



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: LED Ceiling Lamp

Test Model: ASALL001

Environmental Conditions

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



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A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant	2402	0.712	2401.628	2402.340	0.5	PASS
		2440	0.712	2439.628	2440.340	0.5	PASS
		2480	0.716	2479.628	2480.344	0.5	PASS



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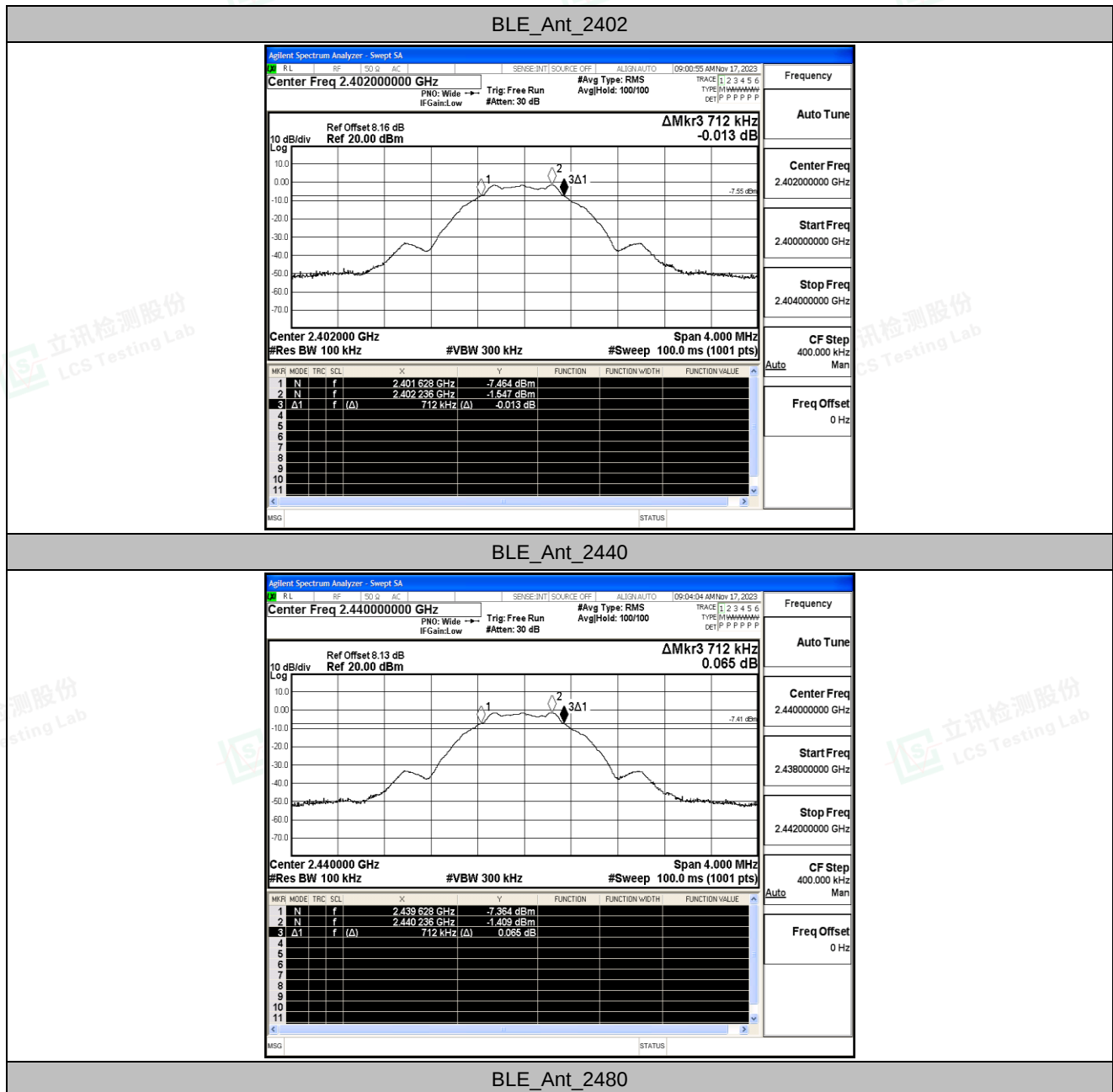
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Test Graphs

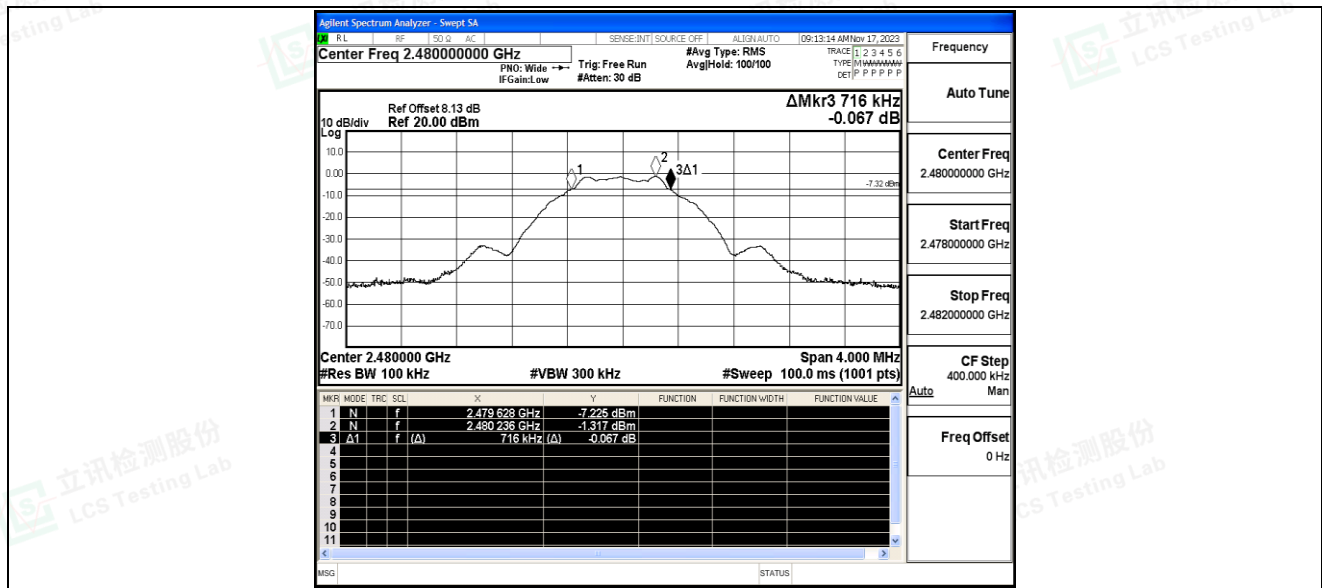


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A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	2402	-0.61	≤30	PASS
		2440	-0.46	≤30	PASS
		2480	-0.37	≤30	PASS



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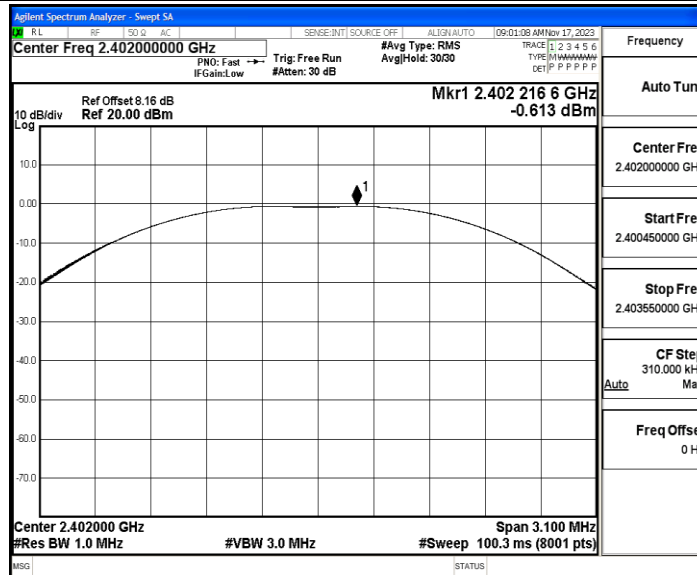
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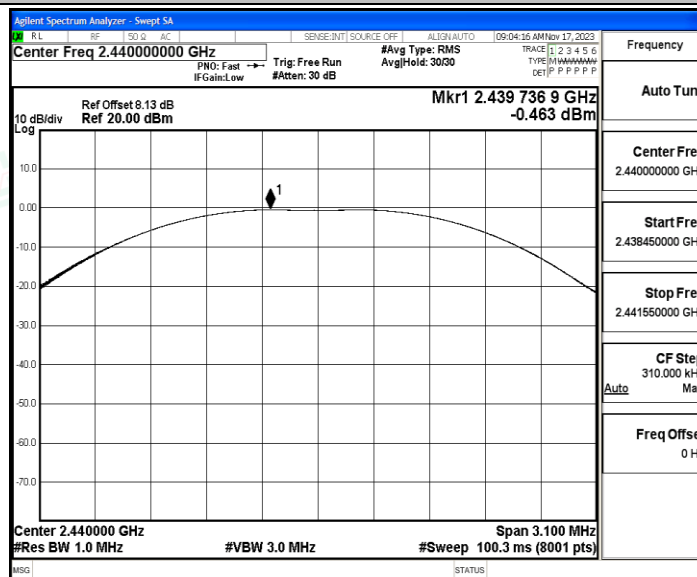


Test Graphs

BLE_Ant_2402



BLE_Ant_2440



BLE_Ant_2480

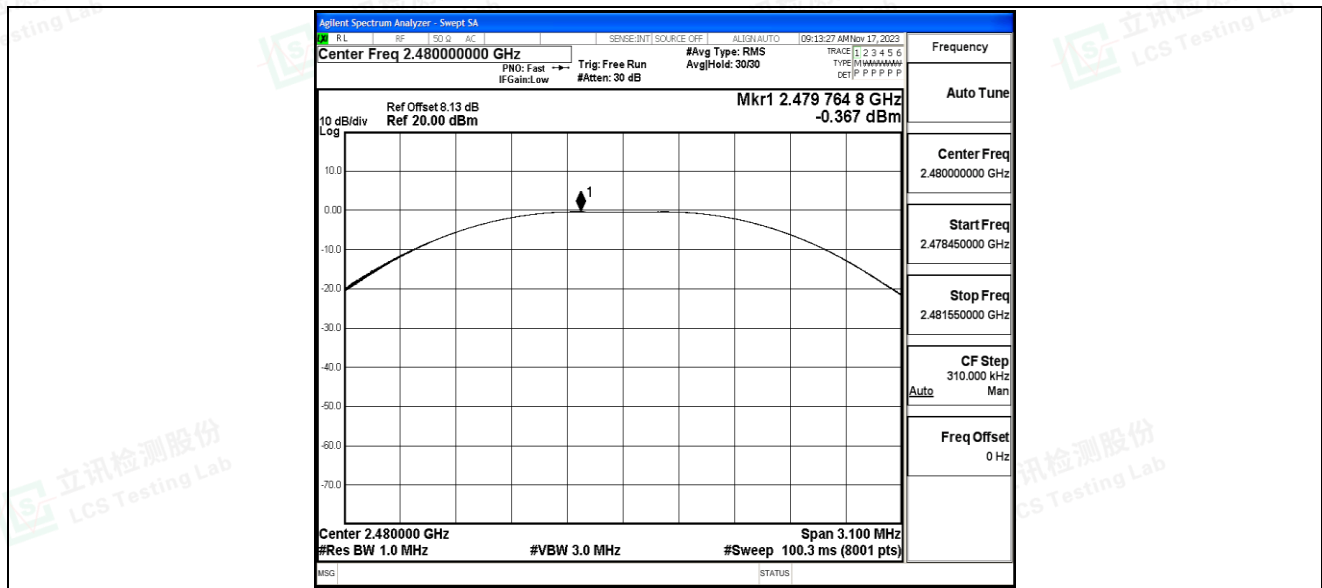


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A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant	2402	-15.68	≤8.00	PASS
		2440	-15.49	≤8.00	PASS
		2480	-15.43	≤8.00	PASS



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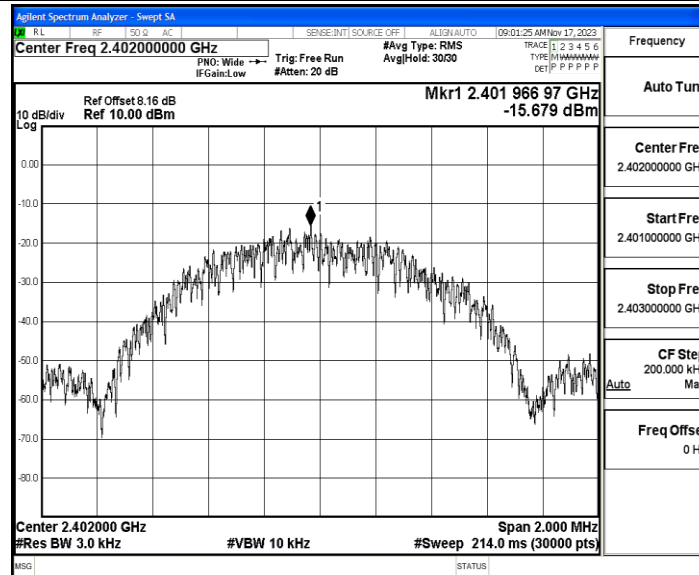
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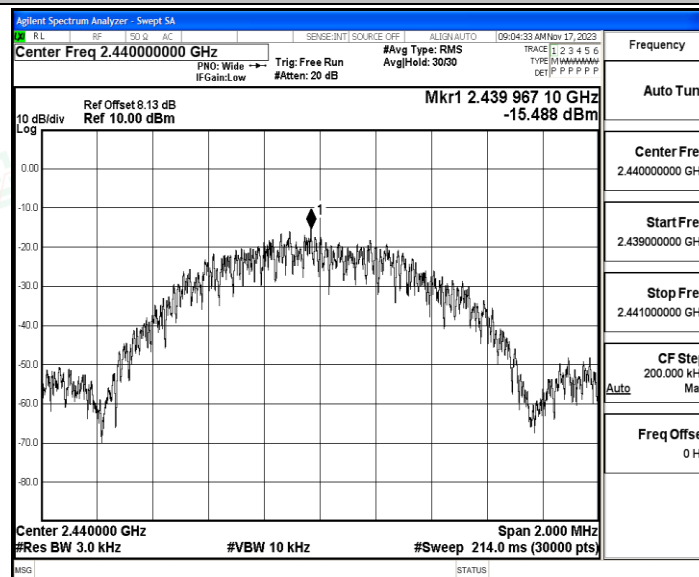


Test Graphs

BLE_Ant_2402



BLE_Ant_2440



BLE_Ant_2480

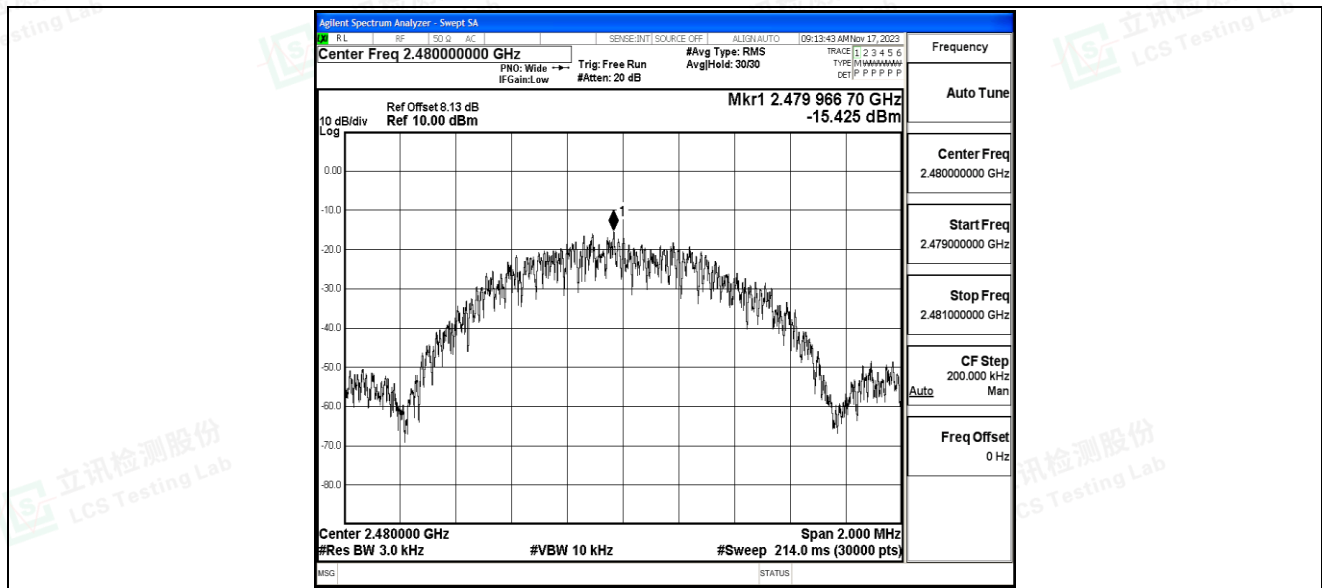


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A.4 Band edge measurements

Test Result

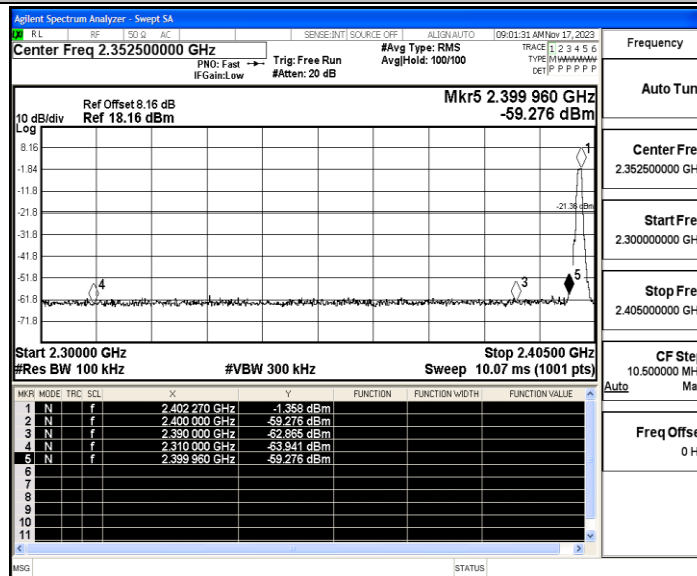
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	Low	2402	-1.36	-59.28	≤-21.36	PASS
		High	2480	-1.10	-59.73	≤-21.1	PASS



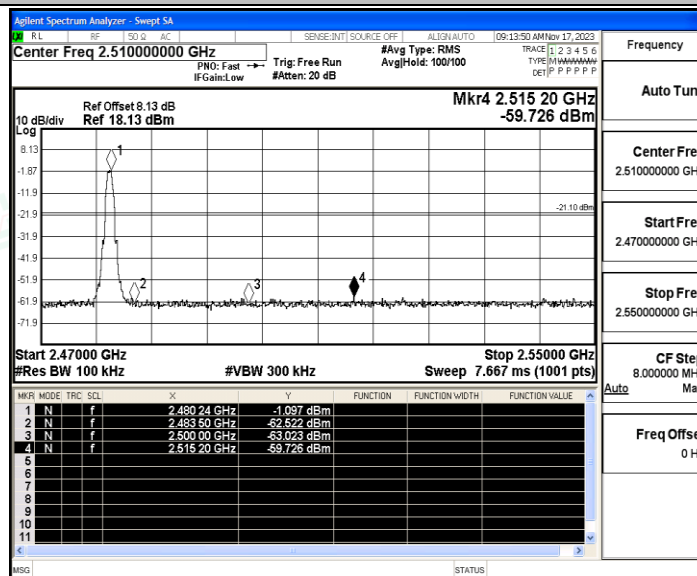


Test Graphs

BLE_Ant_Low_2402



BLE_Ant_High_2480



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A.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	2402	Reference	-1.57	-1.57	---	PASS
			30~1000	-1.57	-61.72	≤ -21.57	PASS
			1000~26500	-1.57	-47.8	≤ -21.57	PASS
		2440	Reference	-1.39	-1.39	---	PASS
			30~1000	-1.39	-61.81	≤ -21.39	PASS
			1000~26500	-1.39	-48.39	≤ -21.39	PASS
		2480	Reference	-1.30	-1.30	---	PASS
			30~1000	-1.30	-62.01	≤ -21.3	PASS
			1000~26500	-1.30	-47.89	≤ -21.3	PASS



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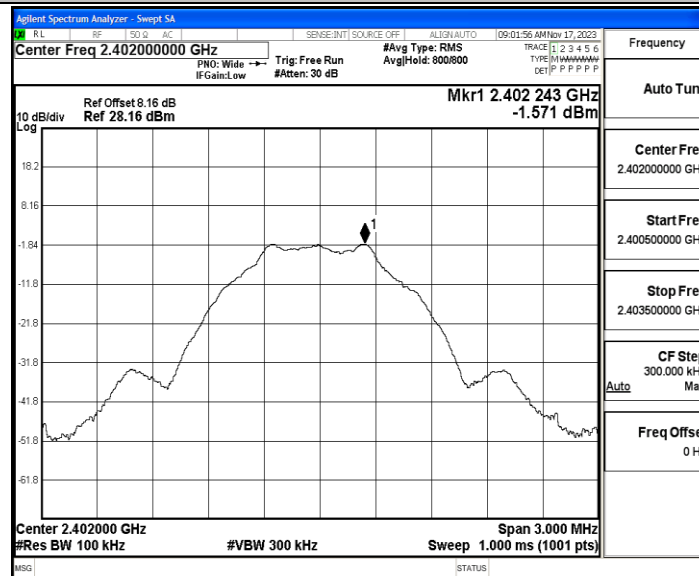
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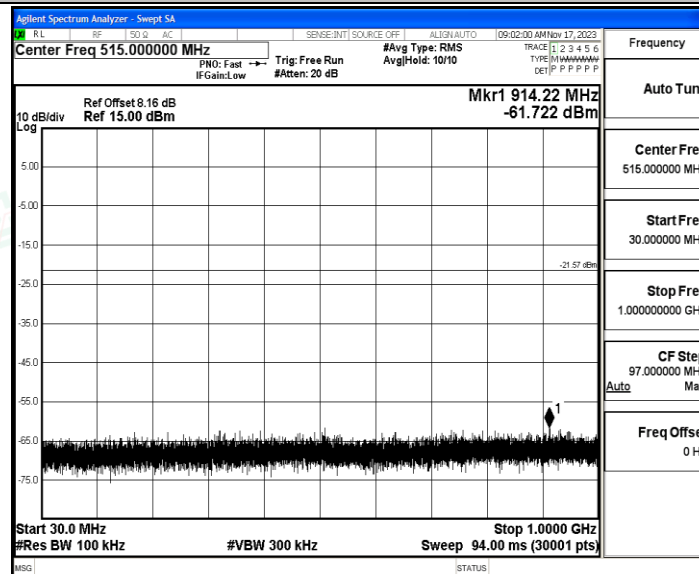


Test Graphs

BLE_Ant_2402_0~Reference



BLE_Ant_2402_30~1000



BLE_Ant_2402_1000~26500

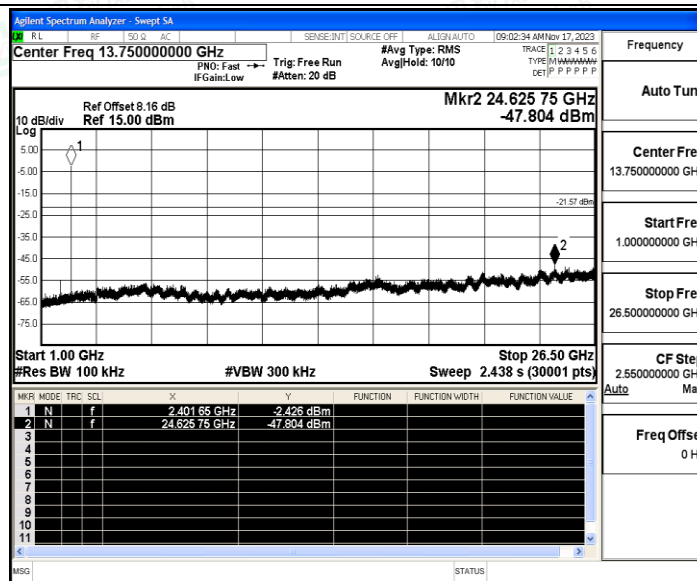


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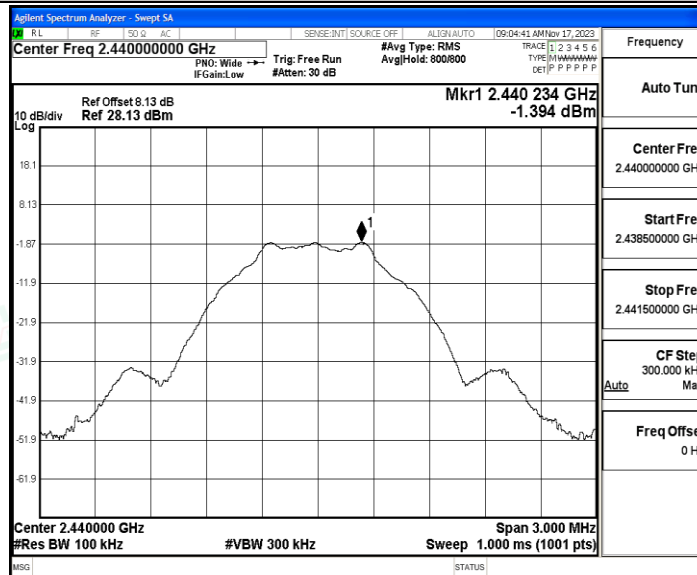
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BLE_Ant_2440_0~Reference



BLE_Ant_2440_30~1000

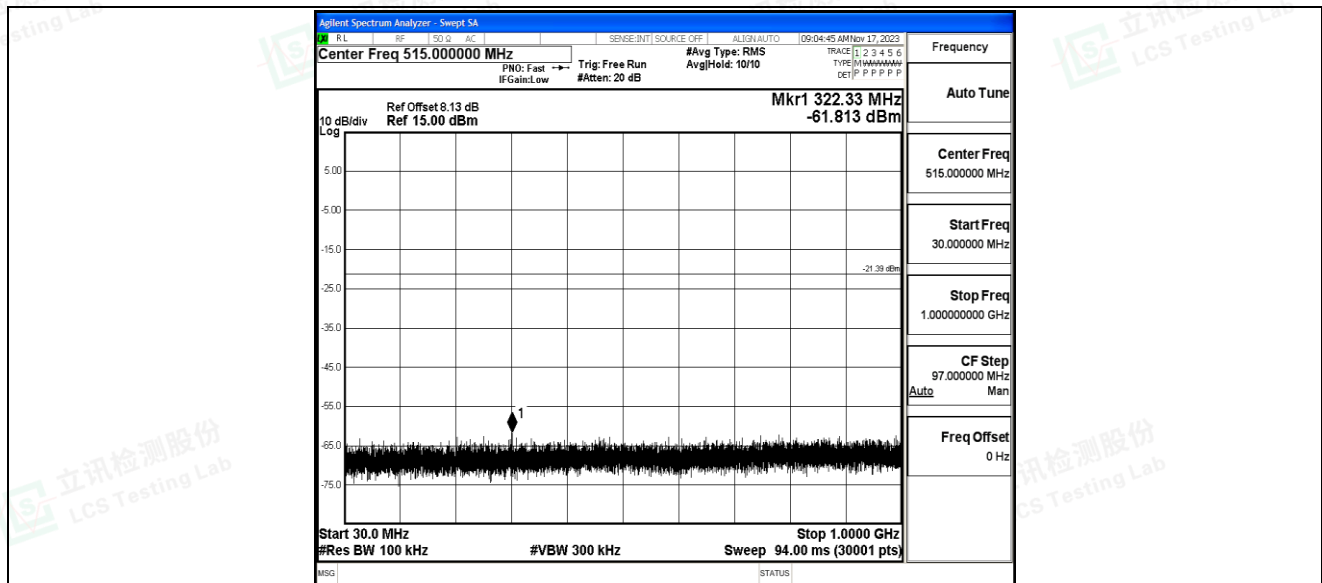


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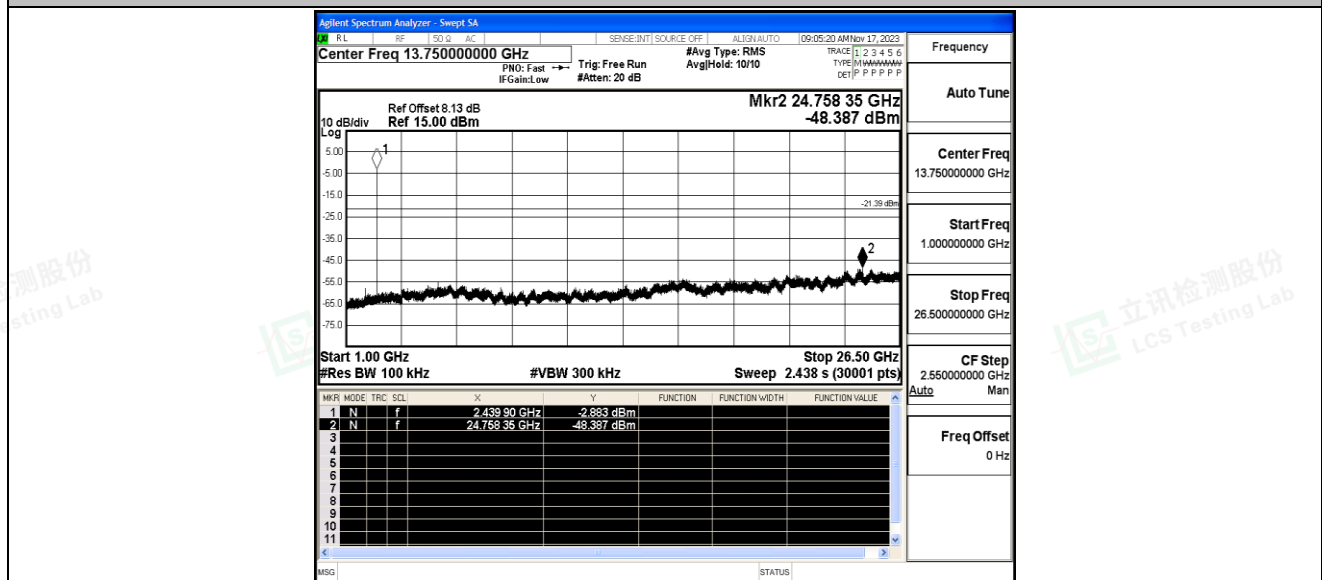
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BLE_Ant_2440_1000~26500



BLE_Ant_2480_0~Reference

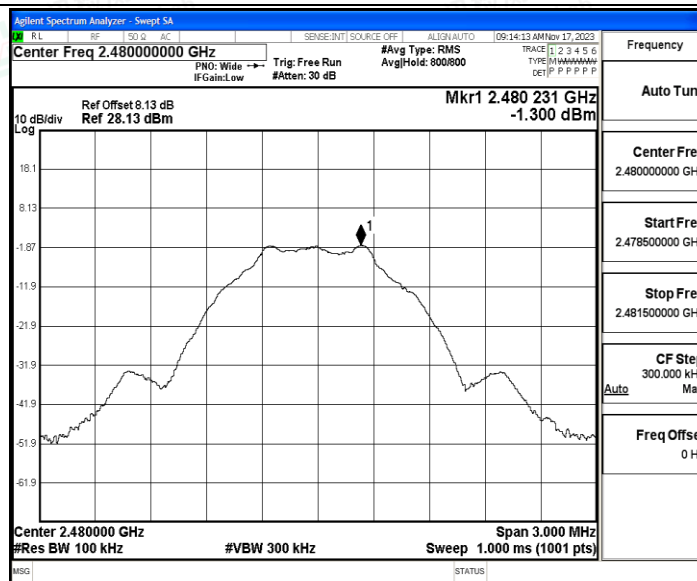


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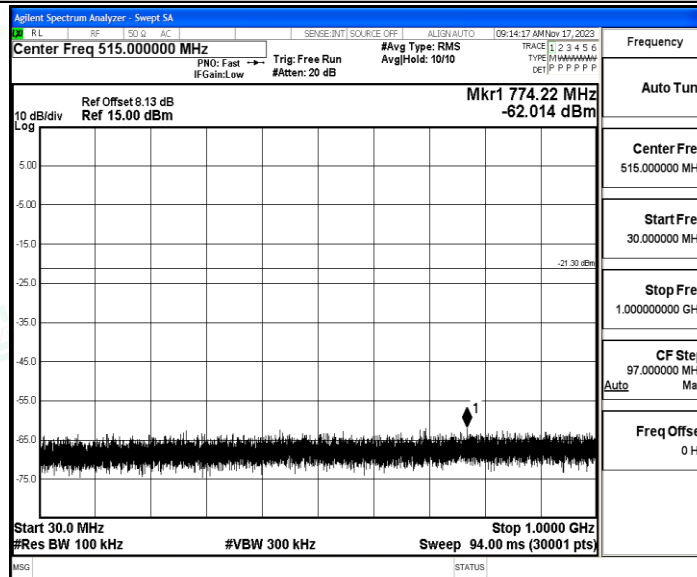
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BLE_Ant_2480_30~1000



BLE_Ant_2480_1000~26500

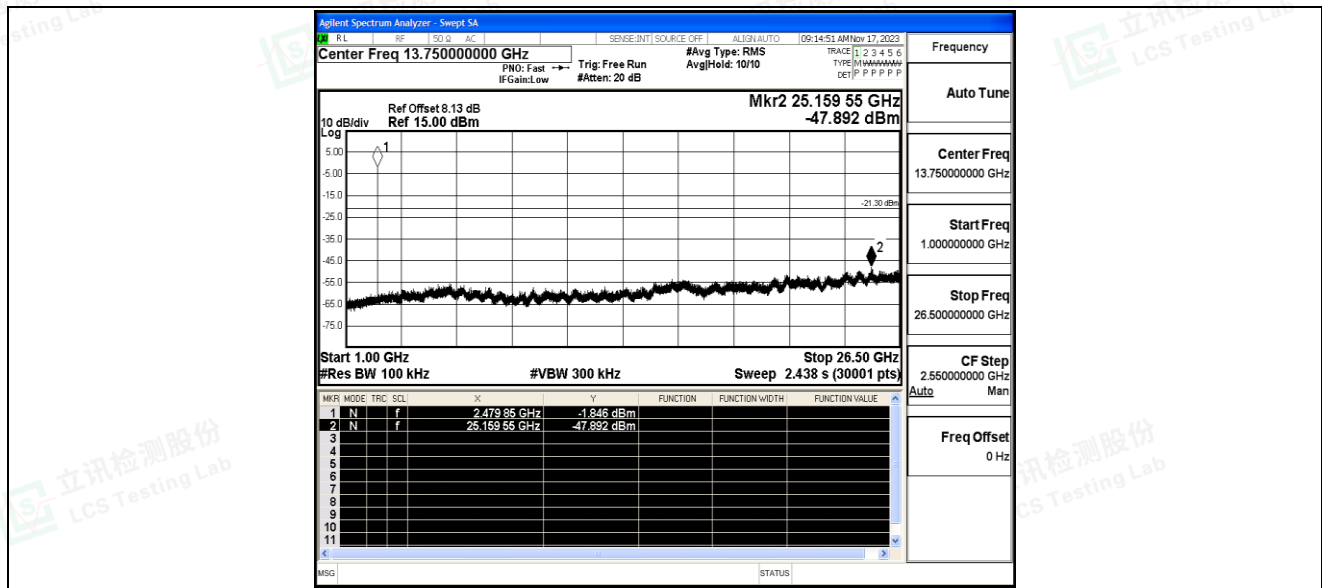


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A.6 Duty Cycle

Test Result

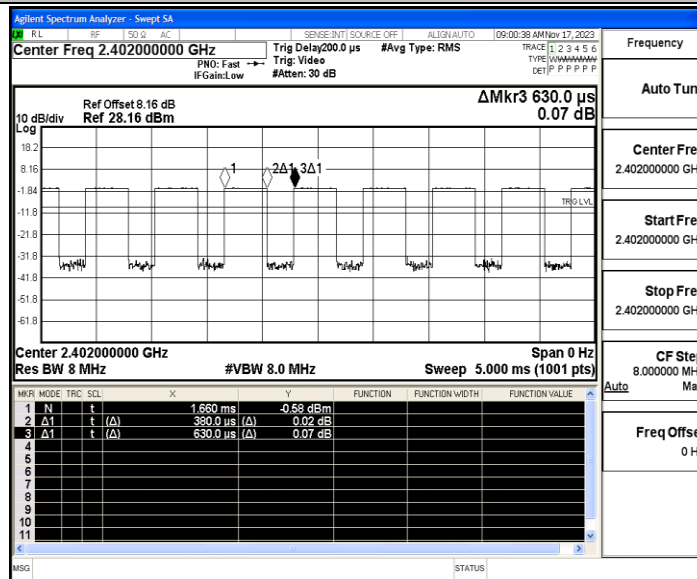
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE	Ant	2402	0.38	0.63	0.6032	60.32	2.20	2.63	---	---
		2440	0.38	0.63	0.6032	60.32	2.20	2.63	---	---
		2480	0.38	0.63	0.6032	60.32	2.20	2.63	---	---



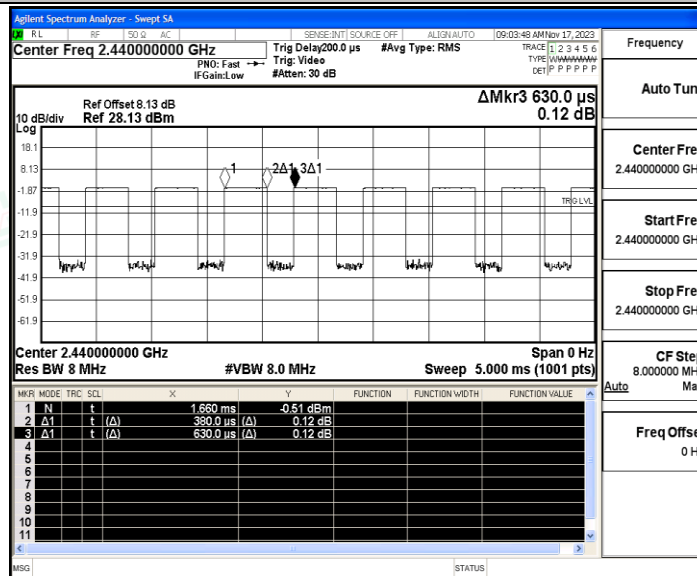


Test Graphs

BLE_Ant_2402



BLE_Ant_2440



BLE_Ant_2480

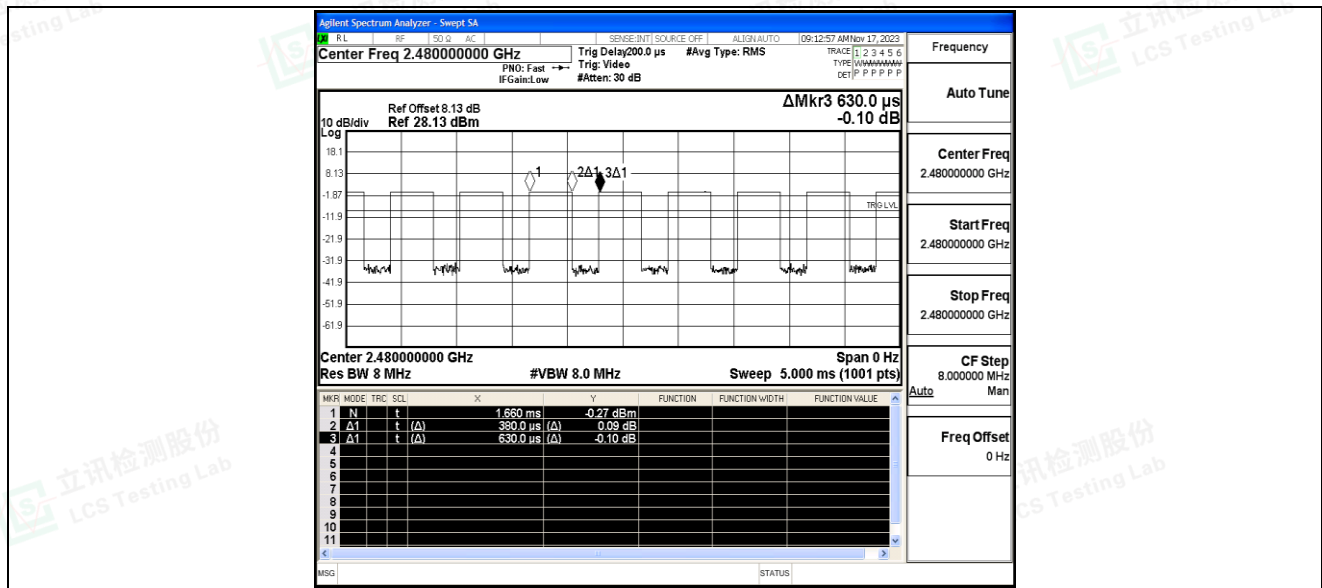


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A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant	Low	2402	AV	2310.000	-58.41	≤-41.20	36.79	≤54	PASS
				AV	2387.465	-57.76	≤-41.20	37.44	≤54	PASS
				AV	2390.000	-58.24	≤-41.20	36.96	≤54	PASS
				Peak	2310.000	-52.29	≤-21.20	42.91	≤74	PASS
				Peak	2388.200	-48.26	≤-21.20	46.94	≤74	PASS
				Peak	2390.000	-52.03	≤-21.20	43.17	≤74	PASS
		High	2480	AV	2483.500	-54.25	≤-41.20	40.95	≤54	PASS
				AV	2483.520	-54.25	≤-41.20	40.95	≤54	PASS
				AV	2500.000	-58.17	≤-41.20	37.03	≤54	PASS
				Peak	2483.500	-50.84	≤-21.20	44.36	≤74	PASS
				Peak	2491.680	-48.43	≤-21.20	46.77	≤74	PASS
				Peak	2500.000	-51.12	≤-21.20	44.08	≤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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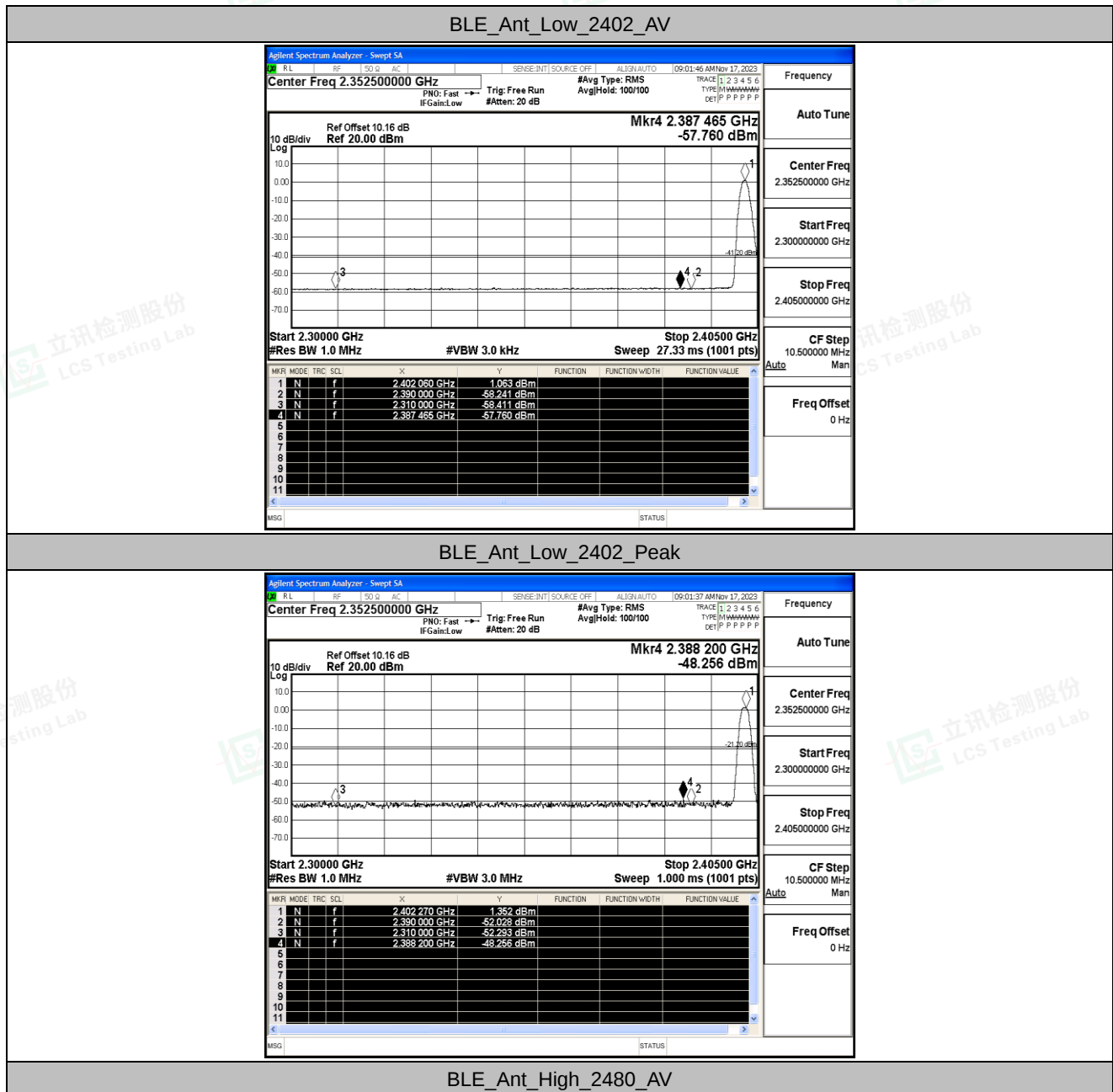
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Test Graphs

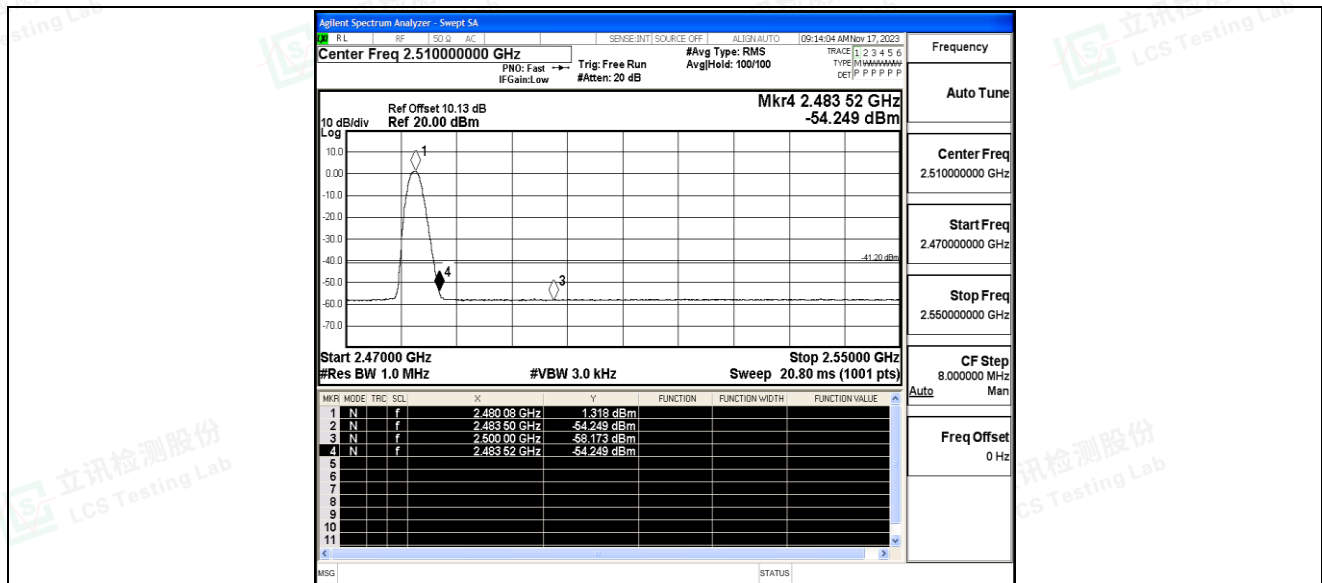


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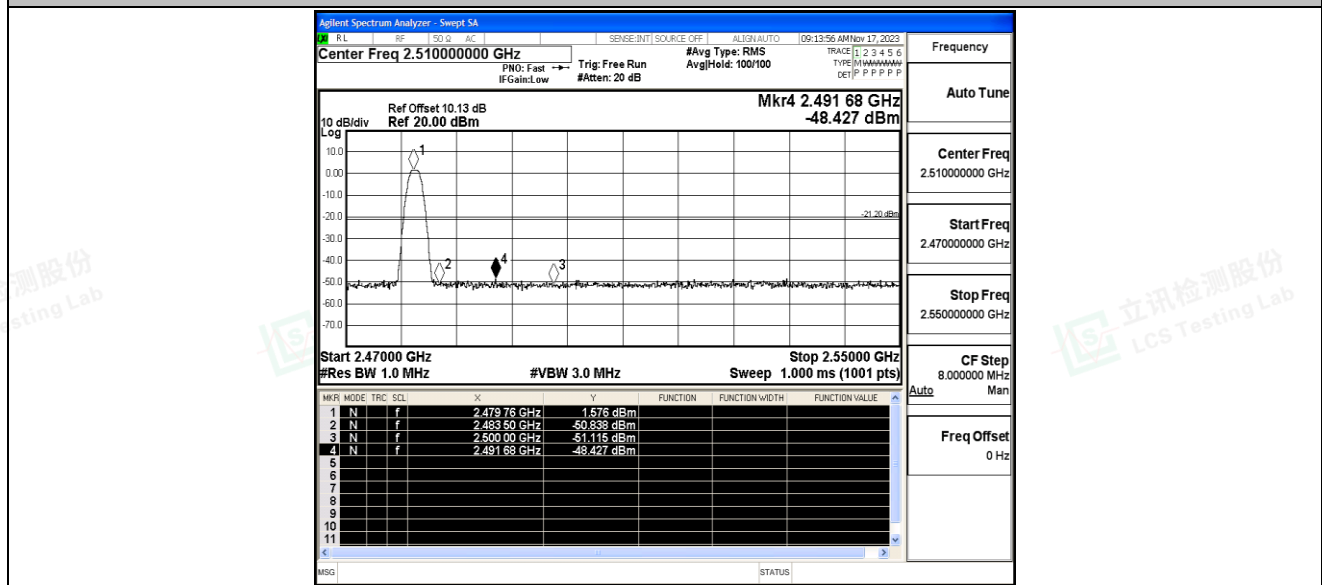
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BLE_Ant_High_2480_Peak



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