



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: BT Magic Bluetooth Module

Test Model: BT Magic

Environmental Conditions

Temperature:	23.5°C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	<i>Taylor Hu</i> Taylor Hu
Supervised by:	<i>Li Huan</i> Li Huan





A.1 20dB Emission Bandwidth

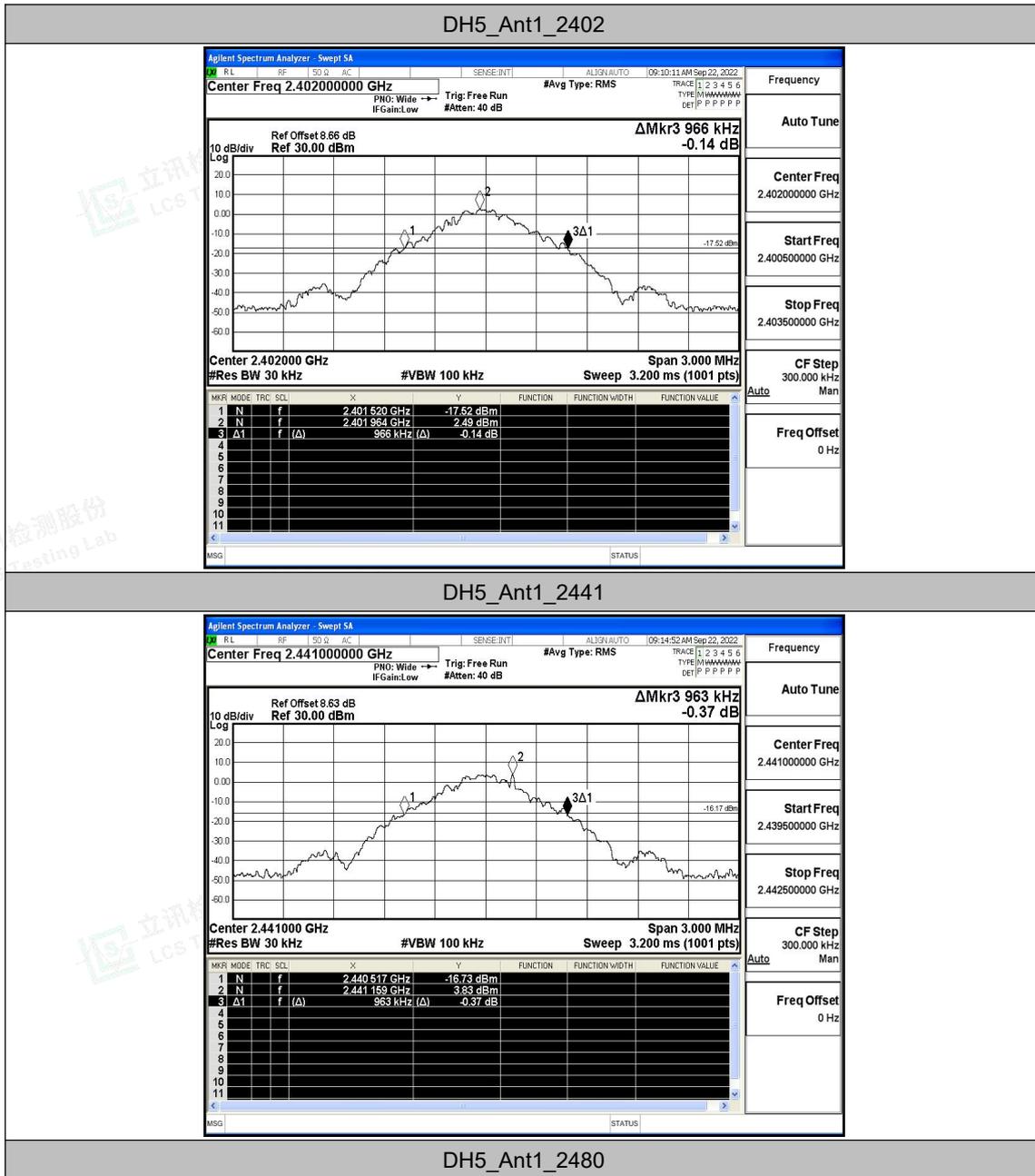
Test Result

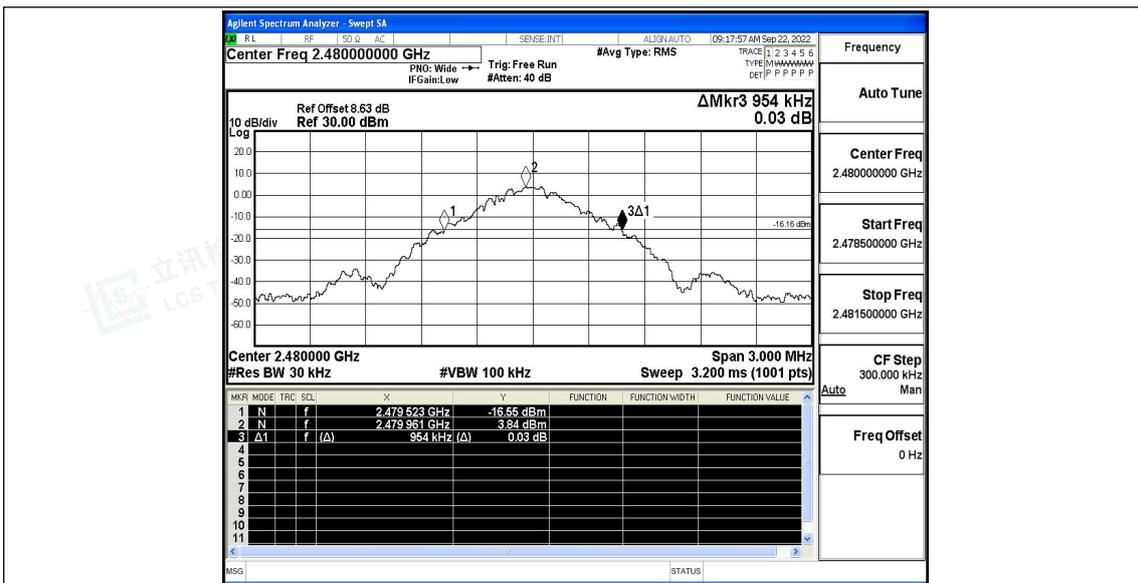
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant1	2402	0.966	2401.520	2402.486	PASS
		2441	0.963	2440.517	2441.480	PASS
		2480	0.954	2479.523	2480.477	PASS
2DH5	Ant1	2402	1.356	2401.316	2402.672	PASS
		2441	1.350	2440.319	2441.669	PASS
		2480	1.350	2479.313	2480.663	PASS
3DH5	Ant1	2402	1.311	2401.343	2402.654	PASS
		2441	1.320	2440.334	2441.654	PASS
		2480	1.326	2479.331	2480.657	PASS



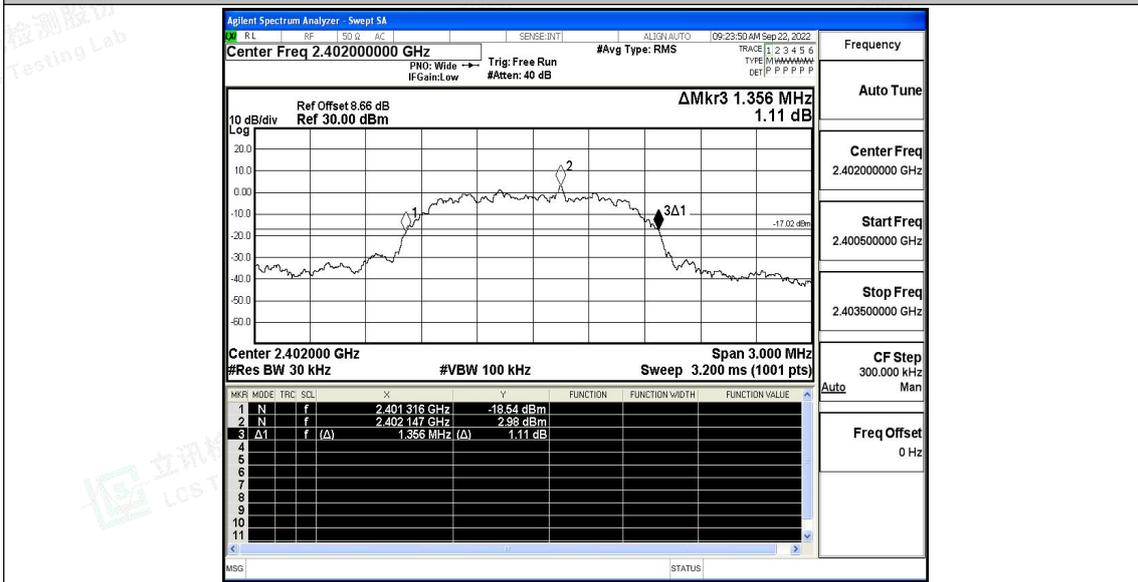


Test Graphs



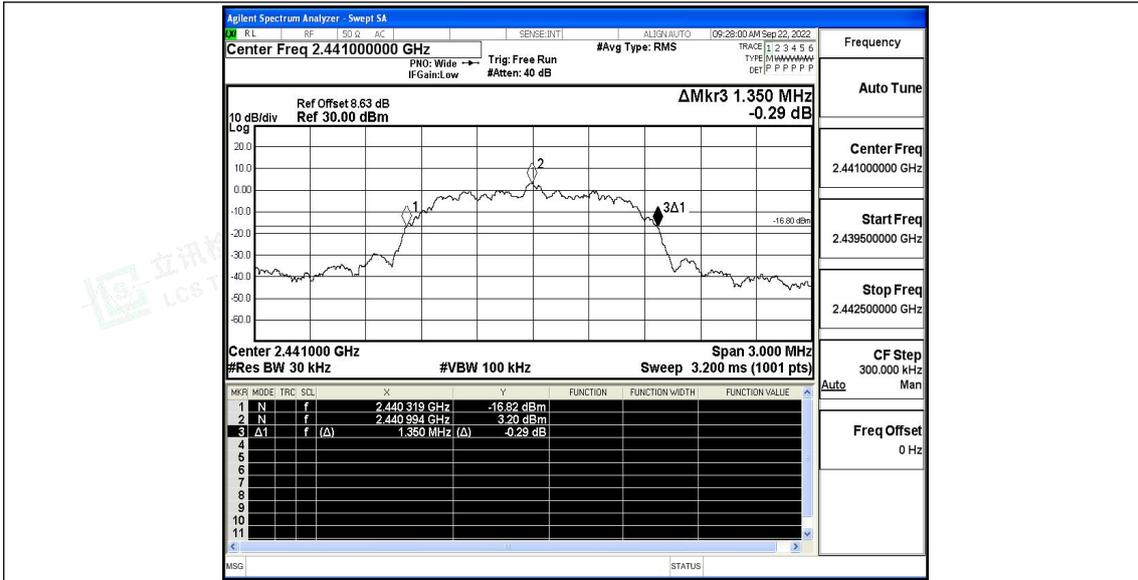


2DH5_Ant1_2402

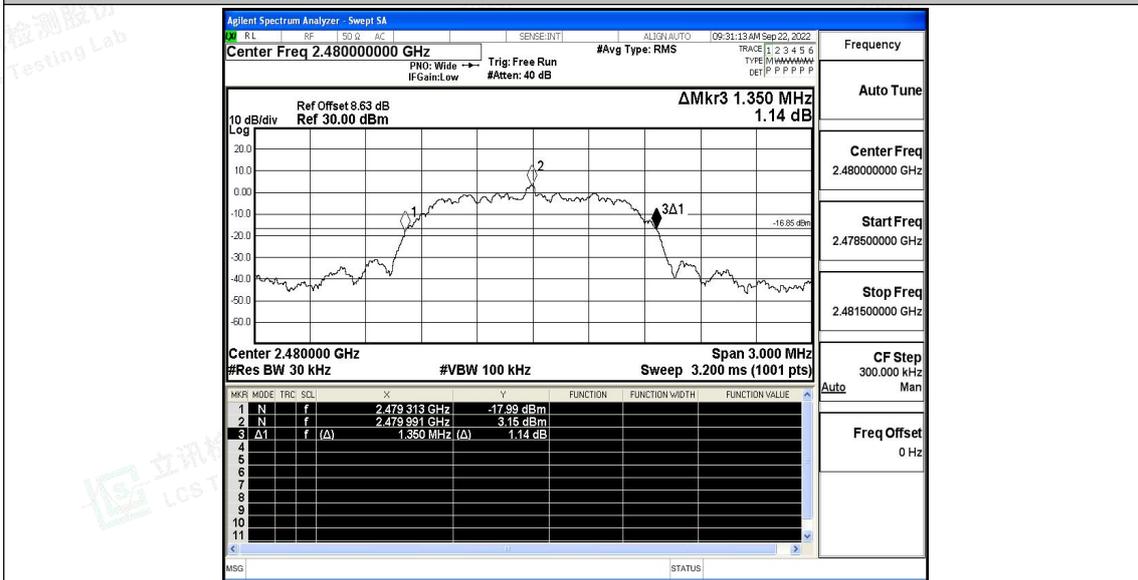


2DH5_Ant1_2441



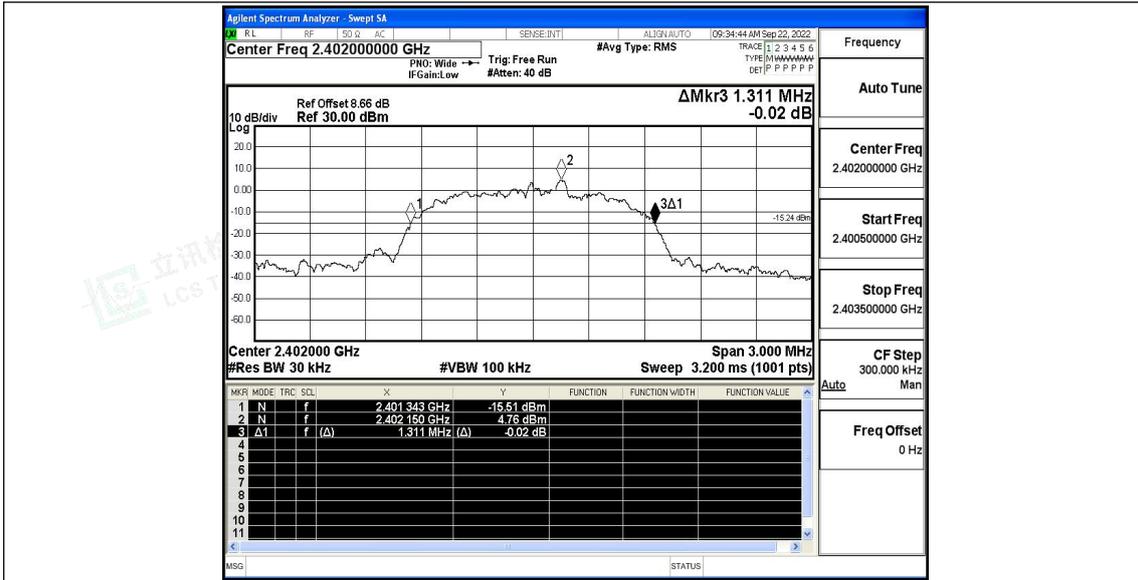


2DH5_Ant1_2480

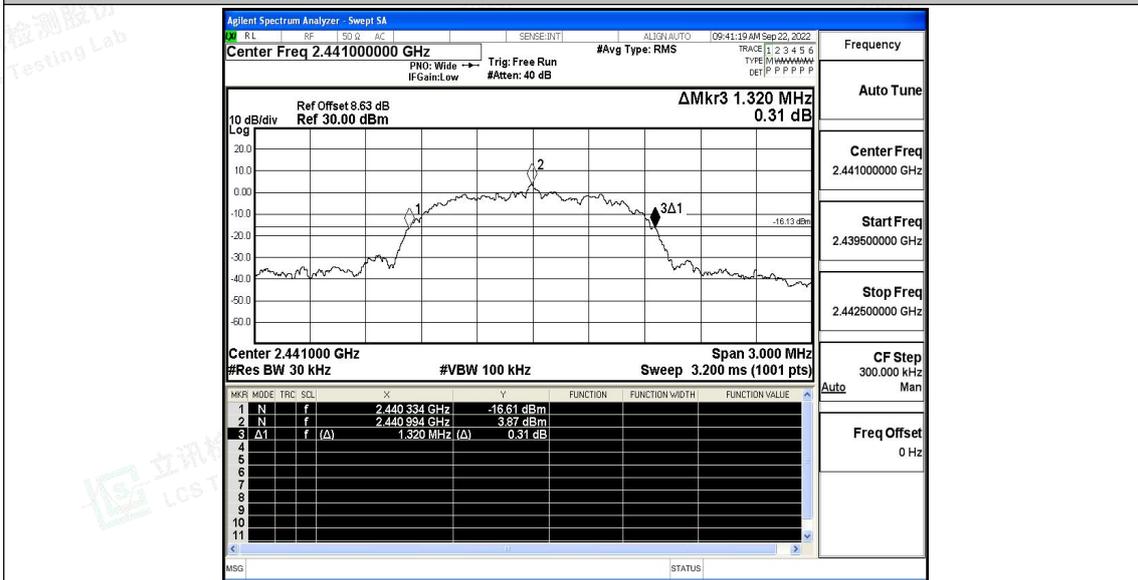


3DH5_Ant1_2402



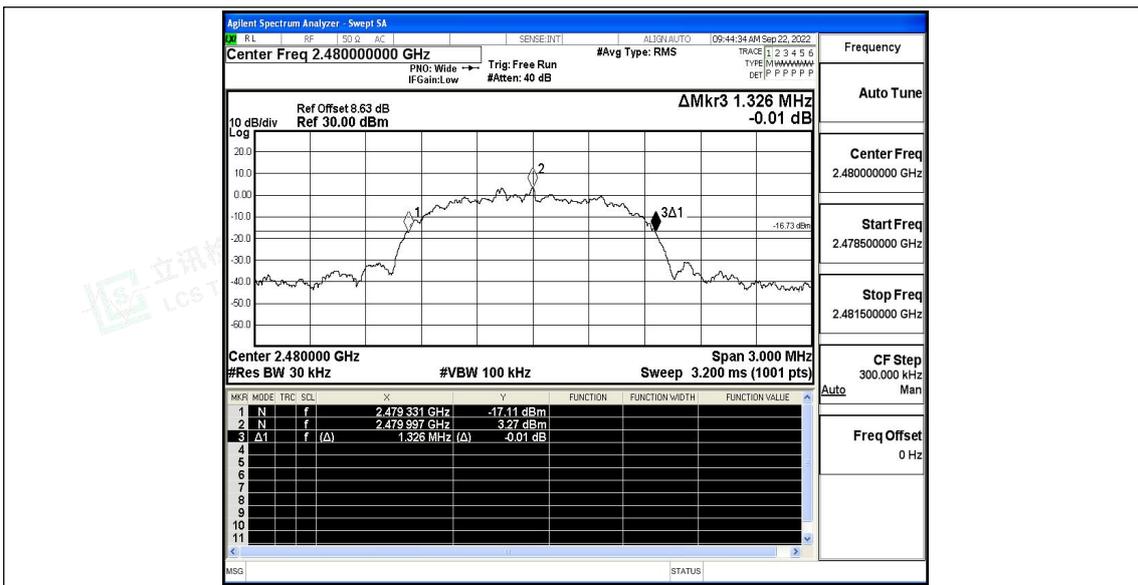


3DH5_Ant1_2441



3DH5_Ant1_2480







A.2 Maximum conducted output power

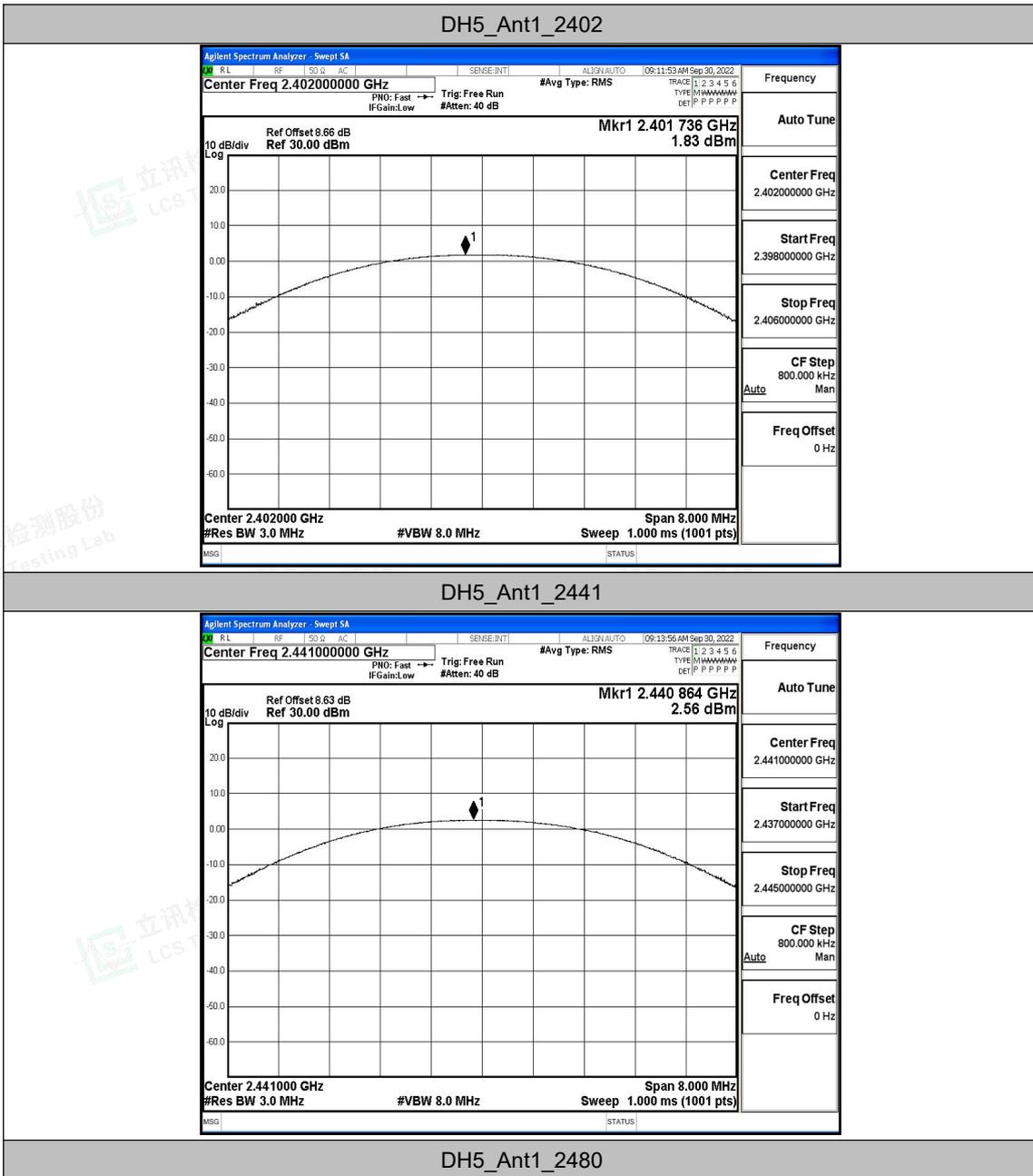
Test Result

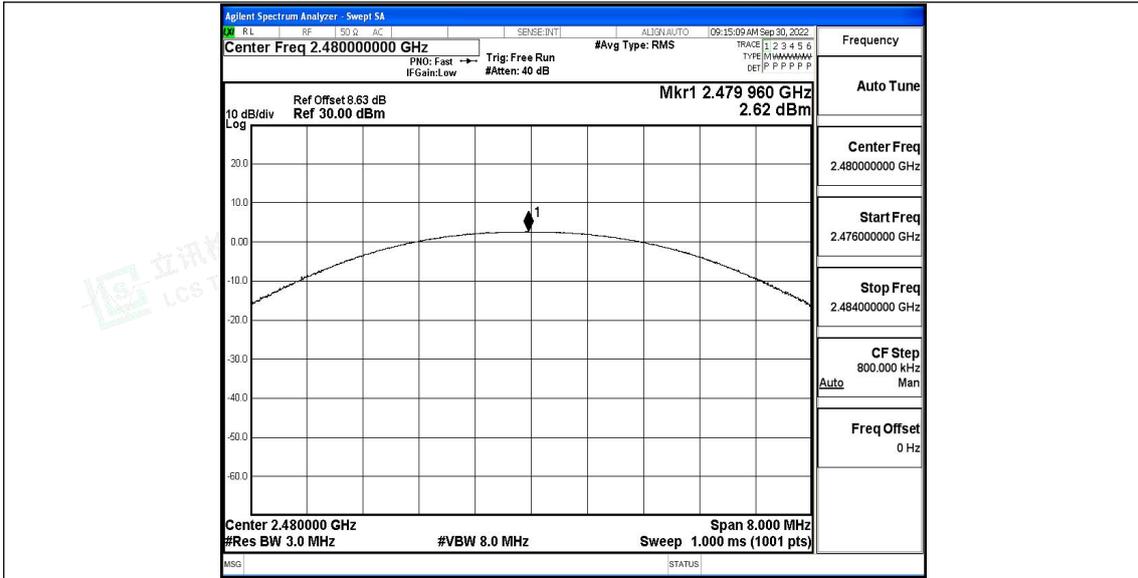
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	1.83	≤20.97	PASS
		2441	2.56	≤20.97	PASS
		2480	2.62	≤20.97	PASS
2DH5	Ant1	2402	-1.09	≤20.97	PASS
		2441	-1.15	≤20.97	PASS
		2480	-1.02	≤20.97	PASS
3DH5	Ant1	2402	-0.67	≤20.97	PASS
		2441	1.57	≤20.97	PASS
		2480	1.54	≤20.97	PASS



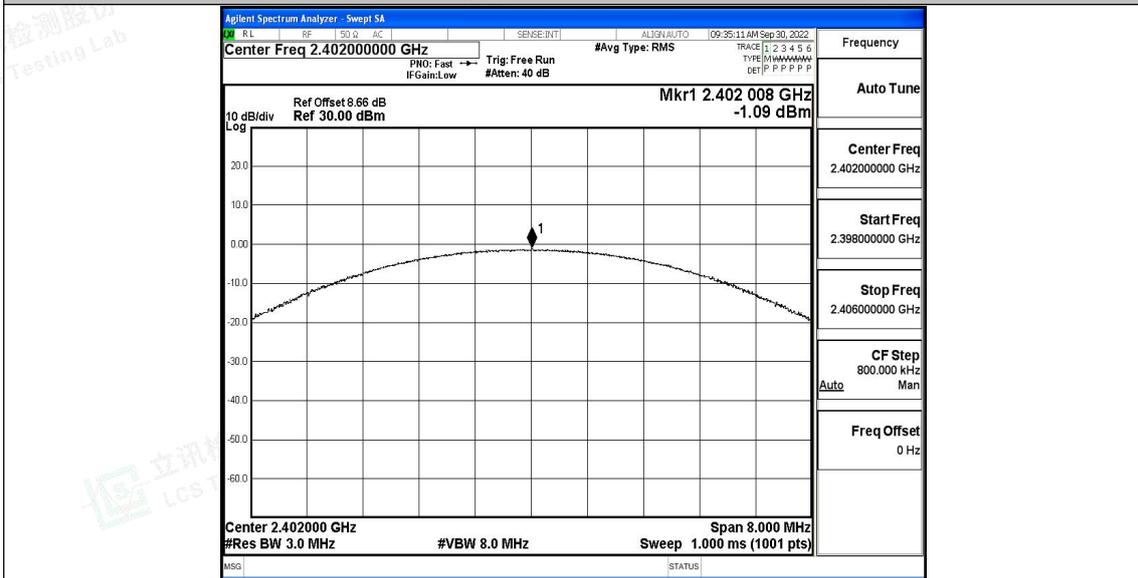


Test Graphs



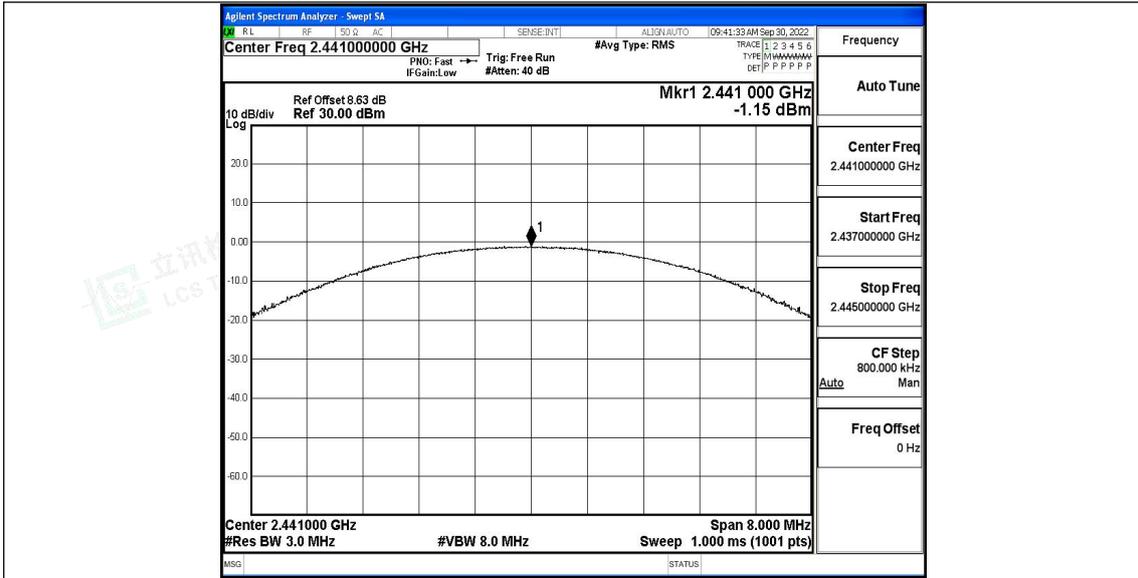


2DH5_Ant1_2402

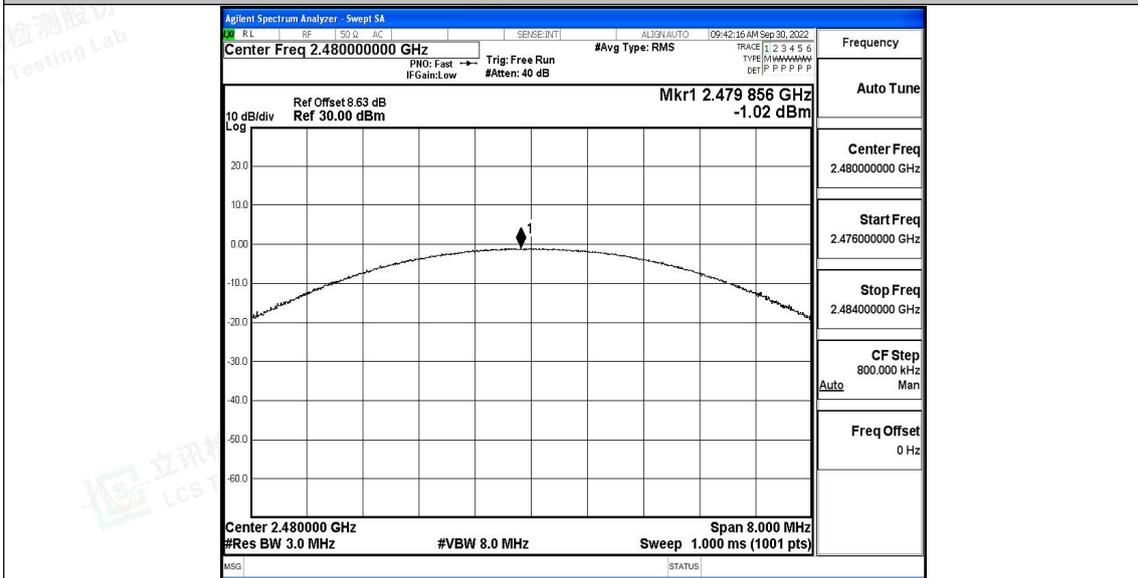


2DH5_Ant1_2441



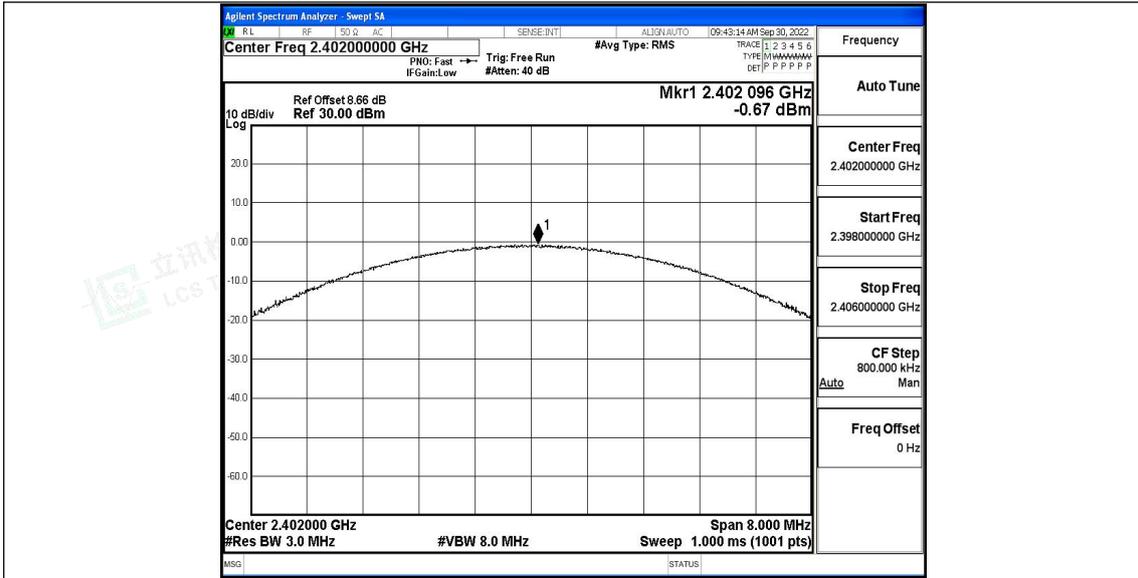


2DH5_Ant1_2480

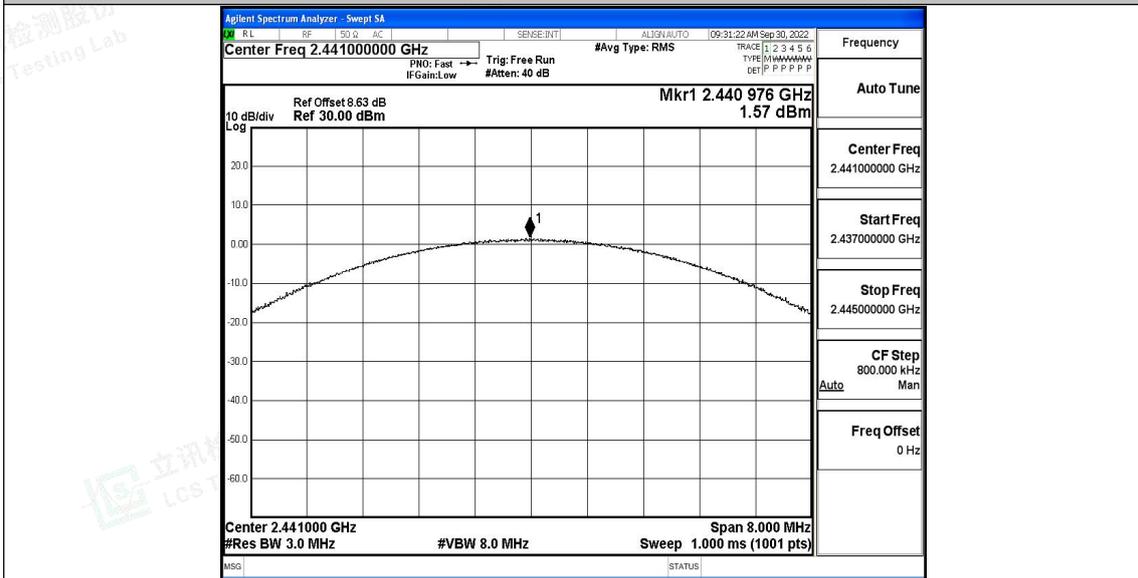


3DH5_Ant1_2402



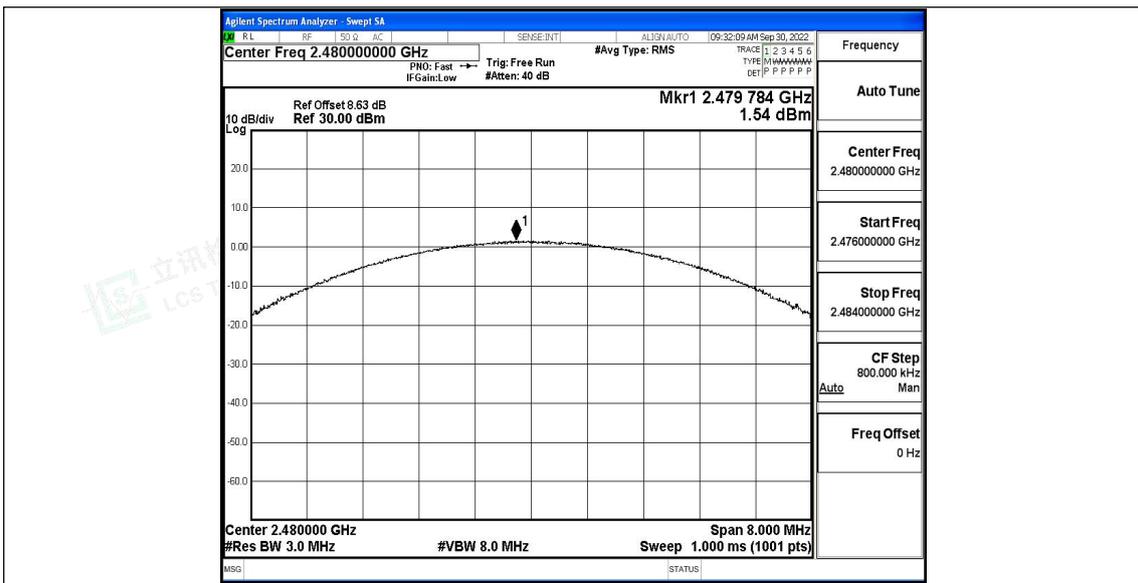


3DH5_Ant1_2441



3DH5_Ant1_2480







A.3 Carrier frequency separation

Test Result

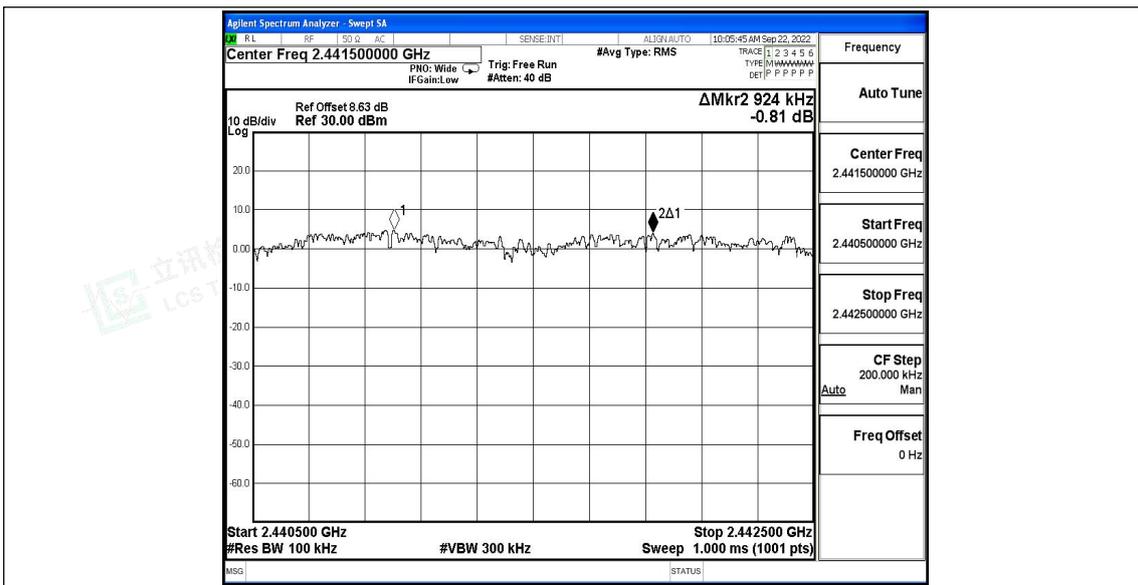
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.026	≥0.966	PASS
2DH5	Ant1	Hop	1.208	≥0.904	PASS
3DH5	Ant1	Hop	0.924	≥0.884	PASS





Test Graphs







A.4 Time of occupancy

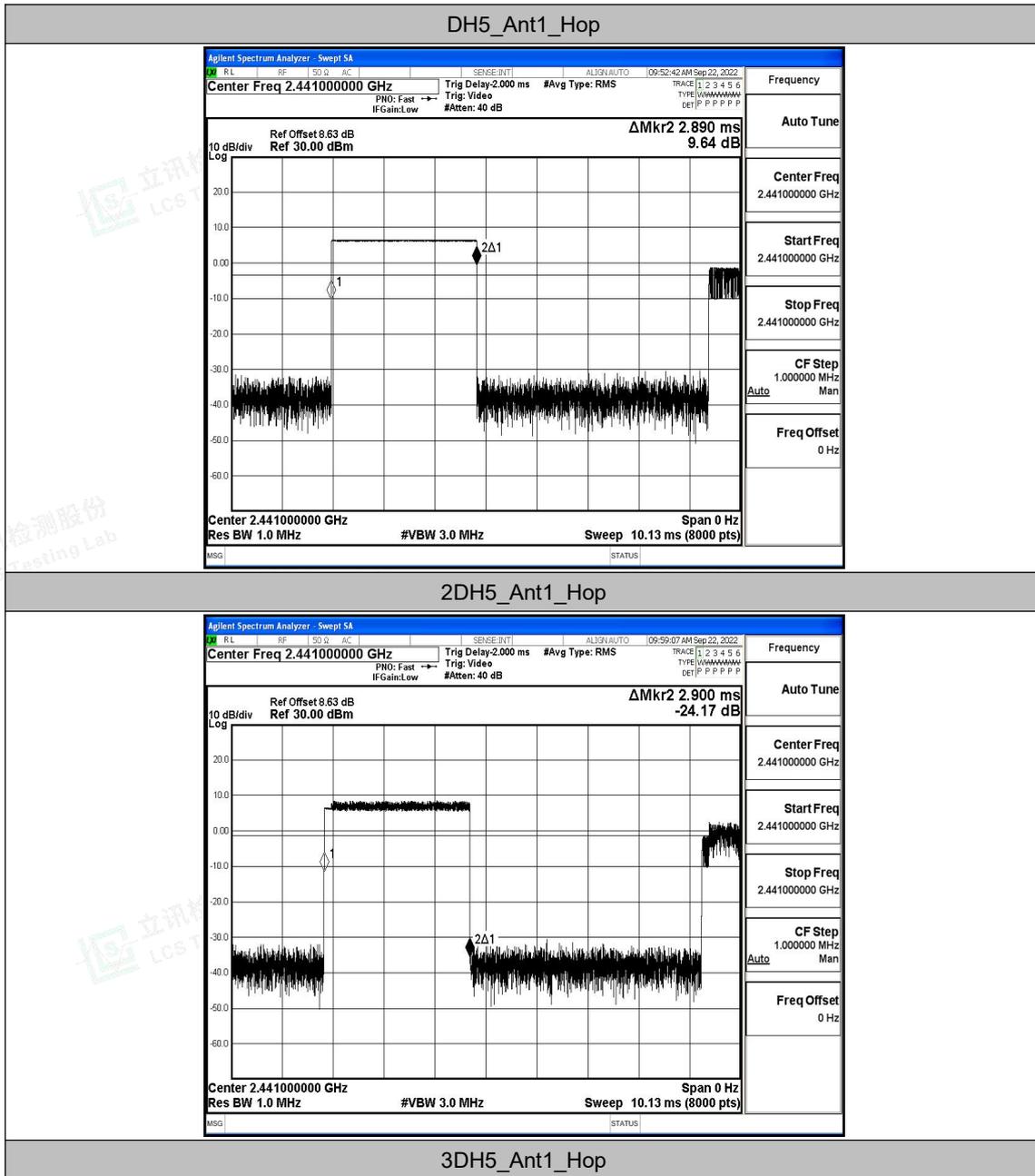
Test Result

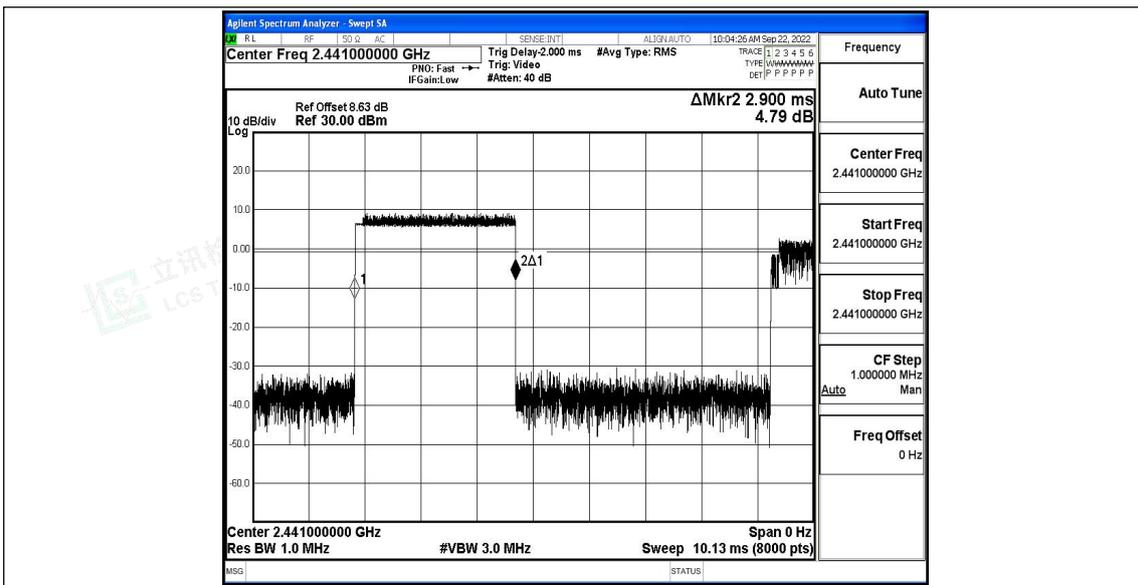
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.89	106.67	0.308	≤0.4	PASS
2DH5	Ant1	Hop	2.90	106.67	0.309	≤0.4	PASS
3DH5	Ant1	Hop	2.90	106.67	0.309	≤0.4	PASS





Test Graphs







A.5 Number of hopping channels

Test Result

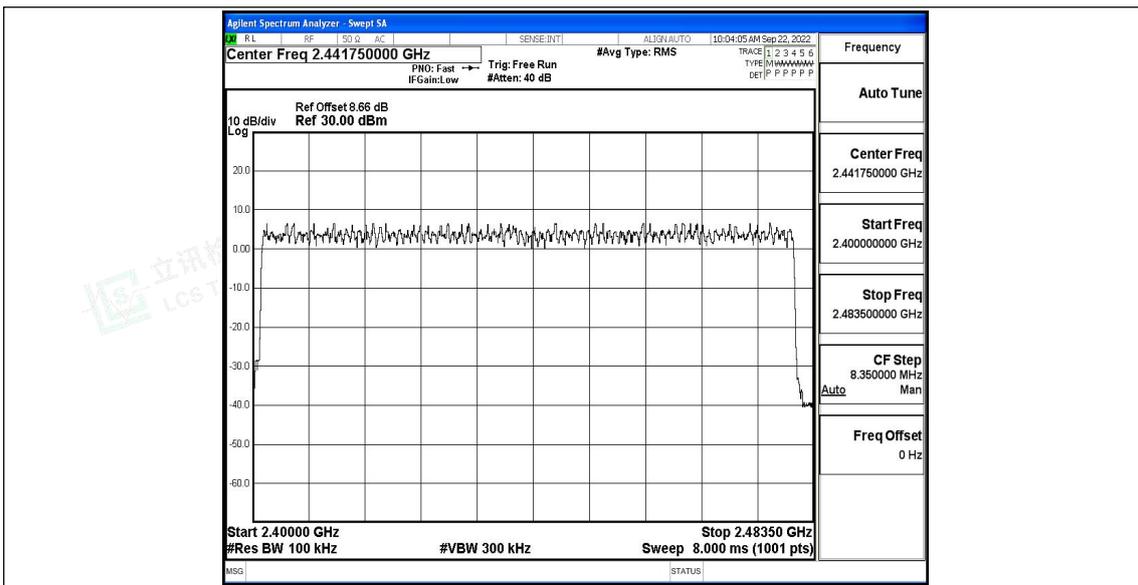
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS





Test Graphs







A.6 Band edge measurements

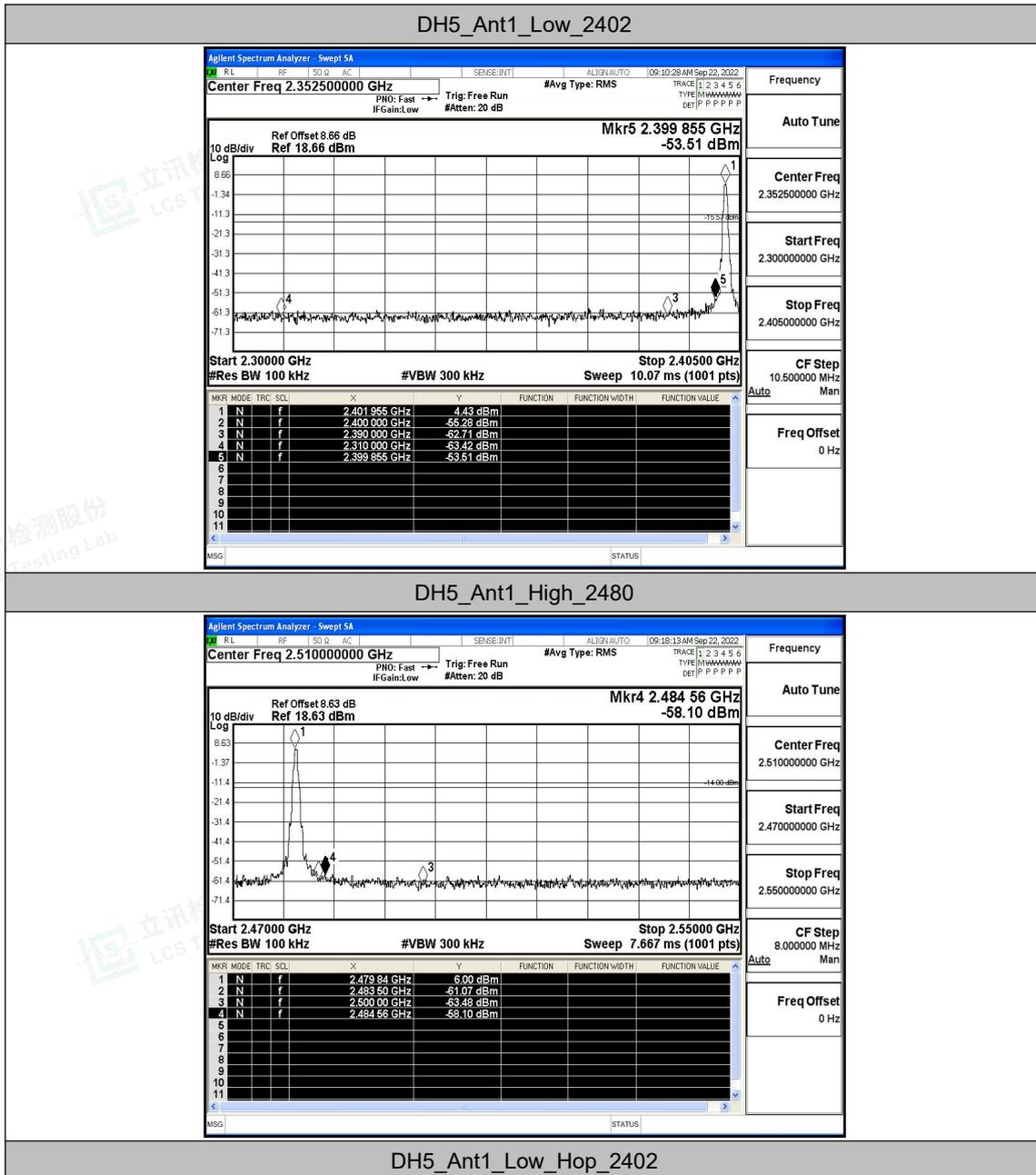
Test Result

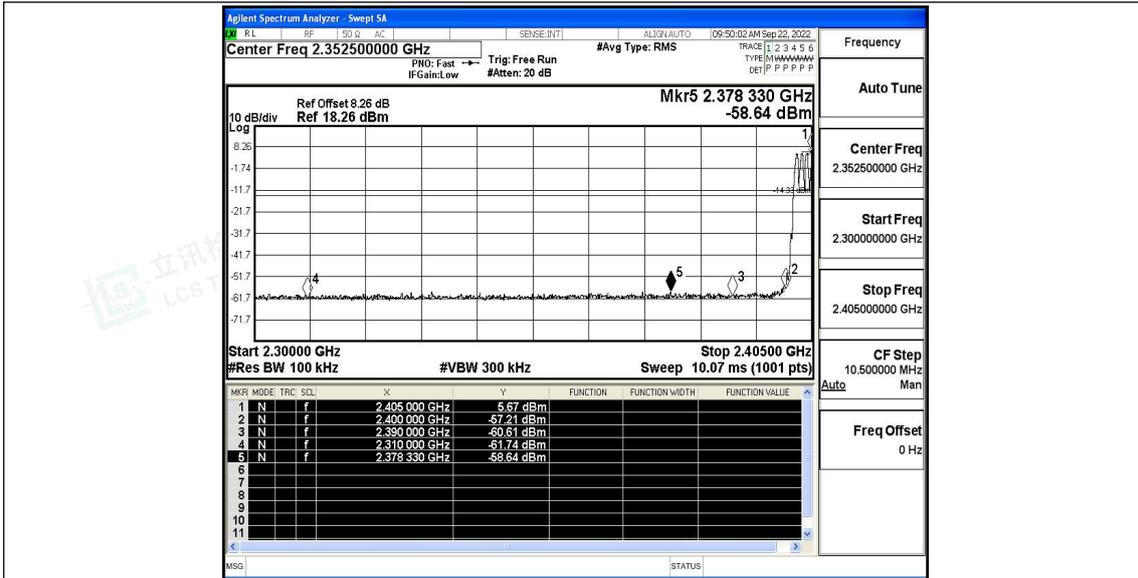
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	4.43	-53.51	≤-15.57	PASS
		High	2480	6.00	-58.1	≤-14	PASS
		Low	Hop_2402	5.67	-58.64	≤-14.33	PASS
		High	Hop_2480	6.27	-57.11	≤-13.73	PASS
2DH5	Ant1	Low	2402	3.74	-52.46	≤-16.26	PASS
		High	2480	2.90	-52.53	≤-17.1	PASS
		Low	Hop_2402	5.40	-58.71	≤-14.6	PASS
		High	Hop_2480	6.20	-56.45	≤-13.8	PASS
3DH5	Ant1	Low	2402	2.97	-48.94	≤-17.03	PASS
		High	2480	4.38	-52.68	≤-15.62	PASS
		Low	Hop_2402	4.23	-58.48	≤-15.77	PASS
		High	Hop_2480	4.91	-56.58	≤-15.09	PASS



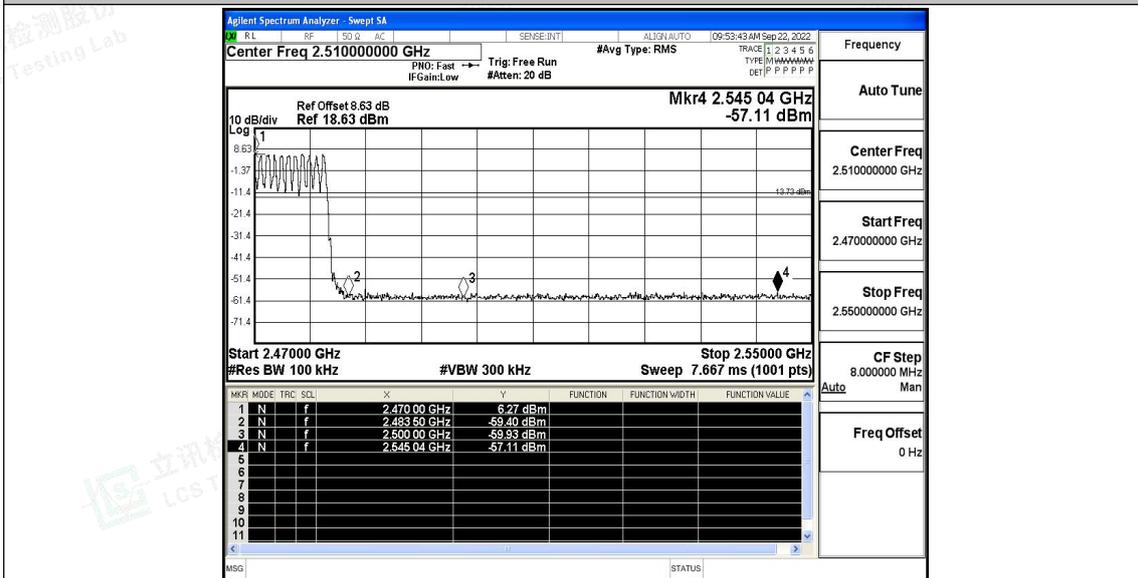


Test Graphs





DH5_Ant1_High_Hop_2480



2DH5_Ant1_Low_2402

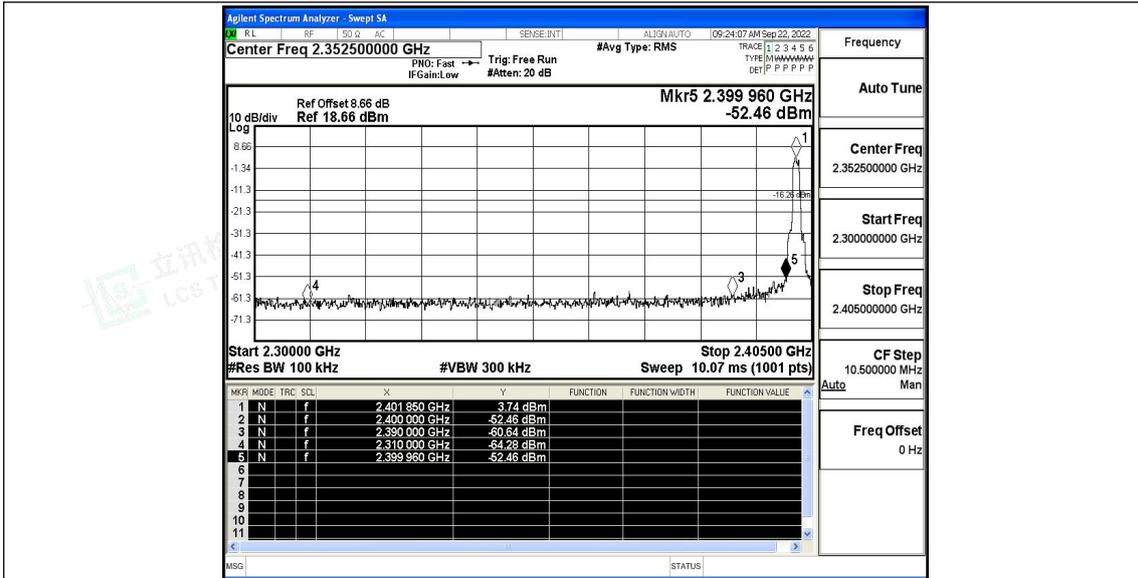


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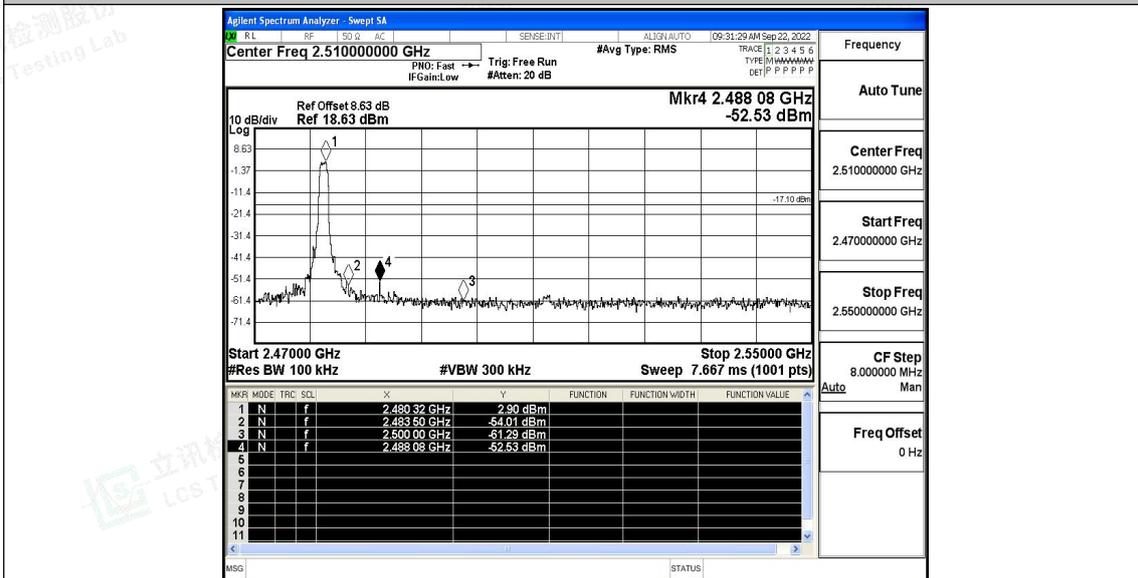
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402

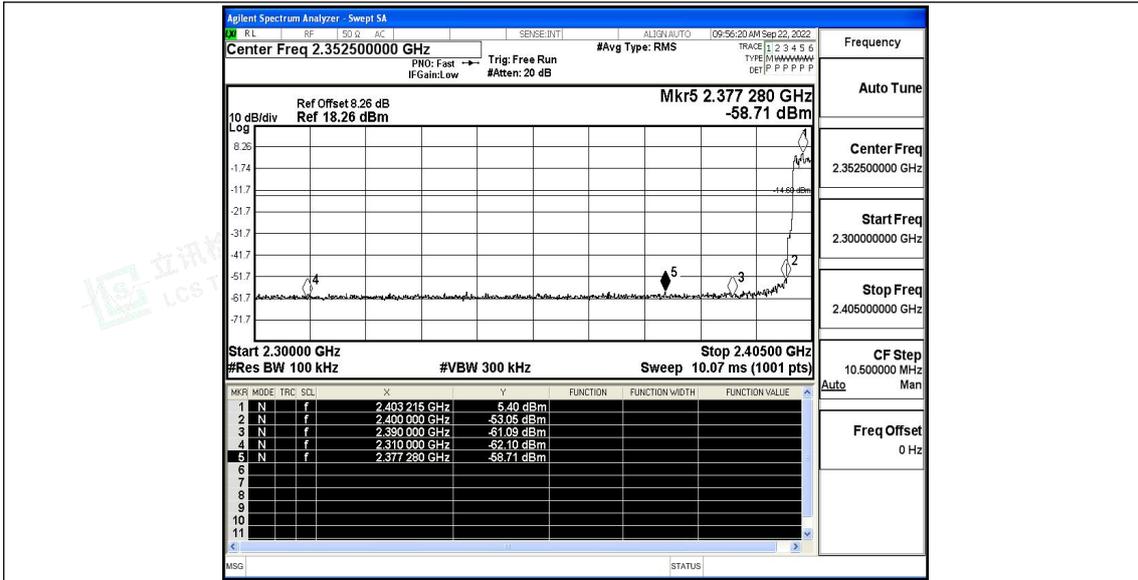


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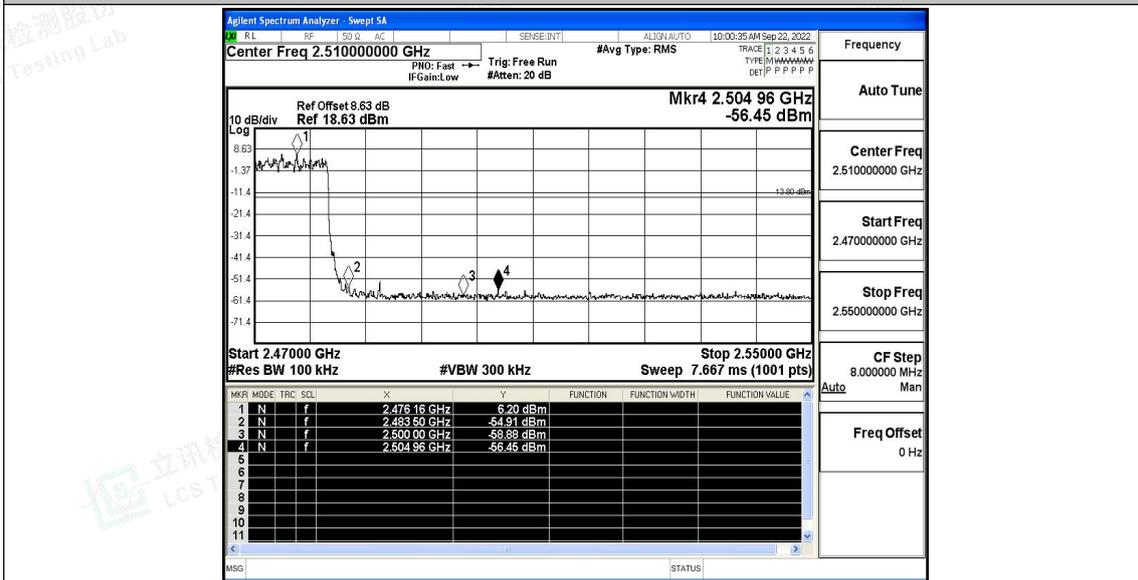
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3DH5_Ant1_Low_2402

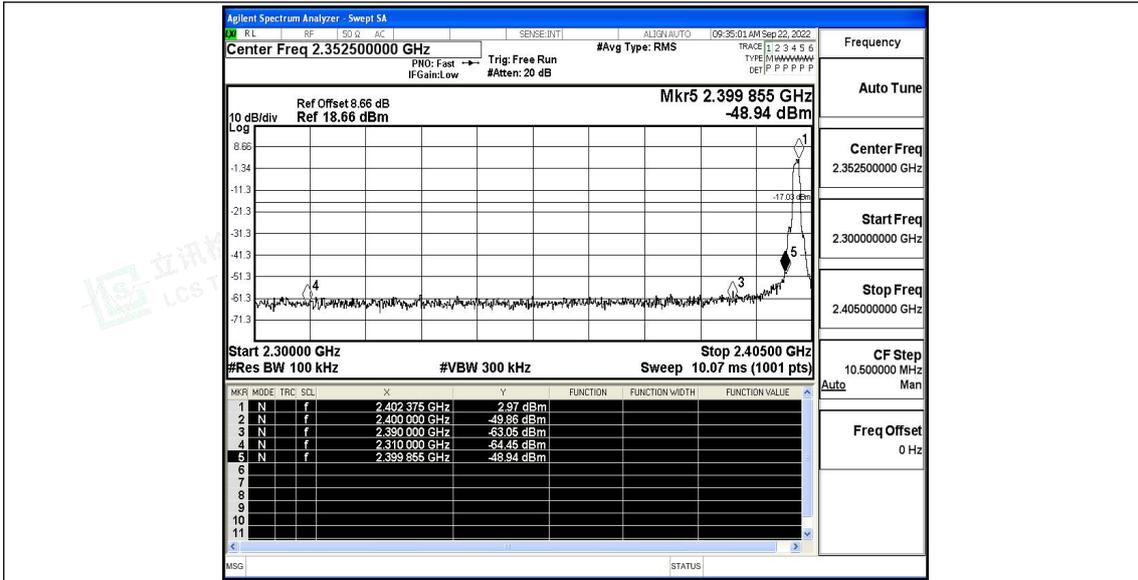


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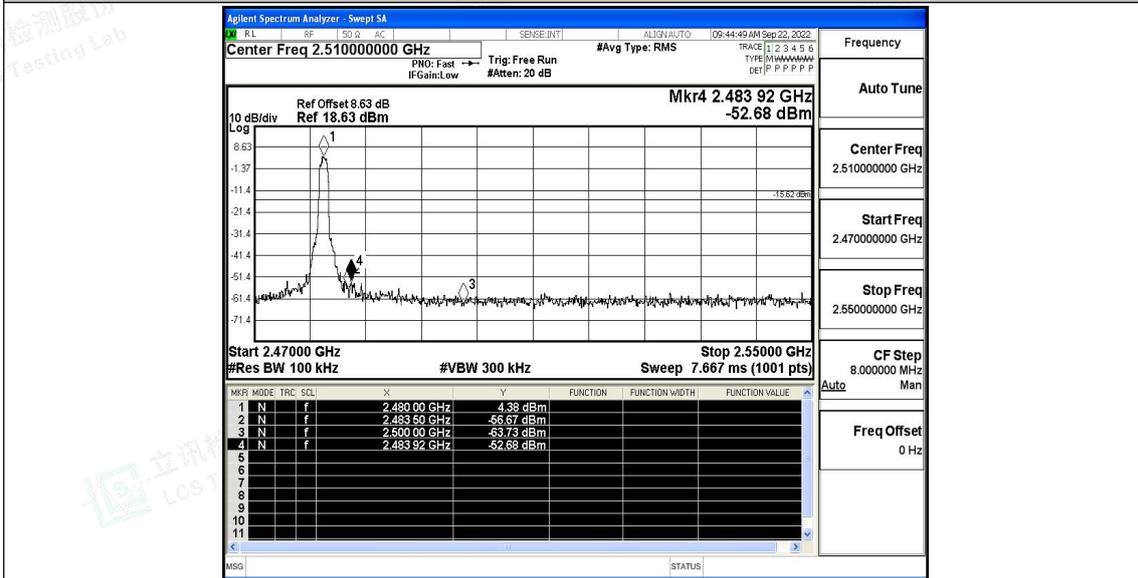
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3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402

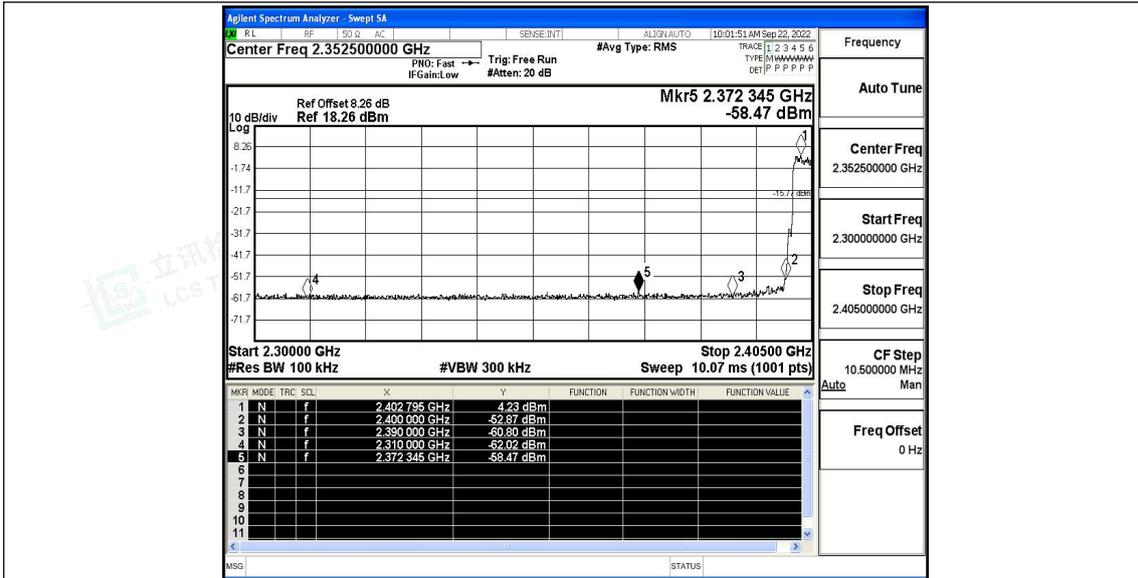


Shenzhen LCS Compliance Testing Laboratory Ltd.

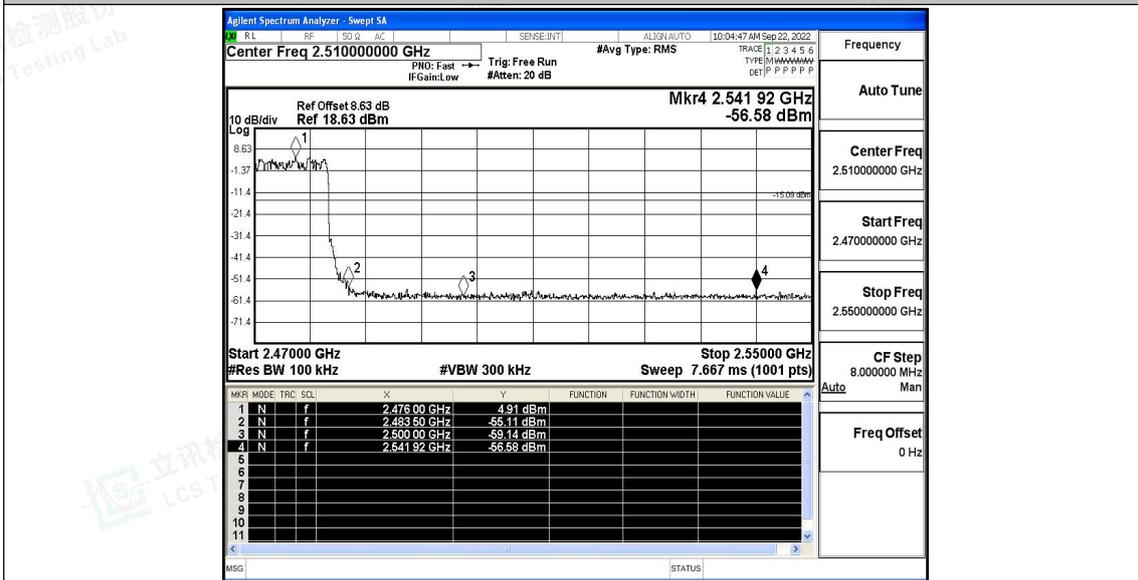
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3DH5_Ant1_High_Hop_2480





A.7 Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	4.35	4.35	---	PASS
			30~1000	4.35	-60.25	≤-15.65	PASS
			1000~26500	4.35	-46.08	≤-15.65	PASS
		2441	Reference	6.13	6.13	---	PASS
			30~1000	6.13	-59.92	≤-13.87	PASS
			1000~26500	6.13	-45.28	≤-13.87	PASS
		2480	Reference	5.57	5.57	---	PASS
			30~1000	5.57	-60.57	≤-14.43	PASS
			1000~26500	5.57	-44.75	≤-14.43	PASS
2DH5	Ant1	2402	Reference	3.74	3.74	---	PASS
			30~1000	3.74	-61.1	≤-16.26	PASS
			1000~26500	3.74	-45.69	≤-16.26	PASS
		2441	Reference	5.07	5.07	---	PASS
			30~1000	5.07	-60.48	≤-14.93	PASS
			1000~26500	5.07	-45.94	≤-14.93	PASS
		2480	Reference	3.03	3.03	---	PASS
			30~1000	3.03	-60.46	≤-16.97	PASS
			1000~26500	3.03	-45.77	≤-16.97	PASS
3DH5	Ant1	2402	Reference	6.29	6.29	---	PASS
			30~1000	6.29	-60.66	≤-13.71	PASS
			1000~26500	6.29	-45.52	≤-13.71	PASS
		2441	Reference	3.91	3.91	---	PASS
			30~1000	3.91	-60.4	≤-16.09	PASS
			1000~26500	3.91	-43.93	≤-16.09	PASS
		2480	Reference	4.11	4.11	---	PASS
			30~1000	4.11	-61.28	≤-15.89	PASS
			1000~26500	4.11	-46.18	≤-15.89	PASS



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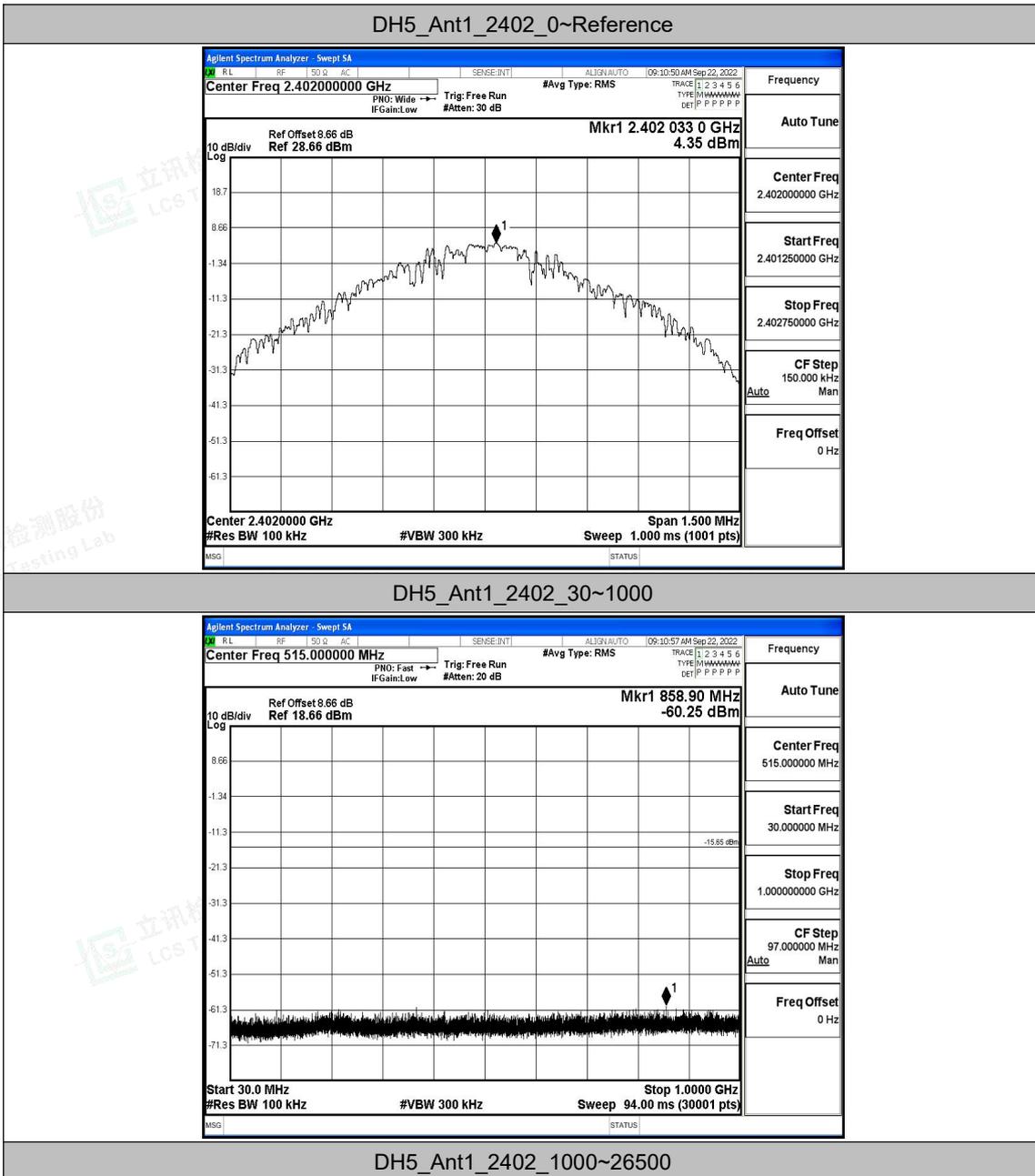
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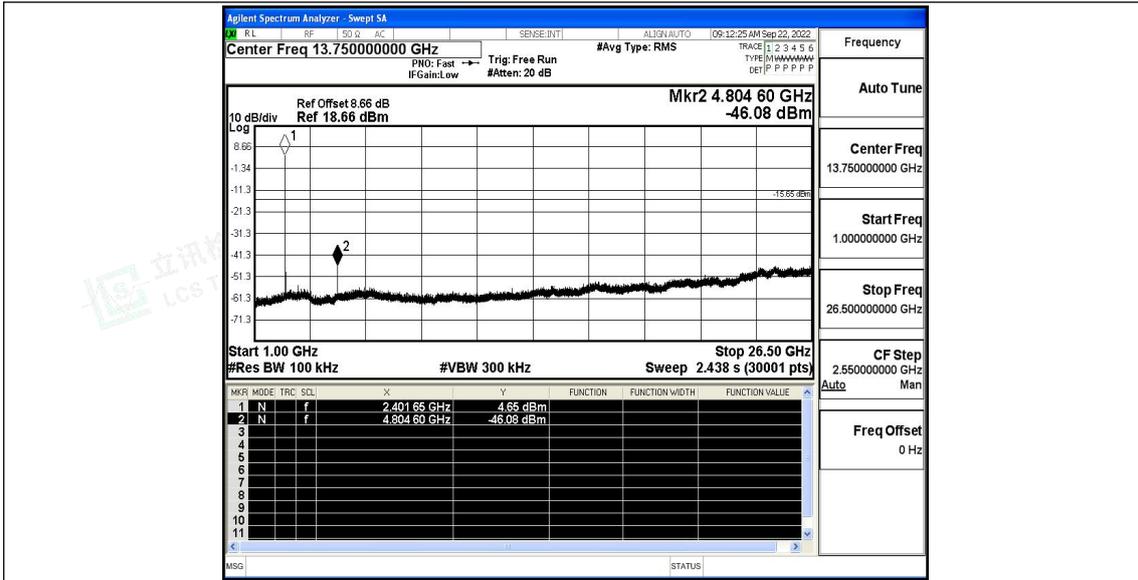
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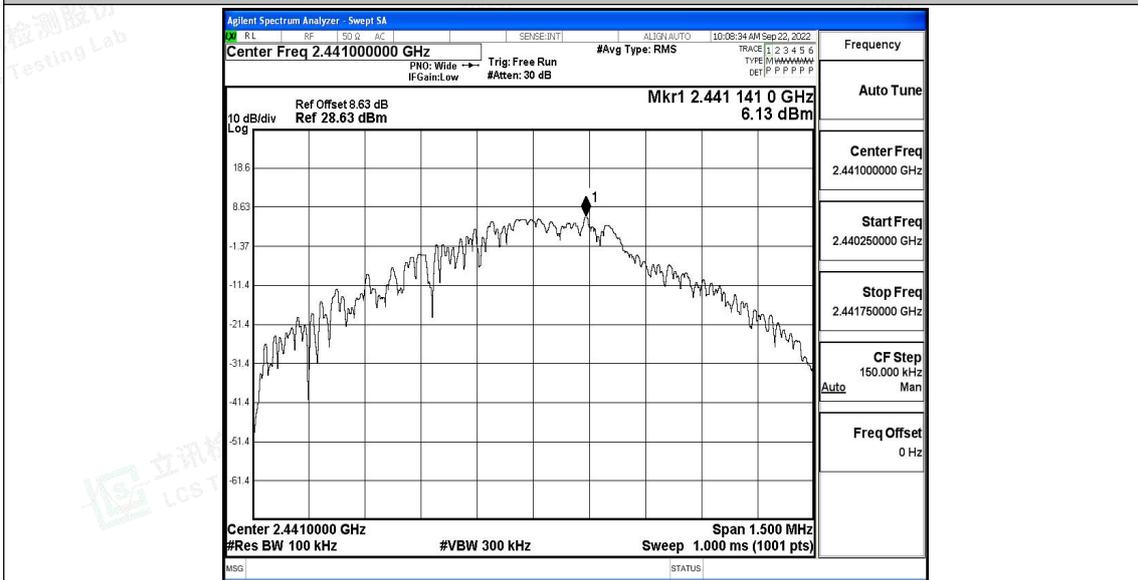


Test Graphs





DH5_Ant1_2441_0~Reference



DH5_Ant1_2441_30~1000

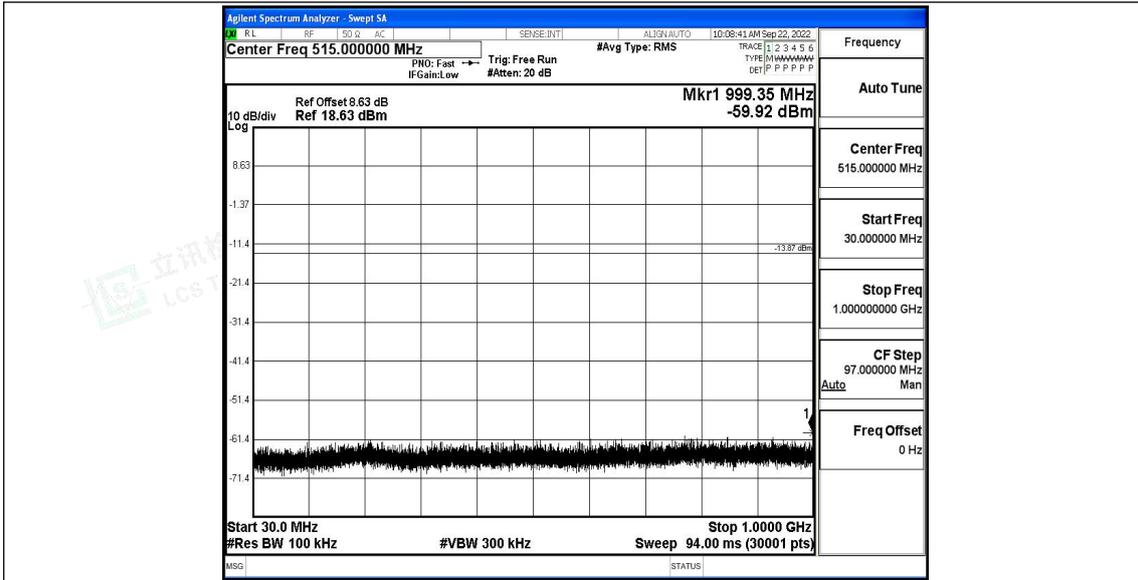


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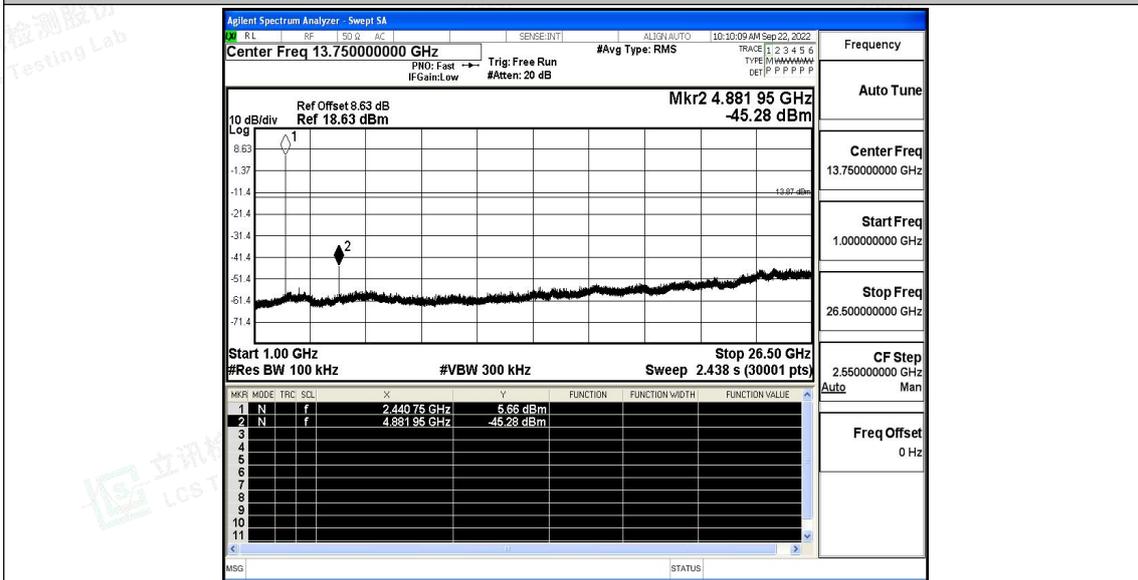
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DH5_Ant1_2441_1000~26500



DH5_Ant1_2480_0~Reference

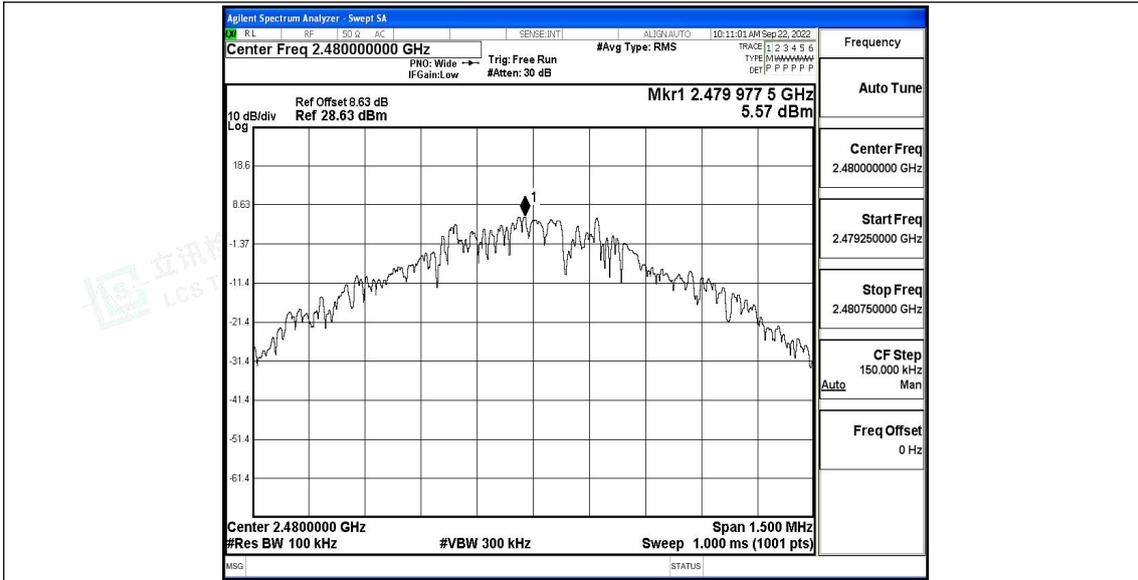


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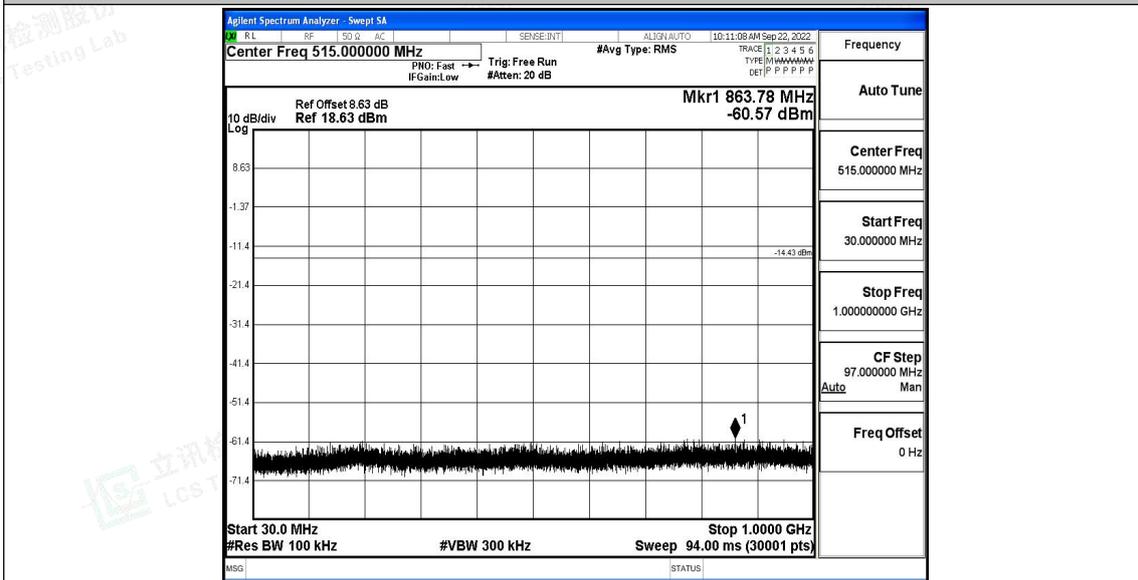
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DH5_Ant1_2480_30~1000



DH5_Ant1_2480_1000~26500

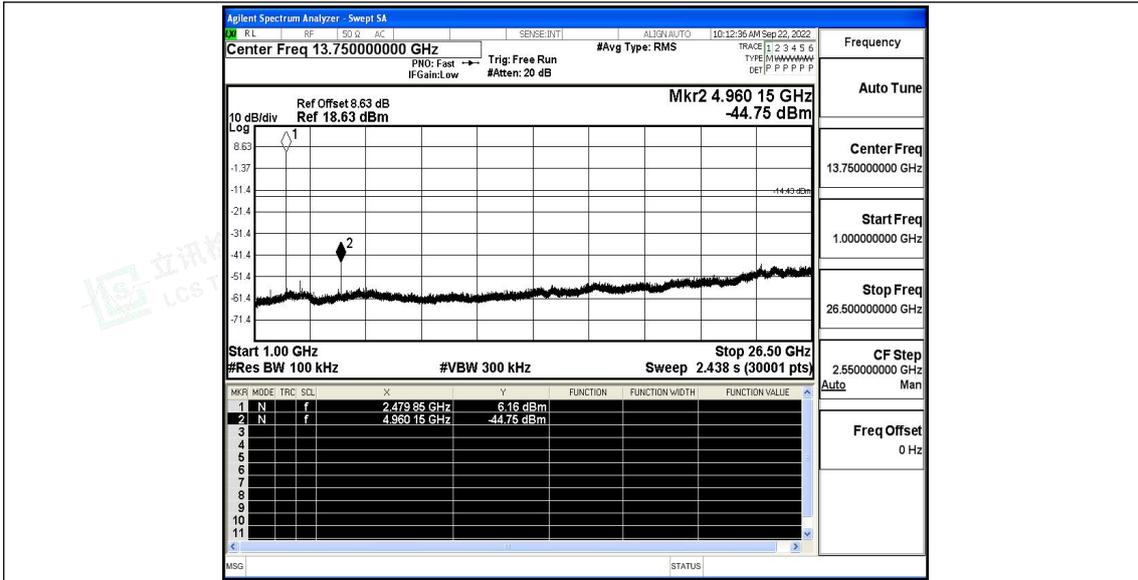


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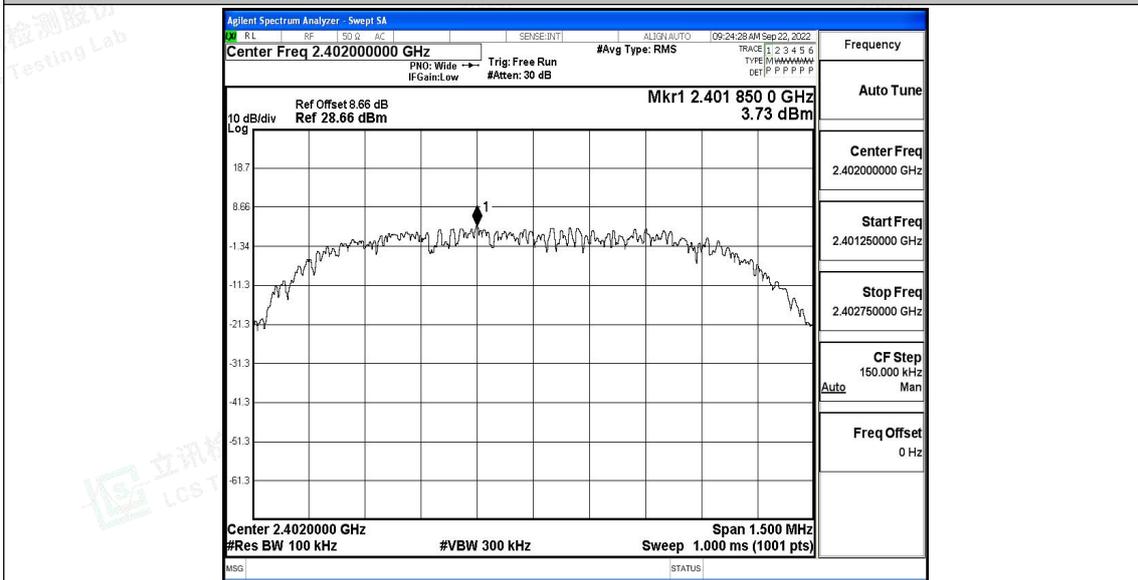
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2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000

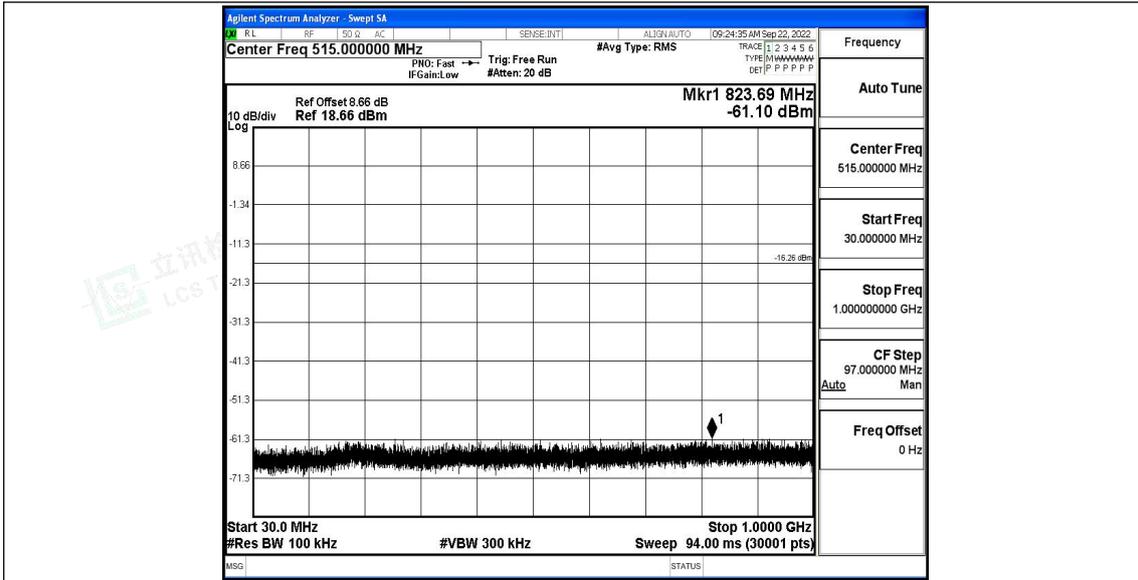


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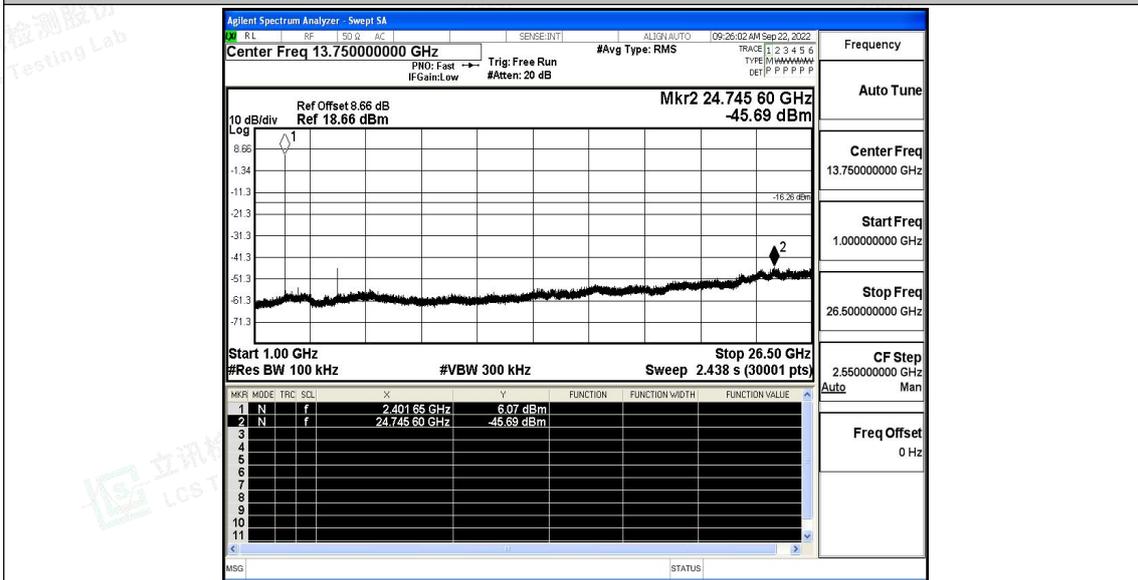
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2DH5_Ant1_2402_1000~26500



2DH5_Ant1_2441_0~Reference

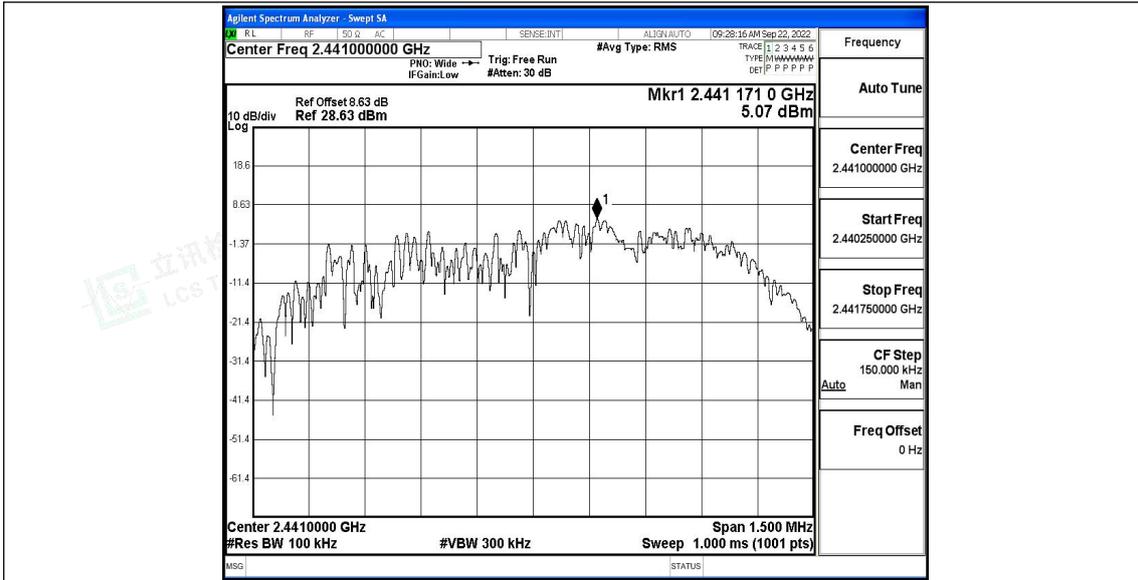


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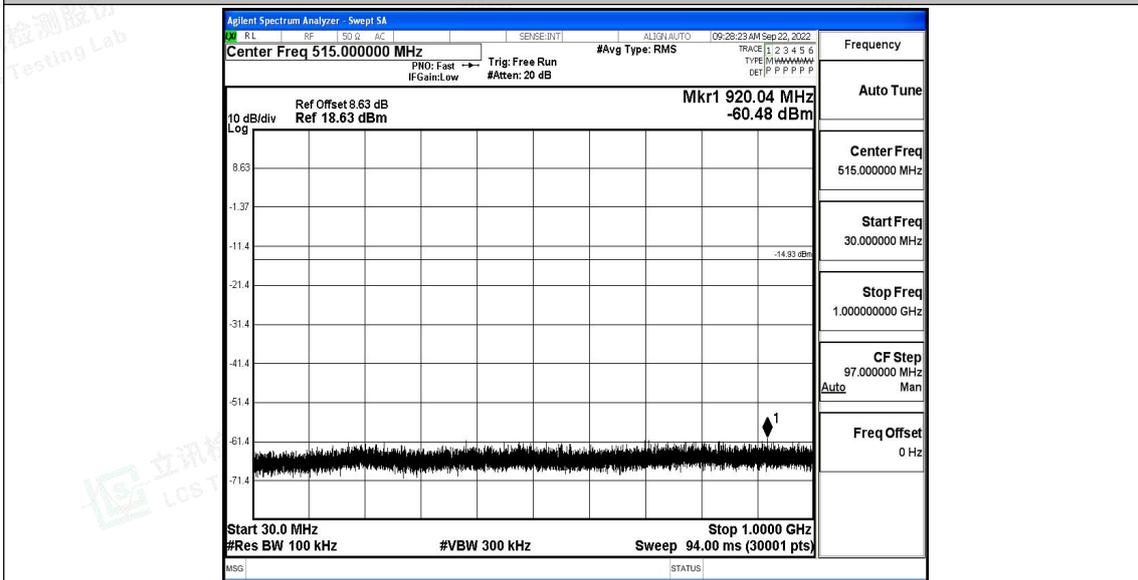
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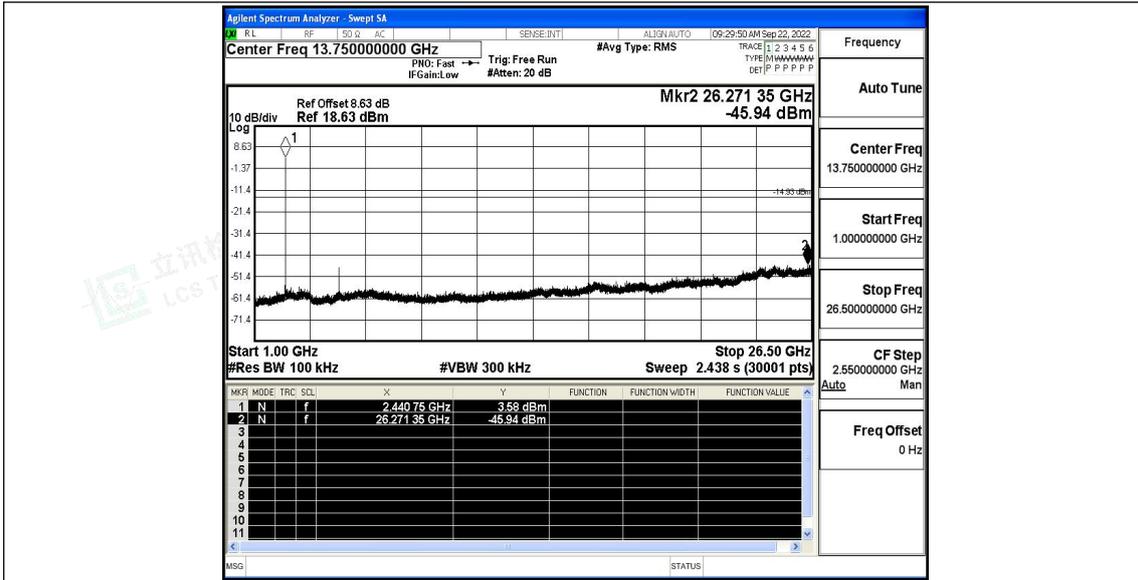


2DH5_Ant1_2441_30~1000

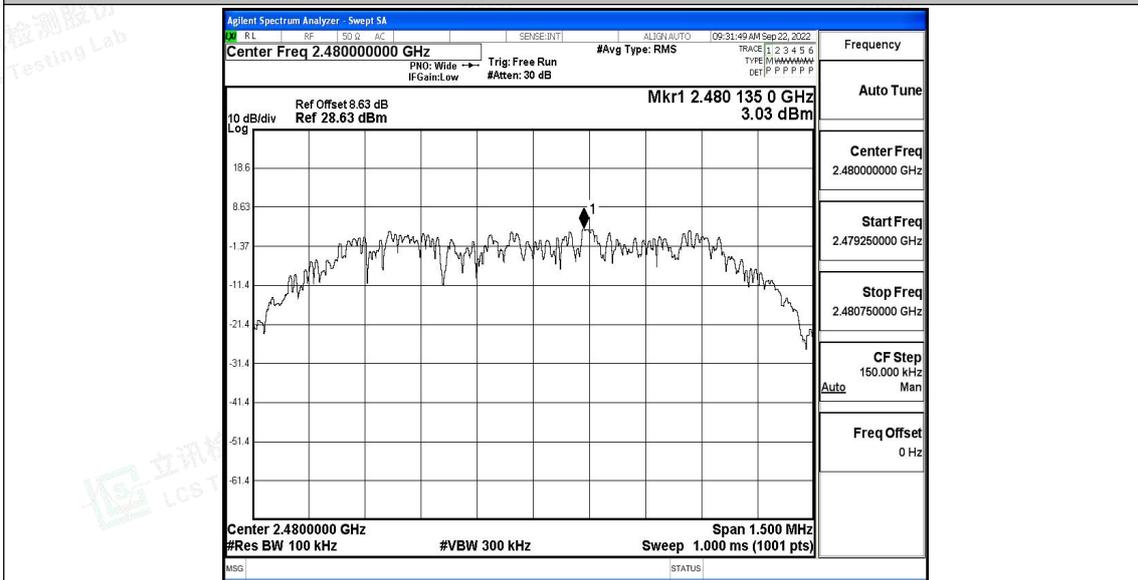


2DH5_Ant1_2441_1000~26500





2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000

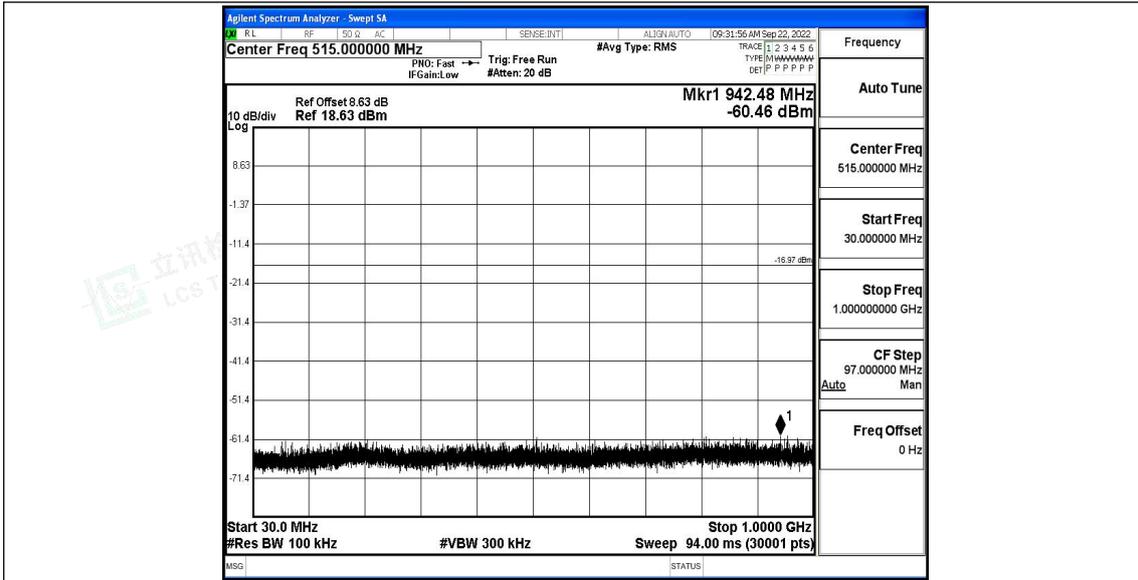


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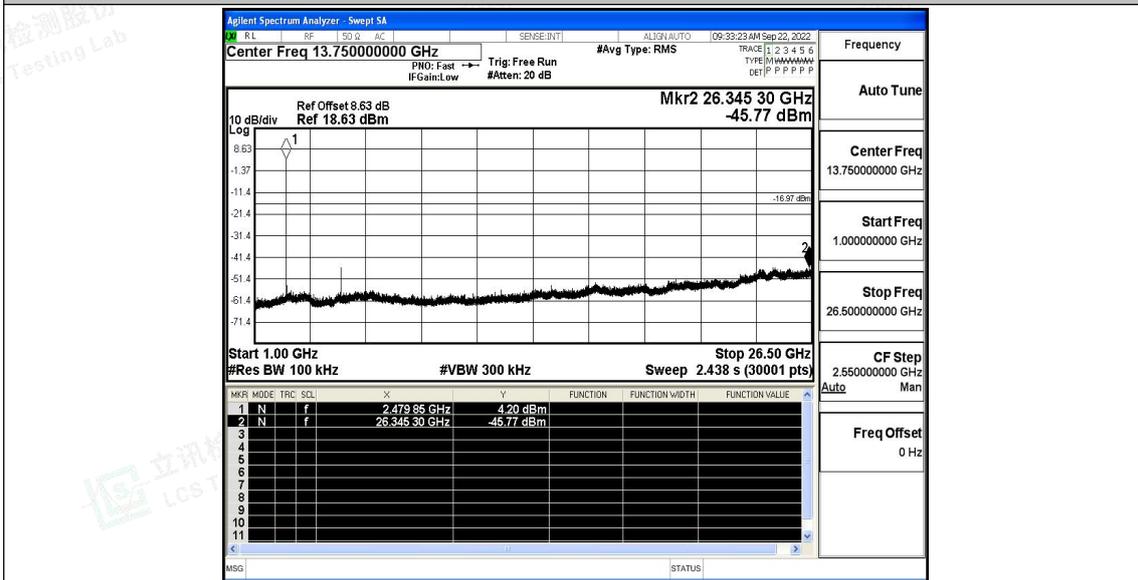
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2DH5_Ant1_2480_1000~26500



3DH5_Ant1_2402_0~Reference

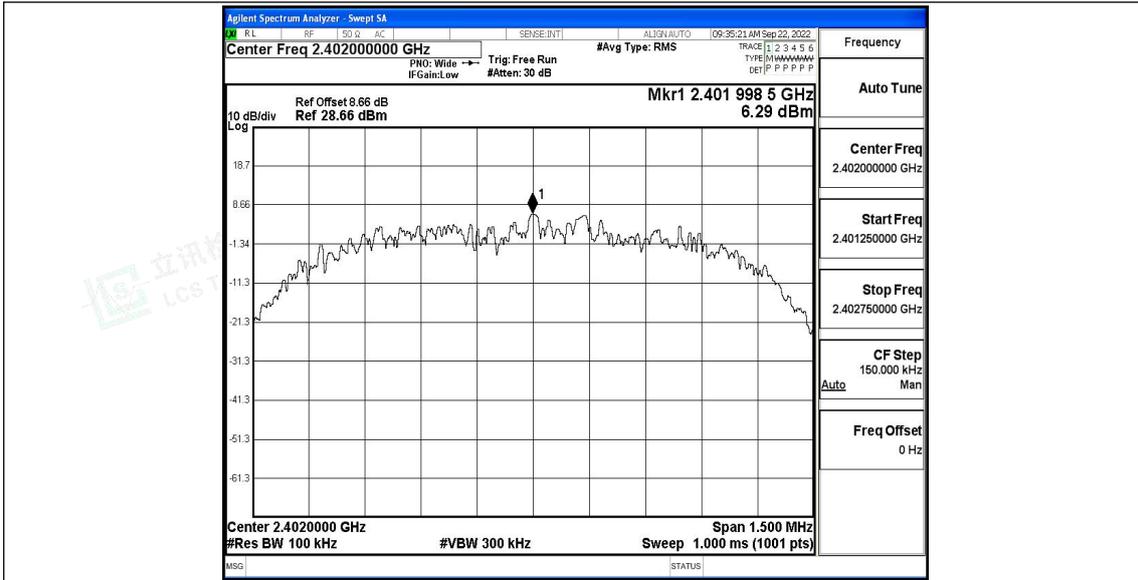


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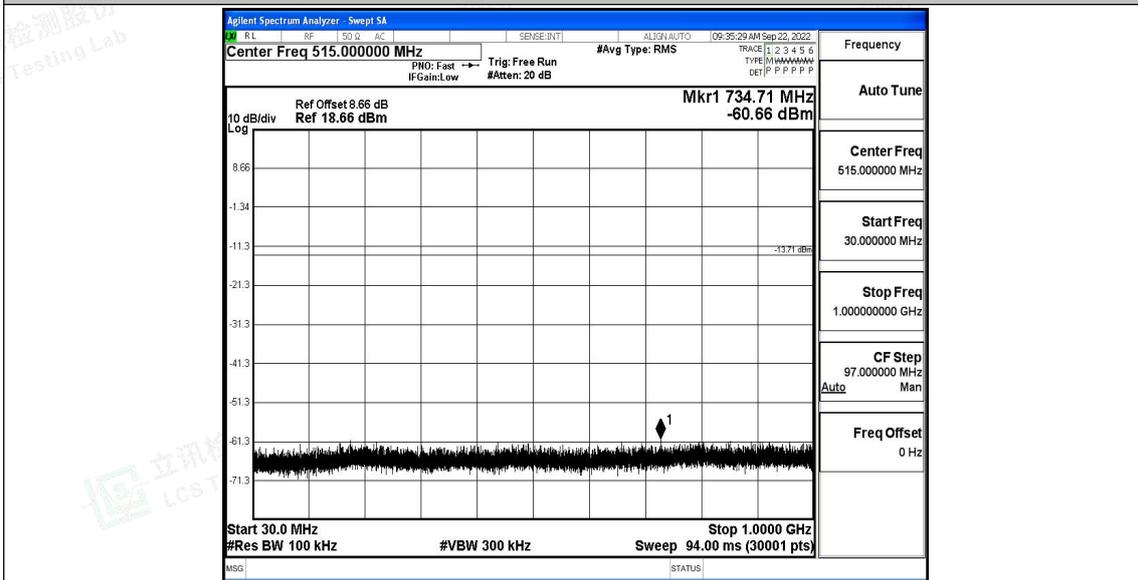
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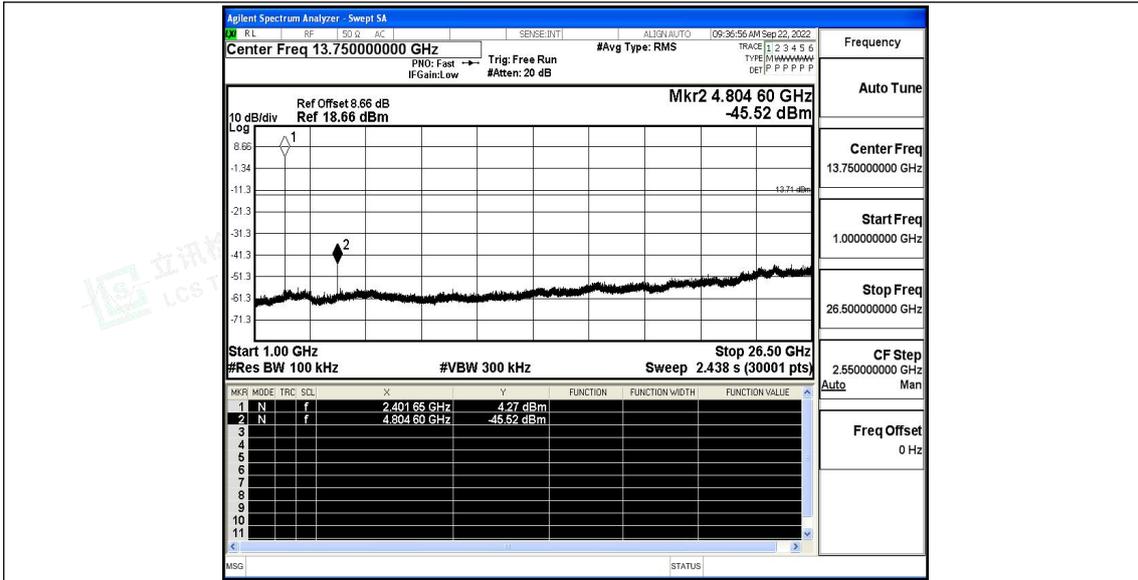


3DH5_Ant1_2402_30~1000

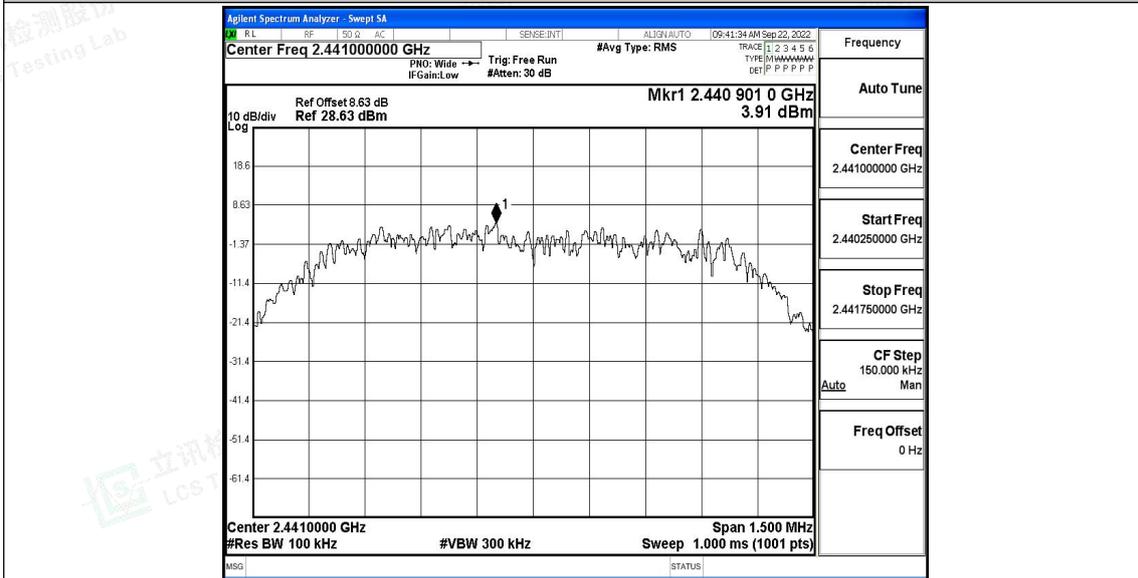


3DH5_Ant1_2402_1000~26500





3DH5_Ant1_2441_0~Reference



3DH5_Ant1_2441_30~1000

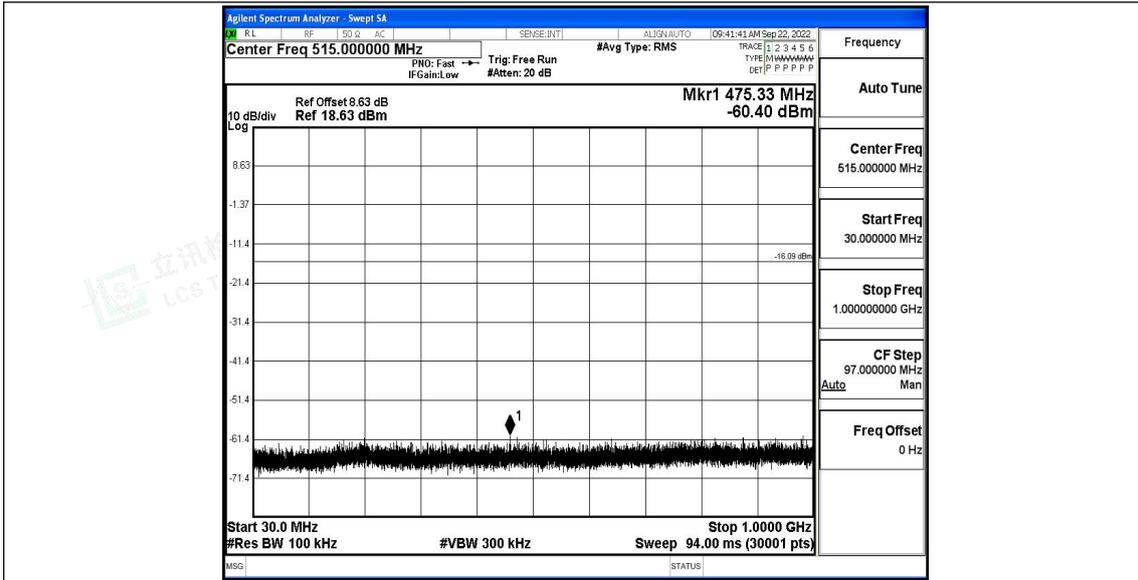


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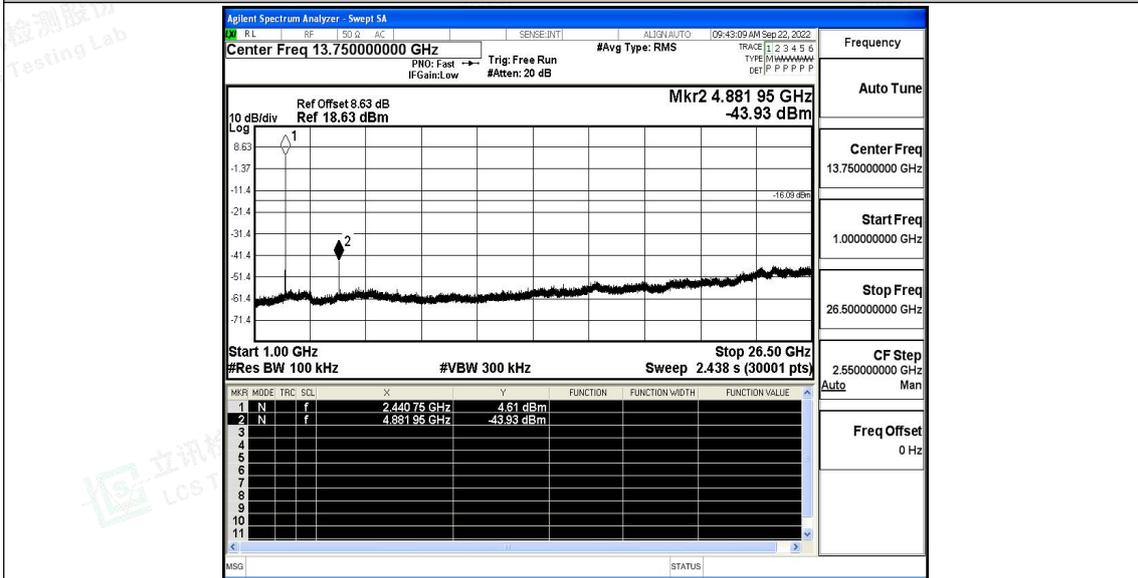
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3DH5_Ant1_2441_1000~26500



3DH5_Ant1_2480_0~Reference

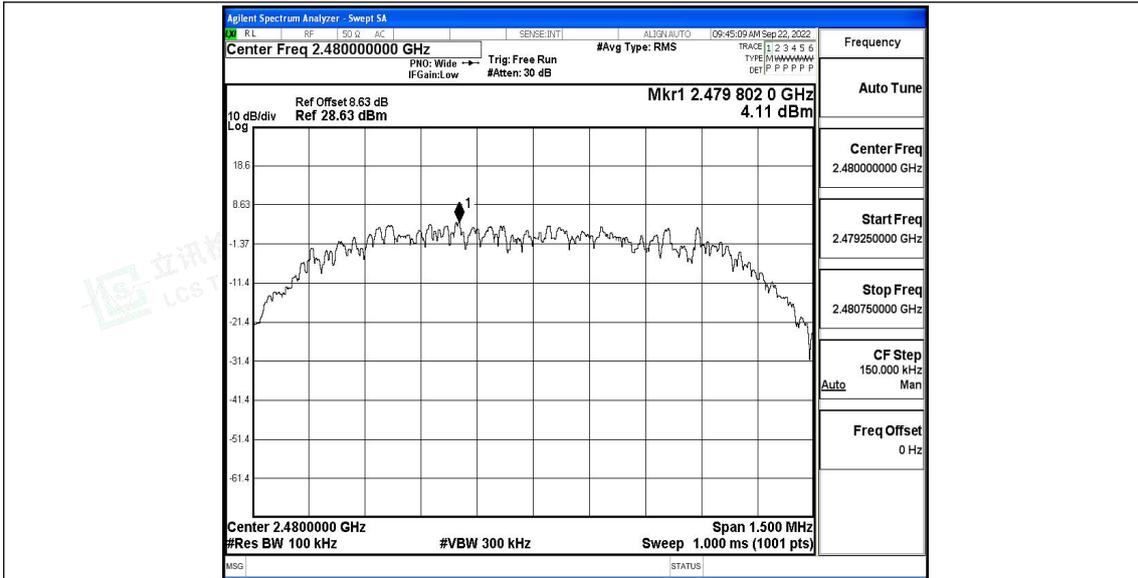


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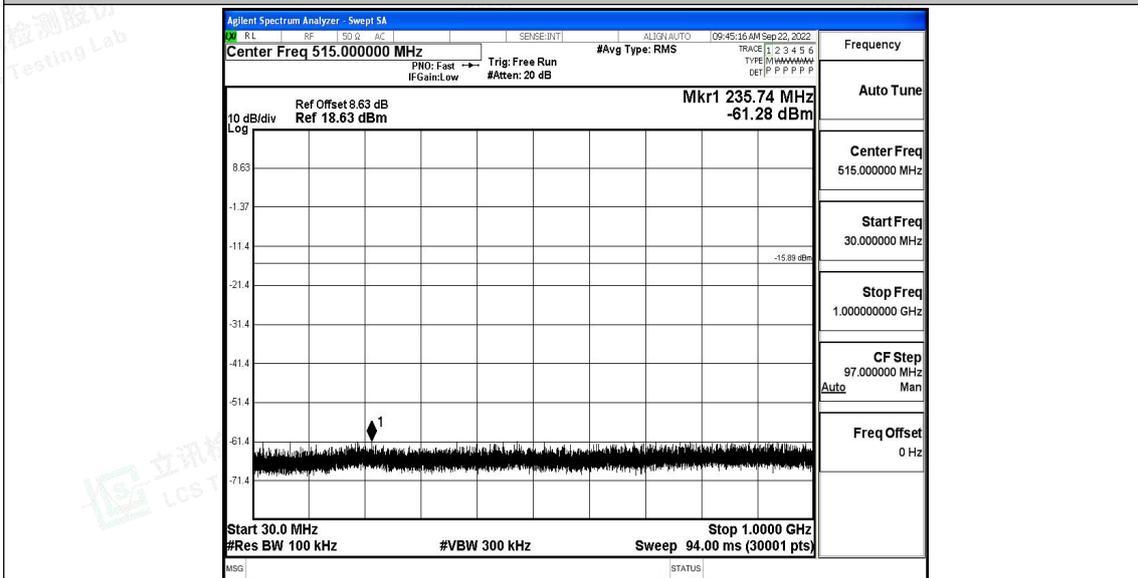
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3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500

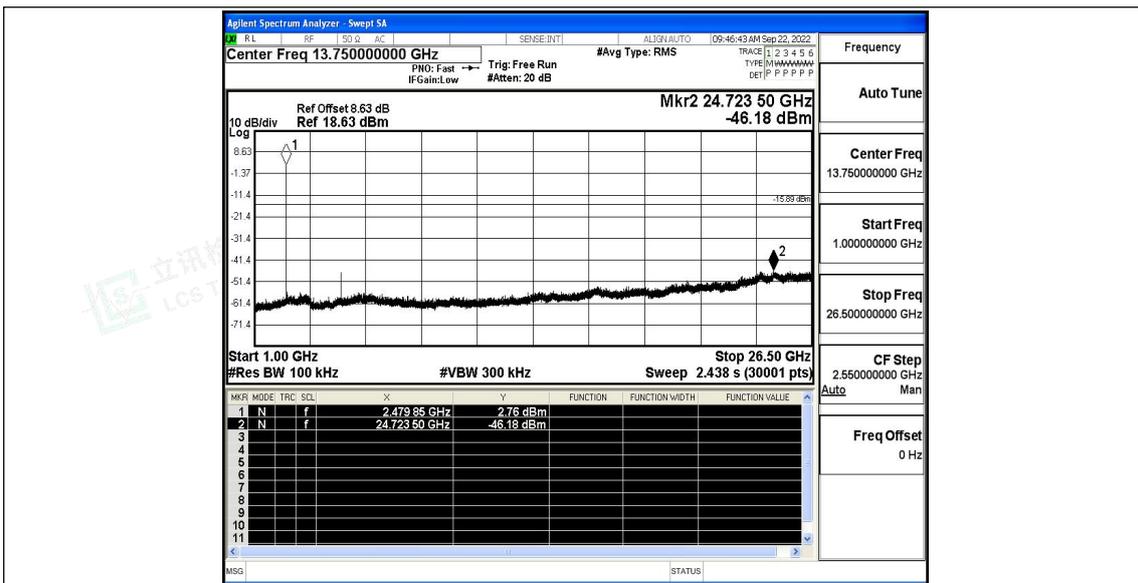


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A.8 Emissions in Restricted Bands

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	-58.05	≤-41.20	37.15	≤54	PASS
				AV	2378.330	-56.23	≤-41.20	38.97	≤54	PASS
				AV	2390.000	-56.38	≤-41.20	38.82	≤54	PASS
				Peak	2310.000	-51.03	≤-21.20	44.17	≤74	PASS
				Peak	2389.565	-47.58	≤-21.20	47.62	≤74	PASS
				Peak	2390.000	-50.45	≤-21.20	44.75	≤74	PASS
		High	2480	AV	2483.500	-50.34	≤-41.20	44.86	≤54	PASS
				AV	2483.520	-50.34	≤-41.20	44.86	≤54	PASS
				AV	2500.000	-56.5	≤-41.20	38.70	≤54	PASS
				Peak	2483.500	-46.5	≤-21.20	48.70	≤74	PASS
				Peak	2483.840	-46.27	≤-21.20	48.93	≤74	PASS
				Peak	2500.000	-52.11	≤-21.20	43.09	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-49.77	≤-21.20	45.43	≤74	PASS
				Peak	2381.900	-47.21	≤-21.20	47.99	≤74	PASS
				Peak	2390.000	-48.08	≤-21.20	47.12	≤74	PASS
		High	Hop_2480	Peak	2483.500	-47.37	≤-21.20	47.83	≤74	PASS
				Peak	2483.760	-45.53	≤-21.20	49.67	≤74	PASS
				Peak	2500.000	-47.98	≤-21.20	47.22	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-57.72	≤-41.20	37.48	≤54	PASS
				AV	2389.565	-55.49	≤-41.20	39.71	≤54	PASS
				AV	2390.000	-55.57	≤-41.20	39.63	≤54	PASS
				Peak	2310.000	-52.78	≤-21.20	42.42	≤74	PASS
				Peak	2389.460	-46.36	≤-21.20	48.84	≤74	PASS
				Peak	2390.000	-49.66	≤-21.20	45.54	≤74	PASS
		High	2480	AV	2483.500	-47.51	≤-41.20	47.69	≤54	PASS
				AV	2483.520	-47.51	≤-41.20	47.69	≤54	PASS
				AV	2500.000	-56.41	≤-41.20	38.79	≤54	PASS
				Peak	2483.500	-42.8	≤-21.20	52.40	≤74	PASS
				Peak	2483.520	-42.8	≤-21.20	52.40	≤74	PASS
				Peak	2500.000	-52.45	≤-21.20	42.75	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-49.13	≤-21.20	46.07	≤74	PASS
				Peak	2350.085	-46.95	≤-21.20	48.25	≤74	PASS
				Peak	2390.000	-49.13	≤-21.20	46.07	≤74	PASS
		High	Hop_2480	Peak	2483.500	-45.16	≤-21.20	50.04	≤74	PASS
				Peak	2483.680	-42.35	≤-21.20	52.85	≤74	PASS



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				Peak	2500.000	-48.47	≤-21.20	46.73	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-57.8	≤-41.20	37.40	≤54	PASS
				AV	2389.775	-55.56	≤-41.20	39.64	≤54	PASS
				AV	2390.000	-55.63	≤-41.20	39.57	≤54	PASS
				Peak	2310.000	-54.83	≤-21.20	40.37	≤74	PASS
				Peak	2369.615	-47.8	≤-21.20	47.40	≤74	PASS
				Peak	2390.000	-49.75	≤-21.20	45.45	≤74	PASS
		High	2480	AV	2483.500	-46.77	≤-41.20	48.43	≤54	PASS
				AV	2483.520	-46.77	≤-41.20	48.43	≤54	PASS
				AV	2500.000	-56.32	≤-41.20	38.88	≤54	PASS
				Peak	2483.500	-39.44	≤-21.20	55.76	≤74	PASS
				Peak	2483.600	-39.33	≤-21.20	55.87	≤74	PASS
				Peak	2500.000	-49.8	≤-21.20	45.40	≤74	PASS
	Low	Hop_24 02	Peak	2310.000	-49.37	≤-21.20	45.83	≤74	PASS	
			Peak	2384.420	-47.04	≤-21.20	48.16	≤74	PASS	
			Peak	2390.000	-48.3	≤-21.20	46.90	≤74	PASS	
	High	Hop_24 80	Peak	2483.500	-38.42	≤-21.20	56.78	≤74	PASS	
			Peak	2500.000	-47.29	≤-21.20	47.91	≤74	PASS	

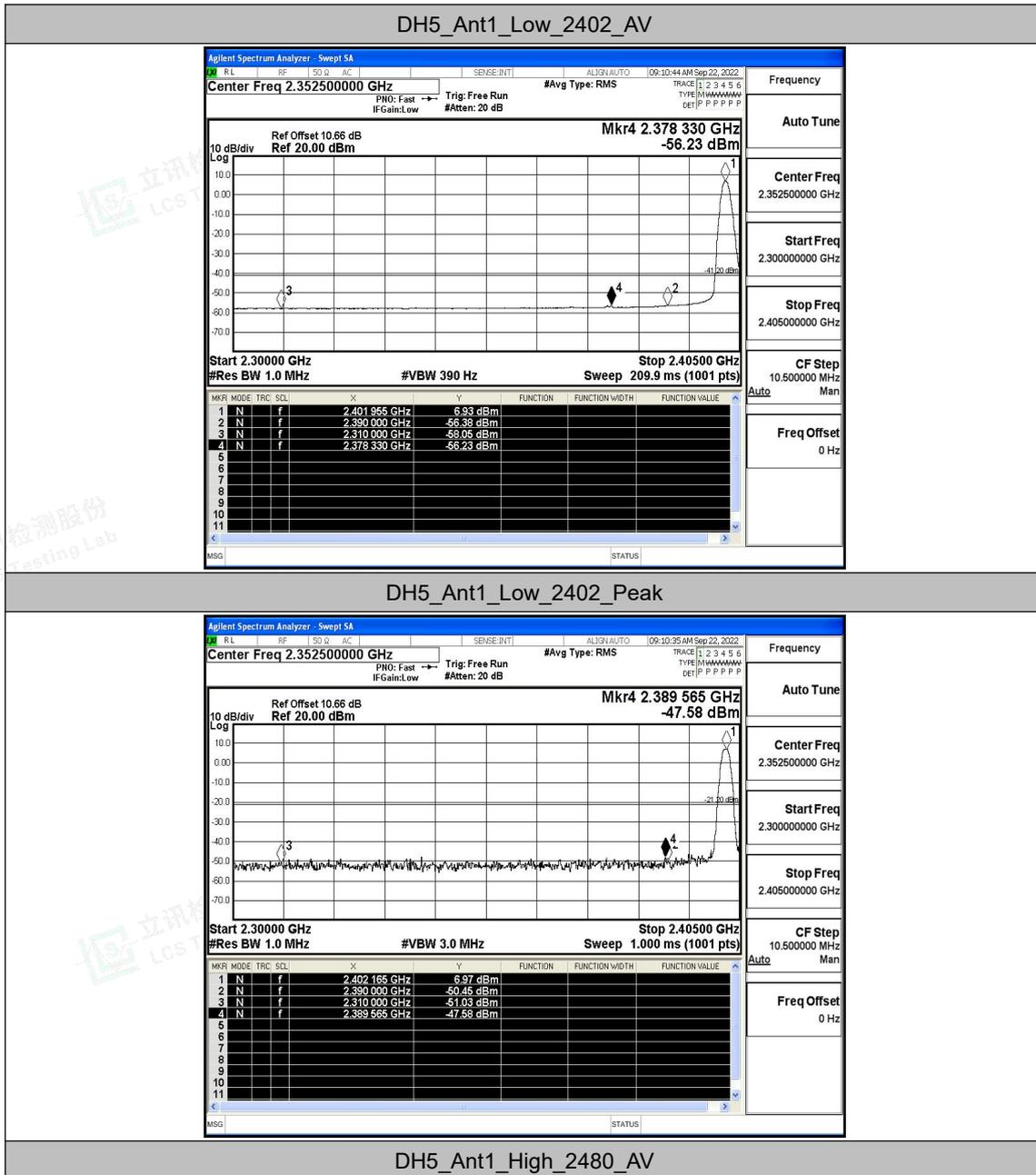
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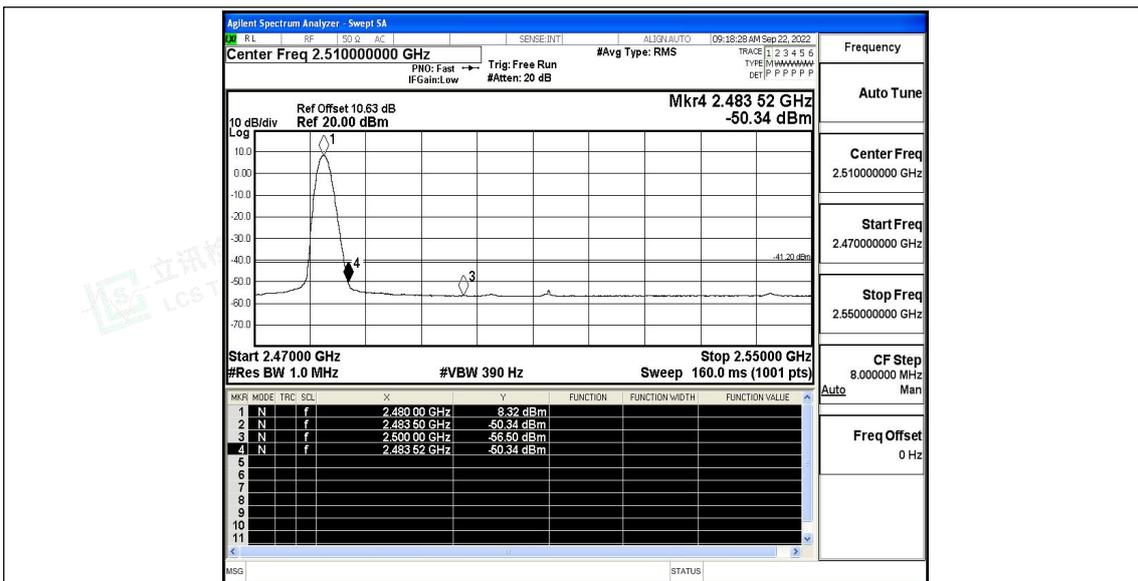
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



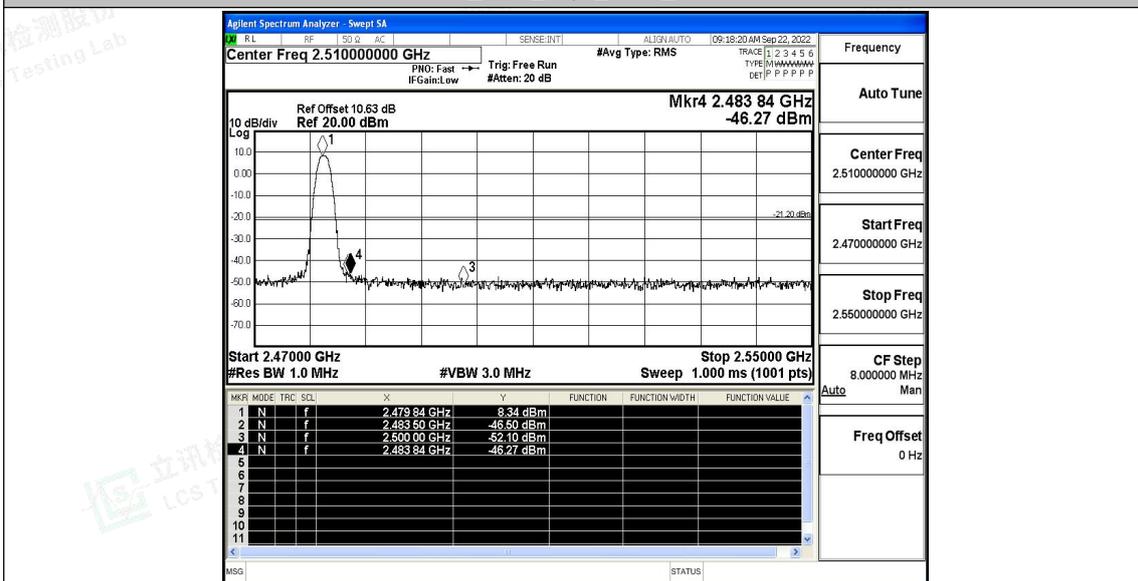


Test Graphs



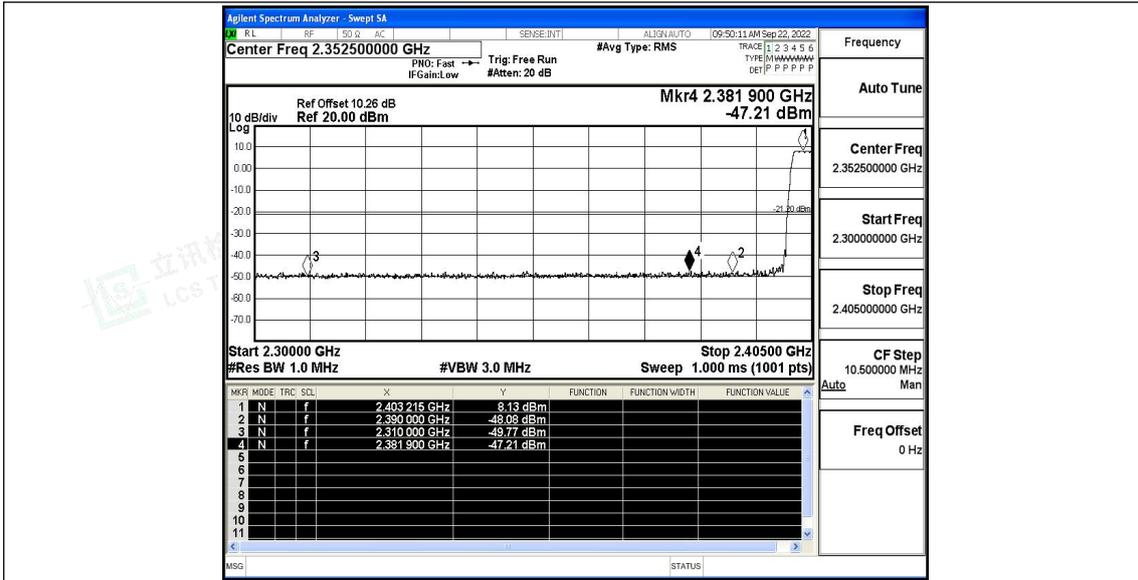


DH5_Ant1_High_2480_Peak

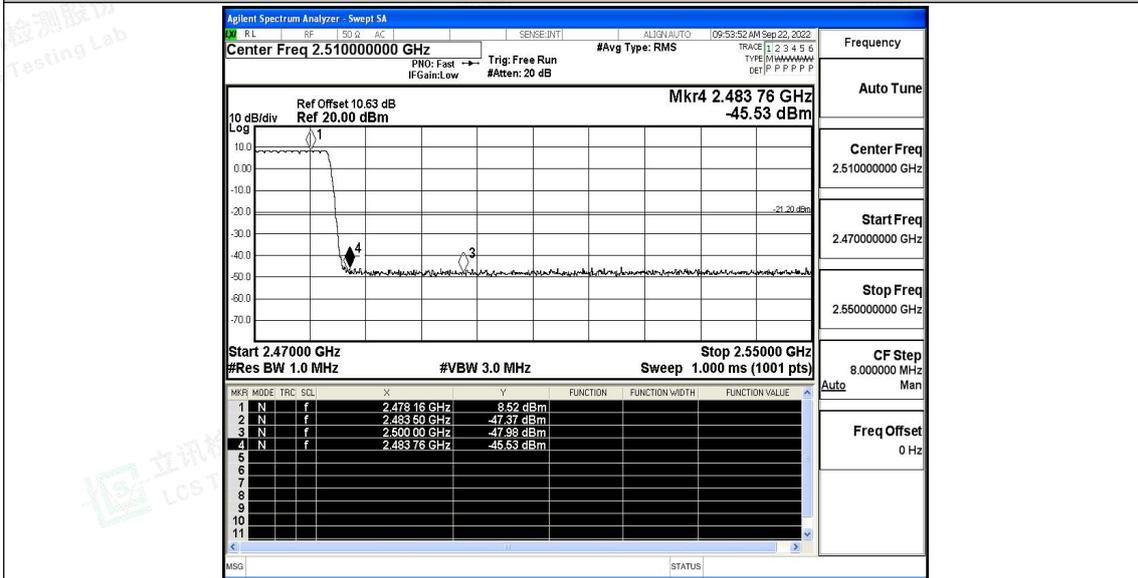


DH5_Ant1_Low_Hop_2402_Peak





DH5_Ant1_High_Hop_2480_Peak



2DH5_Ant1_Low_2402_AV

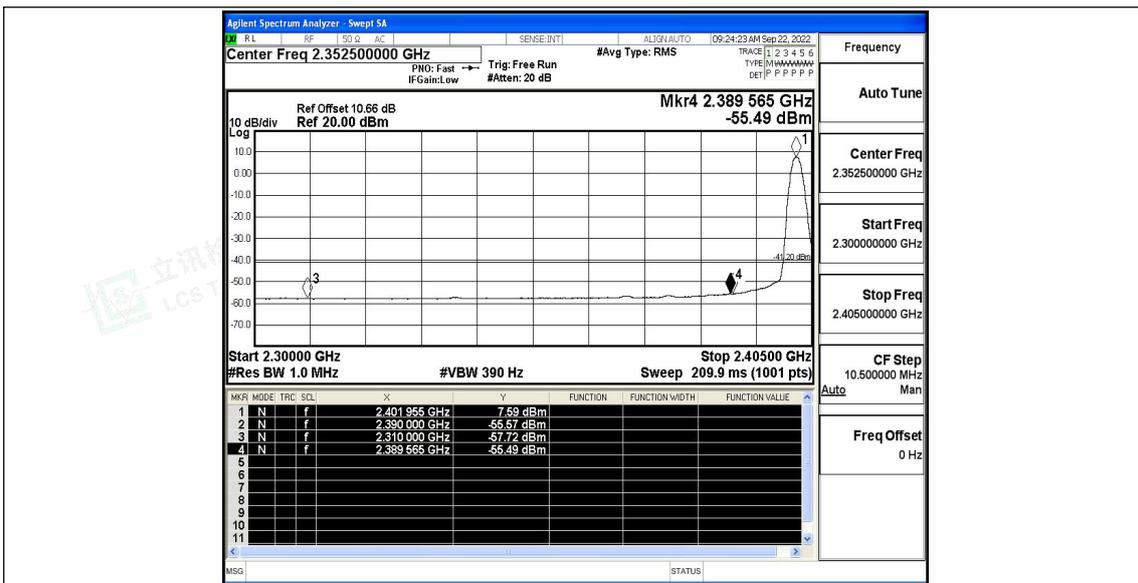


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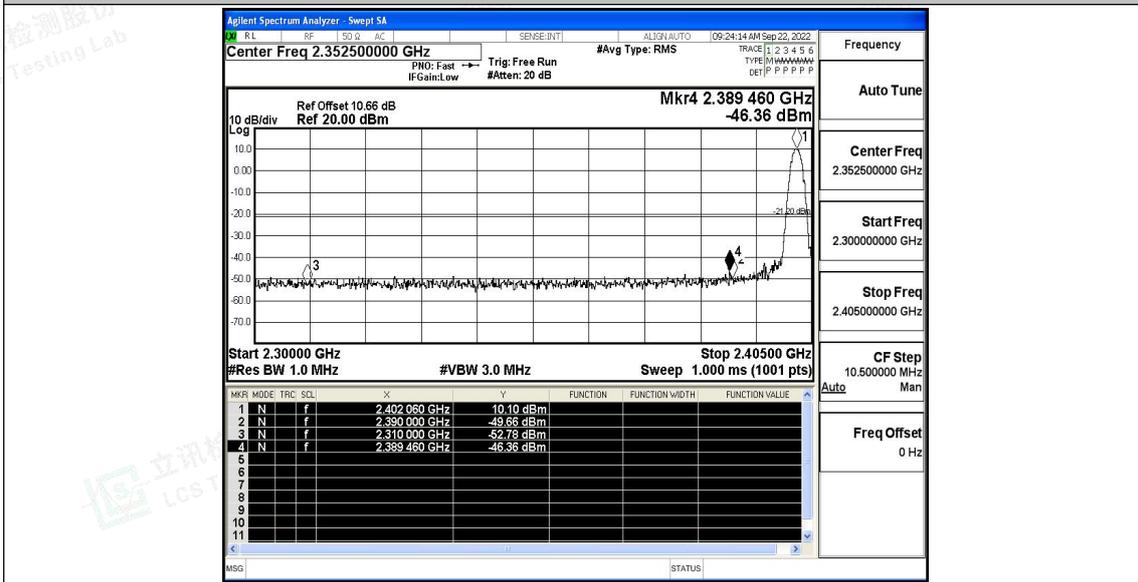
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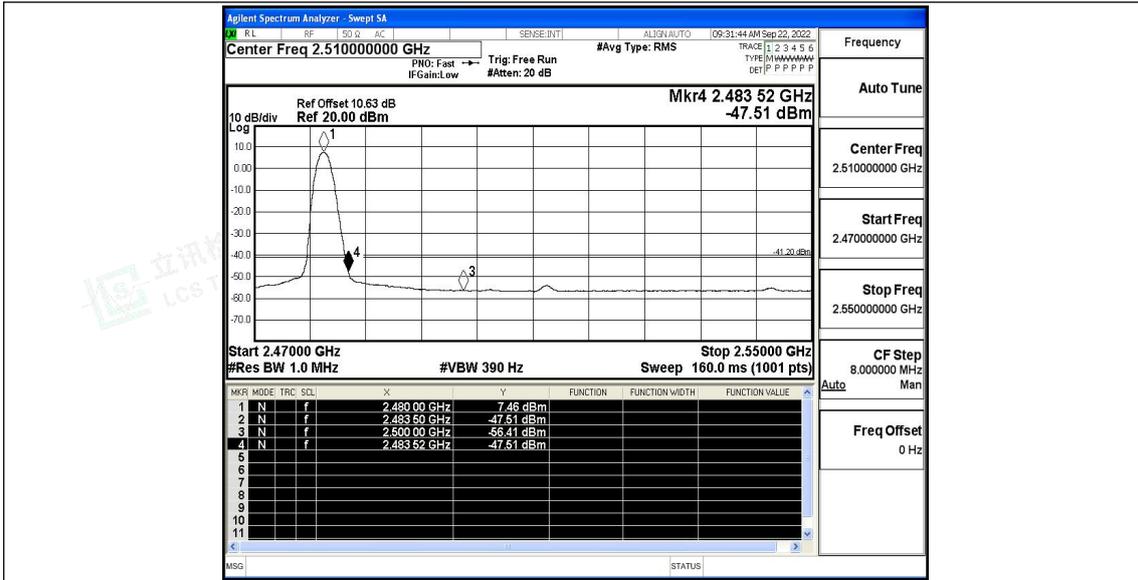


2DH5_Ant1_Low_2402_Peak

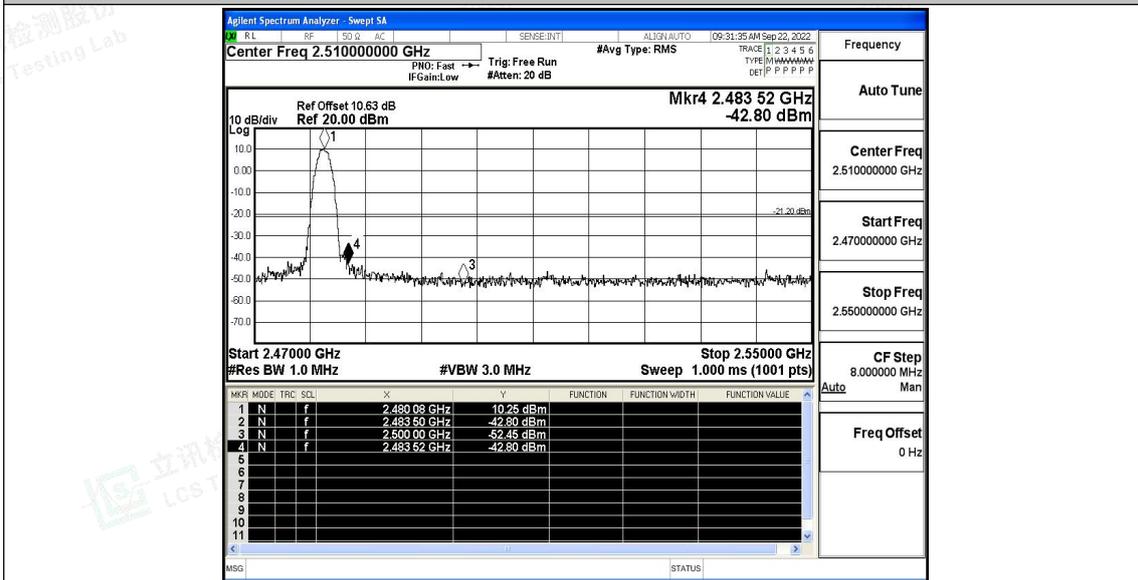


2DH5_Ant1_High_2480_AV





2DH5_Ant1_High_2480_Peak



2DH5_Ant1_Low_Hop_2402_Peak

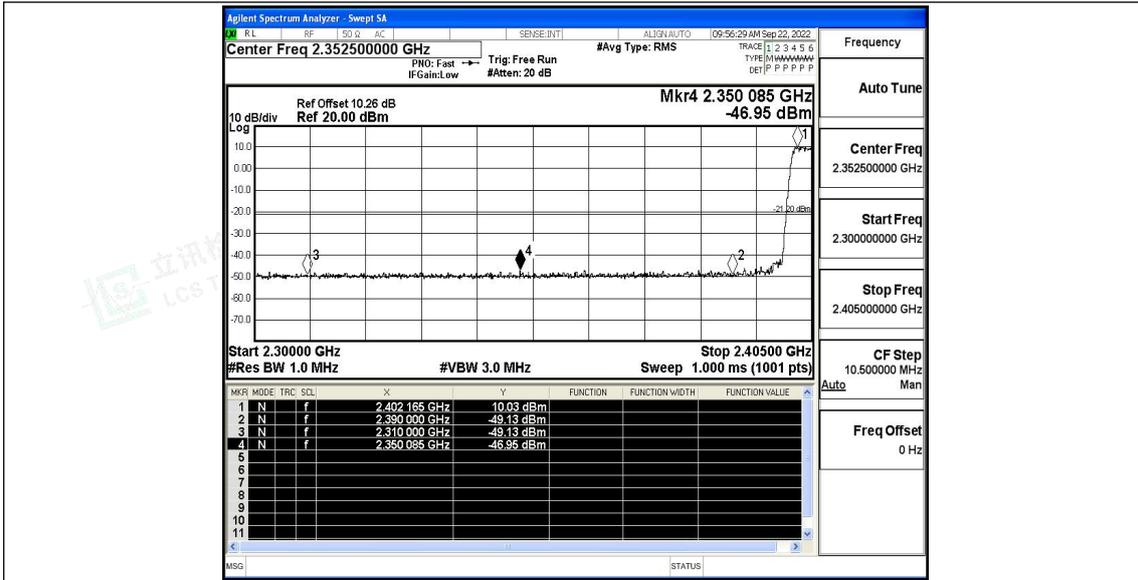


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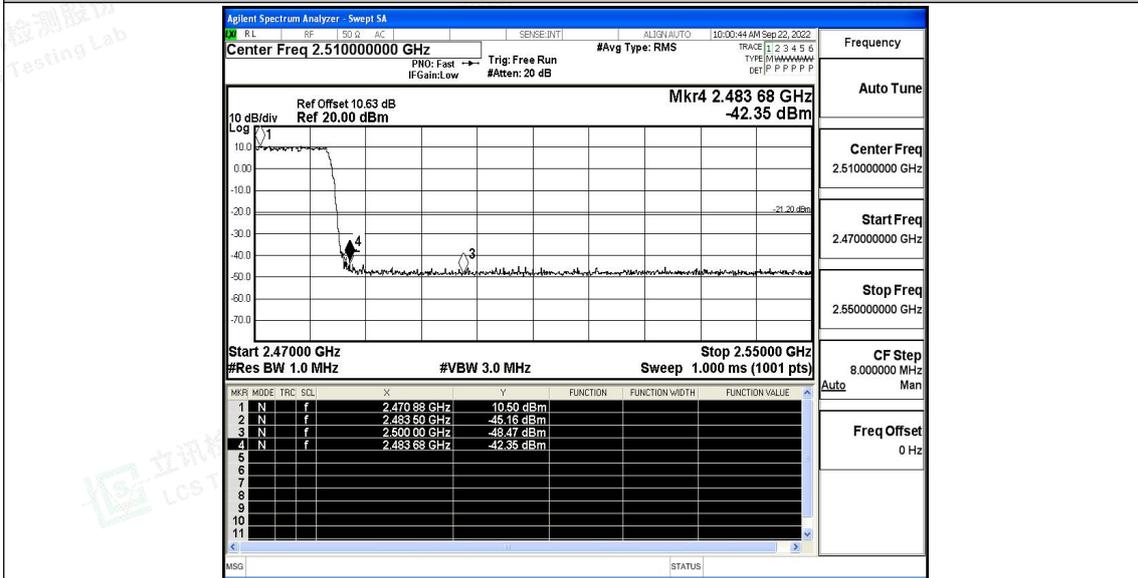
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2DH5_Ant1_High_Hop_2480_Peak



3DH5_Ant1_Low_2402_AV

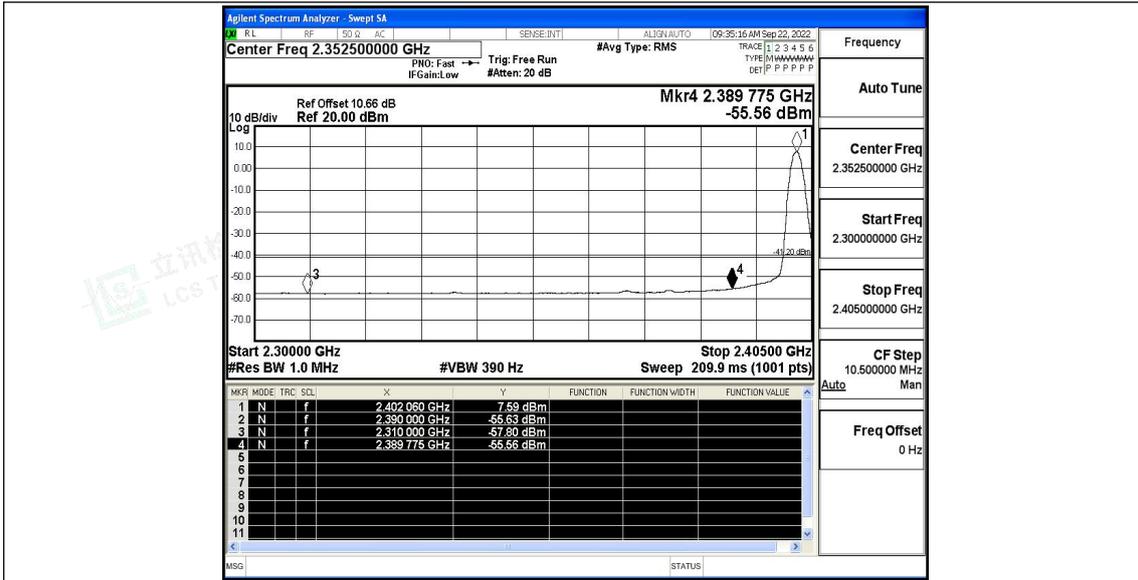


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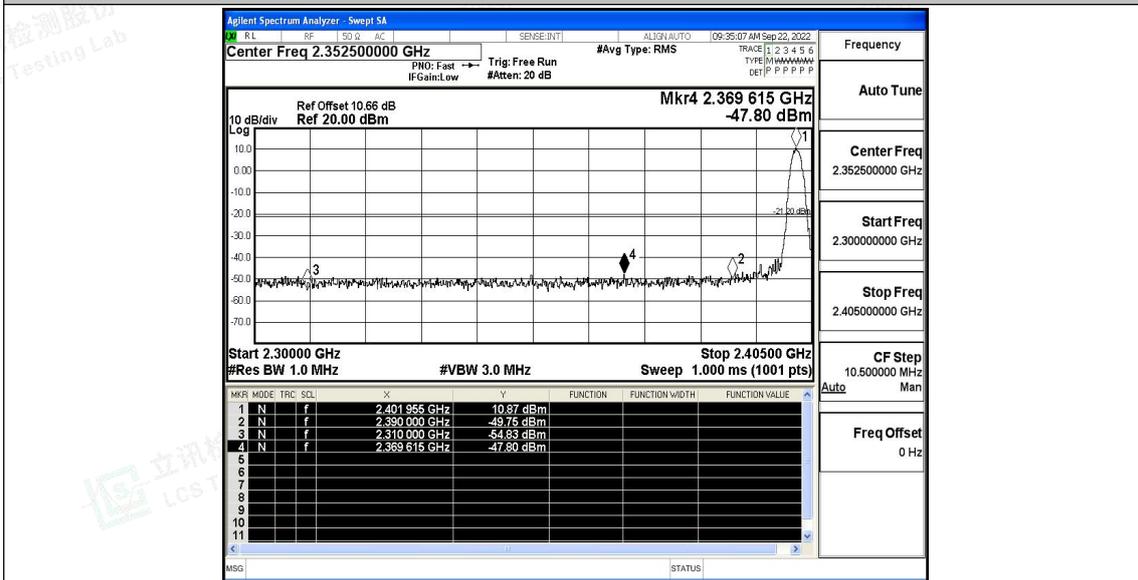
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3DH5_Ant1_Low_2402_Peak



3DH5_Ant1_High_2480_AV

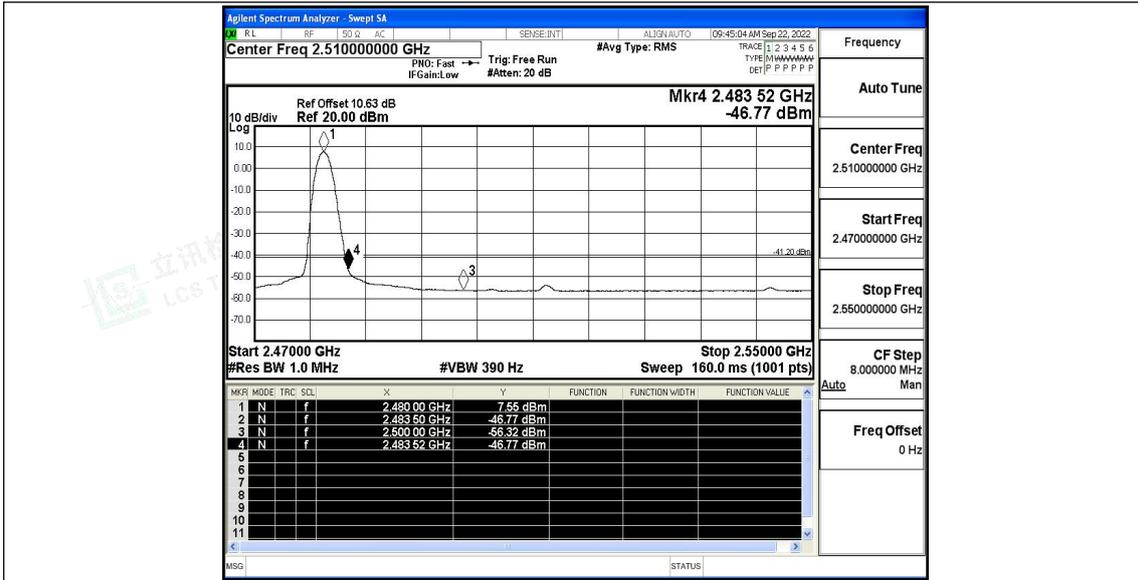


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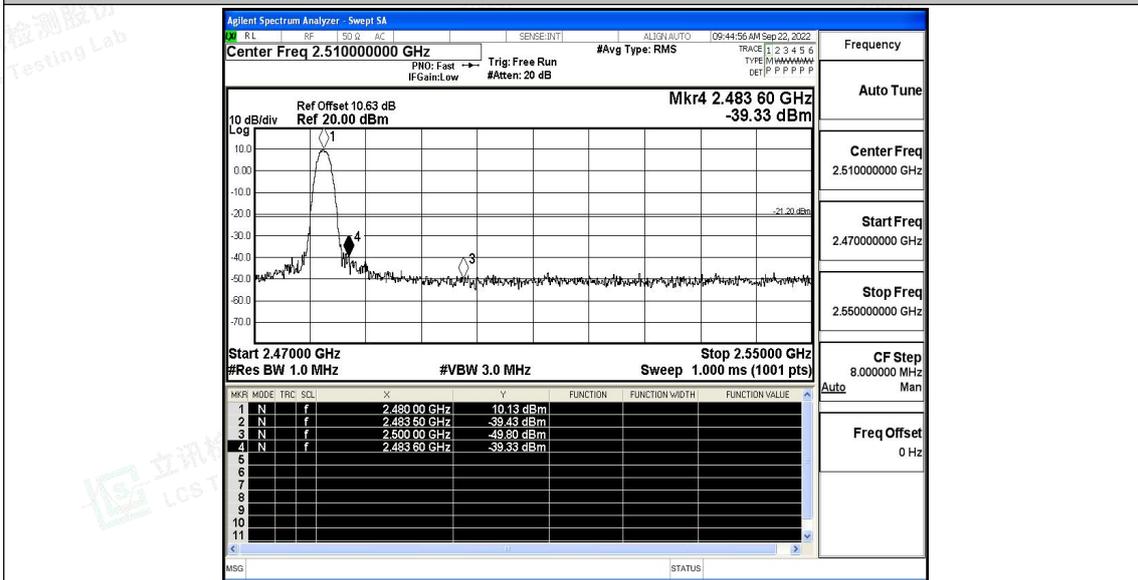
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3DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_Hop_2402_Peak

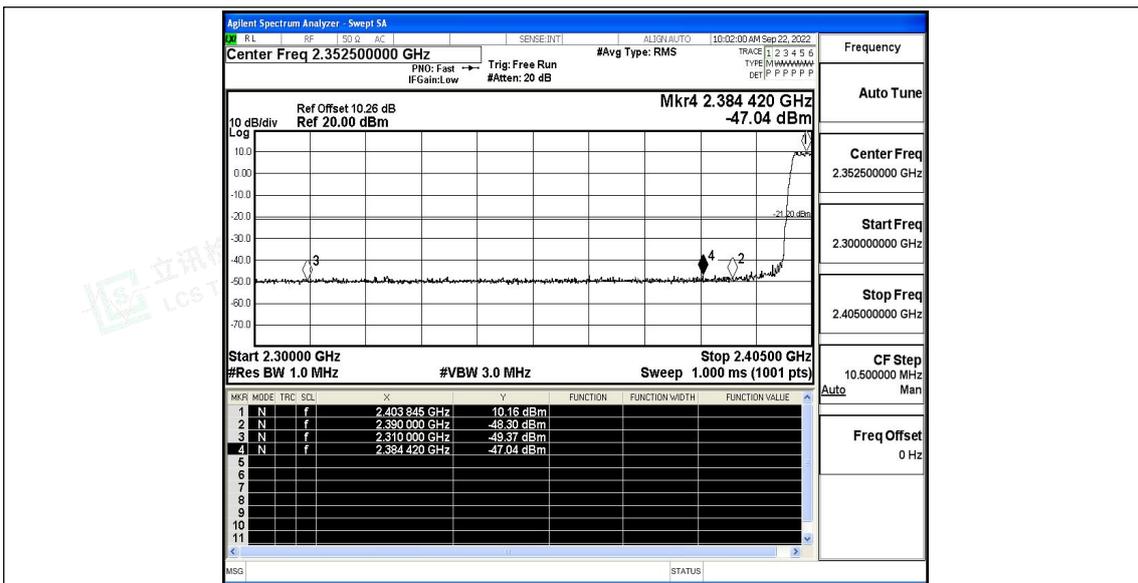


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3DH5_Ant1_High_Hop_2480_Peak

