Appendix-BLE Test Data

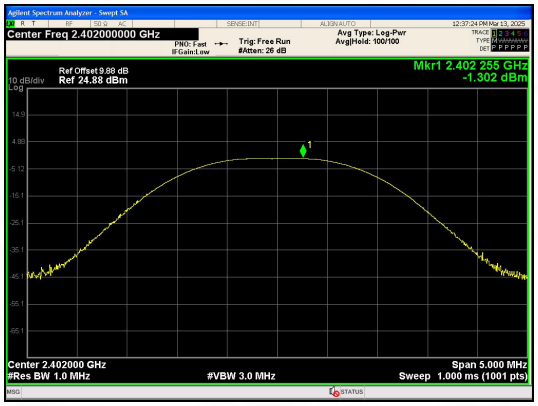
Conducted Test Data

Conducted Output Power

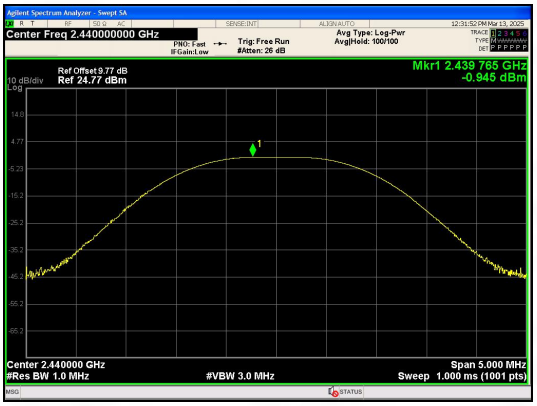
Mode	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Max. Avg. Power (dBm)	Limit (dBm)	Result
BLE 1M	0	-1.30	0.74	None	≤30	PASS
	19	**-0.94**	0.8	None	≤30	PASS
	39	-1.19	0.76	None	≤30	PASS
BLE 2M	0	-1.17	0.76	None	≤30	PASS
	19	**-0.88**	0.82	None	≤30	PASS
	39	-1.09	0.78	None	≤30	PASS

Note: EIRP = P_{out} + G_{ant}, where P_{out} is the conducted output power (i.e., the Peak Output Power in the table), and G_{ant} is the antenna gain equal to 1.25 dBi.

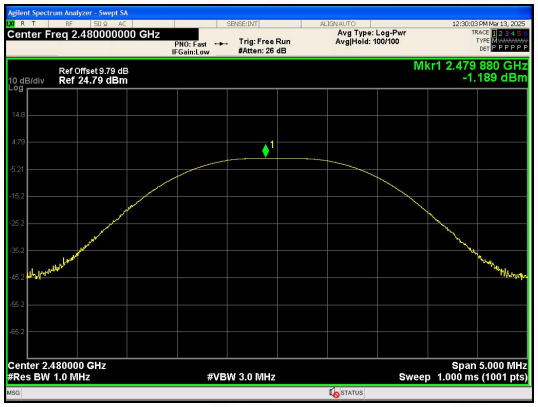
Test Graphs



Peak Output Power
BLE 1M_Channel 0



Peak Output Power
BLE 1M_Channel 19



Peak Output Power
BLE 1M_Channel 39

Peak Output Power
BLE 2M_Channel 0

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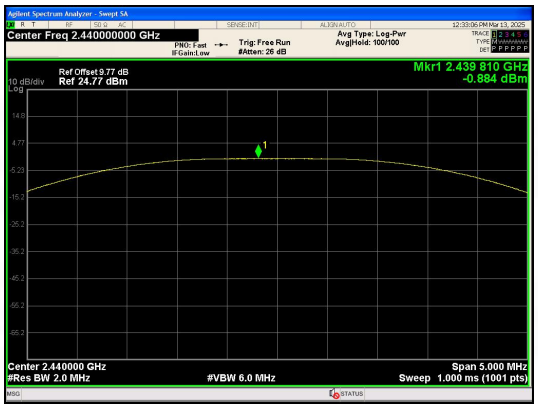
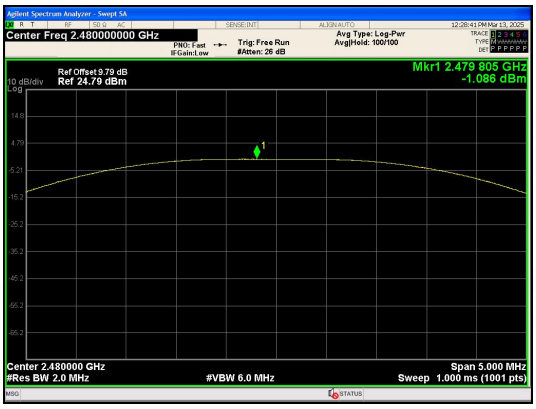
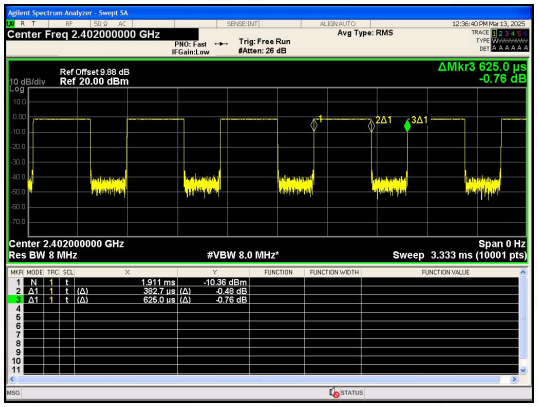
	
Peak Output Power **BLE 2M_Channel 19**	**Peak Output Power** **BLE 2M_Channel 39**

Duty Cycle

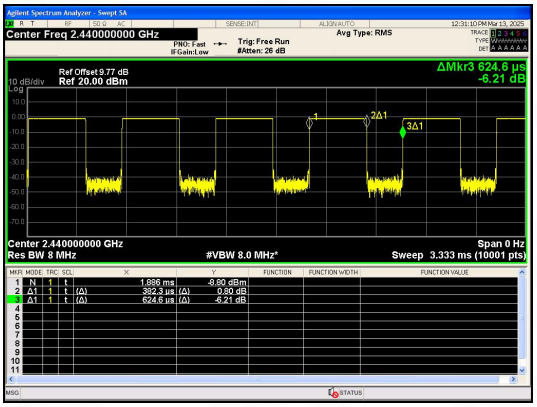
Test Result

Mode	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
BLE 1M	0	0.383	0.625	61.23	0.6123	2.1304	2.6110
	19	0.382	0.625	61.21	0.6121	2.1318	2.6178
	39	0.382	0.625	61.21	0.6121	2.1318	2.6178
BLE 2M	0	0.199	0.625	31.78	0.3178	4.9785	5.0251
	19	0.198	0.625	31.75	0.3175	4.9826	5.0505
	39	0.199	0.625	31.81	0.3181	4.9744	5.0251

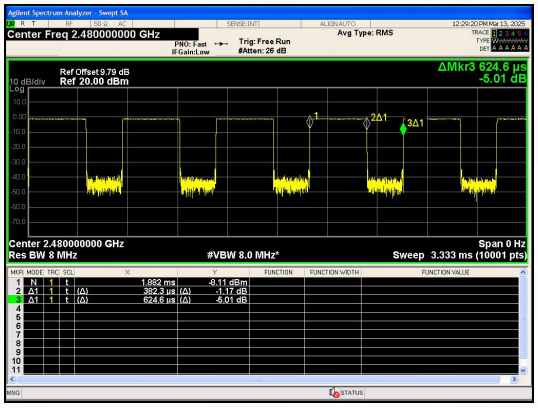
Test Graphs



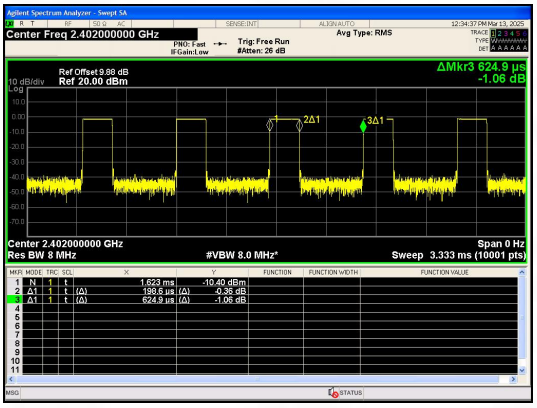
BLE 1M_Channel 0



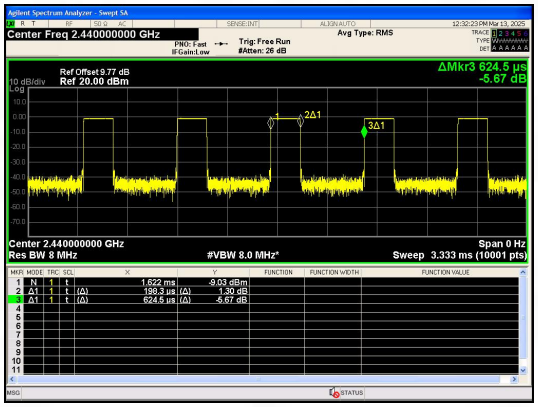
BLE 1M_Channel 19



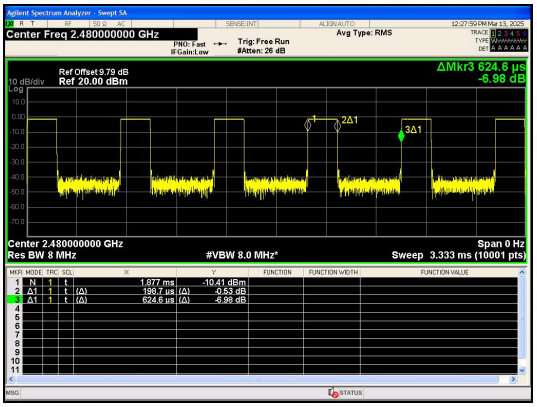
BLE 1M_Channel 39



BLE 2M_Channel 0



BLE 2M_Channel 19



BLE 2M_Channel 39

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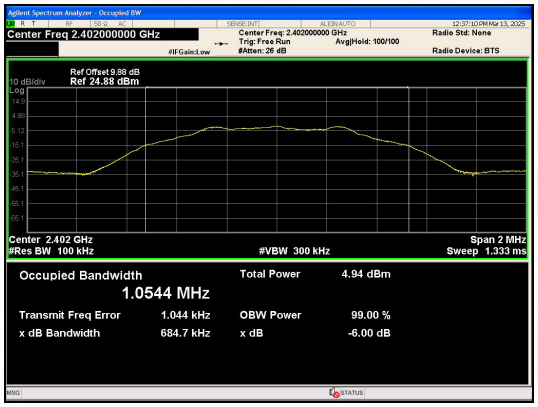
6dB Bandwidth and 99% Bandwidth

6dB Bandwidth

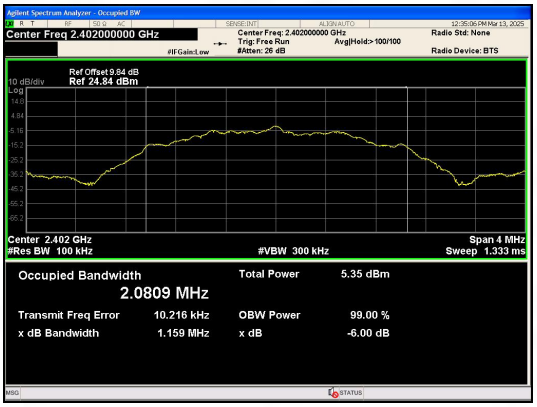
Test Result

Mode	Channel	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
BLE 1M	0	2402	0.6847	≥0.5	PASS
	19	2440	0.6837		PASS
	39	2480	0.6762		PASS
BLE 2M	0	2402	1.159		PASS
	19	2440	1.153		PASS
	39	2480	1.151		PASS

Test Graphs



BLE 1M_Channel 0



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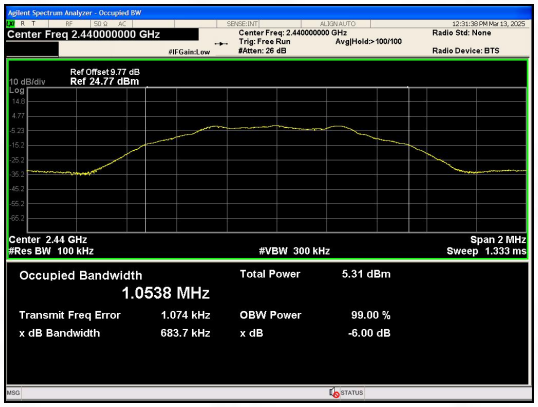
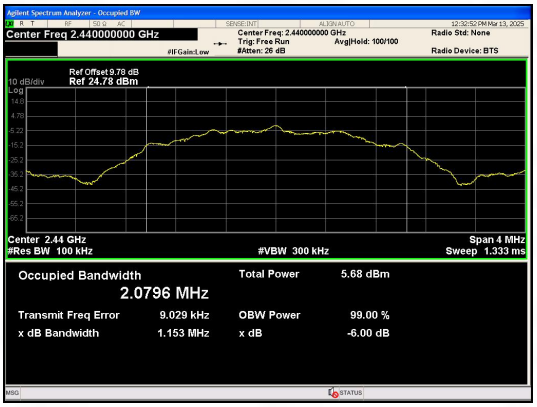


BLE 1M_Channel 19



BLE 2M_Channel 19

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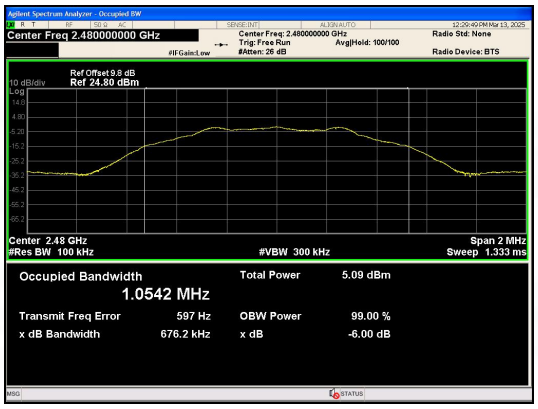
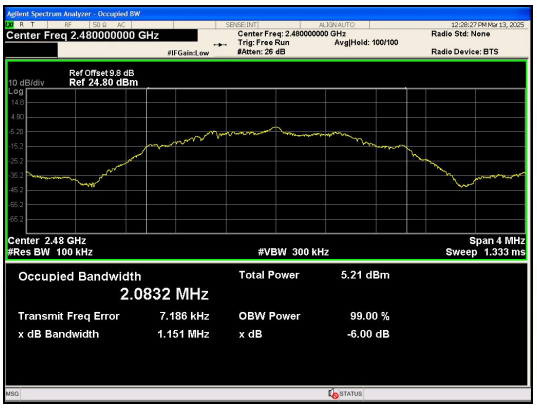


BLE 1M_Channel 39



BLE 2M_Channel 39

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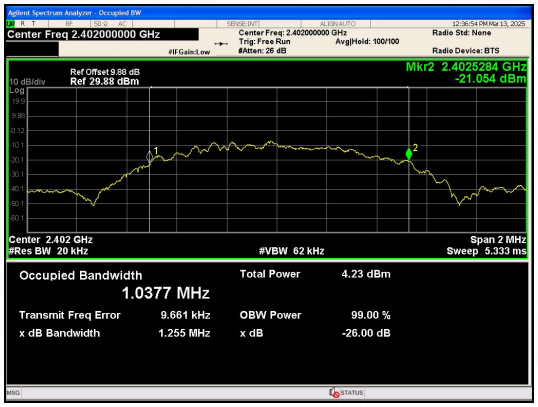
99% Bandwidth

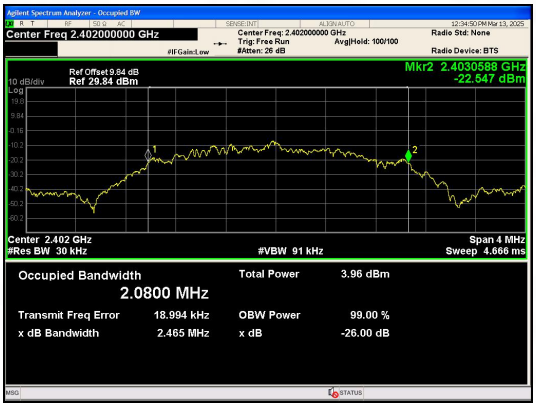
Test Result

Mode	Channel	Center Frequency (MHz)	99% BW (MHz)
BLE 1M	0	2402	1.0377
BLE 1M	19	2440	1.0394
BLE 1M	39	2480	1.0373
BLE 2M	0	2402	2.0800
BLE 2M	19	2440	2.0741
BLE 2M	39	2480	2.0655

Test Graphs



BLE 1M_Channel 0



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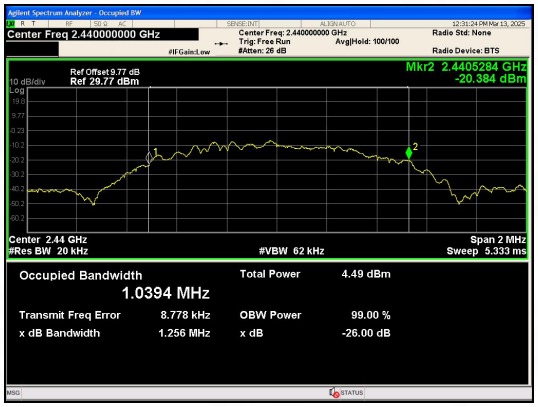

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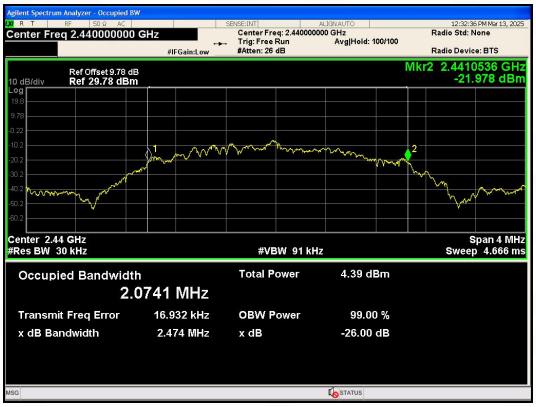
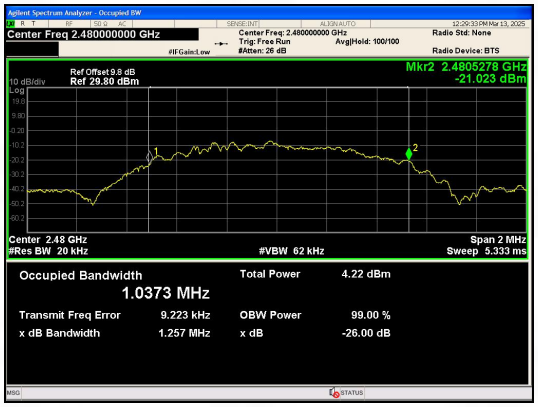
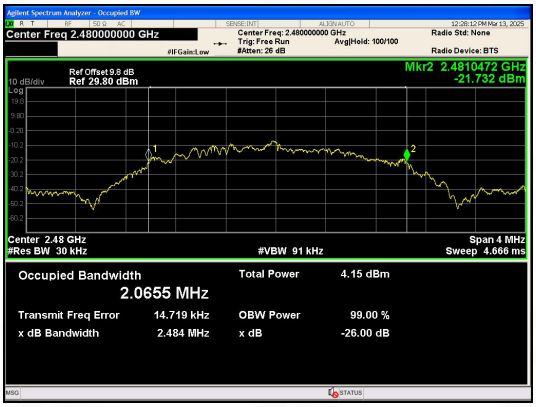


BLE 2M_Channel 19



BLE 1M_Channel 39



BLE 2M_Channel 39

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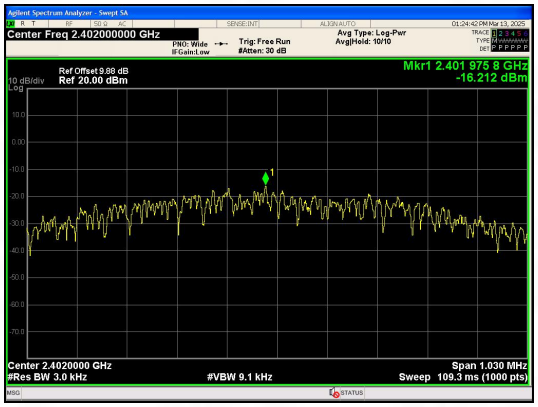
Power Spectral Density

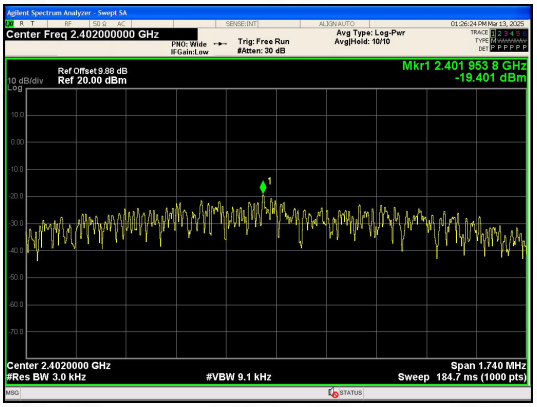
Test Result

Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
BLE 1M	0	-16.212	≤8	PASS
BLE 1M	19	-16.070	≤8	PASS
BLE 1M	39	-16.157	≤8	PASS
BLE 2M	0	-19.401	≤8	PASS
BLE 2M	19	-18.802	≤8	PASS
BLE 2M	39	-18.736	≤8	PASS

Test Graphs



BLE 1M_Channel 0



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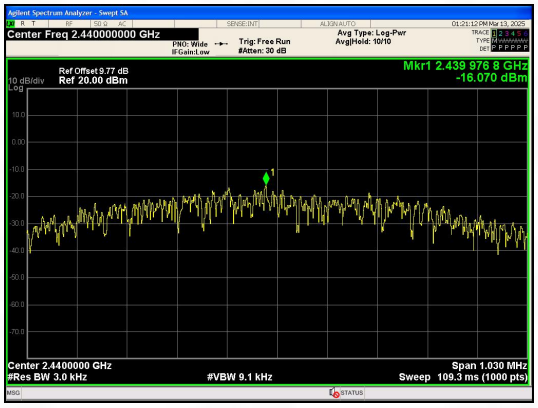
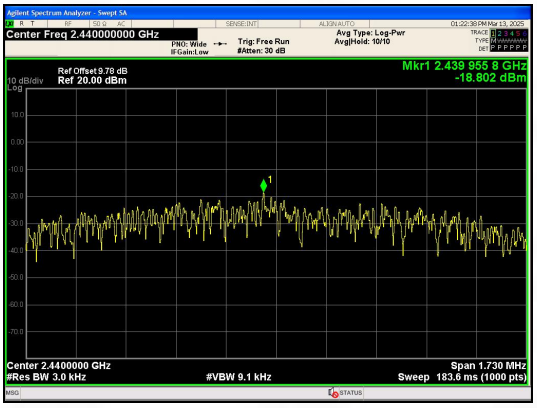
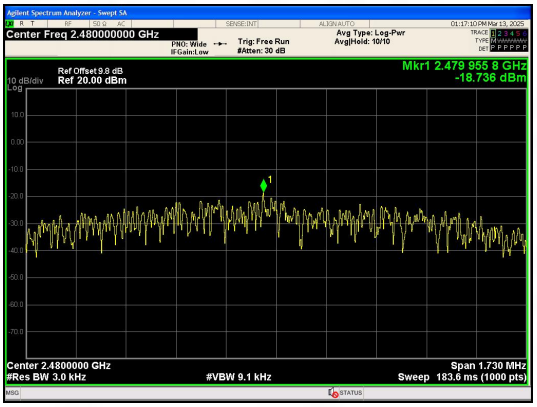


BLE 1M_Channel 19



BLE 2M_Channel 19

BLE 1M_Channel 39



BLE 2M_Channel 39

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Conducted Out Of Band Emission

Test Result

Mode	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
BLE 1M	0	2359.53	-50.464	-21.86	-28.604	PASS
		2400.00	-53.610	-21.86	-31.750	PASS
		4804.30	-66.823	-21.86	-44.963	PASS
		7206.40	-66.612	-21.86	-44.752	PASS
		9607.20	-67.570	-21.86	-45.710	PASS
		24702.2	-54.801	-21.86	-32.941	PASS
	19	4881.67	-65.621	-21.58	-44.041	PASS
		7319.99	-66.018	-21.58	-44.438	PASS
		9760.81	-67.097	-21.58	-45.517	PASS
		24639.8	-55.405	-21.58	-33.825	PASS
	39	2483.50	-52.078	-21.78	-30.298	PASS
		4958.45	-67.260	-21.78	-45.480	PASS
		7440.47	-65.281	-21.78	-43.501	PASS
		9921.24	-66.335	-21.78	-44.555	PASS
		24727.2	-54.551	-21.78	-32.771	PASS
BLE 2M	0	2400.00	-33.038	-21.91	-11.128	PASS
		4802.39	-66.780	-21.91	-44.870	PASS
		7205.75	-66.340	-21.91	-44.430	PASS
		9609.74	-66.110	-21.91	-44.200	PASS
		24665.4	-55.155	-21.91	-33.245	PASS
	19	4881.67	-66.519	-21.55	-44.969	PASS
		7319.37	-67.807	-21.55	-46.257	PASS
		9758.94	-68.568	-21.55	-47.018	PASS
		24640.4	-54.771	-21.55	-33.221	PASS
	39	2483.50	-52.467	-22.07	-30.397	PASS
		4960.33	-68.004	-22.07	-45.934	PASS
		7441.10	-64.964	-22.07	-42.894	PASS
		9918.12	-69.731	-22.07	-47.661	PASS
		24915.1	-55.344	-22.07	-33.274	PASS

Note:The maximum loss of the test system for testing at 30MHz-26.5GHz is 17.2dB. The offset on the test chart is the offset of the main frequency, and the margin is sufficient to offset the difference between the maximum loss of the system and the offset of the main frequency.

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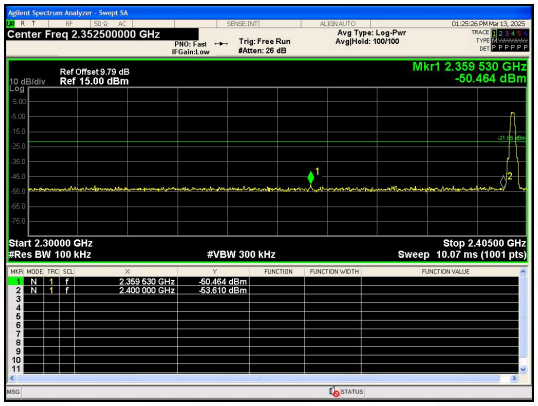
Test Graphs

In-Band Reference Level

BLE 1M_Channel 0

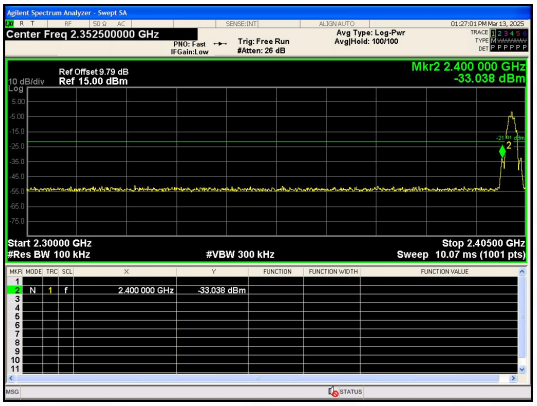
In-Band Reference Level

BLE 2M_Channel 0



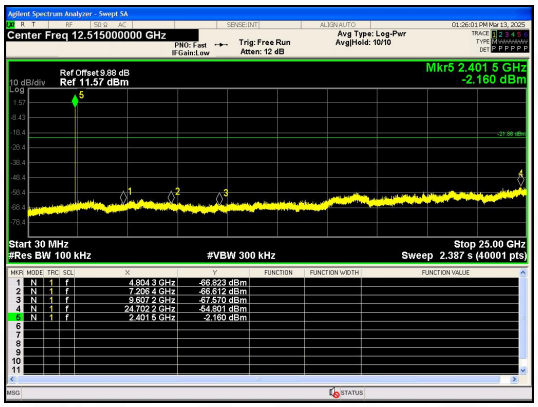
Out Of Band Emission

BLE 1M_Channel 0



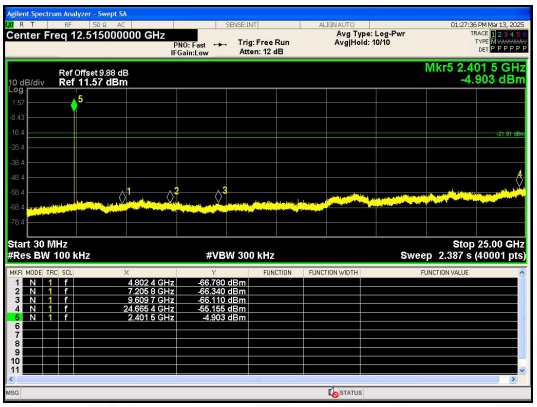
Out Of Band Emission

BLE 2M_Channel 0



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 0



30.0 MHz - 25000.0 MHz

BLE 2M_Channel 0

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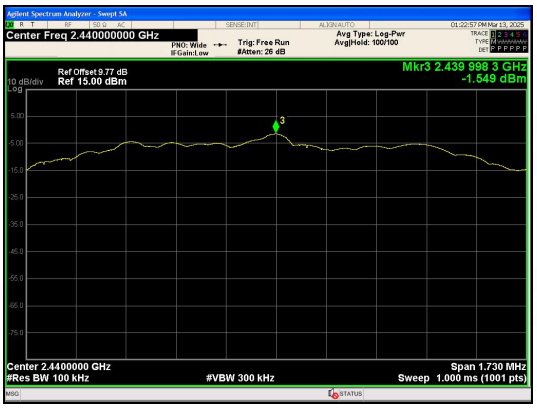
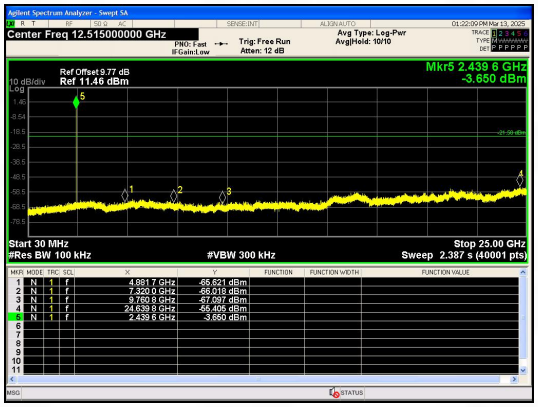
In-Band Reference Level

BLE 1M_Channel 19



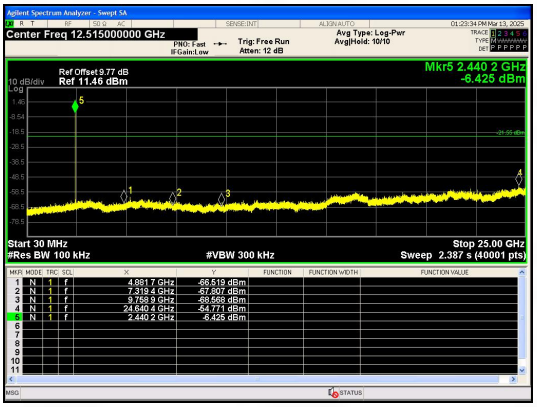
In-Band Reference Level

BLE 2M_Channel 19



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 19

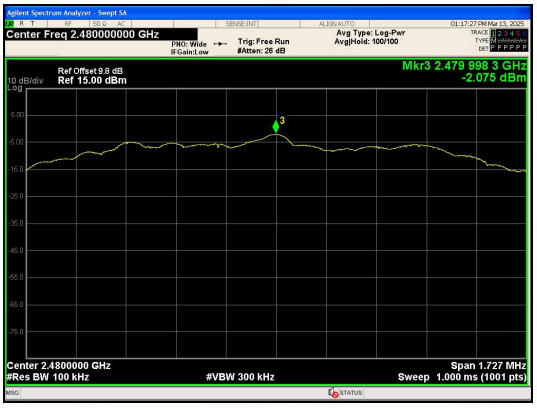


30.0 MHz - 25000.0 MHz

BLE 2M_Channel 19

In-Band Reference Level

BLE 1M_Channel 39



In-Band Reference Level

BLE 2M_Channel 39

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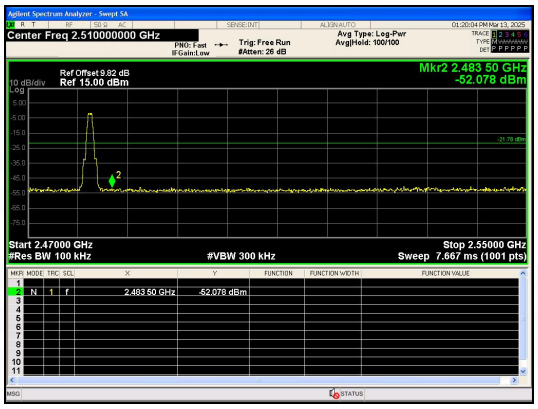
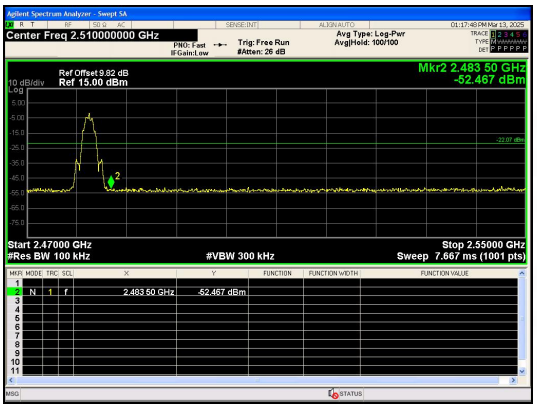


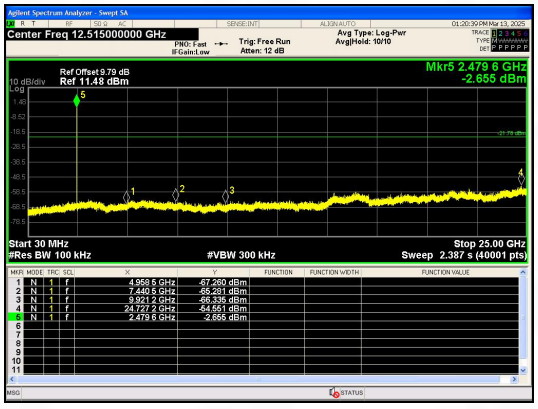
Out Of Band Emission

BLE 1M_Channel 39



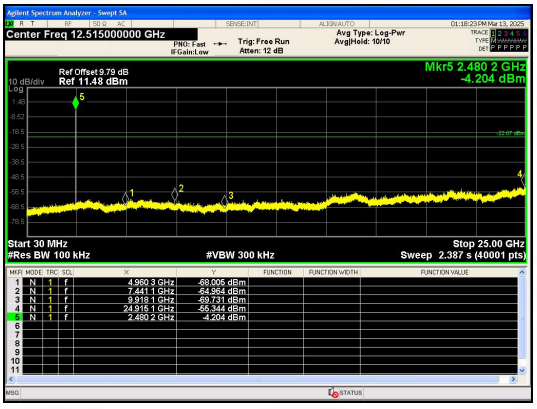
Out Of Band Emission

BLE 2M_Channel 39



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 39



30.0 MHz - 25000.0 MHz

BLE 2M_Channel 39