



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: Karaoke Machine

Test Model: KJM-215

#### Environmental Conditions

Temperature:	23.8 °C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	<i>Nick Peng</i> Nick Peng
Supervised by:	<i>Ling Zhu</i> Ling Zhu





## A.1 20dB Emission Bandwidth

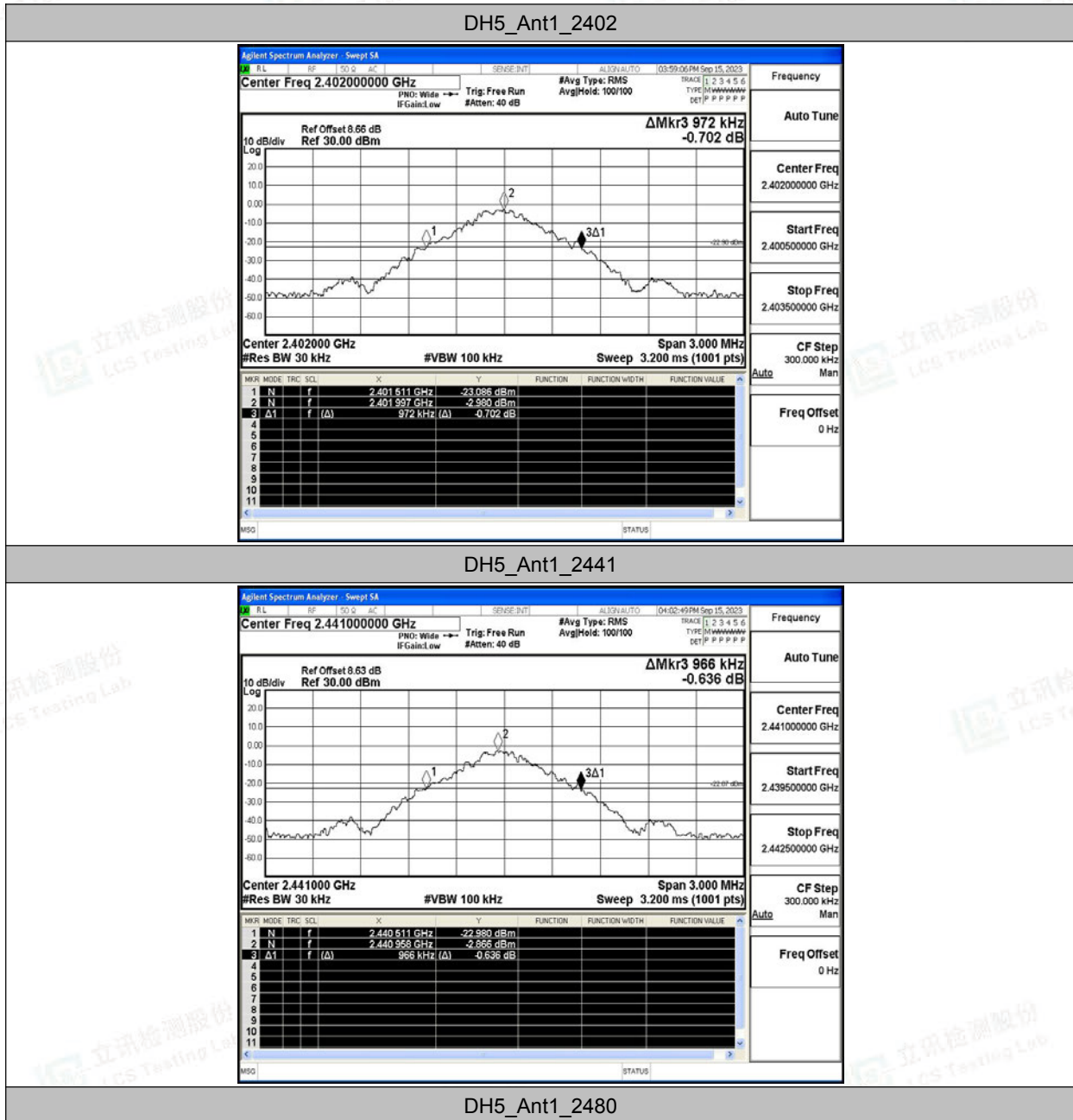
### Test Result

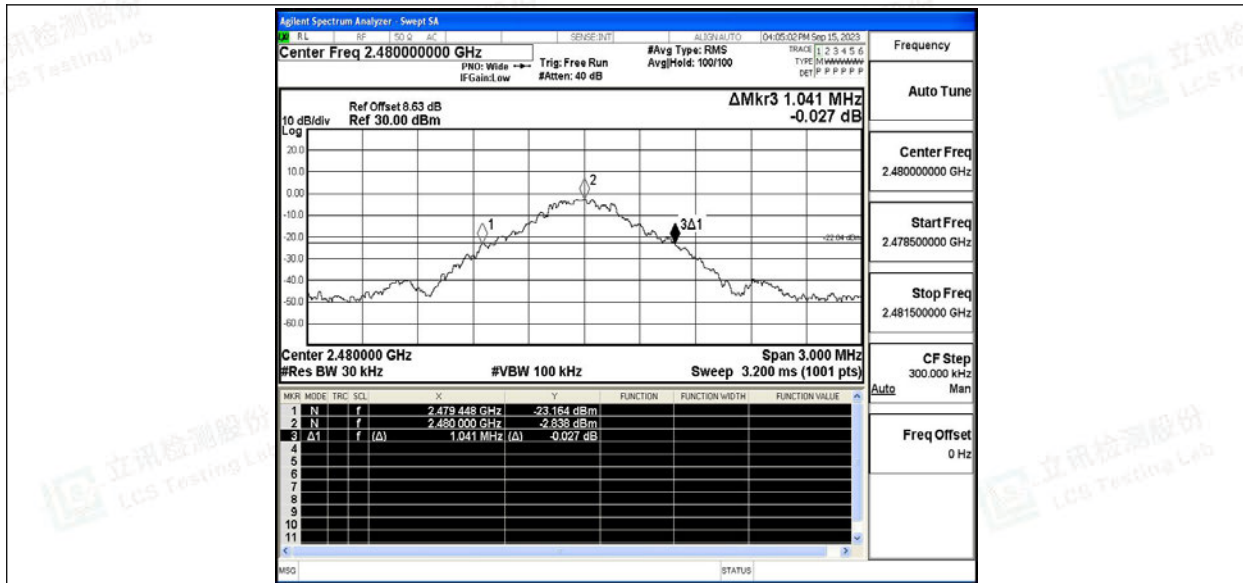
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant1	2402	0.972	2401.511	2402.483	---
		2441	0.966	2440.511	2441.477	---
		2480	1.041	2479.448	2480.489	---
2DH5	Ant1	2402	1.278	2401.352	2402.630	---
		2441	1.293	2440.349	2441.642	---
		2480	1.287	2479.352	2480.639	---
3DH5	Ant1	2402	1.299	2401.337	2402.636	---
		2441	1.332	2440.322	2441.654	---
		2480	1.314	2479.337	2480.651	---



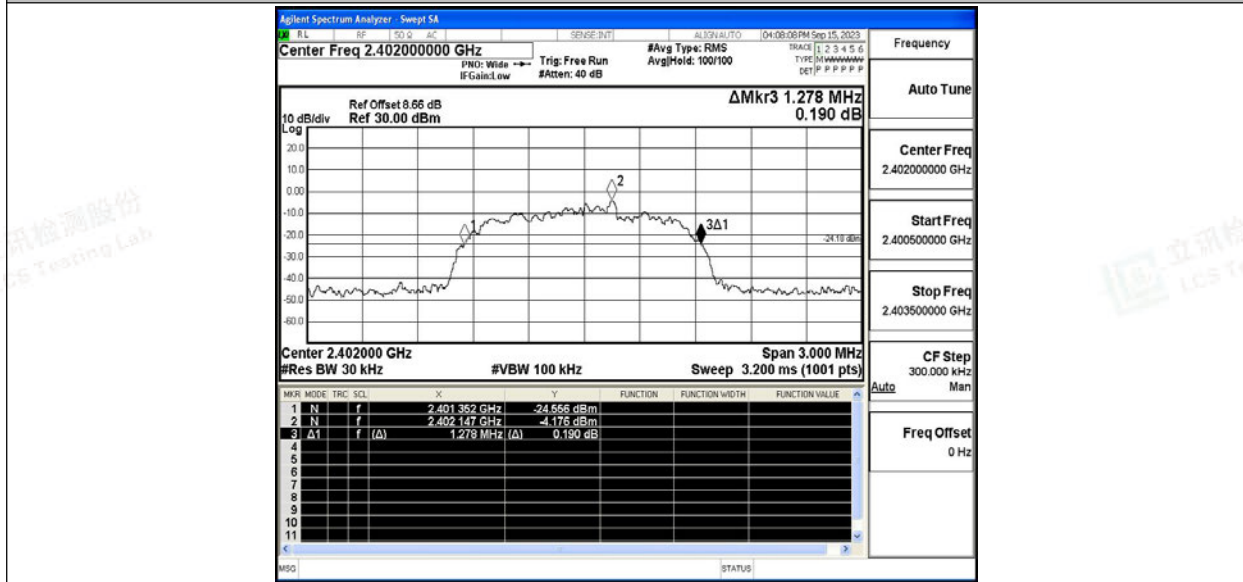


### Test Graphs



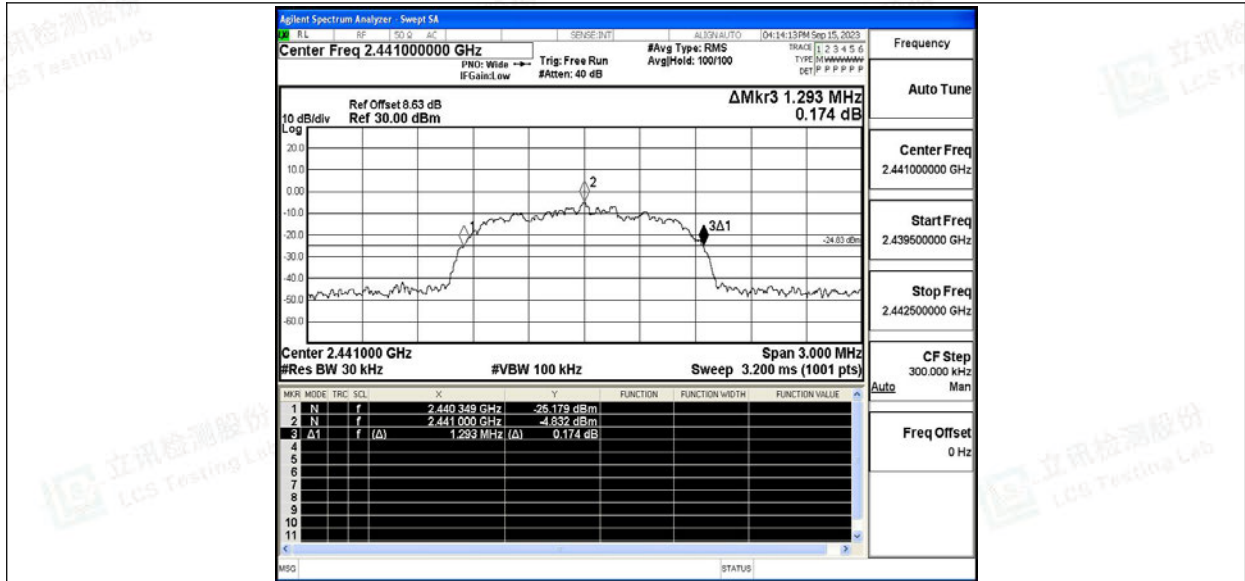


2DH5\_Ant1\_2402

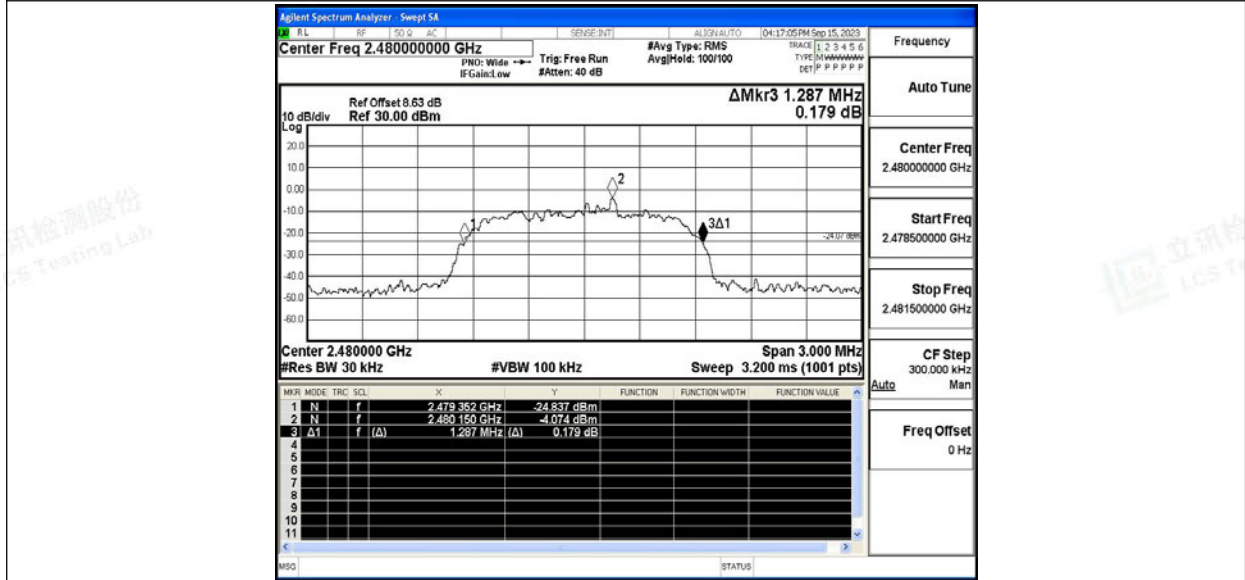


2DH5\_Ant1\_2441



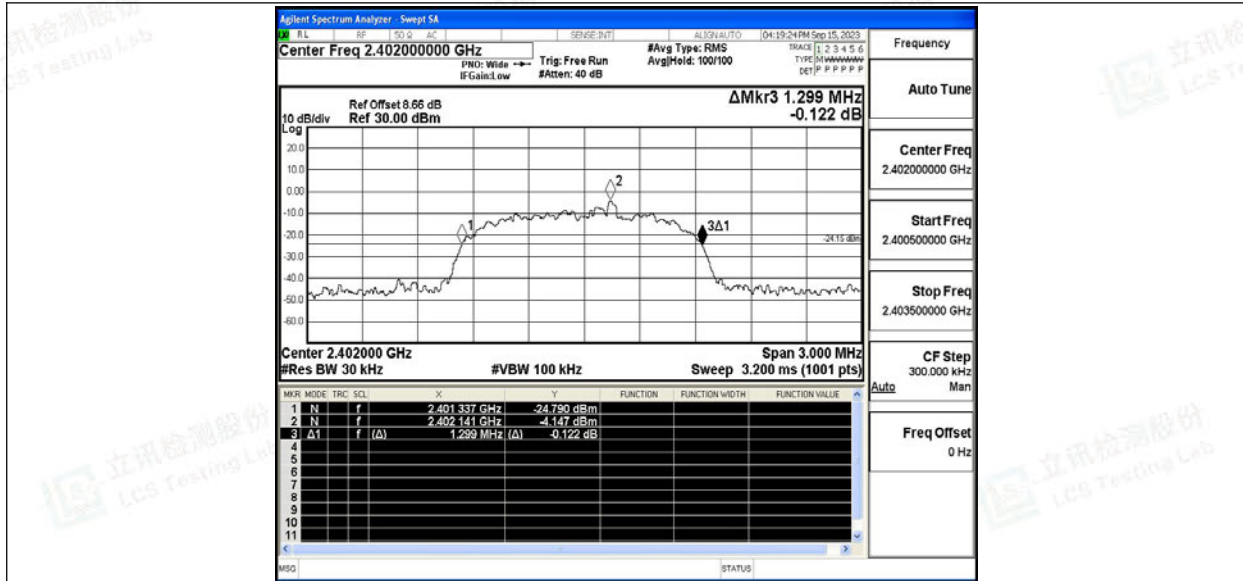


2DH5\_Ant1\_2480

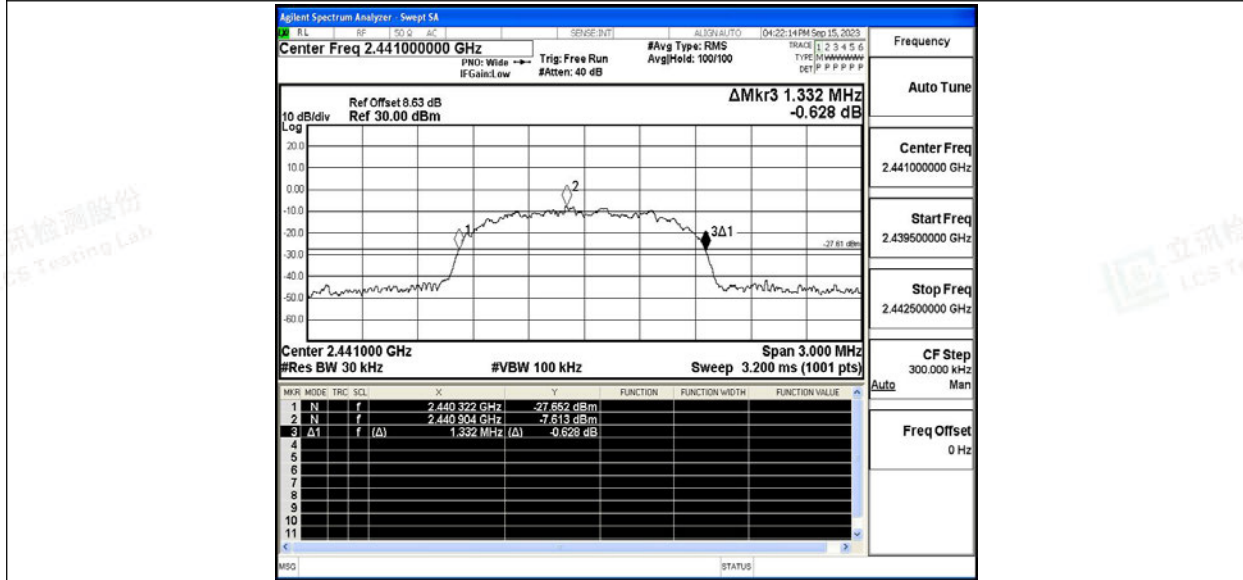


3DH5\_Ant1\_2402



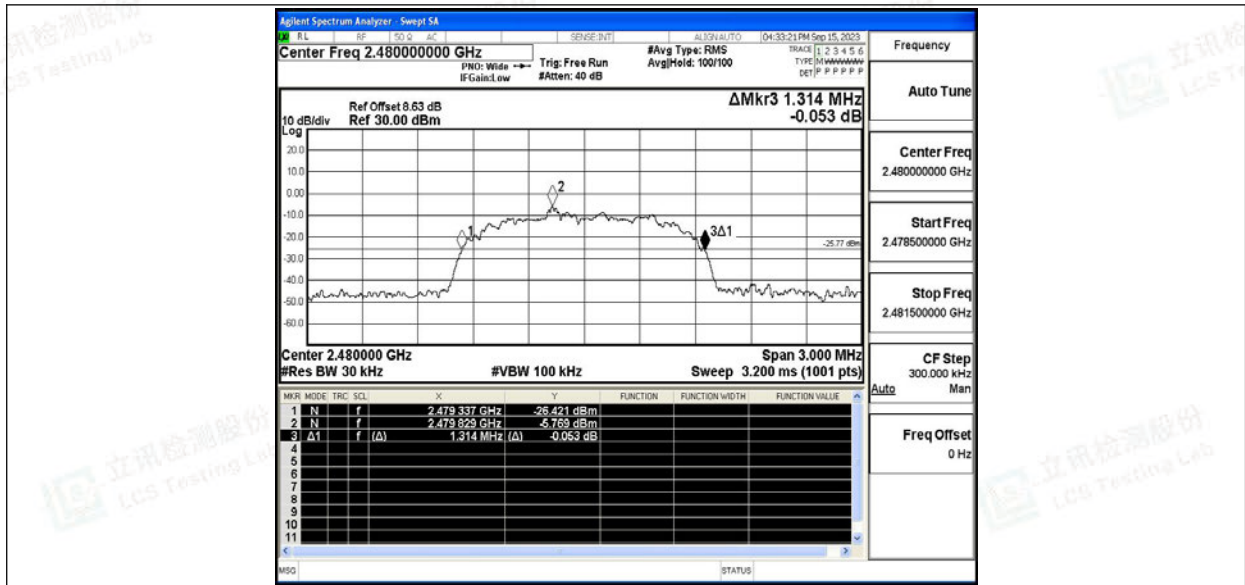


3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







## A.2 Maximum conducted output power

### Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.1	≤20.97	PASS
		2441	0.33	≤20.97	PASS
		2480	0.21	≤20.97	PASS
2DH5	Ant1	2402	-0.14	≤20.97	PASS
		2441	0.03	≤20.97	PASS
		2480	-0.01	≤20.97	PASS
3DH5	Ant1	2402	0.1	≤20.97	PASS
		2441	0.12	≤20.97	PASS
		2480	0.06	≤20.97	PASS

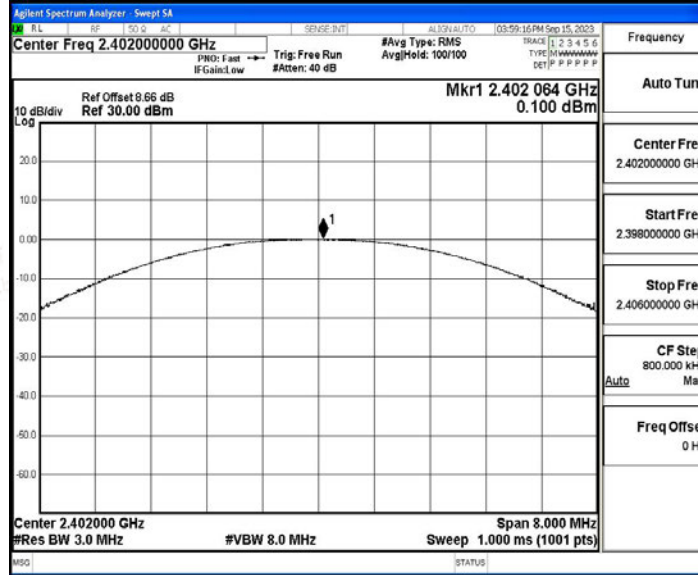




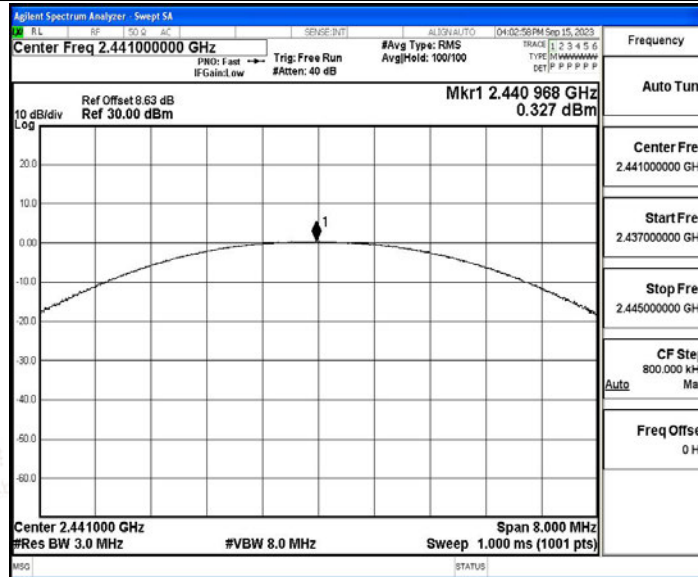


### Test Graphs

DH5\_Ant1\_2402

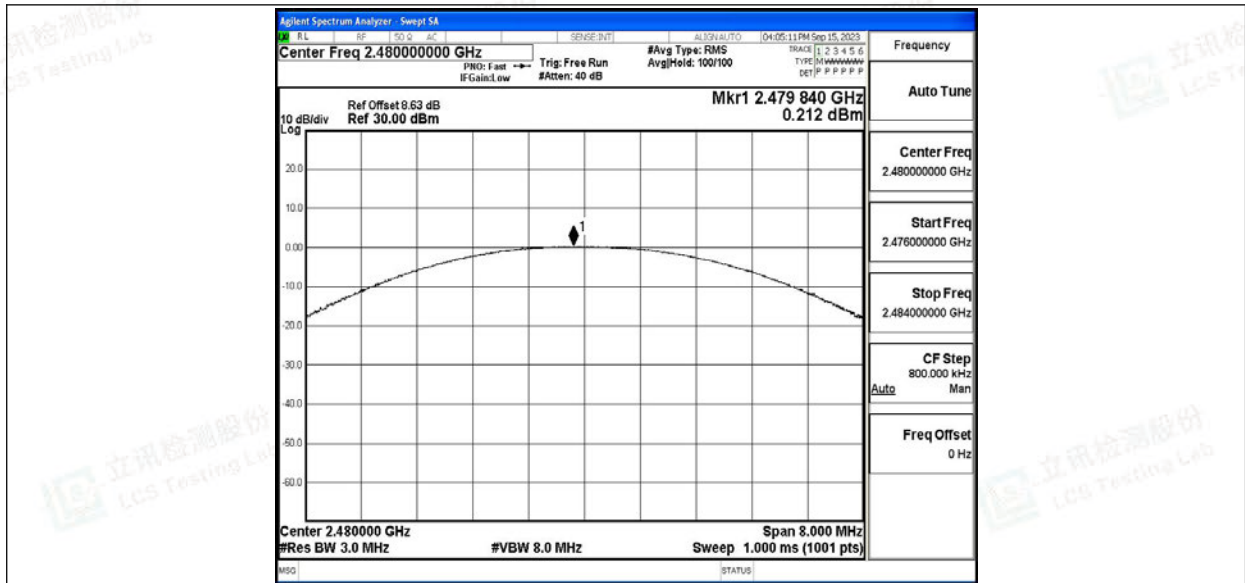


DH5\_Ant1\_2441

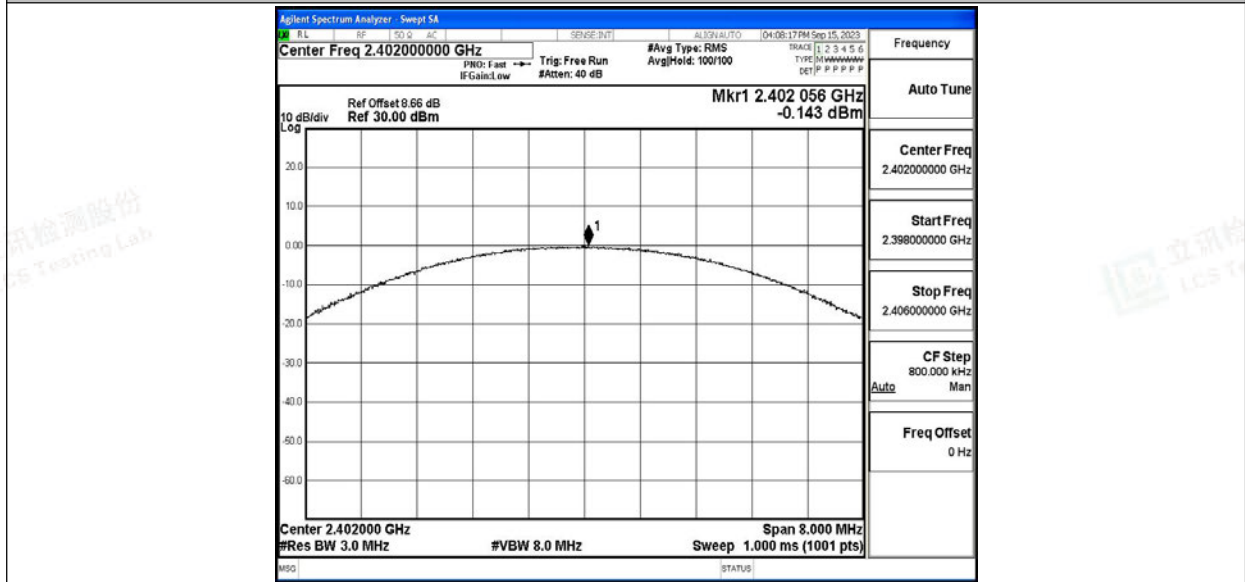


DH5\_Ant1\_2480



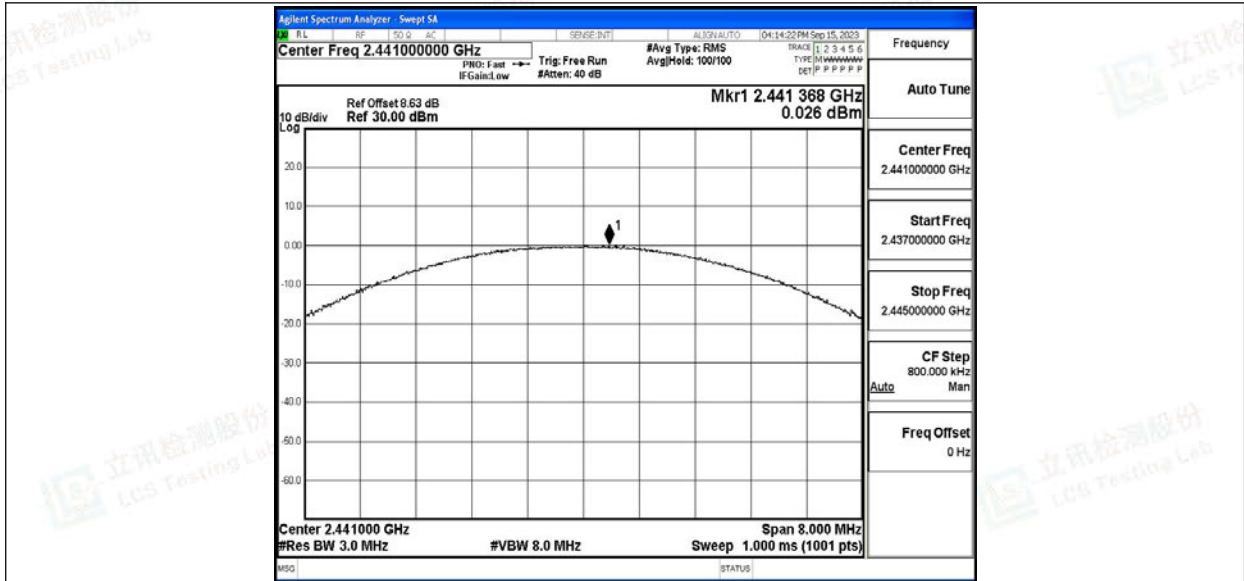


2DH5\_Ant1\_2402

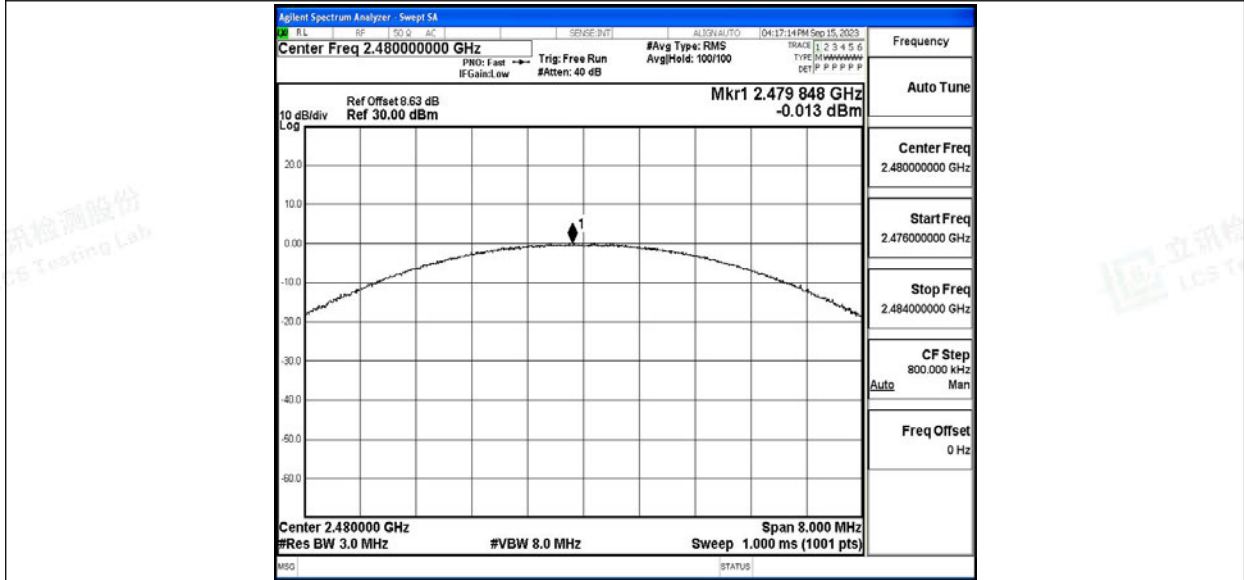


2DH5\_Ant1\_2441



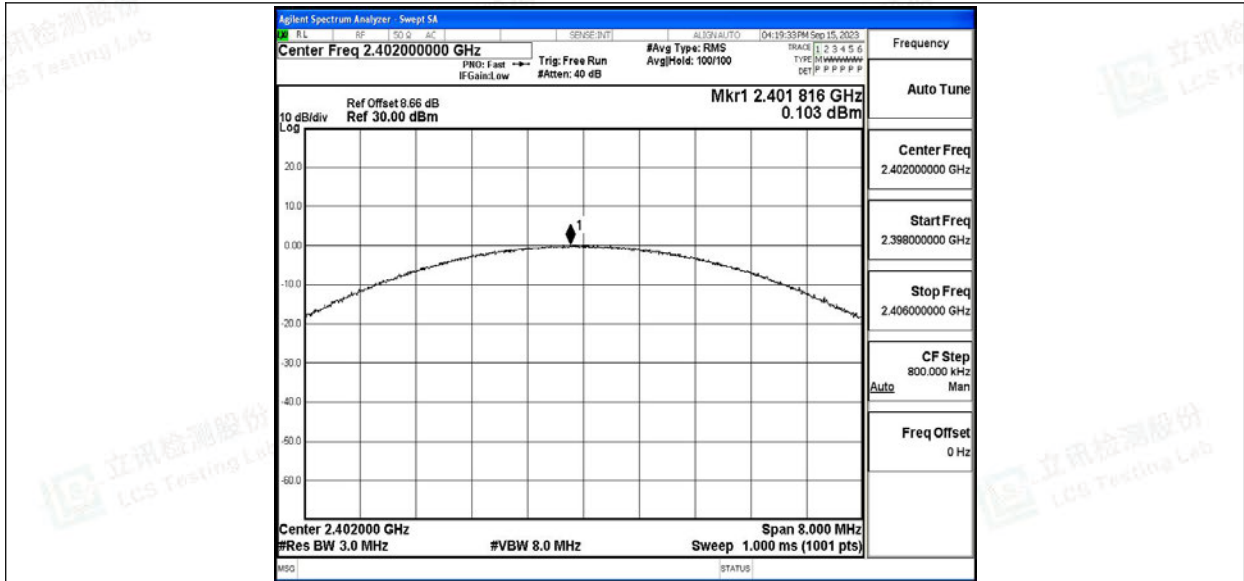


2DH5\_Ant1\_2480

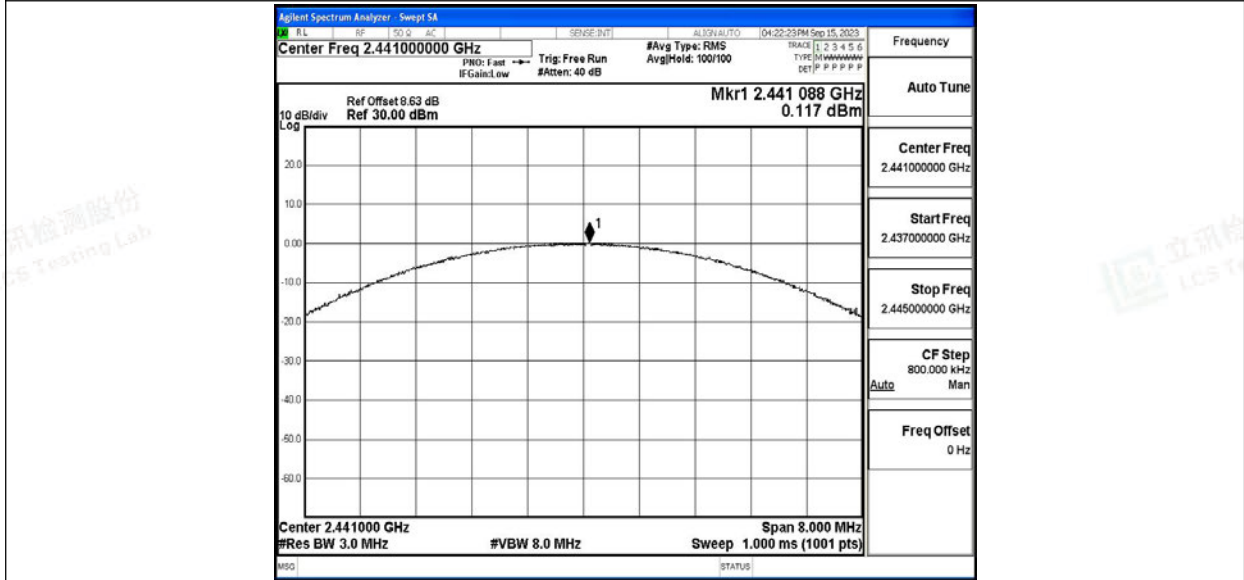


3DH5\_Ant1\_2402



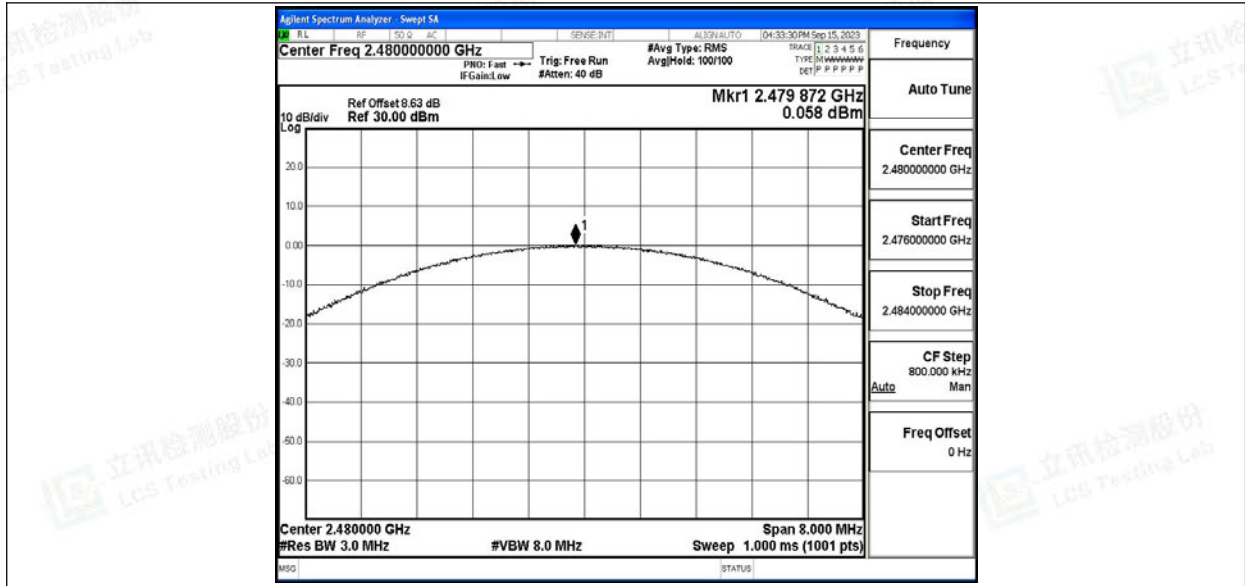


3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







### A.3 Carrier frequency separation

#### Test Result

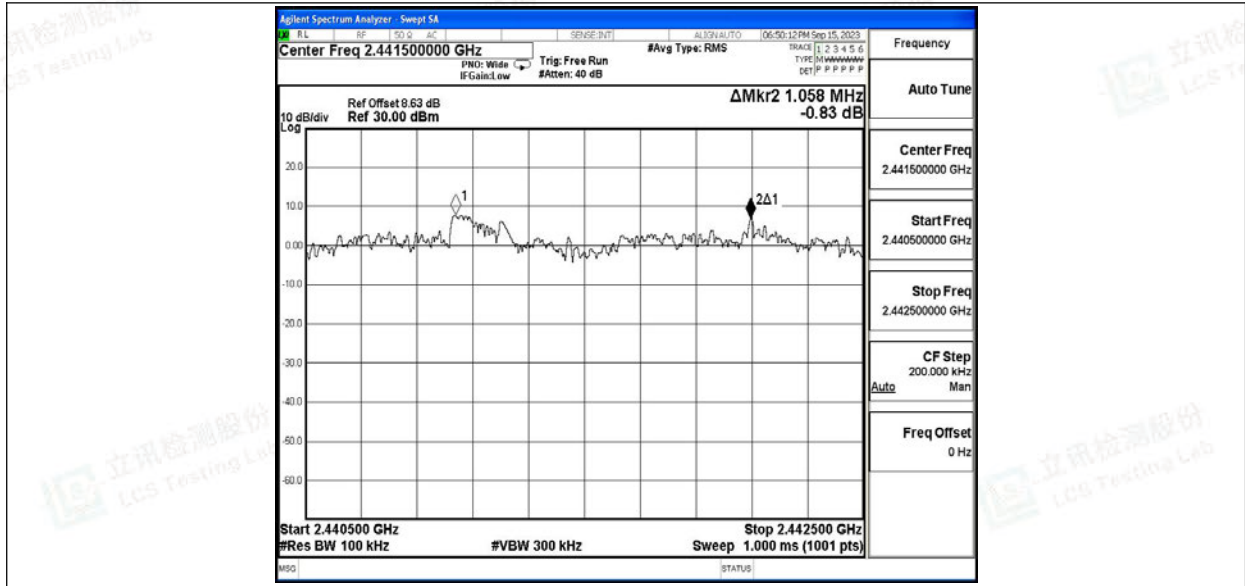
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.086	≥1.041	PASS
2DH5	Ant1	Hop	1.02	≥0.862	PASS
3DH5	Ant1	Hop	1.058	≥0.888	PASS





### Test Graphs









## A.4 Time of occupancy

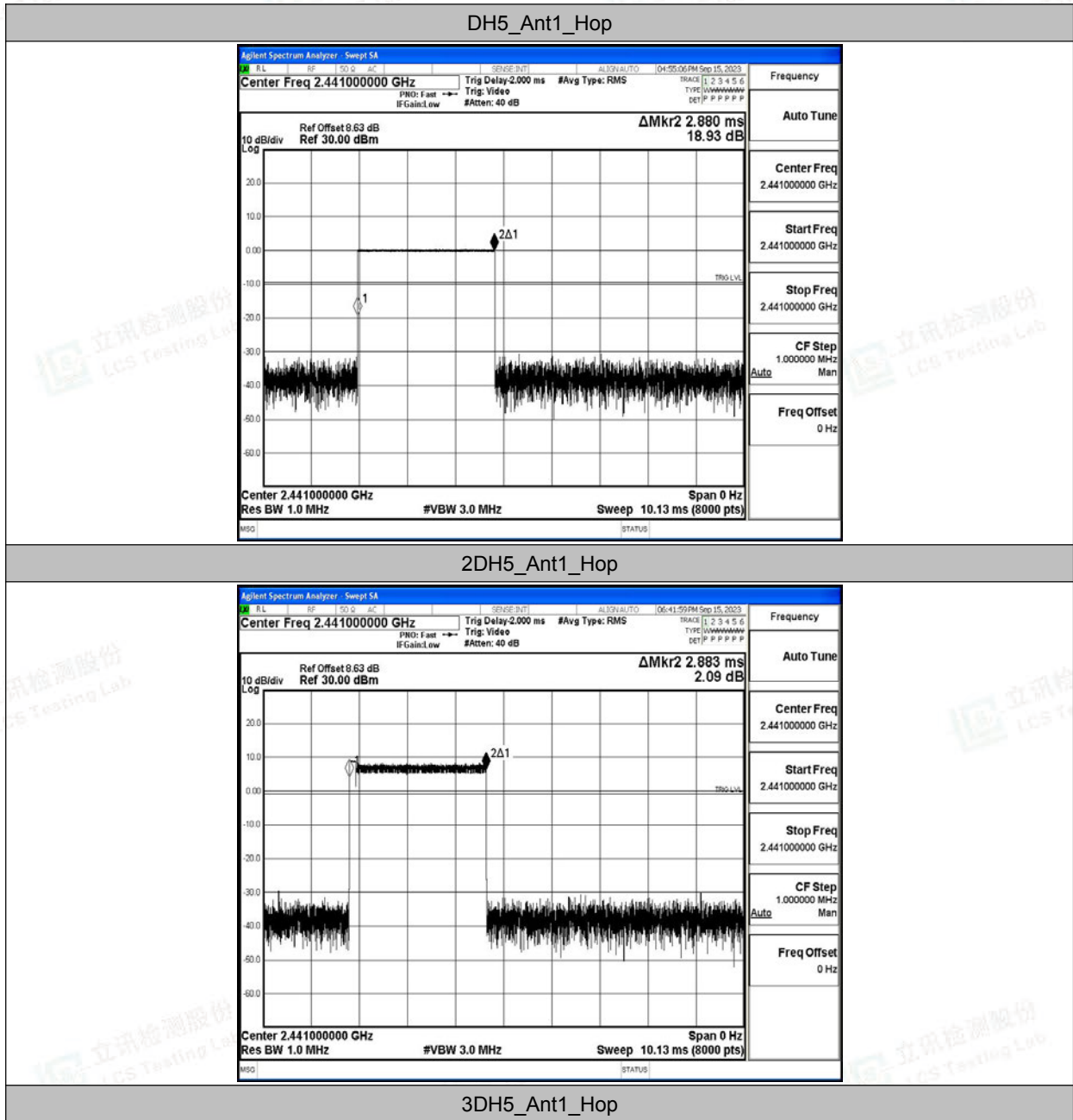
### Test Result

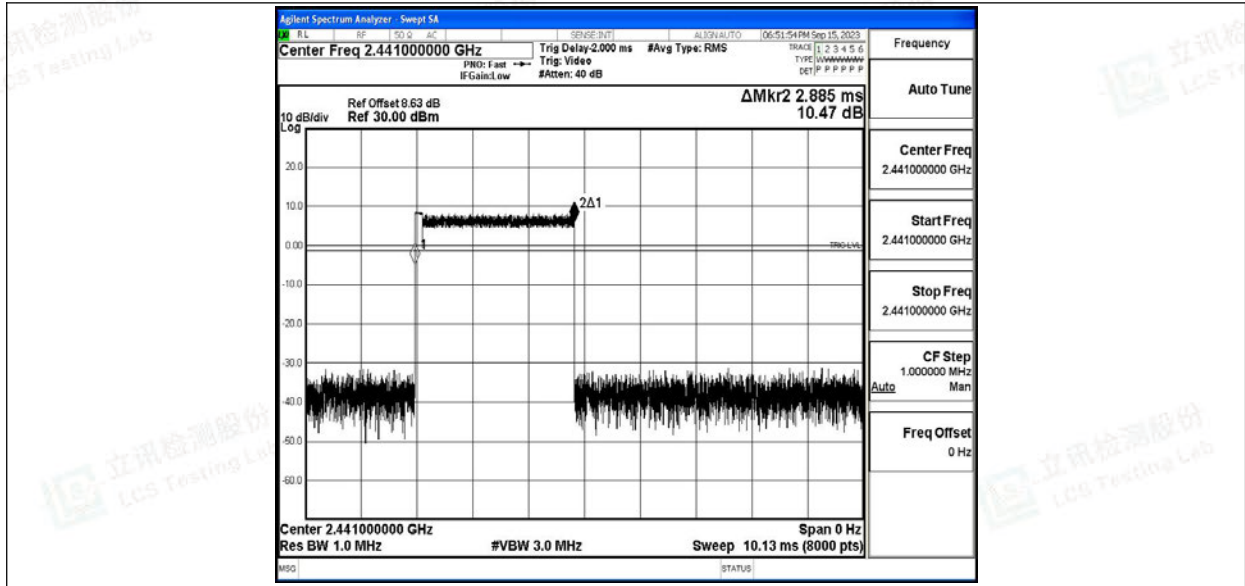
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.880	106.67	0.307	≤0.4	PASS
2DH5	Ant1	Hop	2.883	106.67	0.308	≤0.4	PASS
3DH5	Ant1	Hop	2.885	106.67	0.308	≤0.4	PASS





### Test Graphs







## A.5 Number of hopping channels

### Test Result

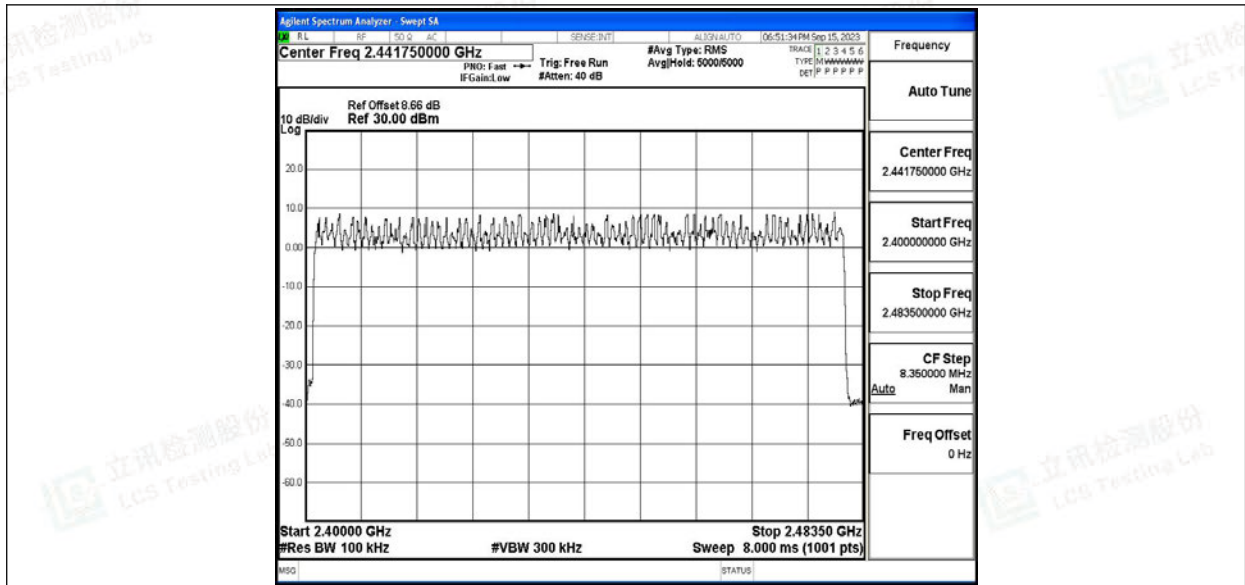
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS





### Test Graphs







### A.6 Band edge measurements

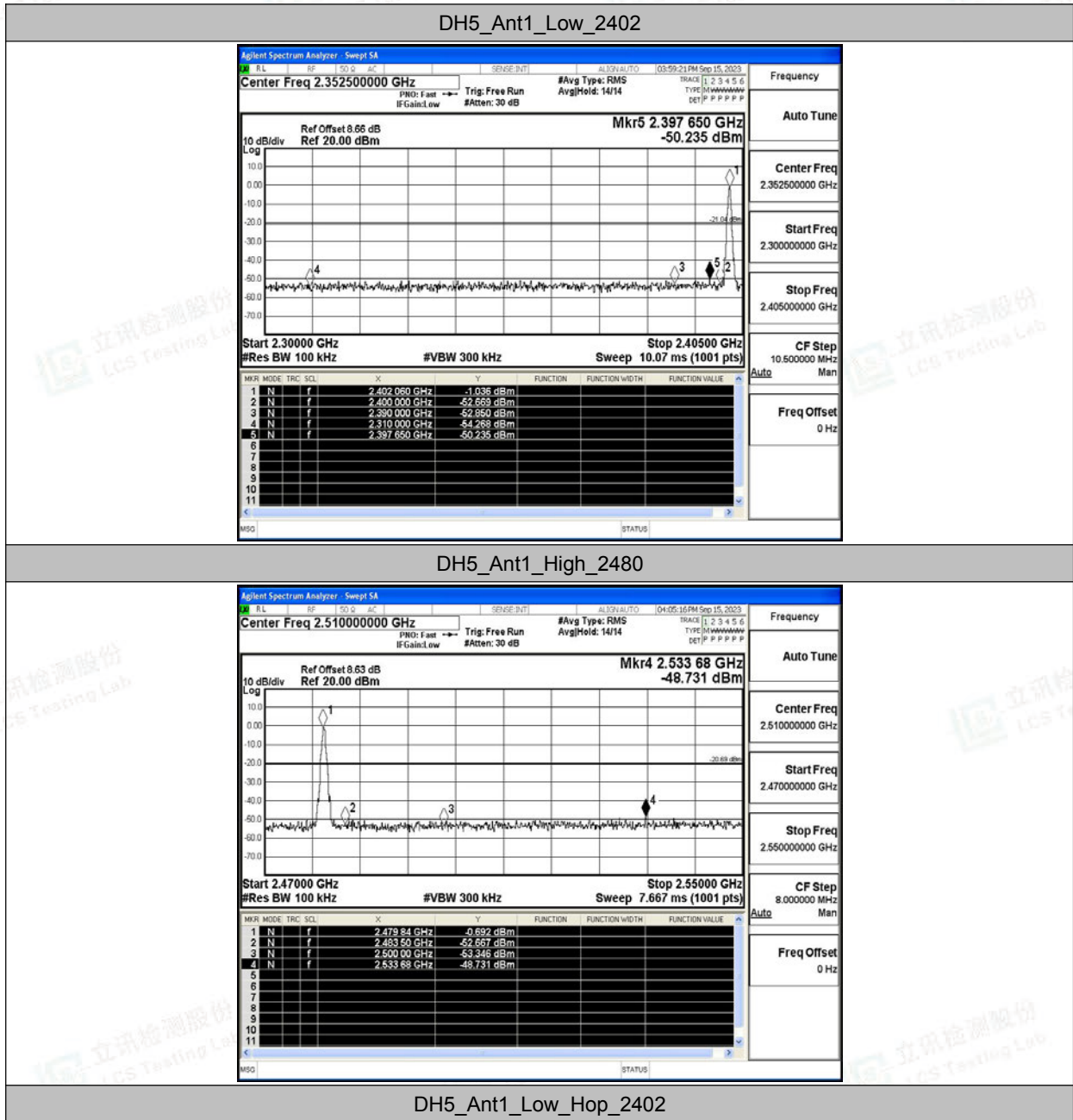
#### Test Result

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-1.04	-50.24	≤-21.04	PASS
		High	2480	-0.69	-48.73	≤-20.69	PASS
		Low	Hop_2402	-1.01	-48.82	≤-21.01	PASS
		High	Hop_2480	9.27	-48.14	≤-10.73	PASS
2DH5	Ant1	Low	2402	-1.78	-50.38	≤-21.78	PASS
		High	2480	-5.28	-49.03	≤-25.28	PASS
		Low	Hop_2402	-4.56	-48.91	≤-24.56	PASS
		High	Hop_2480	8.71	-46.82	≤-11.3	PASS
3DH5	Ant1	Low	2402	-5.11	-50.44	≤-25.11	PASS
		High	2480	-3.91	-49.93	≤-23.91	PASS
		Low	Hop_2402	3.68	-47.86	≤-16.32	PASS
		High	Hop_2480	8.38	-47.9	≤-11.62	PASS

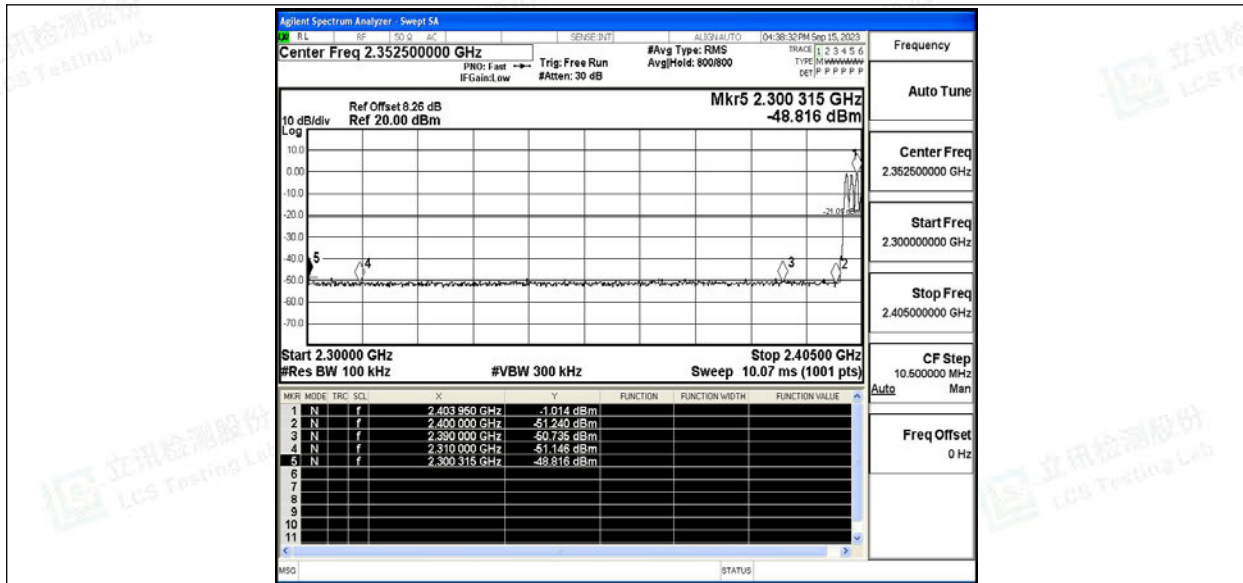




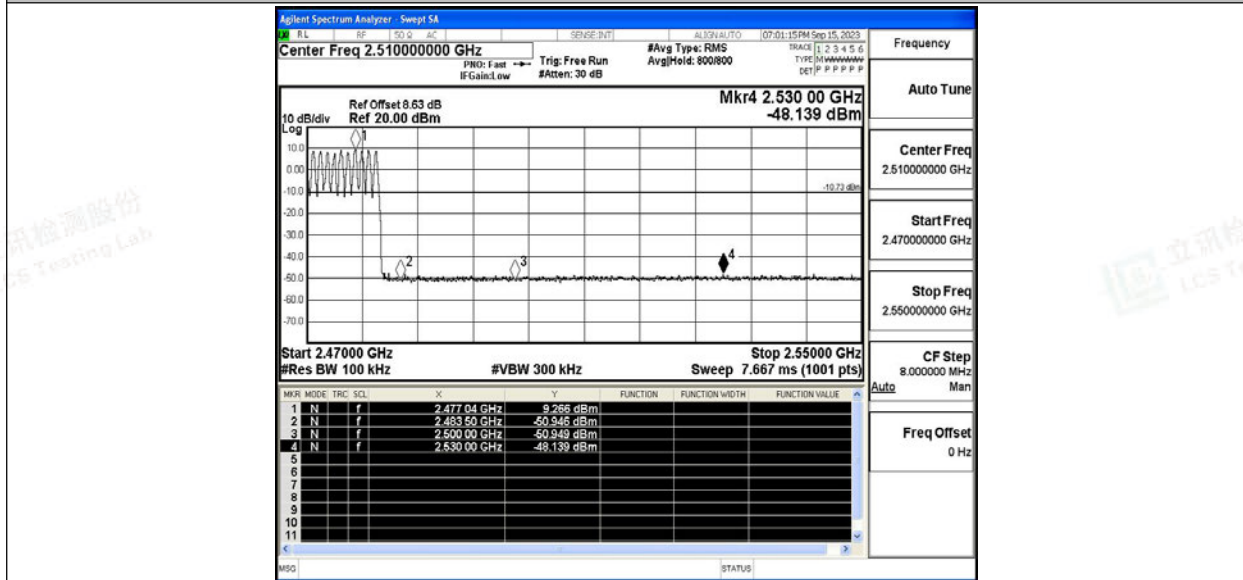
### Test Graphs





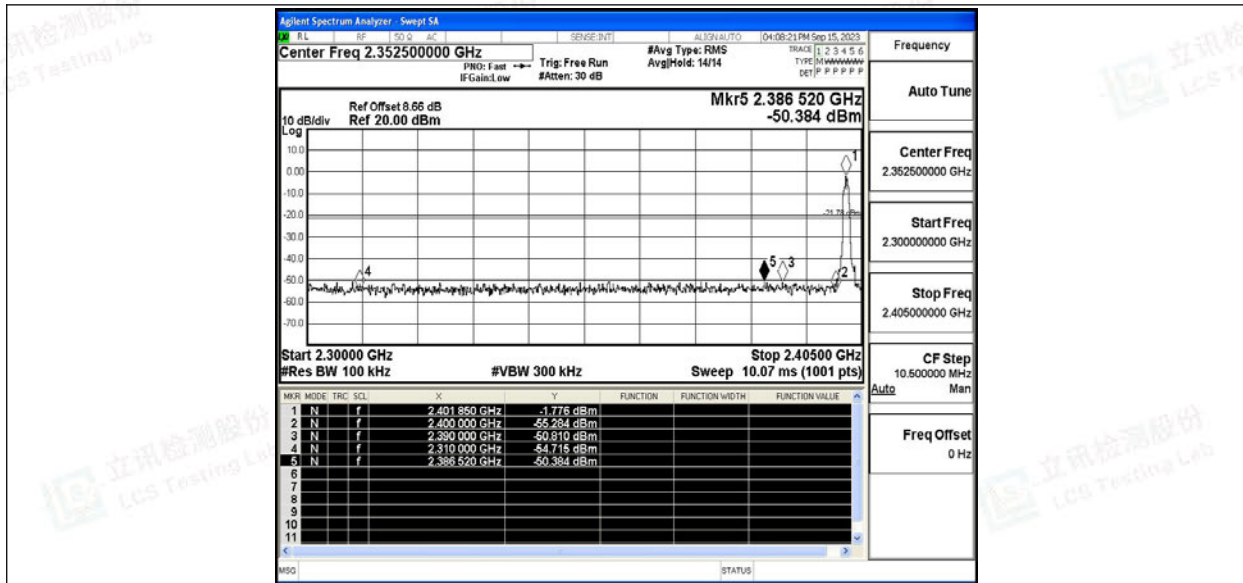


DH5\_Ant1\_High\_Hop\_2480

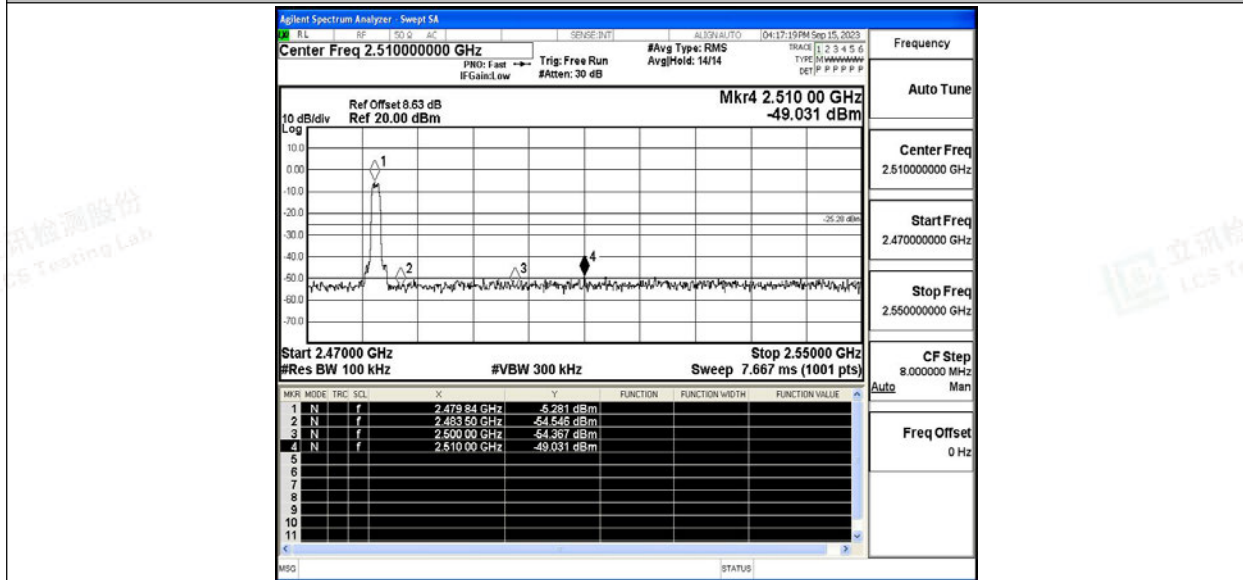


2DH5\_Ant1\_Low\_2402



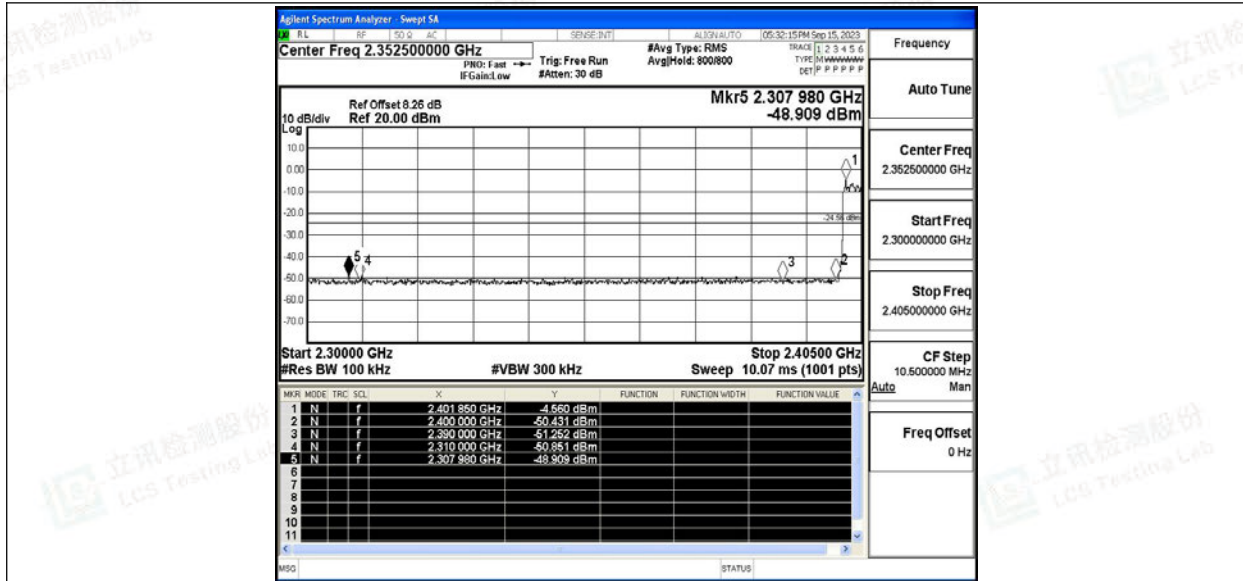


2DH5\_Ant1\_High\_2480

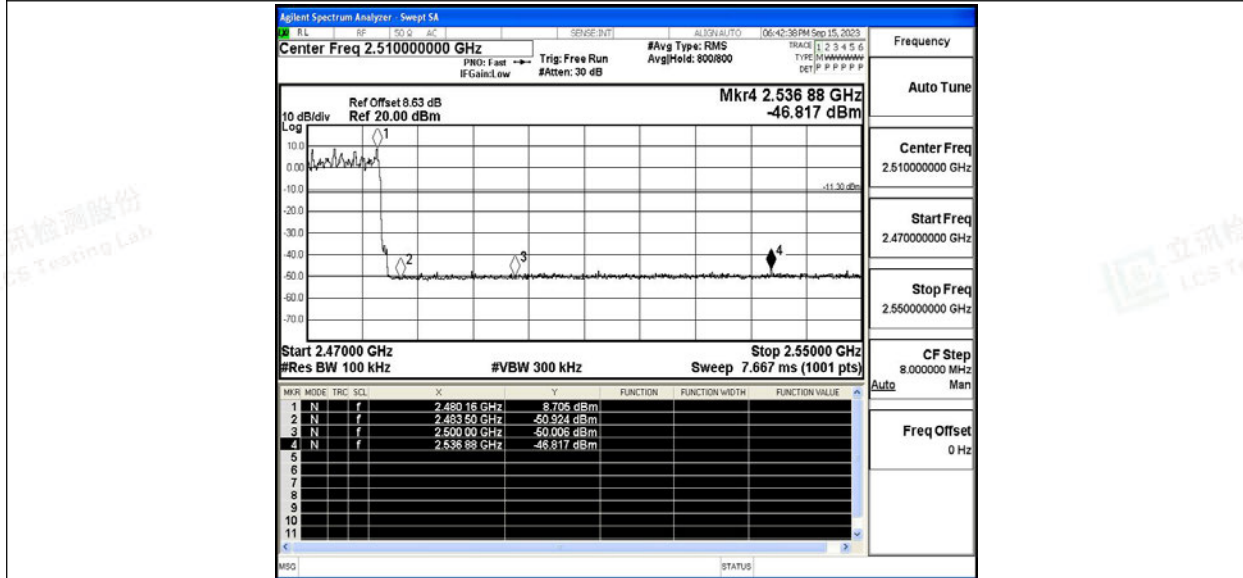


2DH5\_Ant1\_Low\_Hop\_2402



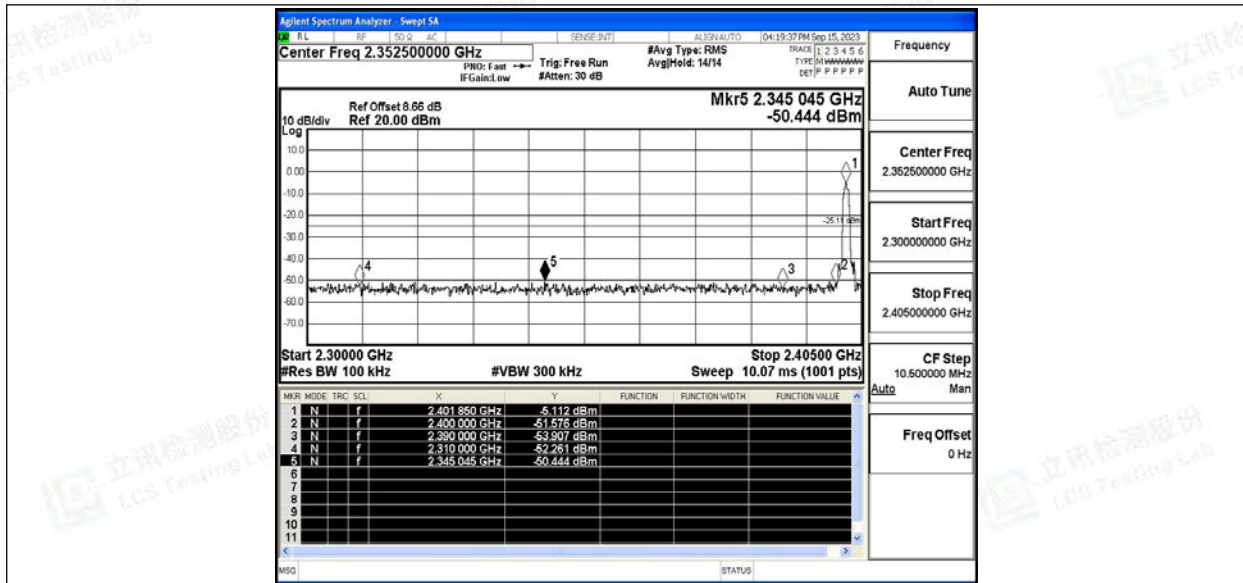


2DH5\_Ant1\_High\_Hop\_2480

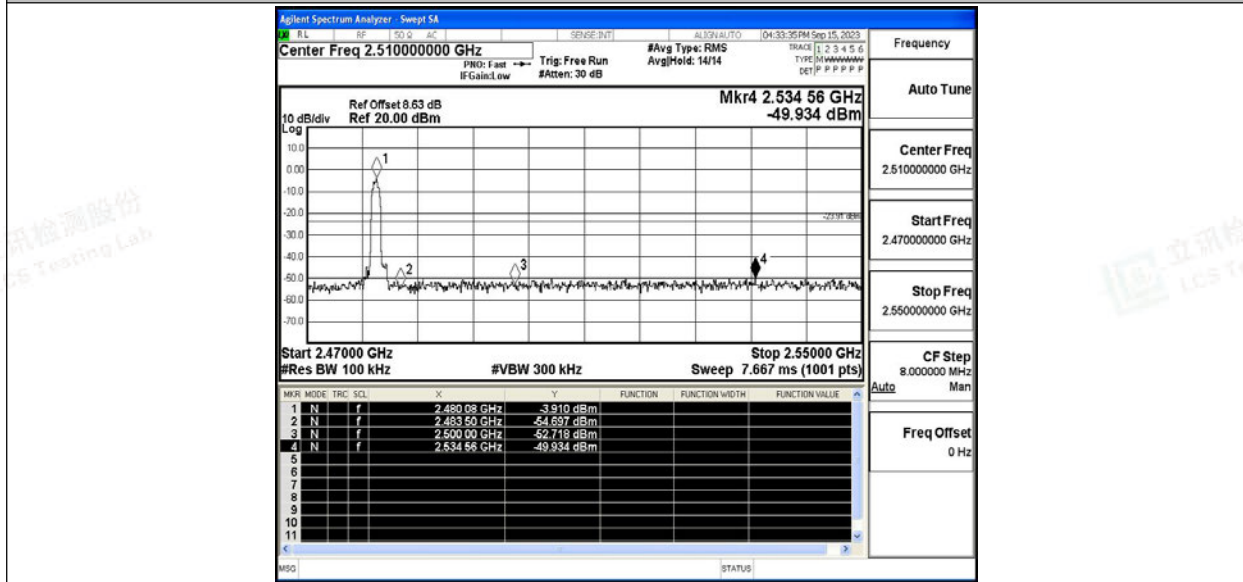


3DH5\_Ant1\_Low\_2402



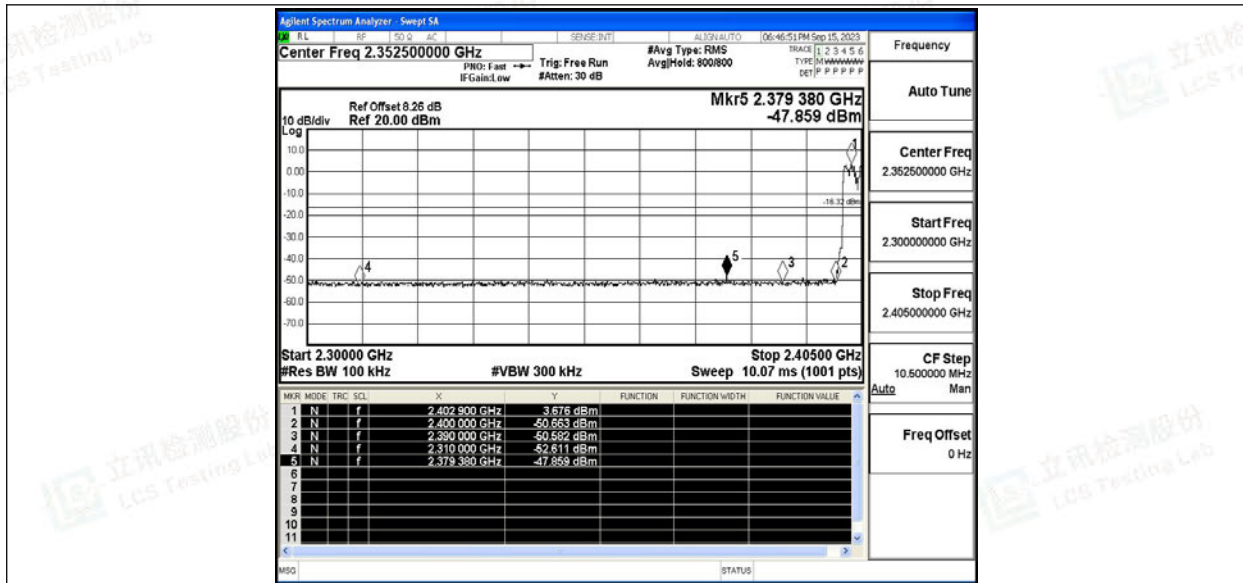


3DH5\_Ant1\_High\_2480

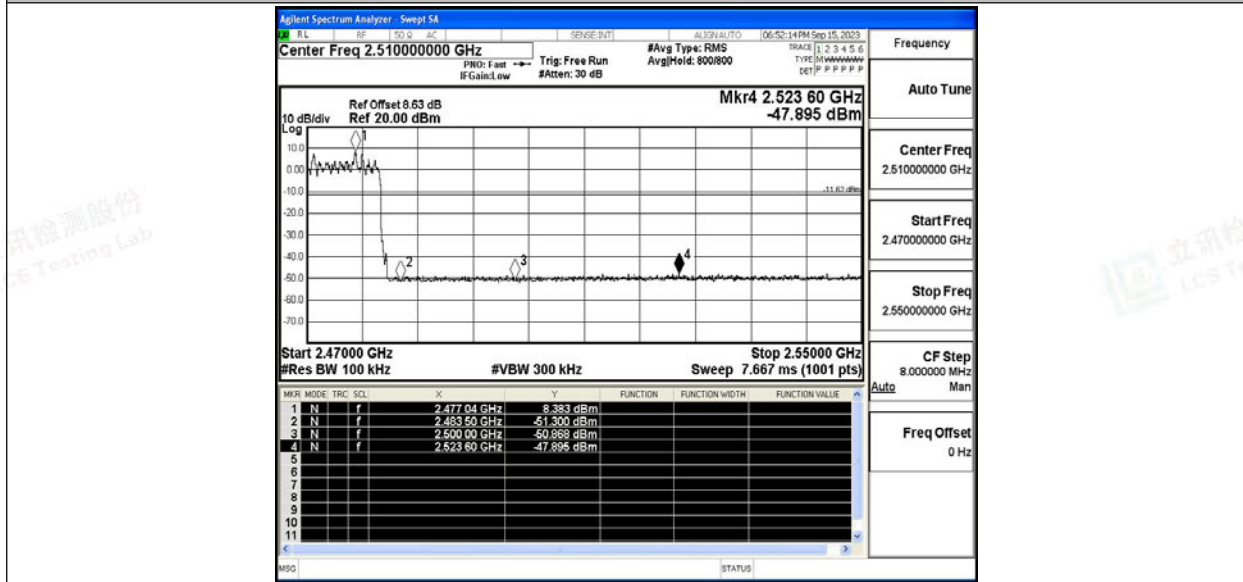


3DH5\_Ant1\_Low\_Hop\_2402





3DH5\_Ant1\_High\_Hop\_2480





## A.7 Conducted Spurious Emission

### Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.54	-0.54	---	PASS
			30~1000	-0.54	-61.21	≤-20.54	PASS
			1000~26500	-0.54	-47.13	≤-20.54	PASS
		2441	Reference	-0.86	-0.86	---	PASS
			30~1000	-0.86	-60.05	≤-20.86	PASS
			1000~26500	-0.86	-47.06	≤-20.86	PASS
		2480	Reference	-0.36	-0.36	---	PASS
			30~1000	-0.36	-61.19	≤-20.36	PASS
			1000~26500	-0.36	-45.91	≤-20.36	PASS
2DH5	Ant1	2402	Reference	-1.59	-1.59	---	PASS
			30~1000	-1.59	-61.01	≤-21.59	PASS
			1000~26500	-1.59	-46.59	≤-21.59	PASS
		2441	Reference	-1.44	-1.44	---	PASS
			30~1000	-1.44	-61.56	≤-21.44	PASS
			1000~26500	-1.44	-46.54	≤-21.44	PASS
		2480	Reference	-1.93	-1.93	---	PASS
			30~1000	-1.93	-61.18	≤-21.93	PASS
			1000~26500	-1.93	-46.04	≤-21.93	PASS
3DH5	Ant1	2402	Reference	-1.38	-1.38	---	PASS
			30~1000	-1.38	-60.45	≤-21.38	PASS
			1000~26500	-1.38	-46.66	≤-21.38	PASS
		2441	Reference	-4.34	-4.34	---	PASS
			30~1000	-4.34	-61.05	≤-24.34	PASS
			1000~26500	-4.34	-46.68	≤-24.34	PASS
		2480	Reference	-1.55	-1.55	---	PASS
			30~1000	-1.55	-61.04	≤-21.55	PASS
			1000~26500	-1.55	-46.99	≤-21.55	PASS



Shenzhen LCS Compliance Testing Laboratory Ltd.

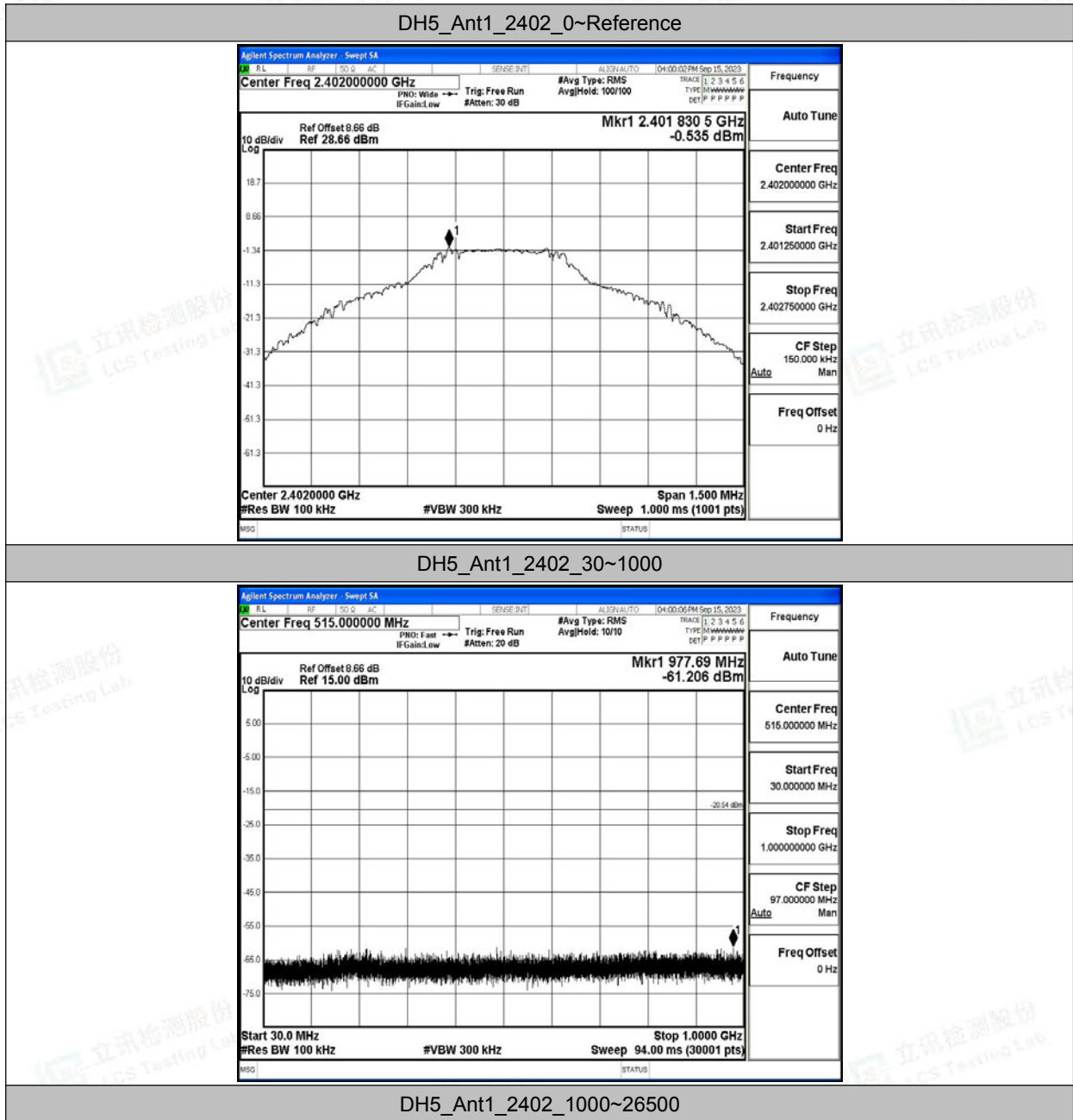
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

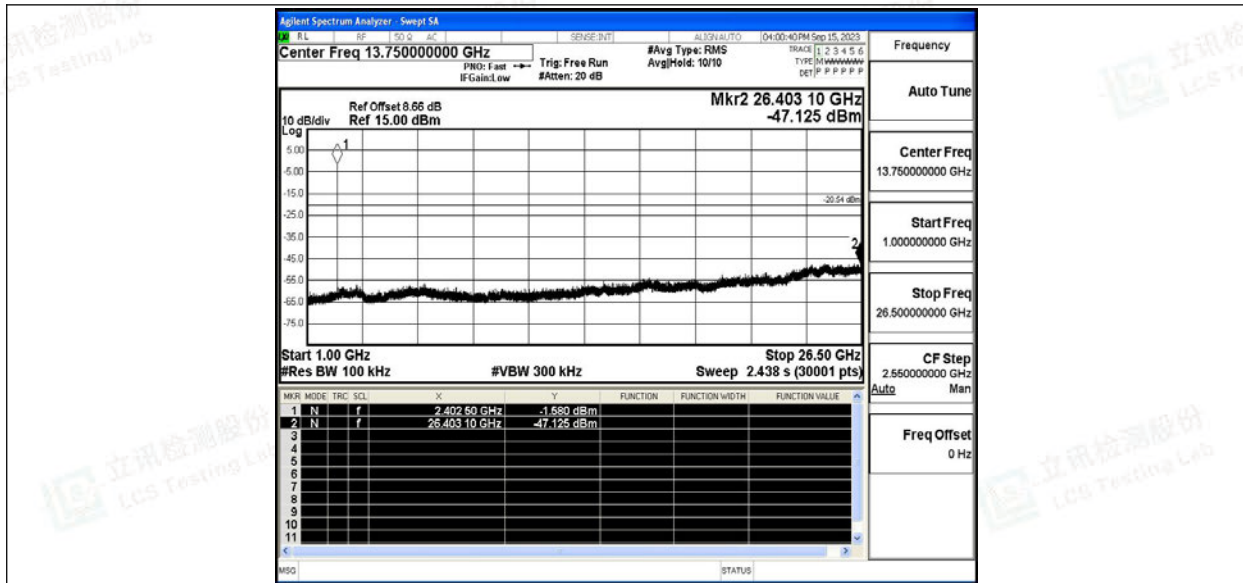
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

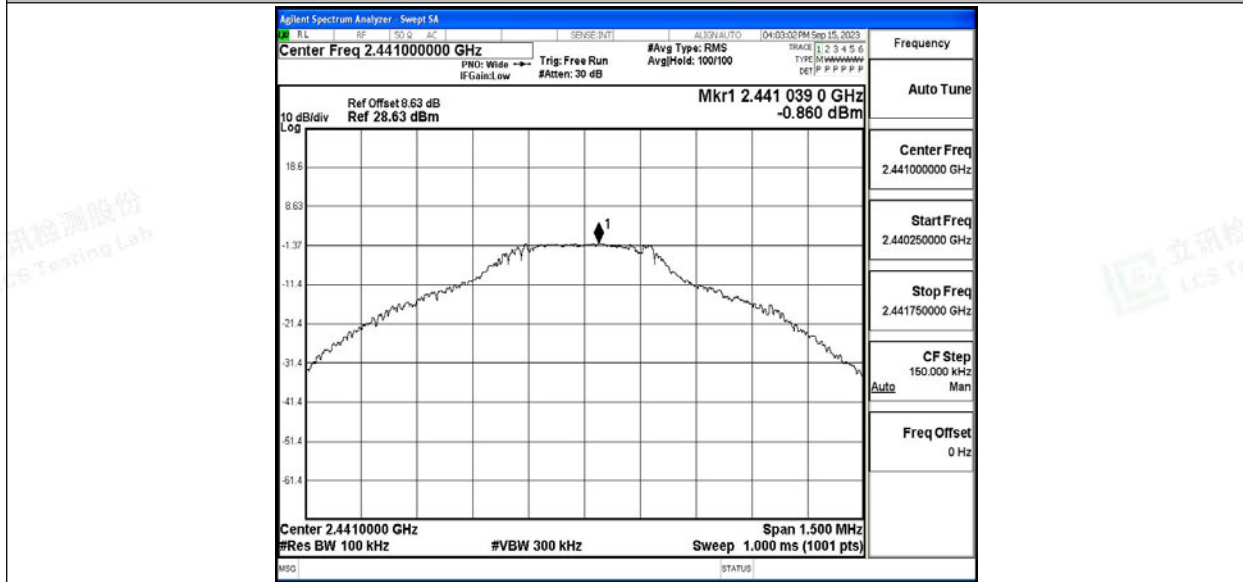


### Test Graphs





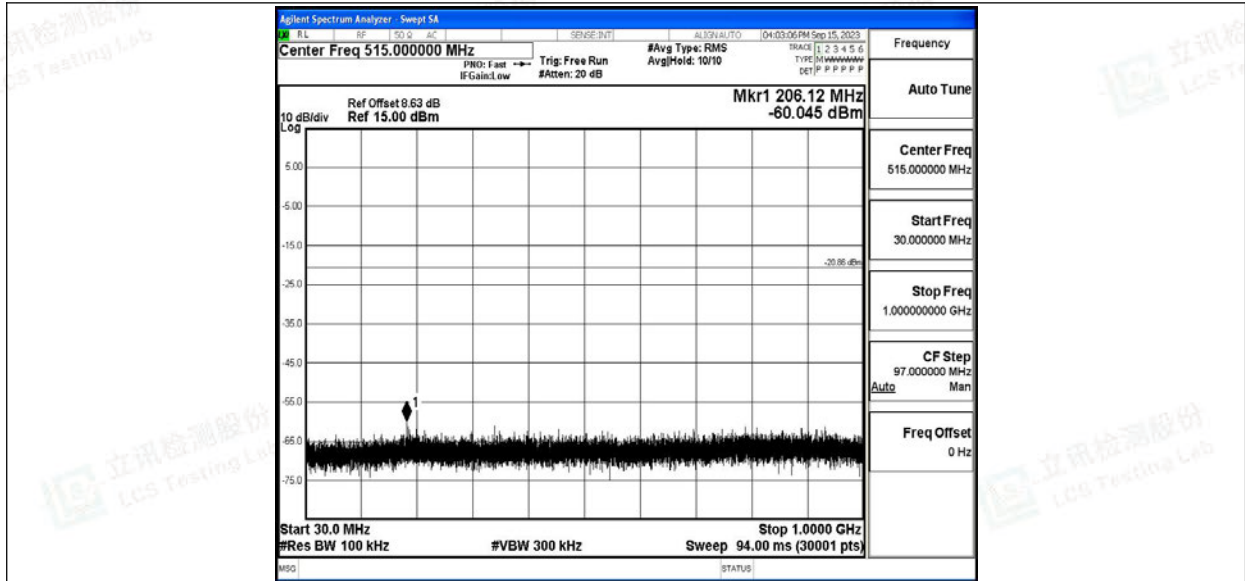
DH5\_Ant1\_2441\_0~Reference



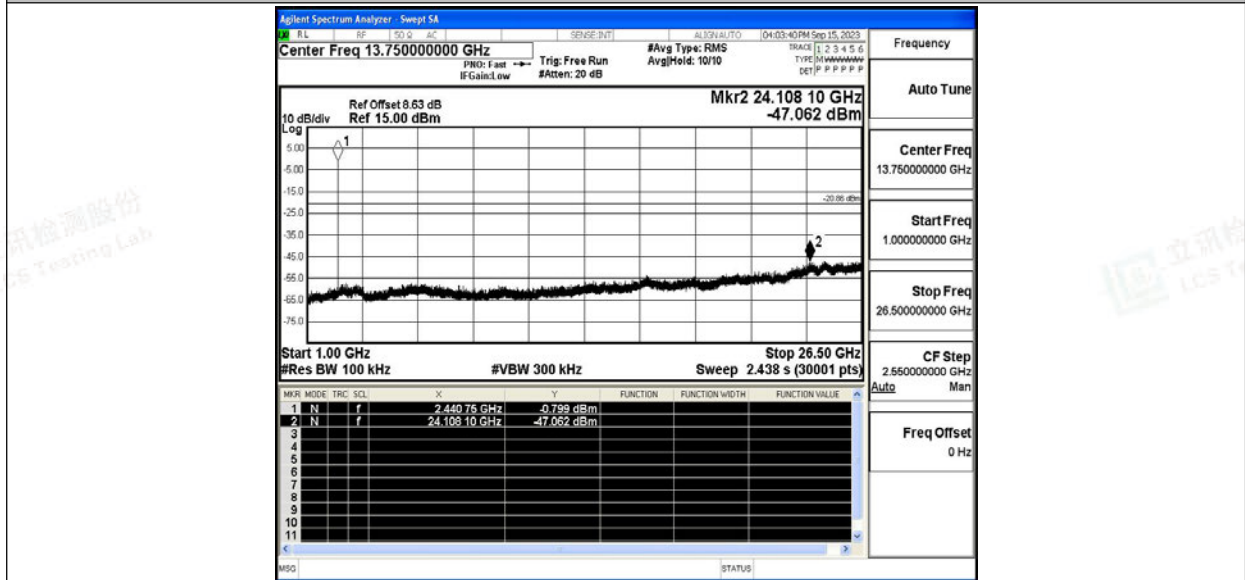
DH5\_Ant1\_2441\_30~1000





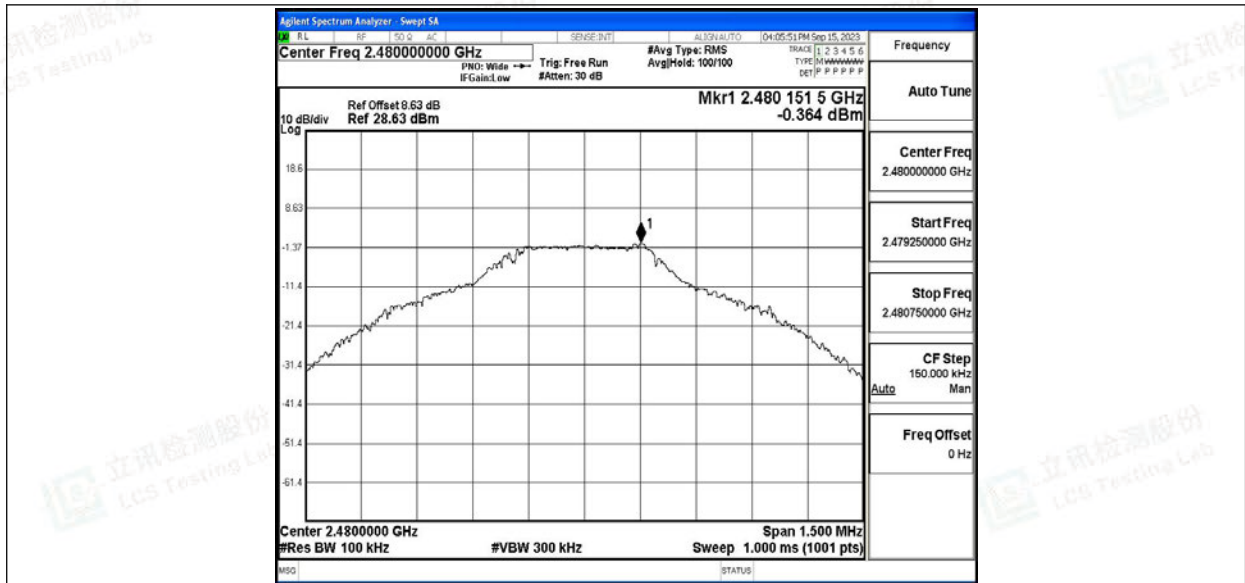


DH5\_Ant1\_2441\_1000~26500

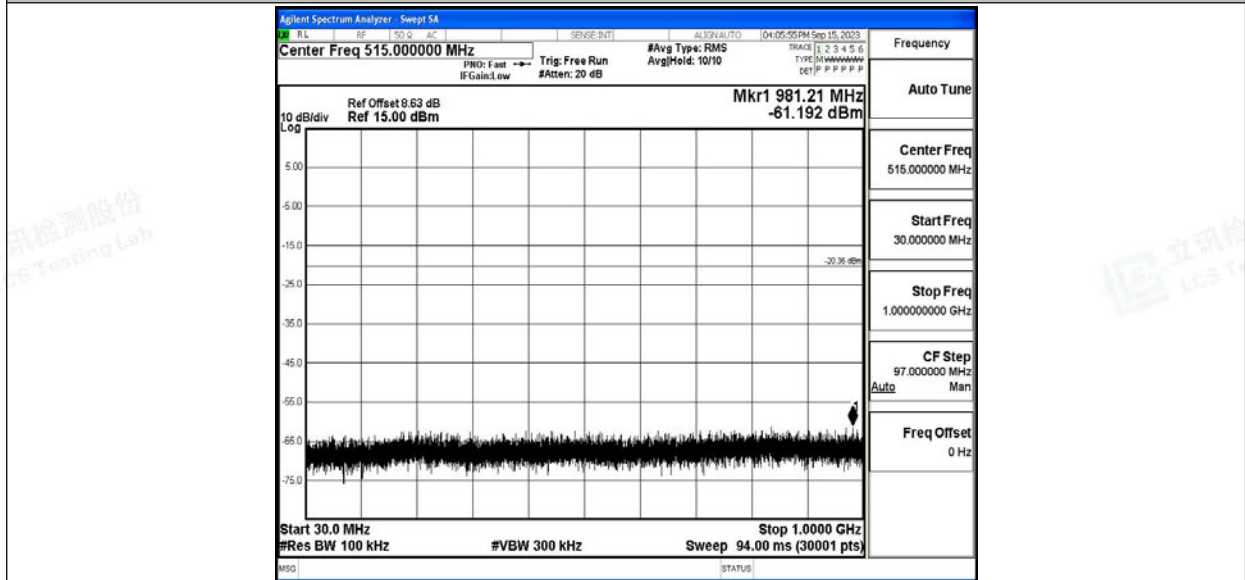


DH5\_Ant1\_2480\_0~Reference



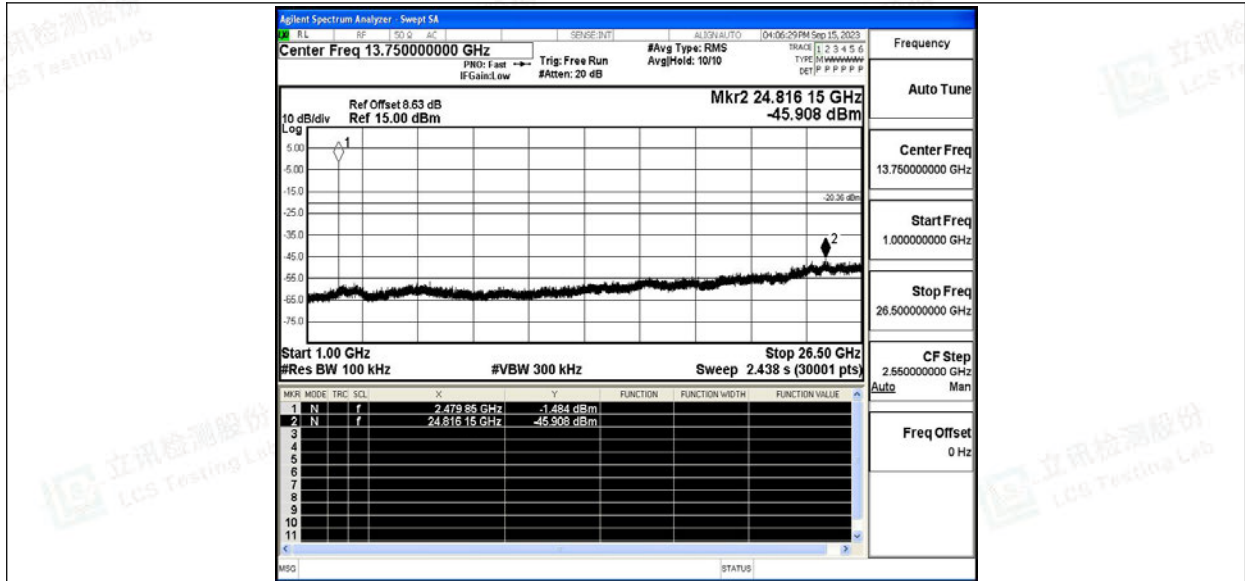


DH5\_Ant1\_2480\_30~1000

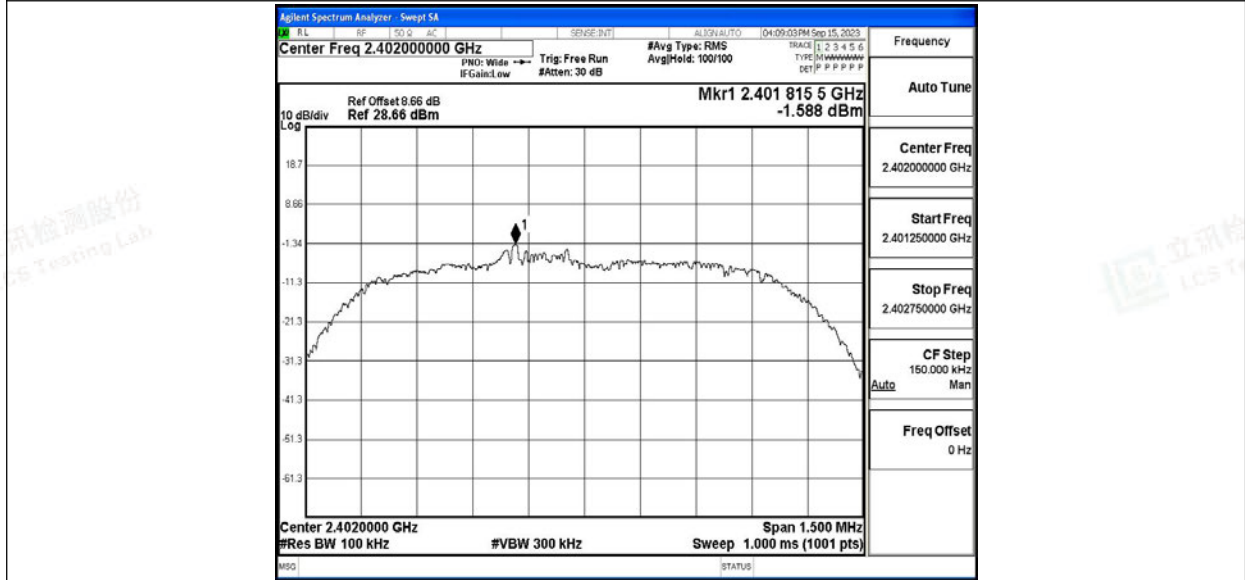


DH5\_Ant1\_2480\_1000~26500



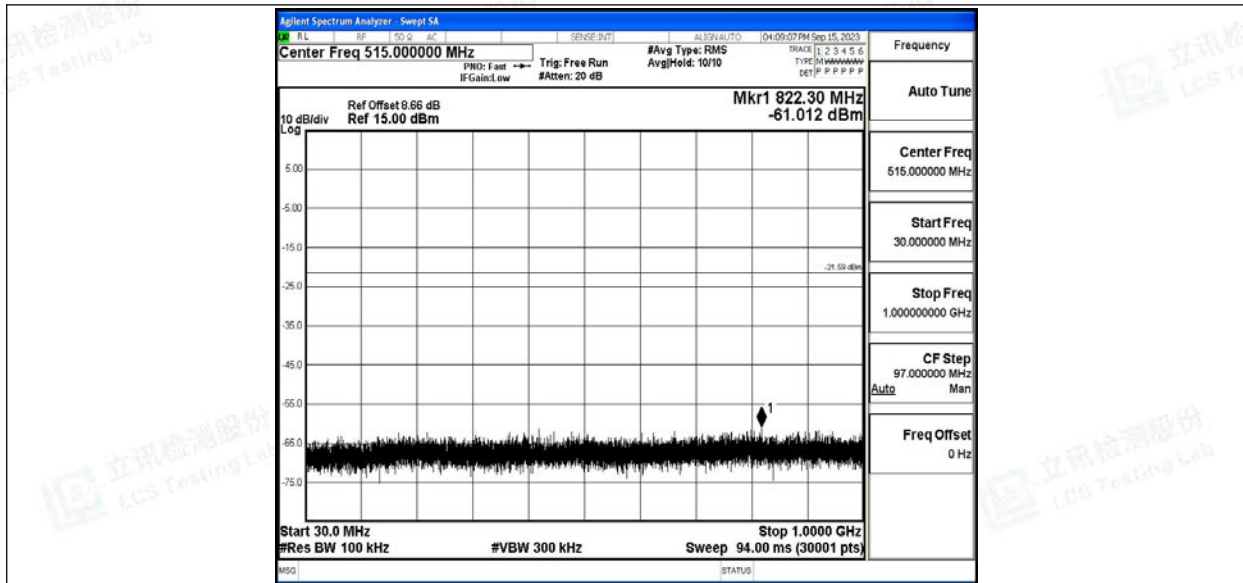


2DH5\_Ant1\_2402\_0~Reference

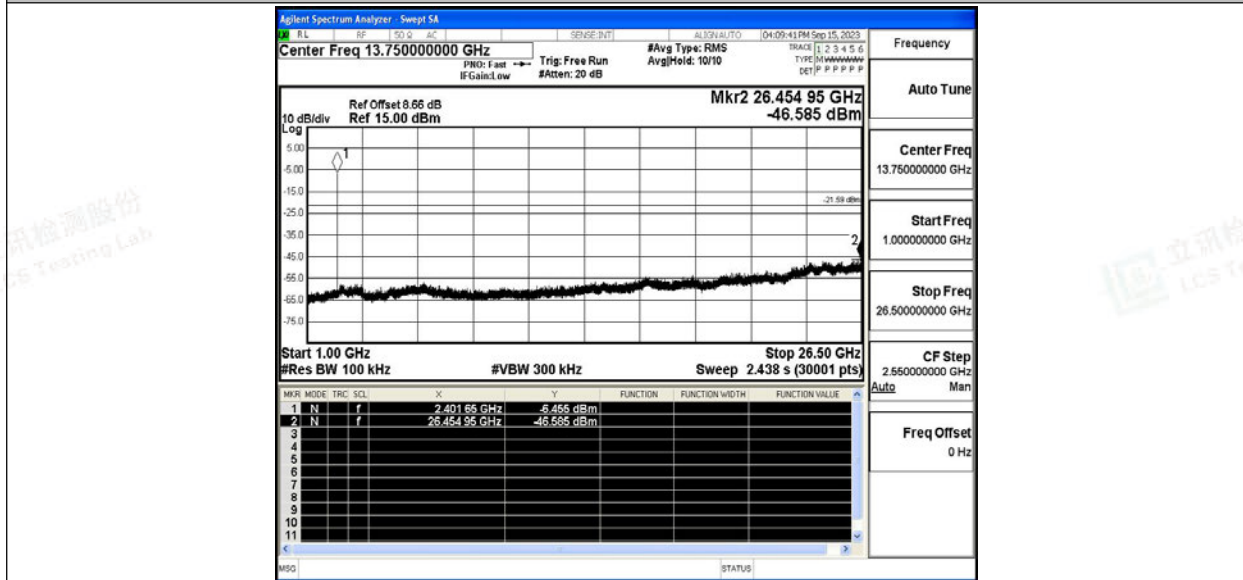


2DH5\_Ant1\_2402\_30~1000



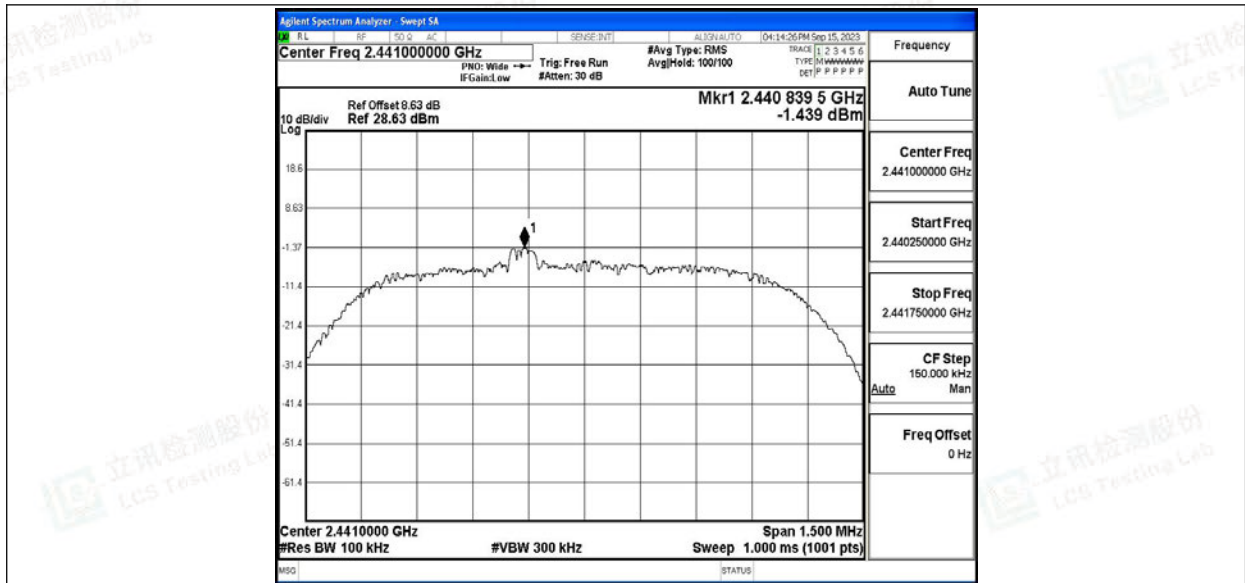


2DH5\_Ant1\_2402\_1000~26500

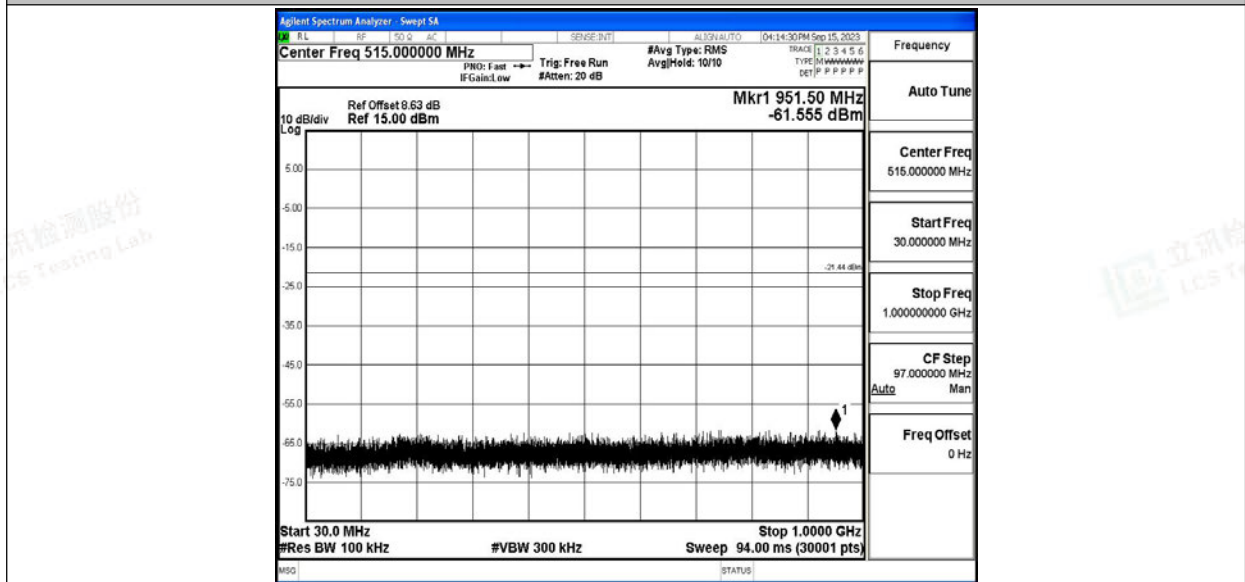


2DH5\_Ant1\_2441\_0~Reference



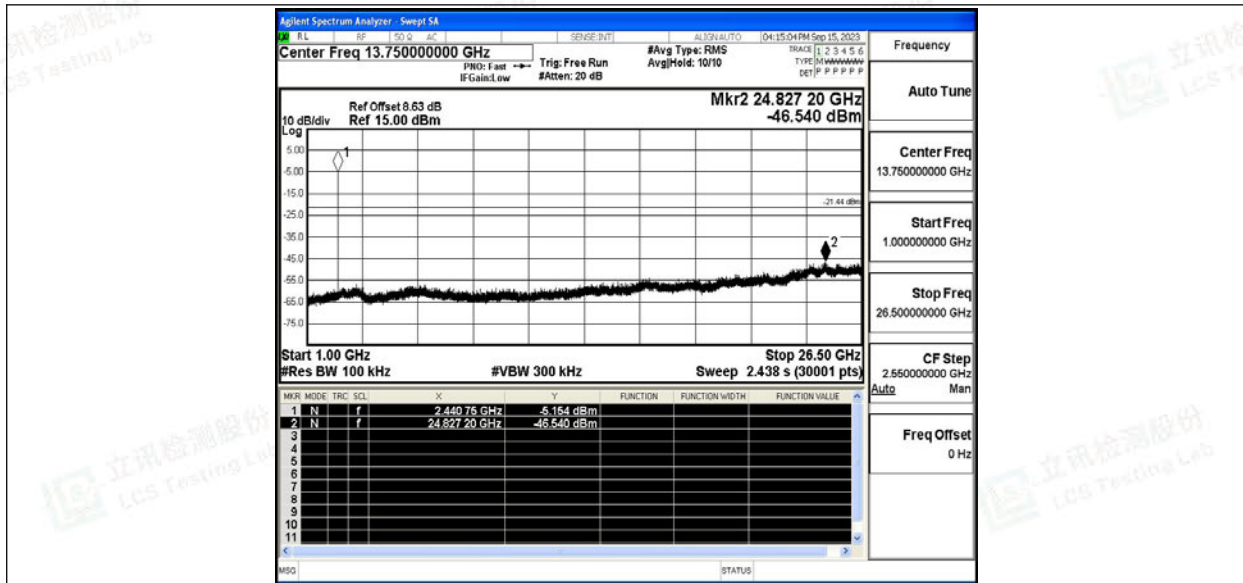


2DH5\_Ant1\_2441\_30~1000

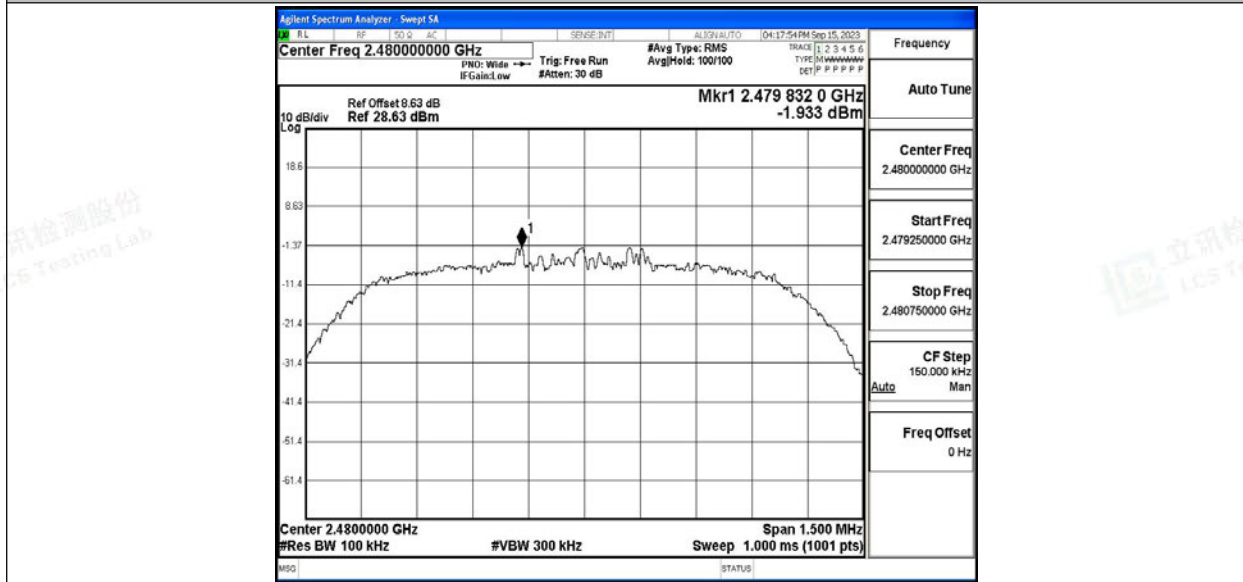


2DH5\_Ant1\_2441\_1000~26500



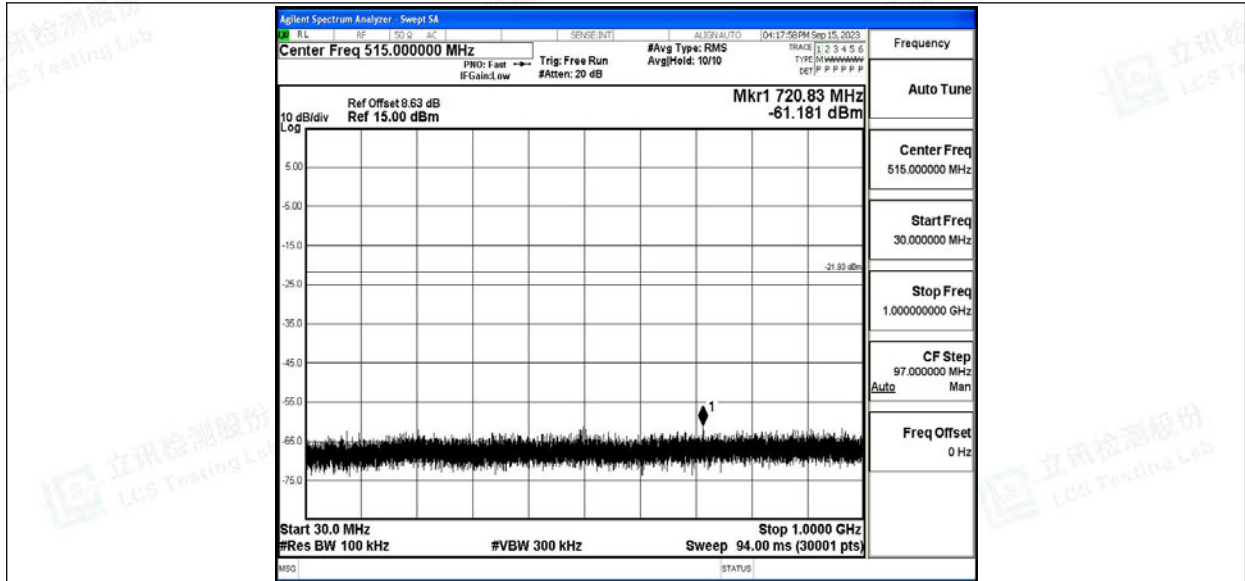


2DH5\_Ant1\_2480\_0~Reference

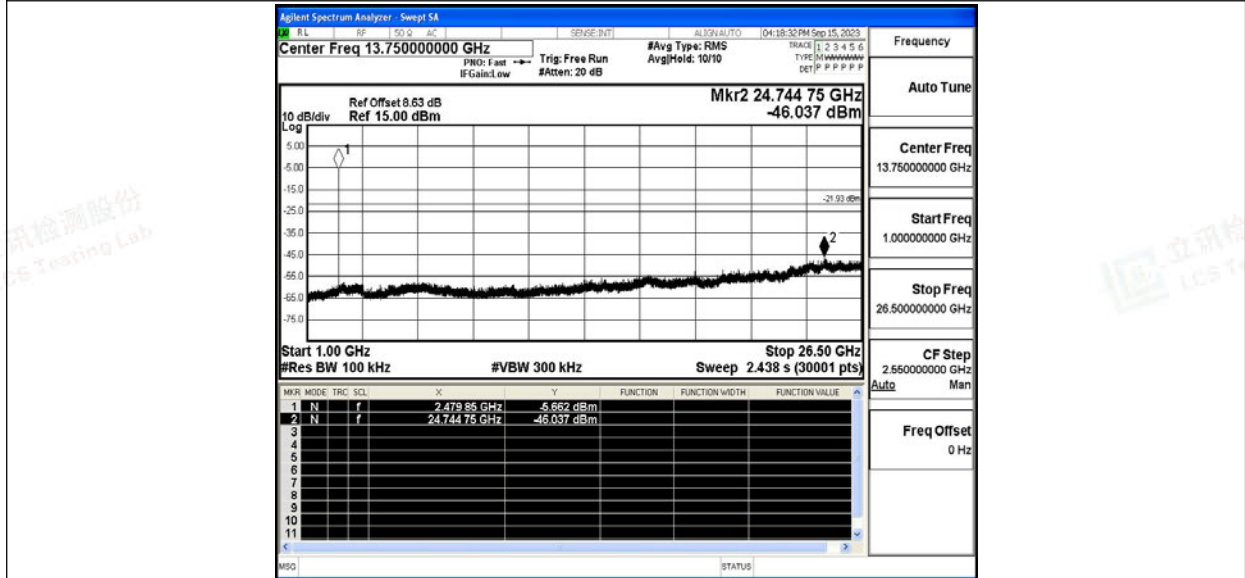


2DH5\_Ant1\_2480\_30~1000



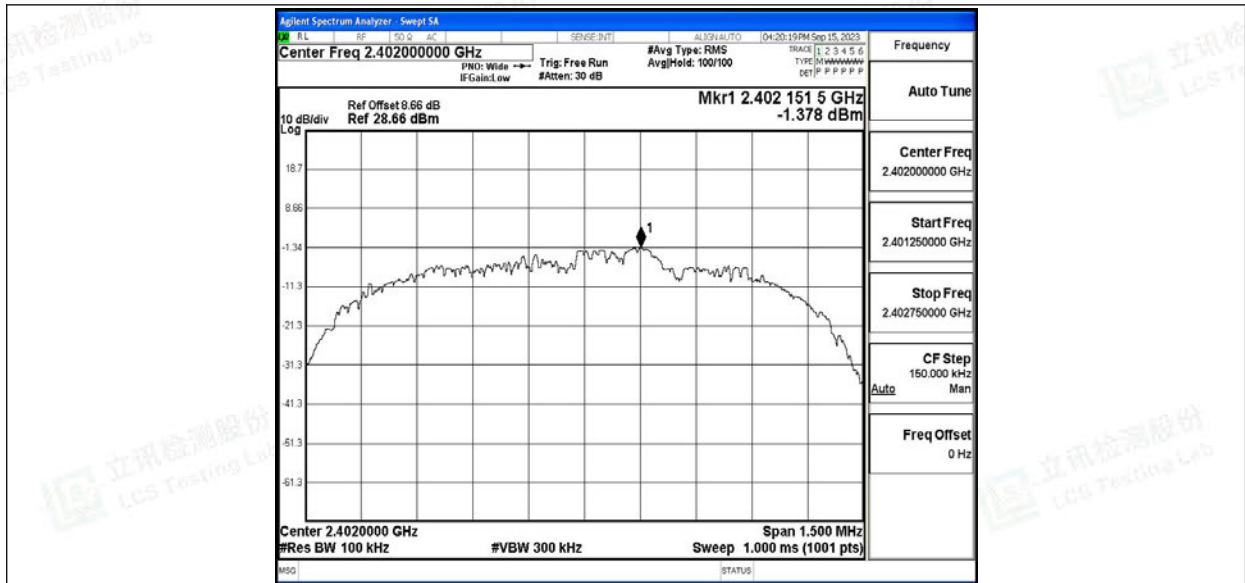


2DH5\_Ant1\_2480\_1000~26500

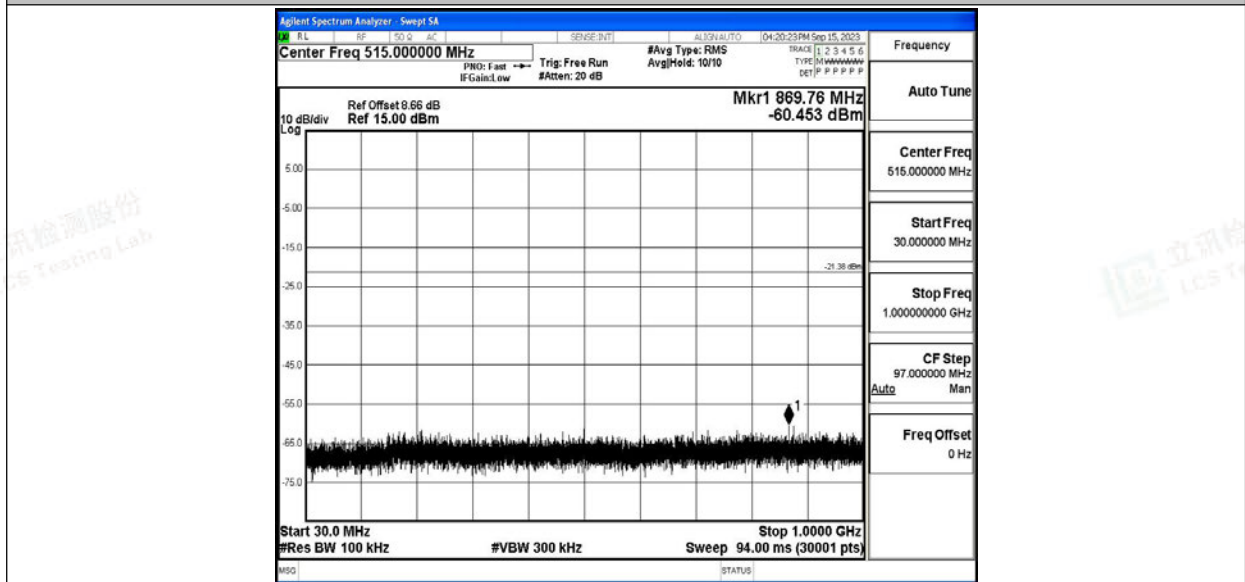


3DH5\_Ant1\_2402\_0~Reference





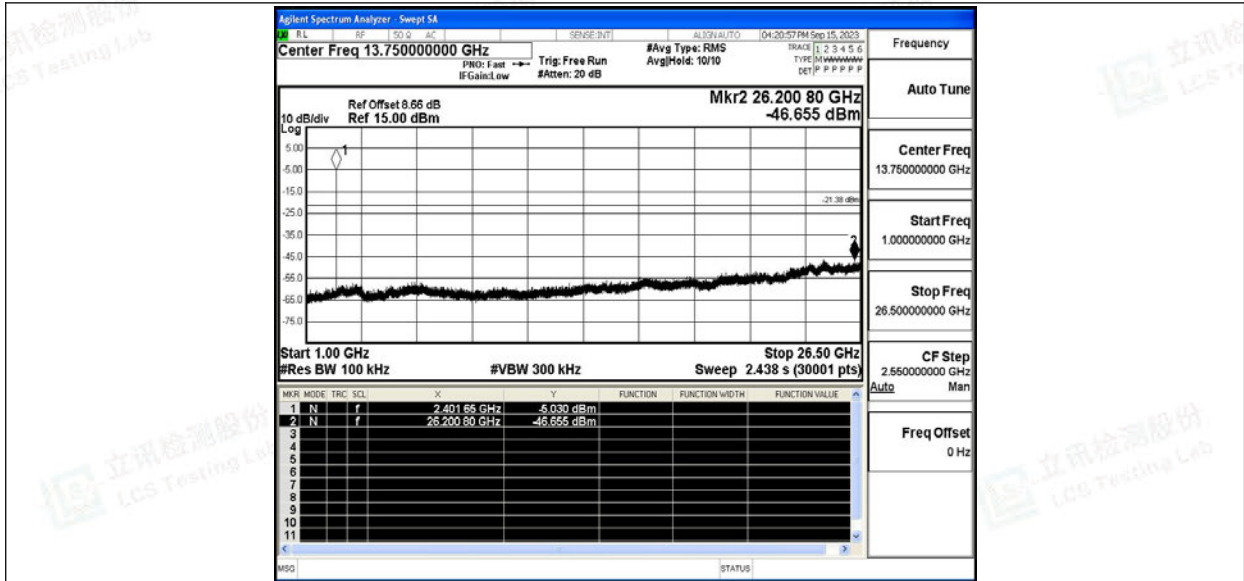
3DH5\_Ant1\_2402\_30~1000



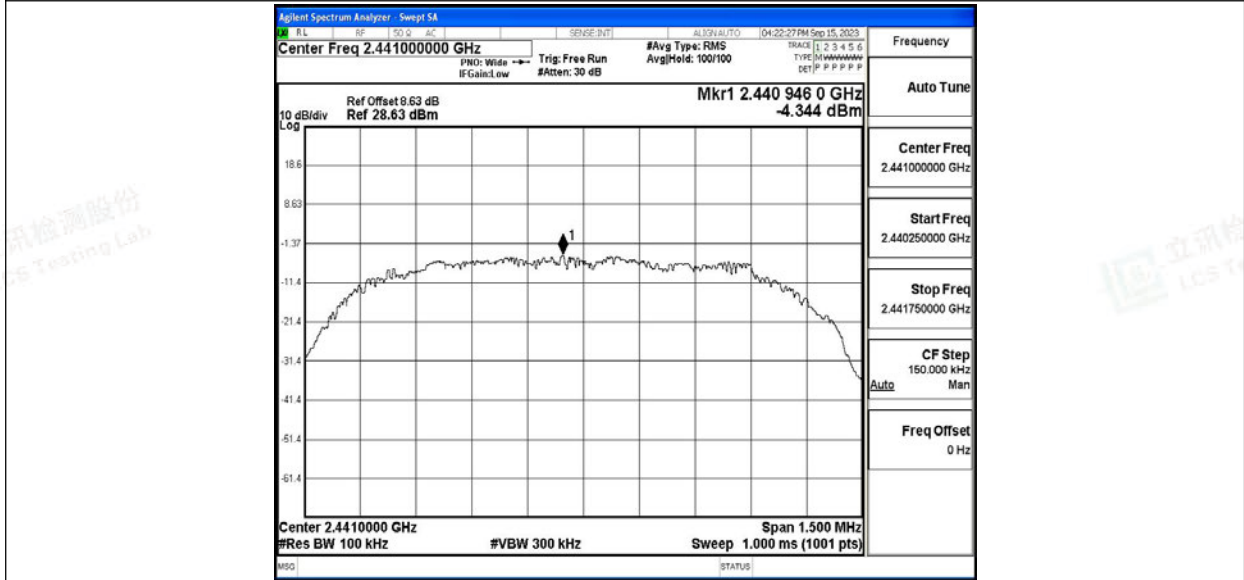
3DH5\_Ant1\_2402\_1000~26500





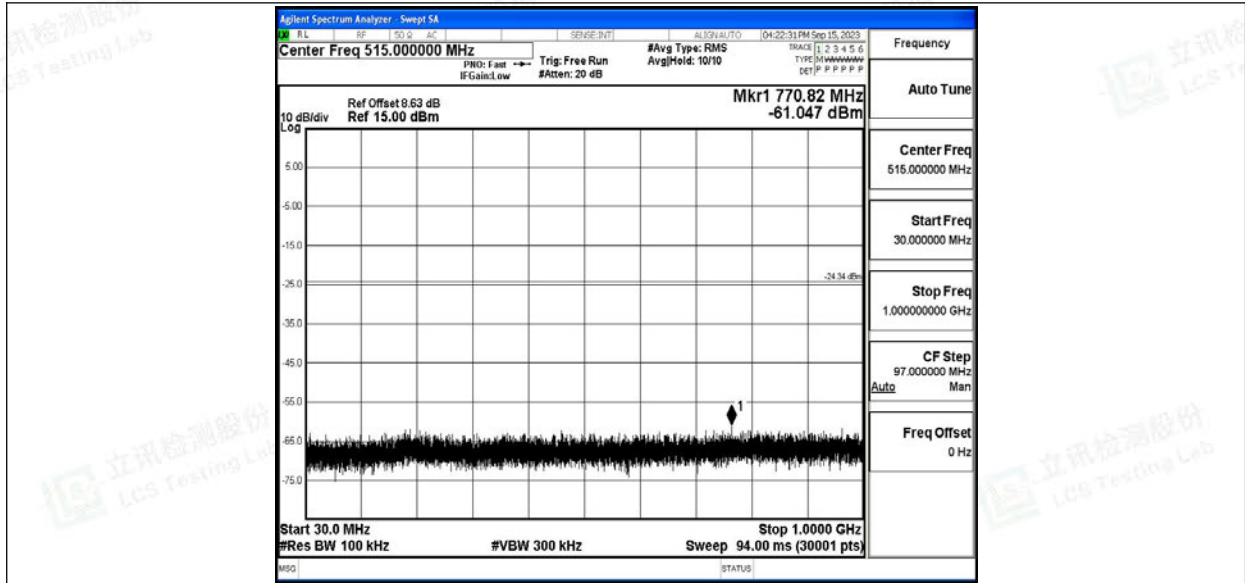


3DH5\_Ant1\_2441\_0~Reference

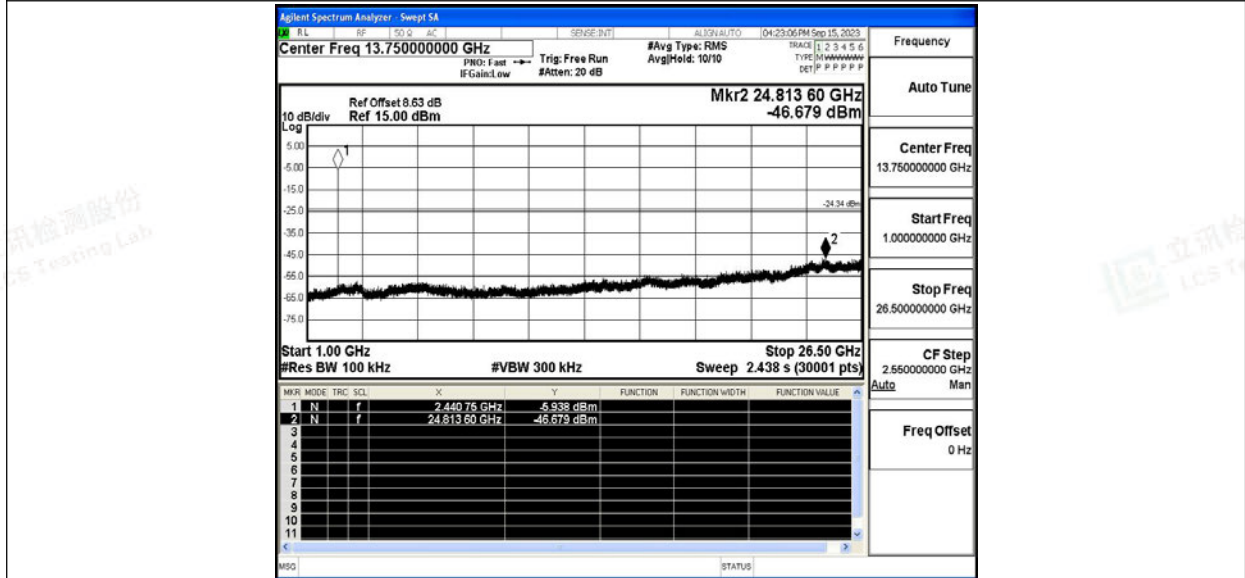


3DH5\_Ant1\_2441\_30~1000



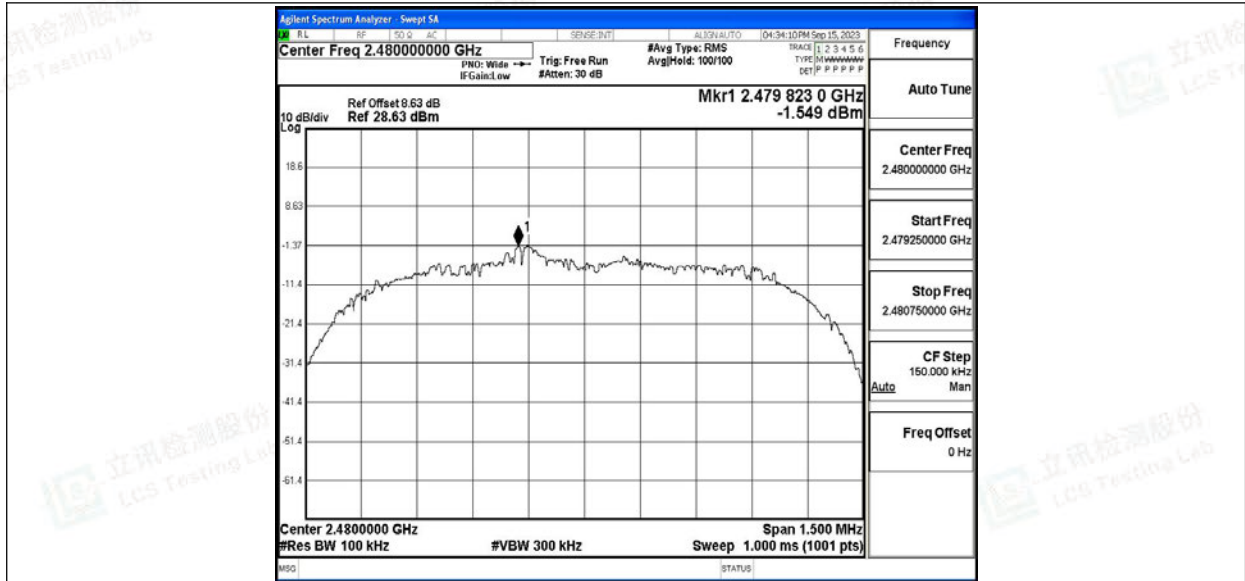


3DH5\_Ant1\_2441\_1000~26500

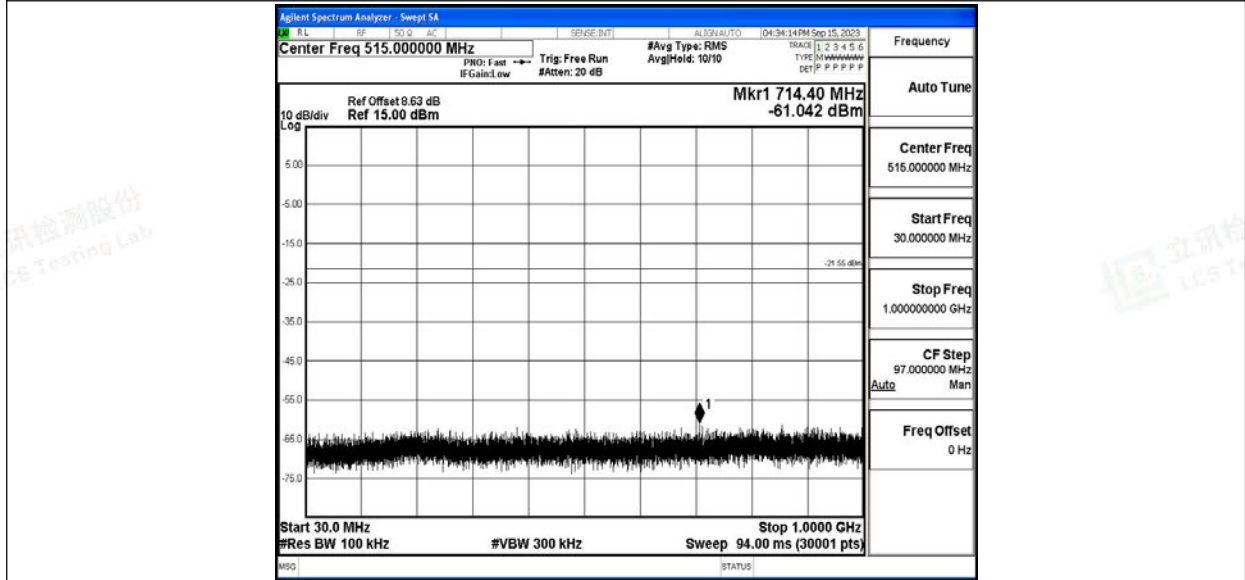


3DH5\_Ant1\_2480\_0~Reference



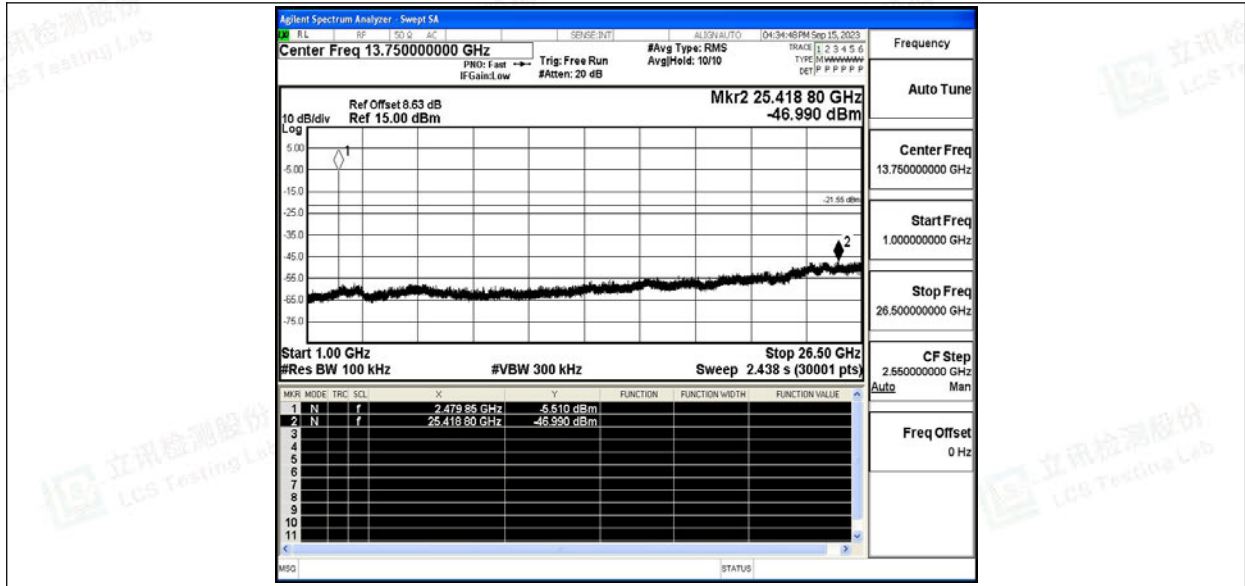


3DH5\_Ant1\_2480\_30~1000



3DH5\_Ant1\_2480\_1000~26500







## A.8 Emissions in Restricted Bands

### Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-48.11	≤-41.20	47.09	≤54	PASS
				AV	2385.575	-47.54	≤-41.20	47.66	≤54	PASS
				AV	2390.000	-47.72	≤-41.20	47.48	≤54	PASS
				Peak	2310.000	-42.62	≤-21.20	52.58	≤74	PASS
				Peak	2346.200	-38.74	≤-21.20	56.46	≤74	PASS
				Peak	2390.000	-43.65	≤-21.20	51.55	≤74	PASS
		High	2480	AV	2483.500	-47.25	≤-41.20	47.95	≤54	PASS
				AV	2499.920	-47.11	≤-41.20	48.09	≤54	PASS
				AV	2500.000	-47.18	≤-41.20	48.02	≤54	PASS
				Peak	2483.500	-42.84	≤-21.20	52.36	≤74	PASS
				Peak	2490.720	-38.43	≤-21.20	56.77	≤74	PASS
				Peak	2500.000	-41.68	≤-21.20	53.52	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-39.21	≤-21.20	55.99	≤74	PASS
				Peak	2387.045	-35.78	≤-21.20	59.42	≤74	PASS
				Peak	2390.000	-39.32	≤-21.20	55.88	≤74	PASS
		High	Hop_2480	Peak	2483.500	-39.81	≤-21.20	55.39	≤74	PASS
				Peak	2497.360	-36.39	≤-21.20	58.81	≤74	PASS
				Peak	2500.000	-38.38	≤-21.20	56.82	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.14	≤-41.20	47.06	≤54	PASS
				AV	2388.200	-47.6	≤-41.20	47.60	≤54	PASS
				AV	2390.000	-47.78	≤-41.20	47.42	≤54	PASS
				Peak	2310.000	-43.09	≤-21.20	52.11	≤74	PASS
				Peak	2345.885	-38.79	≤-21.20	56.41	≤74	PASS
				Peak	2390.000	-41.08	≤-21.20	54.12	≤74	PASS
		High	2480	AV	2483.500	-47.2	≤-41.20	48.00	≤54	PASS
				AV	2499.760	-47.11	≤-41.20	48.09	≤54	PASS
				AV	2500.000	-47.28	≤-41.20	47.92	≤54	PASS
				Peak	2483.500	-42.02	≤-21.20	53.18	≤74	PASS
				Peak	2497.680	-38.28	≤-21.20	56.92	≤74	PASS
				Peak	2500.000	-40.81	≤-21.20	54.39	≤74	PASS
Low	Hop_24	Peak	2310.000	-40.41	≤-21.20	54.79	≤74	PASS		





3DH5	Ant1	High	02	Peak	2340.215	-37.29	≤-21.20	57.91	≤74	PASS
				Peak	2390.000	-39.33	≤-21.20	55.87	≤74	PASS
			Hop_24 80	Peak	2483.500	-39.7	≤-21.20	55.50	≤74	PASS
				Peak	2497.520	-37.49	≤-21.20	57.71	≤74	PASS
				Peak	2500.000	-39.52	≤-21.20	55.68	≤74	PASS
				AV	2310.000	-48.2	≤-41.20	47.00	≤54	PASS
		Low	2402	AV	2382.845	-47.65	≤-41.20	47.55	≤54	PASS
				AV	2390.000	-47.82	≤-41.20	47.38	≤54	PASS
				Peak	2310.000	-42.74	≤-21.20	52.46	≤74	PASS
				Peak	2328.980	-39.4	≤-21.20	55.80	≤74	PASS
				Peak	2390.000	-42.72	≤-21.20	52.48	≤74	PASS
				AV	2483.500	-47.12	≤-41.20	48.08	≤54	PASS
		High	2480	AV	2498.560	-47.08	≤-41.20	48.12	≤54	PASS
				AV	2500.000	-47.18	≤-41.20	48.02	≤54	PASS
				Peak	2483.500	-41.13	≤-21.20	54.07	≤74	PASS
				Peak	2489.200	-37.97	≤-21.20	57.23	≤74	PASS
				Peak	2500.000	-40.41	≤-21.20	54.79	≤74	PASS
				Peak	2310.000	-39.98	≤-21.20	55.22	≤74	PASS
Low	Hop_24 02	Peak	2387.360	-36.9	≤-21.20	58.30	≤74	PASS		
		Peak	2390.000	-39.57	≤-21.20	55.63	≤74	PASS		
		Peak	2483.500	-38.53	≤-21.20	56.67	≤74	PASS		
High	Hop_24 80	Peak	2487.840	-36.24	≤-21.20	58.96	≤74	PASS		
		Peak	2500.000	-38.95	≤-21.20	56.25	≤74	PASS		

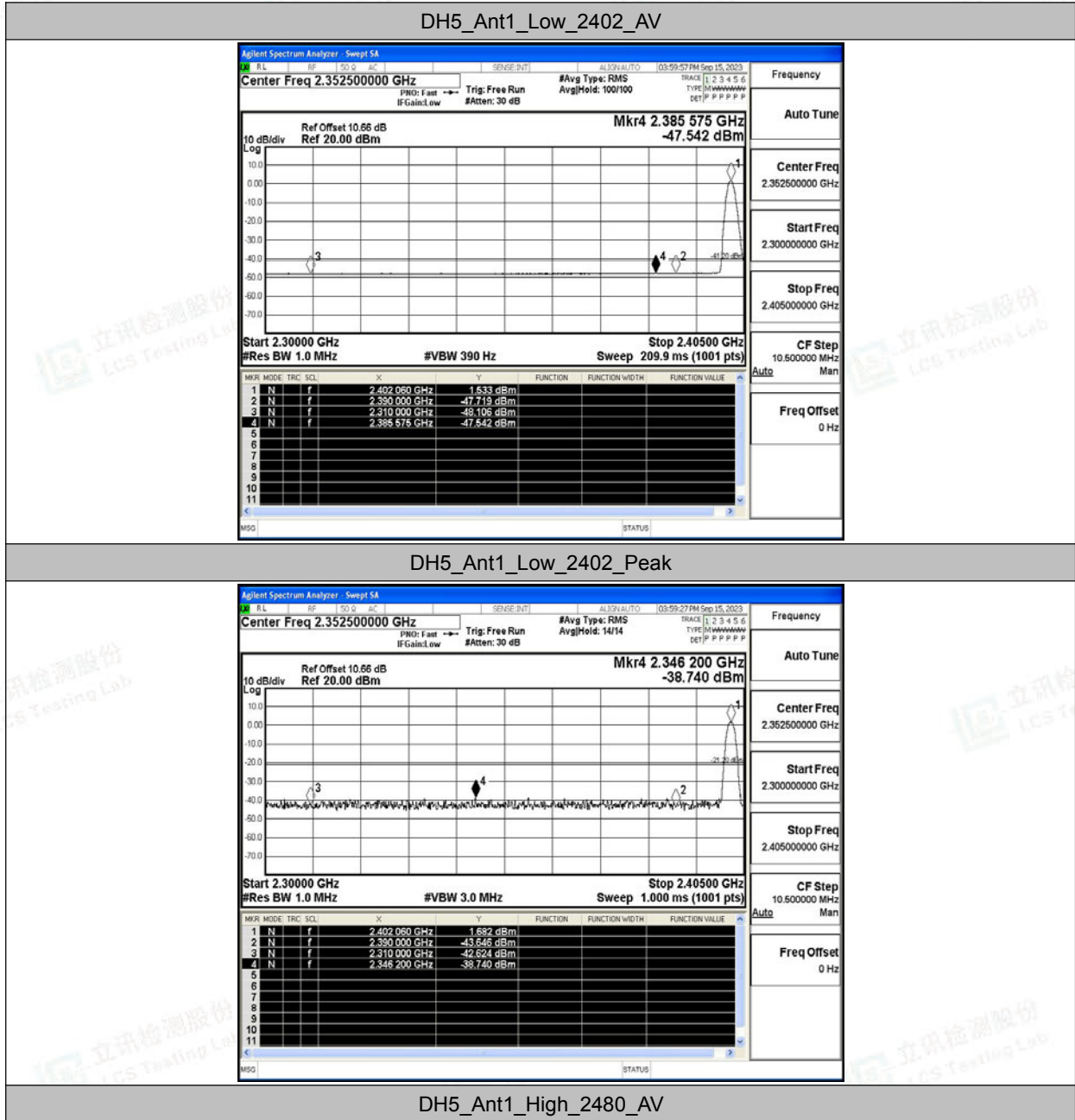
Note:

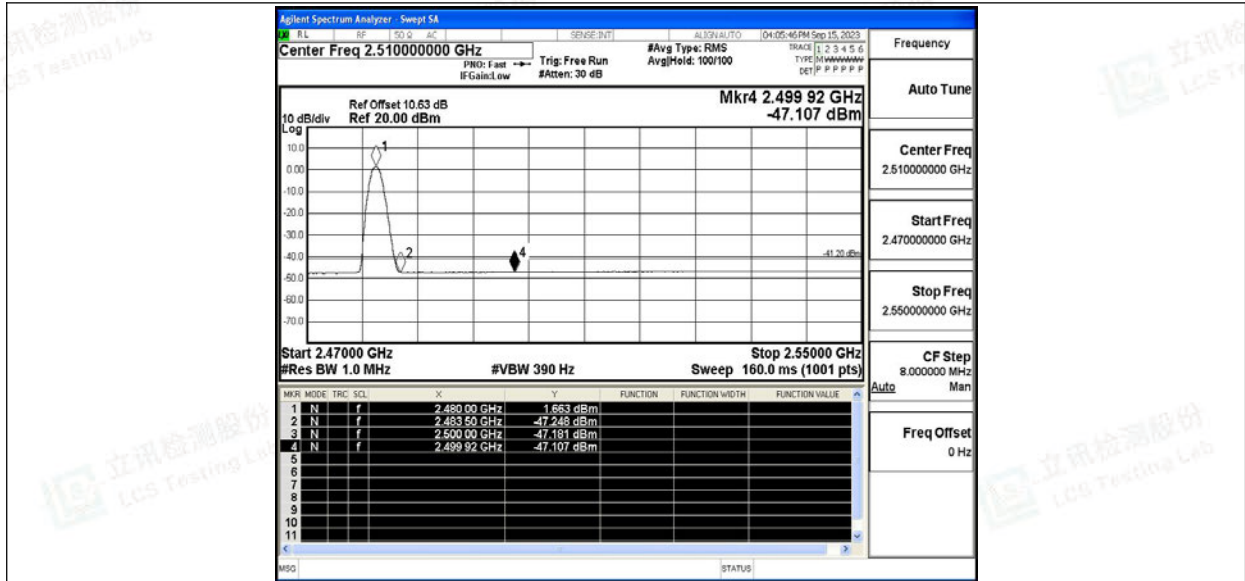
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



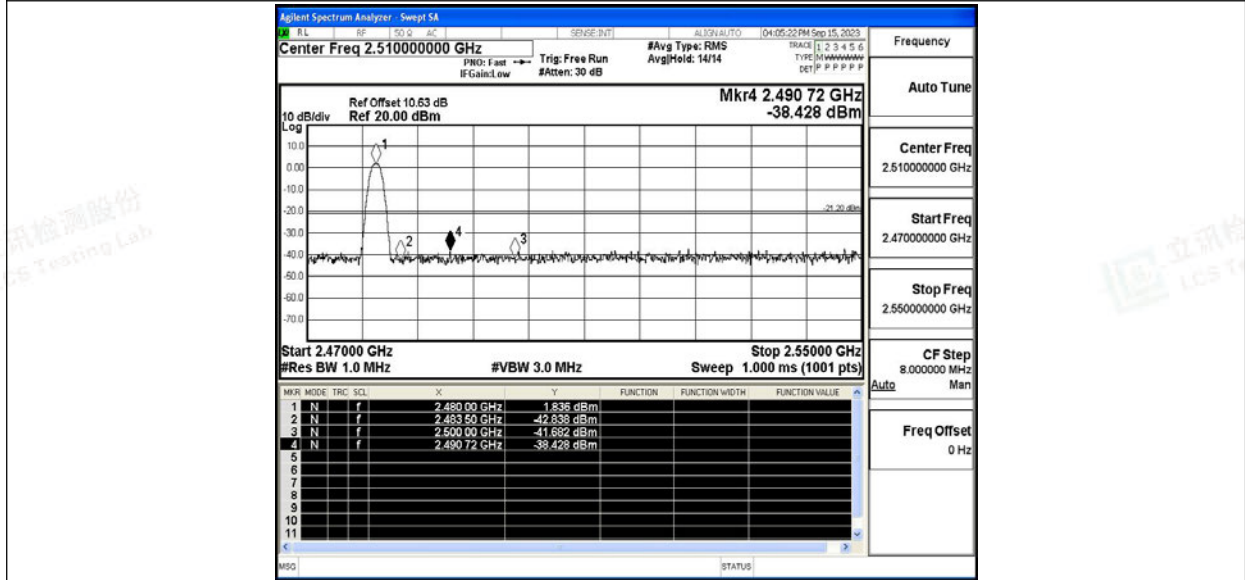


### Test Graphs





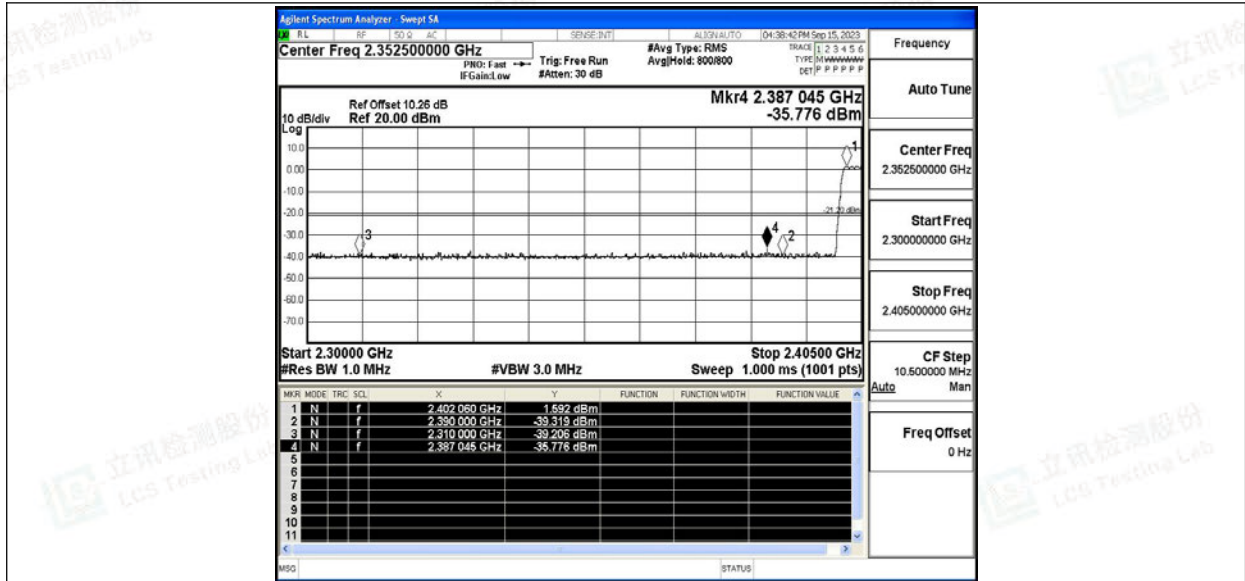
DH5\_Ant1\_High\_2480\_Peak



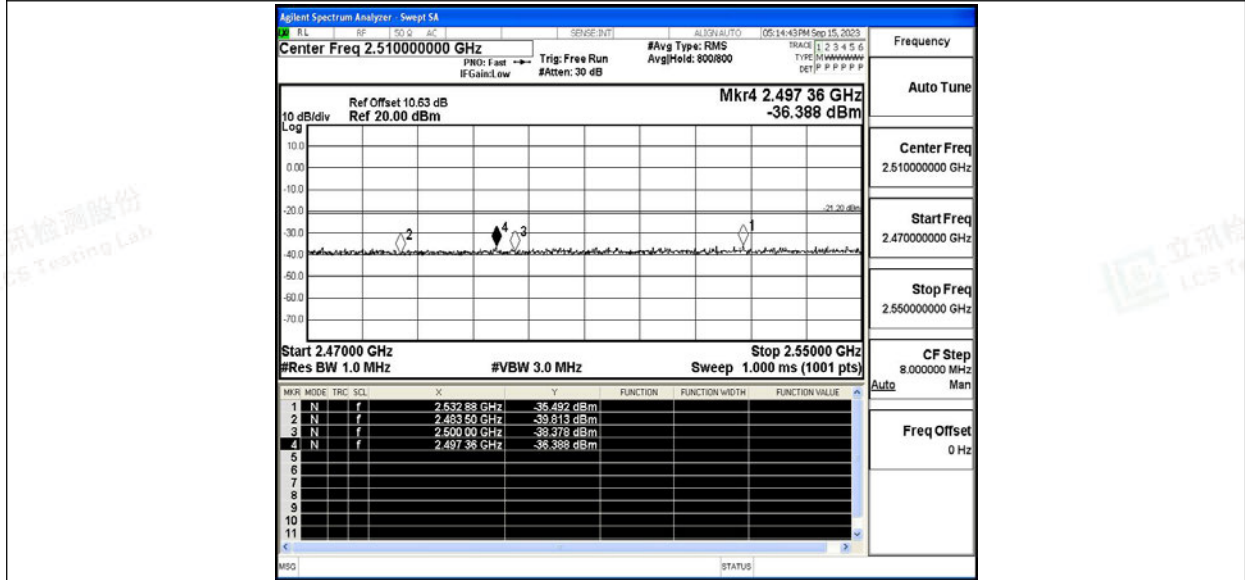
DH5\_Ant1\_Low\_Hop\_2402\_Peak





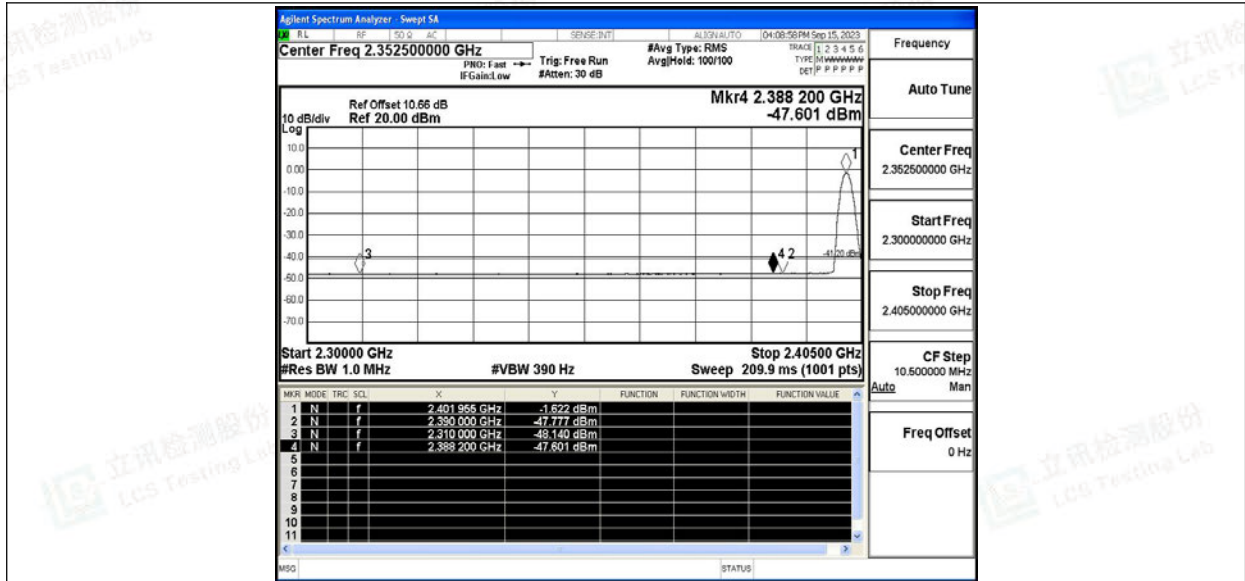


DH5\_Ant1\_High\_Hop\_2480\_Peak

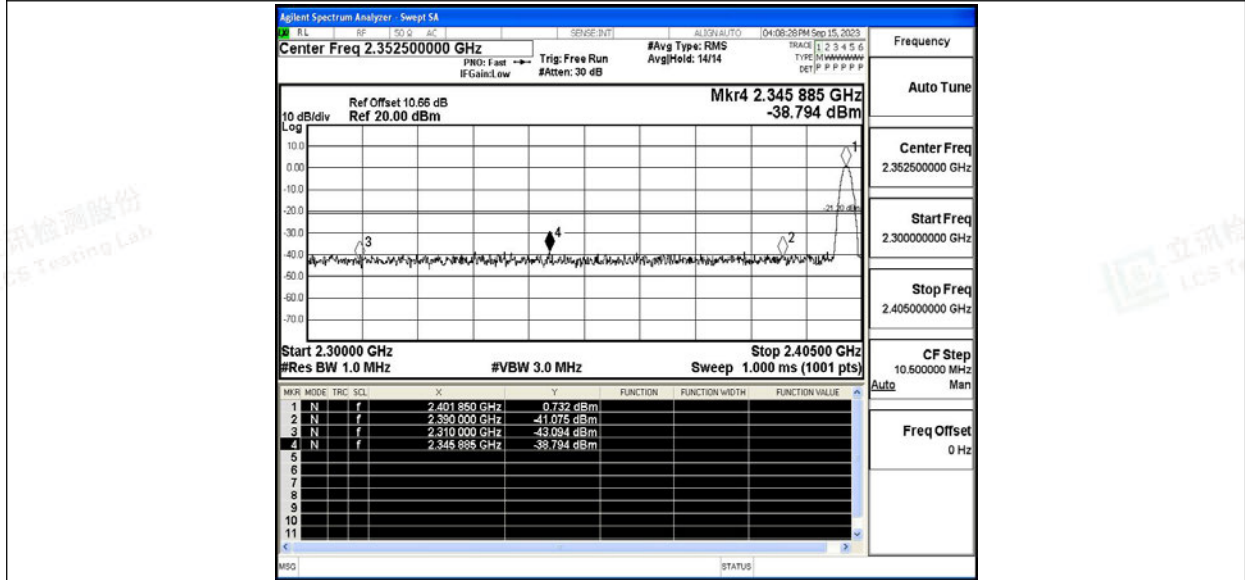


2DH5\_Ant1\_Low\_2402\_AV



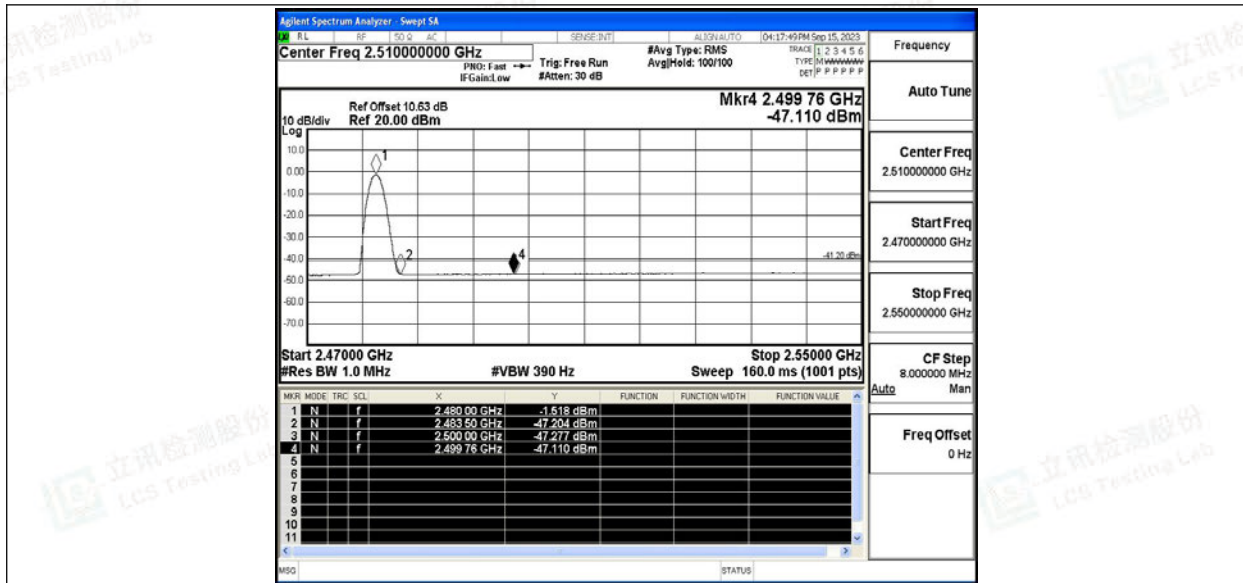


2DH5\_Ant1\_Low\_2402\_Peak

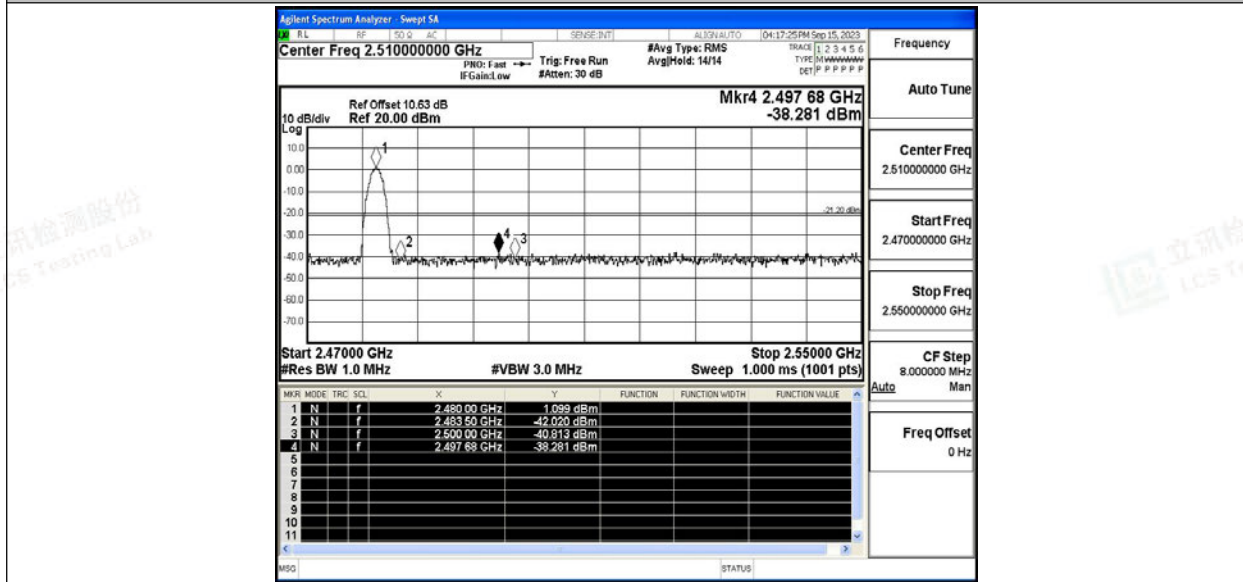


2DH5\_Ant1\_High\_2480\_AV



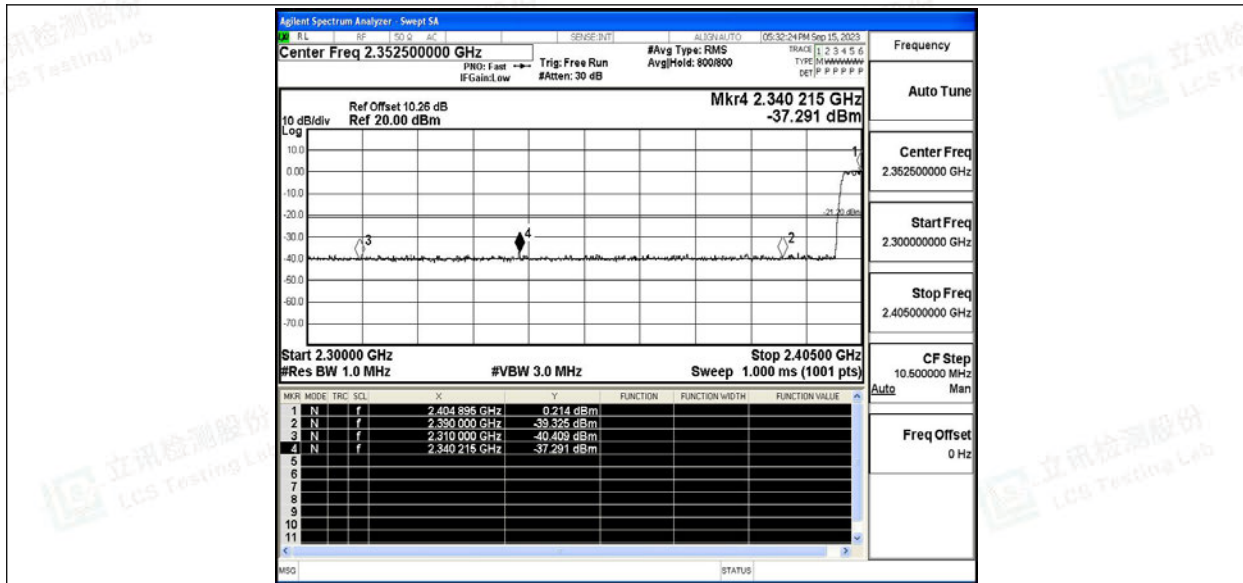


2DH5\_Ant1\_High\_2480\_Peak

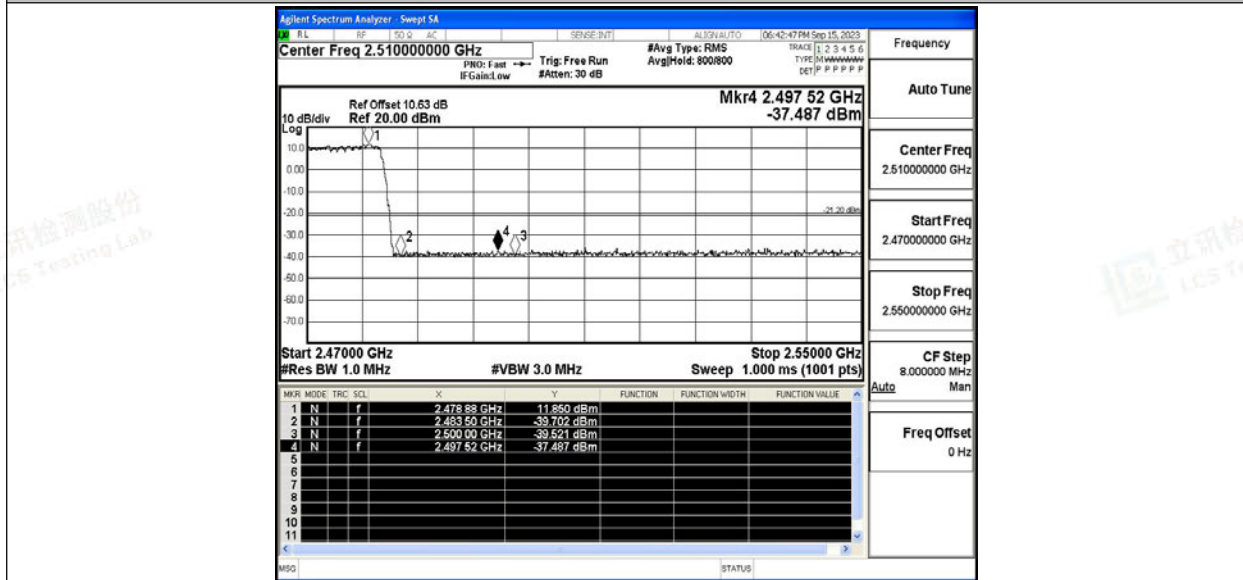


2DH5\_Ant1\_Low\_Hop\_2402\_Peak



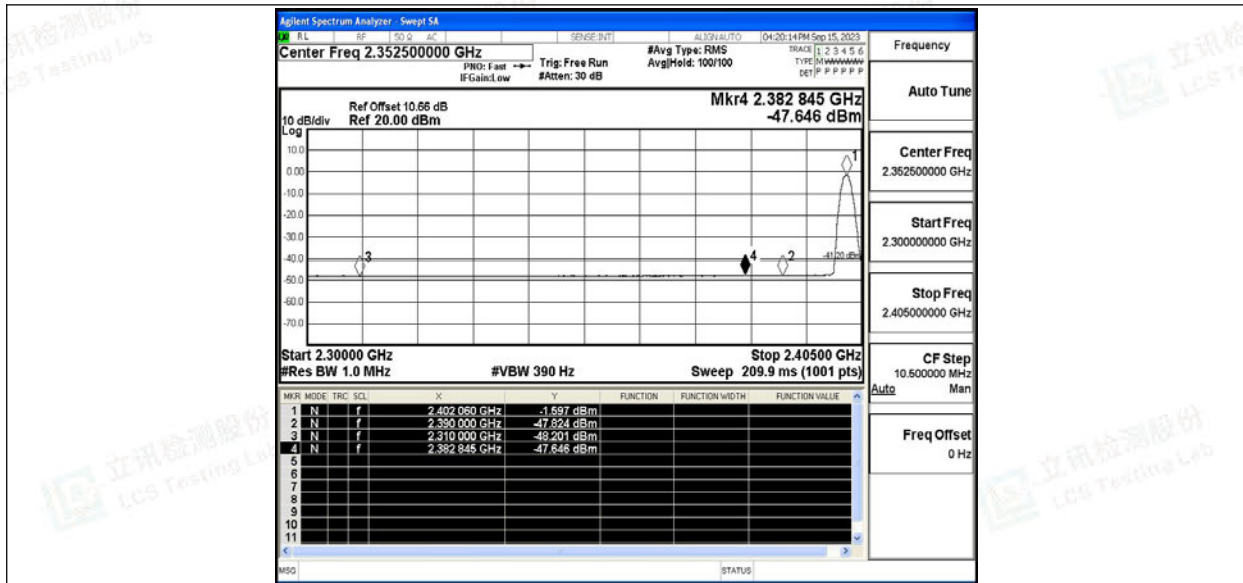


2DH5\_Ant1\_High\_Hop\_2480\_Peak

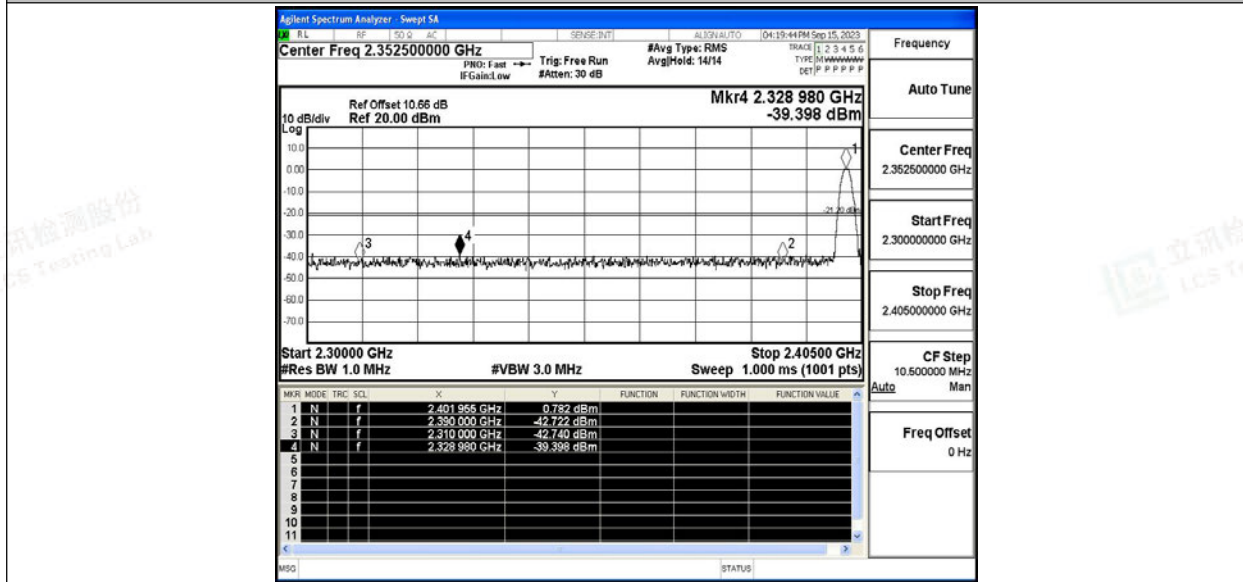


3DH5\_Ant1\_Low\_2402\_AV



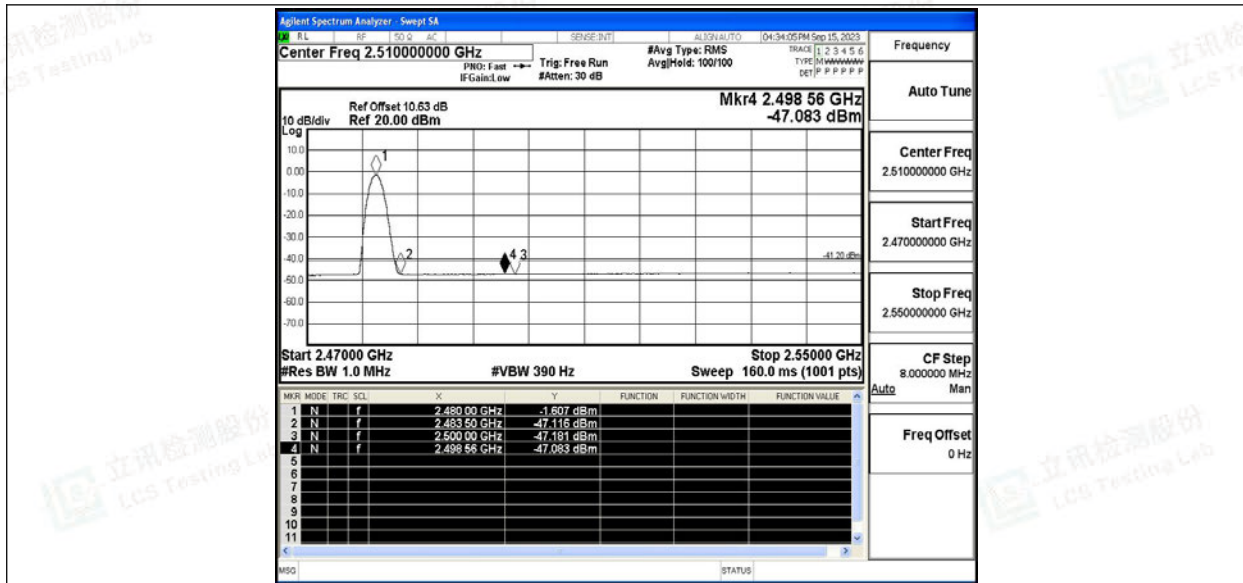


3DH5\_Ant1\_Low\_2402\_Peak

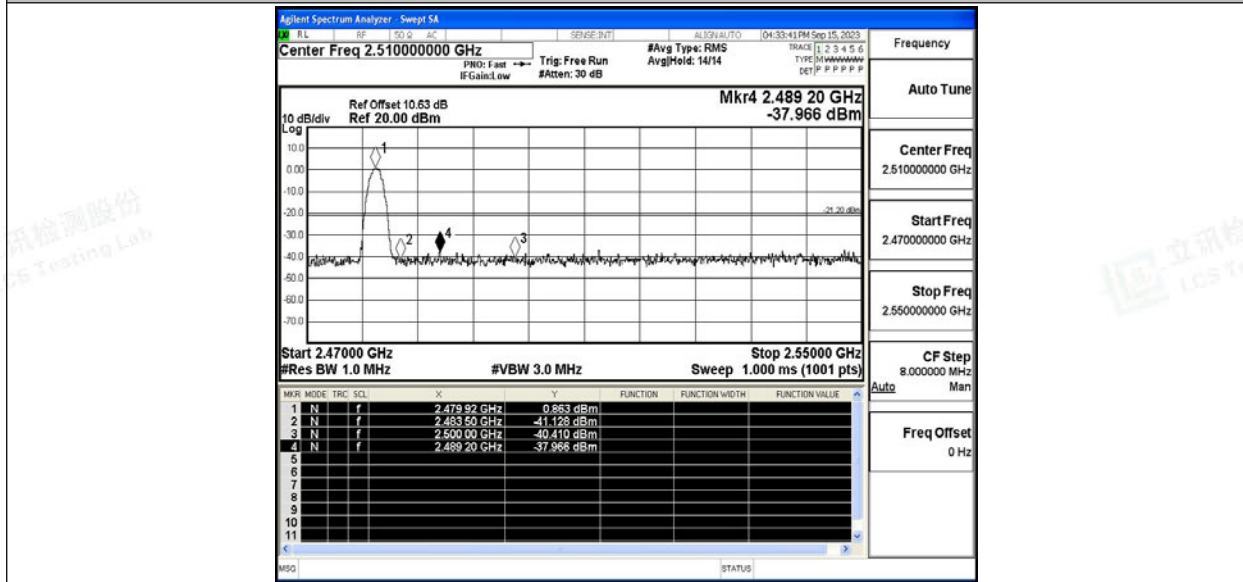


3DH5\_Ant1\_High\_2480\_AV



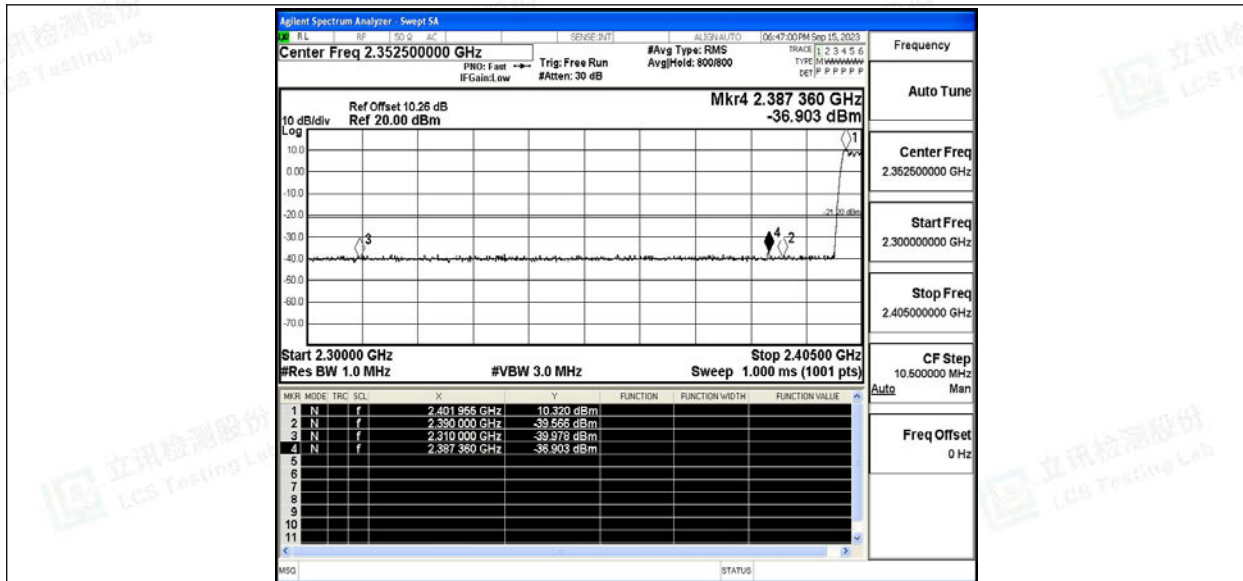


3DH5\_Ant1\_High\_2480\_Peak



3DH5\_Ant1\_Low\_Hop\_2402\_Peak





3DH5\_Ant1\_High\_Hop\_2480\_Peak

