

# TEST REPORT

Report No.: CSTC-26060112E

---

Applicant: Shenzhen Hyhc Technology Co.Ltd

---

Product Name: Eye massager

---

Model/Type Ref.: Eye Sweep

---

Tested Date: Jun. 11, 2026 to Jun. 25, 2026

---

Issued Date: Jun. 25, 2026

---

**Shenzhen CSTC Testing Co., Ltd.**

Product Name: Eye massager

Trademark: N/A

Model/Type Ref.: Eye Sweep

Prepared For: Shenzhen Hyhc Technology Co.Ltd

Address: Building 4, Dapu Industrial Park, 88 Tongchang Road, Longgang District, Shenzhen, Guangdong Province, China

Manufacturer: Shenzhen Hyhc Technology Co.Ltd

Address: Building 4, Dapu Industrial Park, 88 Tongchang Road, Longgang District, Shenzhen, Guangdong Province, China

Prepared By: Shenzhen CSTC Testing Co., Ltd.

Address: No. 101, Building 1, Shajing Wanfeng Huafeng Entrepreneurship Park, Heyi Community, Shajing Street, Bao'an District, Shenzhen City, Guangdong Province, China.

Sample Received Date: Jun. 11, 2026

Sample tested Date: Jun. 11, 2026 to Jun. 25, 2026

Issue Date: Jun. 25, 2026

Report No.: CSTC-26060112E

Test Standards: Article 2 paragraph 1 of item 19  
MIC Notice No.88 Annex 1  
MIC Notice No.88 Annex 43

Test Results: PASS

Remark: This is JAPAN RADIO test report.

Tested by:



Zane Cai/Project Handler



Approved by:



Jeff.Fu/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CSTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

| Table of Contents                                                 | Page |
|-------------------------------------------------------------------|------|
| 1. VERSION .....                                                  | 5    |
| 2. SUMMARY OF TEST RESULTS.....                                   | 6    |
| 2.1 TEST FACILITY .....                                           | 7    |
| 2.2 MEASUREMENT UNCERTAINTY .....                                 | 7    |
| 3. GENERAL INFORMATION .....                                      | 8    |
| 3.1 GENERAL DESCRIPTION OF EUT .....                              | 8    |
| 3.2 DESCRIPTION OF TEST MODES.....                                | 10   |
| 3.3 TEST CONDITIONS .....                                         | 10   |
| 3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED ..... | 10   |
| 3.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) .....            | 11   |
| 3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS.....                       | 12   |
| 4. RF SHIELDING METHOD.....                                       | 13   |
| 5. TEST RESULT FOR BLUETOOTH .....                                | 14   |
| 5.1 FREQUENCY ERROR .....                                         | 14   |
| 5.1.1 LIMIT .....                                                 | 14   |
| 5.1.2 MEASURING INSTRUMENTS AND SETTING .....                     | 14   |
| 5.1.3 TEST PROCEDURES.....                                        | 14   |
| 5.1.4 TEST SETUP LAYOUT.....                                      | 14   |
| 5.1.5 EUT OPERATION DURING TEST .....                             | 14   |
| 5.1.6 TEST RESULT .....                                           | 15   |
| 5.2 ANTENNA POWER & EIRP POWER .....                              | 17   |
| 5.2.1 LIMIT .....                                                 | 17   |
| 5.2.2 MEASURING INSTRUMENTS AND SETTING .....                     | 17   |
| 5.2.3 TEST PROCEDURES.....                                        | 17   |
| 5.2.4 TEST SETUP LAYOUT.....                                      | 18   |
| 5.2.5 TEST DEVIATION.....                                         | 18   |
| 5.2.6 TEST RESULT .....                                           | 18   |
| 5.3 OCCUPIED BANDWITH (99% AND 90%).....                          | 19   |
| 5.3.1 LIMIT .....                                                 | 19   |
| 5.3.2 MEASURING INSTRUMENTS AND SETTING .....                     | 19   |
| 5.3.3 TEST PROCEDURES.....                                        | 19   |
| 5.3.4 TEST SETUP LAYOUT.....                                      | 19   |
| 5.3.5 TEST DEVIATION.....                                         | 19   |
| 5.3.6 EUT OPERATION DURING TEST .....                             | 19   |
| 5.3.7 TEST RESULT .....                                           | 20   |
| 5.4 UNWANTED EMISSION INTENSITY MEASUREMENT .....                 | 23   |

| Table of Contents                                                  | Page |
|--------------------------------------------------------------------|------|
| 5.4.1 LIMIT .....                                                  | 23   |
| 5.4.2 MEASURING INSTRUMENTS AND SETTING .....                      | 23   |
| 5.4.3 TEST PROCEDURES.....                                         | 23   |
| 5.4.4 TEST SETUP LAYOUT.....                                       | 23   |
| 5.4.5 TEST DEVIATION.....                                          | 23   |
| 5.4.6 TEST RESULT .....                                            | 24   |
| 5.5 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT .....     | 43   |
| 5.5.1 LIMIT .....                                                  | 43   |
| 5.5.2 MEASURING ID CODE SOFTWARE .....                             | 43   |
| 5.5.3 TEST PROCEDURES.....                                         | 43   |
| 5.5.4 TEST SETUP LAYOUT.....                                       | 43   |
| 5.5.5 TEST DEVIATION.....                                          | 43   |
| 5.5.6 EUT OPERATION DURING TEST.....                               | 43   |
| 5.5.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT ..... | 43   |
| 5.6 DWELL TIME .....                                               | 44   |
| 5.6.1 LIMIT .....                                                  | 44   |
| 5.6.2 MEASURING INSTRUMENTS AND SETTING .....                      | 44   |
| 5.6.3 TEST PROCEDURES.....                                         | 44   |
| 5.6.4 TEST SETUP LAYOUT.....                                       | 44   |
| 5.6.5 TEST RESULT .....                                            | 45   |
| 5.7 IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT.....  | 51   |
| 5.7.1 LIMIT .....                                                  | 51   |
| 5.7.2 MEASURING INSTRUMENTS AND SETTING .....                      | 51   |
| 5.7.3 TEST PROCEDURES.....                                         | 51   |
| 5.7.4 TEST RESULT .....                                            | 51   |
| 6. EUT TEST PHOTO .....                                            | 56   |
| 7. EUT CONSTRUCTIONAL DETAILS.....                                 | 56   |

**1. VERSION**

| Report No.     | Version | Description             | Approved      |
|----------------|---------|-------------------------|---------------|
| CSTC-26060112E | Rev.01  | Initial issue of report | Jun. 25, 2026 |
|                |         |                         |               |



## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| NO. | Test Item                                          | Test Requirement       | Result |
|-----|----------------------------------------------------|------------------------|--------|
| 1   | RF shielding method                                | item 19 Clause 3.7     | Pass   |
| 2   | Frequency Error                                    | item 19 Clause 3.2(4)  | Pass   |
| 3   | Antenna Power & EIRP Power                         | item 19 Clause 3.2(2)  | Pass   |
| 4   | 99% Occupied bandwidth                             | item 19 Clause 3.2(7)  | Pass   |
| 5   | Spread spectrum bandwidth                          | item 19 Clause 3.2(8)  | Pass   |
| 6   | Dwell time                                         | item 19 Clause 3.2(11) | Pass   |
| 7   | Spurious Emissions Intensity                       | item 19 Clause 3.2(6)  | Pass   |
| 8   | Limit of secondary radiated emissions              | item 19 Clause 3.3(1)  | Pass   |
| 9   | Interference suppression                           | item 19 Clause 3.4.1   | Pass   |
| 10  | Transmission Antenna Gain                          | item 19 Clause 3.6     | Pass   |
| 11  | Transmission Radiation Angle Width(3dB Beam width) | item 19 Clause 3.6     | N/A    |

### Remarks

Test method reference: Mic Notice No.88 Appendix No.43

N/A: EIRP does not exceed 6.91dBm/MHz



## 2.1 TEST FACILITY

Shenzhen CSTC Testing Co., Ltd.

Add. : No. 101, Building 1, Shajing Wanfeng Huafeng Entrepreneurship Park, Heyi Community, Shajing Street, Bao 'an District, Shenzhen City, Guangdong Province, China.

## 2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                         | Uncertainty         |
|-----|------------------------------|---------------------|
| 1   | Conducted Emission Test      | $\pm 3.2\text{dB}$  |
| 2   | Radiated Emission Test       | $\pm 4.7\text{dB}$  |
| 3   | RF power conducted           | $\pm 0.16\text{dB}$ |
| 4   | Spurious emissions conducted | $\pm 0.21\text{dB}$ |
| 5   | All emissions radiated(<1G)  | $\pm 4.68\text{dB}$ |
| 6   | All emissions radiated(>1G)  | $\pm 5.0\text{dB}$  |
| 7   | frequency error ppm          | $\pm 0.5\text{ppm}$ |
| 8   | RF Occupied Bandwidth        | $U=1.8\text{MHz}$   |

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                        |                                                                                                                                                                                                                     |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | Eye massager                                                                                                                                                                                                        |
| Model No.:             | Eye Sweep                                                                                                                                                                                                           |
| Series models:         | N/A                                                                                                                                                                                                                 |
| Model Difference:      | N/A                                                                                                                                                                                                                 |
| Hardware Version:      | V2.0                                                                                                                                                                                                                |
| Software Version:      | V2.3                                                                                                                                                                                                                |
| Operation Frequency:   | 2402MHz~2480MHz                                                                                                                                                                                                     |
| Channel numbers:       | 79                                                                                                                                                                                                                  |
| Channel separation:    | 1MHz                                                                                                                                                                                                                |
| Modulation technology: | GFSK, $\pi/4$ -DQPSK, 8DPSK                                                                                                                                                                                         |
| Rated power:           | GFSK: 1mW/MHz<br>$\pi/4$ -DQPSK: 1mW/MHz<br>8DPSK: 1mW/MHz                                                                                                                                                          |
| Antenna Specification: | PCB antenna                                                                                                                                                                                                         |
| Antenna Gain:          | 2.27 dBi                                                                                                                                                                                                            |
| Ratings:               | Input: 5V  2A<br>Battery: 3.7V  1000mAh, 3.7Wh |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2.

| Channel List |                 |         |                 |         |                 |
|--------------|-----------------|---------|-----------------|---------|-----------------|
| Channel      | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 00           | 2402            | 27      | 2429            | 54      | 2456            |
| 01           | 2403            | 28      | 2430            | 55      | 2457            |
| 02           | 2404            | 29      | 2431            | 56      | 2458            |
| 03           | 2405            | 30      | 2432            | 57      | 2459            |
| 04           | 2406            | 31      | 2433            | 58      | 2460            |
| 05           | 2407            | 32      | 2434            | 59      | 2461            |
| 06           | 2408            | 33      | 2435            | 60      | 2462            |
| 07           | 2409            | 34      | 2436            | 61      | 2463            |
| 08           | 2410            | 35      | 2437            | 62      | 2464            |
| 09           | 2411            | 36      | 2438            | 63      | 2465            |
| 10           | 2412            | 37      | 2439            | 64      | 2466            |
| 11           | 2413            | 38      | 2440            | 65      | 2467            |
| 12           | 2414            | 39      | 2441            | 66      | 2468            |
| 13           | 2415            | 40      | 2442            | 67      | 2469            |
| 14           | 2416            | 41      | 2443            | 68      | 2470            |
| 15           | 2417            | 42      | 2444            | 69      | 2471            |
| 16           | 2418            | 43      | 2445            | 70      | 2472            |
| 17           | 2419            | 44      | 2446            | 71      | 2473            |
| 18           | 2420            | 45      | 2447            | 72      | 2474            |
| 19           | 2421            | 46      | 2448            | 73      | 2475            |
| 20           | 2422            | 47      | 2449            | 74      | 2476            |
| 21           | 2423            | 48      | 2450            | 75      | 2477            |
| 22           | 2424            | 49      | 2451            | 76      | 2478            |
| 23           | 2425            | 50      | 2452            | 77      | 2479            |
| 24           | 2426            | 51      | 2453            | 78      | 2480            |
| 25           | 2427            | 52      | 2454            |         |                 |
| 26           | 2428            | 53      | 2455            |         |                 |

- 3.

| Final test channel as follow: |                 |         |                 |         |                 |
|-------------------------------|-----------------|---------|-----------------|---------|-----------------|
| Channel                       | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 00                            | 2402            | 39      | 2441            | 78      | 2480            |

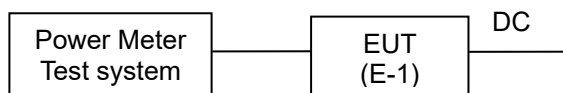
### 3.2 DESCRIPTION OF TEST MODES

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|
| Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |             |
| <p>The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all Modes to determine worst case levels. test software Qualcomm FCC_assist_1.0.3.a used for controlling the EUT.</p> <p>During testing channel &amp; power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS</p> |                                   |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Test Software: FCC_assist_1.0.3.a |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Test Mode                         | Power Level |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | GFSK                              | Default     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | $\pi/4$ -DQPSK                    | Default     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8DPSK                             | Default     |

### 3.3 TEST CONDITIONS

| Supply Voltage                                                                                                                                                                |                    |           |                                              |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------|----------------------------------------------|---------------|
|                                                                                                                                                                               | Input Voltage (DC) |           | Voltage at the input of the RF Circuit (Vdc) | Tolerance (%) |
| Normal                                                                                                                                                                        | 3.7                | Normal    | 3.3                                          |               |
| +10%                                                                                                                                                                          | 4.07               | +10%      | 3.3                                          | 0             |
| -10%                                                                                                                                                                          | 3.33               | -10%      | 3.3                                          | 0             |
| Others                                                                                                                                                                        |                    |           |                                              |               |
| Temperature (°C)                                                                                                                                                              |                    | 20-25     |                                              |               |
| Relative humidity                                                                                                                                                             |                    | 51%.      |                                              |               |
| ATM Pressure:                                                                                                                                                                 |                    | 1019 mbar |                                              |               |
| Note 1: When the input voltage is reduced or increased by 10%, the regulator voltage changes of less than 1%.So the following test items are conducted in the normal voltage. |                    |           |                                              |               |

### 3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment    | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|--------------|-----------|----------------|------------|------|
| E-1  | Eye massager | N/A       | Eye Sweep      | N/A        | EUT  |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
|      |               |              |        |      |
|      |               |              |        |      |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



### 3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Calibration company: Guangzhou LiSai Metrology & Test Co., Ltd. (Article 24-2, Paragraph 4 of the Radio Act) method c

#### Radiation Emissions & Radiation Spurious Emissions Test

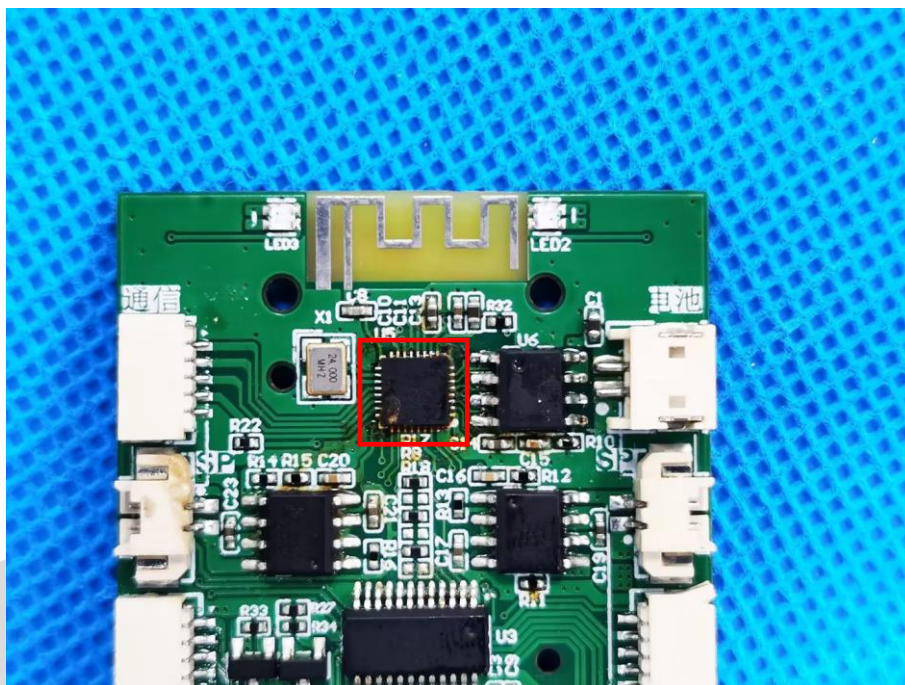
| Item     | Equipment                         | Manufacturer   | Type No.          | Serial No.         | Firmware Version | Last calibration | Calibrated until |
|----------|-----------------------------------|----------------|-------------------|--------------------|------------------|------------------|------------------|
| 1        | Spectrum Analyzer (9kHz-26.5GHz)  | KEYSIGHT       | N9020A            | MY55370835         | A.17.05          | Sep. 17, 2025    | Sep. 16, 2026    |
| 2        | Spectrum Analyzer (10kHz-39.9GHz) | R&S            | FSV40-N           | 100363             | 1.71 SP2         | Sep. 17, 2025    | Sep. 16, 2026    |
| 3        | EMI Test Receiver (9kHz-7GHz)     | R&S            | ESCI7             | 100969             | 4.32             | Sep. 17, 2025    | Sep. 16, 2026    |
| 4        | Bilog Antenna (30MHz-1500MHz)     | Schwarzbeck    | VULB9168          | 00877              | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 5        | Horn Antenna (1GHz-18GHz)         | Agilent        | AH-118            | 071145             | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 6        | Horn Antenna (15GHz-40GHz)        | A.H.System     | SAS-574           | 588                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 7        | Loop Antenna                      | TESEQ          | HLA6121           | 58357              | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 8        | Amplifier (30-1000MHz)            | EM Electronics | EM330 Amplifier   | 60747              | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| signal 9 | Amplifier (1GHz-26.5GHz)          | HuiPu          | 8449B             | 3008A00315         | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 10       | Amplifier (500MHz-40GHz)          | QuanJuDa       | DLE-161           | 097                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 11       | Test Cable                        | N/A            | R-01              | N/A                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 12       | Test Cable                        | N/A            | R-02              | N/A                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 13       | Test Cable                        | N/A            | R-03              | N/A                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 14       | D.C. Power Supply                 | LongWei        | TPR-6405D         | GQ7516             | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 15       | EMC Software                      | Frad           | EZ-EMC            | Ver.EMC-CO N 3A1.1 | N/A              | \                | \                |
| 16       | Turntable                         | MF             | MF-7802BS         | N/A                | N/A              | \                | \                |
| 17       | Antenna tower                     | MF             | MF-7802BS         | N/A                | N/A              | \                | \                |
| 18       | Power Meter                       | KEYSIGHT       | N1912AP           | 926431             | A.05.00          | Sep. 17, 2025    | Sep. 16, 2026    |
| 19       | Attenuator                        | GuoRenTong Xin | SGR-SJQ-6 dB-DC-3 | N/A                | N/A              | Sep. 17, 2025    | Sep. 16, 2026    |
| 20       | Signal Generator                  | Agilent        | N5182A            | MY47420215         | A.01.87          | Sep. 17, 2025    | Sep. 16, 2026    |

#### 4. RF SHIELDING METHOD

Chipset:

The product structure is uses SMD patch process.

As shown in the picture, If the will be open so the product be damage.  
terminalnumber is 32. Pitch is 0.20mm.



## 5. TEST RESULT FOR BLUETOOTH

### 5.1 FREQUENCY ERROR

#### 5.1.1 LIMIT

| Item            | Limits |
|-----------------|--------|
| Frequency Error | ±50ppm |

#### 5.1.2 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of Spectrum Analyzer.

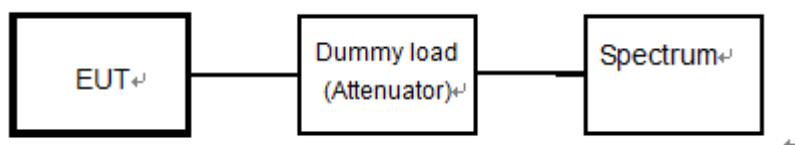
| Spectrum Parameter | Setting  |
|--------------------|----------|
| Attenuation        | Auto     |
| RB / VB            | 10KHz    |
| Detector           | Peak     |
| Span               | 1MHz     |
| Trace              | Max Hold |
| Sweep Time         | Auto     |

#### 5.1.3 TEST PROCEDURES

- (1) In the case of unmodulated signal (continuous or continuous burst), measure the frequency directly by a frequency meter.
- (2) In the case of burst waves, the measurement shall be done for enough time in order to obtain the enough measuring accuracy, and the average of the measured values becomes the final value.
- (3) In the case of a test mode with a specific frequency spectrum, measure the frequency of the specific spectrum by a spectrum analyzer.
- (4) In the cases above, if the frequency equivalent to the test frequency is not directly measured in principle, it shall be obtained by necessary calculation.

In the case of modulated signal, if there is no specific spectrum measurable by a spectrum analyzer but a specific dip is observed, it is allowed to measure the frequency with the signal generator (synthesized). That is, observe a signal of the signal generator concurrently (or alternately) with the tested signal using the spectrum analyzer while setting the frequency of the signal generator to the position of the dip on the screen of the spectrum analyzer, and determine the frequency of the signal generator at the time as a measured value.

#### 5.1.4 TEST SETUP LAYOUT



#### 5.1.5 EUT OPERATION DURING TEST

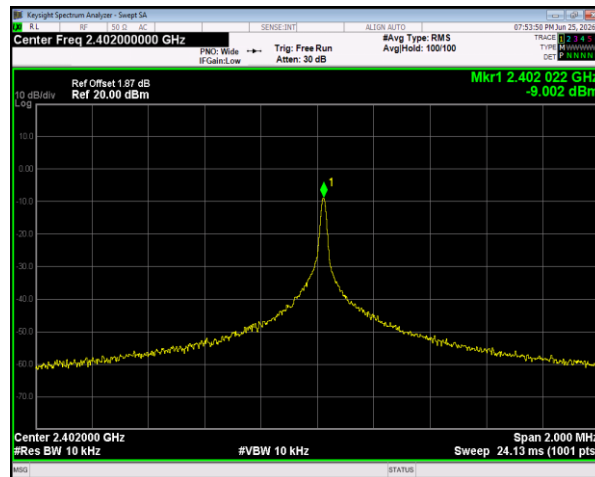
The EUT was placed on the test table and programmed in un-modulation function.

## 5.1.6 TEST RESULT

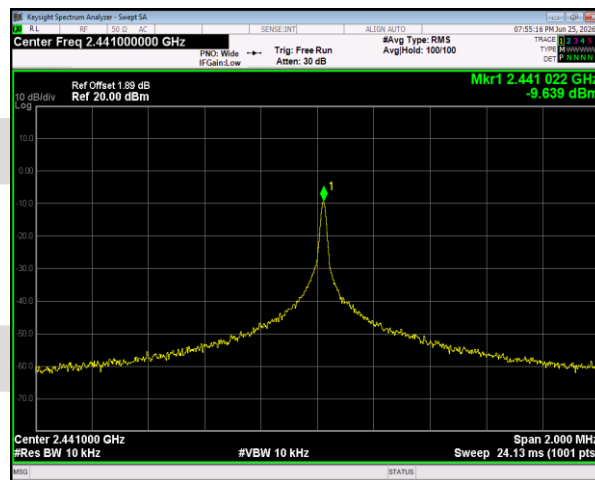
| Test mode          | Test voltage | Frequency (MHz) | Read (MHz) | Tolerance (ppm) | Limit (ppm) | Result |
|--------------------|--------------|-----------------|------------|-----------------|-------------|--------|
| Un-modulation mode | Normal       | 2402            | 2402.022   | 9.16            | ±50.00      | Pass   |
|                    |              | 2441            | 2441.022   | 9.01            |             |        |
|                    |              | 2480            | 2480.022   | 8.87            |             |        |



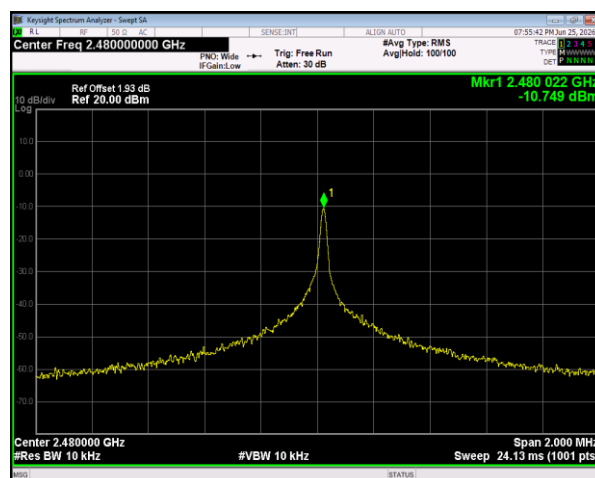
|                |               |        |
|----------------|---------------|--------|
| Lowest Channel | Test voltage: | NORMAL |
|----------------|---------------|--------|



|                |               |        |
|----------------|---------------|--------|
| Middle Channel | Test voltage: | NORMAL |
|----------------|---------------|--------|



|                 |               |        |
|-----------------|---------------|--------|
| Highest Channel | Test voltage: | NORMAL |
|-----------------|---------------|--------|



## 5.2 ANTENNA POWER & EIRP POWER

### 5.2.1 LIMIT

| Item                  | Limits                |
|-----------------------|-----------------------|
| Antenna Power Density | $\leq 3\text{mW/MHz}$ |
| EIRP Power Density    | 6.91dBm/MHz           |
| Antenna Power Error   | +20%                  |

### 5.2.2 MEASUREMENT WITH A POWER METER

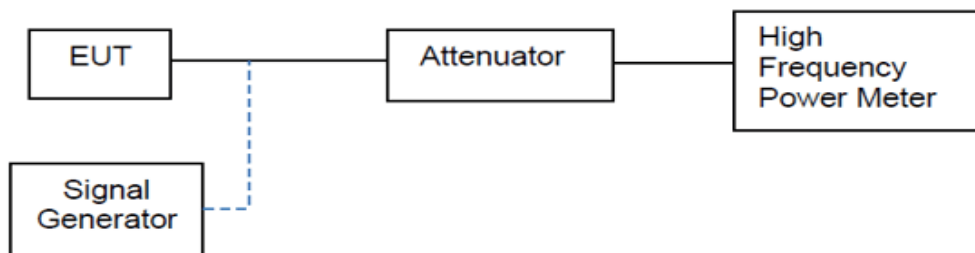
Total power / Spread bandwidth = Mean power in 1MHz = Antenna power

### 5.2.3 TEST PROCEDURES

(1) Frequency hopping system (including combined systems of direct spread and orthogonal frequency division multiplexing)

- a. Connect the high frequency power meter to the output of the attenuator and measure the total power.
- b. Divide the total power by the spread bandwidth and find the average power per MHz
- c. Confirm that the frequency distribution of frequency hopping (frequency hopping intervals are equally spaced at less than 1 MHz) and the emergence probability of the various hopping frequencies are even according to the supporting data. Furthermore, if frequency distribution of frequency hopping is not even, consider other measurement methods by referring to "6 Other Conditions".
- d. Set the antenna power as follows:
  - (1) Continuous waves: value in b.
  - (2) Burst waves: value in b. and value calculated from the average power within bursts from rates of transmission times.

## 5.2.4 TEST SETUP LAYOUT



## 5.2.5 TEST DEVIATION

There is no deviation with the original standard.

## 5.2.6 TEST RESULT

| Test voltage:   |               |                           | Normal                   |                        |                        |                             |                      |               |                     |        |
|-----------------|---------------|---------------------------|--------------------------|------------------------|------------------------|-----------------------------|----------------------|---------------|---------------------|--------|
| Modulation type | Channel (MHz) | Average Total Power (dBm) | Average Total Power (mW) | Spread bandwidth (MHz) | Antenna Power (mW/MHz) | Rated output power (mW/MHz) | Power Limit (mW/MHz) | Tolerance (%) | Tolerance Limit (%) | Result |
| GFSK            | Hopping       | 17.77                     | 59.790                   | 71.358                 | 0.838                  | 1                           | 3                    | -16%          | 20                  | PASS   |
| $\pi/4$ -DQPSK  | Hopping       | 16.91                     | 49.049                   | 71.488                 | 0.686                  | 1                           | 3                    | -31%          | 20                  | PASS   |
| 8DPSK           | Hopping       | 16.84                     | 48.264                   | 71.505                 | 0.675                  | 1                           | 3                    | -33%          | 20                  | PASS   |

| Modulation type | Channel (MHz) | Antenna Power (mW/MHz) | Antenna Power (dBm/MHz) | Antenna Gain (dBi) | EIRP Power (dBm/MHz) | EIRP Power Limit (dBm/MHz) | RESULT |
|-----------------|---------------|------------------------|-------------------------|--------------------|----------------------|----------------------------|--------|
| GFSK            | Hopping       | 0.838                  | -0.77                   | 2.27               | 1.50                 | 6.91                       | PASS   |
| $\pi/4$ -DQPSK  | Hopping       | 0.686                  | -1.64                   | 2.27               | 0.63                 | 6.91                       | PASS   |
| 8DPSK           | Hopping       | 0.675                  | -1.71                   | 2.27               | 0.56                 | 6.91                       | PASS   |

Note: EIRP Power = Antenna Power (dBm/MHz) + Antenna Gain.

Antenna power(mW/MHz)=Total power(mW)/spread bandwidth(MHz)

### 5.3 OCCUPIED BANDWIDTH (99% AND 90%)

#### 5.3.1 LIMIT

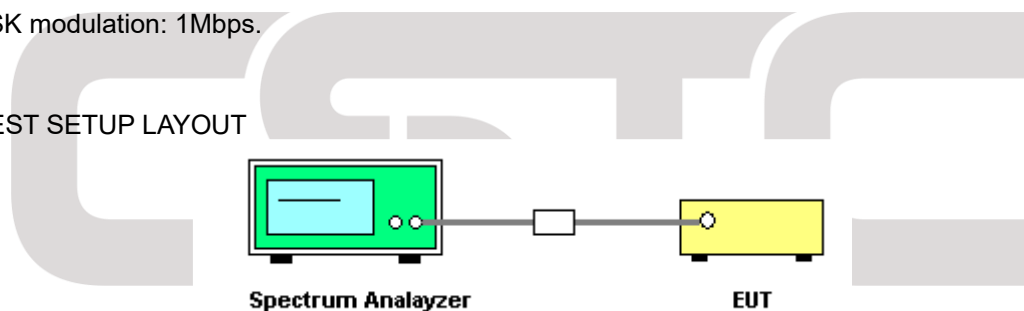
| Item                 | Limits          |
|----------------------|-----------------|
| Occupied Band Width: | 83.5MHz or less |

#### 5.3.2 MEASURING INSTRUMENTS AND SETTING

#### 5.3.3 TEST PROCEDURES

- Setting of SA is following as: RB: 1MHz / VB:1MHz / SPAN: 120MHz / AT: 30dB Ref: 21.89dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- EUT have transmitted the maximum modulation signal and fixed channelize ( For DSSS or OFDM Device) or continuous maximum power of hopping mode(For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz(For DSSS or OFDM Device) or 83.5MHz(For FHSS Device).
- SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth.
- Spread Spectrum Factor = Spread Spectrum Bandwidth / Symbol rate (Msymbols/s) of EUT.
- Symbol rate (Msymbols/s) of EUT is below:
  - GFSK modulation: 1Mbps;
  - $\pi$  /4-DQPSK modulation: 1Mbps;
  - 8DPSK modulation: 1Mbps.

#### 5.3.4 TEST SETUP LAYOUT



#### 5.3.5 TEST DEVIATION

There is no deviation with the original standard.

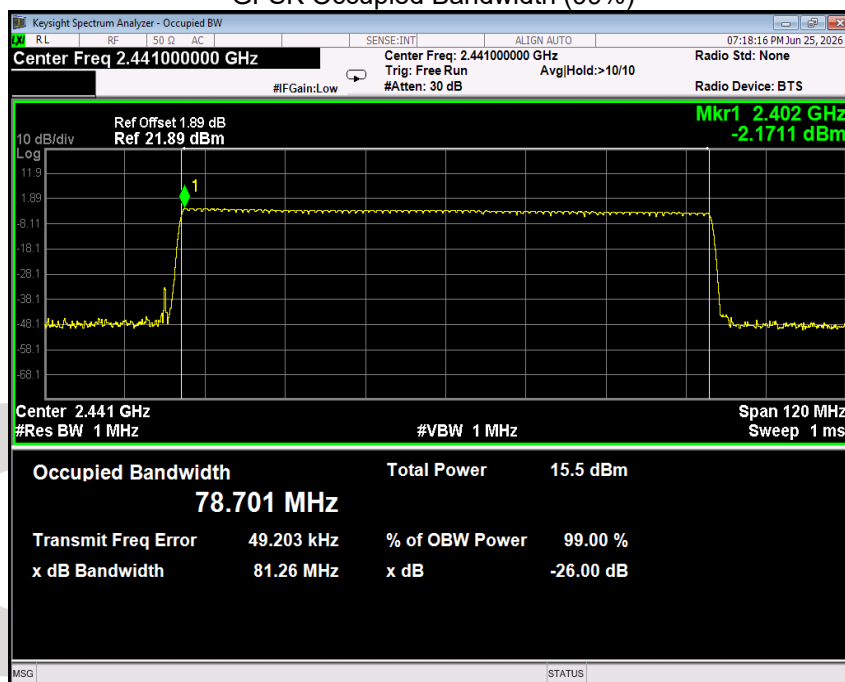
#### 5.3.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

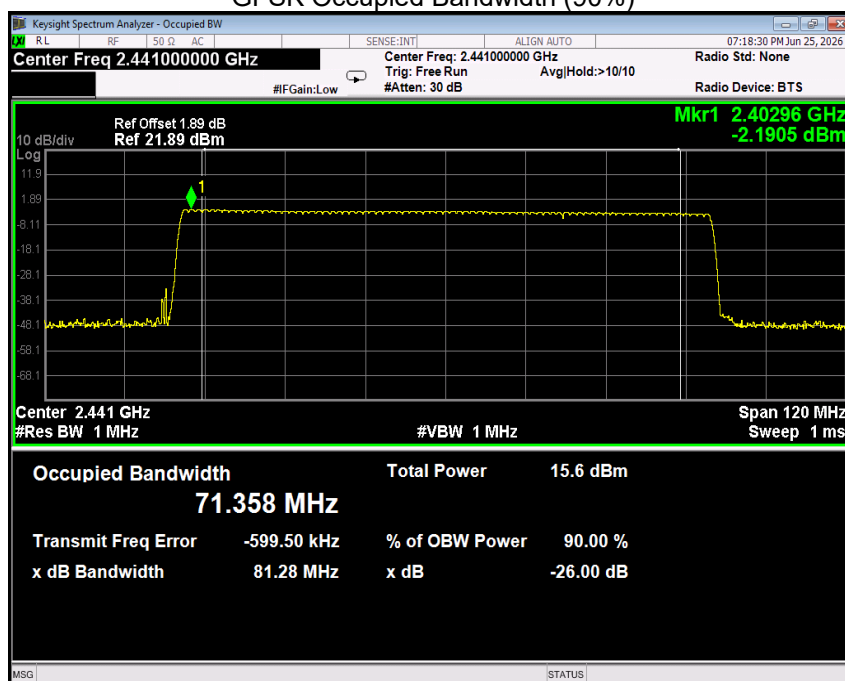
### 5.3.7 TEST RESULT

| Test Voltage   | TEST CONDITION | 99%Hopping Mode(Occupied bandwidth) MHz | 90%Hopping Mode(Occupied bandwidth) MHz | Modulation rate (Mbps) | 99%OBW Limit (MHz) | Result |
|----------------|----------------|-----------------------------------------|-----------------------------------------|------------------------|--------------------|--------|
| Normal Voltage | GFSK           | 78.701                                  | 71.358                                  | 1                      | ≤83.5              | PASS   |
|                | $\pi/4$ -DPSK  | 78.806                                  | 71.488                                  | 1                      | ≤83.5              | PASS   |
|                | 8DPSK          | 78.806                                  | 71.505                                  | 1                      | ≤83.5              | PASS   |

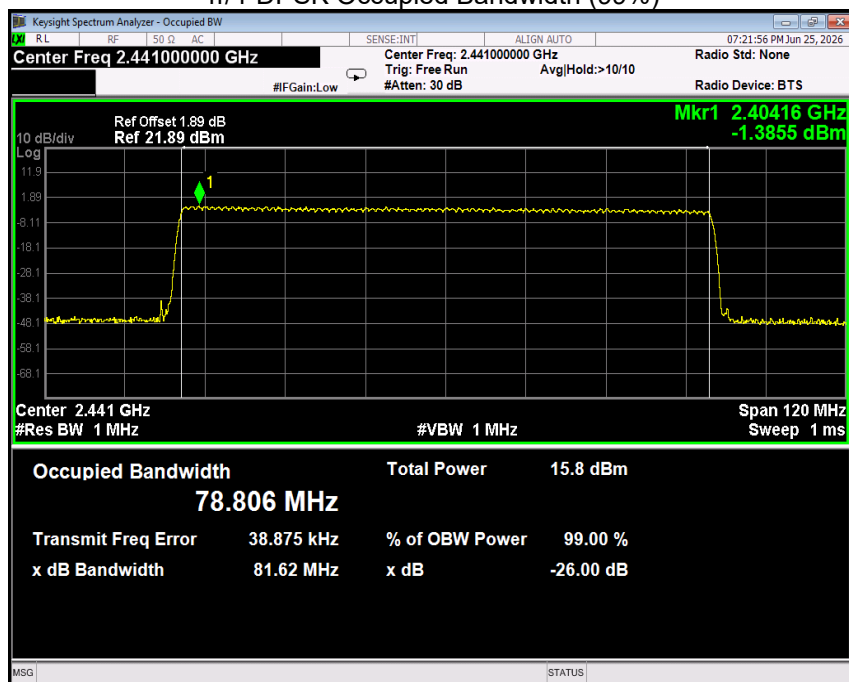
GFSK Occupied Bandwidth (99%)



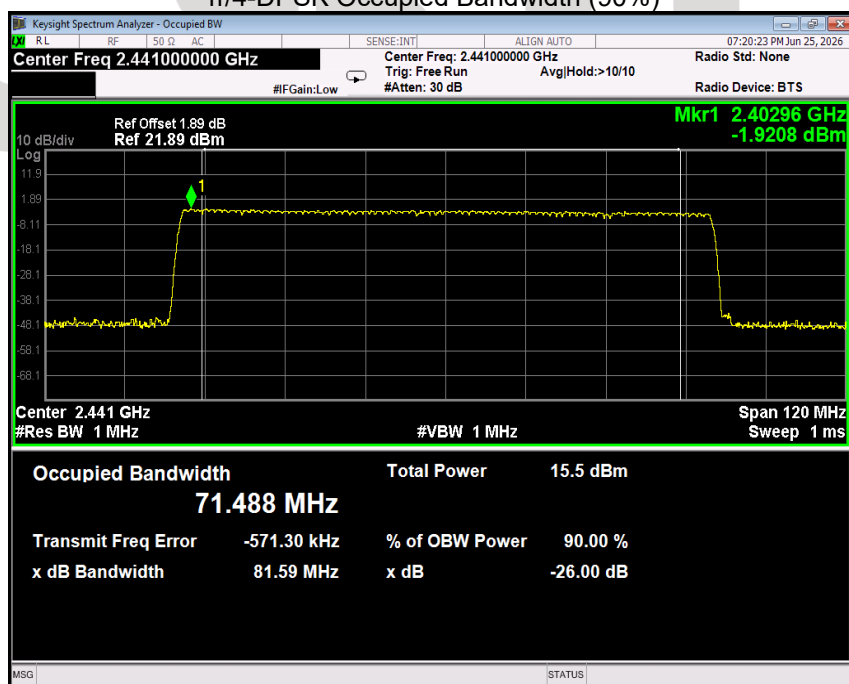
GFSK Occupied Bandwidth (90%)



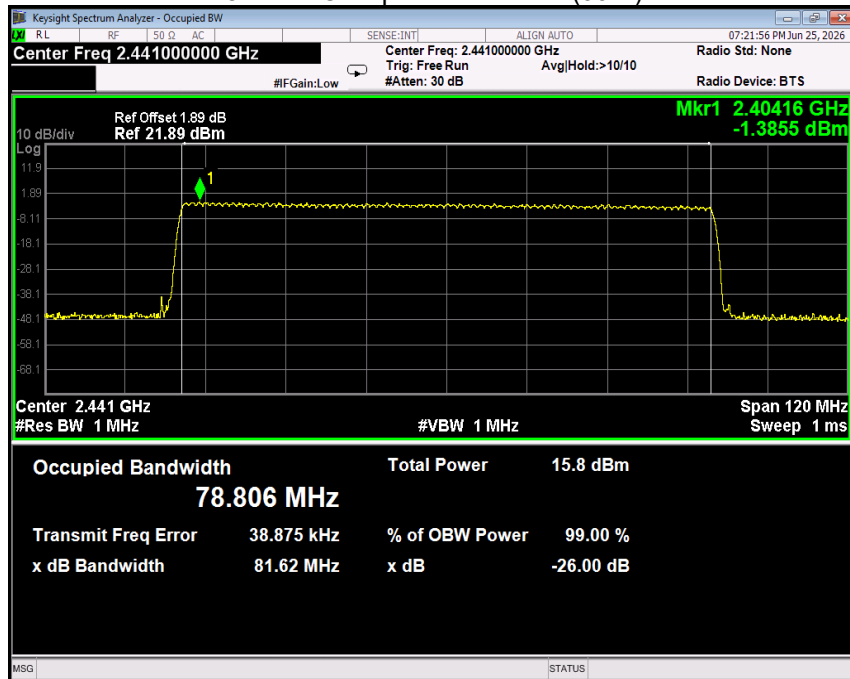
### $\pi/4$ -DPSK Occupied Bandwidth (99%)



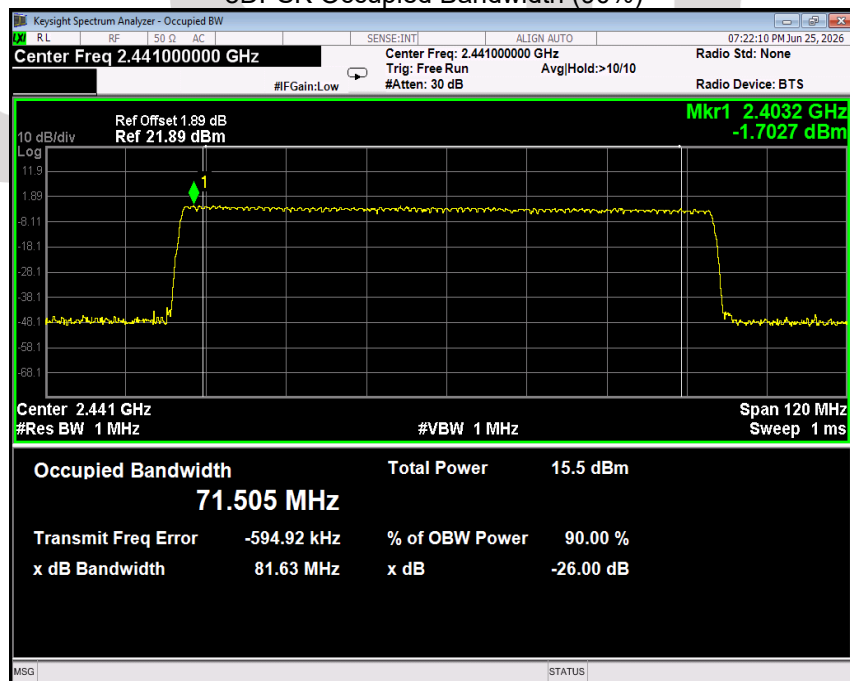
### $\pi/4$ -DPSK Occupied Bandwidth (90%)



### 8DPSK Occupied Bandwidth (99%)



### 8DPSK Occupied Bandwidth (90%)



## 5.4 UNWANTED EMISSION INTENSITY MEASUREMENT

### 5.4.1 LIMIT

| Item                 | Limits                                                                                                                                                                                      |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TX Spurious Emission | Below 1G: 2.5uW/MHz or less<br>Below 2387 MHz: 2.5μW/MHz or less<br>2387 to 2400 MHz: 25μW/MHz or less<br>2483.5 through 2496.5 MHz: 25μW/MHz or less<br>Over 2496.5 MHz: 2.5μW/MHz or less |

### 5.4.2 MEASURING INSTRUMENTS AND SETTING

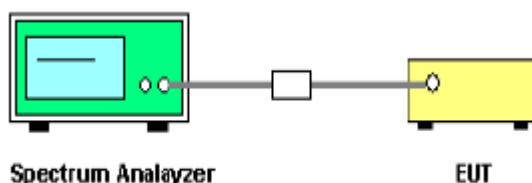
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

| Spectrum Parameter | Setting                                                    |
|--------------------|------------------------------------------------------------|
| Attenuation        | Auto                                                       |
| RB / VB            | Below 1GHz: 100 kHz / 100 kHz<br>Above 1GHz: 1 MHz / 1 MHz |
| Detector           | Peak                                                       |
| Trace              | Max Hold                                                   |
| Sweep Time         | Auto                                                       |

### 5.4.3 TEST PROCEDURES

- EUT have transmitted the maximum modulation signal and fixed channelize.
- Setting of SA is following as: Below 1GHz RB:100KHz / VB:100KHz  
Above 1GHz RB:1MHz / VB:1MHz / AT: 30dB Ref: 20dBm / Sweep time: Auto  
Sweep Mode: Continuous sweep / Detect mode: Positive peak  
Trace mode: Max hold
- Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 2.5uW/MHz.
- Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz..
- SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW/MHz..
- SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25μW/MHz.
- SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz.
- Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result\_Value = Measured\_Value + 15.2 [dBm]
- If the Result\_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result\_Value.
- The test was conducted in the Hopping mode.

### 5.4.4 TEST SETUP LAYOUT



### 5.4.5 TEST DEVIATION

There is no deviation with the original standard.

### 5.4.6 TEST RESULT

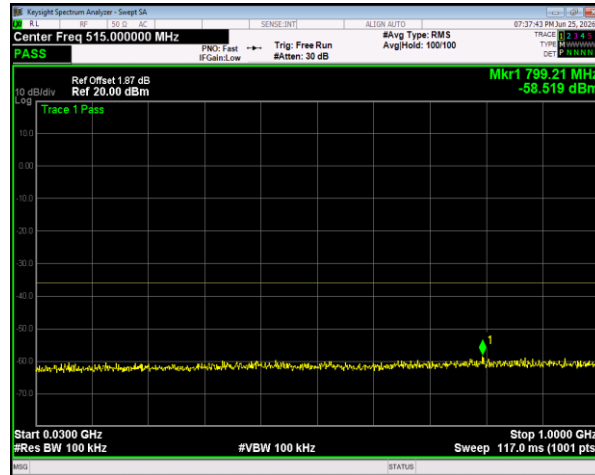
| Test Voltage | Mode           | Frequency (MHz) | Range (MHz)   | Emission Frequency (MHz) | Max Value (dBm) | Max Value (uW/MHz) | Limit (uW/MHz) | Verdict |
|--------------|----------------|-----------------|---------------|--------------------------|-----------------|--------------------|----------------|---------|
| Normal       | GFSK           | 2402            | 30-1000       | 799.21                   | -58.51          | 0.0014             | 2.5            | Pass    |
| Normal       | GFSK           | 2402            | 1000-2387     | 2380.07                  | -47.34          | 0.0185             | 2.5            | Pass    |
| Normal       | GFSK           | 2402            | 2387-2400     | 2400.00                  | -30.89          | 0.8147             | 25             | Pass    |
| Normal       | GFSK           | 2402            | 2483.5-2496.5 | 2493.19                  | -47.77          | 0.0167             | 25             | Pass    |
| Normal       | GFSK           | 2402            | 2496.5-13000  | 4796.77                  | -43.13          | 0.0486             | 2.5            | Pass    |
| Normal       | GFSK           | 2441            | 30-1000       | 805.03                   | -58.20          | 0.0015             | 2.5            | Pass    |
| Normal       | GFSK           | 2441            | 1000-2387     | 2101.28                  | -47.65          | 0.0172             | 2.5            | Pass    |
| Normal       | GFSK           | 2441            | 2387-2400     | 2393.34                  | -47.01          | 0.0199             | 25             | Pass    |
| Normal       | GFSK           | 2441            | 2483.5-2496.5 | 2489.05                  | -47.61          | 0.0173             | 25             | Pass    |
| Normal       | GFSK           | 2441            | 2496.5-13000  | 4880.79                  | -43.34          | 0.0463             | 2.5            | Pass    |
| Normal       | GFSK           | 2480            | 30-1000       | 860.32                   | -58.89          | 0.0013             | 2.5            | Pass    |
| Normal       | GFSK           | 2480            | 1000-2387     | 1737.88                  | -48.40          | 0.0145             | 2.5            | Pass    |
| Normal       | GFSK           | 2480            | 2387-2400     | 2388.77                  | -47.06          | 0.0197             | 25             | Pass    |
| Normal       | GFSK           | 2480            | 2483.5-2496.5 | 2483.67                  | -44.15          | 0.0385             | 25             | Pass    |
| Normal       | GFSK           | 2480            | 2496.5-13000  | 4954.32                  | -44.29          | 0.0372             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2402            | 30-1000       | 907.85                   | -58.66          | 0.0014             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2402            | 1000-2387     | 2384.23                  | -46.25          | 0.0237             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2402            | 2387-2400     | 2399.97                  | -34.35          | 0.3673             | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2402            | 2483.5-2496.5 | 2488.74                  | -47.21          | 0.019              | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2402            | 2496.5-13000  | 4796.77                  | -43.09          | 0.0491             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 30-1000       | 615.88                   | -58.99          | 0.0013             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 1000-2387     | 2127.63                  | -47.38          | 0.0183             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 2387-2400     | 2398.00                  | -47.91          | 0.0162             | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 2483.5-2496.5 | 2494.82                  | -46.96          | 0.0201             | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 2496.5-13000  | 4880.79                  | -43.50          | 0.0447             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2480            | 30-1000       | 901.06                   | -58.81          | 0.0013             | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2480            | 1000-2387     | 2384.23                  | -47.96          | 0.016              | 2.5            | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2480            | 2387-2400     | 2398.38                  | -43.02          | 0.0499             | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2480            | 2483.5-2496.5 | 2487.71                  | -46.11          | 0.0245             | 25             | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2480            | 2496.5-13000  | 4880.79                  | -43.36          | 0.0461             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2402            | 30-1000       | 960.23                   | -58.23          | 0.0015             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2402            | 1000-2387     | 2381.45                  | -47.89          | 0.0163             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2402            | 2387-2400     | 2399.96                  | -40.57          | 0.0877             | 25             | Pass    |
| Normal       | 8DPSK          | 2402            | 2483.5-2496.5 | 2486.92                  | -46.40          | 0.0229             | 25             | Pass    |
| Normal       | 8DPSK          | 2402            | 2496.5-13000  | 4880.79                  | -43.49          | 0.0448             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2441            | 30-1000       | 838.01                   | -58.63          | 0.0014             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2441            | 1000-2387     | 2384.23                  | -47.42          | 0.0181             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2441            | 2387-2400     | 2398.60                  | -41.97          | 0.0635             | 25             | Pass    |
| Normal       | 8DPSK          | 2441            | 2483.5-2496.5 | 2488.43                  | -47.09          | 0.0195             | 25             | Pass    |
| Normal       | 8DPSK          | 2441            | 2496.5-13000  | 4859.79                  | -43.47          | 0.045              | 2.5            | Pass    |
| Normal       | 8DPSK          | 2480            | 30-1000       | 267.65                   | -58.23          | 0.0015             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2480            | 1000-2387     | 2147.05                  | -48.56          | 0.0139             | 2.5            | Pass    |
| Normal       | 8DPSK          | 2480            | 2387-2400     | 2399.99                  | -35.79          | 0.2636             | 25             | Pass    |
| Normal       | 8DPSK          | 2480            | 2483.5-2496.5 | 2484.34                  | -46.84          | 0.0207             | 25             | Pass    |
| Normal       | 8DPSK          | 2480            | 2496.5-13000  | 4817.77                  | -43.04          | 0.0497             | 2.5            | Pass    |

Note: 30M-1GHz test for RB=100kHz,  
Test Result = Max Value +RB factor  
RB factor =  $10\log(RB0/RB1) = 10\log(1M/100K) = 10dB$

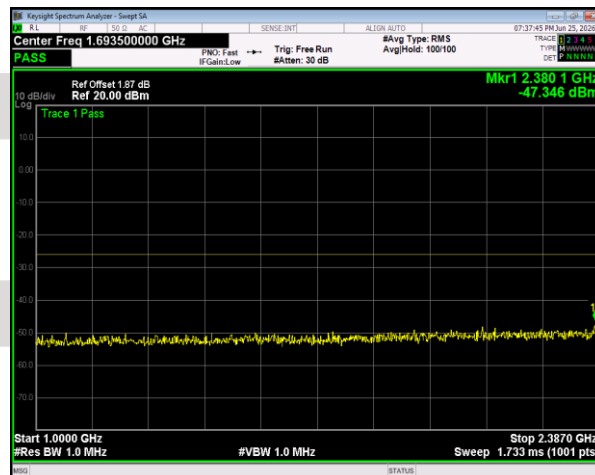
Modulation type: GFSK - 2402MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

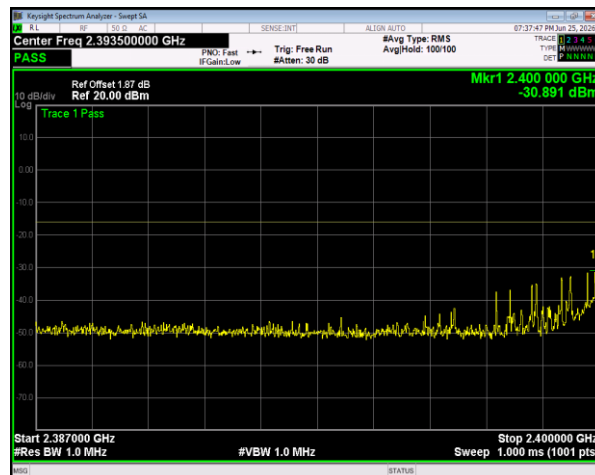
30MHz~1GHz



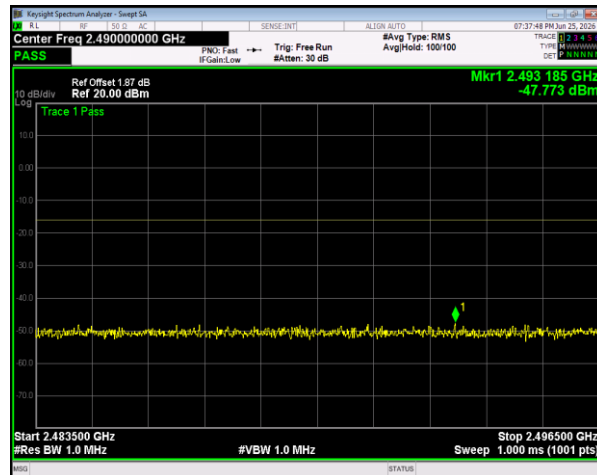
1GHz~2.387GHz



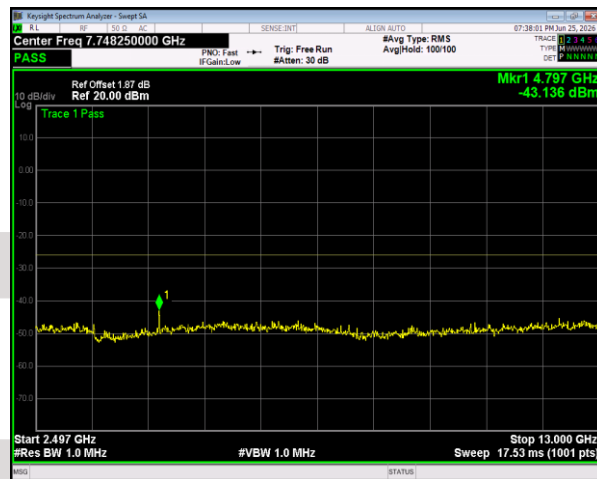
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



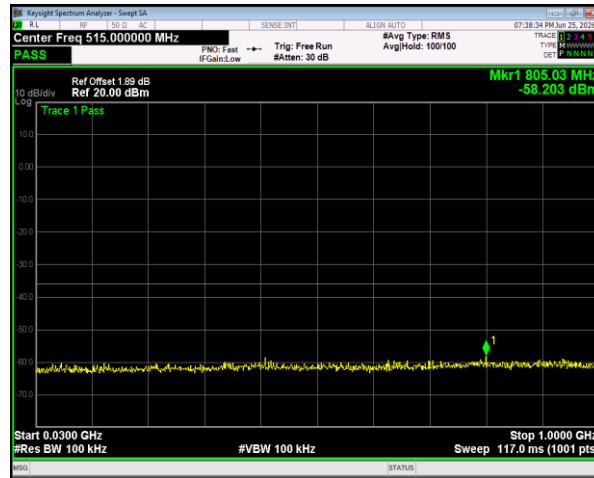
### 2.4965GHz~13GHz



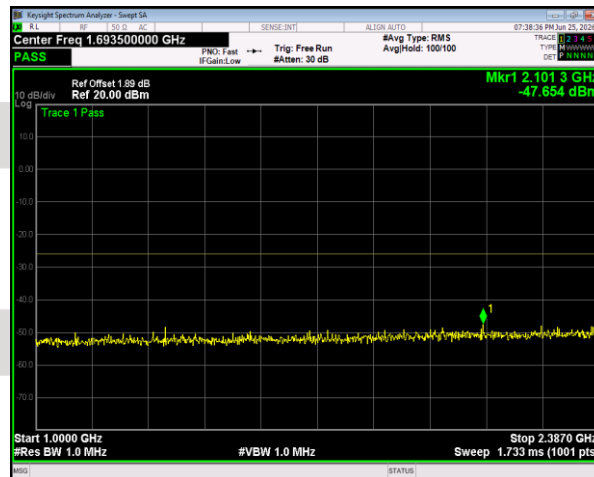
Modulation type: GFSK - 2441MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

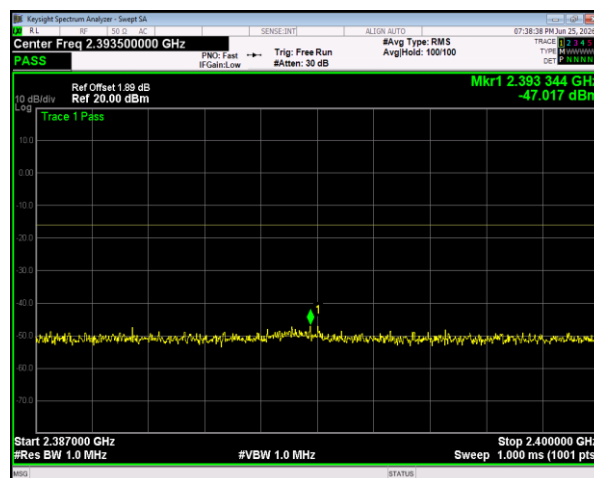
30MHz~1GHz



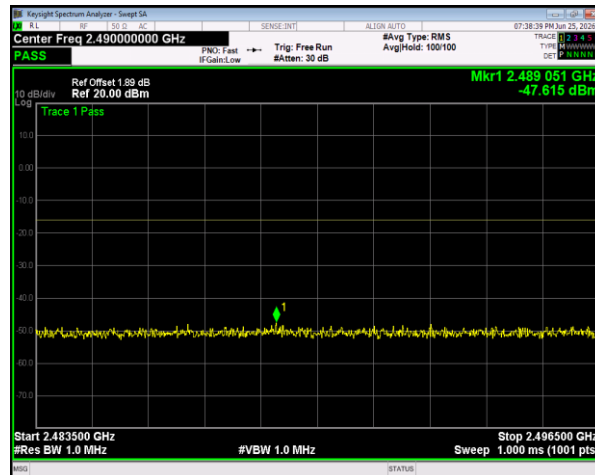
1GHz~2.387GHz



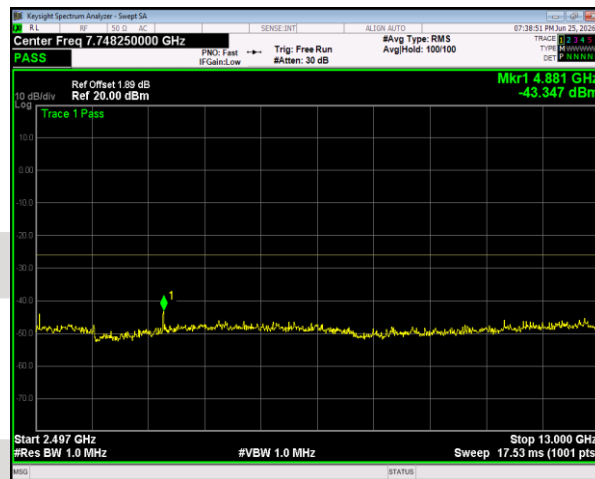
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



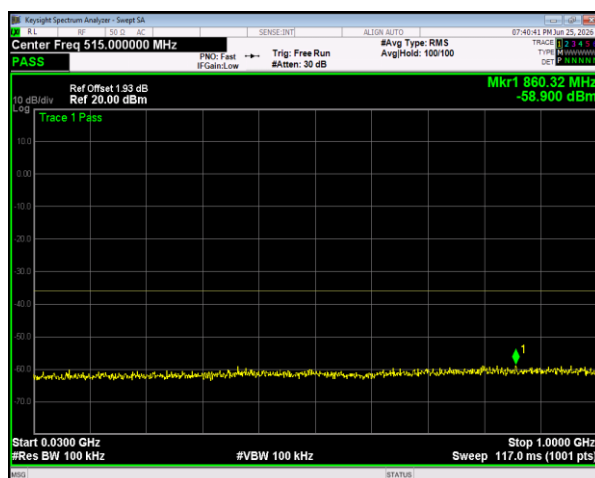
2.4965GHz~13GHz



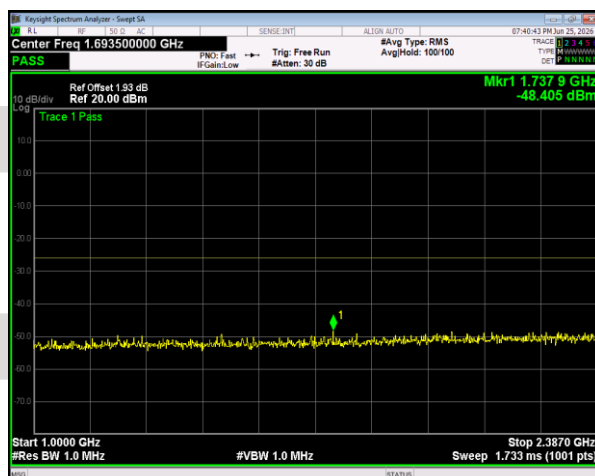
Modulation type: GFSK - 2480MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

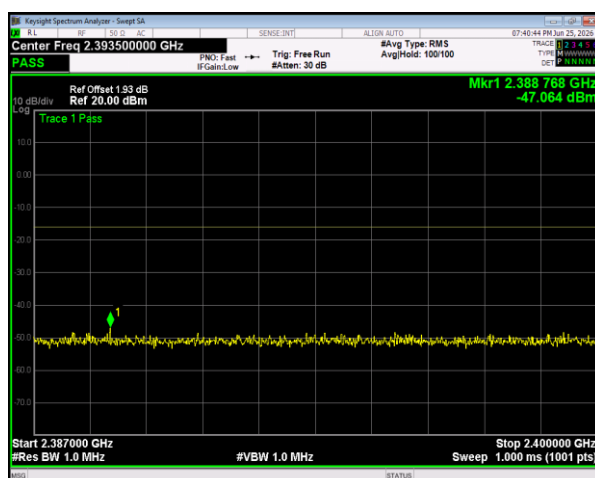
30MHz~1GHz



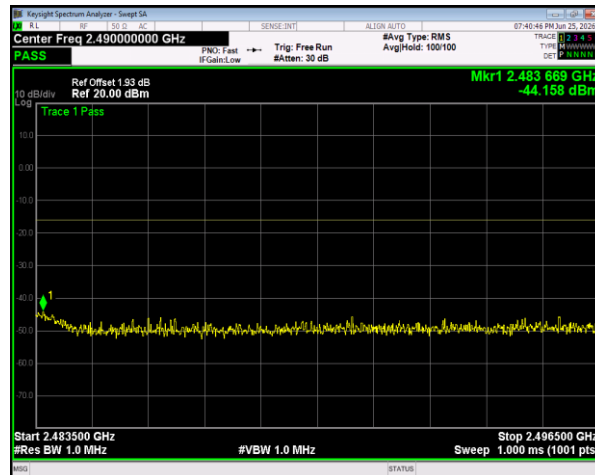
1GHz~2.387GHz



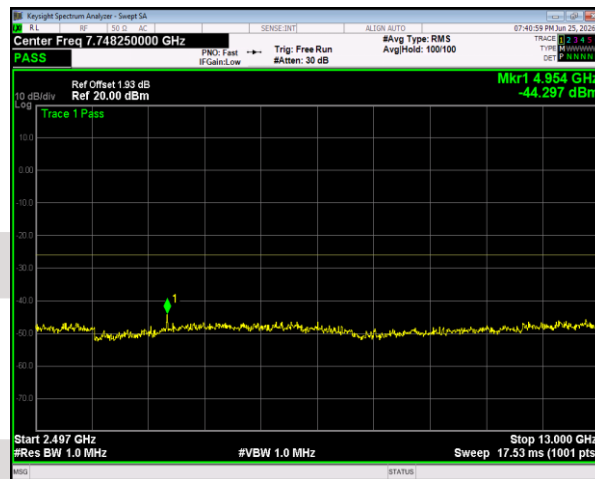
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



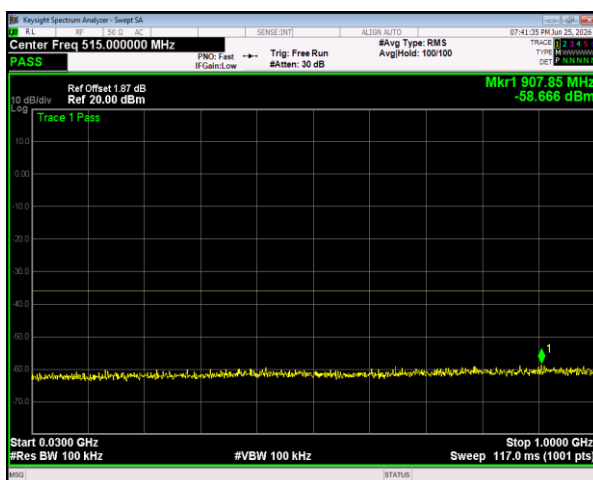
2.4965GHz~13GHz



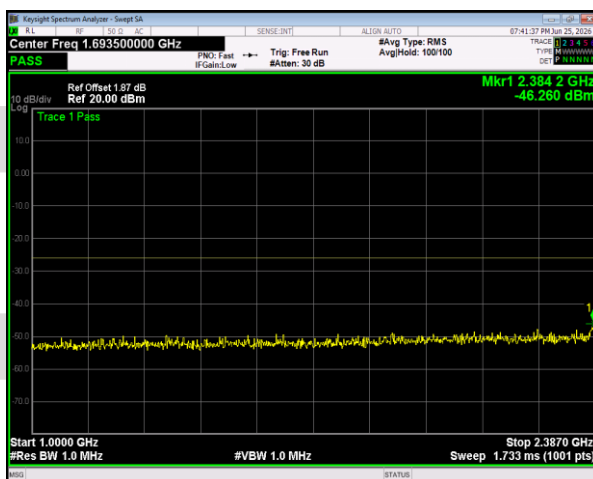
Modulation type:  $\pi/4$ -DQPSK - 2402MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

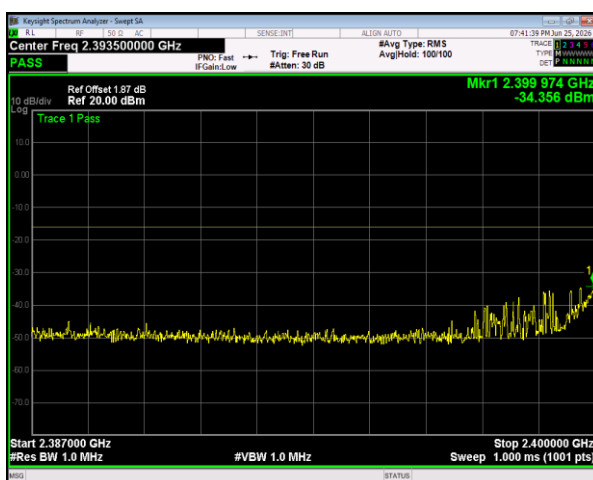
30MHz~1GHz



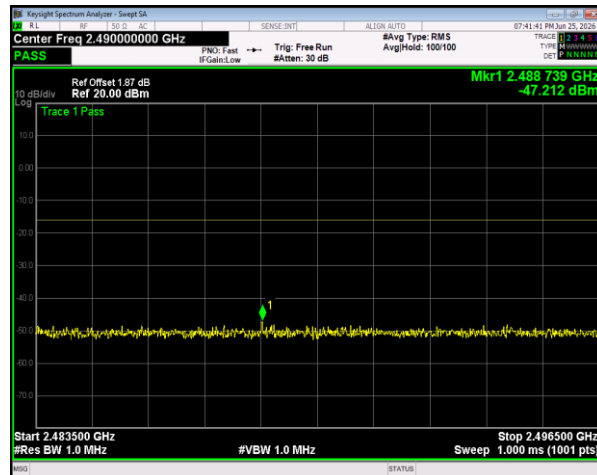
1GHz~2.387GHz



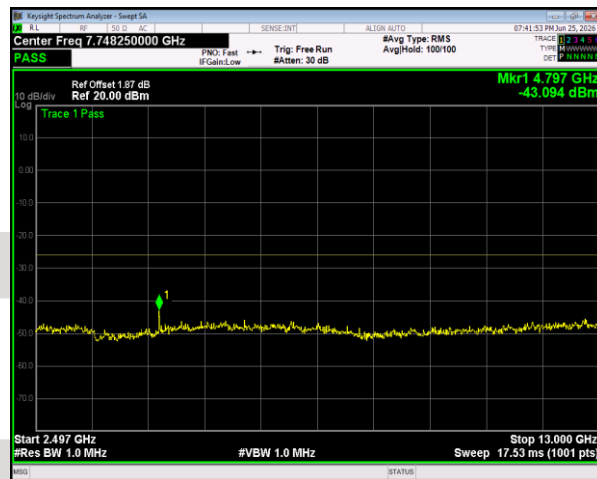
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



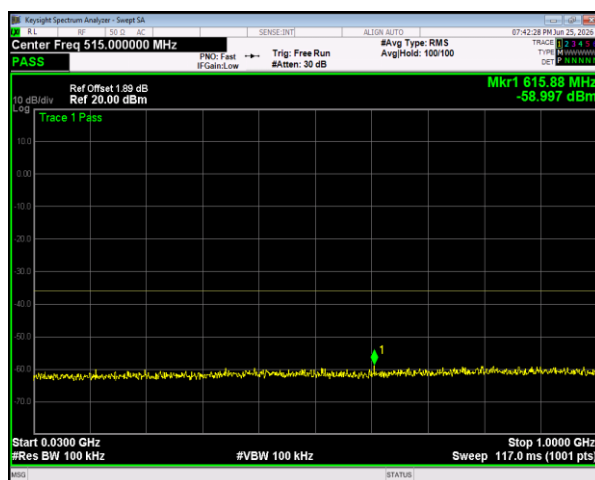
### 2.4965GHz~13GHz



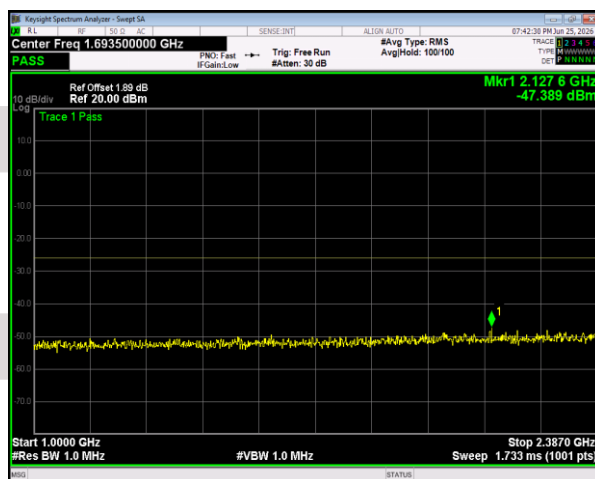
Modulation type:  $\pi/4$ -DQPSK - 2441MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

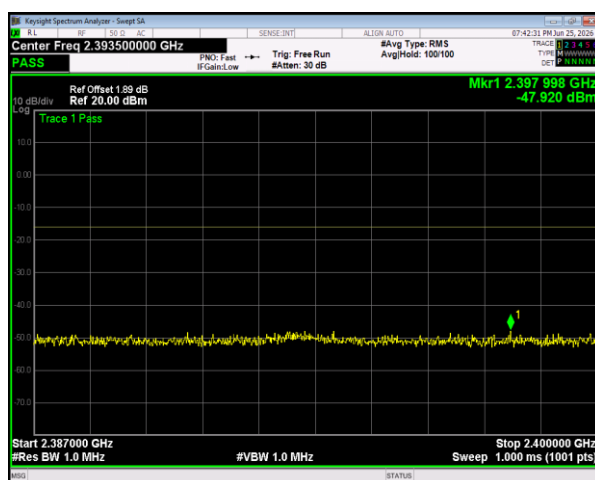
30MHz~1GHz



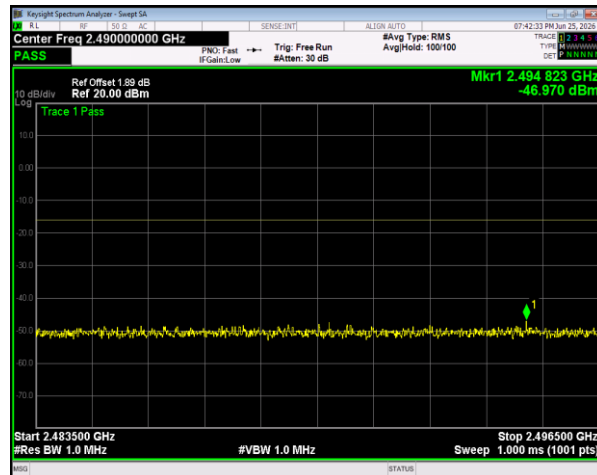
1GHz~2.387GHz



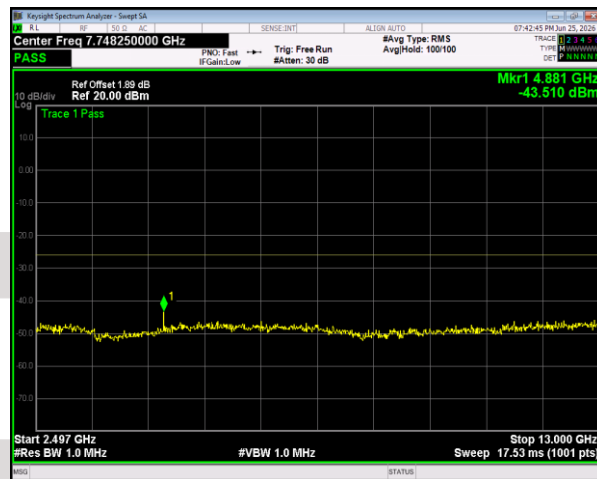
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



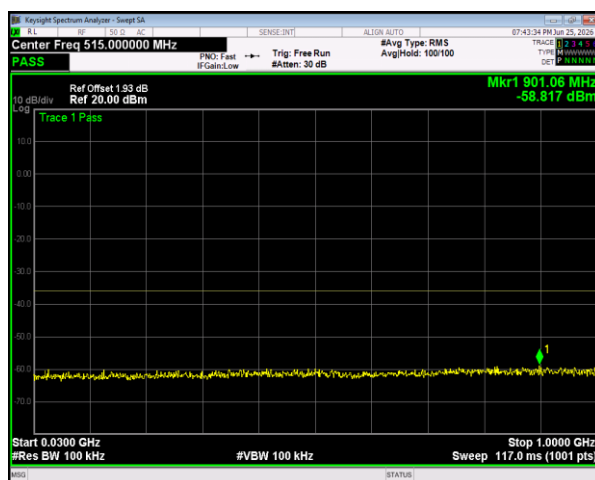
### 2.4965GHz~13GHz



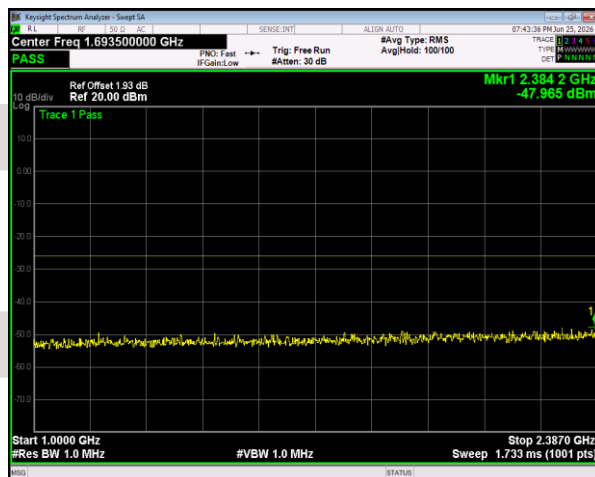
Modulation type:  $\pi/4$ -DQPSK - 2480MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

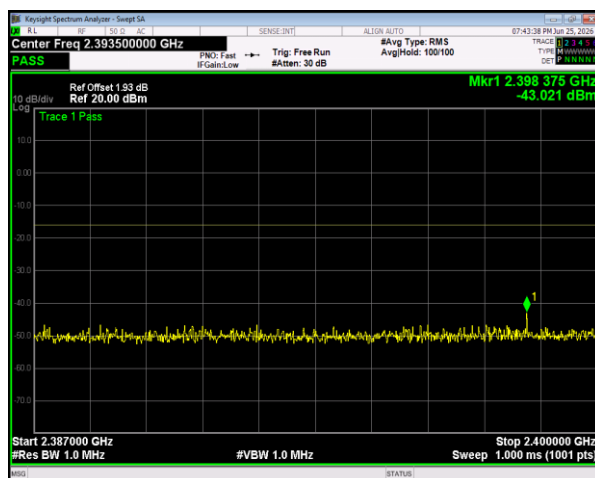
30MHz~1GHz



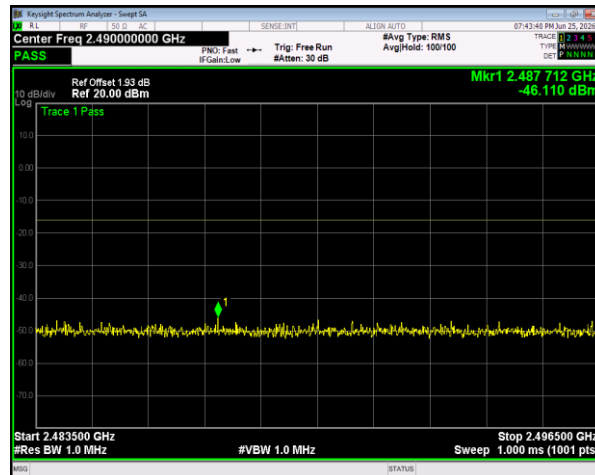
1GHz~2.387GHz



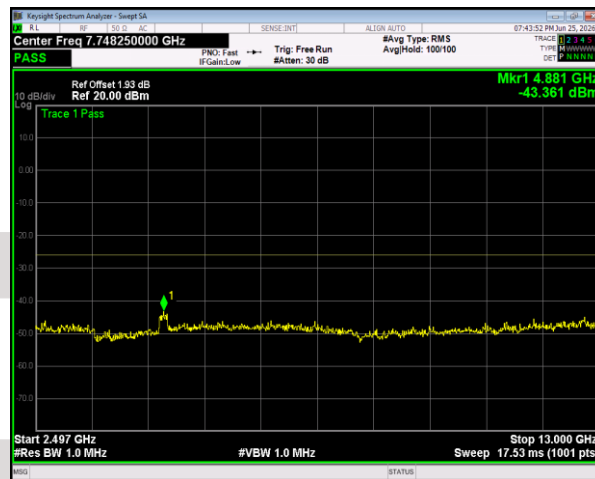
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



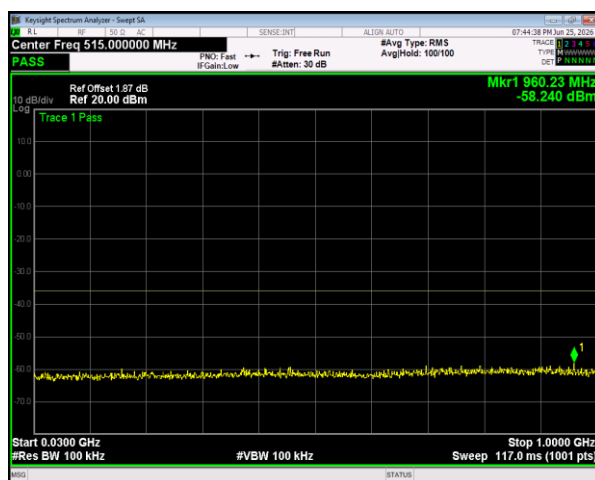
### 2.4965GHz~13GHz



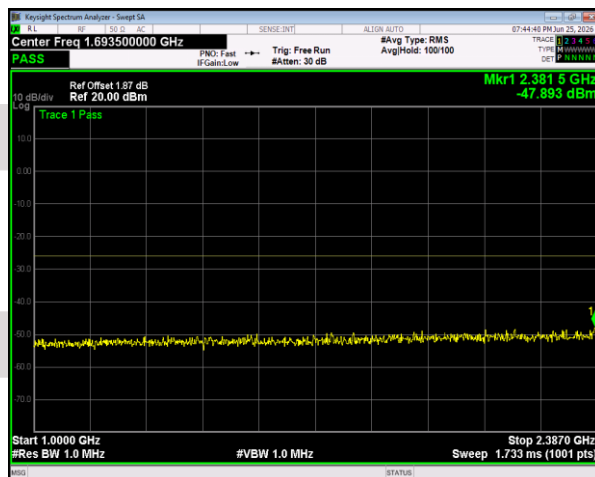
Modulation type: 8DPSK - 2402MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

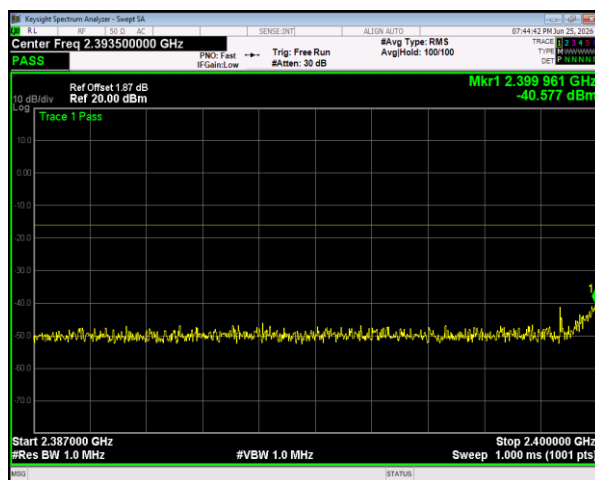
30MHz~1GHz



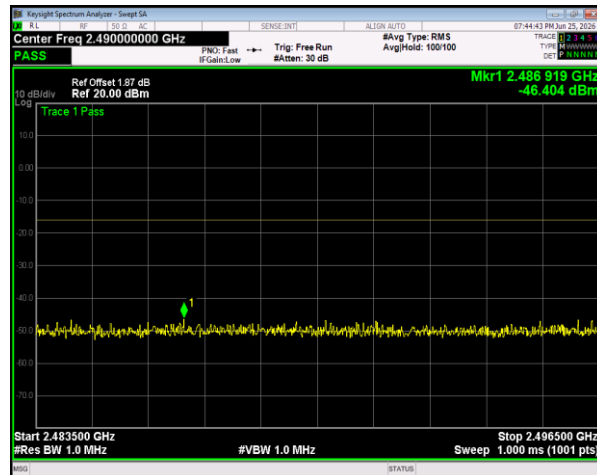
1GHz~2.387GHz



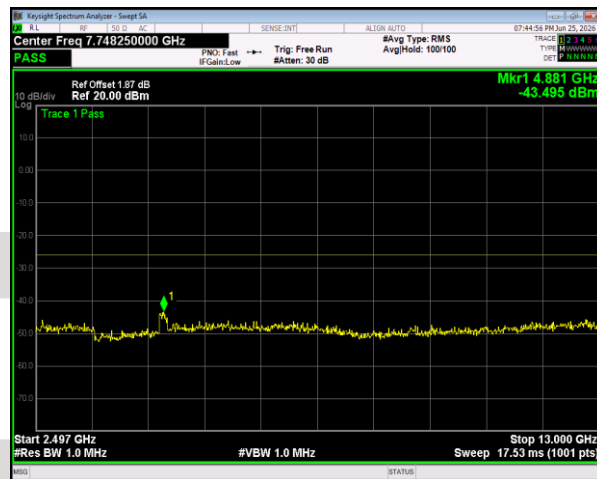
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



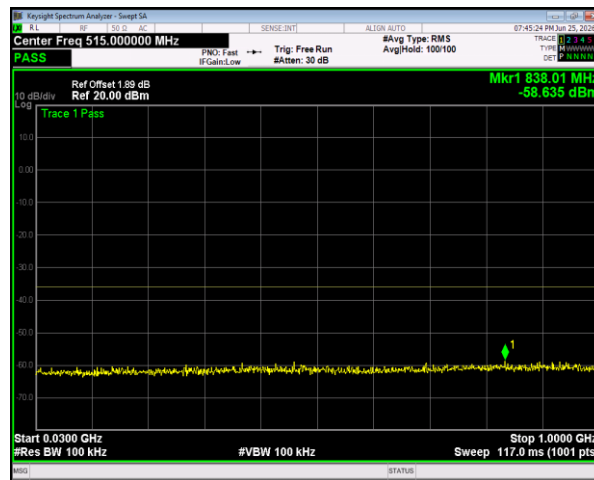
### 2.4965GHz~13GHz



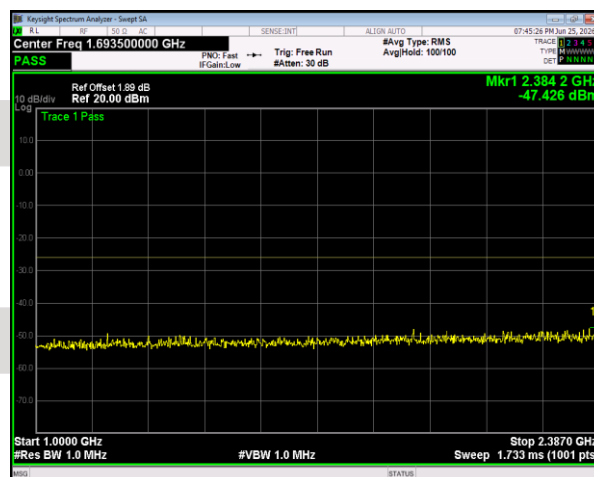
Modulation type: 8DPSK - 2441MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

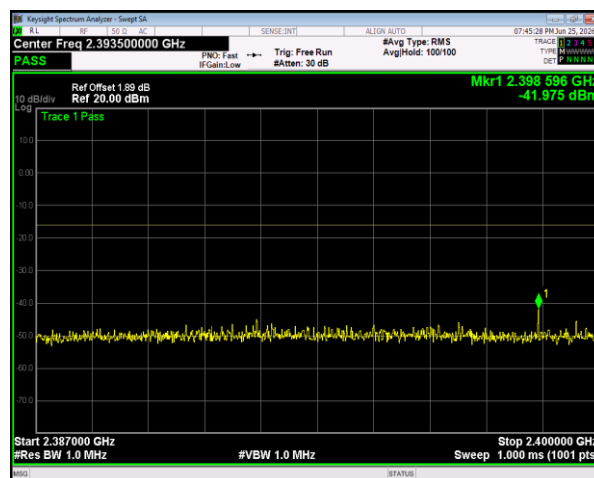
30MHz~1GHz



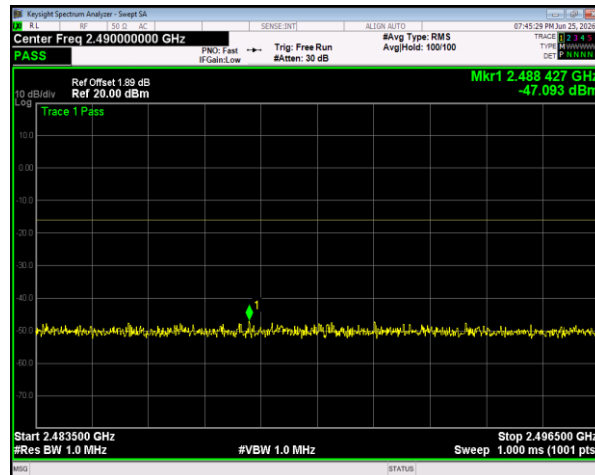
1GHz~2.387GHz



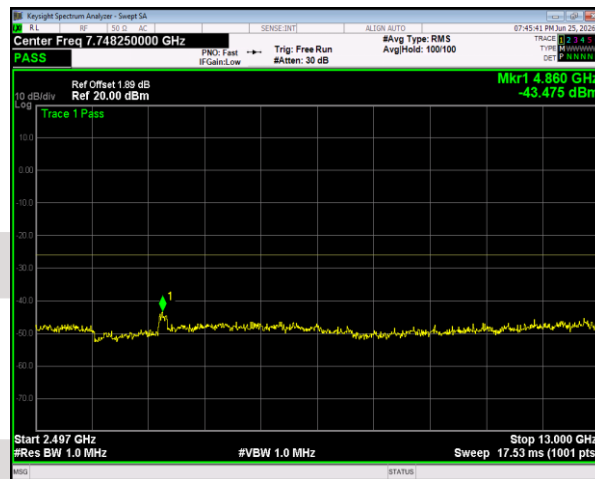
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



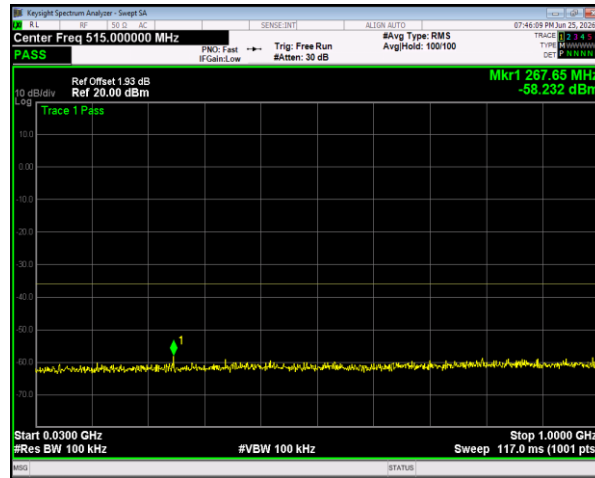
2.4965GHz~13GHz



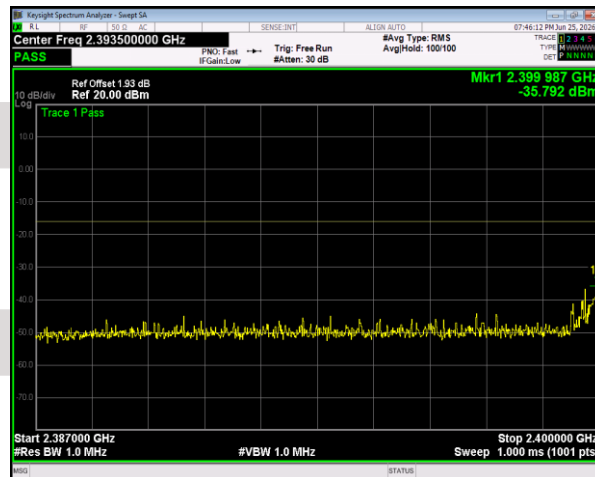
Modulation type: 8DPSK - 2480MHz

| Test voltage | Normal | RESULT | PASS |
|--------------|--------|--------|------|
|--------------|--------|--------|------|

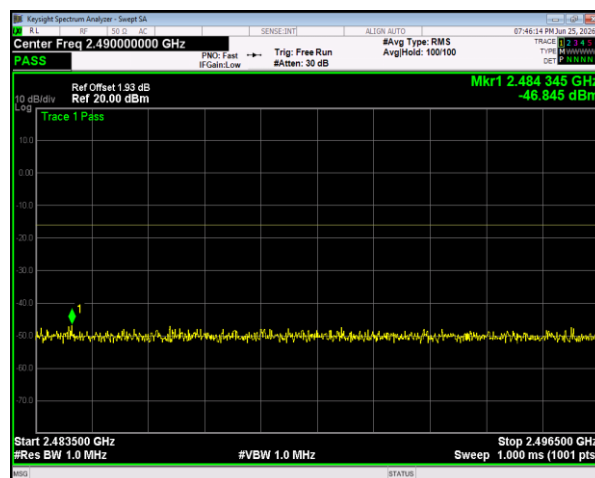
30MHz~1GHz



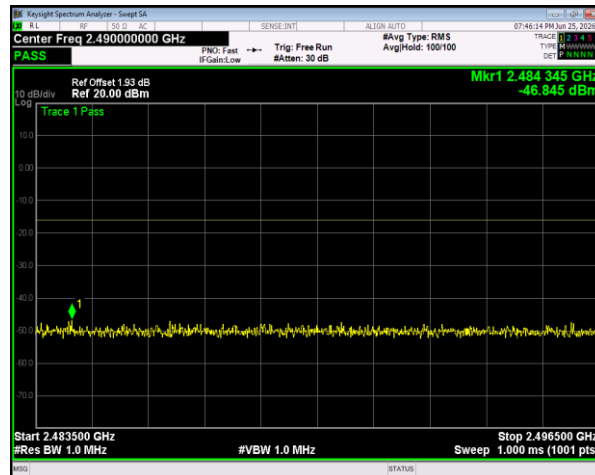
1GHz~2.387GHz



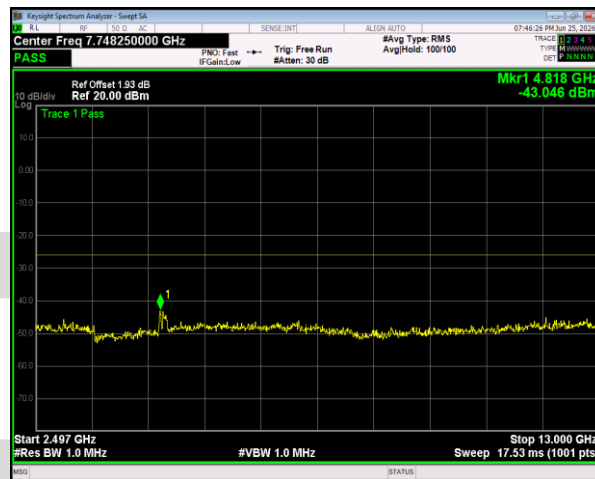
2.387GHz~2.4GHz



### 2.4835Hz~2.4965GHz



### 2.4965GHz~13GHz



## 5.5 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

### 5.5.1 LIMIT

| Item                | Limits         |
|---------------------|----------------|
| Identification code | $\geq 48$ bits |

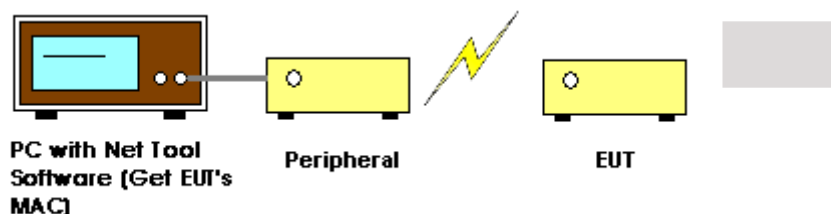
### 5.5.2 MEASURING ID CODE SOFTWARE

| Item        | Limits   |
|-------------|----------|
| MAC IP List | MAC Scan |

### 5.5.3 TEST PROCEDURESC

- In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes form EUT. b. Check the transmitted identification codes with the demodulator.
- In the case of receiving the identification ocde: a. Transmit the predetermined identification codes form the counterpart. b . Check if communication is normal. c. Transmit the signals other than predetermined ID codes form the counterpart. d. check if the EUT stops the transmission, or if it displays that idnetification codes are different from the predetermined ones.

### 5.5.4 TEST SETUP LAYOUT



### 5.5.5 TEST DEVIATION

There is no deviation with the original standard.

### 5.5.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

### 5.5.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

Bluetooth Device Address: 75-23-4C-6E-3F-82

## 5.6 DWELL TIME

### 5.6.1 LIMIT

| Item                     | Limits                                                                     |
|--------------------------|----------------------------------------------------------------------------|
| Hopping Freq. Dwell Time | $\leq 0.4 \text{ sec (In } 0.4 \text{ sec} \times \text{ spreading rate)}$ |

### 5.6.2 MEASURING INSTRUMENTS AND SETTING

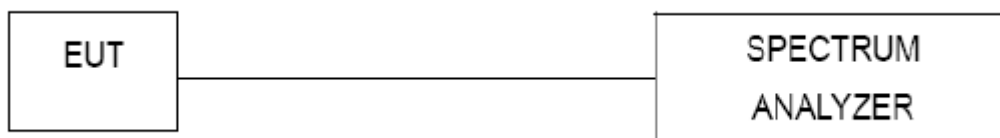
Please refer to section 5 in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting    |
|--------------------|------------|
| Attenuation        | Auto       |
| Span Frequency     | 0 Hz       |
| RB                 | 1 MHz      |
| VB                 | 1 MHz      |
| Detector           | Peak       |
| Trace              | Max Hold   |
| Sweep              | Continuous |

### 5.6.3 TEST PROCEDURES

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Set the EUT for DH5, DH3 and DH1 packet transmitting.
- Measure the maximum time duration of one single pulse.
- Dwell Time = (One Pulse Time \* (Burst Count in the specified period time)

### 5.6.4 TEST SETUP LAYOUT



## 5.6.5 TEST RESULT

Dwell Time = (One Pulse Time \* (Burst Count in the specified period time);  
the specified period time = 0.4s \* (Hopping channel in use).”

Spread Spectrum Factor = Spread Spectrum Bandwidth / Symbol rate (Msymbols/s) of EUT

Symbol rate (Msymbols/s) of EUT is below:

GFSK modulation: 1Mbps

$\pi/4$ -DQPSK modulation: 1Mbps

8DPSK modulation: 1Mbps

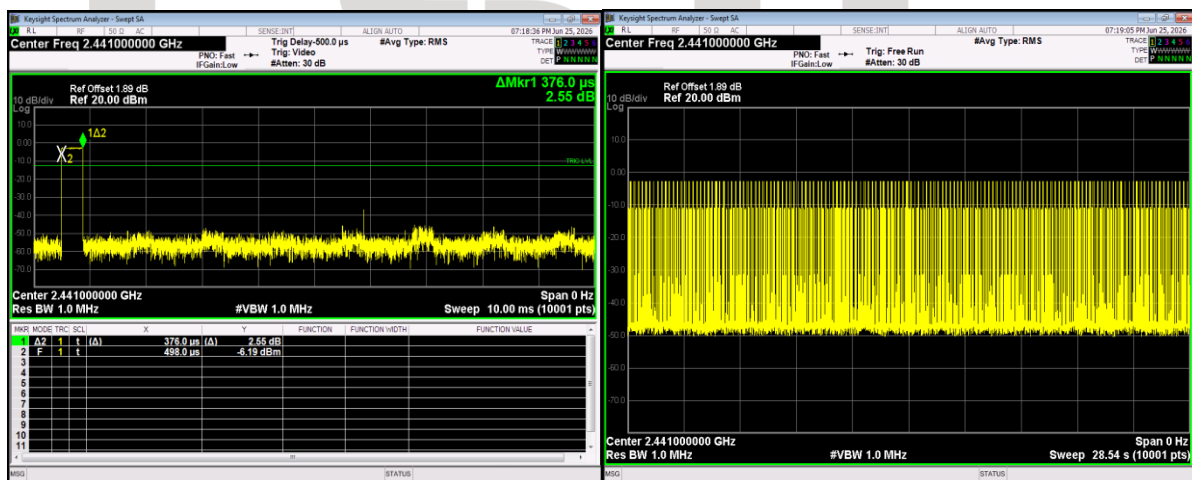
Spread Spectrum Factor = Spread Spectrum Bandwidth / Symbol rate (Msymbols/s)

Spread Spectrum Factor = Spread Spectrum Bandwidth / Symbol rate (Msymbols/s) of EUT.  
=71.358

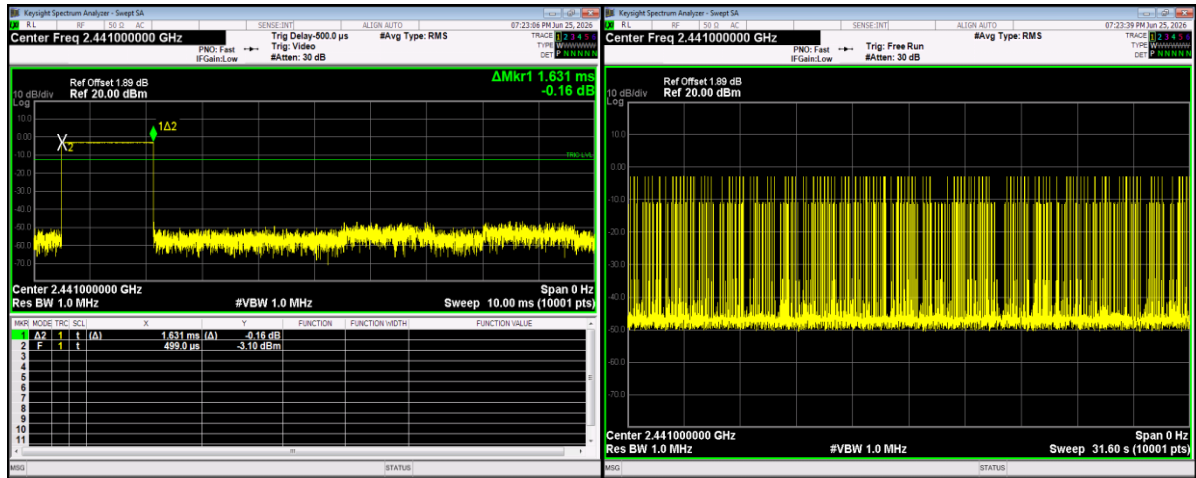
| Condition | Mode  | Frequency (MHz) | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|-----------|-------|-----------------|-----------------|-----------------------|-------------|------------------|------------|---------|
| NVNT      | 1-DH1 | 2441            | 0.376           | 188.376               | 501         | 31600            | 400        | Pass    |
| NVNT      | 1-DH3 | 2441            | 1.631           | 260.96                | 160         | 31600            | 400        | Pass    |
| NVNT      | 1-DH5 | 2441            | 2.875           | 342.125               | 119         | 31600            | 400        | Pass    |

|                  |      |               |        |
|------------------|------|---------------|--------|
| Modulation type: | GFSK | Test voltage: | Normal |
|------------------|------|---------------|--------|

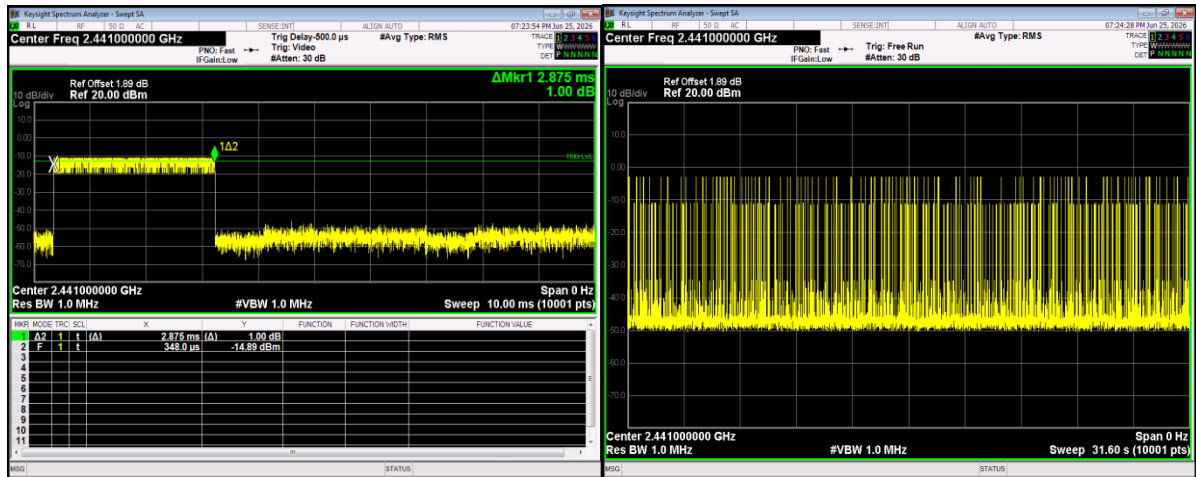
DH1



### DH3



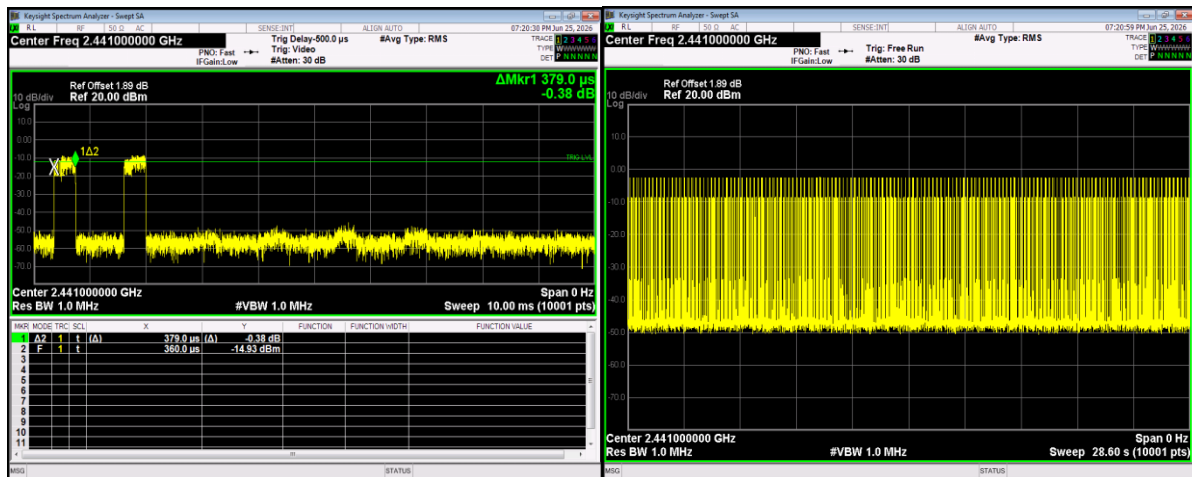
### DH5



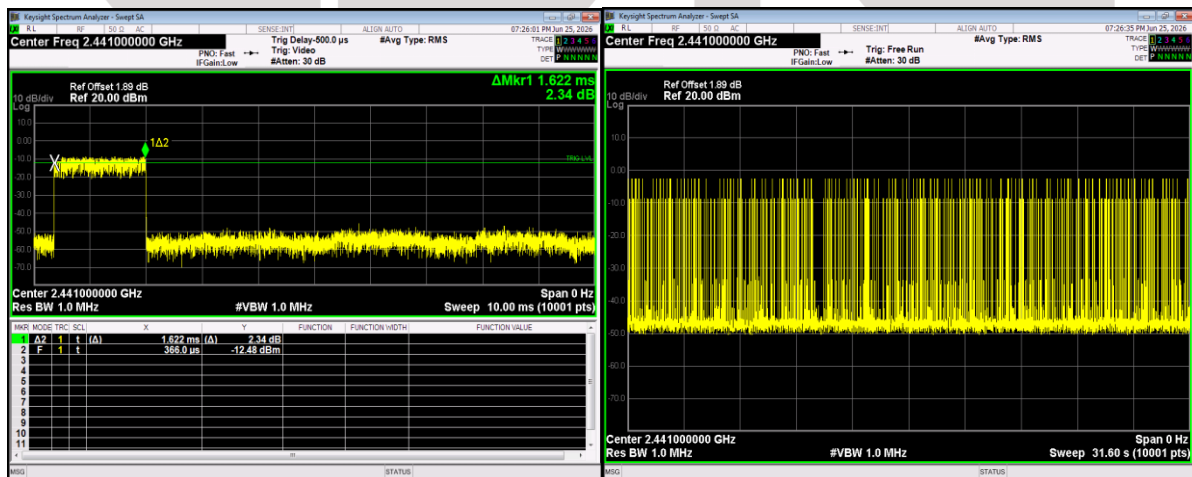
Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.  
=71.488

| Condition        | Mode  | Frequency (MHz) | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|------------------|-------|-----------------|-----------------|-----------------------|-------------|------------------|------------|---------|
| NVNT             | 2-DH1 | 2441            | 0.379           | 189.879               | 501         | 31600            | 400        | Pass    |
| NVNT             | 2-DH3 | 2441            | 1.622           | 259.52                | 160         | 31600            | 400        | Pass    |
| NVNT             | 2-DH5 | 2441            | 2.879           | 296.537               | 103         | 31600            | 400        | Pass    |
| Modulation type: |       | $\pi/4$ -DQPSK  |                 | Test voltage:         |             | Normal           |            |         |

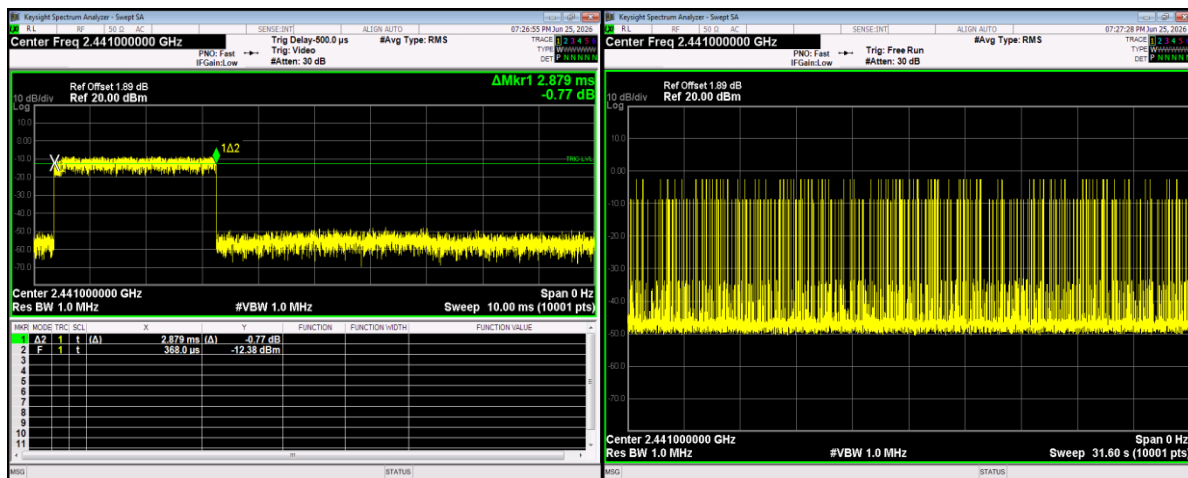
2DH1



2DH3



## 2DH5

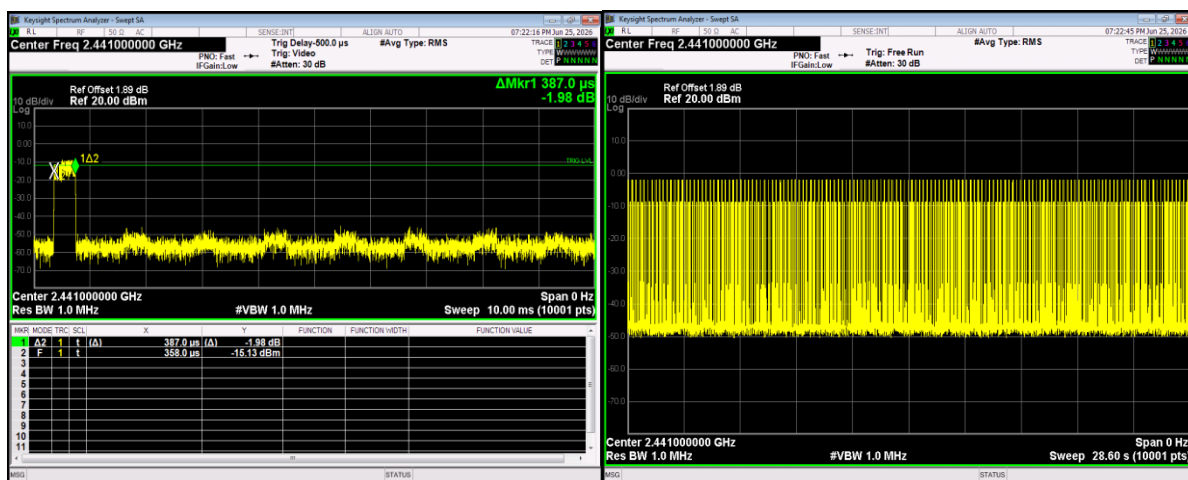



Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.  
=71.505

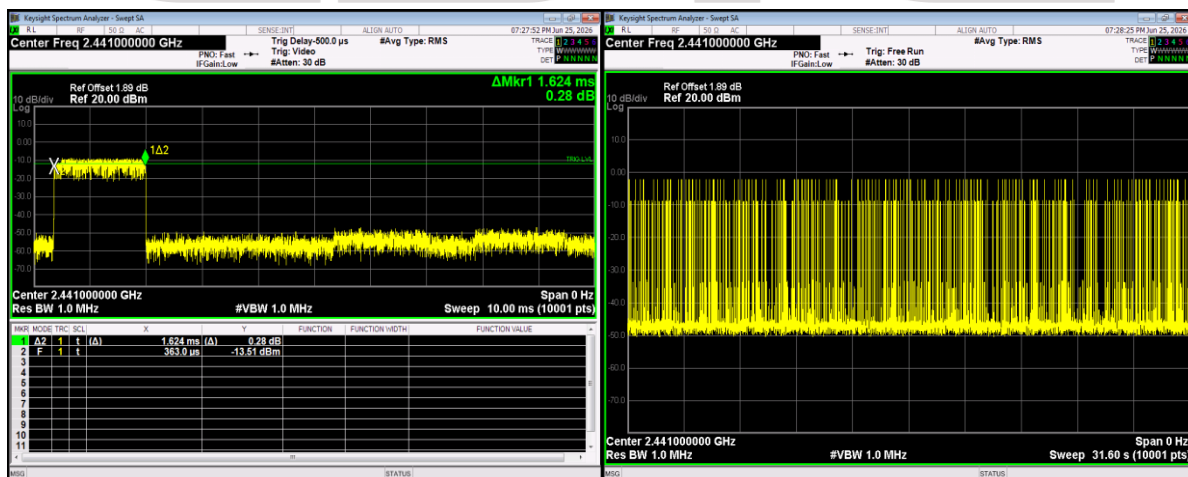
| Condition | Mode  | Frequency (MHz) | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|-----------|-------|-----------------|-----------------|-----------------------|-------------|------------------|------------|---------|
| NVNT      | 3-DH1 | 2441            | 0.387           | 193.887               | 501         | 31600            | 400        | Pass    |
| NVNT      | 3-DH3 | 2441            | 1.624           | 250.096               | 154         | 31600            | 400        | Pass    |
| NVNT      | 3-DH5 | 2441            | 2.887           | 323.344               | 112         | 31600            | 400        | Pass    |

|                  |       |               |        |
|------------------|-------|---------------|--------|
| Modulation type: | 8DPSK | Test voltage: | Normal |
|------------------|-------|---------------|--------|

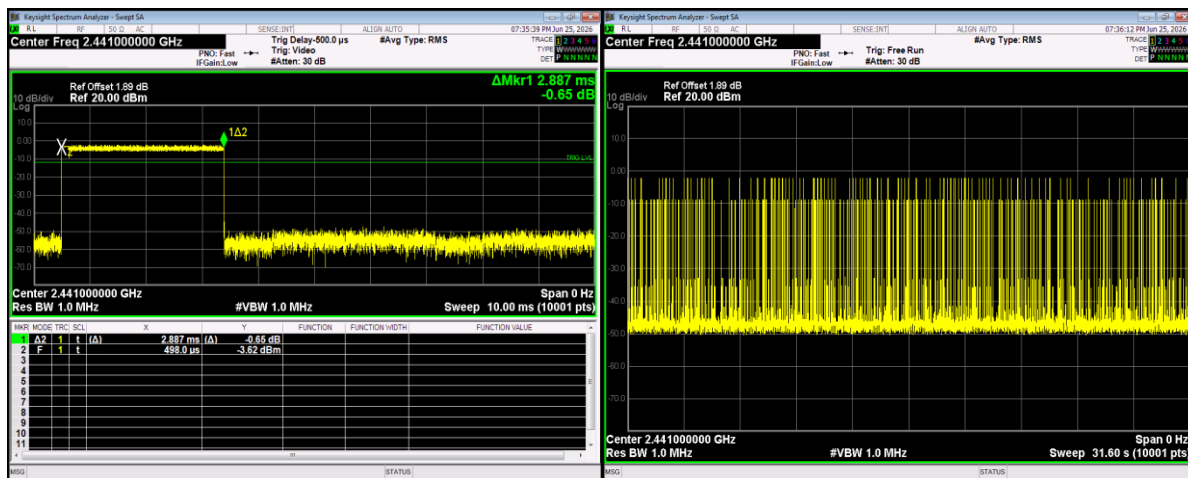
3DH1



3DH3



### 3DH5



## 5.7 IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

### 5.7.1 LIMIT

| Item                  | Limits                                      |
|-----------------------|---------------------------------------------|
| RX Spurious Emission: | $\leq 4\text{nW}$ ( $f < 1\text{GHz}$ )     |
|                       | $\leq 20\text{nW}$ ( $1\text{GHz} \leq f$ ) |

### 5.7.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

| Spectrum Parameter | Setting                                                        |
|--------------------|----------------------------------------------------------------|
| Attenuation        | Auto                                                           |
| RB                 | 100 kHz (below 1GHz emissions)<br>1 MHz (above 1GHz emissions) |
| VB                 | 100 kHz (below 1GHz emissions)<br>1 MHz (above 1GHz emissions) |
| Detector           | Peak                                                           |
| Trace              | Max Hold                                                       |
| Sweep Time         | Auto                                                           |

### 5.7.3 TEST PROCEDURES

- EUT have the continuous reception mode and fixed only one channelize.
- Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW
- SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW
- If power level of lower emissions are more than 1/10 of limit (.0.4nW for  $f < 1\text{GHz}$ , 2nW for  $f \geq 1\text{GHz}$ ), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

### 5.7.4 TEST RESULT

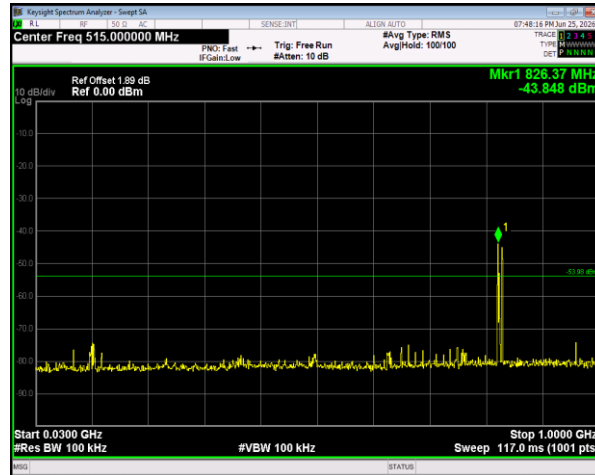
| Test Voltage | Test Mode      | Frequency (MHz) | Range (MHz) | Emission Frequency (MHz) | Max Peak Value (dBm) | Max RMS Value (dBm) | Max Peak Value (nW) | Max RMS Value (nW) | Limit (nW) | Verdict |
|--------------|----------------|-----------------|-------------|--------------------------|----------------------|---------------------|---------------------|--------------------|------------|---------|
| Normal       | GFSK           | 2441            | 30-1000     | 826.37                   | -43.85               | -81.48              | 41.2098             | 0.0071             | 4          | Pass    |
| Normal       | GFSK           | 2441            | 1000-13000  | 2536.00                  | -53.81               | -65.73              | 4.1591              | 0.2673             | 20         | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 30-1000     | 672.14                   | -74.03               | NA                  | 0.0395              | NA                 | 4          | Pass    |
| Normal       | $\pi/4$ -DQPSK | 2441            | 1000-13000  | 2548.00                  | -61.39               | NA                  | 0.7261              | NA                 | 20         | Pass    |
| Normal       | 8DPSK          | 2441            | 30-1000     | 828.31                   | -73.06               | NA                  | 0.0494              | NA                 | 4          | Pass    |
| Normal       | 8DPSK          | 2441            | 1000-13000  | 1732.00                  | -51.74               | -75.96              | 6.6988              | 0.0254             | 20         | Pass    |

Note: All channels are tested , only the worst test data recorded was 2441MHz.

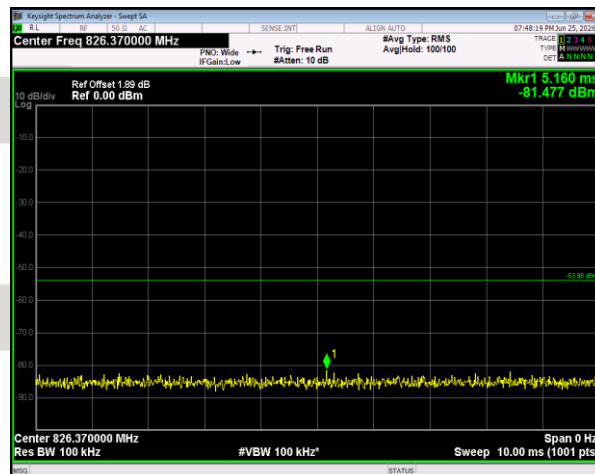
Modulation type: GFSK - 2441MHz

| Test voltage | Normal | Test Channel | 2441MHz |
|--------------|--------|--------------|---------|
|--------------|--------|--------------|---------|

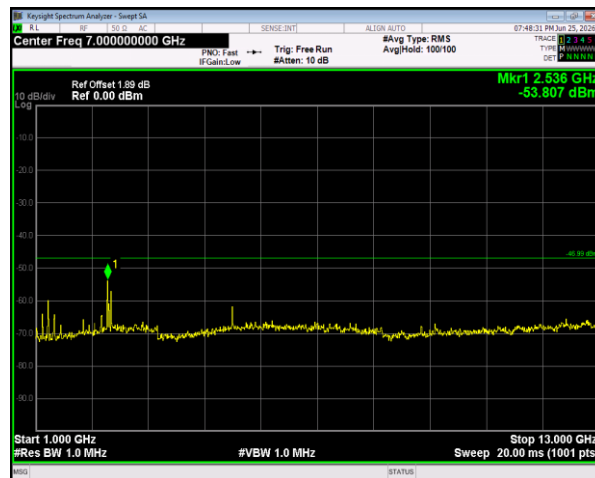
30MHz~1GHz



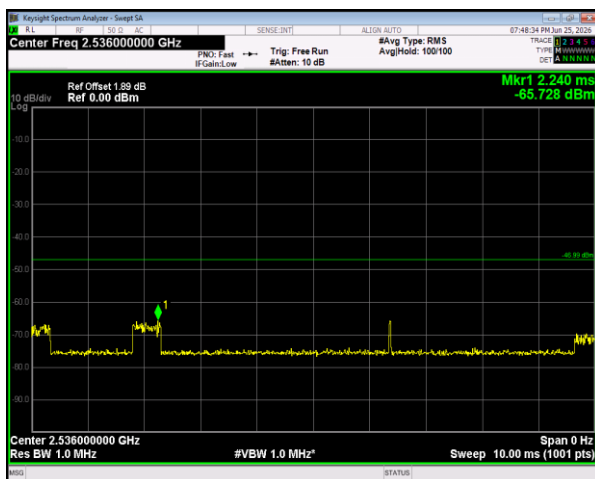
30MHz~1GHz Final



1GHz~13GHz



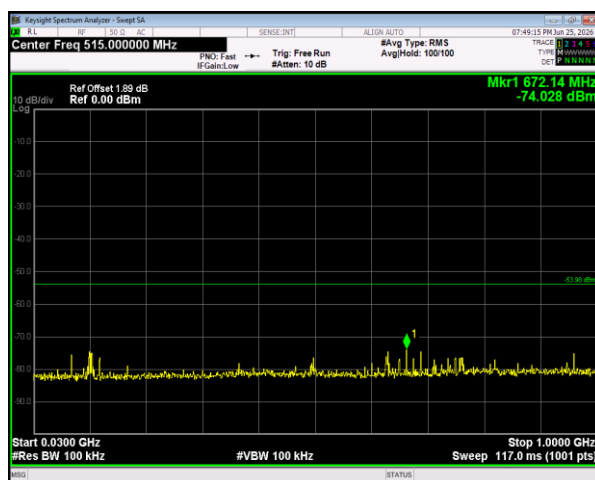
### 1GHz~13GHz Final



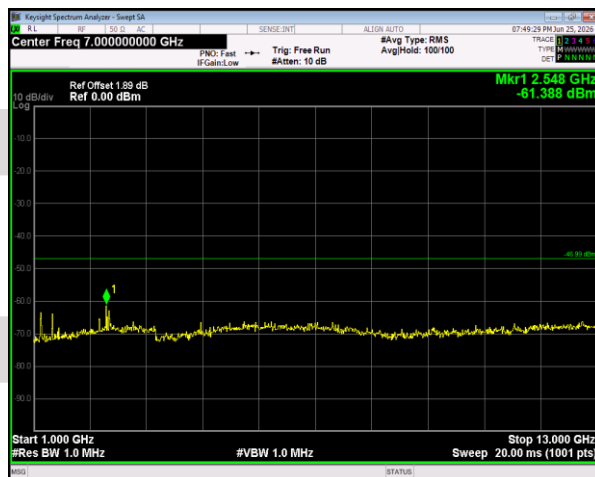
Modulation type:  $\pi/4$ -DQPSK - 2441MHz

| Test voltage | Normal | Test Channel | 2441MHz |
|--------------|--------|--------------|---------|
|--------------|--------|--------------|---------|

30MHz~1GHz



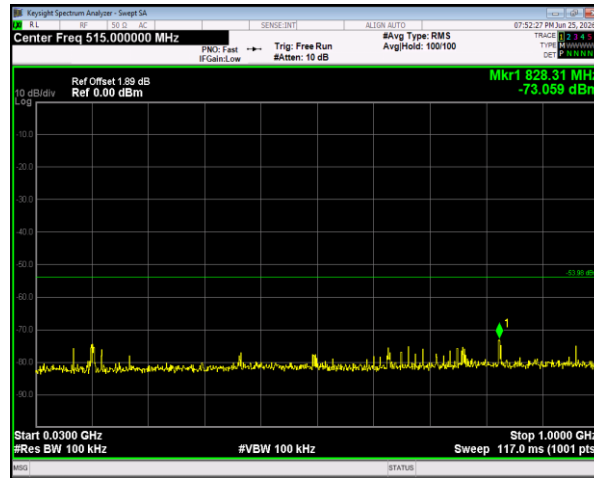
1GHz~13GHz



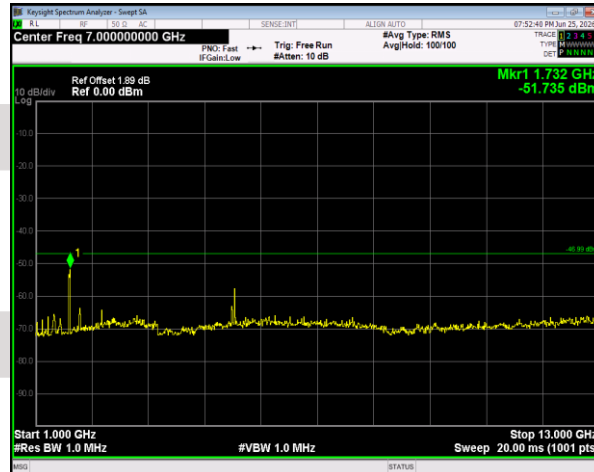
Modulation type: 8DPSK - 2441MHz

| Test voltage | Normal | Test Channel | 2441MHz |
|--------------|--------|--------------|---------|
|--------------|--------|--------------|---------|

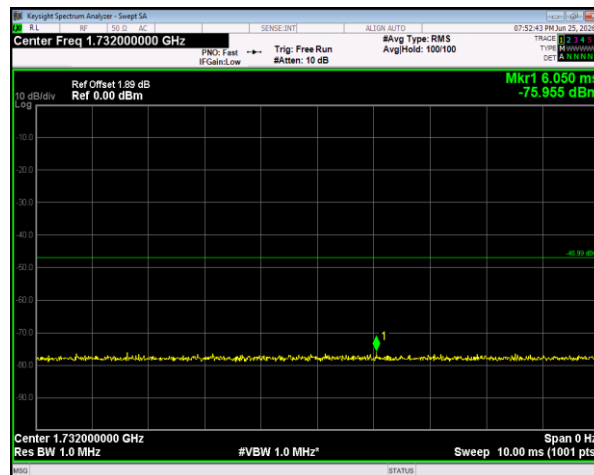
30MHz~1GHz



1GHz~13GHz



1GHz~13GHz Final



## 6. EUT TEST PHOTO

Reference to the appendix I for details.

## 7. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※

