

Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: OUTDOOR SPEAKER

Test Model: V29D

Environmental Conditions

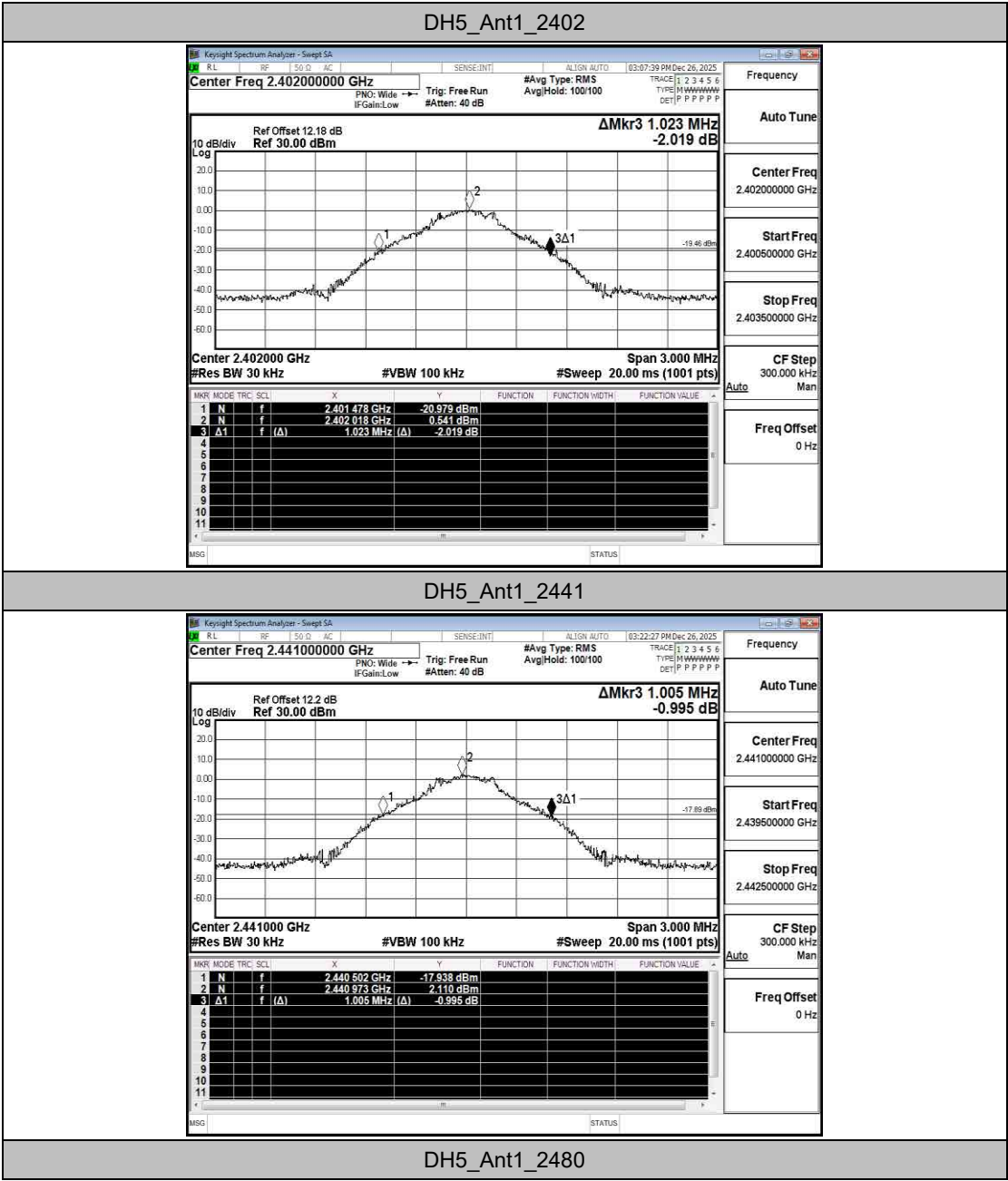
Temperature:	24.2°C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Yan Chen
Supervised by:	Fengliu Tang

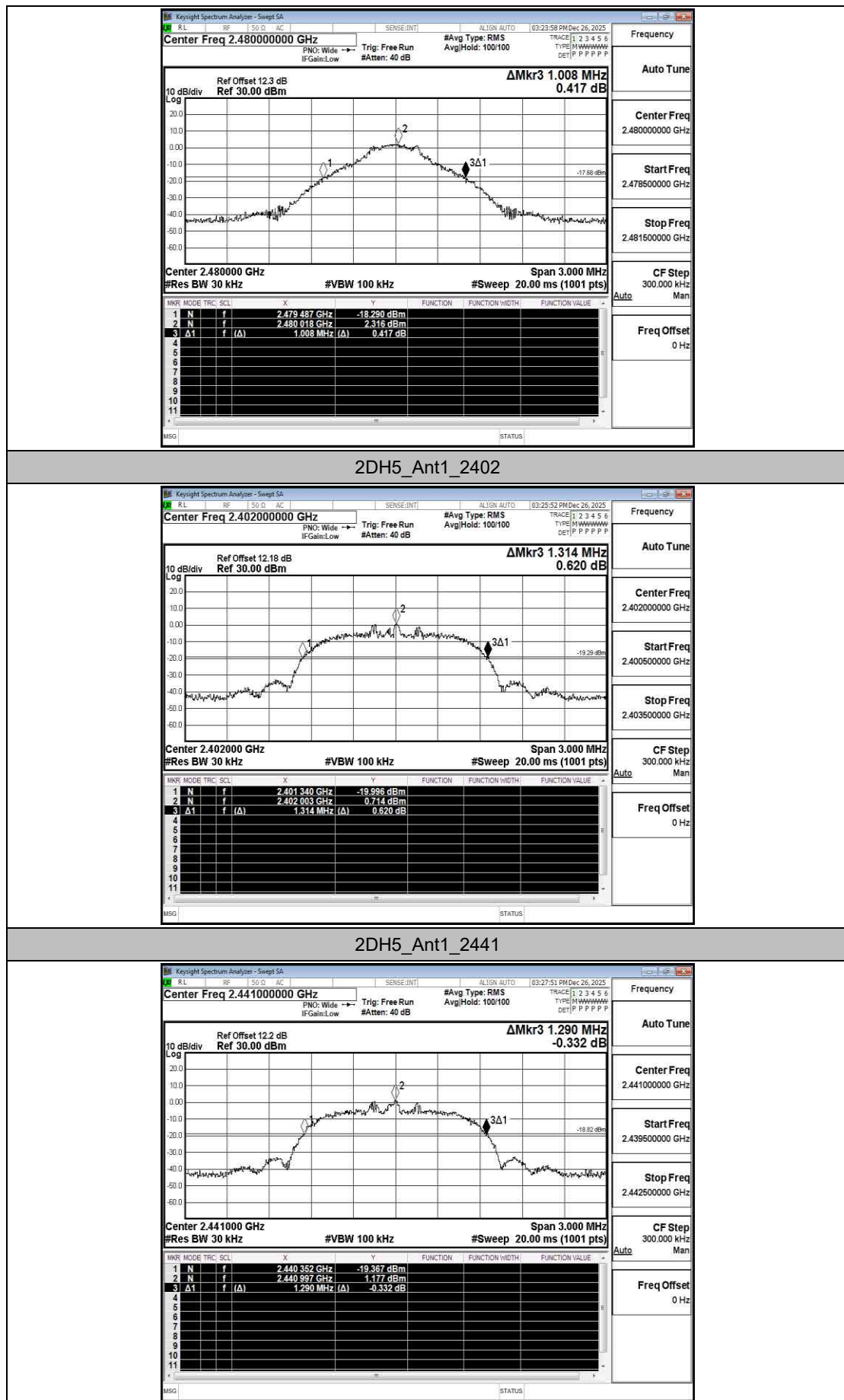
A.1 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.023	2401.478	2402.501	---	---
		2441	1.005	2440.502	2441.507	---	---
		2480	1.008	2479.487	2480.495	---	---
2DH5	Ant1	2402	1.314	2401.340	2402.654	---	---
		2441	1.290	2440.352	2441.642	---	---
		2480	1.311	2479.331	2480.642	---	---
3DH5	Ant1	2402	1.311	2401.343	2402.654	---	---
		2441	1.290	2440.346	2441.636	---	---
		2480	1.299	2479.334	2480.633	---	---

Test Graphs

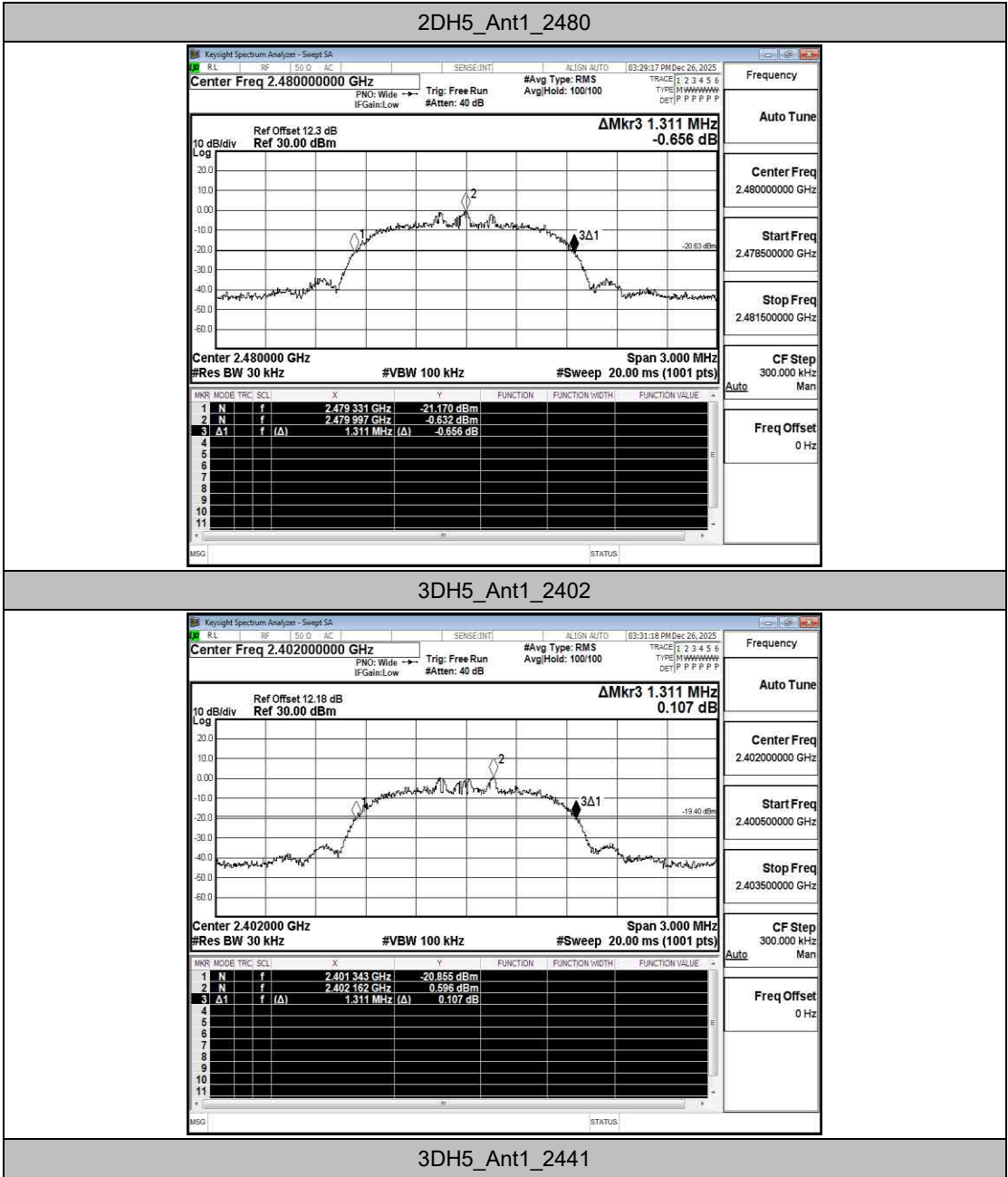


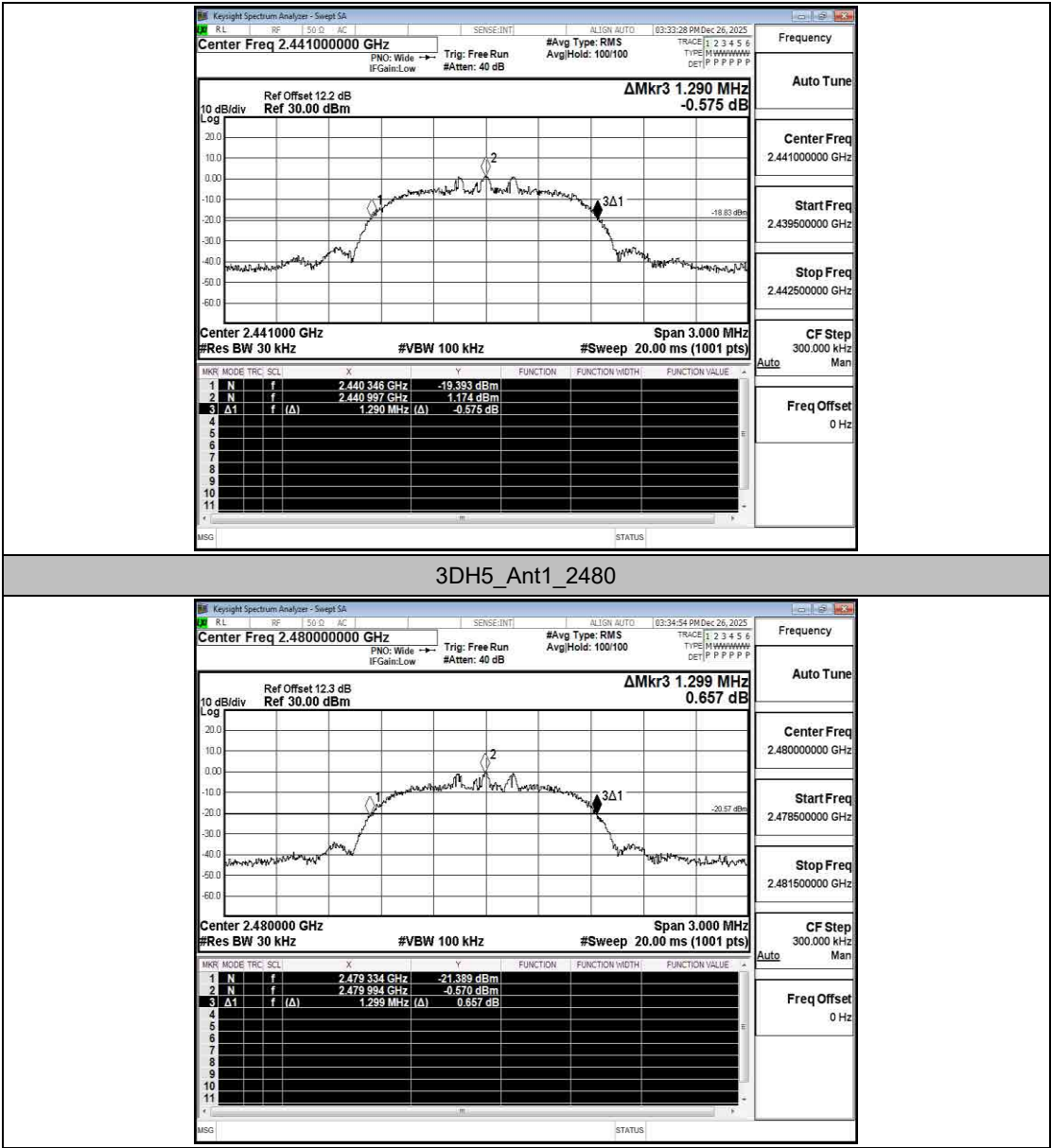


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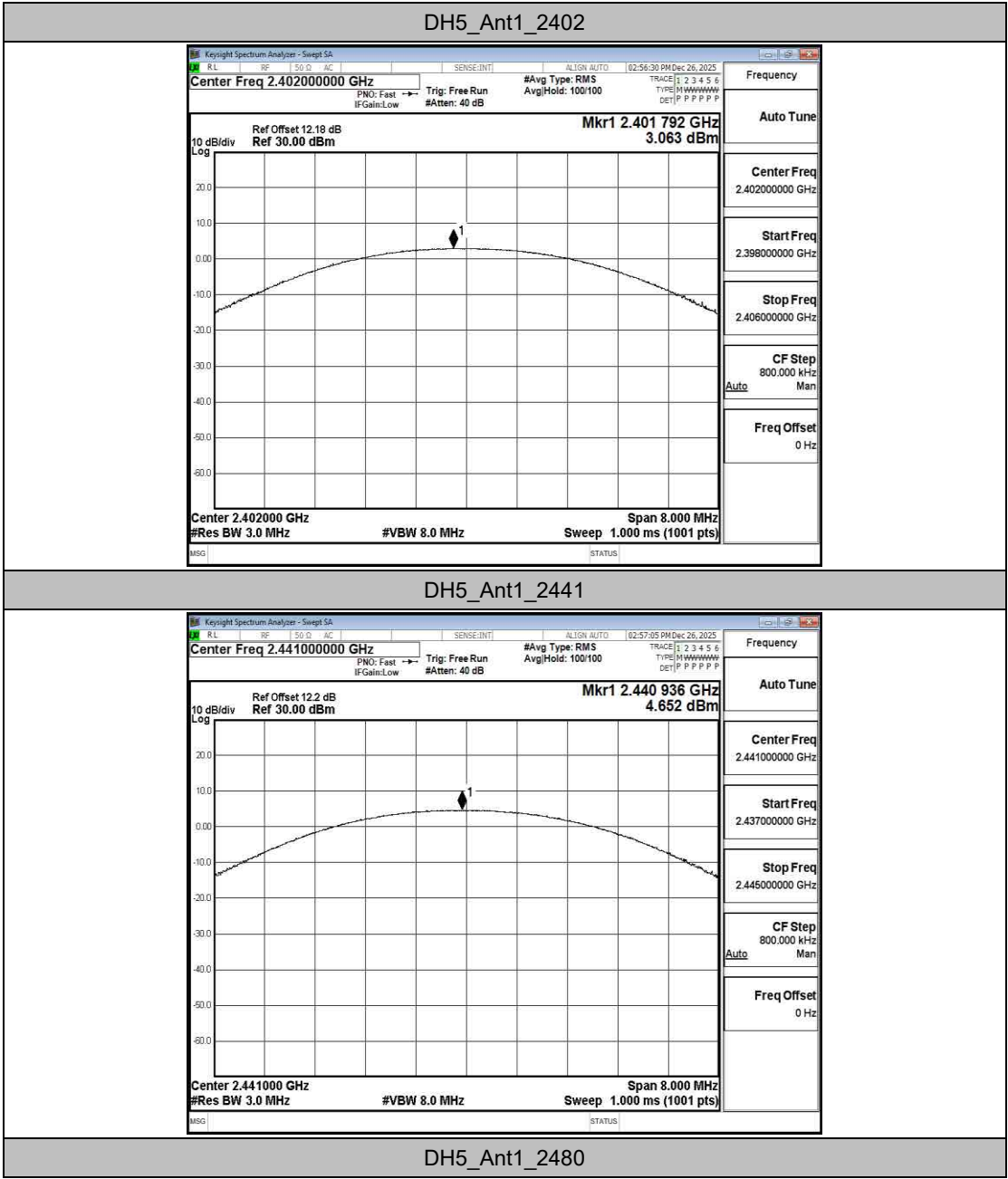


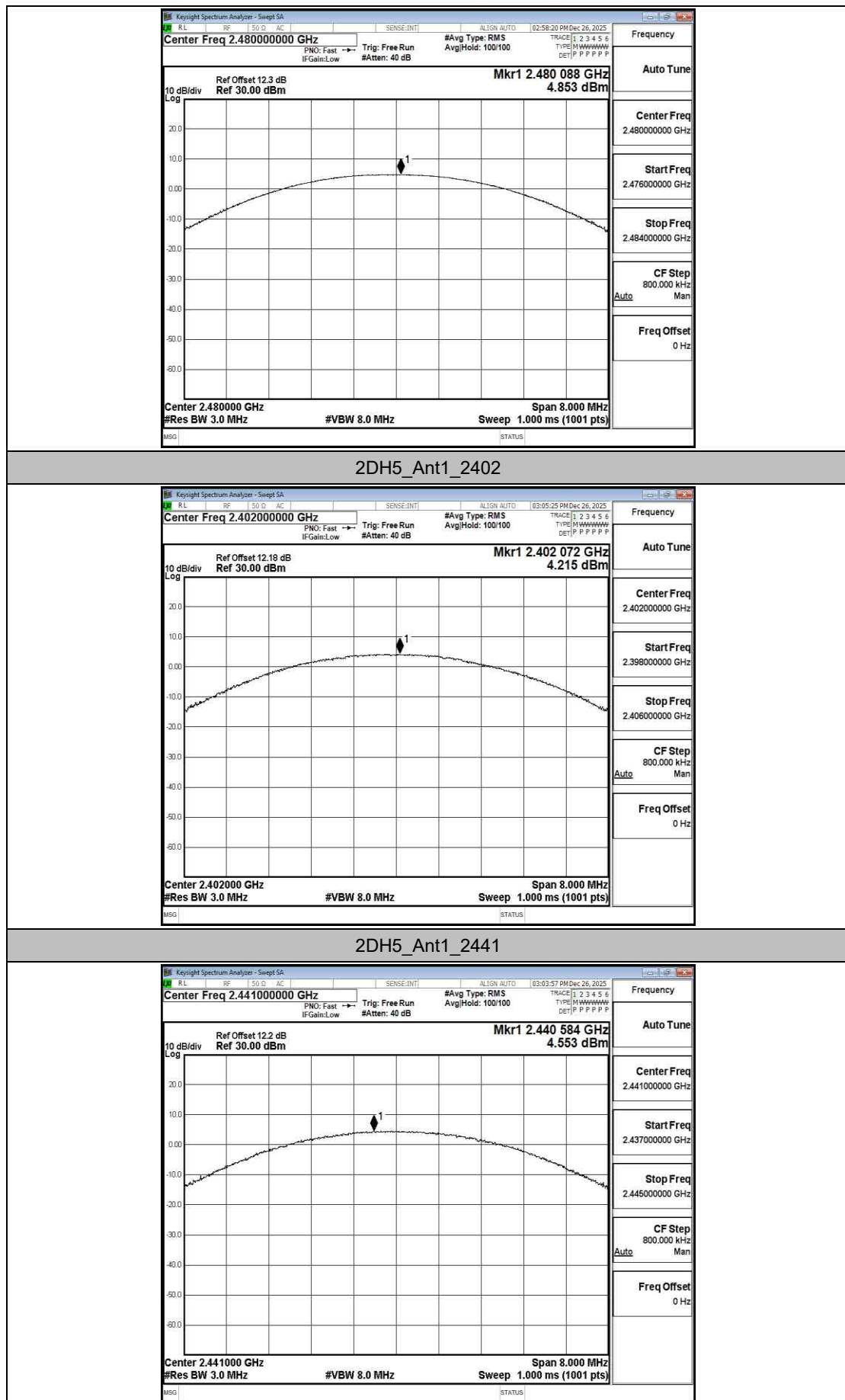
A.3 Maximum Peak conducted output power

Test Result Peak

Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	3.06	≤30	PASS
		2441	4.65	≤30	PASS
		2480	4.85	≤30	PASS
2DH5	Ant1	2402	4.22	≤30	PASS
		2441	4.55	≤30	PASS
		2480	2.79	≤30	PASS
3DH5	Ant1	2402	4.50	≤30	PASS
		2441	4.85	≤30	PASS
		2480	3.05	≤30	PASS

Test Graphs

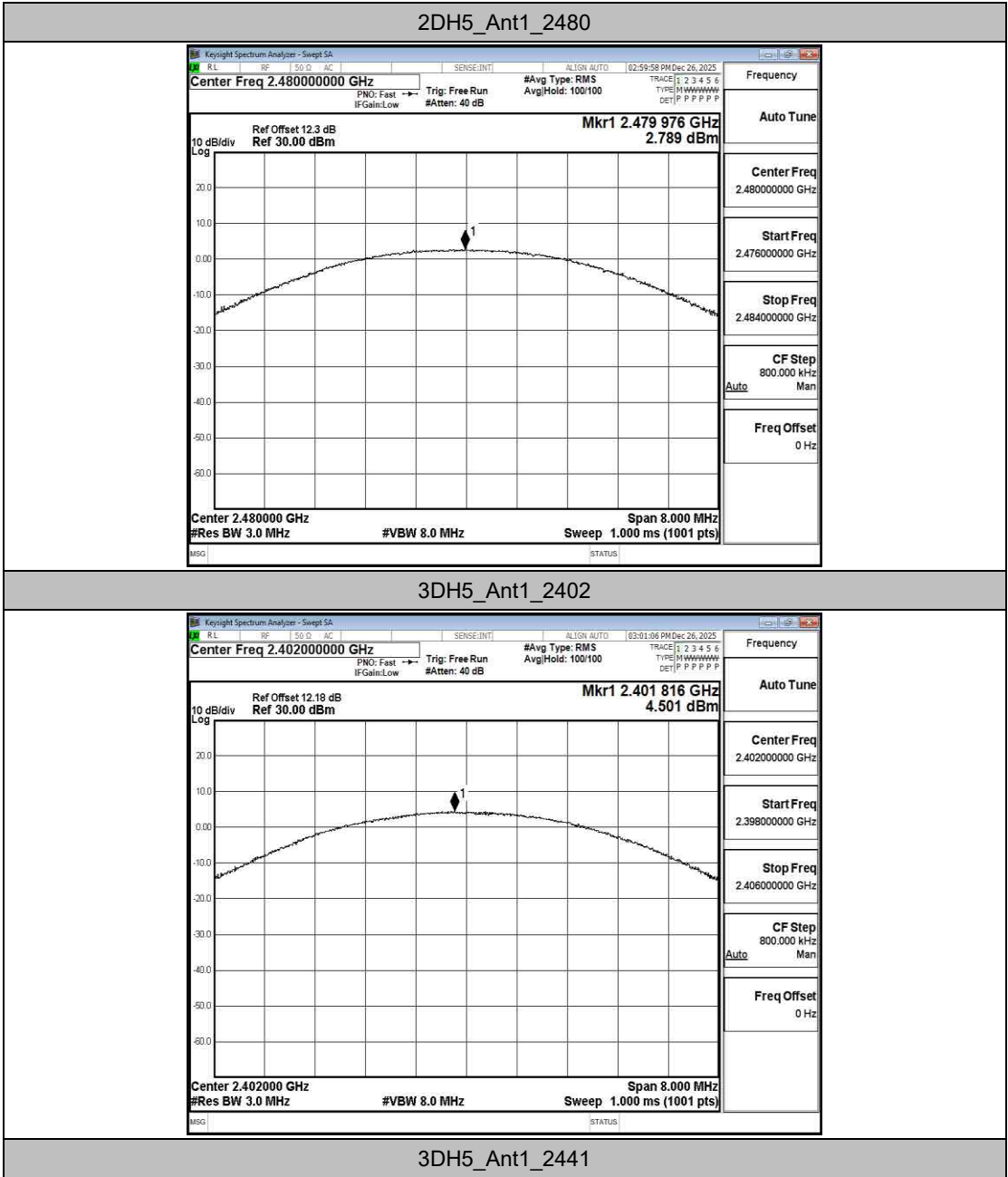


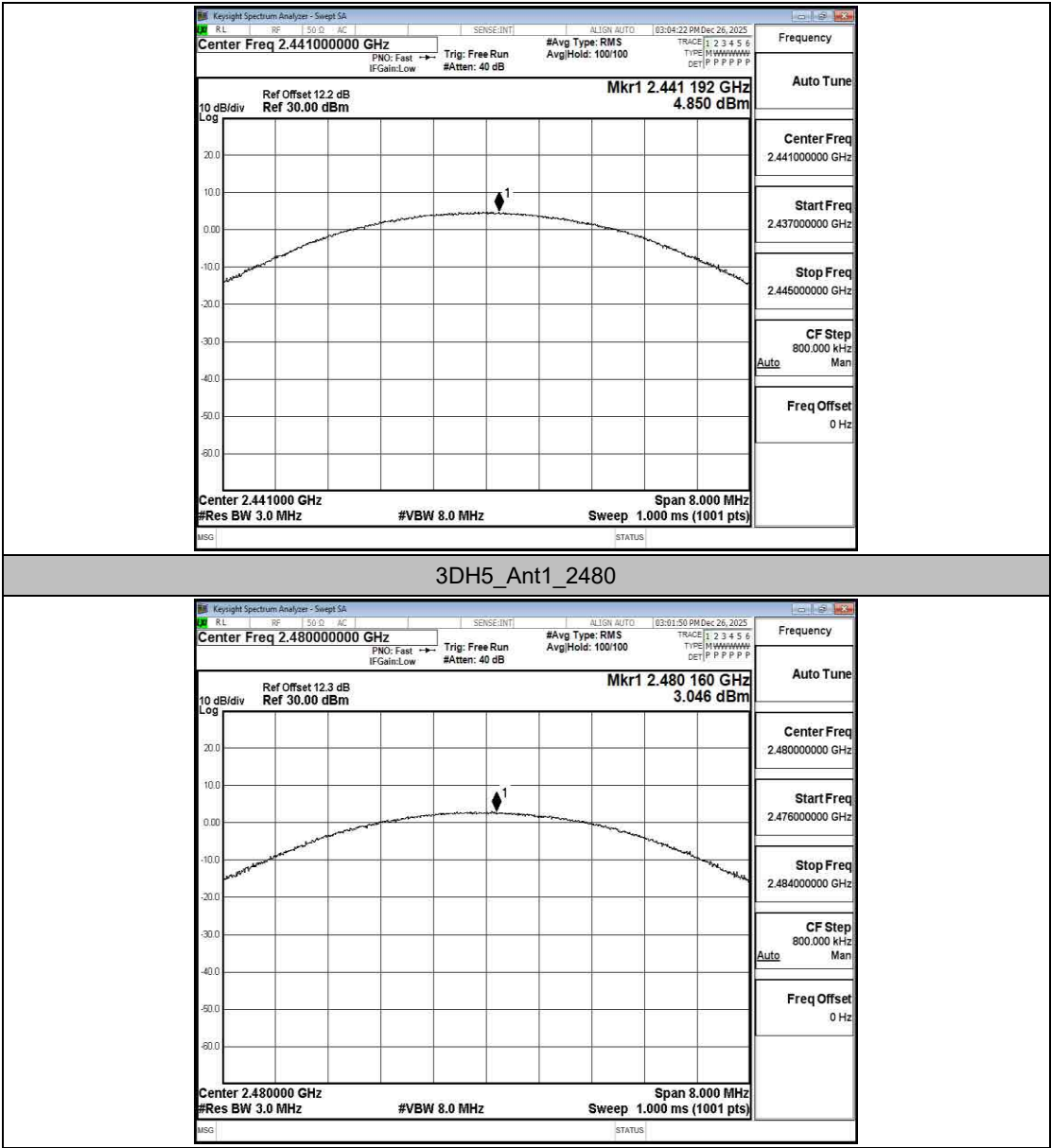


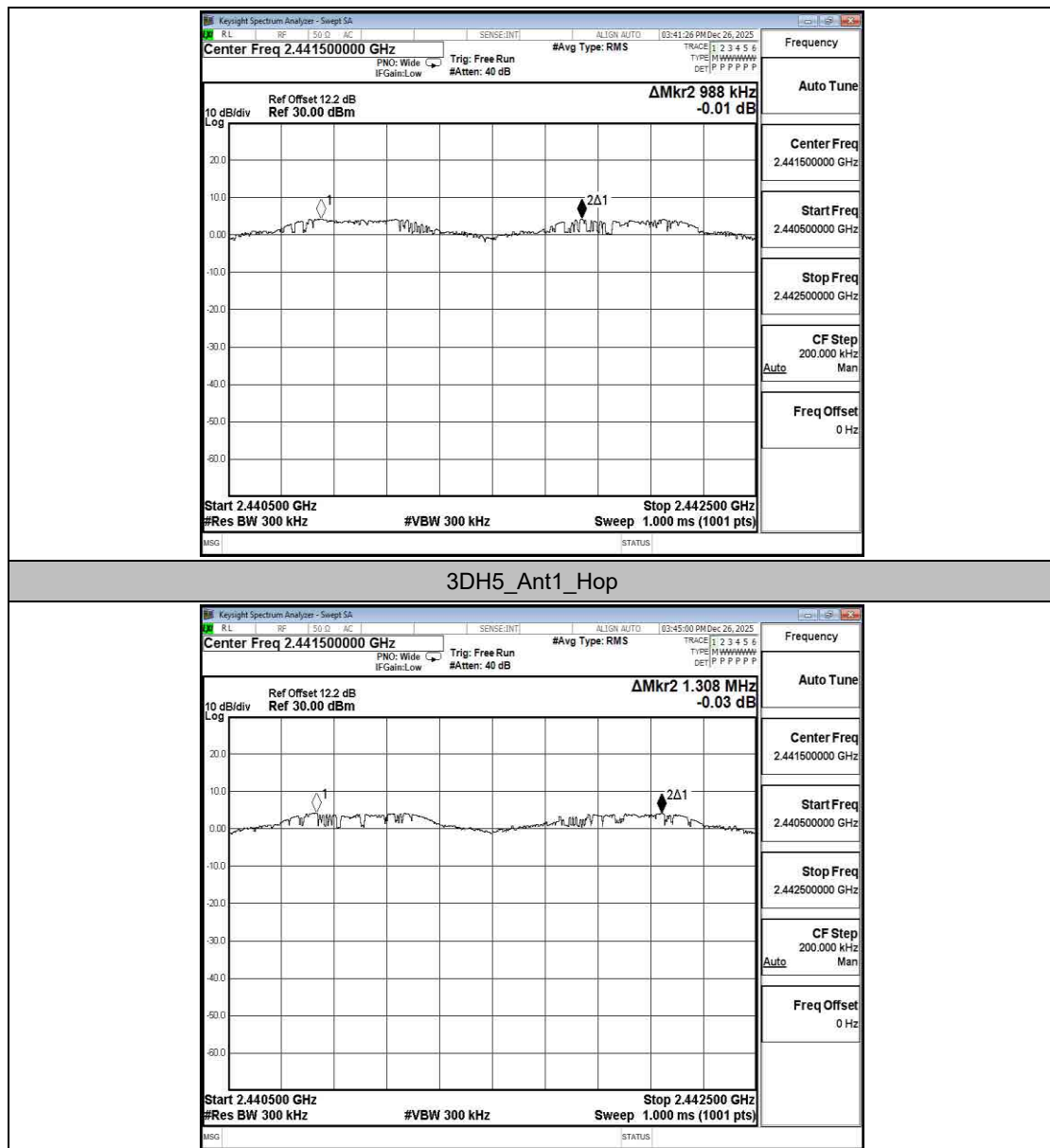
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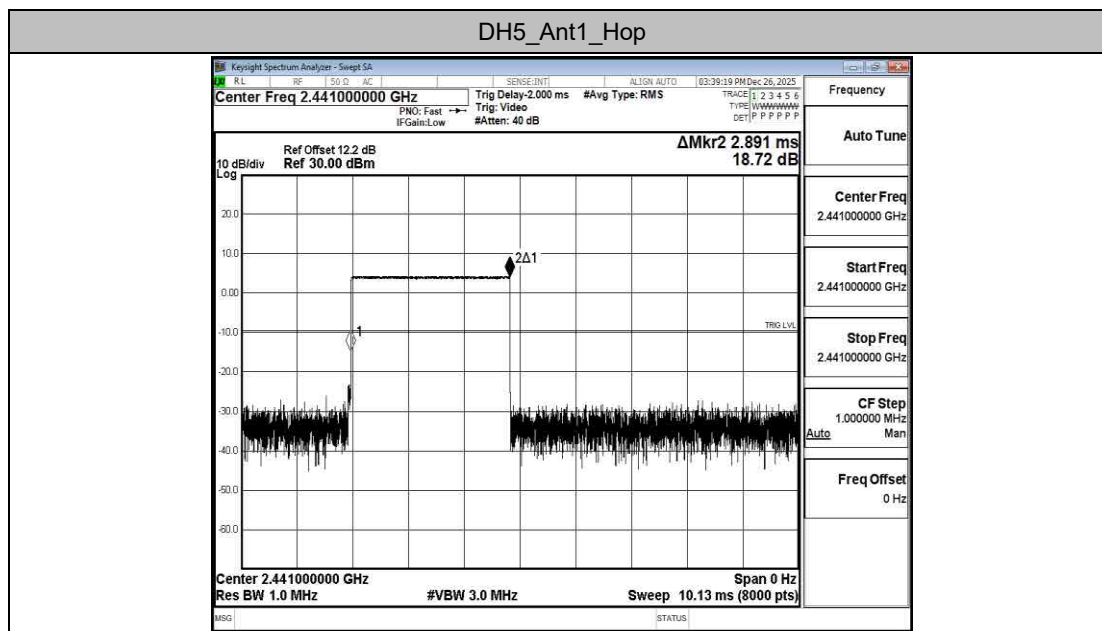


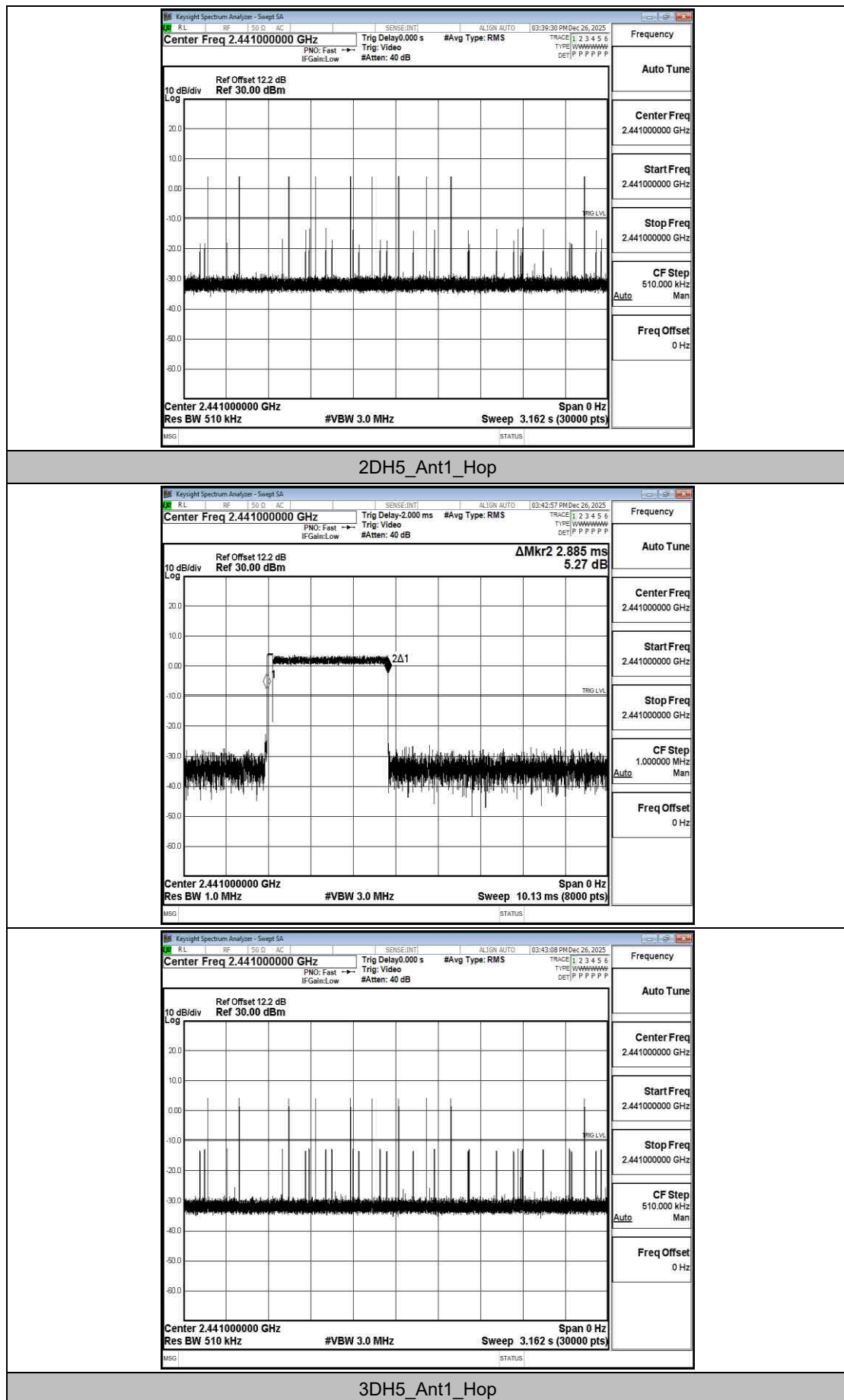
A.5 Time of occupancy

Test Result

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.891	110	0.318	≤0.4	PASS
2DH5	Ant1	Hop	2.885	110	0.317	≤0.4	PASS
3DH5	Ant1	Hop	2.887	60	0.173	≤0.4	PASS

Test Graphs

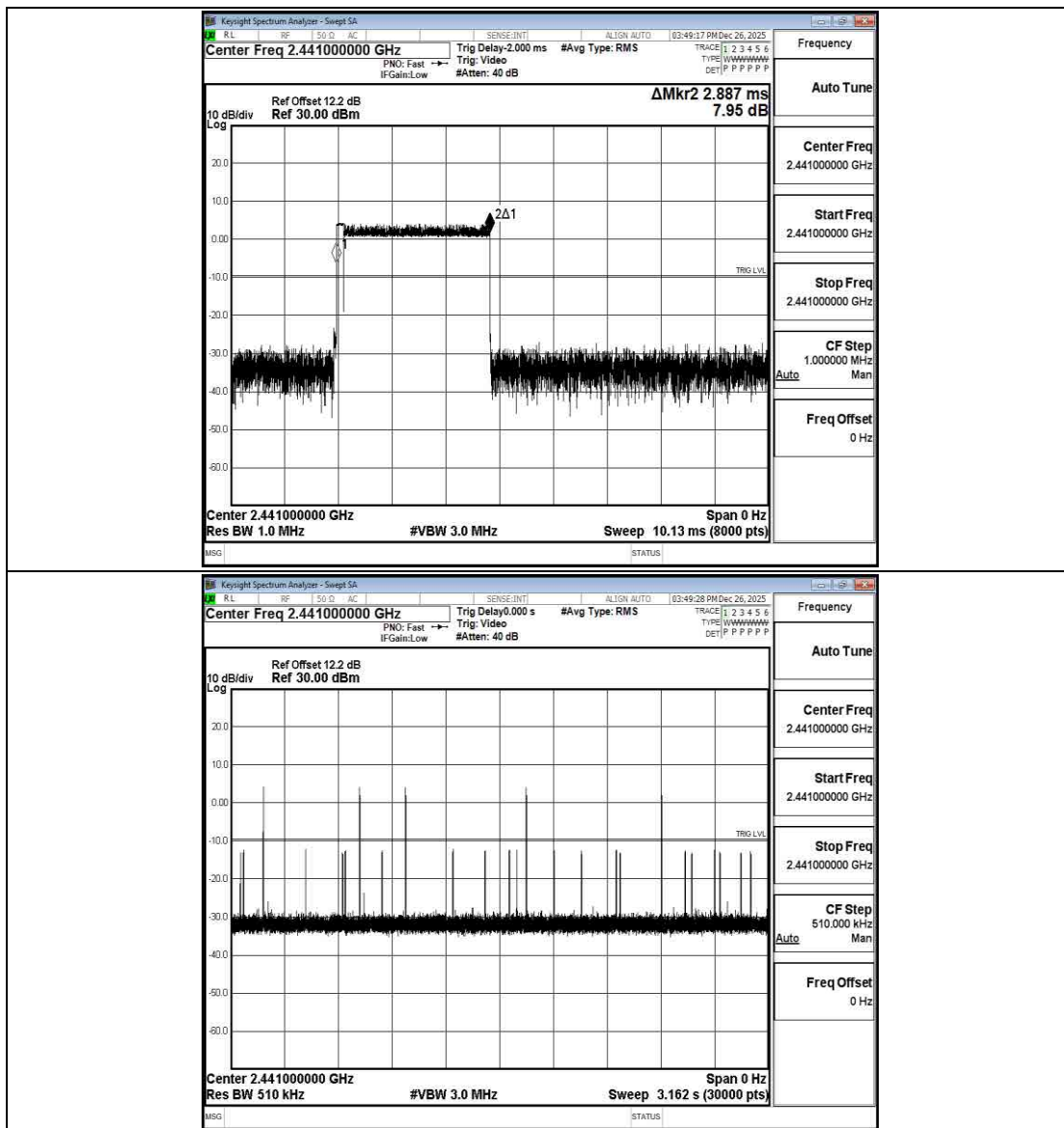




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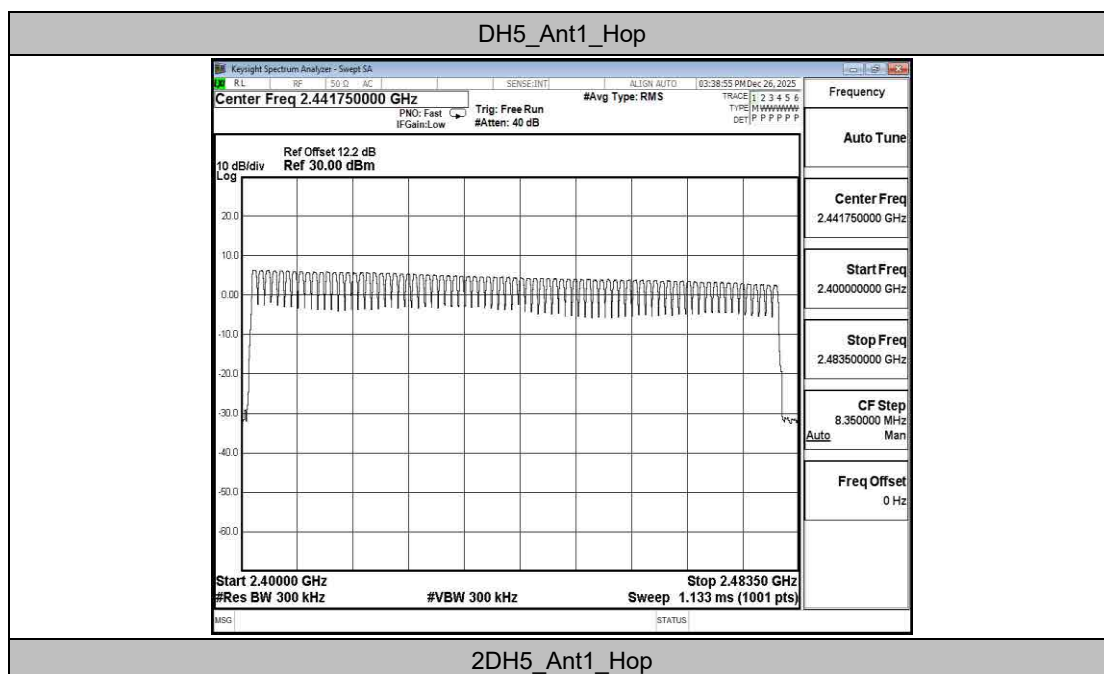


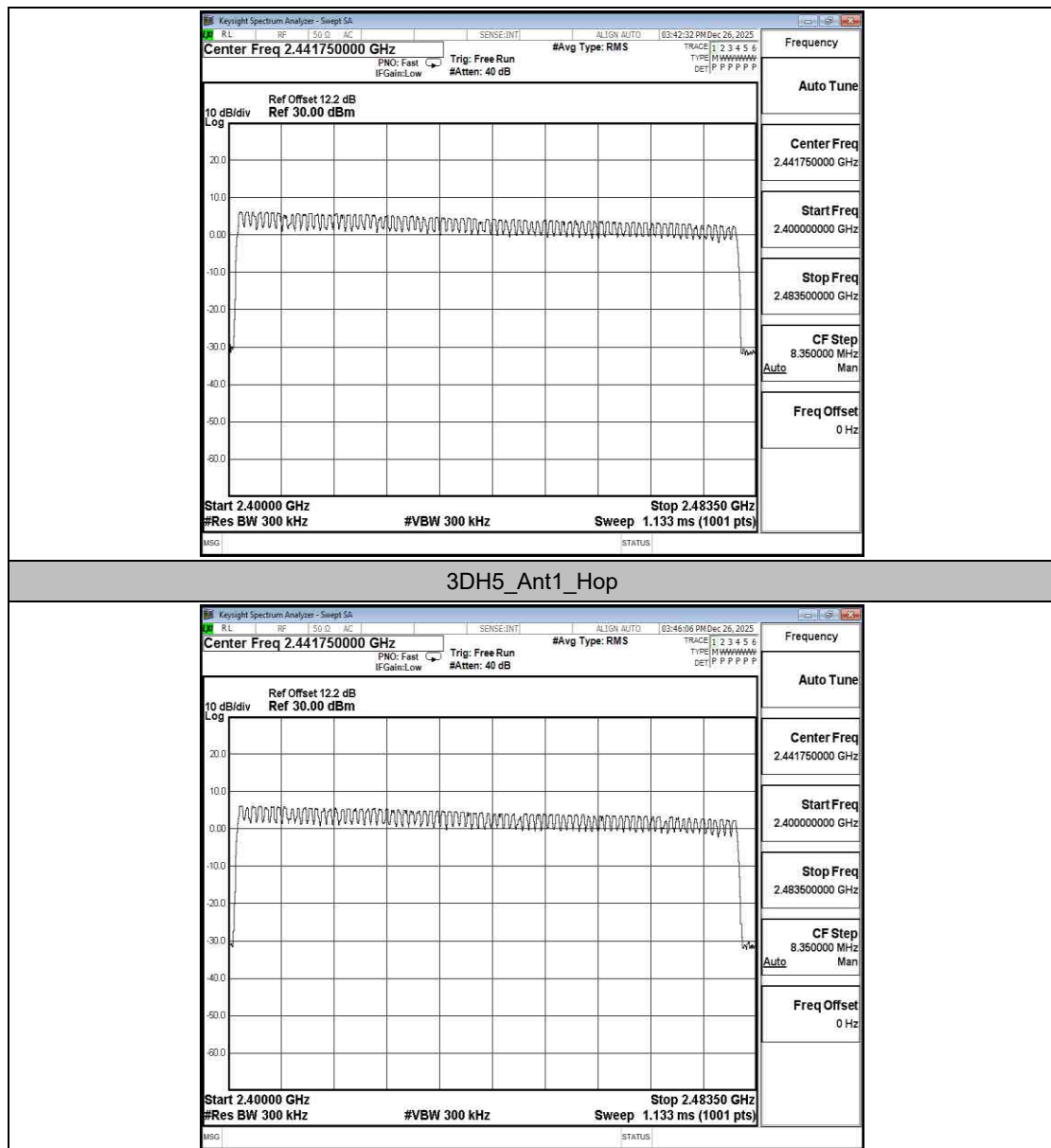
A.6 Number of hopping channels

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



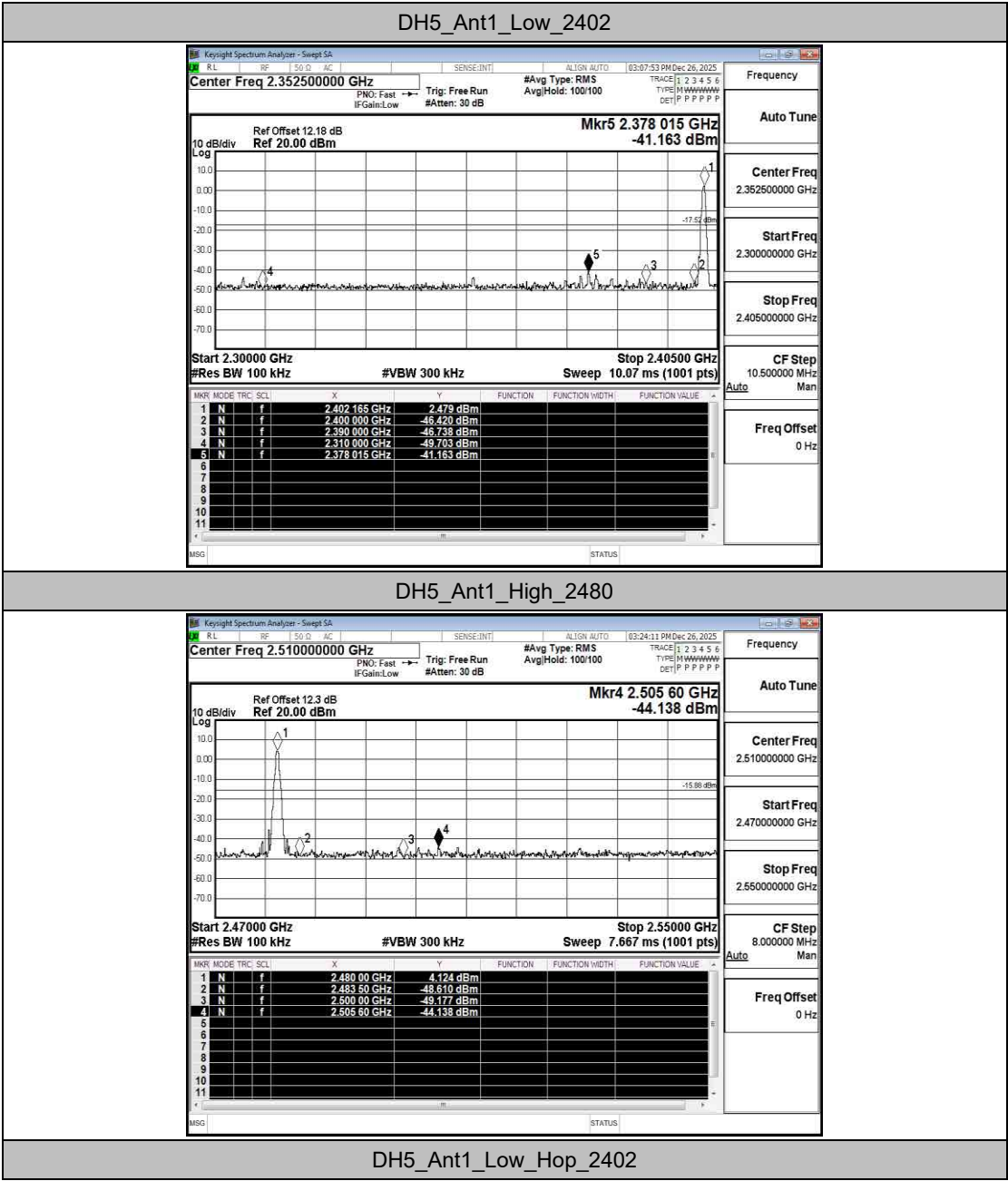


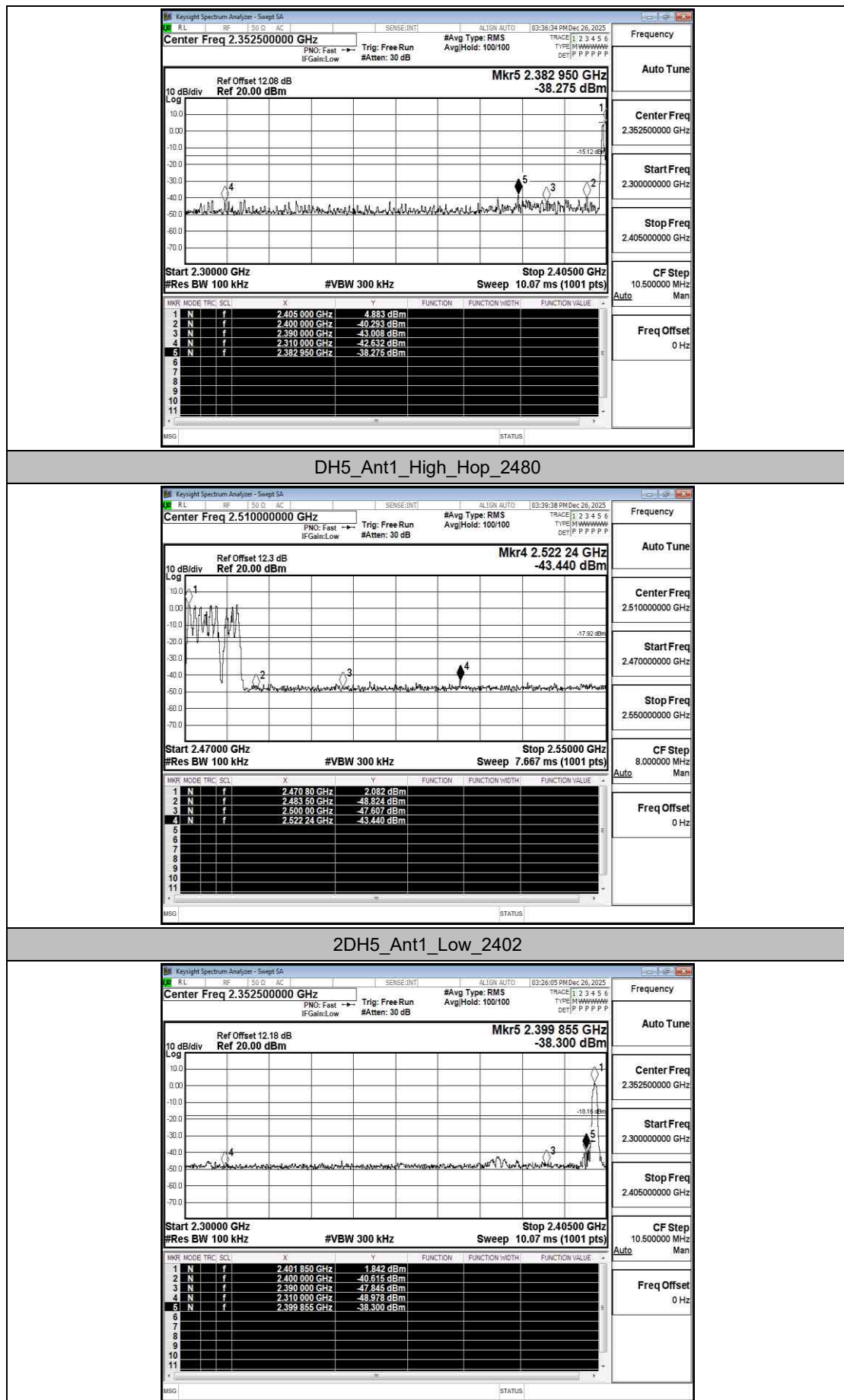
A.6 Band edge measurements

Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	2.48	-41.16	≤-17.52	PASS
		High	2480	4.12	-44.14	≤-15.88	PASS
		Low	Hop_2402	4.88	-38.28	≤-15.12	PASS
		High	Hop_2480	2.08	-43.44	≤-17.92	PASS
2DH5	Ant1	Low	2402	1.84	-38.3	≤-18.16	PASS
		High	2480	-1.10	-44.64	≤-21.1	PASS
		Low	Hop_2402	-0.83	-42.89	≤-20.83	PASS
		High	Hop_2480	0.28	-45.2	≤-19.72	PASS
3DH5	Ant1	Low	2402	3.71	-38.07	≤-16.3	PASS
		High	2480	1.68	-44.63	≤-18.32	PASS
		Low	Hop_2402	-2.13	-42.39	≤-22.13	PASS
		High	Hop_2480	1.95	-45.07	≤-18.05	PASS

Test Graphs



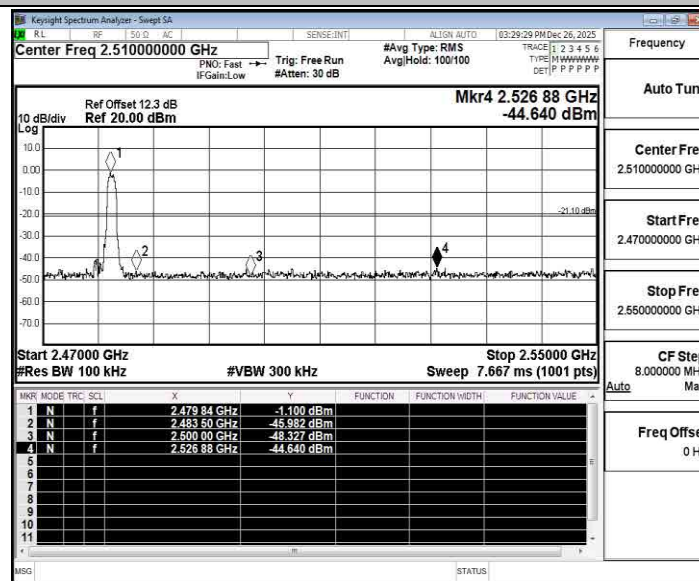


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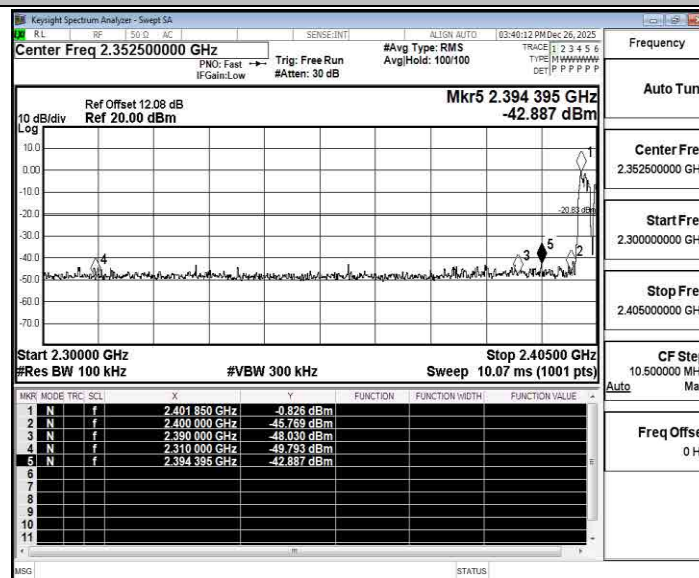
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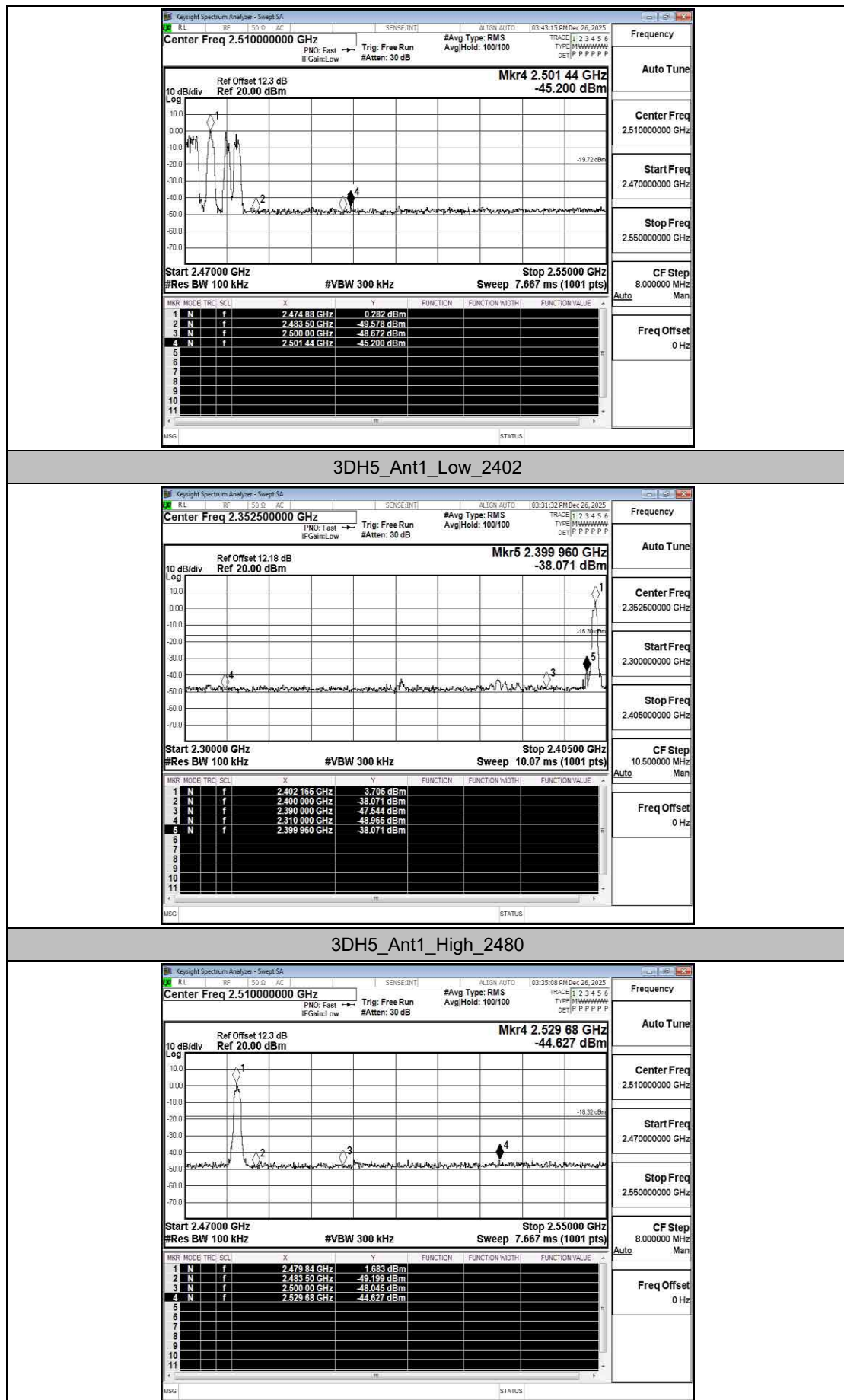
2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402



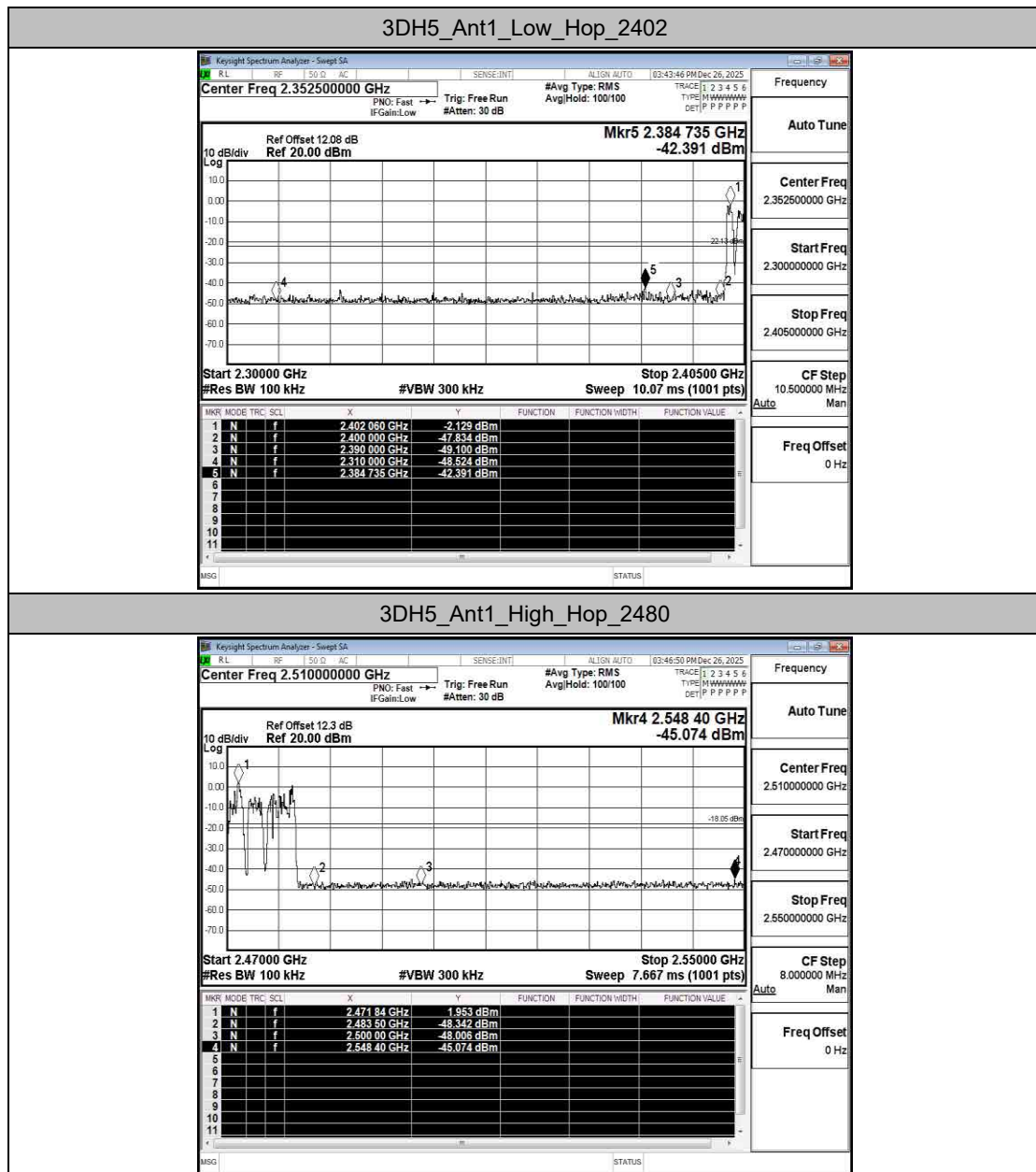
2DH5_Ant1_High_Hop_2480



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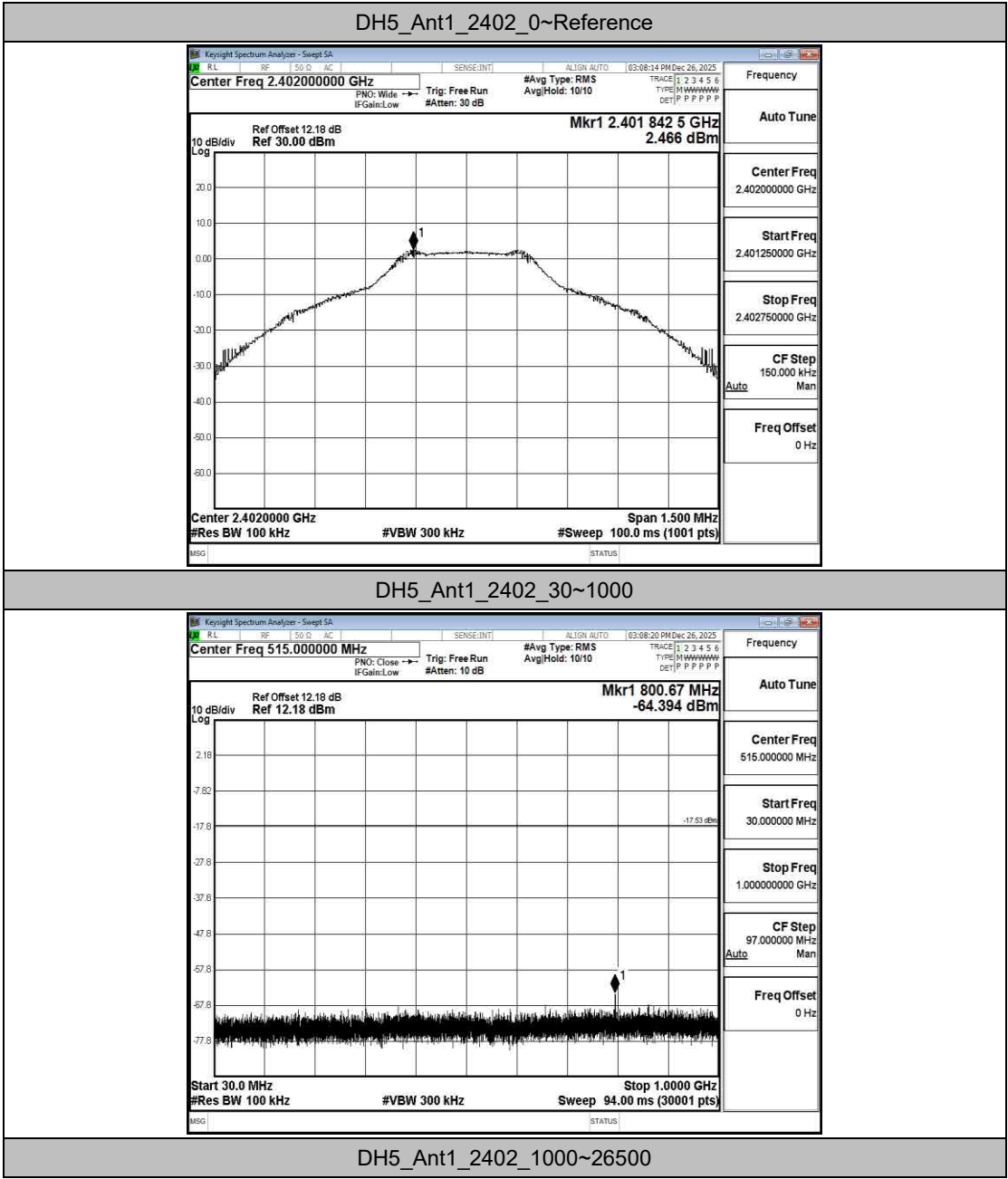


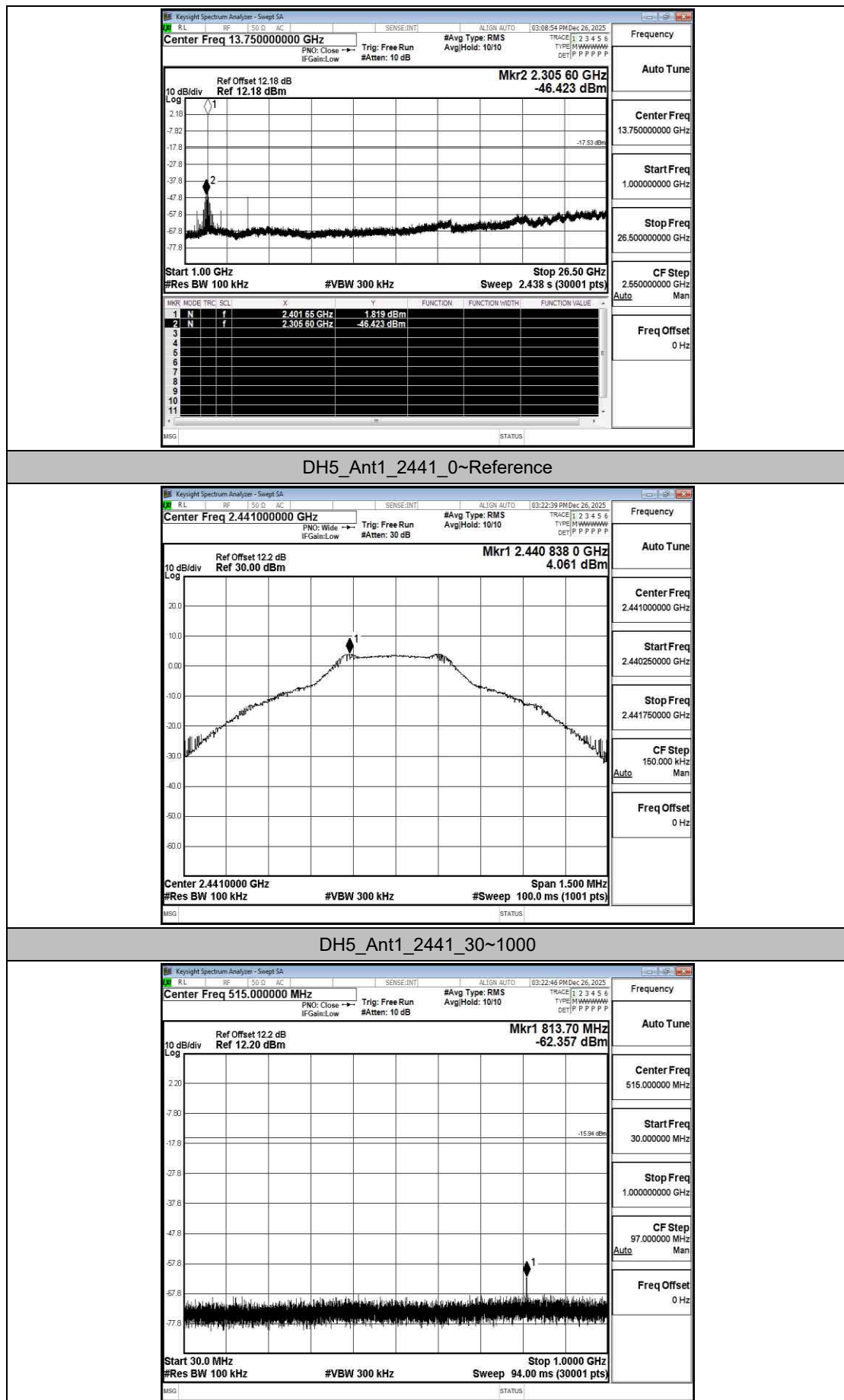
A.7 Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	2.47	2.47	---	PASS
			30~1000	2.47	-64.39	≤-17.53	PASS
			1000~26500	2.47	-46.42	≤-17.53	PASS
		2441	Reference	4.06	4.06	---	PASS
			30~1000	4.06	-62.36	≤-15.94	PASS
			1000~26500	4.06	-43.5	≤-15.94	PASS
		2480	Reference	4.37	4.37	---	PASS
			30~1000	4.37	-62.51	≤-15.63	PASS
			1000~26500	4.37	-44.23	≤-15.63	PASS
2DH5	Ant1	2402	Reference	3.67	3.67	---	PASS
			30~1000	3.67	-65.86	≤-16.33	PASS
			1000~26500	3.67	-48.76	≤-16.33	PASS
		2441	Reference	4.04	4.04	---	PASS
			30~1000	4.04	-64.71	≤-15.96	PASS
			1000~26500	4.04	-45.74	≤-15.96	PASS
		2480	Reference	2.25	2.25	---	PASS
			30~1000	2.25	-65.66	≤-17.75	PASS
			1000~26500	2.25	-51.37	≤-17.75	PASS
3DH5	Ant1	2402	Reference	3.70	3.70	---	PASS
			30~1000	3.70	-64.45	≤-16.3	PASS
			1000~26500	3.70	-44.83	≤-16.3	PASS
		2441	Reference	4.06	4.06	---	PASS
			30~1000	4.06	-66.32	≤-15.94	PASS
			1000~26500	4.06	-48.91	≤-15.94	PASS
		2480	Reference	2.26	2.26	---	PASS
			30~1000	2.26	-63.98	≤-17.74	PASS
			1000~26500	2.26	-50.21	≤-17.74	PASS

Test Graphs

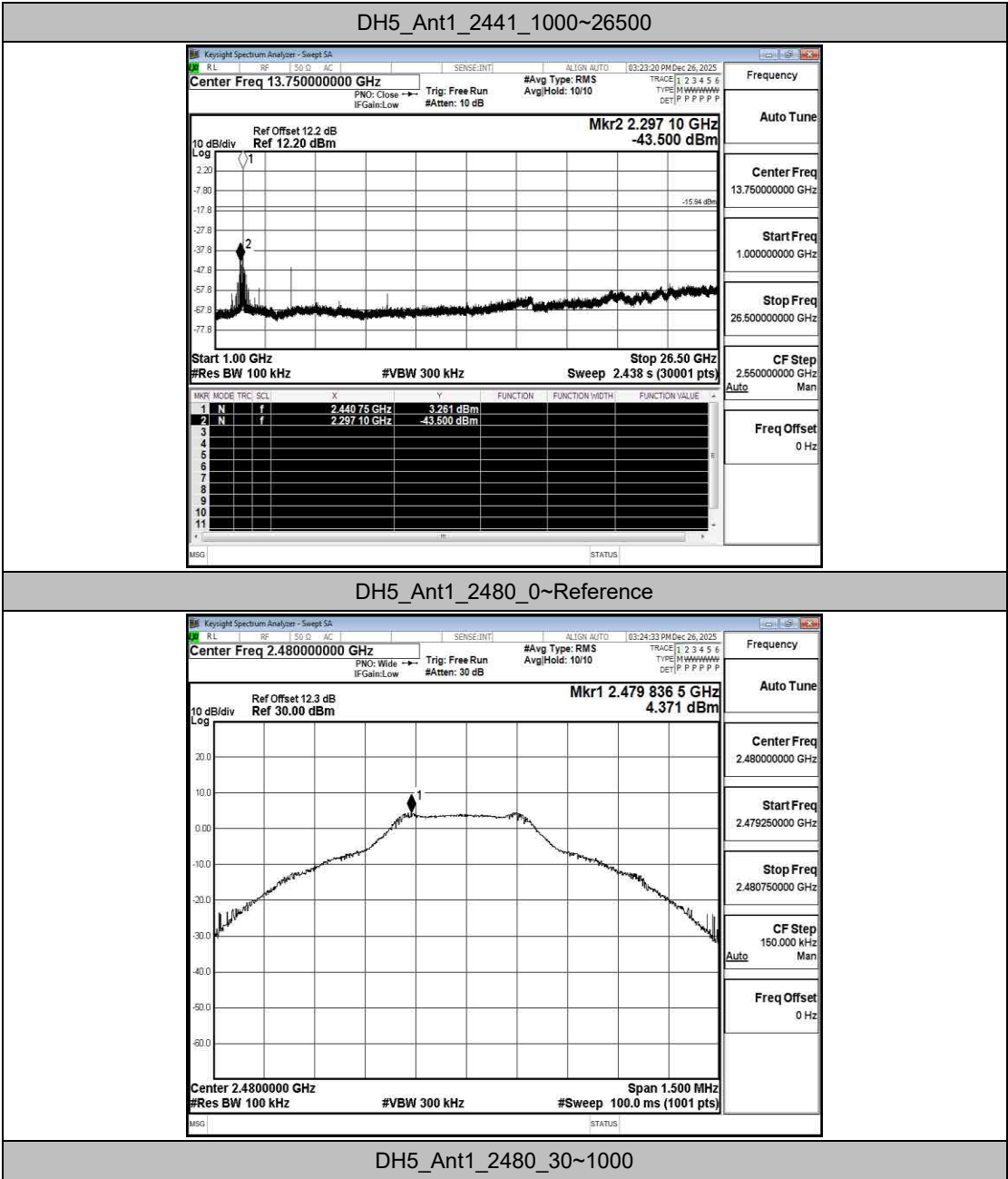


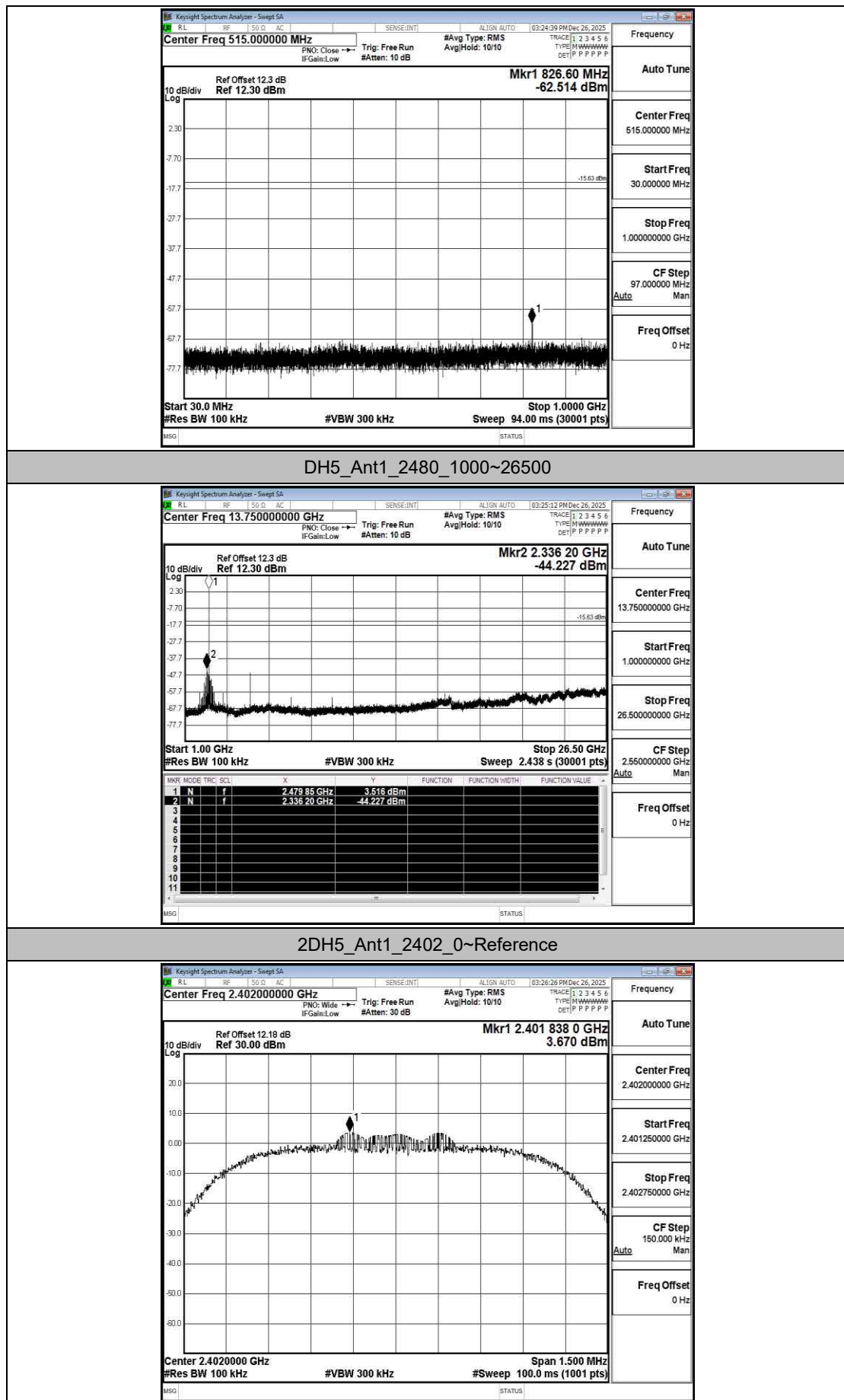


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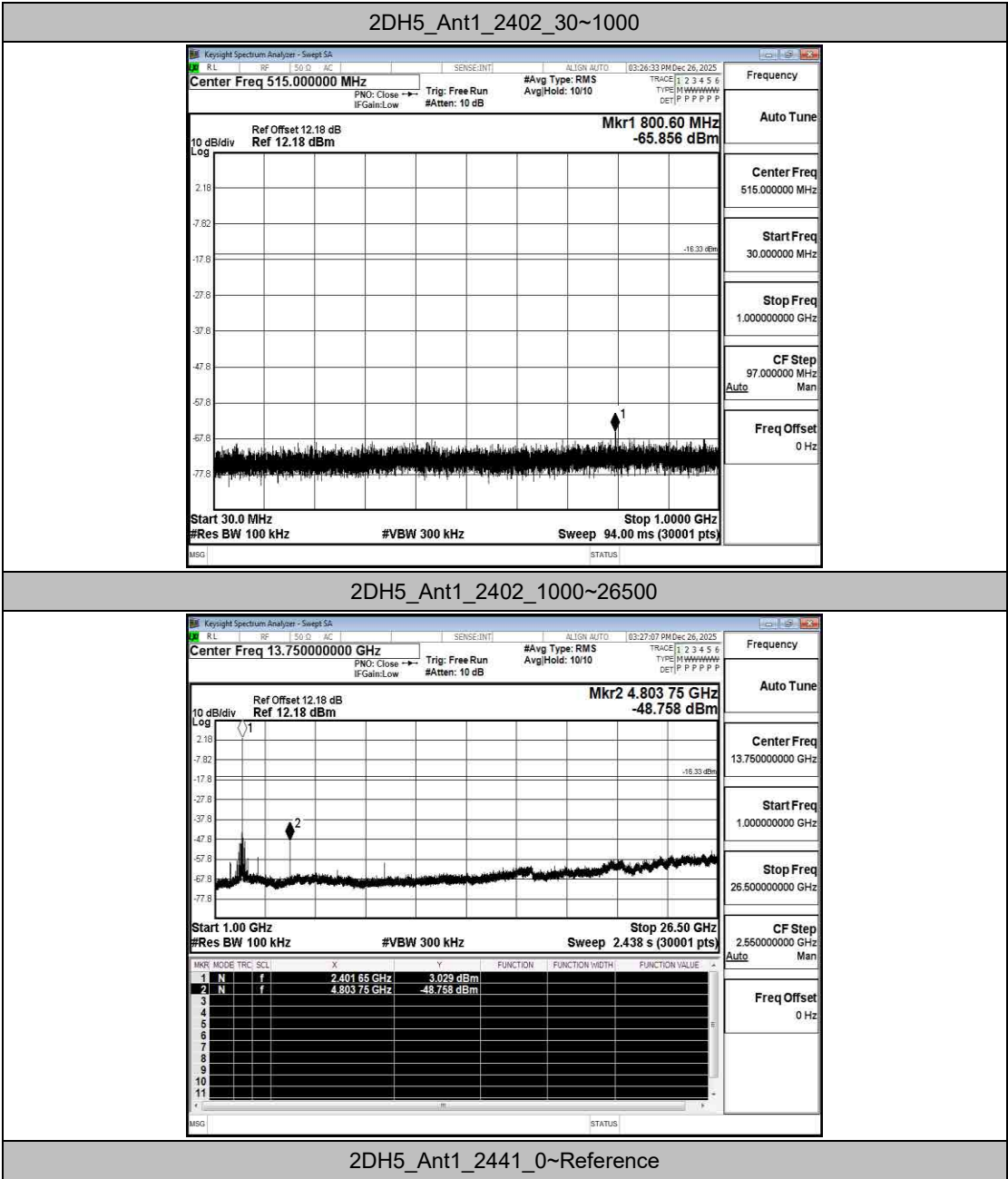


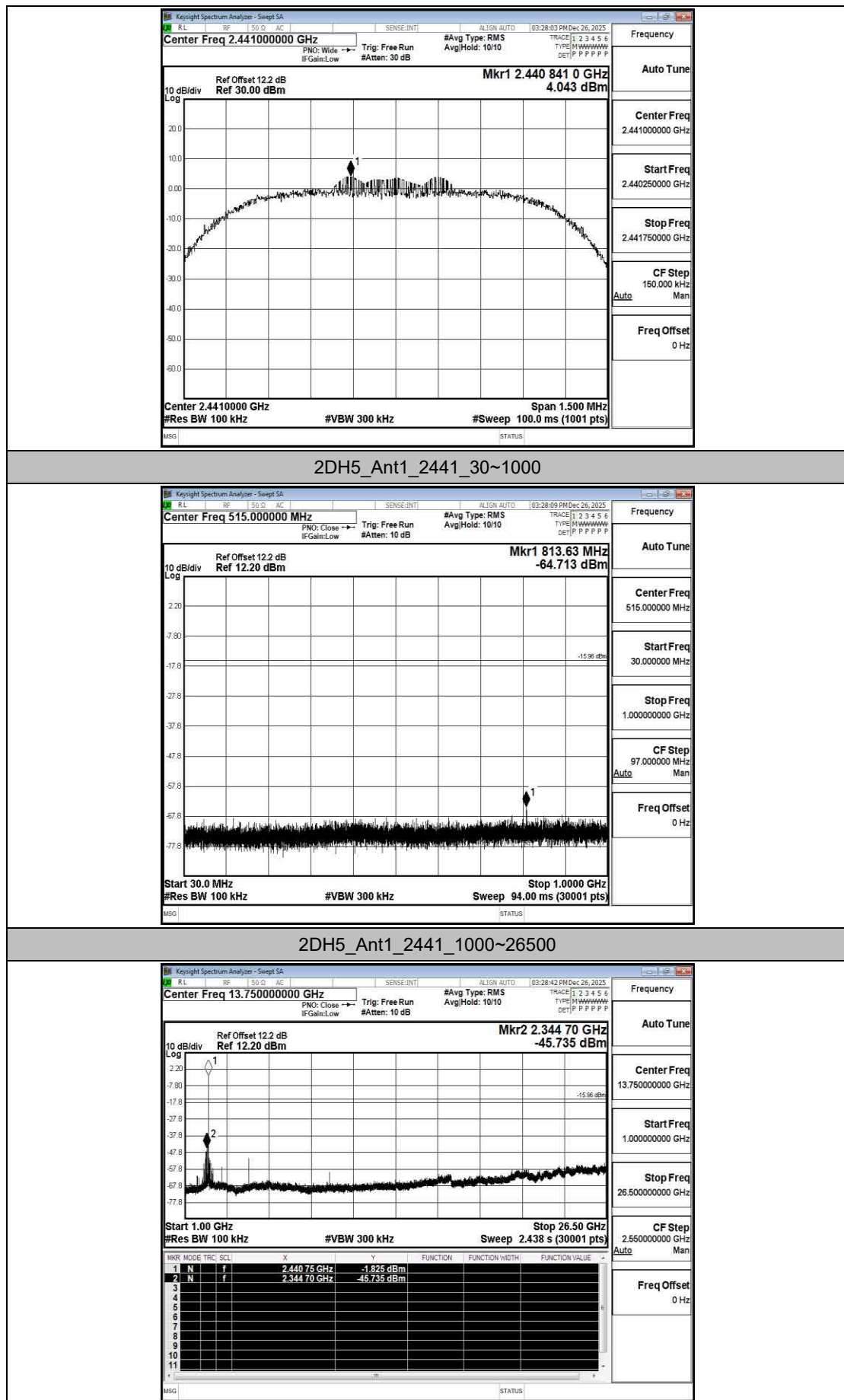


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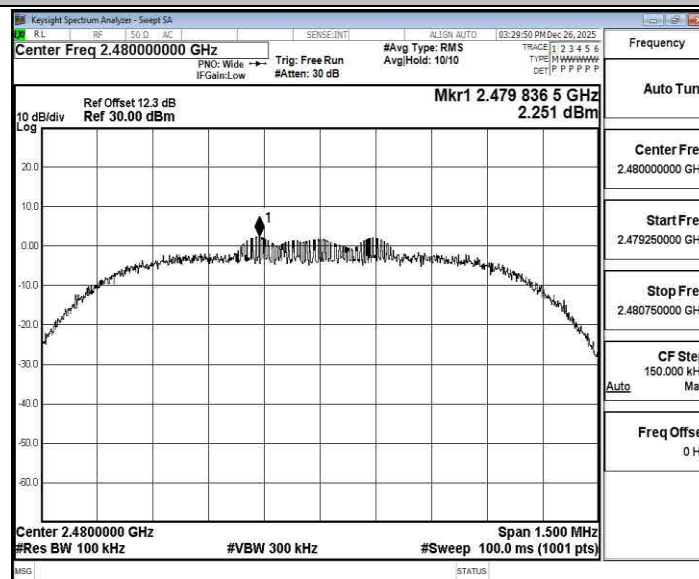


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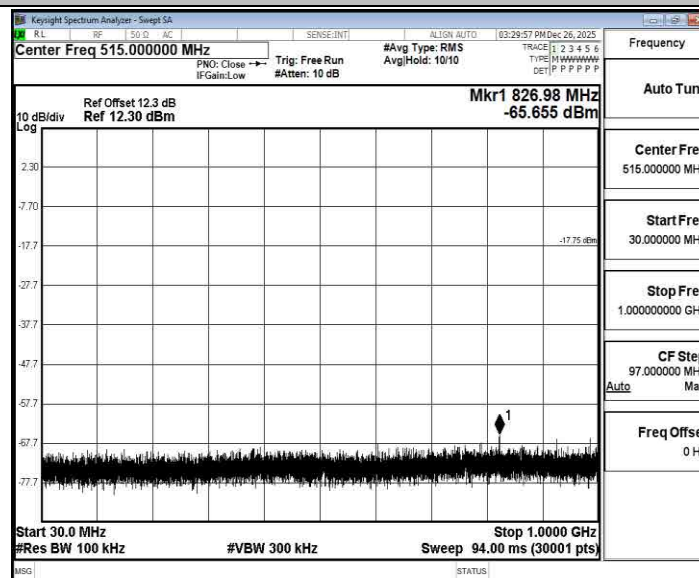
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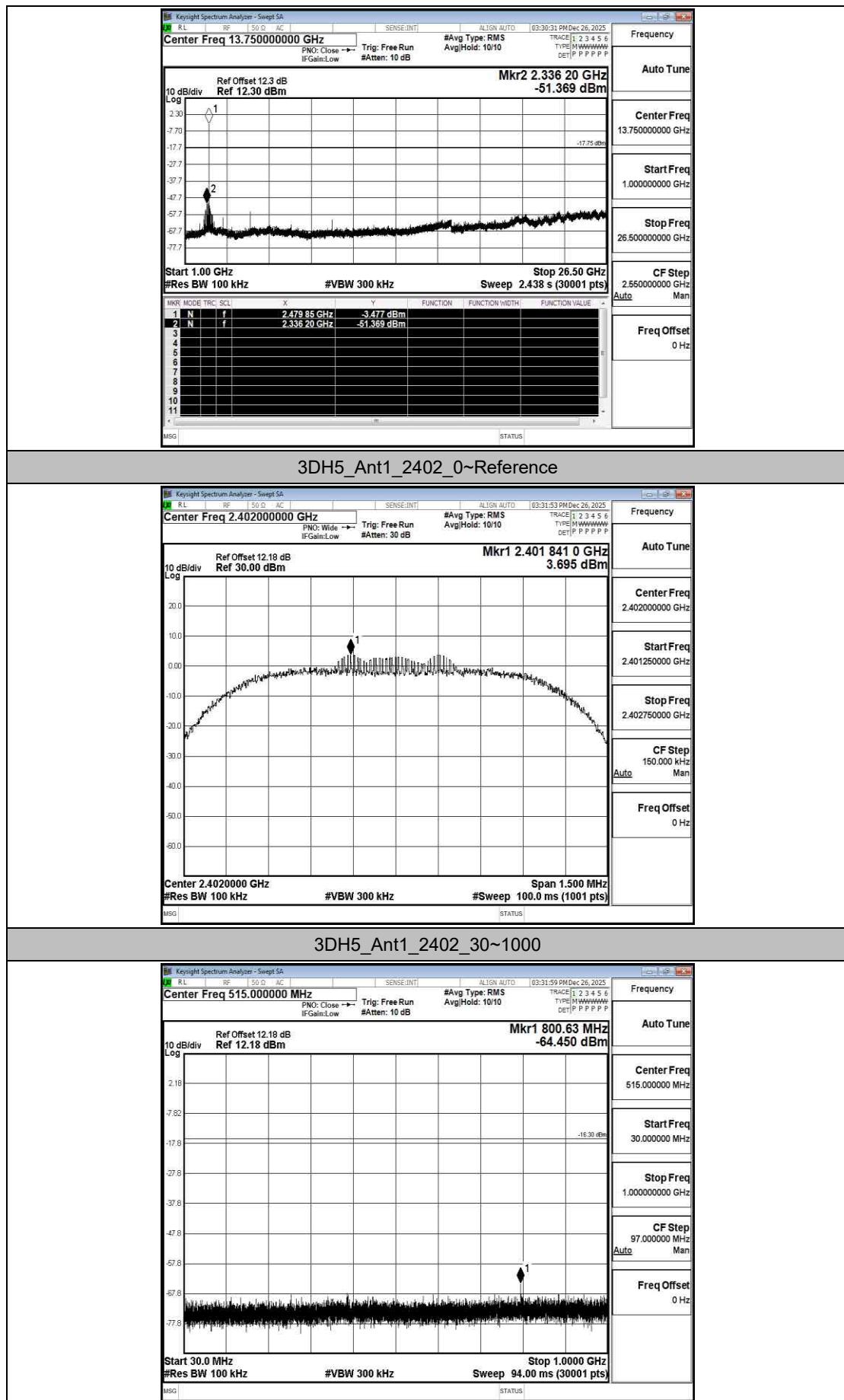
2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000



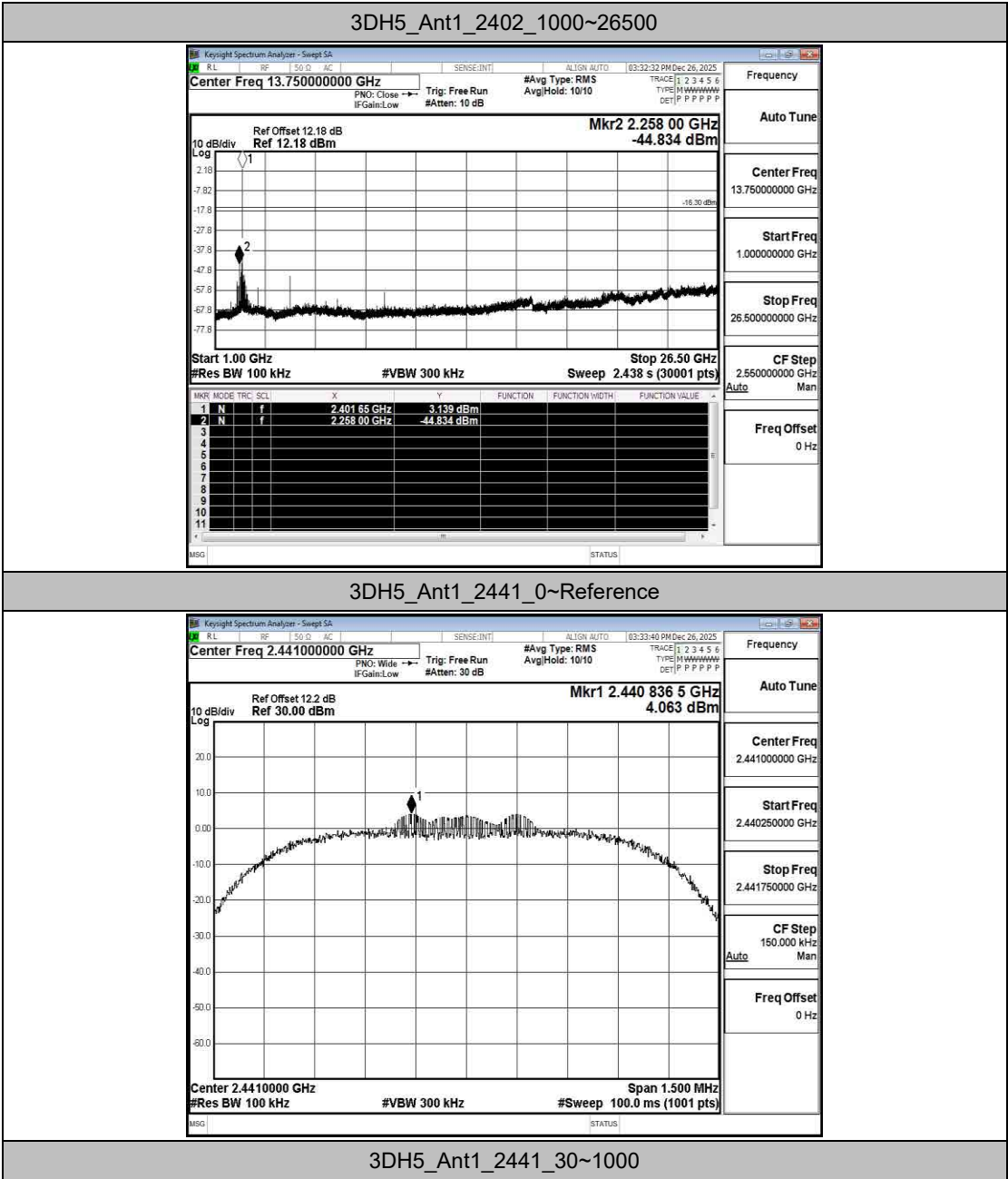
2DH5_Ant1_2480_1000~26500

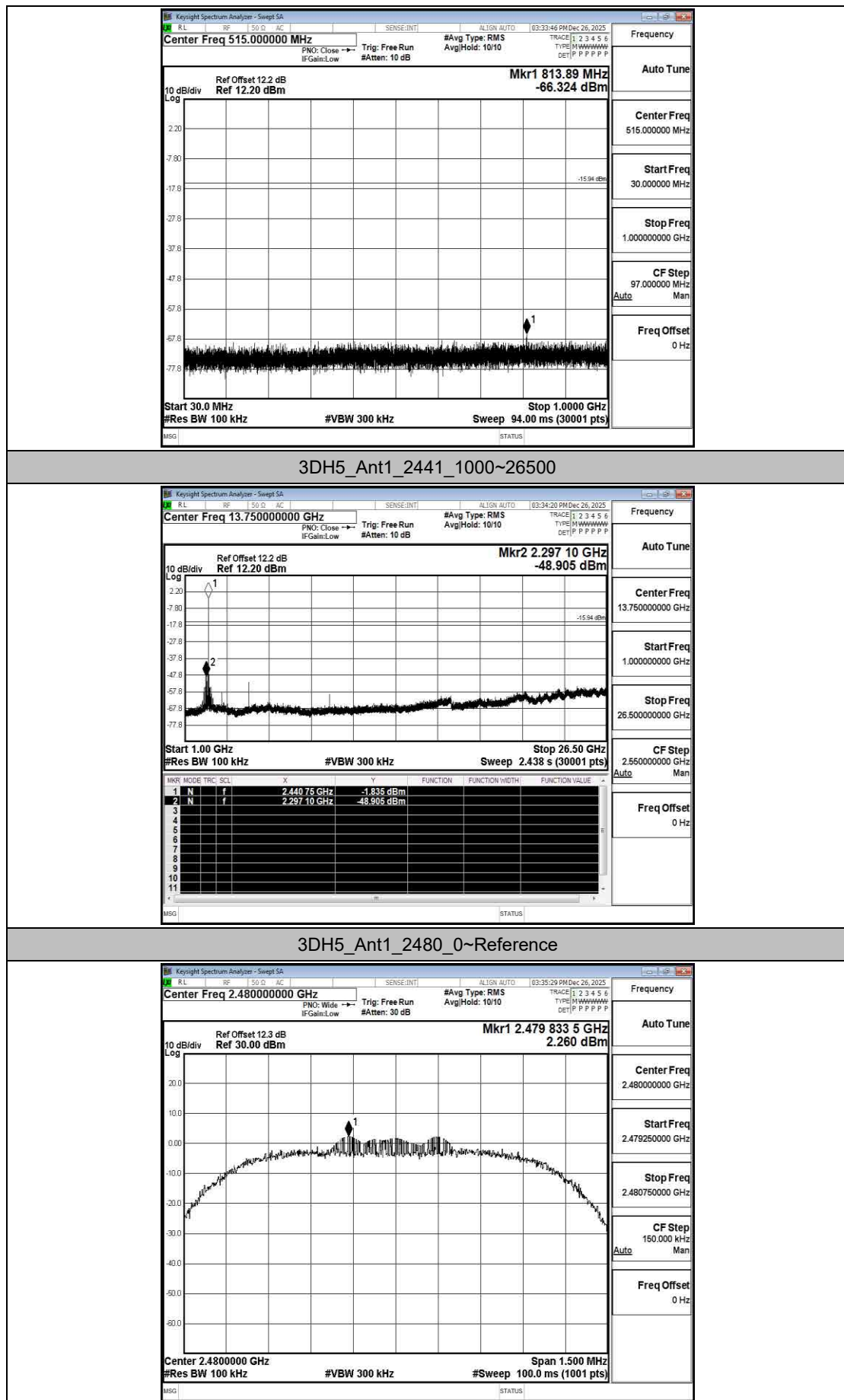


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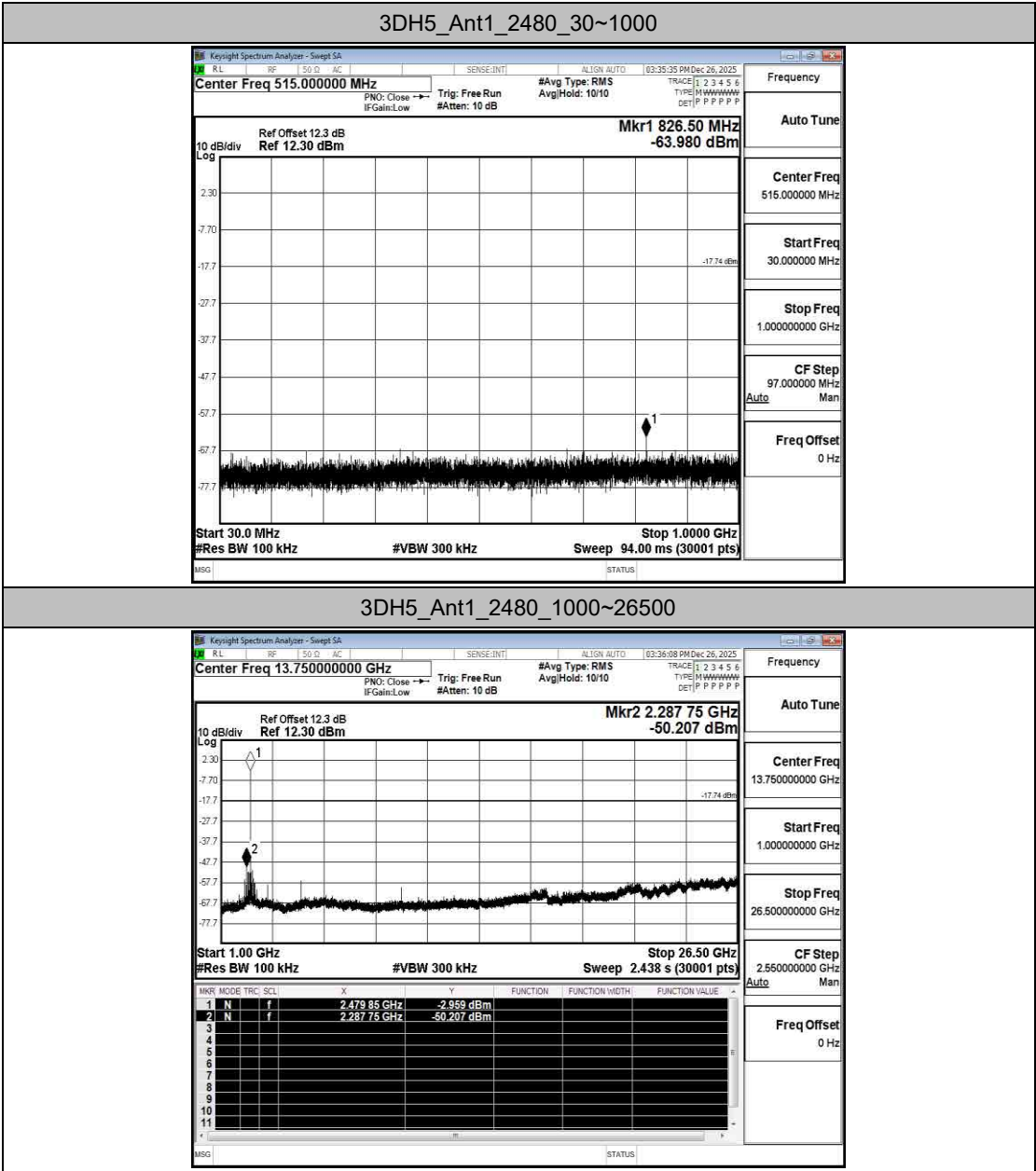




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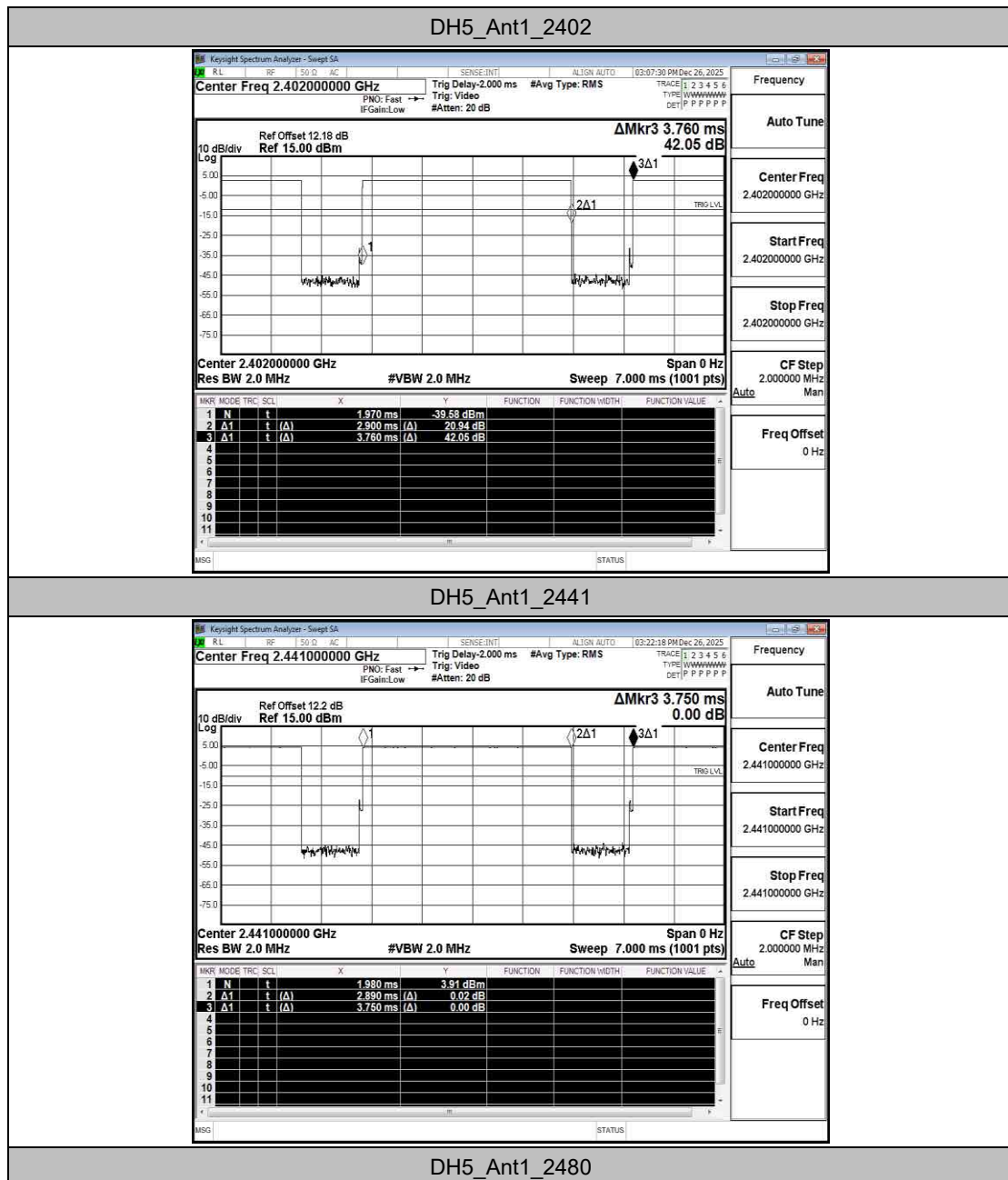


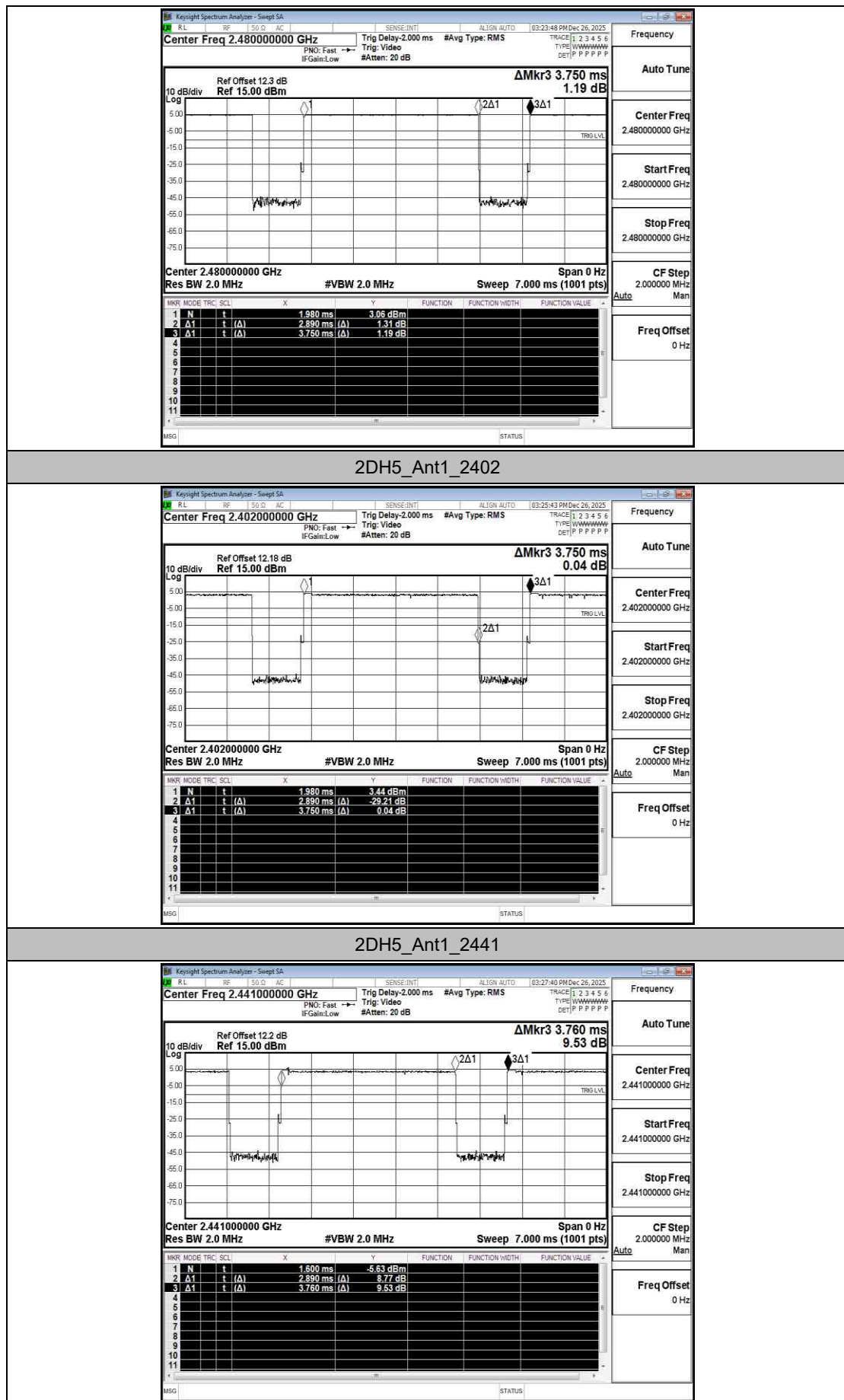
A.8 Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.90	3.76	77.13	1.13	---	---
		2441	2.89	3.75	77.07	1.13	---	---
		2480	2.89	3.75	77.07	1.13	---	---
2DH5	Ant1	2402	2.89	3.75	77.07	1.13	---	---
		2441	2.89	3.76	76.86	1.14	---	---
		2480	2.88	3.75	76.80	1.15	---	---
3DH5	Ant1	2402	2.89	3.75	77.07	1.13	---	---
		2441	2.89	3.75	77.07	1.13	---	---
		2480	2.89	3.75	77.07	1.13	---	---

Test Graphs



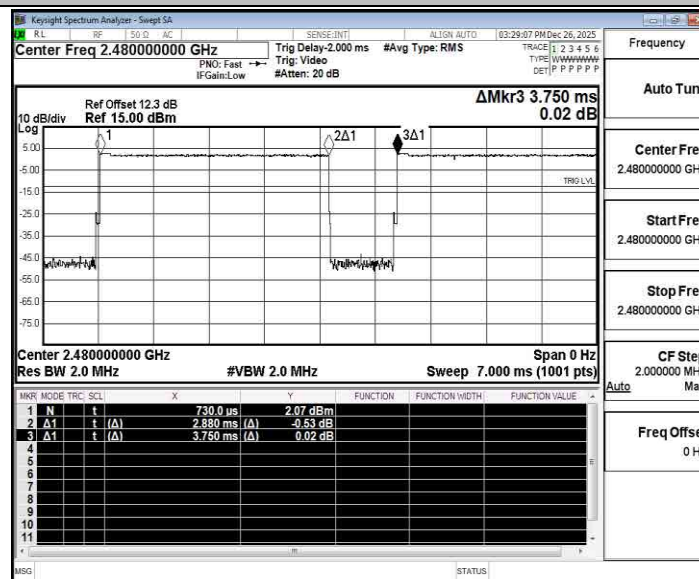


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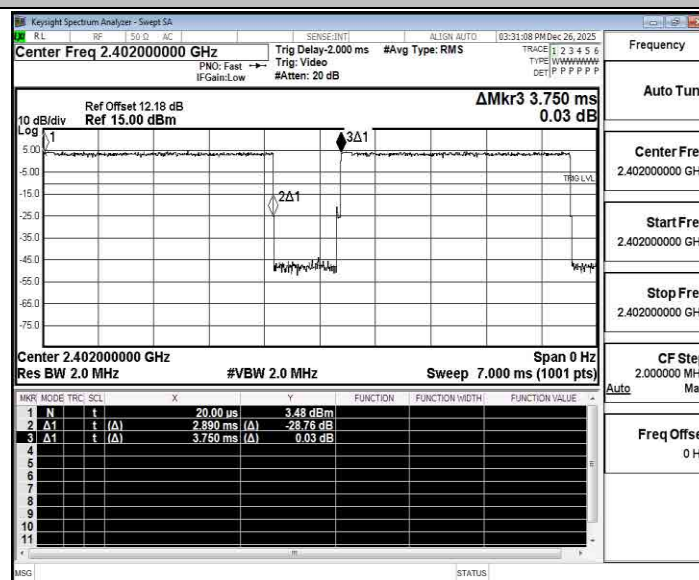
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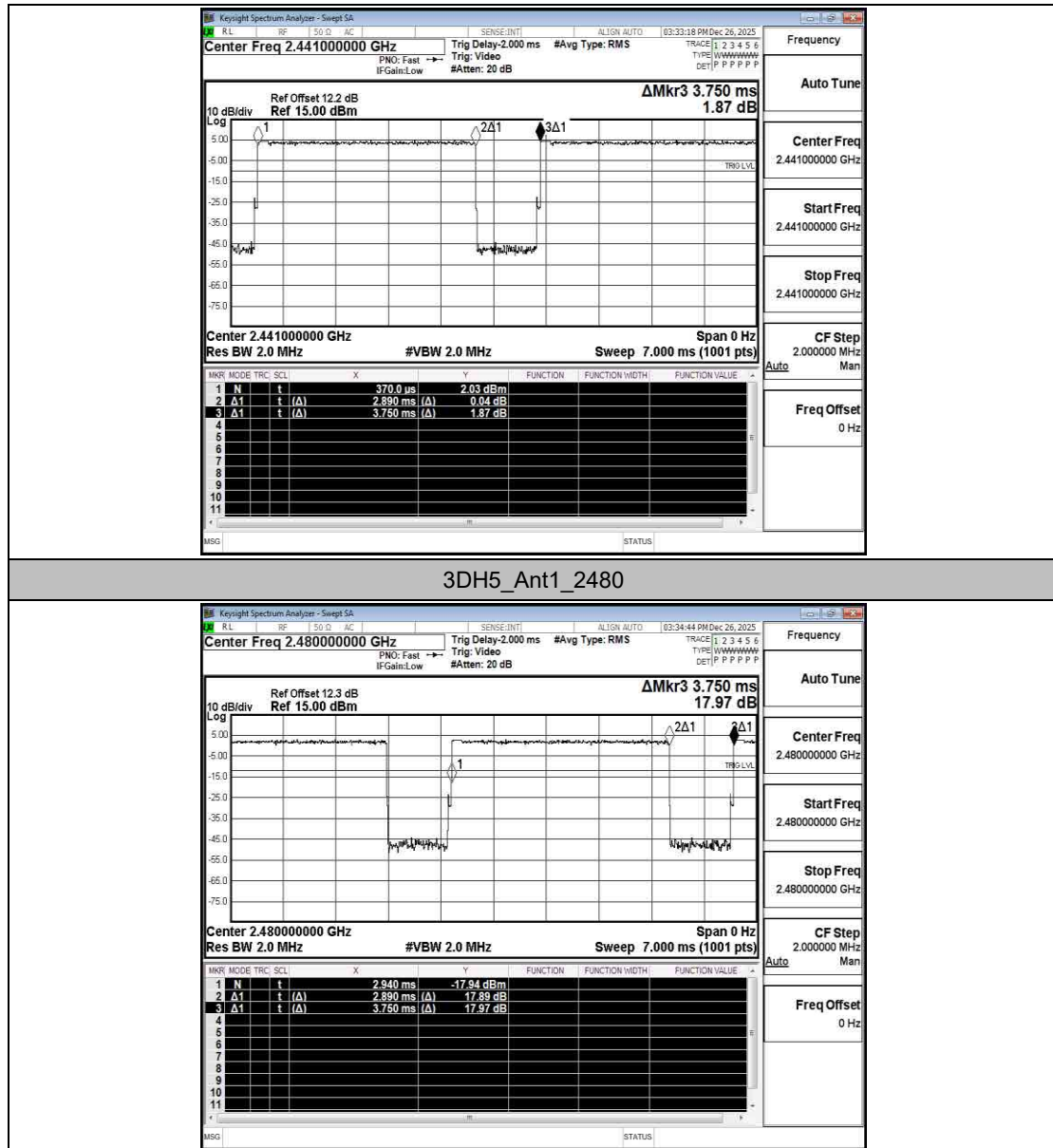
2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



A.9 Emissions in Restricted Bands

Test Result

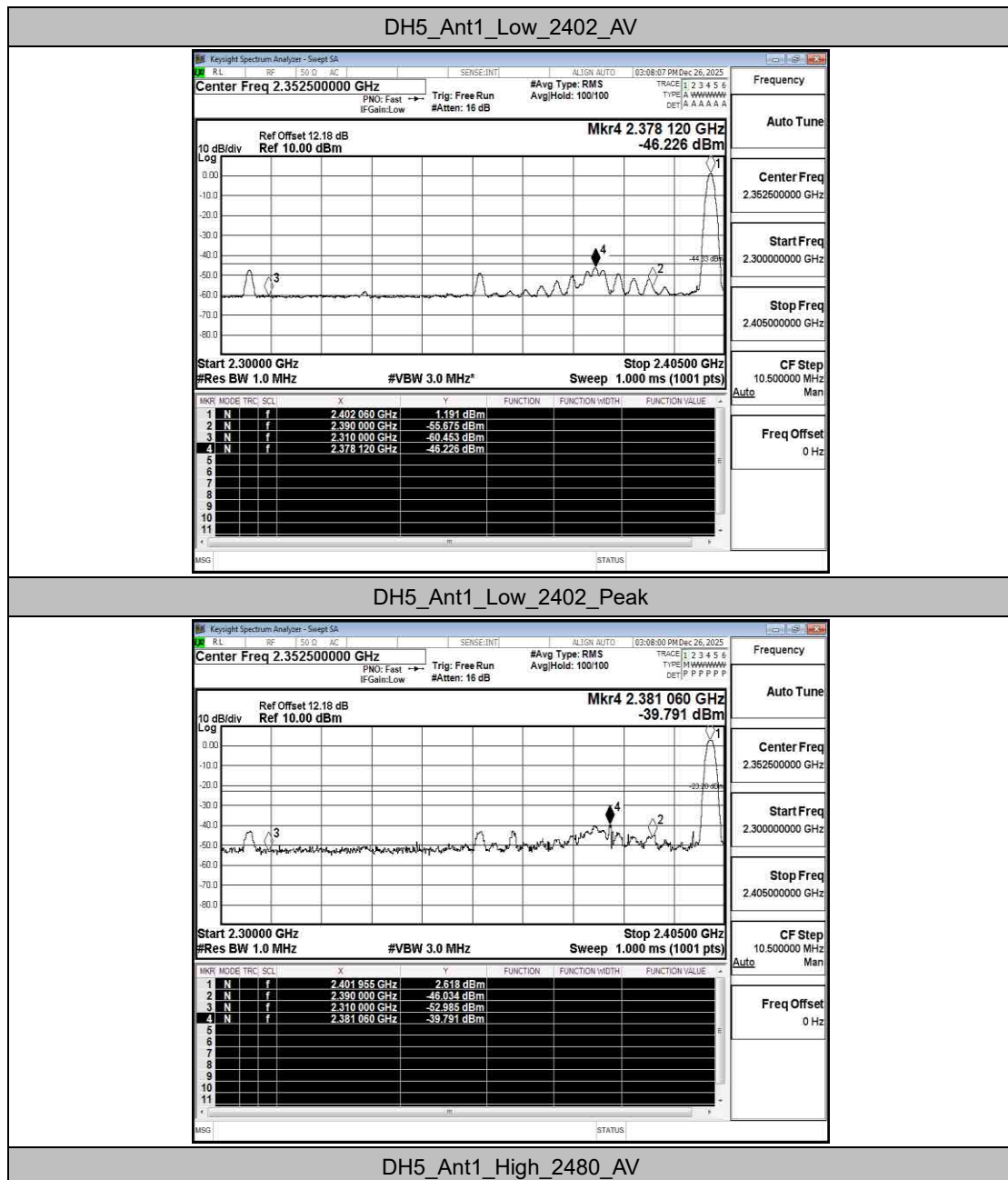
TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-60.45	≤-44.33	2.00	1.13	37.88	≤54	PASS
				AV	2378.120	-46.23	≤-44.33	2.00	1.13	52.10	≤54	PASS
				AV	2390.000	-55.68	≤-44.33	2.00	1.13	42.65	≤54	PASS
				Peak	2310.000	-52.99	≤-23.20	2.00	0.00	44.21	≤74	PASS
				Peak	2381.060	-39.79	≤-23.20	2.00	0.00	57.41	≤74	PASS
				Peak	2390.000	-46.03	≤-23.20	2.00	0.00	51.17	≤74	PASS
		High	2480	AV	2483.500	-57.87	≤-44.33	2.00	1.13	40.46	≤54	PASS
				AV	2499.200	-51.08	≤-44.33	2.00	1.13	47.25	≤54	PASS
				AV	2500.000	-55.94	≤-44.33	2.00	1.13	42.39	≤54	PASS
				Peak	2483.500	-50.93	≤-23.20	2.00	0.00	46.27	≤74	PASS
				Peak	2498.880	-45.29	≤-23.20	2.00	0.00	51.91	≤74	PASS
				Peak	2500.000	-45.39	≤-23.20	2.00	0.00	51.81	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-42.46	≤-23.20	2.00	0.00	54.74	≤74	PASS
				Peak	2385.260	-38.45	≤-23.20	2.00	0.00	58.75	≤74	PASS
				Peak	2390.000	-43.53	≤-23.20	2.00	0.00	53.67	≤74	PASS
		High	Hop_2480	Peak	2483.500	-46.63	≤-23.20	2.00	0.00	50.57	≤74	PASS
				Peak	2486.400	-41.63	≤-23.20	2.00	0.00	55.57	≤74	PASS
				Peak	2500.000	-46.16	≤-23.20	2.00	0.00	51.04	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-60.44	≤-44.33	2.00	1.13	37.89	≤54	PASS
				AV	2378.120	-45.14	≤-44.33	2.00	1.13	53.19	≤54	PASS
				AV	2390.000	-54.77	≤-44.33	2.00	1.13	43.56	≤54	PASS
				Peak	2310.000	-52.74	≤-23.20	2.00	0.00	44.46	≤74	PASS
				Peak	2378.120	-39.22	≤-23.20	2.00	0.00	57.98	≤74	PASS
				Peak	2390.000	-45.76	≤-23.20	2.00	0.00	51.44	≤74	PASS
		High	2480	AV	2483.500	-59.02	≤-44.35	2.00	1.15	39.33	≤54	PASS
				AV	2499.200	-54.9	≤-44.35	2.00	1.15	43.45	≤54	PASS
				AV	2500.000	-57.88	≤-44.35	2.00	1.15	40.47	≤54	PASS
				Peak	2483.500	-49.78	≤-23.20	2.00	0.00	47.42	≤74	PASS
				Peak	2491.760	-45.97	≤-23.20	2.00	0.00	51.23	≤74	PASS
				Peak	2500.000	-48.51	≤-23.20	2.00	0.00	48.69	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-44.69	≤-23.20	2.00	0.00	52.51	≤74	PASS
				Peak	2386.310	-37.98	≤-23.20	2.00	0.00	59.22	≤74	PASS
				Peak	2390.000	-43.76	≤-23.20	2.00	0.00	53.44	≤74	PASS
		High	Hop_2480	Peak	2483.500	-46.74	≤-23.20	2.00	0.00	50.46	≤74	PASS
				Peak	2497.920	-44.75	≤-23.20	2.00	0.00	52.45	≤74	PASS
				Peak	2500.000	-48.36	≤-23.20	2.00	0.00	48.84	≤74	PASS

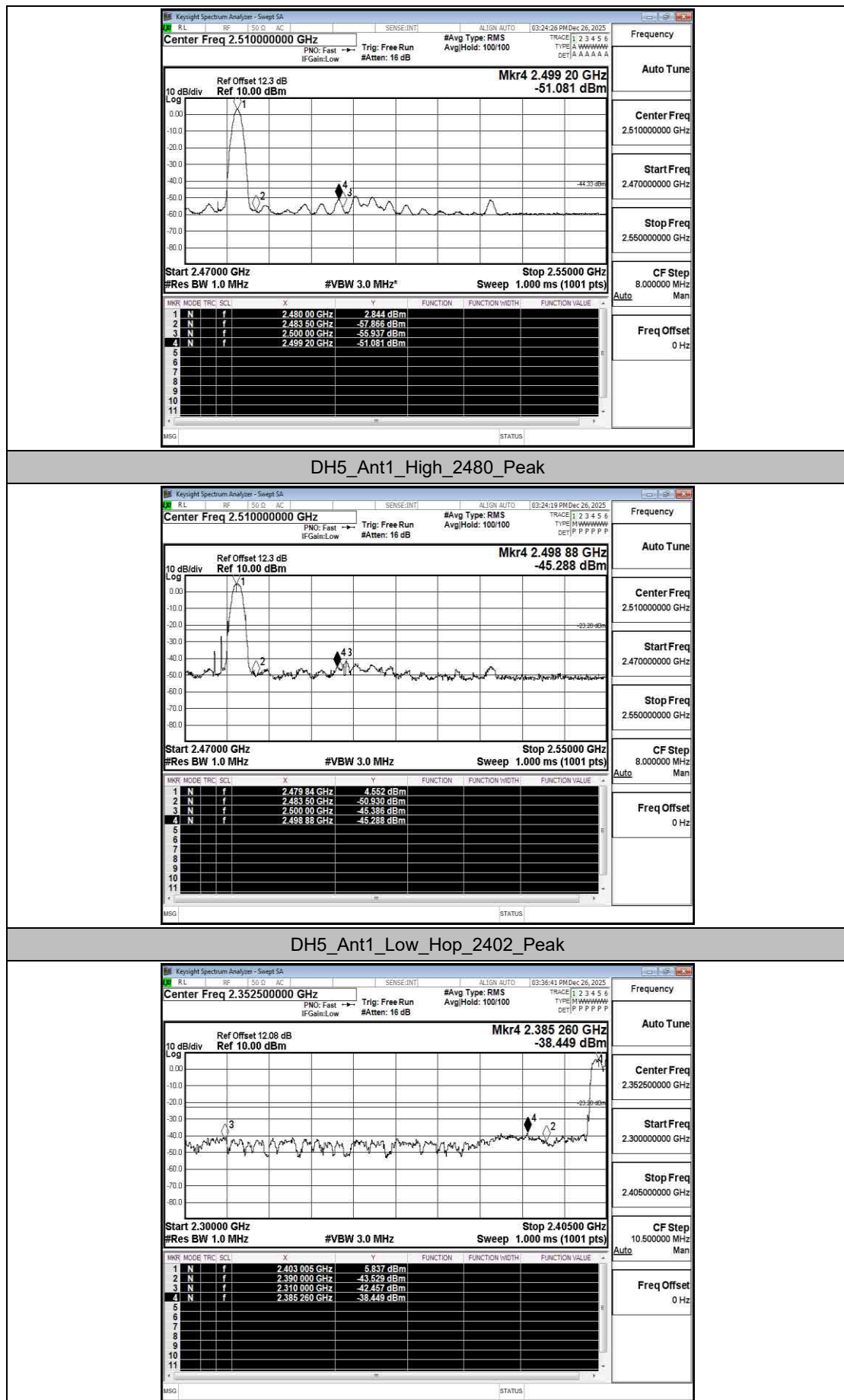
3DH5	Ant1	Low	2402	AV	2310.000	-60.69	≤ -44.33	2.00	1.13	37.64	≤ 54	PASS
				AV	2378.015	-44.99	≤ -44.33	2.00	1.13	53.34	≤ 54	PASS
				AV	2390.000	-54.51	≤ -44.33	2.00	1.13	43.82	≤ 54	PASS
				Peak	2310.000	-50.59	≤ -23.20	2.00	0.00	46.61	≤ 74	PASS
				Peak	2378.225	-39.33	≤ -23.20	2.00	0.00	57.87	≤ 74	PASS
				Peak	2390.000	-46.03	≤ -23.20	2.00	0.00	51.17	≤ 74	PASS
		High	2480	AV	2483.500	-58.85	≤ -44.33	2.00	1.13	39.48	≤ 54	PASS
				AV	2499.360	-55.21	≤ -44.33	2.00	1.13	43.12	≤ 54	PASS
				AV	2500.000	-57.75	≤ -44.33	2.00	1.13	40.58	≤ 54	PASS
				Peak	2483.500	-50.5	≤ -23.20	2.00	0.00	46.70	≤ 74	PASS
				Peak	2499.280	-46.35	≤ -23.20	2.00	0.00	50.85	≤ 74	PASS
				Peak	2500.000	-50.55	≤ -23.20	2.00	0.00	46.65	≤ 74	PASS
		Low	Hop_2402	Peak	2310.000	-44.13	≤ -23.20	2.00	0.00	53.07	≤ 74	PASS
				Peak	2386.940	-37.02	≤ -23.20	2.00	0.00	60.18	≤ 74	PASS
				Peak	2390.000	-42.59	≤ -23.20	2.00	0.00	54.61	≤ 74	PASS
		High	Hop_2480	Peak	2483.500	-48.26	≤ -23.20	2.00	0.00	48.94	≤ 74	PASS
				Peak	2488.640	-45.44	≤ -23.20	2.00	0.00	51.76	≤ 74	PASS
				Peak	2500.000	-49.83	≤ -23.20	2.00	0.00	47.37	≤ 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

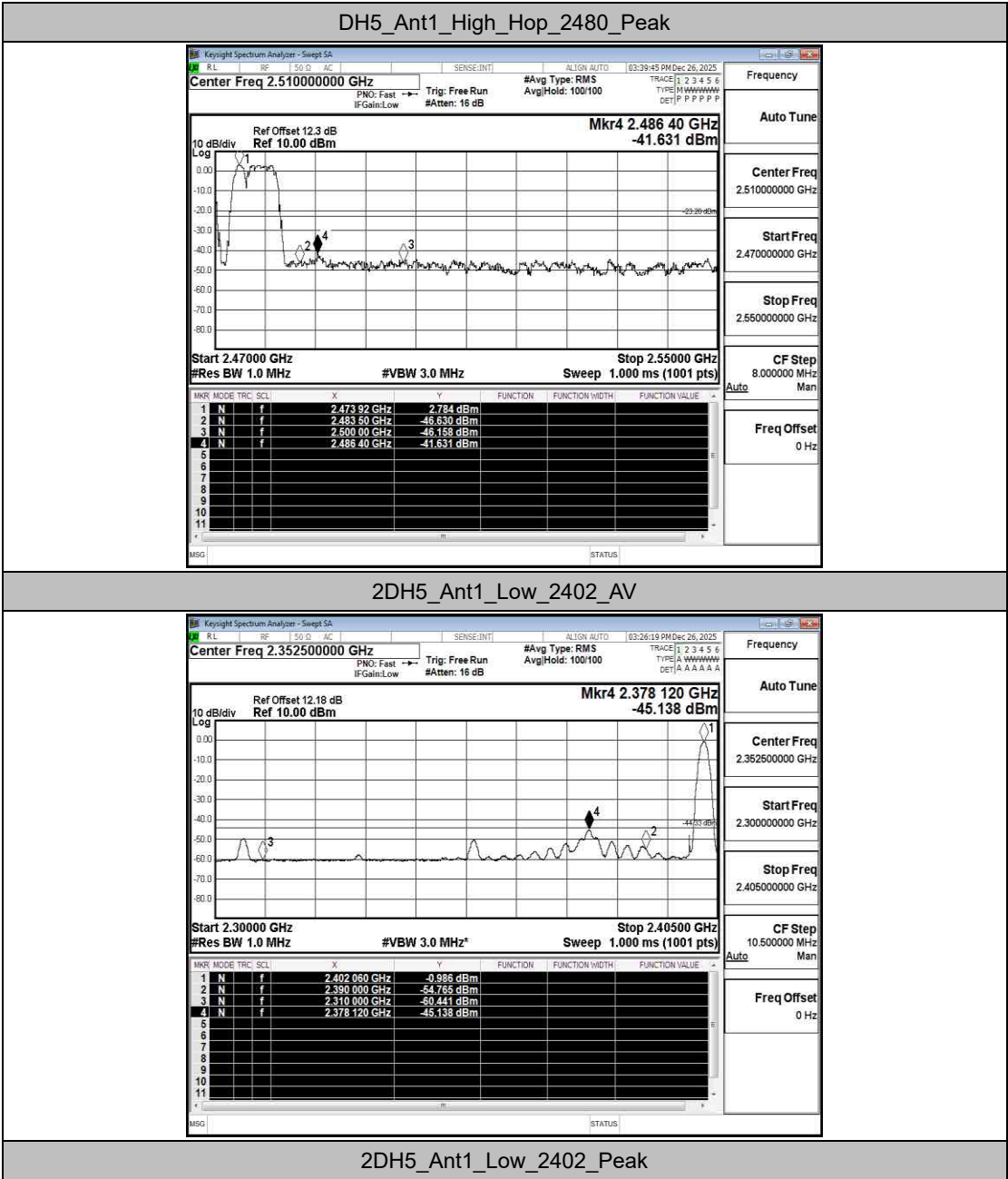


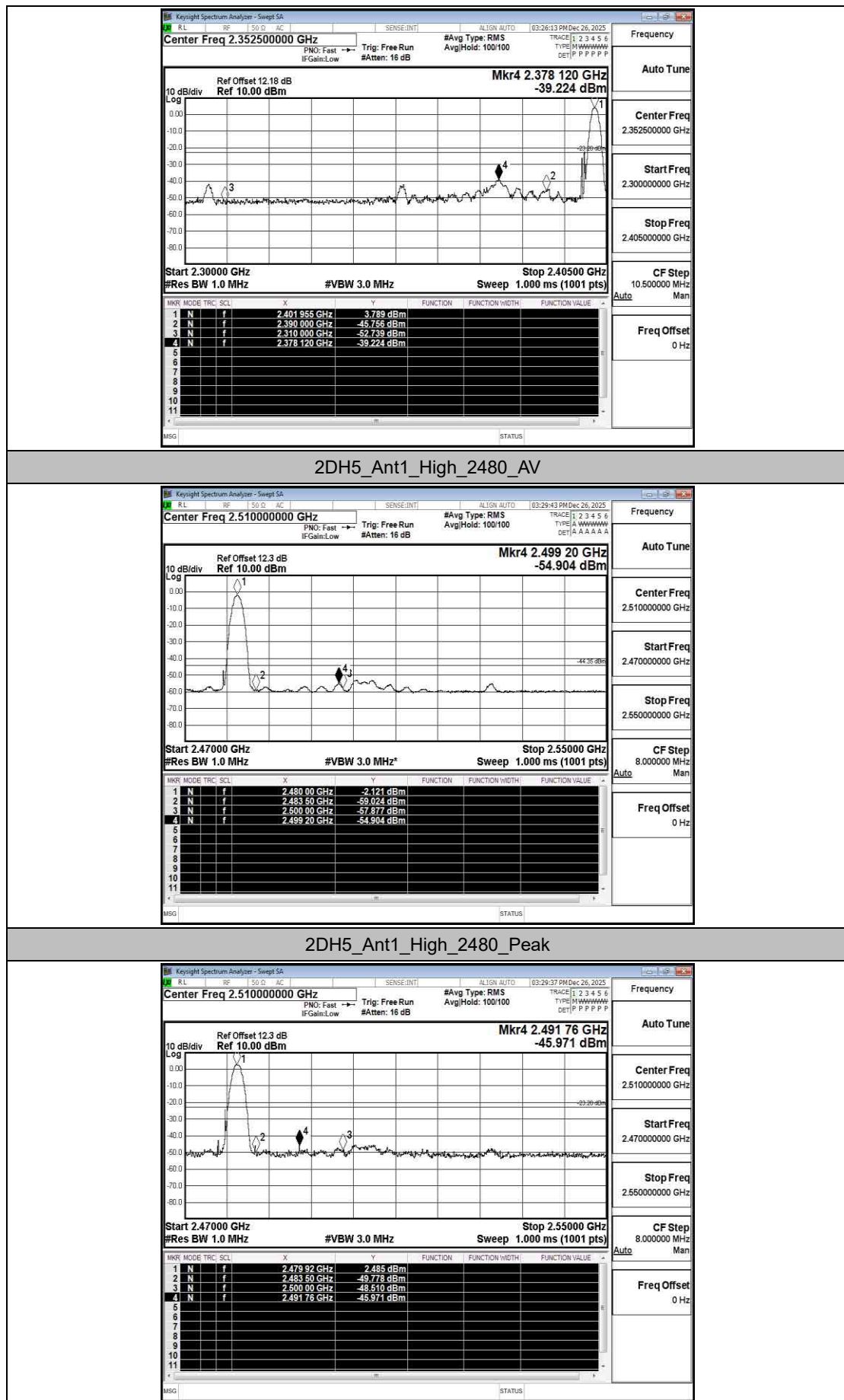


Guangzhou LCS Compliance Testing Laboratory Ltd.

Add: No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com



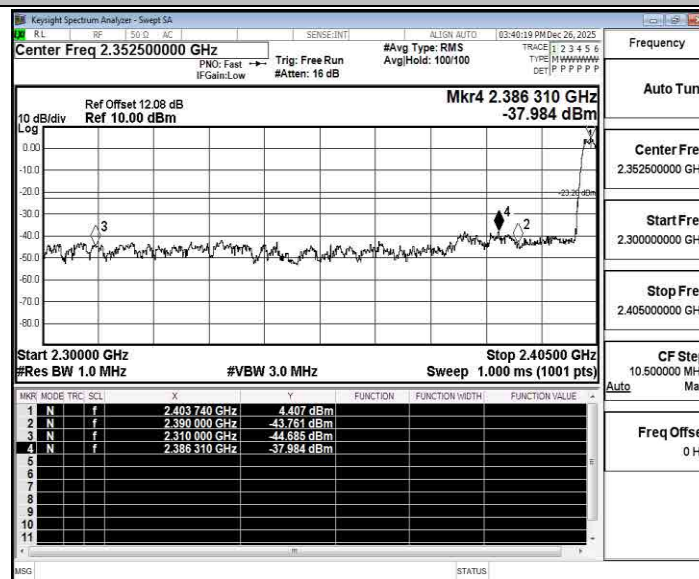


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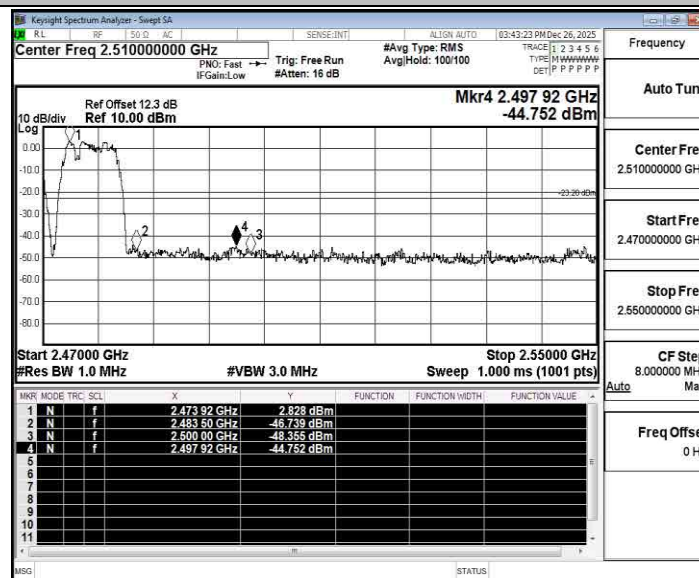
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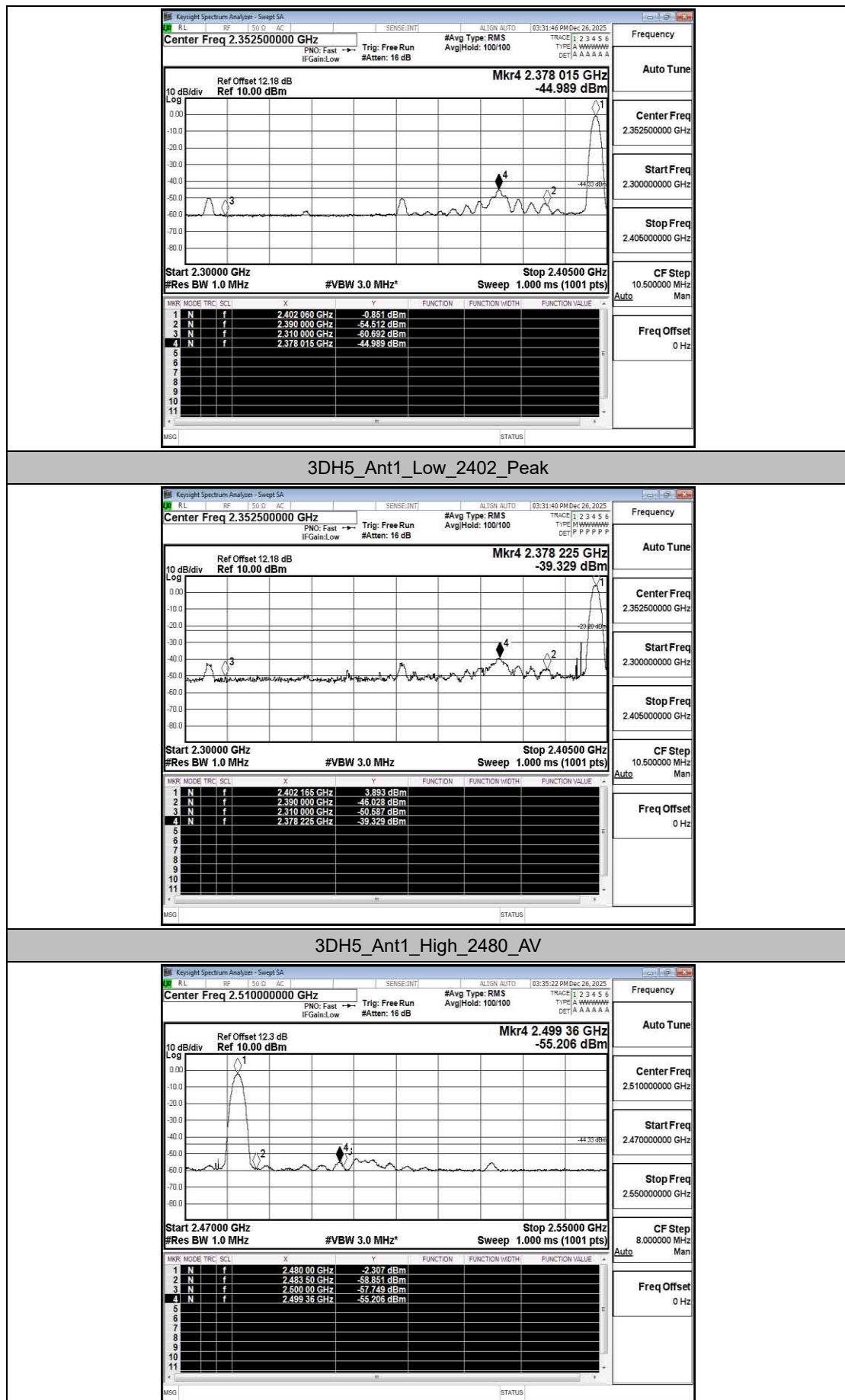
2DH5_Ant1_Low_Hop_2402_Peak



2DH5_Ant1_High_Hop_2480_Peak



3DH5_Ant1_Low_2402_AV

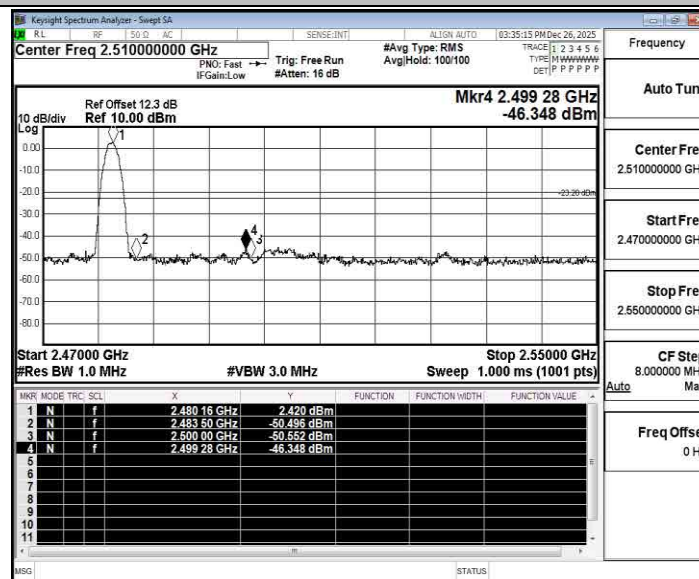


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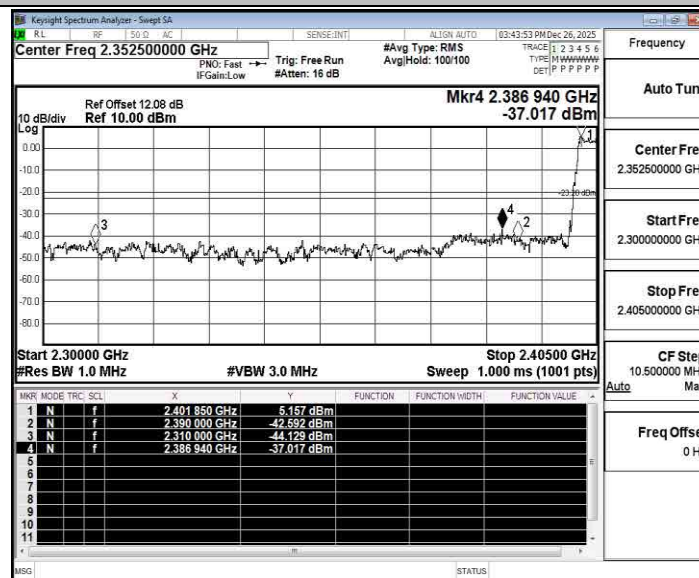
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Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

3DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_Hop_2402_Peak



3DH5_Ant1_High_Hop_2480_Peak

