



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Breast Pump

Test Model: Perifit Pump

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mening Su
Supervised by:	Ling Zhu



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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	2401.632	2402.344	0.5	PASS
		2440	0.712	2439.632	2440.344	0.5	PASS
		2480	0.716	2479.632	2480.348	0.5	PASS



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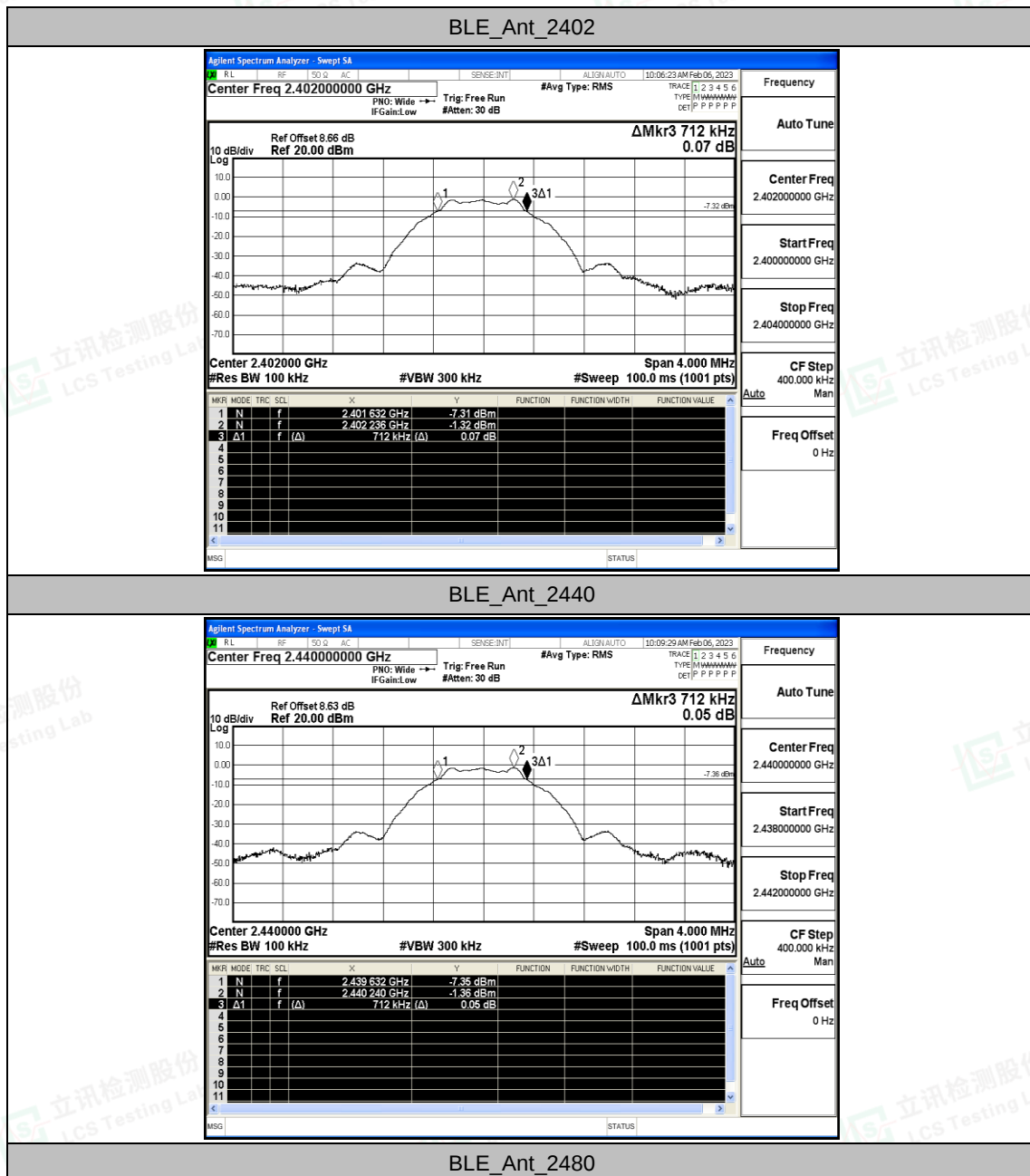
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Test Graphs

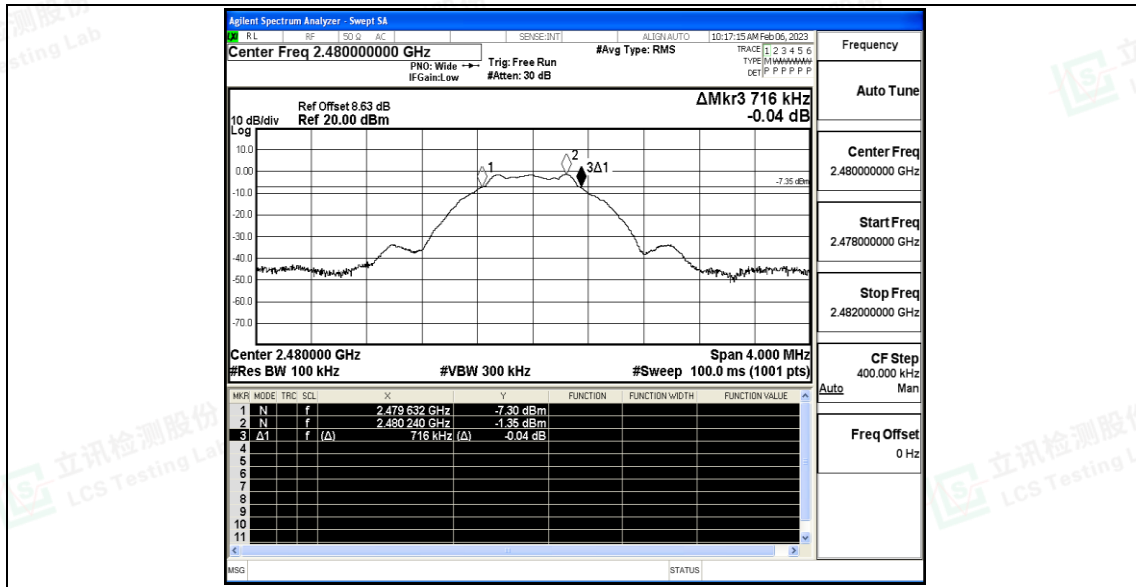


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A.2 Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant	2402	1.0608	2401.4732	2402.5340	---	PASS
		2440	1.0550	2439.4758	2440.5308	---	PASS
		2480	1.0614	2479.4715	2480.5329	---	PASS



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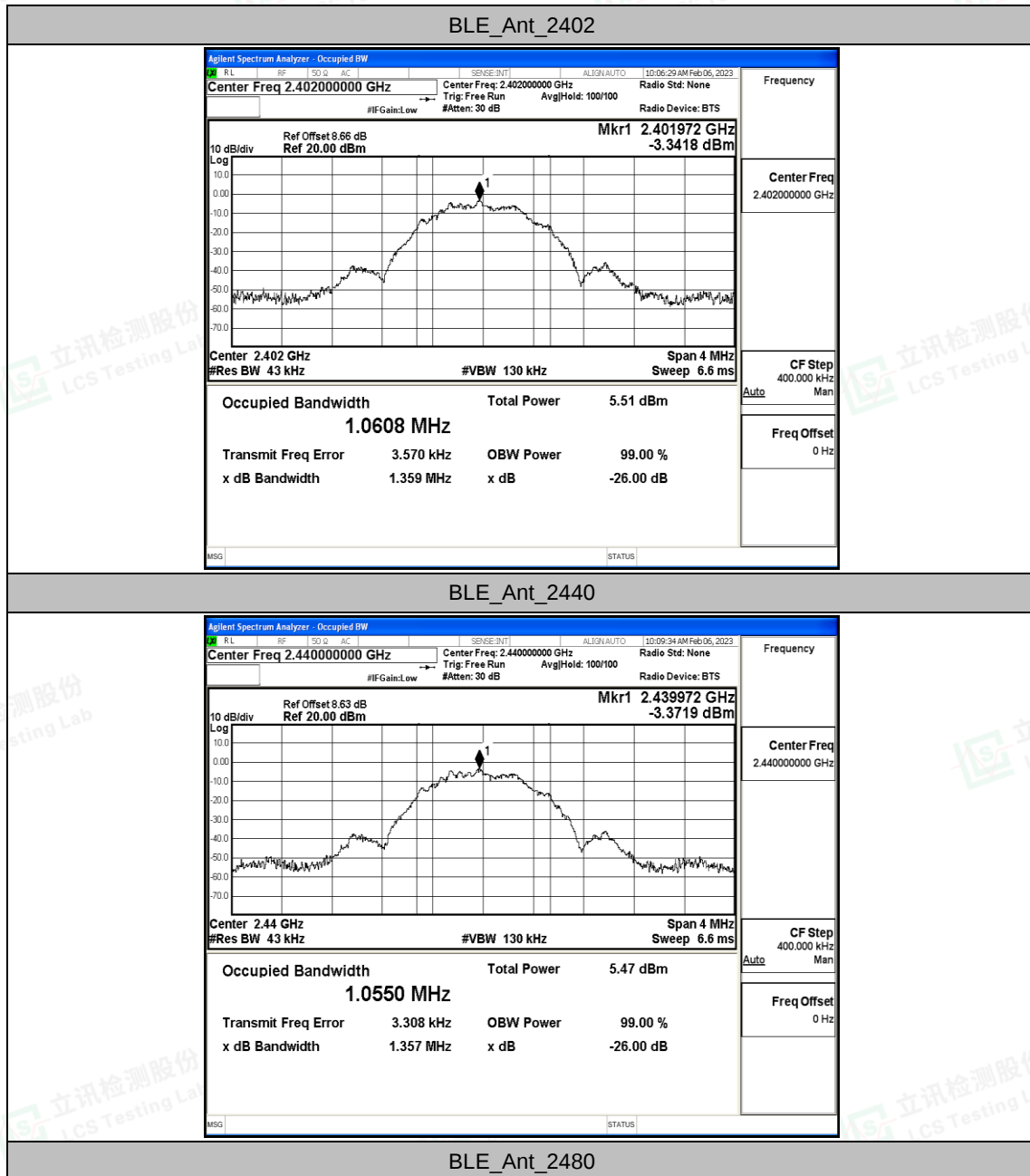
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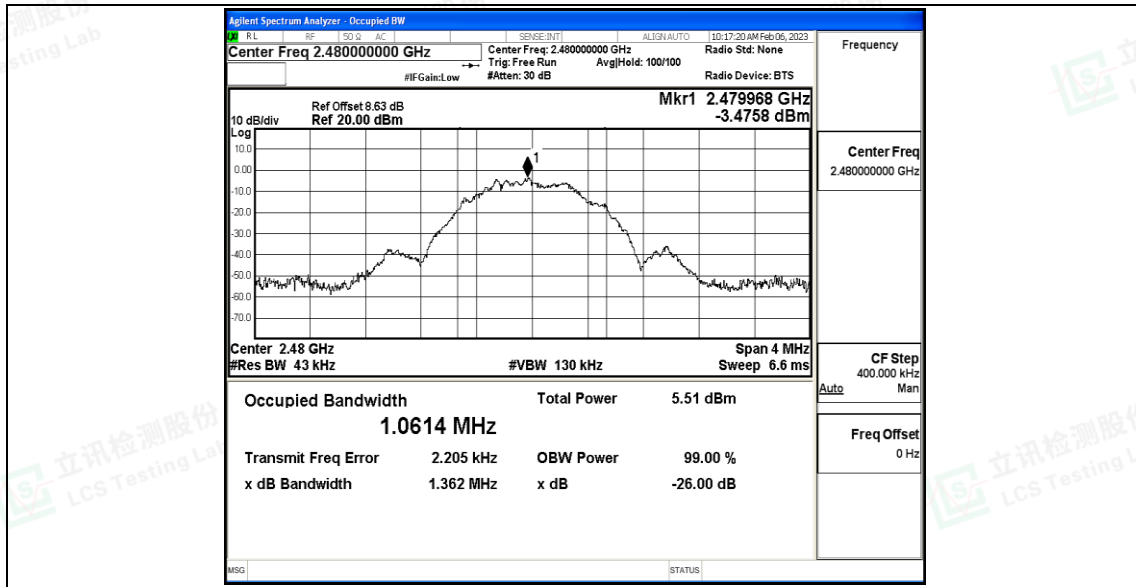


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A.3 Maximum conducted output power and e.i.r.p.

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	2402	-0.33	≤30	PASS
		2440	-0.40	≤30	PASS
		2480	-0.39	≤30	PASS

EIRP

Condition	Mode	Frequency (MHz)	Maximum Peak Output Power [dBm]	Antenna Gain	Report EIRP Power(dBm)	Limit[dBm]	Verdict
NVNT	BLE	2402	-0.33	2.99	2.66	≤36	PASS
NVNT	BLE	2440	-0.40	2.99	2.59	≤36	PASS
NVNT	BLE	2480	-0.39	2.99	2.60	≤36	PASS



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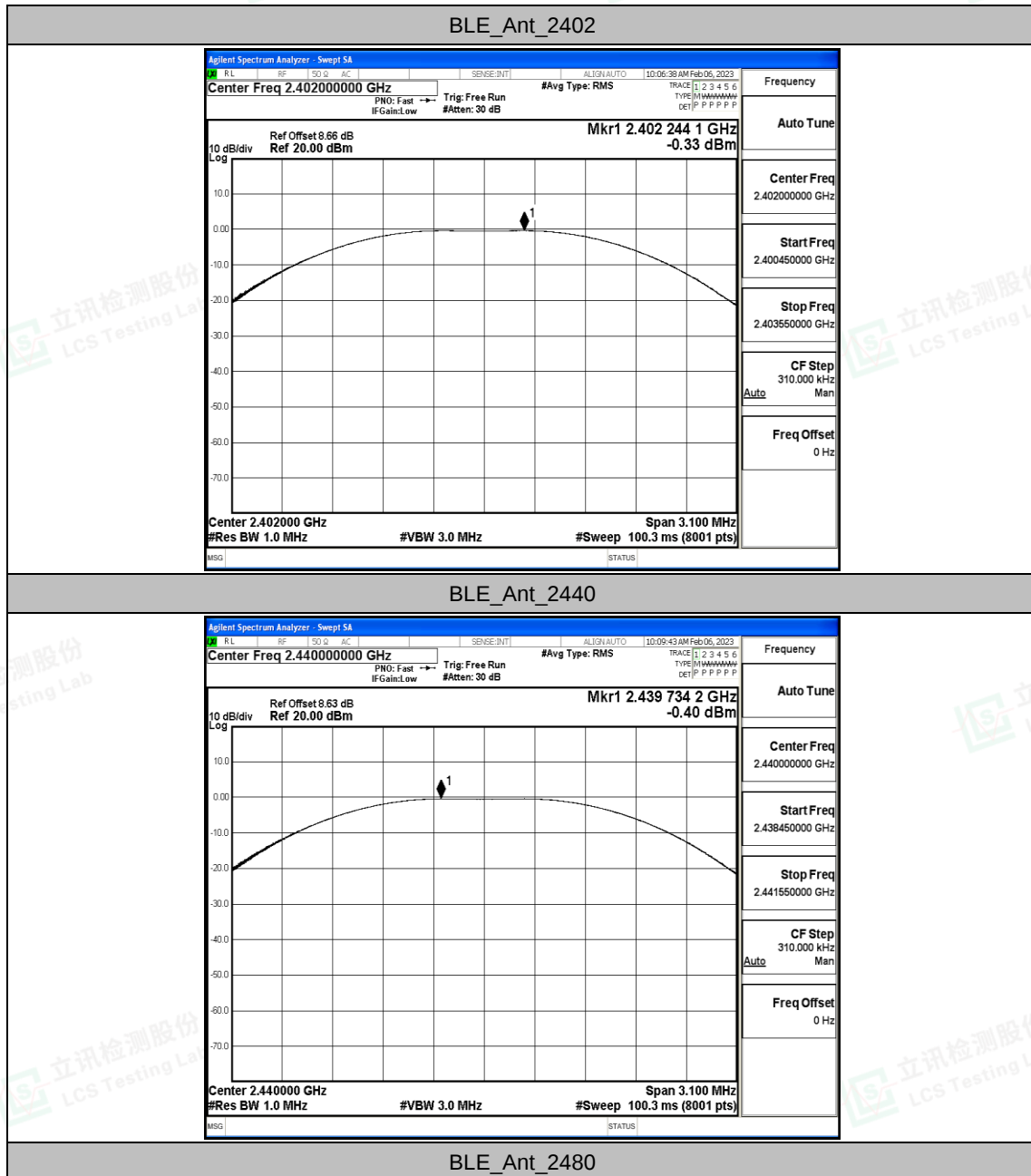
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Test Graphs

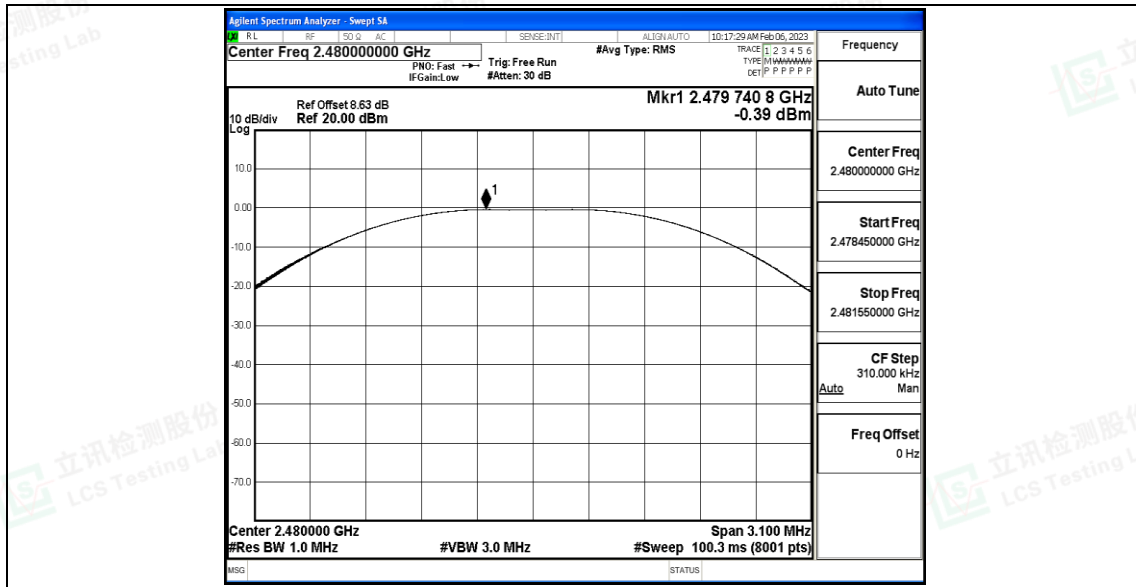


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A.4 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant	2402	-15.48	≤8.00	PASS
		2440	-15.47	≤8.00	PASS
		2480	-15.52	≤8.00	PASS



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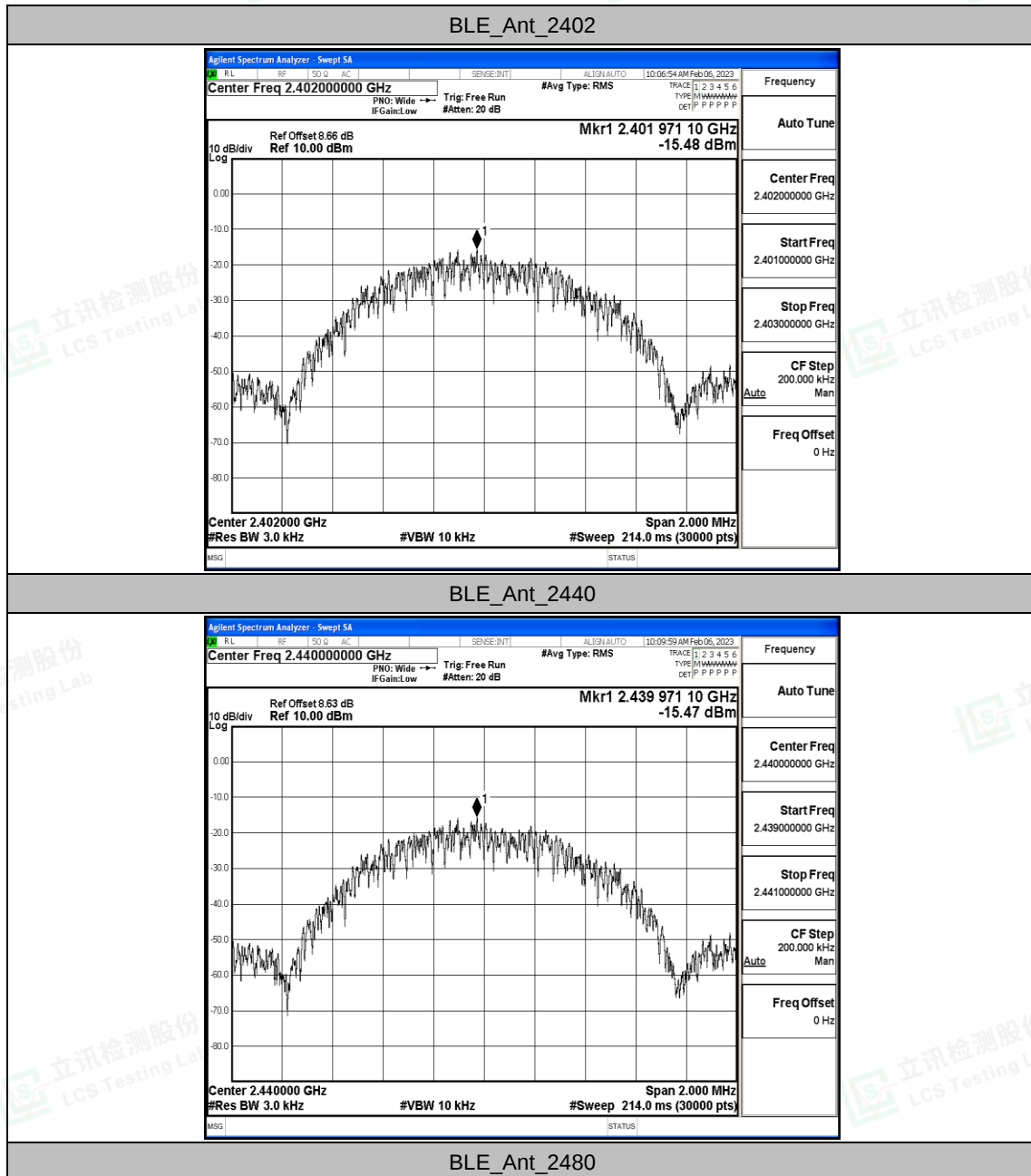
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Test Graphs

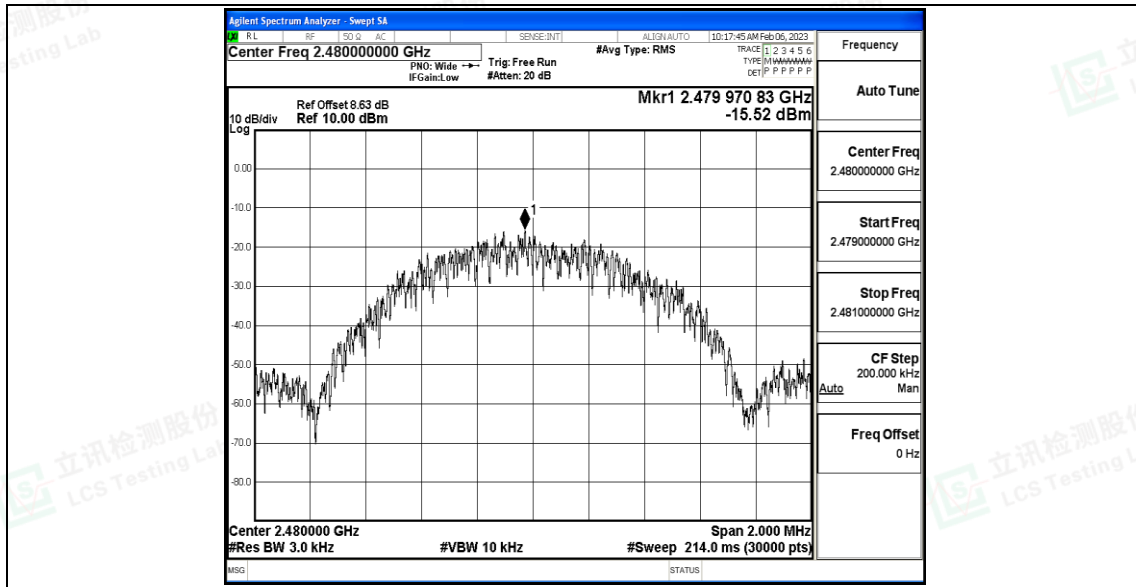


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A.5 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	Low	2402	-1.30	-48.99	≤ -21.3	PASS
		High	2480	-1.32	-54.47	≤ -21.32	PASS



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A.6 Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant	2402	Reference	-1.28	-1.28	---	PASS
			30~1000	-1.28	-60.42	≤-21.28	PASS
			1000~26500	-1.28	-46.2	≤-21.28	PASS
		2440	Reference	-1.93	-1.93	---	PASS
			30~1000	-1.93	-60.69	≤-21.93	PASS
			1000~26500	-1.93	-46.46	≤-21.93	PASS
		2480	Reference	-1.44	-1.44	---	PASS
			30~1000	-1.44	-61	≤-21.44	PASS
			1000~26500	-1.44	-46.36	≤-21.44	PASS



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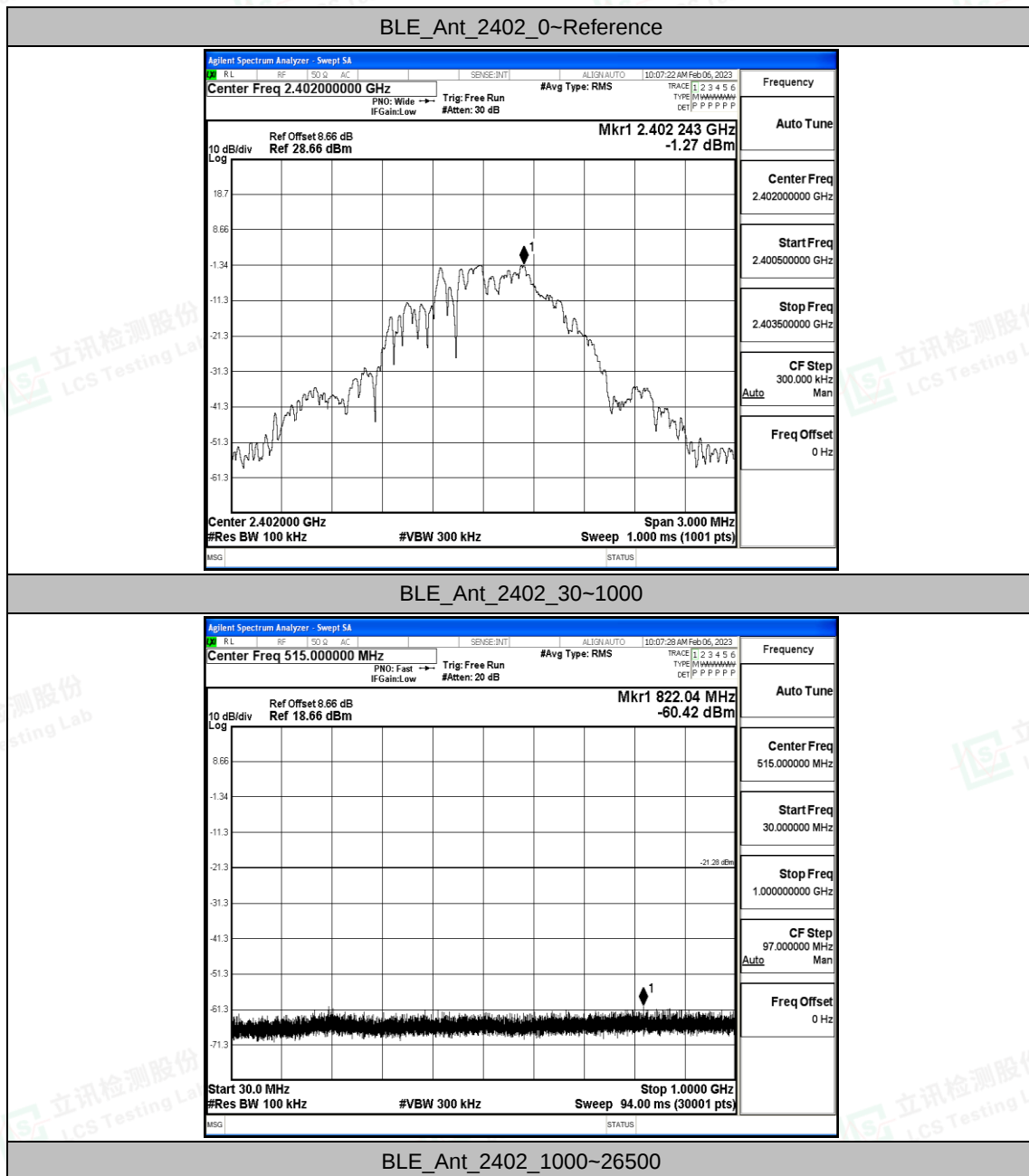
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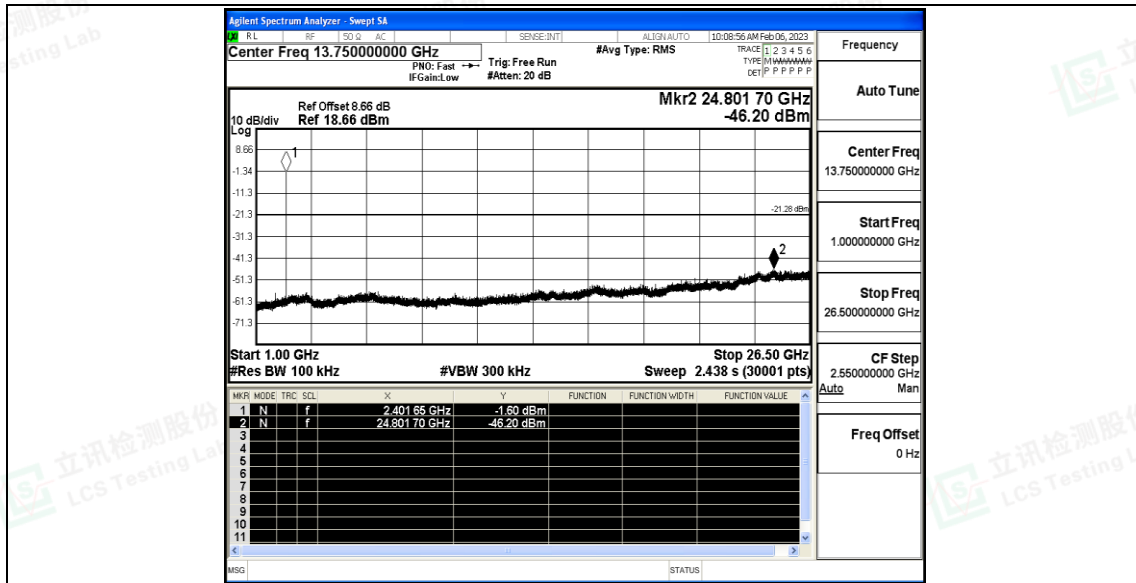


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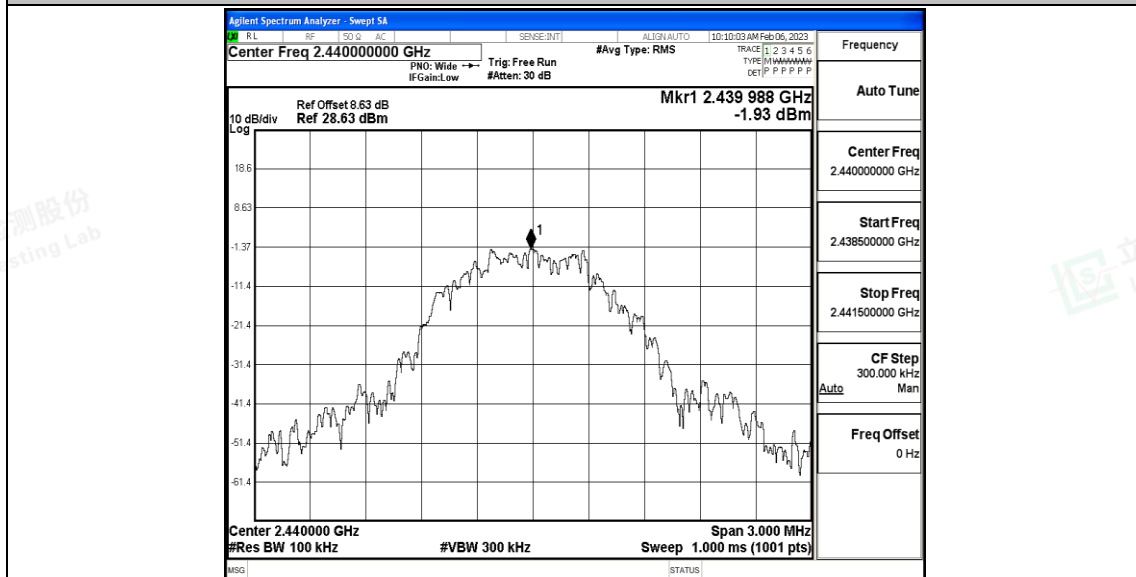
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BLE_Ant_2440_0~Reference



BLE_Ant_2440_30~1000

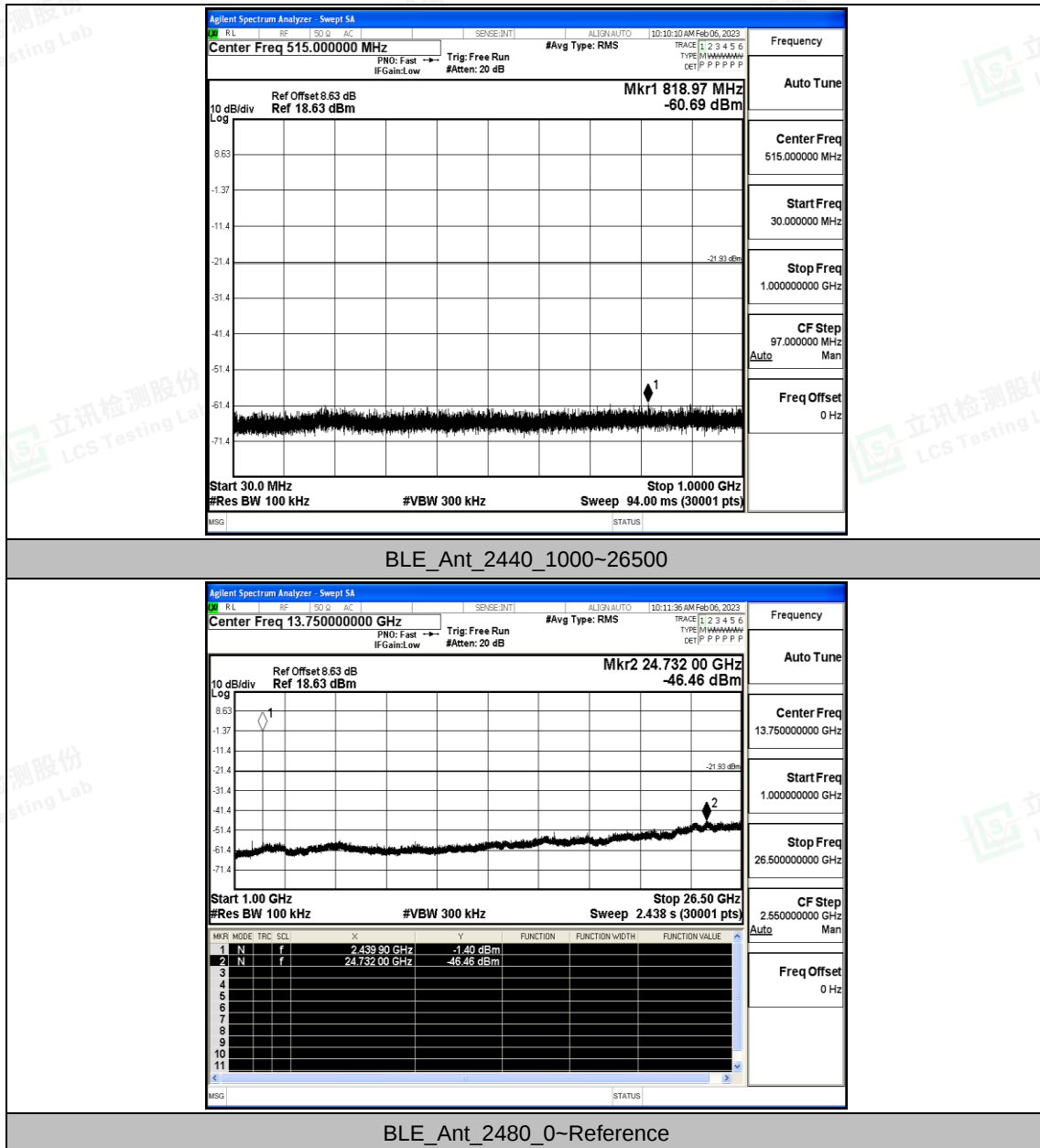


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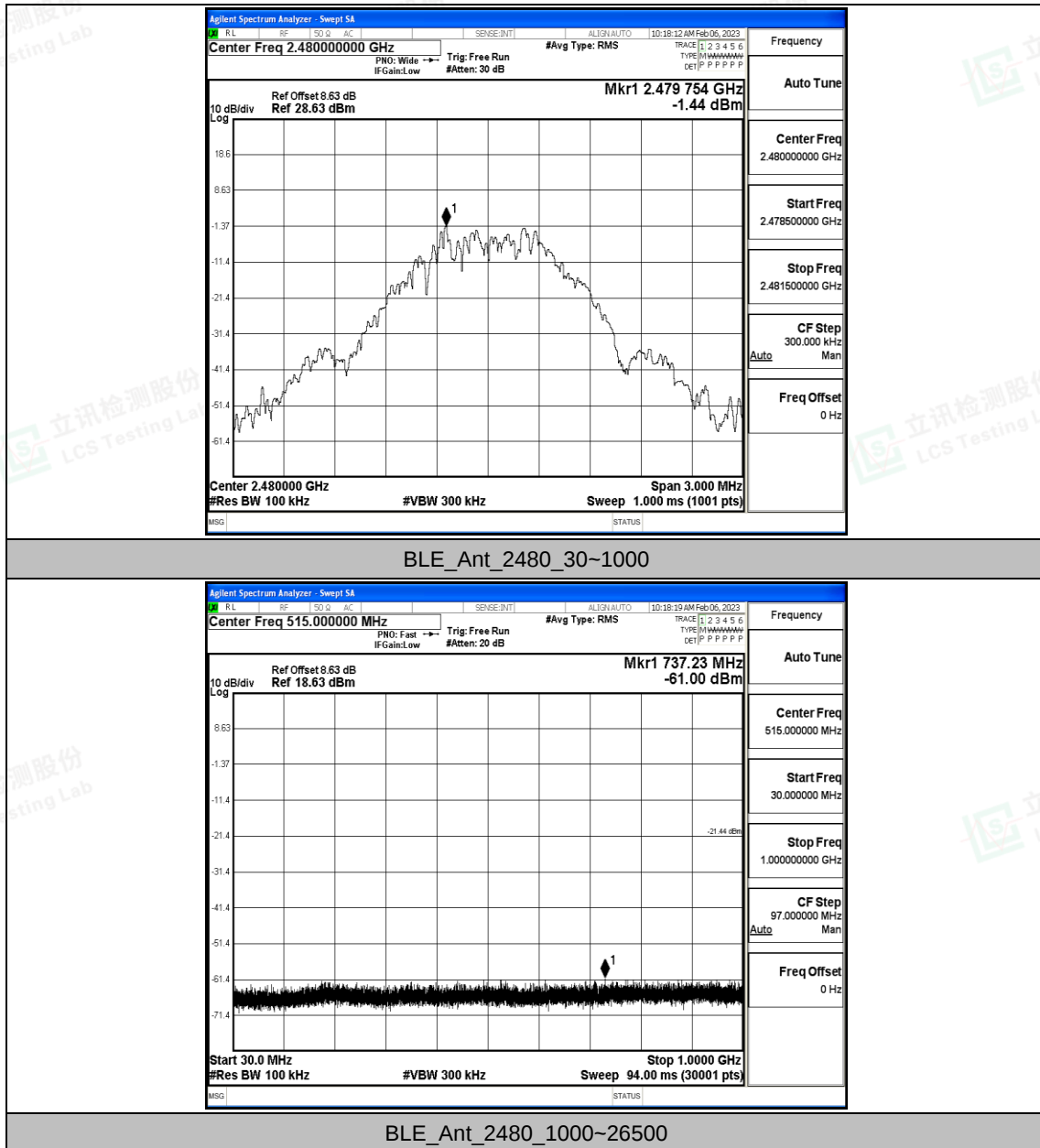


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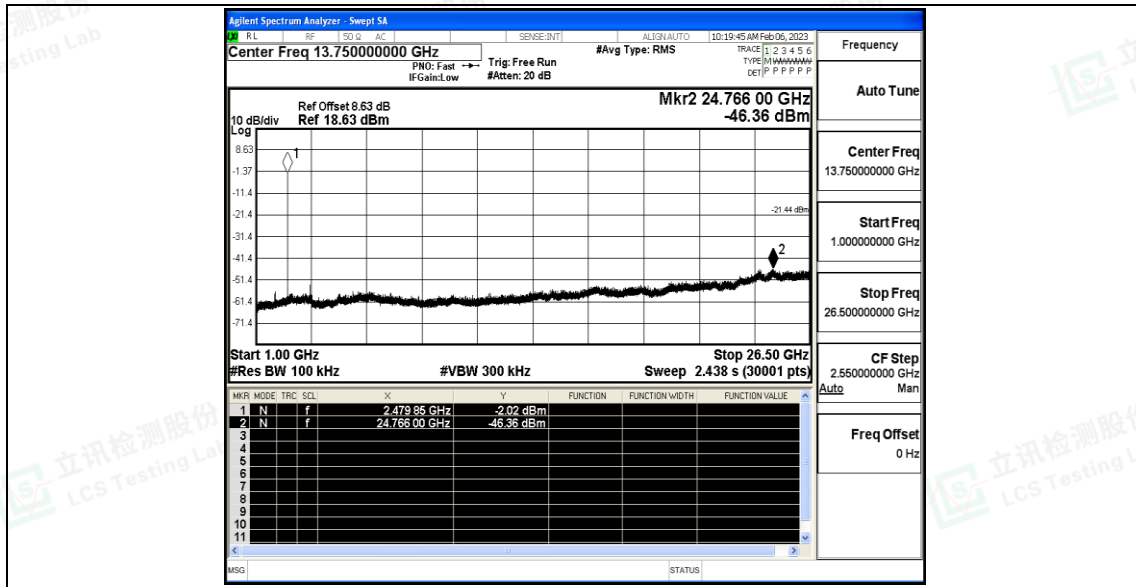


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A.7 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE	Ant	2402	0.39	0.62	0.6290	62.90	2.01	2.56	---	PASS
		2440	0.39	0.63	0.6190	61.90	2.08	2.56	---	PASS
		2480	0.39	0.63	0.6190	61.90	2.08	2.56	---	PASS



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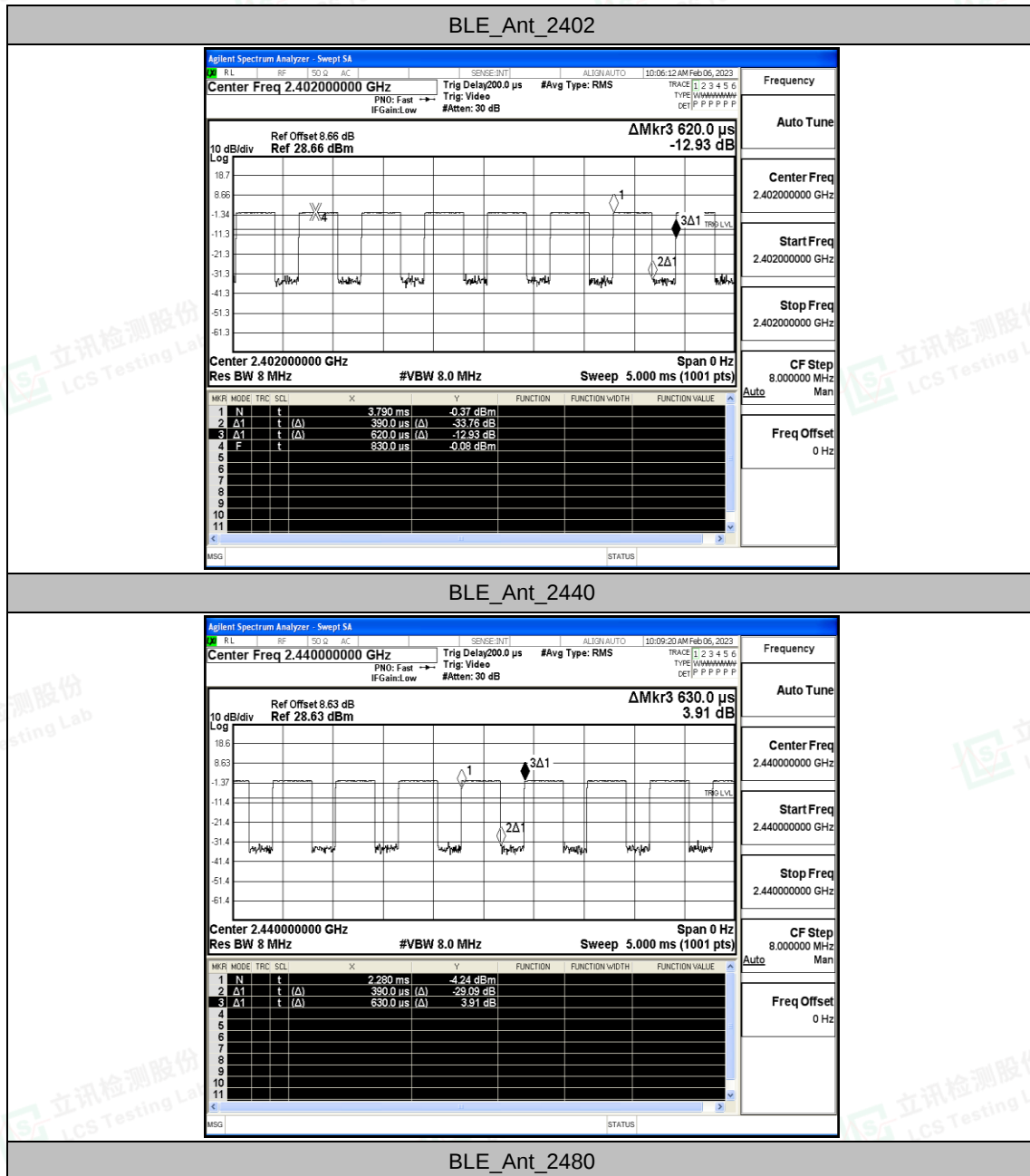
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Test Graphs

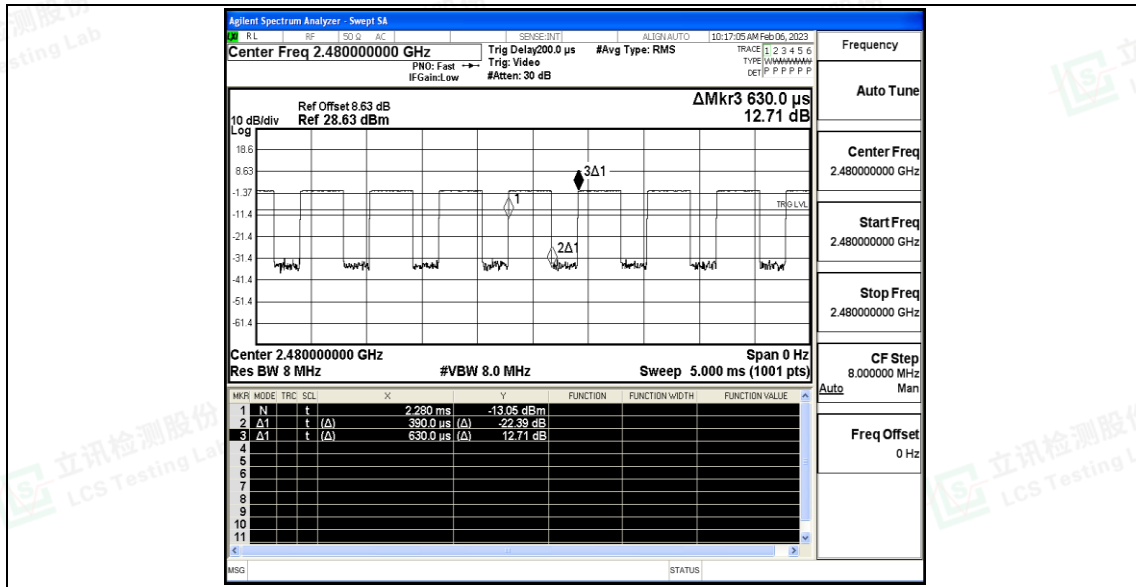


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A.8 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant	Low	2402	AV	2310.000	-57.33	≤-41.20	37.87	≤54	PASS
				AV	2385.680	-56.45	≤-41.20	38.75	≤54	PASS
				AV	2390.000	-56.94	≤-41.20	38.26	≤54	PASS
				Peak	2310.000	-51.74	≤-21.20	43.46	≤74	PASS
				Peak	2378.960	-47.87	≤-21.20	47.33	≤74	PASS
				Peak	2390.000	-50.11	≤-21.20	45.09	≤74	PASS
		High	2480	AV	2483.500	-51.44	≤-41.20	43.76	≤54	PASS
				AV	2483.520	-51.43	≤-41.20	43.77	≤54	PASS
				AV	2500.000	-56.35	≤-41.20	38.85	≤54	PASS
				Peak	2483.500	-49.88	≤-21.20	45.32	≤74	PASS
				Peak	2483.920	-36.31	≤-21.20	58.89	≤74	PASS
				Peak	2500.000	-49.13	≤-21.20	46.07	≤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.
3. $EIRP\ (dBm) = E\ (dBuV/m) + 10\log(3) - 104.77$
74 dBuV/m @ 3m measurement distance
54 dBuV/m @ 3m measurement distance = -41.250 dBm (EIRP)
 $EIRP\ (dBm) = \text{Antenna Port Conducted Power}\ (dBm) + \text{Antenna Gain}\ (dBi)$



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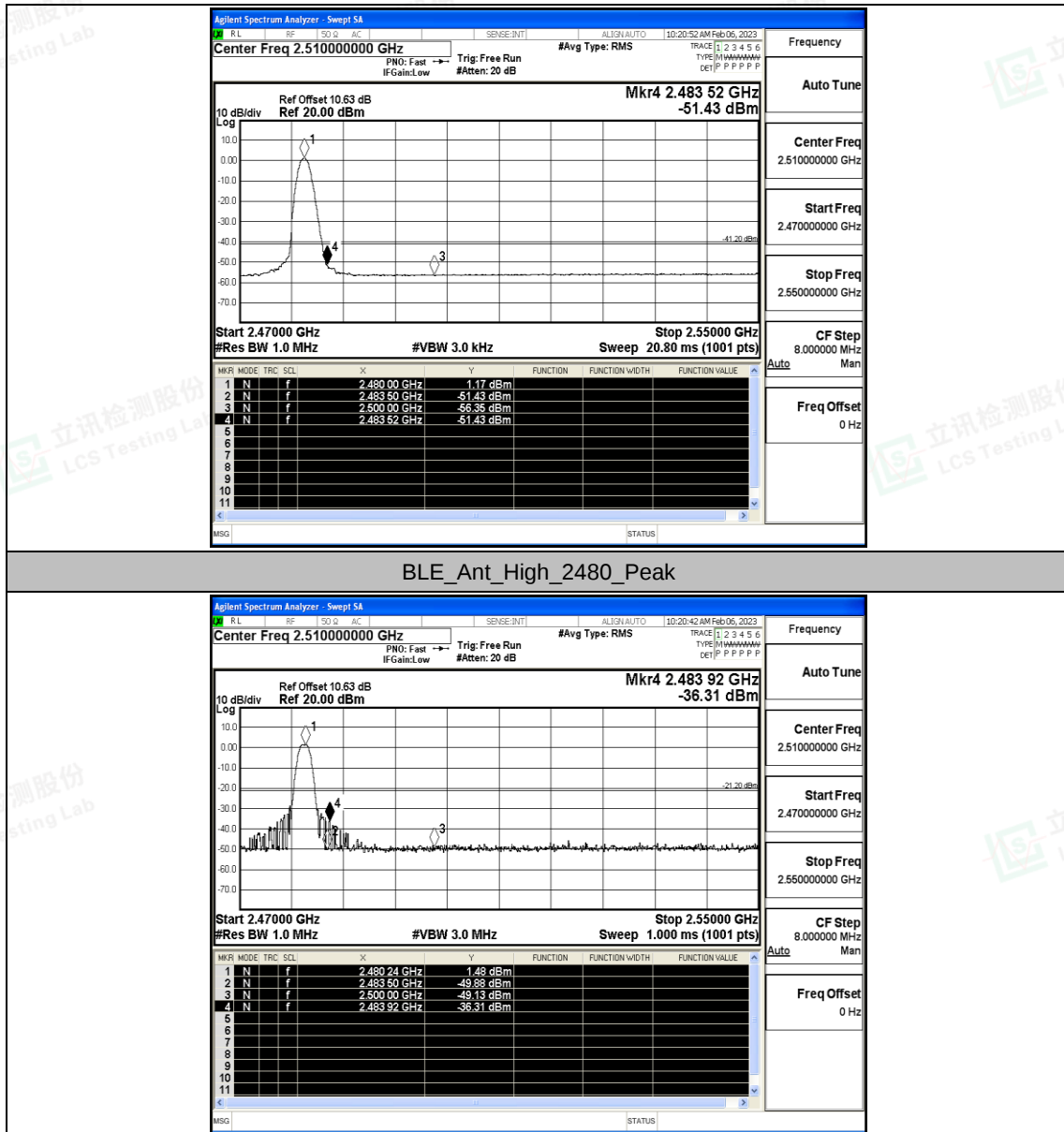


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