Appendix Test Data

Report No.:	18220WC30076402	Test Sample No.:	1-2-2
Start Test Date:	2023.05.08	Finish Test Date:	2023.05.09
Test Engineer:	Rick Luo	Auditor:	Edward. Pan
Temperature:	26.7℃	Relative Humidity:	50%
Pressure:	1012 hPa		

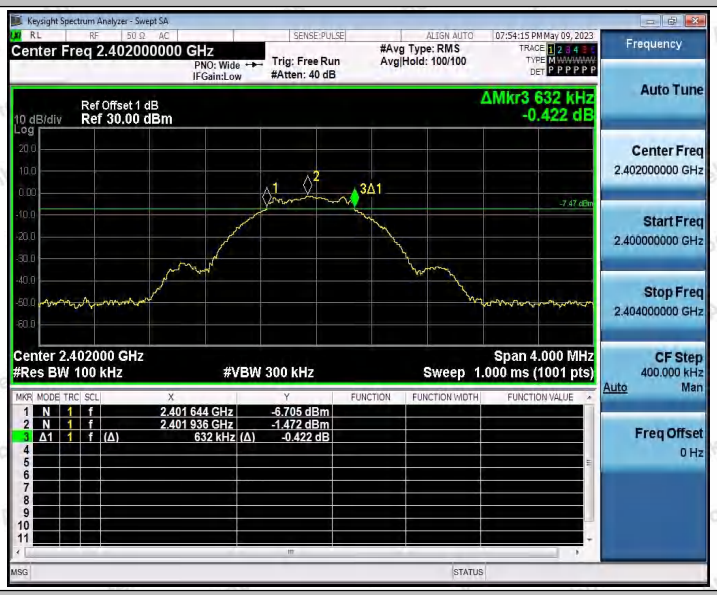
Appendix A: DTS Bandwidth

Test Result

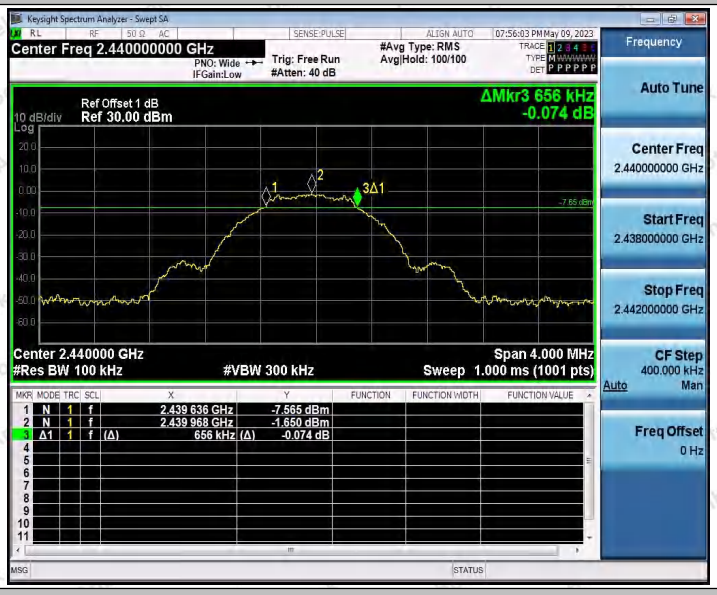
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.632	2401.644	2402.276	0.5	PASS
		2440	0.656	2439.636	2440.292	0.5	PASS
		2480	0.644	2479.628	2480.272	0.5	PASS
BLE_2M	Ant1	2402	1.340	2401.284	2402.624	0.5	PASS
		2440	1.112	2439.416	2440.528	0.5	PASS
		2480	1.240	2479.284	2480.524	0.5	PASS

Test Graphs

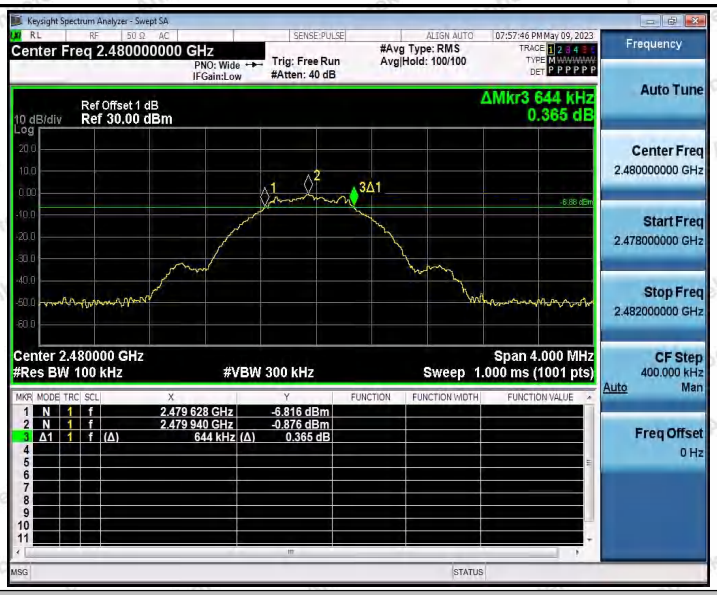
BLE_1M_Ant1_2402



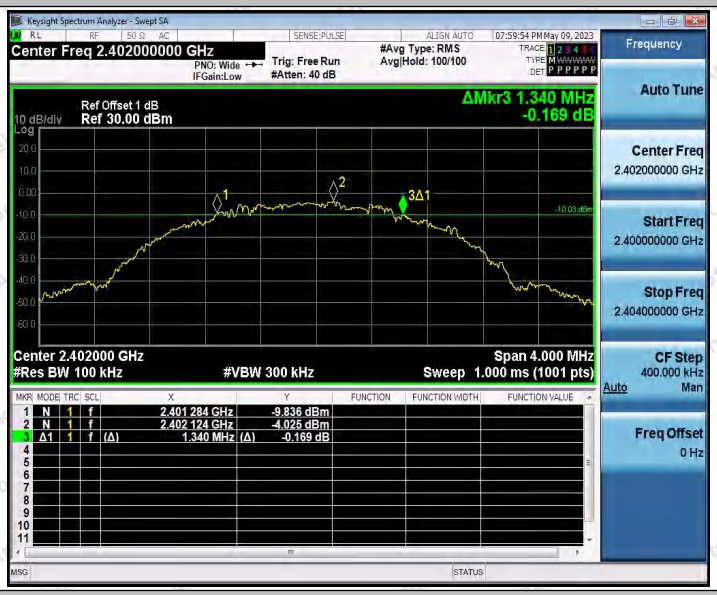
BLE_1M_Ant1_2440



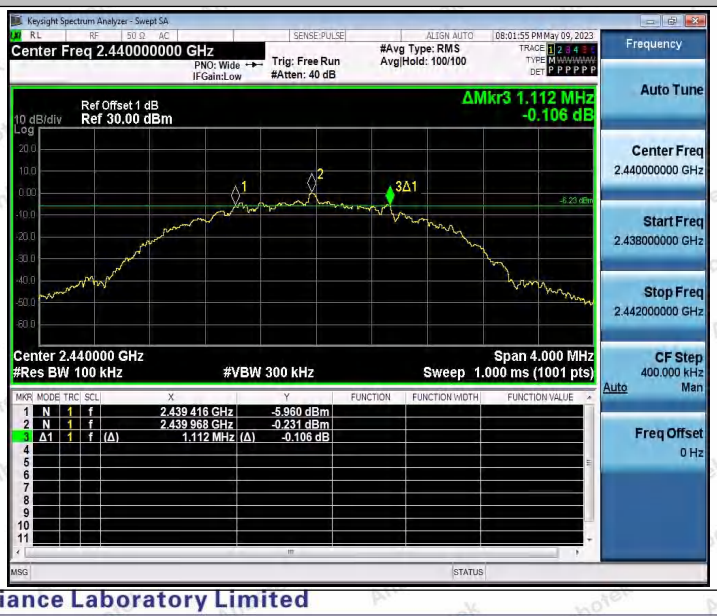
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

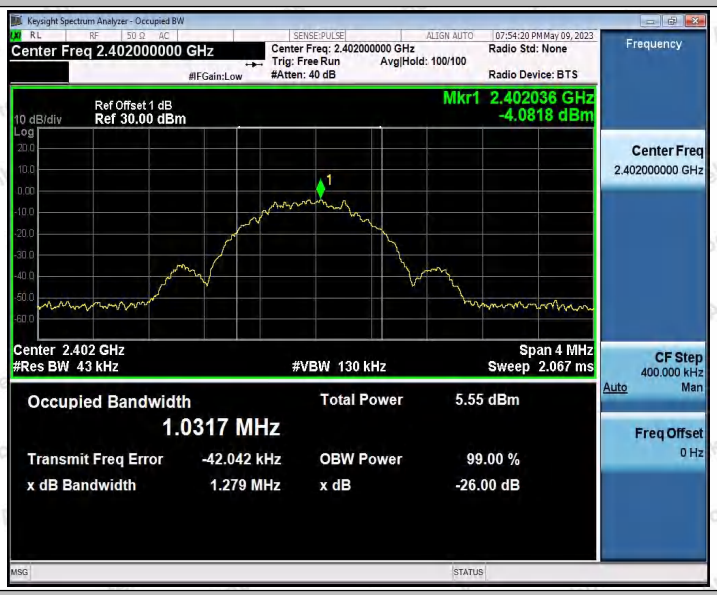
Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
BLE_1M	Ant1	2402	1.0317	2401.4421	2402.4738
		2440	1.0325	2439.4431	2440.4756
		2480	1.0261	2479.4421	2480.4682
BLE_2M	Ant1	2402	2.0646	2400.9268	2402.9914
		2440	2.0598	2438.9427	2441.0025
		2480	2.0615	2478.9386	2481.0001

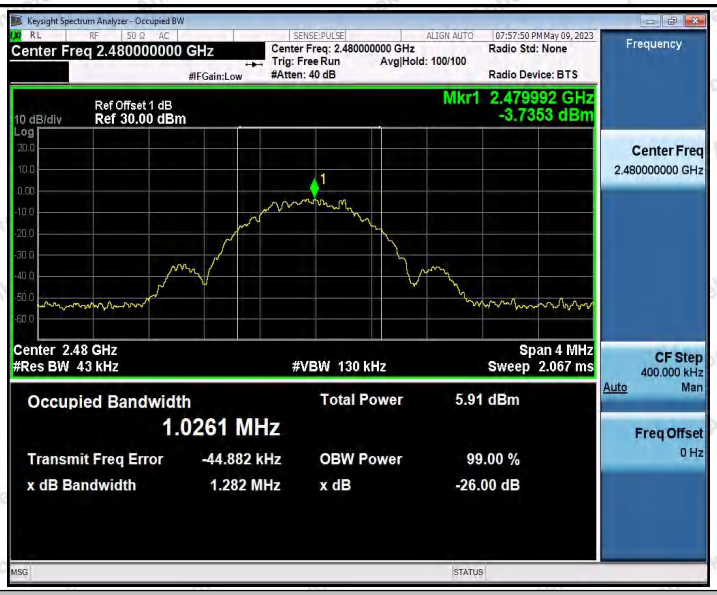
Test Graphs

BLE_1M_Ant1_2402

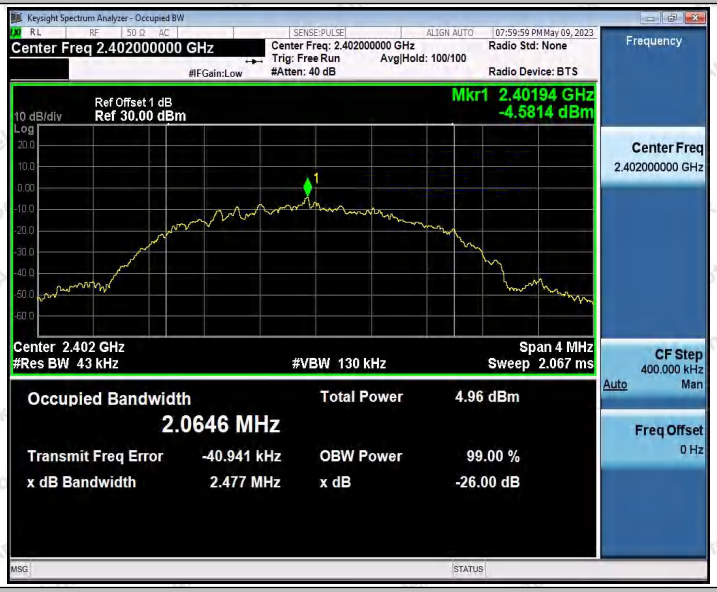


BLE_1M_Ant1_2440

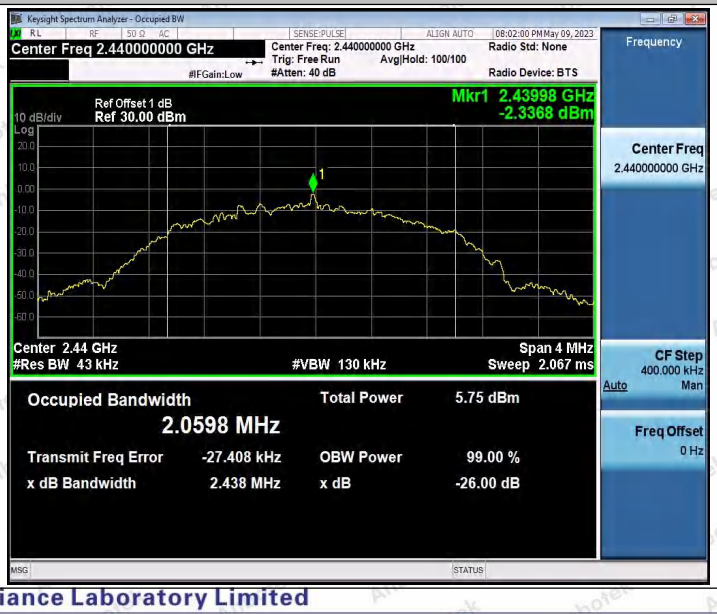
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.34	≤30	PASS
		2440	0.07	≤30	PASS
		2480	0.01	≤30	PASS
BLE_2M	Ant1	2402	-0.36	≤30	PASS
		2440	0.27	≤30	PASS
		2480	**0.35**	≤30	PASS

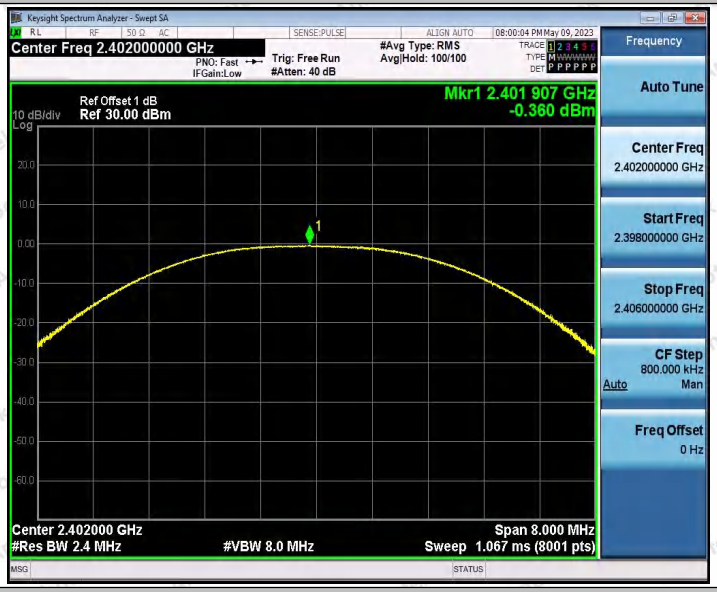
Test Graphs Peak

BLE_1M_Ant1_2402

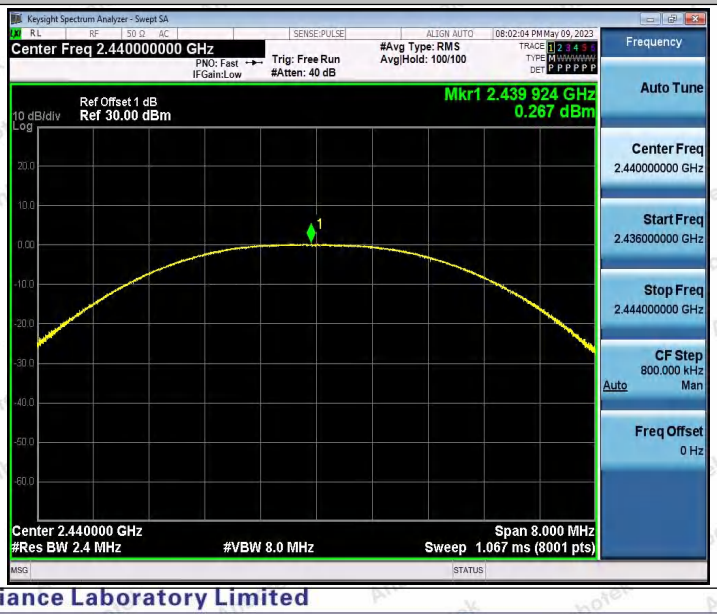
BLE_1M_Ant1_2440

BLE_1M_Ant1_2480

BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

Appendix D: Maximum power spectral density

Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.55	≤8.00	PASS
		2440	-15.2	≤8.00	PASS
		2480	-15.48	≤8.00	PASS
BLE_2M	Ant1	2402	-17.54	≤8.00	PASS
		2440	-16.89	≤8.00	PASS
		2480	-16.84	≤8.00	PASS

Test Graphs

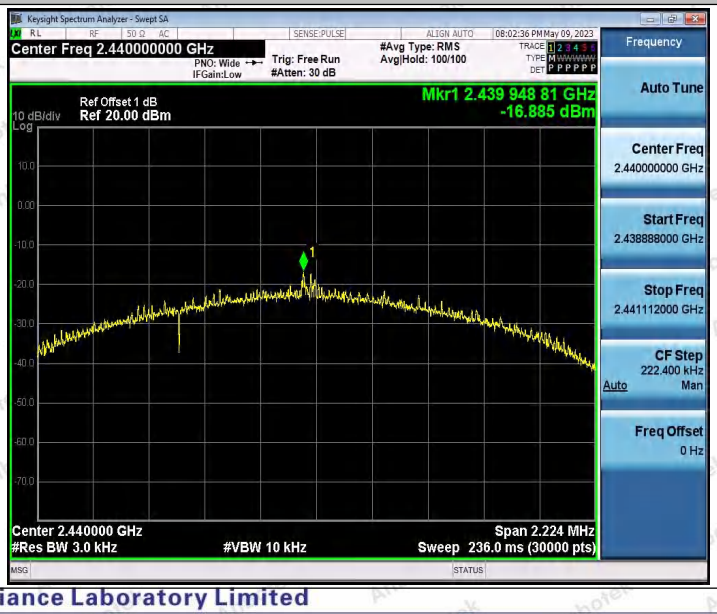
BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

BLE_1M_Ant1_2480

BLE_2M_Ant1_2402

BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

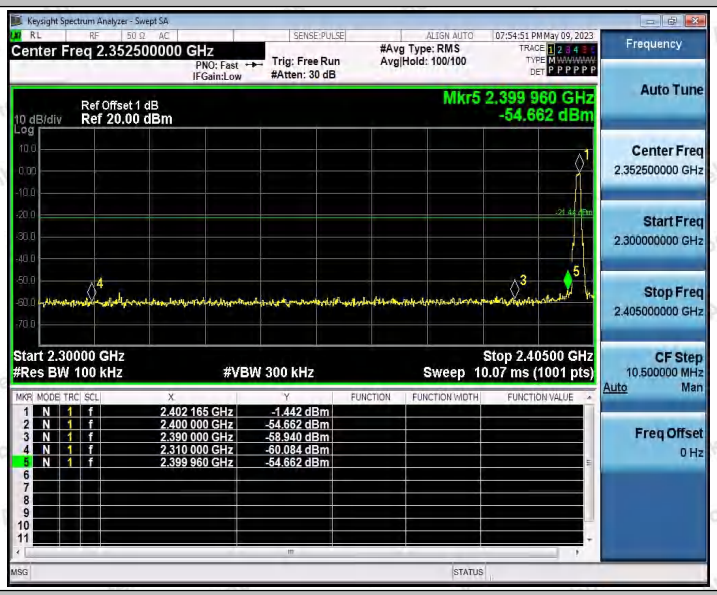
Appendix E: Band edge measurements

Test Result

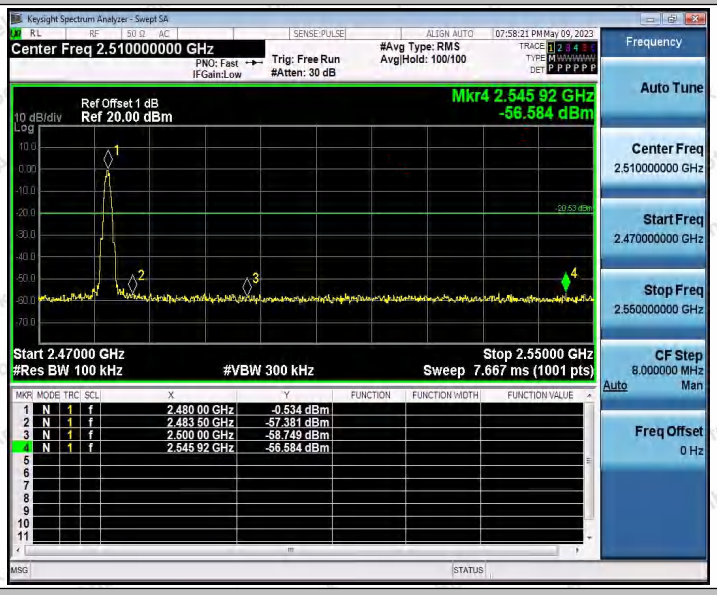
TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.44	-54.66	≤-21.44	PASS
		High	2480	-0.53	-56.58	≤-20.53	PASS
BLE_2M	Ant1	Low	2402	-2.47	-47.96	≤-22.47	PASS
		High	2480	-2.67	-56.17	≤-22.67	PASS

Test Graphs

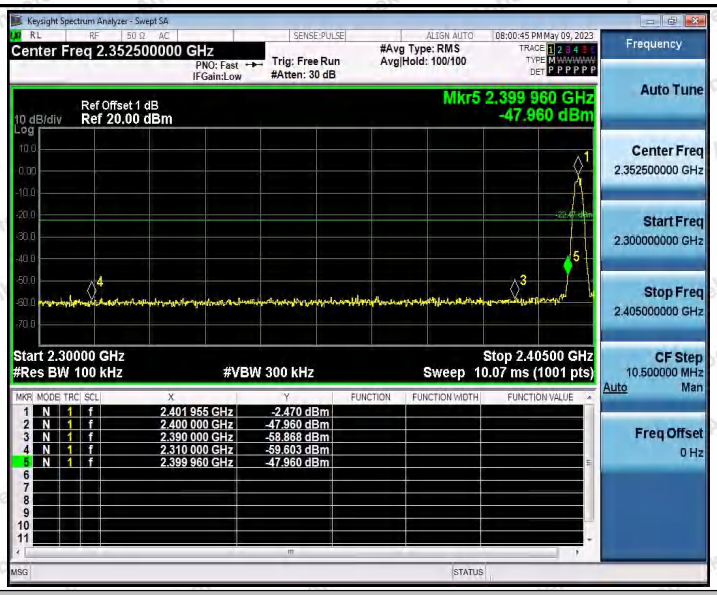
BLE_1M_Ant1_Low_2402



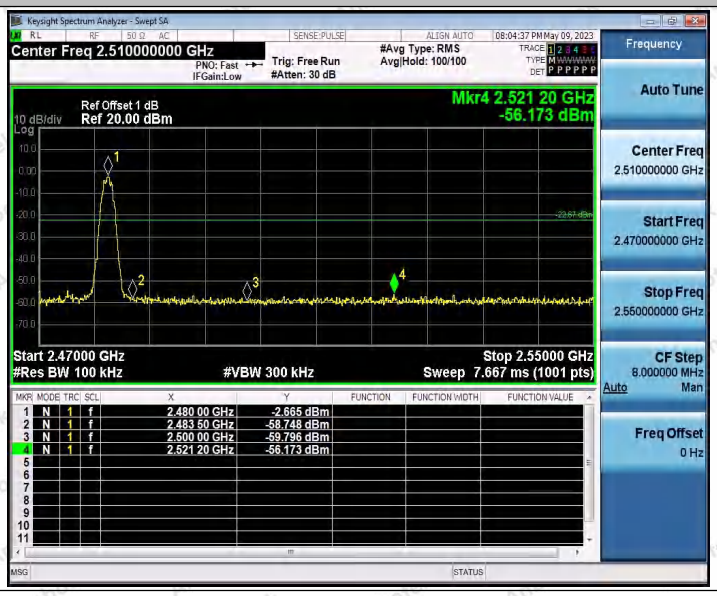
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



Appendix F: Conducted Spurious Emission

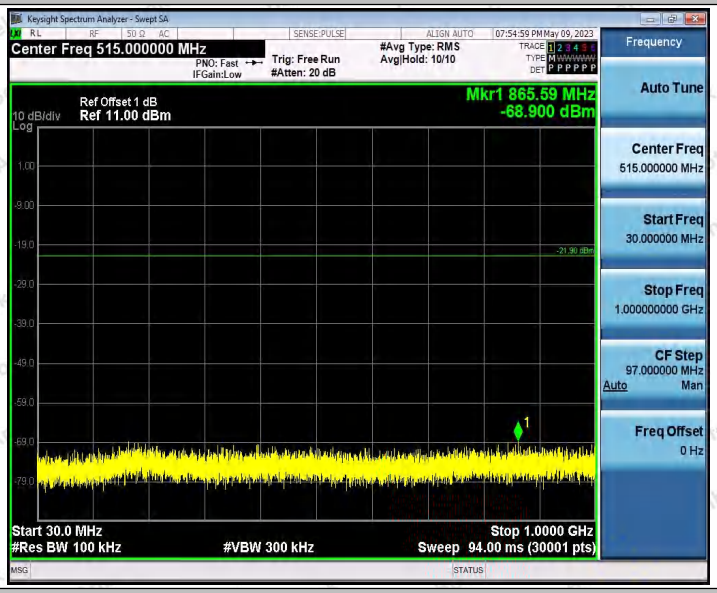
Test Result

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.90	-1.90	---	PASS
			30~1000	-1.90	-68.9	≤-21.9	PASS
			1000~26500	-1.90	-51.47	≤-21.9	PASS
		2440	Reference	-2.11	-2.11	---	PASS
			30~1000	-2.11	-69.09	≤-22.11	PASS
			1000~26500	-2.11	-52.23	≤-22.11	PASS
		2480	Reference	-1.86	-1.86	---	PASS
			30~1000	-1.86	-68.59	≤-21.86	PASS
			1000~26500	-1.86	-52.52	≤-21.86	PASS
BLE_2M	Ant1	2402	Reference	-4.17	-4.17	---	PASS
			30~1000	-4.17	-69.12	≤-24.17	PASS
			1000~26500	-4.17	-51.75	≤-24.17	PASS
		2440	Reference	-2.66	-2.66	---	PASS
			30~1000	-2.66	-68.64	≤-22.66	PASS
			1000~26500	-2.66	-49.39	≤-22.66	PASS
		2480	Reference	-3.52	-3.52	---	PASS
			30~1000	-3.52	-68.42	≤-23.52	PASS
			1000~26500	-3.52	-41.85	≤-23.52	PASS

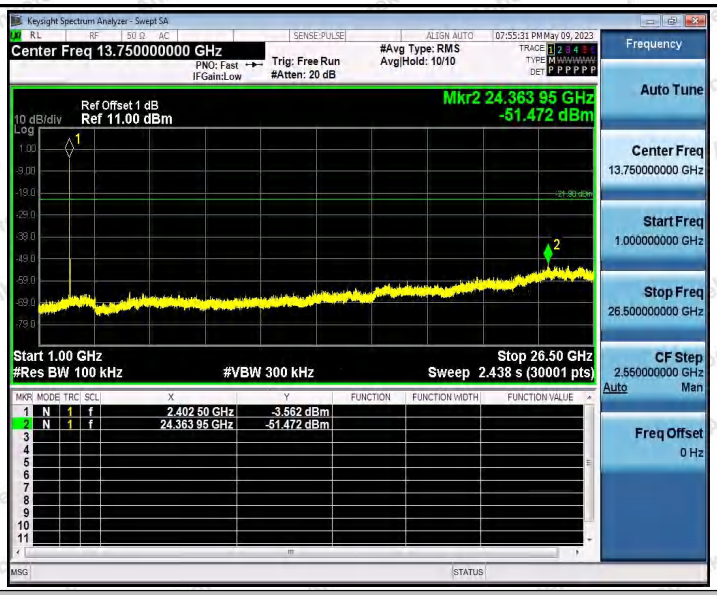
Test Graphs

BLE_1M_Ant1_2402_0~Reference

BLE_1M_Ant1_2402_30~1000

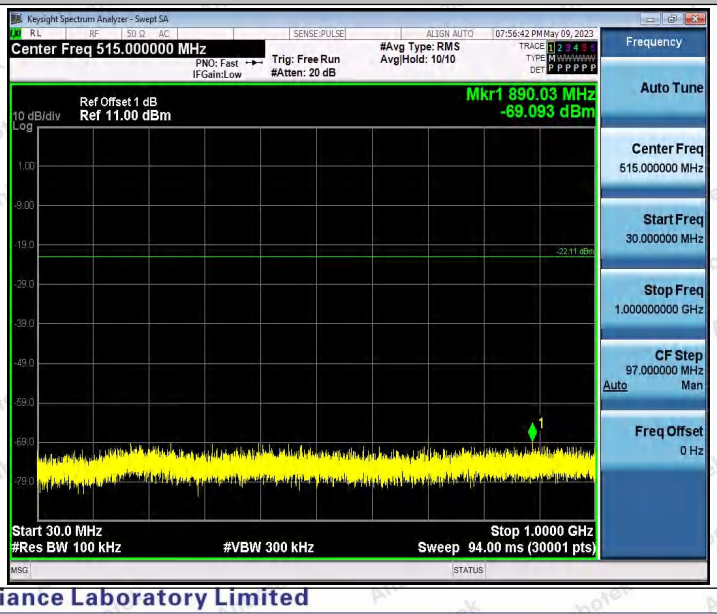


BLE_1M_Ant1_2402_1000~26500

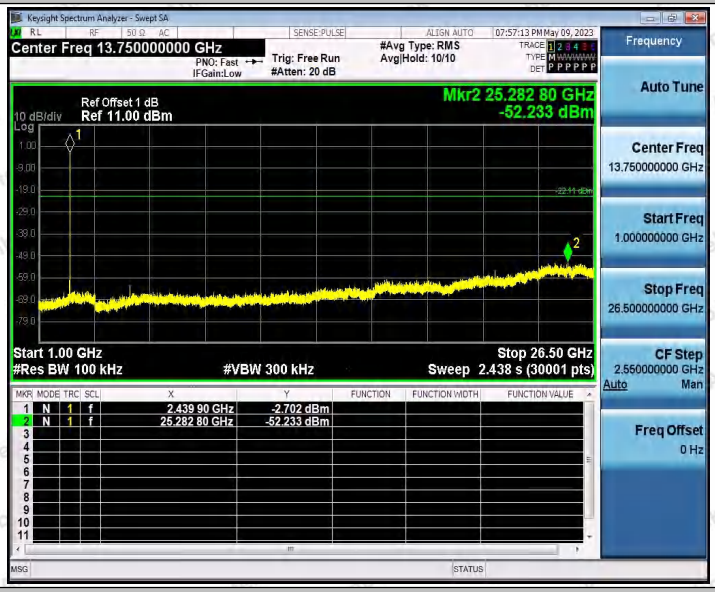


BLE_1M_Ant1_2440_0~Reference

BLE_1M_Ant1_2440_30~1000

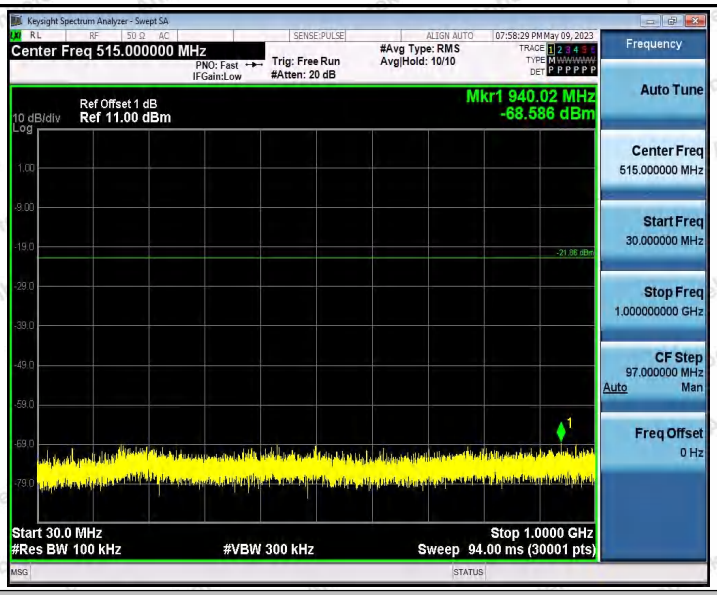


BLE_1M_Ant1_2440_1000~26500

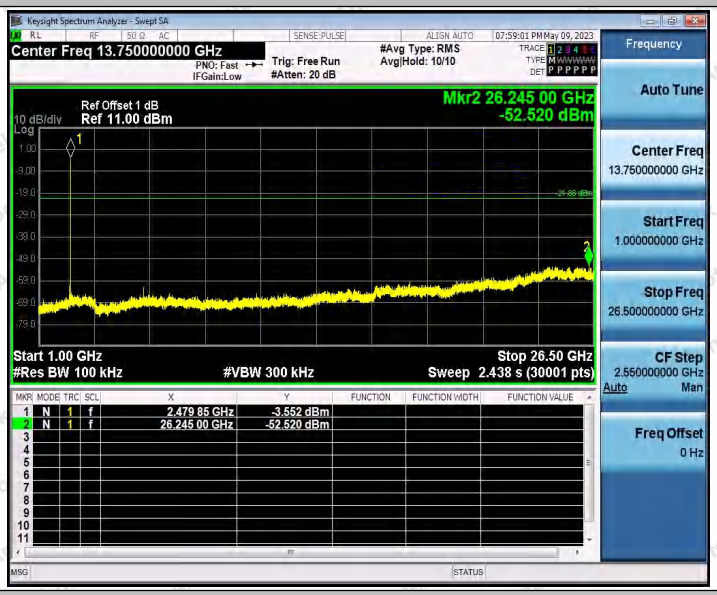


BLE_1M_Ant1_2480_0~Reference

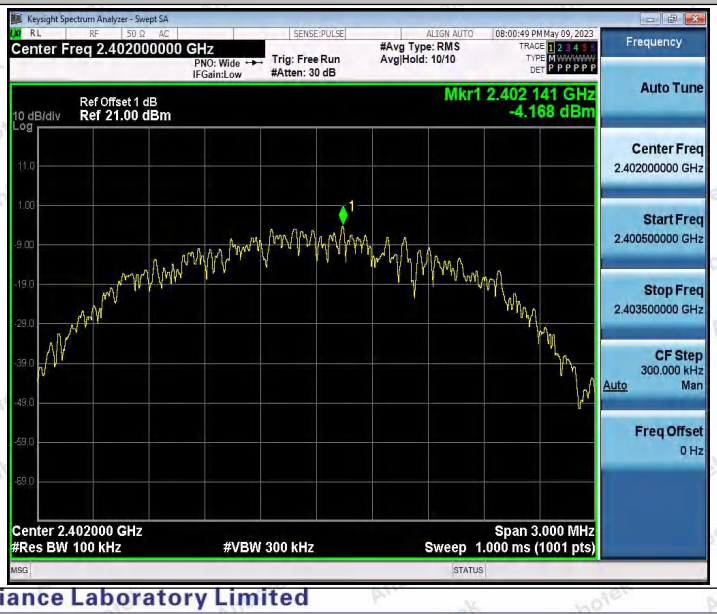
BLE_1M_Ant1_2480_30~1000



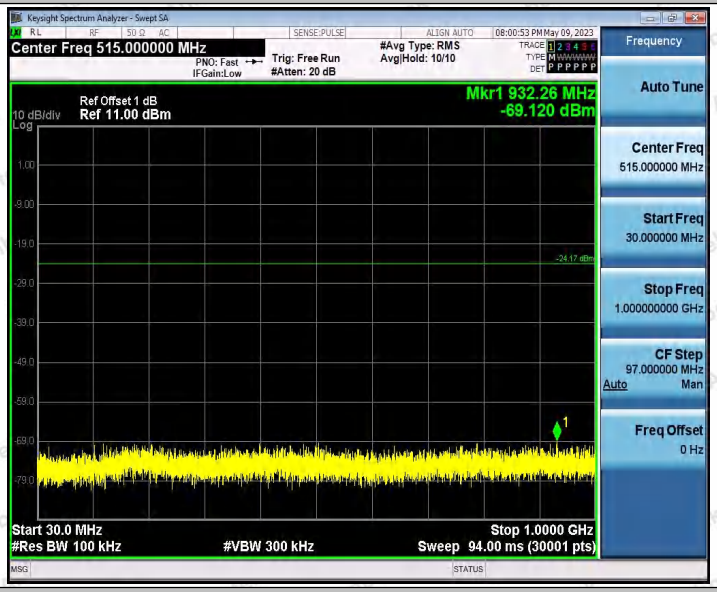
BLE_1M_Ant1_2480_1000~26500



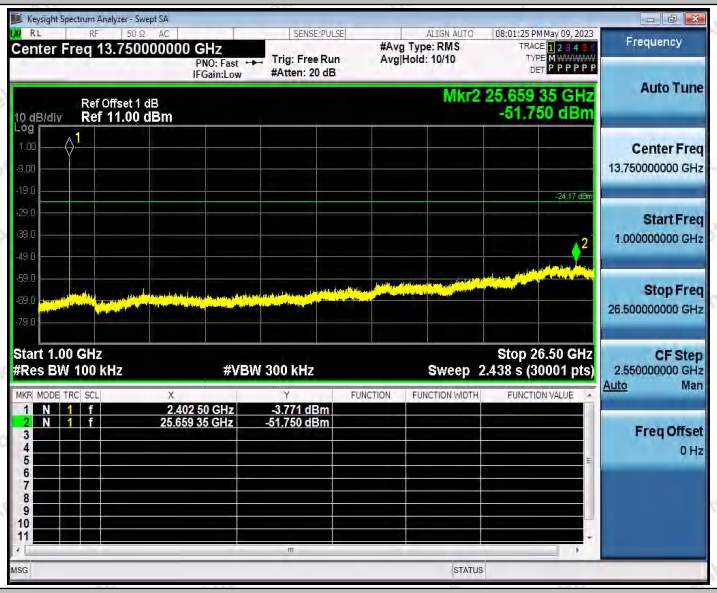
BLE_2M_Ant1_2402_0~Reference



BLE_2M_Ant1_2402_30~1000

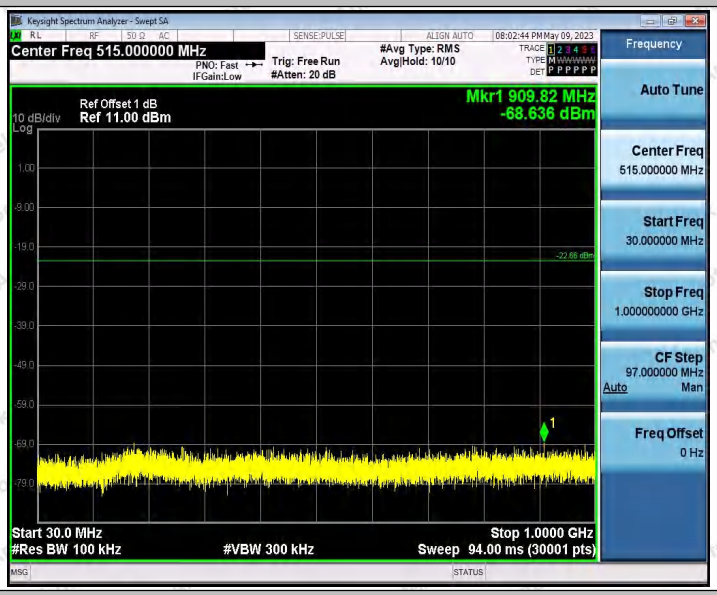


BLE_2M_Ant1_2402_1000~26500

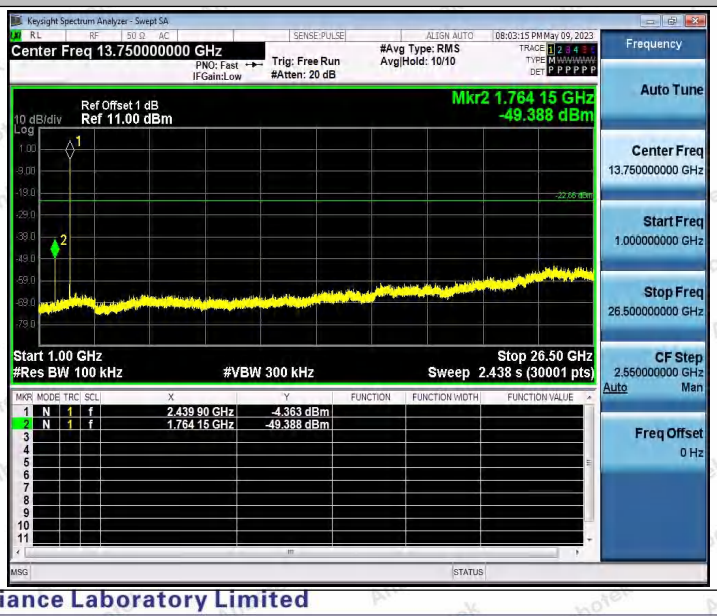


BLE_2M_Ant1_2440_0~Reference

BLE_2M_Ant1_2440_30~1000

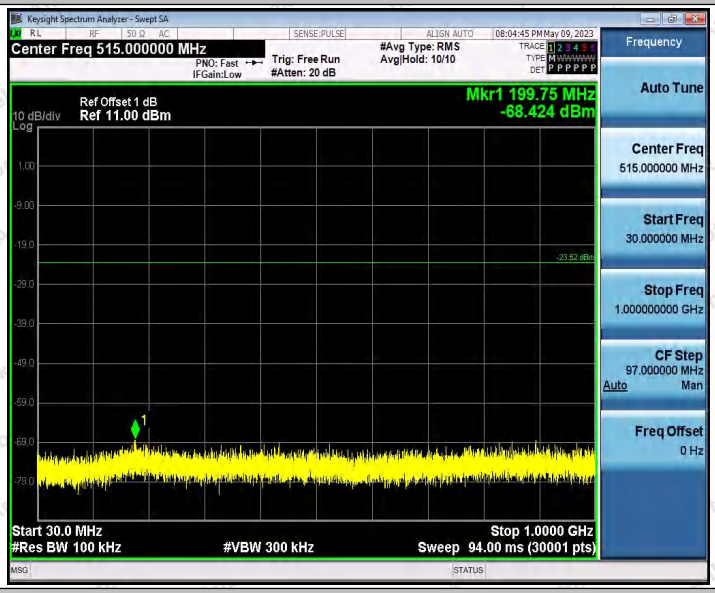


BLE_2M_Ant1_2440_1000~26500

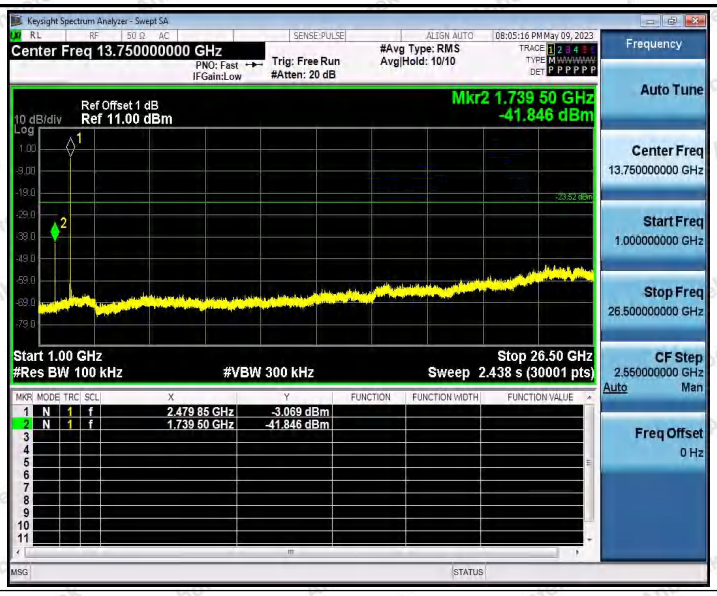


BLE_2M_Ant1_2480_0~Reference

BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
08:05:16 PM May 09, 2023
Ref Offset 1 dB
10 dB/div Ref 11.00 dBm
Log
Mkr2 1.739 50 GHz
-41.846 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -3.069 dBm
2 N 1 f 1.739 50 GHz -41.846 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto Man
Freq Offset
0 Hz

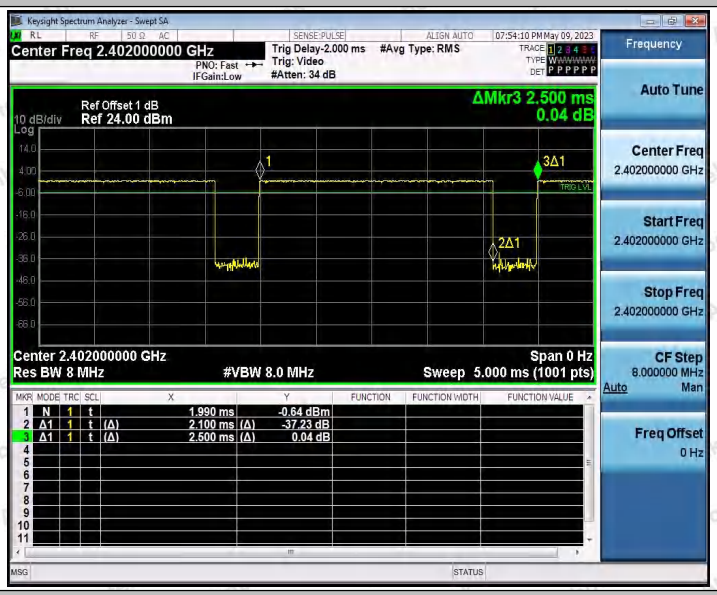
Appendix G: Duty Cycle

Test Result

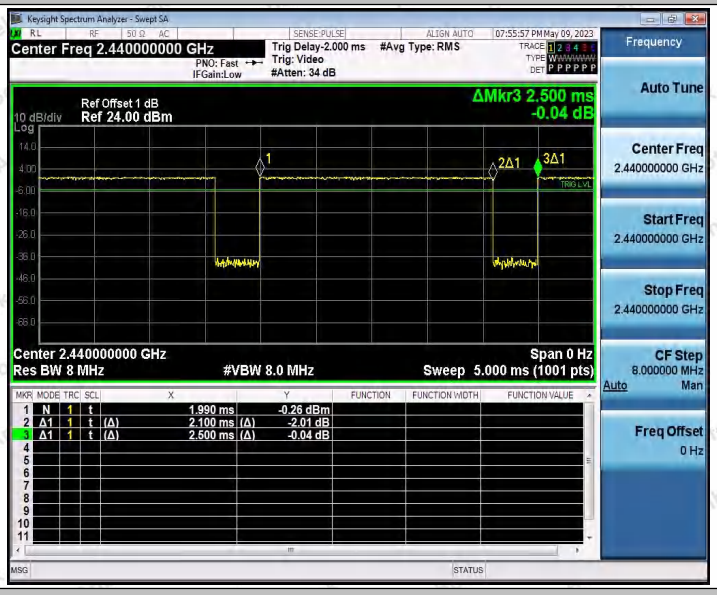
Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	2.10	2.50	84.00	0.76
		2440	2.10	2.50	84.00	0.76
		2480	2.10	2.50	84.00	0.76
BLE_2M	Ant1	2402	1.06	1.88	56.38	2.49
		2440	1.06	1.87	56.68	2.47
		2480	1.06	1.88	56.38	2.49

Test Graphs

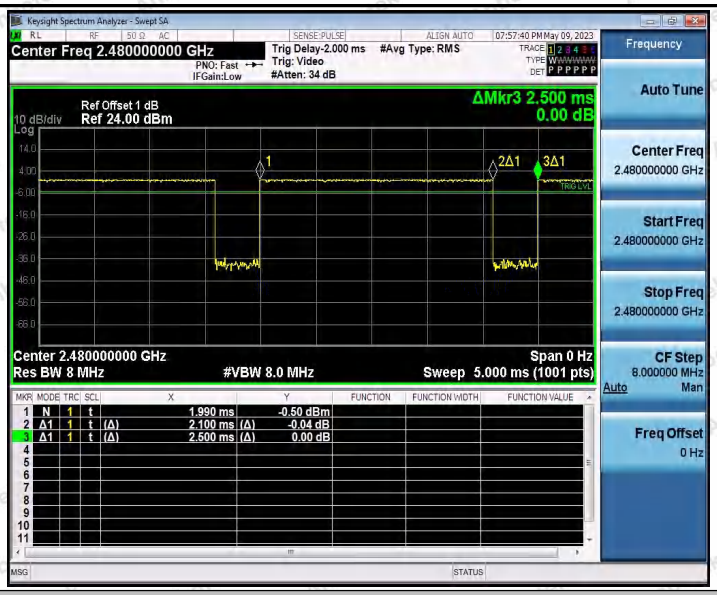
BLE_1M_Ant1_2402



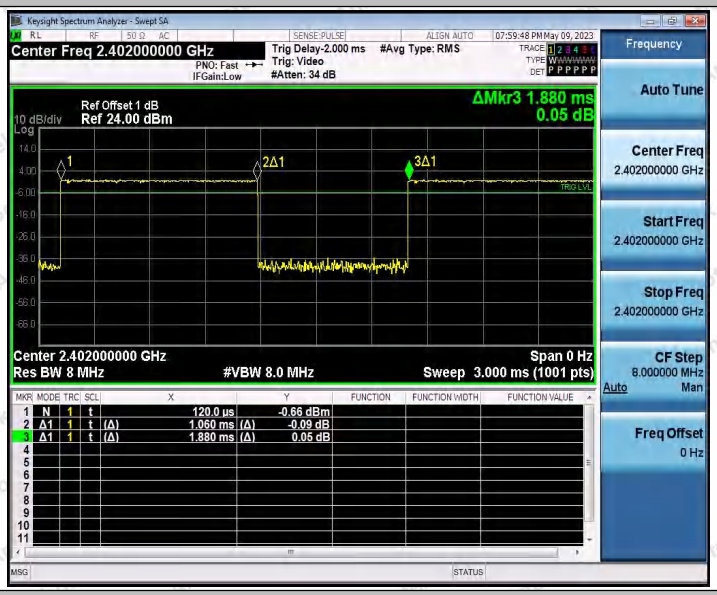
BLE_1M_Ant1_2440



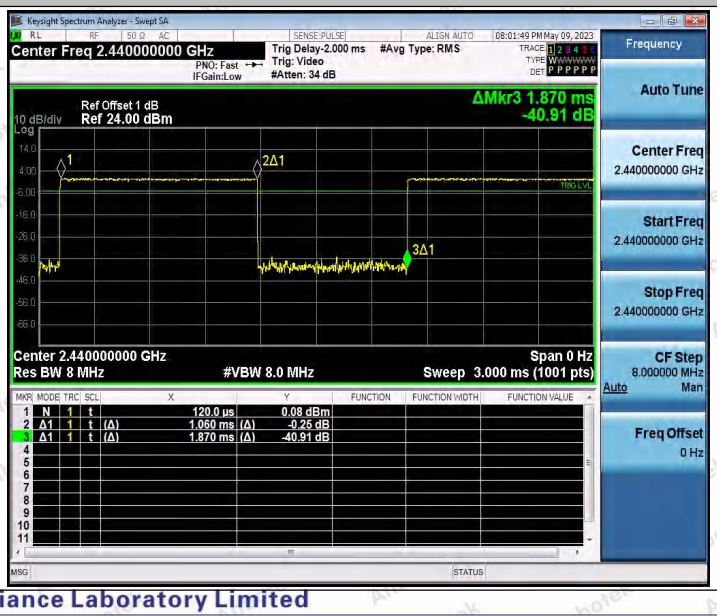
BLE_1M_Ant1_2480



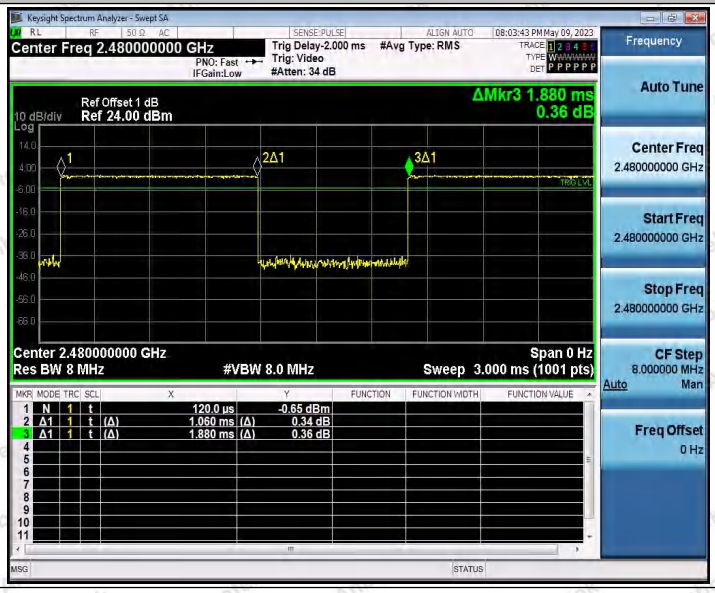
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



---End---