

Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Wireless Earphone

Test Model: Neo 1a

Environmental Conditions

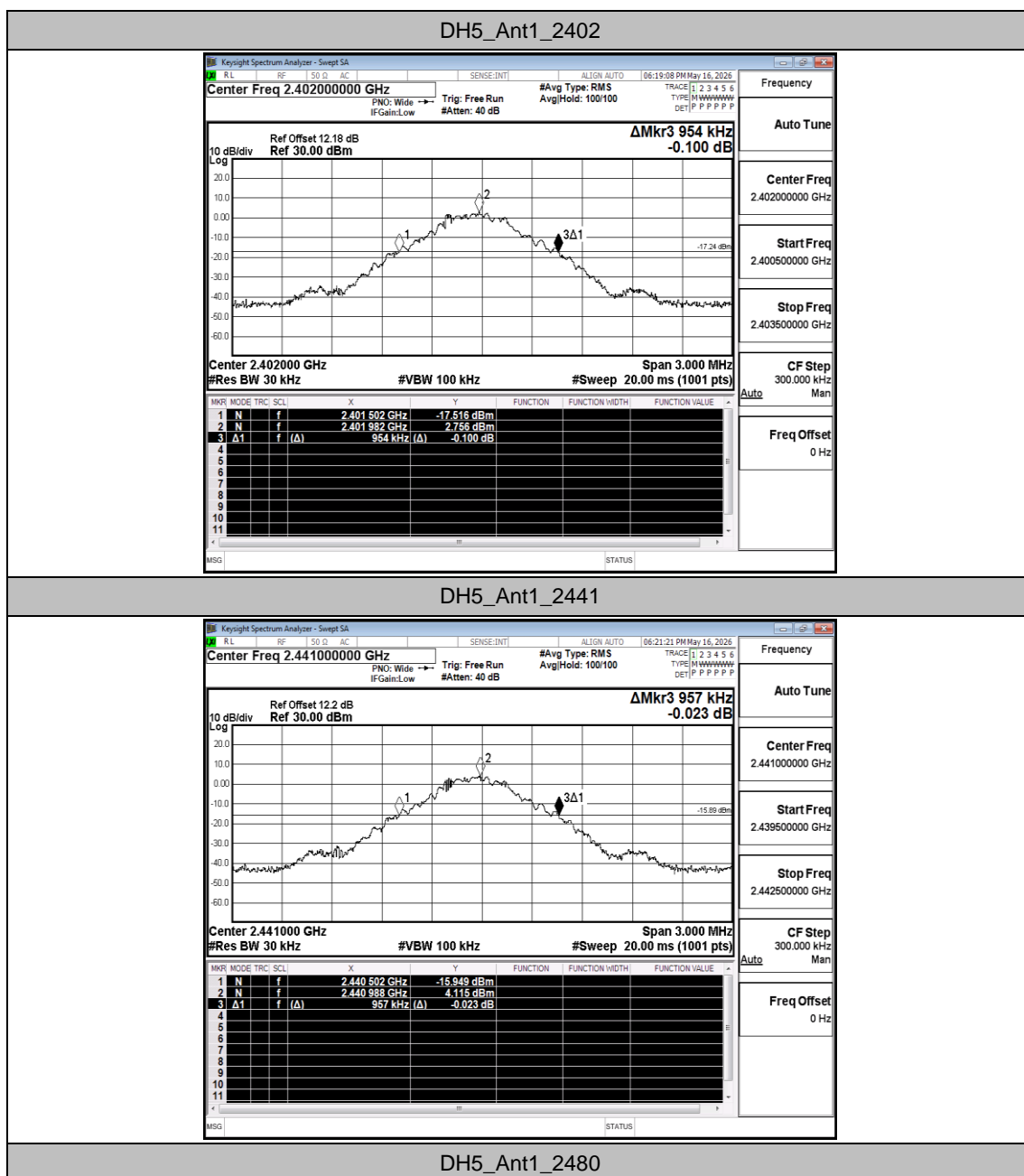
Temperature:	23.5°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

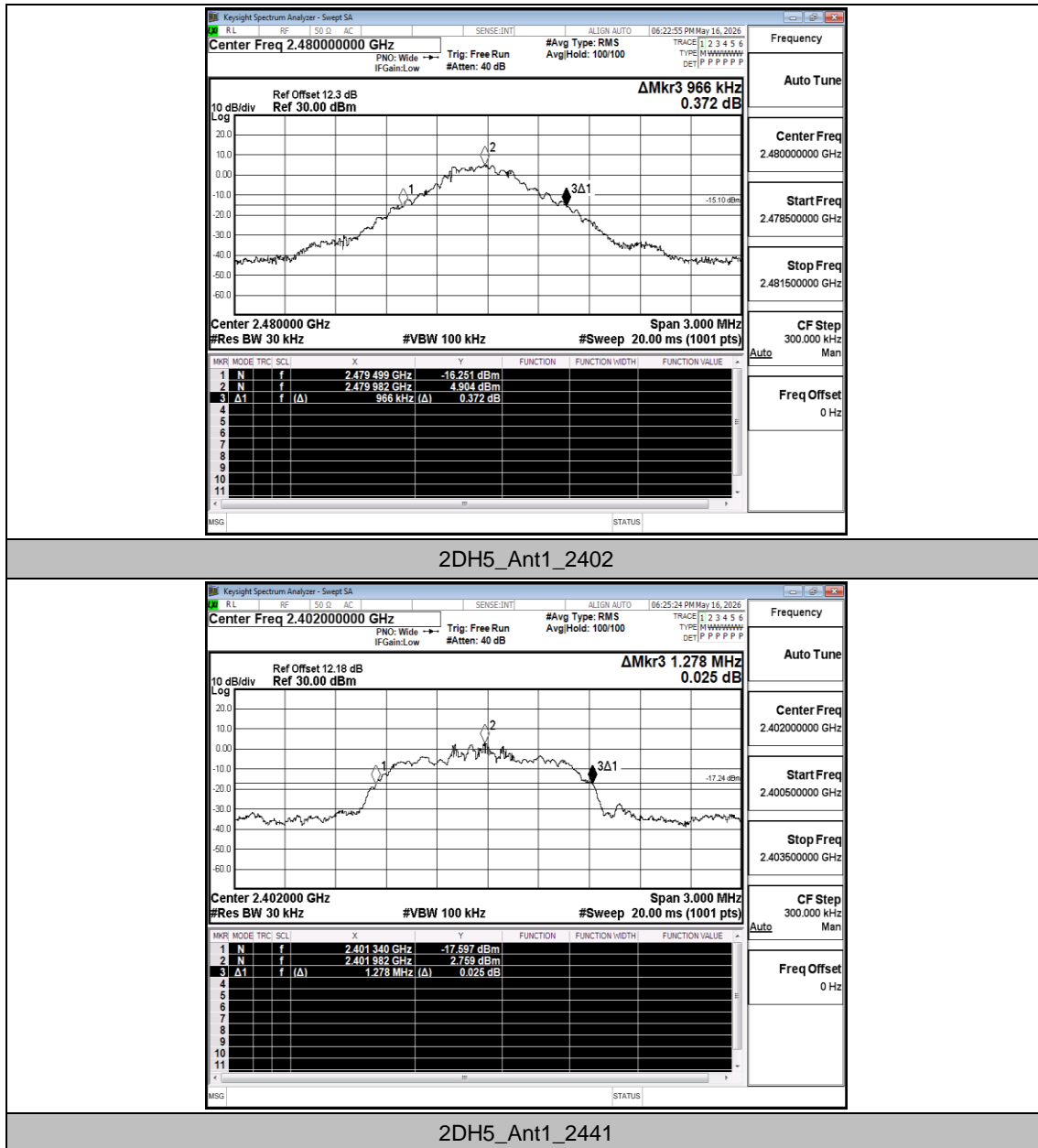
A.1 20dB Emission Bandwidth

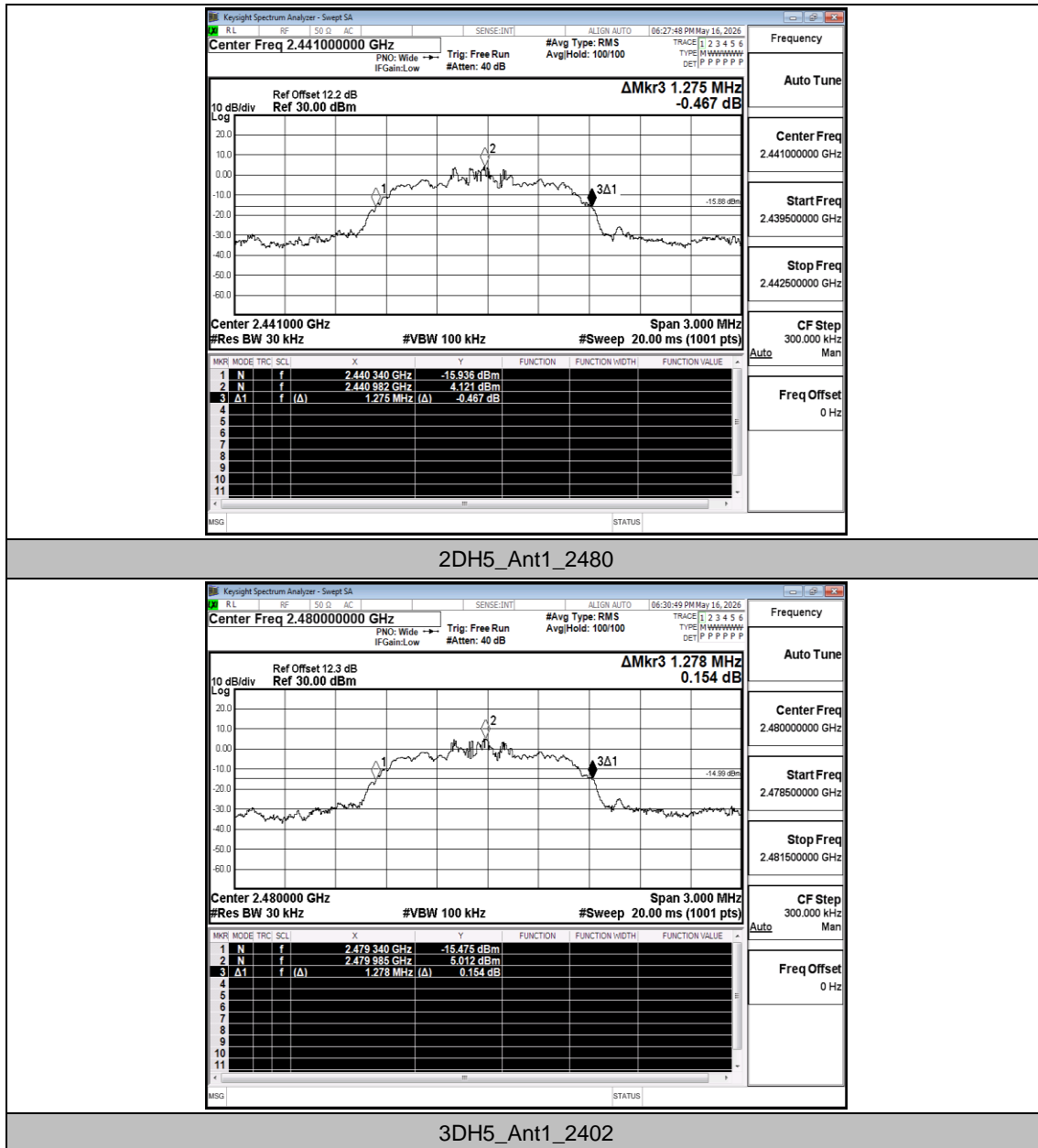
Test Result

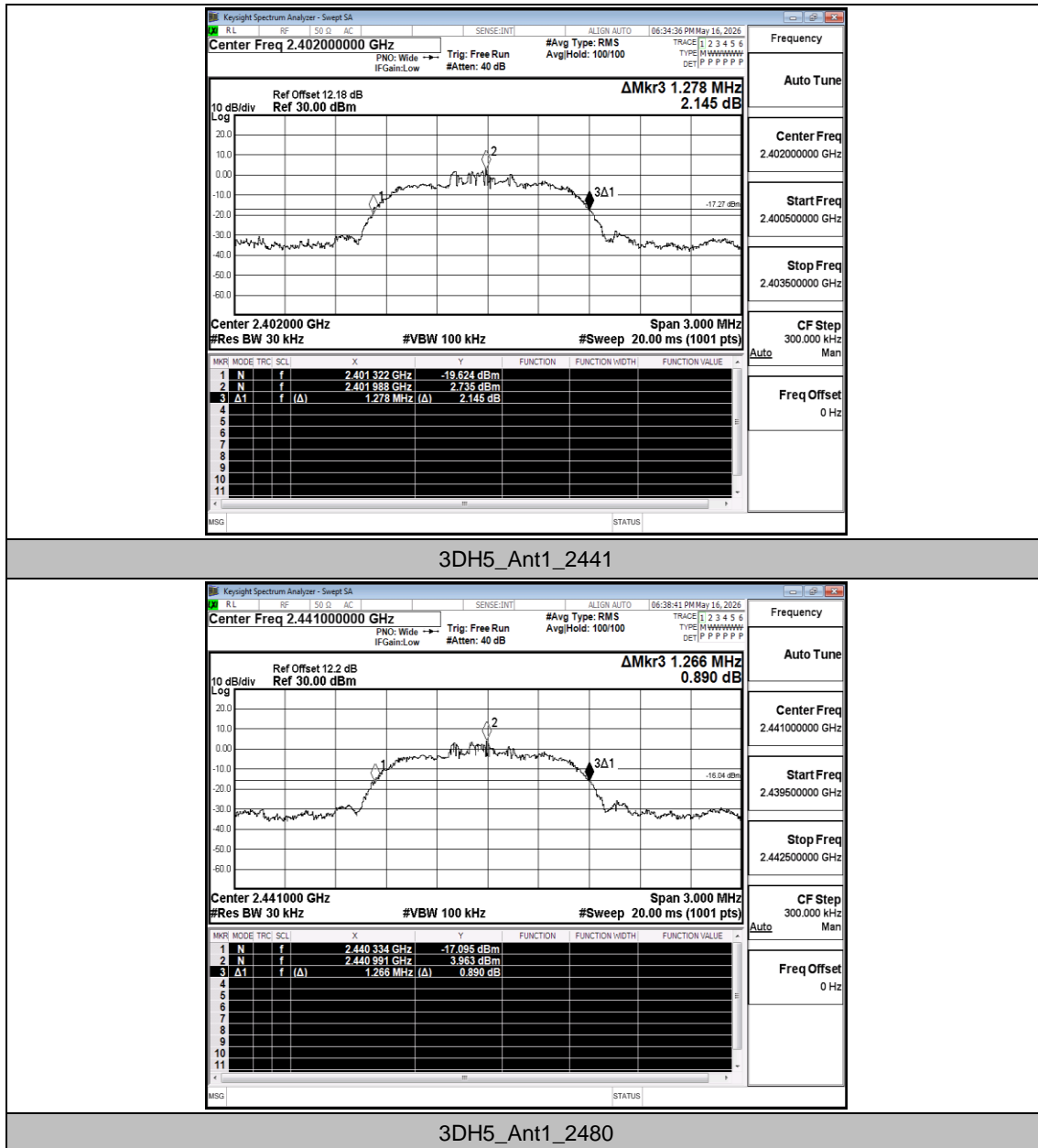
TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.954	2401.502	2402.456	---	---
		2441	0.957	2440.502	2441.459	---	---
		2480	0.966	2479.499	2480.465	---	---
2DH5	Ant1	2402	1.278	2401.340	2402.618	---	---
		2441	1.275	2440.340	2441.615	---	---
		2480	1.278	2479.340	2480.618	---	---
3DH5	Ant1	2402	1.278	2401.322	2402.600	---	---
		2441	1.266	2440.334	2441.600	---	---
		2480	1.275	2479.322	2480.597	---	---

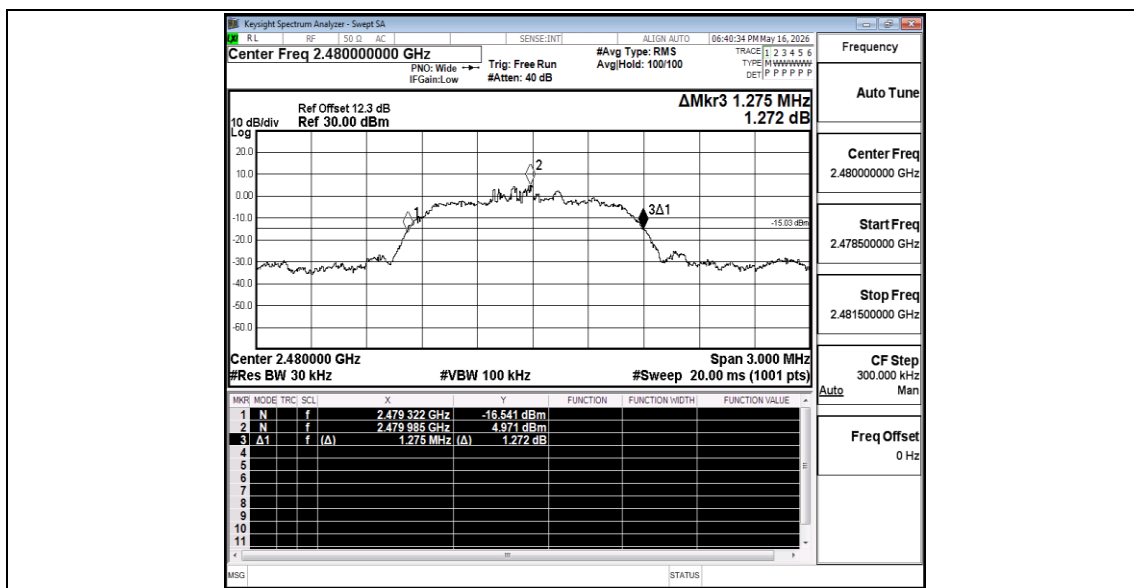
Test Graphs









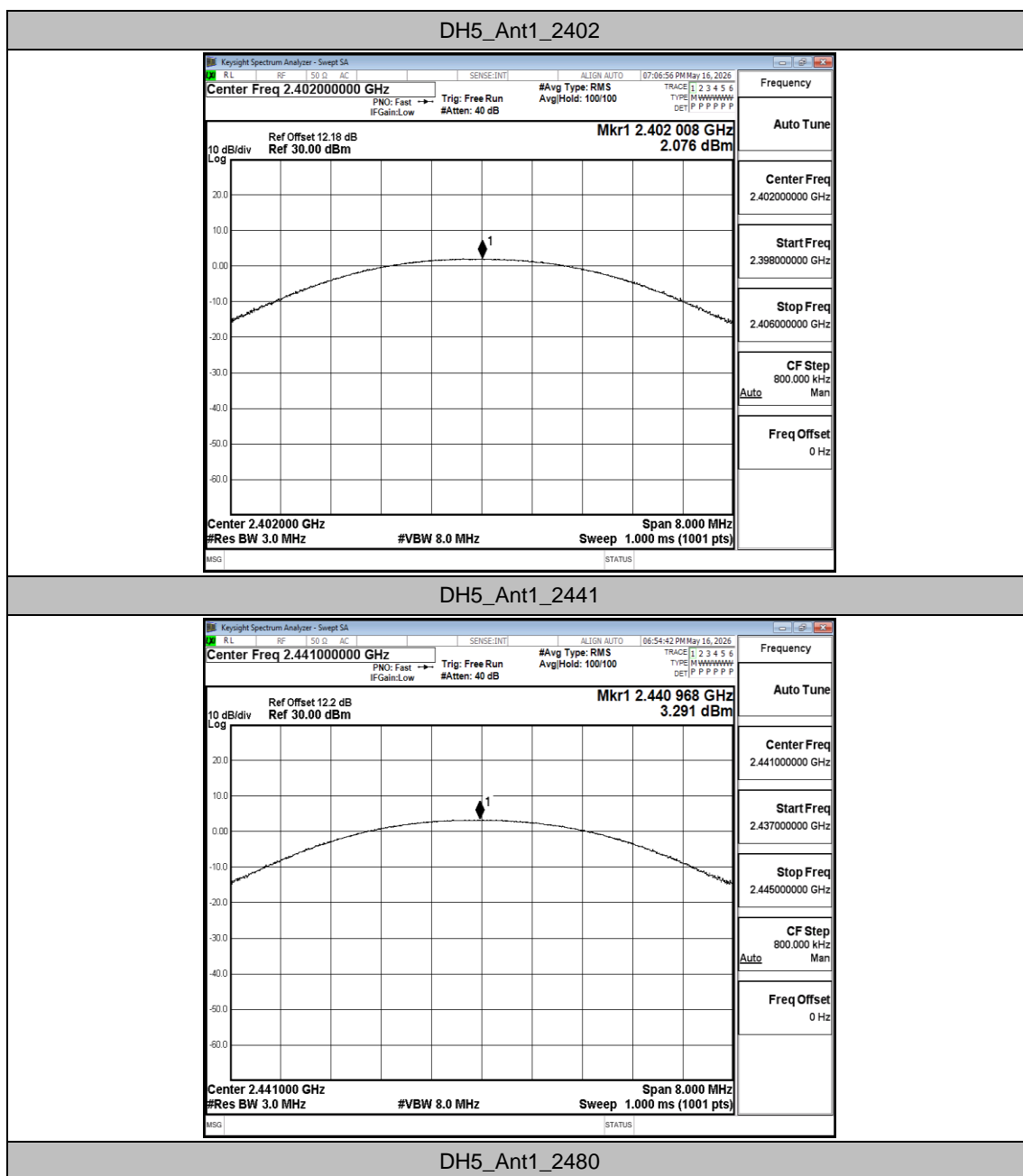


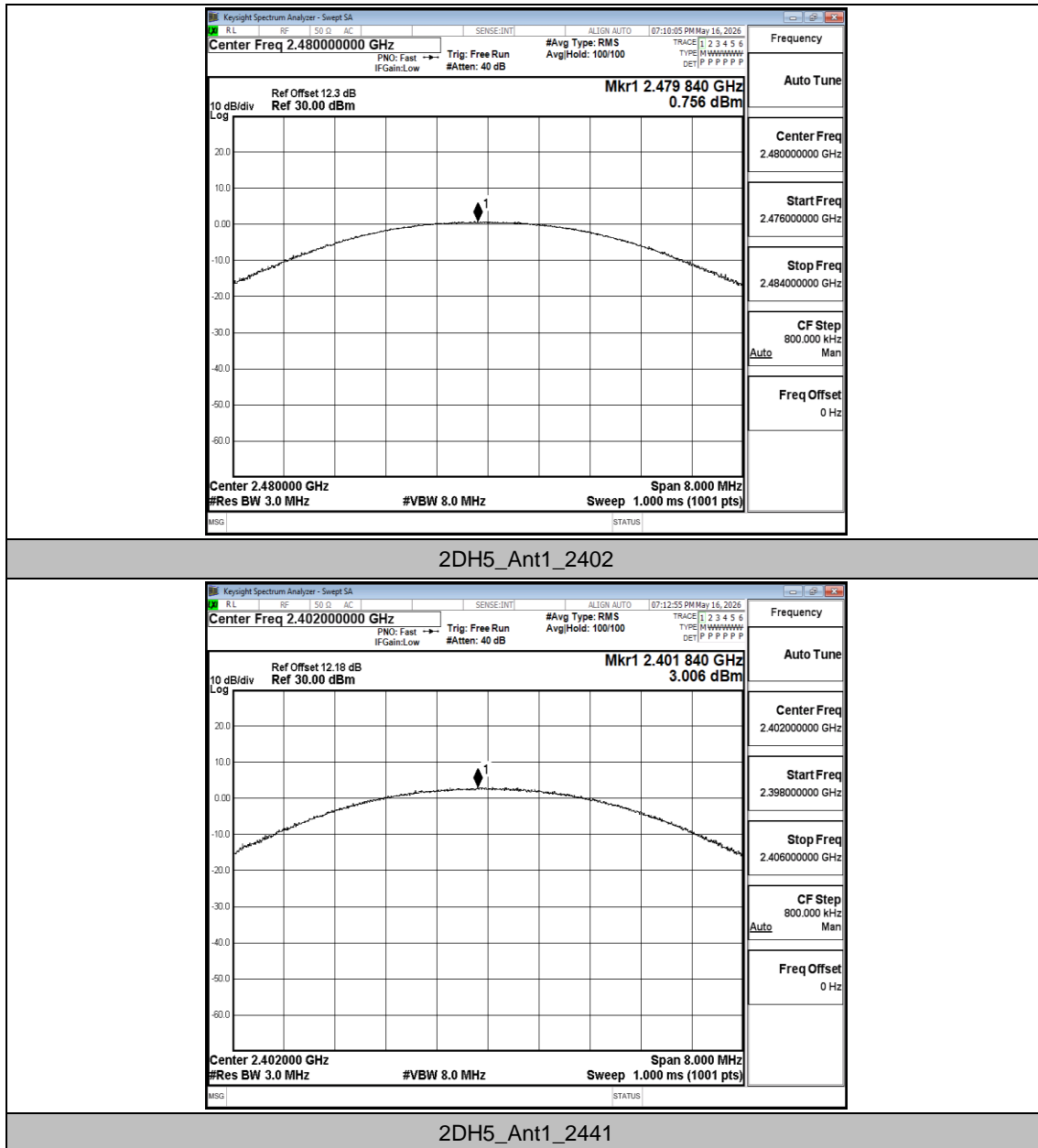
A.2 Maximum Peak conducted output power

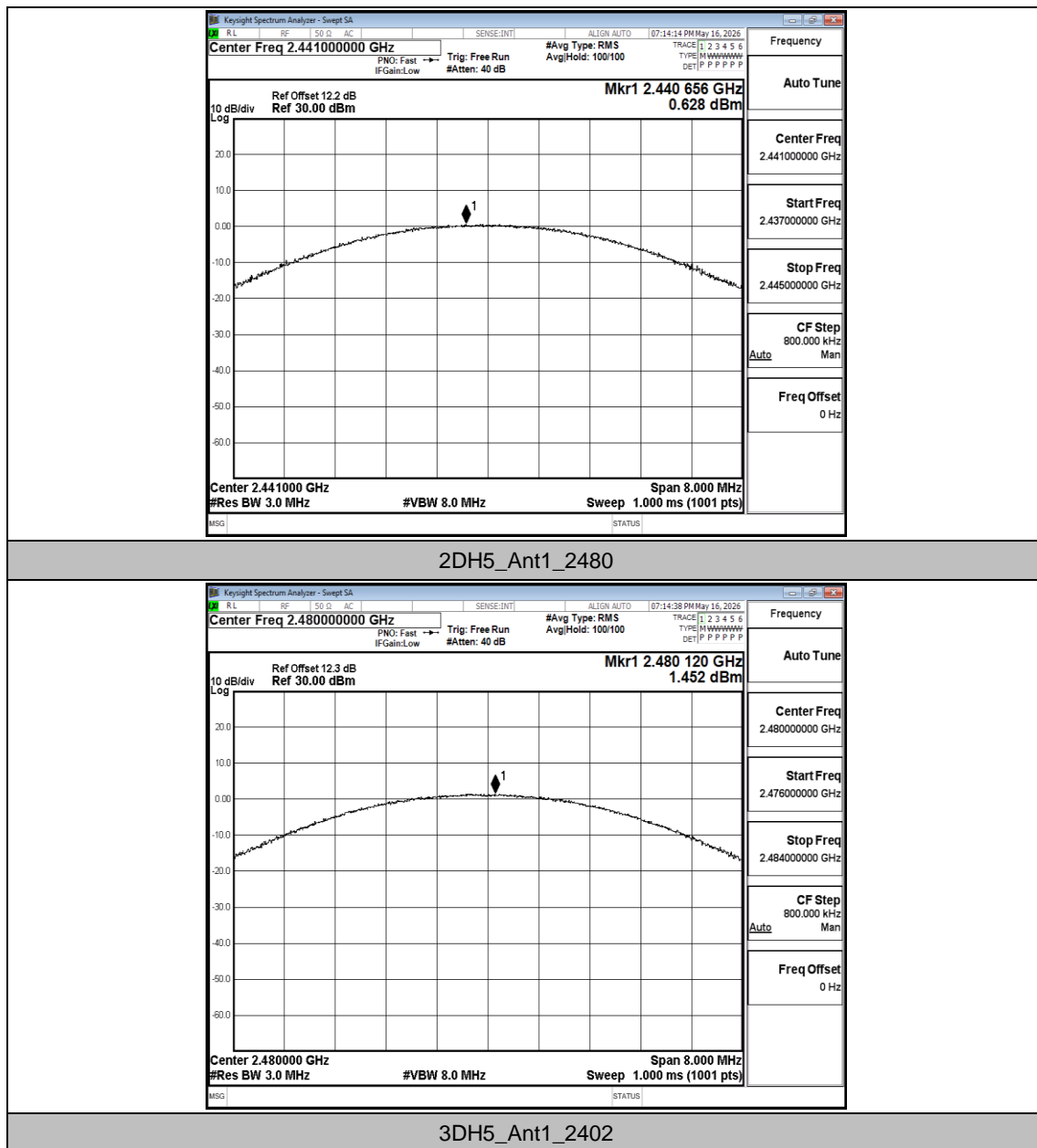
Test Result Peak

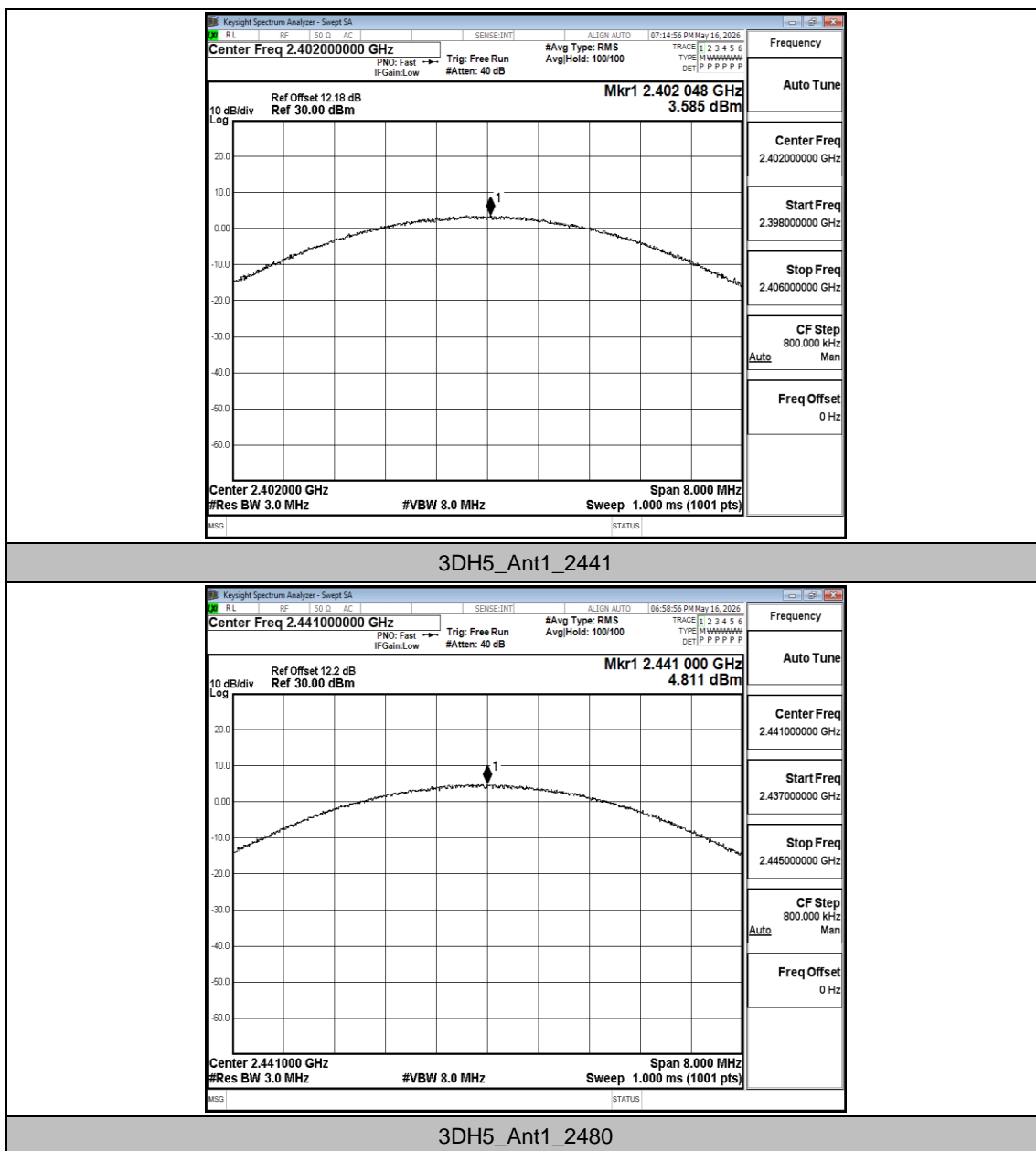
Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	2.08	≤21	PASS
		2441	3.29	≤21	PASS
		2480	0.76	≤21	PASS
2DH5	Ant1	2402	3.01	≤21	PASS
		2441	0.63	≤21	PASS
		2480	1.45	≤21	PASS
3DH5	Ant1	2402	3.59	≤21	PASS
		2441	4.81	≤21	PASS
		2480	1.91	≤21	PASS

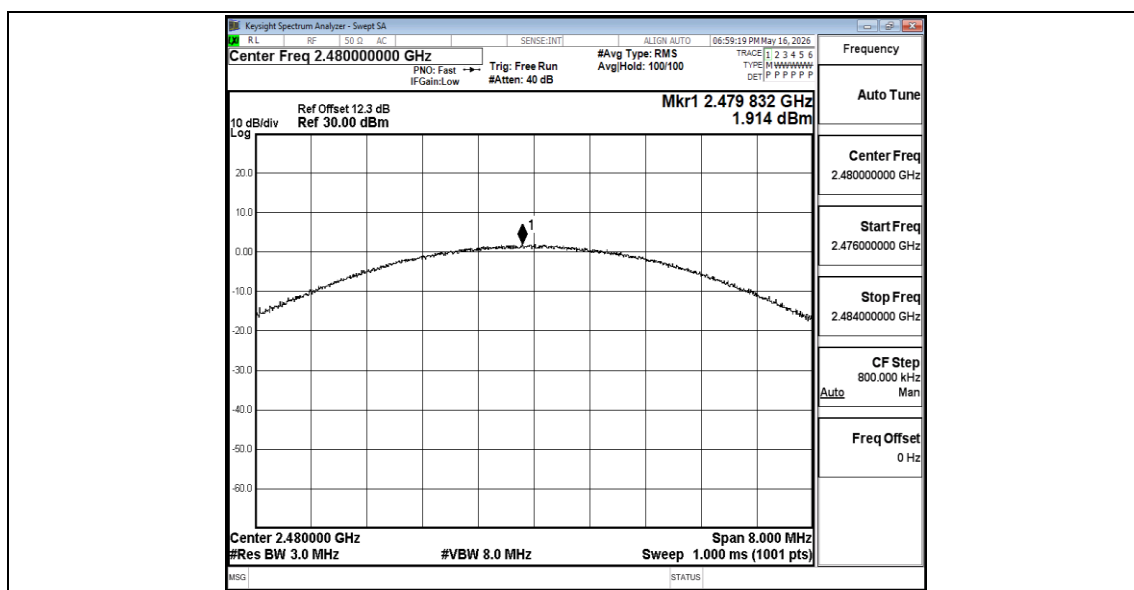
Test Graphs









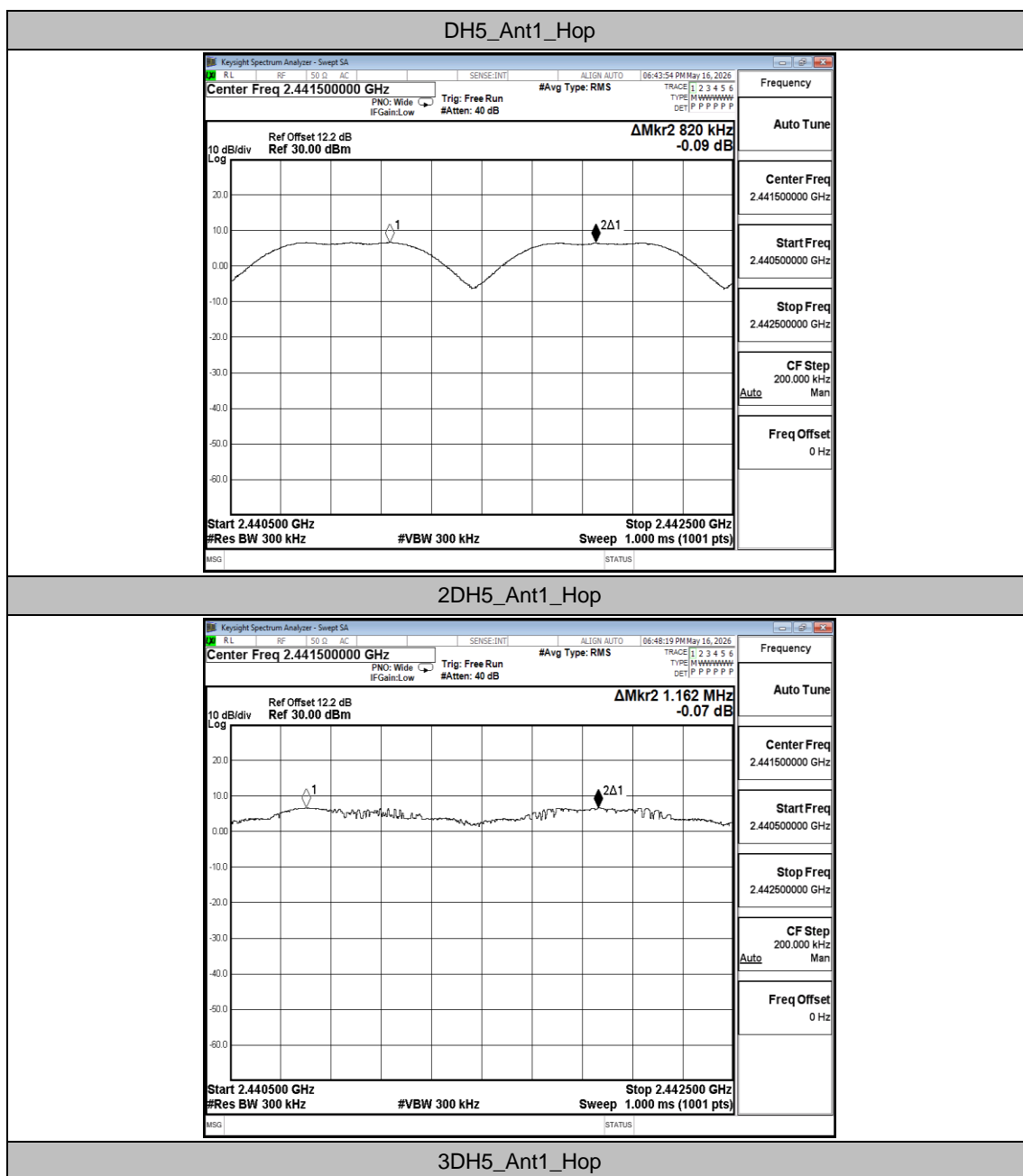


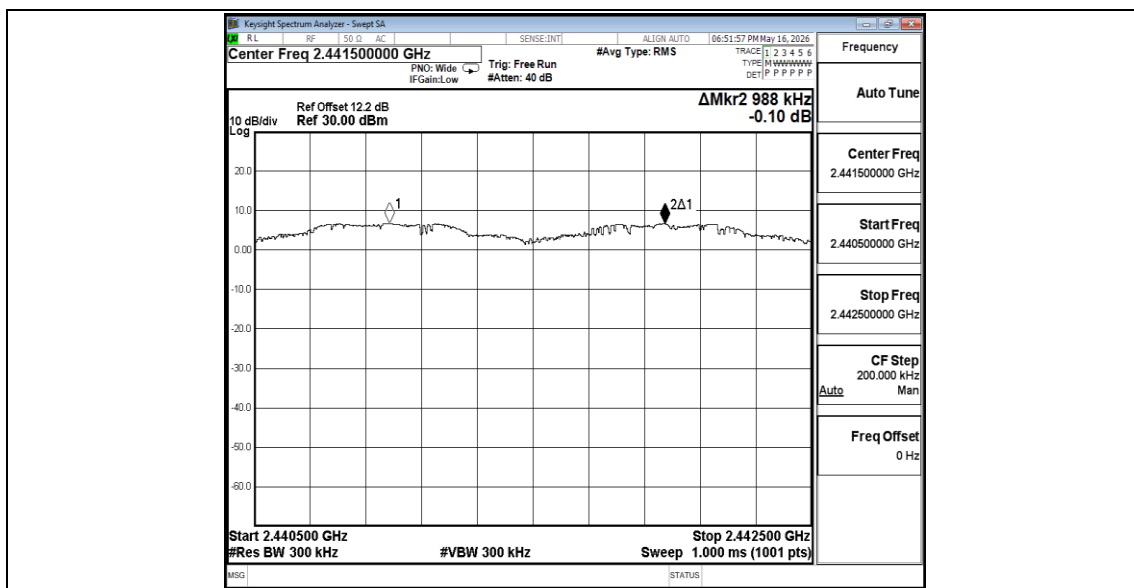
A.3 Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.82	≥0.644	PASS
2DH5	Ant1	Hop	1.162	≥0.852	PASS
3DH5	Ant1	Hop	0.988	≥0.852	PASS

Test Graphs



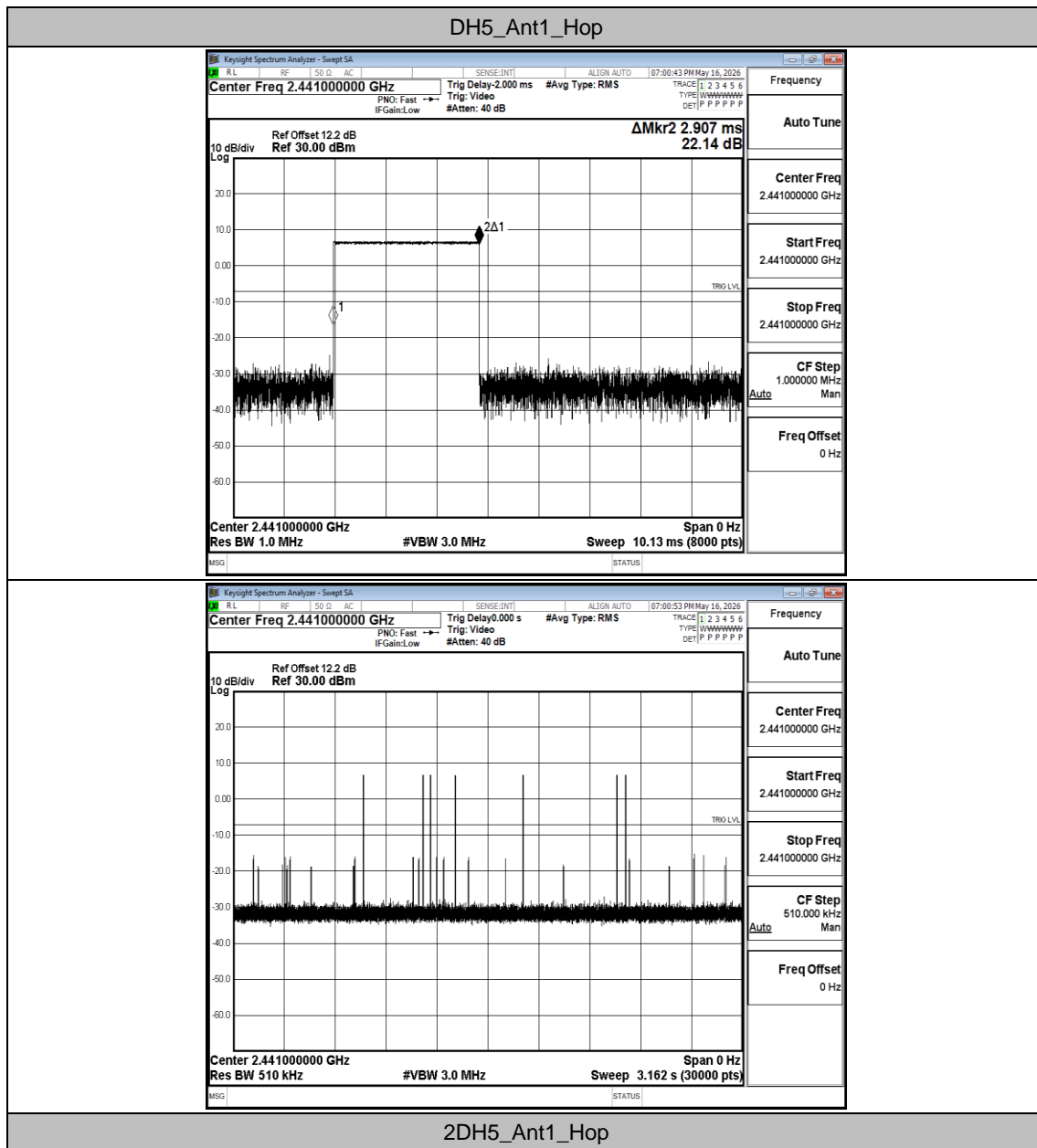


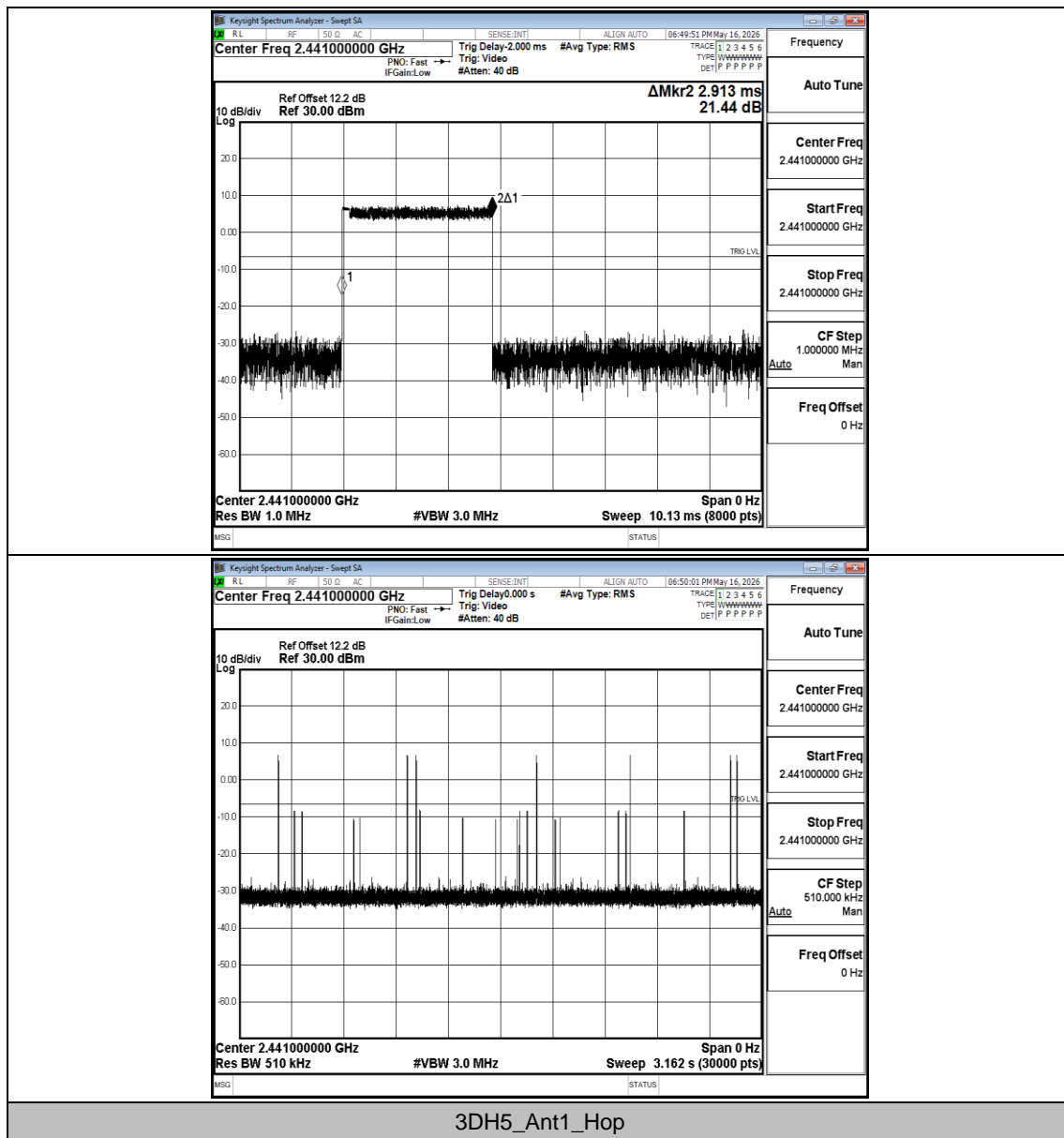
A.4 Time of occupancy

Test Result

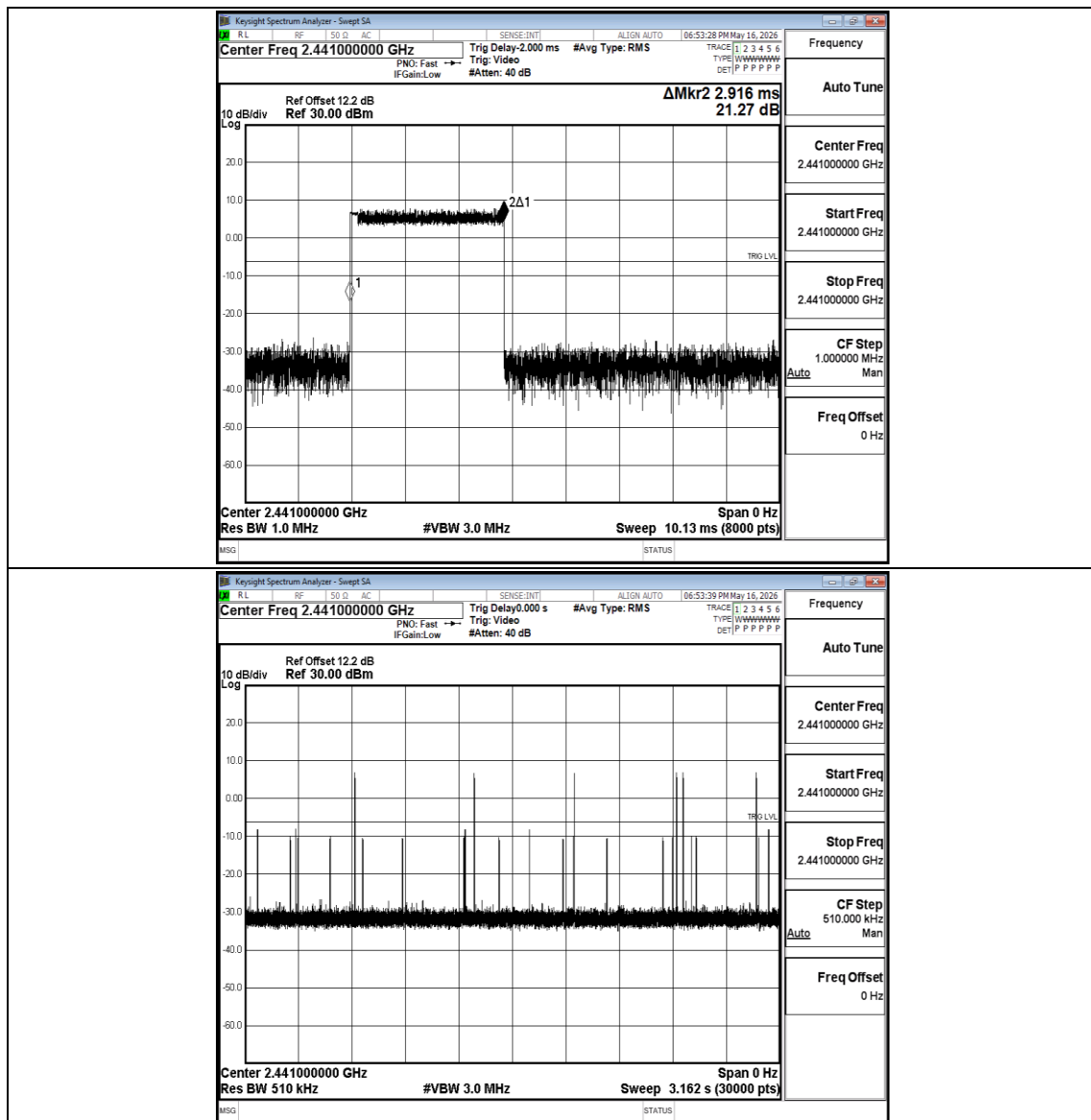
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.907	80	0.233	≤0.4	PASS
2DH5	Ant1	Hop	2.913	80	0.233	≤0.4	PASS
3DH5	Ant1	Hop	2.916	70	0.204	≤0.4	PASS

Test Graphs





3DH5_Ant1_Hop

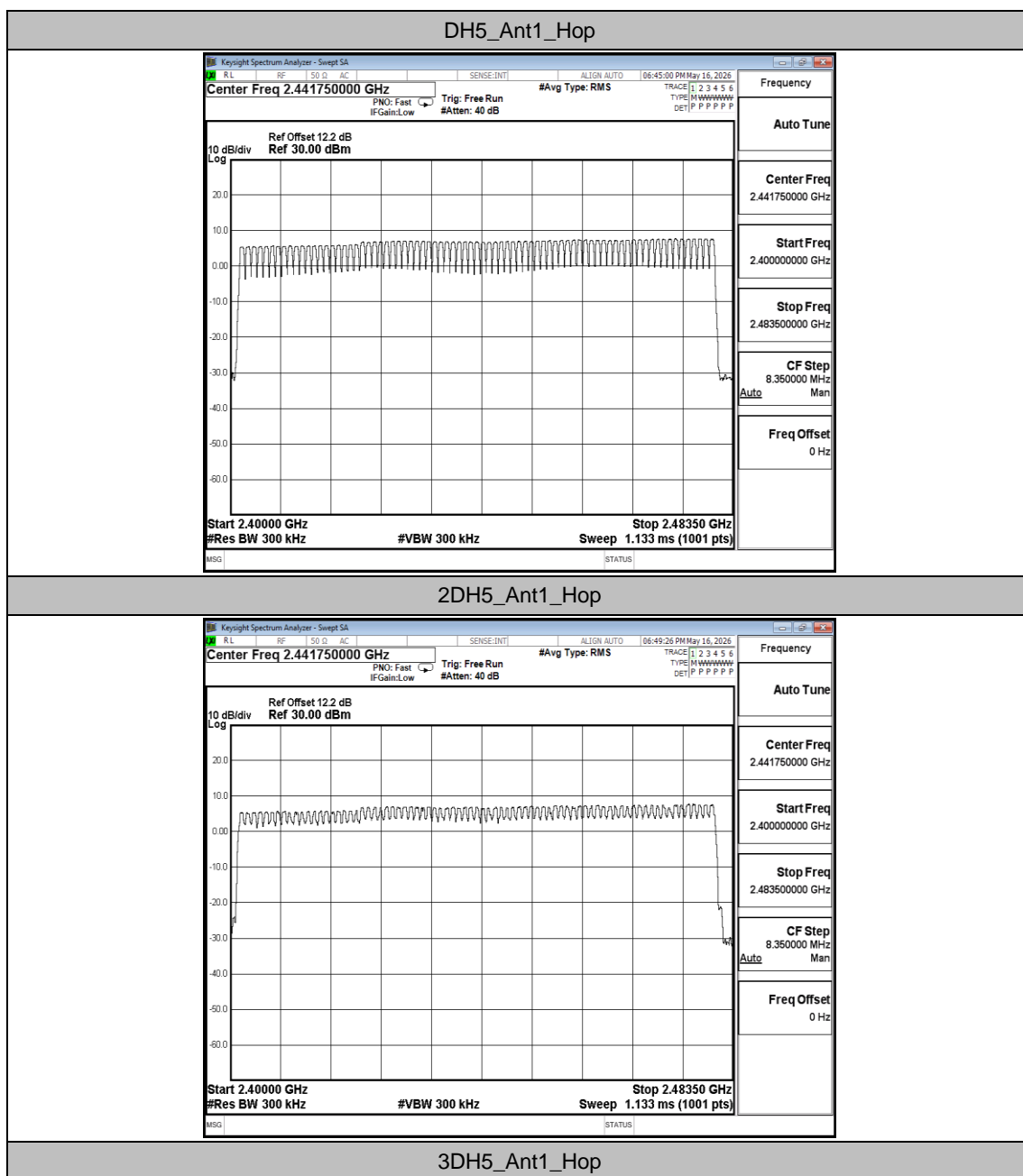


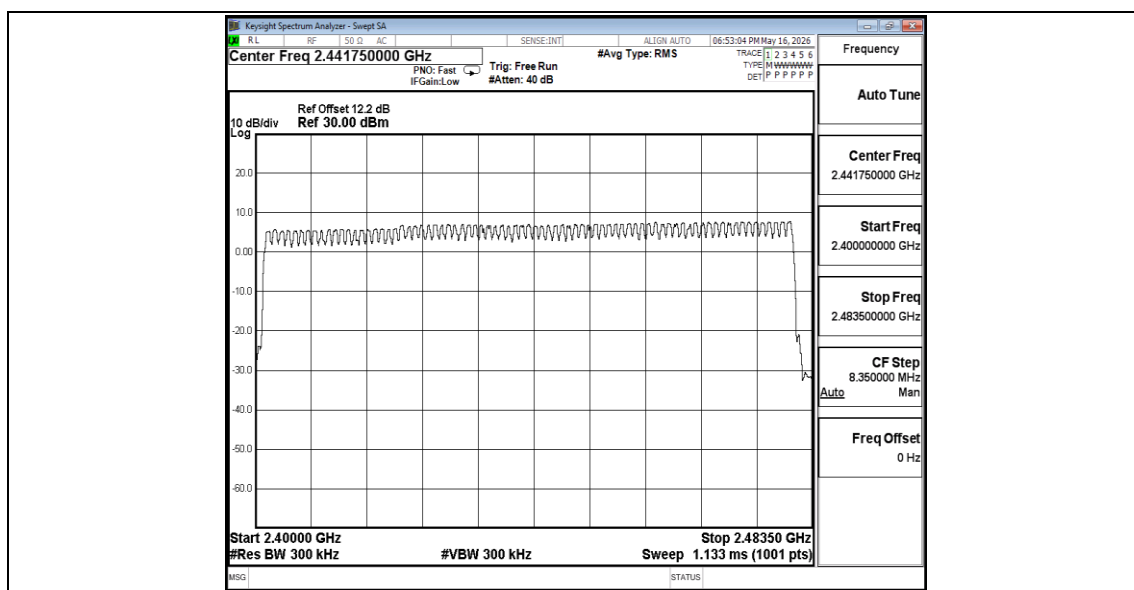
A.5 Number of hopping channels

Test Result

TestMode	Antenna	Freq(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



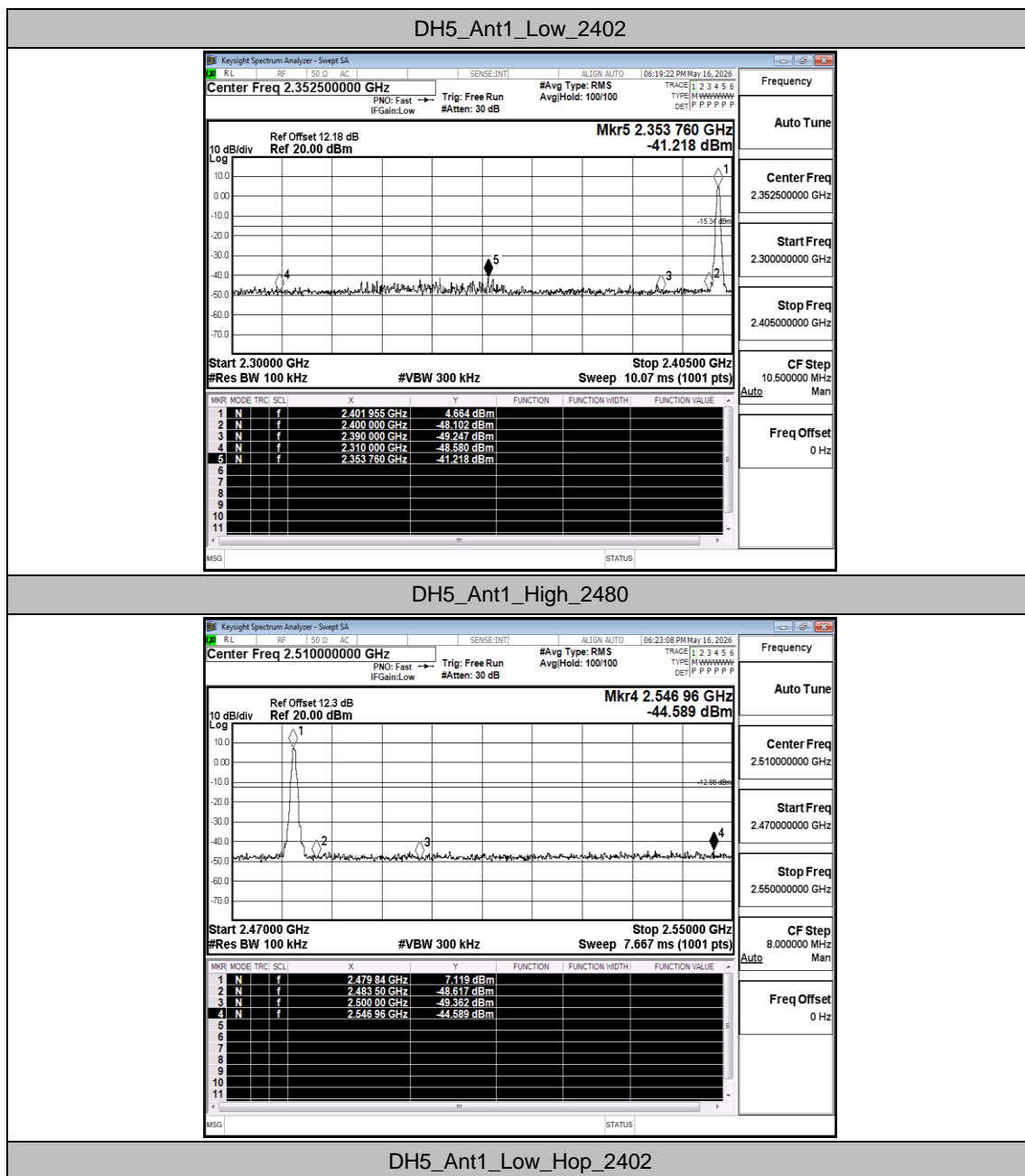


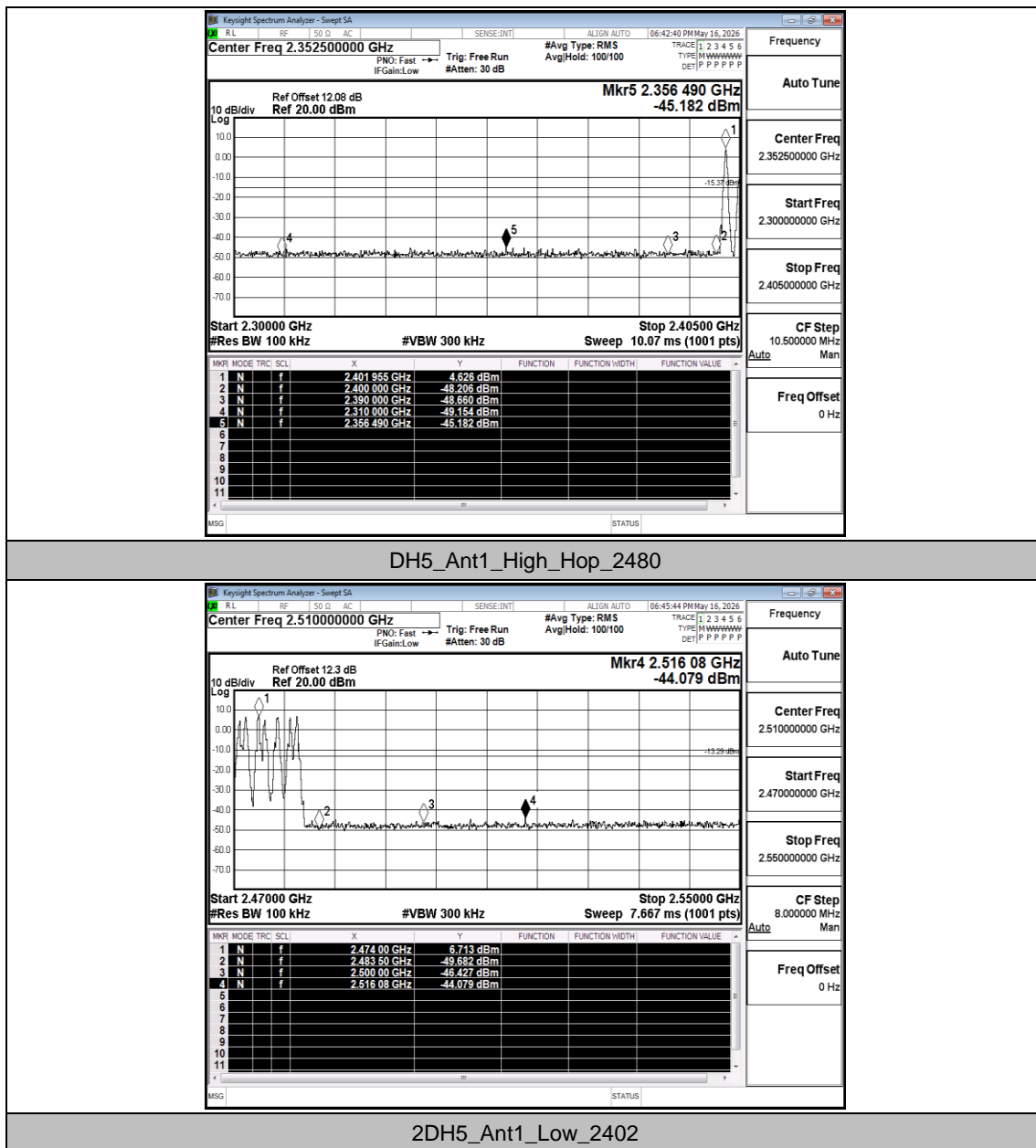
A.6 Band edge measurements

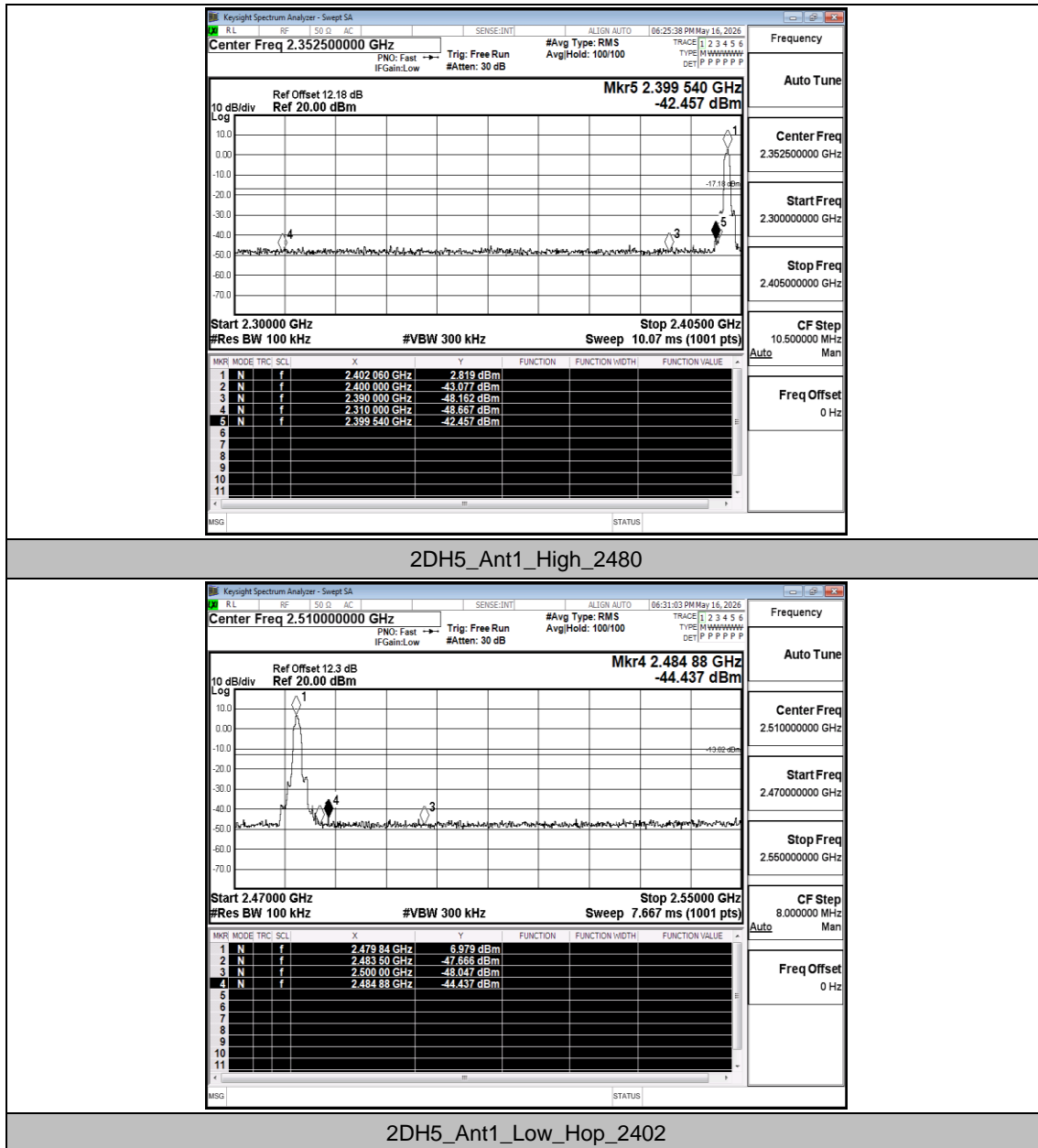
Test Result

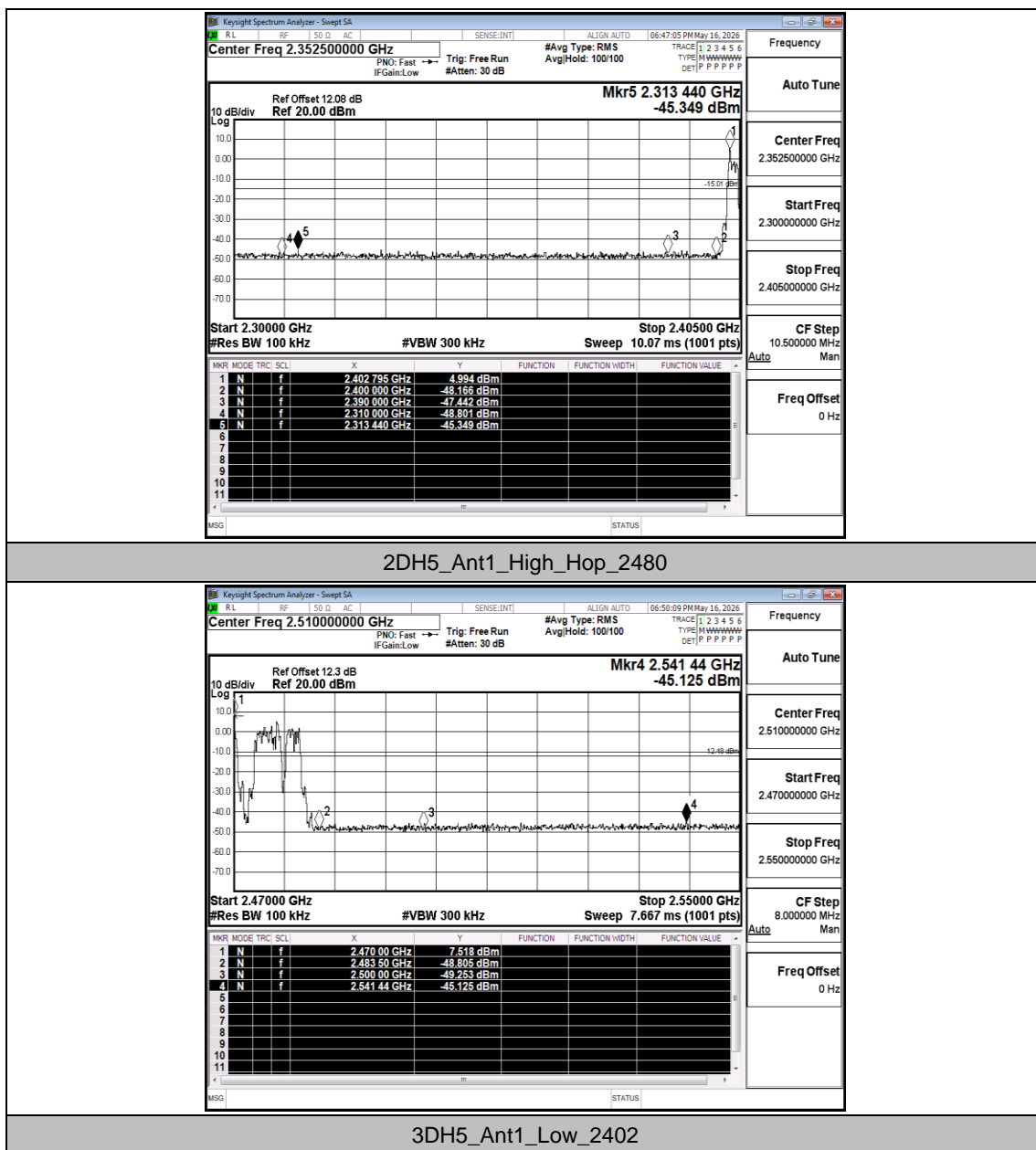
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	4.66	-41.22	≤ -15.34	PASS
		High	2480	7.12	-44.59	≤ -12.88	PASS
		Low	Hop_2402	4.63	-45.18	≤ -15.37	PASS
		High	Hop_2480	6.71	-44.08	≤ -13.29	PASS
2DH5	Ant1	Low	2402	2.82	-42.46	≤ -17.18	PASS
		High	2480	6.98	-44.44	≤ -13.02	PASS
		Low	Hop_2402	4.99	-45.35	≤ -15.01	PASS
		High	Hop_2480	7.52	-45.13	≤ -12.48	PASS
3DH5	Ant1	Low	2402	4.52	-43.77	≤ -15.48	PASS
		High	2480	6.71	-42.9	≤ -13.29	PASS
		Low	Hop_2402	-0.82	-45.35	≤ -20.82	PASS
		High	Hop_2480	2.76	-44.48	≤ -17.24	PASS

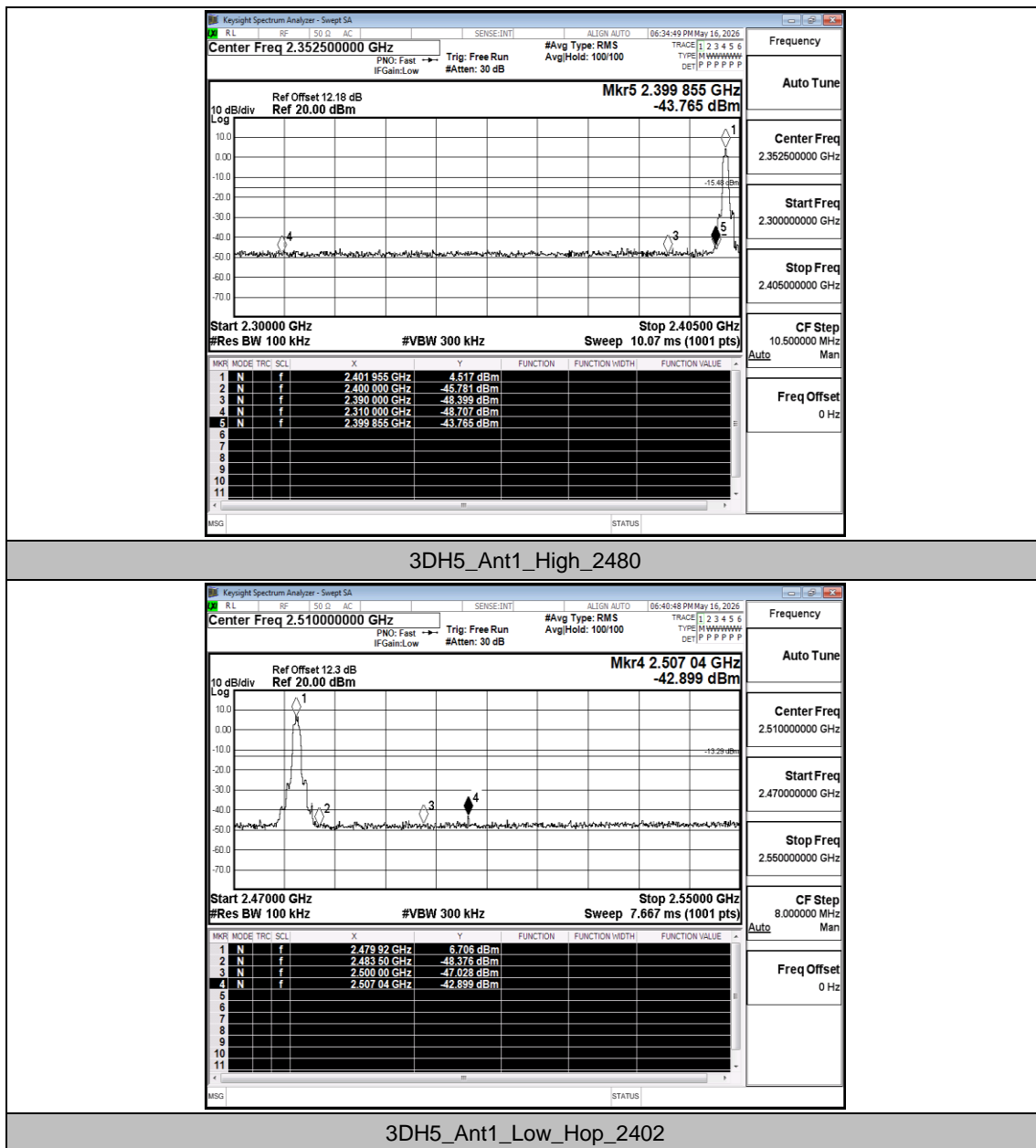
Test Graphs

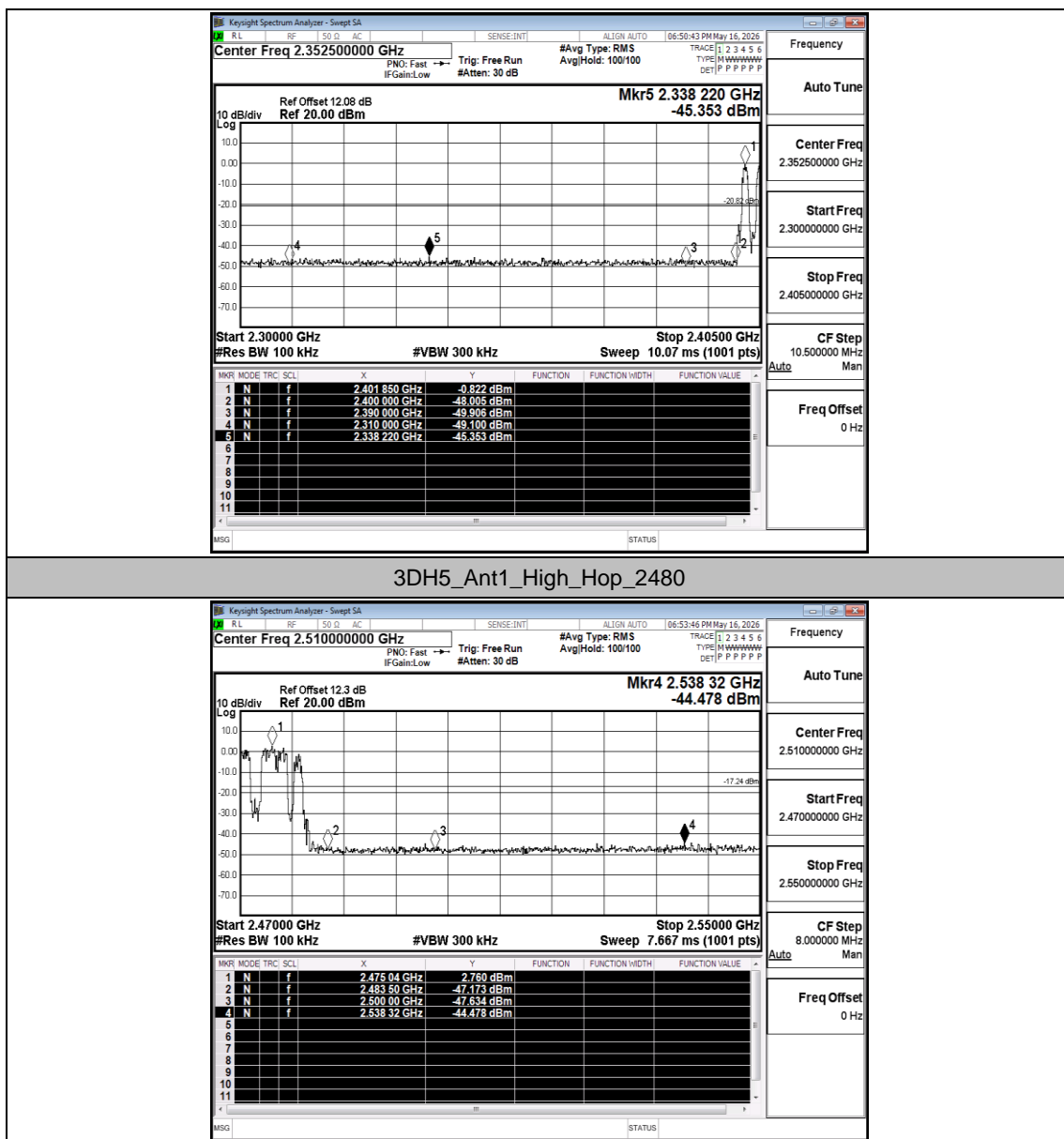










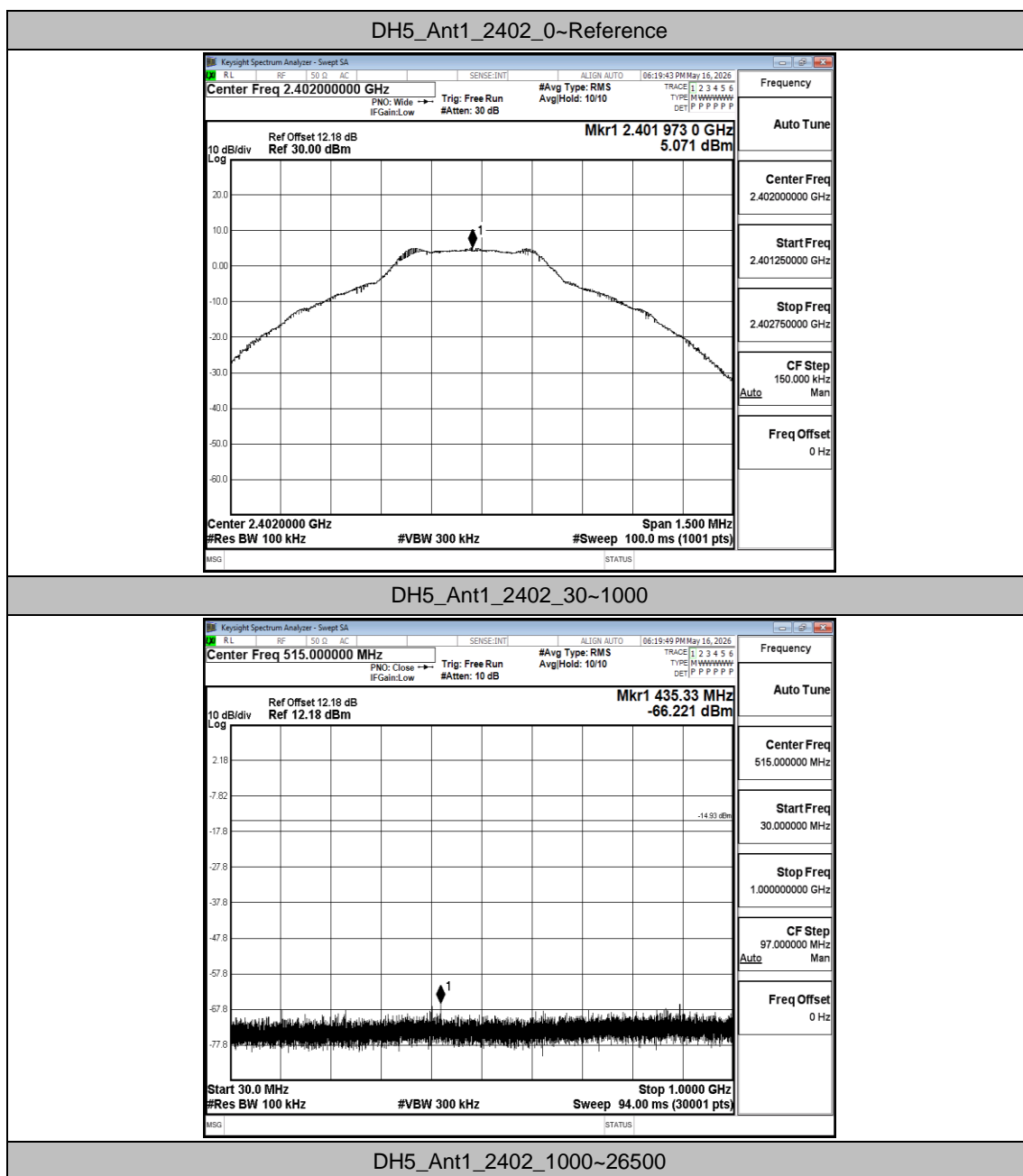


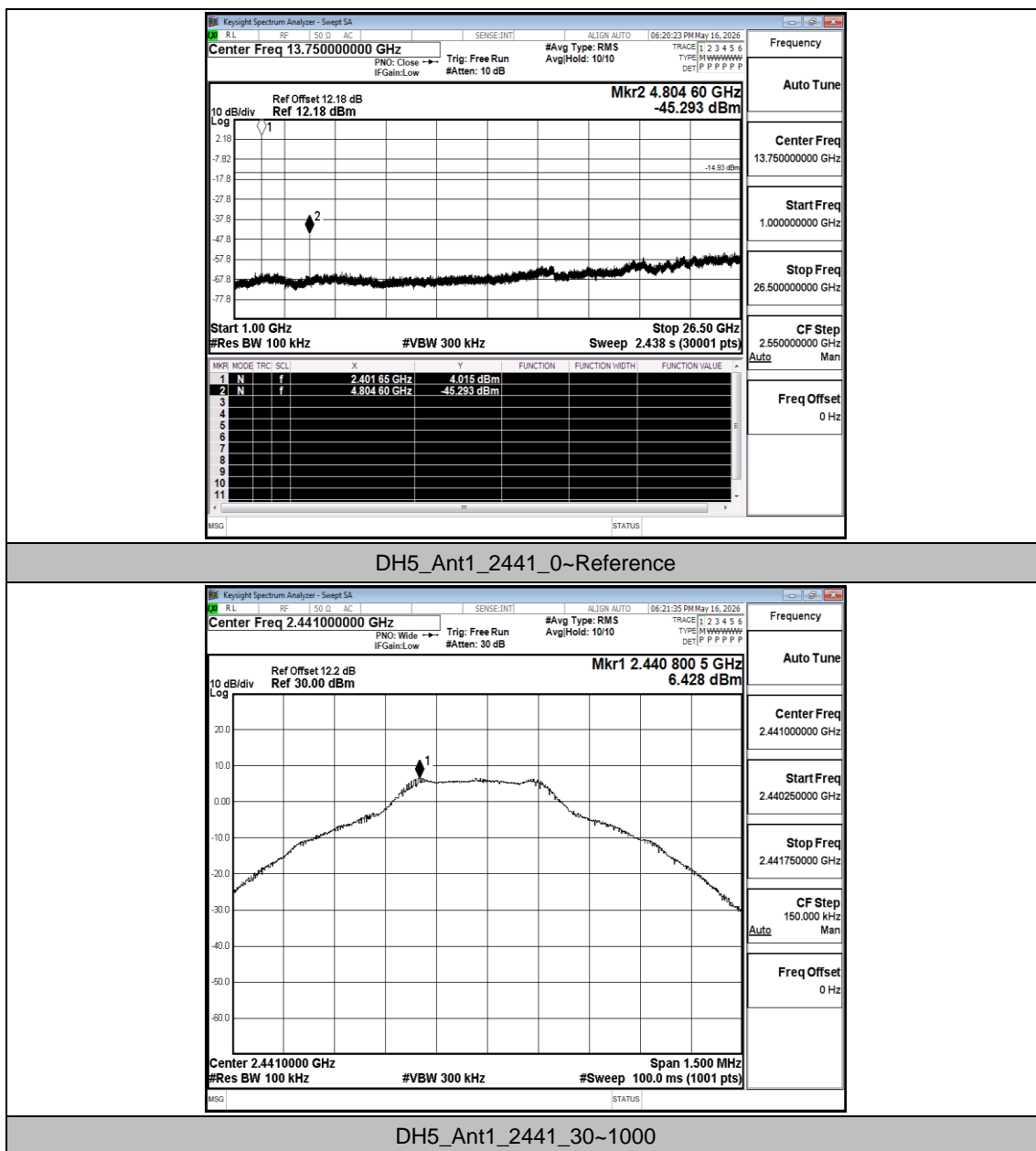
A.7 Conducted Spurious Emission

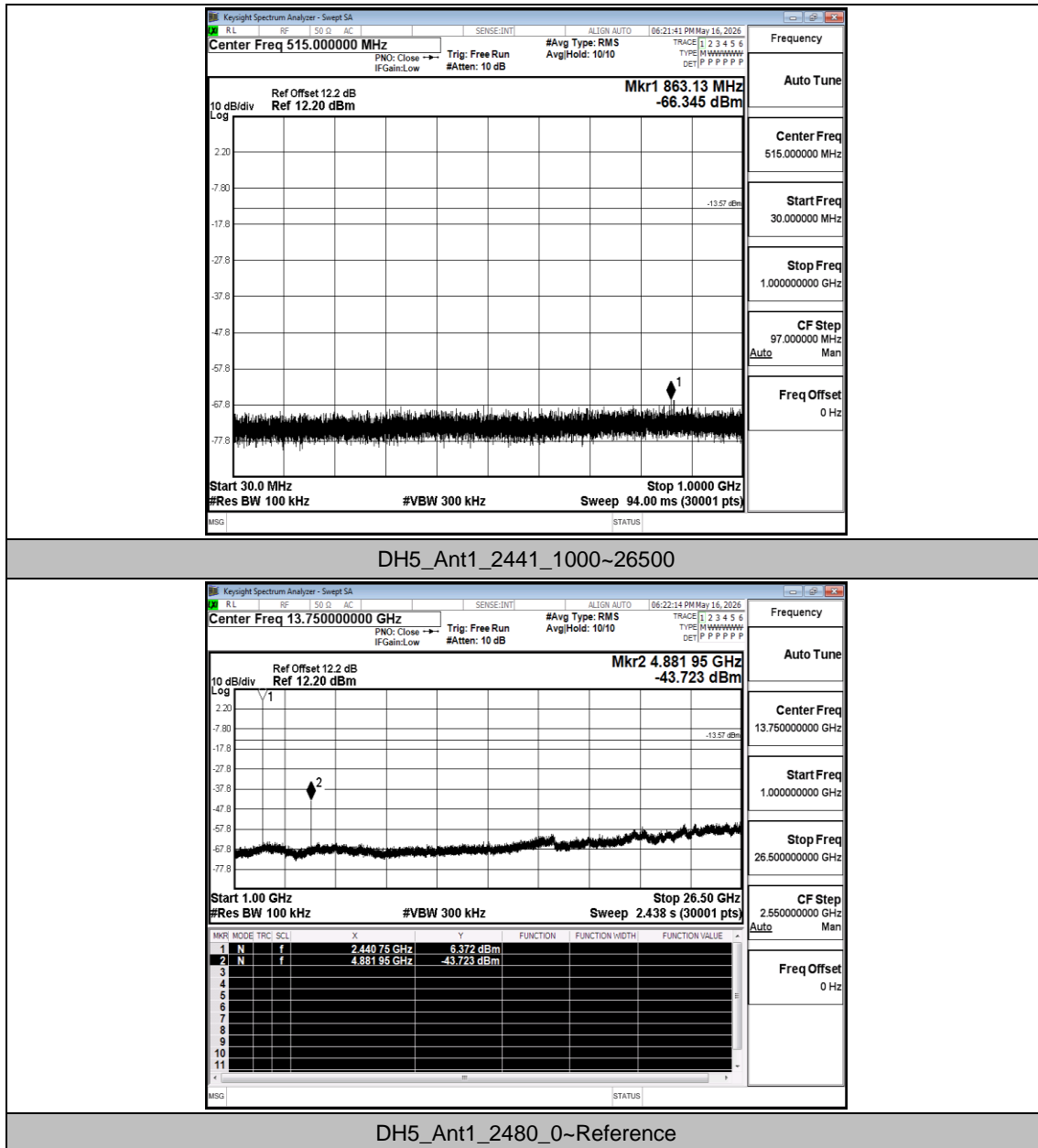
Test Result

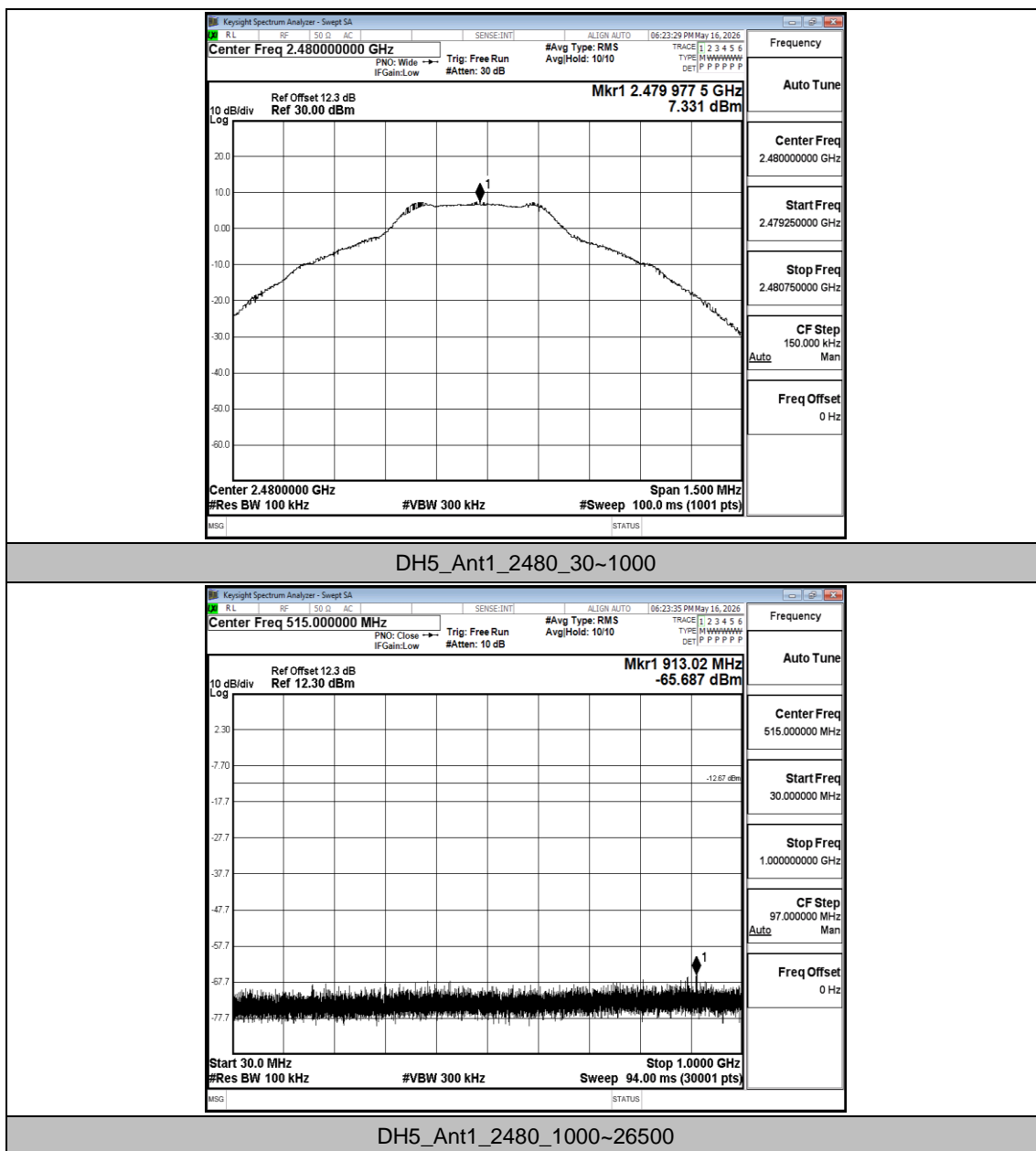
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	5.07	5.07	---	PASS
			30~1000	5.07	-66.22	≤-14.93	PASS
			1000~26500	5.07	-45.29	≤-14.93	PASS
		2441	Reference	6.43	6.43	---	PASS
			30~1000	6.43	-66.35	≤-13.57	PASS
			1000~26500	6.43	-43.72	≤-13.57	PASS
		2480	Reference	7.33	7.33	---	PASS
			30~1000	7.33	-65.69	≤-12.67	PASS
			1000~26500	7.33	-40.62	≤-12.67	PASS
2DH5	Ant1	2402	Reference	5.21	5.21	---	PASS
			30~1000	5.21	-64.91	≤-14.79	PASS
			1000~26500	5.21	-50.33	≤-14.79	PASS
		2441	Reference	6.49	6.49	---	PASS
			30~1000	6.49	-65.38	≤-13.51	PASS
			1000~26500	6.49	-44.42	≤-13.51	PASS
		2480	Reference	7.46	7.46	---	PASS
			30~1000	7.46	-64.21	≤-12.54	PASS
			1000~26500	7.46	-45.4	≤-12.54	PASS
3DH5	Ant1	2402	Reference	5.20	5.20	---	PASS
			30~1000	5.20	-64.94	≤-14.8	PASS
			1000~26500	5.20	-45.87	≤-14.8	PASS
		2441	Reference	6.51	6.51	---	PASS
			30~1000	6.51	-66.66	≤-13.49	PASS
			1000~26500	6.51	-44.93	≤-13.49	PASS
		2480	Reference	7.38	7.38	---	PASS
			30~1000	7.38	-63.52	≤-12.62	PASS
			1000~26500	7.38	-40.75	≤-12.62	PASS

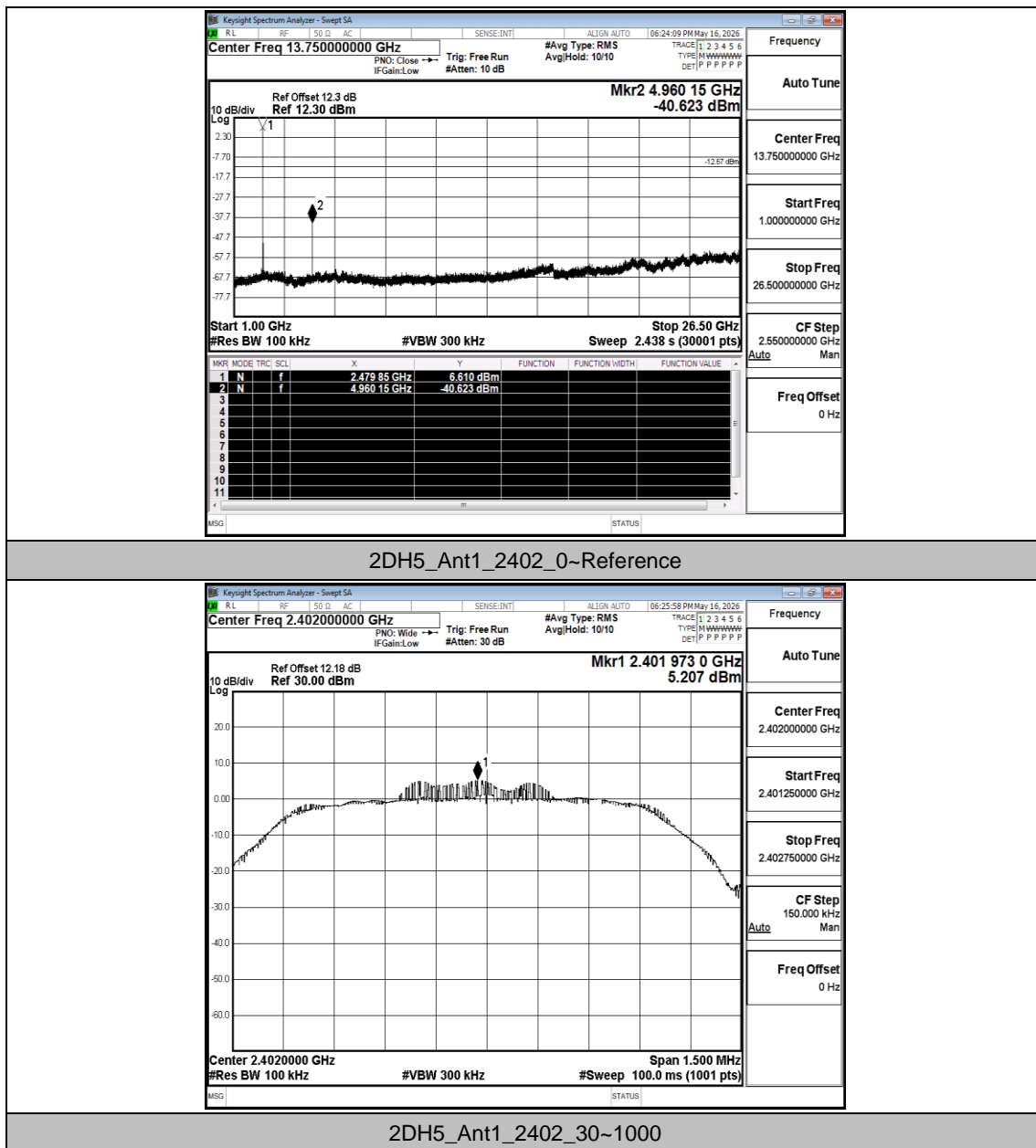
Test Graphs

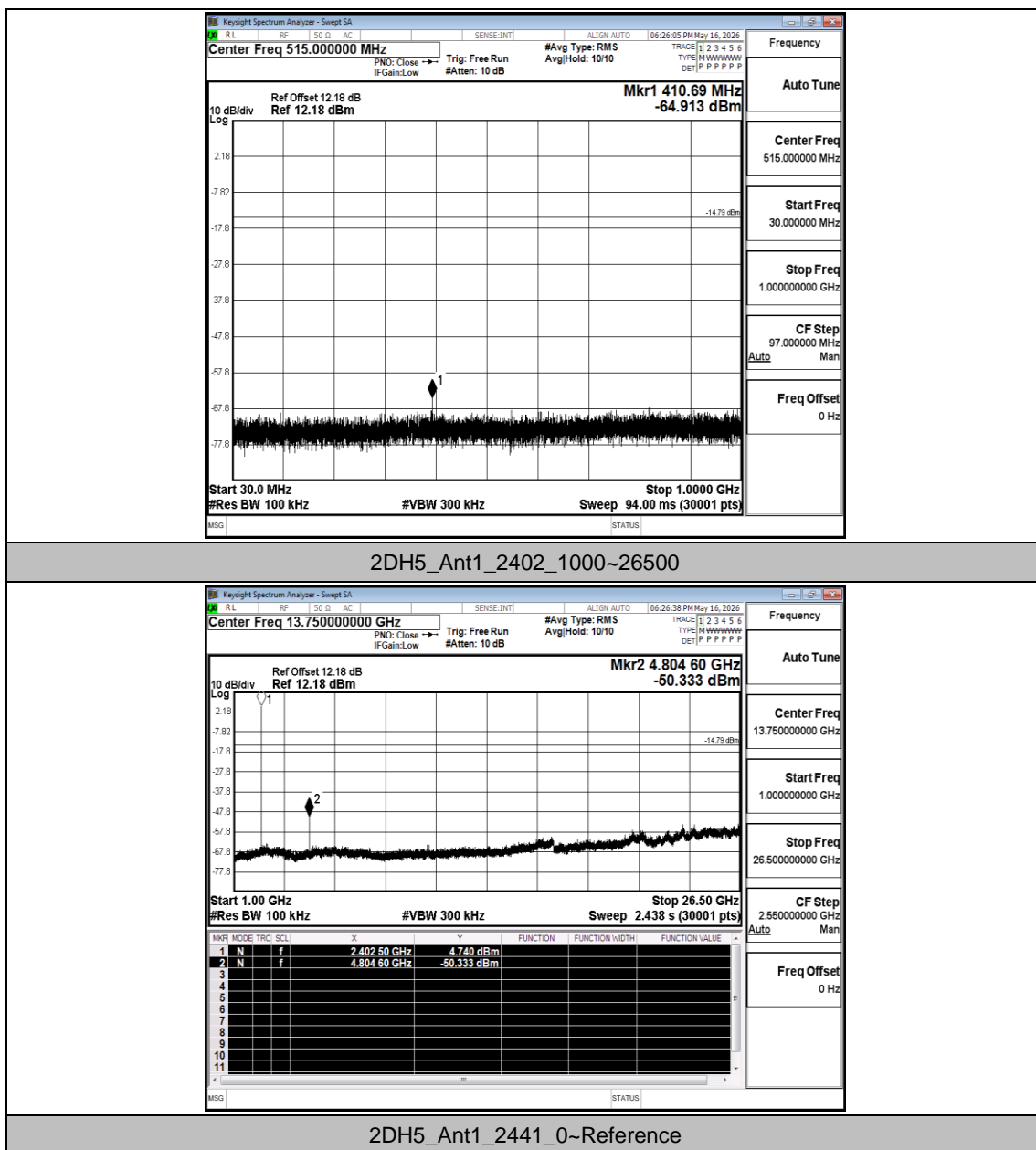


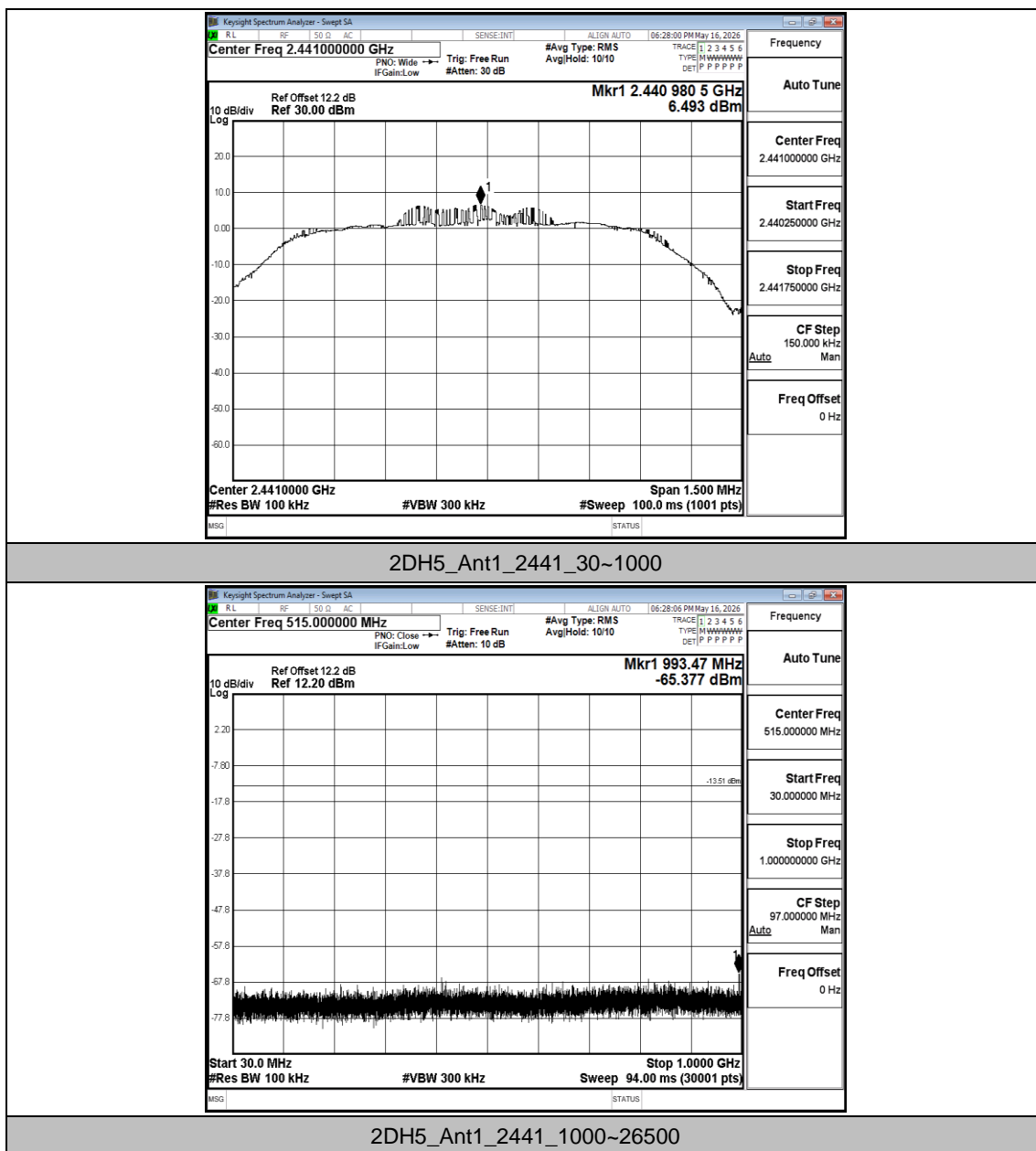


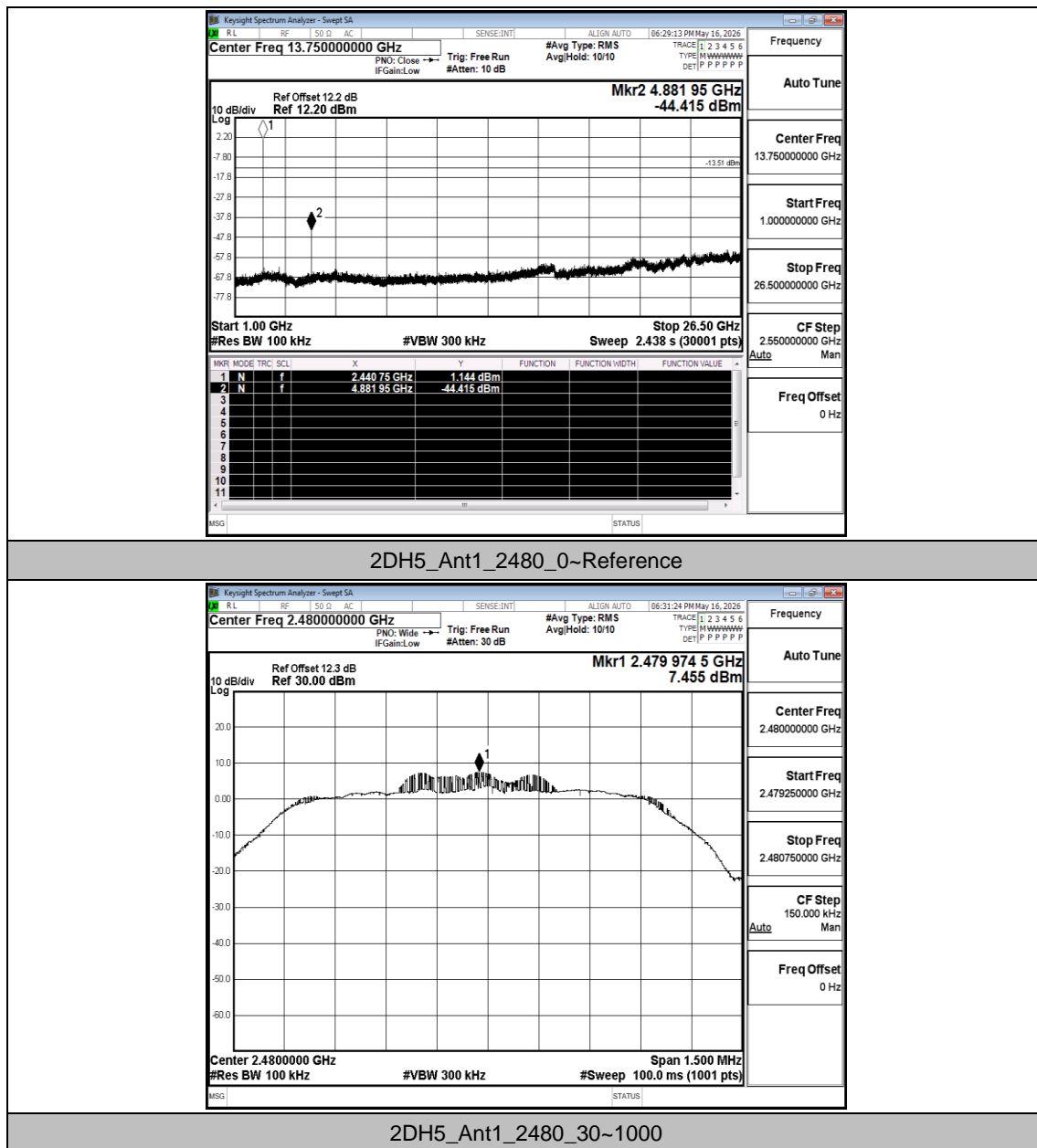


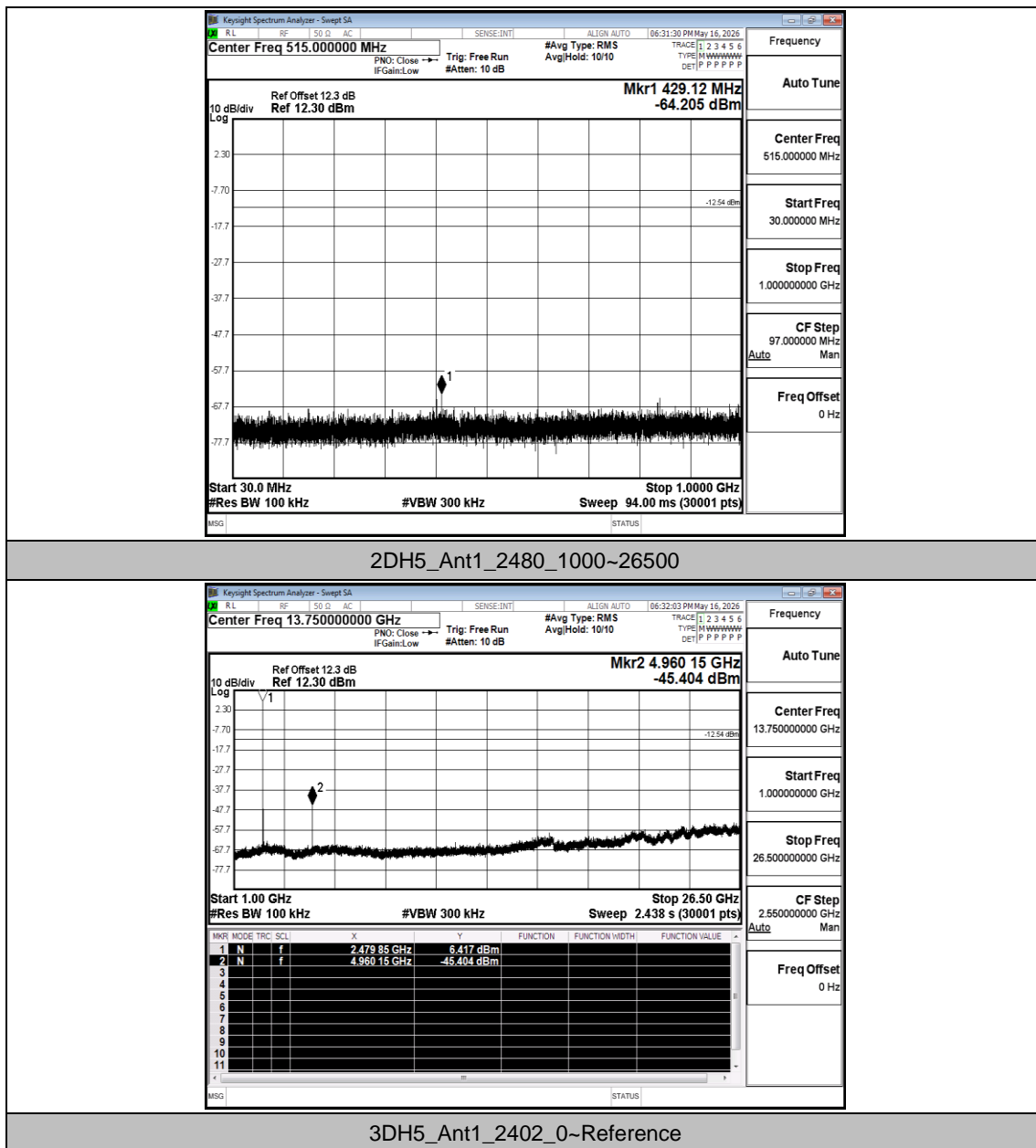


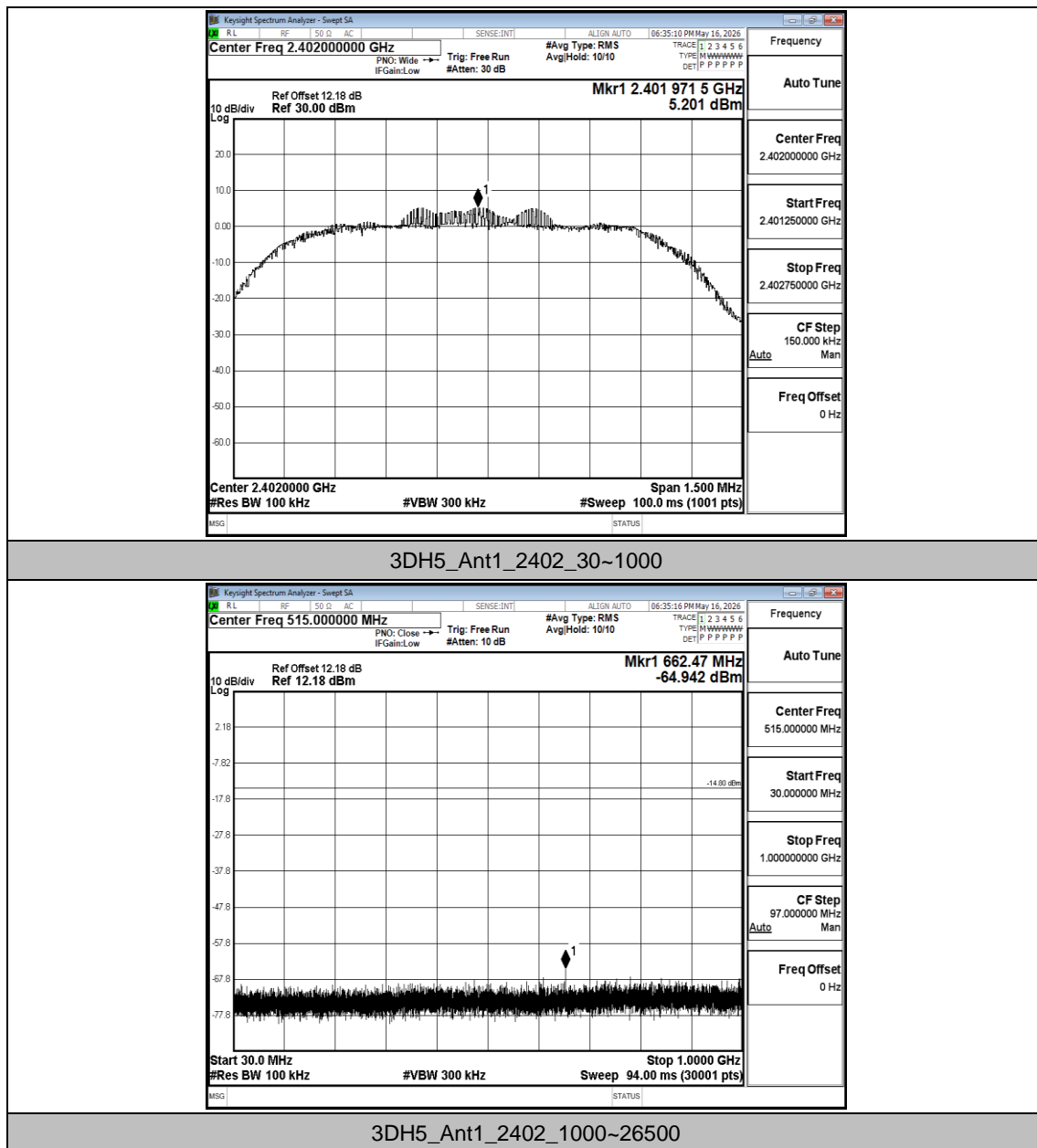


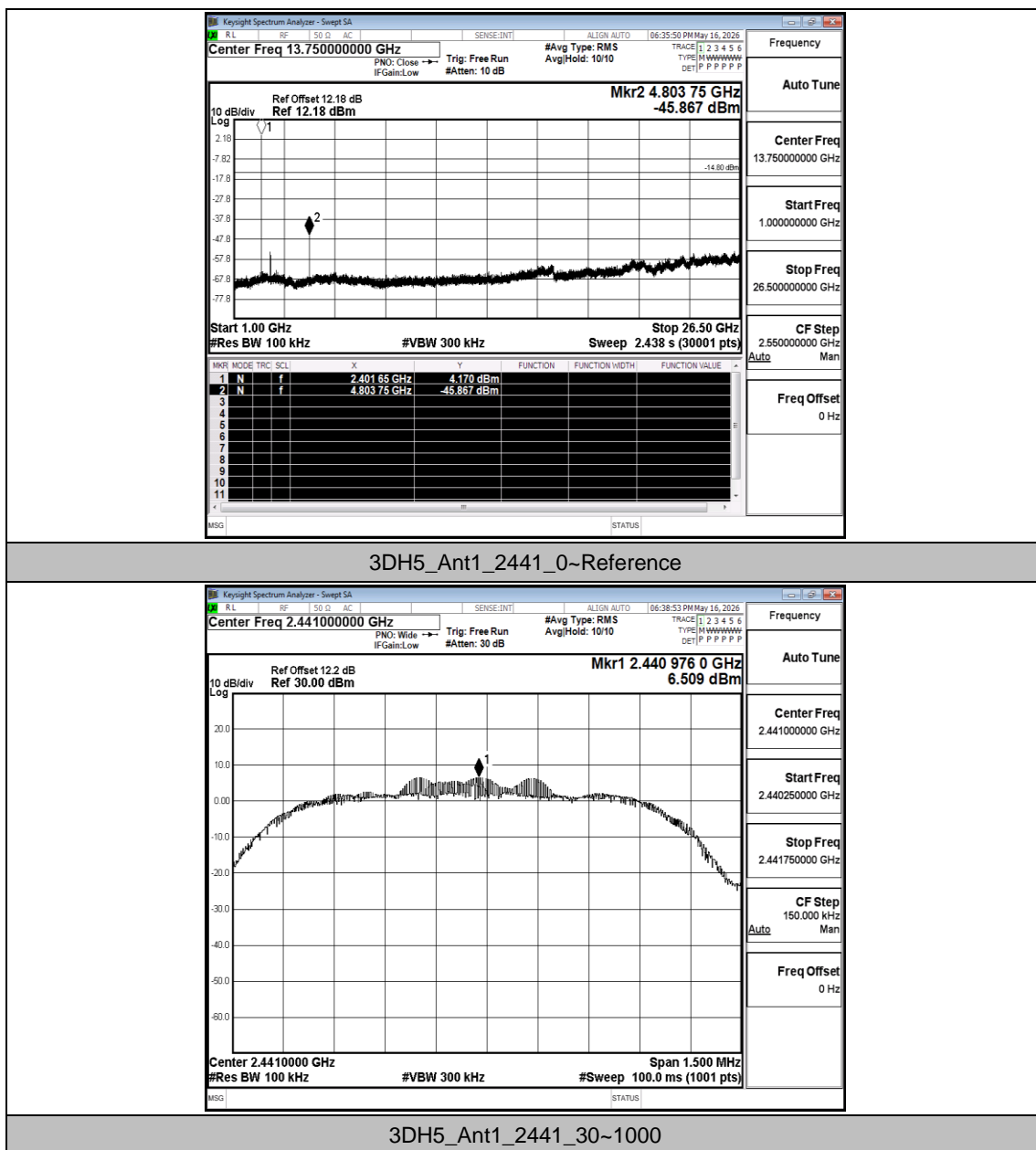


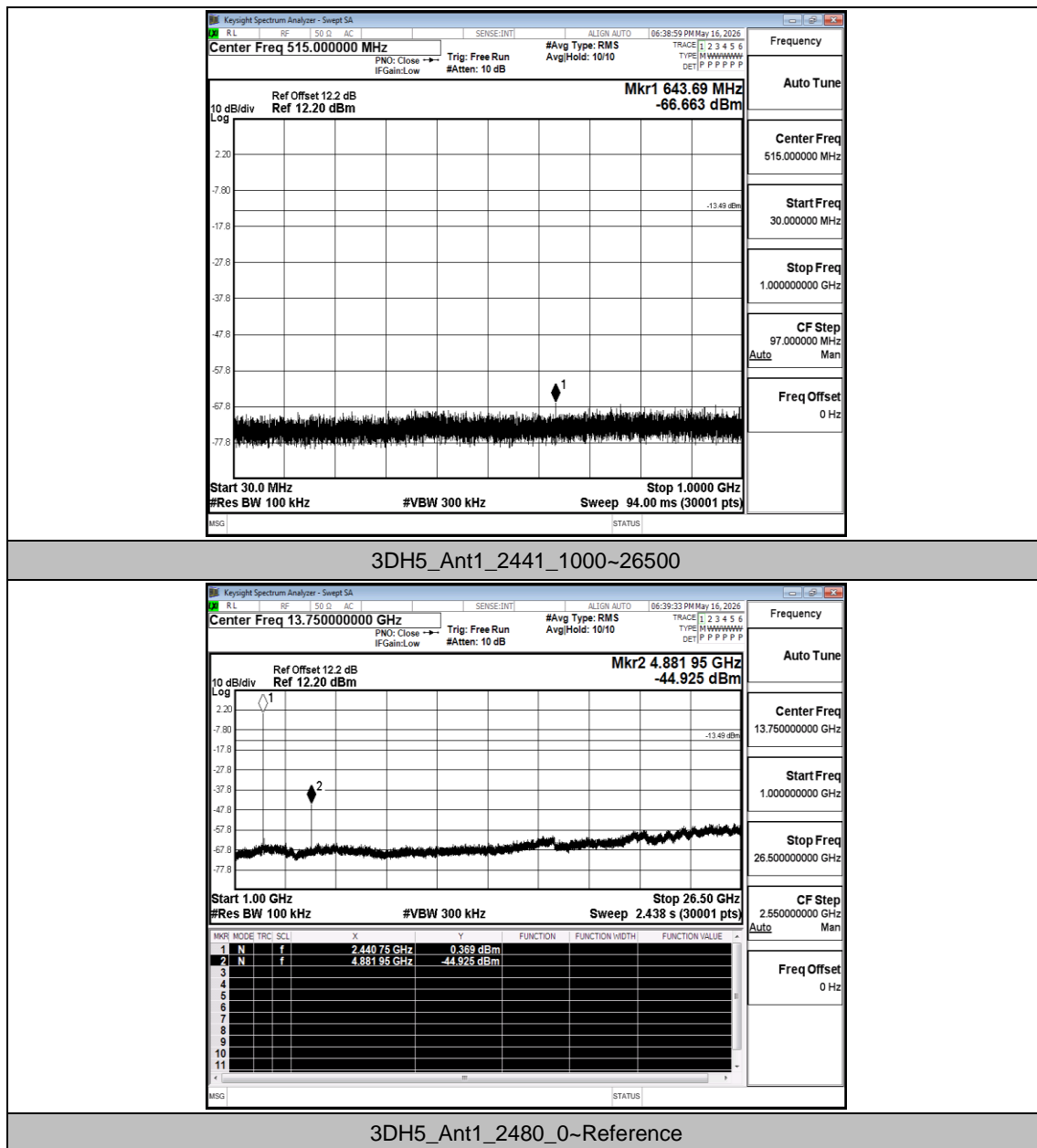


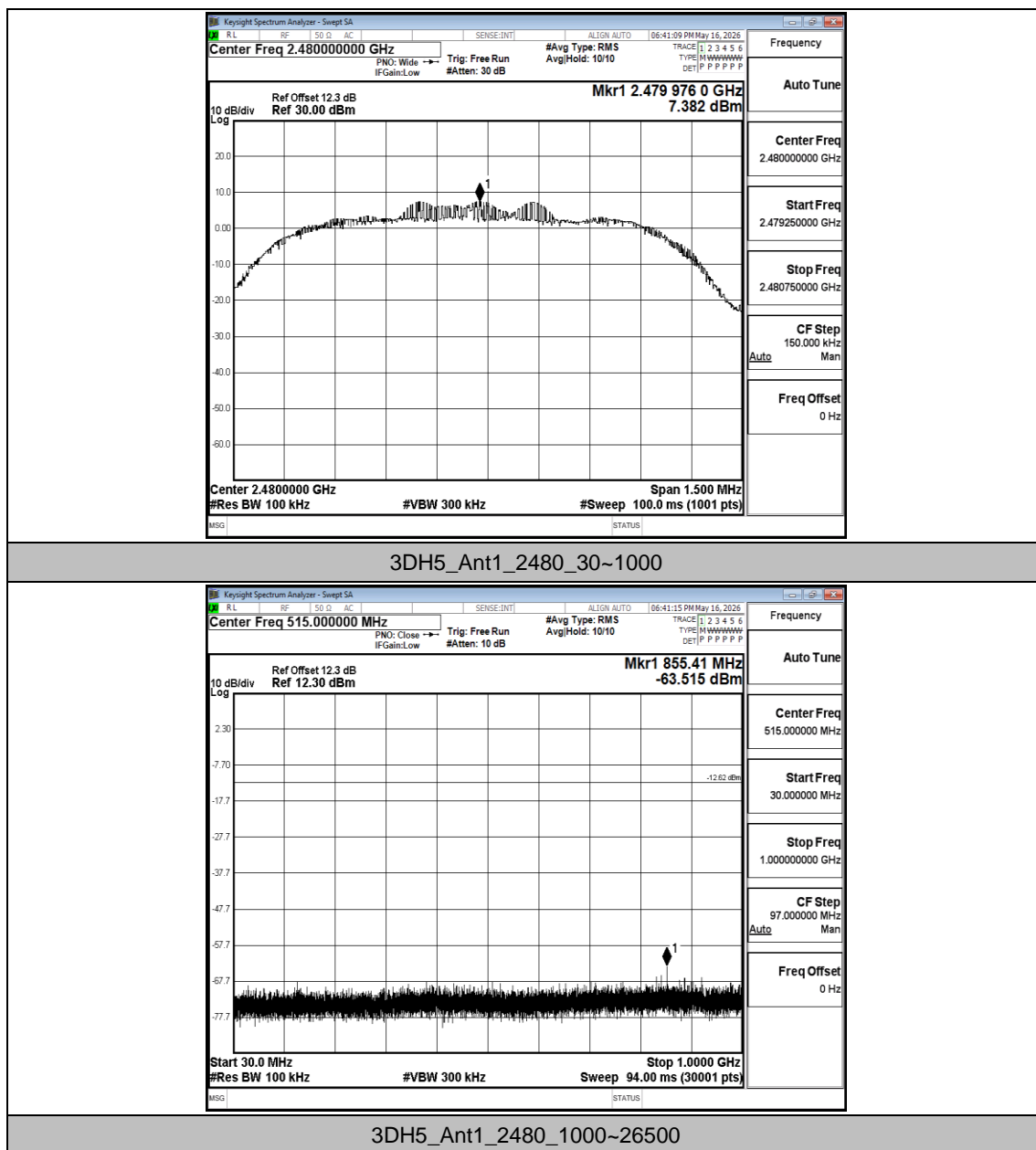


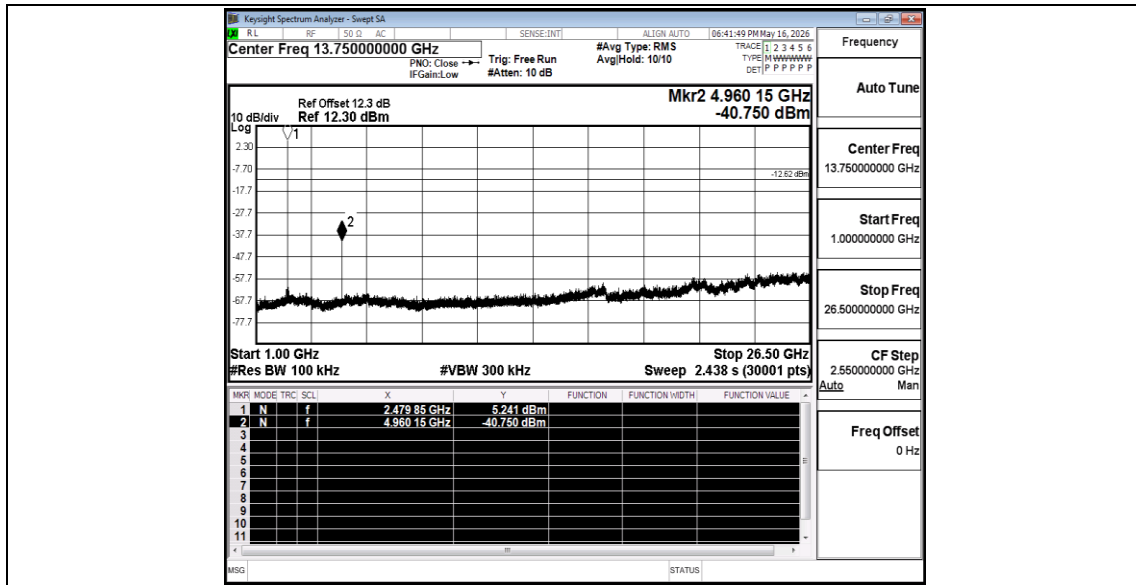










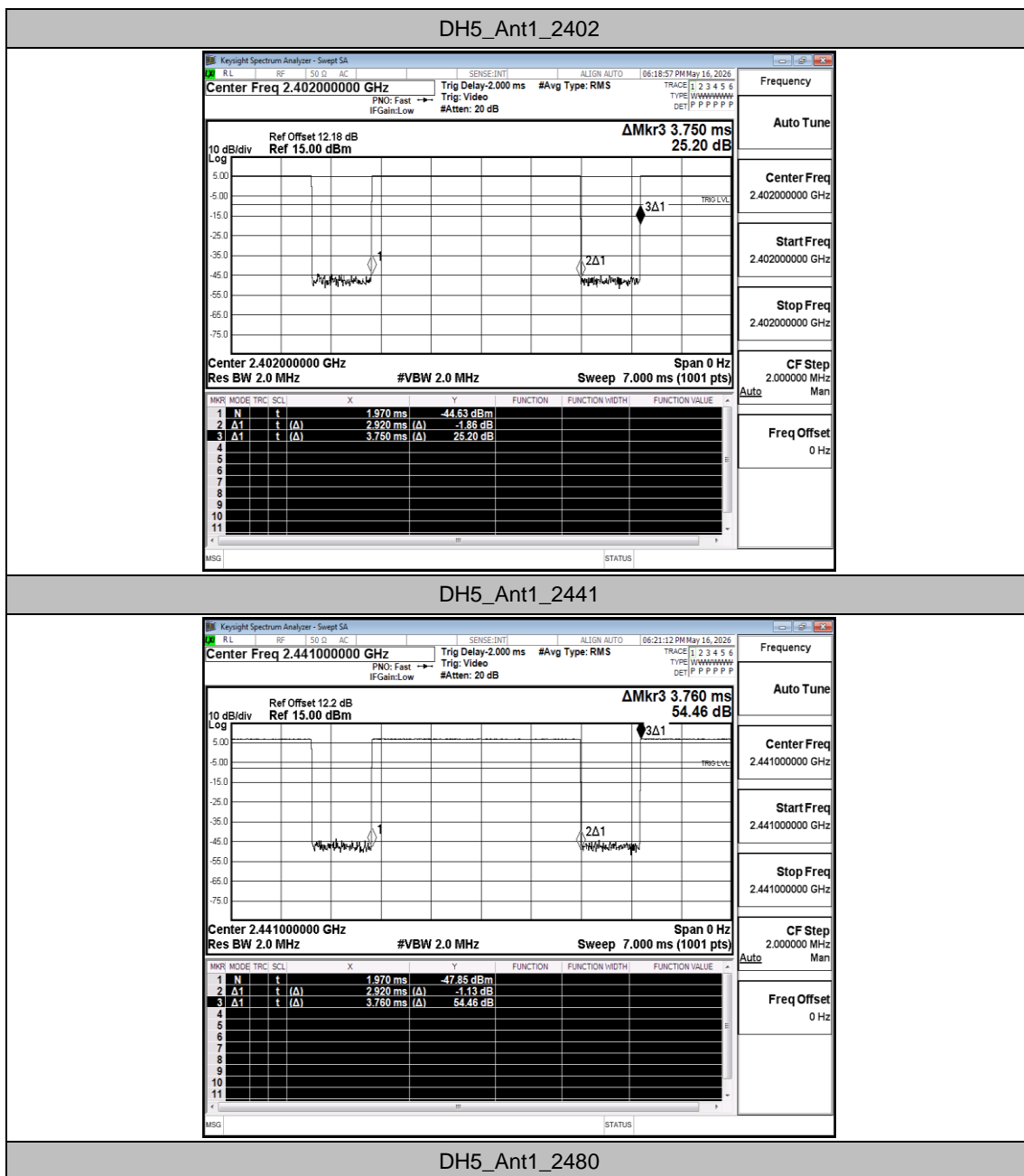


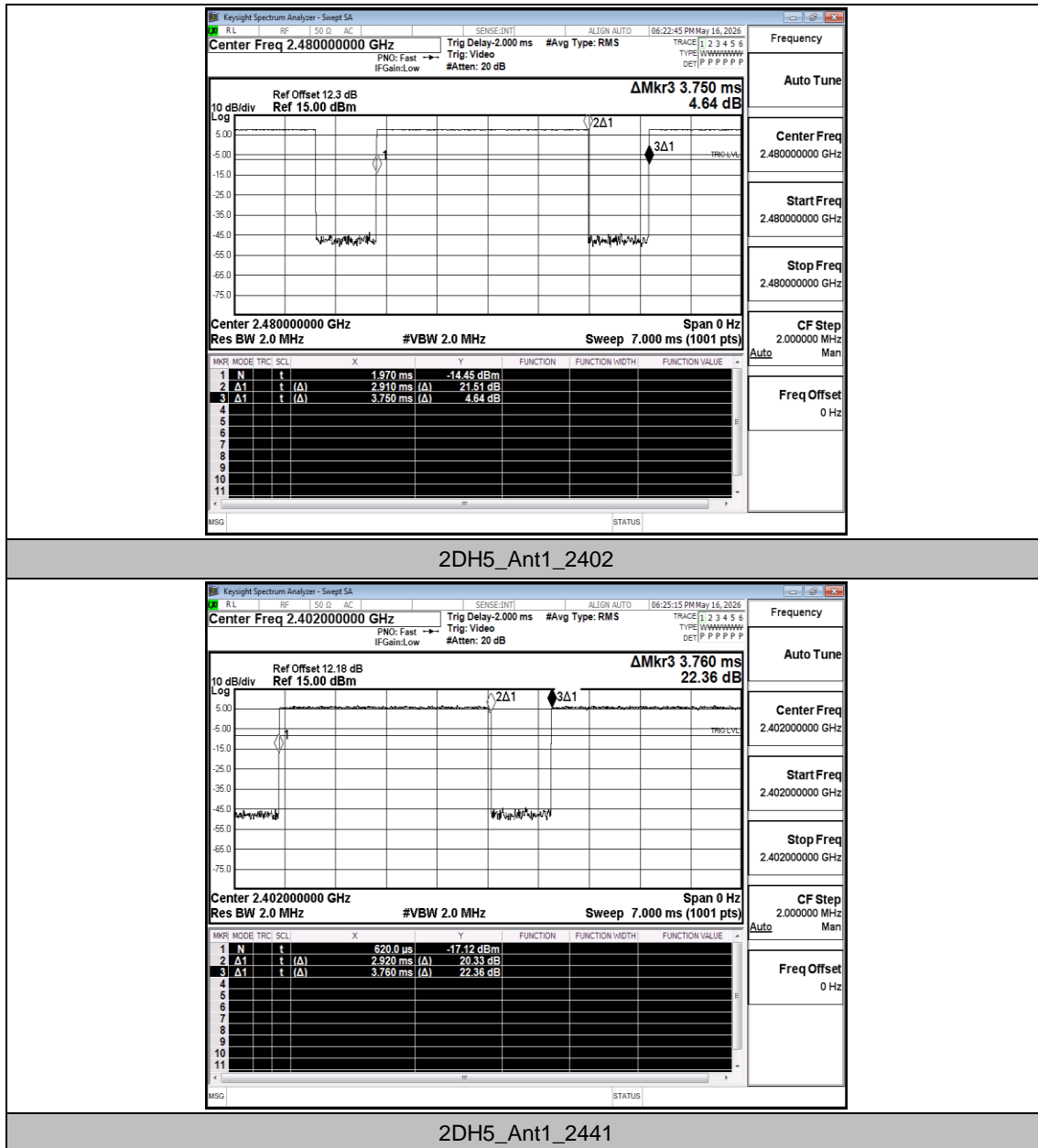
A.8 Duty Cycle

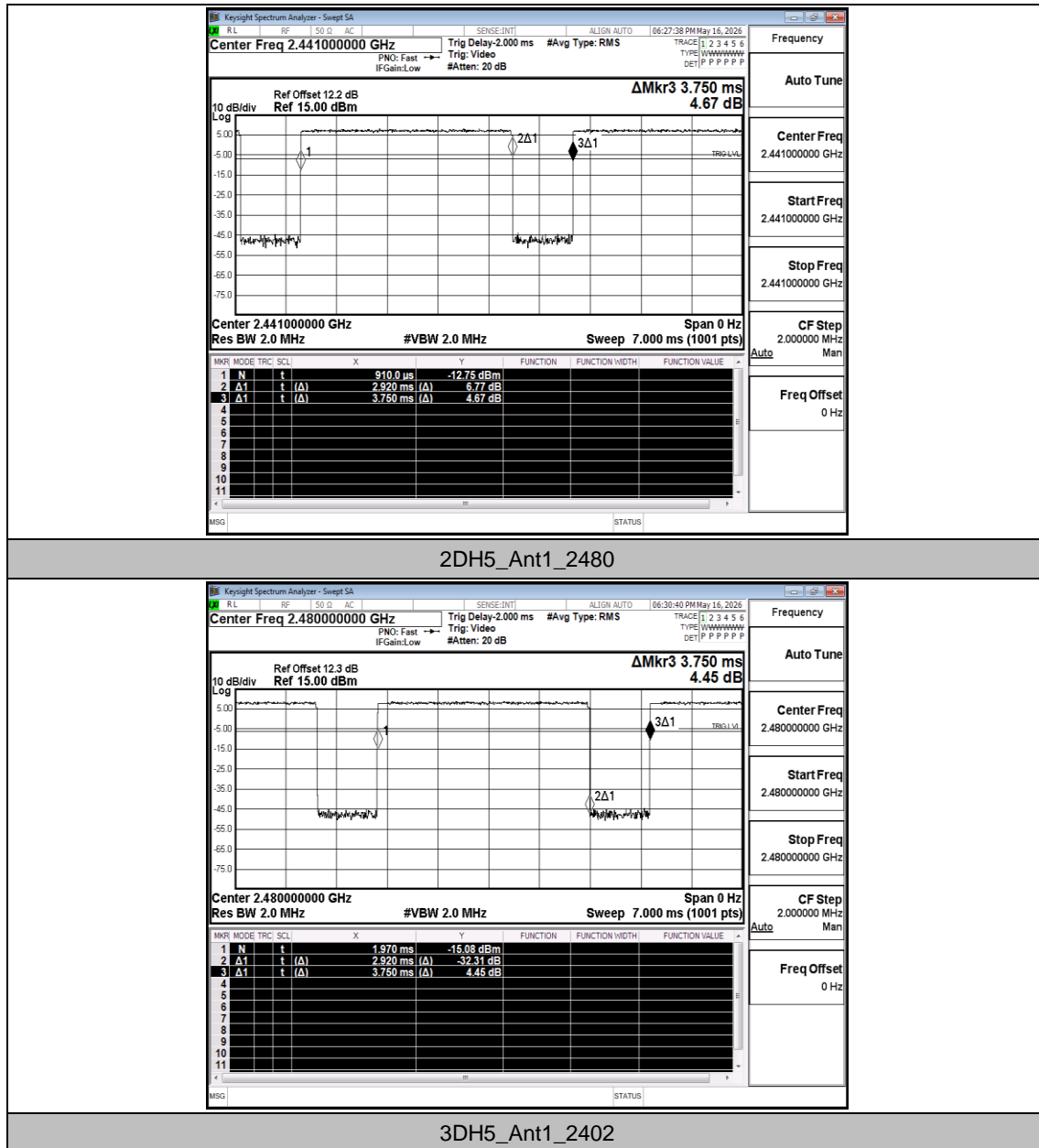
Test Result

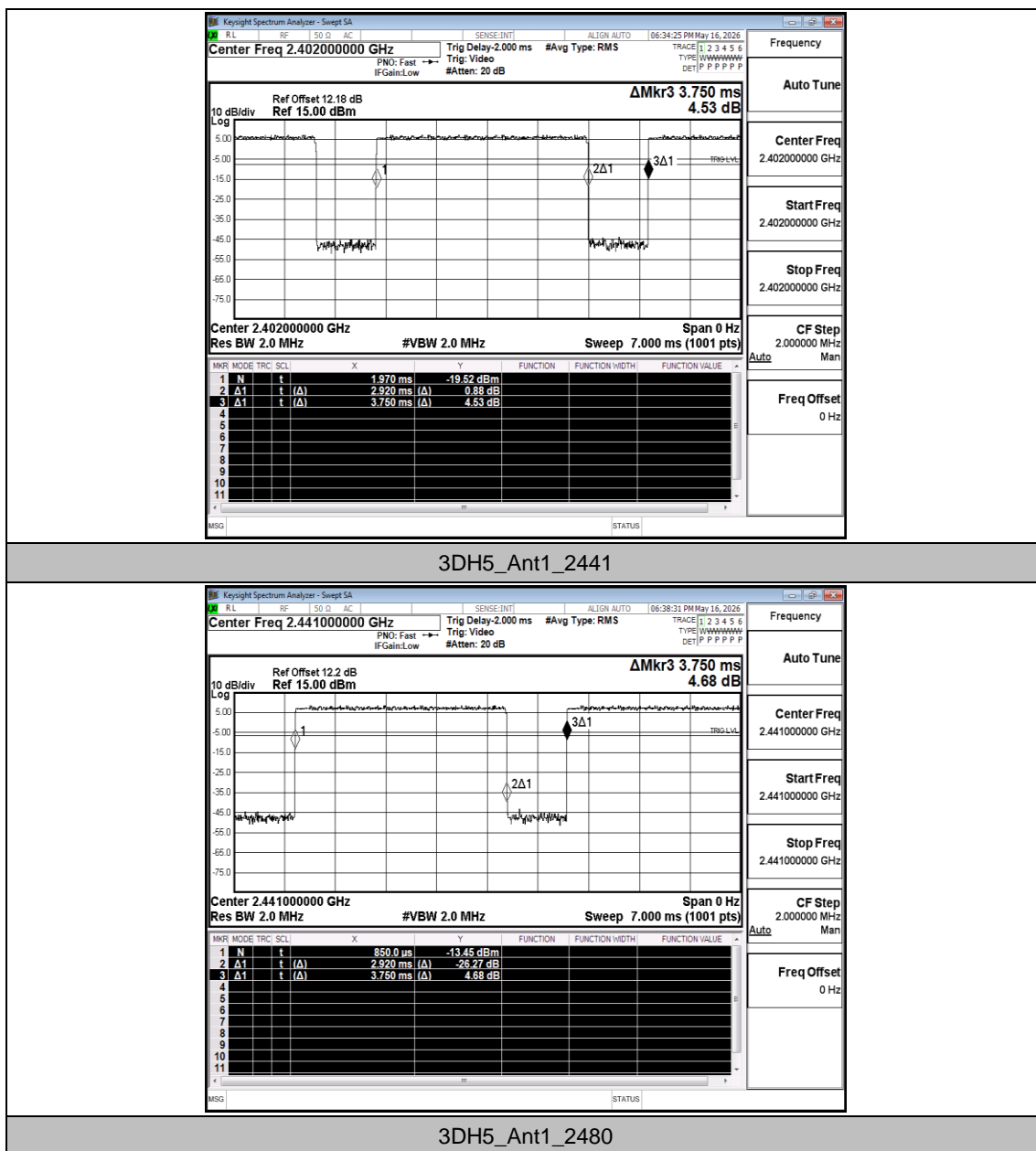
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.92	3.75	77.87	1.09	---	---
		2441	2.92	3.76	77.66	1.10	---	---
		2480	2.91	3.75	77.60	1.10	---	---
2DH5	Ant1	2402	2.92	3.76	77.66	1.10	---	---
		2441	2.92	3.75	77.87	1.09	---	---
		2480	2.92	3.75	77.87	1.09	---	---
3DH5	Ant1	2402	2.92	3.75	77.87	1.09	---	---
		2441	2.92	3.75	77.87	1.09	---	---
		2480	2.92	3.76	77.66	1.10	---	---

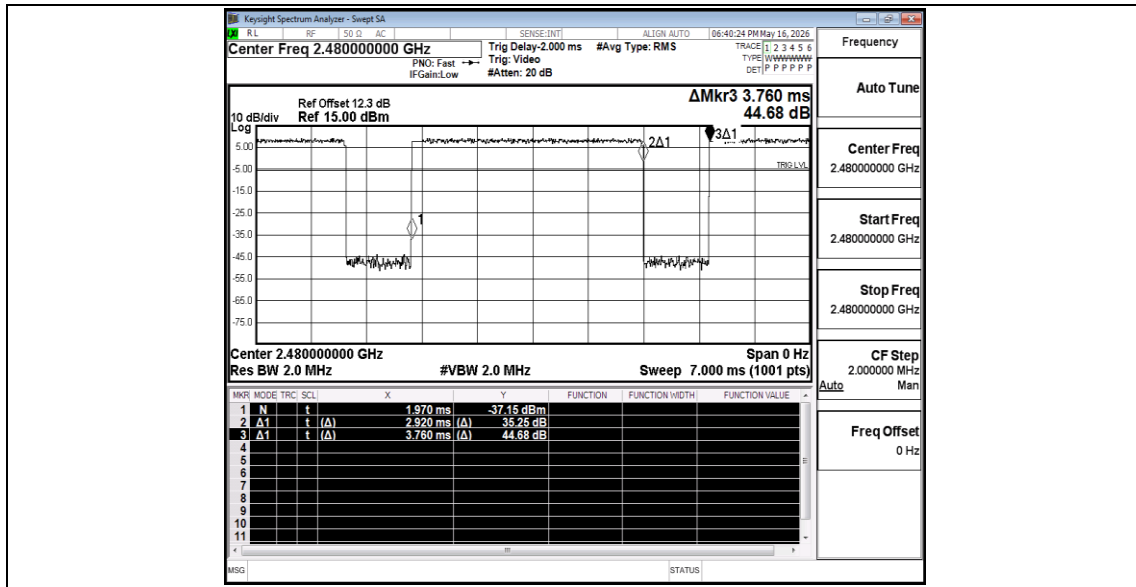
Test Graphs











A.9 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-60.31	≤-44.29	2.70	1.09	38.74	≤54	PASS
				AV	2352.080	-60.03	≤-44.29	2.70	1.09	39.02	≤54	PASS
				AV	2390.000	-60.15	≤-44.29	2.70	1.09	38.90	≤54	PASS
				Peak	2310.000	-51.69	≤-23.20	2.70	0.00	46.27	≤74	PASS
				Peak	2359.535	-50.04	≤-23.20	2.70	0.00	47.92	≤74	PASS
				Peak	2390.000	-50.9	≤-23.20	2.70	0.00	47.06	≤74	PASS
		High	2480	AV	2483.500	-52.79	≤-44.30	2.70	1.10	46.27	≤54	PASS
				AV	2498.880	-51.54	≤-44.30	2.70	1.10	47.52	≤54	PASS
				AV	2500.000	-57.56	≤-44.30	2.70	1.10	41.50	≤54	PASS
				Peak	2483.500	-47.63	≤-23.20	2.70	0.00	50.33	≤74	PASS
				Peak	2483.680	-43.57	≤-23.20	2.70	0.00	54.39	≤74	PASS
				Peak	2500.000	-52.47	≤-23.20	2.70	0.00	45.49	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-52.97	≤-23.20	2.70	0.00	44.99	≤74	PASS
				Peak	2343.890	-49.03	≤-23.20	2.70	0.00	48.93	≤74	PASS
				Peak	2390.000	-51.61	≤-23.20	2.70	0.00	46.35	≤74	PASS
		High	Hop_2480	Peak	2483.500	-50.45	≤-23.20	2.70	0.00	47.51	≤74	PASS
				Peak	2483.840	-48.62	≤-23.20	2.70	0.00	49.34	≤74	PASS
				Peak	2500.000	-52.17	≤-23.20	2.70	0.00	45.79	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-60.55	≤-44.30	2.70	1.10	38.51	≤54	PASS
				AV	2350.190	-59.89	≤-44.30	2.70	1.10	39.17	≤54	PASS
				AV	2390.000	-60.74	≤-44.30	2.70	1.10	38.32	≤54	PASS
				Peak	2310.000	-52.84	≤-23.20	2.70	0.00	45.12	≤74	PASS
				Peak	2327.615	-49.96	≤-23.20	2.70	0.00	48.00	≤74	PASS
				Peak	2390.000	-52.85	≤-23.20	2.70	0.00	45.11	≤74	PASS
		High	2480	AV	2483.500	-53.91	≤-44.29	2.70	1.09	45.14	≤54	PASS
				AV	2483.520	-53.91	≤-44.29	2.70	1.09	45.14	≤54	PASS
				AV	2500.000	-60.65	≤-44.29	2.70	1.09	38.40	≤54	PASS
				Peak	2483.500	-43.25	≤-23.20	2.70	0.00	54.71	≤74	PASS
				Peak	2484.720	-35.8	≤-23.20	2.70	0.00	62.16	≤74	PASS
				Peak	2500.000	-52.63	≤-23.20	2.70	0.00	45.33	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-52.2	≤-23.20	2.70	0.00	45.76	≤74	PASS
				Peak	2378.330	-49.35	≤-23.20	2.70	0.00	48.61	≤74	PASS
				Peak	2390.000	-52.85	≤-23.20	2.70	0.00	45.11	≤74	PASS
		High	Hop_2480	Peak	2483.500	-52.46	≤-23.20	2.70	0.00	45.50	≤74	PASS

				Peak	2487.520	-50.14	≤-23.20	2.70	0.00	47.82	≤74	PASS
				Peak	2500.000	-52.29	≤-23.20	2.70	0.00	45.67	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-60.88	≤-44.29	2.70	1.09	38.17	≤54	PASS
				AV	2366.045	-60.07	≤-44.29	2.70	1.09	38.98	≤54	PASS
				AV	2390.000	-60.56	≤-44.29	2.70	1.09	38.49	≤54	PASS
				Peak	2310.000	-53.02	≤-23.20	2.70	0.00	44.94	≤74	PASS
				Peak	2384.945	-49.88	≤-23.20	2.70	0.00	48.08	≤74	PASS
				Peak	2390.000	-53.03	≤-23.20	2.70	0.00	44.93	≤74	PASS
		High	2480	AV	2483.500	-54.42	≤-44.30	2.70	1.10	44.64	≤54	PASS
				AV	2483.520	-54.42	≤-44.30	2.70	1.10	44.64	≤54	PASS
				AV	2500.000	-60.15	≤-44.30	2.70	1.10	38.91	≤54	PASS
				Peak	2483.500	-43.18	≤-23.20	2.70	0.00	54.78	≤74	PASS
				Peak	2483.520	-43.18	≤-23.20	2.70	0.00	54.78	≤74	PASS
				Peak	2500.000	-52.58	≤-23.20	2.70	0.00	45.38	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-54.36	≤-23.20	2.70	0.00	43.60	≤74	PASS
				Peak	2381.375	-49.31	≤-23.20	2.70	0.00	48.65	≤74	PASS
				Peak	2390.000	-52.01	≤-23.20	2.70	0.00	45.95	≤74	PASS
		High	Hop_2480	Peak	2483.500	-51.15	≤-23.20	2.70	0.00	46.81	≤74	PASS
				Peak	2483.680	-48.02	≤-23.20	2.70	0.00	49.94	≤74	PASS
				Peak	2500.000	-52.52	≤-23.20	2.70	0.00	45.44	≤74	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.

Test Graphs

