



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Aroma Diffuser

Test Model: CA-500S-V2.0

Environmental Conditions

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



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A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.700	2401.648	2402.348	0.5	PASS
		2440	0.660	2439.660	2440.320	0.5	PASS
		2480	0.660	2479.660	2480.320	0.5	PASS
BLE_2M	Ant1	2402	1.336	2401.324	2402.660	0.5	PASS
		2440	1.160	2439.428	2440.588	0.5	PASS
		2480	1.124	2479.456	2480.580	0.5	PASS



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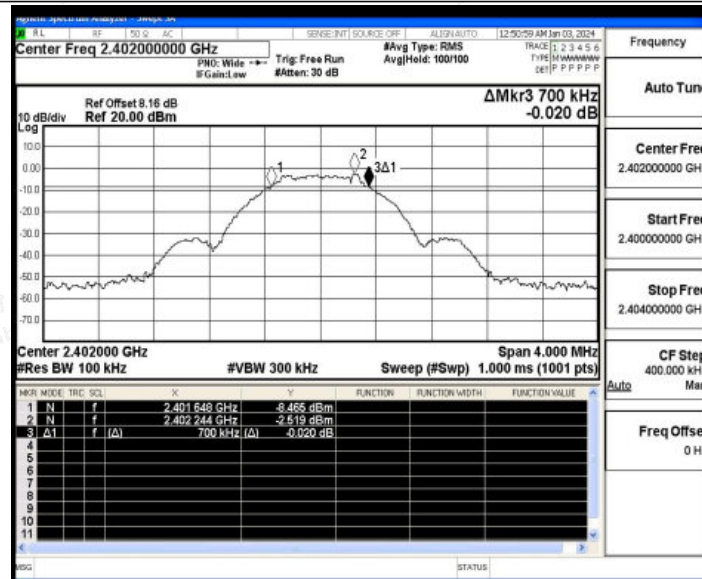
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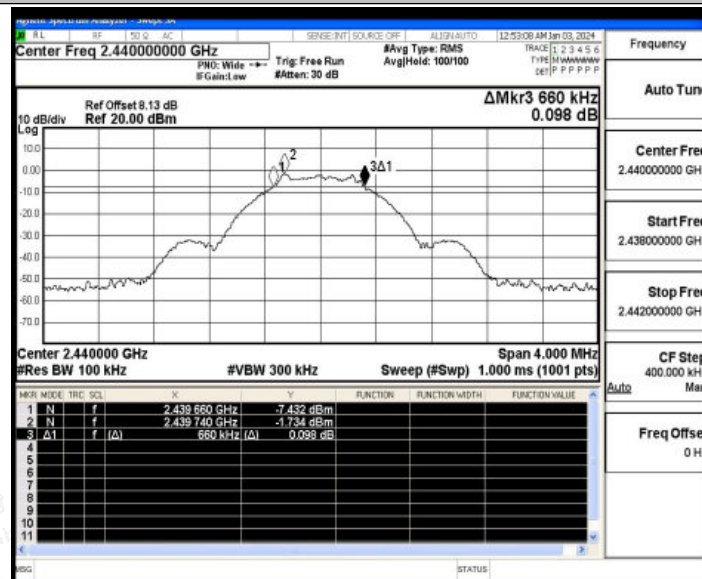


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

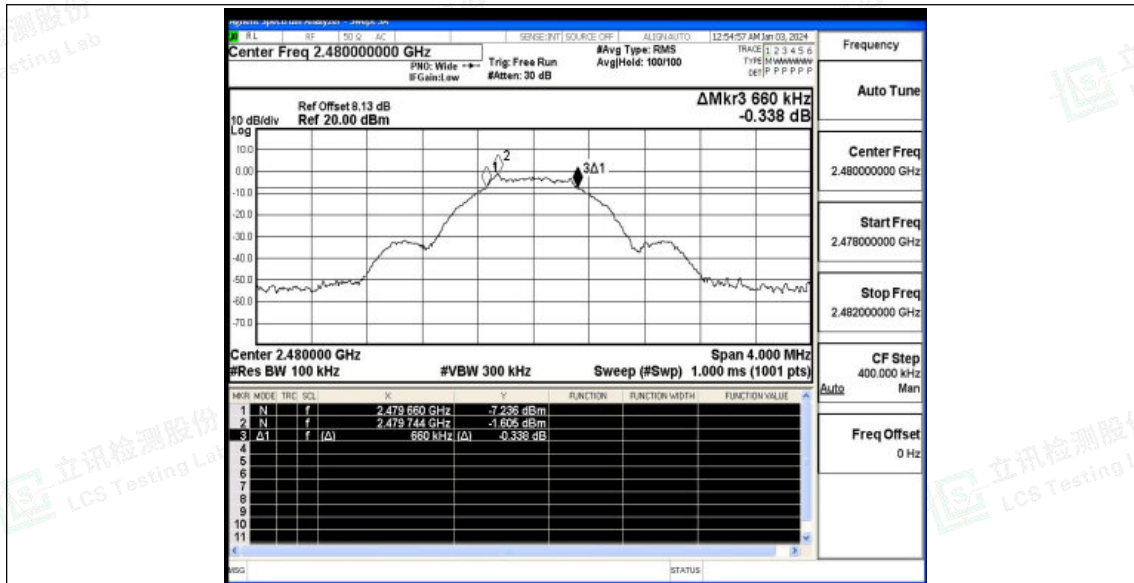


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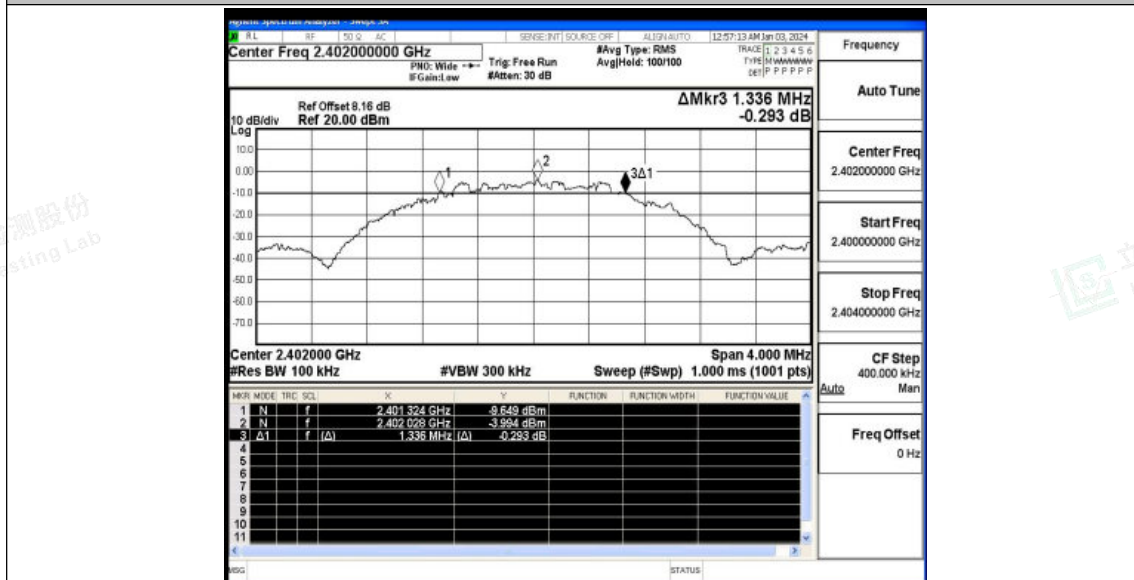
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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

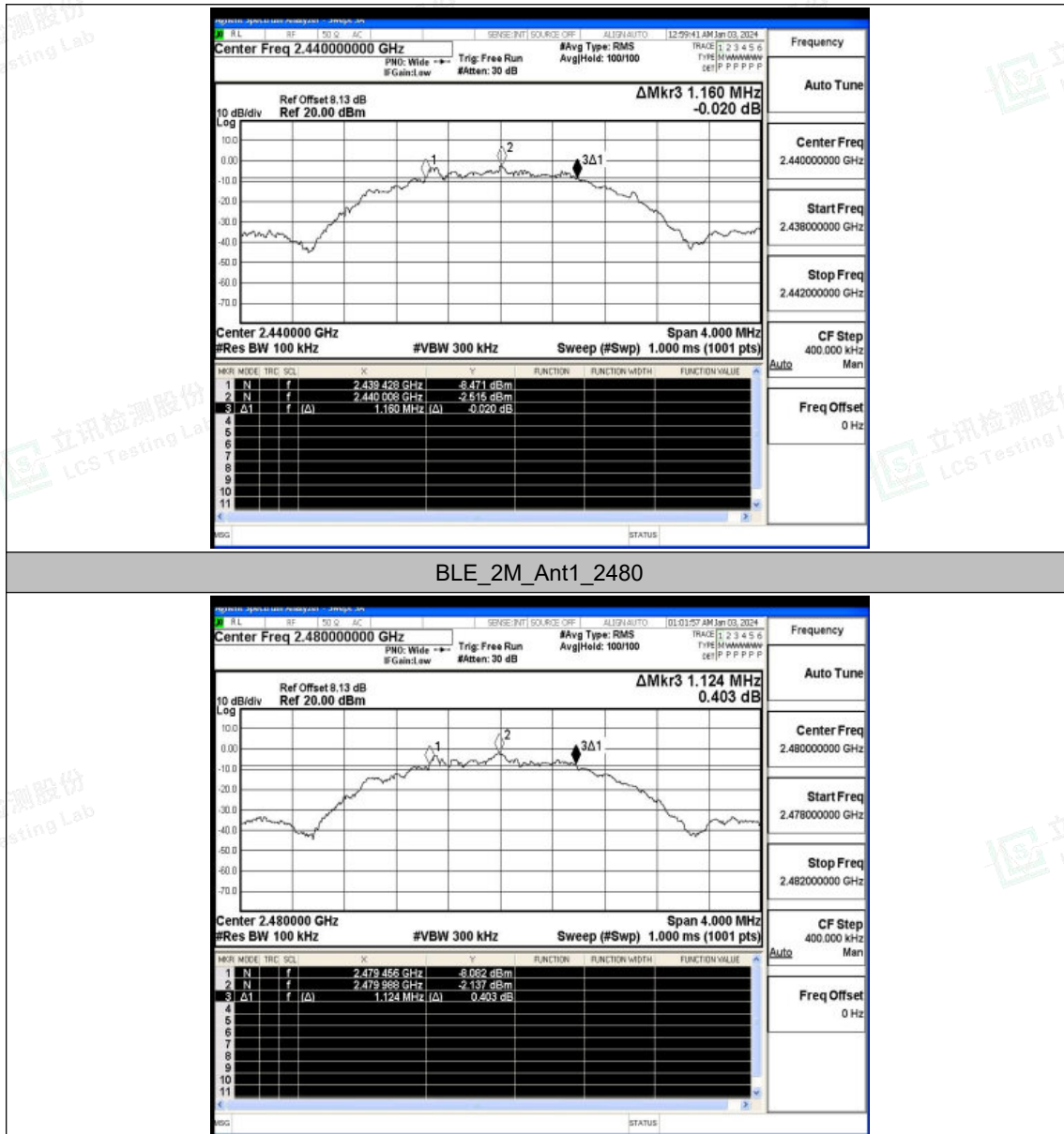


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A.2 Maximum peak conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-1.40	≤30	PASS
		2440	-1.39	≤30	PASS
		2480	-1.29	≤30	PASS
BLE_2M	Ant1	2402	-1.43	≤30	PASS
		2440	-1.40	≤30	PASS
		2480	-1.29	≤30	PASS



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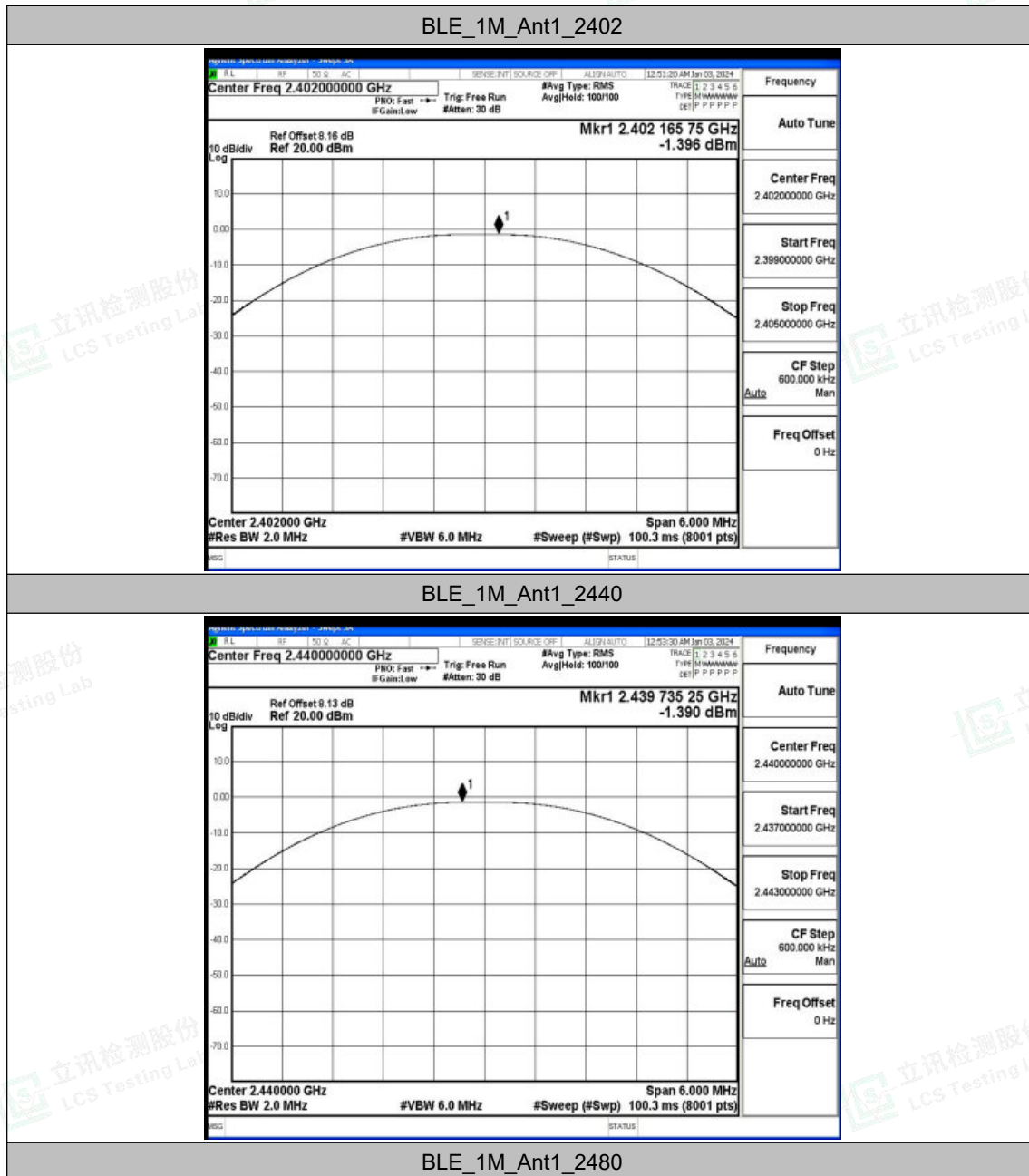
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Test Graphs

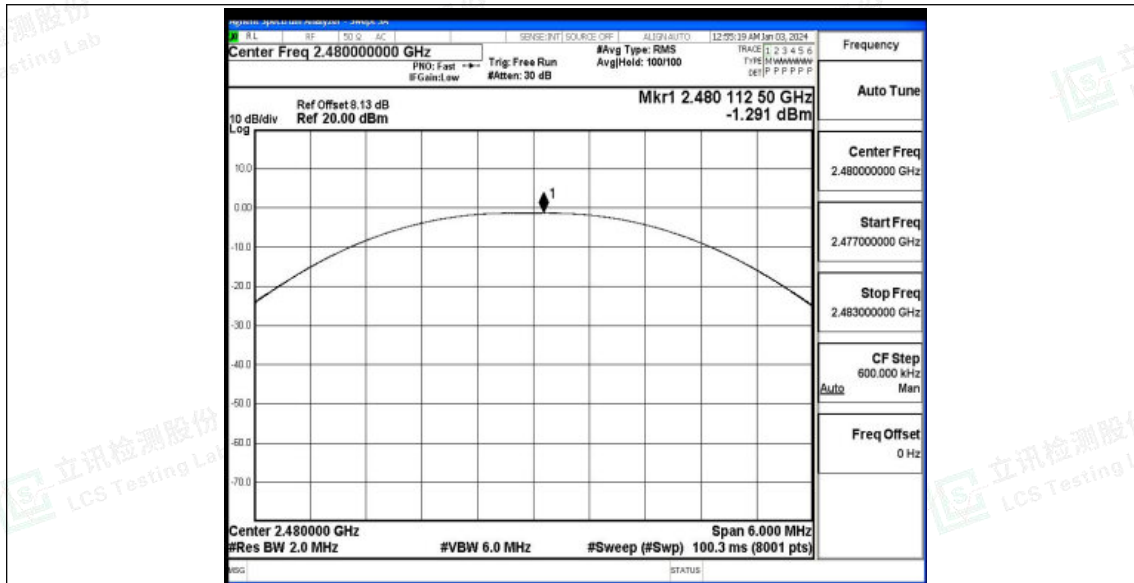


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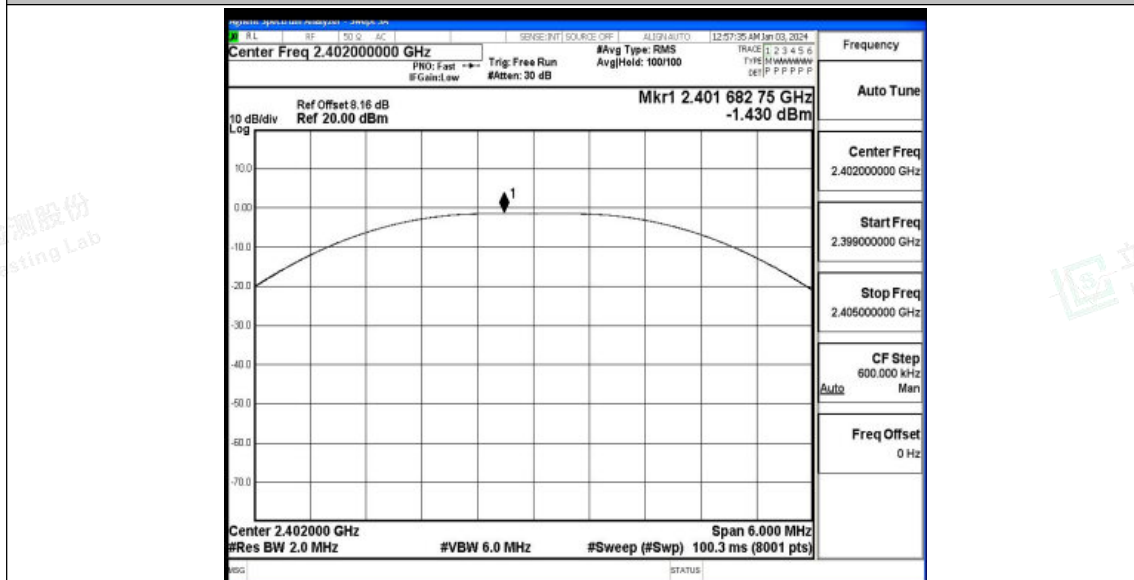
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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

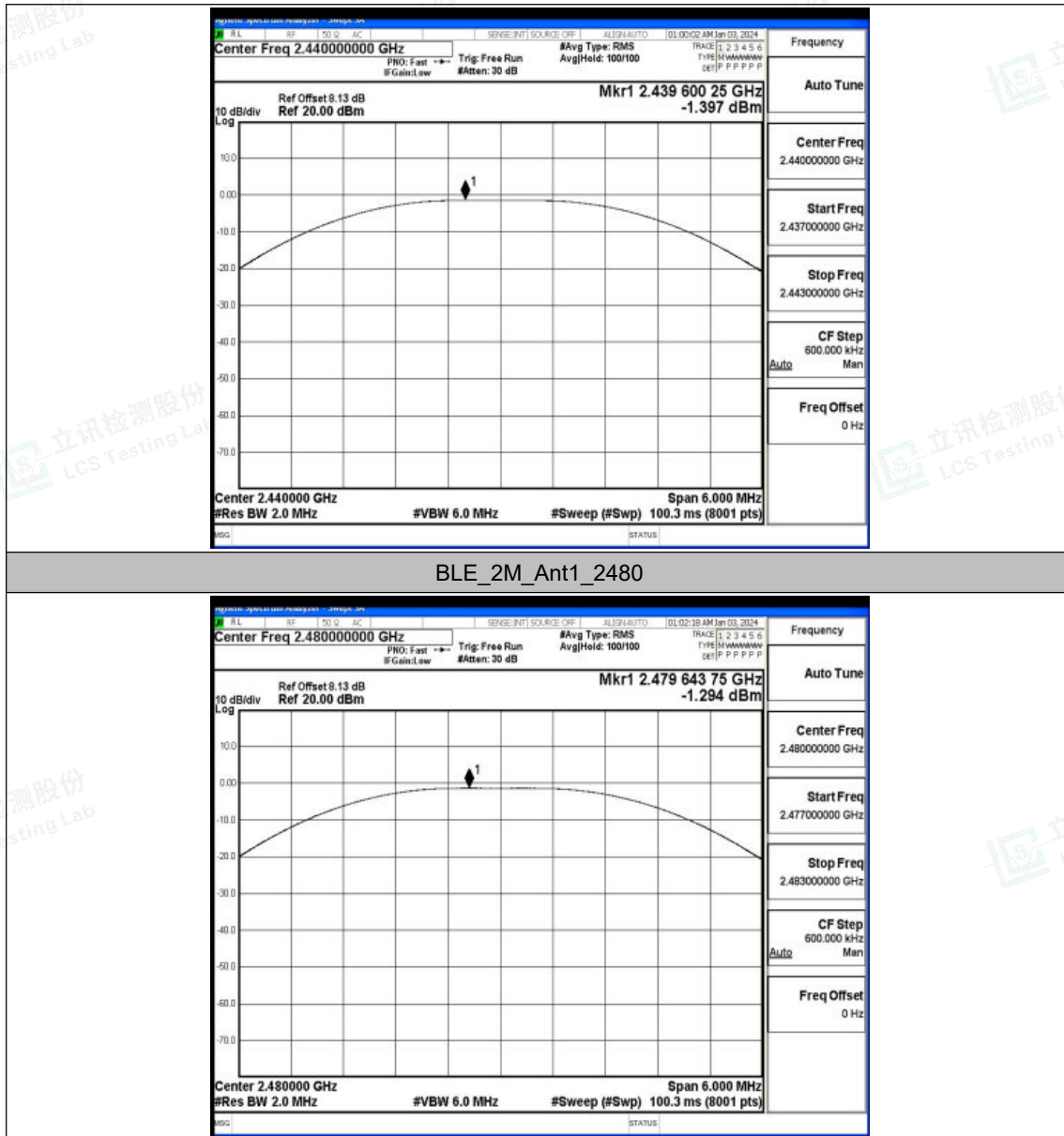


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A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.47	≤8.00	PASS
		2440	-17.48	≤8.00	PASS
		2480	-17.37	≤8.00	PASS
BLE_2M	Ant1	2402	-20.55	≤8.00	PASS
		2440	-20.53	≤8.00	PASS
		2480	-20.47	≤8.00	PASS



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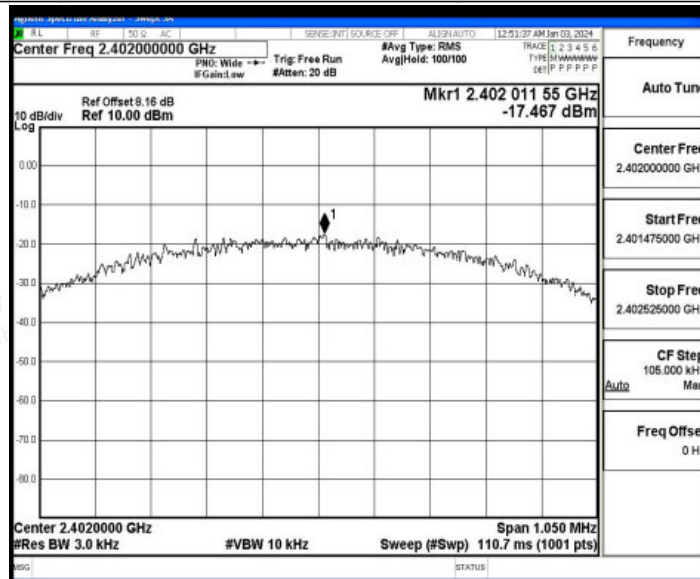
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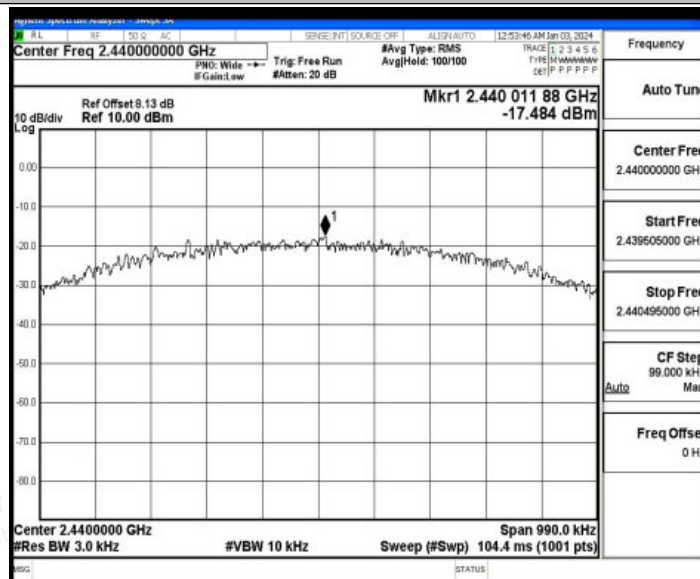


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

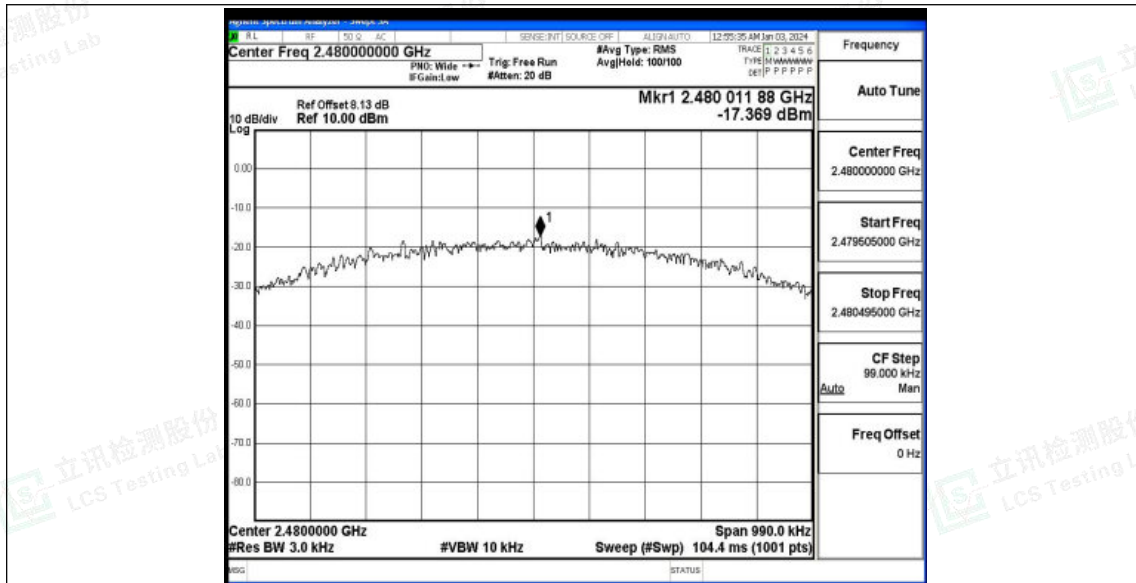


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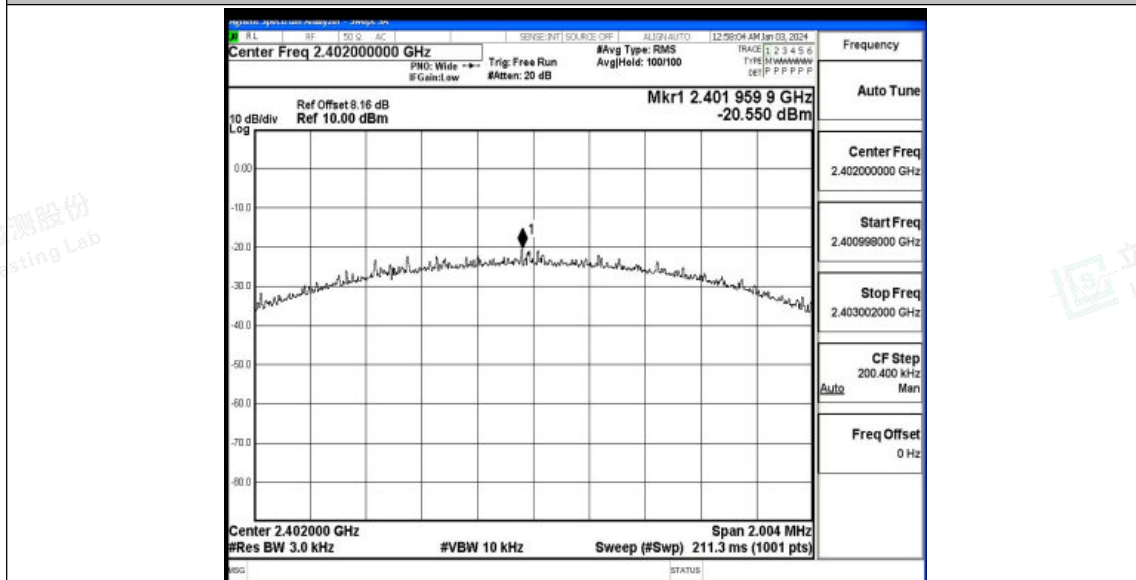
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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

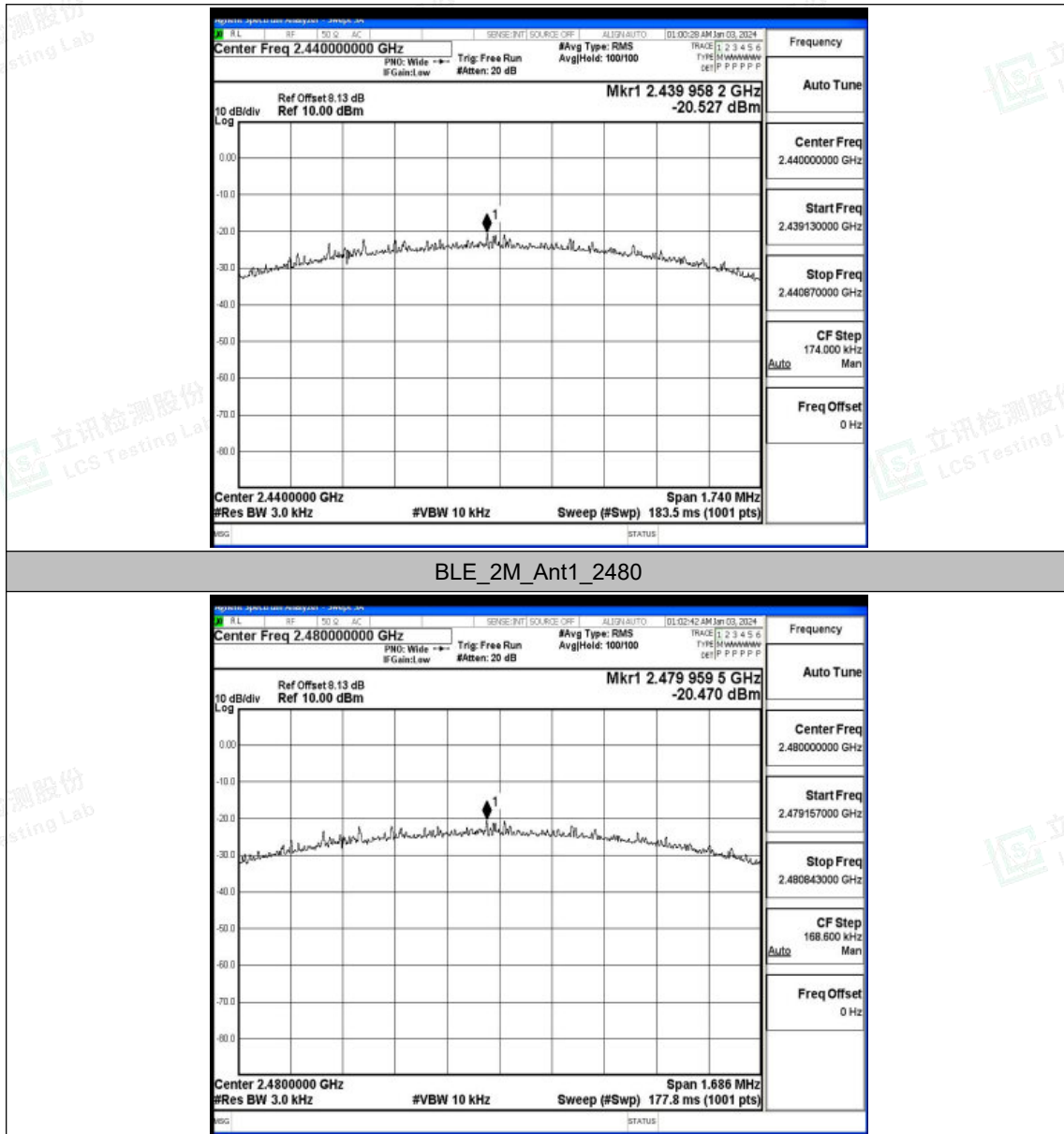


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A.4 Band edge measurements

Test Result

TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.71	-50.43	≤-21.71	PASS
		High	2480	-1.61	-50.27	≤-21.61	PASS
BLE_2M	Ant1	Low	2402	-2.44	-35.45	≤-22.44	PASS
		High	2480	-2.30	-49.73	≤-22.3	PASS



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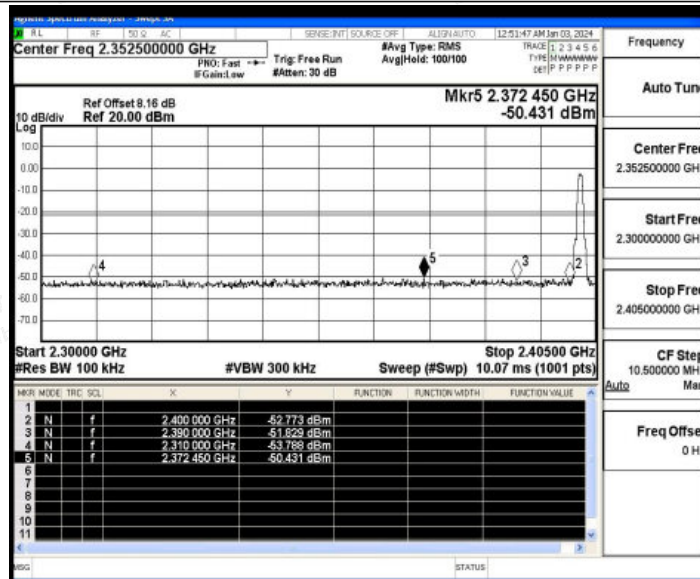
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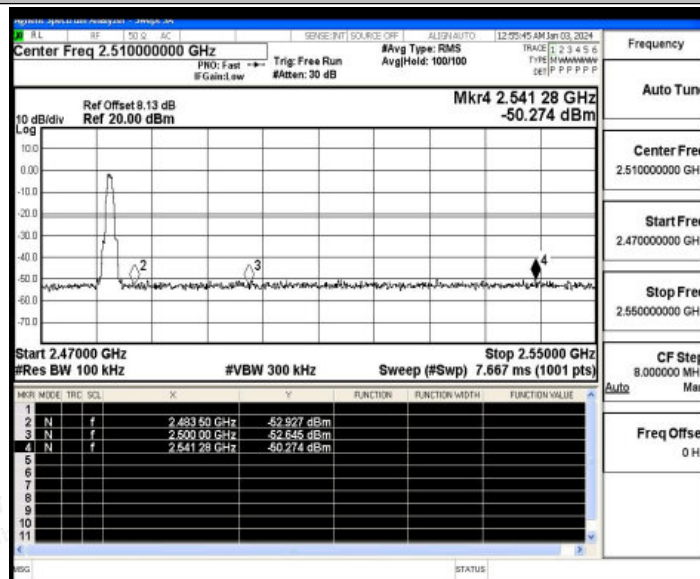


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402

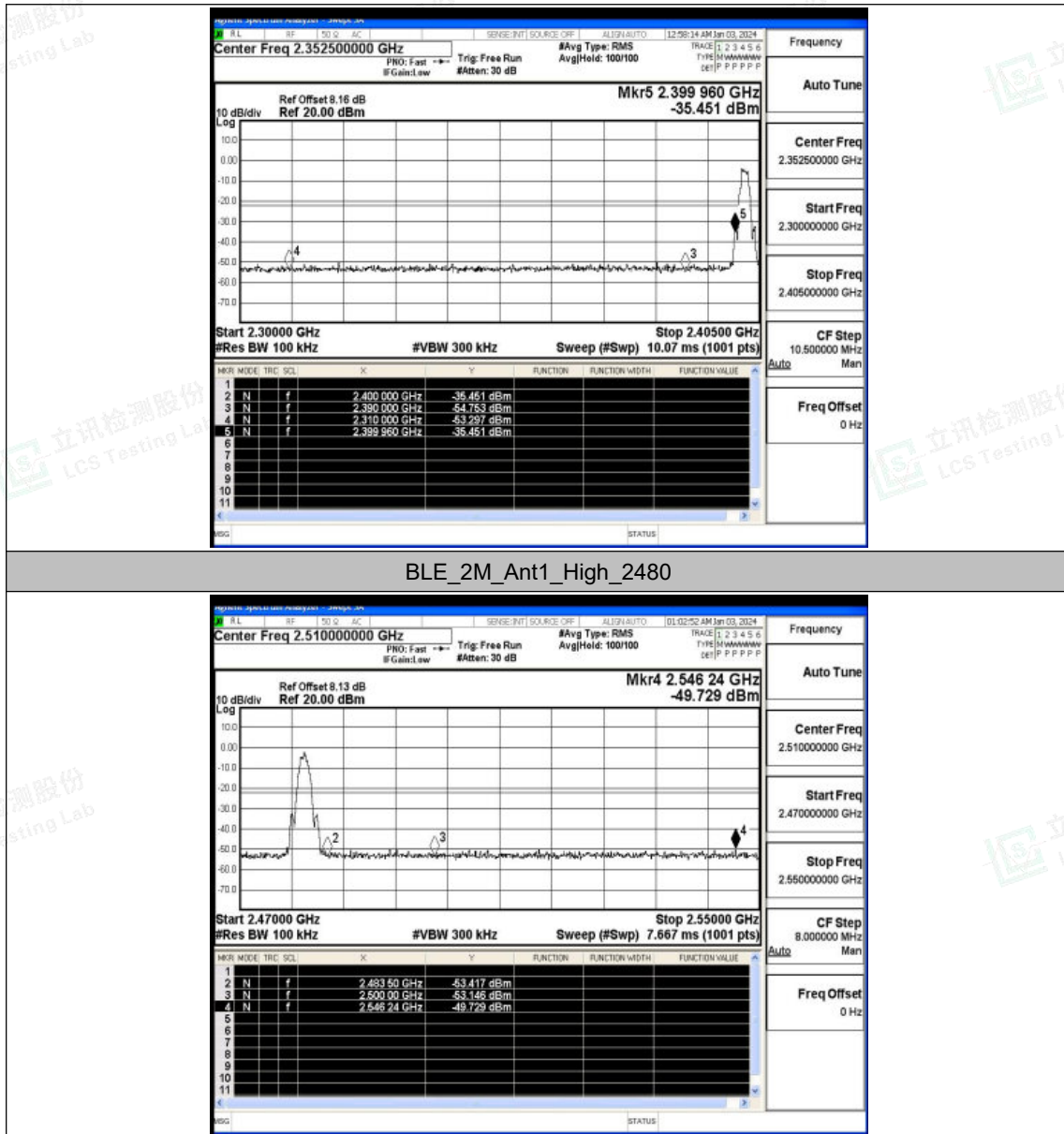


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A.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	-1.71	-61.25	≤-21.71	PASS
			1000~26500	-1.71	-49.14	≤-21.71	PASS
		2440	30~1000	-2.10	-61.7	≤-22.1	PASS
			1000~26500	-2.10	-48.9	≤-22.1	PASS
		2480	30~1000	-1.61	-61.56	≤-21.61	PASS
			1000~26500	-1.61	-49.21	≤-21.61	PASS
BLE_2M	Ant1	2402	30~1000	-2.44	-61.65	≤-22.44	PASS
			1000~26500	-2.44	-48.93	≤-22.44	PASS
		2440	30~1000	-2.25	-61.52	≤-22.25	PASS
			1000~26500	-2.25	-48.72	≤-22.25	PASS
		2480	30~1000	-2.30	-62	≤-22.3	PASS
			1000~26500	-2.30	-49.17	≤-22.3	PASS



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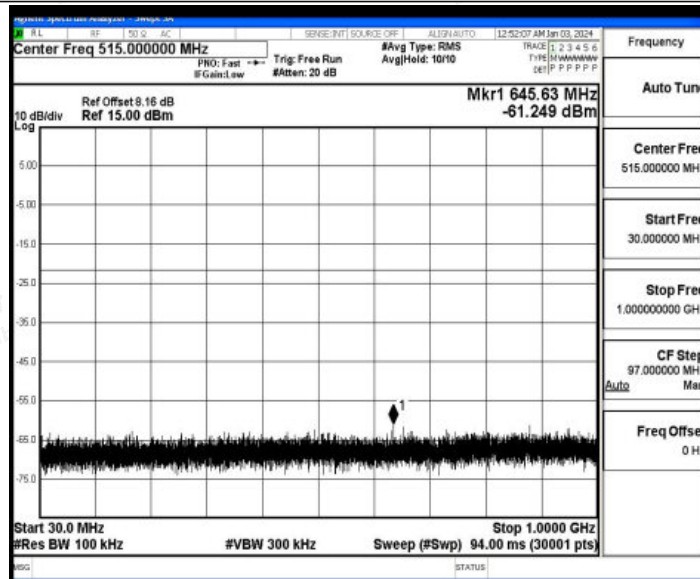
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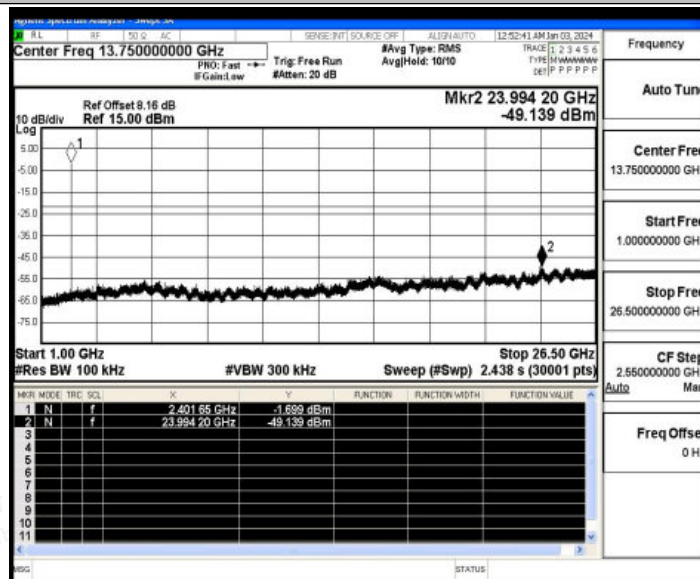


Test Graphs

BLE_1M_Ant1_2402_30~1000



BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_30~1000

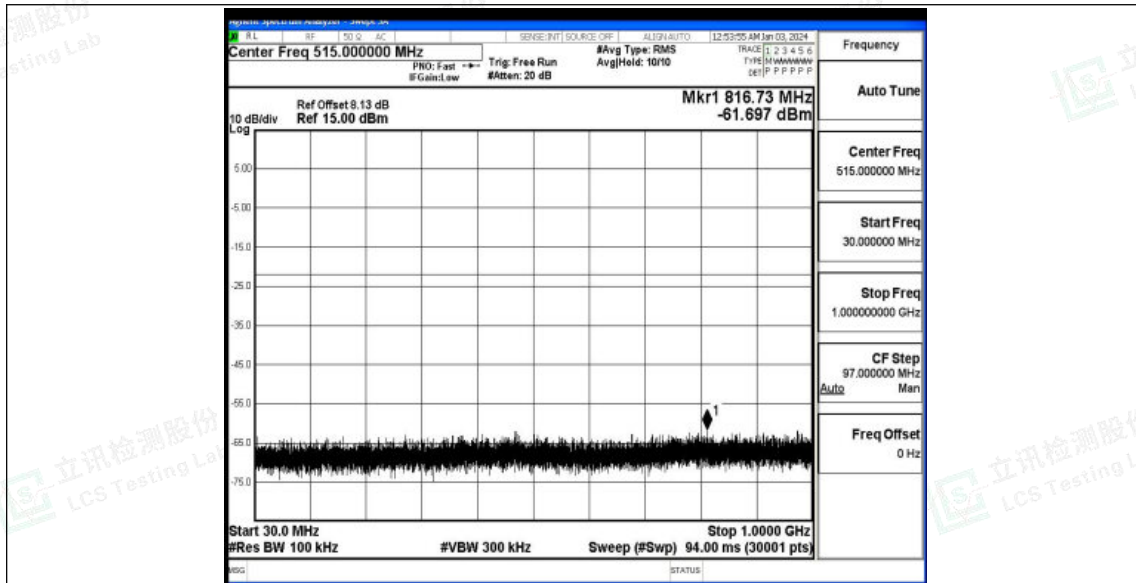


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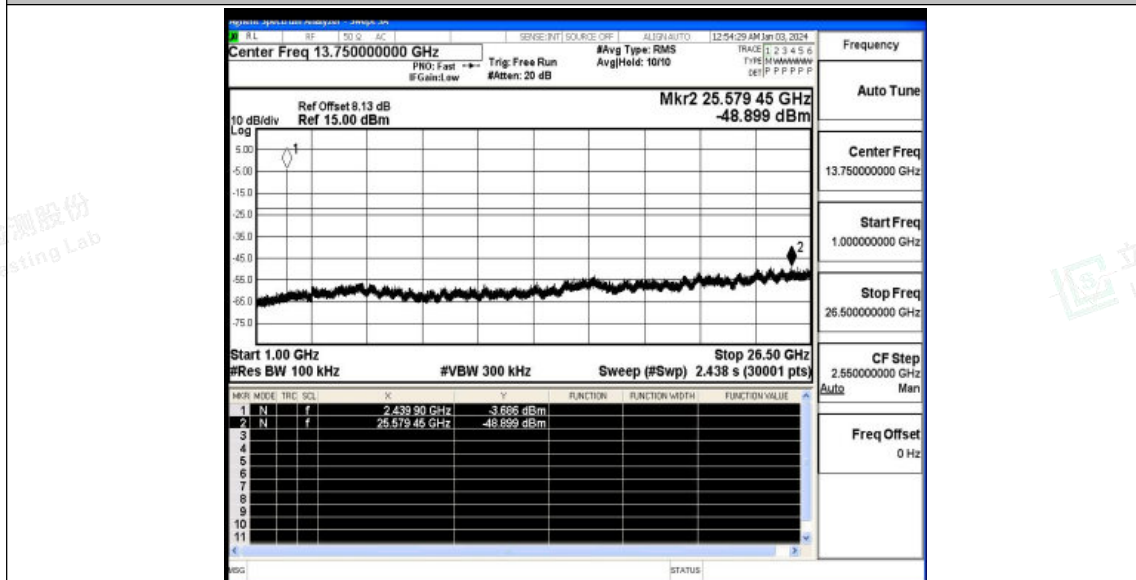
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BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_30~1000

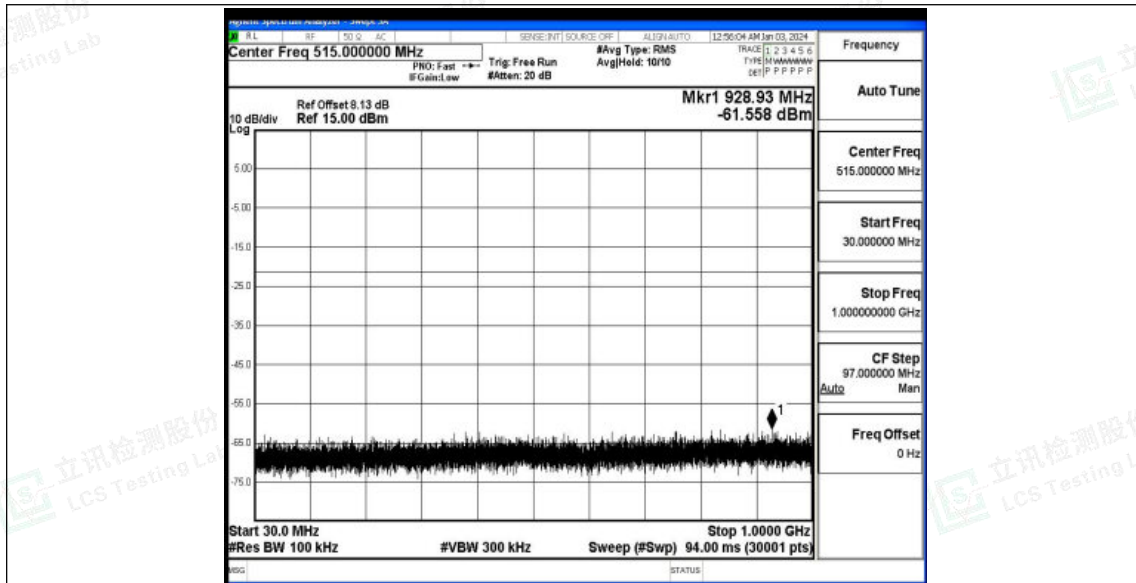


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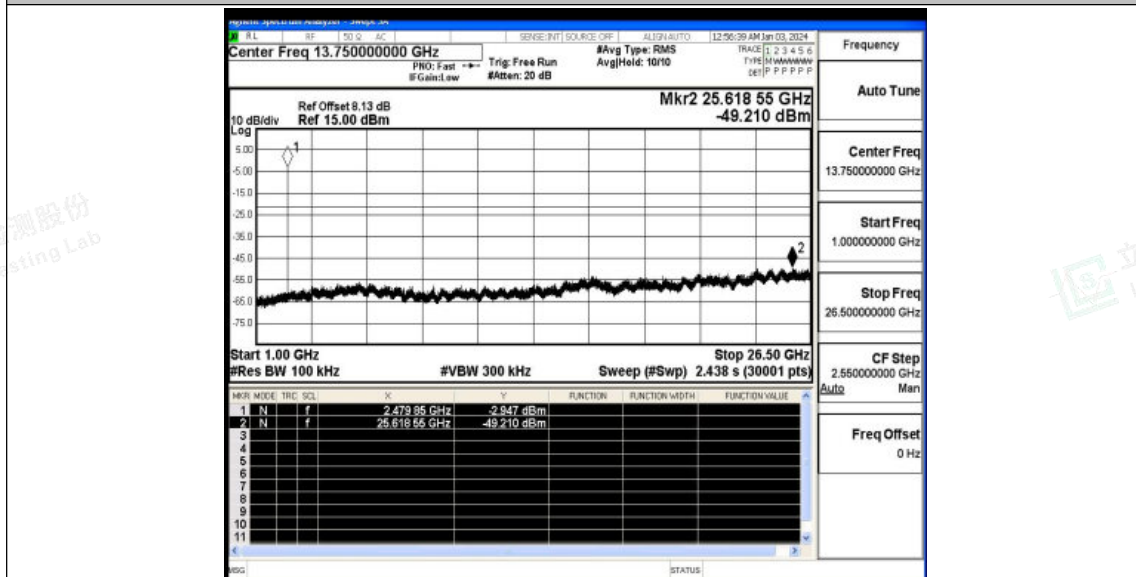
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BLE_1M_Ant1_2480_1000~26500



BLE_2M_Ant1_2402_30~1000

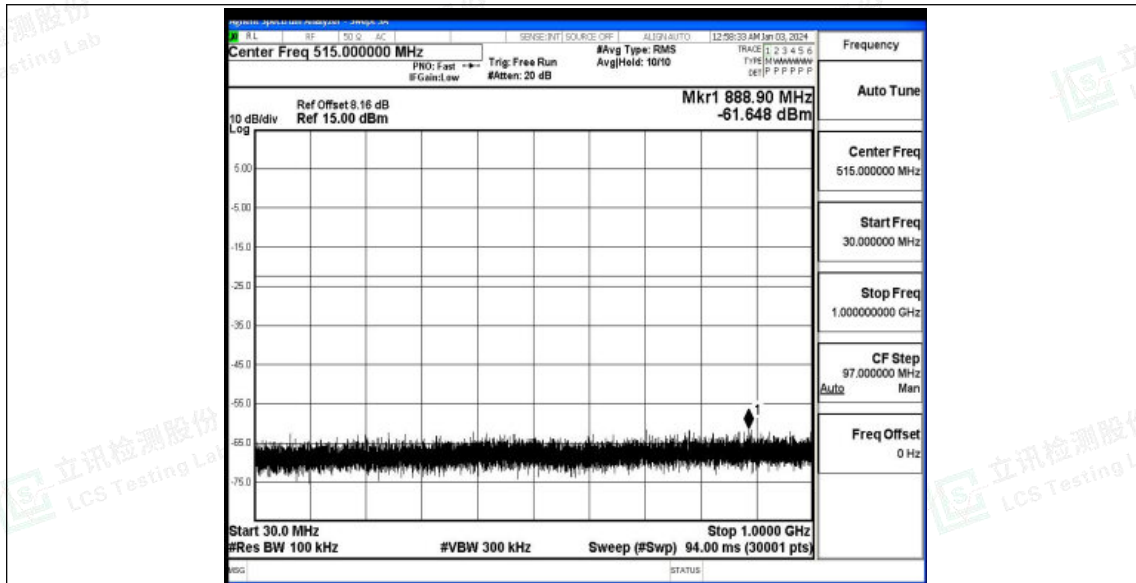


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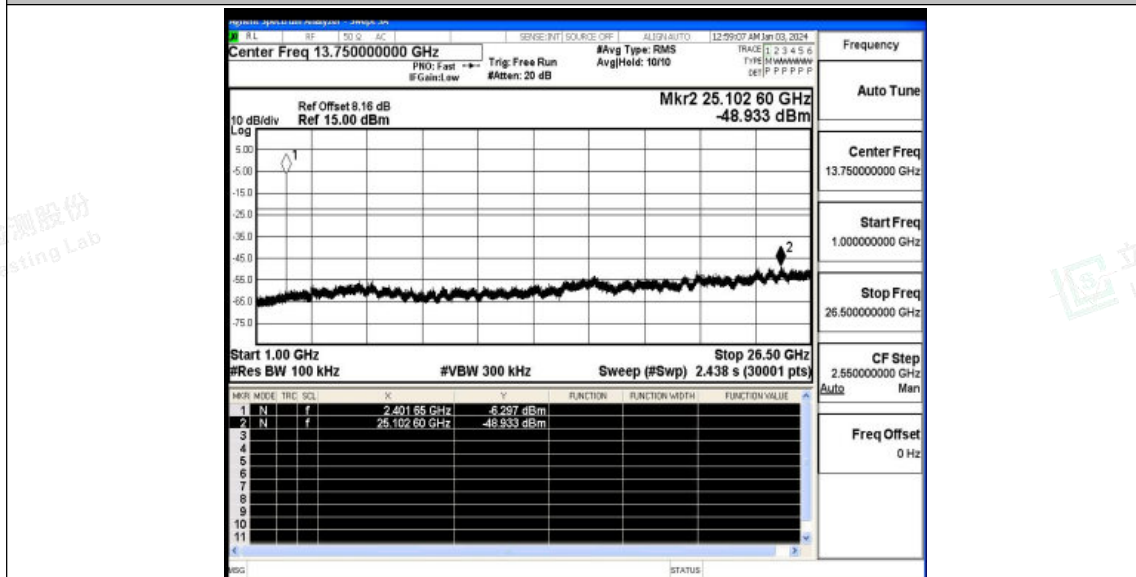
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BLE_2M_Ant1_2402_1000~26500



BLE_2M_Ant1_2440_30~1000

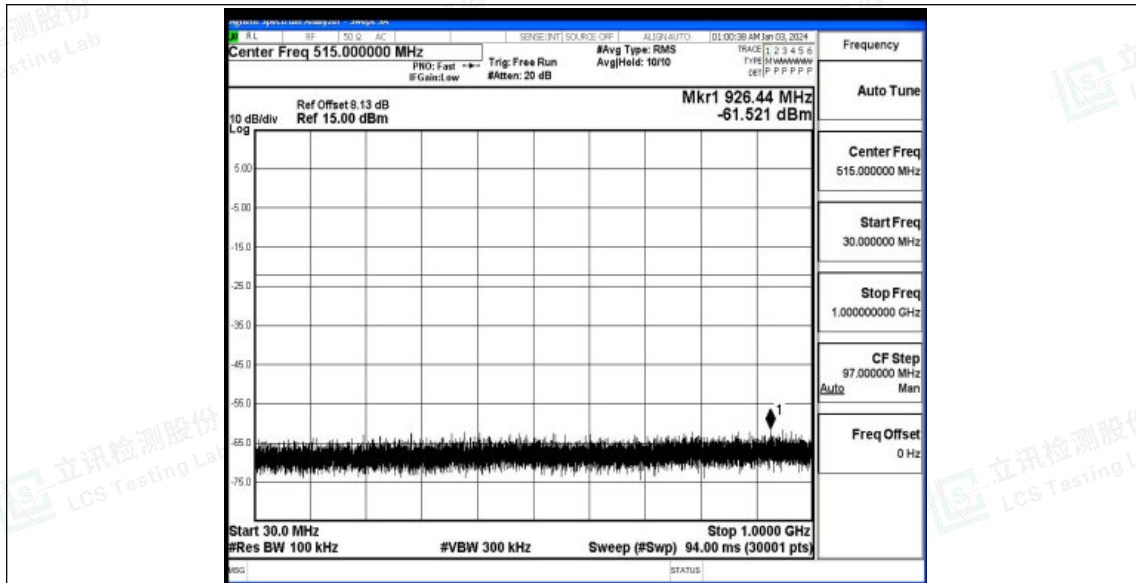


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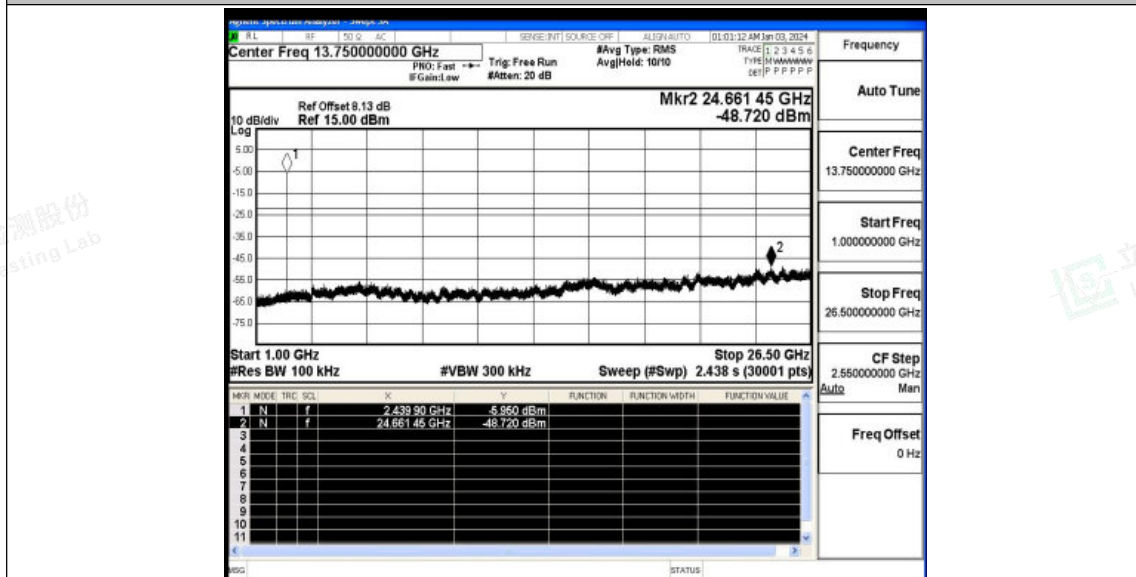
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BLE_2M_Ant1_2440_1000~26500



BLE_2M_Ant1_2480_30~1000

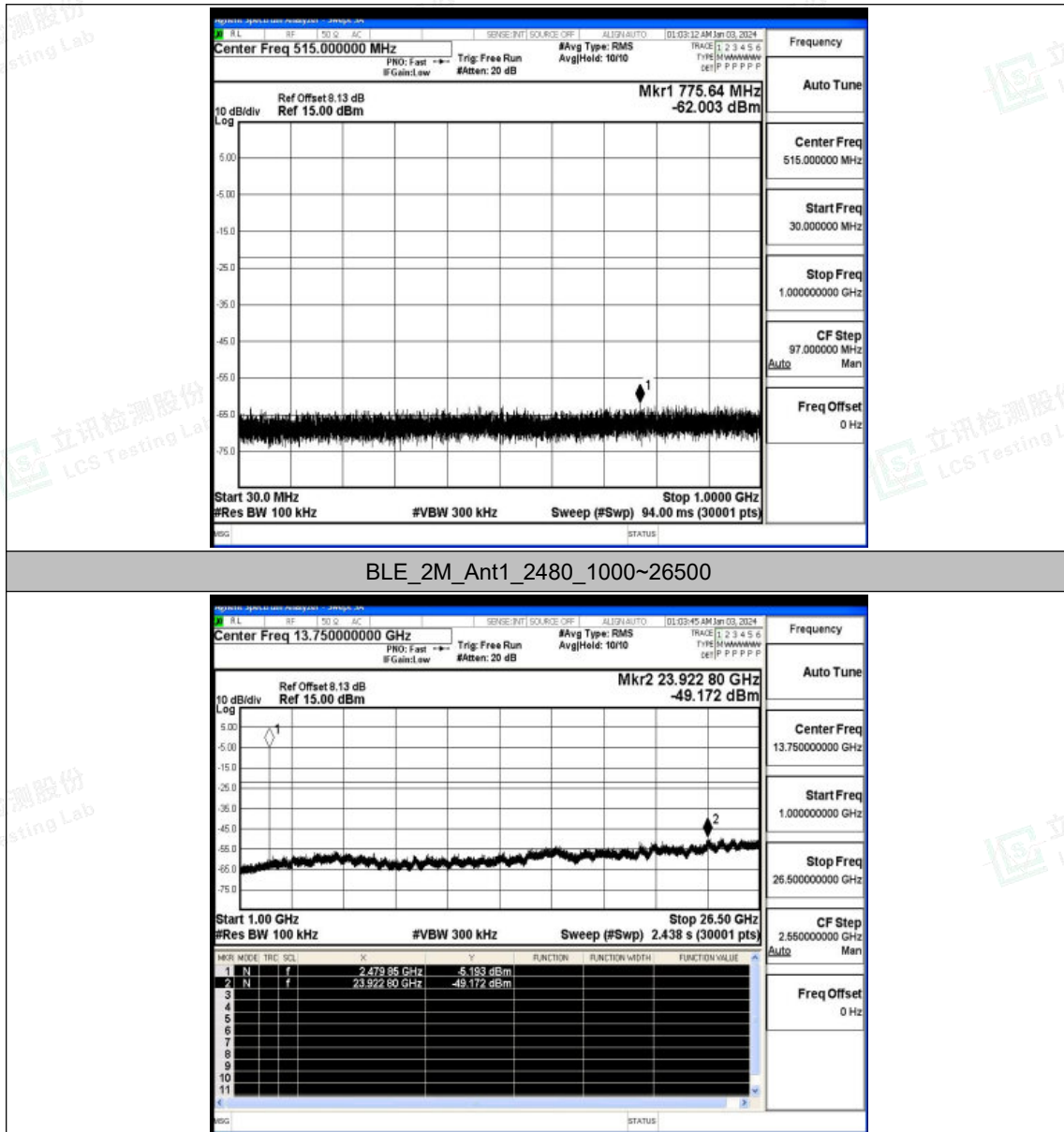


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Reference level measurement

Test Result

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2401.74	-1.71
		2440	2440.23	-2.10
		2480	2479.74	-1.61
BLE_2M	Ant1	2402	2401.98	-2.44
		2440	2439.99	-2.25
		2480	2480.00	-2.30



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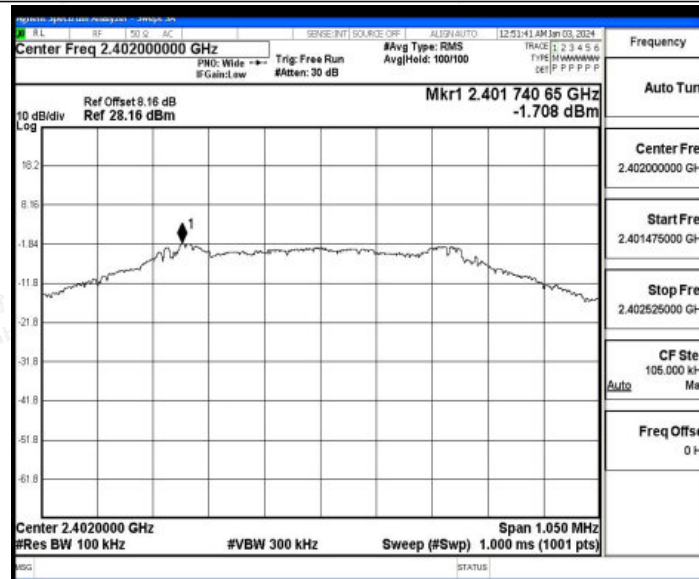
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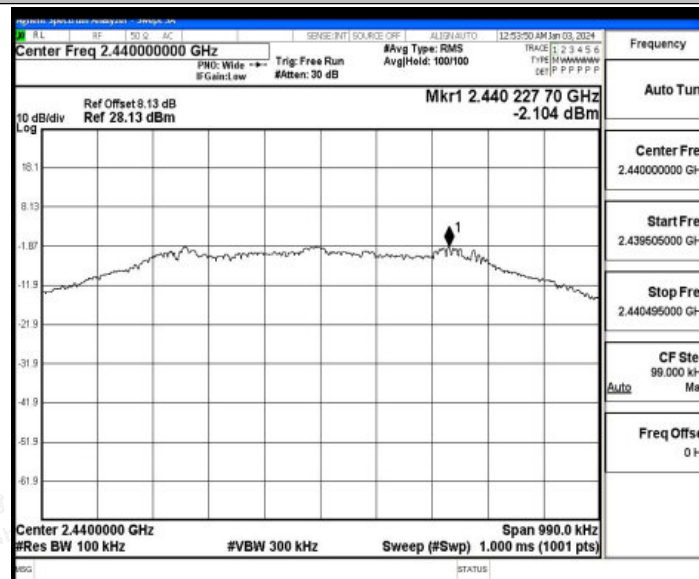


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

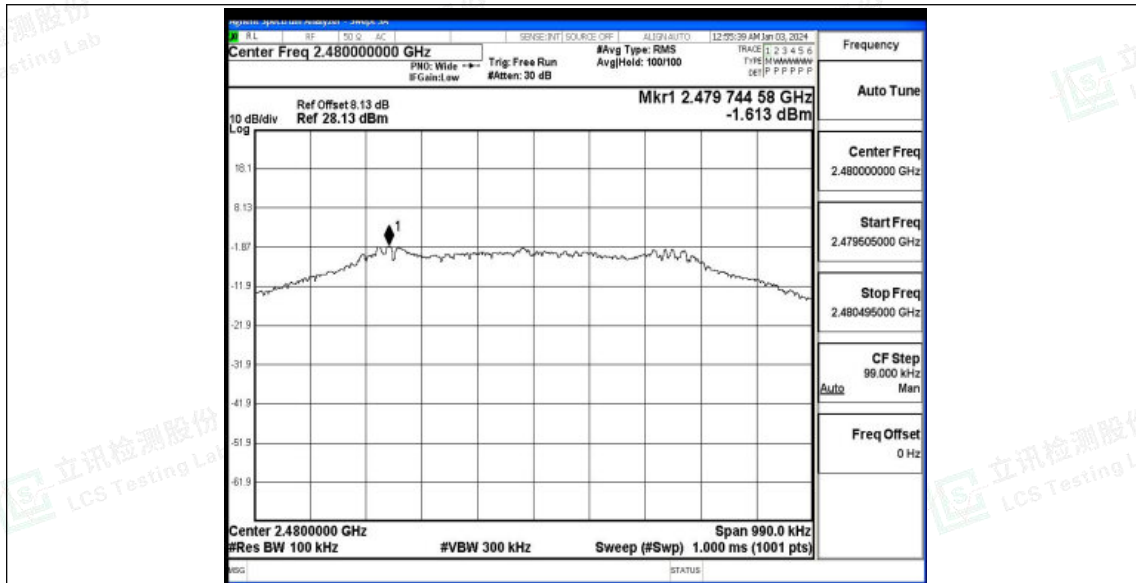


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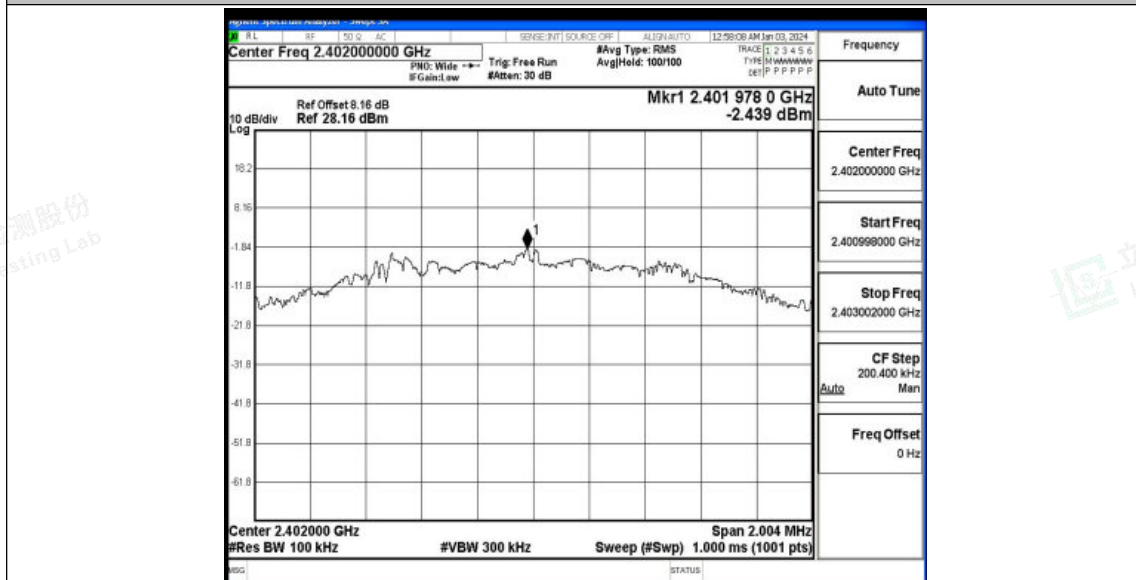
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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

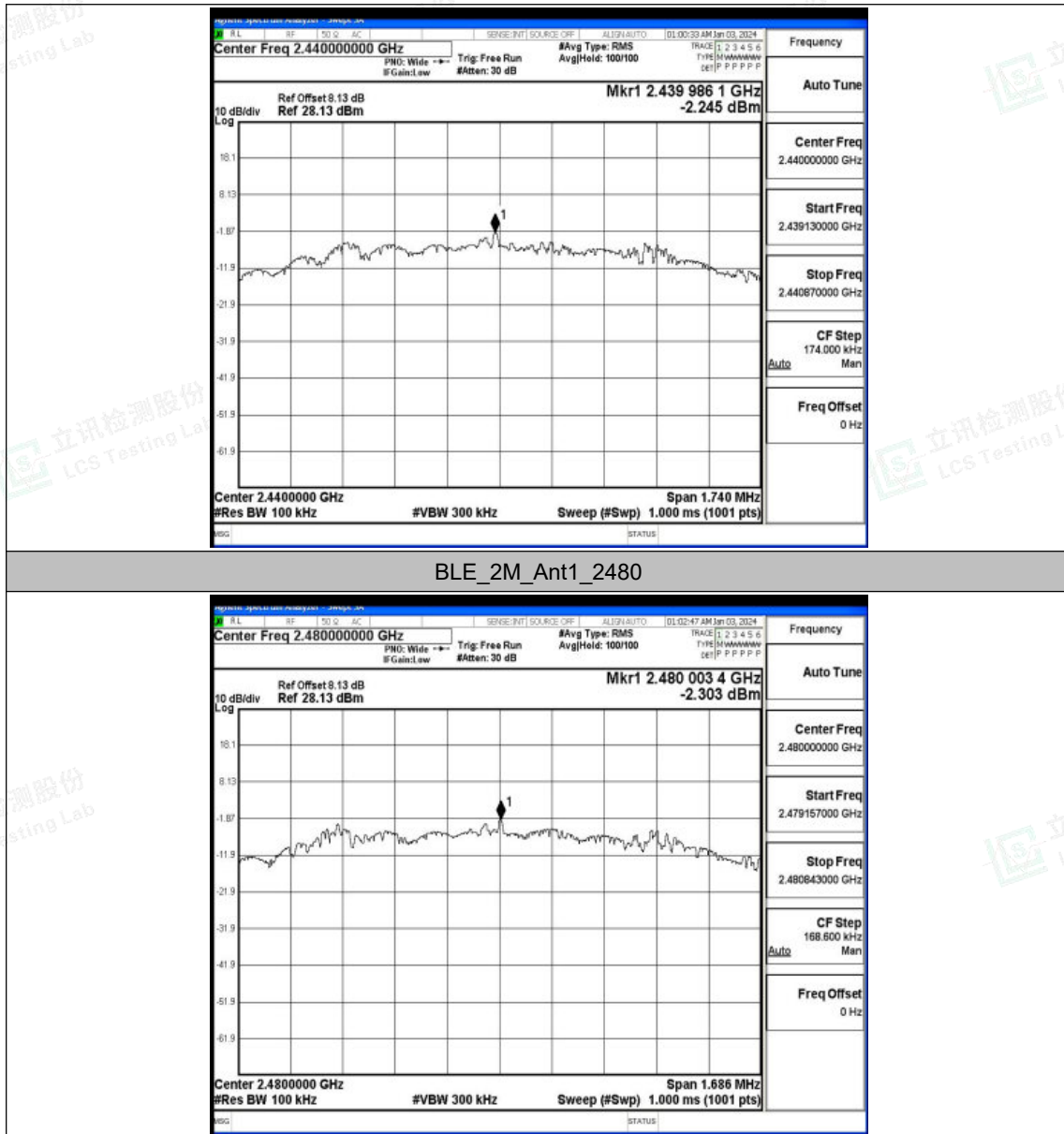


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A.6 Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]	1/T Factor[dB]
BLE_1M	Ant1	2402	1.62	1.88	86.17	0.65	0.62
		2440	1.62	1.88	86.17	0.65	0.62
		2480	1.62	1.88	86.17	0.65	0.62
BLE_2M	Ant1	2402	0.82	1.25	65.60	1.83	1.22
		2440	0.82	1.25	65.60	1.83	1.22
		2480	0.82	1.25	65.60	1.83	1.22



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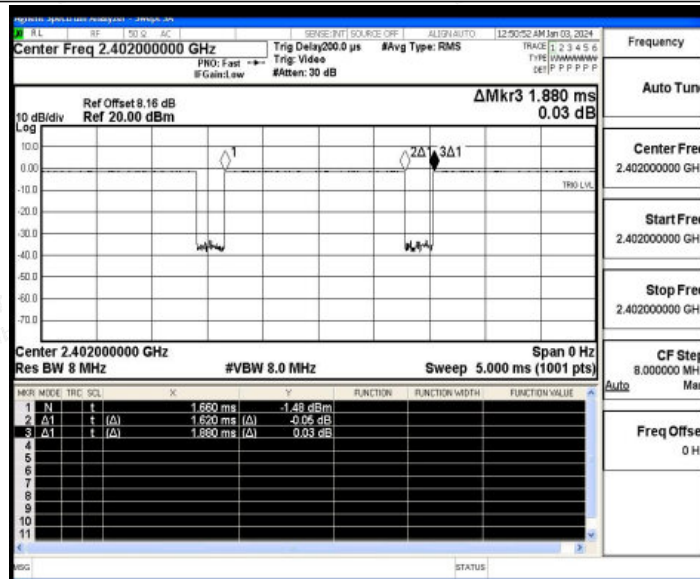
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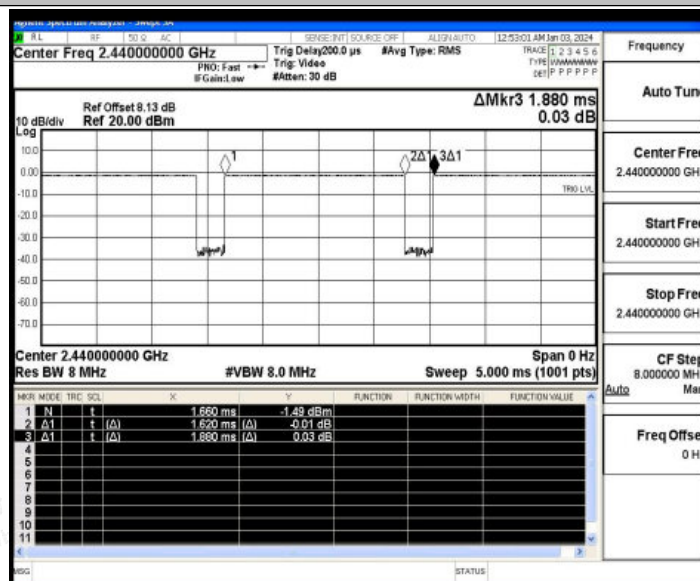


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

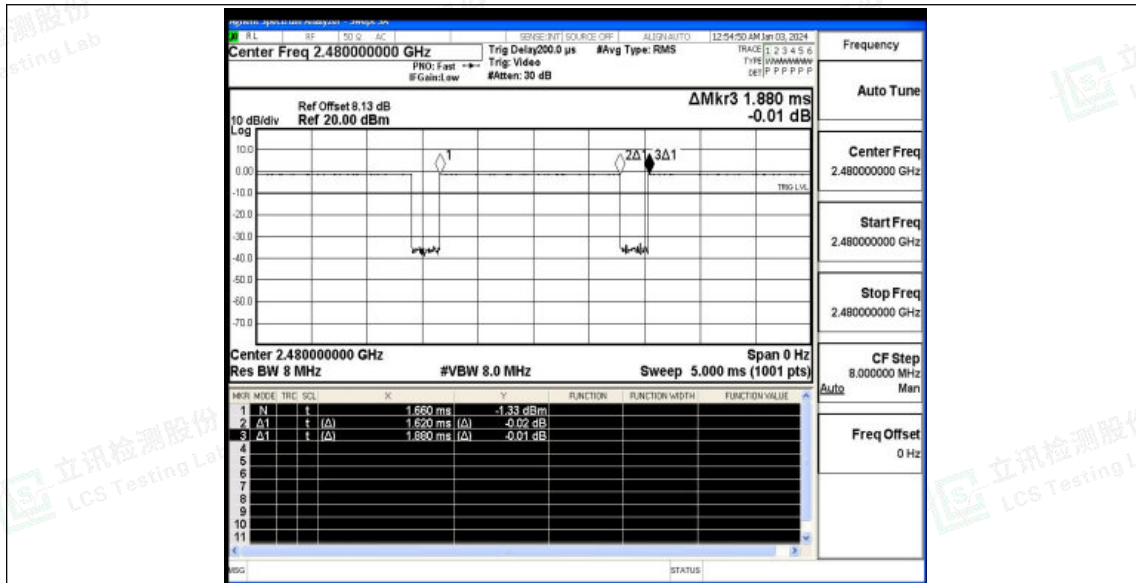


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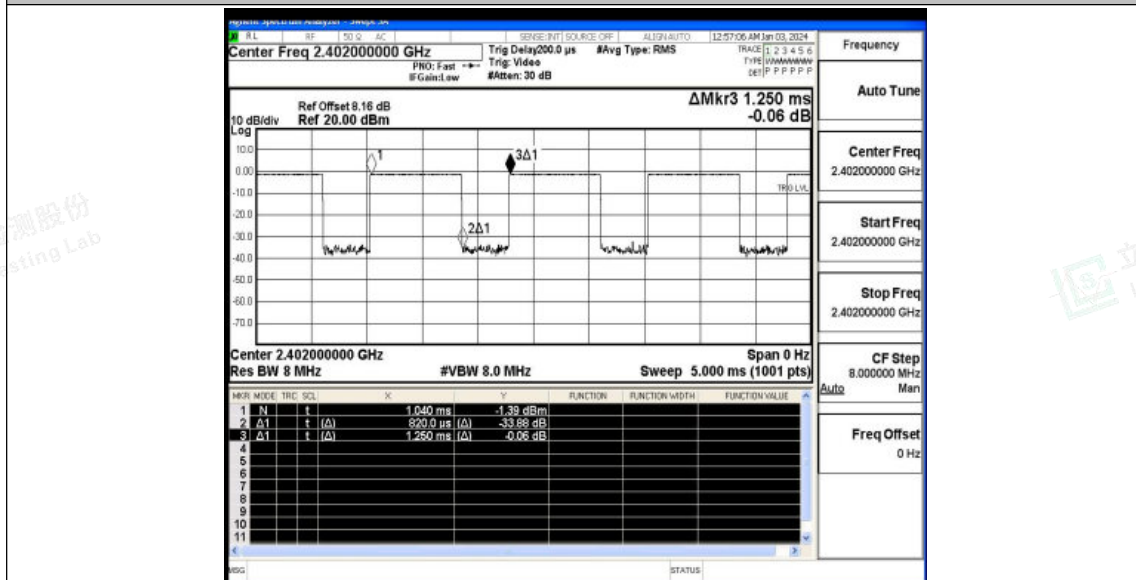
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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

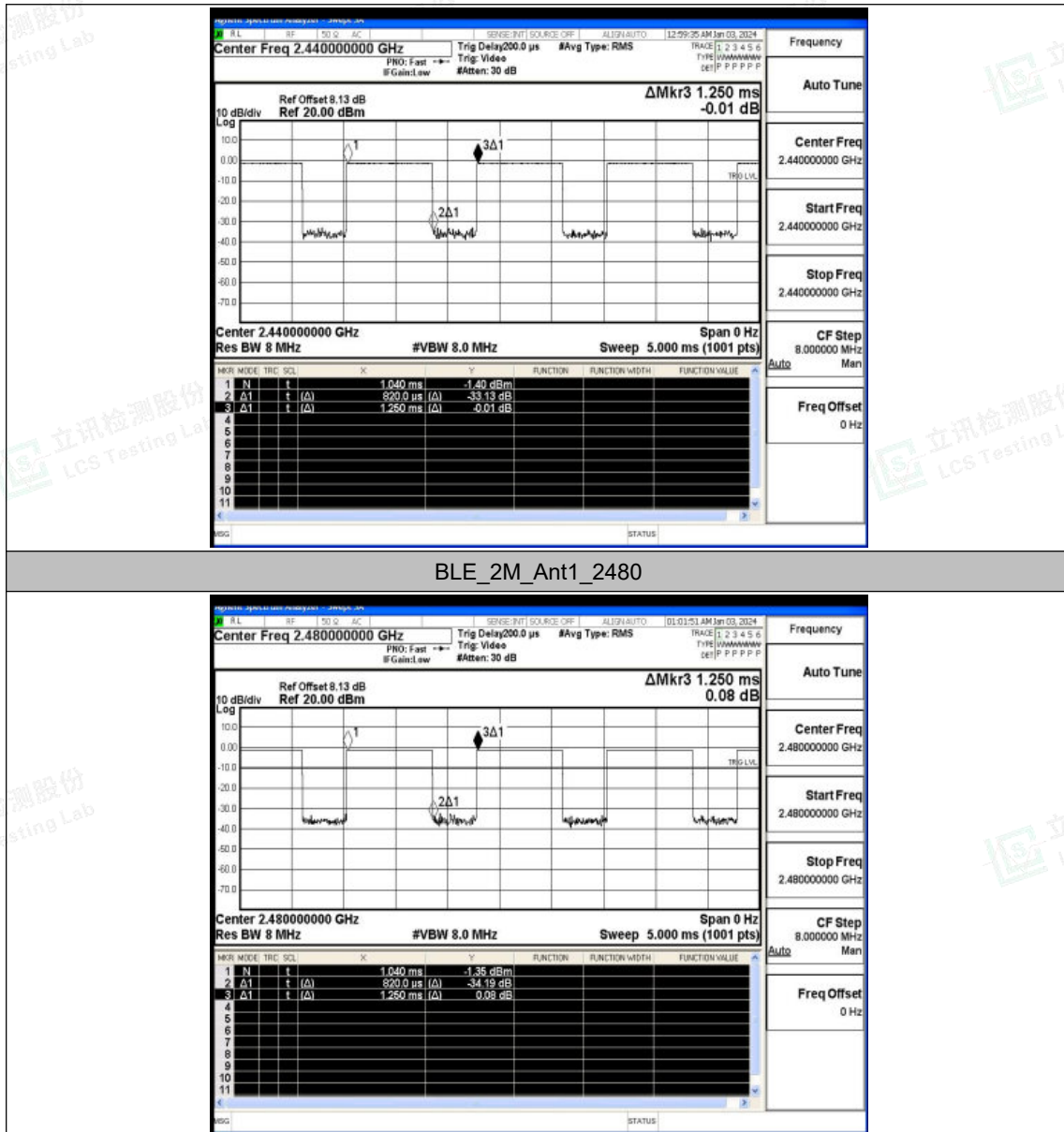


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BLE_2M_Ant1_2480



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A.7 Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequenc y[MHz]	Detector	Freq [MHz]	Result [dBm]	Gain (dBi)	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.31	3.14	49.09	≤54	PASS
				AV	2365.415	-48.26	3.14	50.14	≤54	PASS
				AV	2390.000	-49.59	3.14	48.81	≤54	PASS
				Peak	2310.000	-42.5	3.14	55.9	≤74	PASS
				Peak	2342.210	-38.1	3.14	60.3	≤74	PASS
				Peak	2390.000	-40.57	3.14	57.83	≤74	PASS
		High	2480	AV	2483.500	-48.91	3.14	49.49	≤54	PASS
				AV	2493.040	-48.11	3.14	50.29	≤54	PASS
				AV	2500.000	-48.38	3.14	50.02	≤54	PASS
				Peak	2483.500	-42.31	3.14	56.09	≤74	PASS
				Peak	2496.000	-38.09	3.14	60.31	≤74	PASS
				Peak	2500.000	-40.7	3.14	57.7	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-47.87	3.14	50.53	≤54	PASS
				AV	2374.760	-47.1	3.14	51.3	≤54	PASS
				AV	2390.000	-47.45	3.14	50.95	≤54	PASS
				Peak	2310.000	-40.32	3.14	58.08	≤74	PASS
				Peak	2345.045	-38.43	3.14	59.97	≤74	PASS
				Peak	2390.000	-42.05	3.14	56.35	≤74	PASS
		High	2480	AV	2483.500	-46.96	3.14	51.44	≤54	PASS
				AV	2491.440	-46.86	3.14	51.54	≤54	PASS
				AV	2500.000	-47.64	3.14	50.76	≤54	PASS
				Peak	2483.500	-41.15	3.14	57.25	≤74	PASS
				Peak	2488.240	-38.18	3.14	60.22	≤74	PASS
				Peak	2500.000	-40.46	3.14	57.94	≤74	PASS



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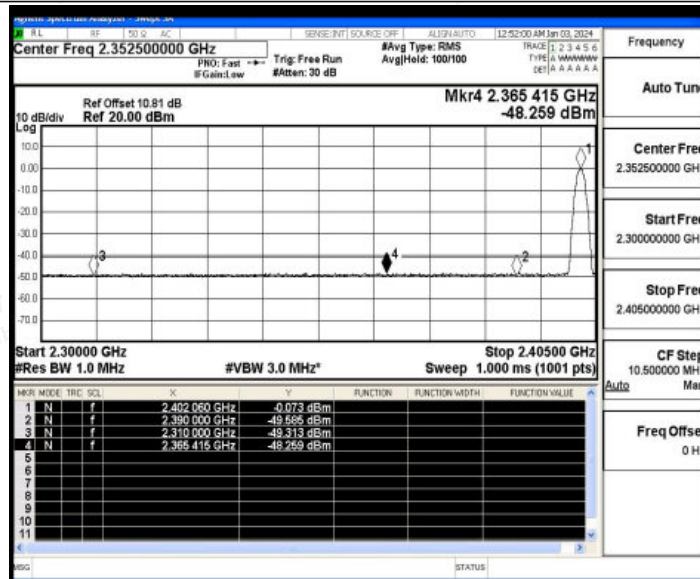
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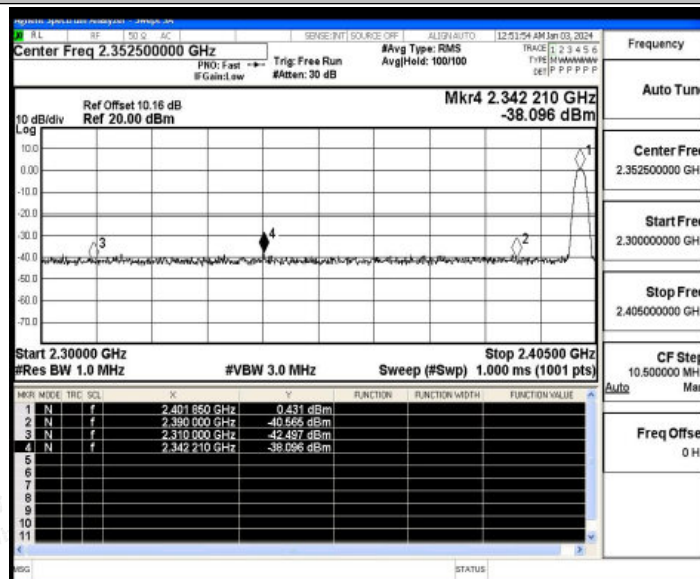


Test Graphs

BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV

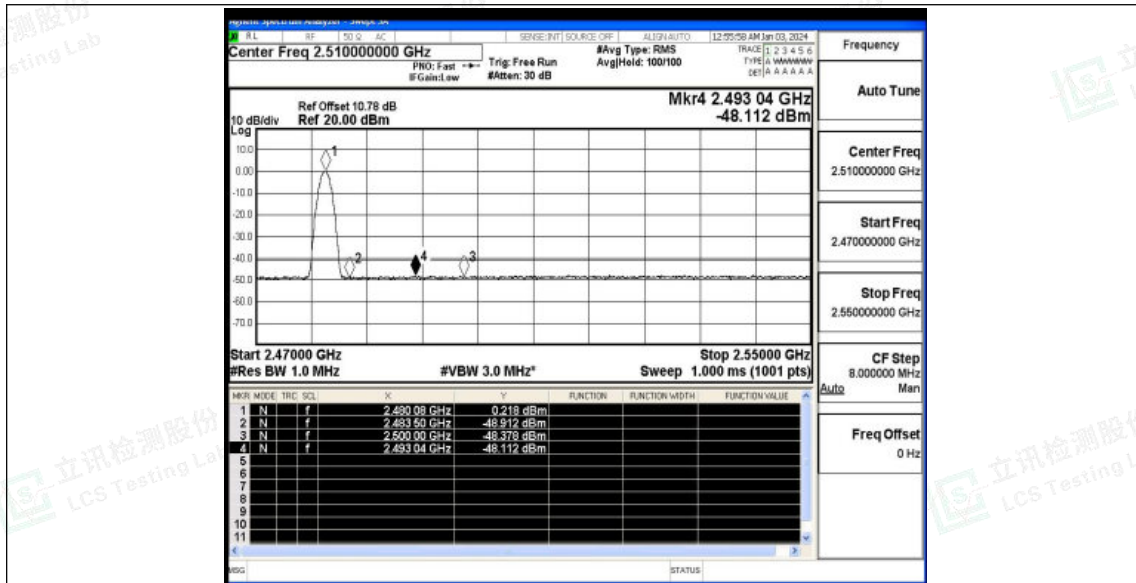


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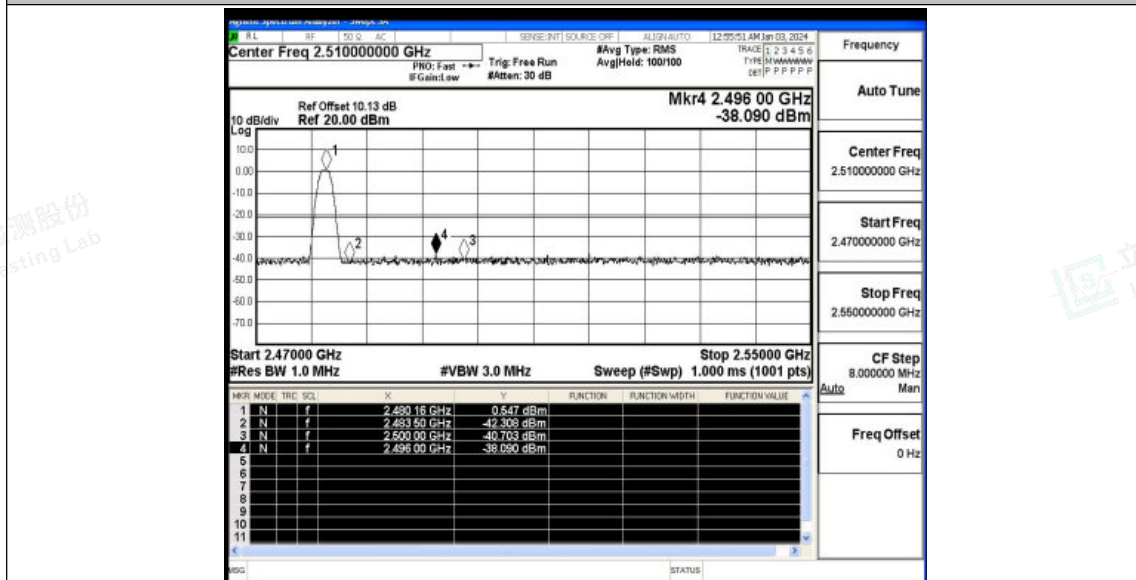
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BLE_1M_Ant1_High_2480_Peak



BLE_2M_Ant1_Low_2402_AV

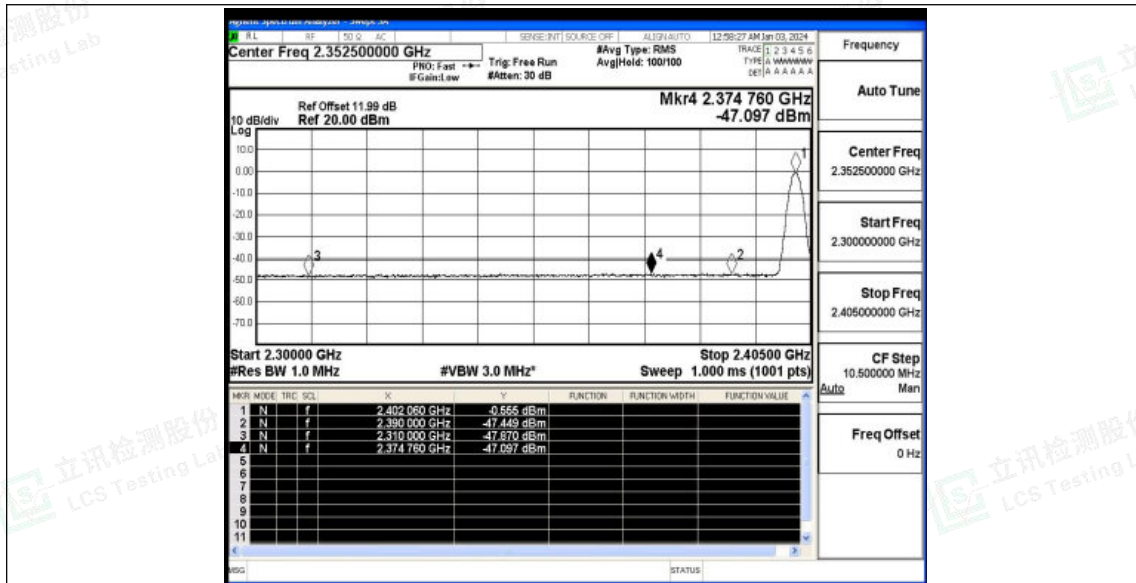


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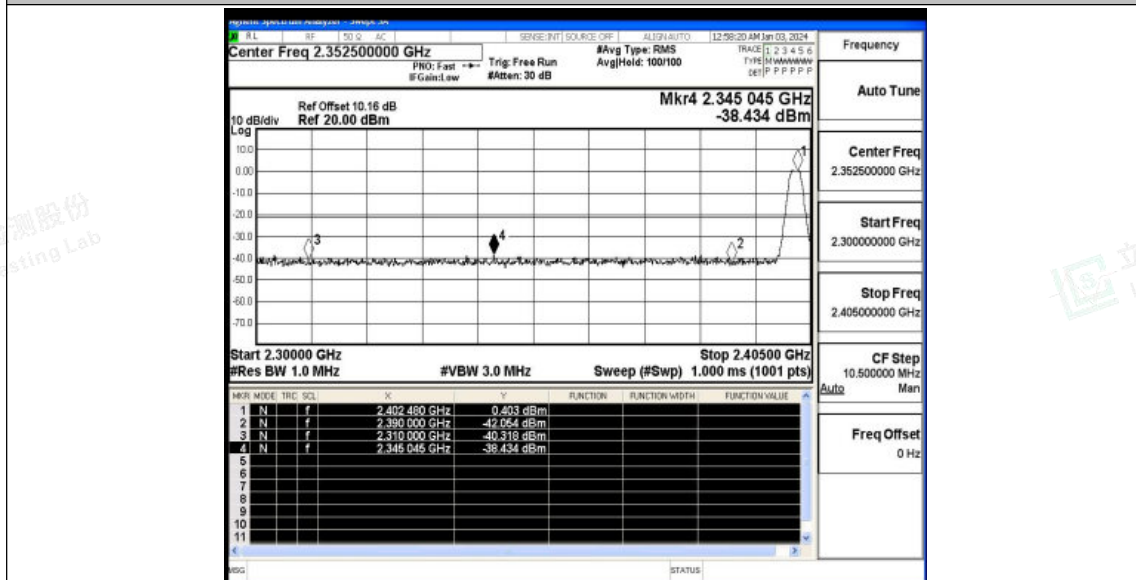
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BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV

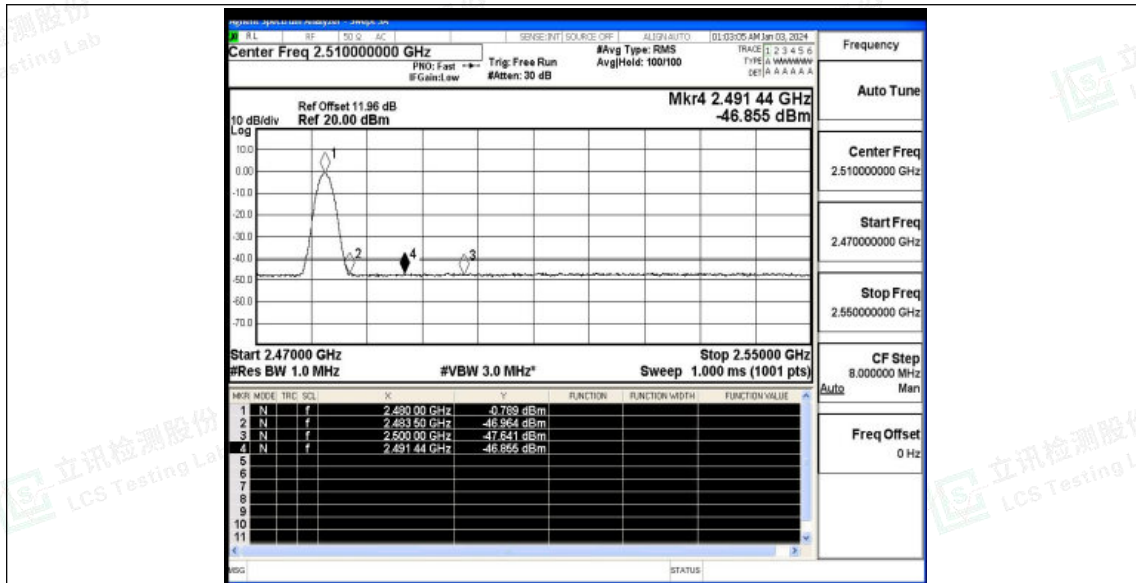


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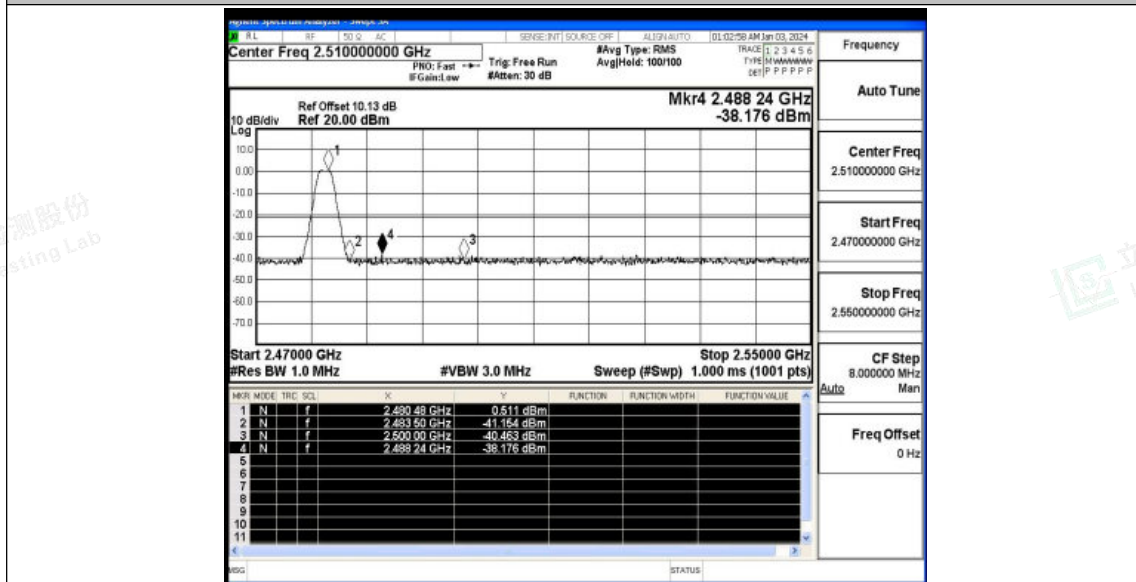
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BLE_2M_Ant1_High_2480_Peak



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