



## Appendix B

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

Product Name: Laptop

Test Model: HPPLP10

#### Environmental Conditions

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





### B.1 -6dB Bandwidth

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant0	2402	0.636	2401.676	2402.312	0.5	PASS
		2440	0.636	2439.672	2440.308	0.5	PASS
		2480	0.644	2479.668	2480.312	0.5	PASS
BLE_2M	Ant0	2402	1.124	2401.444	2402.568	0.5	PASS
		2440	1.128	2439.436	2440.564	0.5	PASS
		2480	1.132	2479.436	2480.568	0.5	PASS

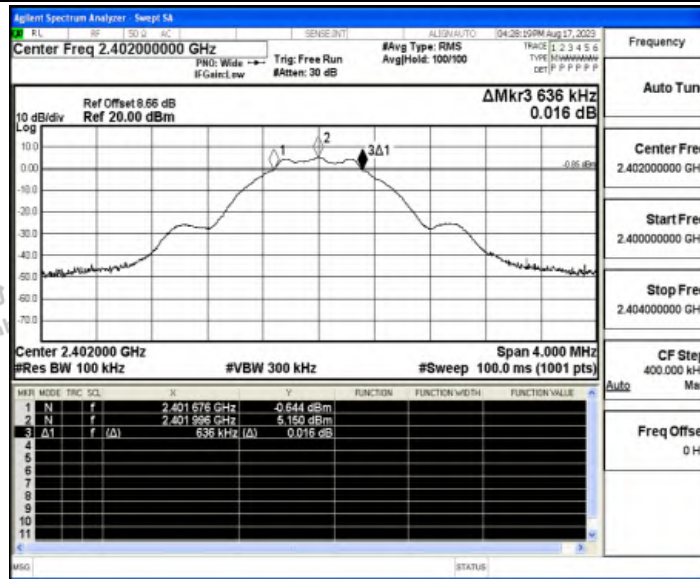


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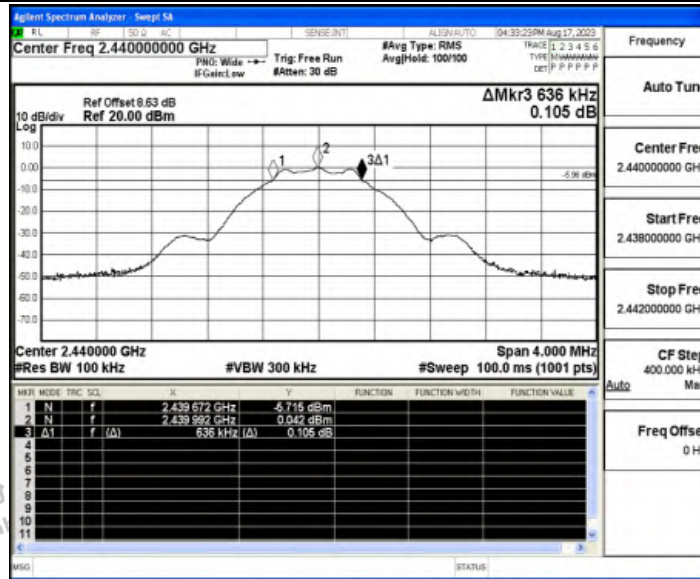


### Test Graphs

BLE\_1M\_Ant0\_2402

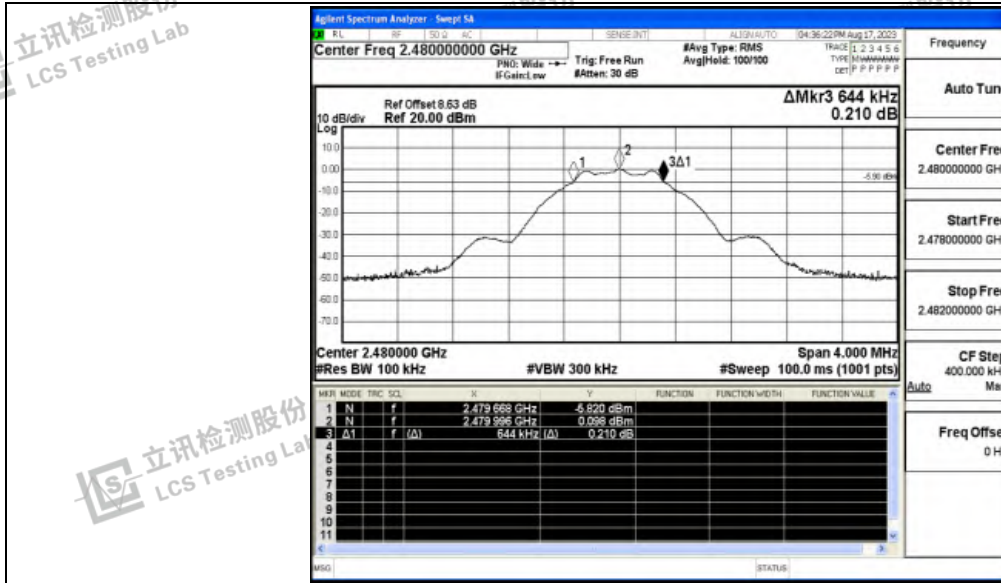


BLE\_1M\_Ant0\_2440

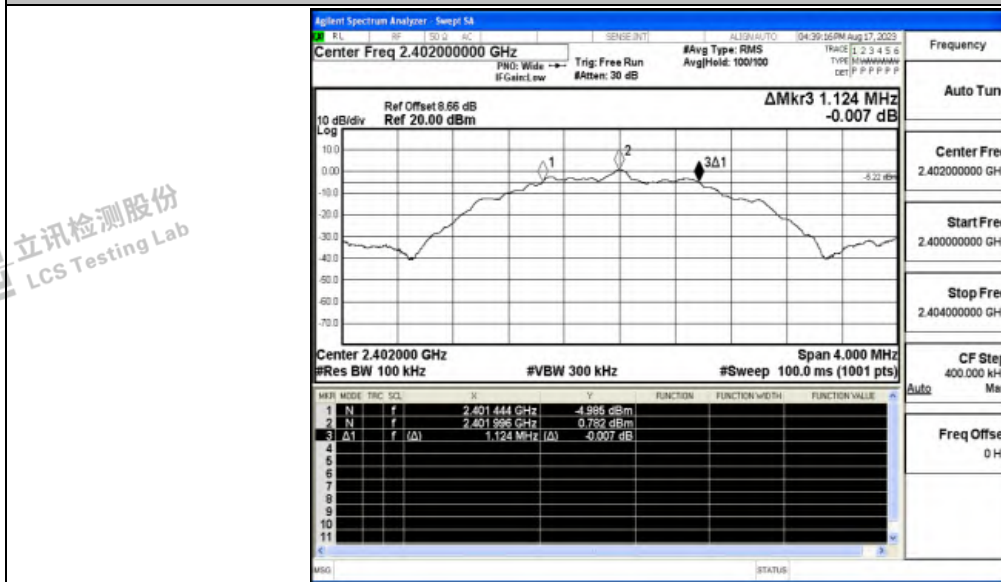


BLE\_1M\_Ant0\_2480



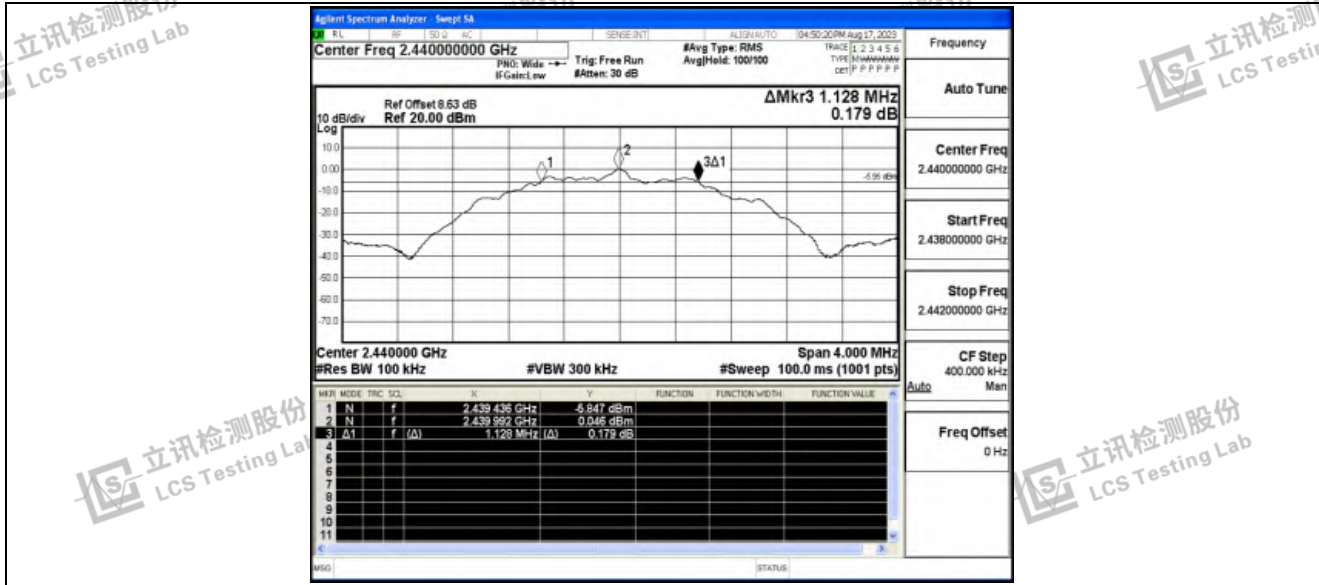


BLE\_2M\_Ant0\_2402

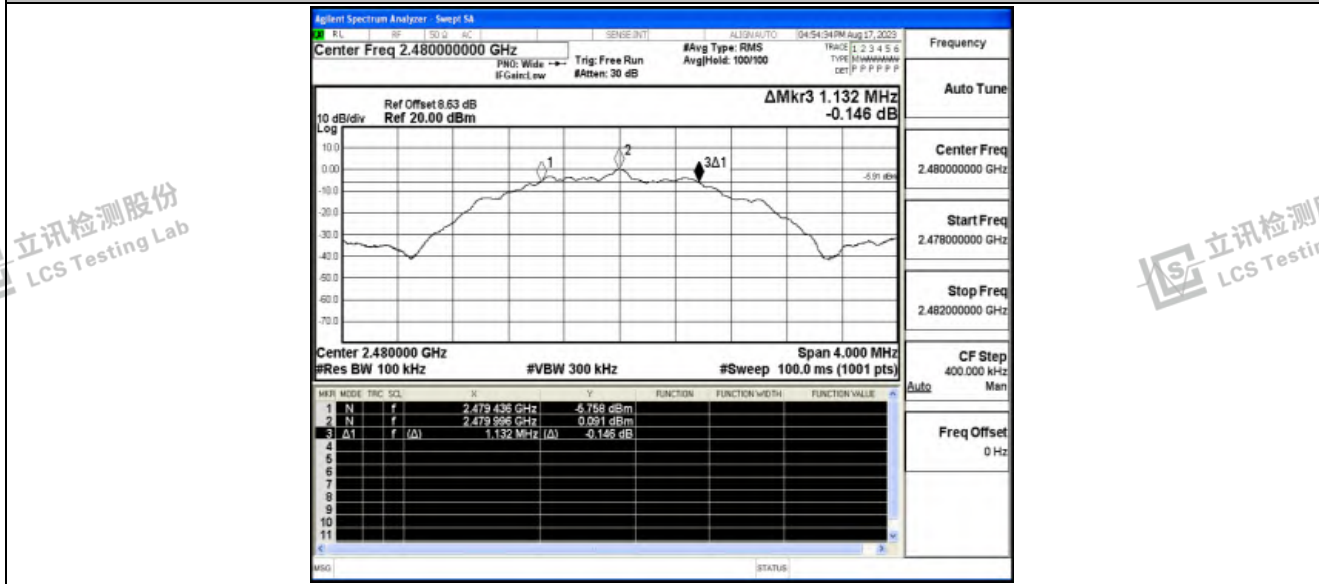


BLE\_2M\_Ant0\_2440





BLE\_2M\_Ant0\_2480



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## B.2 Maximum Conducted Output Power

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	2402	0.95	≤30	PASS
		2440	0.19	≤30	PASS
		2480	0.26	≤30	PASS
BLE_2M	Ant0	2402	0.99	≤30	PASS
		2440	0.25	≤30	PASS
		2480	0.27	≤30	PASS





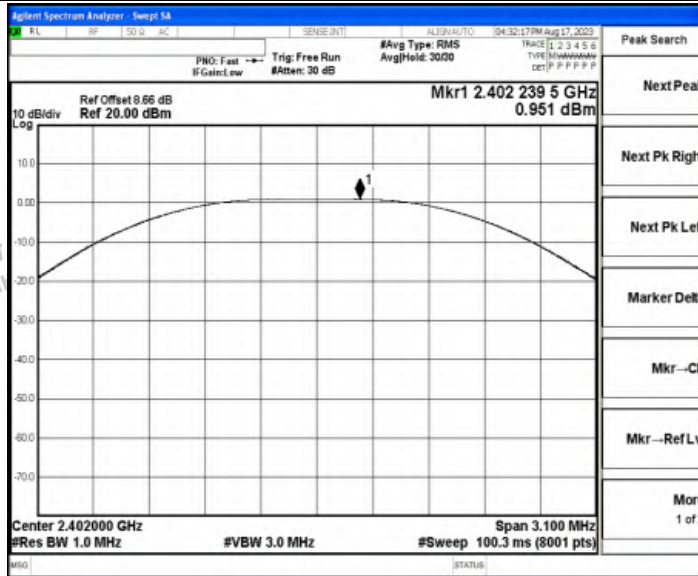
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Test Graphs

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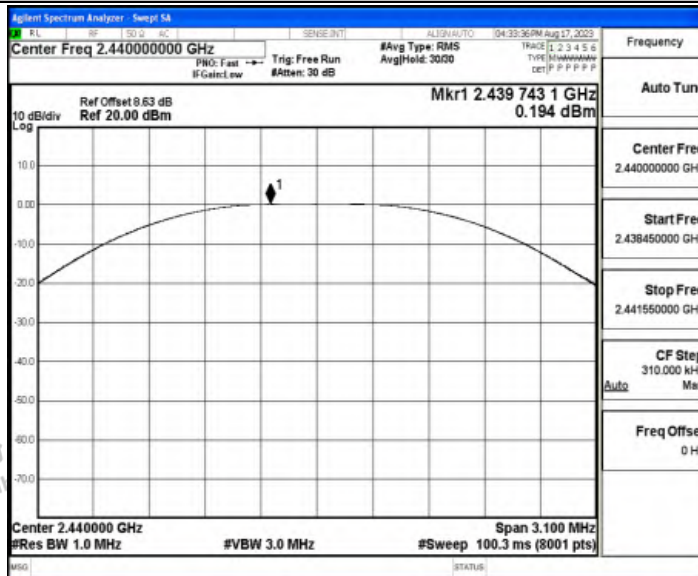
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BLE\_1M\_Ant0\_2402



BLE\_1M\_Ant0\_2440



BLE\_1M\_Ant0\_2480

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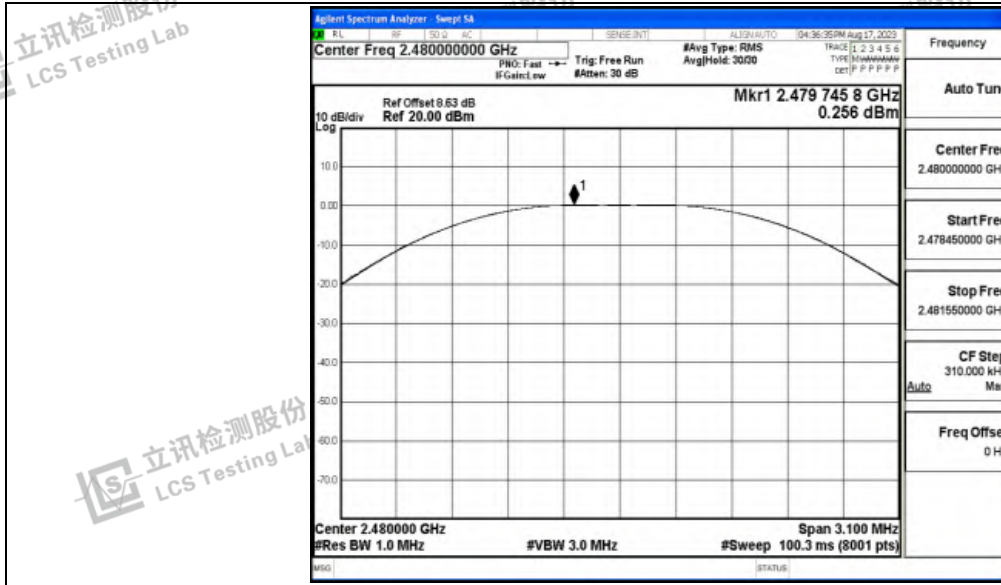
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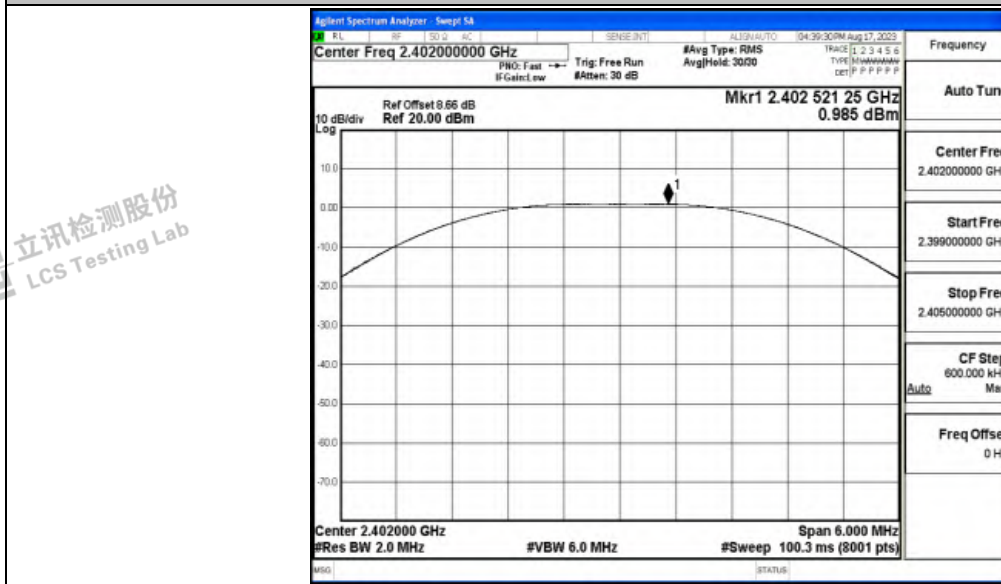
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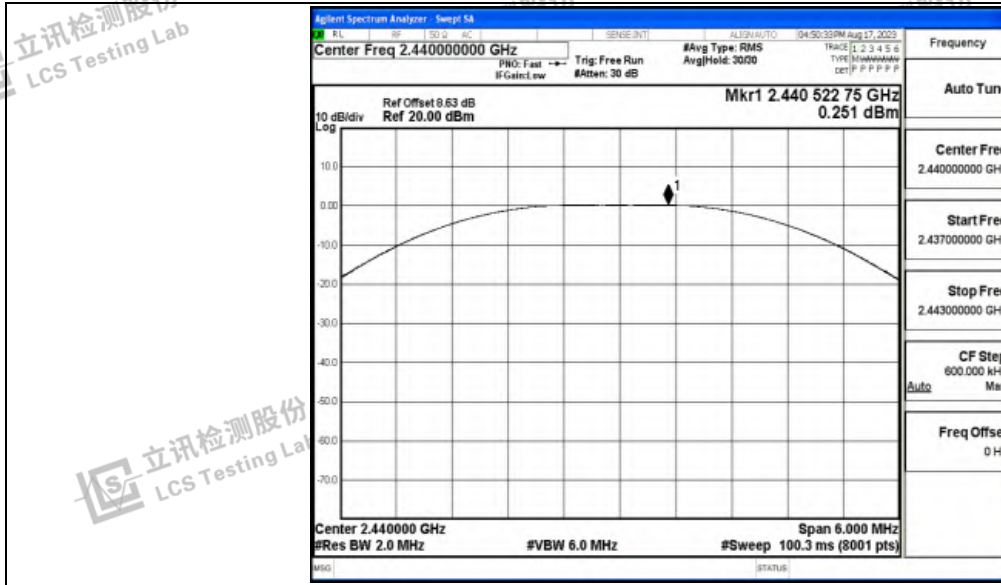
BLE\_2M\_Ant0\_2402



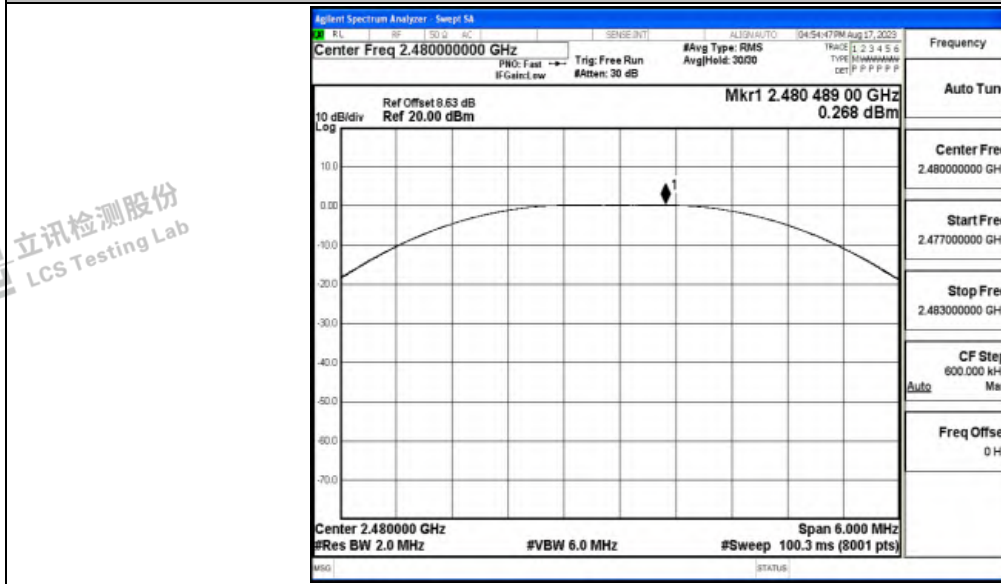
BLE\_2M\_Ant0\_2440







BLE\_2M\_Ant0\_2480



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### B.3 Maximum Power Spectral Density Level

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant0	2402	-14.5	≤8.00	PASS
		2440	-15.01	≤8.00	PASS
		2480	-14.93	≤8.00	PASS
BLE_2M	Ant0	2402	-16.79	≤8.00	PASS
		2440	-17.69	≤8.00	PASS
		2480	-17.78	≤8.00	PASS



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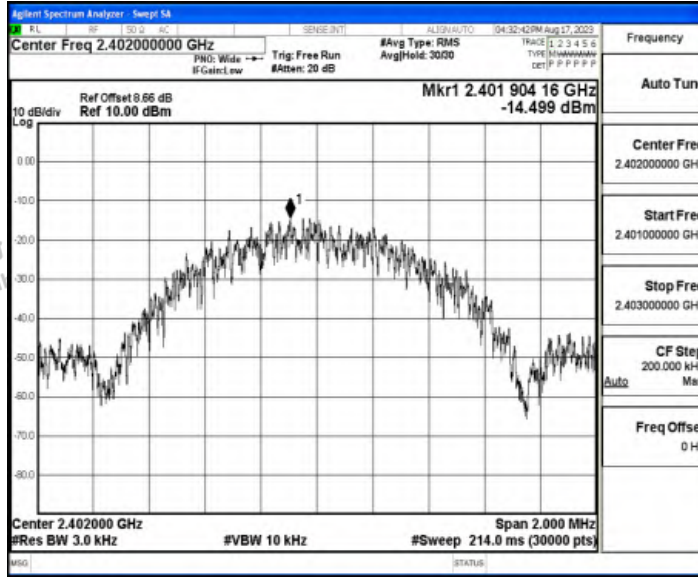
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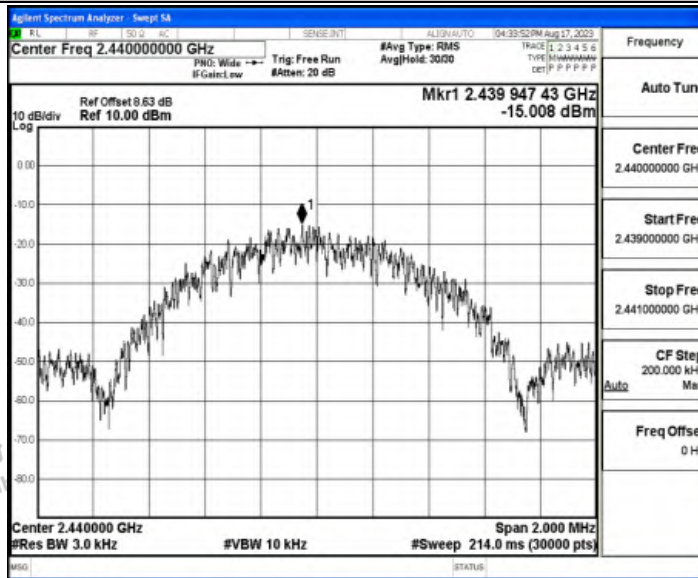
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BLE\_1M\_Ant0\_2402



BLE\_1M\_Ant0\_2440



BLE\_1M\_Ant0\_2480

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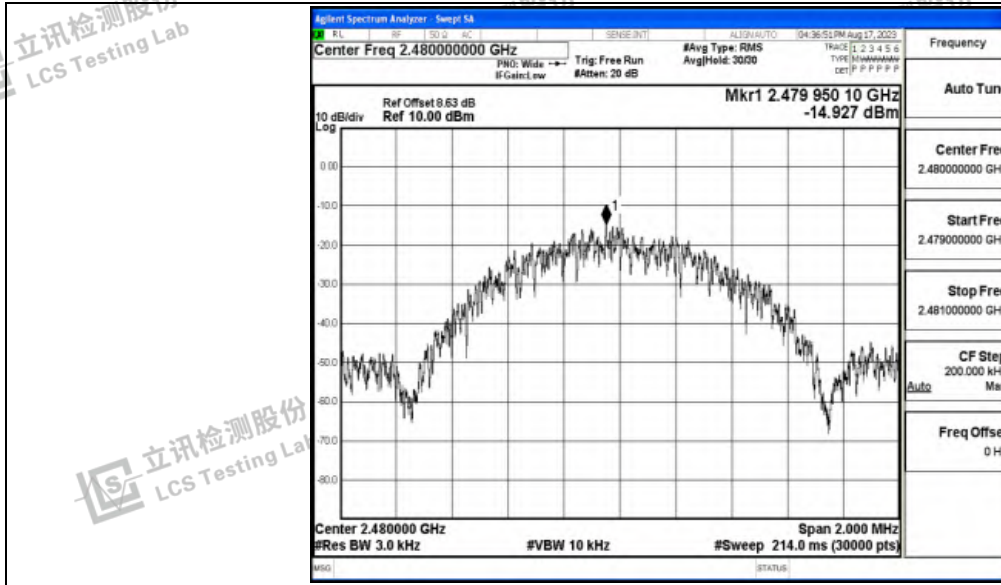
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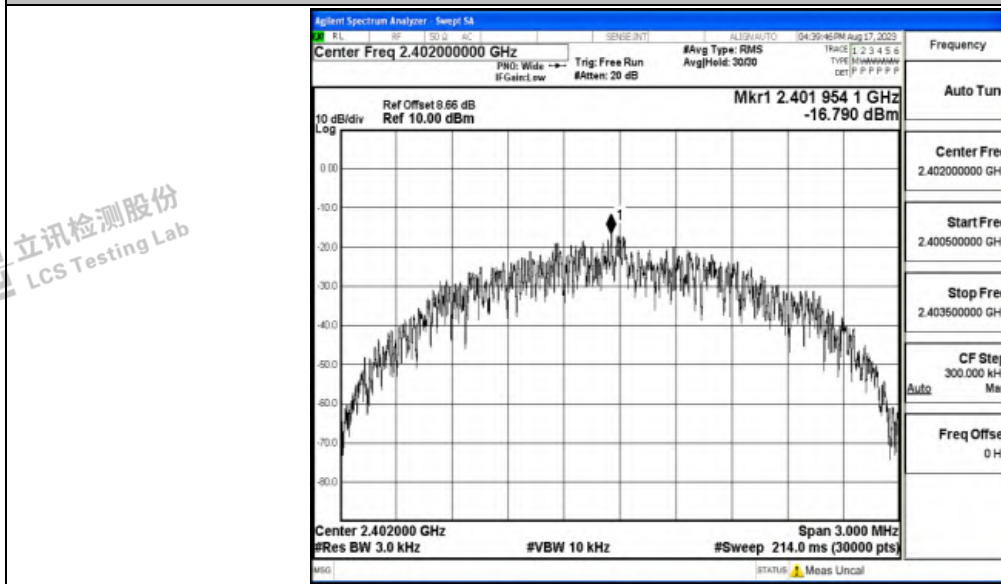
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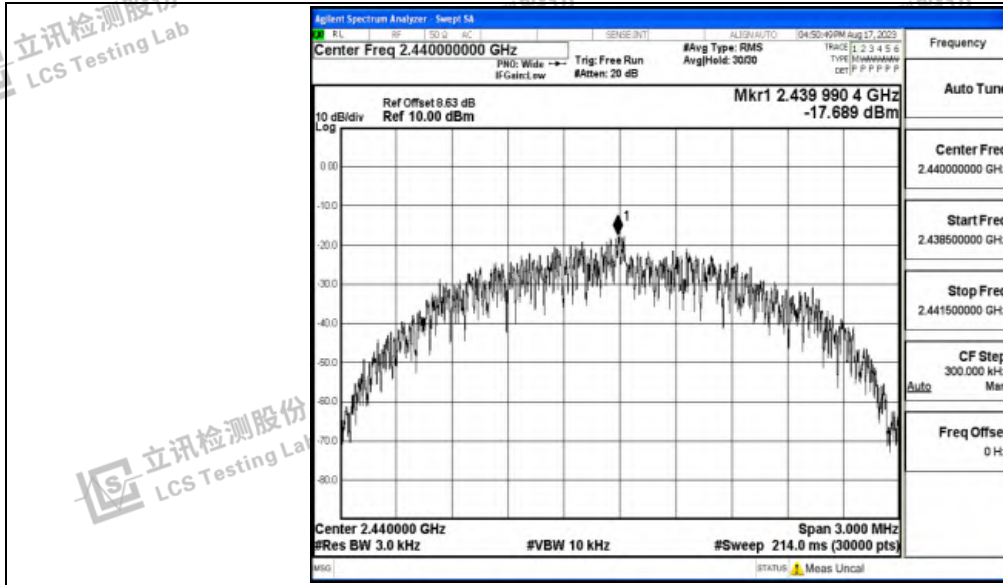
BLE\_2M\_Ant0\_2402



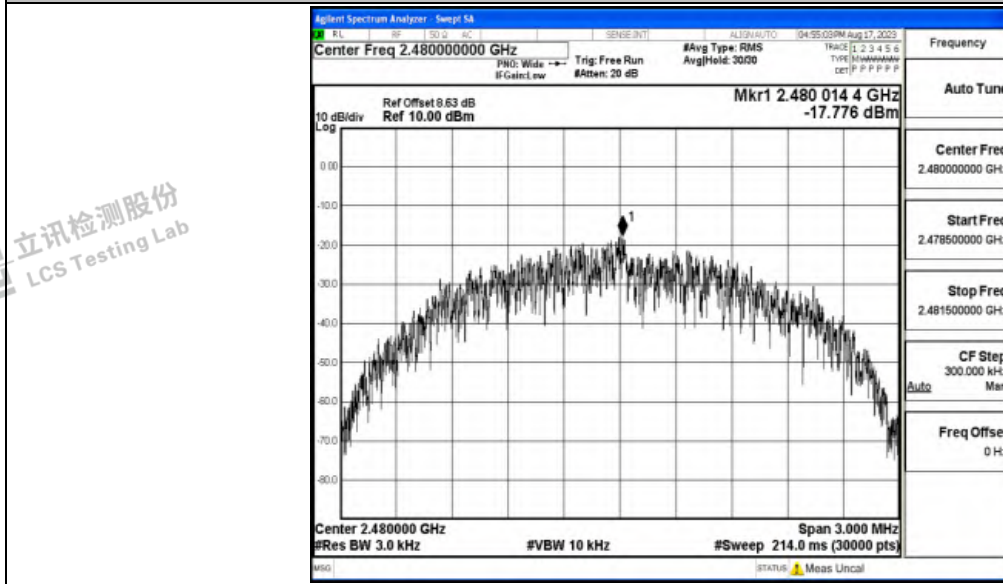
BLE\_2M\_Ant0\_2440







BLE\_2M\_Ant0\_2480



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### B.4 Band Edge

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	Low	2402	5.31	-46.57	≤-14.69	PASS
		High	2480	-0.44	-43.76	≤-20.44	PASS
BLE_2M	Ant0	Low	2402	-0.24	-34.27	≤-20.24	PASS
		High	2480	-3.10	-45.56	≤-23.1	PASS

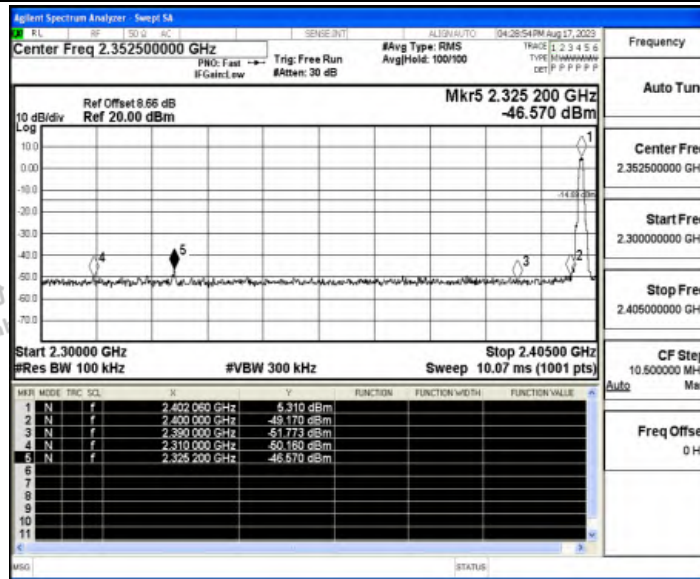


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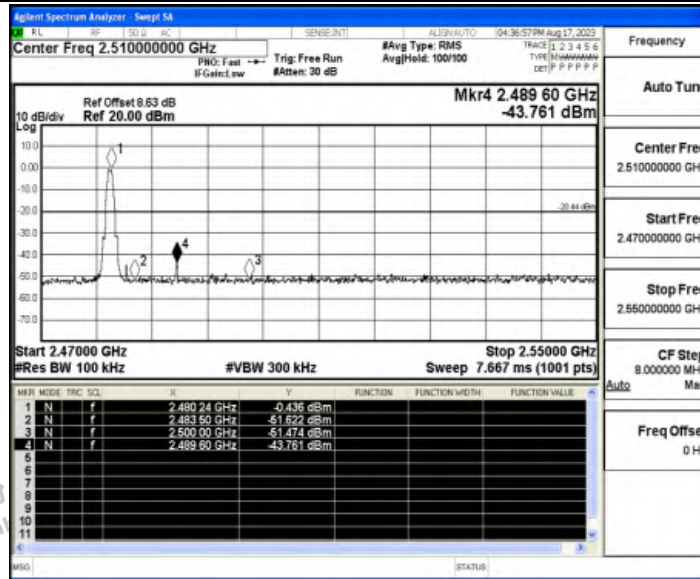


### Test Graphs

BLE\_1M\_Ant0\_Low\_2402

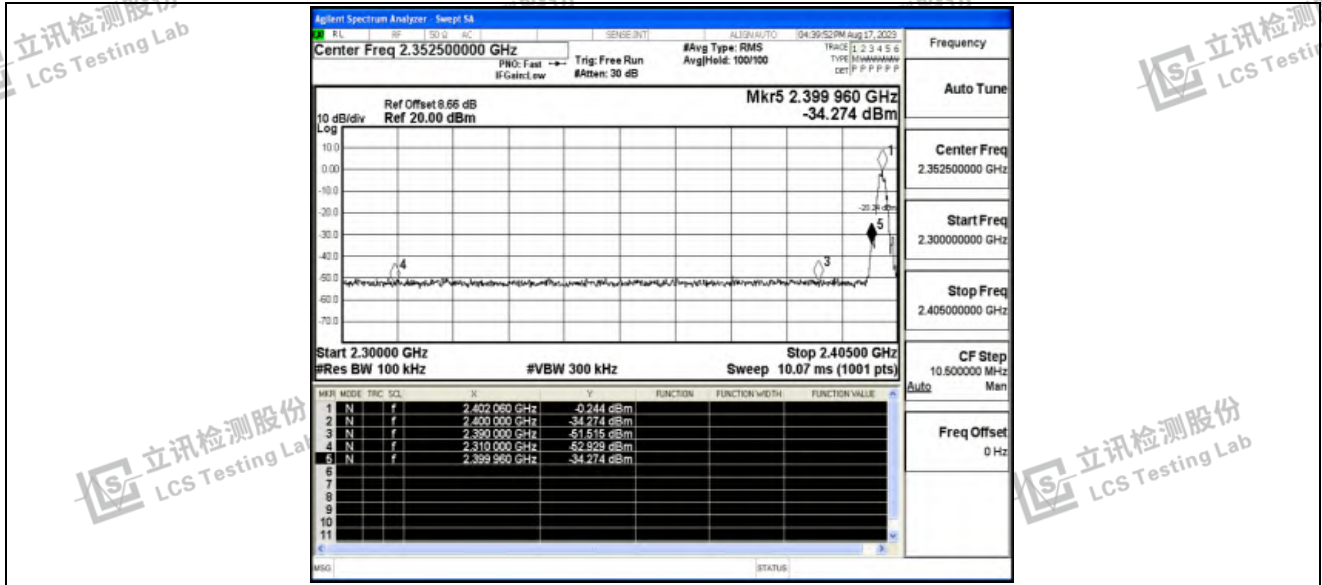


BLE\_1M\_Ant0\_High\_2480

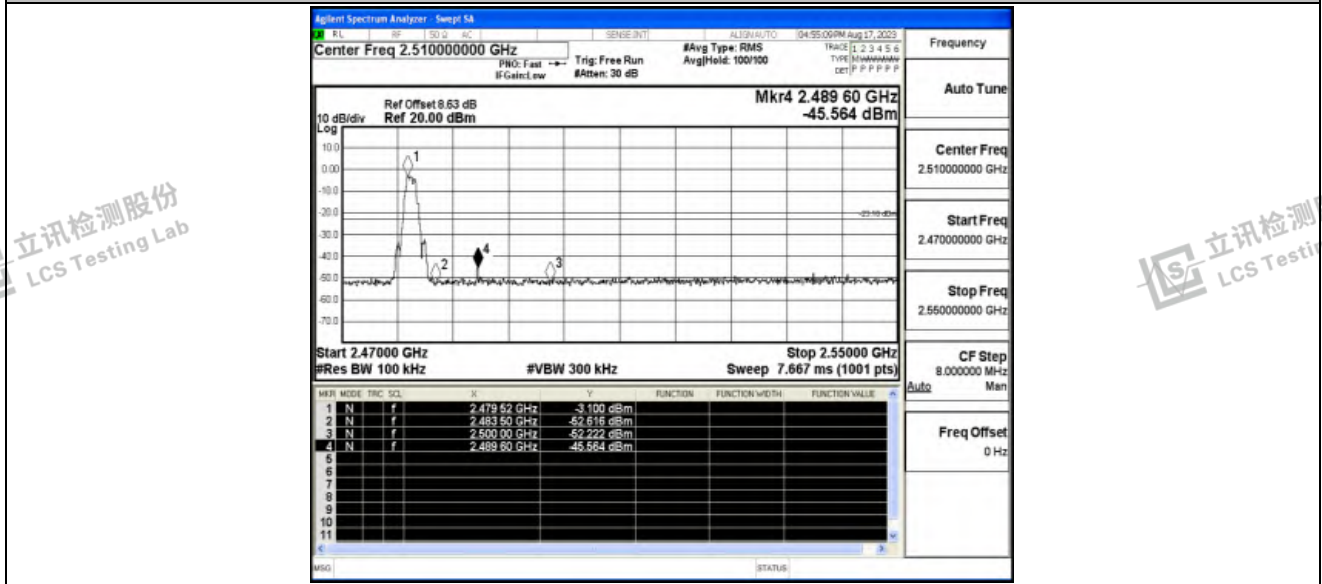


BLE\_2M\_Ant0\_Low\_2402





BLE\_2M\_Ant0\_High\_2480





### B.5 Conducted RF Spurious Emission

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	2402	Reference	4.99	4.99	---	PASS
			30~1000	4.99	-60.99	≤-15.01	PASS
			1000~26500	4.99	-46.05	≤-15.01	PASS
		2440	Reference	0.05	0.05	---	PASS
			30~1000	0.05	-60.47	≤-19.95	PASS
			1000~26500	0.05	-47.32	≤-19.95	PASS
		2480	Reference	0.11	0.11	---	PASS
			30~1000	0.11	-61.21	≤-19.89	PASS
			1000~26500	0.11	-46.2	≤-19.89	PASS
BLE_2M	Ant0	2402	Reference	0.84	0.84	---	PASS
			30~1000	0.84	-60.81	≤-19.16	PASS
			1000~26500	0.84	-46.13	≤-19.16	PASS
		2440	Reference	0.06	0.06	---	PASS
			30~1000	0.06	-61.41	≤-19.94	PASS
			1000~26500	0.06	-47.01	≤-19.94	PASS
		2480	Reference	0.05	0.05	---	PASS
			30~1000	0.05	-61.59	≤-19.95	PASS
			1000~26500	0.05	-46.77	≤-19.95	PASS

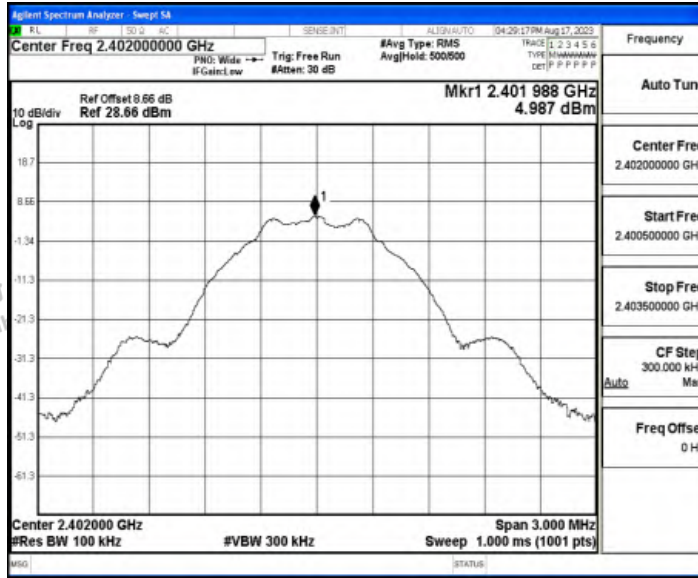


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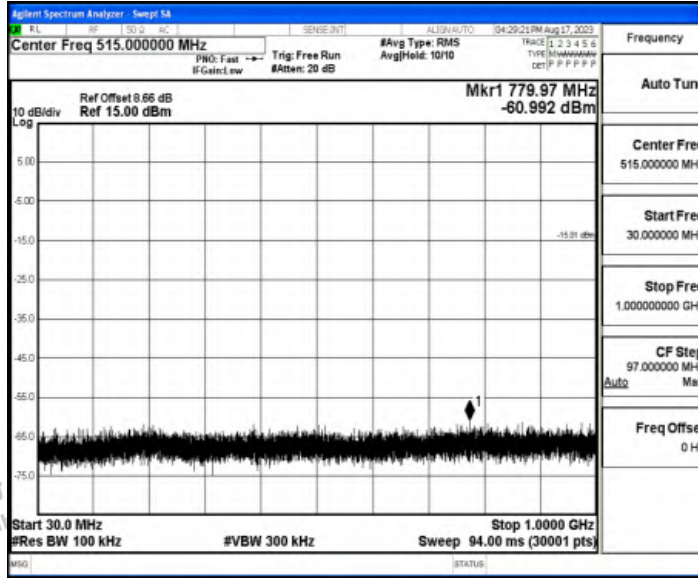


### Test Graphs

BLE\_1M\_Ant0\_2402\_0~Reference



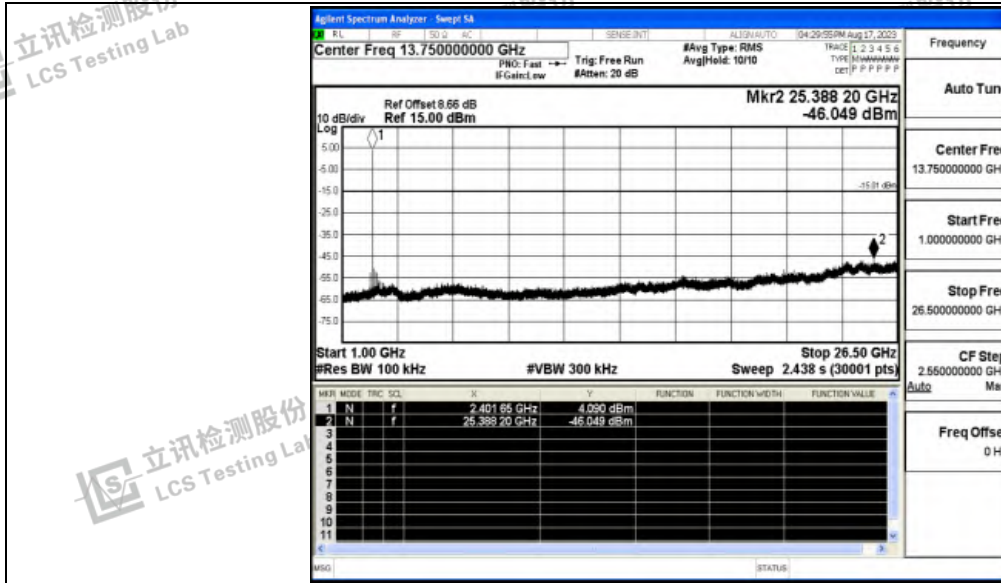
BLE\_1M\_Ant0\_2402\_30~1000



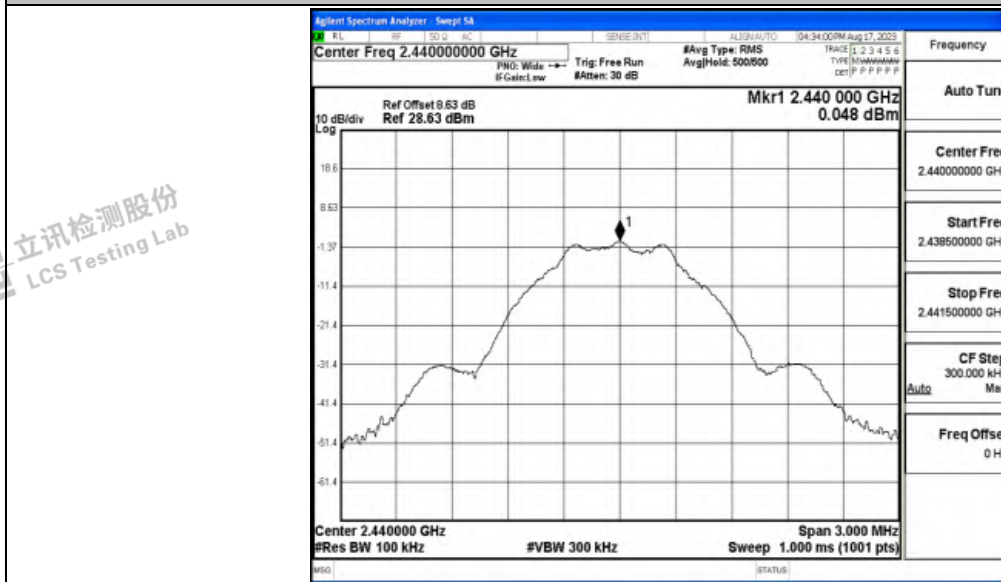
BLE\_1M\_Ant0\_2402\_1000~26500





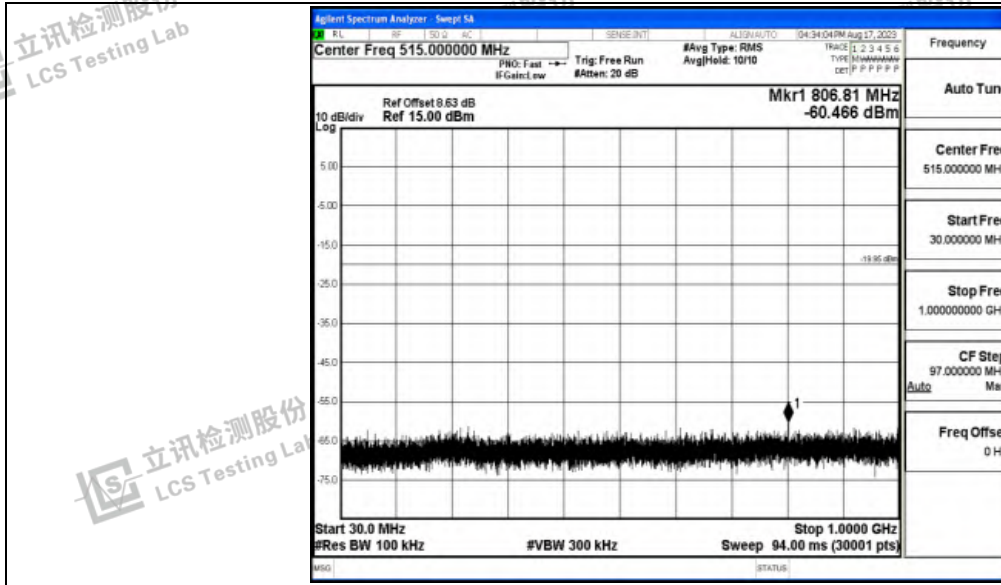


BLE\_1M\_Ant0\_2440\_0~Reference

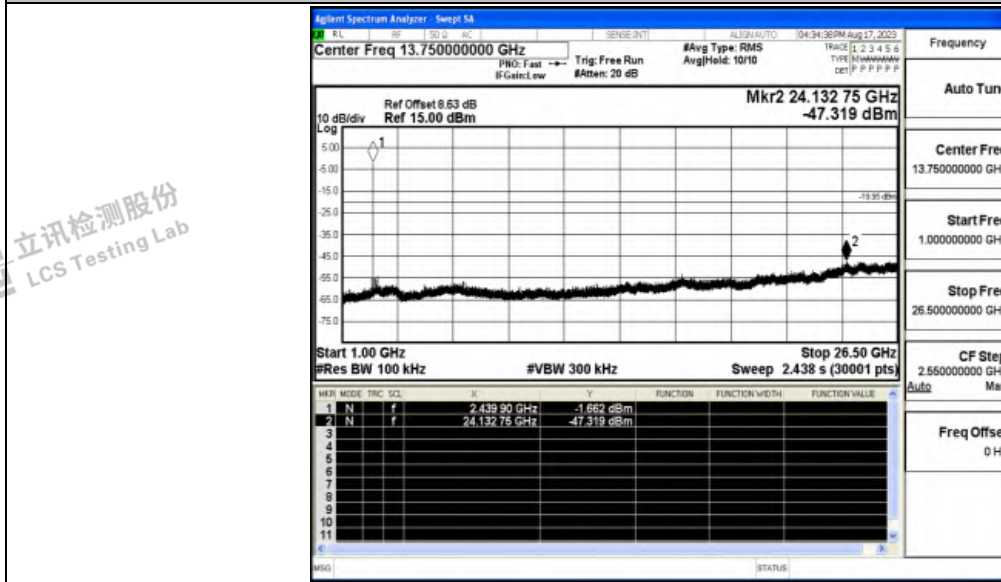


BLE\_1M\_Ant0\_2440\_30~1000



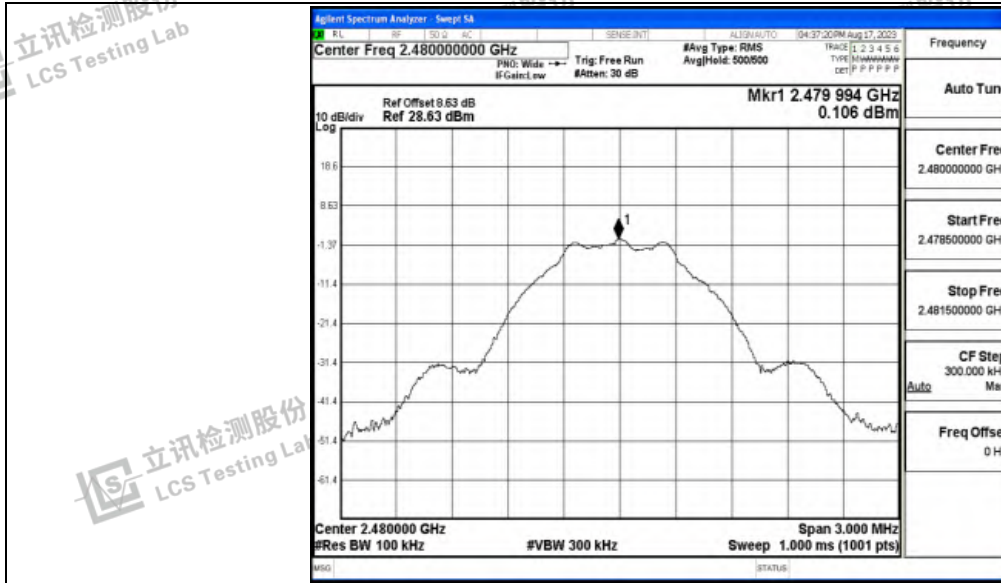


BLE\_1M\_Ant0\_2440\_1000~26500

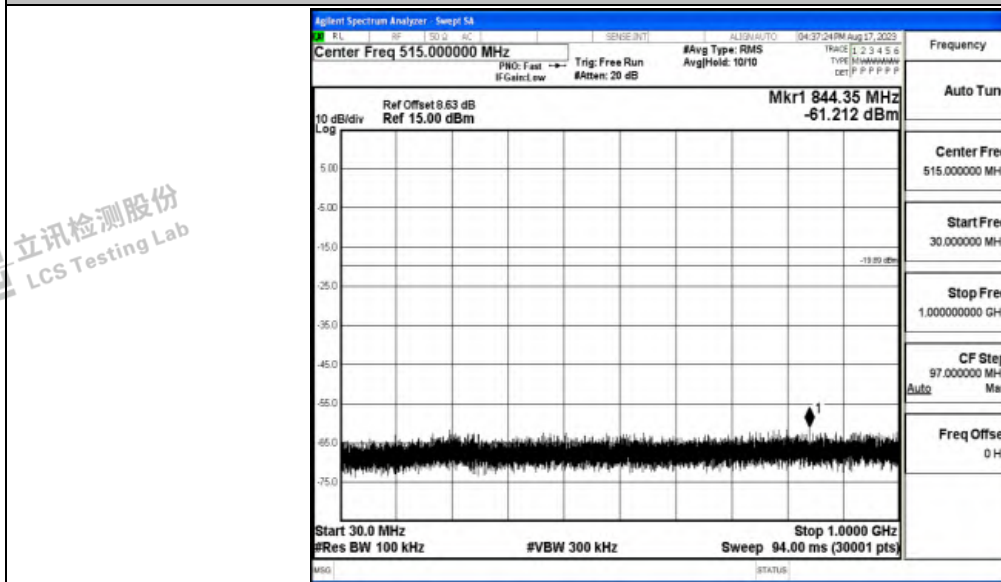


BLE\_1M\_Ant0\_2480\_0~Reference



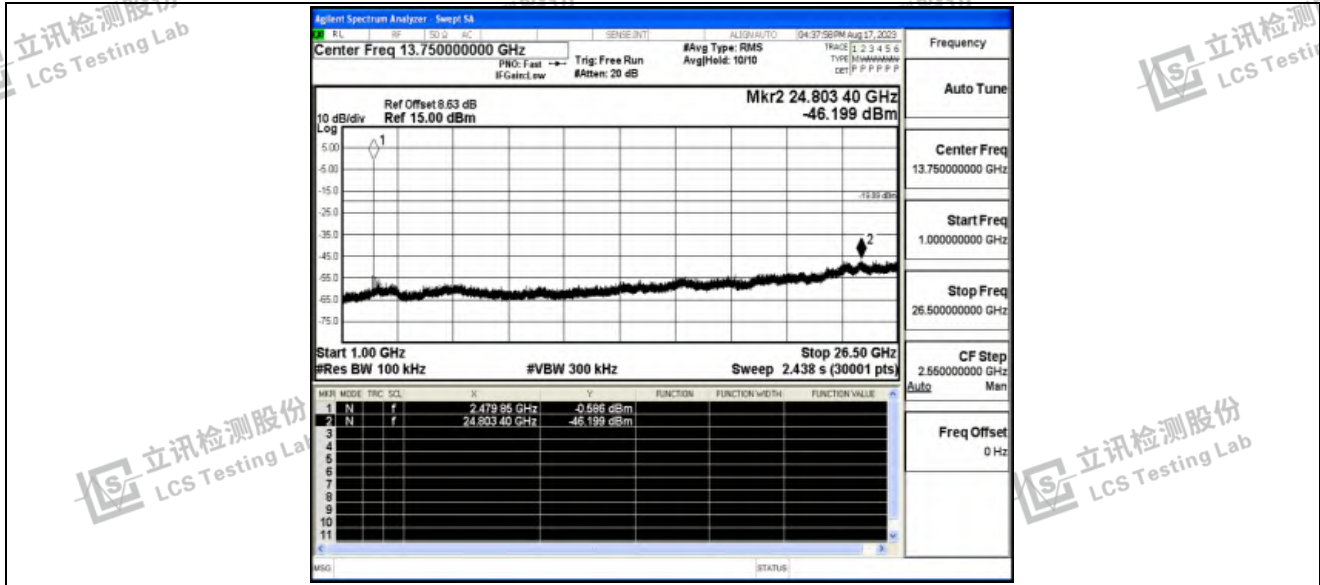


BLE\_1M\_Ant0\_2480\_30~1000

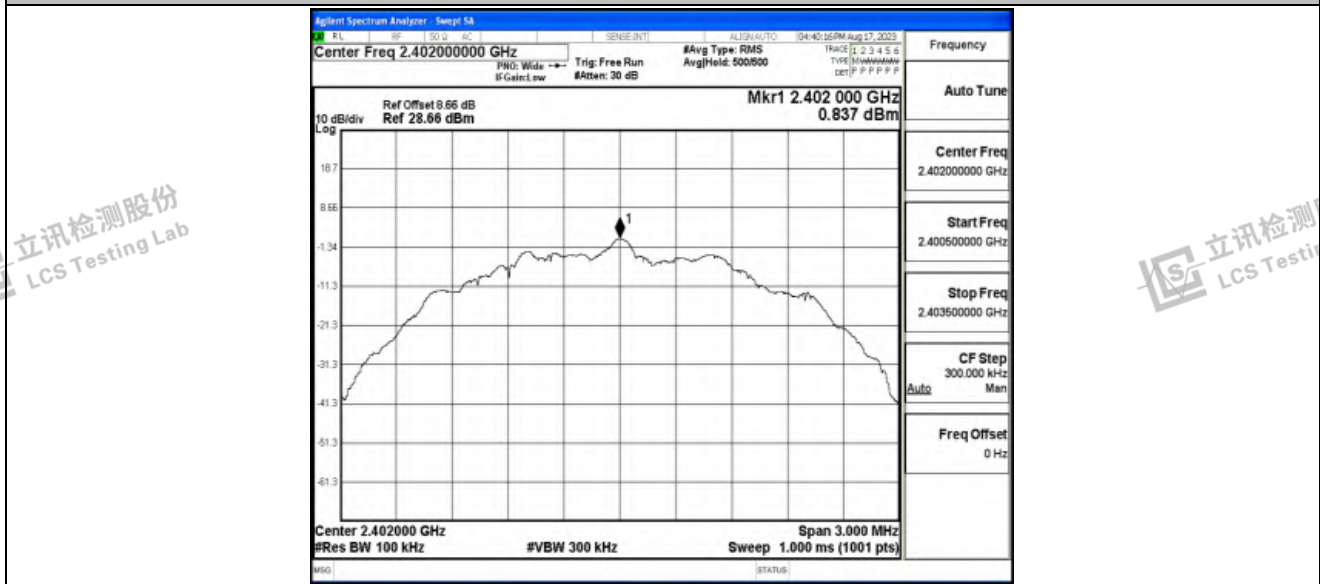


BLE\_1M\_Ant0\_2480\_1000~26500





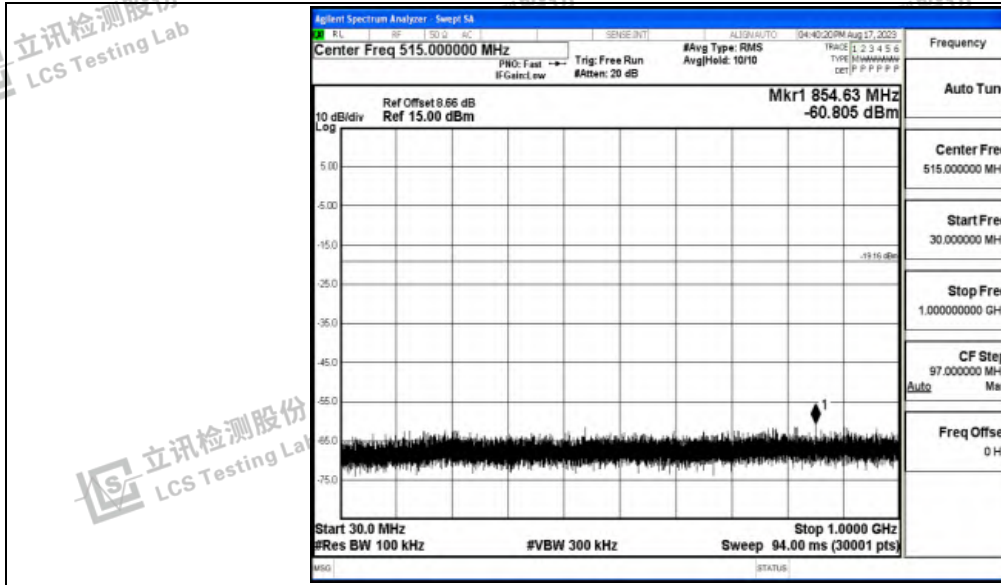
BLE\_2M\_Ant0\_2402\_0~Reference



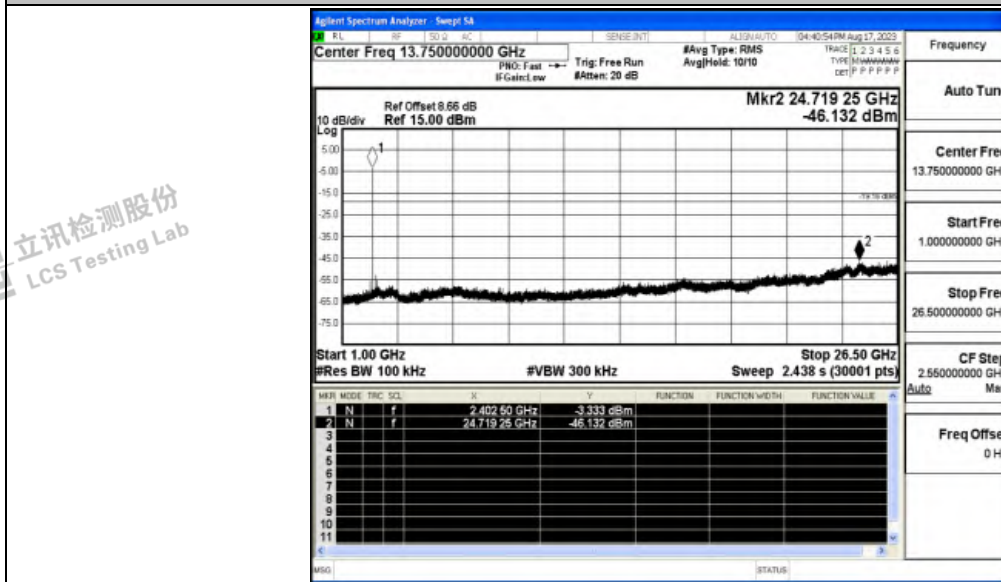
BLE\_2M\_Ant0\_2402\_30~1000







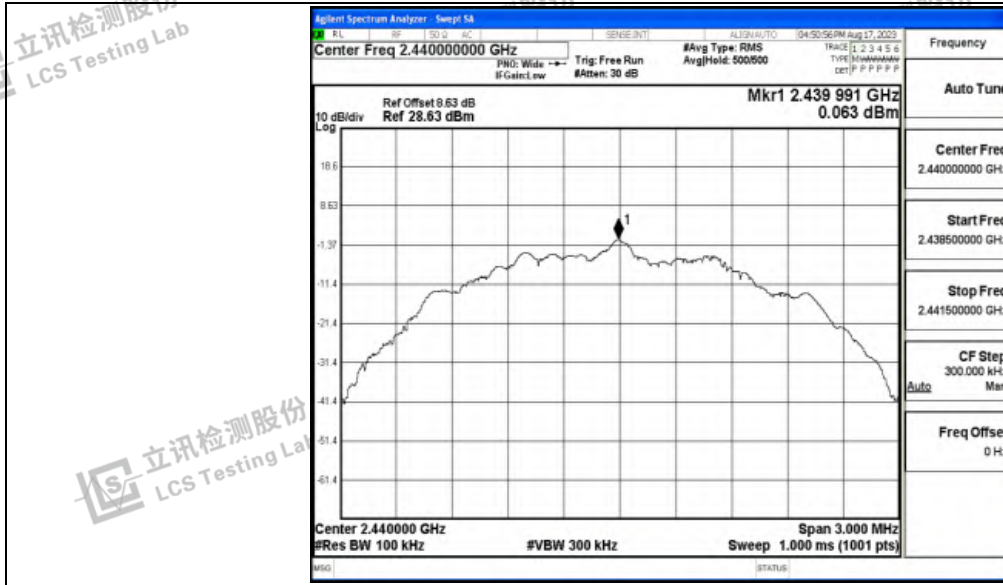
BLE\_2M\_Ant0\_2402\_1000~26500



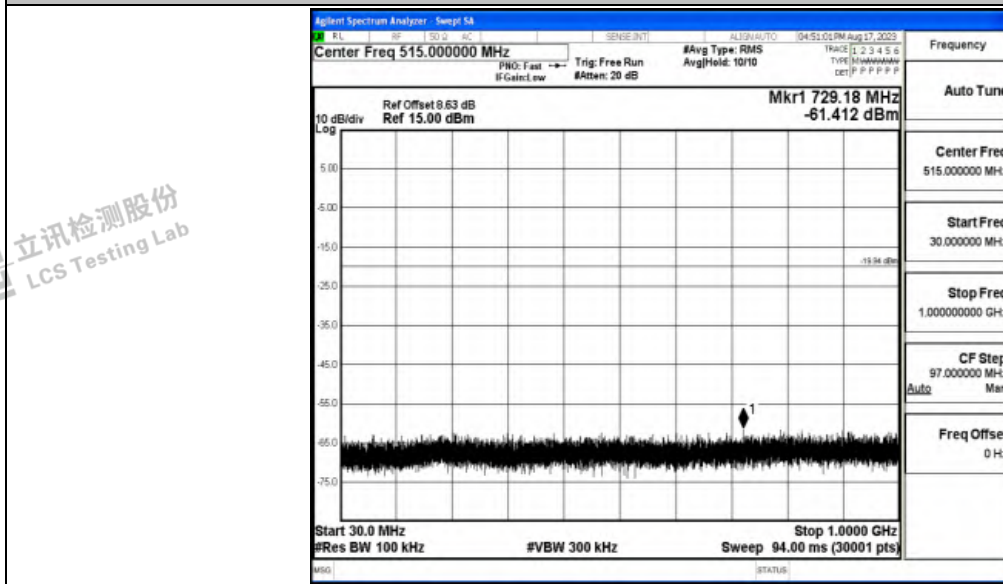
BLE\_2M\_Ant0\_2440\_0~Reference





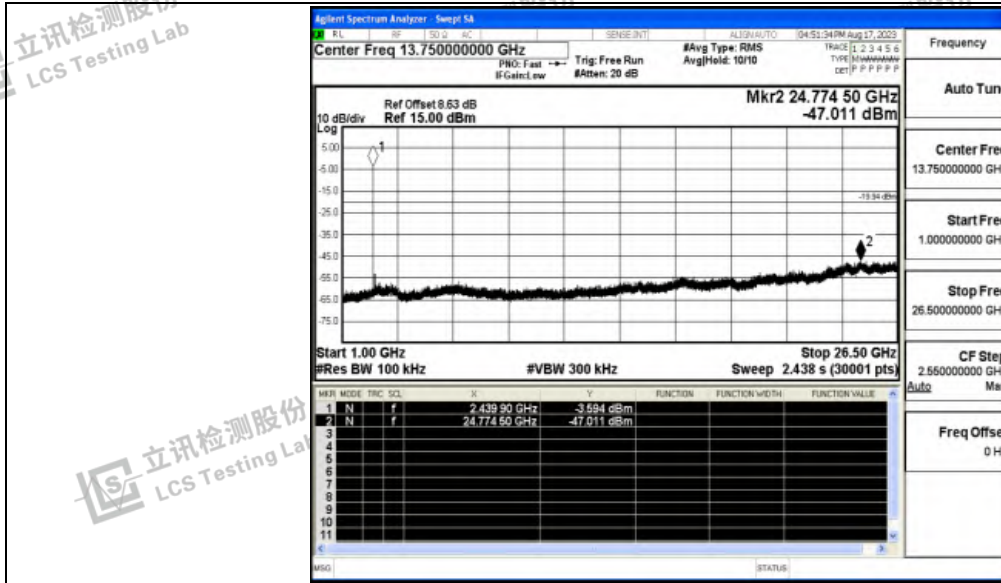


BLE\_2M\_Ant0\_2440\_30~1000

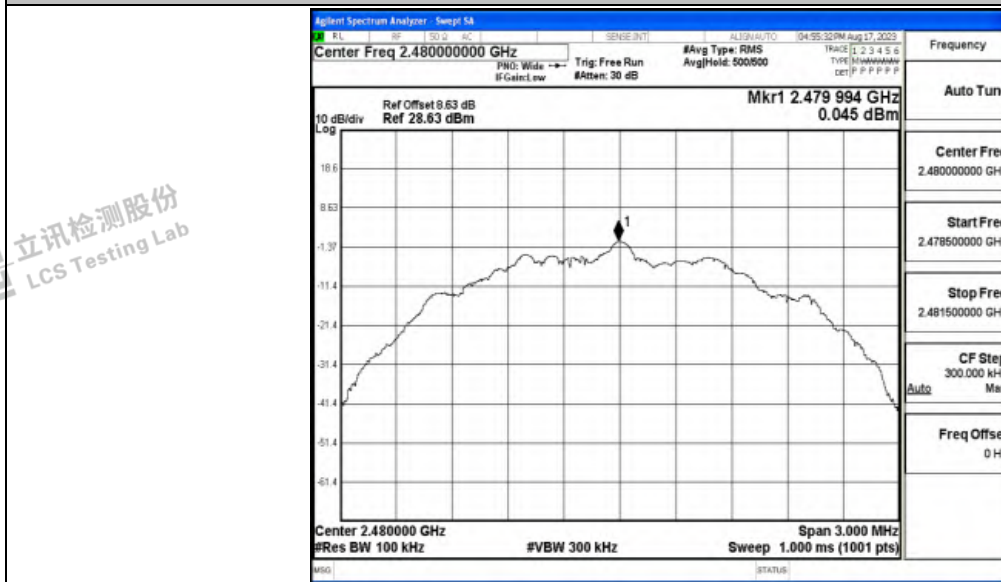


BLE\_2M\_Ant0\_2440\_1000~26500



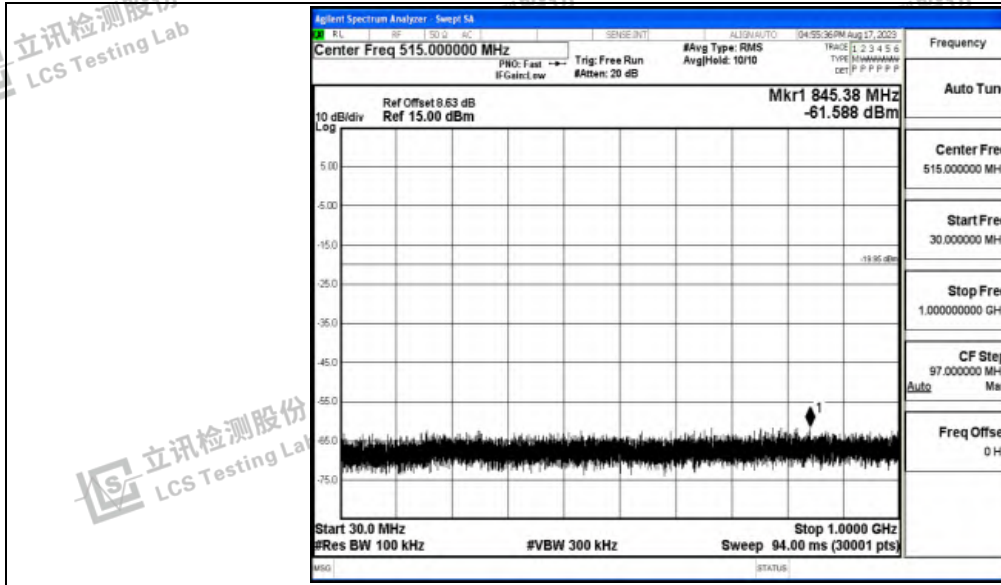


BLE\_2M\_Ant0\_2480\_0~Reference

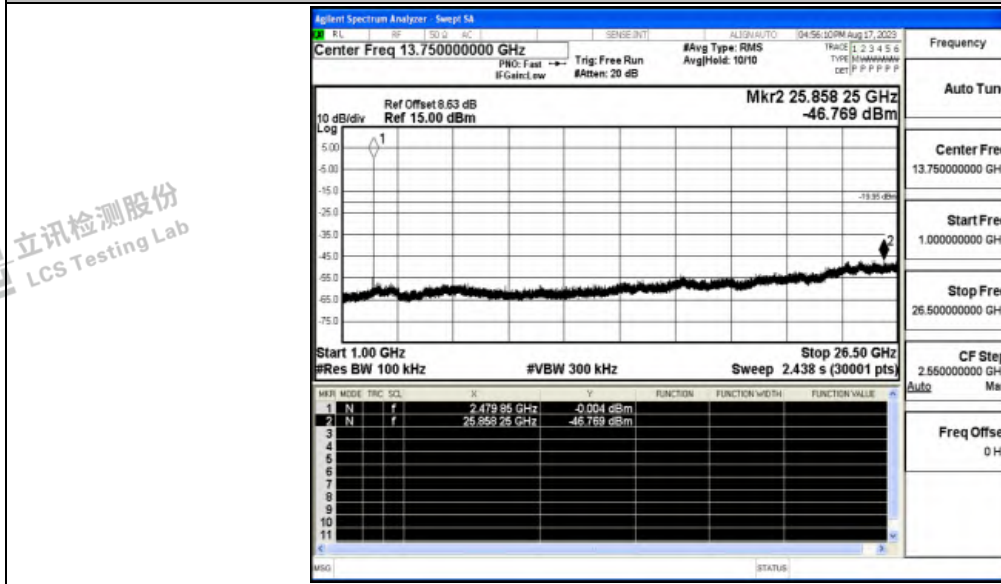


BLE\_2M\_Ant0\_2480\_30~1000





BLE\_2M\_Ant0\_2480\_1000~26500



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### B.6 Duty Cycle

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant0	2402	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2440	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2480	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
BLE_2M	Ant0	2402	0.21	0.63	0.3333	33.33	4.77	4.76	---	---
		2440	0.21	0.63	0.3333	33.33	4.77	4.76	---	---
		2480	0.21	0.63	0.3333	33.33	4.77	4.76	---	---



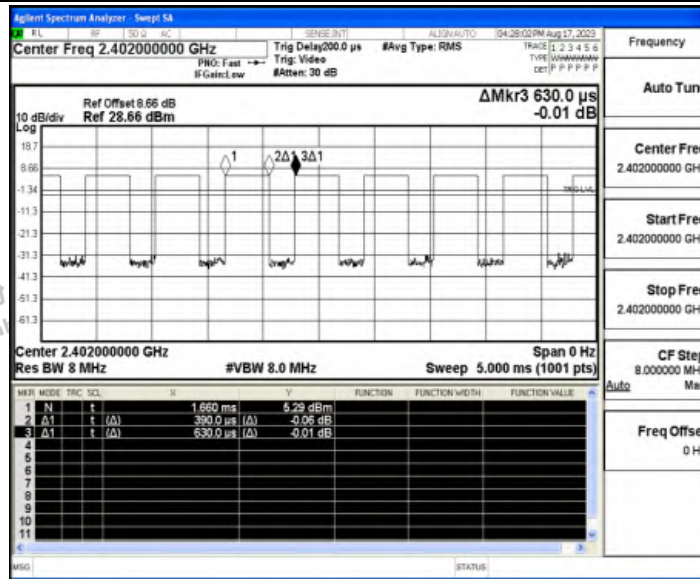
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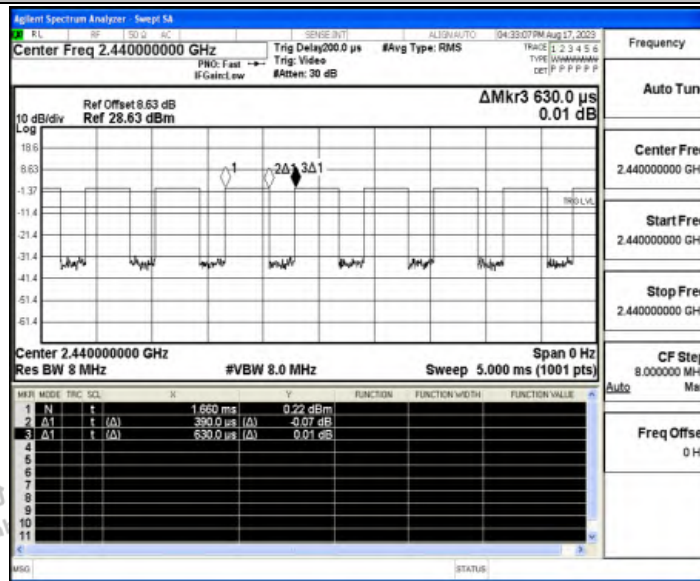


### Test Graphs

BLE\_1M\_Ant0\_2402



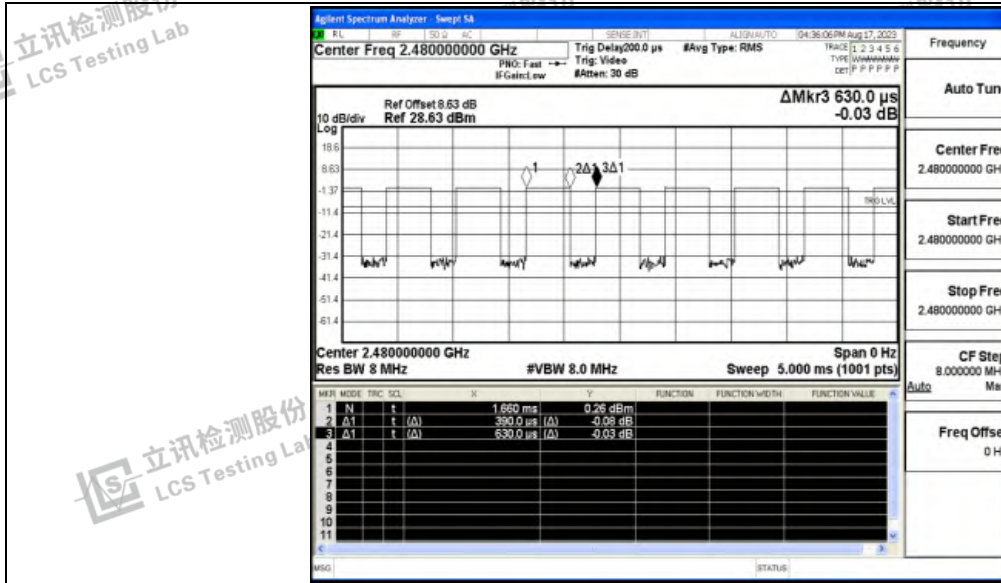
BLE\_1M\_Ant0\_2440



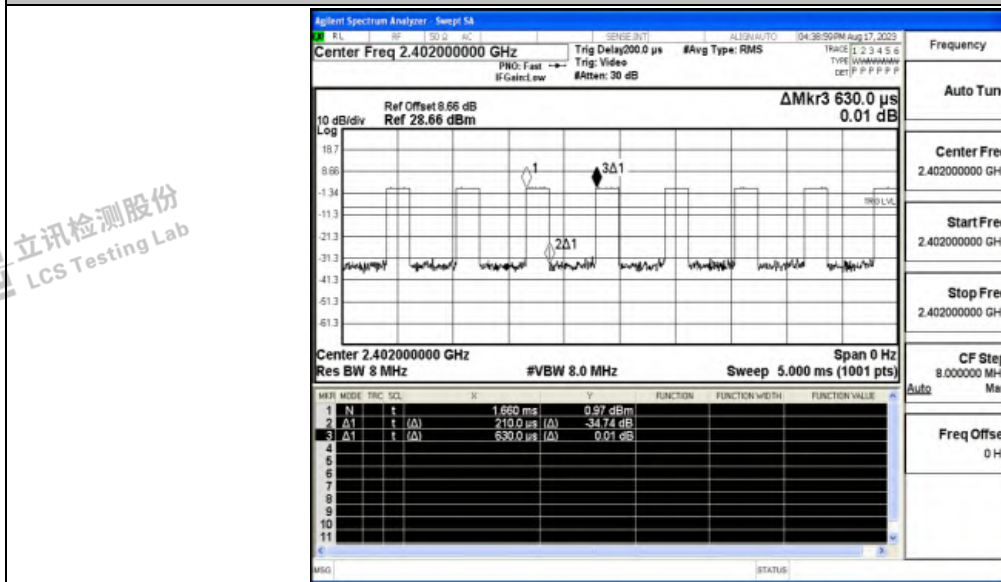
BLE\_1M\_Ant0\_2480





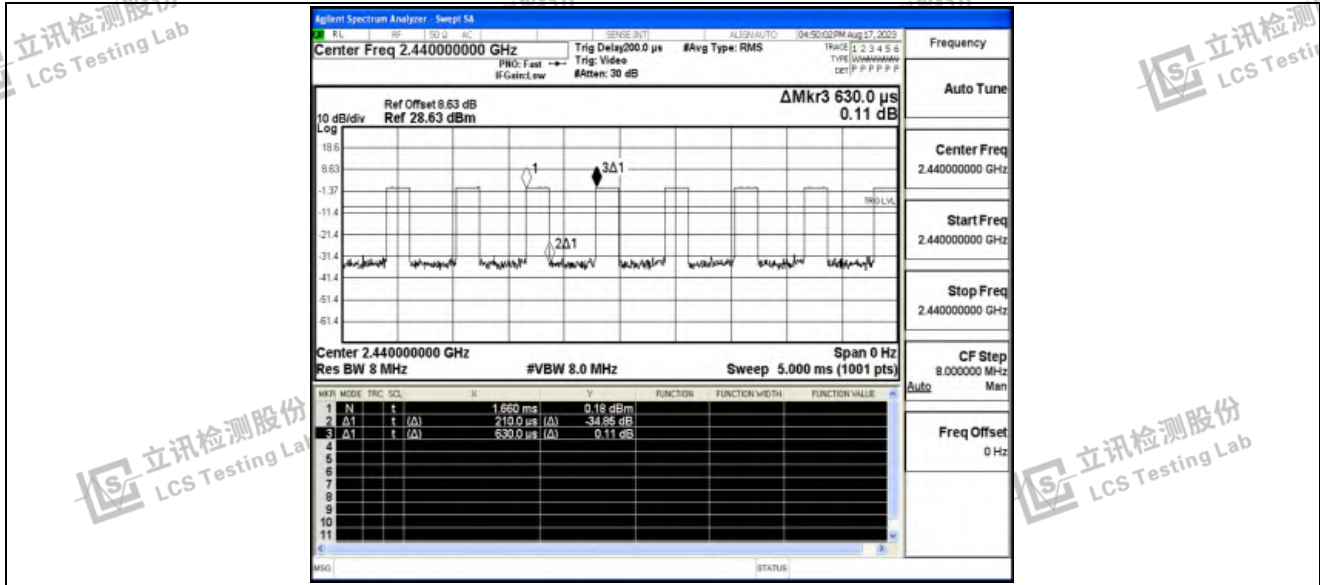


BLE\_2M\_Ant0\_2402



BLE\_2M\_Ant0\_2440





BLE\_2M\_Ant0\_2480



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### B.7 Restrict Band

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict				
BLE_1M	Ant0	Low	2402	AV	2310.000	-47.68	≤-41.20	47.52	≤54	PASS				
				AV	2325.095	-45.14	≤-41.20	50.06	≤54	PASS				
				AV	2390.000	-47.17	≤-41.20	48.03	≤54	PASS				
				Peak	2310.000	-40.48	≤-21.20	54.72	≤74	PASS				
				Peak	2347.670	-37.84	≤-21.20	57.36	≤74	PASS				
				Peak	2390.000	-41	≤-21.20	54.20	≤74	PASS				
		High	2480	AV	2483.500	-46.46	≤-41.20	48.74	≤54	PASS				
				AV	2489.200	-44.86	≤-41.20	50.34	≤54	PASS				
				AV	2500.000	-46.8	≤-41.20	48.40	≤54	PASS				
				Peak	2483.500	-37.69	≤-21.20	57.51	≤74	PASS				
				Peak	2489.760	-36.51	≤-21.20	58.69	≤74	PASS				
				Peak	2500.000	-41.2	≤-21.20	54.00	≤74	PASS				
				BLE_2M	Ant0	Low	2402	AV	2310.000	-47.23	≤-41.20	47.97	≤54	PASS
								AV	2388.725	-46.43	≤-41.20	48.77	≤54	PASS
AV	2390.000	-46.86	≤-41.20					48.34	≤54	PASS				
Peak	2310.000	-41.23	≤-21.20					53.97	≤74	PASS				
Peak	2375.600	-37.53	≤-21.20					57.67	≤74	PASS				
Peak	2390.000	-39.36	≤-21.20					55.84	≤74	PASS				



Shenzhen LCS Compliance Testing Laboratory Ltd.  
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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity



立讯检测股份 LCS Testing Lab	High	2480	AV	2483.500	-45.42	≤-41.20	49.78	≤54	PASS
			AV	2489.200	-43.27	≤-41.20	51.93	≤54	PASS
			AV	2500.000	-46.24	≤-41.20	48.96	≤54	PASS
			Peak	2483.500	-39.36	≤-21.20	55.84	≤74	PASS
			Peak	2495.600	-36.94	≤-21.20	58.26	≤74	PASS
			Peak	2500.000	-40.1	≤-21.20	55.10	≤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.



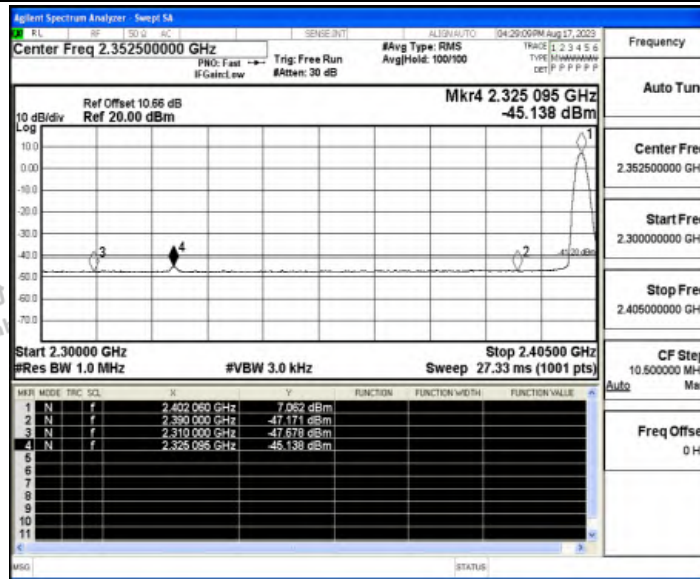
Shenzhen LCS Compliance Testing Laboratory Ltd.  
 Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
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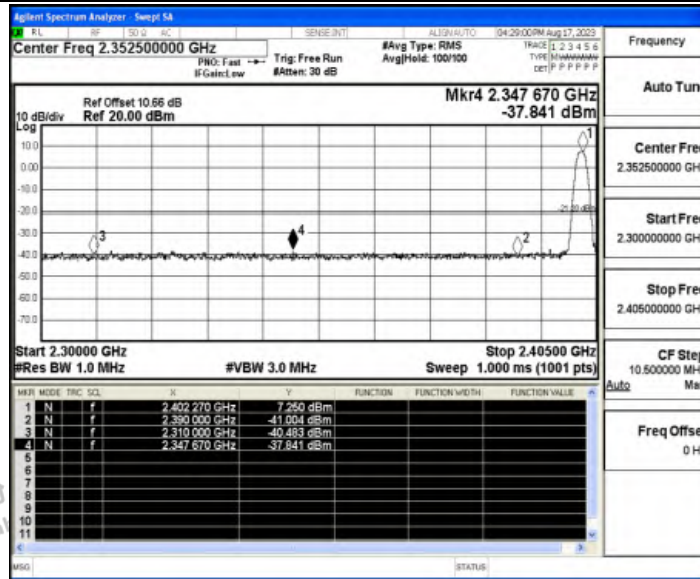


### Test Graphs

BLE\_1M\_Ant0\_Low\_2402\_AV

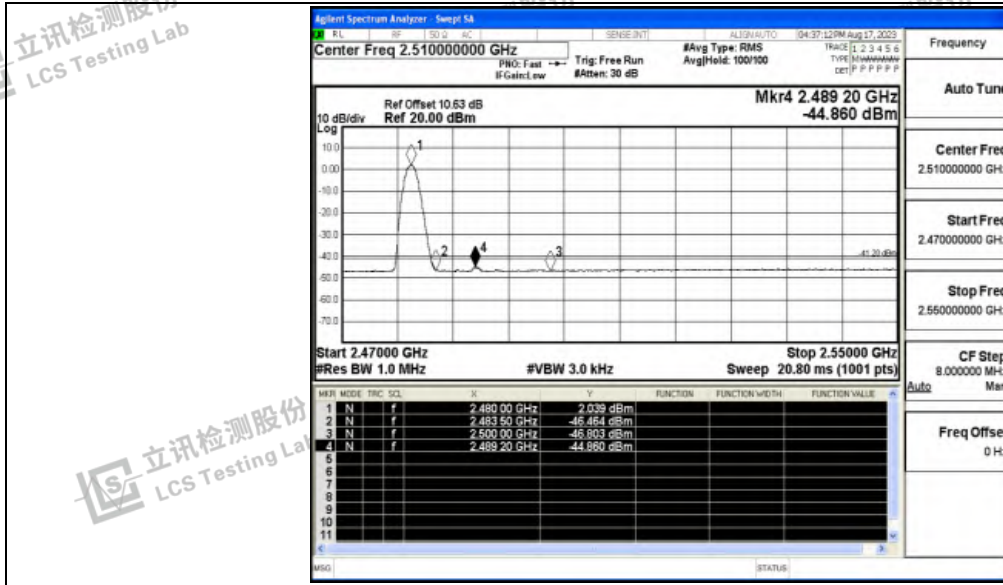


BLE\_1M\_Ant0\_Low\_2402\_Peak

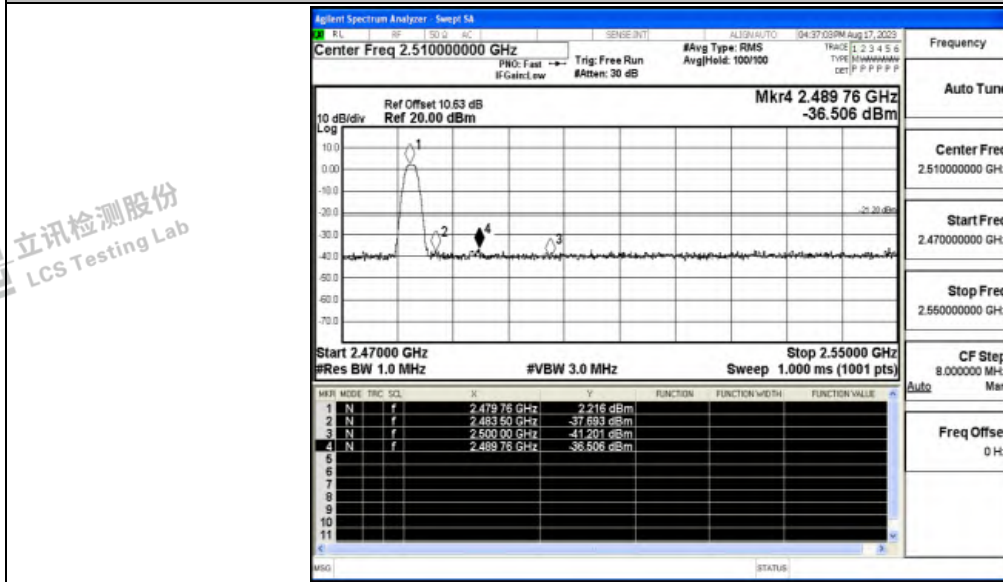


BLE\_1M\_Ant0\_High\_2480\_AV



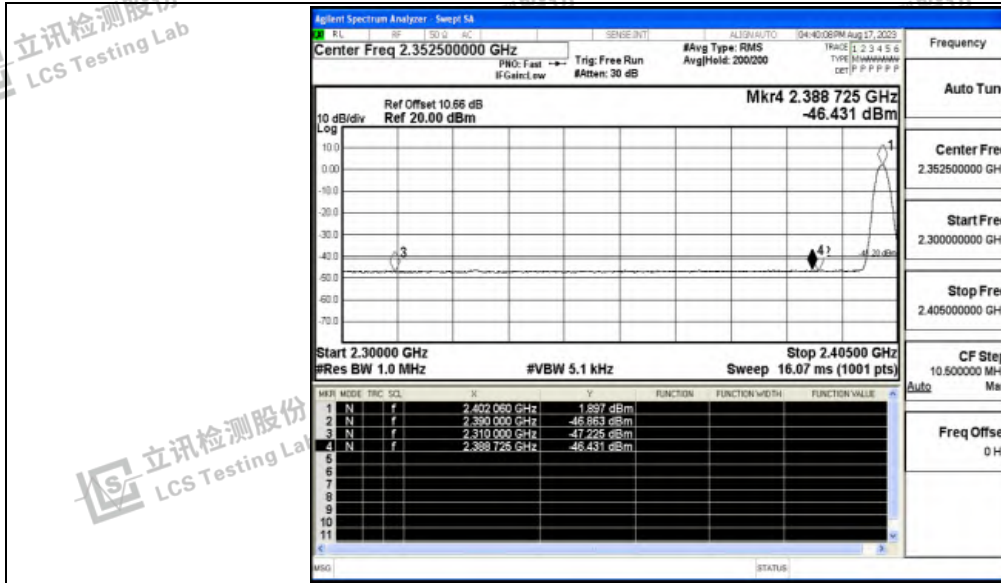


BLE\_1M\_Ant0\_High\_2480\_Peak

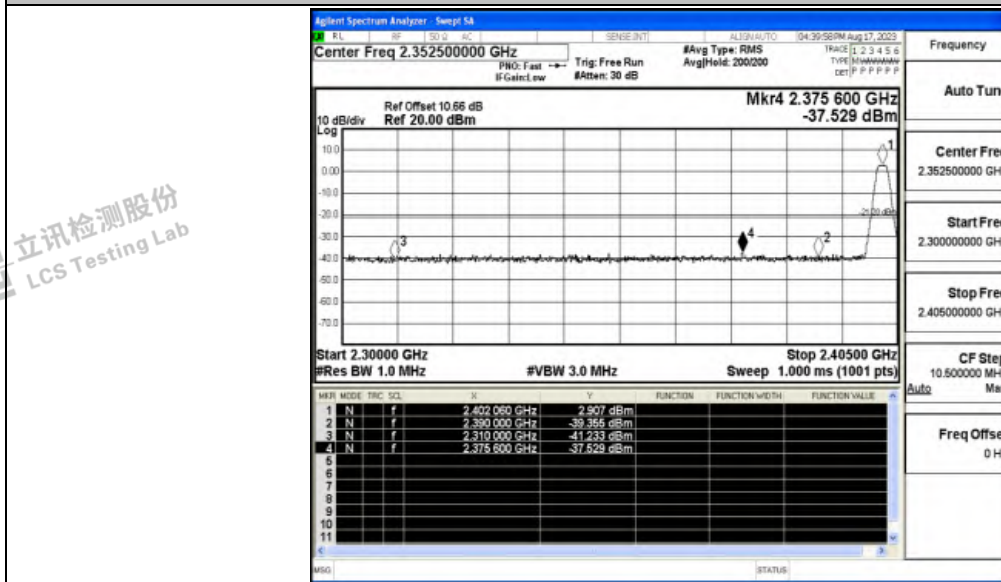


BLE\_2M\_Ant0\_Low\_2402\_AV





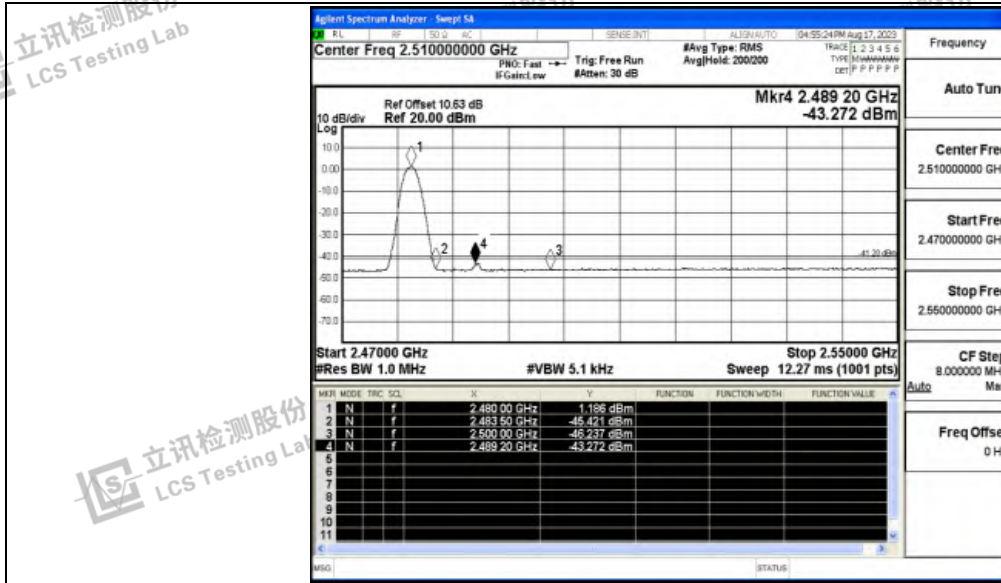
BLE\_2M\_Ant0\_Low\_2402\_Peak



BLE\_2M\_Ant0\_High\_2480\_AV







BLE\_2M\_Ant0\_High\_2480\_Peak

