



Appendix B

RF Test Data for BLE (Conducted Measurement)

Product Name: Smart POS

Test Model: WIZARPOS UPT

Environmental Conditions

Temperature:	23.9° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan





B.1 DTS Bandwidth

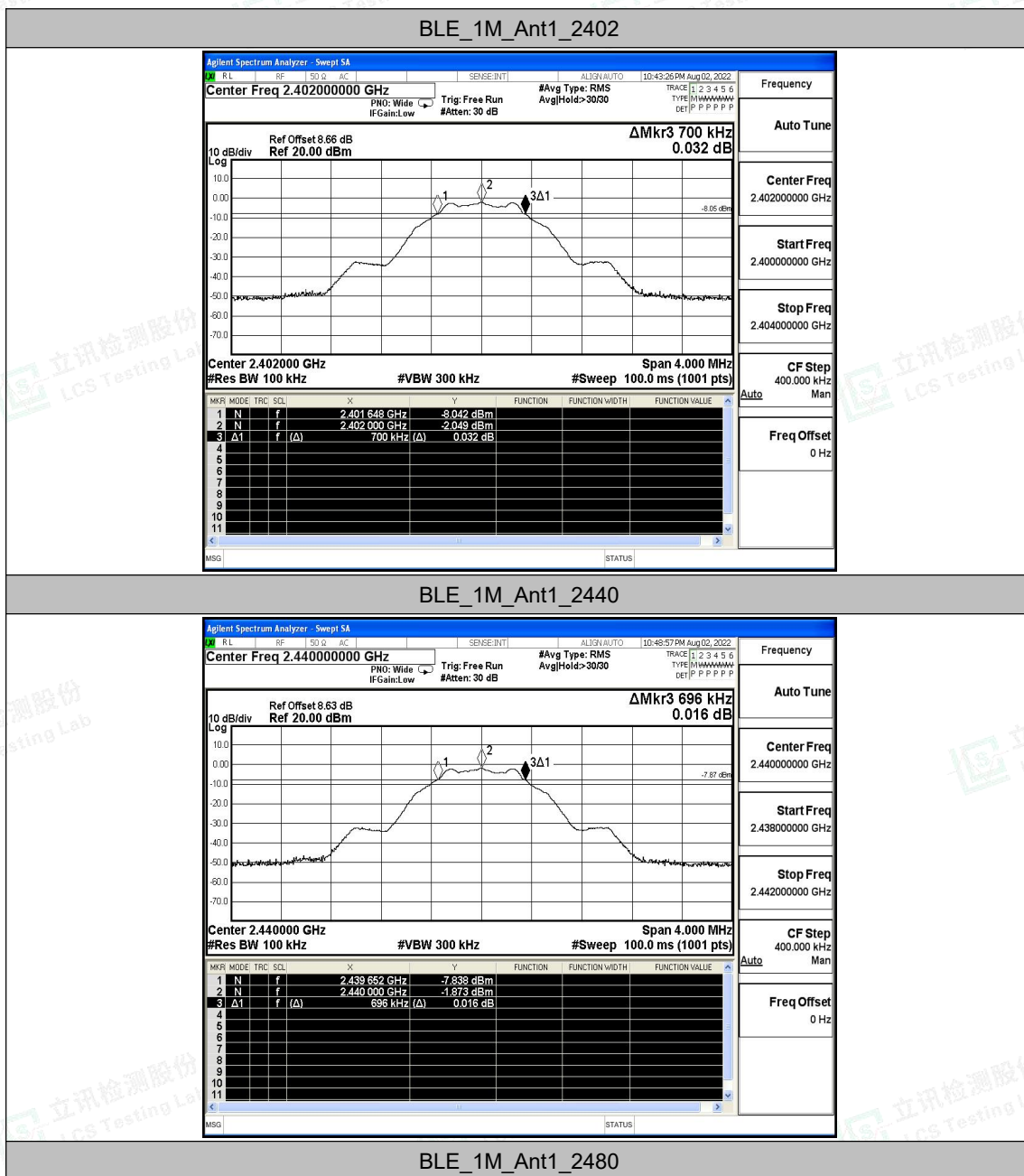
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.700	2401.648	2402.348	0.5	PASS
		2440	0.696	2439.652	2440.348	0.5	PASS
		2480	0.692	2479.652	2480.344	0.5	PASS





Test Graphs

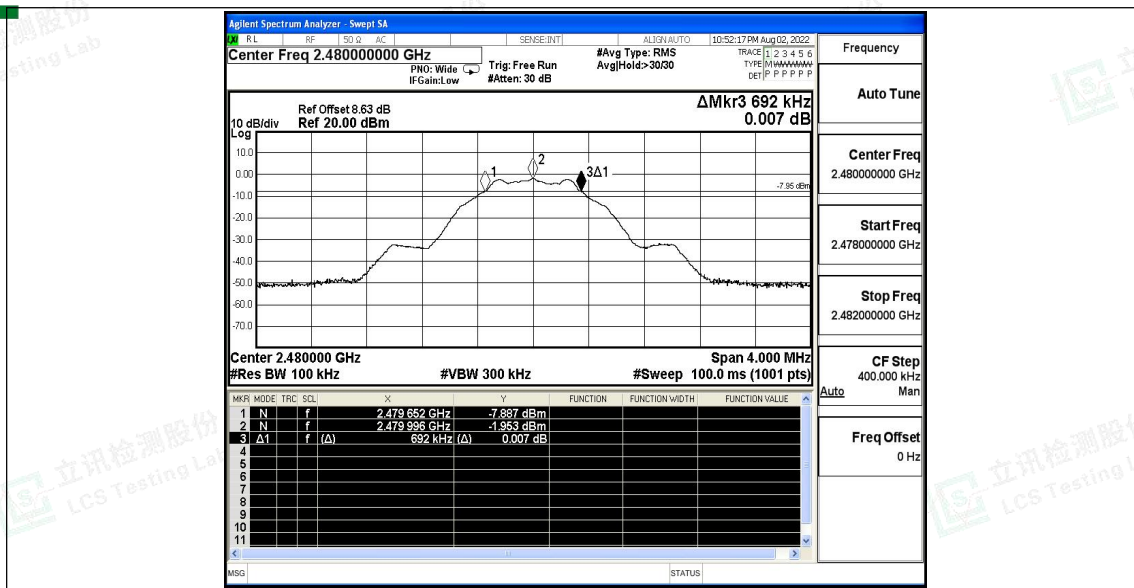


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B.2 Maximum conducted output power

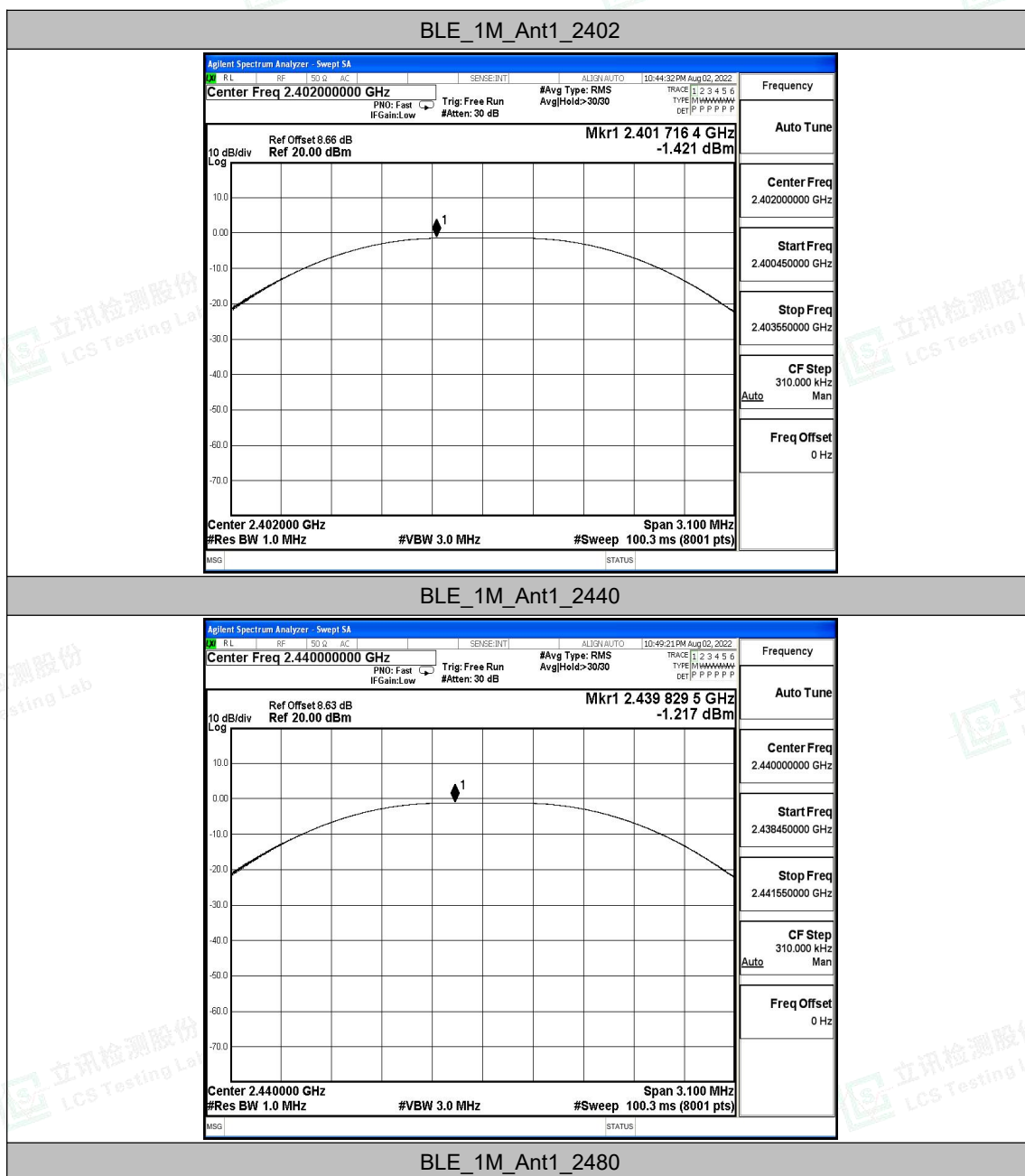
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-1.42	≤30	PASS
		2440	-1.22	≤30	PASS
		2480	-1.31	≤30	PASS





Test Graphs

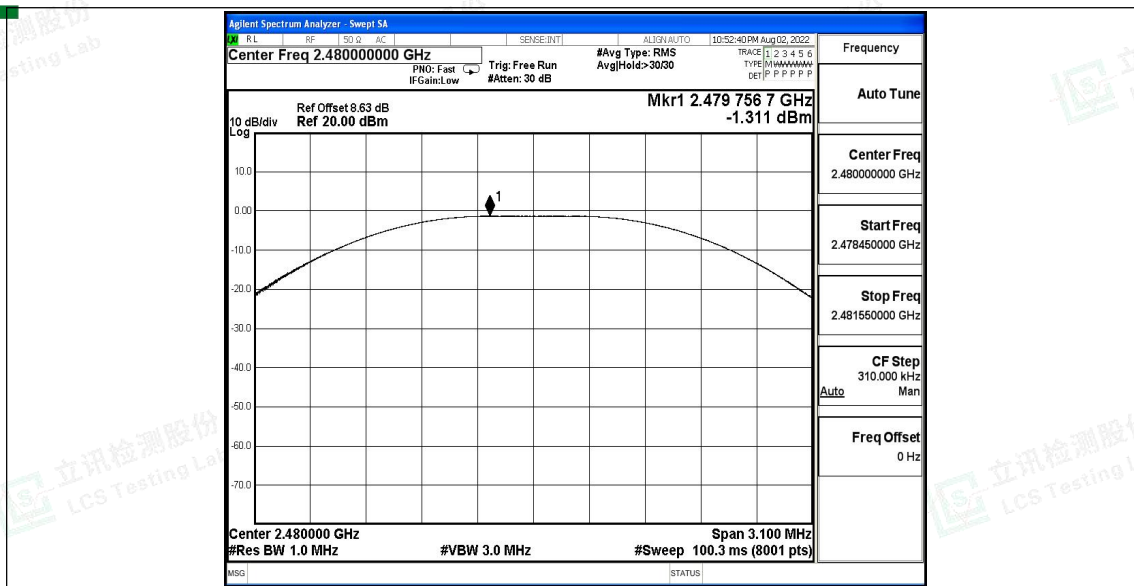


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B.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.29	≤8.00	PASS
		2440	-16.06	≤8.00	PASS
		2480	-16.17	≤8.00	PASS



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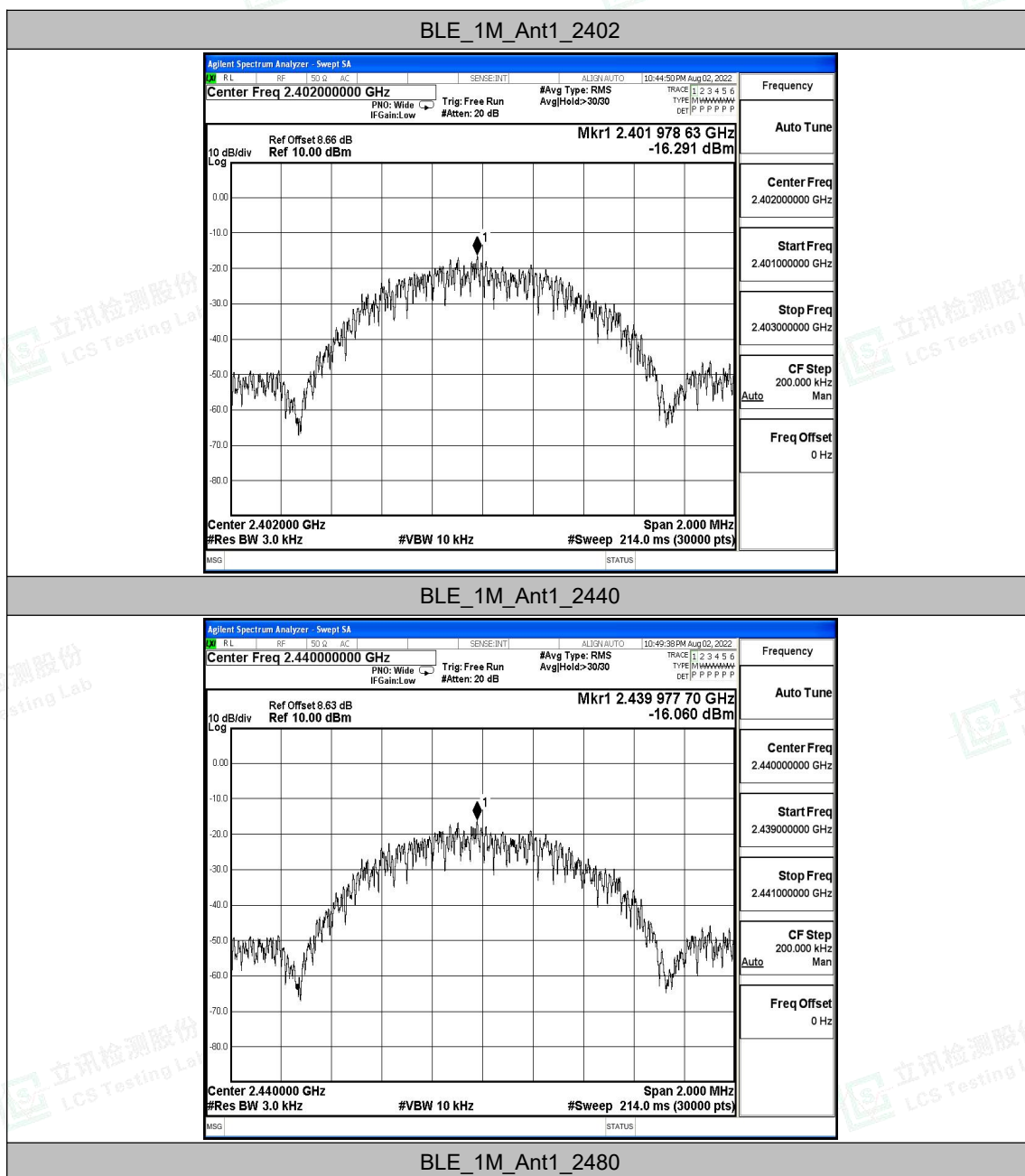
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Test Graphs

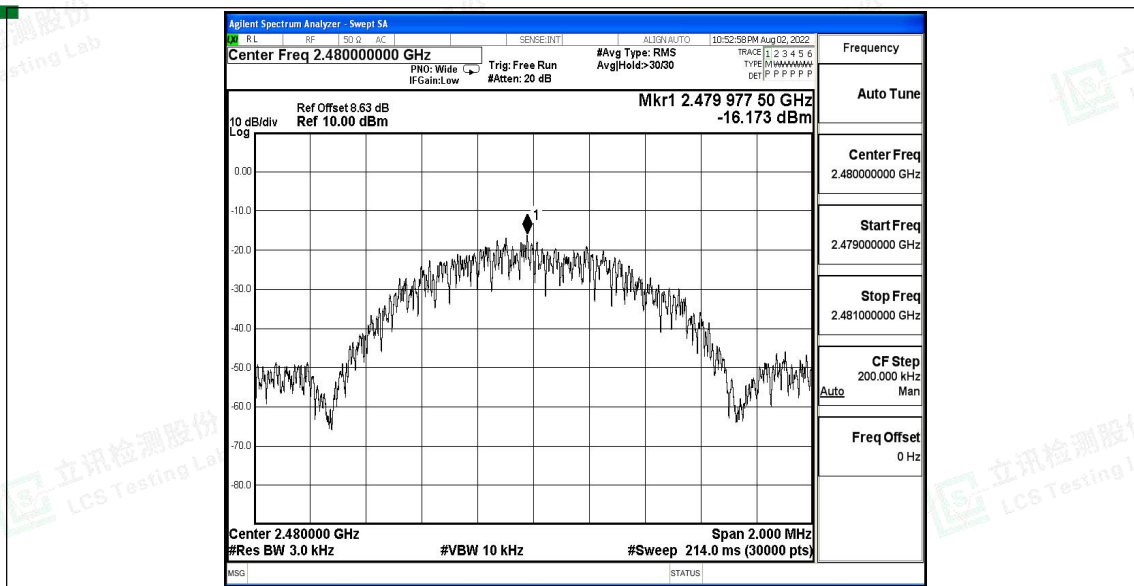


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B.4 Band edge measurements

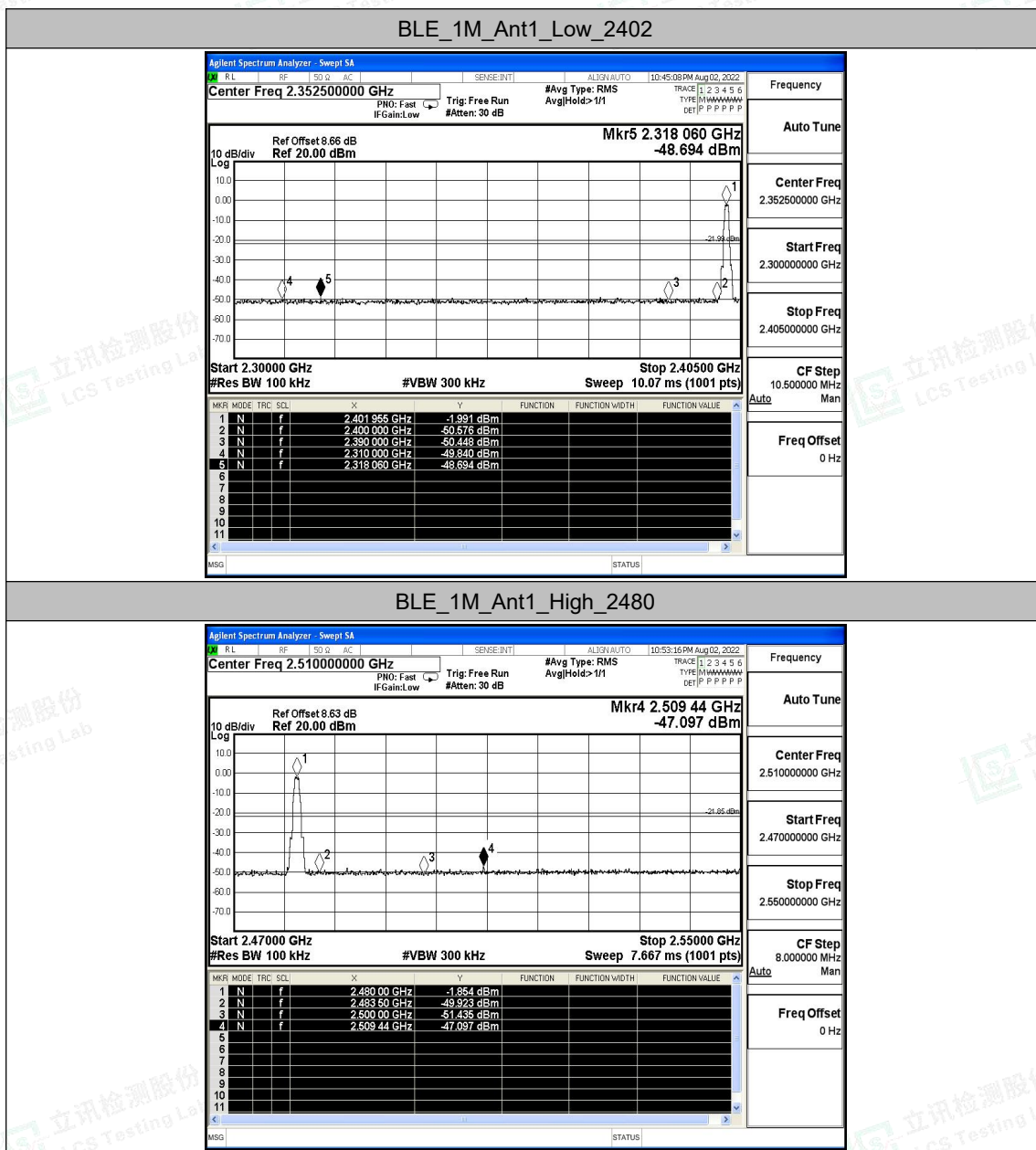
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.99	-48.69	≤-21.99	PASS
		High	2480	-1.85	-47.1	≤-21.85	PASS





Test Graphs



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B.5 Conducted Spurious Emission

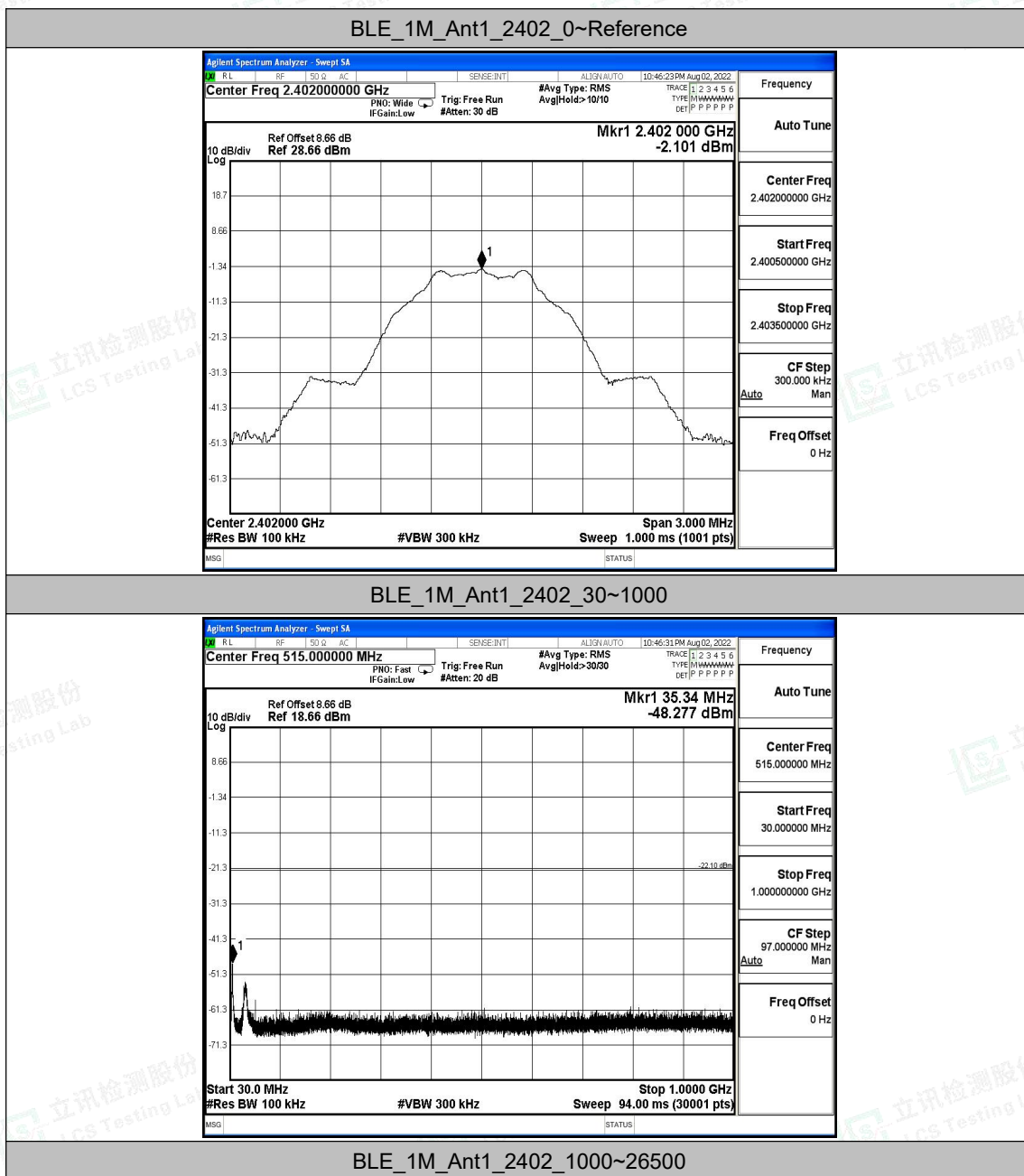
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-2.10	-2.10	---	PASS
			30~1000	-2.10	-48.28	≤-22.1	PASS
			1000~26500	-2.10	-45.74	≤-22.1	PASS
		2440	Reference	-1.87	-1.87	---	PASS
			30~1000	-1.87	-46.98	≤-21.87	PASS
			1000~26500	-1.87	-45.95	≤-21.87	PASS
		2480	Reference	-1.97	-1.97	---	PASS
			30~1000	-1.97	-48.09	≤-21.97	PASS
			1000~26500	-1.97	-46.43	≤-21.97	PASS





Test Graphs

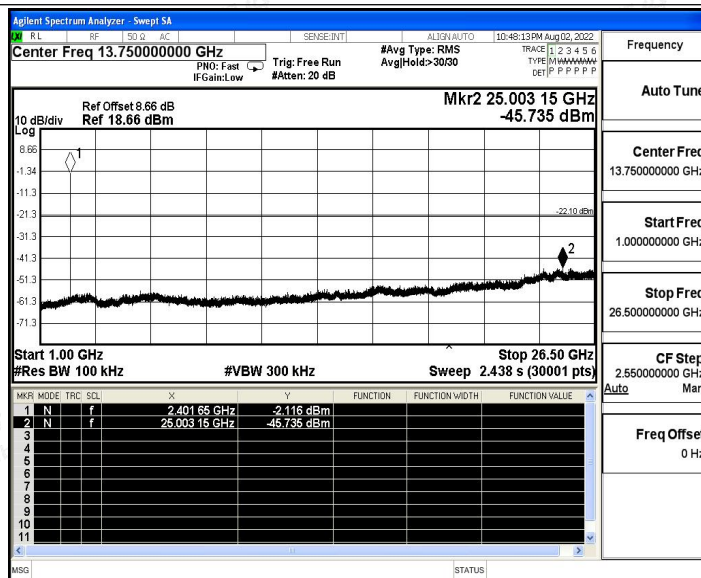


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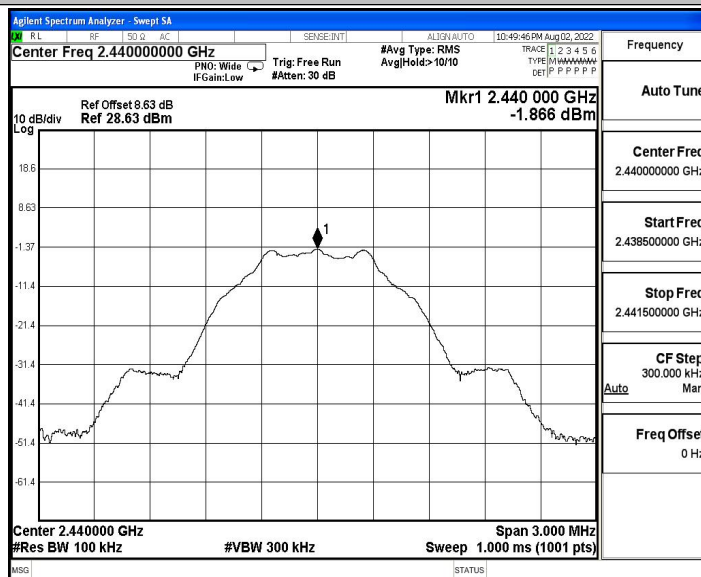
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BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000

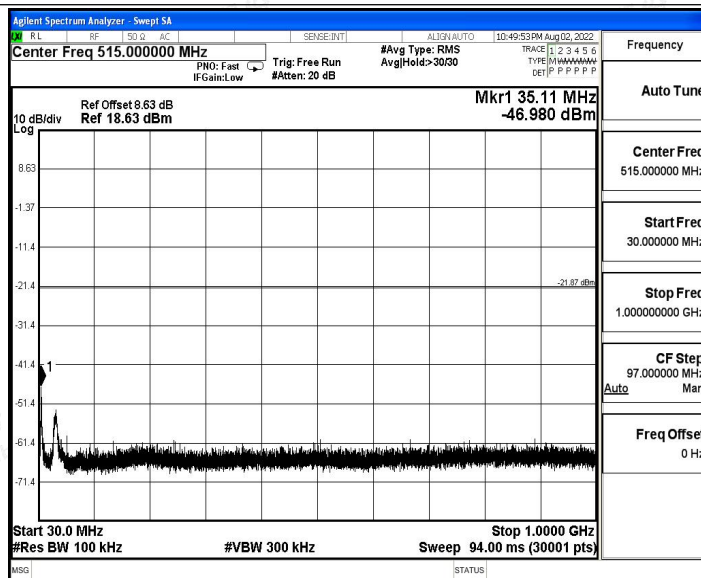


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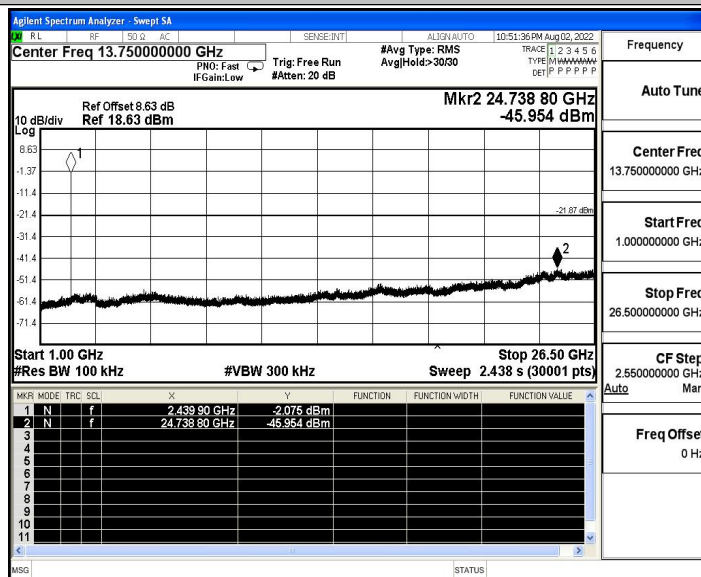
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BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

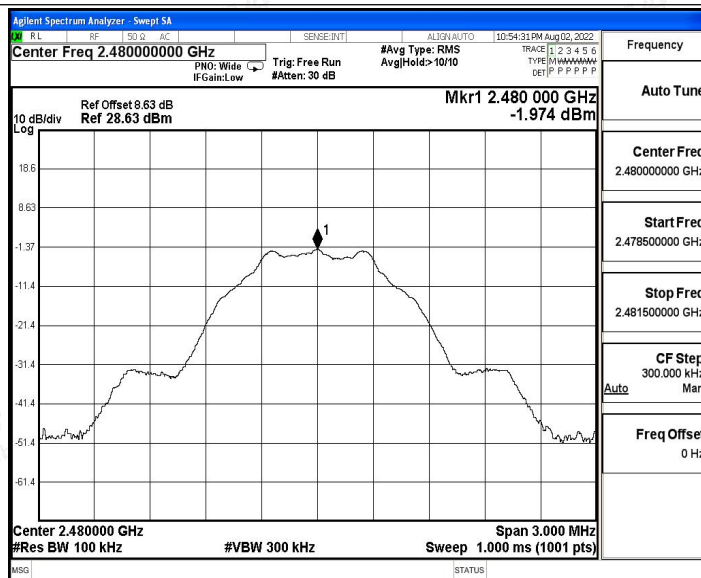


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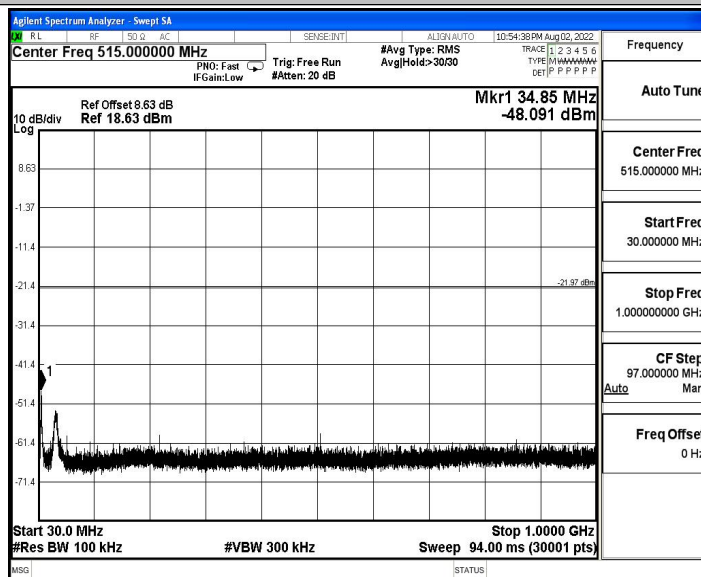
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BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

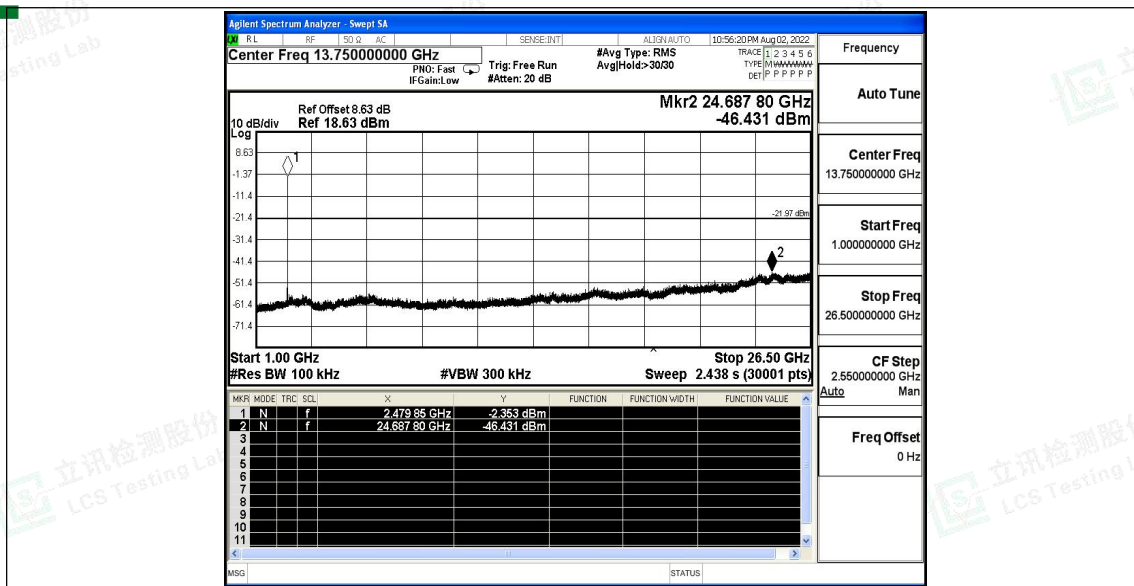


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B.6 Duty Cycle

Test Result

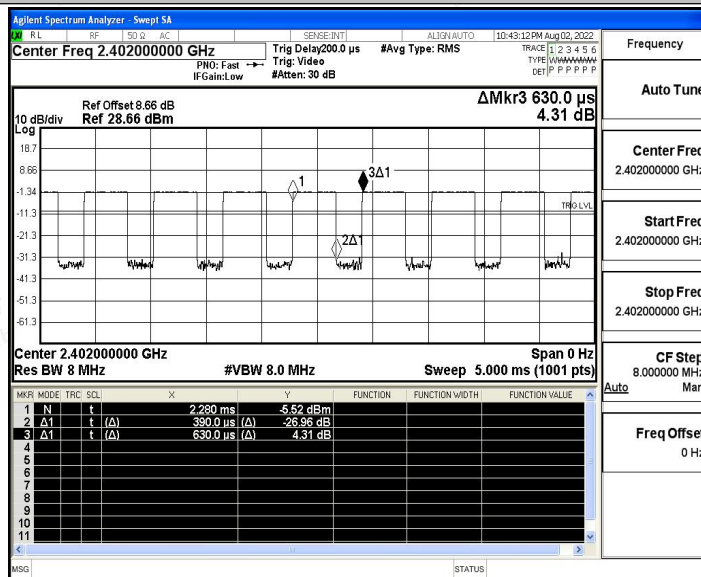
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2440	0.39	0.63	0.6190	61.90	2.08	2.56	---	---
		2480	0.38	0.63	0.6032	60.32	2.20	2.63	---	---



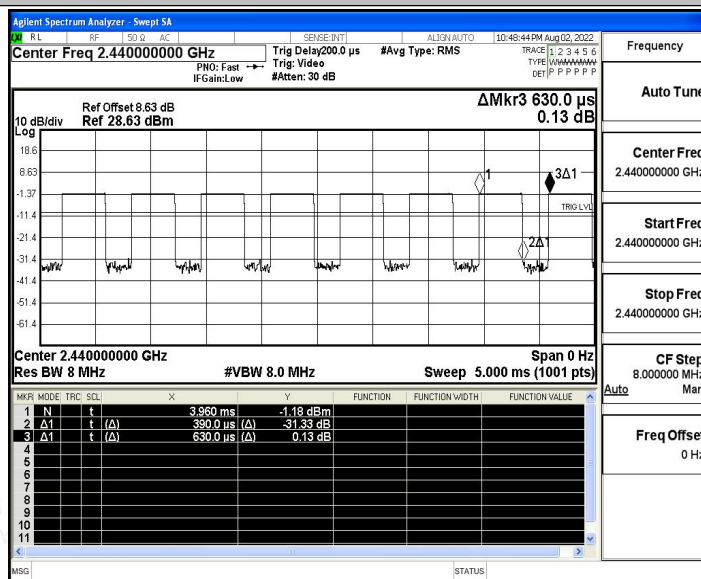


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

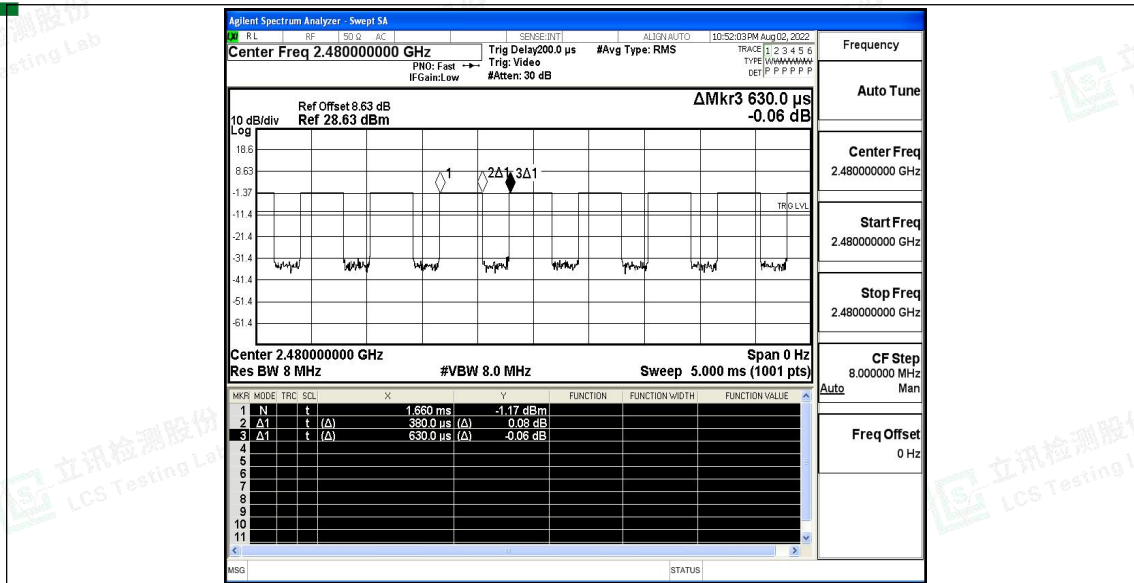


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B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-47.51	≤-41.20	47.69	≤54	PASS
				AV	2381.900	-46.61	≤-41.20	48.59	≤54	PASS
				AV	2390.000	-47.06	≤-41.20	48.14	≤54	PASS
				Peak	2310.000	-39.19	≤-21.20	56.01	≤74	PASS
				Peak	2372.240	-36.78	≤-21.20	58.42	≤74	PASS
				Peak	2390.000	-38.66	≤-21.20	56.54	≤74	PASS
		High	2480	AV	2483.500	-46.39	≤-41.20	48.81	≤54	PASS
				AV	2494.400	-46.11	≤-41.20	49.09	≤54	PASS
				AV	2500.000	-46.56	≤-41.20	48.64	≤54	PASS
				Peak	2483.500	-38.64	≤-21.20	56.56	≤74	PASS
				Peak	2488.400	-36.47	≤-21.20	58.73	≤74	PASS
				Peak	2500.000	-37.6	≤-21.20	57.60	≤74	PASS

Note:

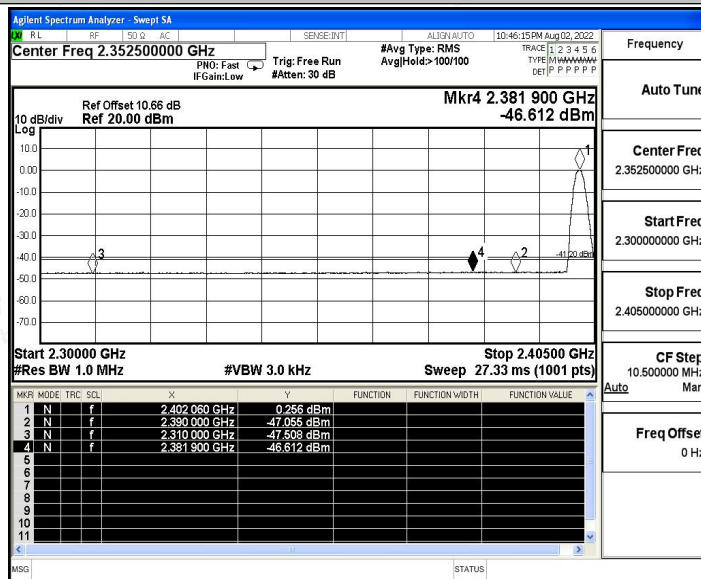
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



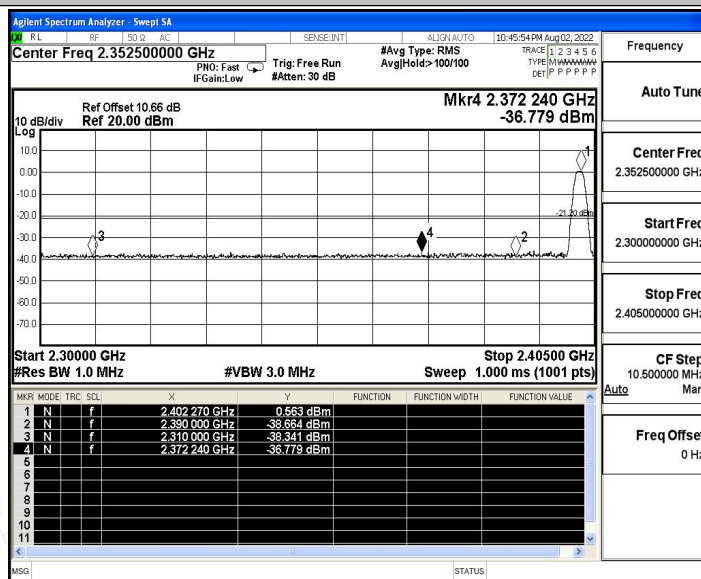


Test Graphs

BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV

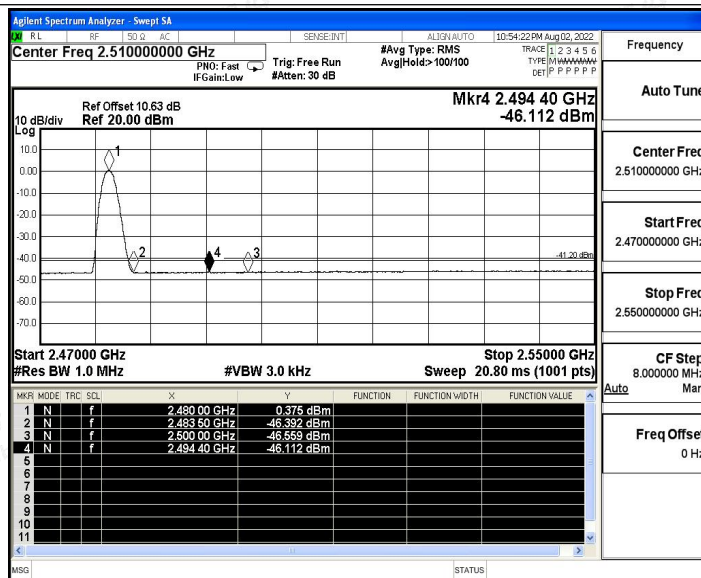


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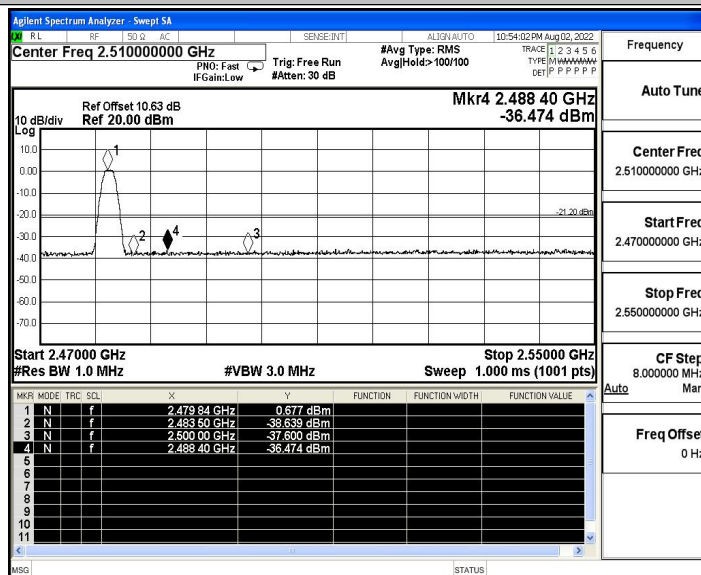
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BLE_1M_Ant1_High_2480_Peak



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