

# **CTC Laboratories**, Inc.

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| •                               | TEST REPORT  |                                 |  |
|---------------------------------|--|---------------------------------|--|
| Report No. ·····:               | CTC20232165E03   |                                 |  |
| FCC ID······:                   | 2AUKMMTMAXPLUS   |                                 |  |
| Applicant·····:                 | Matco Tools  |                                 |  |
| Address                         | 4403 Allen Rd. Stow, OH 44224, USA   |                                 |  |
| Manufacturer                    | Matco Tools  |                                 |  |
| Address:                        | 4403 Allen Rd. Stow, OH 44224, USA   |                                 |  |
| Product Name······:             | Automotive Diagnostic Scan Tool  |                                 |  |
| Trade Mark······:               |  |                                 |  |
| Model/Type reference······:     | MAXIMUSPLUS  |                                 |  |
| Listed Model(s) ······          | /  |                                 |  |
| Standard·····:                  | FCC CFR Title 47 Part 15 Subpart C Section 15.247  |                                 |  |
| Date of receipt of test sample: | Nov. 17, 2023  |                                 |  |
| Date of testing                 | Nov. 17, 2023 ~ Dec. 26, 2023  |                                 |  |
| Date of issue                   | Dec. 27, 2023  |                                 |  |
| Result:                         | PASS   |                                 |  |
| Compiled by:                    |  | Tana Cu                         |  |
| (Printed name+signature)        | Terry Su   | Perry Su                        |  |
| Supervised by:                  |  | Zie shang                       |  |
| (Printed name+signature)        | Eric Zhang   | Terry Su<br>Zic shang<br>Jerras |  |
| Approved by:                    |  | 1 mas                           |  |
| (Printed name+signature)        | Totti Zhao   |                                 |  |
| Testing Laboratory Name:        | CTC Laboratories, Inc.   |                                 |  |
| Address                         | 1-2/F., Building 2, Jiaquan Building, Gu<br>Shenzhen, Guangdong, China   | uanlan High-Tech Park,          |  |
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# 1. TEST SUMMARY

# 1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

<u>RSS 247 Issue 2:</u> Standard Specifications for Frequency Hopping Systems (FHSs) and Digital Transmission Systems (DTSs) Operating in the Bands 902-928MHz, 2400-2483.5MHz and 5725-5850MHz. <u>ANSI C63.10-2013</u>: American National Standard for Testing Unlicensed Wireless Devices. <u>RSS-Gen Issue 5</u>: General Requirements for Compliance of Radio Apparatus.

# 1.2. Report version

| Revised No. | Date of issue | Description |
|-------------|---------------|-------------|
| 01          | Dec. 27, 2023 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |

# **1.3. Test Description**

| FCC Part 15 Subpart C (15.247)/ RSS 247 Issue 2 |                             |                             |        |               |  |
|---|-----------------------------|-----------------------------|--------|---------------|--|
| Test litere                                     | Standard                    | I Section                   | Decult |               |  |
| Test Item                                       | FCC IC                      |                             | Result | Test Engineer |  |
| Antenna Requirement                             | 15.203                      | /                           | Pass   | Alicia Liu    |  |
| Conducted Emission                              | 15.207                      | RSS-Gen 8.8                 | Pass   | Cecilia Luo   |  |
| Restricted Bands                                | 15.205                      | RSS-Gen 8.10                | Pass   | Alicia Liu    |  |
| Hopping Channel Separation                      | 15.247(a)(1)                | RSS 247 5.1 (b)             | Pass   | Alicia Liu    |  |
| Dwell Time                                      | 15.247(a)(iii)              | RSS 247 5.1 (d)             | Pass   | Alicia Liu    |  |
| Peak Output Power                               | 15.247(b)(1)                | RSS 247 5.4 (b)             | Pass   | Alicia Liu    |  |
| Number of Hopping Frequency                     | 15.247(a)(iii)              | RSS 247 5.1 (d)             | Pass   | Alicia Liu    |  |
| Conducted Band Edge and Spu-<br>rious Emissions | 15.247(d)                   | RSS 247 5.5                 | Pass   | Alicia Liu    |  |
| Radiated Band Edge and<br>Spurious Emissions    | 15.205&15.209&<br>15.247(d) | RSS 247 5.5                 | Pass   | Alicia Liu    |  |
| Radiated Spurious Emission                      | 15.247(d)&15.20<br>9        | RSS 247 5.5&<br>RSS-Gen 8.9 | Pass   | Alicia Liu    |  |
| 20dB Bandwidth                                  | 15.247(a)                   | RSS 247 5.1 (b)             | Pass   | Alicia Liu    |  |

Note: The measurement uncertainty is not included in the test result.





#### CTC Laboratories, Inc.

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## Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

## A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

## Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

### FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

# 1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties radio equipment characteristics; Part 2" and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.



| Test Items                      | Measurement Uncertainty                     | Notes |
|---------------------------------|---|-------|
| 20dB Emission Bandwidth         | ±0.0196%                                    | (1)   |
| Carrier Frequency Separation    | ±1.9%                                       | (1)   |
| Number of Hopping Channel       | ±1.9%                                       | (1)   |
| Time of Occupancy               | ±0.028%                                     | (1)   |
| Max Peak Conducted Output Power | ±0.743 dB                                   | (1)   |
| Band-edge Spurious Emission     | ±1.328 dB                                   | (1)   |
| Conducted RF Spurious Emission  | 9kHz-1GHz: ±0.746dB<br>1GHz-26GHz: ±1.328dB | (1)   |
| Conducted Emissions 9kHz~30MHz  | ±3.08 dB                                    | (1)   |
| Radiated Emissions 30~1000MHz   | ±4.51 dB                                    | (1)   |
| Radiated Emissions 1~18GHz      | ±5.84 dB                                    | (1)   |
| Radiated Emissions 18~40GHz     | ±6.12 dB                                    | (1)   |

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

# 1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| Temperature:       | 21°C ~ 27°C |
|--------------------|-------------|
| Relative Humidity: | 40% ~ 60%   |
| Air Pressure:      | 101kPa      |



# 2. GENERAL INFORMATION

# 2.1. Client Information

| Applicant:    | Matco Tools                        |
|---------------|------------------------------------|
| Address:      | 4403 Allen Rd. Stow, OH 44224, USA |
| Manufacturer: | Matco Tools                        |
| Address:      | 4403 Allen Rd. Stow, OH 44224, USA |

# 2.2. General Description of EUT

| Product Name:         | Automotive Diagnostic Scan Tool                                    |
|-----------------------|--|
| Trade Mark:           |  |
| Model/Type reference: | MAXIMUSPLUS  |
| Listed Model(s):      | 1  |
| Power supply:         | 5Vdc/5A from AC/DC Adapter<br>7.6Vdc from 6300mAh Li-ion Battery   |
| Adapter Model:        | XDJ361R-050500<br>Input: 100-240V~ 50/60Hz 0.9A<br>Output: 5Vdc/5A |
| Hardware version:     | 1  |
| Software version:     | 1  |
| Bluetooth 5.1/ BR+EDR |  |
| Modulation:           | GFSK, π/4-DQPSK, 8-DPSK  |
| Operation frequency:  | 2402MHz~2480MHz  |
| Channel number:       | 79   |
| Channel separation:   | 1MHz   |
| Antenna type:         | FPC Antenna  |
| Antenna gain:         | 3.64dBi Max  |



# 2.3. Accessory Equipment information

| Equipment Information     |                   |              |              |  |  |  |
|---------------------------|-------------------|--------------|--------------|--|--|--|
| Name                      | Model             | S/N          | Manufacturer |  |  |  |
| 1                         | 1                 | 1            | 1            |  |  |  |
| Cable Information         | Cable Information |              |              |  |  |  |
| Name                      | Shielded Type     | Ferrite Core | Length       |  |  |  |
| 1                         | 1                 | 1            | 1            |  |  |  |
| Test Software Information |                   |              |              |  |  |  |
| Name                      | Versions          | 1            | 1            |  |  |  |
| Engineering mode          | 1                 | 1            | 1            |  |  |  |



# 2.4. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing. BT EDR, 79 channels are provided to the EUT. Channels 00/39/78 were selected for testing.

**Operation Frequency List:** 

| Channel | Frequency (MHz) |
|---------|-----------------|
| 00      | 2402            |
| 01      | 2403            |
| :       | :               |
| 38      | 2440            |
| 39      | 2441            |
| 40      | 2442            |
| :       | :               |
| 77      | 2479            |
| 78      | 2480            |

Note: The display in grey were the channel selected for testing.

#### Test mode

For RF test items:

The engineering test program was provided and enabled to make EUT continuous transmit

For AC power line conducted emissions:

The EUT was set to connect with the Bluetooth instrument under large package sizes transmission.

For Radiated spurious emissions test item:

The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



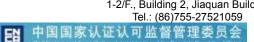
# 2.5. Measurement Instruments List

| RF Tes | RF Test System                             |              |           |            |                  |  |
|--------|--|--------------|-----------|------------|------------------|--|
| Item   | Test Equipment                             | Manufacturer | Model No. | Serial No. | Calibrated Until |  |
| 1      | Spectrum Analyzer                          | R&S          | FSV40-N   | 101331     | Mar. 14, 2024    |  |
| 2      | Spectrum Analyzer                          | R&S          | FSV40-N   | 101654     | Aug. 07, 2024    |  |
| 3      | Spectrum Analyzer                          | R&S          | FSU26     | 100105     | Dec. 12, 2024    |  |
| 4      | MXA Signal Analyzer                        | Keysight     | N9020A    | MY46471737 | Dec. 12, 2024    |  |
| 5      | MXA Signal Analyzer                        | Keysight     | N9020A    | MY52091402 | Aug. 22, 2024    |  |
| 6      | MXG Vector Signal<br>Generator             | Agilent      | N5182A    | MY47420864 | Dec. 12, 2024    |  |
| 7      | PSG Analog Signal<br>Generator             | Agilent      | E8257D    | MY46521908 | Dec. 12, 2024    |  |
| 8      | EXG Analog Signal<br>Generator             | Keysight     | N5173B    | MY59100842 | Dec. 12, 2024    |  |
| 9      | MXG Vector Signal<br>Generator             | Keysight     | N5182B    | MY59100212 | Dec. 12, 2024    |  |
| 10     | Wideband Radio Com-<br>munication Tester   | R&S          | CMW500    | 102257     | May 25, 2024     |  |
| 11     | Wideband Radio Com-<br>munication Tester   | R&S          | CMW500    | 102414     | Dec. 12, 2024    |  |
| 12     | High and low tempera-<br>ture test chamber | ESPEC        | MT3035    | 1          | Mar. 24, 2024    |  |
| 13     | RF Control Unit                            | Tonscend     | JS0806-2  | /          | Aug. 22, 2024    |  |
| 14     | Test Software                              | Tonscend     | JS1120-3  | V3.3.38    | /                |  |

| Radiate | Radiated Emission (3m chamber 2) |              |            |            |                  |  |
|---------|----------------------------------|--------------|------------|------------|------------------|--|
| Item    | Test Equipment                   | Manufacturer | Model No.  | Serial No. | Calibrated Until |  |
| 1       | Trilog-Broadband<br>Antenna      | Schwarzbeck  | VULB 9168  | 9168-1013  | Dec. 07, 2024    |  |
| 2       | Horn Antenna                     | Schwarzbeck  | BBHA 9120D | 9120D-648  | Dec. 07, 2024    |  |
| 3       | Spectrum Analyzer                | R&S          | FSU26      | 100105     | Dec. 12, 2024    |  |
| 4       | Spectrum Analyzer                | R&S          | FSV40-N    | 101331     | Mar. 14 2024     |  |
| 5       | Pre-Amplifier                    | SONOMA       | 310        | 186194     | Dec. 12, 2024    |  |
| 6       | Low Noise Pre-Amplifier          | EMCI         | EMC051835  | 980075     | Dec. 12, 2024    |  |
| 7       | Test Receiver                    | R&S          | ESCI7      | 100967     | Dec. 12, 2024    |  |
| 8       | 3m chamber 2                     | Frankonia    | EE025      | /          | Oct. 23, 2024    |  |
| 9       | Test Software                    | FARA         | EZ-EMC     | FA-03A2    | 1                |  |

| Radiate | d Emission (3m chamber 3        | 3)           |            |            |                  |
|---------|---------------------------------|--------------|------------|------------|------------------|
| Item    | Test Equipment                  | Manufacturer | Model No.  | Serial No. | Calibrated Until |
| 1       | Trilog-Broadband<br>Antenna     | Schwarzbeck  | VULB 9163  | 01026      | Dec. 18, 2024    |
| 2       | Horn Antenna                    | Schwarzbeck  | BBHA 9120D | 9120D-647  | Dec. 01, 2024    |
| 3       | Test Receiver                   | Keysight     | N9038A     | MY56400071 | Dec. 12, 2024    |
| 4       | Broadband Amplifier             | SCHWARZBECK  | BBV9743B   | 259        | Dec. 12, 2024    |
| 5       | Mirowave Broadband<br>Amplifier | SCHWARZBECK  | BBV9718C   | 111        | Dec. 12, 2024    |

CTC Laboratories, Inc.



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| 6 | 3m chamber 3  | YIHENG | EE106  | /       | Aug. 28, 2026 |
|---|---------------|--------|--------|---------|---------------|
| 7 | Test Software | FARA   | EZ-EMC | FA-03A2 | 1             |

| Conduc | ted Emission      |              |           |                |                  |
|--------|-------------------|--------------|-----------|----------------|------------------|
| Item   | Test Equipment    | Manufacturer | Model No. | Serial No.     | Calibrated Until |
| 1      | LISN              | R&S          | ENV216    | 101112         | Dec. 12, 2024    |
| 2      | LISN              | R&S          | ENV216    | 101113         | Dec. 12, 2024    |
| 3      | EMI Test Receiver | R&S          | ESCS30    | 100353         | Dec. 12, 2024    |
| 4      | ISN CAT6          | Schwarzbeck  | NTFM 8158 | CAT6-8158-0046 | Dec. 12, 2024    |
| 5      | ISN CAT5          | Schwarzbeck  | NTFM 8158 | CAT5-8158-0046 | Dec. 12, 2024    |
| 6      | Test Software     | R&S          | EMC32     | 6.10.10        | 1                |

Note: 1. The Cal. Interval was one year.

2. The Cal. Interval was three year of the chamber

3. The cable loss has calculated in test result which connection between each test instruments.



# 3.1. Conducted Emission

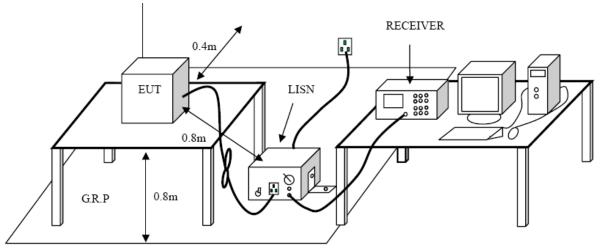
## <u>Limit</u>

## FCC CFR Title 47 Part 15 Subpart C Section 15.207/ RSS - Gen 8.8

|                       | Limit (d   | BuV)      |
|-----------------------|------------|-----------|
| Frequency range (MHz) | Quasi-peak | Average   |
| 0.15-0.5              | 66 to 56*  | 56 to 46* |
| 0.5-5                 | 56         | 46        |
| 5-30                  | 60         | 50        |

\* Decreases with the logarithm of the frequency.

## **Test Configuration**



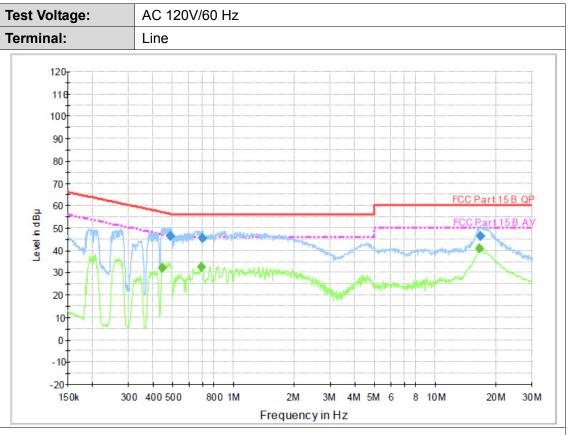
## Test Procedure

- 1. The EUT was setup according to ANSI C63.10:2013 requirements.
- 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
- The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 7. During the above scans, the emissions were maximized by cable manipulation.

## Test Mode

Please refer to the clause 2.4.





## **Final Measurement Detector 1**

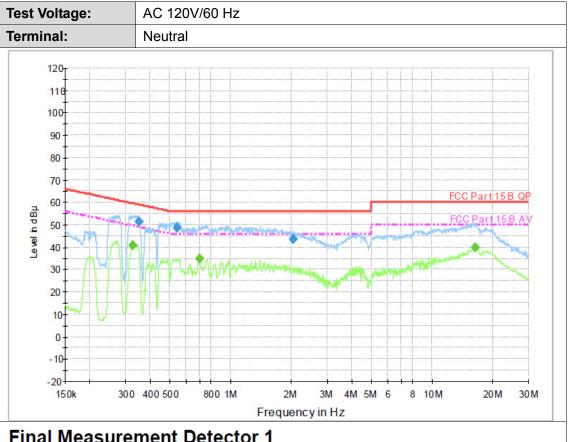
|   |           | asaren    |         |           |        |      |       |        |       |         |
|---|-----------|-----------|---------|-----------|--------|------|-------|--------|-------|---------|
|   | Frequency | QuasiPeak | Meas.   | Bandwidth | Filter | Line | Corr. | Margin | Limit | Comment |
|   | (MHz)     | (dBµ V)   | Time    | (kHz)     |        |      | (dB)  | (dB)   | (dBµ  |         |
|   |           |           | (ms)    |           |        |      |       |        | V)    |         |
|   | 0.487010  | 46.3      | 1000.00 | 9.000     | On     | L1   | 9.5   | 9.9    | 56.2  |         |
|   | 0.700330  | 45.2      | 1000.00 | 9.000     | On     | L1   | 9.5   | 10.8   | 56.0  |         |
| [ | 16.667580 | 46.4      | 1000.00 | 9.000     | On     | L1   | 9.7   | 13.6   | 60.0  |         |

## Final Measurement Detector 2

|   | Frequency<br>(MHz) | Average<br>(dBµ V) | Meas.<br>Time<br>(ms) | Bandwidth<br>(kHz) | Filter | Line | Corr.<br>(dB) | Margin<br>(dB) | Limit<br>(dBµ<br>V) | Comment |
|---|--------------------|--------------------|-----------------------|--------------------|--------|------|---------------|----------------|---------------------|---------|
| [ | 0.444280           | 32.2               | 1000.00               | 9.000              | On     | L1   | 9.5           | 14.8           | 47.0                |         |
| [ | 0.692000           | 32.7               | 1000.00               | 9.000              | On     | L1   | 9.5           | 13.3           | 46.0                |         |
| [ | 16.535040          | 40.7               | 1000.00               | 9.000              | On     | L1   | 9.7           | 9.3            | 50.0                |         |

Emission Level= Read Level+ Correct Factor





| i inter inte | asaren    |         |           |        |      |       |        |       |         |
|--------------|-----------|---------|-----------|--------|------|-------|--------|-------|---------|
| Frequency    | QuasiPeak | Meas.   | Bandwidth | Filter | Line | Corr. | Margin | Limit | Comment |
| (MHz)        | (dBµ V)   | Time    | (kHz)     |        |      | (dB)  | (dB)   | (dBµ  |         |
|              |           | (ms)    |           |        |      |       |        | V)    |         |
| 0.349650     | 51.5      | 1000.00 | 9.000     | On     | Ν    | 9.4   | 7.5    | 59.0  |         |
| 0.542430     | 48.7      | 1000.00 | 9.000     | On     | Ν    | 9.4   | 7.4    | 56.0  |         |
| 2.025220     | 43.7      | 1000.00 | 9.000     | On     | N    | 9.4   | 12.3   | 56.0  |         |

# Final Measurement Detector 2

|     | Frequency<br>(MHz) | Average<br>(dBµ V) | Meas.<br>Time<br>(ms) | Bandwidth<br>(kHz) | Filter | Line | Corr.<br>(dB) | Margin<br>(dB) | Limit<br>(dBµ<br>V) | Comment |
|-----|--------------------|--------------------|-----------------------|--------------------|--------|------|---------------|----------------|---------------------|---------|
| - Ľ | 0.324110           | 40.8               | 1000.00               | 9.000              | On     | N    | 9.4           | 8.8            | 49.6                |         |
|     | 0.697540           | 34.8               | 1000.00               | 9.000              | On     | Ν    | 9.4           | 11.2           | 46.0                |         |
|     | 16.338200          | 39.8               | 1000.00               | 9.000              | On     | Ν    | 9.5           | 10.2           | 50.0                |         |

Emission Level= Read Level+ Correct Factor



# 3.2. Radiated Emission

<u>Limit</u>

### FCC CFR Title 47 Part 15 Subpart C Section 15.209/ RSS - Gen 8.9

| Frequency   | Field Strength     | Measurement Distance |
|-------------|--------------------|----------------------|
| (MHz)       | (microvolts/meter) | (meters)             |
| 0.009~0.490 | 2400/F (kHz)       | 300                  |
| 0.490~1.705 | 24000/F (kHz)      | 30                   |
| 1.705~30.0  | 30                 | 30                   |
| 30~88       | 100                | 3                    |
| 88~216      | 150                | 3                    |
| 216~960     | 200                | 3                    |
| 960~1000    | 500                | 3                    |

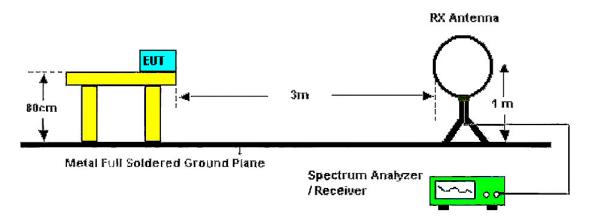
| Frequency Pange (MHz) | dBµV/m (at 3 meters) |         |  |  |  |  |  |
|-----------------------|----------------------|---------|--|--|--|--|--|
| Frequency Range (MHz) | Peak                 | Average |  |  |  |  |  |
| Above 1000            | 74                   | 54      |  |  |  |  |  |

Note:

(1) The tighter limit applies at the band edges.

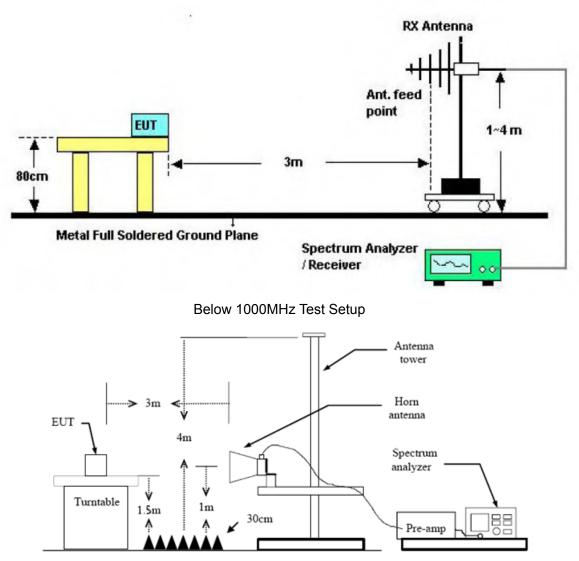
(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

## Test Configuration



Below 30MHz Test Setup





## Test Procedure

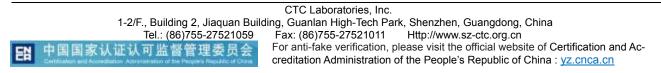
Above 1GHz Test Setup

- 1. The EUT was setup and tested according to ANSI C63.10:2013
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
- 4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
- 5. Set to the maximum power setting and enable the EUT transmit continuously.
- 6. Use the following spectrum analyzer settings
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Below 30 MHz:

9kHz – 150kHz, RBW=200Hz, VBW $\geq$ RBW, Sweep=auto, Detector function=peak, Trace=max hold; 150kHz – 30MHz, RBW=9kHz, VBW $\geq$ RBW, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

(3) 30 MHz - 1 GHz:

RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;





If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

(4) From 1 GHz to 10<sup>th</sup> harmonic:

RBW=1MHz, VBW=3MHz Peak detector for Peak value.

RBW=1MHz, VBW $\ge$ 1/T Peak detector for Average value.

Note 1: For the 1/T& Duty Cycle please refer to clause 3.10 Duty Cycle.

#### <u>Test Mode</u>

Please refer to the clause 2.4.

#### Test Result

#### 9 KHz~30 MHz

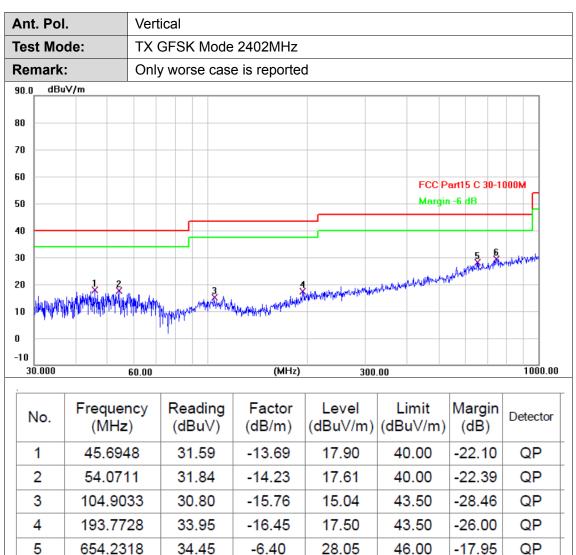
From 9 KHz to 30 MHz Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



| nt. Po                   | l.   | Hori                                       | zonta  | al                                    |   |   |  |  |                            |  |  |  |  |
|--------------------------|--|--|--|---------------------------------------|---|---|--|--|----------------------------|--|--|--|--|
| est Mo                   | de:  | тх (                                       | GFSł   | < Mode                                | 2402MHz   |   |  |  |                            |  |  |  |  |
| emark                    |  | Only                                       | Only worse case is reported  |                                       |   |   |  |  |                            |  |  |  |  |
| 0.0 dB                   | uV/m   |  |  |                                       |   |   |  |  |                            |  |  |  |  |
| 0                        |  |  |  |                                       |   |   |  |  |                            |  |  |  |  |
| o                        |  |  |  |                                       |   |   |  |  |                            |  |  |  |  |
| D                        |  |  |  |                                       |   |   | ECC P  | art15 C 30-1                                 | 000M                       |  |  |  |  |
| D                        |  |  |  |                                       |   |   |  | airi 5 C 30-1<br>n -6 dB                     |                            |  |  |  |  |
|                          |  |  |  |                                       |   |   |  |  |                            |  |  |  |  |
| 0                        |  |  |  |                                       |   |   |  | 5  | 6                          |  |  |  |  |
| 0                        | 1  | 2  |  |                                       |   | 4   | a shandard guida make                        | poprint and a construction                   |                            |  |  |  |  |
|                          | X  | 6  |  |                                       |   |   |  |  |                            |  |  |  |  |
| o WWW                    | (Alaniman Andra Manala                       | (14) North                                 | la di anila  | www.man                               | Standard weather the second                             | Aprilled And April Appendix                         |  |  |                            |  |  |  |  |
|                          | hydronia y dynydd y mydd                     | (And And                                   | hypowelle  | www.mwww                              | Shadad apath Manana                                     |   |  |  |                            |  |  |  |  |
| 0                        | yilan ayan ayan aya                          | <b>Antipat</b> ing                         | hogi formilyi  | p. M. Maria                           |   | Maddadhar Maran ann an Annaicheanna                 |  |  |                            |  |  |  |  |
|                          | ydair a thriait mig                          | 60.00                                      | hulunnin   | un minini                             | (MHz)   |   |  |  | 1000.0                     |  |  |  |  |
| 0                        | Frequer<br>(MHz                              | 60.00                                      | Rea  | ading<br>BuV)                         |   |   | Limit  | Margin<br>(dB)                               | 1000.0                     |  |  |  |  |
| 0 30.000                 |  | 60.00<br>ncy                               | Rea<br>(df   | ading                                 | (MHz)<br>Factor   | 300<br>Level  | Limit  | Margin                                       | 1000.0                     |  |  |  |  |
| 0<br>30.000<br>No.       | (MHz   | 60.00<br>ncy<br>:)                         | Rea<br>(df   | ading<br>BuV)                         | (MHz)<br>Factor<br>(dB/m)                               | 300<br>Level<br>(dBuV/m)                            | Limit<br>(dBuV/m)                            | Margin<br>(dB)                               | 1000.0                     |  |  |  |  |
| 0<br>30.000<br>No.       | (MHz<br>44.120                               | 60.00<br>ncy<br>:)<br>02<br>51             | Rea<br>(dl   | ading<br>BuV)<br>1.30                 | (MHz)<br>Factor<br>(dB/m)<br>-13.79                     | 300<br>Level<br>(dBuV/m)<br>17.51                   | Limit<br>(dBuV/m)<br>40.00                   | Margin<br>(dB)<br>-22.49                     | Detector<br>QP             |  |  |  |  |
| No.<br>1<br>2<br>30<br>4 | (MHz<br>44.120<br>59.025<br>102.71<br>243.37 | 60.00<br>ncy<br>2)<br>02<br>51<br>92<br>71 | Re:<br>(di<br>3 <sup>-</sup><br>3 <sup>-</sup><br>3(                               | ading<br>BuV)<br>1.30<br>1.54         | (MHz)<br>Factor<br>(dB/m)<br>-13.79<br>-15.18           | 300<br>Level<br>(dBuV/m)<br>17.51<br>16.36          | Limit<br>(dBuV/m)<br>40.00<br>40.00          | Margin<br>(dB)<br>-22.49<br>-23.64           | Detector<br>QP<br>QP       |  |  |  |  |
| No.<br>1<br>2<br>3       | (MHz<br>44.120<br>59.025<br>102.71           | 60.00<br>ncy<br>2)<br>02<br>51<br>92<br>71 | Rea<br>(dl<br>3 <sup>-</sup><br>3 <sup>-</sup><br>3 <sup>-</sup><br>3 <sup>-</sup> | ading<br>BuV)<br>1.30<br>1.54<br>0.49 | (MHz)<br>Factor<br>(dB/m)<br>-13.79<br>-15.18<br>-15.90 | 300<br>Level<br>(dBuV/m)<br>17.51<br>16.36<br>14.59 | Limit<br>(dBuV/m)<br>40.00<br>40.00<br>43.50 | Margin<br>(dB)<br>-22.49<br>-23.64<br>-28.91 | Detector<br>QP<br>QP<br>QP |  |  |  |  |





6 \*

747.4825

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

-4.92

29.34

46.00

-16.66

QP

34.26

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| nt. Po          | l. 📃            | Hori          | zonta | al            |                |     |       |             |                 |      |                |            |
|-----------------|-----------------|---------------|-------|---------------|----------------|-----|-------|-------------|-----------------|------|----------------|------------|
| est Mo          | de:             | TX (          | GFSI  | < Mode        | 2402MF         | Ιz  |       |             |                 |      |                |            |
| emark           |                 | No r<br>scrib |       |               | e emissic      | n v | which | more        | than 10 (       | dB   | below the      | e pre-     |
| )0. <u>0</u> dB | uV/m            |               |       |               | 1              | _   |       |             |                 |      |                |            |
|                 |                 |               |       |               |                |     |       |             |                 |      |                |            |
| )               |                 |               |       |               |                |     |       |             |                 |      |                |            |
| I               |                 |               |       |               |                |     |       |             | FCC Pa          | rt15 | C - Above 1    | G PK       |
|                 |                 |               |       |               |                |     |       |             |                 |      |                |            |
| , 📃             |                 |               |       |               |                |     |       |             |                 |      |                |            |
|                 |                 |               |       |               |                |     |       |             | FCC Pa          | rt15 | C - Above 1    | GAV        |
| )               | ş               |               |       |               |                |     |       |             |                 |      |                |            |
| )               | ^               |               |       |               |                |     |       |             |                 |      |                |            |
| )               | 1<br>×          |               |       |               |                |     |       |             |                 |      |                |            |
| , 📖             |                 |               |       |               |                |     |       |             |                 |      |                |            |
|                 |                 |               |       |               |                |     |       |             |                 |      |                |            |
| )               |                 |               |       |               |                |     |       |             |                 |      |                |            |
|                 | 0 3500.00 E     | 000.00        | 850   | 0.00 11       | 000.00 (M      | Hz) | 160   | 00.00       | 18500.00        | 2100 | 0.00 23500     | 0.00 26000 |
| No.             | Frequer<br>(MHz |               |       | ading<br>BuV) | Facto<br>(dB/m |     | 1     | vel<br>V/m) | Limit<br>(dBuV/ |      | Margin<br>(dB) | Detector   |
| 1 *             | 4804.0          | 47            | 26    | 6.03          | 2.08           |     | 28    | .11         | 54.00           | )    | -25.89         | AVG        |
| 2               | 4804.4          | 25            | 4(    | 0.45          | 2.08           |     | 42    | .53         | 74.00           | )    | -31.47         | peak       |
|                 |                 |               |       |               |                |     |       |             |                 |      |                |            |



| nt. Po           | l.              | Verti         | cal               |                  |                   |                   |                |            |
|------------------|-----------------|---------------|-------------------|------------------|-------------------|-------------------|----------------|------------|
| est Mo           | de:             | ТХ С          | GFSK Mode         | 2402MHz          |                   |                   |                |            |
| emark            |                 | No r<br>scrib | eport for the     | e emission v     | which more        | than 10 dB l      | below the      | e pre-     |
| 00. <u>0</u> dBu | uV/m            |               |                   |                  |                   |                   |                |            |
|                  |                 |               |                   |                  |                   |                   |                |            |
| ۱                |                 |               |                   |                  |                   |                   |                |            |
| ı                |                 |               |                   |                  |                   | FCC Part15        | C - Abovo 1    | C PK       |
|                  |                 |               |                   |                  |                   | FCC Faitis        | C-ADOVE I      |            |
|                  |                 |               |                   |                  |                   |                   |                |            |
|                  |                 |               |                   |                  |                   | FCC Part15        | C - Above 1    | G AV       |
|                  |                 |               |                   |                  |                   |                   |                |            |
|                  | Š               |               |                   |                  |                   |                   |                |            |
|                  |                 |               |                   |                  |                   |                   |                |            |
|                  | ×               |               |                   |                  |                   |                   |                |            |
| ·                |                 |               |                   |                  |                   |                   |                |            |
| ı                |                 |               |                   |                  |                   |                   |                |            |
| .0               |                 |               |                   |                  |                   |                   |                |            |
| 1000.000         | 0 3500.00 6     | 000.00        | 8500.00 11        | 000.00 (MHz)     | 16000.00          | 18500.00 2100     | 0.00 23500     | .00 26000. |
| No.              | Frequer<br>(MHz |               | Reading<br>(dBuV) | Factor<br>(dB/m) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector   |
| 1 *              | 4803.59         | 95            | 25.87             | 2.08             | 27.95             | 54.00             | -26.05         | AVG        |
|                  | 4804.86         | 39            | 41.08             | 2.08             | 43.16             | 74.00             | -30.84         | peak       |



| nt. Po  | ol.             | Horiz  | zontal                     |                  |              |                   |                |           |
|---------|-----------------|--------|----------------------------|------------------|--------------|-------------------|----------------|-----------|
| est M   | ode:            | TX G   | GFSK Mode                  | 2441MHz          |              |                   |                |           |
| lemar   | k:              |        | eport for the<br>ed limit. | e emission v     | vhich more 1 | han 10 dB t       | pelow the      | pre-      |
| 00.0 dE | 3uV/m           |        |                            |                  |              |                   |                |           |
| 0       |                 |        |                            |                  |              |                   |                |           |
|         |                 |        |                            |                  |              |                   |                |           |
|         |                 |        |                            |                  |              | FCC Part15 C      | - Above 1G     | РК        |
| 0       |                 |        |                            |                  |              |                   |                |           |
| ) — I   |                 |        |                            |                  |              |                   |                |           |
| , 🗖     |                 |        |                            |                  |              | FCC Part15 C      | - Above 1G     | AV        |
|         | 1×              |        |                            |                  |              |                   |                |           |
| )       |                 |        |                            |                  |              |                   |                |           |
| )       | Š               |        |                            |                  |              |                   |                |           |
| ) —     |                 |        |                            |                  |              |                   |                |           |
| ) —     |                 |        |                            |                  |              |                   |                |           |
| ).0     |                 |        |                            |                  |              |                   |                |           |
| 1000.00 | 00 3500.00 6    | 000.00 | 8500.00 11                 | 000.00 (MHz)     | 16000.00 1   | 8500.00 21000     | .00 23500.0    | 0 26000.0 |
| No.     | Frequer<br>(MHz | псу    | Reading<br>(dBuV)          | Factor<br>(dB/m) | Level        | Limit<br>(dBuV/m) | Margin<br>(dB) | Detecto   |
| 1       | 4881.6          |        | 40.61                      | 2.18             | 42.79        | 74.00             | -31.21         | peak      |
|         | 4882.9          |        | 25.82                      | 2.18             | 28.00        | 54.00             | -26.00         | AVG       |
| 2 *     |                 |        |                            |                  |              |                   |                |           |



| nt. Pol  | Ι.              | Vertio | cal                        |                  |                   |                   |                |            |
|----------|-----------------|--------|----------------------------|------------------|-------------------|-------------------|----------------|------------|
| est Mo   |                 | _      | FSK Mode                   |                  |                   |                   |                |            |
| Remark   |                 |        | eport for the<br>ed limit. | e emission v     | which more        | than 10 dB l      | below the      | e pre-     |
| 00.0 dBu | uV/m            |        | 1                          |                  | 1                 |                   | 1              |            |
| 0        |                 |        |                            |                  |                   |                   |                |            |
|          |                 |        |                            |                  |                   |                   |                |            |
| 0        |                 |        |                            |                  |                   | FCC Part15        | C - Above 1    | G PK       |
| 0        |                 |        |                            |                  |                   |                   |                |            |
| 0        |                 |        |                            |                  |                   | FCC Part15        | C - Above 1    | GAV        |
| 0        |                 |        |                            |                  |                   |                   |                |            |
| 0        | Š               |        |                            |                  |                   |                   |                |            |
| o        | 1               |        |                            |                  |                   |                   |                |            |
| 0        | ×               |        |                            |                  |                   |                   |                |            |
|          |                 |        |                            |                  |                   |                   |                |            |
| 0        |                 |        |                            |                  |                   |                   |                |            |
|          | 0 3500.00 6     | 000.00 | 8500.00 11                 | 000.00 (MHz)     | 16000.00          | 18500.00 2100     | 0.00 23500     | .00 26000. |
| No.      | Frequer<br>(MHz |        | Reading<br>(dBu∀)          | Factor<br>(dB/m) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector   |
| 1 *      | 4882.0          | 99     | 24.65                      | 2.18             | 26.83             | 54.00             | -27.17         | AVG        |
| I        |                 | 73     | 39.35                      | 2.18             | 41.53             | 74.00             | -32.47         | peak       |



| nt. Po  | I.                            | Horiz   | zontal            |                  |              |                   |                |                 |
|---------|-------------------------------|---|-------------------|------------------|--------------|-------------------|----------------|-----------------|
| est Mo  | ode:                          | TX GFSK Mode 2480MHz<br>No report for the emission which more than 10 dB below the pre-<br>scribed limit. |                   |                  |              |                   |                |                 |
| Remark  |                               |   |                   | emission v       | vhich more t | han 10 dB l       | below the      | e pre-          |
| 00.0 dB | uV/m                          |   |                   |                  |              |                   |                |                 |
| 0       |                               |   |                   |                  |              |                   |                |                 |
|         |                               |   |                   |                  |              |                   |                |                 |
|         |                               |   |                   |                  |              | FCC Part15        | C - Above 1    | G PK            |
| )       |                               |   |                   |                  |              |                   |                |                 |
| )       |                               |   |                   |                  |              |                   |                |                 |
|         |                               |   |                   |                  |              | FCC Part15        | C - Above 1    | GAV             |
|         | ş                             |   |                   |                  |              |                   |                |                 |
| 0       |                               |   |                   |                  |              |                   |                |                 |
| 0       | 1×                            |   |                   |                  |              |                   |                |                 |
| 0       |                               |   |                   |                  |              |                   |                |                 |
|         |                               |   |                   |                  |              |                   |                |                 |
|         |                               |   |                   |                  |              |                   |                |                 |
| D.0     |                               |   | 8500.00 11        | 000.00 (MHz)     | 16000.00 1   | 8500.00 2100      | 0.00 23500     | .00 26000.      |
|         | 0 3500.00 6                   | 000.00  | 0000.00 11        | ,                | 10000.00     |                   |                |                 |
|         | 0 3500.00 6                   | 000.00  | 8500.00 11        | <u> </u>         | 10000.00     |                   |                |                 |
|         | 0 3500.00 6                   | 000.00  | 000.00 11         |                  |              |                   |                |                 |
|         | 6 3500.00 6<br>Freque<br>(MHz | ncy   | Reading<br>(dBuV) | Factor<br>(dB/m) | Level        | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector        |
| 1000.00 | Freque                        | ncy<br>:)   | Reading           | Factor           | Level        | Limit             |                | Detector<br>AVG |



| Ant.  | Pol.   |                 | Verti  | cal          |      |                |      |       |              |                 |        |                |             |
|-------|--------|-----------------|--------|--------------|------|----------------|------|-------|--------------|-----------------|--------|----------------|-------------|
| Test  | Mod    | de:             | TX G   | GFSK I       | Mode | 2480MH         | Ηz   |       |              |                 |        |                |             |
|       | nark:  |                 |        | eport f      |      | e emissio      | on v | vhich | more t       | han 10 c        | IB t   | pelow the      | ; pre-      |
| 100.0 | dBu\   | √/m             |        |              |      |                |      |       |              |                 |        |                |             |
| 90    |        |                 |        |              |      |                |      |       |              |                 | _      |                |             |
| 80    |        |                 |        |              |      |                |      |       |              | FCC Pa          | rt15   | C - Above 1    | G PK        |
| 70    |        |                 |        |              |      |                |      |       |              |                 | -      |                |             |
| 60    |        |                 |        |              |      |                |      |       |              | FCC Pa          | rt15 ( | C - Above 1    | GAV         |
| 50    |        | 2               |        |              |      |                |      |       |              |                 | -      |                |             |
| 40    |        | ş               |        |              |      |                |      |       |              |                 | +      |                |             |
| 30    |        | 1×              |        |              |      |                |      |       |              |                 | -      |                |             |
| 20    |        |                 |        |              |      |                |      |       |              |                 | +      |                |             |
| 10    |        |                 |        |              |      |                |      |       |              |                 | +      |                |             |
| 0.0   | 00.000 | 3500.00 6       | 000.00 | 8500.0       | 0 11 | 000.00 (N      | (Hz) | 160   | 00.00 1      | 8500.00 2       | 100    | 0.00 23500     | .00 26000.0 |
| N     | o.     | Frequer<br>(MHz |        | Read<br>(dBu |      | Facto<br>(dB/m |      |       | vel<br>IV/m) | Limit<br>(dBuV/ |        | Margin<br>(dB) | Detector    |
| 1     | *      | 4960.1          | 30     | 24.          | 17   | 2.30           |      | 26    | .47          | 54.00           | )      | -27.53         | AVG         |
| 2     | 2      | 4960.1          | 49     | 40.0         | 68   | 2.30           |      | 42    | .98          | 74.00           | )      | -31.02         | peak        |
|       |        |                 |        |              |      |                |      |       |              |                 |        |                |             |



| nt. Po  | l.              | Horiz  | zontal                      |                  |                   |                   |                |            |
|---------|-----------------|--------|-----------------------------|------------------|-------------------|-------------------|----------------|------------|
| est Mo  | ode:            | TX 1   | π/4-DQPSK                   | Mode 2402        | 2MHz              |                   |                |            |
| Remark  | <b>(</b> :      |        | eport for the<br>bed limit. | e emission v     | which more 1      | than 10 dB t      | pelow the      | e pre-     |
| 00.0 dB | luV/m           |        |                             |                  |                   |                   |                |            |
| 0       |                 |        |                             |                  |                   |                   |                |            |
| 0       |                 |        |                             |                  |                   | 500 D             |                |            |
| 0       |                 |        |                             |                  |                   | FCC Part15        | C-ADOVE I      |            |
| 0       |                 |        |                             |                  |                   |                   |                |            |
| 0       |                 |        |                             |                  |                   | FCC Part15        | C - Above 1    |            |
| 0       | ş               |        |                             |                  |                   |                   |                |            |
| o       | 1               |        |                             |                  |                   |                   |                |            |
| o       |                 |        |                             |                  |                   |                   |                |            |
| o       |                 |        |                             |                  |                   |                   |                |            |
| 0.0     | 10 3500.00      | 000.00 | 8500.00 11                  | 000.00 (MHz)     | 16000.00 1        | 18500.00 21000    | 0.00 23500     | .00 26000. |
|         | 1               |        |                             |                  |                   |                   |                |            |
| No.     | Frequer<br>(MHz | -      | Reading<br>(dBuV)           | Factor<br>(dB/m) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector   |
| 110.    |                 |        |                             |                  | 1                 |                   |                |            |
| 1 *     | 4803.8          | 48     | 26.00                       | 2.08             | 28.08             | 54.00             | -25.92         | AVG        |



| Ant   | . Pol  |                 | Verti          | cal   |               |               |      |       |              |              |       |                |           |      |
|-------|--------|-----------------|----------------|-------|---------------|---------------|------|-------|--------------|--------------|-------|----------------|-----------|------|
| Test  | t Mo   | de:             | TX 1           | τ/4-D | QPSK          | Mode          | 2402 | 2MHz  |              |              |       |                |           |      |
| Ren   | nark   |                 | No re<br>scrib |       |               | e emiss       | on v | vhich | more t       | han 10       | dB t  | pelow the      | e pre-    |      |
| 100.0 | ) dBu  | V/m             |                |       |               |               |      |       |              |              |       |                |           |      |
| 90    |        |                 |                |       |               |               | _    |       |              |              |       |                |           |      |
| 80    |        |                 |                |       |               |               |      |       |              | 500 D        |       | 0.411          | 0.04      |      |
| 70    |        |                 |                |       |               |               | -    |       |              | FULP         | anis  | C - Above 1    | GPK       |      |
| 60    |        |                 |                |       |               |               |      |       |              |              |       |                |           |      |
| 50    |        |                 |                |       |               |               | _    |       |              | FCC P        | art15 | C - Above 1    | G AV      |      |
| 40    |        | 1×              |                |       |               |               |      |       |              |              |       |                |           |      |
| 30    |        |                 |                |       |               |               |      |       |              |              |       |                |           |      |
| 20    |        | ×               |                |       |               |               |      |       |              |              |       |                |           |      |
| 10    |        |                 |                |       |               |               |      |       |              |              |       |                |           |      |
| 0.0   |        |                 |                |       |               |               |      |       |              |              |       |                |           |      |
| 10    | 00.000 | 3500.00 6       | 000.00         | 8500  | .00 11        | 000.00 (      | MHz) | 160   | 00.00 1      | 8500.00      | 2100  | 0.00 23500     | ).00 2600 | )0.0 |
|       |        | <b>-</b>        |                | Dee   |               | <b>F</b>      |      |       |              | Ling         |       |                |           |      |
| N     | lo.    | Frequer<br>(MHz |                |       | ading<br>3uV) | Fact<br>(dB/r |      |       | vel<br>iV/m) | Lim<br>(dBuV |       | Margin<br>(dB) | Detecto   | ж    |
|       | 1      | 4803.9          | 21             | 40    | .20           | 2.0           | В    | 42    | .28          | 74.0         | 0     | -31.72         | peak      | [    |
| 2     | 2 *    | 4804.0          | 09             | 25    | .71           | 2.0           | В    | 27    | .79          | 54.0         | 0     | -26.21         | AVG       | i    |
|       |        |                 |                |       |               |               |      |       |              |              |       |                |           |      |

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Remarks:



| nt. Po         | l.             | Hori        | zonta           | l             |                |      |              |        |              |          |              |        |          |
|----------------|----------------|-------------|-----------------|---------------|----------------|------|--------------|--------|--------------|----------|--------------|--------|----------|
| est Mo         | de:            | <b>TX</b> 1 | π/4-C           | QPSK          | Mode 2         | 441  | MHz          |        |              |          |              |        |          |
| emark          |                |             | eport<br>ed lii |               | emissio        | on w | vhich m      | ore t  | han 10       | ) dB t   | elow t       | he p   | re-      |
| 10.0 dBu       | uV/m           |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                | _           |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        | FCC          | Dort1E ( | C - Abov     | - 1C F | ~        |
|                |                |             |                 |               |                |      |              |        | FUU          |          |              | ergr   |          |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        | FCC          | Part15 ( | C - Abov     | e 1G A | v        |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                | ş              |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                | ×              |             |                 |               |                |      |              |        |              |          |              |        | _        |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
|                |                |             |                 |               |                |      |              |        |              |          |              |        |          |
| .0<br>1000.000 | 0 3500.00 6    | 000.00      | 8500            | .00 11        | 000.00 (M      | IHz) | 16000        | ).00 1 | 8500.00      | 21000    | 0.00 23      | 500.00 | 26000.   |
|                |                |             |                 |               |                |      | 1            |        |              |          | 1            |        |          |
| No.            | Freque<br>(MHz | -           |                 | ading<br>BuV) | Facto<br>(dB/m |      | Lev<br>(dBu\ |        | Lin<br>(dBu) |          | Marg<br>(dB) |        | etector) |
| 1 *            | 4881.3         | 88          | 25              | 5.04          | 2.18           |      | 27.2         | 22     | 54.          | 00       | -26.7        | 8      | AVG      |
| 2              | 4882.9         | 86          | 39              | 9.98          | 2.18           |      | 42.1         | 16     | 74.          | 00       | -31.8        | 34     | peak     |
|                |                |             |                 |               | -              |      | -            |        |              |          |              |        |          |



| Ant. Pol          | •               | Verti         | cal   |               |                |      |       |              |              |         |               |       |         |
|-------------------|-----------------|---------------|-------|---------------|----------------|------|-------|--------------|--------------|---------|---------------|-------|---------|
| est Mo            | de:             | TX            | π/4-I | DQPSK         | Mode 2         | 441  | MHz   |              |              |         |               |       |         |
| Remark            |                 | No r<br>scrib |       |               | e emissio      | on v | vhich | more t       | han 10       | dB b    | pelow t       | he pr | e-      |
| 100. <u>0</u> dBu | V/m             |               |       |               |                |      |       |              | _            |         |               |       | _       |
|                   |                 |               |       |               |                |      |       |              |              |         |               |       |         |
| 0                 |                 |               |       |               |                |      |       |              |              |         |               |       |         |
| 0                 |                 |               |       |               |                |      |       |              | FCC P        | art15 ( | ) - Above     | 1G PK | _       |
| 0                 |                 |               |       |               |                |      |       |              |              | _       |               |       |         |
| 0                 |                 |               |       |               |                |      |       |              |              |         |               |       |         |
|                   |                 | _             |       |               |                |      |       |              | FCC P        | art15 ( | C-Above       | 16 AV | _       |
| 0                 | 1               |               |       |               |                |      |       |              |              |         |               |       |         |
| 0                 | ×               |               |       |               |                |      |       |              |              | _       |               |       | _       |
| o                 | ş               | _             |       |               |                |      |       |              |              |         |               |       | _       |
| 0                 | ^               |               |       |               |                |      |       |              |              |         |               |       |         |
|                   |                 |               |       |               |                |      |       |              |              |         |               |       |         |
| 0                 |                 |               |       |               |                | -    |       |              |              |         |               |       |         |
| 0.0               | 3500.00 6       | 000.00        | 850   | 0.00 11       | 000.00 (N      | IHz) | 160   | 00.00 1      | 8500.00      | 21000   | .00 235       | 00.00 | 26000.0 |
| No.               | Frequer<br>(MHz | -             |       | ading<br>BuV) | Facto<br>(dB/m |      |       | vel<br>iV/m) | Lim<br>(dBu∖ |         | Margi<br>(dB) |       | etector |
| 1                 | 4882.4          | 51            | 4     | 0.53          | 2.18           |      | 42    | .71          | 74.0         | 00      | -31.2         | 9 p   | eak     |
| 2 *               | 4882.9          | 69            | 2     | 5.18          | 2.18           |      | 27    | .36          | 54.0         | 00      | -26.6         | 4 A   | VG      |



| Ant.      | Pol.       |                 | Hori   | zonta          | al            |                |      |         |       |             |        |                |              |
|-----------|------------|-----------------|--------|----------------|---------------|----------------|------|---------|-------|-------------|--------|----------------|--------------|
| Test      | t Mod      | de:             | ТΧ     | π/4-E          | DQPSK         | Mode 2         | 480  | OMHz    |       |             |        |                |              |
| Rem       | nark:      |                 |        | epor<br>bed li |               | e emissic      | n v  | vhich ı | nore  | than 1      | 0 dB   | below the      | e pre-       |
| 100.0     | ) dBu      | lV/m            |        |                |               |                | _    |         |       |             |        |                |              |
| 90        |            |                 |        |                |               |                | _    |         |       |             |        |                |              |
| 80        |            |                 |        |                |               |                | -    |         |       | FCC         | Part15 | C - Above      | IG PK        |
| 70        |            |                 |        |                |               |                | +    |         |       |             |        |                |              |
| 60        |            |                 |        |                |               |                | -    |         |       | FCC         | Part15 | C - Above      | IG AV        |
| 50        |            | ş               |        |                |               |                | -    |         |       |             |        |                |              |
| 40        |            | X               |        |                |               |                |      |         |       |             |        |                |              |
| 30        |            | 1×              |        |                |               |                | -    |         |       |             |        |                |              |
| 20        |            |                 |        |                |               |                |      |         |       |             |        |                |              |
| 10        |            |                 |        |                |               |                |      |         |       |             |        |                |              |
| 0.0<br>10 | 00.000     | 3500.00 6       | 000.00 | 850            | 0.00 1        | 1000.00 (N     | (Hz) | 160     | 00.00 | 18500.00    | ) 2100 | 0.00 2350      | 0.00 26000.0 |
| 1         |            |                 |        | De             | - di - a      | Fasta          |      | Lev     |       | 1 :         | .:.    | Mauria         |              |
| N         | <b>o</b> . | Frequer<br>(MHz |        |                | ading<br>BuV) | Facto<br>(dB/m |      | 1       |       | Lin<br>(dBu |        | Margin<br>(dB) | Detector     |
| 1         | *          | 4959.2          | 13     | 24             | 1.42          | 2.30           |      | 26.     | 72    | 54.         | 00     | -27.28         | AVG          |
| 2         | 2          | 4960.2          | 10     | 40             | ).92          | 2.30           |      | 43.     | 22    | 74.         | 00     | -30.78         | peak         |
| Rem       | narks      |                 |        |                |               |                |      |         |       |             |        |                |              |

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Remarks:



| nt. Pol        | •               | Vertica | al                       |                  |                   |                   |                |             |
|----------------|-----------------|---------|--------------------------|------------------|-------------------|-------------------|----------------|-------------|
| est Mo         | de:             | TX π/   | /4-DQPSK                 | Mode 2480        | OMHz              |                   |                |             |
| emark          | :               |         | port for the<br>d limit. | emission v       | which more t      | han 10 dB t       | pelow the      | e pre-      |
| 00.0 dBu       | V/m             |         |                          |                  |                   |                   |                |             |
|                |                 |         |                          |                  |                   |                   |                |             |
| ,              |                 |         |                          |                  |                   |                   |                |             |
| )              |                 |         |                          |                  |                   | FCC Part15 (      | C-Above 10     | G PK        |
|                |                 |         |                          |                  |                   |                   |                |             |
|                |                 |         |                          |                  |                   |                   |                |             |
|                |                 |         |                          |                  |                   | FCC Part15 (      | C - Above 10   | 3 AV        |
|                | ş               |         |                          |                  |                   |                   |                |             |
| I              | ×               |         |                          |                  |                   |                   |                |             |
|                | 1               |         |                          |                  |                   |                   |                |             |
|                | ^               |         |                          |                  |                   |                   |                |             |
|                |                 |         |                          |                  |                   |                   |                |             |
| .0             |                 |         |                          |                  |                   |                   |                |             |
| .u<br>1000.000 | 3500.00 6       | 000.00  | 8500.00 11               | 000.00 (MHz)     | 16000.00 1        | 8500.00 21000     | .00 23500.     | .00 26000.0 |
| No.            | Frequer<br>(MHz | •       | Reading<br>(dBu∀)        | Factor<br>(dB/m) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector    |
|                | 4959.4          | 16      | 24.41                    | 2.30             | 26.71             | 54.00             | -27.29         | AVG         |
| 1 *            |                 |         |                          | 2.30             | 41.99             | 74.00             | -32.01         |             |



| est Mode<br>emark:  | :              | TX 8          | rizontal<br>8-DPSK Mode 2402MHz<br>report for the emission which more than 10 dB below the pre |               |               |          |       |             |                   |                |   |
|---------------------|----------------|---------------|--|---------------|---------------|----------|-------|-------------|-------------------|----------------|---|
| emark:              |                |               |  |               |               |          | Z     |             |                   |                |   |
|                     |                | No r<br>scrit |  |               | e emissi      | on v     | vhich | more t      | han 10 dB         | below th       | e pre-                                  |
| 10. <u>0</u> dBuV/1 | m              |               |  | -             |               |          |       |             |                   |                |   |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
|                     |                |               |  |               |               | _        |       |             | FCC Part15        | C Abour        | 10.04                                   |
|                     |                |               |  |               |               |          |       |             | FCC Partis        | C-ADUVE        | IGPK                                    |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
|                     |                |               |  |               |               |          |       |             | FCC Part15        | C - Above      | 1G AV                                   |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
|                     | 1×             |               |  |               |               |          |       |             |                   |                |   |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
|                     | ş              |               |  |               |               |          |       |             |                   |                |   |
|                     | _              |               |  |               |               | _        |       |             |                   |                |   |
|                     |                |               |  |               |               |          |       |             |                   |                |   |
| )                   |                |               |  |               |               |          |       |             |                   |                |   |
| 1000.000 3          | 500.00 E       | 600.00        | 850  | 0.00 11       | 000.00 (      | MHz)     | 160   | 00.00       | 8500.00 2100      | 0.00 2350      | 0.00 26000                              |
| No.                 | Freque<br>(MHz |               |  | ading<br>BuV) | Fact<br>(dB/r |          |       | vel<br>V/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector                                |
| 1                   | 4803.3         | ·             |  | 1.18          | 2.08          | <u> </u> | `     | .26         | 74.00             | -30.74         | peak                                    |
| 2 *                 | 4803.7         | 83            | 2  | 5.89          | 2.08          | 3        | 27    | .97         | 54.00             | -26.03         | + · · · · · · · · · · · · · · · · · · · |



| Ant  | . Pol   | •               | Vertic  | cal               |                  |                   |                   |                |             |  |  |  |
|------|---------|-----------------|---|-------------------|------------------|-------------------|-------------------|----------------|-------------|--|--|--|
| Tes  | t Mo    | de:             | TX 8-   | -DPSK Moo         | de 2402MH        | Z                 |                   |                |             |  |  |  |
| Ren  | nark    |                 | No report for the emission which more than 10 dB below the pre-<br>scribed limit. |                   |                  |                   |                   |                |             |  |  |  |
| 100. | 0 dBu   | V/m             |   |                   |                  |                   |                   |                |             |  |  |  |
| 90   |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| 80   |         |                 |   |                   |                  |                   | 500 D             | 0.41.1         | 0.0%        |  |  |  |
| 70   |         |                 |   |                   |                  |                   | FCC Part15        | C - Above 1    |             |  |  |  |
| 60   |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| 50   |         |                 |   |                   |                  |                   | FCC Part15        | C - Above 1    | <u>G AV</u> |  |  |  |
| 40   |         | ş               |   |                   |                  |                   |                   |                |             |  |  |  |
| 30   |         | 1×              |   |                   |                  |                   |                   |                |             |  |  |  |
| 20   |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| 10   |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| 0.0  | 100 000 | 3500.00 6       | 000.00  | 8500.00 11        | 000.00 (MHz)     | 16000.00          |                   | 0.00 23500     | .00 26000.0 |  |  |  |
| I    |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| N    | lo.     | Frequer<br>(MHz | -   | Reading<br>(dBuV) | Factor<br>(dB/m) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector    |  |  |  |
| 1    | *       | 4803.9          | 59  | 25.54             | 2.08             | 27.62             | 54.00             | -26.38         | AVG         |  |  |  |
| 2    | 2       | 4804.2          | 68  | 40.29             | 2.08             | 42.37             | 74.00             | -31.63         | peak        |  |  |  |
|      |         |                 |   |                   |                  |                   |                   |                |             |  |  |  |
| Ren  | narks   | 6:              |   |                   |                  |                   |                   |                |             |  |  |  |

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| Ant  | Pol.    |                | Horiz                  | zontal  |    |                |     |     |              |                |        |                |             |  |
|------|---------|----------------|------------------------|---|----|----------------|-----|-----|--------------|----------------|--------|----------------|-------------|--|
| Test | t Mod   | le:            | TX 8-DPSK Mode 2441MHz |   |    |                |     |     |              |                |        |                |             |  |
| Ren  | nark:   |                |                        | No report for the emission which more than 10 dB below the pre-<br>scribed limit. |    |                |     |     |              |                |        |                |             |  |
| 100. | 0 dBu   | V/m            |                        |   |    | 1              |     |     |              |                | _      |                |             |  |
| 90   |         |                |                        |   |    |                |     |     |              |                | _      |                |             |  |
| 80   |         |                |                        |   |    |                |     |     |              | FCC Pa         | rt15 ( | C-Above 10     | G PK        |  |
| 70   |         |                |                        |   |    |                |     |     |              |                | _      |                |             |  |
| 60   |         |                |                        |   |    |                |     |     |              |                |        |                |             |  |
| 50   |         |                |                        |   |    |                |     |     |              | FCC Pa         | rt15 ( | C - Above 10   | G AV        |  |
|      |         | ş              |                        |   |    |                |     |     |              |                |        |                |             |  |
| 40   |         | ^              |                        |   |    |                |     |     |              |                | -      |                |             |  |
| 30   |         | 1<br>*         |                        |   |    |                |     |     |              |                | _      |                |             |  |
| 20   |         |                |                        |   |    |                |     |     |              |                | _      |                |             |  |
| 10   |         |                |                        |   |    |                |     |     |              |                |        |                |             |  |
| 0.0  |         |                |                        |   |    |                |     |     |              |                |        |                |             |  |
| 1(   | 000.000 | 3500.00 6      | 000.00                 | 8500.00   | 11 | 000.00 (M      | Hz) | 160 | 00.00 1      | 8500.00        | 21000  | 0.00 23500     | .00 26000.0 |  |
| 1    |         |                |                        |   |    |                |     |     |              |                |        | 1              |             |  |
| N    | lo.     | Freque<br>(MHz |                        | Readi<br>(dBu   |    | Facto<br>(dB/m |     |     | vel<br>iV/m) | Limi<br>(dBuV/ |        | Margin<br>(dB) | Detector    |  |
|      | 1 *     | 4881.0         | )11                    | 24.8  | 7  | 2.18           |     | 27  | .05          | 54.0           | 0      | -26.95         | AVG         |  |
|      | 2       | 4881.9         | 23                     | 39.7  | 2  | 2.18           |     | 41  | .90          | 74.0           | 0      | -32.10         | peak        |  |
|      |         |                |                        |   |    |                |     | 1   |              |                |        | 1              |             |  |

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Remarks:



| No r              | 3-DPSK Mod<br>report for the<br>bed limit. |   |   | han 10 dB b  | - Above 1G   | i PK  |
|-------------------|--|---|---|--|--|---|
| § scrib           |  |   | vhich more t  | FCC Part1 5 C  | - Above 1G   | i PK  |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
|                   |  |   |   | FCC Part15 C   | - Above 1G   | AV  |
|                   |  |   |   | FCC Part15 C   | - Above 1G   | AV  |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
| ×                 |  |   |   |  |  |   |
| ×                 |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
|                   |  |   |   |  |  |   |
| 0.00 6000.00      | 8500.00 110                                | 000.00 (MHz)  | 16000.00 1  | 8500.00 21000  | 00 23500 (   | 00 26000.   |
| requency<br>(MHz) | Reading<br>(dBuV)                          | Factor<br>(dB/m)                                    | Level<br>(dBuV/m)   | Limit<br>(dBuV/m)  | Margin<br>(dB)   | Detector  |
| 881.611           | 24.81                                      | 2.18  | 26.99   | 54.00  | -27.01   | AVG   |
| 882.028           | 40.12                                      | 2.18  | 42.30   | 74.00  | -31.70   | peak  |
| 8                 | equency<br>(MHz)<br>881.611                | equency<br>(MHz) Reading<br>(dBuV)<br>881.611 24.81 | equency Reading Factor<br>(MHz) (dBuV) (dB/m)<br>881.611 24.81 2.18 | equency Reading Factor Level (dBuV) (dBuV) (dB/m) 24.81 2.18 26.99 | equency<br>(MHz) Reading<br>(dBuV) Factor<br>(dB/m) Level Limit<br>(dBuV/m) (dBuV/m)<br>881.611 24.81 2.18 26.99 54.00 | equency Reading Factor Level Limit (dBuV) (dB/m) (dBuV/m) (dBuV/m) (dB)<br>(881.611 24.81 2.18 26.99 54.00 -27.01 |



| Ant. Pol.  |         |               | Horizontal  |     |               |                |     |     |             |                   |                |            |  |
|------------|---------|---------------|---|-----|---------------|----------------|-----|-----|-------------|-------------------|----------------|------------|--|
|            | lode:   |               | TX 8-DPSK Mode 2480MHz<br>No report for the emission which more than 10 dB below the pre-<br>scribed limit. |     |               |                |     |     |             |                   |                |            |  |
| ema        | rk:     |               |   |     |               |                |     |     |             |                   |                |            |  |
| 0.0        | dBuV/n  | 1             |   |     |               |                | _   |     |             |                   |                |            |  |
|            |         |               |   |     |               |                |     |     |             |                   |                |            |  |
|            |         |               |   |     |               |                |     |     |             |                   |                |            |  |
| ' 🗀        |         |               |   |     |               |                |     |     |             | FCC Part15        | C - Above 1    | G PK       |  |
| <u>ا</u> ۱ |         |               |   |     |               |                |     |     |             |                   |                |            |  |
|            |         |               |   |     |               |                |     |     |             |                   |                |            |  |
|            |         |               |   |     |               |                |     |     |             | FCC Part15        | C - Above 1    | GAV        |  |
|            |         | ş             |   |     |               |                |     |     |             |                   |                |            |  |
| ' -        |         |               |   |     |               |                |     |     |             |                   |                |            |  |
| ۱          |         | 1×            |   |     |               |                |     |     |             |                   |                |            |  |
| )          |         |               |   |     |               |                |     |     |             |                   |                |            |  |
| ,          |         |               |   |     |               |                |     |     |             |                   |                |            |  |
| ).0        |         |               |   |     |               |                |     |     |             |                   |                |            |  |
| 1000       | .000 35 | 00.00 6       | 6000.00   | 850 | 0.00 1        | 1000.00 (M     | Hz) | 160 | 00.00       | 18500.00 2100     | 0.00 2350      | 0.00 26000 |  |
| No         | . F     | reque<br>(MHz |   |     | ading<br>BuV) | Facto<br>(dB/m | -   |     | vel<br>V/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector   |  |
| 1          | * 4     | 4959.7        | '11   | 24  | 4.56          | 2.30           |     | 26  | .86         | 54.00             | -27.14         | AVG        |  |
| 2          | 4       | 4960.3        | 57  | 4(  | 0.67          | 2.30           |     | 42  | .97         | 74.00             | -31.03         | peak       |  |
|            |         |               |   |     |               |                |     |     |             |                   |                |            |  |
|            |         |               |   |     |               |                |     |     |             |                   |                |            |  |



| de:   |  | Ant. Pol. Vertical   |   |  |   |  |  |  |  |  |  |  |
|---|--|--|---|--|---|--|--|--|--|--|--|--|
|   |  | -DPSK Moo  |   |  |   |  |  |  |  |  |  |  |
| :   |  |  | emission v  | which more t   | than 10 dB t  | pelow the  | pre-   |  |  |  |  |  |
| V/m   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  | FCC Part15  | C - Above 1  | G PK   |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  | FCC Part15  | C - Above 1  | GAV  |  |  |  |  |  |
| ş   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
| 1×  |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
|   |  |  |   |  |   |  |  |  |  |  |  |  |
| 3500.00 6   | 000.00   | 8500.00 11   | 000.00 (MHz)  | 16000.00   | 18500.00 2100   | 0.00 23500   | .00 26000  |  |  |  |  |  |
|   |  | Reading<br>(dBuV)  | Factor<br>(dB/m)  | Level<br>(dBuV/m)  | Limit<br>(dBuV/m)   | Margin<br>(dB)   | Detector   |  |  |  |  |  |
| 4959.7  | 29   | 24.10  | 2.30  | 26.40  | 54.00   | -27.60   | AVG  |  |  |  |  |  |
| 4960.7  | 46   | 39.99  | 2.30  | 42.29  | 74.00   | -31.71   | peak   |  |  |  |  |  |
|   | v/m  | Scrib  | scribed limit.   V/m   V/m   V/m   Image: Scribed limit.   Image: Scribe limi | scribed limit.     v/m     k <tr m<="" tr="">    k   <t< td=""><td>Scribed limit.     V/m     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image: Scrib limit.     Image: S</td><td>scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image:</td><td>Scribed limit.     V/m     V/m     FCC Part15 C - Above 1     FCC</td></t<></tr> | Scribed limit.     V/m     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image: Scrib limit.     Image: S | scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image: | Scribed limit.     V/m     V/m     FCC Part15 C - Above 1     FCC |  |  |  |  |  |
| Scribed limit.     V/m     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image: Scrib limit.     Image: S | scribed limit.     V/m     Image: Scribed limit.     Image: Scribe limit.     Image: | Scribed limit.     V/m     V/m     FCC Part15 C - Above 1     FCC |   |  |   |  |  |  |  |  |  |  |

Remarks:



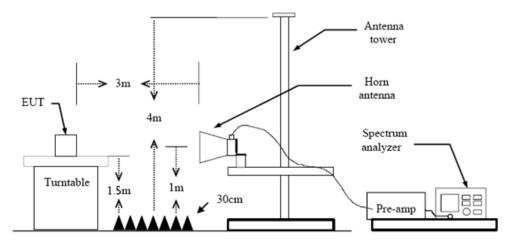
# 3.3. Band Edge Emissions (Radiated)

<u>Limit</u>

## FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):

| Restricted Frequency Band | (dBuV/m | n)(at 3m) |
|---------------------------|---------|-----------|
| (MHz)                     | Peak    | Average   |
| 2310 ~ 2390               | 74      | 54        |
| 2483.5 ~ 2500             | 74      | 54        |

# **Test Configuration**



# Test Procedure

- 1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
- 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
- 5. The receiver set as follow:

RBW=1MHz, VBW=3MHz Peak detector for Peak value.

RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.

Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 3.10 Duty Cycle.

# <u>Test Mode</u>

Please refer to the clause 2.4.



## Test Results

| est Mo  | l.   |                | zontal<br>K Mode 240 | )21/1日マ               |   |                   |                |          |
|---------|--|----------------|----------------------|-----------------------|---|-------------------|----------------|----------|
|         | uV/m   | GFS            | K MOUE 240           |                       |   |                   |                |          |
| 10.0 40 | 41711  |                |                      |                       |   |                   |                |          |
| 00      |  |                |                      |                       |   |                   |                |          |
| 0       |  |                |                      |                       |   |                   |                |          |
| 0       |  |                |                      |                       |   | FCC Part15 (      | C-Above 10     | G PK     |
| 0       |  |                |                      |                       |   |                   |                |          |
| 0       |  |                |                      |                       |   | ECC DestIE (      | A h            |          |
| 0       |  |                |                      |                       |   | FCC Part15 (      | X              |          |
|         |  |                |                      | a white alter with hi |   |                   | wienner        |          |
| 0       | al man the part of the state of | and the second |                      | and a construction    | ann an Sharan an Sharan Anna an Sharan Anna an Sharan Anna an Sharan Anna Anna Anna Anna Anna Anna Anna |                   |                |          |
| 0       |  |                |                      |                       |   |                   |                |          |
| 0.0     | 0 2315.30  | 2325.30        | 2335.30 23           | 45.30 (MHz)           | 2365.30 2   | 375.30 2385.3     | 30 2395.3      | 0 2405.3 |
|         |  |                |                      |                       |   |                   |                |          |
| No.     | Frequ<br>(MF   |                | Reading<br>(dBuV)    | Factor<br>(dB/m)      | Level<br>(dBuV/m)   | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector |
| 1       | 2390   | .000           | 19.58                | 31.31                 | 50.89   | 74.00             | -23.11         | peak     |
| 2 *     | 2390   | .000           | 5.32                 | 31.31                 | 36.63   | 54.00             | -17.37         | AVG      |
|         |  |                |                      |                       |   |                   |                |          |



| nt. Po          |                            | Verti        | cal                   |                               |                   |                         |                |          |
|-----------------|----------------------------|--------------|-----------------------|-------------------------------|-------------------|-------------------------|----------------|----------|
| est Mo          | de:                        | GFS          | K Mode 240            | 02MHz                         |                   |                         |                |          |
| 00.0 dBu        | ıV/m                       | 1            |                       |                               |                   |                         |                |          |
| 0               |                            |              |                       |                               |                   |                         |                | A        |
| 0               |                            |              |                       |                               |                   | FCC Part15 C            | - Above 1G     | PK       |
| 0               |                            |              |                       |                               |                   |                         |                |          |
| 0               |                            |              |                       |                               |                   | FCC Part15 C            | 1 Above 1G     |          |
| 0               |                            |              |                       |                               |                   |                         | ×              |          |
| 0               | a Marcely- Athenantica, Ad | understander | and the second second | and the more services and the | non many          | and an advantage of the | Emm            | ha       |
| o               |                            |              |                       |                               |                   |                         |                |          |
| 0               |                            |              |                       |                               |                   |                         |                |          |
| 0               |                            |              |                       |                               |                   |                         |                |          |
| 0.0<br>2306.000 | ) 2316.00 2                | 326.00       | 2336.00 23            | 46.00 (MHz)                   | 2366.00 23        | 376.00 2386.0           | 0 2396.00      | 2406.00  |
| No.             | Freque<br>(MH2             |              | Reading<br>(dBu∀)     | Factor<br>(dB/m)              | Level<br>(dBuV/m) | Limit<br>(dBuV/m)       | Margin<br>(dB) | Detector |
| 1               | 2390.0                     | 000          | 22.01                 | 31.31                         | 53.32             | 74.00                   | -20.68         | peak     |
| •               | 2390.0                     | 00           | 5.75                  | 31.31                         | 37.06             | 54.00                   | -16.94         | AVG      |
| 2 *             | 1                          |              | 1                     |                               | 1                 |                         |                |          |

2.Margin value = Level -Limit value





| Ant.       | Pol.   |               | Hori                                     | zontal     |              |         |                              |                |            |
|------------|--------|---------------|--|------------|--------------|---------|------------------------------|----------------|------------|
| Test       | Mod    | de:           | GFS                                      | SK Mode 24 | 80 MHz       |         |                              |                |            |
| 110.0      | ) dBu  | V/m           |  |            |              |         |                              |                |            |
| 100        | A      |               |  |            |              |         |                              |                |            |
| 90         |        |               |  |            |              |         |                              |                |            |
| 80         | ++     |               |  |            |              |         | FCC Part15                   | C - Above 1    | G PK       |
| 70         |        |               |  |            |              |         |                              |                |            |
| 60         |        | Į             |  |            |              |         | FCC Part15                   | C - Above 1    | G AV       |
| 50         |        |               |  |            |              |         |                              |                |            |
| 40         | Hij    | 2 munum       | an a | manner     | Amanagement  | norman  | and the second second second |                | wahanaa    |
| 30         |        |               |  |            |              |         |                              |                |            |
| 20         |        |               |  |            |              |         |                              |                |            |
| 10.0<br>24 | 77.000 | 2487.00       | 2497.00                                  | 2507.00 2  | 517.00 (MHz) | 2537.00 | 2547.00 2557                 | .00 2567.      | 00 2577.00 |
| 1          |        | Froque        | - Pov                                    | Reading    | Factor       | Level   | Limit                        | Margin         |            |
| N          | 0.     | Freque<br>(MH |  | (dBuV)     | (dB/m)       |         | (dBuV/m)                     | Margin<br>(dB) | Detector   |
| 1          |        | 2483.         |  | 23.23      | 31.48        | 54.71   | 74.00                        | -19.29         | peak       |
| 2          | *      | 2483.         | 500                                      | 6.15       | 31.48        | 37.63   | 54.00                        | -16.37         | AVG        |
|            |        |               |  |            |              |         |                              |                |            |

Remarks:



| Ant  | . Po          | I.       |                | Vert    | ical   |                    |        |               |     |   |               |      |            |        |         |            |            |
|------|---------------|----------|----------------|---------|--------|--------------------|--------|---------------|-----|---|---------------|------|------------|--------|---------|------------|------------|
| Test | t Mo          | de:      |                | GFS     | SK M   | ode 24             | 180 I  | MHz           |     |   |               |      |            |        |         |            |            |
| 100. | ) dB          | uV/m     |                |         |        |                    |        |               |     |   |               |      |            |        |         |            |            |
| 90   | Λ             |          |                |         |        |                    |        |               |     |   |               |      |            |        |         |            |            |
| 80   | $\mathbb{A}$  |          |                |         |        |                    |        |               |     |   |               | _    | FCC P      | art15  | C - Ab  | ove 1      | G PK       |
| 70   |               |          |                |         |        |                    |        |               |     |   |               |      |            |        |         |            |            |
| 60   | +             | 1        |                |         |        |                    |        |               |     |   |               | _    | FCC P      | art15  | C - Ab  | ove 1      | GAV        |
| 50   |               | ¥        |                |         |        |                    |        |               | -   |   |               | -    |            |        | 0 110   |            |            |
| 40   | $\mathcal{A}$ | 3        | Anton weighted | whether | -looka | and the second     | where  | mm            | -nn | رومور میرور میروند.<br>مروم بر میرور میروند | mun           | man  | hann       | wym.,m | -       | uthank     | man        |
| 30   |               |          |                |         |        |                    |        |               | -   |   |               |      |            |        |         |            |            |
| 20   |               |          |                |         |        |                    |        |               |     |   |               |      |            |        |         |            |            |
| 10   |               |          |                |         |        |                    | _      |               | -   |   |               |      |            |        |         |            |            |
| 0.0  | 177.00        | 0 2487.0 | 0 24           | 197.00  | 250    | )7.00 2            | 2517.0 | 0 (M          | Hz) | 25  | 37.00         | 2547 | .00        | 2557   | .00     | 2567.0     | )0 2577.00 |
| 1    |               |          |                |         | I      |                    |        |               |     | I   |               | 1    |            |        | T       |            |            |
| N    | о.            |          | quen<br>//Hz)  |         |        | ading<br>BuV)      |        | Facto<br>dB/m |     |   | evel<br>iV/m) | 1    | Lim<br>BuV |        |         | rgin<br>B) | Detector   |
| 1    |               | 248      | 33.50          | 0       | 2      | 1.80               | 3      | 31.48         | 5   | 53  | .28           |      | 74.0       | 0      | -20     | .72        | peak       |
| 2    | *             | 248      | 33.50          | 0       | 5      | 5.59               | 3      | 31.48         | }   | 37  | .07           |      | 54.0       | 0      | -16     | .93        | AVG        |
|      |               |          |                |         |        |                    |        |               |     |   |               |      |            |        |         |            |            |
|      | actor         | dB/m     |                |         |        | actor (<br>t value |        | n)+C          | abl | e Fac                                       | tor (dE       | 3)-F | re-a       | impli  | ifier I | acto       | or         |

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| nt. Po  | I   | Hori             | zontal   |                  |                    |   |                              |          |
|---------|---|------------------|--|------------------|--------------------|---|------------------------------|----------|
| est Mo  | de:   | π/4-             | DQPSK Mo   | de 2402MH        | z                  |   |                              |          |
| 10.0 dB | uV/m  |                  | l l  |                  |                    |   |                              |          |
| 100     |   |                  |  |                  |                    |   |                              |          |
|         |   |                  |  |                  |                    |   |                              |          |
| 30      |   |                  |  |                  |                    |   |                              |          |
| 30      |   |                  |  |                  |                    | FCC Part15                              | C - Above 1                  | GPK      |
| /0      |   |                  |  |                  |                    |   |                              |          |
| 50      |   |                  |  |                  |                    |   |                              |          |
| 50      |   |                  |  |                  |                    | FCC Part15                              | C- <sub>1</sub> Above 1<br>X | GAV      |
| 40      |   |                  |  |                  |                    |   |                              |          |
| 10      | and the second secon | lowethnesenation | method and the second | men white men    | alanta and and and | han manager and and and a second second | sense former with the se     | and h    |
| 30      |   |                  |  |                  |                    |   |                              |          |
| 20      |   |                  |  |                  |                    |   |                              |          |
| 2305 30 | 0 2315.30   | 2325.30          | 2335.30 23   | 945.30 (MHz)     | 2365.30            | 2375.30 2385                            | 5.30 2395                    | 30 2405. |
| No.     | Freque<br>(MH   |                  | Reading<br>(dBuV)  | Factor<br>(dB/m) | Level<br>(dBuV/m)  | Limit<br>(dBuV/m)                       | Margin<br>(dB)               | Detector |
| 1       | 2390.0  | 000              | 20.83  | 31.31            | 52.14              | 74.00                                   | -21.86                       | peak     |
| 2 *     | 2390.0  | 000              | 6.00   | 31.31            | 37.31              | 54.00                                   | -16.69                       | AVG      |
| Remark  |   |                  | na Factor (c   |                  |                    |   |                              |          |



| nt. Po          | l.              | Verti            | Vertical |               |        |             |       |               |         |            |            |              |     |          |
|-----------------|-----------------|------------------|----------|---------------|--------|-------------|-------|---------------|---------|------------|------------|--------------|-----|----------|
| est Mo          | ode:            | π/4-I            | DQP      | SK Mo         | de 240 | D2MH        | Z     |               |         |            |            |              |     |          |
| 00.0 dB         | uV/m            |                  |          |               |        |             |       | 1             |         |            |            |              |     |          |
| 0               |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
|                 |                 |                  |          |               |        |             |       |               |         |            |            |              |     | Λ        |
| )               |                 |                  |          |               |        |             |       |               | FCC     | Part1      | iC-A       | bove 1       | GF  | ж        |
| 0               |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
| ı 📖             |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
| .               |                 |                  |          |               |        |             |       |               | FCC     | Part1      | i C1A<br>X | bove 1       | G / | <u> </u> |
| )               |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
| I un            | weather the way | Maria            | mm       | mont          | romand | mm          | Angen | warehold      | mont    | mmm        | man        | m            | r.J | h        |
| 0               |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
|                 |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
|                 |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
| 0.0             |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
|                 | 0 2316.00 2     | 326.00           | 2336     | .00 23        | 846.00 | (MHz)       | 23    | 66.00         | 2376.00 | 238        | 6.00       | 2396.        | 00  | 2406.0   |
| No.             | Freque<br>(MHz  | -                |          | ading<br>BuV) |        | ctor<br>/m) |       | evel<br>uV/m) |         | nit<br>V/m |            | argin<br>dB) | D   | )etector |
| 1               | 2390.0          | 00               | 21       | .42           | 31     | .31         | 52    | 2.73          | 74      | .00        | -2         | 1.27         |     | peak     |
| 2 *             | 2390.0          | 00               | 4        | .29           | 31     | .31         | 35    | 5.60          | 54      | .00        | -1         | 8.40         |     | AVG      |
|                 |                 |                  |          |               |        |             |       |               |         |            |            |              |     |          |
| emark<br>Facto. | r (dB/m) =      | Anten<br>.evel - |          |               | dB/m)+ | +Cable      | e Fac | tor (dE       | 3)-Pre- | amp        | lifier     | Facto        | or  |          |

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| Ant. Pol         |                                   | Hori   | zontal            |                                       |   |                       |                 |                |
|------------------|-----------------------------------|--------|-------------------|---------------------------------------|---|-----------------------|-----------------|----------------|
| Test Mo          | de:                               | π/4-   | DQPSK Mo          | de 2480M⊦                             | z   |                       |                 |                |
| 110.0 dBu        | V/m                               |        |                   |                                       |   |                       |                 |                |
| 100              |                                   |        |                   |                                       |   |                       |                 |                |
| 90               |                                   |        |                   |                                       |   |                       |                 |                |
| 80               |                                   |        |                   |                                       |   | FCC Part15            | C - Above 1     | G PK           |
| 70               |                                   | _      |                   |                                       |   |                       |                 |                |
| 60               | 1                                 |        |                   |                                       |   | FCC Part15            | C - Above 1     | G AV           |
| 50               | ×                                 |        |                   |                                       |   |                       |                 |                |
| 40               | 2<br>Harris and the second second | whith  | mennowhen         | when the market and the second second | an was and a second and a second s | with the month of the | m Wellen Martha | ap approximate |
| 30               |                                   |        |                   |                                       |   |                       |                 |                |
| 20               |                                   |        |                   |                                       |   |                       |                 |                |
| 10.0<br>2477.000 | 2487.00 2                         | 497.00 | 2507.00 25        | 17.00 (MHz)                           | 2537.00   | 2547.00 2557          | .00 2567.       | 00 2577.00     |
| 1                |                                   |        |                   |                                       |   |                       | 1               |                |
| No.              | Frequer<br>(MHz                   |        | Reading<br>(dBuV) | Factor<br>(dB/m)                      | Level<br>(dBuV/m)   | Limit<br>(dBuV/m)     | Margin<br>(dB)  | Detector       |
| 1                | 2483.5                            | 00     | 21.40             | 31.48                                 | 52.88   | 74.00                 | -21.12          | peak           |
| 2 *              | 2483.5                            | 00     | 7.17              | 31.48                                 | 38.65   | 54.00                 | -15.35          | AVG            |
|                  |                                   |        |                   |                                       |   |                       |                 |                |

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#### Remarks:



| Ant. Pol.           | Ve                 | ertical                                  |                     |                          |                   |                 |             |
|---------------------|--------------------|--|---------------------|--------------------------|-------------------|-----------------|-------------|
| Test Mode:          | : π/               | 4-DQPSK Mod                              | de 2480MH           | Z                        |                   |                 |             |
| 100.0 dBuV/m        | 1                  |  |                     |                          |                   |                 |             |
| 90                  |                    |  |                     |                          |                   |                 |             |
| 80                  |                    |  |                     |                          | FCC Part15        | C - Above 1     | G PK        |
| 70                  |                    |  |                     |                          |                   |                 |             |
| 60                  |                    |  |                     |                          | FCC Part15        | C - Above 1     | G AV        |
| 50                  |                    |  |                     |                          |                   |                 |             |
| 40                  | handnorman         | when have a marked and the second second | and the solution of | and an and an and an and | www.www.www.      | and and and and | www.whereas |
| 30                  |                    |  |                     |                          |                   |                 |             |
| 20                  |                    |  |                     |                          |                   |                 |             |
| 10                  |                    |  |                     |                          |                   |                 |             |
| 0.0<br>2477.000 248 | 87.00 2497.0       | 00 2507.00 251                           | 17.00 (MHz)         | 2537.00 2                | 547.00 2557.      | 00 2567.0       | 0 2577.00   |
| 1                   |                    |  |                     |                          |                   |                 |             |
| No. F               | Frequency<br>(MHz) | (dBuV)                                   | Factor<br>(dB/m)    | Level<br>(dBuV/m)        | Limit<br>(dBuV/m) | Margin<br>(dB)  | Detector    |
| 1                   | 2483.500           | 21.35                                    | 31.48               | 52.83                    | 74.00             | -21.17          | peak        |
| 2 *                 | 2483.500           | 7.32                                     | 31.48               | 38.80                    | 54.00             | -15.20          | AVG         |
|                     |                    |  |                     |                          |                   |                 |             |

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#### Remarks:



| Ant.       | Pol.          |   | Horiz  | zonta      | al            |             |         |                             |             |              |                    |                    |                   |          |
|------------|---------------|---|--------|------------|---------------|-------------|---------|-----------------------------|-------------|--------------|--------------------|--------------------|-------------------|----------|
| Test       | t Mod         | le:   | 8-DF   | PSK        | Mode 2        | 402M        | Hz      |                             |             |              |                    |                    |                   |          |
| 110.(<br>[ | ) dBu'        | √/m   |        |            |               |             |         |                             |             |              |                    |                    |                   | 1        |
| 100        |               |   |        |            |               |             |         |                             |             |              |                    |                    | ٨                 | _        |
| 90         |               |   |        |            |               |             |         |                             |             |              |                    |                    | -                 | -        |
| 80         |               |   |        |            |               |             |         |                             |             | FCCI         | Part15             | C - Above          | 1G PK             | -        |
| 70         |               |   |        |            |               |             |         |                             |             |              |                    |                    |                   | -        |
| 60         |               |   |        |            |               |             |         |                             |             |              |                    |                    |                   |          |
| 50         |               |   |        |            |               |             |         |                             |             | FCC          | <sup>o</sup> art15 | C -1Above<br>X     | 1G AV             | -        |
|            |               |   |        |            |               |             |         |                             |             |              |                    | 2                  |                   |          |
| 40         | wheeler after | more an and the second s | Warnan | ka, wanaki | web represent | throughout  | ndinumi | \~\$\$\$\$\$***\$\$\$\$\$\$ | whenter     | nerhelenser  | www.               | Anno Seathanna ann | <sup>11</sup> 464 | 1        |
| 30         |               |   |        |            |               |             |         |                             |             |              |                    |                    |                   | -        |
| 20         |               |   |        |            |               |             |         |                             |             | _            |                    |                    |                   | -        |
| 10.0<br>23 | 05.300        | 2315.30 2   | 325.30 | 233        | 35.30 23      | 345.30      | (MHz)   | 236                         | 5.30        | 2375.30      | 2385               | .30 2395           | .30 24            | 05.30    |
| 1          |               |   |        |            |               |             |         |                             |             |              |                    |                    |                   |          |
| N          | lo.           | Freque<br>(MHz  |        |            | ading<br>BuV) | Fac<br>(dB/ |         |                             | vel<br>V/m) | Lim<br>(dBu\ |                    | Margin<br>(dB)     | Detec             | tor      |
|            | 1             | 2390.0  | 00     | 2          | 1.58          | 31.         | 31      | 52                          | .89         | 74.0         | 00                 | -21.11             | pea               | k        |
| 2          | 2 *           | 2390.0  | 00     | 7          | 7.43          | 31.         | 31      | 38                          | .74         | 54.0         | 00                 | -15.26             | AV                | G        |
|            |               |   |        |            |               |             |         |                             |             |              |                    |                    | -                 | <u> </u> |
| 1.Fa       |               | :<br>(dB/m) = /   |        |            | •             | dB/m)+      | Cable   | e Fact                      | tor (dE     | s)-Pre-a     | ampli              | fier Fact          | or                |          |

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2.Margin value = Level -Limit value



| 16.00 |
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| nt. Po  | l.             | Hori               | zontal                                    |                                    |                         |                                 |                       |            |
|---------|----------------|--------------------|---|------------------------------------|-------------------------|---------------------------------|-----------------------|------------|
| est Mo  | de:            | 8-DF               | PSK Mode 2                                | 480MHz                             |                         |                                 |                       |            |
| 10.0 dB | ıV/m           |                    | 1   |                                    |                         |                                 | 1                     |            |
|         |                |                    |   |                                    |                         |                                 |                       |            |
| 00      |                |                    |   |                                    |                         |                                 |                       |            |
| 0       |                |                    |   |                                    |                         |                                 |                       |            |
| o       |                |                    |   |                                    |                         | 500 D                           | 0 41 1                |            |
| o 🕂     |                |                    |   |                                    |                         | FCC Part15                      | C - Above 1           | GPK        |
|         |                |                    |   |                                    |                         |                                 |                       |            |
| 0       | 1              |                    |   |                                    |                         | FCC Part15                      | C - Above 1           | GAV        |
| 0       | ×              |                    |   |                                    |                         |                                 |                       |            |
|         | 2 Antrantin    | Mar town           | under the state of the state of the state | June And the Difference of the     | and the ward            | and a substantian Alexan        | And the second second | - Loughand |
|         |                | and and a second . | Minde Children and a surfa                | energy is an average of the second | and and advantages on a | alandrooffing in addit you is a | and and also been     | (Co. C     |
| 0       |                |                    |   |                                    |                         |                                 |                       |            |
| :0      |                |                    |   |                                    |                         |                                 |                       |            |
| 0.0     | 0 2487.00      | 2497.00            | 2507.00 25                                | 17.00 (MHz)                        | 2537.00                 | 2547.00 2557.                   | .00 2567.             | 00 2577.0  |
|         |                |                    |   |                                    |                         |                                 |                       |            |
| No.     | Freque<br>(MHz |                    | Reading<br>(dBuV)                         | Factor<br>(dB/m)                   | Level<br>(dBuV/m)       | Limit<br>(dBuV/m)               | Margin<br>(dB)        | Detector   |
| 1       | 2483.5         | 00                 | 20.96                                     | 31.48                              | 52.44                   | 74.00                           | -21.56                | peak       |
| 2 *     | 2483.5         | 00                 | 7.89                                      | 31.48                              | 39.37                   | 54.00                           | -14.63                | AVG        |
|         |                |                    |   |                                    |                         |                                 |                       |            |



| Ant  | . Pol       | •              |       | Verti | cal        |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
|------|-------------|----------------|-------|-------|------------|----------------|-------|-------------------|------|----------------|---|--|--------|--|---------|------------------------|---------|------------|------|
| Tes  | t Mo        | de:            |       | 8-DF  | PSK        | Mod            | le 2  | 480N              | /Hz  |                |   |  |        |  |         |                        |         |            |      |
| 100. | 0 dBu       | V/m            |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 90   | Λ           |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 80   | $\square$   |                |       |       |            |                |       |                   |      |                |   |  | F      | CC Pr                                  | urt15   | C - Above              | e 1G    | РК         |      |
| 70   |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
|      |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 60   |             | Ļ              |       |       |            |                |       |                   |      |                |   |  | F      | CC Pa                                  | urt15   | C - Abov               | e 1G    | AV         |      |
| 50   |             | <              |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 40   |             | ,              |       |       |            |                |       |                   | _    |                |   |  |        |  |         | low, for high when for |         | .          |      |
| 40   | <i>ч</i> қ  | a which we are | white | www.  | Maral Mara | and a star and | moury | - and a share the | way  | and the second | 17 <sup>10</sup> 1111111111111111111111111111111111 | And the second | n Alma | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | s-small | low, for fight when    | urnethe | weilingten |      |
| 30   |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 20   |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 10   |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
| 0.0  |             |                |       |       |            |                |       |                   |      |                |   |  |        |  |         |                        |         |            |      |
|      | 177.000     | 2487.          | 00 24 | 97.00 | 250        | 7.00           | 25    | 17.00             | (MI  | tz)            | 253   | 7.00   | 2547   | .00                                    | 2557    | .00 256                | 67.00   | 257        | 7.00 |
|      |             | Fre            | quen  | CV    | Re         | adin           |       | Fa                | cto  |                |   | vel  |        | Limi                                   | +       | Margi                  | n       |            |      |
| N    | <b>l</b> o. |                | MHz)  |       |            | BuV            | -     |                   | 8/m) |                |   | vei<br>iV/m)   |        |  |         |                        |         | Detect     | or   |
|      | 1           | 24             | 83.50 | 0     | 2          | 2.17           | '     | 31                | .48  |                | 53  | .65  |        | 74.0                                   | D       | -20.3                  | 5       | peal       | <    |
| 2    | 2 *         | 24             | 83.50 | 0     | 6          | 6.67           |       | 31                | .48  |                | 38  | .15  | ł      | 54.0                                   | 0       | -15.8                  | 5       | AVG        | 3    |
|      | 1           |                |       |       |            |                |       |                   |      | 1              |   |  |        |  |         |                        |         |            | (    |

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Remarks:

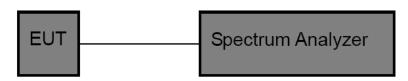


# 3.4. Band edge and Spurious Emissions (Conducted)

# <u>Limit</u>

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

## Test Configuration



## Test Procedure

- 1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
- 2. Set to the maximum power setting and enable the EUT transmit continuously
- 3. Use the following spectrum analyzer settings: RBW = 100 kHz, VBW ≥ RBW, scan up through 10<sup>th</sup> harmonic.
- Sweep = auto, Detector function = peak, Trace = max hold
- 4. Measure and record the results in the test report.

## Test Mode

Please refer to the clause 2.4.

#### **Test Results**

#### (1) Band edge Conducted Test

| Test Mode | Frequency[MHz] | Ref Level[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|-----------|----------------|----------------|-------------|------------|---------|
|           | 2402           | 10.73          | -55.22      | ≤-9.28     | PASS    |
| GFSK      | 2480           | 10.43          | -55.66      | ≤-9.57     | PASS    |
| Gran      | Hop_2402       | 10.28          | -56.86      | ≤-9.73     | PASS    |
|           | Hop_2480       | 10.47          | -57.15      | ≤-9.53     | PASS    |
|           | 2402           | 10.59          | -42.50      | ≤-9.41     | PASS    |
|           | 2480           | 10.29          | -56.40      | ≤-9.71     | PASS    |
| π/4-DQPSK | Hop_2402       | 7.17           | -46.91      | ≤-12.83    | PASS    |
|           | Hop_2480       | 5.24           | -57.28      | ≤-14.76    | PASS    |
|           | 2402           | 10.90          | -43.06      | ≤-9.10     | PASS    |
| 8-DPSK    | 2480           | 9.69           | -55.93      | ≤-10.32    | PASS    |
| 0-DF3N    | Hop_2402       | 6.59           | -43.79      | ≤-13.41    | PASS    |
|           | Hop_2480       | 9.40           | -57.31      | ≤-10.60    | PASS    |





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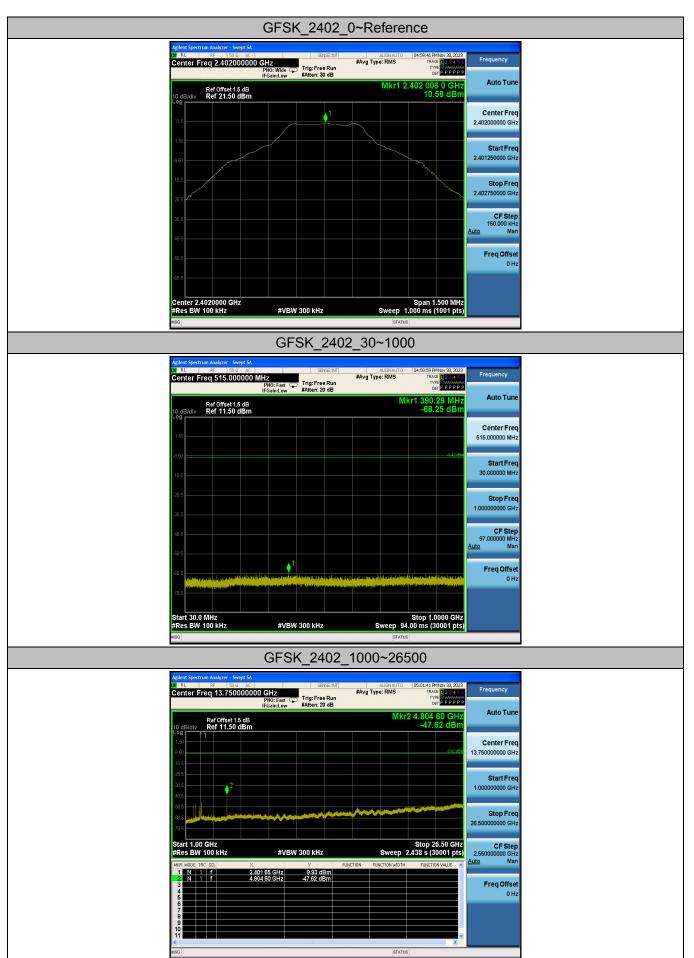




(2) Conducted Spurious Emissions Test

| Test Mode  | Freq(MHz)         | Freq Range<br>[MHz] | Ref Level<br>[dBm] | Result<br>[dBm] | Limit<br>[dBm] | Verdict |
|------------|-------------------|---------------------|--------------------|-----------------|----------------|---------|
|            |                   | Reference           | 10.58              | 10.58           |                | PASS    |
|            | 2402              | 30~1000             | 10.58              | -68.25          | ≤-9.42         | PASS    |
|            | 2402              | 1000~6000           | 10.58              | -47.62          | ≤-9.42         | PASS    |
|            |                   | 6000~26500          | 10.75              | 10.75           |                | PASS    |
|            |                   | Reference           | 10.75              | -68.37          | ≤-9.25         | PASS    |
| GFSK       | 2441              | 30~1000             | 10.75              | -42.19          | ≤-9.25         | PASS    |
| GFSK       | 2441              | 1000~6000           | 10.19              | 10.19           |                | PASS    |
|            |                   | 6000~26500          | 10.19              | -68.07          | ≤-9.81         | PASS    |
|            |                   | Reference           | 10.19              | -51.33          | ≤-9.81         | PASS    |
|            | 2490              | 30~1000             | 10.72              | 10.72           |                | PASS    |
|            | 2480              | 1000~6000           | 10.72              | -67.49          | ≤-9.28         | PASS    |
|            |                   | 6000~26500          | 10.72              | -45.05          | ≤-9.28         | PASS    |
|            |                   | Reference           | 10.55              | 10.55           |                | PASS    |
|            | 2402              | 30~1000             | 10.55              | -67.56          | ≤-9.45         | PASS    |
|            | 2402              | 1000~6000           | 10.55              | -50.43          | ≤-9.45         | PASS    |
|            |                   | 6000~26500          | 10.10              | 10.10           |                | PASS    |
|            |                   | Reference           | 10.10              | -68.35          | ≤-9.9          | PASS    |
| π/4-DQPSK  | 2441              | 30~1000             | 10.10              | -51.52          | ≤-9.9          | PASS    |
| 11/4-DQF3K | 2441              | 1000~6000           | 10.68              | 10.68           |                | PASS    |
|            |                   | 6000~26500          | 10.68              | -68.3           | ≤-9.32         | PASS    |
|            |                   | Reference           | 10.68              | -49.96          | ≤-9.32         | PASS    |
|            | 2480              | 30~1000             | 10.43              | 10.43           |                | PASS    |
|            | 2400              | 1000~6000           | 10.43              | -67.87          | ≤-9.57         | PASS    |
|            |                   | 6000~26500          | 10.43              | -48.36          | ≤-9.57         | PASS    |
|            |                   | Reference           | 9.89               | 9.89            |                | PASS    |
|            | 2402              | 30~1000             | 9.89               | -68.53          | ≤-10.11        | PASS    |
|            | 2402              | 1000~6000           | 9.89               | -54.49          | ≤-10.11        | PASS    |
|            |                   | 6000~26500          | 10.58              | 10.58           |                | PASS    |
|            |                   | Reference           | 10.58              | -68.25          | ≤-9.42         | PASS    |
| 8-DPSK     | 2441              | 30~1000             | 10.58              | -47.62          | ≤-9.42         | PASS    |
| 0-0530     | 2441              | 1000~6000           | 10.75              | 10.75           |                | PASS    |
|            |                   | 6000~26500          | 10.75              | -68.37          | ≤-9.25         | PASS    |
|            |                   | Reference           | 10.75              | -42.19          | ≤-9.25         | PASS    |
|            | 2480              | 30~1000             | 10.19              | 10.19           |                | PASS    |
|            | 2 <del>4</del> 00 | 1000~6000           | 10.19              | -68.07          | ≤-9.81         | PASS    |
|            |                   | 6000~26500          | 10.19              | -51.33          | ≤-9.81         | PASS    |

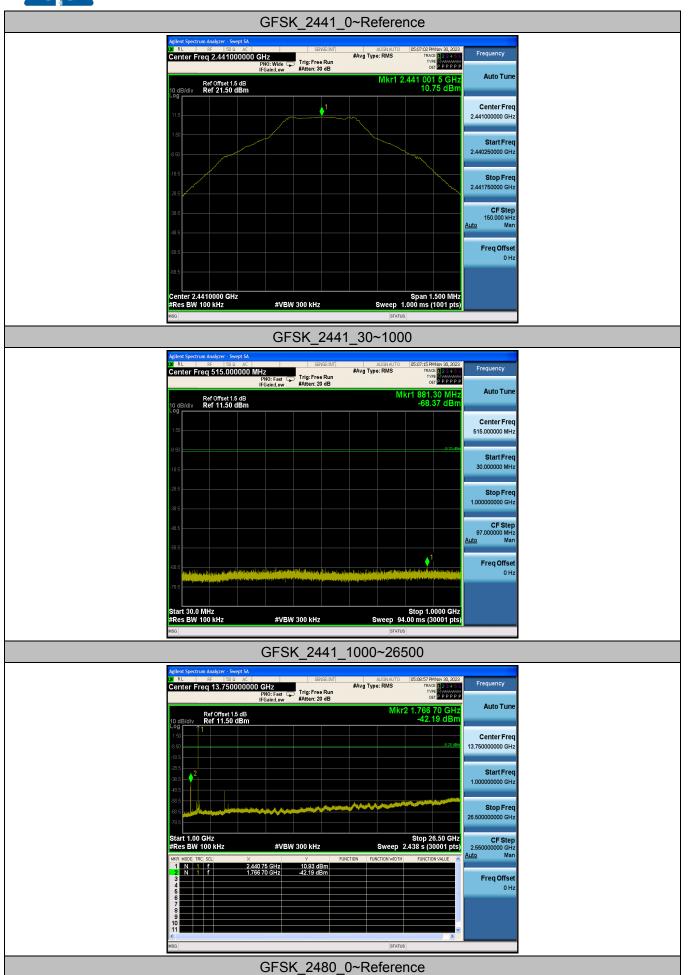






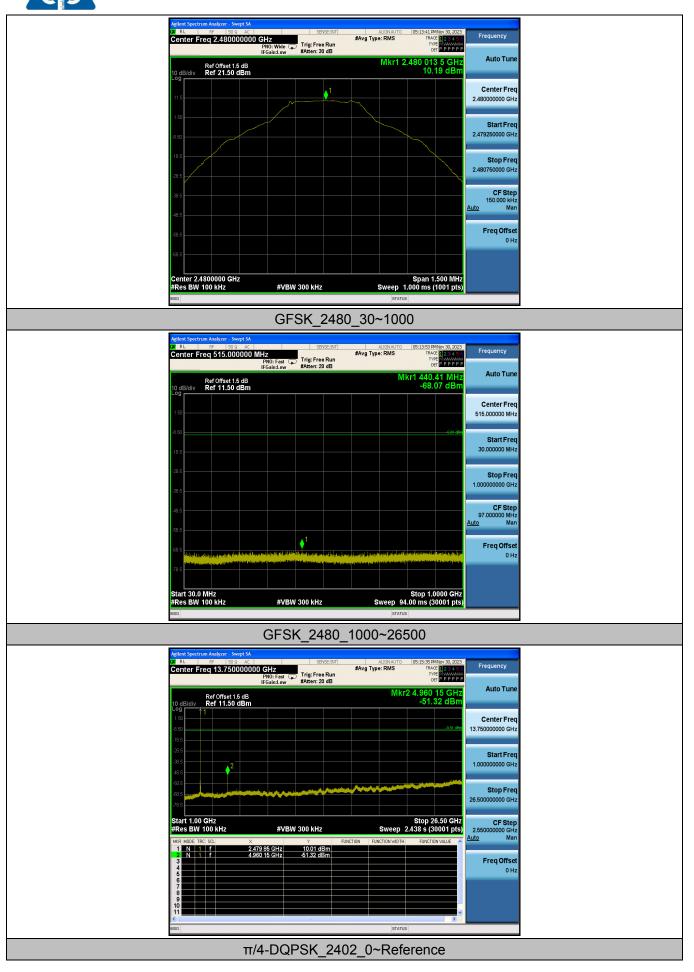
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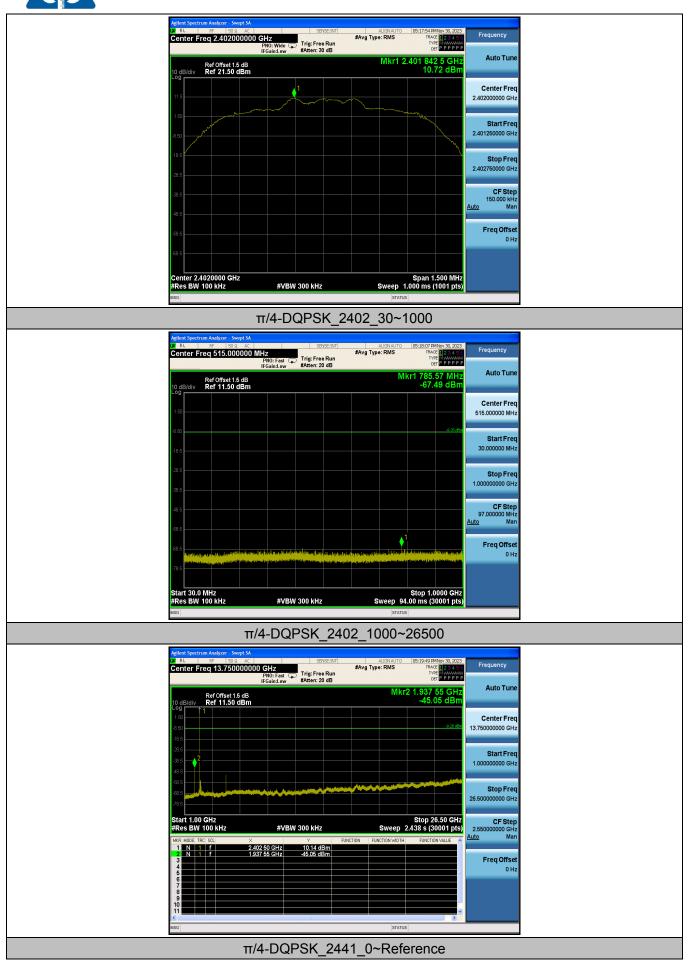


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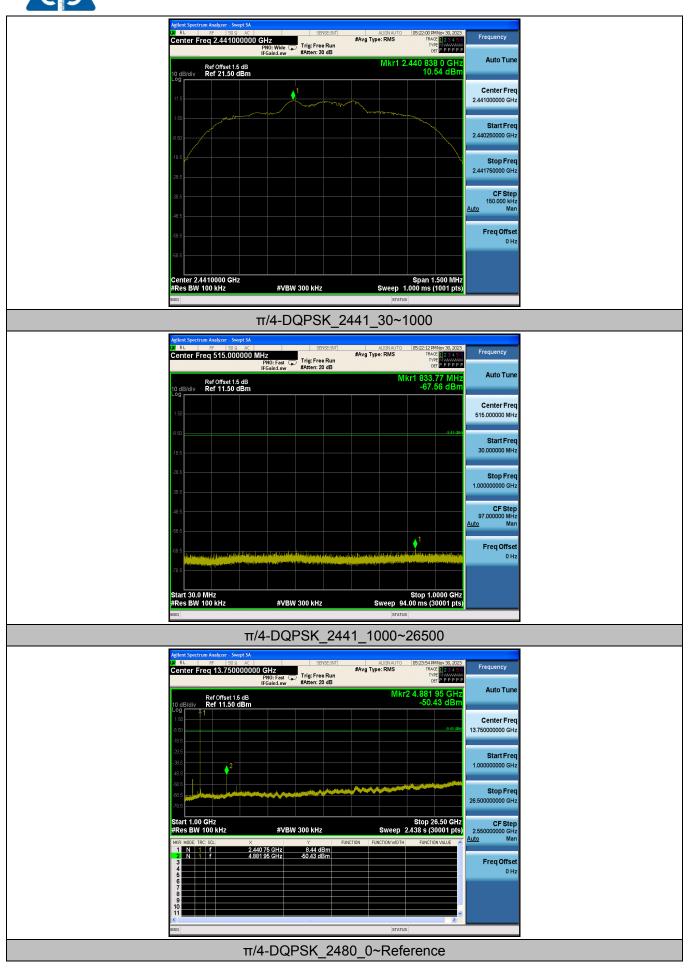




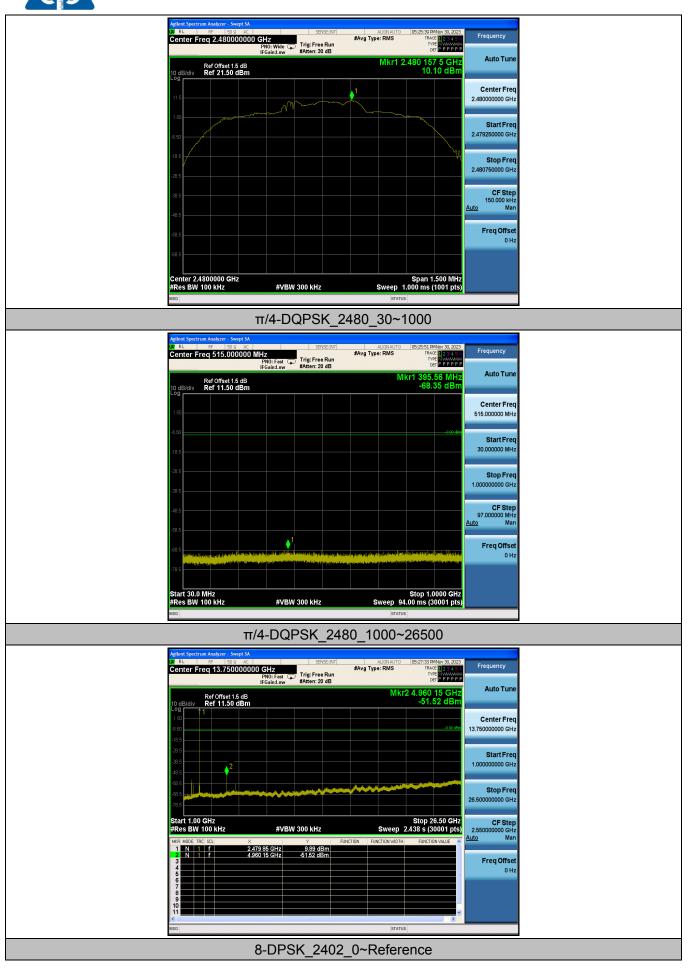






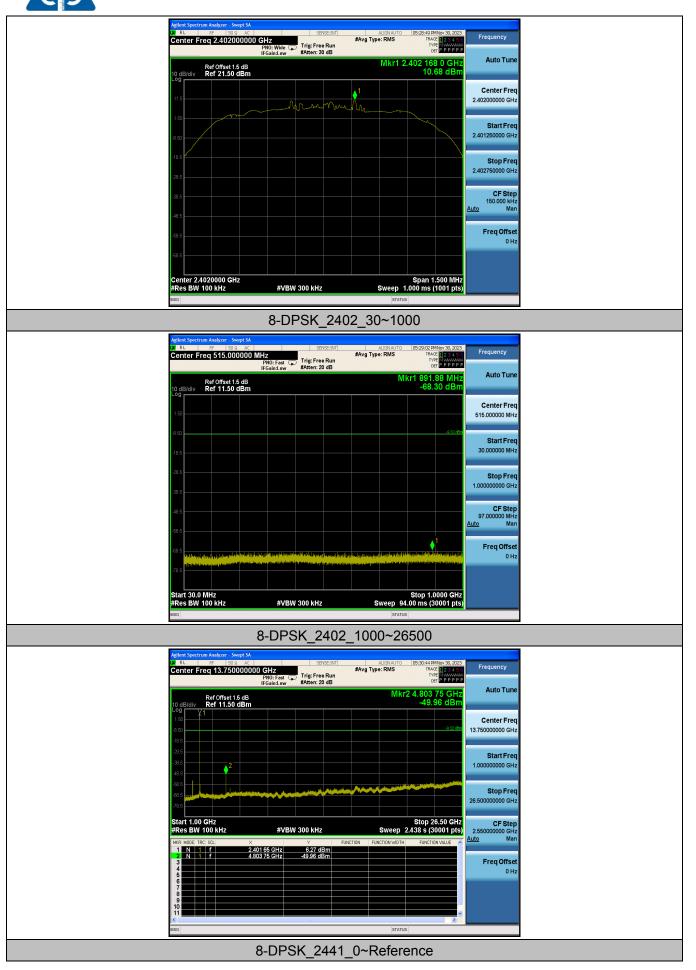






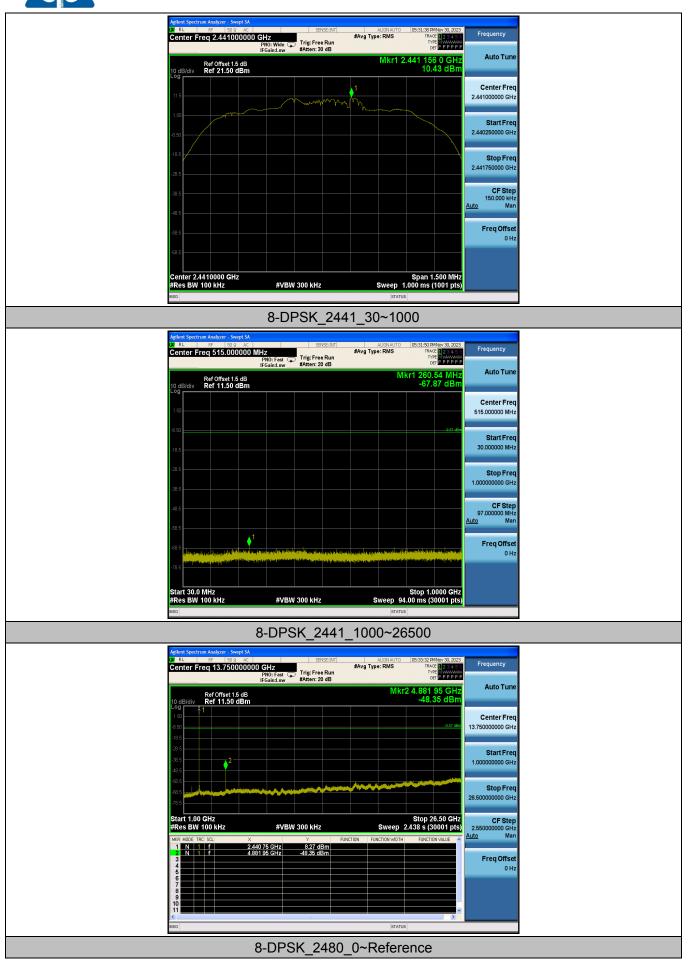








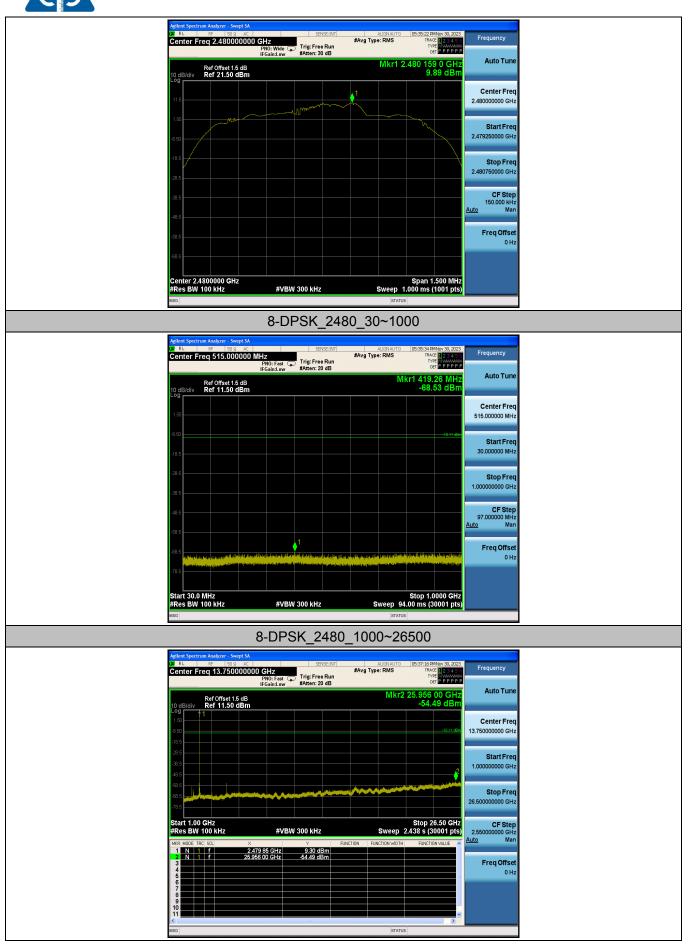








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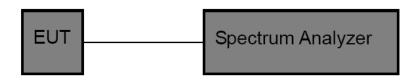


# 3.5. 20DB Bandwidth

<u>Limit</u>

N/A

# Test Configuration



## Test Procedure

- 5. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 6. OCB and 20dB Spectrum Setting:
  - (1) Set RBW =  $1\% \sim 5\%$  occupied bandwidth.
  - (2) Set the video bandwidth (VBW)  $\geq$  3 RBW.
  - (3) Detector = Peak.
  - (4) Trace mode = Max hold.
  - (5) Sweep = Auto couple.

Note: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

## Test Mode

Please refer to the clause 2.4.

## Test Results

| Test Mode | Frequency[MHz] | 20db EBW[MHz] | 20dB Bandwidth *2/3<br>(kHz) | Verdict |
|-----------|----------------|---------------|------------------------------|---------|
|           | 2402           | 0.924         | 616                          | PASS    |
| GFSK      | 2441           | 0.909         | 606                          | PASS    |
|           | 2480           | 0.849         | 566                          | PASS    |
|           | 2402           | 1.281         | 854                          | PASS    |
| π/4-DQPSK | 2441           | 1.275         | 850                          | PASS    |
|           | 2480           | 1.275         | 850                          | PASS    |
|           | 2402           | 1.305         | 870                          | PASS    |
| 8-DPSK    | 2441           | 1.275         | 850                          | PASS    |
|           | 2480           | 1.296         | 864                          | PASS    |







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# 8-DPSK\_2402

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# 3.6. Channel Separation

<u>Limit</u>

# FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1)/ RSS-247 5.1 b :

| Test Item          | Limit  | Frequency Range(MHz) |
|--------------------|--|----------------------|
| Channel Separation | >25KHz or >two-thirds of the 20<br>dB bandwidth Which is greater | 2400~2483.5          |

# Test Configuration

| EUT | Spectrum Analyzer |
|-----|-------------------|
|     |                   |

# Test Procedure

7. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

8. Spectrum Setting:

(1) Set RBW = Set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth,

whichever is smaller.

- (2) Set the video bandwidth (VBW)  $\ge$  3 RBW.
- (3) Detector = Peak.
- (4) Trace mode = Max hold.
- (5) Sweep = Auto couple.

## Test Mode

Please refer to the clause 2.4.

## Test Results

| Test Mode | Frequency[MHz] | Result[MHz] | Limit[kHz] | Verdict |
|-----------|----------------|-------------|------------|---------|
| GFSK      | Hop_2441       | 1.018       | >606       | PASS    |
| π/4-DQPSK | Hop_2441       | 1.322       | >850       | PASS    |
| 8-DPSK    | Hop_2441       | 1.008       | >850       | PASS    |



| GFSK_Hop_2441 |  |   |                             |   |   |  |  |  |
|---------------|--|---|-----------------------------|---|---|--|--|--|
|               |  | HZ<br>PNO: Fast<br>Gain:Low #Atten: 40 dB | #Avg Type: RMS              | 05:40:17 PMNov 30, 2023<br>TRACE 1 2 3 4 5 6<br>TYPE MAXWANN<br>DET P P P P P | Frequency<br>Auto Tune                                  |  |  |  |
|               | Ref Offset 1.5 dB<br>10 dB/div Ref 30.00 dBm<br>20.0   |   |                             | r2 1.018 MHz<br>-0.01 dB  | Center Freq<br>2.441500000 GHz                          |  |  |  |
|               | 100  |   | 2Δ1                         |   | <b>Start Freq</b><br>2.440500000 GHz                    |  |  |  |
|               | -10.0  |   |                             |   | Stop Freq<br>2.442500000 GHz                            |  |  |  |
|               | -40.0  |   |                             | A   | CF Step<br>200.000 KHz<br><u>ito</u> Man<br>Freq Offset |  |  |  |
|               | 5000   |   | Sto                         | p 2.442500 GHz  | 0 Hz  |  |  |  |
|               | #Res BW 300 kHz  | #VBW 300 kHz<br>π/4-DQPSK_                | Sweep 1.00                  | 00 ms (1001 pts)  |   |  |  |  |
|               | Agilent Spectrum Analyzer - Swept SA<br>Dr. RL BERGER - S0 G AC<br>Center Freq 2.441500000 G |   |                             | 05:48:37 PMNov 30, 2023<br>TRACE 2 2 4 5 1<br>TYPE<br>DET P.P.P.P.P           | Frequency   |  |  |  |
|               | Ref Offset 1.5 dB<br>10 dB/div Ref 30.00 dBm   | Gain:Low #Atten: 40 dB                    |                             | r2 1.322 MHz<br>0.08 dB   | Auto Tune<br>Center Freg                                |  |  |  |
|               | 200<br>100   |   | present i                   | 2 <u>0</u> 1  | 2.441500000 GHz<br>Start Freq                           |  |  |  |
|               | .10.0  |   |                             |   | 2.440500000 GHz<br>Stop Freq<br>2.442500000 GHz         |  |  |  |
|               | -200   |   |                             | A   | CF Step<br>200.000 kHz<br><u>tto</u> Man                |  |  |  |
|               | -50.0  |   |                             |   | Freq Offset<br>0 Hz                                     |  |  |  |
|               |  |   |                             |   |   |  |  |  |
|               | Start 2.440500 GHz<br>#Res BW 300 kHz  | #VBW 300 kHz                              | Sto<br>Sweep 1.00<br>STATUS | p 2.442500 GHz<br>00 ms (1001 pts)  |   |  |  |  |



| LXI RL       | Im Analyzer - Swept SA<br>RF 50 Ω AC<br>eq 2.441500000 C | DNO East C Tri | SENSE:INT<br>g: Free Run<br>ten: 40 dB | ALD<br>#Avg Type: F     | RMS      | 05:55:29 PMNov 30, 20<br>TRACE 1 2 3 4<br>TYPE MWWW<br>DET P P P P | Frequency                                 |
|--------------|--|----------------|--|-------------------------|----------|--|---|
| 10 dB/div    | Ref Offset 1.5 dB<br>Ref 30.00 dBm                       |                |  |                         | ΔM       | kr2 1.008 MH<br>0.06 d   | Z Auto Tune<br>B                          |
| 20.0         |  |                |  |                         |          | ▲2∆1   | Center Freq<br>2.441500000 GHz            |
| 10.0 <b></b> |  |                | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | مىرائىل ك <sup>ىر</sup> |          |  | Start Freq<br>2.440500000 GHz             |
| -10.0        |  |                |  |                         |          |  | <b>Stop Freq</b><br>2.442500000 GHz       |
| -30.0        |  |                |  |                         |          |  | CF Step<br>200.000 kHz<br><u>Auto</u> Man |
| -50.0        |  |                |  |                         |          |  | Freq Offset<br>0 Hz                       |
| Start 2.440  | 0500 CH7   |                |  |                         |          | top 2 442500 G   |   |
| #Res BW      | 300 kHz  | #VBW 300       | kHz                                    | Sv                      | veep 1.0 | top 2.442500 Gl<br>000 ms (1001 p                                  | s)  |



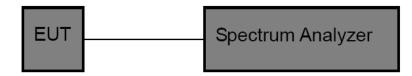
# 3.7. Number of Hopping Channel

## <u>Limit</u>

## FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(iii)/ RSS-247 5.1 d:

| Section                         | Test Item                 | Limit |
|---------------------------------|---------------------------|-------|
| 15.247 (a)(iii)/ RSS-247 5.1 d: | Number of Hopping Channel | >15   |

## **Test Configuration**



### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

- 2. Spectrum Setting:
  - (1) Peak Detector: RBW=100 kHz, VBW≥RBW, Sweep time= Auto.

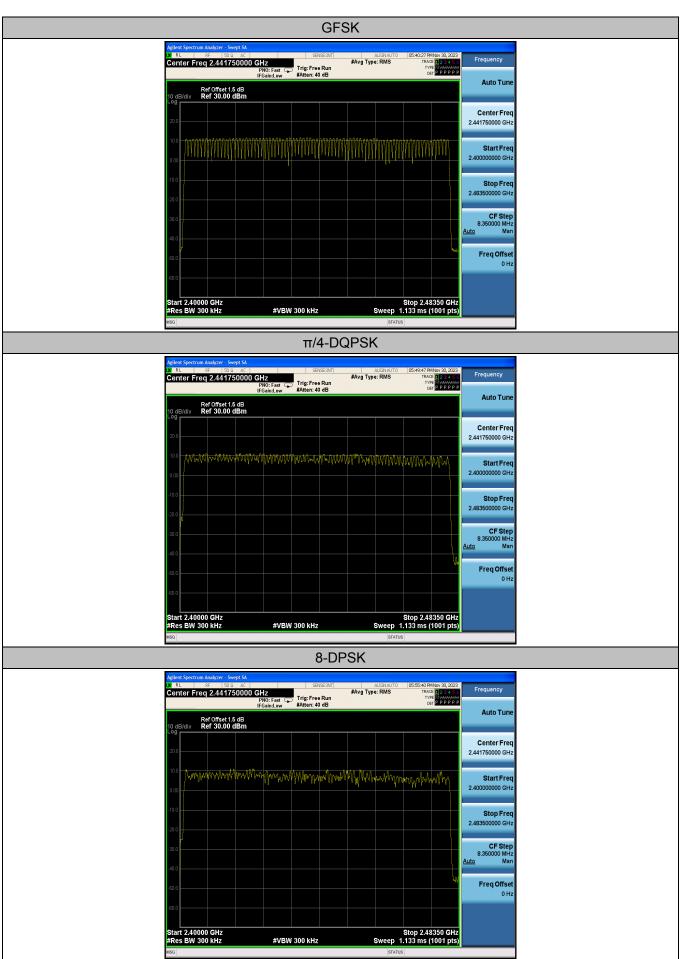
## <u>Test Mode</u>

Please refer to the clause 2.4.

#### Test Result

| Test Mode | Freq(MHz) | Result[Num] | Limit[Num] | Verdict |
|-----------|-----------|-------------|------------|---------|
| GFSK      | Нор       | 79          | ≥15        | PASS    |
| π/4-DQPSK | Нор       | 79          | ≥15        | PASS    |
| 8-DPSK    | Нор       | 79          | ≥15        | PASS    |







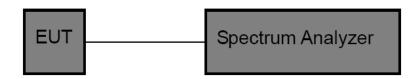


## 3.8. Dwell Time

<u>Limit</u>

| Section                       | Test Item                 | Limit   |
|-------------------------------|---------------------------|---------|
| 15.247(a)(iii)/ RSS-247 5.1 d | Average Time of Occupancy | 0.4 sec |

## Test Configuration



### Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. Spectrum Setting:
  - (1) Spectrum Setting: RBW=1MHz, VBW≥RBW.
  - (2) Use video trigger with the trigger level set to enable triggering only on full pulses.
  - (3) Sweep Time is more than once pulse time.
- (4) Set the center frequency on any frequency would be measure and set the frequency span to zero.
  - (5) Measure the maximum time duration of one single pulse.
  - (6) Set the EUT for packet transmitting.

#### Test Mode

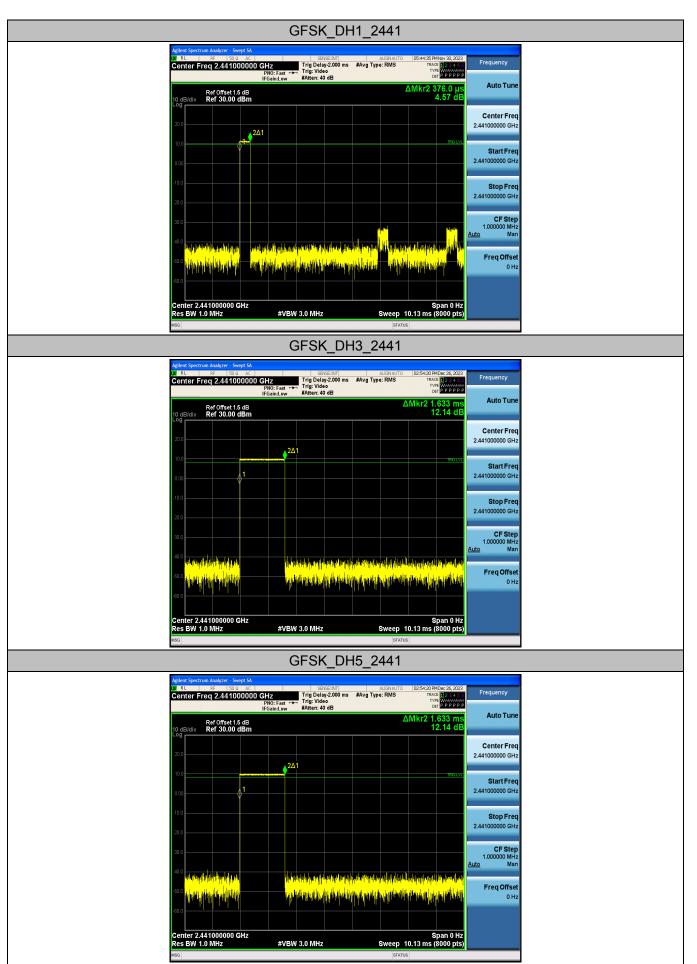
Please refer to the clause 2.4.



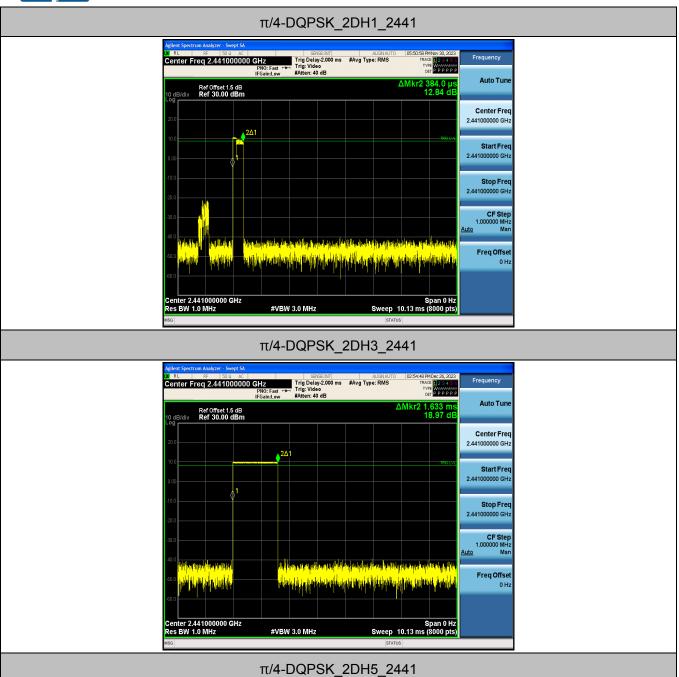
### <u>Test Result</u>

| Modulation<br>type | Channel | Frequency<br>[MHz] | Pulse Time<br>(ms) | Total of<br>Dwell (ms) | Period Time<br>(ms) | Limit<br>(Second) | Result |
|--------------------|---------|--------------------|--------------------|------------------------|---------------------|-------------------|--------|
|                    | DH1     | 2441               | 0.376              | 120.320                | 31.60               |                   |        |
| GFSK               | DH3     | 2441               | 1.633              | 261.280                | 31.60               | ≤ 0.40            | Pass   |
|                    | DH5     | 2441               | 2.880              | 307.200                | 31.60               |                   |        |
|                    | 2DH1    | 2441               | 0.384              | 122.880                | 31.60               |                   |        |
| π/4-DQPSK          | 2DH3    | 2441               | 1.633              | 261.280                | 31.60               | ≤ 0.40            | Pass   |
|                    | 2DH5    | 2441               | 2.883              | 307.520                | 31.60               |                   |        |
|                    | 3DH1    | 2441               | 0.385              | 123.200                | 31.60               |                   |        |
| 8-DPSK             | 3DH3    | 2441               | 1.635              | 261.600                | 31.60               | ≤ 0.40            | Pass   |
|                    | 3DH5    | 2441               | 2.887              | 307.947                | 31.60               |                   |        |

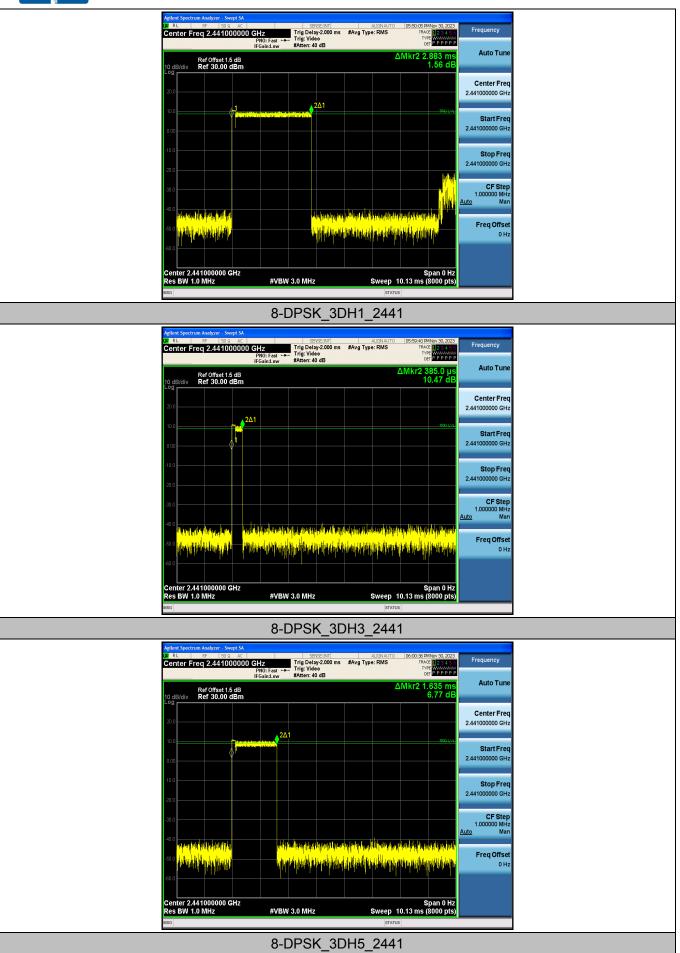
Note: 1DH1/2DH1/3DH1Total of Dwell= Pulse Time\*(1600/2)\*31.6/79 1DH3/2DH3/3DH3 Total of Dwell= Pulse Time\*(1600/4)\*31.6/79 1DH5/2DH5/3DH5 Total of Dwell= Pulse Time\*(1600/6)\*31.6/79















| LXI RL           | rum Analyzer - Swept SA<br>RF 50 Ω AC | SEN   | SE:INT                      | ALIGNAUTO               | 05:55:57 PMNo                  | w 30, 2023                                     | Frequency                     |
|------------------|---------------------------------------|---|-----------------------------|-------------------------|--------------------------------|--|-------------------------------|
| Center F         | req 2.441000000 G                     | Hz Trig Delay<br>PNO: Fast ↔ Trig: Vide<br>FGain:Low #Atten: 40 | /-2.000 ms #Avg⊺<br>o<br>dB | ype: RMS                | TRACE TYPE                     | 23456<br>V//////////////////////////////////// | Frequency                     |
|                  |                                       | Gam.cow written. 40   | 40                          | Δ                       | Mkr2 2.88                      | 87 ms  | Auto Tune                     |
| 10 dB/div<br>Log | Ref Offset 1.5 dB<br>Ref 30.00 dBm    |   |                             |                         | 12.3                           | 58 dB  |                               |
|                  |                                       |   |                             |                         |                                |  | Center Freq                   |
| 20.0             |                                       |   | Δ1                          |                         |                                |  | 2.441000000 GHz               |
| 10.0             |                                       |   |                             |                         |                                | TRIOLVL  | Otaut Europ                   |
| 0.00             |                                       |   |                             |                         |                                |  | Start Freq<br>2.441000000 GHz |
| 0.00             | ¢'                                    |   |                             |                         |                                |  |                               |
| -10.0            |                                       |   |                             |                         |                                |  | Stop Freq                     |
| -20.0            |                                       |   |                             |                         |                                |  | 2.441000000 GHz               |
|                  |                                       |   |                             |                         |                                |  |                               |
| -30.0            |                                       |   |                             |                         |                                |  | CF Step<br>1.000000 MHz       |
| -40.0            |                                       |   |                             |                         |                                |  | <u>Auto</u> Man               |
| Man Ma           | <mark>Millin)Nudebr</mark>            |   |                             | <mark>na na mana</mark> | <mark>ha lana salahisak</mark> | <u>Ahiphin</u>                                 | Freq Offset                   |
| -50.0 18 19 1    | inder and the second                  |   | <u>A Angeli A Namp</u> al   | White intracit          | ek <mark>a kasima</mark> di K  | lydydini.                                      | 0 Hz                          |
| -60.0            | a or of who                           | 1   | and to re-                  |                         | . P. G. P.                     | 1.16   |                               |
|                  |                                       |   |                             |                         |                                |  |                               |
|                  | 441000000 GHz                         |   |                             |                         | Spa                            | in 0 Hz  |                               |
| Res BW 1         | I.U WHZ                               | #VBW 3.0 MHz  |                             |                         | 0.13 ms (80                    | ou pts)  |                               |
| MSG              |                                       |   |                             | STATUS                  |                                | _  |                               |



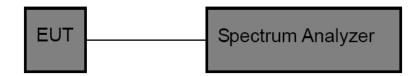
## 3.9. Peak Output Power

<u>Limit</u>

#### FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(1) / RSS-247 5.4 b:

| Test Item                              | Limit   | Frequency Range(MHz) |
|--|---|----------------------|
| Maximum Conducted Peak Output<br>Power | Hopping Channels>75 Pow-<br>er<1W(30dBm)<br>Other <125mW(21dBm) | 2400~2483.5          |
| E.I.R.P                                | 4 Watt or 36dBm   | 2400~2483.5          |

### **Test Configuration**



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

- 2. Spectrum Setting:
  - (1) Set RBW> 20DB Bandwidth.
  - (2) Set the video bandwidth (VBW)  $\ge$  RBW.
  - (3) Detector = Peak.
  - (4) Trace mode = Max hold.
  - (5) Sweep = Auto couple.

#### Test Mode

Please refer to the clause 2.4.

#### <u>Test Result</u>

| Test Mode | Frequency[MHz] | Result[dBm] | Limit[dBm] | Verdict |
|-----------|----------------|-------------|------------|---------|
|           | 2402           | 11.25       | <=30       | PASS    |
| GFSK      | 2441           | 11.46       | <=30       | PASS    |
|           | 2480           | 10.85       | <=30       | PASS    |
|           | 2402           | 11.30       | <=30       | PASS    |
| π/4-DQPSK | 2441           | 10.77       | <=30       | PASS    |
|           | 2480           | 10.04       | <=30       | PASS    |
|           | 2402           | 11.26       | <=30       | PASS    |
| 8-DPSK    | 2441           | 10.71       | <=30       | PASS    |
|           | 2480           | 10.04       | <=30       | PASS    |

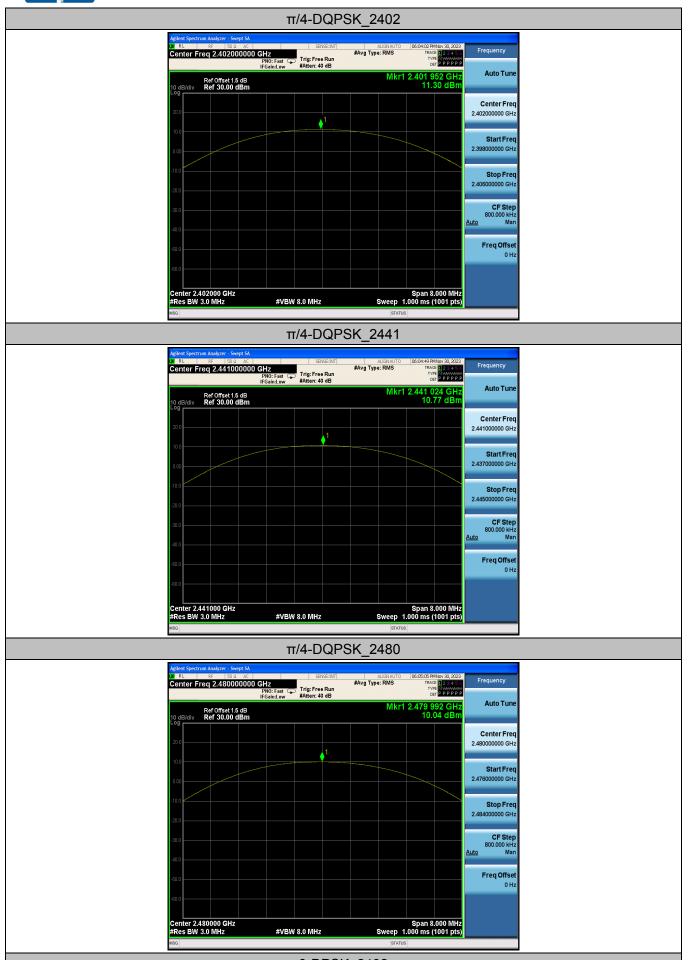


|   | OFOK  | 2402                        |  |                                      |  |
|---|---|-----------------------------|--|--------------------------------------|--|
|   | GFSK_   | 2402                        |  |                                      |  |
| Agilent Spectrum Analyzer - Swept SA<br>A RL RF 50 Q AC<br>Center Freq 2.402000000 GHz<br>PH0: Fas                | sense:init<br>Trig: Free Run<br># #Atten: 40 dB | ALIGNAUTO<br>#Avg Type: RMS | 06:01:50 PMNov 30, 2023<br>TRACE 1 2 3 4 5 6<br>TYPE MUNICIPAL P P P P P     | Frequency                            |  |
| Ref Offset 1.5 dB<br>10 dB/div Ref 30.00 dBm  | w #Atten: 40 dB                                 | Mkr1 :                      | 2.401 888 GHz<br>11.24 dBm   | Auto Tune                            |  |
| 20.0  |   |                             |  | Center Freq<br>2.402000000 GHz       |  |
| 10.0  |   |                             |  | Start Freq<br>2.398000000 GHz        |  |
| -10.0   |   |                             |  | Stop Freq                            |  |
| -20.0   |   |                             |  | 2.406000000 GHz<br>CF Step           |  |
| -40.0   |   |                             |  | 800.000 kHz<br><u>Auto</u> Man       |  |
| -50.0   |   |                             |  | Freq Offset<br>0 Hz                  |  |
| Center 2.402000 GHz   |   |                             | Span 8.000 MHz   |                                      |  |
|   | /BW 8.0 MHz                                     | Sweep 1.0<br>STATUS         | Span 8.000 MHz<br>000 ms (1001 pts)  |                                      |  |
| Agilent Spectrum Analyzer - Swept SA  | GFSK_   | 2441                        |  |                                      |  |
| Agnetic spectrum Analyzer - swept SA<br>Off RL RF 50 Ω AC<br>Center Freq 2.441000000 GHz<br>PR0: Fas<br>IFGain:Lo | sense:INT<br>Trig: Free Run<br>W #Atten: 40 dB  | ALIGNAUTO<br>#Avg Type: RMS | 06:03:02 PMNov 30, 2023<br>TRACE 1 2 3 4 5 6<br>TYPE MWWWWW<br>DET P P P P P | Frequency                            |  |
| Ref Offset 1.5 dB<br>10 dB/div Ref 30.00 dBm  |   | Mkr1 :                      | 2.441 040 GHz<br>11.46 dBm   | Auto Tune                            |  |
| 20.0  | 1   |                             |  | Center Freq<br>2.441000000 GHz       |  |
| 0.00  |   |                             |  | Start Freq<br>2.437000000 GHz        |  |
| -10.0   |   |                             |  | <b>Stop Freq</b><br>2.44500000 GHz   |  |
| -20.0   |   |                             |  | CF Step<br>800.000 kHz               |  |
| -40.0   |   |                             |  | <u>Auto</u> Man                      |  |
| -60.0   |   |                             |  | Freq Offset<br>0 Hz                  |  |
| Center 2.441000 GHz<br>#Res BW 3.0 MHz #\   | /BW 8.0 MHz                                     | Sweep 1.                    | Span 8.000 MHz<br>000 ms (1001 pts)  |                                      |  |
| MSG   |   | STATUS                      |  |                                      |  |
| Agilent Spectrum Analyzer - Swept SA  | GFSK_   |                             |  |                                      |  |
| Center Freq 2.480000000 GHz<br>PN0: Fas<br>IFGain:Lor   | sense:INT<br>Trig: Free Run<br># #Atten: 40 dB  | #Avg Type: RMS              | 06:03:39 PMNov 30, 2023<br>TRACE 1 2 3 4 5 6<br>TYPE MWWWW<br>DET P P P P P  | Frequency<br>Auto Tune               |  |
| Ref Offset 1.5 dB<br>10 dB/div Ref 30.00 dBm  |   | Mkr1                        | 2.479 920 GHz<br>10.85 dBm   |                                      |  |
| 20.0  | ↓ <sup>1</sup>                                  |                             |  | Center Freq<br>2.480000000 GHz       |  |
| 0.00  |   |                             |  | <b>Start Freq</b><br>2.476000000 GHz |  |
| -10.0   |   |                             |  | <b>Stop Freq</b><br>2.484000000 GHz  |  |
| -30.0   |   |                             |  | CF Step<br>800.000 kHz               |  |
| -40.0   |   |                             |  | <u>Auto</u> Man<br>Freq Offset       |  |
| -60.0   |   |                             |  | 0 Hz                                 |  |
| Center 2.480000 GHz<br>#Res BW 3.0 MHz #\   | VBW 8.0 MHz                                     |                             | Span 8.000 MHz<br>000 ms (1001 pts)  |                                      |  |
| MSG   |   | STATUS                      |  |                                      |  |



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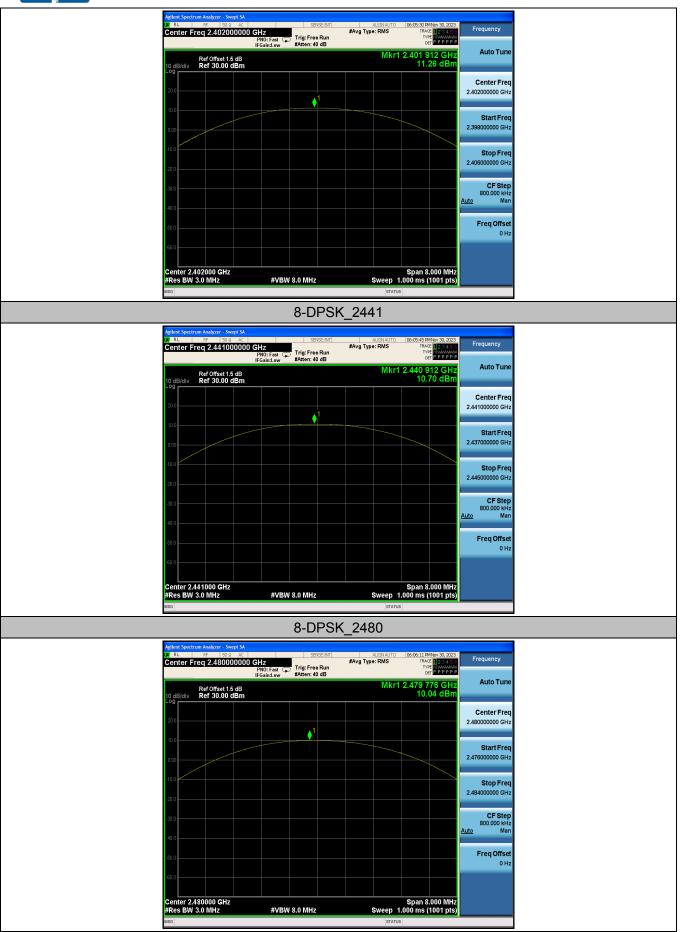
## 8-DPSK\_2402

CTC Laboratories, Inc.



EN





CTC Laboratories, Inc. 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China Tel.: (86)755-27521059 下at: (86)755-27521059 下at: (86)755-27521011 中国国家认证认可监督管理委员会 Fax: (86)755-27521011 Fax: (86)755-27521011 For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : <u>yz.cnca.cn</u>

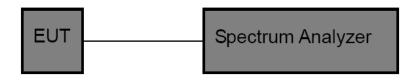


## 3.10. Duty Cycle

## Limit

None, for report purposes only.

## **Test Configuration**



#### **Test Procedure**

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.

Spectrum Setting: 3.

Set analyzer center frequency to test channel center frequency. Set the span to 0Hz Set the RBW to 10MHz Set the VBW to 10MHz Detector: Peak Sweep time: Auto

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

## Test Mode

Please refer to the clause 2.4.

## **Test Result**

| Test Mode | Frequency<br>[MHz] | Transmission<br>Duration<br>[ms] | Transmission<br>Period [ms] | Duty<br>Cycle [%] | 1/T<br>Minimum VBW<br>(kHz) | Final setting<br>For VBW<br>(kHz) |
|-----------|--------------------|----------------------------------|-----------------------------|-------------------|-----------------------------|-----------------------------------|
|           | 2402               | 2.89                             | 3.75                        | 77.07             | 0.35                        | 1                                 |
| GFSK      | 2441               | 2.89                             | 3.75                        | 77.07             | 0.35                        | 1                                 |
|           | 2480               | 2.89                             | 3.75                        | 77.07             | 0.35                        | 1                                 |
|           | 2402               | 1.52                             | 3.75                        | 40.53             | 0.66                        | 1                                 |
| π/4-DQPSK | 2441               | 1.53                             | 3.75                        | 40.80             | 0.65                        | 1                                 |
|           | 2480               | 1.52                             | 3.75                        | 40.53             | 0.66                        | 1                                 |
|           | 2402               | 2.88                             | 3.74                        | 77.01             | 0.35                        | 1                                 |
| 8-DPSK    | 2441               | 2.89                             | 3.76                        | 76.86             | 0.35                        | 1                                 |
|           | 2480               | 2.89                             | 3.75                        | 77.07             | 0.35                        | 1                                 |











## 8-DPSK\_2402

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# 3.11. Antenna requirement

## **Requirement**

## FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

## FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

### <u>Test Result</u>

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.