

Appendix: Bluetooth LE

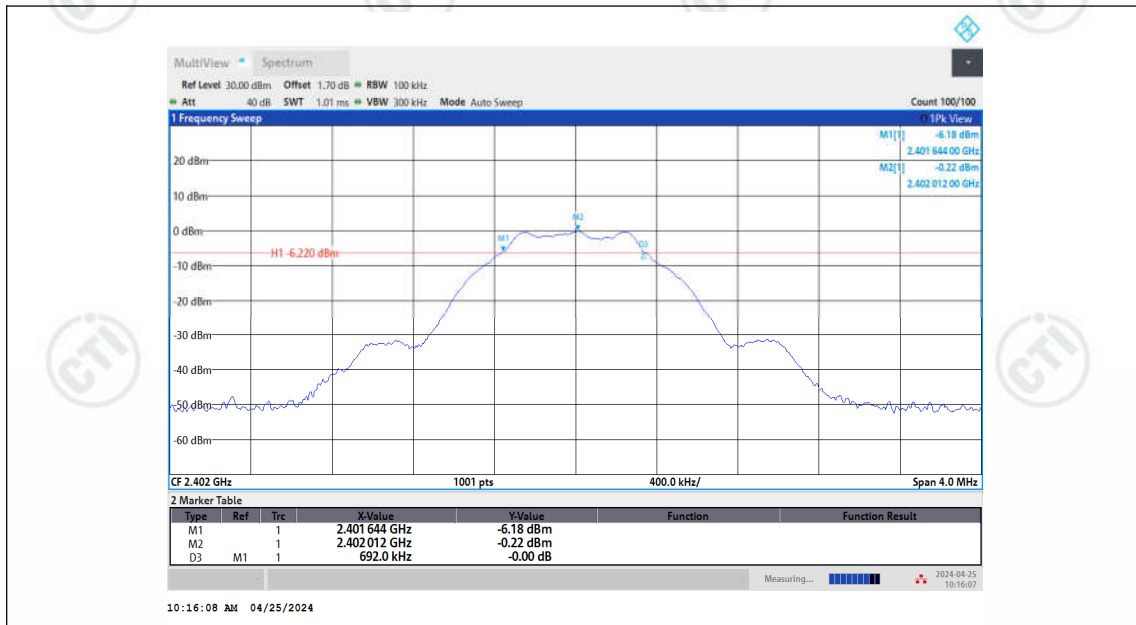
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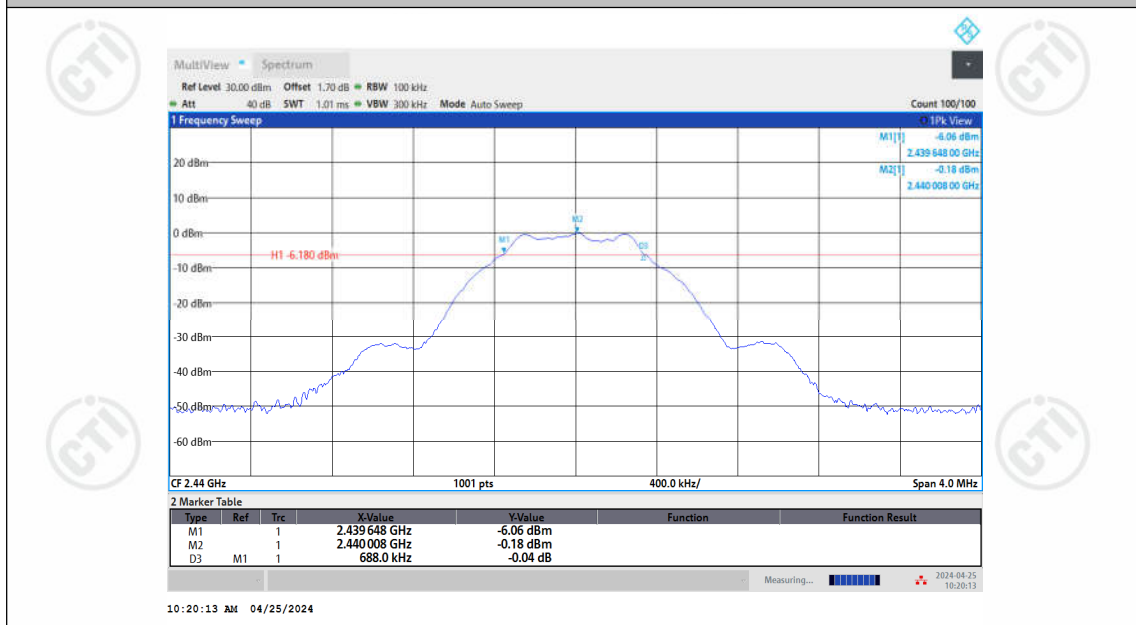
Appendix A: DTS Bandwidth**Test Result**

| Test Mode | Antenna | Frequency [MHz] | DTS BW [MHz] | FL [MHz] | FH [MHz] | Limit [MHz] | Verdict |
|-----------|---------|--------------------|-----------------|-------------|-------------|----------------|---------|
| BLE_1M | Ant1 | 2402 | 0.69 | 2401.64 | 2402.34 | 0.5 | PASS |
| | | 2440 | 0.69 | 2439.65 | 2440.34 | 0.5 | PASS |
| | | 2480 | 0.70 | 2479.64 | 2480.34 | 0.5 | PASS |
| BLE_2M | Ant1 | 2404 | 1.18 | 2403.40 | 2404.58 | 0.5 | PASS |
| | | 2440 | 1.17 | 2439.40 | 2440.58 | 0.5 | PASS |
| | | 2478 | 1.18 | 2477.40 | 2478.59 | 0.5 | PASS |

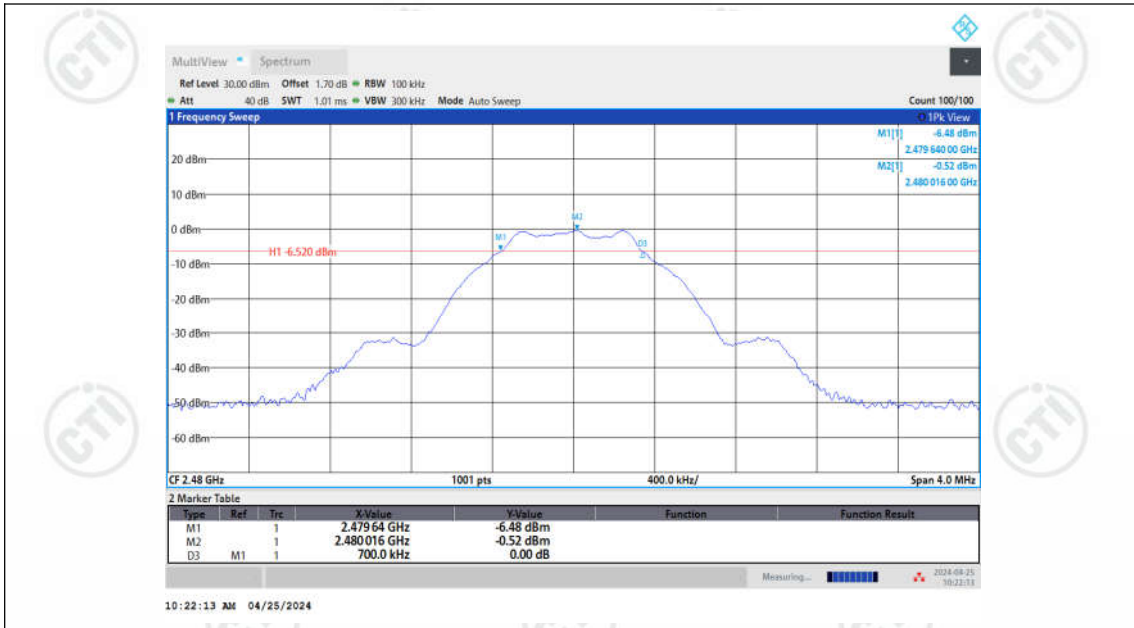
Test Graphs



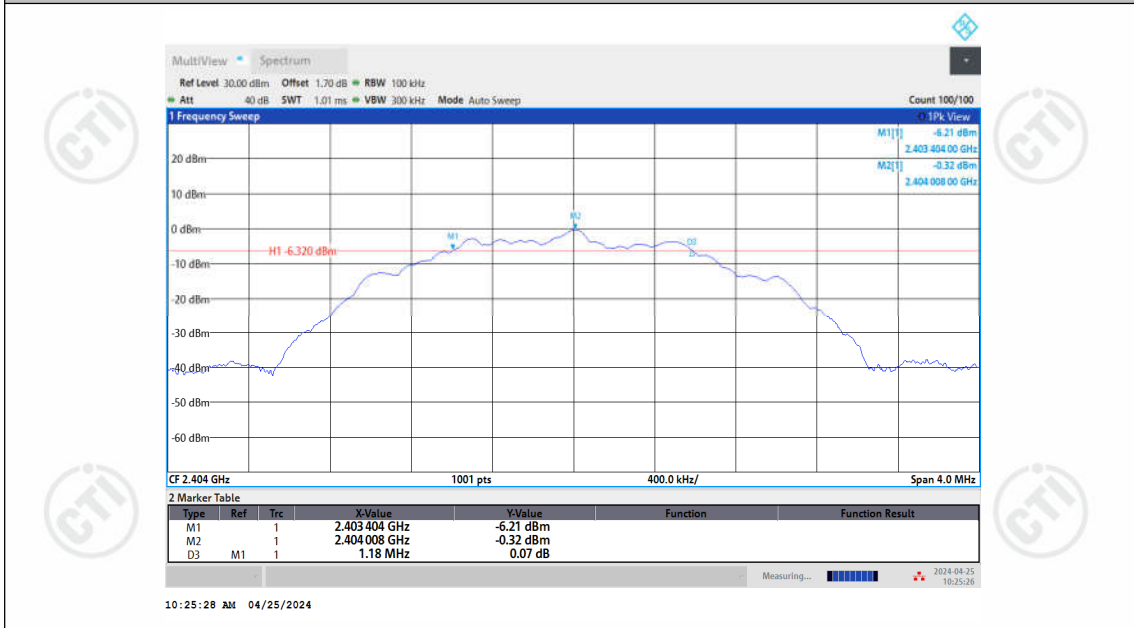
BLE_1M_Ant1_2402



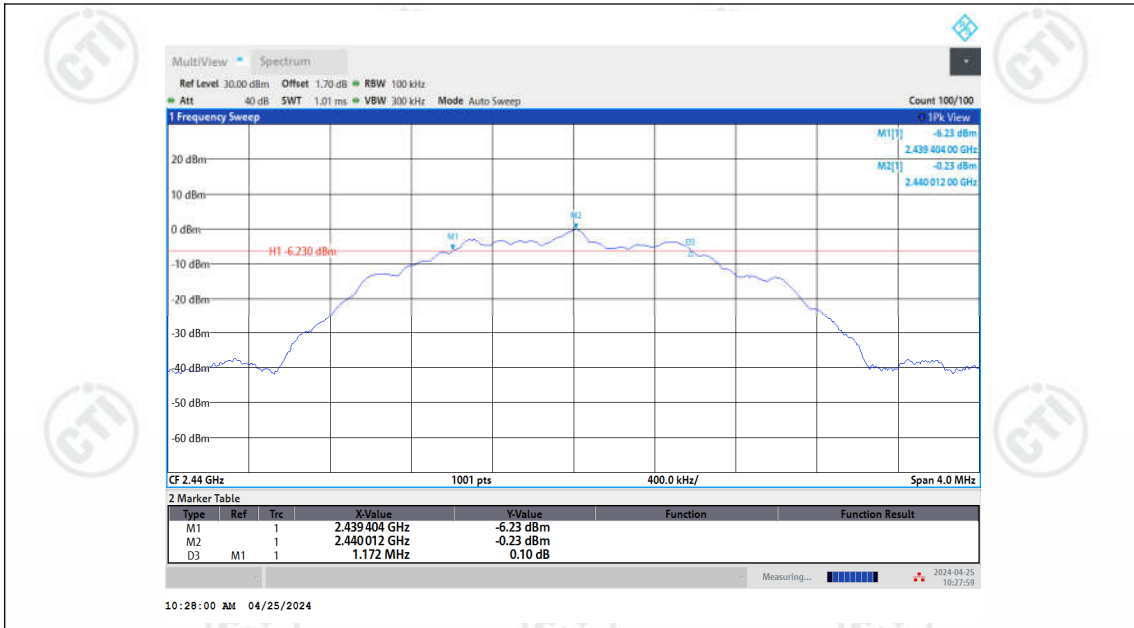
BLE_1M_Ant1_2440



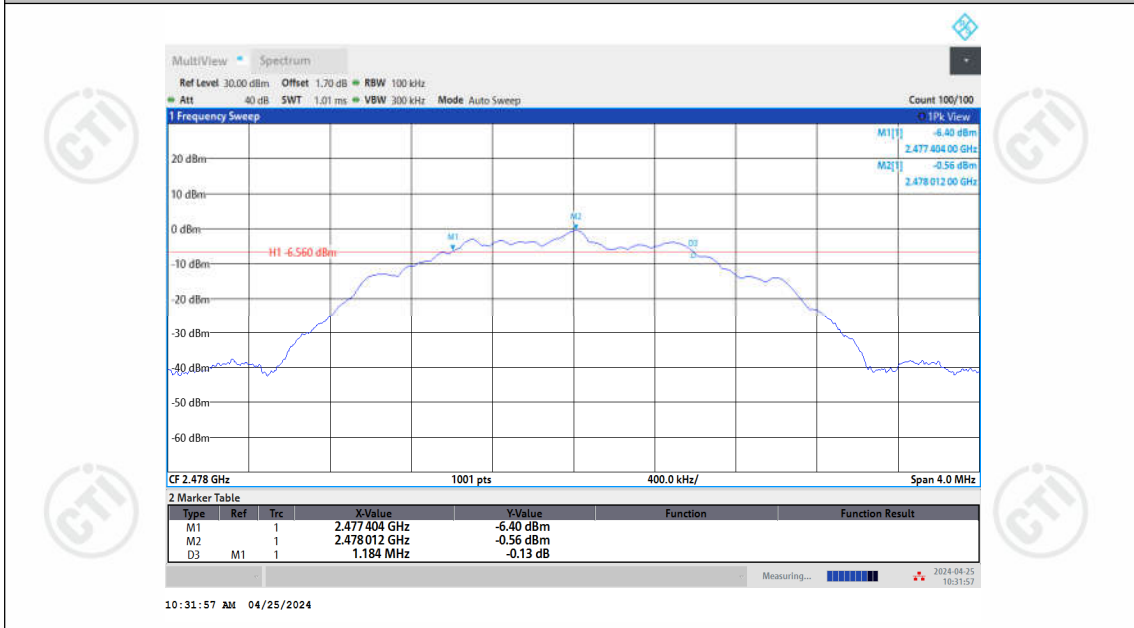
BLE_1M_Ant1_2480



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

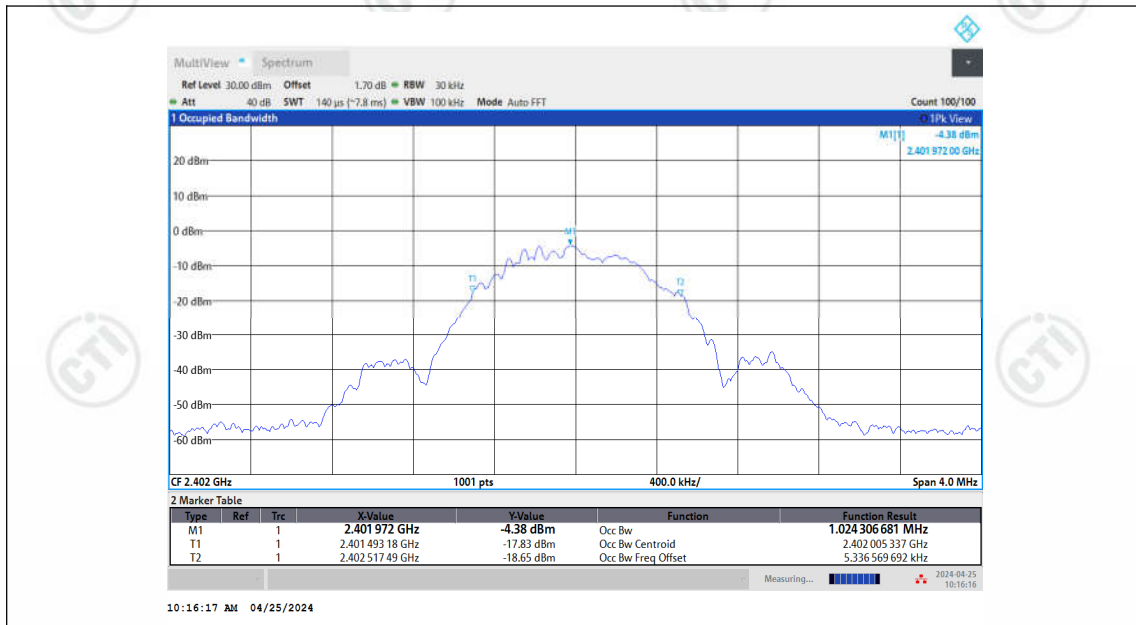


BLE_2M_Ant1_2478

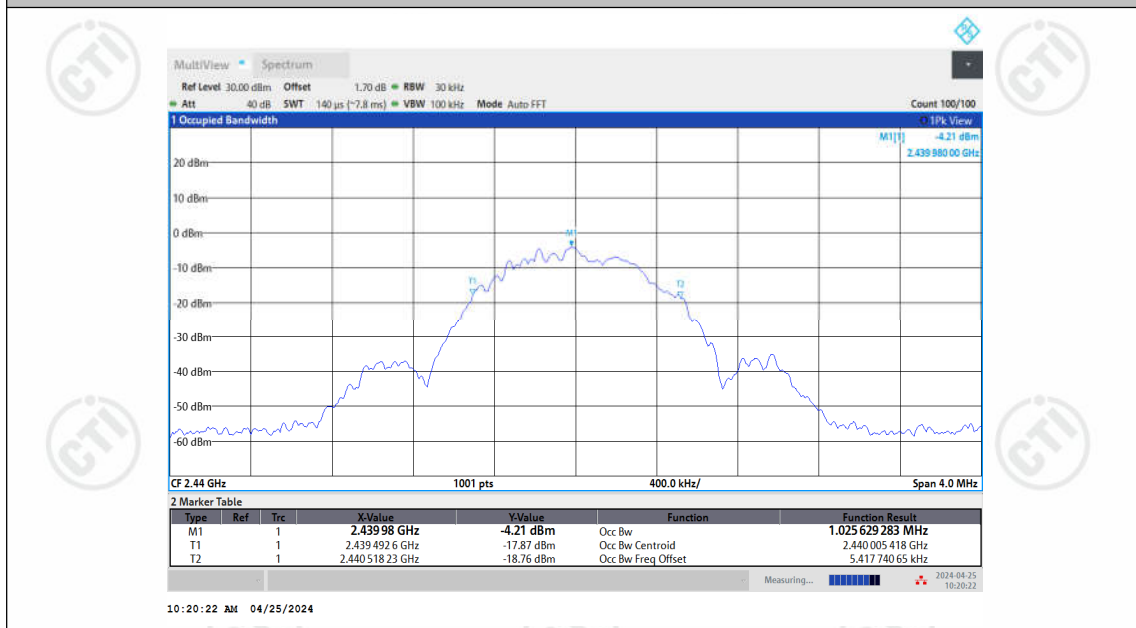
Appendix B: Occupied Channel Bandwidth**Test Result**

| Test Mode | Antenna | Frequency [MHz] | OCB [MHz] | FL [MHz] | FH [MHz] | Limit [MHz] | Verdict |
|-----------|---------|--------------------|--------------|-------------|-------------|----------------|---------|
| BLE_1M | Ant1 | 2402 | 1.024 | 2401.493 | 2402.517 | --- | --- |
| | | 2440 | 1.026 | 2439.493 | 2440.518 | --- | --- |
| | | 2480 | 1.026 | 2479.492 | 2480.518 | --- | --- |
| BLE_2M | Ant1 | 2404 | 2.026 | 2403.007 | 2405.034 | --- | --- |
| | | 2440 | 2.025 | 2439.008 | 2441.033 | --- | --- |
| | | 2478 | 2.023 | 2477.008 | 2479.031 | --- | --- |

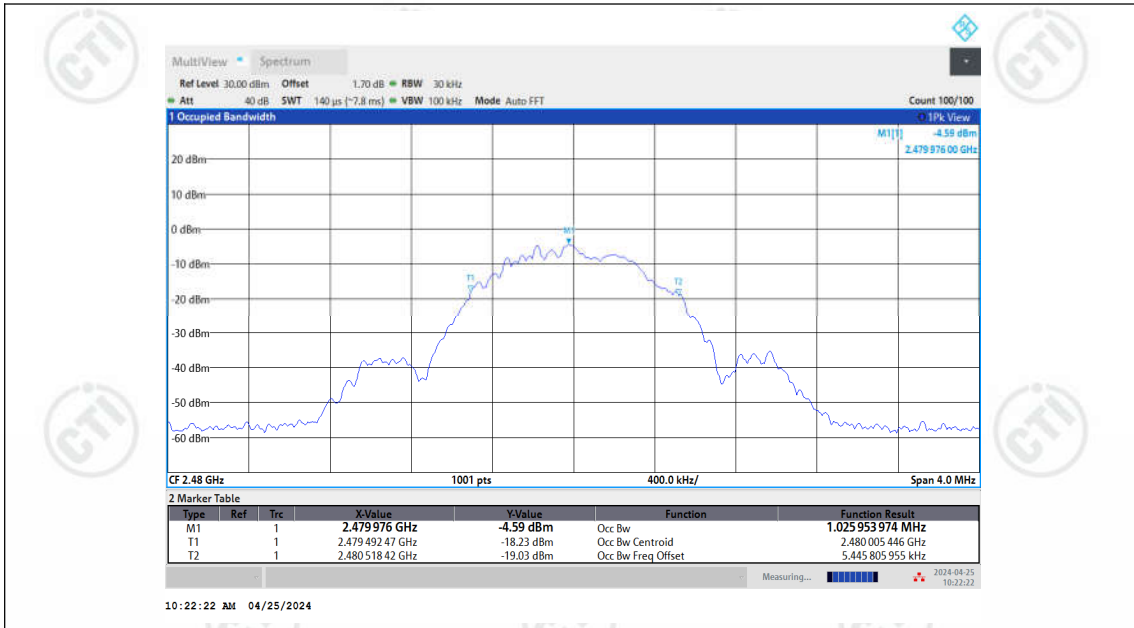
Test Graphs



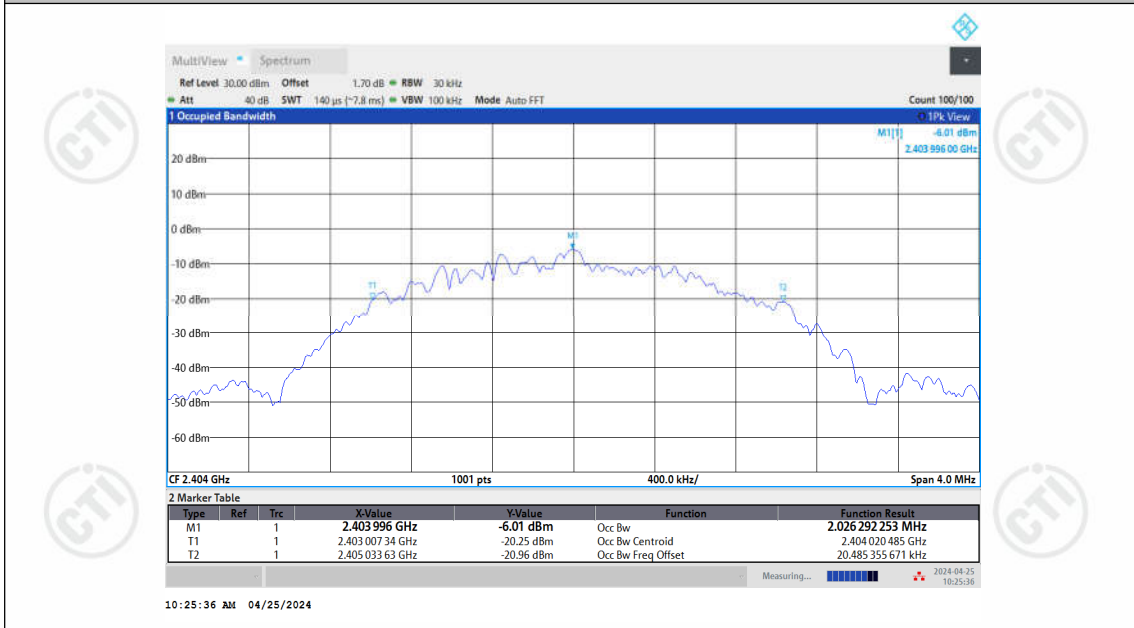
BLE_1M_Ant1_2402



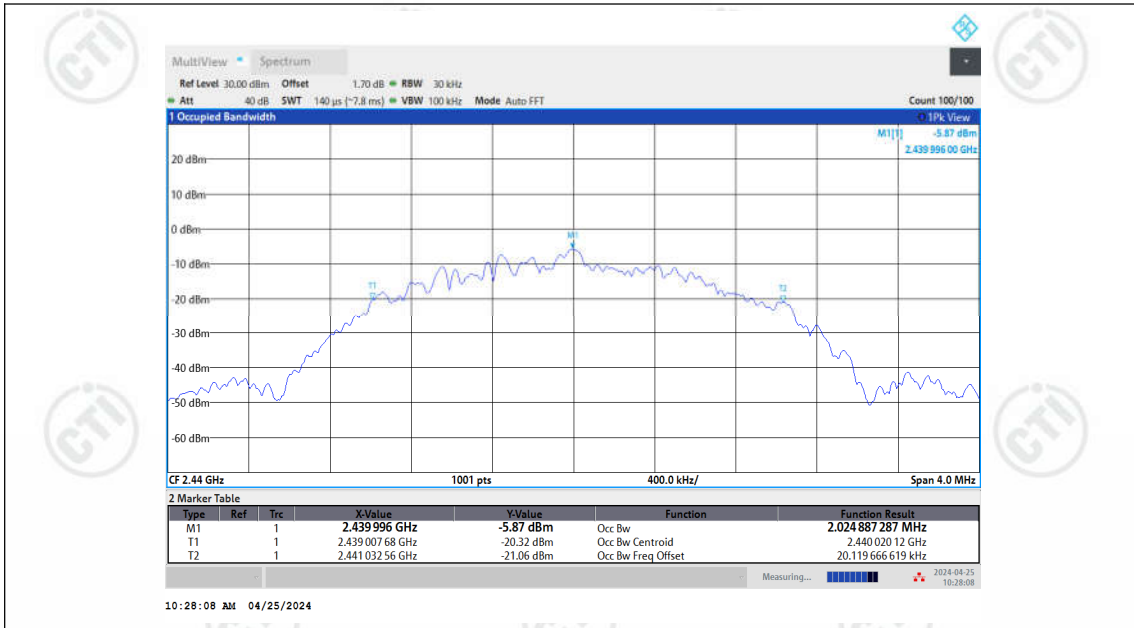
BLE_1M_Ant1_2440



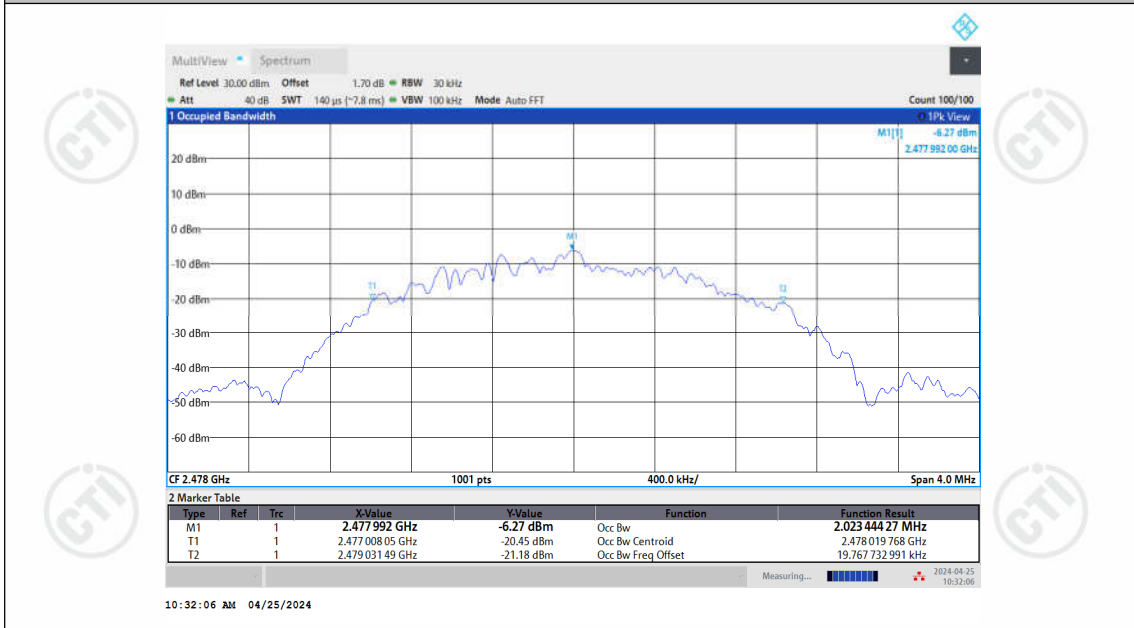
BLE_1M_Ant1_2480



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

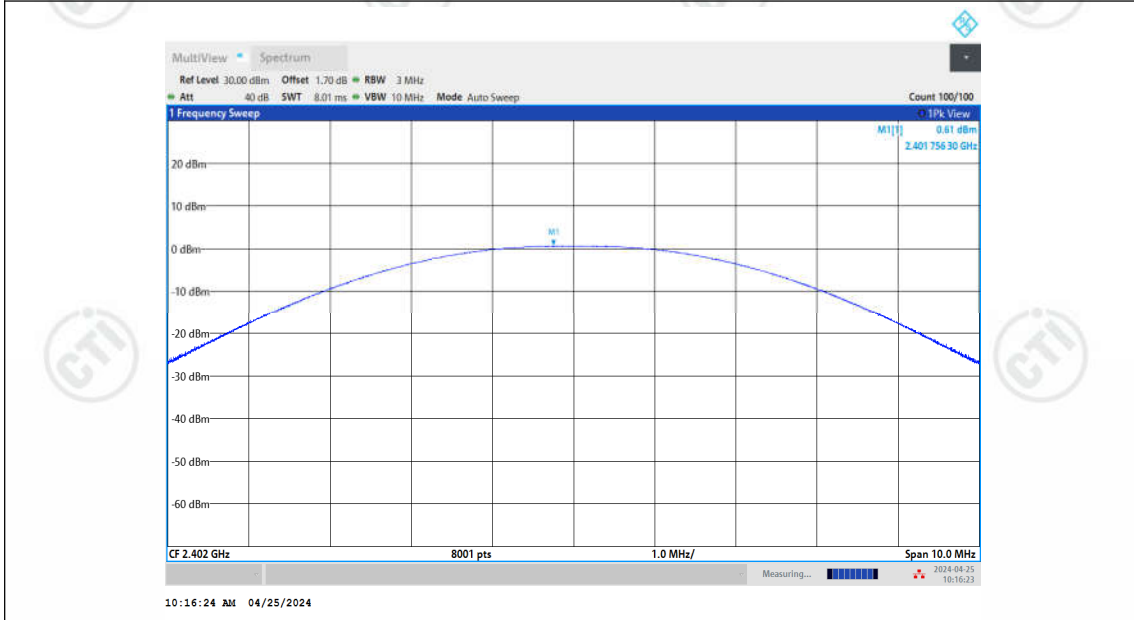


BLE_2M_Ant1_2478

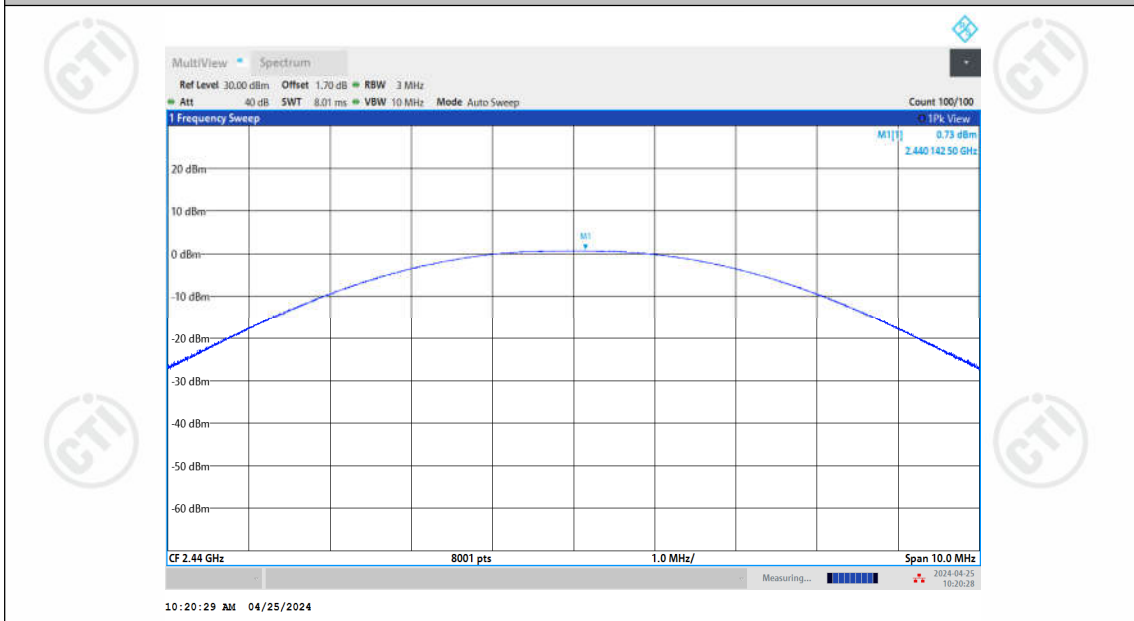
Appendix C: Maximum conducted output power**Test Result**

| Test Mode | Antenna | Frequency [MHz] | Conducted Peak Power [dBm] | Conducted Limit [dBm] | EIRP [dBm] | EIRP Limit [dBm] | Verdict |
|-----------|---------|-----------------|----------------------------|-----------------------|-------------|------------------|---------|
| BLE_1M | Ant1 | 2402 | 0.61 | ≤30 | 1.37 | ≤36 | PASS |
| | | 2440 | 0.73 | ≤30 | 1.49 | ≤36 | PASS |
| | | 2480 | 0.36 | ≤30 | 1.12 | ≤36 | PASS |
| BLE_2M | Ant1 | 2404 | 0.71 | ≤30 | 1.47 | ≤36 | PASS |
| | | 2440 | 0.82 | ≤30 | 1.58 | ≤36 | PASS |
| | | 2478 | 0.5 | ≤30 | 1.26 | ≤36 | PASS |

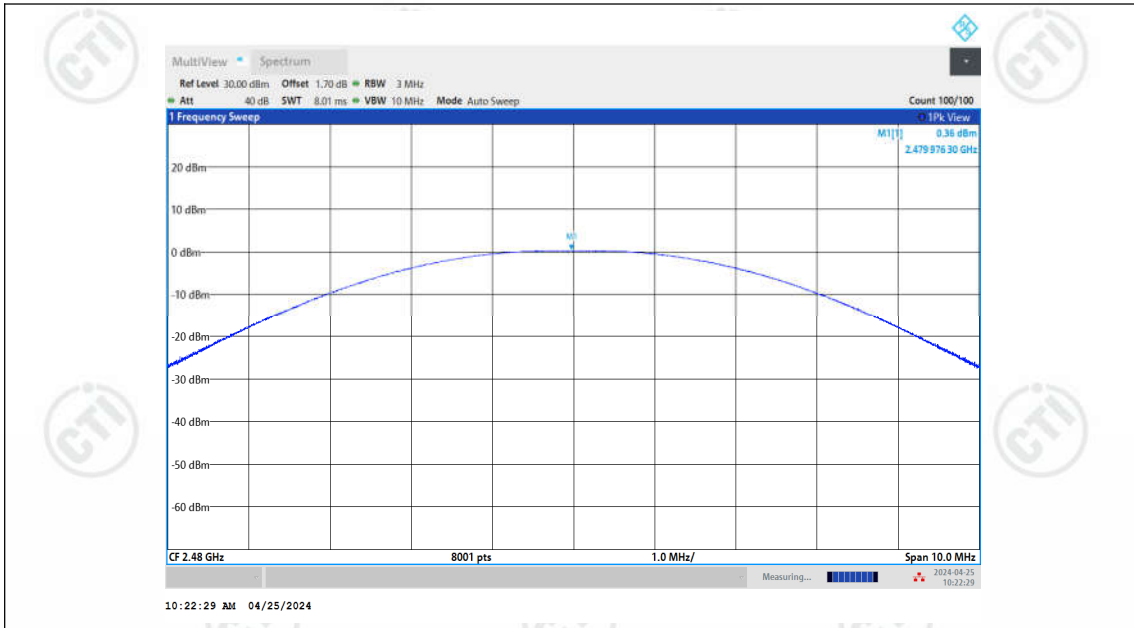
Test Graphs



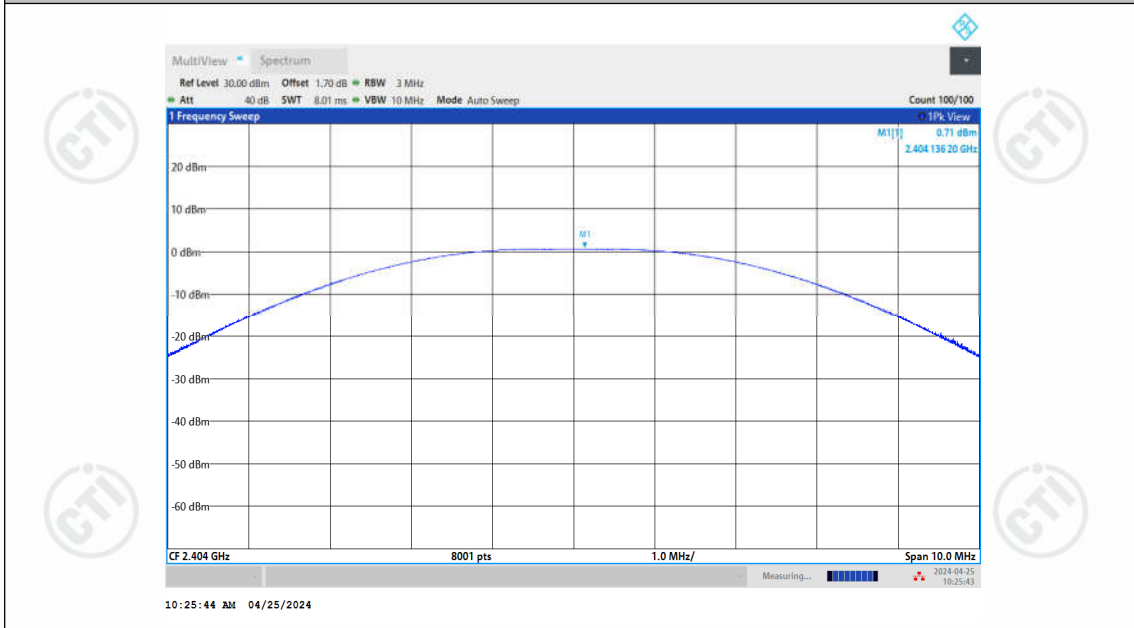
BLE_1M_Ant1_2402



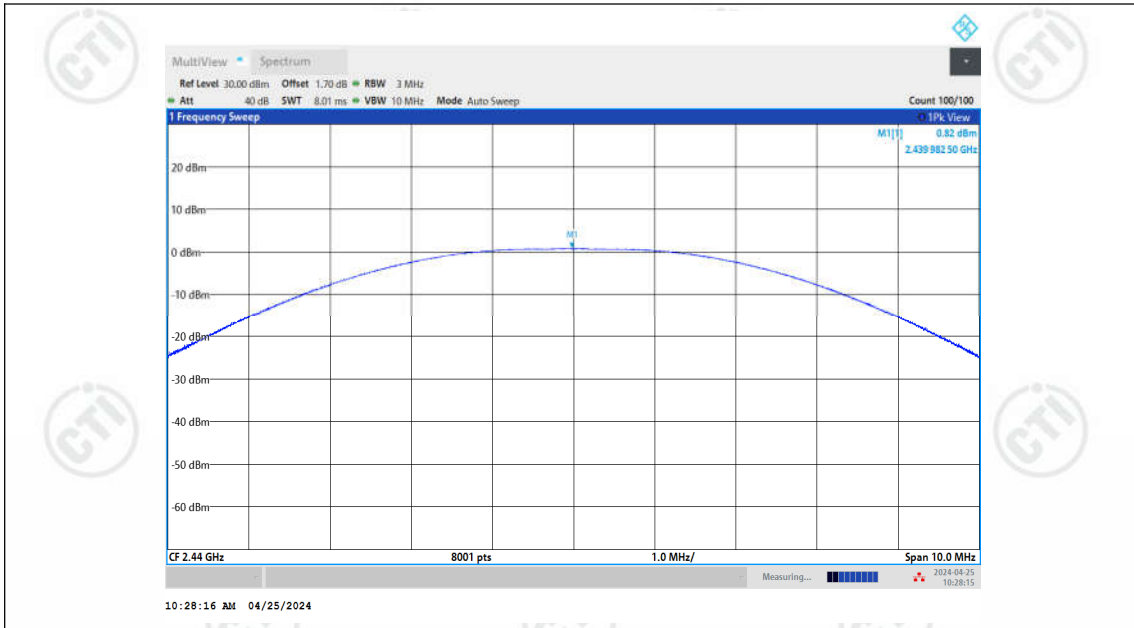
BLE_1M_Ant1_2440



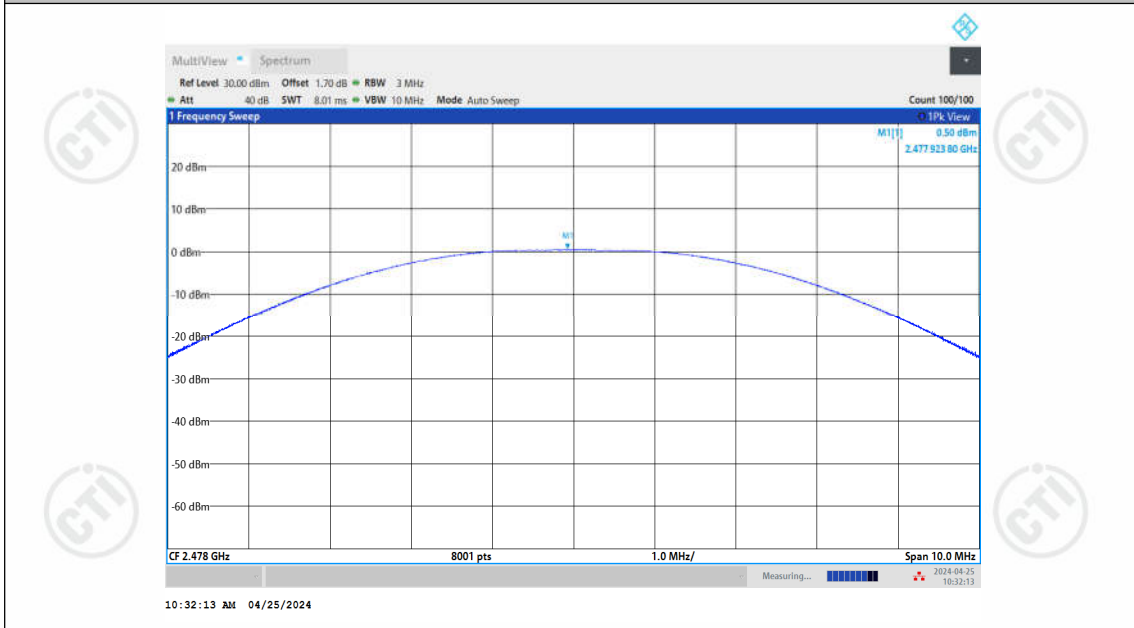
BLE_1M_Ant1_2480



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

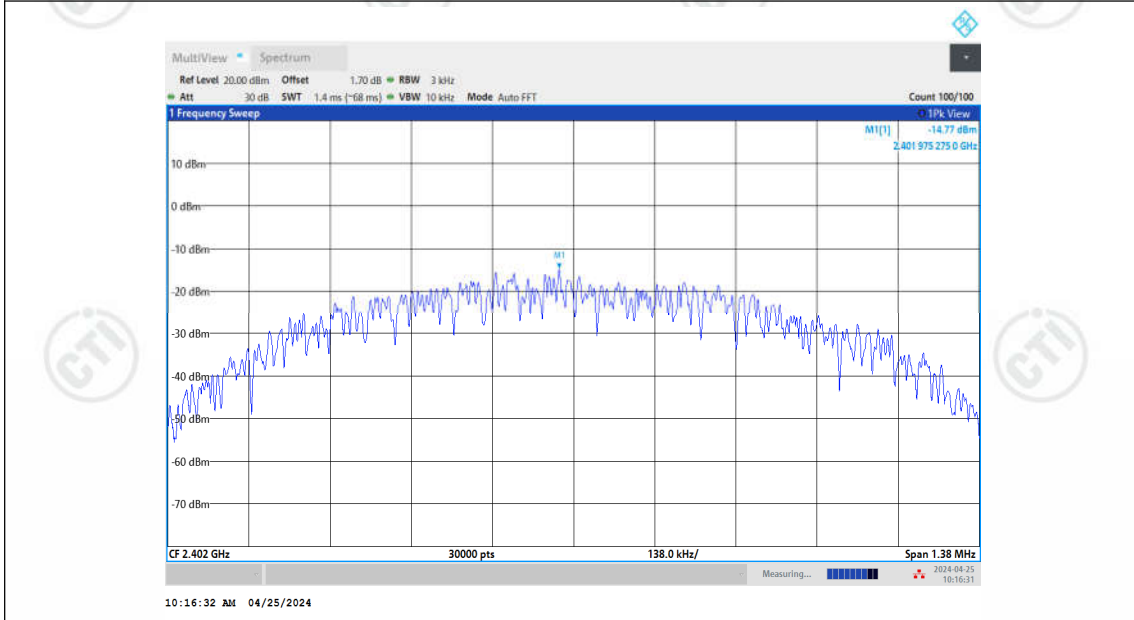


BLE_2M_Ant1_2478

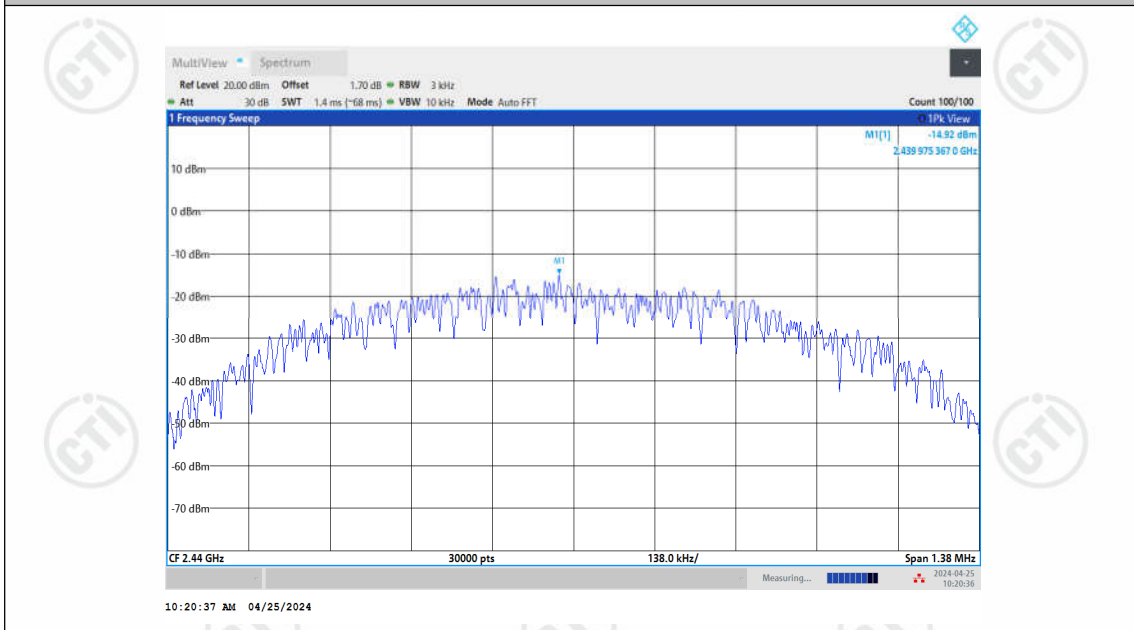
Appendix D: Maximum power spectral density**Test Result**

| Test Mode | Antenna | Frequency [MHz] | Result [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|-----------|---------|-----------------|-------------------|------------------|---------|
| BLE_1M | Ant1 | 2402 | -14.77 | ≤8.00 | PASS |
| | | 2440 | -14.92 | ≤8.00 | PASS |
| | | 2480 | -15.27 | ≤8.00 | PASS |
| BLE_2M | Ant1 | 2404 | -17.73 | ≤8.00 | PASS |
| | | 2440 | -17.8 | ≤8.00 | PASS |
| | | 2478 | -18.26 | ≤8.00 | PASS |

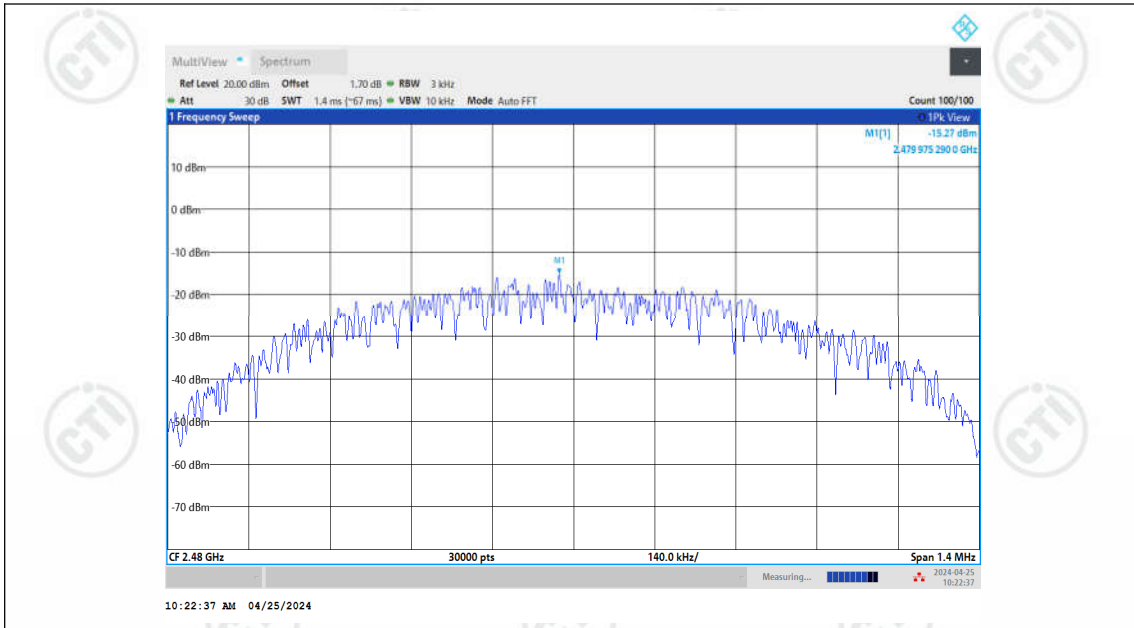
Test Graphs



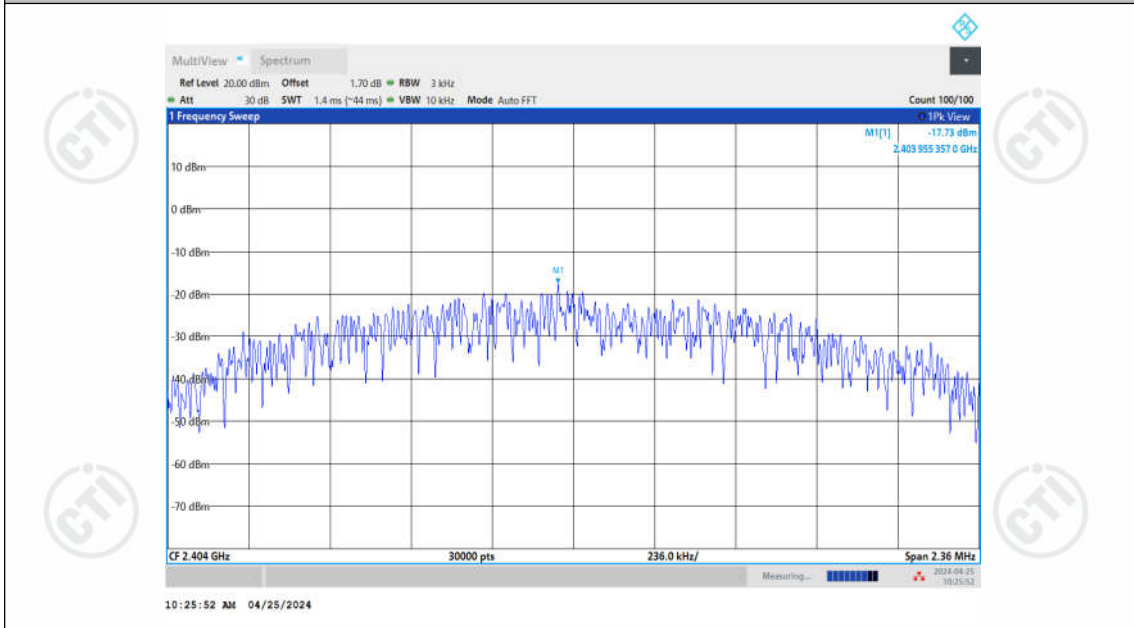
BLE_1M_Ant1_2402



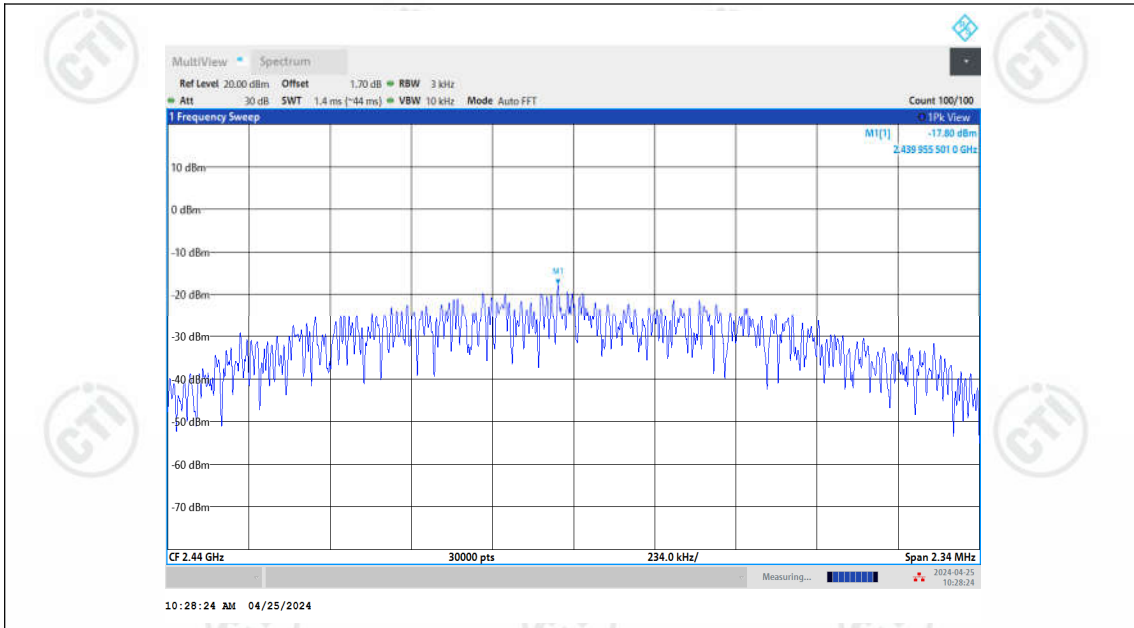
BLE_1M_Ant1_2440



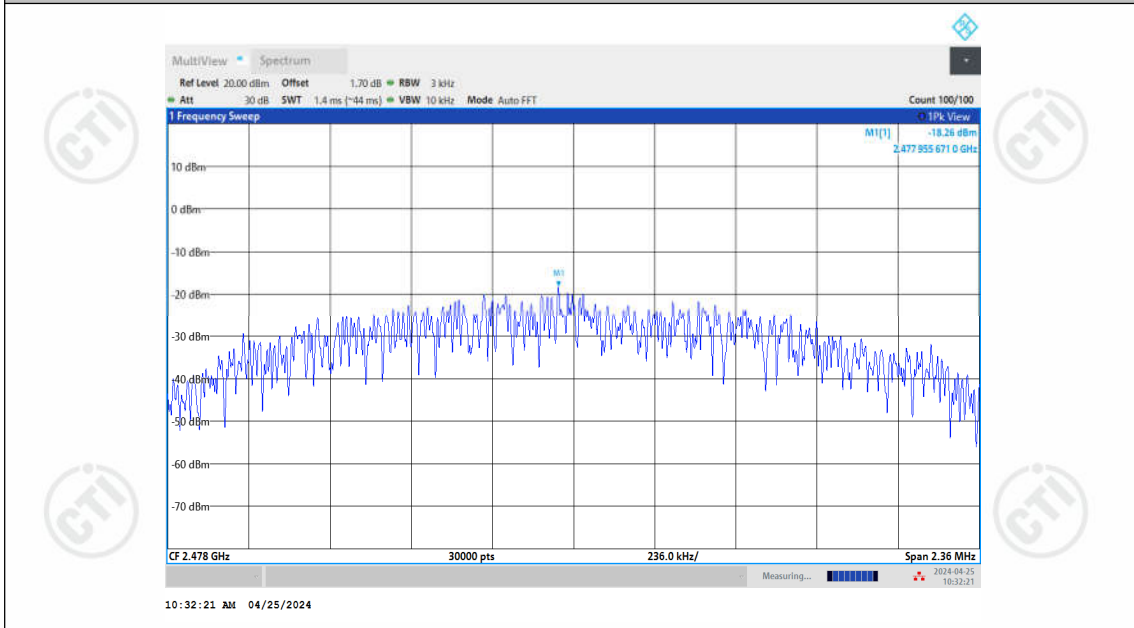
BLE_1M_Ant1_2480



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

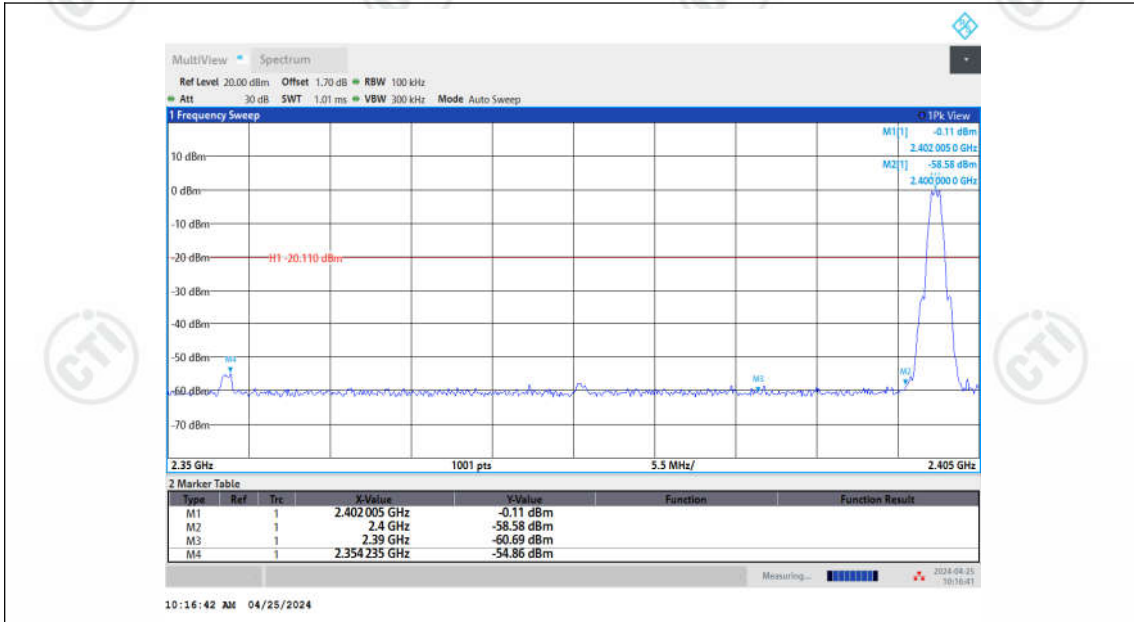


BLE_2M_Ant1_2478

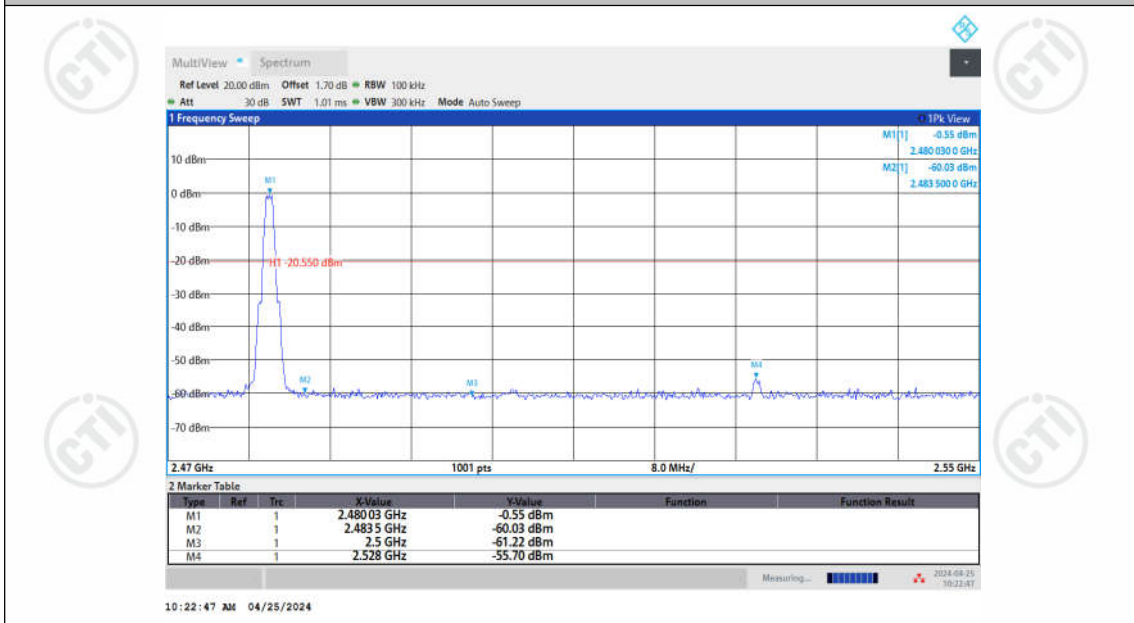
Appendix E: Band edge measurements**Test Result**

| Test Mode | Antenna | ChName | Frequency [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------|-----------------|----------------|--------------|-------------|---------|
| BLE_1M | Ant1 | Low | 2402 | -0.11 | -54.86 | ≤-20.11 | PASS |
| | | High | 2480 | -0.55 | -55.7 | ≤-20.55 | PASS |
| BLE_2M | Ant1 | Low | 2404 | -0.14 | -55.85 | ≤-20.14 | PASS |
| | | High | 2478 | -0.58 | -56.57 | ≤-20.58 | PASS |

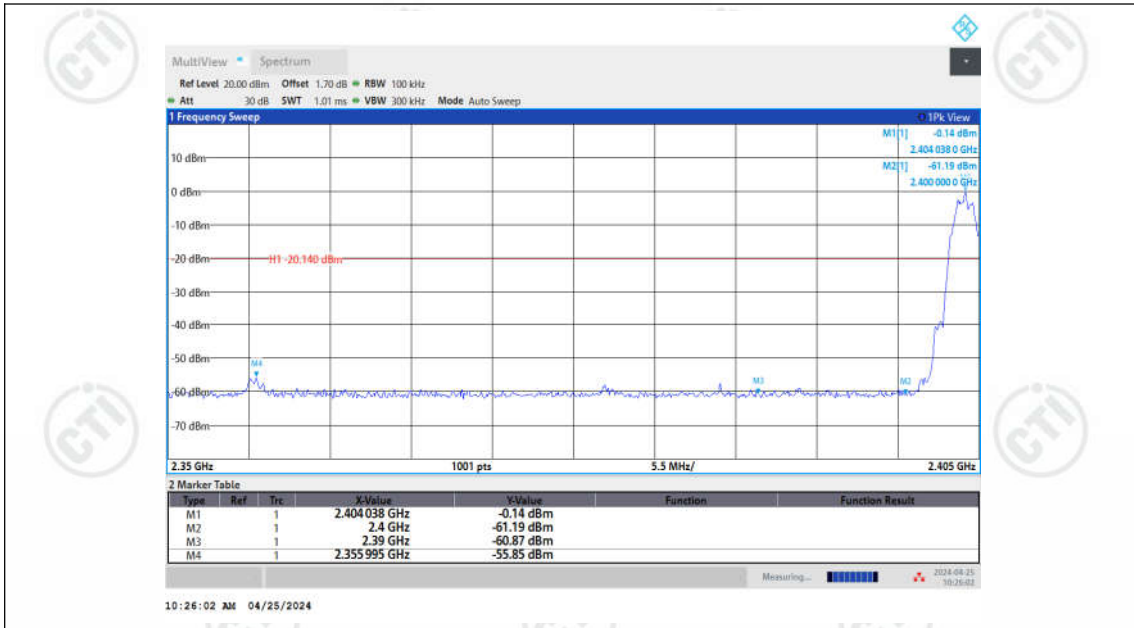
Test Graphs



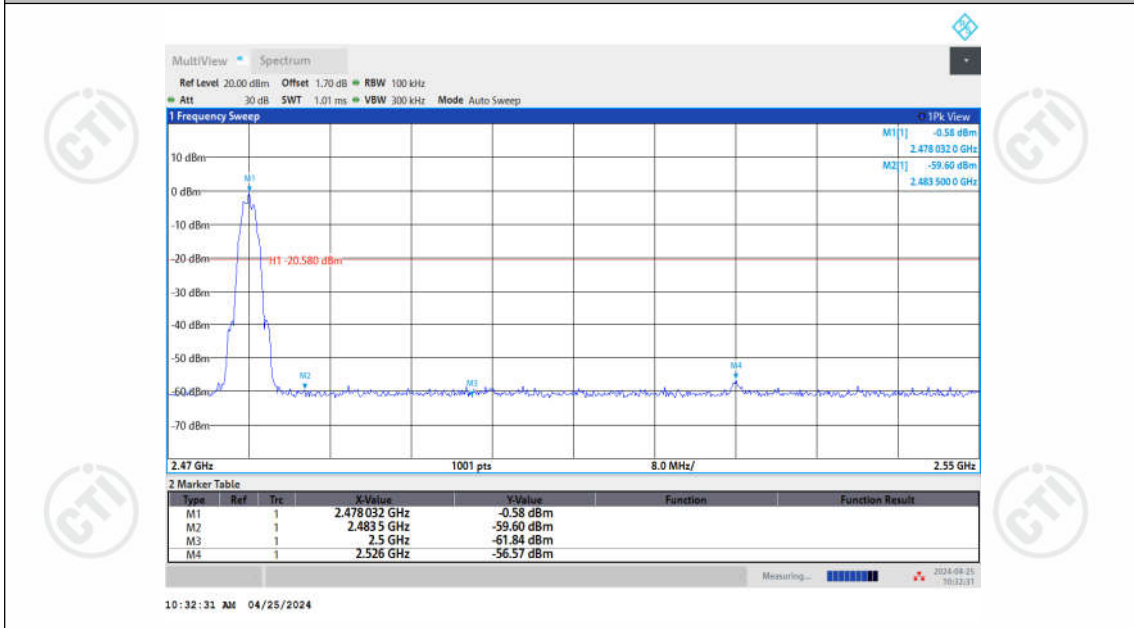
BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2404



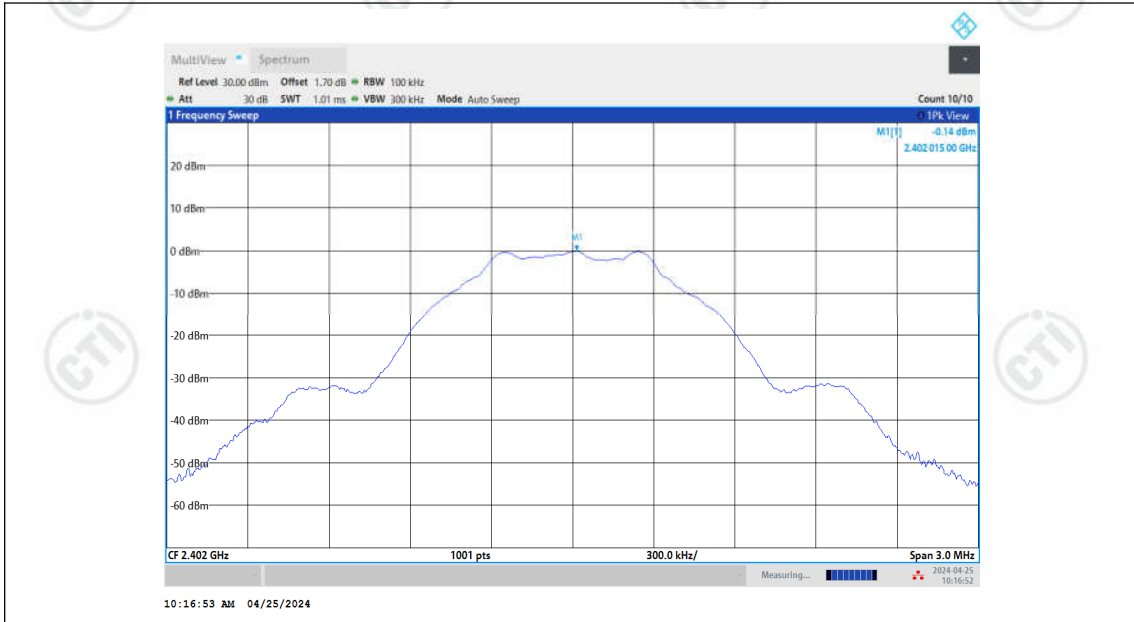
BLE_2M_Ant1_High_2478

Appendix F: Conducted Spurious Emission

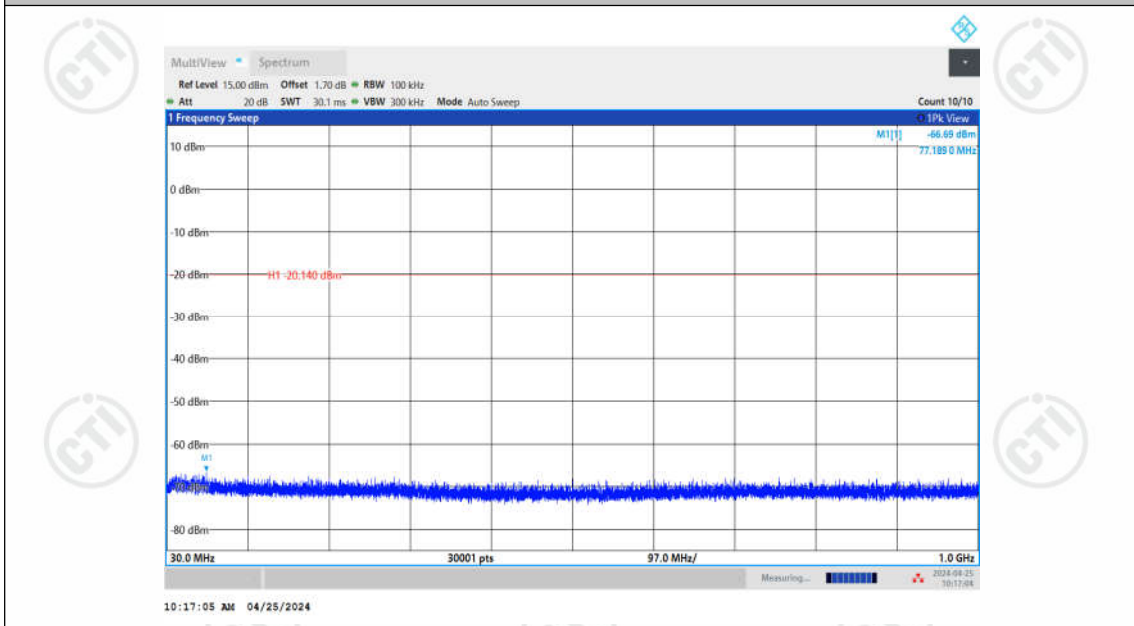
Test Result

| Test Mode | Antenna | Frequency [MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|-----------------|-----------------|----------------|--------------|-------------|---------|
| BLE_1M | Ant1 | 2402 | Reference | -0.14 | -0.14 | --- | PASS |
| | | | 30~1000 | -0.14 | -66.69 | ≤-20.14 | PASS |
| | | | 1000~26500 | -0.14 | -38.53 | ≤-20.14 | PASS |
| | | 2440 | Reference | -0.19 | -0.19 | --- | PASS |
| | | | 30~1000 | -0.19 | -66.49 | ≤-20.19 | PASS |
| | | | 1000~26500 | -0.19 | -41.71 | ≤-20.19 | PASS |
| | | 2480 | Reference | -0.60 | -0.60 | --- | PASS |
| | | | 30~1000 | -0.60 | -66.89 | ≤-20.6 | PASS |
| | | | 1000~26500 | -0.60 | -40.88 | ≤-20.6 | PASS |
| BLE_2M | Ant1 | 2404 | Reference | -0.18 | -0.18 | --- | PASS |
| | | | 30~1000 | -0.18 | -66.5 | ≤-20.18 | PASS |
| | | | 1000~26500 | -0.18 | -42.5 | ≤-20.18 | PASS |
| | | 2440 | Reference | -0.20 | -0.20 | --- | PASS |
| | | | 30~1000 | -0.20 | -67.08 | ≤-20.2 | PASS |
| | | | 1000~26500 | -0.20 | -46.22 | ≤-20.2 | PASS |
| | | 2478 | Reference | -0.63 | -0.63 | --- | PASS |
| | | | 30~1000 | -0.63 | -66.25 | ≤-20.63 | PASS |
| | | | 1000~26500 | -0.63 | -43.89 | ≤-20.63 | PASS |

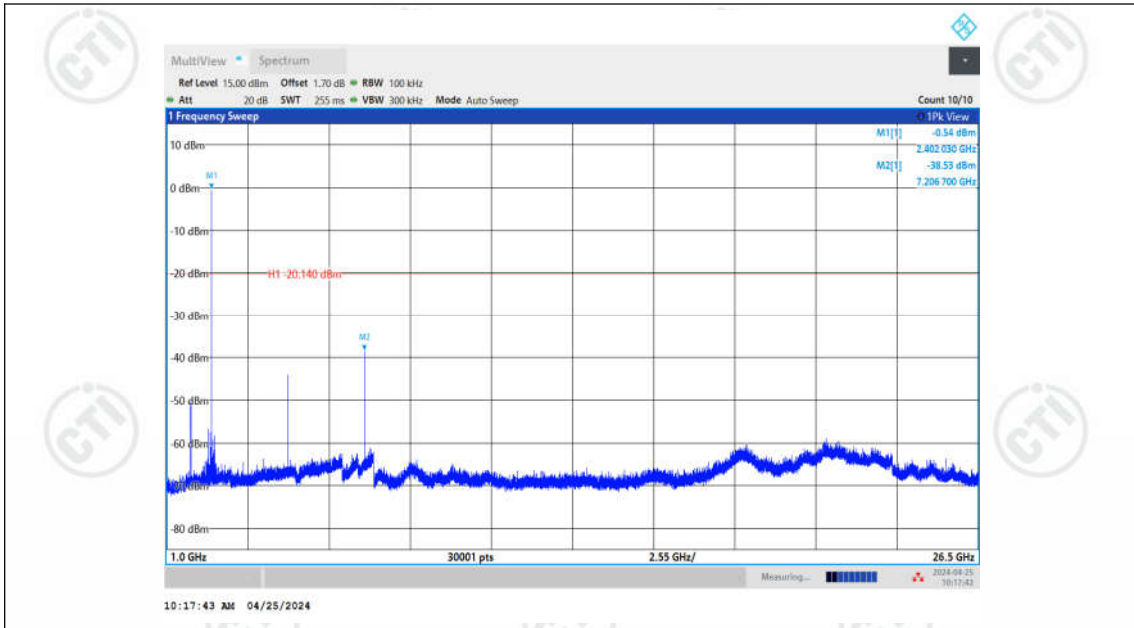
Test Graphs



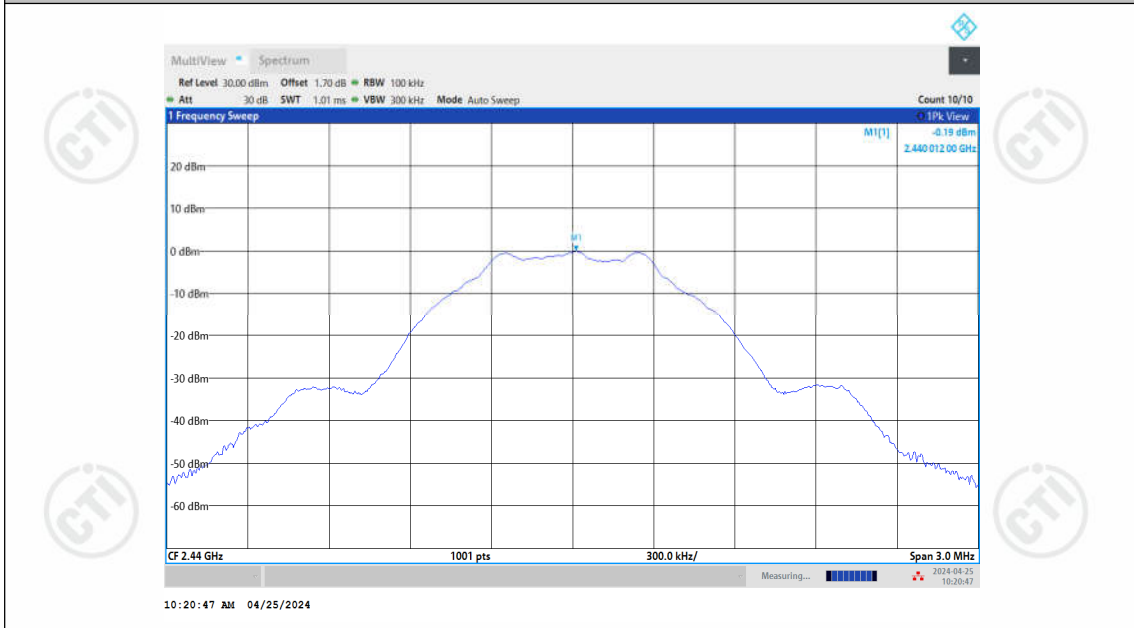
BLE_1M_Ant1_2402_0~Reference



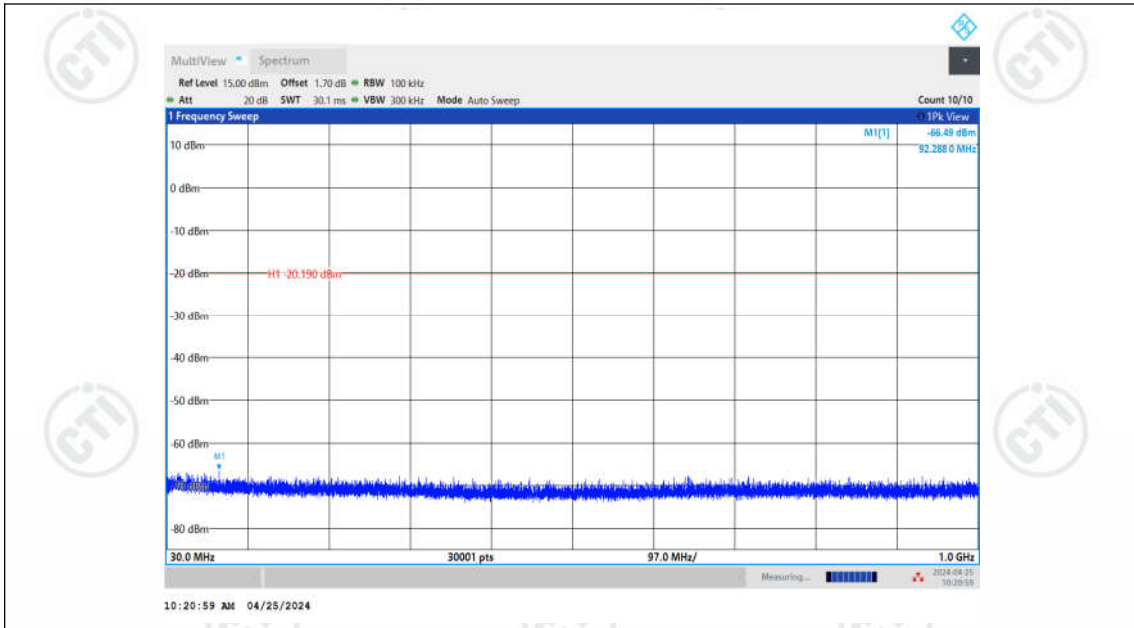
BLE_1M_Ant1_2402_30~1000



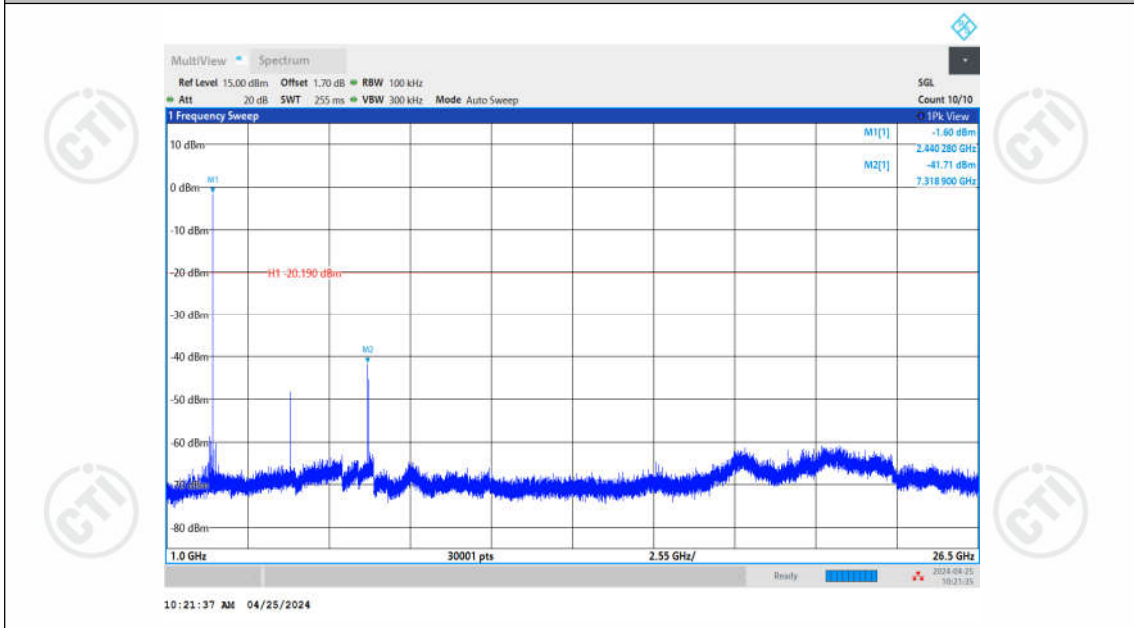
BLE_1M_Ant1_2402_1000~26500



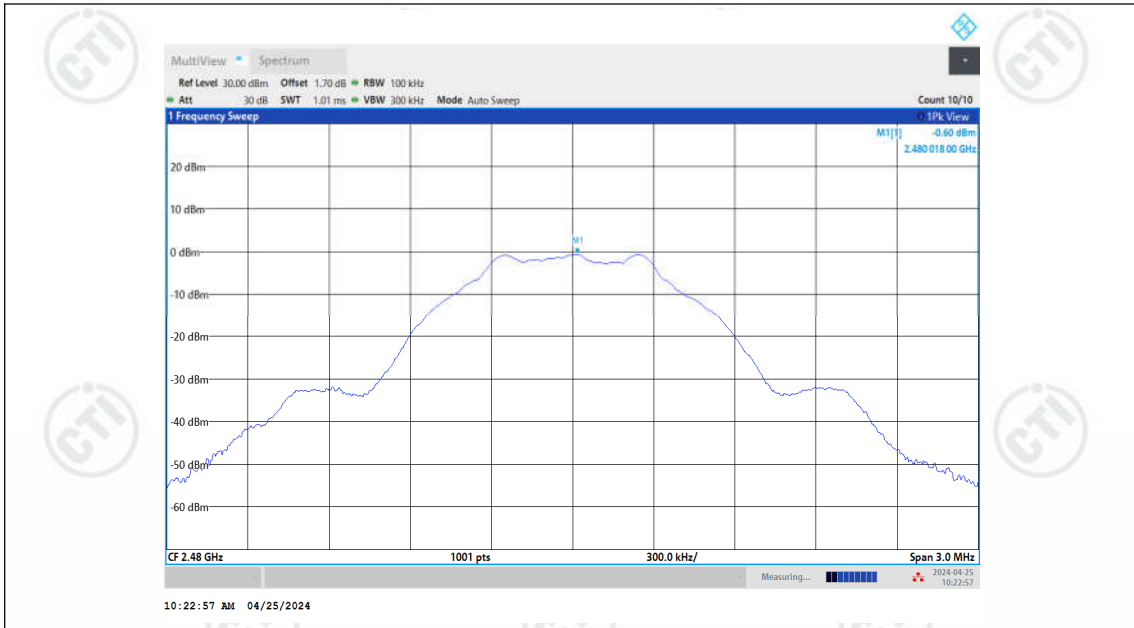
BLE_1M_Ant1_2440_0~Reference



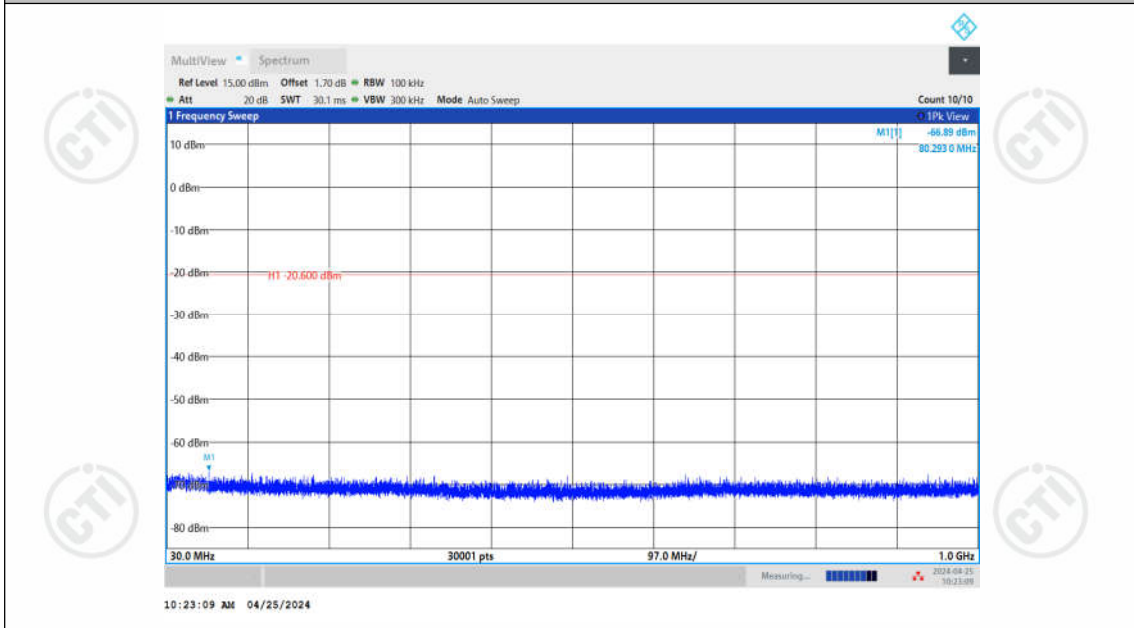
BLE_1M_Ant1_2440_30~1000



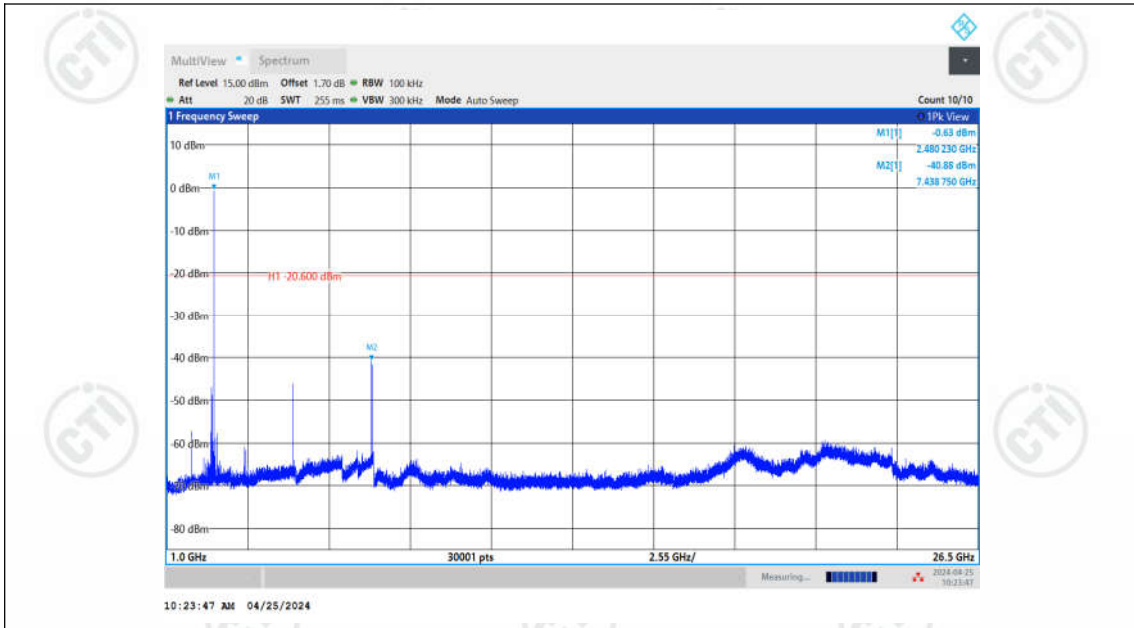
BLE_1M_Ant1_2440_1000~26500



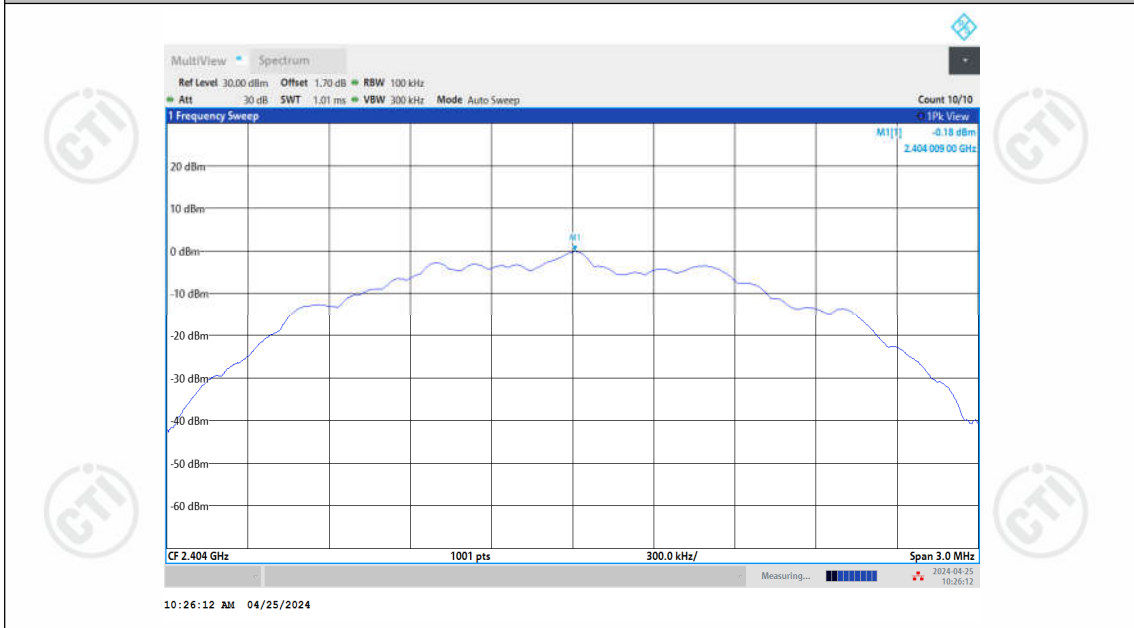
BLE_1M_Ant1_2480_0~Reference



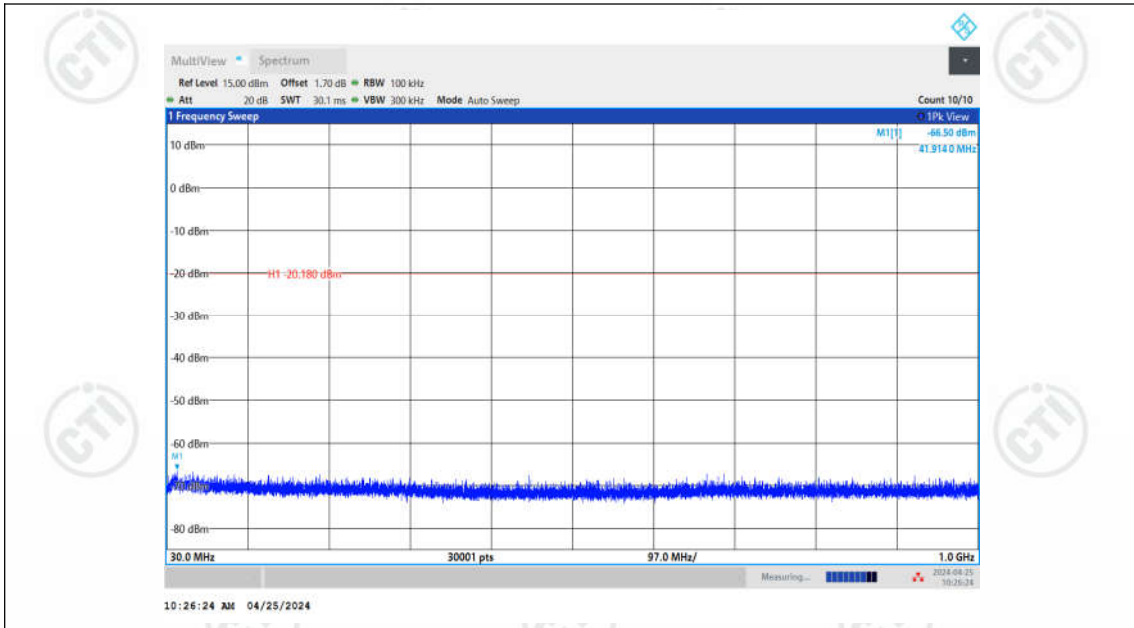
BLE_1M_Ant1_2480_30~1000



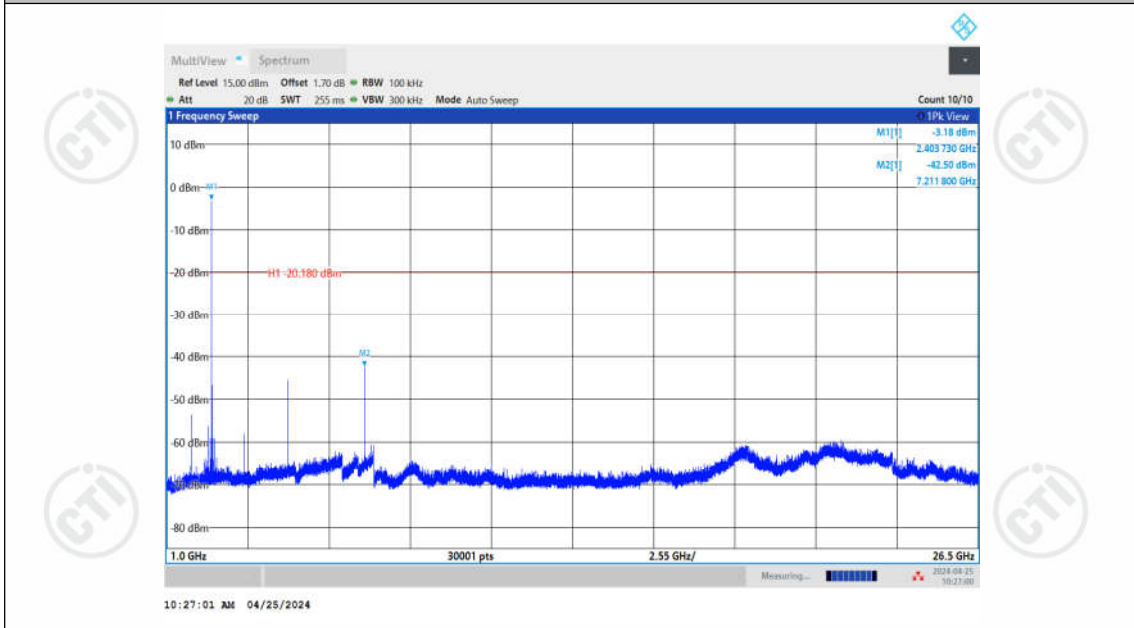
BLE_1M_Ant1_2480_1000~26500



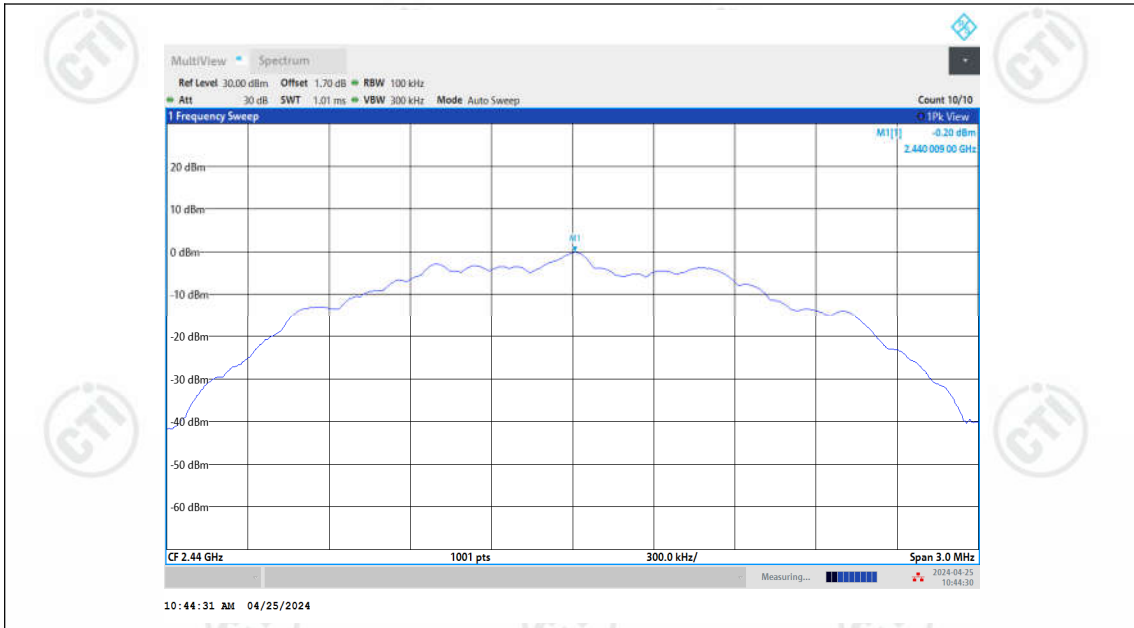
BLE_2M_Ant1_2404_0~Reference



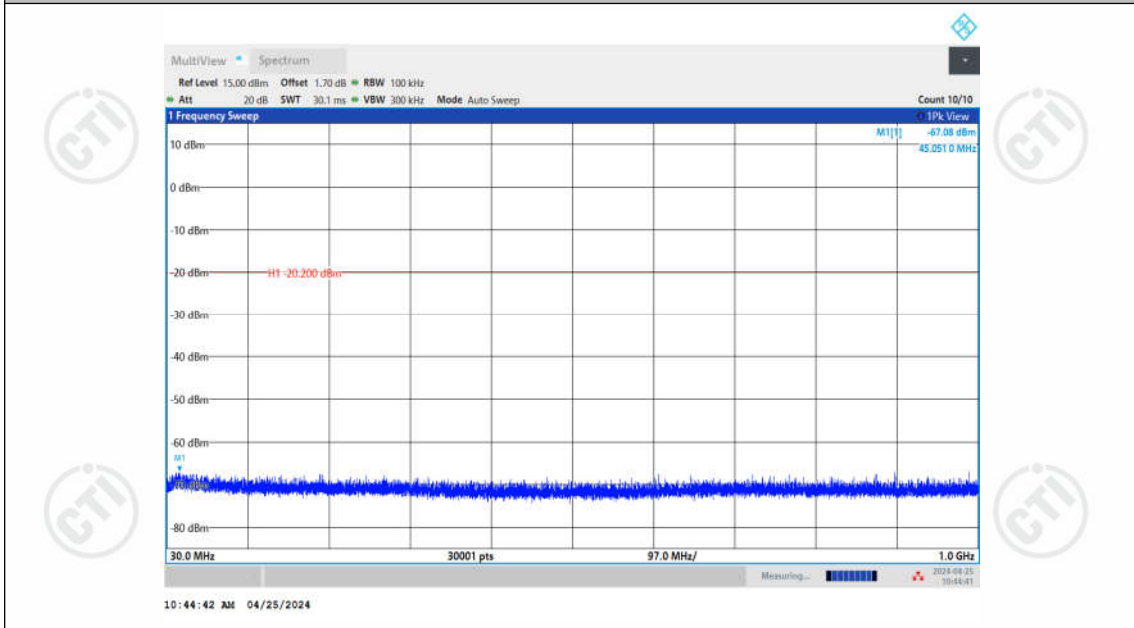
BLE_2M_Ant1_2404_30~1000



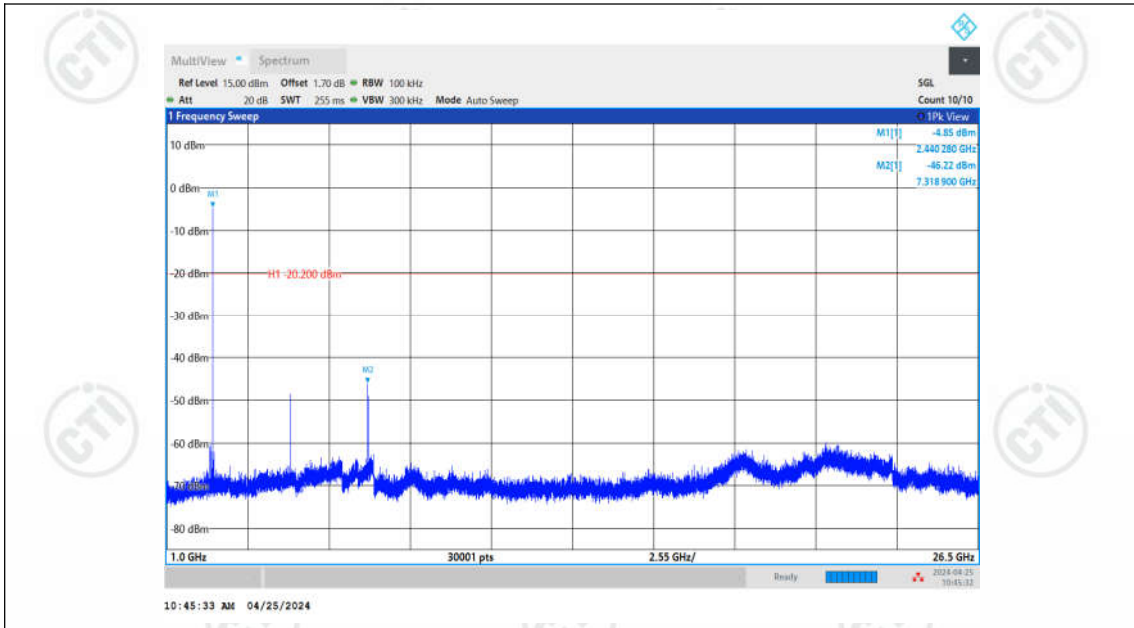
BLE_2M_Ant1_2404_1000~26500



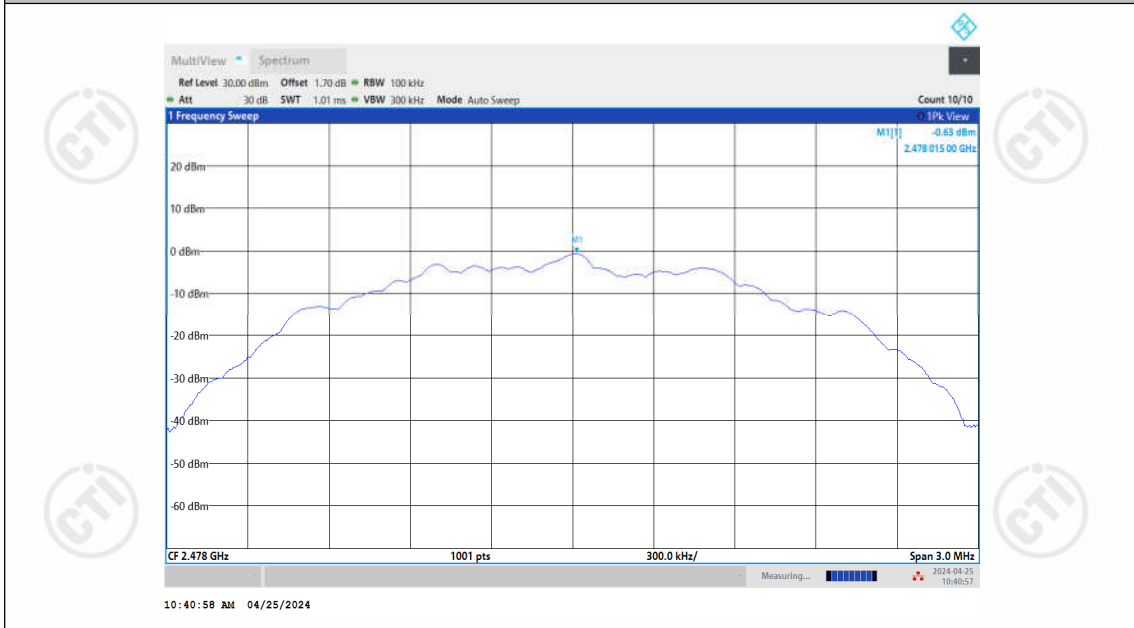
BLE_2M_Ant1_2440_0~Reference



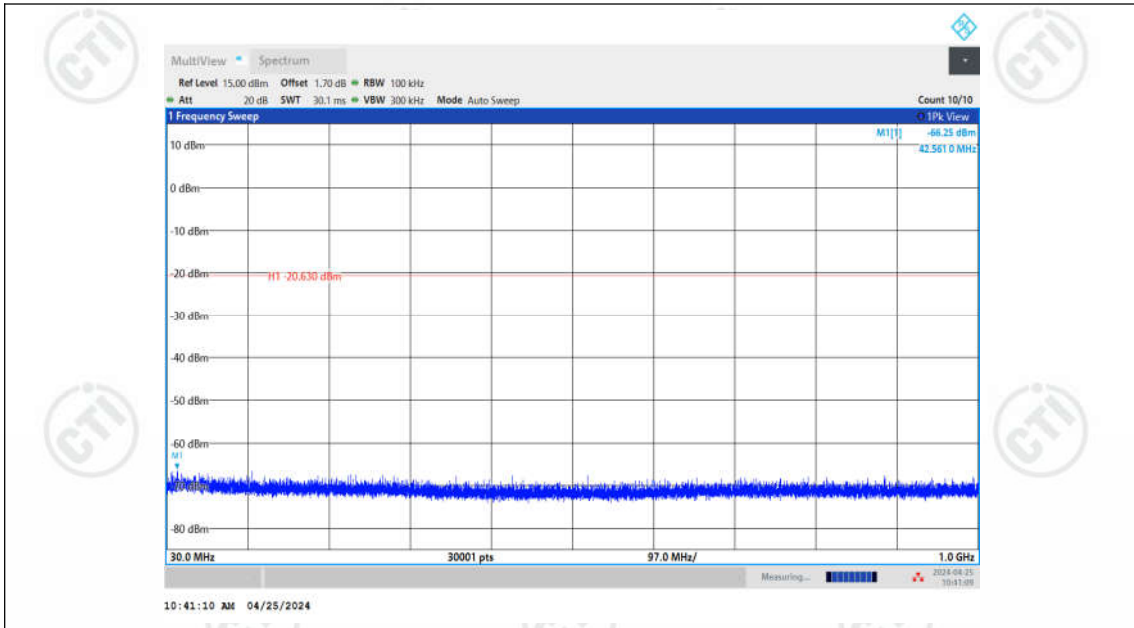
BLE_2M_Ant1_2440_30~1000



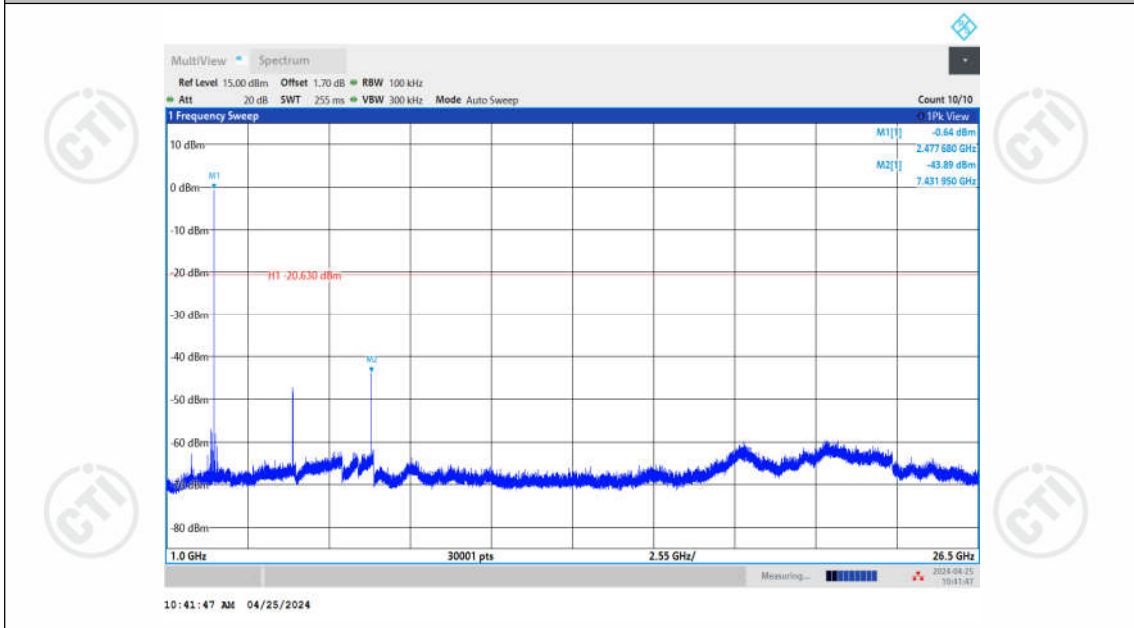
BLE_2M_Ant1_2440_1000~26500



BLE_2M_Ant1_2478_0~Reference



BLE_2M_Ant1_2478_30~1000



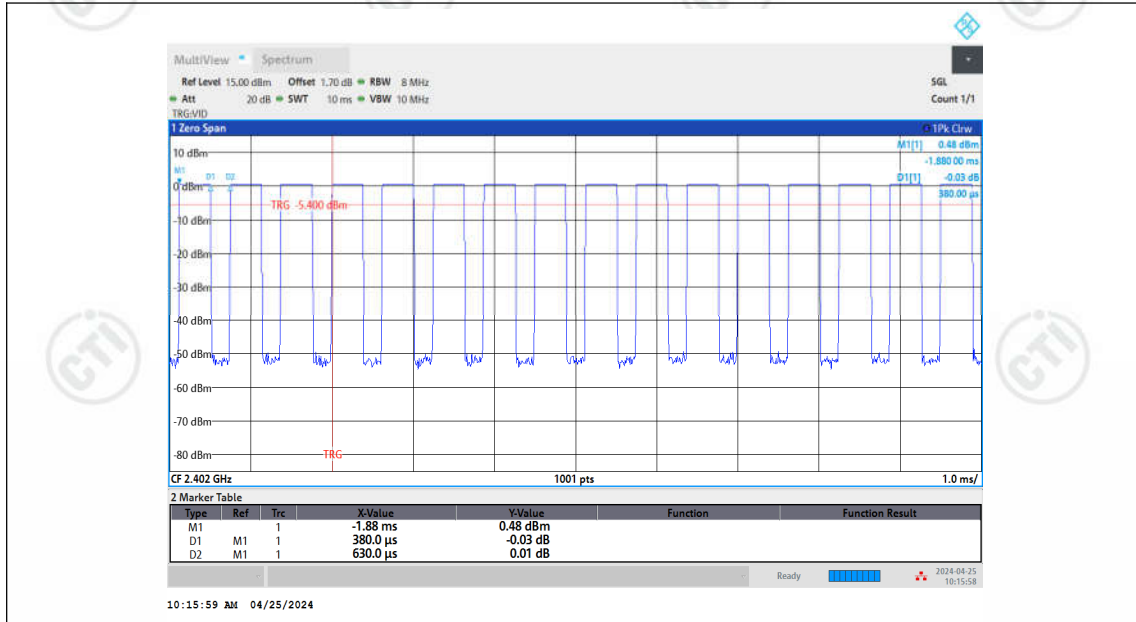
BLE_2M_Ant1_2478_1000~26500

Appendix G: Duty Cycle**Test Result**

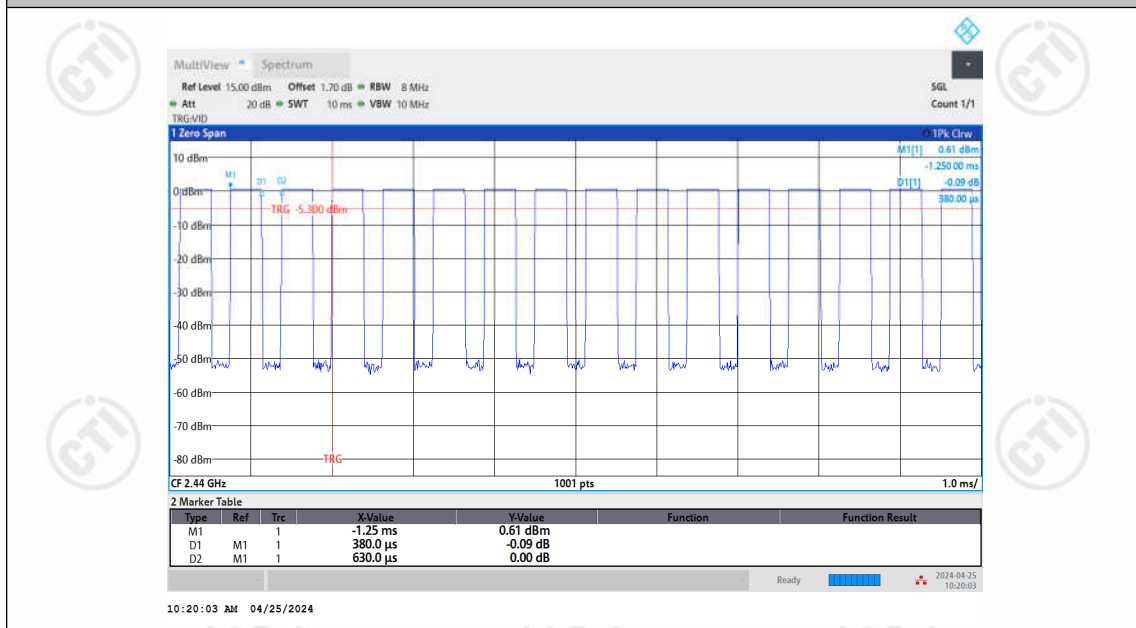
| Test Mode | Antenna | Frequency [MHz] | ON Time [ms] | Period [ms] | Duty Cycle [%] | Duty Cycle Factor [dB] |
|-----------|---------|-----------------|--------------|-------------|----------------|------------------------|
| BLE_1M | Ant1 | 2402 | 0.38 | 0.63 | 60.32 | 2.20 |
| | | 2440 | 0.38 | 0.63 | 60.32 | 2.20 |
| | | 2480 | 0.38 | 0.63 | 60.32 | 2.20 |
| BLE_2M | Ant1 | 2404 | 0.20 | 0.63 | 31.75 | 4.98 |
| | | 2440 | 0.20 | 0.63 | 31.75 | 4.98 |
| | | 2478 | 0.20 | 0.63 | 31.75 | 4.98 |

Note:Duty Cycle Factor[dB]=10*Ig(Duty Cycle);

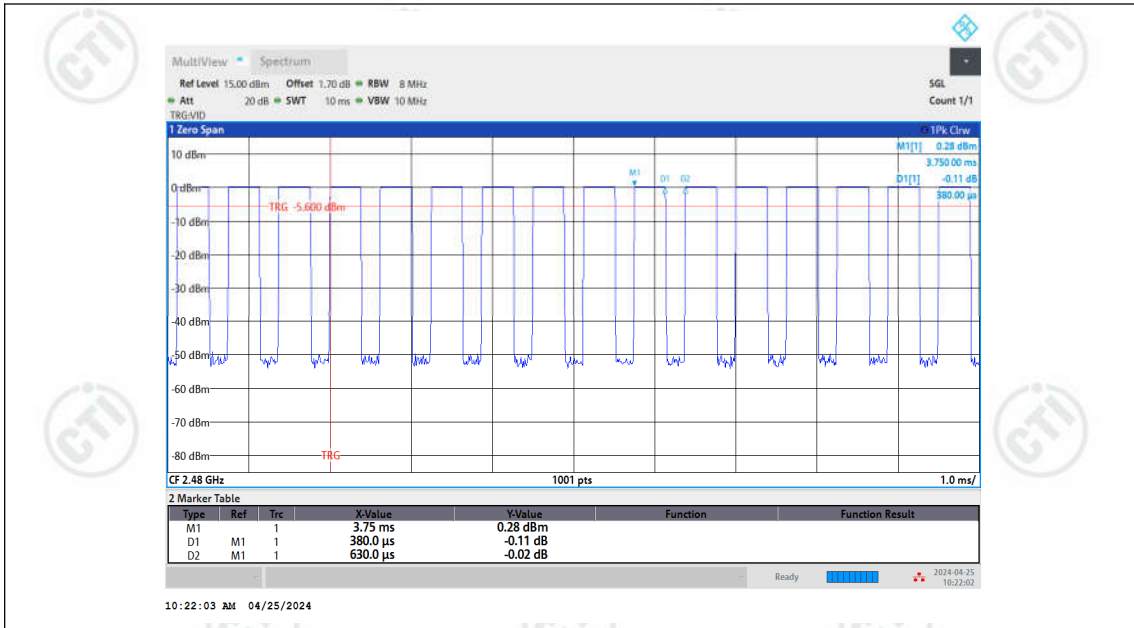
Test Graphs



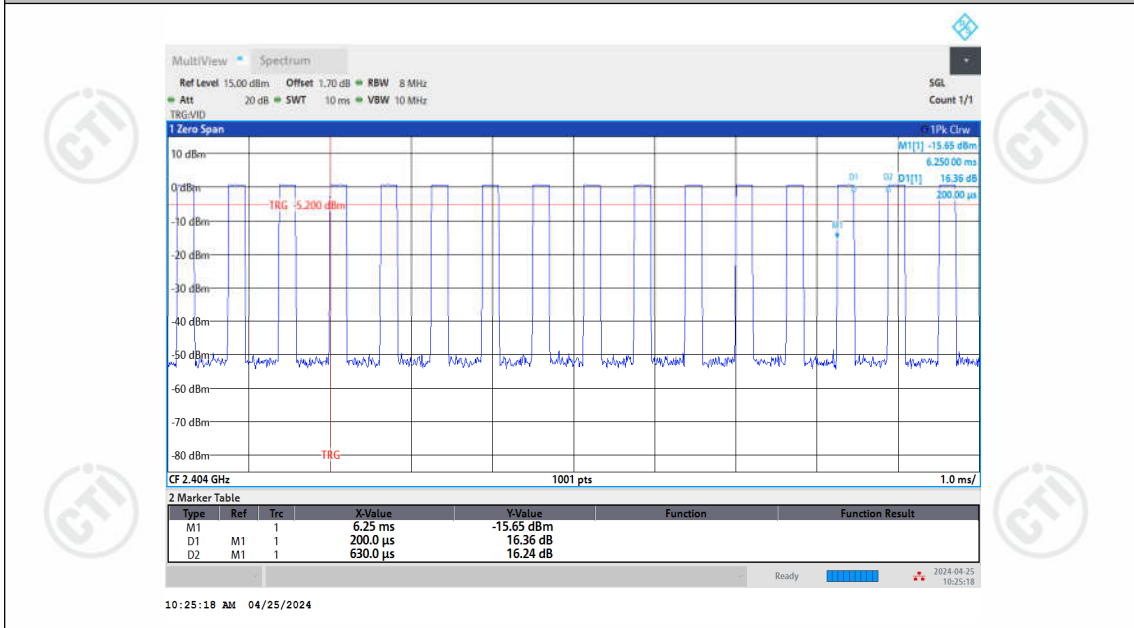
BLE_1M_Ant1_2402



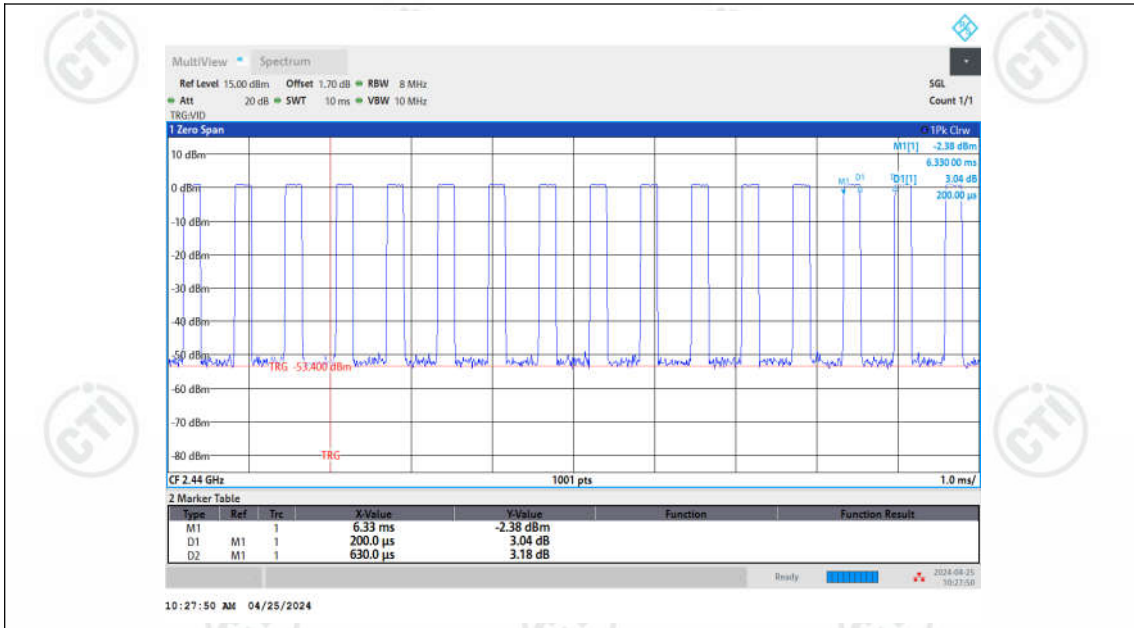
BLE_1M_Ant1_2440



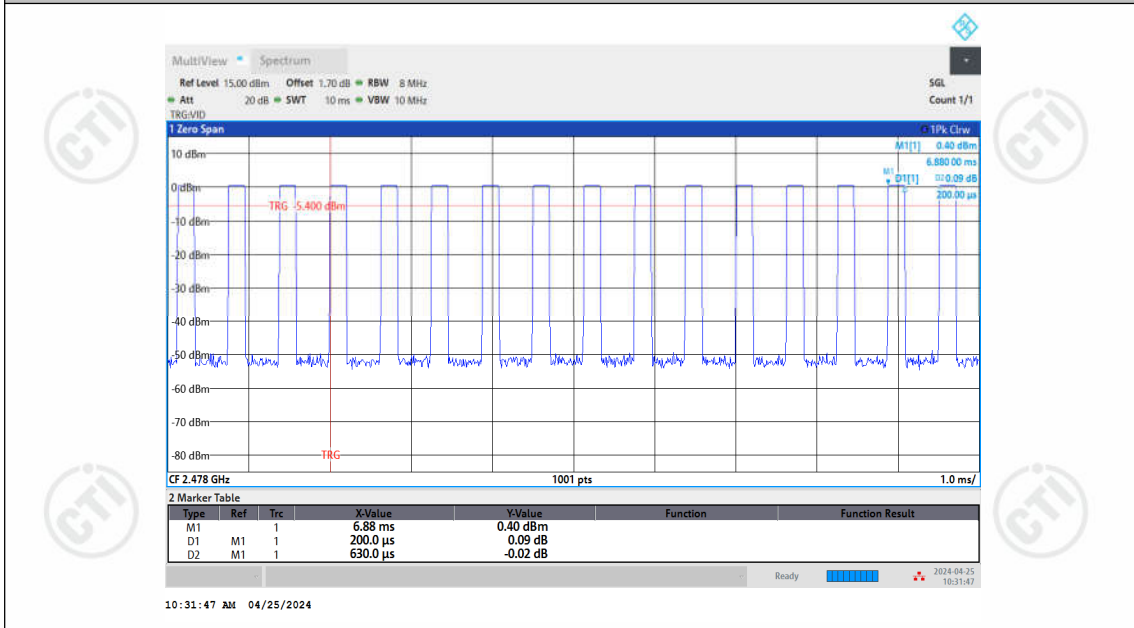
BLE_1M_Ant1_2480



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440



BLE_2M_Ant1_2478

*** End of Report ***