



## Appendix A

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

**Product Name: Puya**

**Test Model: HPPAP39**

#### Environmental Conditions

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





## A.1 20dB Emission Bandwidth

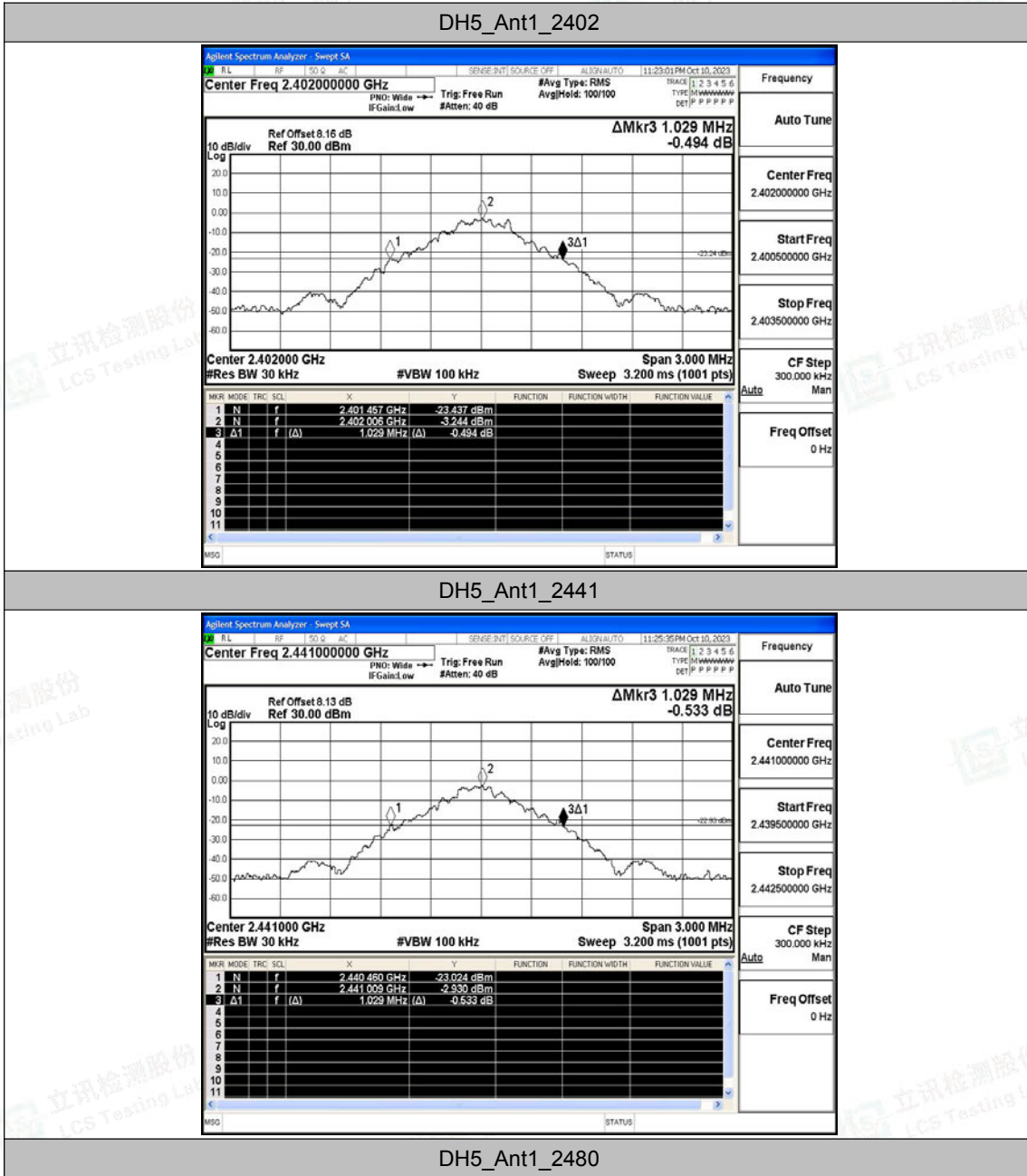
### Test Result

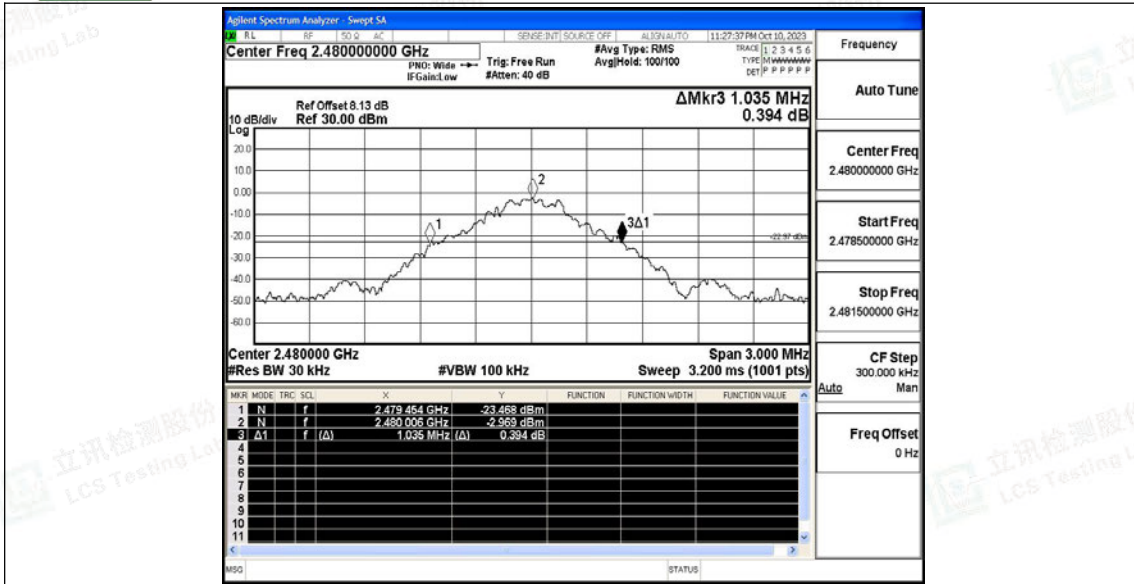
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant1	2402	1.029	2401.457	2402.486	---
		2441	1.029	2440.460	2441.489	---
		2480	1.035	2479.454	2480.489	---
2DH5	Ant1	2402	1.320	2401.328	2402.648	---
		2441	1.284	2440.355	2441.639	---
		2480	1.302	2479.349	2480.651	---
3DH5	Ant1	2402	1.305	2401.337	2402.642	---
		2441	1.305	2440.337	2441.642	---
		2480	1.308	2479.337	2480.645	---



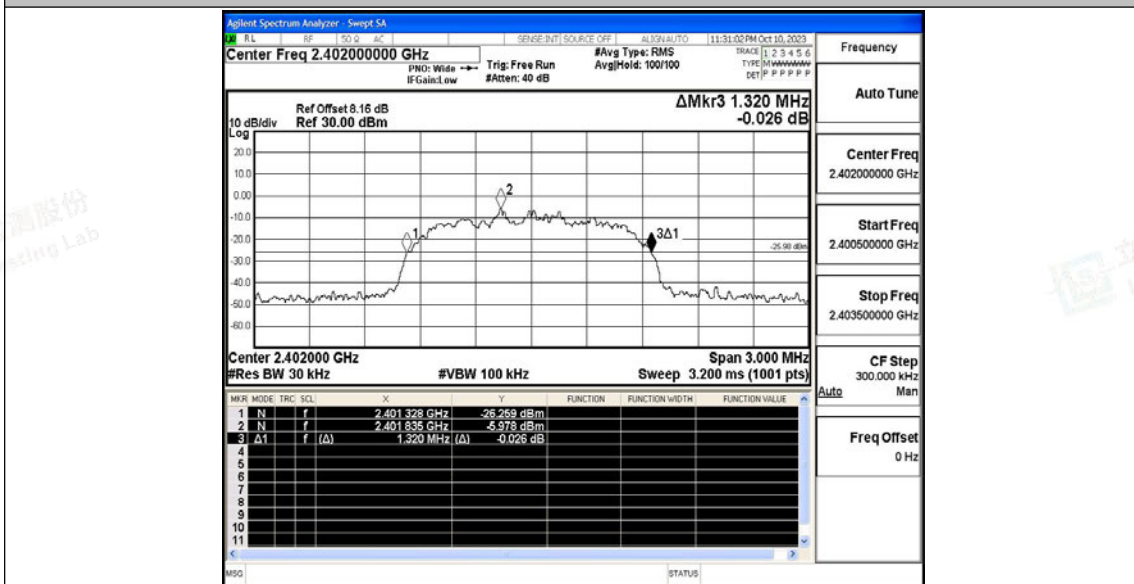


### Test Graphs



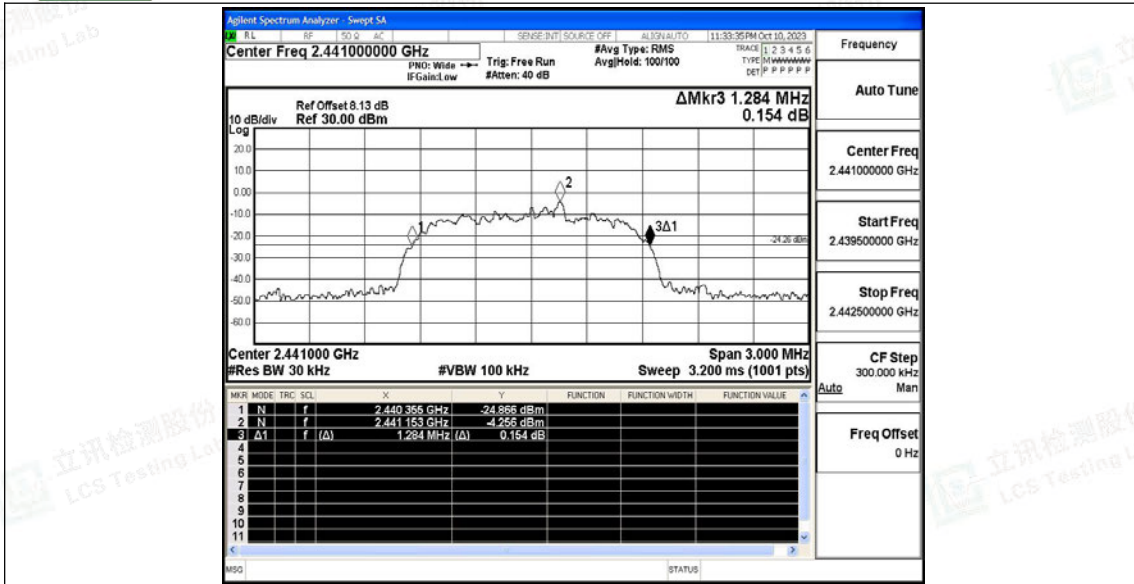


2DH5\_Ant1\_2402

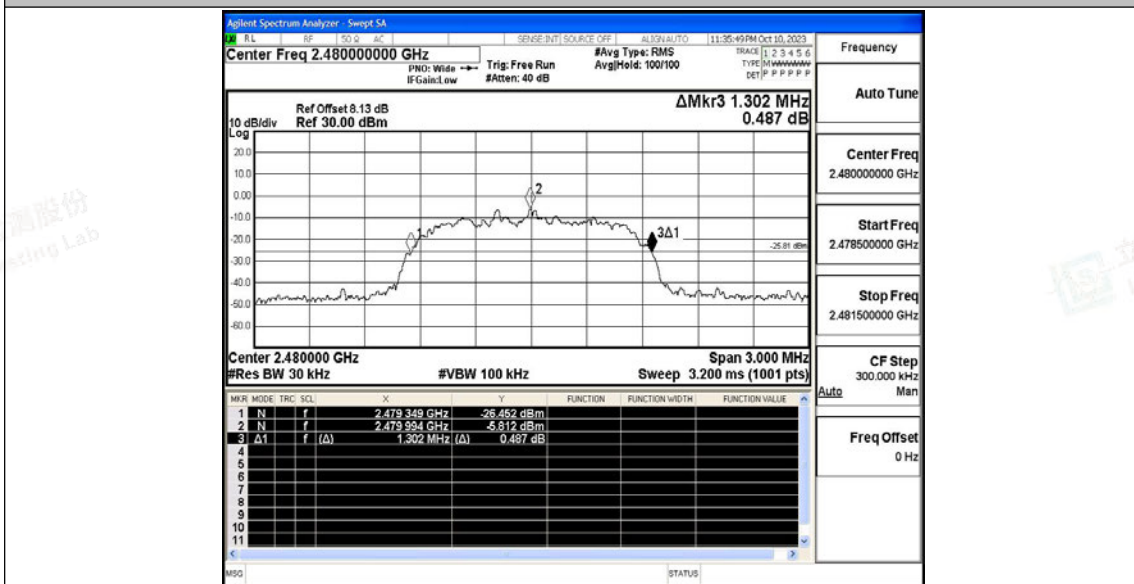


2DH5\_Ant1\_2441





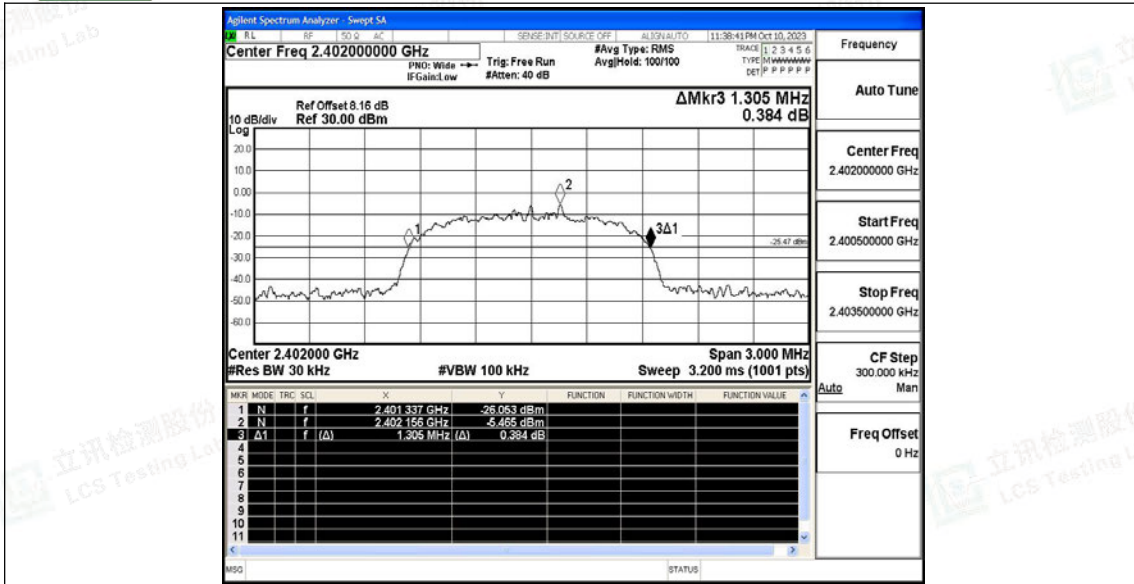
2DH5\_Ant1\_2480



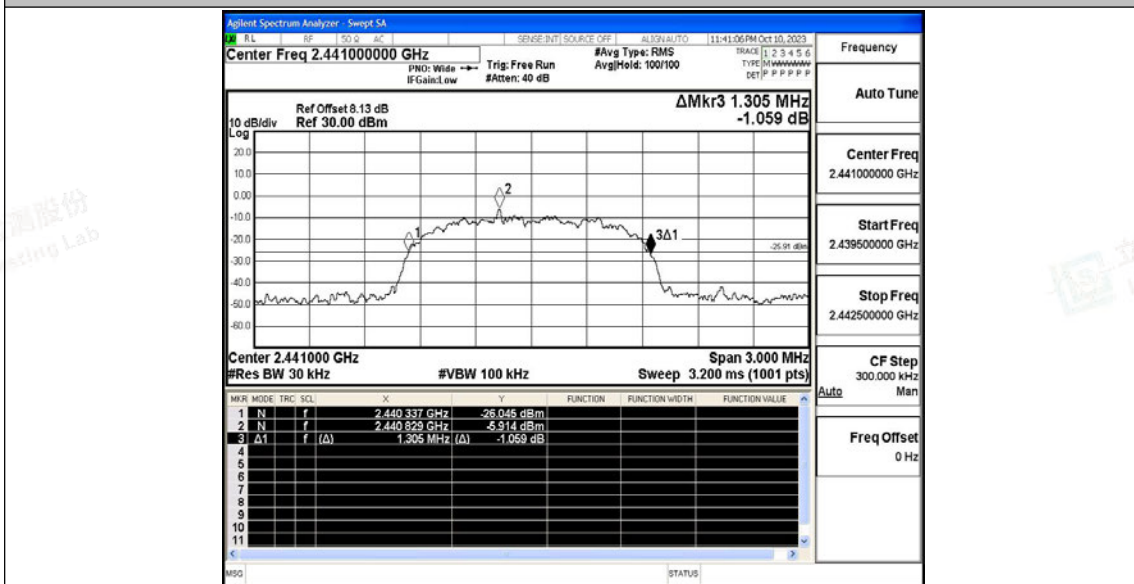
3DH5\_Ant1\_2402





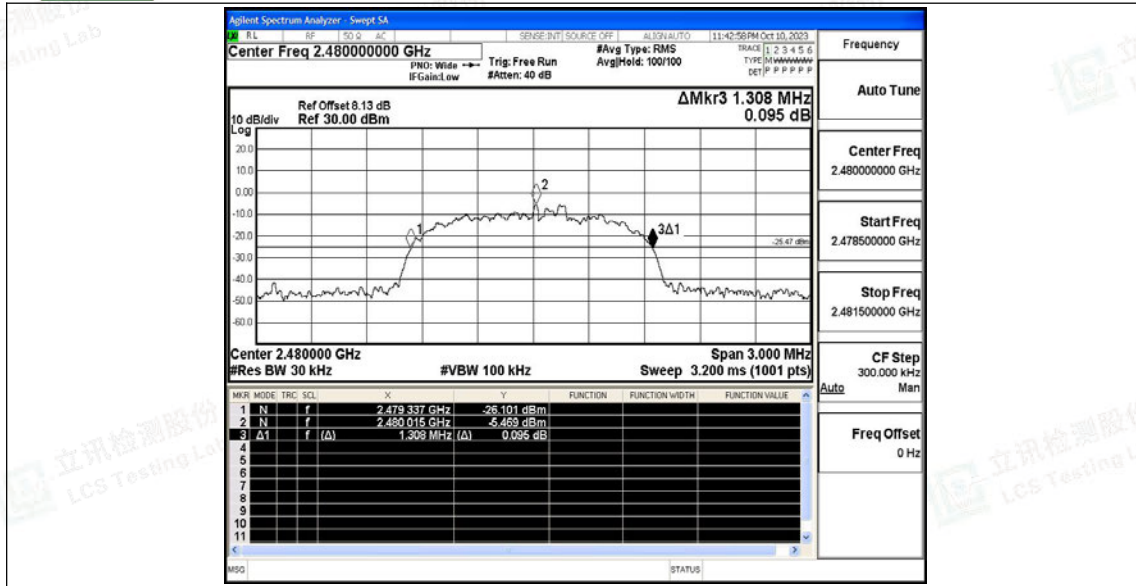


3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







## A.2 Maximum conducted output power

### Test Result

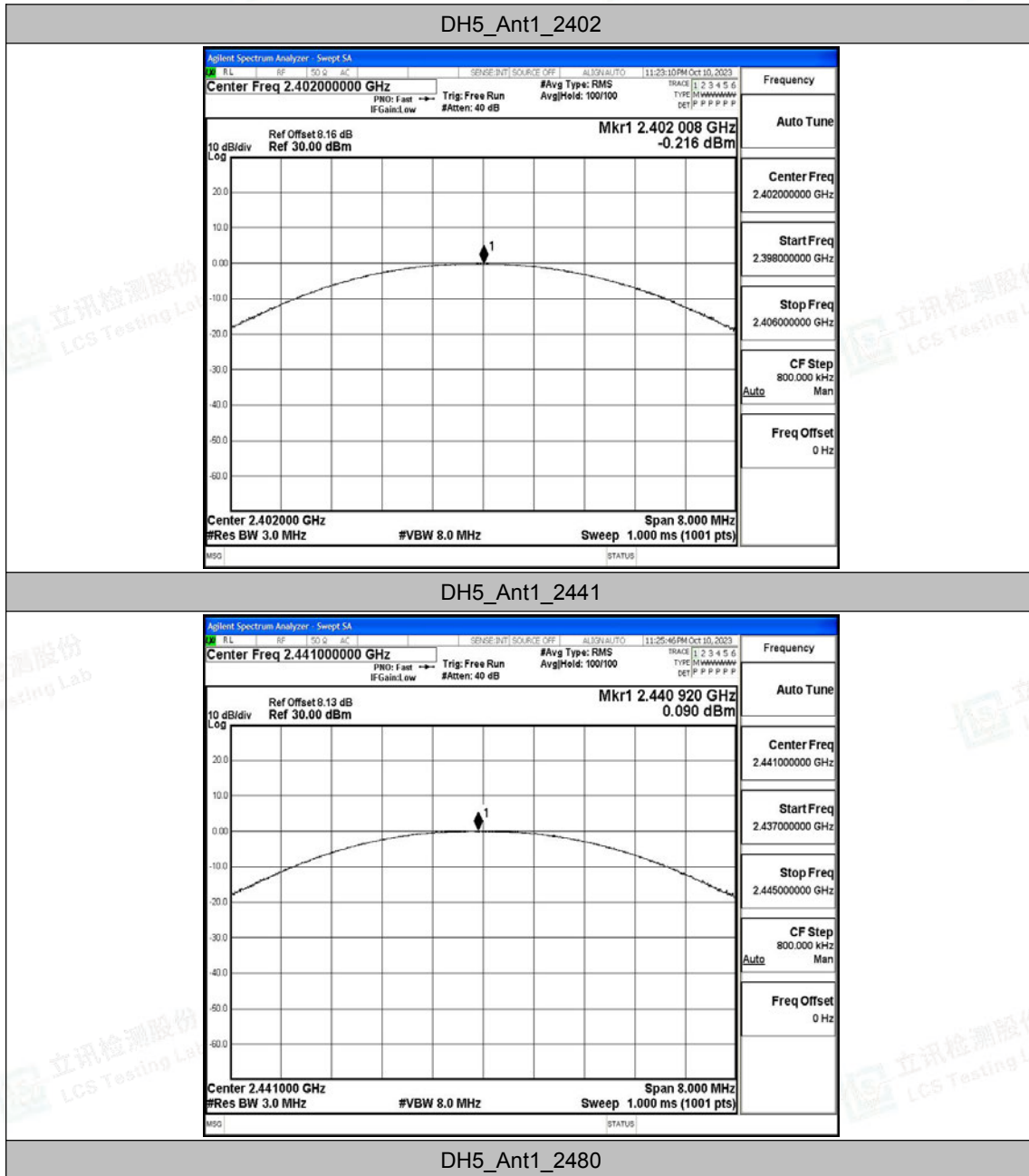
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-0.22	≤21	PASS
		2441	0.09	≤21	PASS
		2480	0.12	≤21	PASS
2DH5	Ant1	2402	-0.6	≤21	PASS
		2441	-0.15	≤21	PASS
		2480	-0.27	≤21	PASS
3DH5	Ant1	2402	-0.45	≤21	PASS
		2441	-0.16	≤21	PASS
		2480	-0.29	≤21	PASS

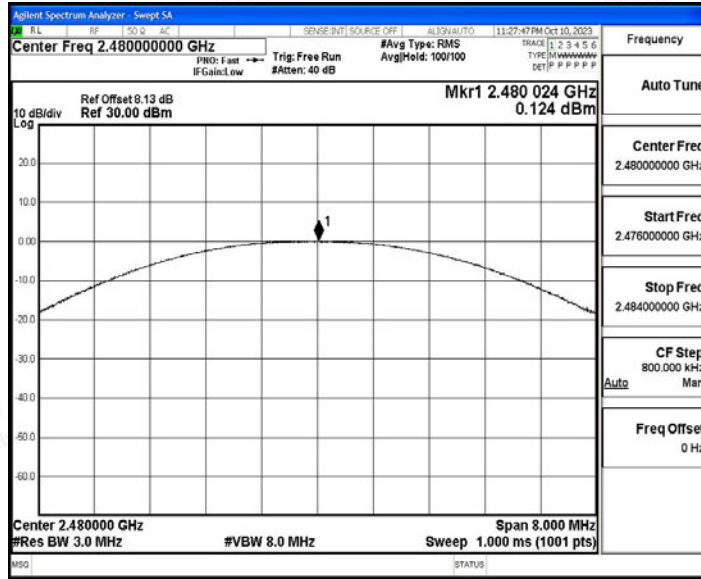




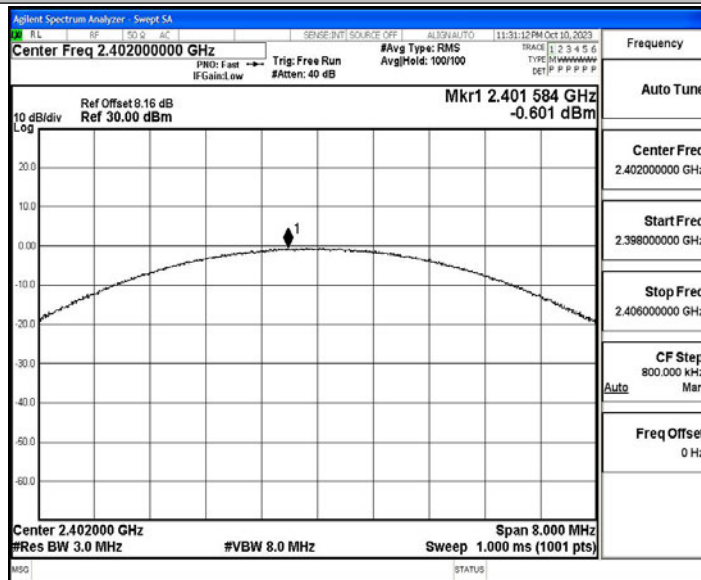


### Test Graphs



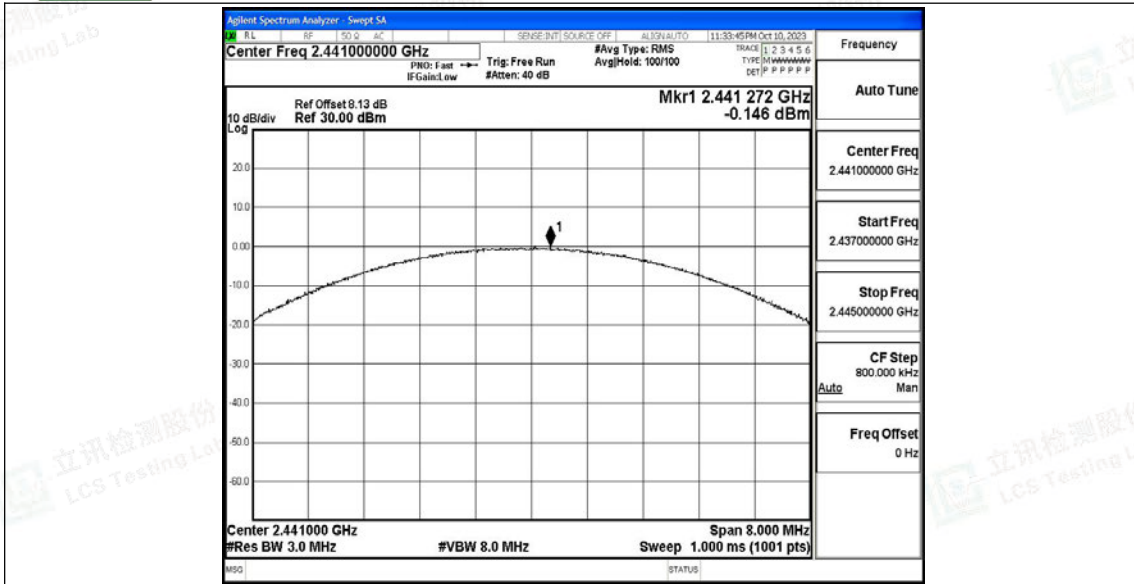


2DH5\_Ant1\_2402

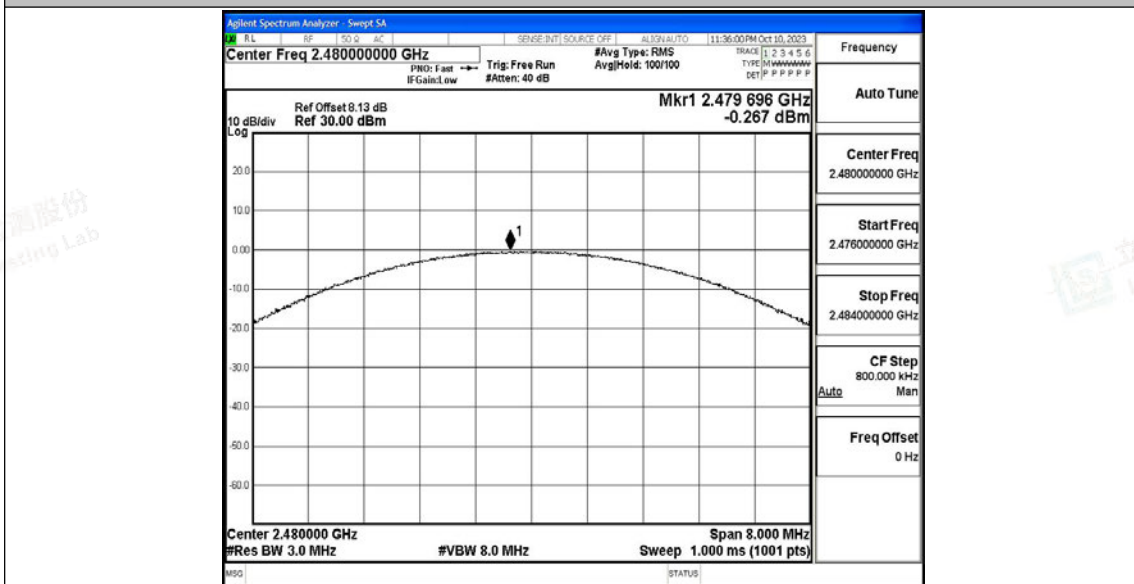


2DH5\_Ant1\_2441



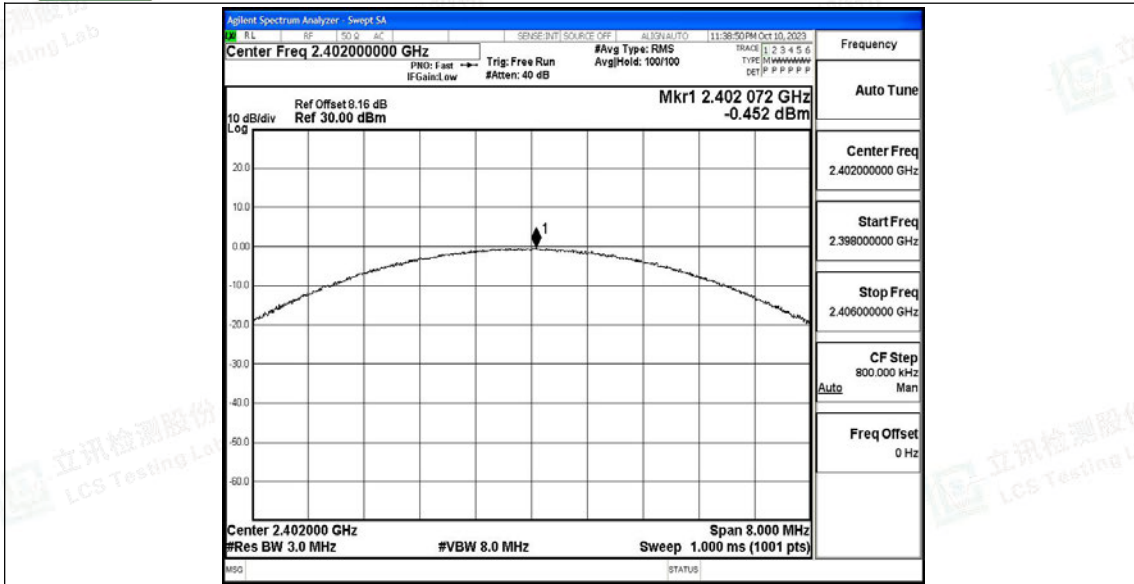


2DH5\_Ant1\_2480

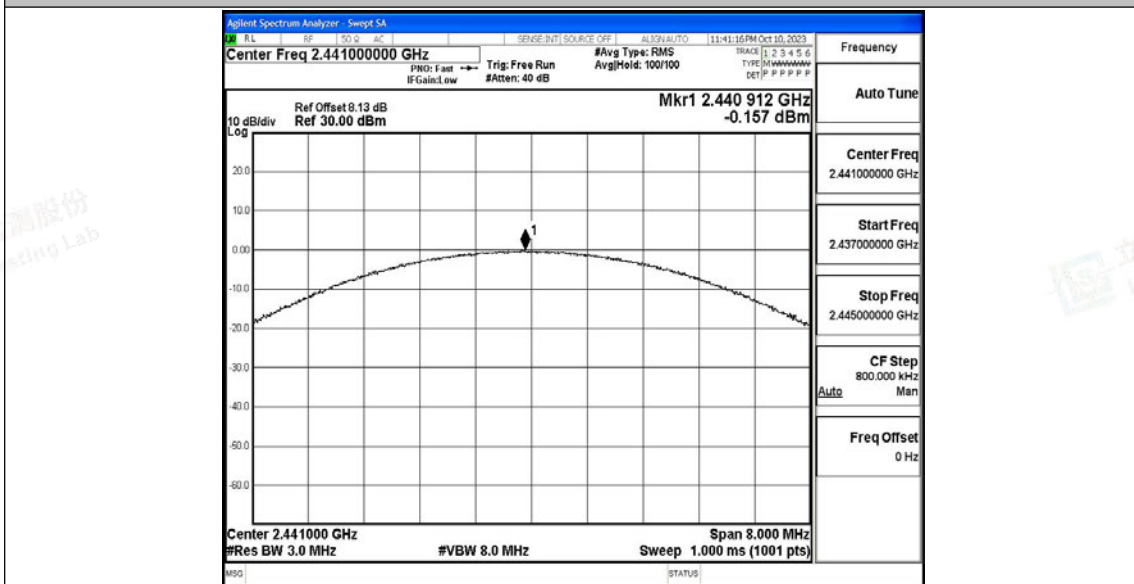


3DH5\_Ant1\_2402



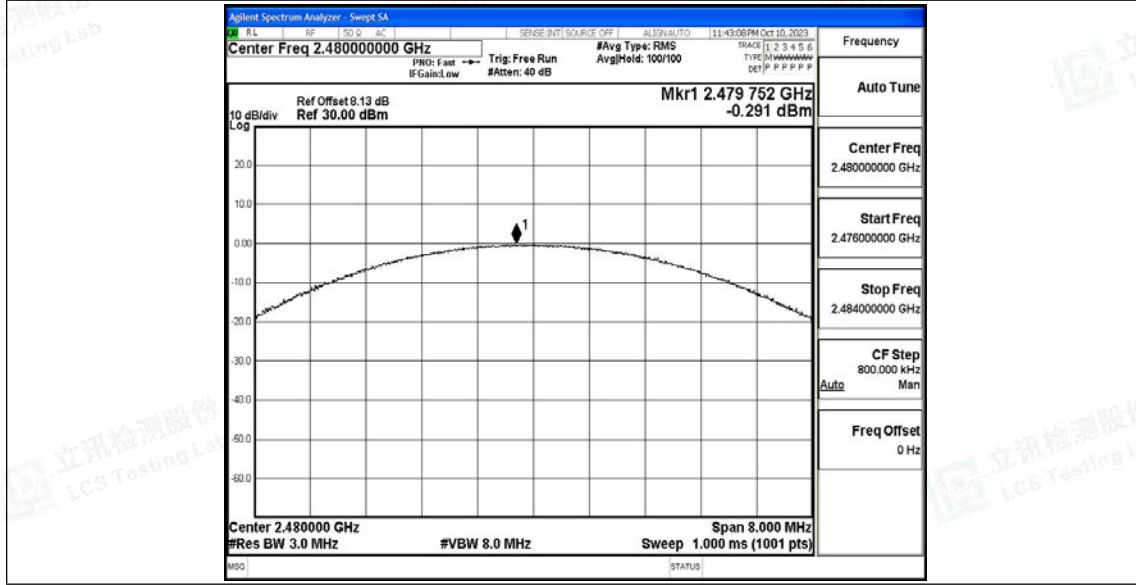


3DH5\_Ant1\_2441



3DH5\_Ant1\_2480







### A.3 Carrier frequency separation

#### Test Result

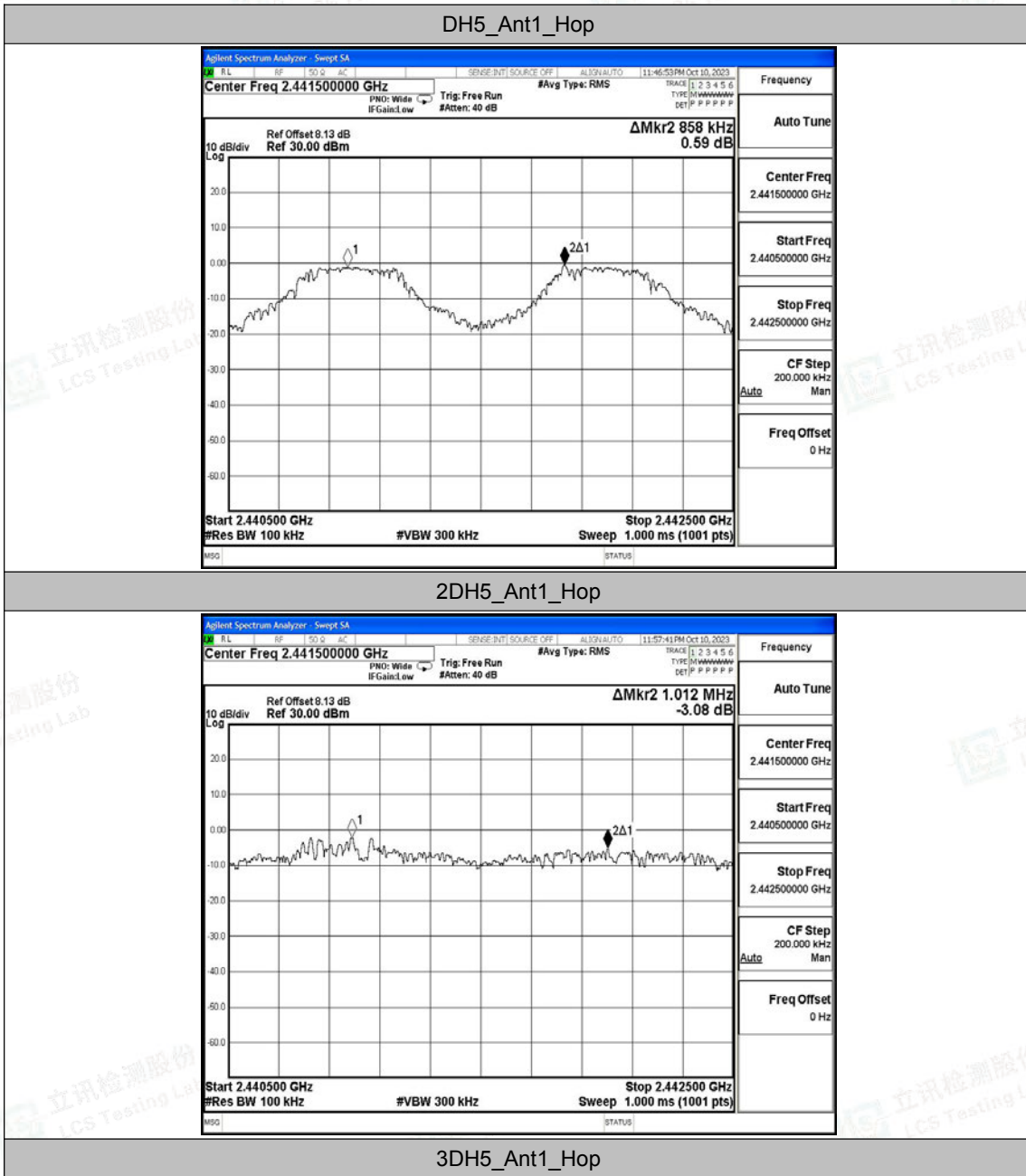
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.858	≥0.690	PASS
2DH5	Ant1	Hop	1.012	≥0.880	PASS
3DH5	Ant1	Hop	1.228	≥0.872	PASS

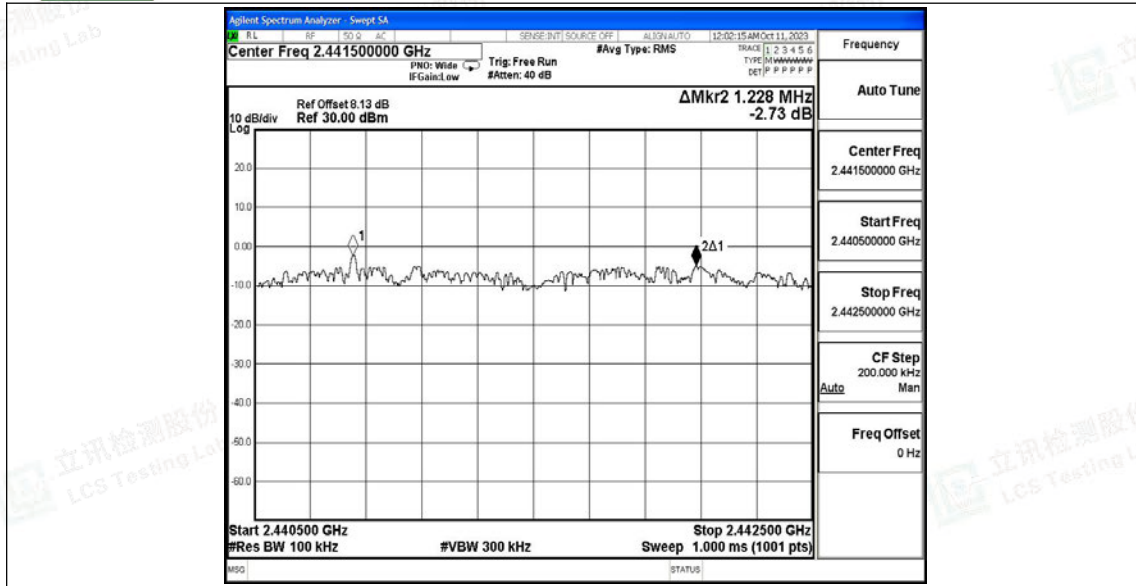






Test Graphs







## A.4 Time of occupancy

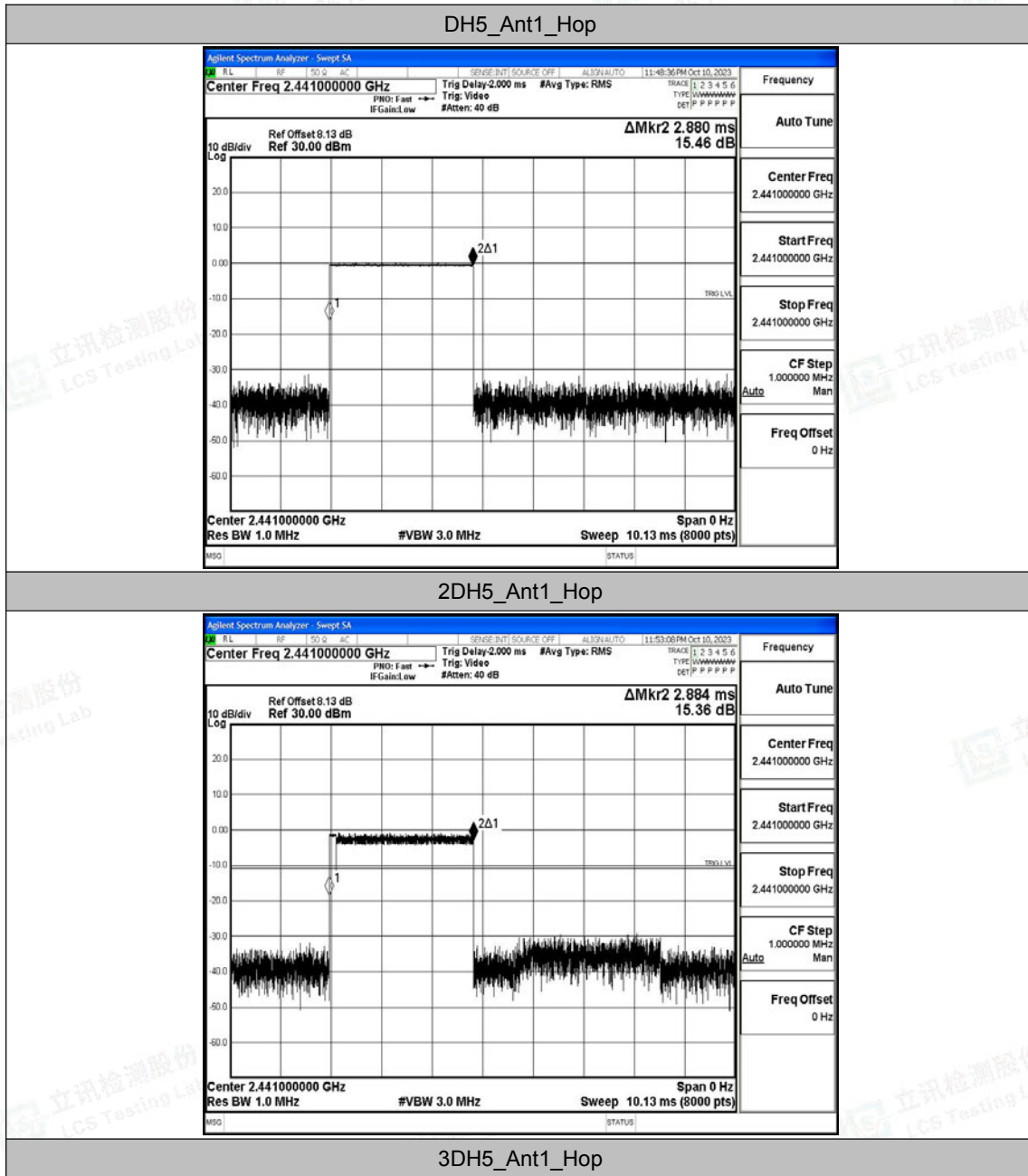
### Test Result

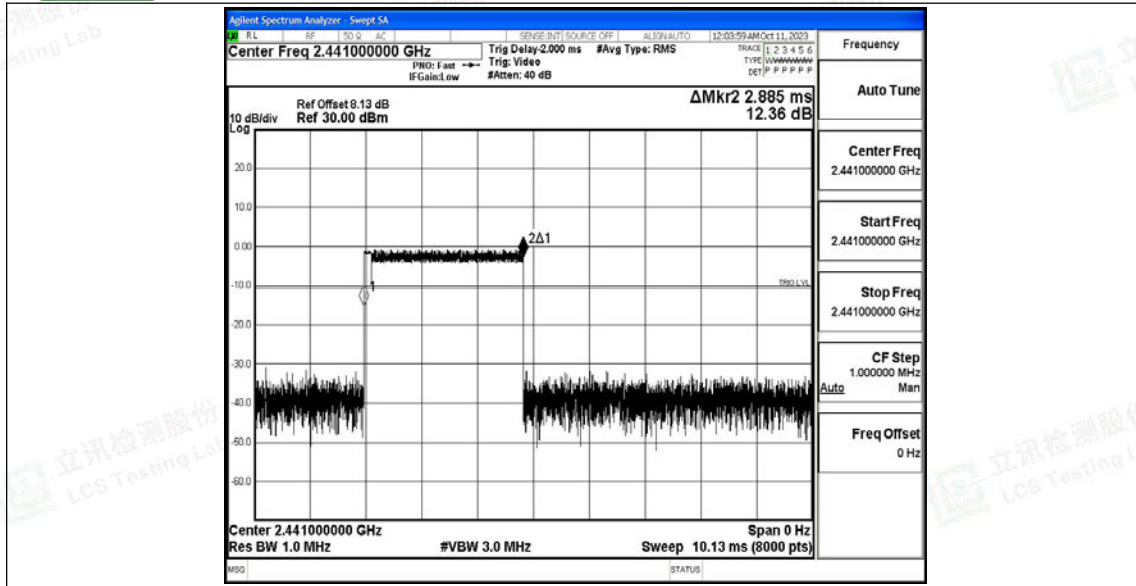
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.880	106.67	0.307	≤0.4	PASS
2DH5	Ant1	Hop	2.884	106.67	0.308	≤0.4	PASS
3DH5	Ant1	Hop	2.885	106.67	0.308	≤0.4	PASS





### Test Graphs







## A.5 Number of hopping channels

### Test Result

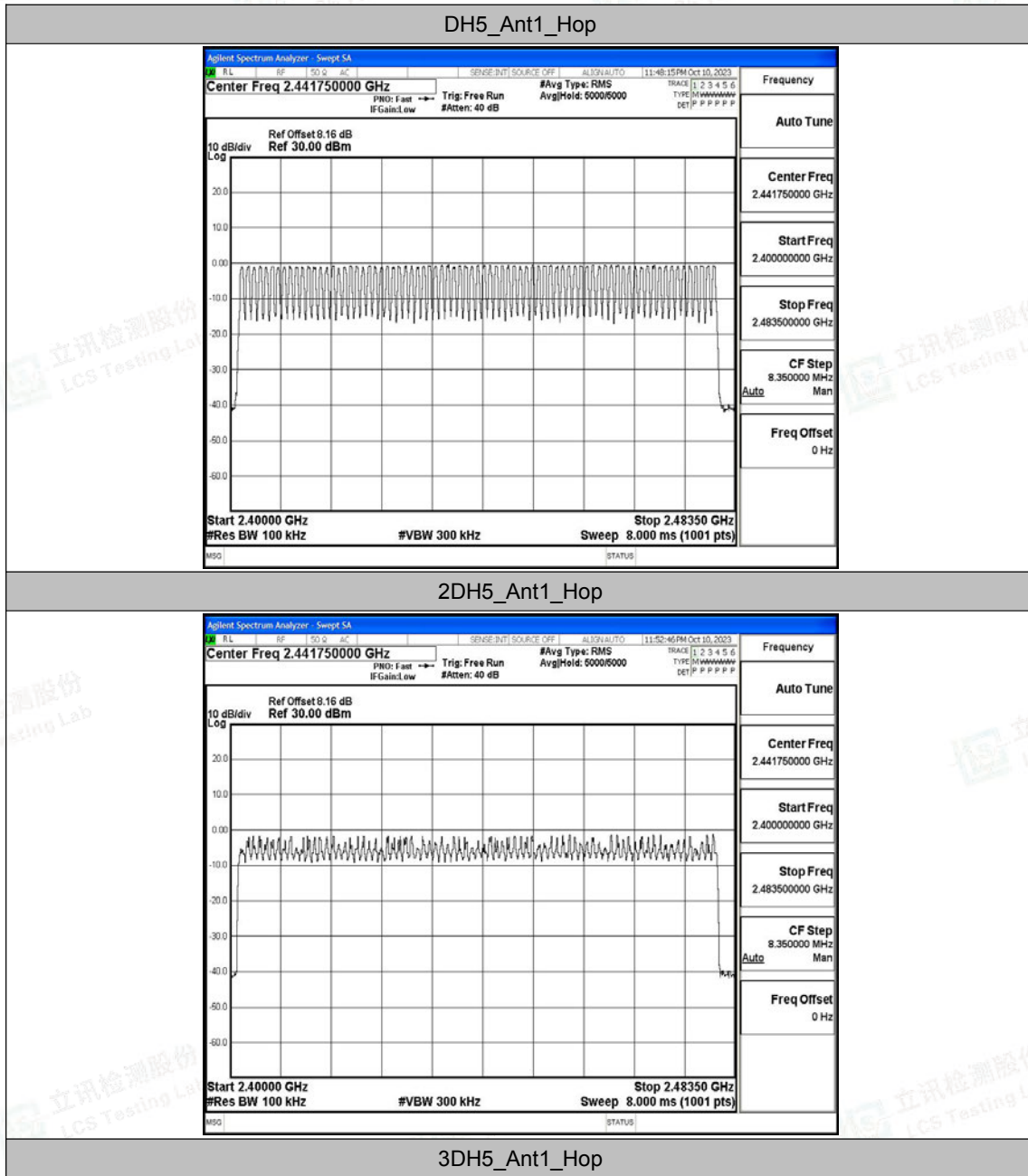
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

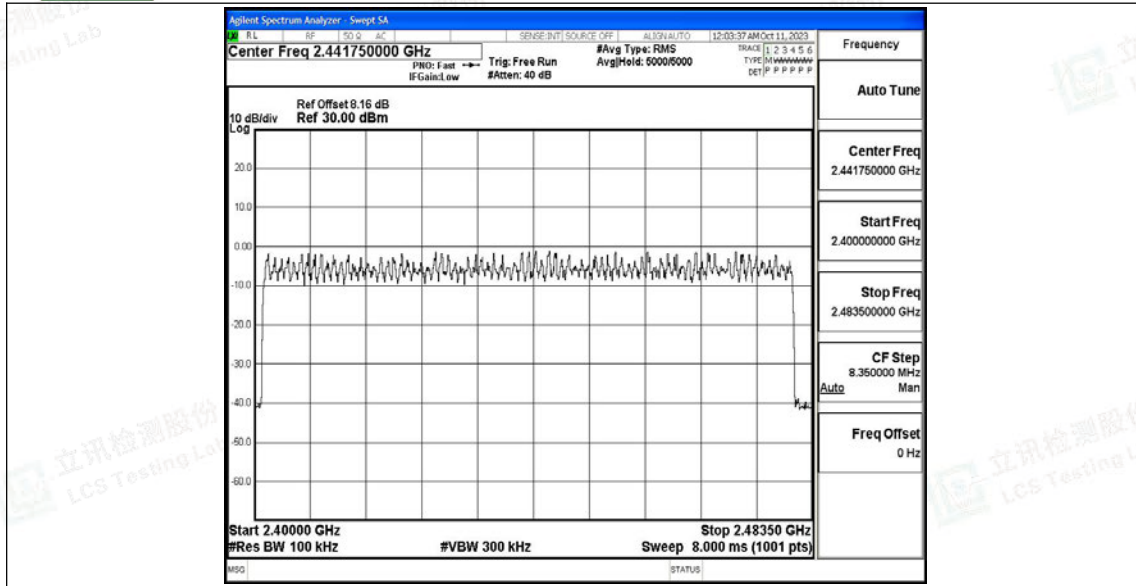






### Test Graphs







## A.6 Band edge measurements

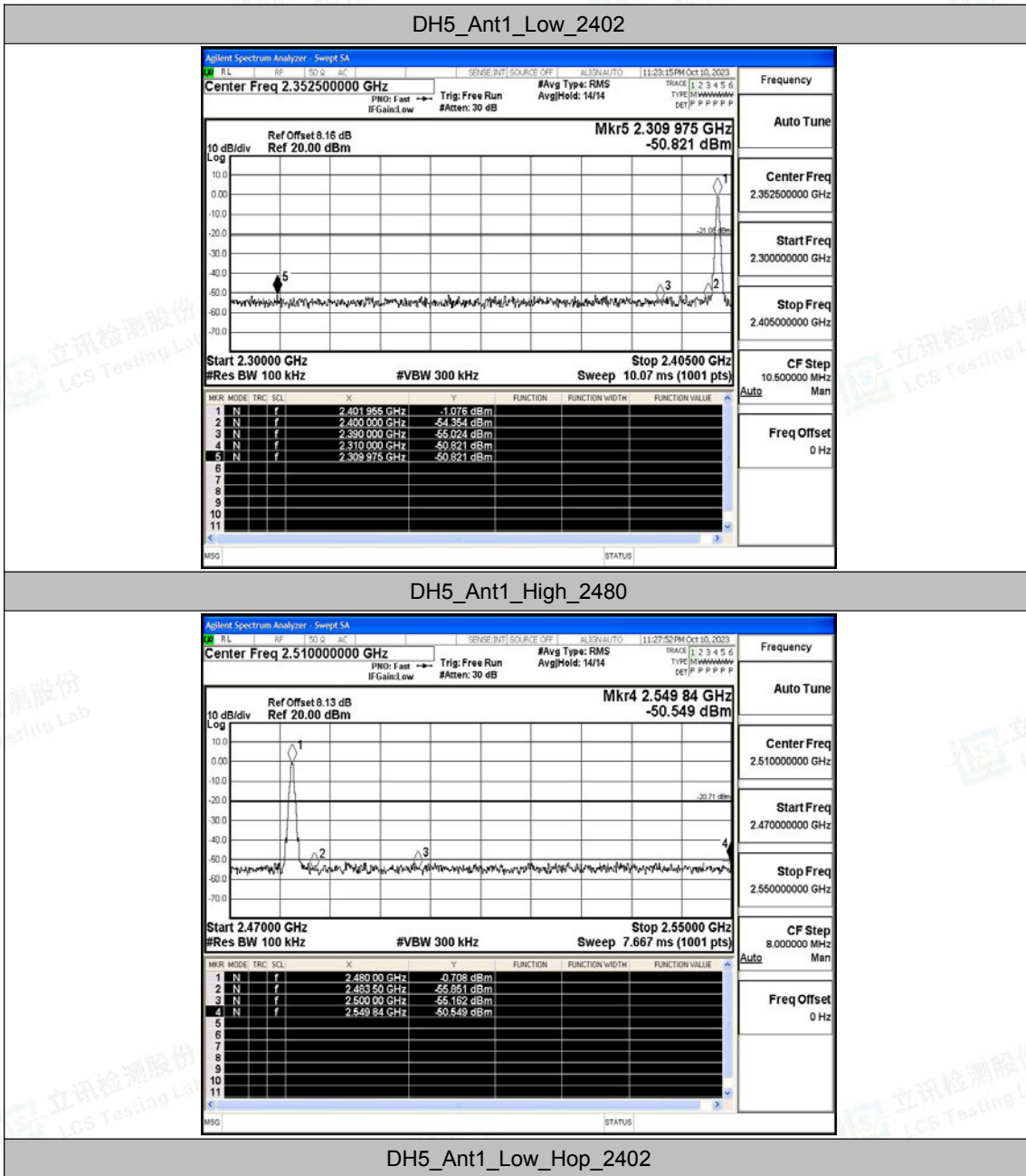
### Test Result

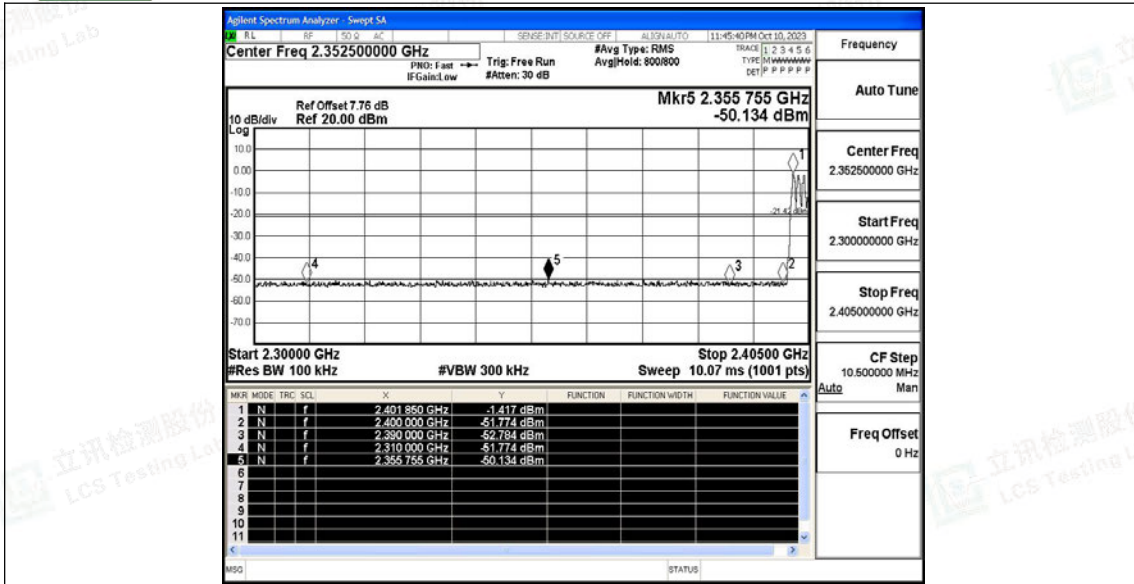
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-1.08	-50.82	≤-21.08	PASS
		High	2480	-0.71	-50.55	≤-20.71	PASS
		Low	Hop_2402	-1.42	-50.13	≤-21.42	PASS
		High	Hop_2480	-0.78	-48.68	≤-20.78	PASS
2DH5	Ant1	Low	2402	-5.33	-50.68	≤-25.33	PASS
		High	2480	-6.01	-50.9	≤-26.01	PASS
		Low	Hop_2402	-6.12	-50.04	≤-26.12	PASS
		High	Hop_2480	-2.21	-48.65	≤-22.21	PASS
3DH5	Ant1	Low	2402	-4.40	-50.66	≤-24.4	PASS
		High	2480	-2.62	-50.64	≤-22.62	PASS
		Low	Hop_2402	-4.39	-49.97	≤-24.39	PASS
		High	Hop_2480	-2.50	-49.35	≤-22.5	PASS



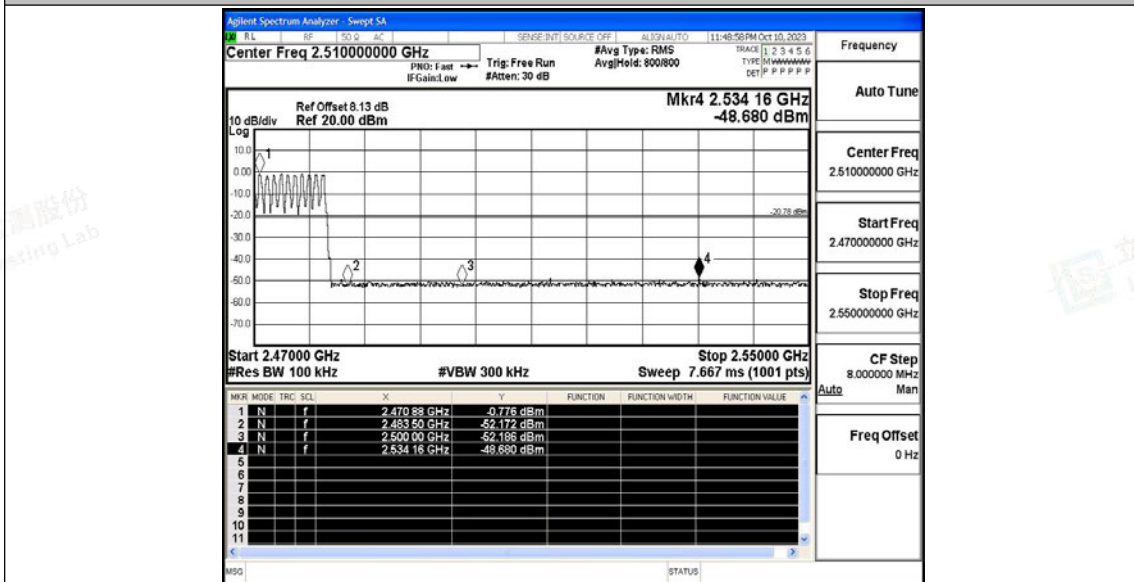


Test Graphs





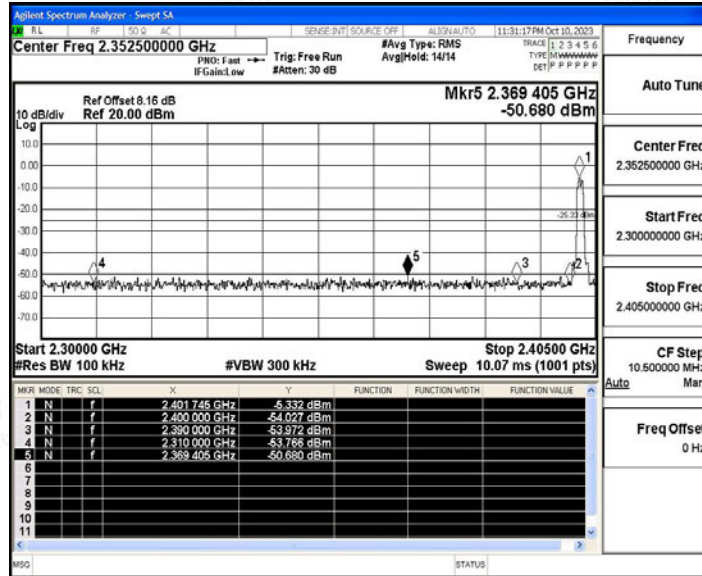
DH5\_Ant1\_High\_Hop\_2480



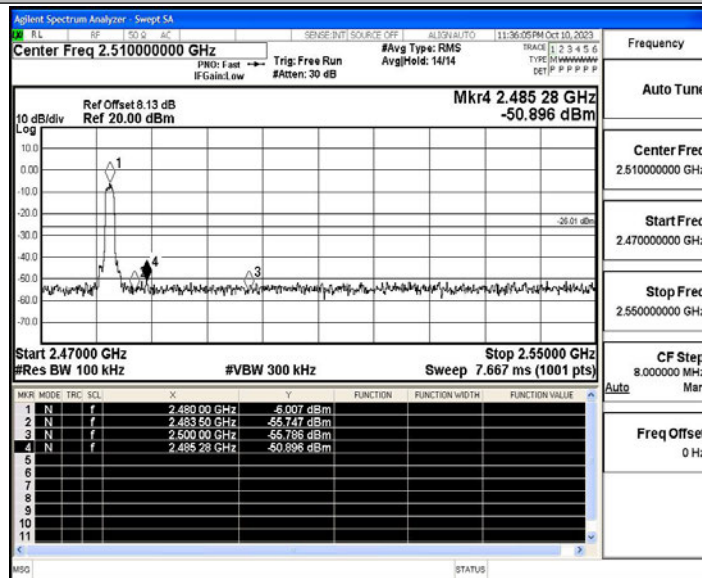
2DH5\_Ant1\_Low\_2402







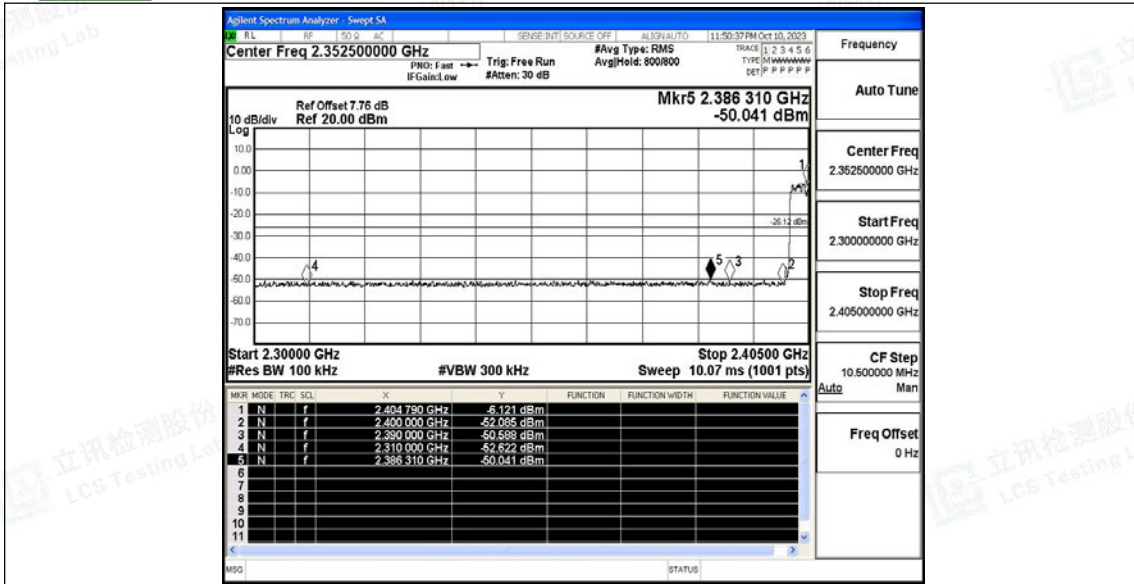
2DH5\_Ant1\_High\_2480



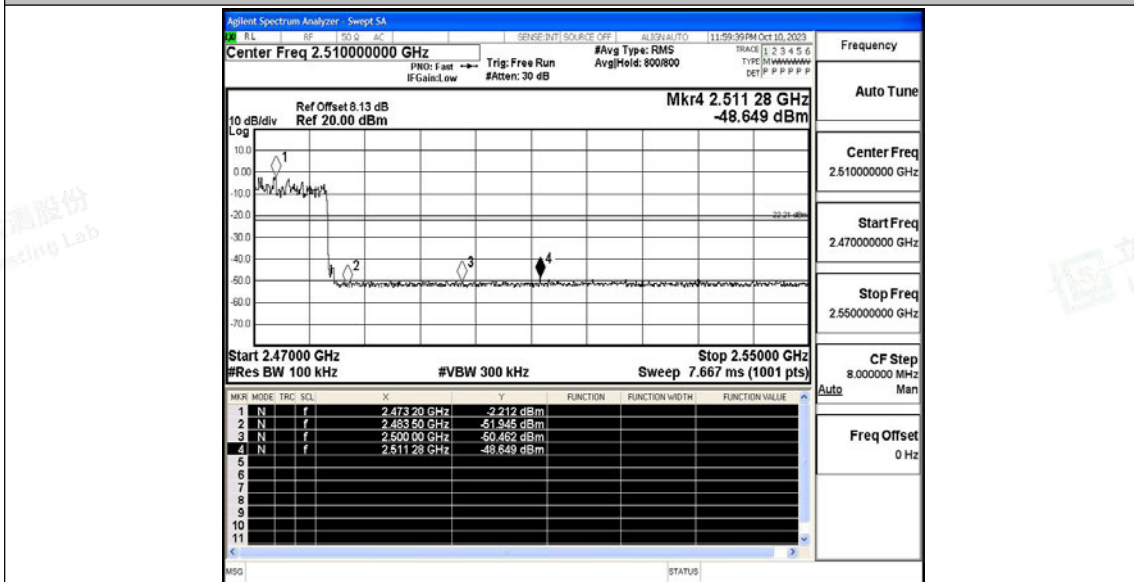
2DH5\_Ant1\_Low\_Hop\_2402





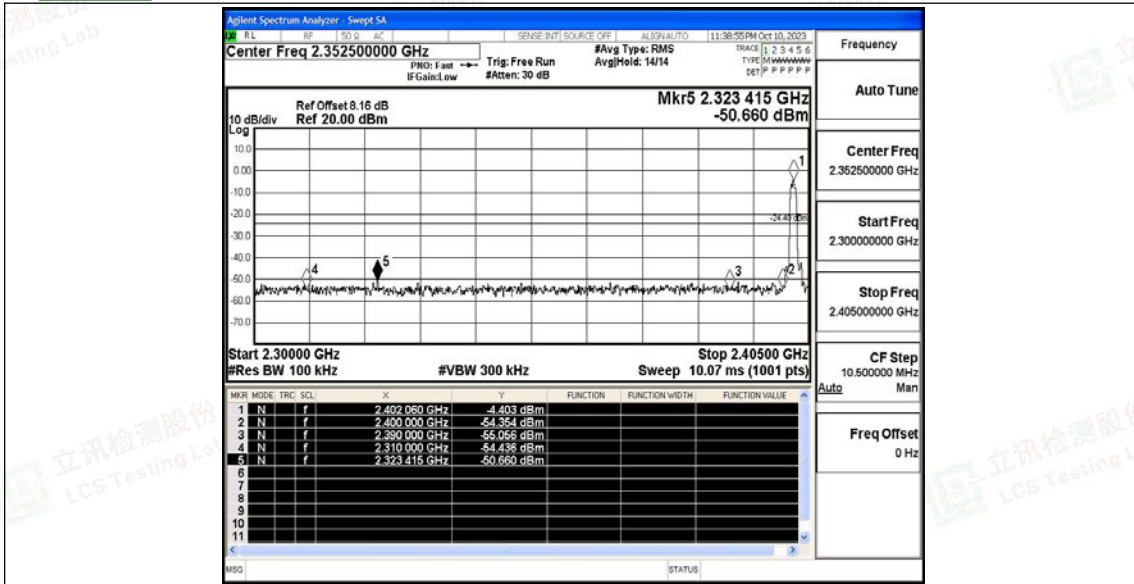


2DH5\_Ant1\_High\_Hop\_2480

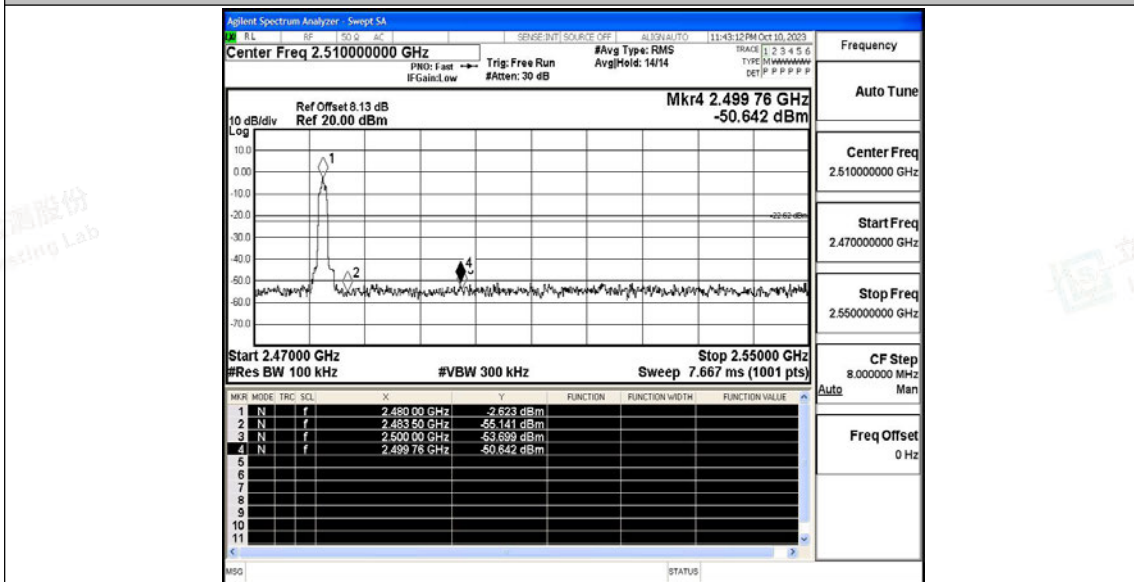


3DH5\_Ant1\_Low\_2402



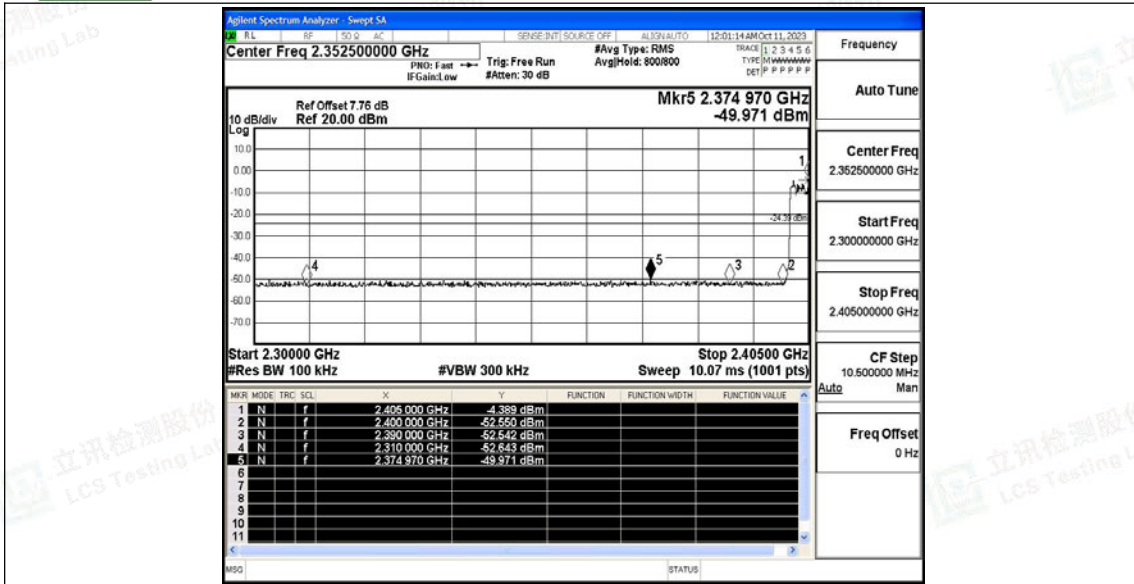


3DH5\_Ant1\_High\_2480

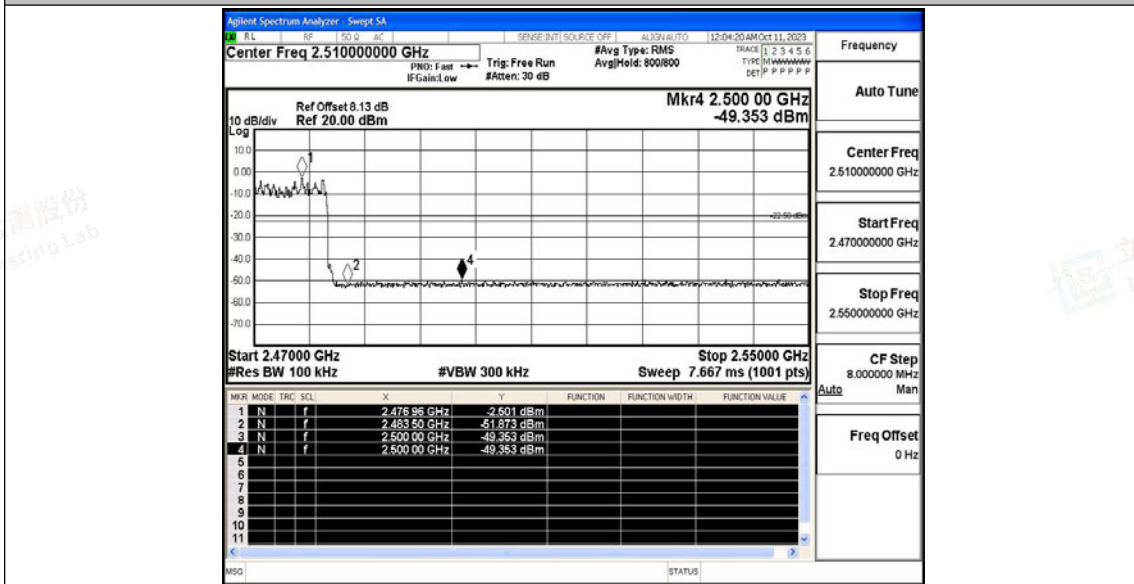


3DH5\_Ant1\_Low\_Hop\_2402





3DH5\_Ant1\_High\_Hop\_2480





## A.7 Conducted Spurious Emission

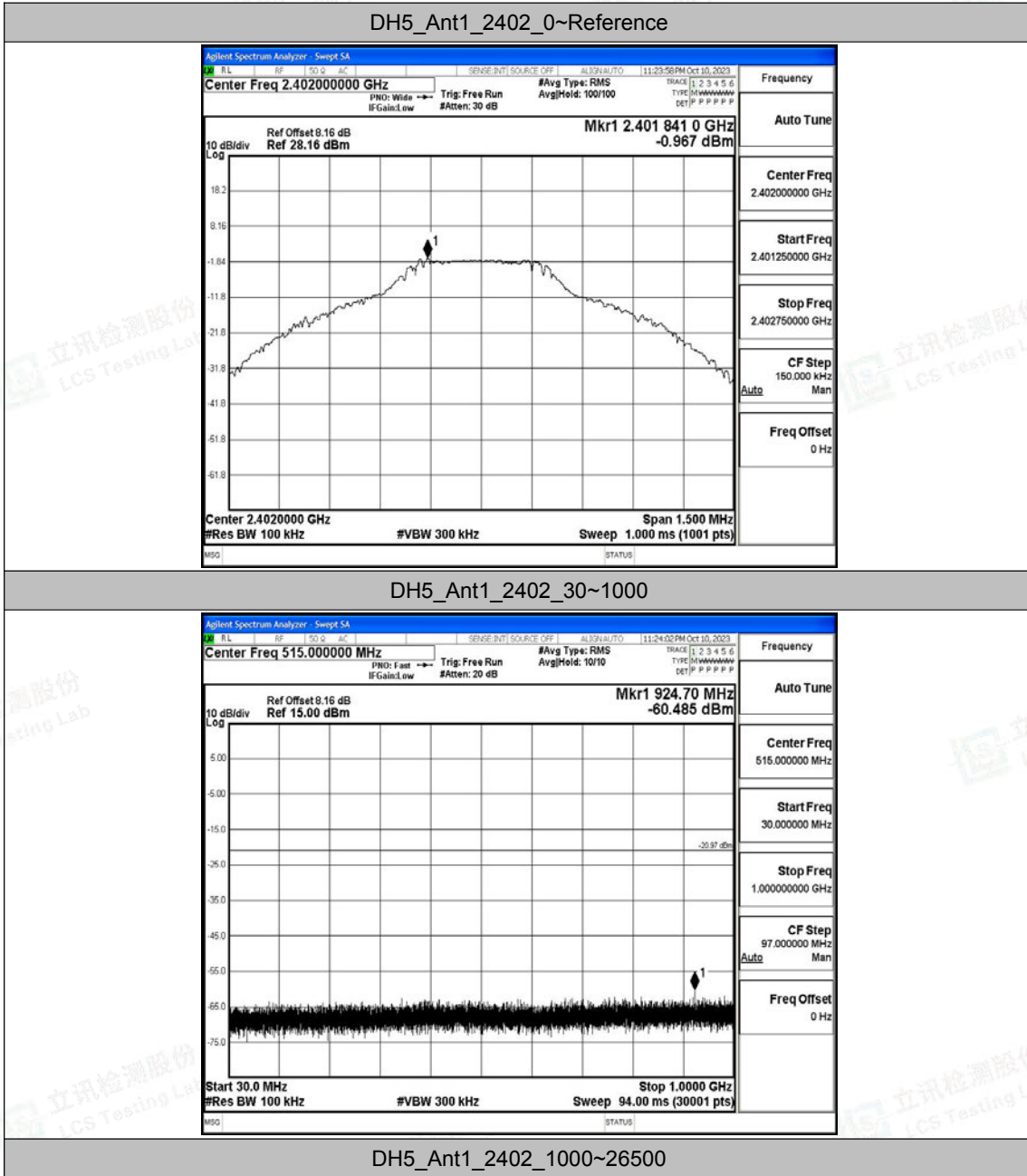
### Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-0.97	-0.97	---	PASS
			30~1000	-0.97	-60.49	≤-20.97	PASS
			1000~26500	-0.97	-48.42	≤-20.97	PASS
		2441	Reference	-0.57	-0.57	---	PASS
			30~1000	-0.57	-60.5	≤-20.57	PASS
			1000~26500	-0.57	-48.96	≤-20.57	PASS
		2480	Reference	-0.58	-0.58	---	PASS
			30~1000	-0.58	-61.81	≤-20.58	PASS
			1000~26500	-0.58	-48.95	≤-20.58	PASS
2DH5	Ant1	2402	Reference	-2.47	-2.47	---	PASS
			30~1000	-2.47	-61.11	≤-22.47	PASS
			1000~26500	-2.47	-49.47	≤-22.47	PASS
		2441	Reference	-1.70	-1.70	---	PASS
			30~1000	-1.70	-61.76	≤-21.7	PASS
			1000~26500	-1.70	-48.38	≤-21.7	PASS
		2480	Reference	-1.75	-1.75	---	PASS
			30~1000	-1.75	-61.24	≤-21.75	PASS
			1000~26500	-1.75	-49.04	≤-21.75	PASS
3DH5	Ant1	2402	Reference	-1.88	-1.88	---	PASS
			30~1000	-1.88	-61.51	≤-21.88	PASS
			1000~26500	-1.88	-49.27	≤-21.88	PASS
		2441	Reference	-2.35	-2.35	---	PASS
			30~1000	-2.35	-61.31	≤-22.35	PASS
			1000~26500	-2.35	-49.08	≤-22.35	PASS
		2480	Reference	-2.38	-2.38	---	PASS
			30~1000	-2.38	-61.01	≤-22.38	PASS
			1000~26500	-2.38	-48.8	≤-22.38	PASS

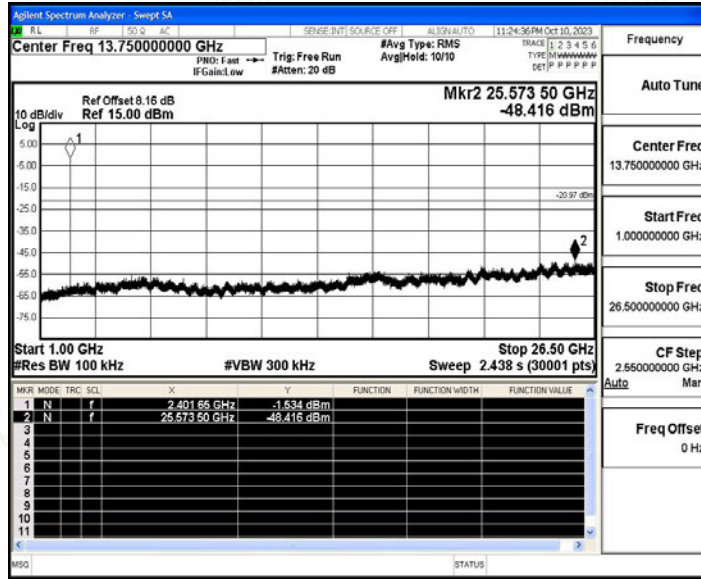




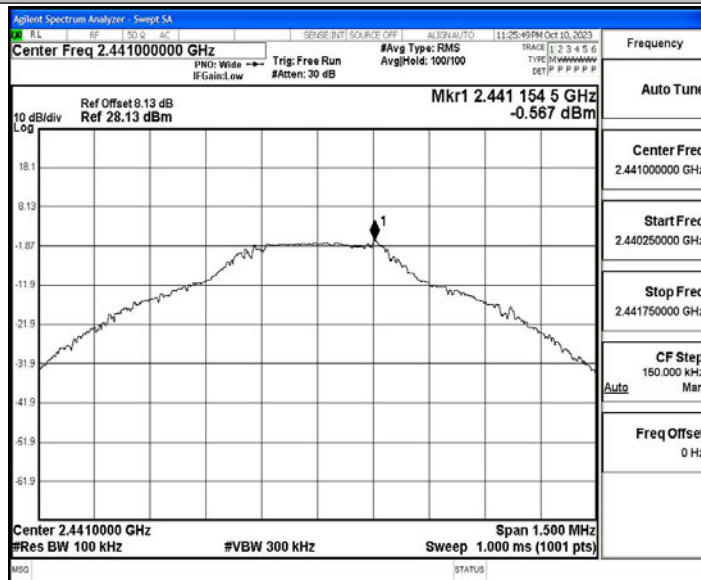
### Test Graphs







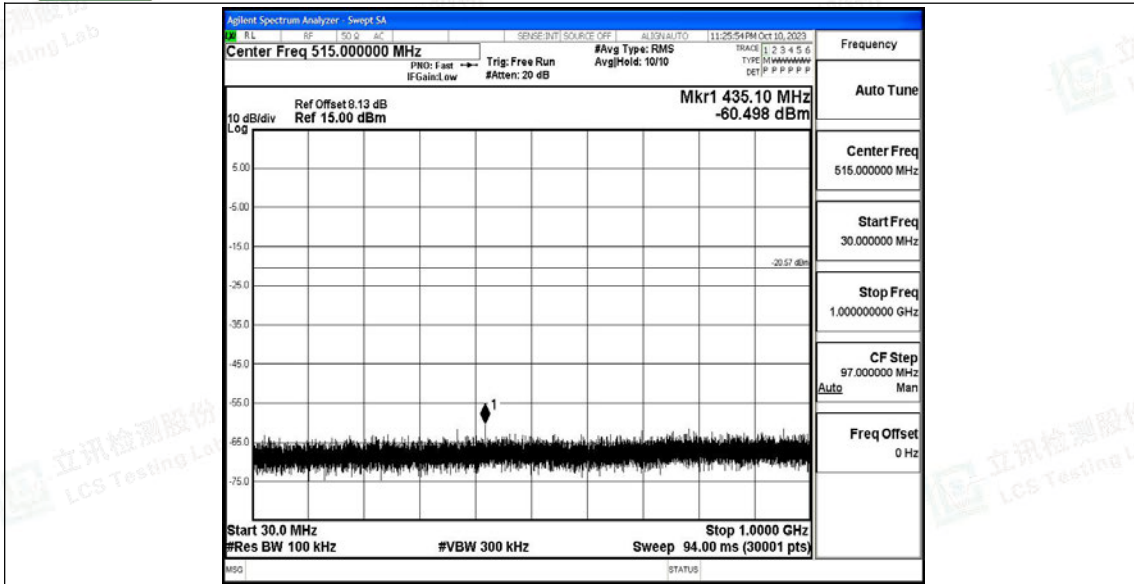
DH5\_Ant1\_2441\_0~Reference



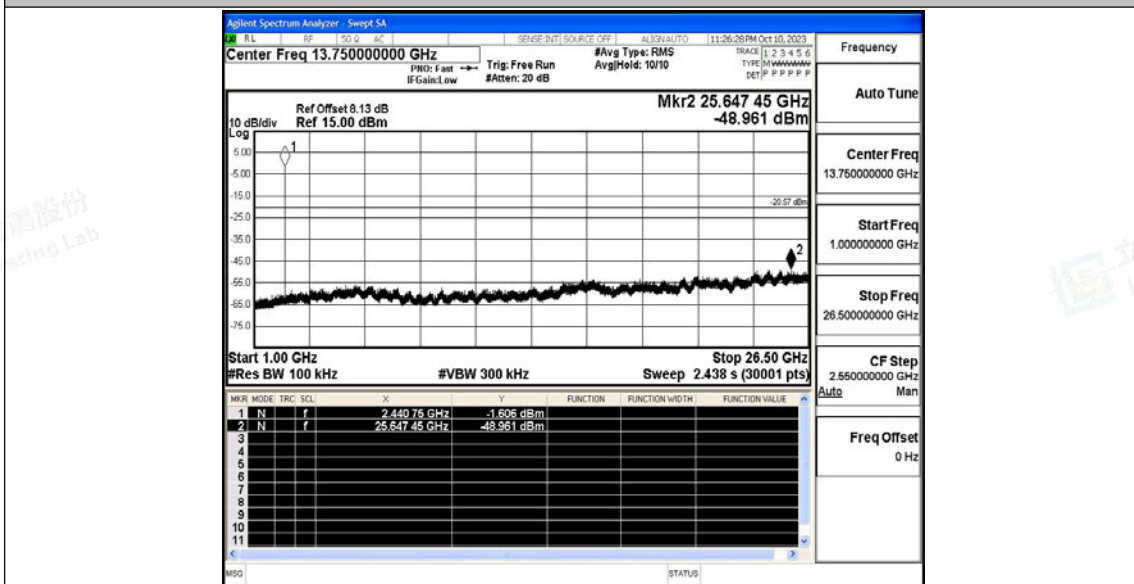
DH5\_Ant1\_2441\_30~1000





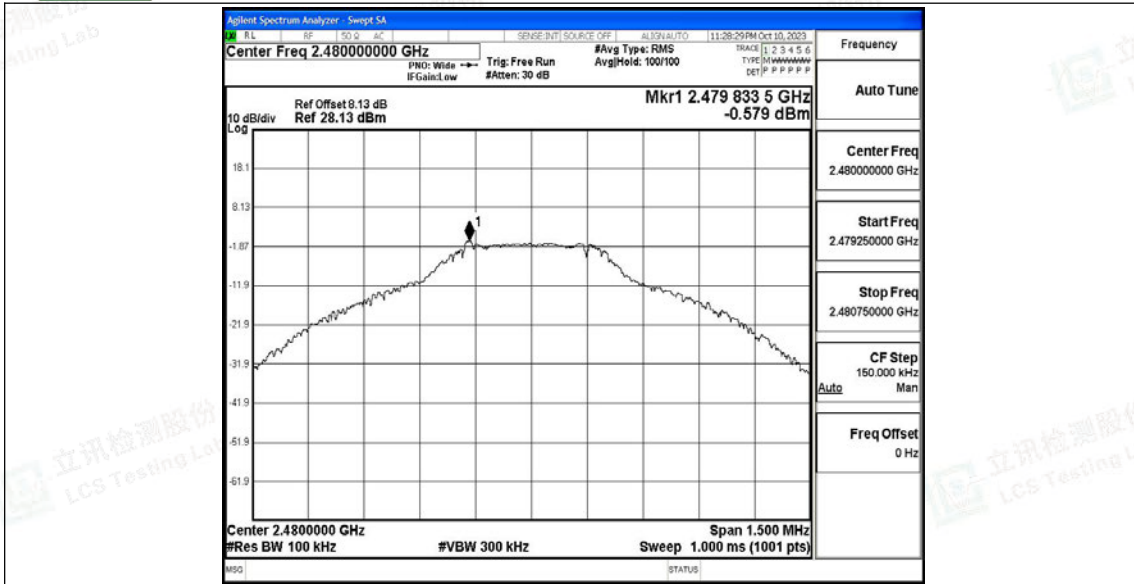


DH5\_Ant1\_2441\_1000~26500

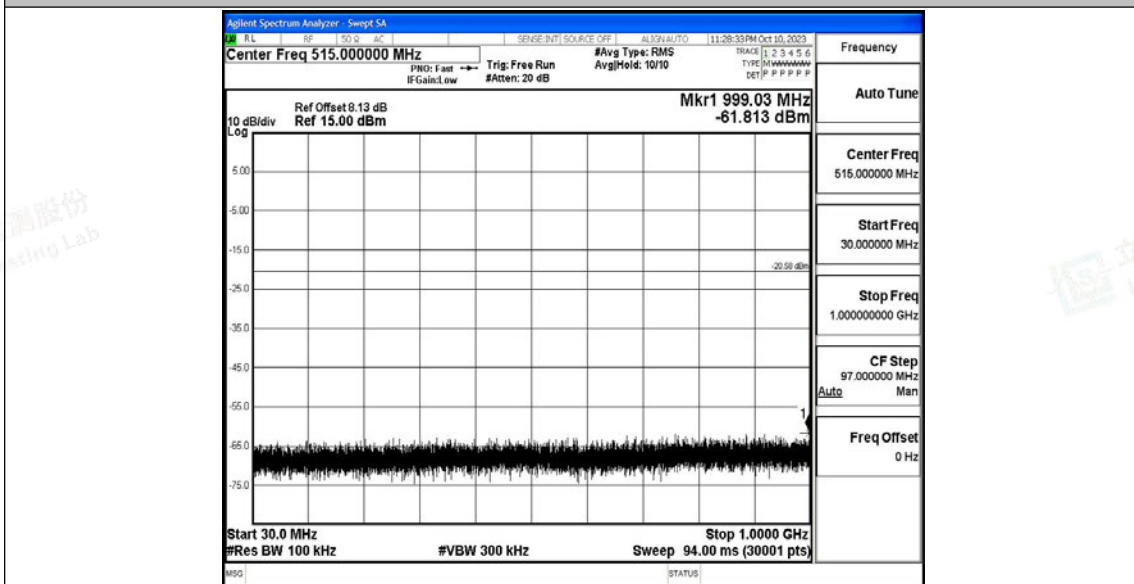


DH5\_Ant1\_2480\_0~Reference



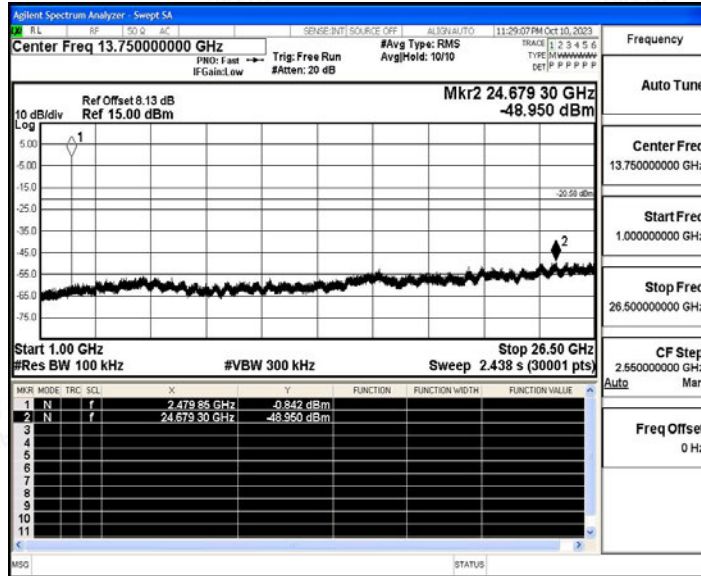


DH5\_Ant1\_2480\_30~1000

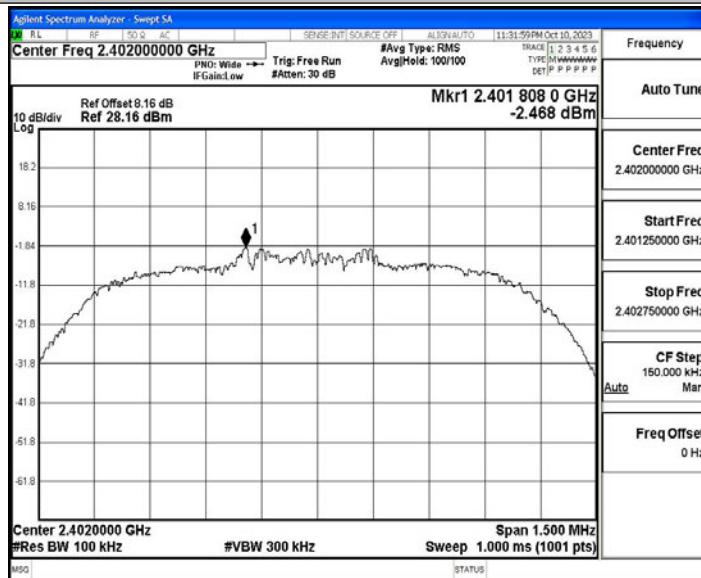


DH5\_Ant1\_2480\_1000~26500



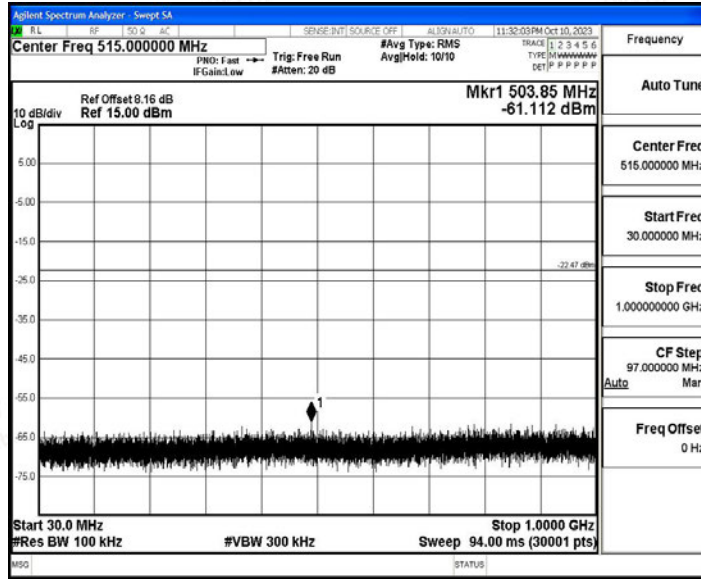


2DH5\_Ant1\_2402\_0~Reference

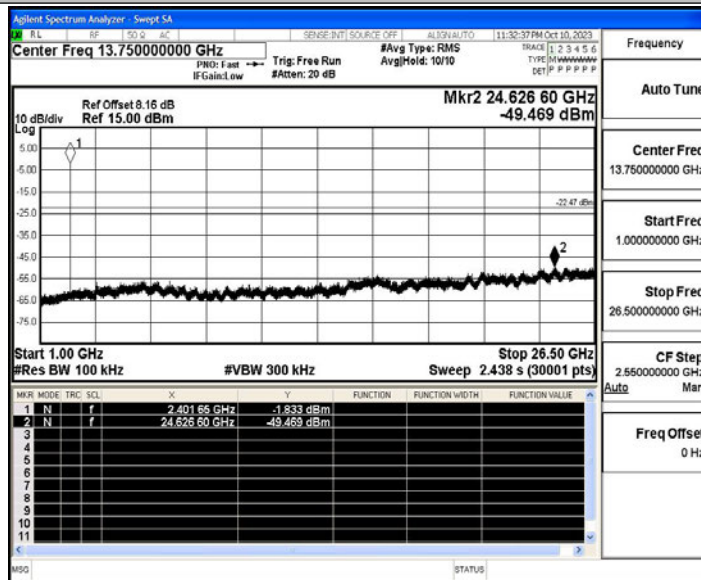


2DH5\_Ant1\_2402\_30~1000



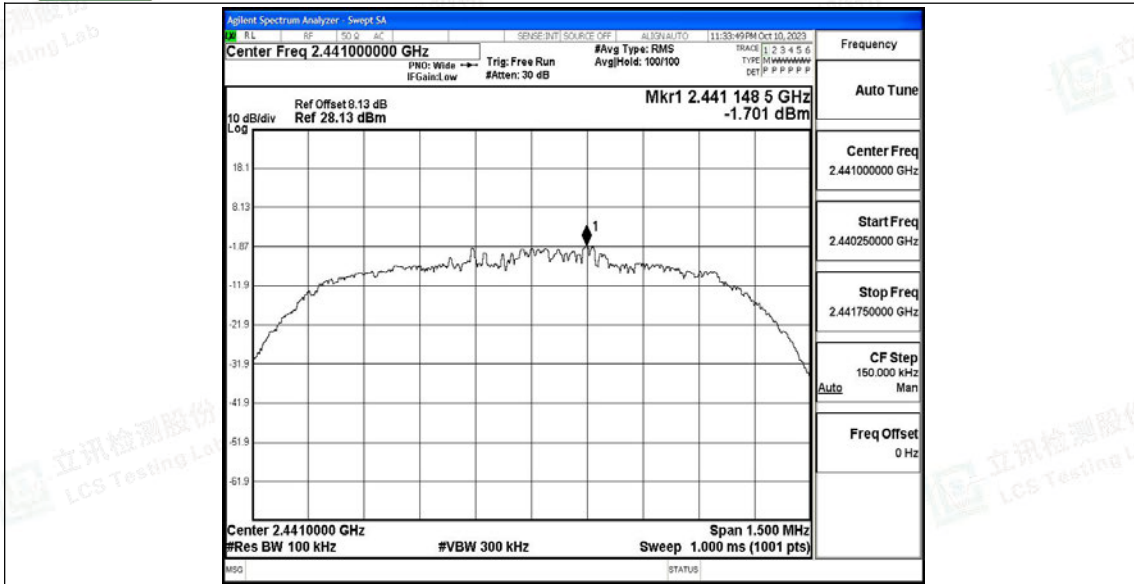


2DH5\_Ant1\_2402\_1000~26500

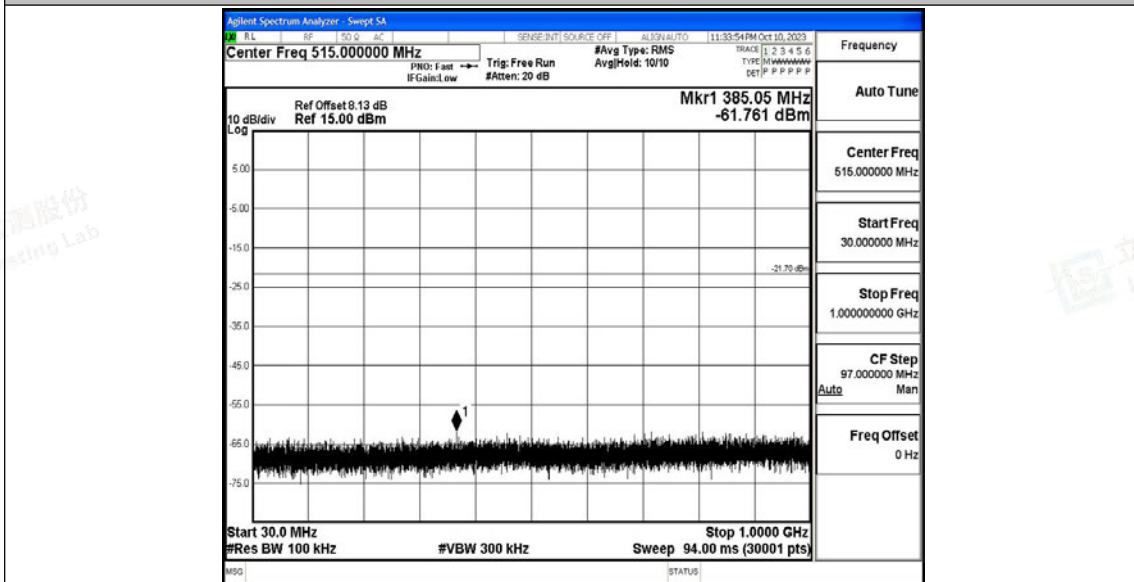


2DH5\_Ant1\_2441\_0~Reference





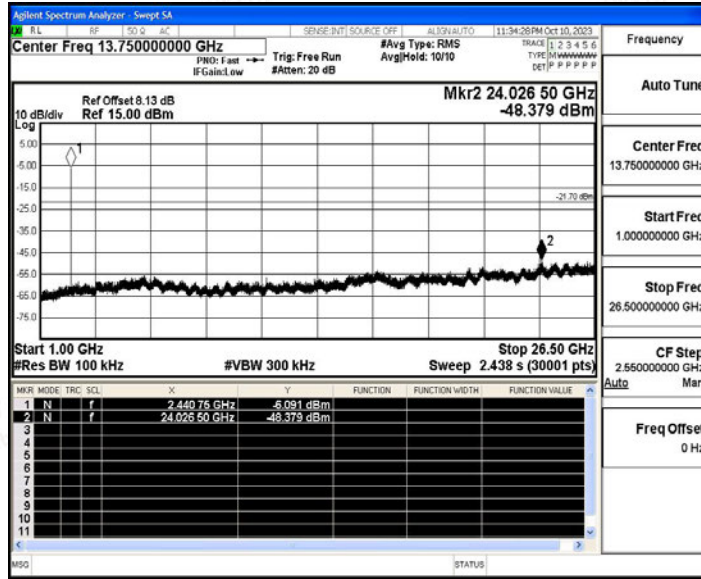
2DH5\_Ant1\_2441\_30~1000



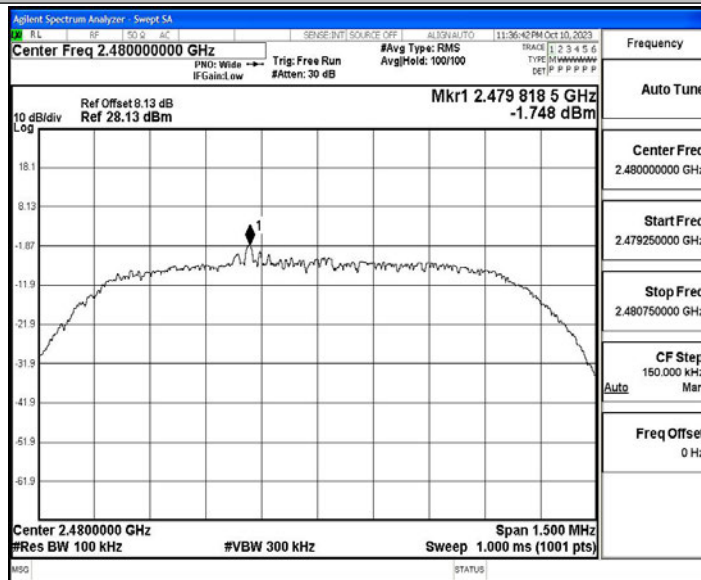
2DH5\_Ant1\_2441\_1000~26500







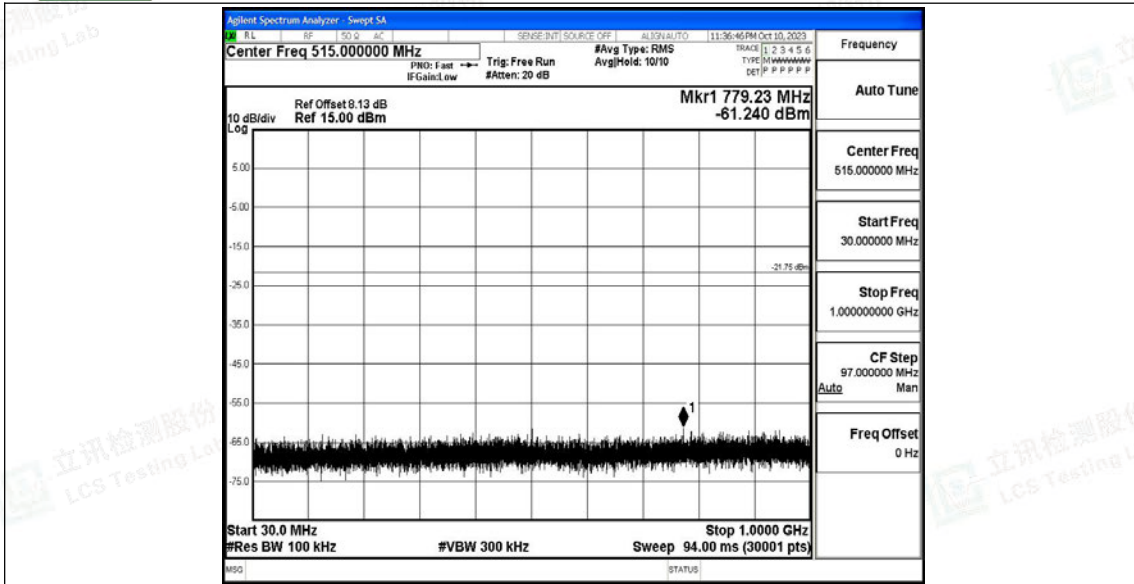
2DH5\_Ant1\_2480\_0~Reference



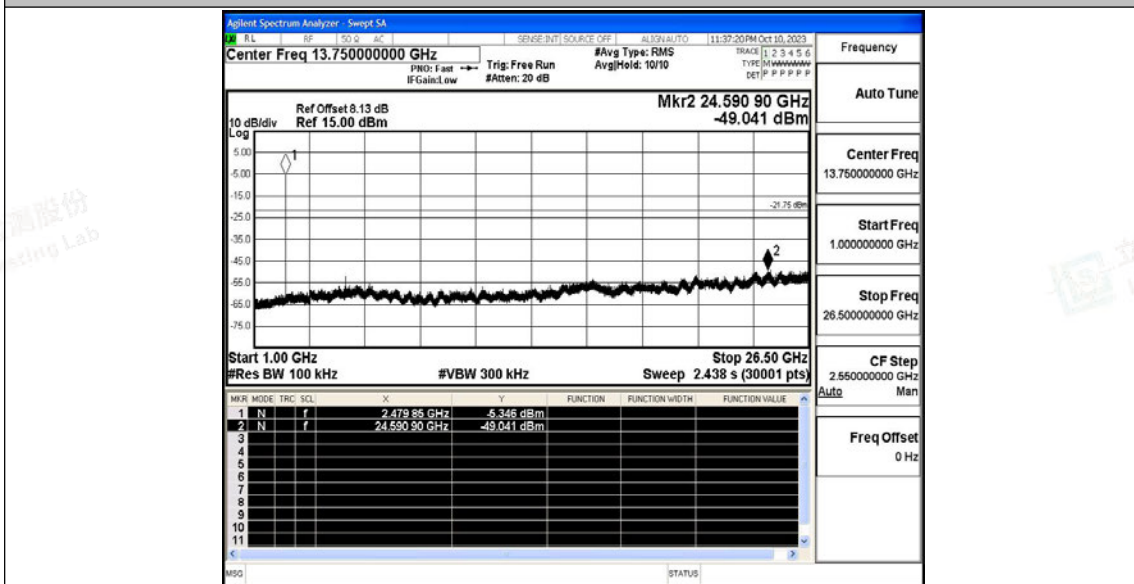
2DH5\_Ant1\_2480\_30~1000





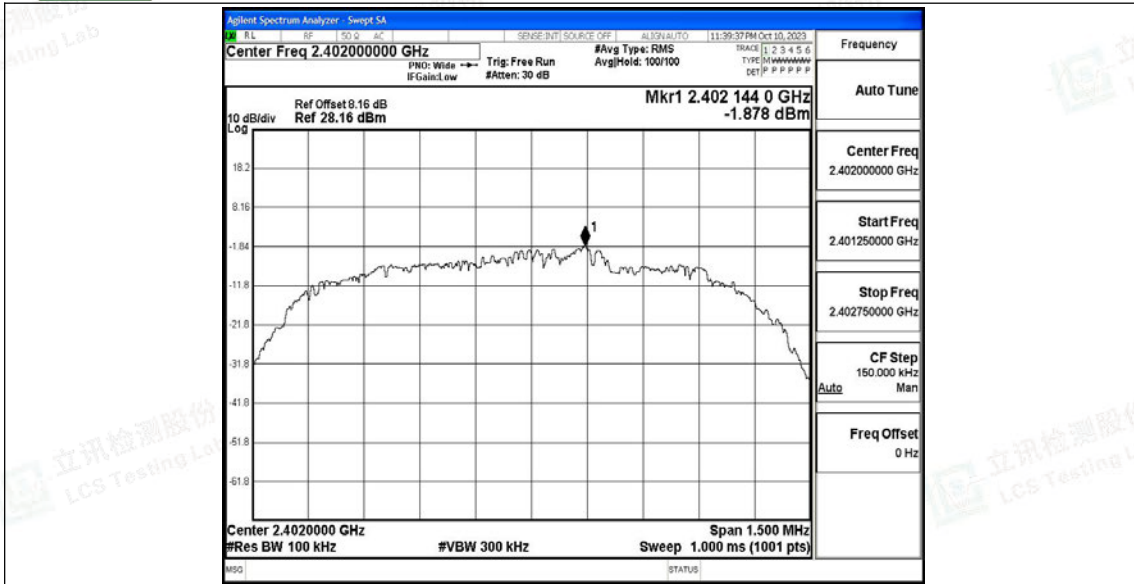


2DH5\_Ant1\_2480\_1000~26500

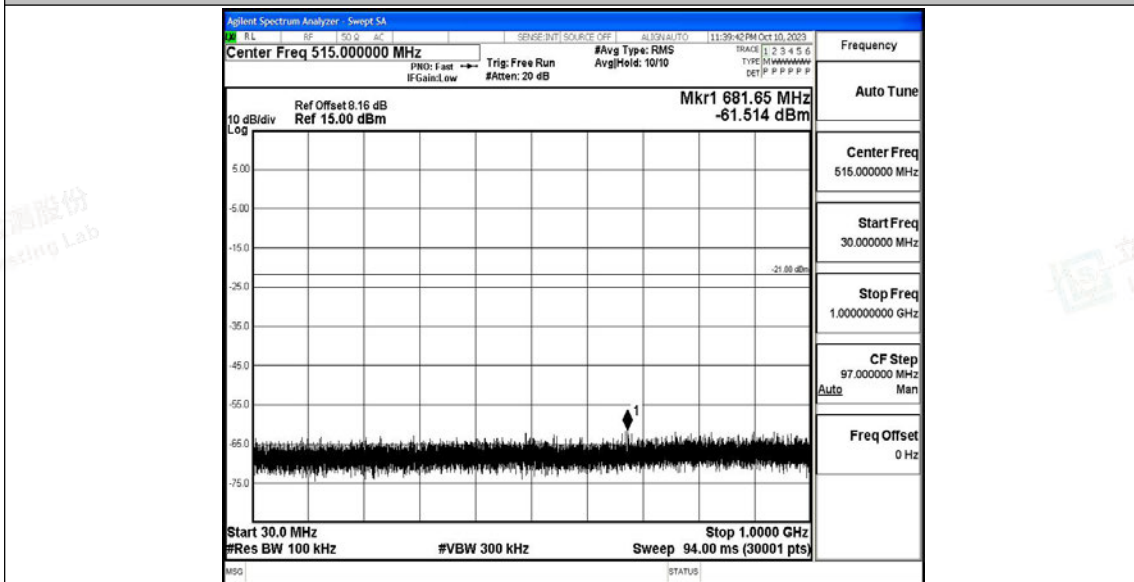


3DH5\_Ant1\_2402\_0~Reference



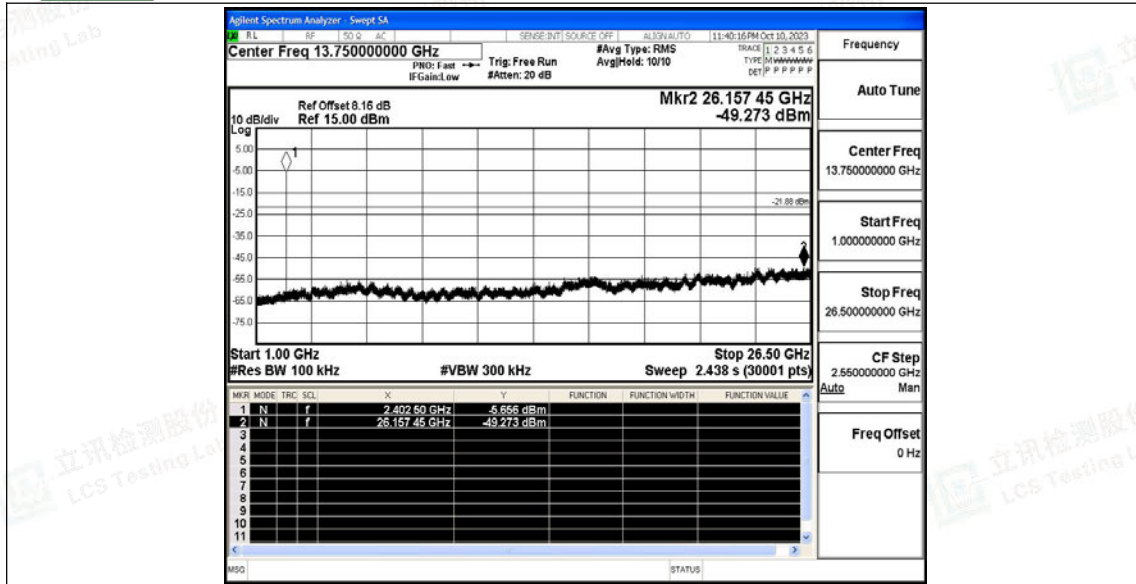


3DH5\_Ant1\_2402\_30~1000

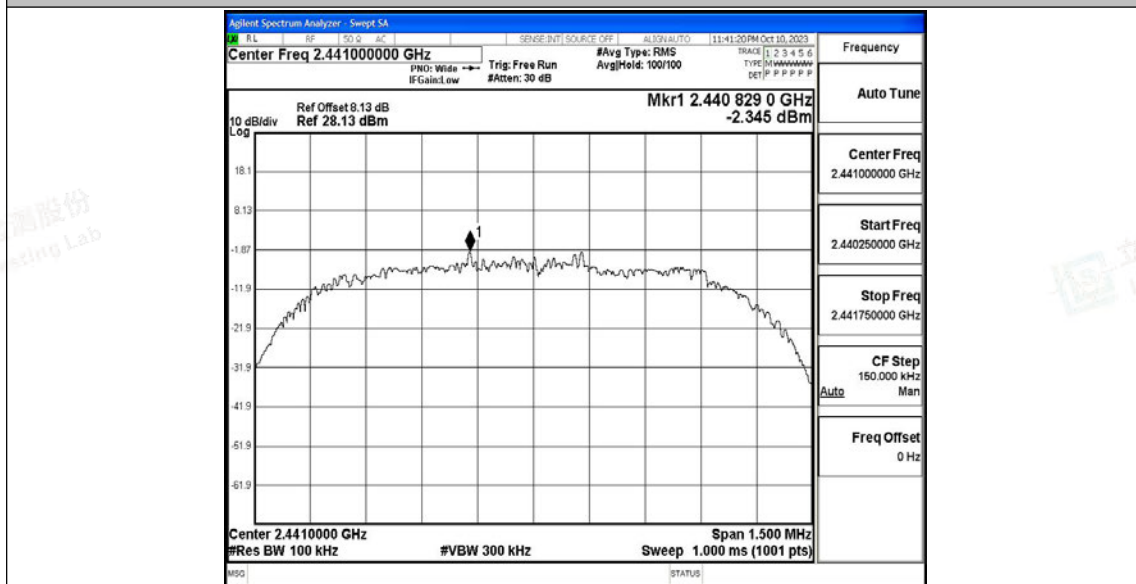


3DH5\_Ant1\_2402\_1000~26500



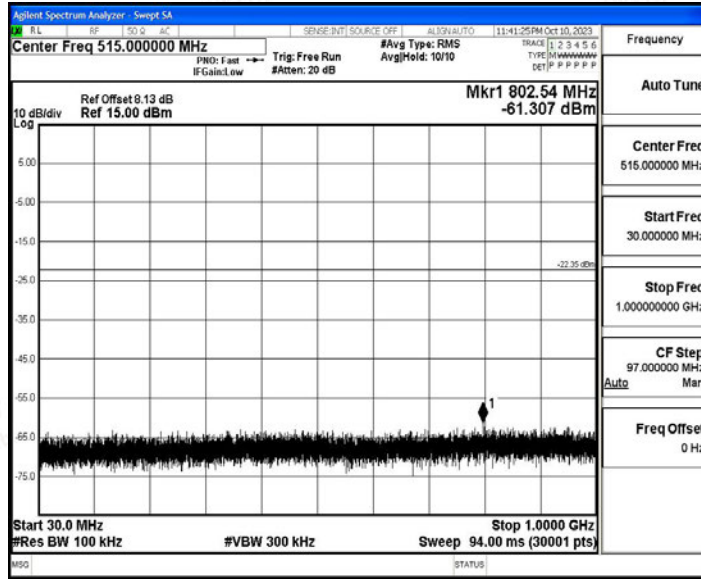


3DH5\_Ant1\_2441\_0~Reference

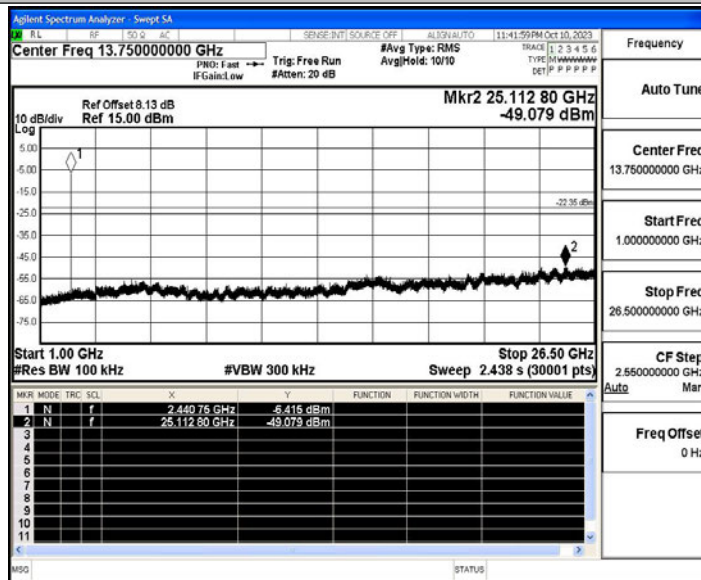


3DH5\_Ant1\_2441\_30~1000



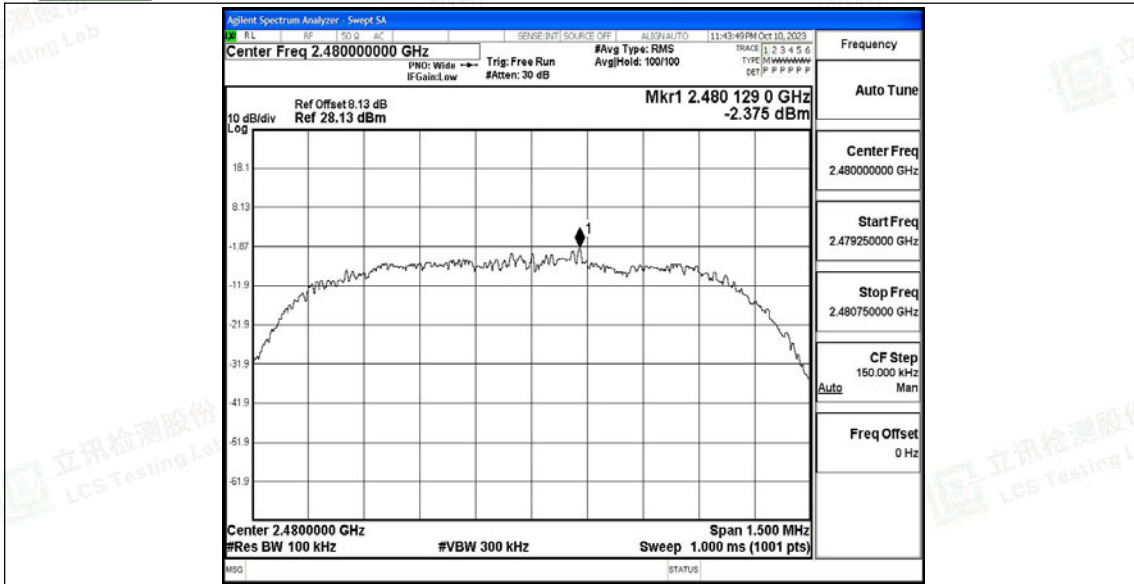


3DH5\_Ant1\_2441\_1000~26500

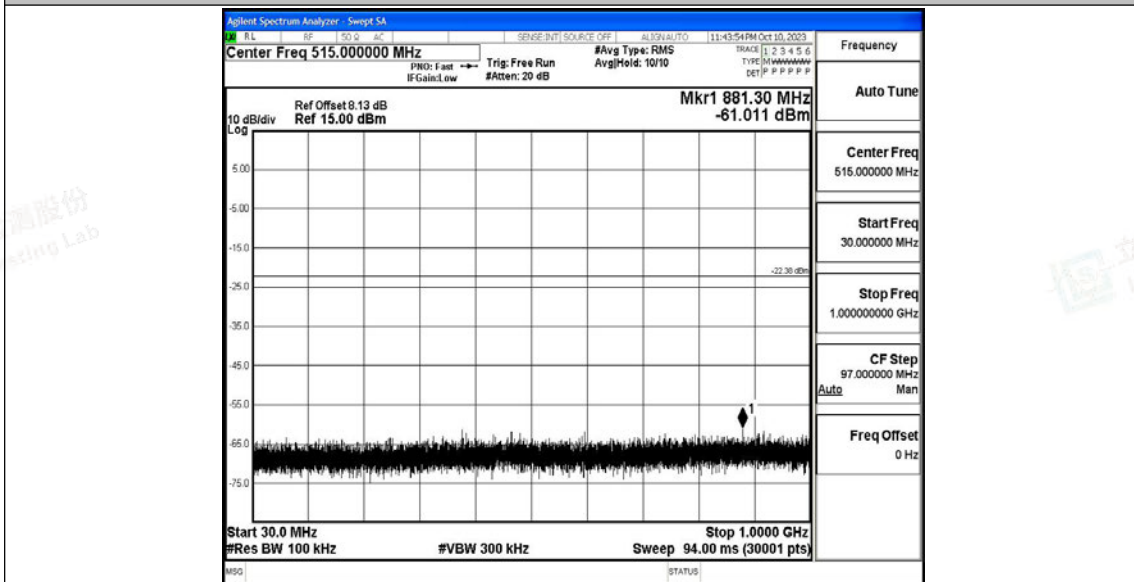


3DH5\_Ant1\_2480\_0~Reference





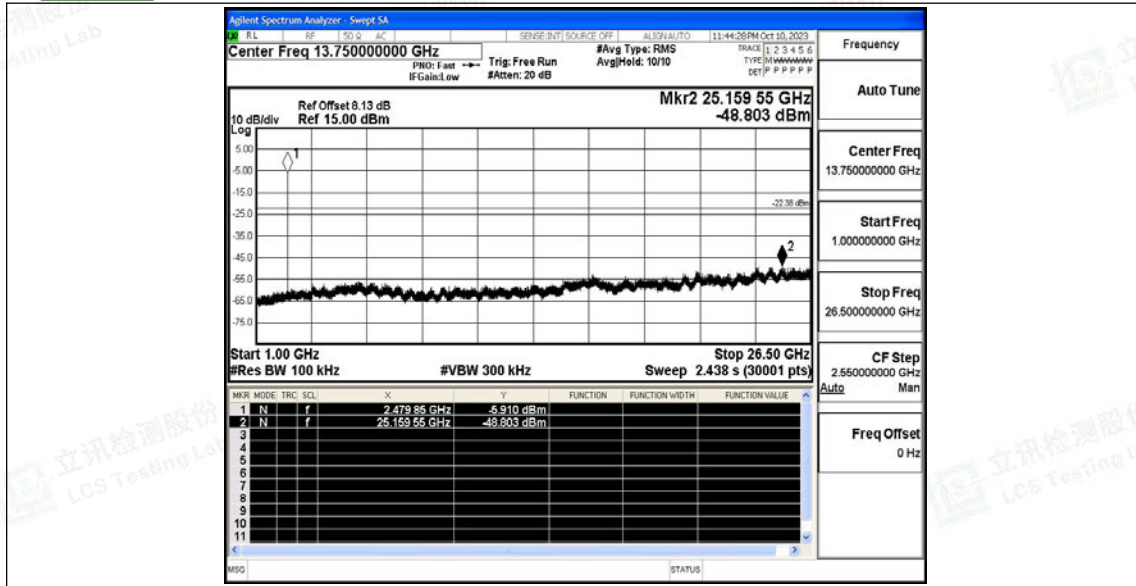
3DH5\_Ant1\_2480\_30~1000



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	-48.96	≤-41.20	46.24	≤54	PASS		
				AV	2380.535	-48.44	≤-41.20	46.76	≤54	PASS		
				AV	2390.000	-48.62	≤-41.20	46.58	≤54	PASS		
				Peak	2310.000	-42.93	≤-21.20	52.27	≤74	PASS		
				Peak	2365.520	-39.56	≤-21.20	55.64	≤74	PASS		
				Peak	2390.000	-44.05	≤-21.20	51.15	≤74	PASS		
		High	2480	AV	2483.500	-48.4	≤-41.20	46.80	≤54	PASS		
				AV	2498.640	-48.37	≤-41.20	46.83	≤54	PASS		
				AV	2500.000	-48.38	≤-41.20	46.82	≤54	PASS		
				Peak	2483.500	-45.4	≤-21.20	49.80	≤74	PASS		
				Peak	2498.320	-40.23	≤-21.20	54.97	≤74	PASS		
				Peak	2500.000	-41.75	≤-21.20	53.45	≤74	PASS		
		Low	Hop_2402	Peak	2310.000	-41.83	≤-21.20	53.37	≤74	PASS		
				Peak	2330.345	-38.47	≤-21.20	56.73	≤74	PASS		
				Peak	2390.000	-40.06	≤-21.20	55.14	≤74	PASS		
		High	Hop_2480	Peak	2483.500	-40.84	≤-21.20	54.36	≤74	PASS		
				Peak	2485.840	-38.26	≤-21.20	56.94	≤74	PASS		
				Peak	2500.000	-39.97	≤-21.20	55.23	≤74	PASS		
		2DH5	Ant1	Low	2402	AV	2310.000	-49	≤-41.20	46.20	≤54	PASS
						AV	2389.565	-48.44	≤-41.20	46.76	≤54	PASS
						AV	2390.000	-48.55	≤-41.20	46.65	≤54	PASS
Peak	2310.000					-44.36	≤-21.20	50.84	≤74	PASS		
Peak	2343.470					-38.98	≤-21.20	56.22	≤74	PASS		
Peak	2390.000					-43.04	≤-21.20	52.16	≤74	PASS		
High	2480			AV	2483.500	-48.36	≤-41.20	46.84	≤54	PASS		
				AV	2498.400	-48.35	≤-41.20	46.85	≤54	PASS		
				AV	2500.000	-48.58	≤-41.20	46.62	≤54	PASS		
				Peak	2483.500	-40.53	≤-21.20	54.67	≤74	PASS		
				Peak	2493.840	-39.25	≤-21.20	55.95	≤74	PASS		
				Peak	2500.000	-44.77	≤-21.20	50.43	≤74	PASS		
Low	Hop_2402			Peak	2310.000	-40.08	≤-21.20	55.12	≤74	PASS		
				Peak	2351.660	-38.28	≤-21.20	56.92	≤74	PASS		
				Peak	2390.000	-40.07	≤-21.20	55.13	≤74	PASS		
High	Hop_2480			Peak	2483.500	-39.83	≤-21.20	55.37	≤74	PASS		
				Peak	2496.800	-37.85	≤-21.20	57.35	≤74	PASS		



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Scan code to check authenticity



3DH5	Ant1	Low	2402	Peak	2500.000	-40.75	≤-21.20	54.45	≤74	PASS	
				AV	2310.000	-48.99	≤-41.20	46.21	≤54	PASS	
				AV	2380.535	-48.48	≤-41.20	46.72	≤54	PASS	
				AV	2390.000	-48.64	≤-41.20	46.56	≤54	PASS	
				Peak	2310.000	-43.29	≤-21.20	51.91	≤74	PASS	
				Peak	2346.305	-38.09	≤-21.20	57.11	≤74	PASS	
		High	2480	Peak	2390.000	-45.05	≤-21.20	50.15	≤74	PASS	
				AV	2483.500	-48.34	≤-41.20	46.86	≤54	PASS	
				AV	2483.520	-48.34	≤-41.20	46.86	≤54	PASS	
				AV	2500.000	-48.51	≤-41.20	46.69	≤54	PASS	
				Peak	2483.500	-43.73	≤-21.20	51.47	≤74	PASS	
				Peak	2487.840	-38.75	≤-21.20	56.45	≤74	PASS	
		Low	Hop_2402	Peak	2500.000	-41.88	≤-21.20	53.32	≤74	PASS	
				Peak	2310.000	-40.02	≤-21.20	55.18	≤74	PASS	
				Peak	2360.165	-38.71	≤-21.20	56.49	≤74	PASS	
		High	Hop_2480	Peak	2390.000	-40.56	≤-21.20	54.64	≤74	PASS	
				Peak	2483.500	-39.98	≤-21.20	55.22	≤74	PASS	
				Peak	2488.720	-38.75	≤-21.20	56.45	≤74	PASS	
					Peak	2500.000	-40.29	≤-21.20	54.91	≤74	PASS

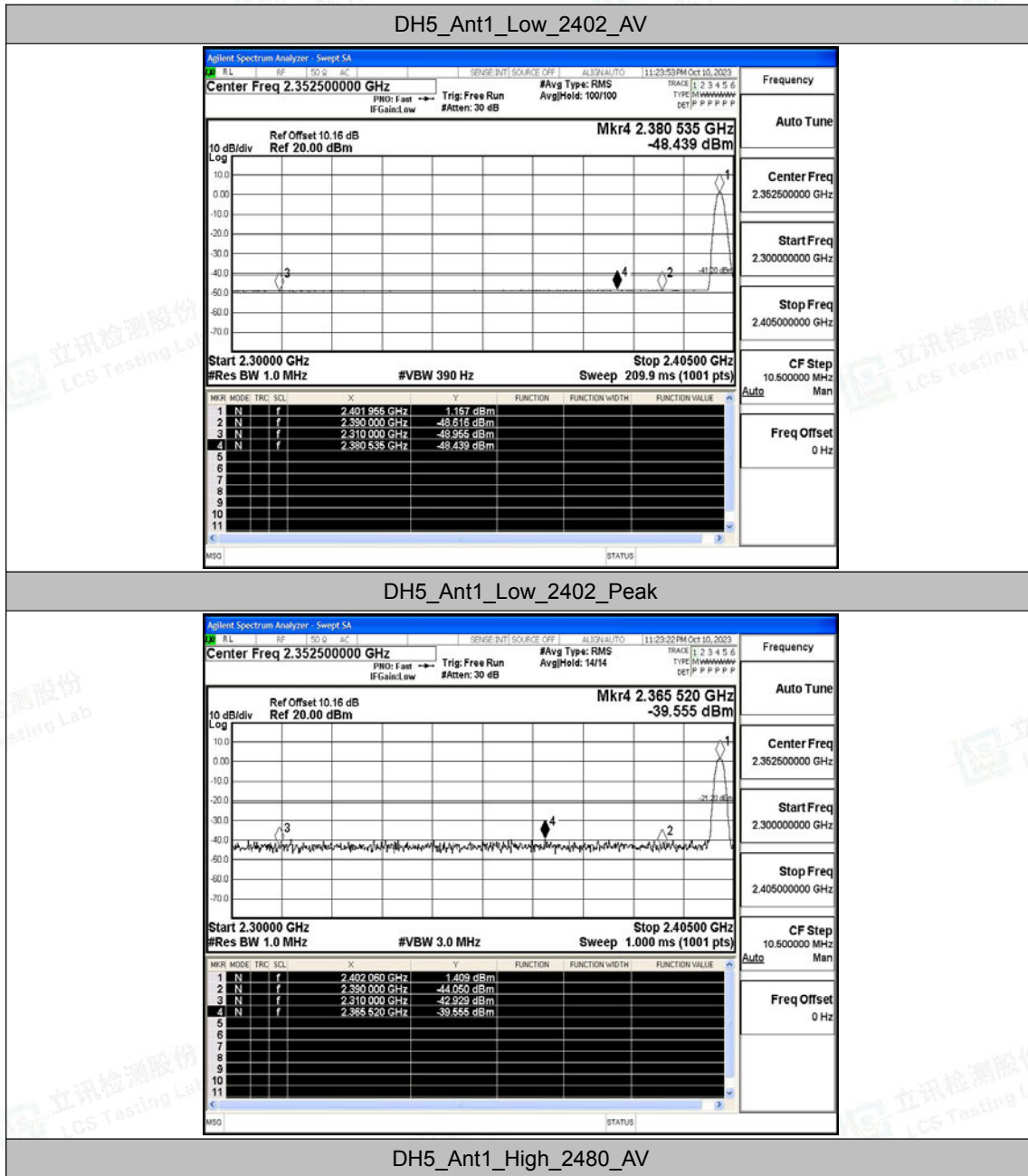
## Note:

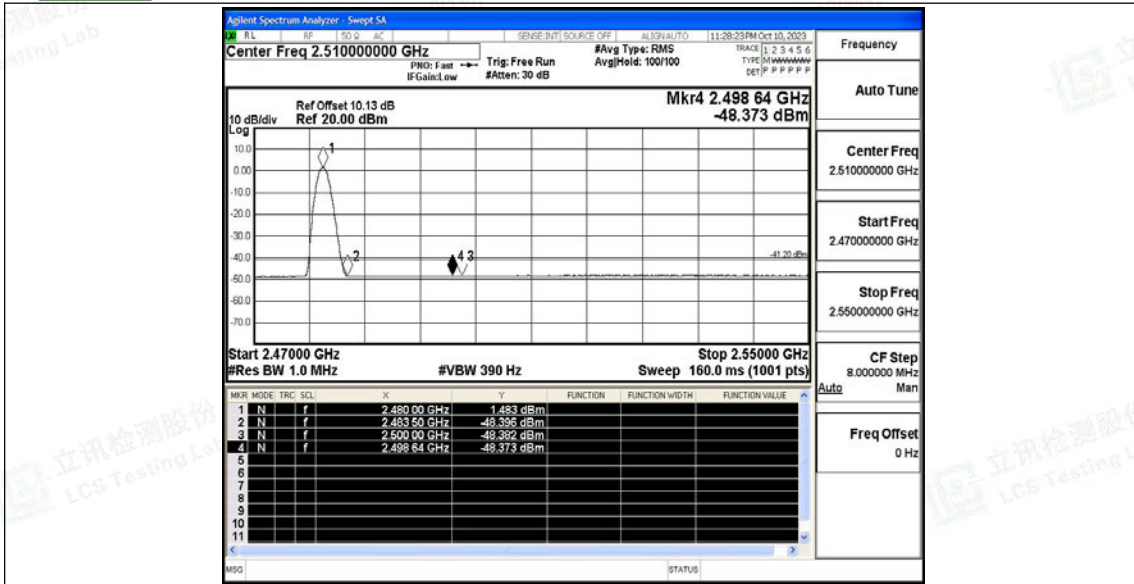
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



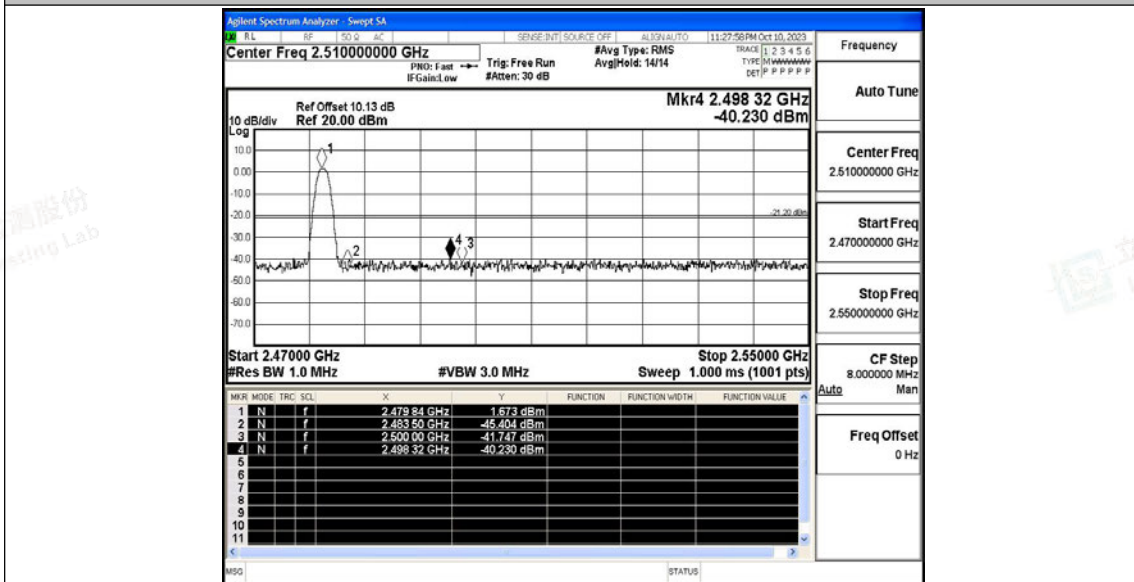


### Test Graphs



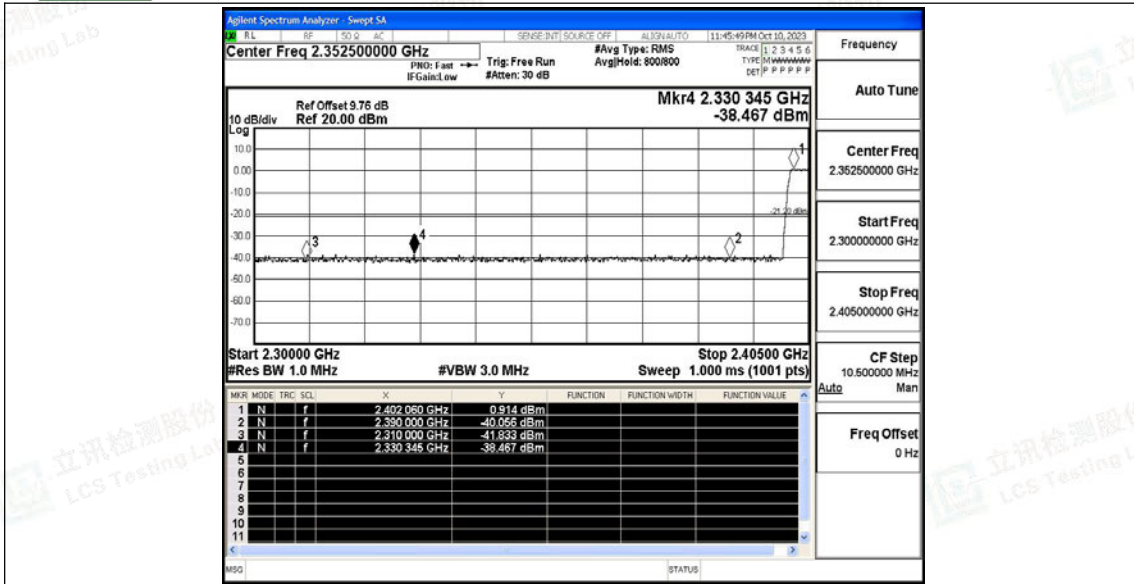


DH5\_Ant1\_High\_2480\_Peak

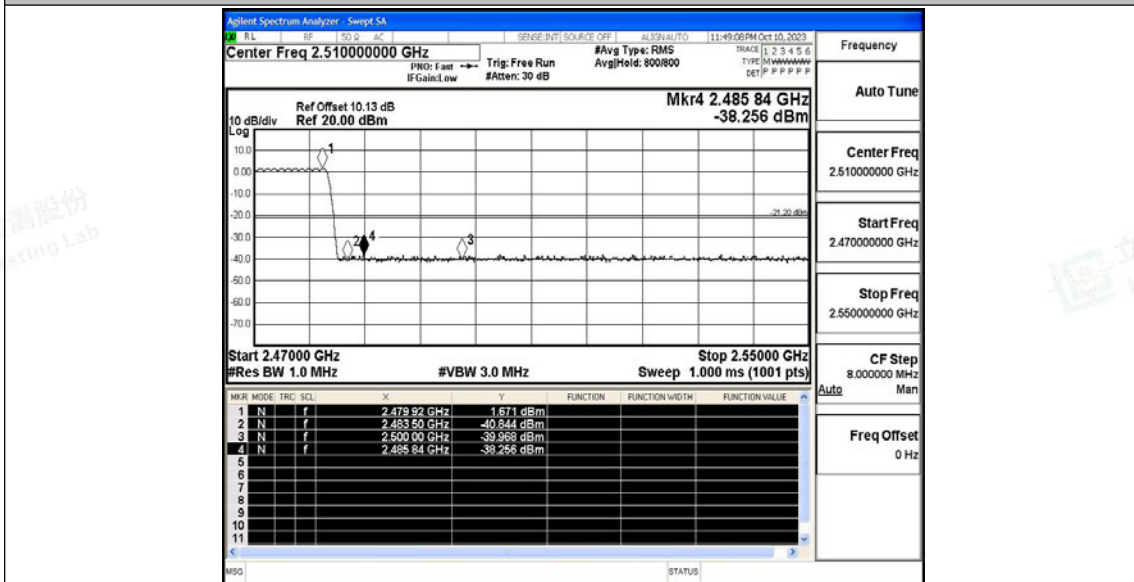


DH5\_Ant1\_Low\_Hop\_2402\_Peak





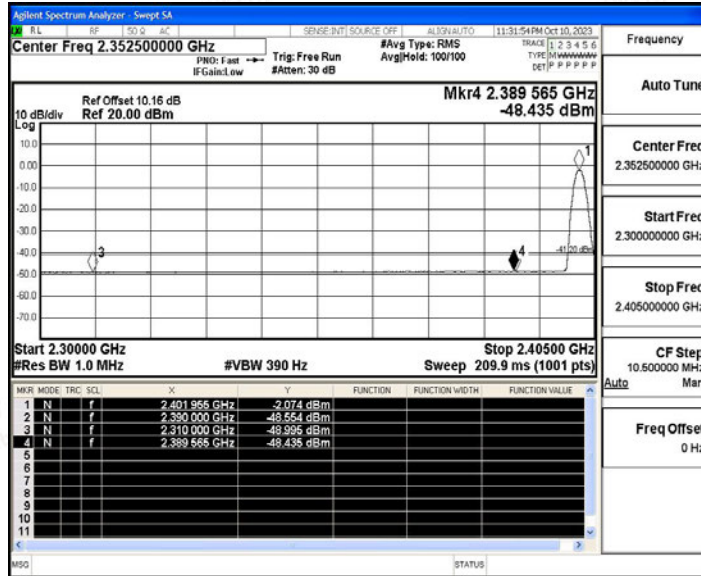
DH5\_Ant1\_High\_Hop\_2480\_Peak



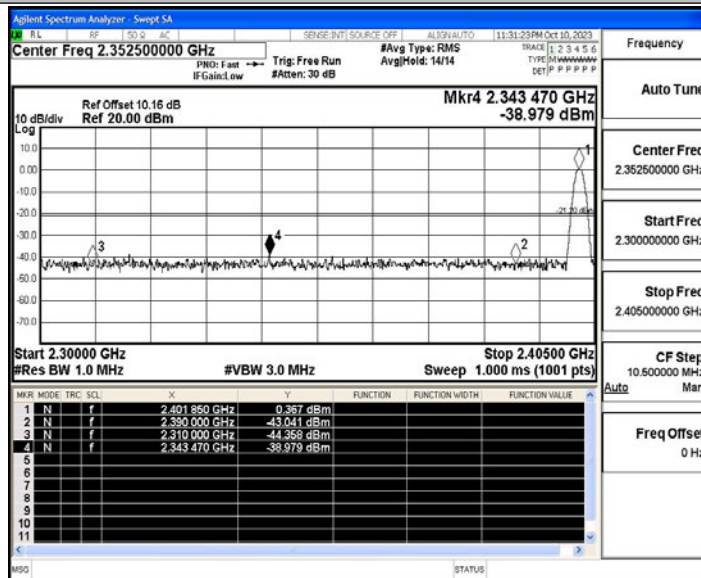
2DH5\_Ant1\_Low\_2402\_AV







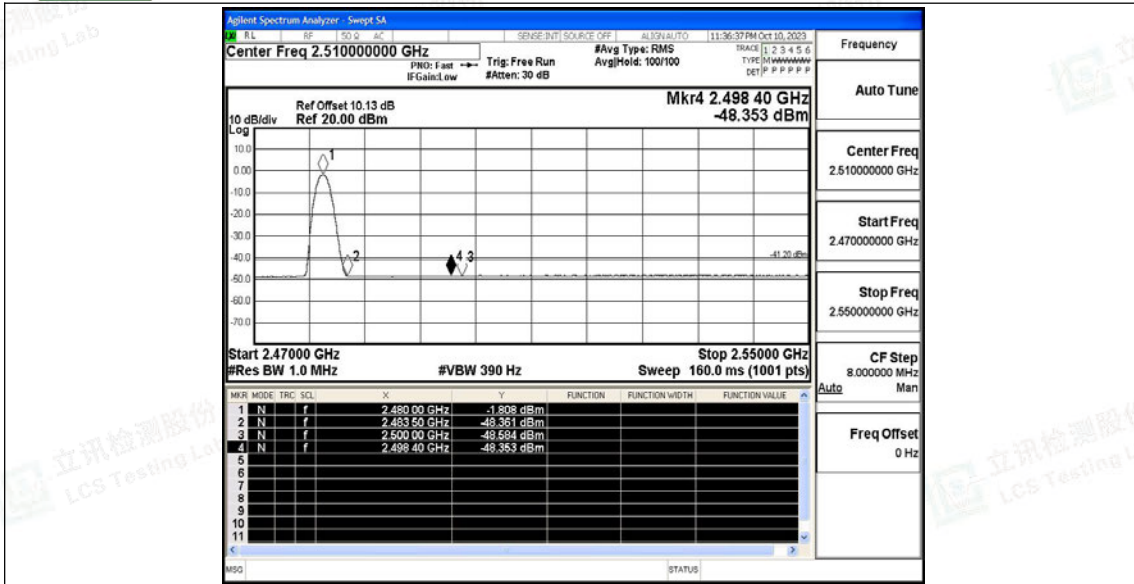
2DH5\_Ant1\_Low\_2402\_Peak



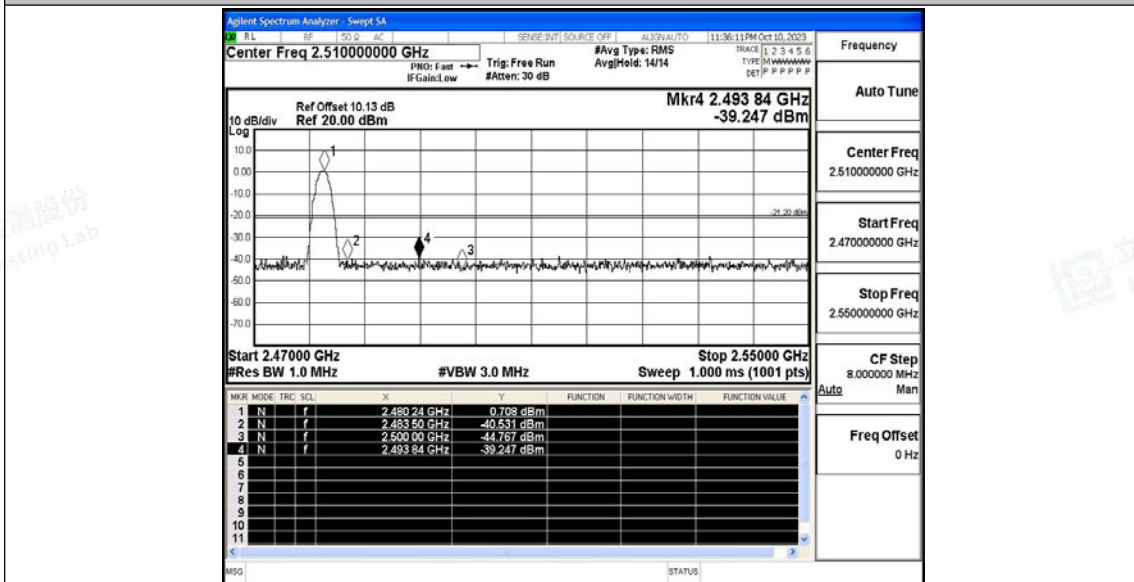
2DH5\_Ant1\_High\_2480\_AV





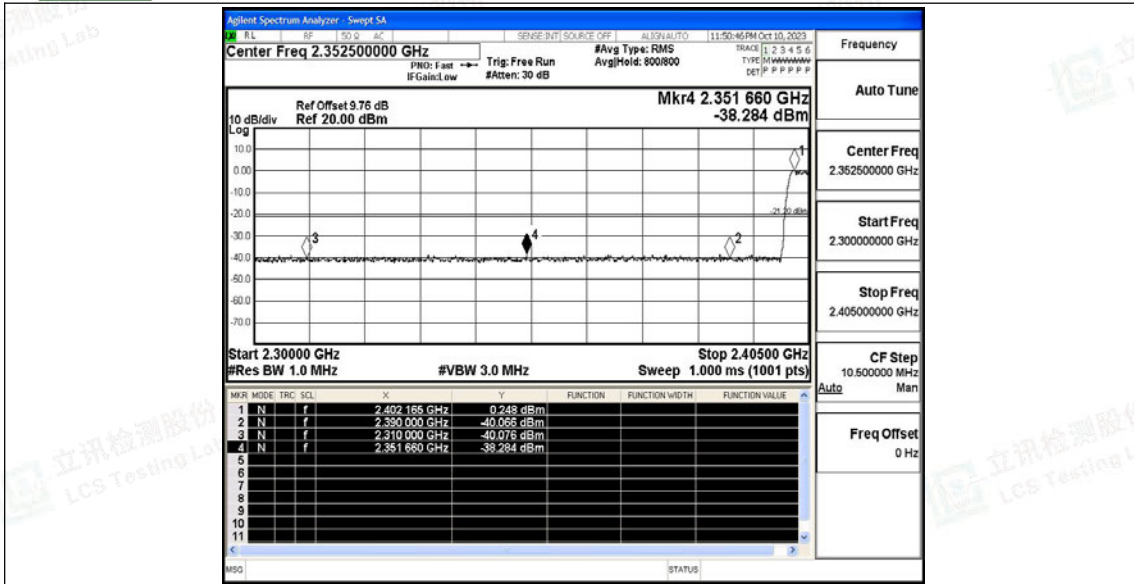


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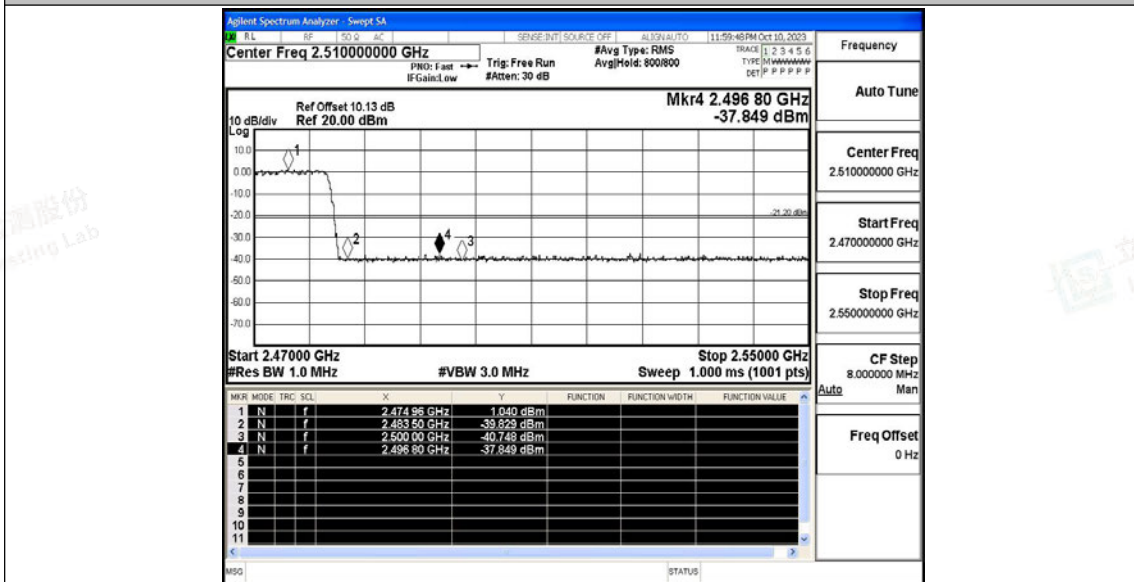


2DH5\_Ant1\_Low\_Hop\_2402\_Peak



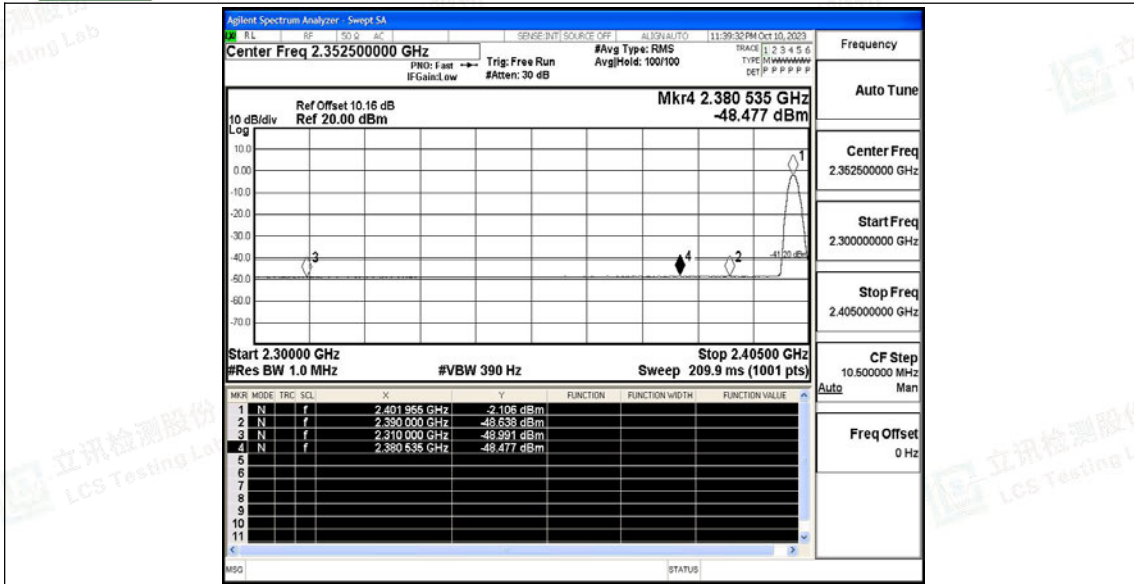


2DH5\_Ant1\_High\_Hop\_2480\_Peak

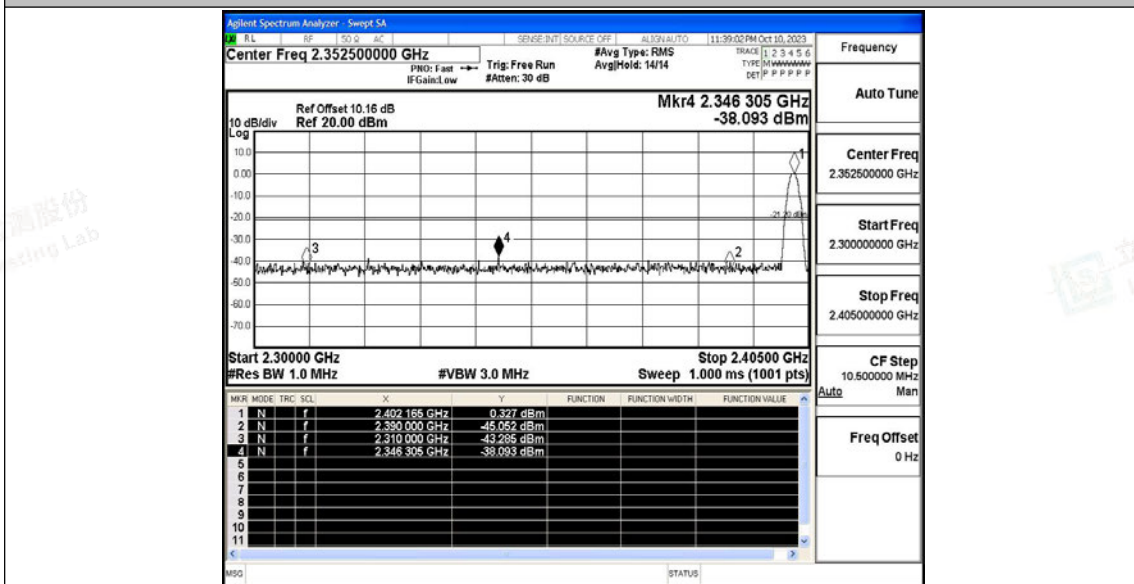


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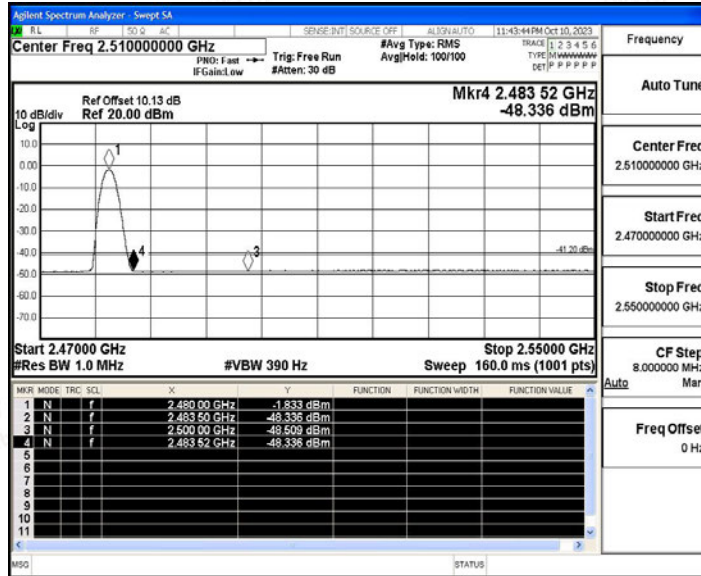


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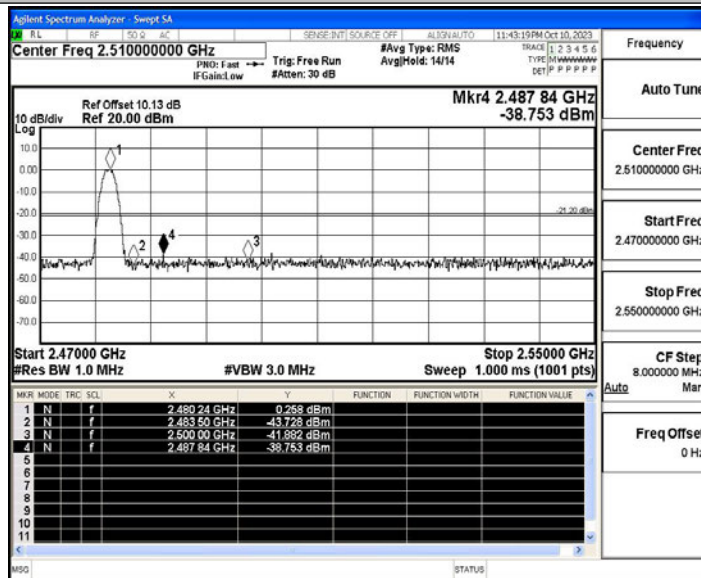


3DH5\_Ant1\_High\_2480\_AV





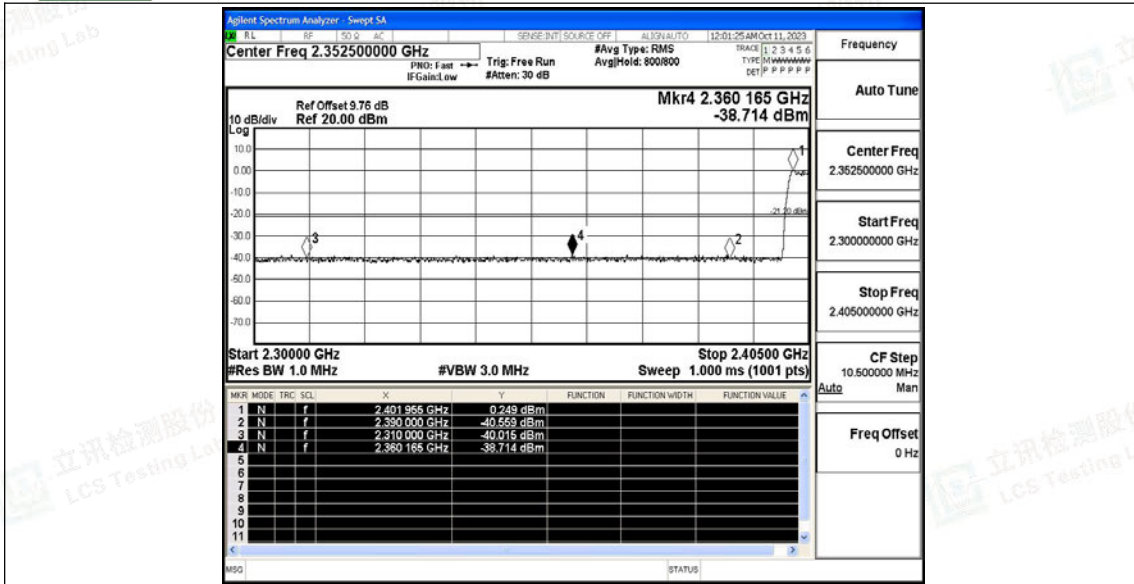
3DH5\_Ant1\_High\_2480\_Peak



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







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

