



## Appendix A

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

**Product Name: MULTIFUNCTION SOLAR POWERED RECHARGEABLE CAMPING LANTERN**

**Test Model: EP-0168**

#### Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Summer Wu
Supervised by:	Nick Peng





## A.1 20dB Emission Bandwidth

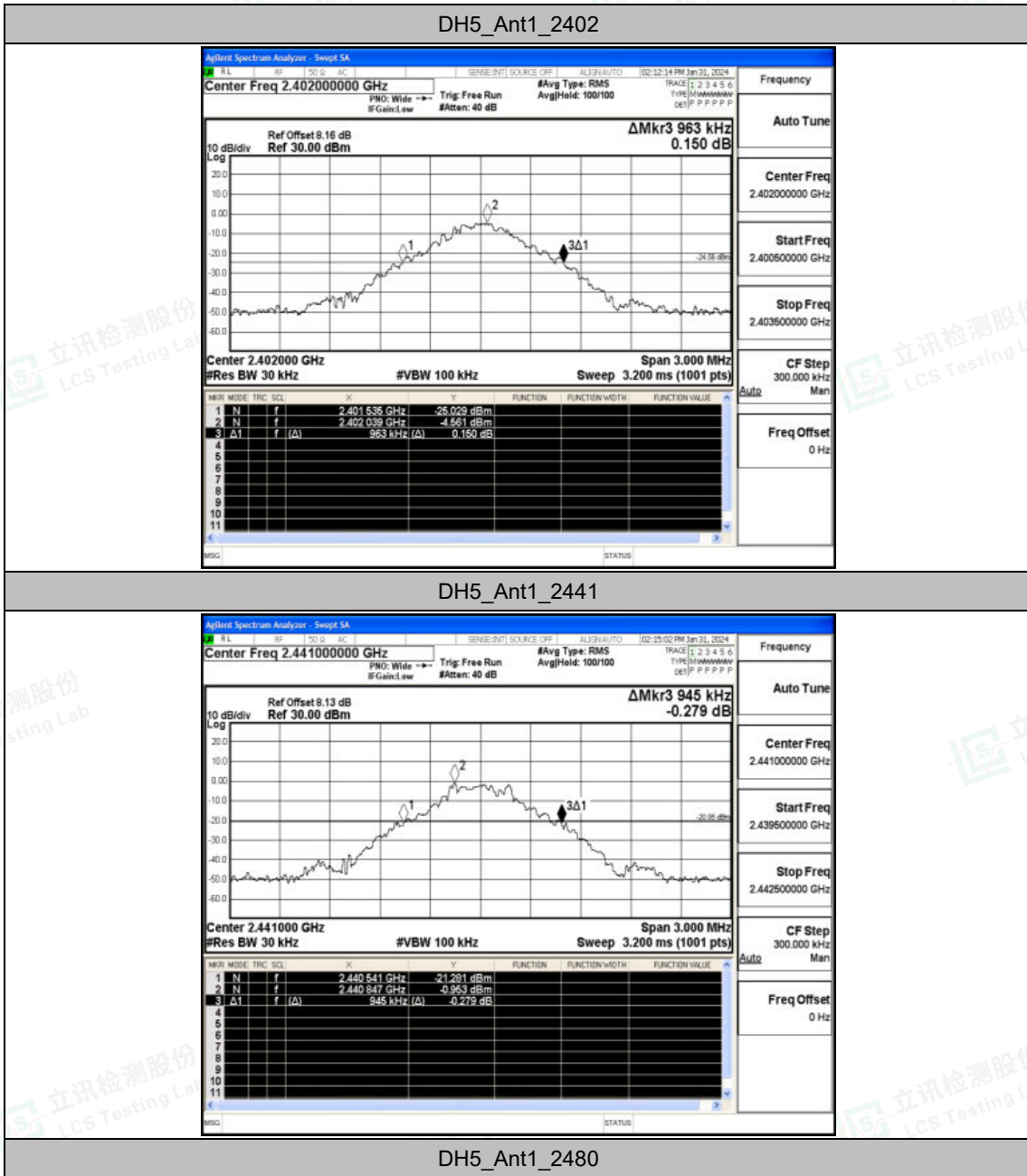
### Test Result

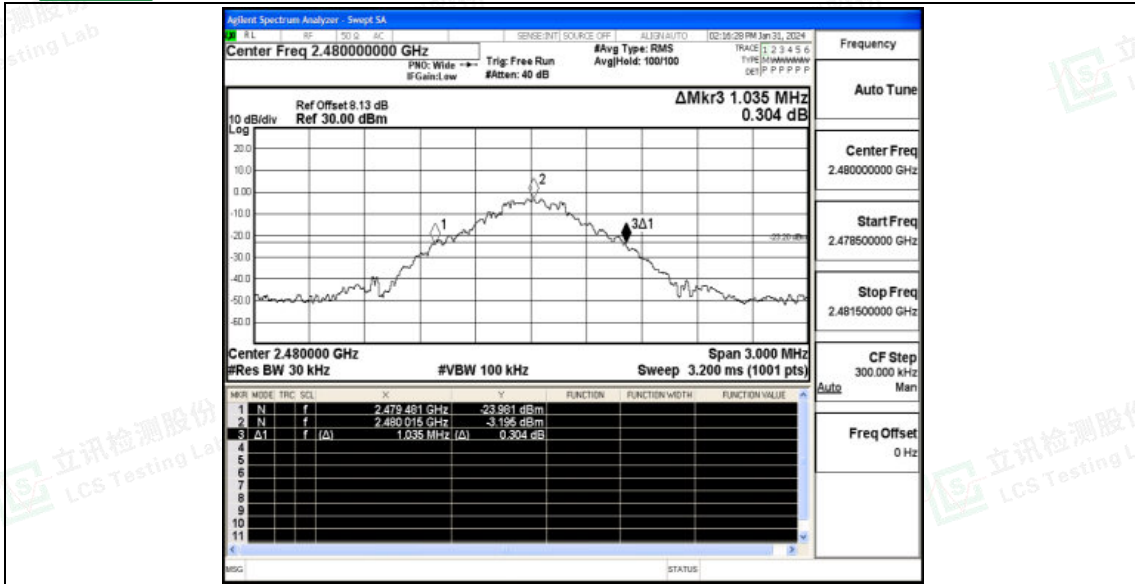
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.963	2401.535	2402.498	---	---
		2441	0.945	2440.541	2441.486	---	---
		2480	1.035	2479.481	2480.516	---	---
2DH5	Ant1	2402	1.317	2401.343	2402.660	---	---
		2441	1.299	2440.361	2441.660	---	---
		2480	1.320	2479.343	2480.663	---	---
3DH5	Ant1	2402	1.308	2401.349	2402.657	---	---
		2441	1.305	2440.349	2441.654	---	---
		2480	1.302	2479.349	2480.651	---	---



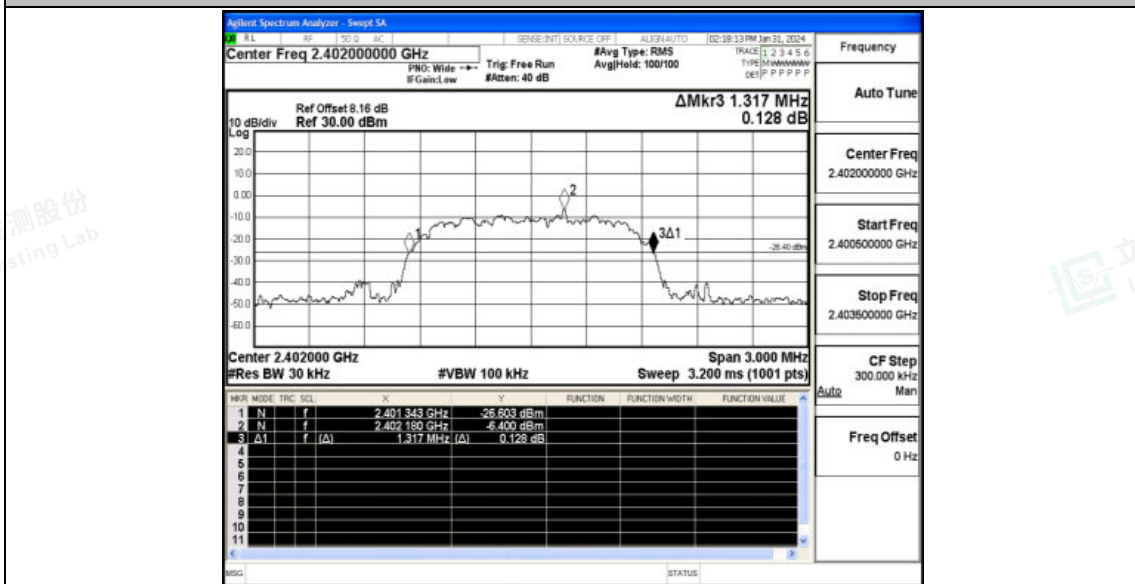


Test Graphs



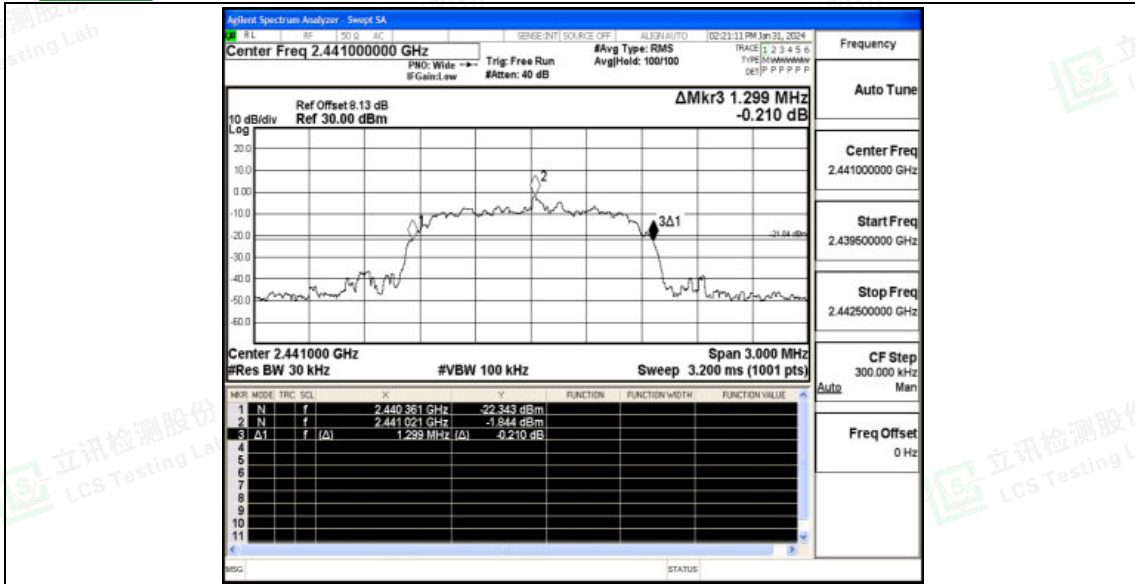


2DH5\_Ant1\_2402

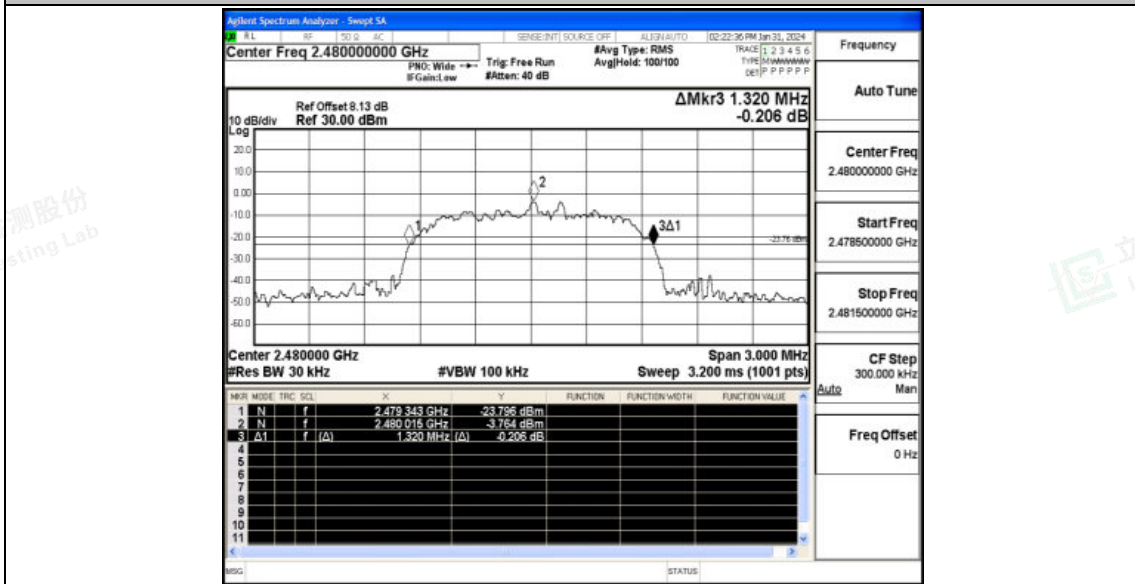


2DH5\_Ant1\_2441



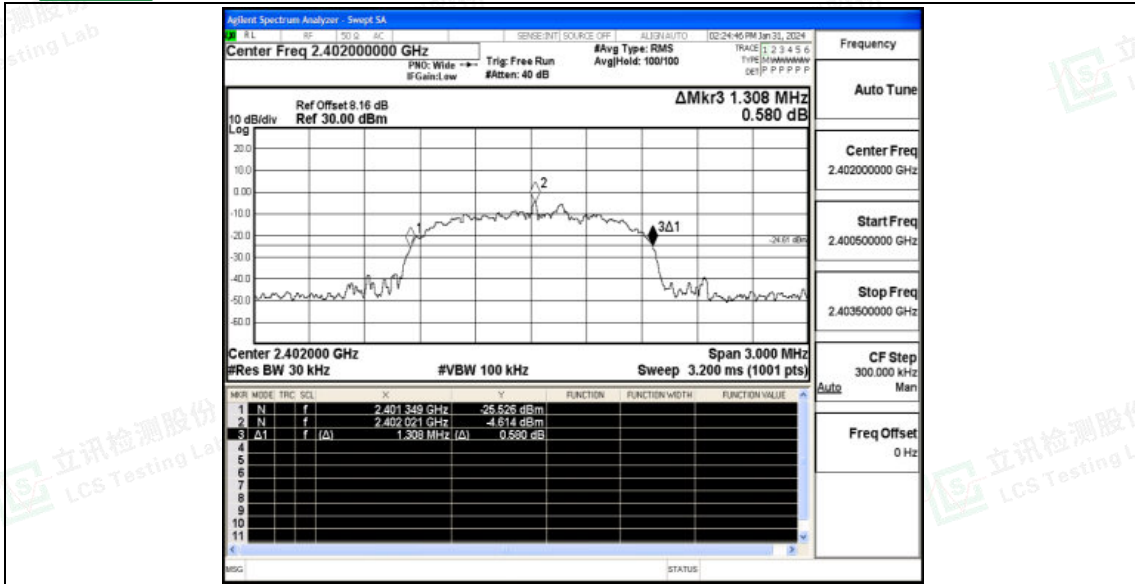


2DH5\_Ant1\_2480

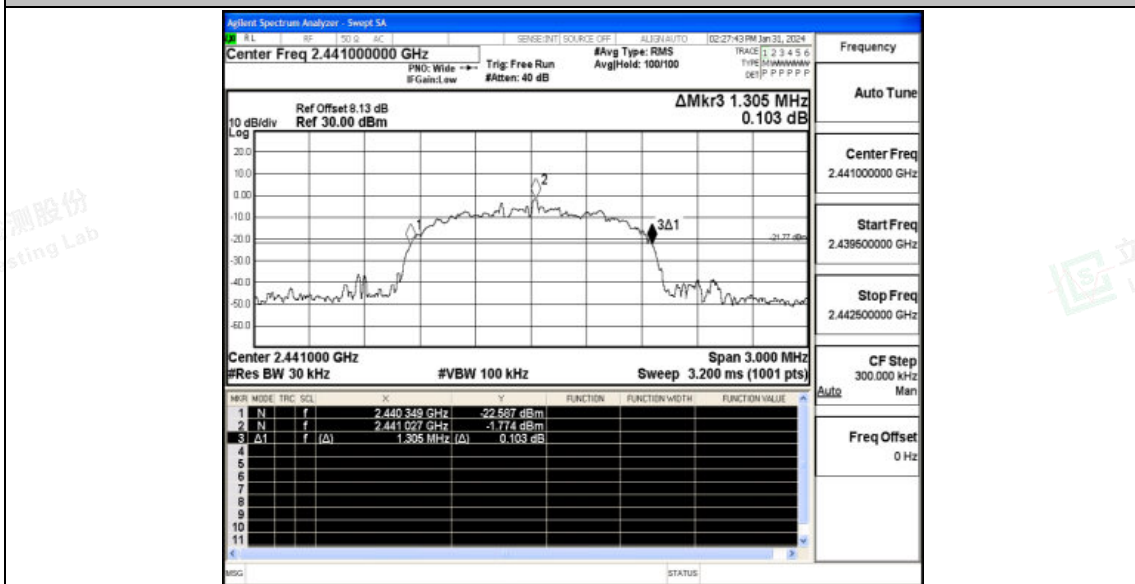


3DH5\_Ant1\_2402





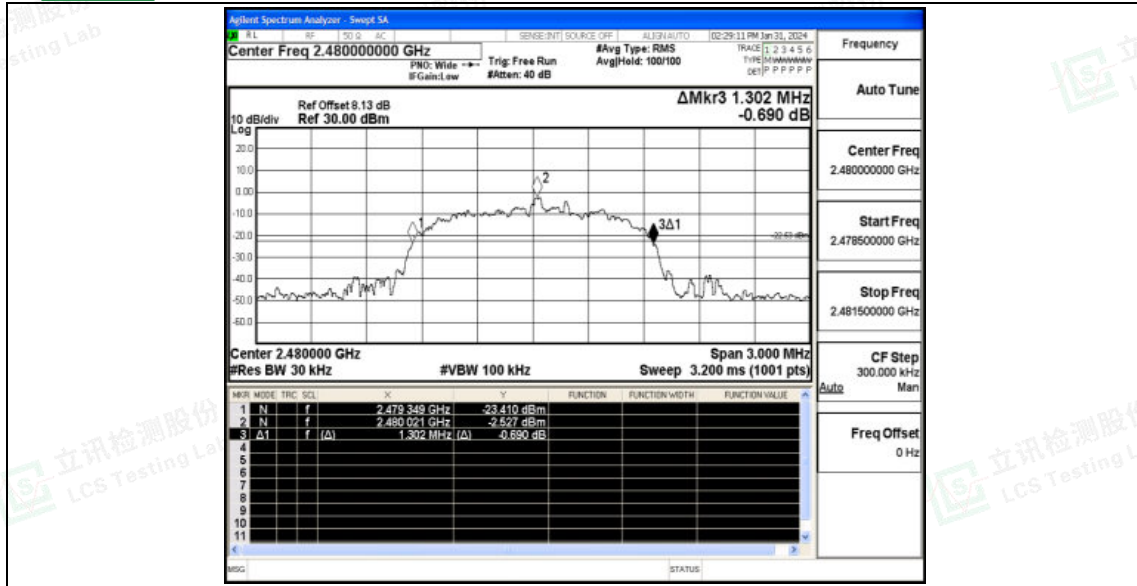
3DH5\_Ant1\_2441



3DH5\_Ant1\_2480









## A.2 Maximum conducted output power

### Test Result Peak

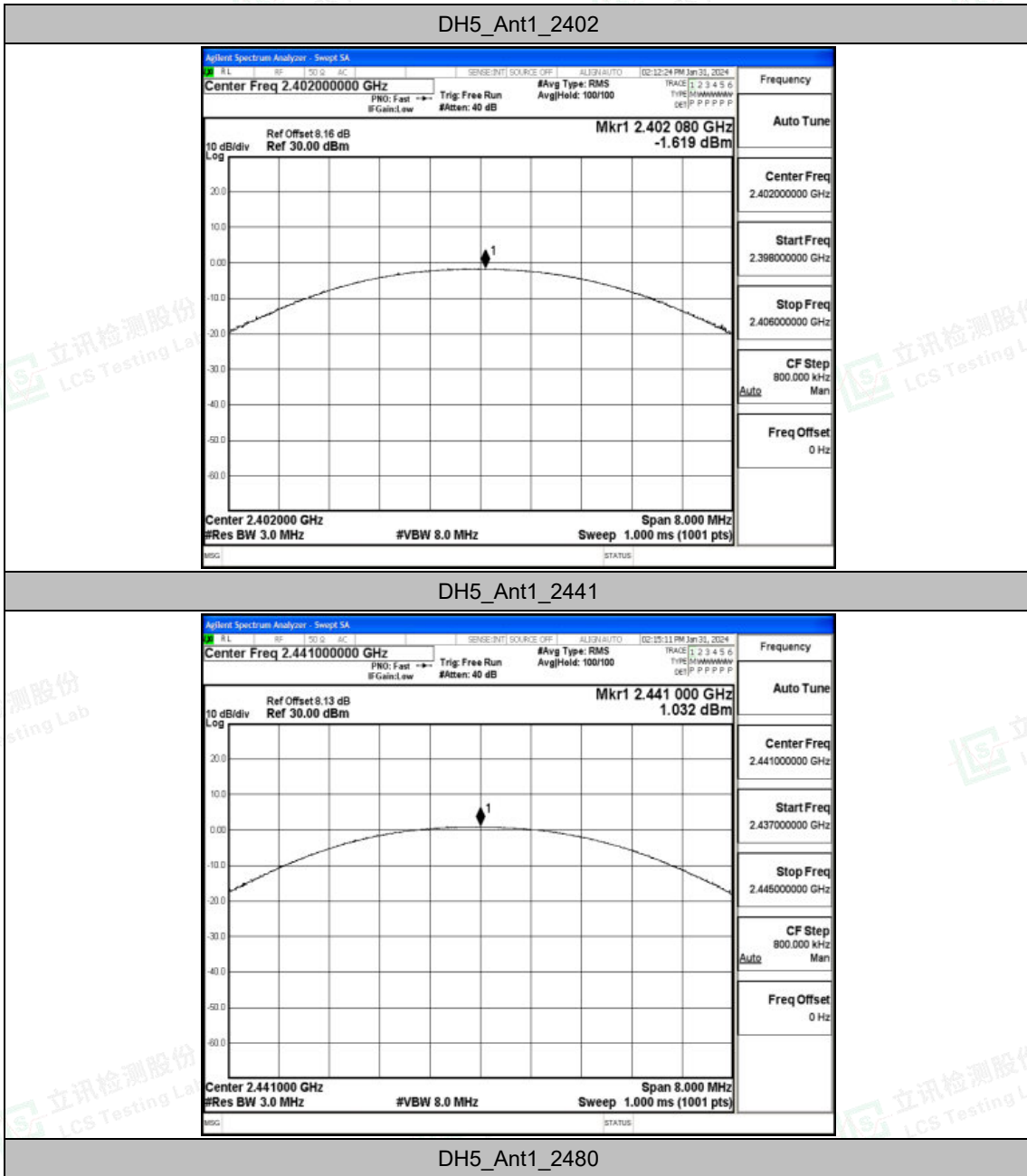
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	-1.62	≤21	PASS
		2441	1.03	≤21	PASS
		2480	0.29	≤21	PASS
2DH5	Ant1	2402	0.22	≤21	PASS
		2441	2.73	≤21	PASS
		2480	1.63	≤21	PASS
3DH5	Ant1	2402	0.56	≤21	PASS
		2441	3.00	≤21	PASS
		2480	1.87	≤21	PASS

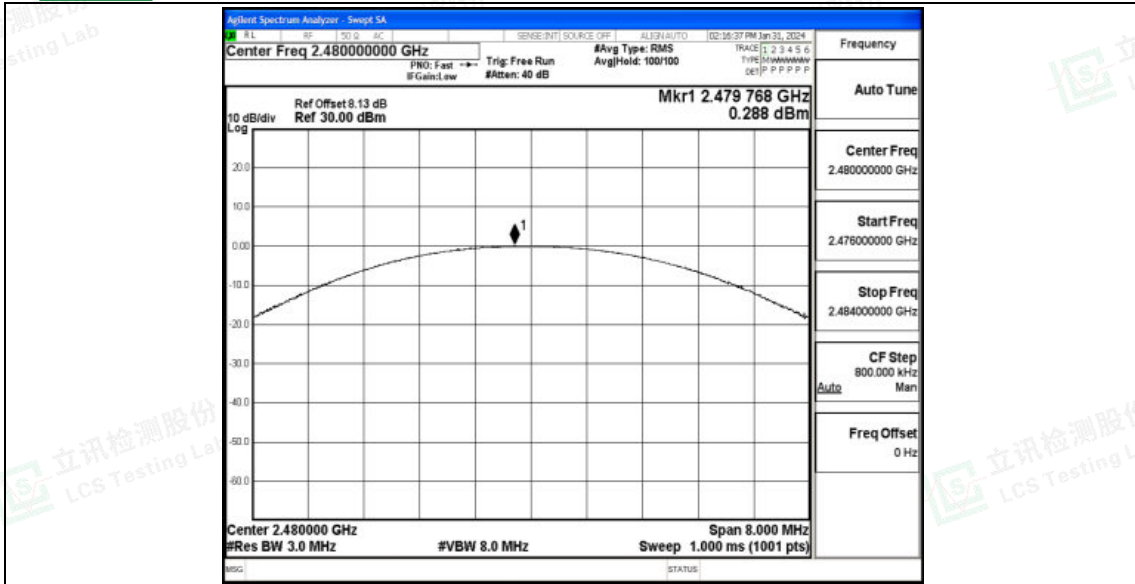




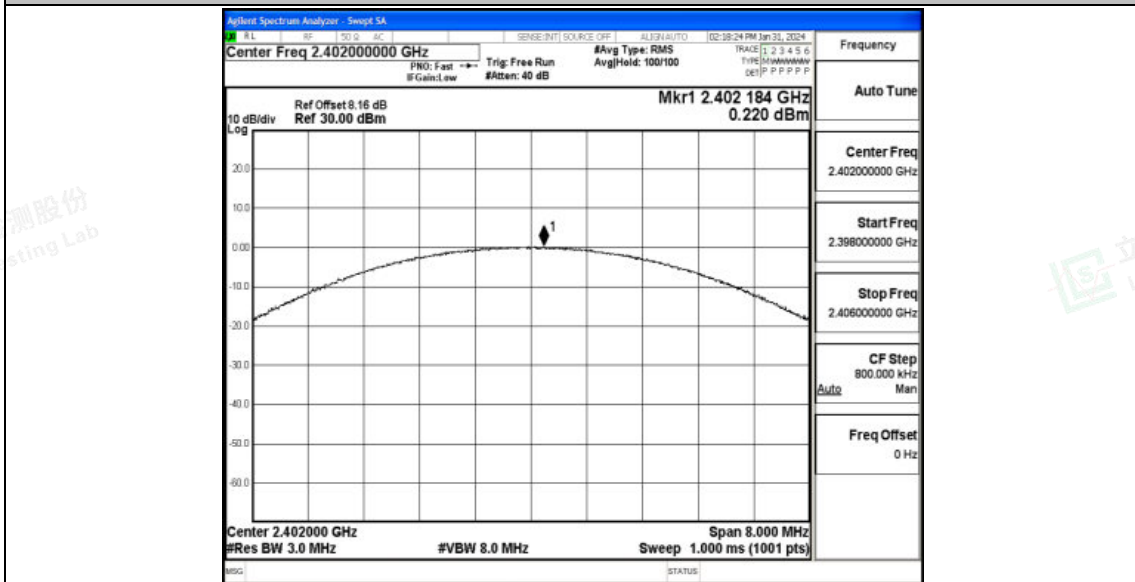


### Test Graphs



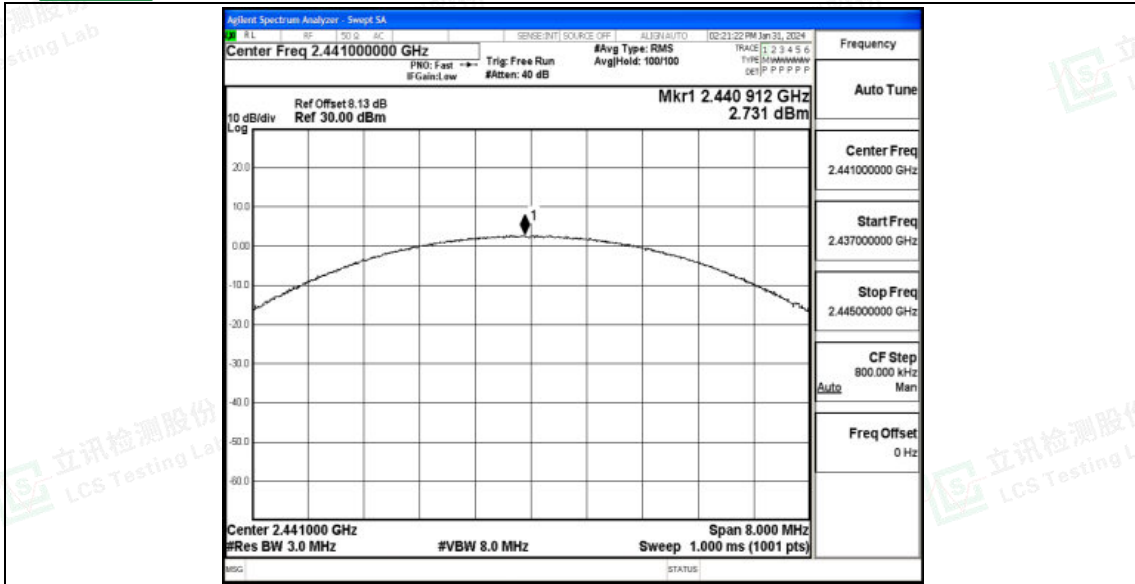


2DH5\_Ant1\_2402

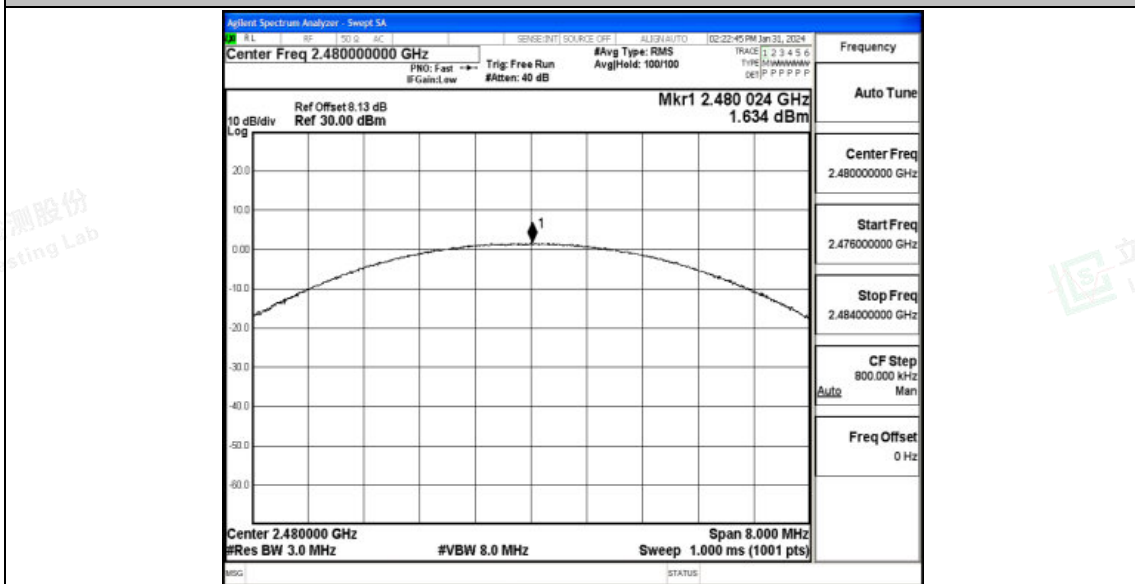


2DH5\_Ant1\_2441



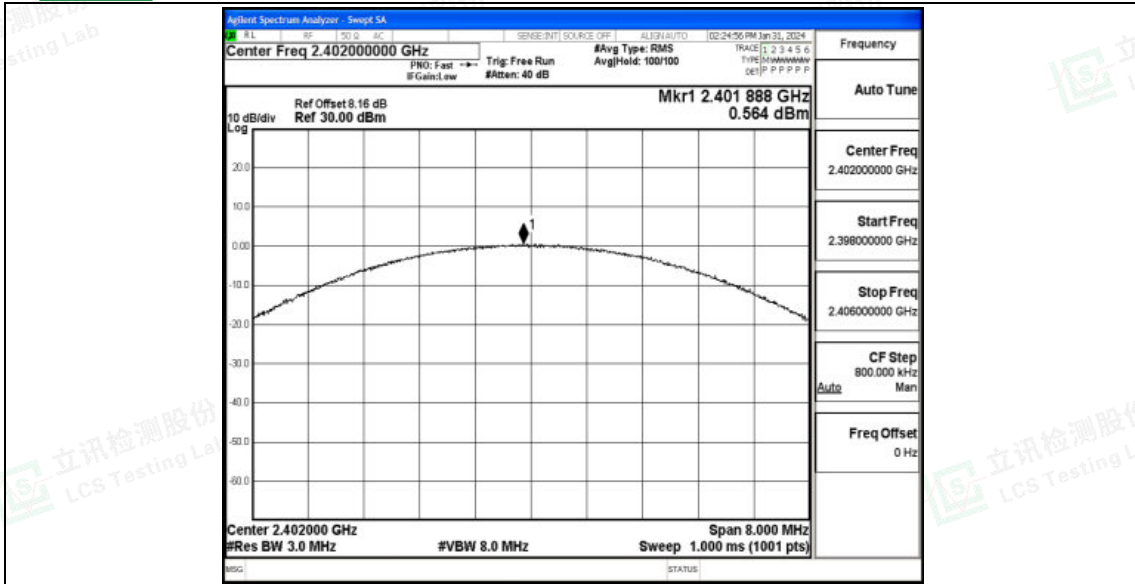


2DH5\_Ant1\_2480

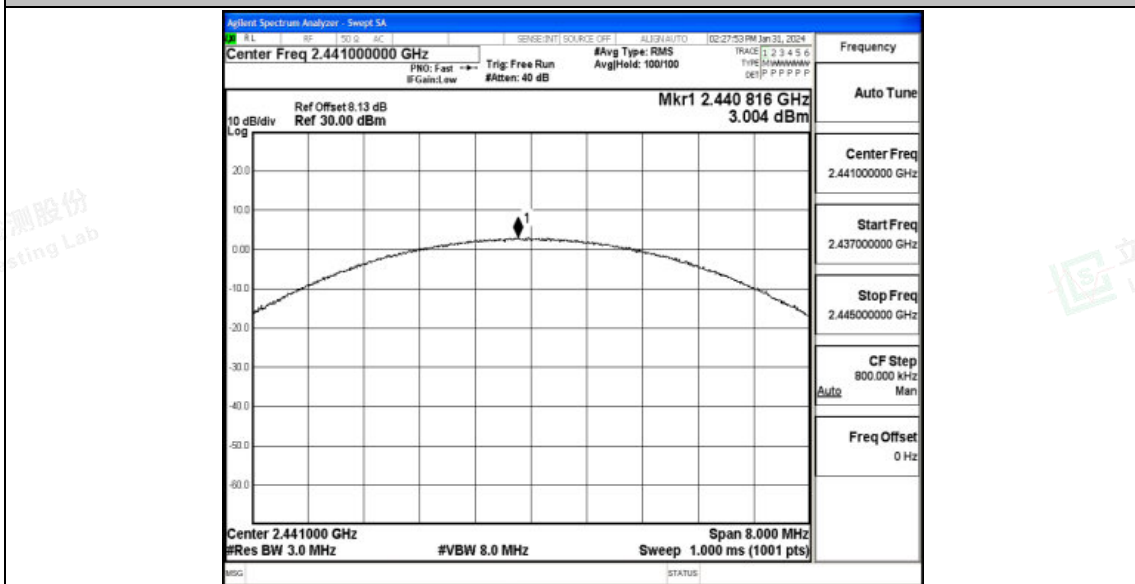


3DH5\_Ant1\_2402



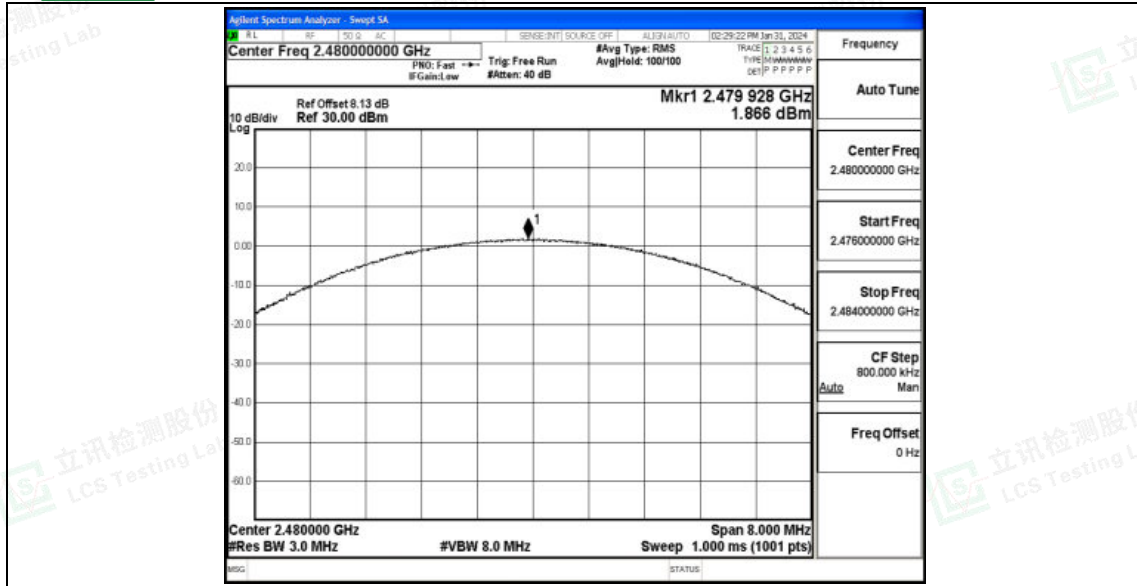


3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







### A.3 Carrier frequency separation

#### Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.784	≥0.690	PASS
2DH5	Ant1	Hop	1.03	≥0.880	PASS
3DH5	Ant1	Hop	1.246	≥0.872	PASS

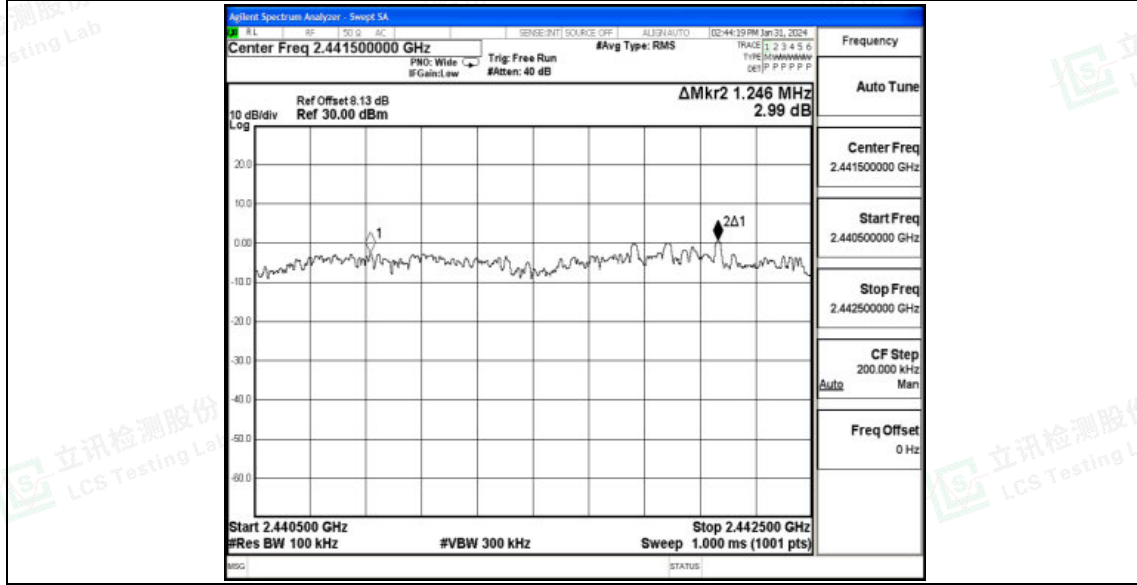






### Test Graphs







### A.4 Time of occupancy

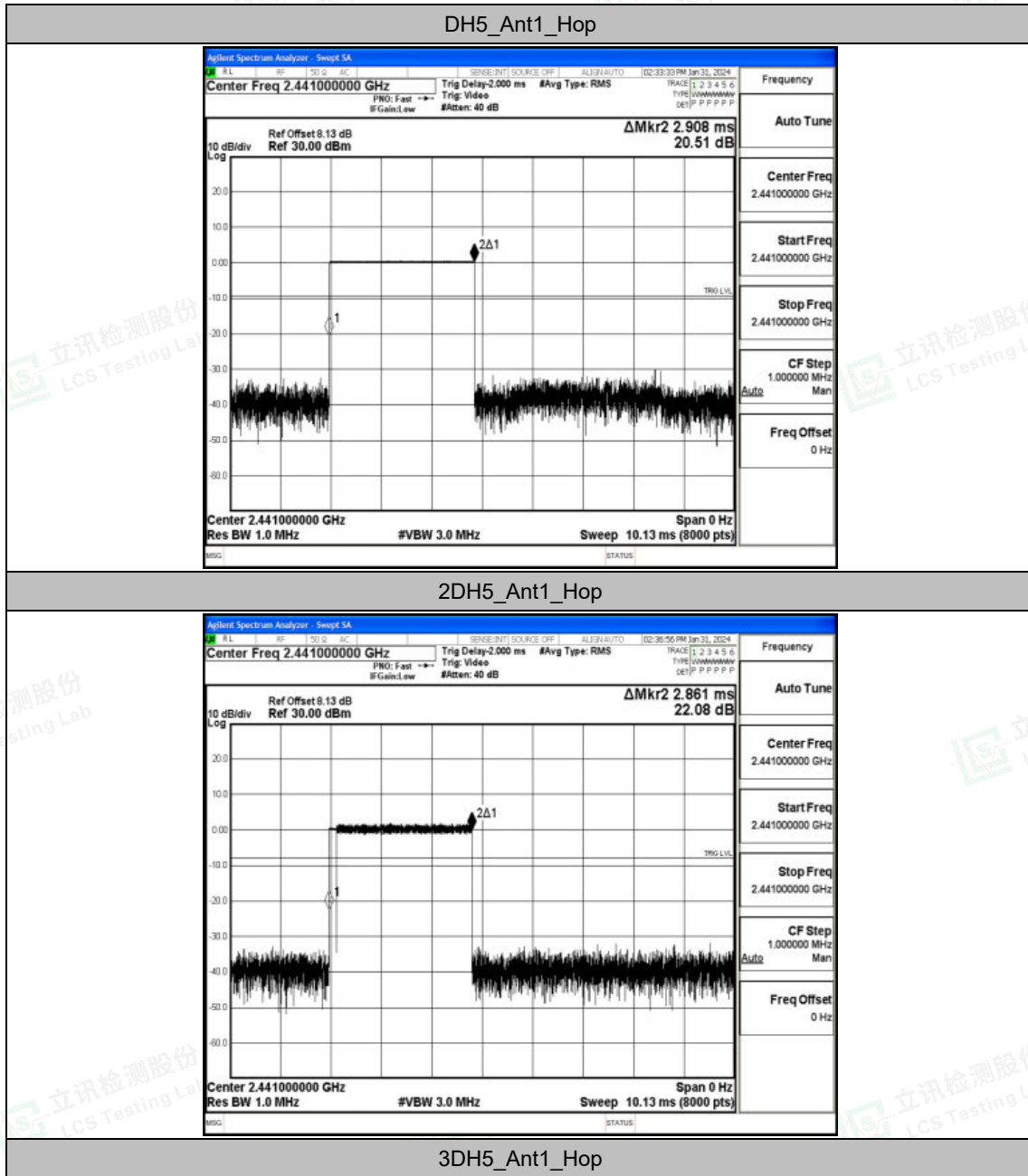
#### Test Result

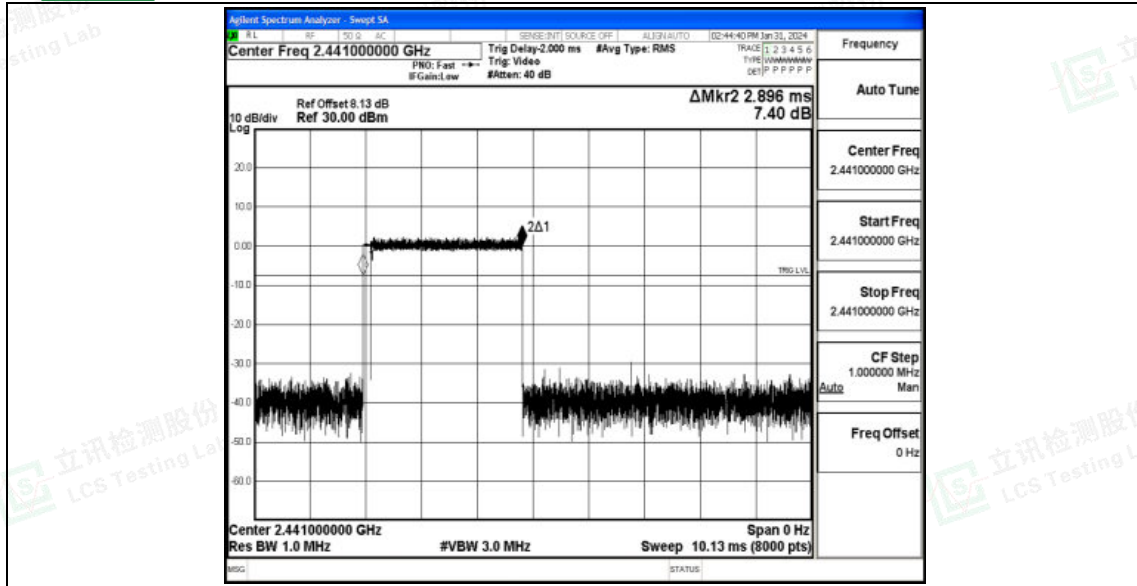
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.908	106.67	0.31	≤0.4	PASS
2DH5	Ant1	Hop	2.861	106.67	0.305	≤0.4	PASS
3DH5	Ant1	Hop	2.896	106.67	0.309	≤0.4	PASS





### Test Graphs







## A.5 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

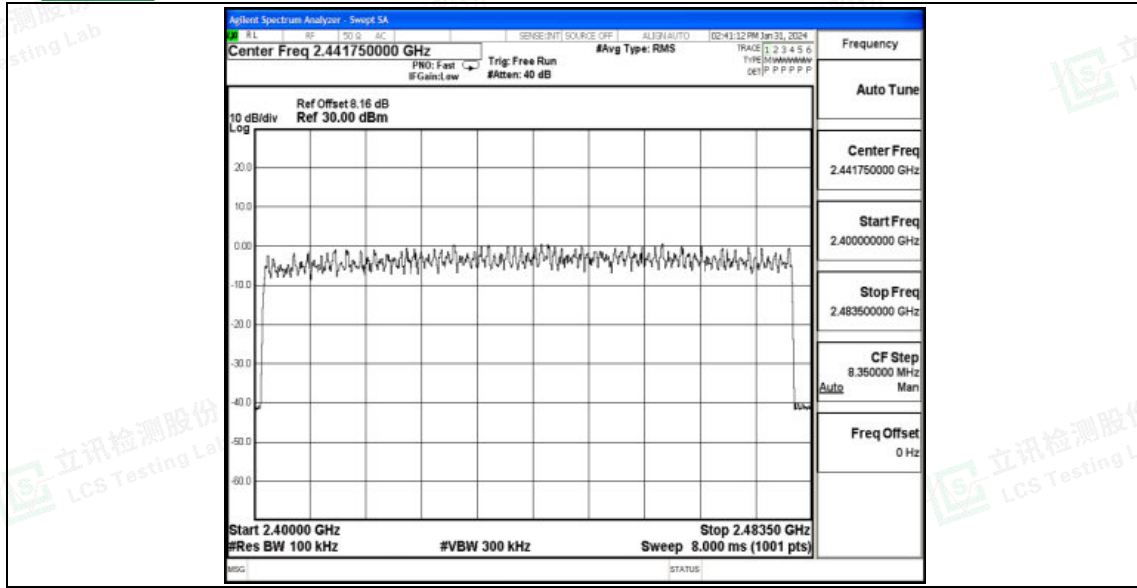






### Test Graphs







## A.6 Band edge measurements

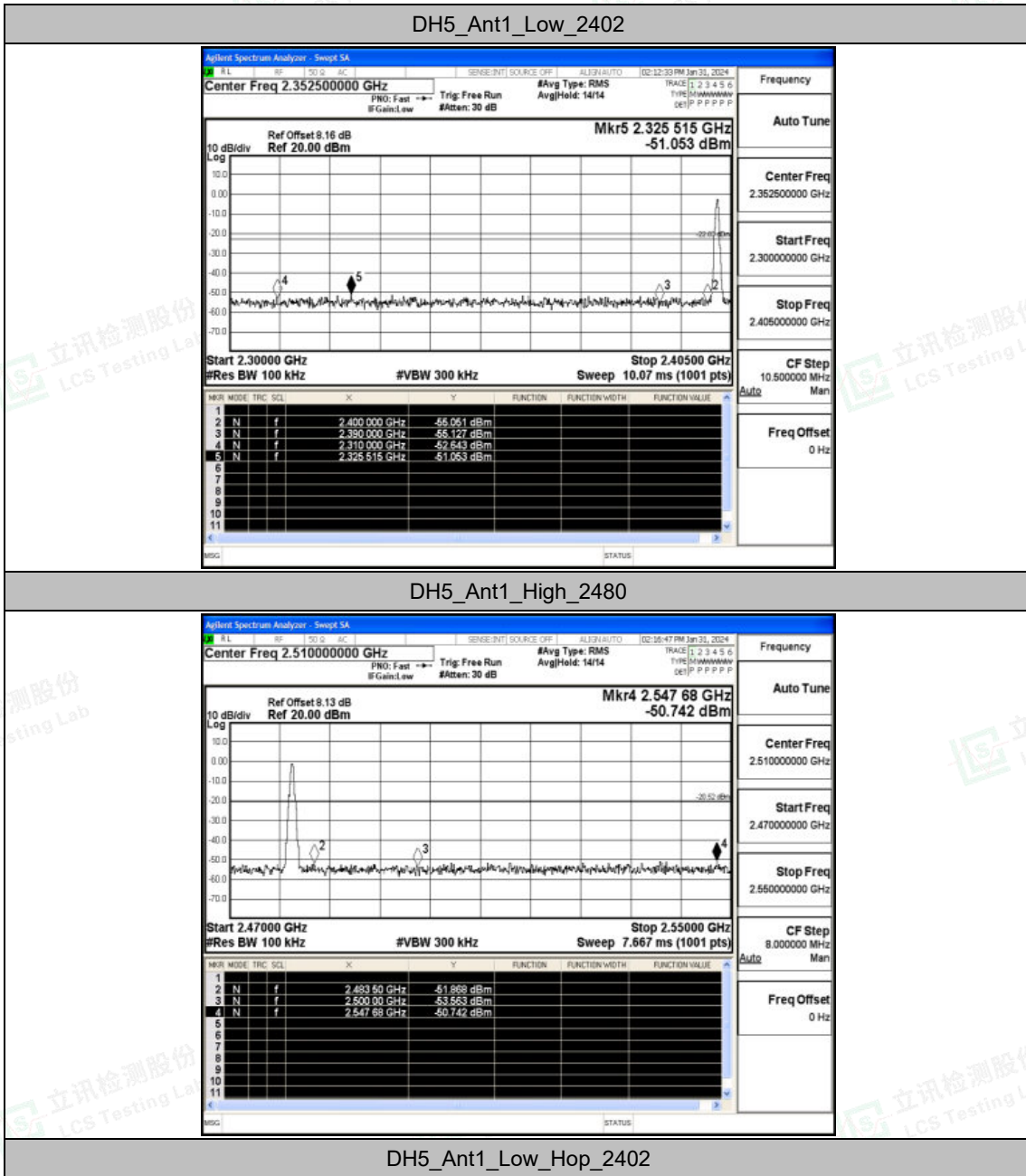
### Test Result

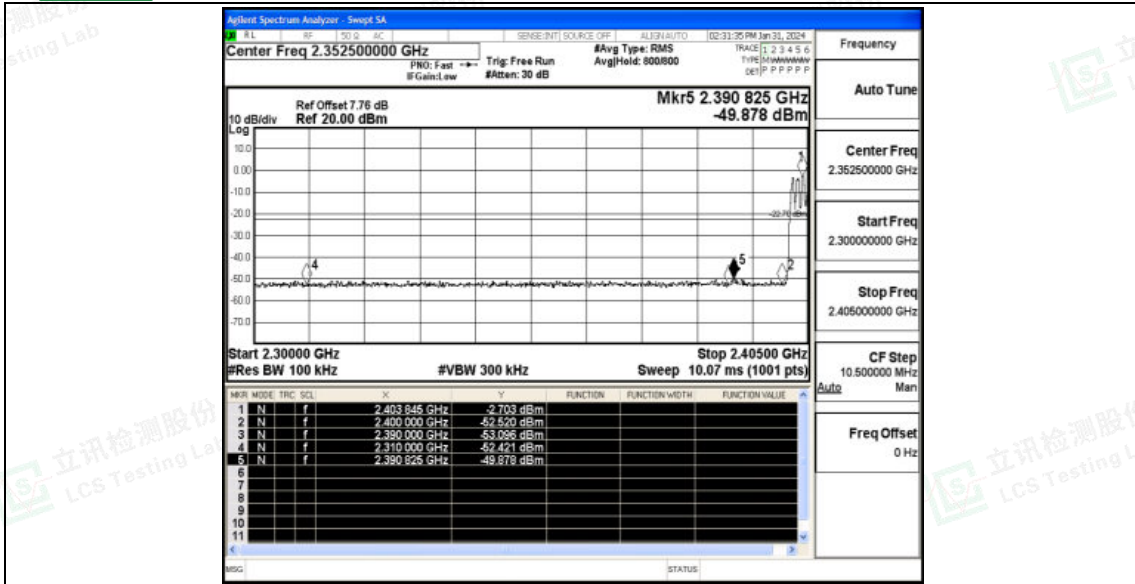
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-2.83	-51.05	≤-22.83	PASS
		High	2480	-0.52	-50.74	≤-20.52	PASS
		Low	Hop_2402	-2.70	-49.88	≤-22.7	PASS
		High	Hop_2480	-0.69	-49.18	≤-20.69	PASS
2DH5	Ant1	Low	2402	-2.24	-50.31	≤-22.24	PASS
		High	2480	-0.77	-51.4	≤-20.77	PASS
		Low	Hop_2402	-2.50	-50.16	≤-22.5	PASS
		High	Hop_2480	-0.95	-49.59	≤-20.95	PASS
3DH5	Ant1	Low	2402	-2.16	-51.38	≤-22.16	PASS
		High	2480	-0.61	-51.24	≤-20.61	PASS
		Low	Hop_2402	-5.53	-50.17	≤-25.53	PASS
		High	Hop_2480	-0.73	-49.41	≤-20.73	PASS



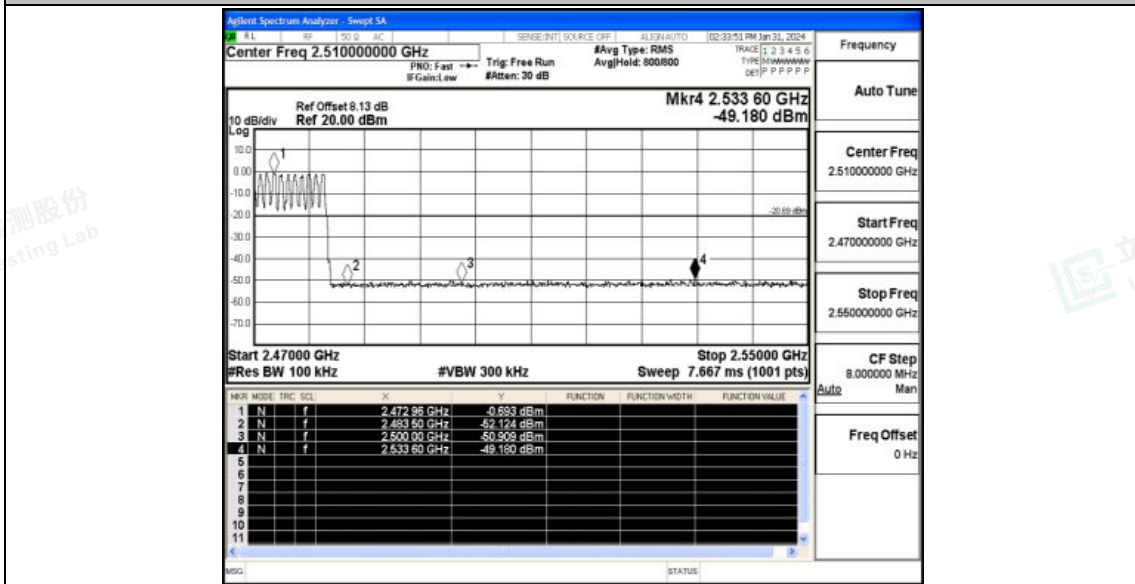


### Test Graphs





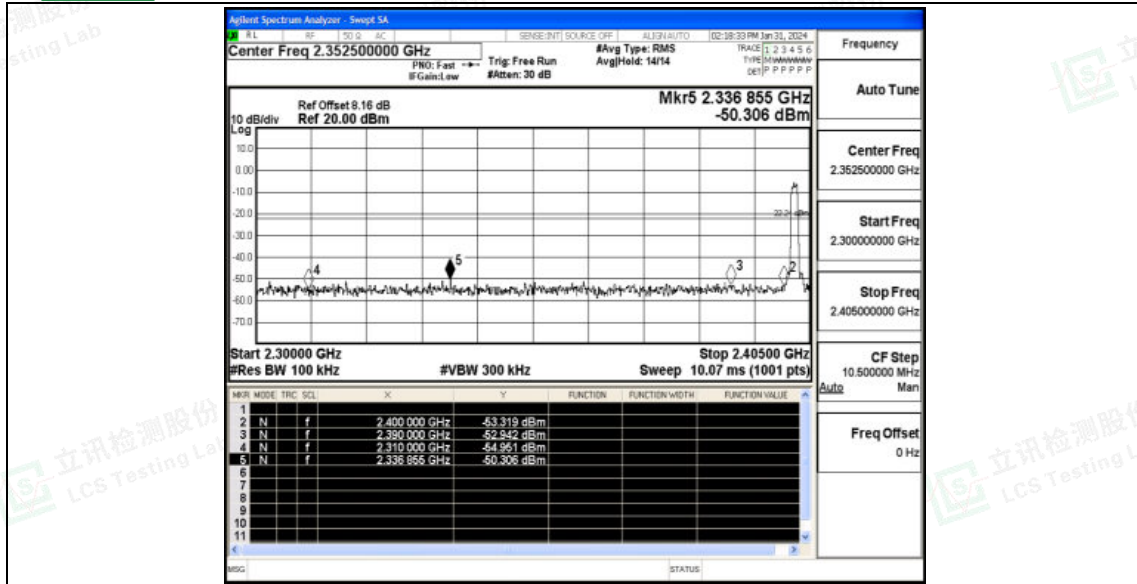
DH5\_Ant1\_High\_Hop\_2480



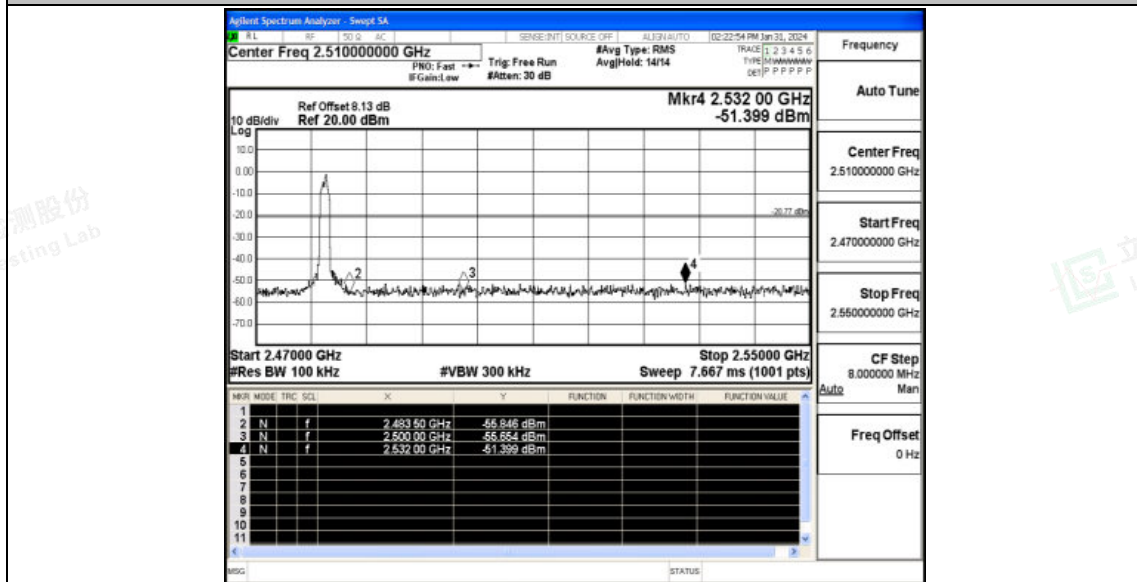
2DH5\_Ant1\_Low\_2402







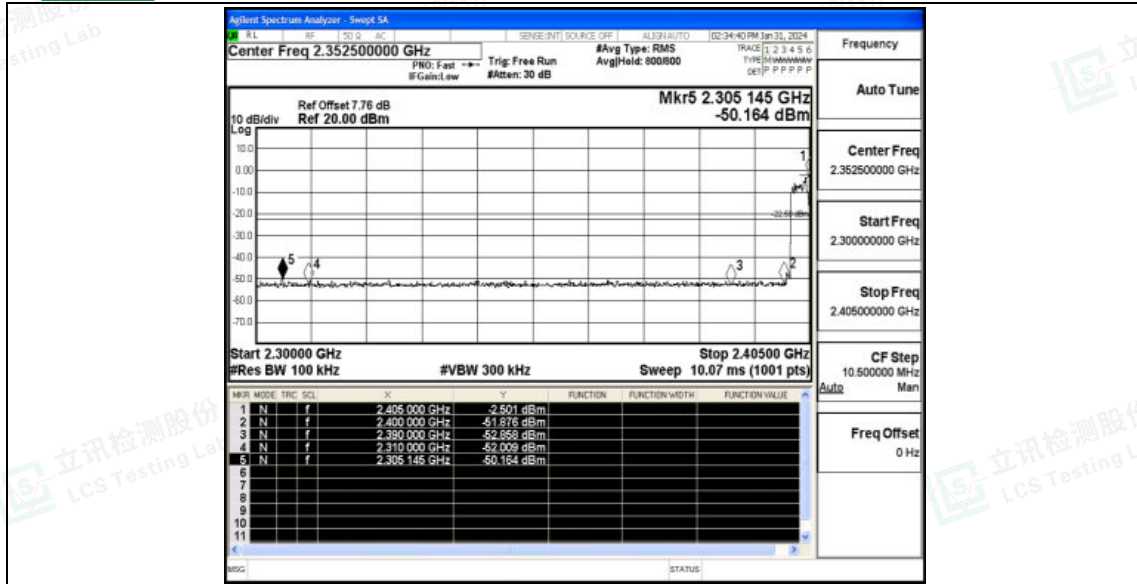
2DH5\_Ant1\_High\_2480



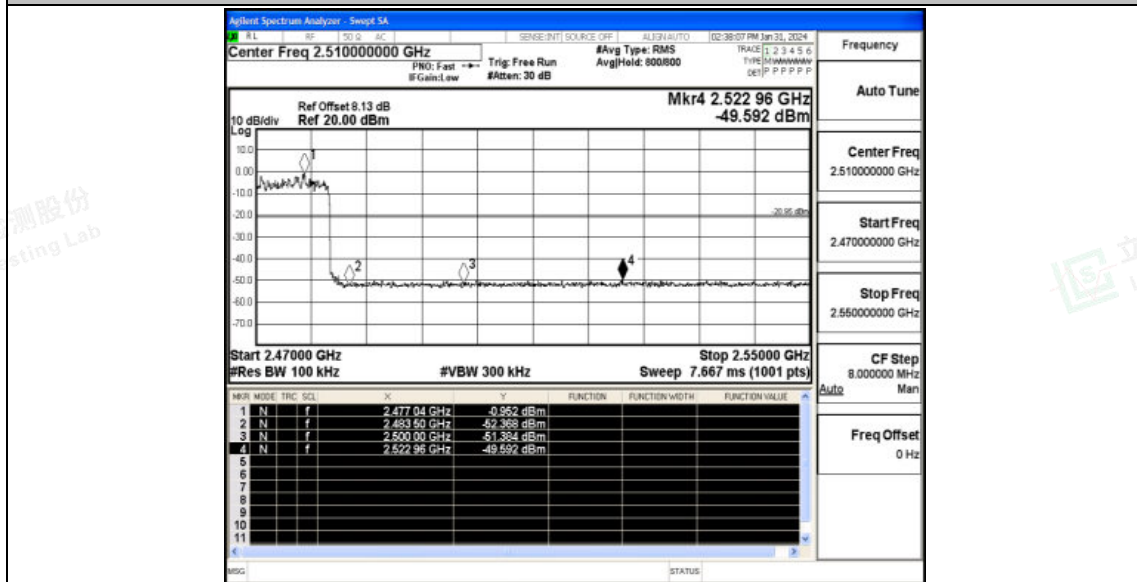
2DH5\_Ant1\_Low\_Hop\_2402





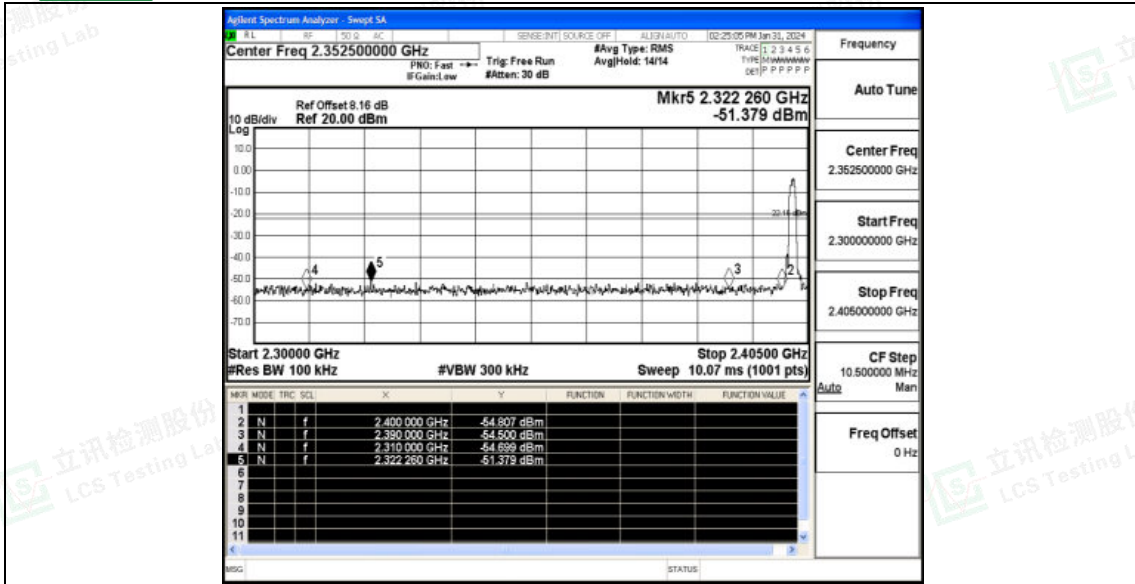


2DH5\_Ant1\_High\_Hop\_2480

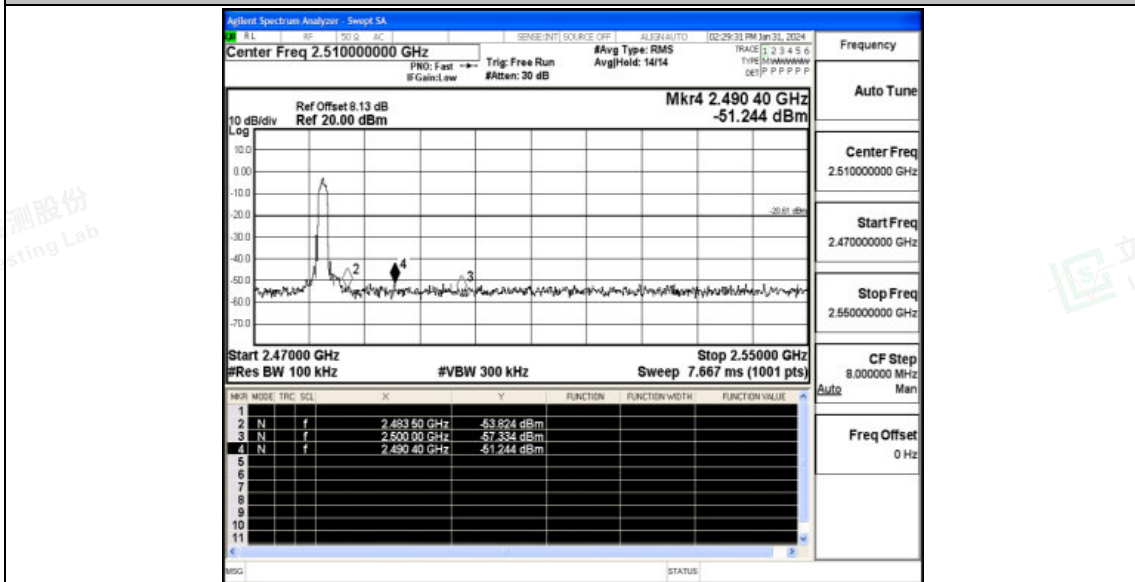


3DH5\_Ant1\_Low\_2402



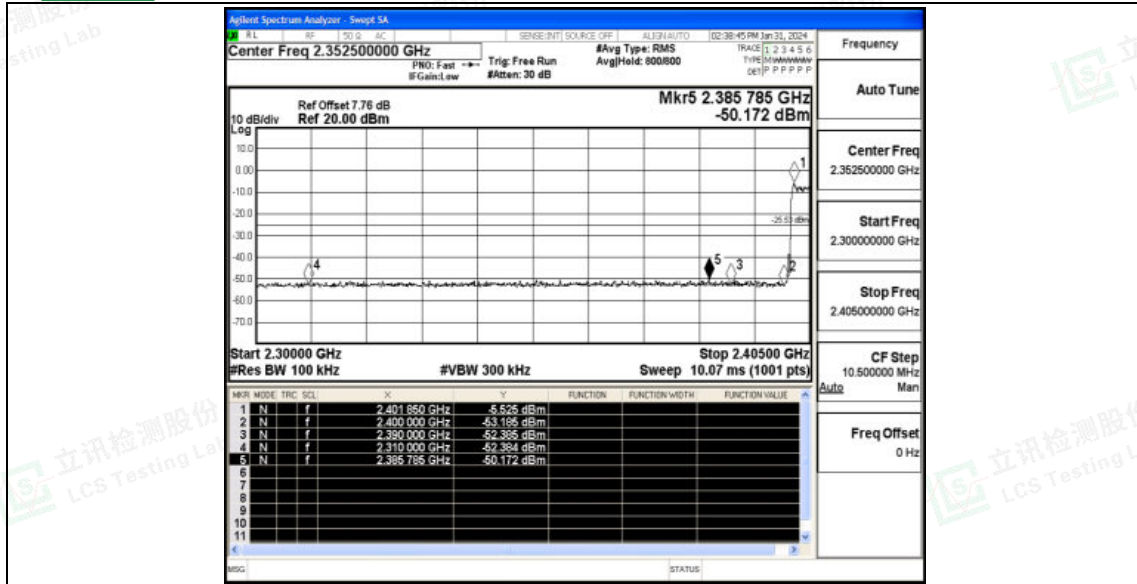


3DH5\_Ant1\_High\_2480

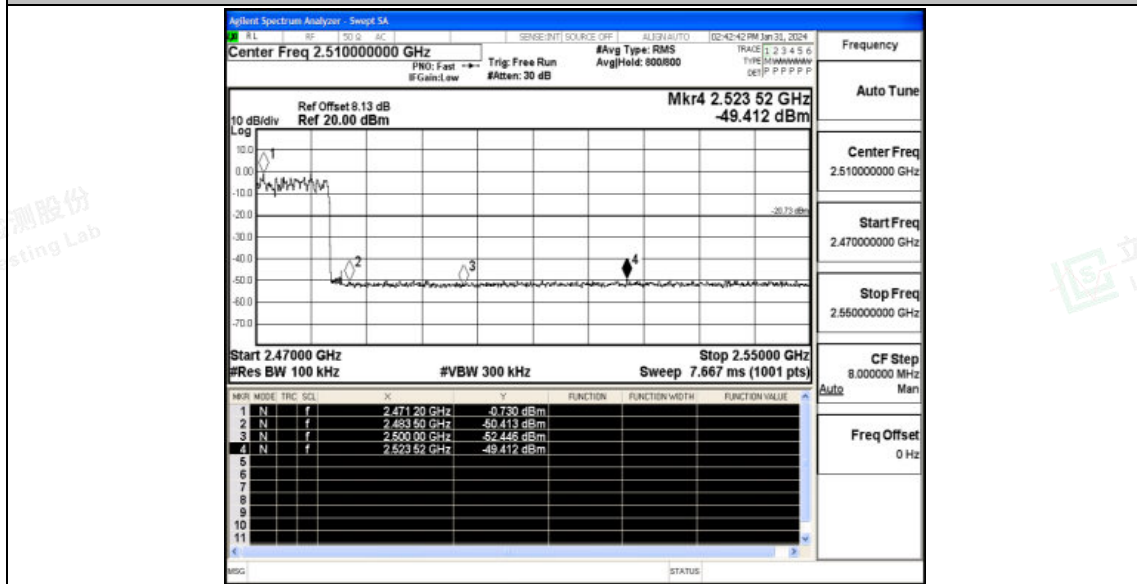


3DH5\_Ant1\_Low\_Hop\_2402





3DH5\_Ant1\_High\_Hop\_2480





## A.7 Conducted Spurious Emission

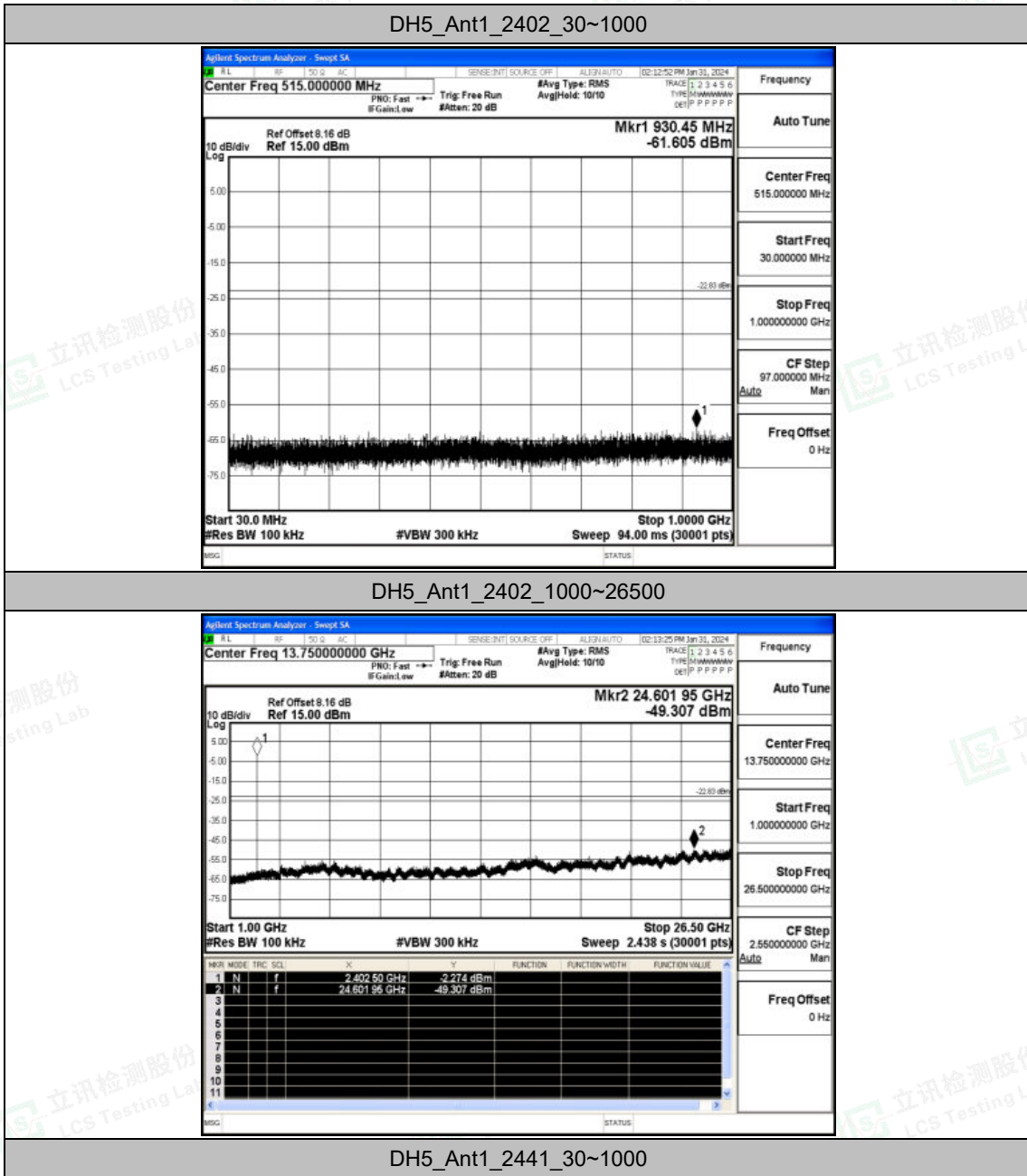
### Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	30~1000	-2.83	-61.61	≤-22.83	PASS
			1000~26500	-2.83	-49.31	≤-22.83	PASS
		2441	30~1000	0.43	-61.88	≤-19.57	PASS
			1000~26500	0.43	-48.74	≤-19.57	PASS
		2480	30~1000	-0.52	-61.41	≤-20.52	PASS
			1000~26500	-0.52	-48.75	≤-20.52	PASS
2DH5	Ant1	2402	30~1000	-2.24	-61.27	≤-22.24	PASS
			1000~26500	-2.24	-49.56	≤-22.24	PASS
		2441	30~1000	0.32	-61.73	≤-19.68	PASS
			1000~26500	0.32	-49.27	≤-19.68	PASS
		2480	30~1000	-0.77	-61.28	≤-20.77	PASS
			1000~26500	-0.77	-48.41	≤-20.77	PASS
3DH5	Ant1	2402	30~1000	-2.16	-61.07	≤-22.16	PASS
			1000~26500	-2.16	-49.26	≤-22.16	PASS
		2441	30~1000	0.24	-61.85	≤-19.76	PASS
			1000~26500	0.24	-49.25	≤-19.76	PASS
		2480	30~1000	-0.61	-62.1	≤-20.61	PASS
			1000~26500	-0.61	-48.77	≤-20.61	PASS

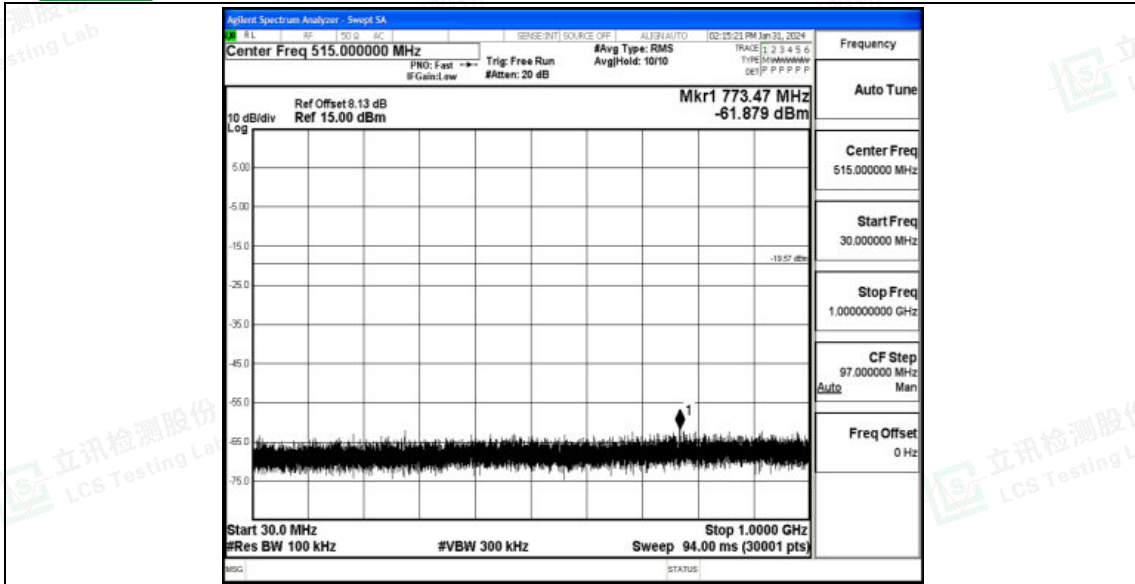




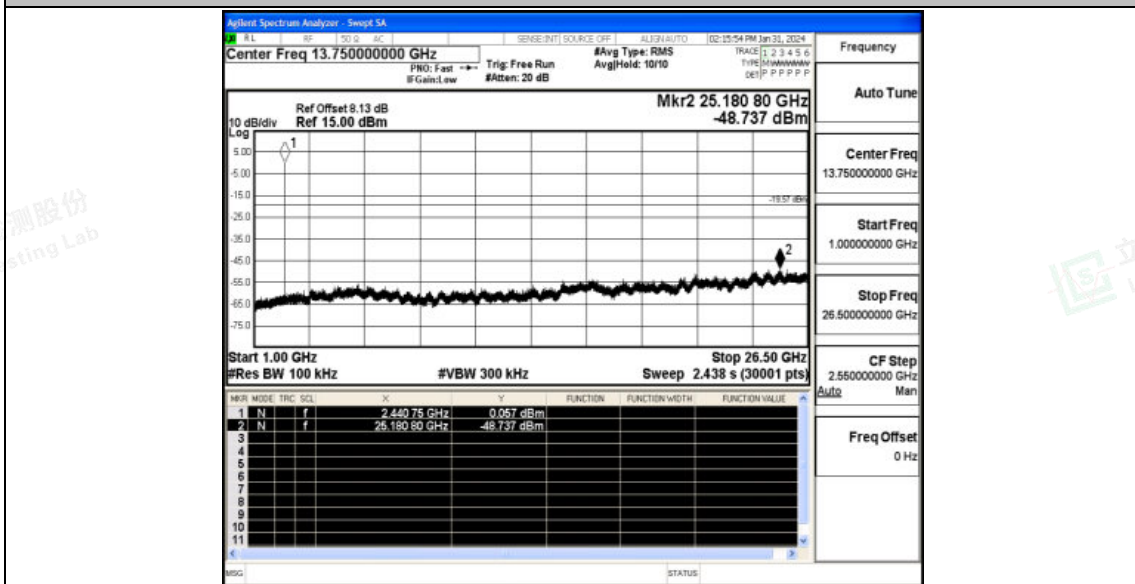
Test Graphs







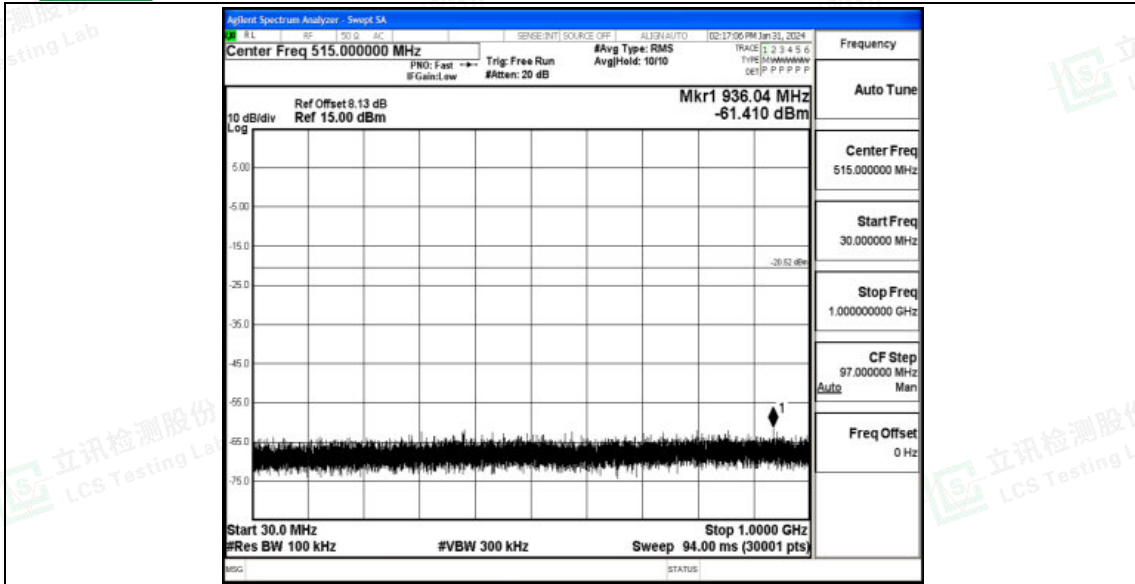
DH5\_Ant1\_2441\_1000~26500



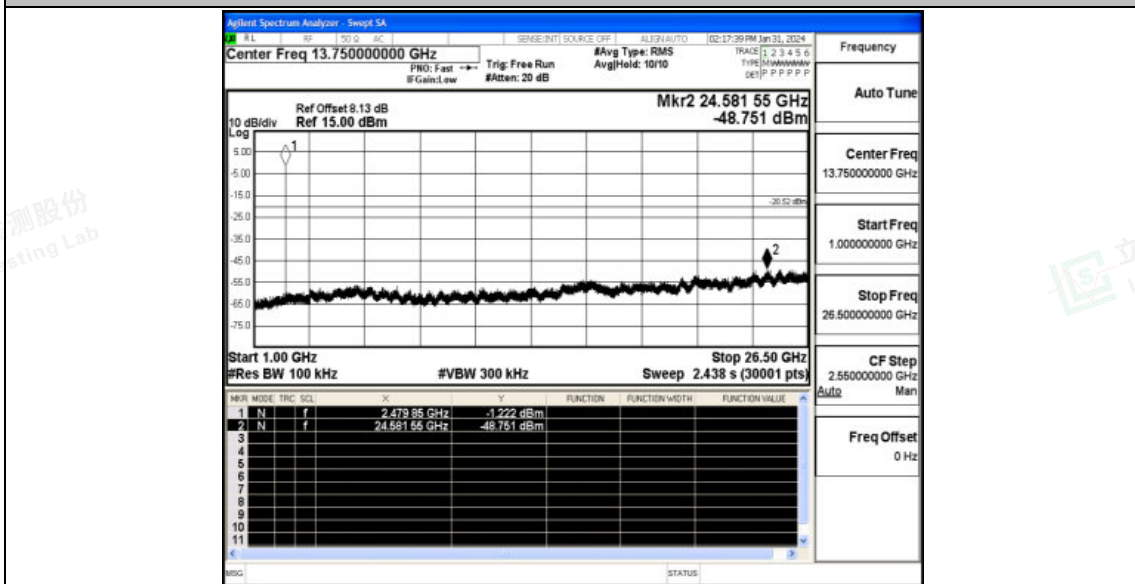
DH5\_Ant1\_2480\_30~1000





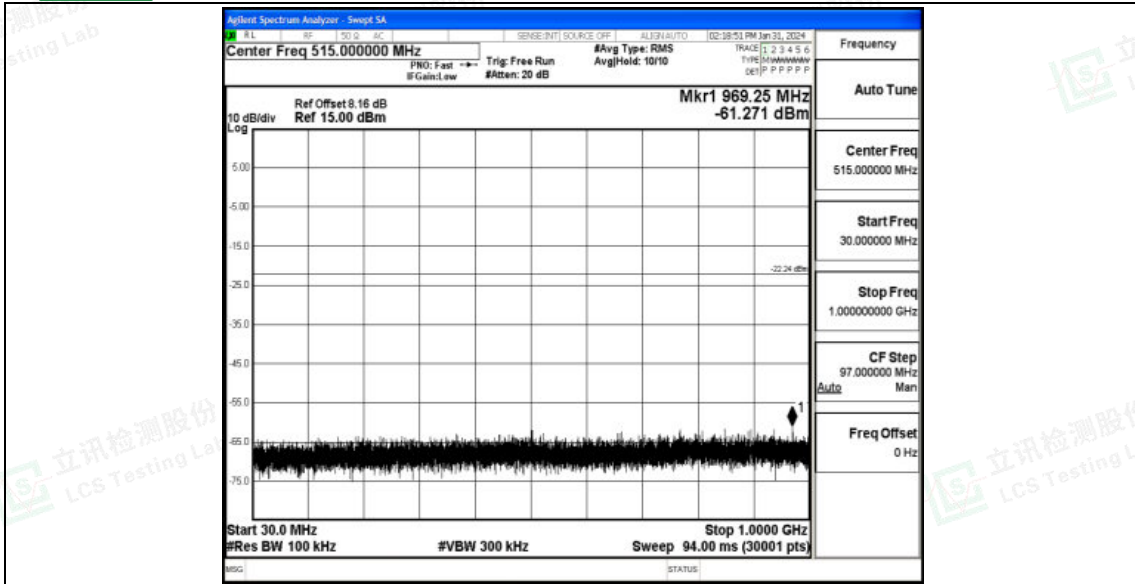


DH5\_Ant1\_2480\_1000~26500

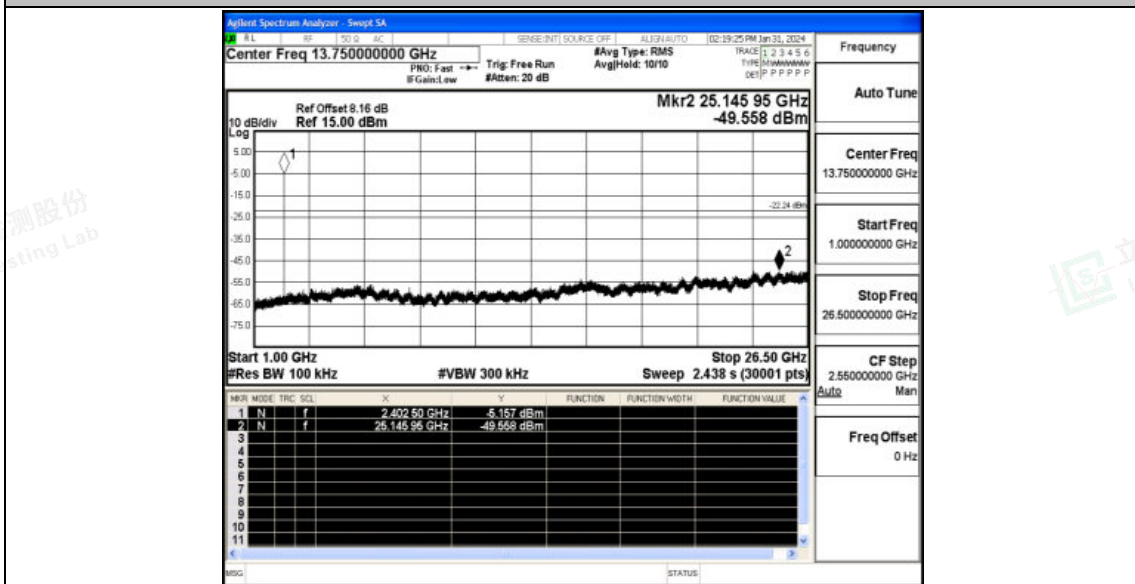


2DH5\_Ant1\_2402\_30~1000



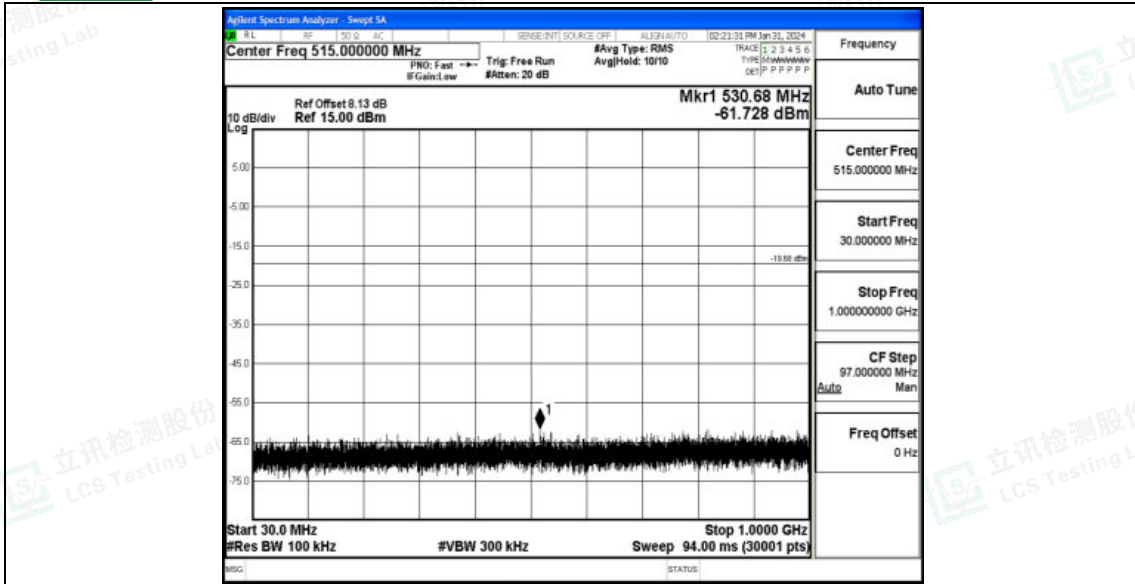


2DH5\_Ant1\_2402\_1000~26500

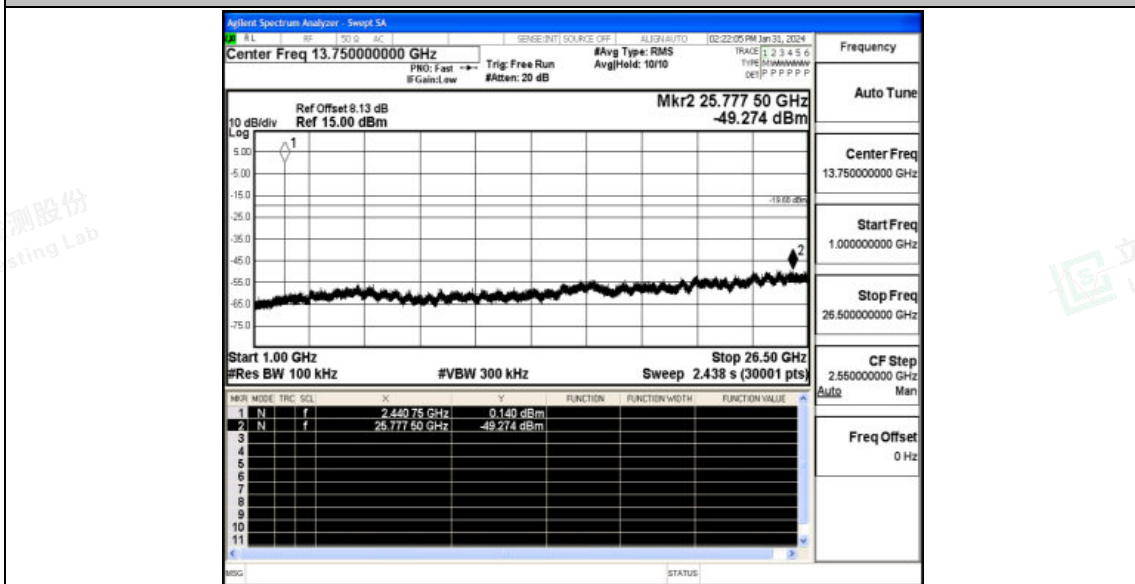


2DH5\_Ant1\_2441\_30~1000



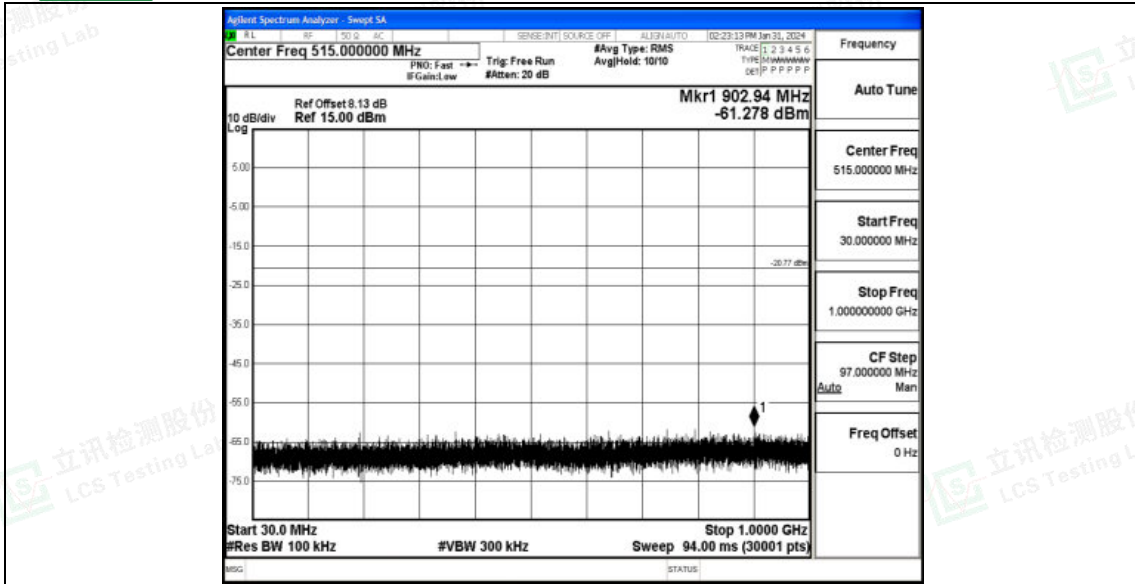


2DH5\_Ant1\_2441\_1000~26500

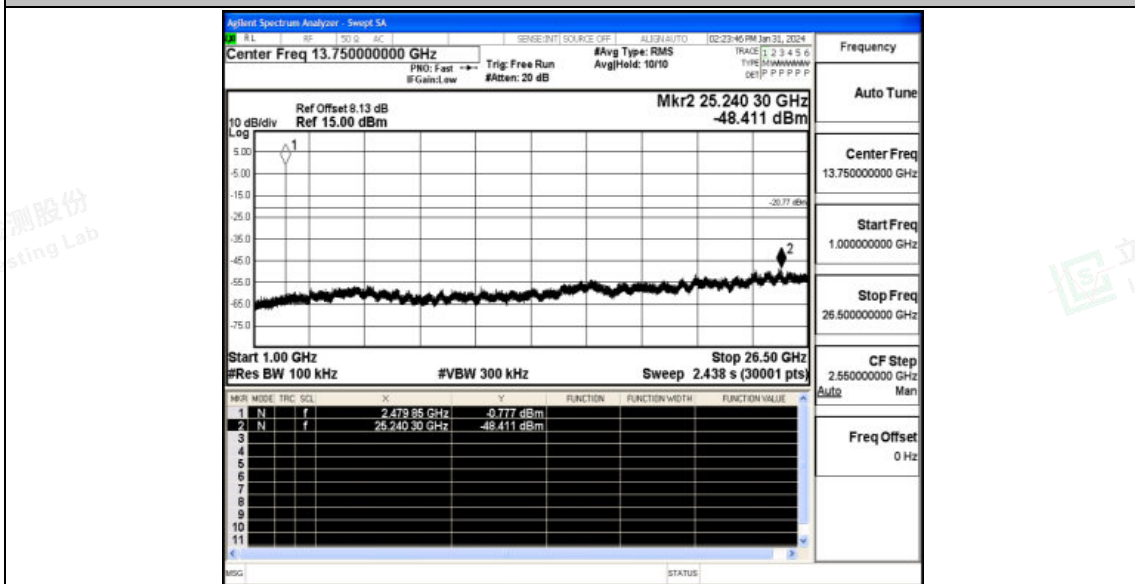


2DH5\_Ant1\_2480\_30~1000



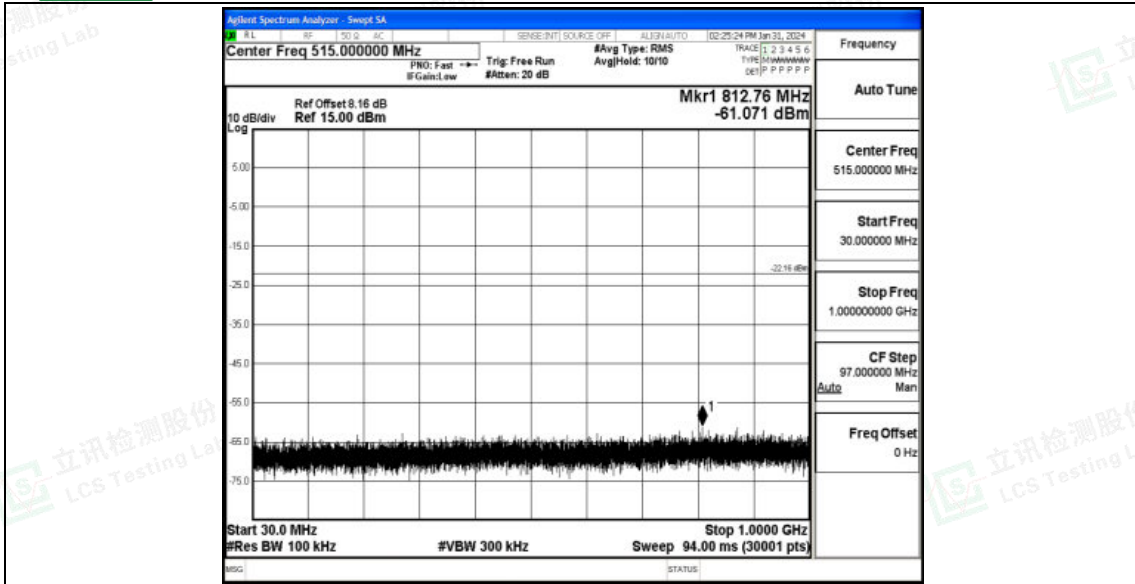


2DH5\_Ant1\_2480\_1000~26500

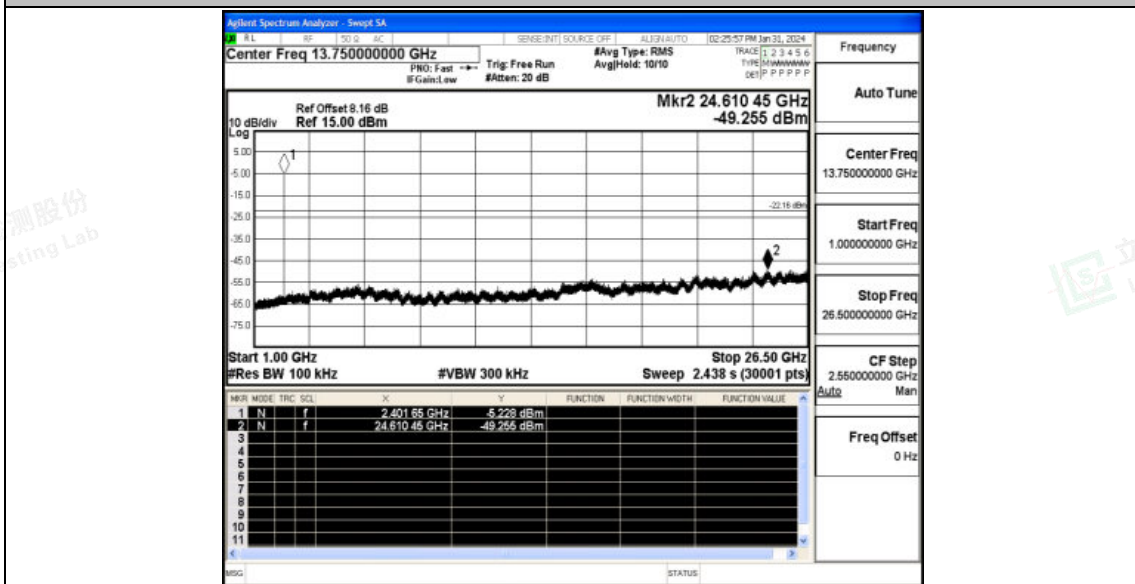


3DH5\_Ant1\_2402\_30~1000





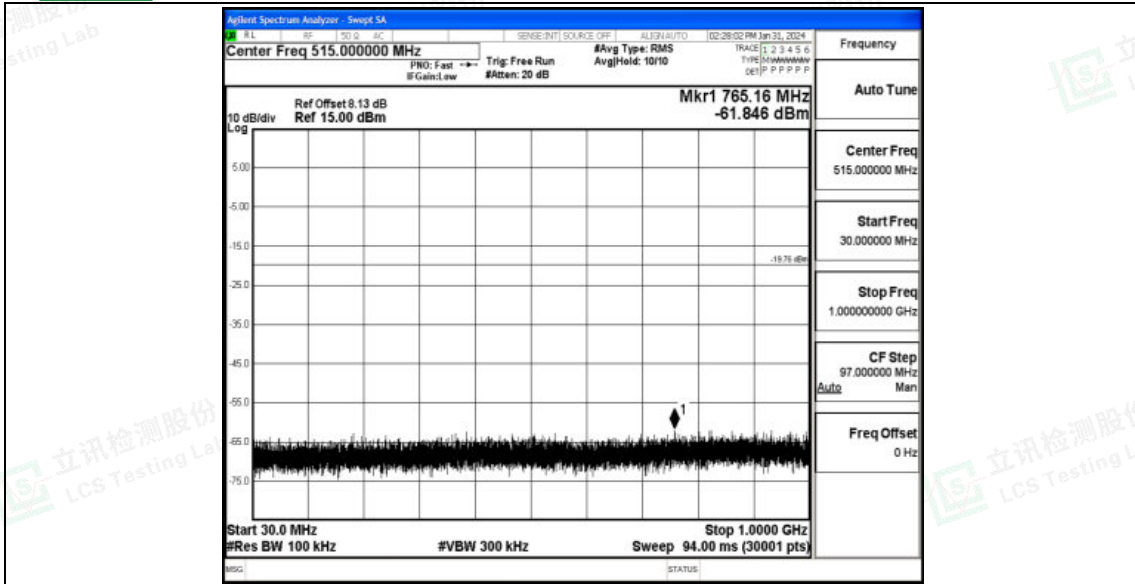
3DH5\_Ant1\_2402\_1000~26500



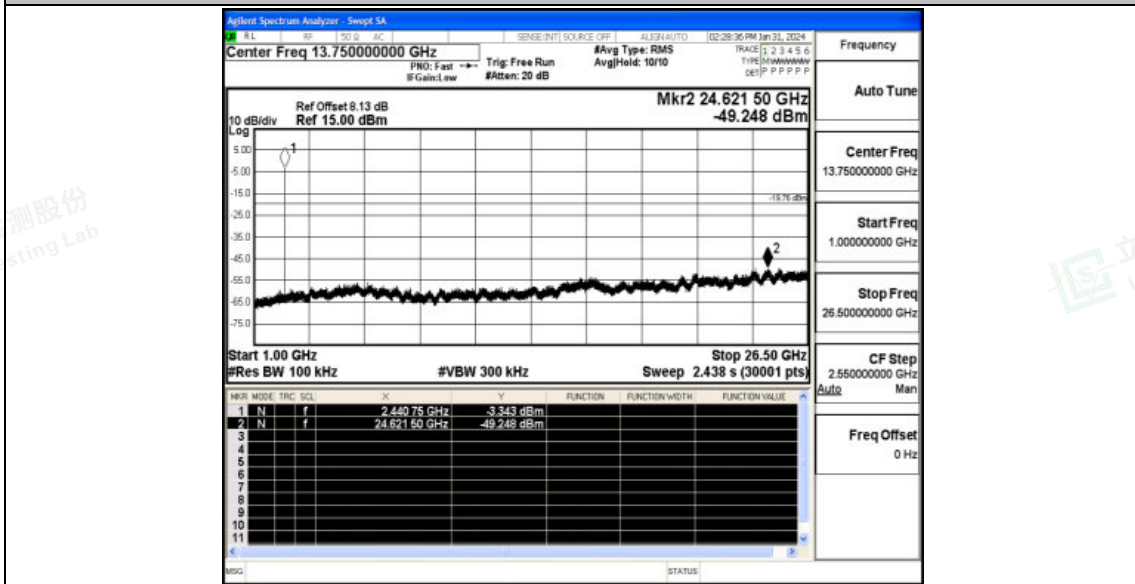
3DH5\_Ant1\_2441\_30~1000







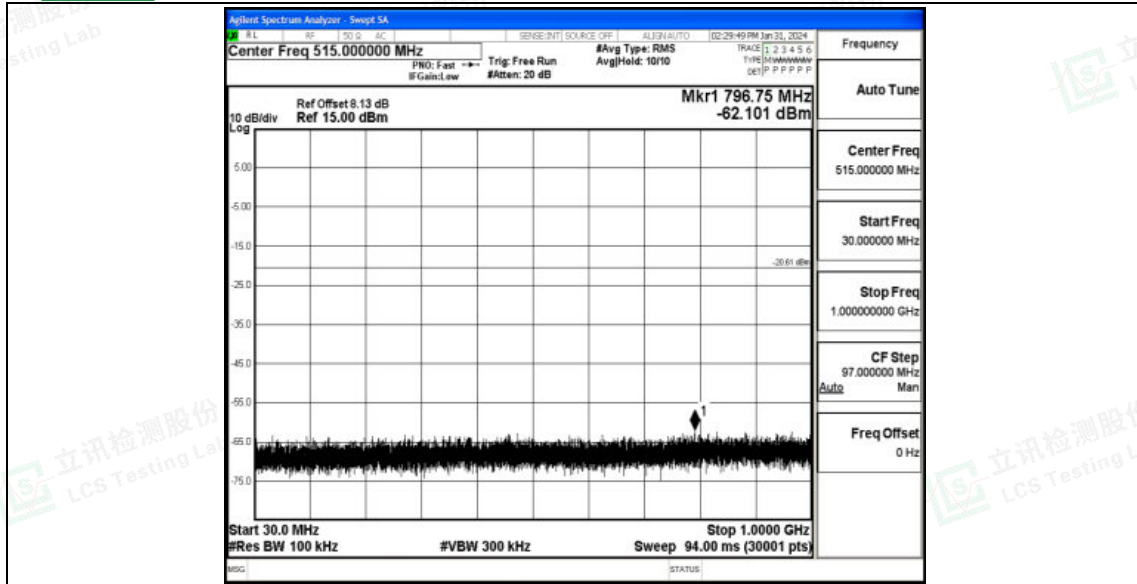
3DH5\_Ant1\_2441\_1000~26500



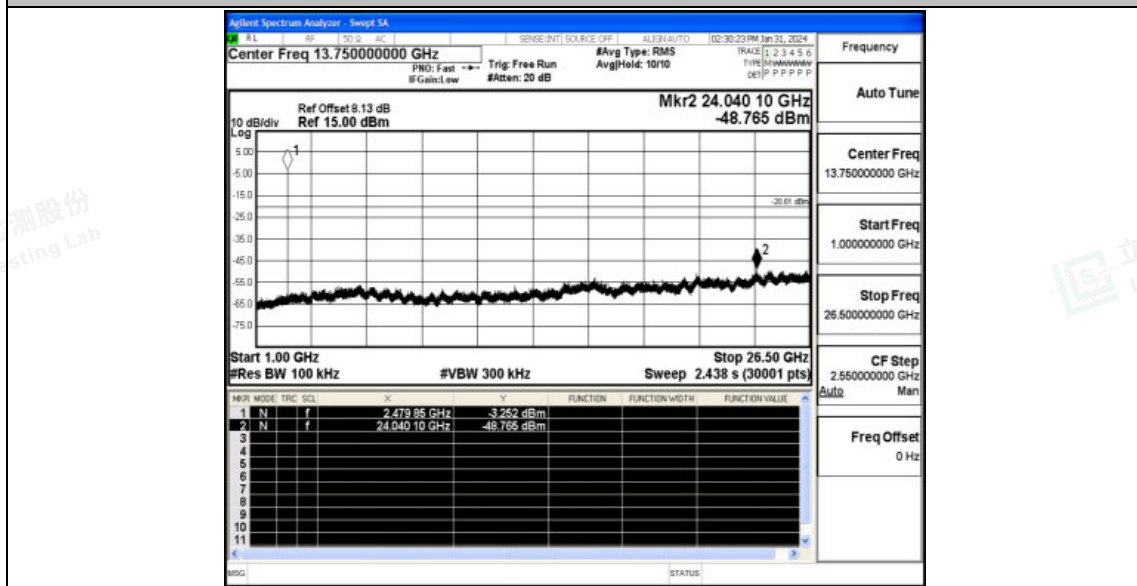
3DH5\_Ant1\_2480\_30~1000







3DH5\_Ant1\_2480\_1000~26500





### Reference Level

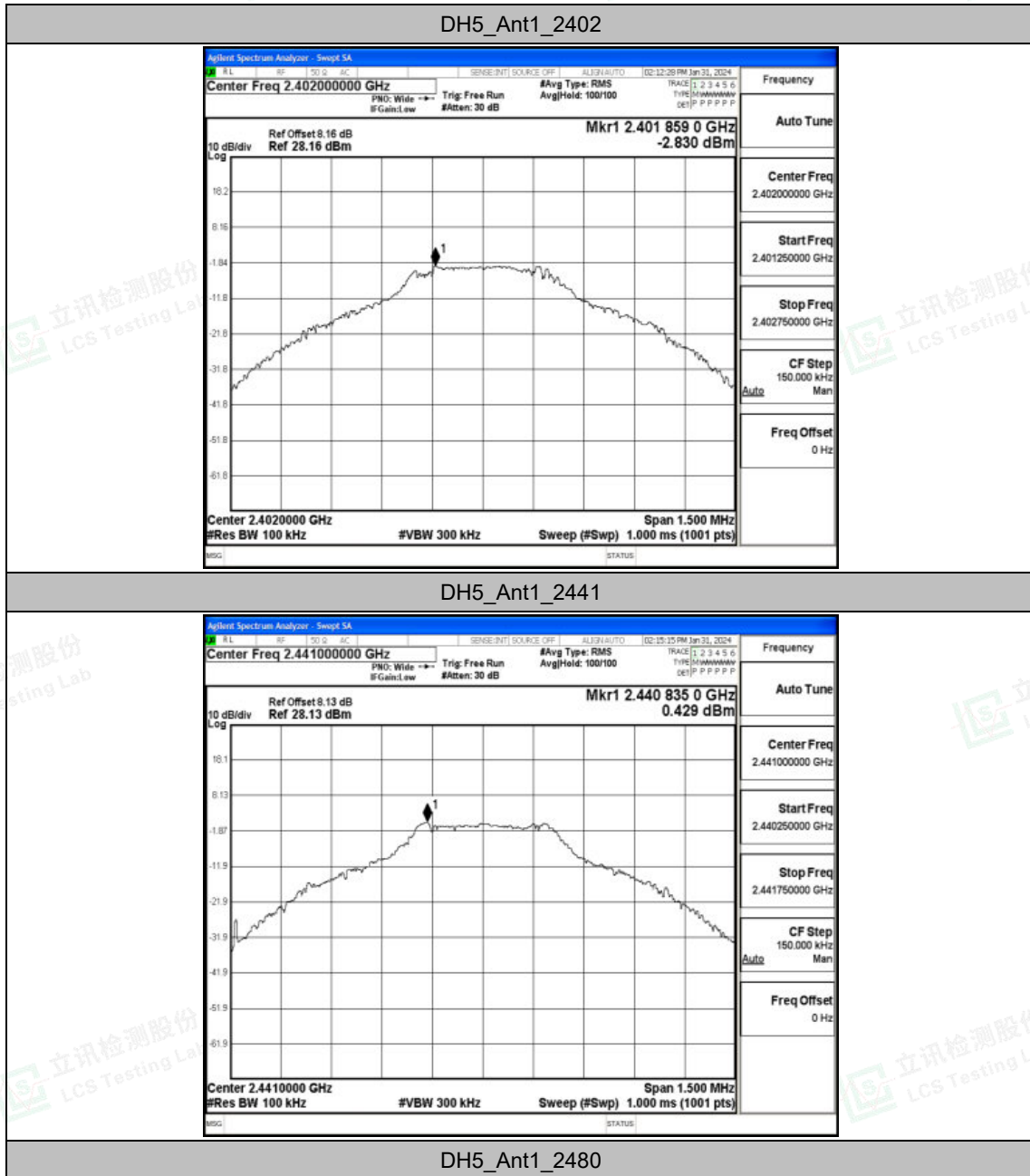
### Test Result

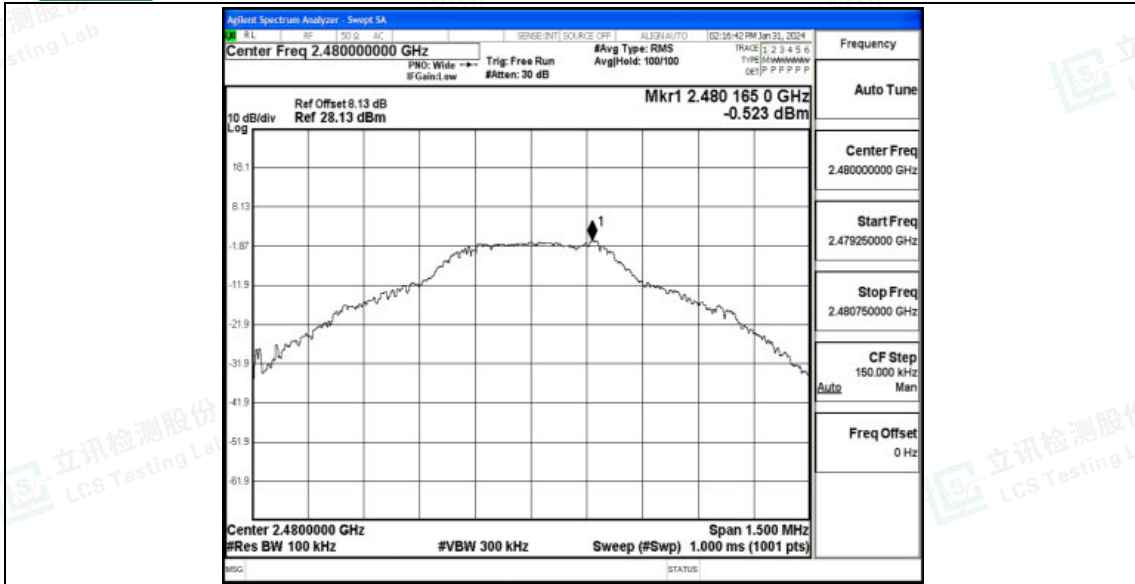
TestMode	Antenna	ChName	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	2401.86	-2.83	---	PASS
		2441	2440.84	0.43	---	PASS
		2480	2480.17	-0.52	---	PASS
2DH5	Ant1	2402	2402.17	-2.24	---	PASS
		2441	2441.00	0.32	---	PASS
		2480	2480.00	-0.77	---	PASS
3DH5	Ant1	2402	2401.84	-2.16	---	PASS
		2441	2441.01	0.24	---	PASS
		2480	2480.16	-0.61	---	PASS



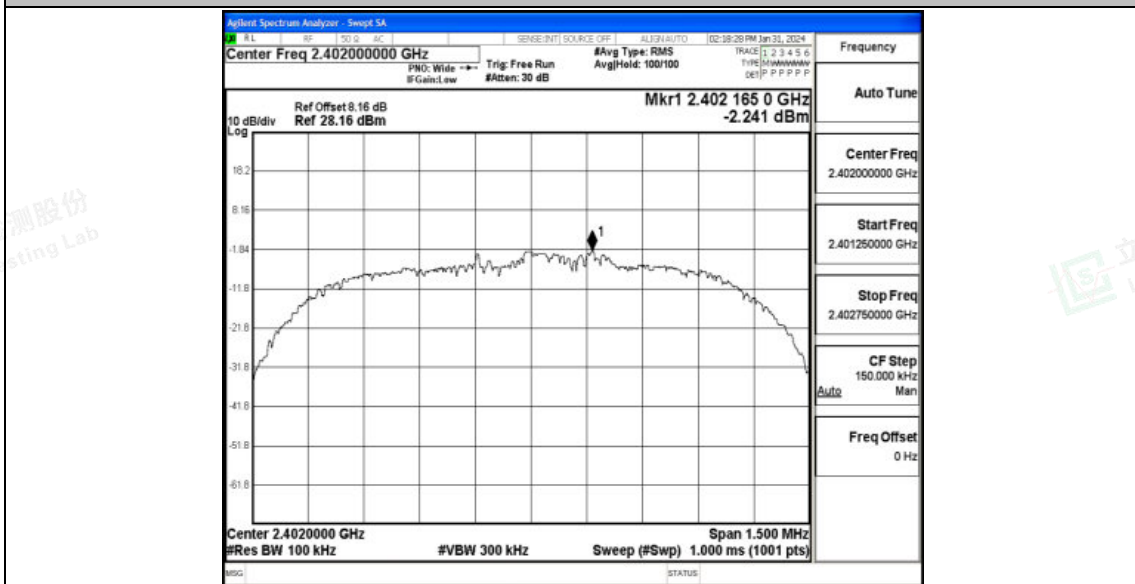


### Test Graphs



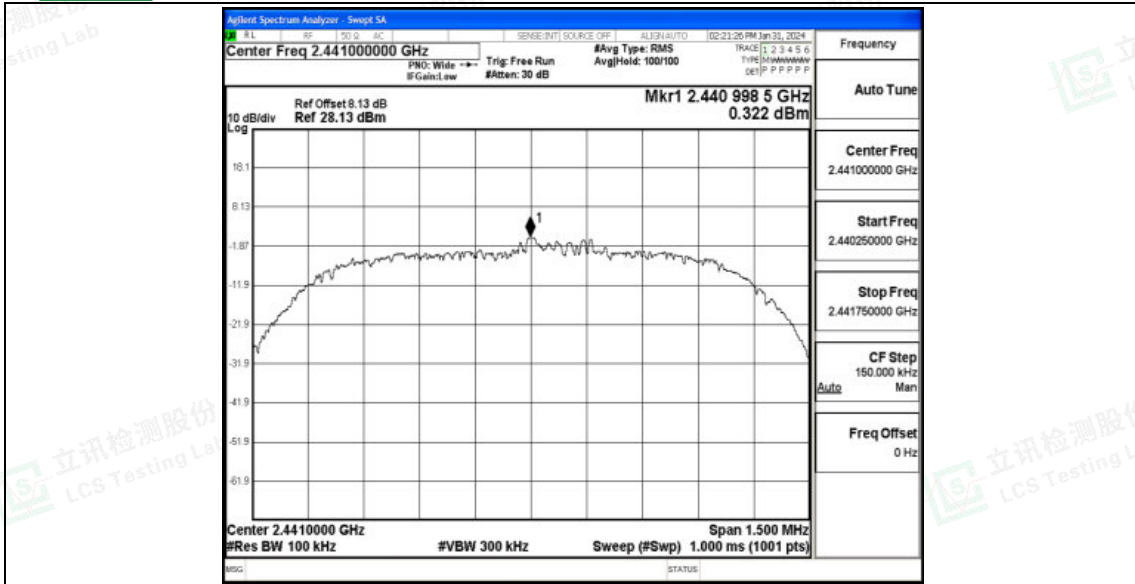


2DH5\_Ant1\_2402

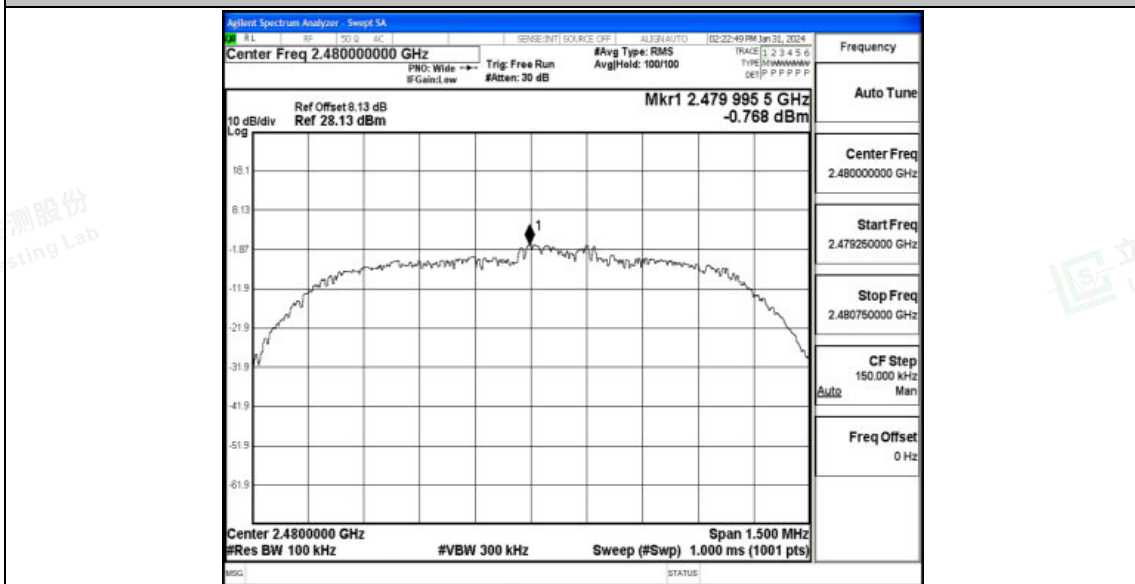


2DH5\_Ant1\_2441



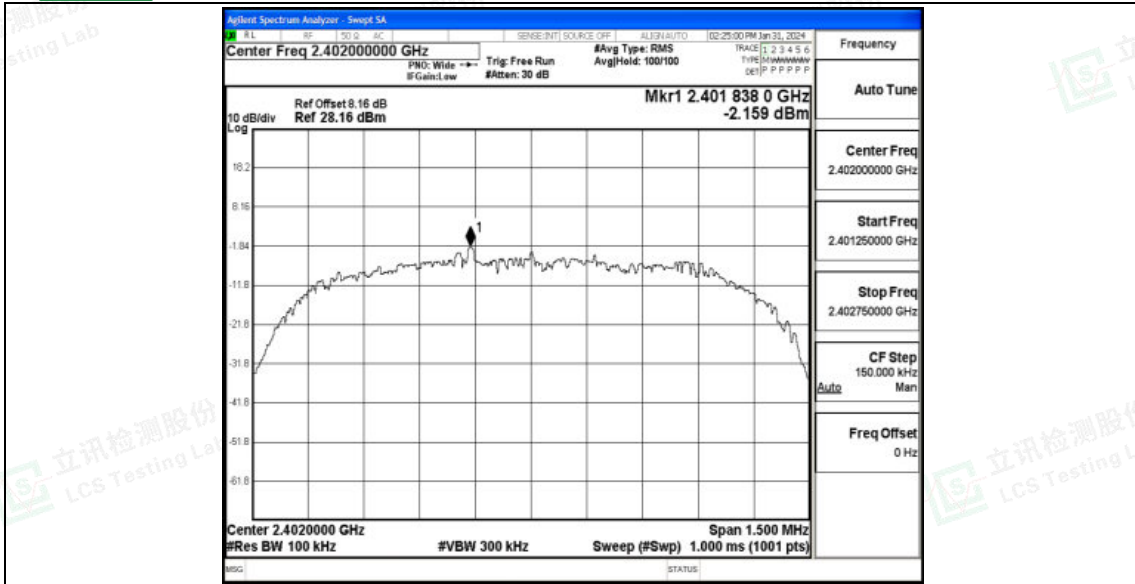


2DH5\_Ant1\_2480

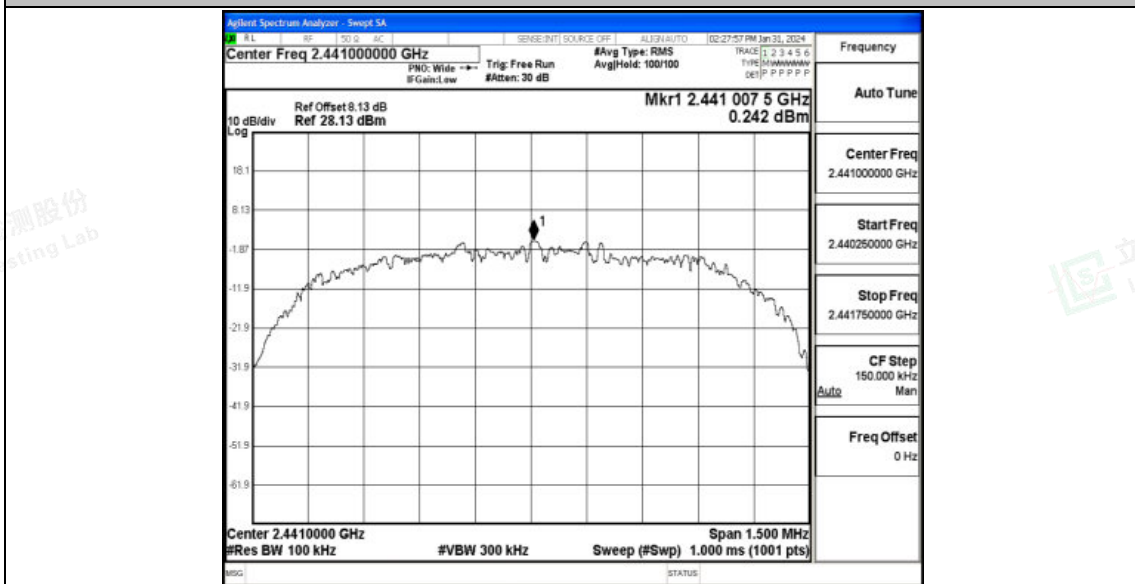


3DH5\_Ant1\_2402





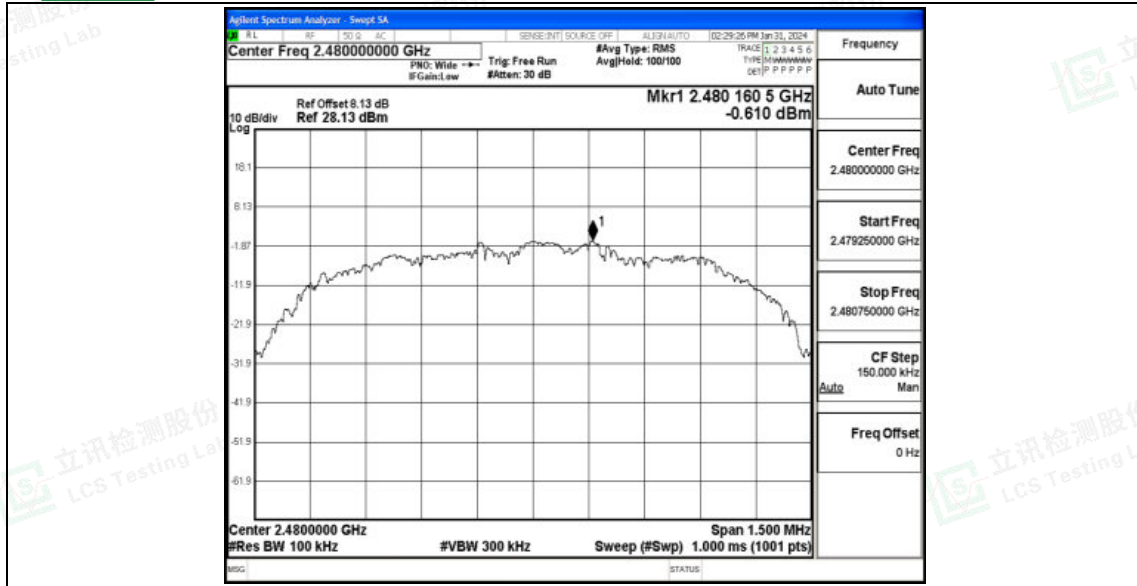
3DH5\_Ant1\_2441



3DH5\_Ant1\_2480









### A.8 Duty Cycle

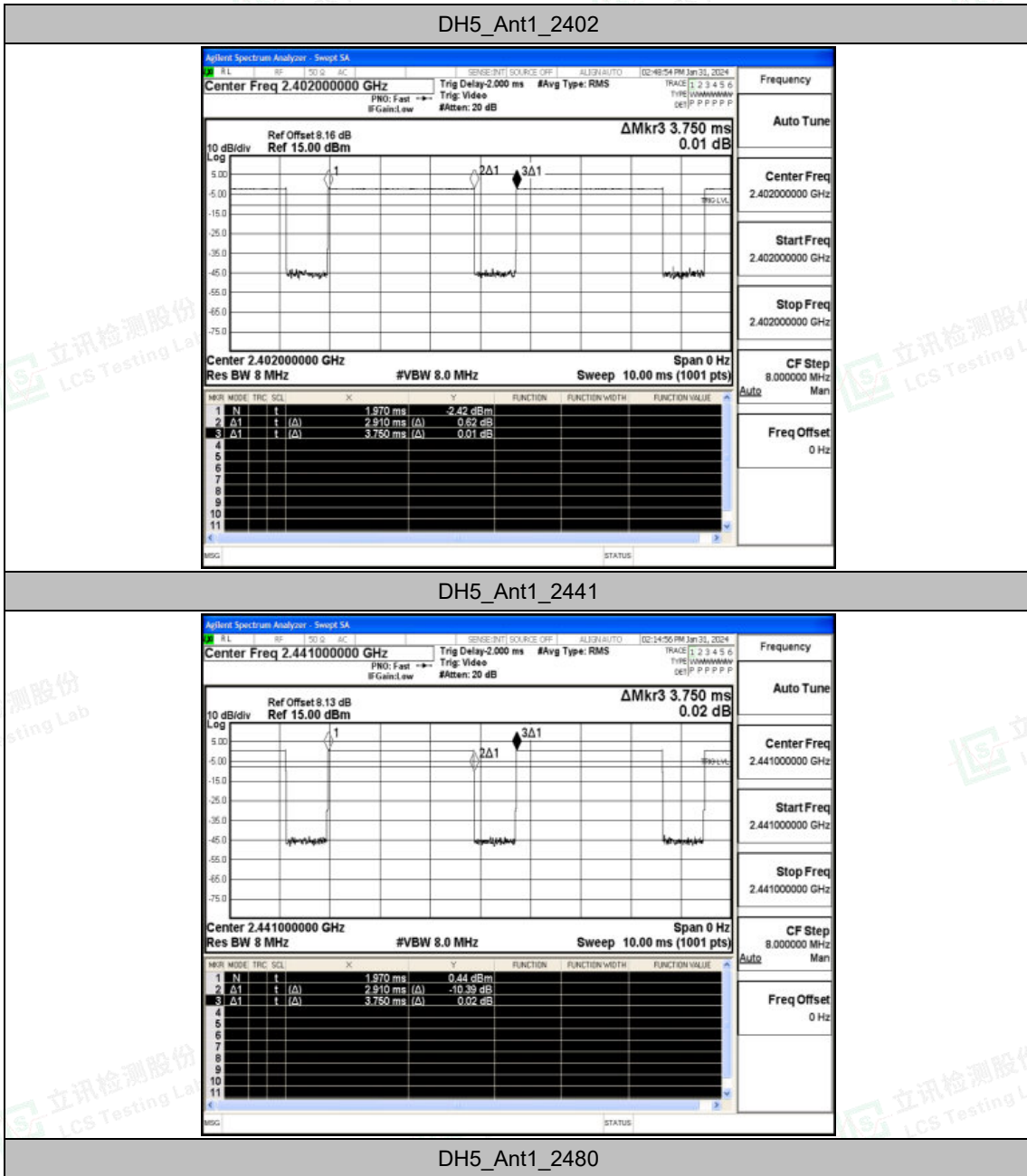
#### Test Result

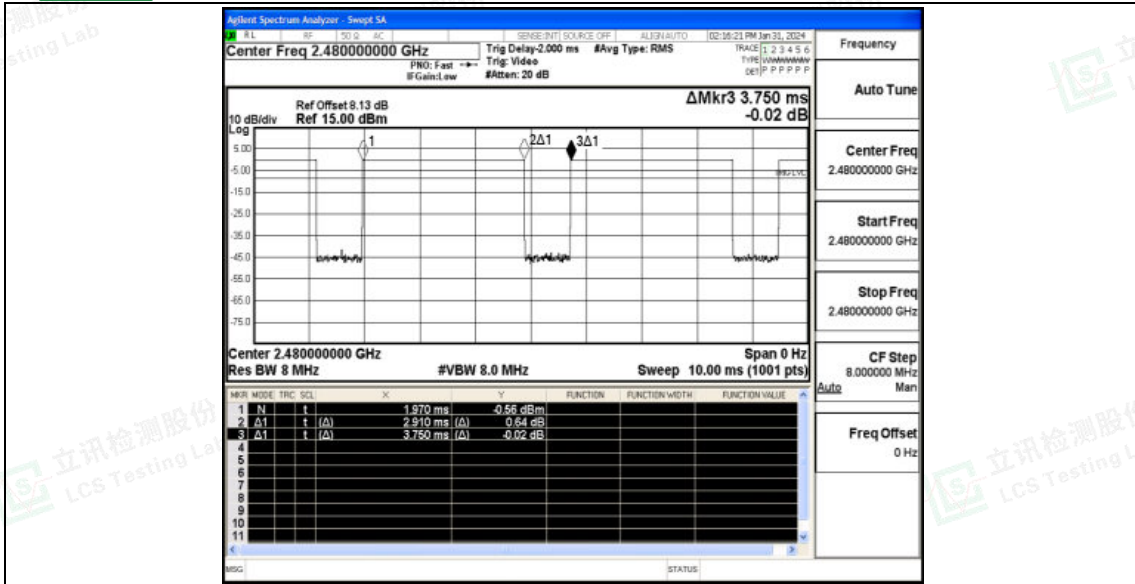
TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]	1/T Factor[kHz]
DH5	Ant1	2402	2.91	3.75	77.60	1.10	0.34
		2441	2.91	3.75	77.60	1.10	0.34
		2480	2.91	3.75	77.60	1.10	0.34
2DH5	Ant1	2402	2.90	3.75	77.33	1.12	0.34
		2441	2.90	3.75	77.33	1.12	0.34
		2480	2.90	3.75	77.33	1.12	0.34
3DH5	Ant1	2402	2.90	3.75	77.33	1.12	0.34
		2441	2.89	3.75	77.07	1.13	0.35
		2480	2.90	3.75	77.33	1.12	0.34



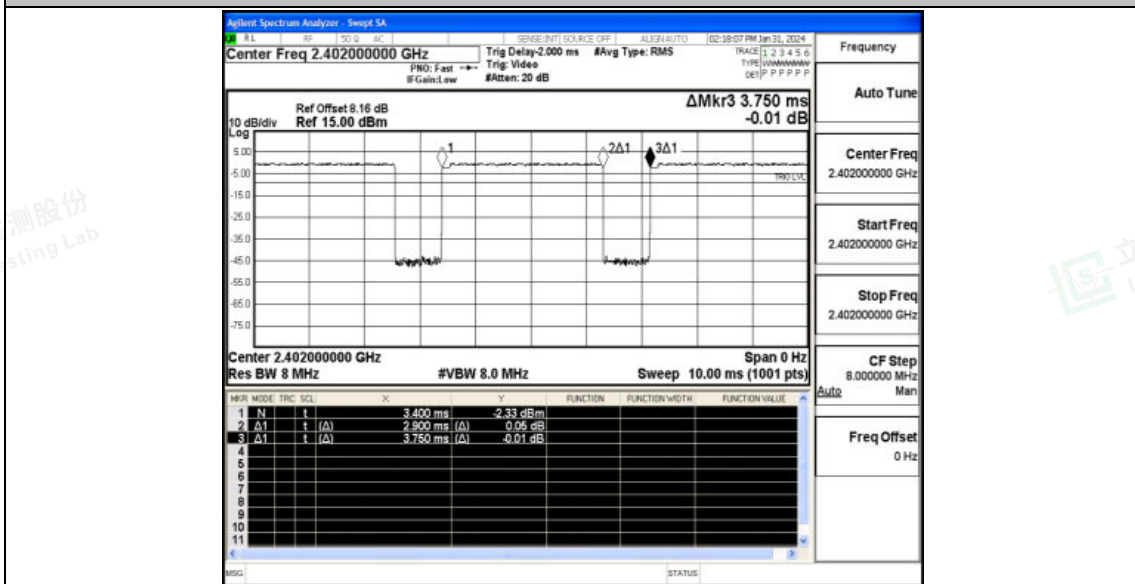


Test Graphs



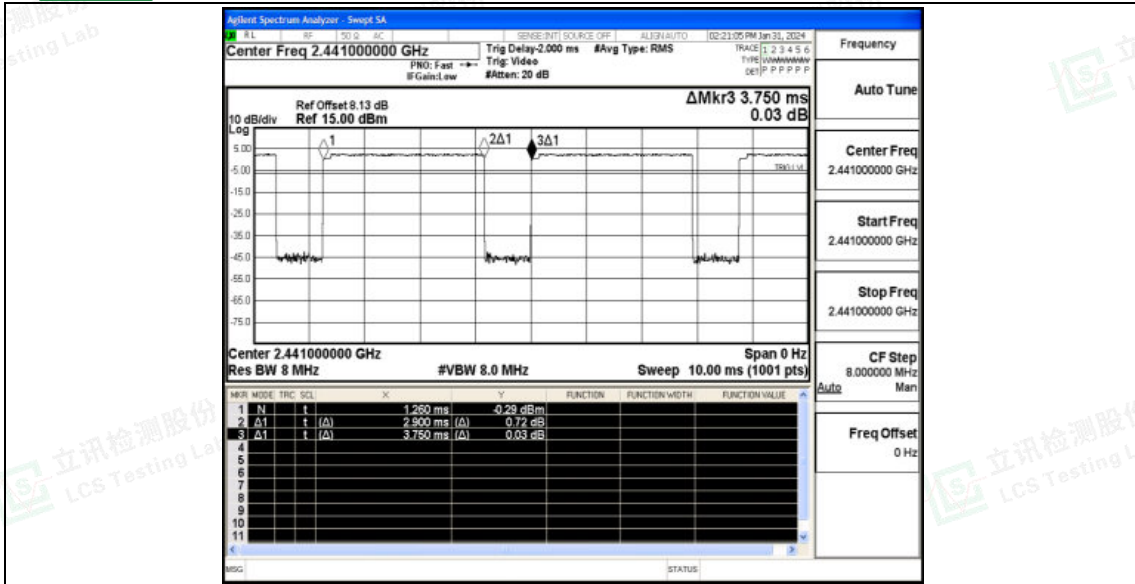


2DH5\_Ant1\_2402

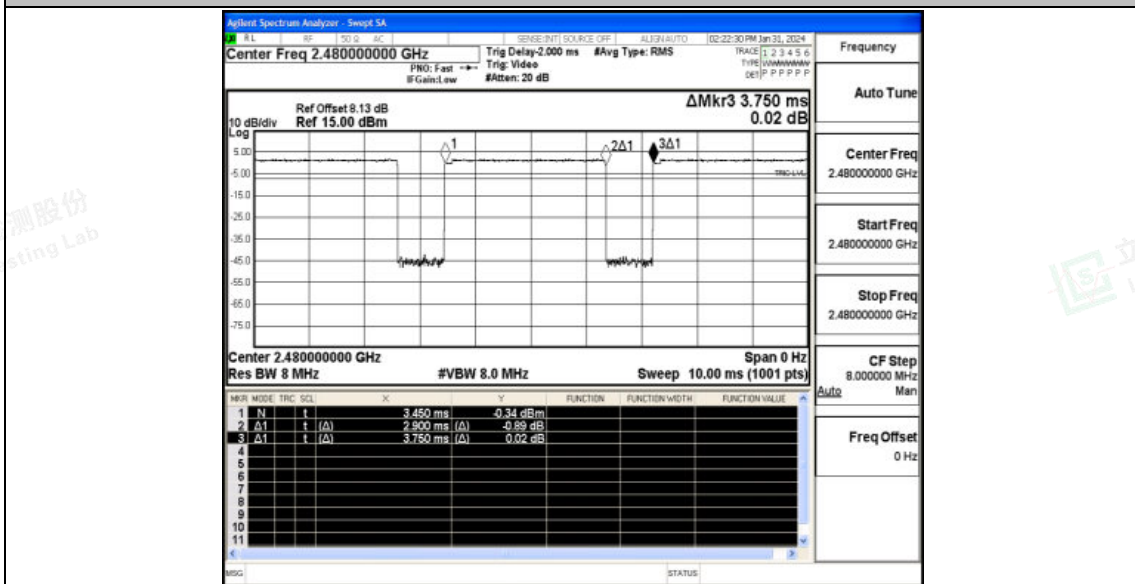


2DH5\_Ant1\_2441



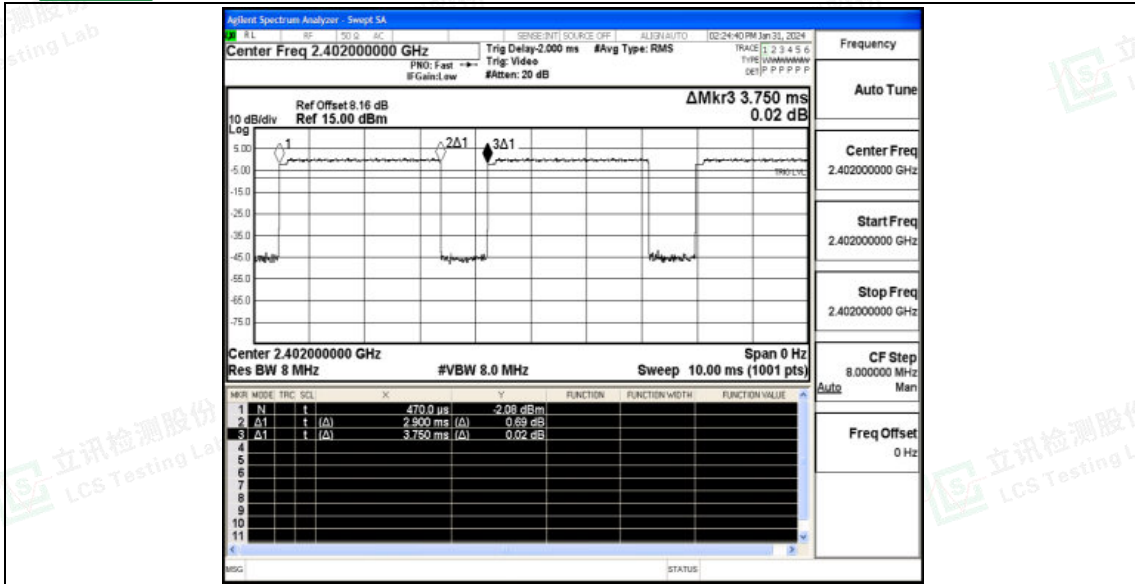


2DH5\_Ant1\_2480

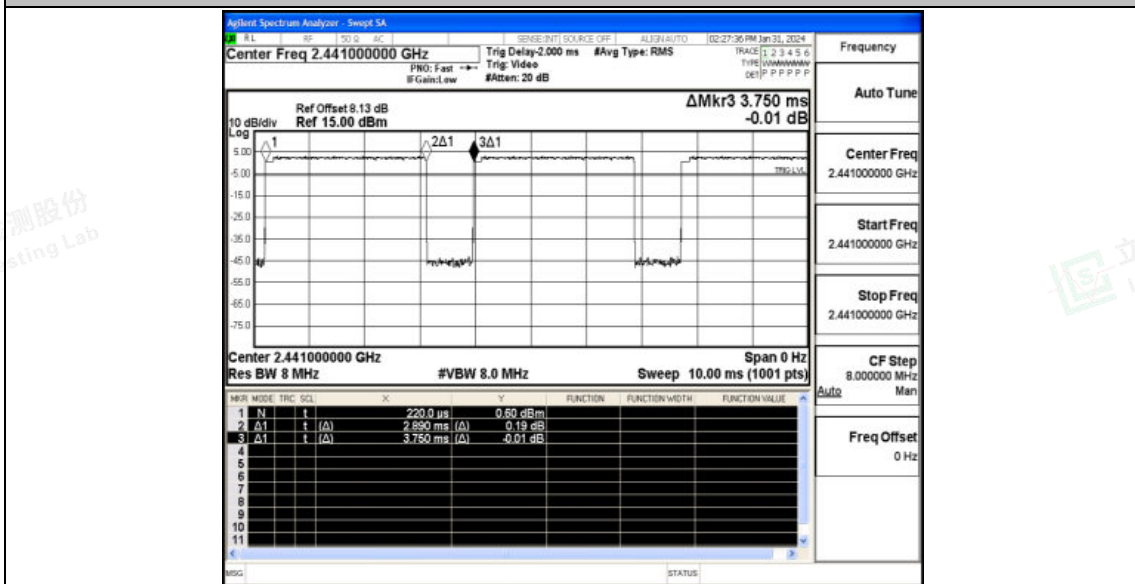


3DH5\_Ant1\_2402





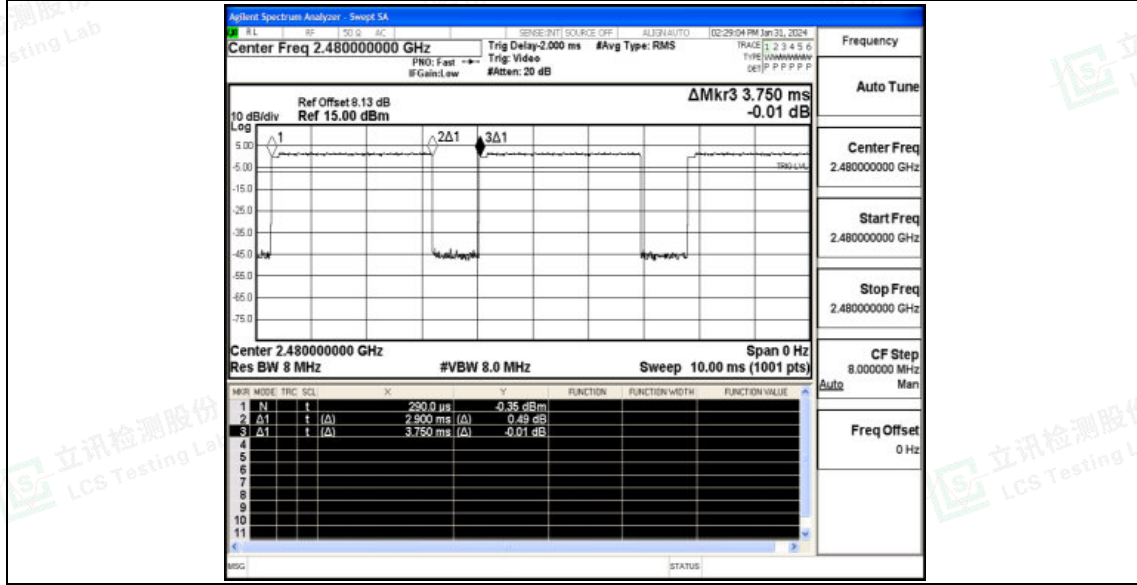
3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







**A.9 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	AV	2310.000	-48.75	≤-41.20	46.45	≤54	PASS
				AV	2356.385	-47.98	≤-41.20	47.22	≤54	PASS
				AV	2390.000	-48.38	≤-41.20	46.82	≤54	PASS
				Peak	2310.000	-42.35	≤-21.20	52.85	≤74	PASS
				Peak	2369.720	-38.89	≤-21.20	56.31	≤74	PASS
				Peak	2390.000	-41.88	≤-21.20	53.32	≤74	PASS
		High	2480	AV	2483.500	-48.67	≤-41.20	46.53	≤54	PASS
				AV	2490.880	-47.8	≤-41.20	47.40	≤54	PASS
				AV	2500.000	-48.65	≤-41.20	46.55	≤54	PASS
				Peak	2483.500	-42.53	≤-21.20	52.67	≤74	PASS
				Peak	2499.520	-38.5	≤-21.20	56.70	≤74	PASS
				Peak	2500.000	-42.78	≤-21.20	52.42	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-42.59	≤-21.20	52.61	≤74	PASS
				Peak	2389.355	-39.78	≤-21.20	55.42	≤74	PASS
				Peak	2390.000	-41.67	≤-21.20	53.53	≤74	PASS
		High	Hop_2480	Peak	2483.500	-42.5	≤-21.20	52.70	≤74	PASS
				Peak	2487.040	-39.13	≤-21.20	56.07	≤74	PASS
				Peak	2500.000	-41.96	≤-21.20	53.24	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.27	≤-41.20	45.93	≤54	PASS
				AV	2381.480	-47.76	≤-41.20	47.44	≤54	PASS
				AV	2390.000	-48.32	≤-41.20	46.88	≤54	PASS
				Peak	2310.000	-42.19	≤-21.20	53.01	≤74	PASS
				Peak	2384.945	-38.82	≤-21.20	56.38	≤74	PASS
				Peak	2390.000	-41.51	≤-21.20	53.69	≤74	PASS
		High	2480	AV	2483.500	-48.47	≤-41.20	46.73	≤54	PASS
				AV	2489.920	-47.7	≤-41.20	47.50	≤54	PASS
				AV	2500.000	-48.16	≤-41.20	47.04	≤54	PASS
				Peak	2483.500	-41.17	≤-21.20	54.03	≤74	PASS
				Peak	2497.680	-38.81	≤-21.20	56.39	≤74	PASS
				Peak	2500.000	-41.63	≤-21.20	53.57	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-42.67	≤-21.20	52.53	≤74	PASS
				Peak	2330.870	-39.53	≤-21.20	55.67	≤74	PASS
				Peak	2390.000	-41.88	≤-21.20	53.32	≤74	PASS
		High	Hop_2480	Peak	2483.500	-42.84	≤-21.20	52.36	≤74	PASS
				Peak	2487.360	-39.55	≤-21.20	55.65	≤74	PASS





3DH5	Ant1	Low	2402	Peak	2500.000	-42.52	≤-21.20	52.68	≤74	PASS
				AV	2310.000	-48.76	≤-41.20	46.44	≤54	PASS
				AV	2357.330	-47.98	≤-41.20	47.22	≤54	PASS
				AV	2390.000	-49.03	≤-41.20	46.17	≤54	PASS
				Peak	2310.000	-42.17	≤-21.20	53.03	≤74	PASS
				Peak	2375.705	-39.28	≤-21.20	55.92	≤74	PASS
		High	2480	AV	2483.500	-48.04	≤-41.20	47.16	≤54	PASS
				AV	2491.760	-47.96	≤-41.20	47.24	≤54	PASS
				AV	2500.000	-48.5	≤-41.20	46.70	≤54	PASS
				Peak	2483.500	-40.02	≤-21.20	55.18	≤74	PASS
				Peak	2486.720	-39.76	≤-21.20	55.44	≤74	PASS
				Peak	2500.000	-39.75	≤-21.20	55.45	≤74	PASS
	Low	Hop_240 2	Peak	2310.000	-42.96	≤-21.20	52.24	≤74	PASS	
			Peak	2322.890	-39.51	≤-21.20	55.69	≤74	PASS	
			Peak	2390.000	-41.51	≤-21.20	53.69	≤74	PASS	
	High	Hop_248 0	Peak	2483.500	-42.29	≤-21.20	52.91	≤74	PASS	
			Peak	2483.840	-38.18	≤-21.20	57.02	≤74	PASS	
			Peak	2500.000	-40.41	≤-21.20	54.79	≤74	PASS	

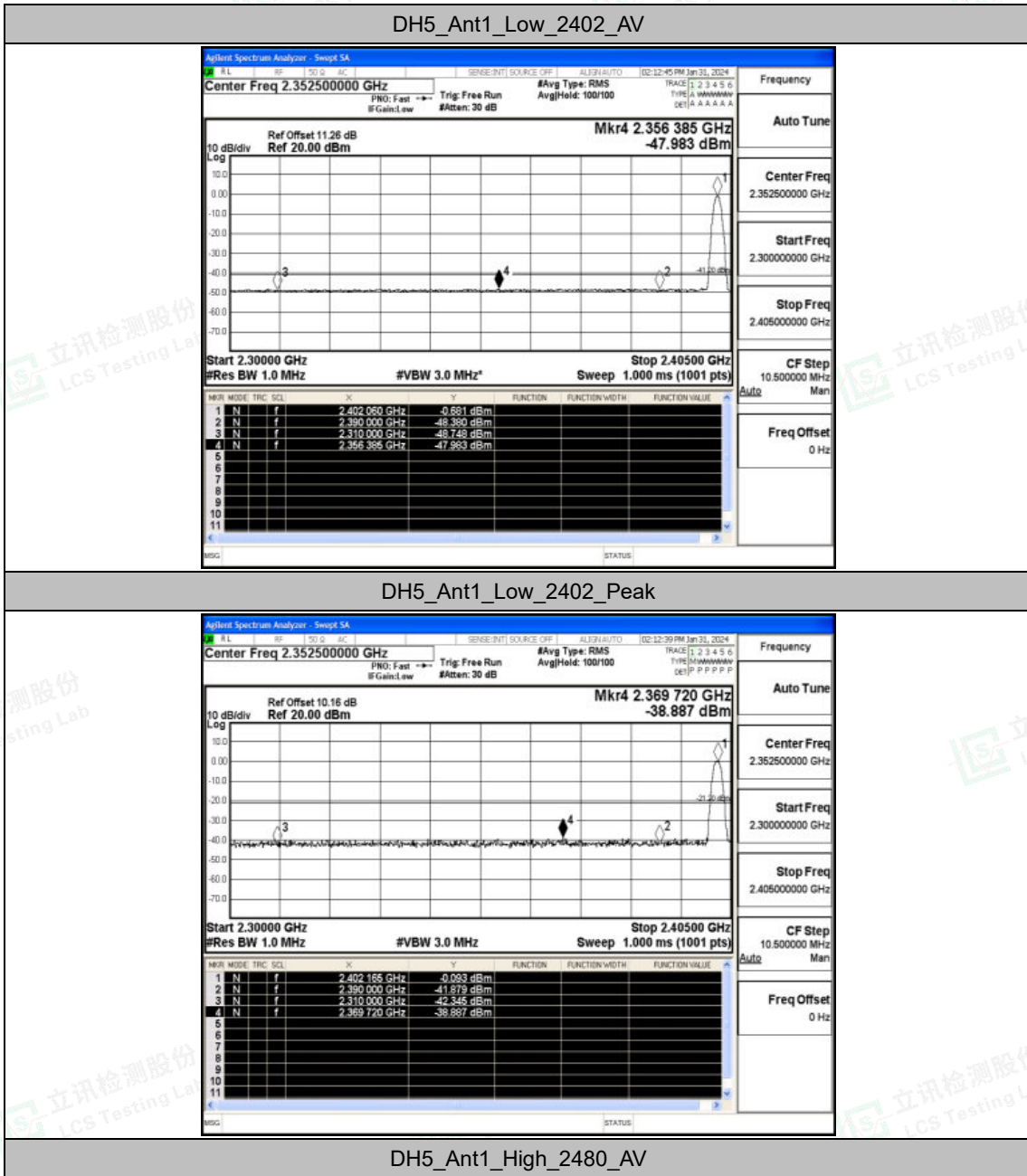
Note:

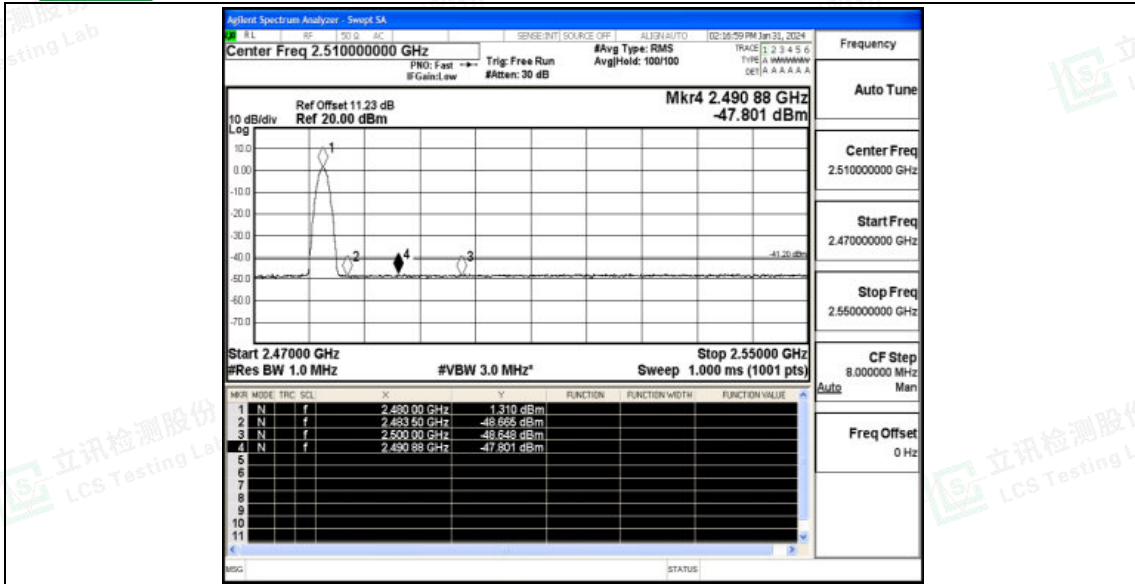
1. The Antenna Gain is compensated in the graph. The Correction Factor is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



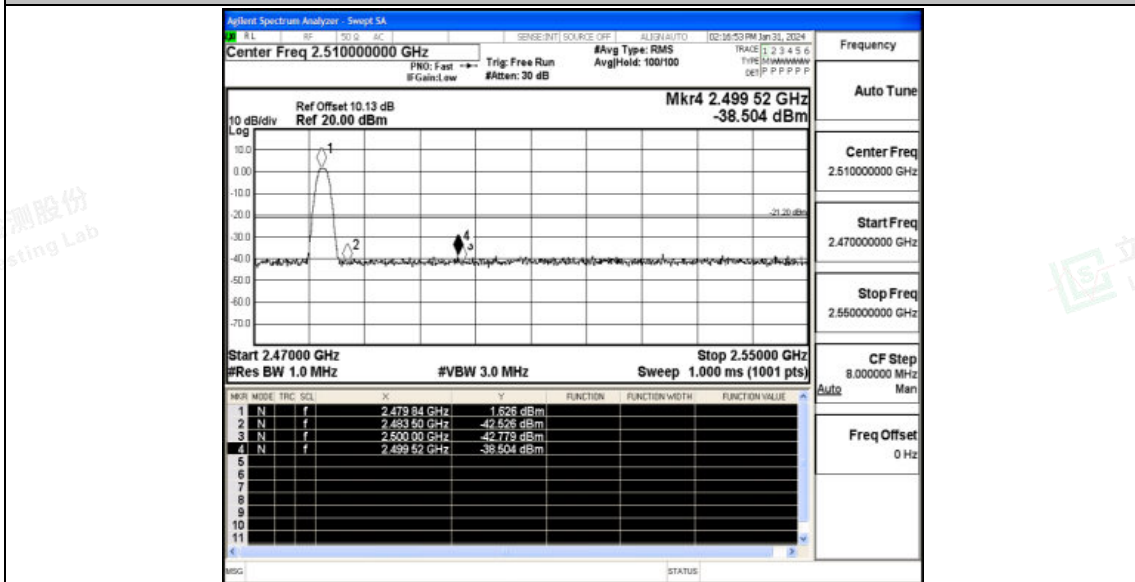


### Test Graphs





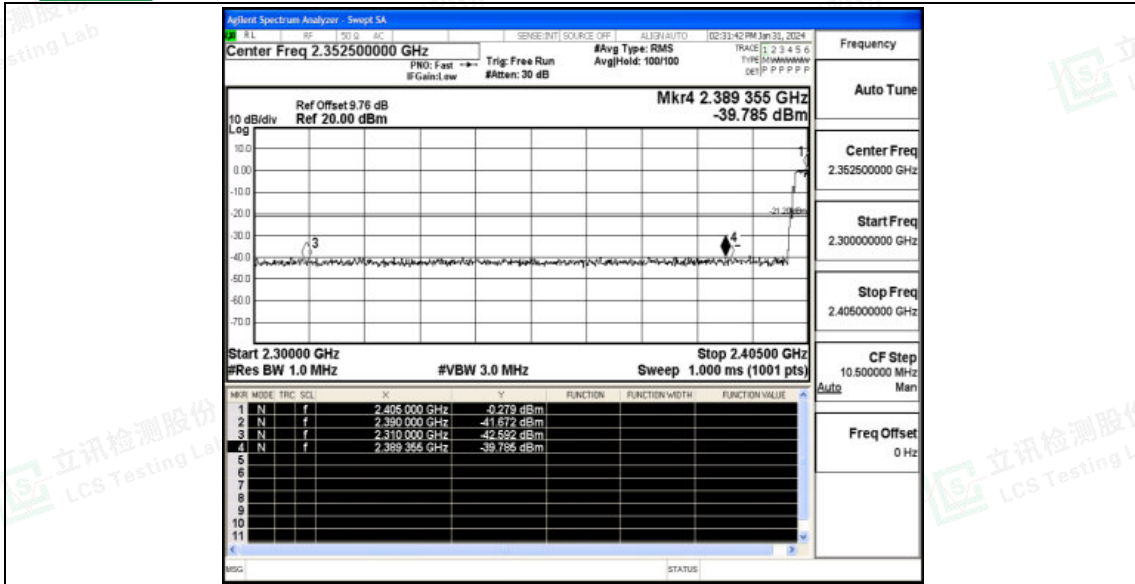
DH5\_Ant1\_High\_2480\_Peak



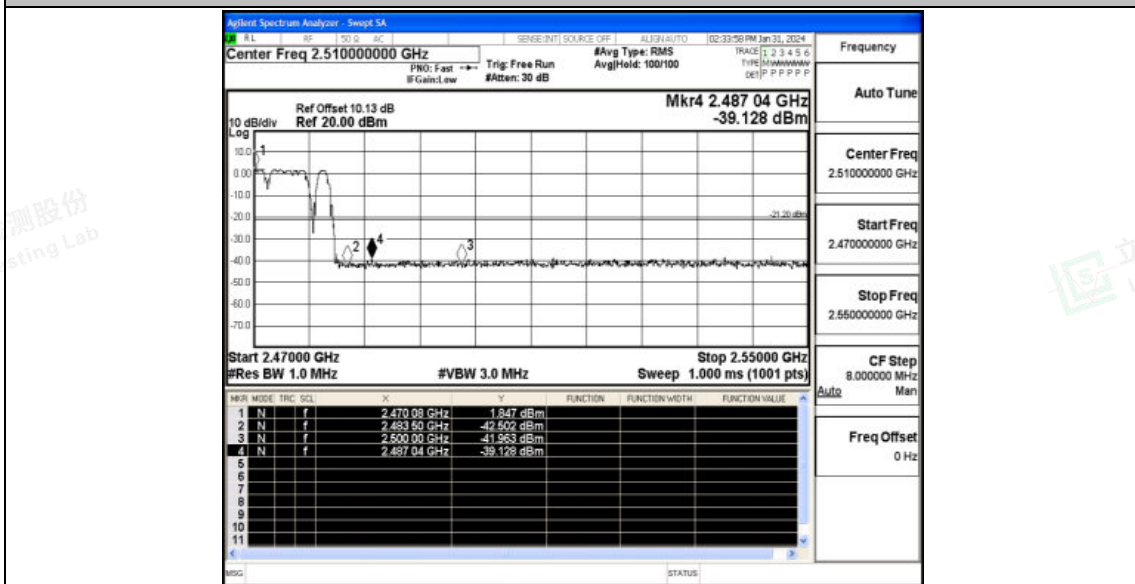
DH5\_Ant1\_Low\_Hop\_2402\_Peak







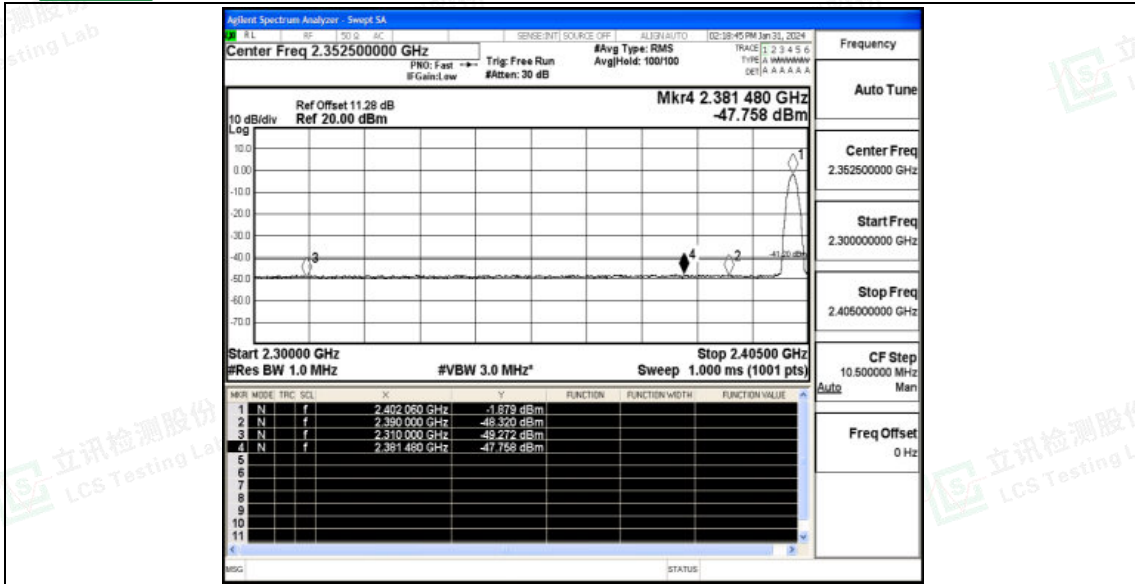
DH5\_Ant1\_High\_Hop\_2480\_Peak



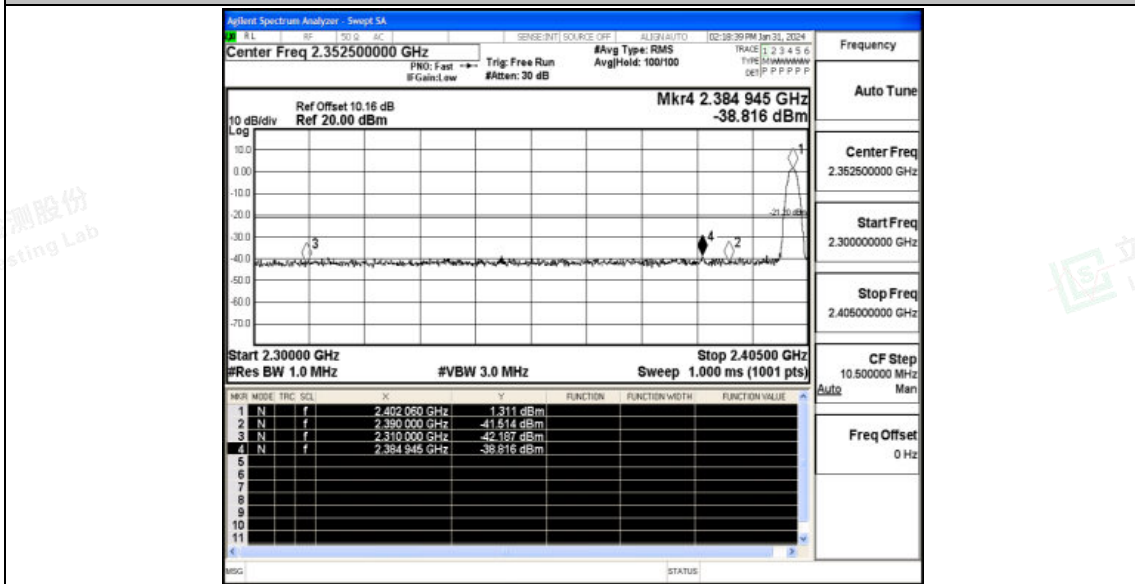
2DH5\_Ant1\_Low\_2402\_AV





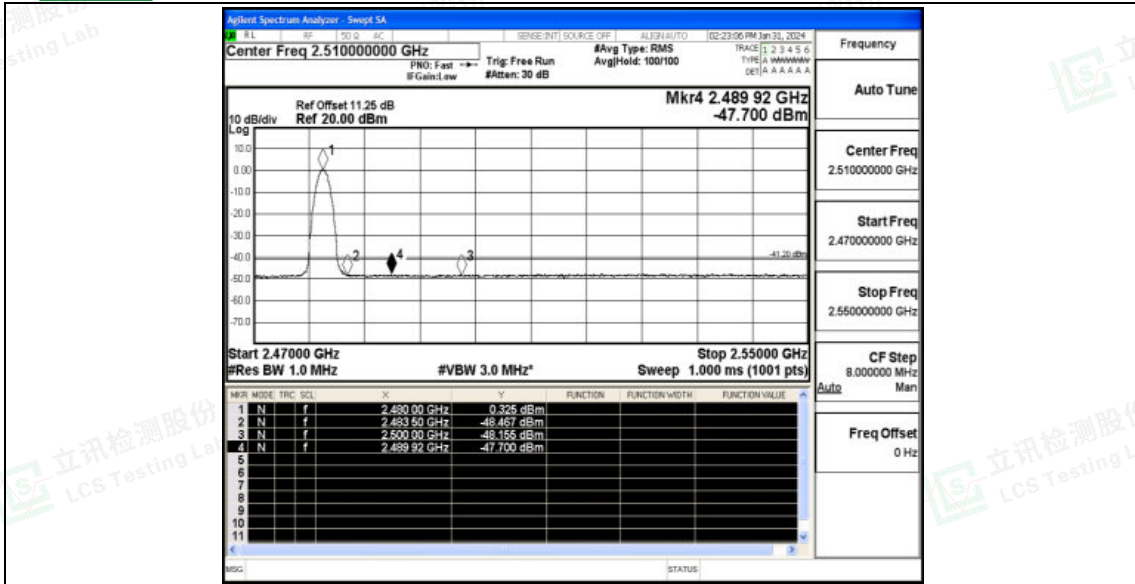


2DH5\_Ant1\_Low\_2402\_Peak

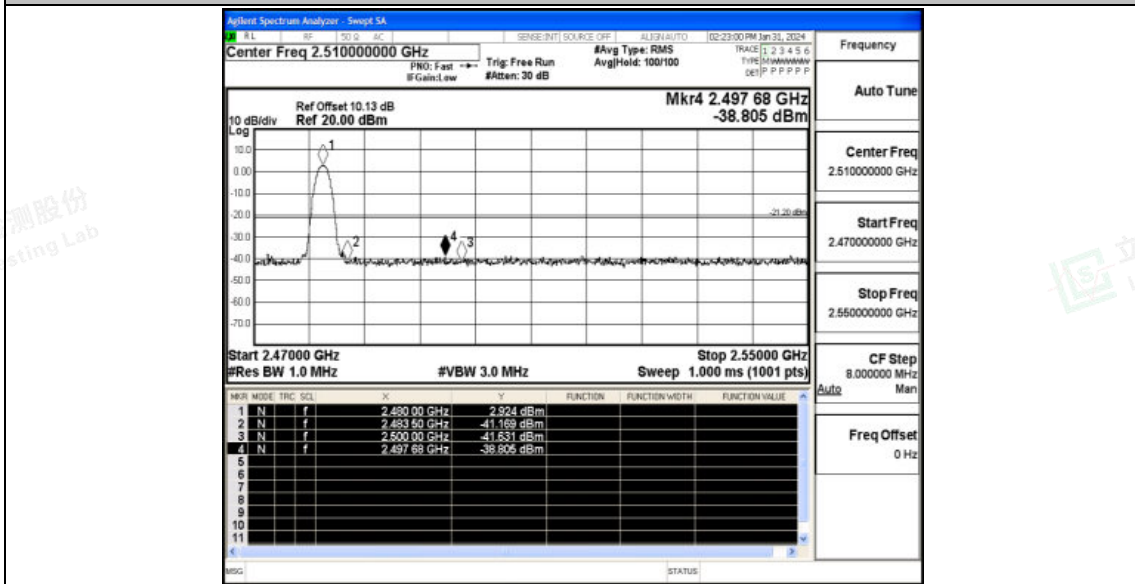


2DH5\_Ant1\_High\_2480\_AV



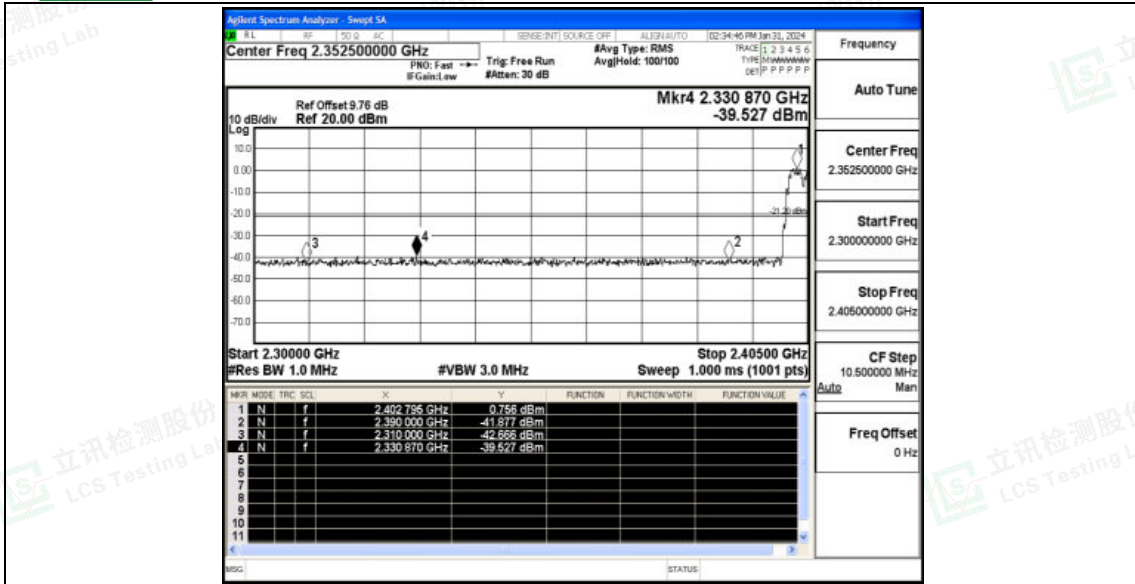


2DH5\_Ant1\_High\_2480\_Peak

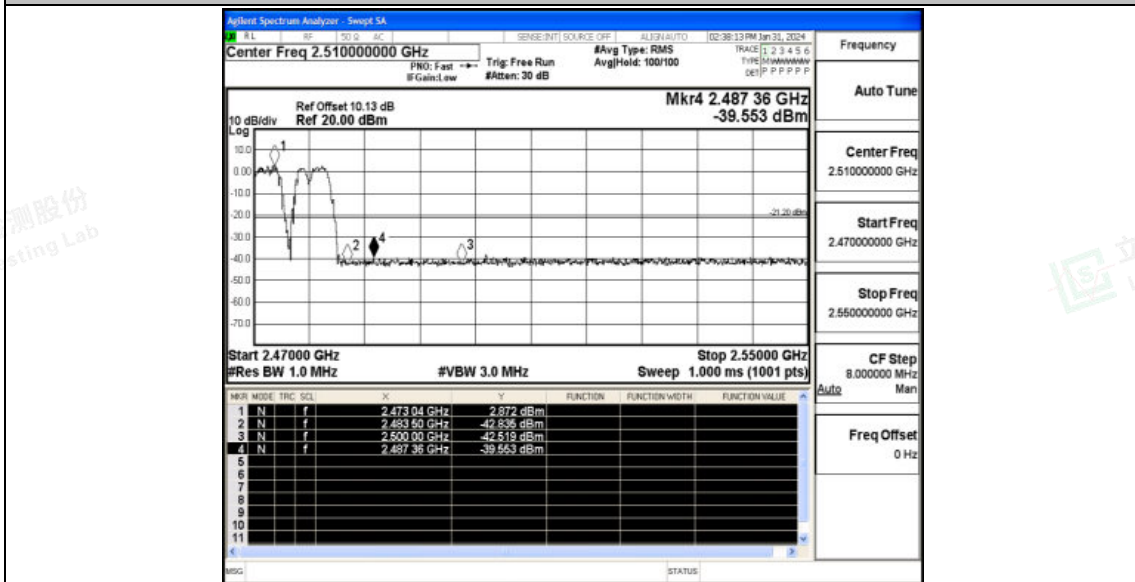


2DH5\_Ant1\_Low\_Hop\_2402\_Peak



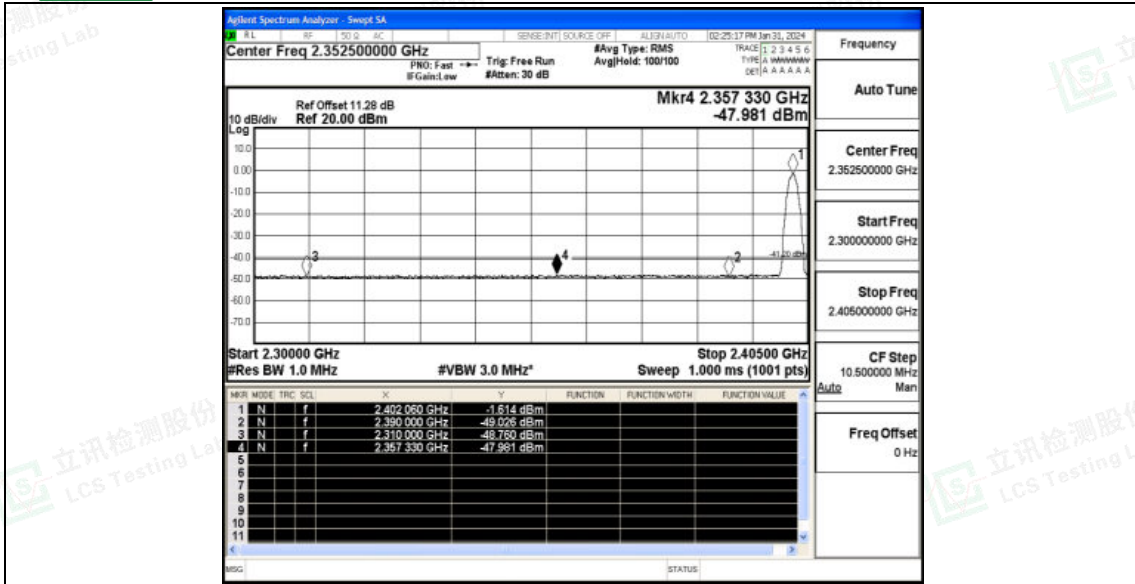


2DH5\_Ant1\_High\_Hop\_2480\_Peak

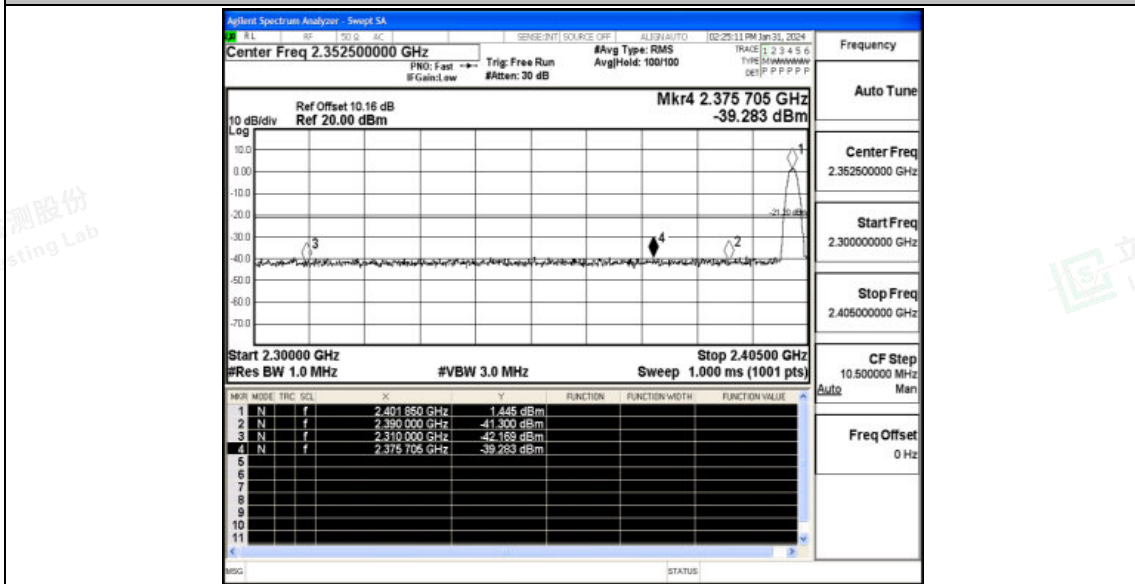


3DH5\_Ant1\_Low\_2402\_AV



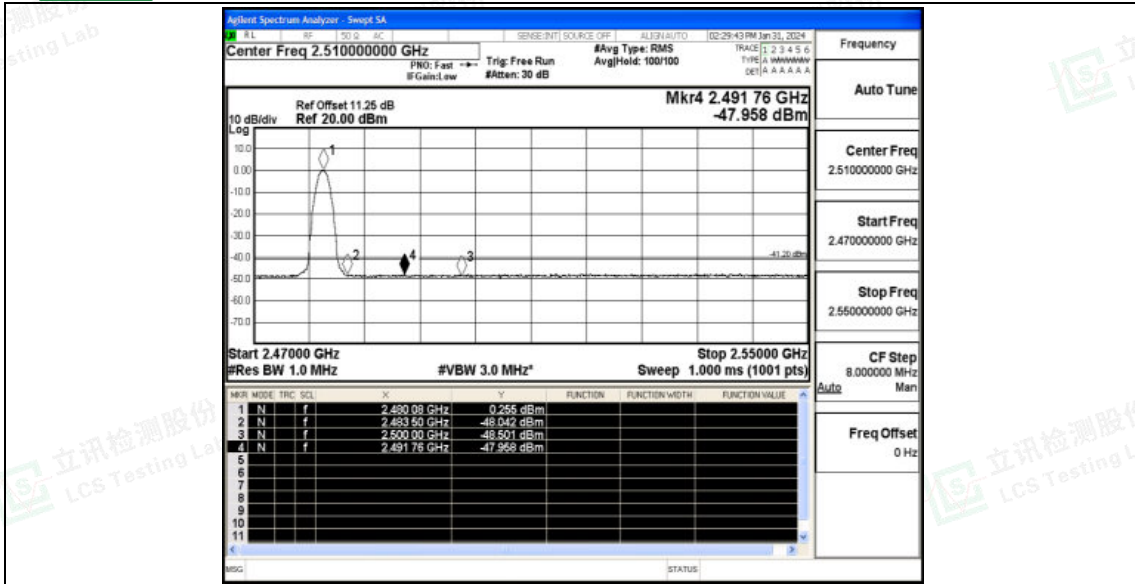


3DH5\_Ant1\_Low\_2402\_Peak

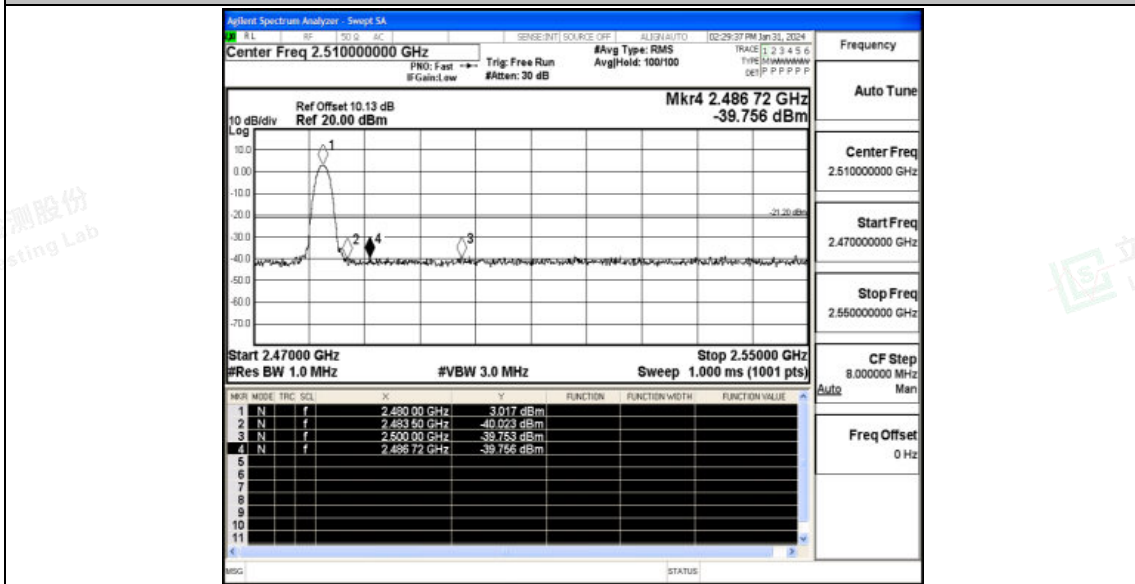


3DH5\_Ant1\_High\_2480\_AV





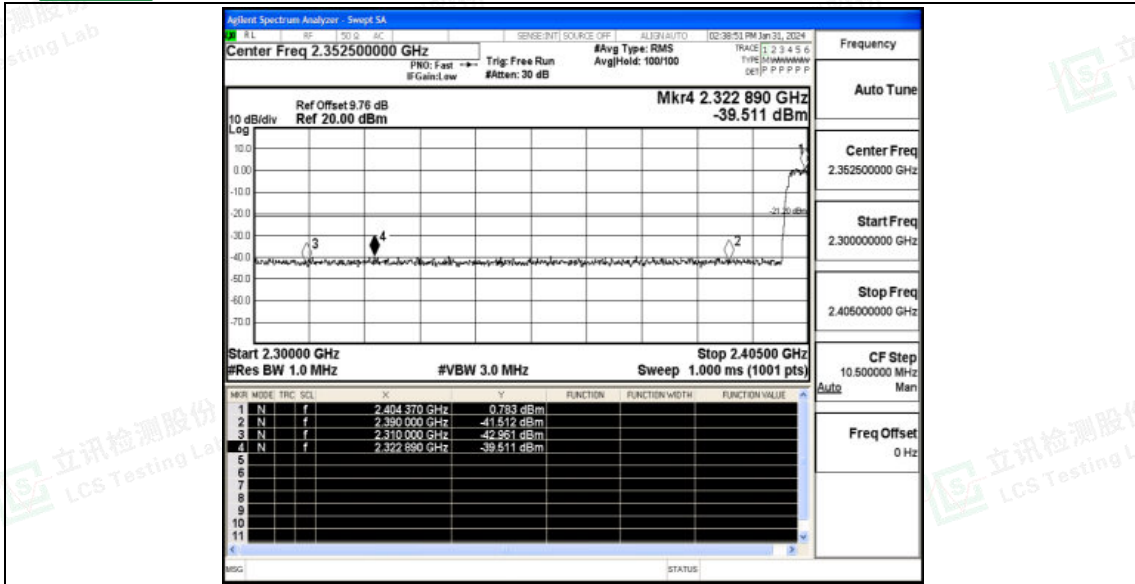
3DH5\_Ant1\_High\_2480\_Peak



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







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

