Appendix Test Data

Report No.:	18220WC30101401	Test Sample No.:	1-2-2
Start Test Date:	2023.05.25	Finish Test Date:	2023.05.29
Test Engineer:	Rick Luo	Auditor:	Edward.Pan
Temperature:	25.4℃	Relative Humidity:	48%
Pressure:	1012 hPa		

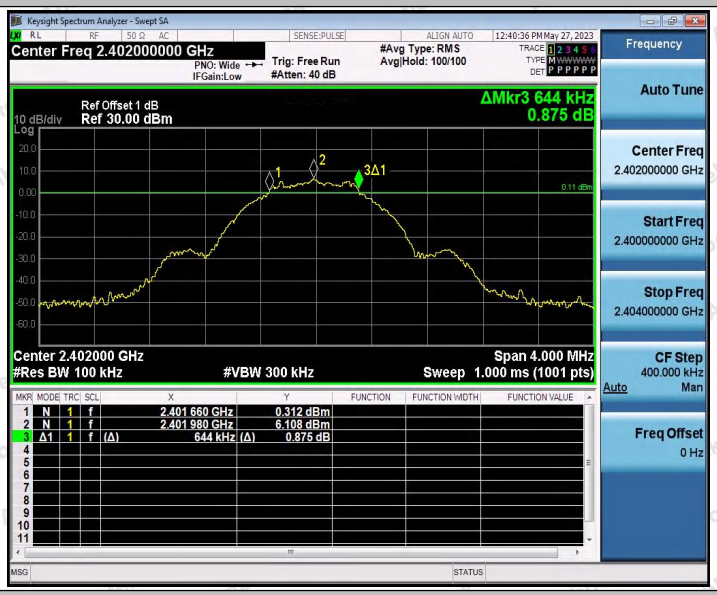
Appendix A: DTS Bandwidth

Test Result

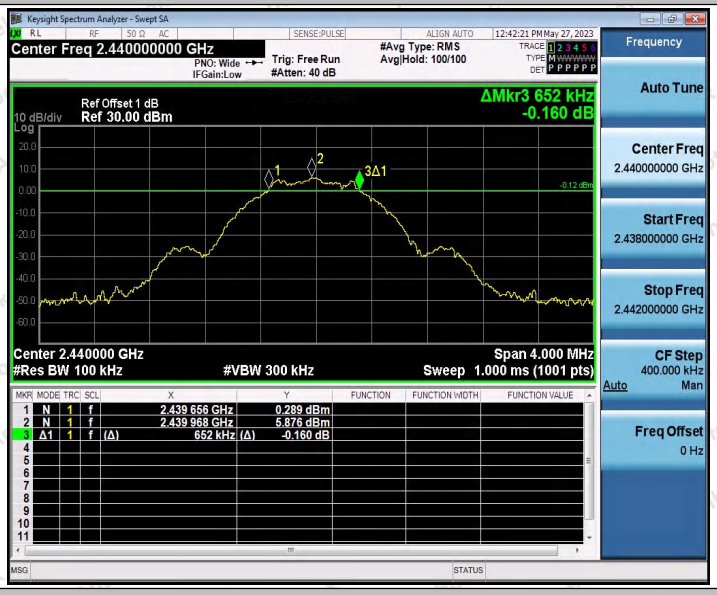
Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.644	2401.660	2402.304	0.5	PASS
		2440	0.652	2439.656	2440.308	0.5	PASS
		2480	0.640	2479.660	2480.300	0.5	PASS
BLE_2M	Ant1	2402	1.100	2401.408	2402.508	0.5	PASS
		2440	1.076	2439.436	2440.512	0.5	PASS
		2480	1.104	2479.408	2480.512	0.5	PASS

Test Graphs

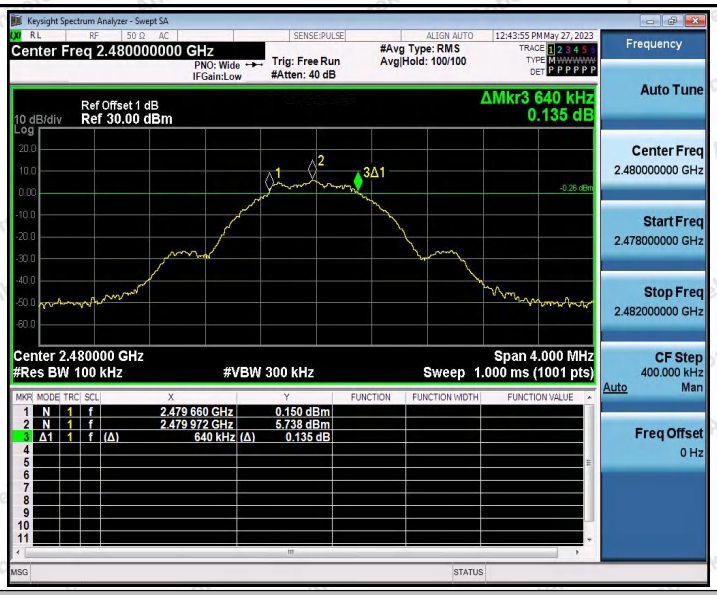
BLE_1M_Ant1_2402



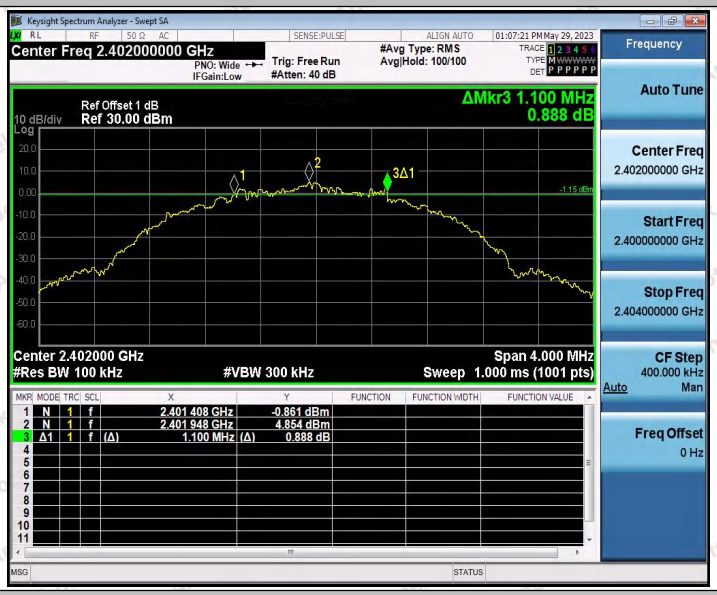
BLE_1M_Ant1_2440



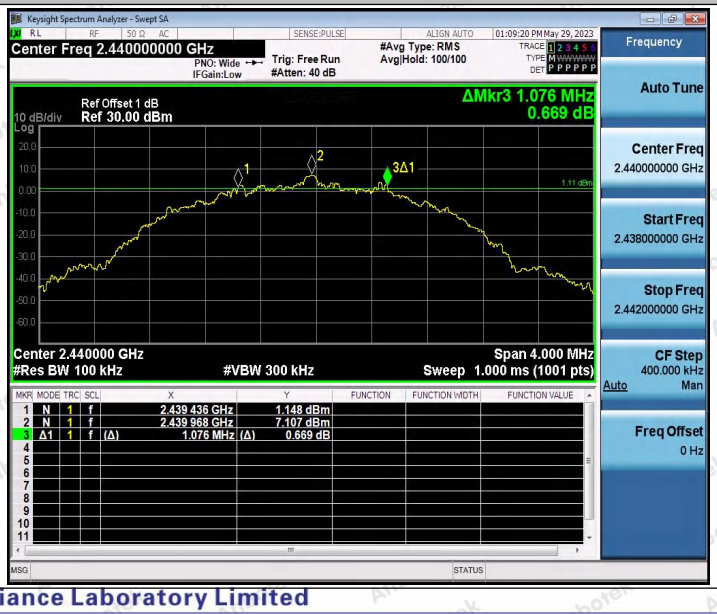
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

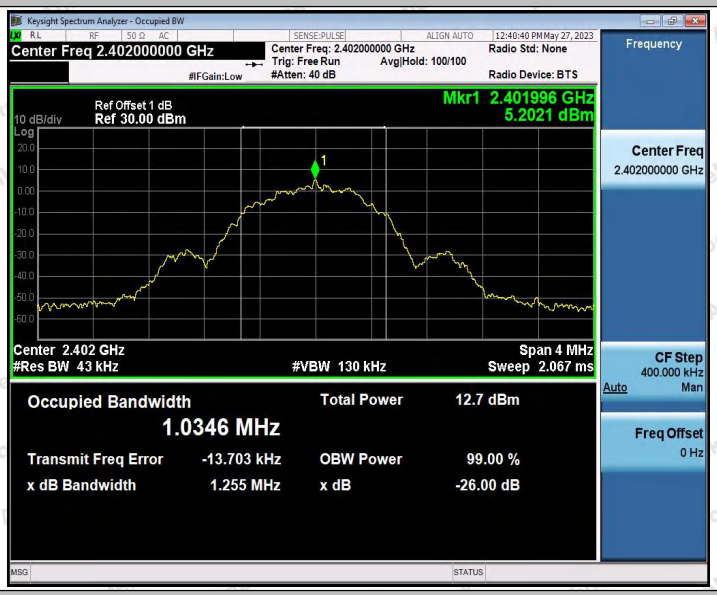
Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
BLE_1M	Ant1	2402	1.0346	2401.4690	2402.5036
		2440	1.0281	2439.4756	2440.5037
		2480	1.0347	2479.4683	2480.5030
BLE_2M	Ant1	2402	2.0337	2400.9564	2402.9901
		2440	2.0558	2438.9372	2440.9930
		2480	2.0553	2478.9388	2480.9941

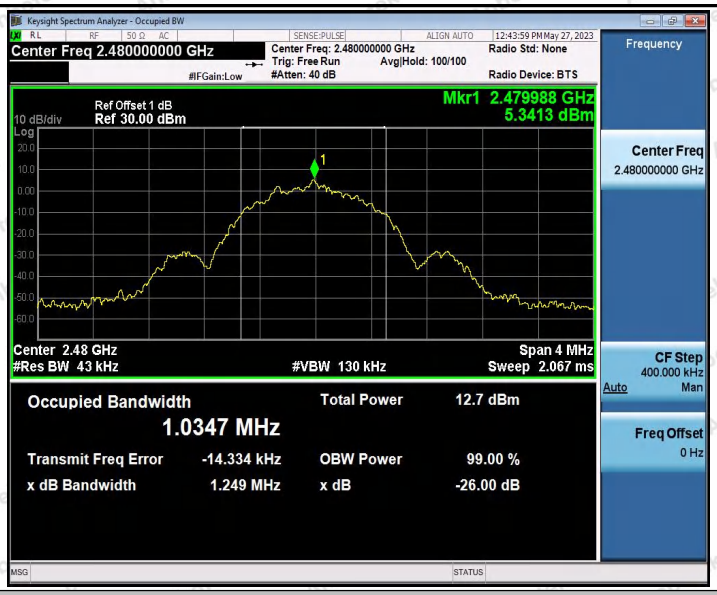
Test Graphs

BLE_1M_Ant1_2402

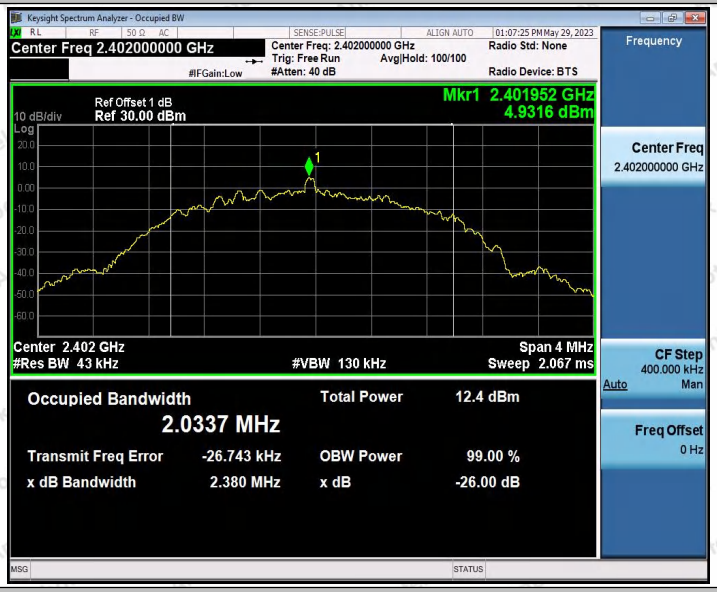


BLE_1M_Ant1_2440

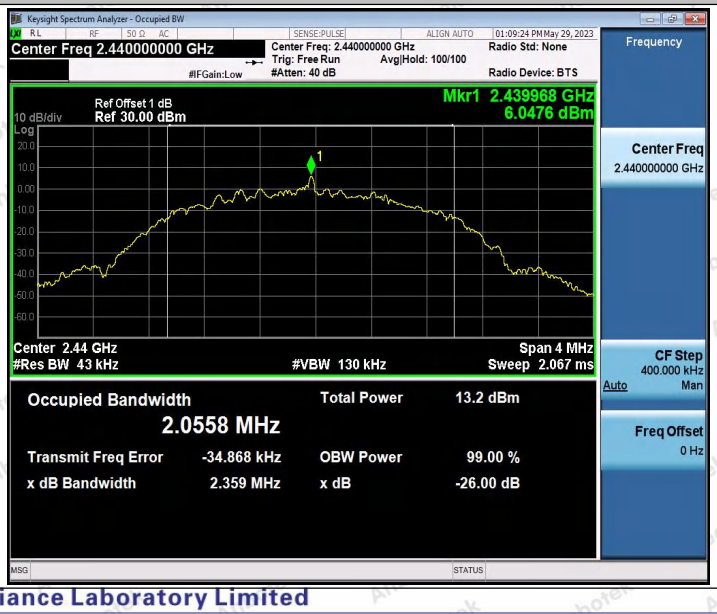
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

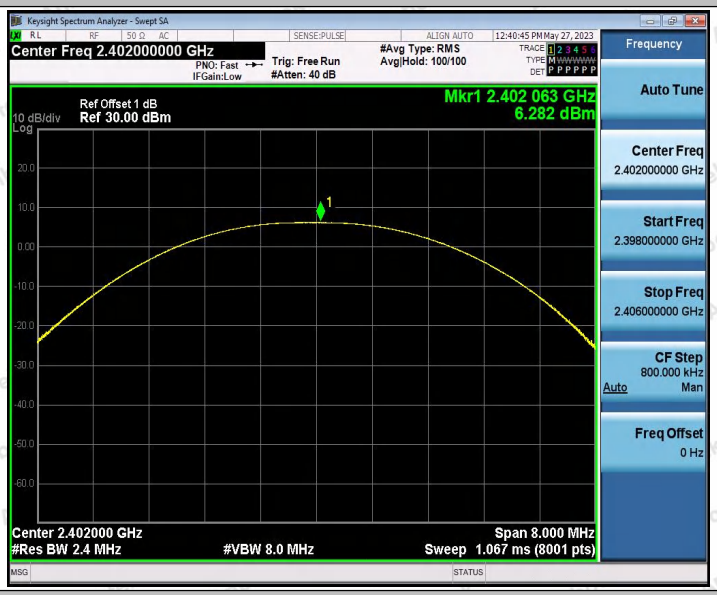
Appendix C: Maximum conducted output power

Test Result Peak

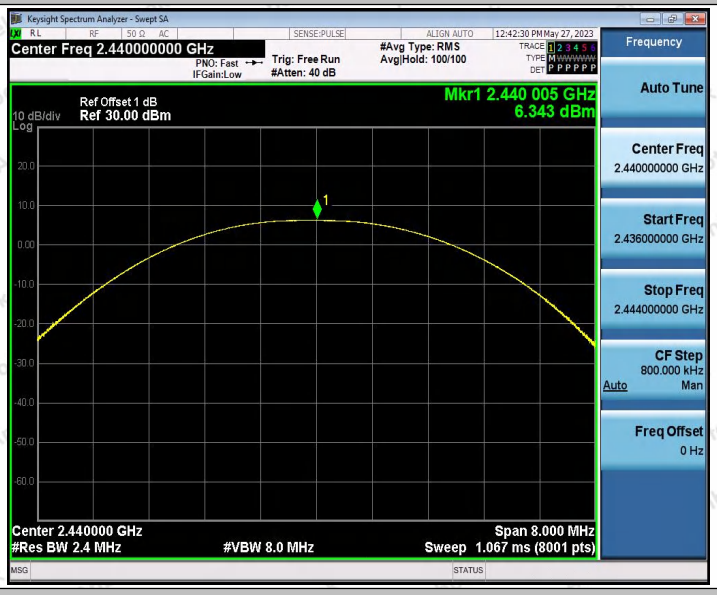
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	6.28	≤30	PASS
		2440	6.34	≤30	PASS
		2480	6.09	≤30	PASS
BLE_2M	Ant1	2402	6.43	≤30	PASS
		2440	7.45	≤30	PASS
		2480	**7.55**	≤30	PASS

Test Graphs Peak

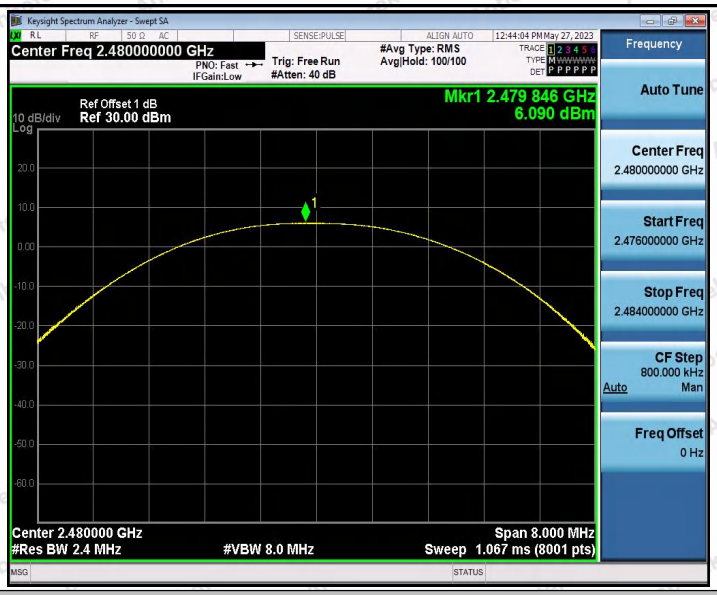
BLE_1M_Ant1_2402



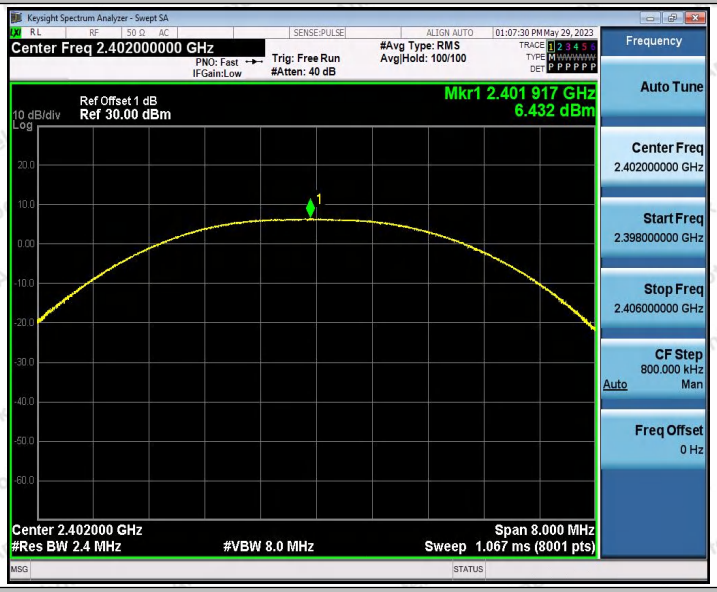
BLE_1M_Ant1_2440



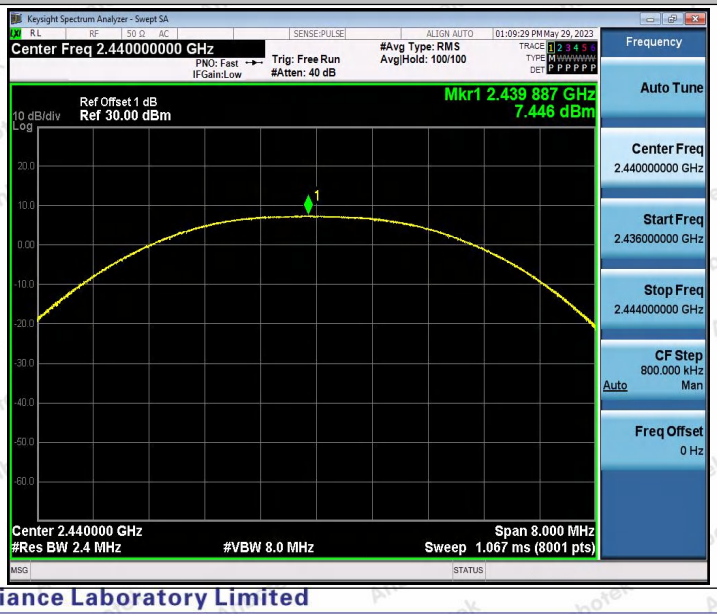
BLE_1M_Ant1_2480



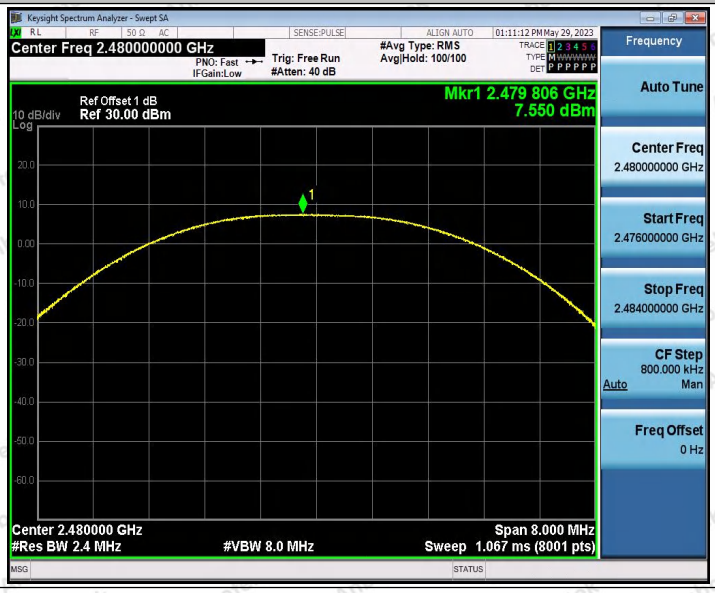
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix D: Maximum power spectral density

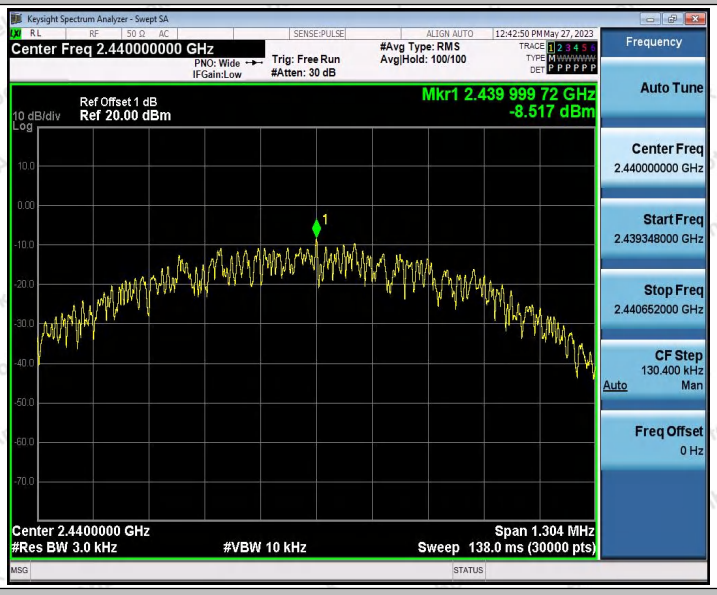
Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.72	≤8.00	PASS
		2440	-8.52	≤8.00	PASS
		2480	-8.47	≤8.00	PASS
BLE_2M	Ant1	2402	-10.74	≤8.00	PASS
		2440	-9.65	≤8.00	PASS
		2480	-9.79	≤8.00	PASS

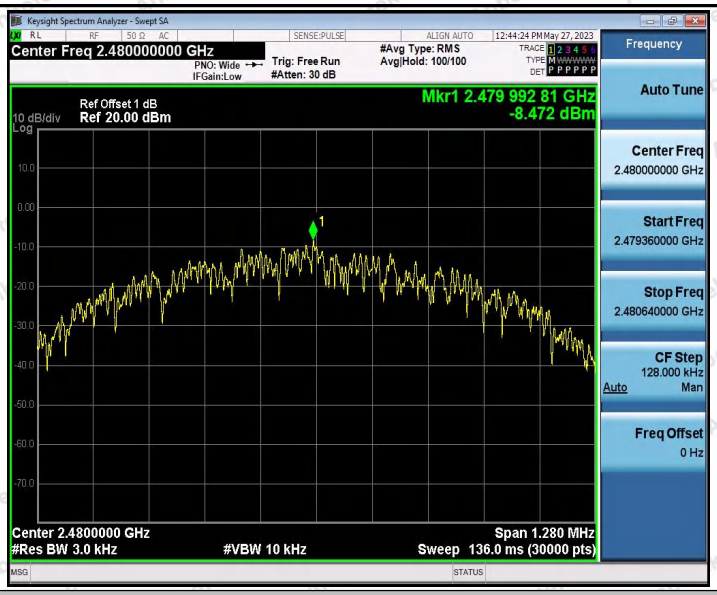
Test Graphs

BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

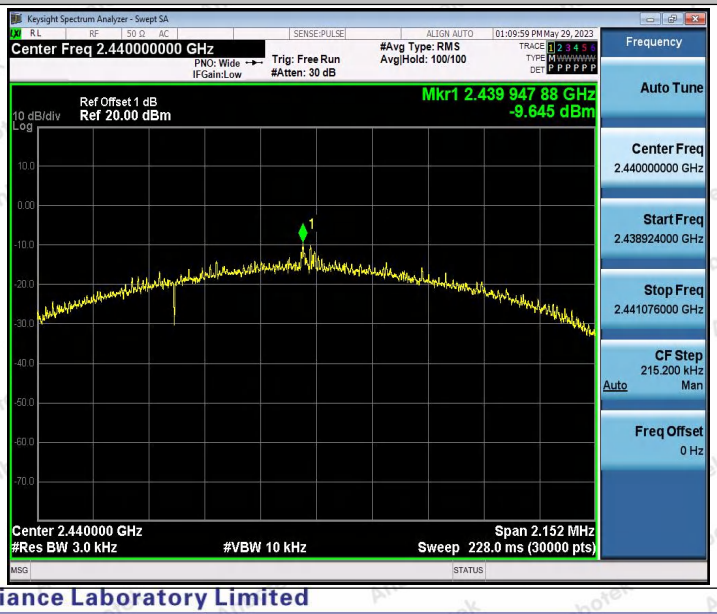


BLE_1M_Ant1_2480

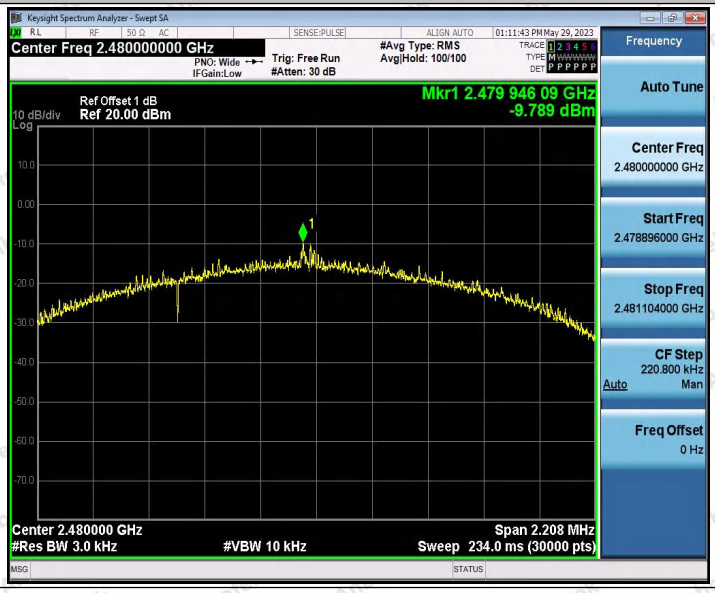


BLE_2M_Ant1_2402

BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



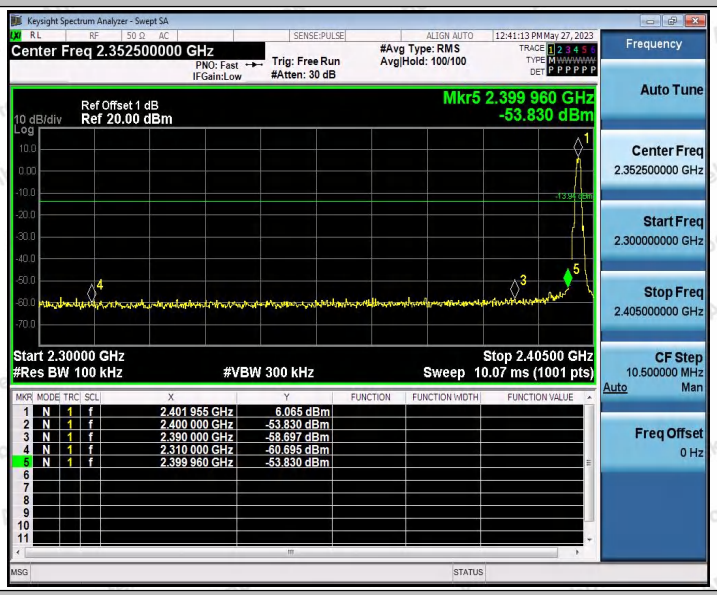
Appendix E: Band edge measurements

Test Result

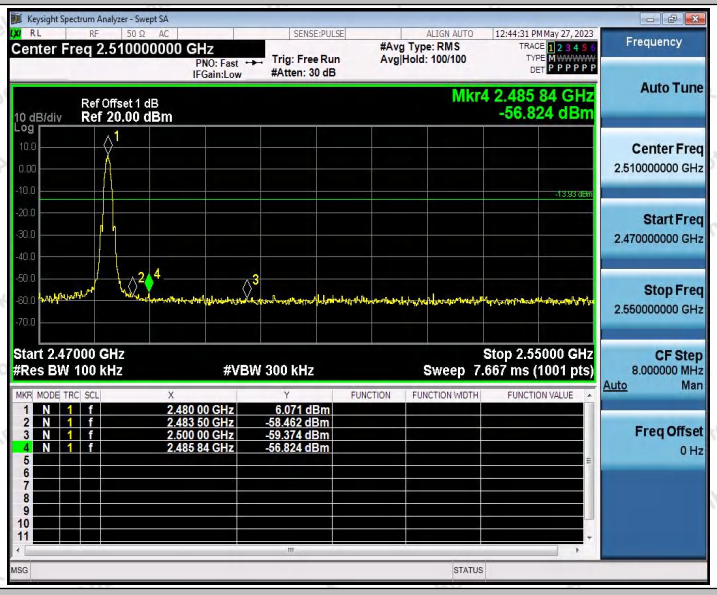
TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.07	-53.83	≤-13.94	PASS
		High	2480	6.07	-56.82	≤-13.93	PASS
BLE_2M	Ant1	Low	2402	5.60	-44.22	≤-14.4	PASS
		High	2480	4.24	-52.74	≤-15.76	PASS

Test Graphs

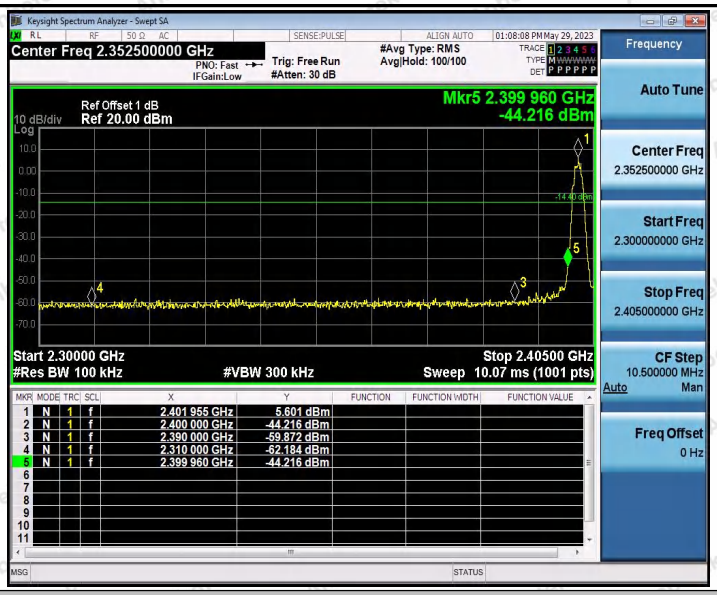
BLE_1M_Ant1_Low_2402



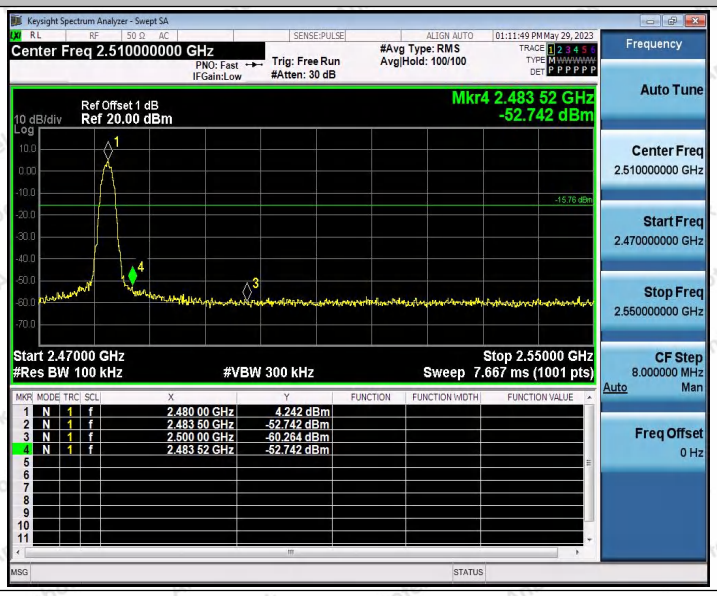
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



Appendix F: Conducted Spurious Emission

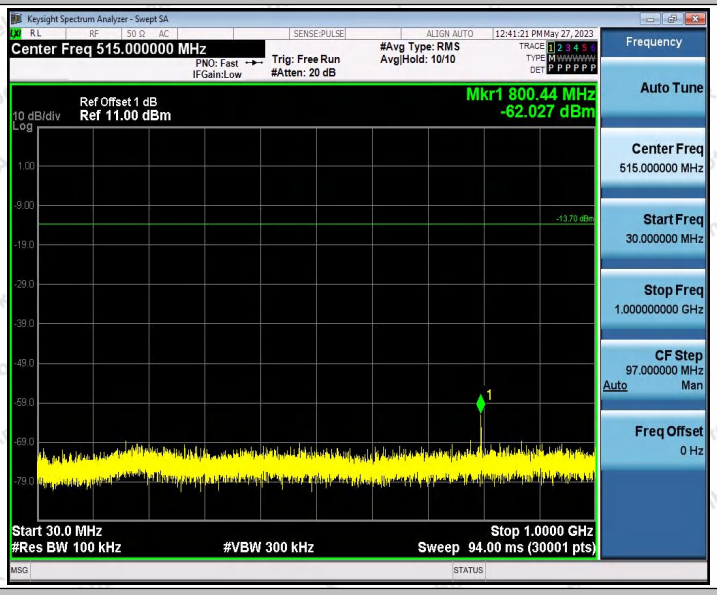
Test Result

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	6.30	6.30	---	PASS
			30~1000	6.30	-62.03	≤-13.7	PASS
			1000~26500	6.30	-52.83	≤-13.7	PASS
		2440	Reference	5.16	5.16	---	PASS
			30~1000	5.16	-63.12	≤-14.84	PASS
			1000~26500	5.16	-53.58	≤-14.84	PASS
		2480	Reference	4.72	4.72	---	PASS
			30~1000	4.72	-59.09	≤-15.28	PASS
			1000~26500	4.72	-51.7	≤-15.28	PASS
BLE_2M	Ant1	2402	Reference	1.70	1.70	---	PASS
			30~1000	1.70	-67.82	≤-18.3	PASS
			1000~26500	1.70	-53.52	≤-18.3	PASS
		2440	Reference	3.11	3.11	---	PASS
			30~1000	3.11	-68.83	≤-16.89	PASS
			1000~26500	3.11	-52.57	≤-16.89	PASS
		2480	Reference	6.19	6.19	---	PASS
			30~1000	6.19	-68.47	≤-13.81	PASS
			1000~26500	6.19	-53.53	≤-13.81	PASS

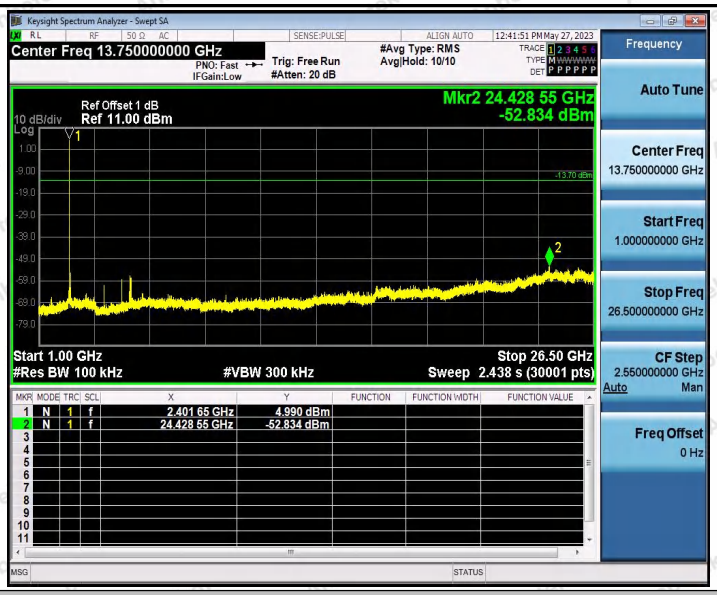
Test Graphs

BLE_1M_Ant1_2402_0~Reference

BLE_1M_Ant1_2402_30~1000

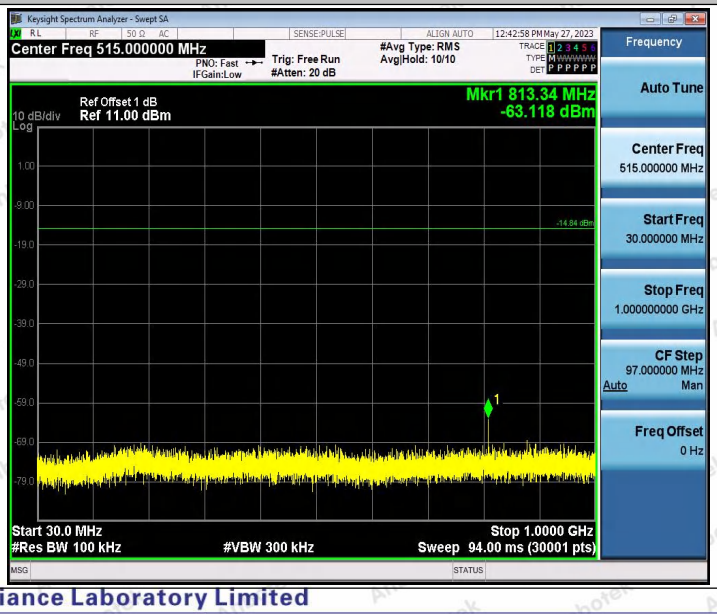


BLE_1M_Ant1_2402_1000~26500

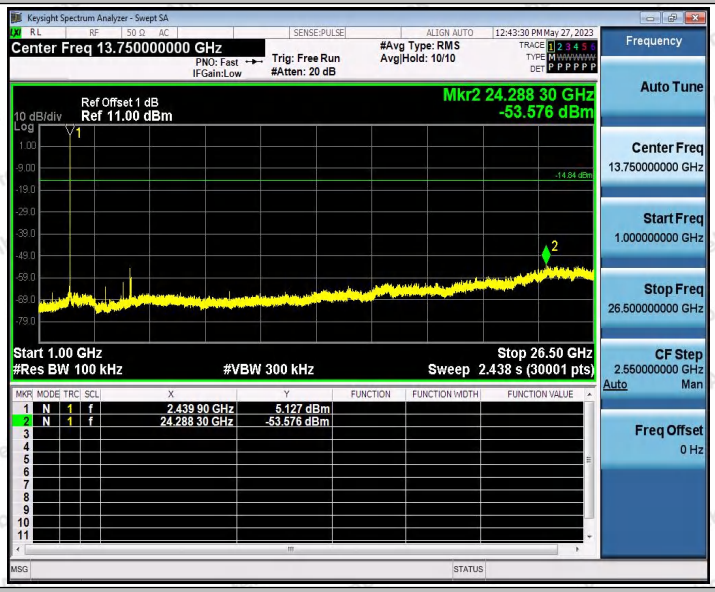


BLE_1M_Ant1_2440_0~Reference

BLE_1M_Ant1_2440_30~1000

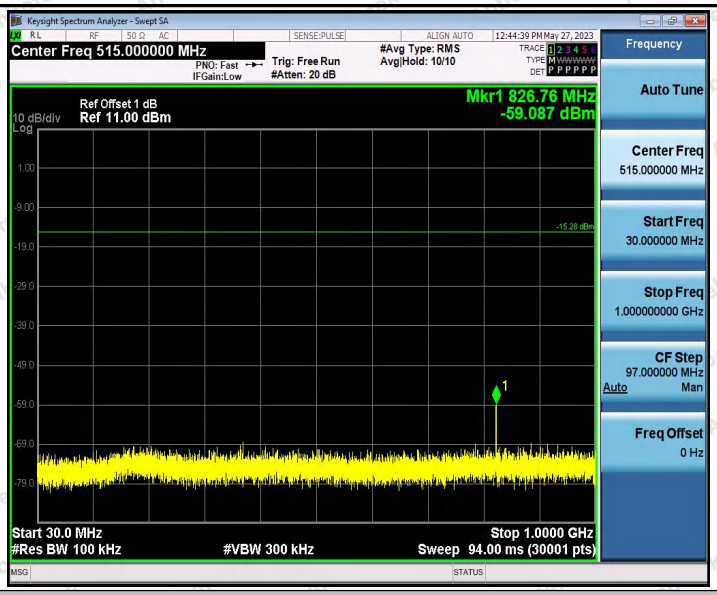


BLE_1M_Ant1_2440_1000~26500

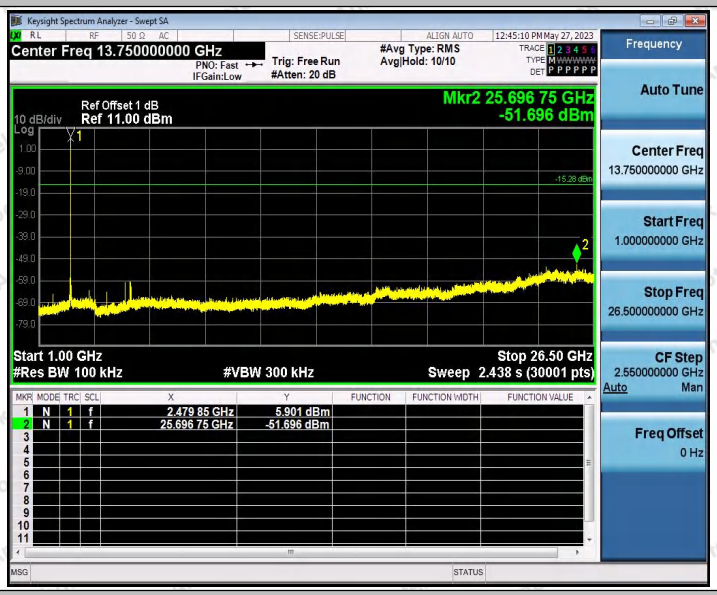


BLE_1M_Ant1_2480_0~Reference

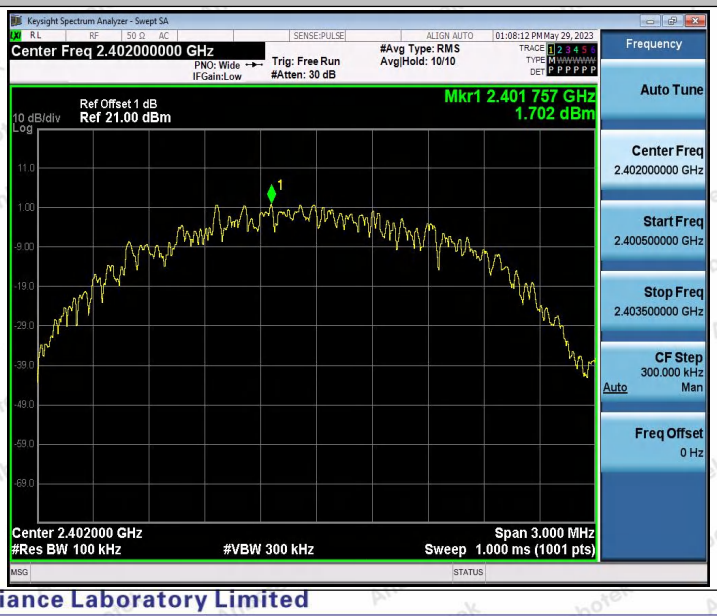
BLE_1M_Ant1_2480_30~1000



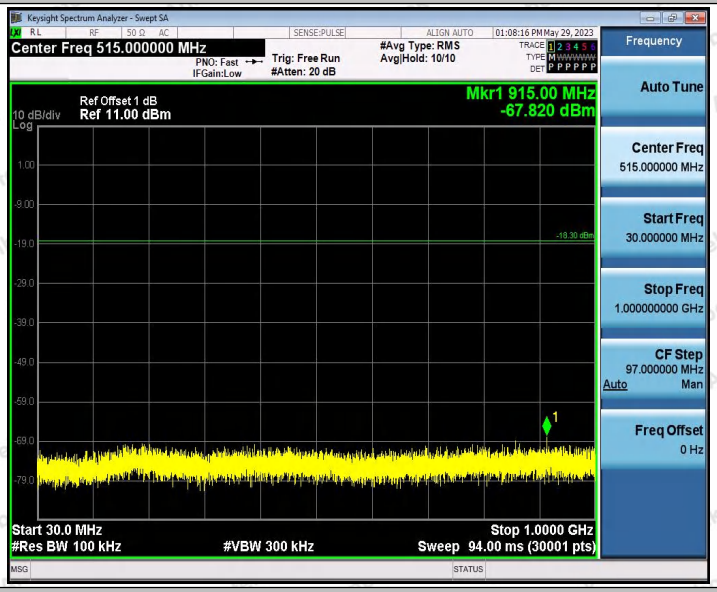
BLE_1M_Ant1_2480_1000~26500



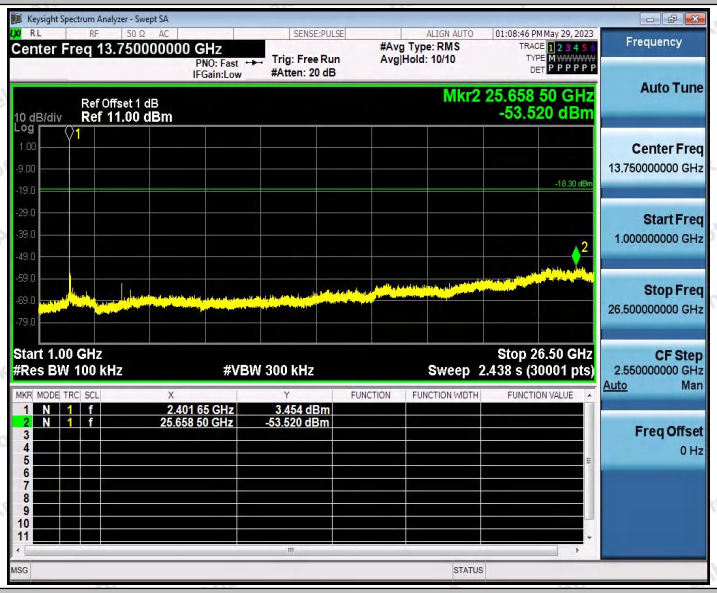
BLE_2M_Ant1_2402_0~Reference



BLE_2M_Ant1_2402_30~1000

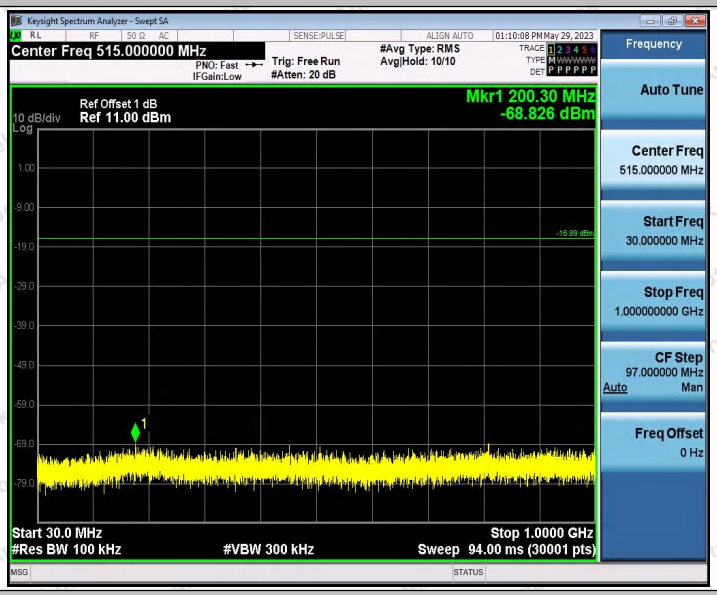


BLE_2M_Ant1_2402_1000~26500

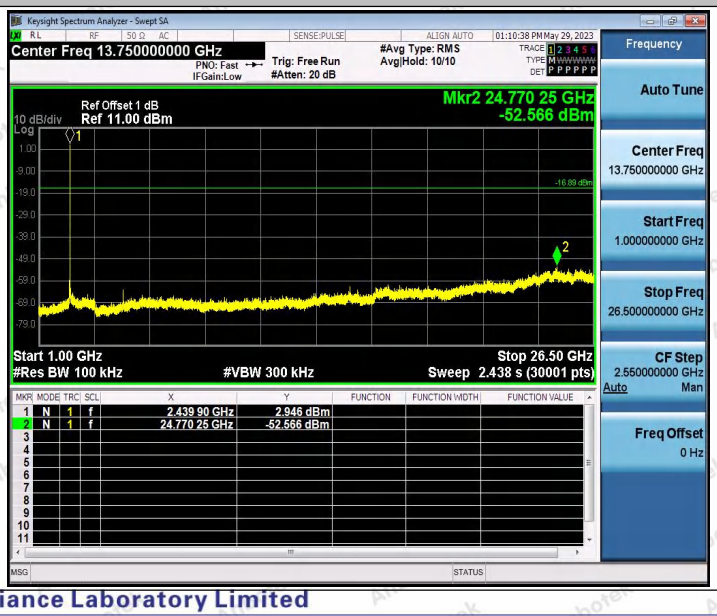


BLE_2M_Ant1_2440_0~Reference

BLE_2M_Ant1_2440_30~1000

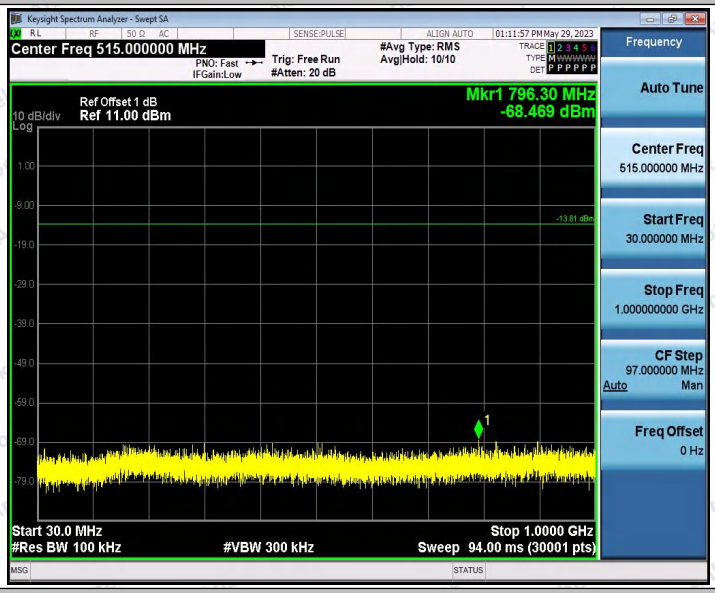


BLE_2M_Ant1_2440_1000~26500

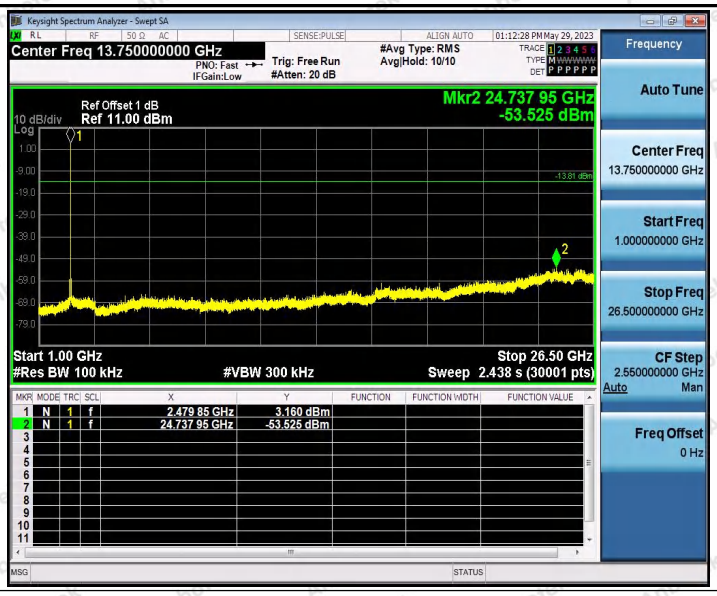


BLE_2M_Ant1_2480_0~Reference

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
01:12:28 PM May 29, 2023
Ref Offset 1 dB
10 dB/div Ref 11.00 dBm
Log
Mkr2 24.737 95 GHz
-53.525 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 3.160 dBm
2 N 1 f 24.737 95 GHz -53.525 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

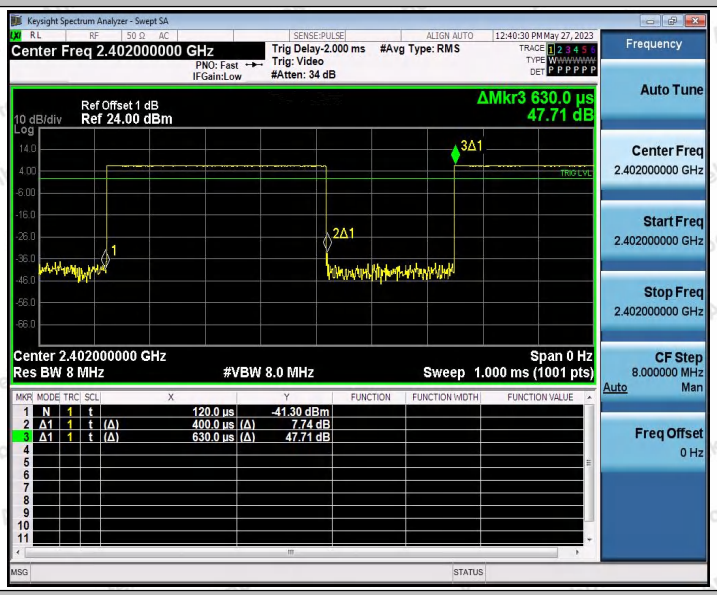
Appendix G: Duty Cycle

Test Result

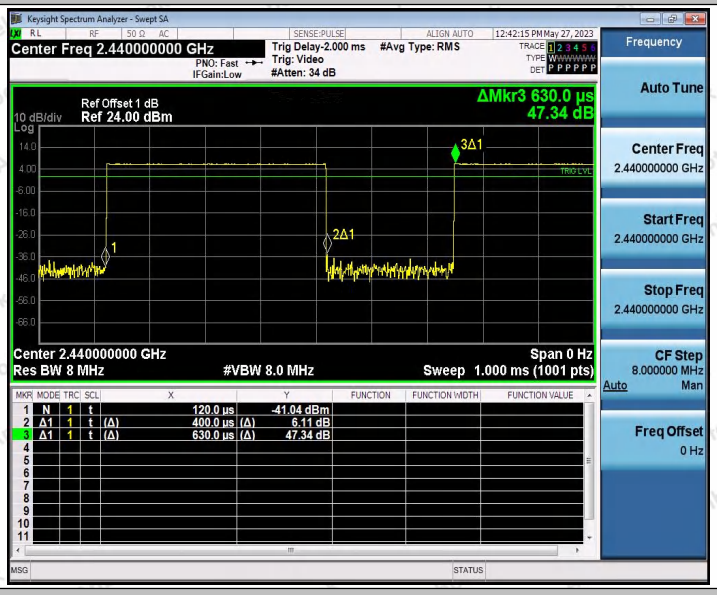
Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.40	0.63	63.49	1.97
		2440	0.40	0.63	63.49	1.97
		2480	0.40	0.63	63.49	1.97
BLE_2M	Ant1	2402	1.06	1.87	56.68	2.47
		2440	1.06	1.88	56.38	2.49
		2480	1.06	1.87	56.68	2.47

Test Graphs

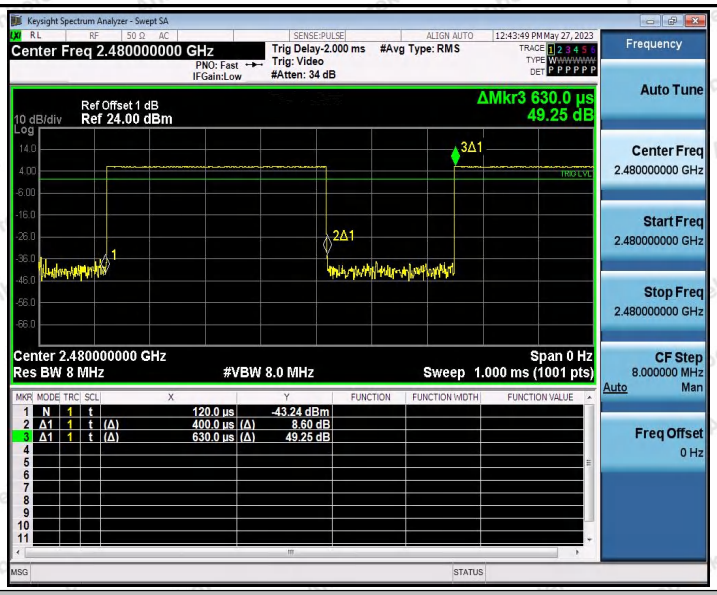
BLE_1M_Ant1_2402



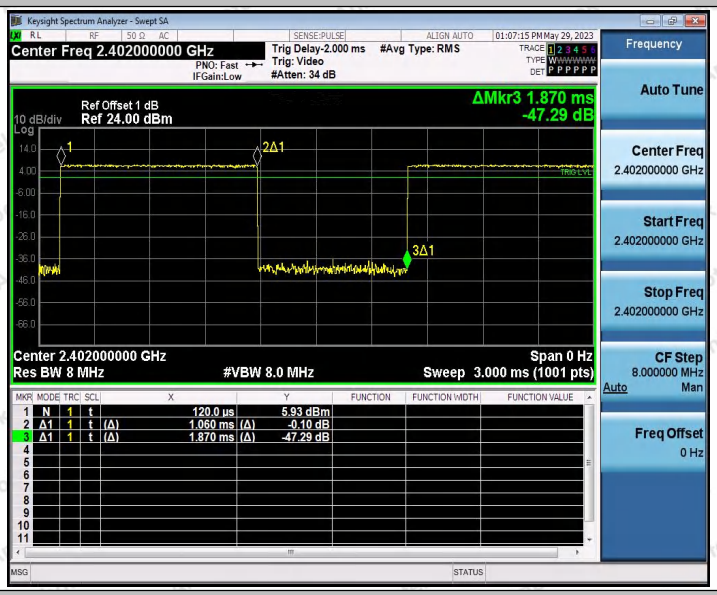
BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



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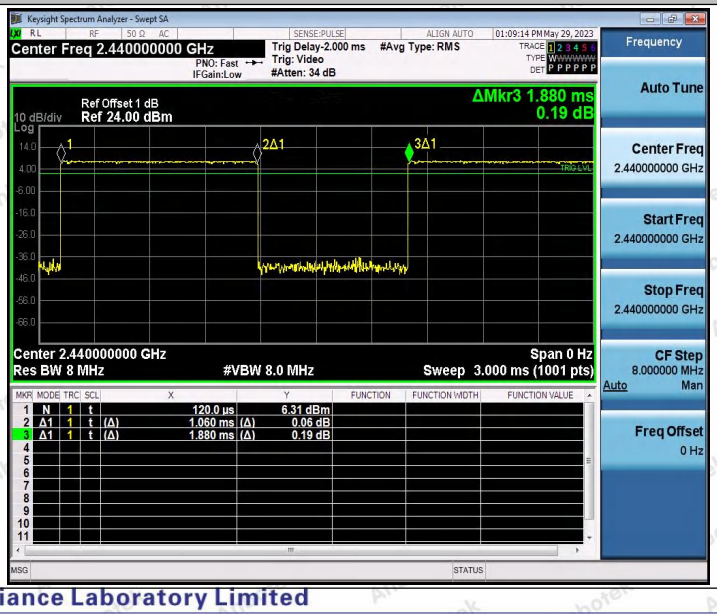

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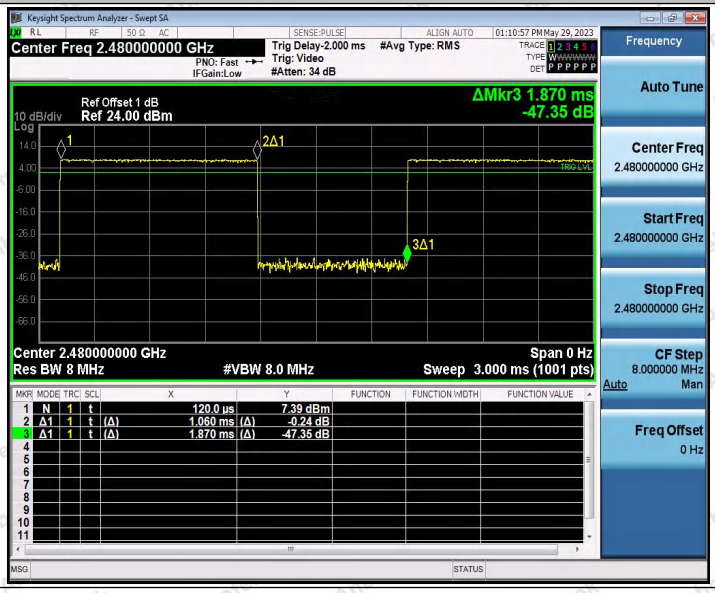

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