# 9 Maximum Peak Output Power

Test Requirement : FCC CFR47 Part 15 Section 15.247 (b)(3)&RSS-247 5.4(4)

Test Method : ANSI C63.10:2013 and RSS-Gen

Test Limit :
Regulation 15.247 (b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

## 9.1 Test Procedure

1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

2. Set to the maximum power setting and enable the EUT transmit continuously.

3. Measure the conducted output power and record the results in the test report.

## 9.2 Test Result

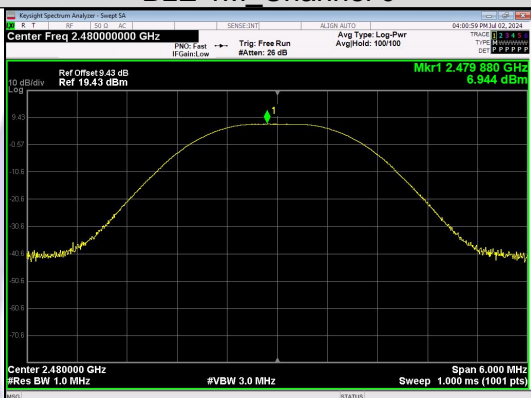| Mode | Channel | Peak Output Power (dBm) | Peak Output Power (mW) | Max. Avg. Power (dBm) | Limit (dBm) | Result |
|------|---------|---------|---------|---------|---------|--------|
| BLE 1M | 0 | 6.267 | 4.23 | None | ≤30 | PASS |
| | 19 | 6.666 | 4.64 | None | ≤30 | PASS |
| | 39 | 6.944 | 4.95 | None | ≤30 | PASS |
| BLE 2M | 0 | 6.233 | 4.2 | None | ≤30 | PASS |
| | 19 | 6.618 | 4.59 | None | ≤30 | PASS |
| | 39 | 6.900 | 4.9 | None | ≤30 | PASS |

| Mode | Channel | Peak Output Power (dBm) | Peak Power Limit (dBm) | ISED EIRP (dBm) | ISED EIRP Limit (dBm) | Max. Avg. Power (dBm) | Result |
|------|---------|---------|---------|---------|---------|---------|--------|
| BLE 1M | 0 | 6.267 | ≤30 | 7.577 | ≤36.02 | None | PASS |
| | 19 | 6.666 | ≤30 | 7.976 | ≤36.02 | None | PASS |
| | 39 | 6.944 | ≤30 | 8.254 | ≤36.02 | None | PASS |
| BLE 2M | 0 | 6.233 | ≤30 | 7.543 | ≤36.02 | None | PASS |
| | 19 | 6.618 | ≤30 | 7.928 | ≤36.02 | None | PASS |
| | 39 | 6.900 | ≤30 | 8.21 | ≤36.02 | None | PASS |
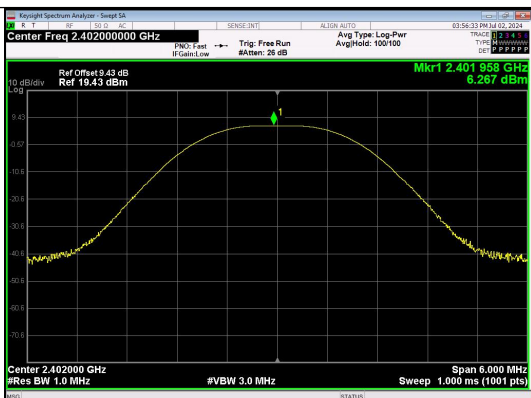
Peak Output Power
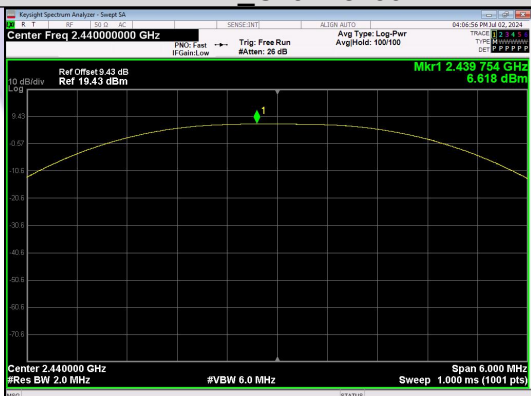BLE 1M_Channel 0
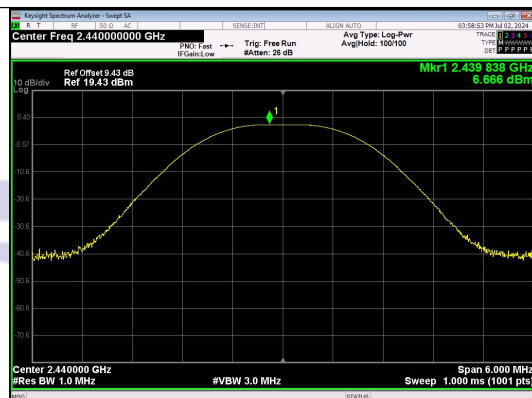


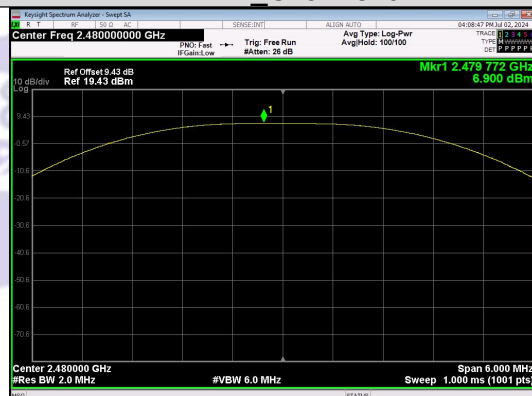Peak Output Power
BLE 1M_Channel 19



Peak Output Power
BLE 1M_Channel 39
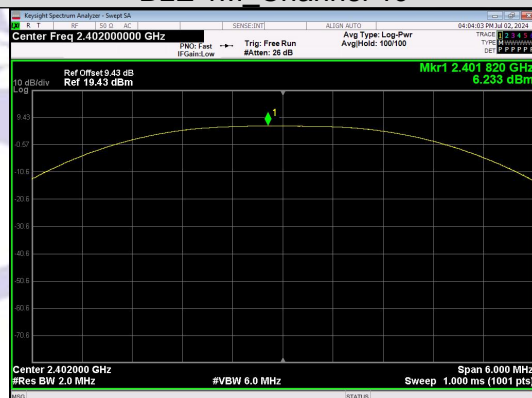


Peak Output Power
BLE 2M_Channel 0



Peak Output Power
BLE 2M_Channel 19



Peak Output Power
BLE 2M_Channel 39
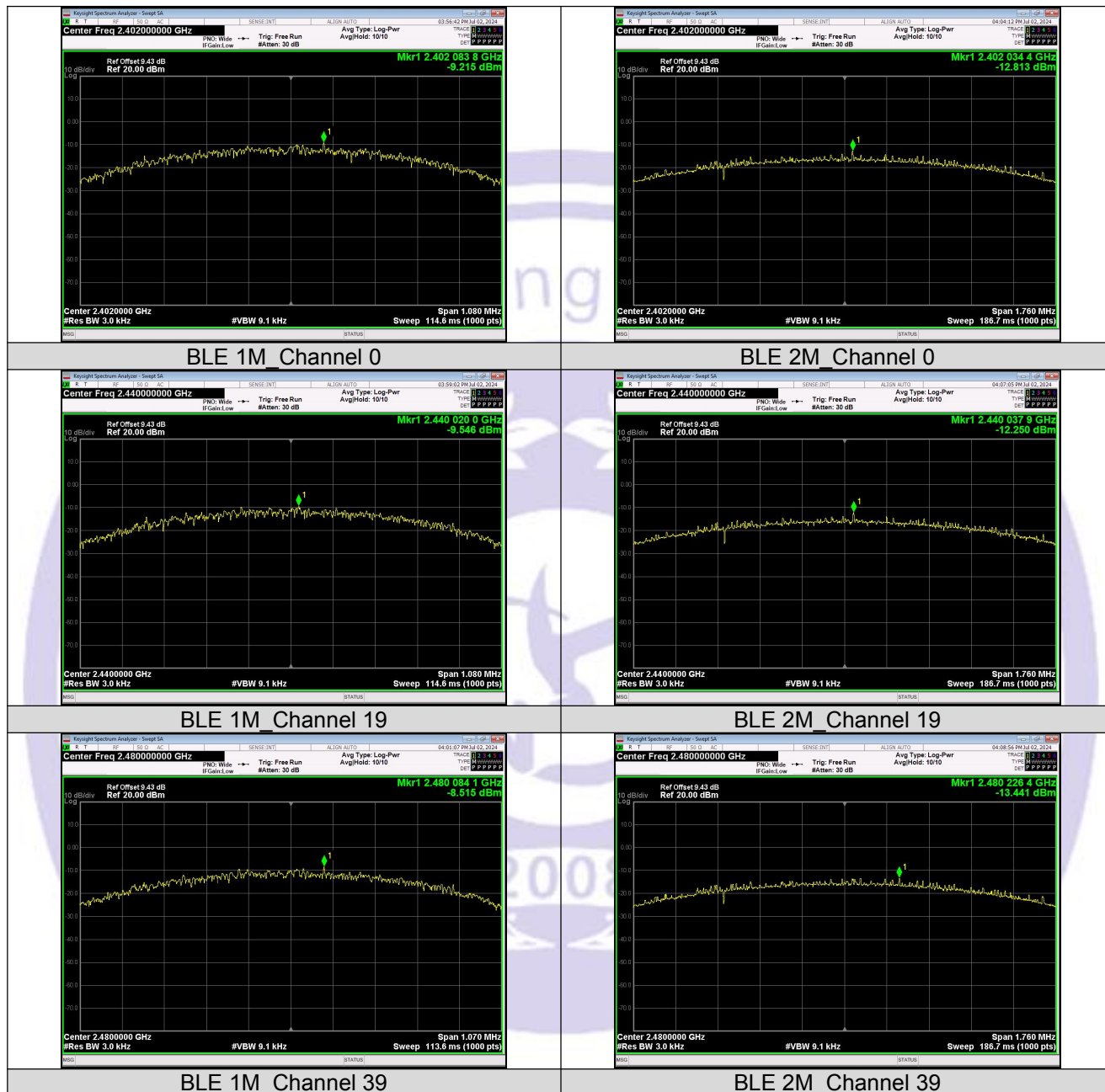
## 10 Power Spectral density

| | | |
|---|---|---|
| Test Requirement | : | FCC CFR47 Part 15 Section 15.247 (e)&RSS-247 [5.2(2)] |
| Test Method | : | ANSI C63.10:2013 and RSS-Gen |
| Test Limit | : | Regulation 15.247(f) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. |

### 10.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 3kHz. VBW = 9.1kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

### 10.2 Test Result

| Mode | Channel number | Channel frequency (MHz) | Measurement level (dBm) PSD/3kHz | Required Limit (dBm/3kHz) | Pass/Fail |
|---|---|---|---|---|---|
| LE | 00 | 2402 | -9.215 | 8 | PASS |
| | 19 | 2440 | -9.546 | 8 | PASS |
| | 39 | 2480 | -8.515 | 8 | PASS |
| 2LE | 00 | 2402 | -12.813 | 8 | PASS |
| | 19 | 2440 | -12.250 | 8 | PASS |
| | 39 | 2480 | -13.441 | 8 | PASS |

BLE 1M_Channel 0



BLE 2M_Channel 0



BLE 1M_Channel 19



BLE 2M_Channel 19



BLE 1M_Channel 39



BLE 2M_Channel 39

# 11 Antenna Application

## 11.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

## 11.2 Result

The antenna is PCB antenna, the best case gain of the antennas is 1.31dBi, reference to the appendix II for details

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## 12 Test Setup

Please see the attachment for details.

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# 13 EUT Photos

Please see the attachment for details.

******THE END REPORT******

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