Appendix-BLE

Conducted Test Data

Conducted Output Power

Test Result

Mode	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Max. Avg. Power (dBm)	Limit (dBm)	Result
BLE 1M	0	2.996	1.99	2.752	≤30	PASS
	19	3.186	2.08	3.086	≤30	PASS
	39	**3.285**	2.13	3.175	≤30	PASS
BLE 2M	0	3.008	2	2.512	≤30	PASS
	19	3.226	2.1	3.237	≤30	PASS
	39	**3.261**	2.12	3.249	≤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.

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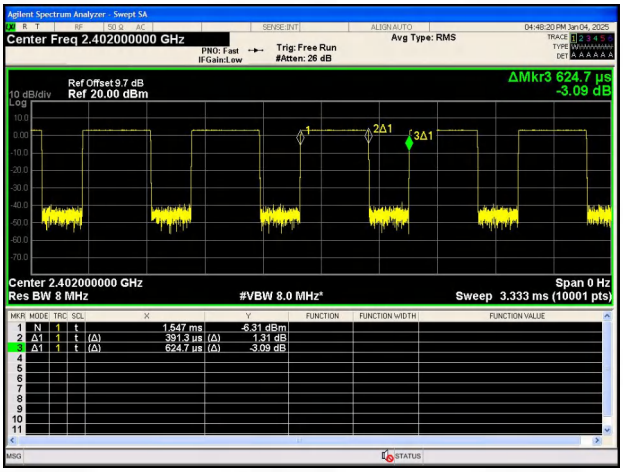
Duty Cycle

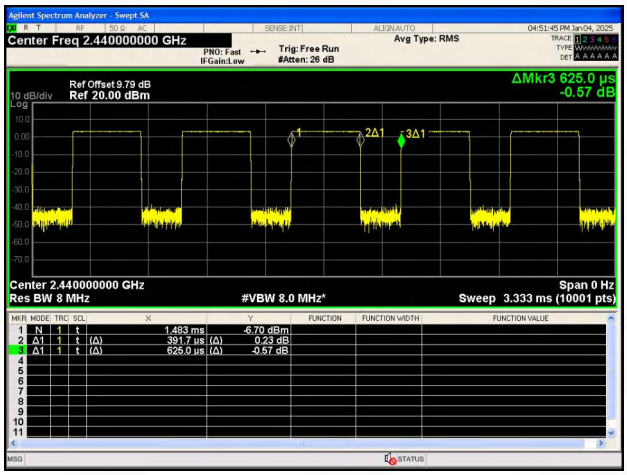
Test Result

Mode	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
BLE 1M	0	0.391	0.625	62.65	0.6265	2.0308	2.5575
	19	0.392	0.625	62.67	0.6267	2.0294	2.5510
	39	0.391	0.625	62.65	0.6265	2.0308	2.5575
BLE 2M	0	0.208	0.625	33.30	0.3330	4.7756	4.8077
	19	0.208	0.625	33.30	0.3330	4.7756	4.8077
	39	0.208	0.625	33.30	0.3330	4.7756	4.8077

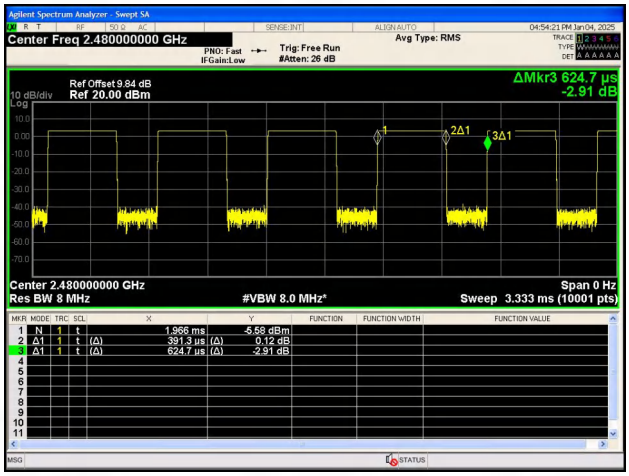
Test Graphs



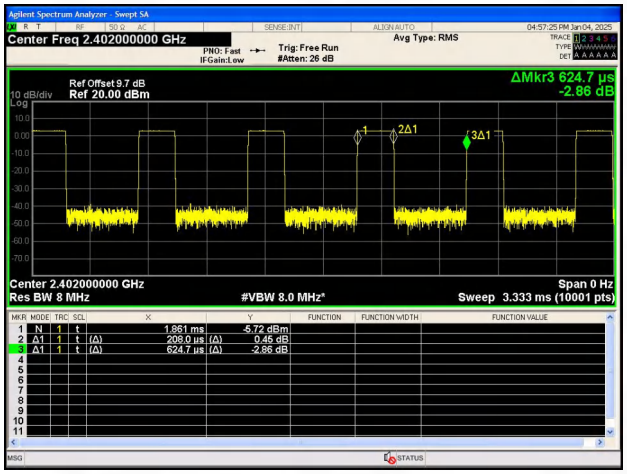
BLE 1M_Channel 0



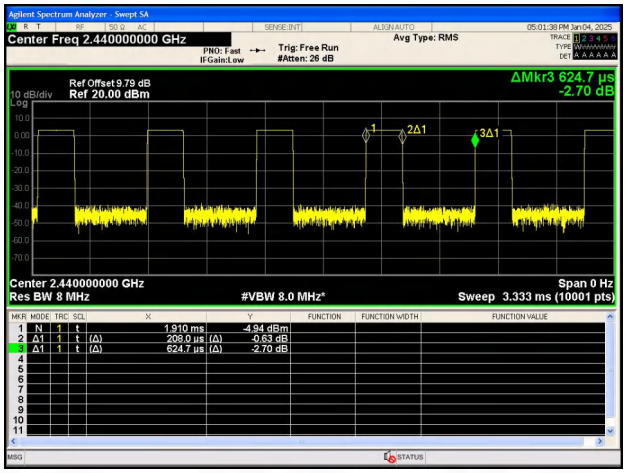
BLE 1M_Channel 19



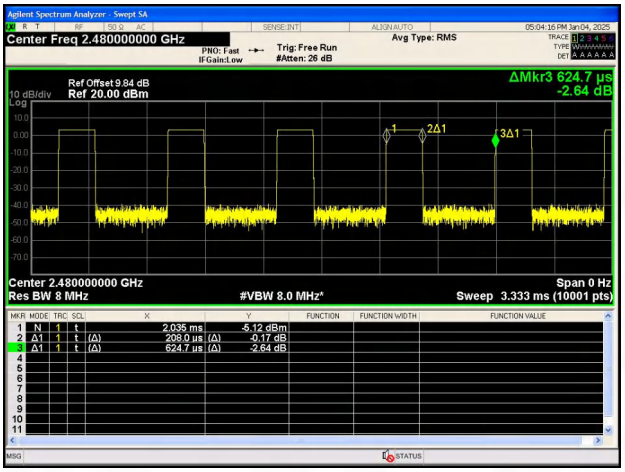
BLE 1M_Channel 39



BLE 2M_Channel 0



BLE 2M_Channel 19



BLE 2M_Channel 39

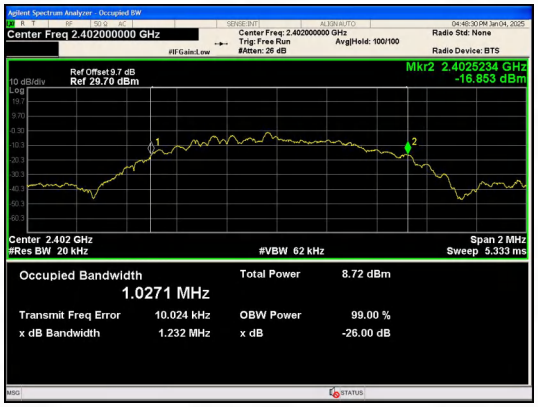
6dB Bandwidth and 99% Bandwidth

99% Bandwidth

Test Result

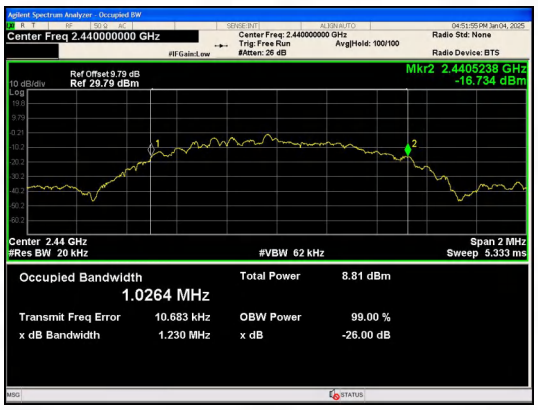
Mode	Channel	Center Frequency (MHz)	99% BW (MHz)
BLE 1M	0	2402	1.0271
BLE 1M	19	2440	1.0264
BLE 1M	39	2480	1.0289
BLE 2M	0	2402	2.0437
BLE 2M	19	2440	2.0421
BLE 2M	39	2480	2.0430

Test Graphs

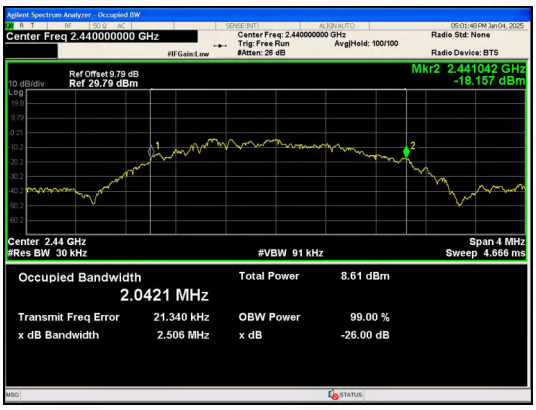


BLE 1M_Channel 0

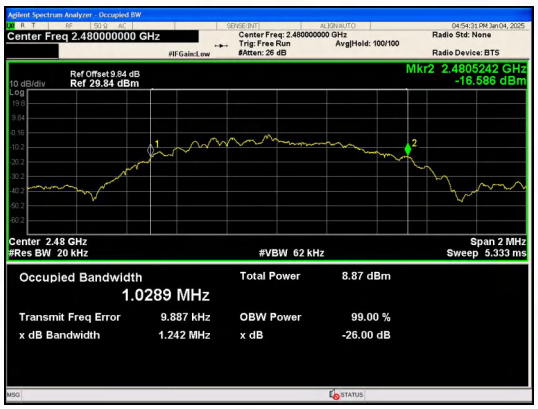
BLE 2M_Channel 0



BLE 1M_Channel 19



BLE 2M_Channel 19



BLE 1M_Channel 39

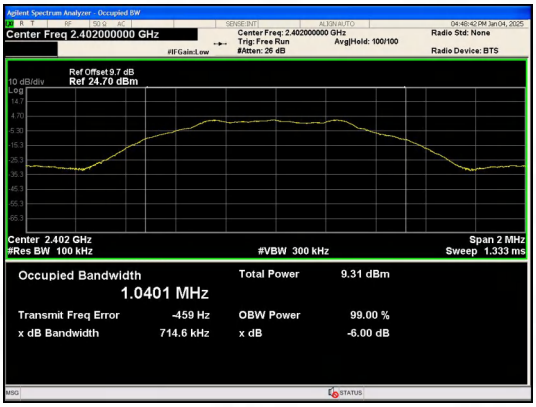
BLE 2M_Channel 39

6dB Bandwidth

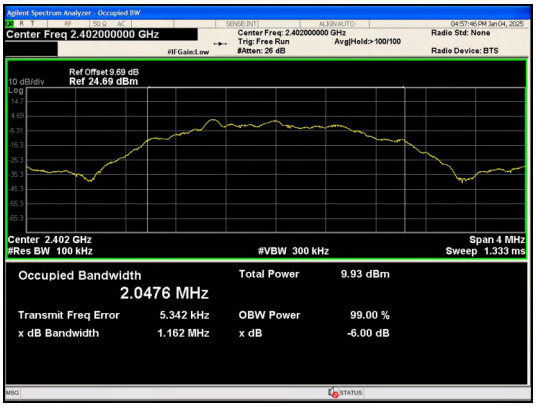
Test Result

Mode	Channel	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
BLE 1M	0	2402	0.7146	≥0.5	PASS
	19	2440	0.7066		PASS
	39	2480	0.7100		PASS
BLE 2M	0	2402	1.162		PASS
	19	2440	1.161		PASS
	39	2480	1.158		PASS

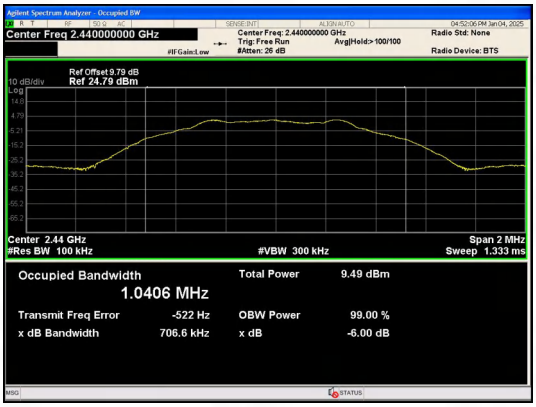
Test Graphs



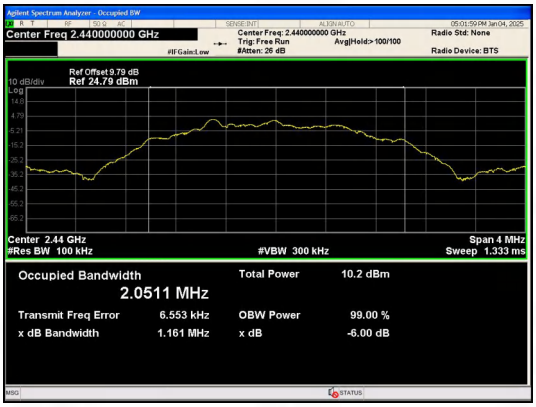
BLE 1M_Channel 0



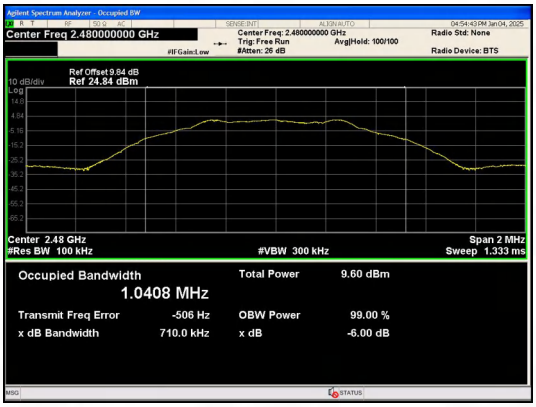
BLE 2M_Channel 0



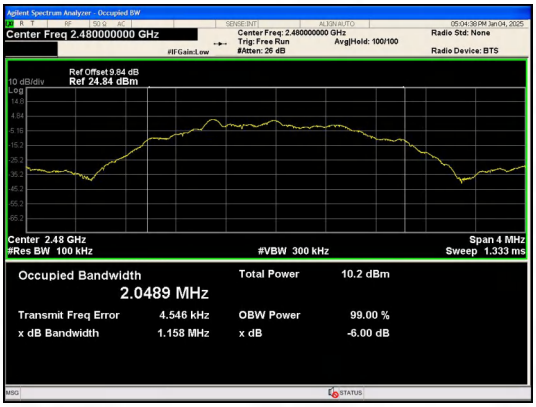
BLE 1M_Channel 19



BLE 2M_Channel 19



BLE 1M_Channel 39



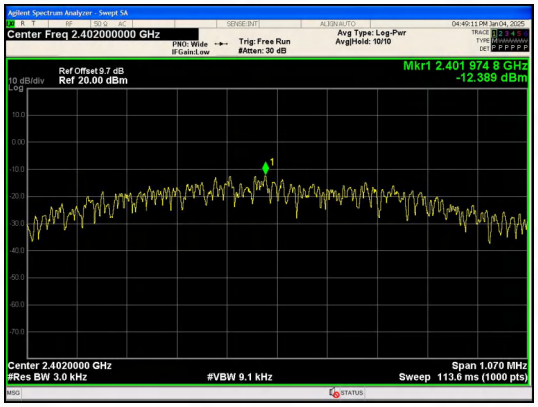
BLE 2M_Channel 39

Power Spectral Density

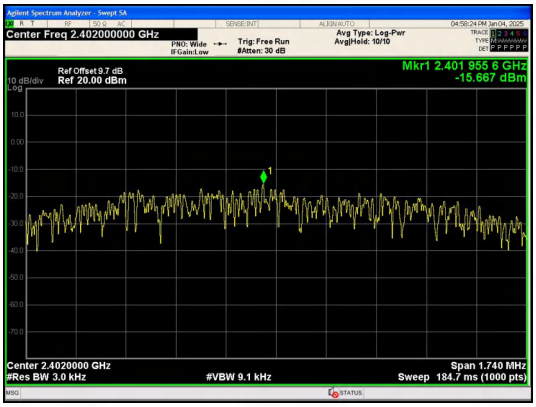
Test Result

Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
BLE 1M	0	-12.389	≤8	PASS
BLE 1M	19	-12.181	≤8	PASS
BLE 1M	39	-12.187	≤8	PASS
BLE 2M	0	-15.667	≤8	PASS
BLE 2M	19	-15.474	≤8	PASS
BLE 2M	39	-15.408	≤8	PASS

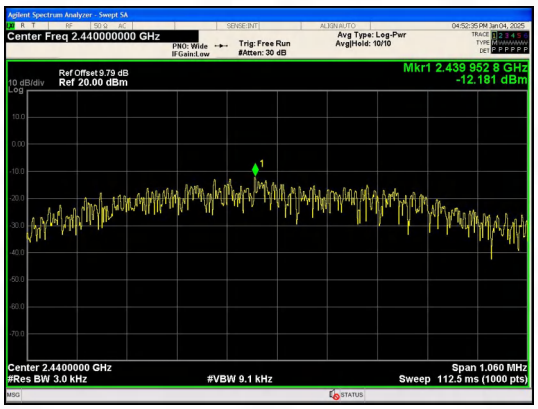
Test Graphs



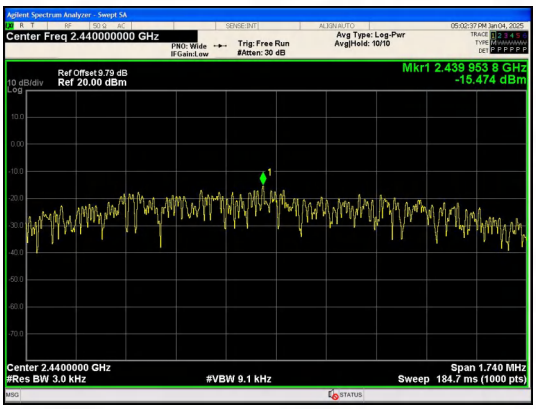
BLE 1M_Channel 0



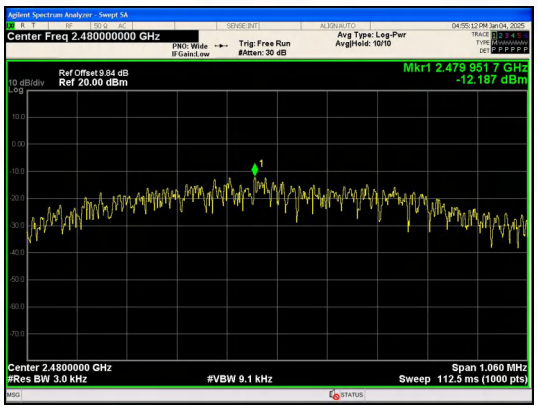
BLE 2M_Channel 0



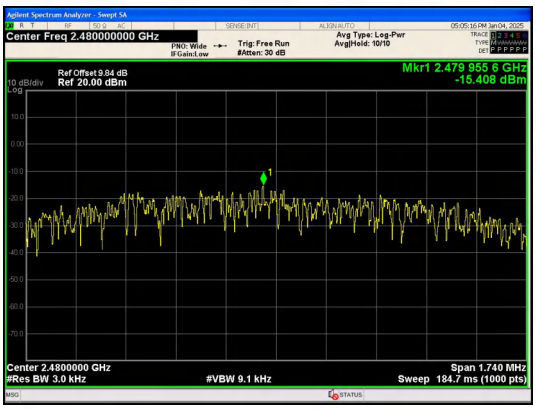
BLE 1M_Channel 19



BLE 2M_Channel 19



BLE 1M_Channel 39



BLE 2M_Channel 39

Conducted Spurious Emission

Test Result

Mode	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
BLE 1M	0	2334.70	-54.096	-17.85	-36.246	PASS
		2334.76	-47.717	-17.85	-29.867	PASS
		2400.00	-50.985	-17.85	-33.135	PASS
		4803.60	-60.619	-17.85	-42.769	PASS
		7204.50	-66.722	-17.85	-48.872	PASS
		9607.90	-66.707	-17.85	-48.857	PASS
	19	2510.77	-50.762	-17.61	-33.152	PASS
		4880.42	-59.678	-17.61	-42.068	PASS
		7321.24	-68.070	-17.61	-50.460	PASS
		9760.81	-69.696	-17.61	-52.086	PASS
	39	2326.62	-55.551	-17.57	-37.981	PASS
		2483.50	-53.526	-17.57	-35.956	PASS
		4960.33	-61.128	-17.57	-43.558	PASS
		7441.72	-67.511	-17.57	-49.941	PASS
		9918.74	-69.326	-17.57	-51.756	PASS
BLE 2M	0	2375.93	-50.814	-17.48	-33.334	PASS
		2400.00	-29.510	-17.48	-12.030	PASS
		4803.02	-61.727	-17.48	-44.247	PASS
		7204.51	-68.116	-17.48	-50.636	PASS
		9607.87	-66.829	-17.48	-49.349	PASS
	19	4881.05	-61.678	-17.26	-44.418	PASS
		7321.24	-68.539	-17.26	-51.279	PASS
		9760.81	-68.815	-17.26	-51.555	PASS
		24698.5	-55.163	-17.26	-37.903	PASS
	39	2483.50	-53.240	-17.22	-36.020	PASS
		2515.76	-45.815	-17.22	-28.595	PASS
		4959.08	-60.903	-17.22	-43.683	PASS
		7440.47	-68.674	-17.22	-51.454	PASS
		9918.12	-68.938	-17.22	-51.718	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

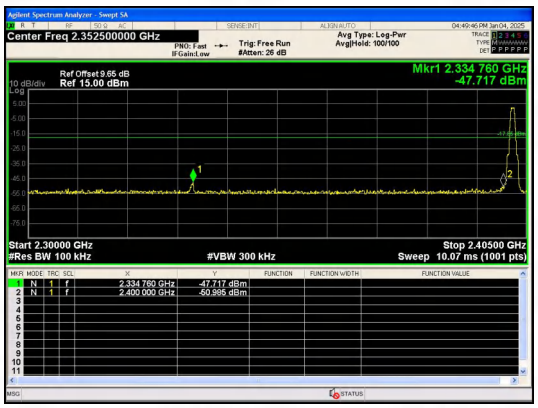
Test Graphs

In-Band Reference Level

BLE 1M_Channel 0

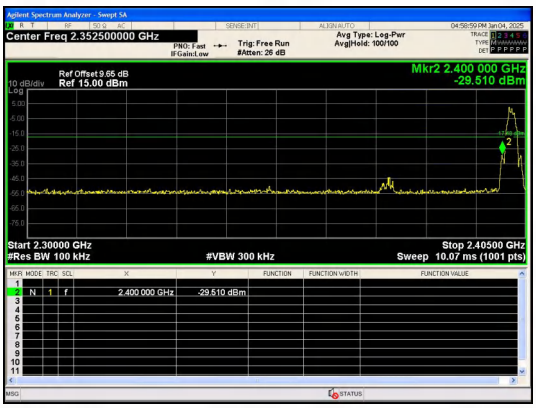
In-Band Reference Level

BLE 2M_Channel 0



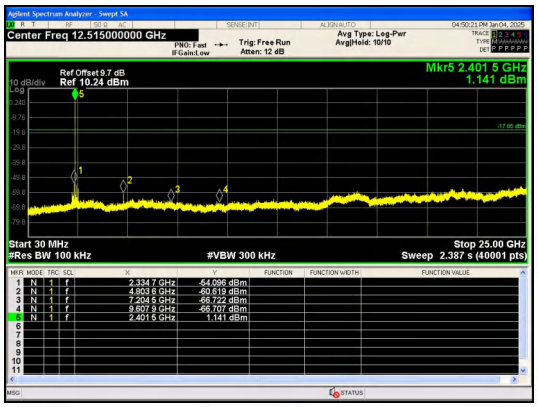
Out Of Band Emission

BLE 1M_Channel 0



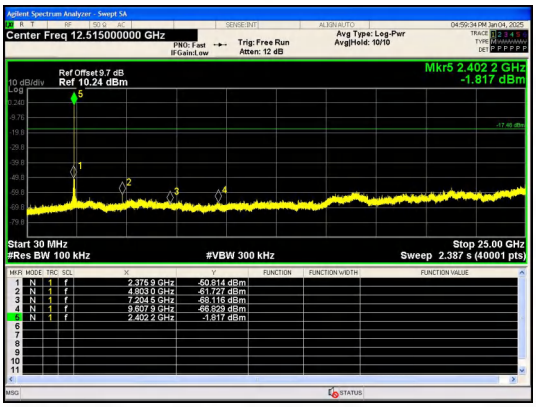
Out Of Band Emission

BLE 2M_Channel 0



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 0



30.0 MHz - 25000.0 MHz

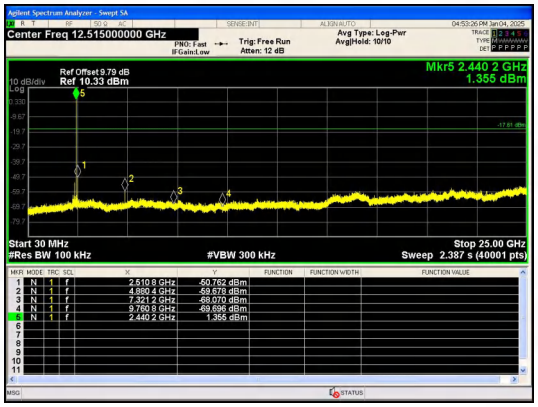
BLE 2M_Channel 0

In-Band Reference Level

BLE 1M_Channel 19

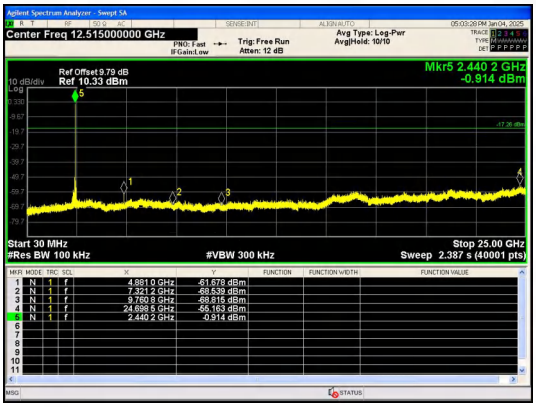
In-Band Reference Level

BLE 2M_Channel 19



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 19



30.0 MHz - 25000.0 MHz

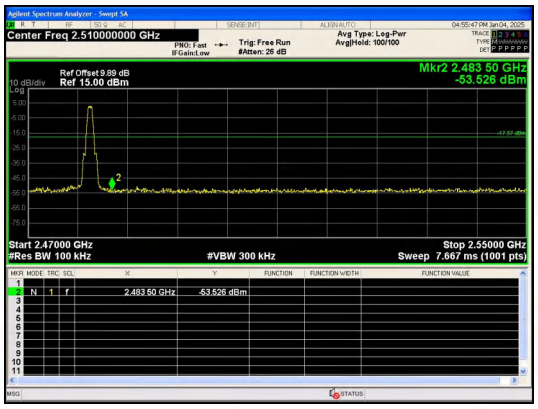
BLE 2M_Channel 19

In-Band Reference Level

BLE 1M_Channel 39

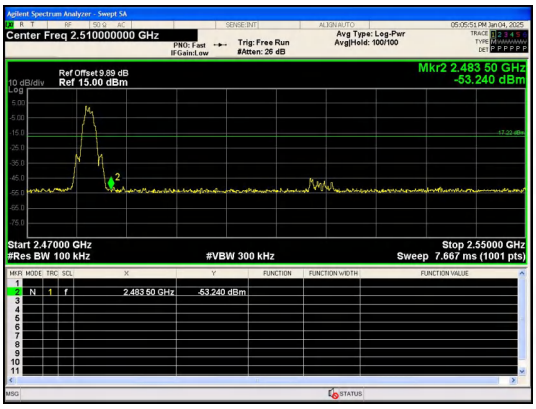
In-Band Reference Level

BLE 2M_Channel 39



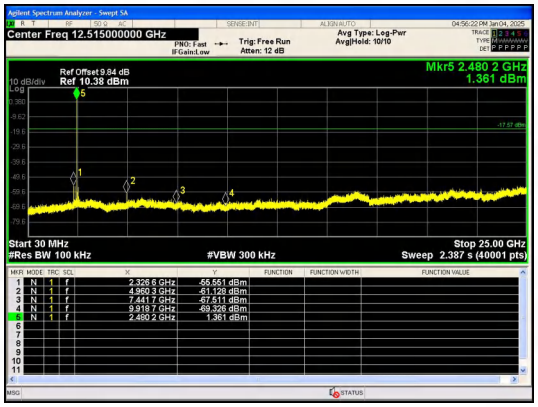
Out Of Band Emission

BLE 1M_Channel 39



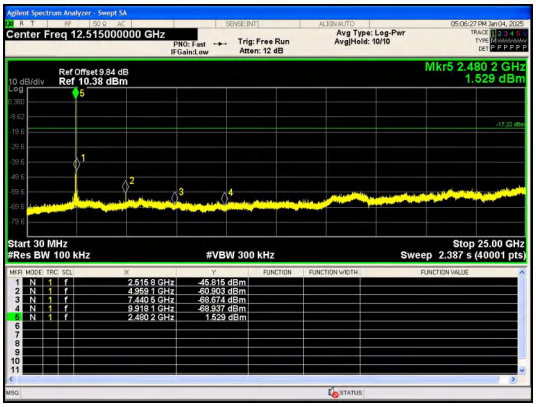
Out Of Band Emission

BLE 2M_Channel 39



30.0 MHz - 25000.0 MHz

BLE 1M_Channel 39



30.0 MHz - 25000.0 MHz

BLE 2M_Channel 39