



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name:GNSS Receiver

Test Model: Q300

Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Eason Zhou
Supervised by:	Nick Peng





A.1 20dB Emission Bandwidth

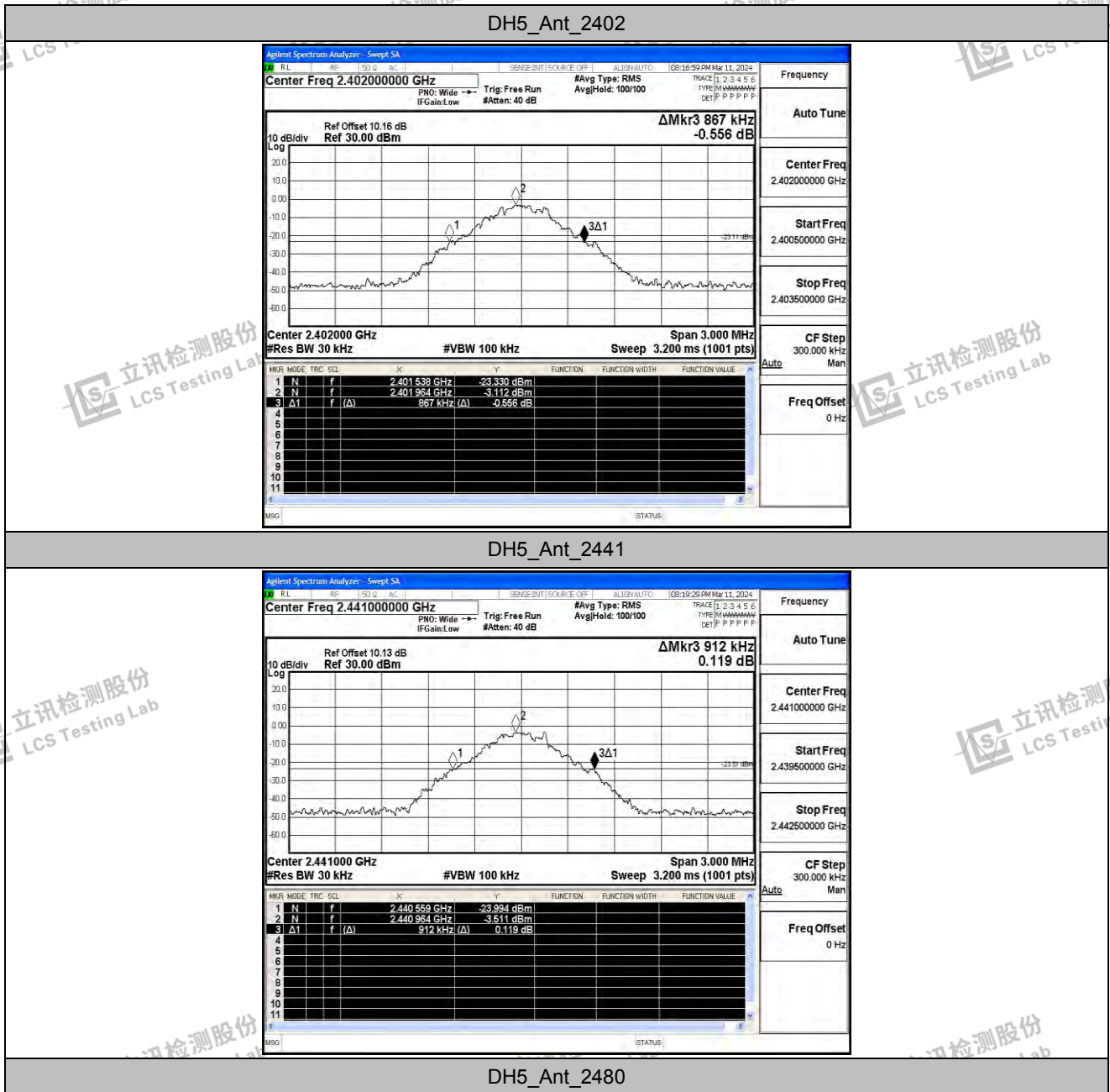
Test Result

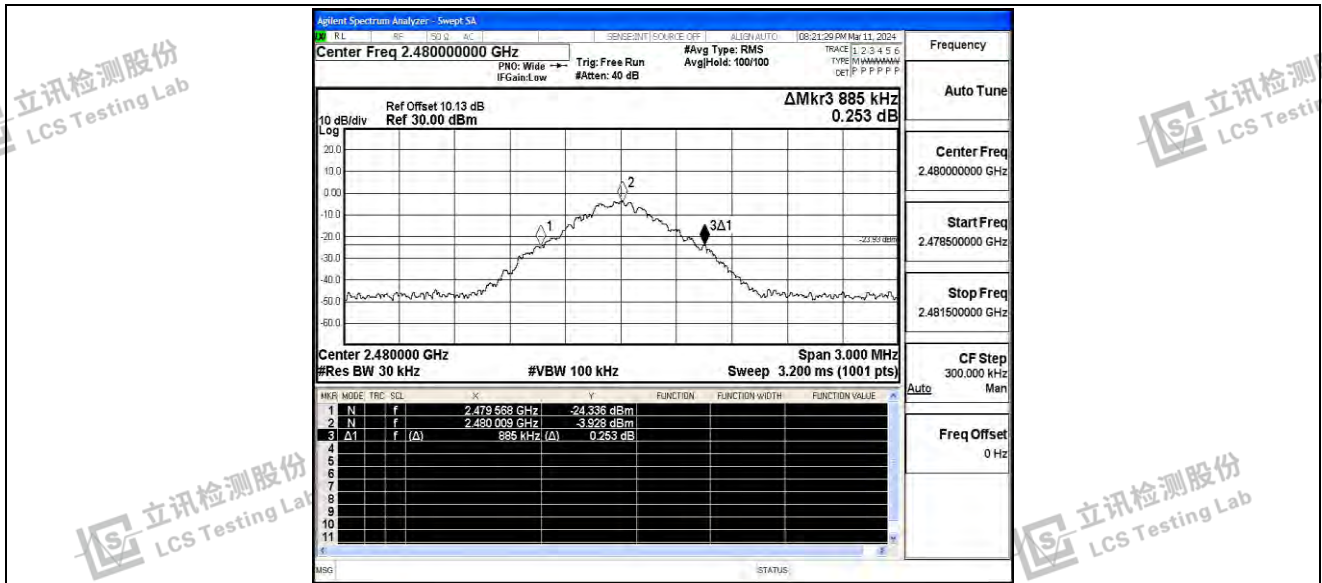
TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant	2402	0.867	2401.538	2402.405	---	---
		2441	0.912	2440.559	2441.471	---	---
		2480	0.885	2479.568	2480.453	---	---
2DH5	Ant	2402	1.299	2401.352	2402.651	---	---
		2441	1.290	2440.355	2441.645	---	---
		2480	1.281	2479.358	2480.639	---	---
3DH5	Ant	2402	1.290	2401.355	2402.645	---	---
		2441	1.311	2440.334	2441.645	---	---
		2480	1.278	2479.349	2480.627	---	---



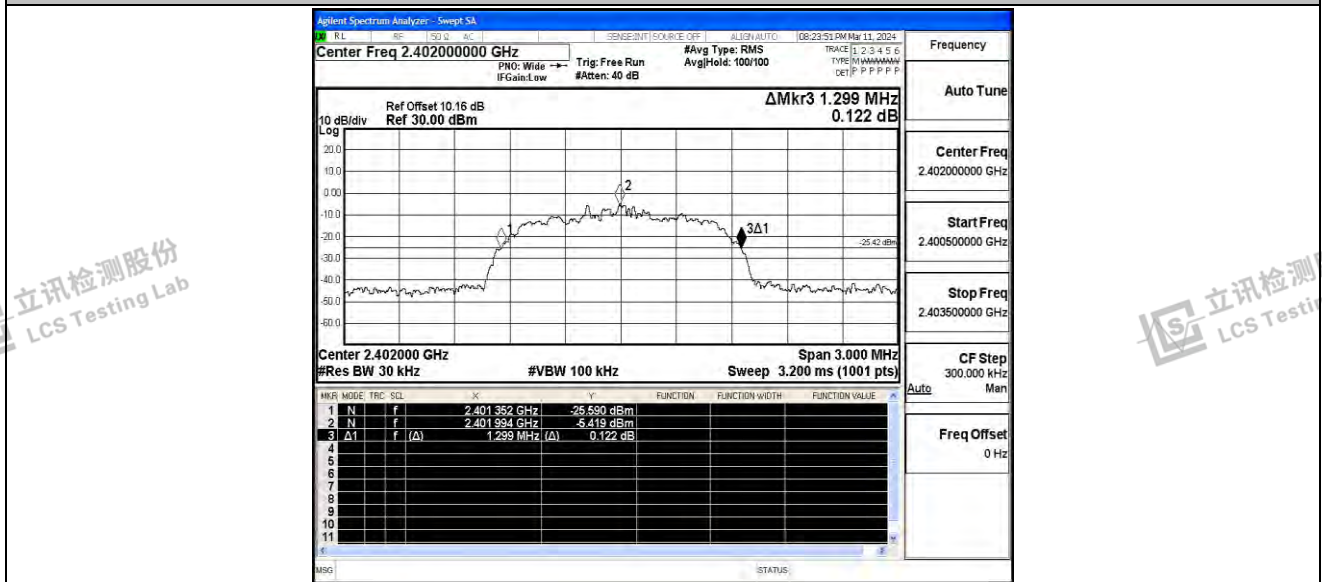


Test Graphs

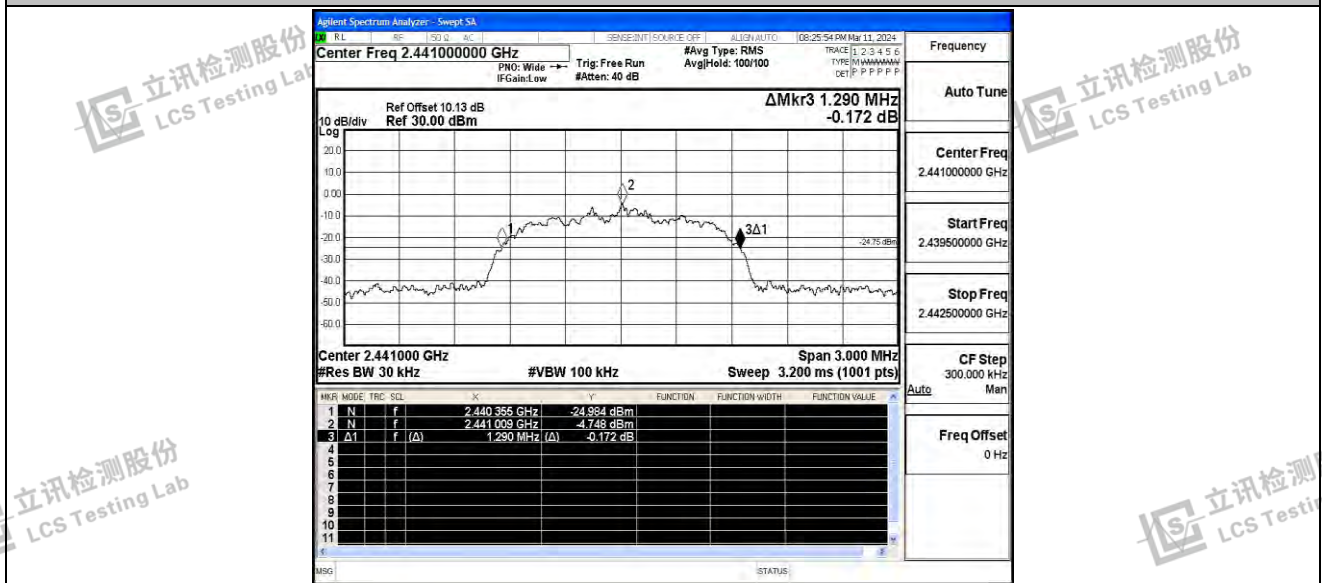




2DH5_Ant_2402

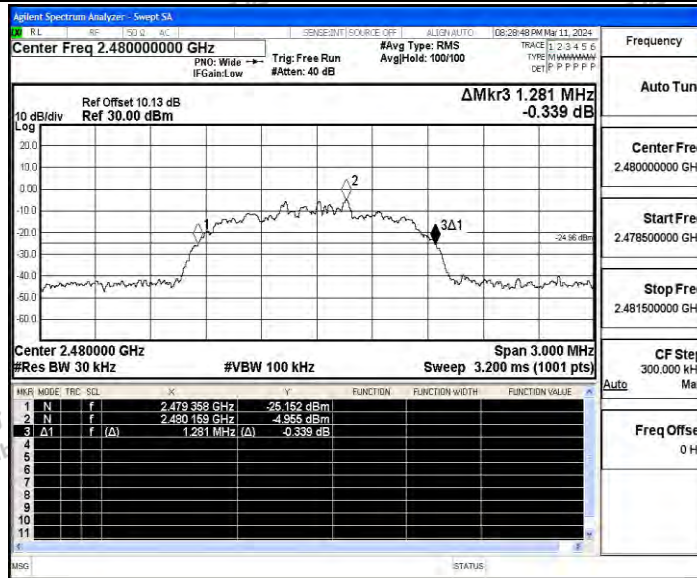


2DH5_Ant_2441

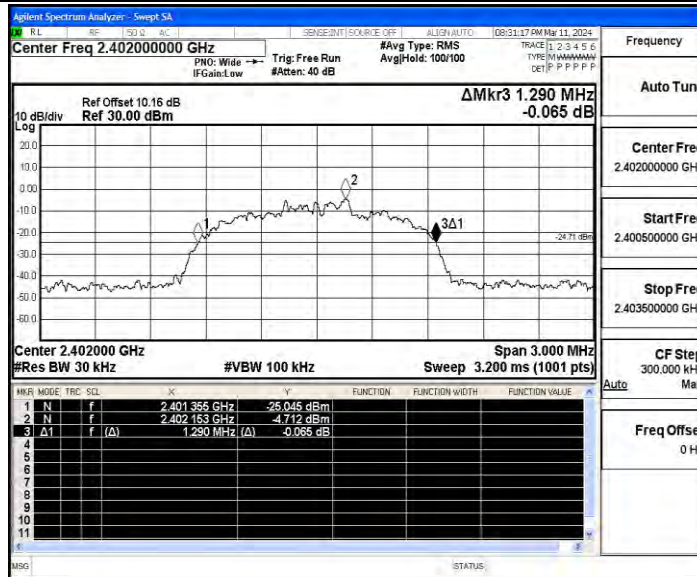




2DH5_Ant_2480

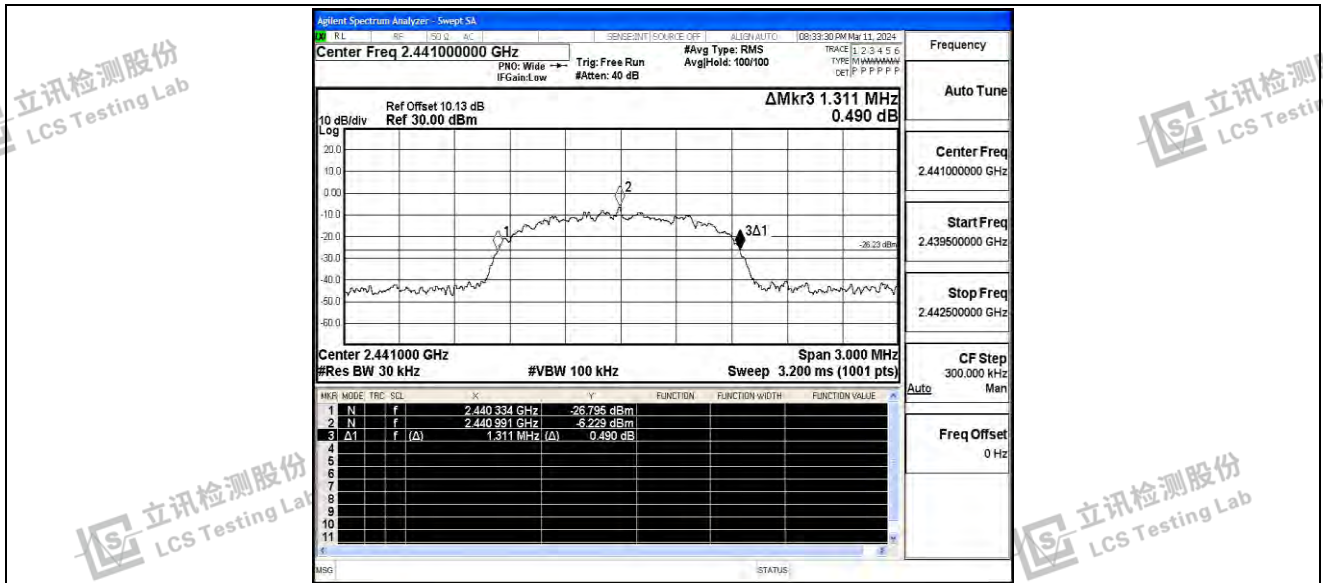


3DH5_Ant_2402

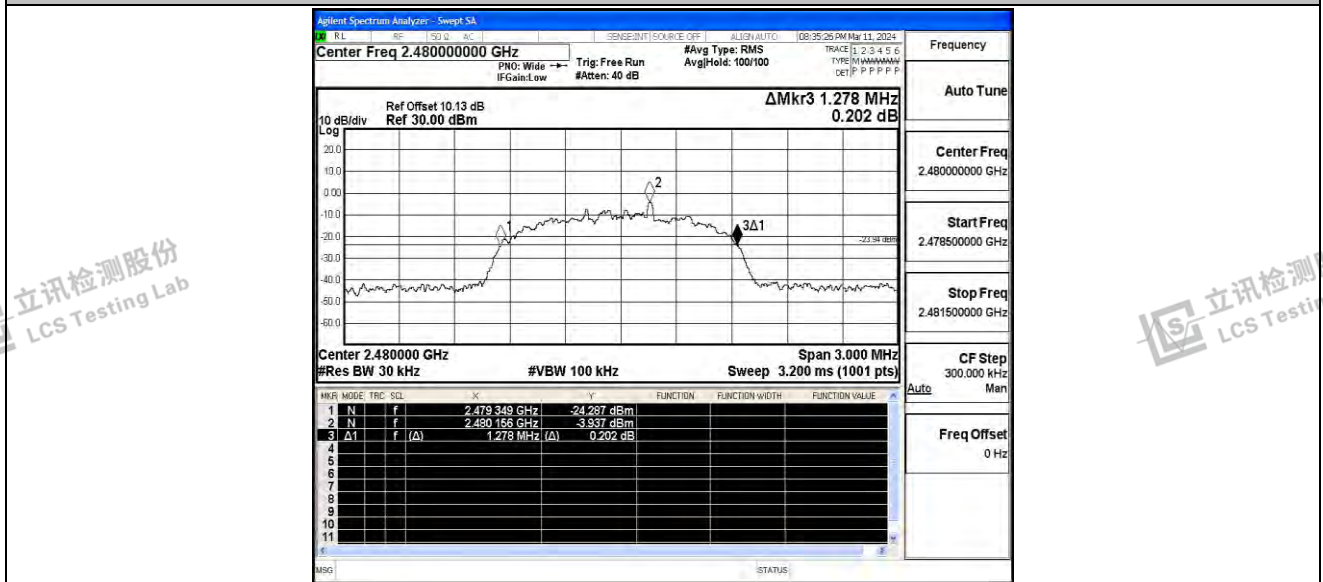


3DH5_Ant_2441





3DH5_Ant_2480





A.2 Maximum Peak conducted output power

Test Result Peak

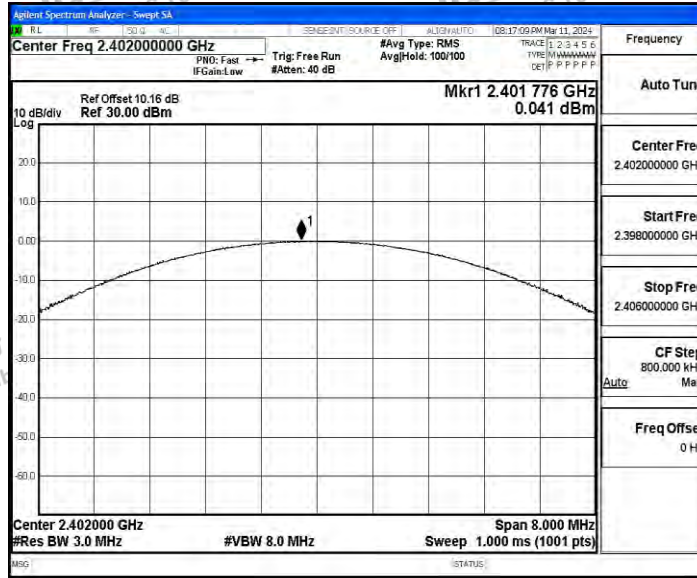
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant	2402	0.04	≤20.97	PASS
		2441	-0.41	≤20.97	PASS
		2480	-0.87	≤20.97	PASS
2DH5	Ant	2402	-0.01	≤20.97	PASS
		2441	-0.42	≤20.97	PASS
		2480	-0.84	≤20.97	PASS
3DH5	Ant	2402	0.07	≤20.97	PASS
		2441	-0.35	≤20.97	PASS
		2480	-0.83	≤20.97	PASS



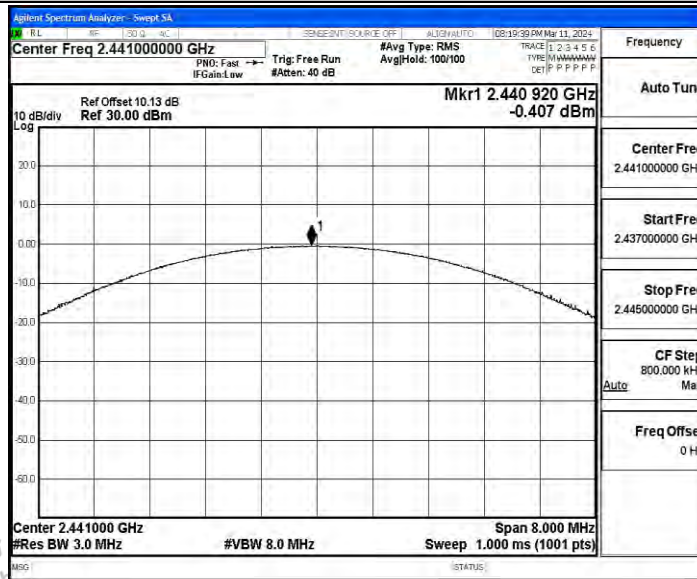


Test Graphs

DH5_Ant_2402

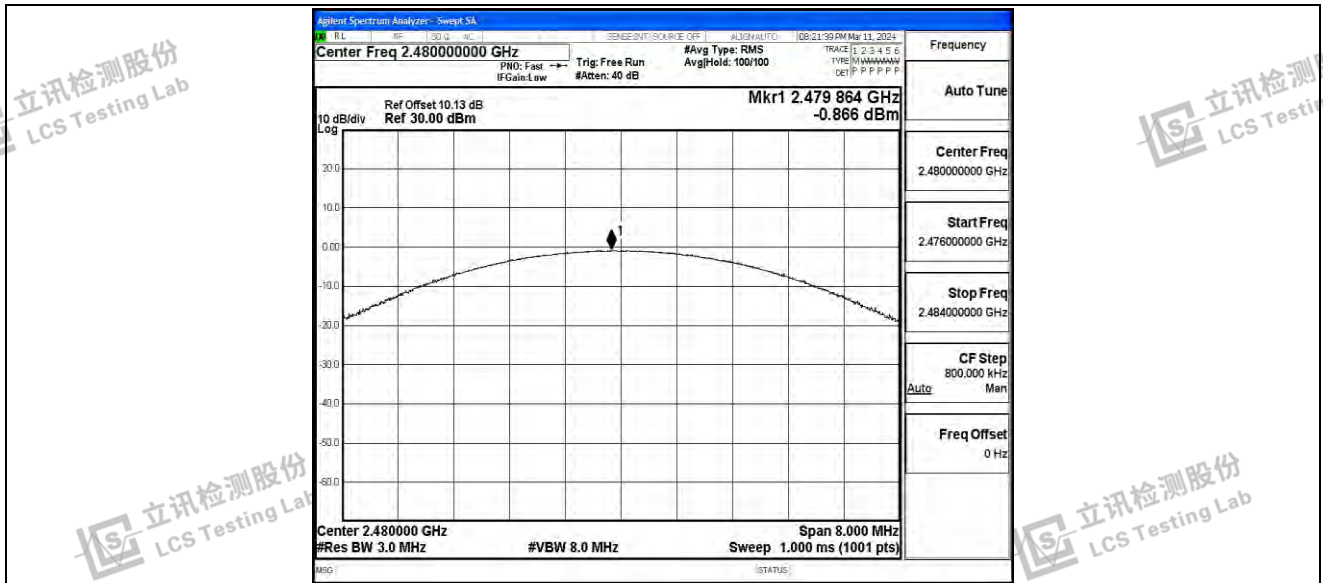


DH5_Ant_2441

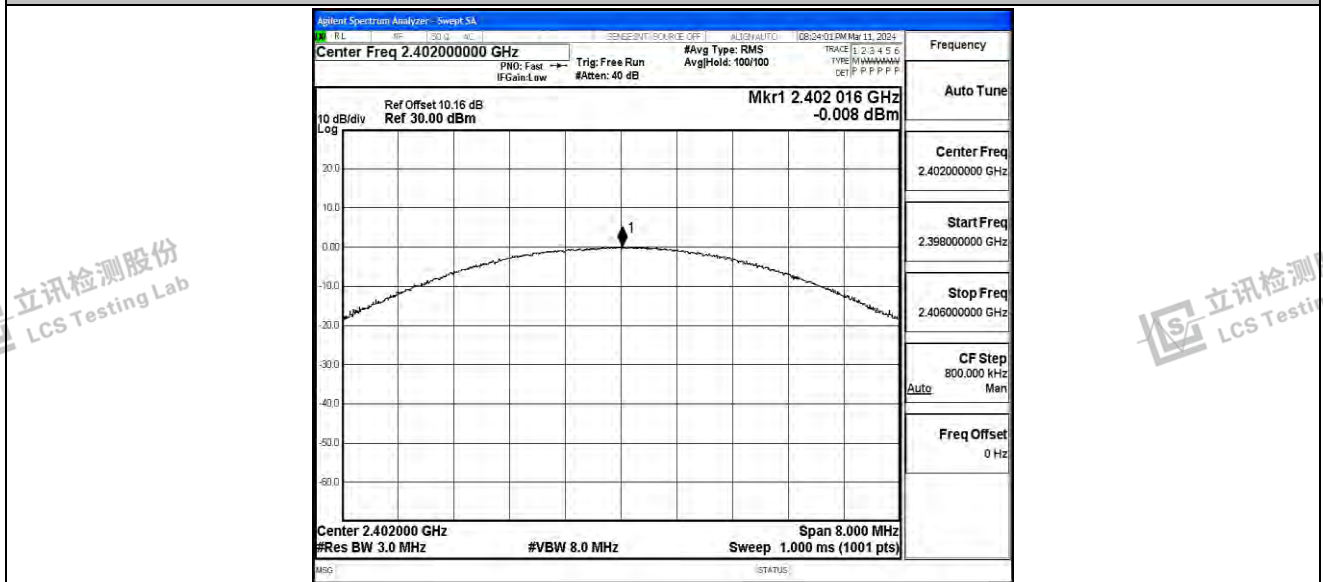


DH5_Ant_2480

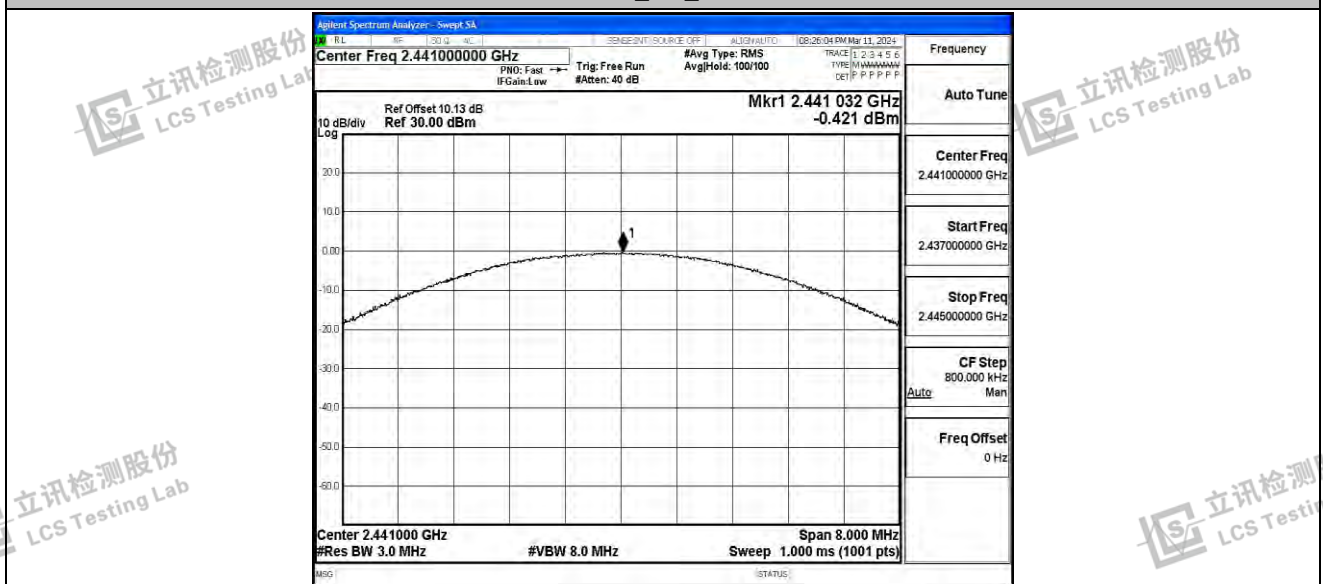




2DH5_Ant_2402

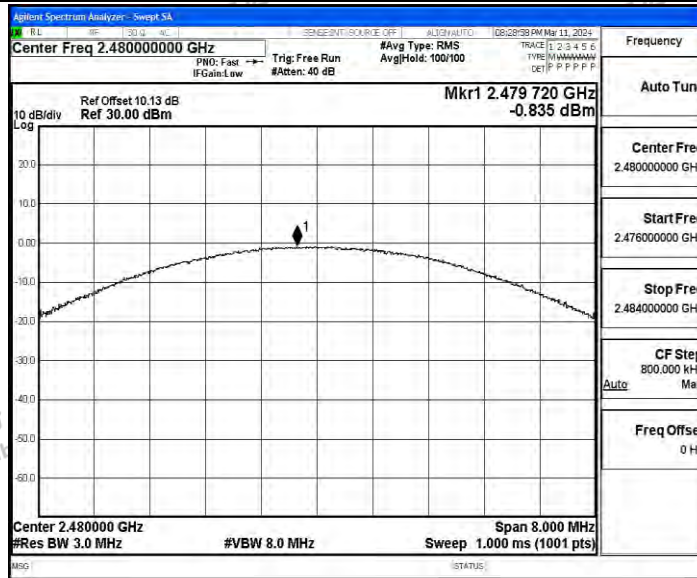


2DH5_Ant_2441

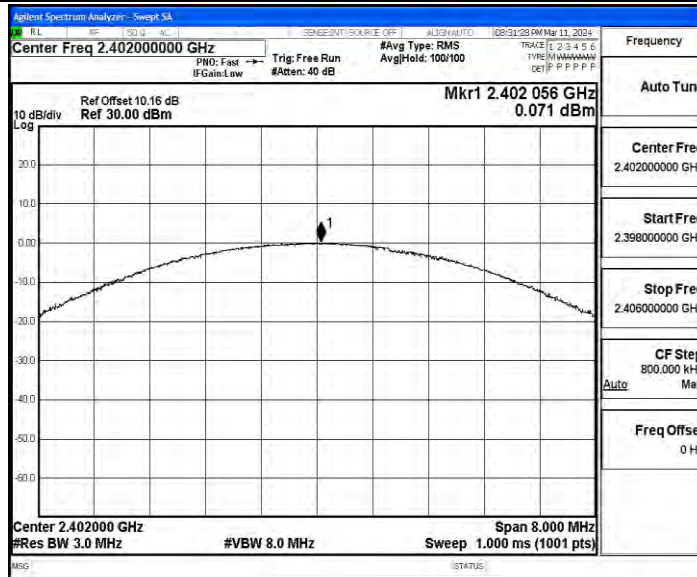




2DH5_Ant_2480

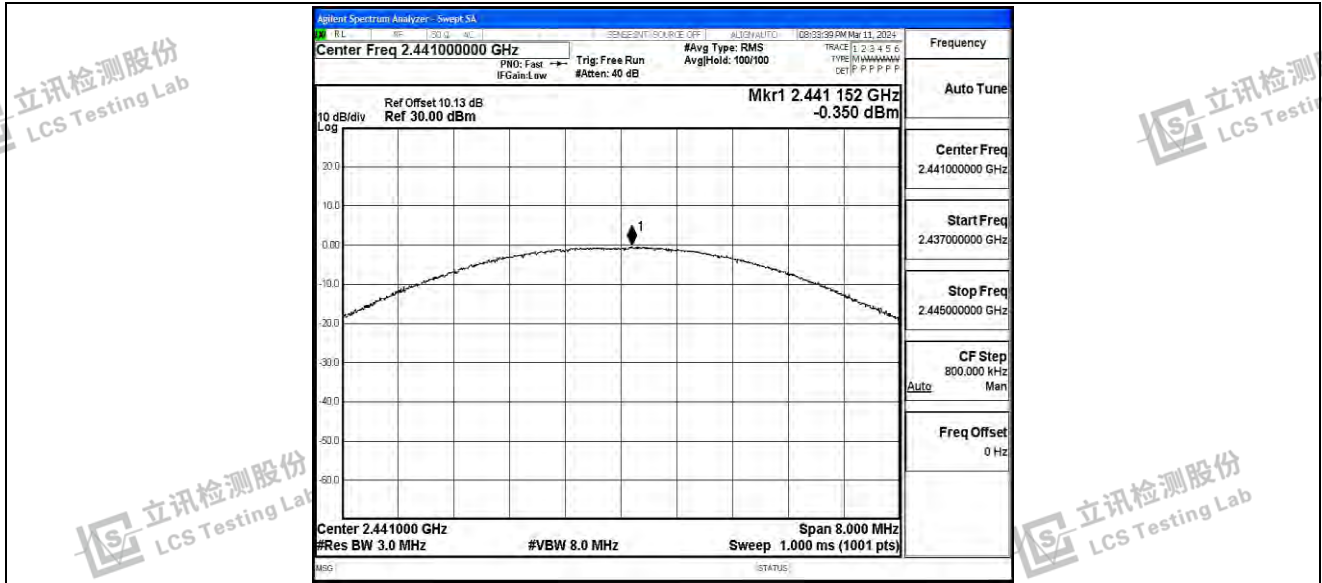


3DH5_Ant_2402

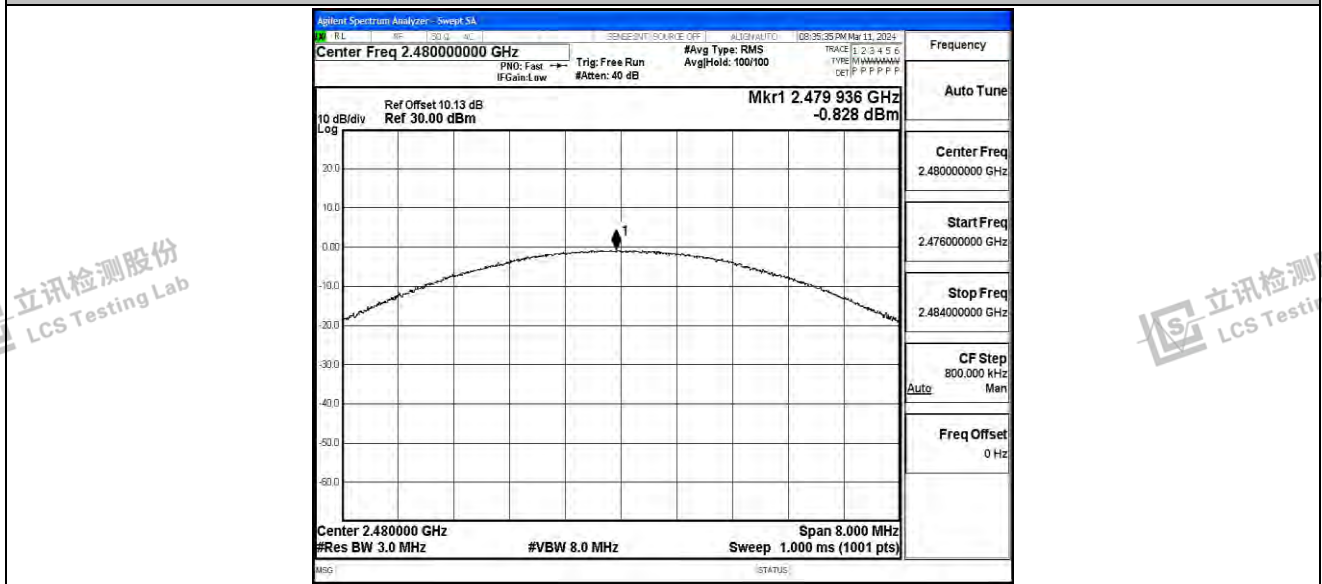


3DH5_Ant_2441





3DH5_Ant_2480





A.3 Carrier frequency separation

Test Result

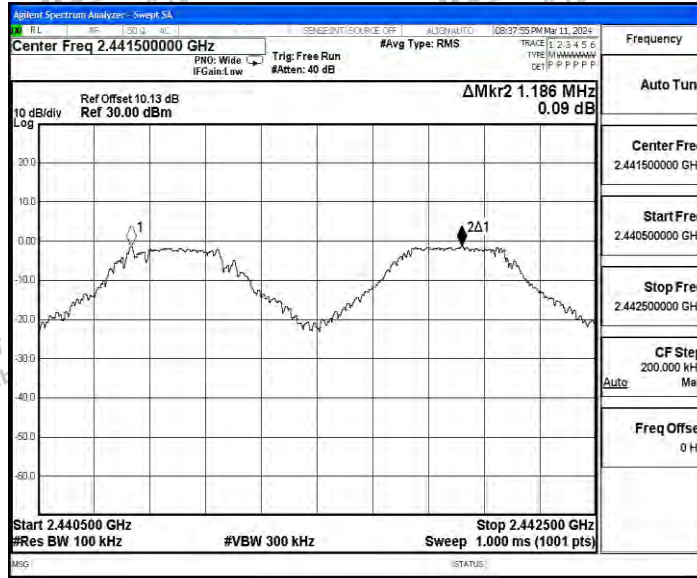
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant	Hop	1.186	≥0.608	PASS
2DH5	Ant	Hop	1.304	≥0.866	PASS
3DH5	Ant	Hop	0.928	≥0.874	PASS



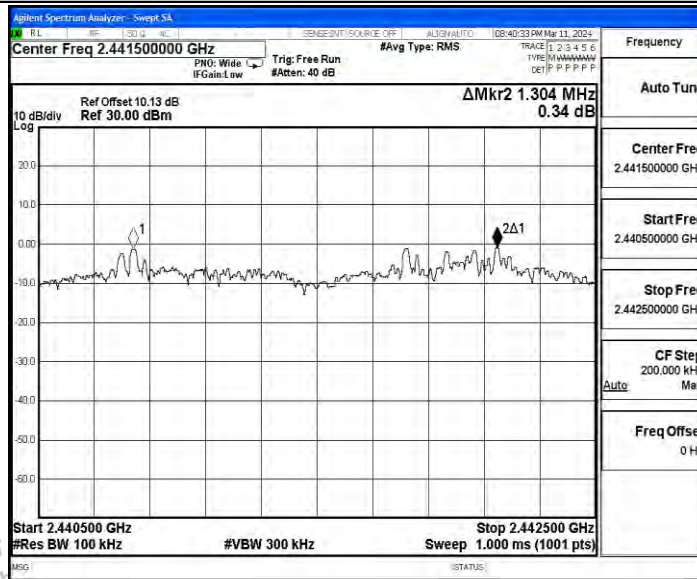


Test Graphs

DH5_Ant_Hop

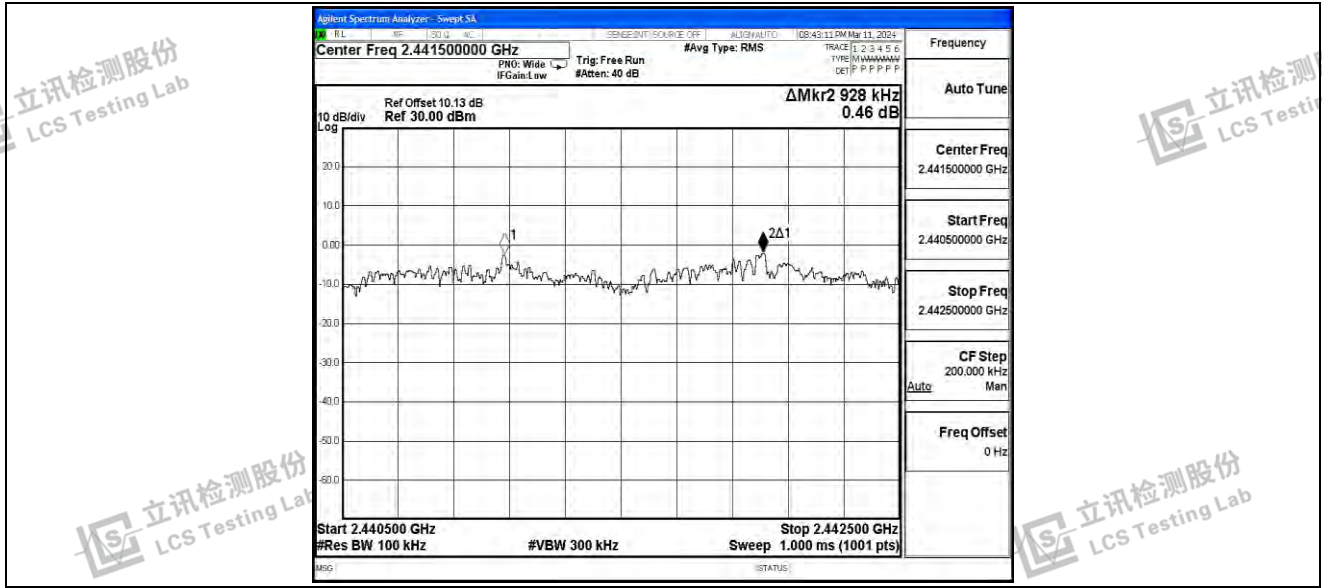


2DH5_Ant_Hop



3DH5_Ant_Hop





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A.4 Time of occupancy

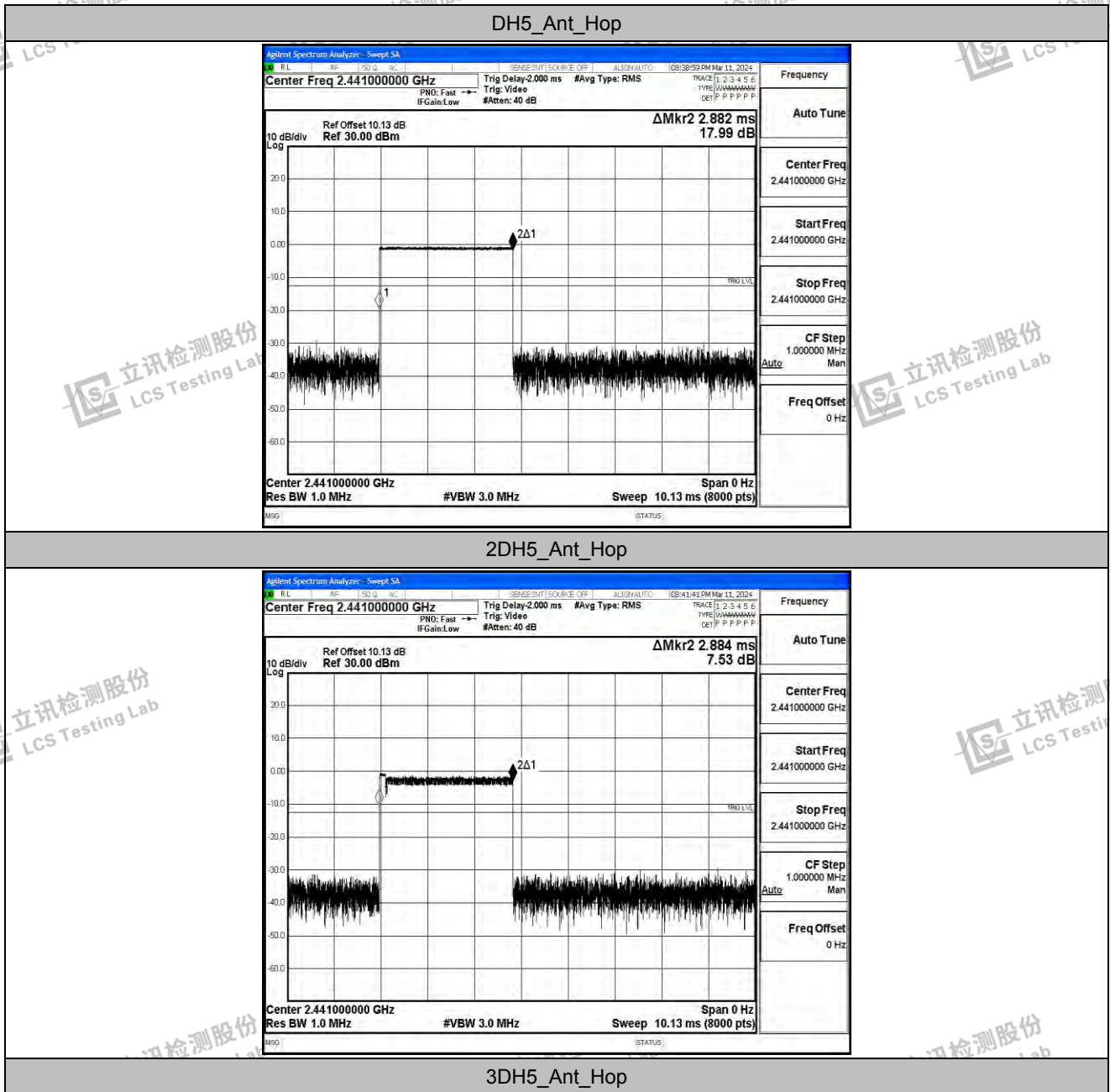
Test Result

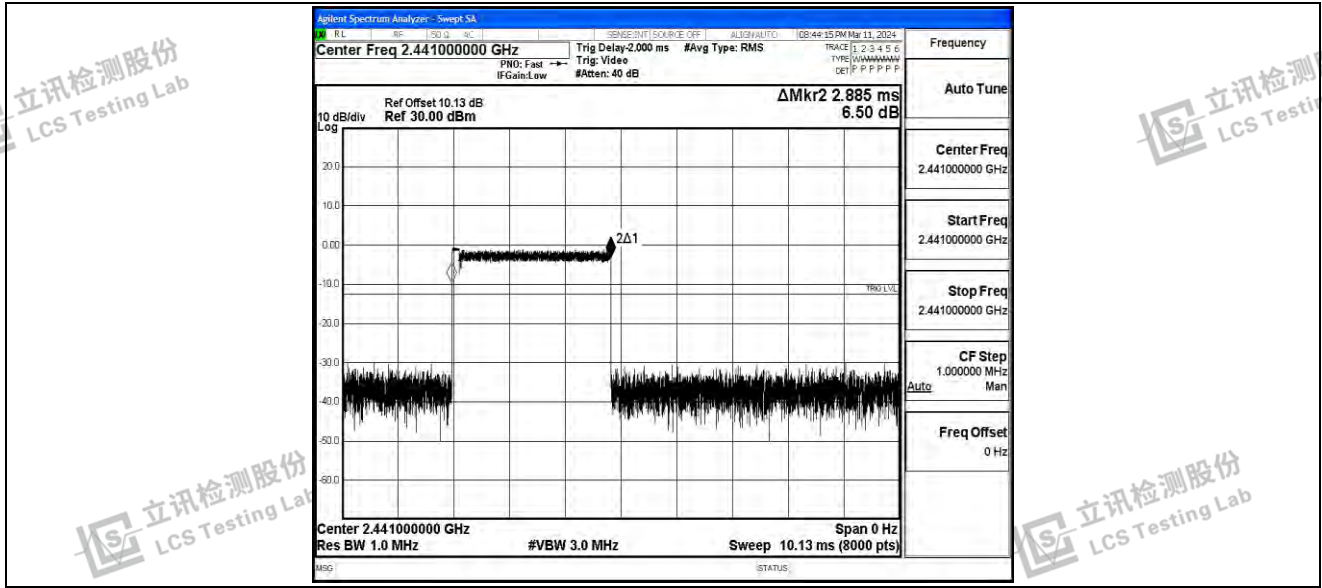
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant	Hop	2.882	106.67	0.307	≤0.4	PASS
2DH5	Ant	Hop	2.884	106.67	0.308	≤0.4	PASS
3DH5	Ant	Hop	2.885	106.67	0.308	≤0.4	PASS





Test Graphs







A.5 Number of hopping channels

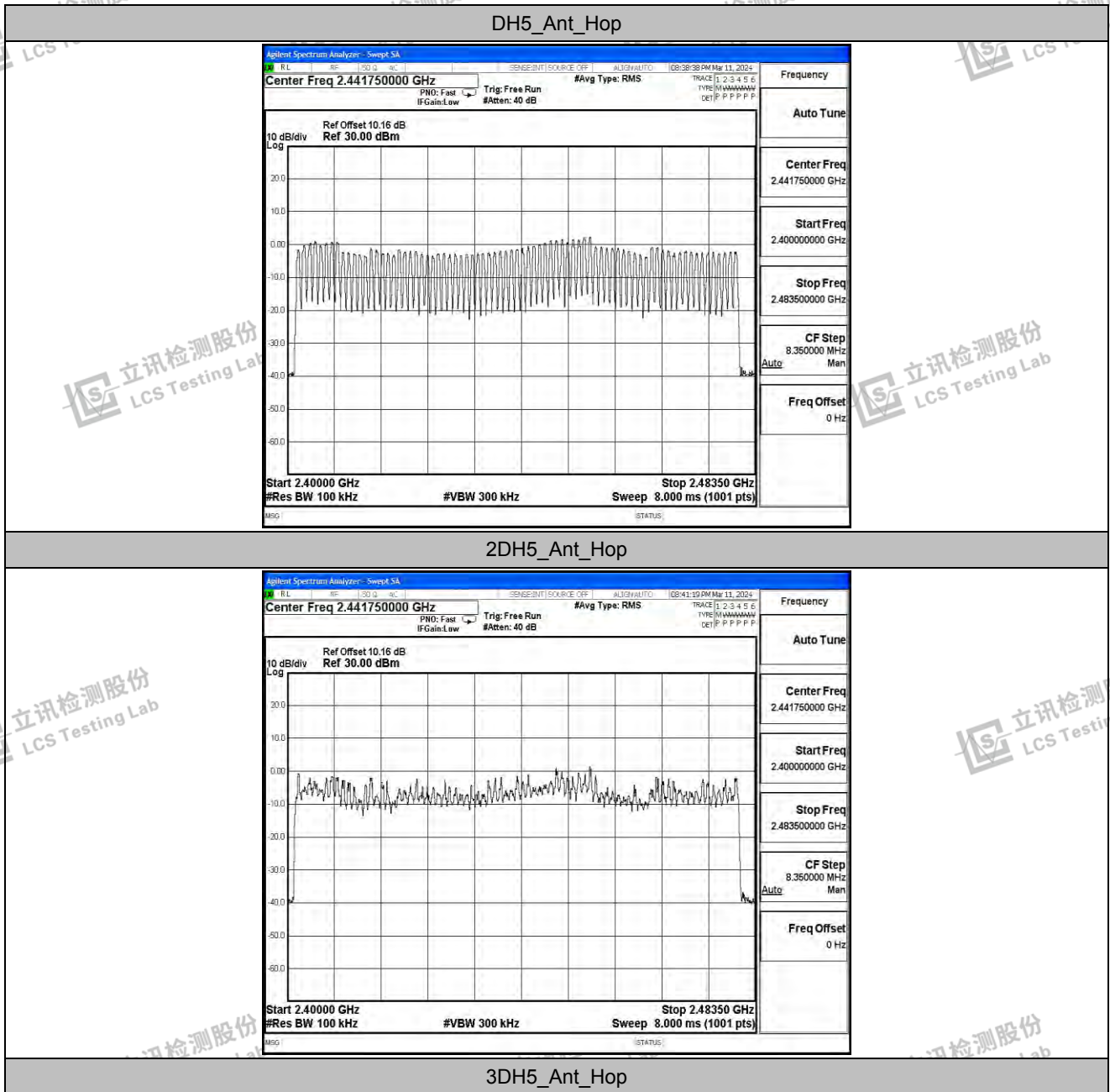
Test Result

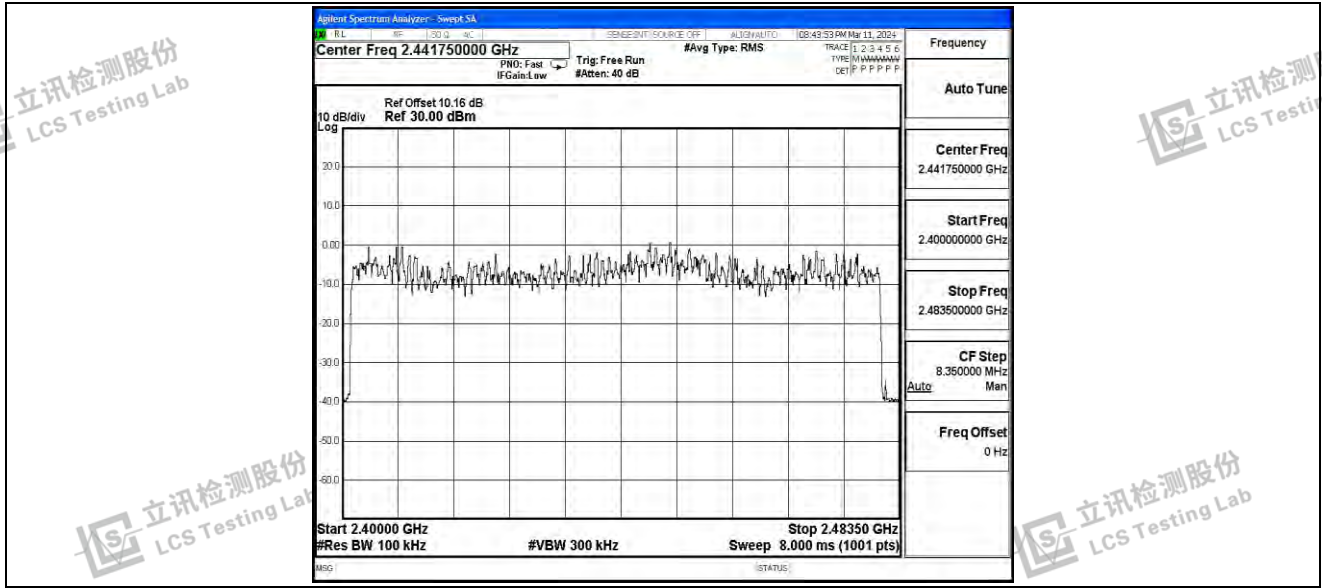
TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant	Hop	79	≥15	PASS
2DH5	Ant	Hop	79	≥15	PASS
3DH5	Ant	Hop	79	≥15	PASS





Test Graphs







A.6 Band edge measurements

Test Result

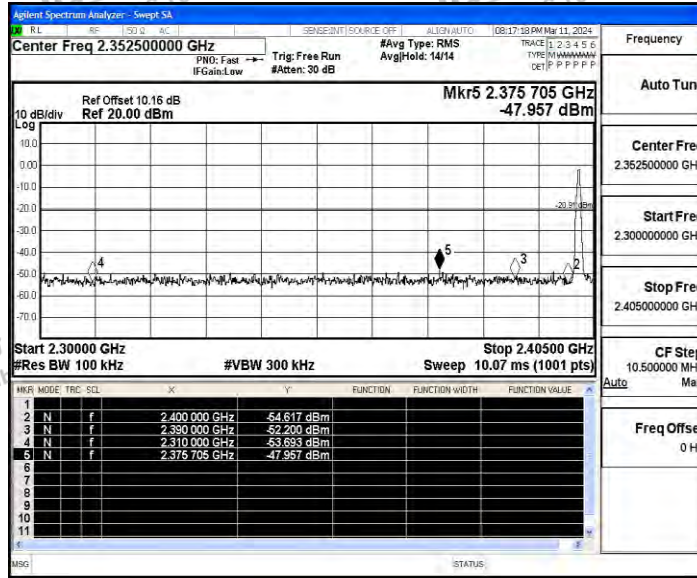
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant	Low	2402	-0.91	-47.96	≤-20.91	PASS
		High	2480	-1.76	-48.21	≤-21.76	PASS
		Low	Hop_2402	0.22	-48.21	≤-19.78	PASS
		High	Hop_2480	-2.32	-47.29	≤-22.32	PASS
2DH5	Ant	Low	2402	-0.96	-48.76	≤-20.96	PASS
		High	2480	-1.70	-48.39	≤-21.7	PASS
		Low	Hop_2402	-1.02	-47.77	≤-21.02	PASS
		High	Hop_2480	-2.13	-46.85	≤-22.13	PASS
3DH5	Ant	Low	2402	-1.48	-49.03	≤-21.48	PASS
		High	2480	-1.60	-48.62	≤-21.6	PASS
		Low	Hop_2402	-0.01	-48.36	≤-20.01	PASS
		High	Hop_2480	-2.18	-46.94	≤-22.18	PASS



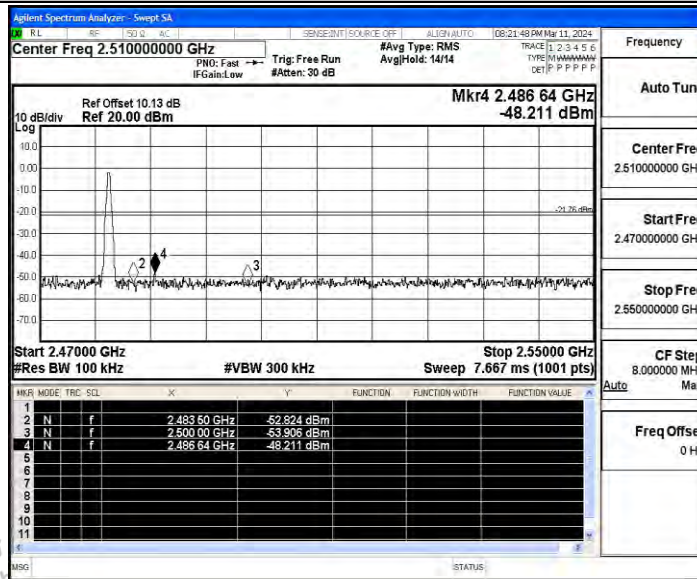


Test Graphs

DH5_Ant_Low_2402

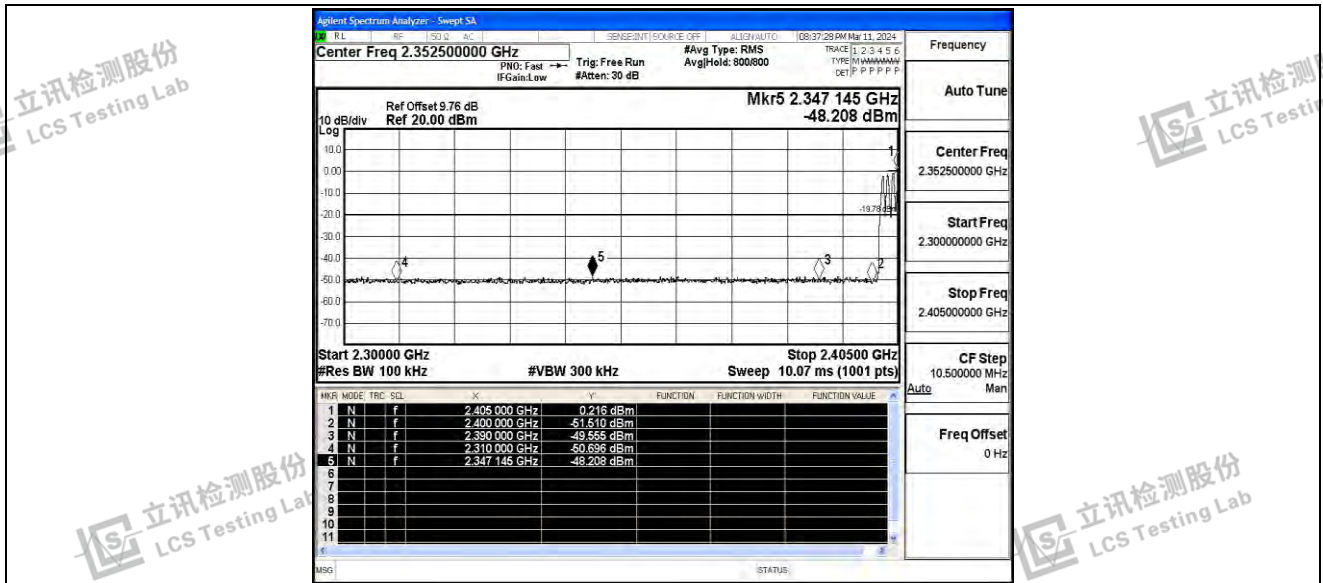


DH5_Ant_High_2480

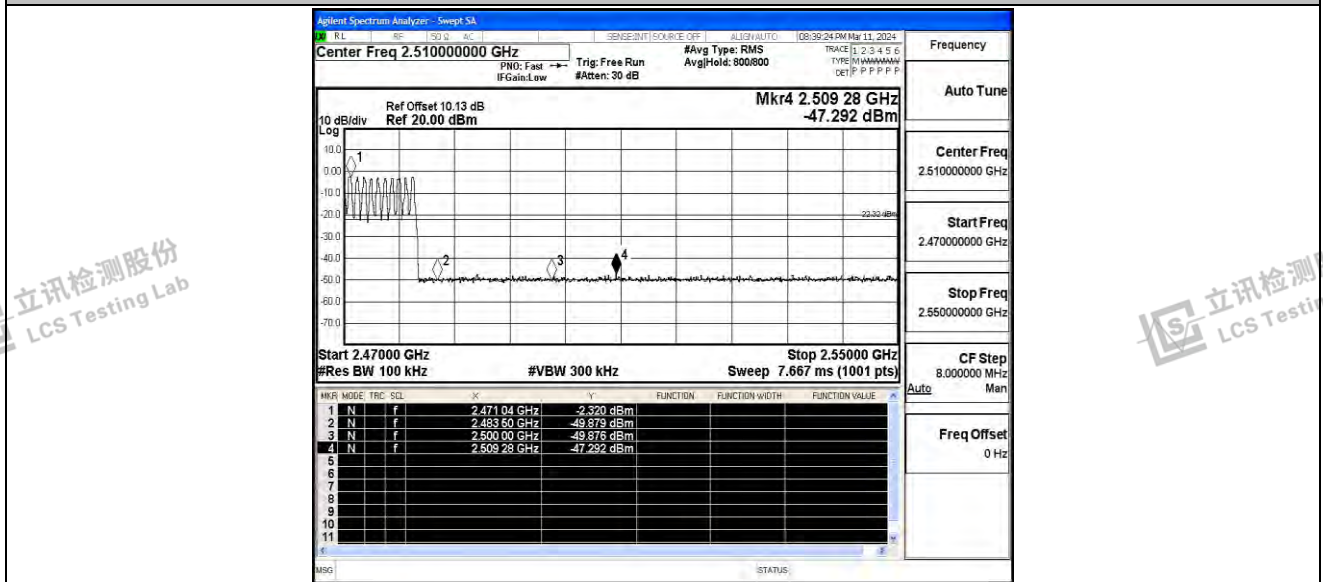


DH5_Ant_Low_Hop_2402

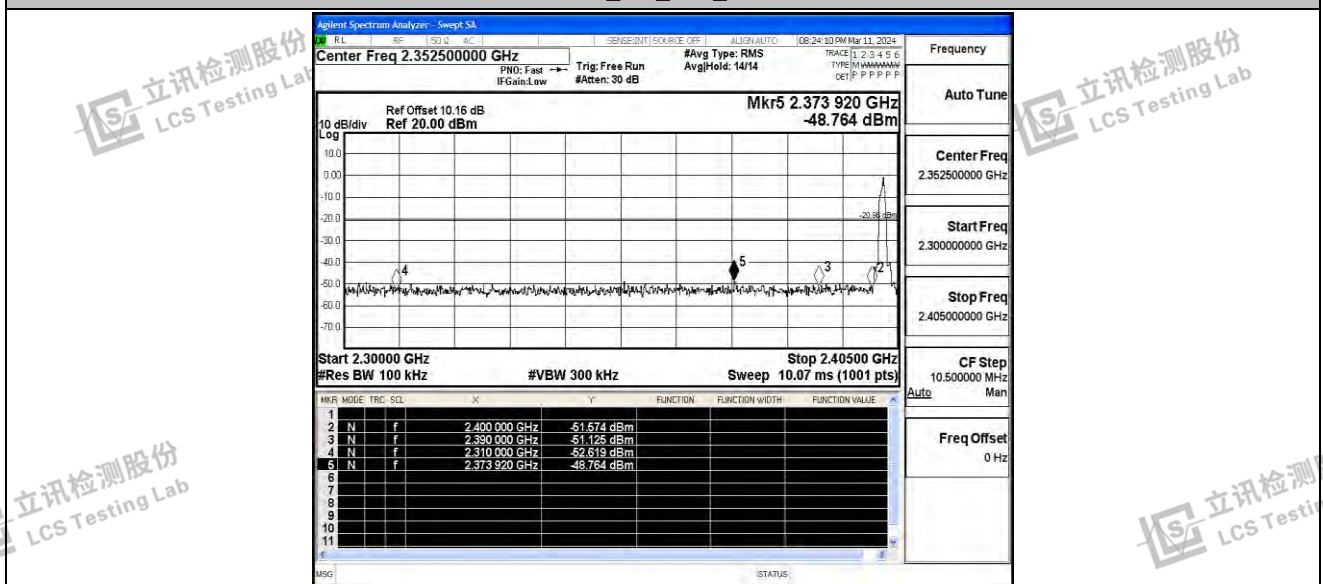




DH5_Ant_High_Hop_2480

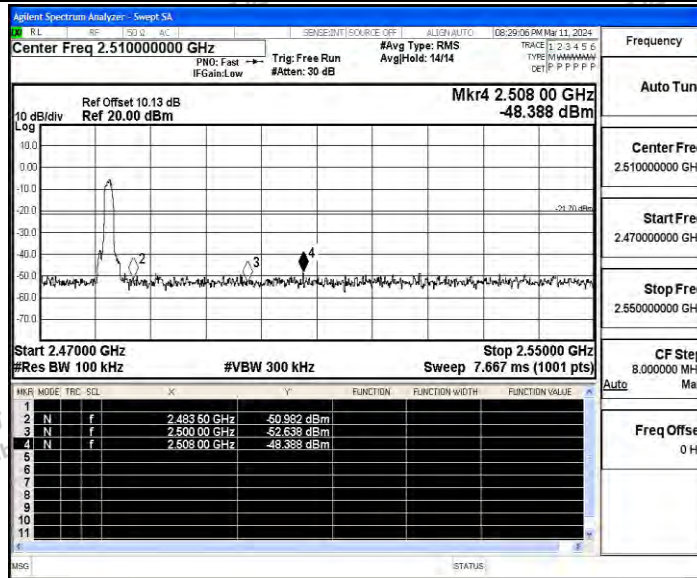


2DH5_Ant_Low_2402

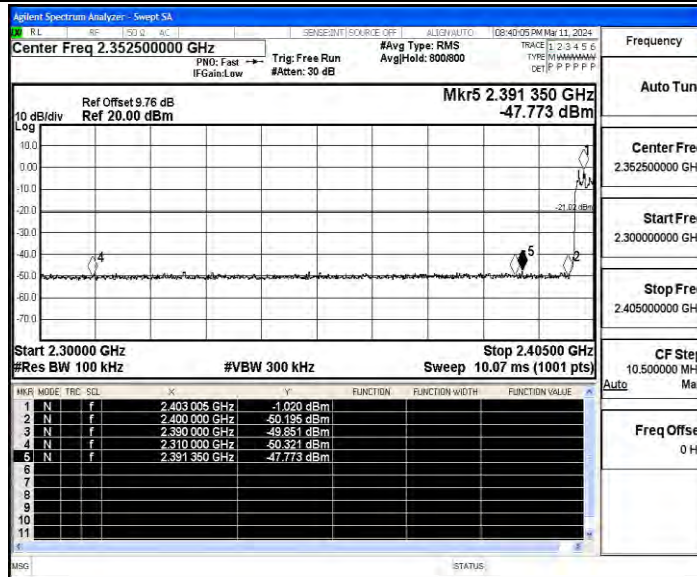




2DH5_Ant_High_2480

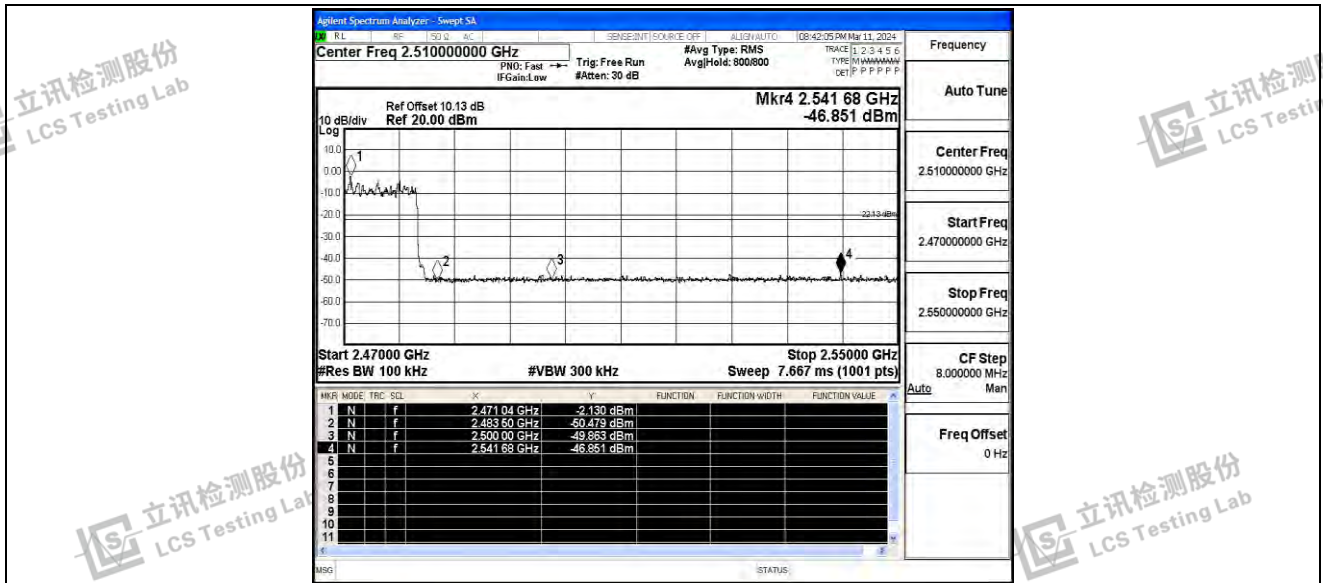


2DH5_Ant_Low_Hop_2402

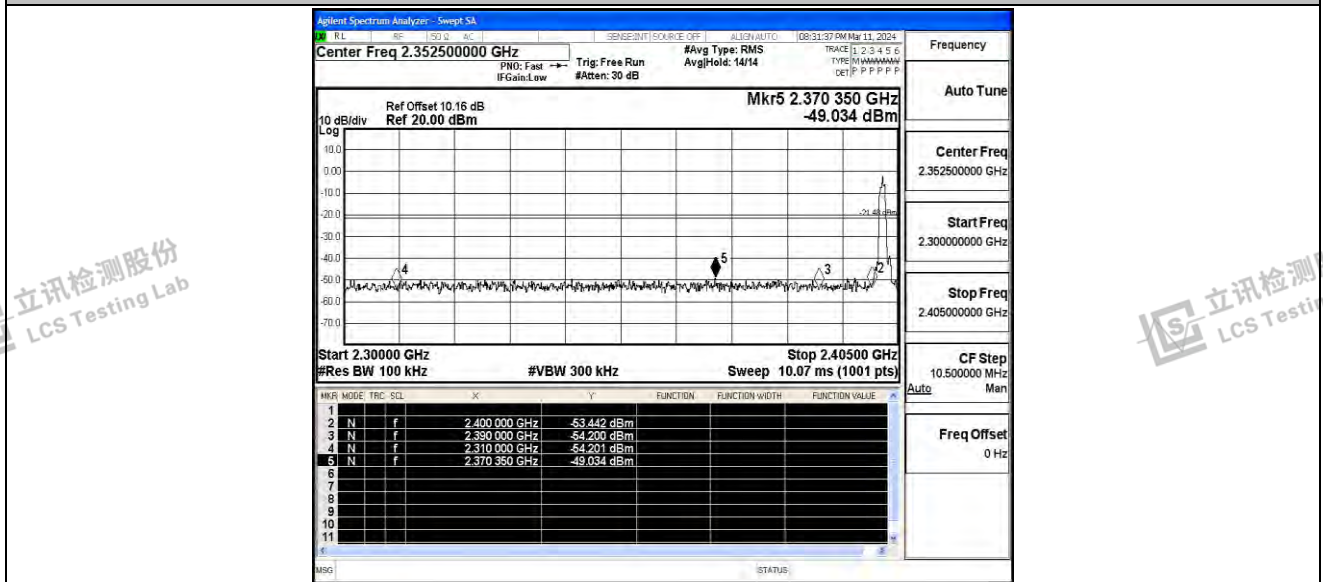


2DH5_Ant_High_Hop_2480

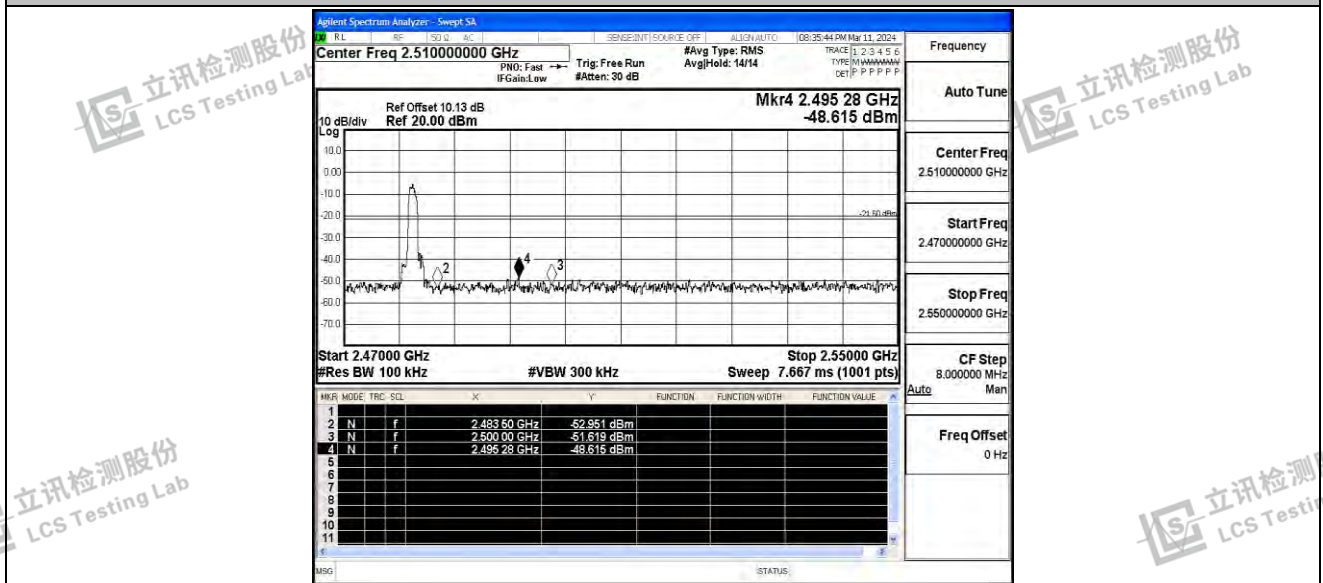




3DH5_Ant_Low_2402

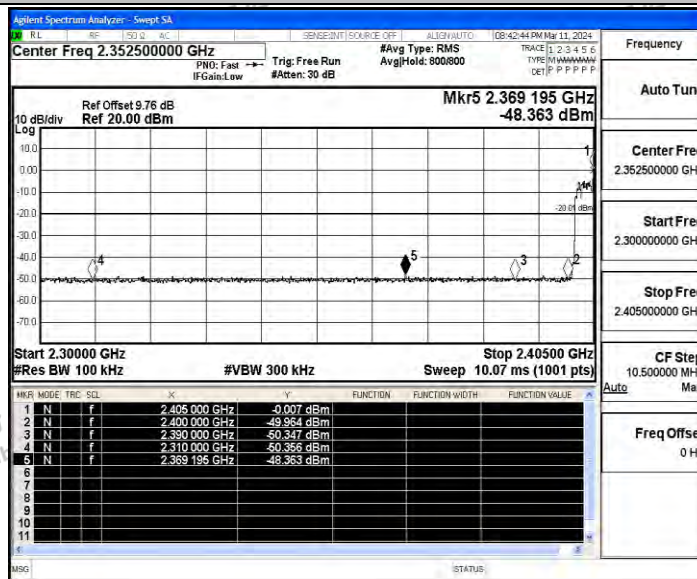


3DH5_Ant_High_2480

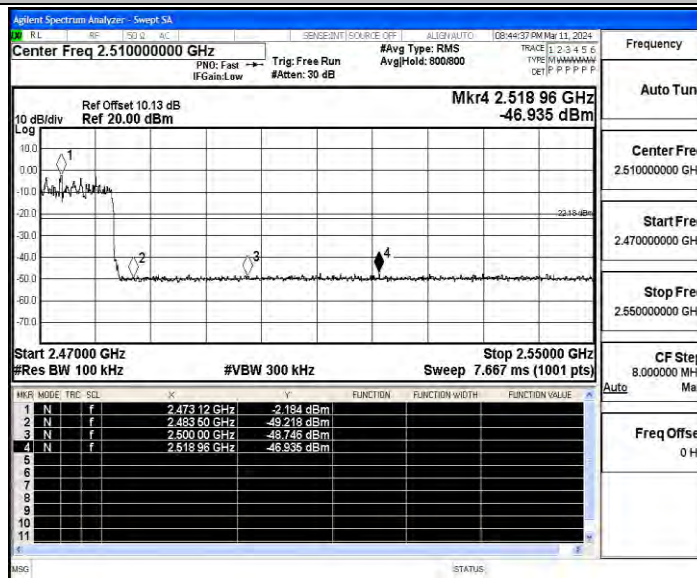




3DH5_Ant_Low_Hop_2402



3DH5_Ant_High_Hop_2480





A.7 Conducted Spurious Emission

Test Result

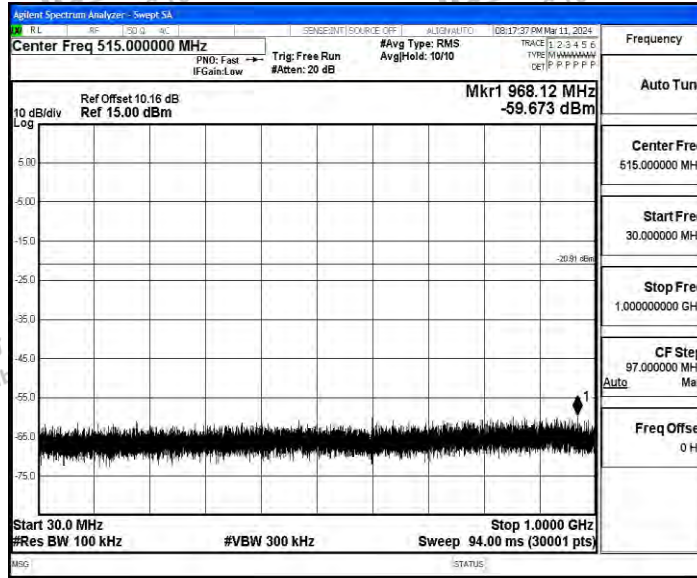
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant	2402	30~1000	-0.91	-59.67	≤-20.91	PASS
			1000~26500	-0.91	-46.82	≤-20.91	PASS
		2441	30~1000	-1.64	-59.13	≤-21.64	PASS
			1000~26500	-1.64	-47.43	≤-21.64	PASS
		2480	30~1000	-1.76	-59.77	≤-21.76	PASS
			1000~26500	-1.76	-46.7	≤-21.76	PASS
2DH5	Ant	2402	30~1000	-0.96	-58.71	≤-20.96	PASS
			1000~26500	-0.96	-46.93	≤-20.96	PASS
		2441	30~1000	-1.92	-59.58	≤-21.92	PASS
			1000~26500	-1.92	-47.34	≤-21.92	PASS
		2480	30~1000	-1.70	-59.63	≤-21.7	PASS
			1000~26500	-1.70	-47.25	≤-21.7	PASS
3DH5	Ant	2402	30~1000	-1.48	-59.64	≤-21.48	PASS
			1000~26500	-1.48	-47.3	≤-21.48	PASS
		2441	30~1000	-1.29	-59.63	≤-21.29	PASS
			1000~26500	-1.29	-47.54	≤-21.29	PASS
		2480	30~1000	-1.60	-58.61	≤-21.6	PASS
			1000~26500	-1.60	-47.12	≤-21.6	PASS



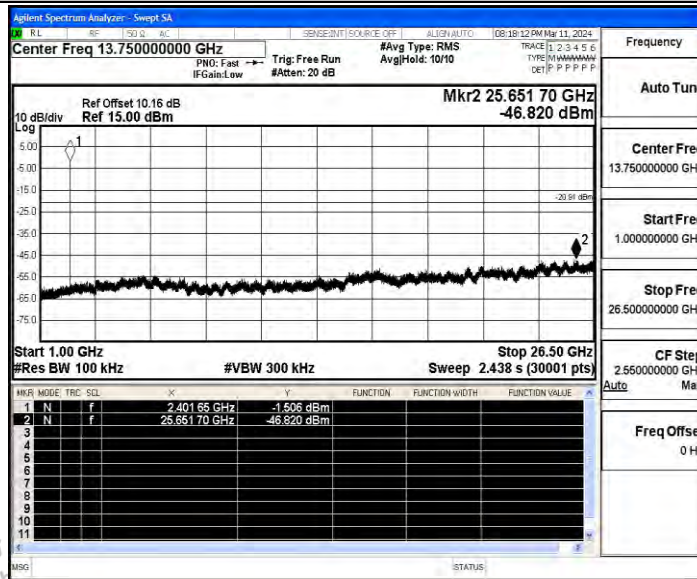


Test Graphs

DH5_Ant_2402_30~1000

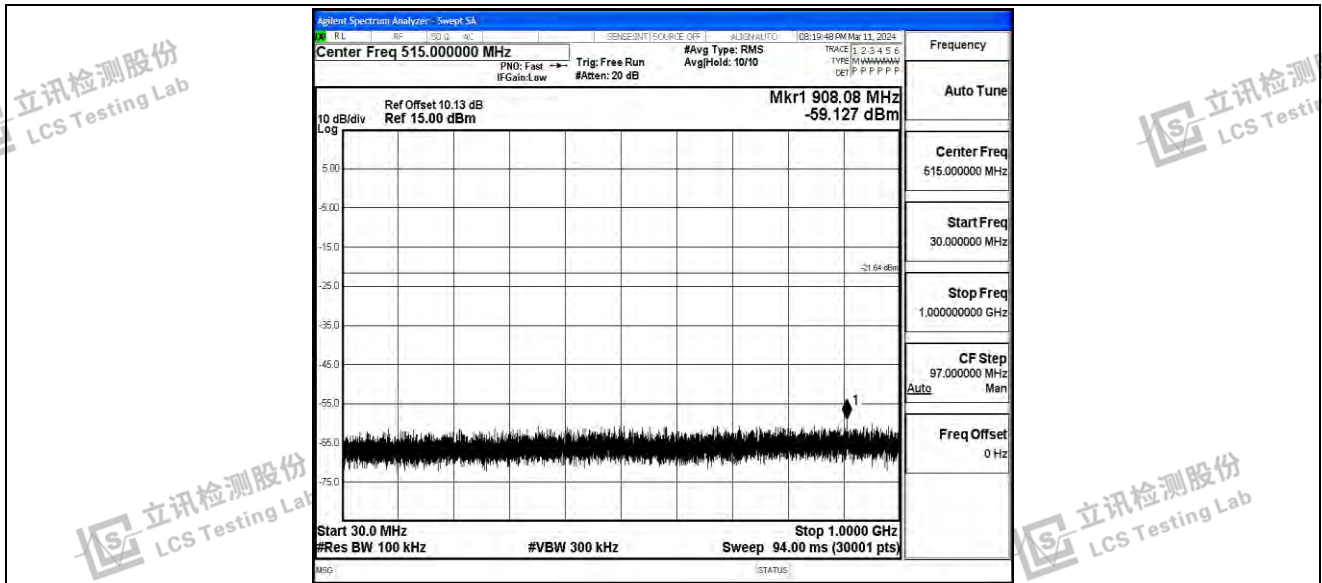


DH5_Ant_2402_1000~26500

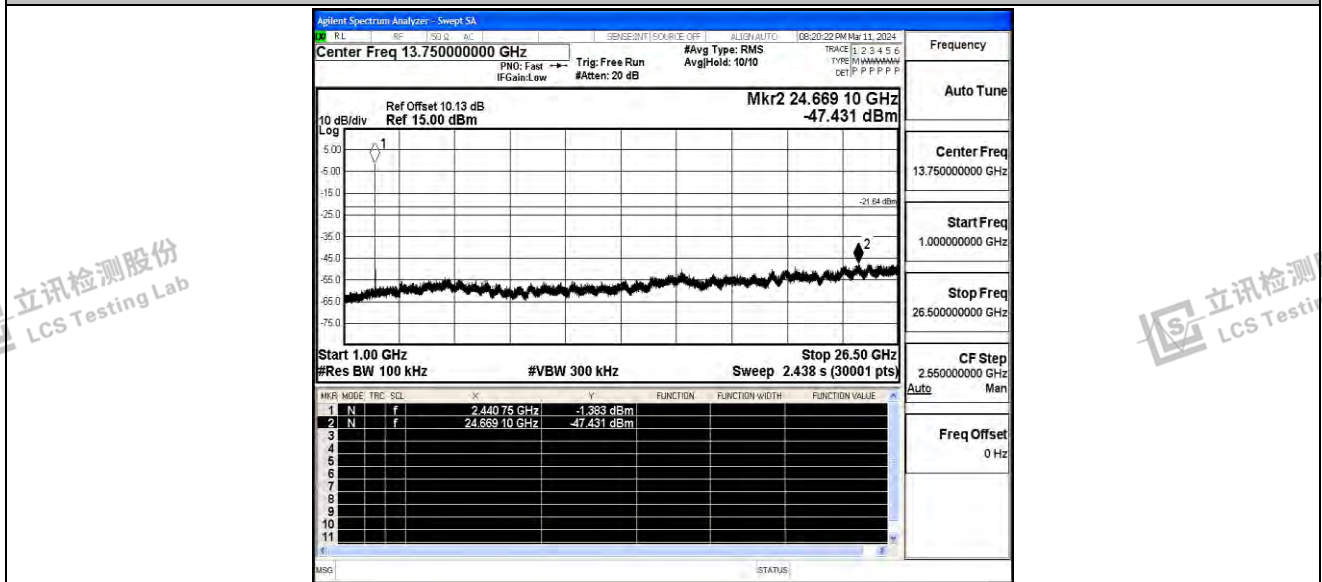


DH5_Ant_2441_30~1000

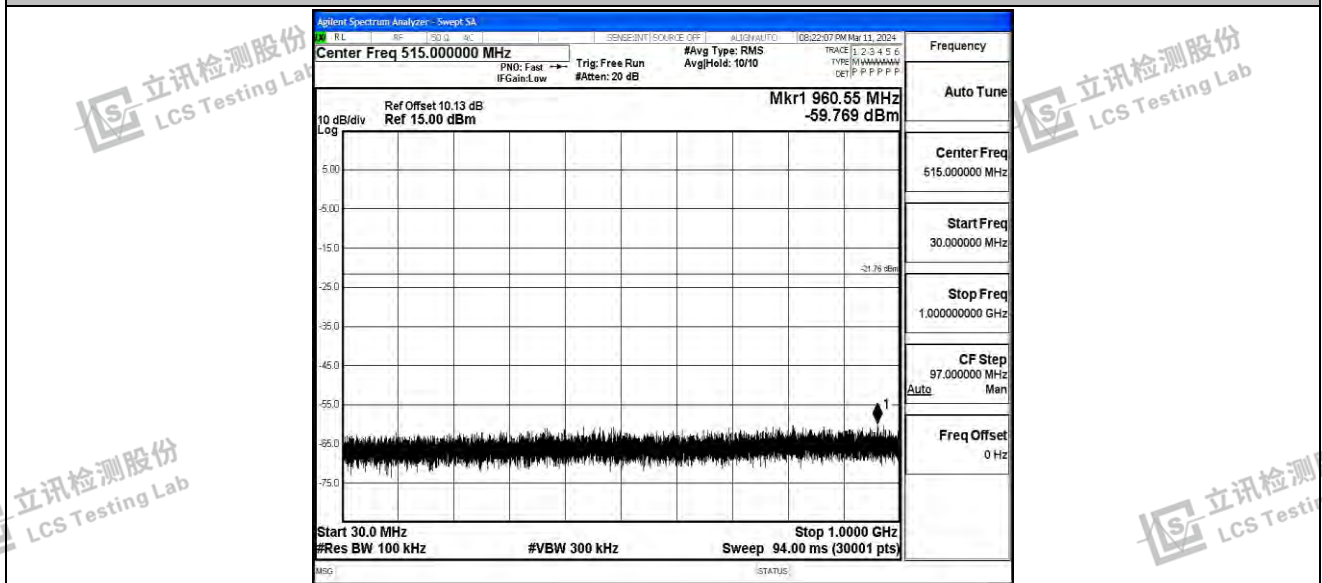




DH5_Ant_2441_1000~26500

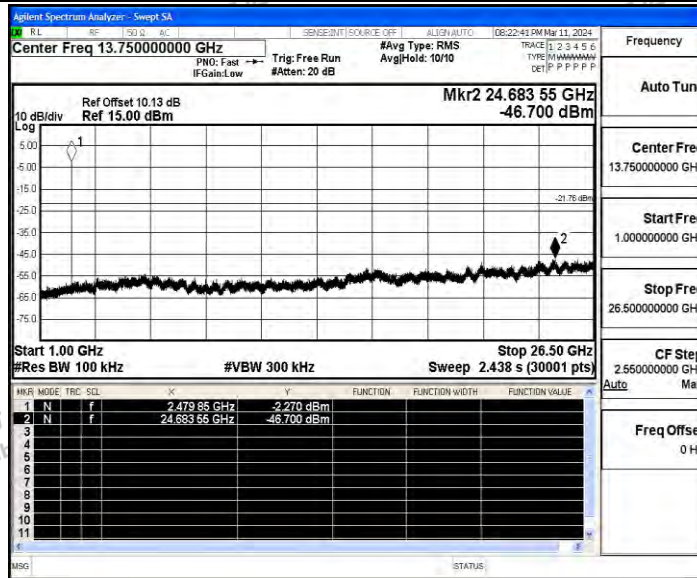


DH5_Ant_2480_30~1000

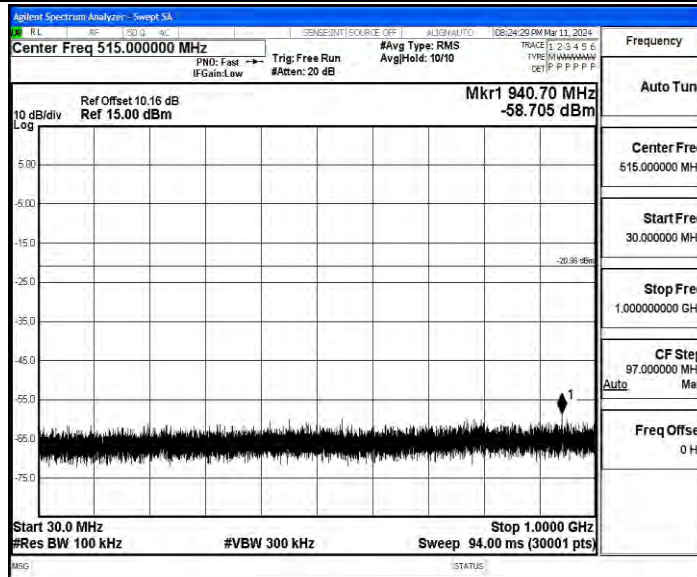




DH5_Ant_2480_1000~26500

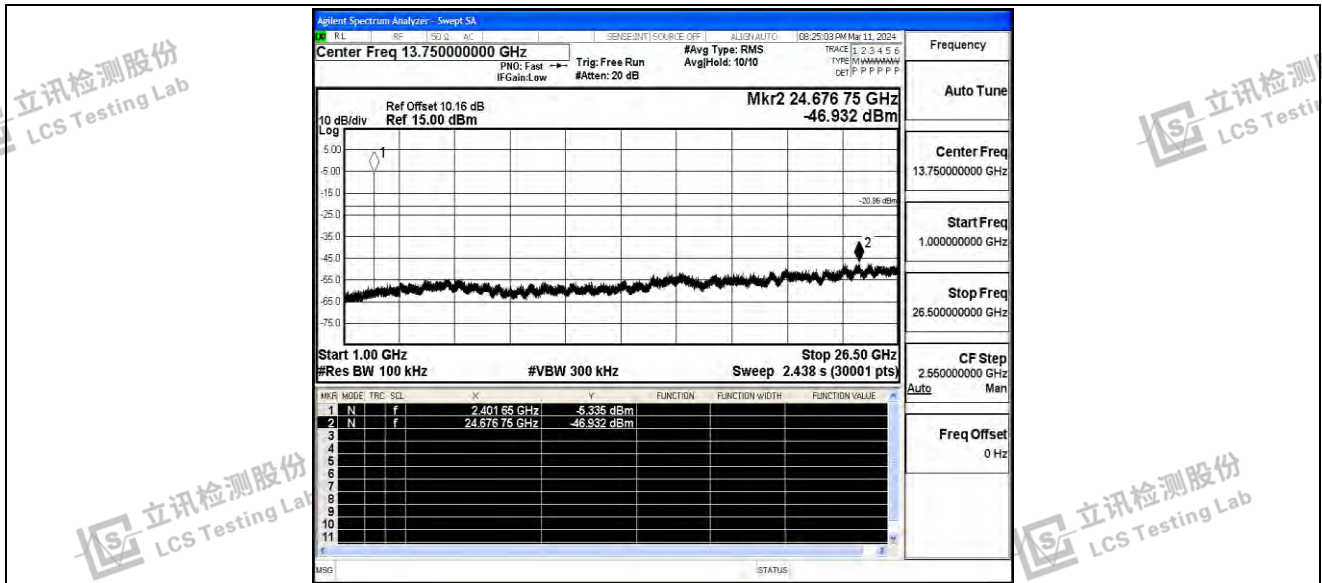


2DH5_Ant_2402_30~1000

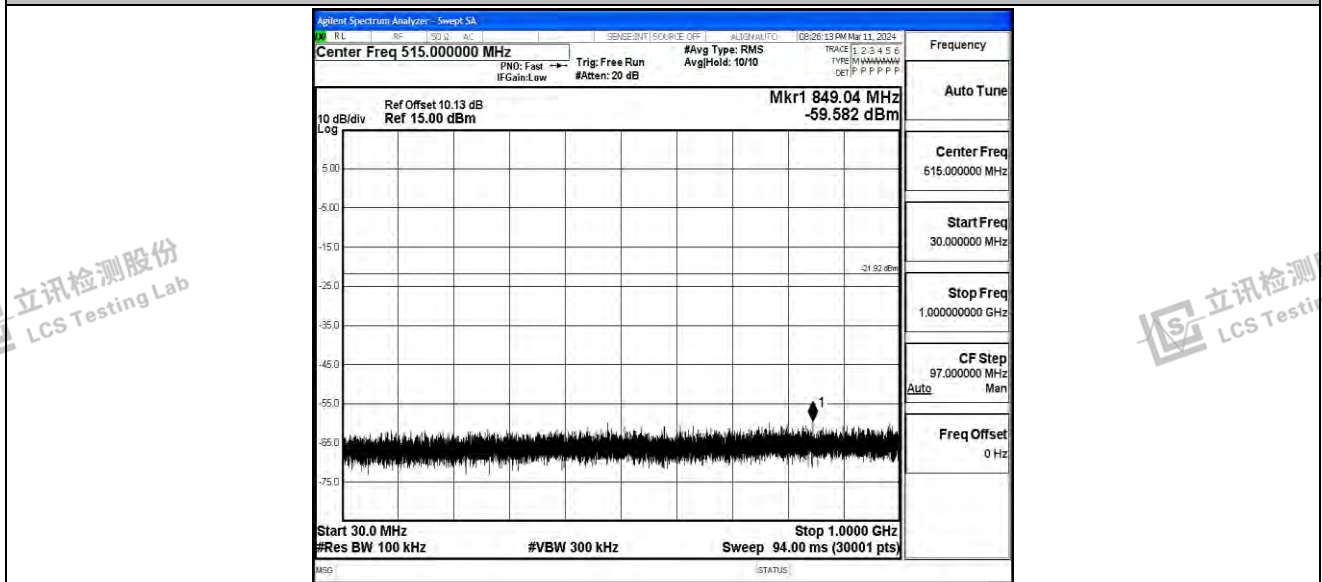


2DH5_Ant_2402_1000~26500

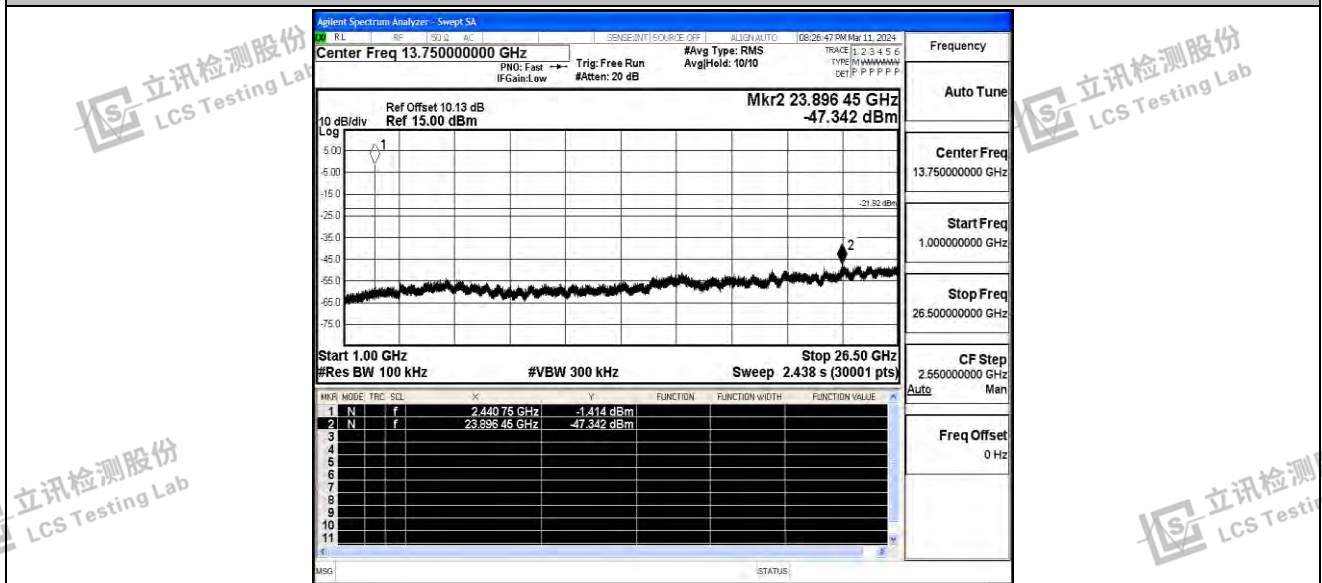




2DH5_Ant_2441_30~1000

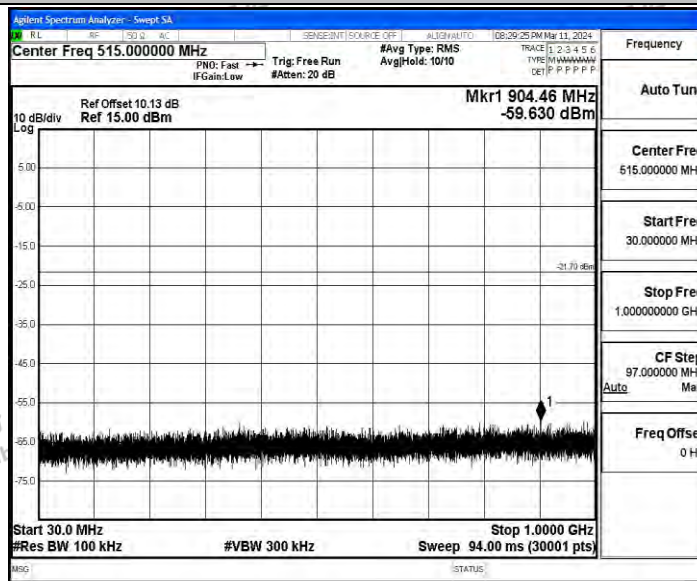


2DH5_Ant_2441_1000~26500

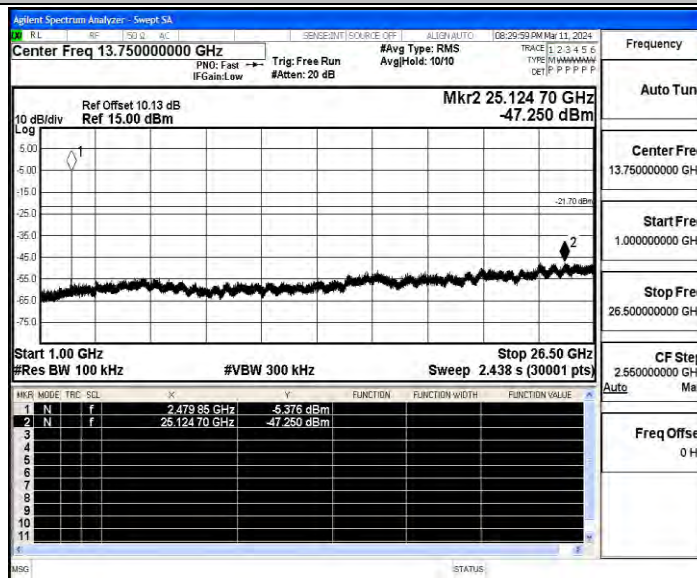




2DH5_Ant_2480_30~1000

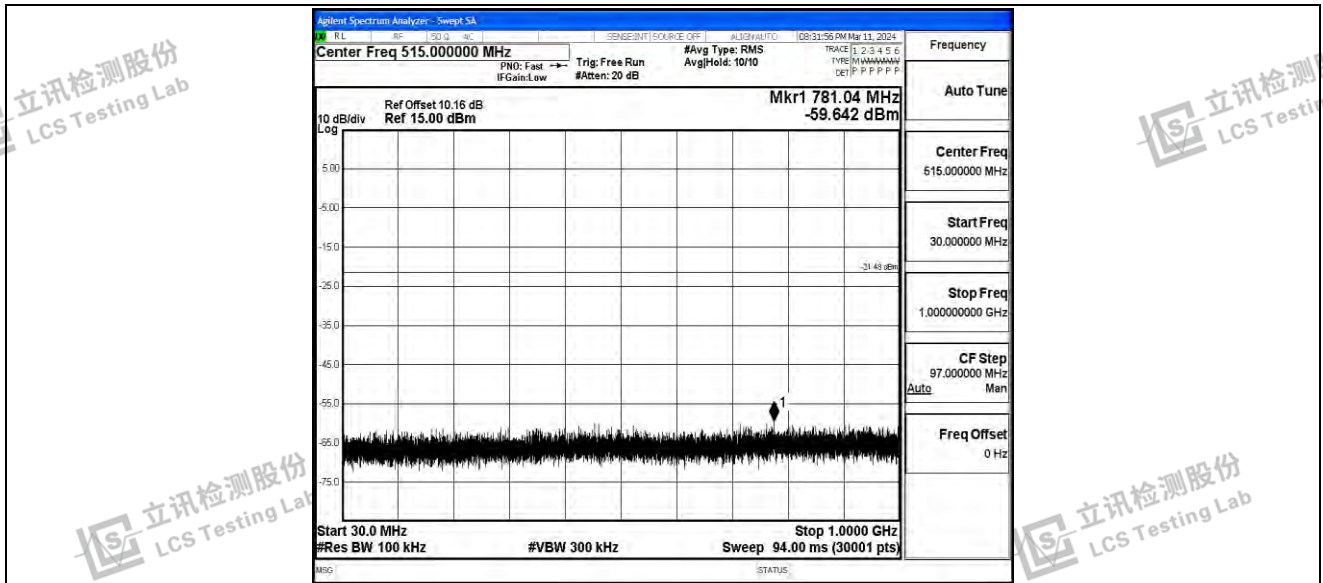


2DH5_Ant_2480_1000~26500

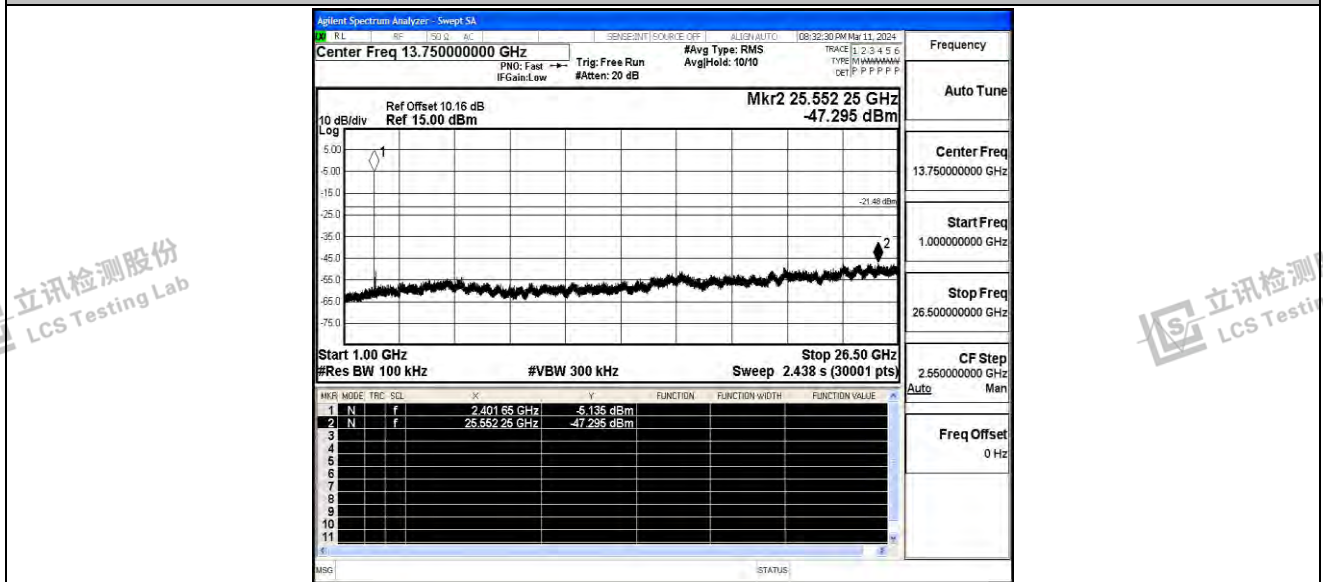


3DH5_Ant_2402_30~1000

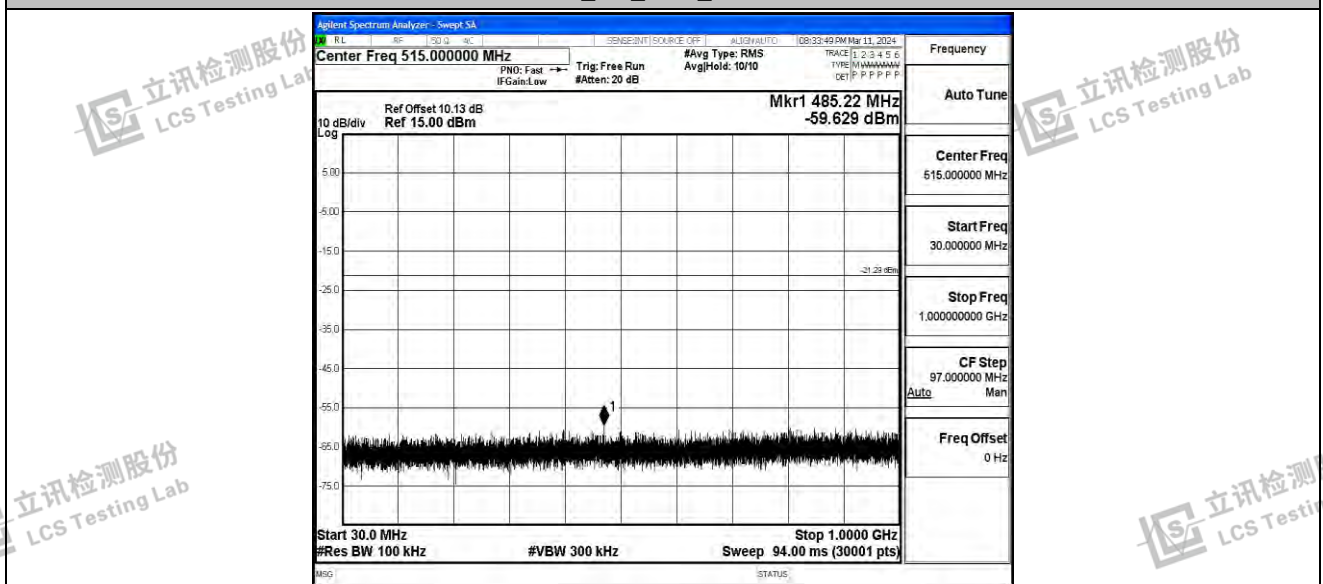




3DH5_Ant_2402_1000~26500

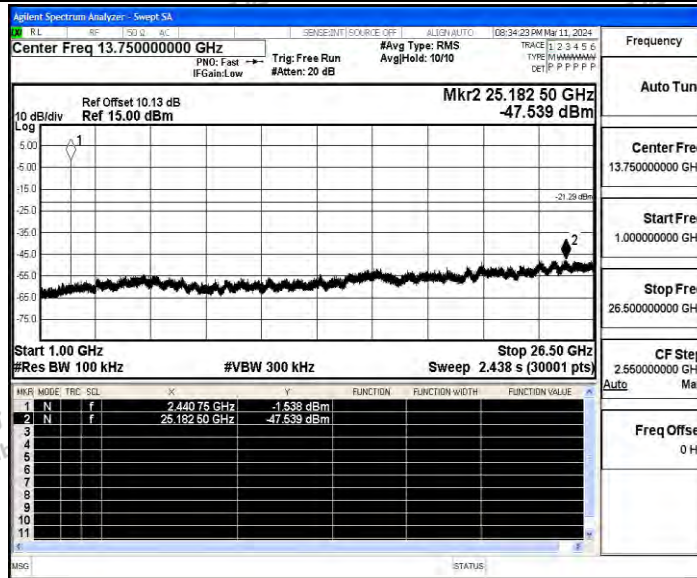


3DH5_Ant_2441_30~1000

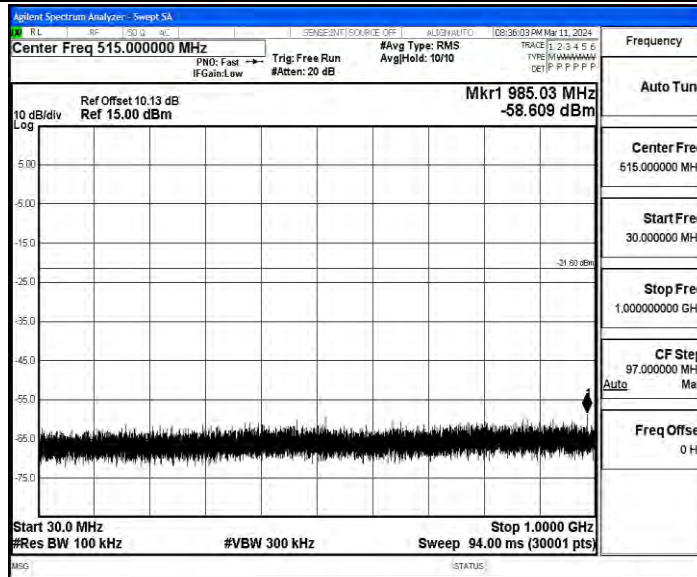




3DH5_Ant_2441_1000~26500

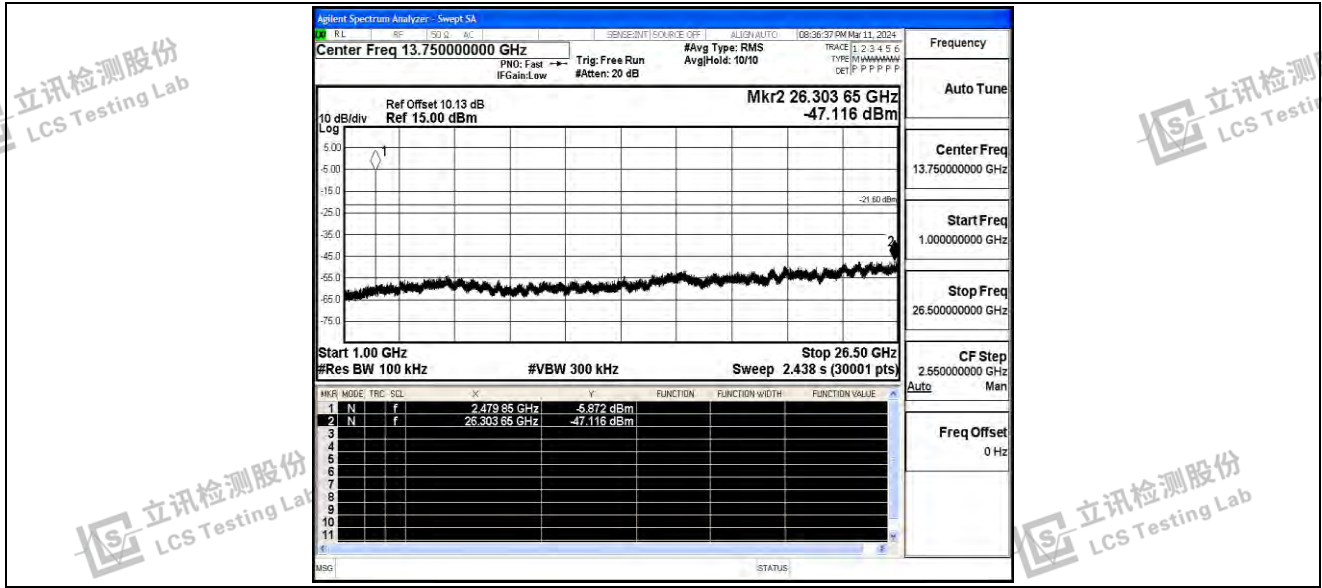


3DH5_Ant_2480_30~1000



3DH5_Ant_2480_1000~26500







Reference Level

Test Result

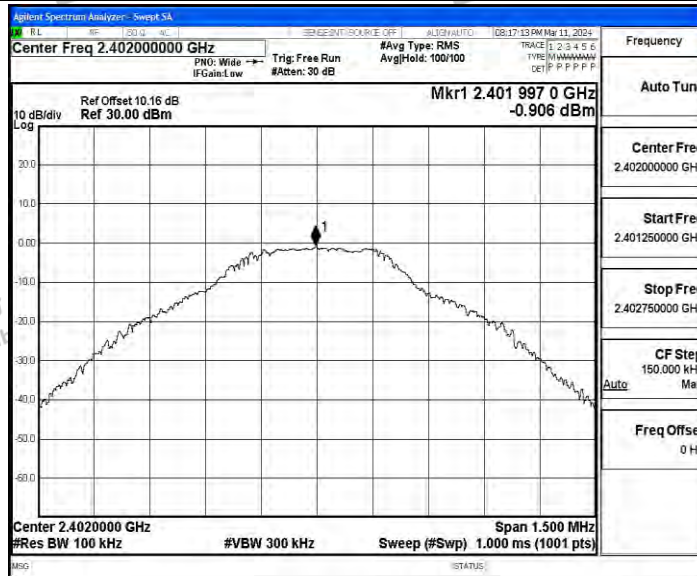
TestMode	Antenna	ChName	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant	2402	2402.00	-0.91	---	PASS
		2441	2441.02	-1.64	---	PASS
		2480	2479.99	-1.76	---	PASS
2DH5	Ant	2402	2401.83	-0.96	---	PASS
		2441	2440.81	-1.92	---	PASS
		2480	2480.15	-1.70	---	PASS
3DH5	Ant	2402	2402.15	-1.48	---	PASS
		2441	2441.16	-1.29	---	PASS
		2480	2480.16	-1.60	---	PASS



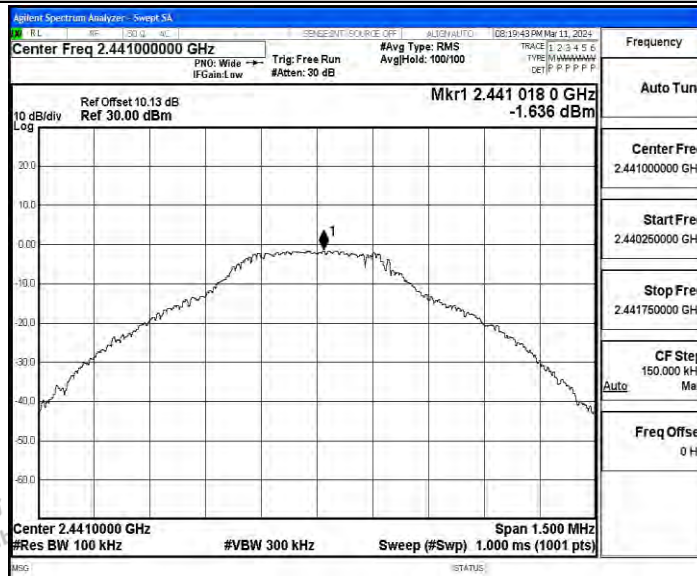


Test Graphs

DH5_Ant_2402

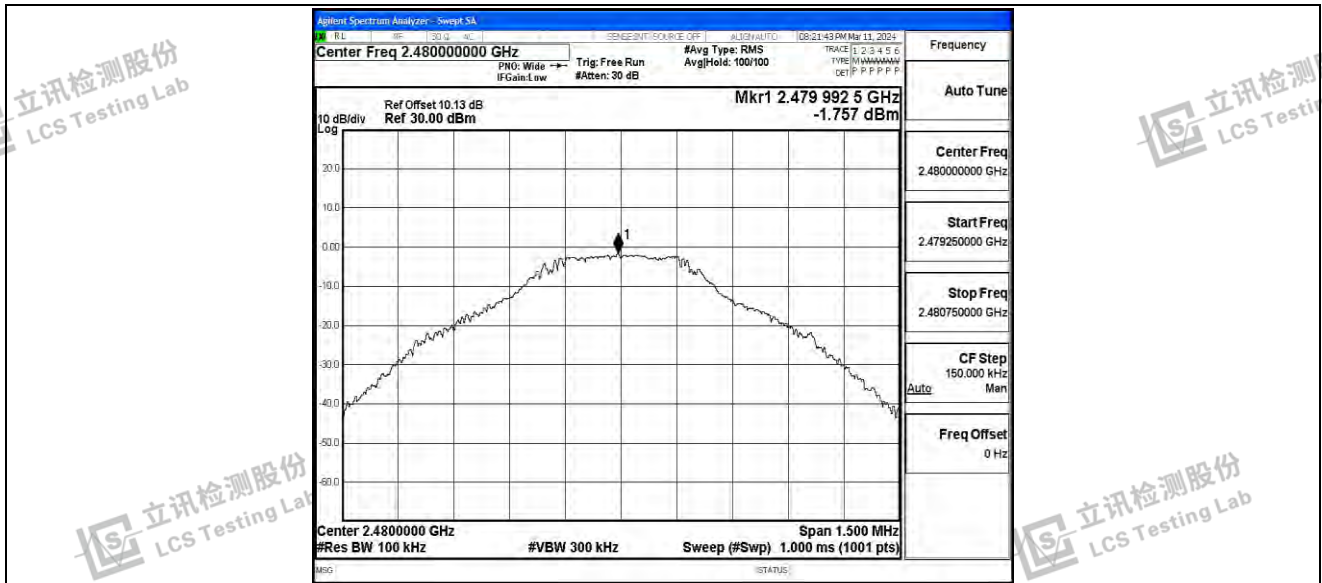


DH5_Ant_2441

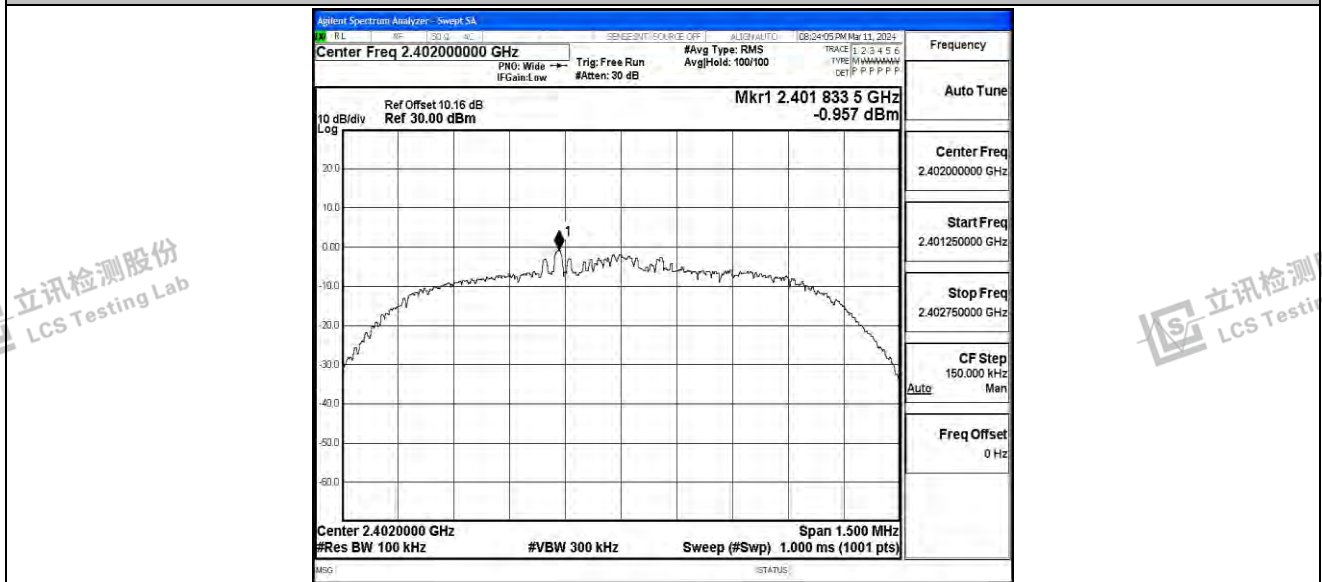


DH5_Ant_2480

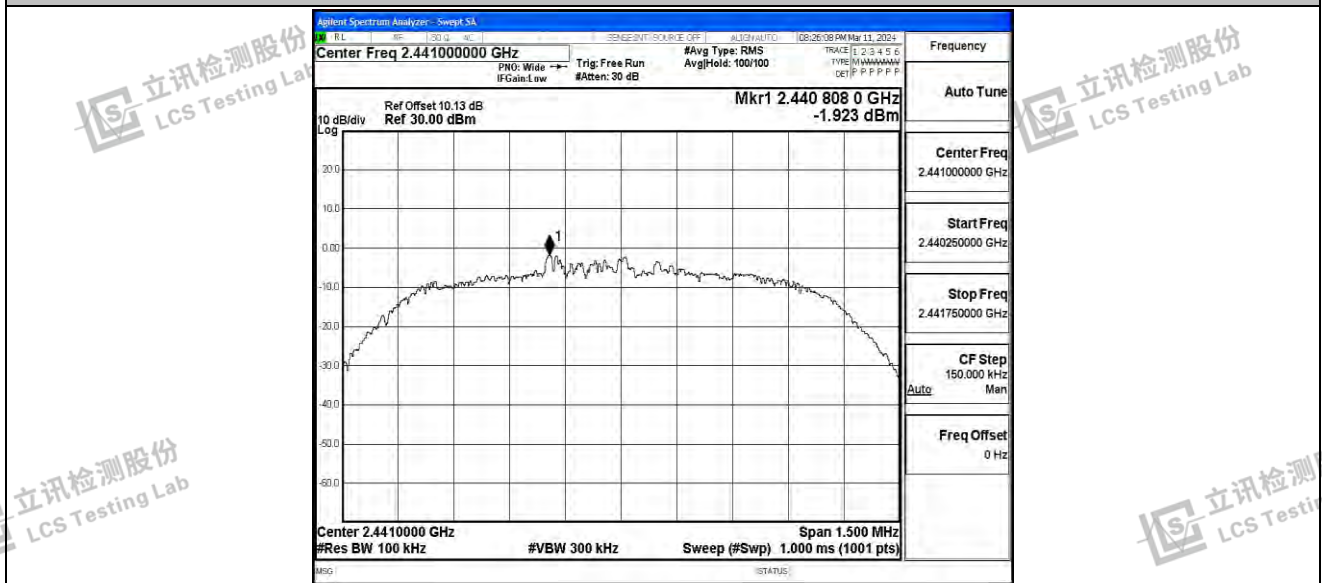




2DH5_Ant_2402

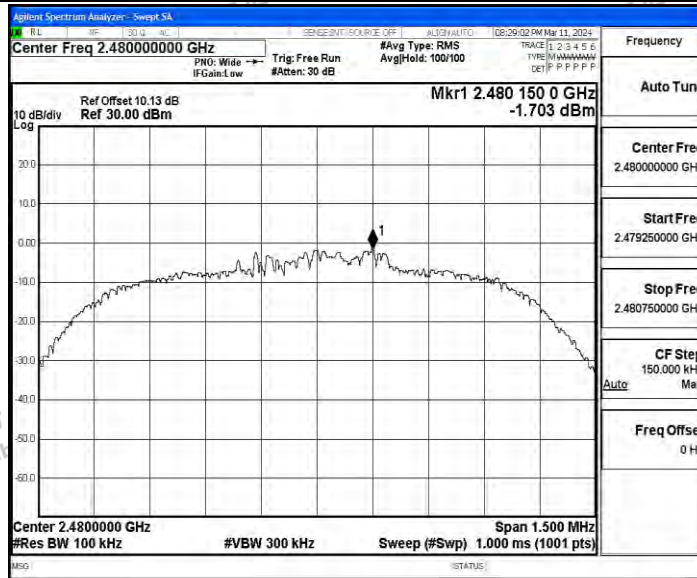


2DH5_Ant_2441

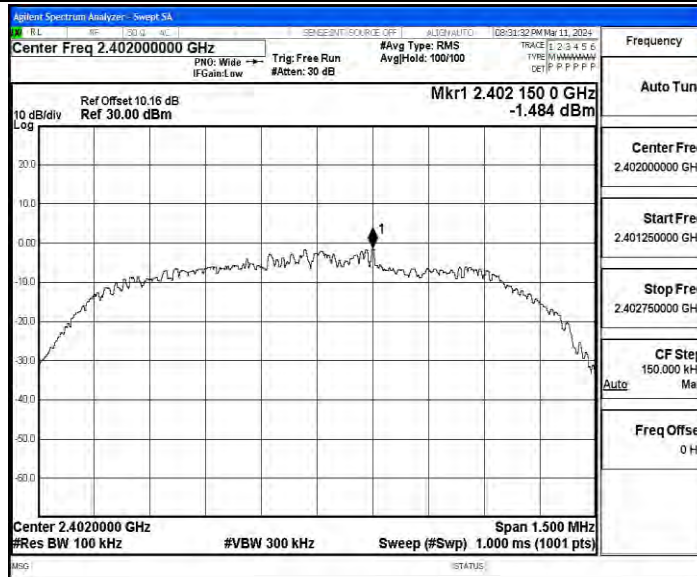




2DH5_Ant_2480

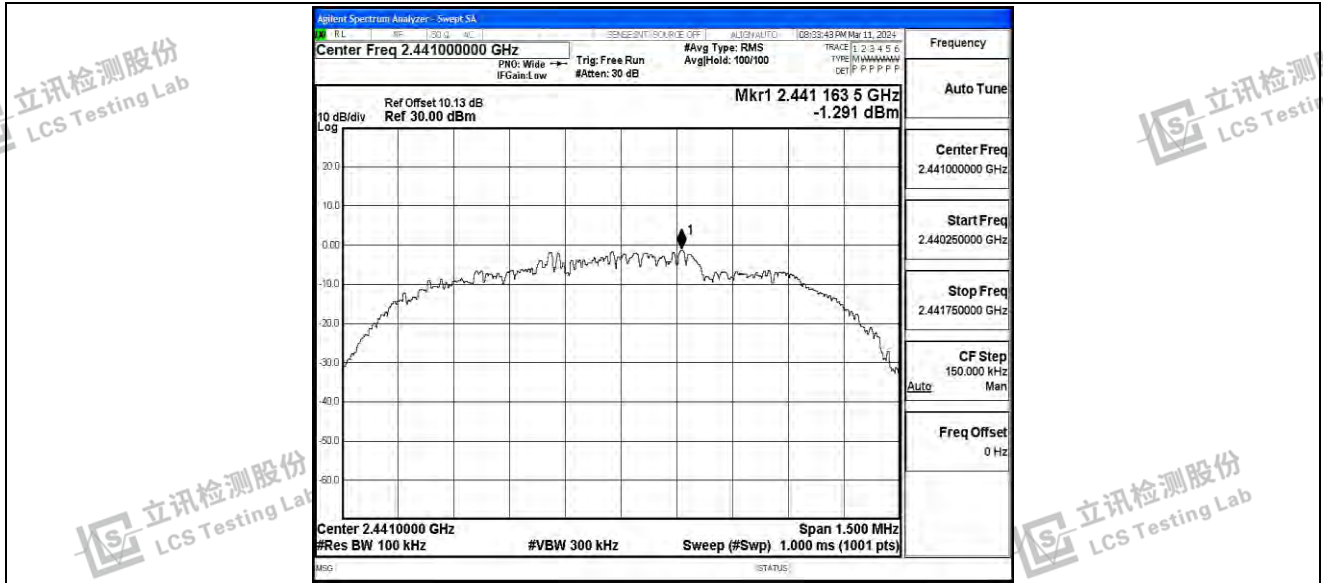


3DH5_Ant_2402

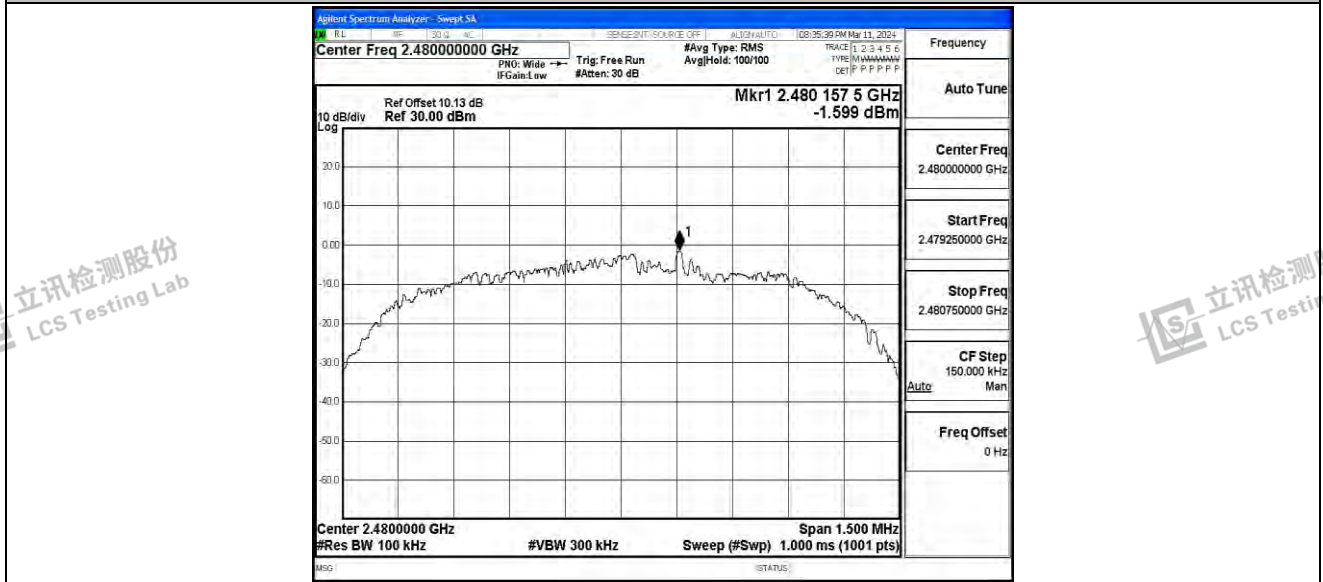


3DH5_Ant_2441





3DH5_Ant_2480





A.8 Duty Cycle

Test Result

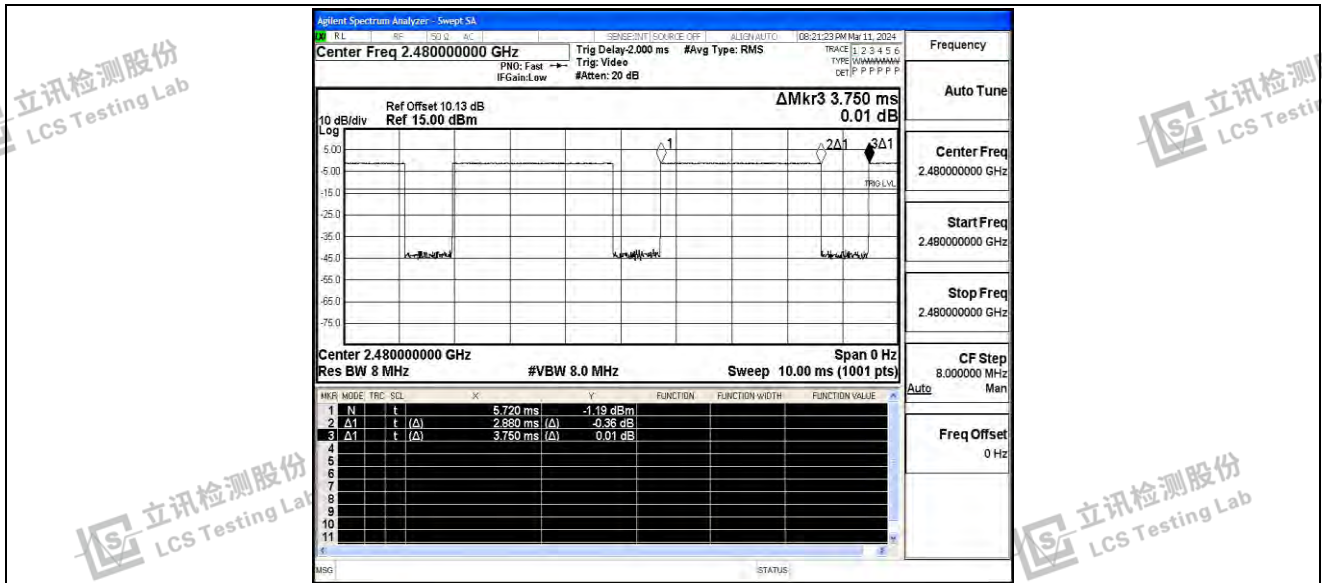
TestMode	Antenna	Frequency[M Hz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]	1/T Factor[kHz]
DH5	Ant	2402	2.88	3.75	76.80	1.15	0.35
		2441	2.89	3.75	77.07	1.13	0.35
		2480	2.88	3.75	76.80	1.15	0.35
2DH5	Ant	2402	2.88	3.75	76.80	1.15	0.35
		2441	2.89	3.75	77.07	1.13	0.35
		2480	2.88	3.75	76.80	1.15	0.35
3DH5	Ant	2402	2.89	3.75	77.07	1.13	0.35
		2441	2.89	3.75	77.07	1.13	0.35
		2480	2.89	3.75	77.07	1.13	0.35



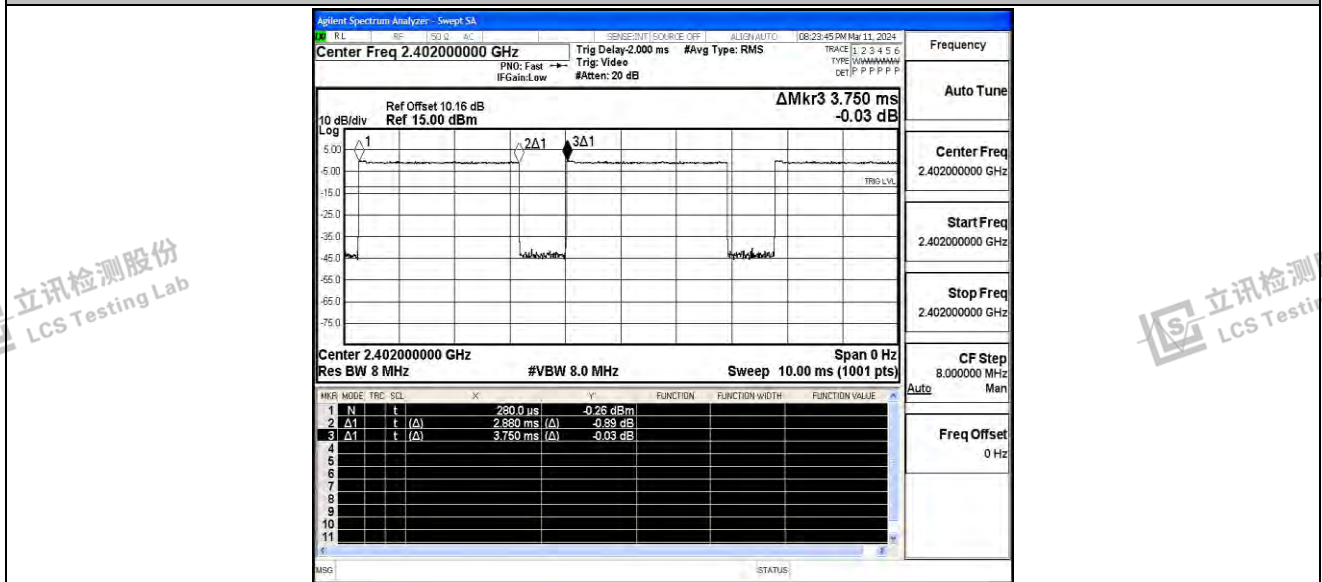


Test Graphs

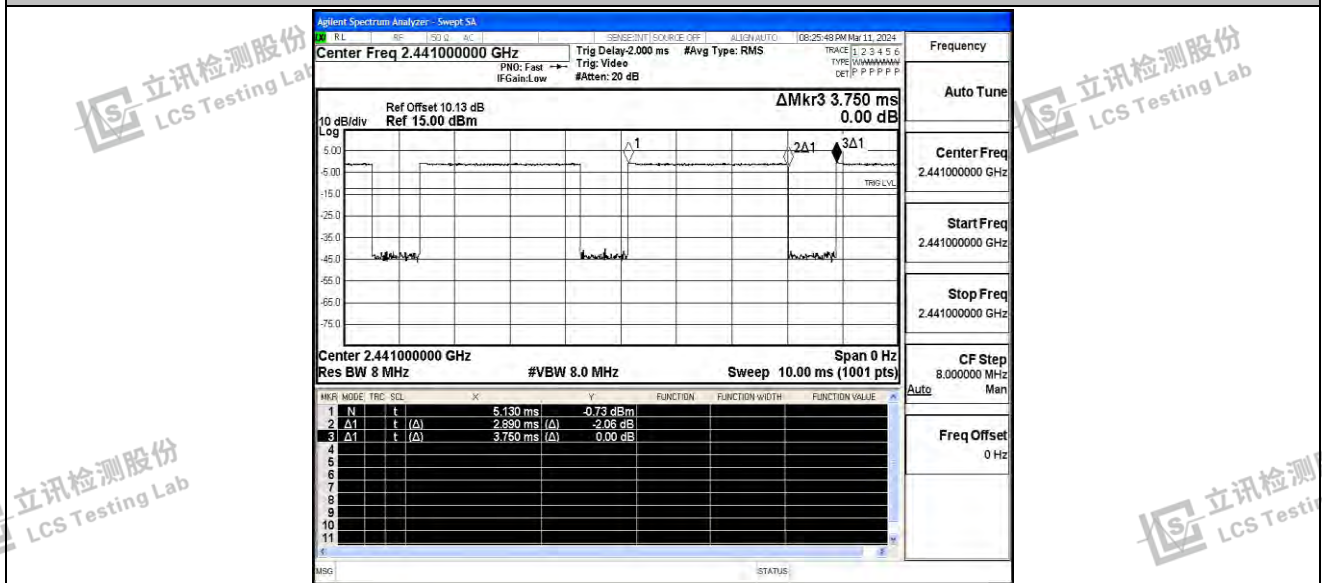




2DH5_Ant_2402

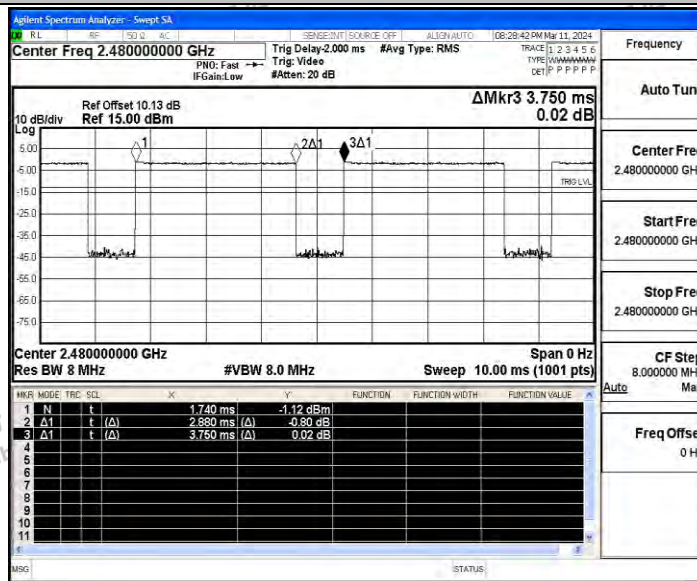


2DH5_Ant_2441

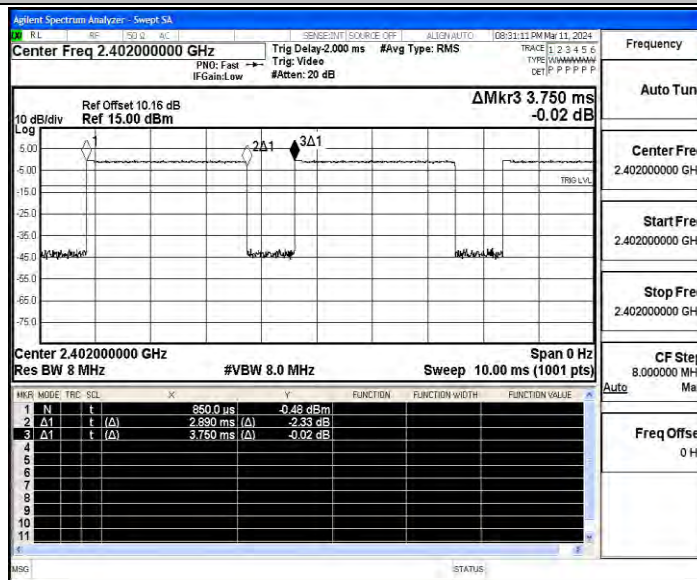




2DH5_Ant_2480

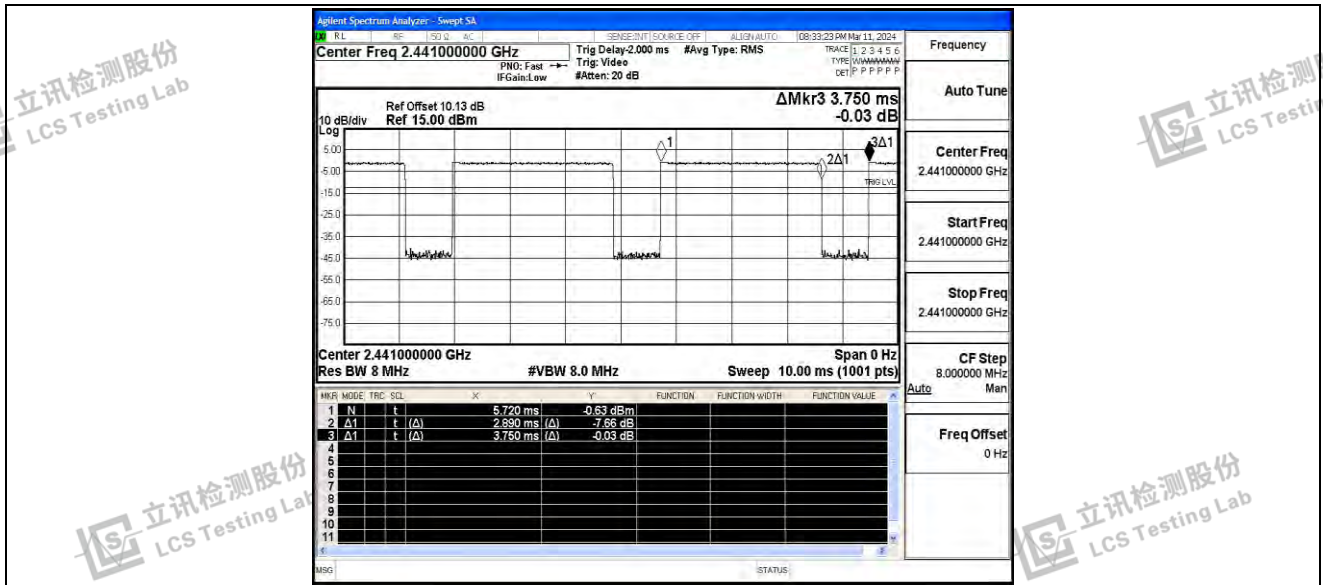


3DH5_Ant_2402

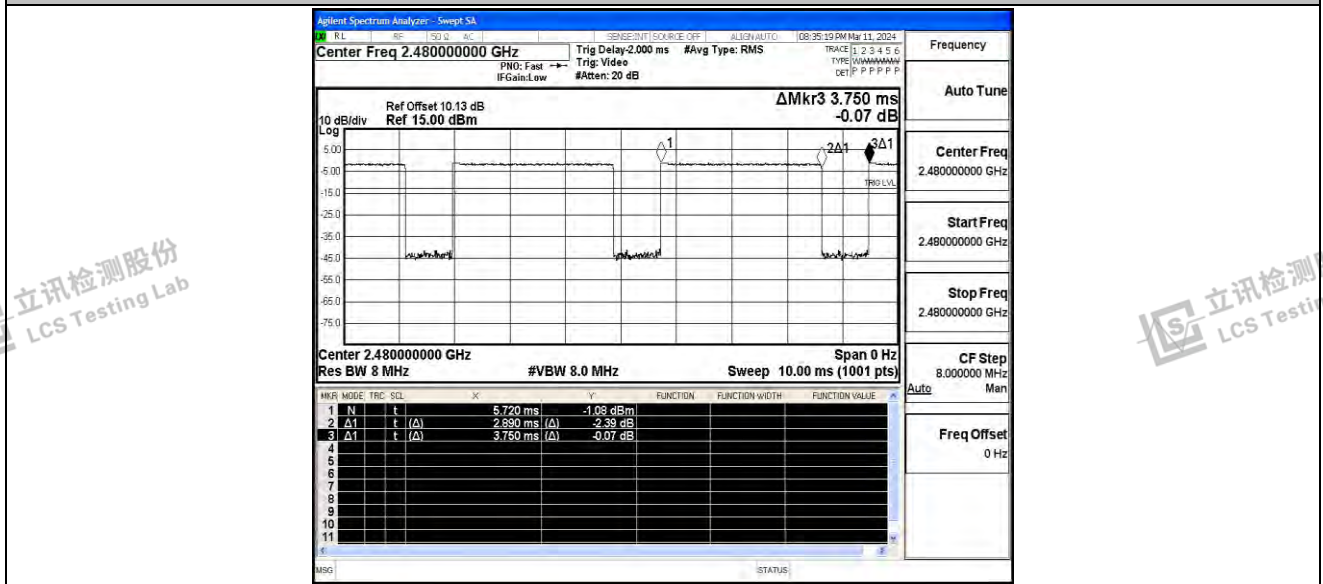


3DH5_Ant_2441





3DH5_Ant_2480





A.9 Emissions in Restricted Bands

Test Result

TestMode	Antenna	Channel Name	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBUV/m]	Limit [dBUV/m]	Verdict		
DH5	Ant	Low	2402	AV	2310.000	-46.76	≤-41.20	48.44	≤54	PASS		
				AV	2373.080	-45.85	≤-41.20	49.35	≤54	PASS		
				AV	2390.000	-46.94	≤-41.20	48.26	≤54	PASS		
				Peak	2310.000	-40.07	≤-21.20	55.13	≤74	PASS		
				Peak	2349.350	-36.61	≤-21.20	58.59	≤74	PASS		
				Peak	2390.000	-39.75	≤-21.20	55.45	≤74	PASS		
		High	2480	AV	2483.500	-47.06	≤-41.20	48.14	≤54	PASS		
				AV	2487.760	-45.78	≤-41.20	49.42	≤54	PASS		
				AV	2500.000	-46.06	≤-41.20	49.14	≤54	PASS		
				Peak	2483.500	-40.83	≤-21.20	54.37	≤74	PASS		
				Peak	2486.800	-37.17	≤-21.20	58.03	≤74	PASS		
				Peak	2500.000	-38.87	≤-21.20	56.33	≤74	PASS		
		Low	Hop_2402	Peak	2310.000	-41.42	≤-21.20	53.78	≤74	PASS		
				Peak	2328.770	-36.72	≤-21.20	58.48	≤74	PASS		
				Peak	2390.000	-40.21	≤-21.20	54.99	≤74	PASS		
		High	Hop_2480	Peak	2483.500	-40.48	≤-21.20	54.72	≤74	PASS		
				Peak	2491.600	-36.74	≤-21.20	58.46	≤74	PASS		
				Peak	2500.000	-38.96	≤-21.20	56.24	≤74	PASS		
		2DH5	Ant	Low	2402	AV	2310.000	-47.22	≤-41.20	47.98	≤54	PASS
						AV	2324.675	-45.9	≤-41.20	49.30	≤54	PASS
						AV	2390.000	-46.53	≤-41.20	48.67	≤54	PASS
Peak	2310.000					-38.96	≤-21.20	56.24	≤74	PASS		
Peak	2369.720					-37.16	≤-21.20	58.04	≤74	PASS		
Peak	2390.000					-40.91	≤-21.20	54.29	≤74	PASS		
High	2480			AV	2483.500	-46.47	≤-41.20	48.73	≤54	PASS		
				AV	2487.680	-45.58	≤-41.20	49.62	≤54	PASS		
				AV	2500.000	-46.45	≤-41.20	48.75	≤54	PASS		
				Peak	2483.500	-39.5	≤-21.20	55.70	≤74	PASS		
				Peak	2496.960	-37.52	≤-21.20	57.68	≤74	PASS		
				Peak	2500.000	-39.31	≤-21.20	55.89	≤74	PASS		
Low	Hop_2402			Peak	2310.000	-42.49	≤-21.20	52.71	≤74	PASS		
				Peak	2390.000	-36.93	≤-21.20	58.27	≤74	PASS		
High	Hop_2480			Peak	2483.500	-38.35	≤-21.20	56.85	≤74	PASS		
				Peak	2492.160	-37.31	≤-21.20	57.89	≤74	PASS		
				Peak	2500.000	-39.68	≤-21.20	55.52	≤74	PASS		
3DH5	Ant			Low	2402	AV	2310.000	-46.79	≤-41.20	48.41	≤54	PASS
		AV	2360.165			-45.88	≤-41.20	49.32	≤54	PASS		





				AV	2390.000	-46.15	≤-41.20	49.05	≤54	PASS		
				Peak	2310.000	-39.78	≤-21.20	55.42	≤74	PASS		
				Peak	2328.560	-36.94	≤-21.20	58.26	≤74	PASS		
		High	2480	Peak	2390.000	-39.42	≤-21.20	55.78	≤74	PASS		
				AV	2483.500	-46.26	≤-41.20	48.94	≤54	PASS		
				AV	2484.560	-45.83	≤-41.20	49.37	≤54	PASS		
				AV	2500.000	-46.06	≤-41.20	49.14	≤54	PASS		
				Peak	2483.500	-40.42	≤-21.20	54.78	≤74	PASS		
				Peak	2490.480	-37.14	≤-21.20	58.06	≤74	PASS		
		Low	Hop_240 2	Peak	2500.000	-40.16	≤-21.20	55.04	≤74	PASS		
				Peak	2310.000	-41.39	≤-21.20	53.81	≤74	PASS		
				Peak	2371.085	-37.26	≤-21.20	57.94	≤74	PASS		
		High	Hop_248 0	Peak	2390.000	-40.59	≤-21.20	54.61	≤74	PASS		
				Peak	2483.500	-39.25	≤-21.20	55.95	≤74	PASS		
				Peak	2489.440	-36.73	≤-21.20	58.47	≤74	PASS		
						Peak	2500.000	-37.94	≤-21.20	57.26	≤74	PASS

Note:

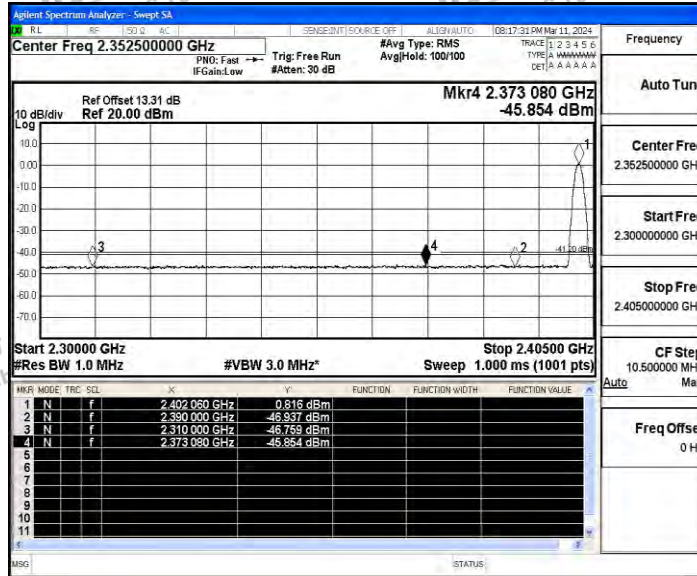
1. The Antenna Gain is compensated in the graph. The Correction Factor is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



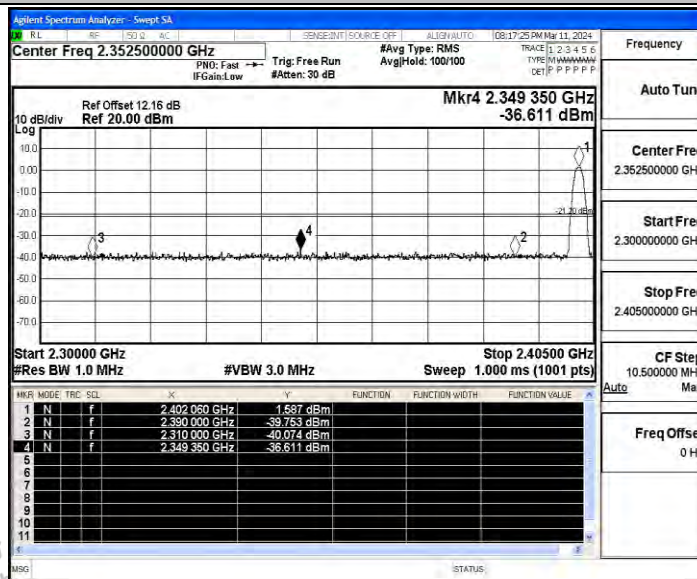


Test Graphs

DH5_Ant_Low_2402_AV

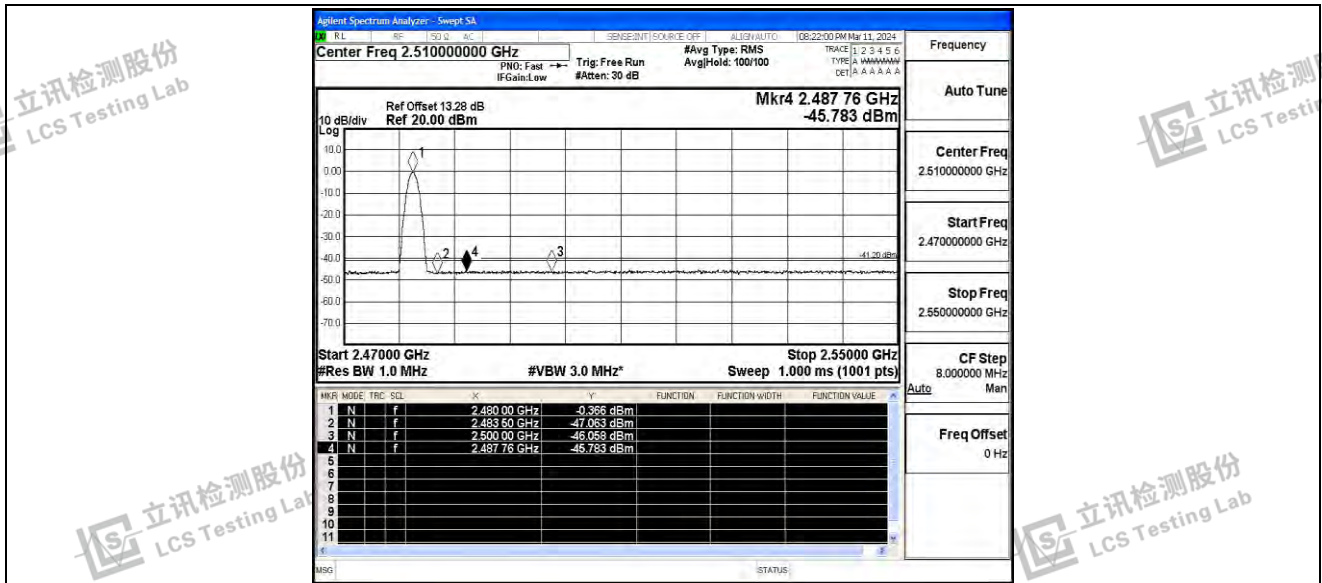


DH5_Ant_Low_2402_Peak

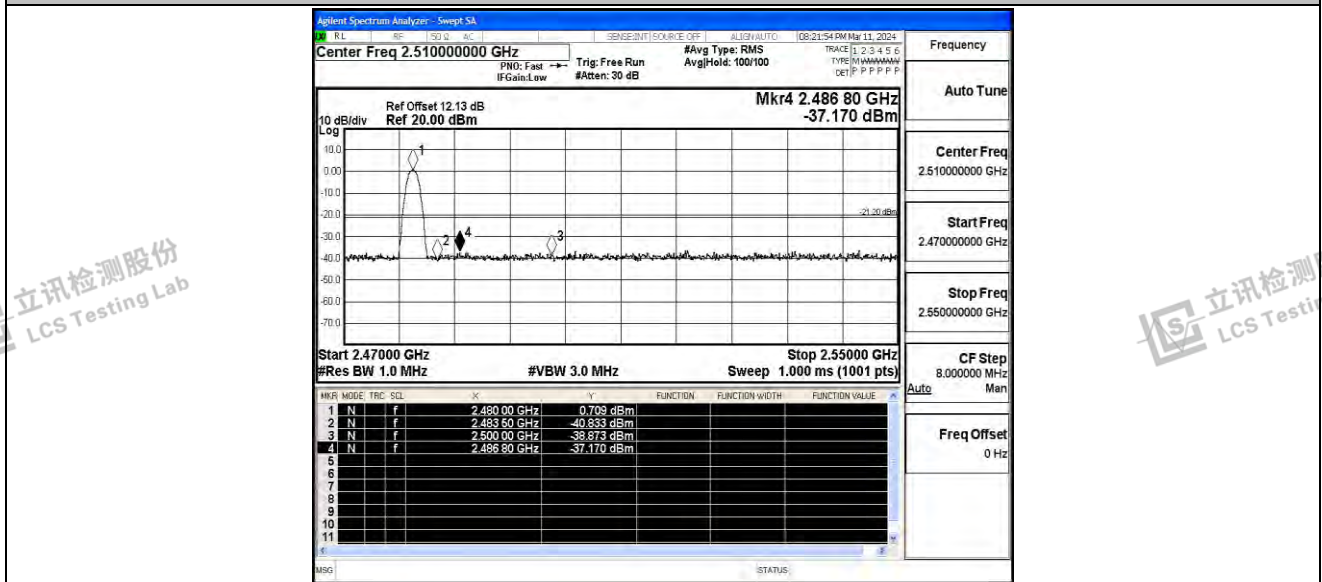


DH5_Ant_High_2480_AV

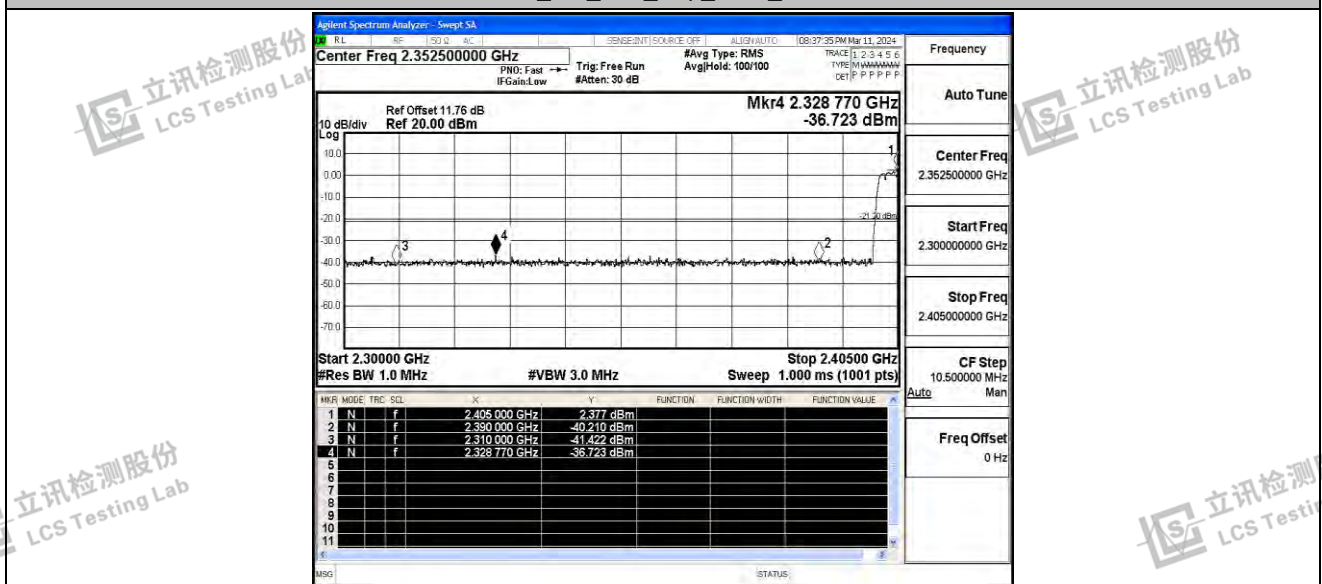




DH5_Ant_High_2480_Peak

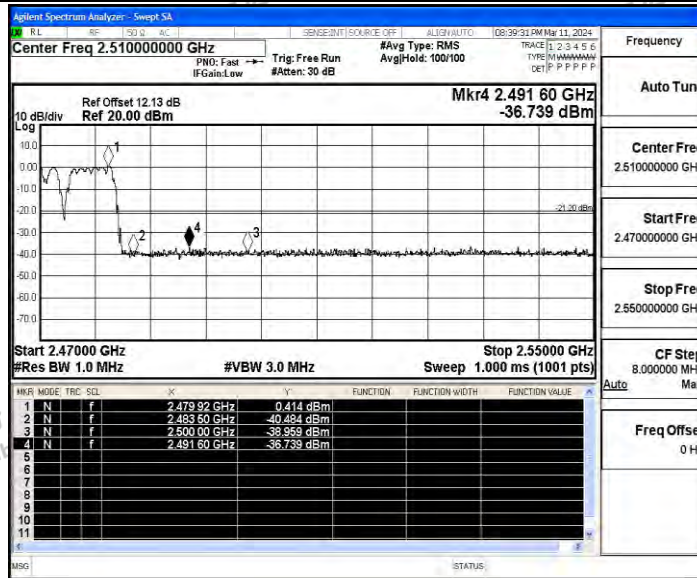


DH5_Ant_Low_Hop_2402_Peak

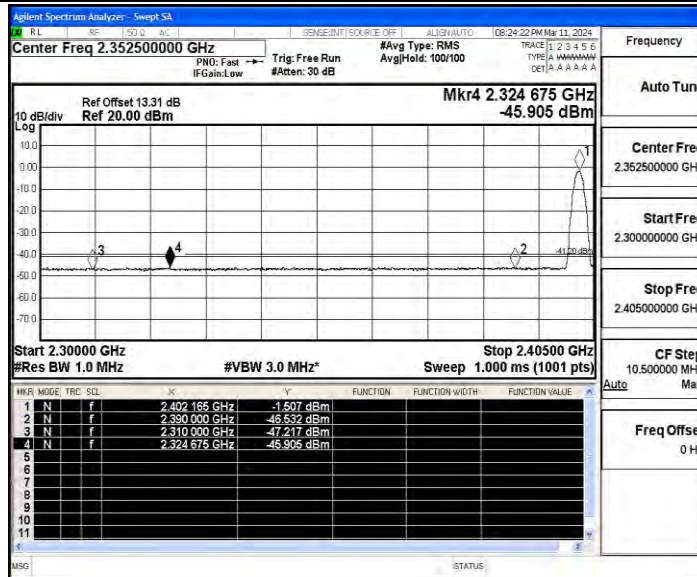




DH5_Ant_High_Hop_2480_Peak

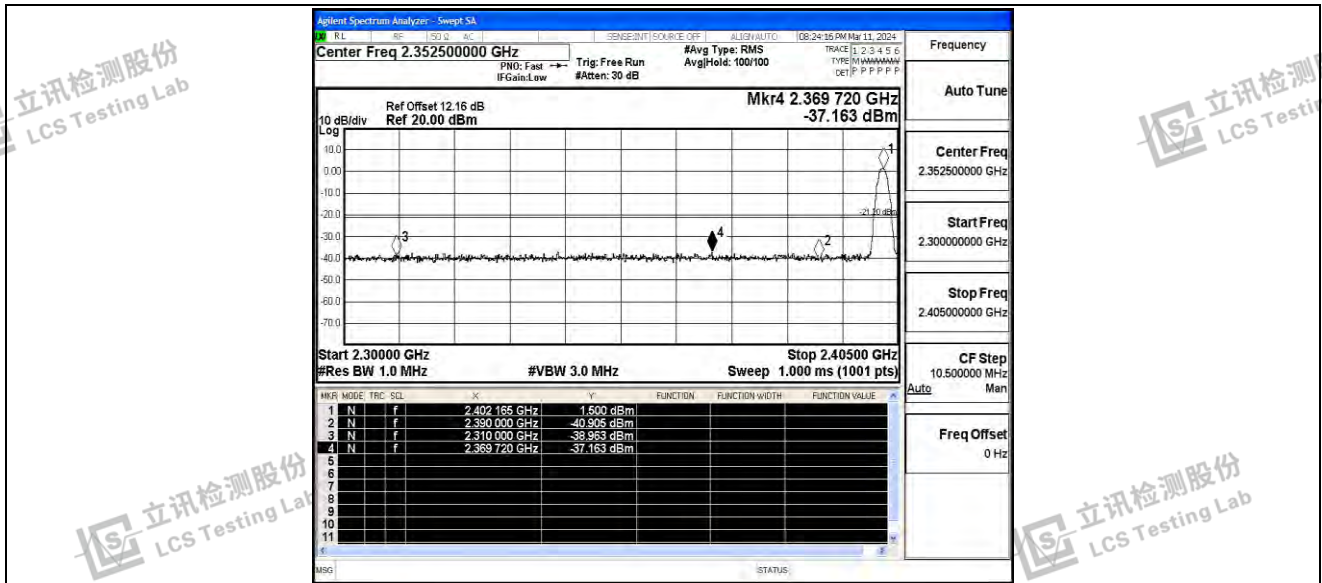


2DH5_Ant_Low_2402_AV

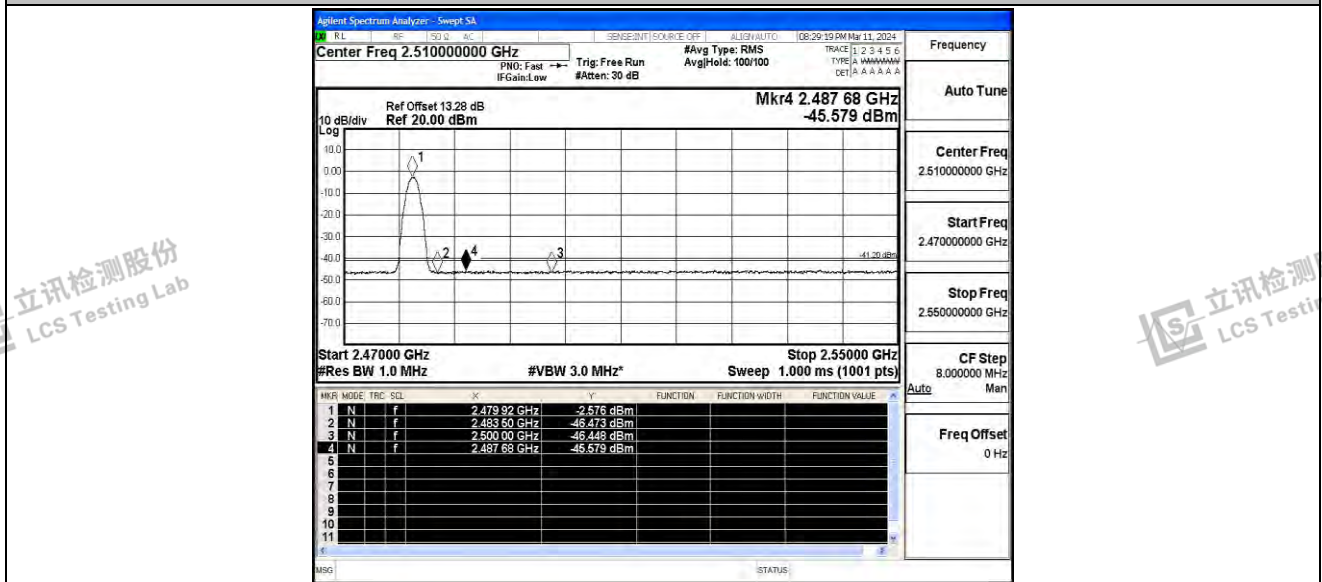


2DH5_Ant_Low_2402_Peak

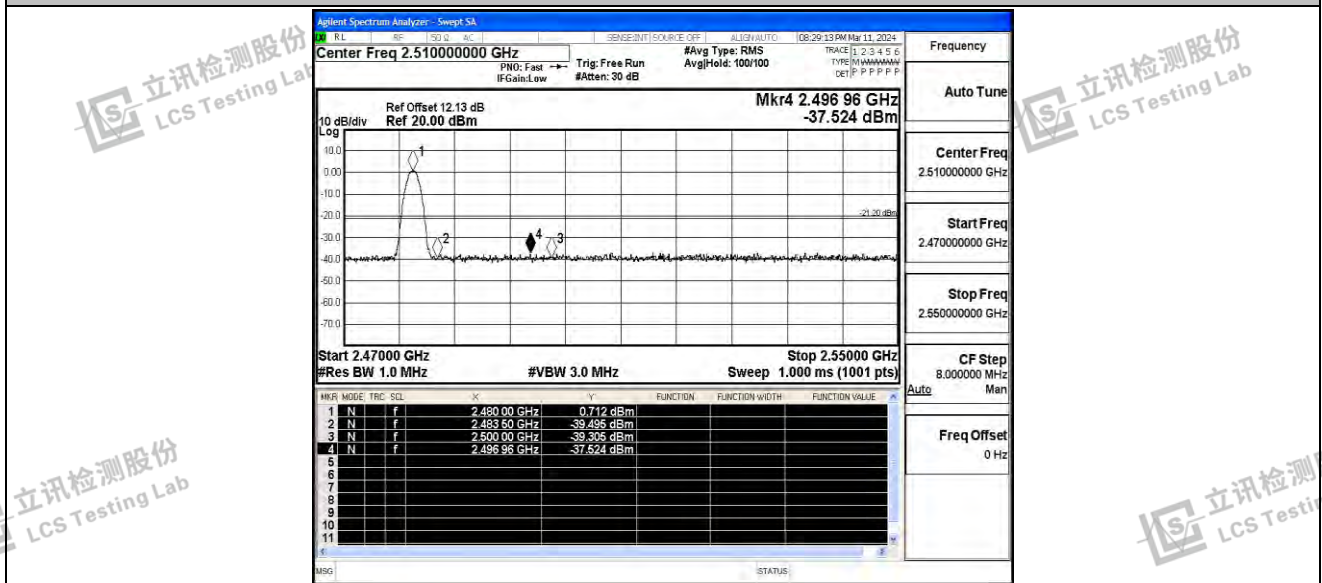




2DH5_Ant_High_2480_AV

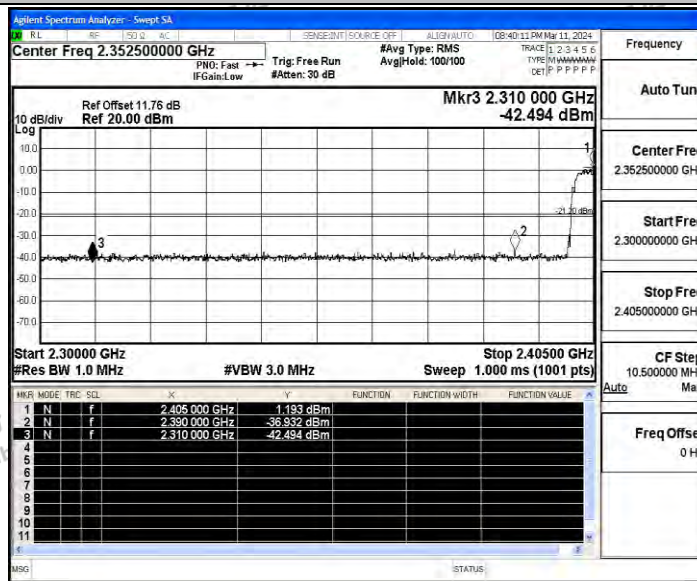


2DH5_Ant_High_2480_Peak

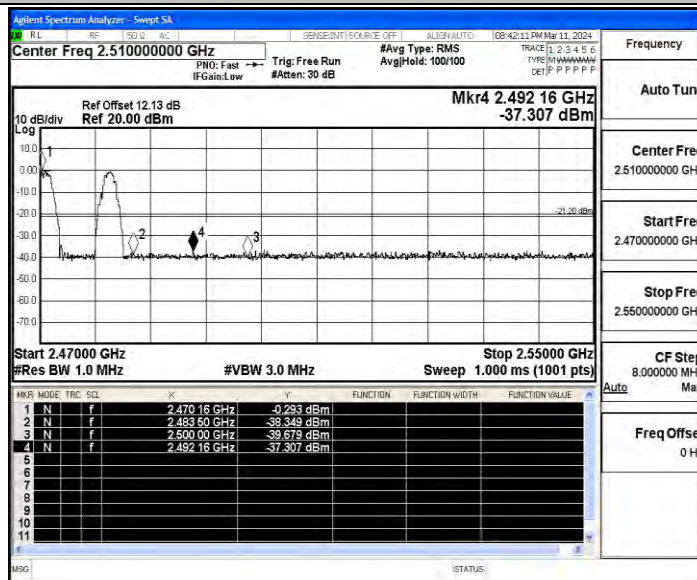




2DH5_Ant_Low_Hop_2402_Peak

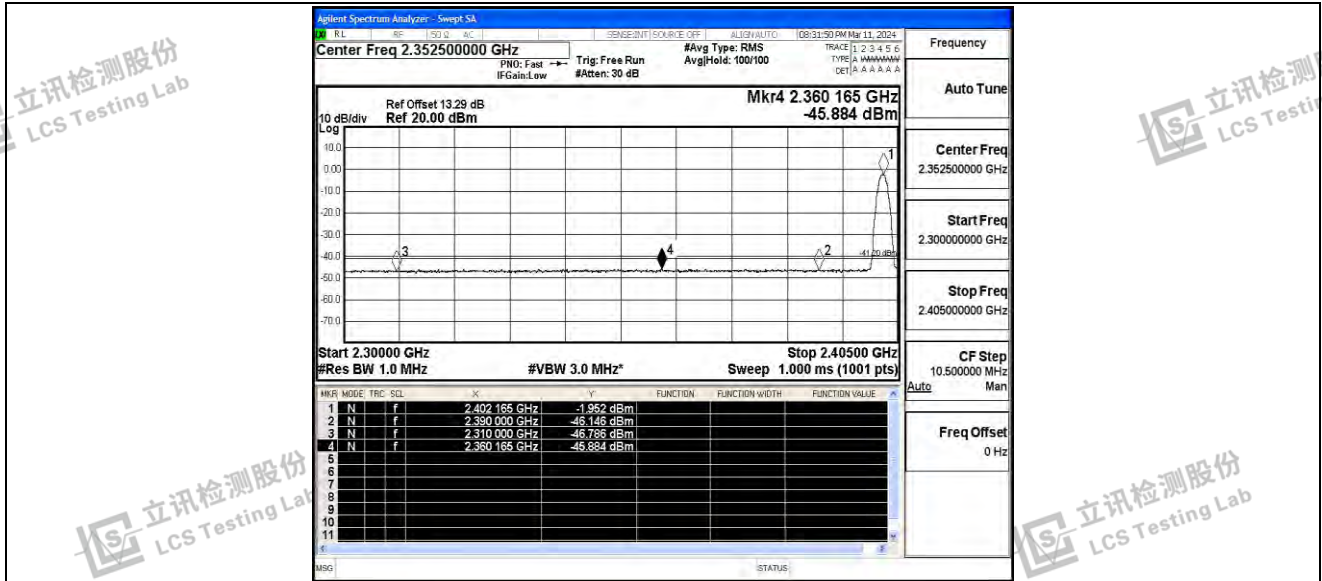


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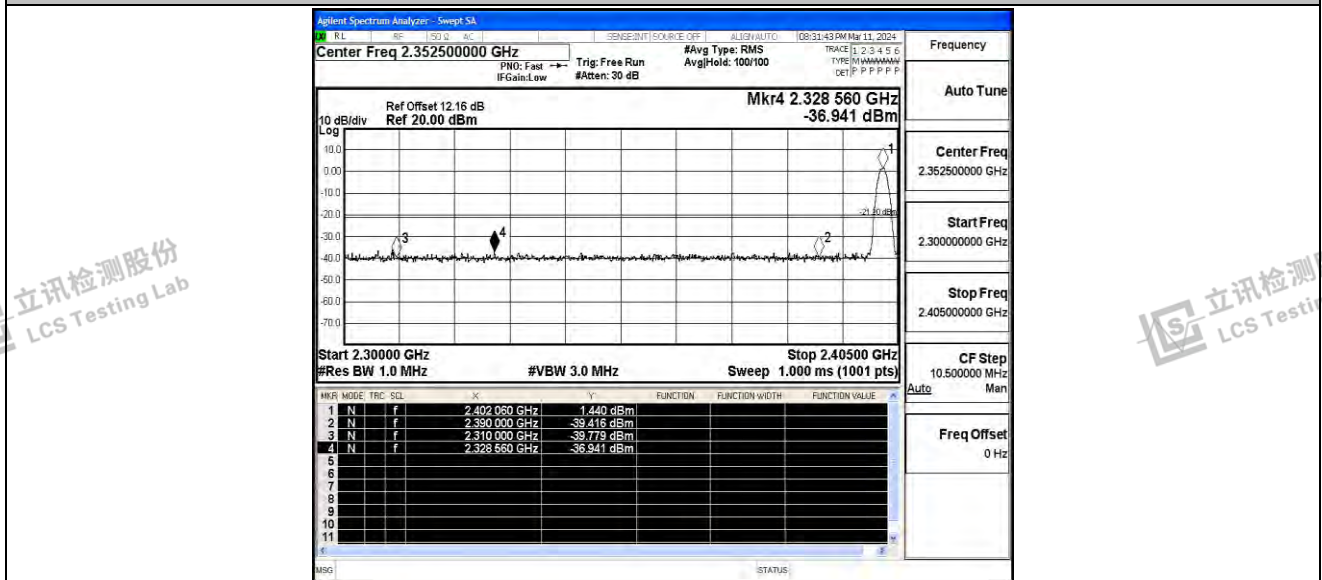


3DH5_Ant_Low_2402_AV

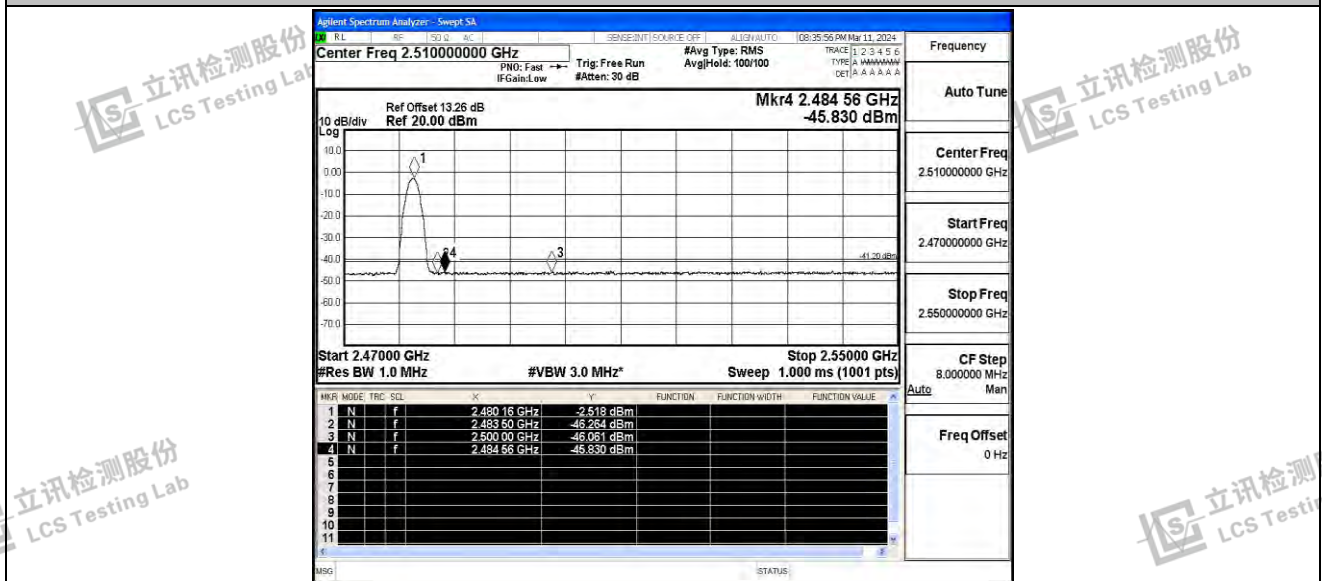




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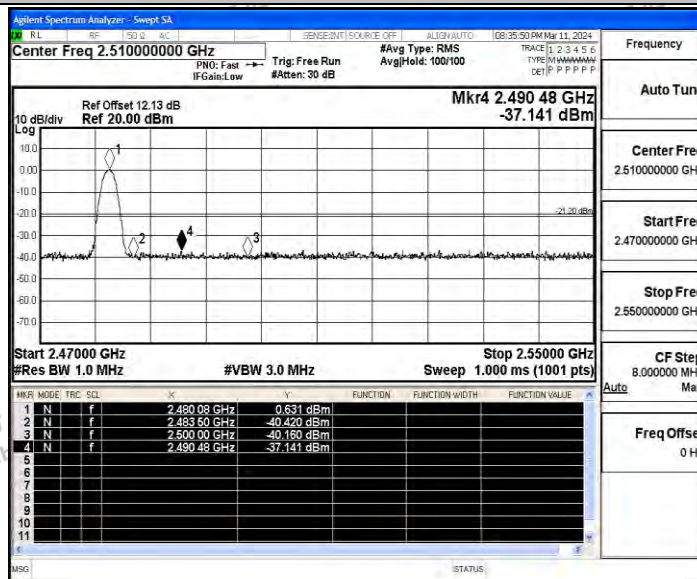


3DH5_Ant_High_2480_AV

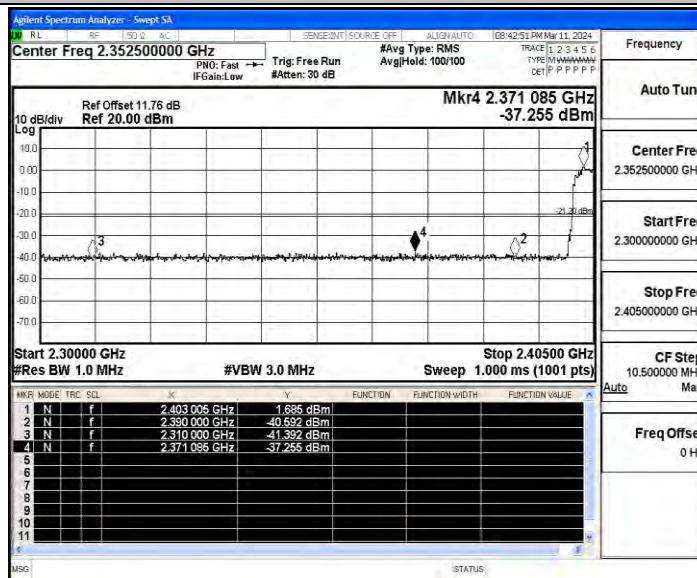




3DH5_Ant_High_2480_Peak



3DH5_Ant_Low_Hop_2402_Peak



3DH5_Ant_High_Hop_2480_Peak



