



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: TS Smart Cylindrical Lock

Test Model: e-Elite-7000-OS

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng





A.1 DTS Bandwidth

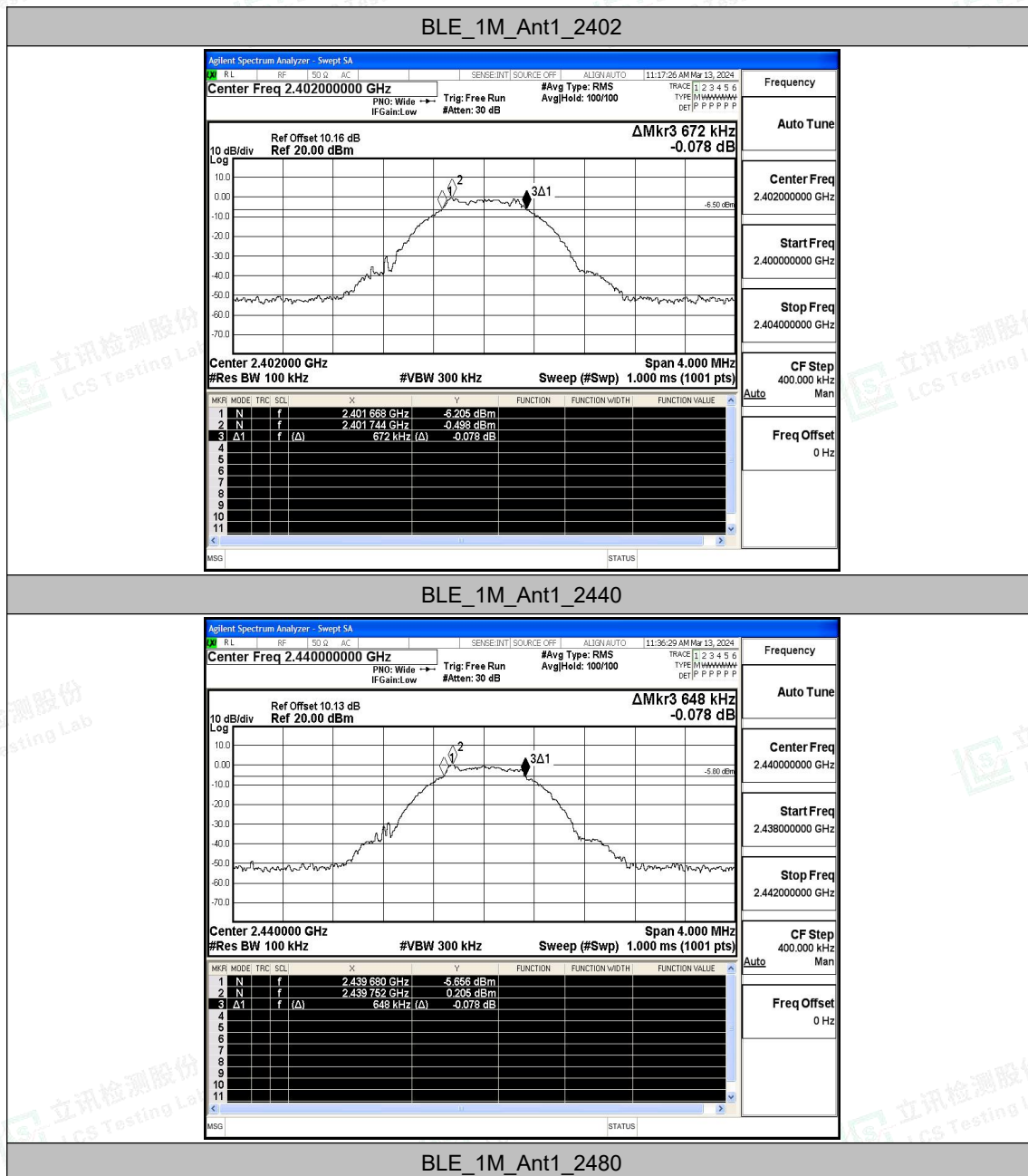
Test Result

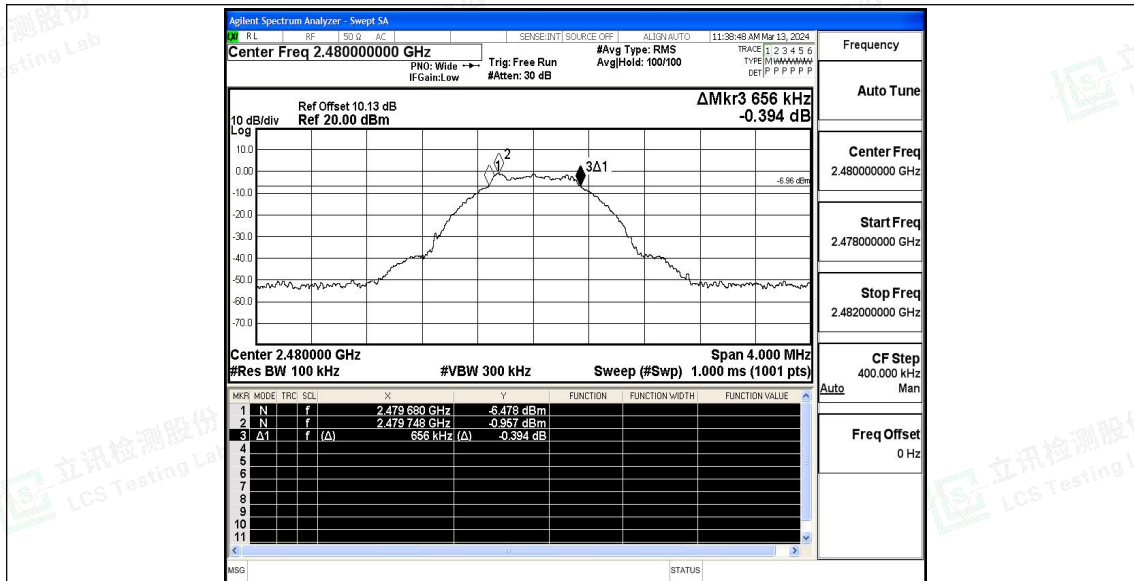
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.672	2401.668	2402.340	0.5	PASS
		2440	0.648	2439.680	2440.328	0.5	PASS
		2480	0.656	2479.680	2480.336	0.5	PASS
BLE_2M	Ant1	2402	1.404	2401.308	2402.712	0.5	PASS
		2440	1.152	2439.416	2440.568	0.5	PASS
		2480	1.248	2479.344	2480.592	0.5	PASS



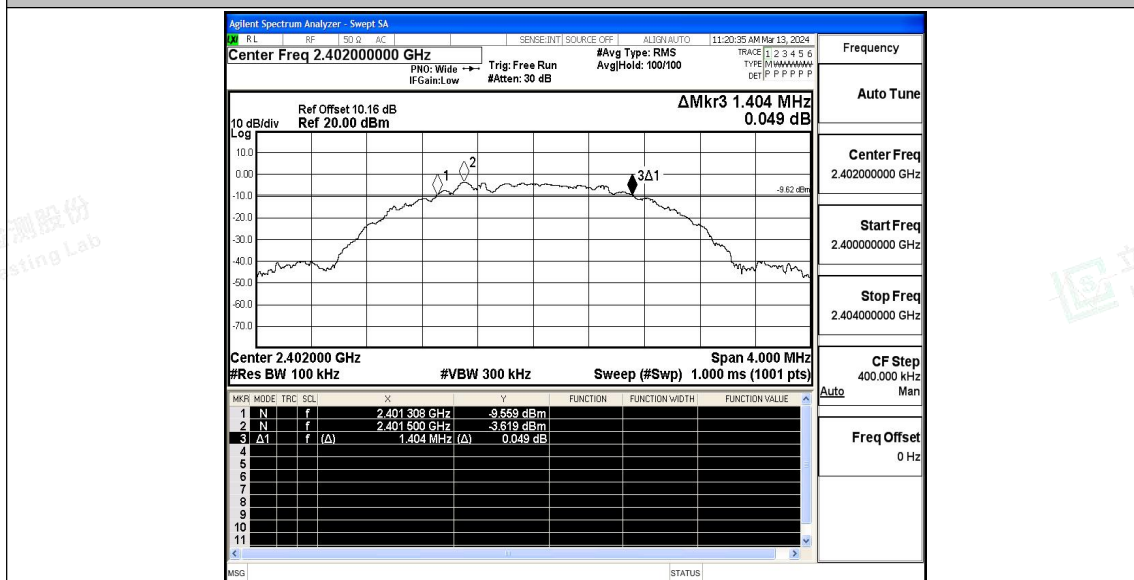


Test Graphs



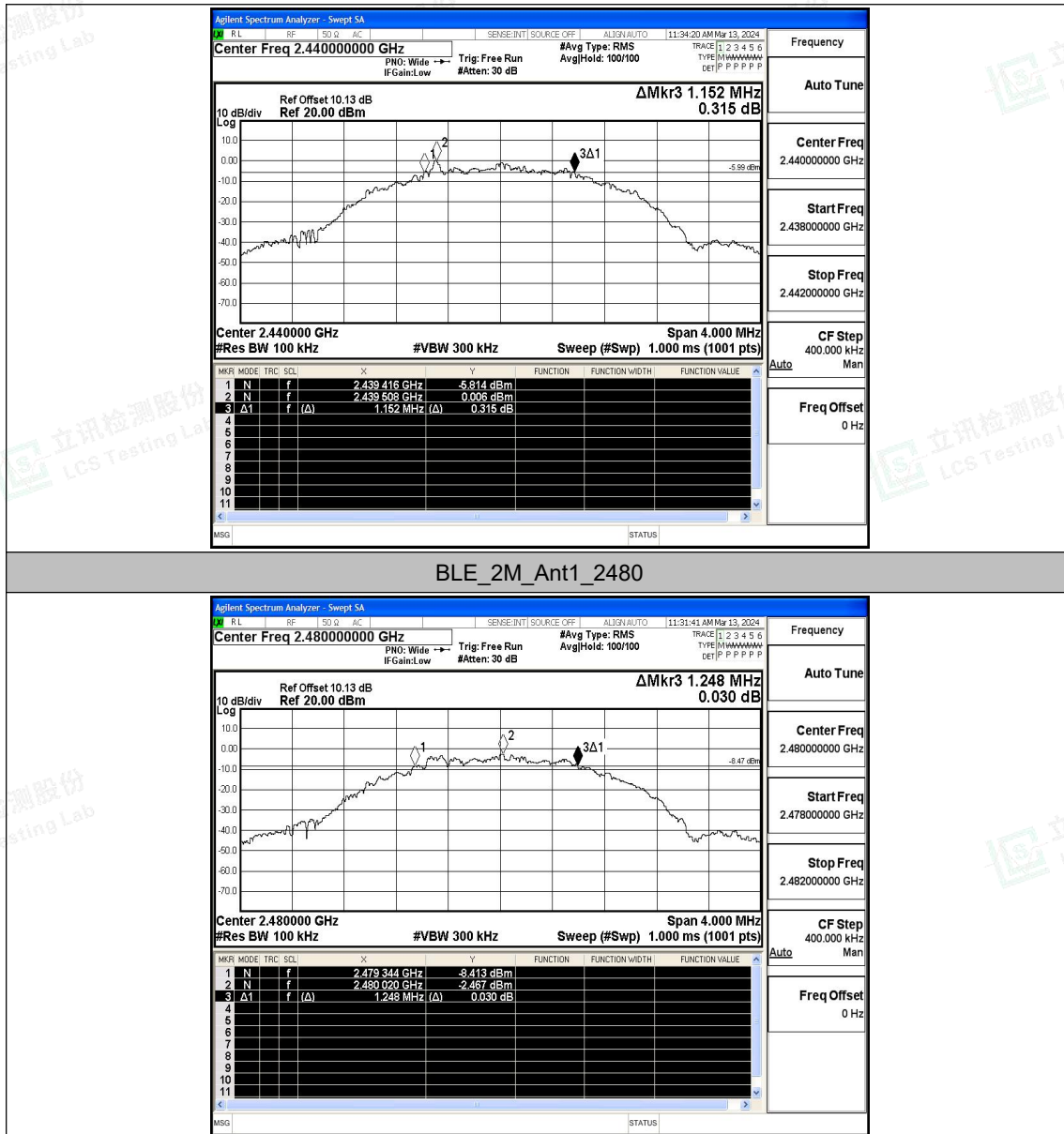


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.2 Maximum conducted output power

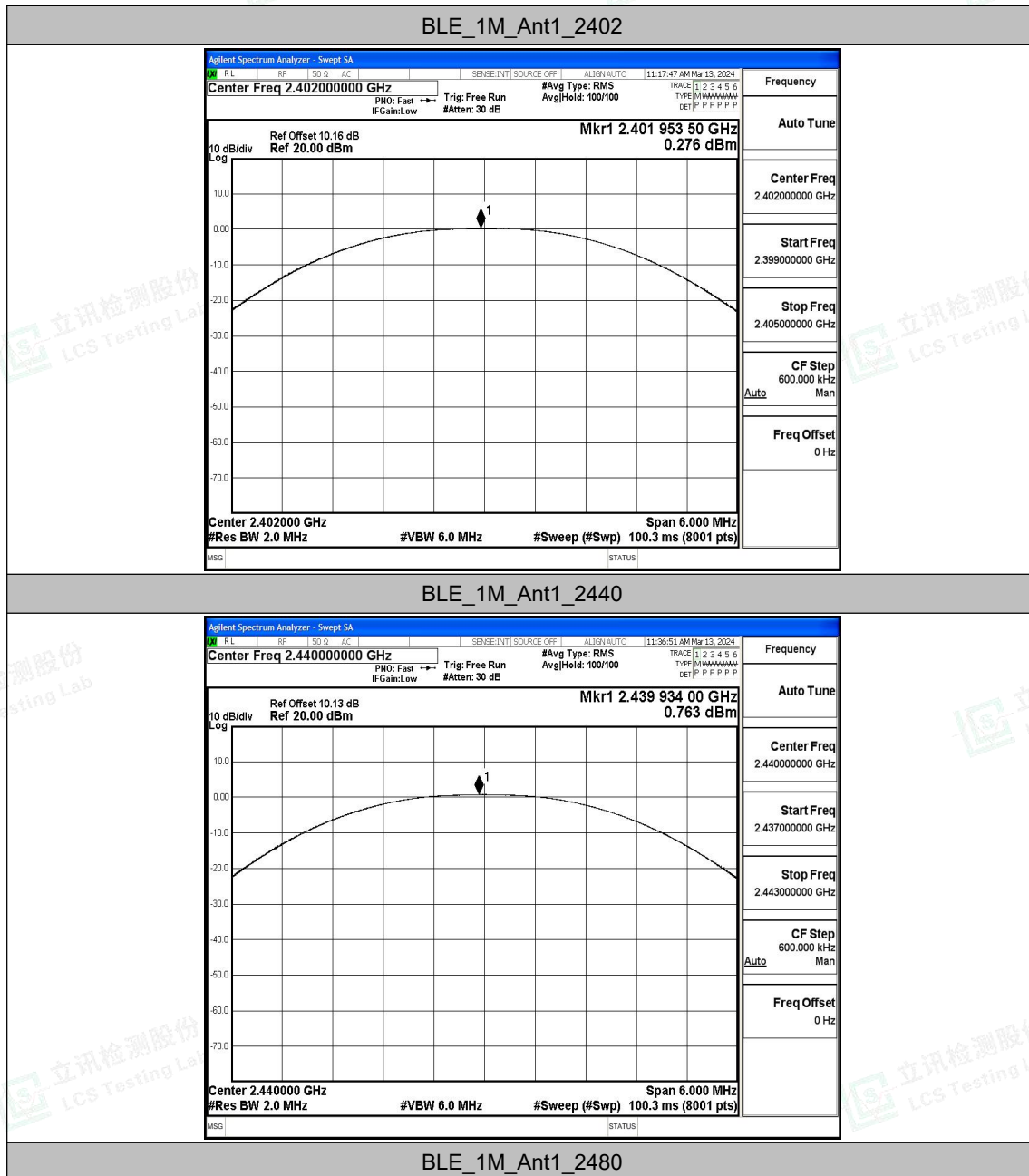
Test Result

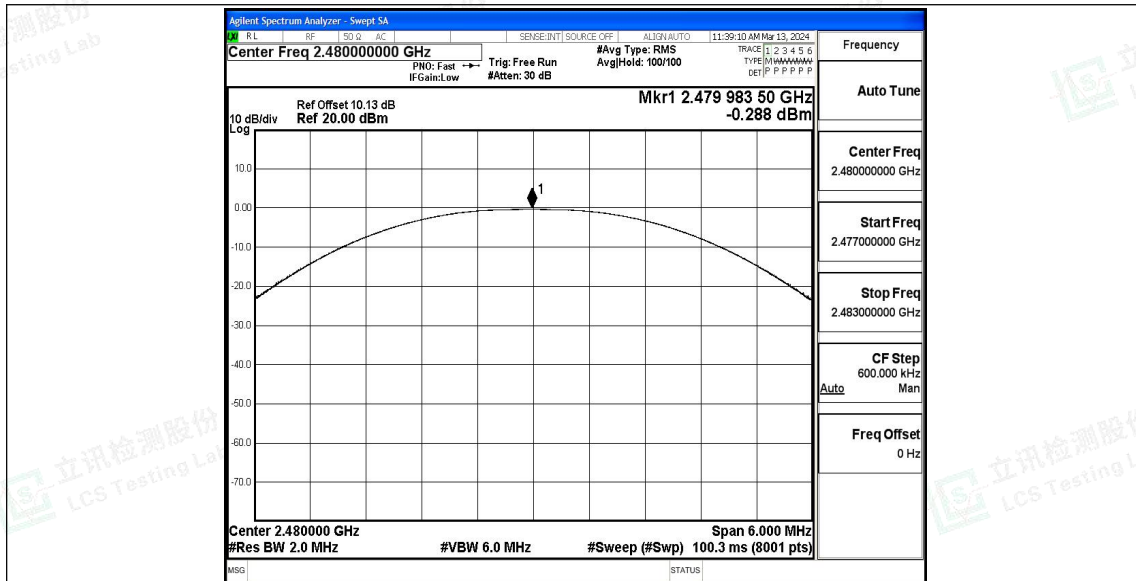
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.28	≤30	PASS
		2440	0.76	≤30	PASS
		2480	-0.29	≤30	PASS
BLE_2M	Ant1	2402	0.18	≤30	PASS
		2440	0.55	≤30	PASS
		2480	-0.47	≤30	PASS



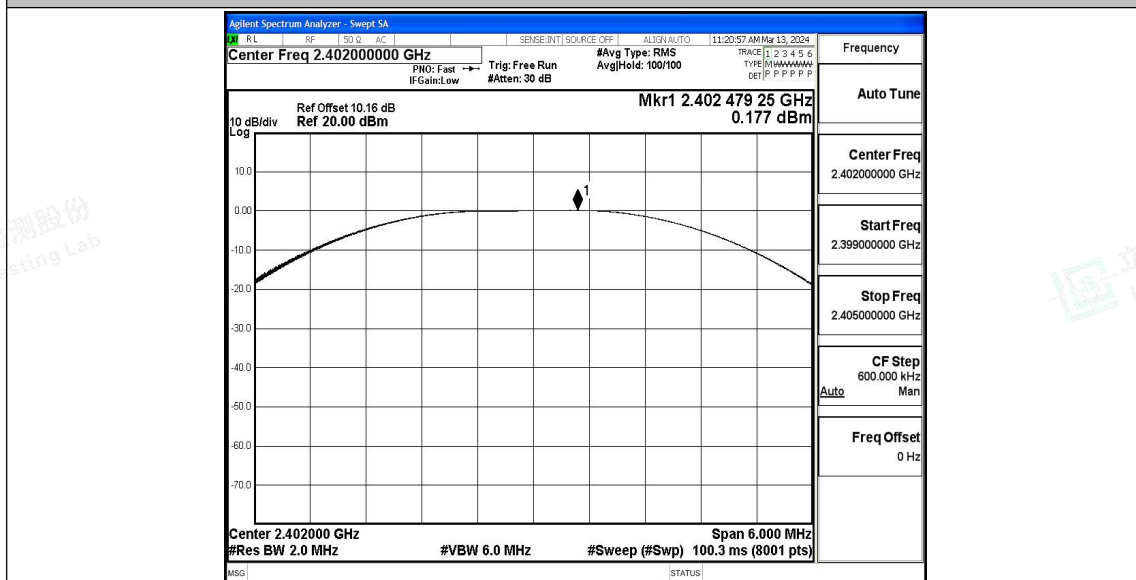


Test Graphs



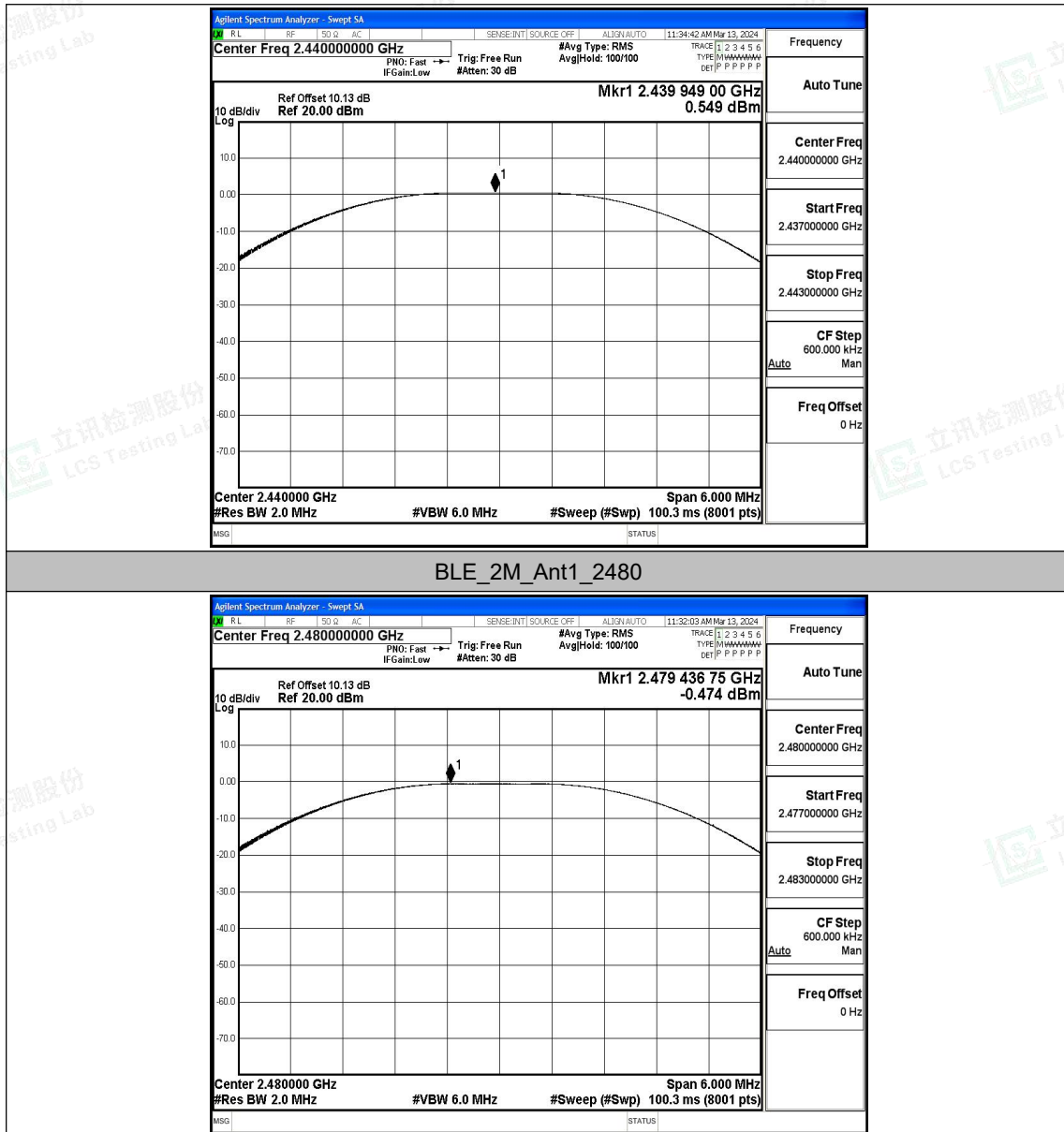


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.3 Maximum power spectral density

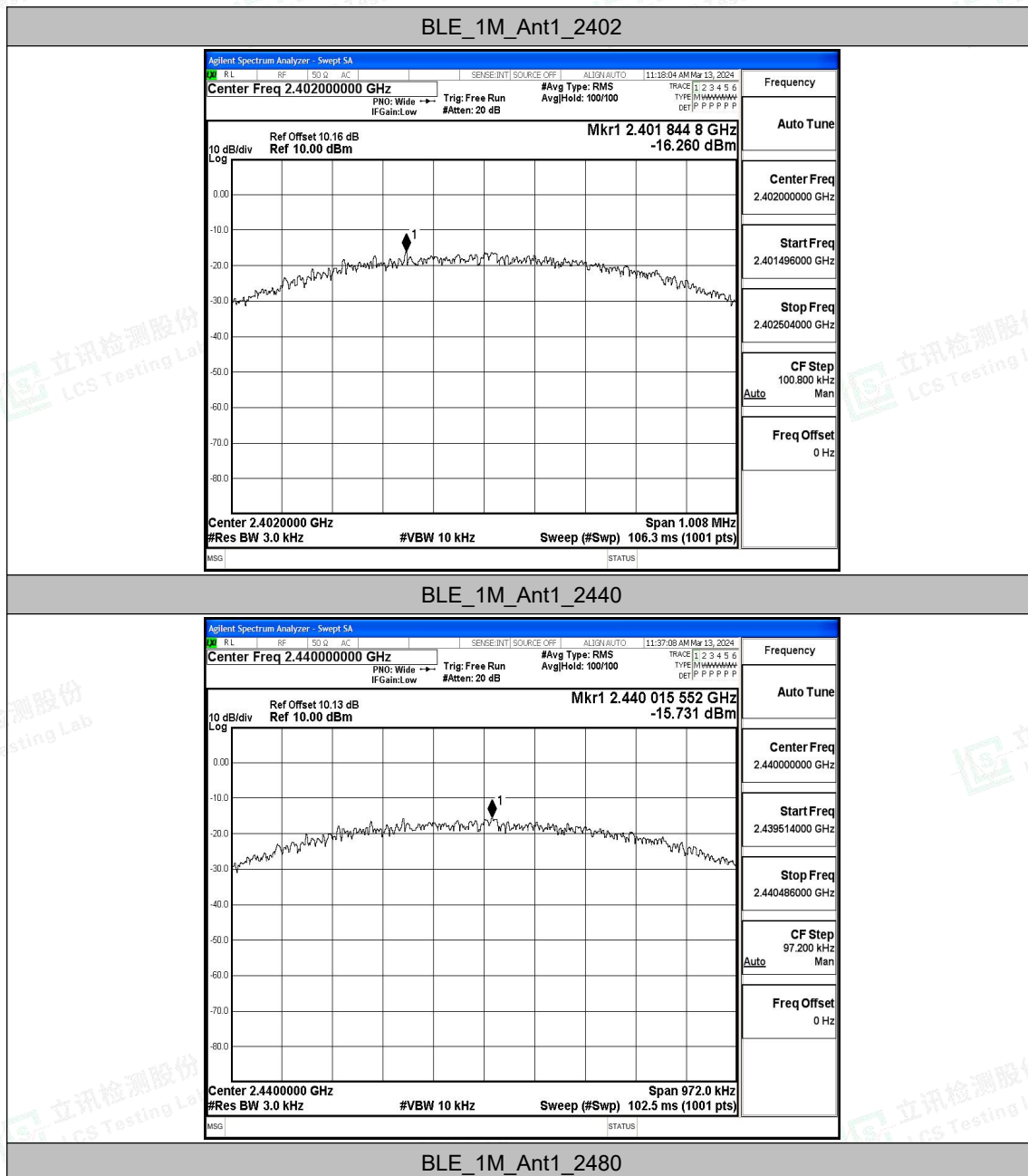
Test Result

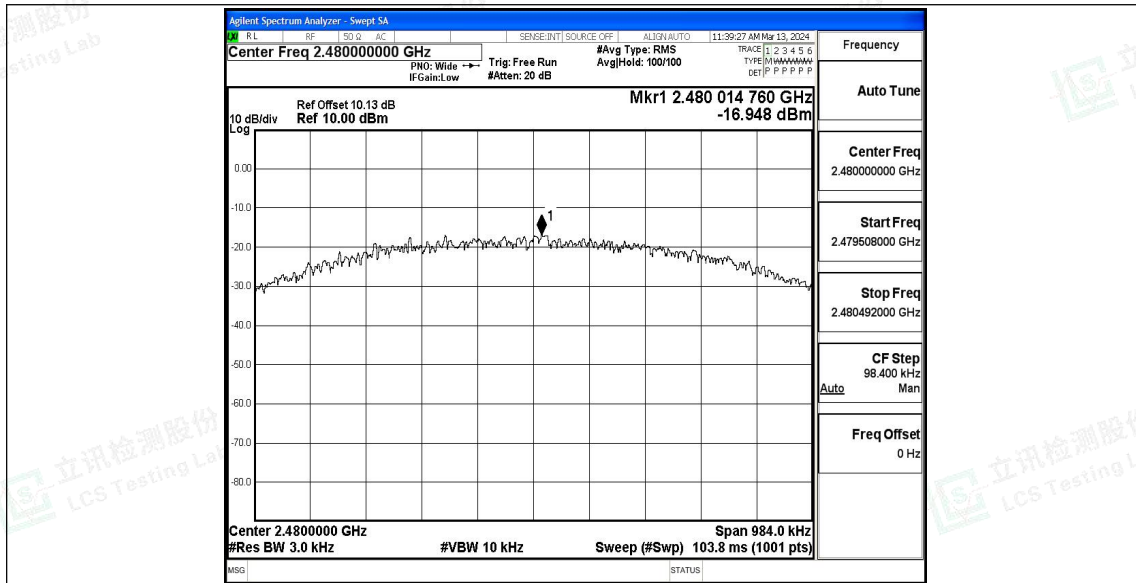
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.26	≤8.00	PASS
		2440	-15.73	≤8.00	PASS
		2480	-16.95	≤8.00	PASS
BLE_2M	Ant1	2402	-19.37	≤8.00	PASS
		2440	-18.92	≤8.00	PASS
		2480	-20.23	≤8.00	PASS



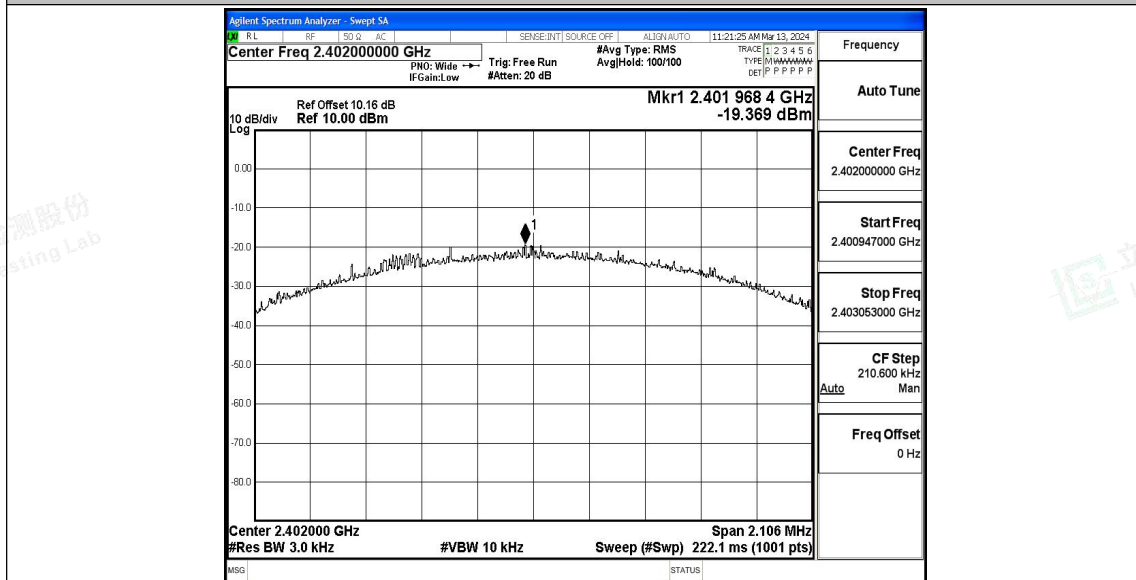


Test Graphs



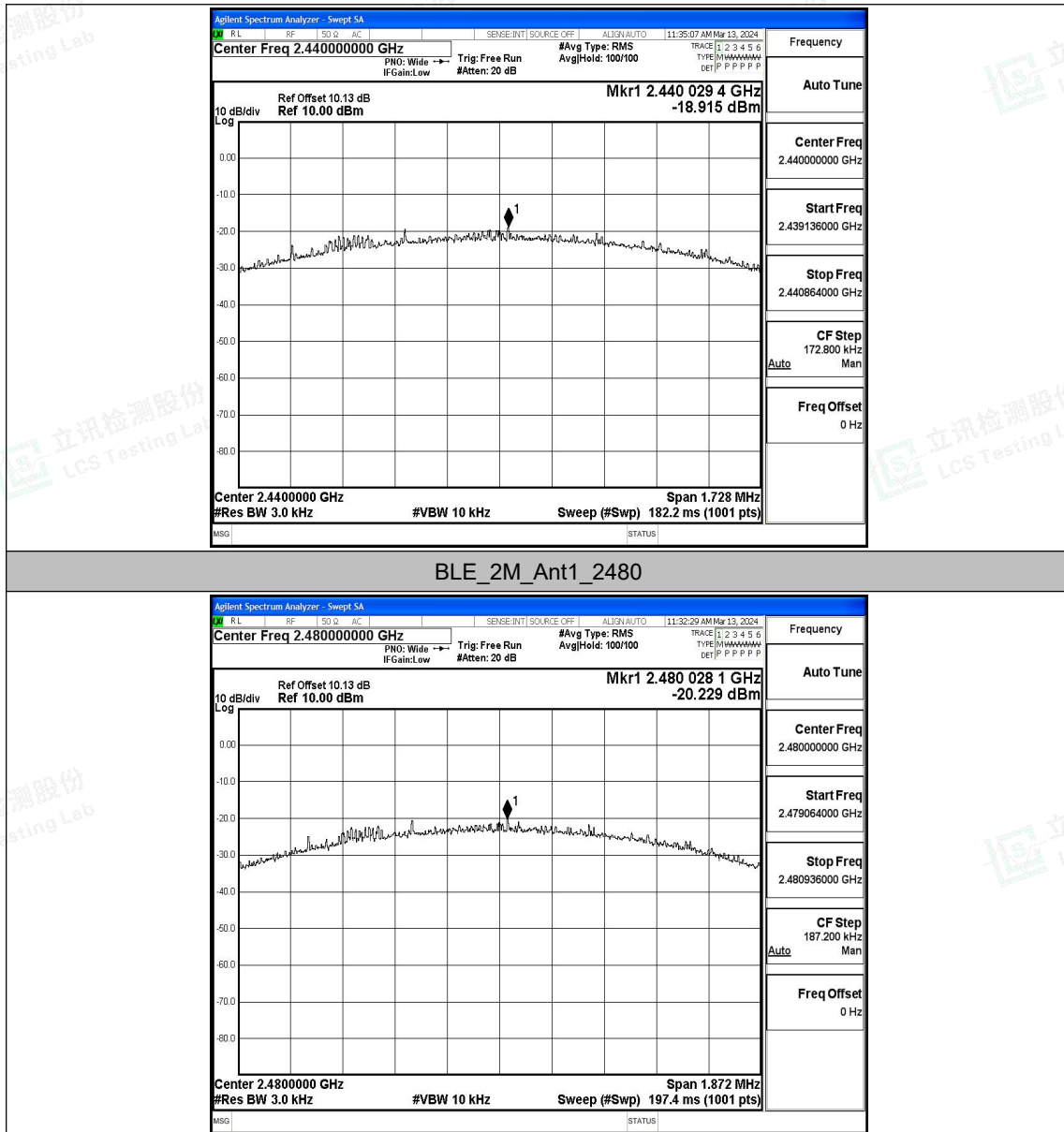


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.4 Band edge measurements

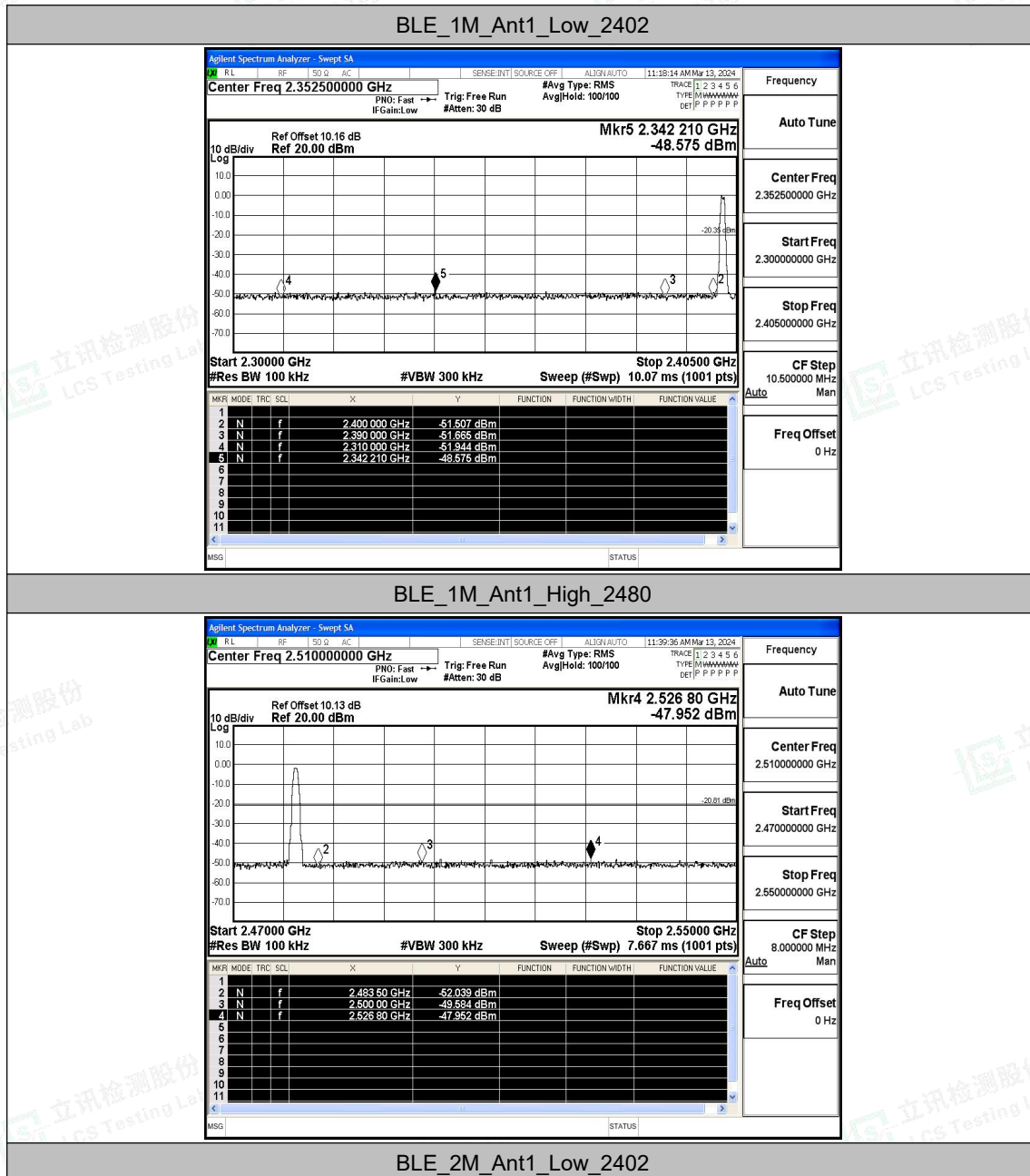
Test Result

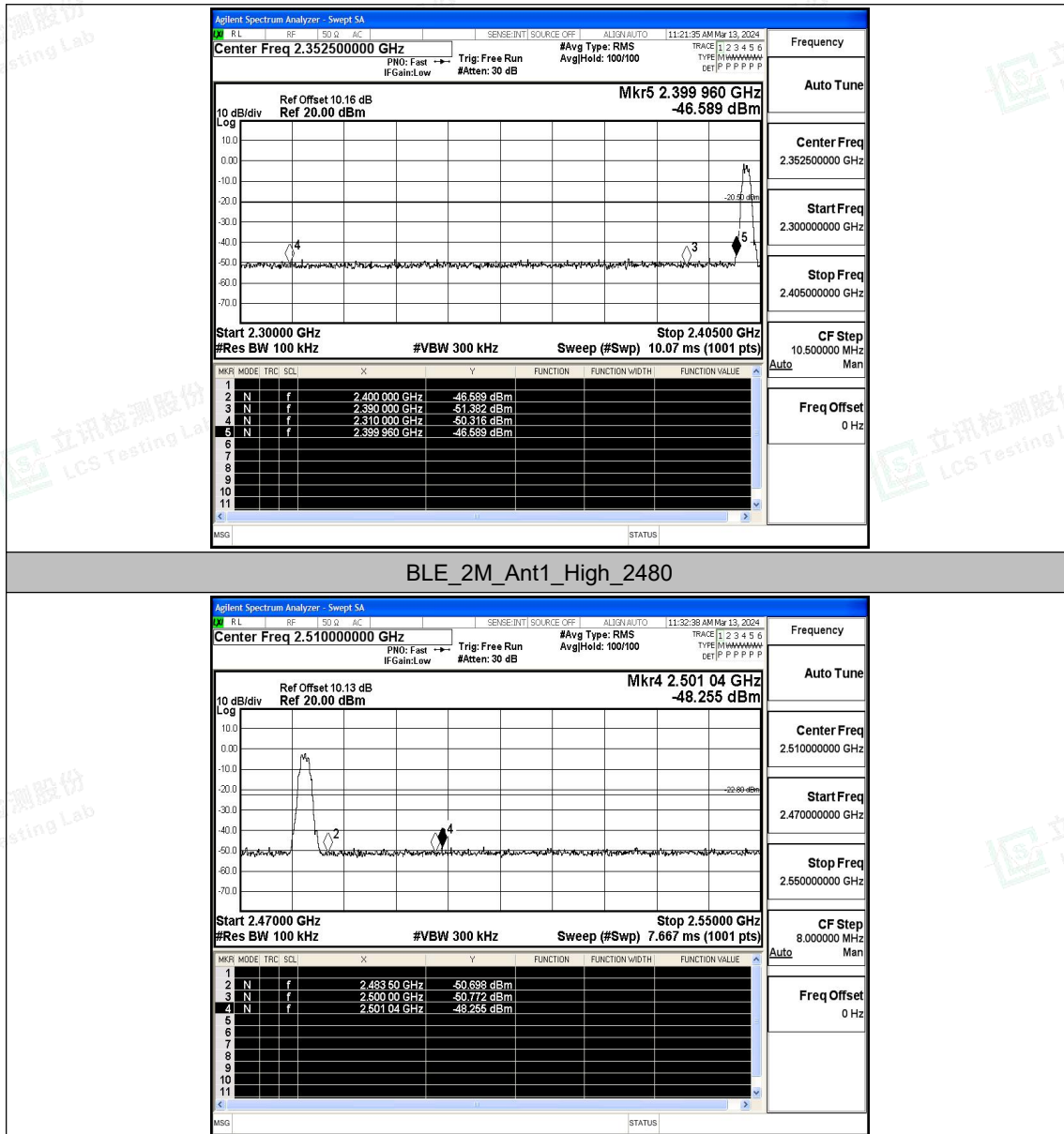
TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.35	-48.58	≤-20.35	PASS
		High	2480	-0.81	-47.95	≤-20.81	PASS
BLE_2M	Ant1	Low	2402	-0.50	-46.59	≤-20.5	PASS
		High	2480	-2.80	-48.26	≤-22.8	PASS





Test Graphs







A.5 Conducted Spurious Emission

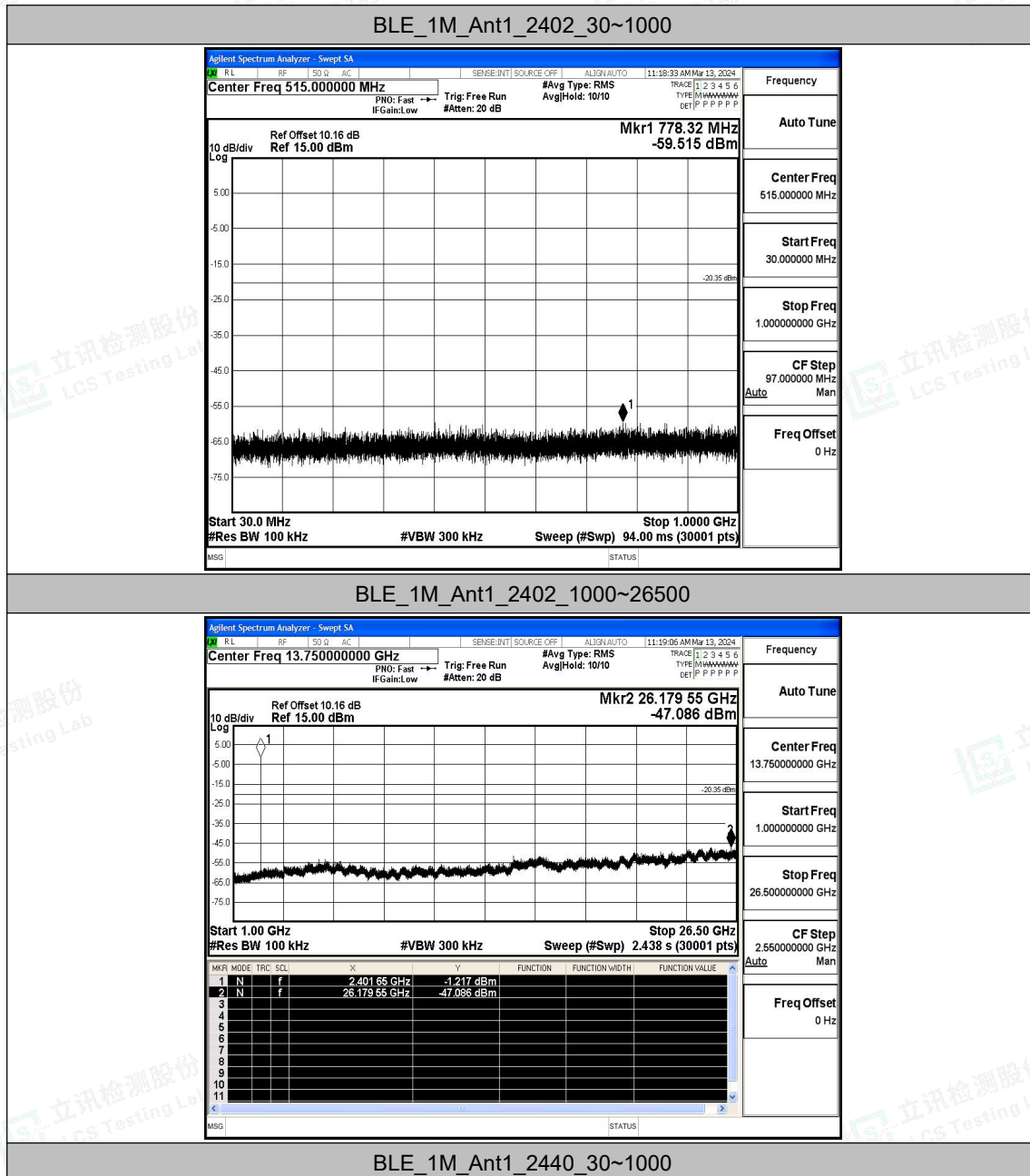
Test Result

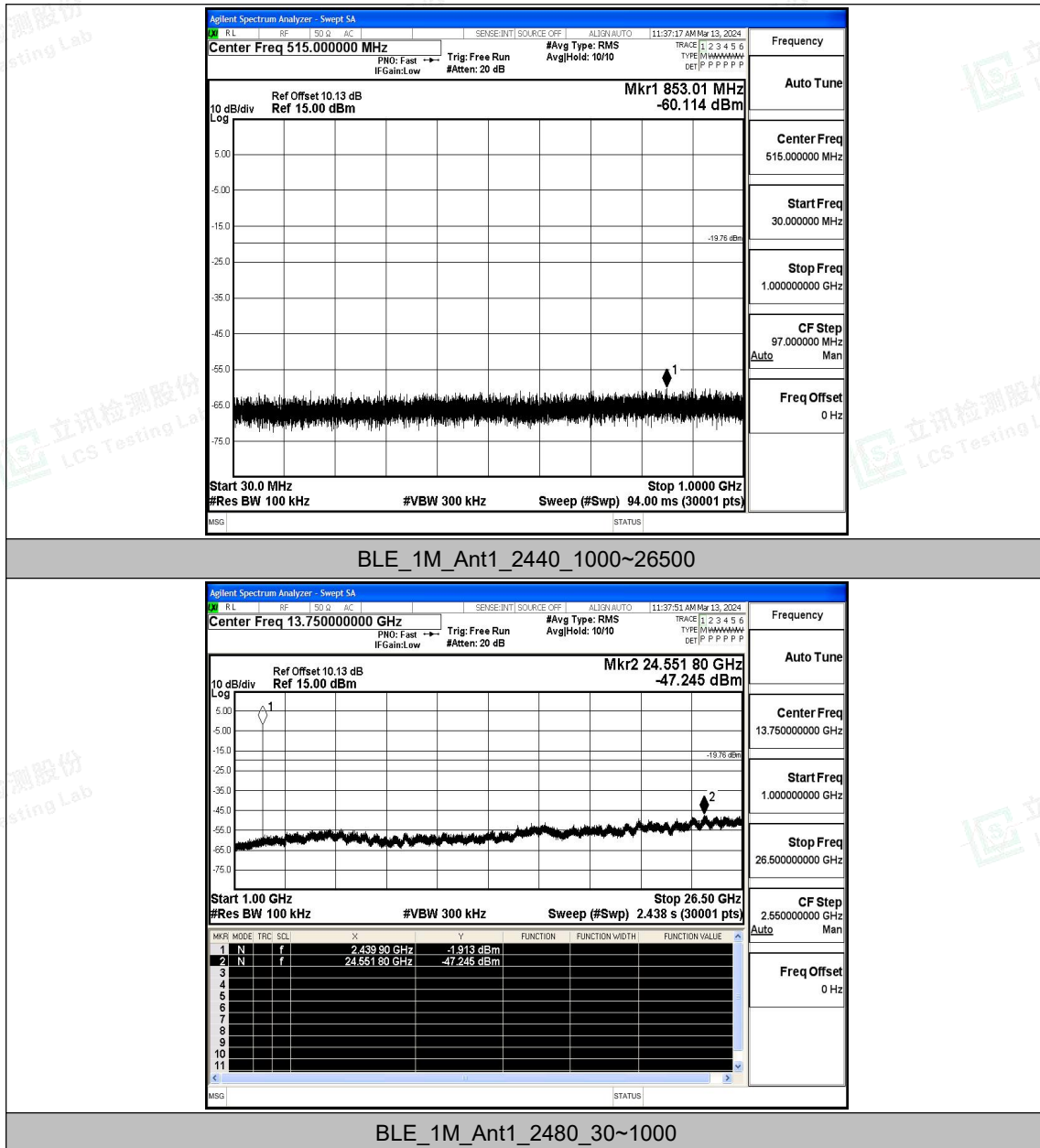
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	-0.35	-59.52	≤-20.35	PASS
			1000~26500	-0.35	-47.09	≤-20.35	PASS
		2440	30~1000	0.24	-60.11	≤-19.76	PASS
			1000~26500	0.24	-47.25	≤-19.76	PASS
		2480	30~1000	-0.81	-59.7	≤-20.81	PASS
			1000~26500	-0.81	-47.22	≤-20.81	PASS
BLE_2M	Ant1	2402	30~1000	-0.50	-59.48	≤-20.5	PASS
			1000~26500	-0.50	-47.06	≤-20.5	PASS
		2440	30~1000	0.02	-59.76	≤-19.98	PASS
			1000~26500	0.02	-47.34	≤-19.98	PASS
		2480	30~1000	-2.80	-59.98	≤-22.8	PASS
			1000~26500	-2.80	-47.05	≤-22.8	PASS

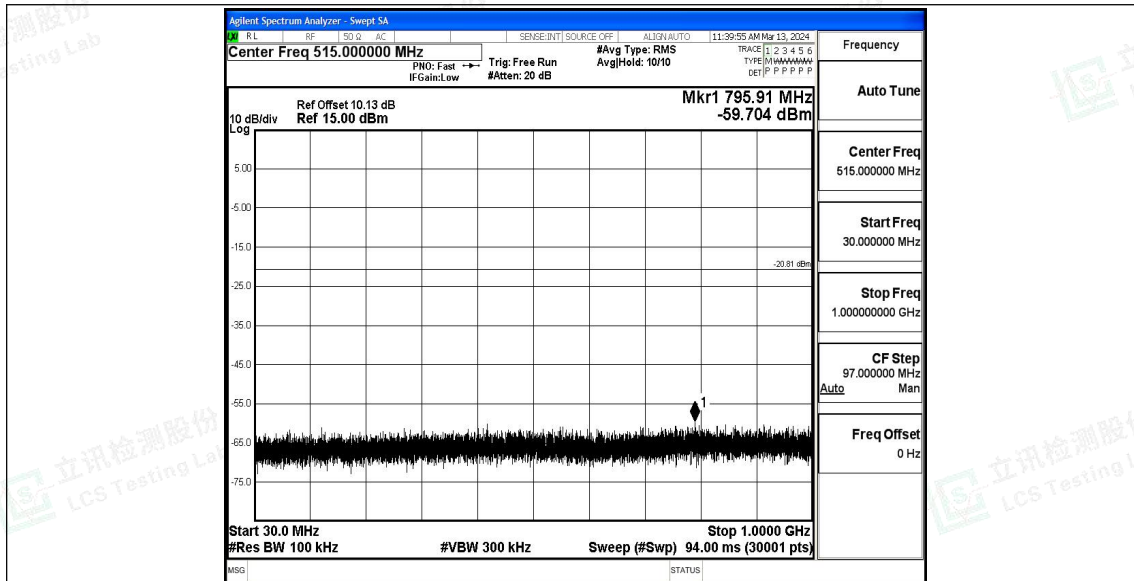




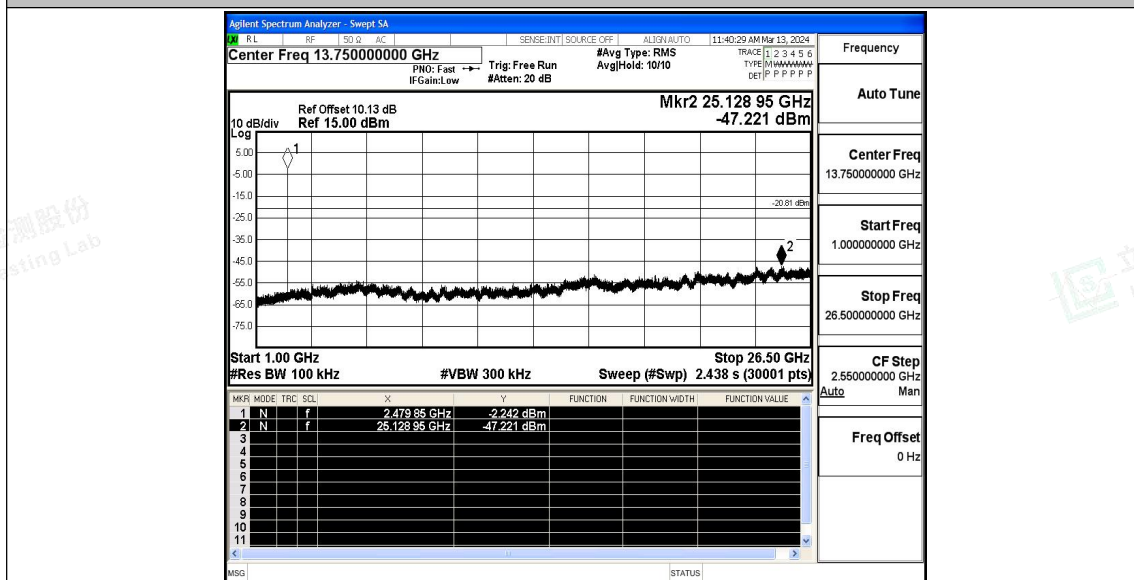
Test Graphs





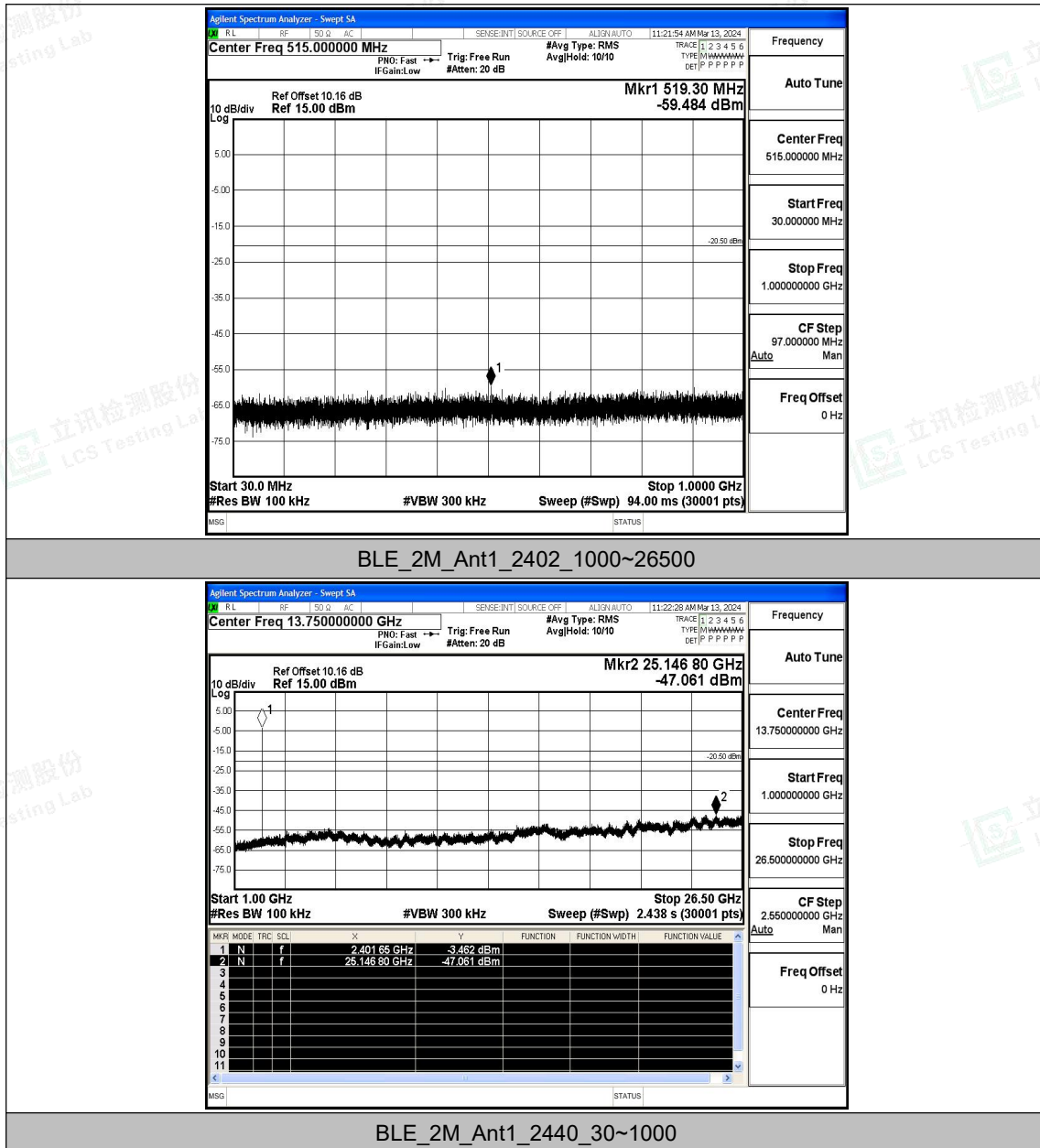


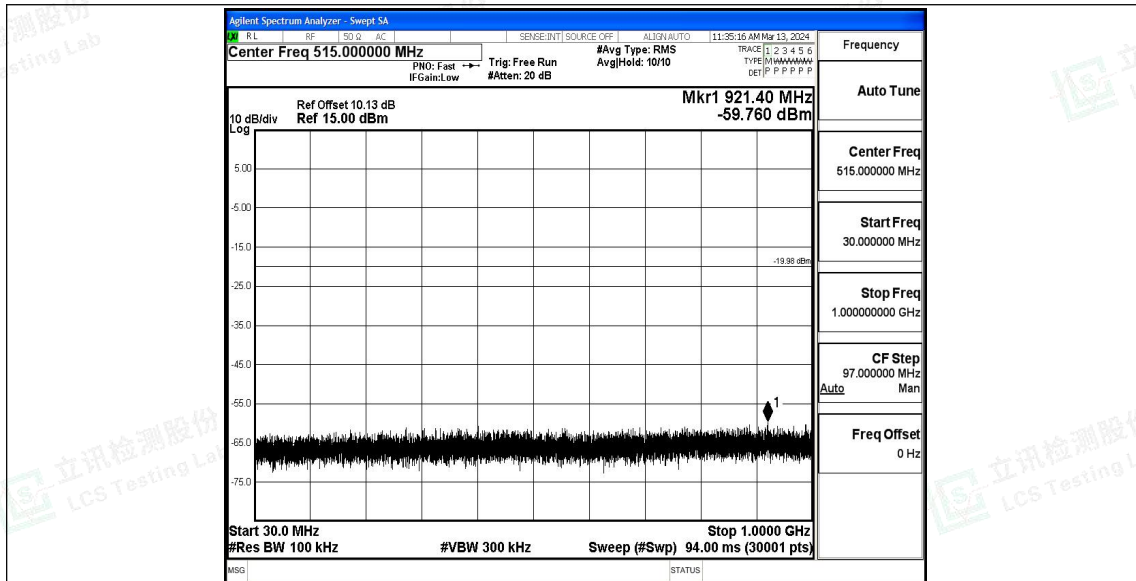
BLE_1M_Ant1_2480_1000~26500



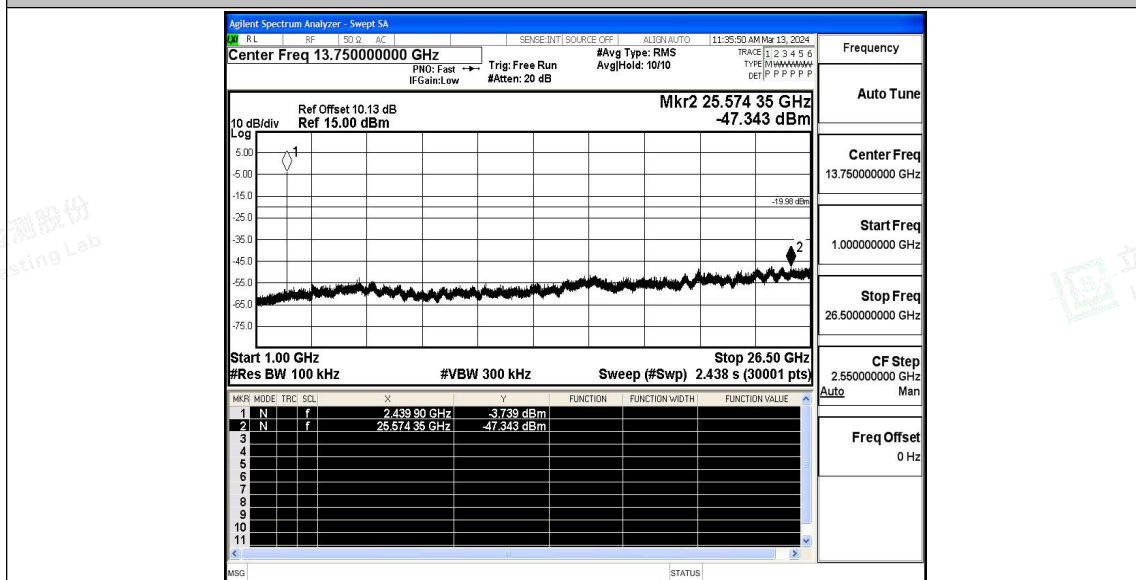
BLE_2M_Ant1_2402_30~1000





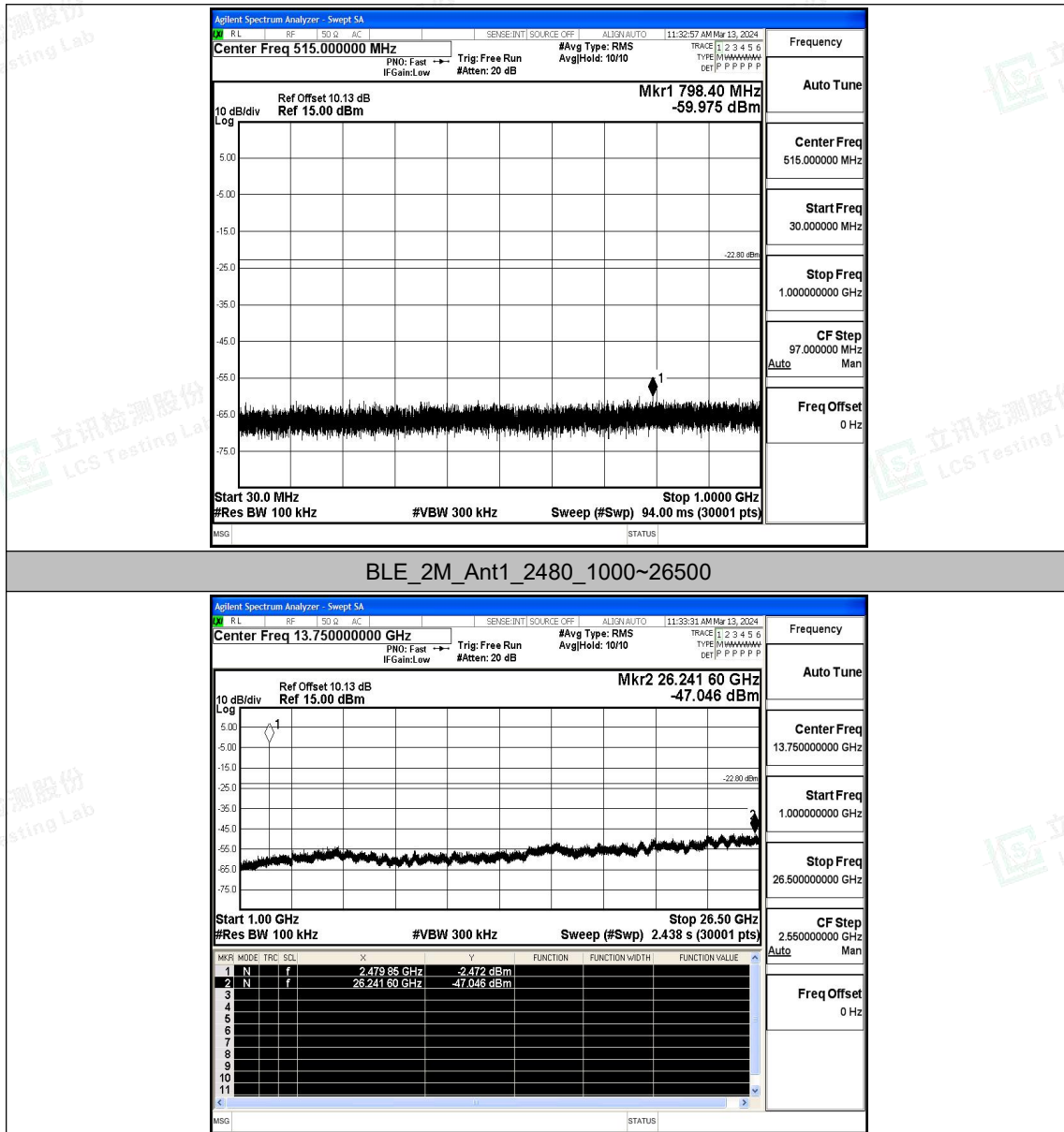


BLE_2M_Ant1_2440_1000~26500



BLE_2M_Ant1_2480_30~1000







Reference level measurement

Test Result

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2401.76	-0.35
		2440	2439.75	0.24
		2480	2479.75	-0.81
BLE_2M	Ant1	2402	2401.51	-0.50
		2440	2439.50	0.02
		2480	2479.52	-2.80

