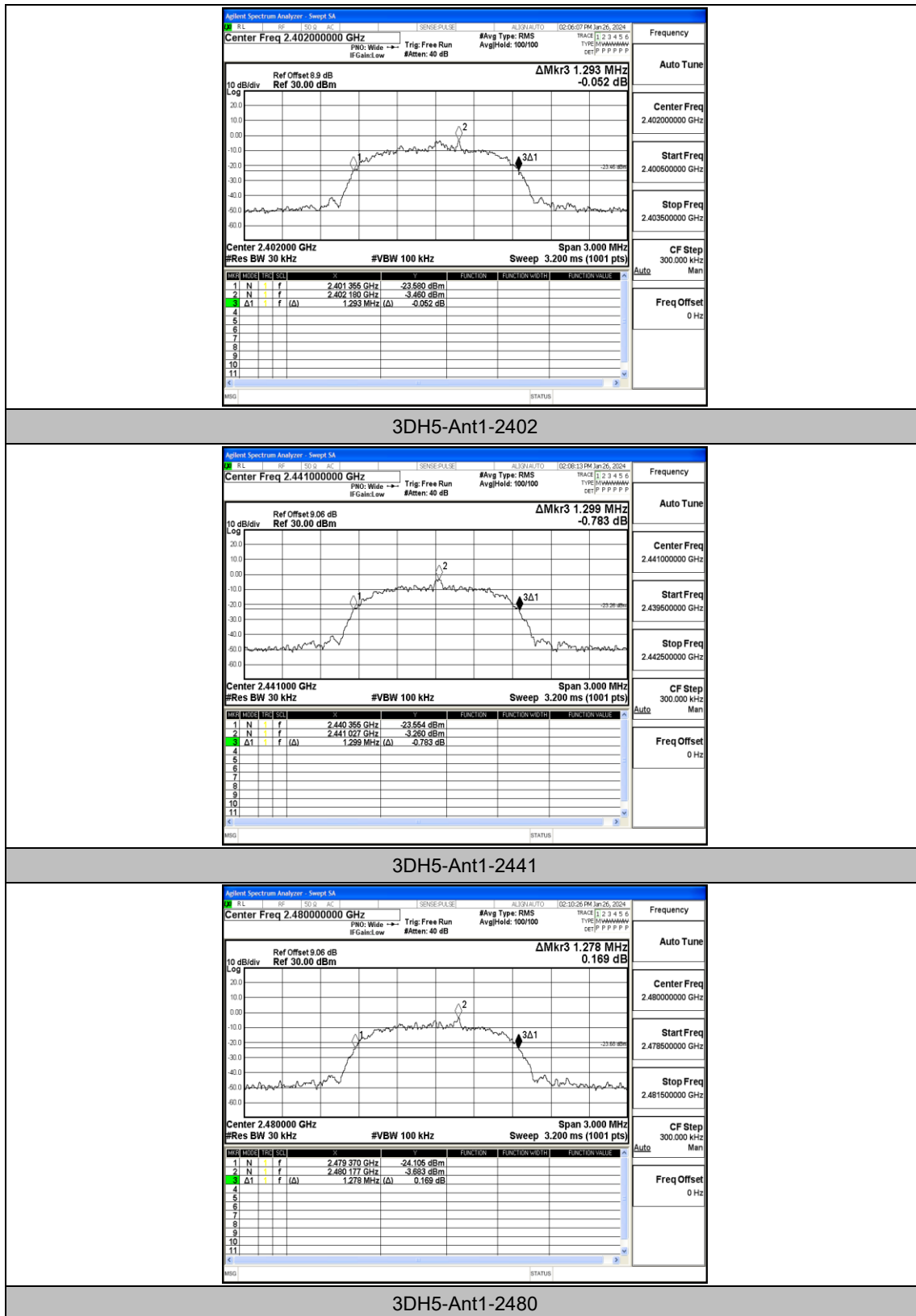
2DH5-Ant1-2402



2DH5-Ant1-2441



2DH5-Ant1-2480

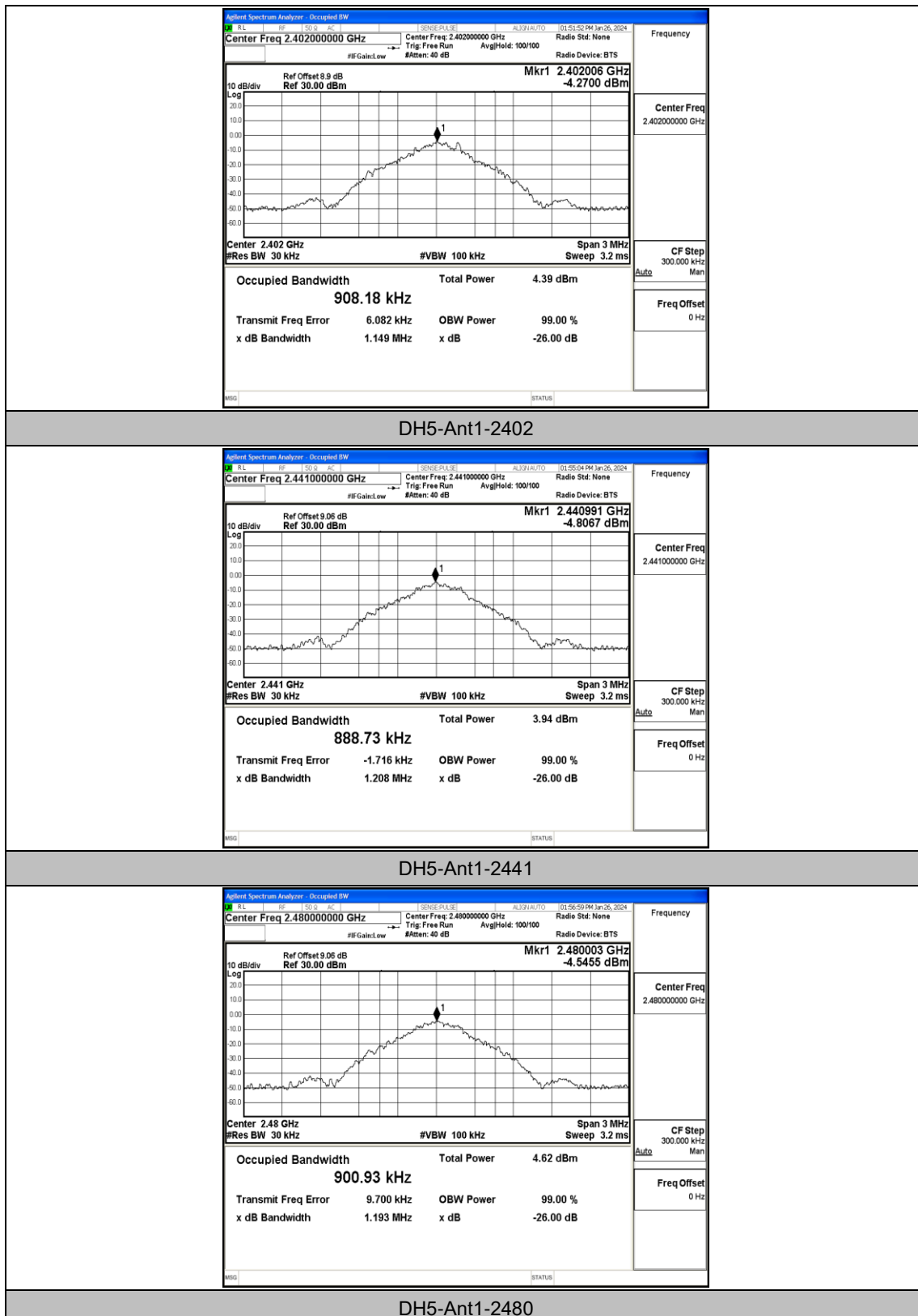


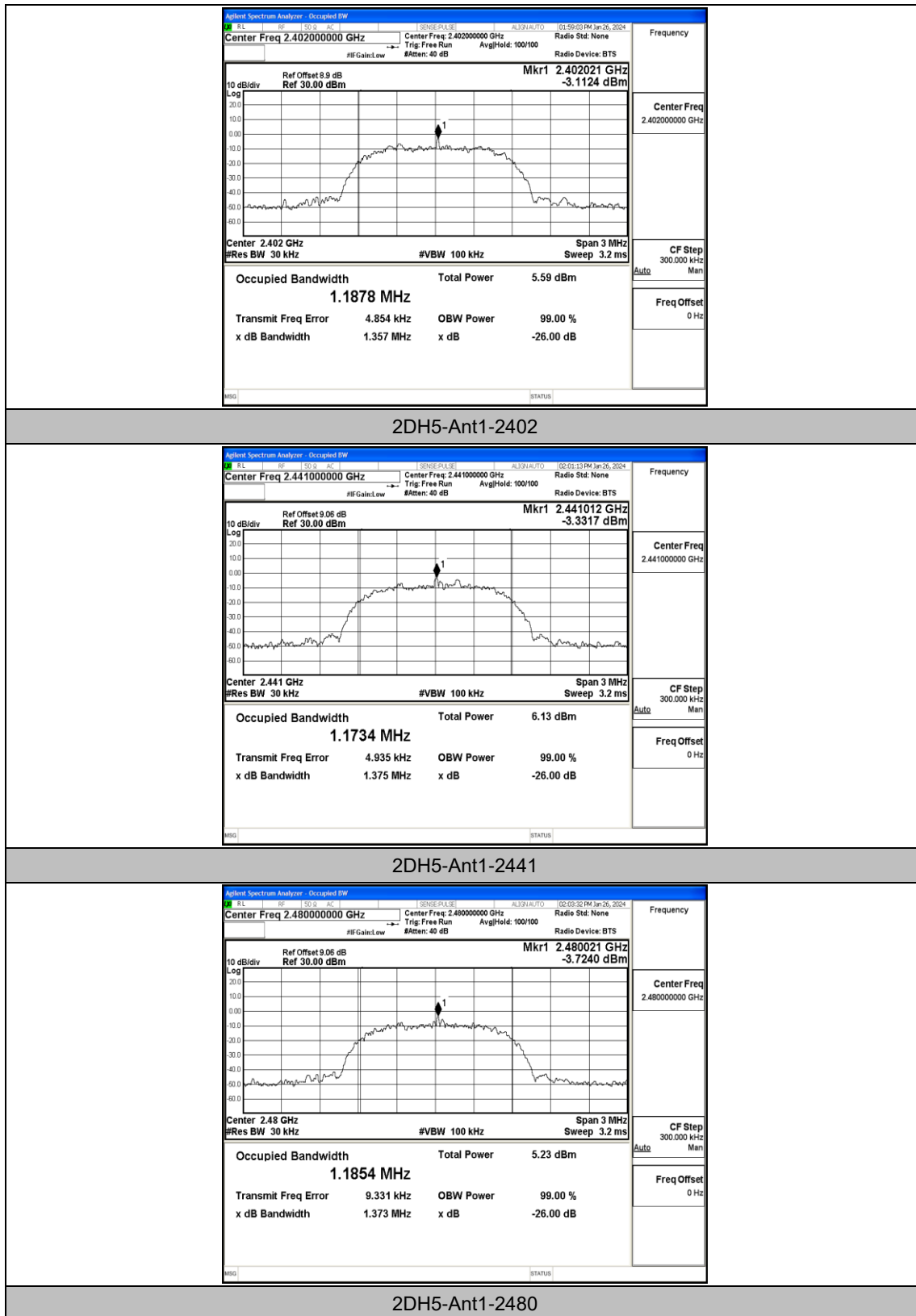
Appendix B: Occupied Channel Bandwidth

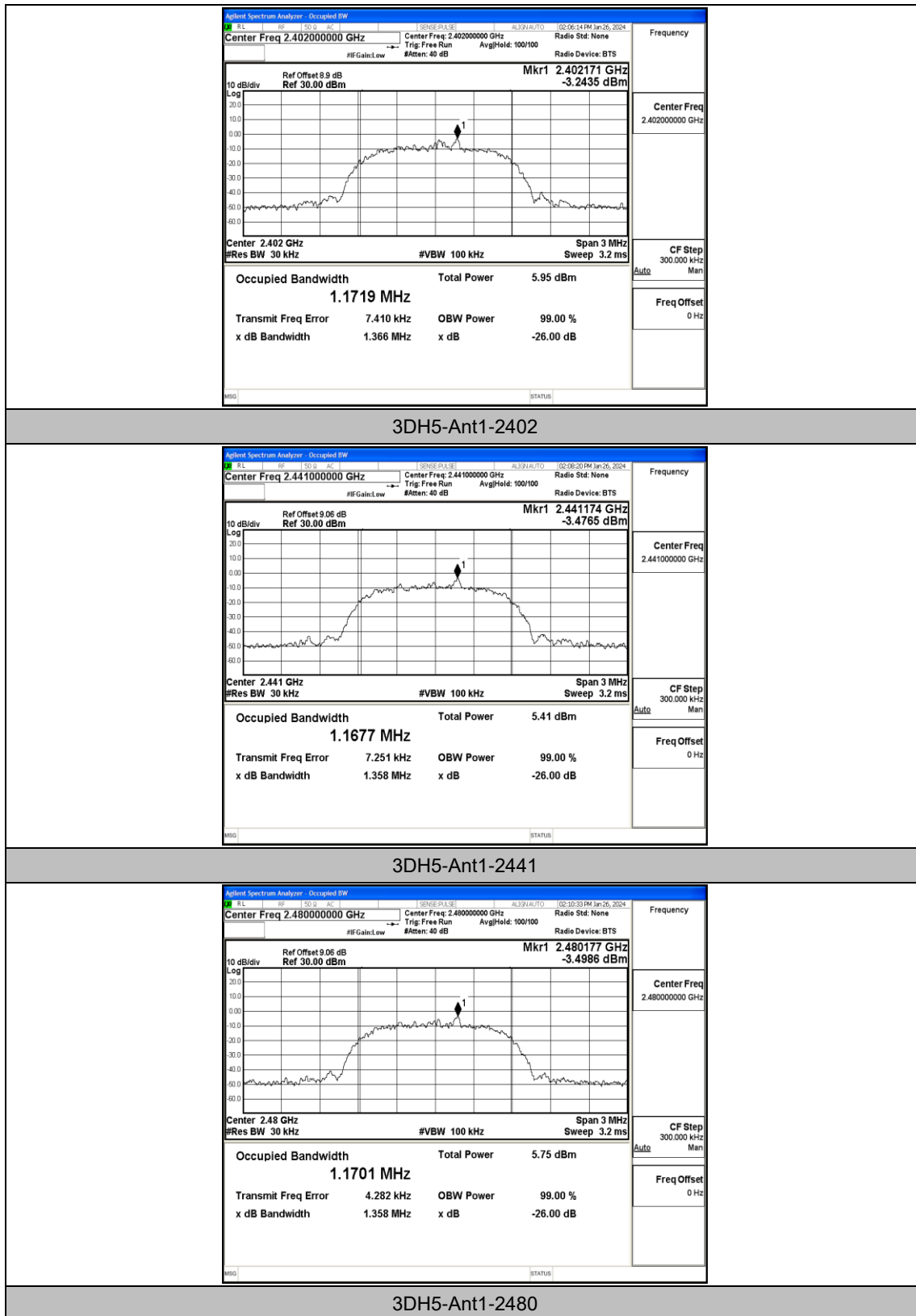
Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.90818	2401.5520	2402.4602	---	---
DH5	Ant1	2441	0.88873	2440.5539	2441.4426	---	---
DH5	Ant1	2480	0.90093	2479.5592	2480.4602	---	---
2DH5	Ant1	2402	1.1878	2401.4110	2402.5988	---	---
2DH5	Ant1	2441	1.1734	2440.4182	2441.5916	---	---
2DH5	Ant1	2480	1.1854	2479.4166	2480.6020	---	---
3DH5	Ant1	2402	1.1719	2401.4215	2402.5934	---	---
3DH5	Ant1	2441	1.1677	2440.4234	2441.5911	---	---
3DH5	Ant1	2480	1.1701	2479.4192	2480.5893	---	---

Test Graphs





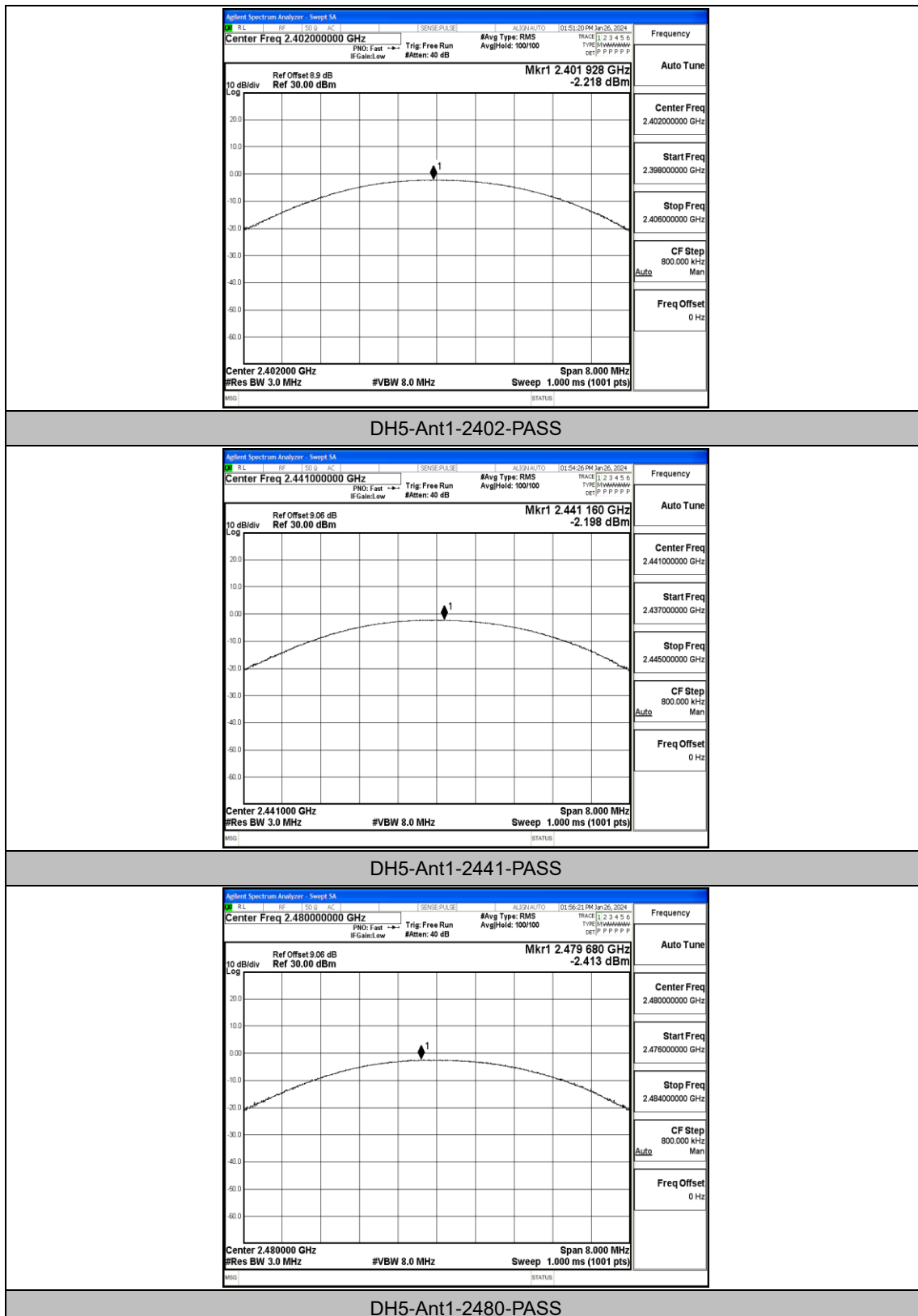


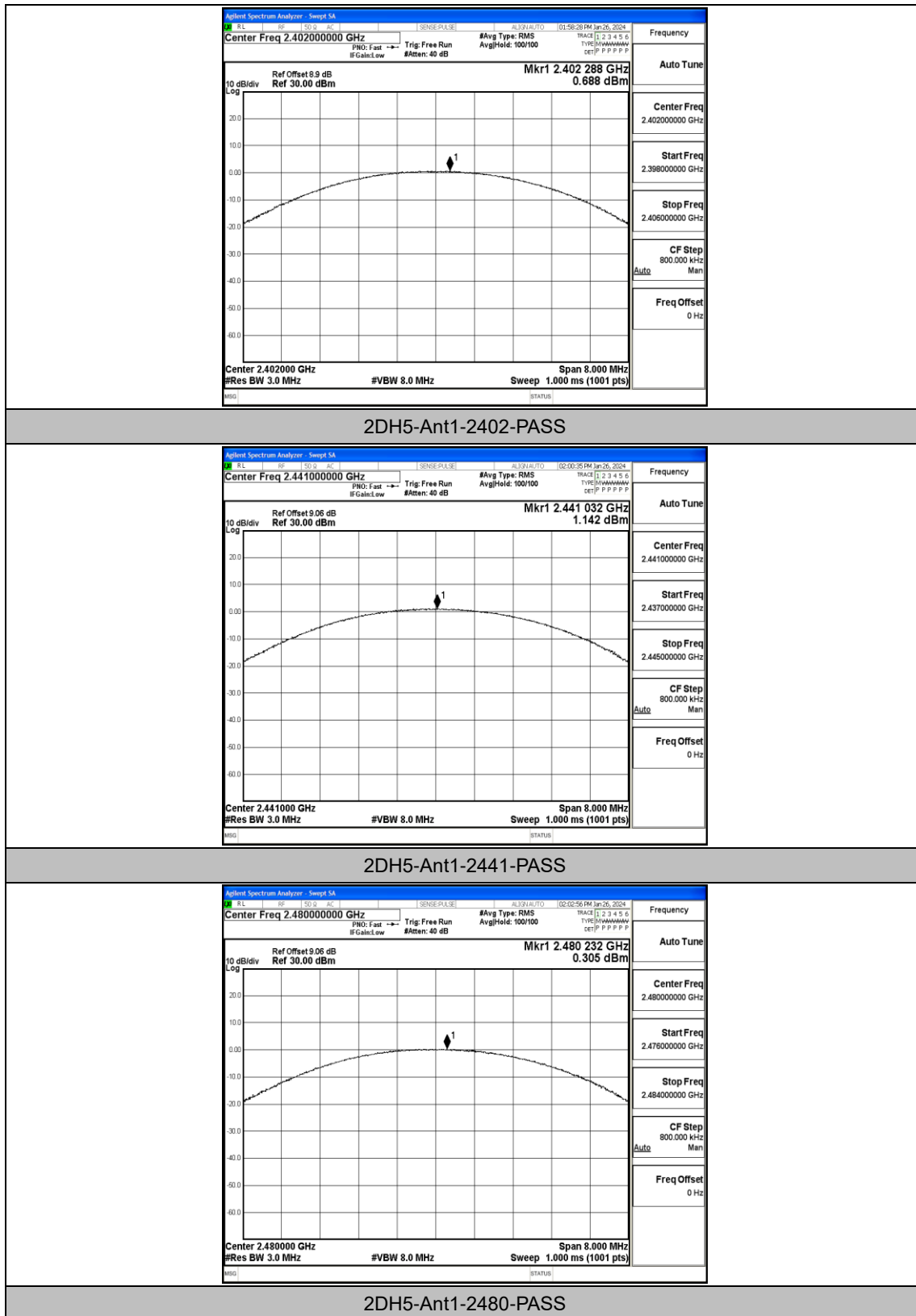
Appendix C: Maximum peak conducted output power

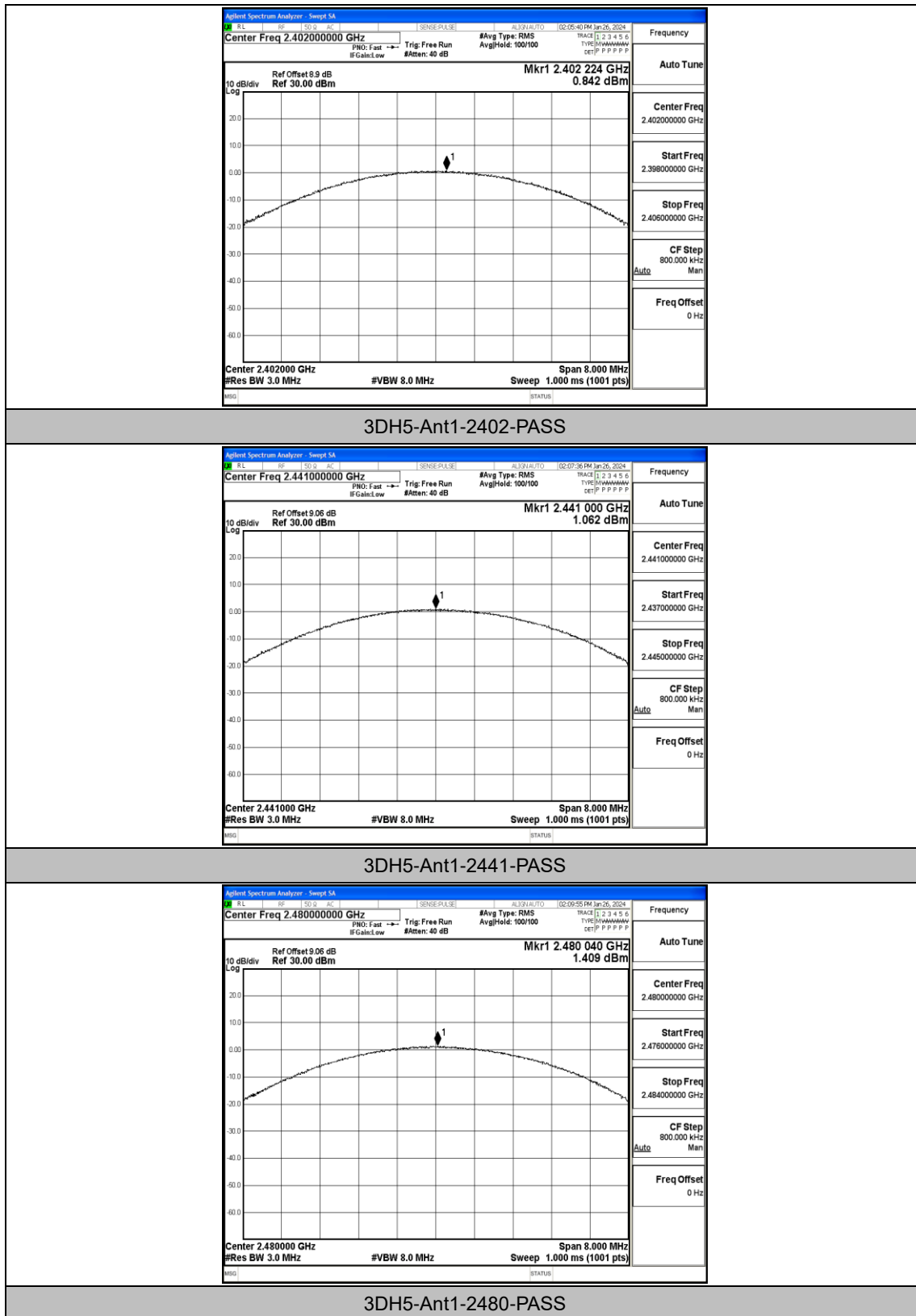
Test Result

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	-2.22	≤20.97	PASS
DH5	Ant1	2441	-2.20	≤20.97	PASS
DH5	Ant1	2480	-2.41	≤20.97	PASS
2DH5	Ant1	2402	0.69	≤20.97	PASS
2DH5	Ant1	2441	1.14	≤20.97	PASS
2DH5	Ant1	2480	0.31	≤20.97	PASS
3DH5	Ant1	2402	0.84	≤20.97	PASS
3DH5	Ant1	2441	1.06	≤20.97	PASS
3DH5	Ant1	2480	1.41	≤20.97	PASS

Test Graphs





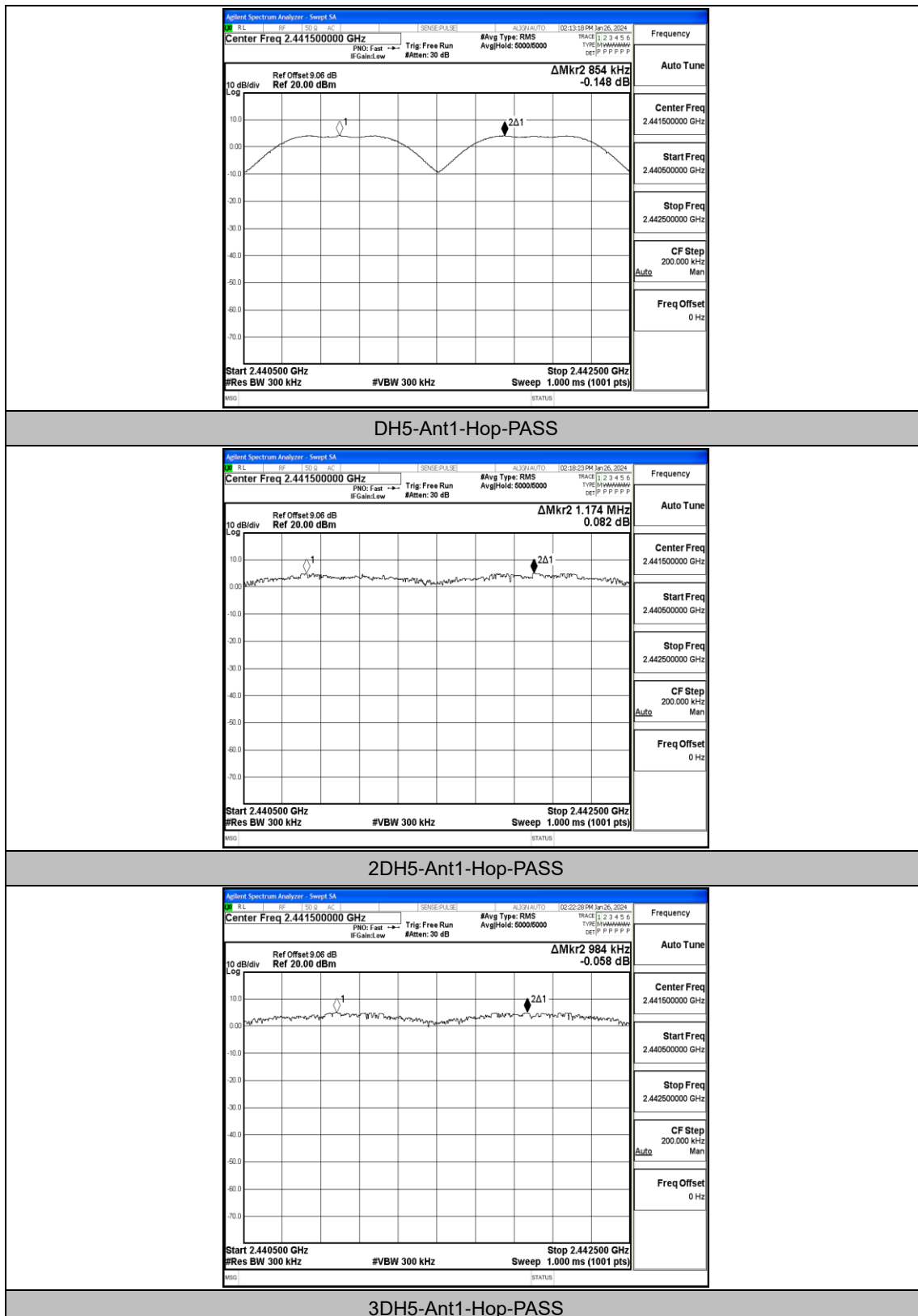


Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.854	≥ 0.692	PASS
2DH5	Ant1	Hop	1.174	≥ 0.878	PASS
3DH5	Ant1	Hop	0.984	≥ 0.866	PASS

Test Graphs

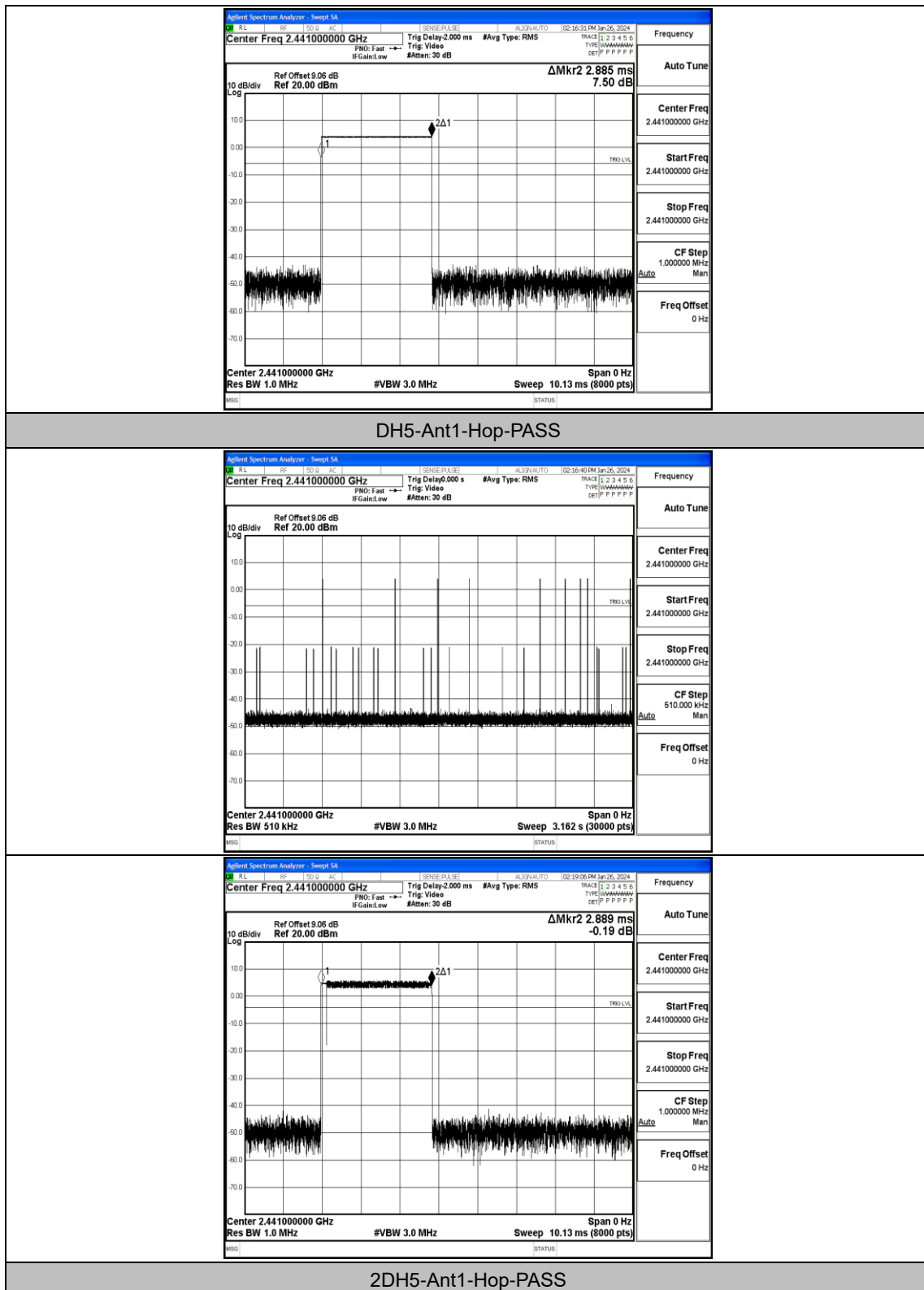


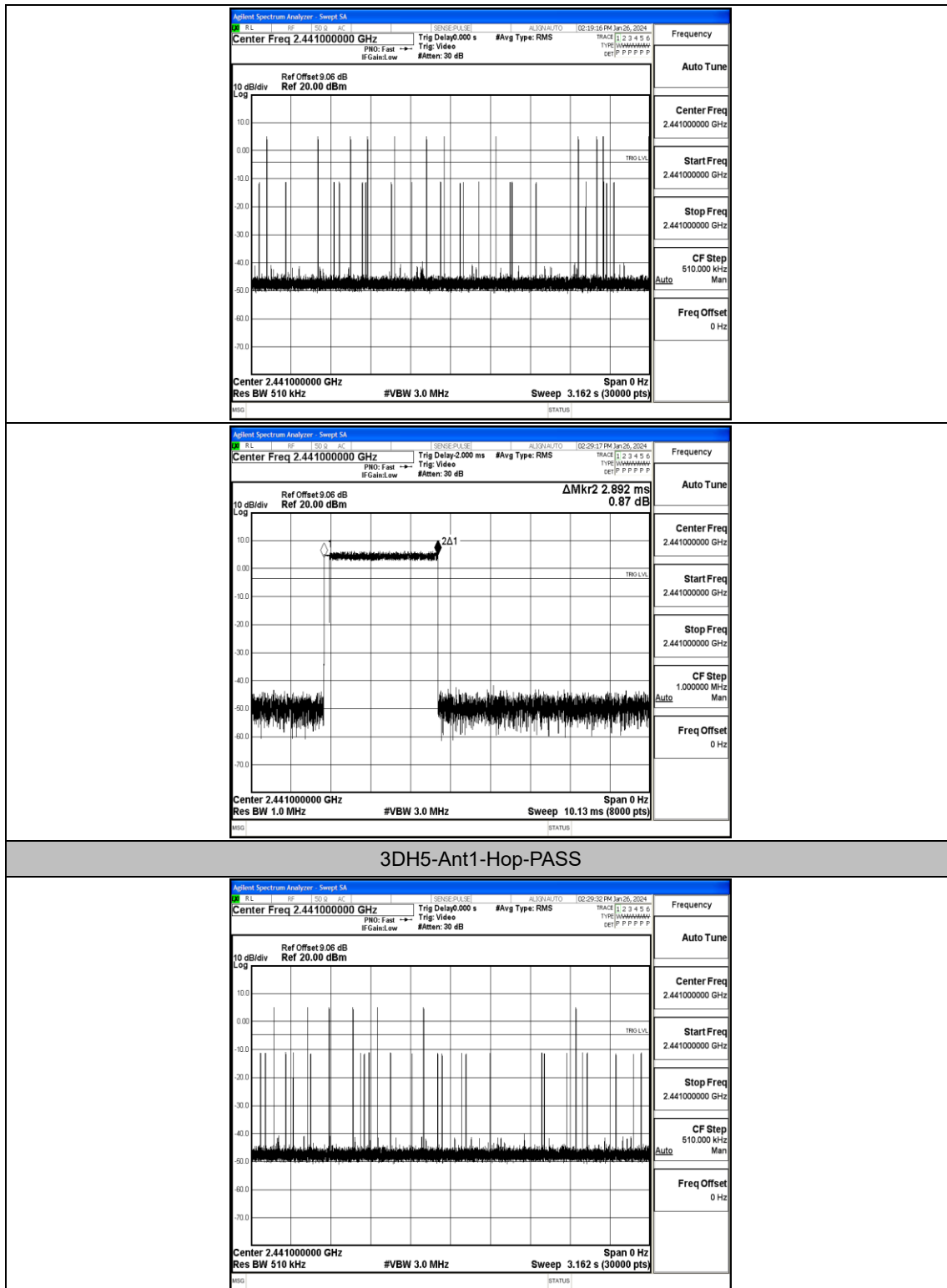
Appendix E: Time of occupancy

Test Result

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.885	100	0.289	≤0.4	PASS
2DH5	Ant1	Hop	2.889	130	0.376	≤0.4	PASS
3DH5	Ant1	Hop	2.892	90	0.26	≤0.4	PASS

Test Graphs



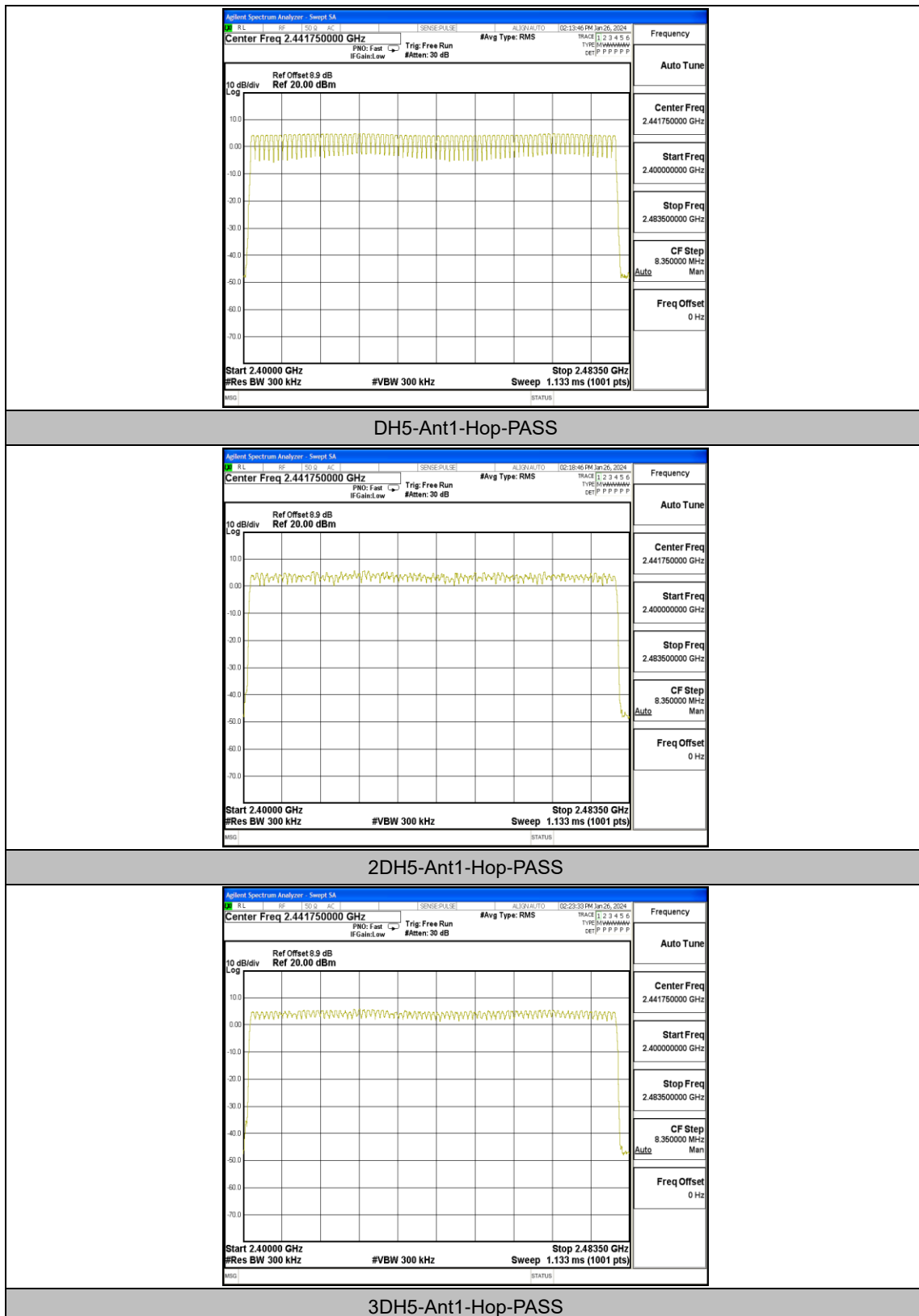


Appendix F: Number of hopping channels

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

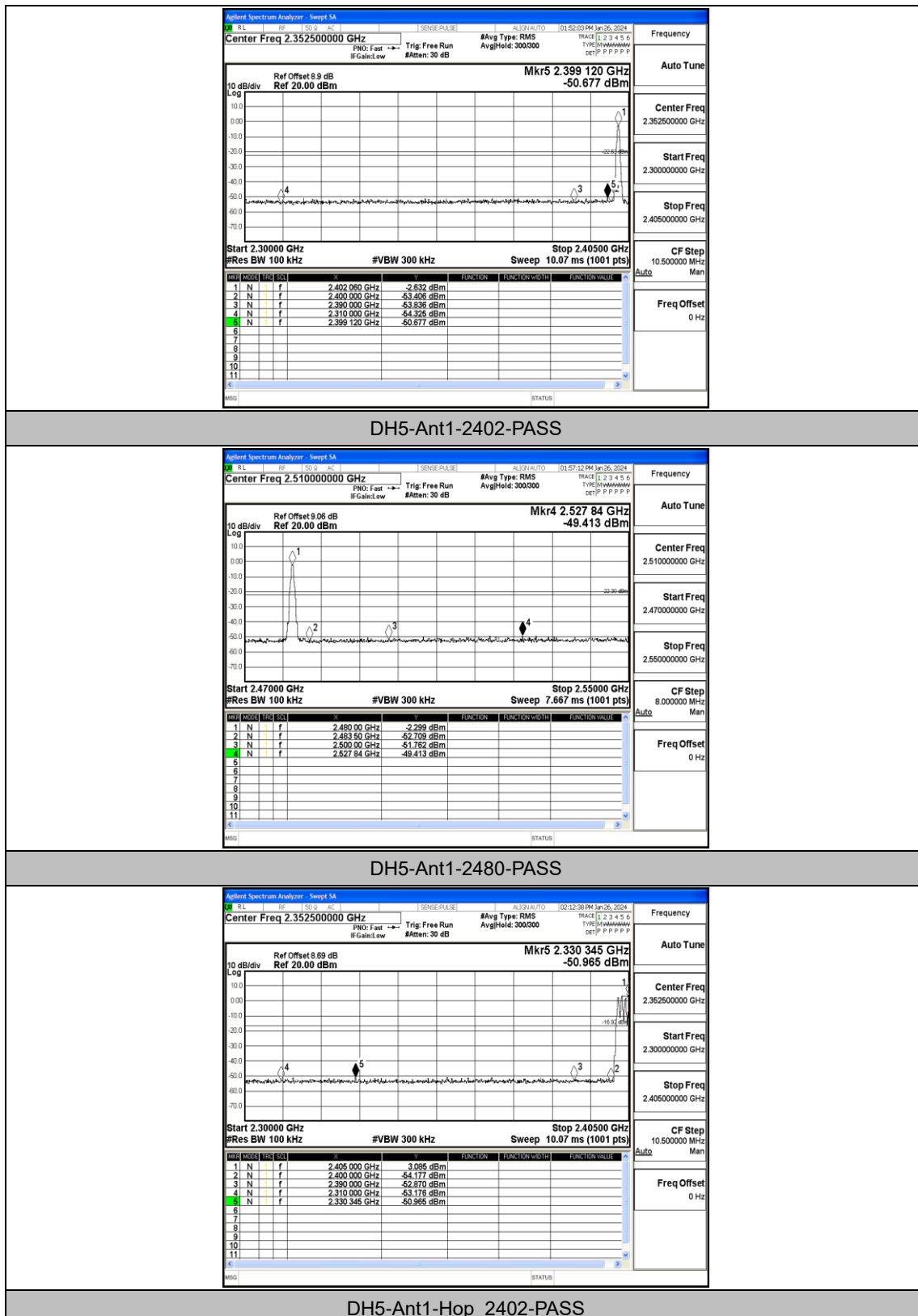


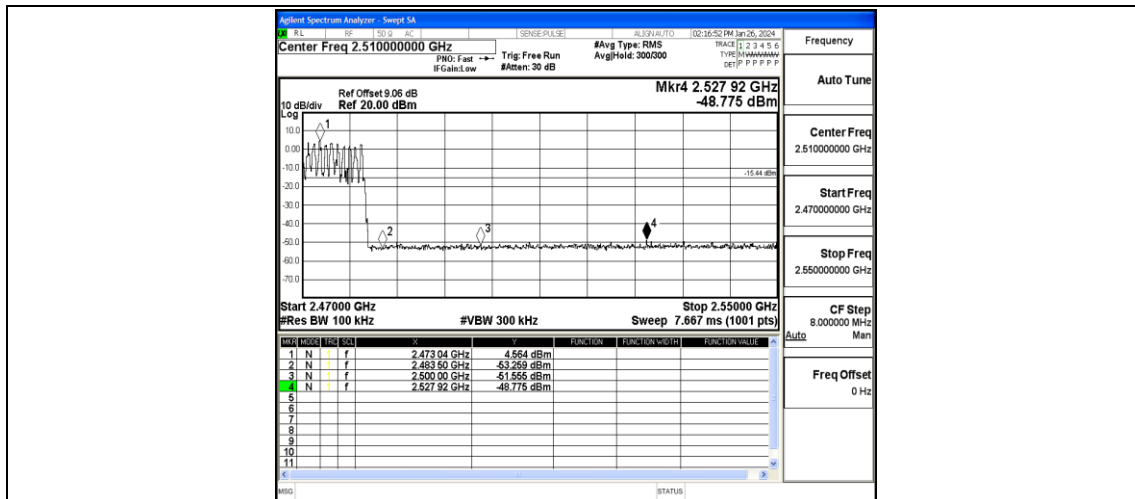
Appendix G: Band edge measurements

Test Result

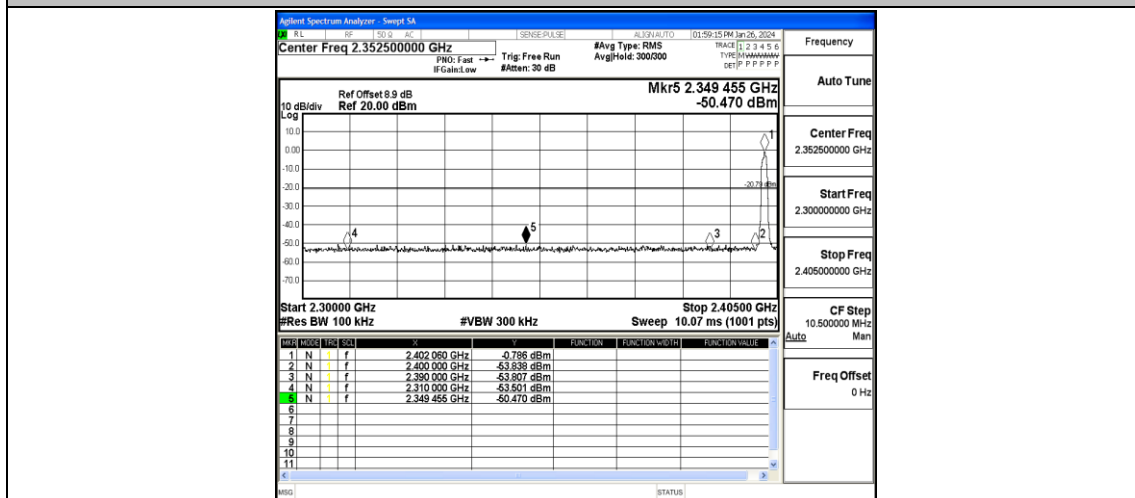
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-2.63	-50.68	≤ -22.63	PASS
DH5	Ant1	High	2480	-2.30	-49.41	≤ -22.3	PASS
DH5	Ant1	Low	Hop_2402	3.09	-50.97	≤ -16.92	PASS
DH5	Ant1	High	Hop_2480	4.56	-48.78	≤ -15.44	PASS
2DH5	Ant1	Low	2402	-0.79	-50.47	≤ -20.79	PASS
2DH5	Ant1	High	2480	-1.83	-49.45	≤ -21.83	PASS
2DH5	Ant1	Low	Hop_2402	3.06	-50.6	≤ -16.95	PASS
2DH5	Ant1	High	Hop_2480	3.46	-49.3	≤ -16.54	PASS
3DH5	Ant1	Low	2402	-0.61	-49.98	≤ -20.61	PASS
3DH5	Ant1	High	2480	-0.53	-49.48	≤ -20.53	PASS
3DH5	Ant1	Low	Hop_2402	4.15	-50.56	≤ -15.85	PASS
3DH5	Ant1	High	Hop_2480	4.97	-49.68	≤ -15.03	PASS

Test Graphs

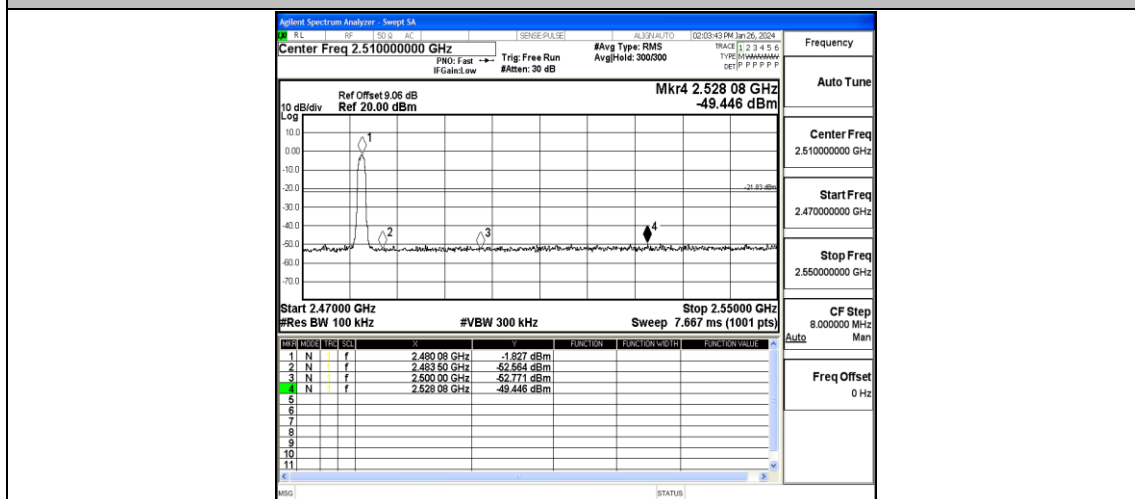




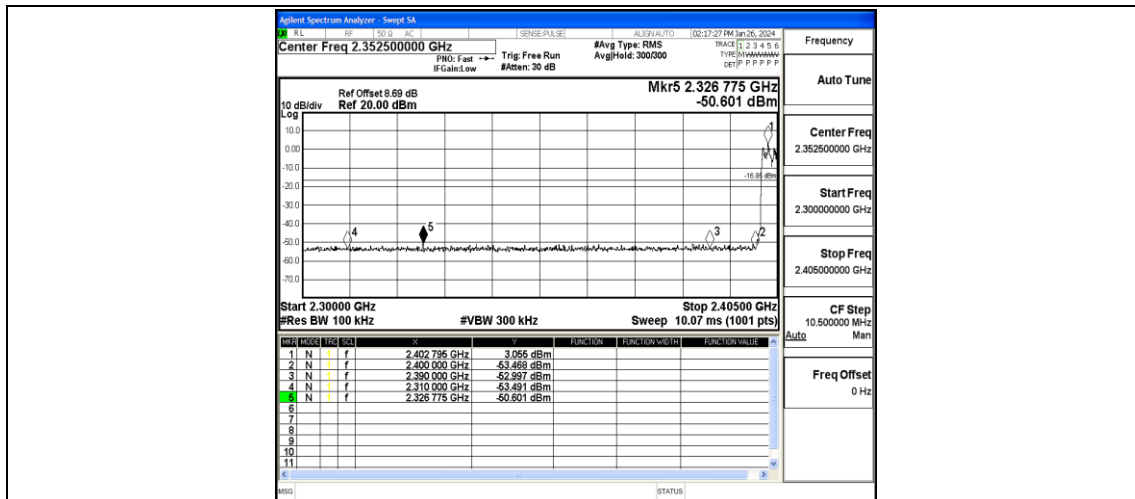
DH5-Ant1-Hop_2480-PASS



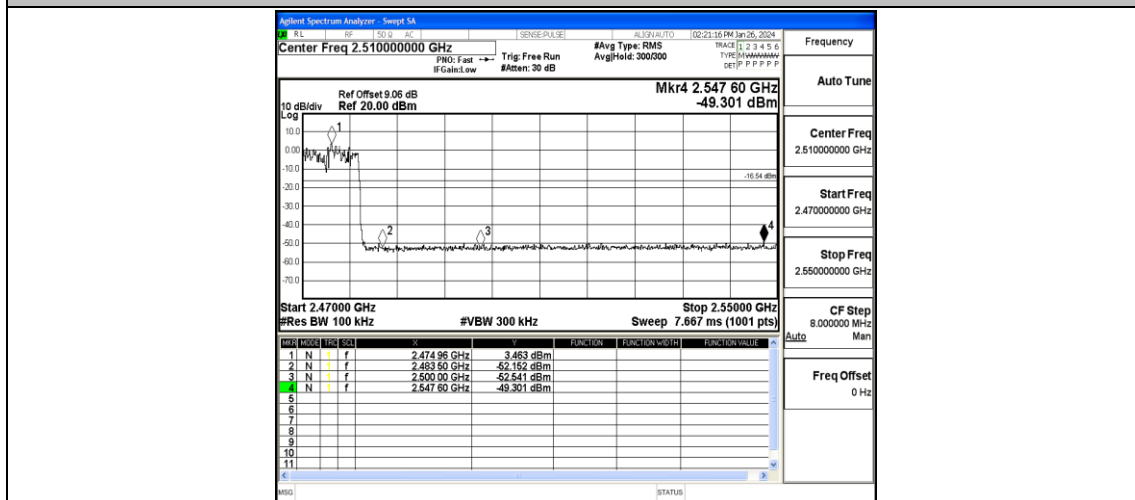
2DH5-Ant1-2402-PASS



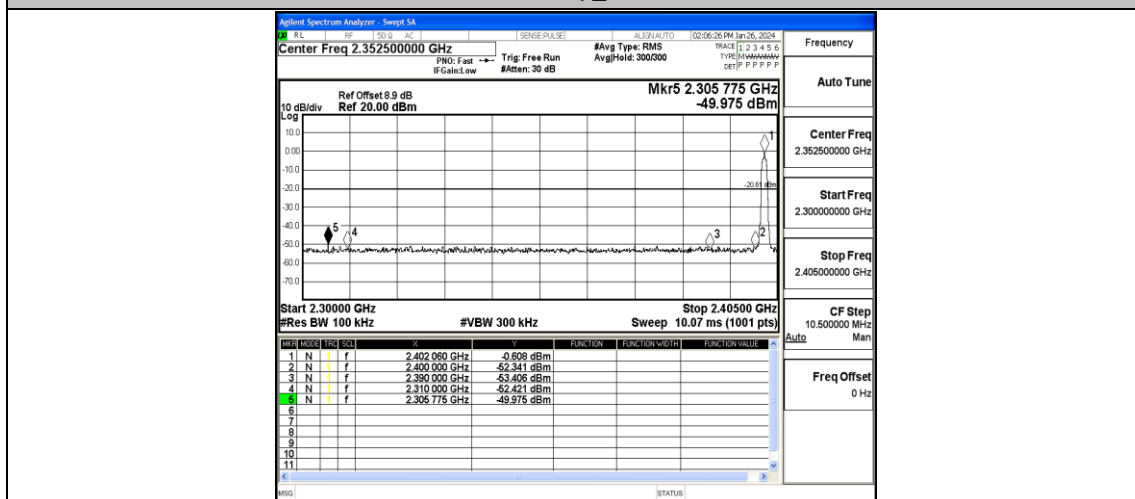
2DH5-Ant1-2480-PASS



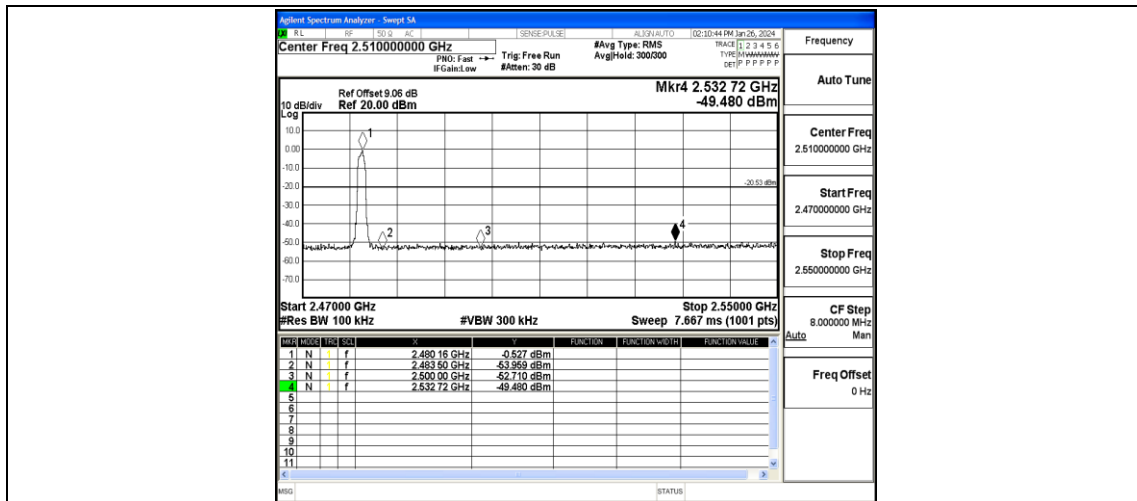
2DH5-Ant1-Hop_2402-PASS



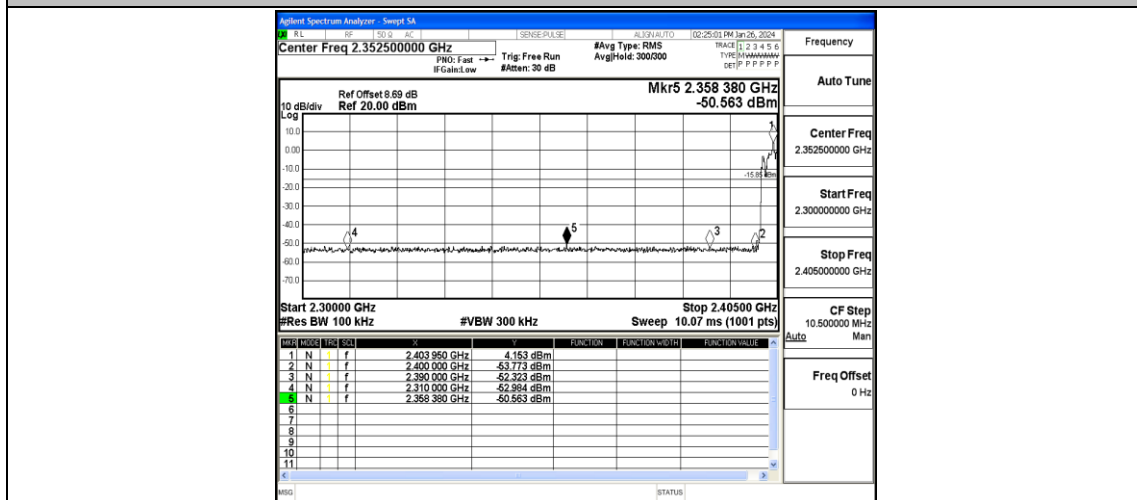
2DH5-Ant1-Hop_2480-PASS



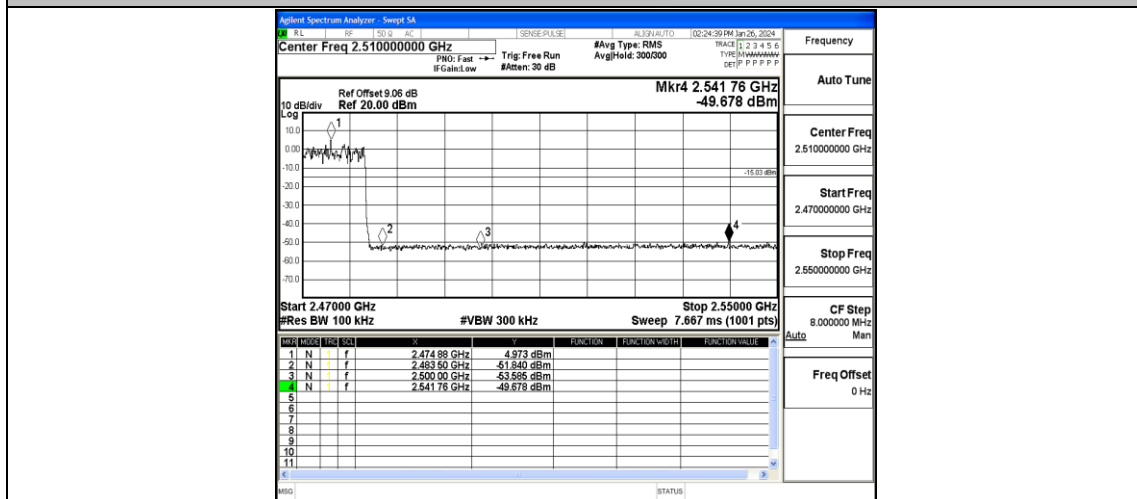
3DH5-Ant1-2402-PASS



3DH5-Ant1-2480-PASS



3DH5-Ant1-Hop_2402-PASS



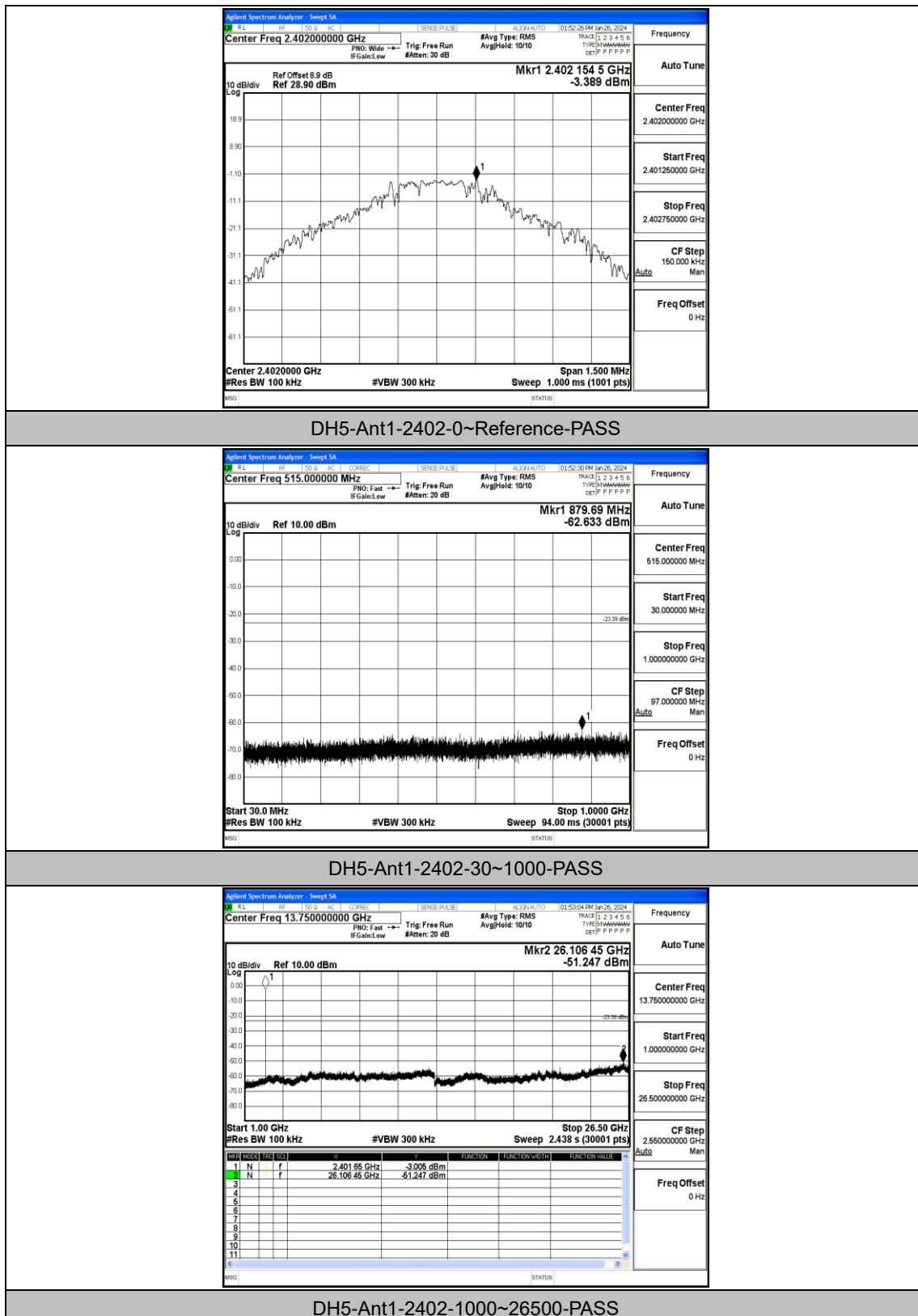
3DH5-Ant1-Hop_2480-PASS

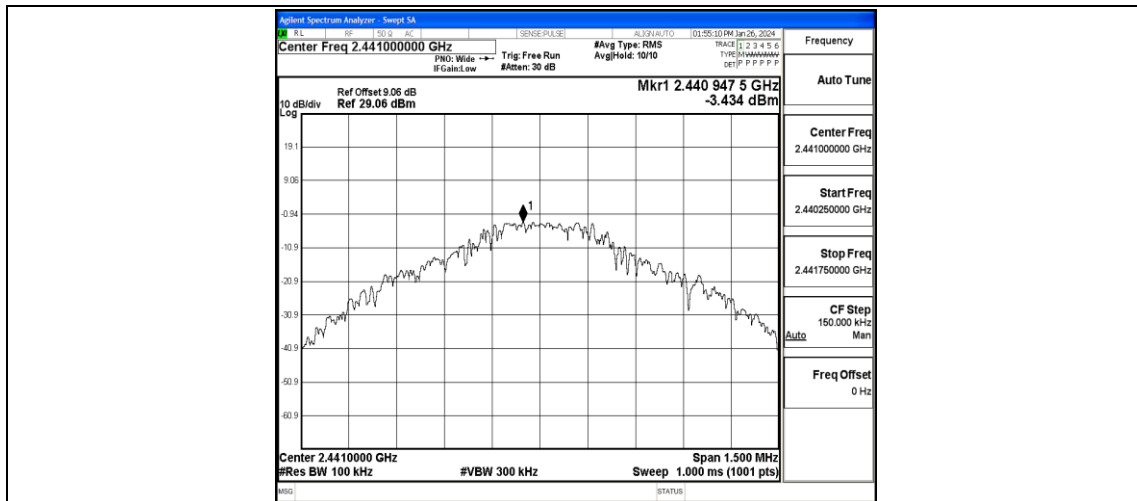
Appendix H: Conducted Spurious Emission

Test Result

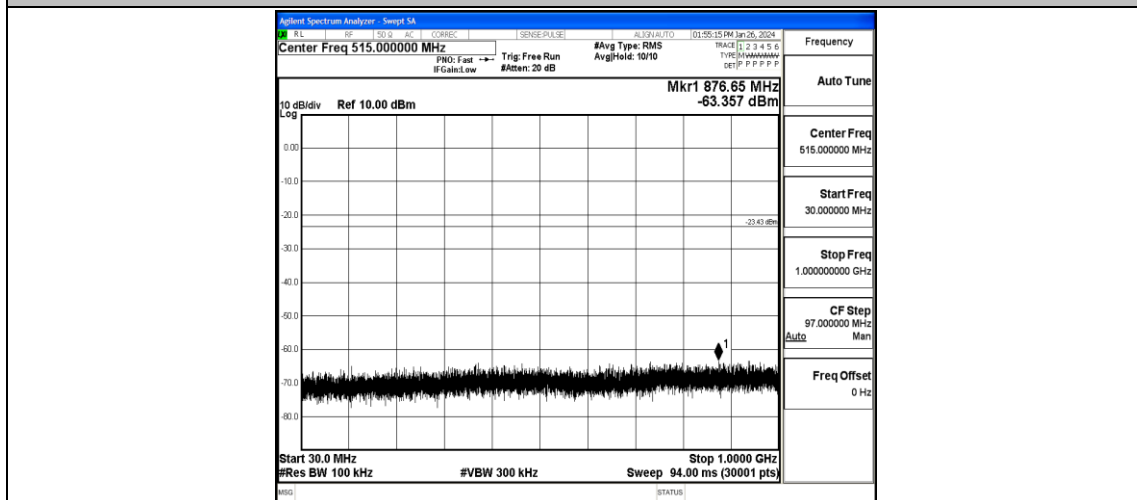
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	-3.39	-3.39	---	PASS
DH5	Ant1	2402	30~1000	-3.39	-62.63	≤-23.39	PASS
DH5	Ant1	2402	1000~26500	-3.39	-51.25	≤-23.39	PASS
DH5	Ant1	2441	0~Reference	-3.43	-3.43	---	PASS
DH5	Ant1	2441	30~1000	-3.43	-63.36	≤-23.43	PASS
DH5	Ant1	2441	1000~26500	-3.43	-51.57	≤-23.43	PASS
DH5	Ant1	2480	0~Reference	-3.28	-3.28	---	PASS
DH5	Ant1	2480	30~1000	-3.28	-63.03	≤-23.28	PASS
DH5	Ant1	2480	1000~26500	-3.28	-50.73	≤-23.28	PASS
2DH5	Ant1	2402	0~Reference	-0.68	-0.68	---	PASS
2DH5	Ant1	2402	30~1000	-0.68	-63.08	≤-20.68	PASS
2DH5	Ant1	2402	1000~26500	-0.68	-51.4	≤-20.68	PASS
2DH5	Ant1	2441	0~Reference	-3.76	-3.76	---	PASS
2DH5	Ant1	2441	30~1000	-3.76	-62.82	≤-23.76	PASS
2DH5	Ant1	2441	1000~26500	-3.76	-50.79	≤-23.76	PASS
2DH5	Ant1	2480	0~Reference	-4.20	-4.20	---	PASS
2DH5	Ant1	2480	30~1000	-4.20	-62.9	≤-24.2	PASS
2DH5	Ant1	2480	1000~26500	-4.20	-51.34	≤-24.2	PASS
3DH5	Ant1	2402	0~Reference	-3.36	-3.36	---	PASS
3DH5	Ant1	2402	30~1000	-3.36	-63.03	≤-23.36	PASS
3DH5	Ant1	2402	1000~26500	-3.36	-51.18	≤-23.36	PASS
3DH5	Ant1	2441	0~Reference	-1.78	-1.78	---	PASS
3DH5	Ant1	2441	30~1000	-1.78	-63.28	≤-21.78	PASS
3DH5	Ant1	2441	1000~26500	-1.78	-50.69	≤-21.78	PASS
3DH5	Ant1	2480	0~Reference	-3.76	-3.76	---	PASS
3DH5	Ant1	2480	30~1000	-3.76	-62.64	≤-23.76	PASS
3DH5	Ant1	2480	1000~26500	-3.76	-51.54	≤-23.76	PASS

Test Graphs

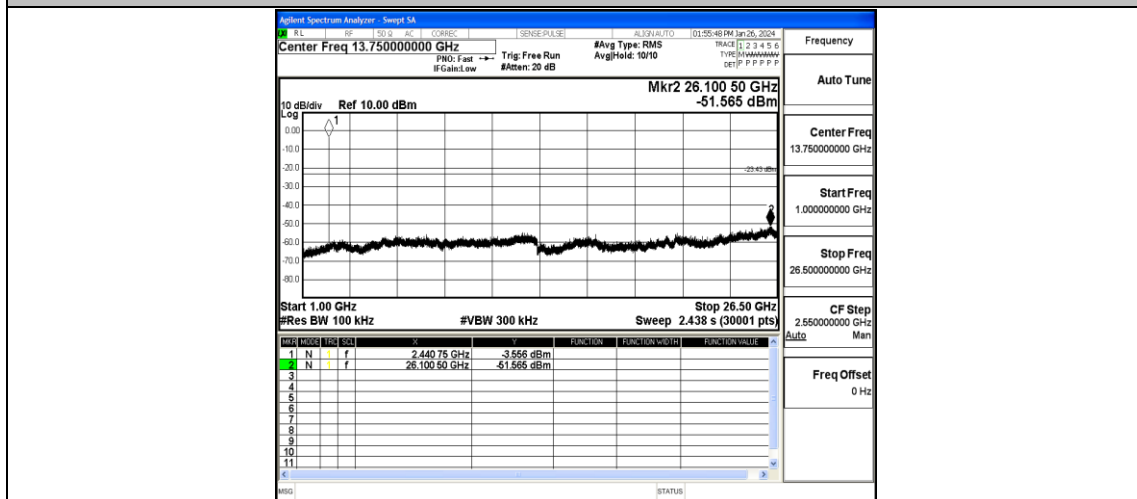




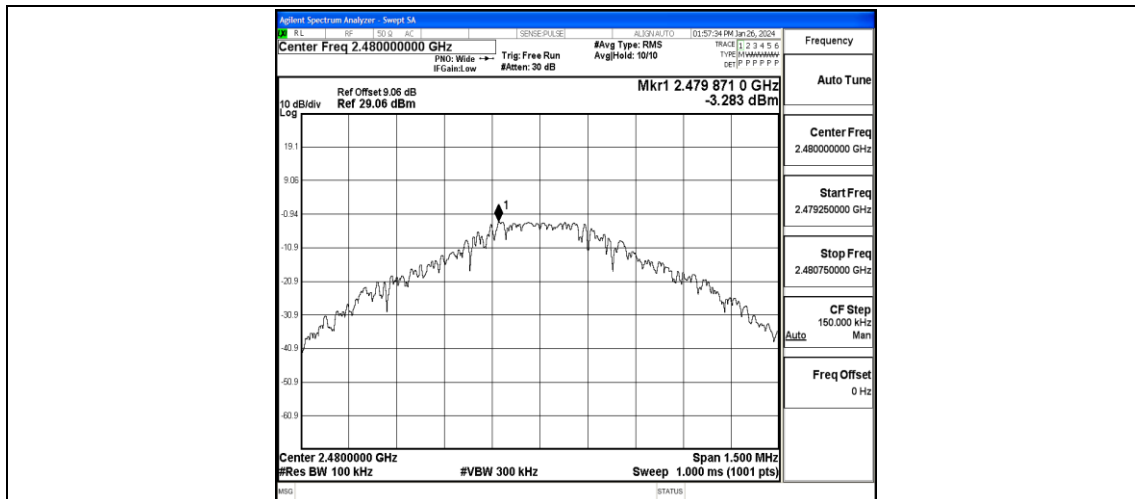
DH5-Ant1-2441-0~Reference-PASS



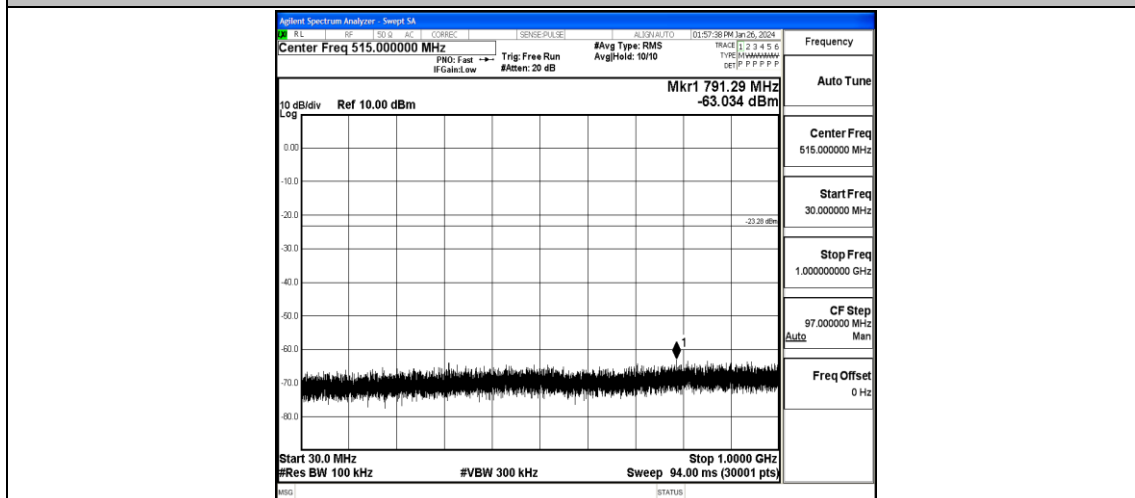
DH5-Ant1-2441-30~1000-PASS



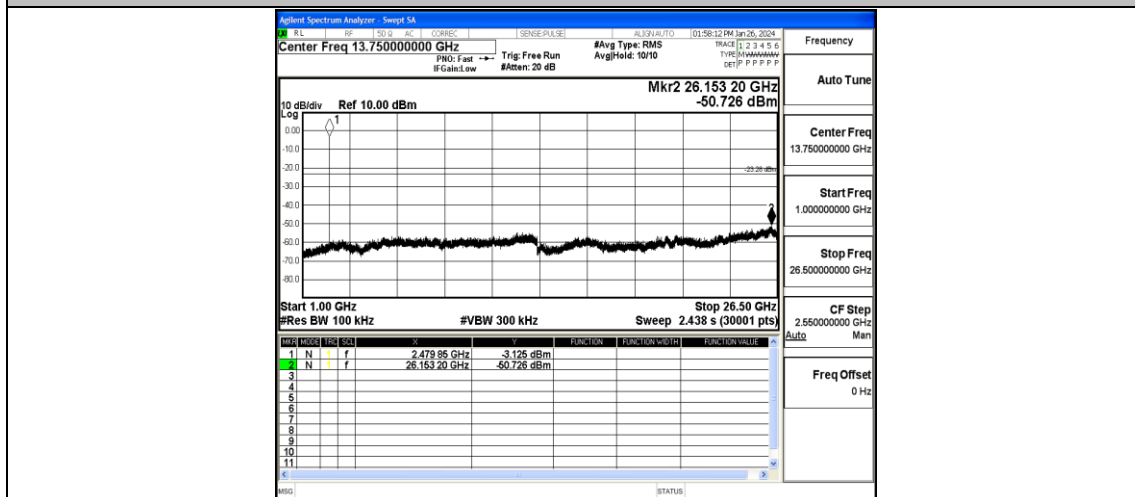
DH5-Ant1-2441-1000~26500-PASS



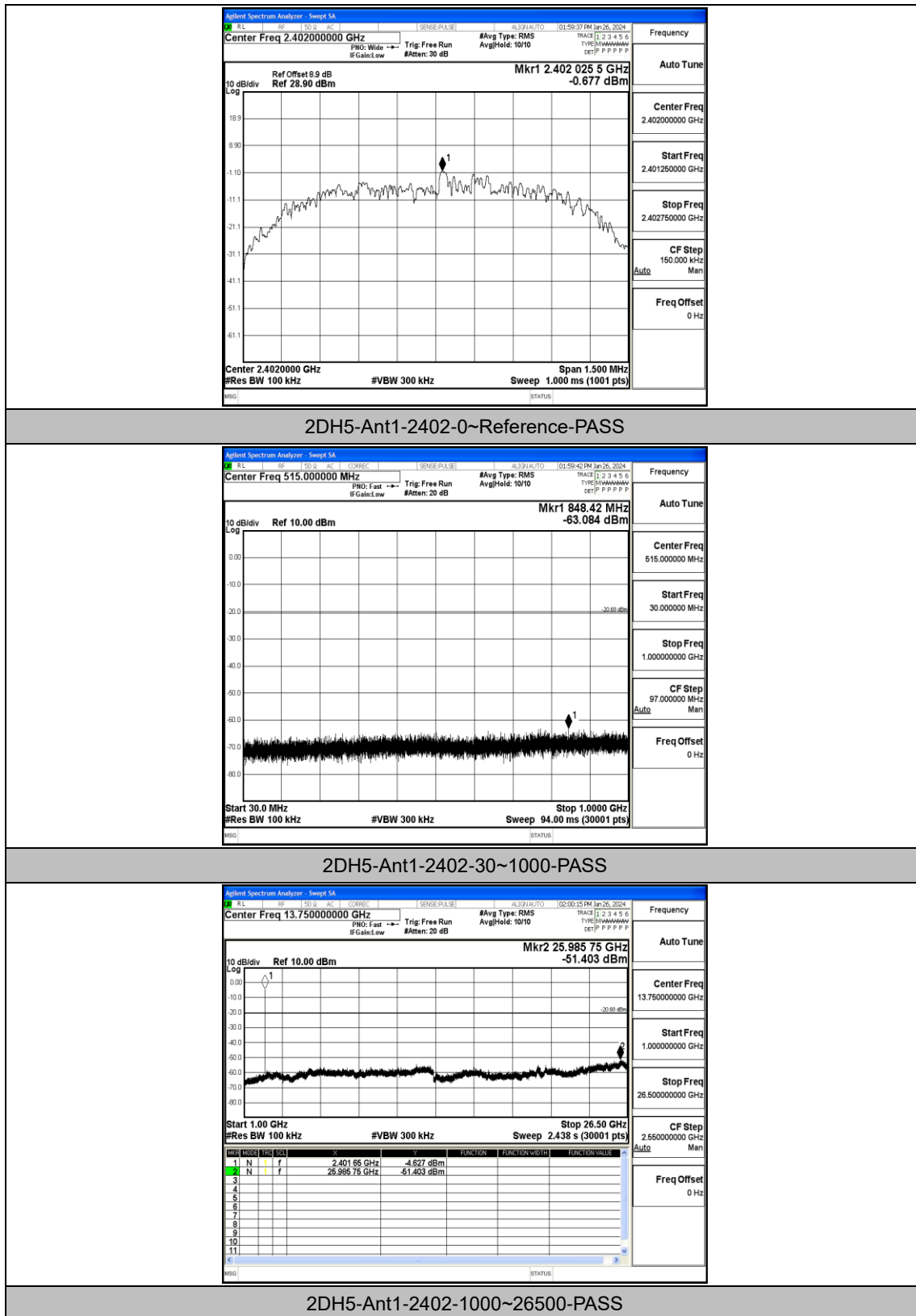
DH5-Ant1-2480-0~Reference-PASS

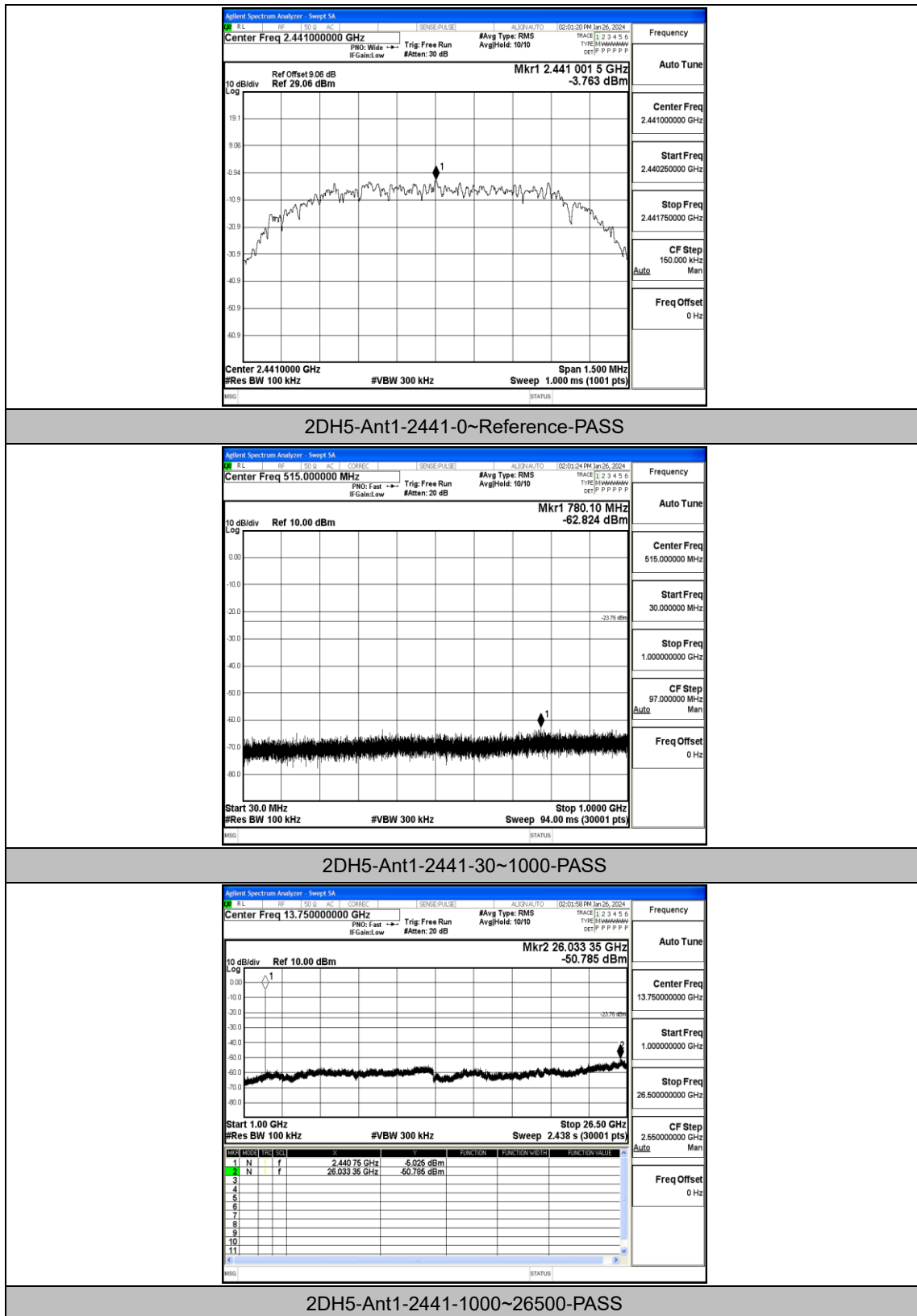


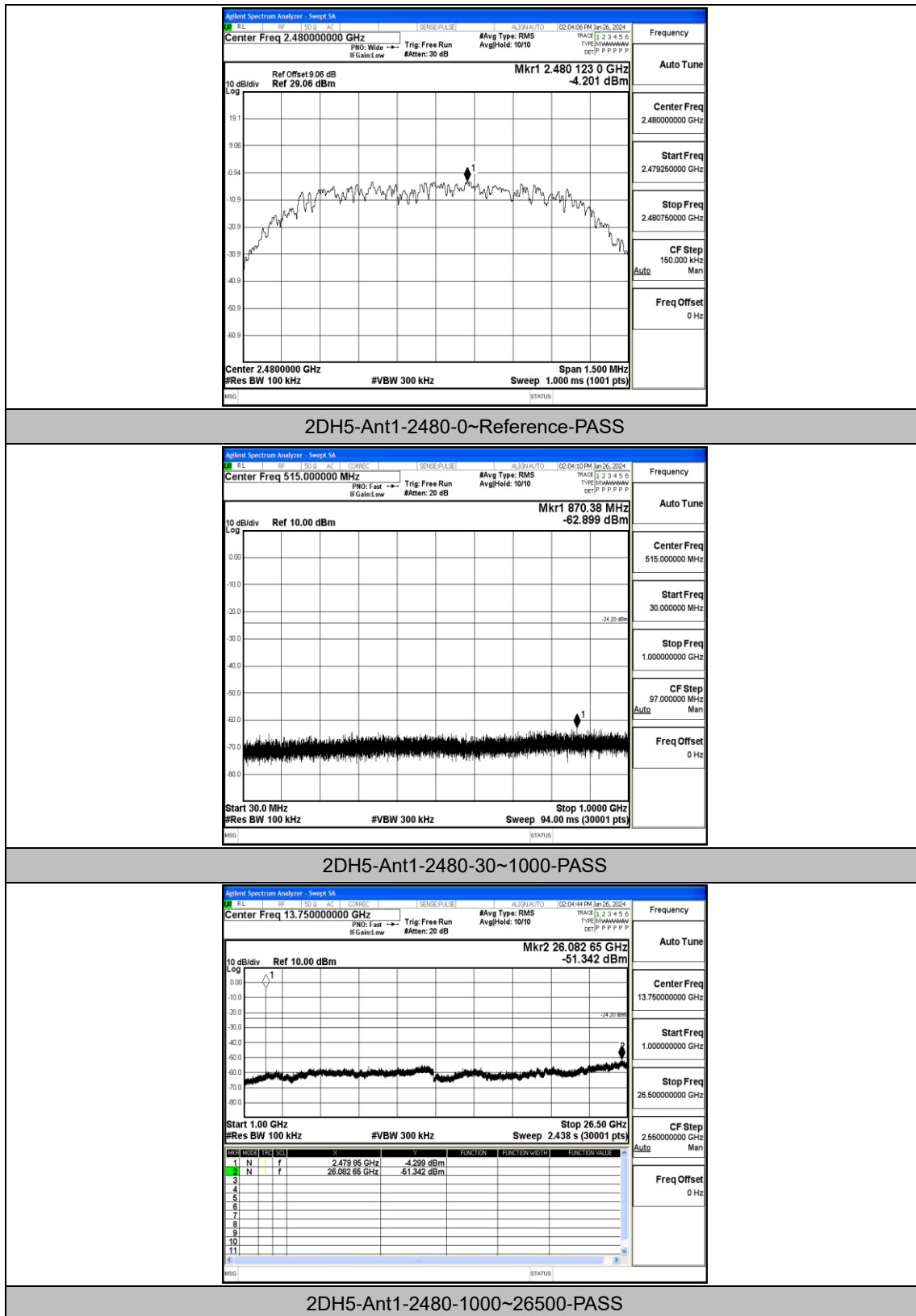
DH5-Ant1-2480-30~1000-PASS

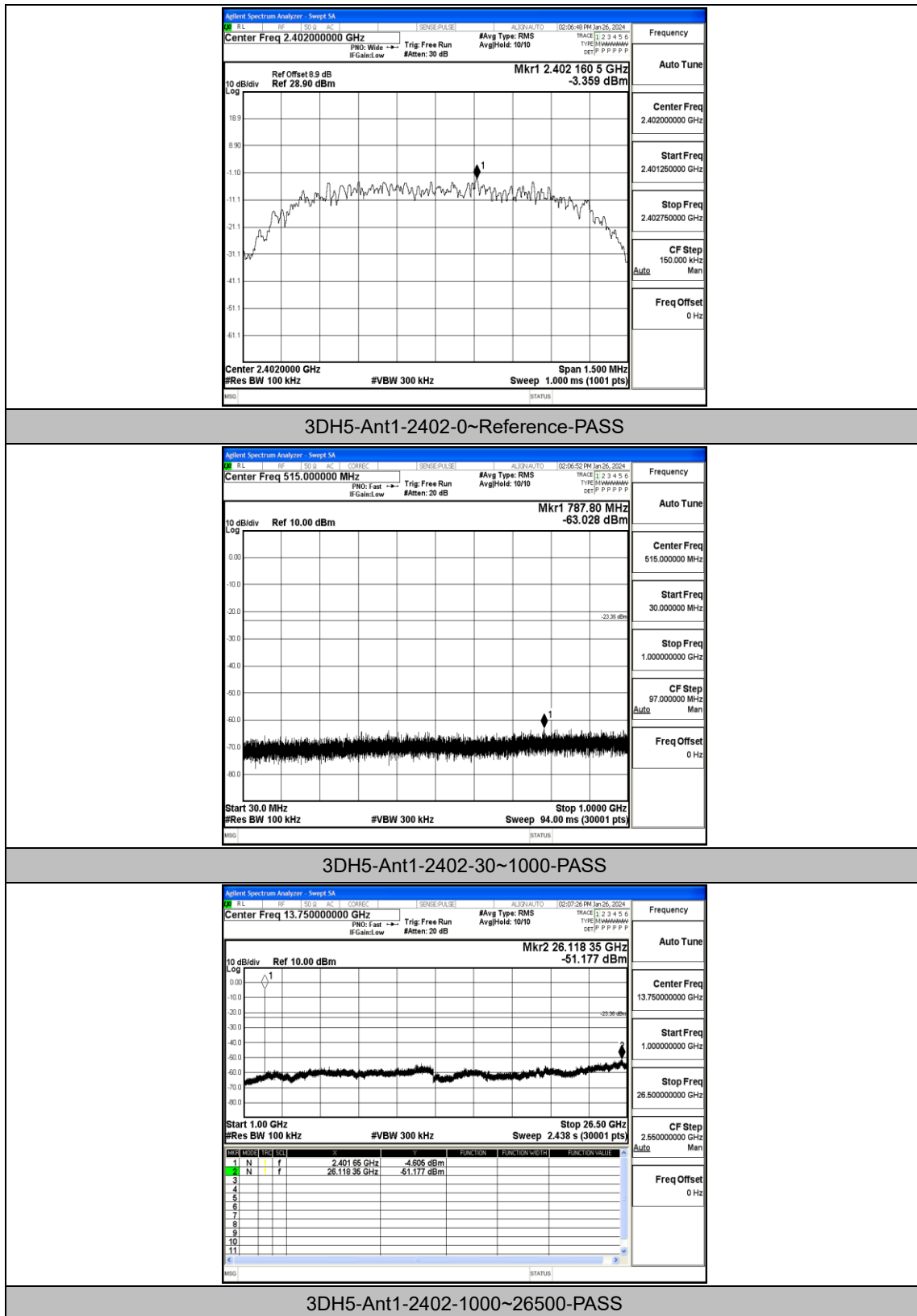


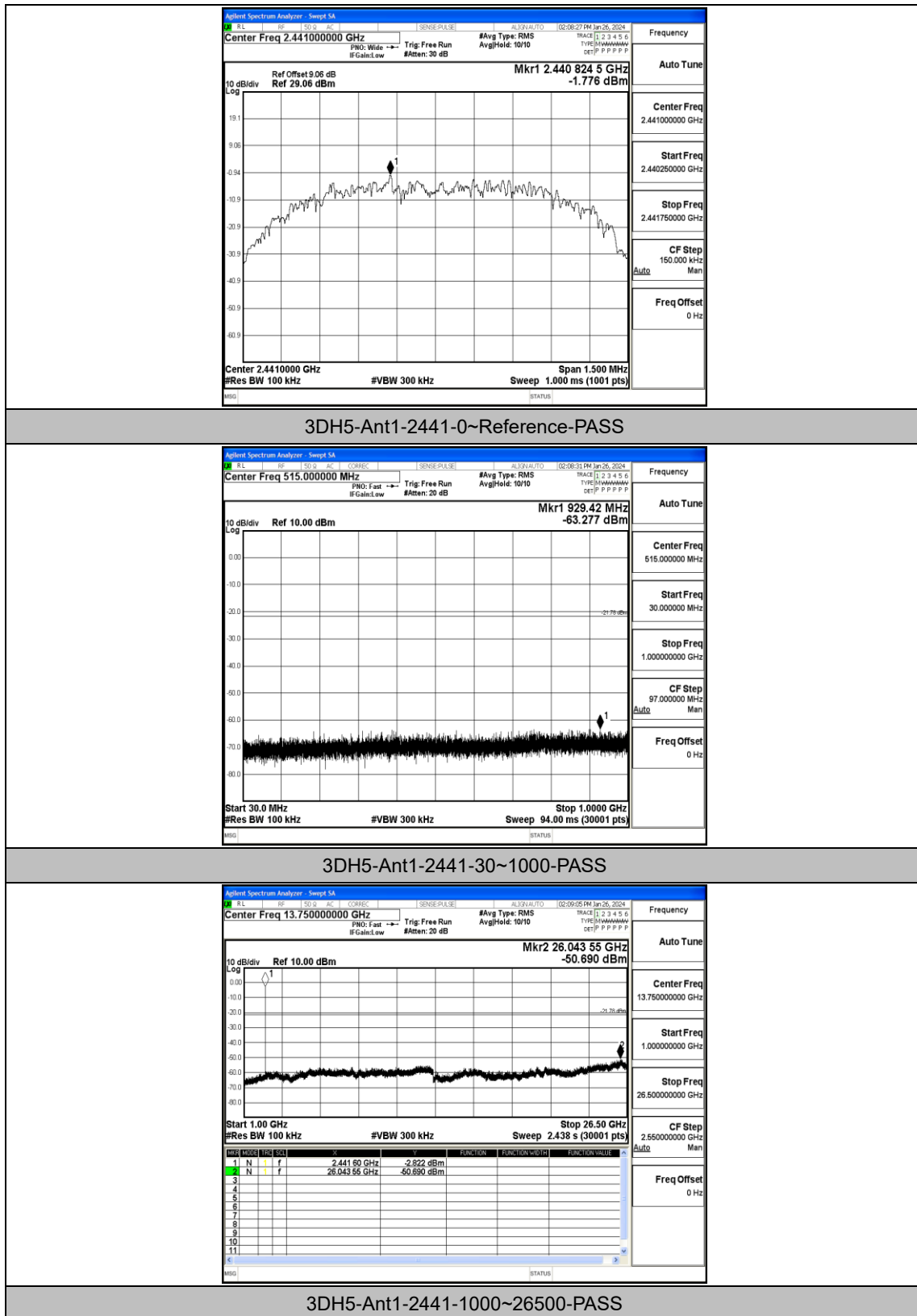
DH5-Ant1-2480-1000~26500-PASS

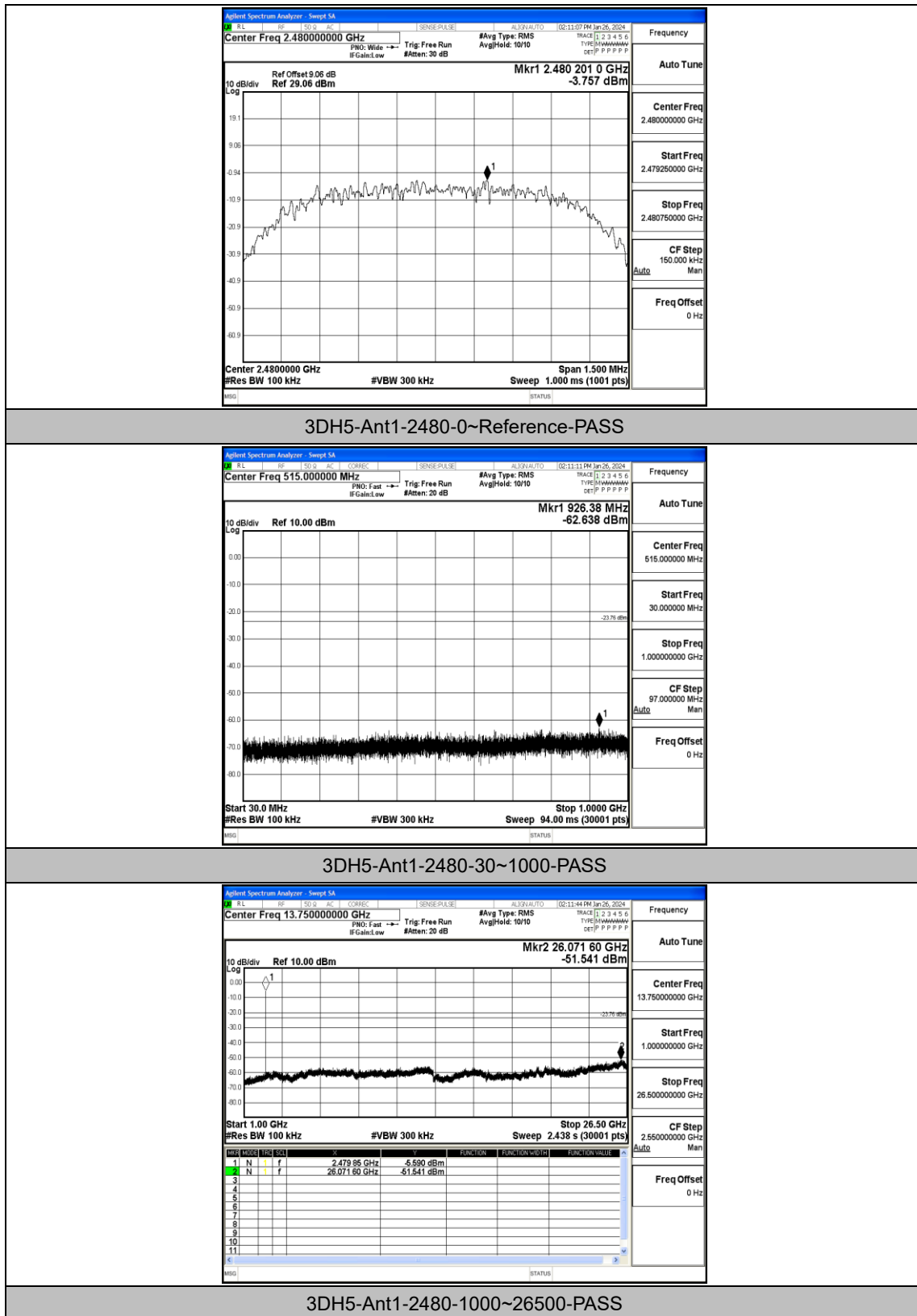










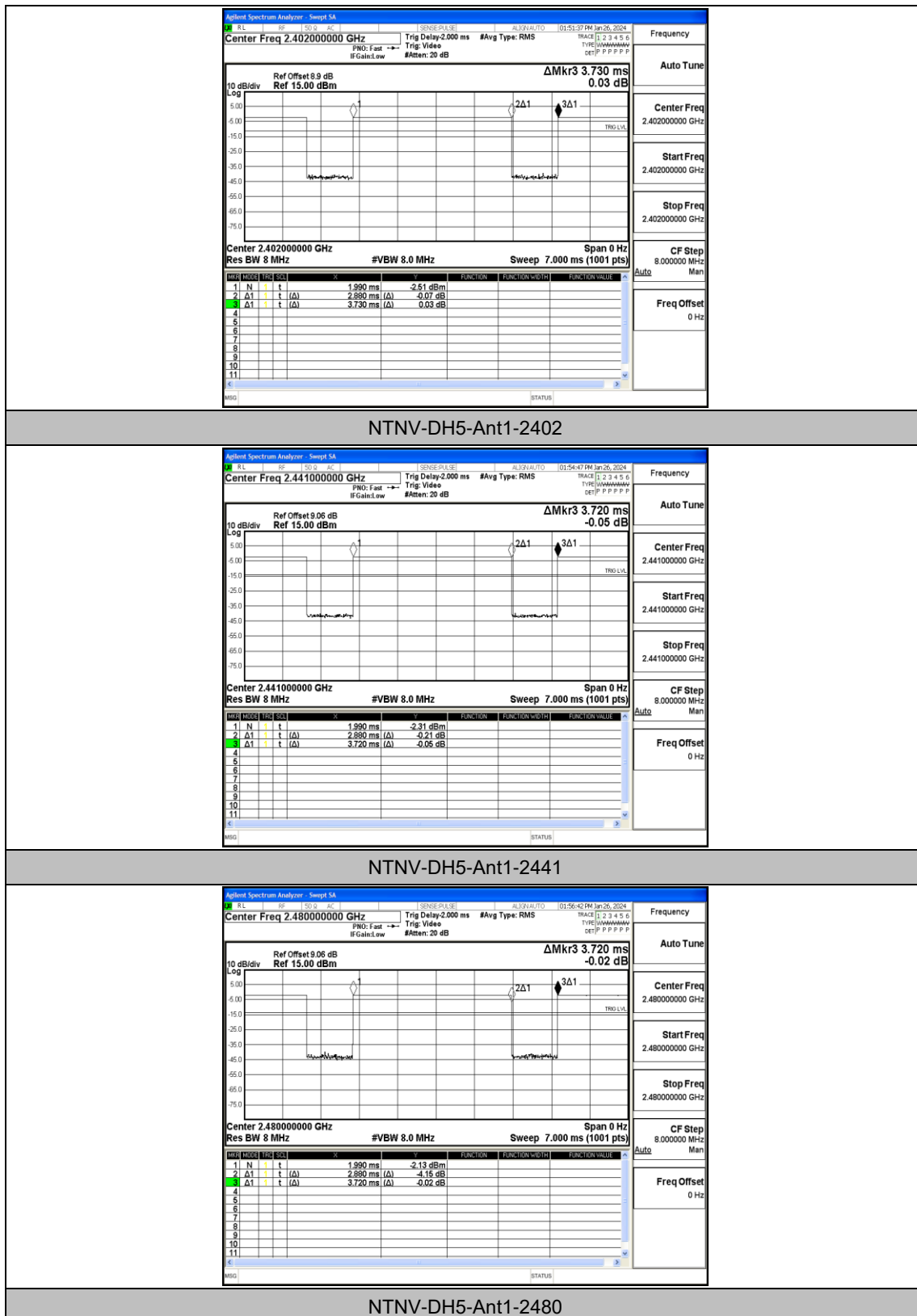


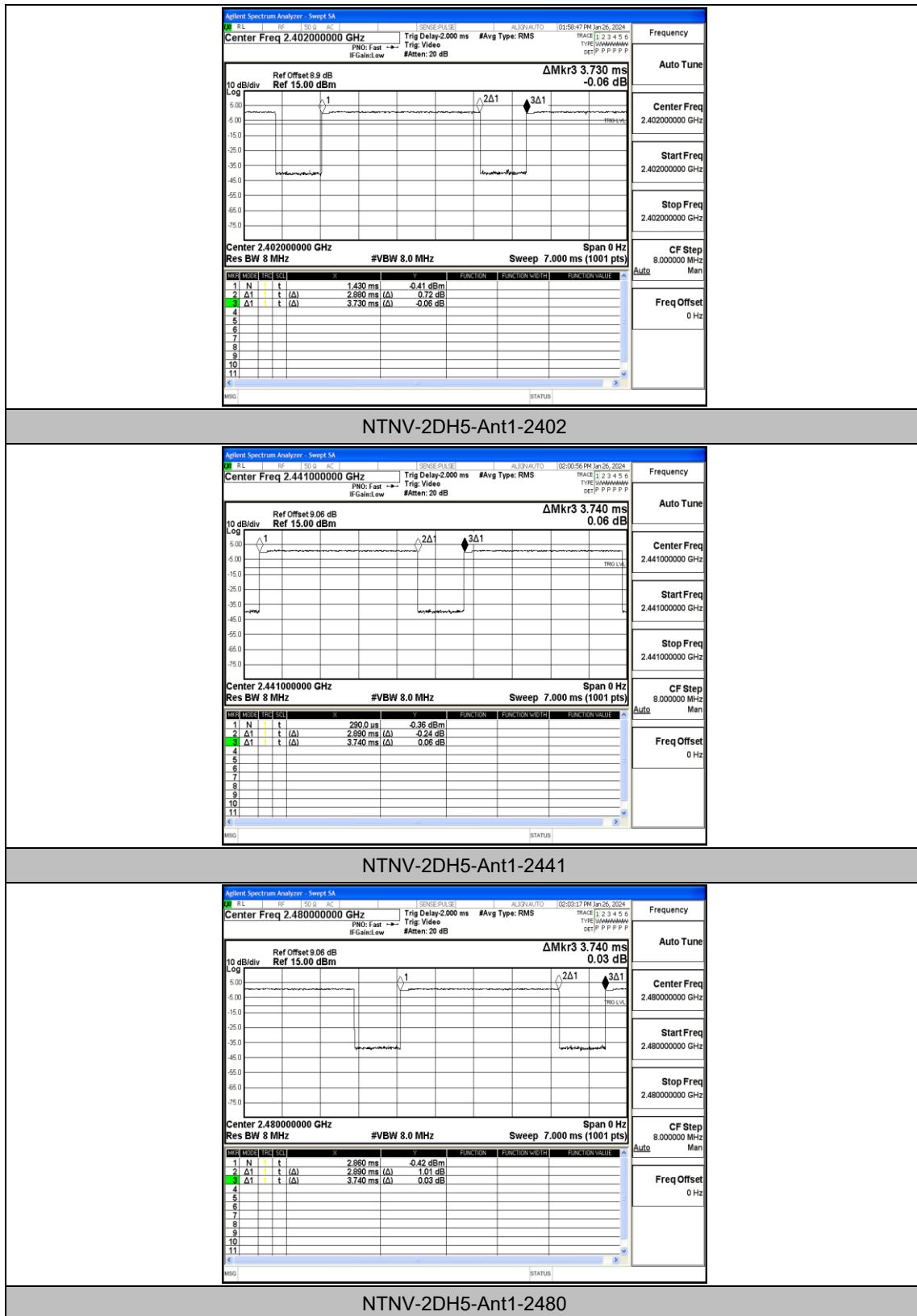
Appendix I: Duty Cycle

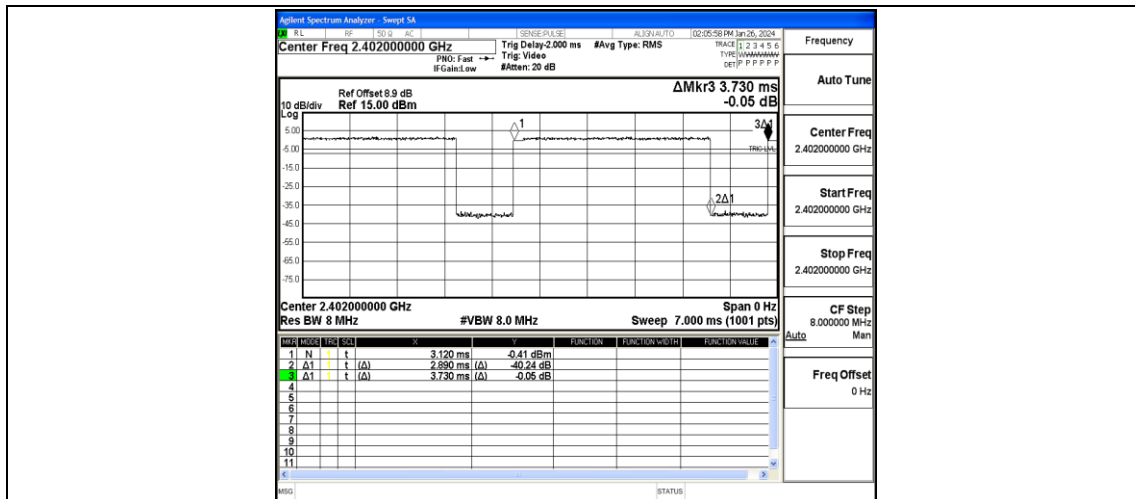
Test Result

TestMode	Antenna	Frequency[MHz]	ON Time[ms]	Period[ms]	Duty Cycle[%]	Duty Cycle Factor[dB]
DH5	Ant1	2402	2.88	3.73	77.21	1.12
DH5	Ant1	2441	2.88	3.72	77.42	1.11
DH5	Ant1	2480	2.88	3.72	77.42	1.11
2DH5	Ant1	2402	2.88	3.73	77.21	1.12
2DH5	Ant1	2441	2.89	3.74	77.27	1.12
2DH5	Ant1	2480	2.89	3.74	77.27	1.12
3DH5	Ant1	2402	2.89	3.73	77.48	1.11
3DH5	Ant1	2441	2.90	3.75	77.33	1.12
3DH5	Ant1	2480	2.89	3.73	77.48	1.11

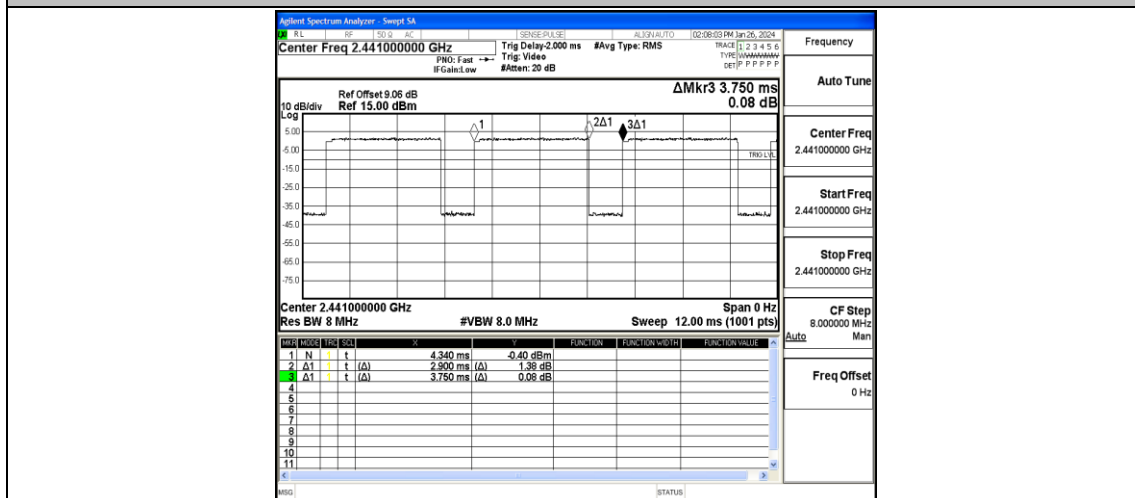
Test Graphs



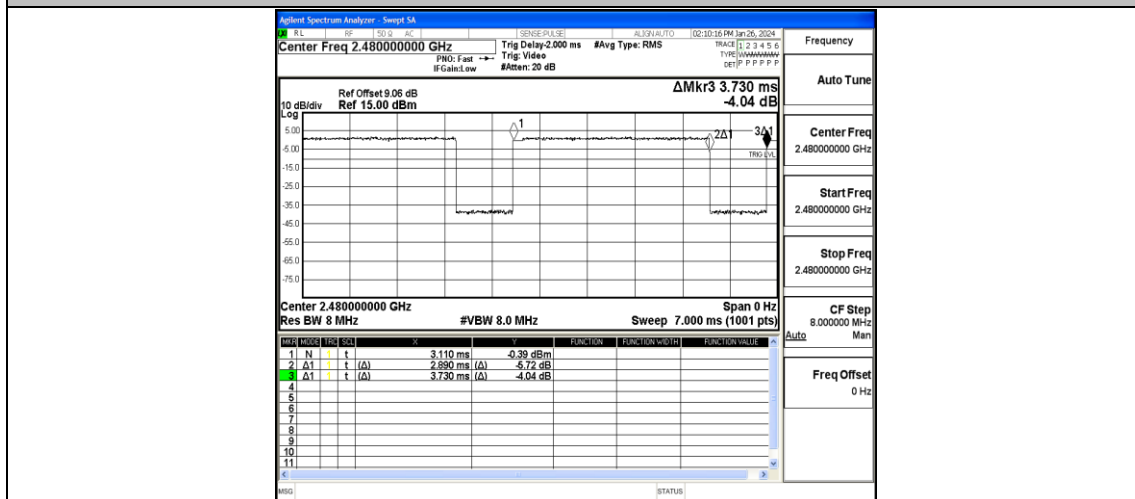




NTNV-3DH5-Ant1-2402



NTNV-3DH5-Ant1-2441



NTNV-3DH5-Ant1-2480

Appendix J: Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	Peak	2390.000	-39.54	≤-21.20	55.66	≤74	PASS
DH5	Ant1	Low	2402	Peak	2310.000	-39.39	≤-21.20	55.81	≤74	PASS
DH5	Ant1	Low	2402	Peak	2389.775	-36.79	≤-21.20	58.41	≤74	PASS
DH5	Ant1	Low	2402	AV	2390.000	-46.41	≤-41.20	48.79	≤54	PASS
DH5	Ant1	Low	2402	AV	2310.000	-46.93	≤-41.20	48.27	≤54	PASS
DH5	Ant1	Low	2402	AV	2314.070	-45.87	≤-41.20	49.33	≤54	PASS
DH5	Ant1	High	2480	Peak	2483.500	-40.55	≤-21.20	54.65	≤74	PASS
DH5	Ant1	High	2480	Peak	2500.000	-39.92	≤-21.20	55.28	≤74	PASS
DH5	Ant1	High	2480	Peak	2497.840	-35.31	≤-21.20	59.89	≤74	PASS
DH5	Ant1	High	2480	AV	2483.500	-45.95	≤-41.20	49.25	≤54	PASS
DH5	Ant1	High	2480	AV	2500.000	-45.78	≤-41.20	49.42	≤54	PASS
DH5	Ant1	High	2480	AV	2487.920	-45.17	≤-41.20	50.03	≤54	PASS
2DH5	Ant1	Low	2402	Peak	2390.000	-39.27	≤-21.20	55.93	≤74	PASS
2DH5	Ant1	Low	2402	Peak	2310.000	-39.24	≤-21.20	55.96	≤74	PASS
2DH5	Ant1	Low	2402	Peak	2339.480	-36.86	≤-21.20	58.34	≤74	PASS
2DH5	Ant1	Low	2402	AV	2390.000	-46.15	≤-41.20	49.05	≤54	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-47.08	≤-41.20	48.12	≤54	PASS
2DH5	Ant1	Low	2402	AV	2385.155	-45.66	≤-41.20	49.54	≤54	PASS
2DH5	Ant1	High	2480	Peak	2483.500	-38.66	≤-21.20	56.54	≤74	PASS
2DH5	Ant1	High	2480	Peak	2500.000	-40.45	≤-21.20	54.75	≤74	PASS
2DH5	Ant1	High	2480	Peak	2489.920	-35.27	≤-21.20	59.93	≤74	PASS
2DH5	Ant1	High	2480	AV	2483.500	-46.26	≤-41.20	48.94	≤54	PASS
2DH5	Ant1	High	2480	AV	2500.000	-46.2	≤-41.20	49.00	≤54	PASS
2DH5	Ant1	High	2480	AV	2498.960	-45.13	≤-41.20	50.07	≤54	PASS
3DH5	Ant1	Low	2402	Peak	2390.000	-39.67	≤-21.20	55.53	≤74	PASS
3DH5	Ant1	Low	2402	Peak	2310.000	-38.38	≤-21.20	56.82	≤74	PASS
3DH5	Ant1	Low	2402	Peak	2348.405	-36.3	≤-21.20	58.90	≤74	PASS
3DH5	Ant1	Low	2402	AV	2390.000	-46.49	≤-41.20	48.71	≤54	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-46.92	≤-41.20	48.28	≤54	PASS
3DH5	Ant1	Low	2402	AV	2380.850	-45.56	≤-41.20	49.64	≤54	PASS
3DH5	Ant1	High	2480	Peak	2483.500	-38.79	≤-21.20	56.41	≤74	PASS
3DH5	Ant1	High	2480	Peak	2500.000	-38.56	≤-21.20	56.64	≤74	PASS
3DH5	Ant1	High	2480	Peak	2490.880	-36.47	≤-21.20	58.73	≤74	PASS
3DH5	Ant1	High	2480	AV	2483.500	-45.63	≤-41.20	49.57	≤54	PASS
3DH5	Ant1	High	2480	AV	2500.000	-45.31	≤-41.20	49.89	≤54	PASS
3DH5	Ant1	High	2480	AV	2496.160	-44.94	≤-41.20	50.26	≤54	PASS

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.