



FCC Test Report

Report No.: OKA-ESH-P24020029B-2

FCC ID: 2AYF8-YBEB60

Product: Electric Bicycle

Model: EB60

Received Date: Feb.05, 2024

Test Date: Feb.05 to Mar.08, 2024

Issued Date: Mar.12, 2024

Applicant: Zhejiang OKAI Vehicle CO.,LTD.

Address: No.9,Xinxing Road,Xinbi Town, Jinyun County,Zhejiang,China

Manufacturer: Zhejiang OKAI Vehicle CO.,LTD.

Address: No.9,Xinxing Road,Xinbi Town, Jinyun County,Zhejiang,China

Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

Lab Address: No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

**FCC Registration /
Designation Number:** 176467/ CN1213



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Release Control Record

| Issue No. | Description | Date Issued |
|----------------------|--------------------|--------------------|
| OKA-ESH-P24020029B-2 | Original release | Mar.12, 2024 |

1 Certificate of Conformity

Product: Electric Bicycle

Brand: OKAI

Model: EB60

Applicant: Zhejiang OKAI Vehicle CO.,LTD.

Test Date: Feb.05 to Mar.08, 2024

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2020

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :


Yuan ZHANG

Project Engineer

, Date:

Mar.12, 2024

Approved by :



Sean YU

RF Supervisor

, Date:

Mar.12, 2024



2 Summary of Test Results

The EUT has been tested according to the following specifications:

| 47 CFR FCC Part 15, Subpart C (SECTION 15.247) | | | |
|--|---|--------|--------------------------------|
| FCC Clause | Test Item | Result | Remarks |
| 15.203 | Antenna Requirement | PASS | No antenna connector is used. |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit. |
| 15.247(a)(2) | Minimum 6dB Bandwidth | PASS | Meet the requirement of limit. |
| 15.247(b) | Conducted Output Power | PASS | Meet the requirement of limit. |
| 15.247(e) | Power Spectral Density | PASS | Meet the requirement of limit. |
| 15.247(d) | Conducted Band Edges Measurement | PASS | Meet the requirement of limit. |
| 15.247(d) | Conducted Spurious Emissions | PASS | Meet the requirement of limit. |
| 15.247(d) | Emissions in restricted frequency bands | PASS | Meet the requirement of limit. |
| 15.205 / 15.209 / 15.247(d) | Radiated Emissions Measurement | PASS | Meet the requirement of limit. |

2.1 Test Instruments

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|------------------------------------|--------------|--------------|------------|------------|------------|
| Loop Antenna | ETS-LINDGREN | 6502 | E1A1039 | Jul.23,22 | Jul.21,24 |
| Hybrid Antenna(25MHz-1.5GHz) | Schwarzbeck | VULB9168 | E1A1012 | Aug. 17,23 | Aug. 16,25 |
| Horn Antenna(1GHz -18GHz) | Schwarzbeck | BBHA9120D | E1A1017 | Jul.25,22 | Jul.24,24 |
| Double Ridge Horn Antenna(18G-40G) | COM-POWER | AH-840 | E1A1040 | Jul.25,22 | Jul.24,24 |
| Pre-Amplifier(100kHz-1.3GHz) | Agilent | 8447D | E1A2001 | Feb.18,24 | Feb.17,25 |
| Pre-Amplifier(0.5GHz-18GHz) | EMCI | EMC184045SE | E1A2009 | Jul.28,22 | Jul.27,24 |
| Pre-Amplifier(18GHz-40GHz) | EMCI | EMC051845SE | E1A2008 | Aug.11,23 | Aug.10,24 |
| EMI test receiver | R&S | ESR7 | E1R1005 | Feb.18,24 | Feb.17,25 |
| Spectrum Analyzer | Keysight | N9030B | E1S1003 | Aug.29, 23 | Aug.28, 24 |
| Spectrum Analyzer | Keysight | N9020A | E1S1004 | Feb.19,24 | Feb.18,25 |
| EMI test receiver | R&S | ESR3 | E1R1008 | Jun.06, 23 | Jun.05, 24 |
| LISN | R&S | ENV216 | E1L1013 | Sep.01,23 | Aug.31,24 |
| Humidity&Temp Tester | ESPEC | SE TH-Z-042U | C1TH002 | Jun.07,23 | Jun.06,24 |
| RF Control Unit | Toscend | JS0806-2 | E1C5003 | N/A | N/A |
| Test Software | Toscend | JS32-CE | N/A | N/A | N/A |
| Test Software | Toscend | JS32-RE | N/A | N/A | N/A |
| Test Software | Toscend | JS1120 | N/A | N/A | N/A |
| Test Software | Toscend | JS1120-3 | N/A | N/A | N/A |

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.


| Measurement | Frequency | Expanded Uncertainty ($k=2$) (\pm) |
|------------------------------------|----------------|---|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz | 1.83 dB |
| Radiated Emissions up to 1 GHz | 30MHz ~ 1GHz | 5.36 dB |
| Radiated Emissions above 1 GHz | 1GHz ~ 6GHz | 3.47 dB |
| | 6GHz ~ 18GHz | 3.75 dB |
| | 18GHz ~ 40GHz | 3.30 dB |

2.3 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

| | |
|-----------------------|--|
| Product | Electric Bicycle |
| Brand |  |
| Model | EB60 |
| Difference | -- |
| Power Rating | For Electric Bicycle: DC 36V; For adaptor: Input: AC 100-240V, 50/60Hz 2.5A, Output: DC 42.0V, 2.0A |
| Modulation Type | GFSK |
| Modulation Technology | Bluetooth Low Energy 5.0 |
| Operating Frequency | 2402MHz ~ 2480MHz |
| Number of Channel | 40 |
| Output Power | 1.75 dBm |
| Antenna Type | FPC Antenna |
| Antenna Connector | -- |
| Antenna Gain | 1.98dBi |

Note:

1. For more details, please refer to the User's manual of the EUT.

3.2 Description of Test Modes

40 channels are provided for Bluetooth LE.

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 0 | 2402 MHz | 20 | 2442 MHz |
| 1 | 2404 MHz | 21 | 2444 MHz |
| 2 | 2406 MHz | 22 | 2446 MHz |
| 3 | 2408 MHz | 23 | 2448 MHz |
| 4 | 2410 MHz | 24 | 2450 MHz |
| 5 | 2412 MHz | 25 | 2452 MHz |
| 6 | 2414 MHz | 26 | 2454 MHz |
| 7 | 2416 MHz | 27 | 2456 MHz |
| 8 | 2418 MHz | 28 | 2458 MHz |
| 9 | 2420 MHz | 29 | 2460 MHz |
| 10 | 2422 MHz | 30 | 2462 MHz |
| 11 | 2424 MHz | 31 | 2464 MHz |
| 12 | 2426 MHz | 32 | 2466 MHz |
| 13 | 2428 MHz | 33 | 2468 MHz |
| 14 | 2430 MHz | 34 | 2470 MHz |
| 15 | 2432 MHz | 35 | 2472 MHz |
| 16 | 2434 MHz | 36 | 2474 MHz |
| 17 | 2436 MHz | 37 | 2476 MHz |
| 18 | 2438 MHz | 38 | 2478 MHz |
| 19 | 2440 MHz | 39 | 2480 MHz |

3.2.1 Test Mode Applicability:

| EUT Configure Mode | Applicable to | | | | Description |
|--------------------|---------------|---------|-----|------|-------------|
| | RE ≥ 1G | RE < 1G | PLC | APCM | |
| - | √ | √ | √ | √ | - |

Where **RE≥1G**: Radiated Emission above 1GHz **RE< 1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|------|-------------------|----------------|-----------------|
| - | BLE | 0 to 39 | 0, 19, 39 | GFSK |

Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|------|-------------------|----------------|-----------------|
| - | BLE | 0 to 39 | 0 | GFSK |

Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|------|-------------------|----------------|-----------------|
| - | BLE | 0 to 39 | 0 | GFSK |

Antenna Port Conducted Measurement

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|------|-------------------|----------------|-----------------|
| - | BLE | 0 to 39 | 0, 19, 39 | GFSK |

3.2.2 Test Condition:

| Applicable to | Normal Environmental Conditions | Normal Input Power |
|---------------|---------------------------------|-----------------------------------|
| RE ≥ 1G | 23deg. C, 58%RH | AC 120V 50Hz , Powered by battery |
| RE < 1G | 23deg. C, 58%RH | AC 120V 50Hz , Powered by battery |
| PLC | 23deg. C, 58%RH | AC 120V 50Hz , |
| APCM | 25deg. C, 60%RH | Powered by battery |

3.3 Duty Cycle of Test Signal

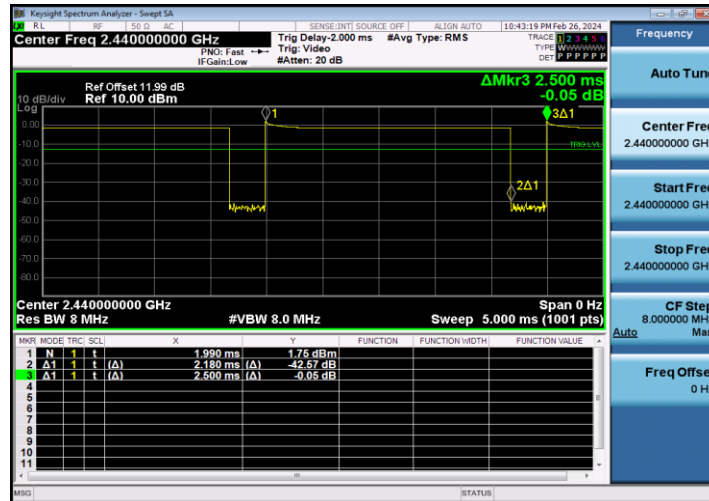
| Test Mode | Antenna | Channel [MHz] | Duty Cycle [%] | 10log(1/x) Factor[dB] |
|-----------|---------|---------------|----------------|-----------------------|
| BLE_1M | Ant1 | 2402 | 86.80 | 0.61 |
| | | 2440 | 87.20 | 0.59 |
| | | 2480 | 86.80 | 0.61 |
| BLE_2M | Ant1 | 2402 | 59.57 | 2.25 |
| | | 2440 | 59.57 | 2.25 |
| | | 2480 | 59.57 | 2.25 |

Note: Duty Cycle Factor= $10 \cdot \log[1/\text{Duty Cycle}(\%)] \cdot 100$, Duty Cycle= $T_{\text{on}}/T_{\text{period}} \cdot 100\%$

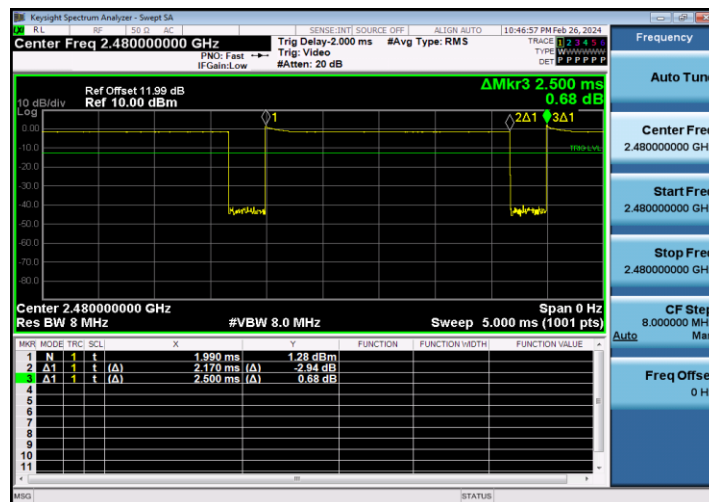
BLE_1M_Ant1_2402



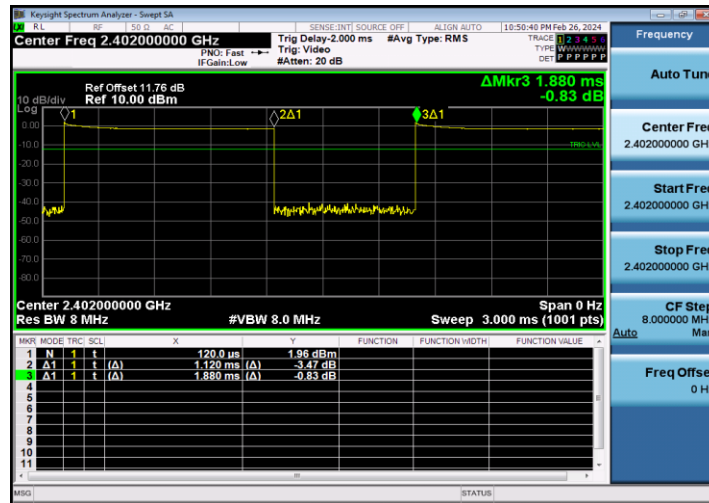
BLE_1M_Ant1_2440



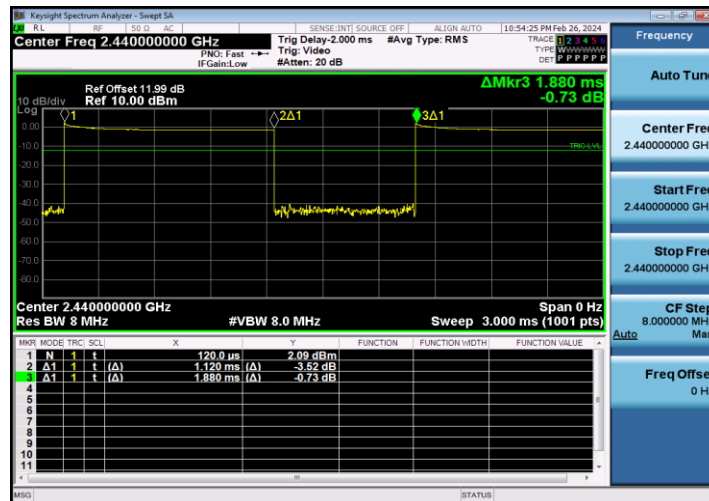
BLE_1M_Ant1_2480



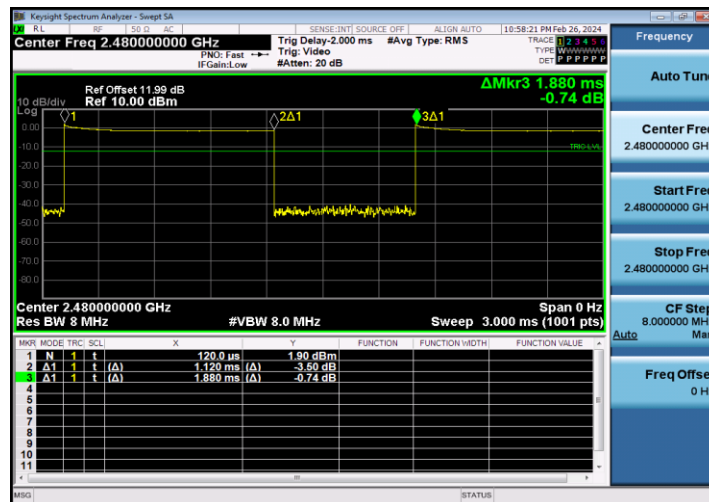
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480





3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

| NO. | PRODUCT | BRAND/ Manufacturer | MODEL NO. |
|-----|---------|---------------------|-----------|
| 1. | Laptop | Lenovo | L470 |

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standard:

FCC Part 15, Subpart C (15.247)

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10:2020

All relaxed test items have been performed and recorded as per the above standard.

4 Test Procedure and Results

4.1 AC Power Conducted Emission

4.1.1 Limits

| Frequency (MHz) | Conducted Limit (dBuV) | |
|-----------------|------------------------|---------|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.1.2 Test Procedures

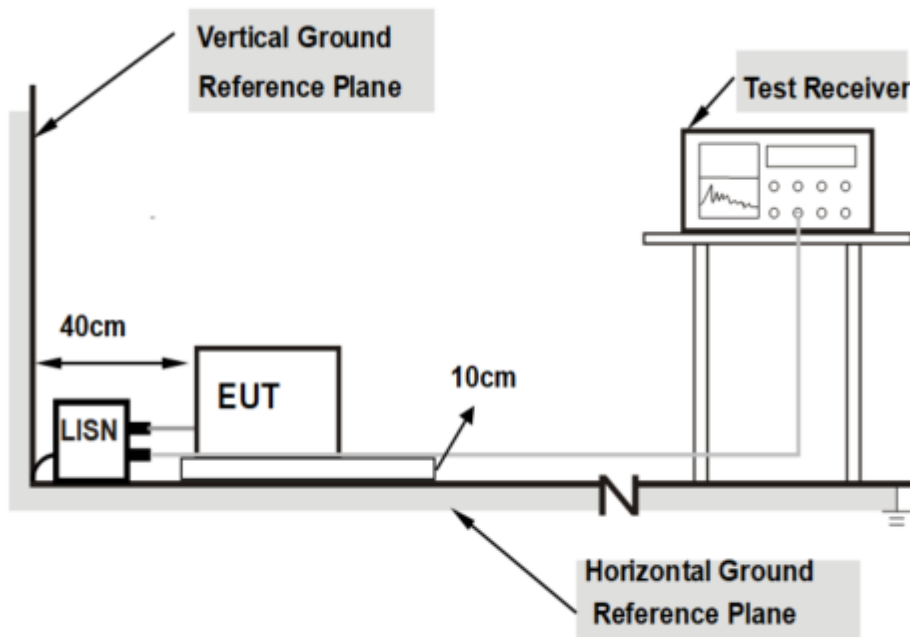
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.1.3 Deviation from Test Standard

No deviation.

4.1.4 Test Setup



Note: 1.Support units were connected to second LISN.

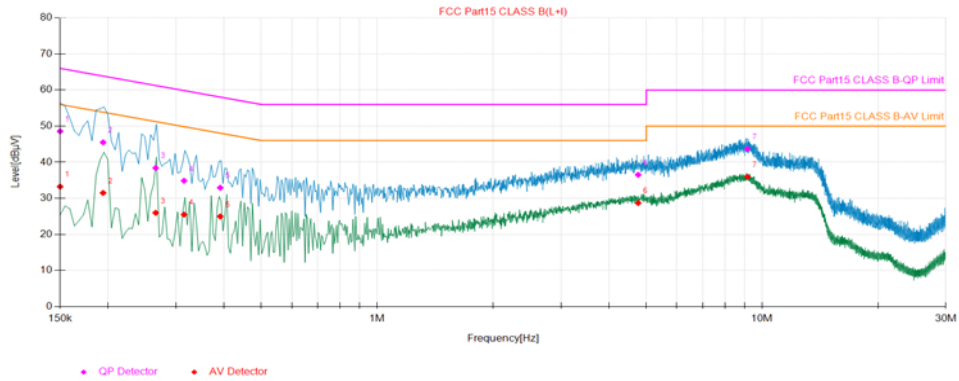
For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.5 EUT Operating Conditions

Same as 4.1.6.

4.1.6 Test Results

| Phase | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
|--------------|---------------|-------------------|--------------------------------|
| Power supply | AC 120V, 60Hz | | |
| Test Mode | Charging | | |



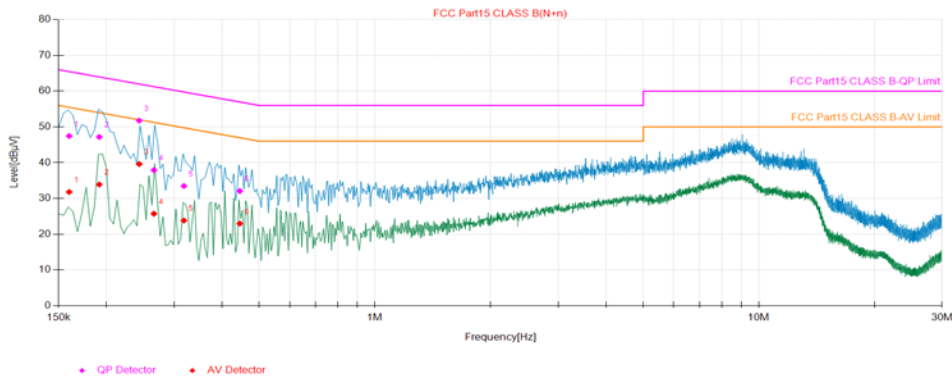
Final Data List

| N O. | Freq. [MHz] | Factor [dB] | QP Reading [dB µ V] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dB µ V] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Type | Verdict |
|------|-------------|-------------|---------------------|-----------------|-----------------|----------------|---------------------|-----------------|-----------------|----------------|------|---------|
| 1 | 0.15 | 9.74 | 38.82 | 48.56 | 66.00 | 17.44 | 23.48 | 33.22 | 56.00 | 22.78 | L | PASS |
| 2 | 0.19 | 9.73 | 35.77 | 45.50 | 63.86 | 18.36 | 21.75 | 31.48 | 53.86 | 22.38 | L | PASS |
| 3 | 0.27 | 9.64 | 28.76 | 38.40 | 61.25 | 22.85 | 16.33 | 25.97 | 51.25 | 25.28 | L | PASS |
| 4 | 0.31 | 9.59 | 25.26 | 34.85 | 59.84 | 24.99 | 15.88 | 25.47 | 49.84 | 24.37 | L | PASS |
| 5 | 0.39 | 9.59 | 23.33 | 32.92 | 58.04 | 25.12 | 15.37 | 24.96 | 48.04 | 23.08 | L | PASS |
| 6 | 4.76 | 9.72 | 26.78 | 36.50 | 56.00 | 19.50 | 18.97 | 28.69 | 46.00 | 17.31 | L | PASS |
| 7 | 9.16 | 10.04 | 33.63 | 43.67 | 60.00 | 16.33 | 25.91 | 35.95 | 50.00 | 14.05 | L | PASS |

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Limit value - Emission level
4. Correction factor = Insertion loss + Cable loss
5. QP/AV Value= QP/AV Reading Value+ Correction factor

| | | | |
|--------------|---------------|-------------------|-----------------------------------|
| Phase | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Power supply | AC 120V, 60Hz | | |
| Test Mode | Charging | | |



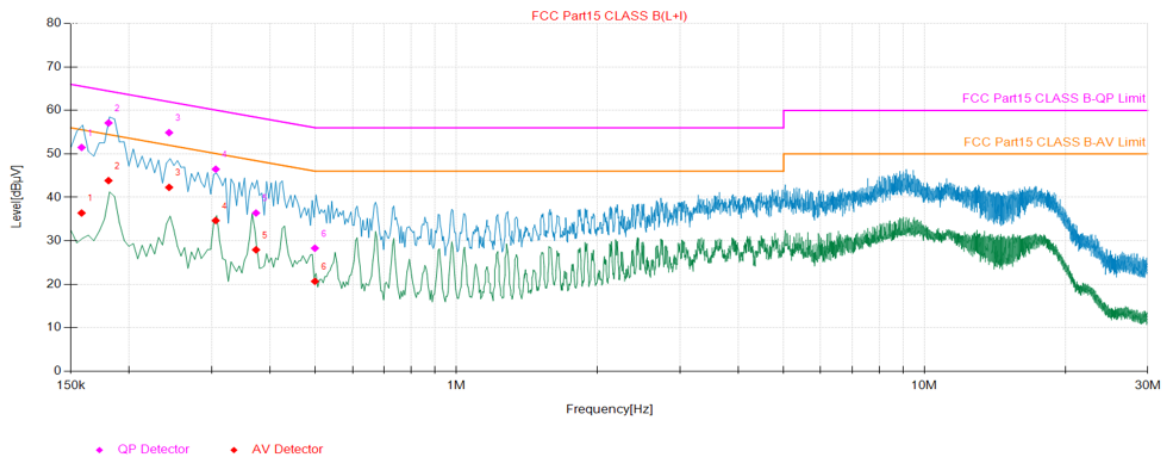
Final Data List

| N O. | Freq. [MHz] | Factor [dB] | QP Reading [dB µ V] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dB µ V] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Type | Verdict |
|------|-------------|-------------|---------------------|-----------------|-----------------|----------------|---------------------|-----------------|-----------------|----------------|------|---------|
| 1 | 0.16 | 9.71 | 37.74 | 47.45 | 65.47 | 18.02 | 22.08 | 31.79 | 55.47 | 23.68 | N | PASS |
| 2 | 0.19 | 9.78 | 37.40 | 47.18 | 63.97 | 16.79 | 24.10 | 33.88 | 53.97 | 20.09 | N | PASS |
| 3 | 0.24 | 9.68 | 42.06 | 51.74 | 61.98 | 10.24 | 29.93 | 39.61 | 51.98 | 12.37 | N | PASS |
| 4 | 0.27 | 9.62 | 28.29 | 37.91 | 61.25 | 23.34 | 16.10 | 25.72 | 51.25 | 25.53 | N | PASS |
| 5 | 0.32 | 9.53 | 23.94 | 33.47 | 59.76 | 26.29 | 14.27 | 23.80 | 49.76 | 25.96 | N | PASS |
| 6 | 0.44 | 9.57 | 22.51 | 32.08 | 56.97 | 24.89 | 13.38 | 22.95 | 46.97 | 24.02 | N | PASS |

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Limit value - Value level
4. Correction factor = Insertion loss + Cable loss
5. QP/AV Value= QP/AV Reading Value+ Correction factor

| | | | |
|--------------|---------------|-------------------|--------------------------------|
| Phase | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Power supply | AC 240V, 50Hz | | |
| Test Mode | Charging | | |



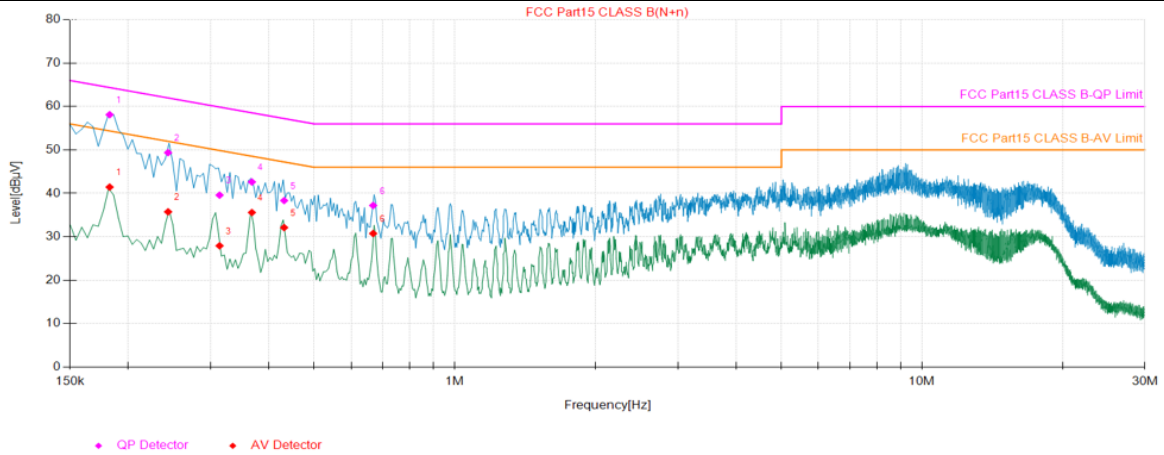
Final Data List

| NO. | Freq. [MHz] | Factor [dB] | QP Reading [dBμV] | QP Value [dBμV] | QP Limit [dBμV] | QP Margin [dB] | AV Reading [dBμV] | AV Value [dBμV] | AV Limit [dBμV] | AV Margin [dB] |
|-----|-------------|-------------|-------------------|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|
| 1 | 0.16 | 9.74 | 41.74 | 51.48 | 65.56 | 14.08 | 26.65 | 36.39 | 55.56 | 19.17 |
| 2 | 0.18 | 9.73 | 47.39 | 57.12 | 64.46 | 7.34 | 34.12 | 43.85 | 54.46 | 10.61 |
| 3 | 0.24 | 9.67 | 45.22 | 54.89 | 61.98 | 7.09 | 32.62 | 42.29 | 51.98 | 9.69 |
| 4 | 0.31 | 9.59 | 36.88 | 46.47 | 60.08 | 13.61 | 25.06 | 34.65 | 50.08 | 15.43 |
| 5 | 0.37 | 9.59 | 26.80 | 36.39 | 58.43 | 22.04 | 18.34 | 27.93 | 48.43 | 20.50 |
| 6 | 0.50 | 9.58 | 18.71 | 28.29 | 56.03 | 27.74 | 11.09 | 20.67 | 46.03 | 25.36 |

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Limit value - Emission level
4. Correction factor = Insertion loss + Cable loss
5. QP/AV Value= QP/AV Reading Value+ Correction factor

| | | | |
|--------------|---------------|-------------------|--------------------------------|
| Phase | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Power supply | AC 240V, 50Hz | | |
| Test Mode | Charging | | |



Final Data List

| NO. | Freq. [MHz] | Factor [dB] | QP Reading [dBµV] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dBµV] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] |
|-----|-------------|-------------|-------------------|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|
| 1 | 0.18 | 9.76 | 48.36 | 58.12 | 64.38 | 6.26 | 31.68 | 41.44 | 54.38 | 12.94 |
| 2 | 0.24 | 9.68 | 39.69 | 49.37 | 61.98 | 12.61 | 26.06 | 35.74 | 51.98 | 16.24 |
| 3 | 0.31 | 9.52 | 30.06 | 39.58 | 59.88 | 20.30 | 18.40 | 27.92 | 49.88 | 21.96 |
| 4 | 0.37 | 9.54 | 33.08 | 42.62 | 58.55 | 15.93 | 26.04 | 35.58 | 48.55 | 12.97 |
| 5 | 0.43 | 9.57 | 28.76 | 38.33 | 57.23 | 18.90 | 22.54 | 32.11 | 47.23 | 15.12 |
| 6 | 0.67 | 9.44 | 27.77 | 37.21 | 56.00 | 18.79 | 21.31 | 30.75 | 46.00 | 15.25 |

REMARKS:

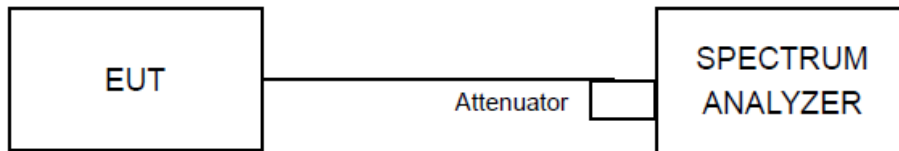
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Limit value - Emission level
4. Correction factor = Insertion loss + Cable loss
5. QP/AV Value= QP/AV Reading Value+ Correction factor

4.2 Minimum 6dB Bandwidth

4.2.1 Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz

4.2.2 Test Setup



4.2.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 8.2).

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 · RBW, peak detector with maximum hold) is implemented by the instrumentation function.

4.2.4 Deviation of Test Standard

No deviation.

4.2.5 Test Results

| Test Mode | Antenna | Channel [MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit [MHz] | Verdict |
|-----------|---------|---------------|--------------|----------|----------|-------------|---------|
| BLE_1M | Ant1 | 2402 | 0.600 | 2401.660 | 2402.260 | >=0.5 | PASS |
| | | 2440 | 0.584 | 2439.668 | 2440.252 | >=0.5 | PASS |
| | | 2480 | 0.596 | 2479.664 | 2480.260 | >=0.5 | PASS |
| BLE_2M | Ant1 | 2402 | 0.980 | 2401.476 | 2402.456 | >=0.5 | PASS |
| | | 2440 | 0.968 | 2439.476 | 2440.444 | >=0.5 | PASS |
| | | 2480 | 0.964 | 2479.464 | 2480.428 | >=0.5 | PASS |

99% Occupied Channel Bandwidth

| Test Mode | Antenna | Channel [MHz] | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------------|-----------|-----------|-----------|------------|---------|
| BLE_1M | Ant1 | 2402 | 1.0734 | 2401.4335 | 2402.5069 | --- | PASS |
| | | 2440 | 1.0870 | 2439.4205 | 2440.5075 | --- | PASS |
| | | 2480 | 1.0984 | 2479.4163 | 2480.5147 | --- | PASS |
| BLE_2M | Ant1 | 2402 | 2.1073 | 2400.9177 | 2403.0250 | --- | PASS |
| | | 2440 | 2.1054 | 2438.9184 | 2441.0238 | --- | PASS |
| | | 2480 | 2.0617 | 2478.9429 | 2481.0046 | --- | PASS |

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



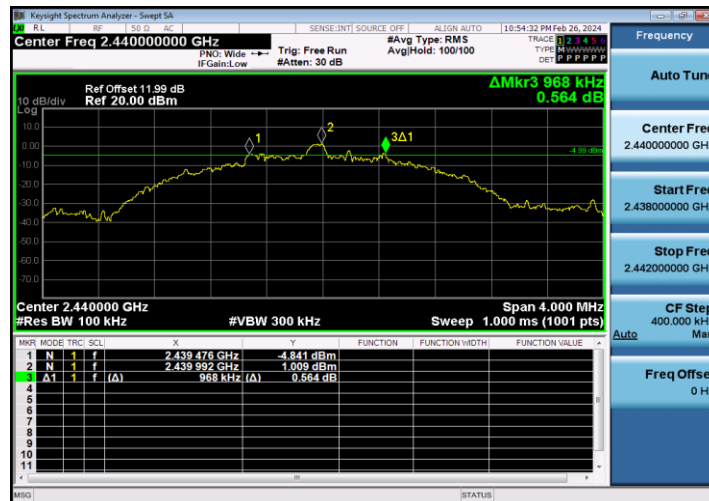
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

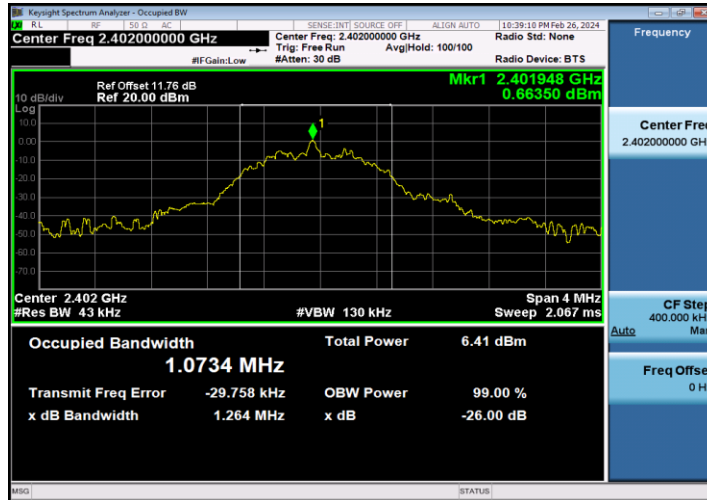


BLE_2M_Ant1_2480



Occupied Channel Bandwidth

BLE_1M_Ant1_2402



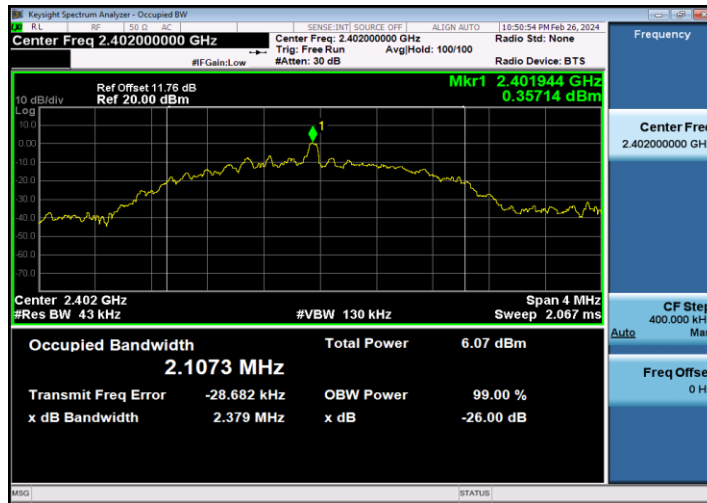
BLE_1M_Ant1_2440



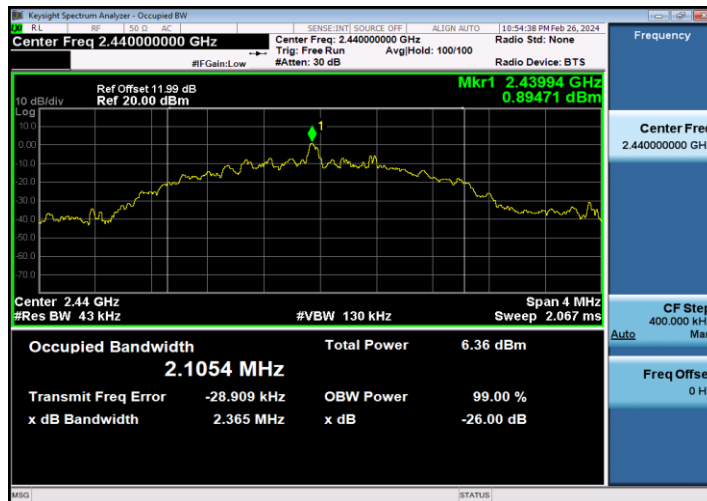
BLE_1M_Ant1_2480



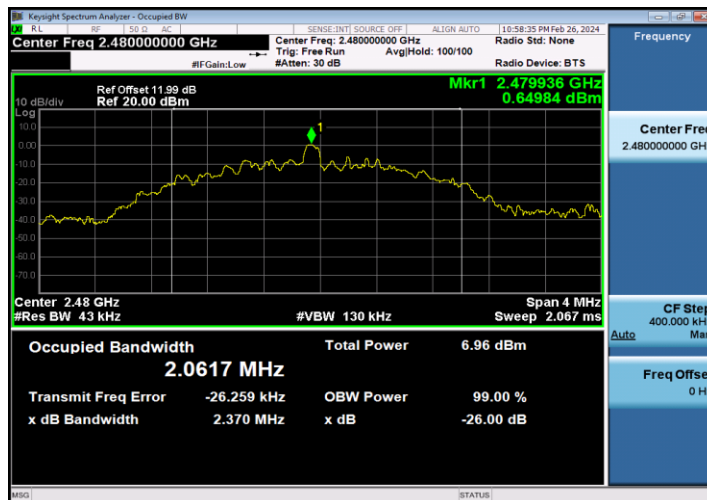
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

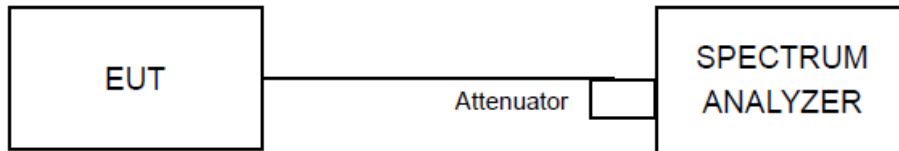


4.3 Conducted Output Power

4.3.1 Limit

For systems using digital modulation in the 2400 – 2483.5 MHz bands: 1 Watt (30 dBm)

4.3.2 Test Setup



4.3.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 9.2.2.4).

- a) Set RBW \geq DTS bandwidth
- b) Set VBW \geq 3 RBW.
- c) Set Span \geq 3 RBW.
- d) Sweep time = auto couple.
- e) Detector = peak
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize
- h) Use peak marker function to determine the peak amplitude level.

4.3.4 Deviation of Test Standard

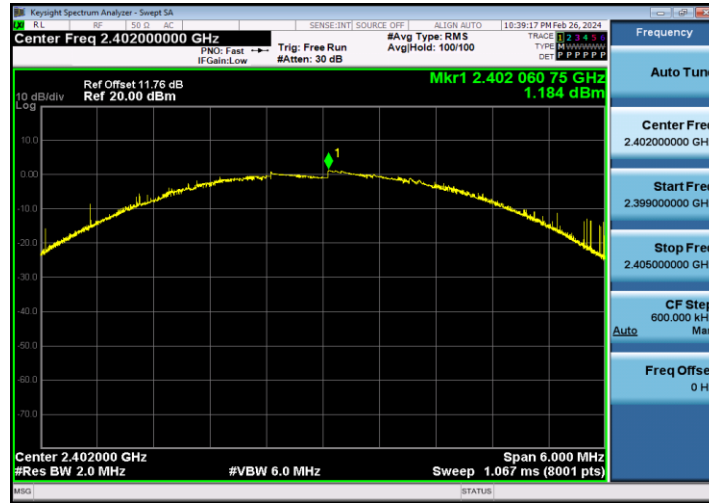
No deviation.

4.3.5 Test Results

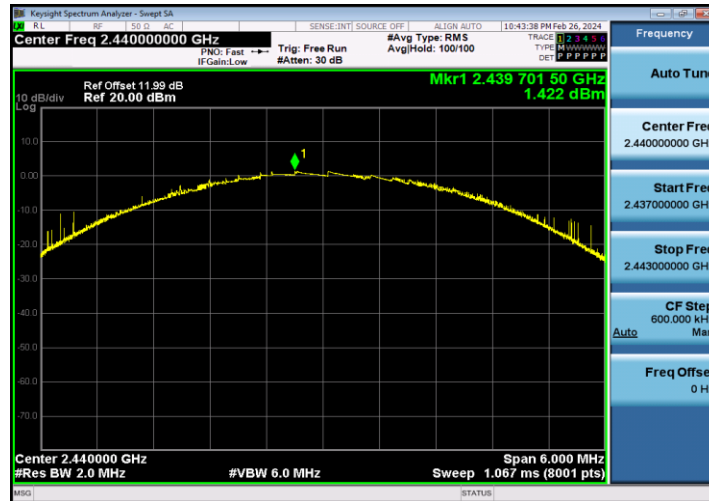
| Test Mode | Antenna | Channel [MHz] | Power [dBm] | Limit [dBm] | Verdict |
|-----------|---------|---------------|-------------|-------------|---------|
| BLE_1M | Ant1 | 2402 | 1.18 | <=30 | PASS |
| | | 2440 | 1.42 | <=30 | PASS |
| | | 2480 | 1.40 | <=30 | PASS |
| BLE_2M | Ant1 | 2402 | 1.69 | <=30 | PASS |
| | | 2440 | 1.75 | <=30 | PASS |
| | | 2480 | 1.40 | <=30 | PASS |

| Test Mode | Antenna | Channel [MHz] | Power [dBm] | Gain [dBi] | EIRP [dBm] | Limit [dBm] | Verdict |
|-----------|---------|---------------|-------------|------------|------------|-------------|---------|
| BLE_1M | Ant1 | 2402 | 1.18 | 1.98 | 3.16 | <=36 | PASS |
| | | 2440 | 1.42 | 1.98 | 3.40 | <=36 | PASS |
| | | 2480 | 1.40 | 1.98 | 3.38 | <=36 | PASS |
| BLE_2M | Ant1 | 2402 | 1.69 | 1.98 | 3.67 | <=36 | PASS |
| | | 2440 | 1.75 | 1.98 | 3.73 | <=36 | PASS |
| | | 2402 | 1.40 | 1.98 | 3.38 | <=36 | PASS |

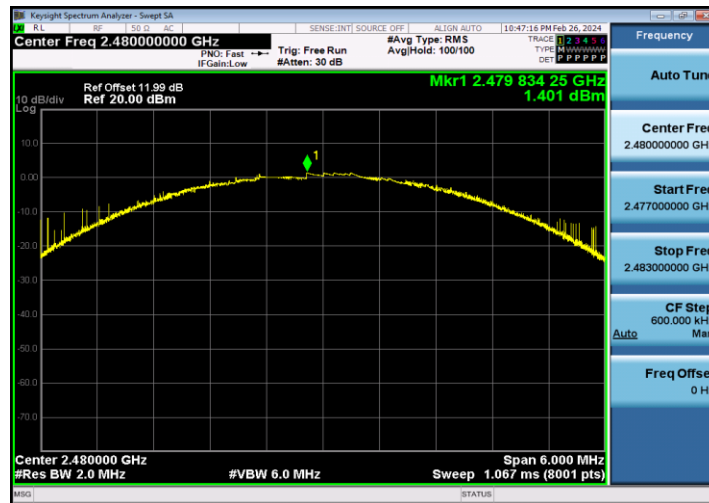
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



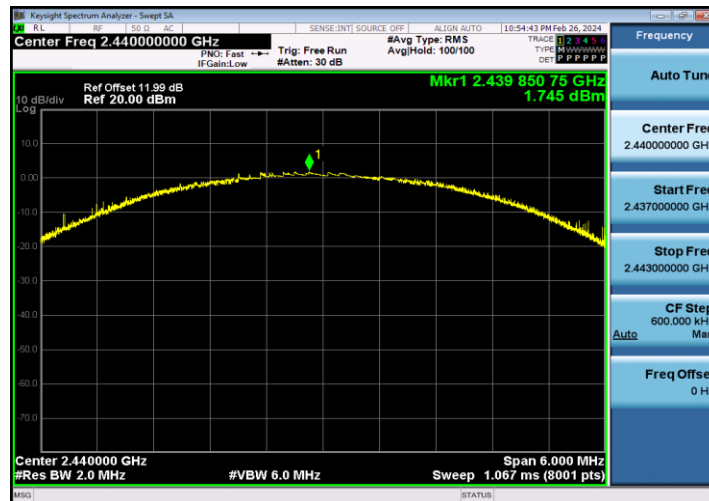
BLE_1M_Ant1_2480



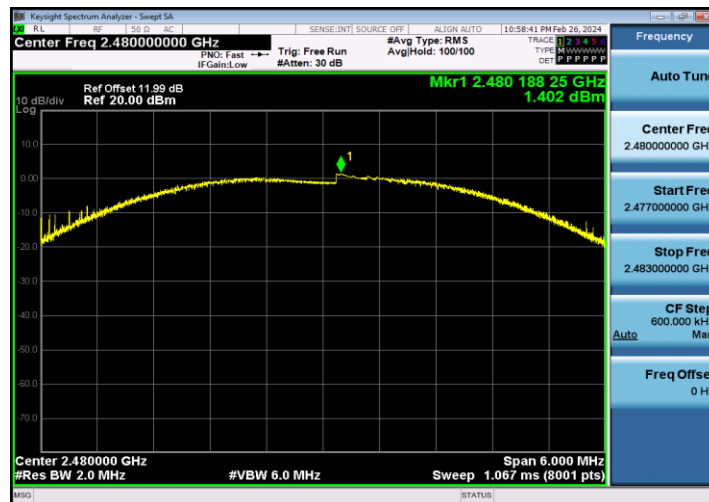
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

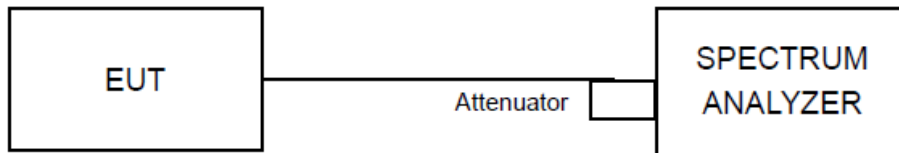


4.4 Power Spectral Density

4.4.1 Limit

The Maximum of Power Spectral Density Measurement is 8 dBm.

4.4.2 Test Setup



4.4.3 Test Procedures

The power output per FCC § 15.247(e) was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” (clause 10.5) for compliance to FCC 47CFR 15.247 requirements.

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW $\geq 3 \times \text{RBW}$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.4.4 Deviation of Test Standard

No deviation.

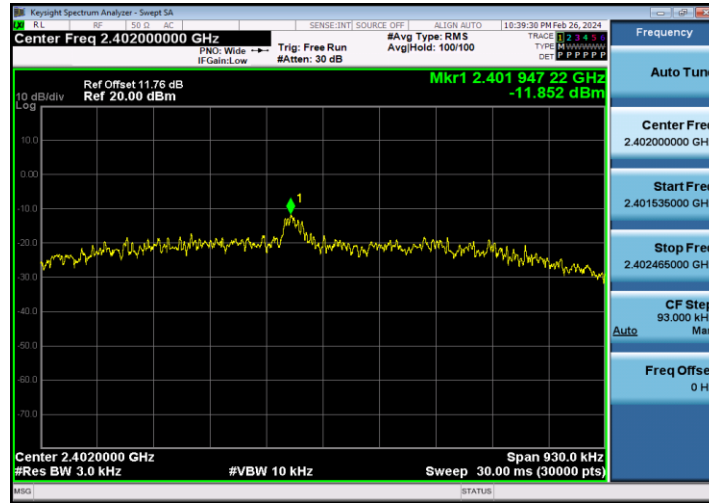


BUREAU
VERITAS

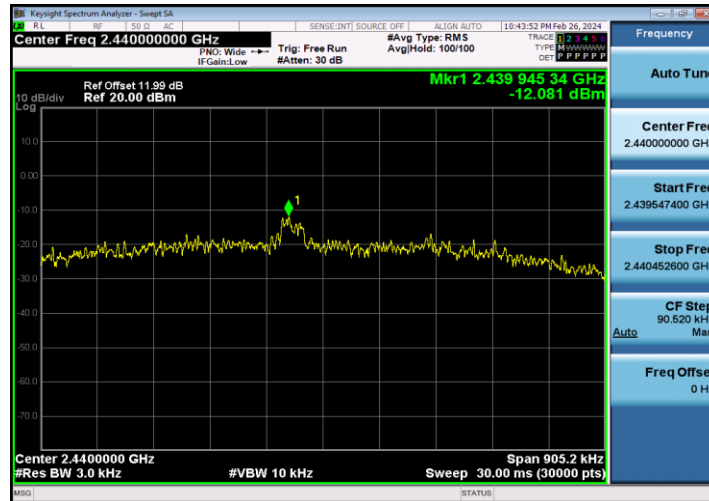
4.4.5 Test Results

| Test Mode | Antenna | Channel [MHz] | PSD[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|---------------|---------------|-----------------|---------|
| BLE_1M | Ant1 | 2402 | -11.85 | <=8 | PASS |
| | | 2440 | -12.08 | <=8 | PASS |
| | | 2480 | -11.16 | <=8 | PASS |
| BLE_2M | Ant1 | 2402 | -11.34 | <=8 | PASS |
| | | 2440 | -12.17 | <=8 | PASS |
| | | 2480 | -11.61 | <=8 | PASS |

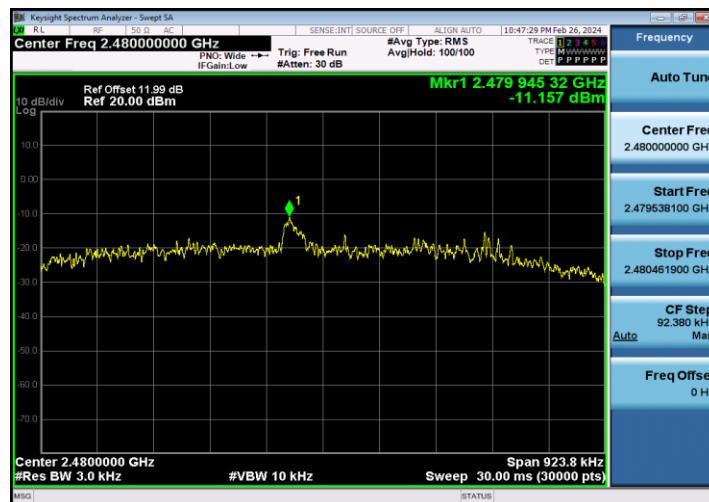
BLE_1M_Ant1_2402



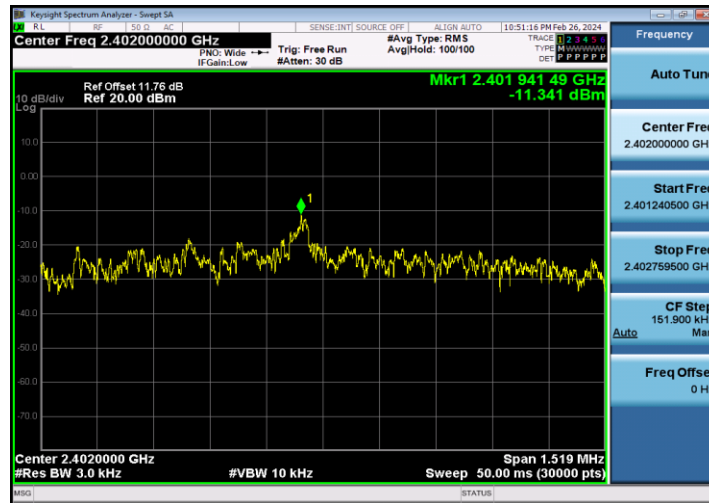
BLE_1M_Ant1_2440



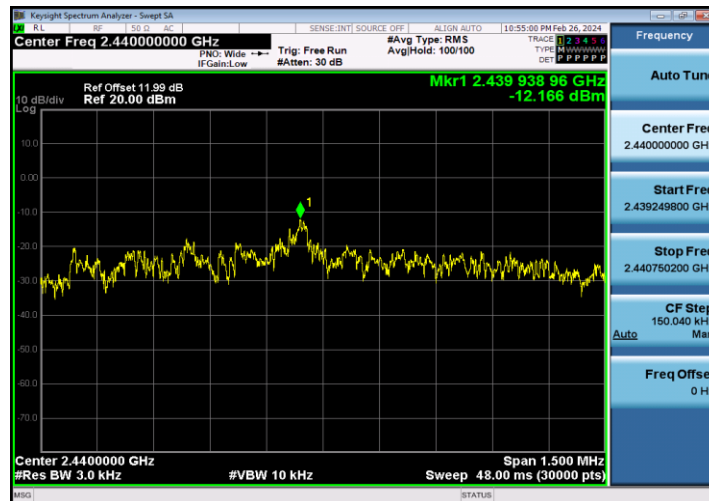
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

