



Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Dual mode wireless photoelectric mouse

Test Model: SM600

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
	<i>Nick Peng</i>
Supervised by:	Ling Zhu
	<i>Ling Zhu</i>



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A.1 DTS 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	2439.632	2440.344	0.5	PASS
		2480	0.716	2479.632	2480.348	0.5	PASS



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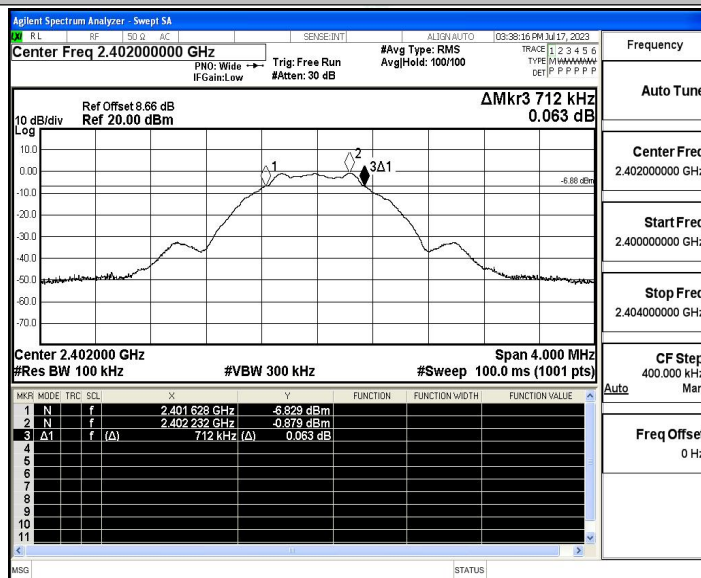
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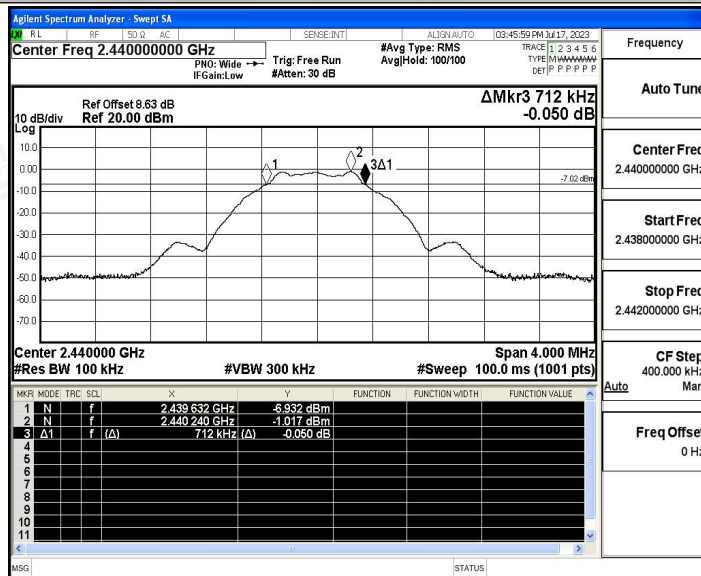


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

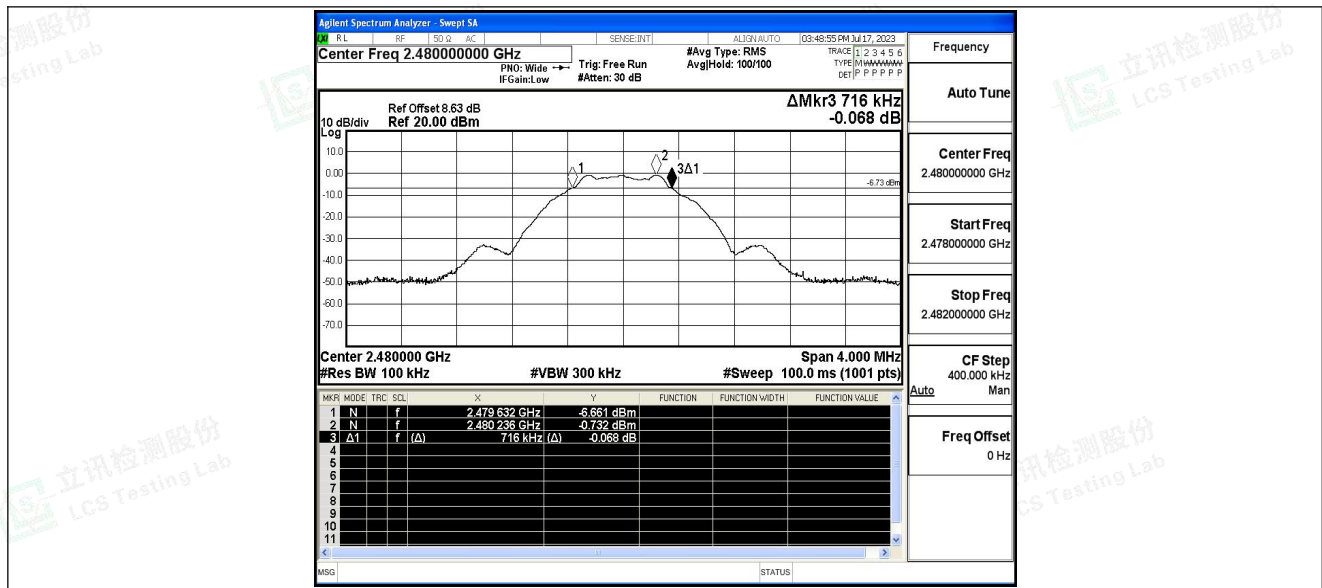


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A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.1	≤30	PASS
		2440	-0.08	≤30	PASS
		2480	0.23	≤30	PASS



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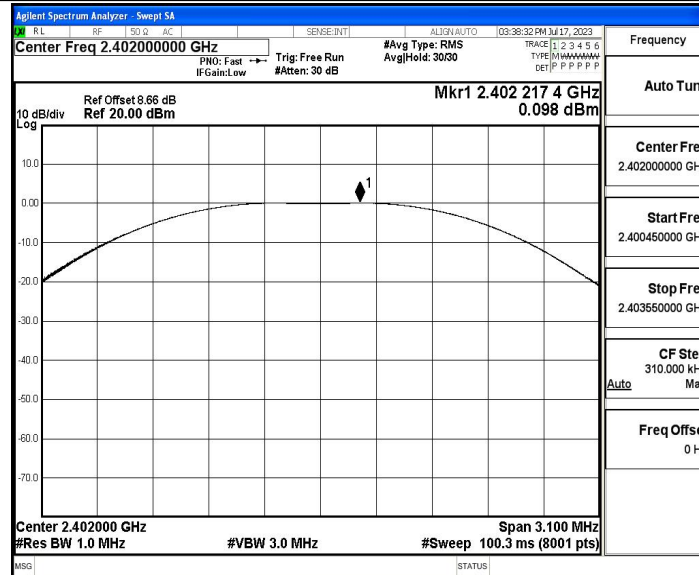
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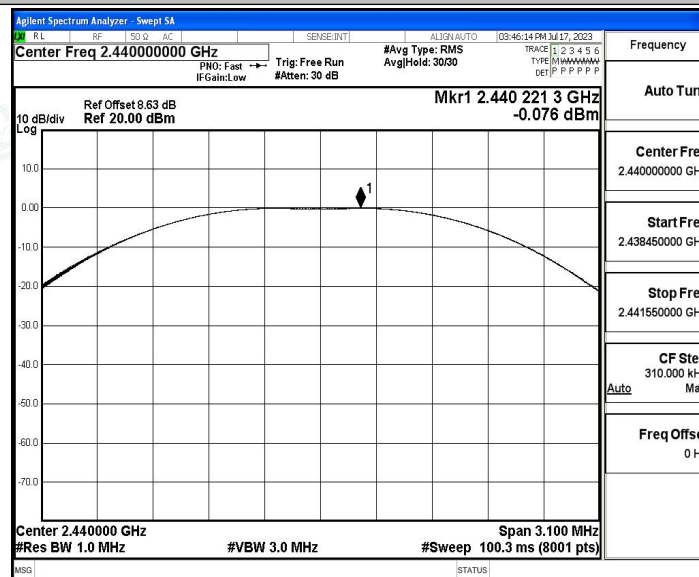


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

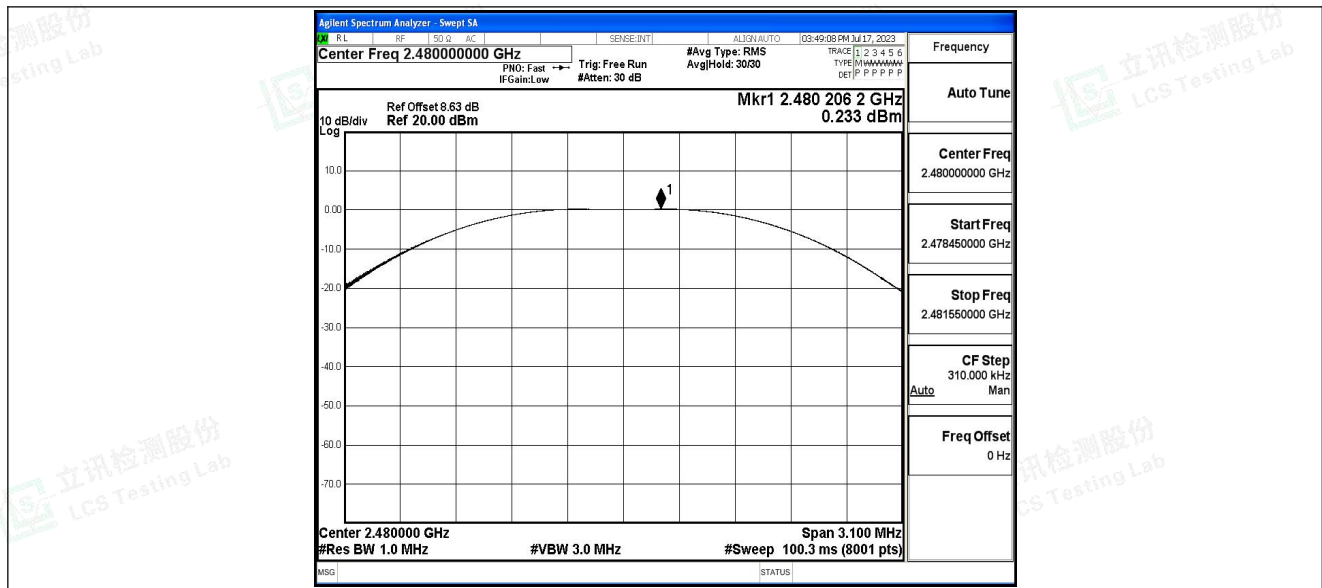


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A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.49	≤8.00	PASS
		2440	-15.19	≤8.00	PASS
		2480	-14.8	≤8.00	PASS



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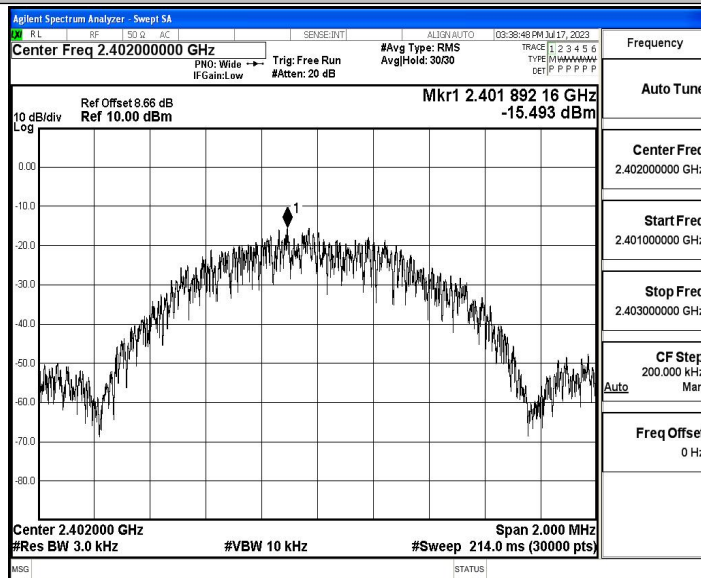
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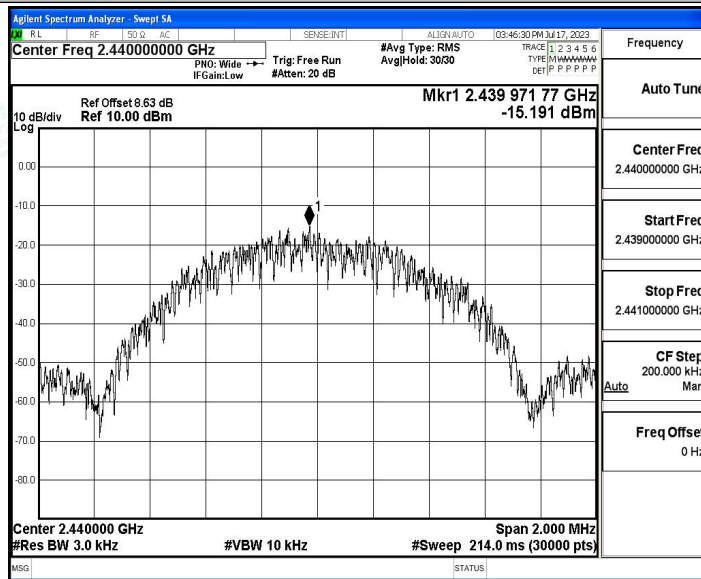


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

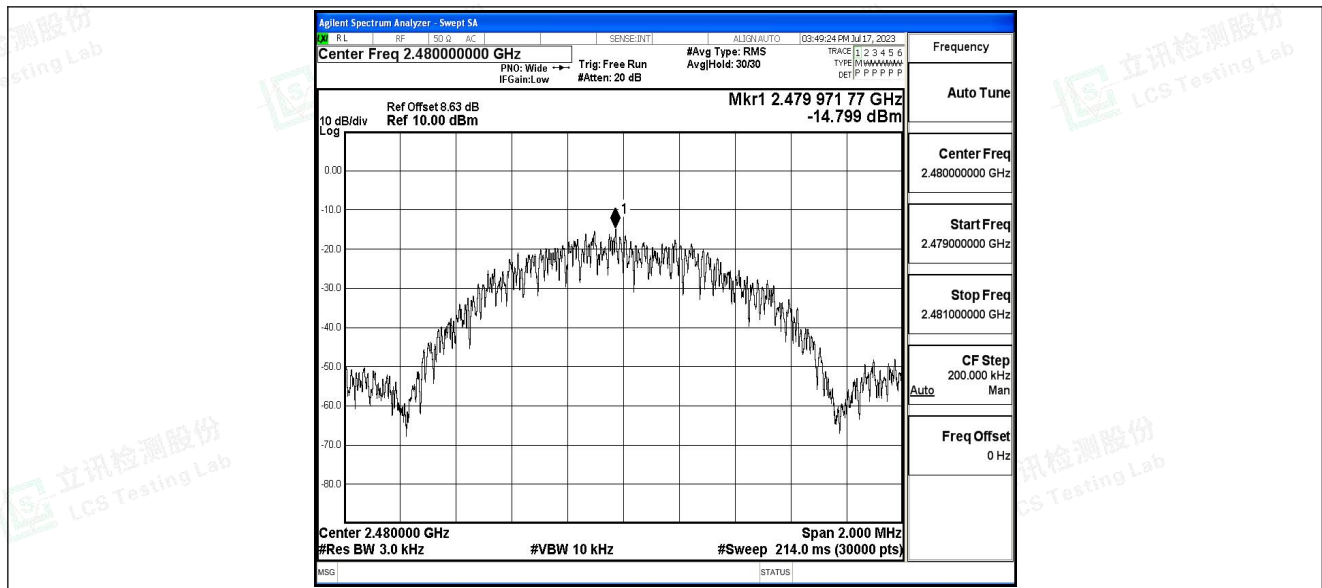


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A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.66	-57.5	≤-20.66	PASS
		High	2480	-0.82	-57.67	≤-20.82	PASS



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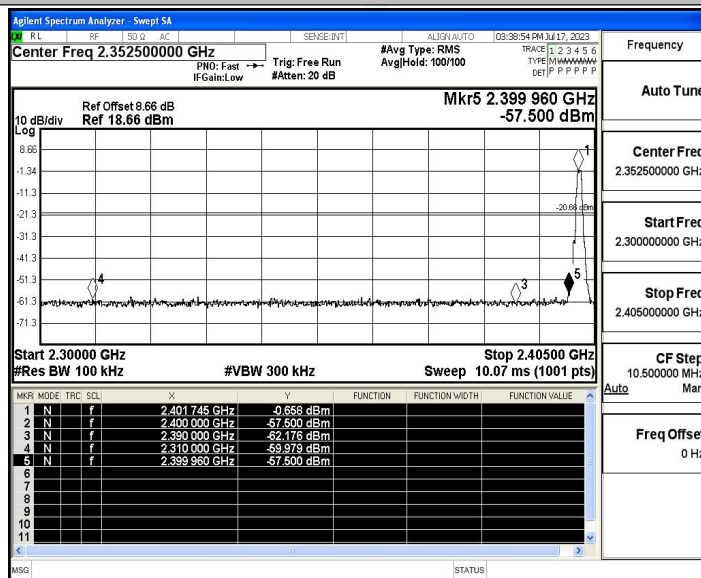
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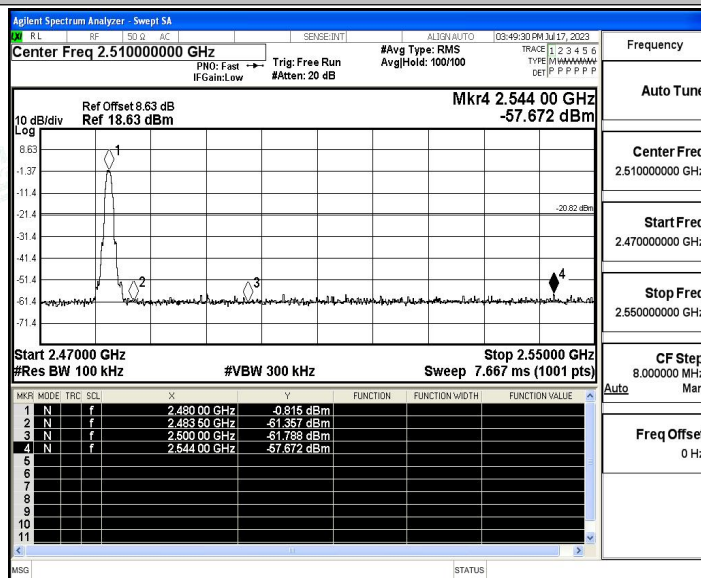


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



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A.5 Conducted Spurious Emission

Test Result

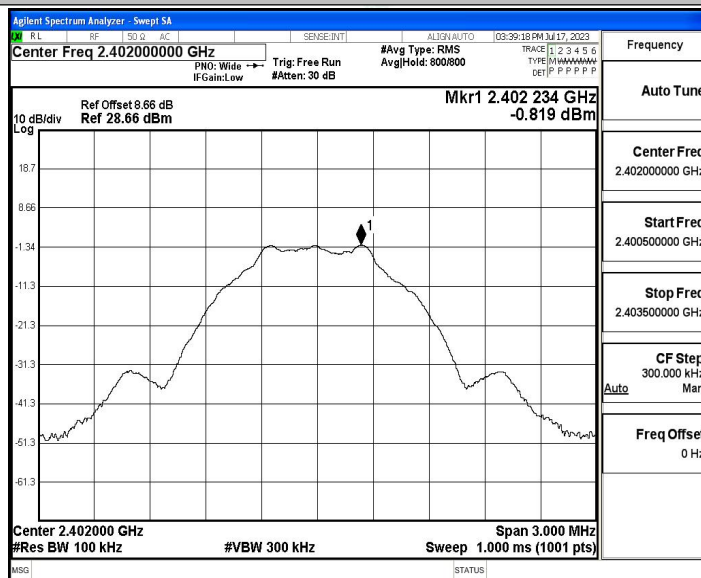
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.82	-0.82	---	PASS
			30~1000	-0.82	-61.47	≤-20.82	PASS
			1000~26500	-0.82	-46.26	≤-20.82	PASS
		2440	Reference	-1.01	-1.01	---	PASS
			30~1000	-1.01	-60.24	≤-21.01	PASS
			1000~26500	-1.01	-45.92	≤-21.01	PASS
		2480	Reference	-0.72	-0.72	---	PASS
			30~1000	-0.72	-60.6	≤-20.72	PASS
			1000~26500	-0.72	-46.28	≤-20.72	PASS



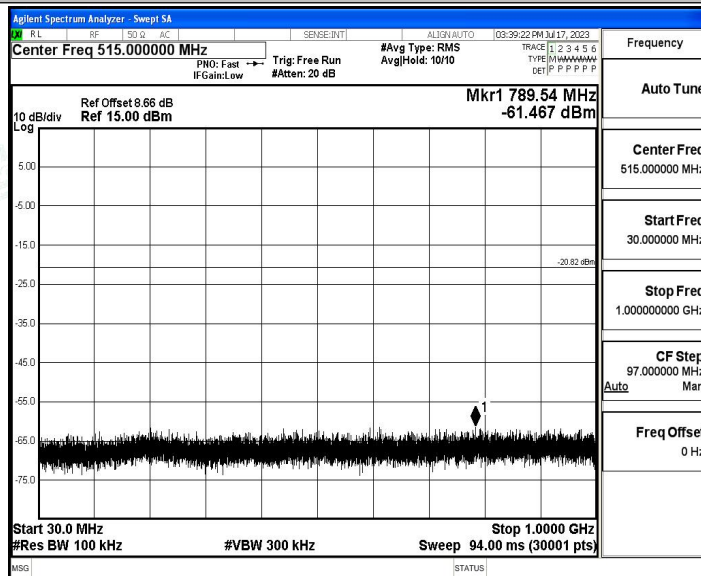


Test Graphs

BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



BLE_1M_Ant1_2402_1000~26500

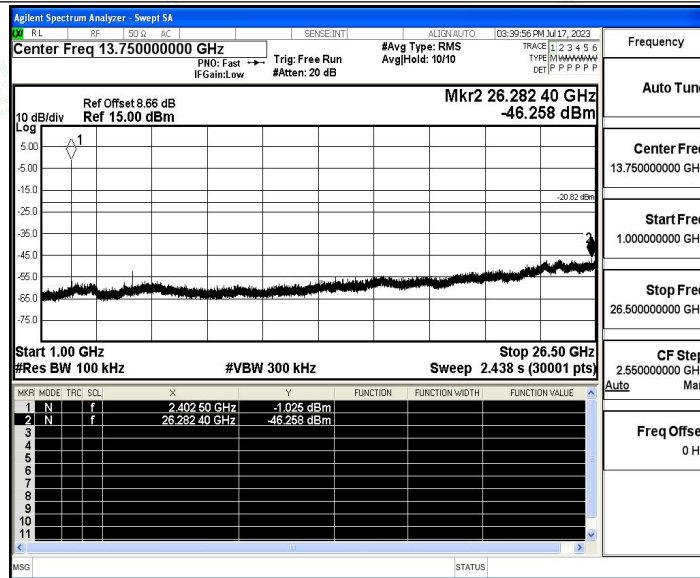


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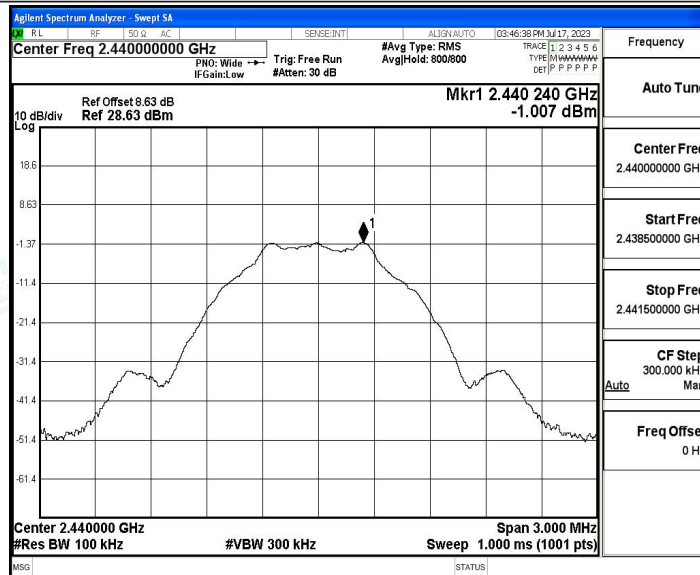
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BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000

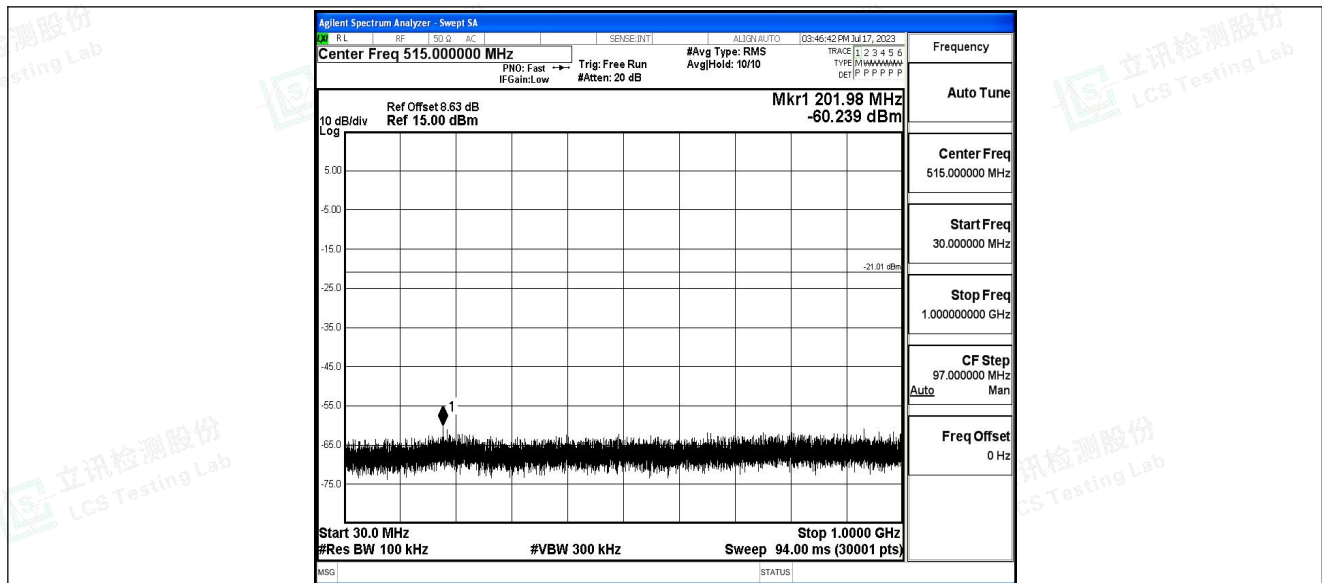


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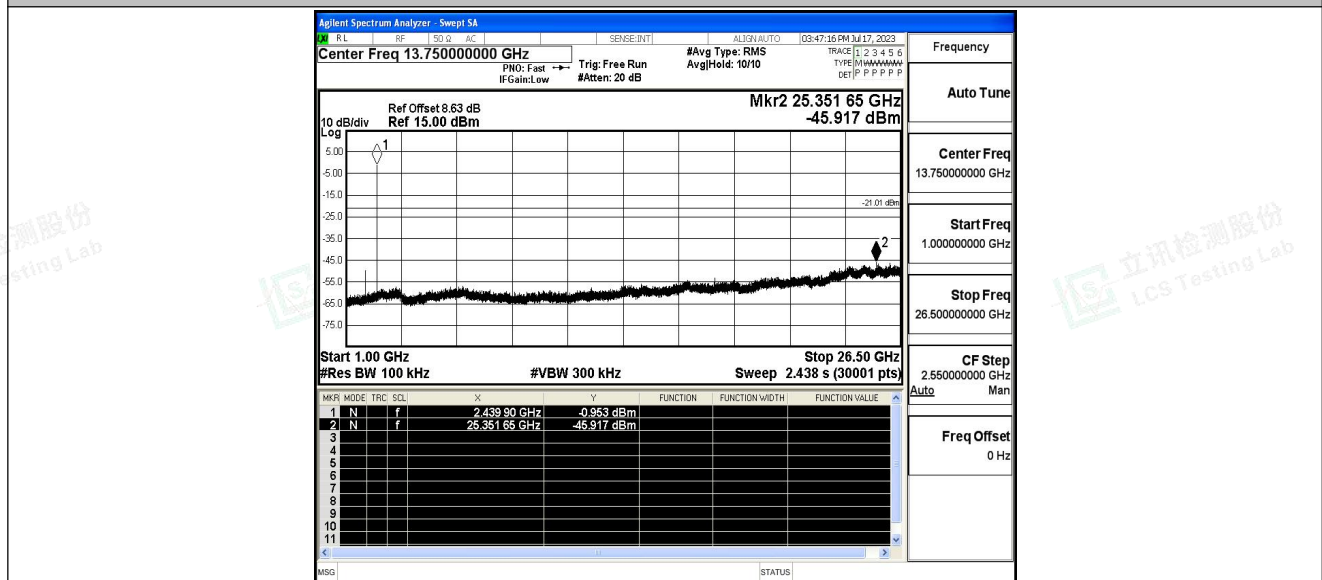
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BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

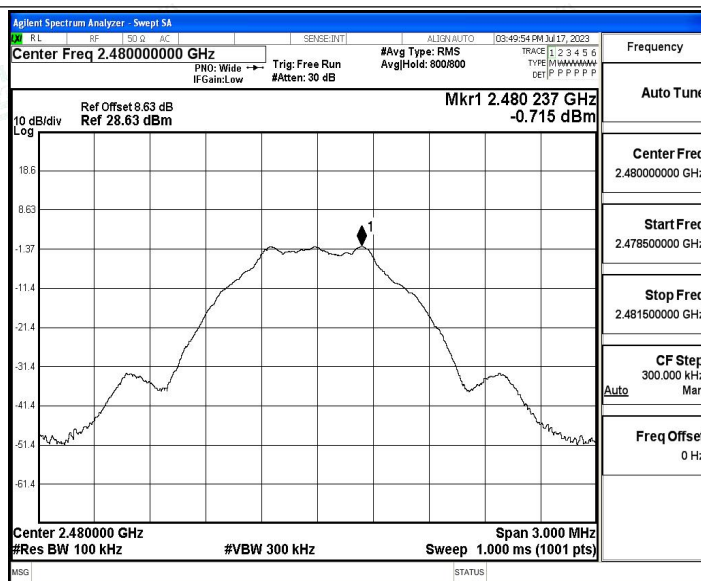


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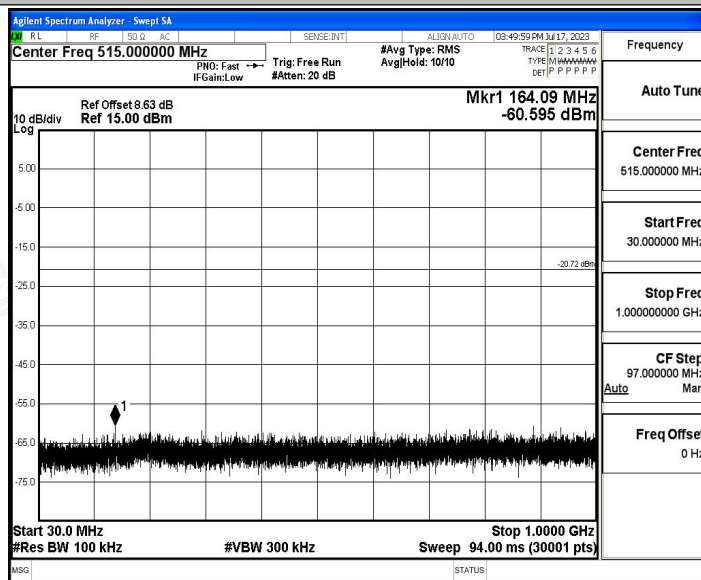
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BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

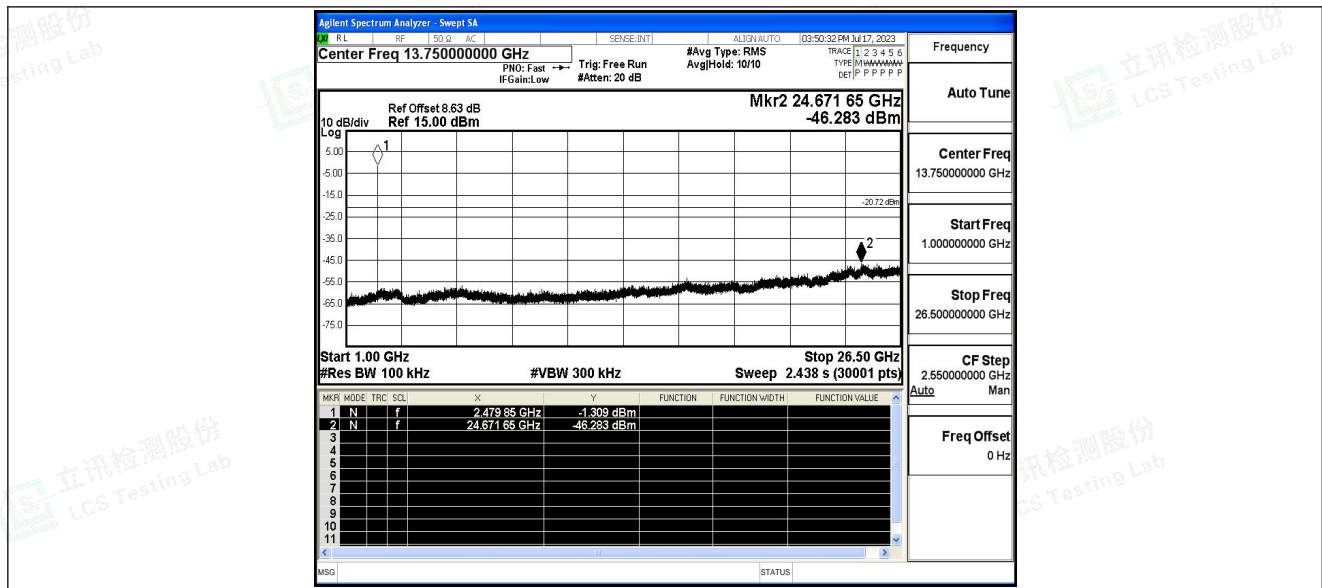


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A.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		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	---	---



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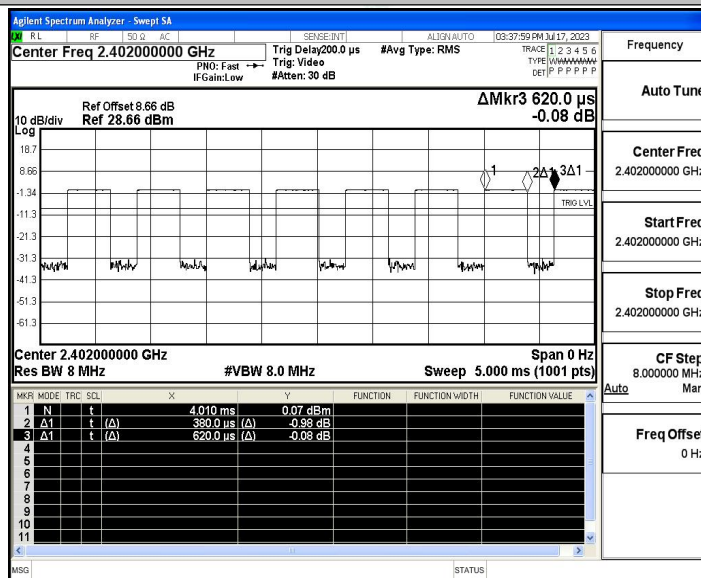
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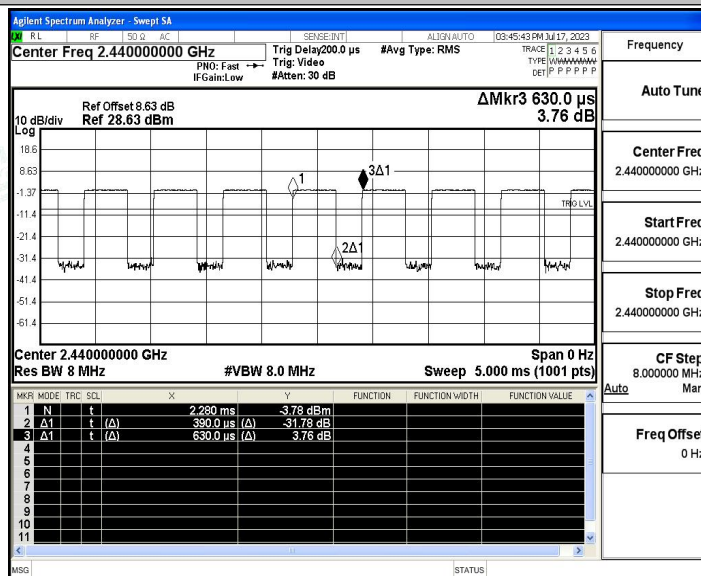


Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

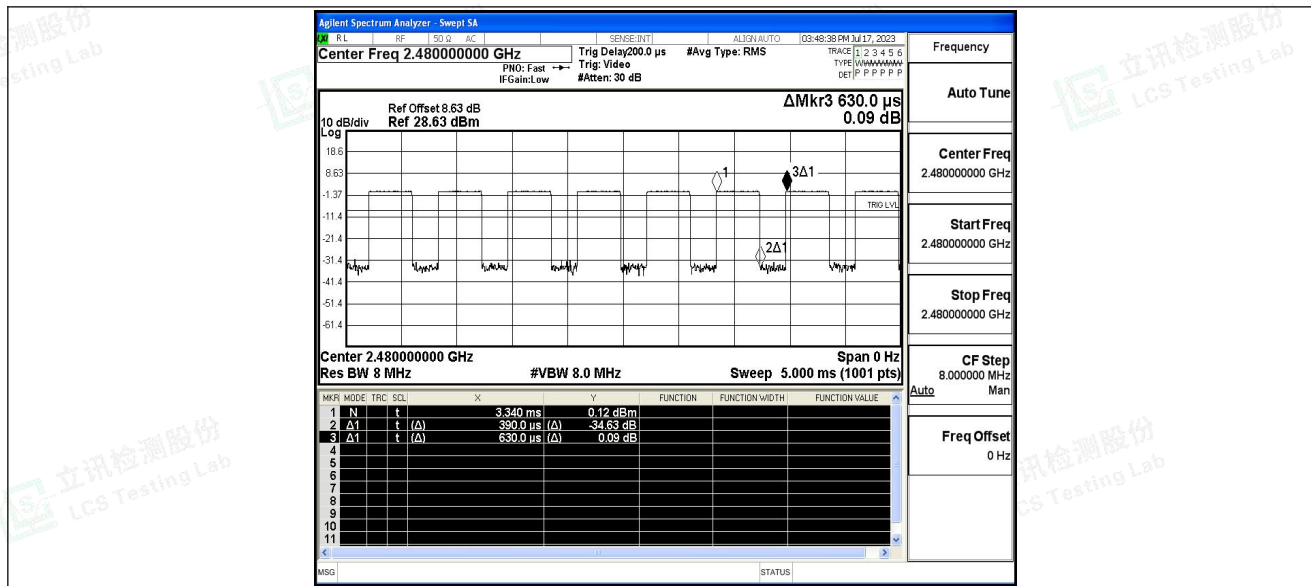


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A.7 Emissions in Restricted Bands

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	-57.12	≤-41.20	38.08	≤54	PASS
				AV	2378.960	-56.42	≤-41.20	38.78	≤54	PASS
				AV	2390.000	-56.87	≤-41.20	38.33	≤54	PASS
				Peak	2310.000	-51.28	≤-21.20	43.92	≤74	PASS
				Peak	2385.680	-47.43	≤-21.20	47.77	≤74	PASS
				Peak	2390.000	-50.5	≤-21.20	44.70	≤74	PASS
		High	2480	AV	2483.500	-53.3	≤-41.20	41.90	≤54	PASS
				AV	2483.520	-53.3	≤-41.20	41.90	≤54	PASS
				AV	2500.000	-56.49	≤-41.20	38.71	≤54	PASS
				Peak	2483.500	-49.5	≤-21.20	45.70	≤74	PASS
				Peak	2488.240	-46.98	≤-21.20	48.22	≤74	PASS
				Peak	2500.000	-49.67	≤-21.20	45.53	≤74	PASS

Note:

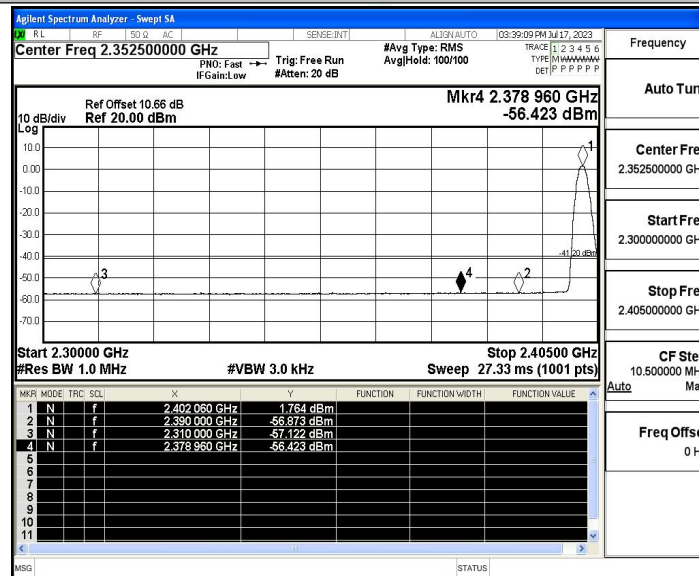
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



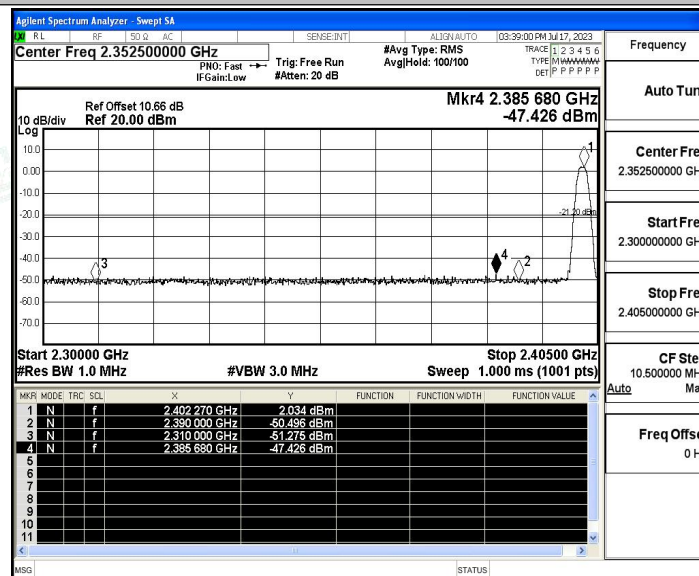


Test Graphs

BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV

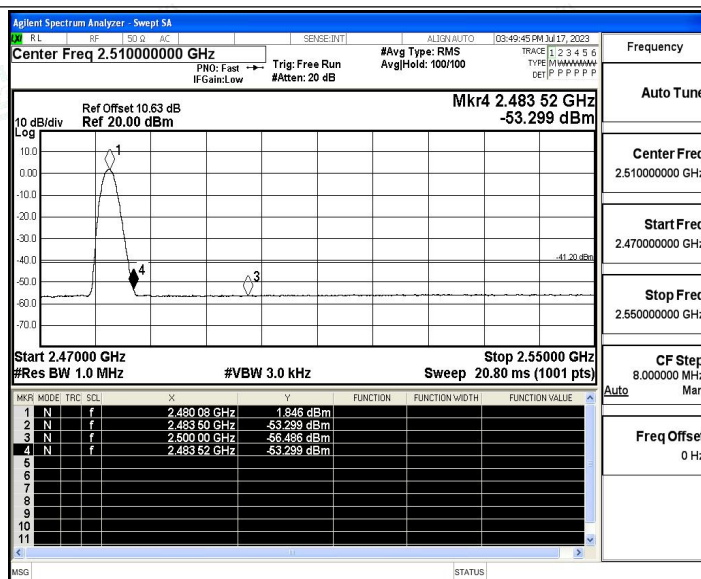


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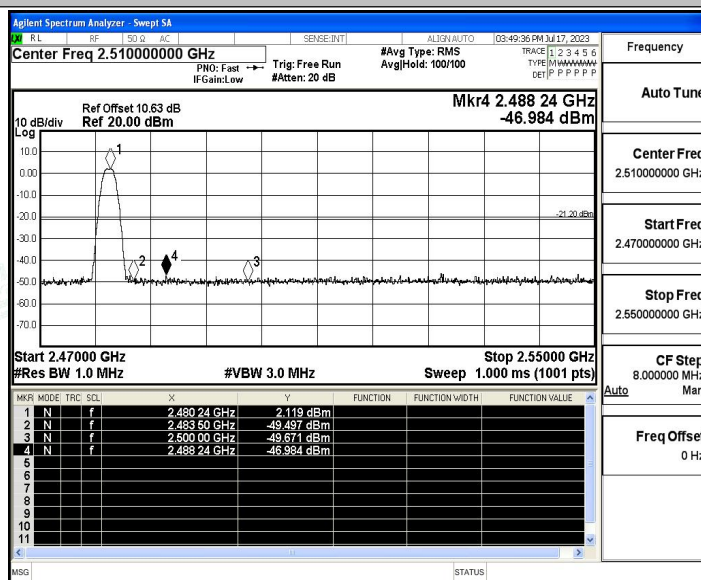
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BLE_1M_Ant1_High_2480_Peak



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