



## Appendix B

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

Product Name: SPEAKER

Test Model: RA 1215

#### Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker Hu
Supervised by:	Ling Zhu





### B.1 DTS Bandwidth

#### Test Result

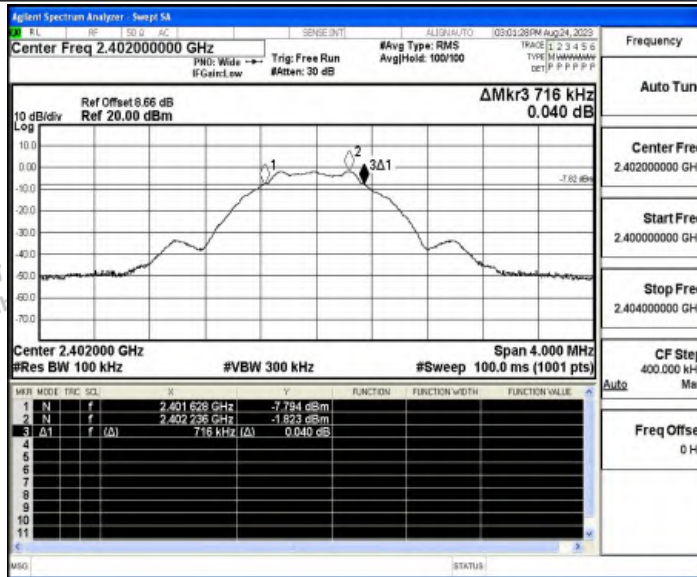
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.716	2401.628	2402.344	0.5	PASS
		2440	0.716	2439.628	2440.344	0.5	PASS
		2480	0.712	2479.632	2480.344	0.5	PASS
BLE_2M	Ant1	2402	1.148	2401.424	2402.572	0.5	PASS
		2440	1.144	2439.424	2440.568	0.5	PASS
		2480	1.144	2479.428	2480.572	0.5	PASS



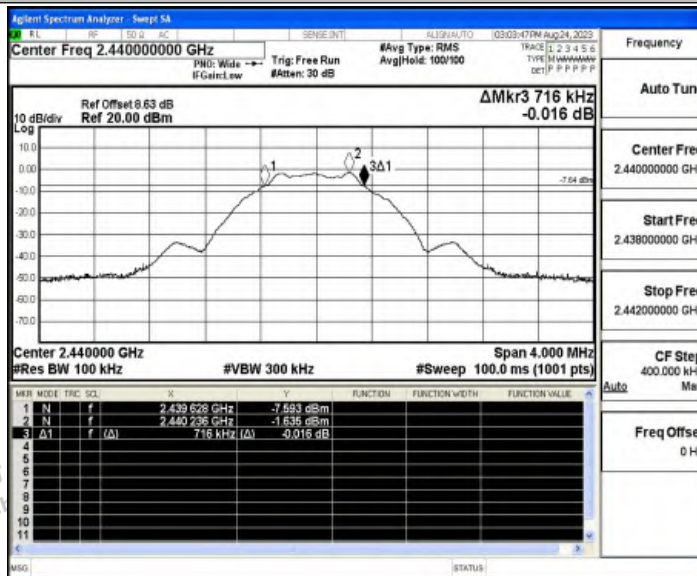


### Test Graphs

BLE\_1M\_Ant1\_2402

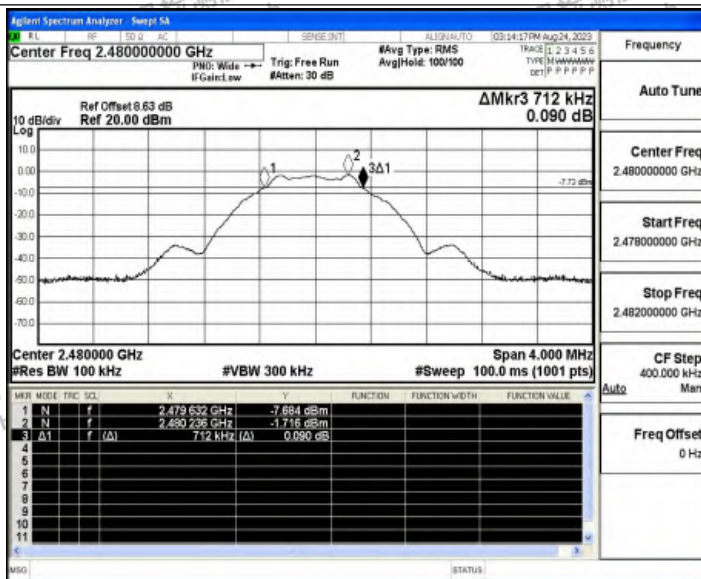


BLE\_1M\_Ant1\_2440

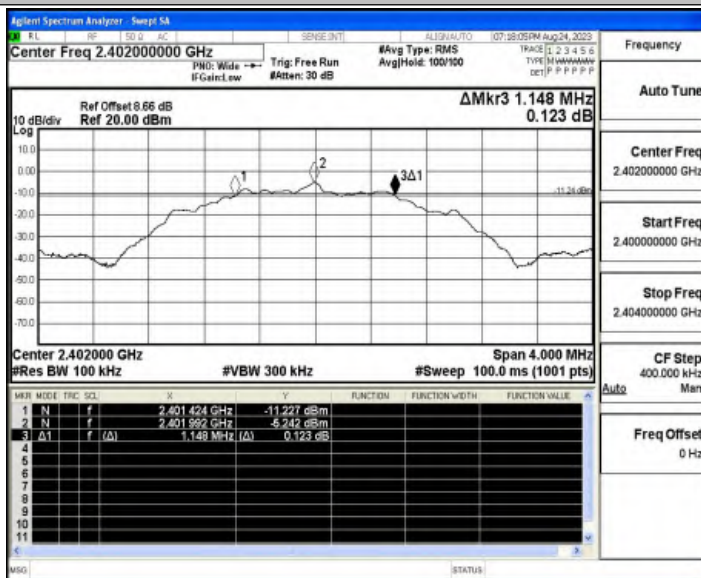


BLE\_1M\_Ant1\_2480



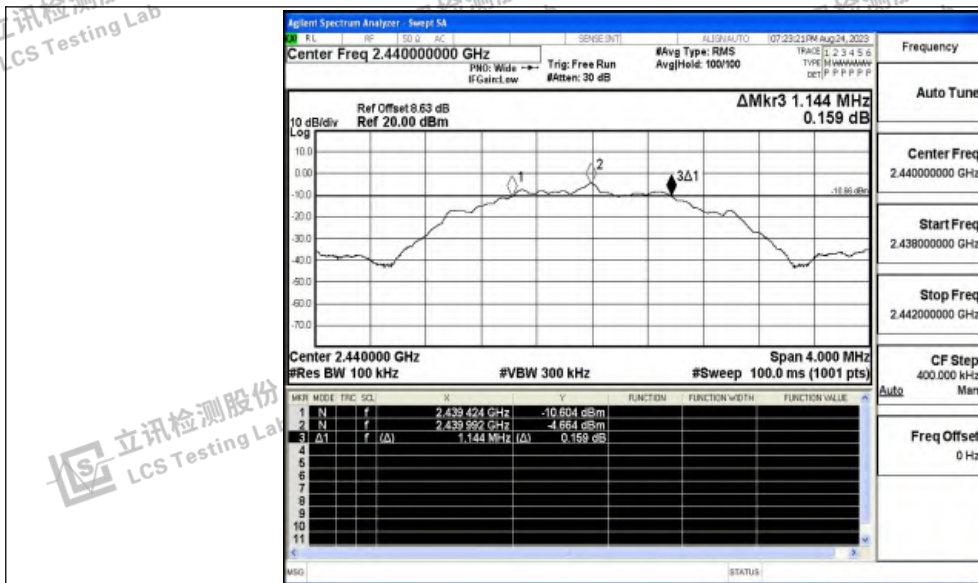


BLE\_2M\_Ant1\_2402

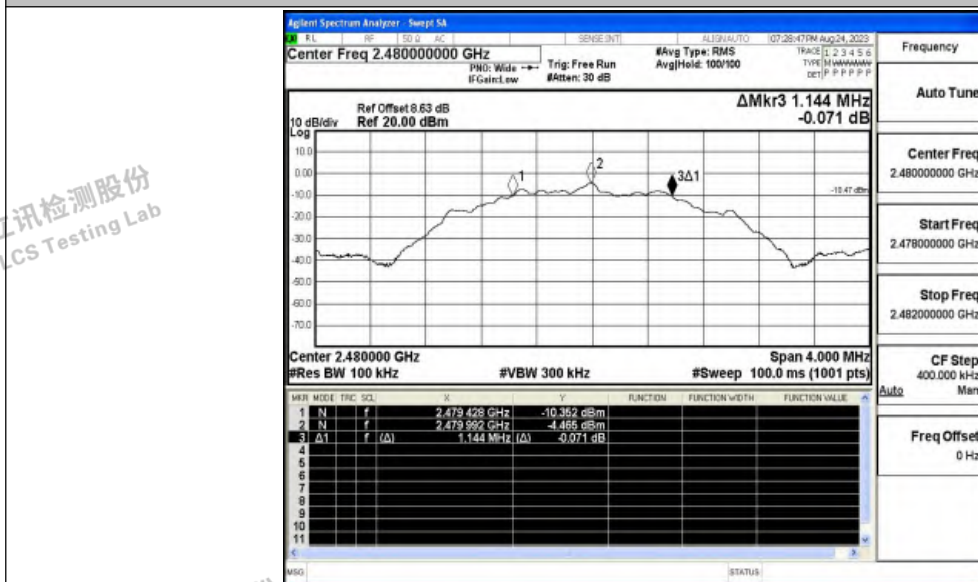


BLE\_2M\_Ant1\_2440





BLE\_2M\_Ant1\_2480







## B.2 Maximum conducted output power

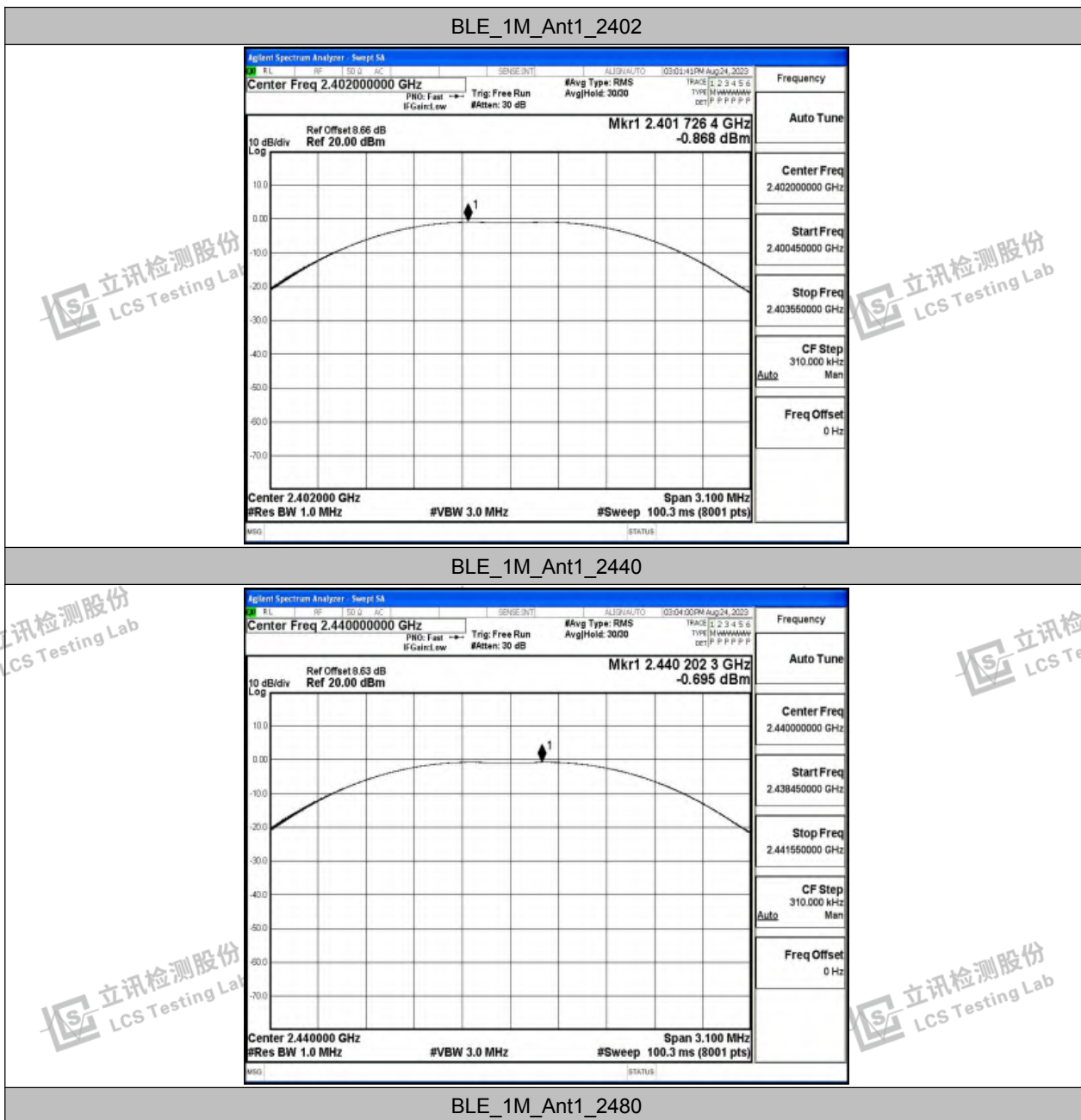
### Test Result

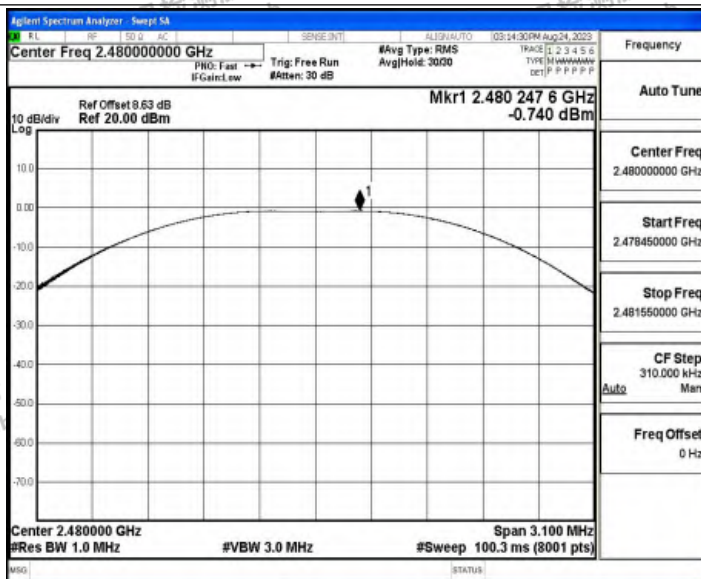
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.87	≤30	PASS
		2440	-0.7	≤30	PASS
		2480	-0.74	≤30	PASS
BLE_2M	Ant1	2402	-4.5	≤30	PASS
		2440	-3.93	≤30	PASS
		2480	-3.74	≤30	PASS



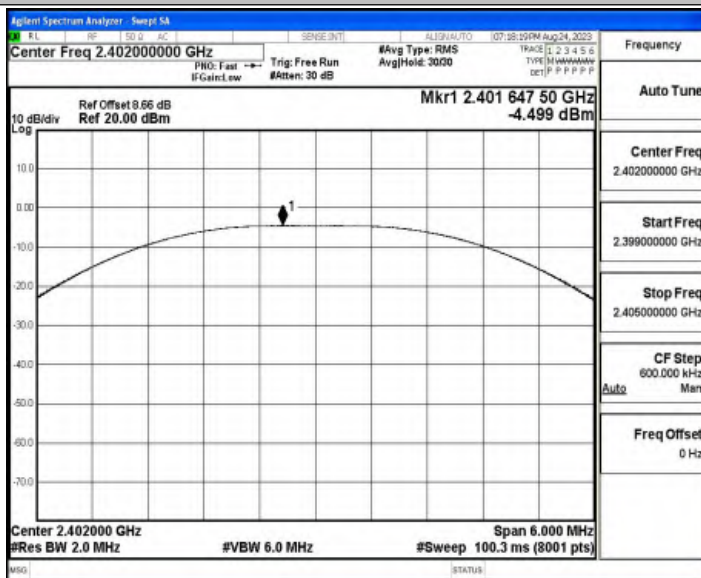


### Test Graphs





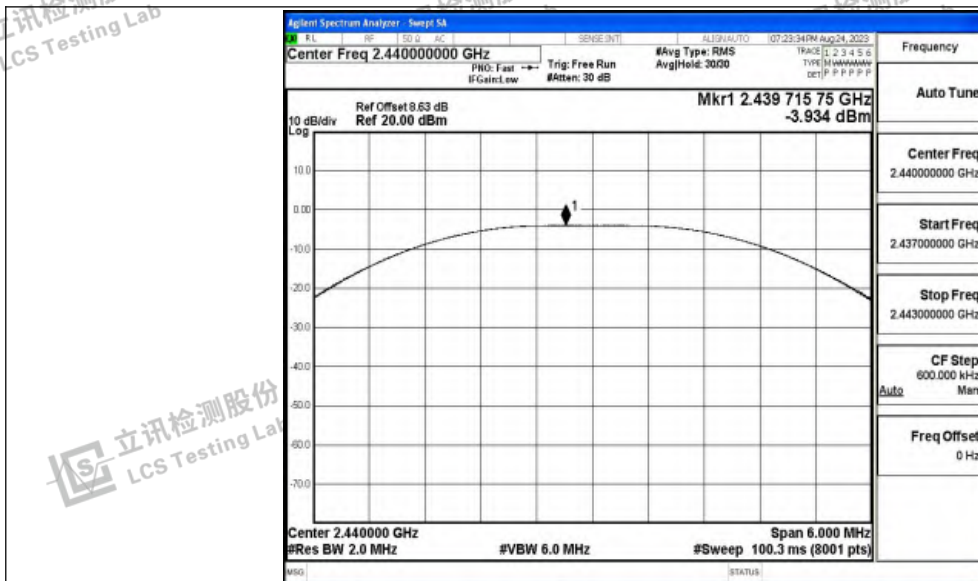
BLE\_2M\_Ant1\_2402



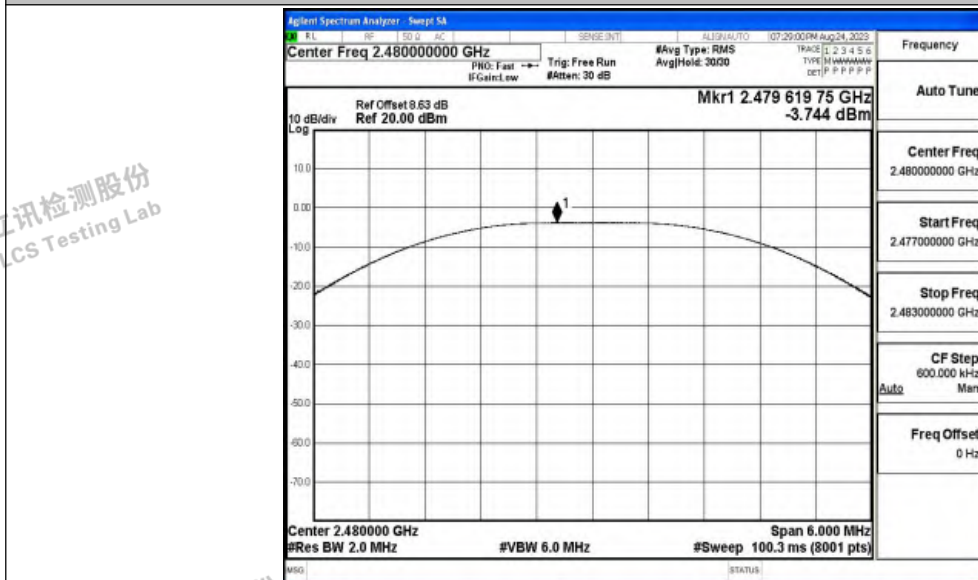
BLE\_2M\_Ant1\_2440







BLE\_2M\_Ant1\_2480





### B.3 Maximum power spectral density

#### Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.22	≤8.00	PASS
		2440	-15.98	≤8.00	PASS
		2480	-16.07	≤8.00	PASS
BLE_2M	Ant1	2402	-21.93	≤8.00	PASS
		2440	-21.23	≤8.00	PASS
		2480	-21.1	≤8.00	PASS





立讯检测股份  
LCS Testing Lab

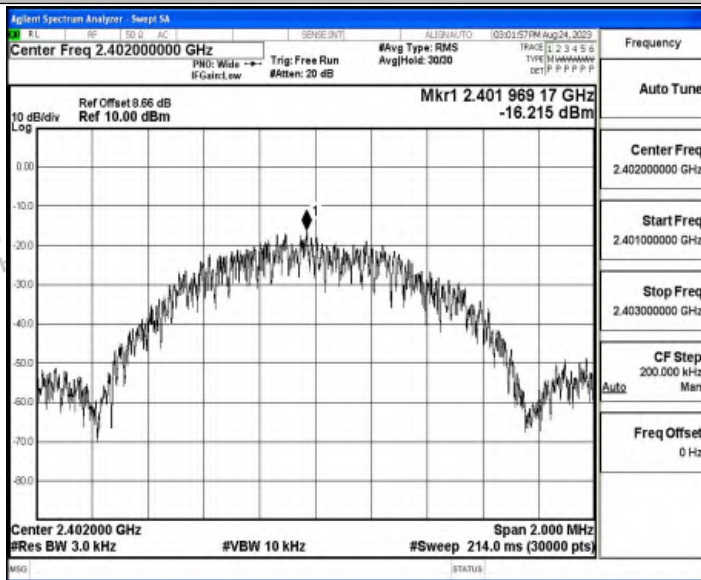
立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab

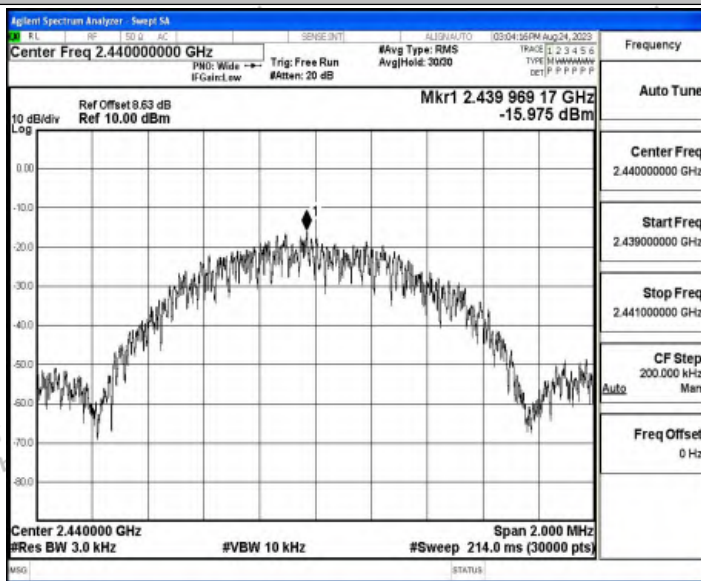
立讯检测股份  
LCS Testing Lab

### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



BLE\_1M\_Ant1\_2480

立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab

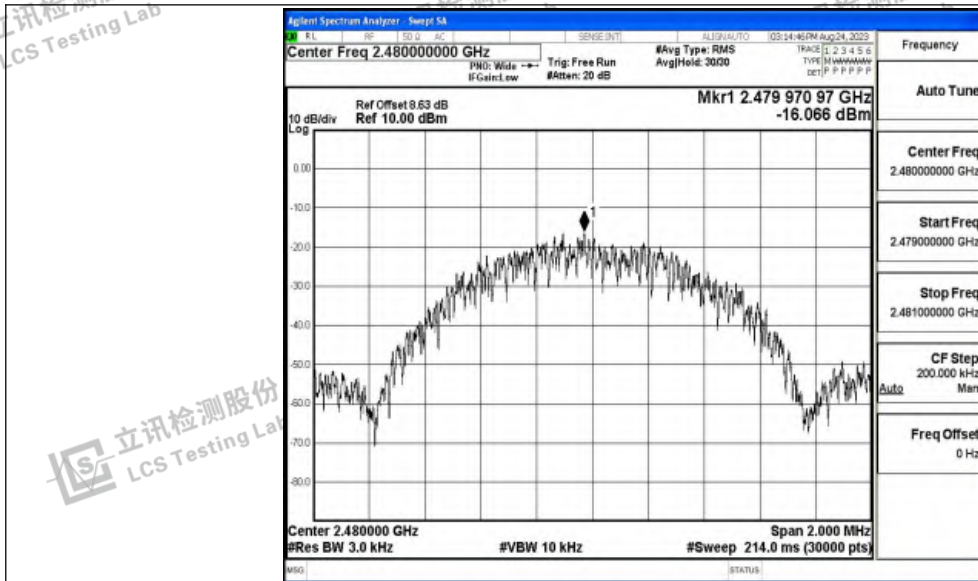
立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab

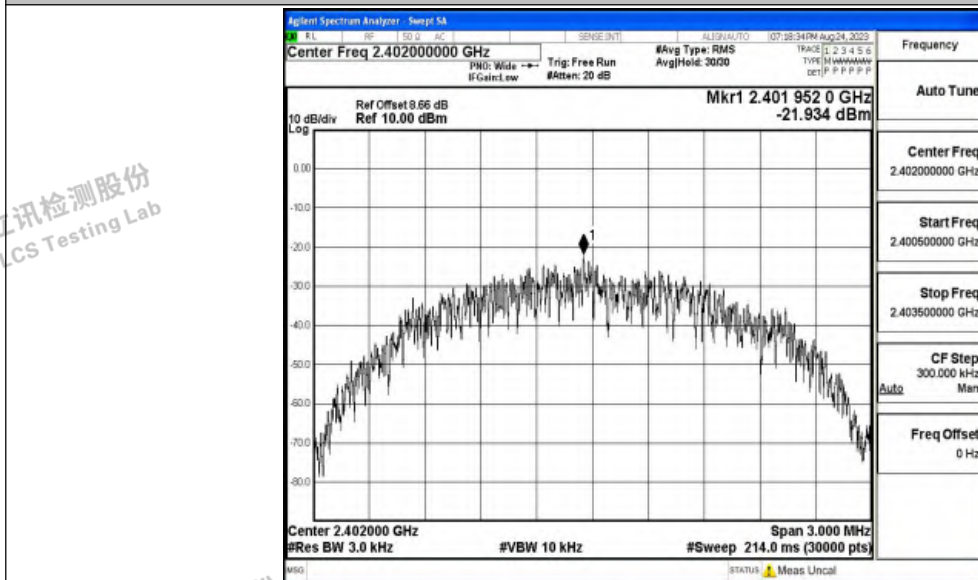
立讯检测股份  
LCS Testing Lab

立讯检测股份  
LCS Testing Lab





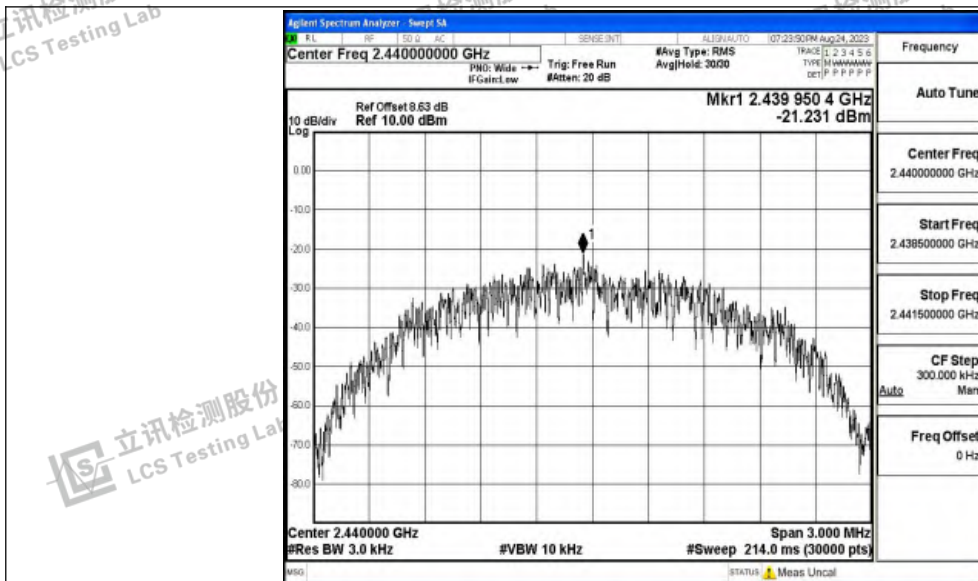
BLE\_2M\_Ant1\_2402



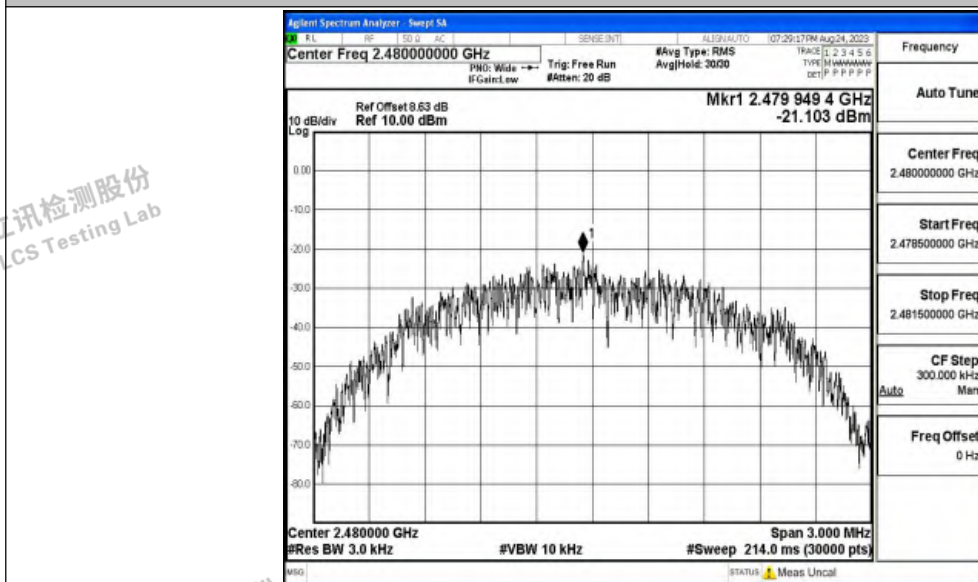
BLE\_2M\_Ant1\_2440







BLE\_2M\_Ant1\_2480







### B.4 Band edge measurements

#### Test Result

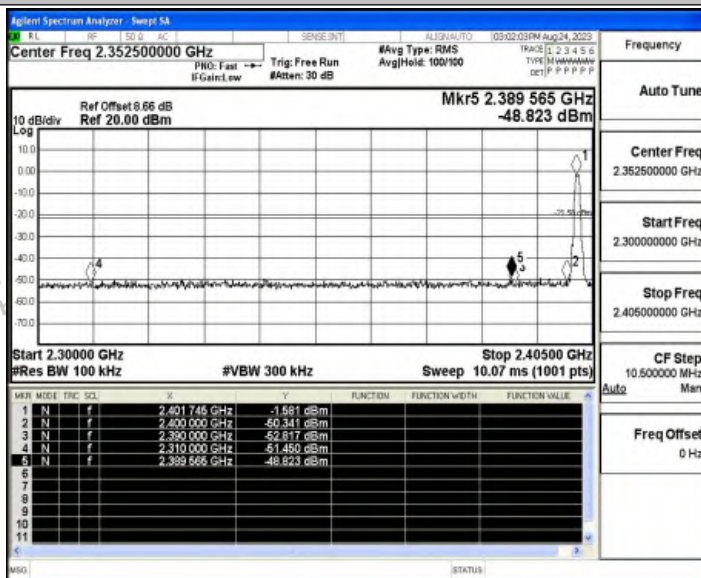
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.58	-48.82	≤-21.58	PASS
		High	2480	-1.87	-48.28	≤-21.87	PASS
BLE_2M	Ant1	Low	2402	-5.17	-38.67	≤-25.17	PASS
		High	2480	-4.38	-48.47	≤-24.38	PASS



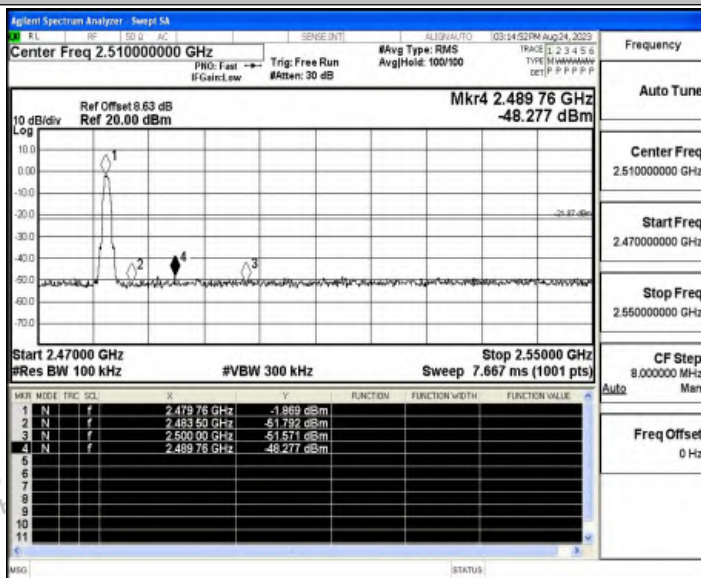


### Test Graphs

#### BLE\_1M\_Ant1\_Low\_2402

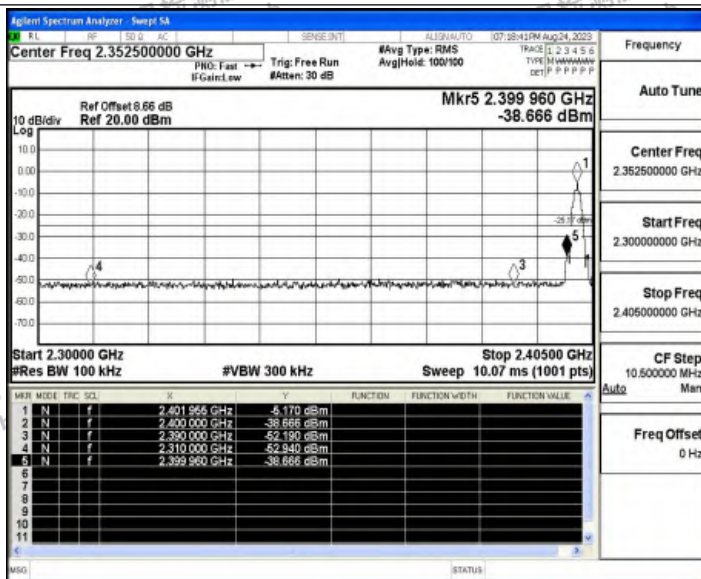


#### BLE\_1M\_Ant1\_High\_2480

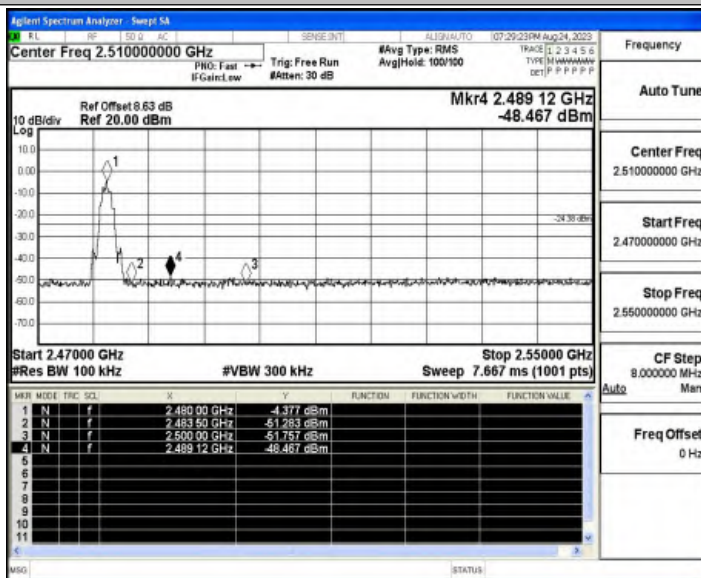


#### BLE\_2M\_Ant1\_Low\_2402





BLE\_2M\_Ant1\_High\_2480





### B.5 Conducted Spurious Emission

#### Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.82	-1.82	---	PASS
			30~1000	-1.82	-60.7	≤-21.82	PASS
			1000~26500	-1.82	-47.07	≤-21.82	PASS
		2440	Reference	-1.62	-1.62	---	PASS
			30~1000	-1.62	-61.5	≤-21.62	PASS
			1000~26500	-1.62	-46.5	≤-21.62	PASS
		2480	Reference	-1.70	-1.70	---	PASS
			30~1000	-1.70	-60.98	≤-21.7	PASS
			1000~26500	-1.70	-46.79	≤-21.7	PASS
BLE_2M	Ant1	2402	Reference	-5.38	-5.38	---	PASS
			30~1000	-5.38	-61.16	≤-25.38	PASS
			1000~26500	-5.38	-46.45	≤-25.38	PASS
		2440	Reference	-4.72	-4.72	---	PASS
			30~1000	-4.72	-61.56	≤-24.72	PASS
			1000~26500	-4.72	-46.46	≤-24.72	PASS
		2480	Reference	-4.49	-4.49	---	PASS
			30~1000	-4.49	-60.74	≤-24.49	PASS
			1000~26500	-4.49	-46.53	≤-24.49	PASS

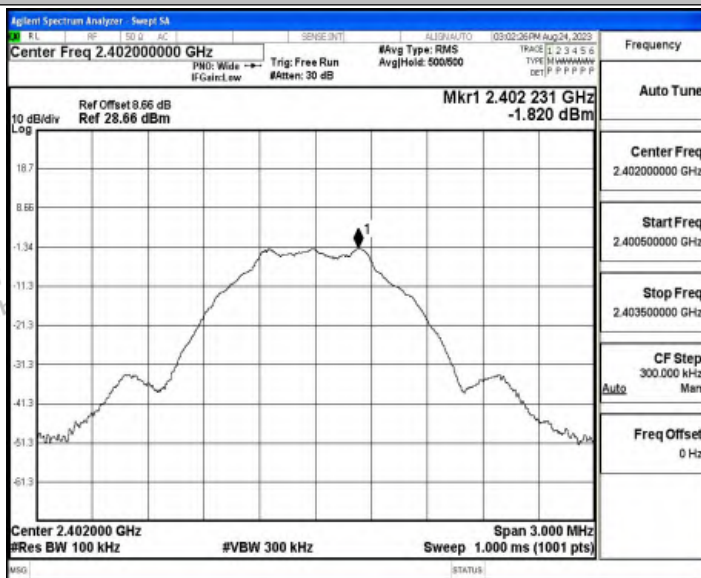




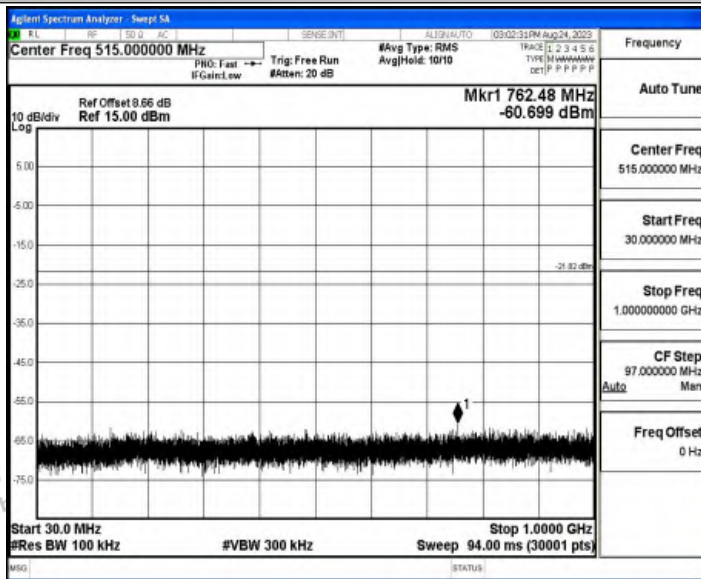


### Test Graphs

BLE\_1M\_Ant1\_2402\_0~Reference



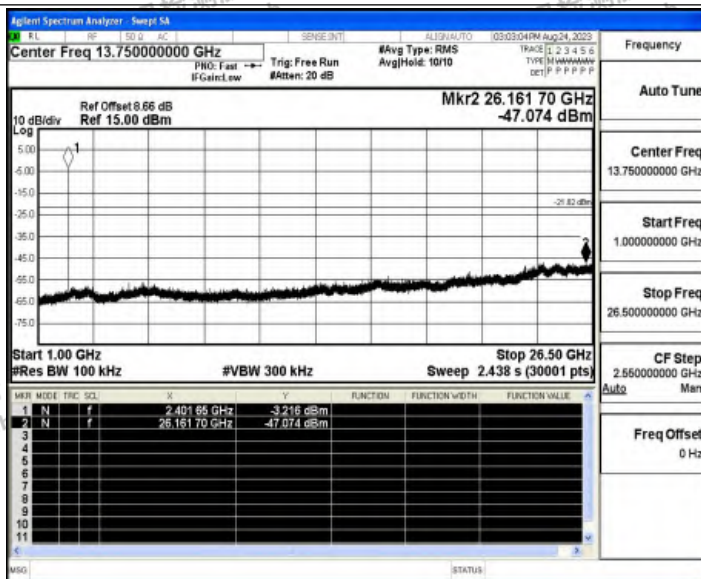
BLE\_1M\_Ant1\_2402\_30~1000



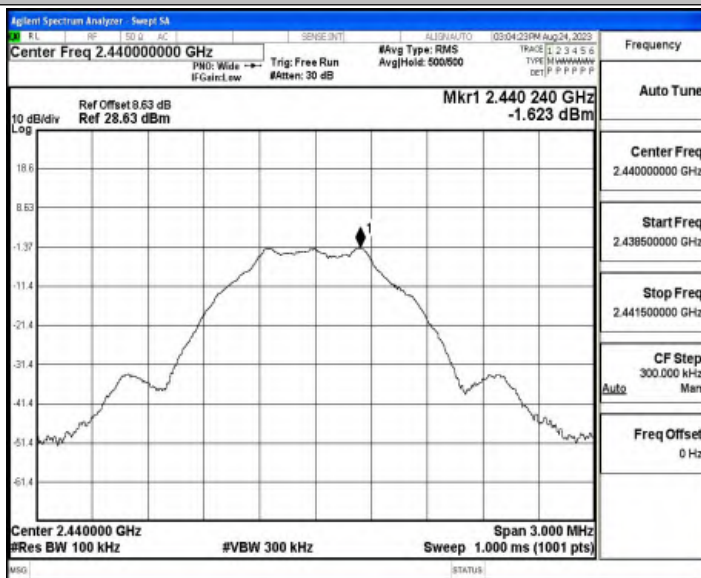
BLE\_1M\_Ant1\_2402\_1000~26500





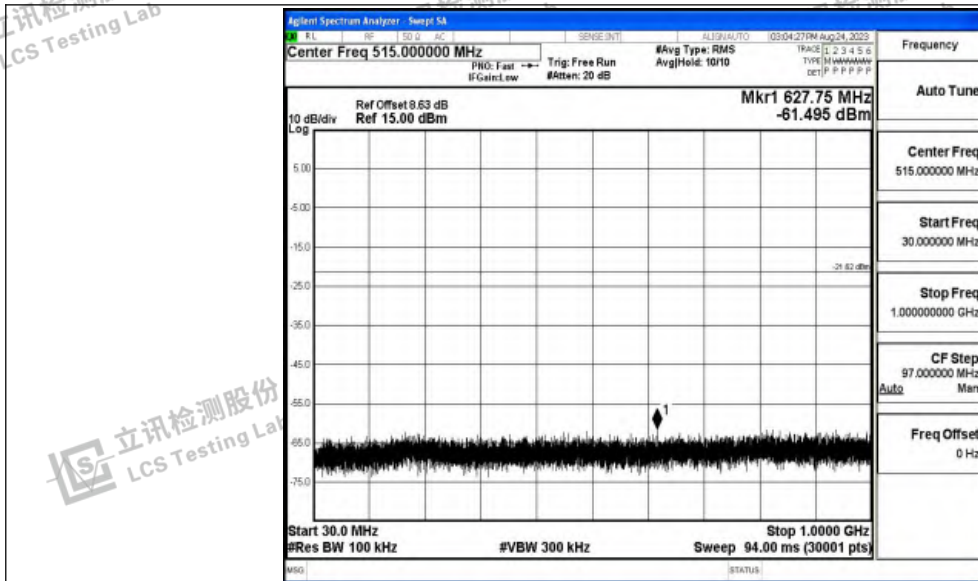


BLE\_1M\_Ant1\_2440\_0~Reference

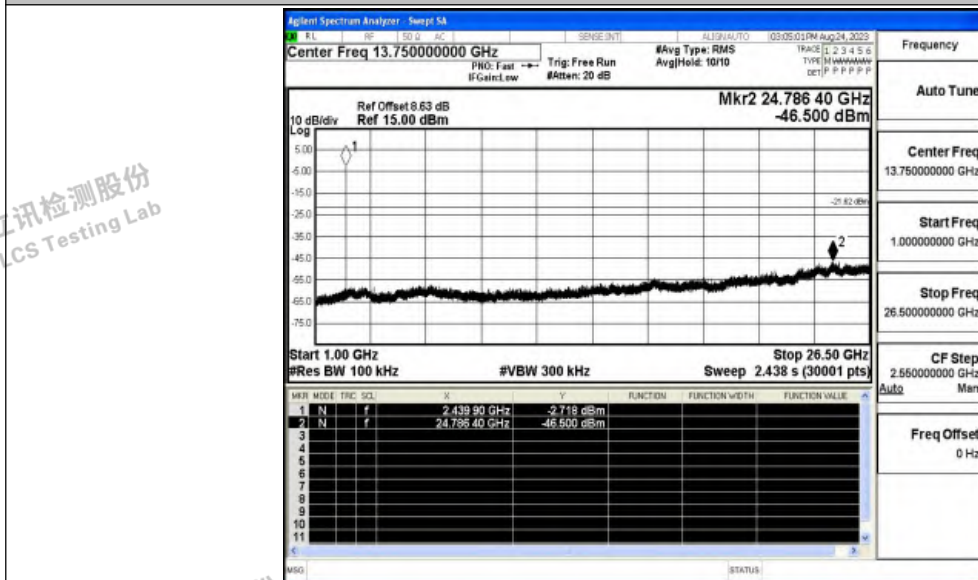


BLE\_1M\_Ant1\_2440\_30~1000



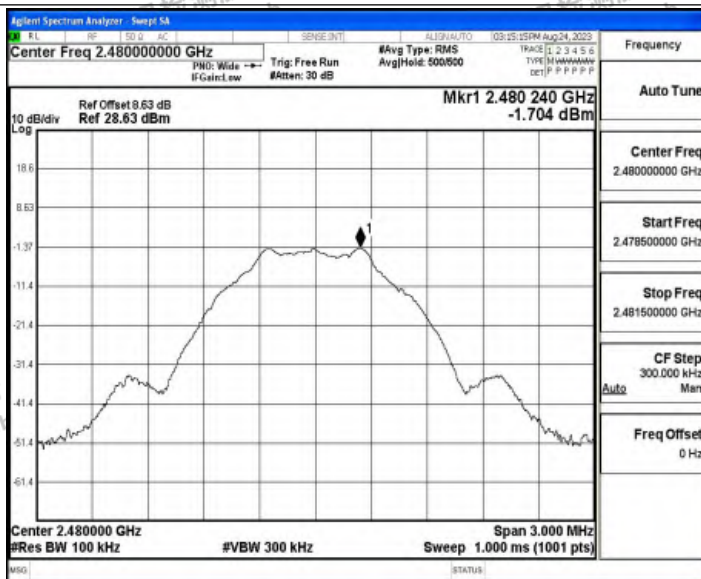


BLE\_1M\_Ant1\_2440\_1000~26500

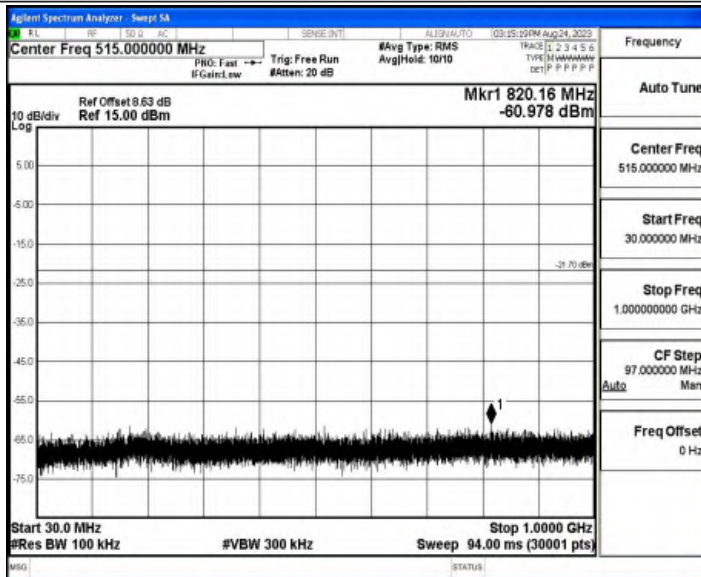


BLE\_1M\_Ant1\_2480\_0~Reference



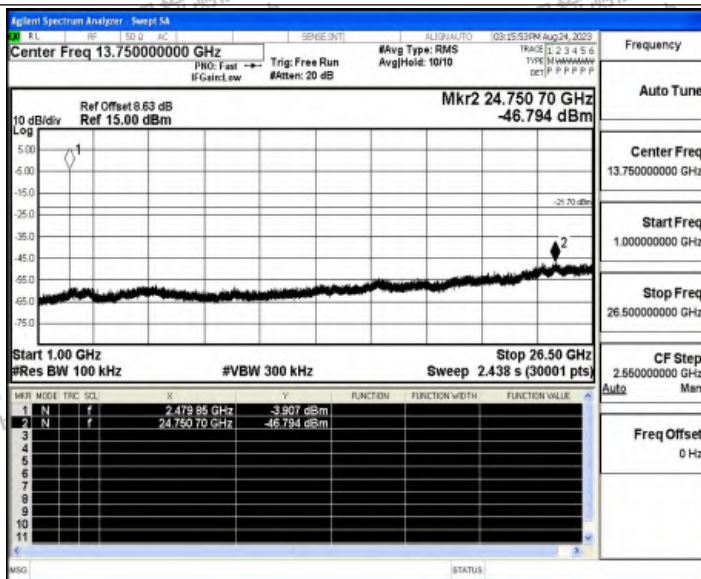


BLE\_1M\_Ant1\_2480\_30~1000

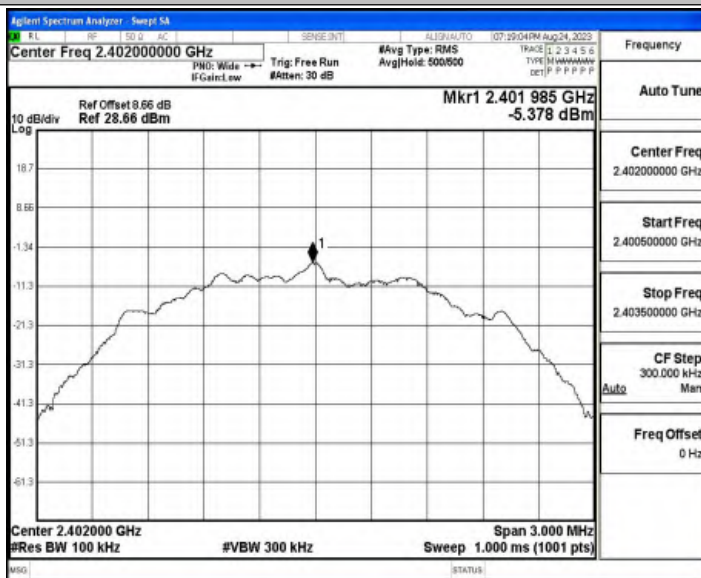


BLE\_1M\_Ant1\_2480\_1000~26500





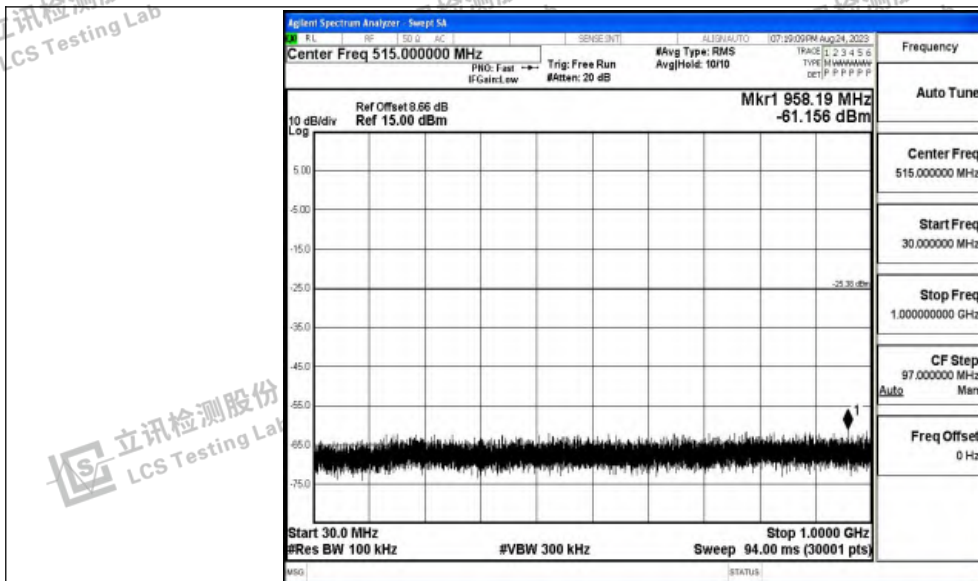
BLE\_2M\_Ant1\_2402\_0~Reference



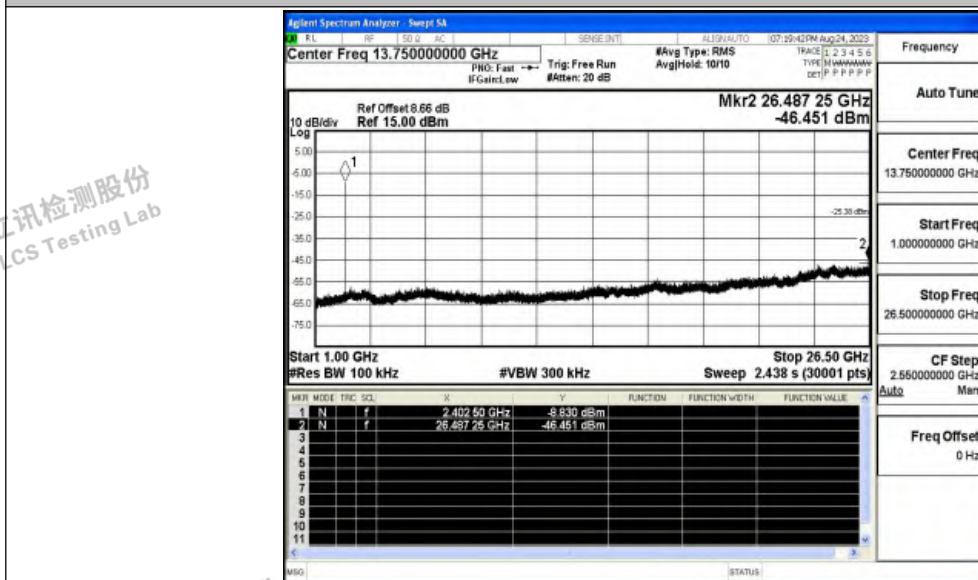
BLE\_2M\_Ant1\_2402\_30~1000







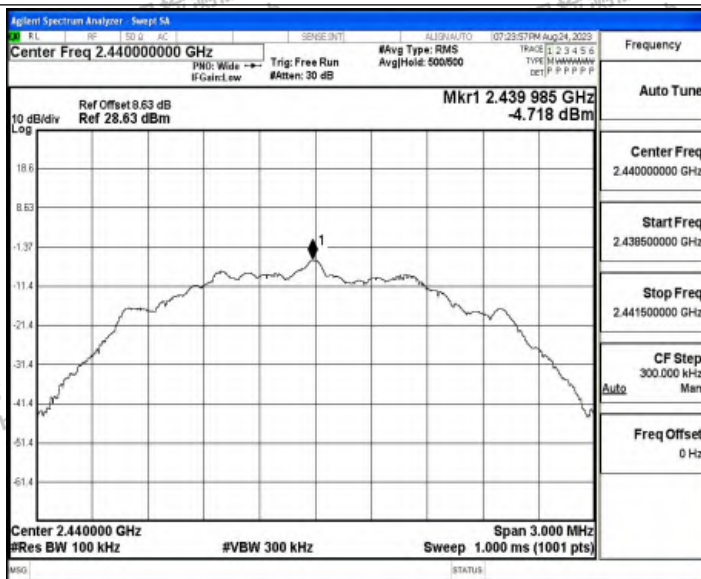
BLE\_2M\_Ant1\_2402\_1000~26500



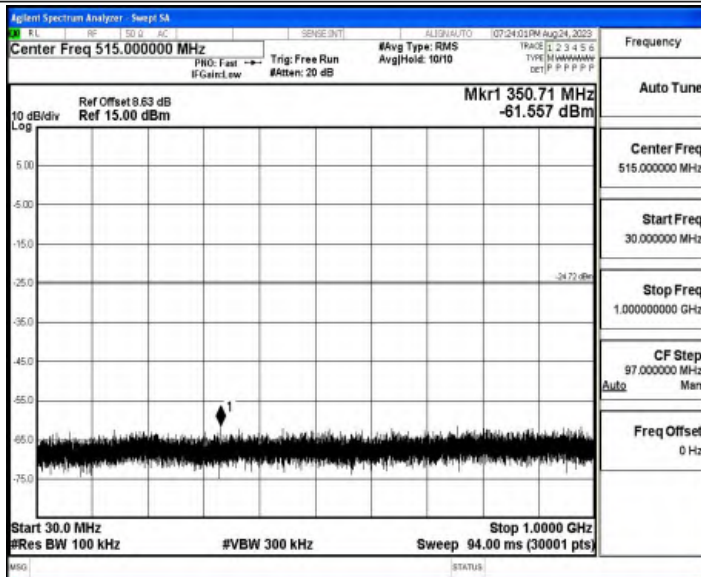
BLE\_2M\_Ant1\_2440\_0~Reference





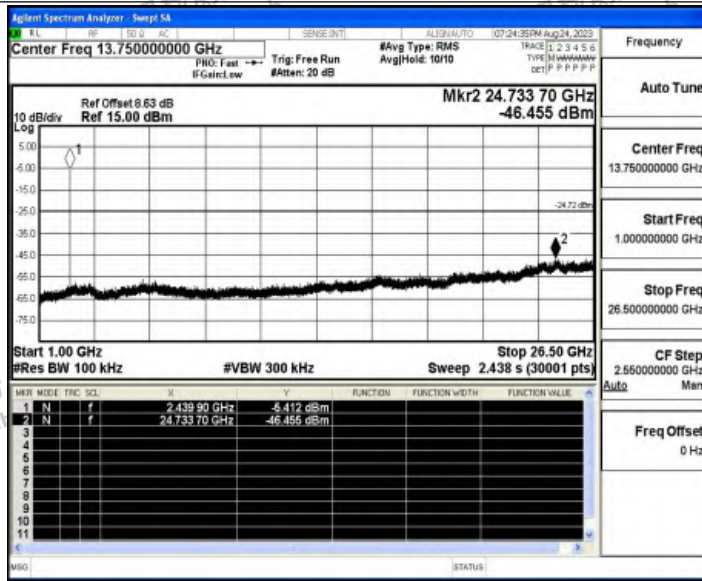


BLE\_2M\_Ant1\_2440\_30~1000

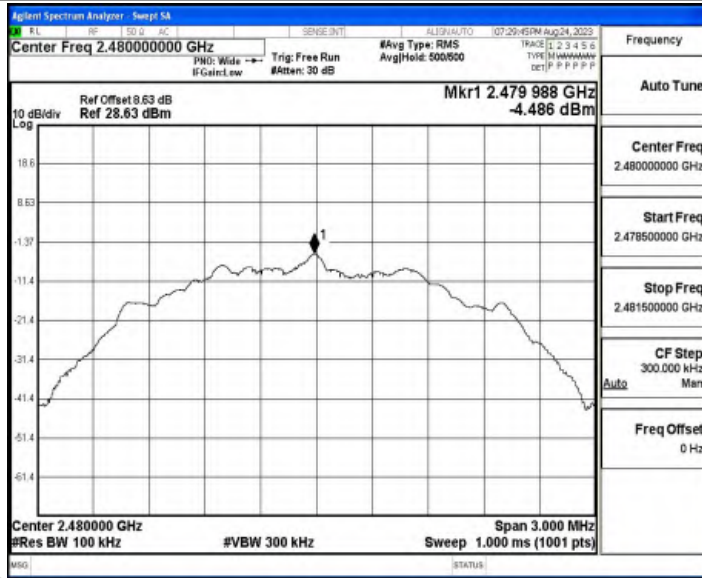


BLE\_2M\_Ant1\_2440\_1000~26500



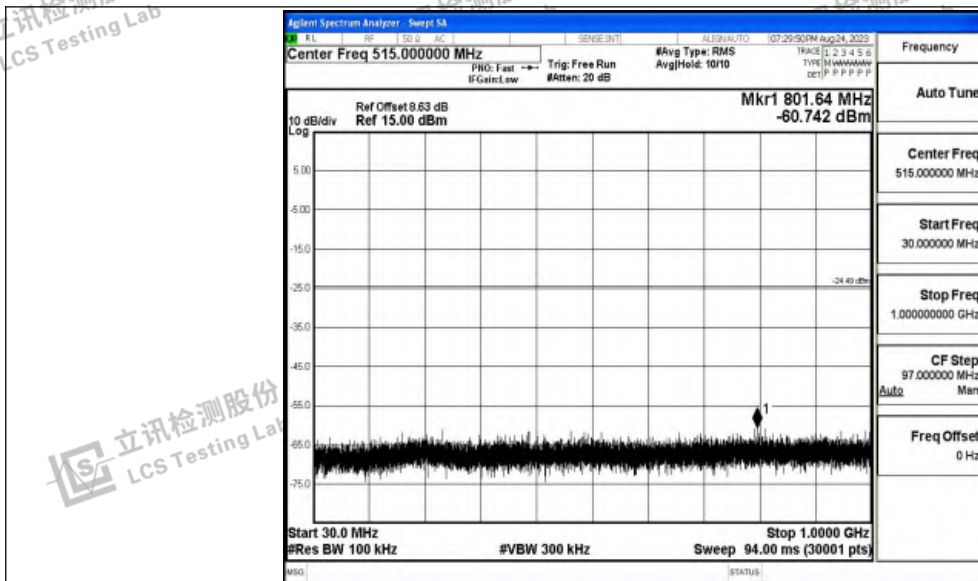


BLE\_2M\_Ant1\_2480\_0~Reference

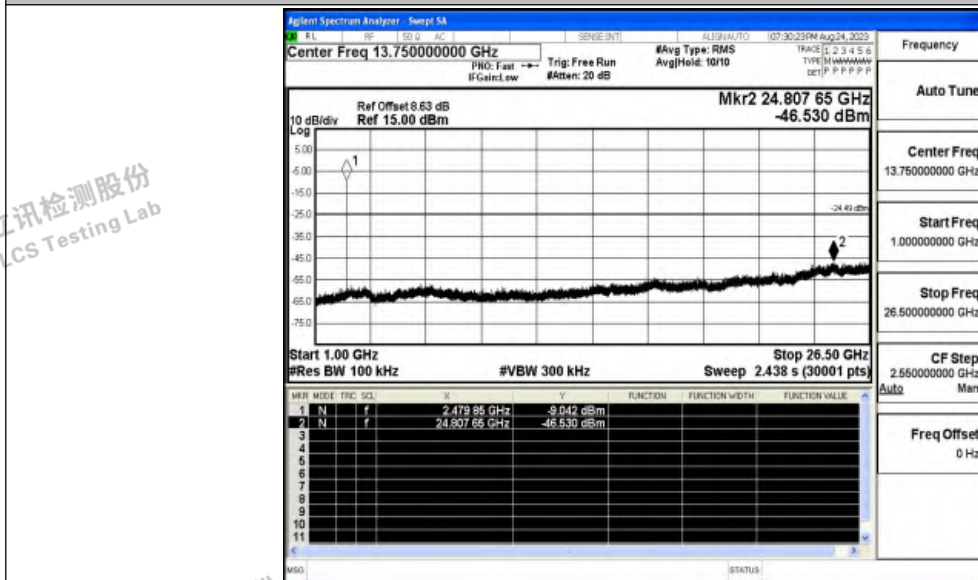


BLE\_2M\_Ant1\_2480\_30~1000





BLE\_2M\_Ant1\_2480\_1000~26500





### B.6 Duty Cycle

#### Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2440	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2480	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
BLE_2M	Ant1	2402	0.20	0.62	0.3226	32.26	4.91	5.00	---	---
		2440	0.20	0.62	0.3226	32.26	4.91	5.00	---	---
		2480	0.20	0.62	0.3226	32.26	4.91	5.00	---	---

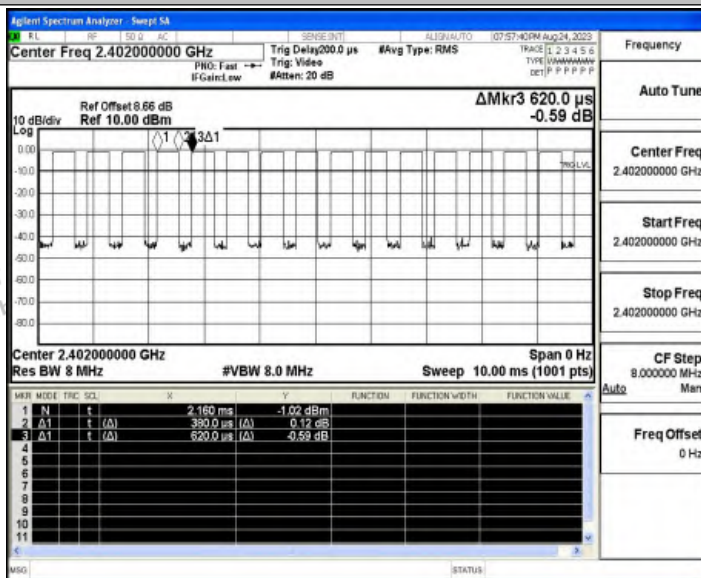




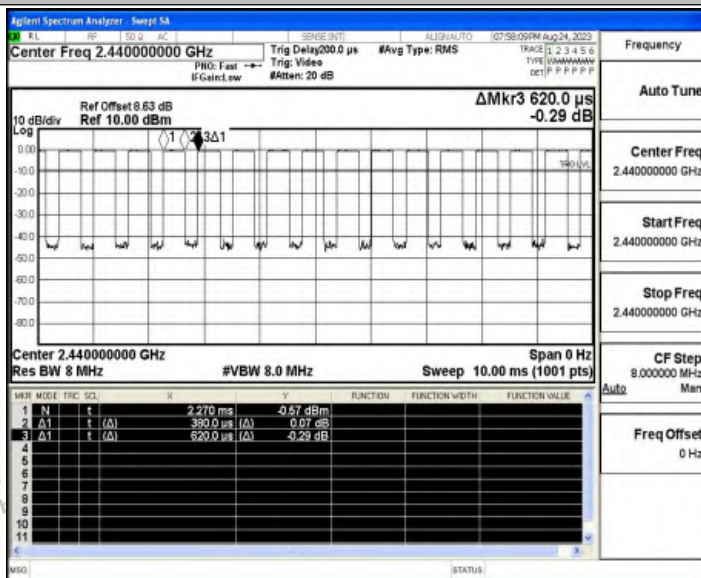


### Test Graphs

BLE\_1M\_Ant1\_2402



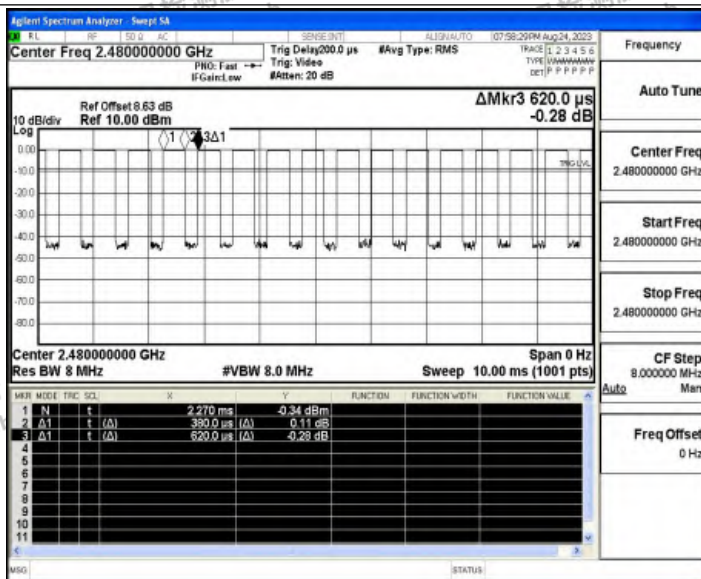
BLE\_1M\_Ant1\_2440



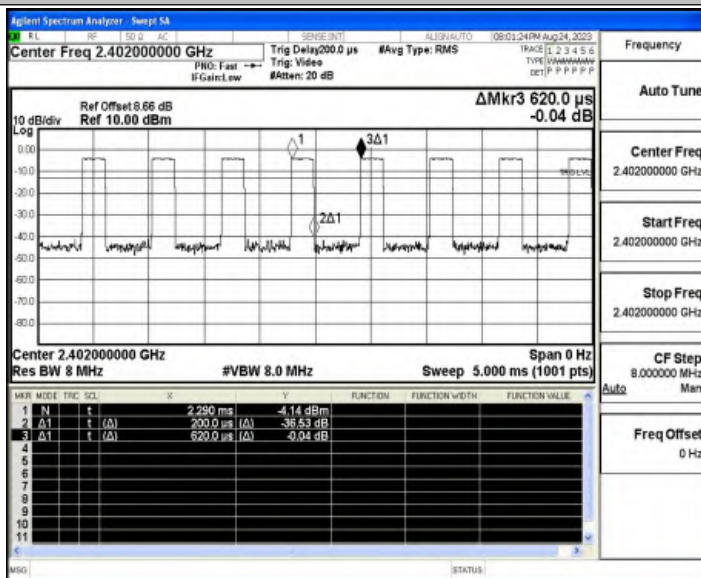
BLE\_1M\_Ant1\_2480





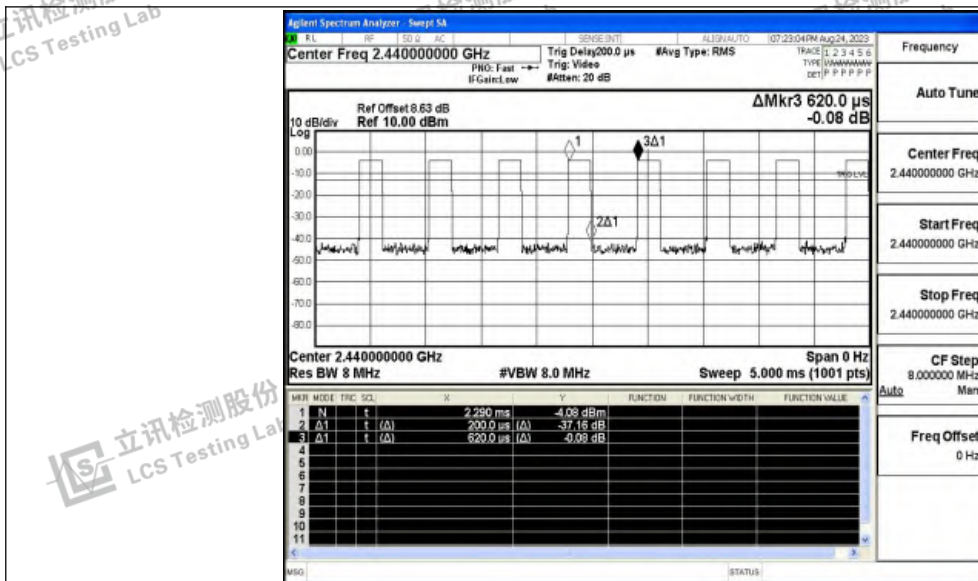


BLE\_2M\_Ant1\_2402

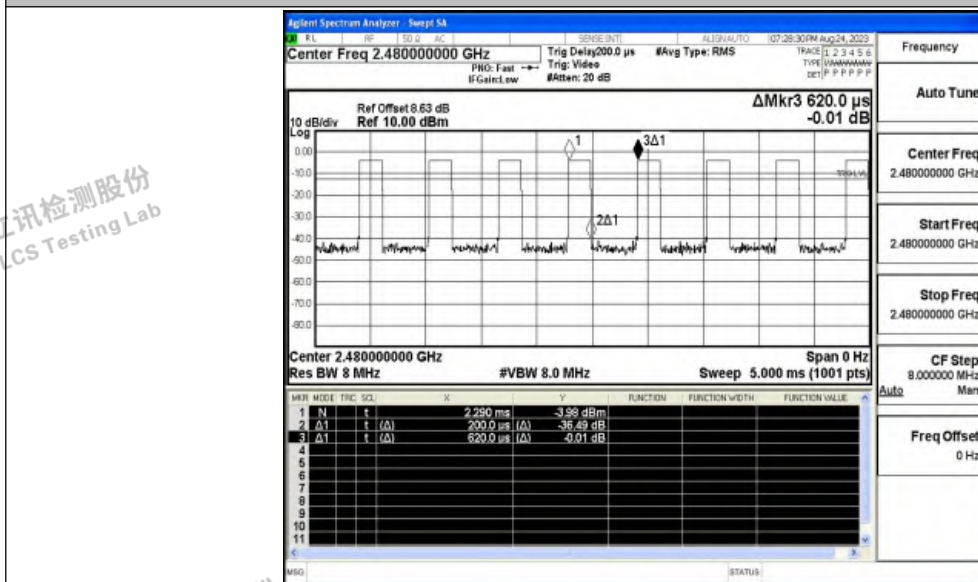


BLE\_2M\_Ant1\_2440





BLE\_2M\_Ant1\_2480





### B.7 Emissions in Restricted Bands

#### Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-47.58	≤-41.20	47.62	≤54	PASS
				AV	2387.990	-46.82	≤-41.20	48.38	≤54	PASS
				AV	2390.000	-47.24	≤-41.20	47.96	≤54	PASS
				Peak	2310.000	-41.76	≤-21.20	53.44	≤74	PASS
				Peak	2375.390	-37.73	≤-21.20	57.47	≤74	PASS
				Peak	2390.000	-39.99	≤-21.20	55.21	≤74	PASS
		High	2480	AV	2483.500	-46.45	≤-41.20	48.75	≤54	PASS
				AV	2496.640	-46.22	≤-41.20	48.98	≤54	PASS
				AV	2500.000	-46.34	≤-41.20	48.86	≤54	PASS
				Peak	2483.500	-41	≤-21.20	54.20	≤74	PASS
				Peak	2483.920	-38.07	≤-21.20	57.13	≤74	PASS
				Peak	2500.000	-40.89	≤-21.20	54.31	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-46.96	≤-41.20	48.24	≤54	PASS
				AV	2358.695	-45.68	≤-41.20	49.52	≤54	PASS
				AV	2390.000	-46.75	≤-41.20	48.45	≤54	PASS
				Peak	2310.000	-38.09	≤-21.20	57.11	≤74	PASS
				Peak	2356.070	-37.73	≤-21.20	57.47	≤74	PASS
				Peak	2390.000	-39.22	≤-21.20	55.98	≤74	PASS
		High	2480	AV	2483.500	-45.88	≤-41.20	49.32	≤54	PASS
				AV	2499.360	-45.56	≤-41.20	49.64	≤54	PASS
				AV	2500.000	-46.16	≤-41.20	49.04	≤54	PASS
				Peak	2483.500	-38.81	≤-21.20	56.39	≤74	PASS
				Peak	2486.480	-37.5	≤-21.20	57.70	≤74	PASS
				Peak	2500.000	-40.06	≤-21.20	55.14	≤74	PASS

Note:

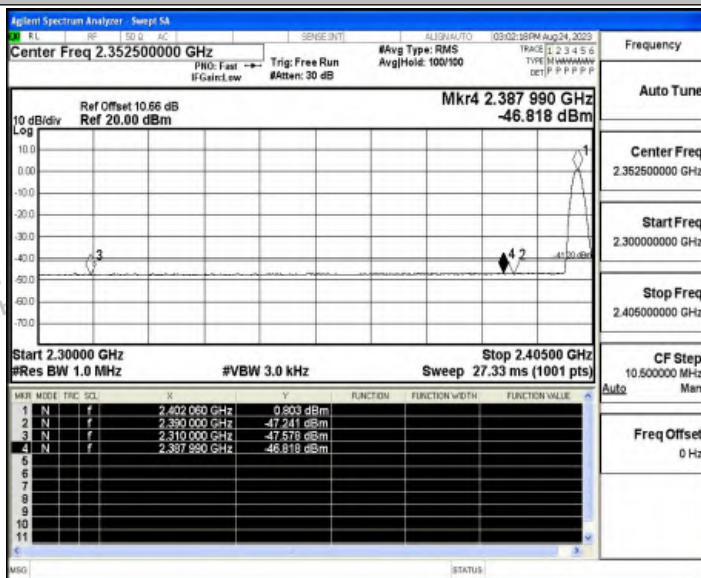
- The Antenna Gain is compensated in the graph.
- The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



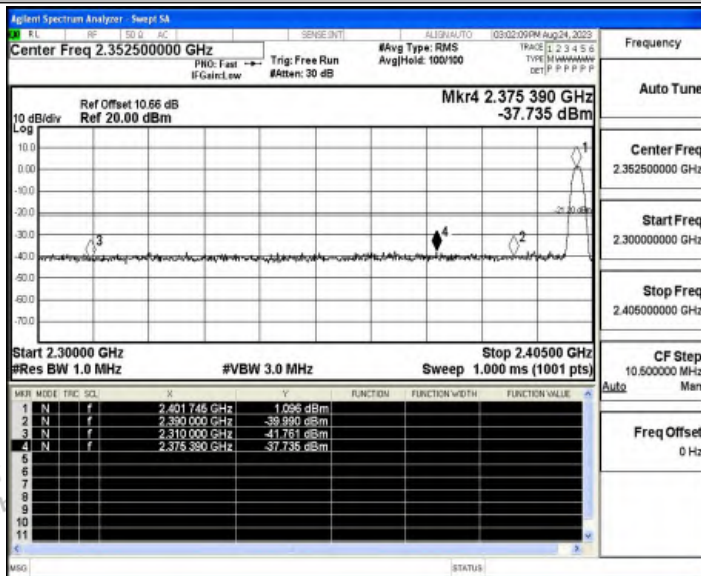


### Test Graphs

#### BLE\_1M\_Ant1\_Low\_2402\_AV



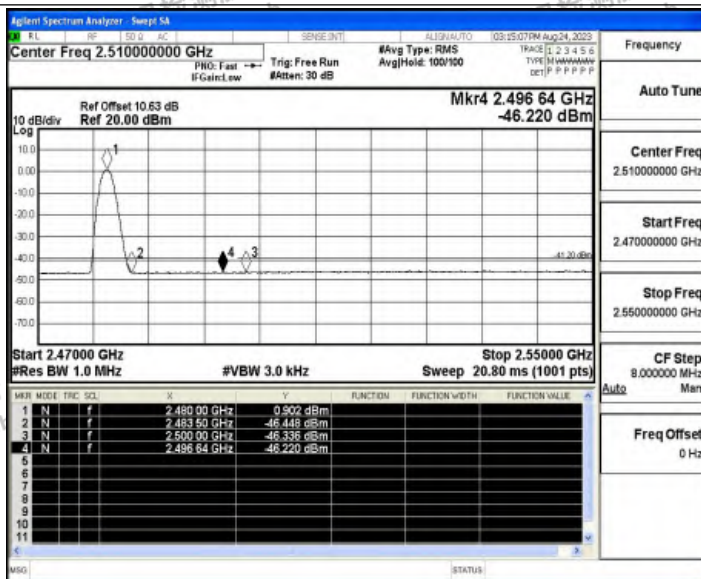
#### BLE\_1M\_Ant1\_Low\_2402\_Peak



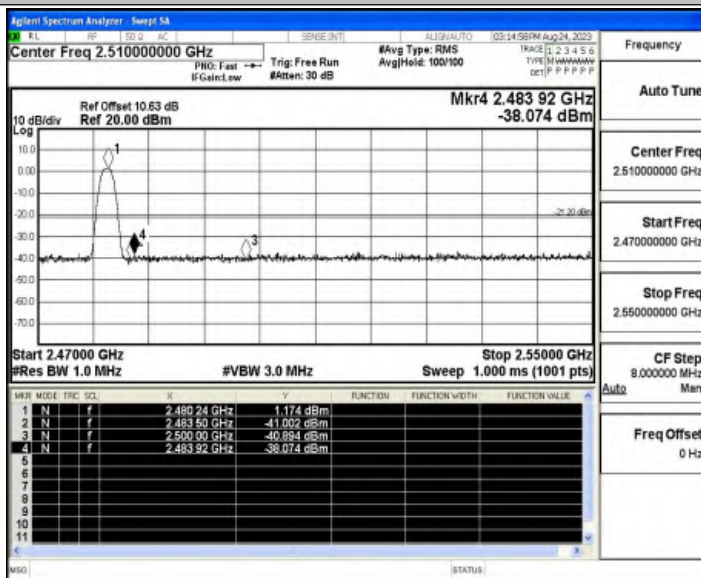
#### BLE\_1M\_Ant1\_High\_2480\_AV





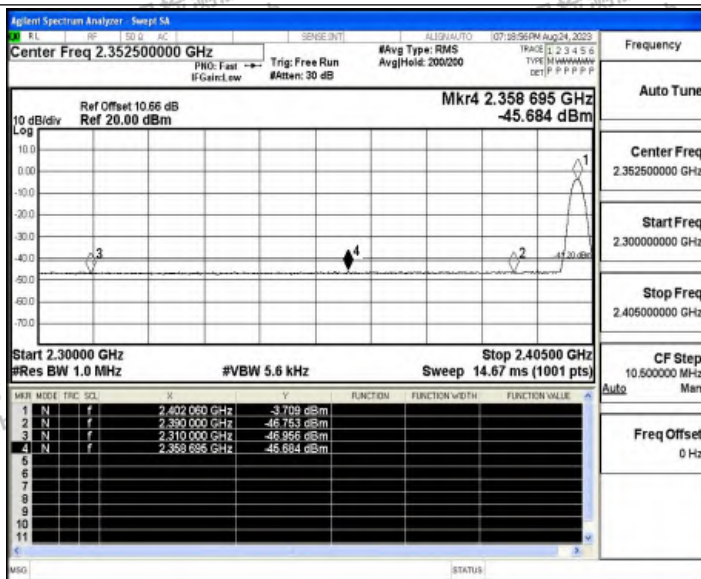


BLE\_1M\_Ant1\_High\_2480\_Peak

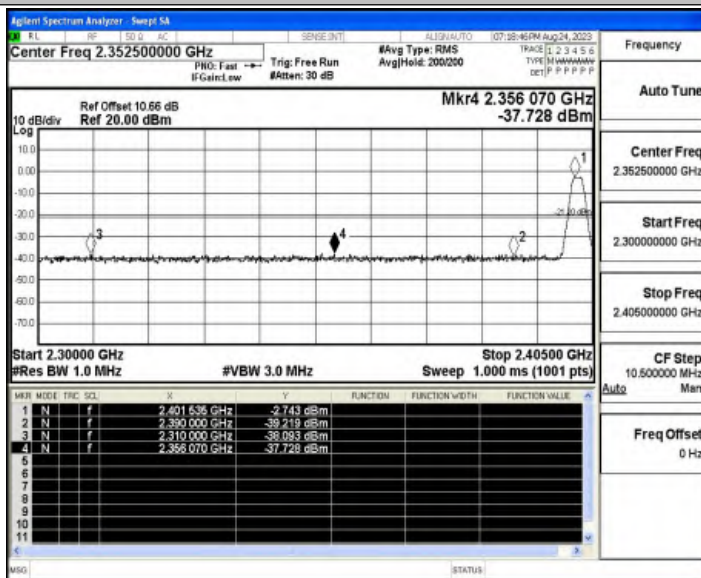


BLE\_2M\_Ant1\_Low\_2402\_AV



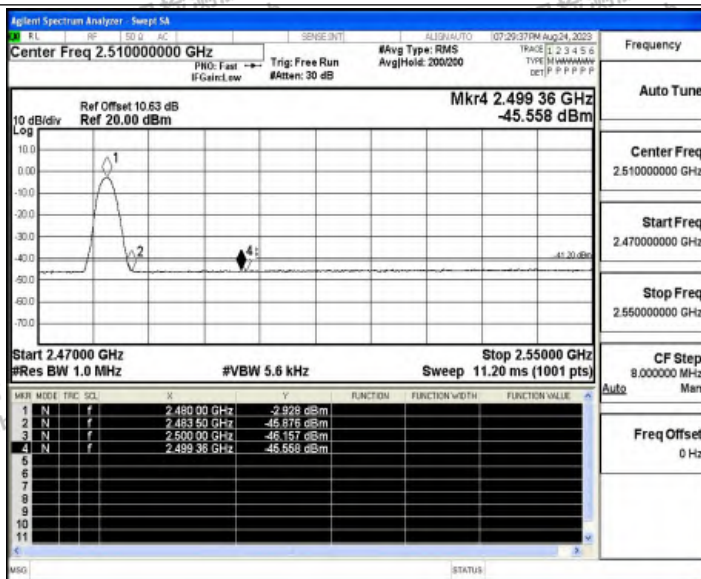


BLE\_2M\_Ant1\_Low\_2402\_Peak



BLE\_2M\_Ant1\_High\_2480\_AV





BLE\_2M\_Ant1\_High\_2480\_Peak

