Appendix: Bluetooth LE

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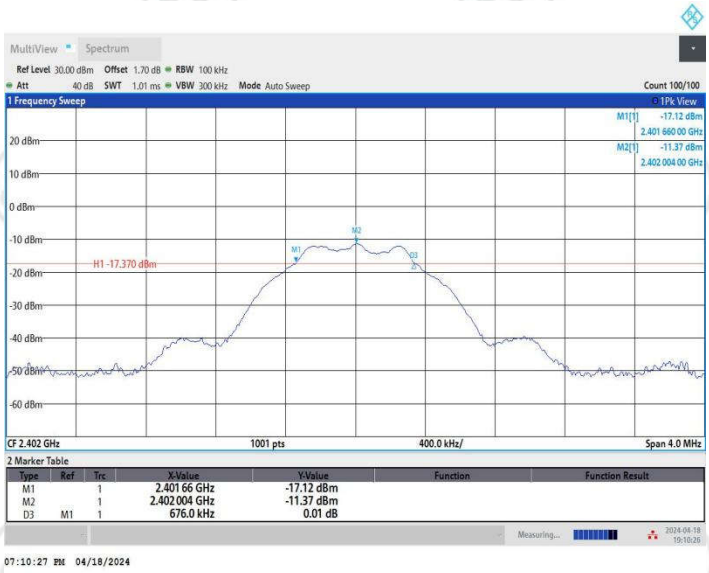
Appendix A: DTS Bandwidth

Test Result

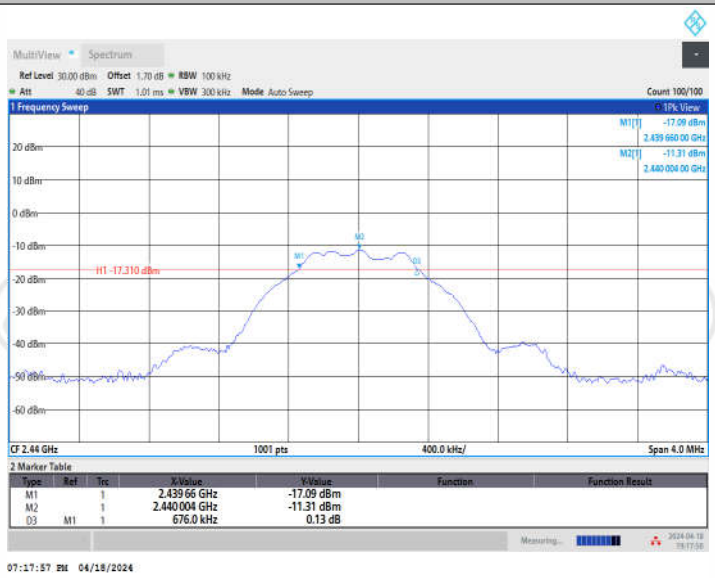
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.68	2401.66	2402.34	0.5	PASS
		2440	0.68	2439.66	2440.34	0.5	PASS
		2480	0.68	2479.66	2480.34	0.5	PASS

Test Graphs

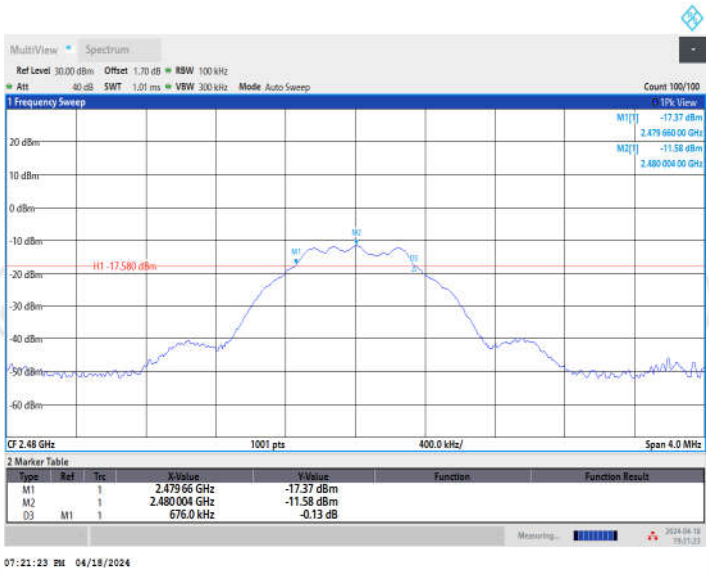
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480


MultiView
Spectrum
Ref Level 30.00 dBm Offset 1.70 dB RBW 100 kHz
Att 40 dB SWT 1.01 ms VBW 300 kHz Mode Auto Sweep
Count 100/100
1 Frequency Sweep
1Pk View
M1[1] -17.37 dBm
2.479 660 00 GHz
M2[1] -11.58 dBm
2.480 004 00 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
H1 -17.580 dBm
CF 2.48 GHz
1001 pts
400.0 kHz/
Span 4.0 MHz
2 Marker Table
Type Ref Trc X-Value Y-Value Function Function Result
M1 1 2.479 66 GHz -17.37 dBm
M2 1 2.480 004 GHz -11.58 dBm
D3 M1 1 676.0 kHz -0.13 dB
Measuring...
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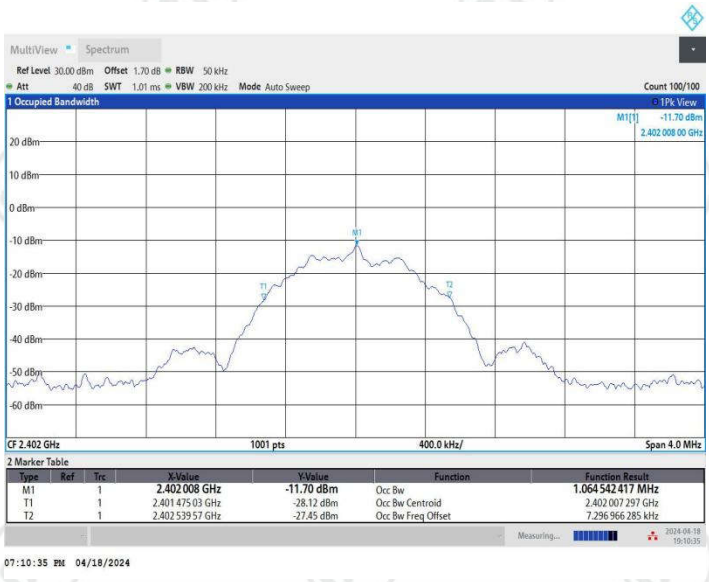
Appendix B: Occupied Channel Bandwidth

Test Result

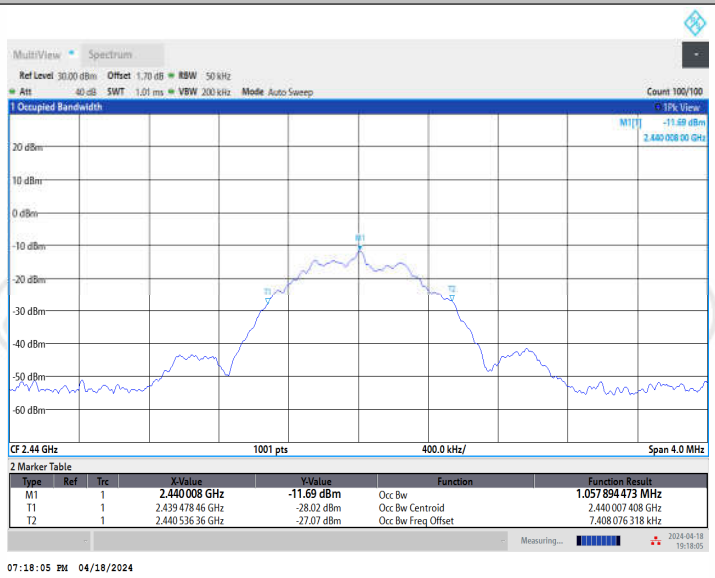
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.065	2401.4750	2402.5396	---	---
		2440	1.058	2439.478	2440.536	---	---
		2480	1.052	2479.482	2480.534	---	---

Test Graphs

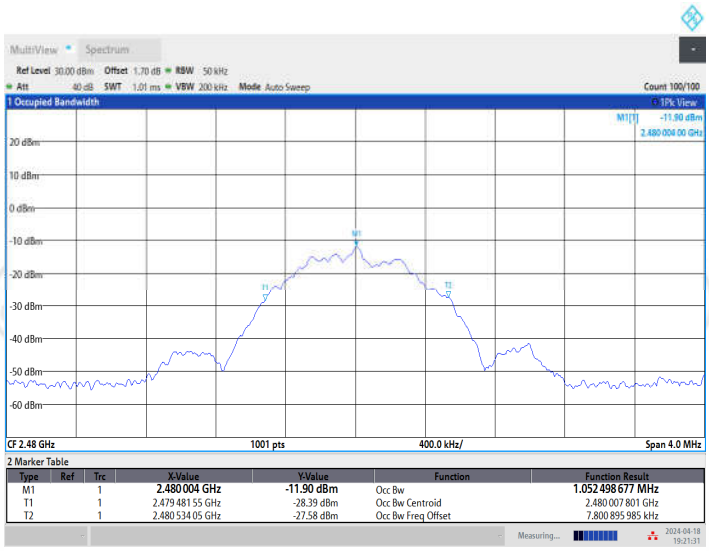
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



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Appendix C: Maximum conducted output power

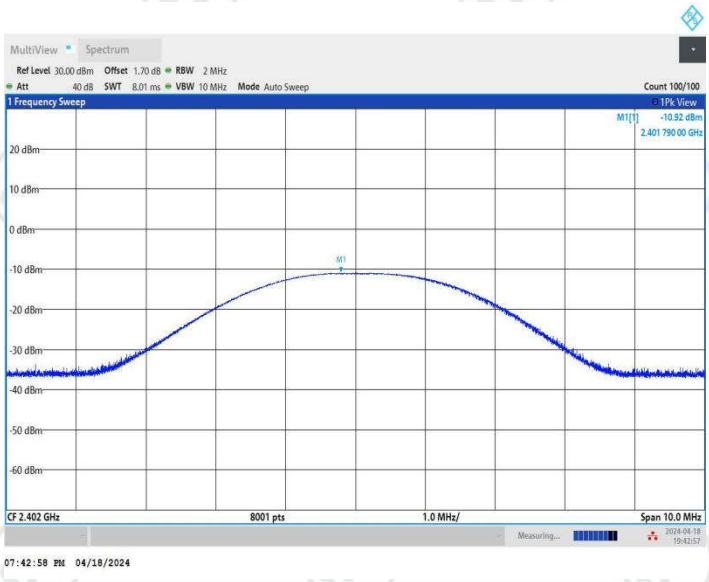
Test Result Peak

Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
BLE_1M	Ant1	2402	-10.92	≤30	-13.72	≤36	PASS
		2440	**-10.86**	≤30	**-13.66**	≤36	PASS
		2480	-11.12	≤30	-13.92	≤36	PASS

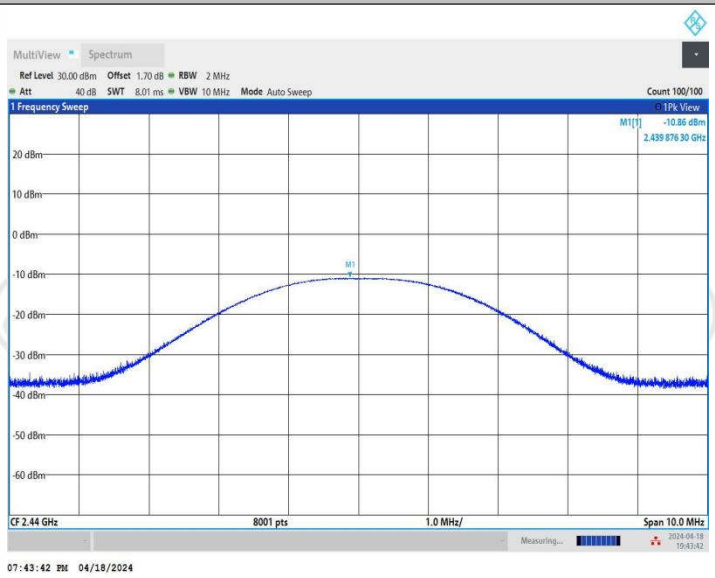
Note:EIRP=conducted peak power+antenna gain;

Test Graphs Peak

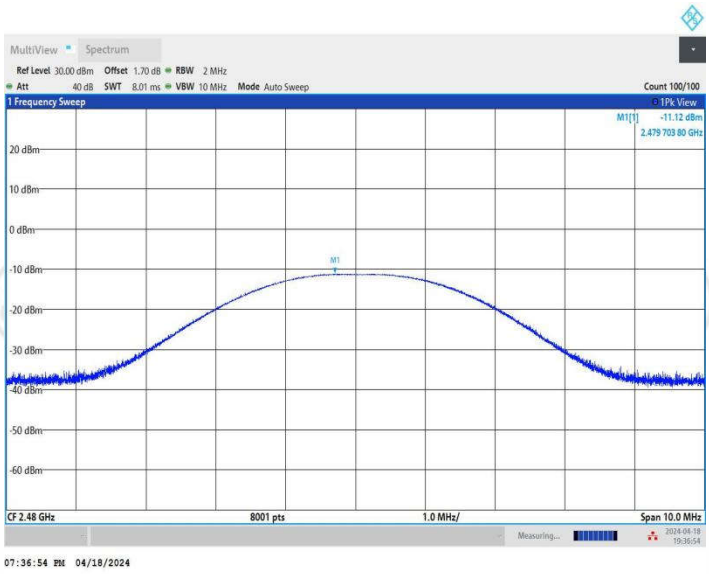
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480


MultiView
Spectrum
Ref Level 30.00 dBm Offset 1.70 dB RBW 2 MHz
Att 40 dB SWT 8.01 ms VBW 10 MHz Mode Auto Sweep
Count 100/100
1 Frequency Sweep
1Pk View
M1[1] -11.12 dBm
2.479 703 80 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
CF 2.48 GHz
8001 pts
1.0 MHz/
Span 10.0 MHz
Measuring...
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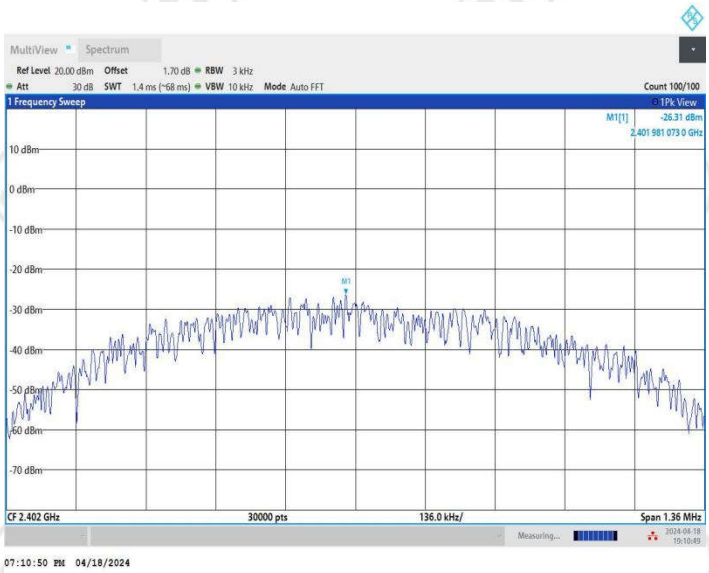
Appendix D: Maximum power spectral density

Test Result

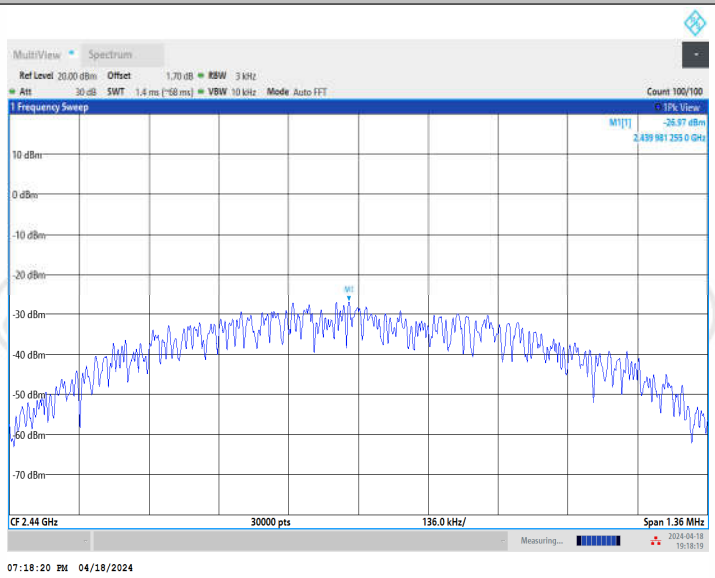
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-26.31	≤8.00	PASS
		2440	-26.97	≤8.00	PASS
		2480	-27.44	≤8.00	PASS

Test Graphs

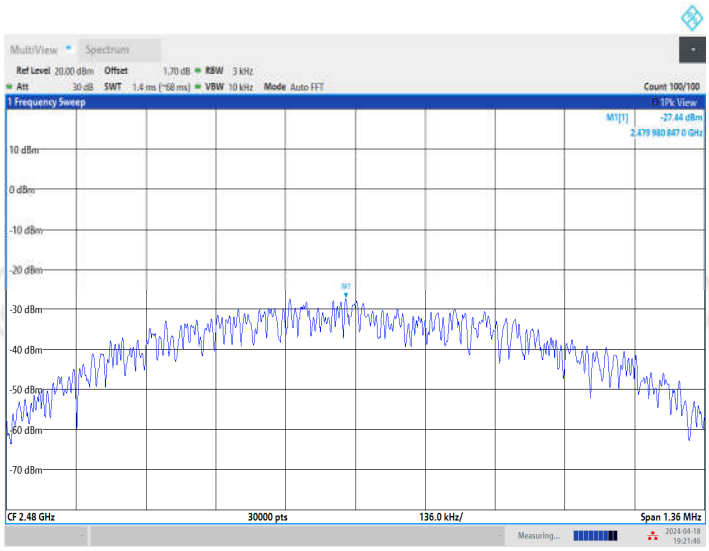
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



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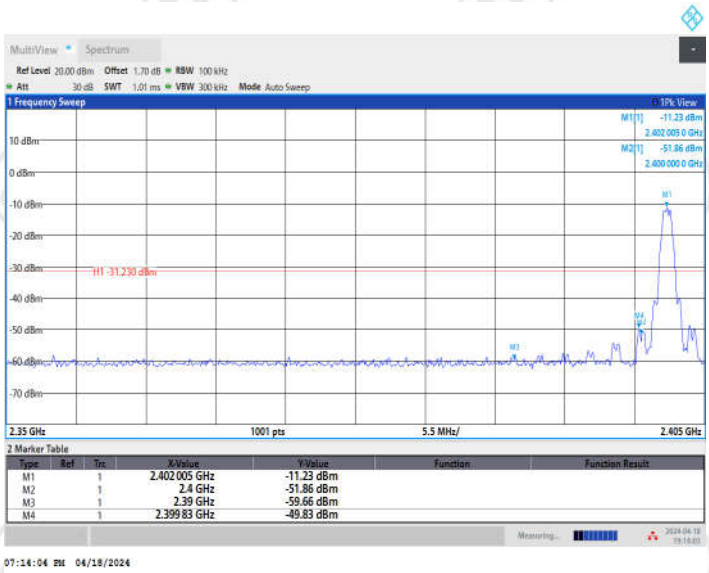
Appendix E: Band edge measurements

Test Result

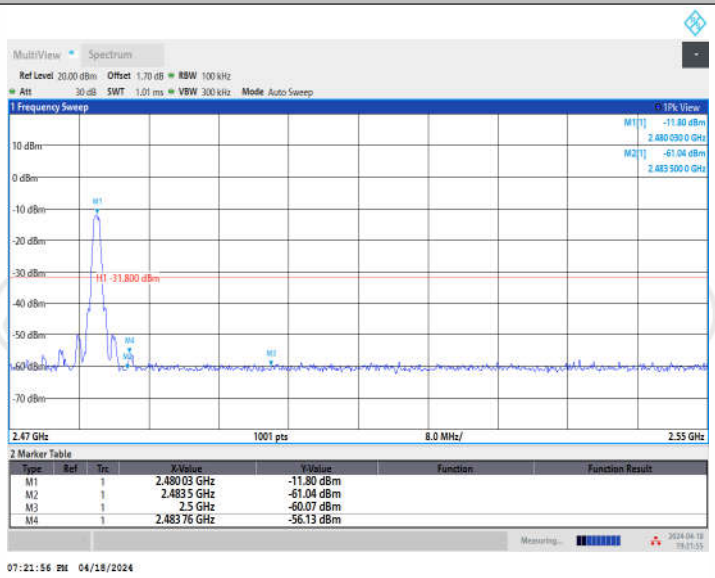
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	-11.23	-49.83	≤-31.23	PASS
		High	2480	-11.80	-56.13	≤-31.8	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



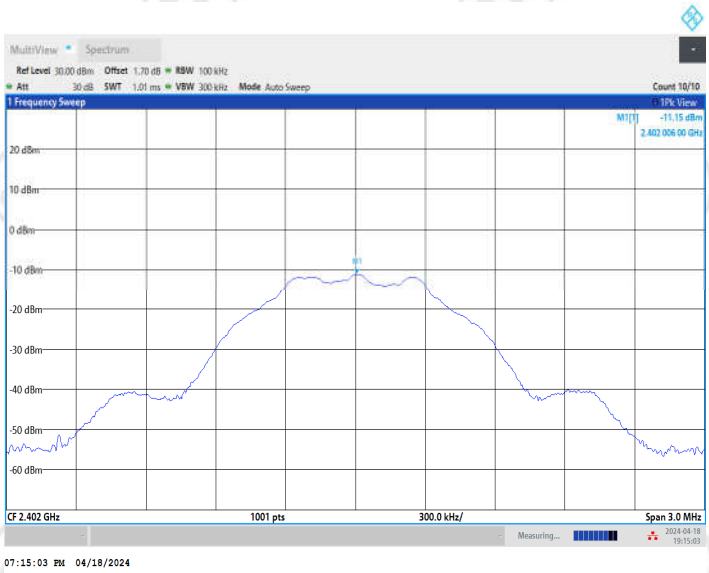
Appendix F: Conducted Spurious Emission

Test Result

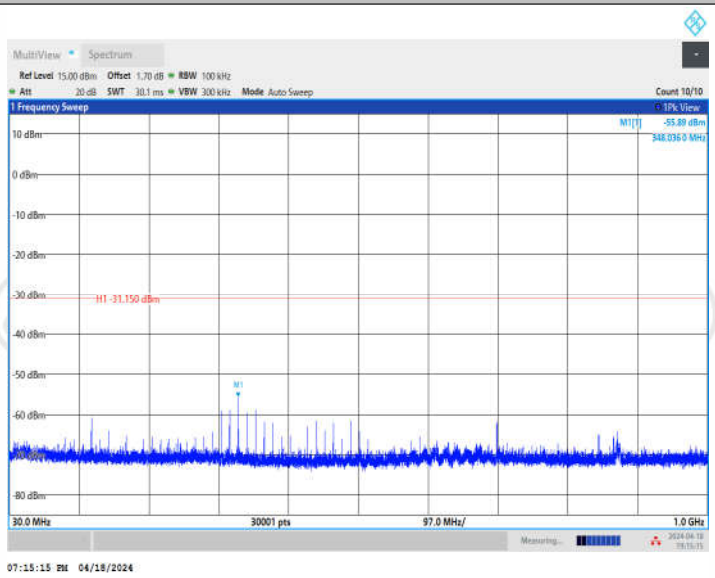
Test Mode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-11.15	-11.15	---	PASS
			30~1000	-11.15	-55.89	≤-31.15	PASS
			1000~26500	-11.15	-57.63	≤-31.15	PASS
		2440	Reference	-11.37	-11.37	---	PASS
			30~1000	-11.37	-58.57	≤-31.37	PASS
			1000~26500	-11.37	-56.93	≤-31.37	PASS
		2480	Reference	-11.79	-11.79	---	PASS
			30~1000	-11.79	-54.15	≤-31.79	PASS
			1000~26500	-11.79	-58.49	≤-31.79	PASS

Test Graphs

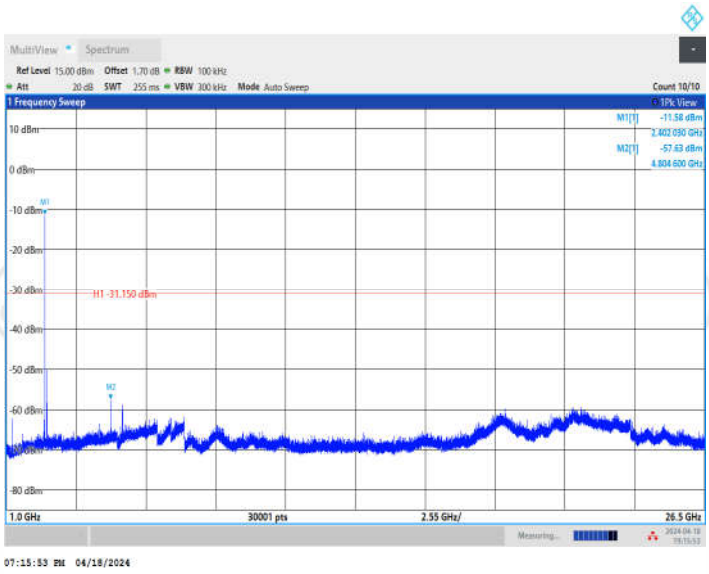
BLE_1M_Ant1_2402_0~Reference



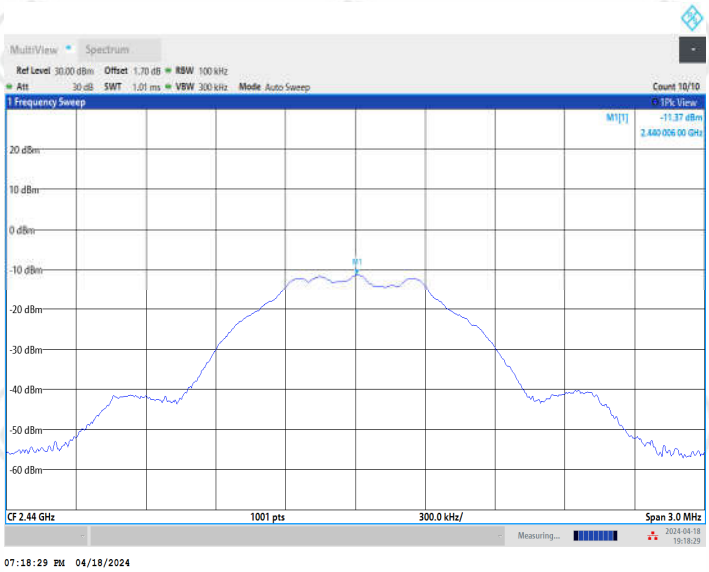
BLE_1M_Ant1_2402_30~1000



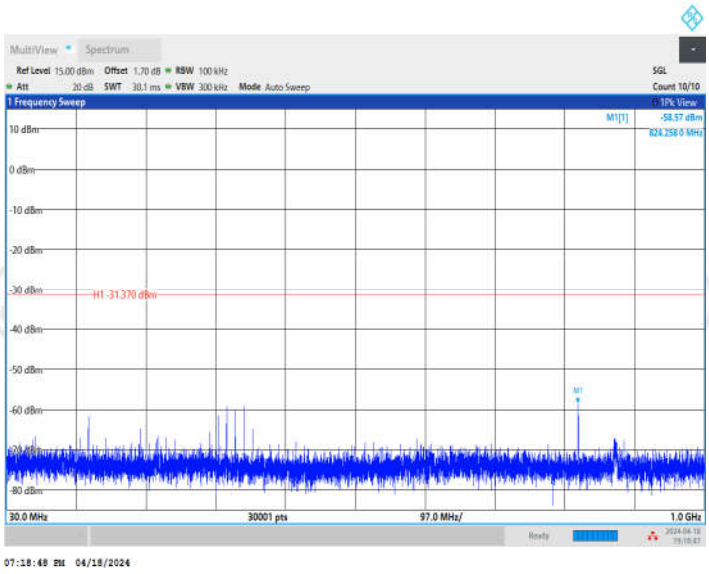
BLE_1M_Ant1_2402_1000~26500



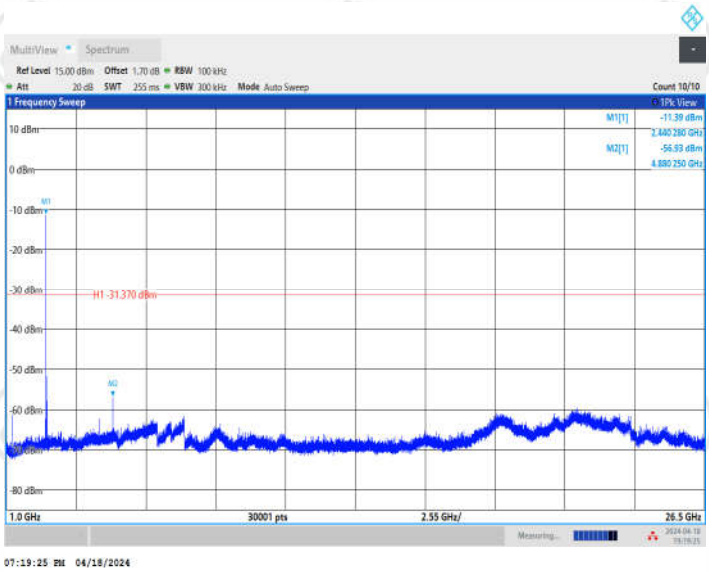
BLE_1M_Ant1_2440_0~Reference



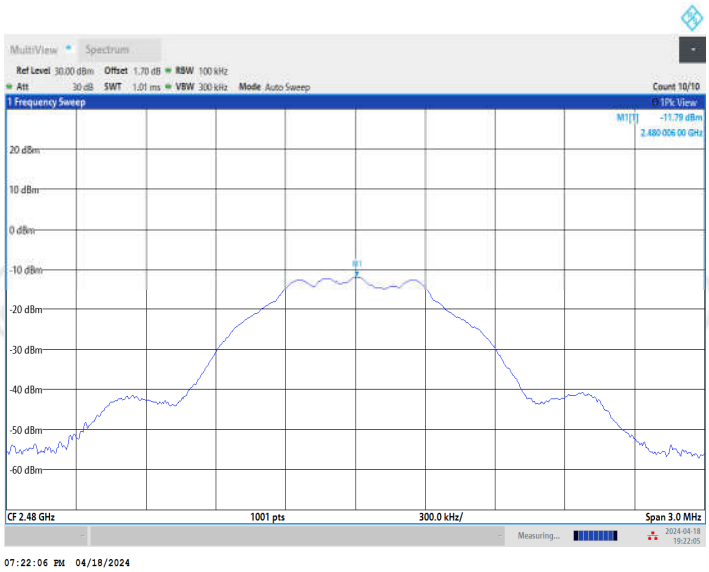
BLE_1M_Ant1_2440_30~1000



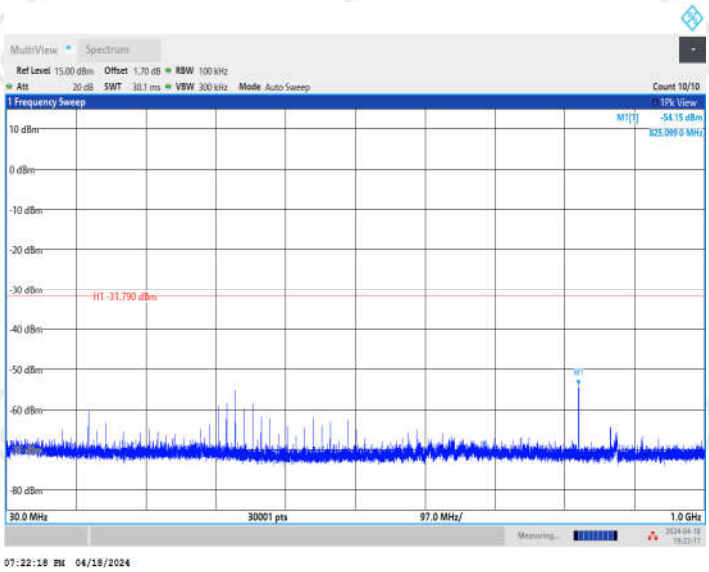
BLE_1M_Ant1_2440_1000~26500



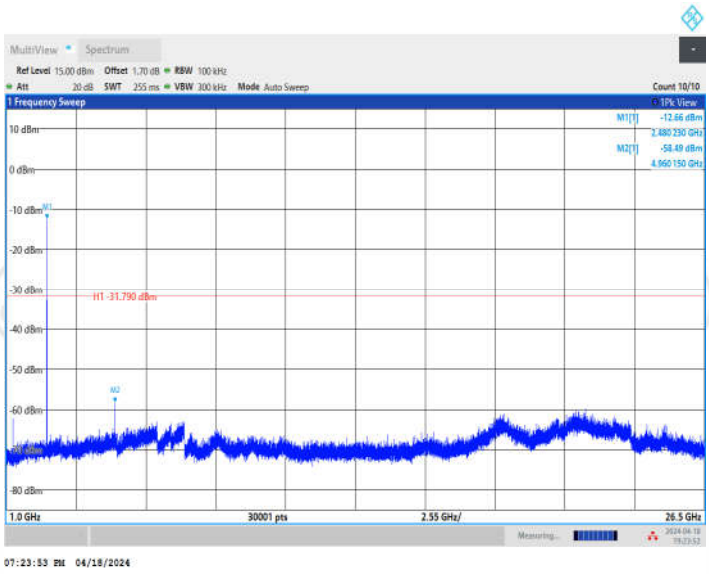
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500


MultiView
Spectrum
Ref Level 15.00 dBm Offset 1.70 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1 Frequency Sweep
1Pk View
M1[1] -12.66 dBm
2.480 230 GHz
M2[1] -58.49 dBm
4.960 150 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-80 dBm
H1 -31.790 dBm
M1
M2
1.0 GHz
30001 pts
2.55 GHz/
26.5 GHz
Measuring...
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Appendix G: Duty Cycle

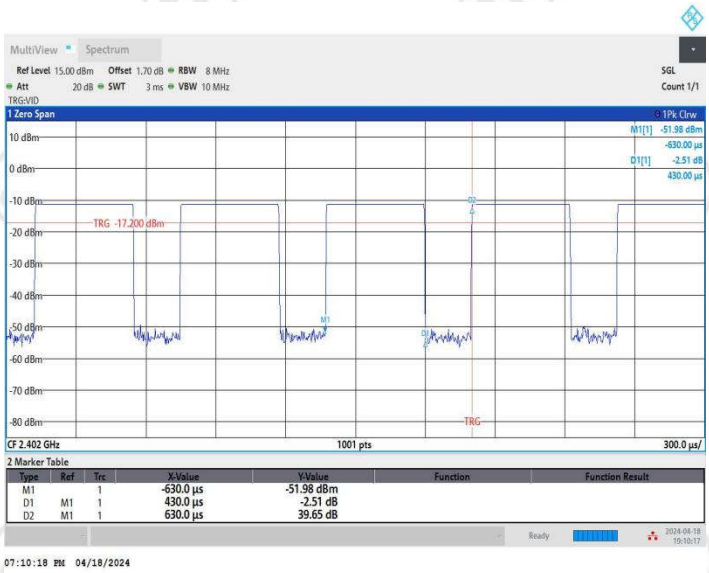
Test Result

Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.43	0.63	68.25	1.66
		2440	0.42	0.62	67.74	1.69
		2480	0.42	0.62	67.74	1.69

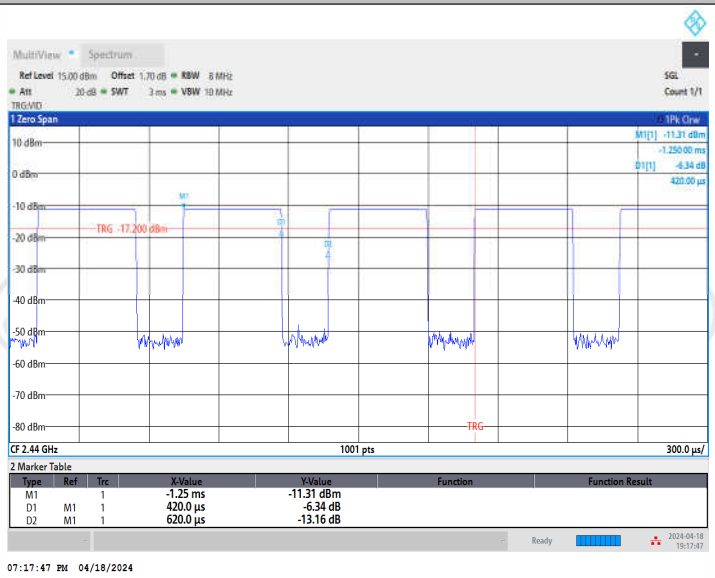
Note:Duty Cycle Factor=-10*lg(Duty Cycle);

Test Graphs

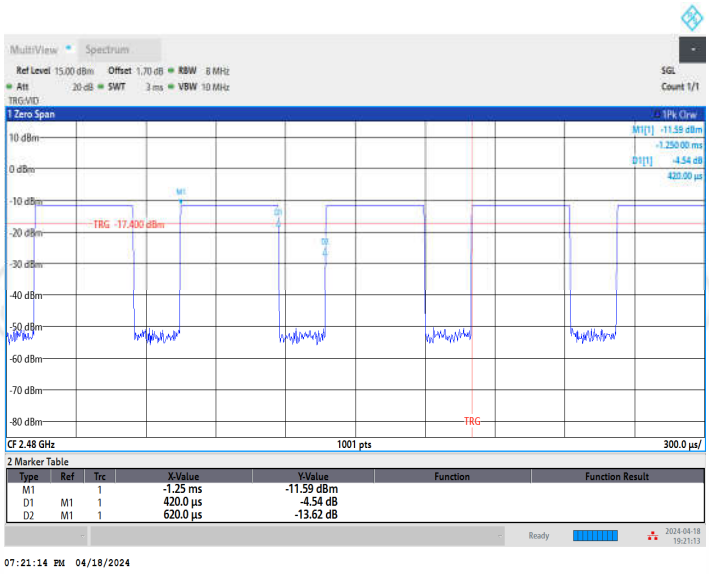
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



END OF REPORT