

# TEST REPORT

Applicant Name: Marquardt GmbH  
Address: Schloss-str. 16, 78604 Rietheim-Weilheim, Germany.  
Report Number: 2501V37480E-RF-07A

## Test Standard (s)

Item 19 of Article 2 Paragraph 1

## Sample Description

Product Type: Passive entry vehicle key  
Model No.: GK2A  
Multiple Model(s) No.: N/A  
Trade Mark:   
Marquardt GmbH

Date Received: 2025-07-07  
Issue Date: 2025-09-26

|              |       |
|--------------|-------|
| Test Result: | Pass▲ |
|--------------|-------|

▲ In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:

*Wills Yu*

Wills Yu  
RF Engineer

## Approved By:

*Nancy Wang*

Nancy Wang  
RF Supervisor

Note: The information marked \* is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.  
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DOCUMENT REVISION HISTORY

| Revision Number | Report Number      | Description of Revision | Date of Revision |
|-----------------|--------------------|-------------------------|------------------|
| 0               | 2501V37480E-RF-07A | Original Report         | 2025-09-26       |

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                      |                           |                                          |
|----------------------|---------------------------|------------------------------------------|
| Radio Type           |                           | BLE                                      |
| Technical Parameters | Modulation Type           | GFSK                                     |
|                      | Frequency Range           | 2402-2480MHz                             |
|                      | Rated Output Power        | 0.80mW for BLE 1M/2M                     |
|                      | Antenna Gain <sup>#</sup> | 2.2dBi (It is provided by the applicant) |
| Nominal Power Supply |                           | DC 3V from battery                       |
| Sample serial number |                           | 364I-7 (Assigned by BACL, Shenzhen)      |
| Sample/EUT Status    |                           | Good condition                           |
| Adapter Information  |                           | N/A                                      |
|                      |                           |                                          |

### Objective

The objective of the manufacturer is to demonstrate compliance with Radio Law of Japan item 19 of Article 2 Paragraph 1, rules and limits for this device including:

- Frequency Error
- Occupied Bandwidth
- Transmitter Spurious Emission and Unwanted Emission Intensity
- Antenna Output Power And Output Power Tolerance
- Receiver Spurious Emission Strength
- Interference Prevention Function
- Construction Protection Confirmation

### Test Method

MIC Notice No.88 Appendix No.43

**Measurement Uncertainty**

| Item                         | Expanded Measurement uncertainty       |
|------------------------------|----------------------------------------|
| Frequency error              | 56.6Hz(k=2, 95% level of confidence)   |
| Occupied Channel Bandwidth   | 109.2kHz(k=2, 95% level of confidence) |
| RF output power, conducted   | 0.86dB(k=2, 95% level of confidence)   |
| Unwanted Emission, conducted | 1.60dB(k=2, 95% level of confidence)   |
| Duty Cycle                   | ±1%                                    |
| Temperature                  | ±1°C                                   |
| Supply voltages              | ±0.4%                                  |
| Humidity                     | ±1%                                    |

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

Each test item follows test standards and with no deviation.

## EUT TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in a testing mode by some software.

For BLE 1M/2M mode, 40 channels are provided for testing:

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 0       | 2402           | 20      | 2442           |
| 1       | 2404           | 21      | 2444           |
| ...     | ...            | ...     | ...            |
| ...     | ...            | ...     | ...            |
| ...     | ...            | ...     | ...            |
| 18      | 2438           | 38      | 2478           |
| 19      | 2440           | 39      | 2480           |

EUT was tested with channel 0, 19 and 39.

The BLE chip KW45B41 is equipped with an integrated power subsystem, the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than  $\pm 1\%$ . Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

### EUT Exercise Software

| Exercise Software <sup>#</sup> |             | SecureCRT      |              |
|--------------------------------|-------------|----------------|--------------|
| Power Level <sup>#</sup>       |             |                |              |
| Mode                           | Low Channel | Middle Channel | High Channel |
| BLE 1M                         | 10          | 10             | 10           |
| BLE 2M                         | 10          | 10             | 10           |

### Equipment Modifications

No modification was made to the EUT tested.

### Support Equipment List and Details

| Manufacturer | Description   | Model          | Serial Number |
|--------------|---------------|----------------|---------------|
| DELL         | PC            | DESKTOP-163AQ3 | B0CB5M2       |
| Unknown      | Adapter board | Unknown        | Unknown       |

### External I/O Cable

| Cable Description               | Length (m) | From/Port     | To |
|---------------------------------|------------|---------------|----|
| Unshielded Detachable USB Cable | 1.0        | Adapter board | PC |

### Configuration of Test Setup



**SUMMARY OF TEST RESULTS**

| <b>MIC Notice No.88 Appendix<br/>No.43<br/>Article 2, Paragraph 1, Item 19</b> | <b>Description of Test</b>                                       | <b>Result</b>    |
|--------------------------------------------------------------------------------|------------------------------------------------------------------|------------------|
| 1                                                                              | Frequency Error                                                  | Compliant        |
| 2                                                                              | Occupied Bandwidth                                               | Compliant        |
| 3                                                                              | Transmitter Spurious Emission and<br>Unwanted Emission Intensity | Compliant        |
| 4                                                                              | Antenna Output Power and Output Power<br>Tolerance               | Compliant        |
| 5                                                                              | Receiver Spurious Emission and<br>Unwanted Emission Intensity    | Compliant        |
| 6                                                                              | Transmission Antenna Gain                                        | Not Applicable   |
| 7                                                                              | Carrier sense capability                                         | Not Applicable** |
| 8                                                                              | Transmission Radiation Angle Width                               | Not Applicable   |
| 9                                                                              | Frequency Hopping Dwell Time                                     | Not Applicable*  |
| 10                                                                             | Interference Prevention Function                                 | Compliant        |
| 11                                                                             | Construction Protection Confirmation                             | Compliant        |

Not Applicable\* -Testing is only required for FHSS system devices.

Not Applicable\*\*-The OBW of EUT is less than 26 MHz.

Not Applicable - This test item was not required for the output power less than 12.14 dBm (E.I.R.P)

**TEST EQUIPMENT LIST**

| Manufacturer    | Description                         | Model    | Serial Number | Calibration Date | Calibration Due Date | Calibration Authority | Calibration Method |
|-----------------|-------------------------------------|----------|---------------|------------------|----------------------|-----------------------|--------------------|
| R&S             | Spectrum Analyzer                   | FSU26    | 200120        | 2024/12/04       | 2025/12/03           | BACL Cal              | c)                 |
| Tonscend        | RF control Unit                     | JS0806-2 | 19D8060154    | 2024/08/06       | 2025/08/05           | BACL Cal              | c)                 |
| Unknown         | 10dB Attenuator                     | Unknown  | F-03-EM190    | 2025/06/26       | 2026/06/25           | BACL                  | d)                 |
| Unknown         | RF Cable                            | 65475    | 01670515      | 2025/06/26       | 2026/06/25           | BACL                  | d)                 |
| Rohde & Schwarz | Wideband Radio Communication Tester | CMW500   | 146520        | 2025/04/29       | 2026/04/28           | BACL Cal              | c)                 |

Note: Calibration Method

a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1)

b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) ~Japan Calibration Service System~

c) Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)

d) Calibration conducted by using other equipment that listed above from a) to c)

**\* Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## REQUIREMENTS AND TEST PROCEDURES

### Frequency Error

#### Limit

50 ppm or below

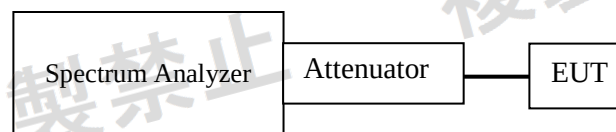
#### Test Procedure

Set the EUT to the measurement frequency without modulation.  
Setting of SA is following as:

- Center Frequency: Frequency to measure
- RBW: 10 kHz, VBW: 10 kHz
- Span: 1MHz
- Sweep time: Auto
- Log scale: 10dB/Div, Data points: 400 points or more
- Reference level: Enough level for maximum dynamic range
- Detection: Positive Peak
- Sweep mode: Single Sweep
- Marker: Spot

Record the peak spot frequency.

If the EUT can't set at un-modulation mode, measure the 10dBc center frequency.



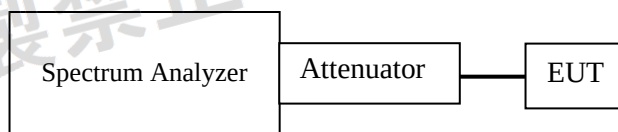
## Occupied Bandwidth

### Limit

- Occupied bandwidth: FH $\leq$ 83.5 MHz; OFDM, DS $\leq$ 26 MHz; Others $\leq$ 26 MHz

### Test Procedure

1. Setting of SA is following as:
  - Center Frequency: Frequency to measure
  - RBW: 30 kHz, VBW: 30 kHz
  - Sweep time: Auto
  - Log scale: 10dB/Div, Data points: 400 points or more
  - Reference level: Enough level for maximum dynamic range
  - Detection: Positive Peak
  - Sweep mode: Continuous Sweep
  - Marker: Spot
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.



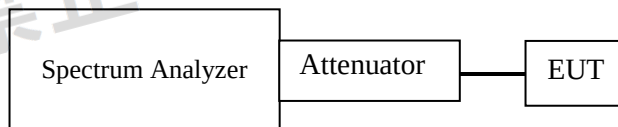
## Transmitter Spurious Emission Strength and Unwanted Emission Intensity

### Limit

- $f < 2387 \text{ MHz}$ ,  $f > 2496.5 \text{ MHz}$ :  $\leq 2.5 \mu\text{W/MHz}$
- $2387 \text{ MHz} \leq f \leq 2400 \text{ MHz}$ ;  $2483.5 \text{ MHz} < f \leq 2496.5 \text{ MHz}$ :  $\leq 25 \mu\text{W/MHz}$

### Test Procedure

#### Measurement System Diagram



### Conditions of Application Equipment (EUT)

- The modulation state shall be in continuously transmitting mode.

### Spectrum Analyzer Conditions

- Span: Measuring Frequency Range
- RBW: 1MHz (frequency range; 1GHz over), 100kHz (frequency range; 30MHz to 1GHz)
- VBW: Same as RBW (1MHz or 100kHz)
- Sweep time: Auto (Minimum time to ensure measurement accuracy.)
- Data points : 400 points or more
- Reference level: Enough level for maximum dynamic range
- Detection: Positive Peak

If the measured value is under the technical standard value, do not need to measure more detail.

## Antenna Output Power and Antenna Power Tolerance

### Limit

Antenna power:

- $\leq 10$  mW/MHz (OFDM, DSSS from 2400-2483.5 MHz)
- $\leq 10$  mW (other from 2400-2483.5 MHz)

The Output Power Tolerance must be within +20%, -80%.

E.i.r.p:

- $\leq 12.14$  dBm/MHz (OFDM (20MHz system), DSSS form 2400-2483.5MHz)
- $\leq 9.13$  dBm/MHz (OFDM(40MHz system) from 2400-2483.5MHz)
- $\leq 12.14$  dBm (other from 2400-2483.5MHz)

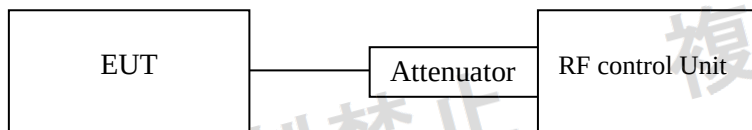
### Test Procedure

Step 1: Measure the total power by Power Meter.

Step 2: If it's the burst wave, set the power meter to measure averaging across the burst transmit on period.

Step 3: Record the reading on power meter as antenna output power.

### Test Setup Block diagram



Note: the power meter was integrated in the RF control Unit.

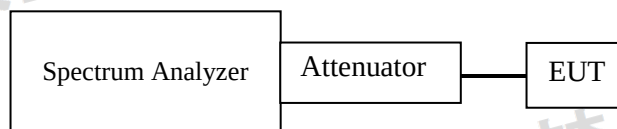
## Receiver Spurious Emission and Unwanted Emission Intensity

### Limit

- $\leq 4\text{nW}$  ( $30\text{ MHz} \leq f \leq 1000\text{ MHz}$ )
- $\leq 20\text{ nW}$  ( $f \geq 1\text{ GHz}$ )

### Test Procedure

Measurement System Diagram



### Conditions of Application Equipment (EUT)

- The modulation state shall be “continuous receiving mode”.

### Spectrum Analyzer Conditions

- Start Frequency: Start Frequency of frequency range to measure (30MHz or 1GHz)
- Stop Frequency: Stop Frequency of frequency range to measure (1GHz or 12.5GHz)
- Span: AUTO (Measurement Range)
- RBW: 100 kHz, VBW: 100 kHz for Frequency < 1 GHz
- RBW: 1MHz, VBW: 1MHz for Frequency > 1 GHz
- Sweep time: AUTO or more
- Sweep mode: Auto Sweep
- Detection: Positive Peak
- Reference Level: Enough level for maximum dynamic range

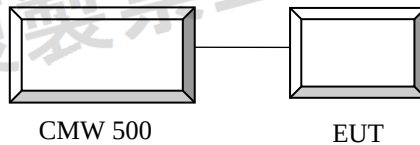
## Interference Prevention Function

### Requirement

The EUT shall have the interference prevention capability to transmit or to receive the identification automatically, so that sender and receiver shall exclude other equipment.

### Test Procedure

#### Measurement System Diagram



In the case that the EUT has the function of automatically transmitting the identification code:

1. Transmit the predetermined identification codes from EUT
2. Check the transmitted identification codes with the demodulator.

In the case of receiving the identification codes:

1. Transmit the predetermined identification codes from the counterpart.
2. Check if communication is normal
3. Transmit the signal other than predetermined ID codes from the counterpart.
4. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

## TEST DATA AND RESULTS

### Frequency Error

#### Test Information:

|             |             |              |              |
|-------------|-------------|--------------|--------------|
| Sample No.: | 364I-7      | Test Date:   | 2025/08/06   |
| Test Site:  | RF          | Test Mode:   | Transmitting |
| Tester:     | Cheeb Huang | Test Result: | Pass         |

#### Environmental Conditions:

|                     |      |                              |    |                        |       |
|---------------------|------|------------------------------|----|------------------------|-------|
| Temperature:<br>(℃) | 26.3 | Relative<br>Humidity:<br>(%) | 55 | ATM Pressure:<br>(kPa) | 100.9 |
|---------------------|------|------------------------------|----|------------------------|-------|

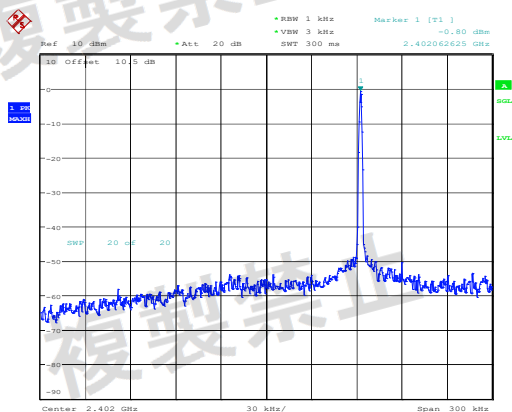
#### Test Condition: NV

| Mode           | Frequency<br>(MHz) | Measure<br>Frequency<br>(MHz) | Frequency<br>Tolerance<br>(ppm) | Limit<br>(ppm) | Verdict |
|----------------|--------------------|-------------------------------|---------------------------------|----------------|---------|
| Single Carrier | 2402               | 2402.06263                    | 26.07                           | ± 50           | Pass    |
|                | 2440               | 2440.06375                    | 26.13                           |                | Pass    |
|                | 2480               | 2480.06450                    | 26.01                           |                | Pass    |

Frequency Tolerance = (Measure Frequency - Frequency)/Frequency\*10<sup>6</sup>

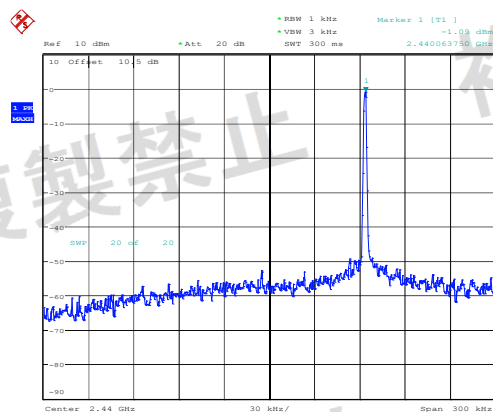
Test Condition: NV

2402MHz



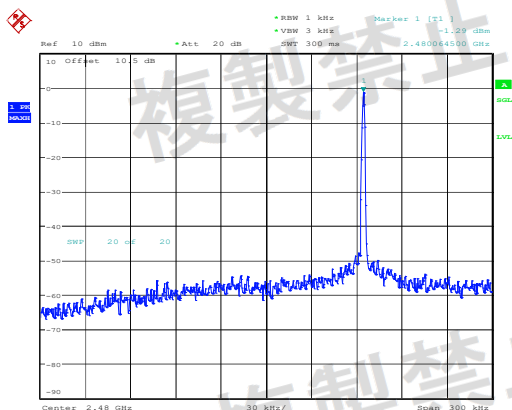
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 6.AUG.2025 10:50:04

2440MHz



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 6.AUG.2025 10:50:38

2480MHz



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 6.AUG.2025 10:51:09

**Occupied Bandwidth****Test Information:**

|                    |             |                     |              |
|--------------------|-------------|---------------------|--------------|
| <b>Sample No.:</b> | 364I-7      | <b>Test Date:</b>   | 2025/07/15   |
| <b>Test Site:</b>  | RF          | <b>Test Mode:</b>   | Transmitting |
| <b>Tester:</b>     | Cheeb Huang | <b>Test Result:</b> | Pass         |

**Environmental Conditions:**

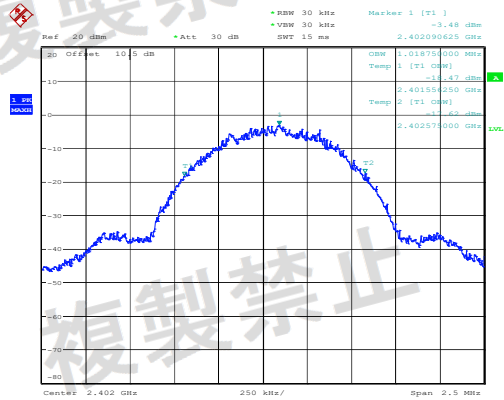
|                            |      |                                  |    |                               |       |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|
| <b>Temperature:</b><br>(℃) | 25.9 | <b>Relative Humidity:</b><br>(%) | 50 | <b>ATM Pressure:</b><br>(kPa) | 100.9 |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|

**Test Condition: NV**

| Mode   | Occupied bandwidth (MHz) |                |              | Limit(MHz) | Verdict |
|--------|--------------------------|----------------|--------------|------------|---------|
|        | Low Channel              | Middle Channel | High Channel |            |         |
| BLE 1M | 1.019                    | 1.019          | 1.028        | ≤ 26       | Pass    |
| BLE 2M | 2.025                    | 2.019          | 2.013        |            | Pass    |

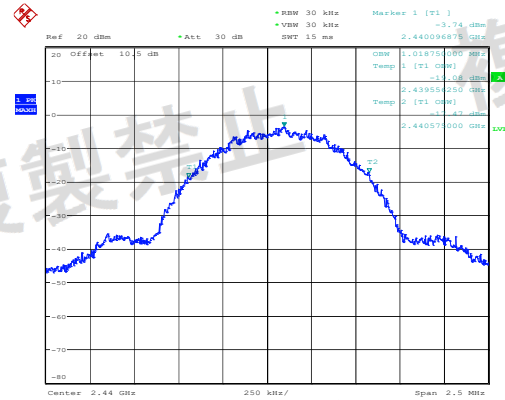
## Test Condition: NV

## BLE 1M\_Low Channel



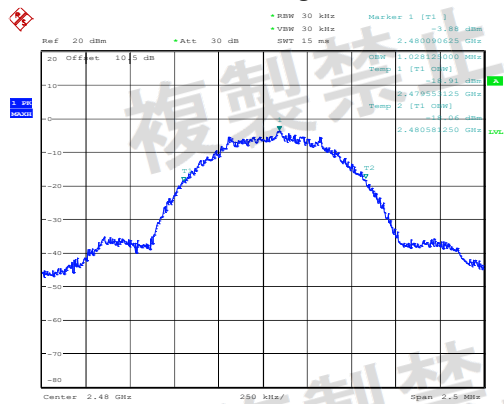
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:09:45

## BLE 1M\_Middle Channel



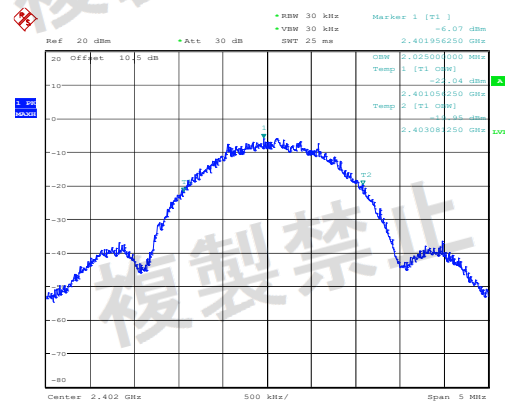
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Date: 15.JUL.2025 14:29:08

## BLE 1M\_High Channel



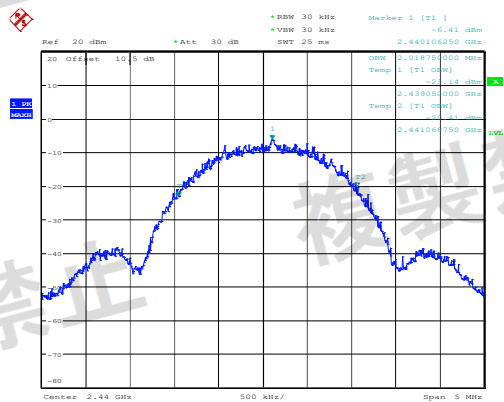
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:32:44

## BLE 2M\_Low Channel



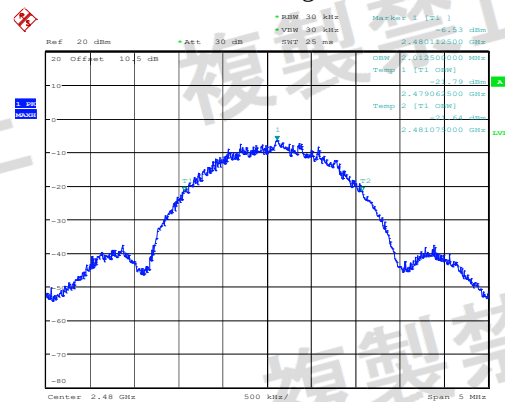
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:36:30

## BLE 2M\_Middle Channel



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:42:06

## BLE 2M\_High Channel



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:47:31

**Transmitter Spurious Emission and Unwanted Emission Intensity****Test Information:**

|                    |             |                     |              |
|--------------------|-------------|---------------------|--------------|
| <b>Sample No.:</b> | 364I-7      | <b>Test Date:</b>   | 2025/07/15   |
| <b>Test Site:</b>  | RF          | <b>Test Mode:</b>   | Transmitting |
| <b>Tester:</b>     | Cheeb Huang | <b>Test Result:</b> | Pass         |

**Environmental Conditions:**

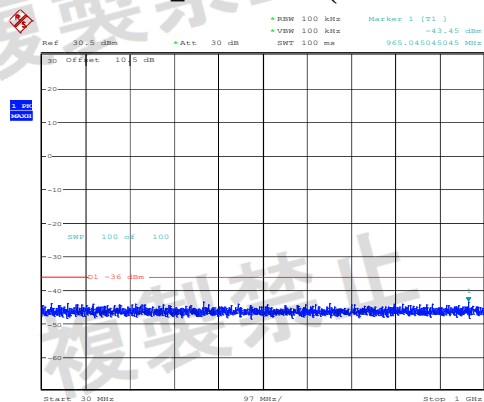
|                            |      |                                  |    |                               |       |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|
| <b>Temperature:</b><br>(℃) | 25.9 | <b>Relative Humidity:</b><br>(%) | 50 | <b>ATM Pressure:</b><br>(kPa) | 100.9 |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|

**Test Condition: Normal, BLE 1M**

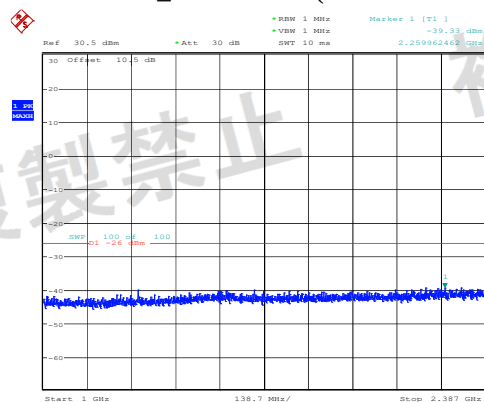
| Channel | Test Band (RBW) | Frequency Range |            | Max.Emission Located(MHz) | Result (dBm/RBW) | Result (μW/RBW) | Limit (μW/RBW) | Verdict |
|---------|-----------------|-----------------|------------|---------------------------|------------------|-----------------|----------------|---------|
|         |                 | Start (MHz)     | Stop (MHz) |                           |                  |                 |                |         |
| Low     | Band I (100kHz) | 30              | 1000       | 965.0450450               | -43.45           | 0.045           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 2259.9625000              | -39.33           | 0.117           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2399.9935000              | -21.50           | 7.079           | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2493.4419000              | -37.39           | 0.182           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4804.6149000              | -33.97           | 0.401           | 2.50           | Pass    |
| Middle  | Band I (100kHz) | 30              | 1000       | 821.3413413               | -43.56           | 0.044           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 2312.0270000              | -39.29           | 0.118           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2389.3749000              | -38.29           | 0.148           | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2488.8874000              | -37.18           | 0.191           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4879.7162000              | -34.30           | 0.372           | 2.50           | Pass    |
| High    | Band I (100kHz) | 30              | 1000       | 614.0390390               | -43.35           | 0.046           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 1909.3944000              | -39.17           | 0.121           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2394.5866000              | -38.17           | 0.152           | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2483.5325000              | -33.17           | 0.482           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4959.8243000              | -35.76           | 0.265           | 2.50           | Pass    |

**Test Condition: Normal, BLE 2M**

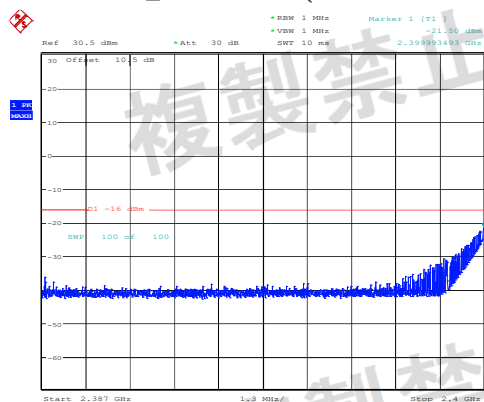
| Channel | Test Band (RBW) | Frequency Range |            | Max.Emission Located(MHz) | Result (dBm/RBW) | Result (μW/RBW) | Limit (μW/RBW) | Verdict |
|---------|-----------------|-----------------|------------|---------------------------|------------------|-----------------|----------------|---------|
|         |                 | Start (MHz)     | Stop (MHz) |                           |                  |                 |                |         |
| Low     | Band I (100kHz) | 30              | 1000       | 918.9239239               | -43.39           | 0.046           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 2387.000                  | -36.99           | 0.200           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2399.9935000              | -18.28           | 14.859          | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2494.3594000              | -36.85           | 0.207           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4804.6149000              | -34.36           | 0.366           | 2.50           | Pass    |
| Middle  | Band I (100kHz) | 30              | 1000       | 30.9709710                | -43.91           | 0.041           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 2345.3483000              | -39.27           | 0.118           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2391.0796000              | -38.23           | 0.150           | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2491.9520000              | -37.58           | 0.175           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4879.7162000              | -35.81           | 0.262           | 2.50           | Pass    |
| High    | Band I (100kHz) | 30              | 1000       | 142.6326326               | -43.38           | 0.046           | 0.25           | Pass    |
|         | Band II (1MHz)  | 1000            | 2387       | 2371.7277000              | -38.30           | 0.148           | 2.50           | Pass    |
|         | Band III (1MHz) | 2387            | 2400       | 2395.3544000              | -38.39           | 0.145           | 25             | Pass    |
|         | Band IV (1MHz)  | 2483.5          | 2496.5     | 2483.5195000              | -32.58           | 0.552           | 25             | Pass    |
|         | Band V (1MHz)   | 2496.5          | 12500      | 4959.8243000              | -35.06           | 0.312           | 2.50           | Pass    |

**Test Condition: NV****BLE 1M\_Low Channel(30MHz~1GHz)**

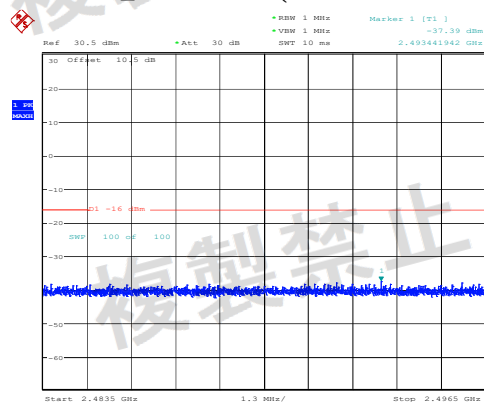
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:10:05

**BLE 1M\_Low Channel(1GHz~2.387GHz)**

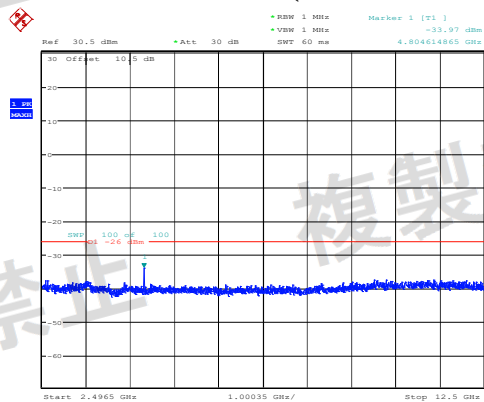
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:10:15

**BLE 1M\_Low Channel(2.387GHz~2.4GHz)**

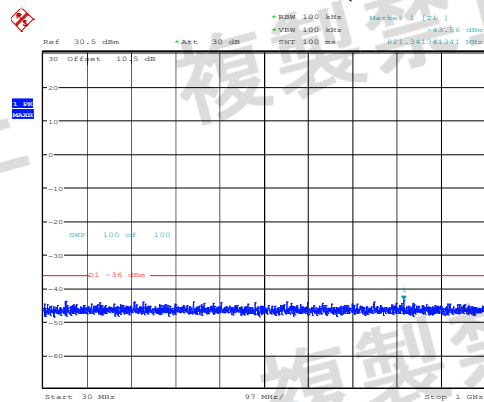
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:10:23

**BLE 1M\_Low Channel(2.4835GHz~2.4965GHz)**

ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:10:31

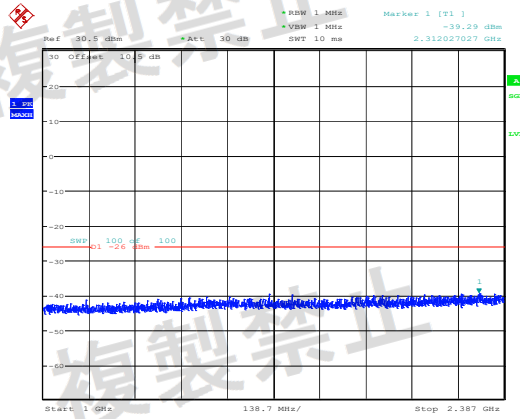
**BLE 1M\_Low Channel(2.4965GHz~12.5GHz)**

ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:10:55

**BLE 1M\_Middle Channel(30MHz~1GHz)**

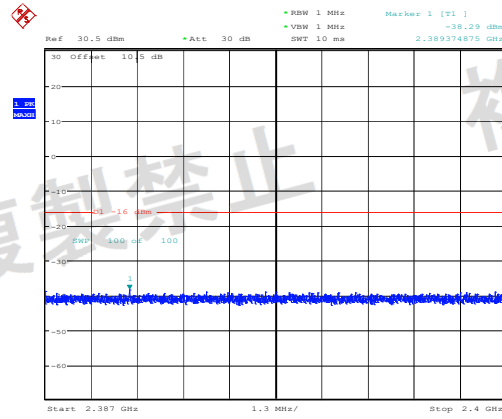
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:29:24

### BLE 1M\_Middle Channel(1GHz~2.387GHz)



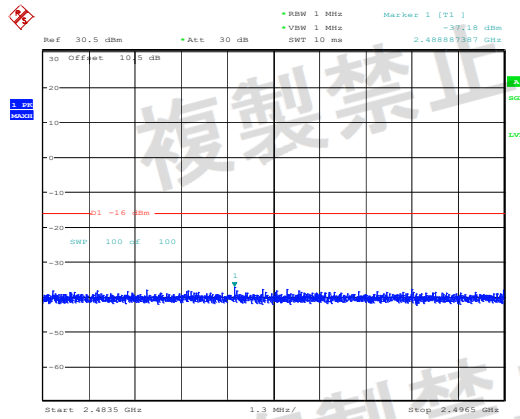
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:29:39

### BLE 1M\_Middle Channel(2.387GHz~2.4GHz)



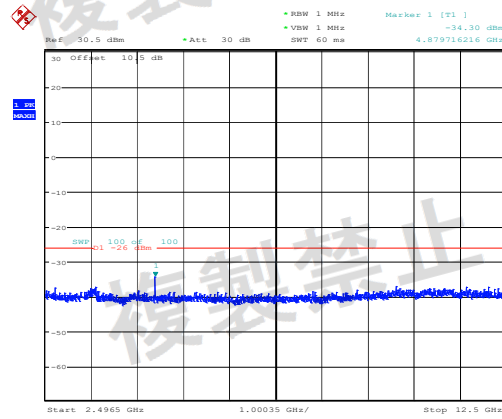
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:29:49

### BLE 1M\_Middle Channel(2.4835GHz~2.4965GHz)



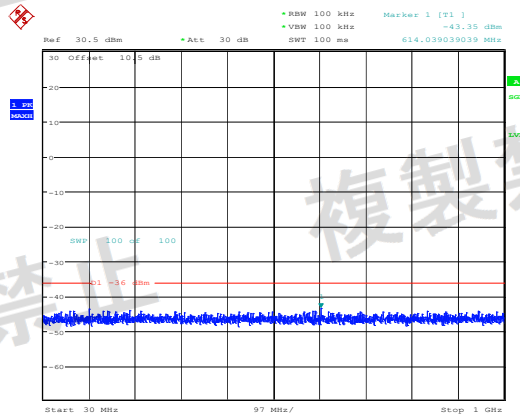
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:29:57

### BLE 1M\_Middle Channel(2.4965GHz~12.5GHz)



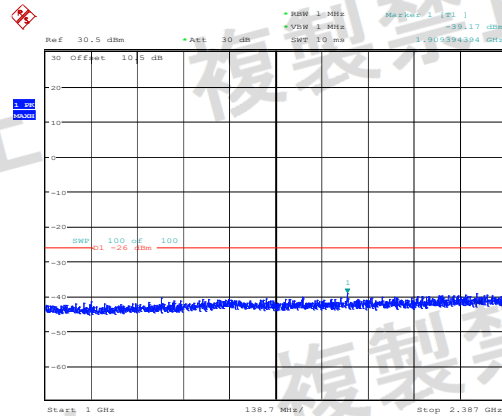
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:30:22

### BLE 1M\_High Channel(30MHz~1GHz)



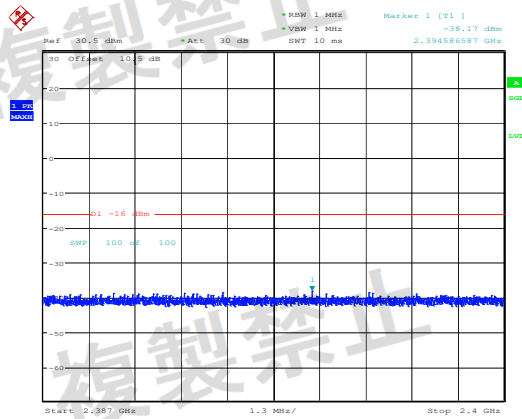
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:33:00

### BLE 1M\_High Channel(1GHz~2.387GHz)



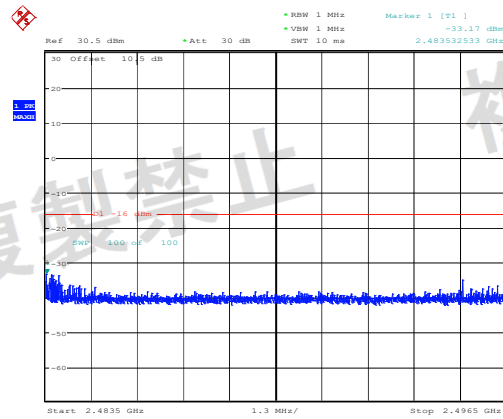
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:33:11

BLE 1M\_High Channel(2.387GHz~2.4GHz)



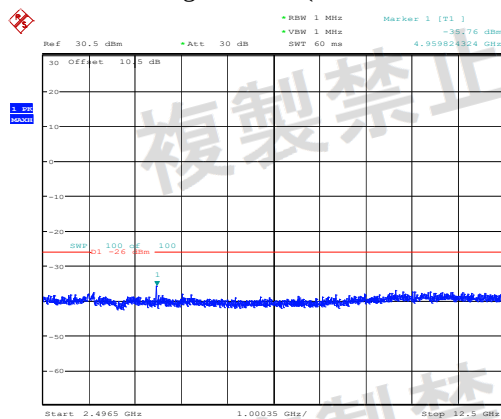
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:33:19

BLE 1M\_High Channel(2.4835GHz~2.4965GHz)



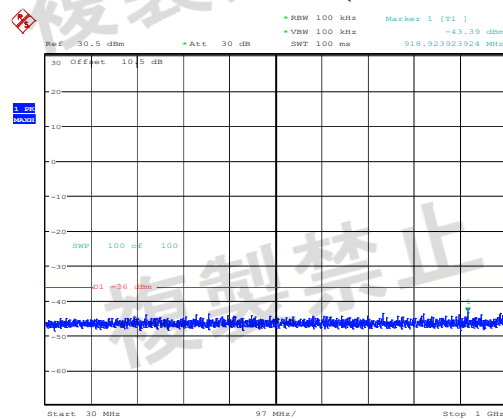
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:33:27

BLE 1M\_High Channel(2.4965GHz~12.5GHz)



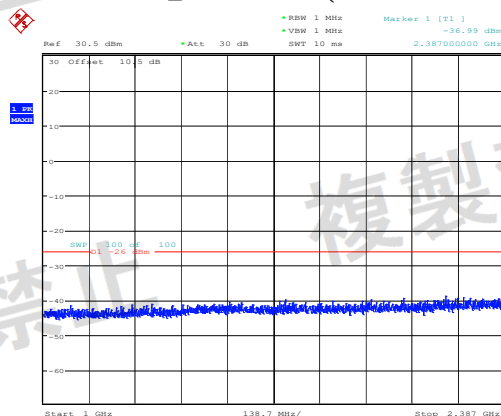
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:33:52

BLE 2M\_Low Channel(30MHz~1GHz)



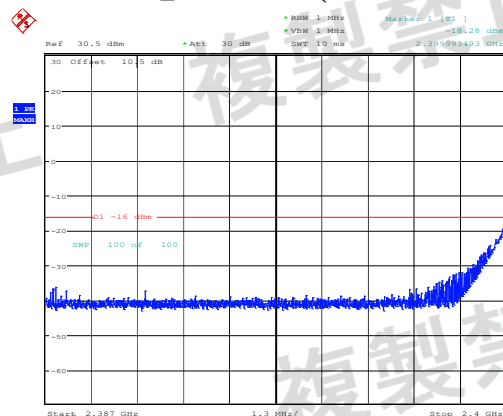
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:36:46

BLE 2M\_Low Channel(1GHz~2.387GHz)



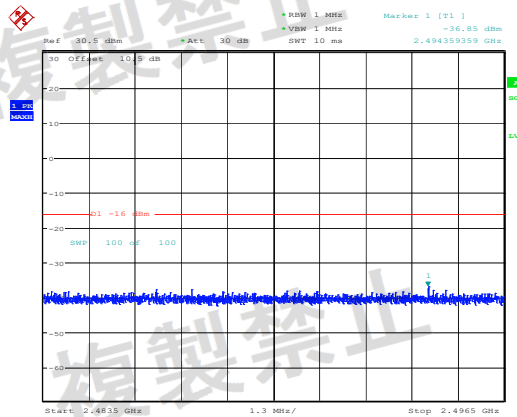
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:36:57

BLE 2M\_Low Channel(2.387GHz~2.4GHz)



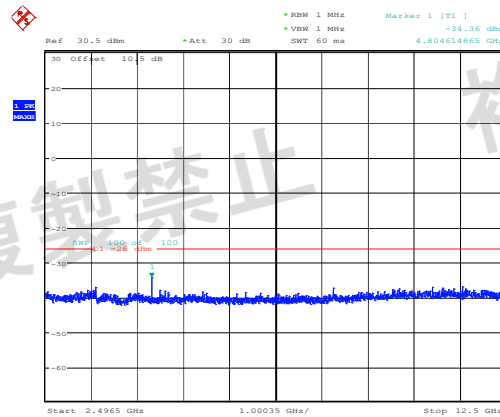
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:37:08

## BLE 2M\_Low Channel(2.4835GHz~2.4965GHz)



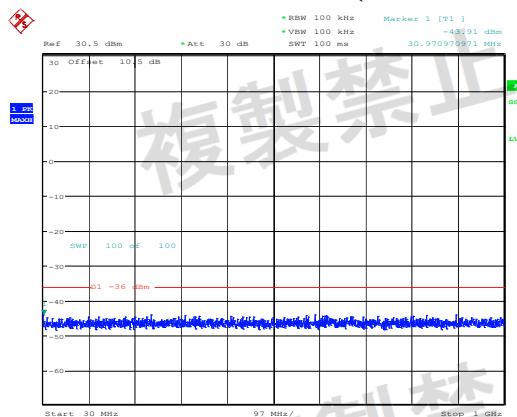
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:37:17

## BLE 2M\_Low Channel(2.4965GHz~12.5GHz)



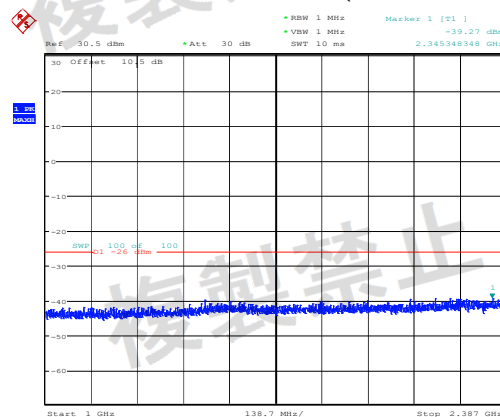
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:37:42

## BLE 2M\_Middle Channel(30MHz~1GHz)



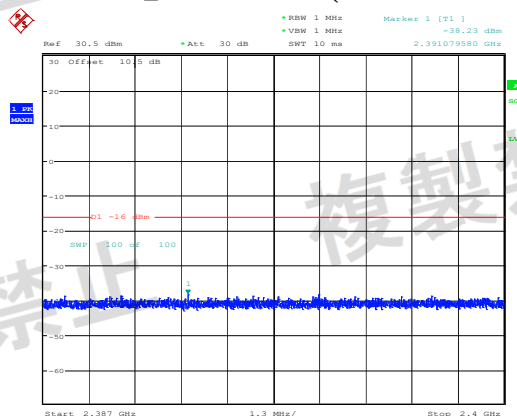
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:42:23

## BLE 2M\_Middle Channel(1GHz~2.387GHz)



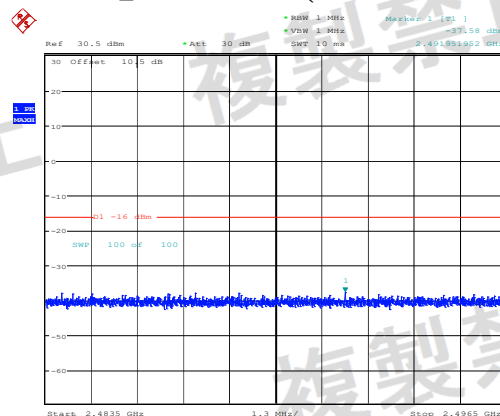
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:42:33

## BLE 2M\_Middle Channel(2.387GHz~2.4GHz)



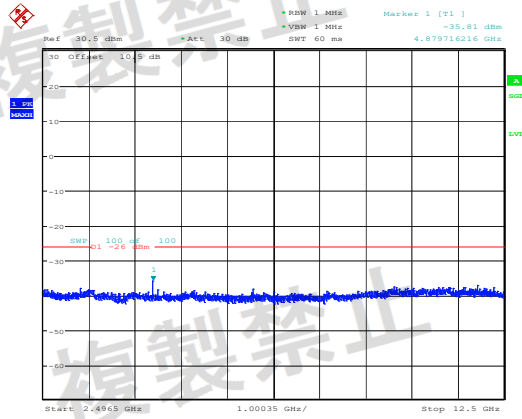
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:42:42

## BLE 2M\_Middle Channel(2.4835GHz~2.4965GHz)



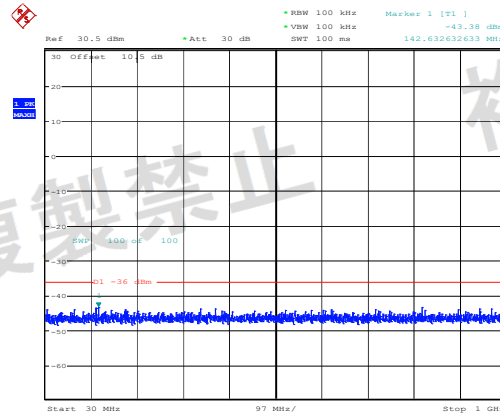
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:42:51

### BLE 2M\_Middle Channel(2.4965GHz~12.5GHz)



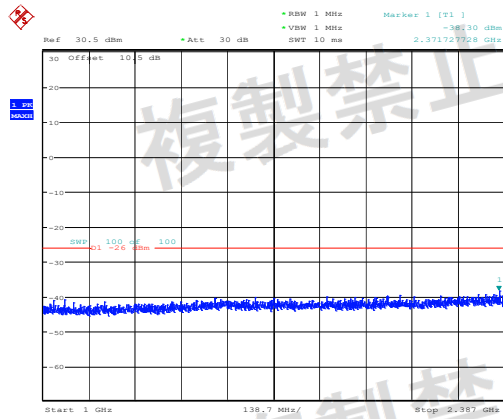
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:43:18

### BLE 2M\_High Channel(30MHz~1GHz)



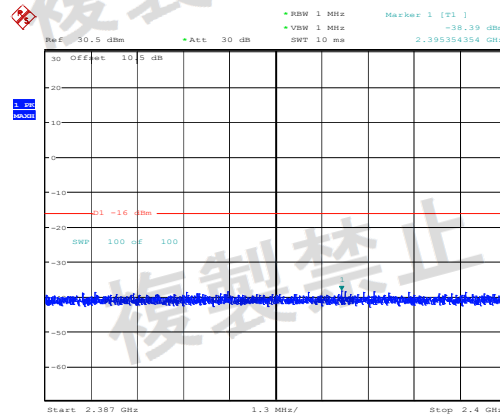
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:47:47

### BLE 2M\_High Channel(1GHz~2.387GHz)



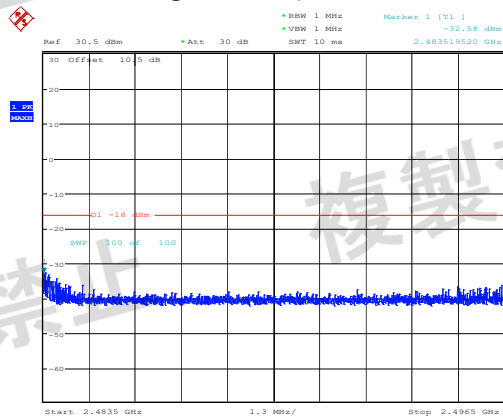
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:47:58

### BLE 2M\_High Channel(2.387GHz~2.4GHz)



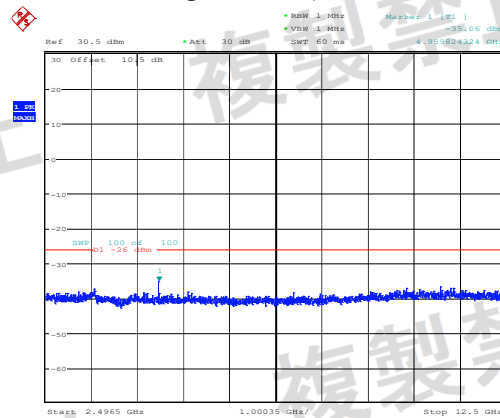
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:48:08

### BLE 2M\_High Channel(2.4835GHz~2.4965GHz)



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:48:16

### BLE 2M\_High Channel(2.4965GHz~12.5GHz)



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 14:48:42

**Antenna Output Power and Output Power Tolerance****Test Information:**

|                    |             |                     |              |
|--------------------|-------------|---------------------|--------------|
| <b>Sample No.:</b> | 364I-7      | <b>Test Date:</b>   | 2025/07/15   |
| <b>Test Site:</b>  | RF          | <b>Test Mode:</b>   | Transmitting |
| <b>Tester:</b>     | Cheeb Huang | <b>Test Result:</b> | Pass         |

**Environmental Conditions:**

|                             |      |                                  |    |                               |       |
|-----------------------------|------|----------------------------------|----|-------------------------------|-------|
| <b>Temperature:</b><br>(°C) | 25.9 | <b>Relative Humidity:</b><br>(%) | 50 | <b>ATM Pressure:</b><br>(kPa) | 100.9 |
|-----------------------------|------|----------------------------------|----|-------------------------------|-------|

**Test Condition: NV**

| Mode   | Antenna gain (dBi) | Declared power (mW) |
|--------|--------------------|---------------------|
| BLE 1M | 2.2                | 0.80                |
| BLE 2M |                    | 0.80                |

| Mode   | Channel | Conducted power(dBm) | Antenna output power(mW) |       | Antenna output tolerance(%) |         | EIRP (dBm) |         | Verdict |
|--------|---------|----------------------|--------------------------|-------|-----------------------------|---------|------------|---------|---------|
|        |         |                      | Result                   | Limit | Result                      | Limit   | Result     | Limit   |         |
| BLE 1M | Low     | -0.83                | 0.826                    | ≤ 10  | 3.25                        | -80~+20 | 1.37       | ≤ 12.14 | Pass    |
|        | Middle  | -1.12                | 0.773                    |       | -3.38                       |         | 1.08       |         | Pass    |
|        | High    | -1.29                | 0.743                    |       | -7.13                       |         | 0.91       |         | Pass    |
| BLE 2M | Low     | -1.25                | 0.750                    | ≤ 10  | -6.25                       | -80~+20 | 0.95       | ≤ 12.14 | Pass    |
|        | Middle  | -1.71                | 0.675                    |       | -15.63                      |         | 0.49       |         | Pass    |
|        | High    | -1.80                | 0.661                    |       | -17.38                      |         | 0.40       |         | Pass    |

Note:

Antenna output power(mW) =  $10^{\{\text{Conducted power(dBm)} / 10\}}$ 

Antenna output power tolerance(%) = (Antenna output power - Declared power) / Declared power \* 100%

EIRP(dBm) = Conducted power (dBm) + Antenna gain.

## Receiver Spurious Emission and Unwanted Emission Intensity

## Test Information:

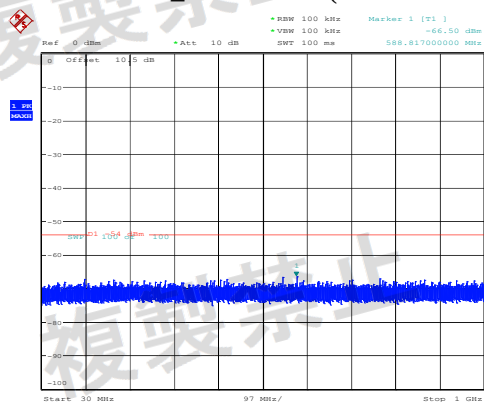
|             |             |              |              |
|-------------|-------------|--------------|--------------|
| Sample No.: | 364I-7      | Test Date:   | 2025/07/15   |
| Test Site:  | RF          | Test Mode:   | Transmitting |
| Tester:     | Cheeb Huang | Test Result: | Pass         |

## Environmental Conditions:

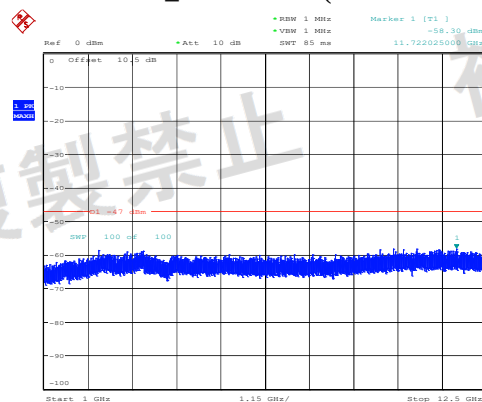
|                      |      |                              |    |                        |       |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature:<br>(°C) | 25.9 | Relative<br>Humidity:<br>(%) | 50 | ATM Pressure:<br>(kPa) | 100.9 |
|----------------------|------|------------------------------|----|------------------------|-------|

## Test Condition: NV

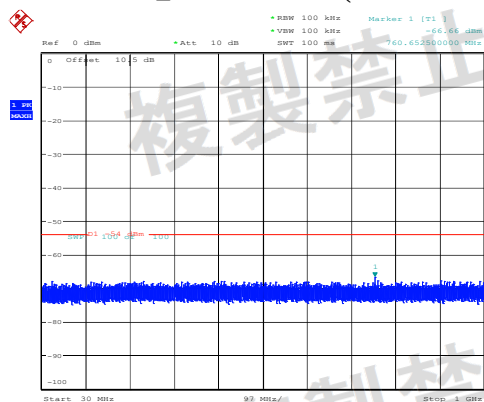
| Mode   | Channel | Test Band<br>(RBW) | Frequency Range |               | Max.Emission<br>Located(MHz) | Result<br>(dBm) | Result<br>(nW) | Limit<br>(nW) | Verdict |
|--------|---------|--------------------|-----------------|---------------|------------------------------|-----------------|----------------|---------------|---------|
|        |         |                    | Start<br>(MHz)  | Stop<br>(MHz) |                              |                 |                |               |         |
| BLE 1M | Low     | Band I (100kHz)    | 30              | 1000          | 588.817                      | -66.50          | 0.224          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 11722.025                    | -58.30          | 1.479          | 20            | Pass    |
|        | Middle  | Band I (100kHz)    | 30              | 1000          | 760.6525                     | -66.66          | 0.216          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 10233.925                    | -57.24          | 1.888          | 20            | Pass    |
|        | High    | Band I (100kHz)    | 30              | 1000          | 559.9595                     | -66.13          | 0.244          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 10744.525                    | -56.96          | 2.014          | 20            | Pass    |
| BLE 2M | Low     | Band I (100kHz)    | 30              | 1000          | 640.324                      | -67.19          | 0.191          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 11293.075                    | -58.21          | 1.510          | 20            | Pass    |
|        | Middle  | Band I (100kHz)    | 30              | 1000          | 340.9335                     | -66.78          | 0.210          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 11589.2                      | -57.30          | 1.862          | 20            | Pass    |
|        | High    | Band I (100kHz)    | 30              | 1000          | 681.1125                     | -66.72          | 0.213          | 4             | Pass    |
|        |         | Band II (1MHz)     | 1000            | 12500         | 1713.575                     | -57.52          | 1.770          | 20            | Pass    |

**Test Condition: NV****BLE 1M\_Low Channel(30MHz~1GHz)**

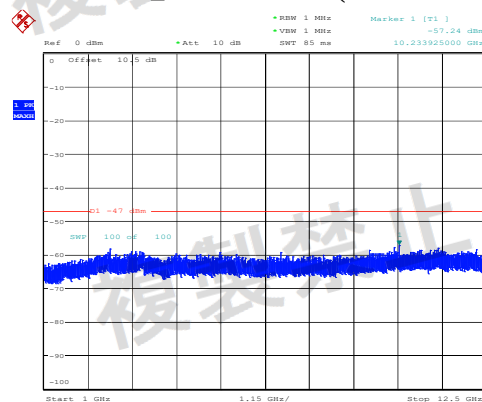
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:14:52

**BLE 1M\_Low Channel(1GHz~12.5GHz)**

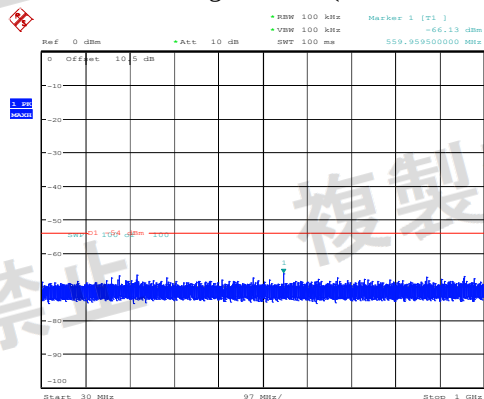
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:15:23

**BLE 1M\_Middle Channel(30MHz~1GHz)**

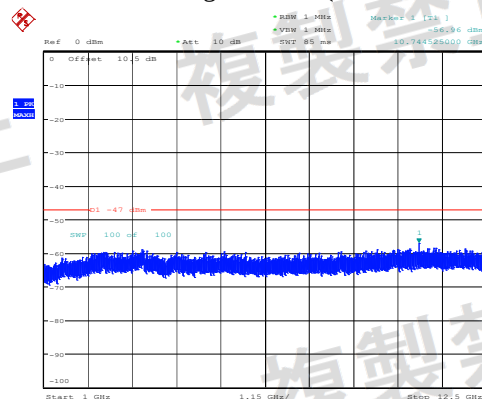
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:16:28

**BLE 1M\_Middle Channel(1GHz~12.5GHz)**

ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:17:01

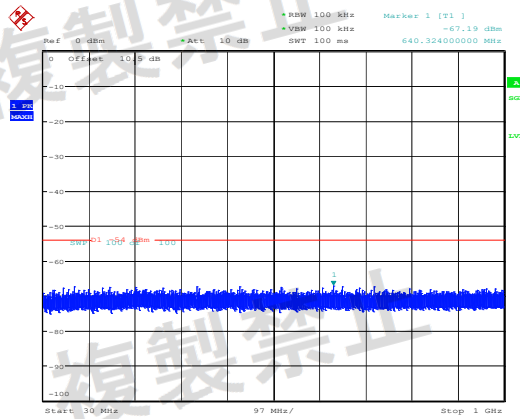
**BLE 1M\_High Channel(30MHz~1GHz)**

ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:17:37

**BLE 1M\_High Channel(1GHz~12.5GHz)**

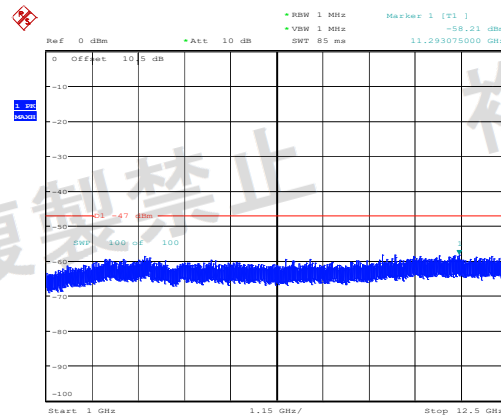
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:18:08

BLE 2M\_Low Channel(30MHz~1GHz)



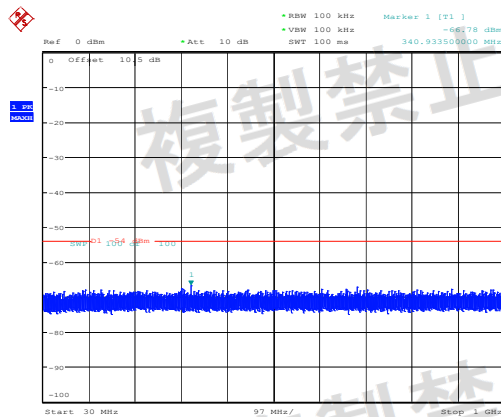
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:18:32

BLE 2M\_Low Channel(1GHz~12.5GHz)



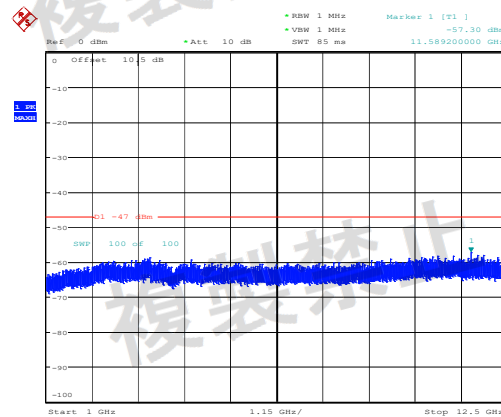
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:19:04

BLE 2M\_Middle Channel(30MHz~1GHz)



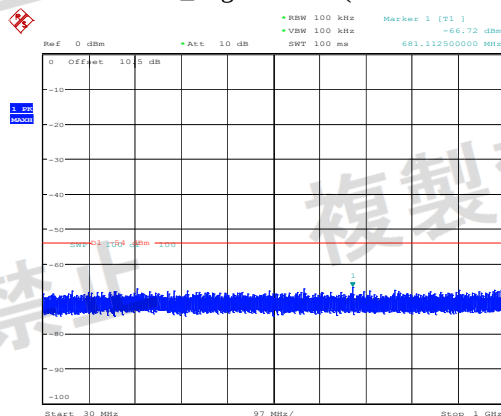
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:19:27

BLE 2M\_Middle Channel(1GHz~12.5GHz)



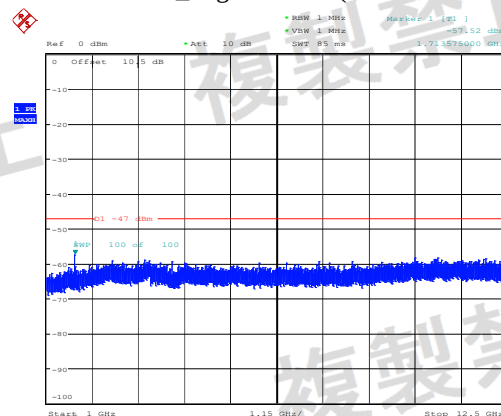
ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:19:59

BLE 2M\_High Channel(30MHz~1GHz)



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:20:22

BLE 2M\_High Channel(1GHz~12.5GHz)



ProjectNo.:2501V37480E-RF Tester:Cheeb Huang  
Date: 15.JUL.2025 15:20:54

**Interference Prevention Function****Test Information:**

|                    |             |                     |               |
|--------------------|-------------|---------------------|---------------|
| <b>Sample No.:</b> | 364I-7      | <b>Test Date:</b>   | 2025/07/15    |
| <b>Test Site:</b>  | RF          | <b>Test Mode:</b>   | Communicating |
| <b>Tester:</b>     | Cheeb Huang | <b>Test Result:</b> | Good          |

**Environmental Conditions:**

|                            |      |                                  |    |                               |       |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|
| <b>Temperature:</b><br>(℃) | 25.9 | <b>Relative Humidity:</b><br>(%) | 50 | <b>ATM Pressure:</b><br>(kPa) | 100.9 |
|----------------------------|------|----------------------------------|----|-------------------------------|-------|

## CONSTRUCTION PROTECTION CONFIRMATION

### Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

### Confirmation Result

The product shell was stick together by superglue which can't be opened easily. Please refer to the EUT photos.

## EUT PHOTOGRAPHS

Please refer to the attachment 2501V37480E-RF-EXP External photo and 2501V37480E-RF-INP Internal photo.

## TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2501V37480E-RF-07A-TSP Test Setup photo.

\*\*\*\*END OF REPORT\*\*\*\*