



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: LED shower system

Test Model: 66714746

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	 Monkey Li
Supervised by:	 Li Huan





B.1 DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.680	2401.664	2402.344	0.5	PASS
		2440	0.688	2439.660	2440.348	0.5	PASS
		2480	0.684	2479.664	2480.348	0.5	PASS
BLE_2M	Ant1	2402	1.144	2401.436	2402.580	0.5	PASS
		2440	1.152	2439.428	2440.580	0.5	PASS
		2480	1.148	2479.432	2480.580	0.5	PASS

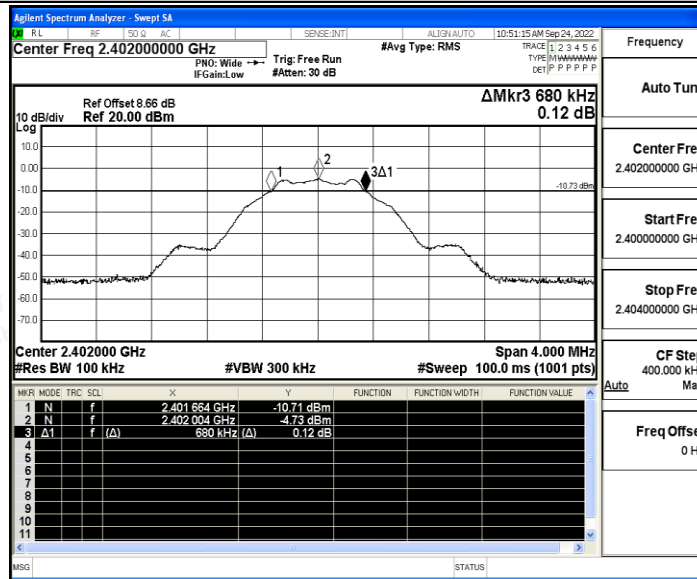


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Scan code to check authenticity

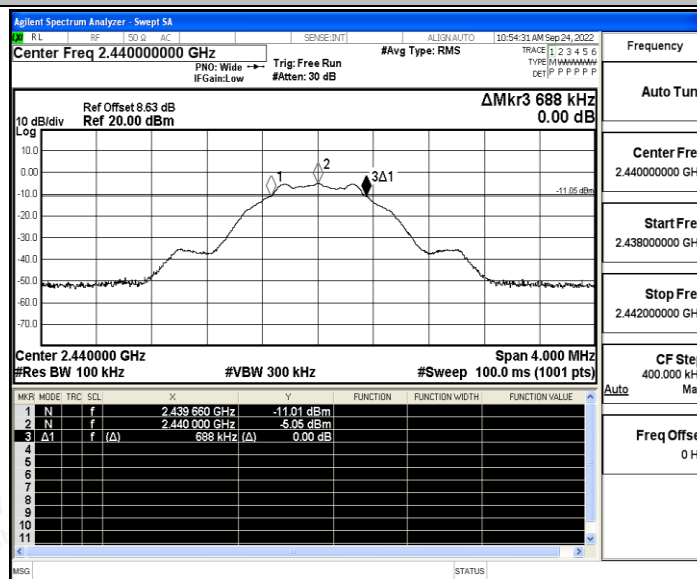


Test Graphs

BLE_1M_Ant1_2402

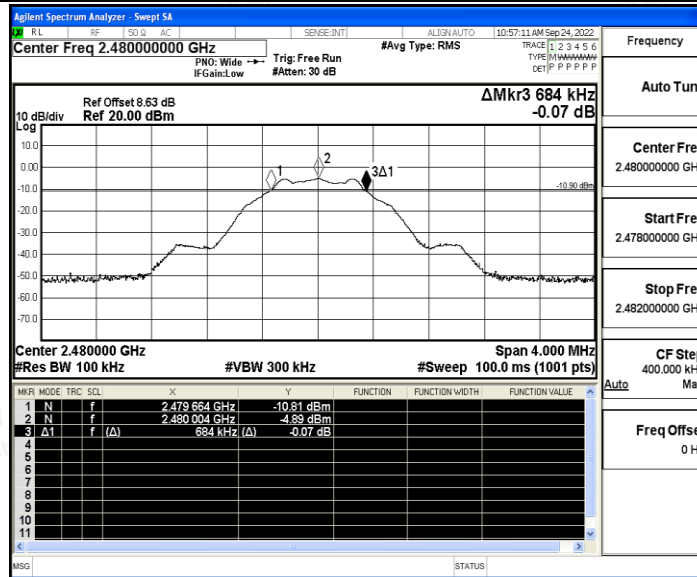


BLE_1M_Ant1_2440

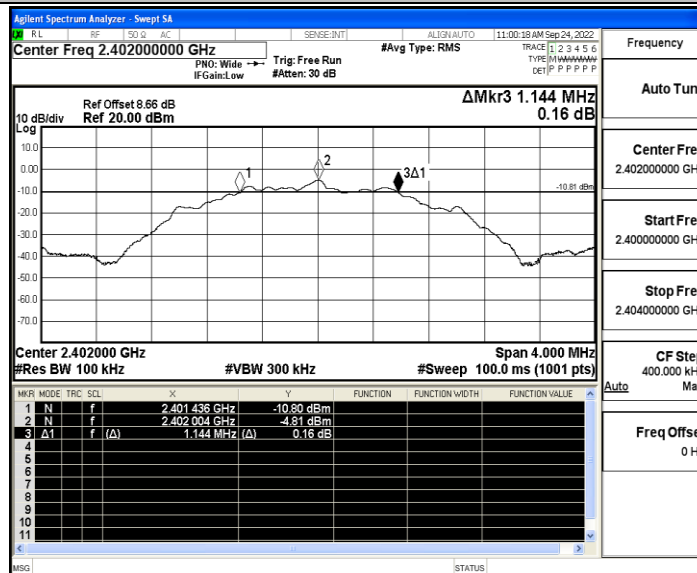


BLE_1M_Ant1_2480



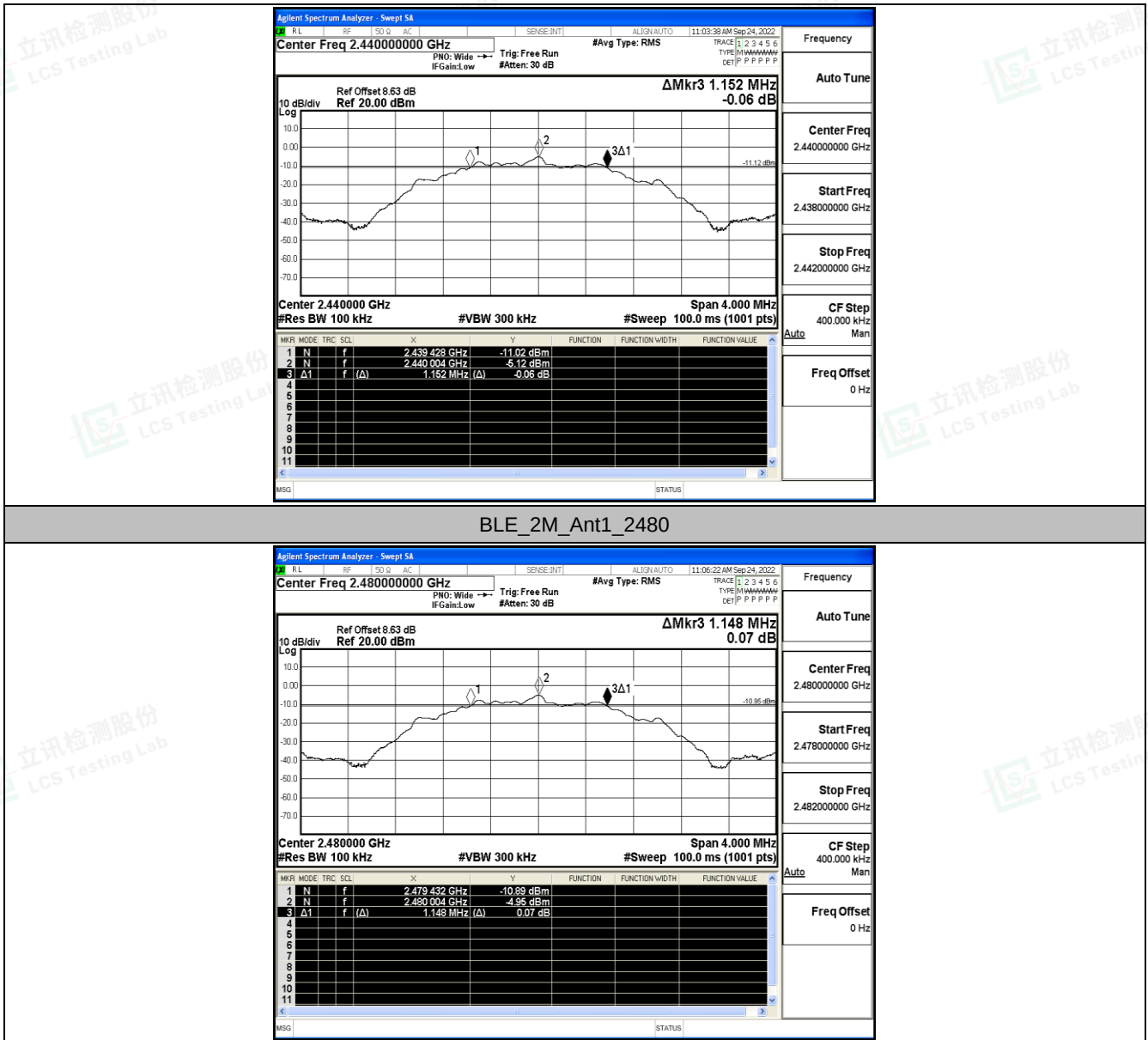


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







B.2 Maximum conducted output power

Test Result

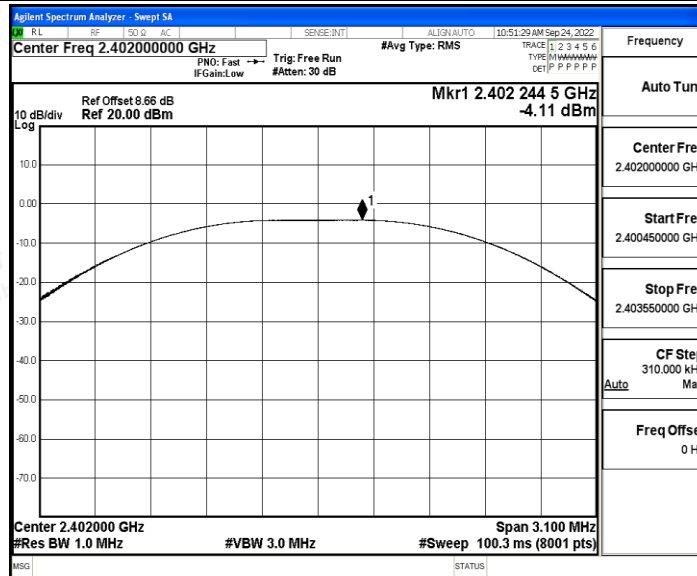
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-4.11	≤30	PASS
		2440	-4.37	≤30	PASS
		2480	-4.27	≤30	PASS
BLE_2M	Ant1	2402	-4	≤30	PASS
		2440	-4.22	≤30	PASS
		2480	-4.09	≤30	PASS



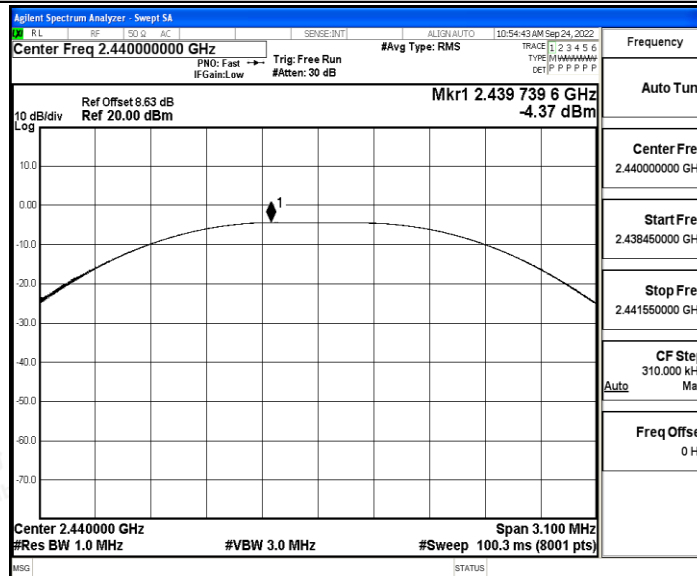


Test Graphs

BLE_1M_Ant1_2402

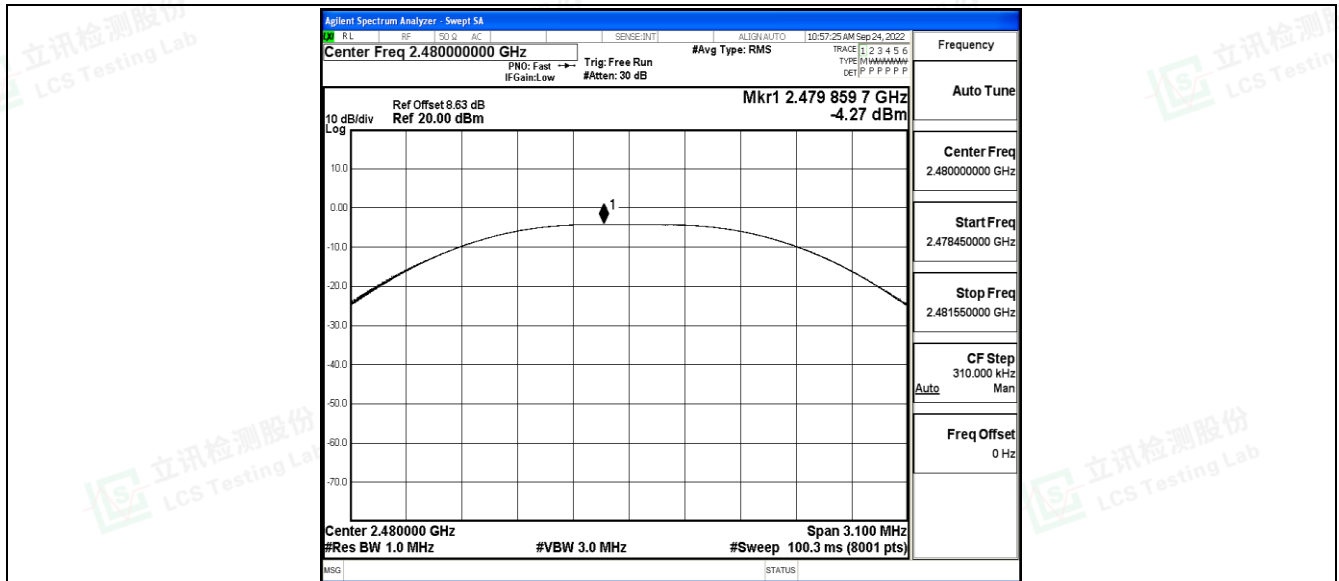


BLE_1M_Ant1_2440

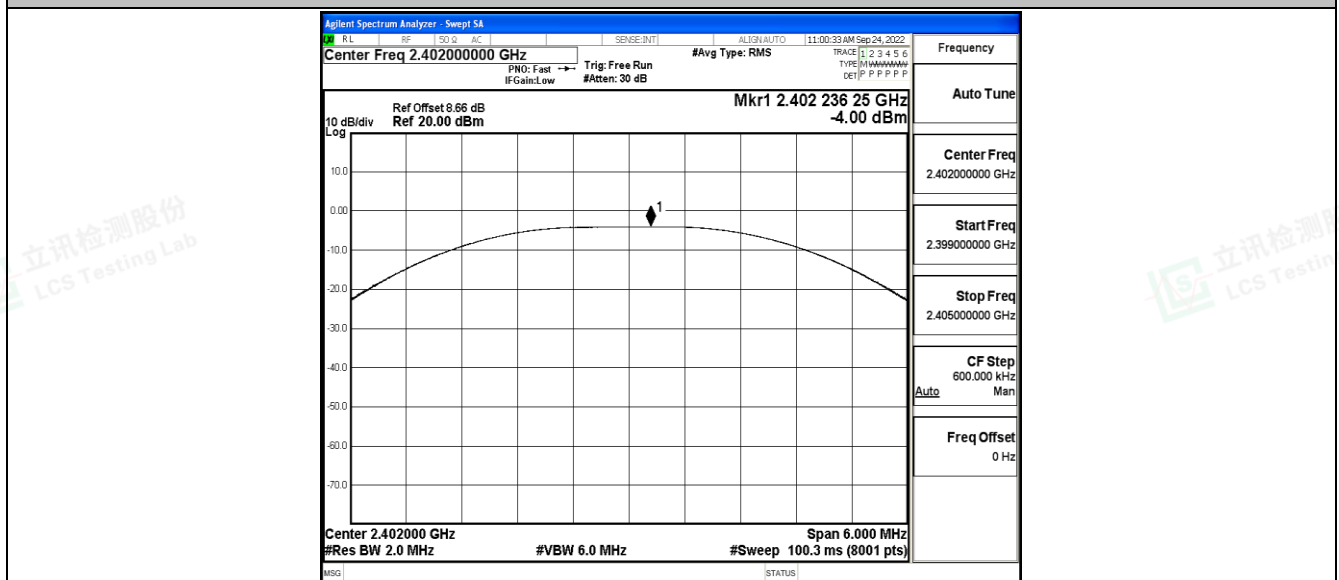


BLE_1M_Ant1_2480



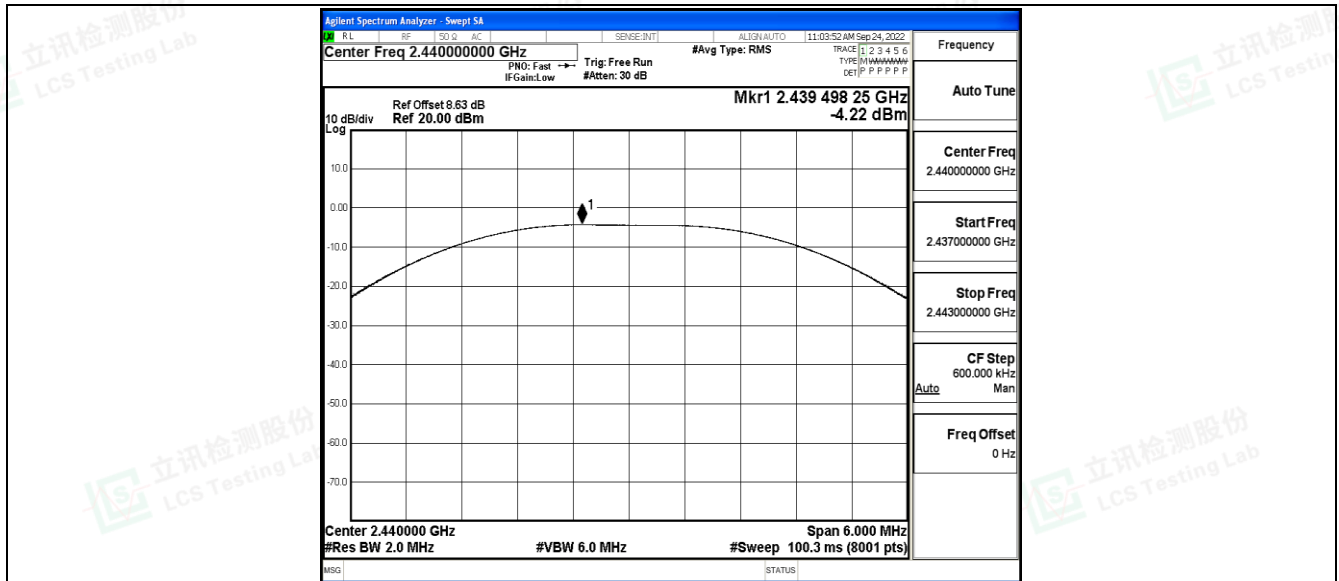


BLE_2M_Ant1_2402

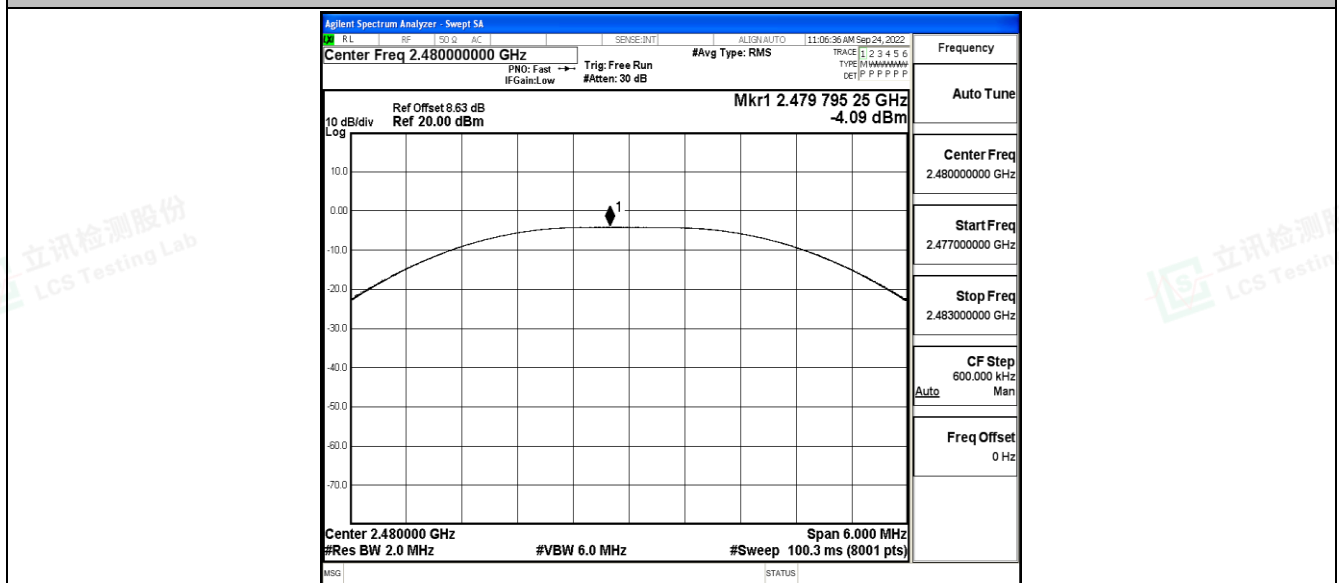


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





B.3 Maximum power spectral density

Test Result

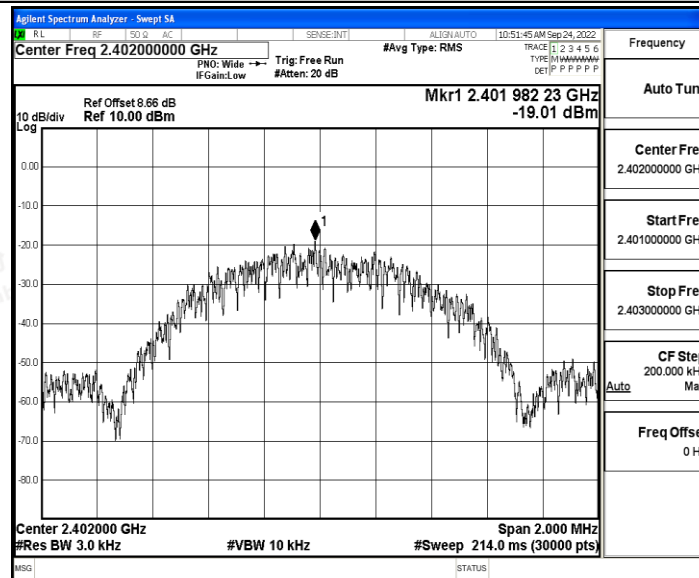
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.01	≤8.00	PASS
		2440	-19.21	≤8.00	PASS
		2480	-19.17	≤8.00	PASS
BLE_2M	Ant1	2402	-21.28	≤8.00	PASS
		2440	-21.46	≤8.00	PASS
		2480	-21.54	≤8.00	PASS



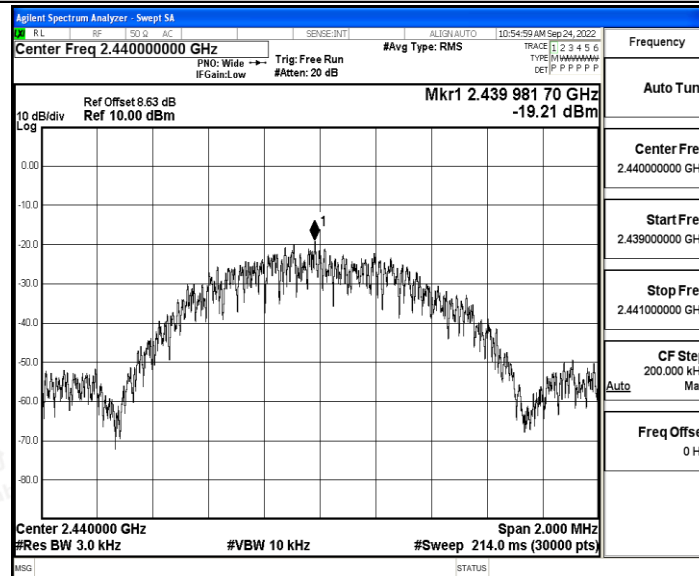


Test Graphs

BLE_1M_Ant1_2402

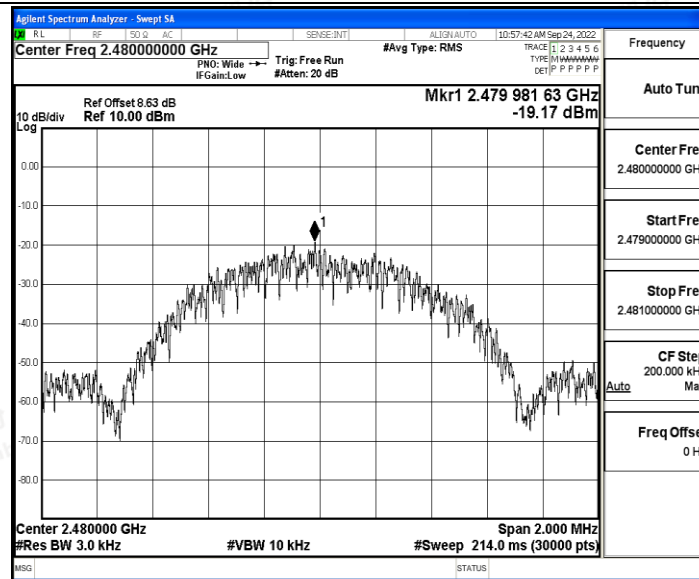


BLE_1M_Ant1_2440

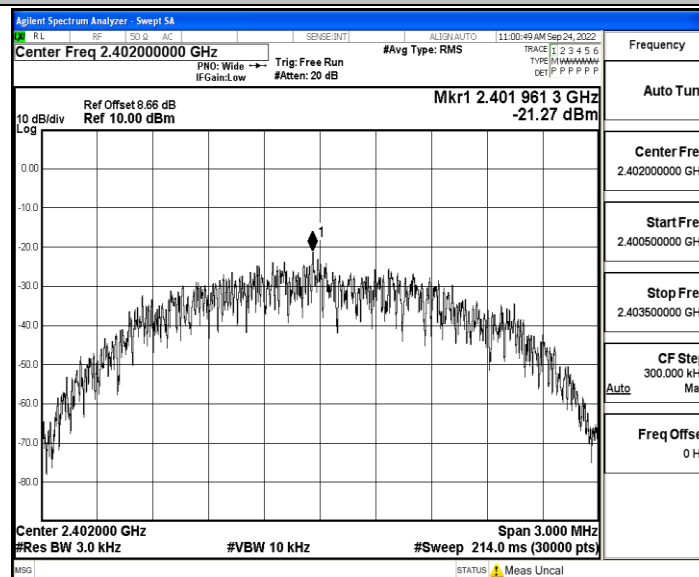


BLE_1M_Ant1_2480



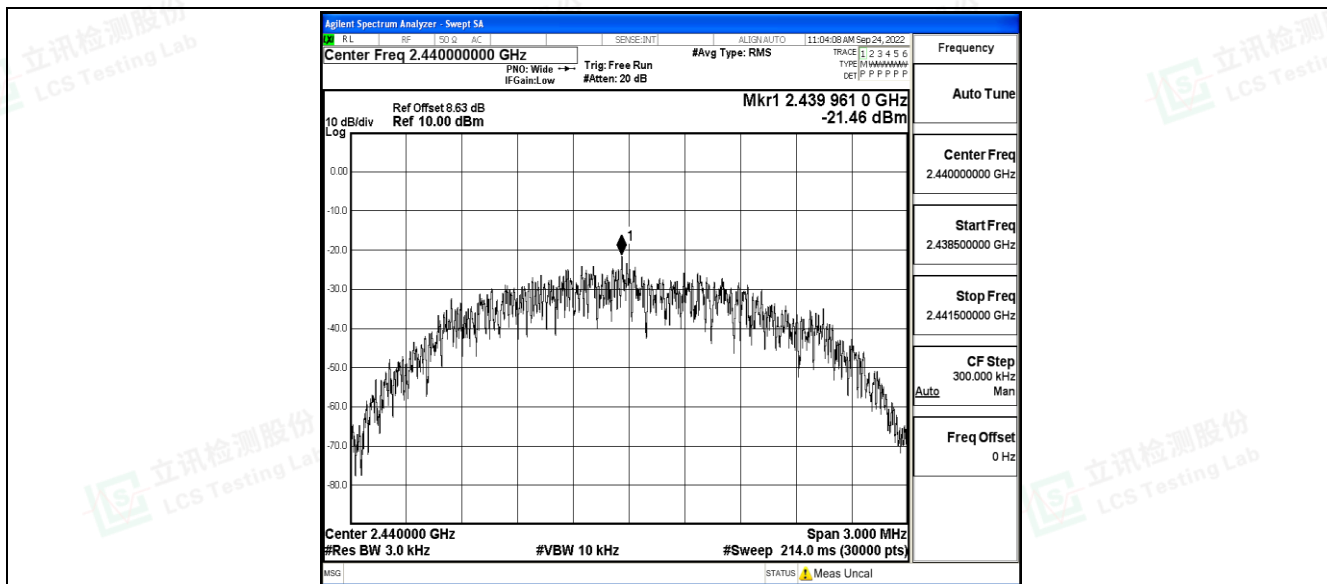


BLE_2M_Ant1_2402

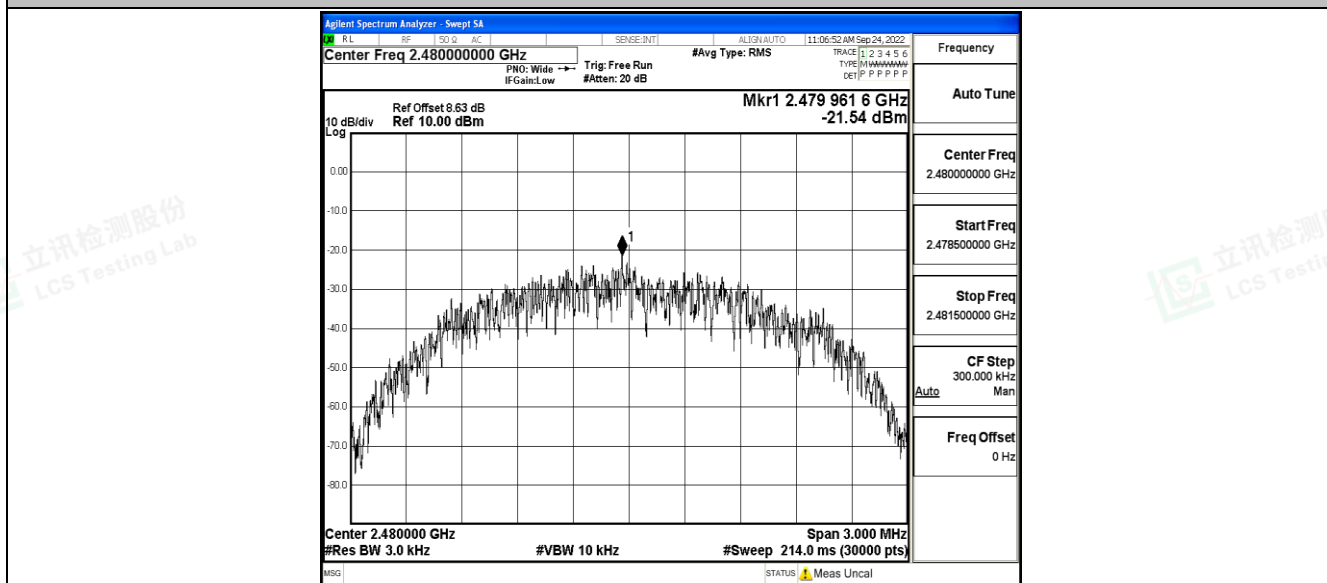


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





B.4 Band edge measurements

Test Result

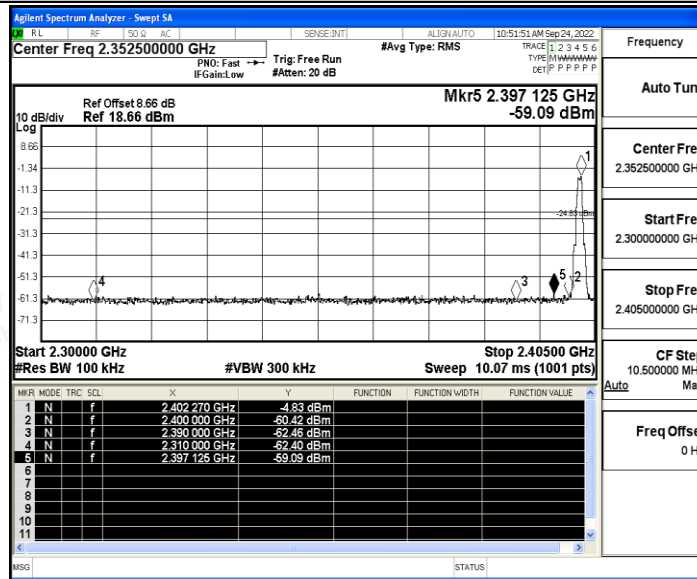
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.83	-59.09	≤-24.83	PASS
		High	2480	-4.93	-58.23	≤-24.93	PASS
BLE_2M	Ant1	Low	2402	-5.50	-36.2	≤-25.5	PASS
		High	2480	-4.93	-58.39	≤-24.93	PASS



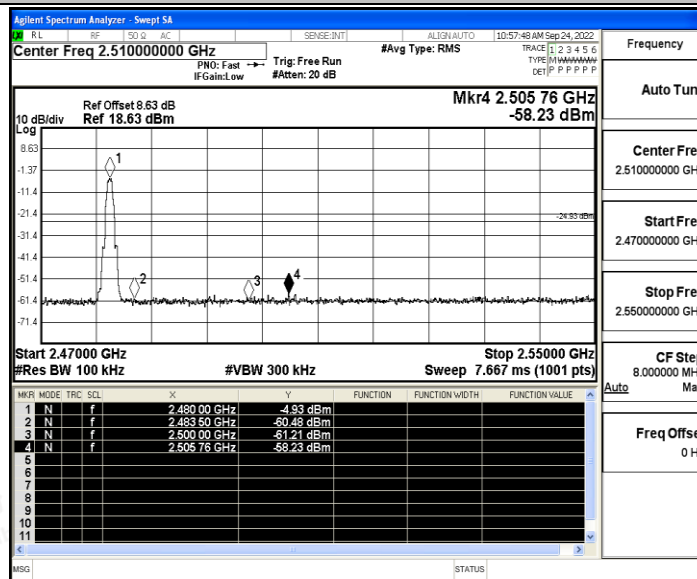


Test Graphs

BLE_1M_Ant1_Low_2402

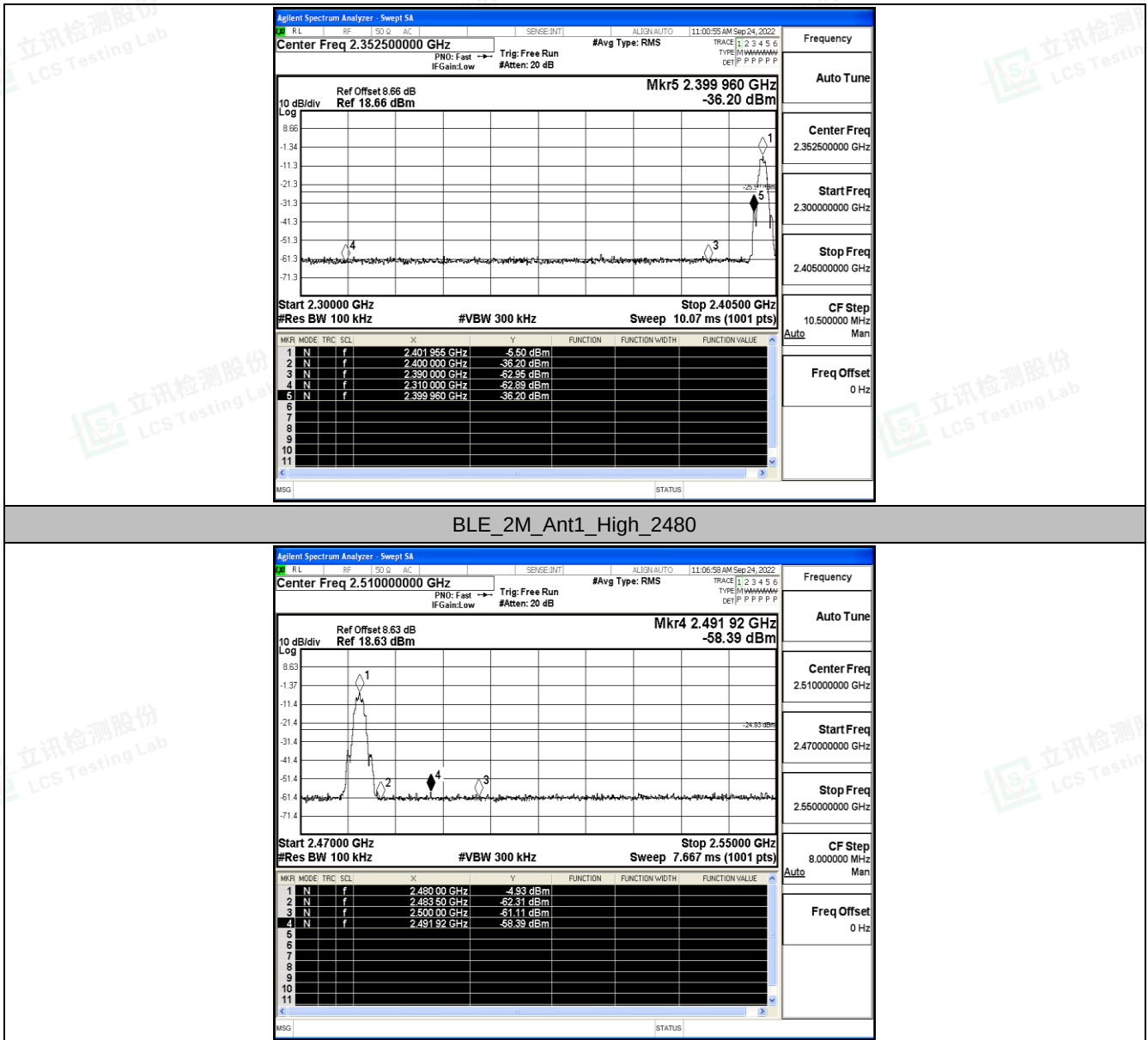


BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402







B.5 Conducted Spurious Emission

Test Result

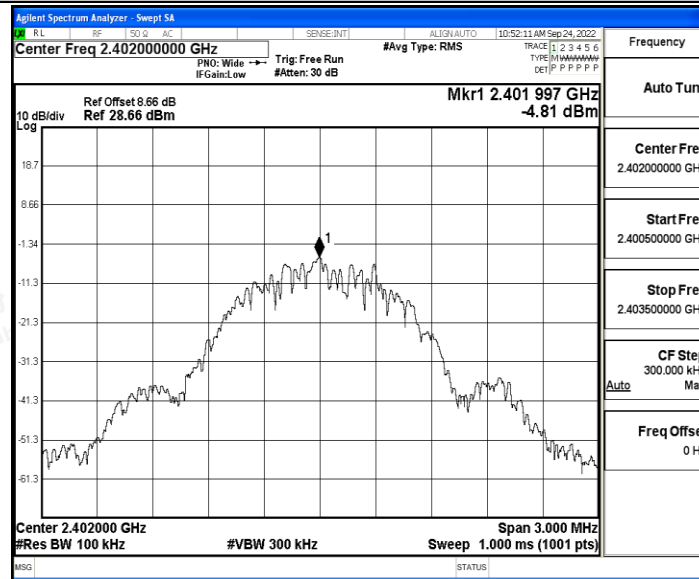
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.81	-4.81	---	PASS
			30~1000	-4.81	-60.6	≤-24.81	PASS
			1000~26500	-4.81	-46.34	≤-24.81	PASS
		2440	Reference	-5.54	-5.54	---	PASS
			30~1000	-5.54	-61.13	≤-25.54	PASS
			1000~26500	-5.54	-46.5	≤-25.54	PASS
		2480	Reference	-6.03	-6.03	---	PASS
			30~1000	-6.03	-61.21	≤-26.03	PASS
			1000~26500	-6.03	-46.3	≤-26.03	PASS
BLE_2M	Ant1	2402	Reference	-7.84	-7.84	---	PASS
			30~1000	-7.84	-61.03	≤-27.84	PASS
			1000~26500	-7.84	-46.13	≤-27.84	PASS
		2440	Reference	-8.24	-8.24	---	PASS
			30~1000	-8.24	-61.02	≤-28.24	PASS
			1000~26500	-8.24	-46.58	≤-28.24	PASS
		2480	Reference	-6.16	-6.16	---	PASS
			30~1000	-6.16	-60.16	≤-26.16	PASS
			1000~26500	-6.16	-46.15	≤-26.16	PASS



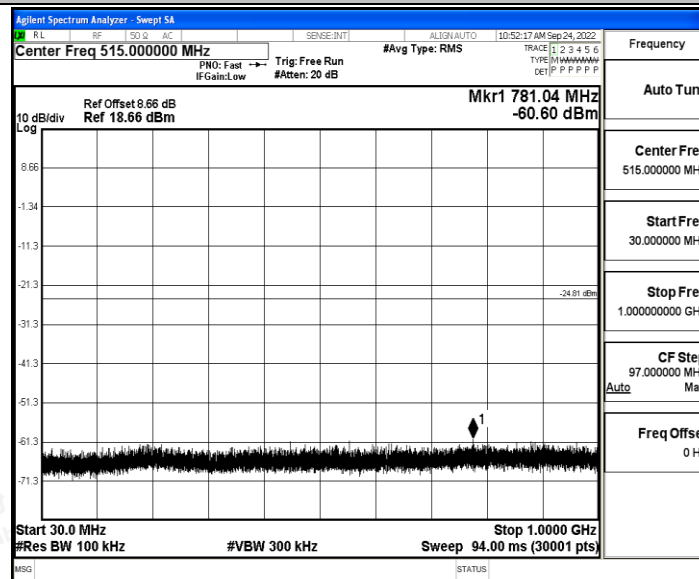


Test Graphs

BLE_1M_Ant1_2402_0~Reference

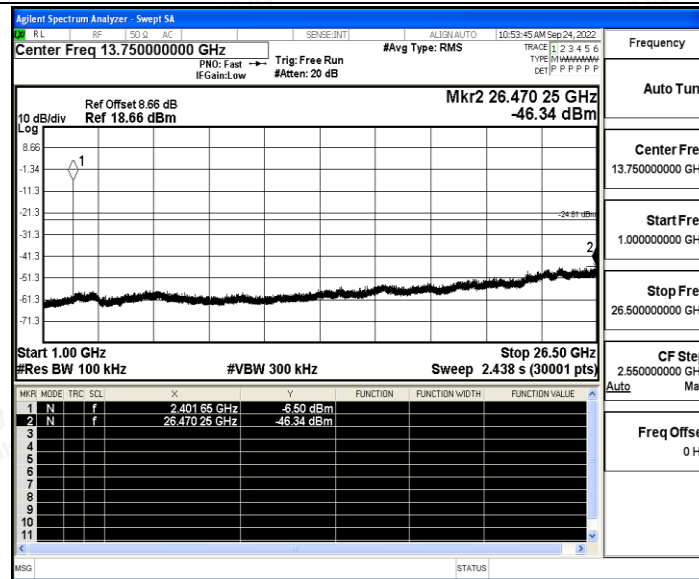


BLE_1M_Ant1_2402_30~1000

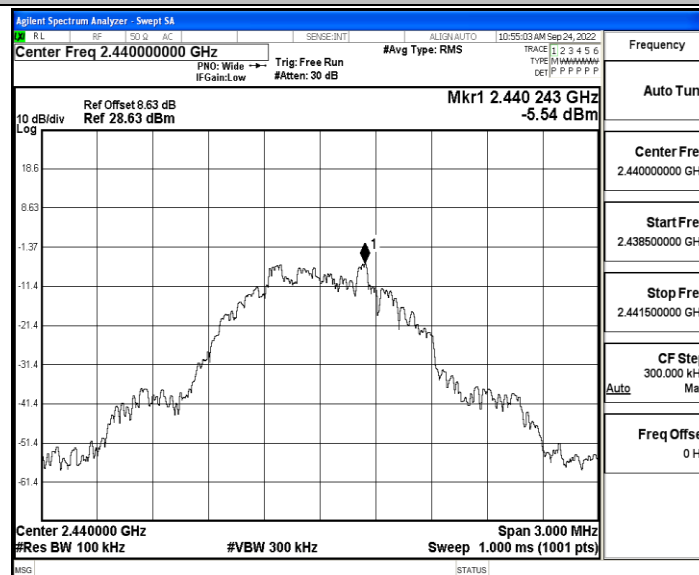


BLE_1M_Ant1_2402_1000~26500



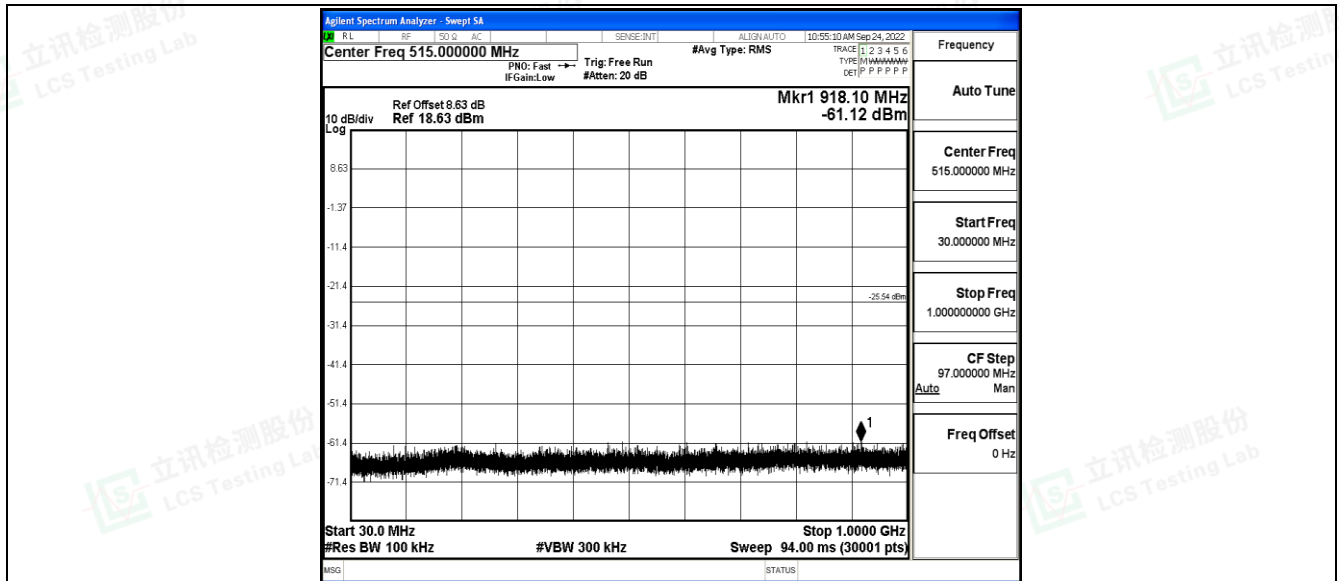


BLE_1M_Ant1_2440_0~Reference

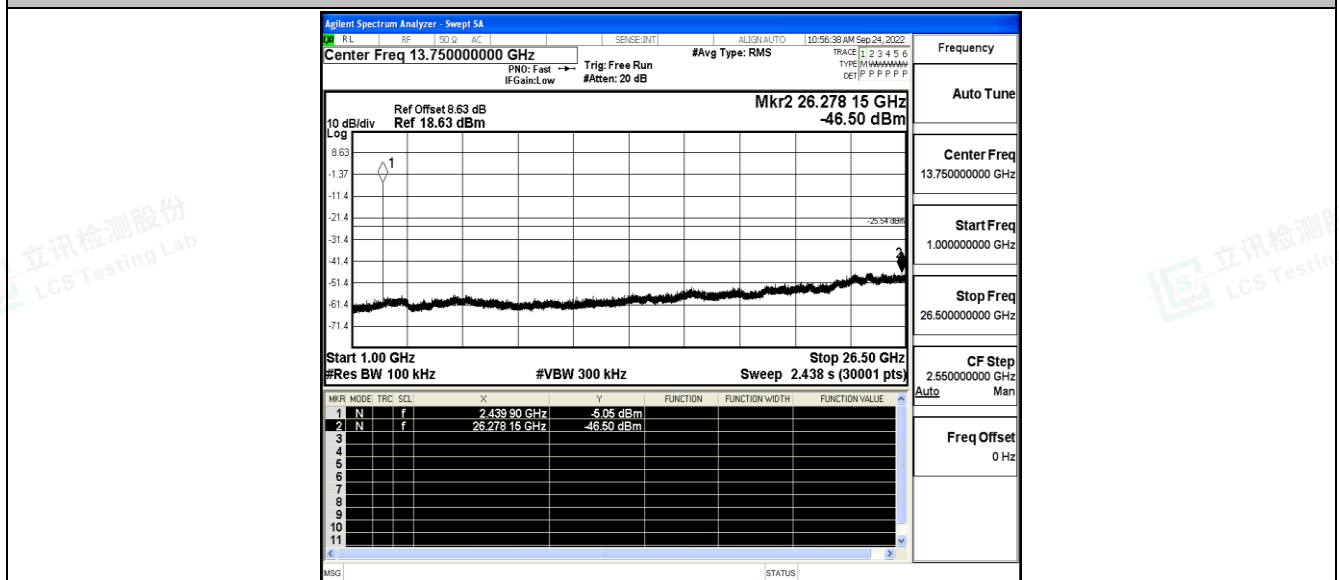


BLE_1M_Ant1_2440_30~1000



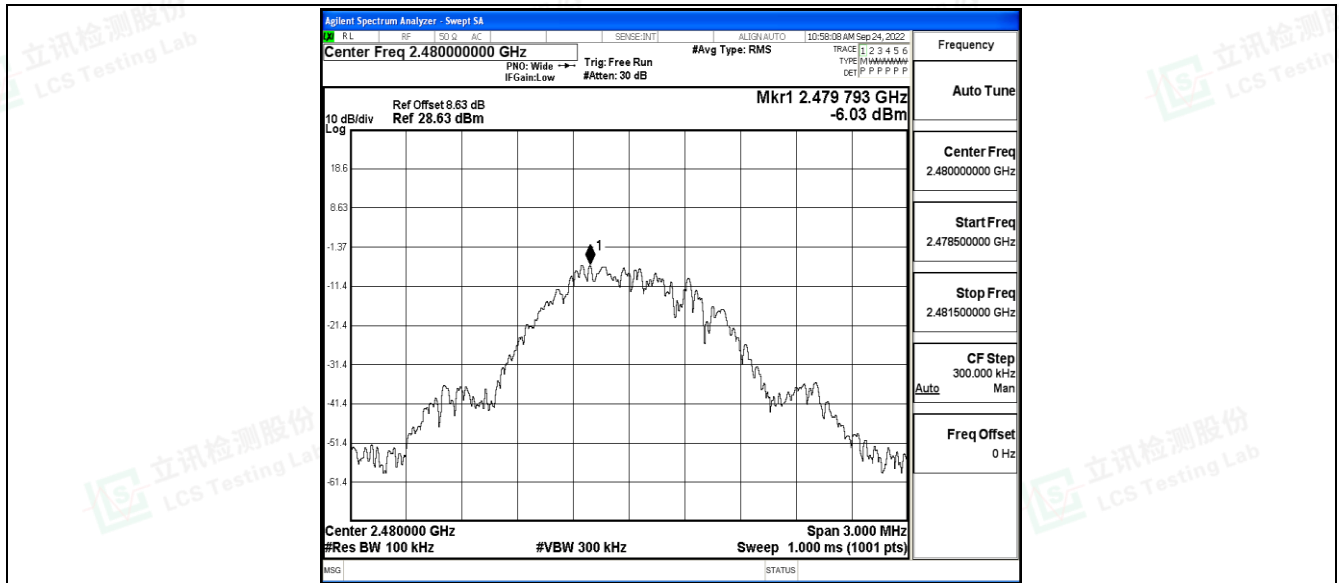


BLE_1M_Ant1_2440_1000~26500

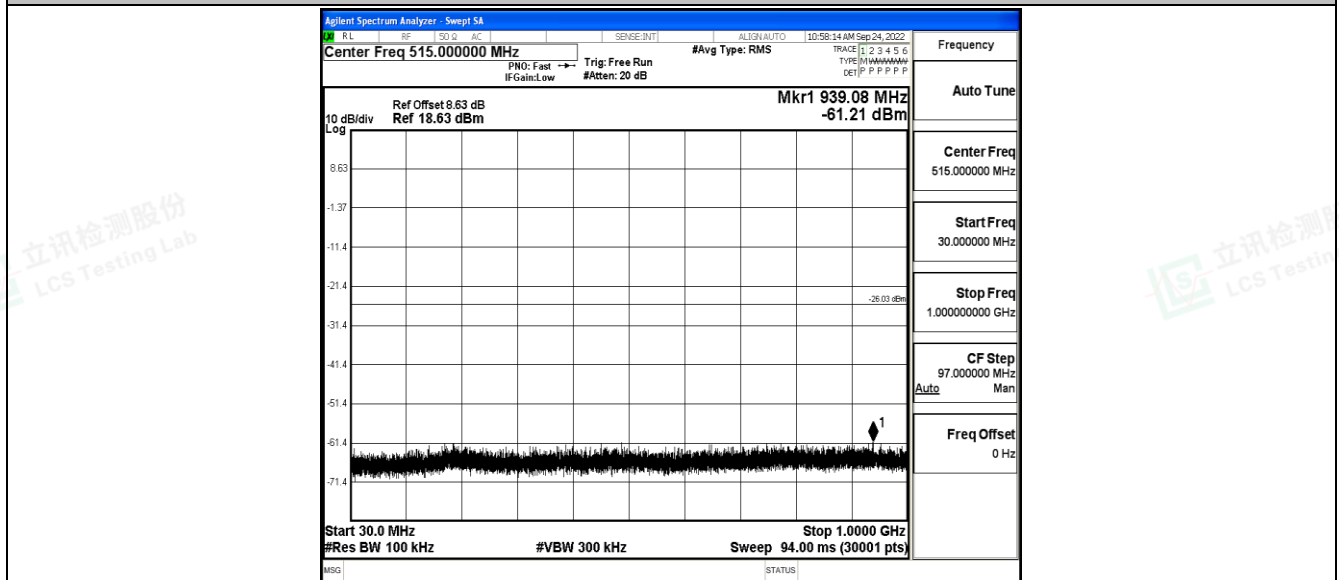


BLE_1M_Ant1_2480_0~Reference



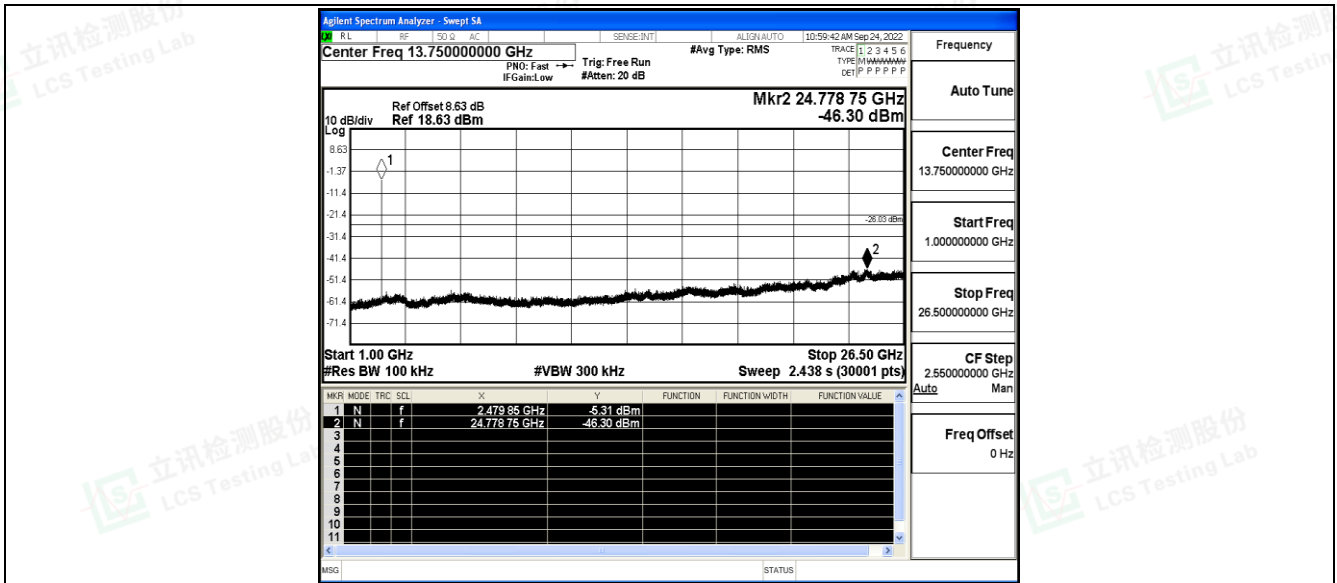


BLE_1M_Ant1_2480_30~1000

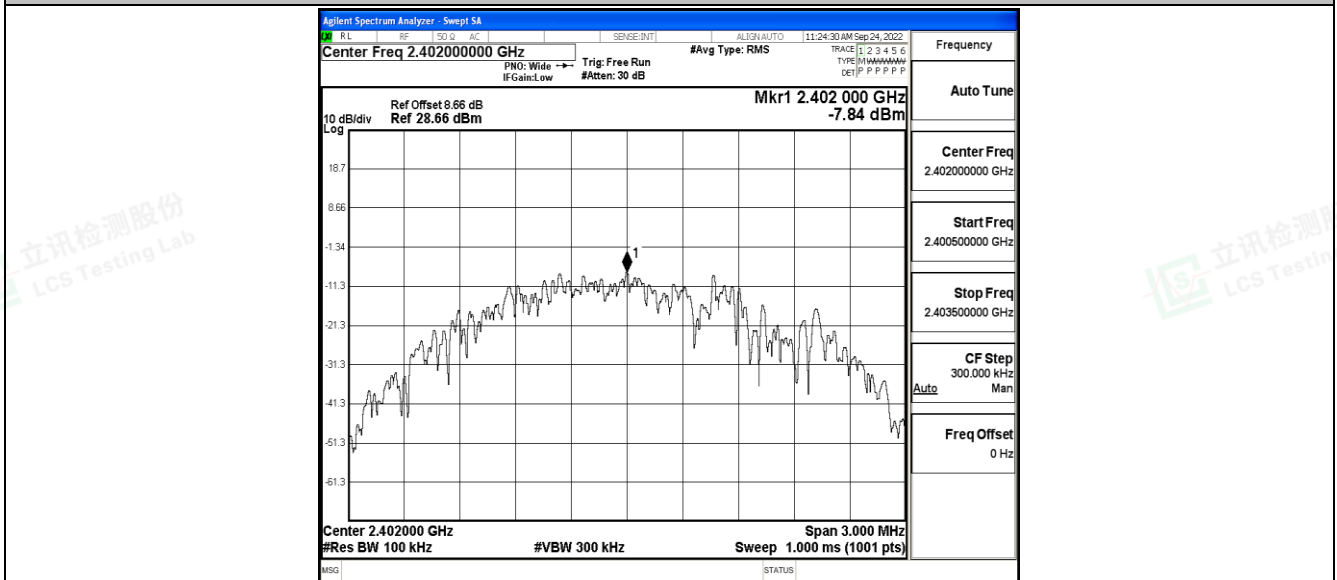


BLE_1M_Ant1_2480_1000~26500



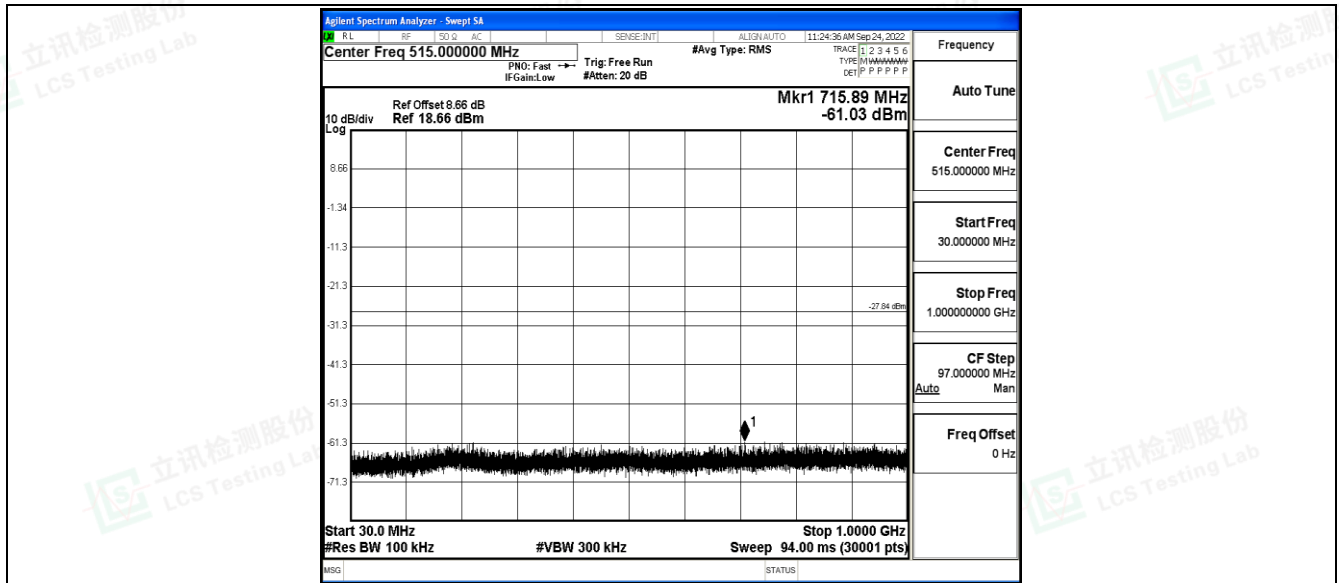


BLE_2M_Ant1_2402_0~Reference

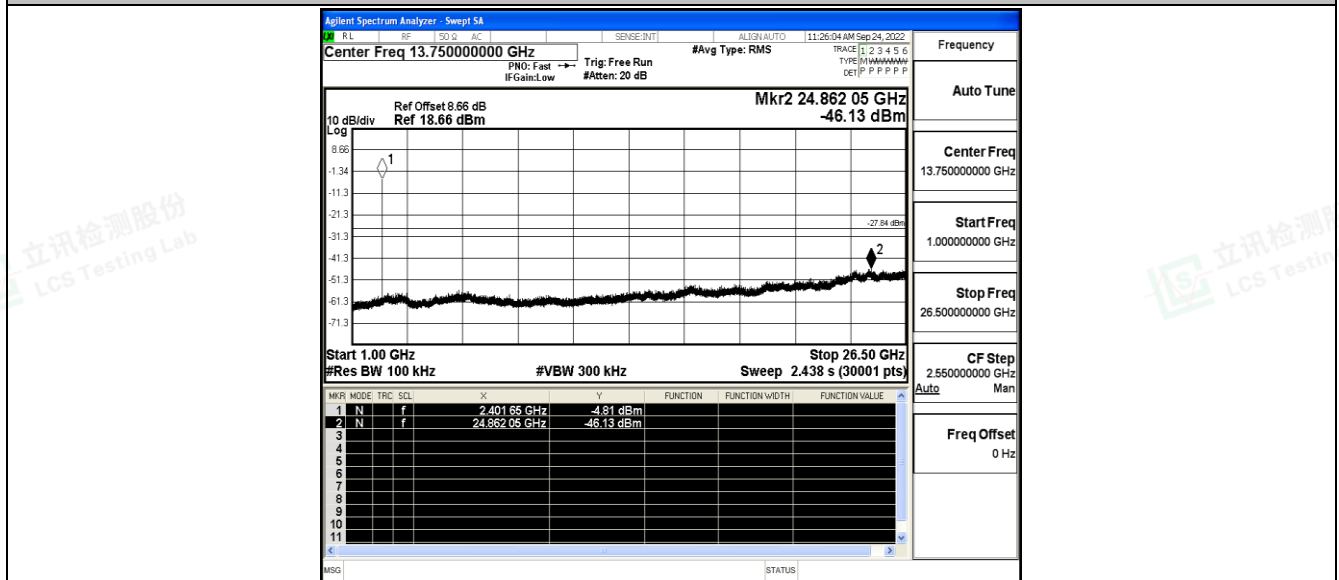


BLE_2M_Ant1_2402_30~1000



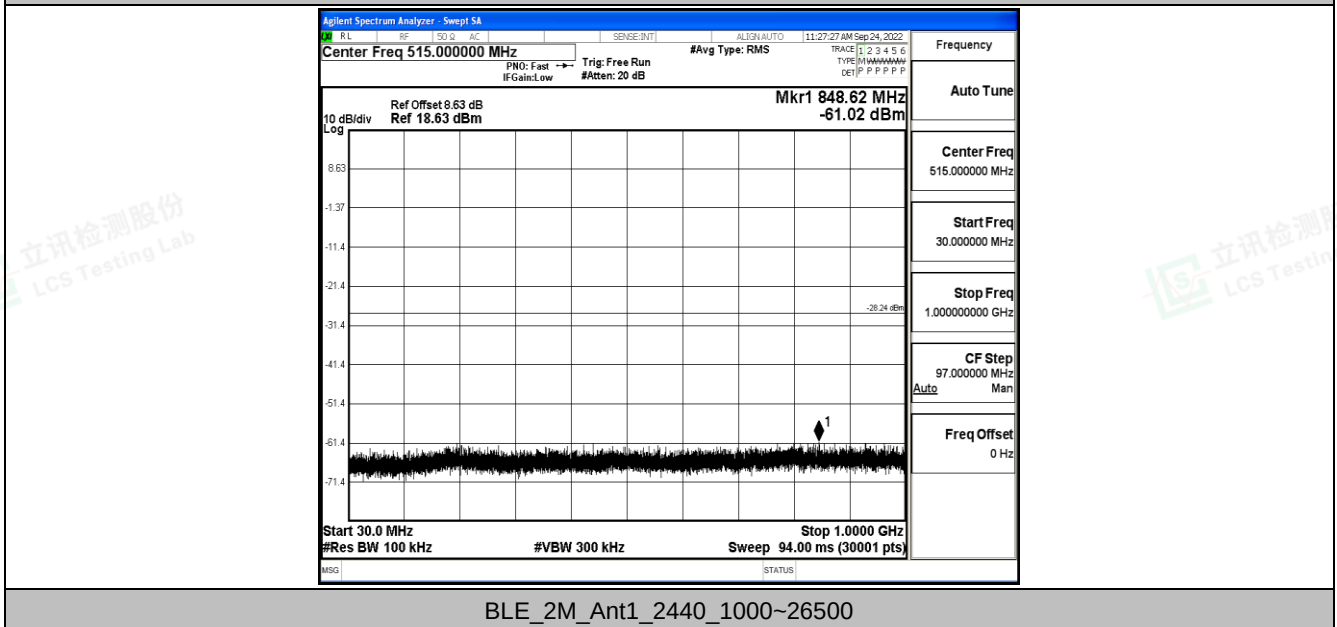
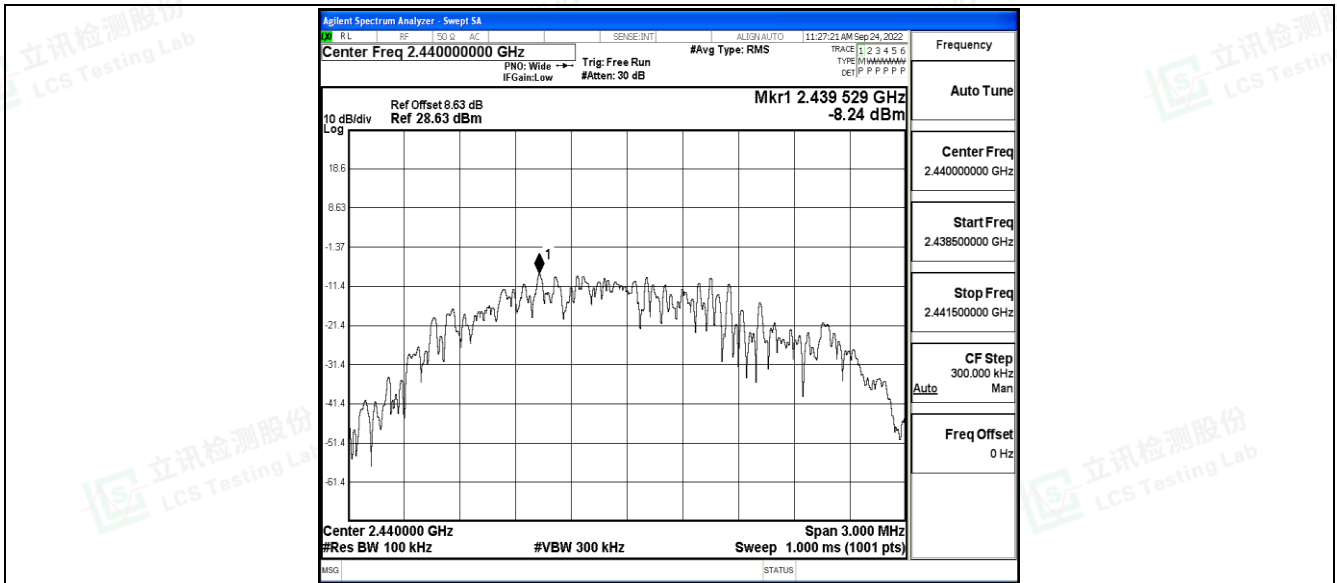


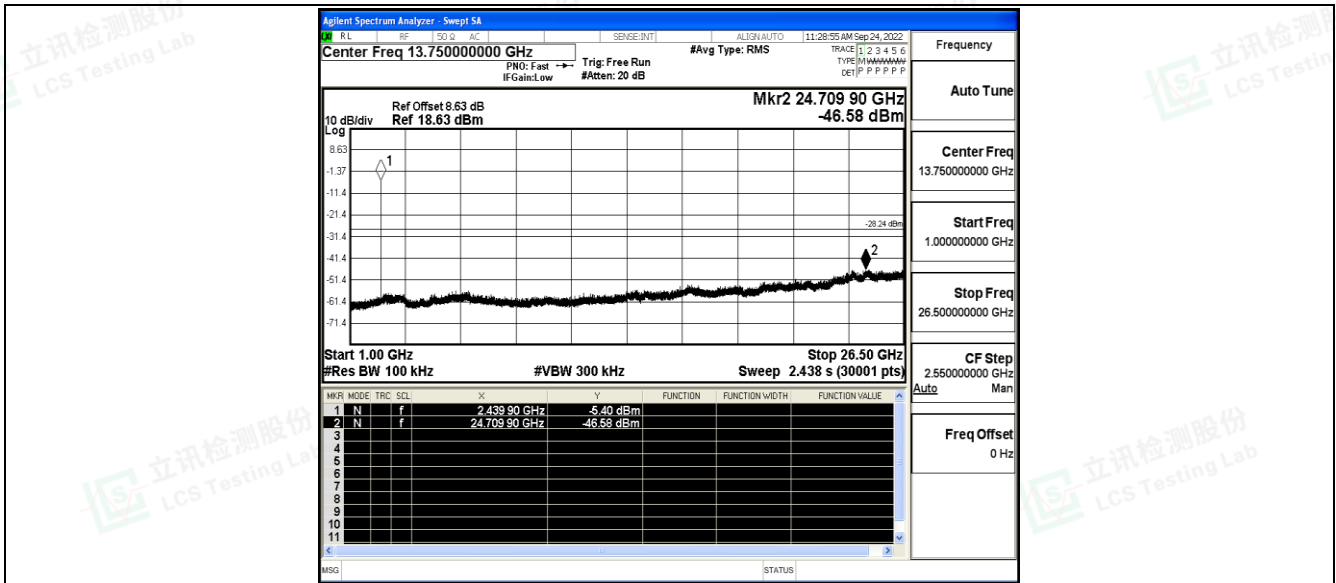
BLE_2M_Ant1_2402_1000~26500



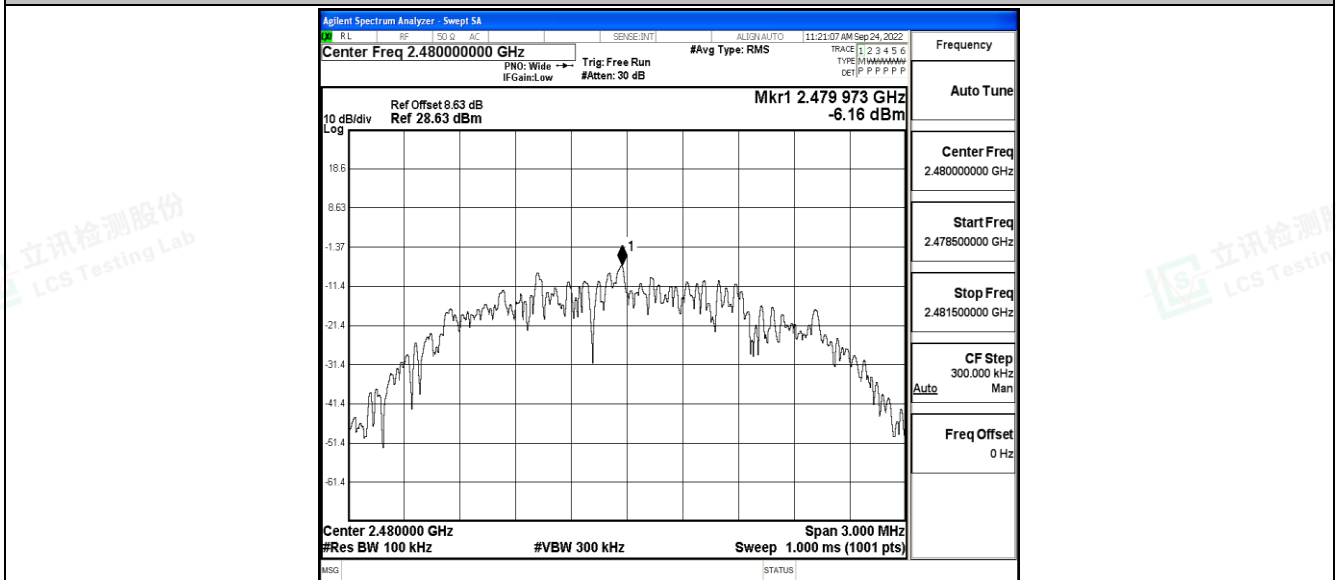
BLE_2M_Ant1_2440_0~Reference





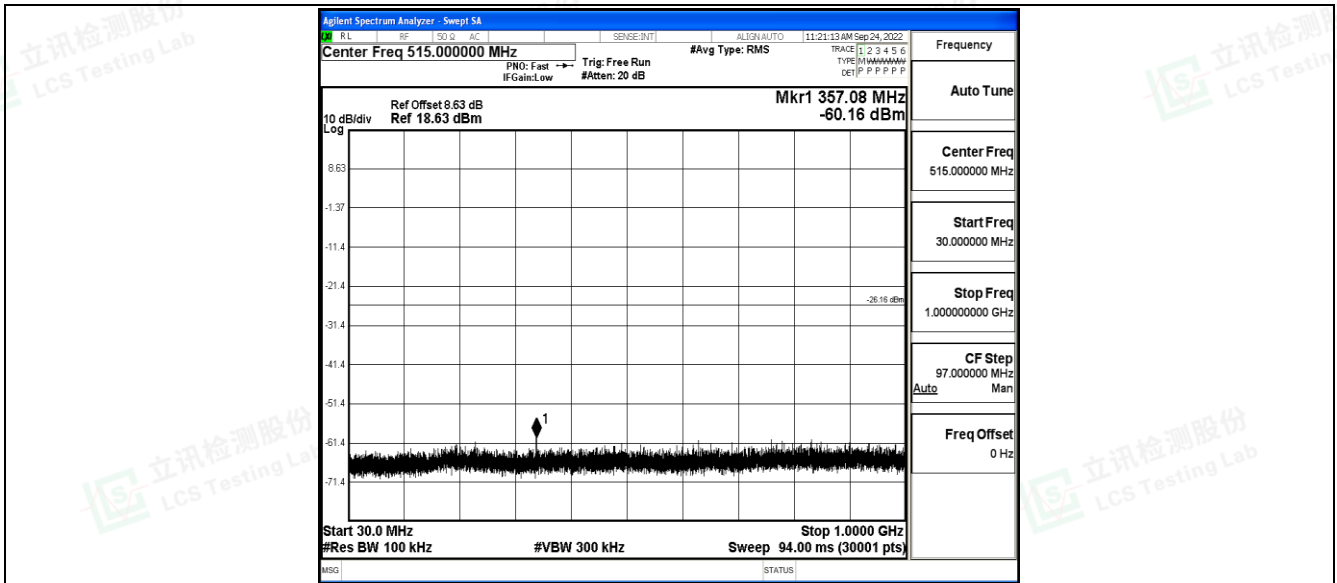


BLE_2M_Ant1_2480_0~Reference

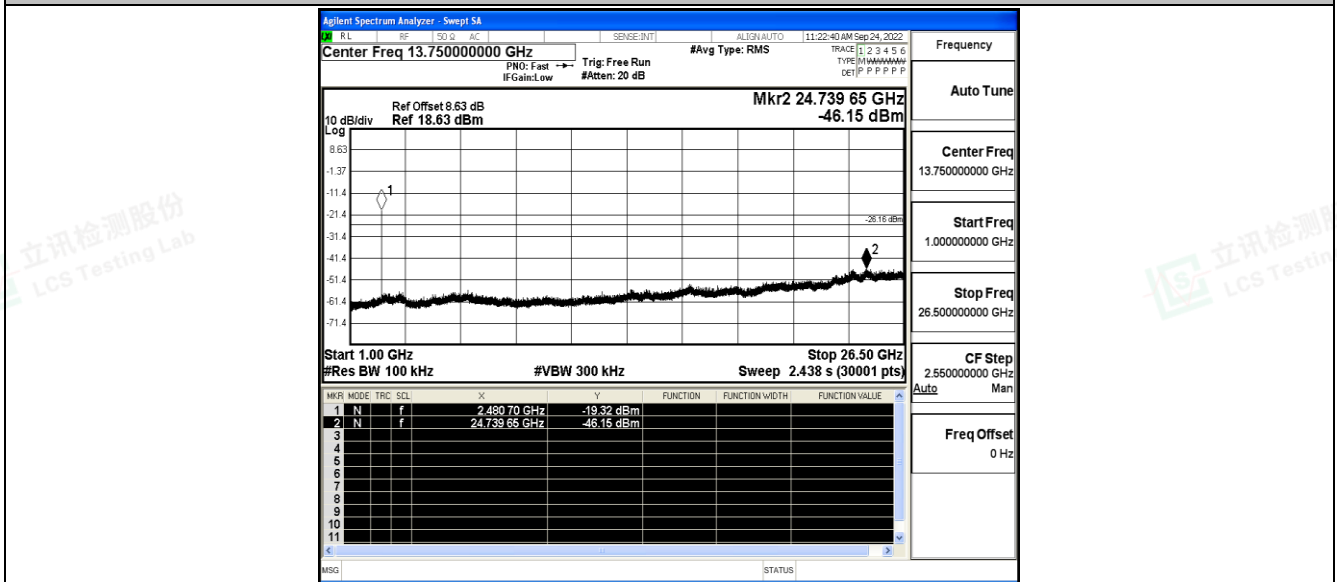


BLE_2M_Ant1_2480_30~1000





BLE_2M_Ant1_2480_1000~26500





B.6 Duty Cycle

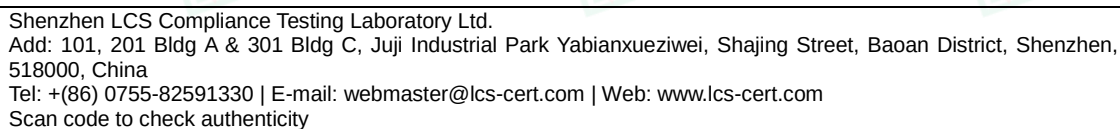
Test Result

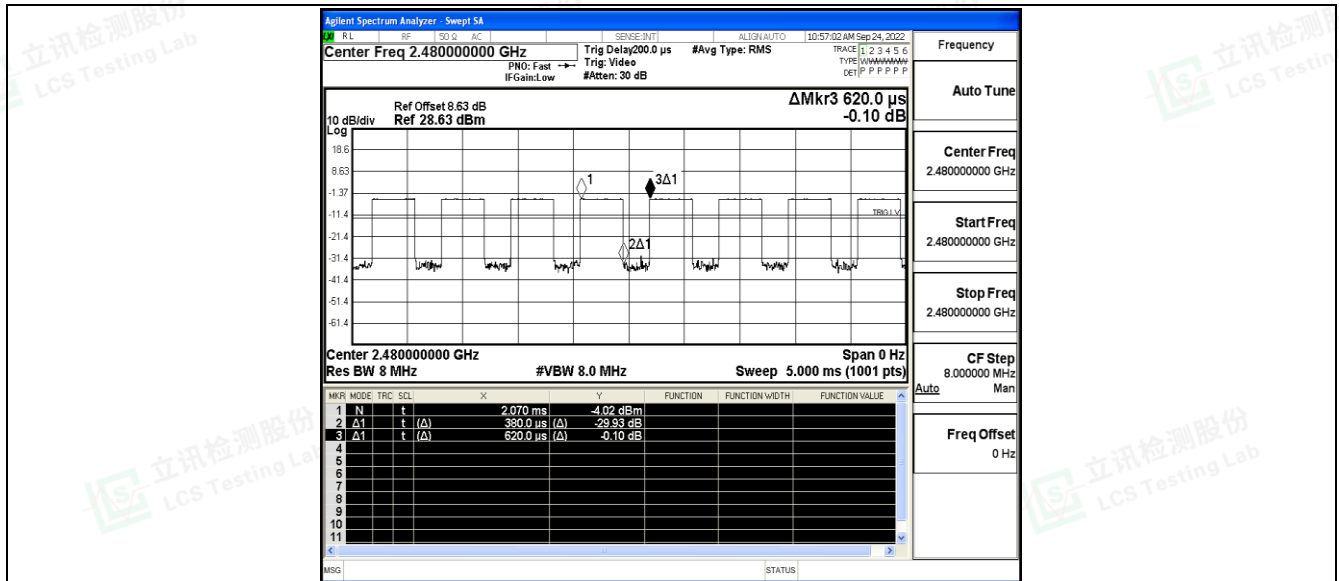
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2440	0.38	0.63	0.6032	60.32	2.20	2.63	---	---
		2480	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
BLE_2M	Ant1	2402	0.20	0.63	0.3175	31.75	4.98	5.00	---	---
		2440	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	---	---



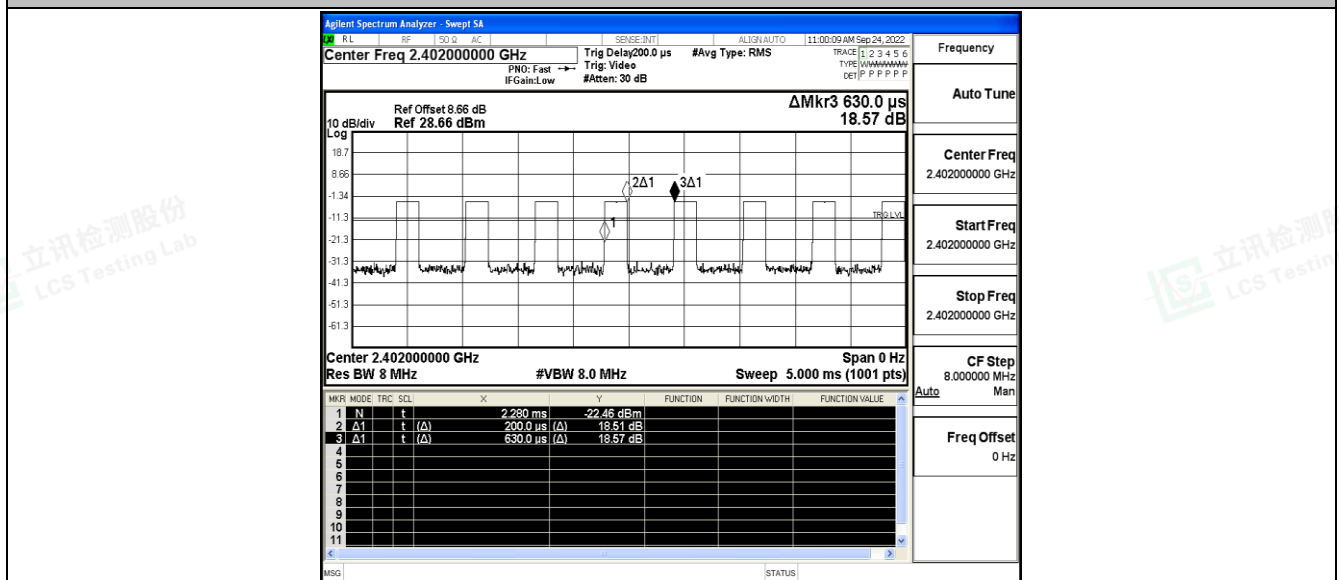


Test Graphs



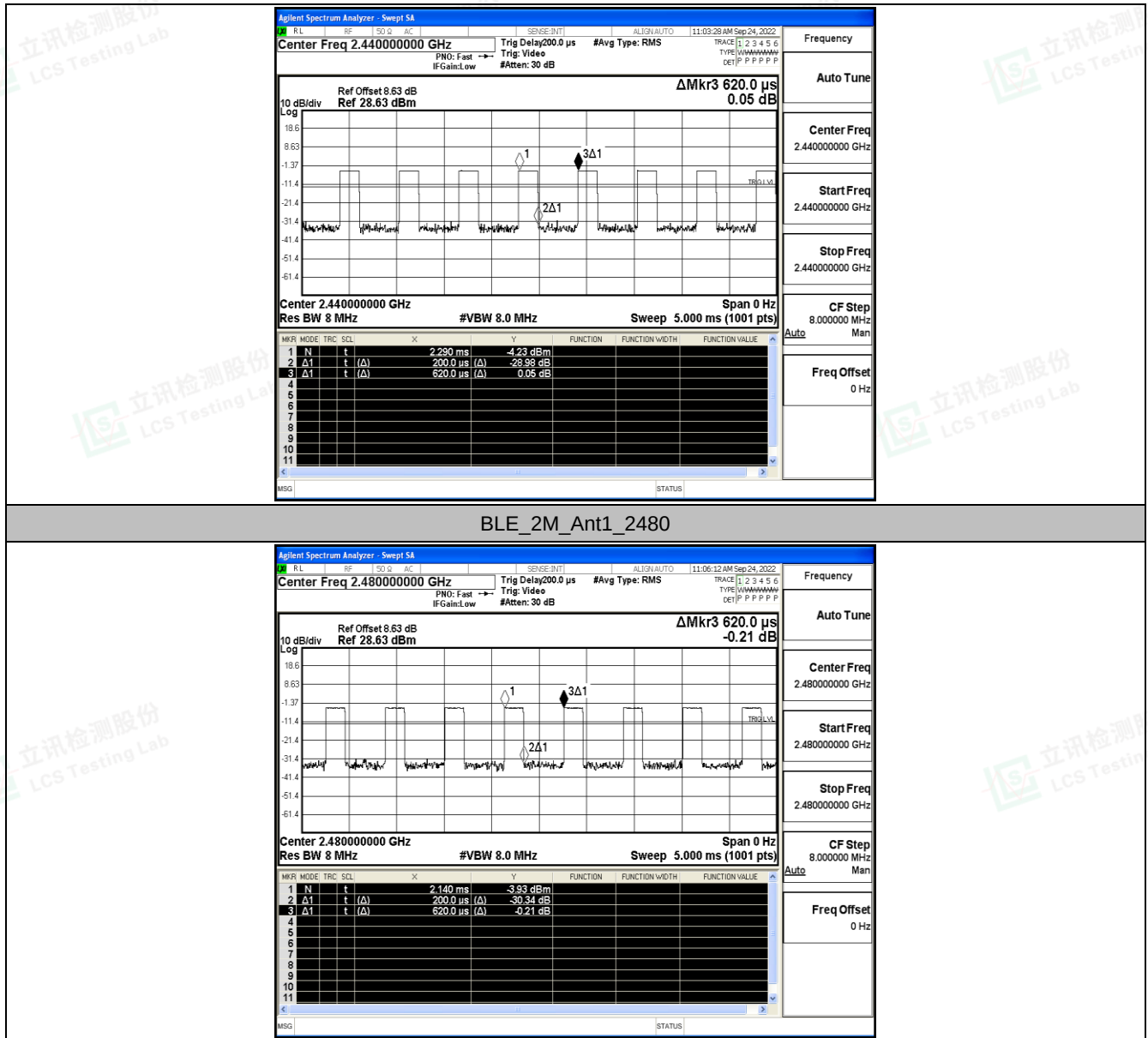


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







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	-57.54	≤-41.20	37.66	≤54	PASS
				AV	2365.415	-56.87	≤-41.20	38.33	≤54	PASS
				AV	2390.000	-57	≤-41.20	38.20	≤54	PASS
				Peak	2310.000	-52.26	≤-21.20	42.94	≤74	PASS
				Peak	2358.380	-48.03	≤-21.20	47.17	≤74	PASS
				Peak	2390.000	-50.33	≤-21.20	44.87	≤74	PASS
		High	2480	AV	2483.500	-55.36	≤-41.20	39.84	≤54	PASS
				AV	2483.520	-55.36	≤-41.20	39.84	≤54	PASS
				AV	2500.000	-56.29	≤-41.20	38.91	≤54	PASS
				Peak	2483.500	-50.67	≤-21.20	44.53	≤74	PASS
				Peak	2494.000	-47.07	≤-21.20	48.13	≤74	PASS
				Peak	2500.000	-50.37	≤-21.20	44.83	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.01	≤-41.20	38.19	≤54	PASS
				AV	2374.760	-56.01	≤-41.20	39.19	≤54	PASS
				AV	2390.000	-56.59	≤-41.20	38.61	≤54	PASS
				Peak	2310.000	-47.84	≤-21.20	47.36	≤74	PASS
				Peak	2371.505	-47.63	≤-21.20	47.57	≤74	PASS
				Peak	2390.000	-49.6	≤-21.20	45.60	≤74	PASS
		High	2480	AV	2483.500	-53.11	≤-41.20	42.09	≤54	PASS
				AV	2483.520	-53.11	≤-41.20	42.09	≤54	PASS
				AV	2500.000	-56.24	≤-41.20	38.96	≤54	PASS
				Peak	2483.500	-49.87	≤-21.20	45.33	≤74	PASS
				Peak	2483.840	-47.16	≤-21.20	48.04	≤74	PASS
				Peak	2500.000	-48.76	≤-21.20	46.44	≤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.

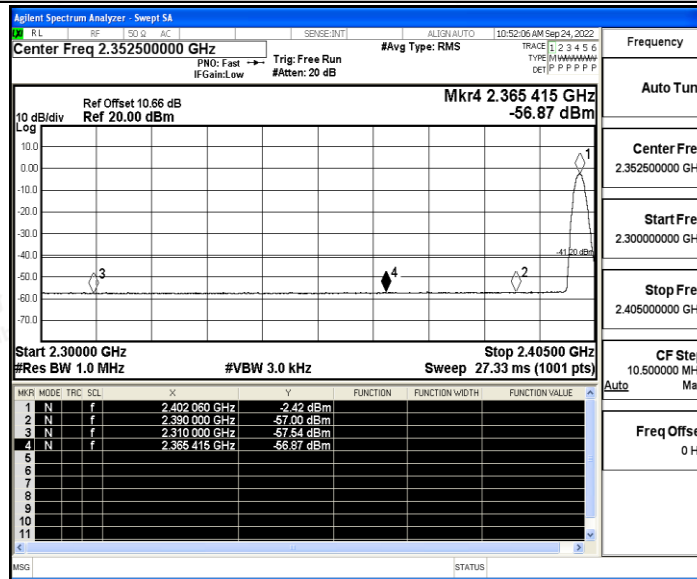


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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
Scan code to check authenticity

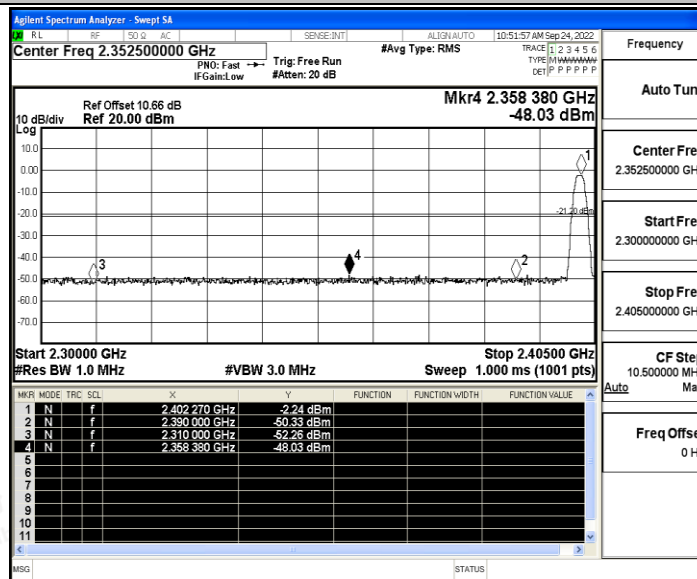


Test Graphs

BLE_1M_Ant1_Low_2402_AV

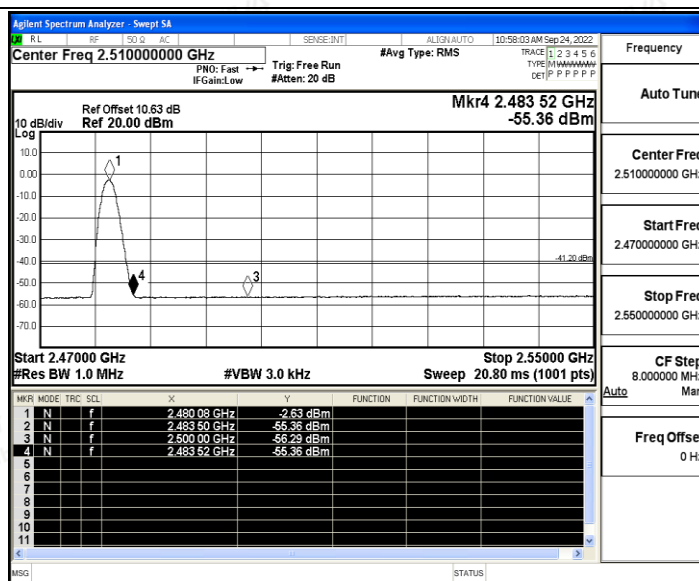


BLE_1M_Ant1_Low_2402_Peak

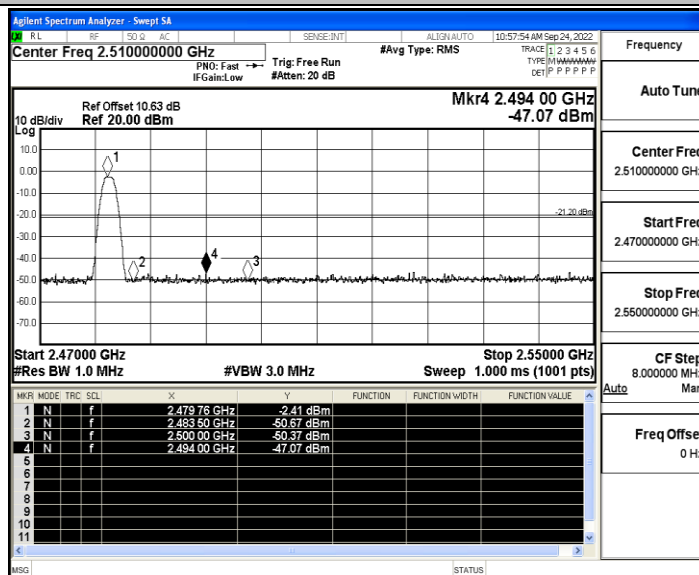


BLE_1M_Ant1_High_2480_AV



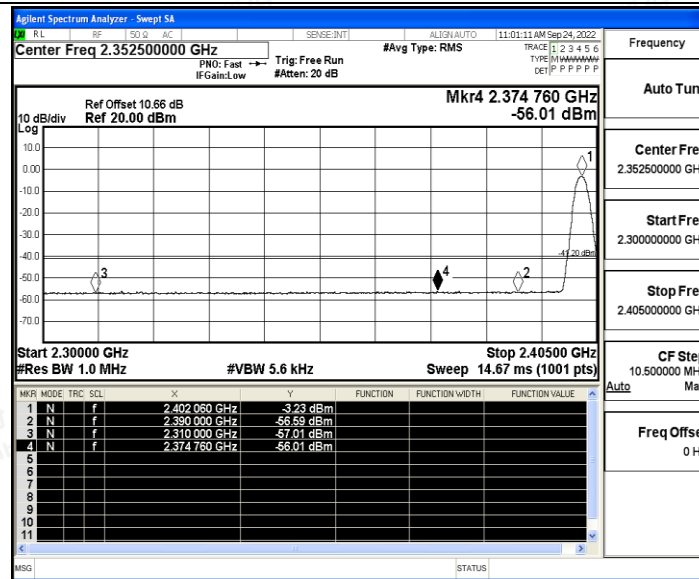


BLE_1M_Ant1_High_2480_Peak

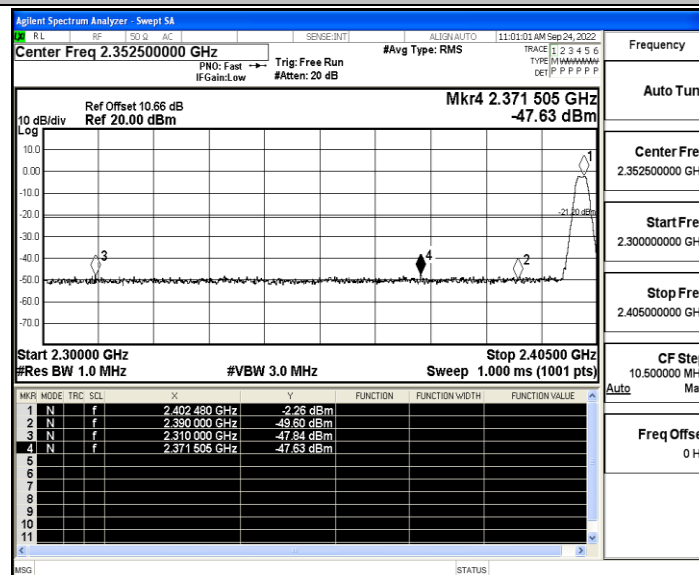


BLE_2M_Ant1_Low_2402_AV



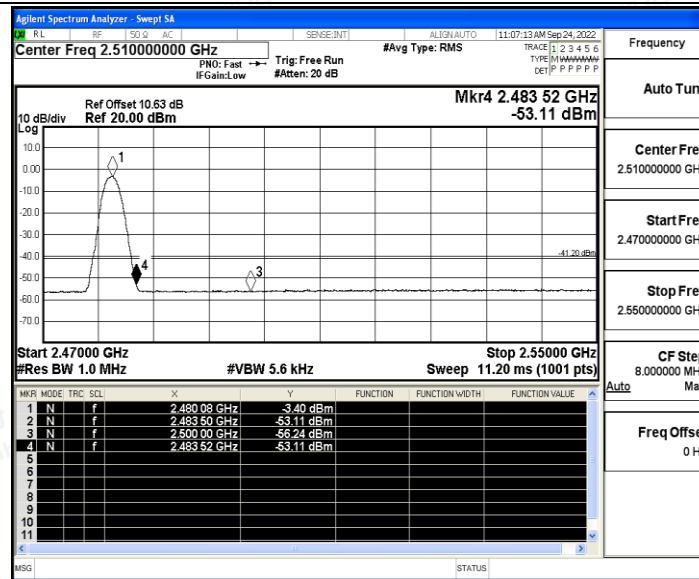


BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV





BLE_2M_Ant1_High_2480_Peak

