

Appendix: Bluetooth LE

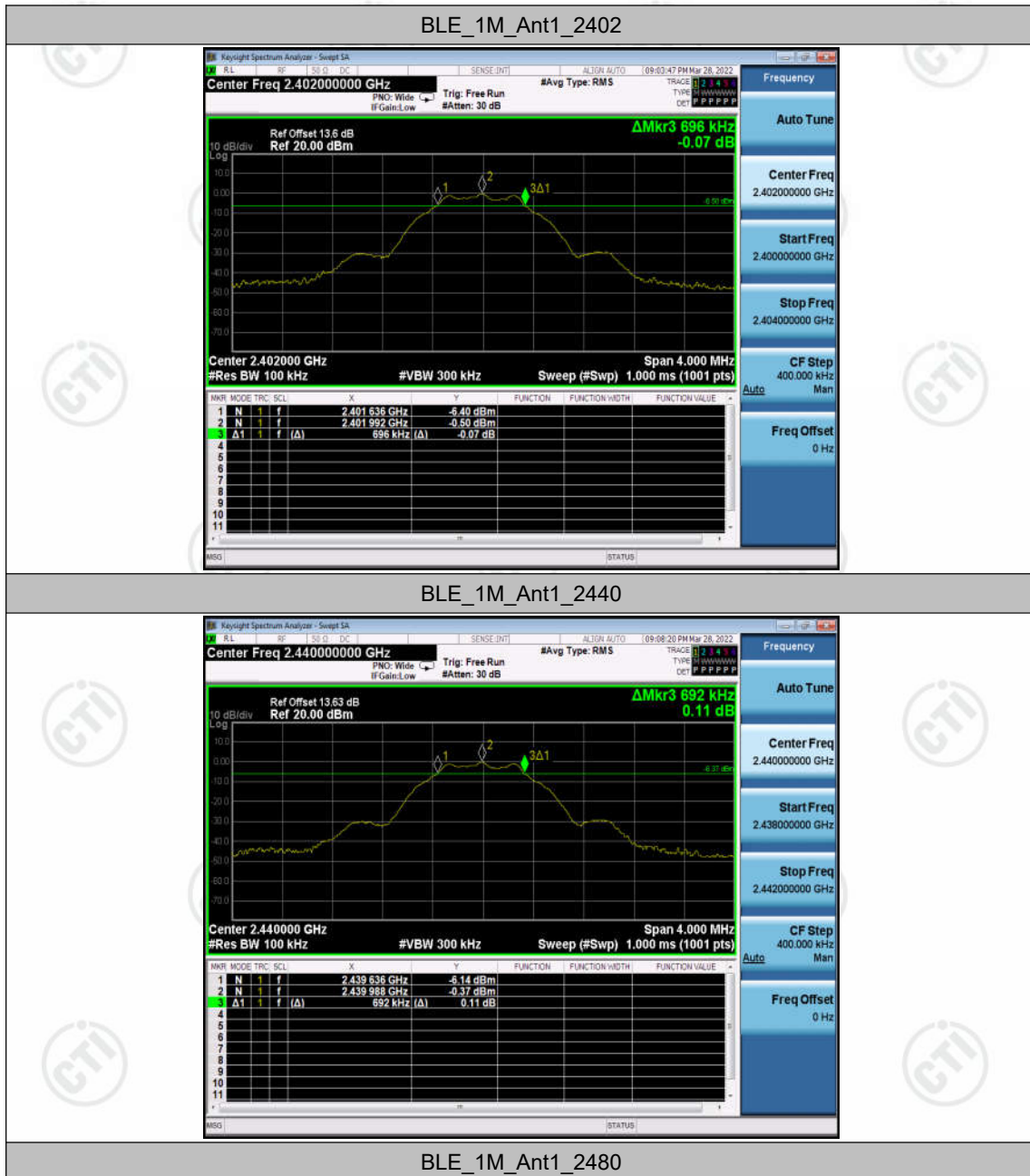
## Contents

Appendix A: DTS Bandwidth.....	3
Test Result.....	3
Test Graphs.....	4
Appendix B: Occupied Channel Bandwidth.....	7
Test Result.....	7
Test Graphs.....	8
Appendix C: Maximum conducted output power.....	11
Test Result.....	11
Test Graphs.....	12
Appendix D: Maximum power spectral density.....	15
Test Result.....	15
Test Graphs.....	16
Appendix E: Band edge measurements.....	19
Test Result.....	19
Test Graphs.....	20
Appendix F: Conducted Spurious Emission.....	22
Test Result.....	22
Test Graphs.....	23
Appendix G: Duty Cycle.....	29
Test Result.....	29
Test Graphs.....	30

**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	0.696	2401.636	2402.332	0.5	PASS
		2440	0.692	2439.636	2440.328	0.5	PASS
		2480	0.696	2479.636	2480.332	0.5	PASS
BLE_2M	Ant1	2402	1.140	2401.424	2402.564	0.5	PASS
		2440	1.136	2439.428	2440.564	0.5	PASS
		2480	1.132	2479.432	2480.564	0.5	PASS

## Test Graphs

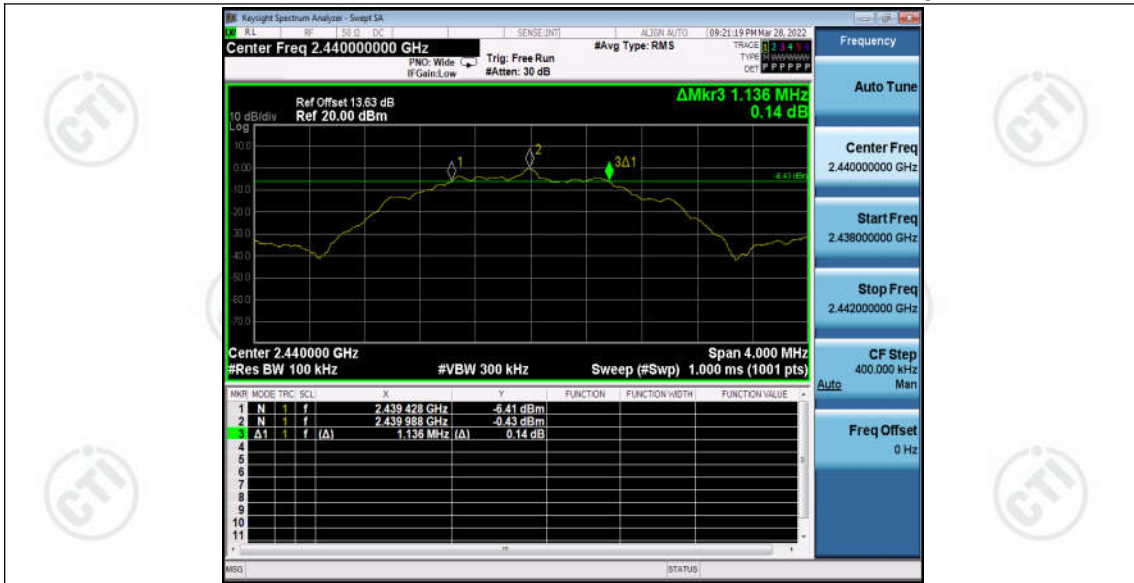




BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



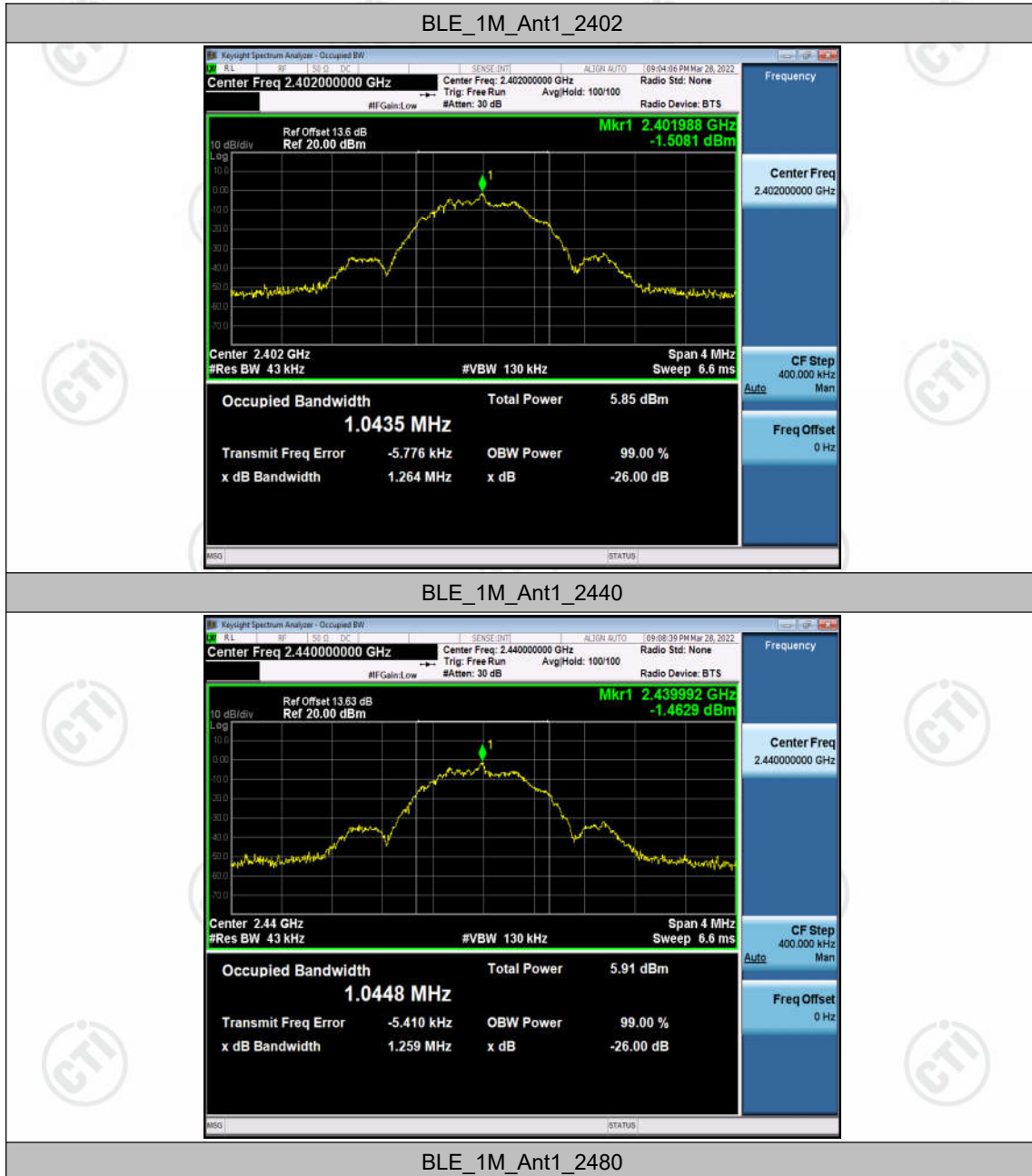
BLE\_2M\_Ant1\_2480



**Appendix B: Occupied Channel Bandwidth****Test Result**

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0435	2401.472	2402.516	---	---
		2440	1.0448	2439.472	2440.517	---	---
		2480	1.0450	2479.470	2480.515	---	---
BLE_2M	Ant1	2402	2.0447	2400.983	2403.028	---	---
		2440	2.0481	2438.981	2441.029	---	---
		2480	2.0486	2478.981	2481.029	---	---

## Test Graphs



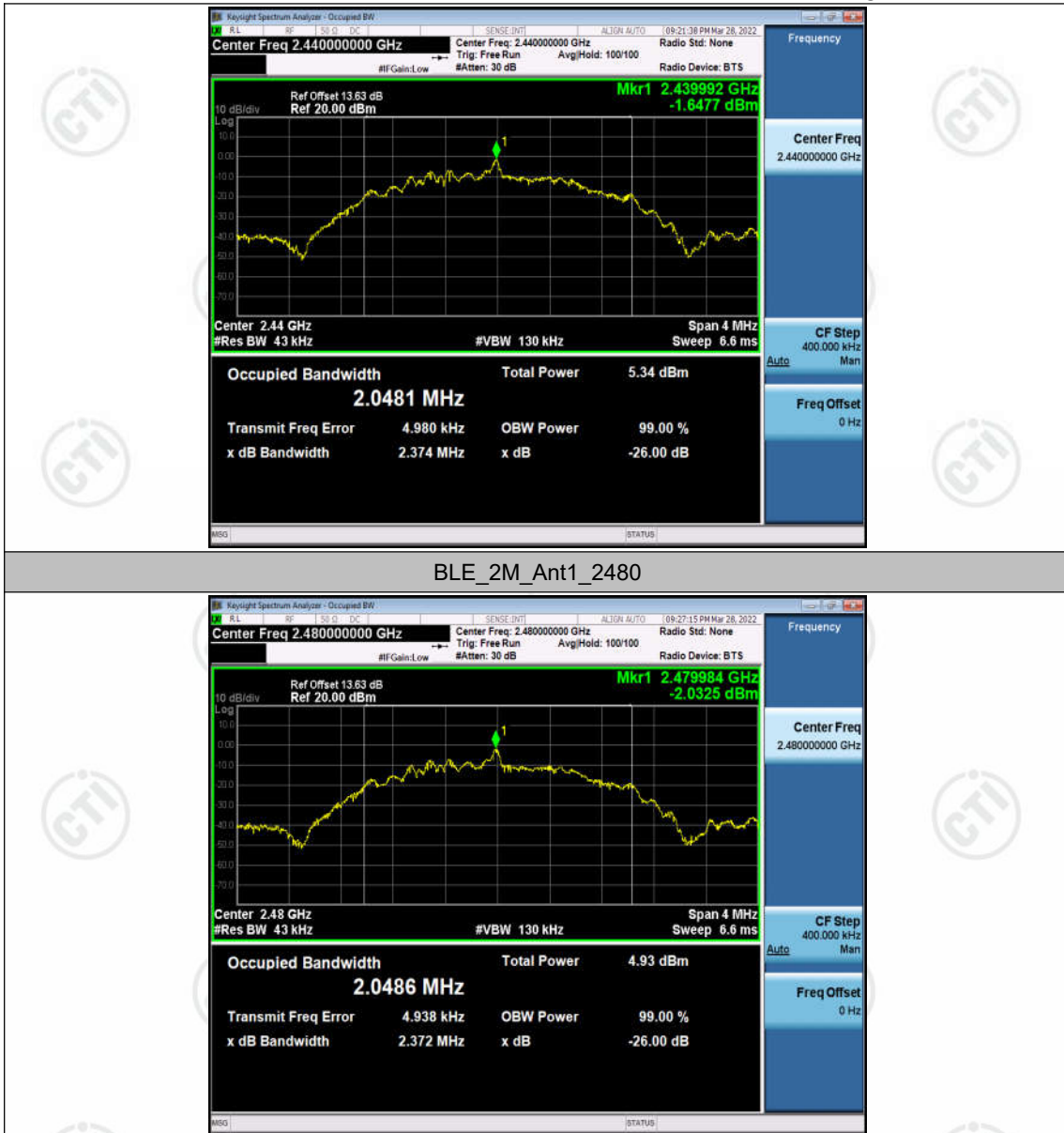




BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440

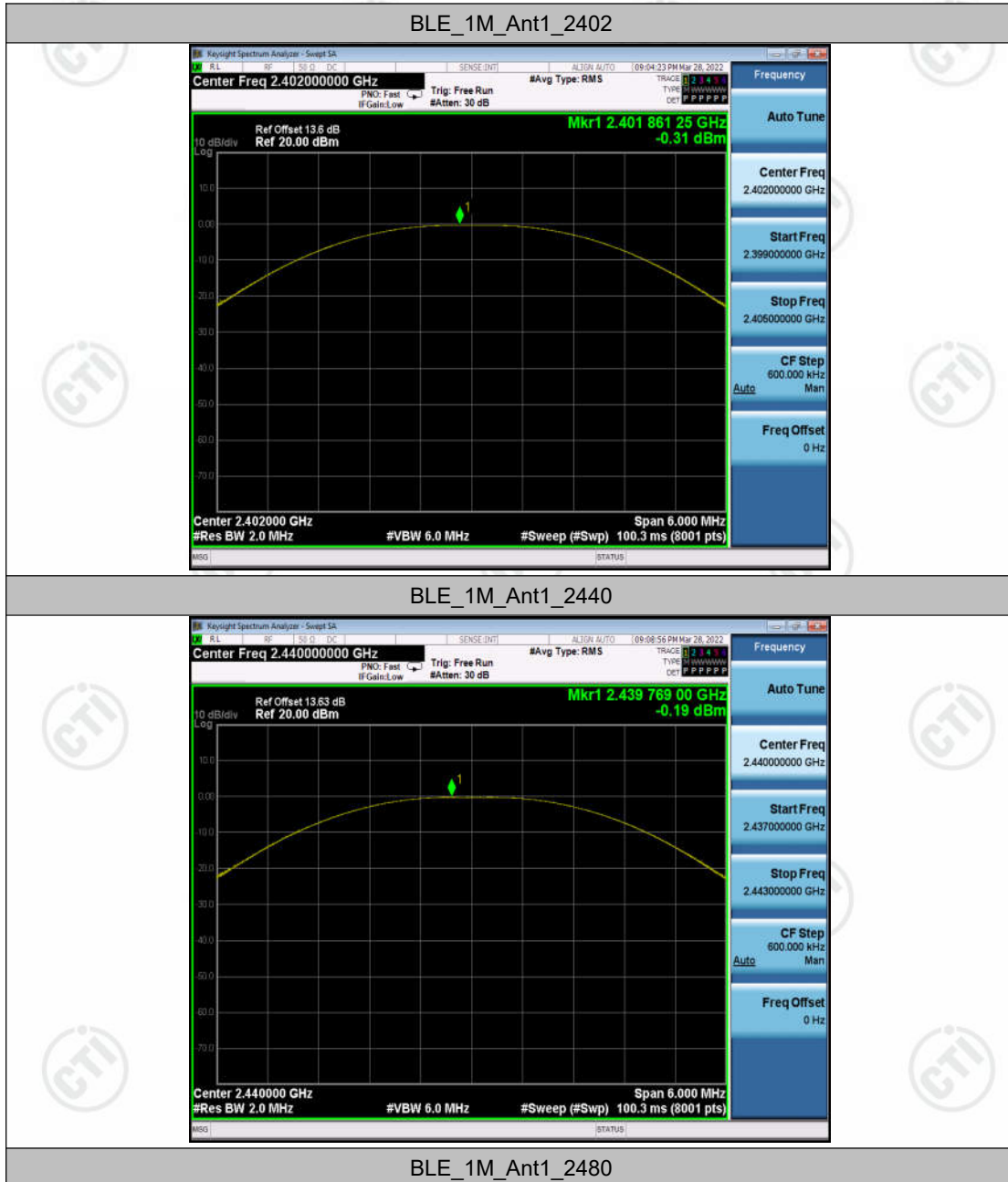


## Appendix C: Maximum conducted output power

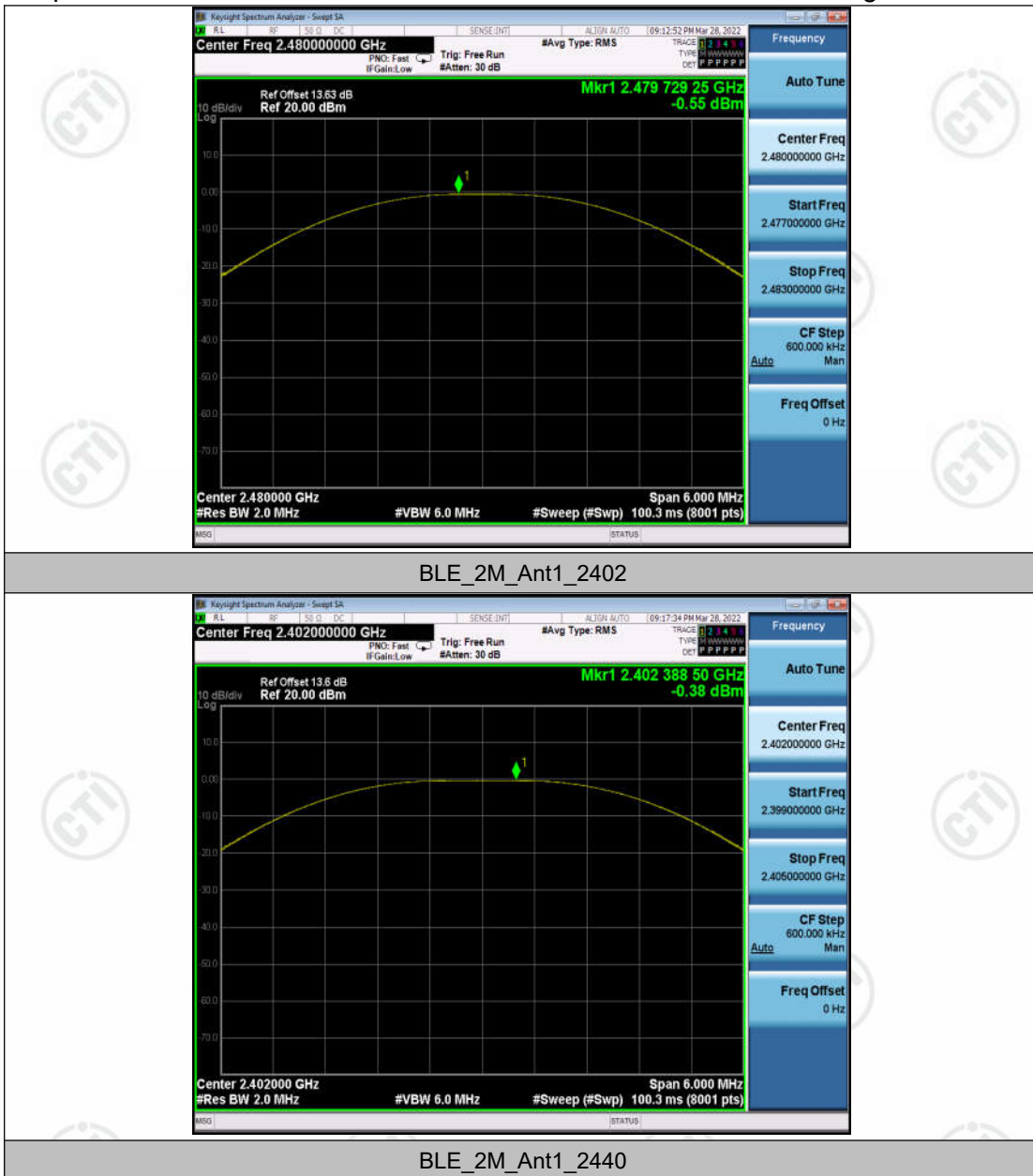
### Test Result

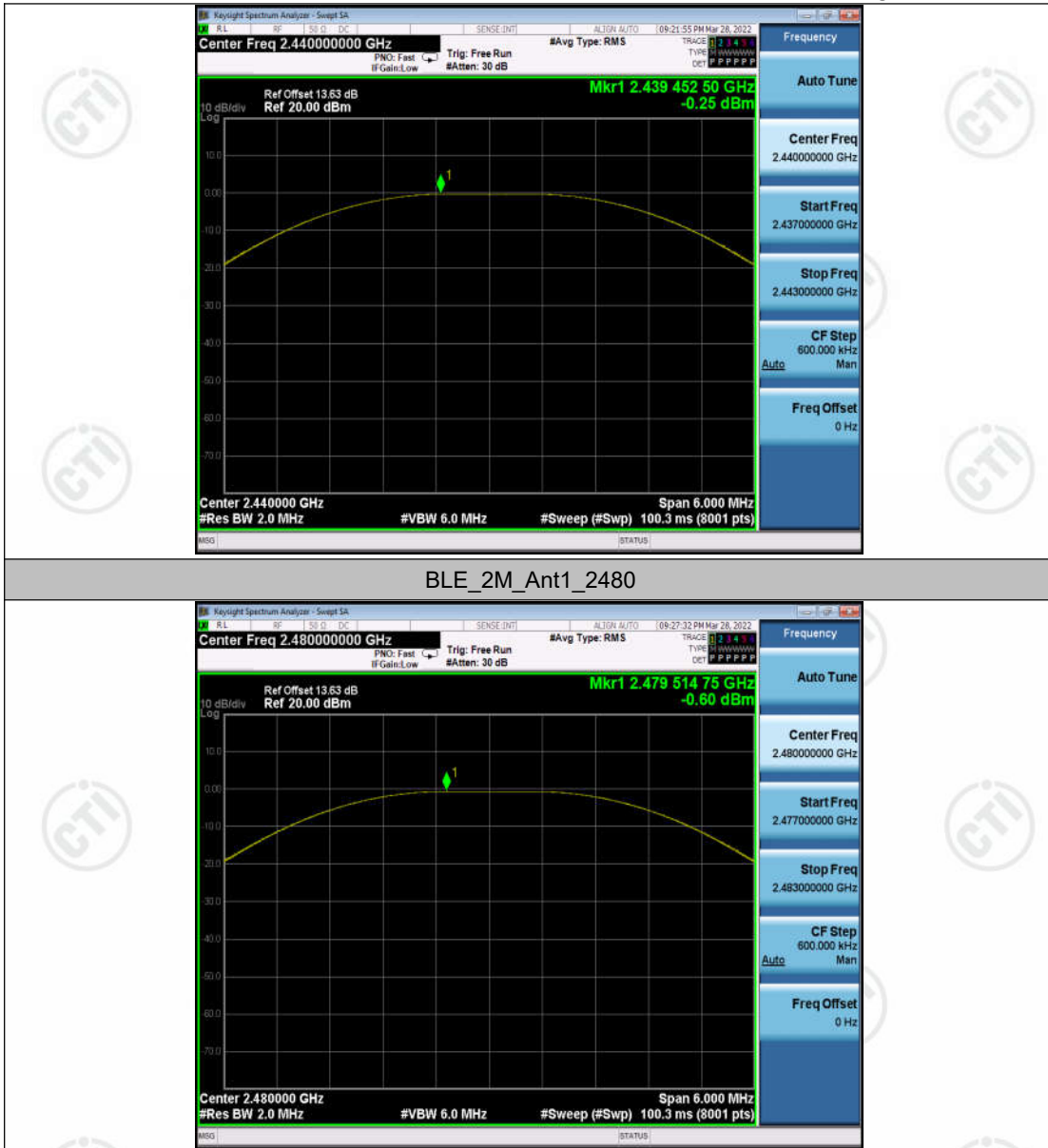
Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.31	≤30	PASS
		2440	<b>-0.19</b>	≤30	PASS
		2480	-0.55	≤30	PASS
BLE_2M	Ant1	2402	-0.38	≤30	PASS
		2440	-0.25	≤30	PASS
		2480	-0.60	≤30	PASS

## Test Graphs



BLE\_1M\_Ant1\_2480

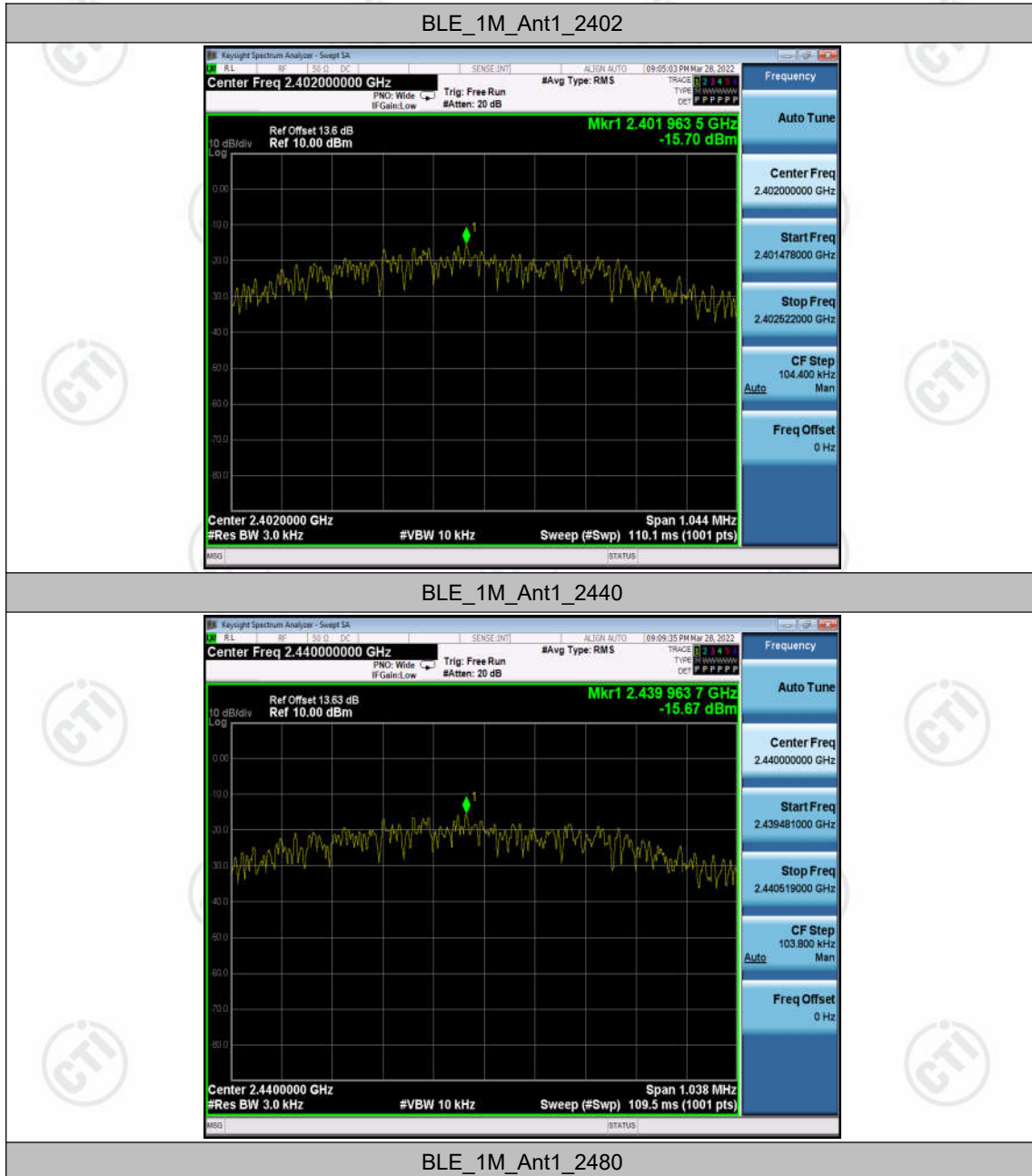




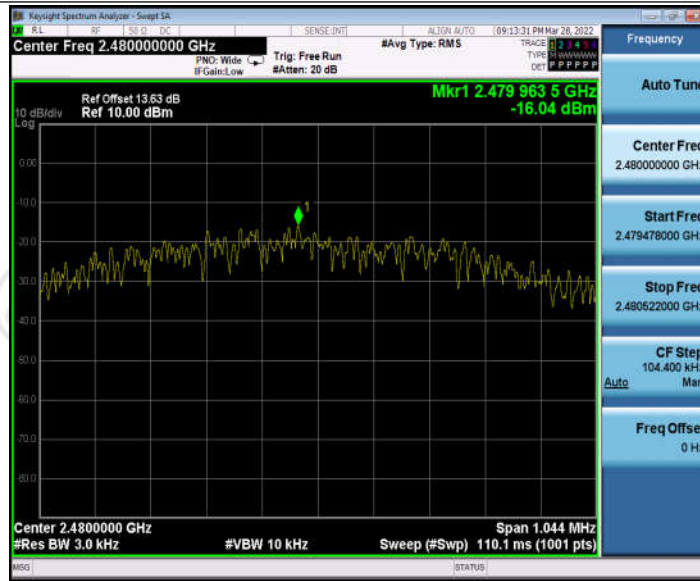
**Appendix D: Maximum power spectral density****Test Result**

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.7	≤8.00	PASS
		2440	-15.67	≤8.00	PASS
		2480	-16.04	≤8.00	PASS
BLE_2M	Ant1	2402	-18.28	≤8.00	PASS
		2440	-18.1	≤8.00	PASS
		2480	-18.52	≤8.00	PASS

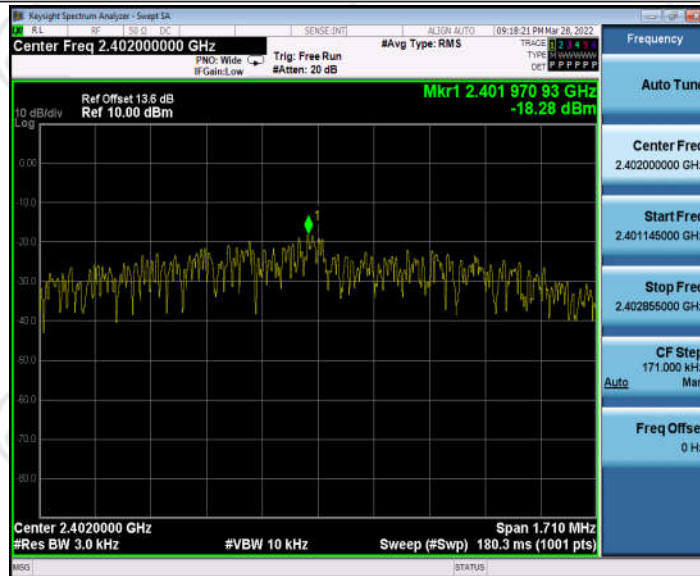
## Test Graphs



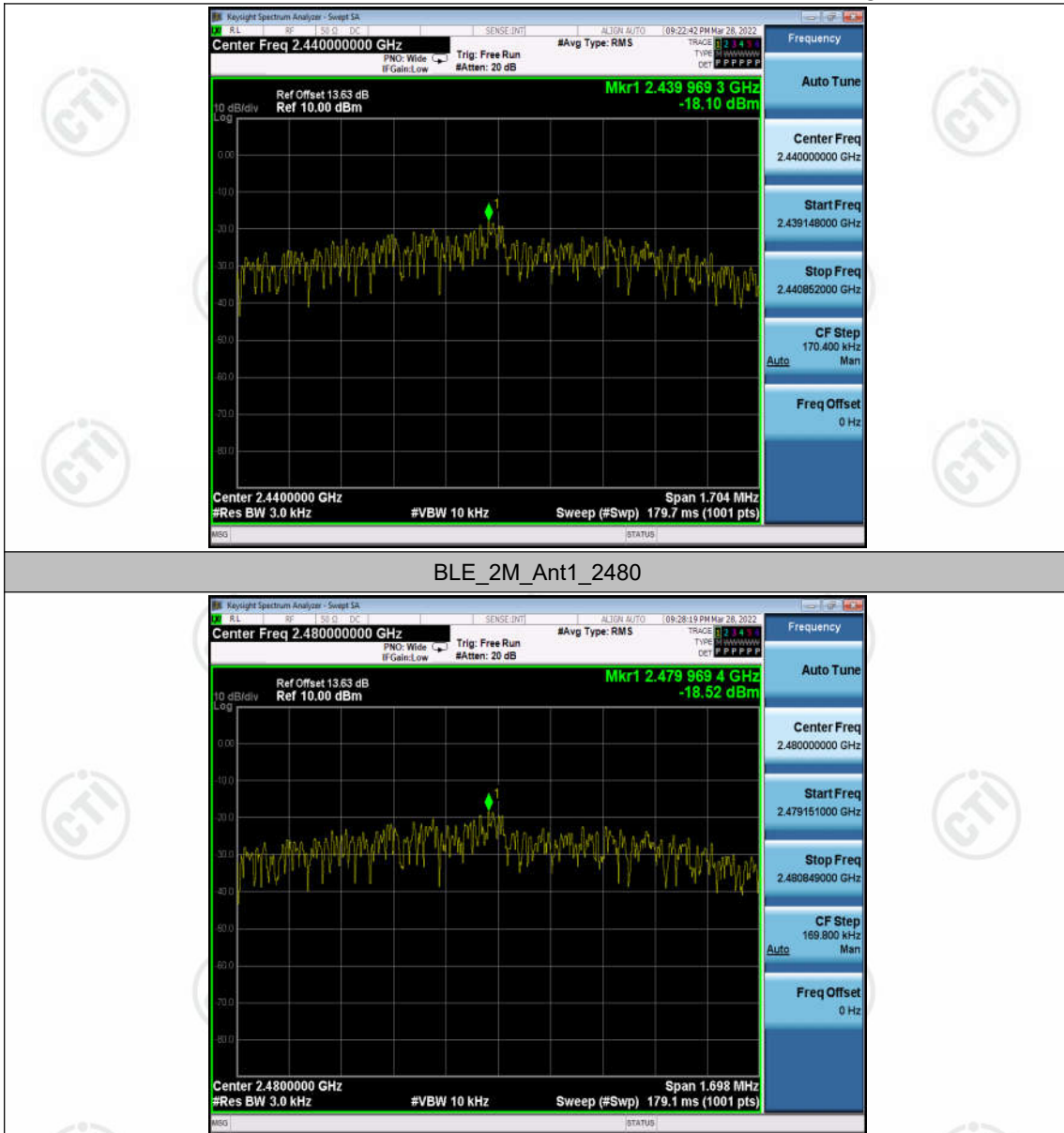




BLE\_2M\_Ant1\_2402



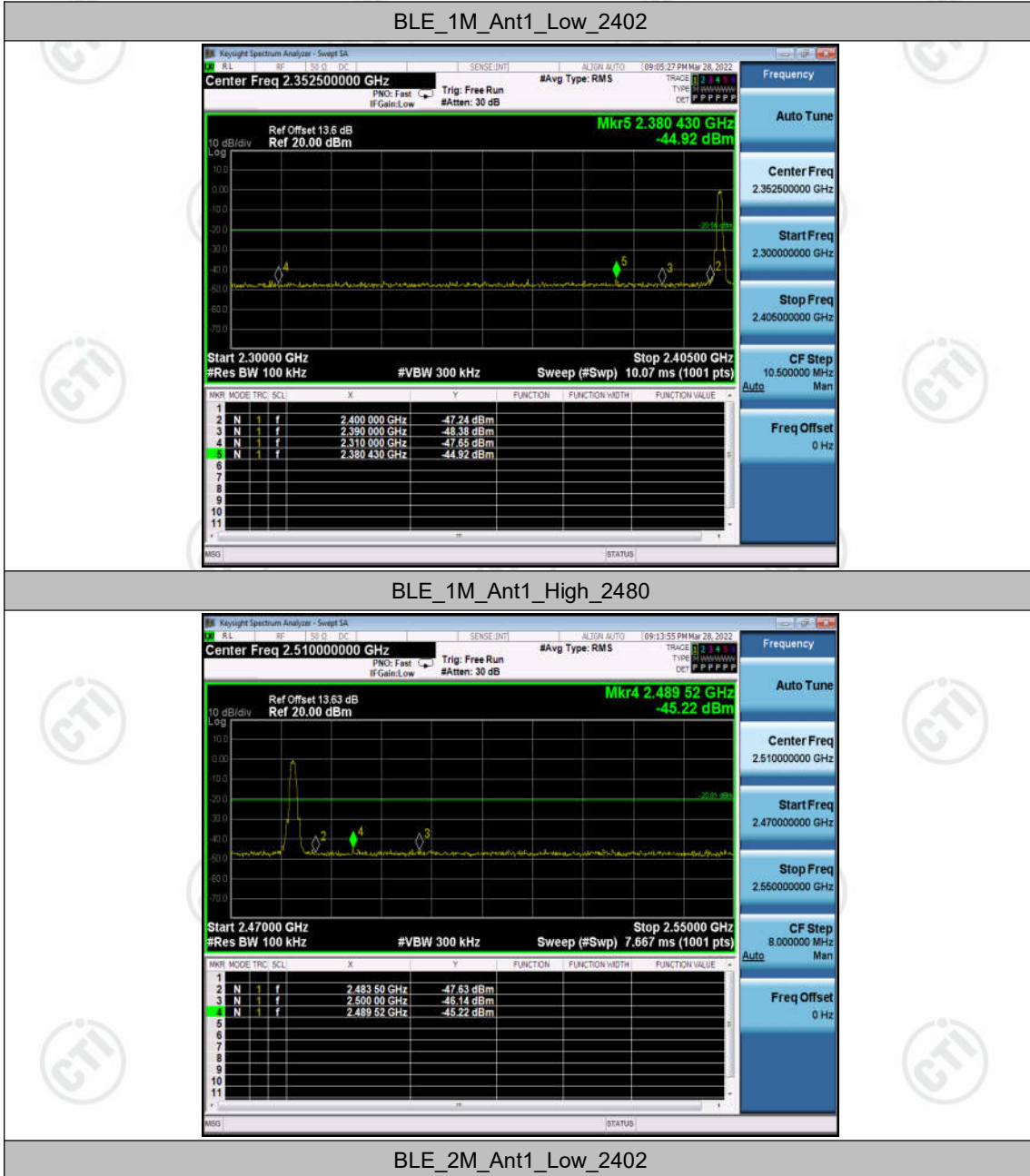
BLE\_2M\_Ant1\_2440



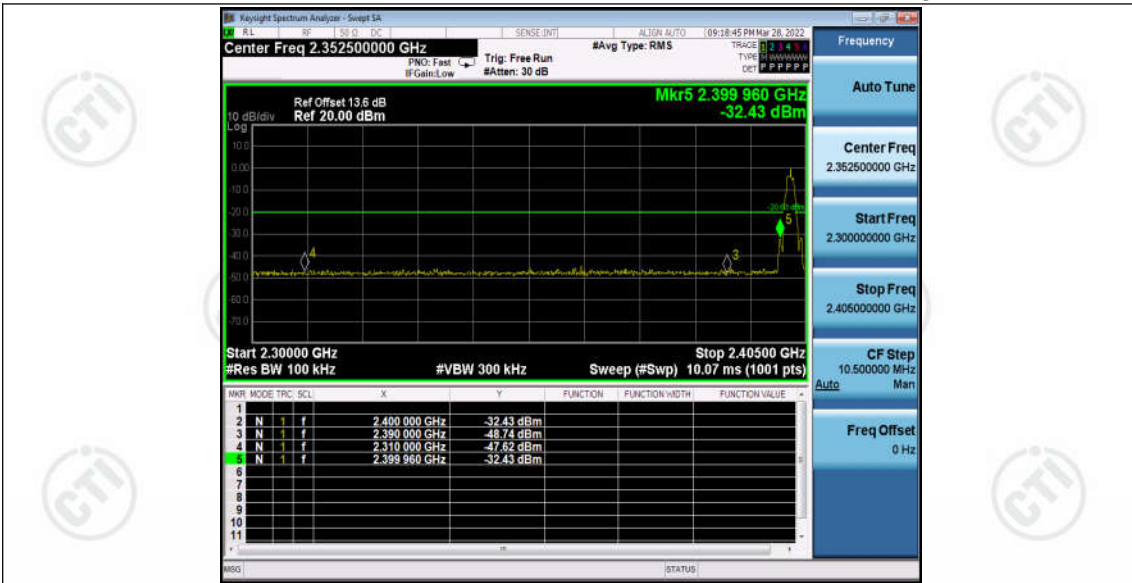
**Appendix E: Band edge measurements****Test Result**

Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.56	-44.92	≤-20.56	PASS
		High	2480	-0.81	-45.22	≤-20.81	PASS
BLE_2M	Ant1	Low	2402	-0.63	-32.43	≤-20.63	PASS
		High	2480	-0.87	-45.66	≤-20.87	PASS

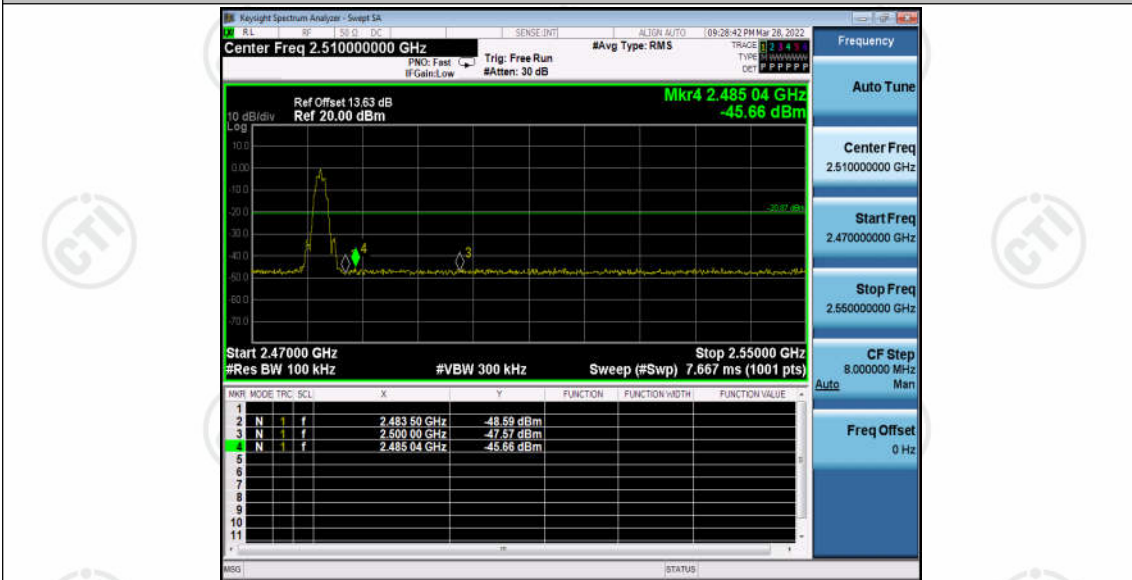
## Test Graphs



BLE\_2M\_Ant1\_Low\_2402



BLE\_2M\_Ant1\_High\_2480

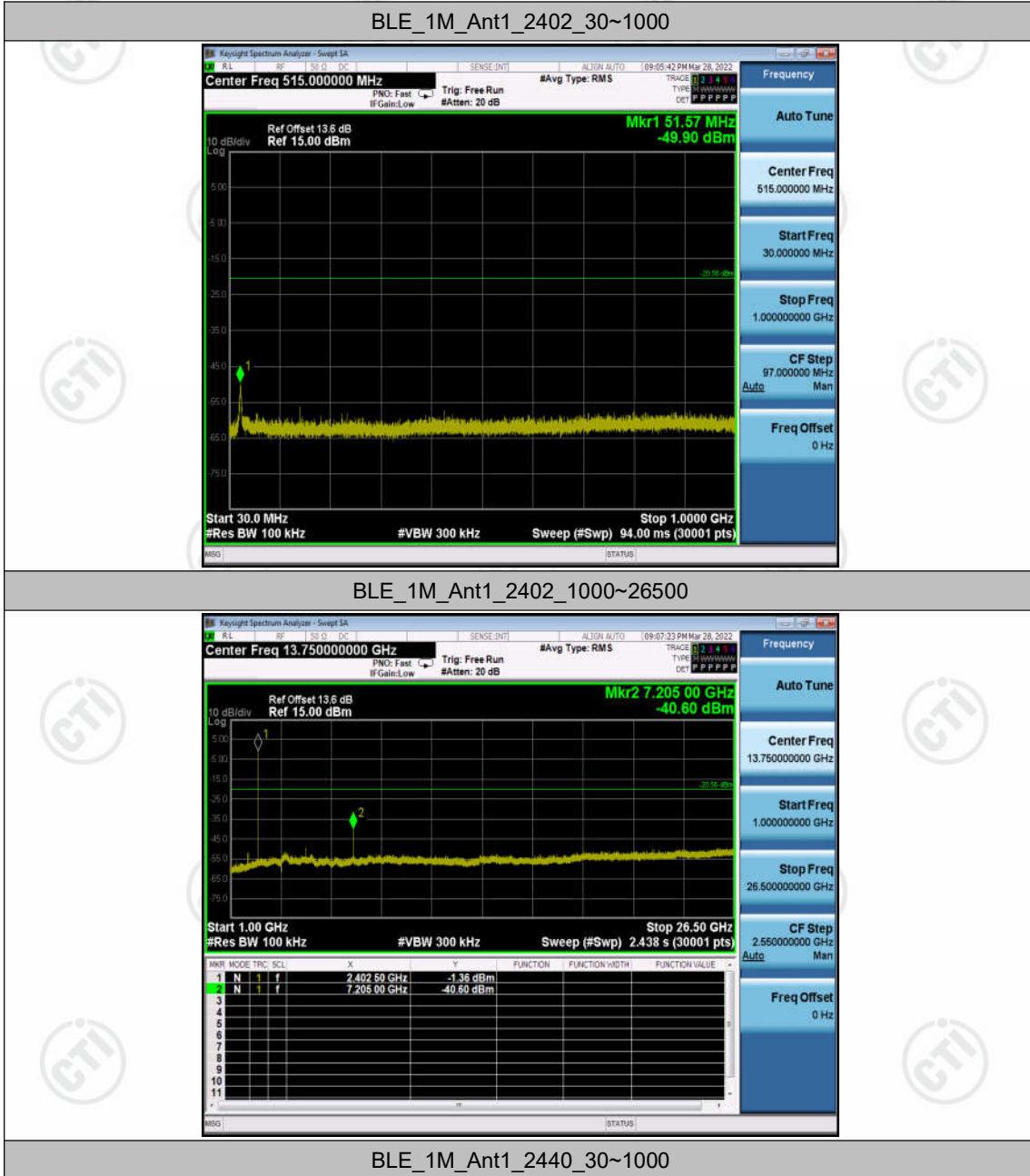


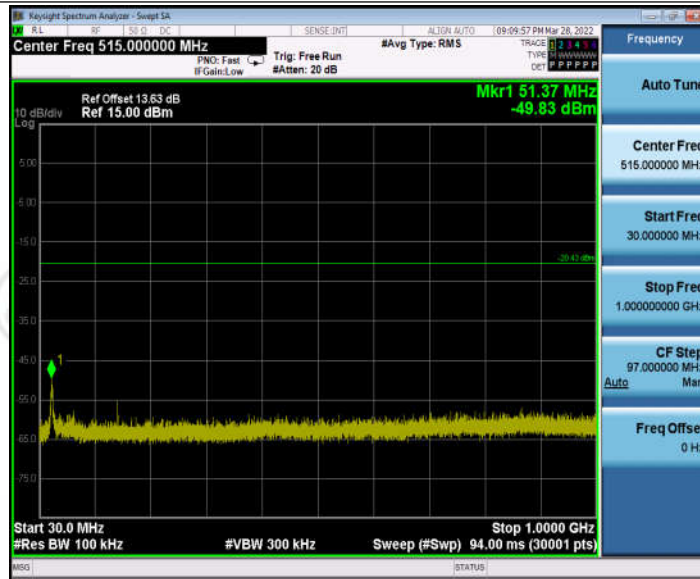
## Appendix F: Conducted Spurious Emission

### Test Result

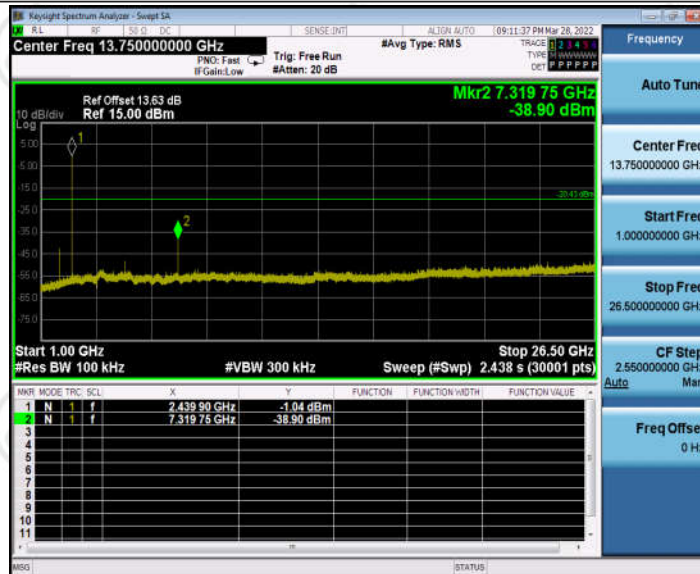
Test Mode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	-0.56	-49.9	≤-20.56	PASS
			1000~26500	-0.56	-40.61	≤-20.56	PASS
		2440	30~1000	-0.43	-49.83	≤-20.43	PASS
			1000~26500	-0.43	-38.9	≤-20.43	PASS
		2480	30~1000	-0.81	-49.18	≤-20.81	PASS
			1000~26500	-0.81	-39.01	≤-20.81	PASS
BLE_2M	Ant1	2402	30~1000	-0.63	-50.19	≤-20.63	PASS
			1000~26500	-0.63	-39.53	≤-20.63	PASS
		2440	30~1000	-0.51	-43.3	≤-20.51	PASS
			1000~26500	-0.51	-42.68	≤-20.51	PASS
		2480	30~1000	-0.87	-50.15	≤-20.87	PASS
			1000~26500	-0.87	-35.38	≤-20.87	PASS

## Test Graphs



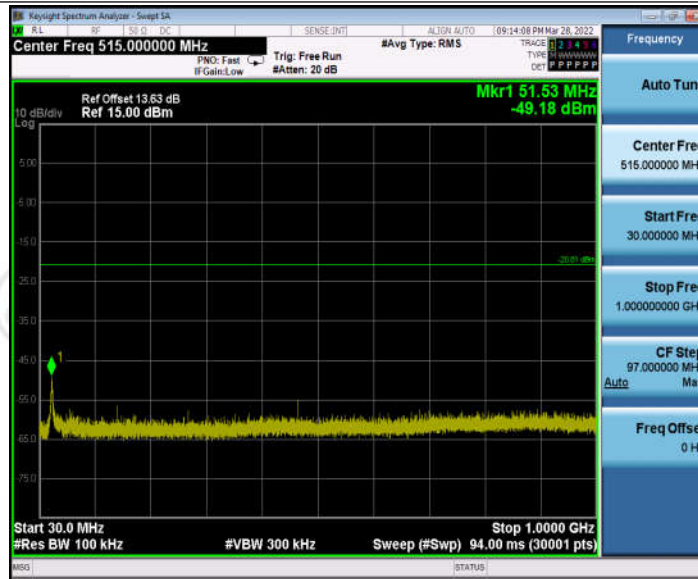


BLE\_1M\_Ant1\_2440\_1000~26500

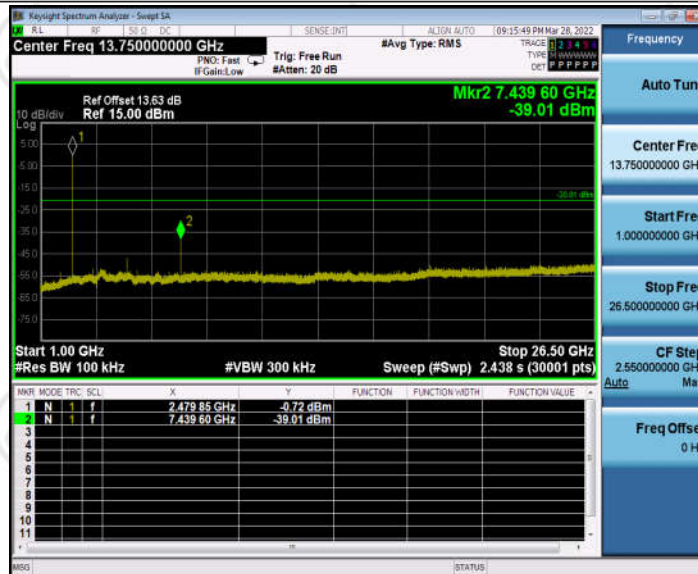


BLE\_1M\_Ant1\_2480\_30~1000

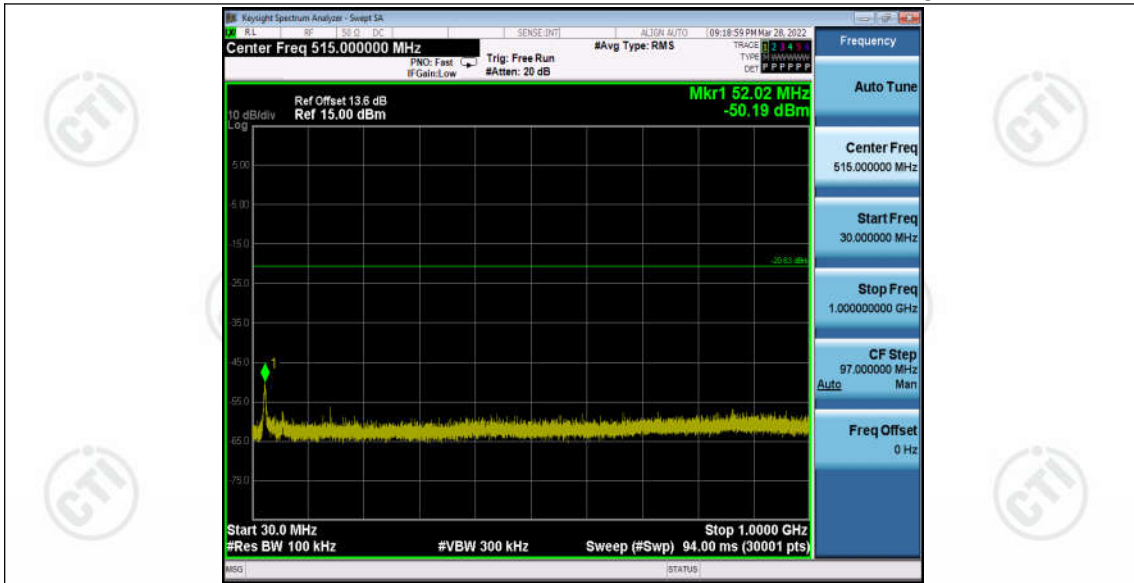




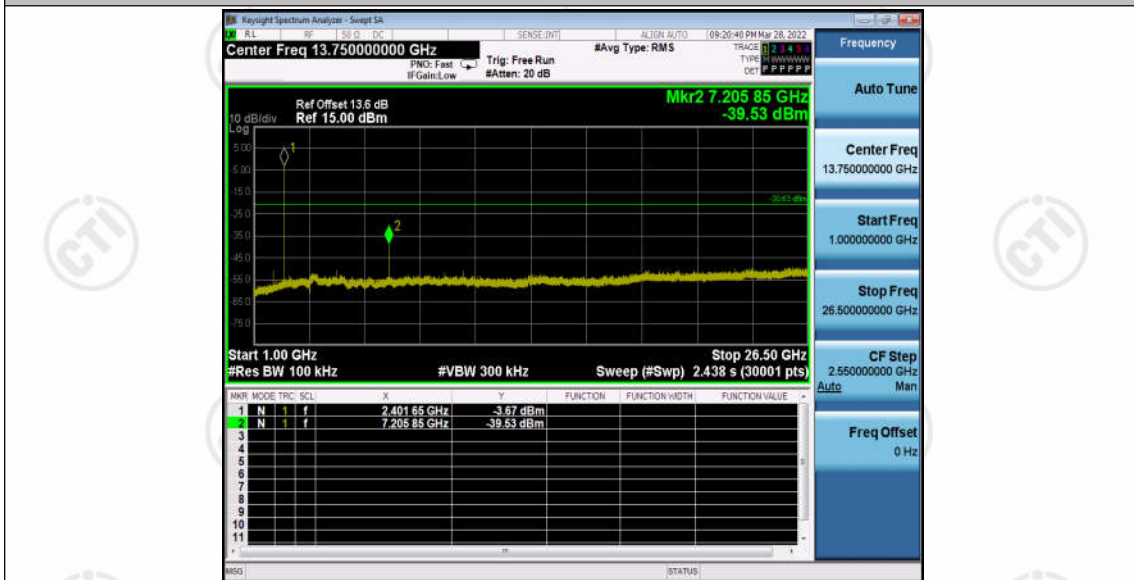
BLE\_1M\_Ant1\_2480\_1000~26500



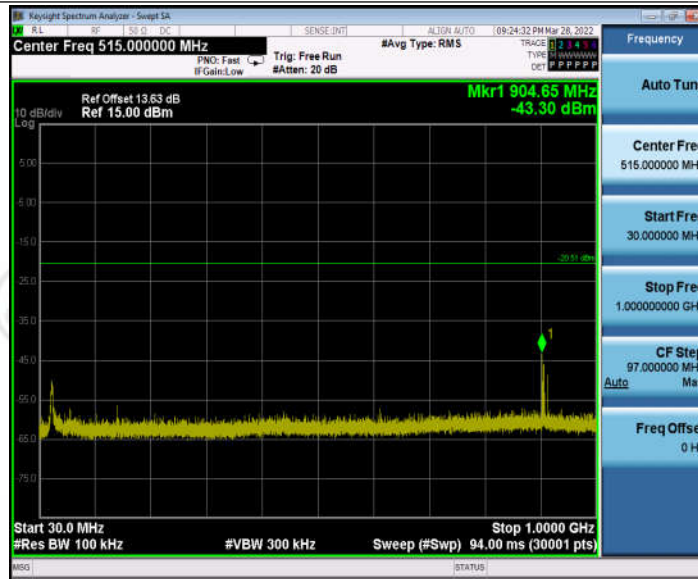
BLE\_2M\_Ant1\_2402\_30~1000



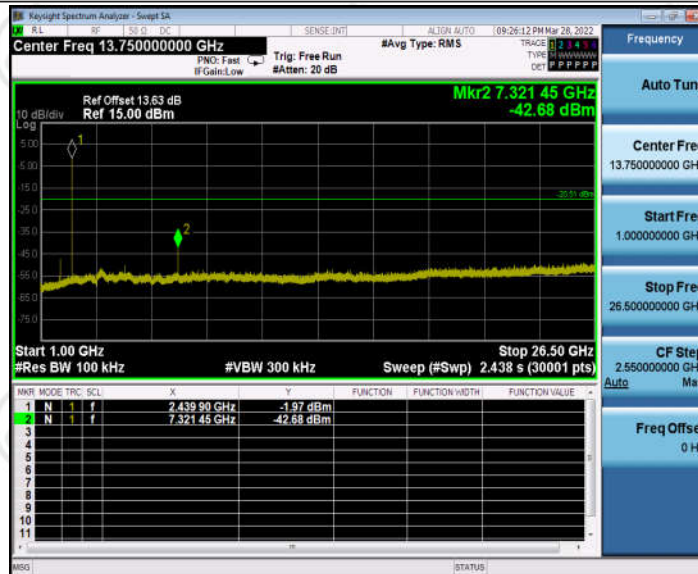
BLE\_2M\_Ant1\_2402\_1000~26500



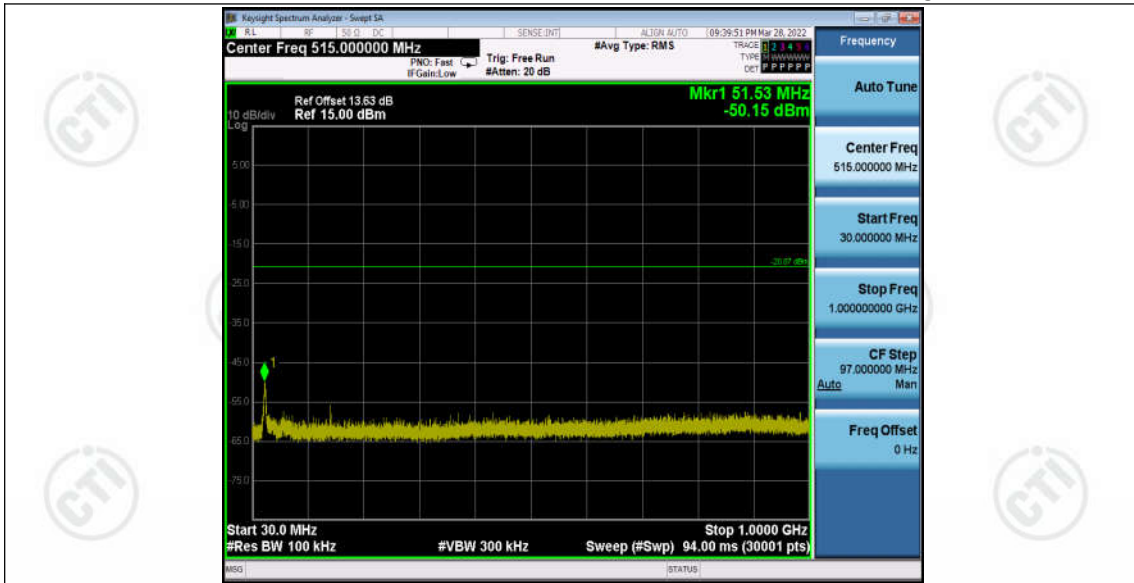
BLE\_2M\_Ant1\_2440\_30~1000



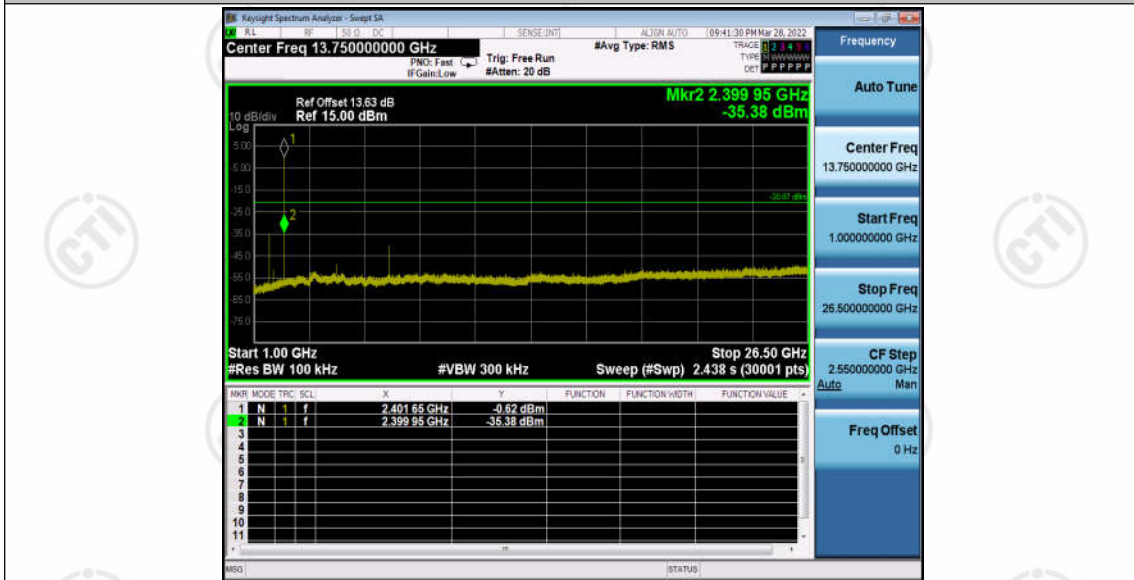
BLE\_2M\_Ant1\_2440\_1000~26500



BLE\_2M\_Ant1\_2480\_30~1000



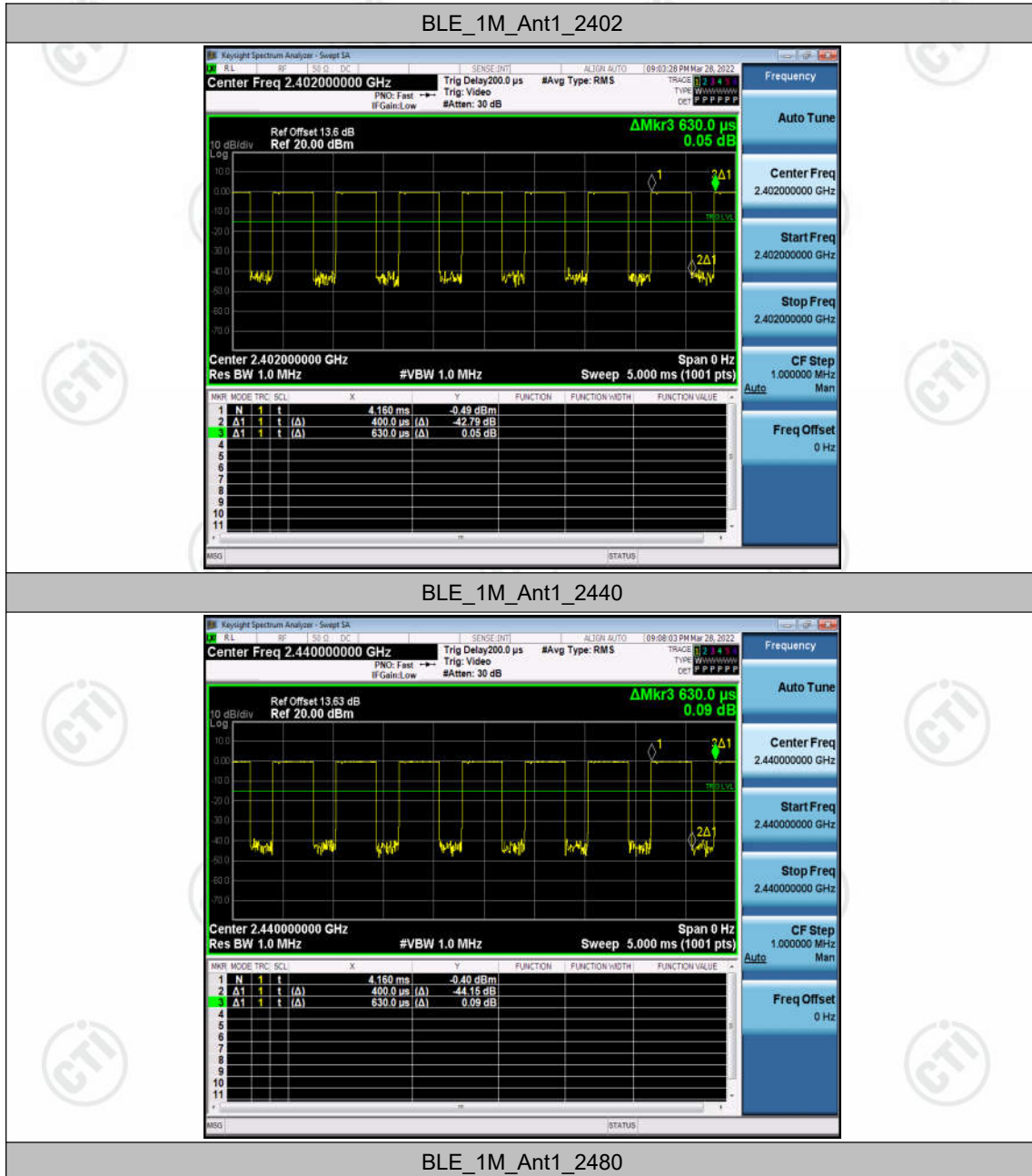
BLE\_2M\_Ant1\_2480\_1000~26500

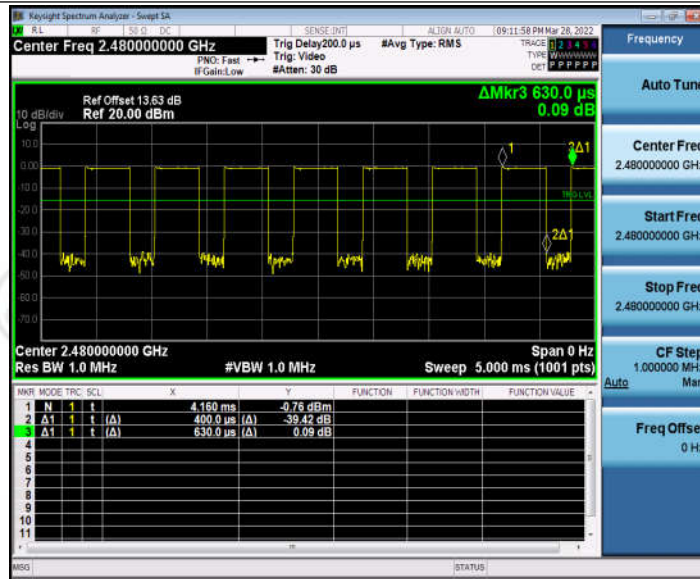


**Appendix G: Duty Cycle****Test Result**

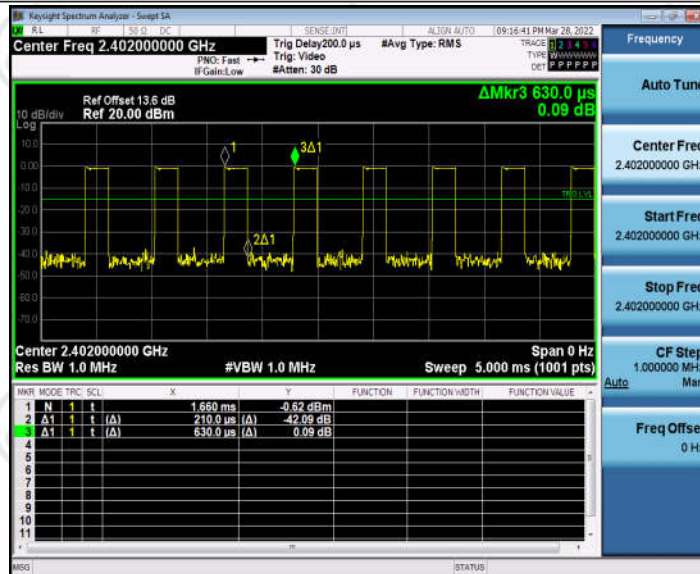
Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.40	0.63	63.49	1.97
		2440	0.40	0.63	63.49	1.97
		2480	0.40	0.63	63.49	1.97
BLE_2M	Ant1	2402	0.21	0.63	33.33	4.77
		2440	0.21	0.63	33.33	4.77
		2480	0.21	0.63	33.33	4.77

## Test Graphs

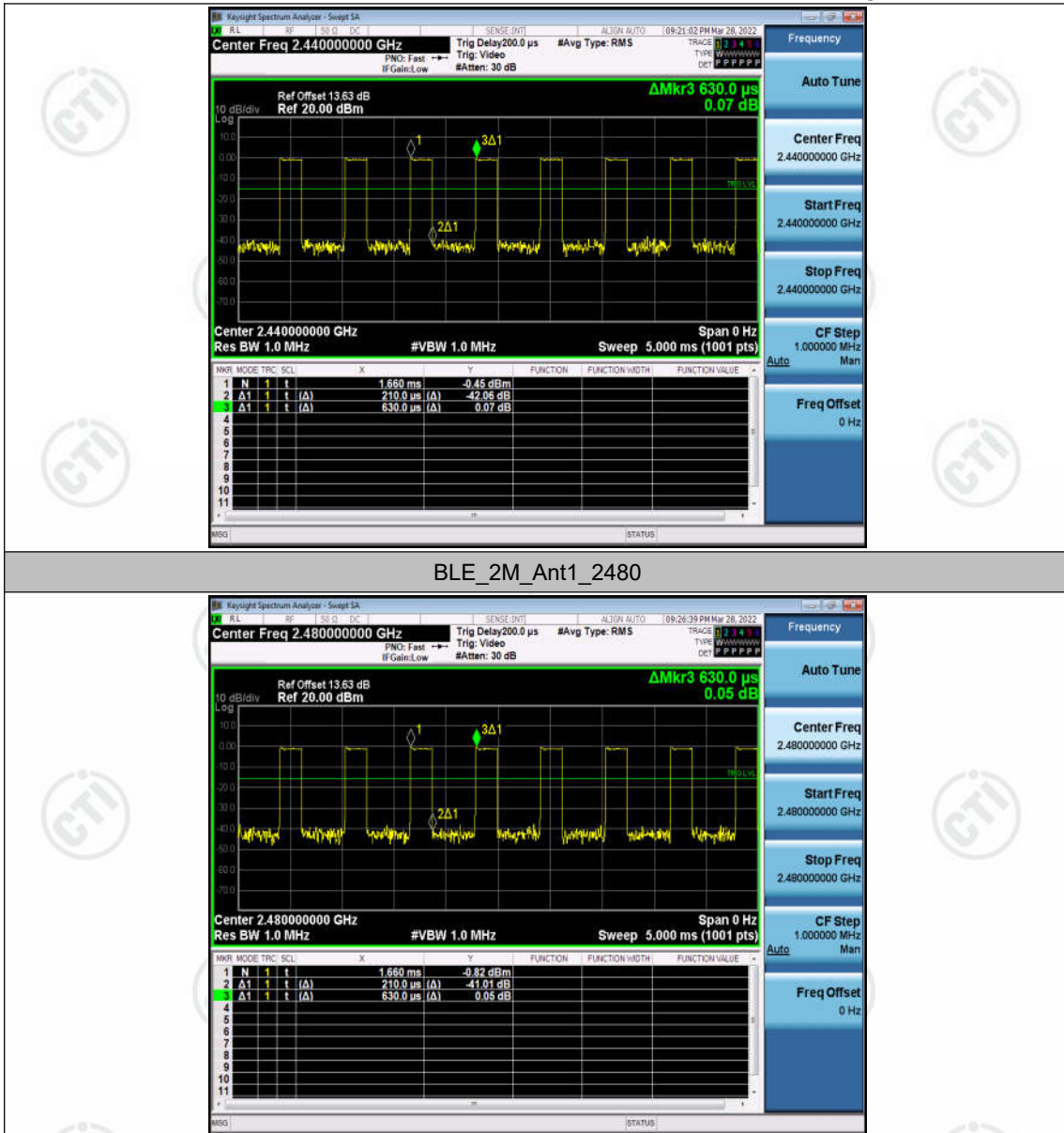




BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



\*\*\*End of report\*\*\*