# Appendix A

| | |
|---|---|
| Report No.: | CISRR240911101 |
| FCC ID: | 2BDZJ-VG121 |
| Product Name: | wireless headphone |
| Model No.: | VG121 |
| Test Engineer: | Jimmy Huang |
| Supervised by: | Rory Huang |

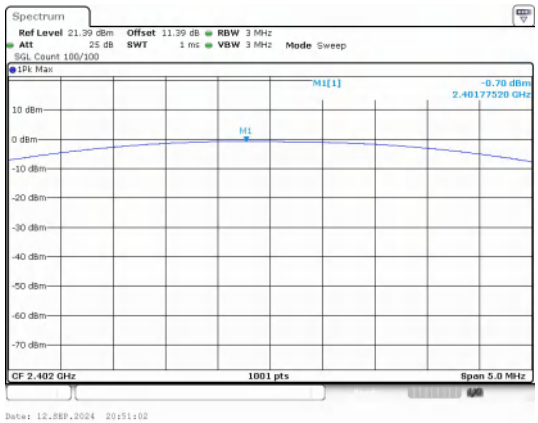
# 1) Conducted Output Power

**Right:**

**Test Result**

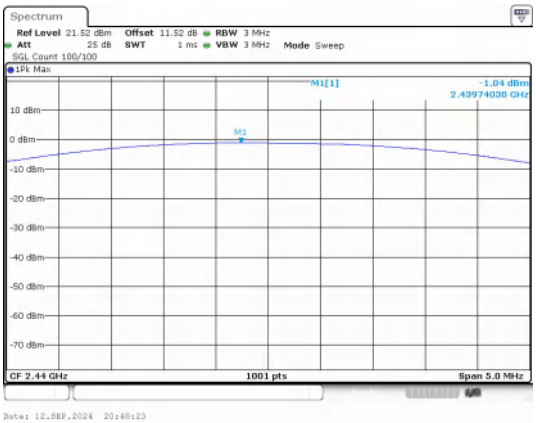
| Mode | Channel | Peak Output Power (dBm) | Peak Output Power (mW) | Limit (dBm) | Result |
|---|---|---|---|---|---|
| BLE 1M | 0 | -0.70 | 0.85 | ≤30 | PASS |
| | 19 | -1.04 | 0.79 | ≤30 | PASS |
| | 39 | -1.03 | 0.79 | ≤30 | PASS |
| BLE 2M | 0 | -0.50 | 0.89 | ≤30 | PASS |
| | 19 | -0.85 | 0.82 | ≤30 | PASS |
| | 39 | -0.82 | 0.83 | ≤30 | PASS |

**Test Graphs**



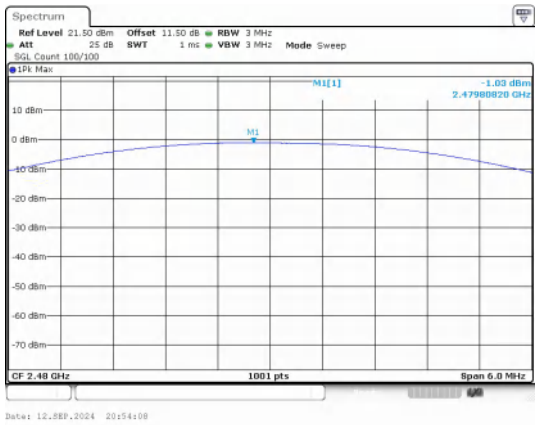

Peak Output Power

BLE 1M_Channel 0



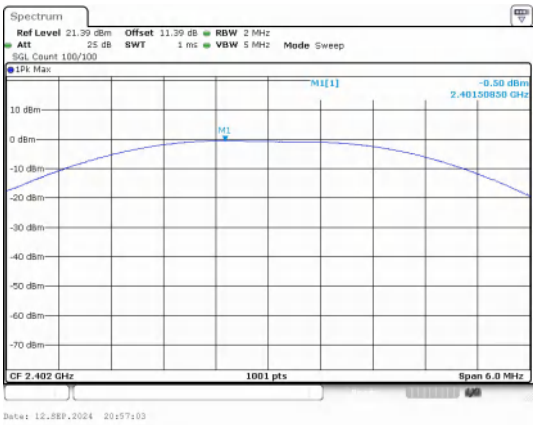

Peak Output Power

BLE 1M_Channel 19



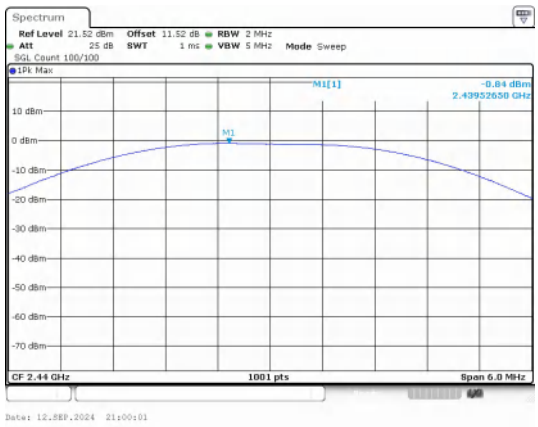

Peak Output Power

BLE 1M_Channel 39



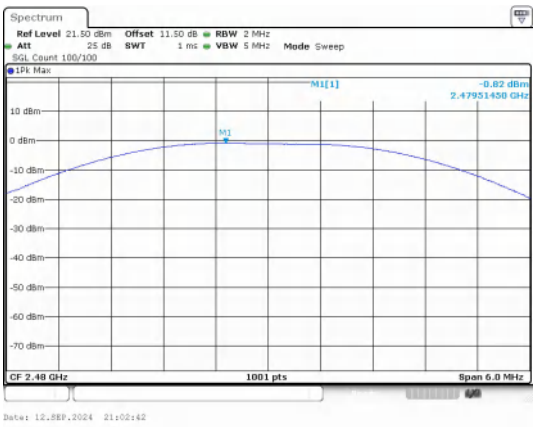

Peak Output Power

BLE 2M_Channel 0




Peak Output Power

BLE 2M_Channel 19




Peak Output Power

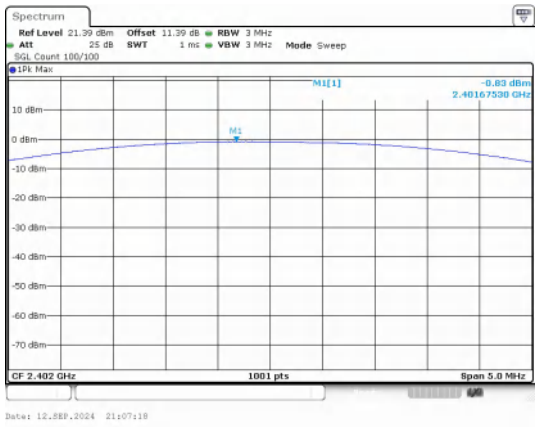
BLE 2M_Channel 39

**Left:**

**Test Result**

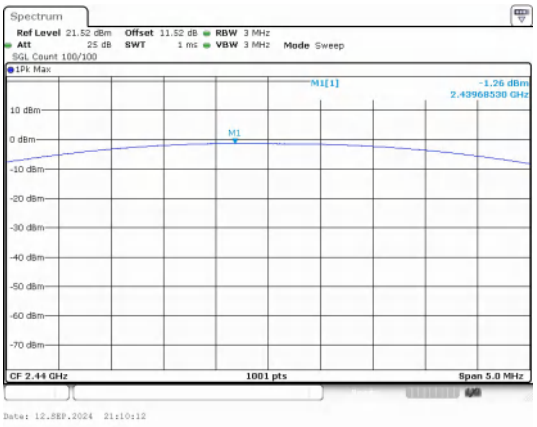
| Mode | Channel | Peak Output Power (dBm) | Peak Output Power (mW) | Limit (dBm) | Result |
|---|---|---|---|---|---|
| BLE 1M | 0 | -0.83 | 0.83 | ≤30 | PASS |
| | 19 | -1.26 | 0.75 | ≤30 | PASS |
| | 39 | -1.16 | 0.77 | ≤30 | PASS |
| BLE 2M | 0 | -0.56 | 0.88 | ≤30 | PASS |
| | 19 | -0.86 | 0.82 | ≤30 | PASS |
| | 39 | -0.76 | 0.84 | ≤30 | PASS |

**Test Graphs**



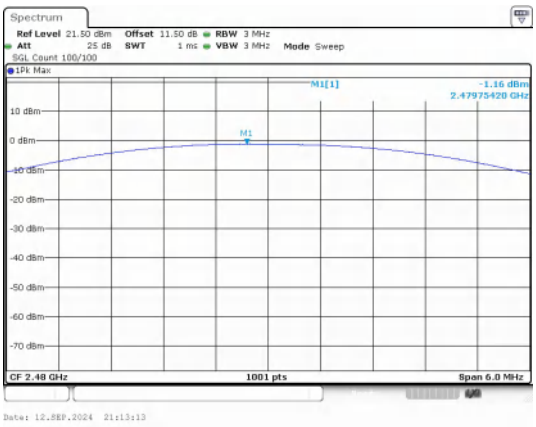

Peak Output Power

BLE 1M_Channel 0



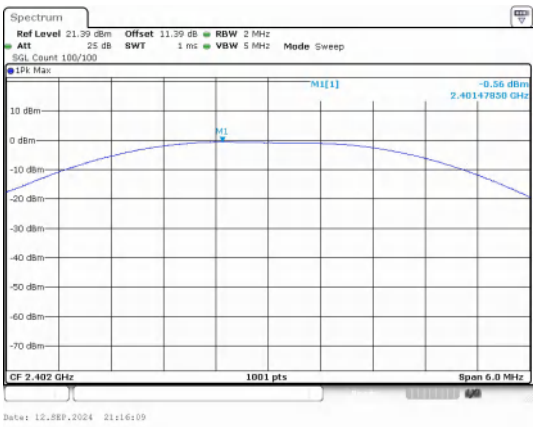

Peak Output Power

BLE 1M_Channel 19



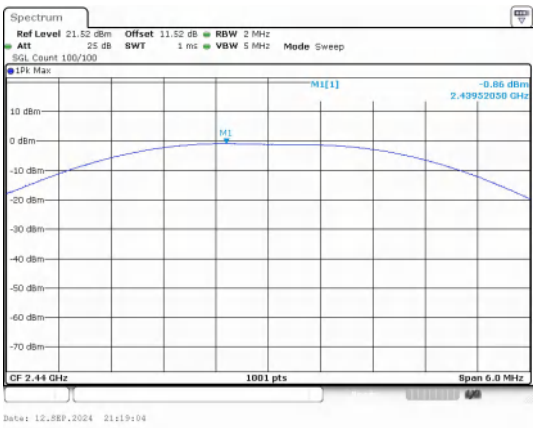

**Peak Output Power**

**BLE 1M_Channel 39**



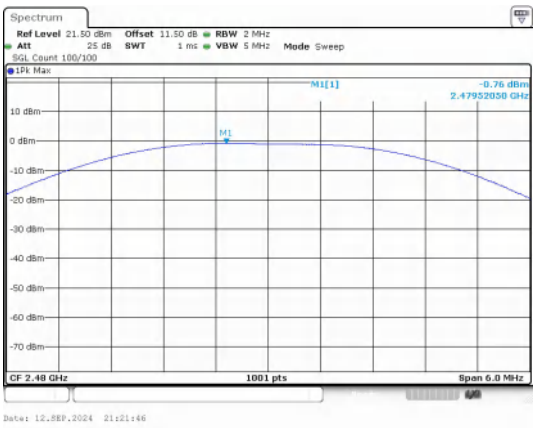

**Peak Output Power**

**BLE 2M_Channel 0**




**Peak Output Power**

**BLE 2M_Channel 19**




**Peak Output Power**

**BLE 2M_Channel 39**

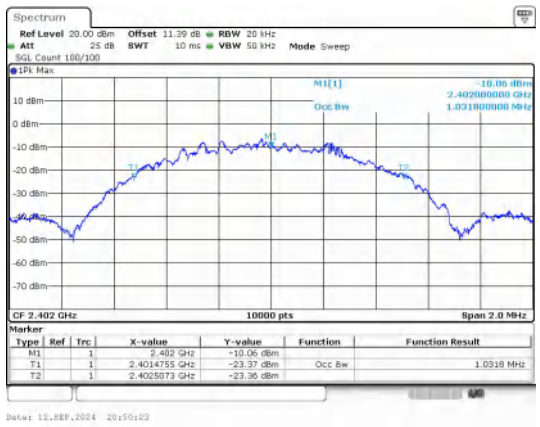
# 2) 99% Bandwidth

**Right:**

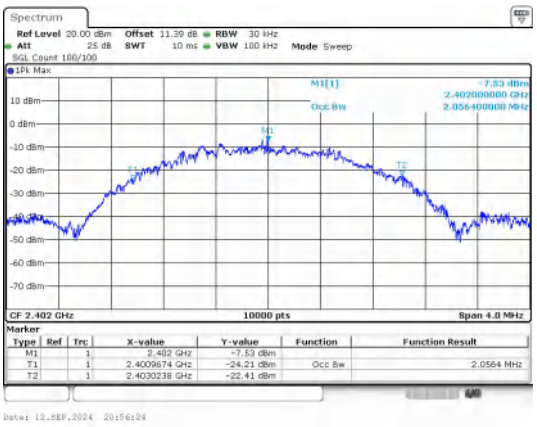
**Test Result**

| Mode | Channel | Center Frequency (MHz) | 99% BW (MHz) |
|---|---|---|---|
| BLE 1M | 0 | 2402 | 1.0320 |
| BLE 1M | 19 | 2440 | 1.0290 |
| BLE 1M | 39 | 2480 | 1.0320 |
| BLE 2M | 0 | 2402 | 2.0560 |
| BLE 2M | 19 | 2440 | 2.0430 |
| BLE 2M | 39 | 2480 | 2.0560 |

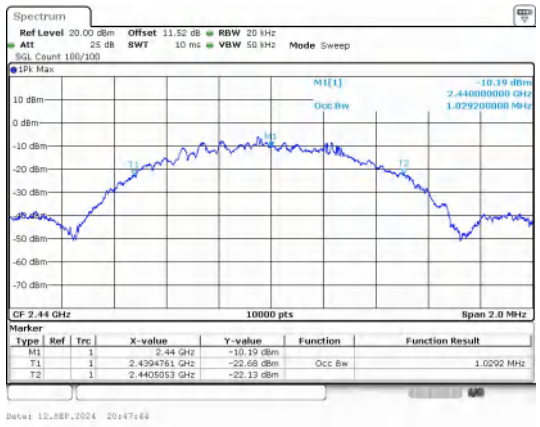
**Test Graphs**



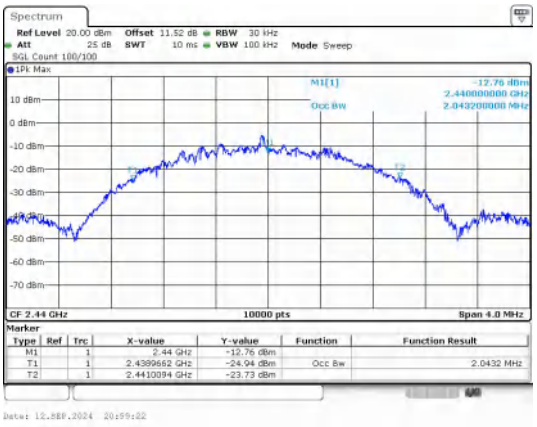

BLE 1M_Channel 0



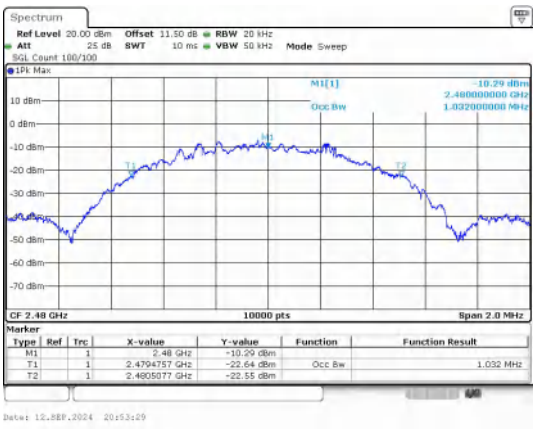

BLE 2M_Channel 0



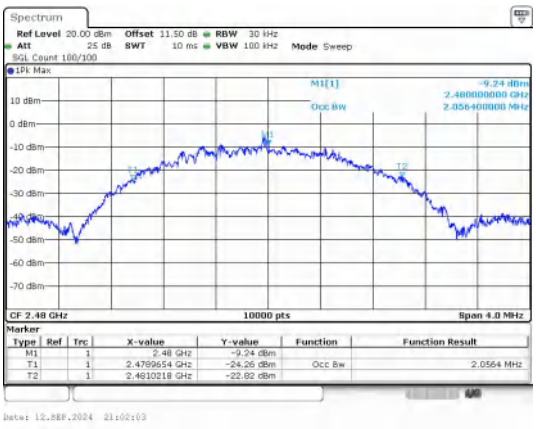

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39



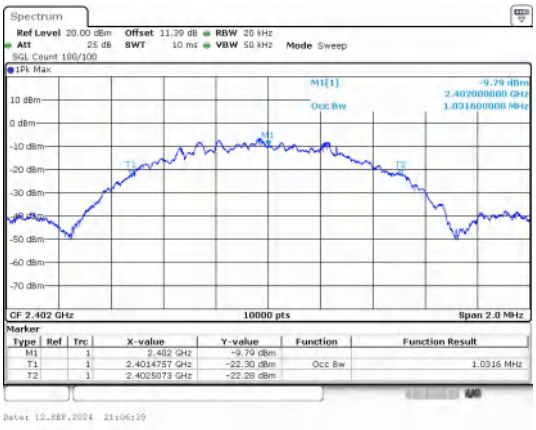

BLE 2M_Channel 39

**Left:**

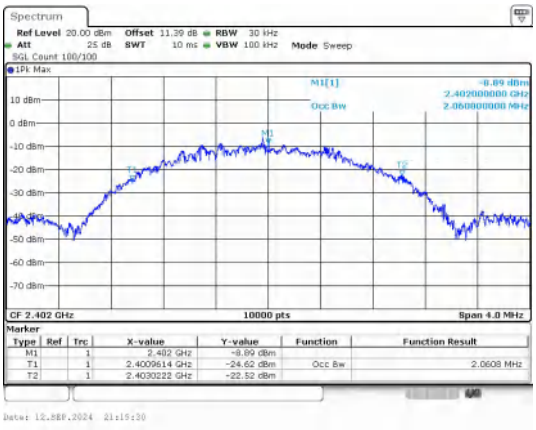
**Test Result**

| Mode | Channel | Center Frequency (MHz) | 99% BW (MHz) |
|---|---|---|---|
| BLE 1M | 0 | 2402 | 1.0320 |
| BLE 1M | 19 | 2440 | 1.0280 |
| BLE 1M | 39 | 2480 | 1.0310 |
| BLE 2M | 0 | 2402 | 2.0610 |
| BLE 2M | 19 | 2440 | 2.0510 |
| BLE 2M | 39 | 2480 | 2.0500 |

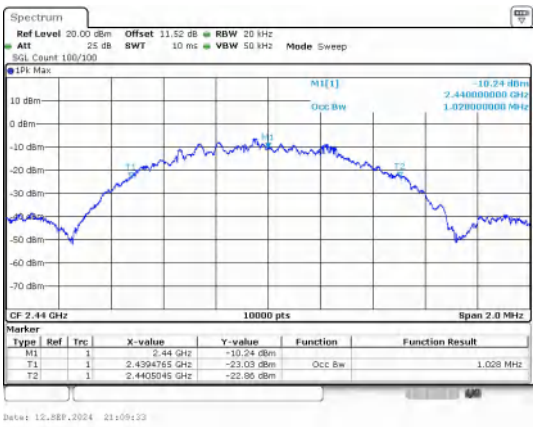
**Test Graphs**



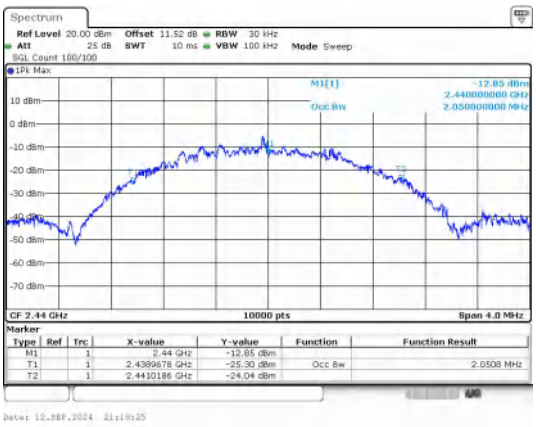

BLE 1M_Channel 0



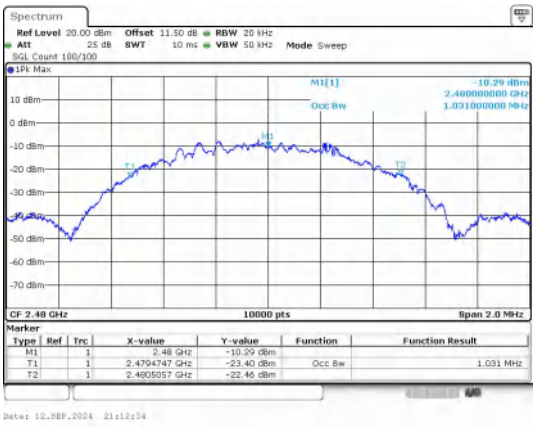

BLE 2M_Channel 0



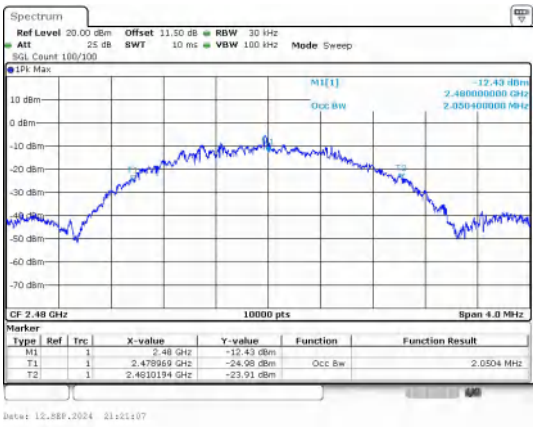

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39




BLE 2M_Channel 39

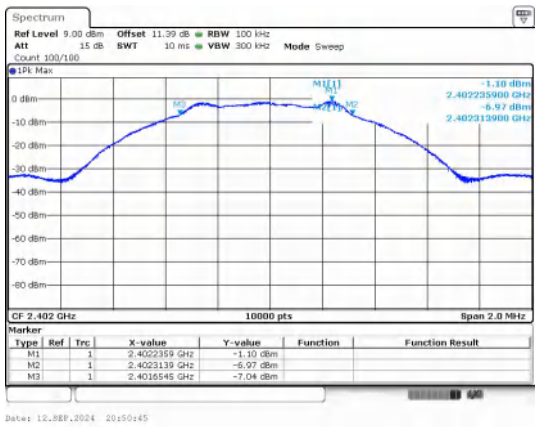
# 3) 6dB Bandwidth

**Right:**

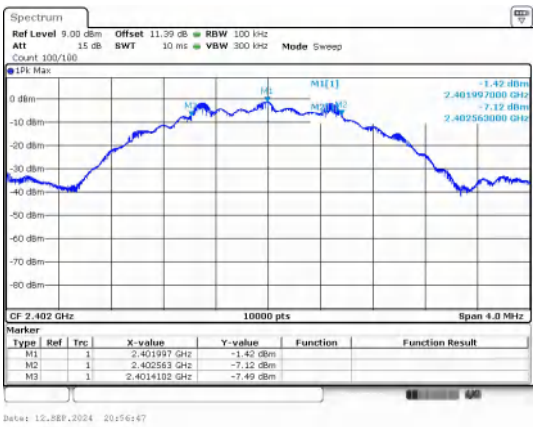
**Test Result**

| Mode | Channel | Center Frequency (MHz) | 6 dB Bandwidth (MHz) | Limit (MHz) | Result |
|---|---|---|---|---|---|
| BLE 1M | 0 | 2402 | 0.6600 | ≥0.5 | PASS |
| | 19 | 2440 | 0.6700 | | PASS |
| | 39 | 2480 | 0.6600 | | PASS |
| BLE 2M | 0 | 2402 | 1.150 | | PASS |
| | 19 | 2440 | 1.150 | | PASS |
| | 39 | 2480 | 1.150 | | PASS |

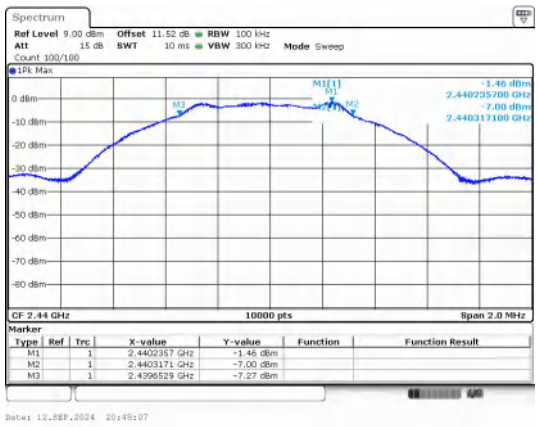
**Test Graphs**



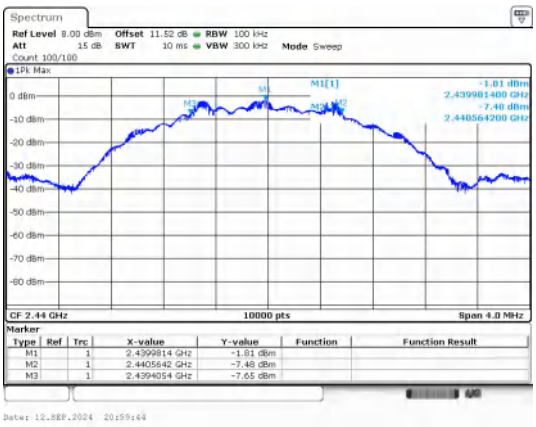

BLE 1M_Channel 0



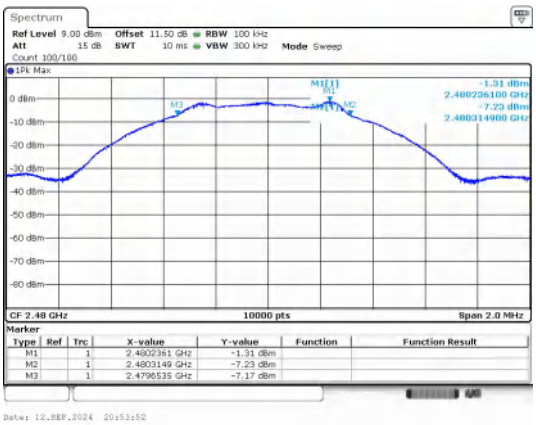

BLE 2M_Channel 0



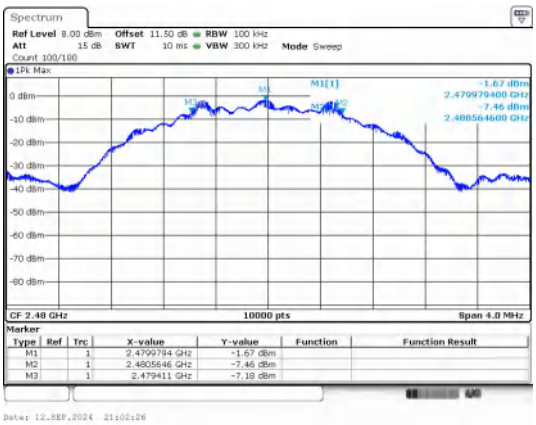

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39



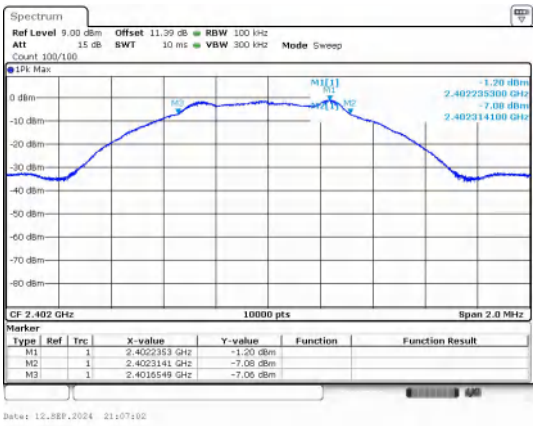

BLE 2M_Channel 39

**Left:**

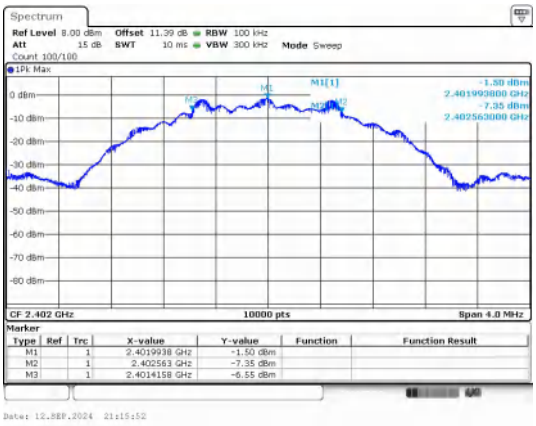
**Test Result**

| Mode | Channel | Center Frequency (MHz) | 6 dB Bandwidth (MHz) | Limit (MHz) | Result |
|---|---|---|---|---|---|
| BLE 1M | 0 | 2402 | 0.6600 | ≥0.5 | PASS |
| | 19 | 2440 | 0.6700 | | PASS |
| | 39 | 2480 | 0.6600 | | PASS |
| BLE 2M | 0 | 2402 | 1.140 | | PASS |
| | 19 | 2440 | 1.150 | | PASS |
| | 39 | 2480 | 1.140 | | PASS |

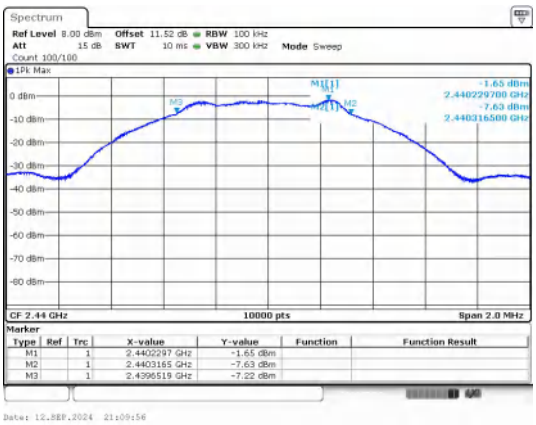
**Test Graphs**



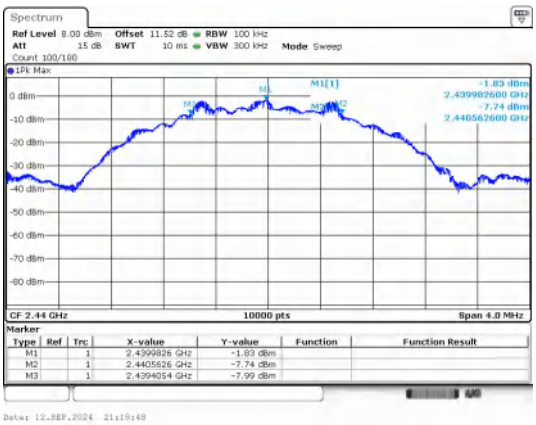

BLE 1M_Channel 0



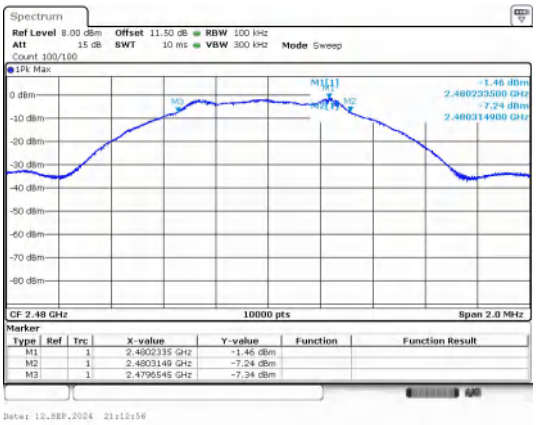

BLE 2M_Channel 0



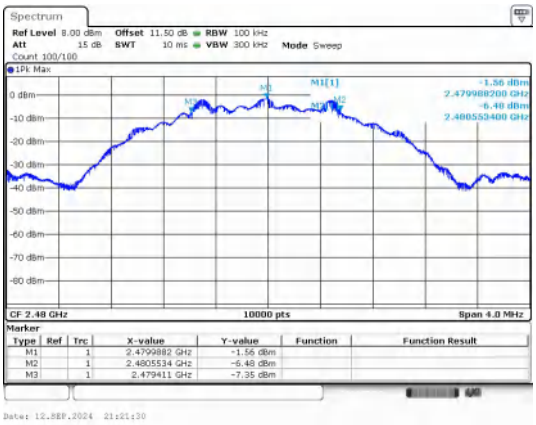

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39




BLE 2M_Channel 39

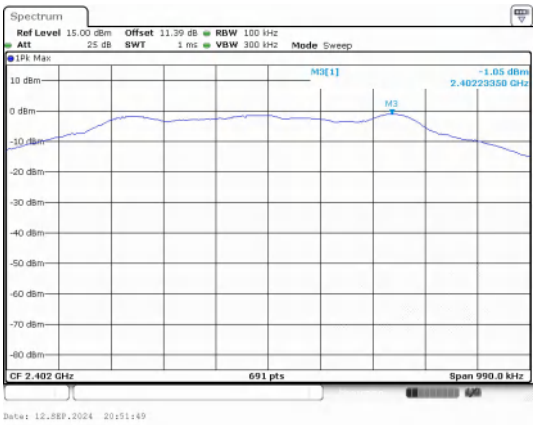
# 4) Conducted Out Of Band Emission

**Right:**

**Test Result**

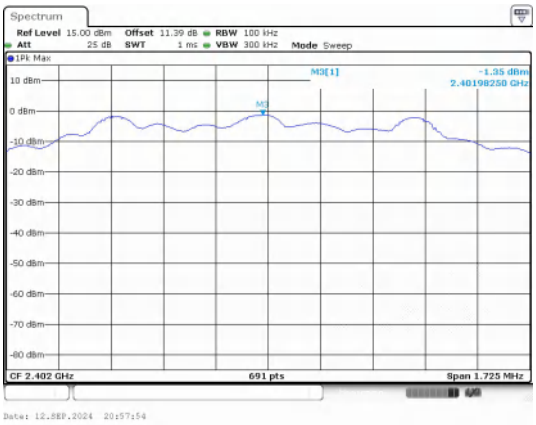
| Mode | Channel | OOB Emission Frequency (MHz) | OOB Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result |
|---|---|---|---|---|---|---|
| BLE 1M | 0 | 2398.99 | -40.093 | -21.05 | -19.043 | PASS |
| | | 2400.00 | -47.963 | -21.05 | -26.913 | PASS |
| | | 9602.20 | -38.964 | -21.05 | -17.914 | PASS |
| | 19 | 9753.73 | -35.295 | -21.44 | -13.855 | PASS |
| | 39 | 2483.50 | -46.044 | -21.4 | -24.644 | PASS |
| | | 9914.37 | -36.816 | -21.4 | -15.416 | PASS |
| BLE 2M | 0 | 2400.00 | -32.116 | -21.35 | -10.766 | PASS |
| | | 9602.25 | -39.110 | -21.35 | -17.760 | PASS |
| | 19 | 9753.73 | -34.889 | -21.81 | -13.079 | PASS |
| | 39 | 2483.50 | -49.359 | -21.67 | -27.689 | PASS |
| | | 9914.37 | -36.561 | -21.67 | -14.891 | PASS |

**Test Graphs**



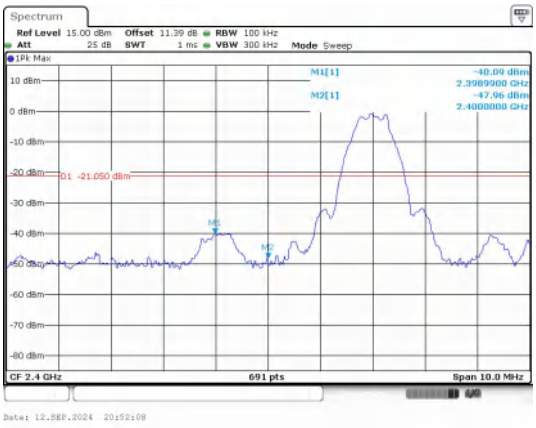

In-Band Reference Level

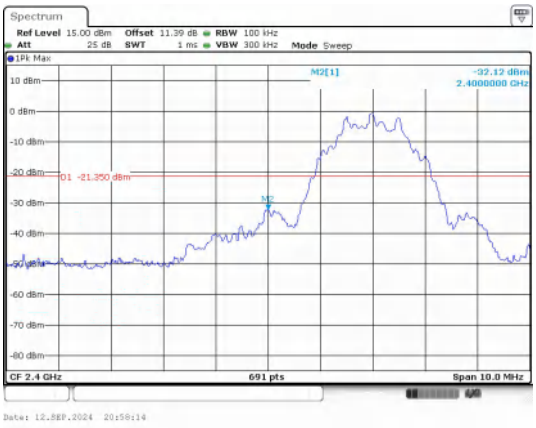
BLE 1M_Channel 0

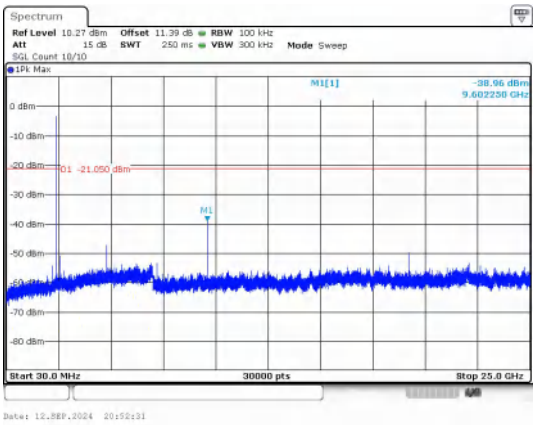
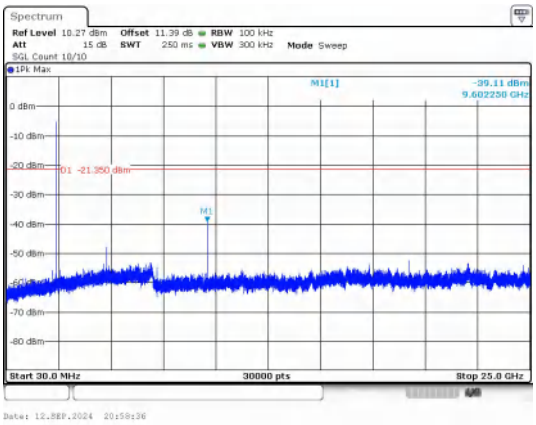
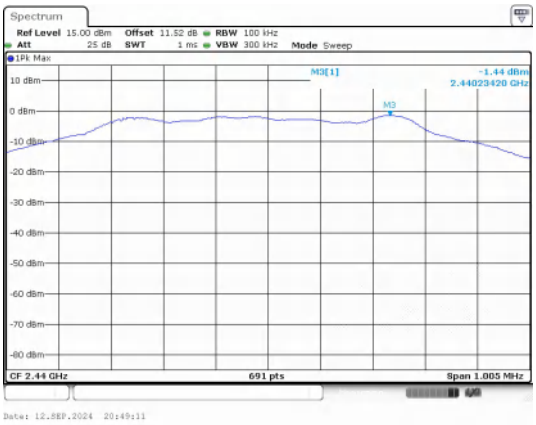
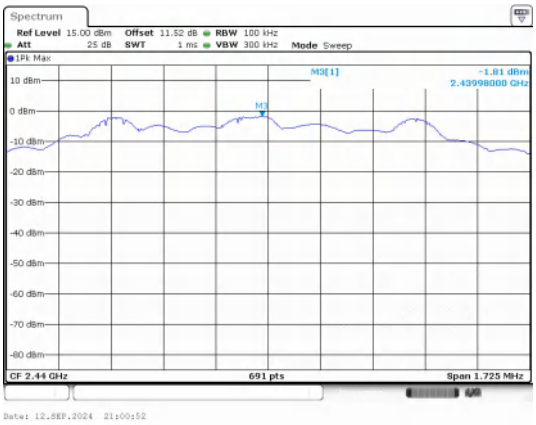
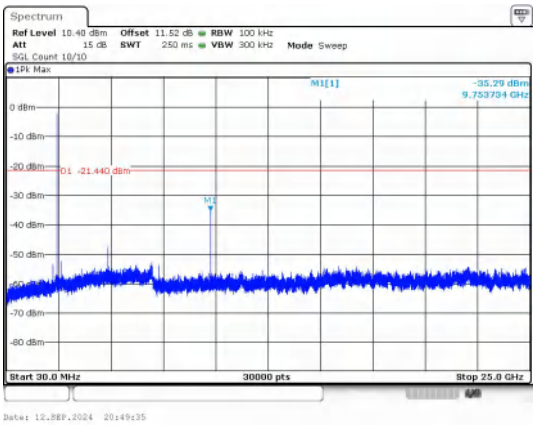
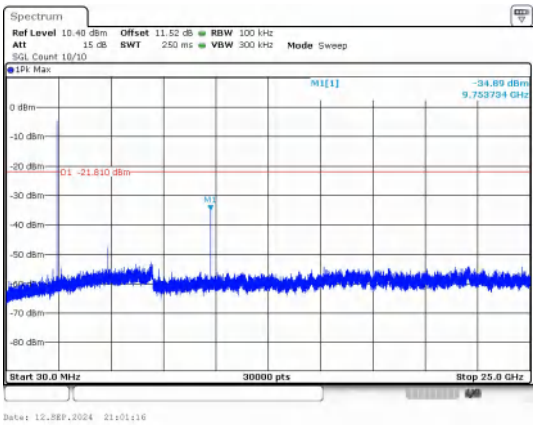


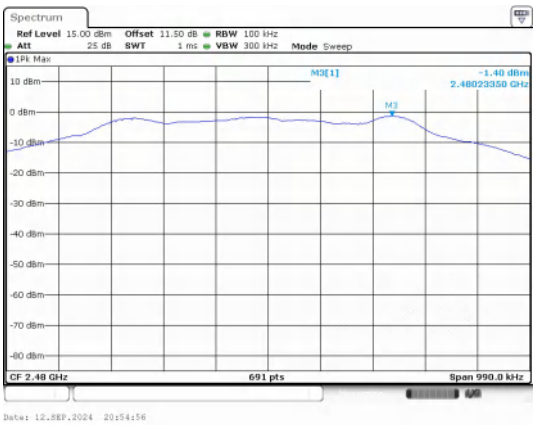

In-Band Reference Level

BLE 2M_Channel 0



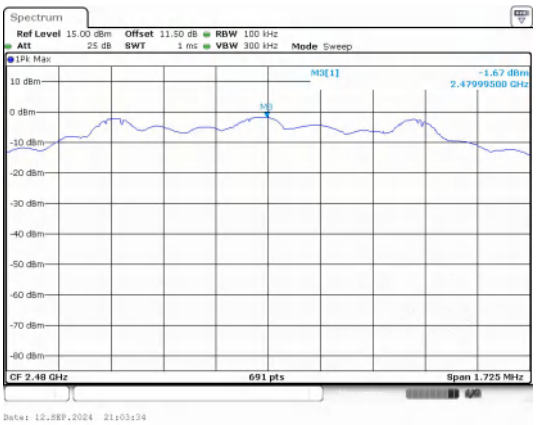



| Out Of Band Emission<br>BLE 1M_Channel 0 | Out Of Band Emission<br>BLE 2M_Channel 0 |
|---|---|
|  |  |
| 30.0 MHz - 25000.0 MHz<br>BLE 1M_Channel 0 | 30.0 MHz - 25000.0 MHz<br>BLE 2M_Channel 0 |
|  |  |
| In-Band Reference Level<br>BLE 1M_Channel 19 | In-Band Reference Level<br>BLE 2M_Channel 19 |
|  |  |
| 30.0 MHz - 25000.0 MHz<br>BLE 1M_Channel 19 | 30.0 MHz - 25000.0 MHz<br>BLE 2M_Channel 19 |



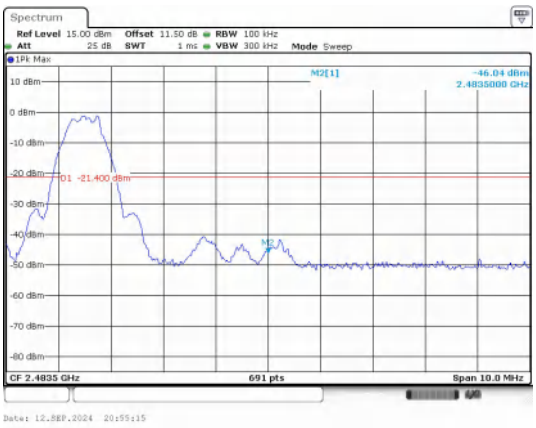

In-Band Reference Level

BLE 1M_Channel 39



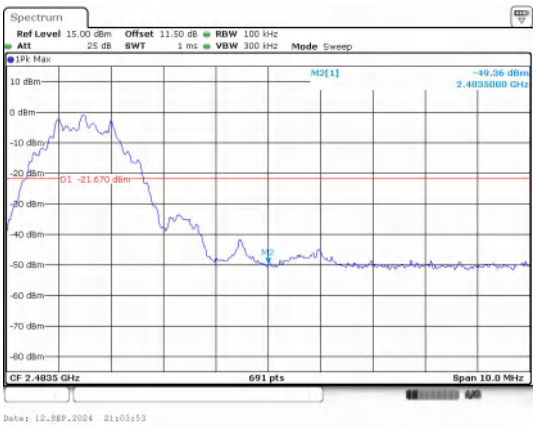

In-Band Reference Level

BLE 2M_Channel 39



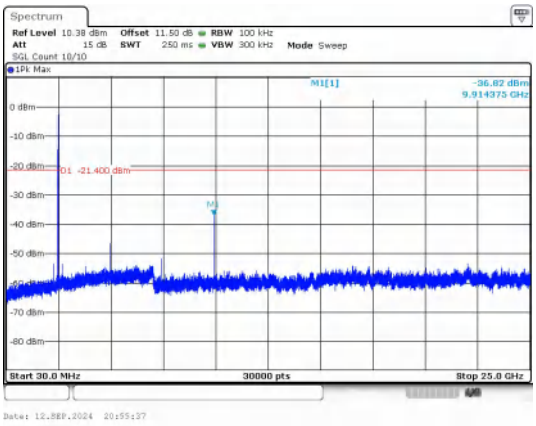

Out Of Band Emission

BLE 1M_Channel 39



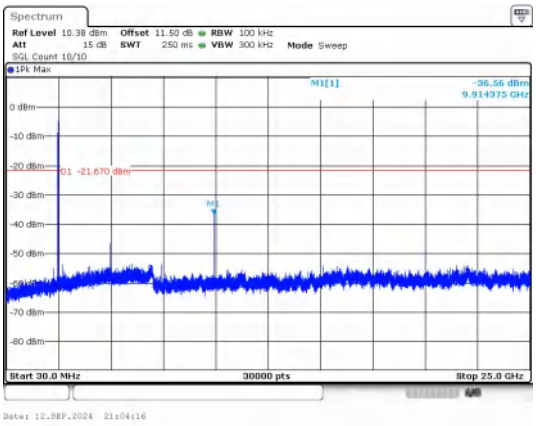

Out Of Band Emission

BLE 2M_Channel 39




30.0 MHz - 25000.0 MHz

BLE 1M_Channel 39




30.0 MHz - 25000.0 MHz

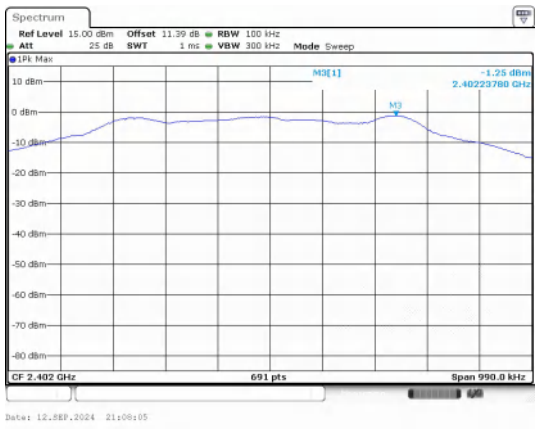
BLE 2M_Channel 39

**Left:**

**Test Result**

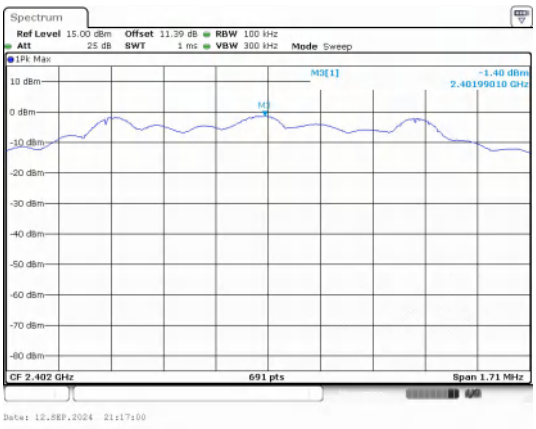
| Mode | Channel | OOB Emission Frequency (MHz) | OOB Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result |
|---|---|---|---|---|---|---|
| BLE 1M | 0 | 2399.00 | -39.854 | -21.25 | -18.604 | PASS |
| | | 2400.00 | -49.846 | -21.25 | -28.596 | PASS |
| | | 9602.20 | -39.148 | -21.25 | -17.898 | PASS |
| | 19 | 9753.73 | -35.095 | -21.66 | -13.435 | PASS |
| | 39 | 2483.50 | -45.581 | -21.53 | -24.051 | PASS |
| | | 9914.37 | -36.913 | -21.53 | -15.383 | PASS |
| BLE 2M | 0 | 2400.00 | -32.267 | -21.4 | -10.867 | PASS |
| | | 9602.25 | -38.738 | -21.4 | -17.338 | PASS |
| | 19 | 9753.73 | -35.106 | -21.81 | -13.296 | PASS |
| | 39 | 2483.50 | -50.126 | -21.6 | -28.526 | PASS |
| | | 9914.37 | -36.651 | -21.6 | -15.051 | PASS |

**Test Graphs**



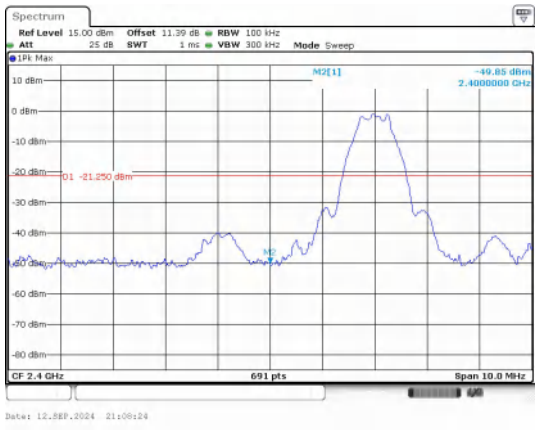

In-Band Reference Level

BLE 1M_Channel 0



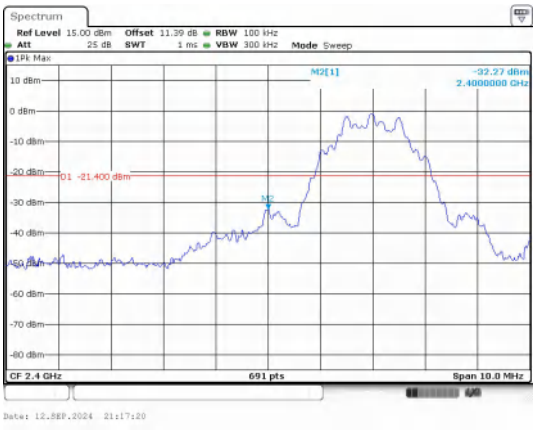

In-Band Reference Level

BLE 2M_Channel 0



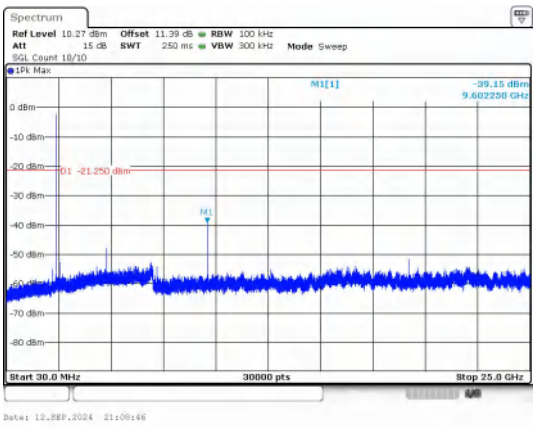

Out Of Band Emission

BLE 1M_Channel 0



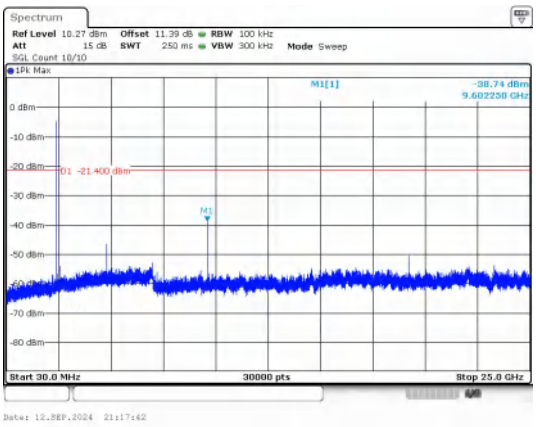

Out Of Band Emission

BLE 2M_Channel 0



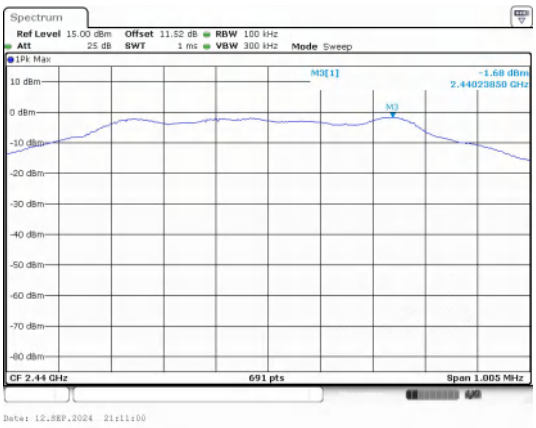

30.0 MHz - 25000.0 MHz

BLE 1M_Channel 0



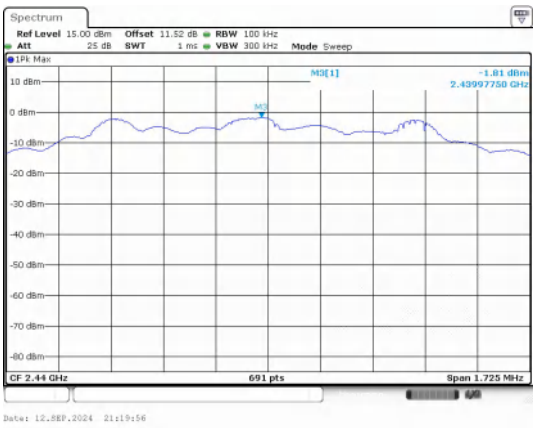

30.0 MHz - 25000.0 MHz

BLE 2M_Channel 0



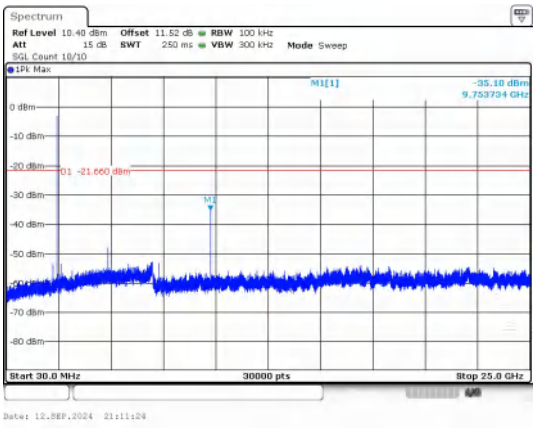

In-Band Reference Level

BLE 1M_Channel 19



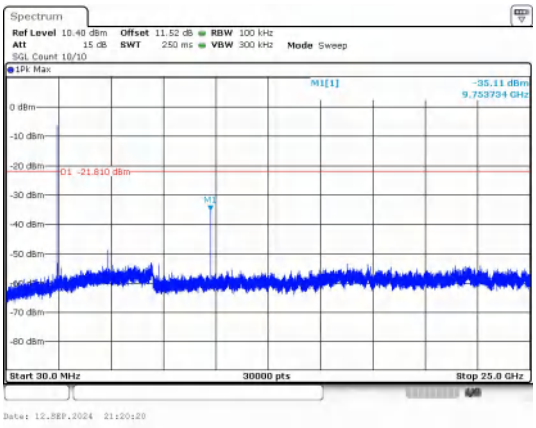

In-Band Reference Level

BLE 2M_Channel 19



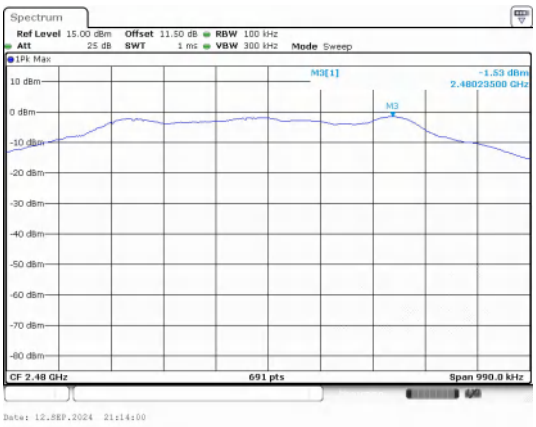

30.0 MHz - 25000.0 MHz

BLE 1M_Channel 19



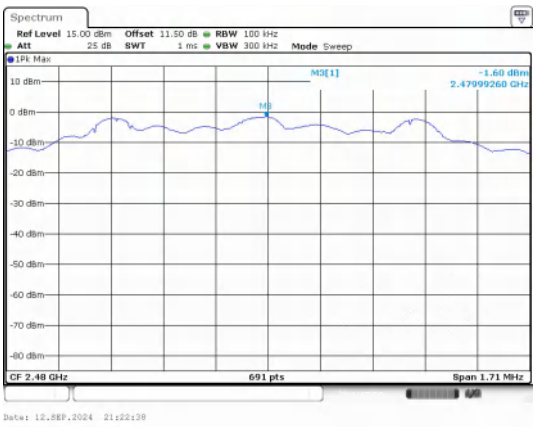

30.0 MHz - 25000.0 MHz

BLE 2M_Channel 19



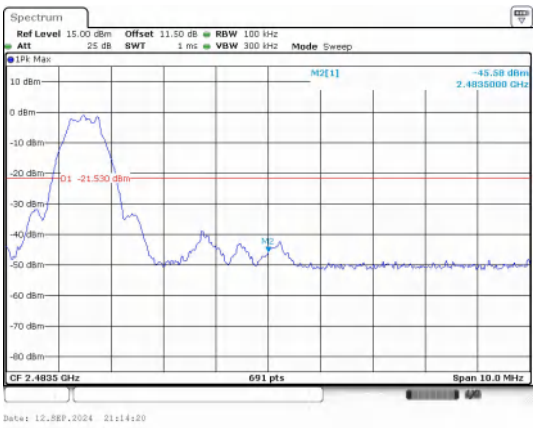

In-Band Reference Level

BLE 1M_Channel 39



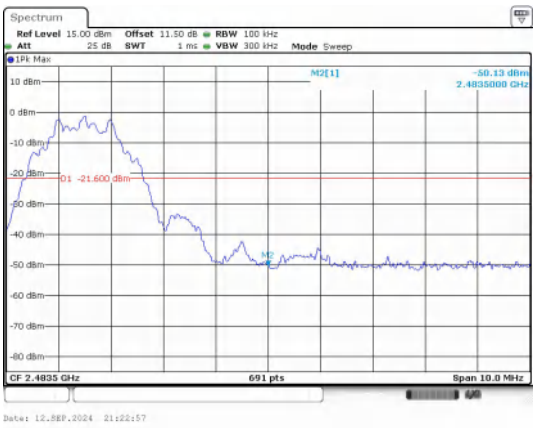

In-Band Reference Level

BLE 2M_Channel 39



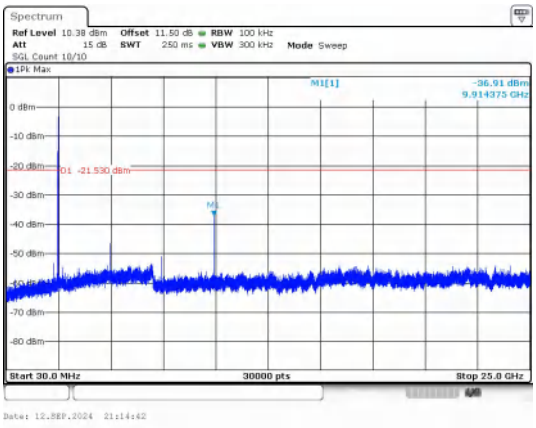

Out Of Band Emission

BLE 1M_Channel 39



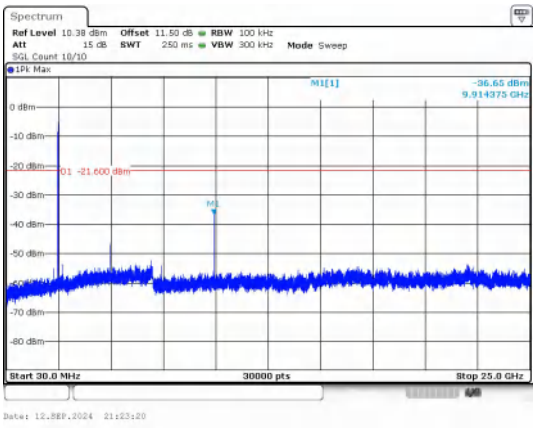

Out Of Band Emission

BLE 2M_Channel 39




30.0 MHz - 25000.0 MHz

BLE 1M_Channel 39




30.0 MHz - 25000.0 MHz

BLE 2M_Channel 39

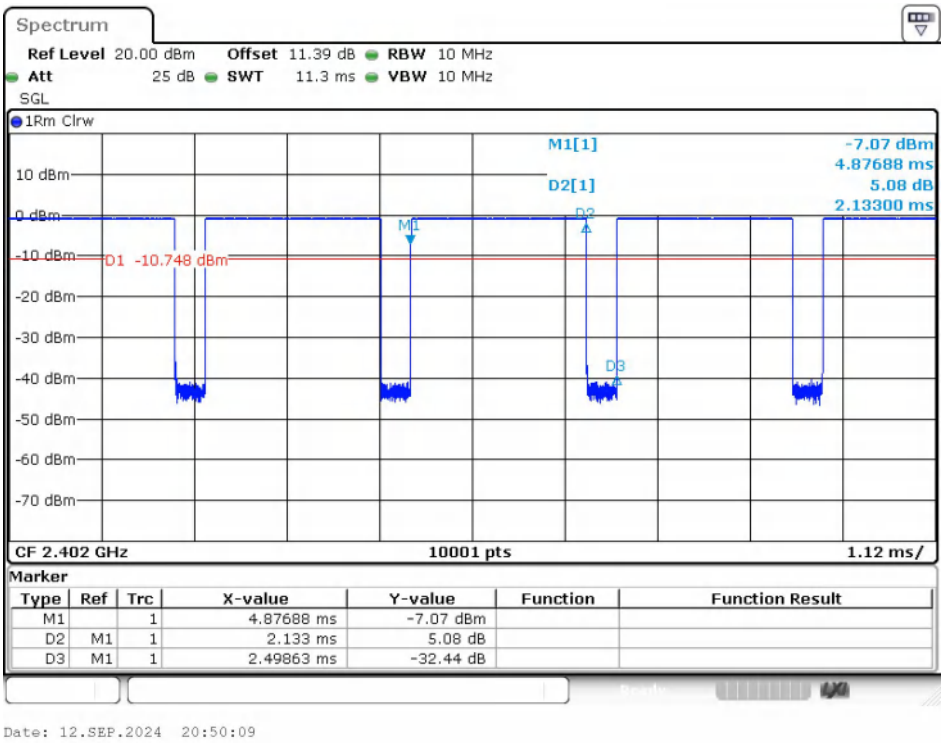
# 5) Duty Cycle

**Right:**

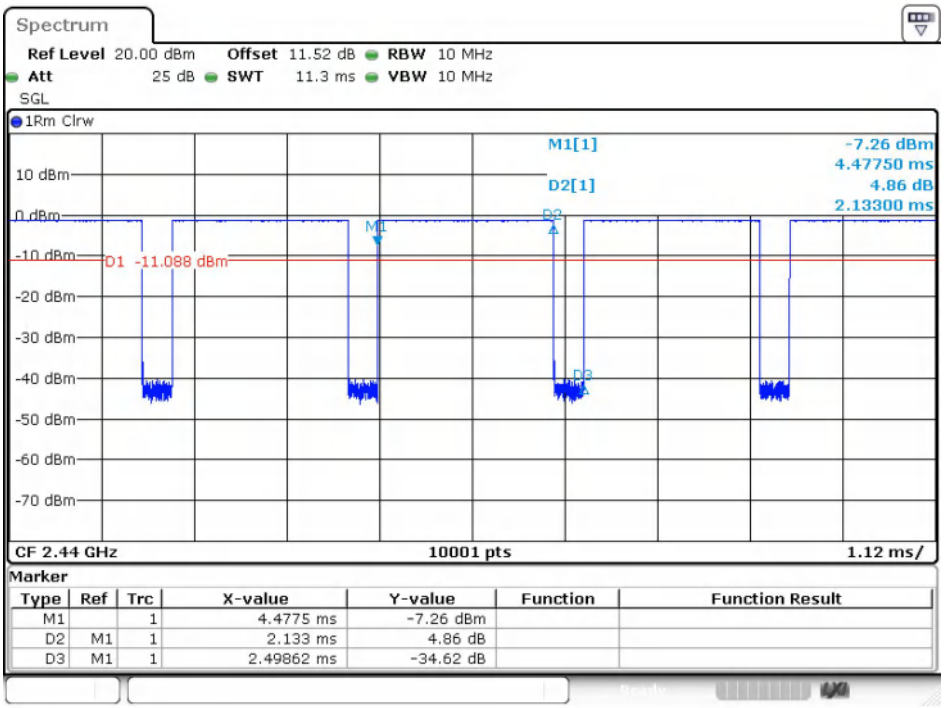
**Test Result**

| Mode | Channel | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) | 1/T |
|---|---|---|---|---|---|---|---|
| BLE 1M | 0 | 2.133 | 2.499 | 85.37 | 0.8537 | 0.6869 | 0.47 |
| | 19 | 2.133 | 2.499 | 85.37 | 0.8537 | 0.6869 | 0.47 |
| | 39 | 2.133 | 2.499 | 85.37 | 0.8537 | 0.6869 | 0.47 |
| BLE 2M | 0 | 1.081 | 2.500 | 43.25 | 0.4325 | 3.6401 | 0.93 |
| | 19 | 1.081 | 2.500 | 43.25 | 0.4325 | 3.6401 | 0.93 |
| | 39 | 1.081 | 2.499 | 43.27 | 0.4327 | 3.6381 | 0.93 |

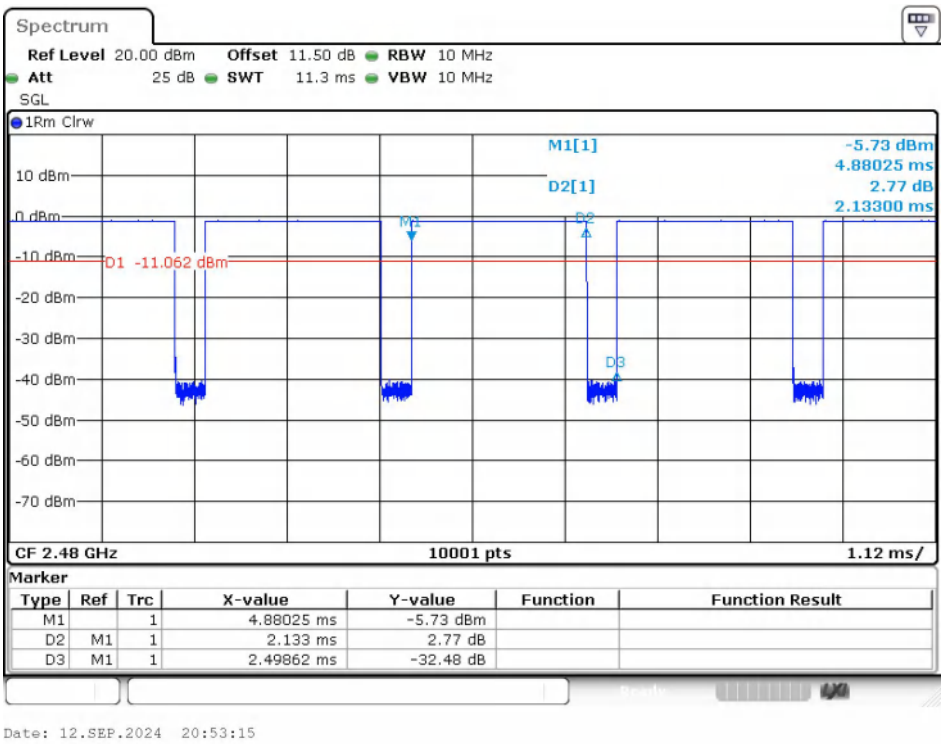
**Test Graphs**



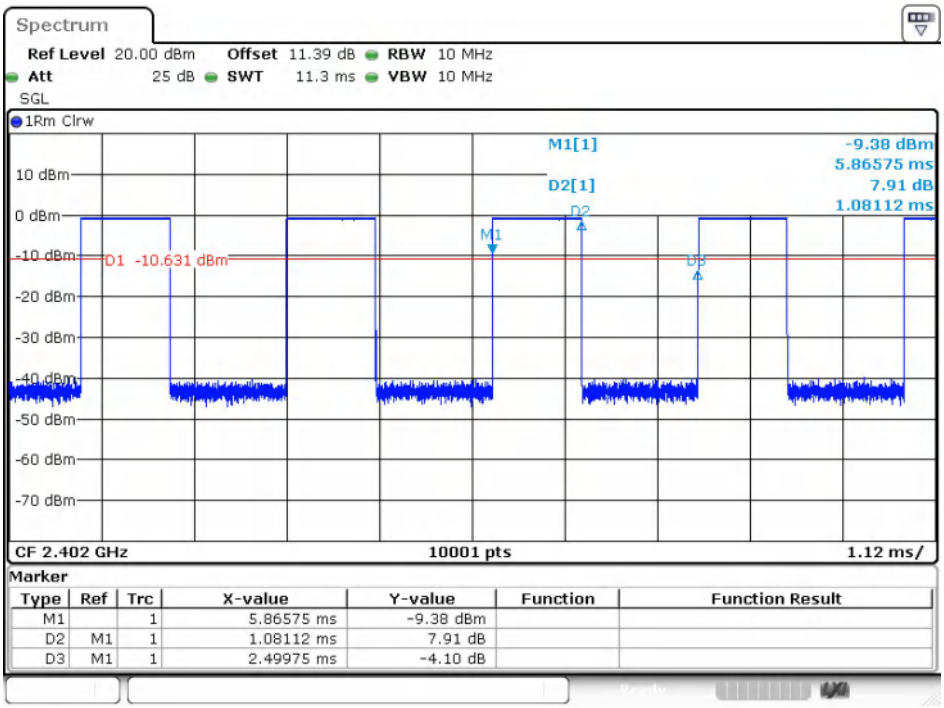

BLE 1M_Channel 0



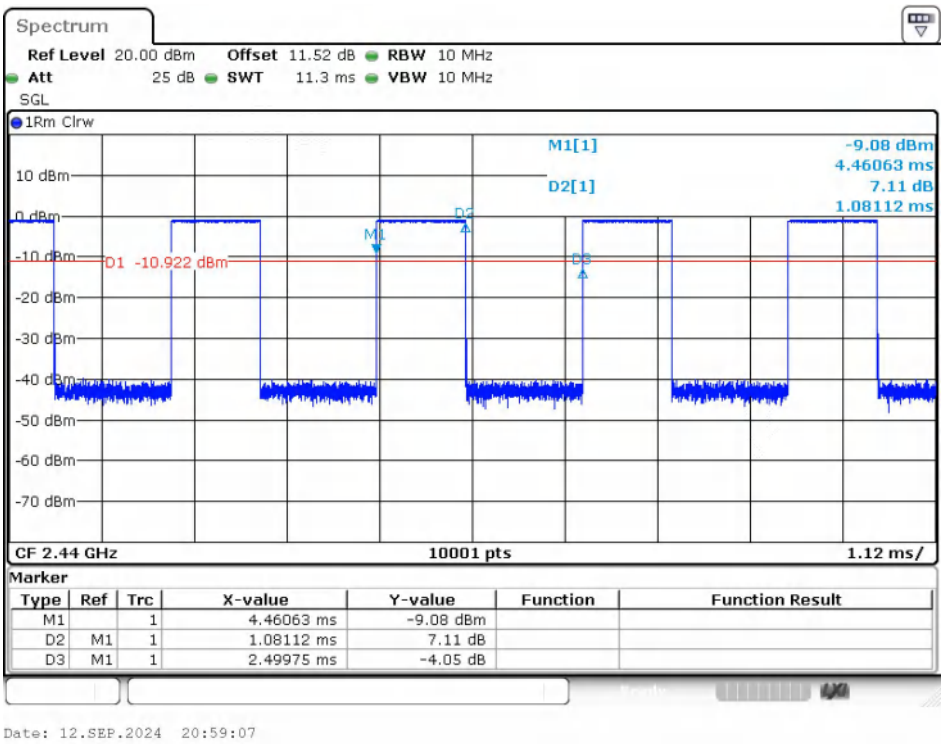

**BLE 1M_Channel 19**



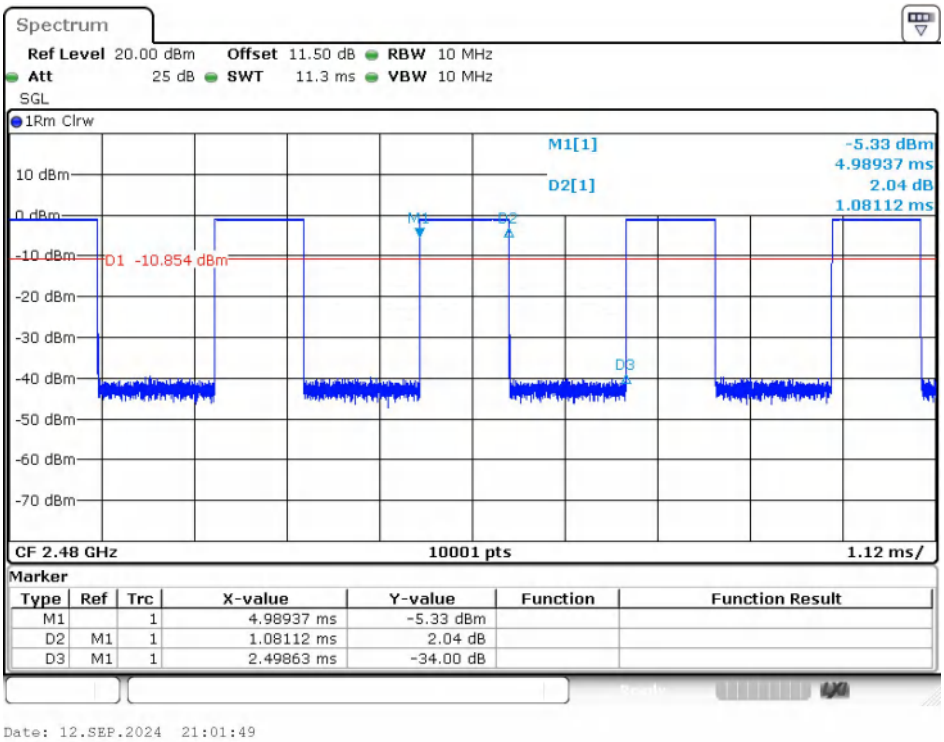

**BLE 1M_Channel 39**




**BLE 2M_Channel 0**




**BLE 2M_Channel 19**



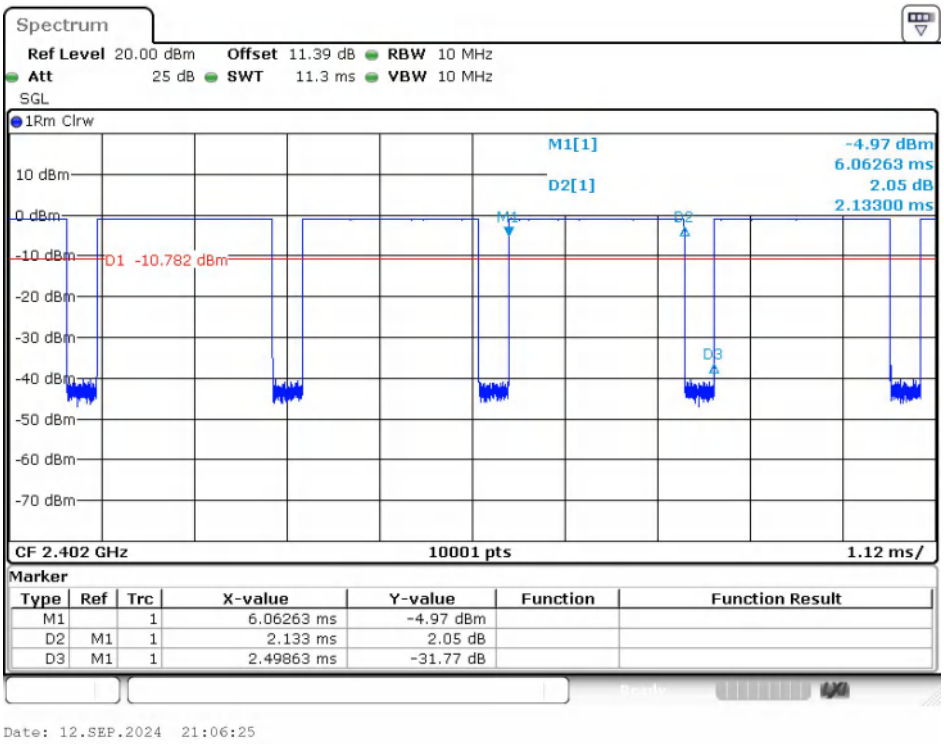

BLE 2M_Channel 39

**Left:**

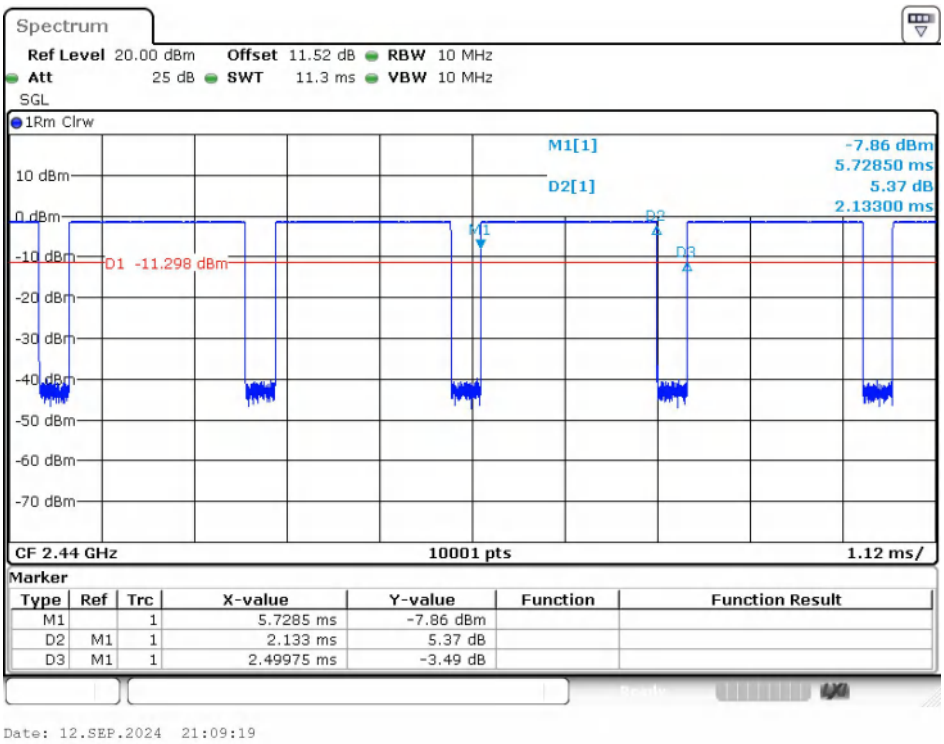
**Test Result**

| Mode | Channel | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) | 1/T |
|---|---|---|---|---|---|---|---|
| BLE 1M | 0 | 2.133 | 2.499 | 85.37 | 0.8537 | 0.6869 | 0.47 |
| | 19 | 2.133 | 2.500 | 85.33 | 0.8533 | 0.689 | 0.47 |
| | 39 | 2.133 | 2.499 | 85.37 | 0.8537 | 0.6869 | 0.47 |
| BLE 2M | 0 | 1.081 | 2.499 | 43.27 | 0.4327 | 3.6381 | 0.93 |
| | 19 | 1.081 | 2.499 | 43.27 | 0.4327 | 3.6381 | 0.93 |
| | 39 | 1.081 | 2.499 | 43.27 | 0.4327 | 3.6381 | 0.93 |

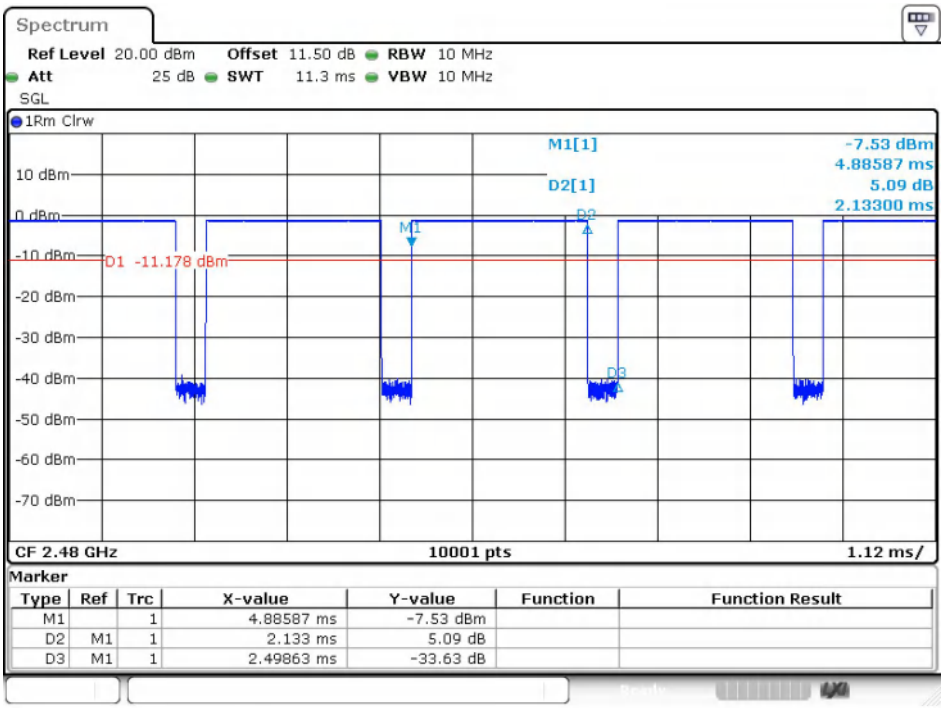
**Test Graphs**



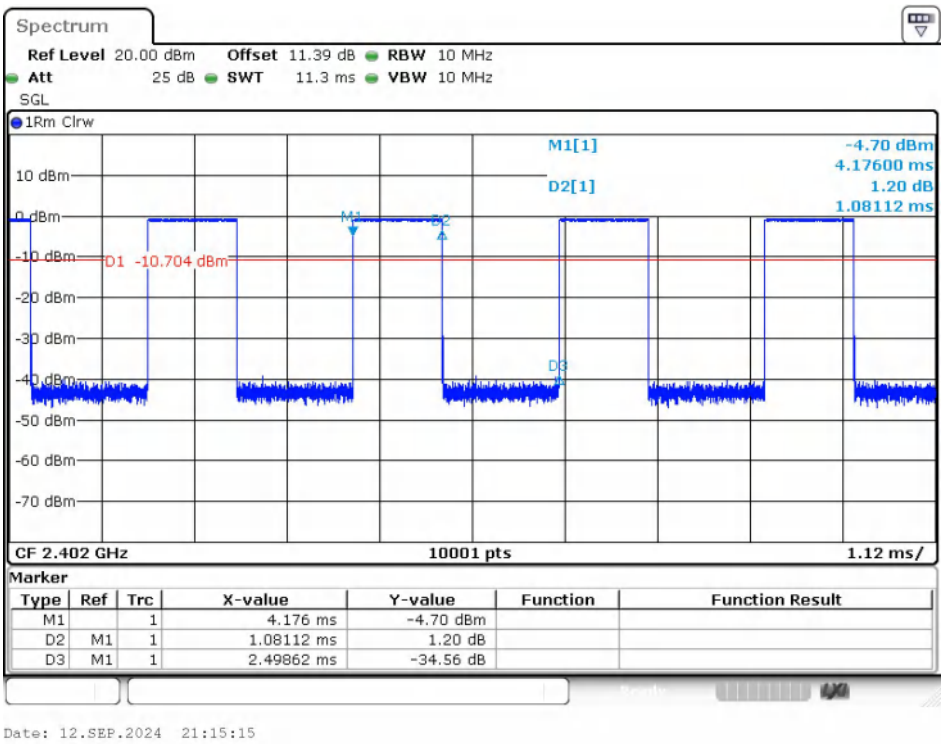

**BLE 1M_Channel 0**



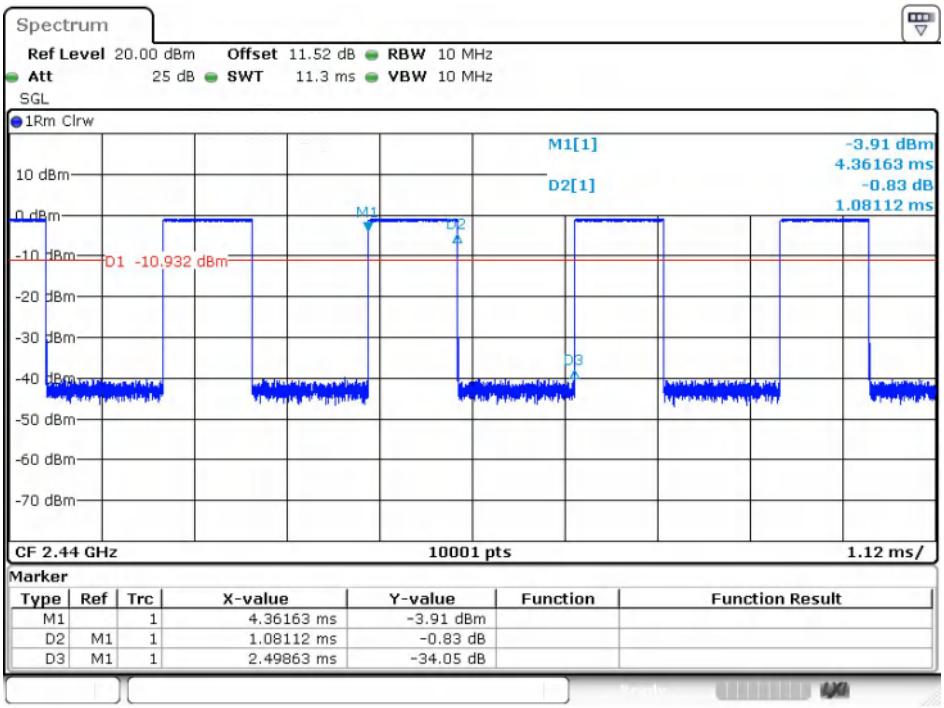

**BLE 1M_Channel 19**



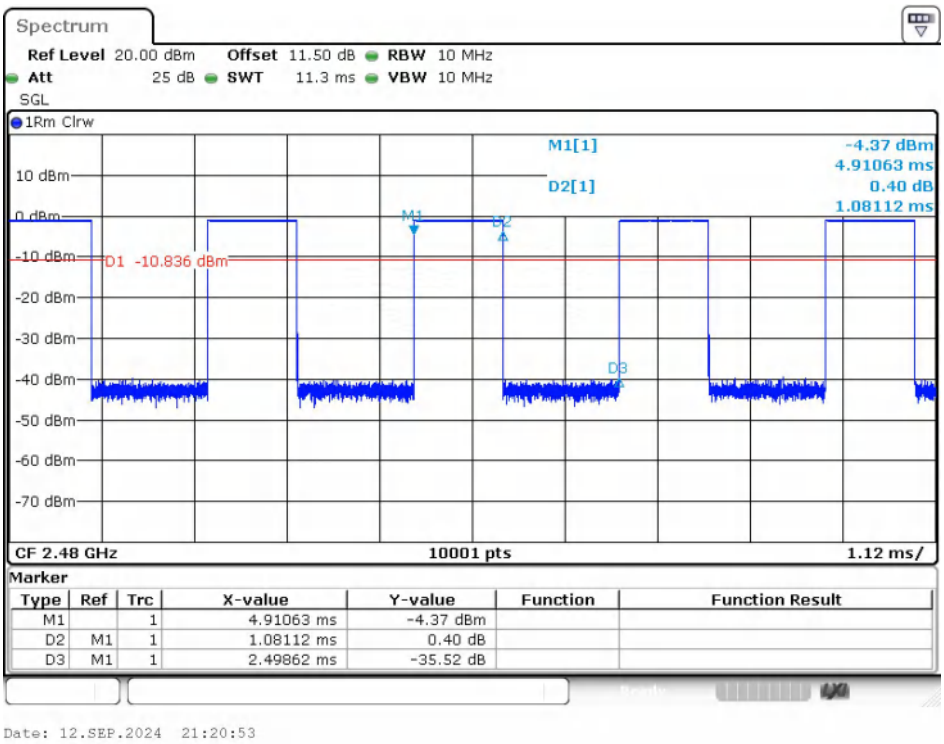

**BLE 1M_Channel 39**




**BLE 2M_Channel 0**




BLE 2M_Channel 19




BLE 2M_Channel 39

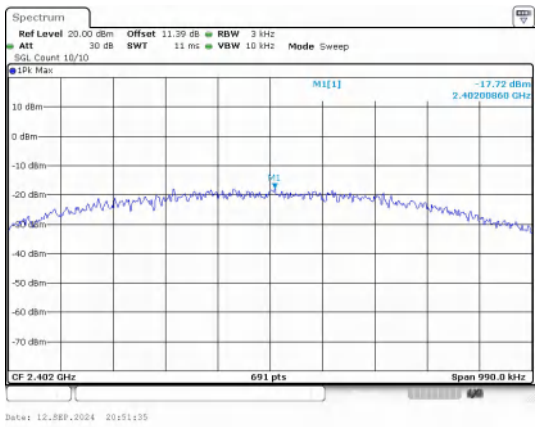
# 6) Power Spectral Density

**Right:**

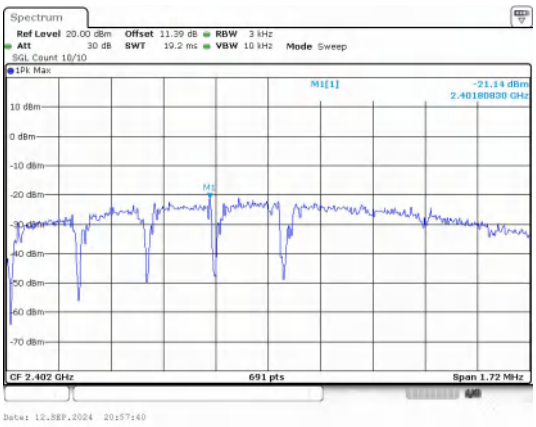
**Test Result**

| Mode | Channel | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
|---|---|---|---|---|
| BLE 1M | 0 | -17.721 | ≤8 | PASS |
| BLE 1M | 19 | -18.068 | ≤8 | PASS |
| BLE 1M | 39 | -17.789 | ≤8 | PASS |
| BLE 2M | 0 | -21.145 | ≤8 | PASS |
| BLE 2M | 19 | -19.169 | ≤8 | PASS |
| BLE 2M | 39 | -19.563 | ≤8 | PASS |

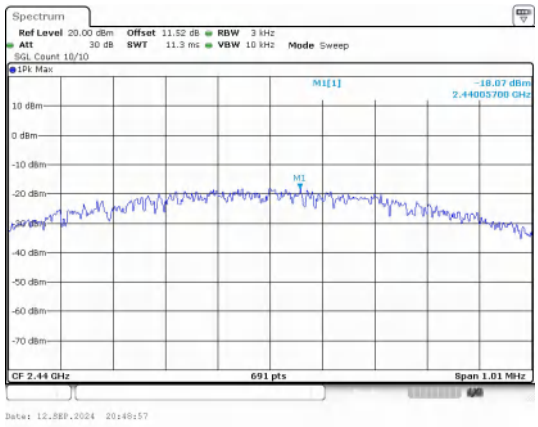
**Test Graphs**



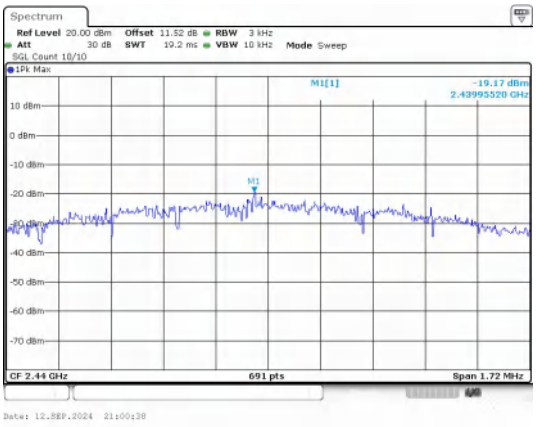

BLE 1M_Channel 0



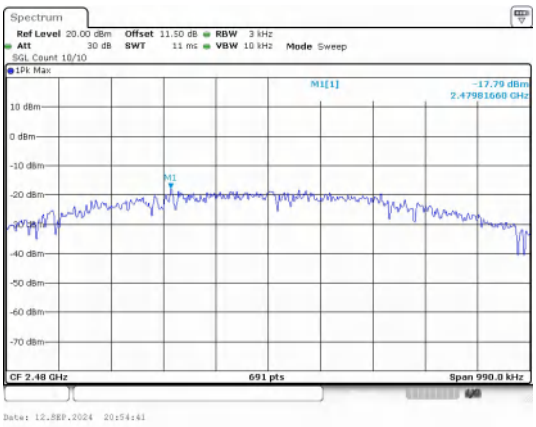

BLE 2M_Channel 0



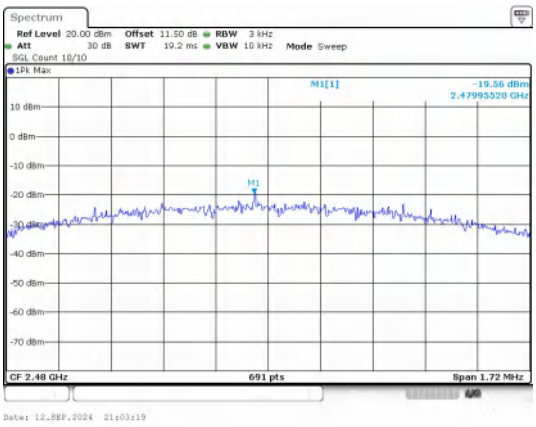

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39



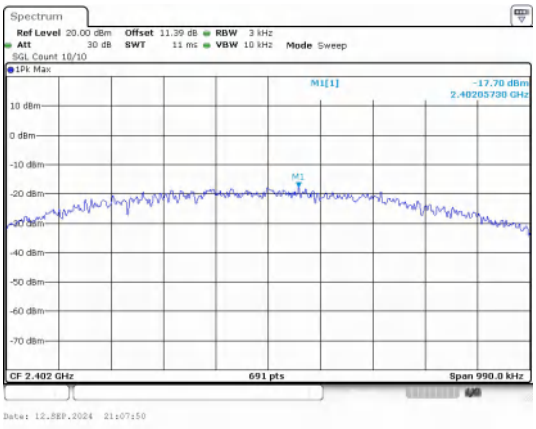

BLE 2M_Channel 39

**Left:**

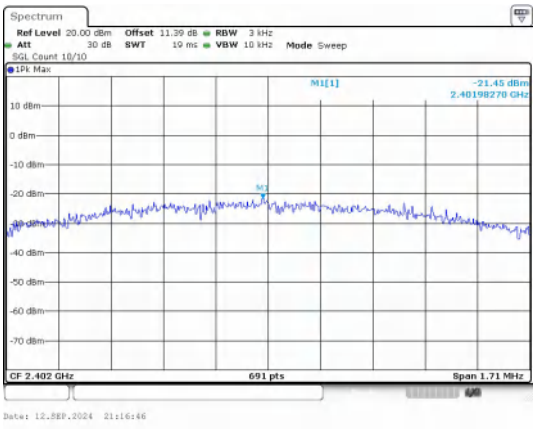
**Test Result**

| Mode | Channel | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
|---|---|---|---|---|
| BLE 1M | 0 | -17.699 | ≤8 | PASS |
| BLE 1M | 19 | -17.877 | ≤8 | PASS |
| BLE 1M | 39 | -18.273 | ≤8 | PASS |
| BLE 2M | 0 | -21.446 | ≤8 | PASS |
| BLE 2M | 19 | -21.560 | ≤8 | PASS |
| BLE 2M | 39 | -19.295 | ≤8 | PASS |

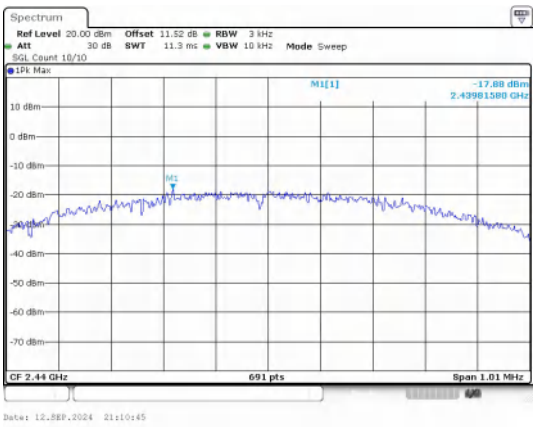
**Test Graphs**



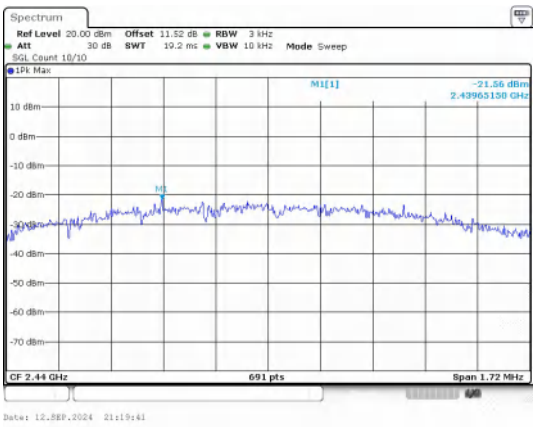

BLE 1M_Channel 0



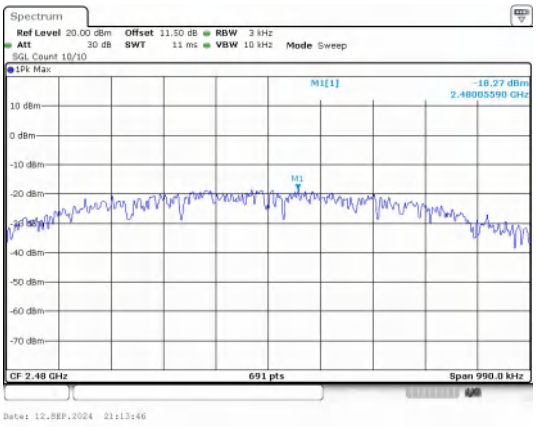

BLE 2M_Channel 0



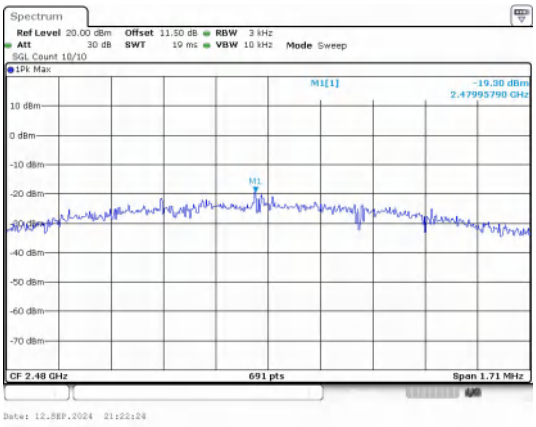

BLE 1M_Channel 19




BLE 2M_Channel 19




BLE 1M_Channel 39




BLE 2M_Channel 39