

Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: PHONO AMPLIFIER

Test Model: PPA7

Environmental Conditions

Temperature:	24.2°C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

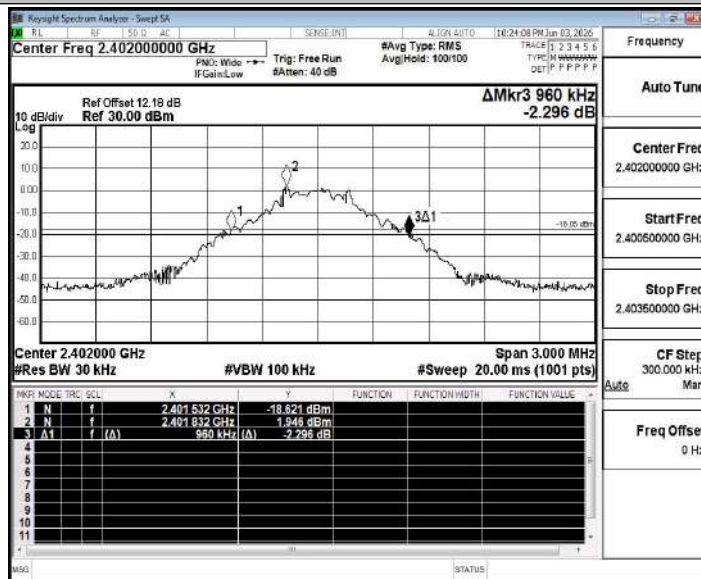
A.1 20dB Emission Bandwidth

Test Result

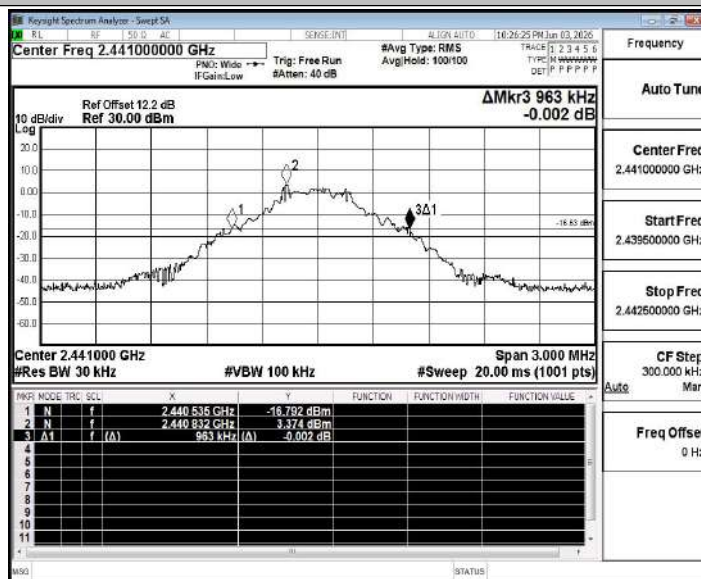
TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.960	2401.532	2402.492	---	---
		2441	0.963	2440.535	2441.498	---	---
		2480	0.966	2479.532	2480.498	---	---
2DH5	Ant1	2402	1.287	2401.361	2402.648	---	---
		2441	1.284	2440.361	2441.645	---	---
		2480	1.293	2479.355	2480.648	---	---
3DH5	Ant1	2402	1.299	2401.346	2402.645	---	---
		2441	1.299	2440.346	2441.645	---	---
		2480	1.296	2479.346	2480.642	---	---

Test Graphs

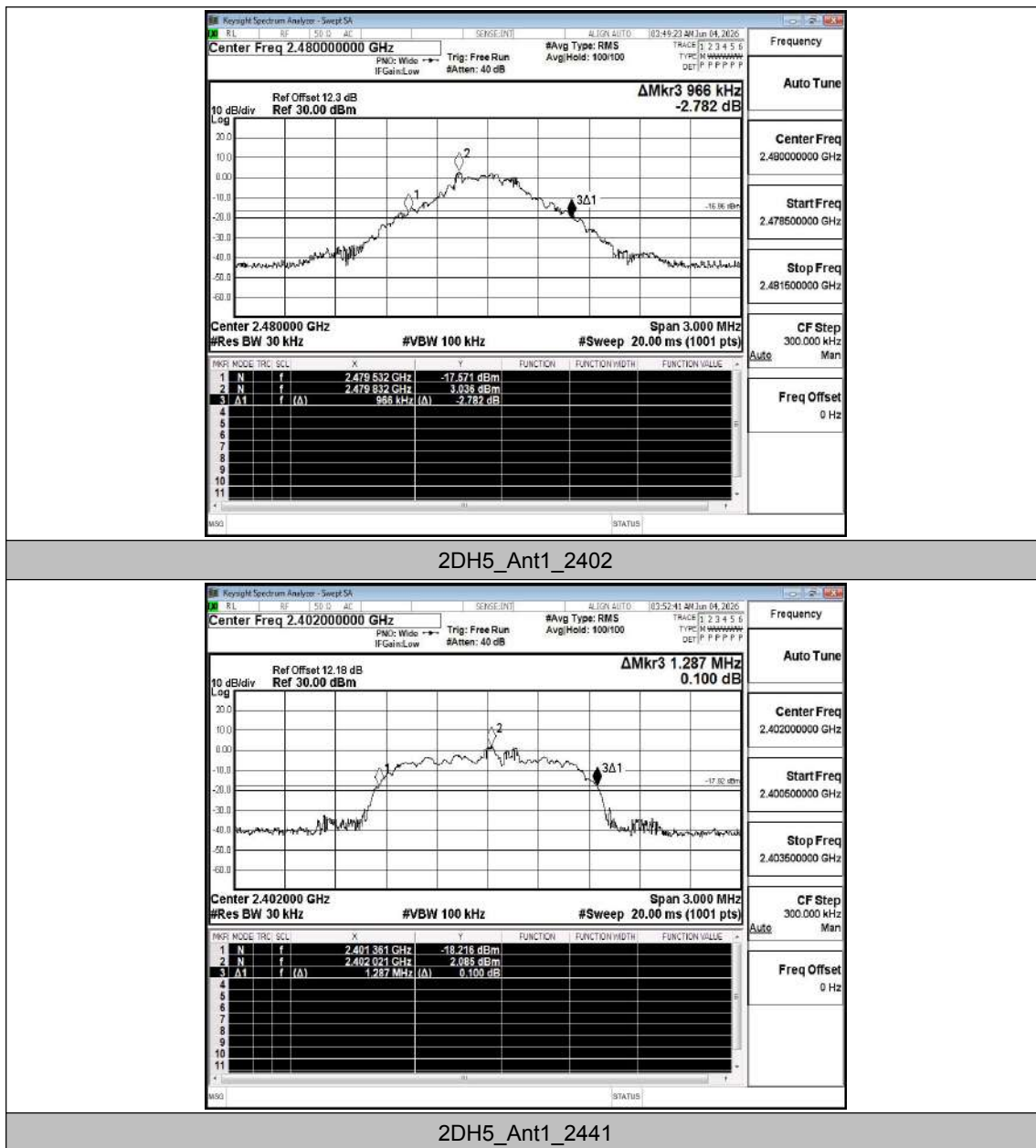
DH5_Ant1_2402

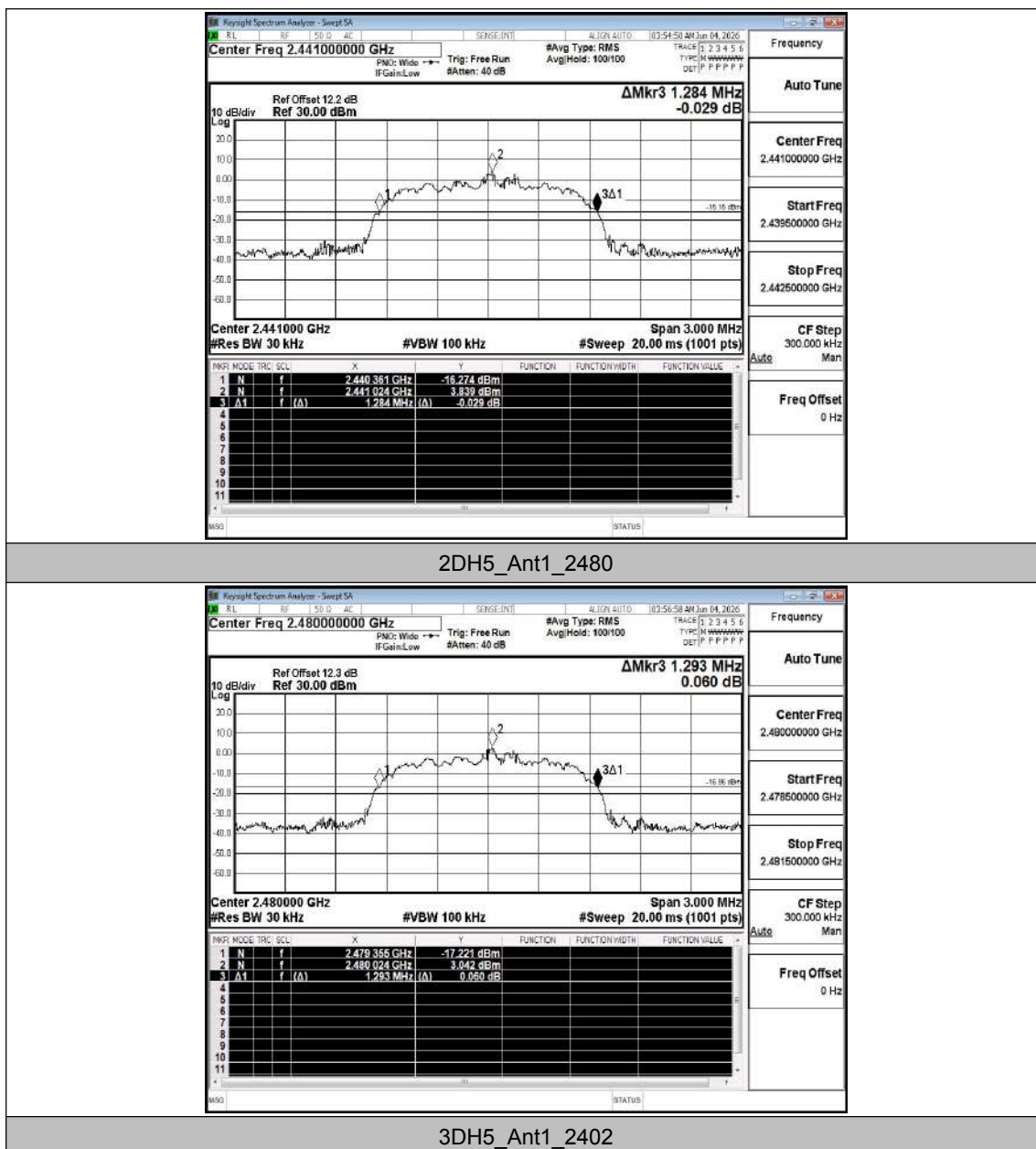


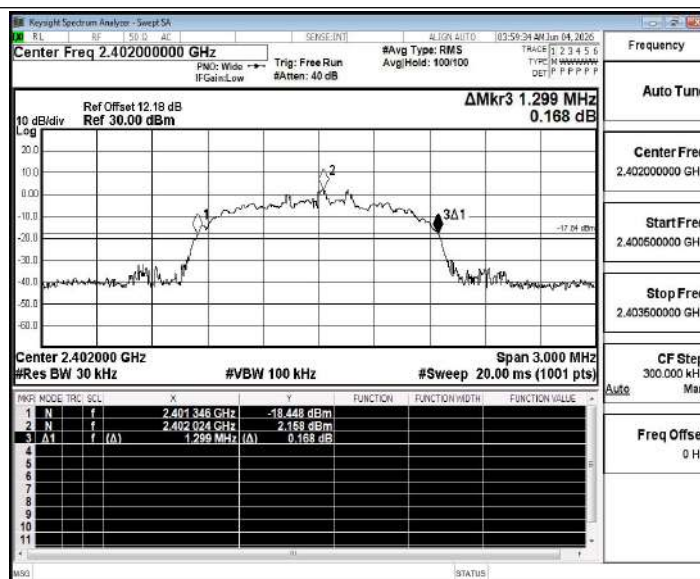
DH5_Ant1_2441



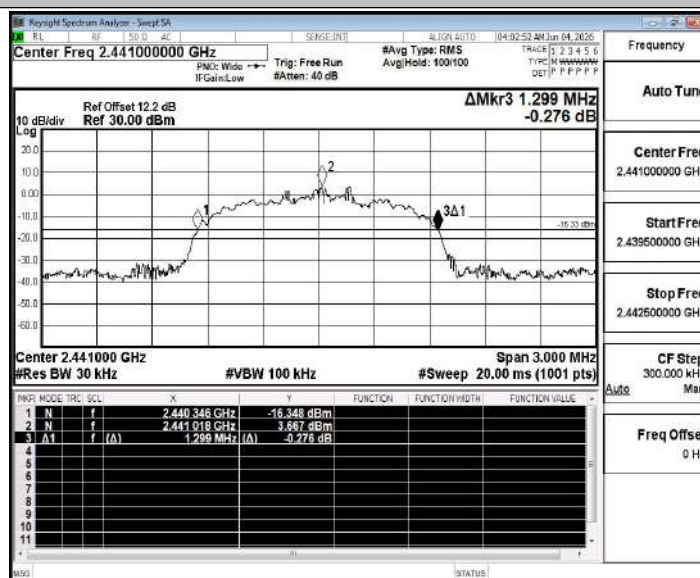
DH5_Ant1_2480







3DH5_Ant1_2441



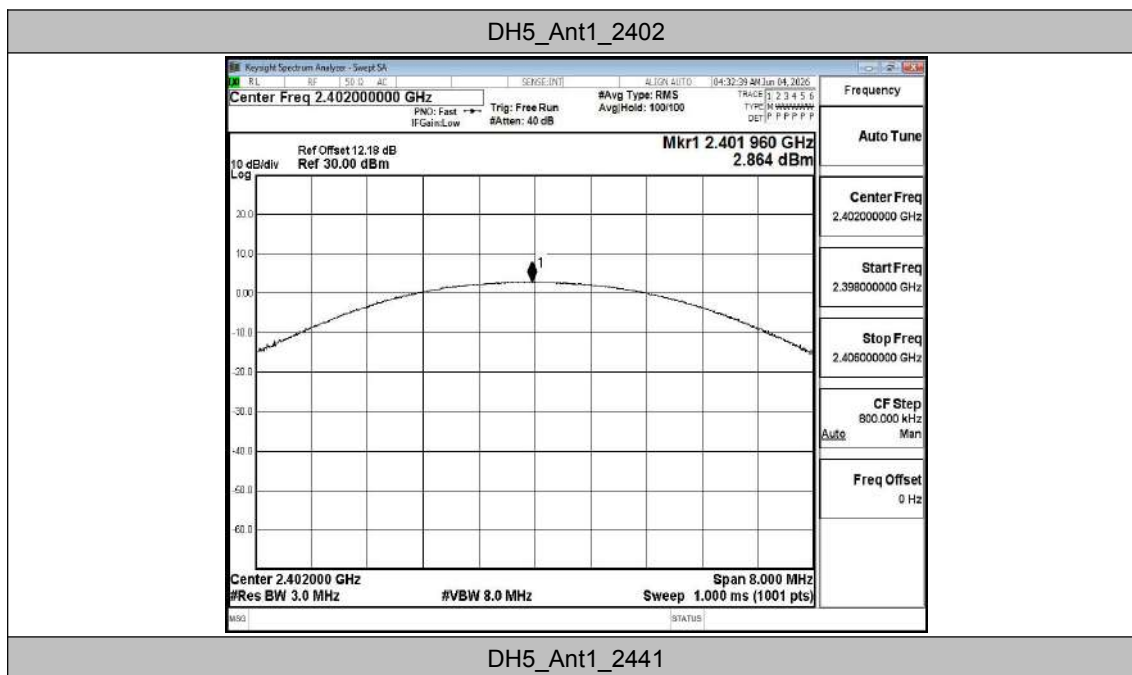
3DH5_Ant1_2480

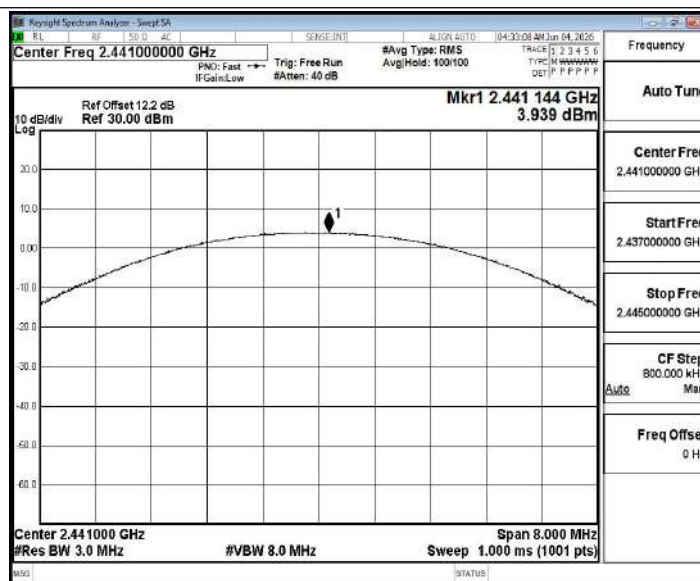
A.2 Maximum conducted output power

Test Result Peak

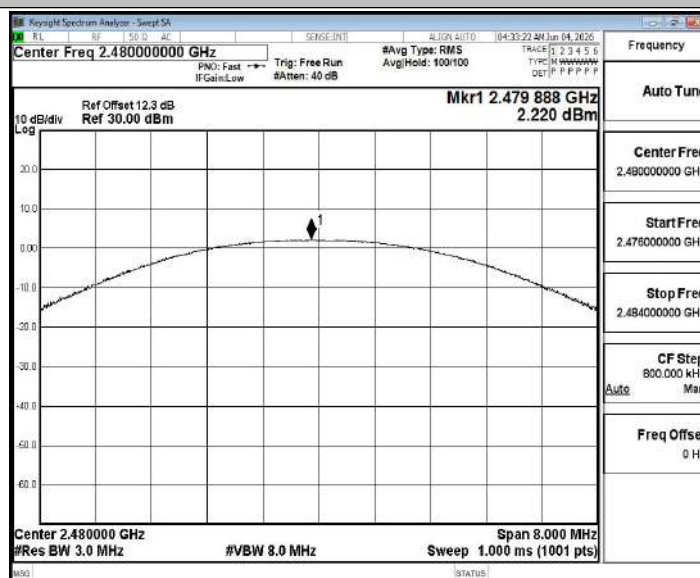
Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	2.86	≤30	PASS
		2441	3.94	≤30	PASS
		2480	2.22	≤30	PASS
2DH5	Ant1	2402	4.36	≤30	PASS
		2441	5.10	≤30	PASS
		2480	3.19	≤30	PASS
3DH5	Ant1	2402	4.59	≤30	PASS
		2441	5.45	≤30	PASS
		2480	3.54	≤30	PASS

Test Graphs

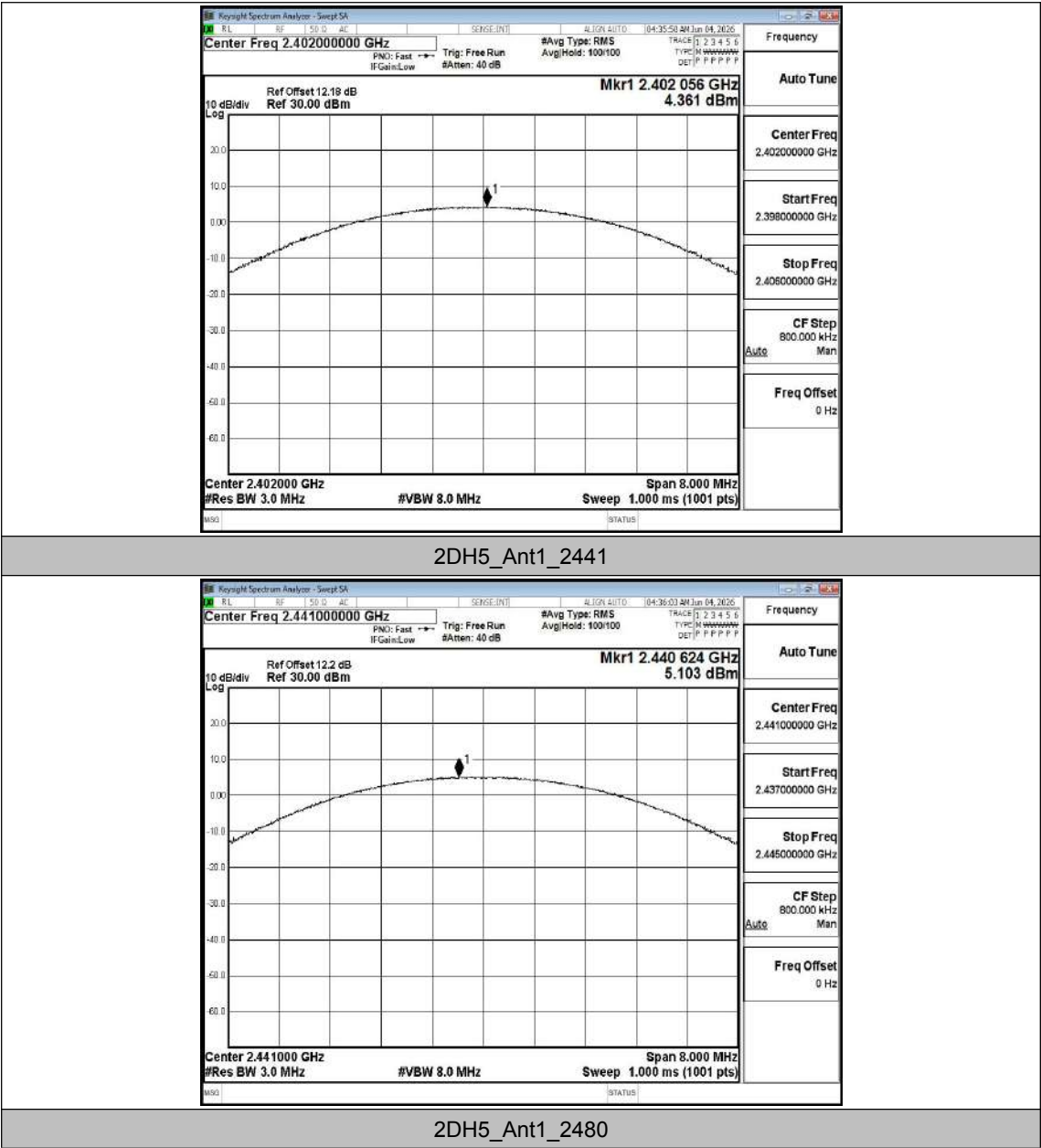


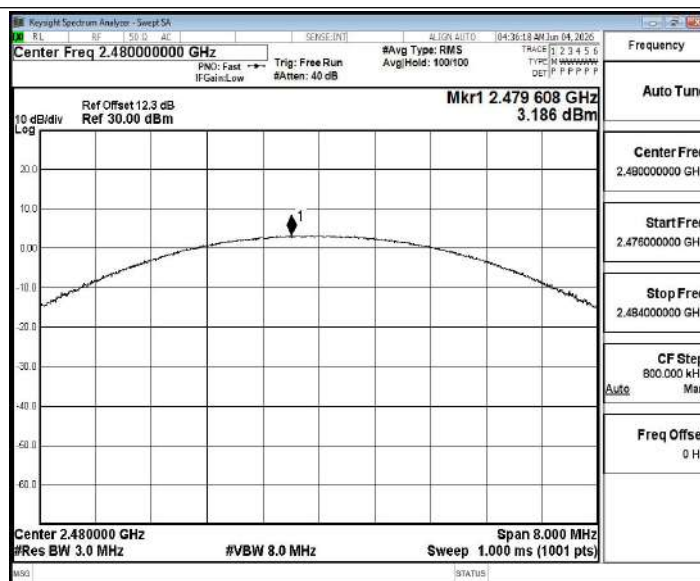


DH5_Ant1_2480

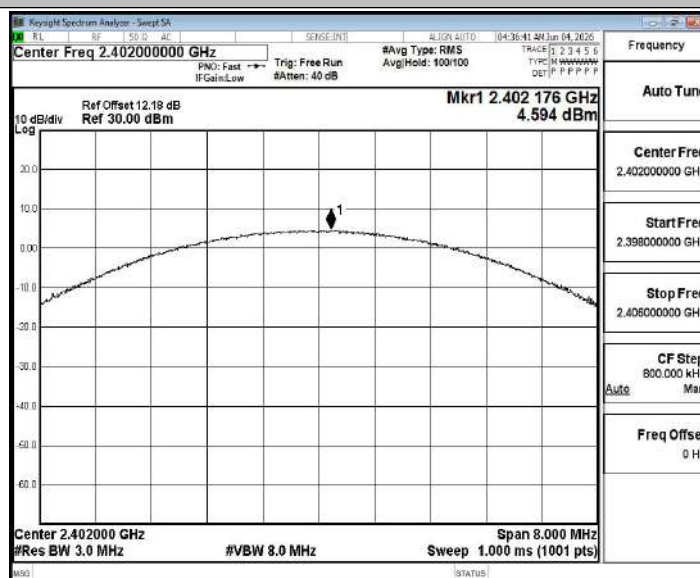


2DH5_Ant1_2402

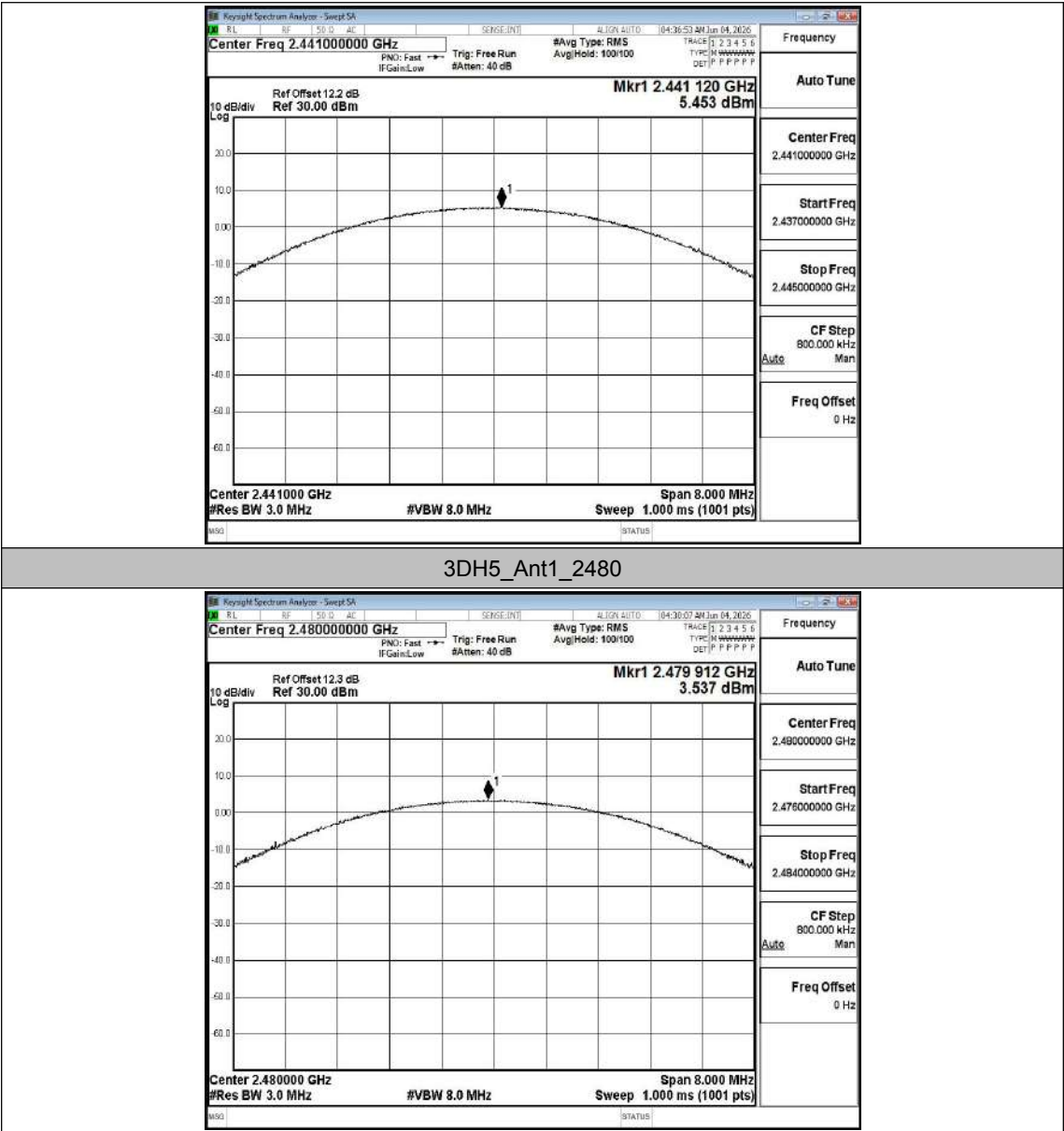




3DH5_Ant1_2402



3DH5_Ant1_2441



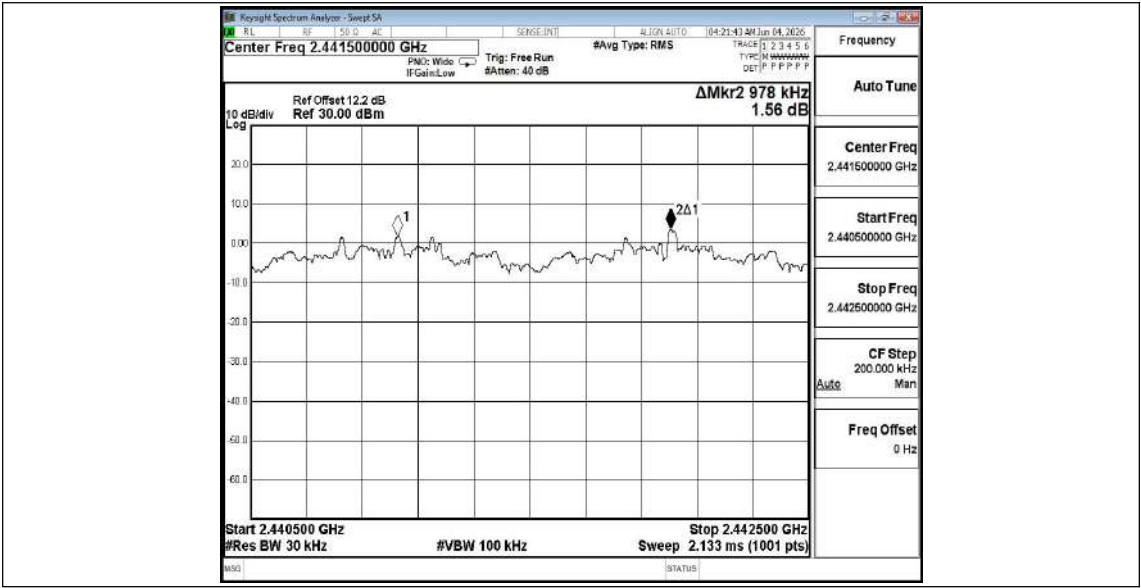
A.3 Carrier frequency separation

Test Result

TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.802	≥ 0.644	PASS
2DH5	Ant1	Hop	0.992	≥ 0.862	PASS
3DH5	Ant1	Hop	0.978	≥ 0.866	PASS

Test Graphs



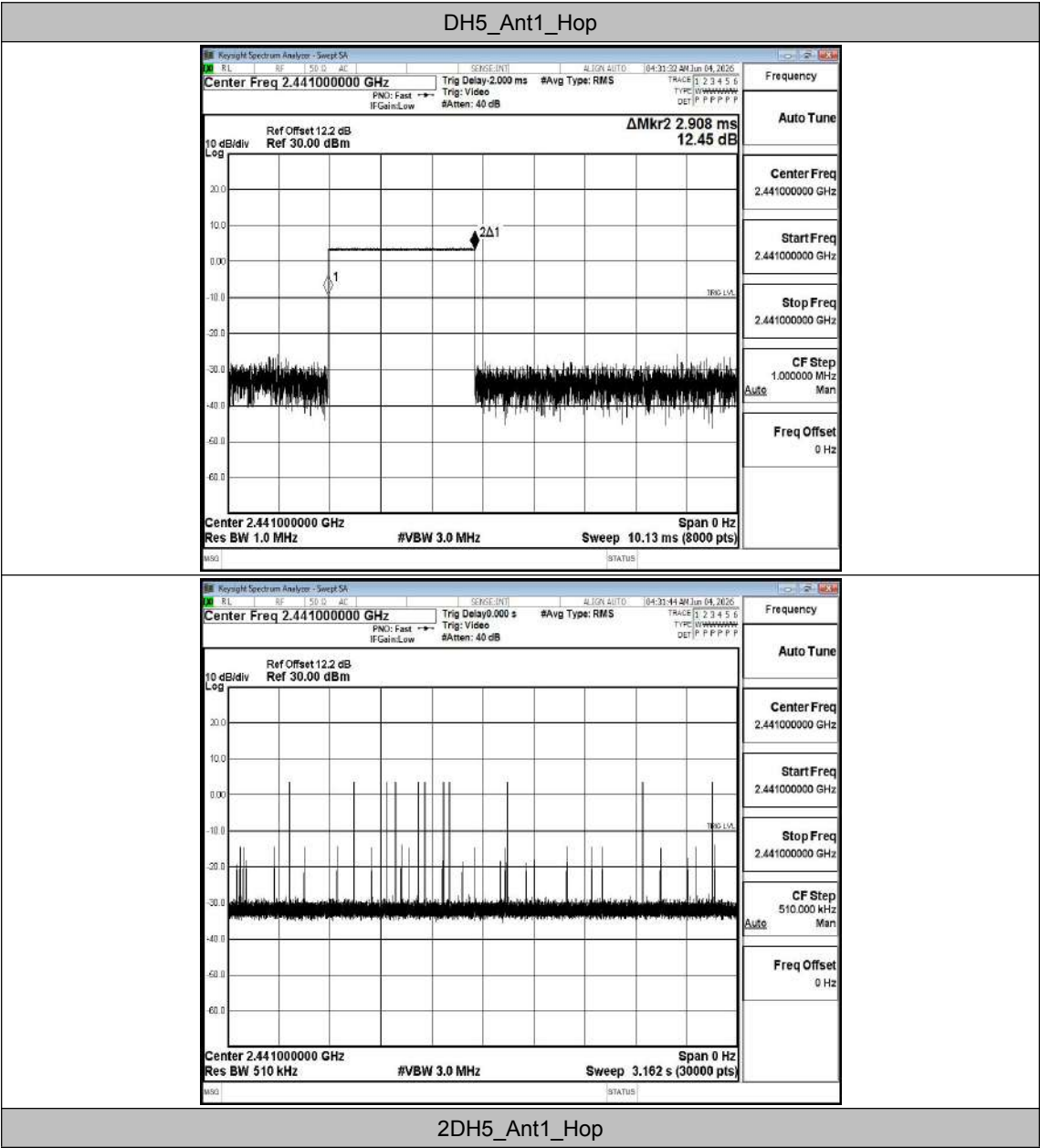


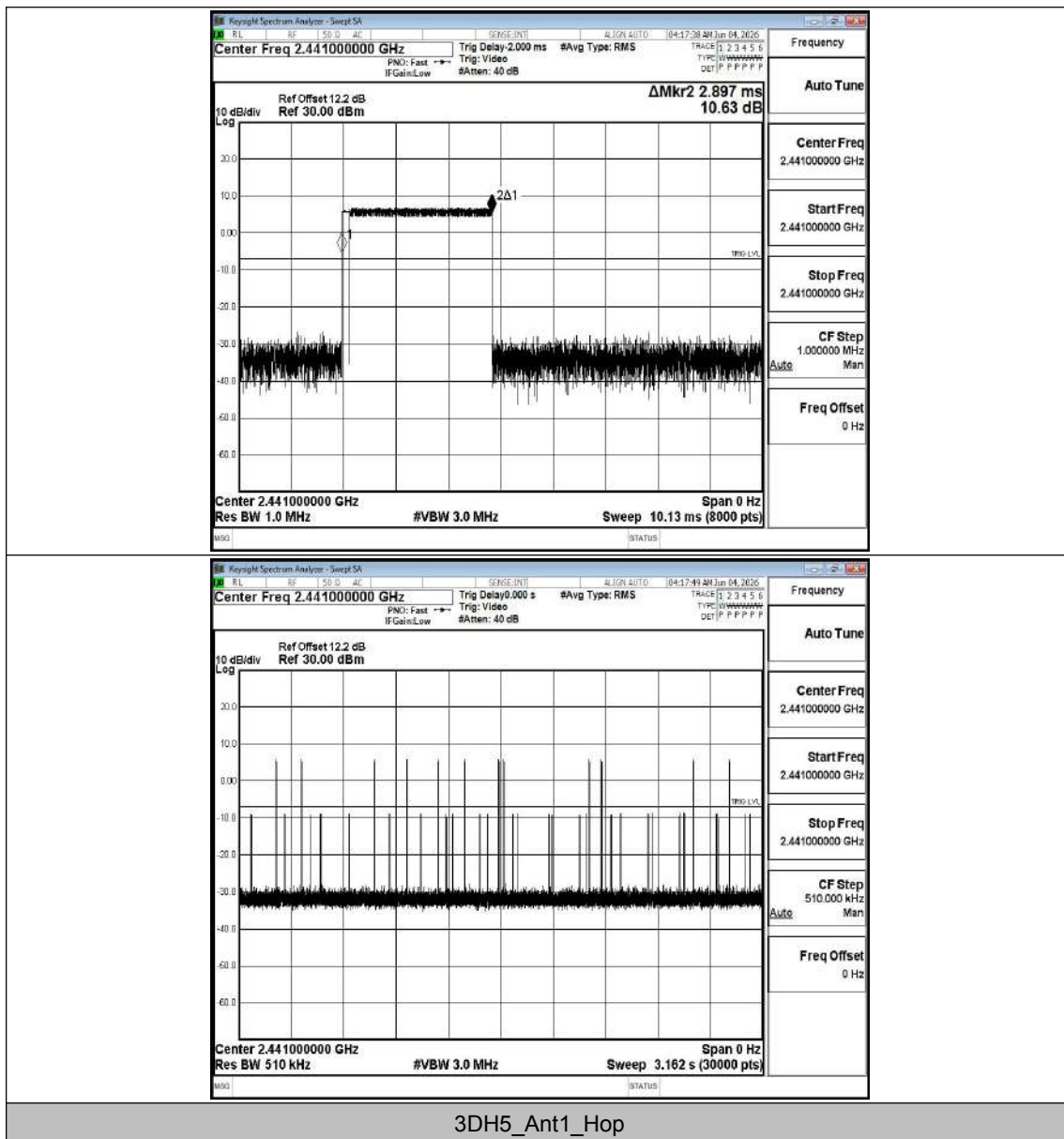
A.4 Time of occupancy

Test Result

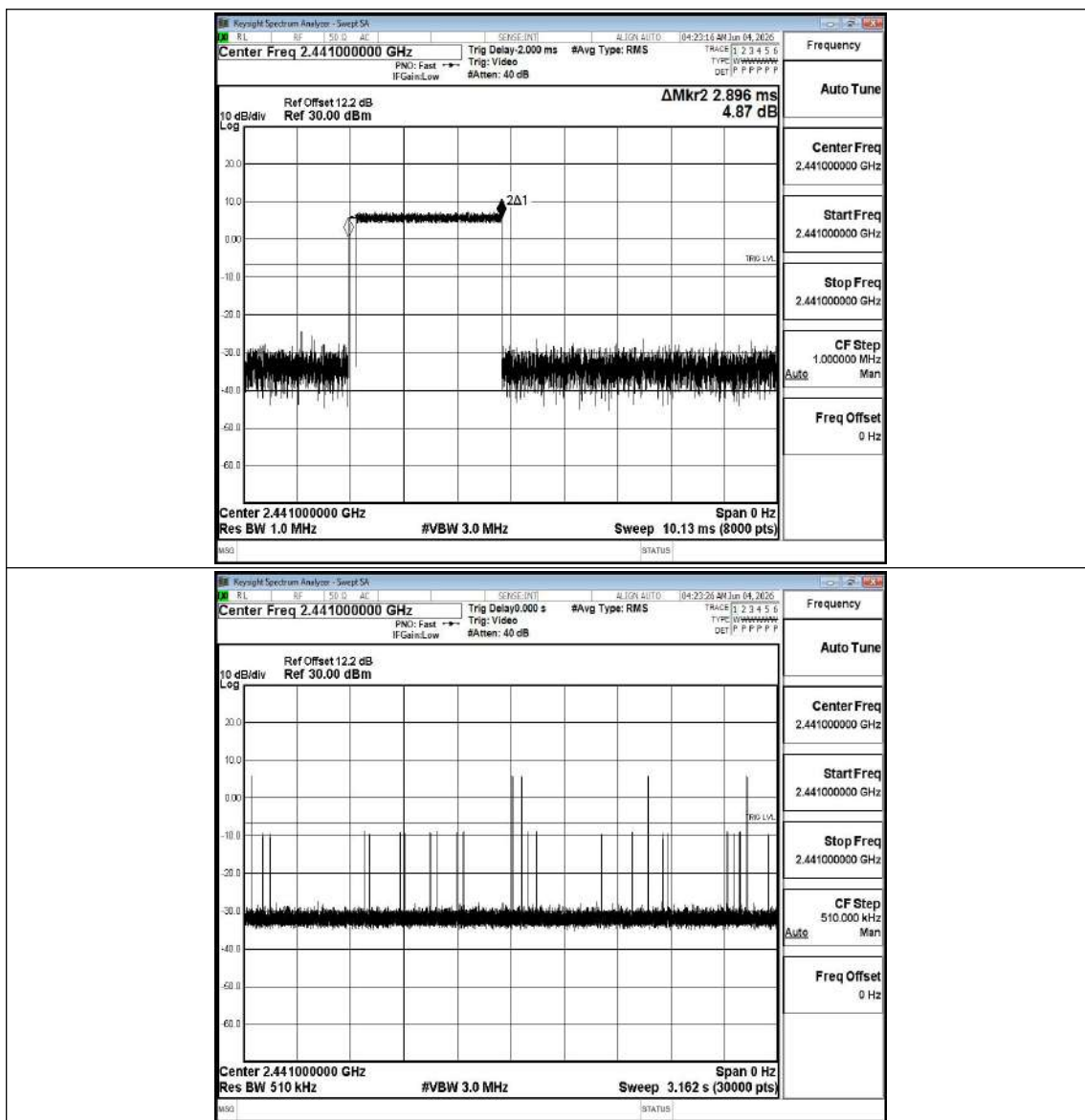
TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.908	120	0.349	≤0.4	PASS
2DH5	Ant1	Hop	2.897	130	0.377	≤0.4	PASS
3DH5	Ant1	Hop	2.896	60	0.174	≤0.4	PASS

Test Graphs





3DH5_Ant1_Hop

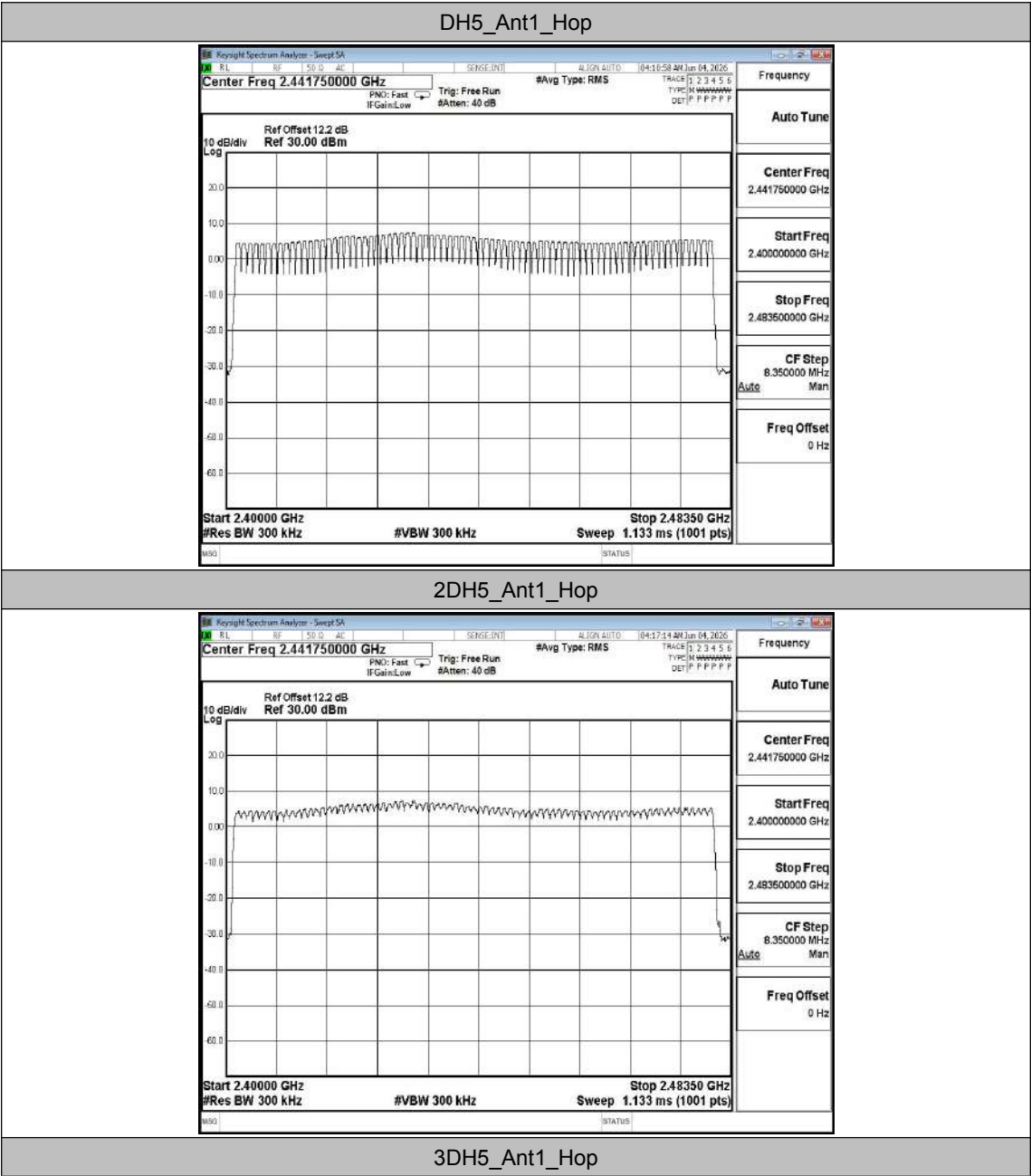


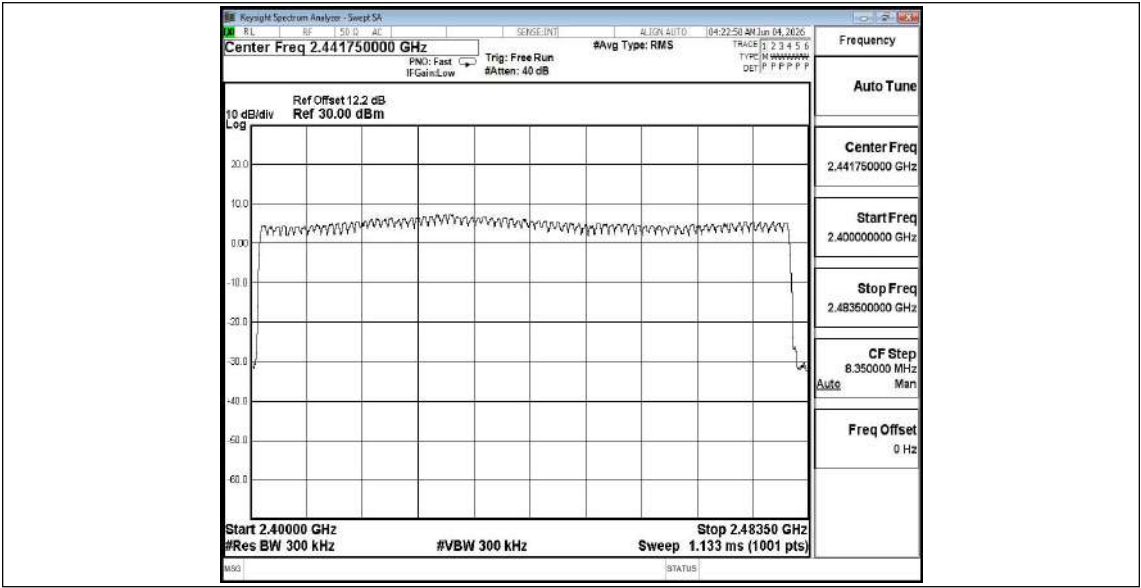
A.5 Number of hopping channels

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



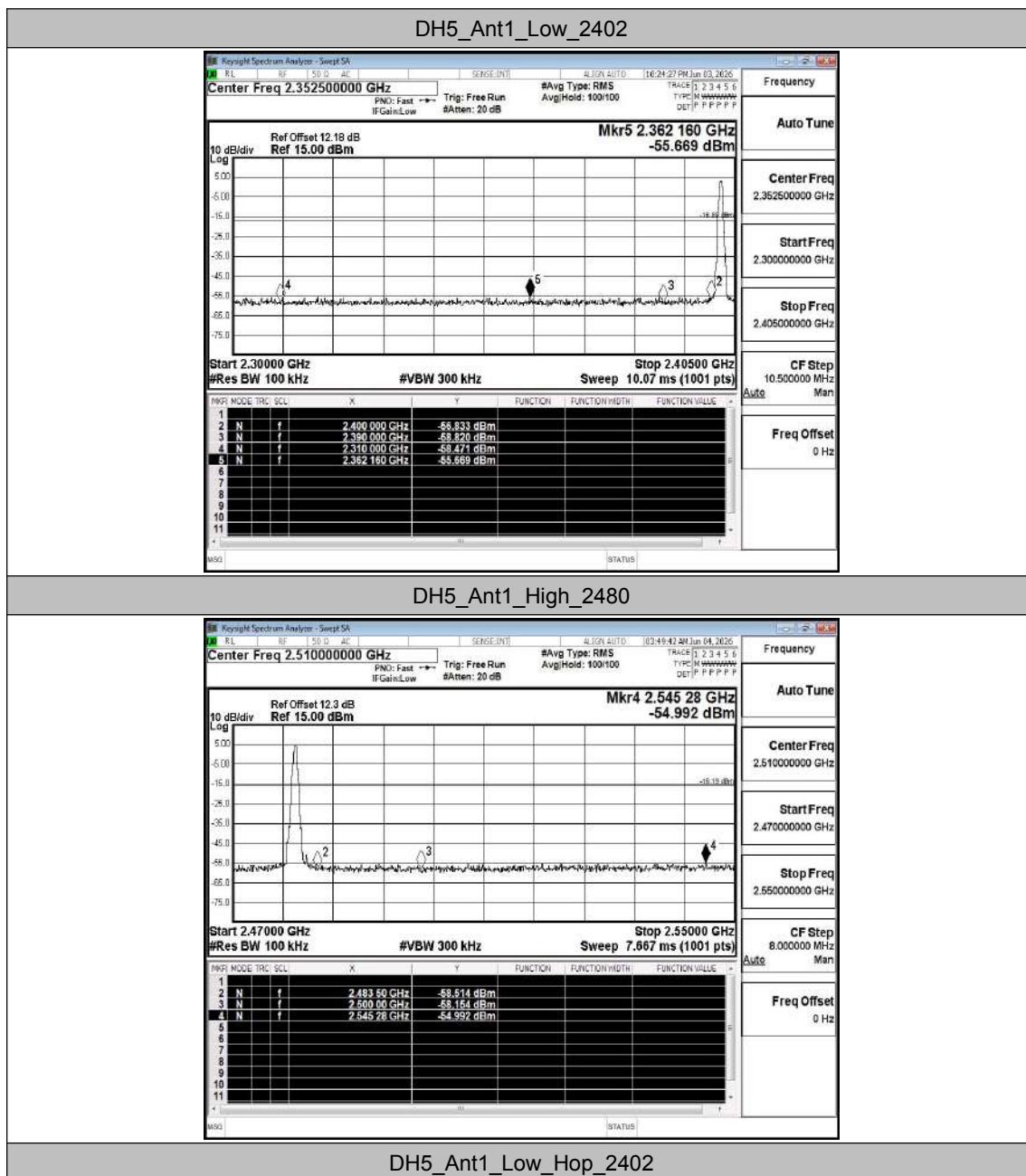


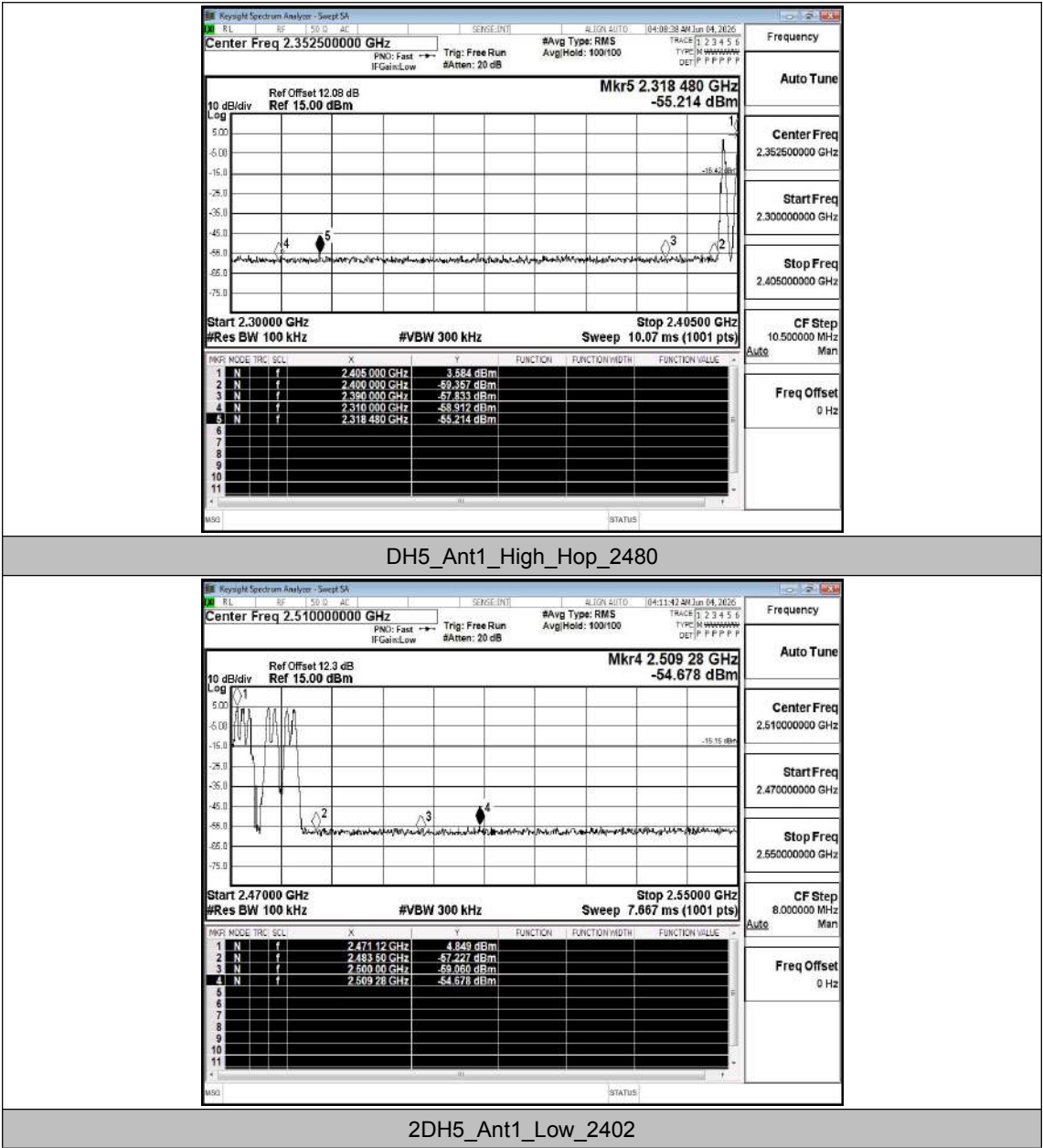
A.6 Band edge measurements

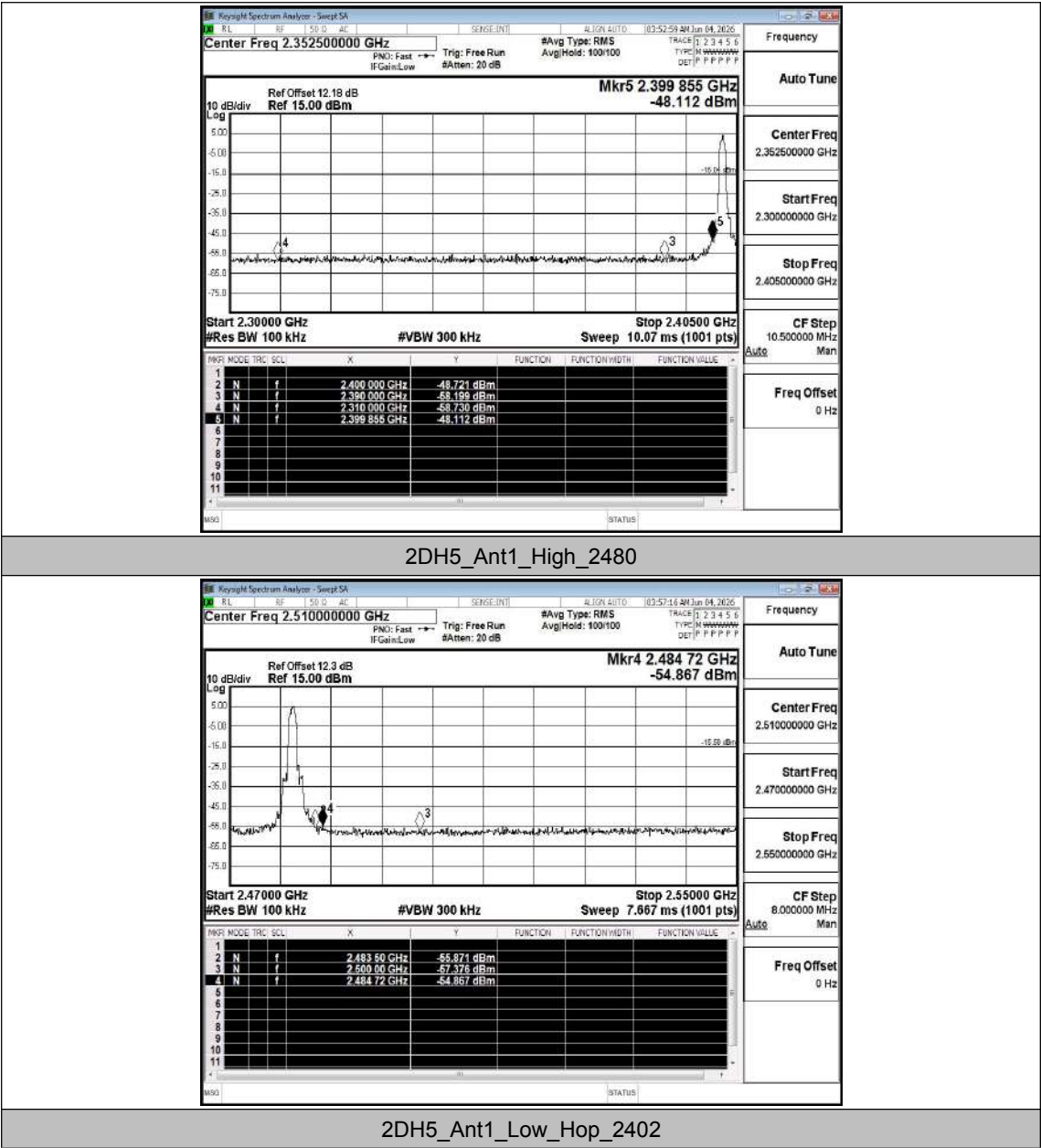
Test Result

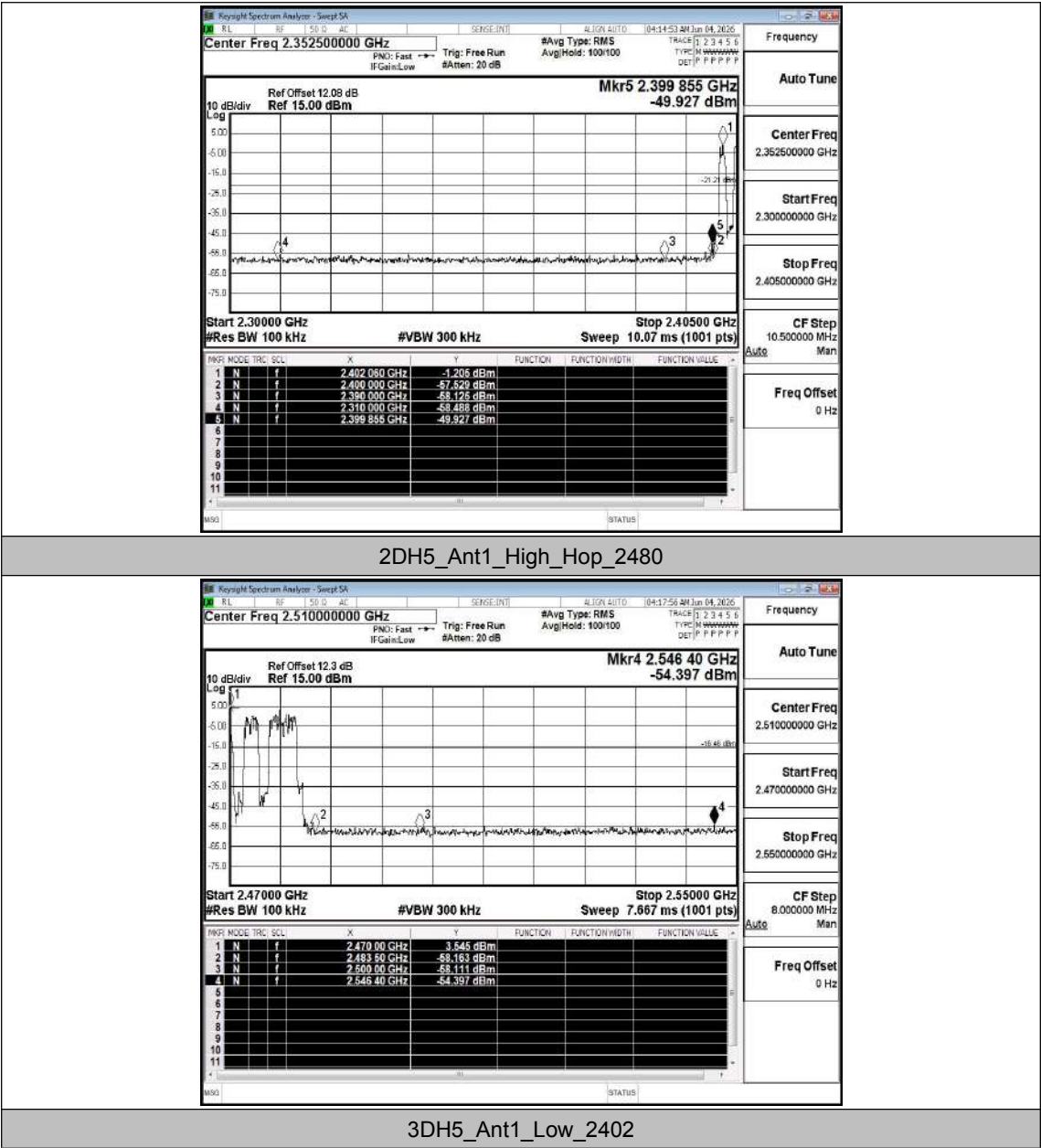
TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	3.11	-55.67	≤ -16.89	PASS
		High	2480	3.81	-54.99	≤ -16.19	PASS
		Low	Hop_2402	3.58	-55.21	≤ -16.42	PASS
		High	Hop_2480	4.85	-54.68	≤ -15.15	PASS
2DH5	Ant1	Low	2402	3.96	-48.11	≤ -16.04	PASS
		High	2480	4.42	-54.87	≤ -15.58	PASS
		Low	Hop_2402	-1.21	-49.93	≤ -21.21	PASS
		High	Hop_2480	3.55	-54.4	≤ -16.46	PASS
3DH5	Ant1	Low	2402	3.71	-47.05	≤ -16.29	PASS
		High	2480	5.16	-52.57	≤ -14.84	PASS
		Low	Hop_2402	1.73	-49.93	≤ -18.27	PASS
		High	Hop_2480	2.23	-54.68	≤ -17.77	PASS

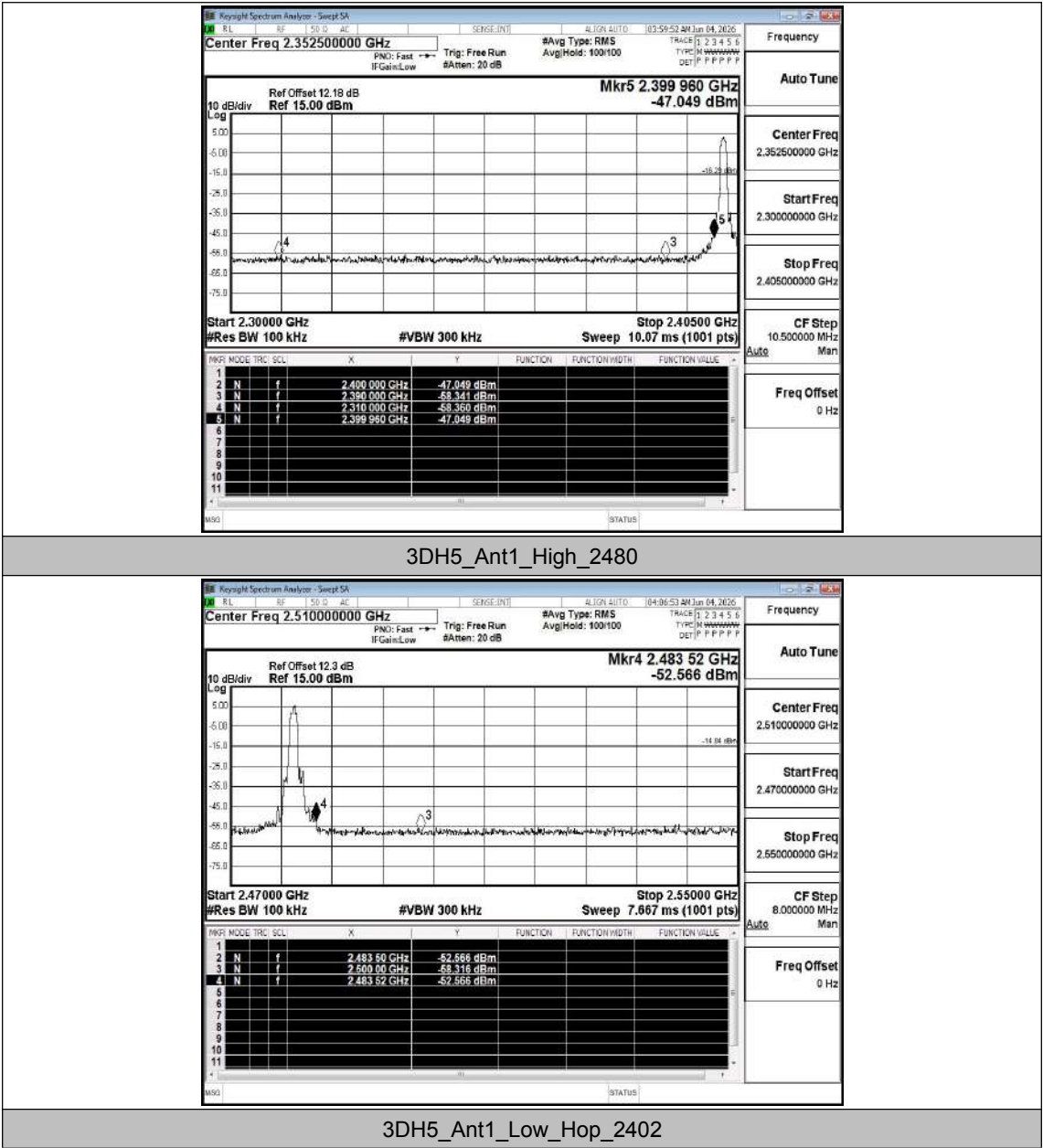
Test Graphs

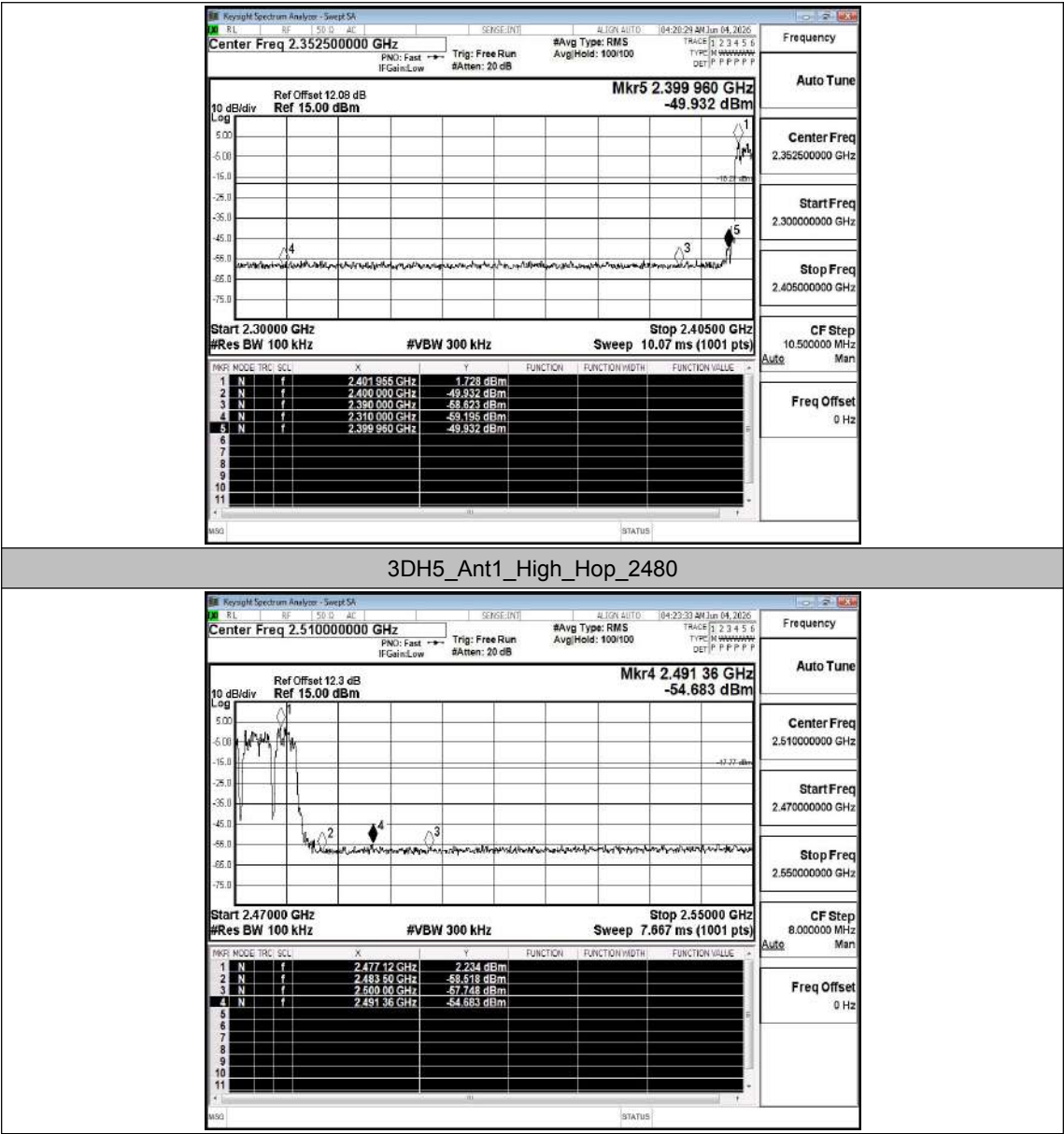










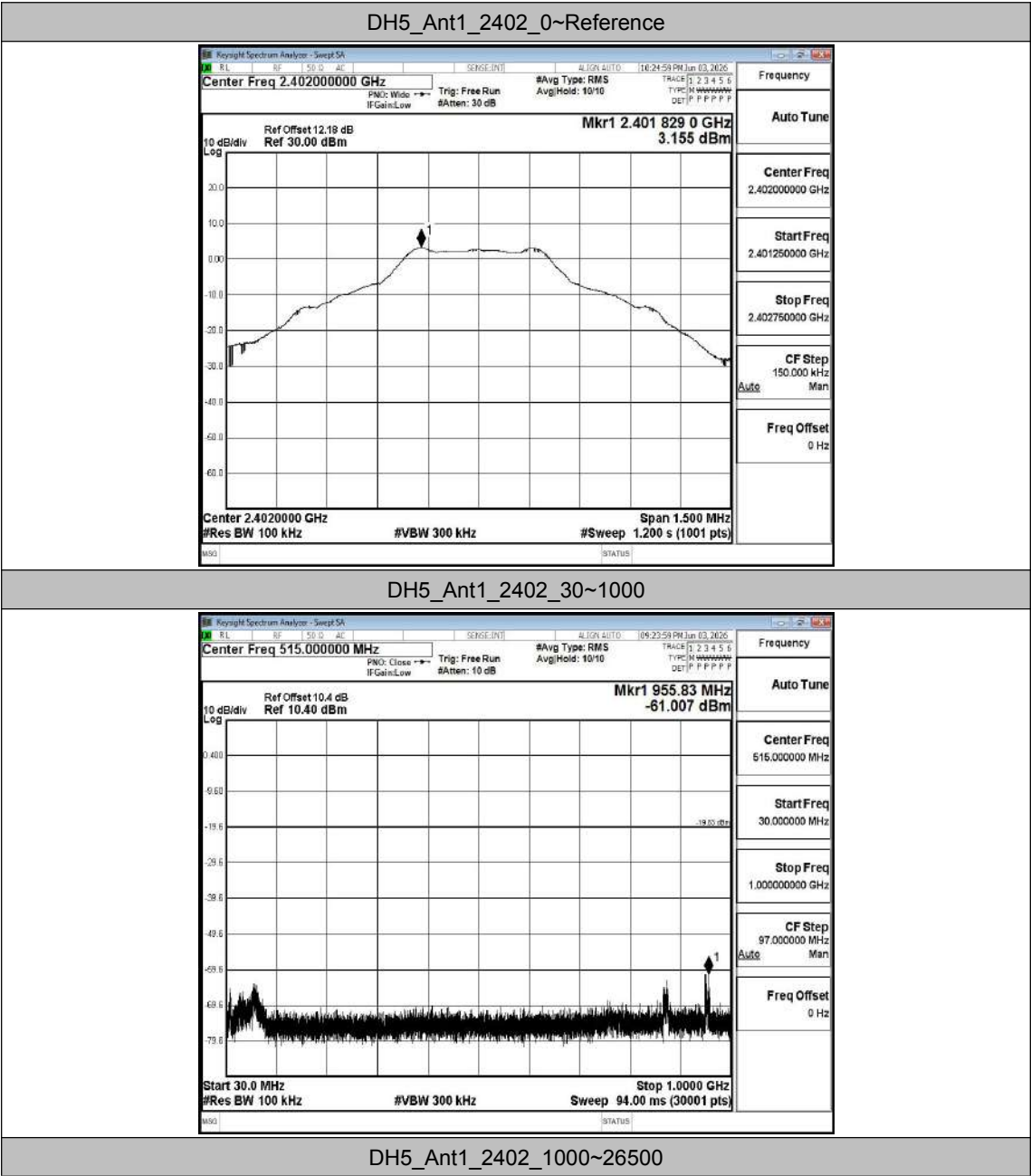


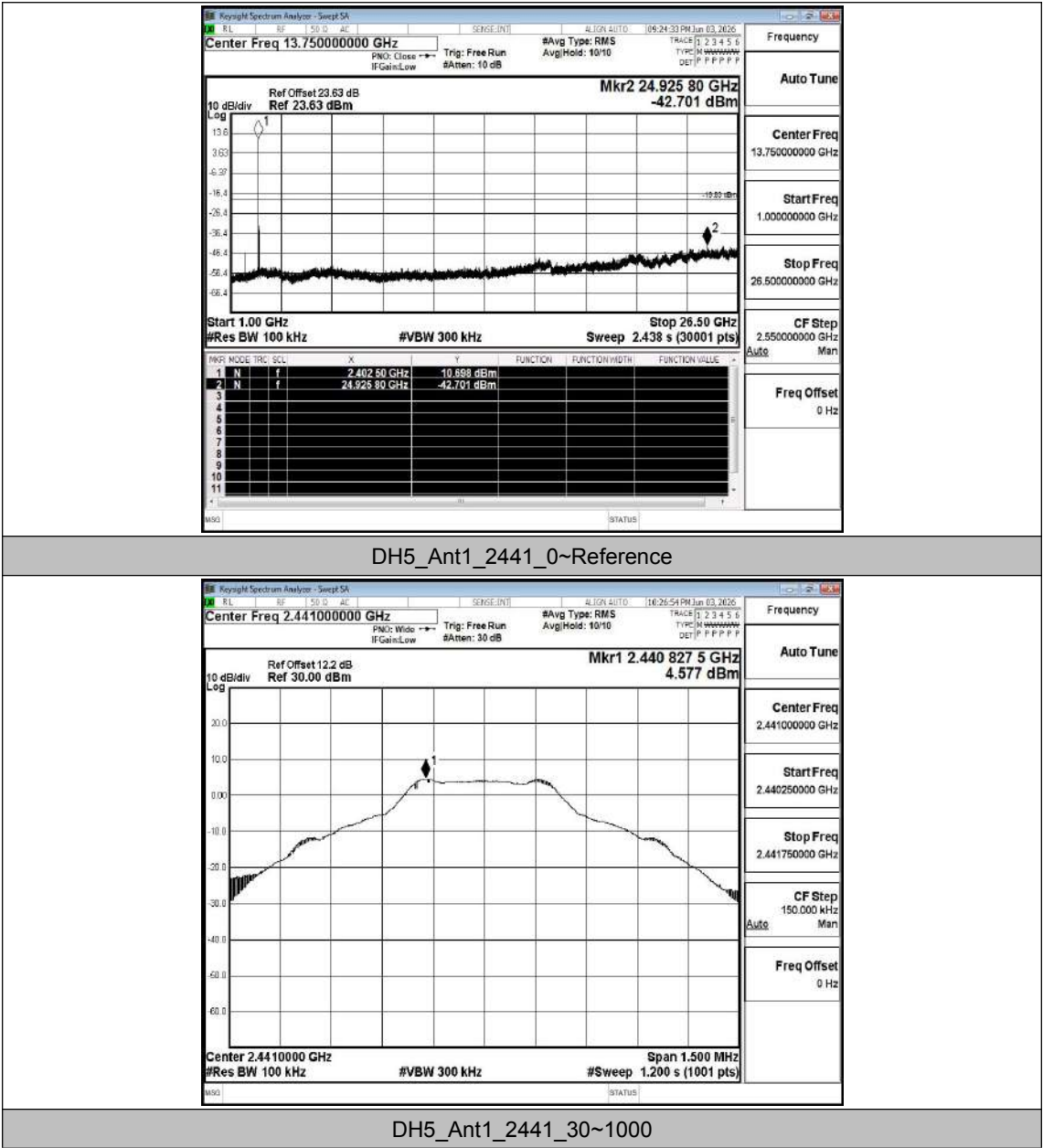
A.7 Conducted Spurious Emission

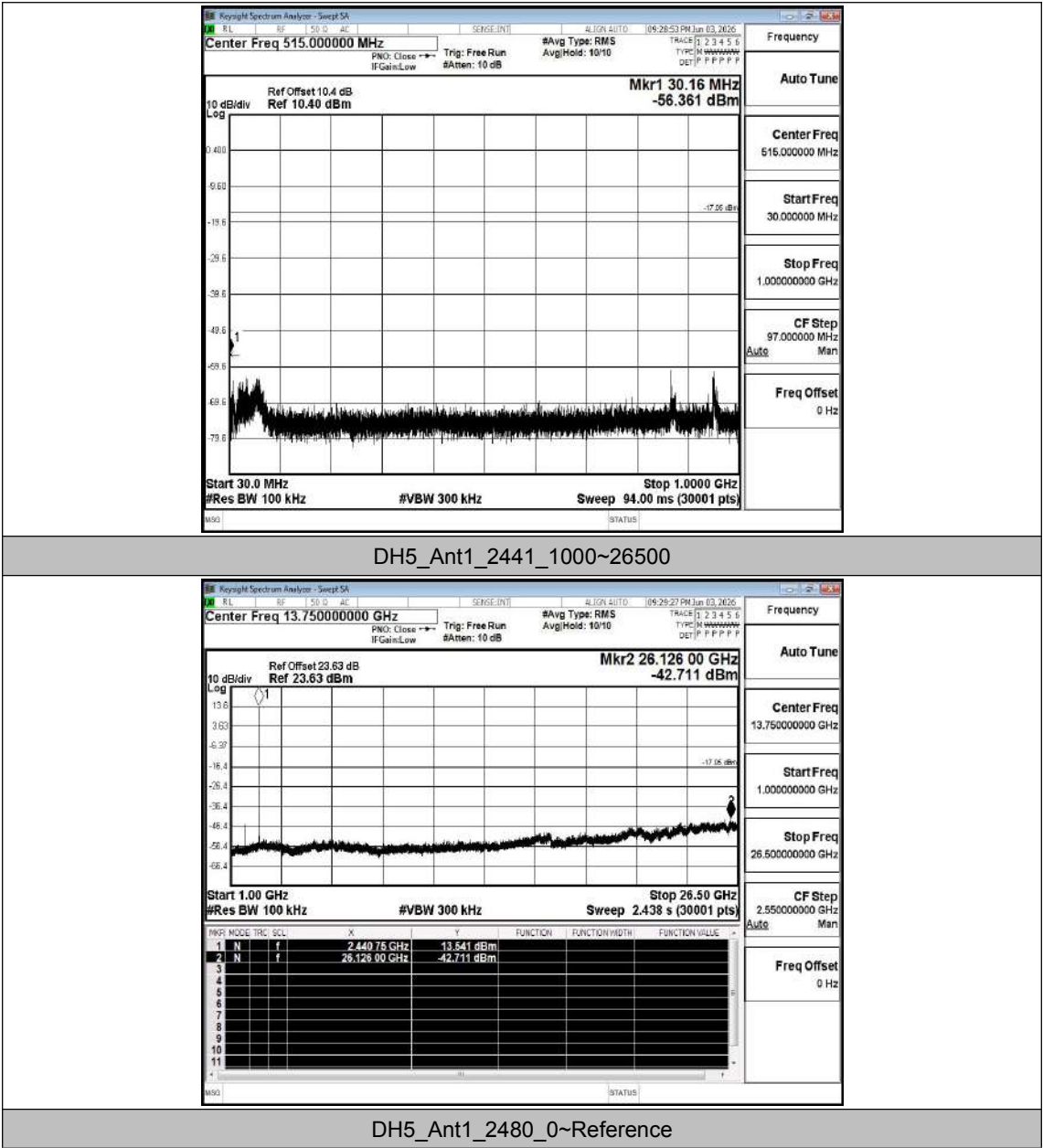
Test Result

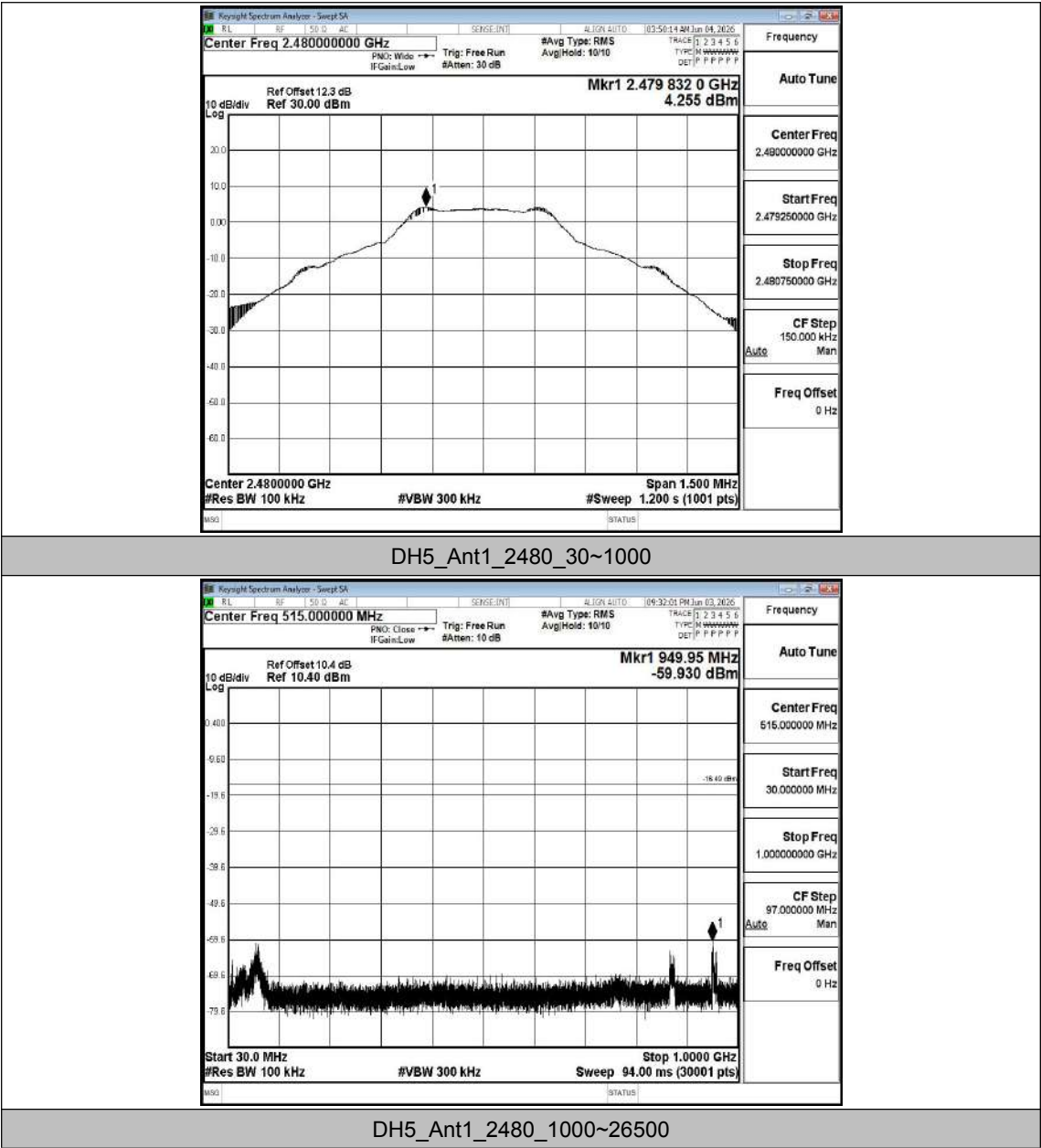
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	3.16	3.16	---	PASS
			30~1000	0.17	-61.01	≤-19.83	PASS
			1000~26500	0.17	-42.7	≤-19.83	PASS
		2441	Reference	4.58	4.58	---	PASS
			30~1000	2.95	-56.36	≤-17.05	PASS
			1000~26500	2.95	-42.71	≤-17.05	PASS
		2480	Reference	4.26	4.26	---	PASS
			30~1000	3.51	-59.93	≤-16.49	PASS
			1000~26500	3.51	-42.67	≤-16.49	PASS
2DH5	Ant1	2402	Reference	4.12	4.12	---	PASS
			30~1000	0.11	-60.38	≤-19.89	PASS
			1000~26500	0.11	-42.94	≤-19.89	PASS
		2441	Reference	5.76	5.76	---	PASS
			30~1000	2.83	-57.06	≤-17.17	PASS
			1000~26500	2.83	-42.33	≤-17.17	PASS
		2480	Reference	4.98	4.98	---	PASS
			30~1000	3.37	-57.48	≤-16.63	PASS
			1000~26500	3.37	-42.56	≤-16.63	PASS
3DH5	Ant1	2402	Reference	4.33	4.33	---	PASS
			30~1000	4.33	-45.58	≤-15.67	PASS
			1000~26500	4.33	-42.62	≤-15.67	PASS
		2441	Reference	5.92	5.92	---	PASS
			30~1000	5.92	-54.68	≤-14.08	PASS
			1000~26500	5.92	-42.87	≤-14.08	PASS
		2480	Reference	5.17	5.17	---	PASS
			30~1000	5.17	-49.04	≤-14.83	PASS
			1000~26500	5.17	-42.99	≤-14.83	PASS

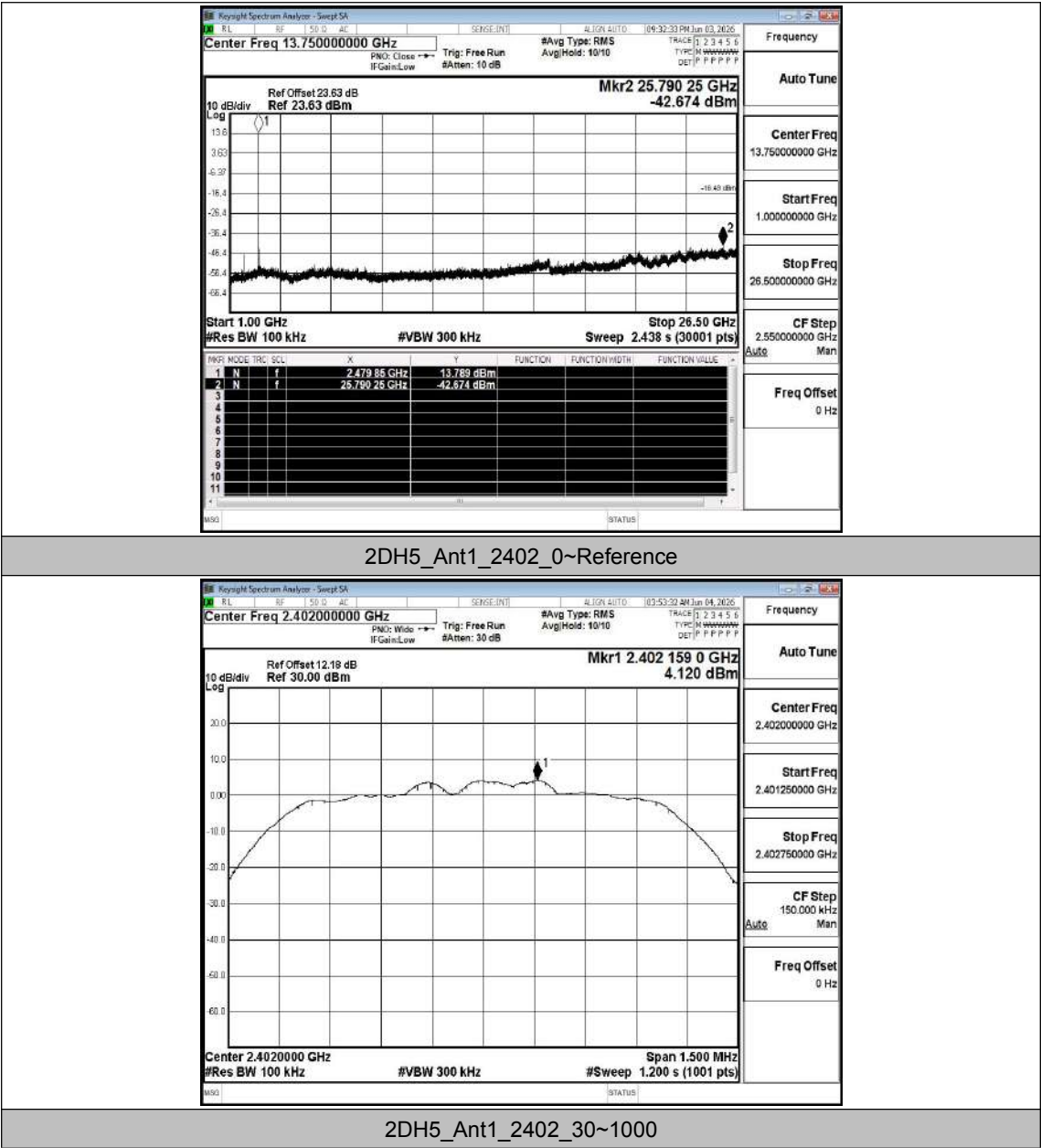
Test Graphs

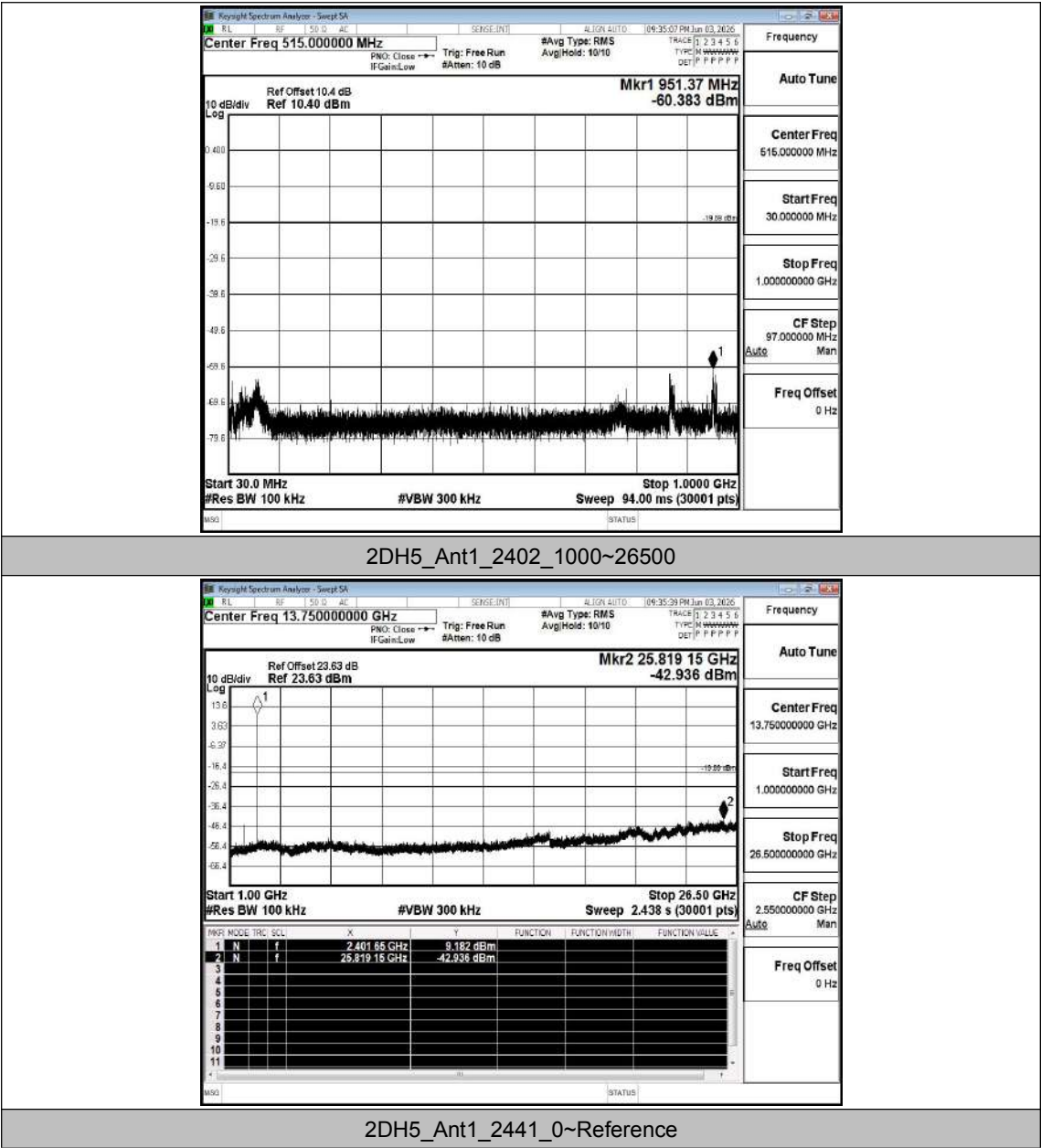


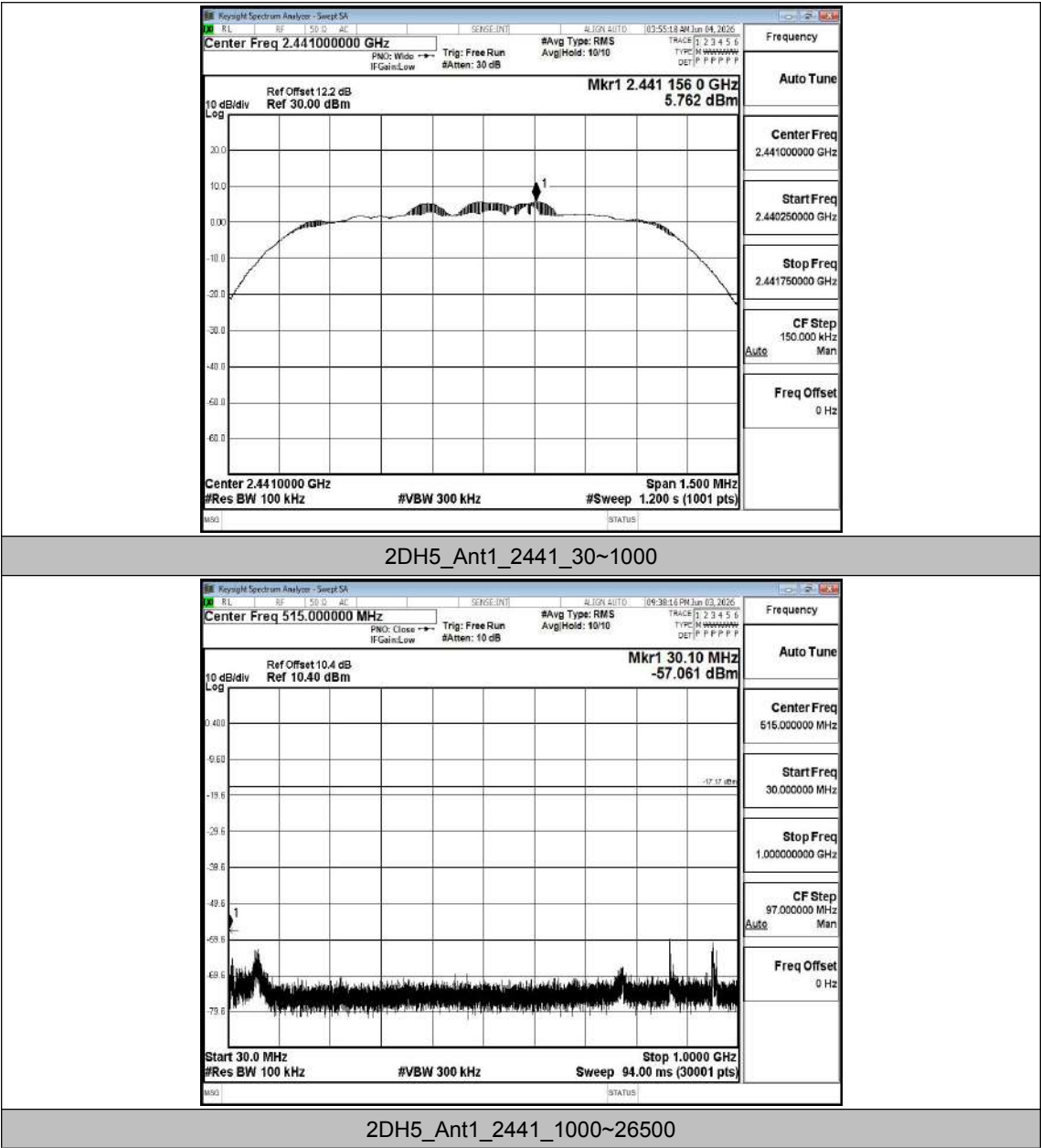


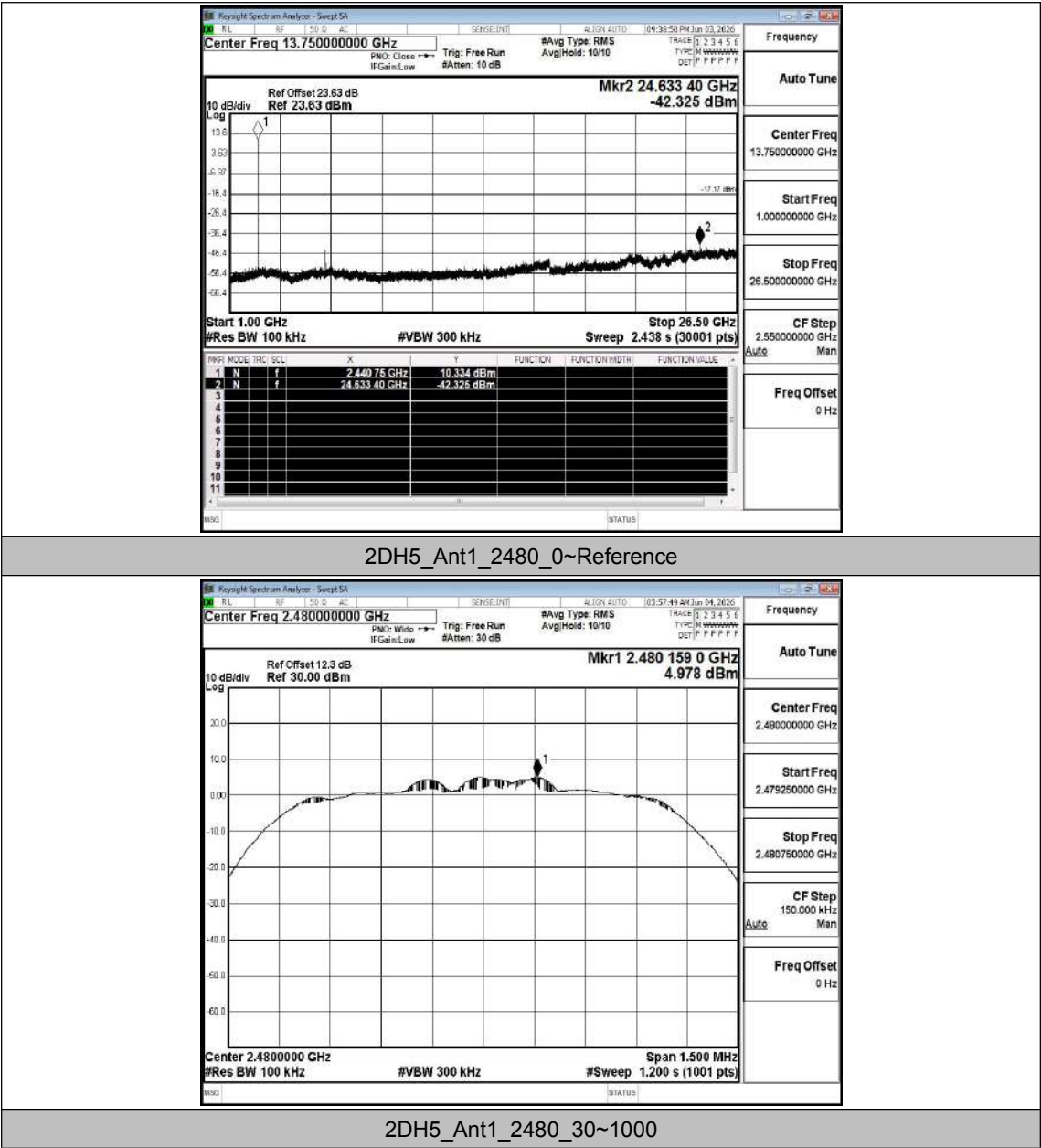


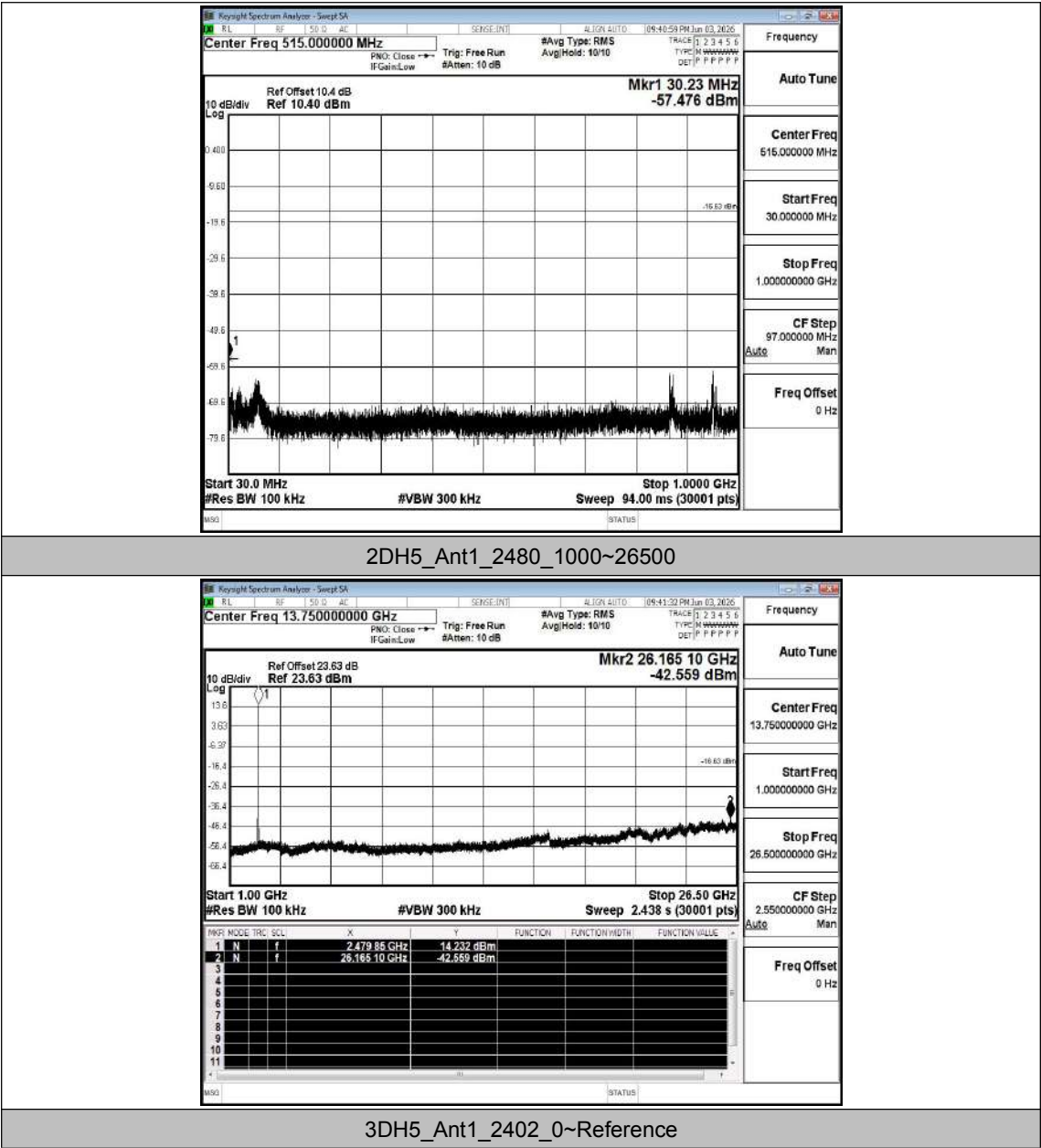


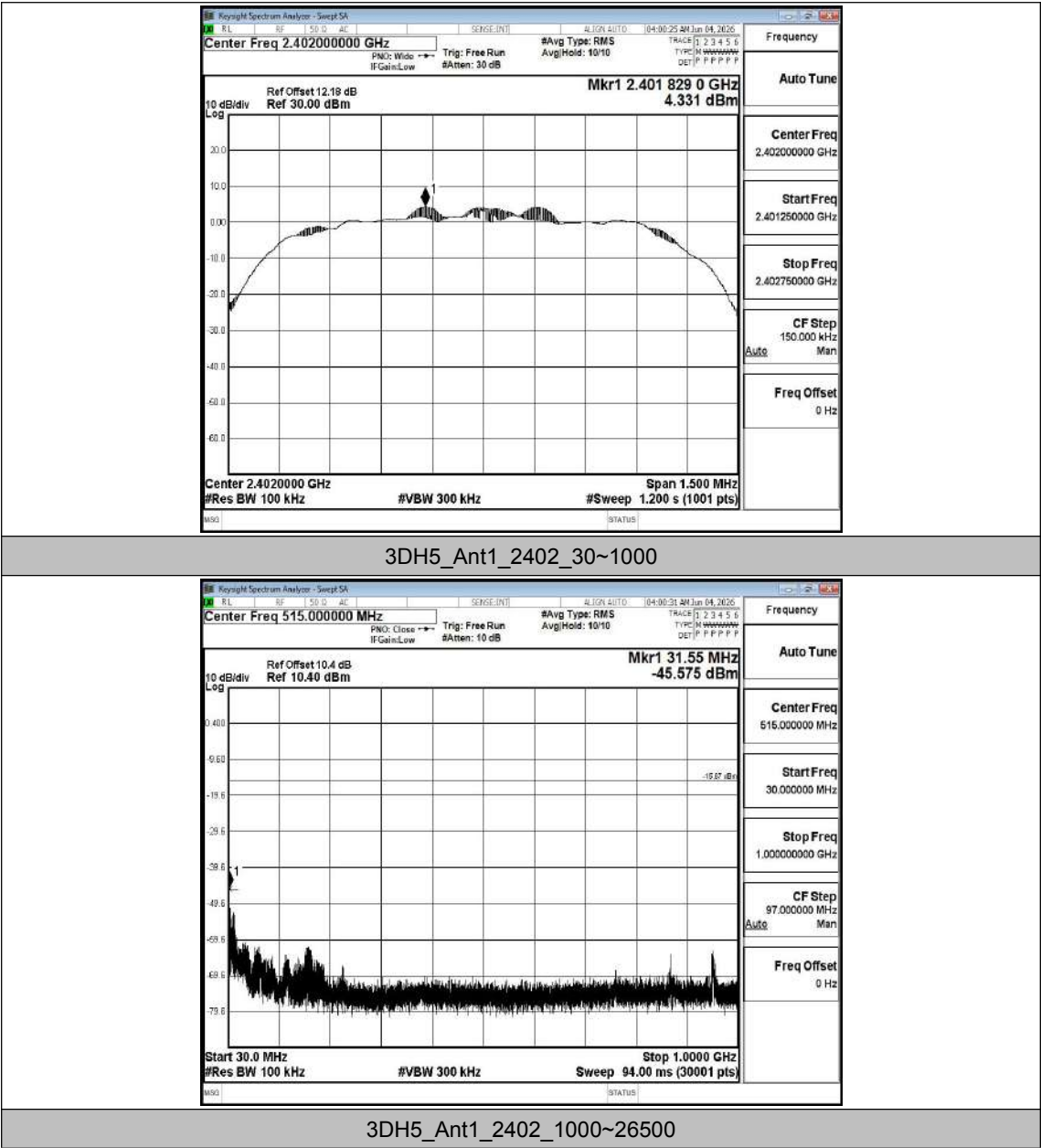


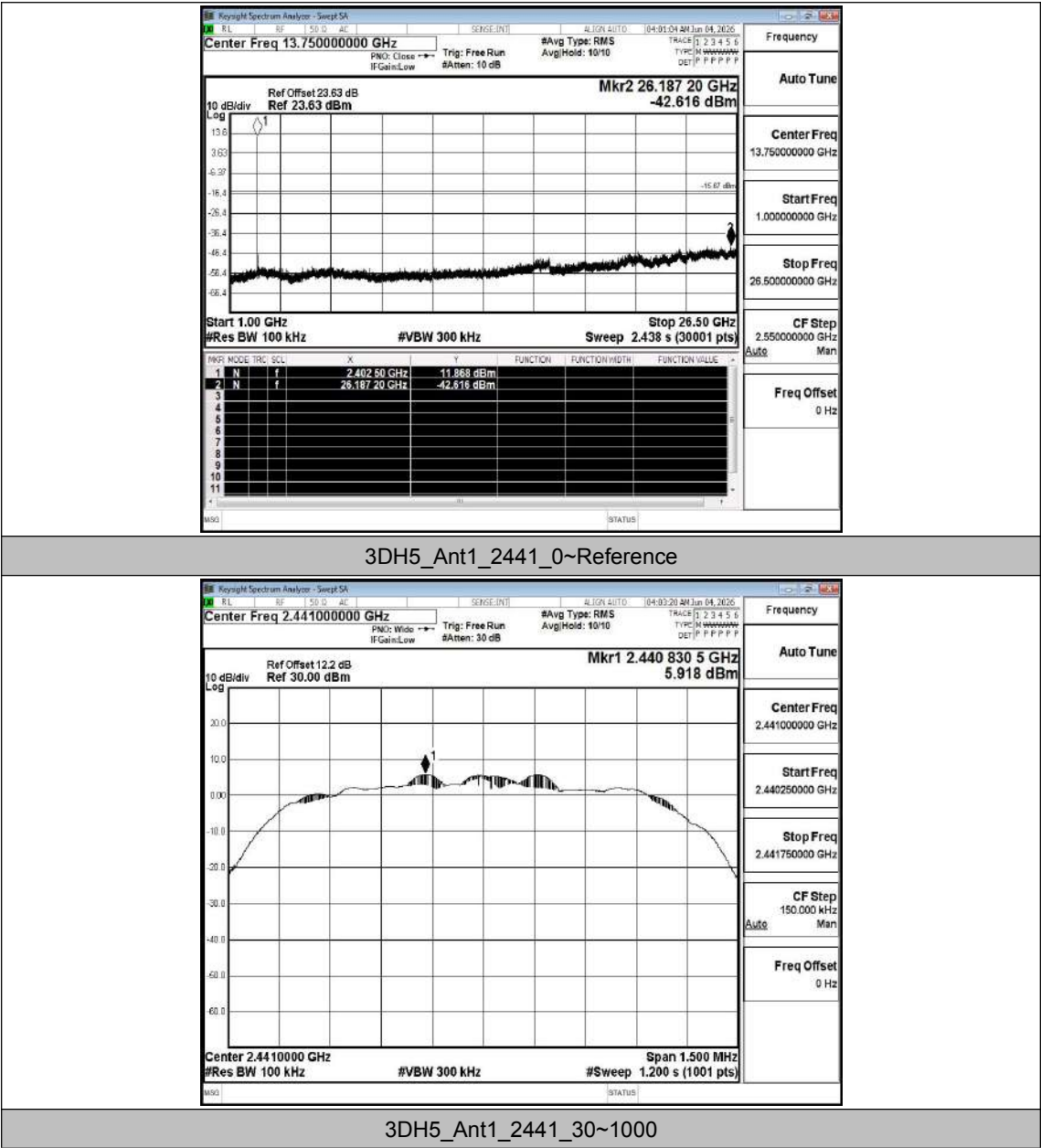


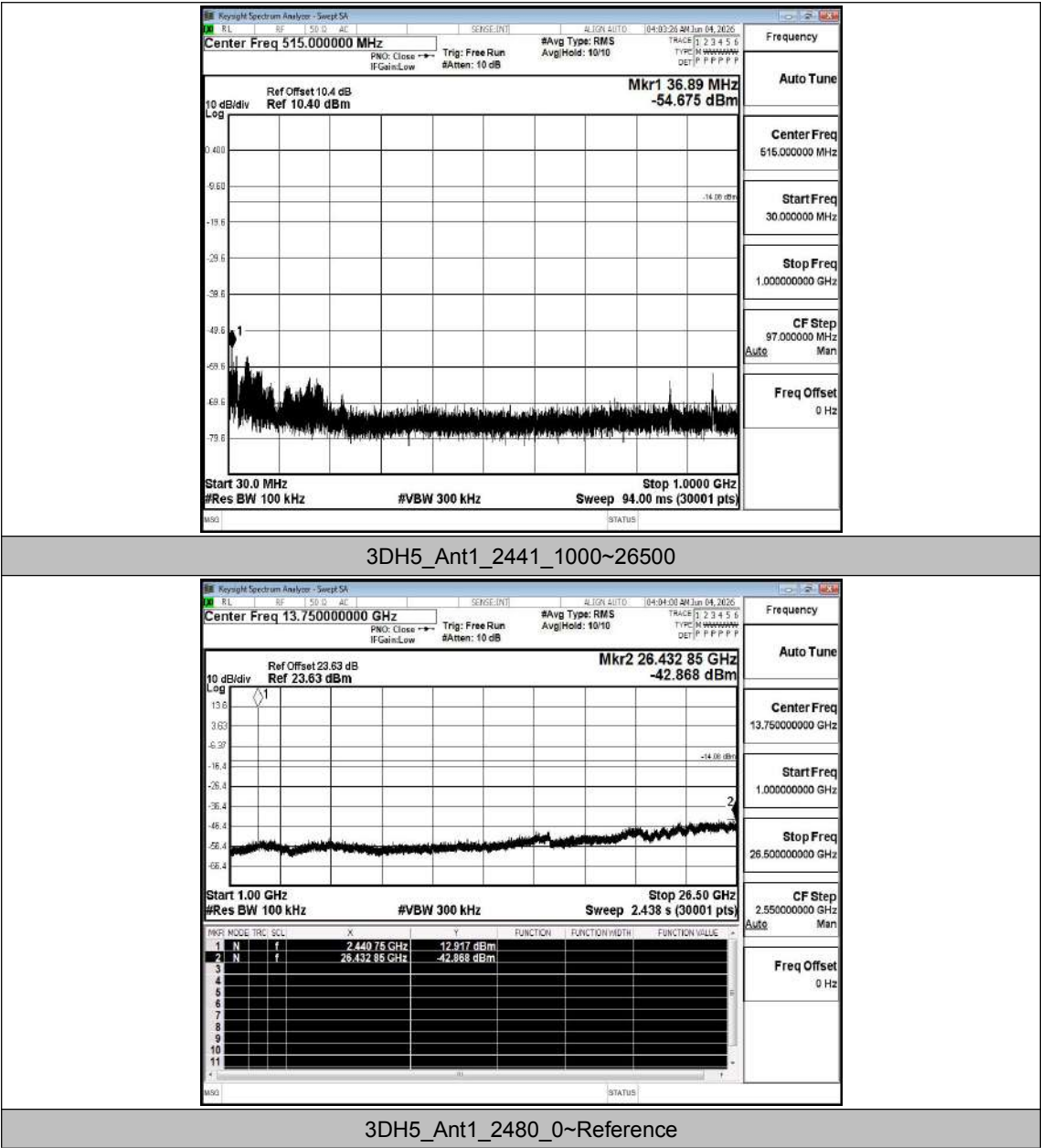


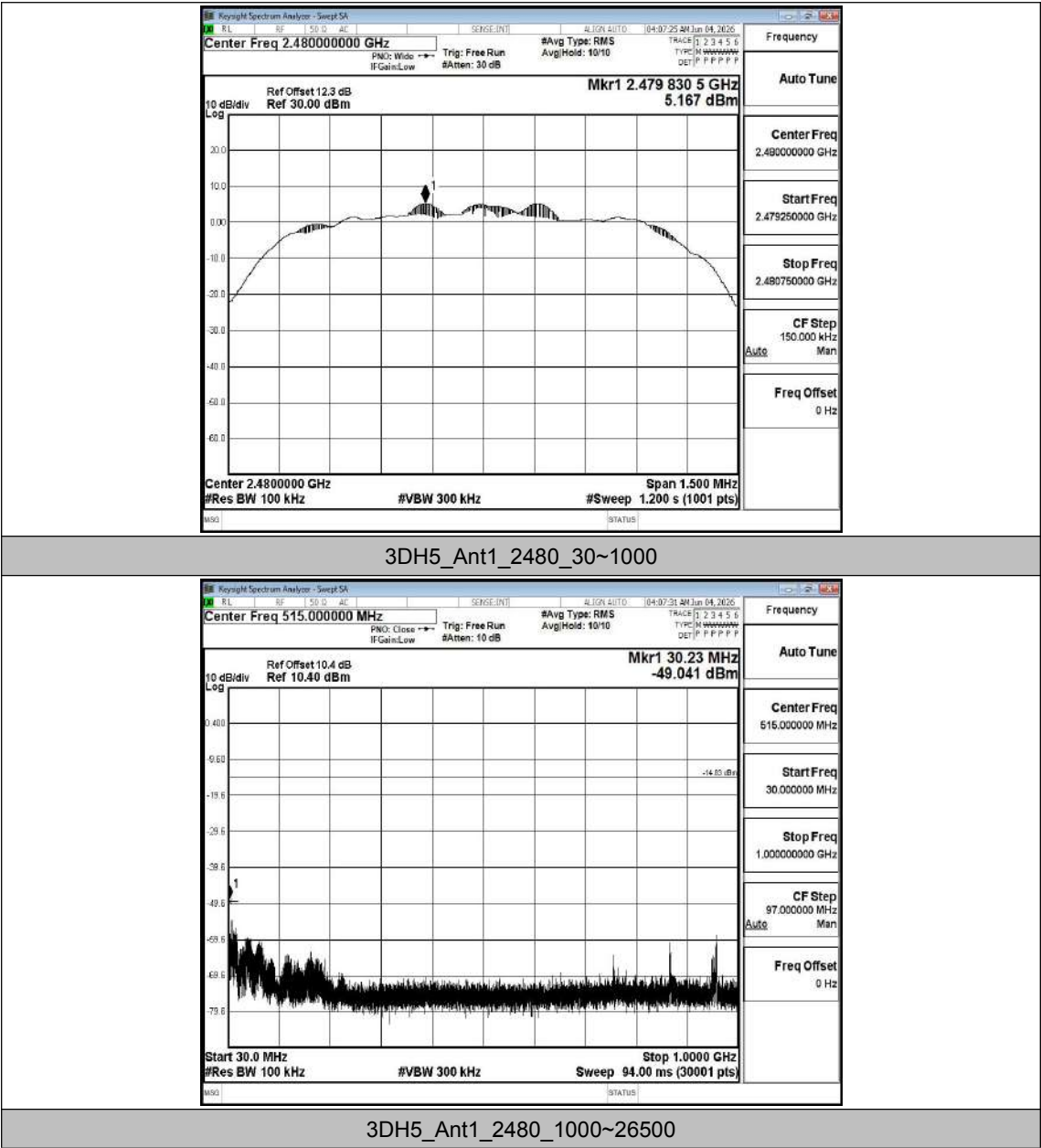








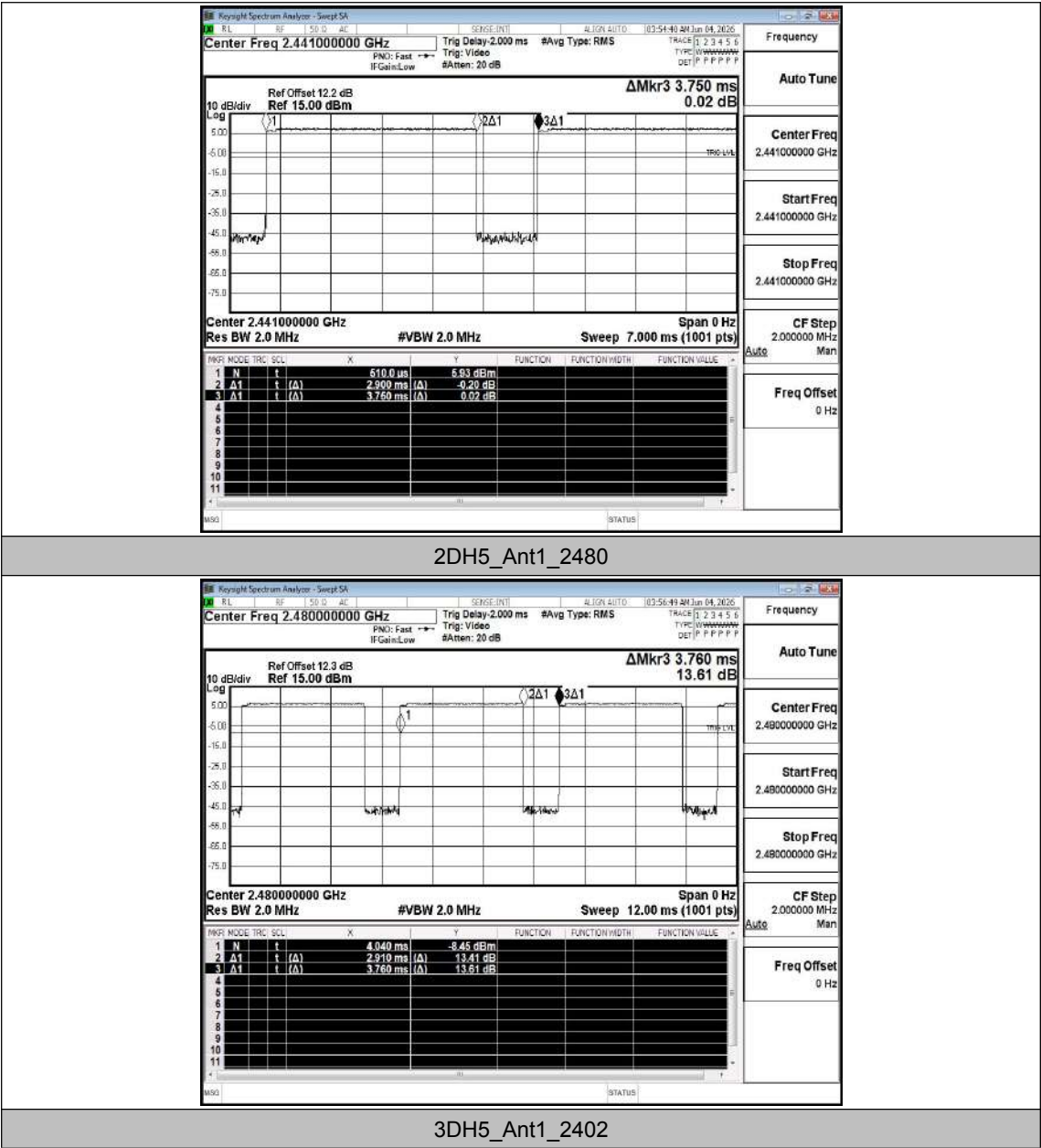


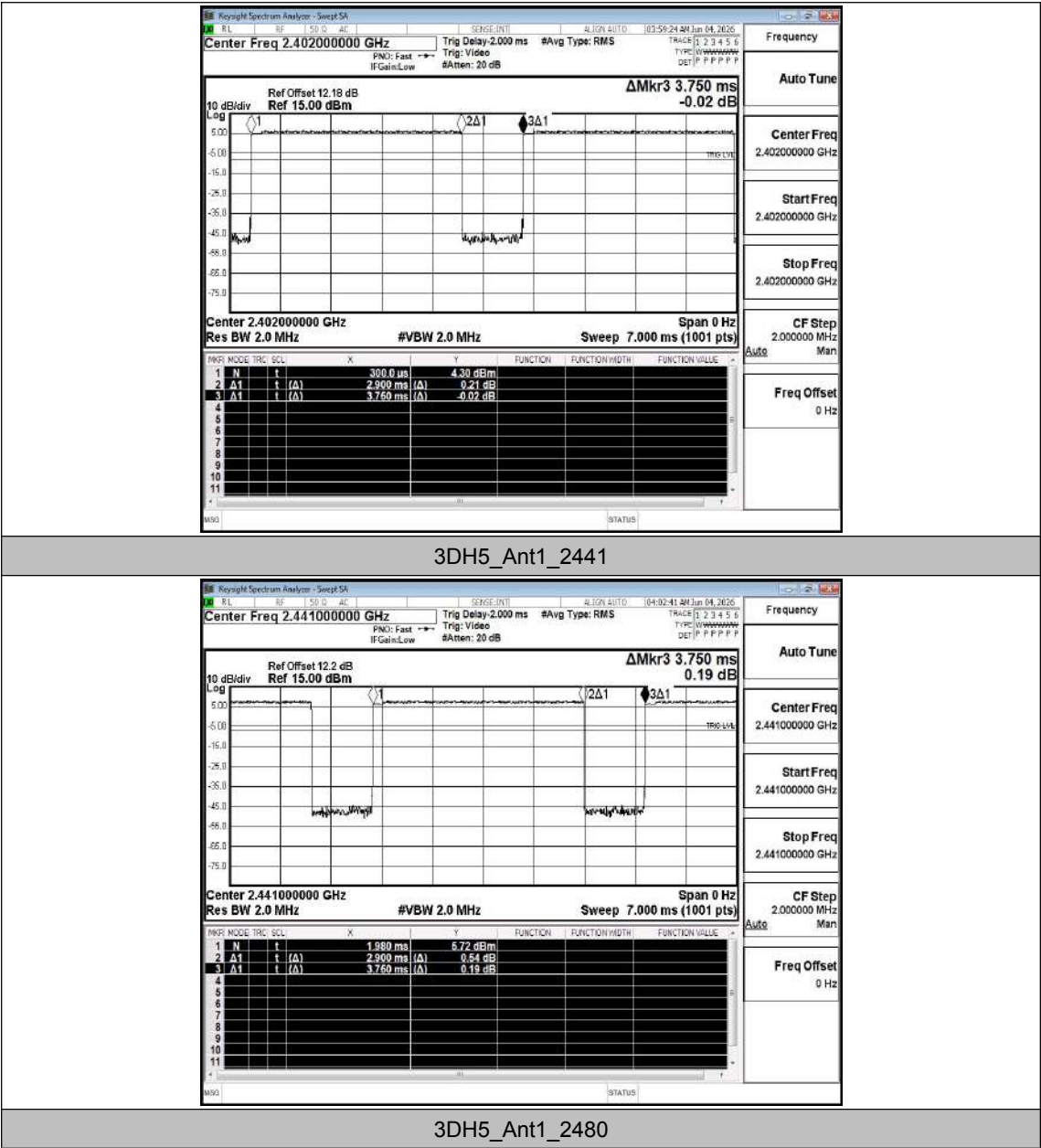


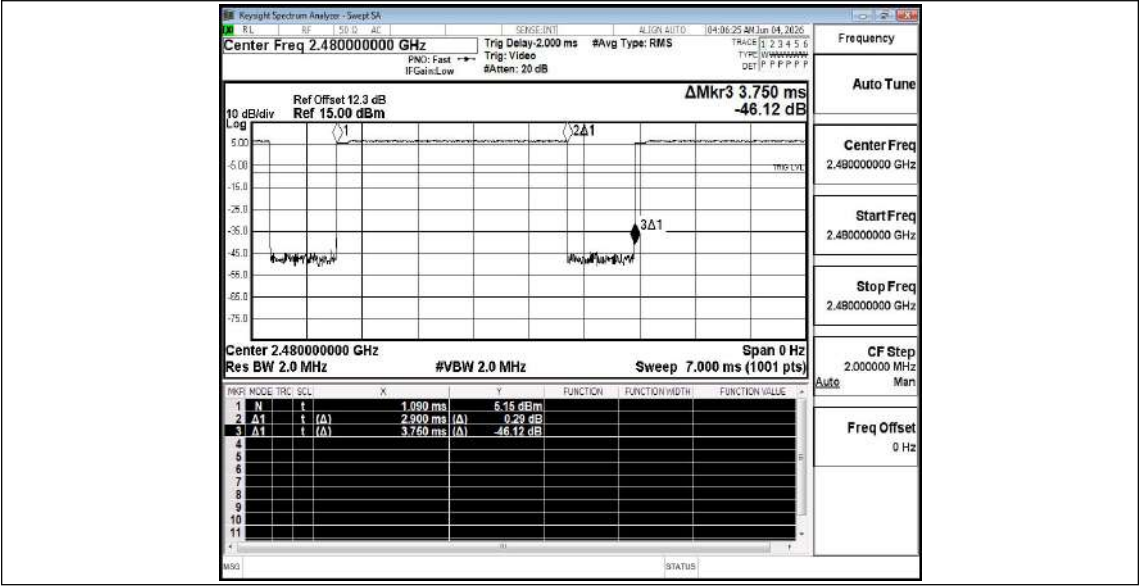
A.8 Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.91	3.75	77.60	1.10	---	---
		2441	2.91	3.75	77.60	1.10	---	---
		2480	2.91	3.75	77.60	1.10	---	---
2DH5	Ant1	2402	2.89	3.74	77.27	1.12	---	---
		2441	2.90	3.75	77.33	1.12	---	---
		2480	2.91	3.76	77.39	1.11	---	---
3DH5	Ant1	2402	2.90	3.75	77.33	1.12	---	---
		2441	2.90	3.75	77.33	1.12	---	---
		2480	2.90	3.75	77.33	1.12	---	---







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	-56.86	≤-45.90	3.60	1.10	43.04	≤54	PASS
				AV	2339.165	-55.81	≤-45.90	3.60	1.10	44.09	≤54	PASS
				AV	2390.000	-56.87	≤-45.90	3.60	1.10	43.03	≤54	PASS
				Peak	2310.000	-49.99	≤-24.80	3.60	0.00	48.81	≤74	PASS
				Peak	2359.535	-44.95	≤-24.80	3.60	0.00	53.85	≤74	PASS
				Peak	2390.000	-47.84	≤-24.80	3.60	0.00	50.96	≤74	PASS
		High	2480	AV	2483.500	-55.75	≤-45.90	3.60	1.10	44.15	≤54	PASS
				AV	2483.680	-55.3	≤-45.90	3.60	1.10	44.60	≤54	PASS
				AV	2500.000	-56.68	≤-45.90	3.60	1.10	43.22	≤54	PASS
				Peak	2483.500	-47.5	≤-24.80	3.60	0.00	51.30	≤74	PASS
				Peak	2488.320	-45.55	≤-24.80	3.60	0.00	53.25	≤74	PASS
				Peak	2500.000	-49.52	≤-24.80	3.60	0.00	49.28	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-49.28	≤-24.80	3.60	0.00	49.52	≤74	PASS
				Peak	2358.380	-45.36	≤-24.80	3.60	0.00	53.44	≤74	PASS
				Peak	2390.000	-50.36	≤-24.80	3.60	0.00	48.44	≤74	PASS
		High	Hop_2480	Peak	2483.500	-48	≤-24.80	3.60	0.00	50.80	≤74	PASS
				Peak	2495.760	-44.67	≤-24.80	3.60	0.00	54.13	≤74	PASS
				Peak	2500.000	-48.39	≤-24.80	3.60	0.00	50.41	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-56.64	≤-45.92	3.60	1.12	43.28	≤54	PASS
				AV	2312.495	-56.1	≤-45.92	3.60	1.12	43.82	≤54	PASS
				AV	2390.000	-56.38	≤-45.92	3.60	1.12	43.54	≤54	PASS
				Peak	2310.000	-48.22	≤-24.80	3.60	0.00	50.58	≤74	PASS
				Peak	2329.190	-45.74	≤-24.80	3.60	0.00	53.06	≤74	PASS
				Peak	2390.000	-49.2	≤-24.80	3.60	0.00	49.60	≤74	PASS
		High	2480	AV	2483.500	-53.43	≤-45.91	3.60	1.11	46.48	≤54	PASS
				AV	2483.600	-53.07	≤-45.91	3.60	1.11	46.84	≤54	PASS
				AV	2500.000	-56.78	≤-45.91	3.60	1.11	43.13	≤54	PASS
				Peak	2483.500	-43.8	≤-24.80	3.60	0.00	55.00	≤74	PASS
				Peak	2483.600	-42.52	≤-24.80	3.60	0.00	56.28	≤74	PASS
				Peak	2500.000	-48.23	≤-24.80	3.60	0.00	50.57	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-48.76	≤-24.80	3.60	0.00	50.04	≤74	PASS
				Peak	2326.985	-46.29	≤-24.80	3.60	0.00	52.51	≤74	PASS
				Peak	2390.000	-49.08	≤-24.80	3.60	0.00	49.72	≤74	PASS
		High	Hop_2480	Peak	2483.500	-49.35	≤-24.80	3.60	0.00	49.45	≤74	PASS

				Peak	2486.720	-42.88	≤-24.80	3.60	0.00	55.92	≤74	PASS
				Peak	2500.000	-46.95	≤-24.80	3.60	0.00	51.85	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-57.42	≤-45.92	3.60	1.12	42.50	≤54	PASS
				AV	2318.480	-56.07	≤-45.92	3.60	1.12	43.85	≤54	PASS
				AV	2390.000	-56.88	≤-45.92	3.60	1.12	43.04	≤54	PASS
				Peak	2310.000	-48.36	≤-24.80	3.60	0.00	50.44	≤74	PASS
				Peak	2320.475	-45.77	≤-24.80	3.60	0.00	53.03	≤74	PASS
				Peak	2390.000	-48.19	≤-24.80	3.60	0.00	50.61	≤74	PASS
		High	2480	AV	2483.500	-52.82	≤-45.92	3.60	1.12	47.10	≤54	PASS
				AV	2483.600	-52.16	≤-45.92	3.60	1.12	47.76	≤54	PASS
				AV	2500.000	-56.6	≤-45.92	3.60	1.12	43.32	≤54	PASS
				Peak	2483.500	-42.49	≤-24.80	3.60	0.00	56.31	≤74	PASS
				Peak	2483.680	-41.57	≤-24.80	3.60	0.00	57.23	≤74	PASS
				Peak	2500.000	-48.13	≤-24.80	3.60	0.00	50.67	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-49.62	≤-24.80	3.60	0.00	49.18	≤74	PASS
				Peak	2335.700	-45.8	≤-24.80	3.60	0.00	53.00	≤74	PASS
				Peak	2390.000	-48.64	≤-24.80	3.60	0.00	50.16	≤74	PASS
		High	Hop_2480	Peak	2483.500	-48.21	≤-24.80	3.60	0.00	50.59	≤74	PASS
				Peak	2483.680	-45.05	≤-24.80	3.60	0.00	53.75	≤74	PASS
				Peak	2500.000	-48.27	≤-24.80	3.60	0.00	50.53	≤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

