



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: WIM1481

Test Model: WIM1481E

Environmental Conditions

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





A.1 6dB Bandwidth

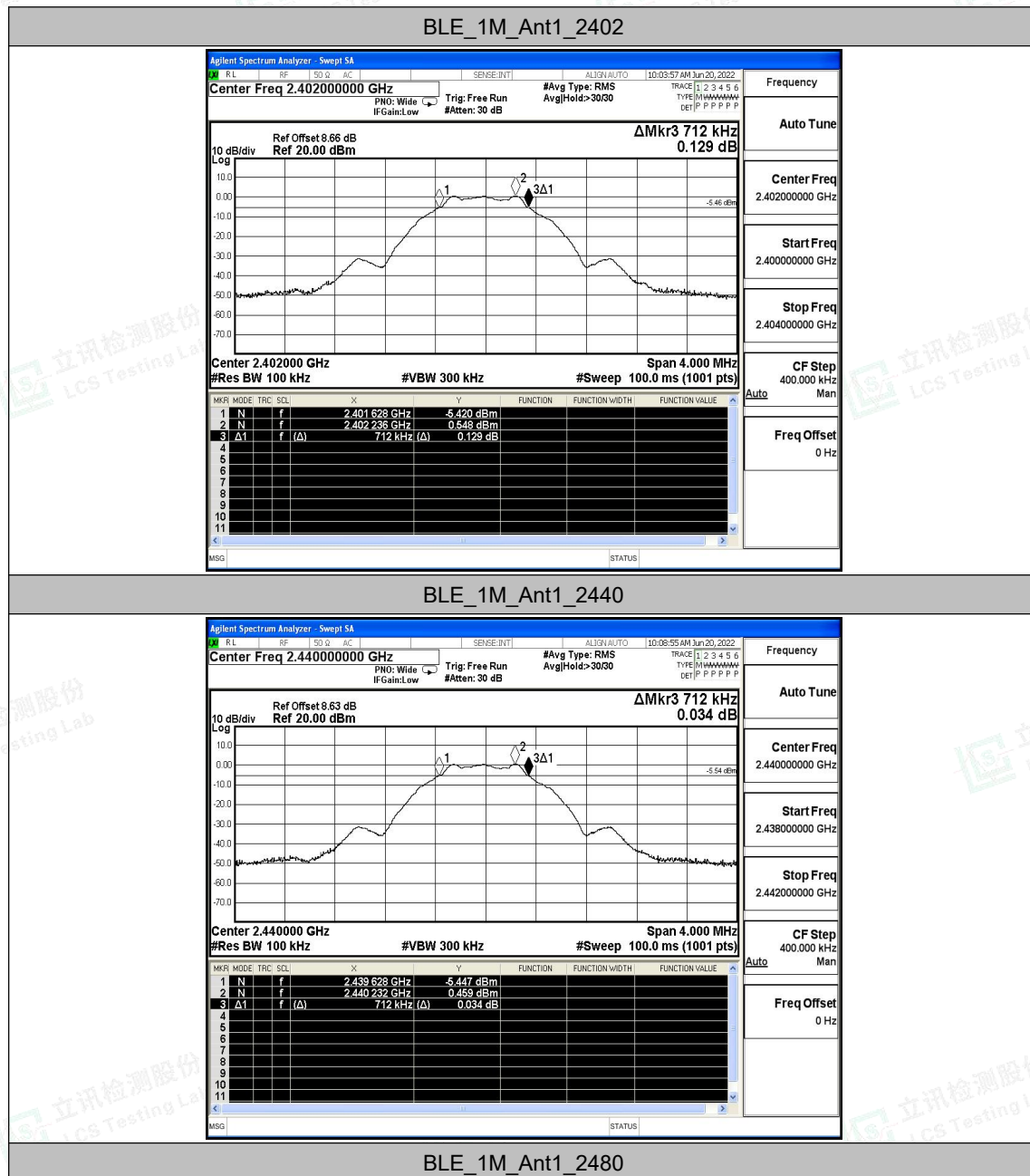
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.712	2401.628	2402.340	0.5	PASS
		2440	0.712	2439.628	2440.340	0.5	PASS
		2480	0.712	2479.628	2480.340	0.5	PASS





Test Graphs

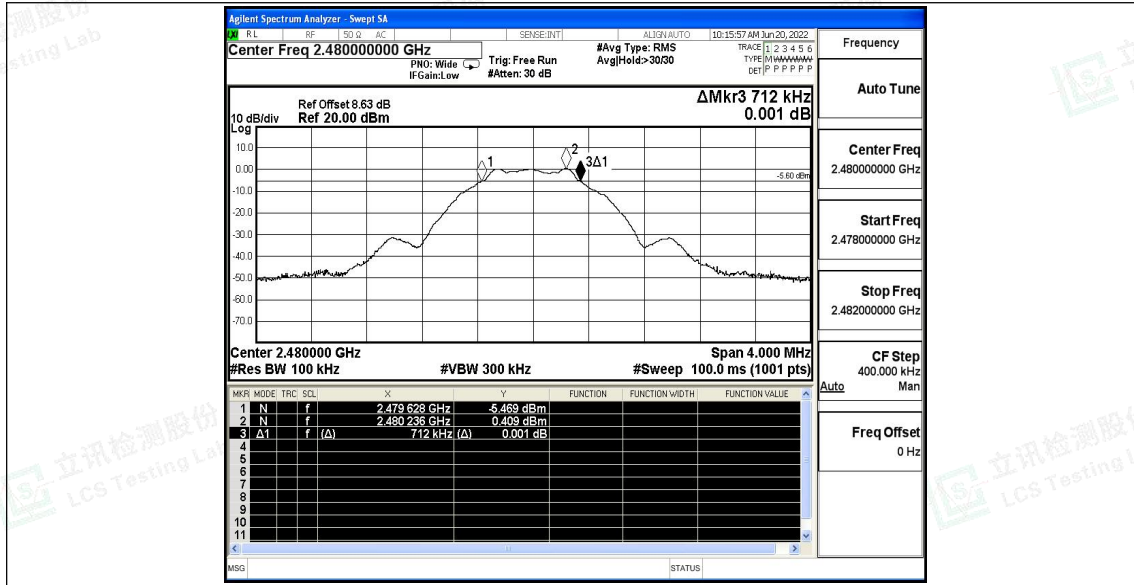


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A.2 Maximum conducted output power

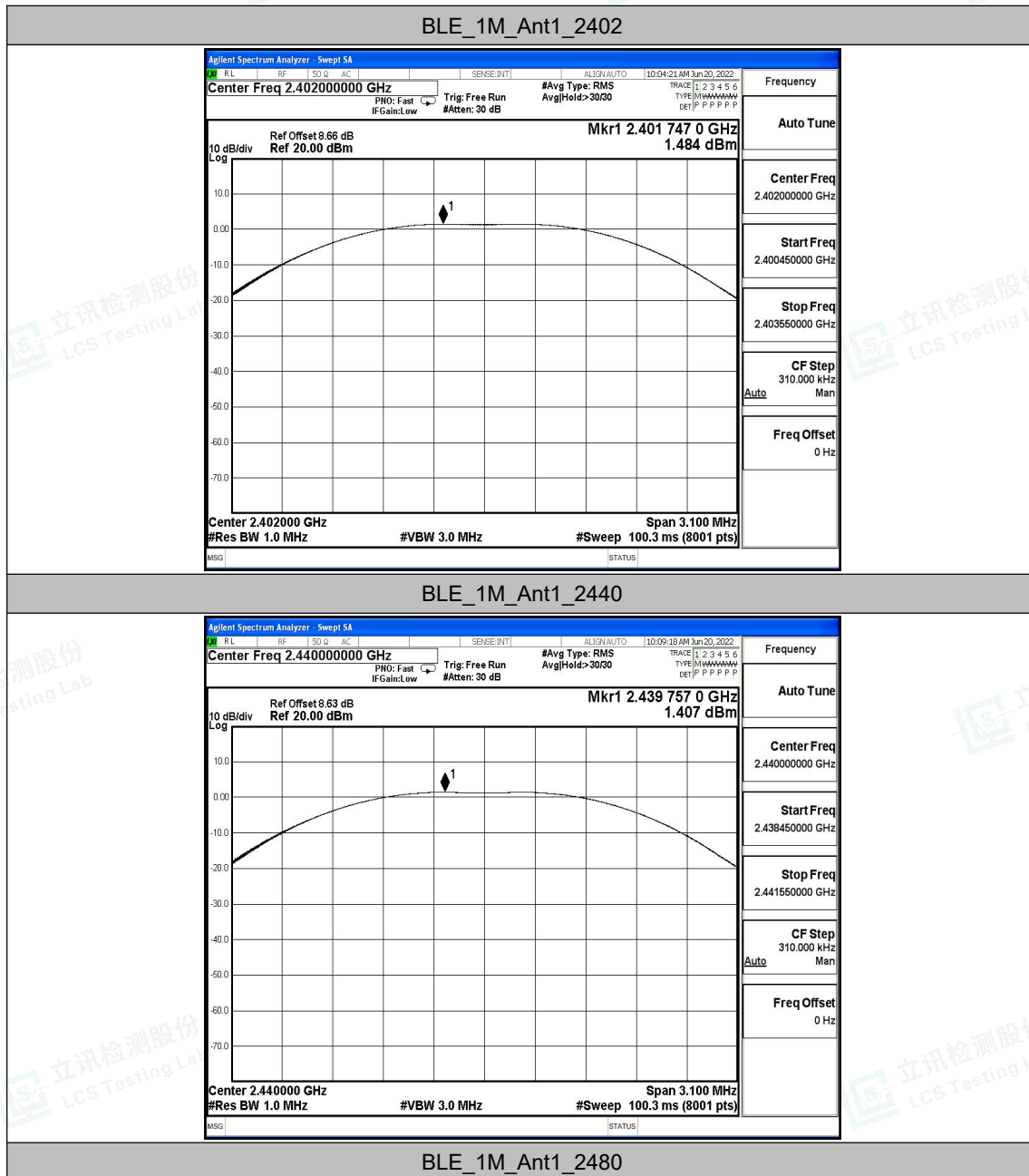
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	1.48	≤30	PASS
		2440	1.41	≤30	PASS
		2480	1.35	≤30	PASS





Test Graphs

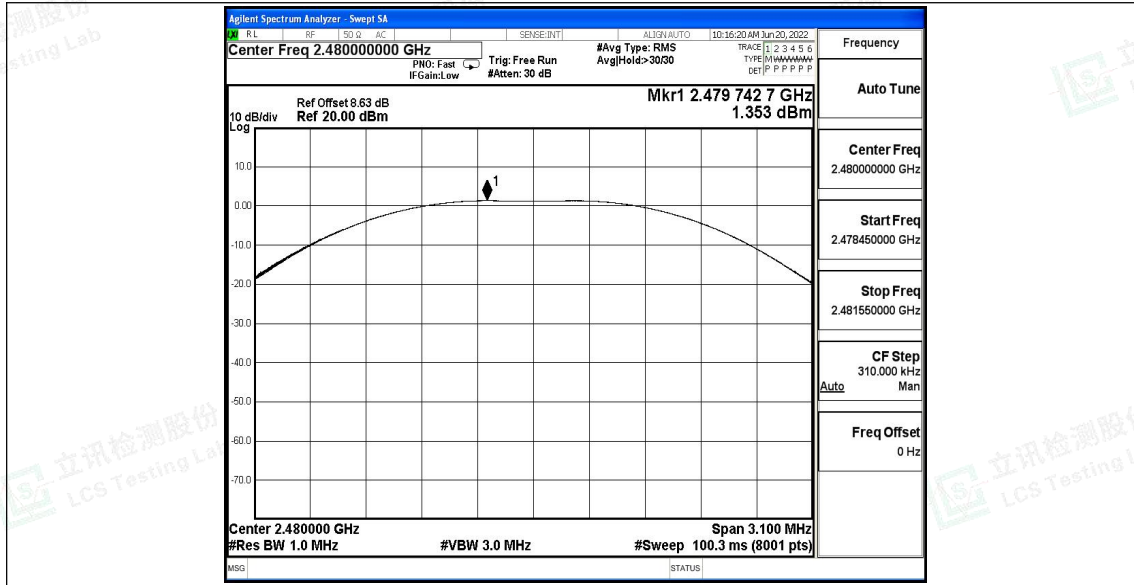


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A.2 Occupied Channel Bandwidth

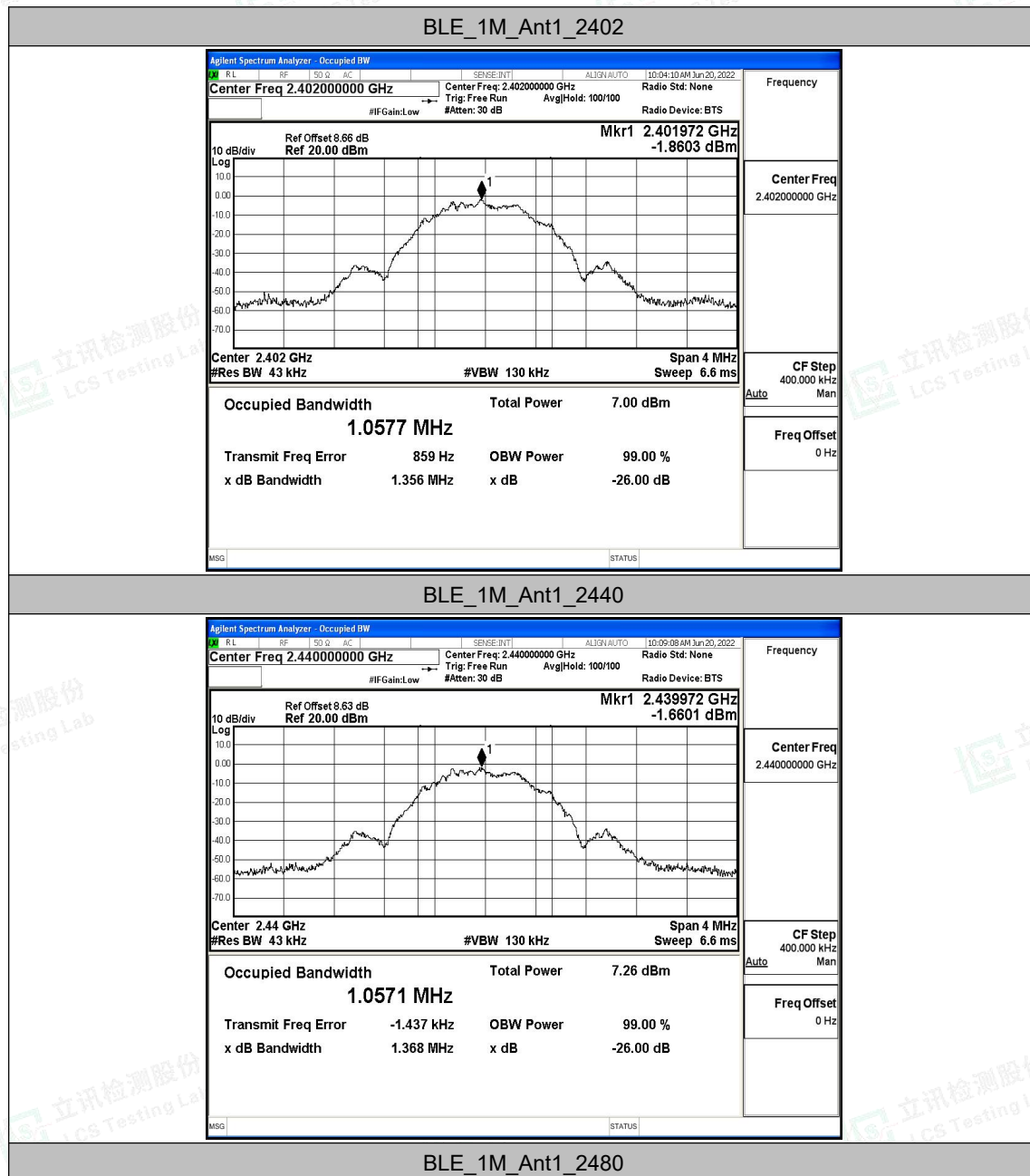
Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0577	2401.472	2402.530	---	---
		2440	1.0571	2439.470	2440.527	---	---
		2480	1.0605	2479.468	2480.529	---	---





Test Graphs

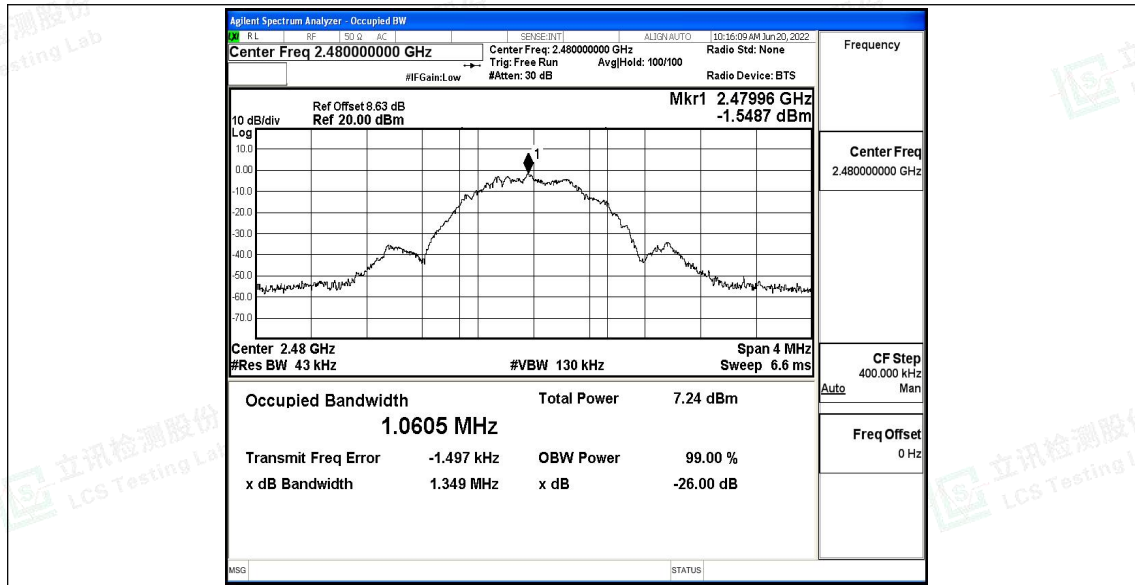


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A.4 Maximum power spectral density

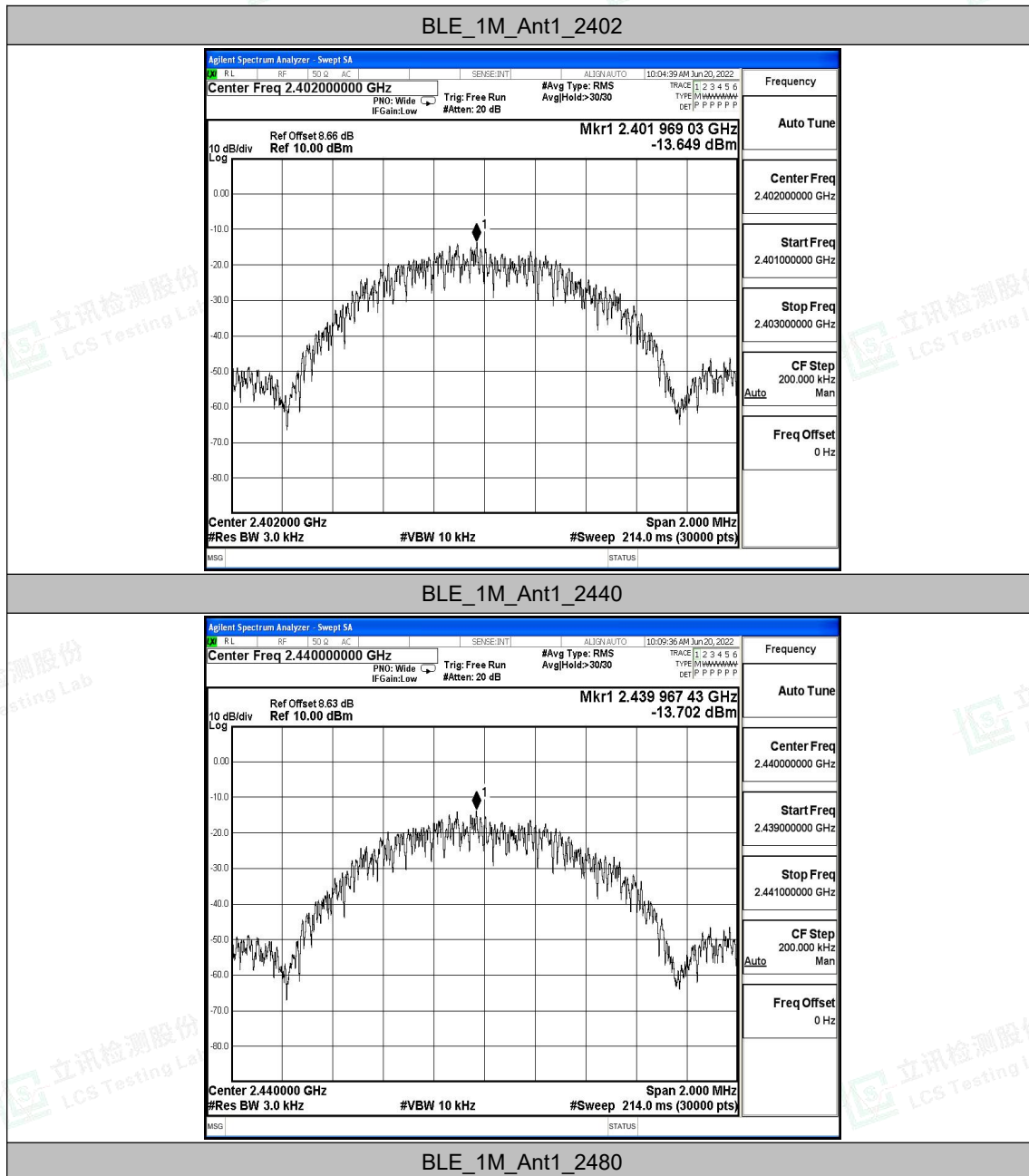
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.65	≤8.00	PASS
		2440	-13.7	≤8.00	PASS
		2480	-13.78	≤8.00	PASS





Test Graphs

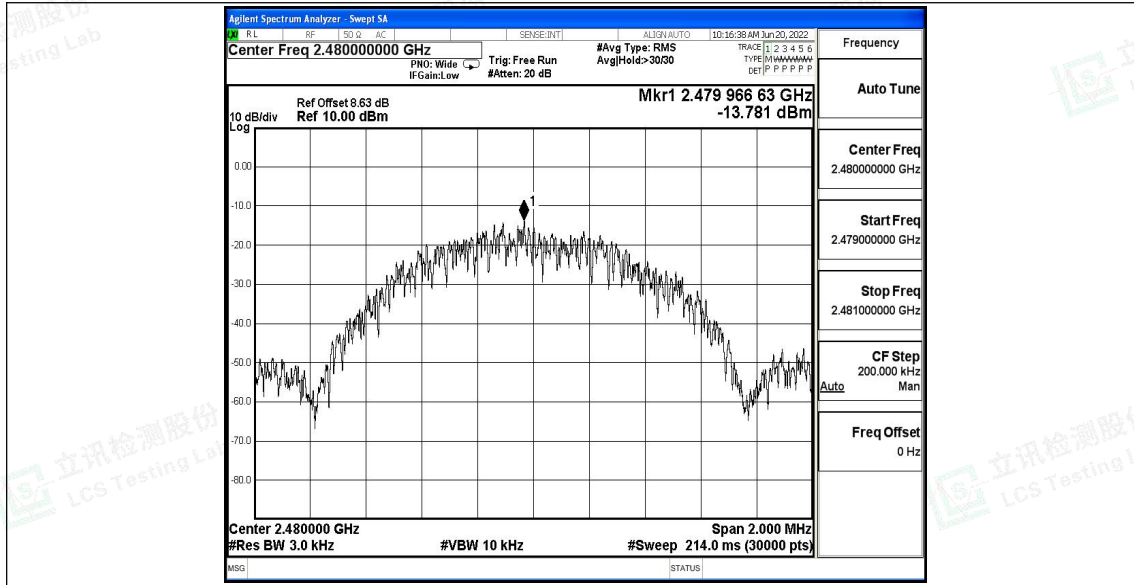


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A.5 Band edge measurements

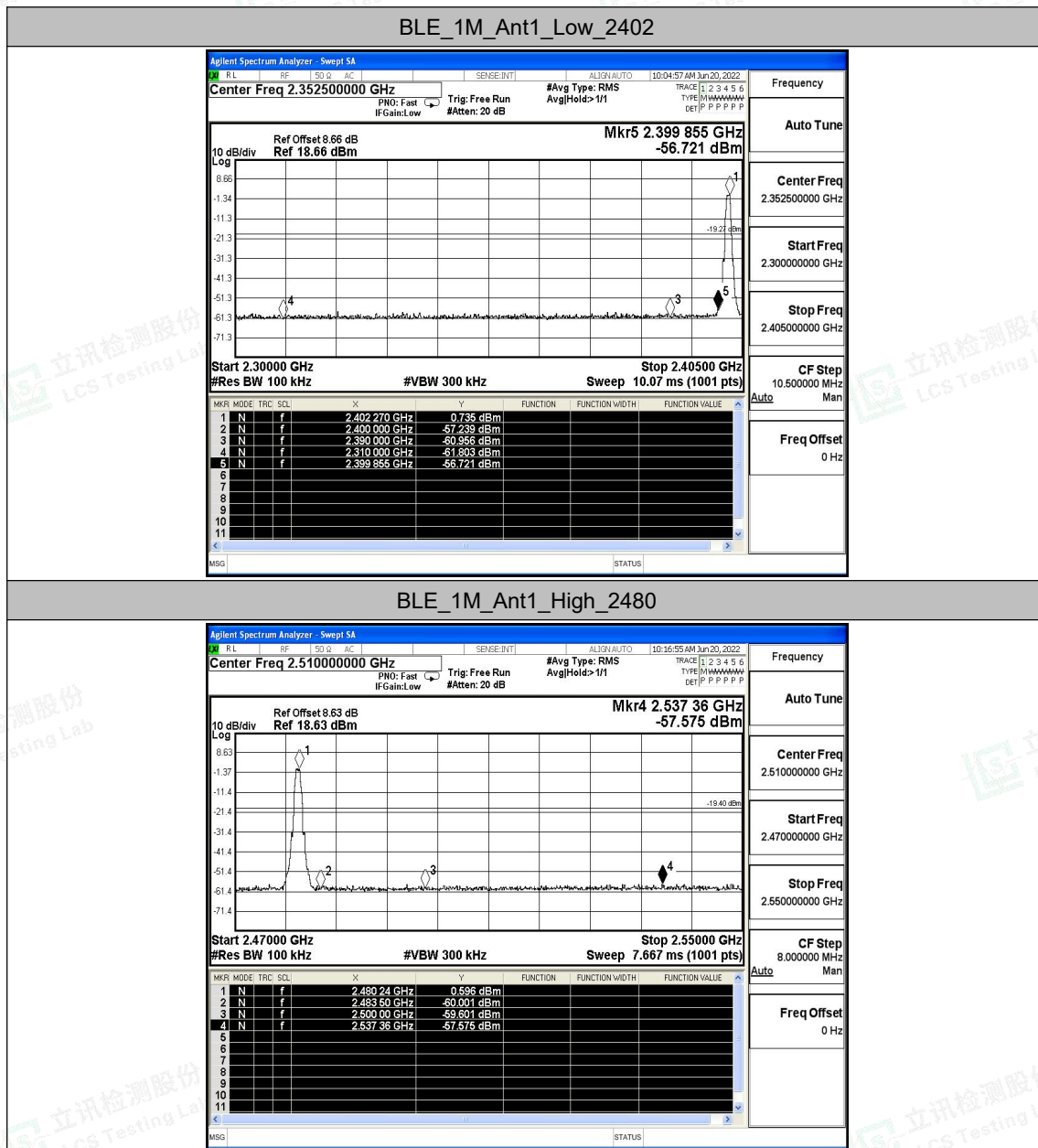
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.74	-56.72	≤-19.27	PASS
		High	2480	0.60	-57.58	≤-19.4	PASS





Test Graphs



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A.6 Conducted Spurious Emission

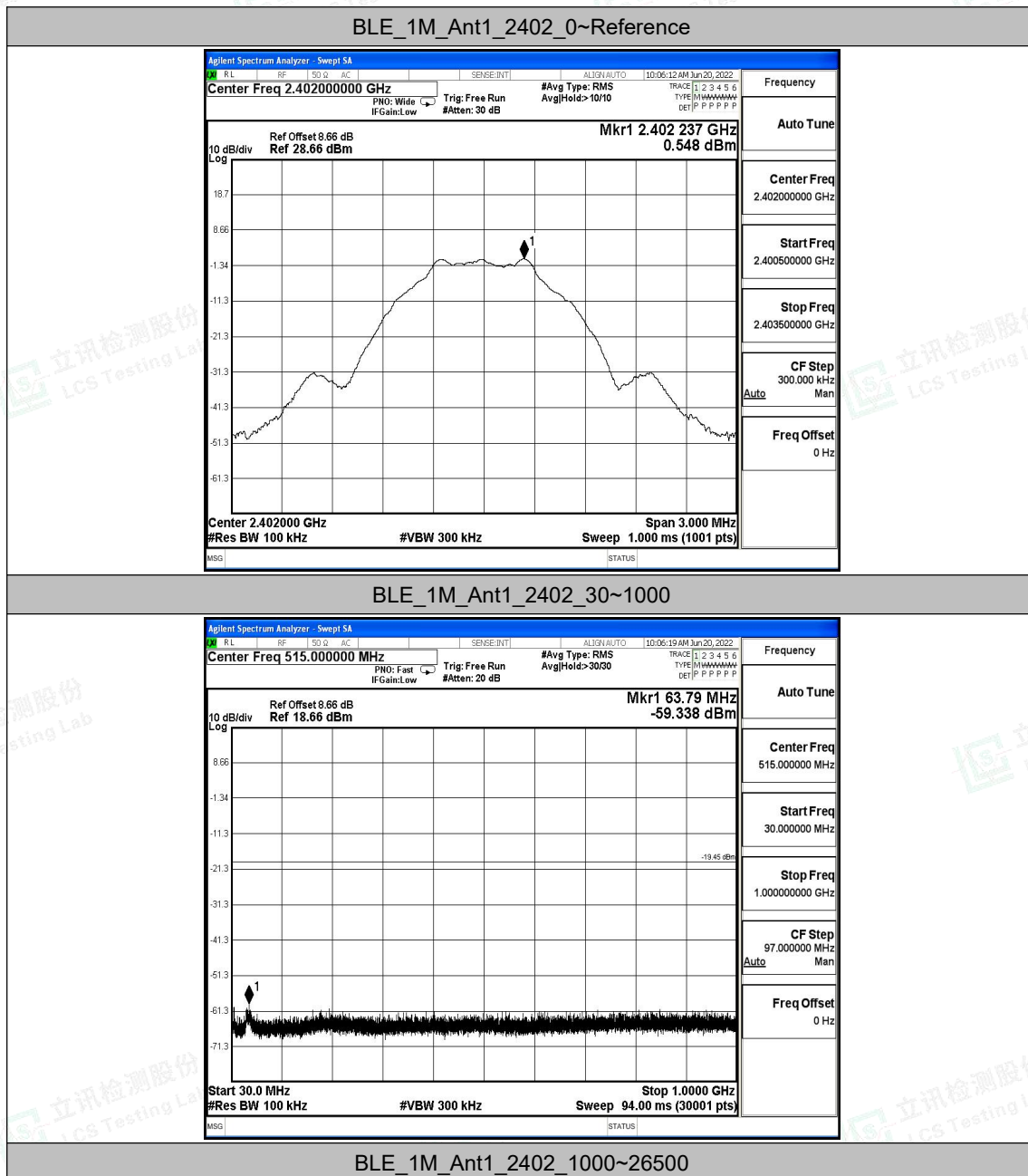
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.55	0.55	---	PASS
			30~1000	0.55	-59.34	≤-19.45	PASS
			1000~26500	0.55	-45.6	≤-19.45	PASS
		2440	Reference	0.48	0.48	---	PASS
			30~1000	0.48	-60.08	≤-19.52	PASS
			1000~26500	0.48	-46.4	≤-19.52	PASS
		2480	Reference	0.41	0.41	---	PASS
			30~1000	0.41	-60.34	≤-19.59	PASS
			1000~26500	0.41	-46.65	≤-19.59	PASS





Test Graphs

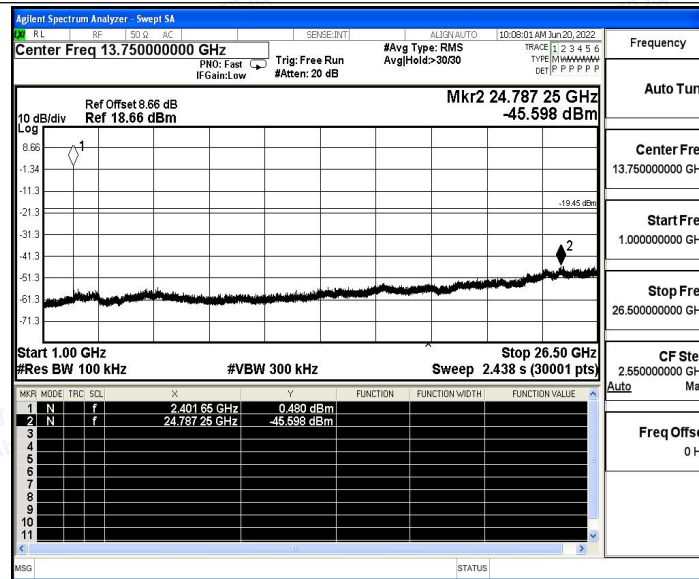


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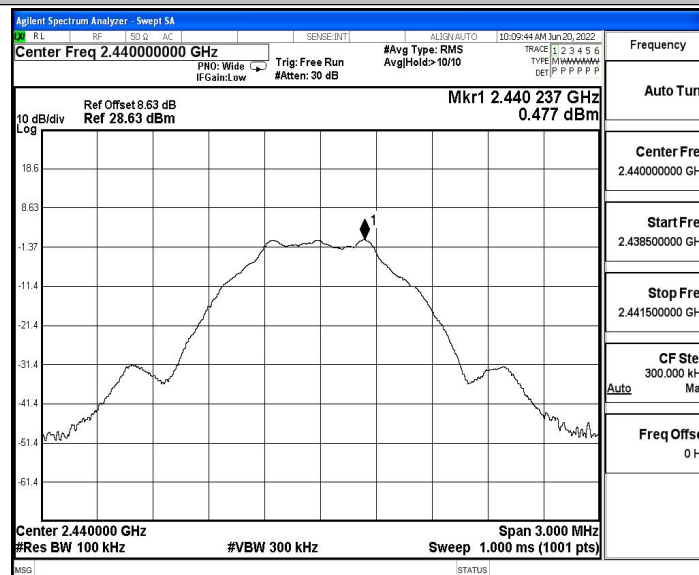
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BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000

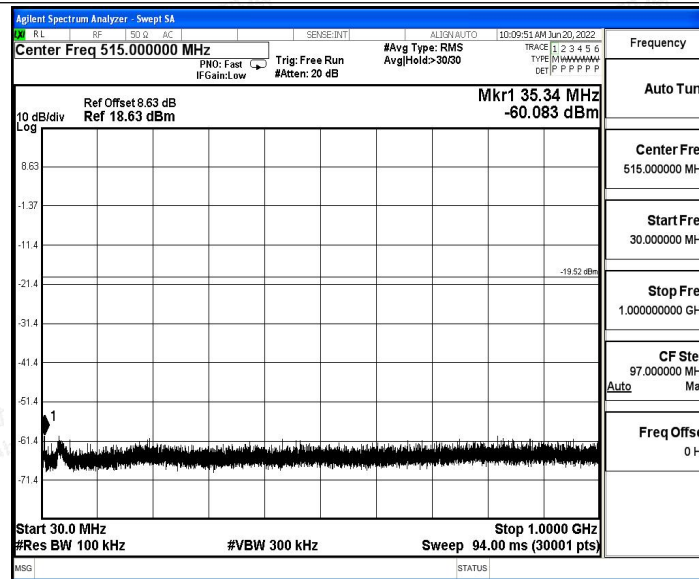


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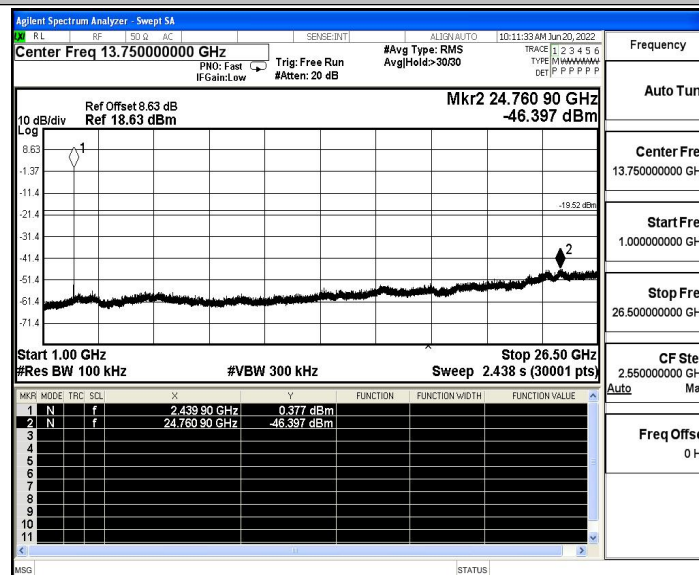
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BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

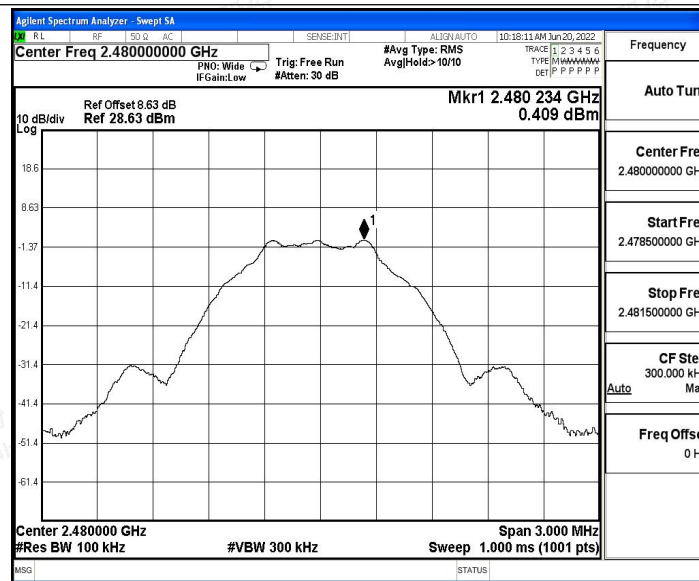


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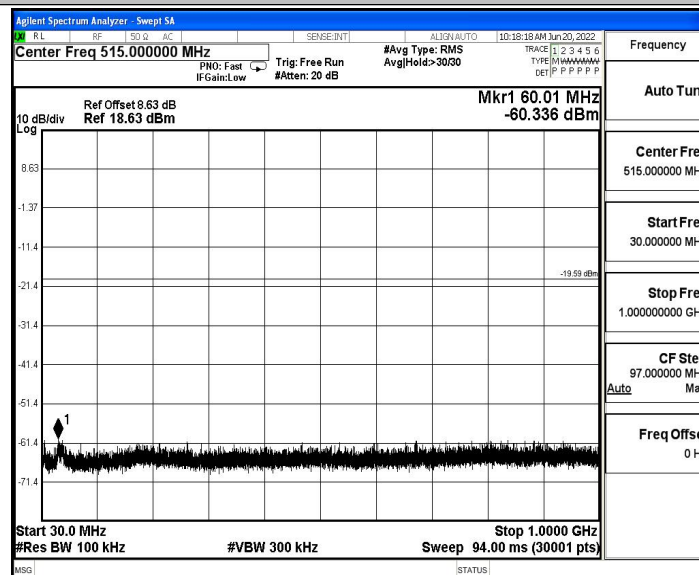
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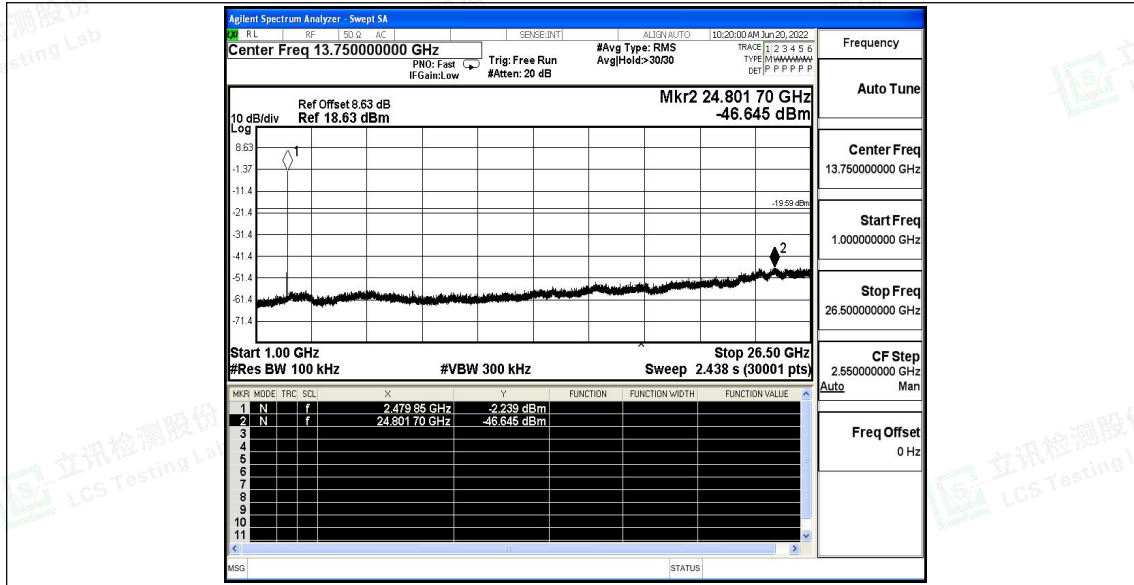


BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500







A.7 Duty Cycle

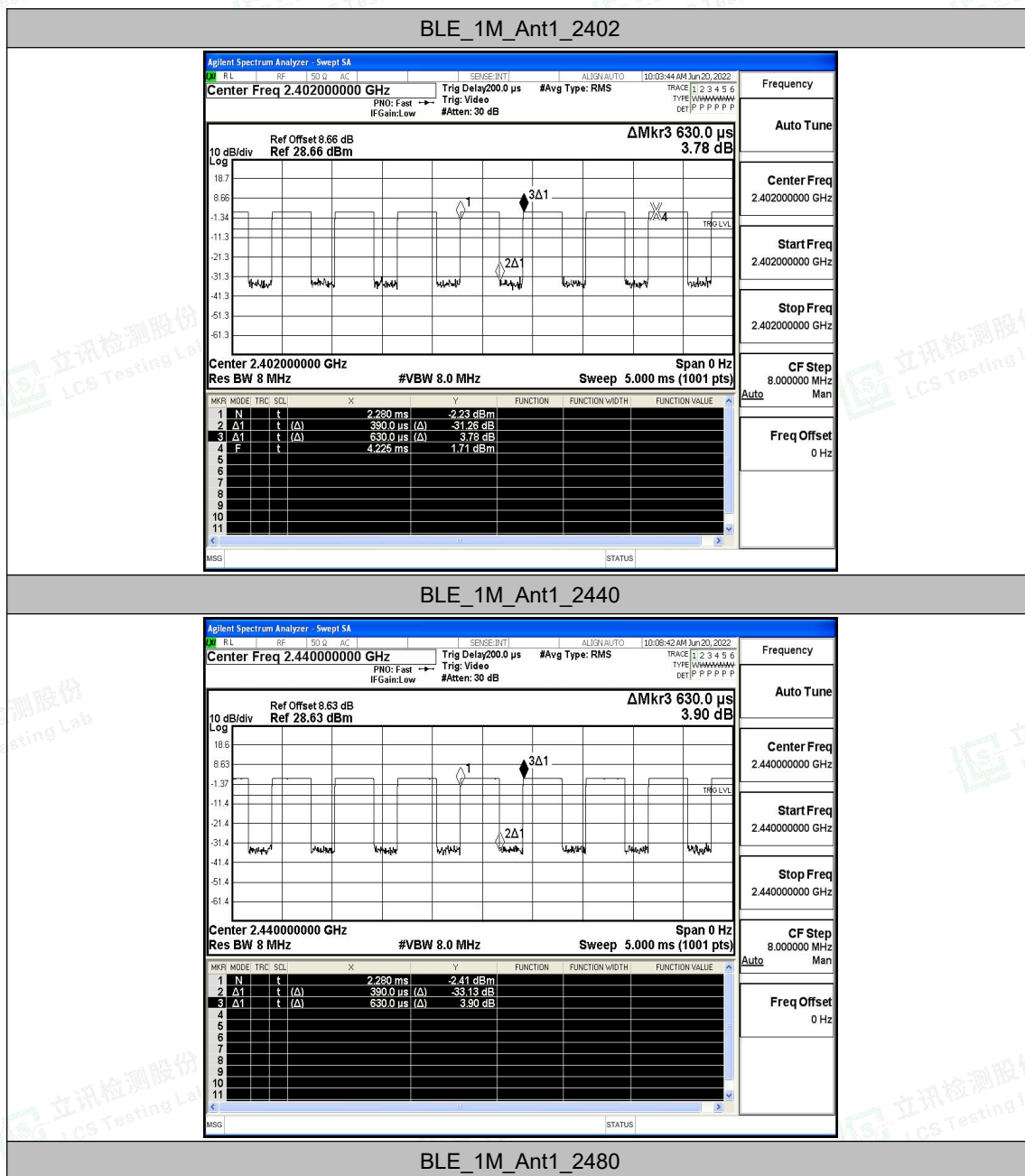
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2440	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2480	0.39	0.63	0.6190	61.90	2.08	2.56	---	---





Test Graphs

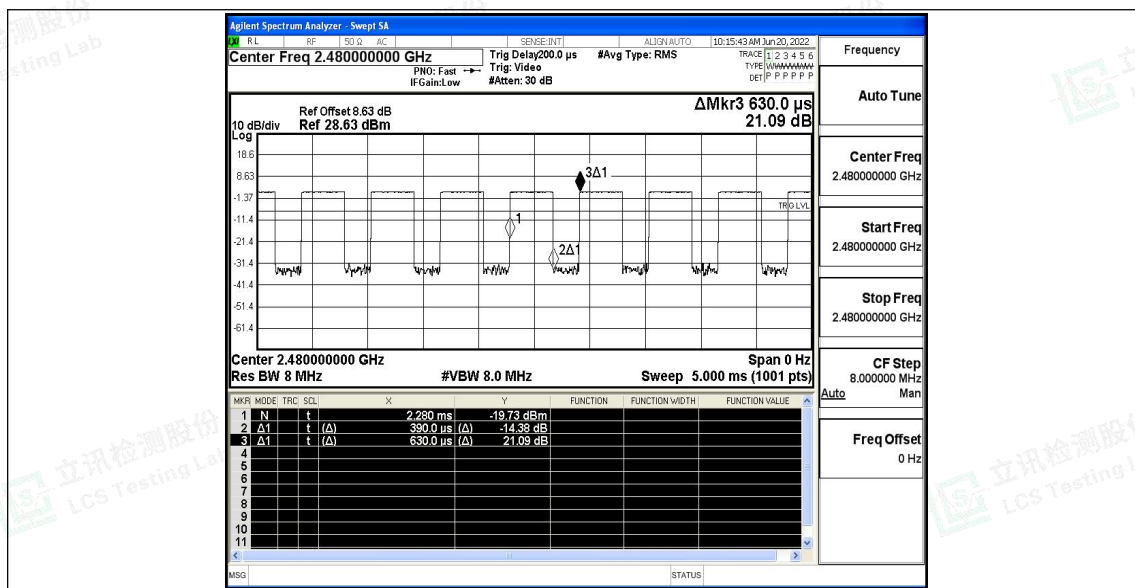


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A.8 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.98	≤-41.20	38.22	≤54	PASS
				AV	2383.370	-56.39	≤-41.20	38.81	≤54	PASS
				AV	2390.000	-56.7	≤-41.20	38.50	≤54	PASS
				Peak	2310.000	-48.73	≤-21.20	46.47	≤74	PASS
				Peak	2381.375	-46.16	≤-21.20	49.04	≤74	PASS
				Peak	2390.000	-47.62	≤-21.20	47.58	≤74	PASS
		High	2480	AV	2483.500	-52.68	≤-41.20	42.52	≤54	PASS
				AV	2483.520	-52.68	≤-41.20	42.52	≤54	PASS
				AV	2500.000	-56.18	≤-41.20	39.02	≤54	PASS
				Peak	2483.500	-46.86	≤-21.20	48.34	≤74	PASS
				Peak	2484.960	-46.03	≤-21.20	49.17	≤74	PASS
				Peak	2500.000	-47.14	≤-21.20	48.06	≤74	PASS

Note:

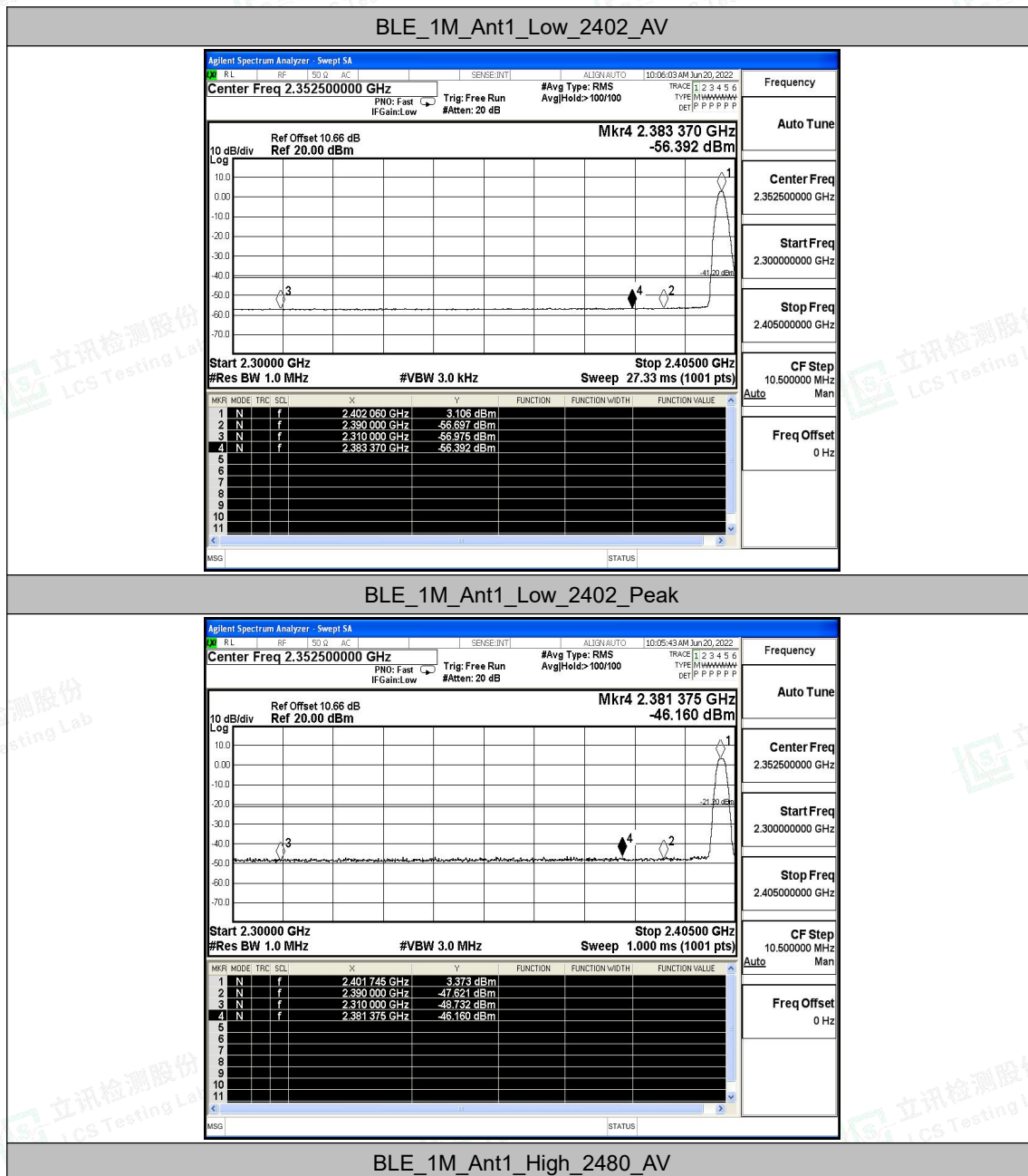
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



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Test Graphs



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