



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Home Entertainment Bluetooth and Karaoke System

Test Model: MAX4500

Environmental Conditions

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





A.1 20dB Emission Bandwidth

Test Result

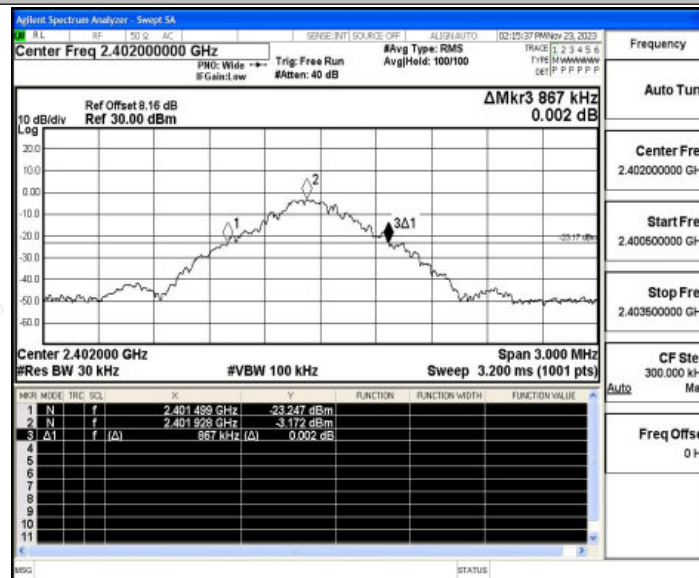
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant1	2402	0.867	2401.499	2402.366	---
		2441	0.927	2440.493	2441.420	---
		2480	0.951	2479.493	2480.444	---
2DH5	Ant1	2402	1.386	2401.262	2402.648	---
		2441	1.371	2440.271	2441.642	---
		2480	1.314	2479.292	2480.606	---



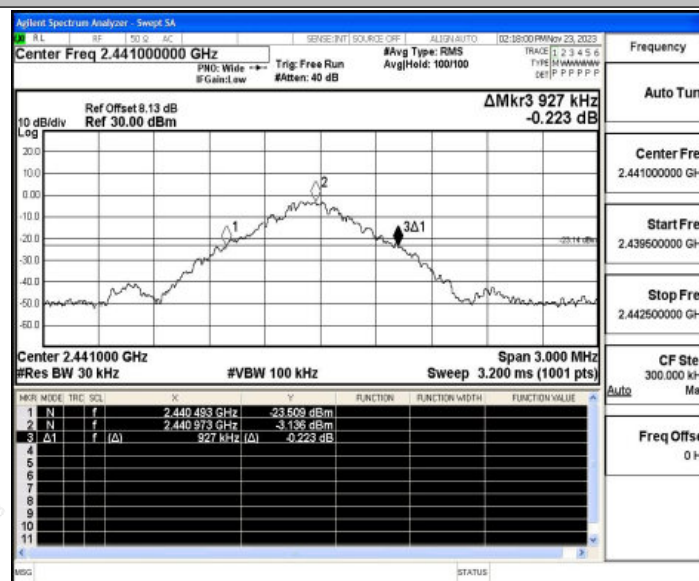


Test Graphs

DH5_Ant1_2402

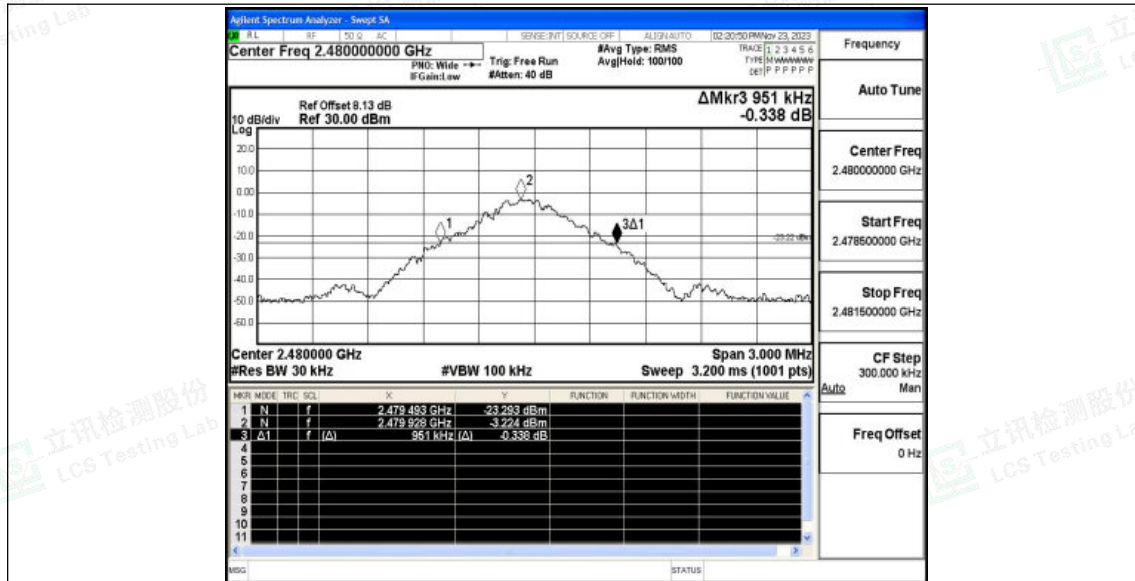


DH5_Ant1_2441

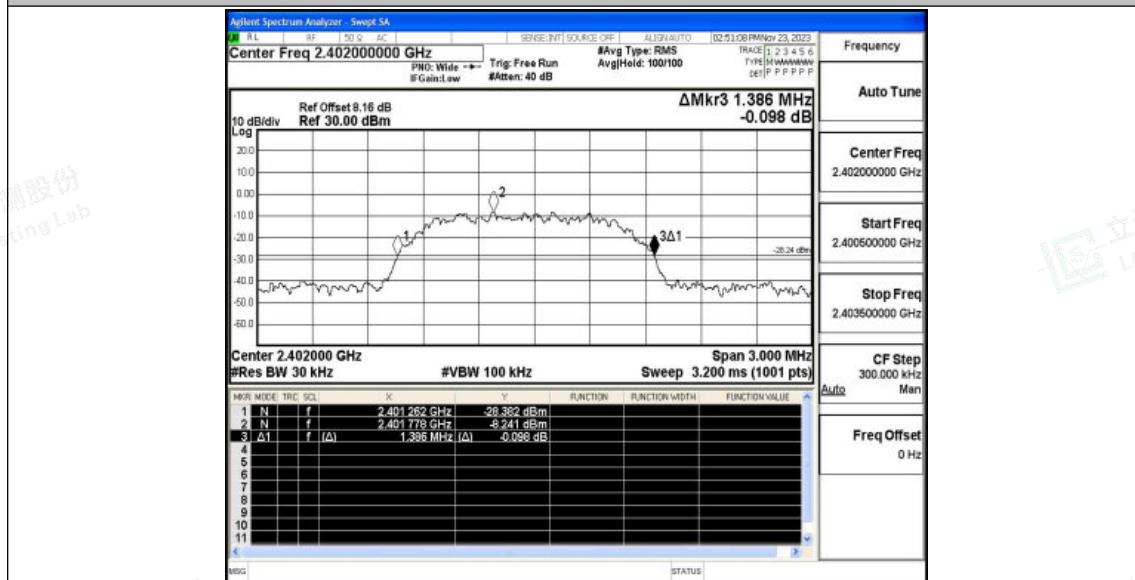


DH5_Ant1_2480





2DH5_Ant1_2402



2DH5_Ant1_2441

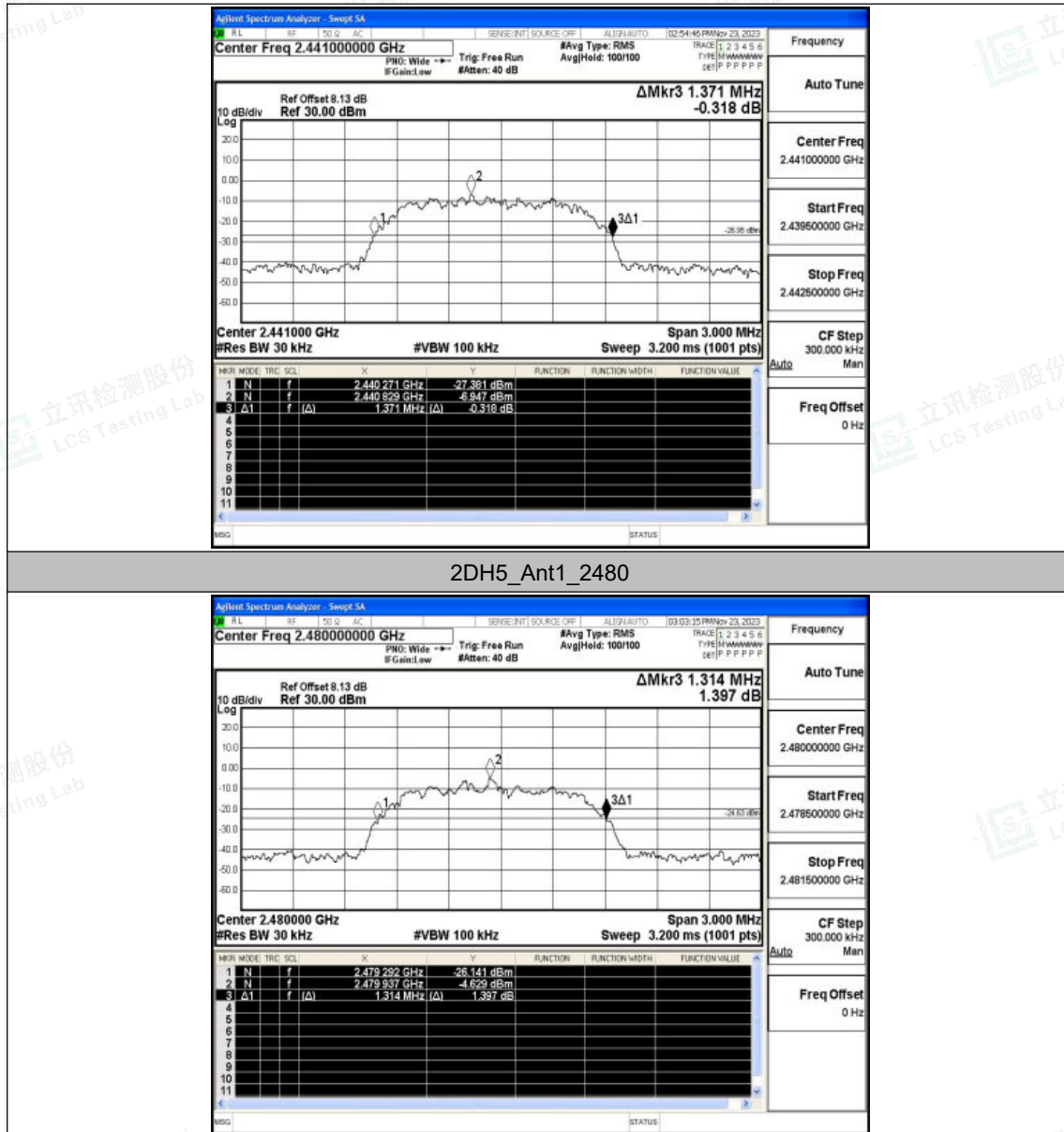


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A.2 Maximum peak conducted output power

Test Result

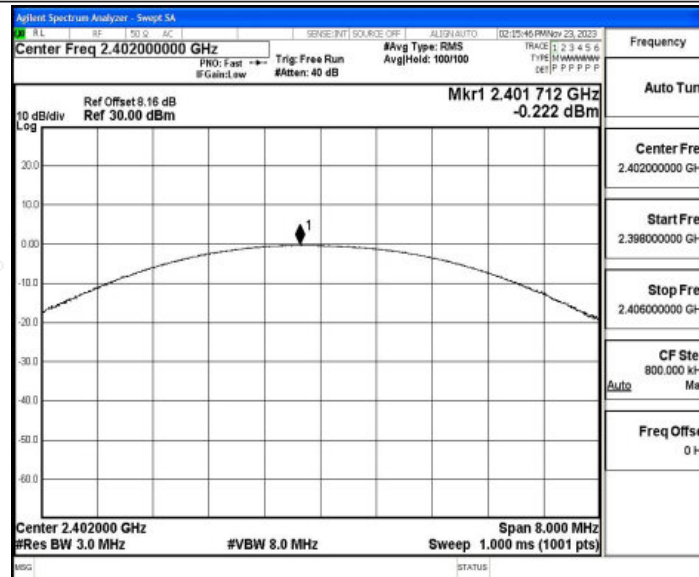
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-0.22	≤20.97	PASS
		2441	-0.22	≤20.97	PASS
		2480	-0.33	≤20.97	PASS
2DH5	Ant1	2402	0.31	≤20.97	PASS
		2441	0.4	≤20.97	PASS
		2480	0.11	≤20.97	PASS



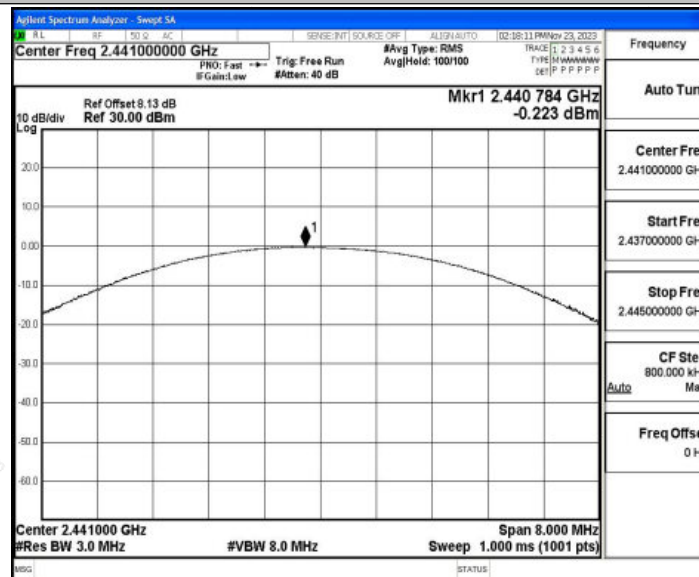


Test Graphs

DH5_Ant1_2402

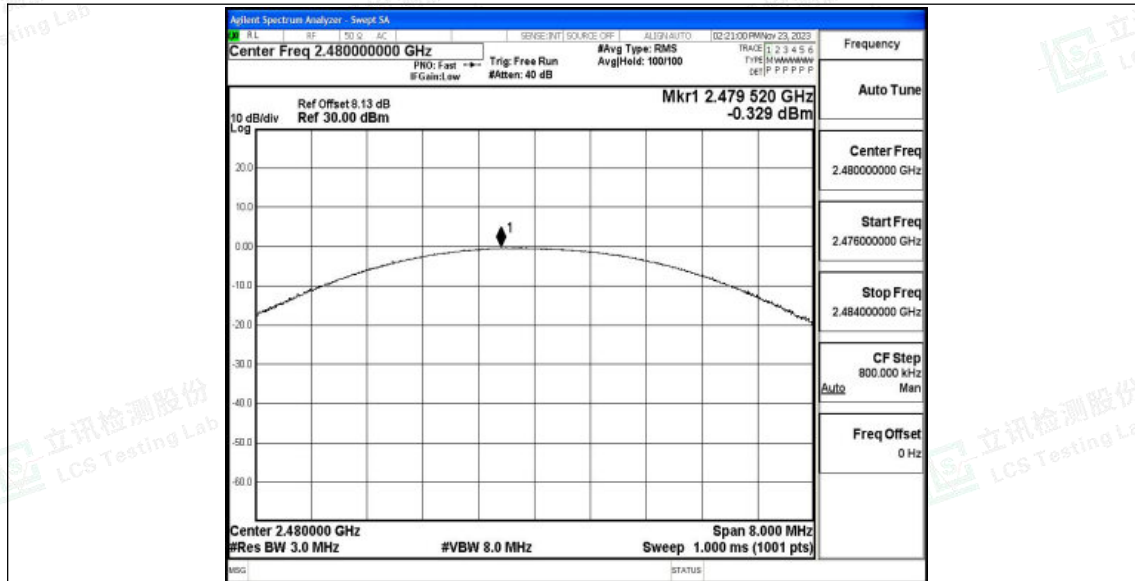


DH5_Ant1_2441

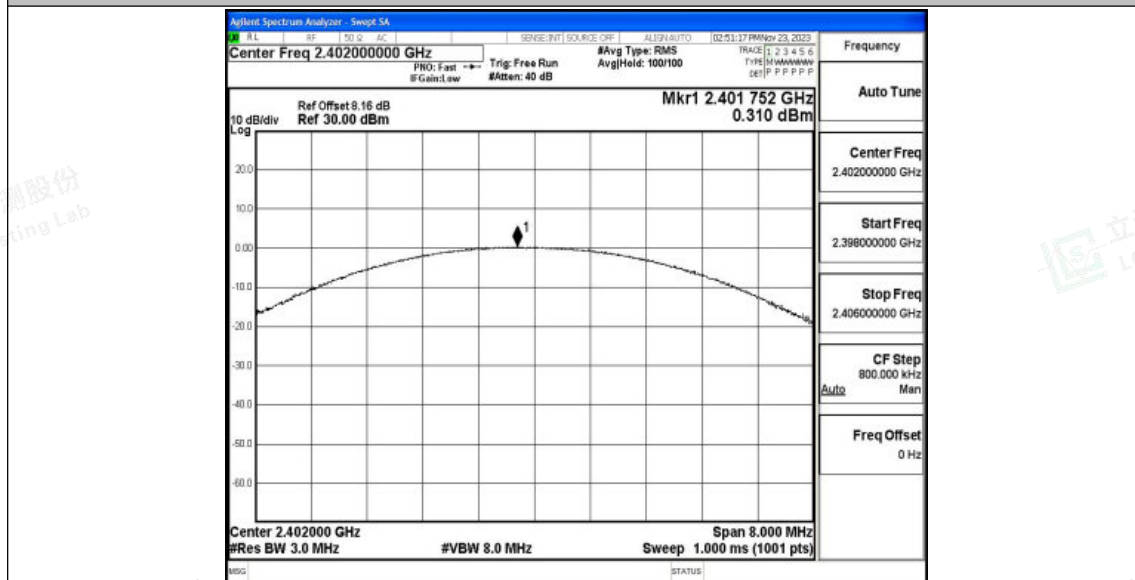


DH5_Ant1_2480



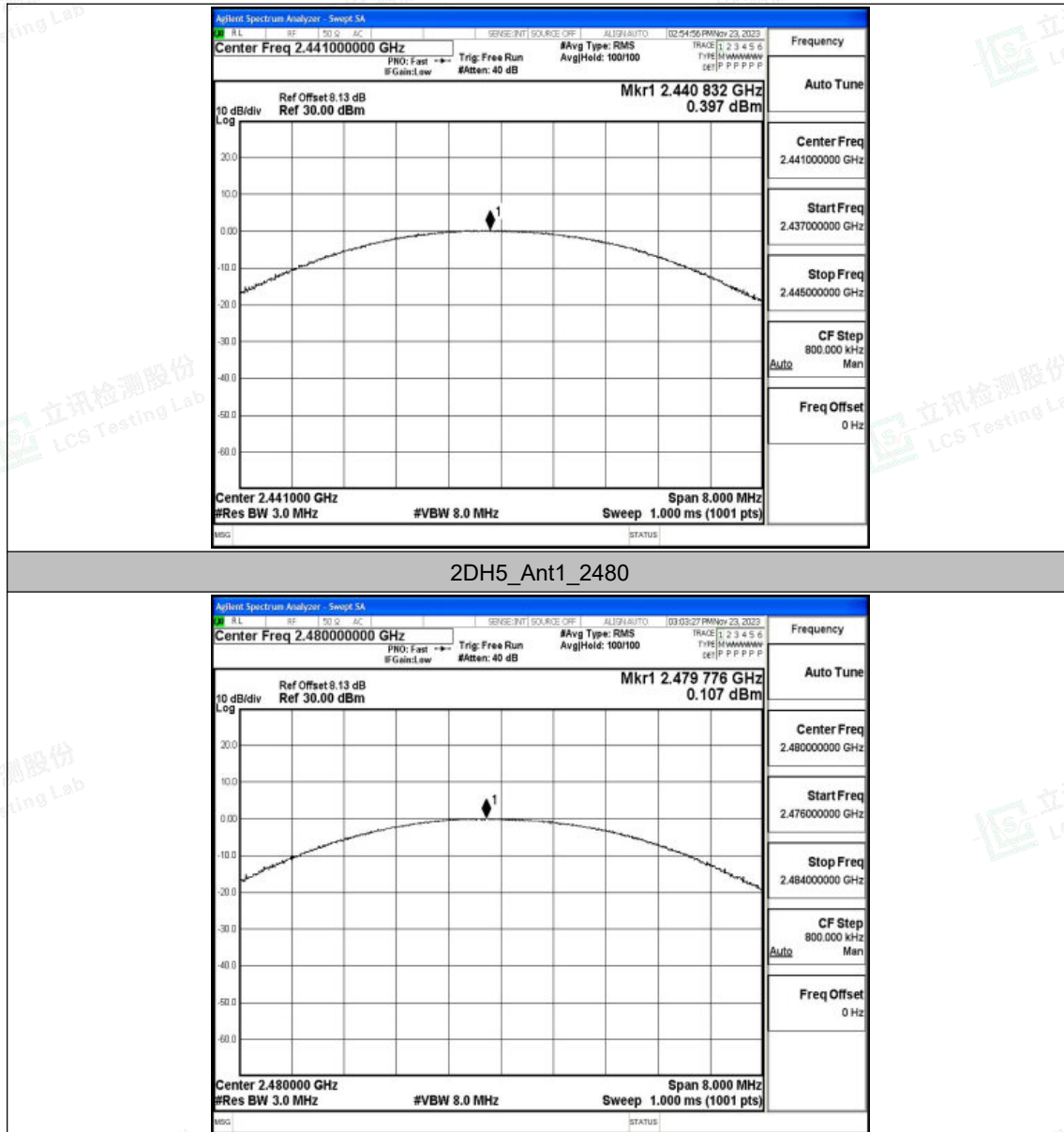


2DH5_Ant1_2402



2DH5_Ant1_2441







A.3 Carrier frequency separation

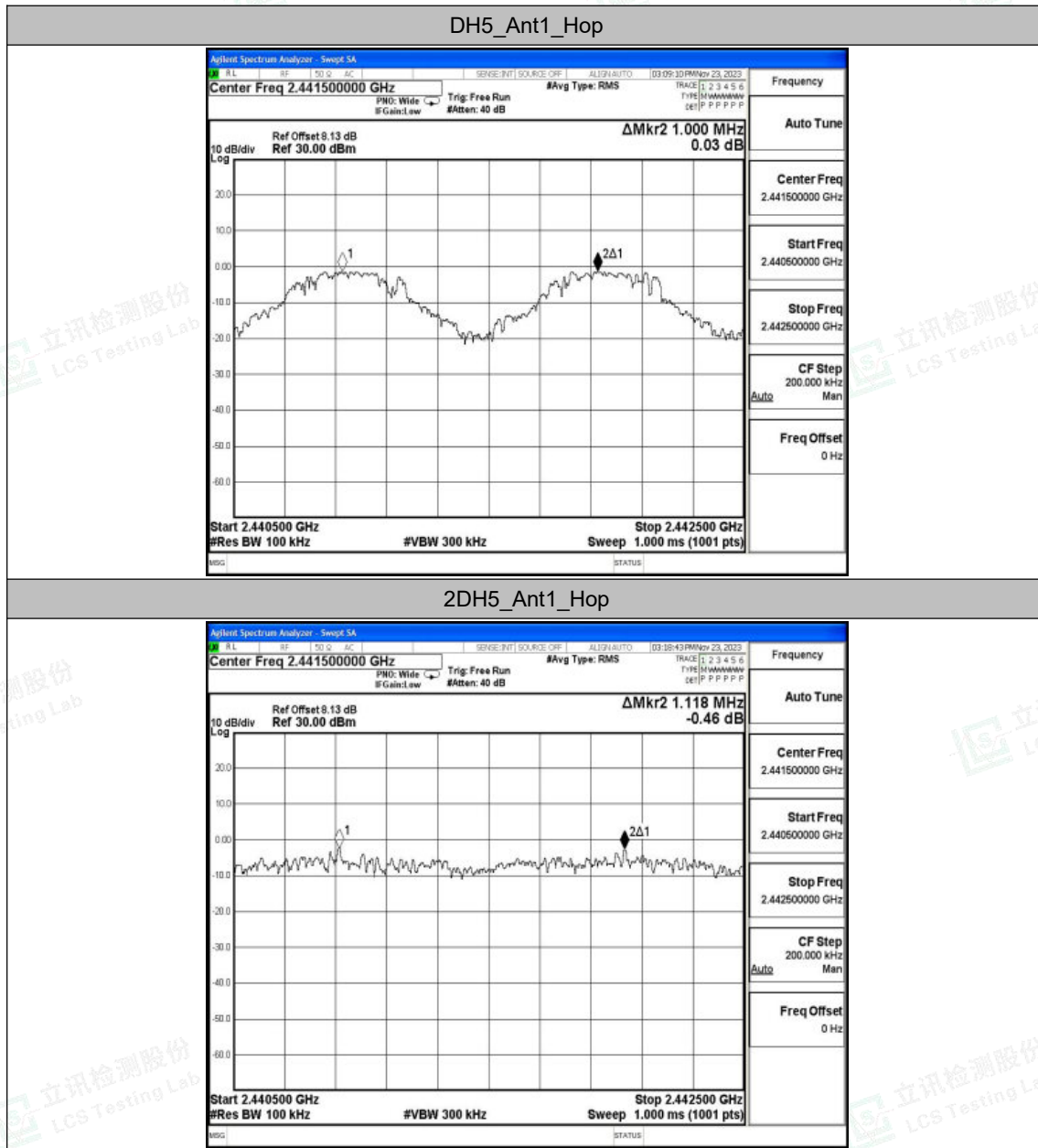
Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1	≥ 0.951	PASS
2DH5	Ant1	Hop	1.118	≥ 0.924	PASS





Test Graphs





A.4 Time of occupancy

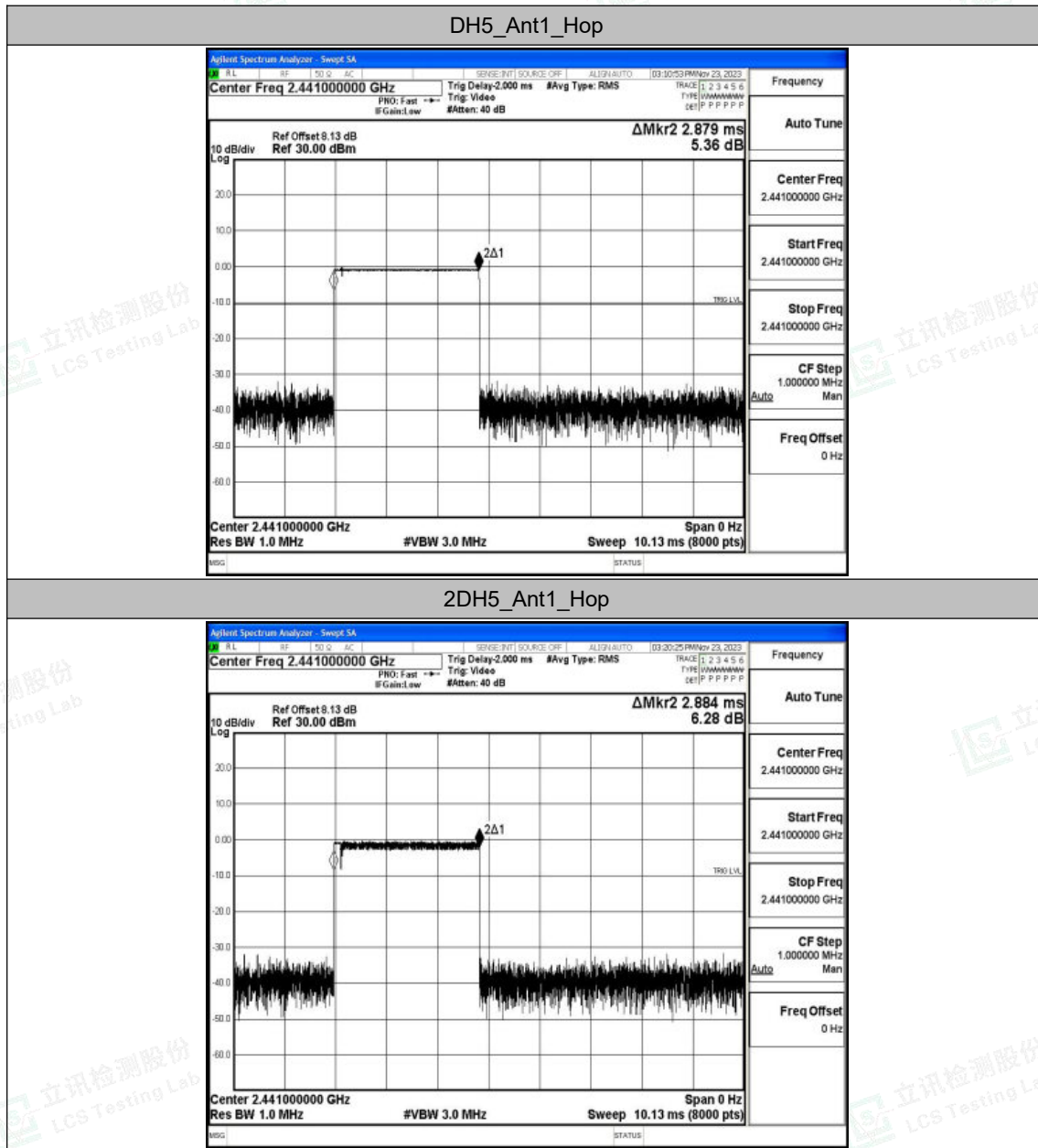
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.879	106.67	0.307	≤0.4	PASS
2DH5	Ant1	Hop	2.884	106.67	0.308	≤0.4	PASS





Test Graphs





A.5 Number of hopping channels

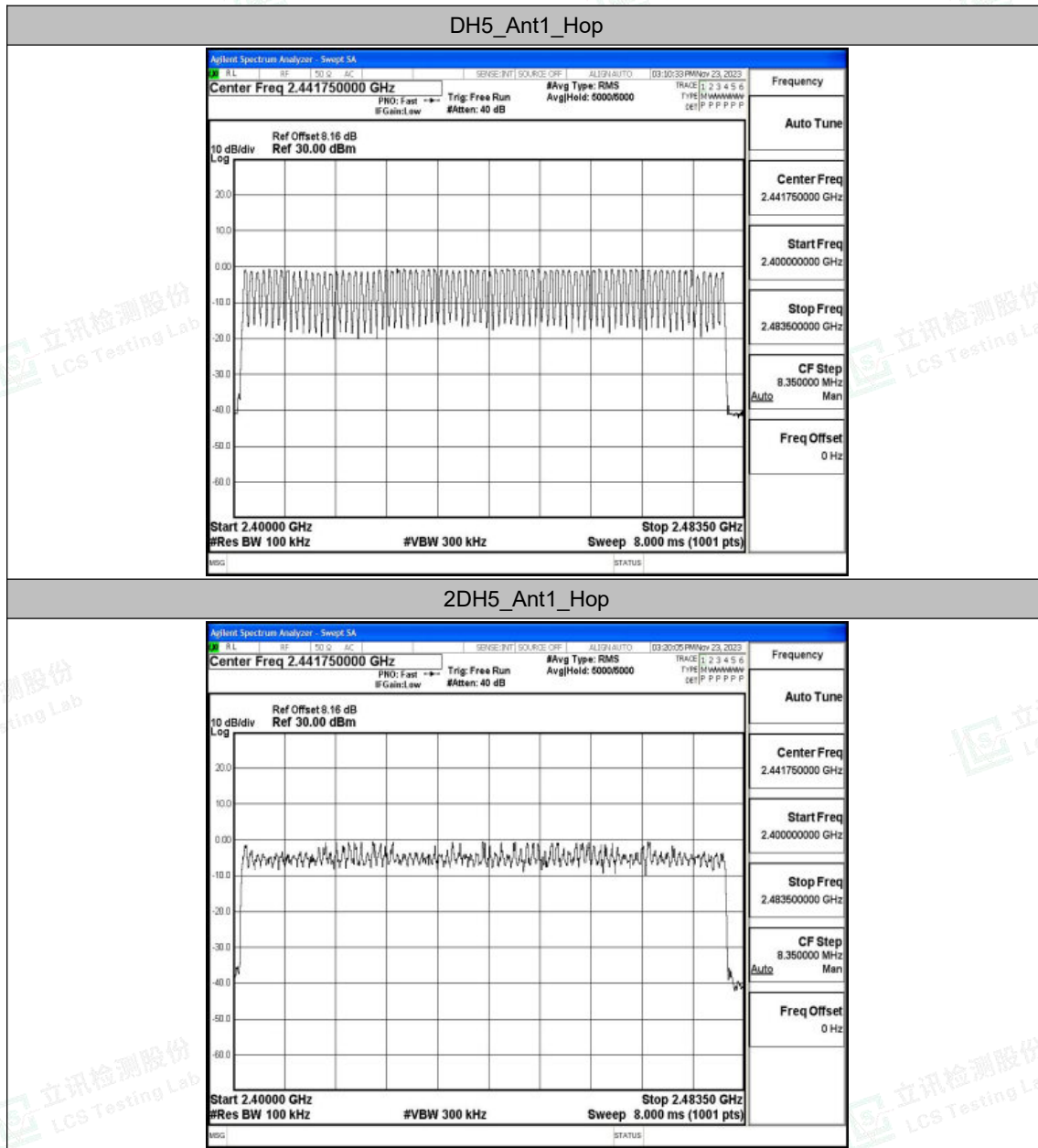
Test Result

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





Test Graphs





A.6 Band edge measurements

Test Result

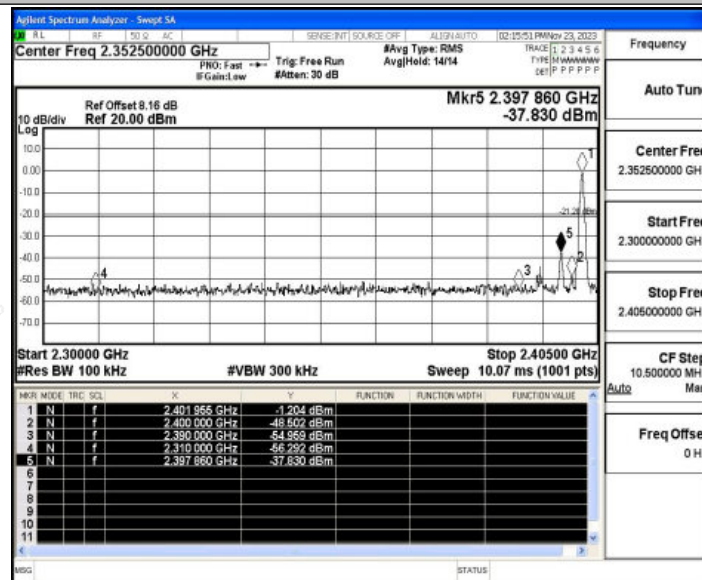
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-1.20	-37.83	≤ -21.2	PASS
		High	2480	-1.55	-49.73	≤ -21.55	PASS
		Low	Hop_2402	-1.76	-50.38	≤ -21.76	PASS
		High	Hop_2480	-0.80	-47.24	≤ -20.8	PASS
2DH5	Ant1	Low	2402	-4.02	-40.37	≤ -24.02	PASS
		High	2480	-1.25	-50.69	≤ -21.25	PASS
		Low	Hop_2402	-5.66	-50	≤ -25.66	PASS
		High	Hop_2480	-1.38	-49.12	≤ -21.38	PASS



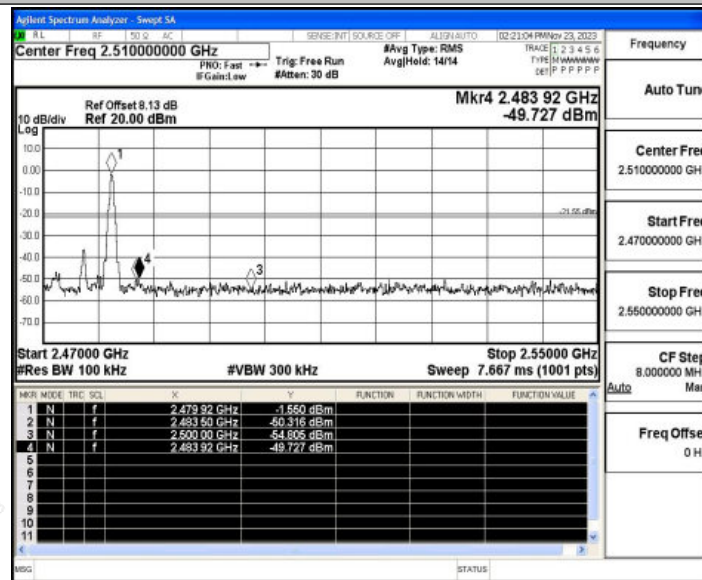


Test Graphs

DH5_Ant1_Low_2402



DH5_Ant1_High_2480



DH5_Ant1_Low_Hop_2402

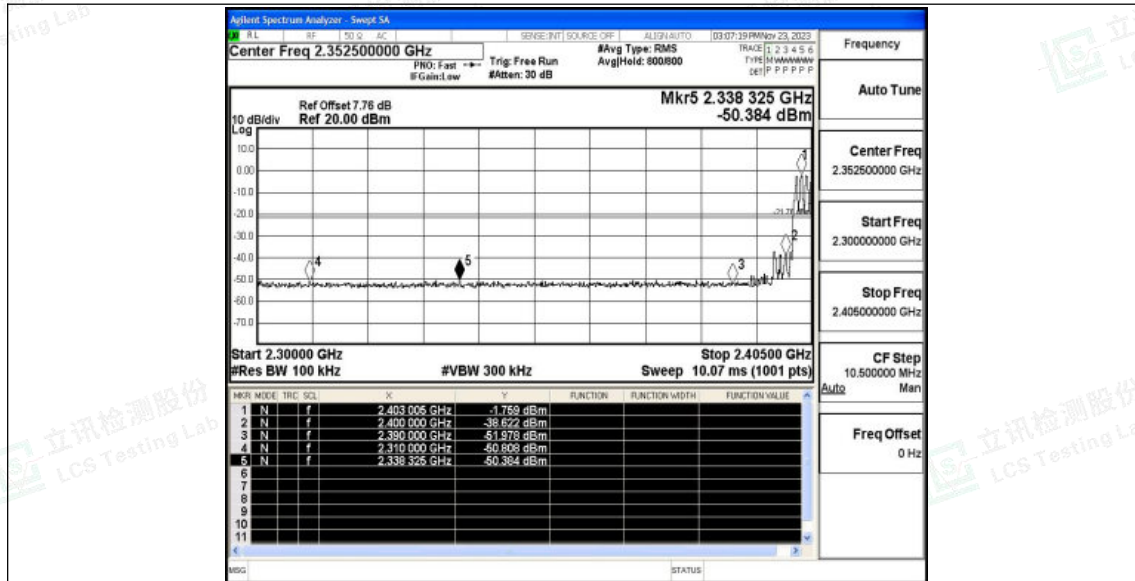


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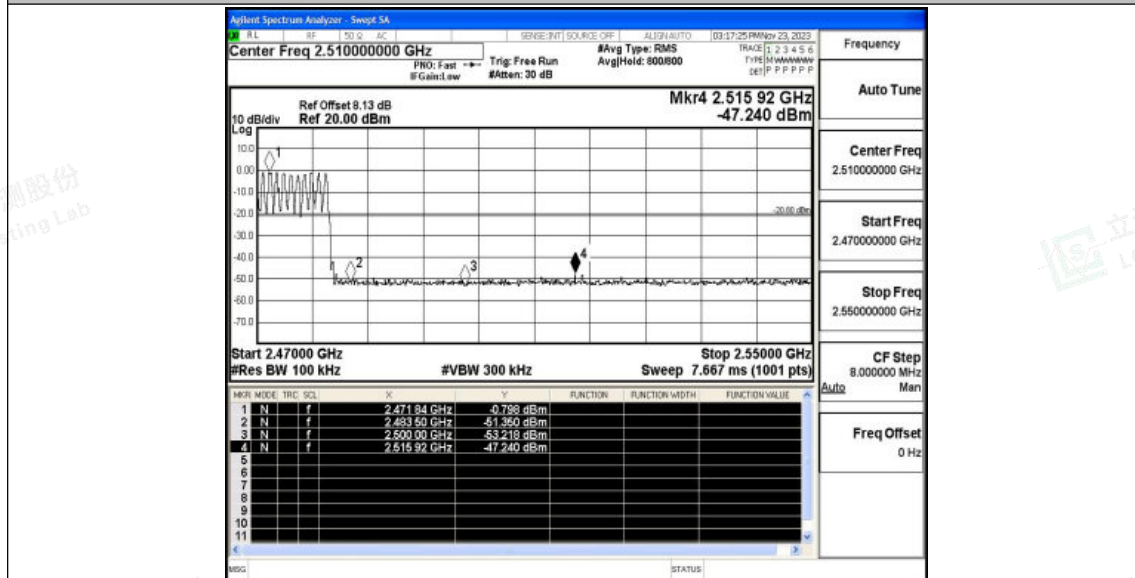
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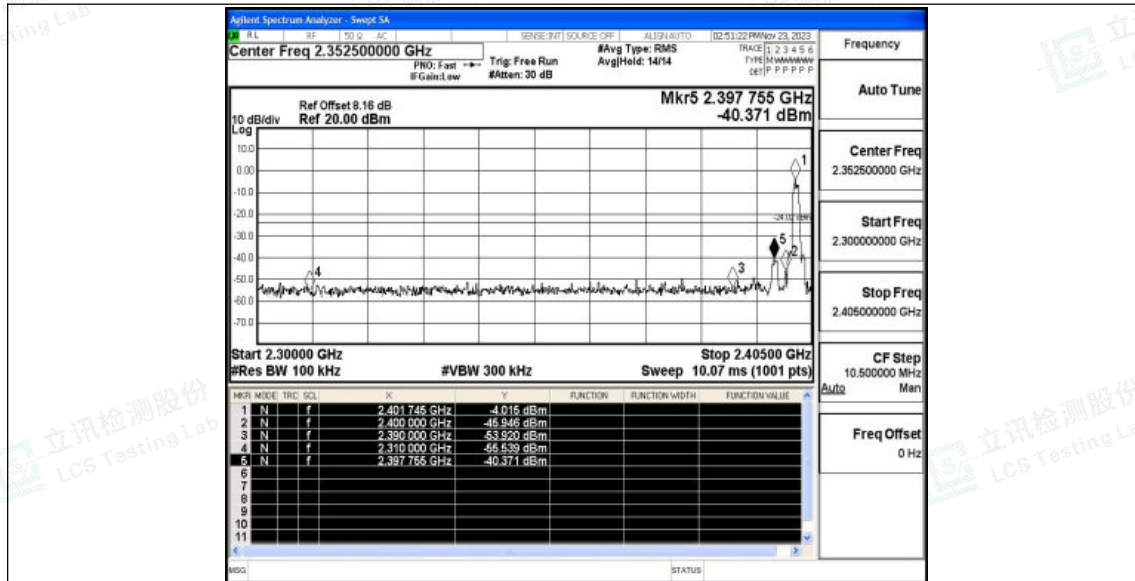


DH5_Ant1_High_Hop_2480

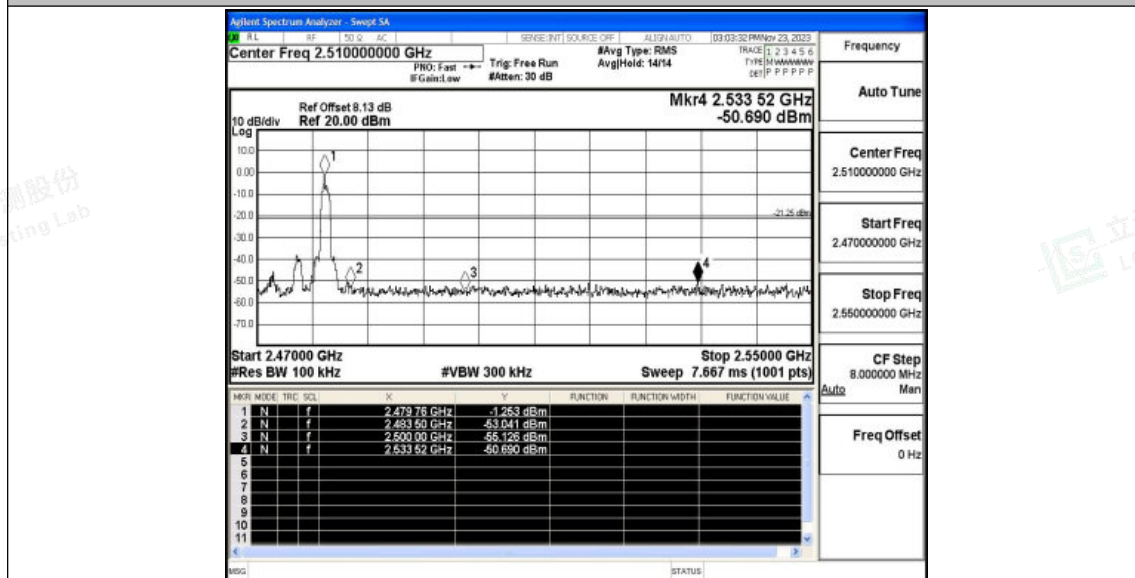


2DH5_Ant1_Low_2402



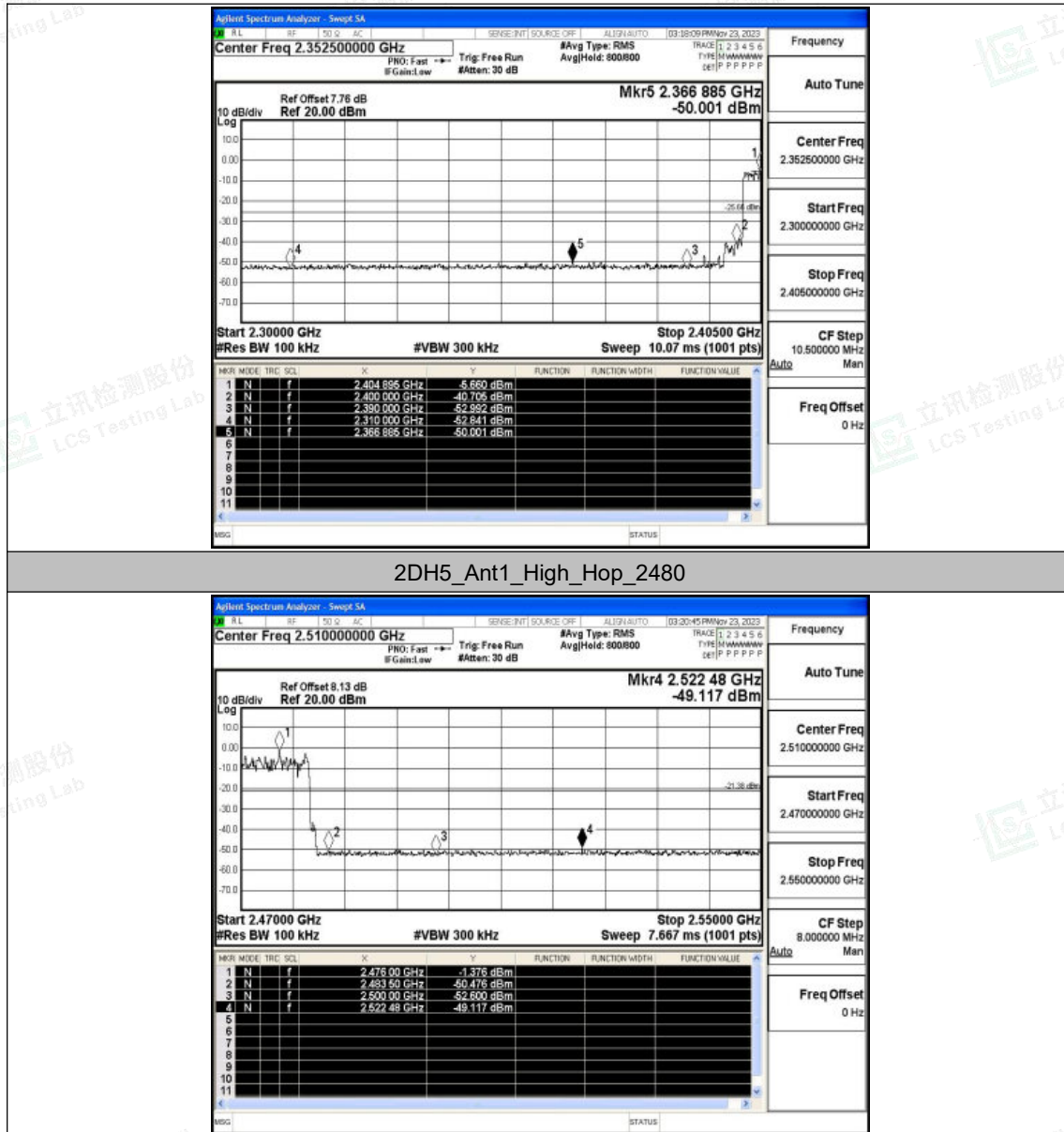


2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402





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A.7 Conducted Spurious Emission

Test Result

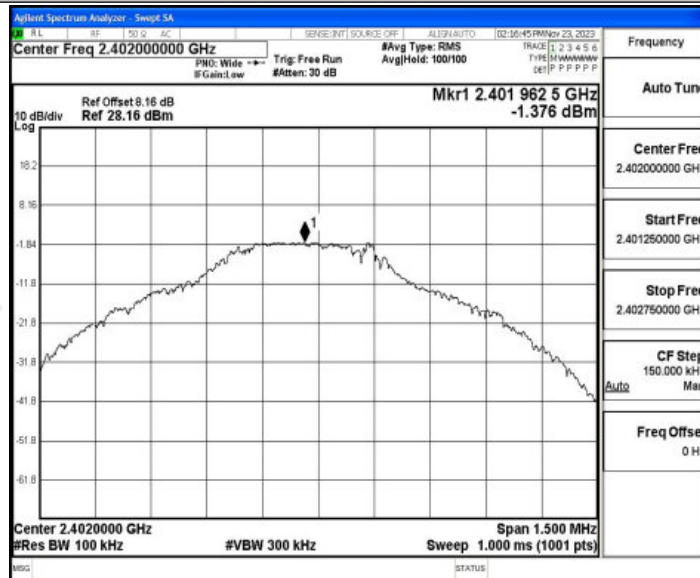
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-1.38	-1.38	---	PASS
			30~1000	-1.38	-61.11	≤-21.38	PASS
			1000~26500	-1.38	-46.04	≤-21.38	PASS
		2441	Reference	-1.31	-1.31	---	PASS
			30~1000	-1.31	-61.66	≤-21.31	PASS
			1000~26500	-1.31	-45.68	≤-21.31	PASS
		2480	Reference	-0.72	-0.72	---	PASS
			30~1000	-0.72	-61.2	≤-20.72	PASS
			1000~26500	-0.72	-48.29	≤-20.72	PASS
2DH5	Ant1	2402	Reference	-0.79	-0.79	---	PASS
			30~1000	-0.79	-61.79	≤-20.79	PASS
			1000~26500	-0.79	-48.36	≤-20.79	PASS
		2441	Reference	-0.79	-0.79	---	PASS
			30~1000	-0.79	-61.88	≤-20.79	PASS
			1000~26500	-0.79	-48.36	≤-20.79	PASS
		2480	Reference	-1.01	-1.01	---	PASS
			30~1000	-1.01	-61.39	≤-21.01	PASS
			1000~26500	-1.01	-43.71	≤-21.01	PASS



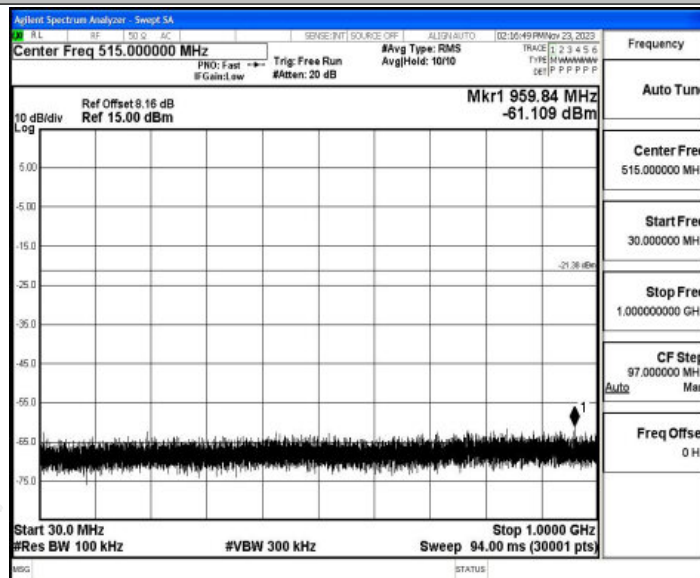


Test Graphs

DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000



DH5_Ant1_2402_1000~26500

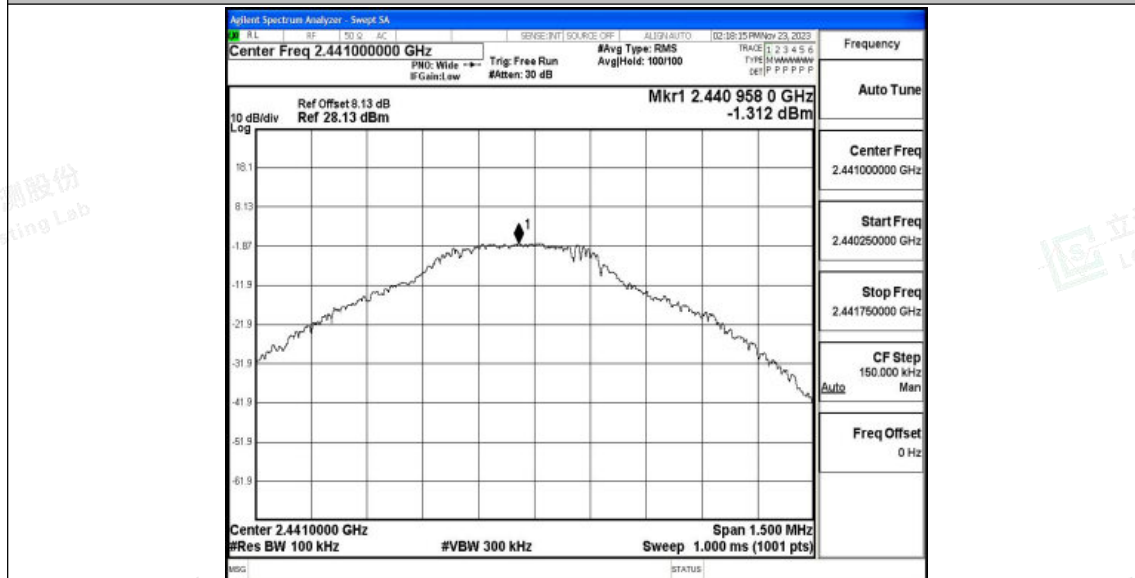
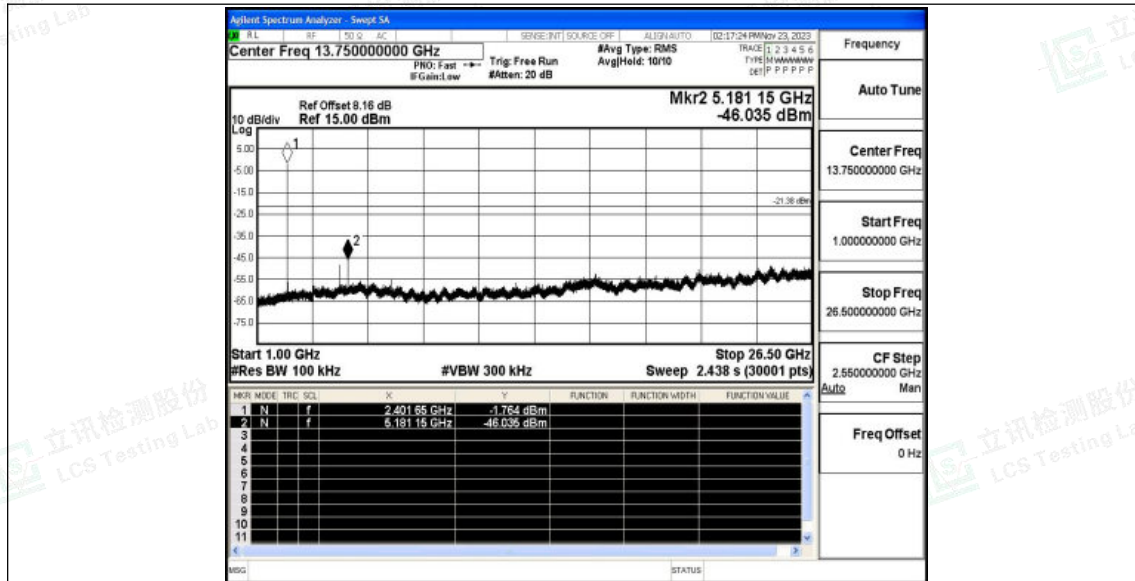


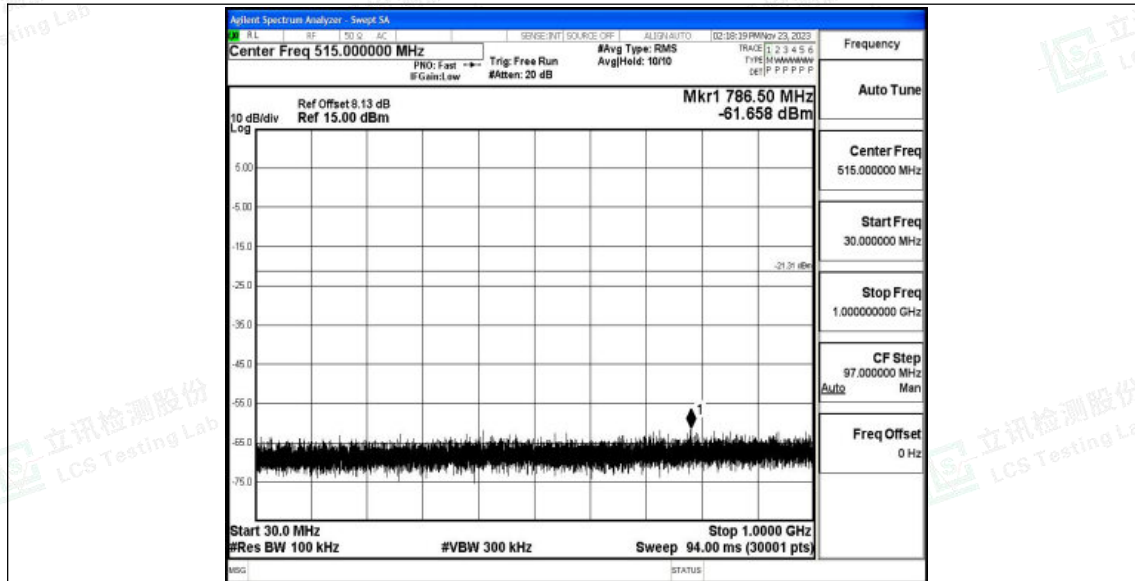
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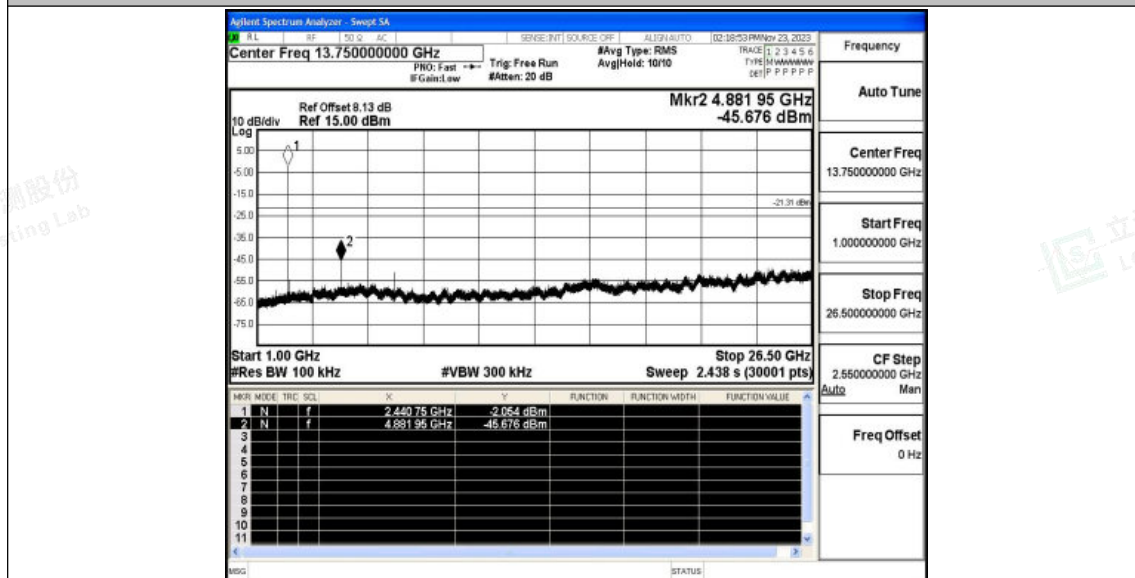
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DH5_Ant1_2441_1000~26500



DH5_Ant1_2480_0~Reference

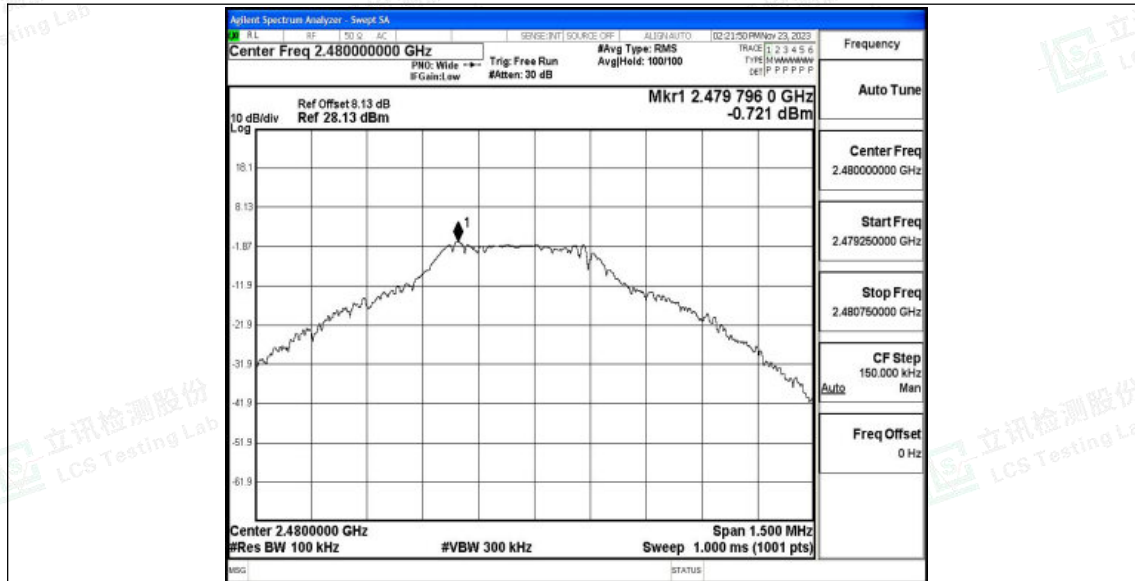


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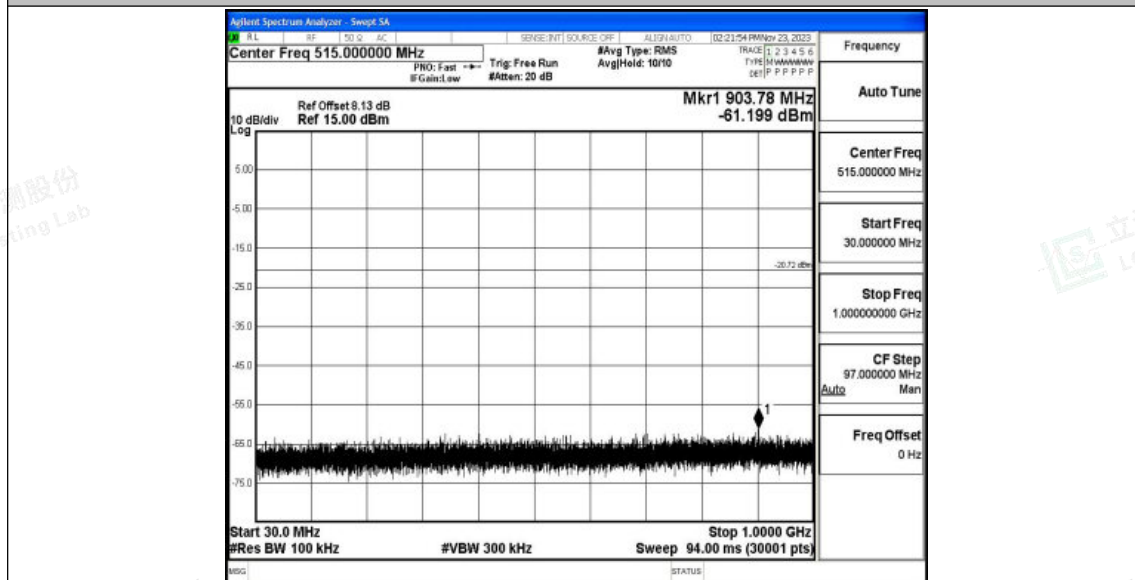
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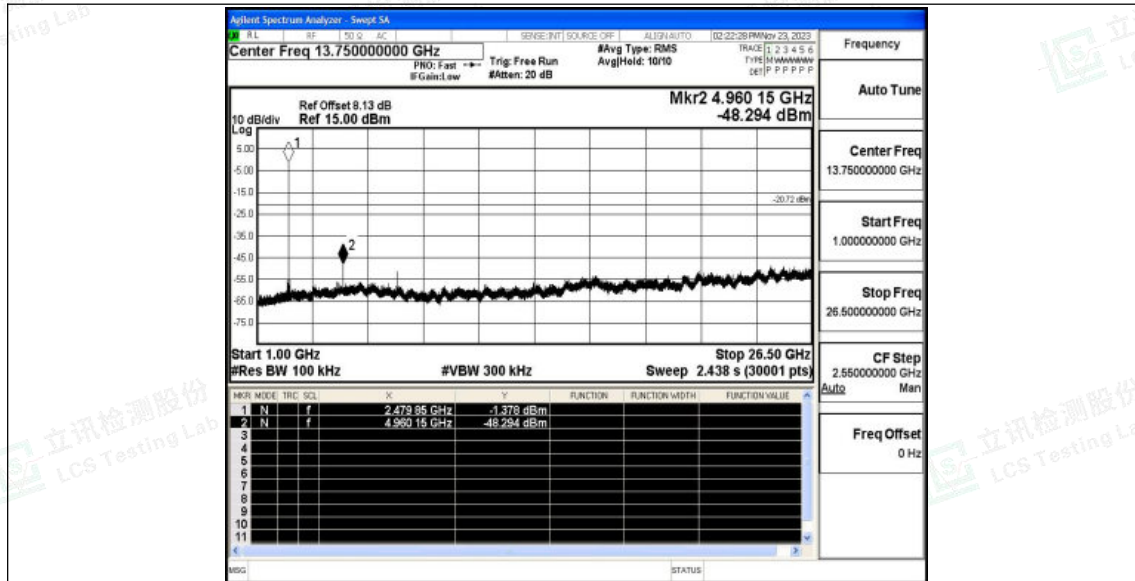


DH5_Ant1_2480_30~1000

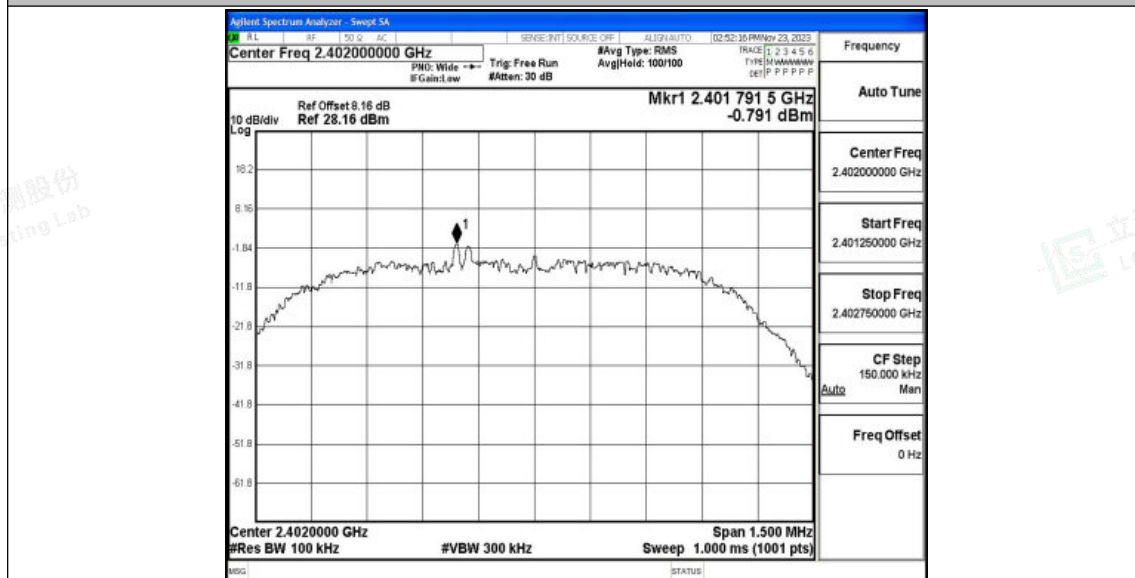


DH5_Ant1_2480_1000~26500





2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000

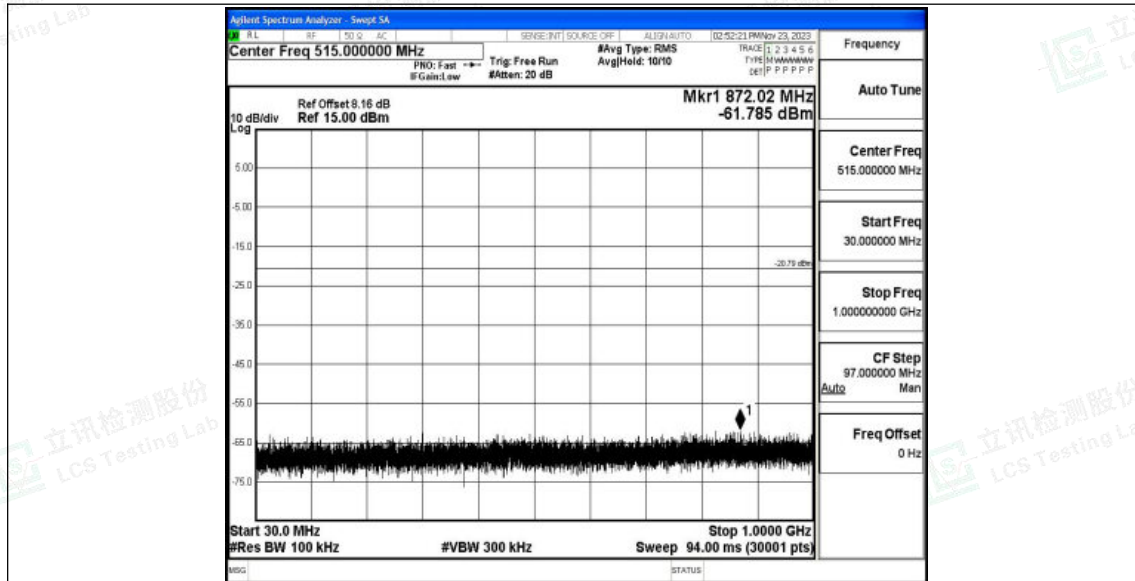


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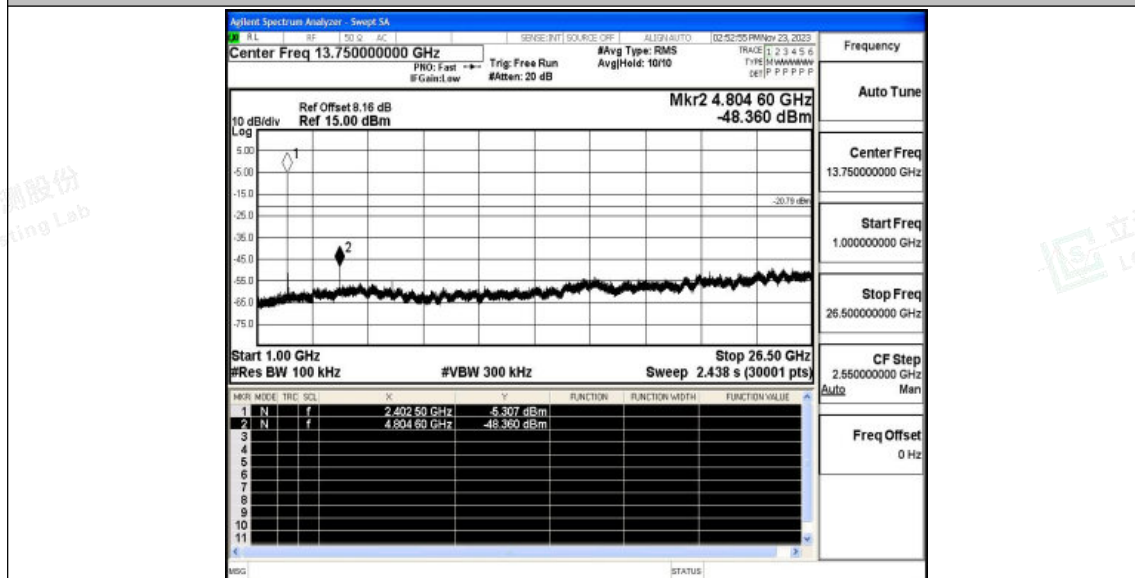
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2DH5_Ant1_2402_1000~26500



2DH5_Ant1_2441_0~Reference

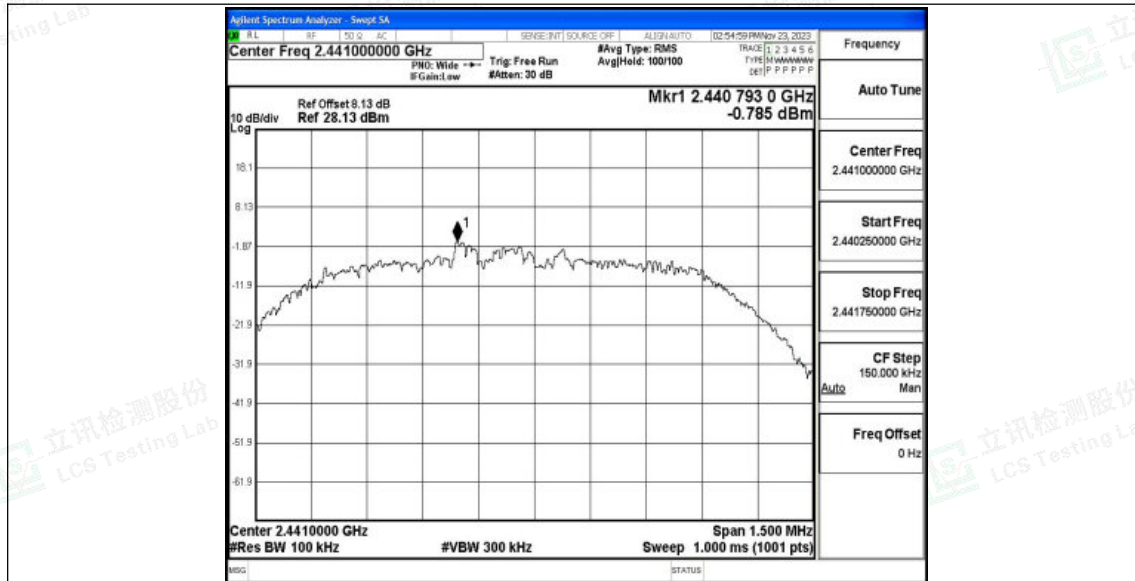


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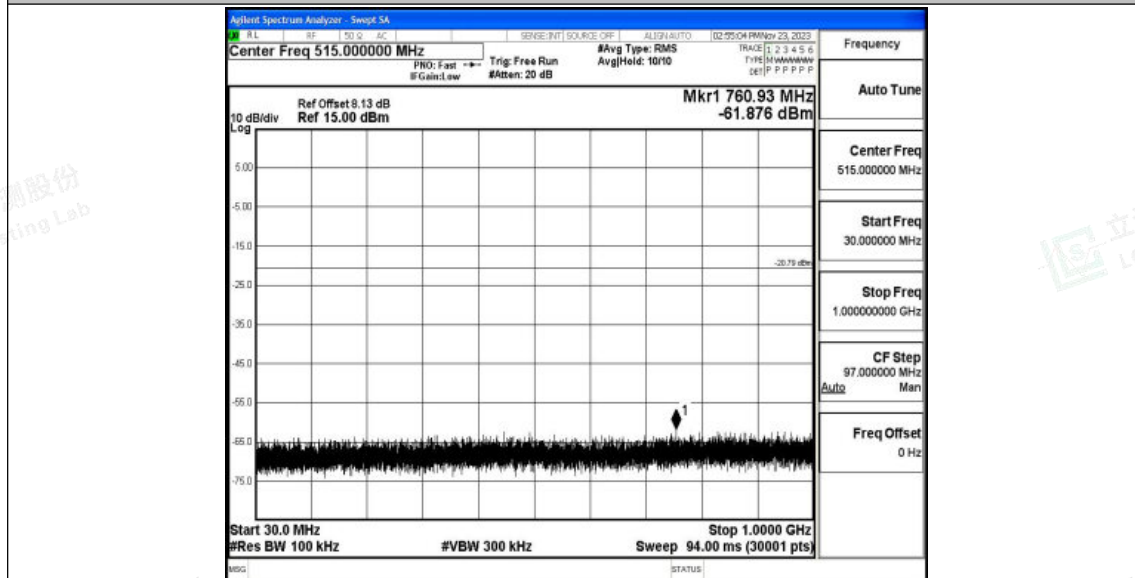
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2DH5_Ant1_2441_30~1000



2DH5_Ant1_2441_1000~26500

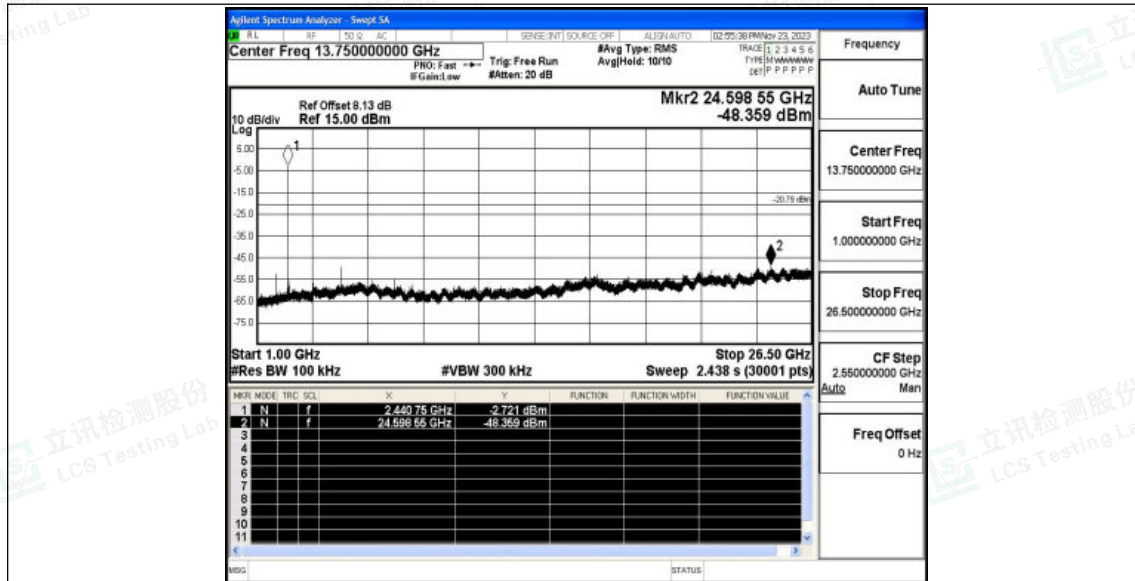


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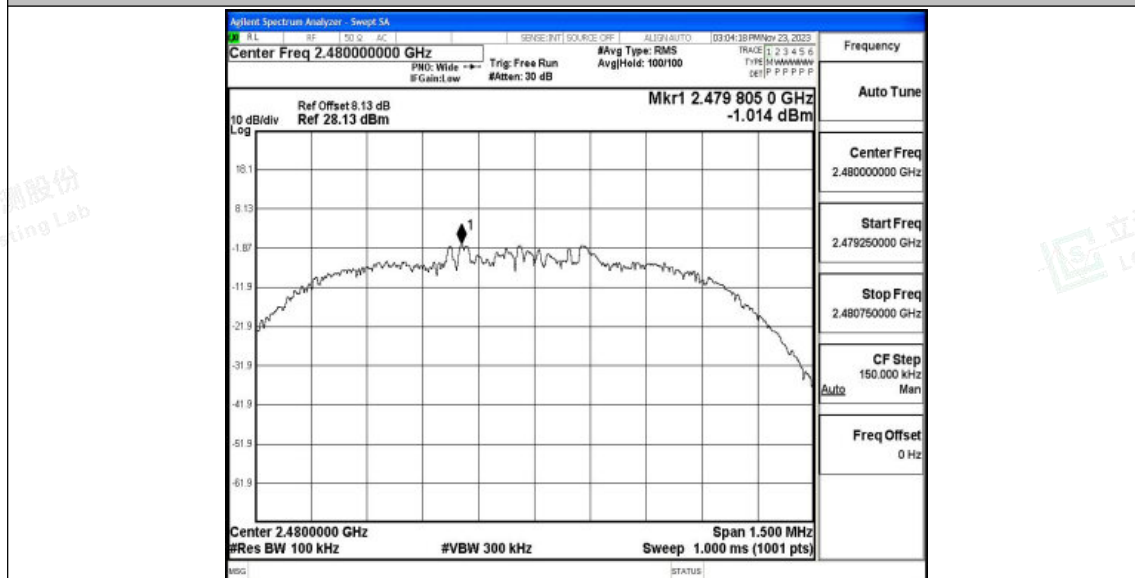
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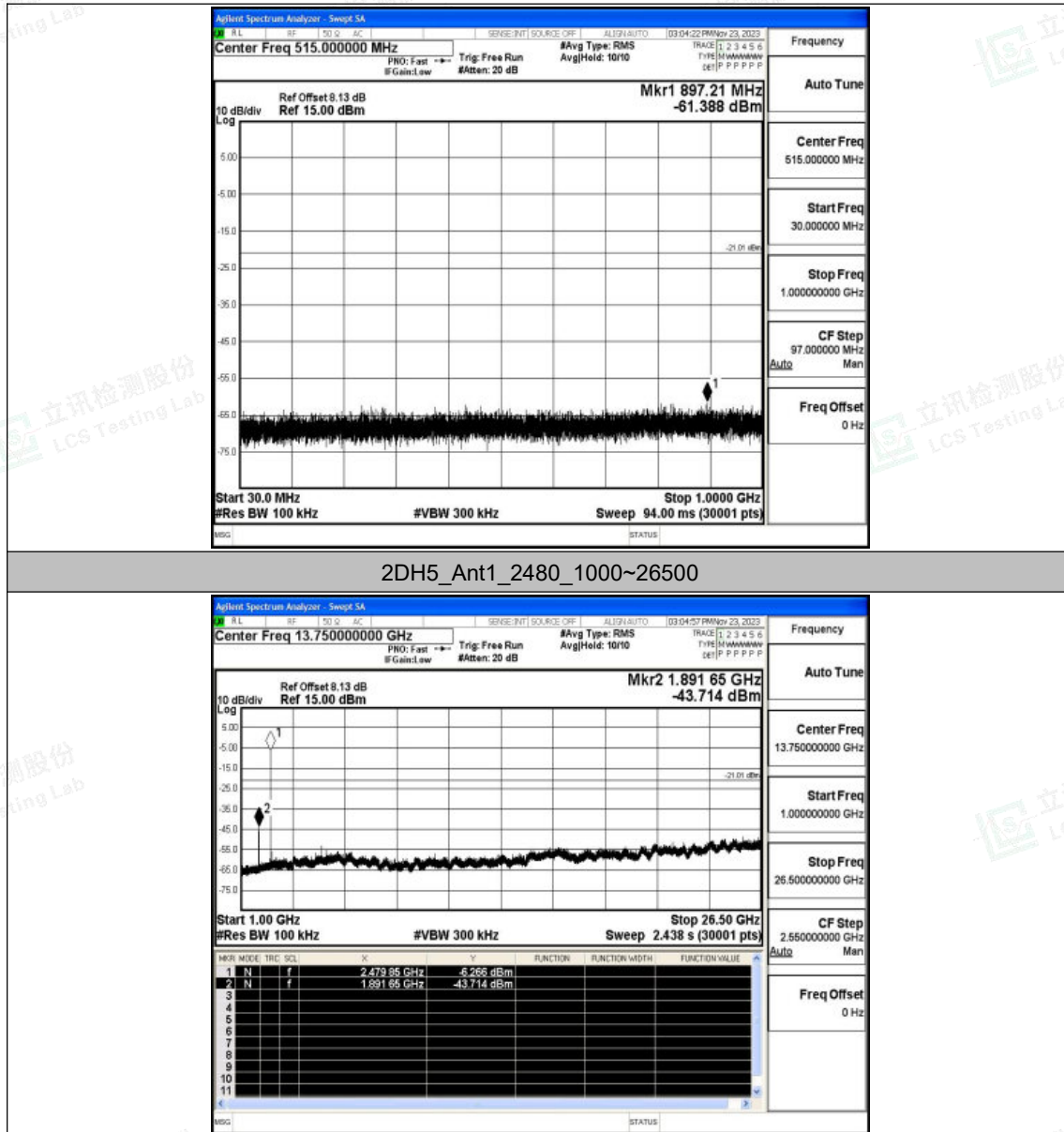


2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000







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	-49.06	≤-41.20	46.14	≤54	PASS
				AV	2353.760	-48.48	≤-41.20	46.72	≤54	PASS
				AV	2390.000	-48.79	≤-41.20	46.41	≤54	PASS
				Peak	2310.000	-41.94	≤-21.20	53.26	≤74	PASS
				Peak	2333.705	-39.52	≤-21.20	55.68	≤74	PASS
				Peak	2390.000	-41.15	≤-21.20	54.05	≤74	PASS
		High	2480	AV	2483.500	-46.31	≤-41.20	48.89	≤54	PASS
				AV	2483.920	-46.14	≤-41.20	49.06	≤54	PASS
				AV	2500.000	-48.65	≤-41.20	46.55	≤54	PASS
				Peak	2483.500	-40.11	≤-21.20	55.09	≤74	PASS
				Peak	2484.240	-39.42	≤-21.20	55.78	≤74	PASS
				Peak	2500.000	-44.96	≤-21.20	50.24	≤74	PASS
		Low	Hop_24 02	Peak	2310.000	-41.58	≤-21.20	53.62	≤74	PASS
				Peak	2338.535	-38.18	≤-21.20	57.02	≤74	PASS
				Peak	2390.000	-40.52	≤-21.20	54.68	≤74	PASS
		High	Hop_24 80	Peak	2483.500	-39.09	≤-21.20	56.11	≤74	PASS
				Peak	2485.280	-38	≤-21.20	57.20	≤74	PASS
				Peak	2500.000	-40.55	≤-21.20	54.65	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.13	≤-41.20	46.07	≤54	PASS
				AV	2353.970	-48.61	≤-41.20	46.59	≤54	PASS
				AV	2390.000	-48.84	≤-41.20	46.36	≤54	PASS
				Peak	2310.000	-43.6	≤-21.20	51.60	≤74	PASS
				Peak	2377.910	-39.98	≤-21.20	55.22	≤74	PASS
				Peak	2390.000	-44.02	≤-21.20	51.18	≤74	PASS
		High	2480	AV	2483.500	-46.94	≤-41.20	48.26	≤54	PASS
				AV	2483.520	-46.94	≤-41.20	48.26	≤54	PASS
				AV	2500.000	-48.7	≤-41.20	46.50	≤54	PASS
				Peak	2483.500	-41.98	≤-21.20	53.22	≤74	PASS
				Peak	2483.760	-39.69	≤-21.20	55.51	≤74	PASS
				Peak	2500.000	-42.82	≤-21.20	52.38	≤74	PASS
		Low	Hop_24 02	Peak	2310.000	-40.93	≤-21.20	54.27	≤74	PASS
				Peak	2343.995	-38.57	≤-21.20	56.63	≤74	PASS
				Peak	2390.000	-40.66	≤-21.20	54.54	≤74	PASS
		High	Hop_24	Peak	2483.500	-40.28	≤-21.20	54.92	≤74	PASS





		80	Peak	2491.200	-38.76	≤-21.20	56.44	≤74	PASS
			Peak	2500.000	-39.85	≤-21.20	55.35	≤74	PASS

Note:

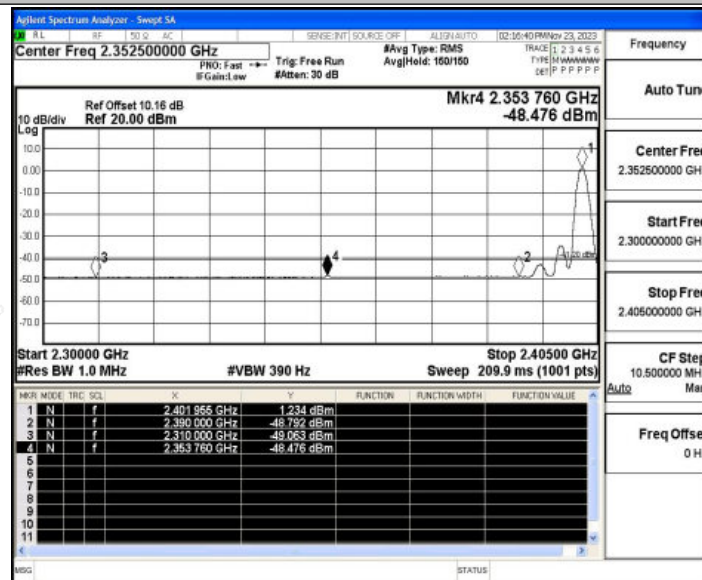
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



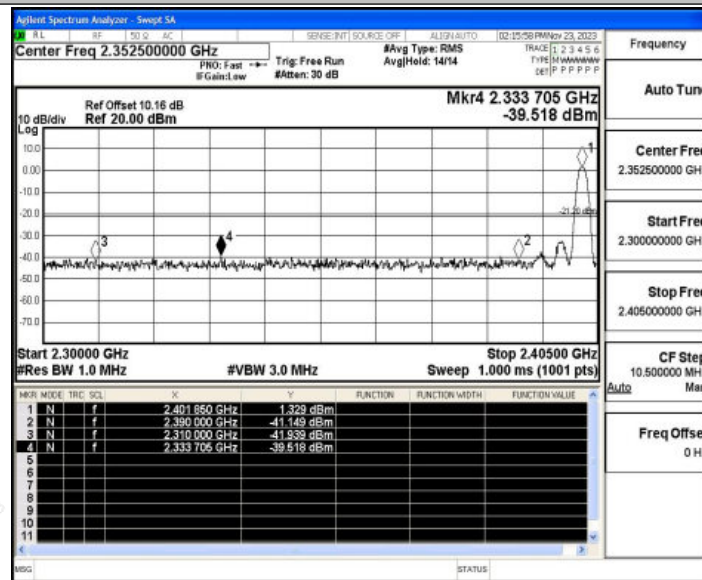


Test Graphs

DH5_Ant1_Low_2402_AV

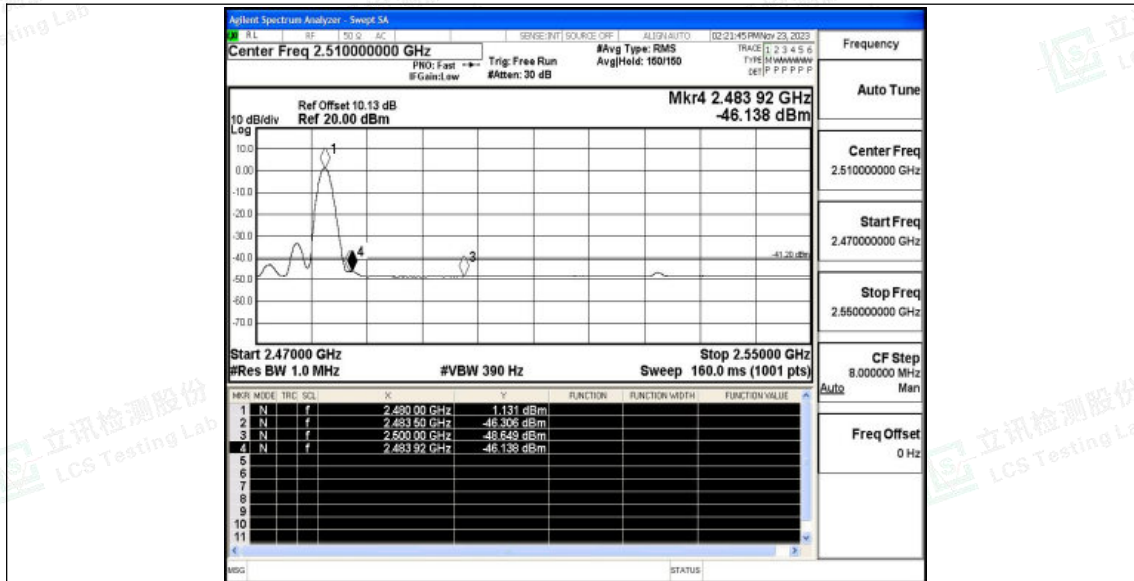


DH5_Ant1_Low_2402_Peak

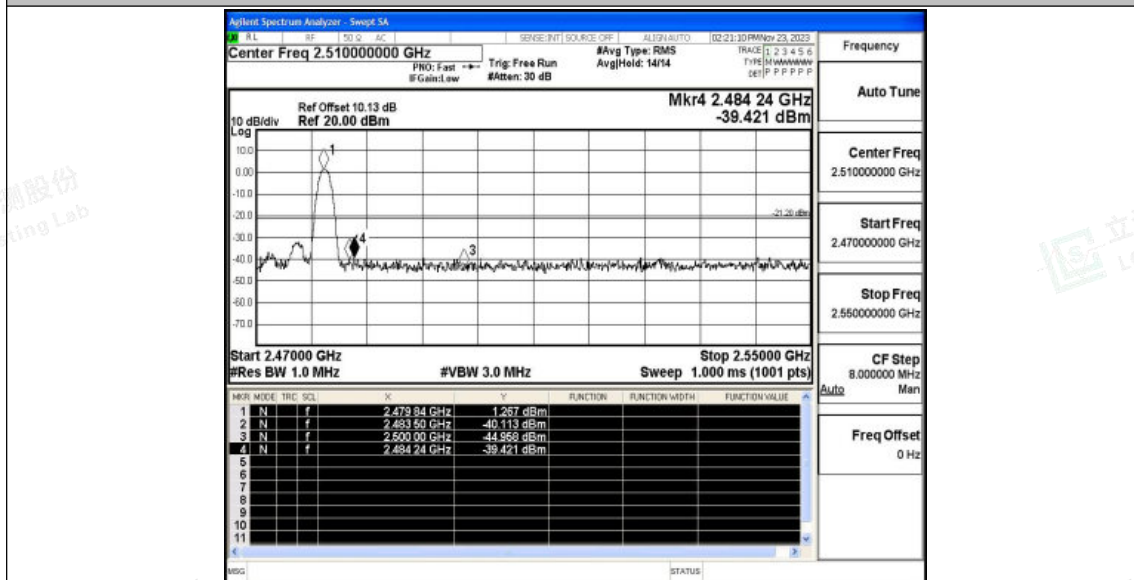


DH5_Ant1_High_2480_AV



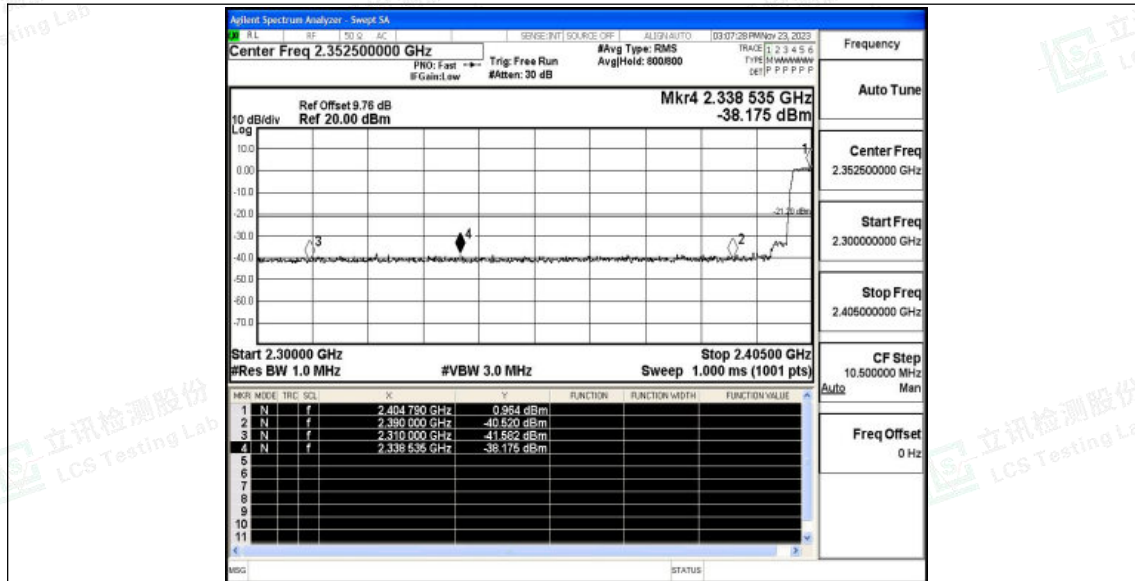


DH5_Ant1_High_2480_Peak

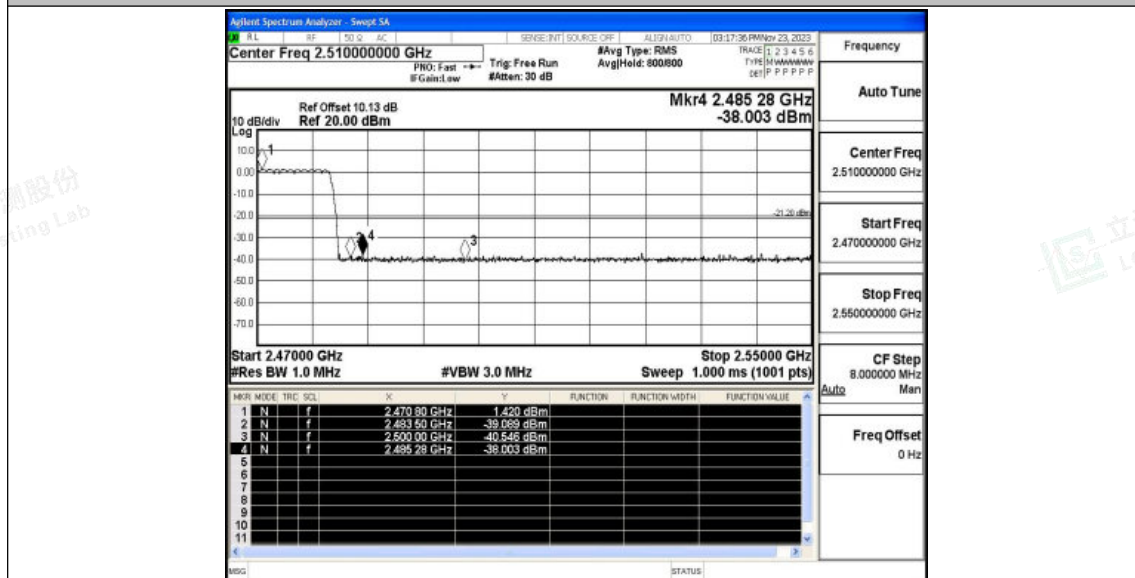


DH5_Ant1_Low_Hop_2402_Peak



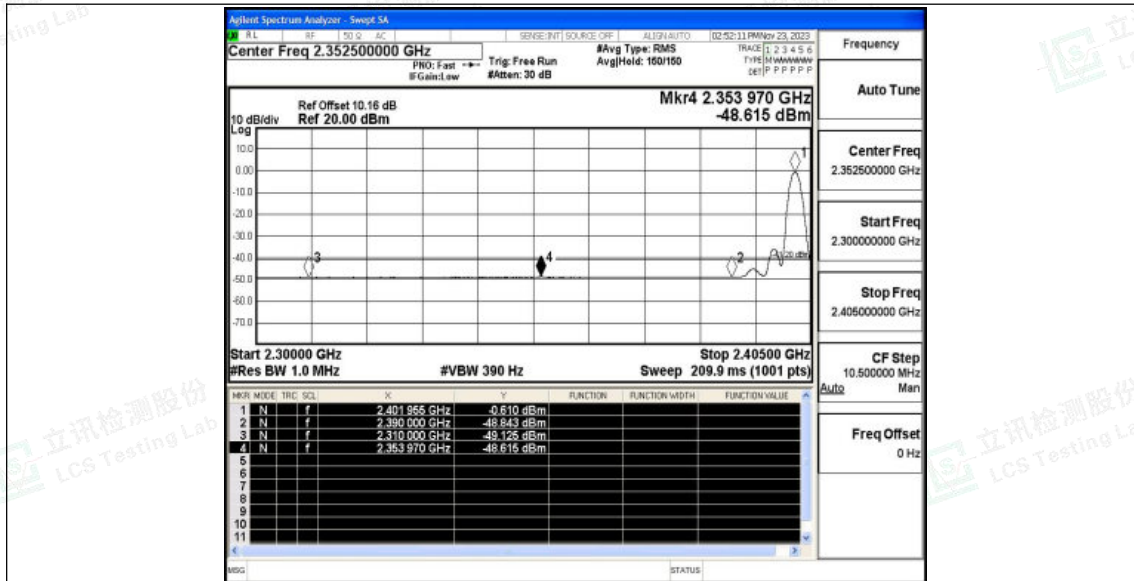


DH5_Ant1_High_Hop_2480_Peak

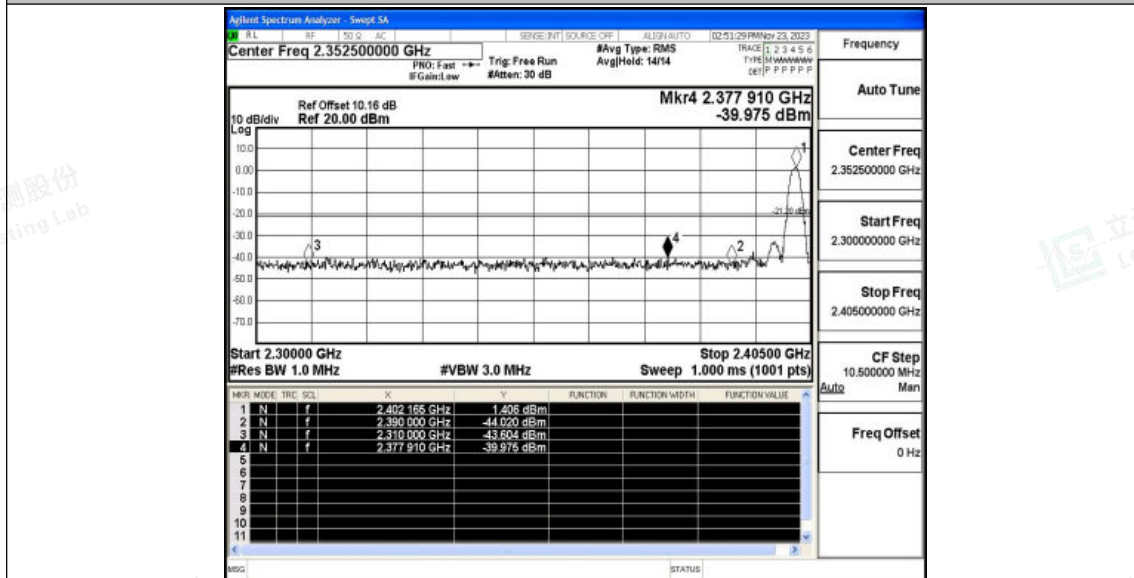


2DH5_Ant1_Low_2402_AV





2DH5_Ant1_Low_2402_Peak



2DH5_Ant1_High_2480_AV

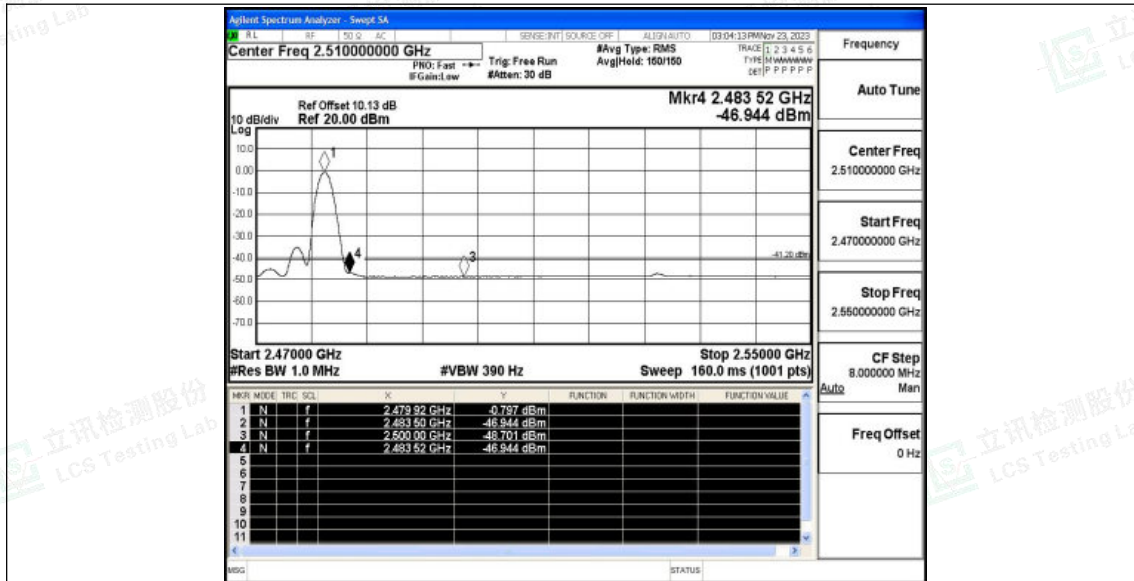


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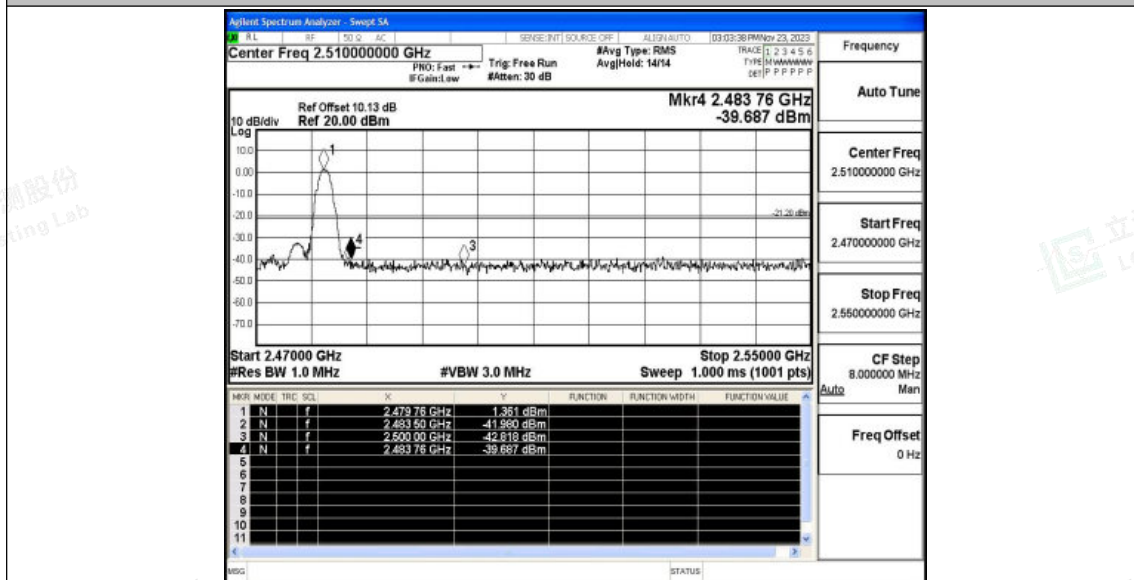
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