



Appendix B

RF Test Data for BLE (Conducted Measurement)

Product Name: 4G FIXED WIRELESS PHONE

Test Model: LS830

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan



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B.1 6dB Bandwidth

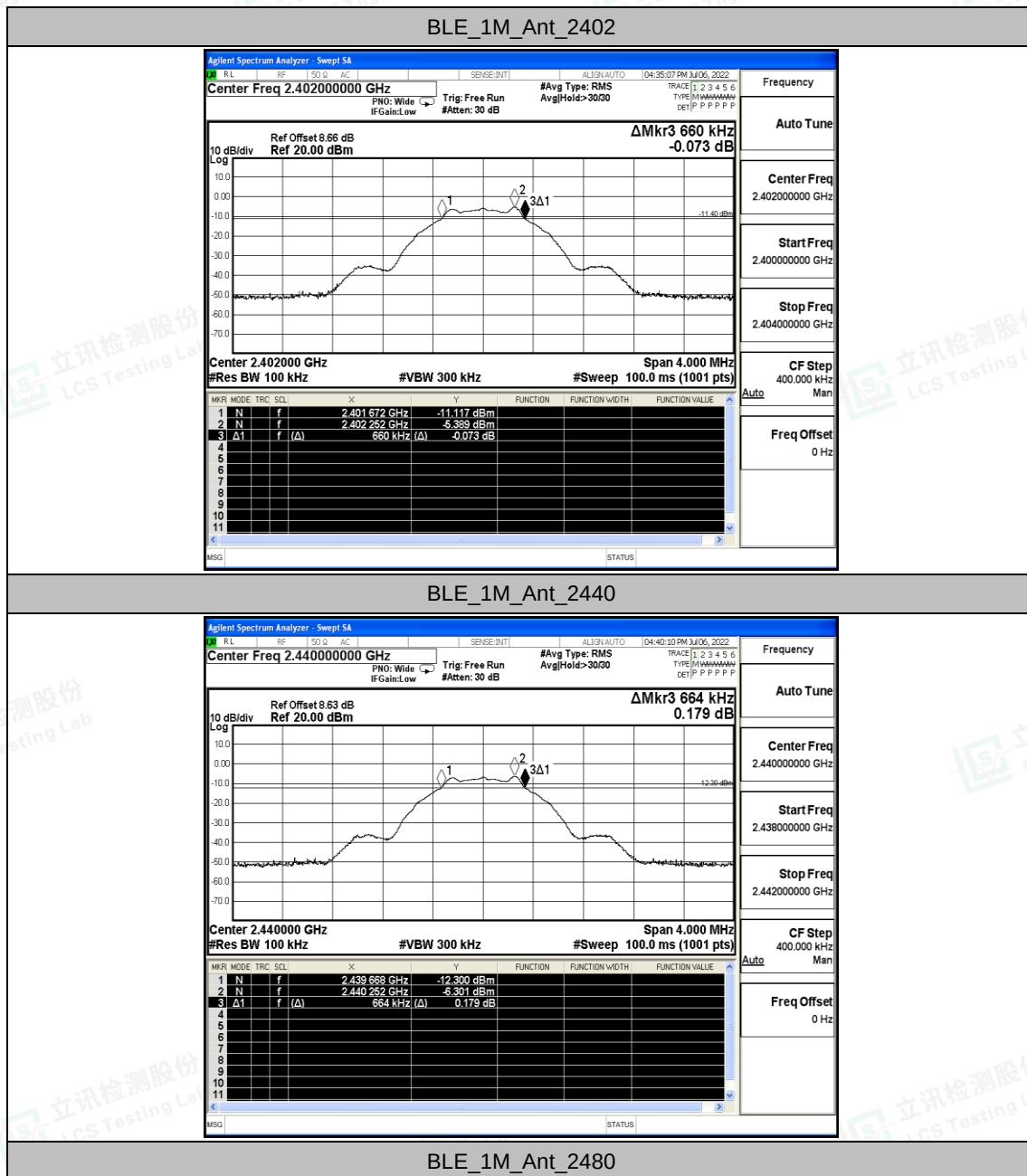
Test Result

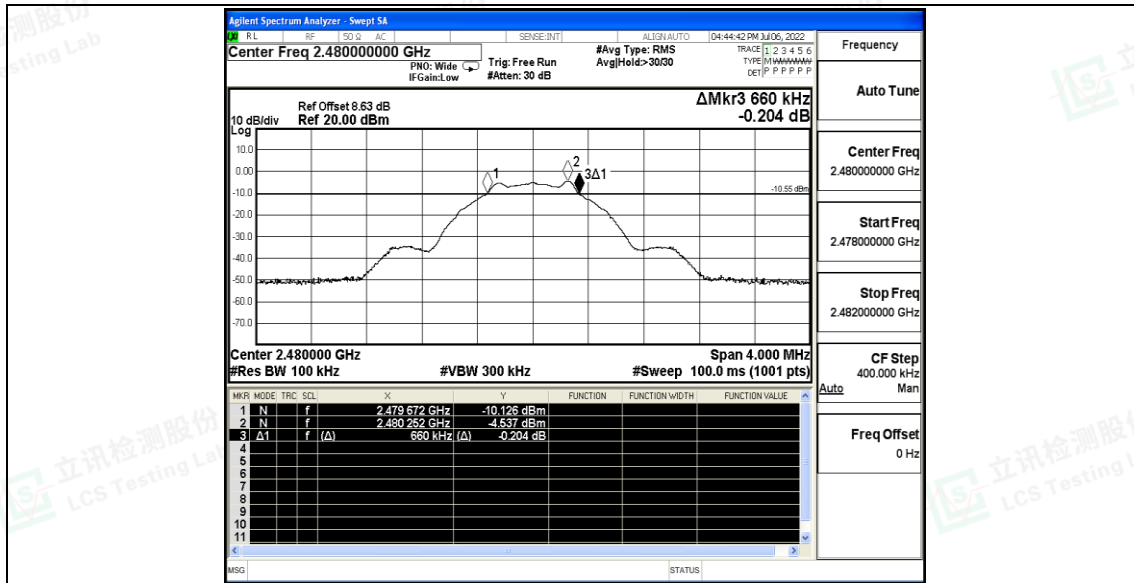
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant	2402	0.660	2401.672	2402.332	0.5	PASS
		2440	0.664	2439.668	2440.332	0.5	PASS
		2480	0.660	2479.672	2480.332	0.5	PASS
BLE_2M	Ant	2402	1.156	2401.428	2402.584	0.5	PASS
		2440	1.152	2439.428	2440.580	0.5	PASS
		2480	1.156	2479.428	2480.584	0.5	PASS



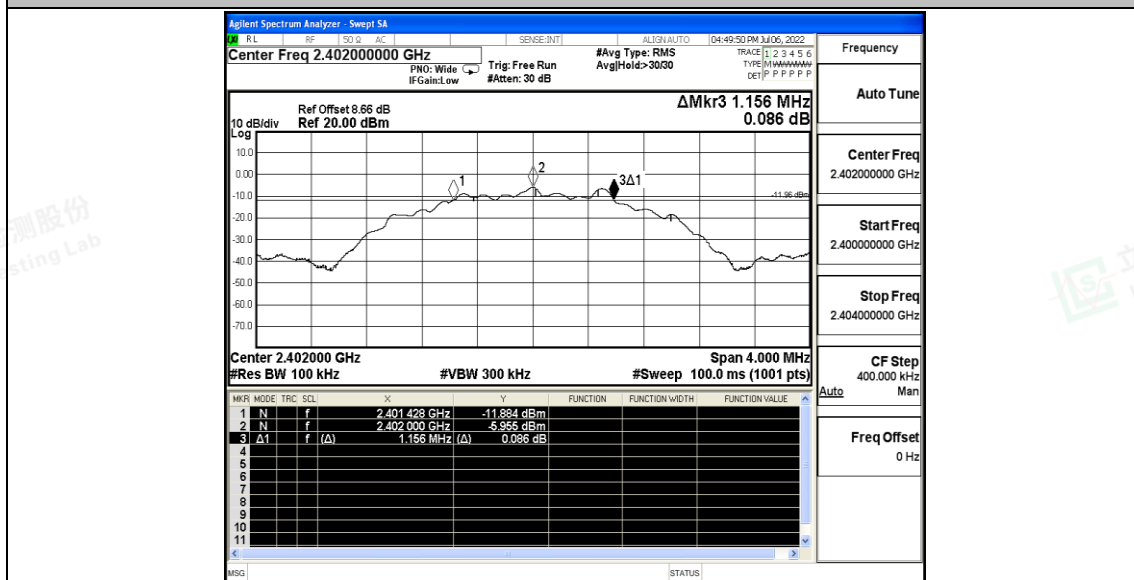


Test Graphs



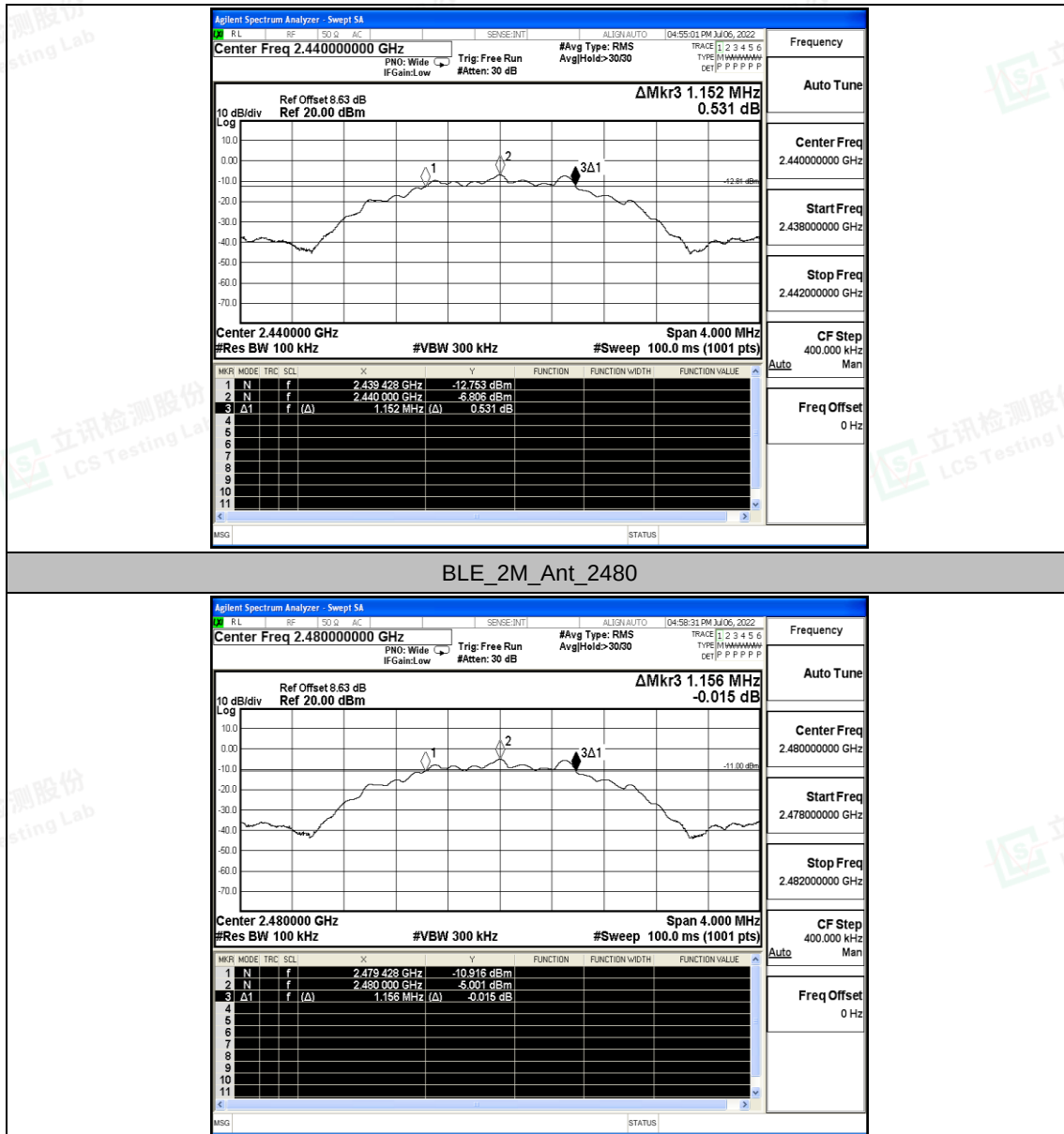


BLE_2M_Ant_2402



BLE 2M Ant 2440





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B.2 Maximum conducted output power

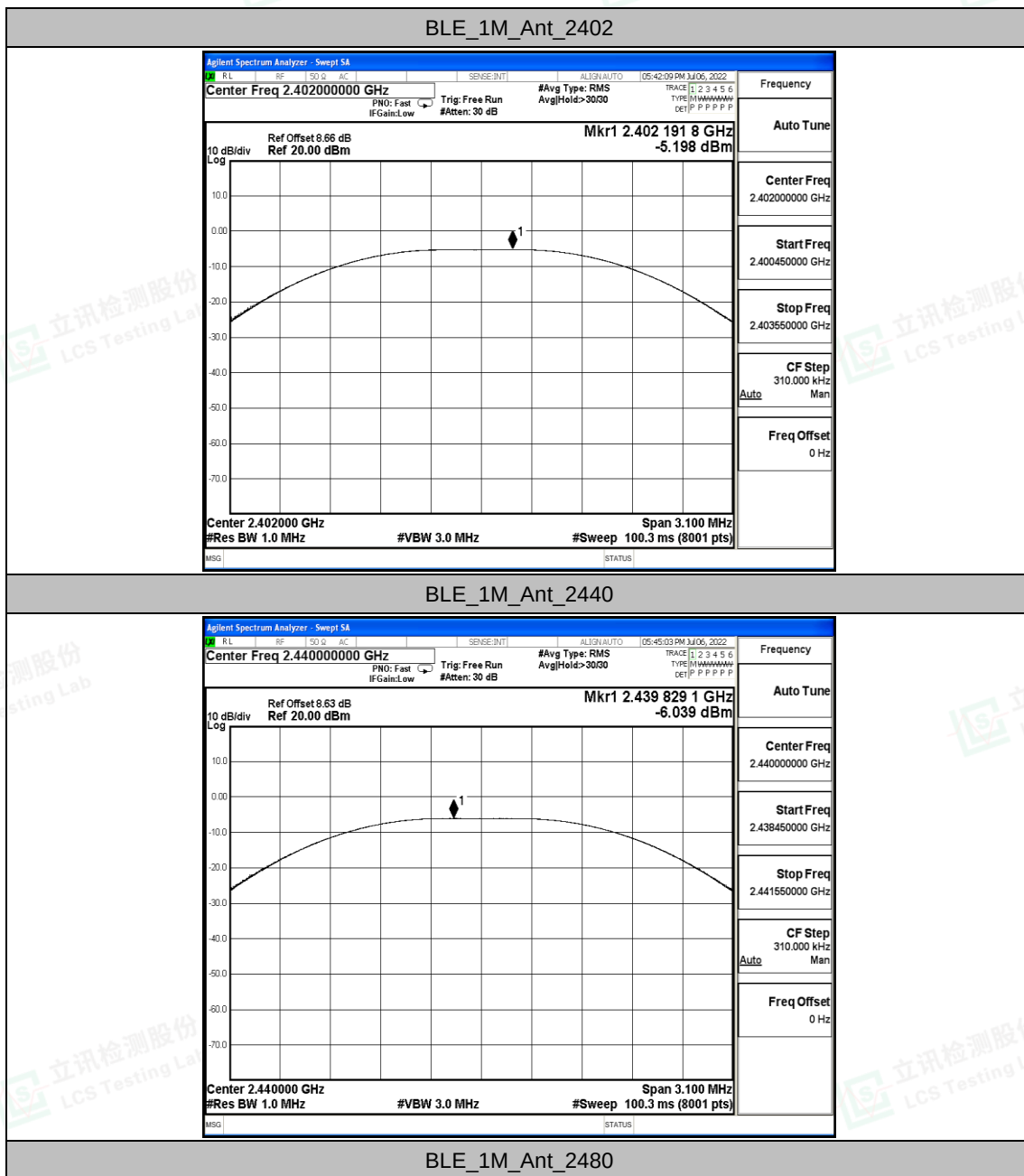
Test Result

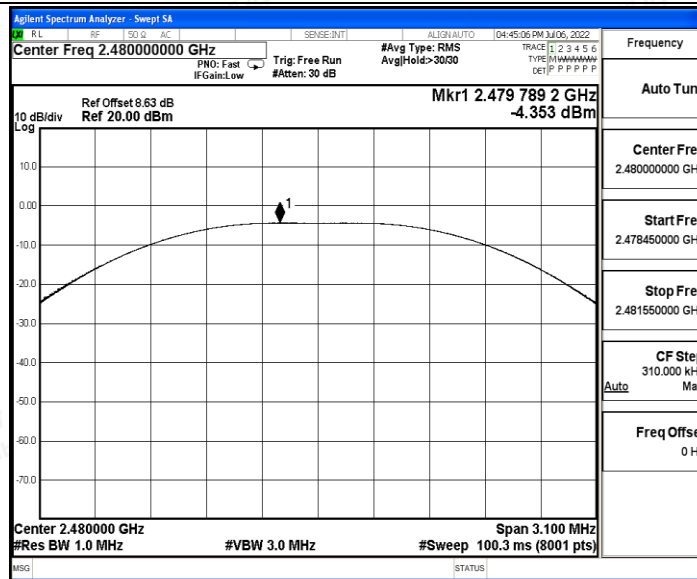
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	2402	-5.2	≤30	PASS
		2440	-6.04	≤30	PASS
		2480	-4.35	≤30	PASS
BLE_2M	Ant	2402	-5.17	≤30	PASS
		2440	-6	≤30	PASS
		2480	-4.11	≤30	PASS



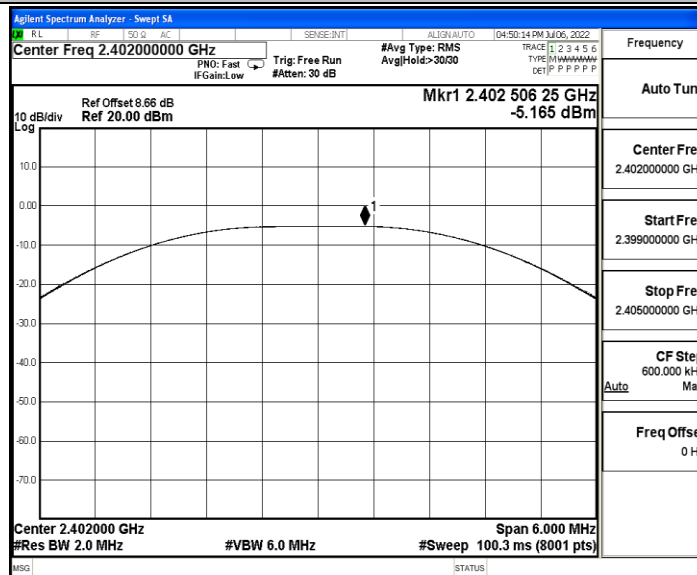


Test Graphs



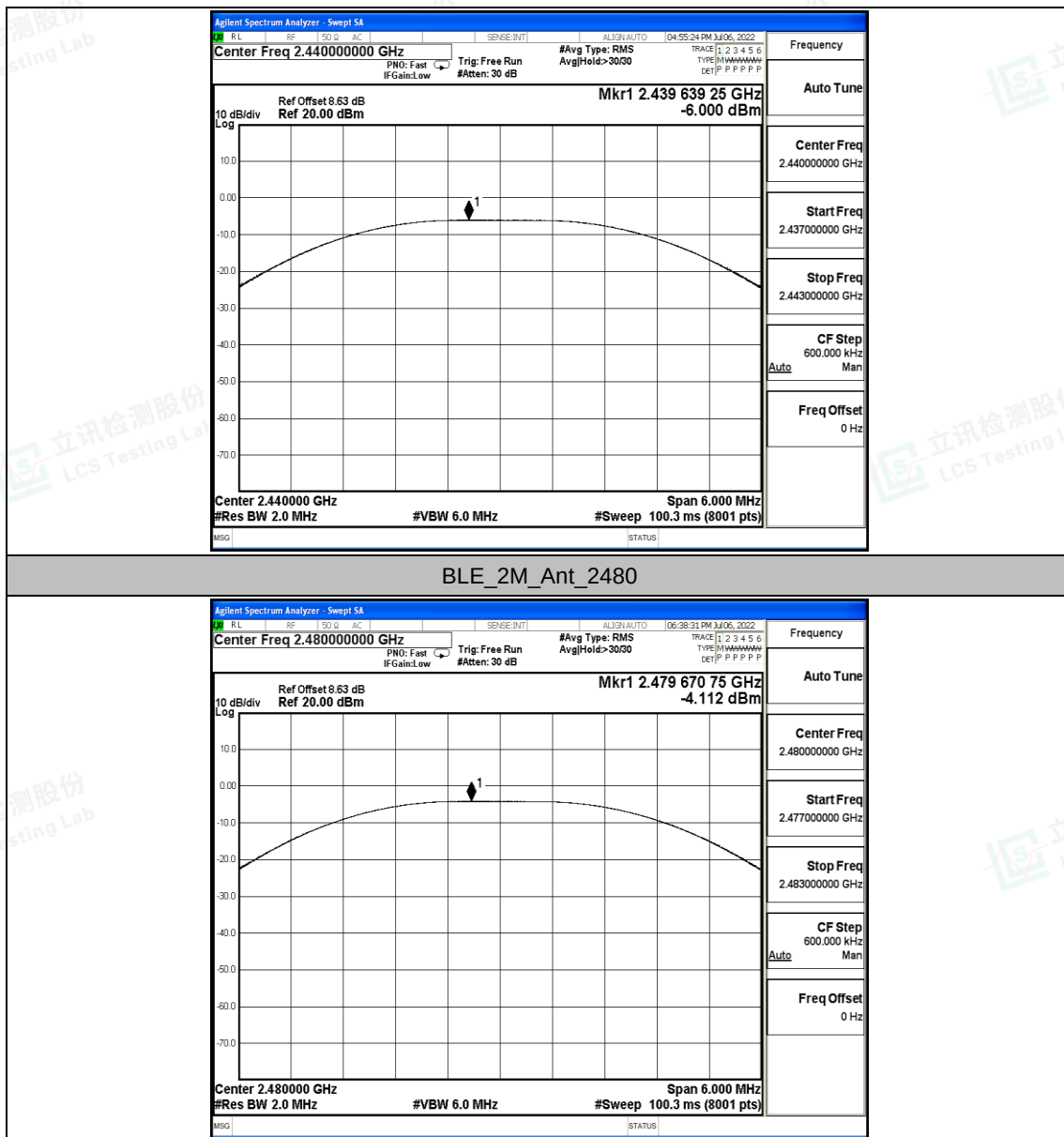


BLE_2M_Ant_2402



BLE_2M_Ant_2440







B.3 Maximum power spectral density

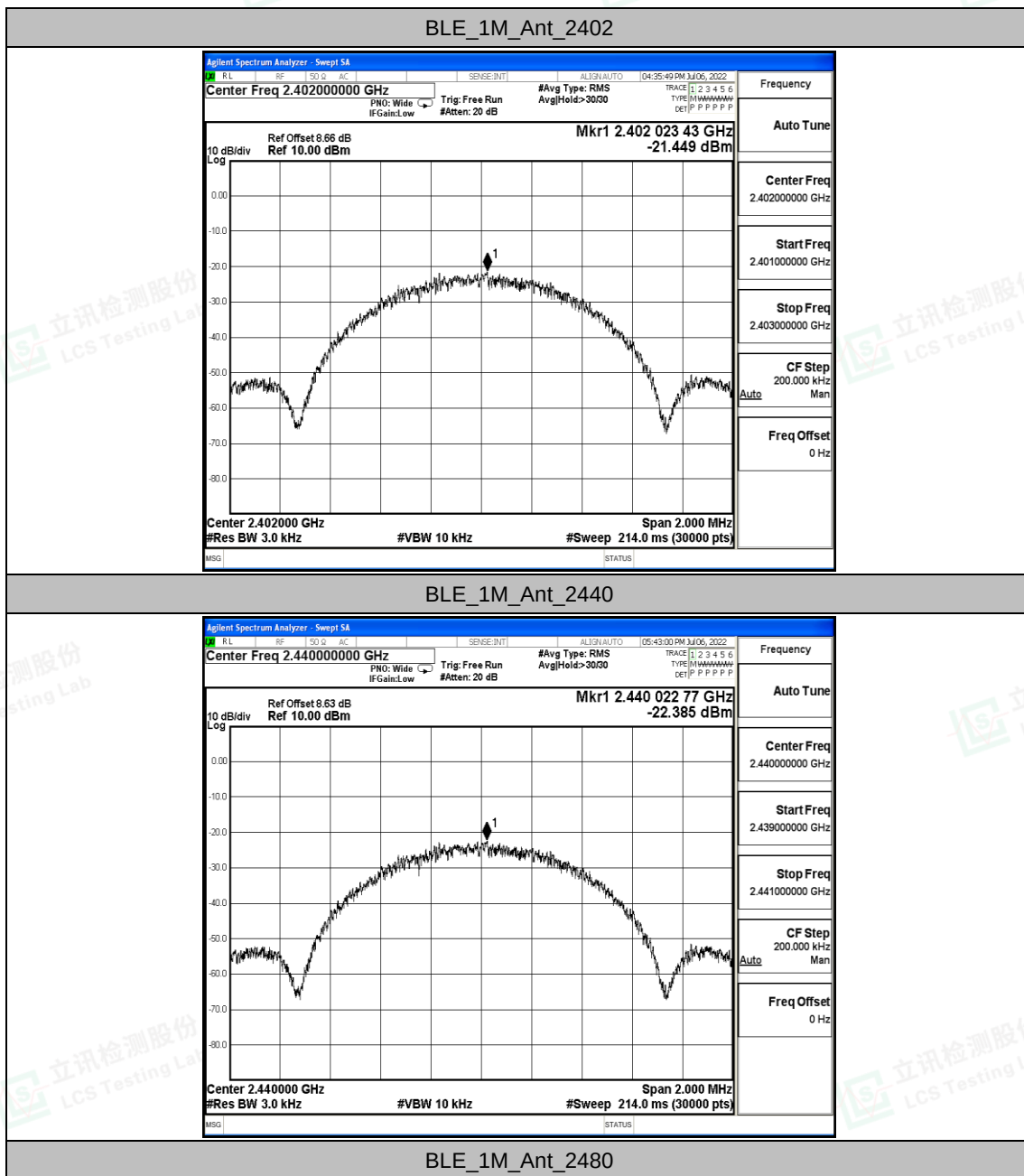
Test Result

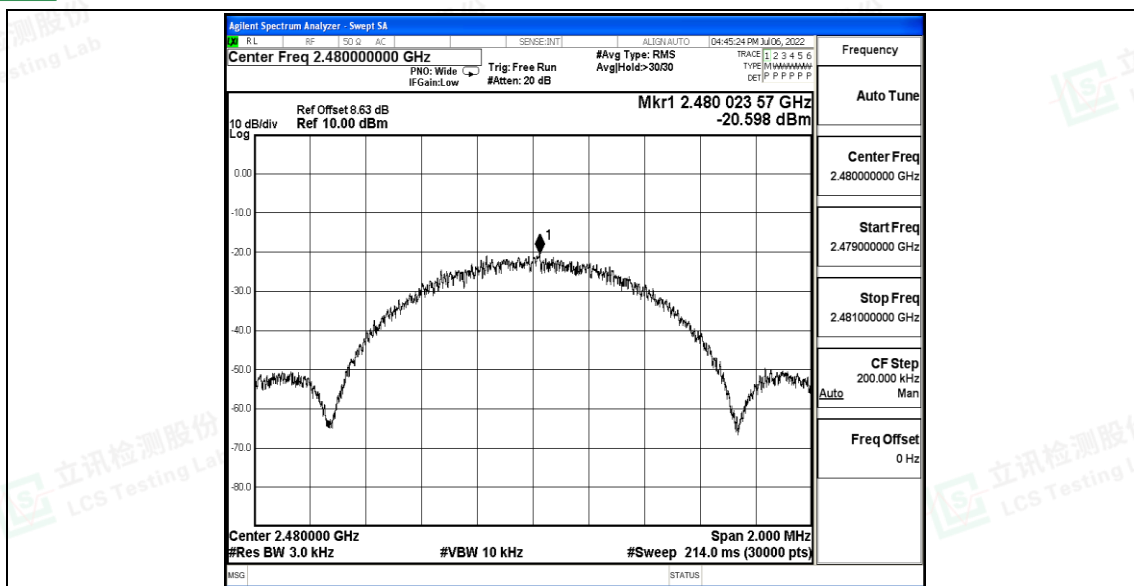
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant	2402	-21.45	≤8.00	PASS
		2440	-22.39	≤8.00	PASS
		2480	-20.6	≤8.00	PASS
BLE_2M	Ant	2402	-23.7	≤8.00	PASS
		2440	-24.52	≤8.00	PASS
		2480	-22.85	≤8.00	PASS



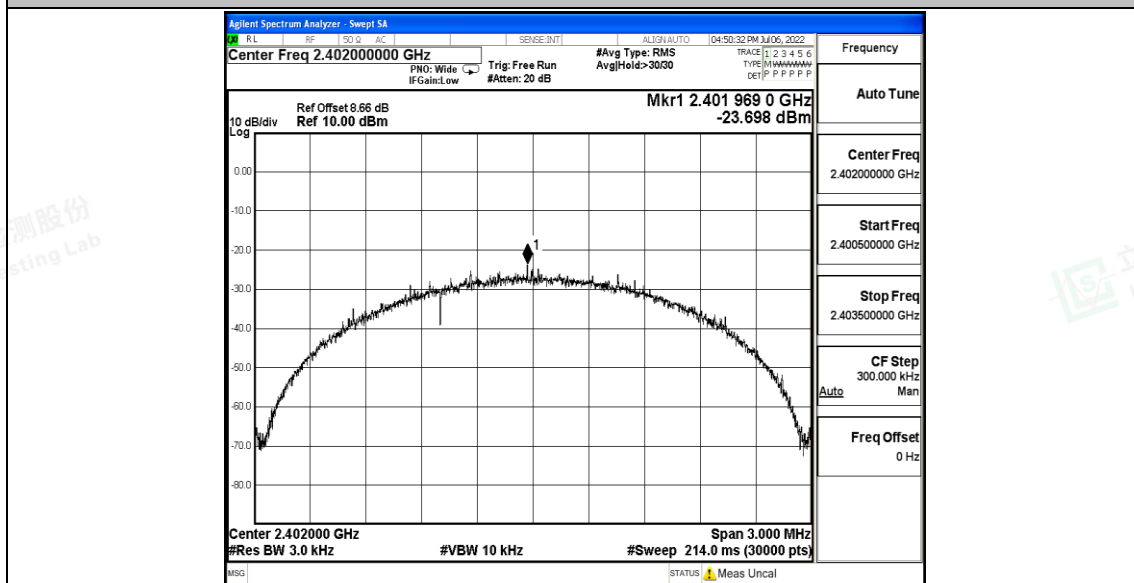


Test Graphs



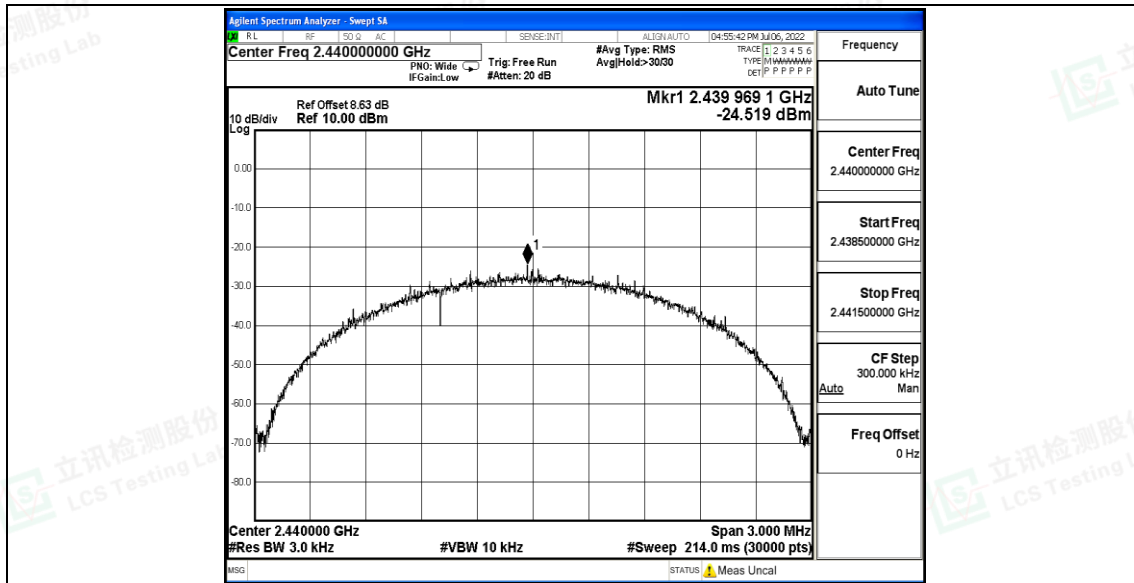


BLE_2M_Ant_2402

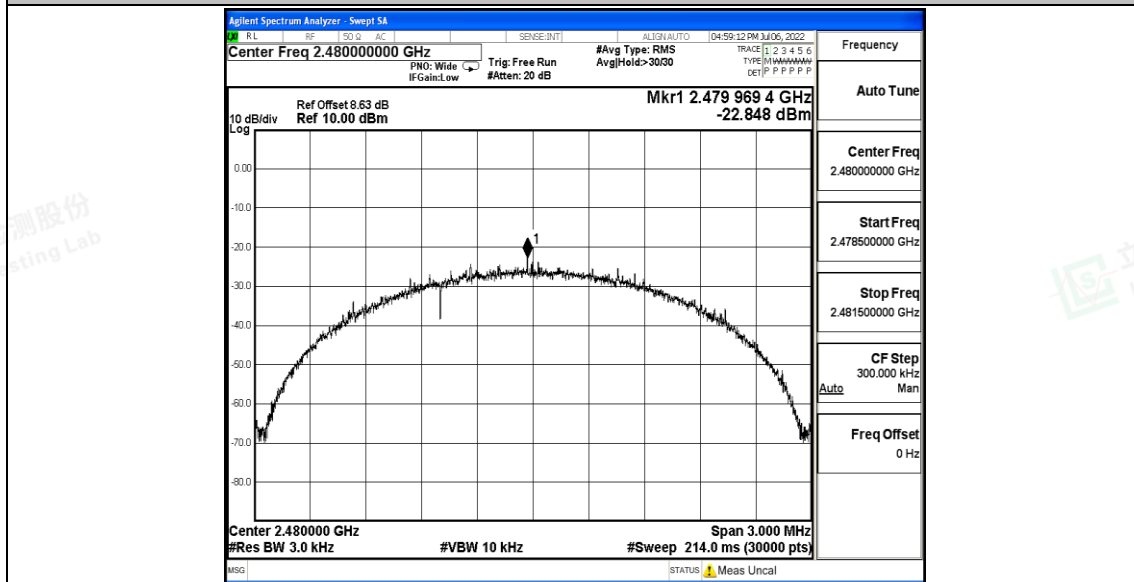


BLE_2M_Ant_2440





BLE_2M_Ant_2480





B.4 Band edge measurements

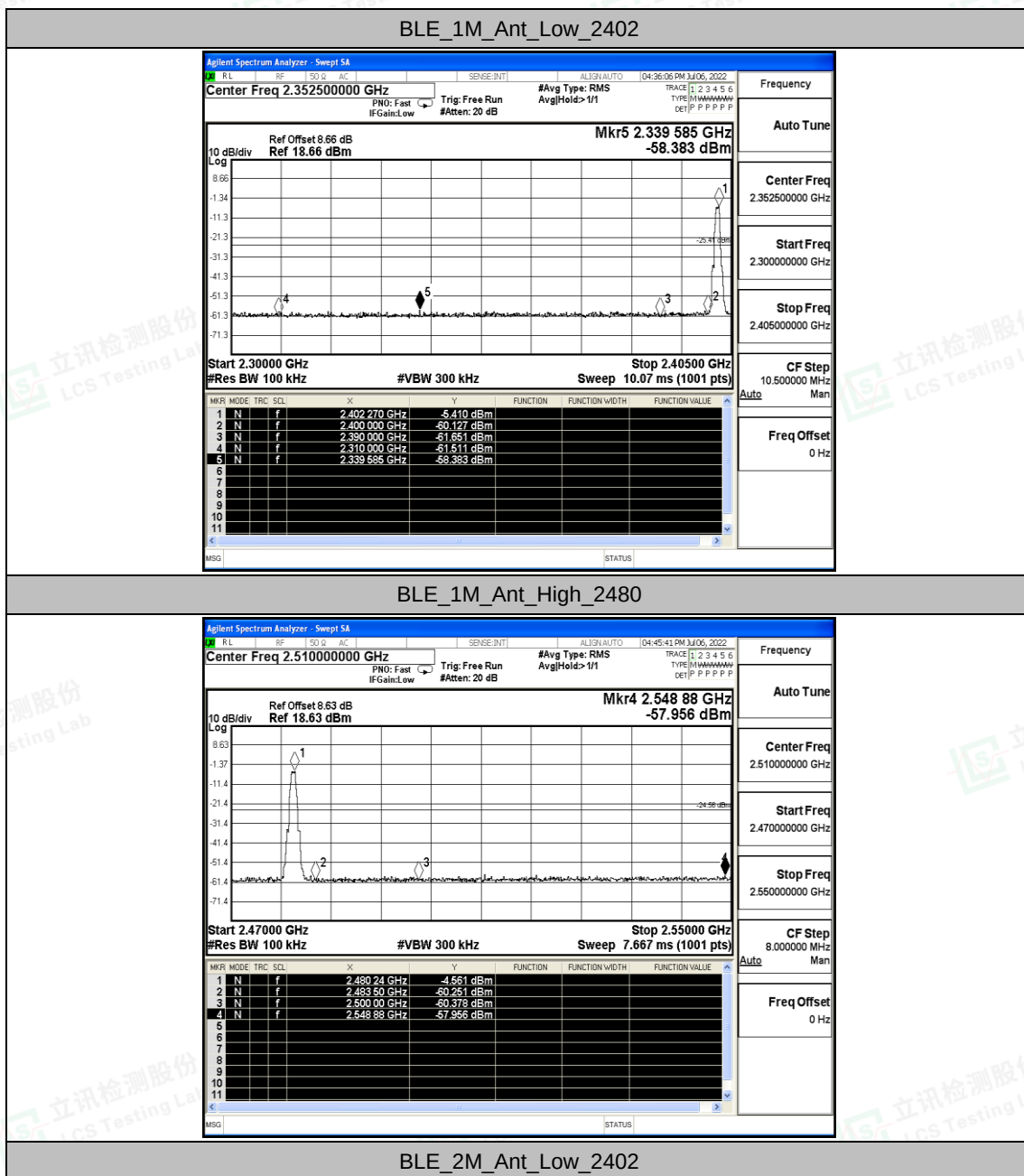
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	Low	2402	-5.41	-58.38	≤-25.41	PASS
		High	2480	-4.56	-57.96	≤-24.56	PASS
BLE_2M	Ant	Low	2402	-6.04	-36.97	≤-26.04	PASS
		High	2480	-4.97	-57.61	≤-24.97	PASS





Test Graphs

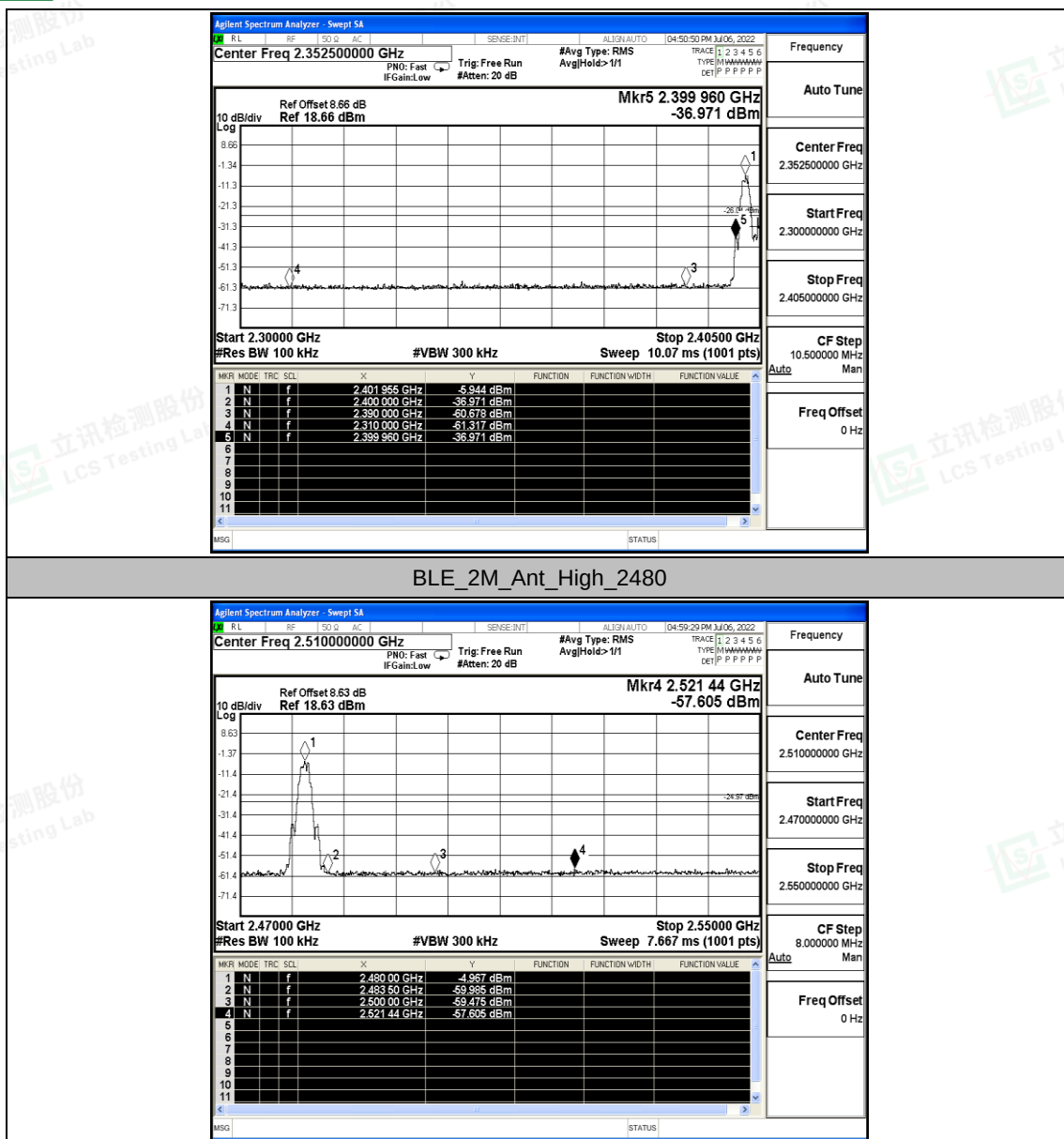


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B.5 Conducted Spurious Emission

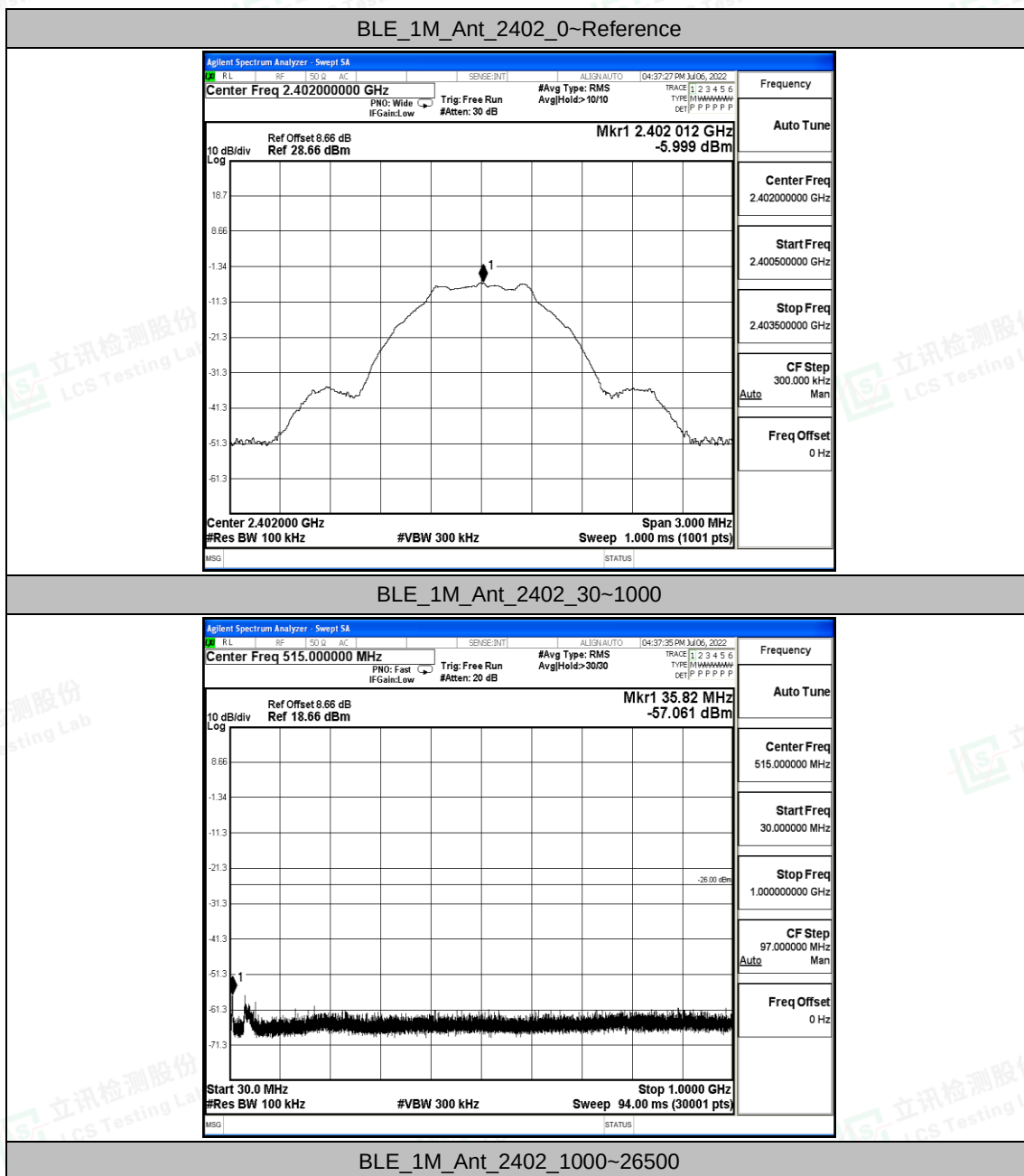
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	2402	Reference	-6.00	-6.00	---	PASS
			30~1000	-6.00	-57.06	≤-26	PASS
			1000~26500	-6.00	-45.93	≤-26	PASS
		2440	Reference	-6.31	-6.31	---	PASS
			30~1000	-6.31	-57.04	≤-26.31	PASS
			1000~26500	-6.31	-46.37	≤-26.31	PASS
		2480	Reference	-4.54	-4.54	---	PASS
			30~1000	-4.54	-57.25	≤-24.54	PASS
			1000~26500	-4.54	-46.5	≤-24.54	PASS
BLE_2M	Ant	2402	Reference	-5.88	-5.88	---	PASS
			30~1000	-5.88	-56.23	≤-25.88	PASS
			1000~26500	-5.88	-39.69	≤-25.88	PASS
		2440	Reference	-6.87	-6.87	---	PASS
			30~1000	-6.87	-55.98	≤-26.87	PASS
			1000~26500	-6.87	-45.2	≤-26.87	PASS
		2480	Reference	-5.01	-5.01	---	PASS
			30~1000	-5.01	-56.22	≤-25.01	PASS
			1000~26500	-5.01	-46.13	≤-25.01	PASS





Test Graphs

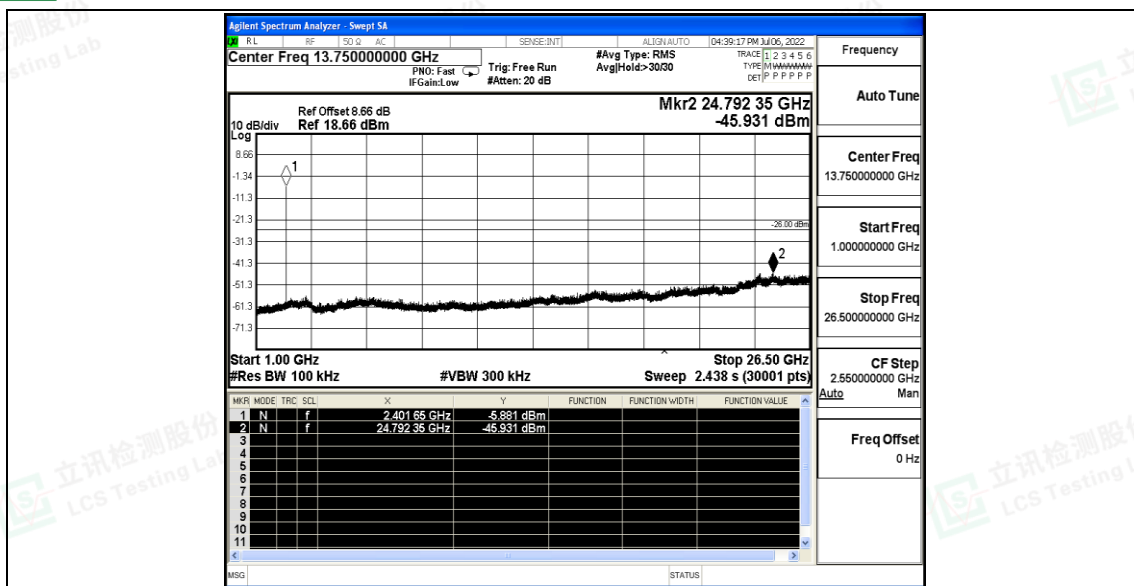


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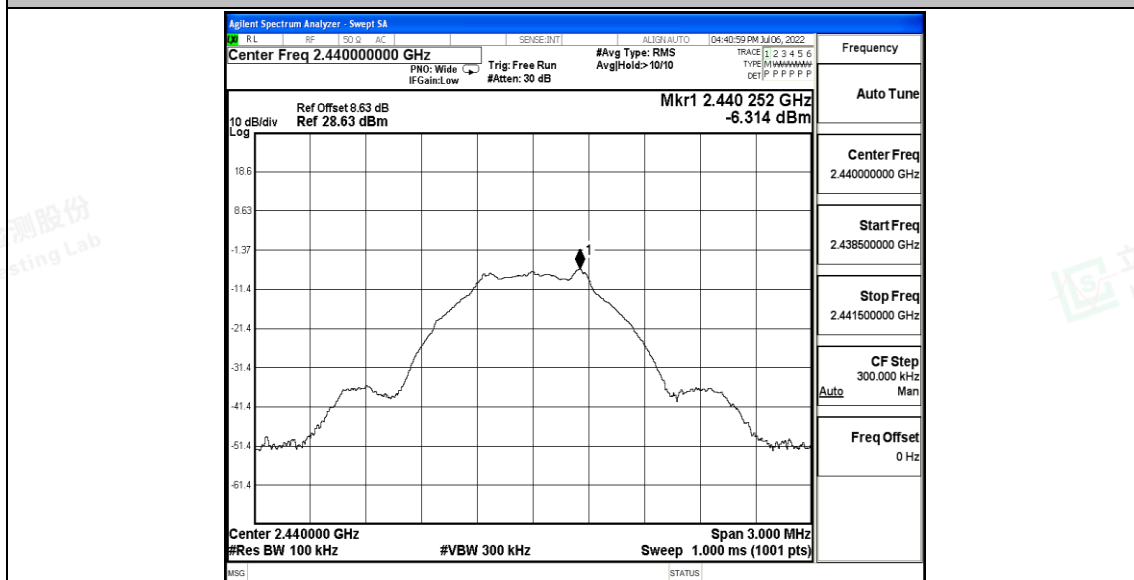
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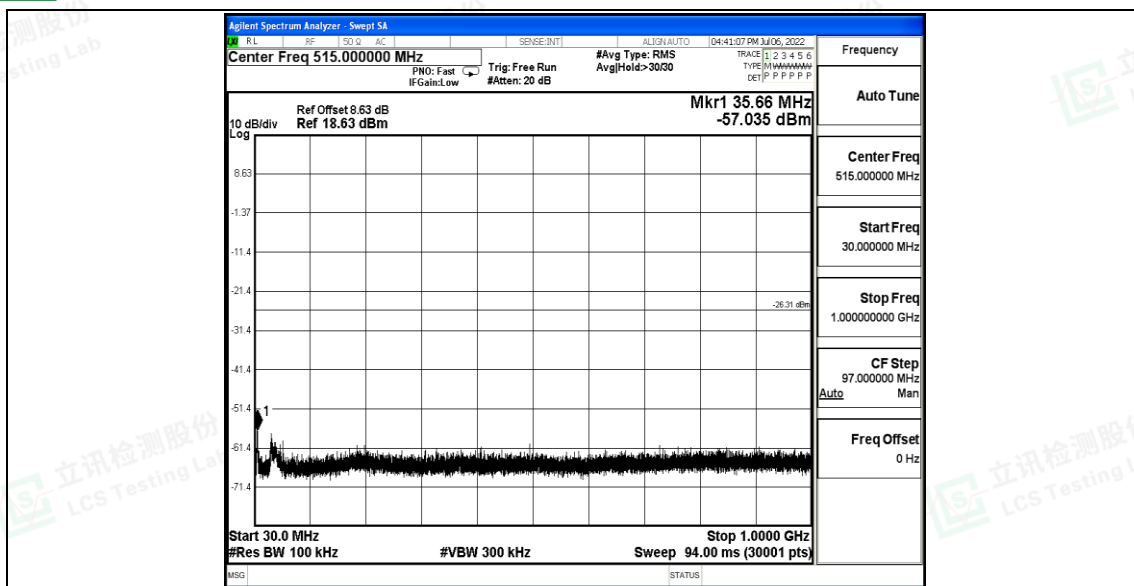


BLE_1M_Ant_2440_0~Reference

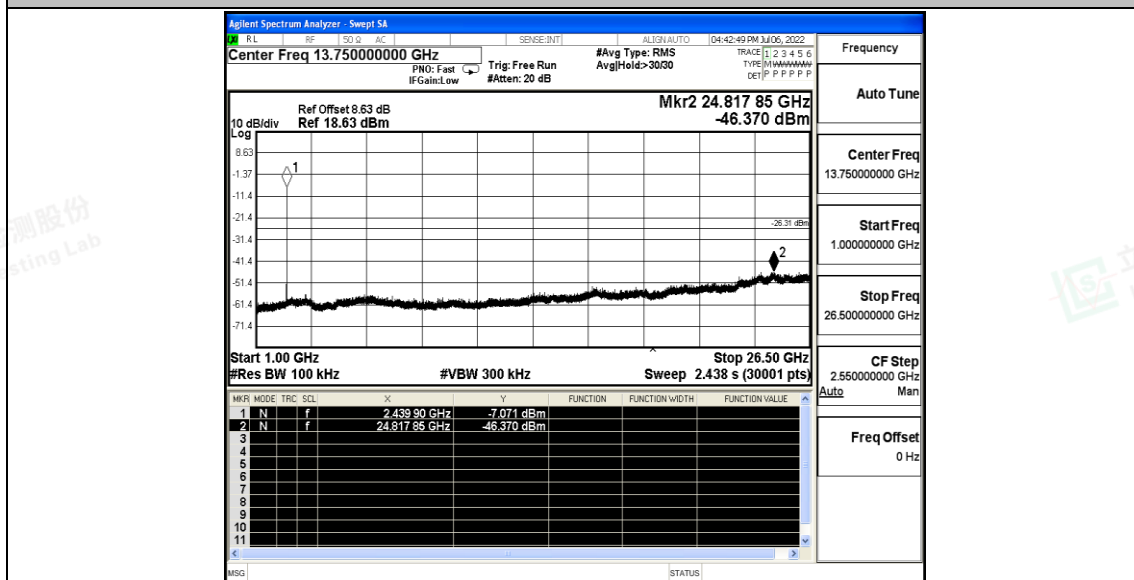


BLE_1M_Ant_2440_30~1000



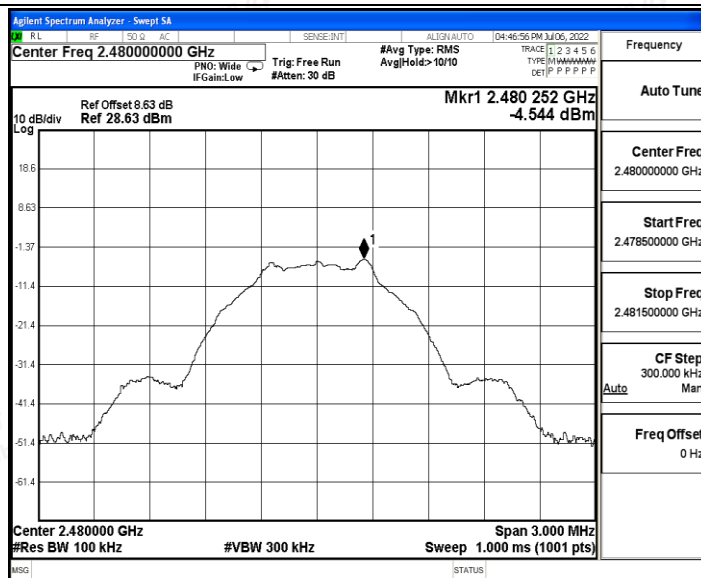


BLE_1M_Ant_2440_1000~26500

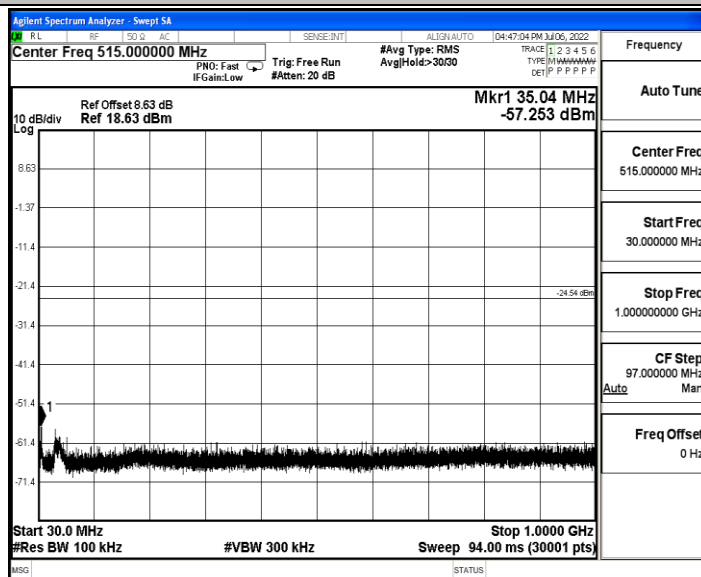


BLE_1M_Ant_2480_0~Reference



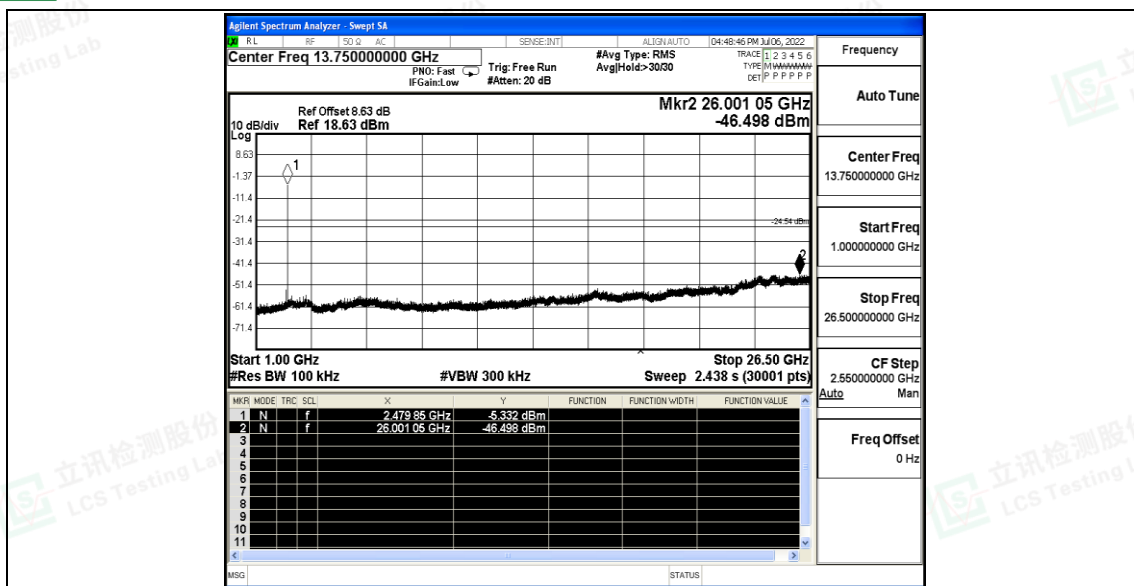


BLE_1M_Ant_2480_30~1000

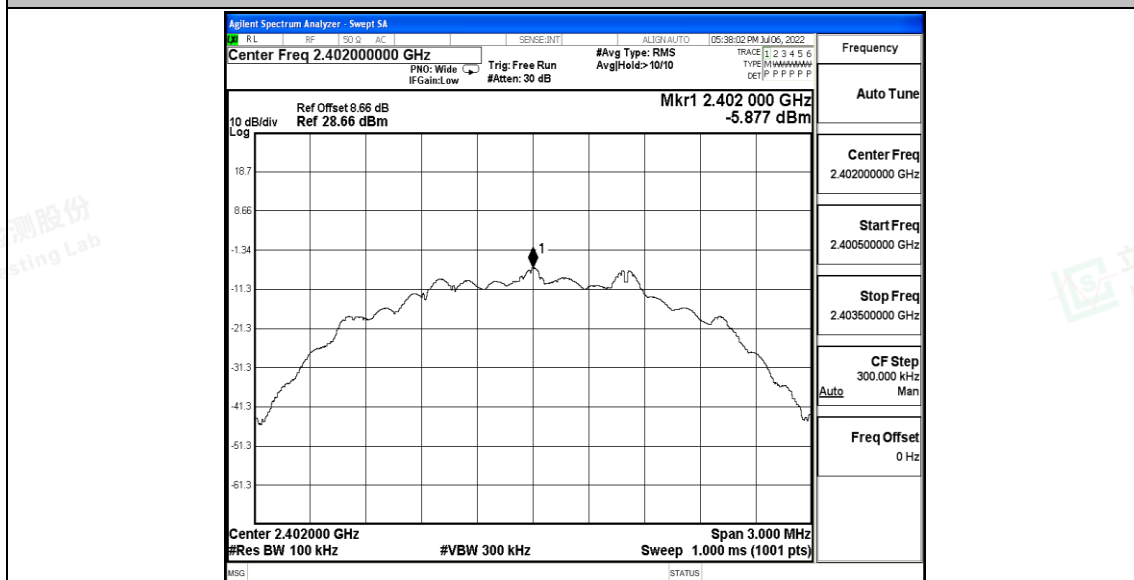


BLE_1M_Ant_2480_1000~26500



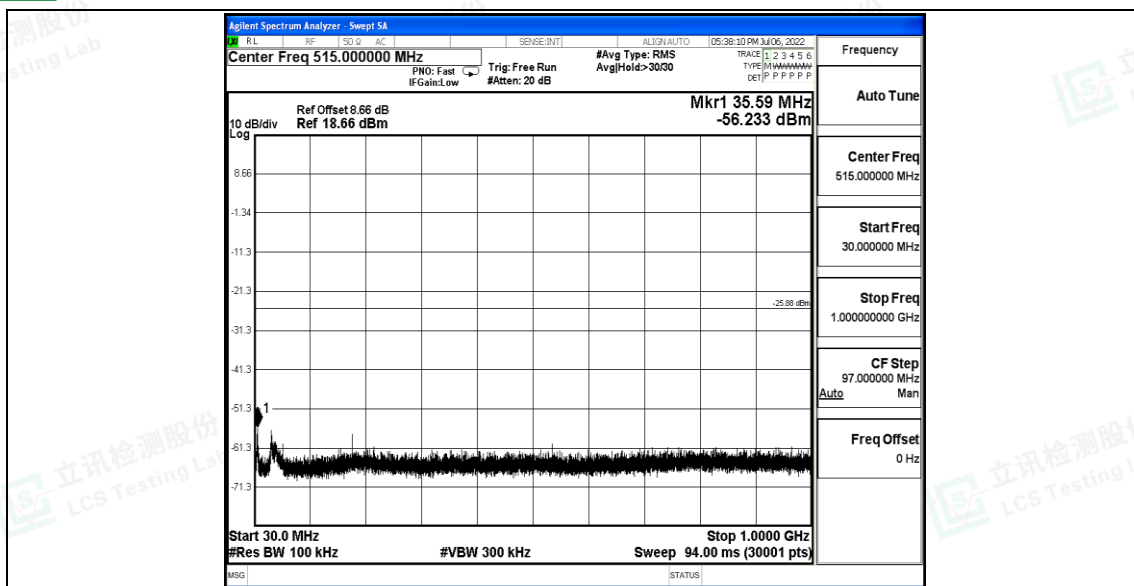


BLE_2M_Ant_2402_0~Reference

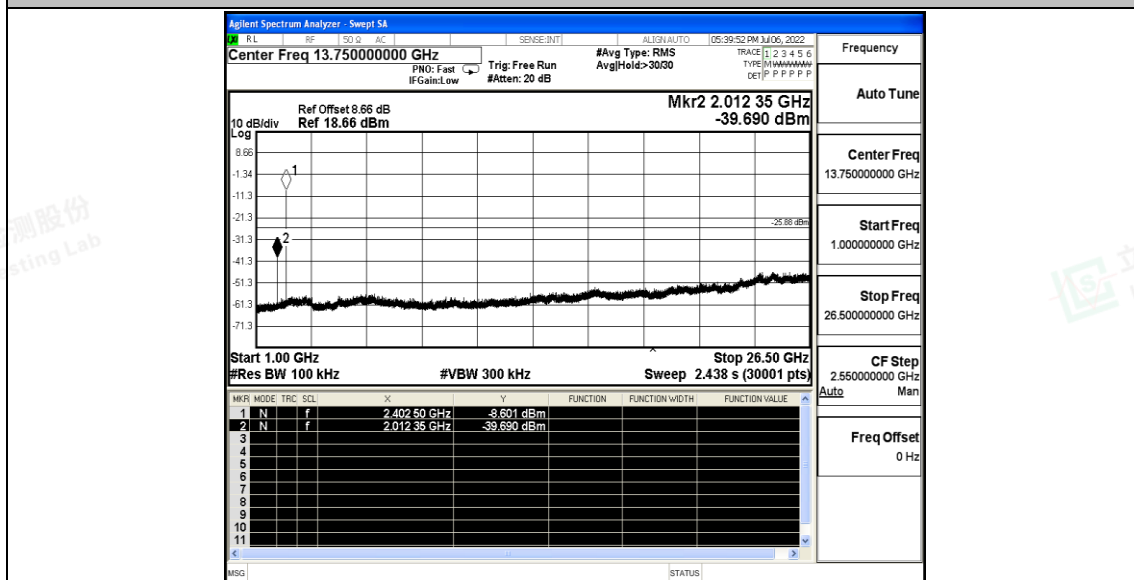


BLE_2M_Ant_2402_30~1000



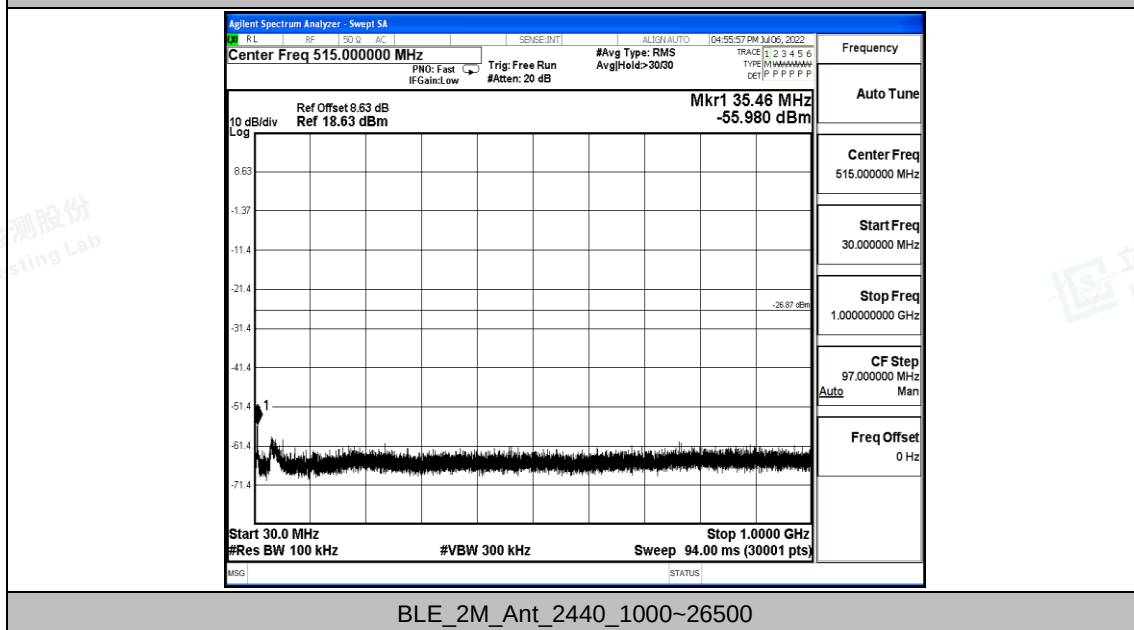
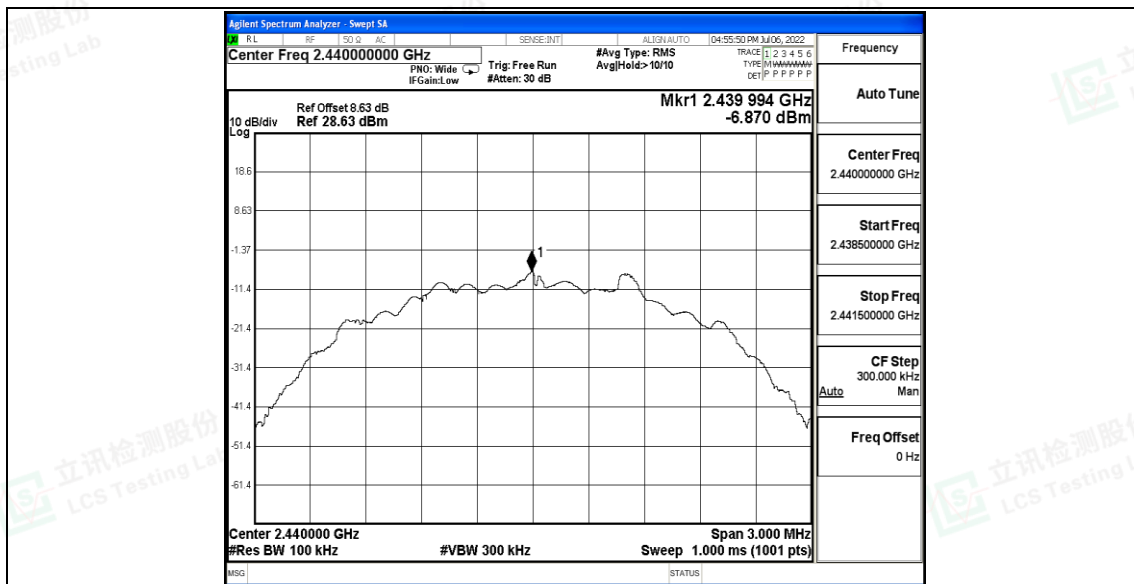


BLE_2M_Ant_2402_1000~26500



BLE_2M_Ant_2440_0~Reference



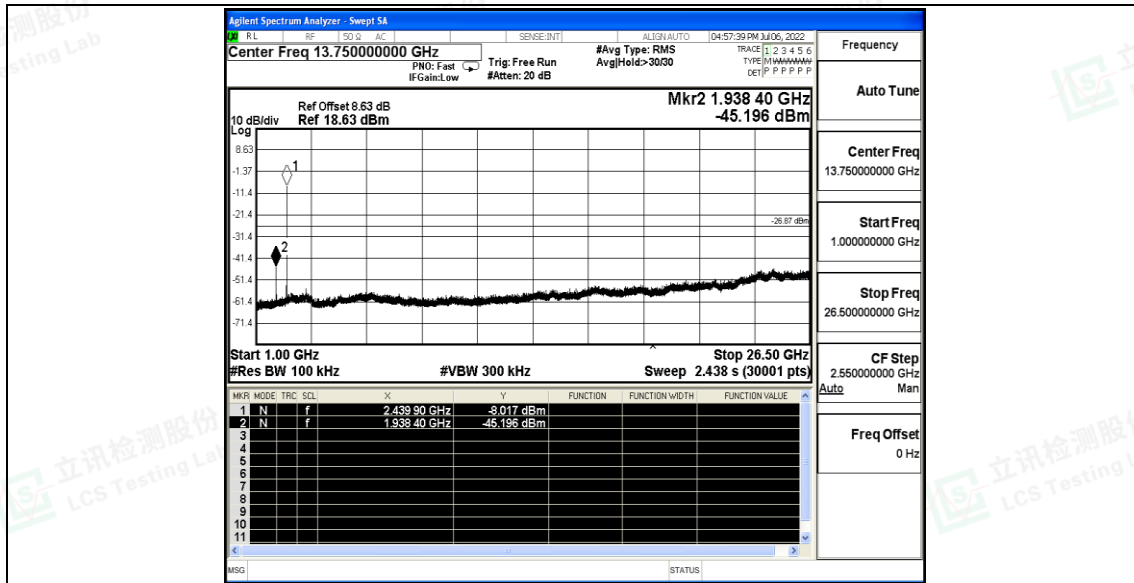


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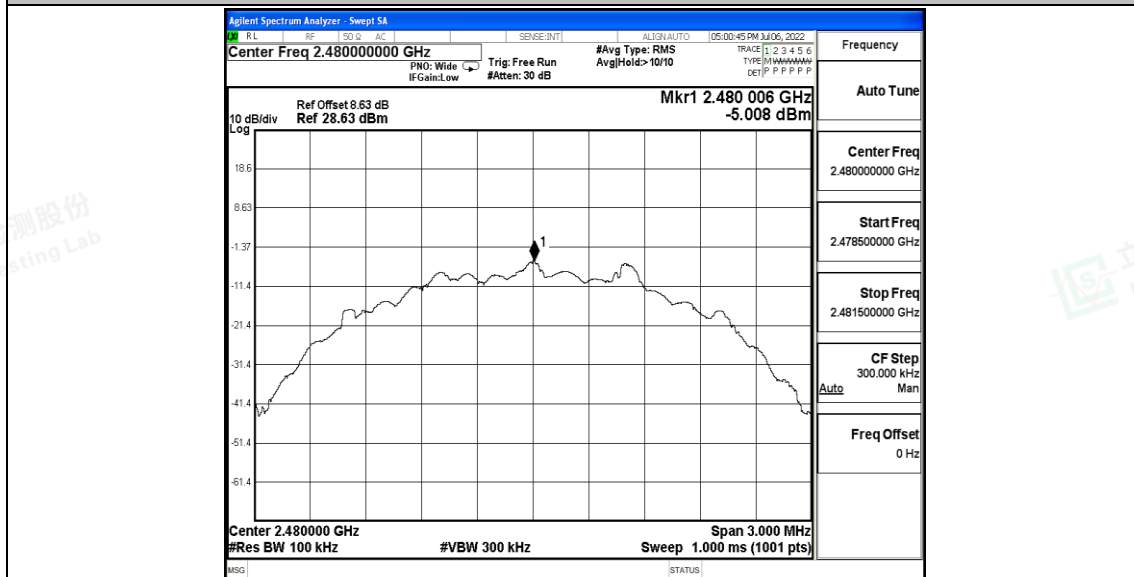
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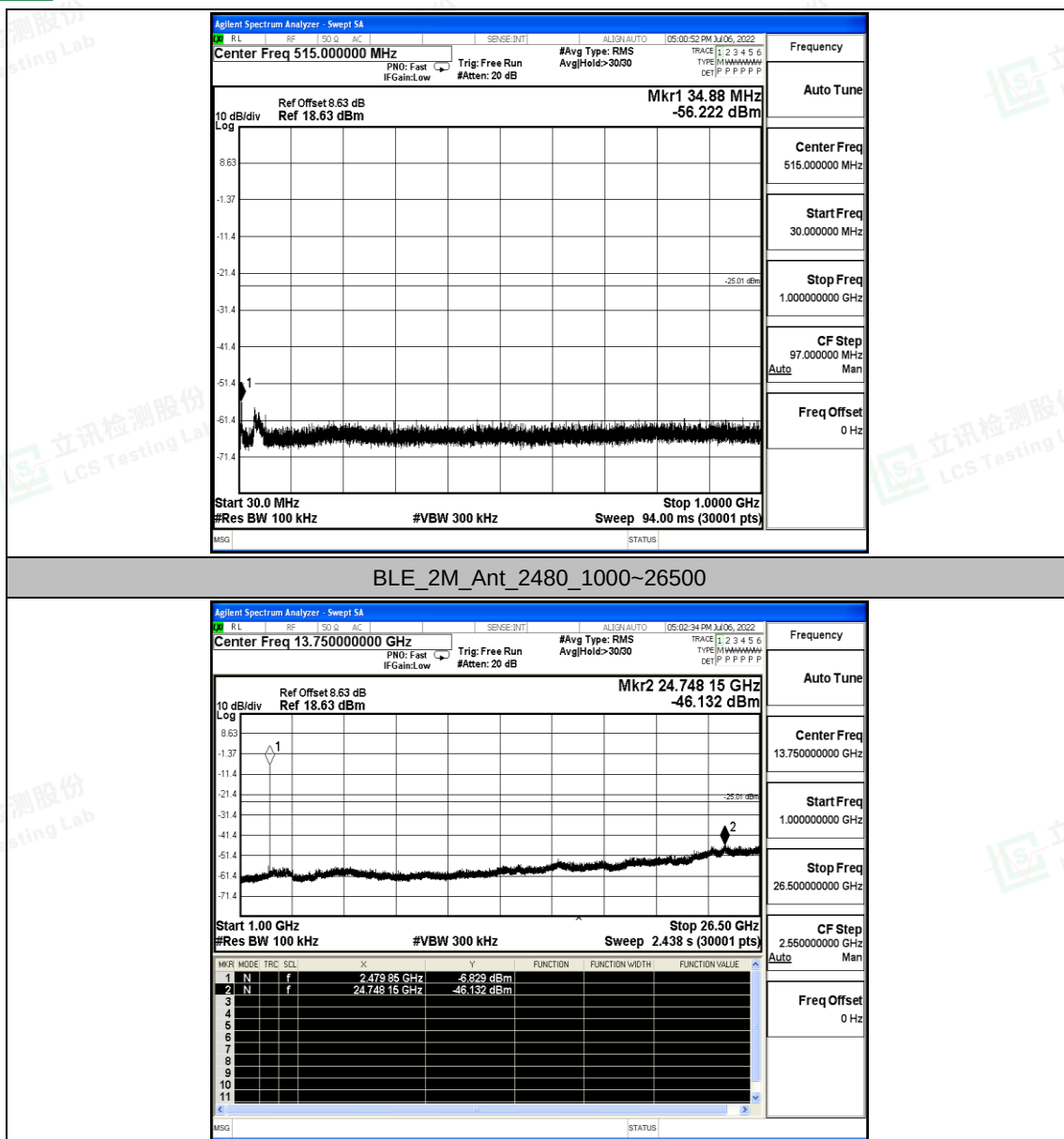


BLE_2M_Ant_2480_0~Reference



BLE_2M_Ant_2480_30~1000







B.6 Duty Cycle

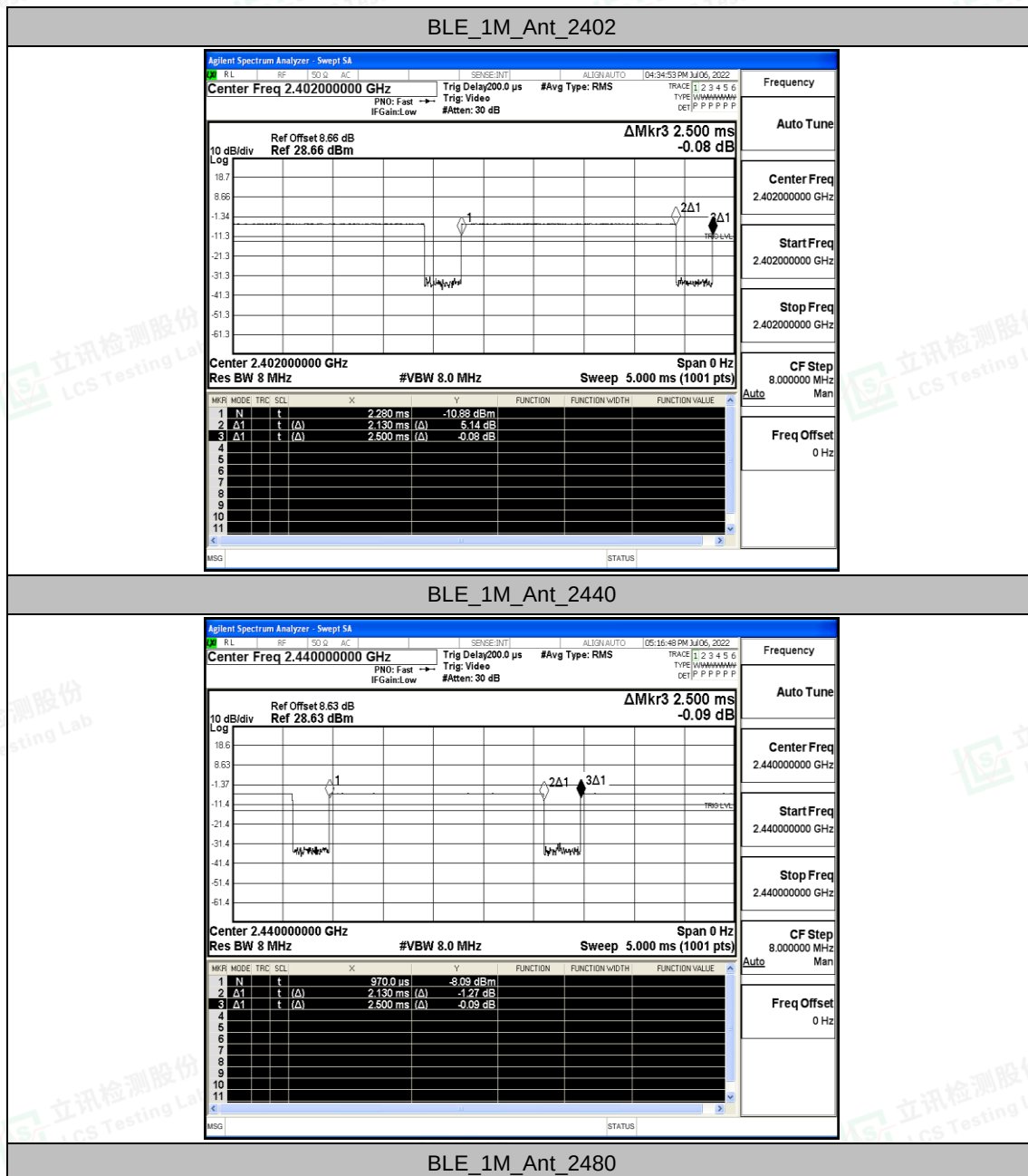
Test Result

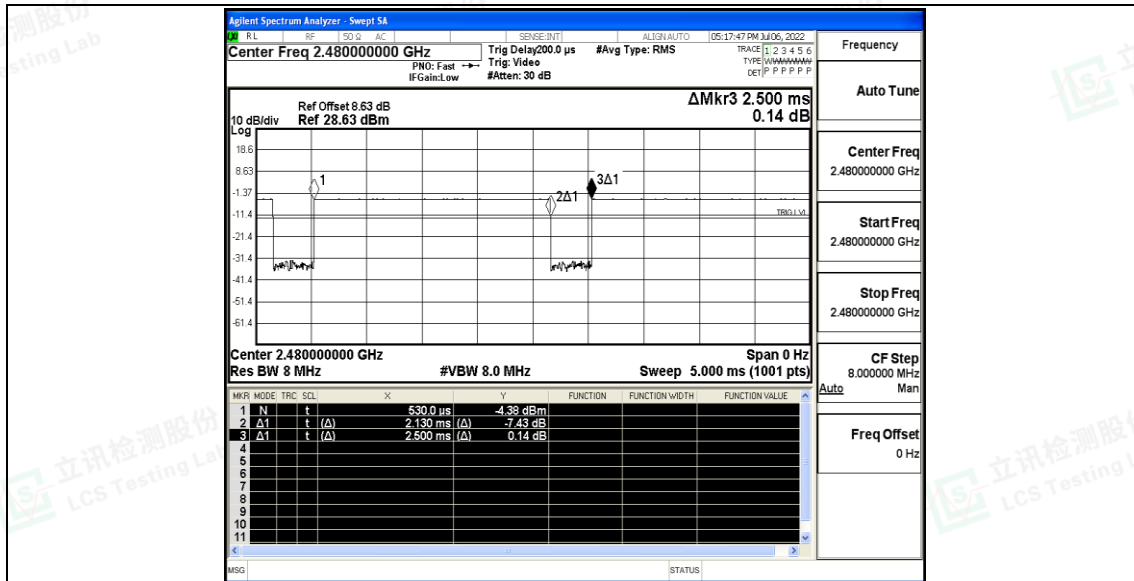
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant	2402	2.13	2.50	0.8520	85.20	0.70	0.47	---	---
		2440	2.13	2.50	0.8520	85.20	0.70	0.47	---	---
		2480	2.13	2.50	0.8520	85.20	0.70	0.47	---	---
BLE_2M	Ant	2402	1.07	1.87	0.5722	57.22	2.42	0.93	---	---
		2440	1.07	1.88	0.5691	56.91	2.45	0.93	---	---
		2480	1.07	1.88	0.5691	56.91	2.45	0.93	---	---



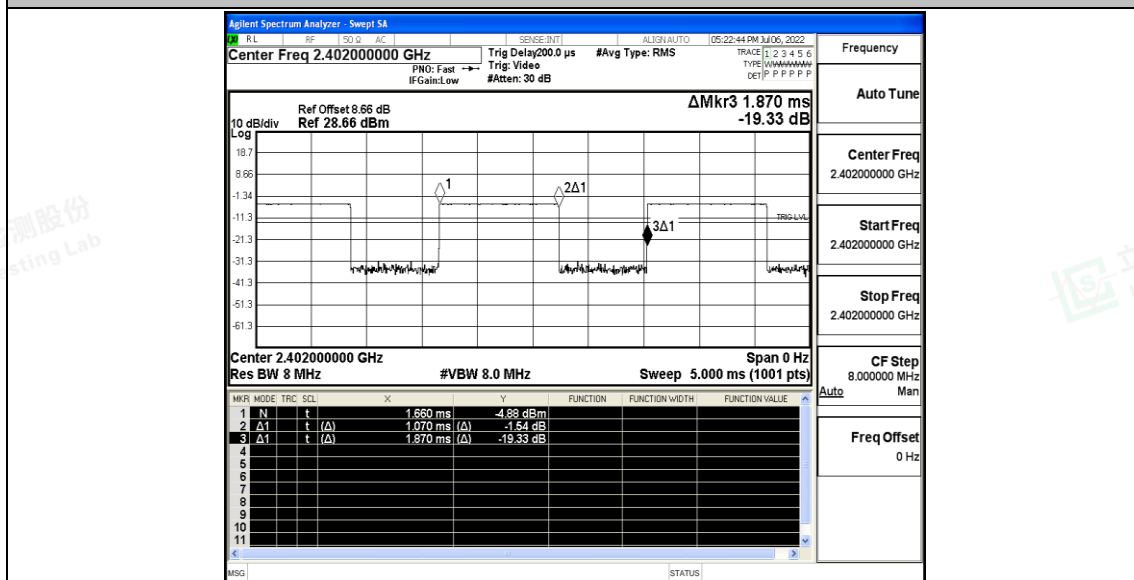


Test Graphs





BLE_2M_Ant_2402



BLE_2M_Ant_2440

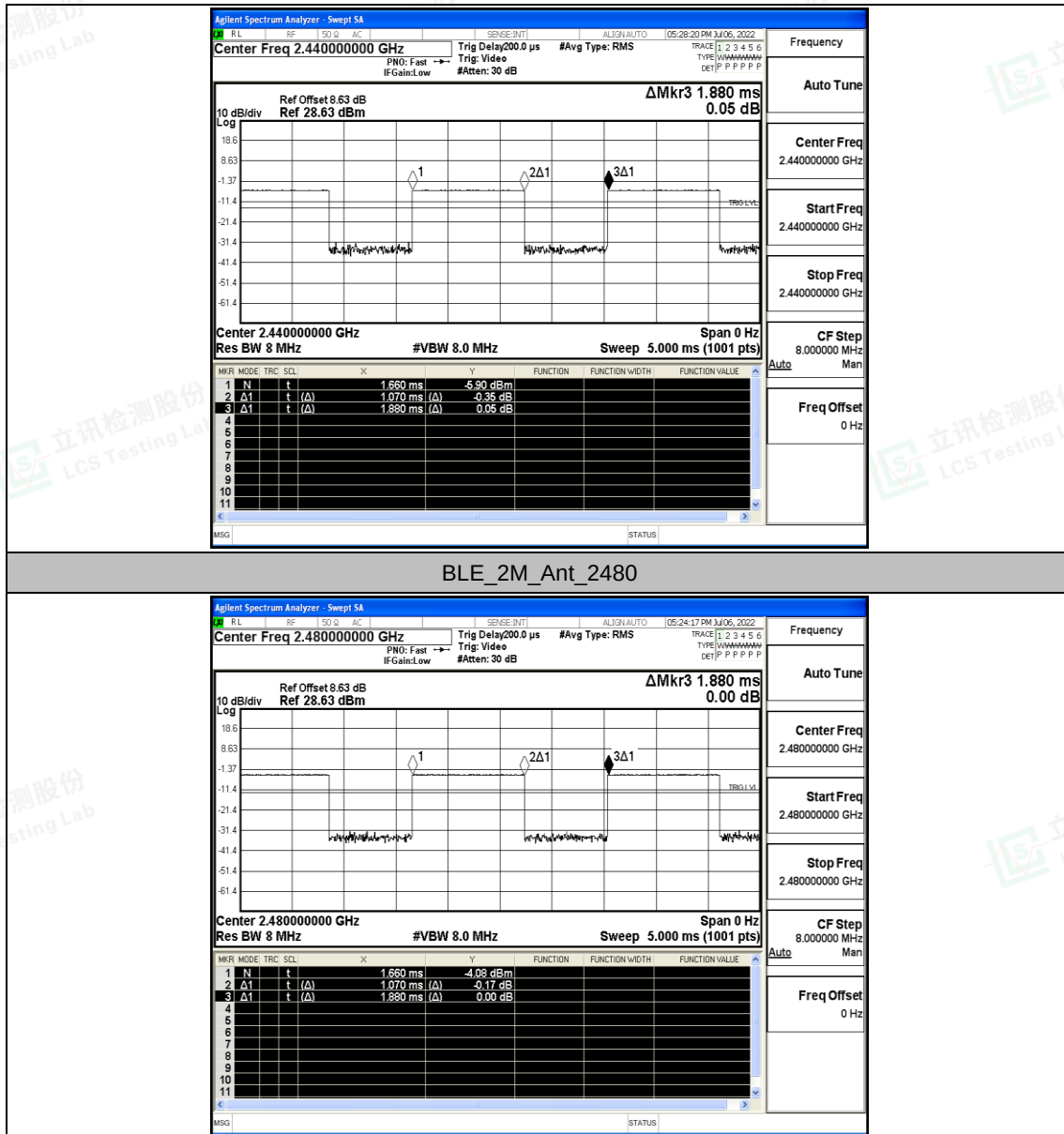


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B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant	Low	2402	AV	2310.000	-58.02	≤-41.20	37.18	≤54	PASS
				AV	2389.775	-57.43	≤-41.20	37.77	≤54	PASS
				AV	2390.000	-57.55	≤-41.20	37.65	≤54	PASS
				Peak	2310.000	-48.18	≤-21.20	47.02	≤74	PASS
				Peak	2387.885	-46.09	≤-21.20	49.11	≤74	PASS
				Peak	2390.000	-47.96	≤-21.20	47.24	≤74	PASS
		High	2480	AV	2483.500	-55.92	≤-41.20	39.28	≤54	PASS
				AV	2483.520	-55.92	≤-41.20	39.28	≤54	PASS
				AV	2500.000	-57.02	≤-41.20	38.18	≤54	PASS
				Peak	2483.500	-47.96	≤-21.20	47.24	≤74	PASS
				Peak	2493.920	-46.25	≤-21.20	48.95	≤74	PASS
				Peak	2500.000	-48.2	≤-21.20	47.00	≤74	PASS
BLE_2M	Ant	Low	2402	AV	2310.000	-57.83	≤-41.20	37.37	≤54	PASS
				AV	2367.410	-57.2	≤-41.20	38.00	≤54	PASS
				AV	2390.000	-57.44	≤-41.20	37.76	≤54	PASS
				Peak	2310.000	-48.31	≤-21.20	46.89	≤74	PASS
				Peak	2389.670	-45.9	≤-21.20	49.30	≤74	PASS
				Peak	2390.000	-48.02	≤-21.20	47.18	≤74	PASS
		High	2480	AV	2483.500	-52.7	≤-41.20	42.50	≤54	PASS
				AV	2483.520	-52.7	≤-41.20	42.50	≤54	PASS
				AV	2500.000	-56.85	≤-41.20	38.35	≤54	PASS
				Peak	2483.500	-44.82	≤-21.20	50.38	≤74	PASS
				Peak	2483.520	-44.82	≤-21.20	50.38	≤74	PASS
				Peak	2500.000	-48.75	≤-21.20	46.45	≤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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Test Graphs

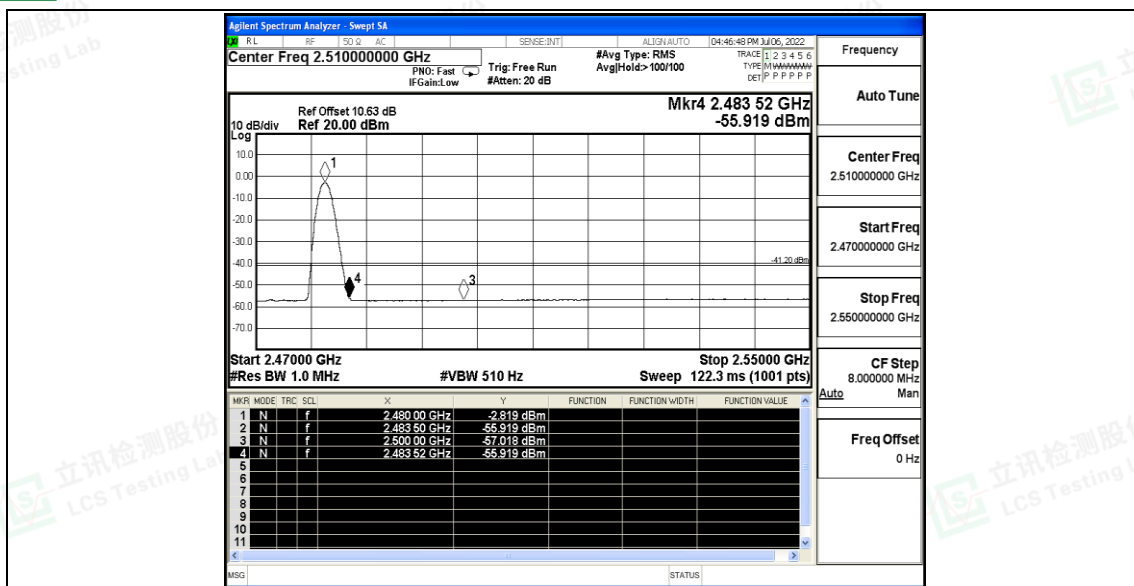


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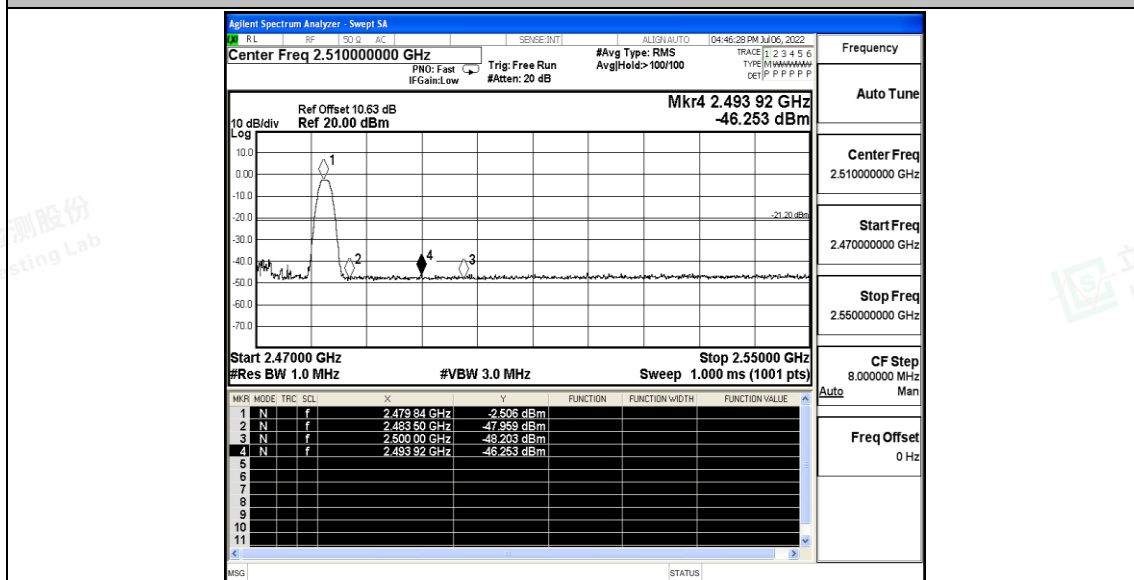
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BLE_1M_Ant_High_2480_Peak



BLE_2M_Ant_Low_2402_AV



