

Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wireless audio adapter

Trade Mark: N/A

Test Model: JS4

FCC ID: 2A4WA-JS4

Environmental Conditions

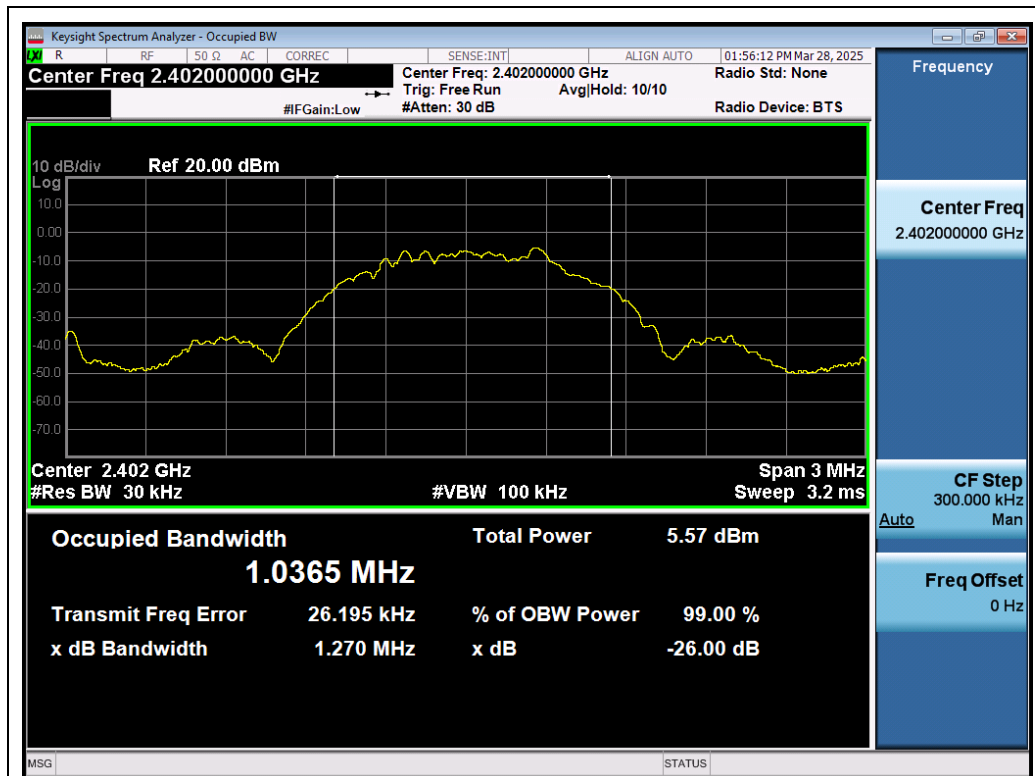
Temperature:	23.0°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A: DTS Bandwidth & Occupied Channel Bandwidth

Test Result

Test Mode	Test Frequency	Occupied Bandwidth (MHz)	DTS BW (MHz)	DTS BW Limits	Pass or Fail
GFSK_1Mbps	2402	1.036	0.672	≥ 0.5	Pass
	2440	1.038	0.672	≥ 0.5	Pass
	2480	1.039	0.673	≥ 0.5	Pass
GFSK_2Mbps	2402	2.092	1.244	≥ 0.5	Pass
	2440	2.091	1.239	≥ 0.5	Pass
	2480	2.094	1.243	≥ 0.5	Pass

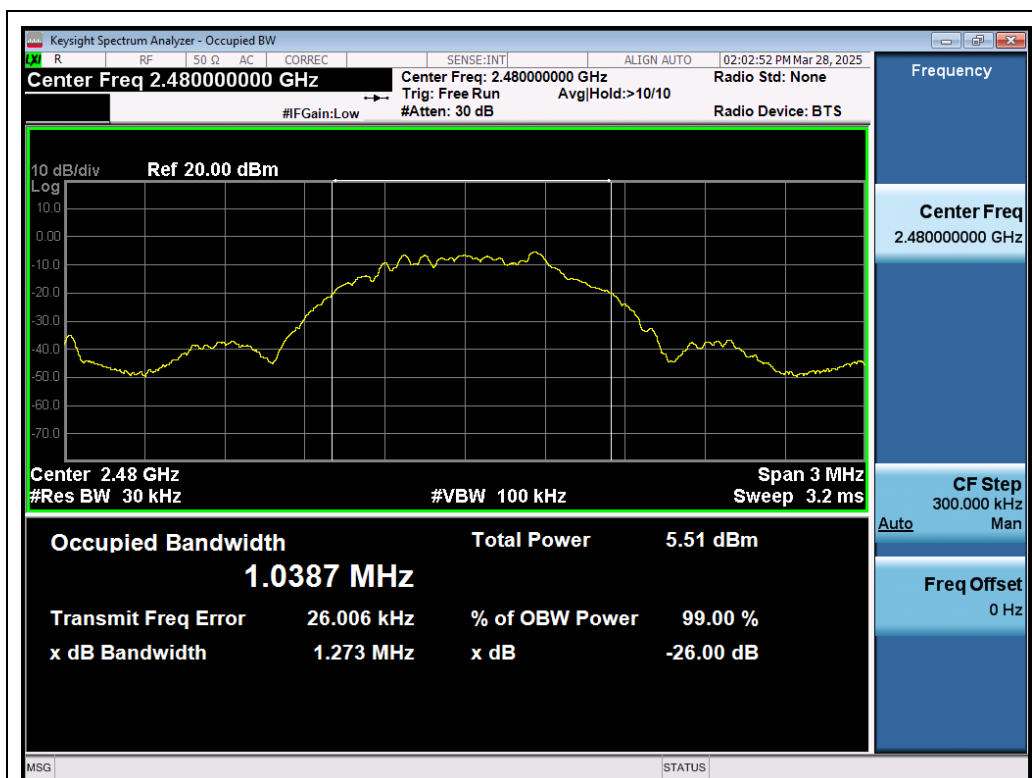
Test Graphs



Test_Graph_LE1M_ANT1_2402_1Mbps_OBW



Test_Graph_LE1M_ANT1_2440_1Mbps_OBW



Test_Graph_LE1M_ANT1_2480_1Mbps_OBW



Test_Graph_LE2M_ANT1_2402_2Mbps_OBW



Test_Graph_LE2M_ANT1_2440_2Mbps_OBW



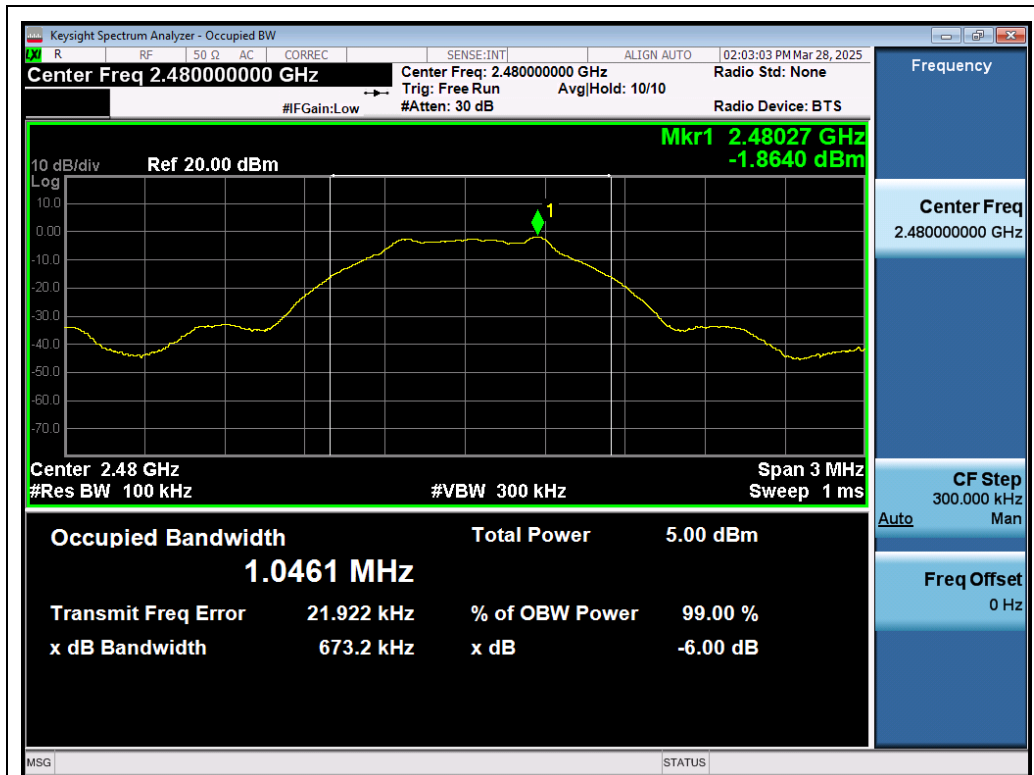
Test_Graph_LE2M_ANT1_2480_2Mbps_OBW



Test_Graph_LE1M_ANT1_2402_1Mbps_DTSBW



Test_Graph_LE1M_ANT1_2440_1Mbps_DTSBW



Test_Graph_LE1M_ANT1_2480_1Mbps_DTSBW



Test_Graph_LE2M_ANT1_2402_2Mbps_DTSBW



Test_Graph_LE2M_ANT1_2440_2Mbps_DTSBW



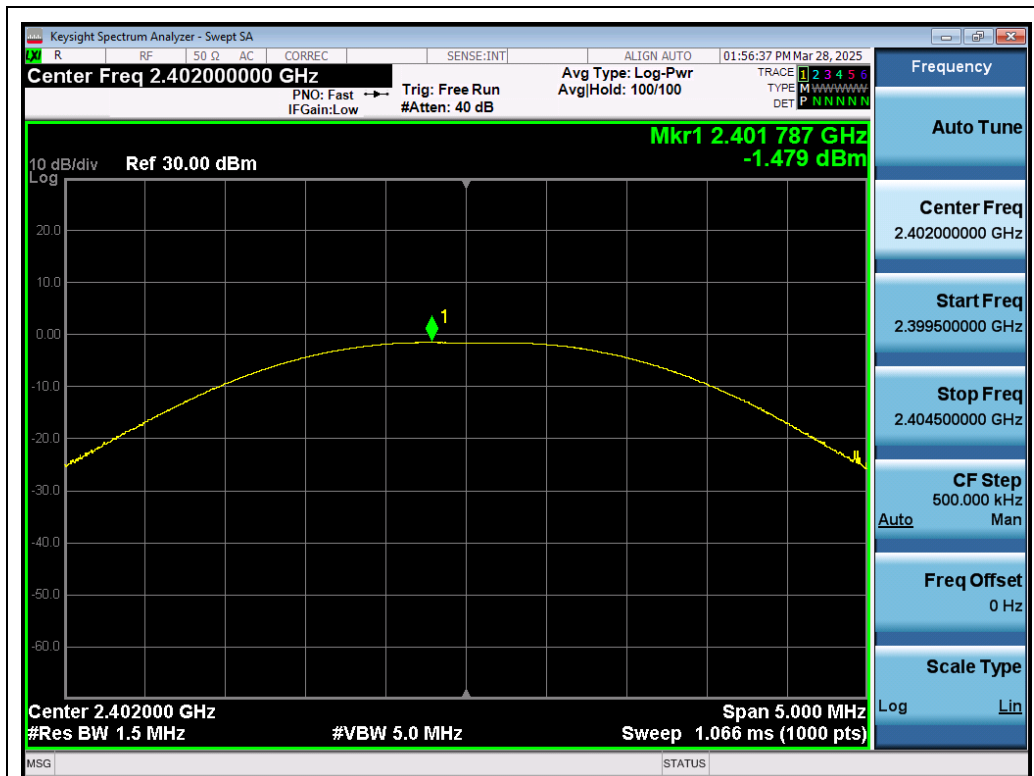
Test_Graph_LE2M_ANT1_2480_2Mbps_DTSBW

Appendix B: Maximum peak conducted output power

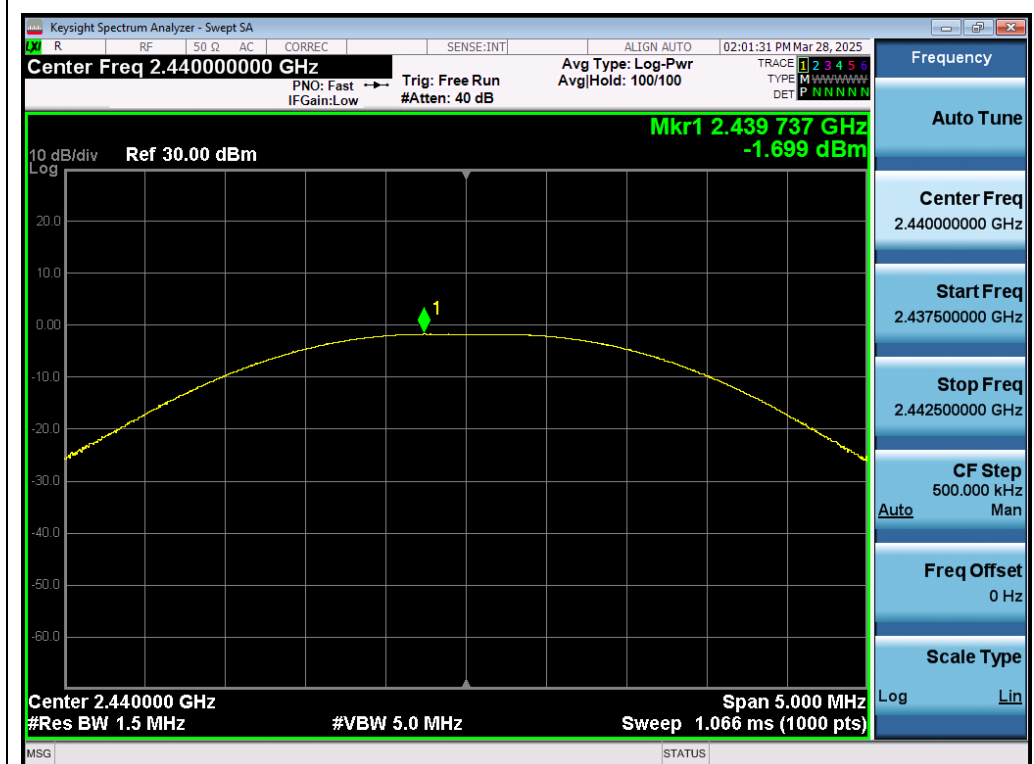
Test Result Peak

Test Mode	Test Frequency (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK_1Mbps	2402	-1.479	≤ 30	Pass
	2440	-1.699	≤ 30	Pass
	2480	-1.649	≤ 30	Pass
GFSK_2Mbps	2402	-1.575	≤ 30	Pass
	2440	-1.588	≤ 30	Pass
	2480	-1.659	≤ 30	Pass

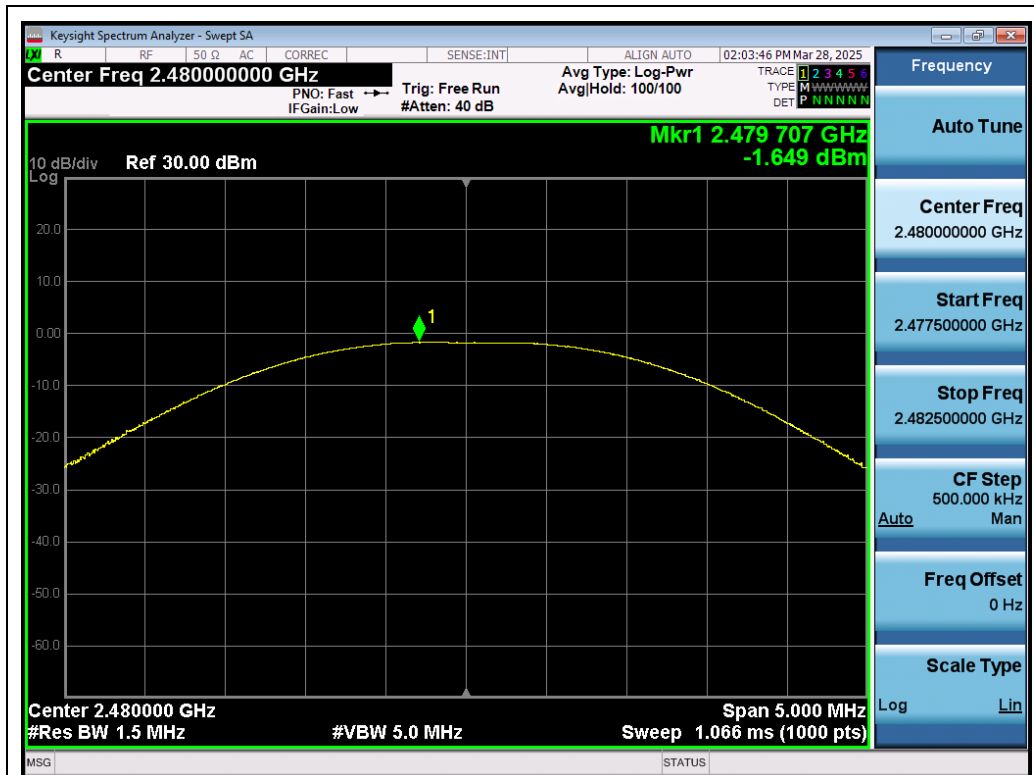
Test Graphs Peak



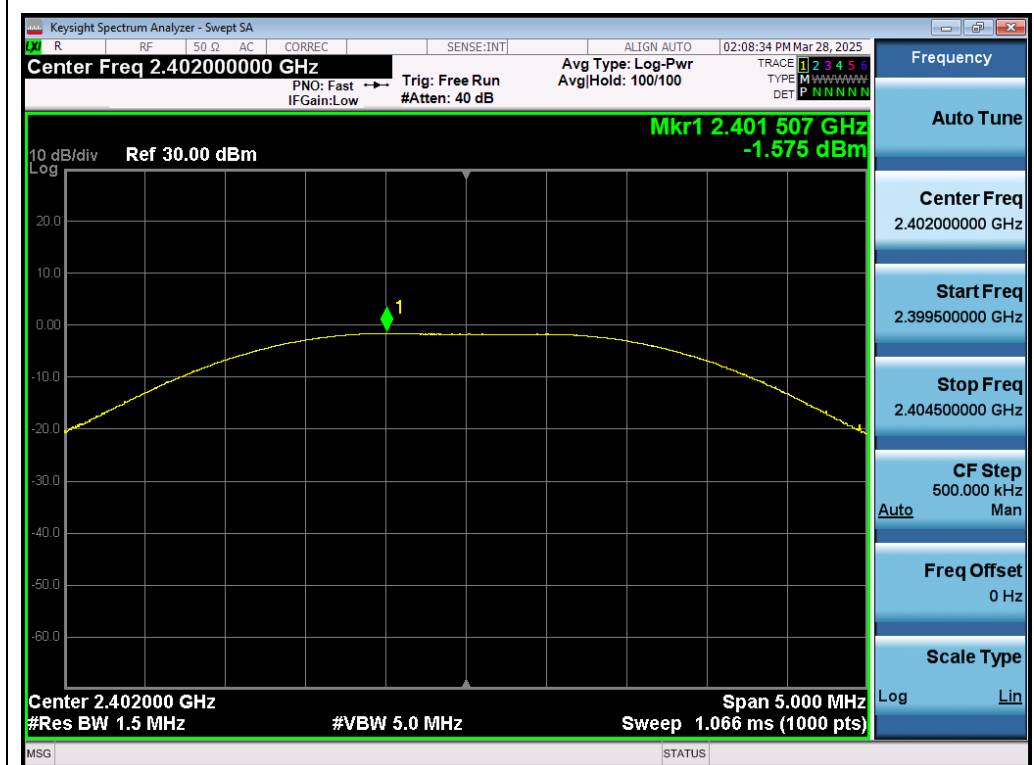
Test_Graph_LE1M_ANT1_2402_1Mbps_Peak Power



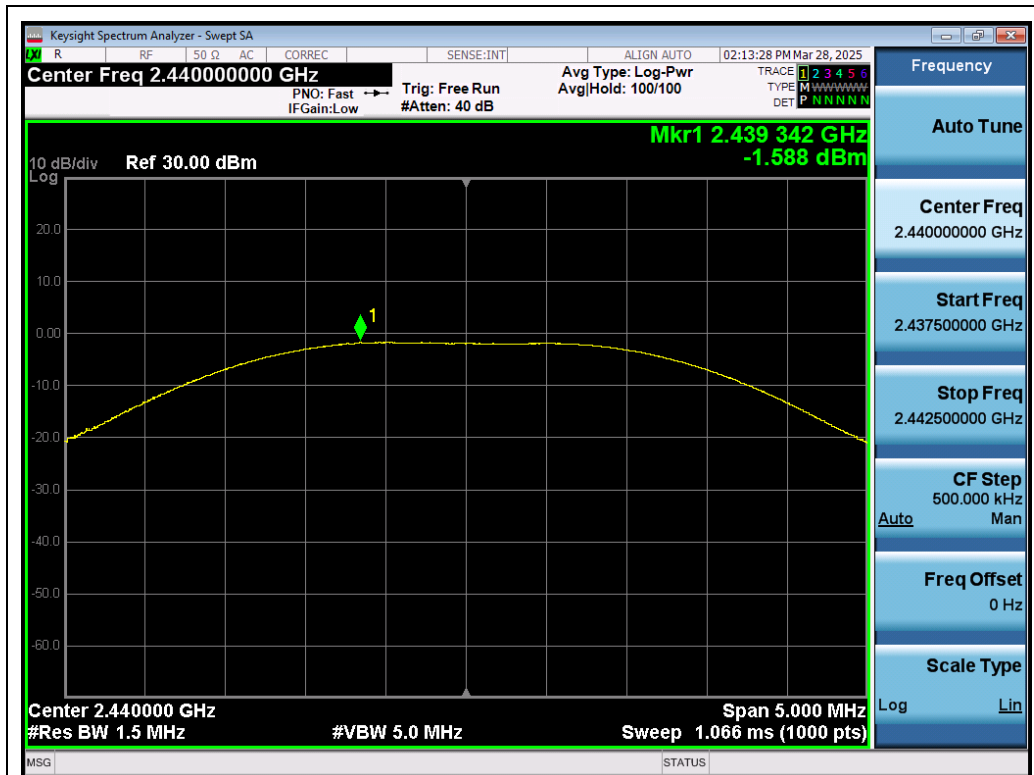
Test_Graph_LE1M_ANT1_2440_1Mbps_Peak Power



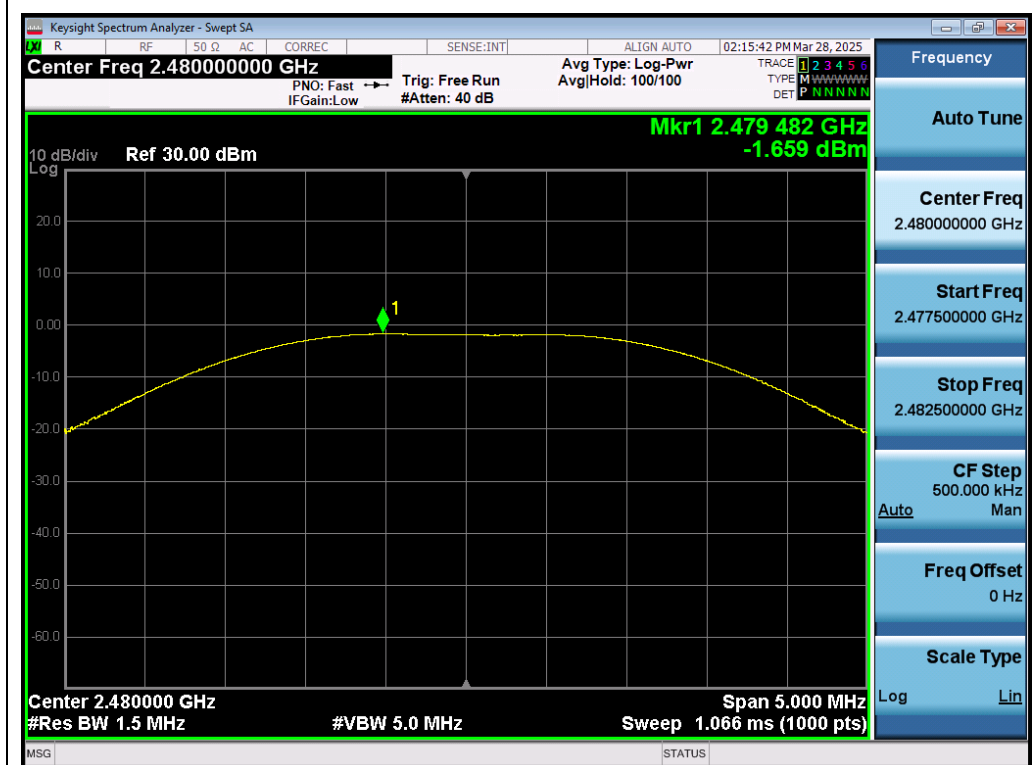
Test_Graph_LE1M_ANT1_2480_1Mbps_Peak Power



Test_Graph_LE2M_ANT1_2402_2Mbps_Peak Power



Test_Graph_LE2M_ANT1_2440_2Mbps_Peak Power



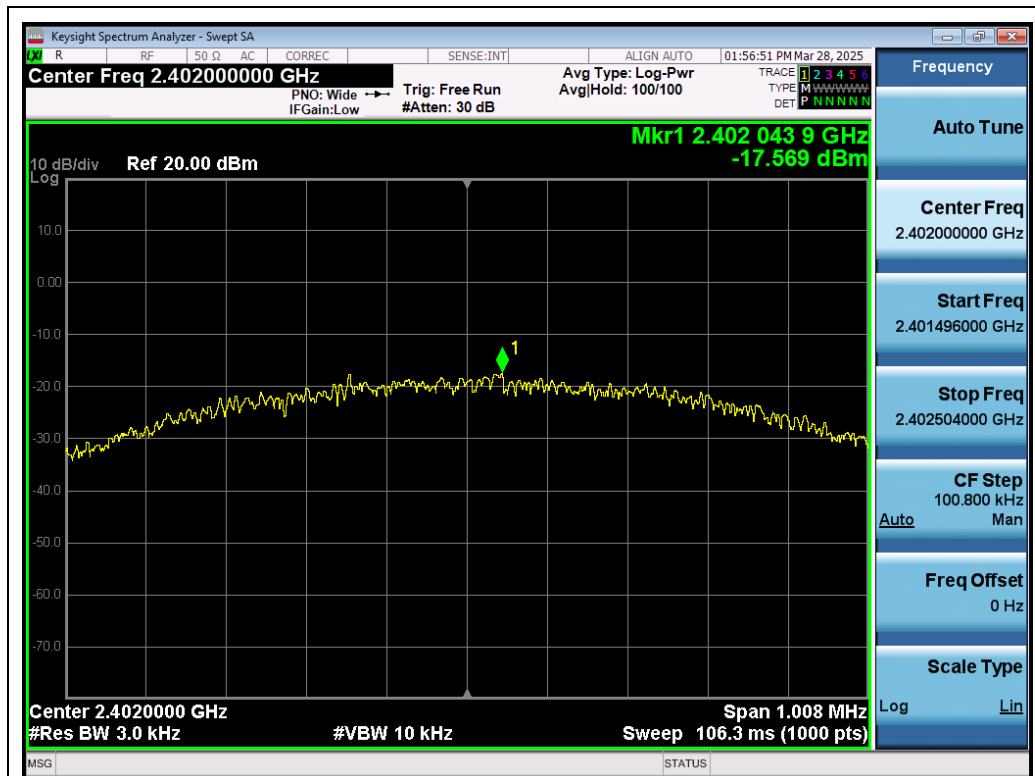
Test_Graph_LE2M_ANT1_2480_2Mbps_Peak Power

Appendix C: Maximum peak power spectral density

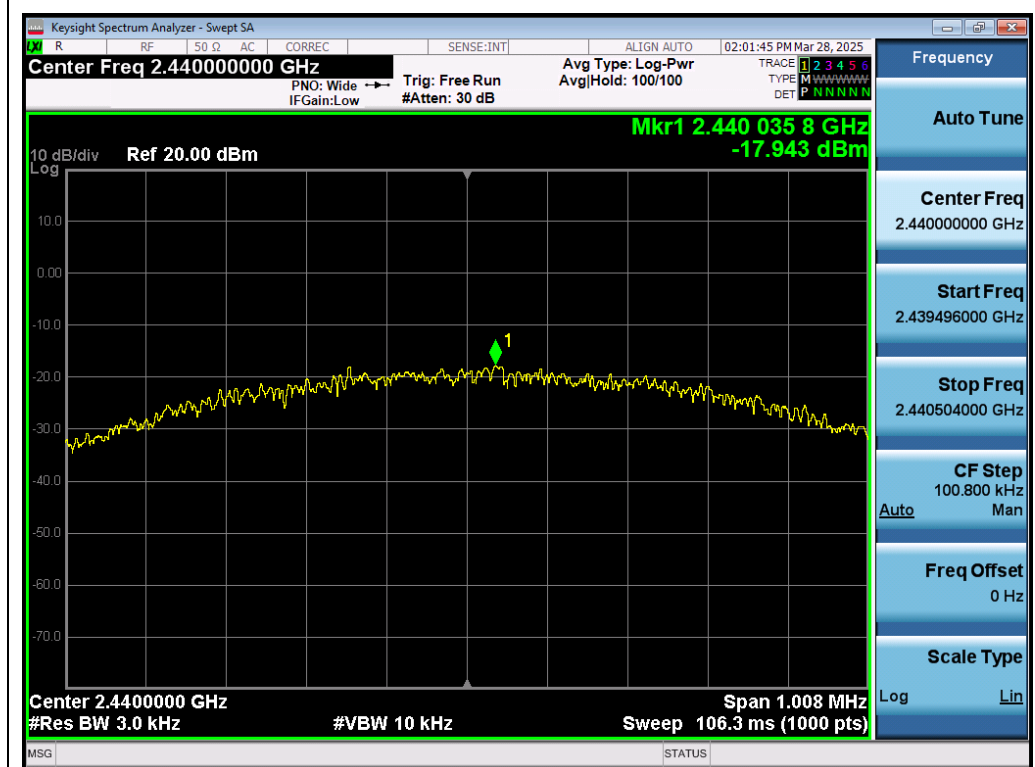
Test Result

Test Mode	Test Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
GFSK_1Mbps	2402	-17.569	≤ 8	Pass
	2440	-17.943	≤ 8	Pass
	2480	-17.787	≤ 8	Pass
GFSK_2Mbps	2402	-21.069	≤ 8	Pass
	2440	-21.034	≤ 8	Pass
	2480	-21.108	≤ 8	Pass

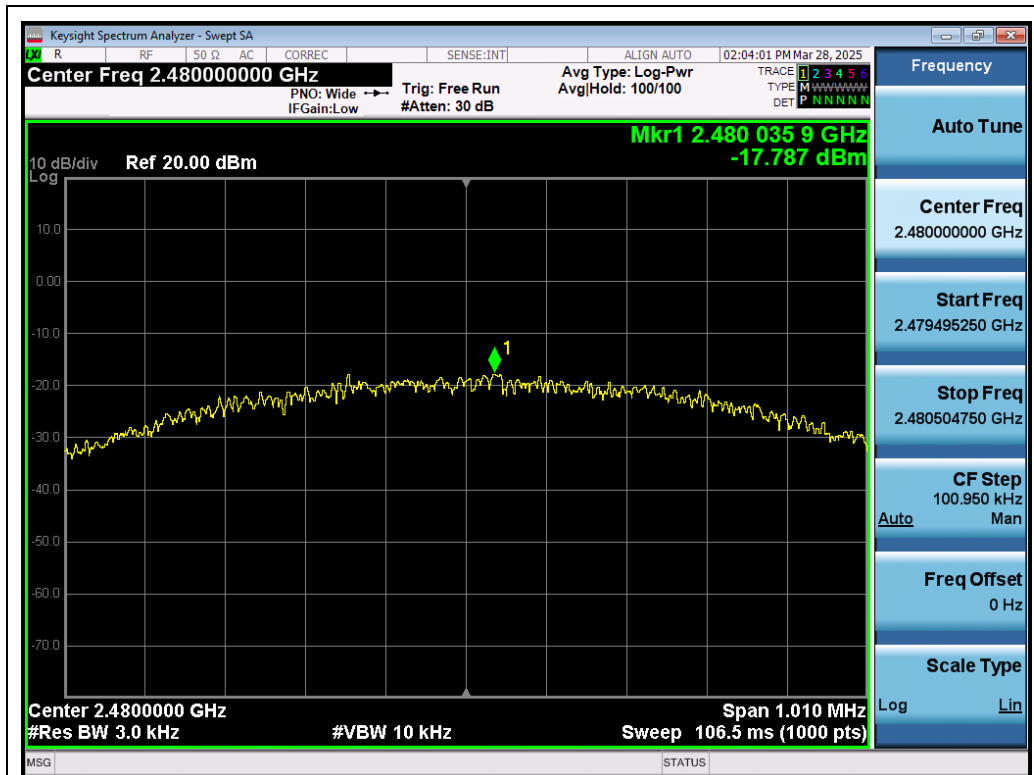
Test Graphs



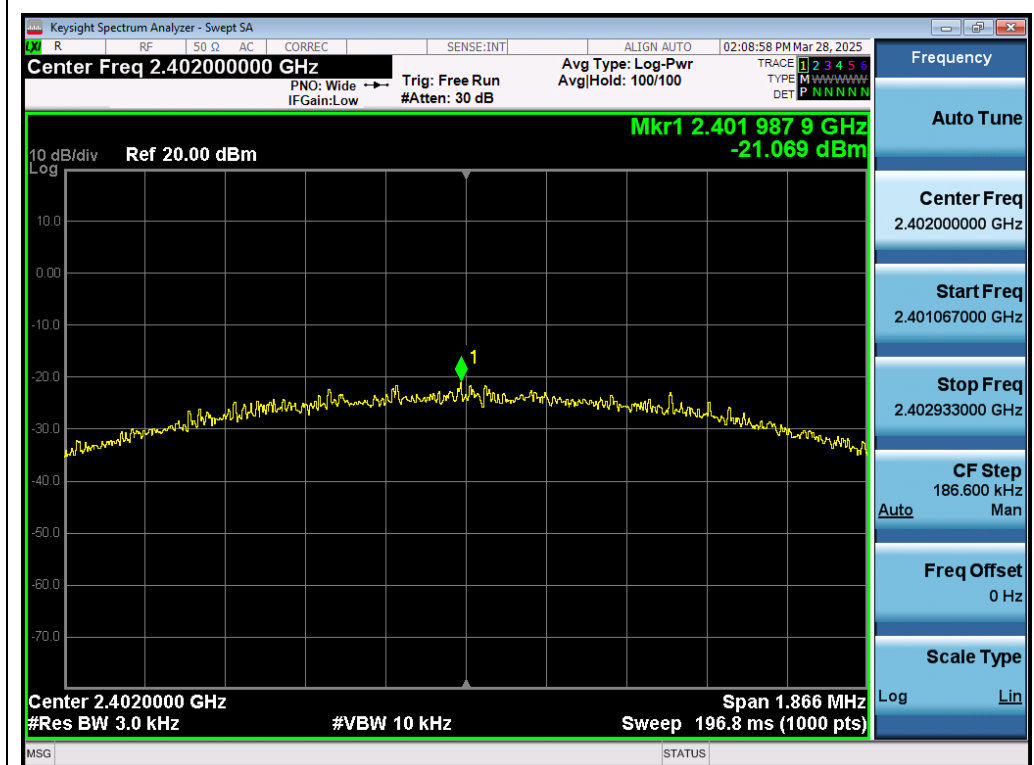
Test_Graph_LE1M_ANT1_2402_1Mbps_PSD



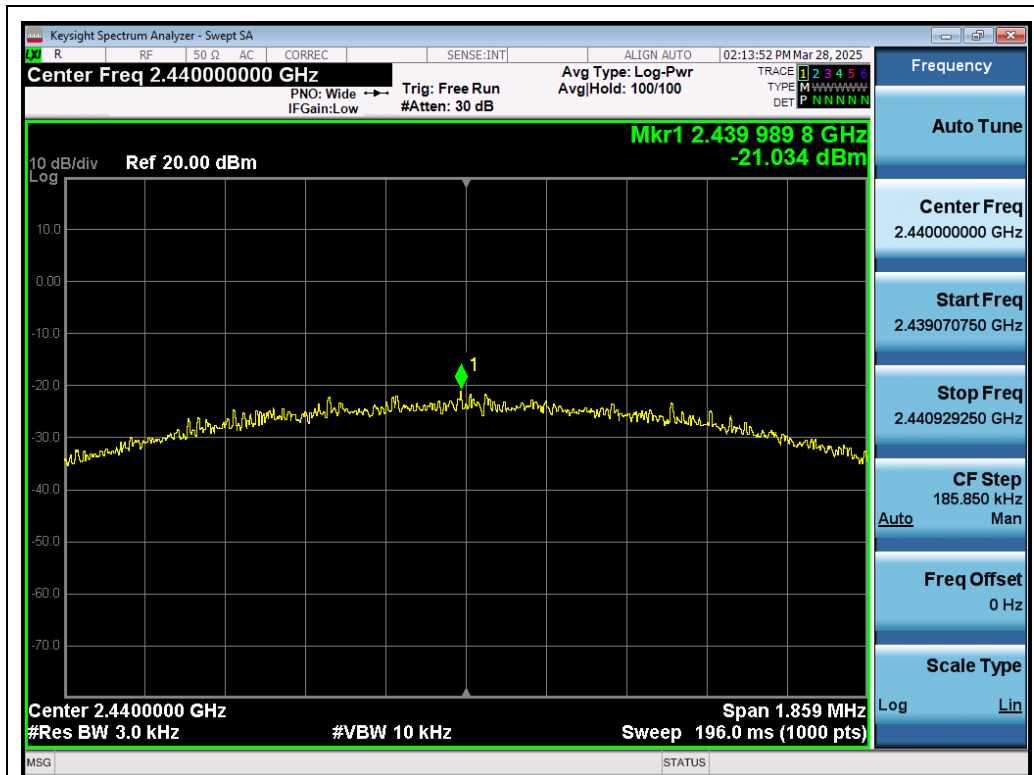
Test_Graph_LE1M_ANT1_2440_1Mbps_PSD



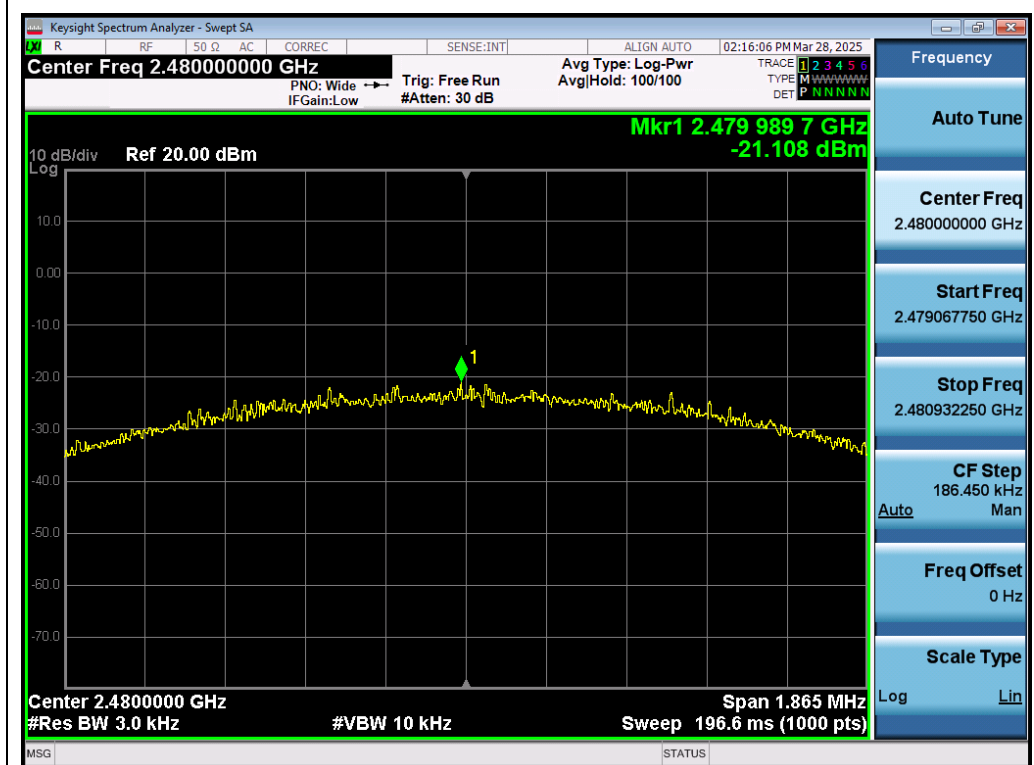
Test_Graph_LE1M_ANT1_2480_1Mbps_PSD



Test_Graph_LE2M_ANT1_2402_2Mbps_PSD



Test_Graph_LE2M_ANT1_2440_2Mbps_PSD



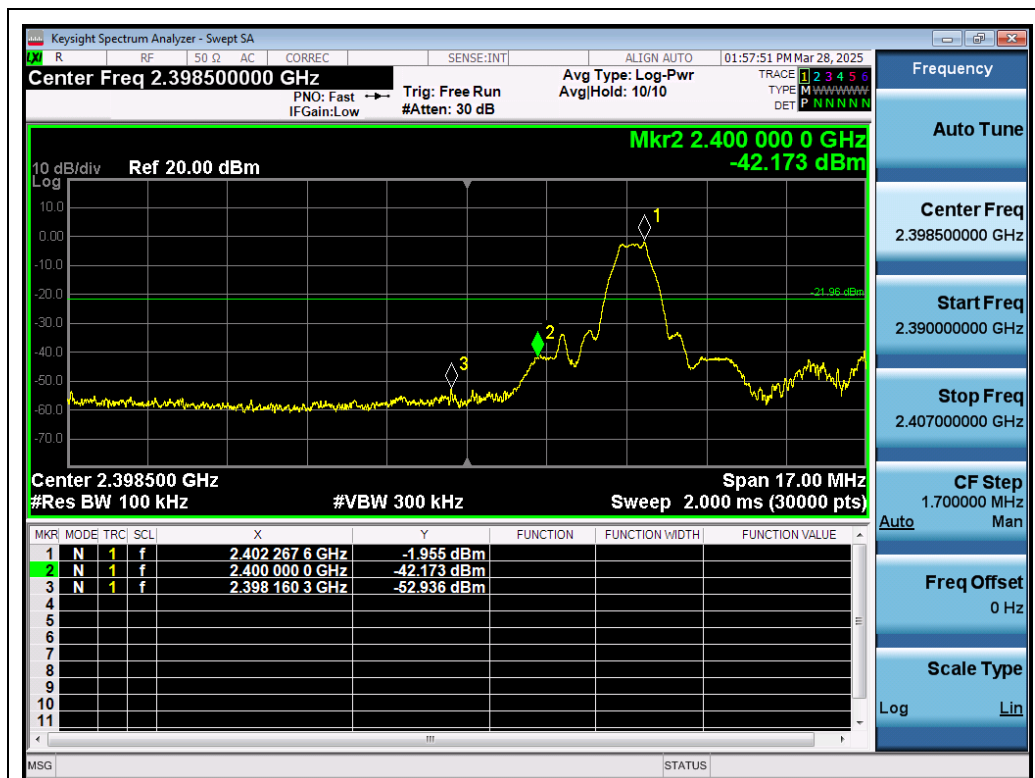
Test_Graph_LE2M_ANT1_2480_2Mbps_PSD

Appendix D: Band edge measurements

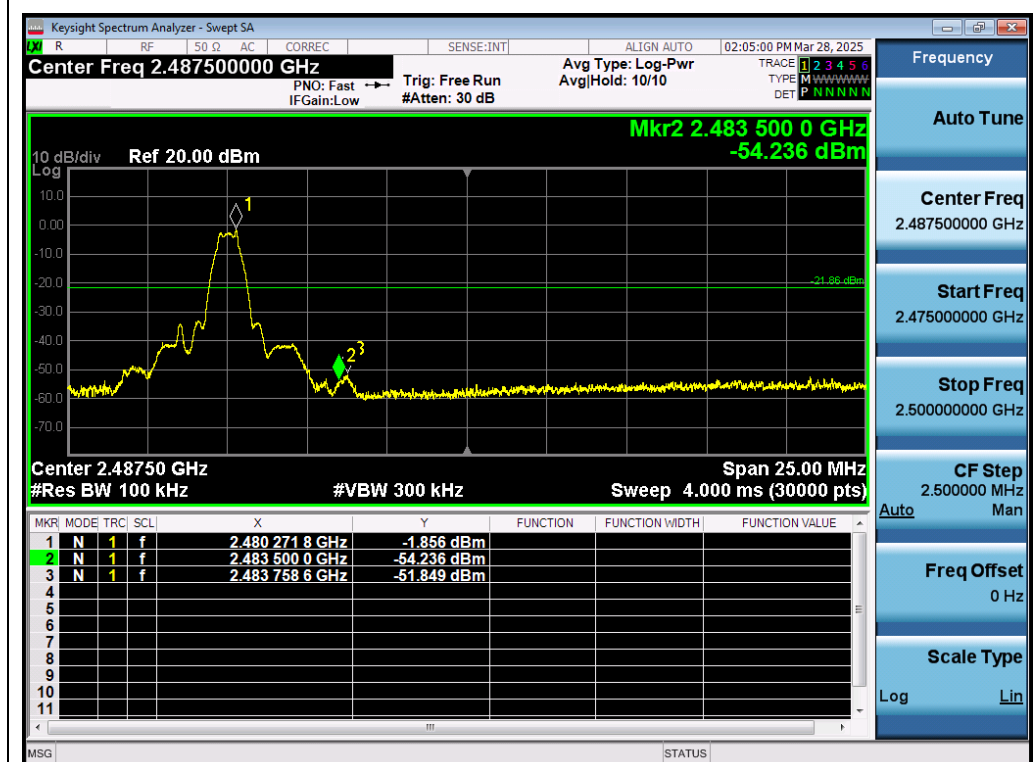
Test Result

Test Mode	Ch. Name	Frequency [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
GFSK_1Mbps	Low	2402	-1.955	-42.173	≤ -21.96	Pass
GFSK_1Mbps	High	2480	-1.856	-54.236	≤ -21.86	Pass
GFSK_2Mbps	Low	2402	-2.713	-34.014	≤ -22.71	Pass
GFSK_2Mbps	High	2480	-2.818	-59.087	≤ -22.02	Pass

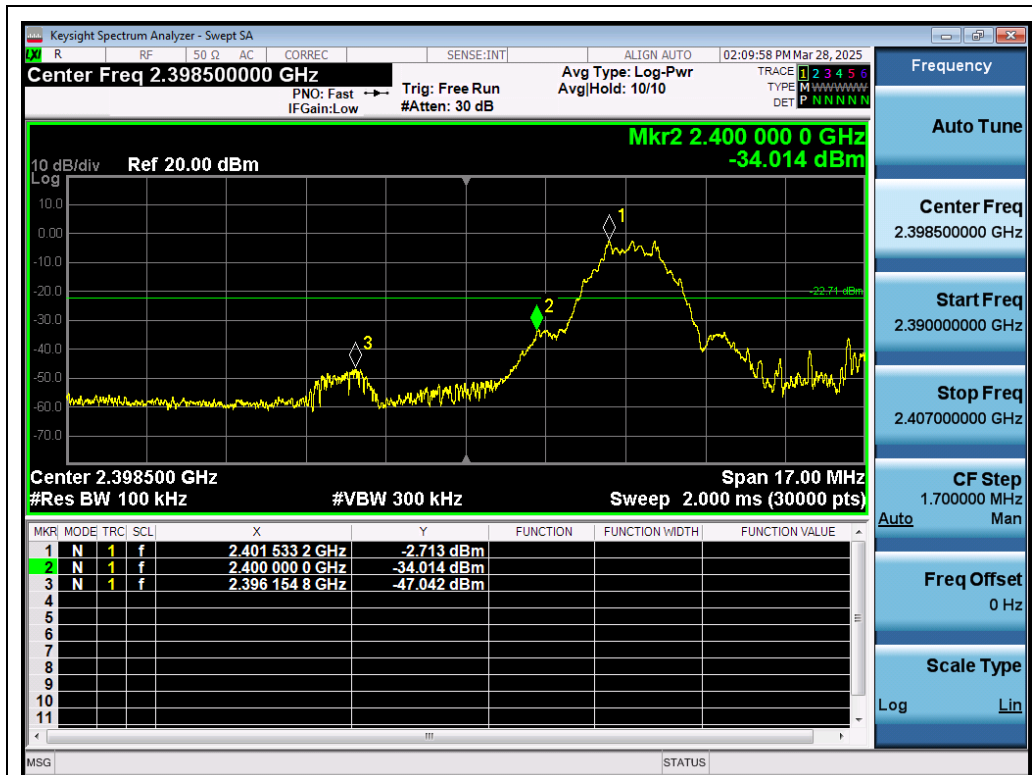
Test Graphs



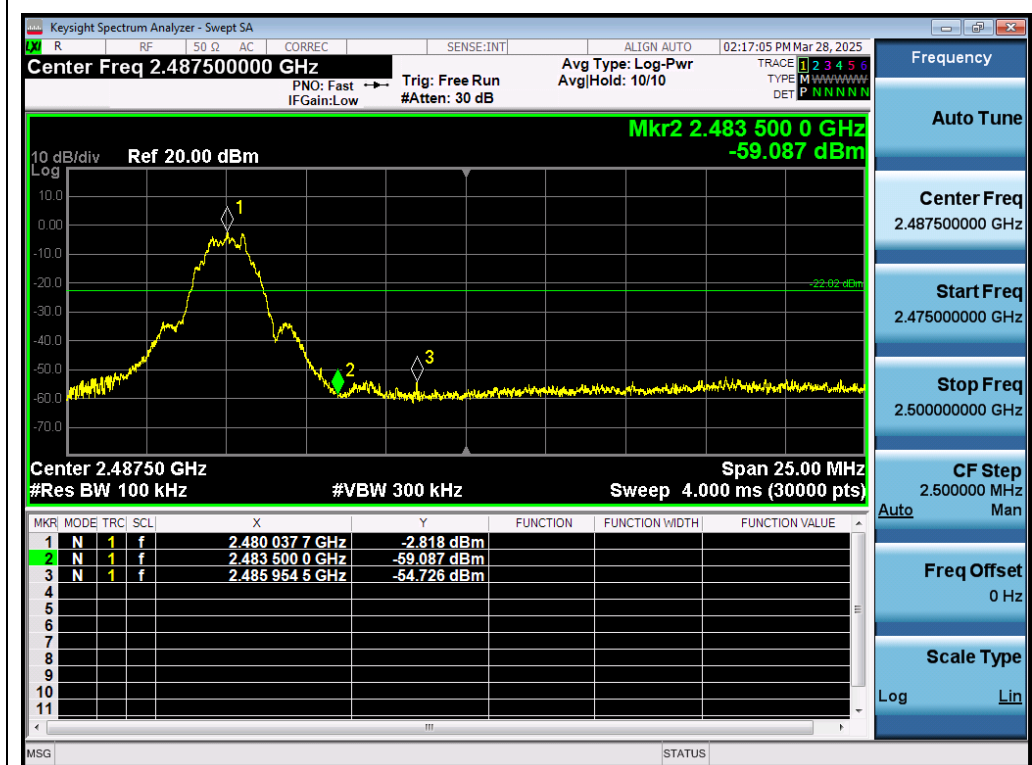
Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Edge Emissions



Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Edge Emissions



Test_Graph_LE2M_ANT1_2402_2Mbps_Lower Band Edge Emissions



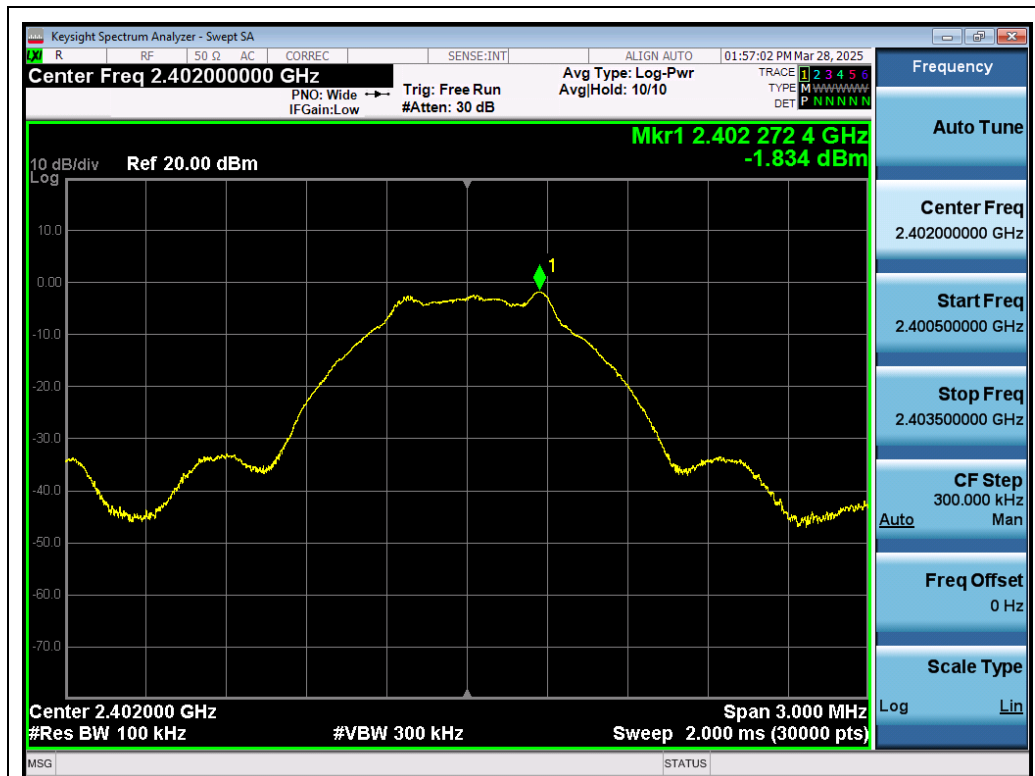
Test_Graph_LE2M_ANT1_2480_2Mbps_Higher Band Edge Emissions

Appendix E: Conducted Spurious Emission

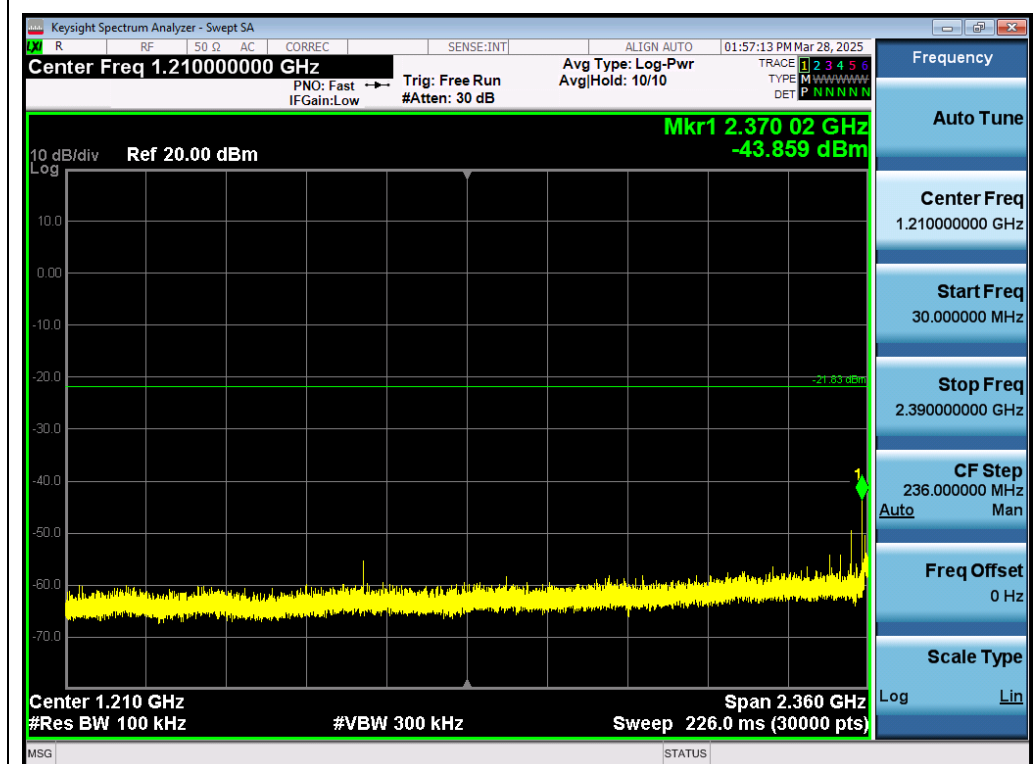
Test Result

Test Mode	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
GFSK_1Mbps	2402	0~Reference	-1.834	-1.834	---	Pass
GFSK_1Mbps	2402	30~2390	-1.834	-43.859	≤ -21.83	Pass
GFSK_1Mbps	2402	2483.5~25000	-1.834	-46.490	≤ -21.83	Pass
GFSK_1Mbps	2440	0~Reference	-1.957	-1.957	---	Pass
GFSK_1Mbps	2440	30~2400	-1.957	-47.950	≤ -21.96	Pass
GFSK_1Mbps	2440	2483.5~25000	-1.957	-44.243	≤ -21.96	Pass
GFSK_1Mbps	2480	0~Reference	-1.888	-1.888	---	Pass
GFSK_1Mbps	2480	30~2400	-1.888	-51.957	≤ -21.89	Pass
GFSK_1Mbps	2480	2500~26500	-1.888	-43.200	≤ -21.89	Pass
GFSK_2Mbps	2402	0~Reference	-2.709	-2.709	---	Pass
GFSK_2Mbps	2402	30~2390	-2.709	-47.544	≤ -22.71	Pass
GFSK_2Mbps	2402	2483.5~25000	-2.709	-46.375	≤ -22.71	Pass
GFSK_2Mbps	2440	0~Reference	-2.891	-2.891	---	Pass
GFSK_2Mbps	2440	30~2400	-2.891	-50.747	≤ -22.89	Pass
GFSK_2Mbps	2440	2483.5~25000	-2.891	-46.671	≤ -22.89	Pass
GFSK_2Mbps	2480	0~Reference	-2.732	-2.732	---	Pass
GFSK_2Mbps	2480	30~2400	-2.732	-53.595	≤ -22.73	Pass
GFSK_2Mbps	2480	2500~26500	-2.732	-45.371	≤ -22.73	Pass

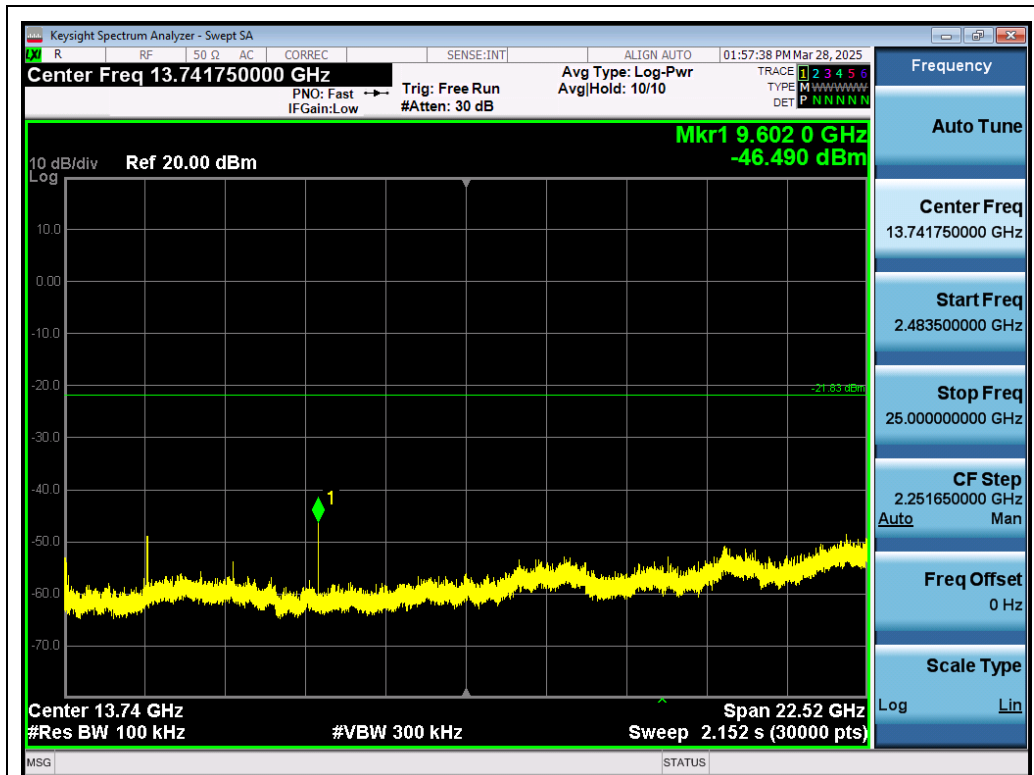
Test Graphs



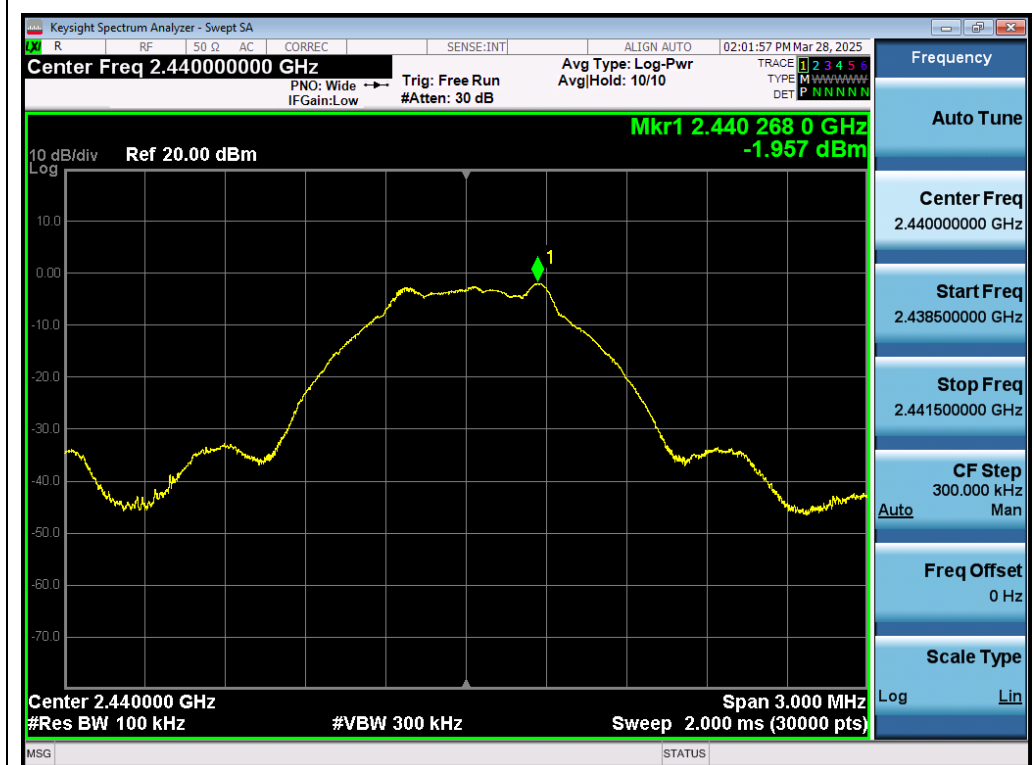
Test_Graph_LE1M_ANT1_2402_1Mbps_Reference Level



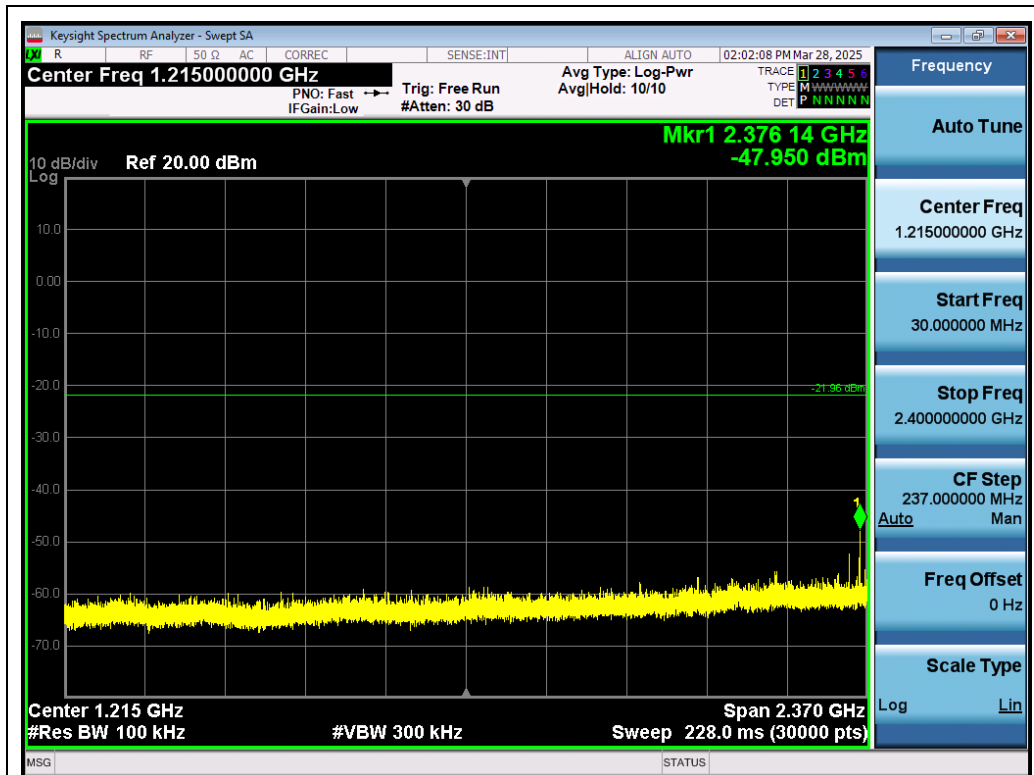
Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Emissions



Test_Graph_LE1M_ANT1_2402_1Mbps_Higher Band Emissions



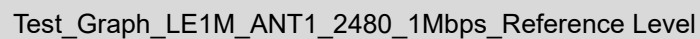
Test_Graph_LE1M_ANT1_2440_1Mbps_Reference Level

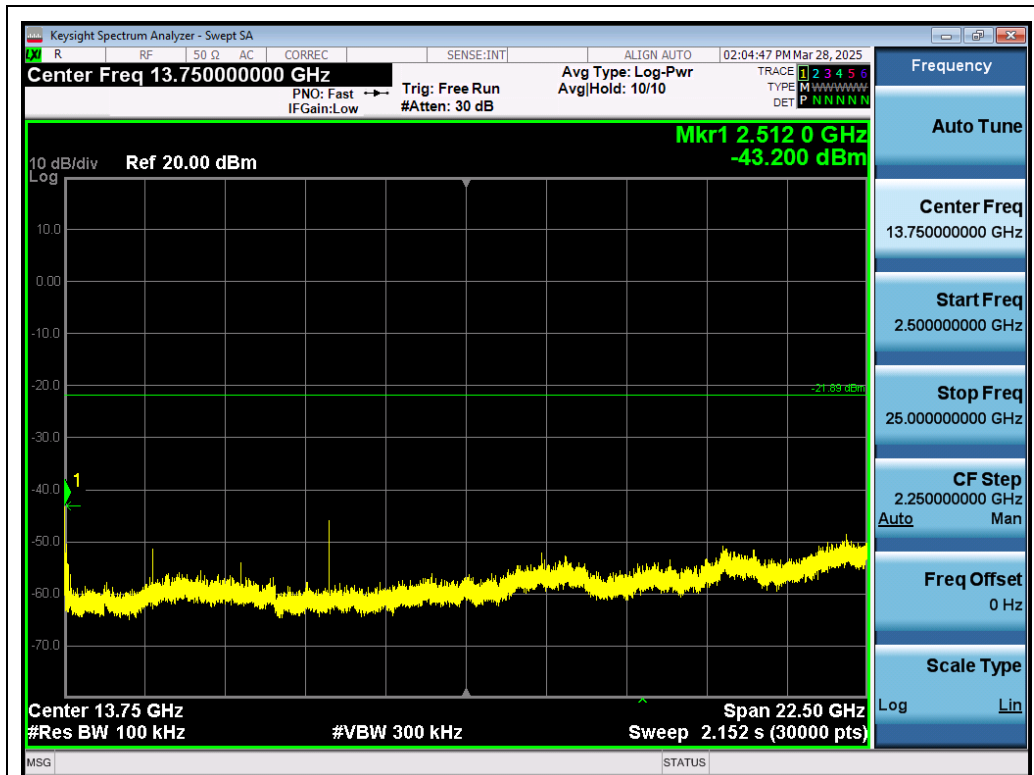


Test_Graph_LE1M_ANT1_2440_1Mbps_Lower Band Emissions



Test_Graph_LE1M_ANT1_2440_1Mbps_Higher Band Emissions

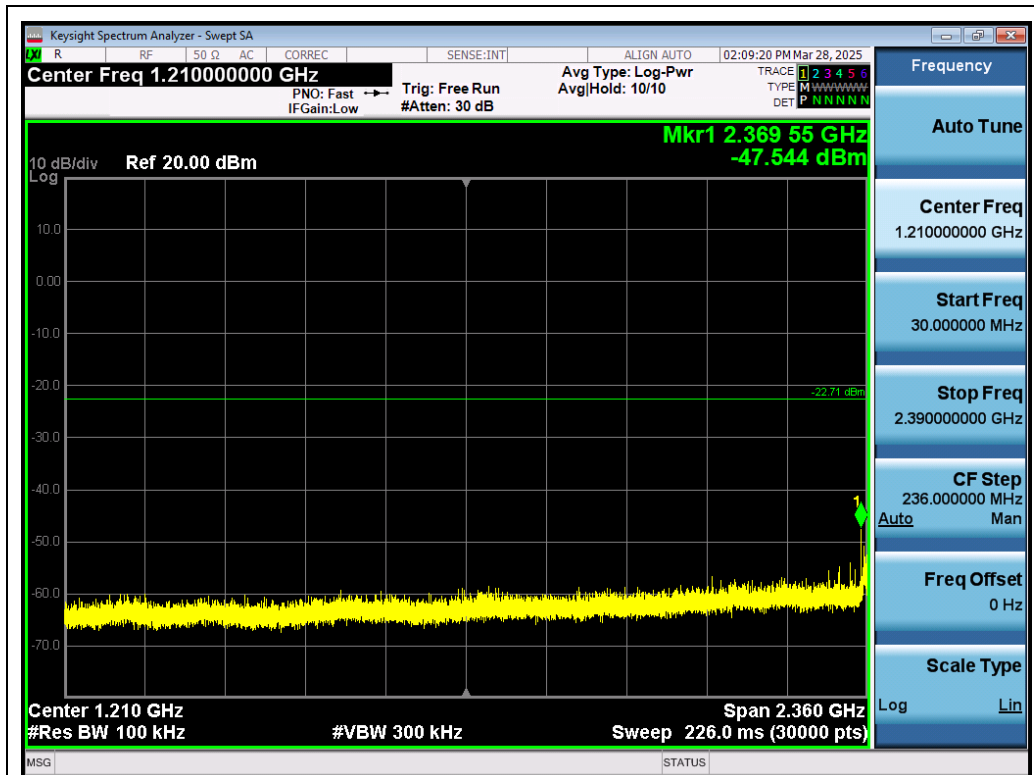




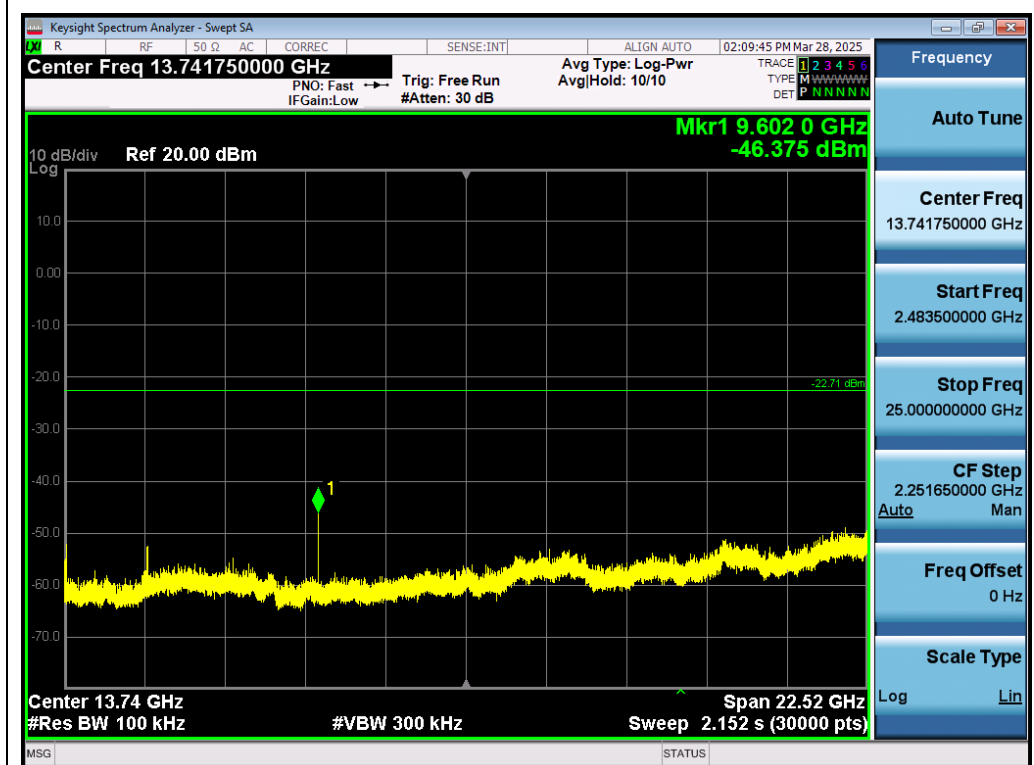
Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Emissions



Test_Graph_LE2M_ANT1_2402_2Mbps_Reference Level



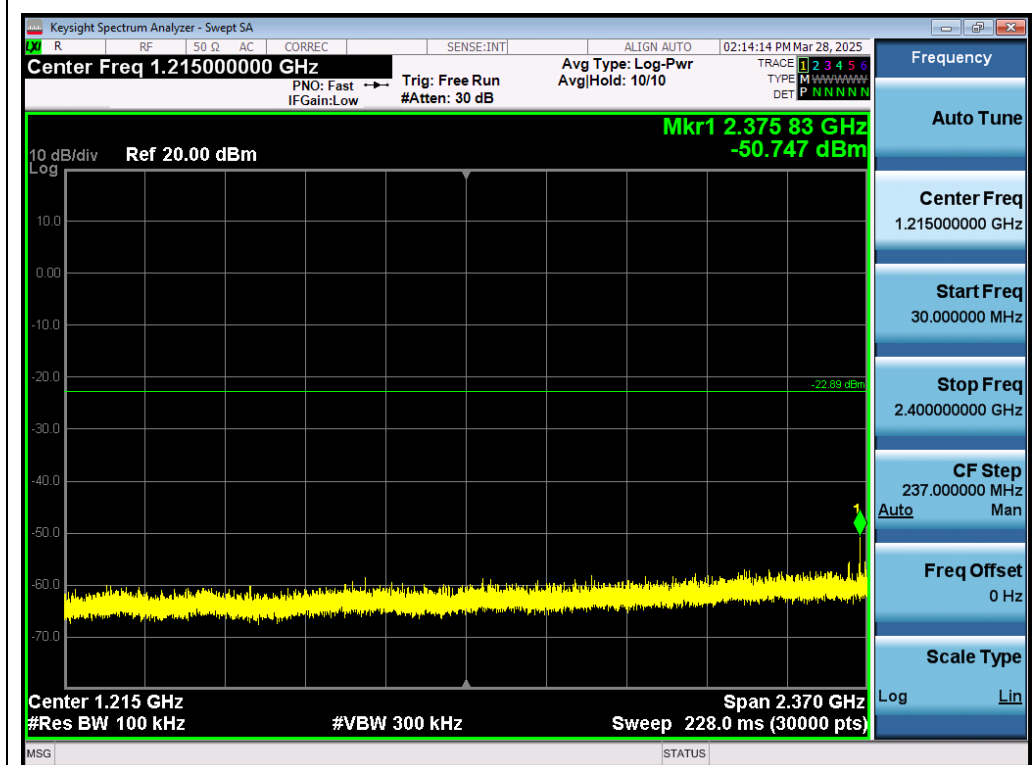
Test_Graph_LE2M_ANT1_2402_2Mbps_Lower Band Emissions



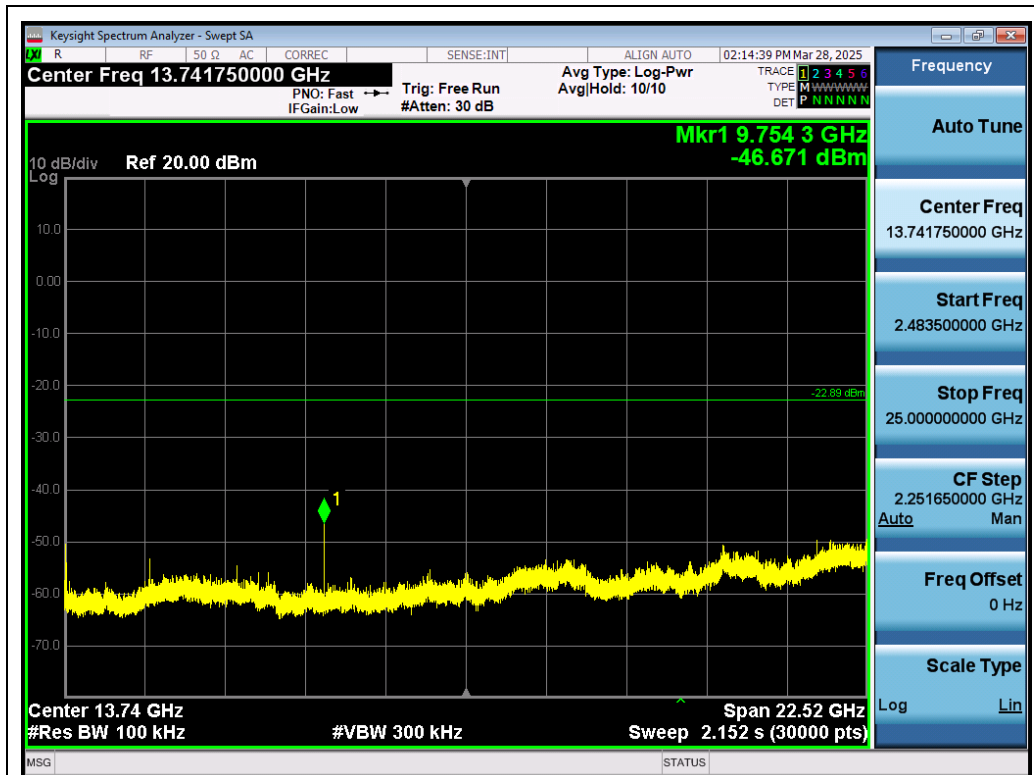
Test_Graph_LE2M_ANT1_2402_2Mbps_Higher Band Emissions

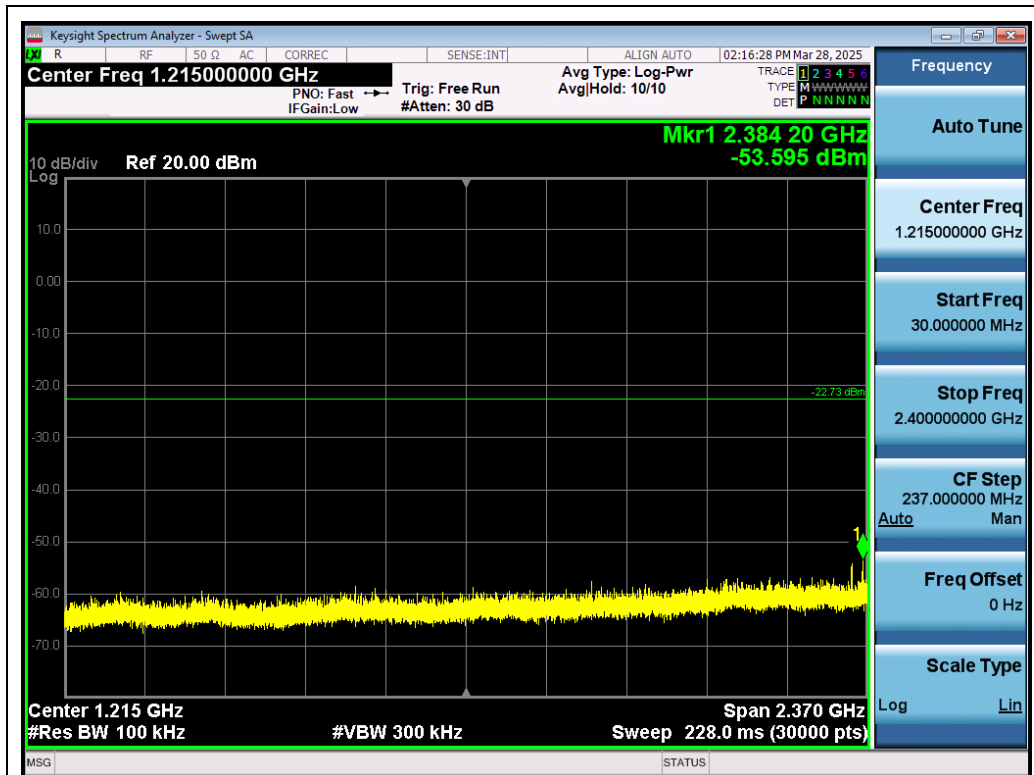


Test_Graph_LE2M_ANT1_2440_2Mbps_Reference Level

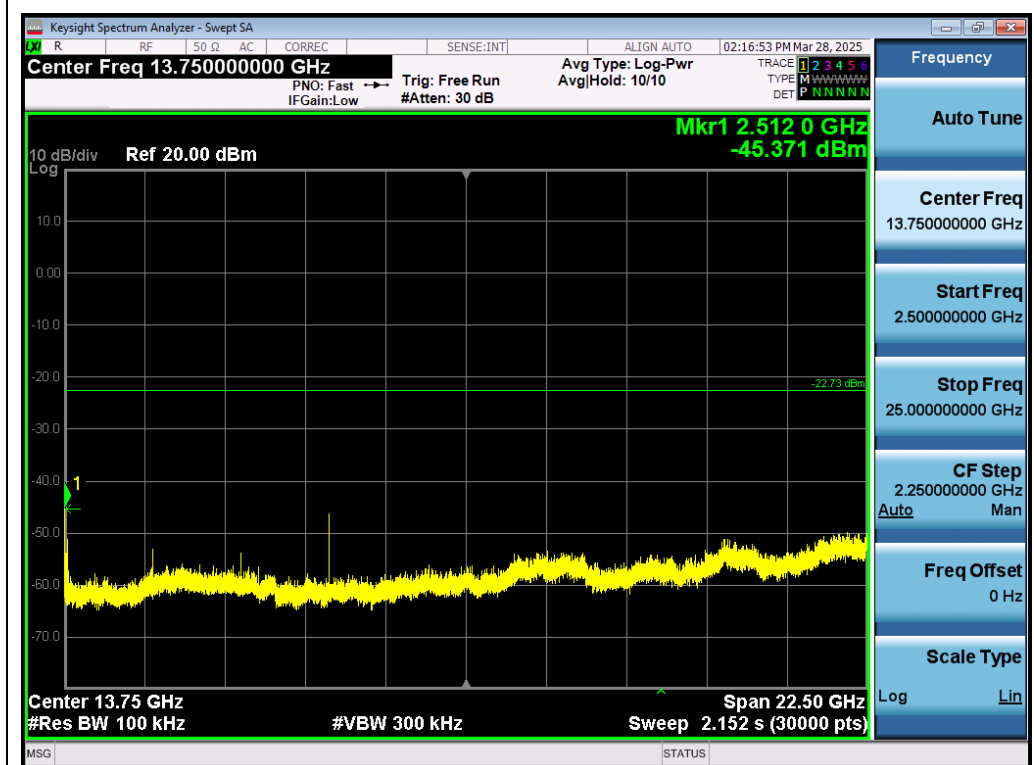


Test_Graph_LE2M_ANT1_2440_2Mbps_Lower Band Emissions





Test_Graph_LE2M_ANT1_2480_2Mbps_Lower Band Emissions



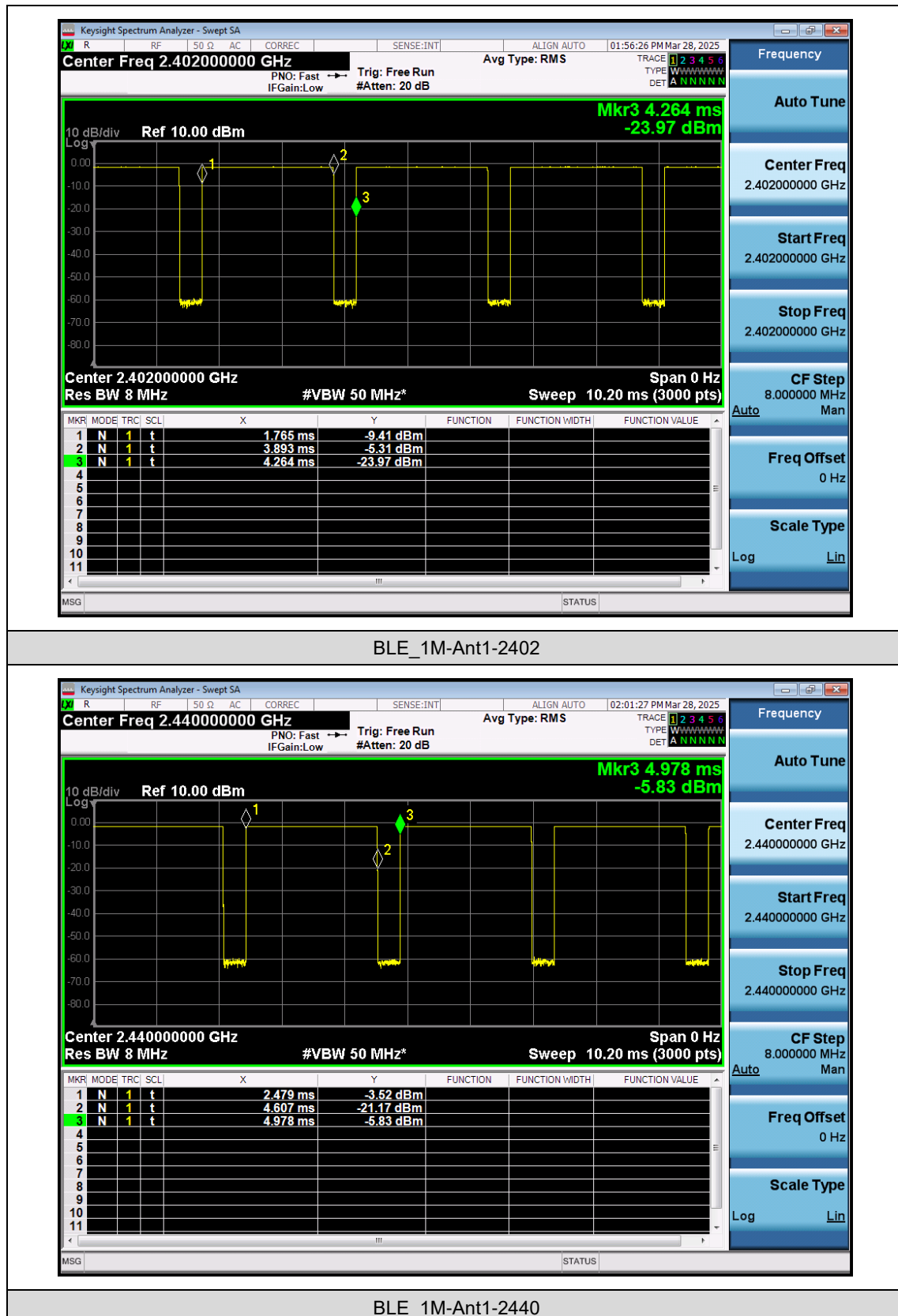
Test_Graph_LE2M_ANT1_2480_2Mbps_Higher Band Emissions

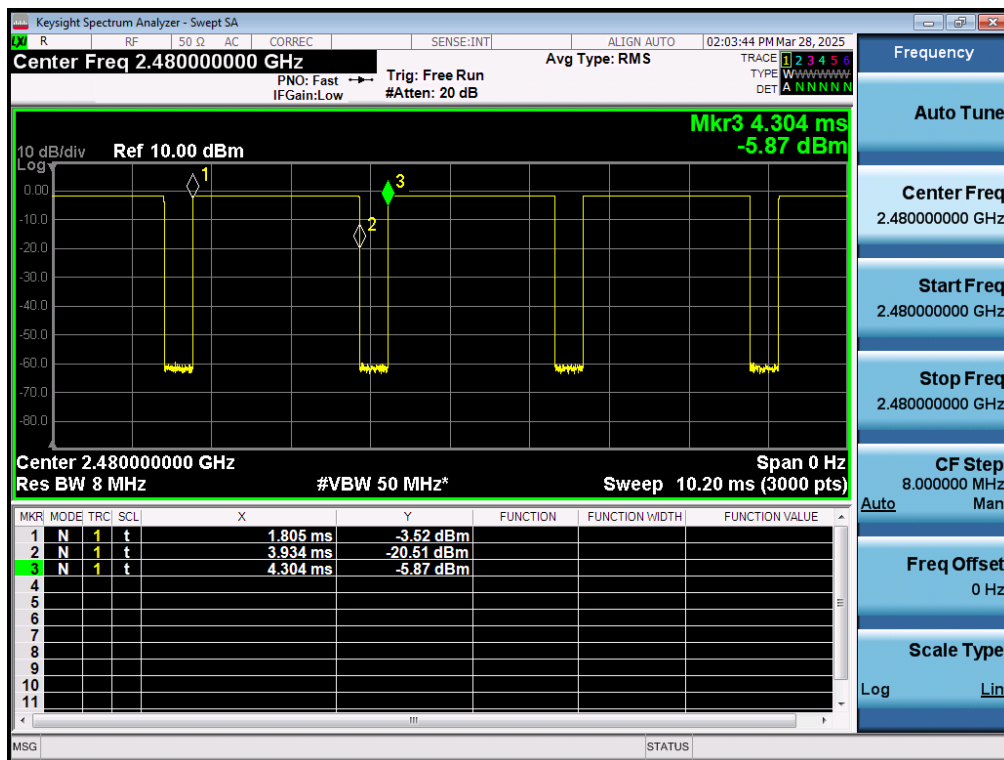
Appendix F: Duty Cycle

Test Result

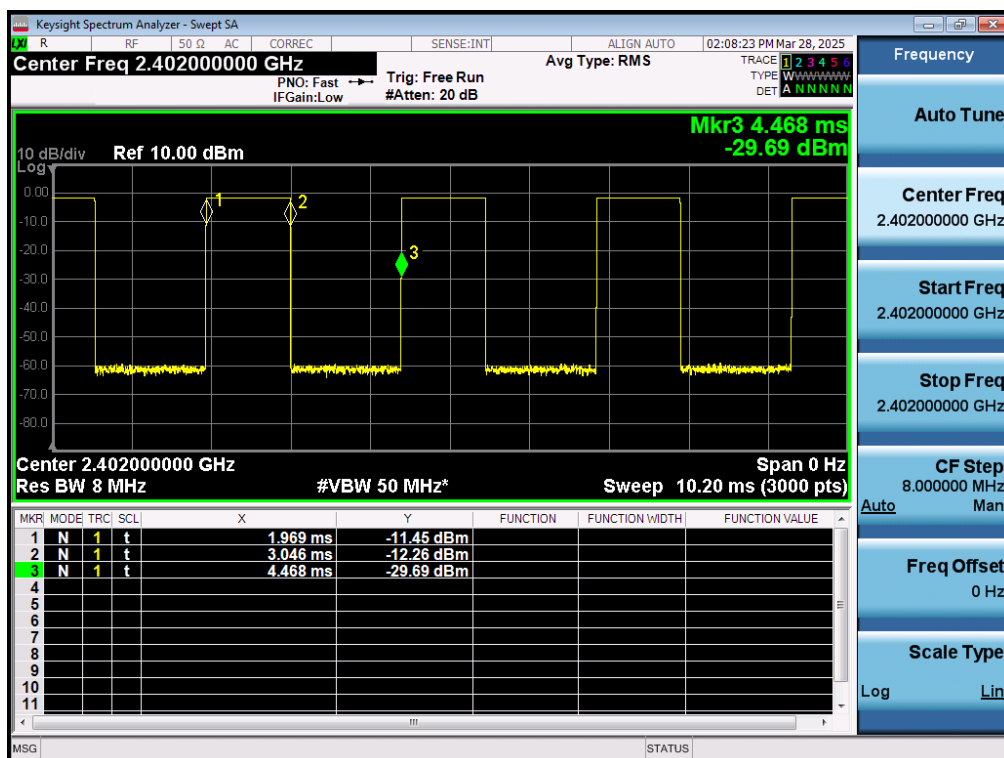
Test Mode	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
GFSK_1Mbps	2402	2.128	2.499	85.15	0.7
GFSK_1Mbps	2440	2.128	2.499	85.15	0.7
GFSK_1Mbps	2480	2.129	2.499	85.19	0.7
GFSK_2Mbps	2402	1.077	2.499	43.10	3.66
GFSK_2Mbps	2440	1.081	2.499	43.26	3.64
GFSK_2Mbps	2480	1.078	2.503	43.07	3.66

Test Graphs

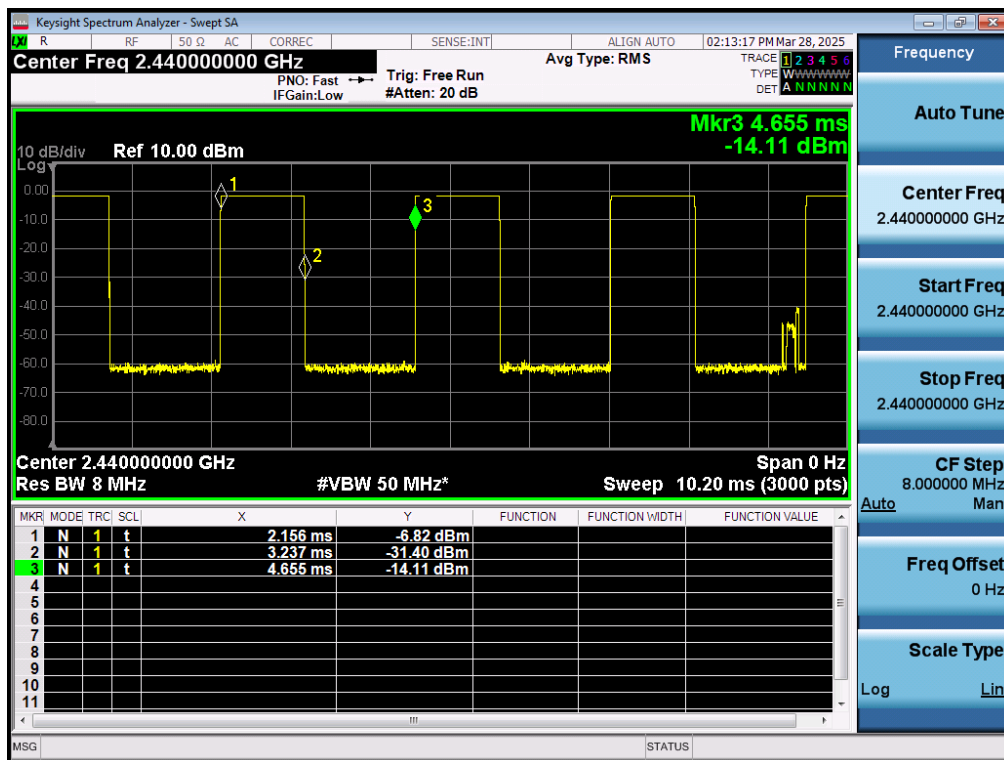




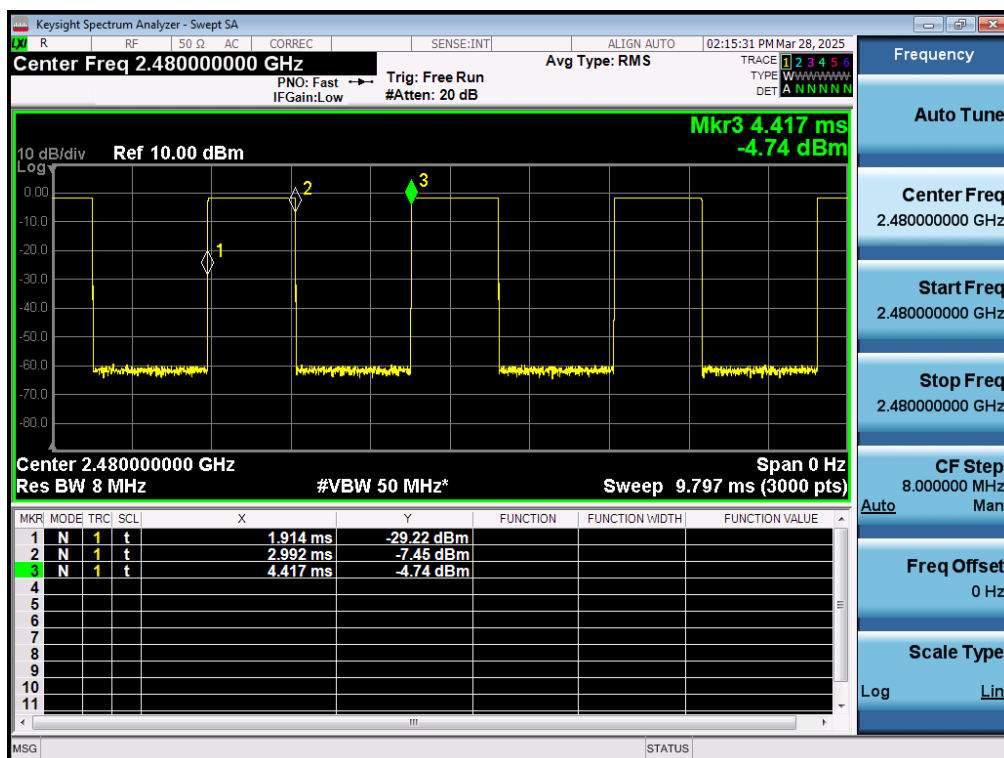
BLE_1M-Ant1-2480



BLE_2M-Ant1-2402



BLE_2M-Ant1-2440



BLE_2M-Ant1-2480