



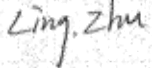
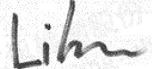
Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Motion Sensor

Test Model: SBM04U

Environmental Conditions

Temperature:	23.2℃
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	 Ling Zhu
Supervised by:	 Li Huan





A.1 DTS Bandwidth

Test Result

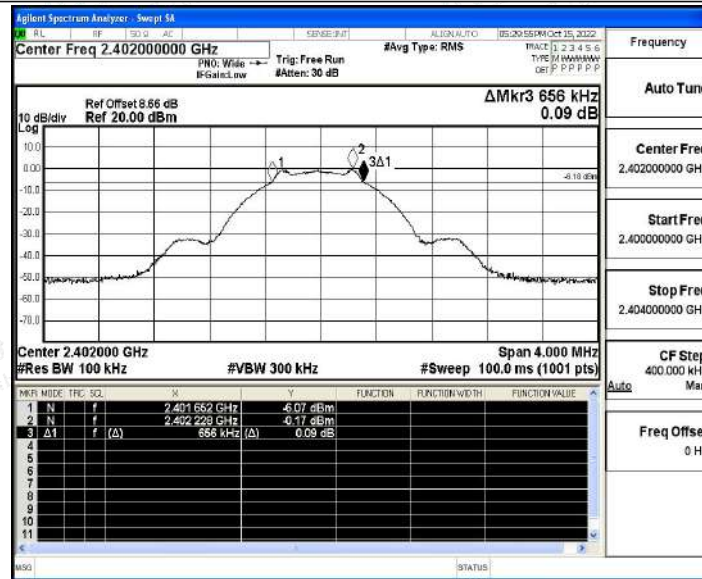
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.656	2401.652	2402.308	0.5	PASS
		2440	0.664	2439.648	2440.312	0.5	PASS
		2480	0.668	2479.648	2480.316	0.5	PASS
BLE_2M	Ant1	2402	1.360	2401.304	2402.664	0.5	PASS
		2440	1.320	2439.324	2440.644	0.5	PASS
		2480	1.416	2479.272	2480.688	0.5	PASS



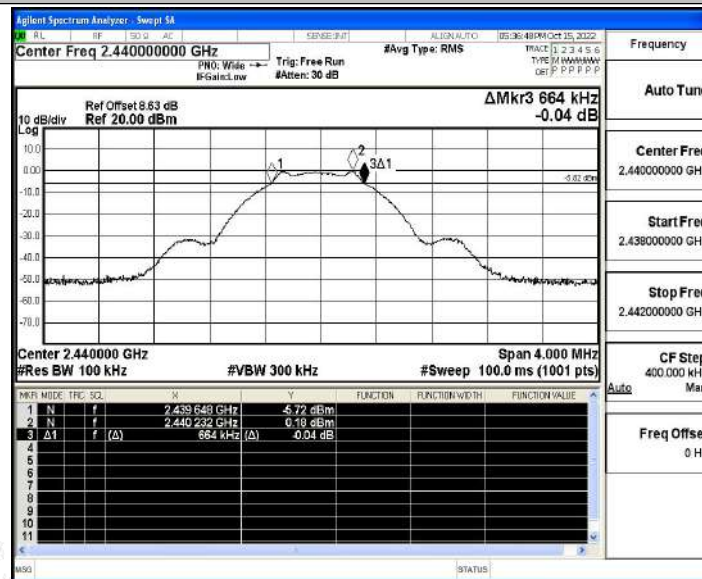


Test Graphs

BLE_1M_Ant1_2402



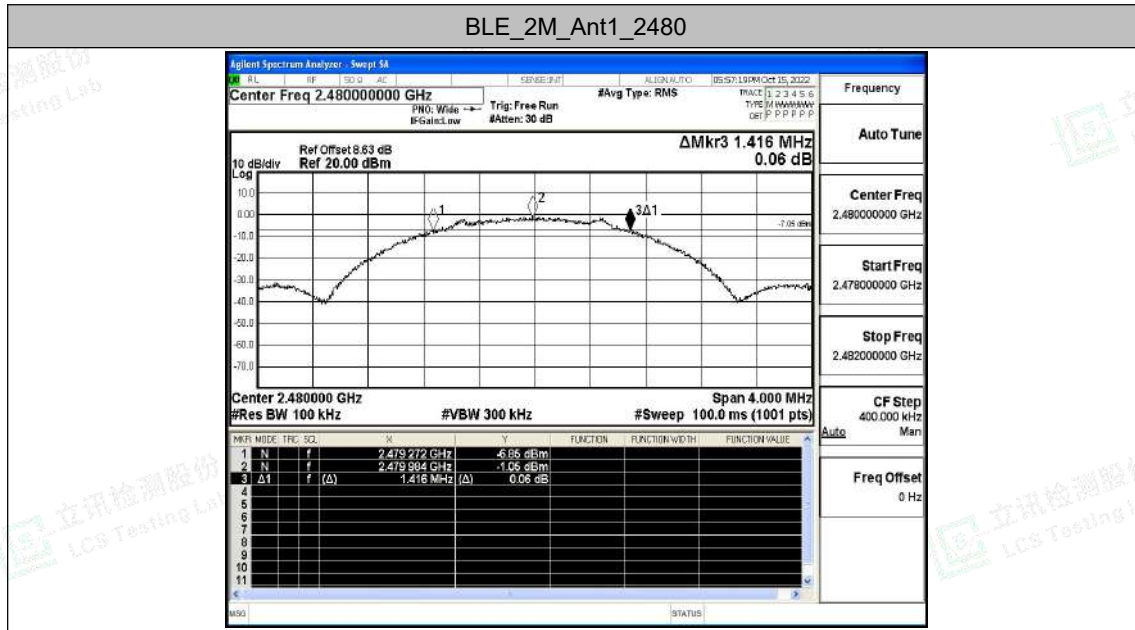
BLE_1M_Ant1_2440



BLE_1M_Ant1_2480









A.2 Maximum conducted output power

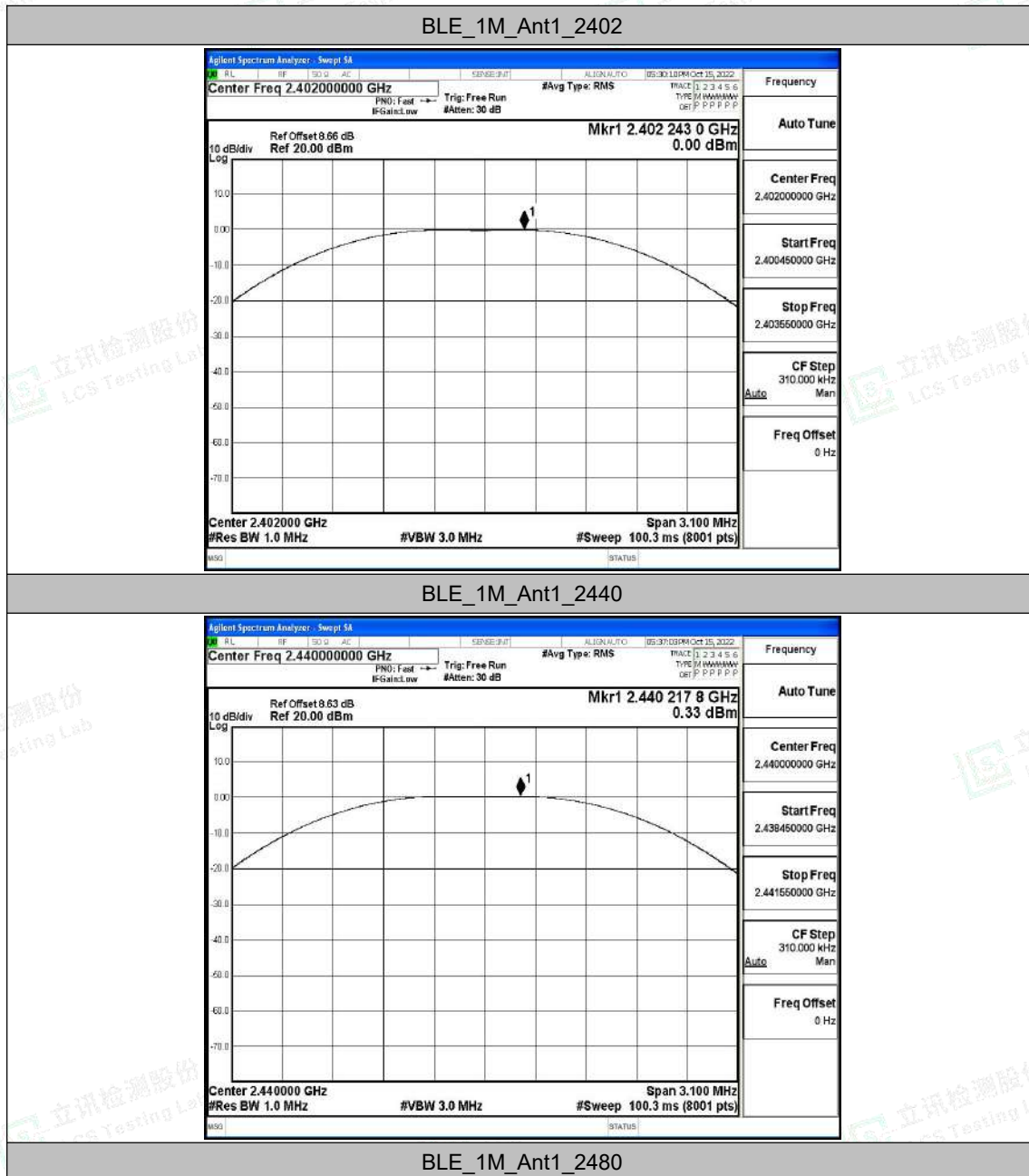
Test Result

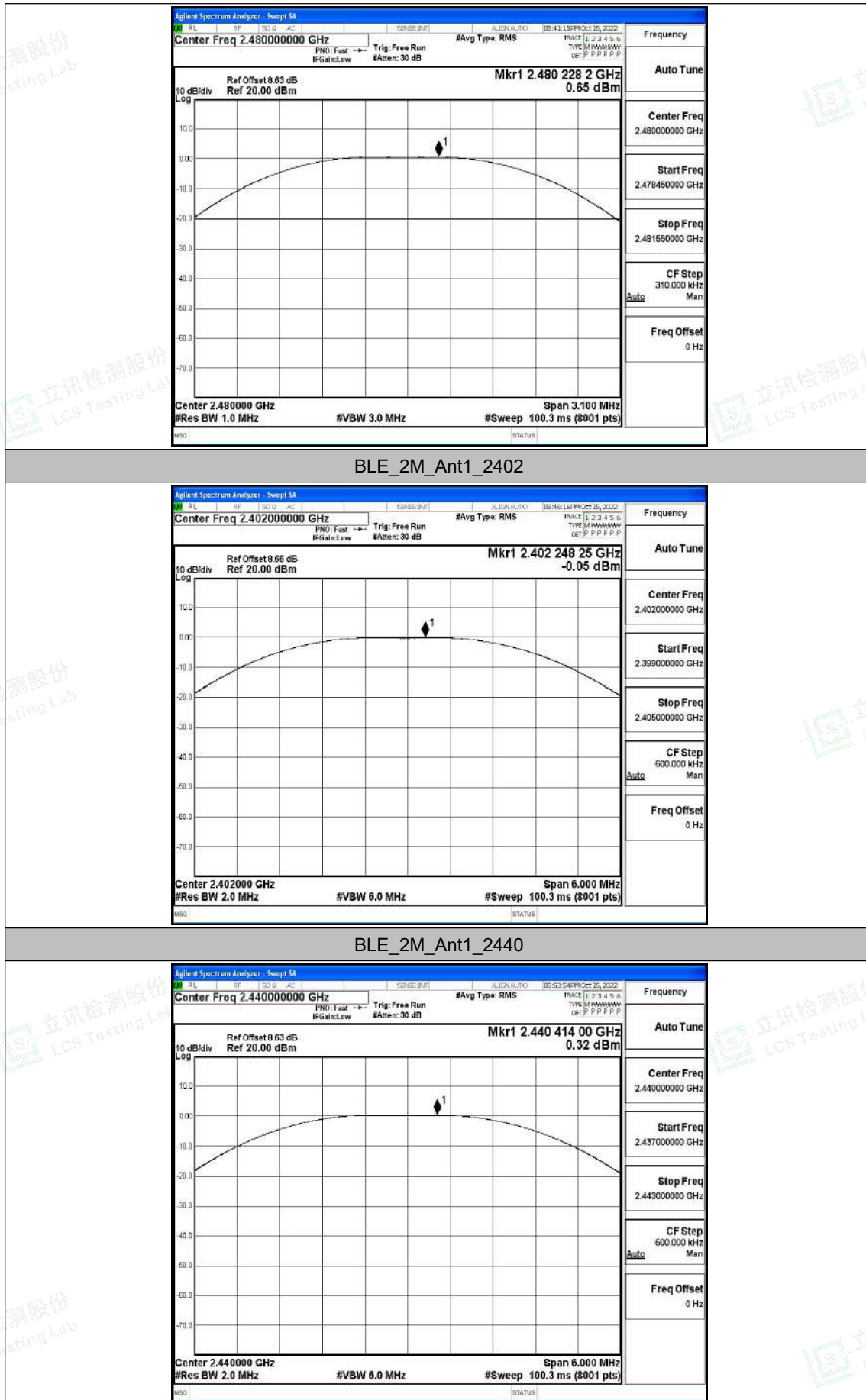
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0	≤30	PASS
		2440	0.33	≤30	PASS
		2480	0.65	≤30	PASS
BLE_2M	Ant1	2402	-0.05	≤30	PASS
		2440	0.32	≤30	PASS
		2480	0.65	≤30	PASS

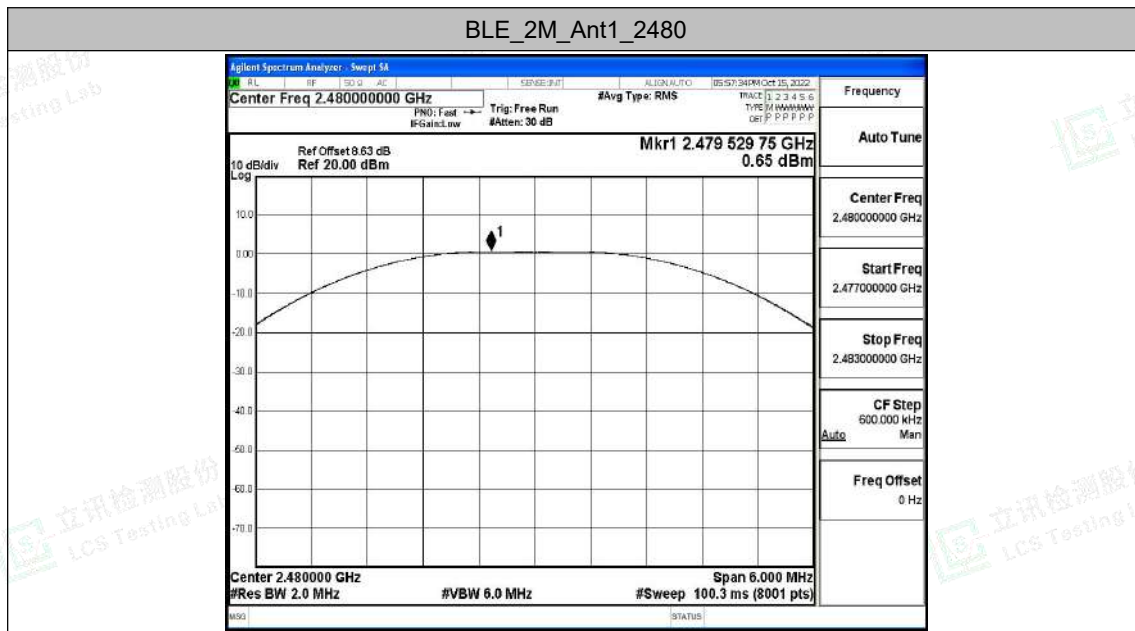




Test Graphs







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A.3 Maximum power spectral density

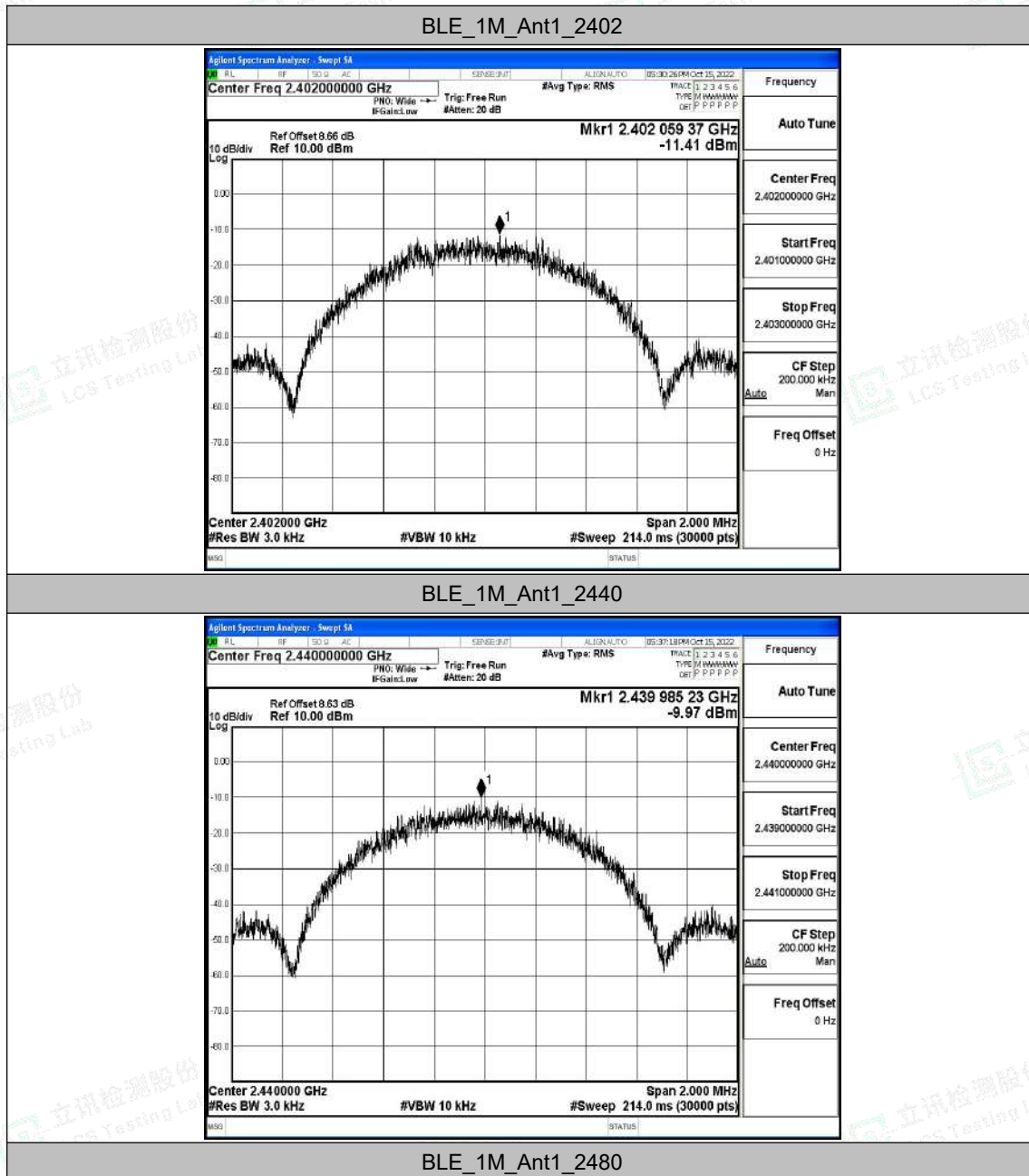
Test Result

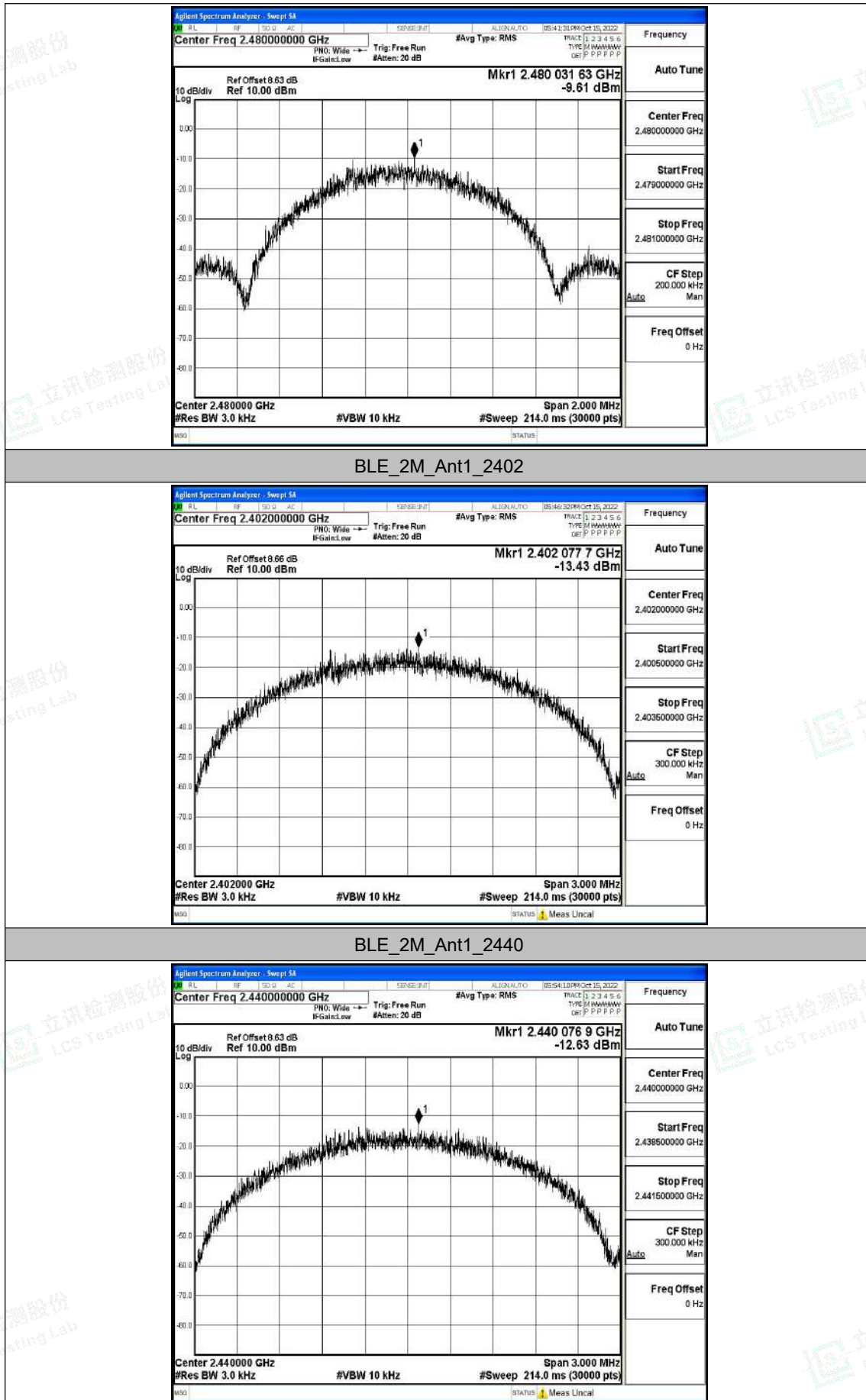
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-11.41	≤8.00	PASS
		2440	-9.97	≤8.00	PASS
		2480	-9.61	≤8.00	PASS
BLE_2M	Ant1	2402	-13.43	≤8.00	PASS
		2440	-12.63	≤8.00	PASS
		2480	-11.81	≤8.00	PASS

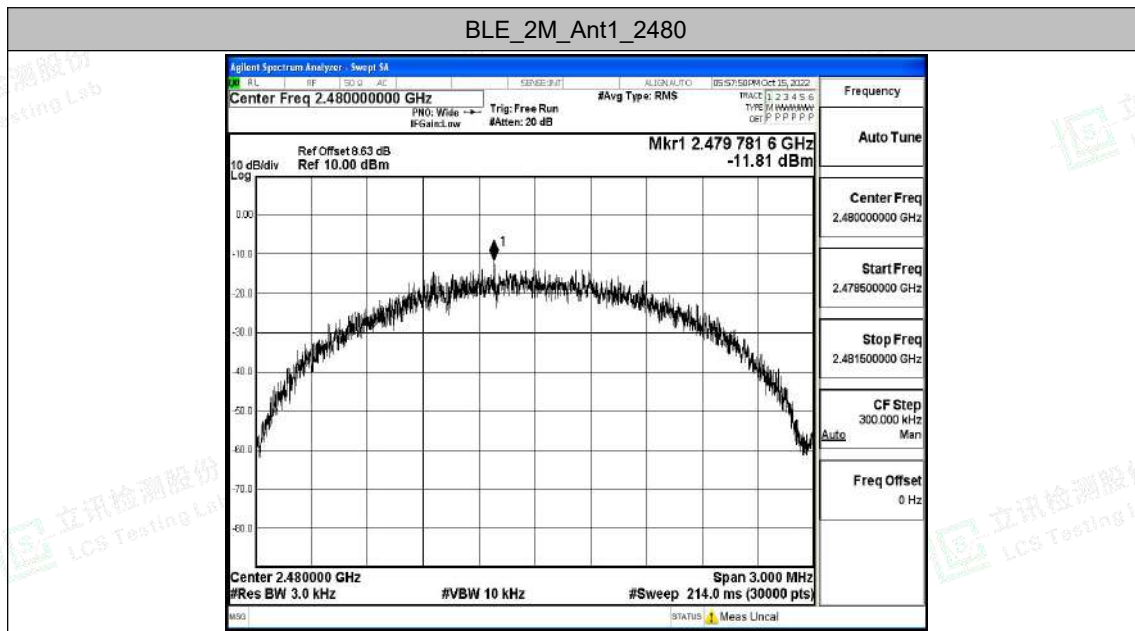




Test Graphs









A.4 Band edge measurements

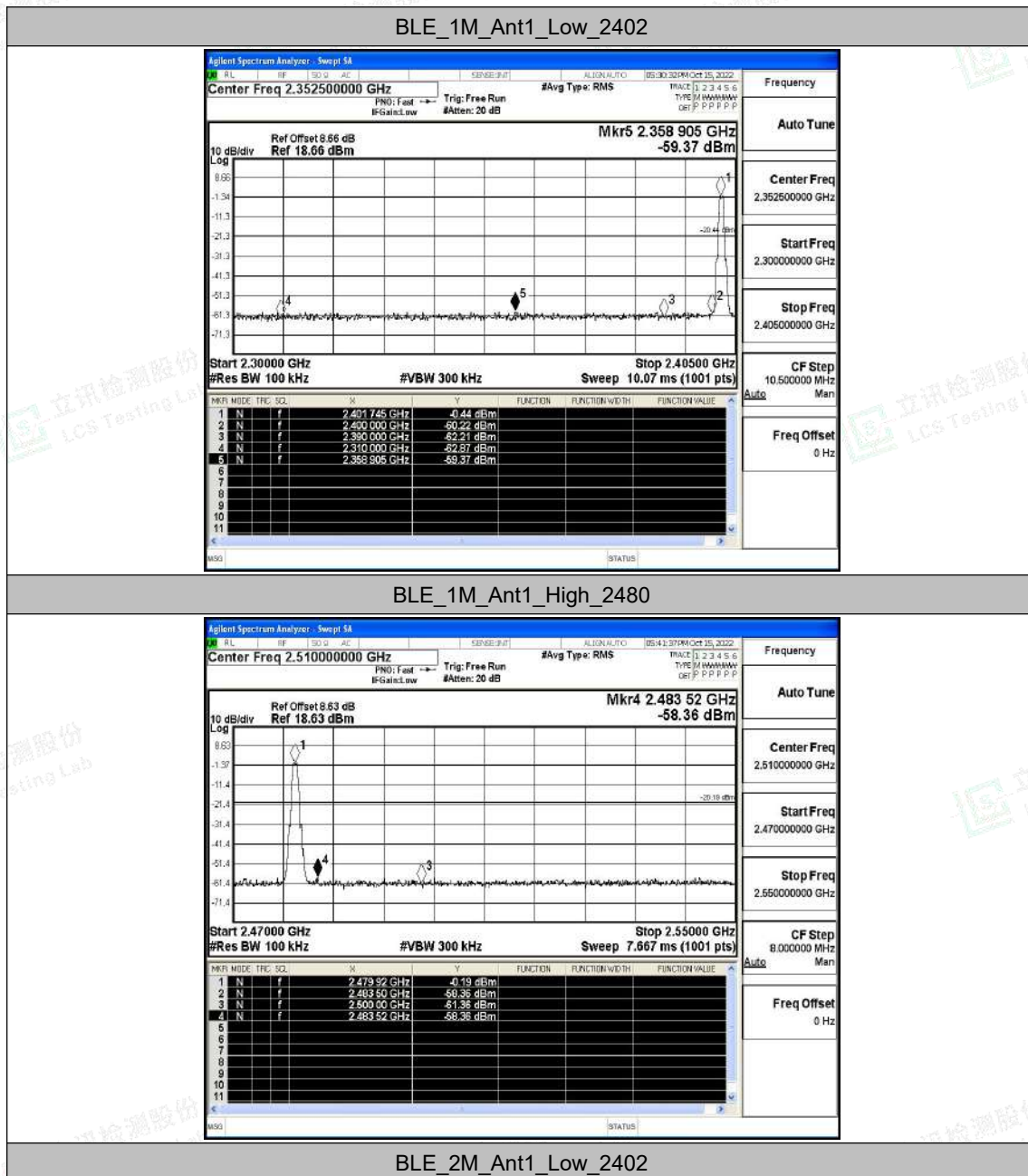
Test Result

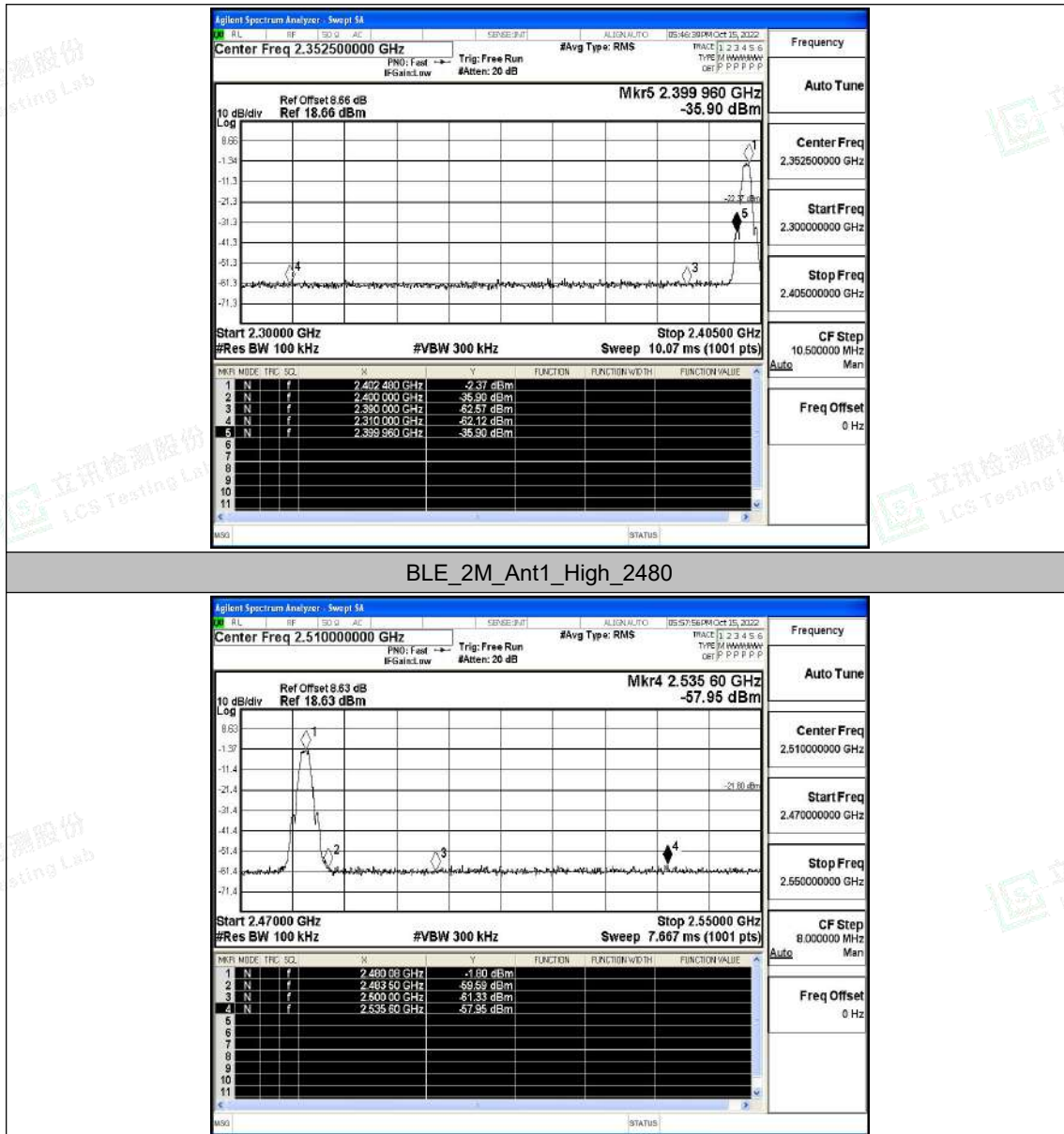
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.44	-59.37	≤ -20.44	PASS
		High	2480	-0.19	-58.36	≤ -20.19	PASS
BLE_2M	Ant1	Low	2402	-2.37	-35.9	≤ -22.37	PASS
		High	2480	-1.80	-57.95	≤ -21.8	PASS





Test Graphs







A.5 Conducted Spurious Emission

Test Result

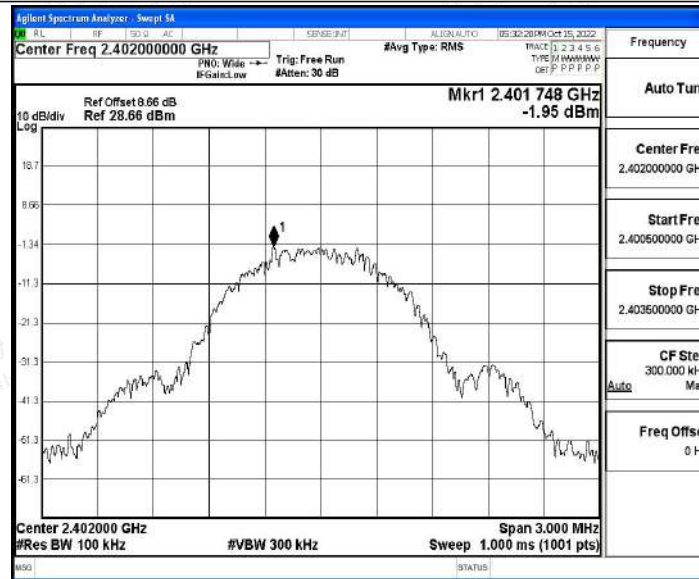
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.95	-1.95	---	PASS
			30~1000	-1.95	-60.76	≤-21.95	PASS
			1000~26500	-1.95	-42.13	≤-21.95	PASS
		2440	Reference	-0.86	-0.86	---	PASS
			30~1000	-0.86	-60.47	≤-20.86	PASS
			1000~26500	-0.86	-40.58	≤-20.86	PASS
		2480	Reference	-1.02	-1.02	---	PASS
			30~1000	-1.02	-60.17	≤-21.02	PASS
			1000~26500	-1.02	-33.36	≤-21.02	PASS
BLE_2M	Ant1	2402	Reference	-2.70	-2.70	---	PASS
			30~1000	-2.70	-60.34	≤-22.7	PASS
			1000~26500	-2.70	-38.27	≤-22.7	PASS
		2440	Reference	-2.62	-2.62	---	PASS
			30~1000	-2.62	-60.83	≤-22.62	PASS
			1000~26500	-2.62	-39.97	≤-22.62	PASS
		2480	Reference	-2.29	-2.29	---	PASS
			30~1000	-2.29	-60.39	≤-22.29	PASS
			1000~26500	-2.29	-45.68	≤-22.29	PASS



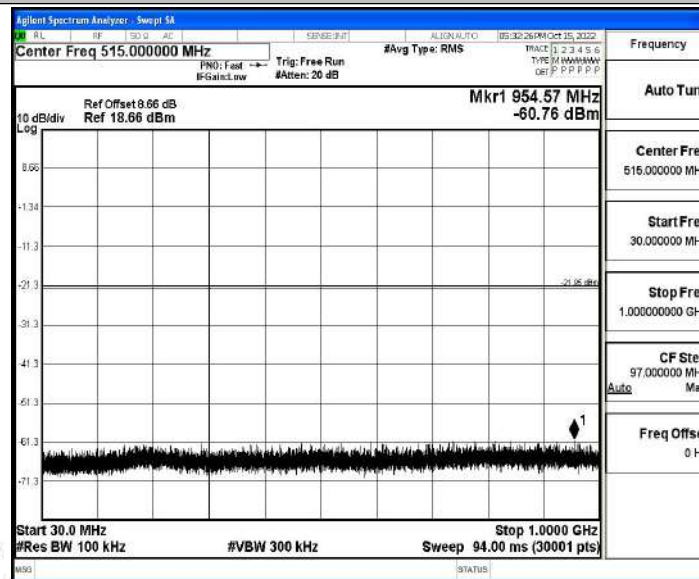


Test Graphs

BLE_1M_Ant1_2402_0~Reference

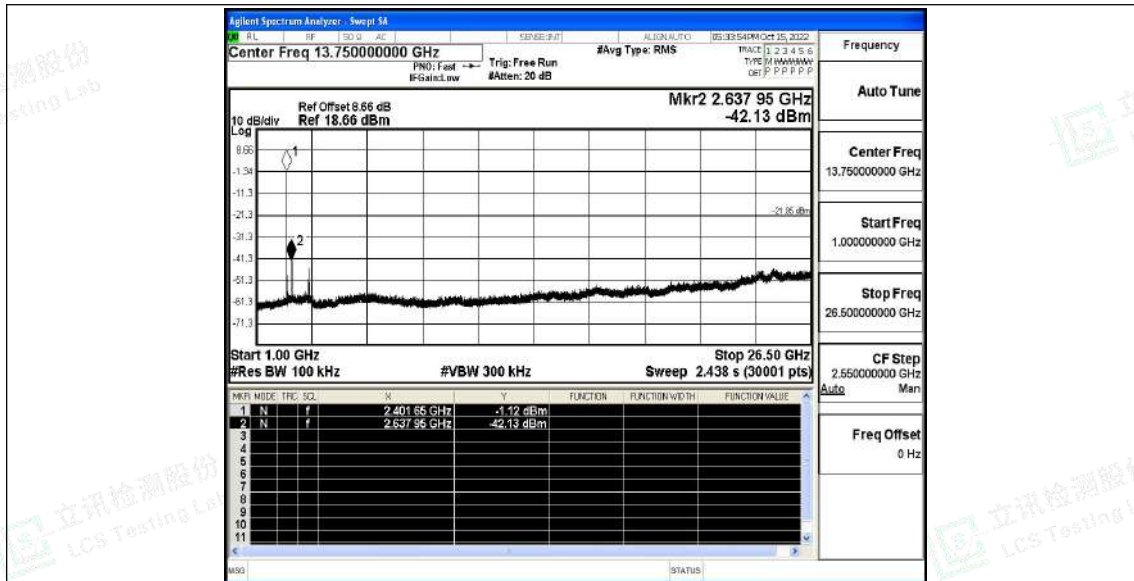


BLE_1M_Ant1_2402_30~1000

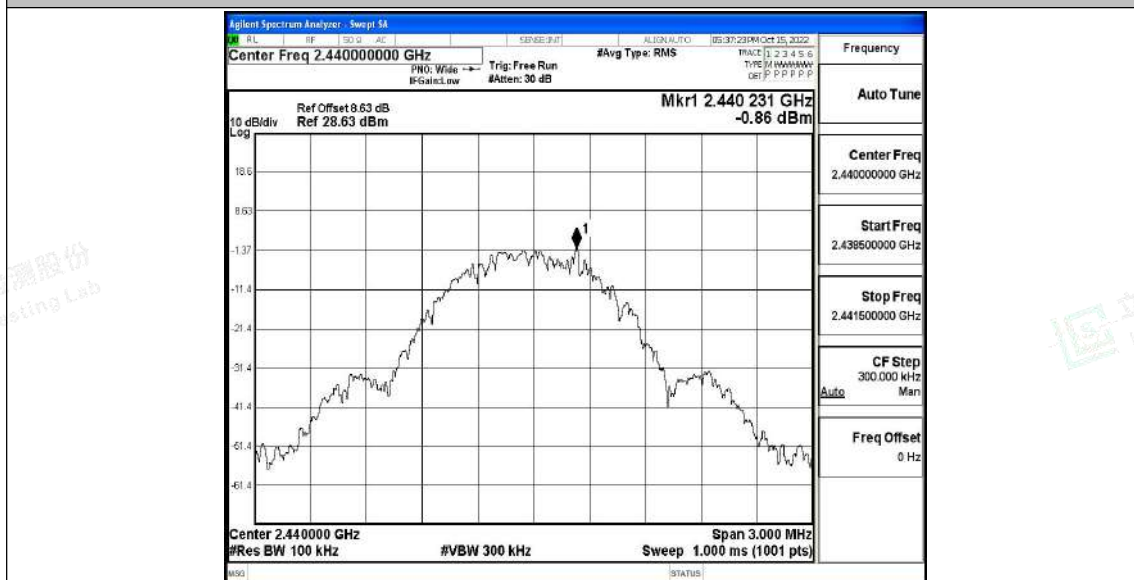


BLE_1M_Ant1_2402_1000~26500

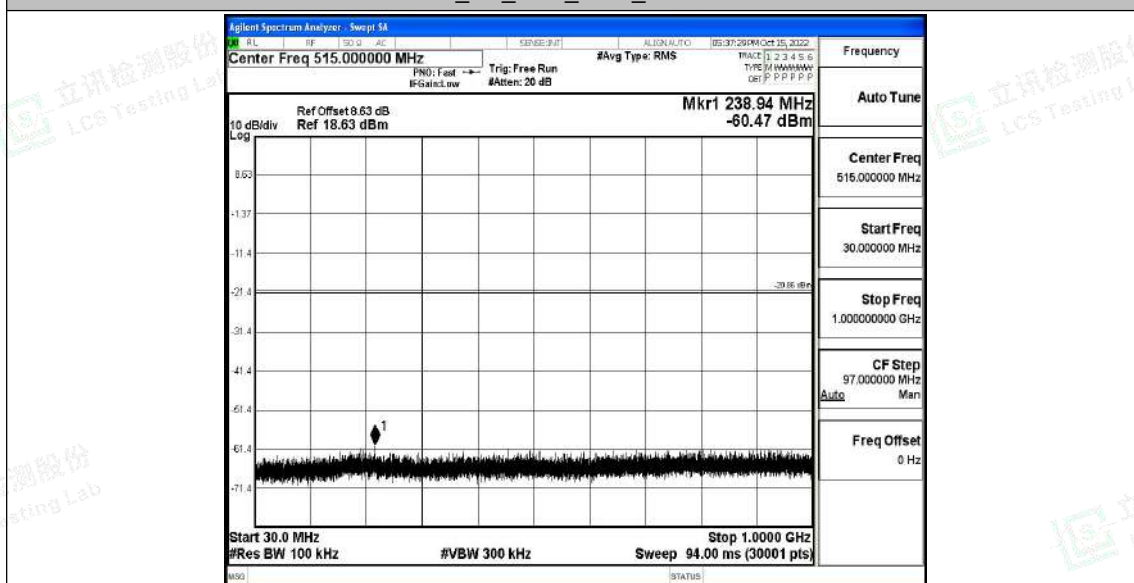




BLE_1M_Ant1_2440_0~Reference

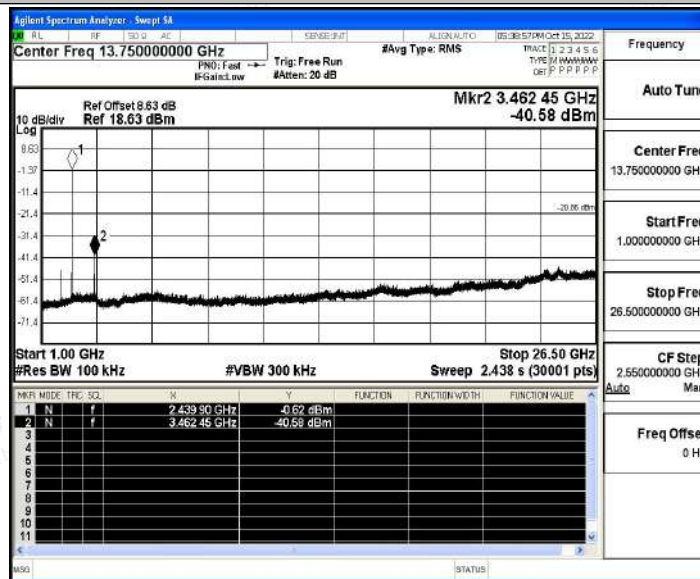


BLE_1M_Ant1_2440_30~1000

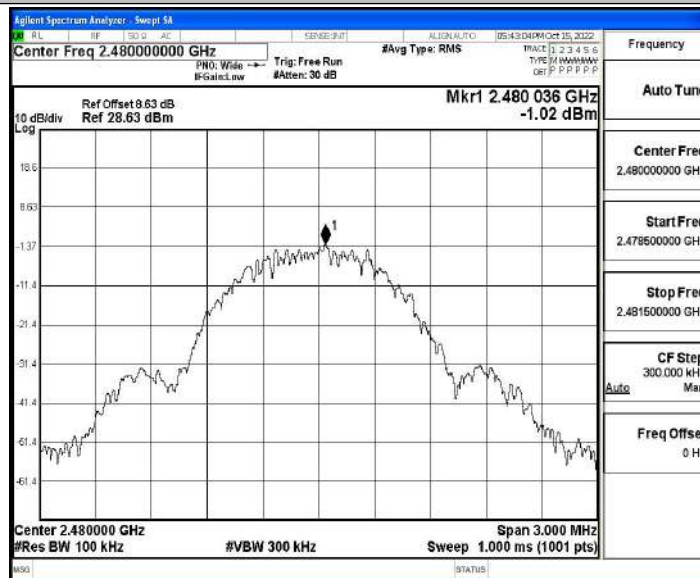




BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000

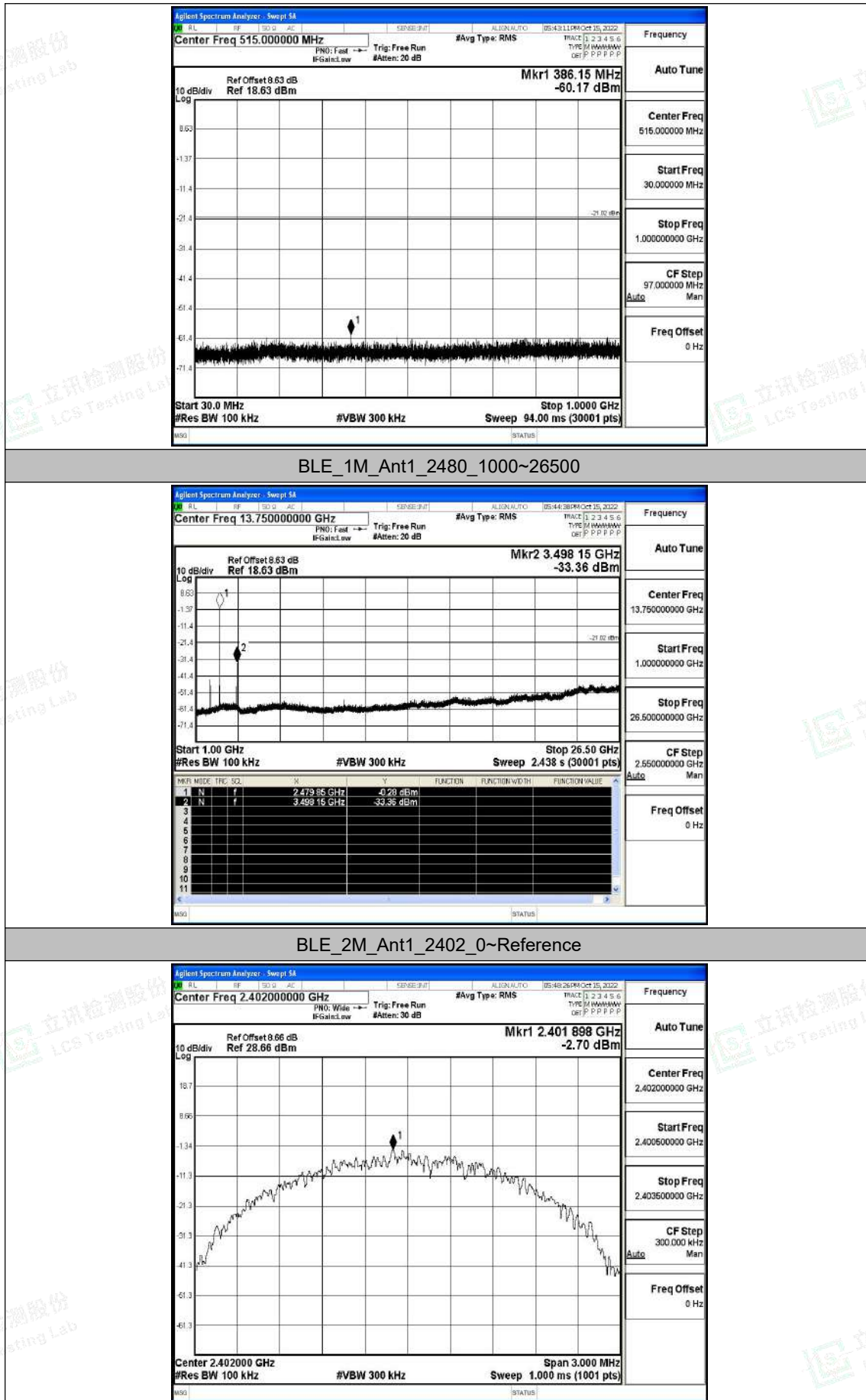


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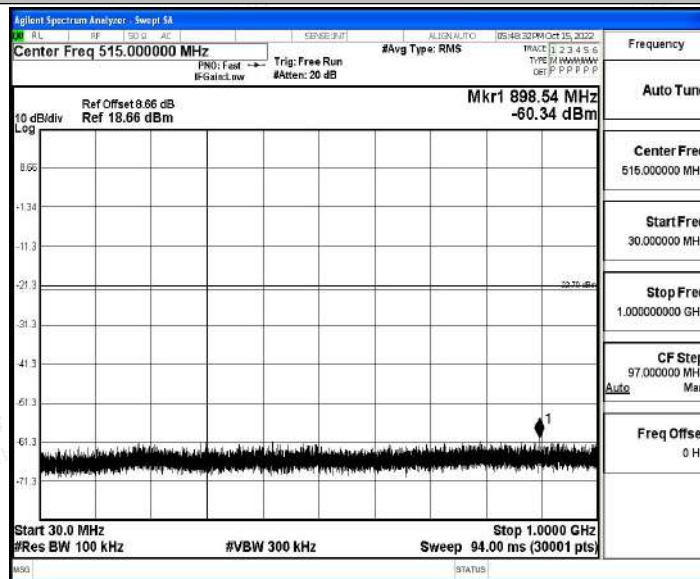
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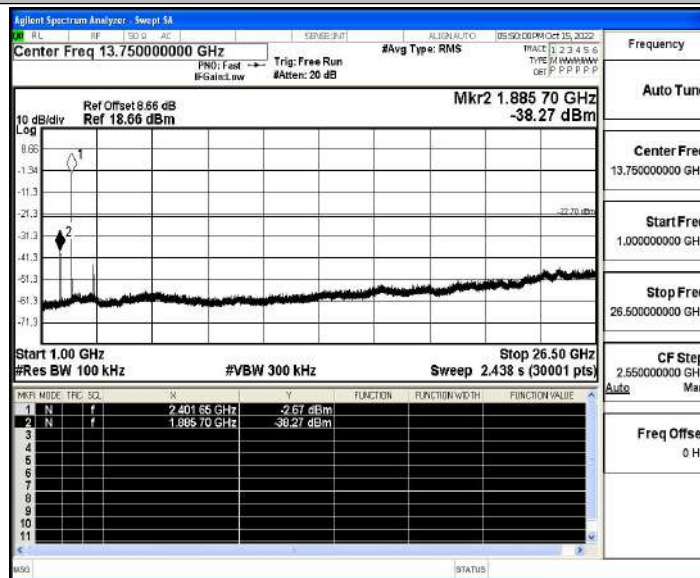




BLE_2M_Ant1_2402_30~1000



BLE_2M_Ant1_2402_1000~26500



BLE_2M_Ant1_2440_0~Reference

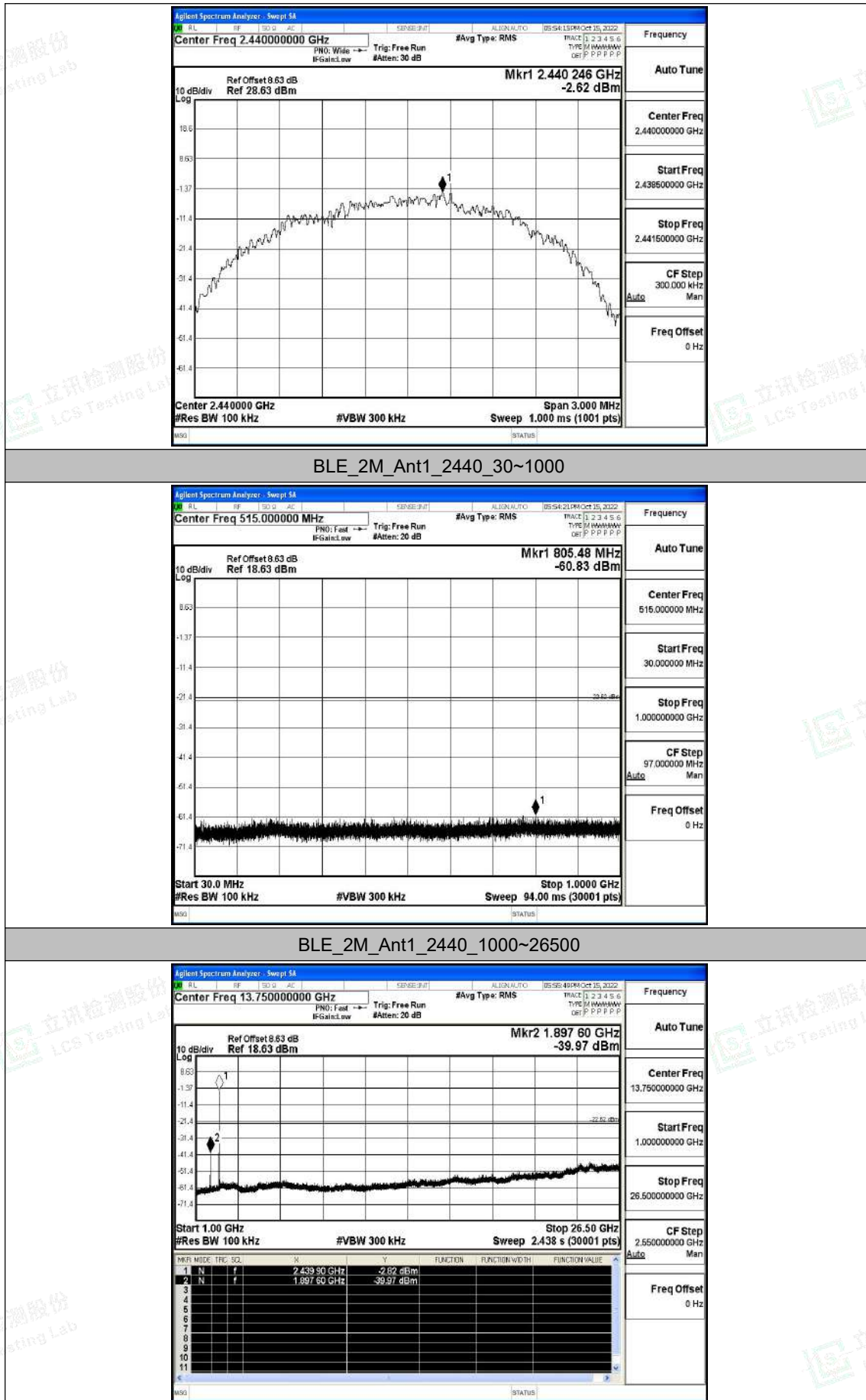


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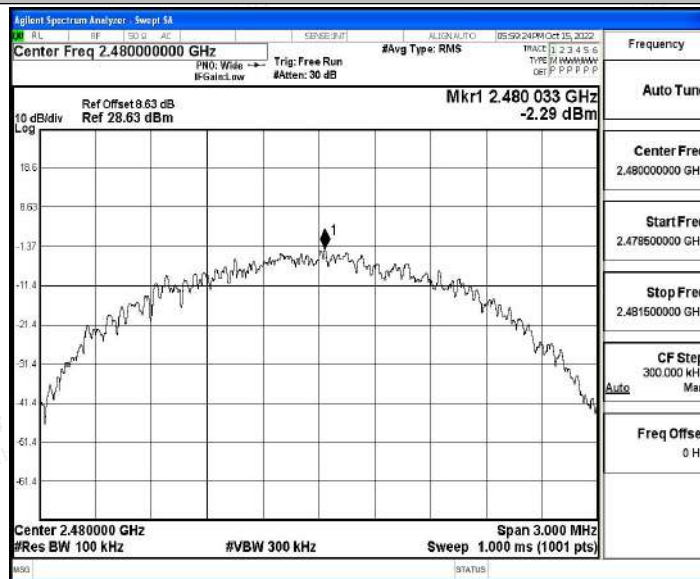
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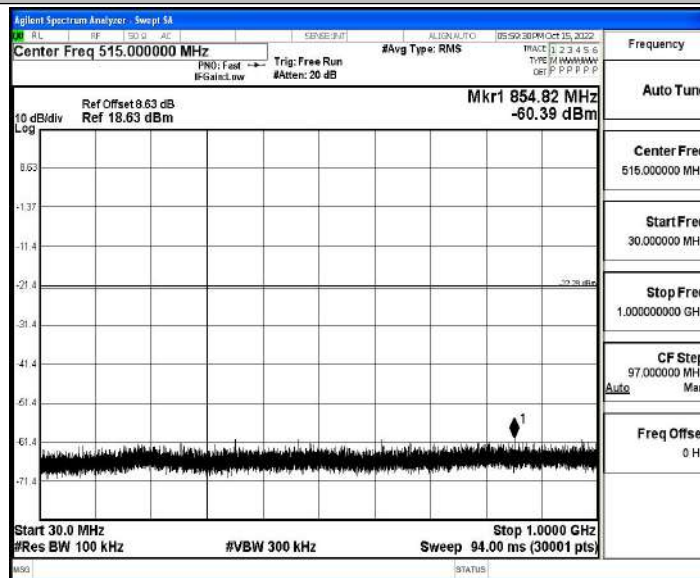




BLE_2M_Ant1_2480_0~Reference

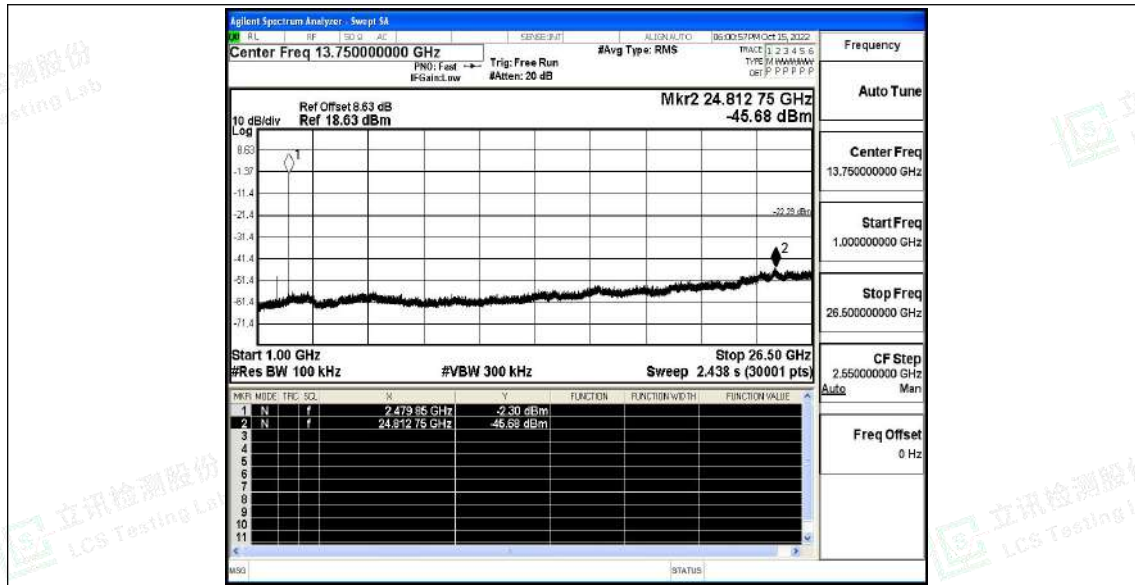


BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500





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A.6 Duty Cycle

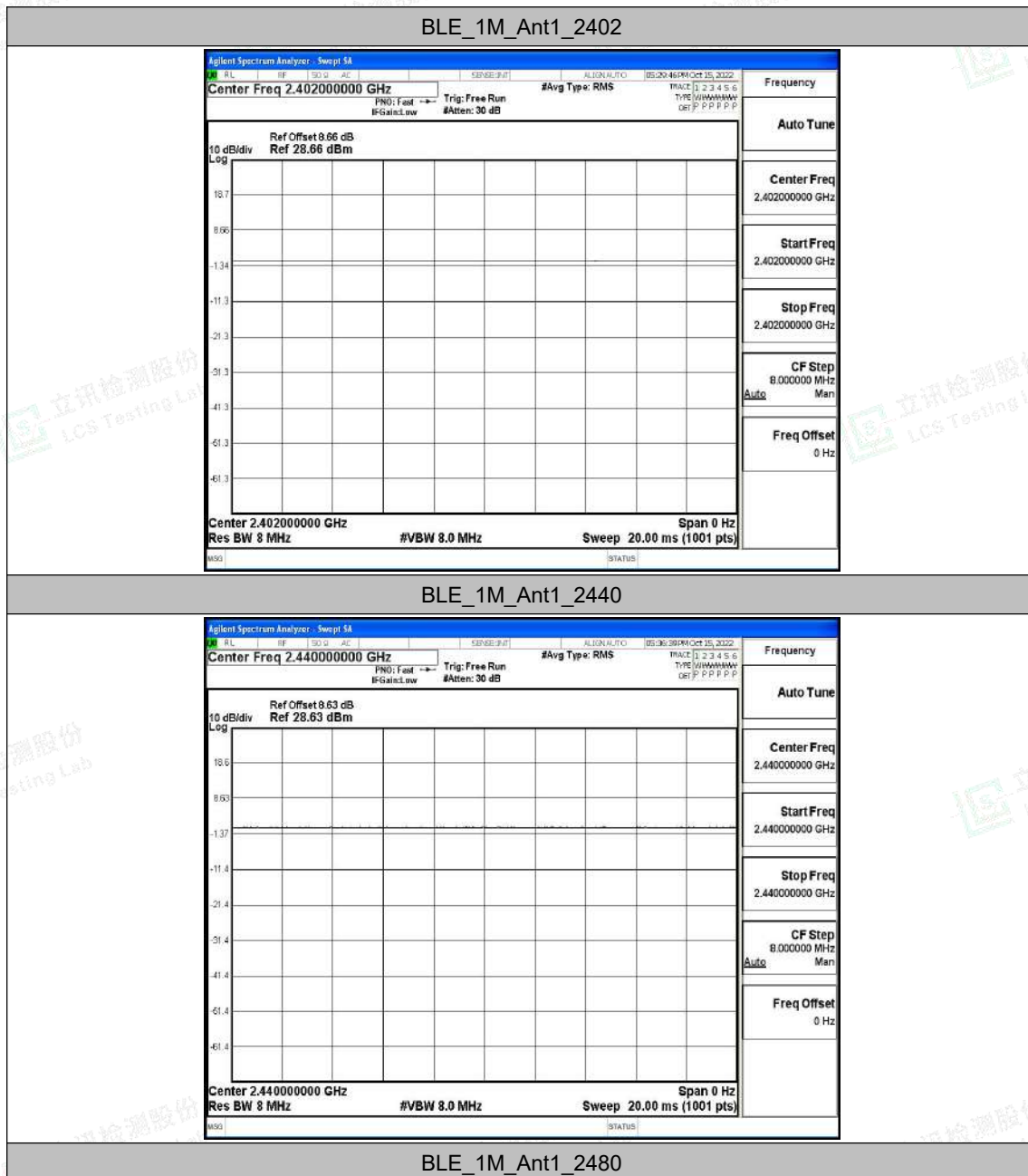
Test Result

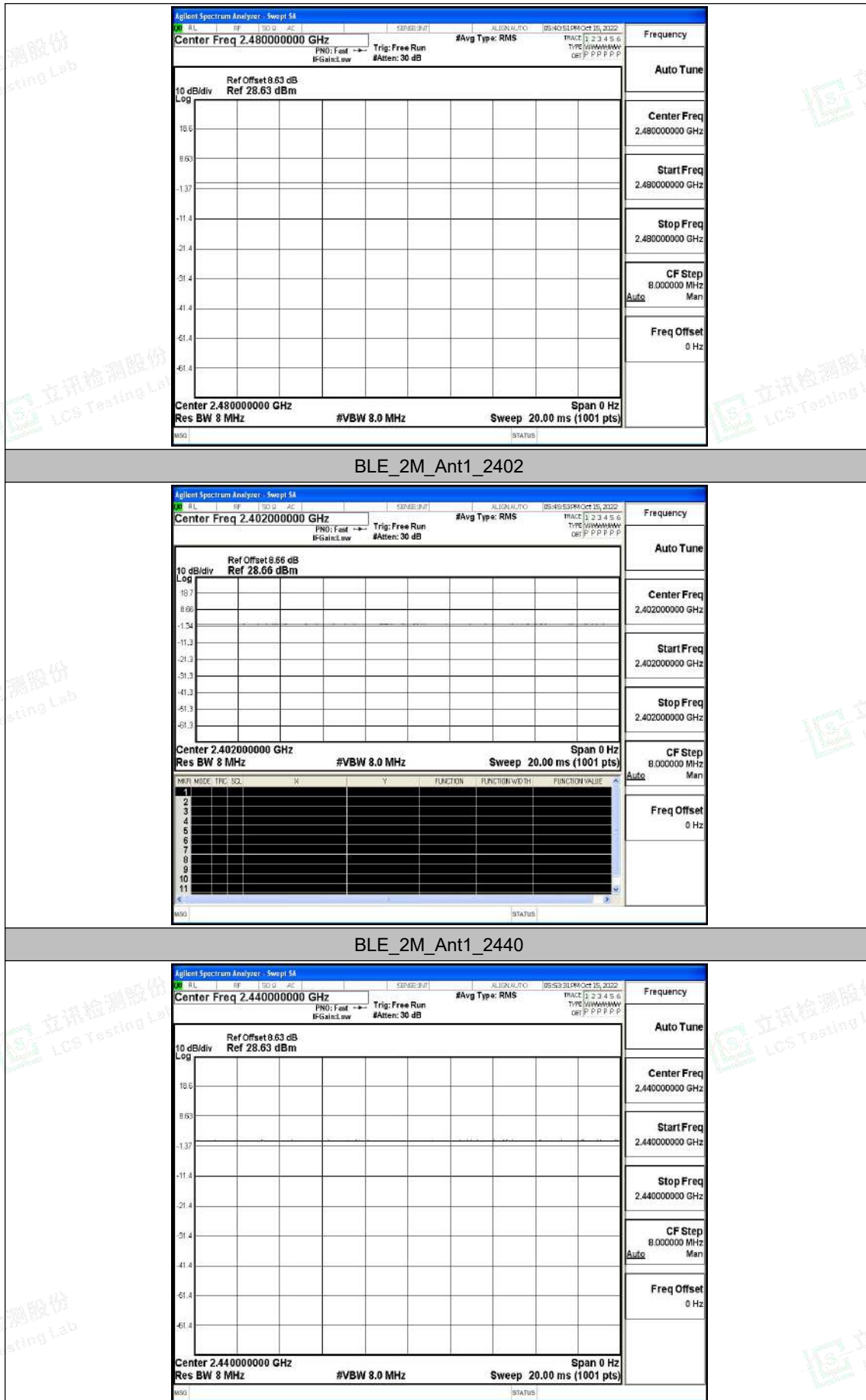
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	DC [%]	1/T [kHz]
BLE_1M	Ant1	2402	20.00	20.00	100	0.01
		2440	20.00	20.00	100	0.01
		2480	20.00	20.00	100	0.01
BLE_2M	Ant1	2402	20.00	20.00	100	0.01
		2440	20.00	20.00	100	0.01
		2480	20.00	20.00	100	0.01

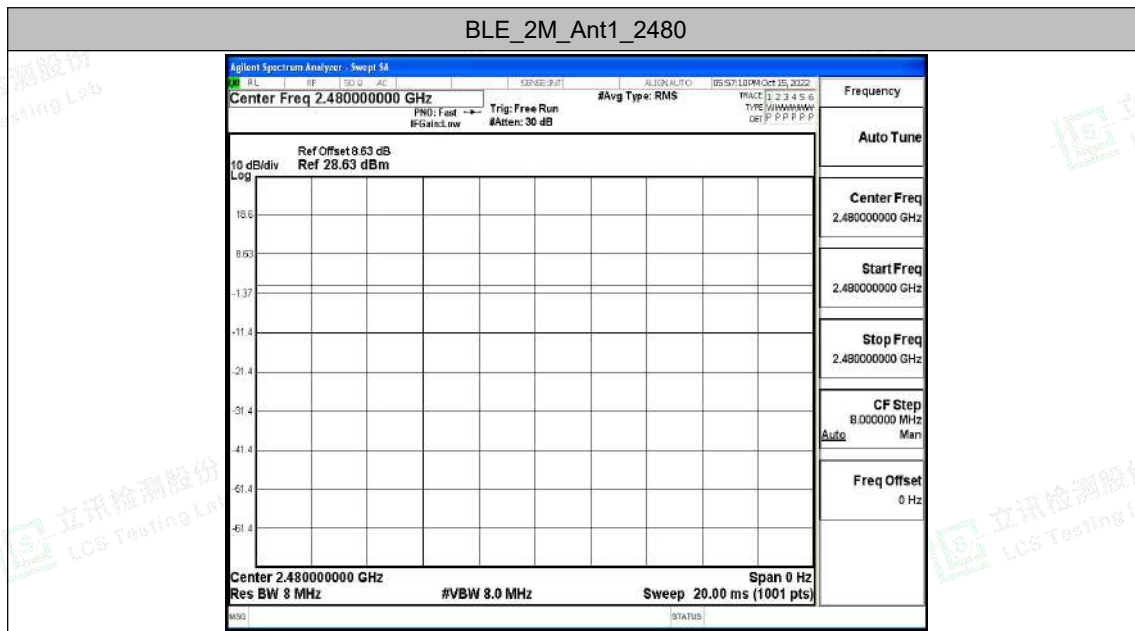




Test Graphs







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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_1M	Ant1	Low	2402	AV	2310.000	-58.26	≤-41.20	36.94	≤54	PASS
				AV	2388.410	-57.87	≤-41.20	37.33	≤54	PASS
				AV	2390.000	-57.88	≤-41.20	37.32	≤54	PASS
				Peak	2310.000	-53.98	≤-21.20	41.22	≤74	PASS
				Peak	2341.580	-48.27	≤-21.20	46.93	≤74	PASS
				Peak	2390.000	-52.09	≤-21.20	43.11	≤74	PASS
		High	2480	AV	2483.500	-54.53	≤-41.20	40.67	≤54	PASS
				AV	2483.520	-54.53	≤-41.20	40.67	≤54	PASS
				AV	2500.000	-57.34	≤-41.20	37.86	≤54	PASS
				Peak	2483.500	-51.67	≤-21.20	43.53	≤74	PASS
				Peak	2498.960	-48.7	≤-21.20	46.50	≤74	PASS
				Peak	2500.000	-53.31	≤-21.20	41.89	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-58.28	≤-41.20	36.92	≤54	PASS
				AV	2376.545	-57.37	≤-41.20	37.83	≤54	PASS
				AV	2390.000	-57.93	≤-41.20	37.27	≤54	PASS
				Peak	2310.000	-52.92	≤-21.20	42.28	≤74	PASS
				Peak	2356.280	-48.21	≤-21.20	46.99	≤74	PASS
				Peak	2390.000	-53.91	≤-21.20	41.29	≤74	PASS
		High	2480	AV	2483.500	-48.14	≤-41.20	47.06	≤54	PASS
				AV	2483.520	-48.14	≤-41.20	47.06	≤54	PASS
				AV	2500.000	-57.36	≤-41.20	37.84	≤54	PASS
				Peak	2483.500	-48.36	≤-21.20	46.84	≤74	PASS
				Peak	2494.800	-48.13	≤-21.20	47.07	≤74	PASS
				Peak	2500.000	-51.78	≤-21.20	43.42	≤74	PASS

Note:

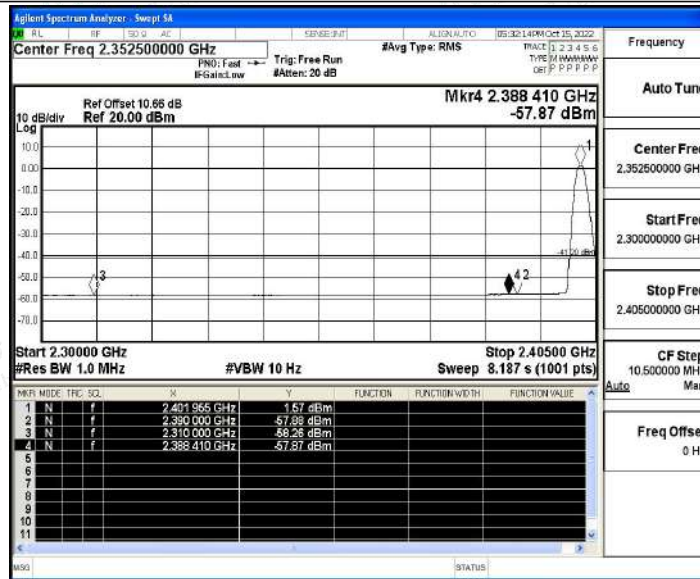
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



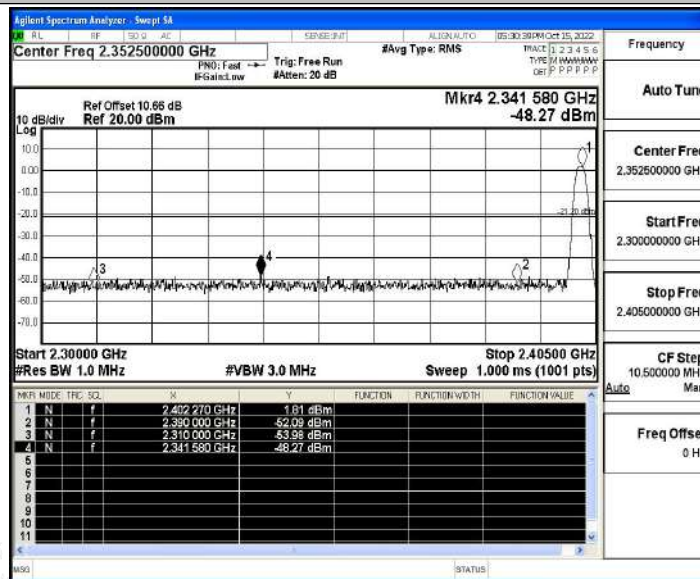


Test Graphs

BLE_1M_Ant1_Low_2402_AV

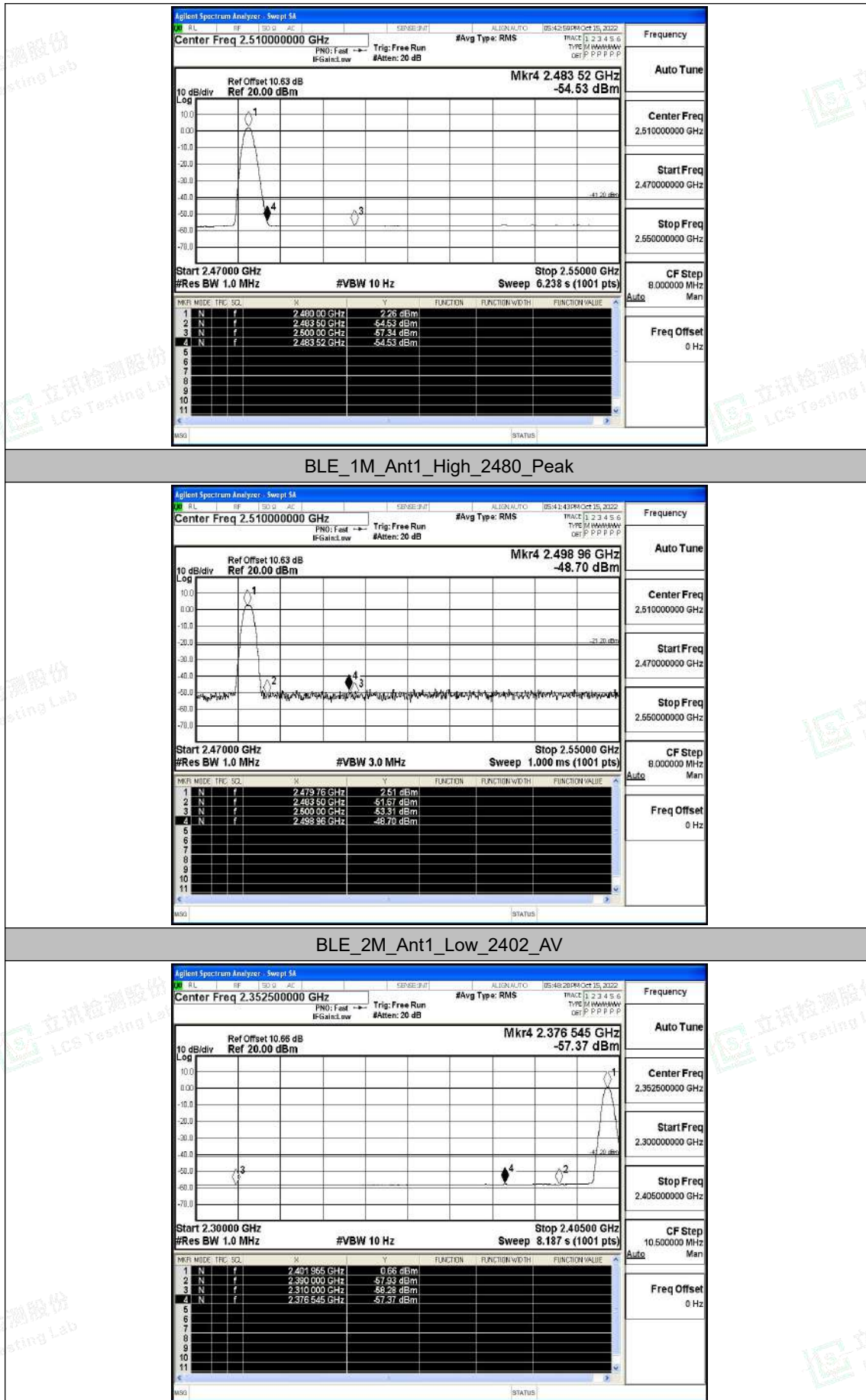


BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV





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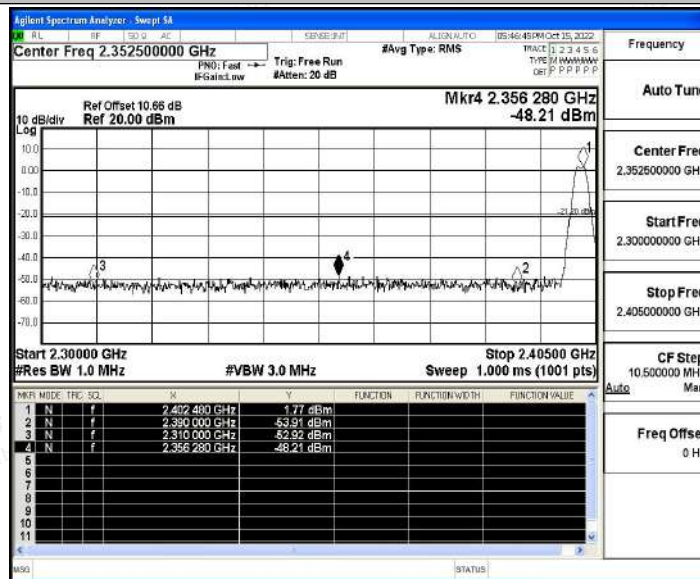
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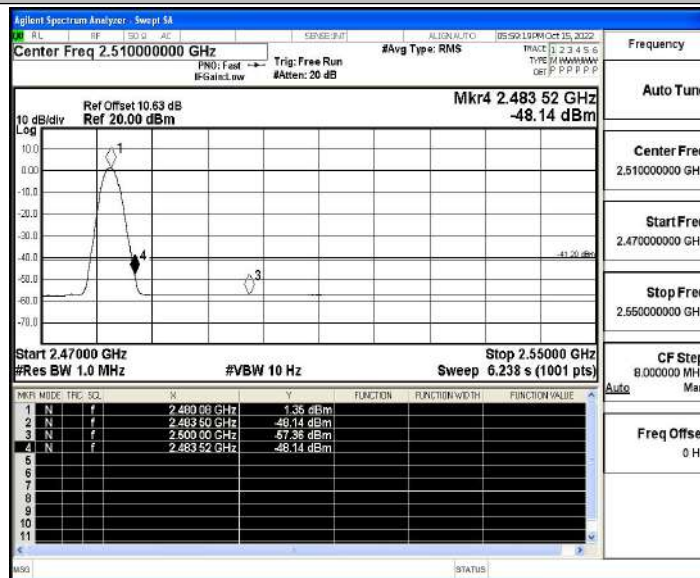
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BLE_2M_Ant1_Low_2402_Peak

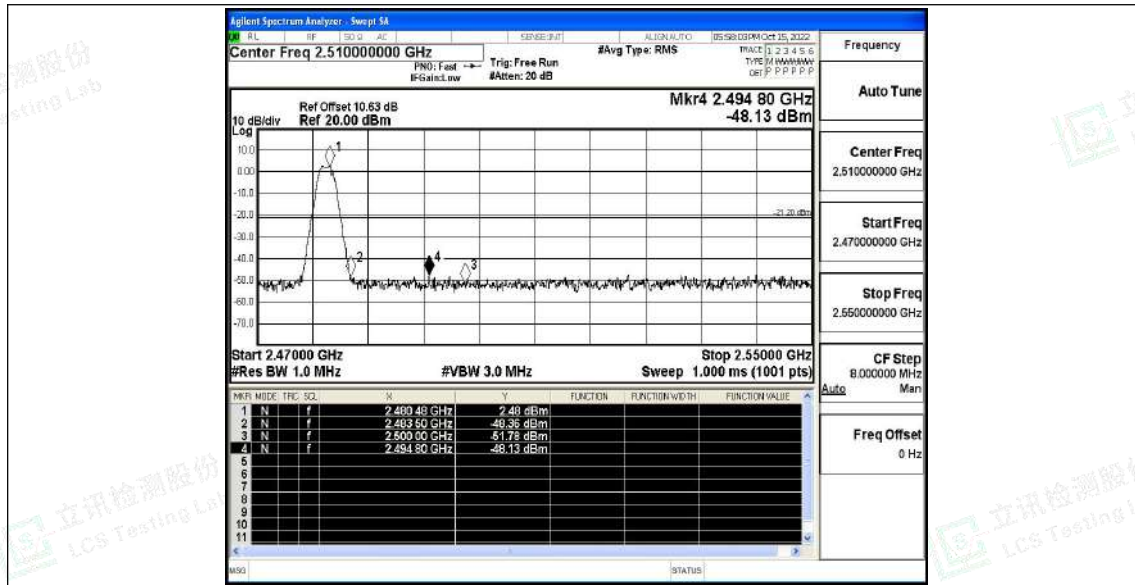


BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak





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