Appendix Test Data

Report No.:	18220WC30175501	Test Sample No.:	1-2-2
Start Test Date:	2023.08.16	Finish Test Date:	2023.08.21
Test Engineer:	Hayman Chen	Auditor:	Rick Luo
Temperature:	25.5℃	Relative Humidity:	48%
Pressure:	1012 hPa		

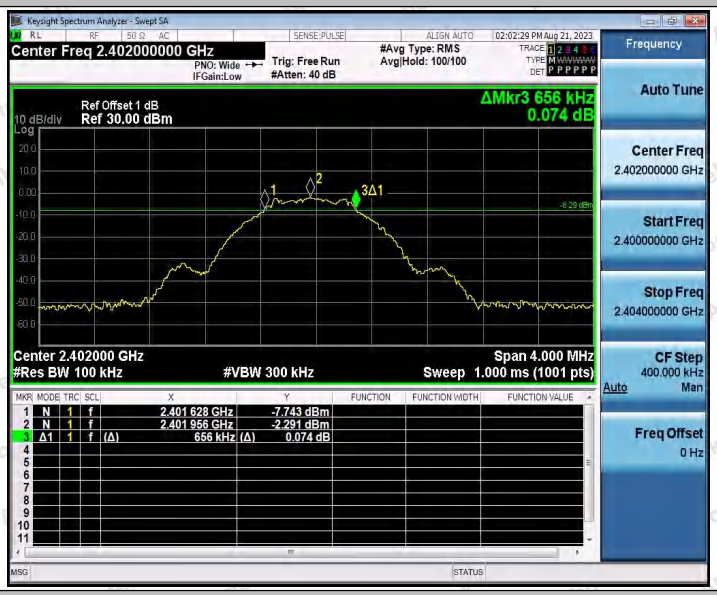
Appendix A: DTS Bandwidth

Test Result

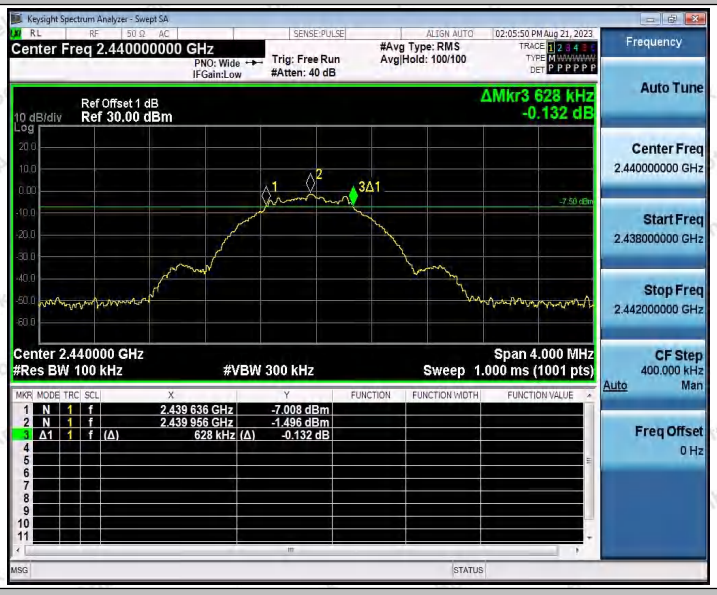
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.656	2401.628	2402.284	0.5	PASS
		2440	0.628	2439.636	2440.264	0.5	PASS
		2480	0.620	2479.644	2480.264	0.5	PASS
BLE_2M	Ant1	2402	1.168	2401.364	2402.532	0.5	PASS
		2440	1.204	2439.328	2440.532	0.5	PASS
		2480	1.096	2479.408	2480.504	0.5	PASS

Test Graphs

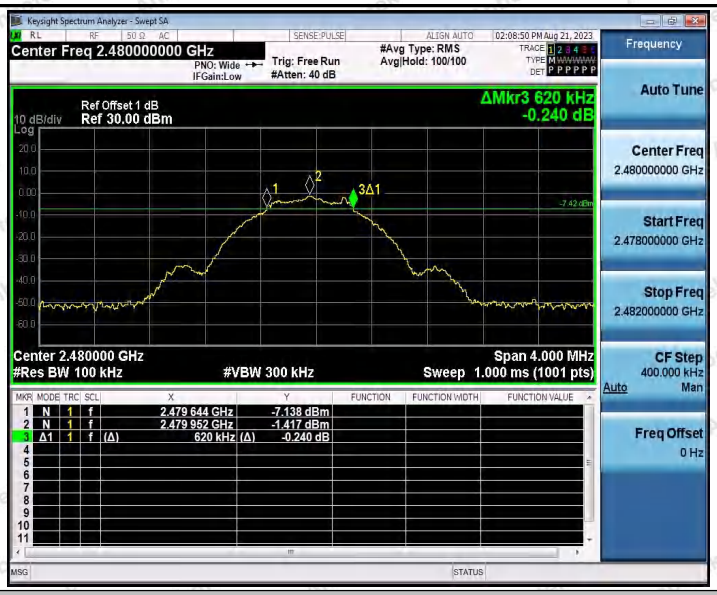
BLE_1M_Ant1_2402



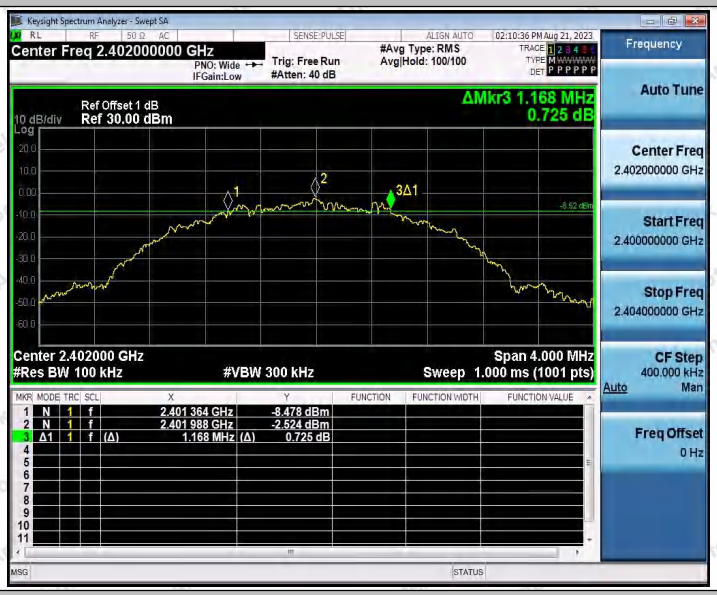
BLE_1M_Ant1_2440



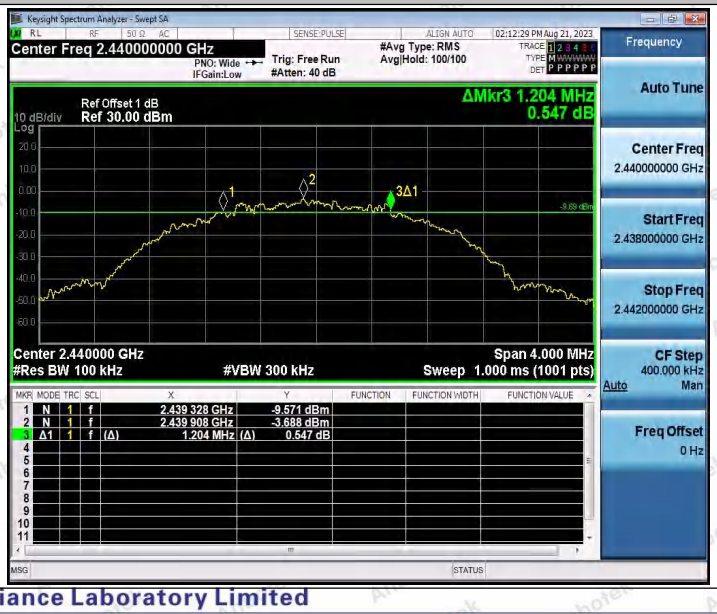
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

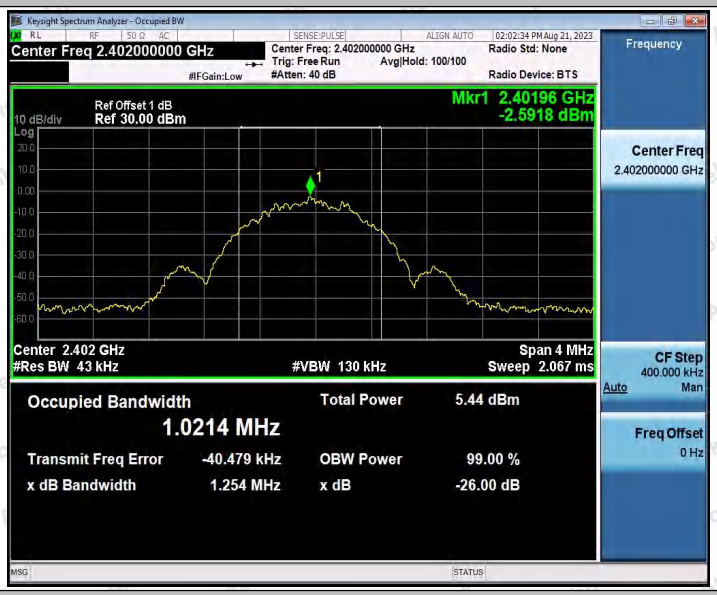
Appendix B: Occupied Channel Bandwidth

Test Result

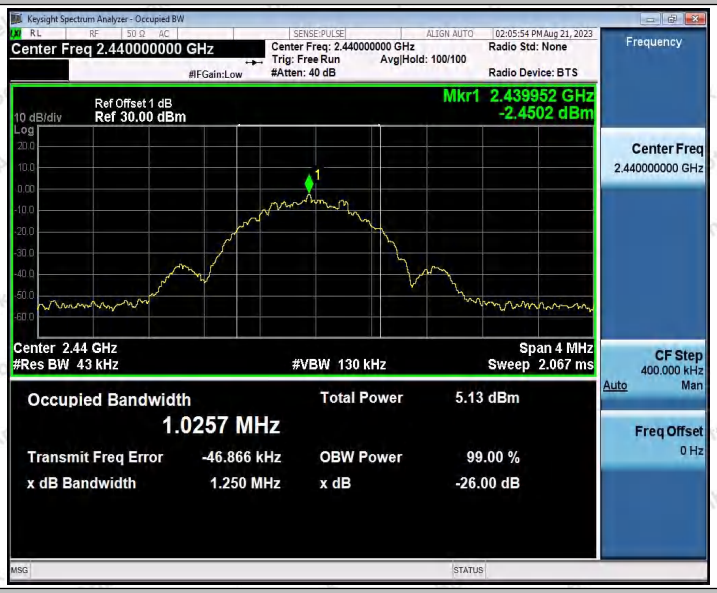
Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
BLE_1M	Ant1	2402	1.0214	2401.4488	2402.4702
		2440	1.0257	2439.4403	2440.4660
		2480	1.0305	2479.4381	2480.4686
BLE_2M	Ant1	2402	2.0590	2400.9383	2402.9973
		2440	2.0412	2438.9471	2440.9883
		2480	2.0643	2478.9359	2481.0002

Test Graphs

BLE_1M_Ant1_2402



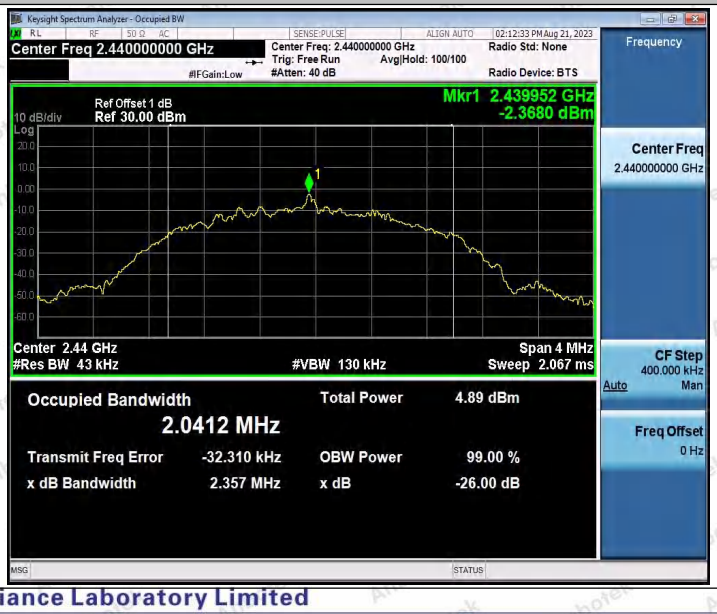
BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

BLE_2M_Ant1_2402

BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

Appendix C: Maximum conducted output power

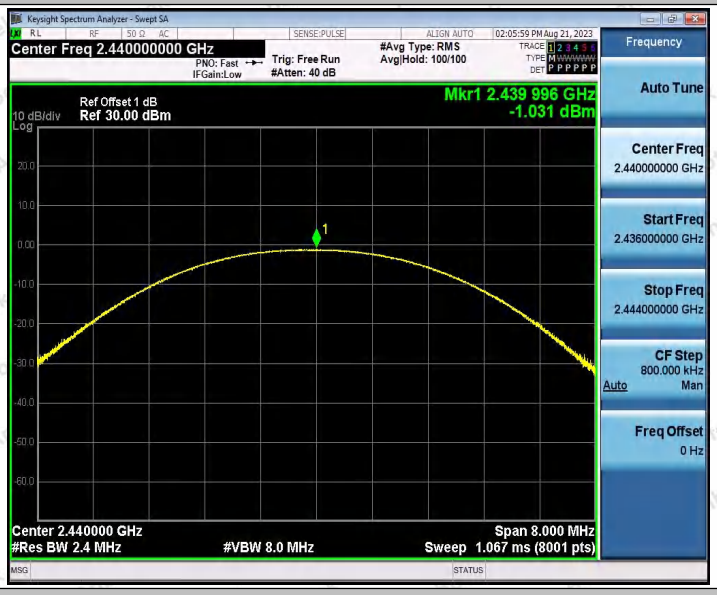
Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.57	≤30	PASS
		2440	-1.03	≤30	PASS
		2480	-0.82	≤30	PASS
BLE_2M	Ant1	2402	-0.68	≤30	PASS
		2440	-0.95	≤30	PASS
		2480	**-0.45**	≤30	PASS

Test Graphs Peak

BLE_1M_Ant1_2402

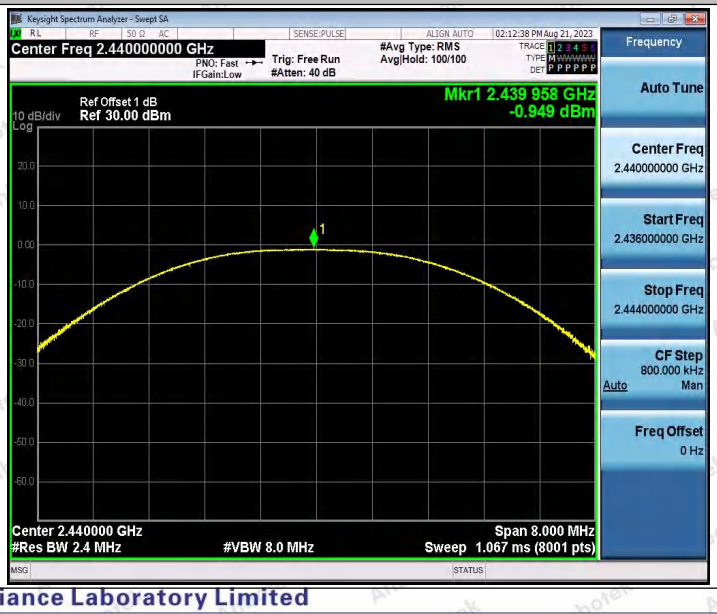
BLE_1M_Ant1_2440



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	-16.05	≤8.00	PASS
		2440	-17.05	≤8.00	PASS
		2480	-16.33	≤8.00	PASS
BLE_2M	Ant1	2402	-18.01	≤8.00	PASS
		2440	-18.07	≤8.00	PASS
		2480	-17.66	≤8.00	PASS

Test Graphs

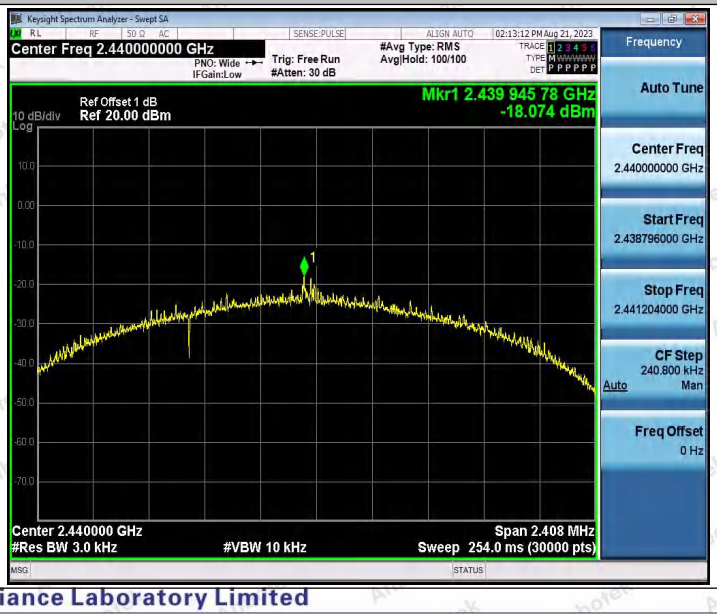
BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

BLE_1M_Ant1_2480

BLE_2M_Ant1_2402

BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

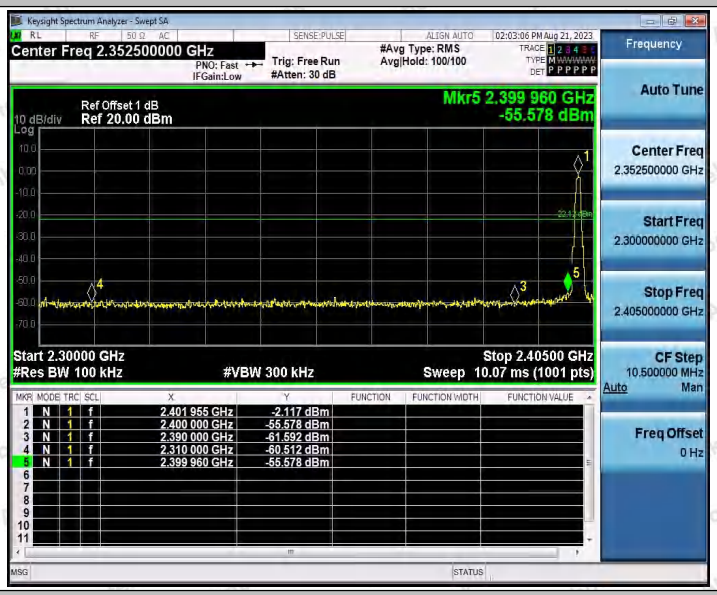
Appendix E: Band edge measurements

Test Result

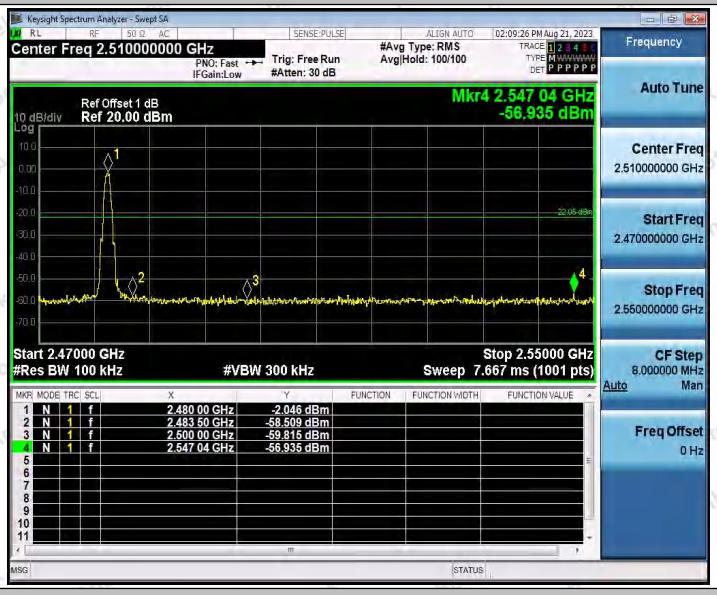
TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-2.12	-55.58	≤-22.12	PASS
		High	2480	-2.05	-56.94	≤-22.05	PASS
BLE_2M	Ant1	Low	2402	-3.91	-50.84	≤-23.91	PASS
		High	2480	-1.47	-57.31	≤-21.47	PASS

Test Graphs

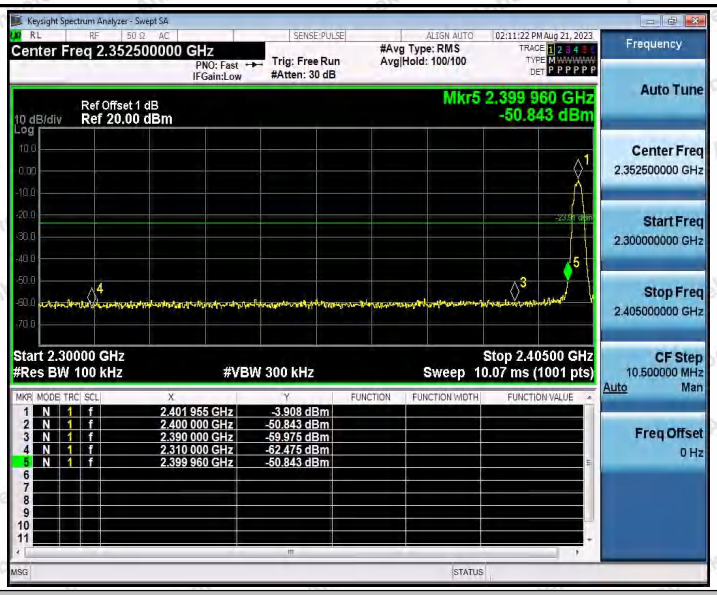
BLE_1M_Ant1_Low_2402



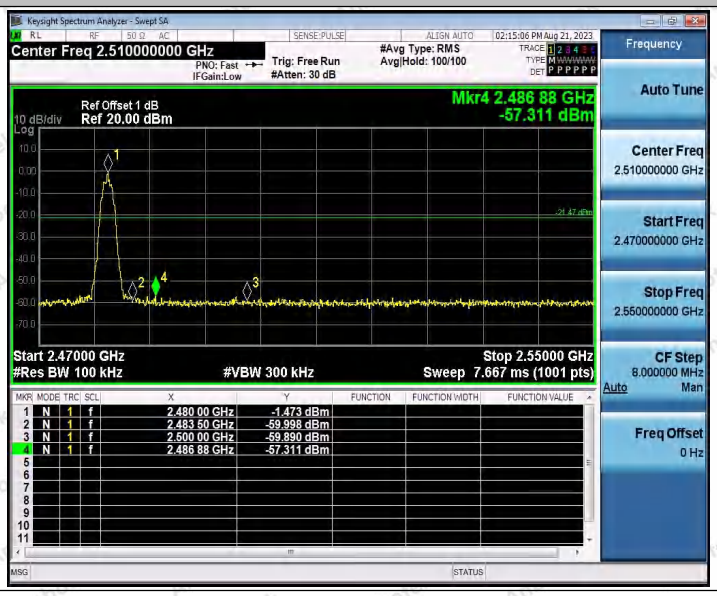
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



Appendix F: Conducted Spurious Emission

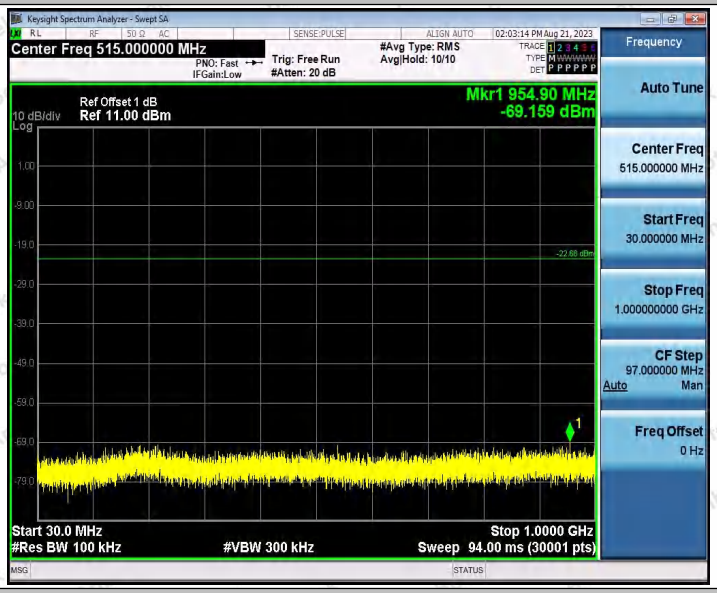
Test Result

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-2.68	-2.68	---	PASS
			30~1000	-2.68	-69.16	≤-22.68	PASS
			1000~26500	-2.68	-53.41	≤-22.68	PASS
		2440	Reference	-3.57	-3.57	---	PASS
			30~1000	-3.57	-69.49	≤-23.57	PASS
			1000~26500	-3.57	-53.66	≤-23.57	PASS
		2480	Reference	-3.09	-3.09	---	PASS
			30~1000	-3.09	-69.31	≤-23.09	PASS
			1000~26500	-3.09	-53.87	≤-23.09	PASS
BLE_2M	Ant1	2402	Reference	-4.40	-4.40	---	PASS
			30~1000	-4.40	-69.60	≤-24.4	PASS
			1000~26500	-4.40	-53.89	≤-24.4	PASS
		2440	Reference	-4.59	-4.59	---	PASS
			30~1000	-4.59	-69.54	≤-24.59	PASS
			1000~26500	-4.59	-53.59	≤-24.59	PASS
		2480	Reference	-4.29	-4.29	---	PASS
			30~1000	-4.29	-68.75	≤-24.29	PASS
			1000~26500	-4.29	-52.62	≤-24.29	PASS

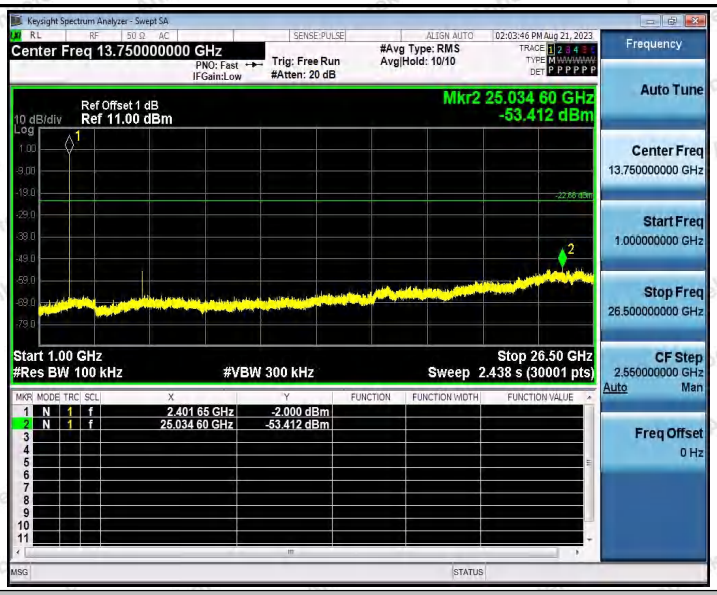
Test Graphs

BLE_1M_Ant1_2402_0~Reference

BLE_1M_Ant1_2402_30~1000

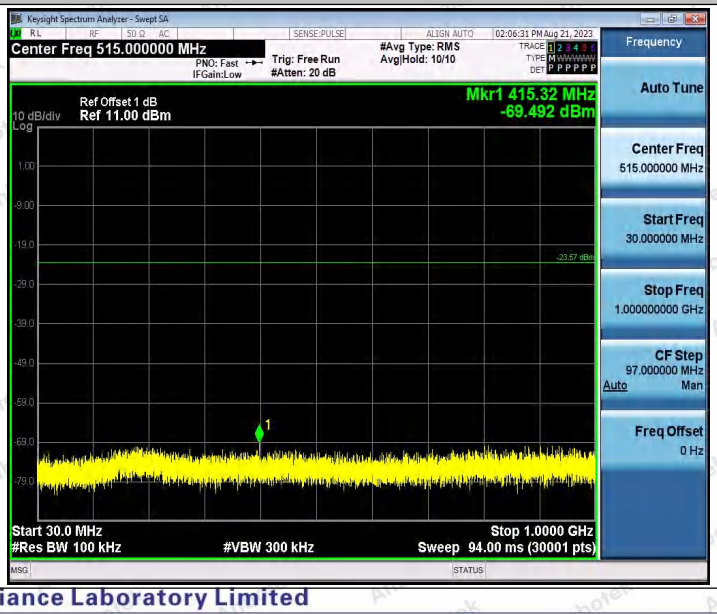


BLE_1M_Ant1_2402_1000~26500

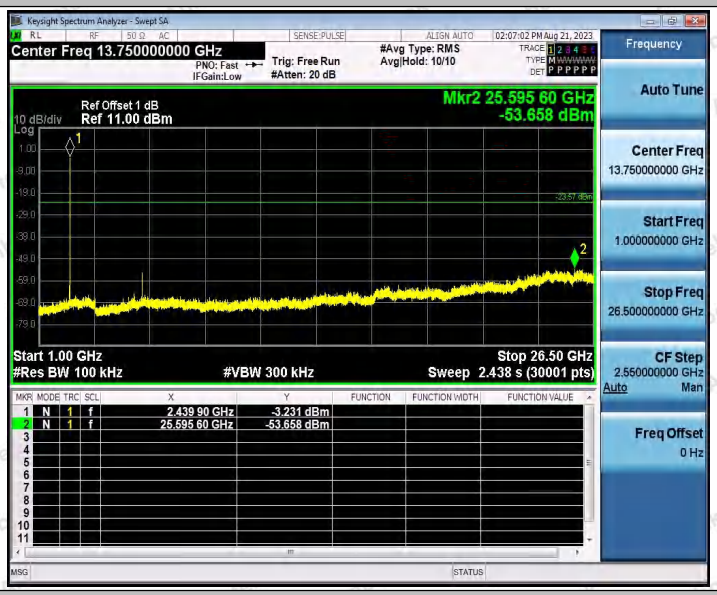


BLE_1M_Ant1_2440_0~Reference

BLE_1M_Ant1_2440_30~1000

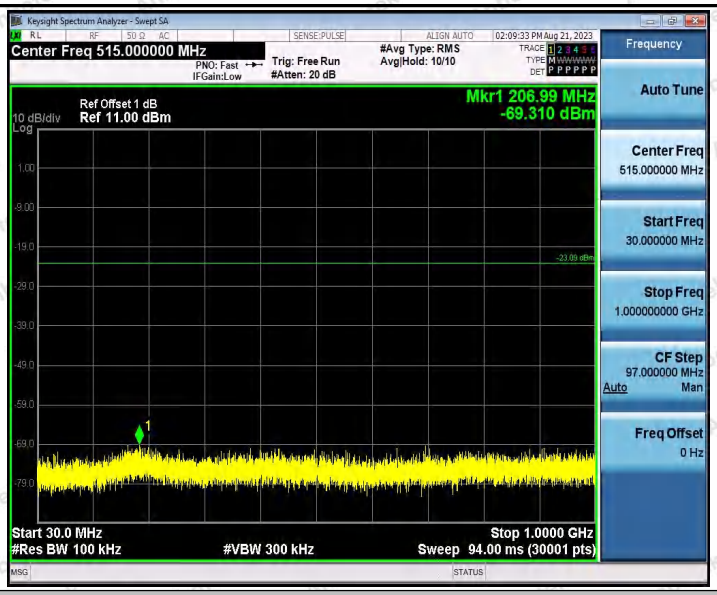


BLE_1M_Ant1_2440_1000~26500

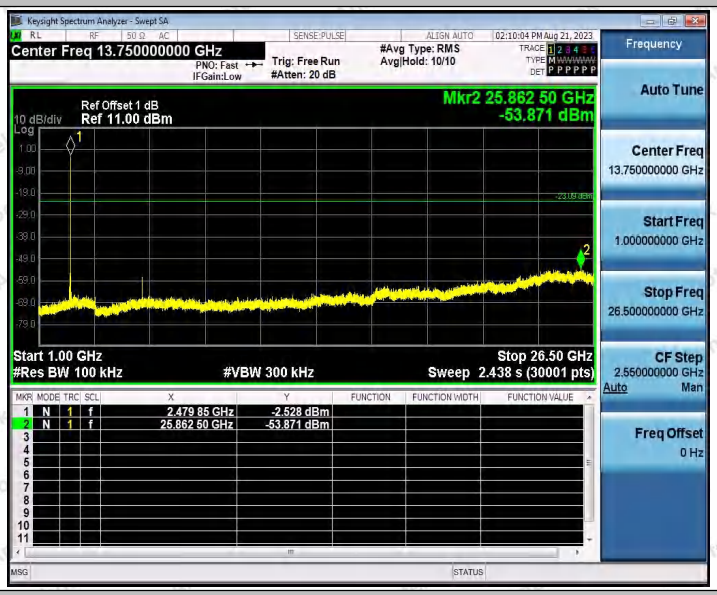


BLE_1M_Ant1_2480_0~Reference

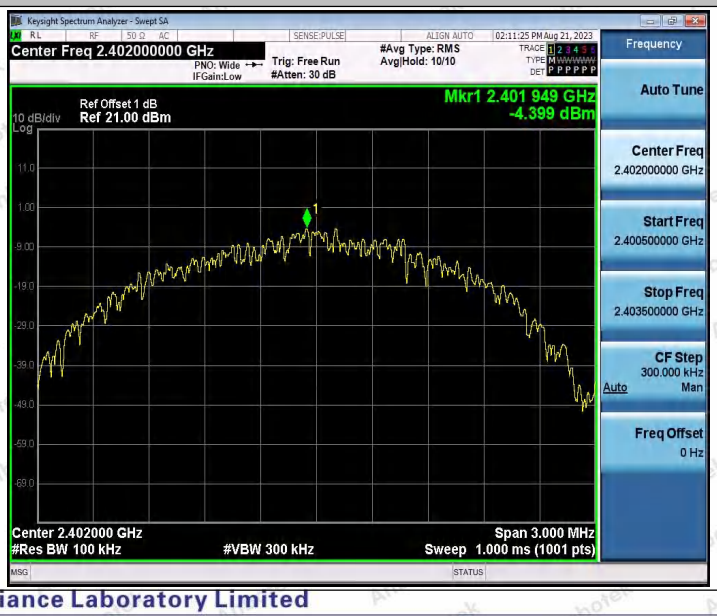
BLE_1M_Ant1_2480_30~1000



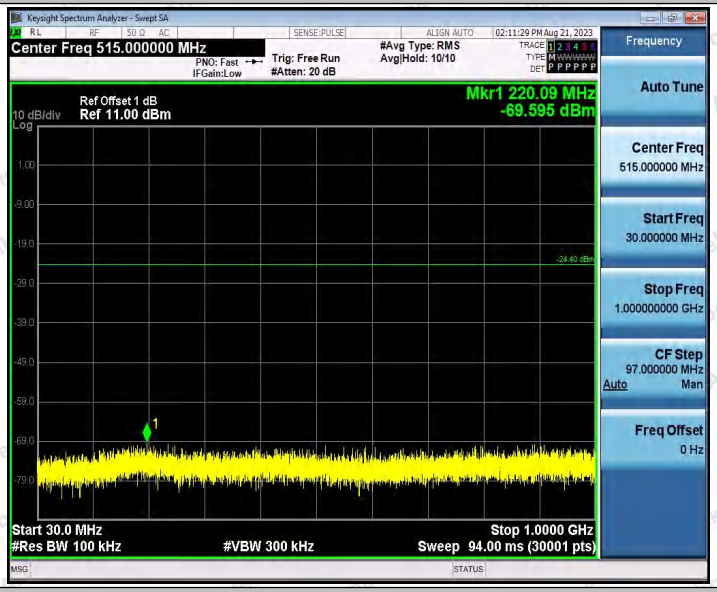
BLE_1M_Ant1_2480_1000~26500



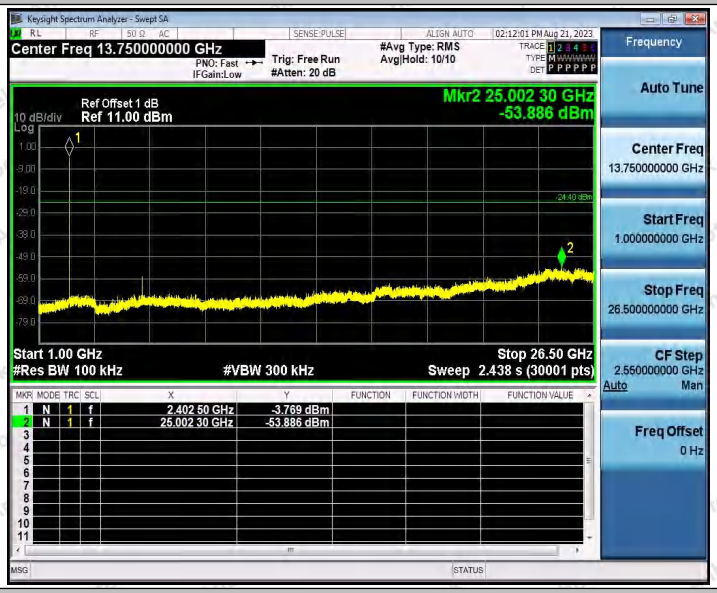
BLE_2M_Ant1_2402_0~Reference



BLE_2M_Ant1_2402_30~1000

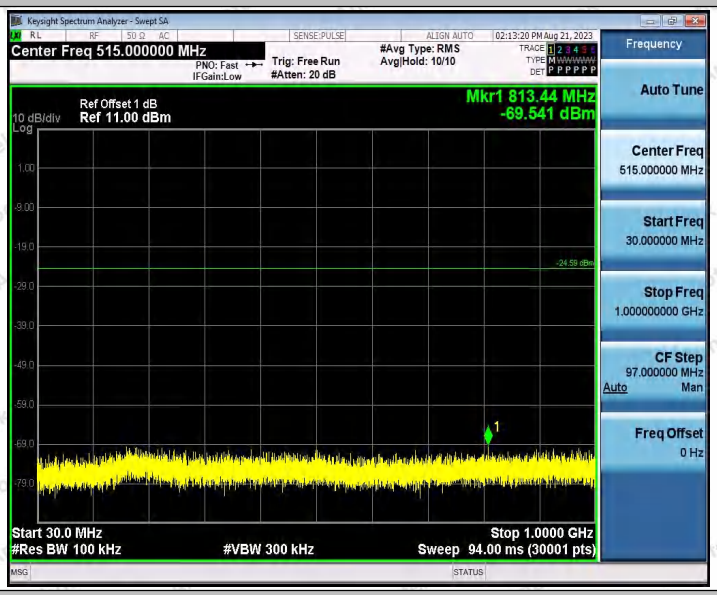


BLE_2M_Ant1_2402_1000~26500

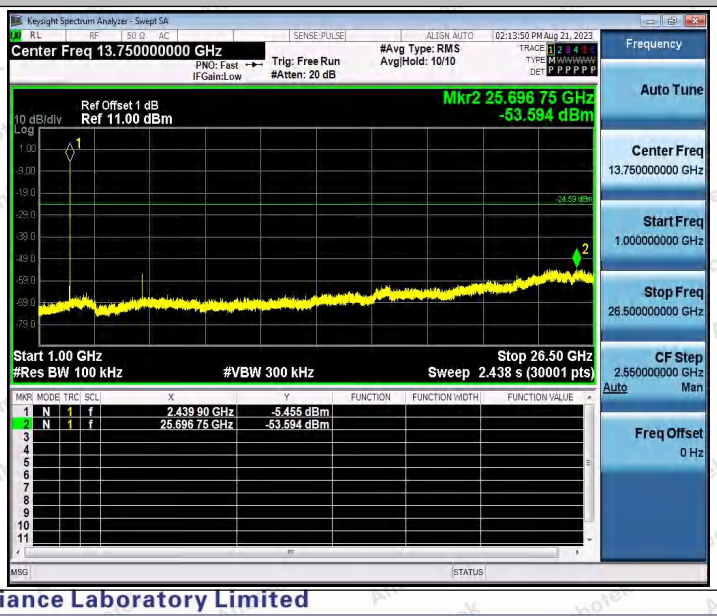


BLE_2M_Ant1_2440_0~Reference

BLE_2M_Ant1_2440_30~1000

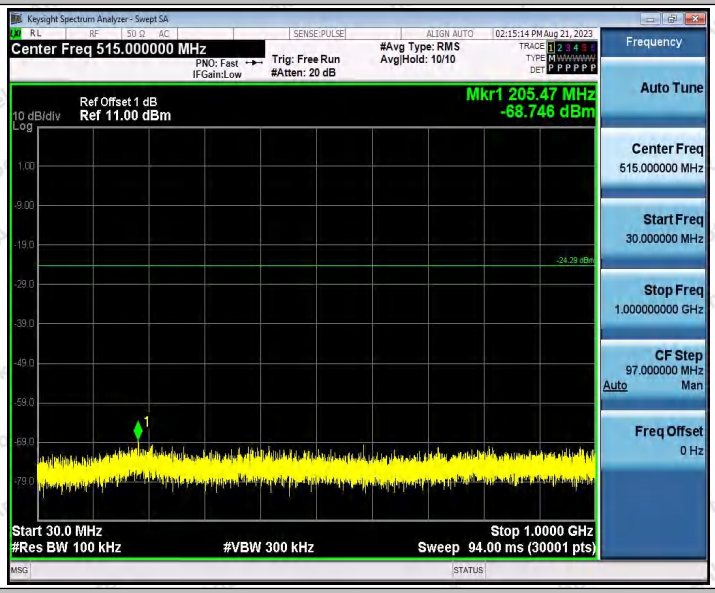


BLE_2M_Ant1_2440_1000~26500

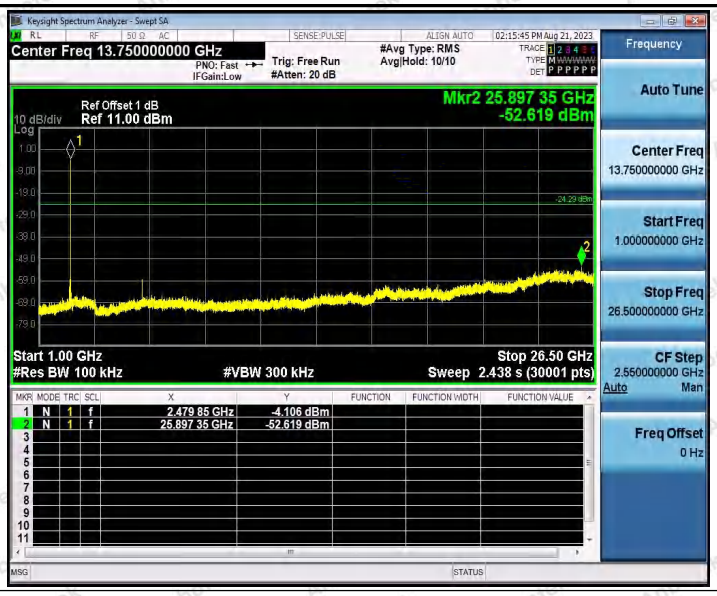


BLE_2M_Ant1_2480_0~Reference

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
02:15:45 PM Aug 21, 2023
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr2 25.897 35 GHz
-52.619 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 -4.106 dBm
2 N 1 f 25.897 35 GHz -52.619 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

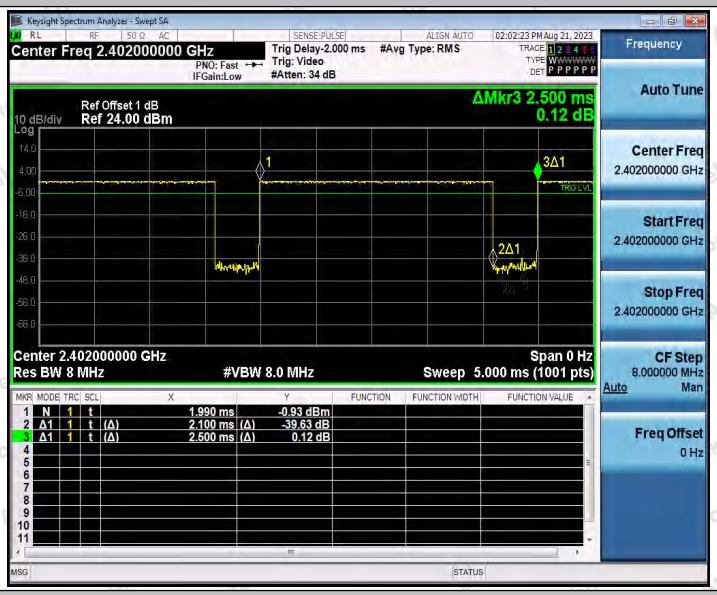
Appendix G: Duty Cycle

Test Result

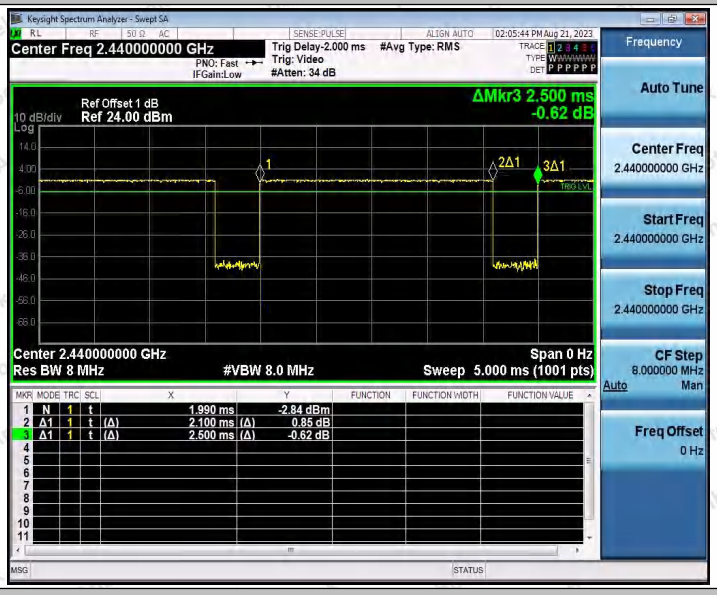
Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	2.10	2.50	84.00	0.76
		2440	2.10	2.50	84.00	0.76
		2480	2.10	2.50	84.00	0.76
BLE_2M	Ant1	2402	1.06	1.88	56.38	2.49
		2440	1.06	1.88	56.38	2.49
		2480	1.06	1.88	56.38	2.49

Test Graphs

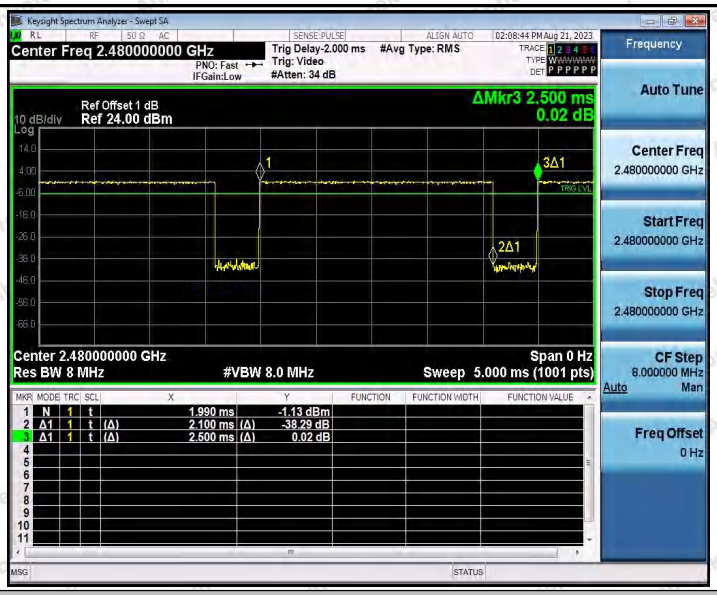
BLE_1M_Ant1_2402



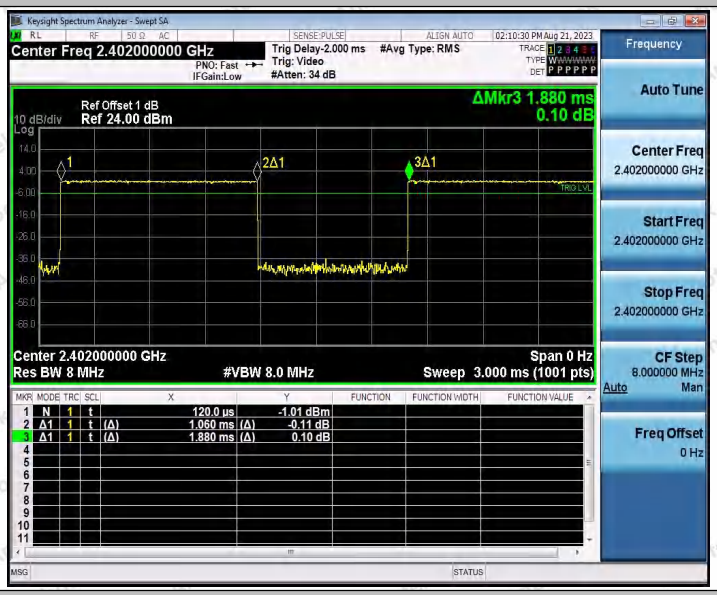
BLE_1M_Ant1_2440



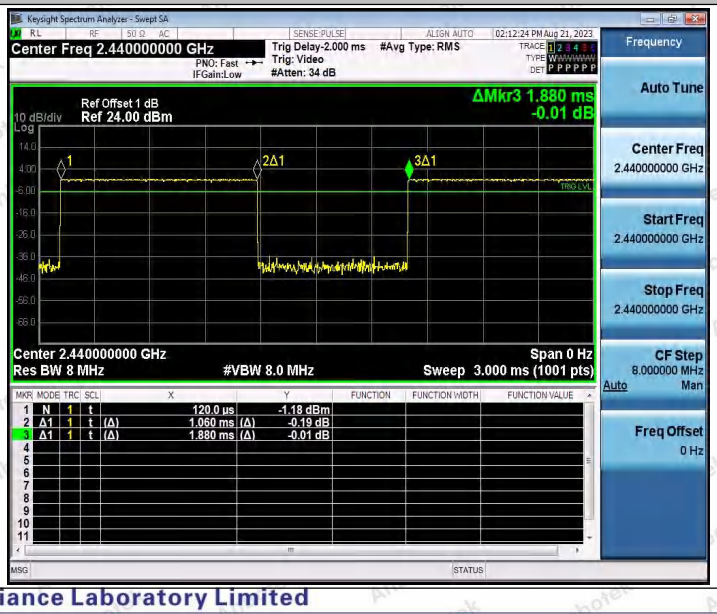
BLE_1M_Ant1_2480



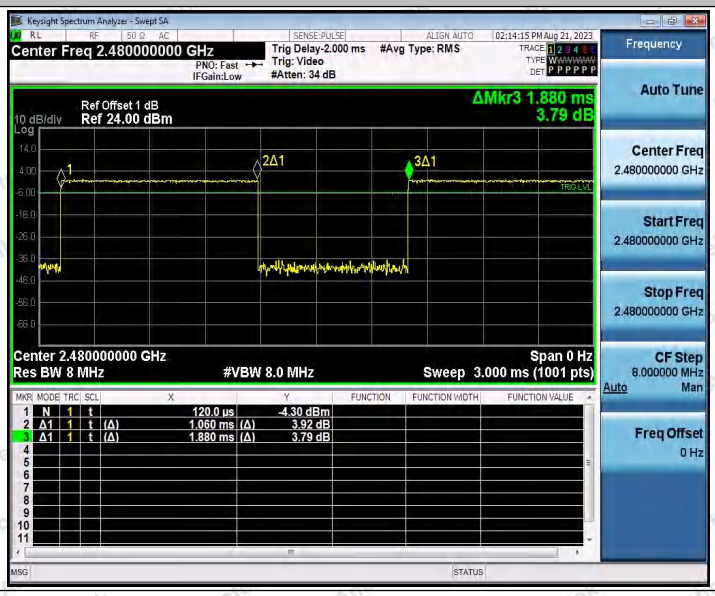
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



---End---