

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** 47 CFR FCC Part 96  
47 CFR FCC Part 2

**Report No.:** RFBEDV-WTW-P23030565A-3

**FCC ID:** G95RG525FNA

**Product:** Module

**Brand:** Vantiva

**Model No.:** RG525FNA

**Received Date:** 2023/3/16

**Test Date:** 2024/11/12 ~ 2025/1/16

**Issued Date:** 2025/2/3

**Applicant:** Vantiva USA LLC

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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**FCC Registration /** 788550 / TW0003 for Test Location(1)

**Designation Number:** 281270 / TW0032 for Test Location(2)

Approved by: Jeremy Lin, Date: 2025/2/3  
Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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## Release Control Record

| Issue No.               | Description       | Date Issued |
|-------------------------|-------------------|-------------|
| RFBEDV-WTW-P23030565A-3 | Original release. | 2025/2/3    |

## 1 Certificate

**Product:** Module

**Brand:** Vantiva

**Test Model:** RG525FNA

**Sample Status:** Engineering sample

**Applicant:** Vantiva USA LLC

**Test Date:** 2024/11/12 ~ 2025/1/16

**Standard:** 47 CFR FCC Part 96  
47 CFR FCC Part 2

**Measurement Procedure:** ANSI/TIA/EIA-603-E 2016  
ANSI C63.26-2015  
KDB 971168 D01 Power Meas License Digital Systems v03r01  
KDB 940660 D01 Part 96 CBRS Eqpt v03

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

## 2 Summary of Test Results

| Standard / Clause            | Test Item                              | Result | Remark                                            |
|------------------------------|----------------------------------------|--------|---------------------------------------------------|
| Part 2.1046<br>Part 96.41(b) | Maximum EIRP                           | Pass   | Meet the requirement of limit.                    |
| Part 2.1047                  | Modulation Characteristics             | NA     | Refer to Note                                     |
| Part 2.1046<br>Part 96.41(b) | Maximum Power Spectral Density         | N/A    | This device is End User Device.                   |
| Part 96.41(g)                | Peak to Average Ratio                  | NA     | Refer to Note                                     |
| Part 2.1049                  | Bandwidth                              | NA     | Refer to Note                                     |
| Part 2.1051<br>Part 96.41(e) | Conducted Spurious Emissions           | NA     | Refer to Note                                     |
| Part 2.1053<br>Part 96.41(e) | Radiated Spurious Emissions below 1GHz | Pass   | Minimum passing margin is -3.01 dB at 189.08 MHz  |
| Part 2.1053<br>Part 96.41(e) | Radiated Spurious Emissions above 1GHz | Pass   | Minimum passing margin is -8.81 dB at 7249.98 MHz |
| Part 2.1055                  | Frequency Stability                    | NA     | Refer to Note                                     |

Note:

1. This report is issued as a supplementary report. Therefore, only test item of Maximum EIRP and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to MRT Technology (Suzhou) Co., Ltd report no.: 2211RSU034-U10 for module (Brand: Quectel, Model: RG525F-NA).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Parameter                                                            | Specification   | Uncertainty (±) |
|----------------------------------------------------------------------|-----------------|-----------------|
| Effective Radiated Power and Equivalent Isotropically Radiated Power | 18 GHz ~ 40 GHz | 1.77 dB         |
|                                                                      | 1 GHz ~ 18 GHz  | 1.76 dB         |
| Radiated Spurious Emissions below 1GHz                               | 9 kHz ~ 30 MHz  | 2.44 dB         |
|                                                                      | 30 MHz ~ 1 GHz  | 2.95 dB         |
| Radiated Spurious Emissions above 1GHz                               | 1 GHz ~ 18 GHz  | 2.26 dB         |
|                                                                      | 18 GHz ~ 40 GHz | 1.94 dB         |

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

### 2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

|                     |                    |
|---------------------|--------------------|
| Product             | Module             |
| Brand               | Vantiva            |
| Test Model          | RG525FNA           |
| Status of EUT       | Engineering sample |
| Power Supply Rating | Refer to Note      |
| EUT Category        | Mobile station     |

Note:

1. This report is a supplementary report to BV CPS report no.: RFBEDV-WTW-P23030565-4. The differences compared with the original report are to enable LTE Band: Band 14, 17, 29 (down link only), 30, 42, 43 & LTE Band 42, 43 (HPUE PC2) & 5GNR Band: n7, n14, n26, n30, n48 by software and add host marketing name. Therefore, only the Effective Radiated Power and Equivalent Isotropically Radiated Power and Radiated Spurious Emissions test had been an addendum test to this report. Refer to original report for the other test data.

#### 2. EUT Overview

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)**

**Output Power: Full Power**

**1TX**

| Bandwidth | TX Frequency Range (MHz) | Modulation | Max. EIRP (W) | Max. EIRP (dBm) |
|-----------|--------------------------|------------|---------------|-----------------|
| 10 MHz    | 3555 ~ 3694.98           | BPSK       | 0.116         | 20.63           |
|           |                          | QPSK       | 0.122         | 20.85           |
|           |                          | 16QAM      | 0.098         | 19.91           |
|           |                          | 64QAM      | 0.077         | 18.89           |
|           |                          | 256QAM     | 0.042         | 16.26           |
| 20 MHz    | 3560.01 ~ 3690           | BPSK       | 0.117         | 20.67           |
|           |                          | QPSK       | 0.124         | 20.95           |
|           |                          | 16QAM      | 0.103         | 20.11           |
|           |                          | 64QAM      | 0.076         | 18.79           |
|           |                          | 256QAM     | 0.042         | 16.23           |
| 30 MHz    | 3565.02 ~ 3684.99        | BPSK       | 0.116         | 20.64           |
|           |                          | QPSK       | 0.125         | 20.97           |
|           |                          | 16QAM      | 0.102         | 20.08           |
|           |                          | 64QAM      | 0.078         | 18.91           |
|           |                          | 256QAM     | 0.042         | 16.25           |
| 40 MHz    | 3570 ~ 3679.98           | BPSK       | 0.118         | 20.72           |
|           |                          | QPSK       | 0.122         | 20.88           |
|           |                          | 16QAM      | 0.103         | 20.13           |
|           |                          | 64QAM      | 0.079         | 18.95           |
|           |                          | 256QAM     | 0.042         | 16.22           |

## 2TX

| Bandwidth | TX Frequency Range (MHz) | Modulation | Max. EIRP (W) | Max. EIRP (dBm) |
|-----------|--------------------------|------------|---------------|-----------------|
| 10 MHz    | 3555 ~ 3694.98           | QPSK       | 0.083         | 19.17           |
|           |                          | 16QAM      | 0.068         | 18.31           |
|           |                          | 64QAM      | 0.050         | 17.01           |
|           |                          | 256QAM     | 0.028         | 14.44           |
| 20 MHz    | 3560.01 ~ 3690           | QPSK       | 0.084         | 19.25           |
|           |                          | 16QAM      | 0.066         | 18.17           |
|           |                          | 64QAM      | 0.051         | 17.04           |
|           |                          | 256QAM     | 0.027         | 14.34           |
| 30 MHz    | 3565.02 ~ 3684.99        | QPSK       | 0.080         | 19.05           |
|           |                          | 16QAM      | 0.065         | 18.13           |
|           |                          | 64QAM      | 0.049         | 16.89           |
|           |                          | 256QAM     | 0.026         | 14.08           |
| 40 MHz    | 3570 ~ 3679.98           | QPSK       | 0.083         | 19.17           |
|           |                          | 16QAM      | 0.068         | 18.33           |
|           |                          | 64QAM      | 0.049         | 16.92           |
|           |                          | 256QAM     | 0.026         | 14.18           |

## Output Power: dBm/10 MHz

### 1TX

| Bandwidth | TX Frequency Range (MHz) | Modulation | Max. EIRP (W) | Max. EIRP (dBm) |
|-----------|--------------------------|------------|---------------|-----------------|
| 20 MHz    | 3560.01 ~ 3690           | BPSK       | 0.112         | 20.49           |
|           |                          | QPSK       | 0.123         | 20.9            |
|           |                          | 16QAM      | 0.098         | 19.93           |
|           |                          | 64QAM      | 0.072         | 18.59           |
|           |                          | 256QAM     | 0.040         | 16.03           |
| 30 MHz    | 3565.02 ~ 3684.99        | BPSK       | 0.111         | 20.47           |
|           |                          | QPSK       | 0.122         | 20.86           |
|           |                          | 16QAM      | 0.098         | 19.9            |
|           |                          | 64QAM      | 0.074         | 18.7            |
|           |                          | 256QAM     | 0.040         | 16.04           |
| 40 MHz    | 3570 ~ 3679.98           | BPSK       | 0.113         | 20.53           |
|           |                          | QPSK       | 0.124         | 20.95           |
|           |                          | 16QAM      | 0.099         | 19.94           |
|           |                          | 64QAM      | 0.075         | 18.77           |
|           |                          | 256QAM     | 0.041         | 16.11           |

## 2TX

| Bandwidth | TX Frequency Range (MHz) | Modulation | Max. EIRP (W) | Max. EIRP (dBm) |
|-----------|--------------------------|------------|---------------|-----------------|
| 20 MHz    | 3560.01 ~ 3690           | QPSK       | 0.082         | 19.14           |
|           |                          | 16QAM      | 0.062         | 17.95           |
|           |                          | 64QAM      | 0.048         | 16.83           |
|           |                          | 256QAM     | 0.026         | 14.19           |
| 30 MHz    | 3565.02 ~ 3684.99        | QPSK       | 0.078         | 18.93           |
|           |                          | 16QAM      | 0.063         | 17.96           |
|           |                          | 64QAM      | 0.048         | 16.81           |
|           |                          | 256QAM     | 0.026         | 14.1            |
| 40 MHz    | 3570 ~ 3679.98           | QPSK       | 0.082         | 19.13           |
|           |                          | 16QAM      | 0.065         | 18.11           |
|           |                          | 64QAM      | 0.049         | 16.94           |
|           |                          | 256QAM     | 0.026         | 14.16           |

3. The EUT is authorized for use in specific End-product. Please refer to below for more details. (New model is marked in boldface.)

| Item         | Brand   | Model              | Note                                          |
|--------------|---------|--------------------|-----------------------------------------------|
| WIFI Gateway | Vantiva | MGA5331            | Model difference only for marketing strategy. |
|              |         | <b>MGA5331VBV5</b> |                                               |

\*The RF characteristics of the above two host models are the same as the newly added frequency band of this module.

4. The adapter for the End-product.

| AC Adapter |                         |                                                                                                             |
|------------|-------------------------|-------------------------------------------------------------------------------------------------------------|
| Brand      | Model                   | Specification                                                                                               |
| HONOR      | ADS-42FI-12 12042EPCU-L | AC Input: 100-120V~ 50/60Hz 1.2A max.<br>DC Output: 12VDC, 3.5A, 42W<br>DC Output Cable: 1.5m, Non-Shielded |

5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

### 3.2 Antenna Description of EUT

1. The antenna information is listed as below.

| Antenna Type      | PCB      |        |            |      |
|-------------------|----------|--------|------------|------|
| Antenna Connector | Ipx(MHF) |        |            |      |
| Item              | Band     | TX Ant | Gain (dBi) |      |
|                   |          |        | ANT0       | ANT3 |
| 5G NR FR1         | n48      | Ant 0  | 4.47       | 4.85 |

\* Detail antenna specification please refer to antenna datasheet an antenna gain measurement report.

### 3.3 Test Mode Applicability and Tested Channel Detail

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-Scan:   | 1. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition.                                                                                                                                                                                                                                                                                                                |
| Worst Case: | 1. X-axis/ Y-axis/ Z-axis Worst Condition: X-axis<br>2. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation. Therefore, only EIRP had been tested under BPSK, QPSK, 16QAM, 64QAM and 256QAM mode, the other items were performed under QPSK mode only.<br>3. For transmitter unwanted emissions, choose the maximum EIRP power and 1RB mode worst case were selected for the final test. |

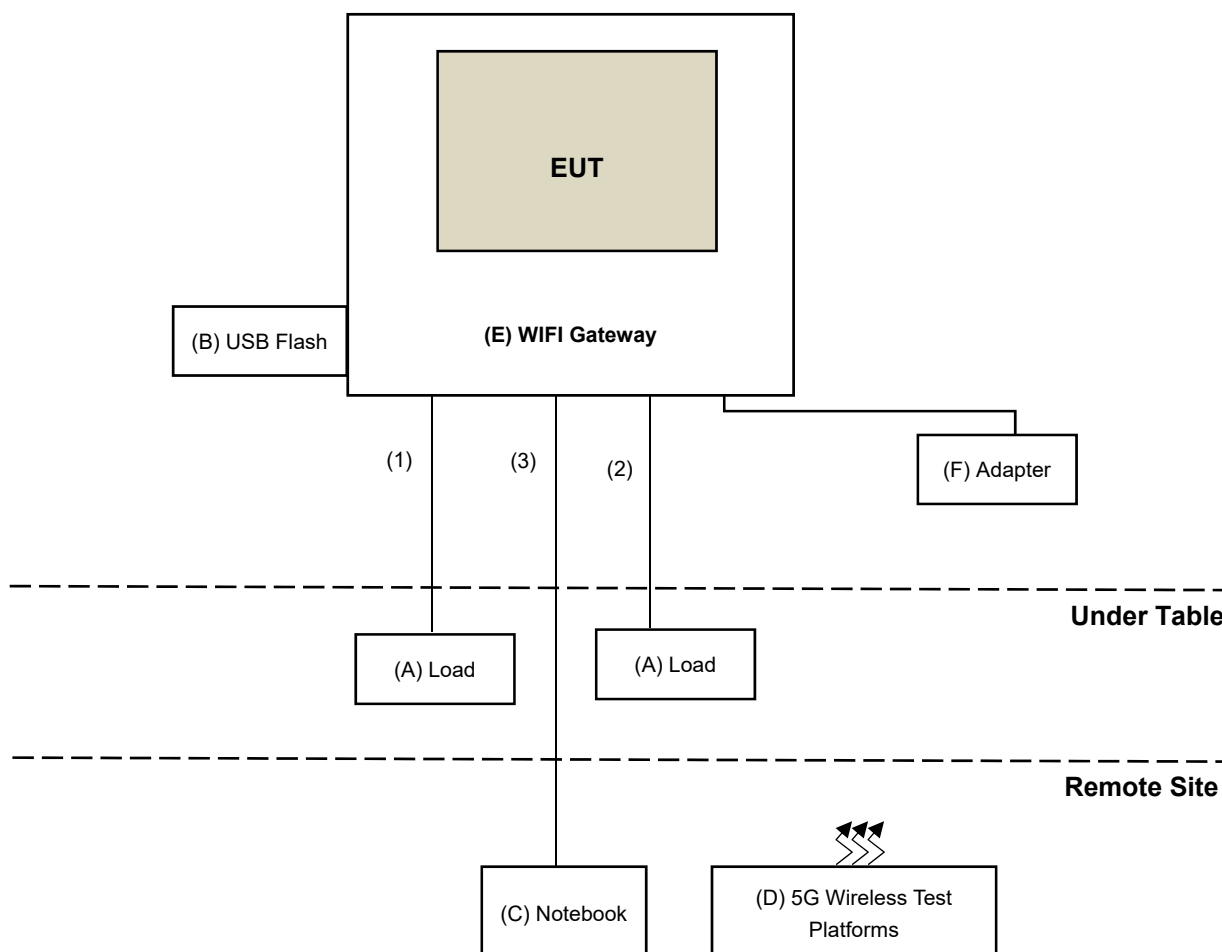
#### 3.3.1 NR n48 SCS 15 kHz

| Test Item                              | Tx Condition | Tested Channel                                                    | Channel Bandwidth | Modulation                                 | Mode                       |
|----------------------------------------|--------------|-------------------------------------------------------------------|-------------------|--------------------------------------------|----------------------------|
| EIRP                                   | 1Tx, 2Tx     | 637000(3555.00 MHz)<br>641666(3624.99 MHz)<br>646332(3694.98 MHz) | 10 MHz            | BPSK / QPSK /<br>16QAM / 64QAM<br>/ 256QAM | 1 RB<br>Half RB<br>Full RB |
|                                        | 1Tx, 2Tx     | 637334(3560.01 MHz)<br>641666(3624.99 MHz)<br>646000(3690.00 MHz) | 20 MHz            | BPSK / QPSK /<br>16QAM / 64QAM<br>/ 256QAM | 1 RB<br>Half RB<br>Full RB |
|                                        | 1Tx, 2Tx     | 637668(3560.02 MHz)<br>641666(3624.99 MHz)<br>646666(3684.99 MHz) | 30 MHz            | BPSK / QPSK /<br>16QAM / 64QAM<br>/ 256QAM | 1 RB<br>Half RB<br>Full RB |
|                                        | 1Tx, 2Tx     | 638000(3570.00 MHz)<br>641666(3624.99 MHz)<br>645332(3679.98 MHz) | 40 MHz            | BPSK / QPSK /<br>16QAM / 64QAM<br>/ 256QAM | 1 RB<br>Half RB<br>Full RB |
| Radiated Spurious Emissions below 1GHz | 1Tx          | 641666(3624.99 MHz)                                               | 40 MHz            | QPSK                                       | 1 RB                       |
| Radiated Spurious Emissions above 1GHz | 1Tx          | 637000(3555.00 MHz)<br>641666(3624.99 MHz)<br>646332(3694.98 MHz) | 10 MHz            | QPSK                                       | 1 RB                       |
|                                        | 1Tx          | 637334(3560.01 MHz)<br>641666(3624.99 MHz)<br>646000(3690.00 MHz) | 20 MHz            | QPSK                                       | 1 RB                       |
|                                        | 1Tx          | 638000(3570.00 MHz)<br>641666(3624.99 MHz)<br>645332(3679.98 MHz) | 40 MHz            | QPSK                                       | 1 RB                       |

### 3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the 5G Wireless Test Platforms to test the connection when it is powered on.

### 3.5 Connection Diagram of EUT and Peripheral Devices



### 3.6 Configuration of Peripheral Devices and Cable Connections

| ID | Product                    | Brand    | Model No.                  | Serial No. | FCC ID | Remarks               |
|----|----------------------------|----------|----------------------------|------------|--------|-----------------------|
| A  | Load*2                     | N/A      | N/A                        | N/A        | N/A    | Provided by Lab       |
| B  | USB Flash                  | SanDisk  | SDDDC3-032G                | N/A        | N/A    | Provided by Lab       |
| C  | Notebook                   | Lenovo   | X250ALT5                   | PC06HPSE   | N/A    | Provided by Lab       |
| D  | 5G Wireless Test Platforms | Keysight | E7515B                     | MY60102114 | N/A    | Provided by Lab       |
| E  | WIFI Gateway               | Vantiva  | MGA5331                    | N/A        | N/A    | Provided by applicant |
| F  | Adapter                    | HONOR    | ADS-42FI-12<br>12042EPCU-L | N/A        | N/A    | Provided by applicant |

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks         |
|----|--------------------|------|------------|--------------------|--------------|-----------------|
| 1  | RJ11 Cable         | 1    | 1.5        | No                 | 0            | Provided by Lab |
| 2  | RJ45 Cable         | 4    | 1.5        | No                 | 0            | Provided by Lab |
| 3  | RJ45 Cable         | 1    | 10         | No                 | 0            | Provided by Lab |

## 4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.1 Maximum EIRP

| Description<br>Manufacturer               | Model No.                    | Serial No.  | Calibrated<br>Date | Calibrated<br>Until |
|-------------------------------------------|------------------------------|-------------|--------------------|---------------------|
| Antenna Tower<br>Max-Full                 | MFT-151SS-0.5T               | N/A         | N/A                | N/A                 |
| EXA Signal Analyzer<br>Agilent            | N9010A                       | MY52220207  | 2024/12/30         | 2025/12/29          |
| Horn Antenna<br>RFSPIN                    | DRH18-E                      | 210103A18E  | 2024/11/10         | 2025/11/9           |
| Horn Antenna<br>Schwarzbeck               | BBHA 9170                    | 9170-1049   | 2024/11/10         | 2025/11/9           |
| MXE EMI Receiver<br>Keysight              | N9038B                       | MY60180019  | 2025/1/15          | 2026/1/14           |
| Preamplifier<br>EMCI                      | EMC118A45SE                  | 980808      | 2024/12/26         | 2025/12/25          |
|                                           | EMC184045SE                  | 980788      | 2025/1/14          | 2026/1/13           |
| RF Coaxial Cable<br>EMCI                  | EMC101G-KM-KM-2000           | 201254      | 2025/1/14          | 2026/1/13           |
|                                           | EMC101G-KM-KM-3000           | 201258      | 2025/1/14          | 2026/1/13           |
|                                           | EMC101G-KM-KM-5000           | 201261      | 2025/1/14          | 2026/1/13           |
|                                           | EMC104-SM-SM-1000            | 210102      | 2025/1/14          | 2026/1/13           |
|                                           | EMC104-SM-SM-3000            | 201231      | 2025/1/14          | 2026/1/13           |
|                                           | EMC104-SM-SM-9000            | 201243      | 2025/1/14          | 2026/1/13           |
| Software<br>BV ADT                        | ADT_Radiated_<br>V7.6.15.9.5 | N/A         | N/A                | N/A                 |
| Turn Table<br>Max-Full                    | MF-7802BS                    | N/A         | N/A                | N/A                 |
| Turn Table Controller<br>Max-Full         | MF-7802BS                    | MF780208674 | N/A                | N/A                 |
| UXM 5G Wireless Test Platform<br>Keysight | E7515B                       | MY60102115  | 2024/5/26          | 2025/5/25           |

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/1/16

## 4.2 Radiated Spurious Emissions below 1GHz

| Description<br>Manufacturer       | Model No.                    | Serial No.    | Calibrated<br>Date | Calibrated<br>Until |
|-----------------------------------|------------------------------|---------------|--------------------|---------------------|
| Antenna Tower & Turn<br>Max-Full  | MFA-440H                     | AT93021705    | N/A                | N/A                 |
| Bi_Log Antenna<br>Schwarzbeck     | VULB 9168                    | 9168-472      | 2024/10/14         | 2025/10/13          |
| EXA Signal Analyzer<br>Agilent    | N9010A                       | MY52220207    | 2023/12/28         | 2024/12/27          |
| Loop Antenna<br>TESEQ             | HLA 6121                     | 45745         | 2024/8/21          | 2025/8/20           |
| MXE EMI Receiver<br>Keysight      | N9038A                       | MY55420137    | 2024/5/8           | 2025/5/7            |
| Preamplifier<br>EMCI              | EMC 330H                     | 980112        | 2024/9/24          | 2025/9/23           |
|                                   | EMC001340                    | 980201        | 2024/9/24          | 2025/9/23           |
| RF Coaxial Cable<br>Woken         | 8D-FB                        | Cable-Ch10-01 | 2024/9/24          | 2025/9/23           |
| Software<br>BV ADT                | ADT_Radiated_<br>V7.6.15.9.5 | N/A           | N/A                | N/A                 |
| Turn Table<br>Max-Full            | MFT-201SS                    | N/A           | N/A                | N/A                 |
| Turn Table Controller<br>Max-Full | MG-7802                      | N/A           | N/A                | N/A                 |

### Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2024/11/13 ~ 2024/11/21

#### 4.3 Radiated Spurious Emissions above 1GHz

| Description<br>Manufacturer           | Model No.                    | Serial No.                | Calibrated<br>Date | Calibrated<br>Until |
|---------------------------------------|------------------------------|---------------------------|--------------------|---------------------|
| Antenna Tower & Turn<br>Max-Full      | MFA-440H                     | AT93021705                | N/A                | N/A                 |
| Boresight antenna tower fixture<br>BV | BAF-02                       | 7                         | N/A                | N/A                 |
| EXA Signal Analyzer<br>Agilent        | N9010A                       | MY52220207                | 2023/12/28         | 2024/12/27          |
| Horn Antenna<br>Schwarzbeck           | BBHA 9120D                   | 9120D-969                 | 2024/11/10         | 2025/11/9           |
|                                       | BBHA 9170                    | 148                       | 2024/11/10         | 2025/11/9           |
| MXE EMI Receiver<br>Keysight          | N9038A                       | MY55420137                | 2024/5/8           | 2025/5/7            |
| Preamplifier<br>EMCI                  | EMC 012645                   | 980115                    | 2024/9/24          | 2025/9/23           |
|                                       | EMC 184045                   | 980116                    | 2024/9/24          | 2025/9/23           |
| RF Coaxial Cable<br>EMCI              | EMC102-KM-KM-600             | 150928                    | 2024/7/6           | 2025/7/5            |
|                                       | EMC102-KM-KM-3000            | 150929                    | 2024/7/6           | 2025/7/5            |
|                                       | EMC104-SM-SM-8000+3000       | 171005                    | 2024/9/24          | 2025/9/23           |
| RF Coaxial Cable<br>HUBER+SUHNER      | SUCOFLEX 104                 | EMC104-SM-SM-1000(140807) | 2024/9/24          | 2025/9/23           |
| Software<br>BV ADT                    | ADT_Radiated_<br>V7.6.15.9.5 | N/A                       | N/A                | N/A                 |
| Turn Table<br>Max-Full                | MFT-201SS                    | N/A                       | N/A                | N/A                 |
| Turn Table Controller<br>Max-Full     | MG-7802                      | N/A                       | N/A                | N/A                 |

#### Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2024/11/12 ~ 2024/12/6

## 5 Limits of Test Items

### 5.1 Maximum EIRP

For NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz):

| Device Category | Maximum EIRP<br>(dBm/10 MHz) |
|-----------------|------------------------------|
| End User Device | 23                           |
| Category A CBSD | 30                           |
| Category B CBSD | 47                           |

### 5.2 Radiated Spurious Emissions below 1GHz

For NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz):

The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

### 5.3 Radiated Spurious Emissions above 1GHz

For NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz):

The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

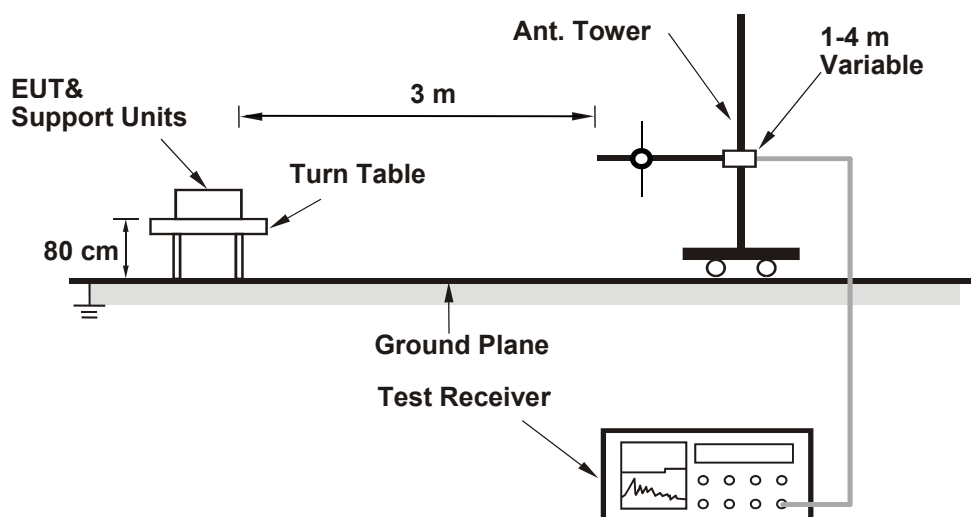
## 6 Test Arrangements

### 6.1 Maximum EIRP

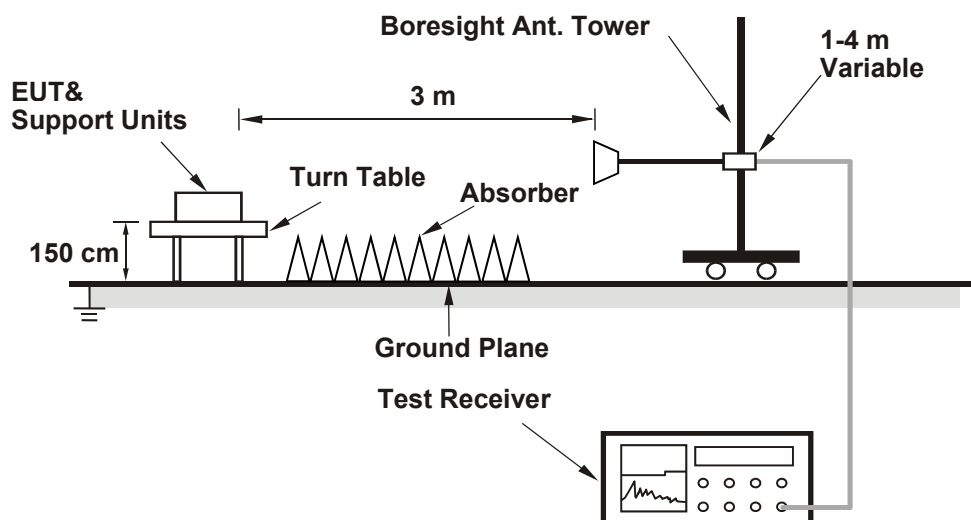
#### 6.1.1 Test Setup

#### Radiated Power EIRP / ERP Measurement:

For Radiated Emission below or equal 1 GHz



For Radiated Emission above 1 GHz



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

## 6.1.2 Test Procedure

### Radiated Power EIRP / ERP Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

Set the EUT to transmit under low, middle and high channel and record the power level shown on spectrum analyzer.

- a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
  - b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
  - c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
  - d. Following C63.26 section 5.5 and 5.2.7. Set the detector to power averaging (rms) detector.
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.
  - $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$ ; where D is the measurement distance (in the far field region) in m.

### Spectrum analyzer setting as below:

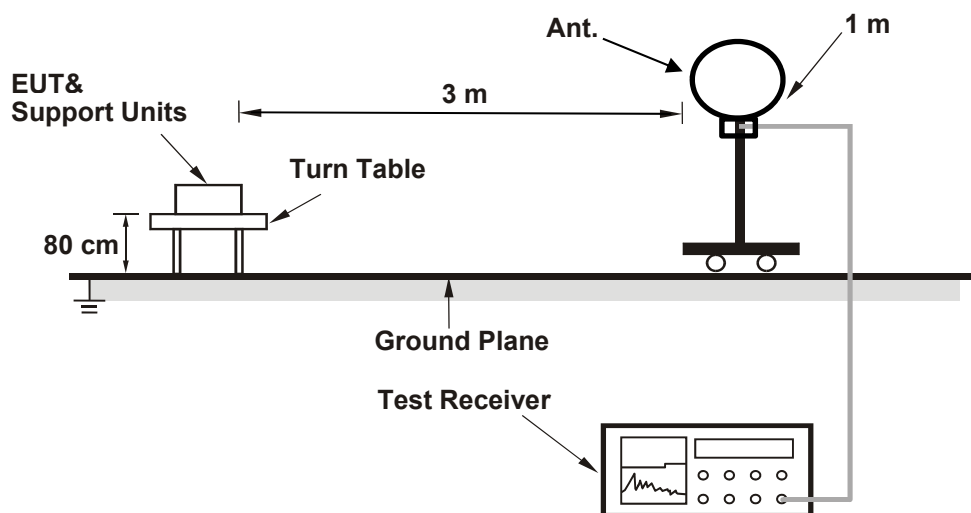
Measurement method refers to ANSI C63.26 section 5.2.4.4.

- a. Set span to  $2 \times$  to  $3 \times$  the OBW.
- b. Set RBW = 1% to 5% of the OBW.
- c. Set VBW  $\geq 3 \times$  RBW.
- d. Set number of measurement points in sweep  $\geq 2 \times$  span / RBW.
- e. Set Sweep time = auto-couple.
- f. Detector = power averaging (rms).
- g. Set sweep trigger to "free run."
- h. Trace average at least 100 traces in power averaging (rms) mode.
- i. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW band edges.
- j. If Duty cycle < 98%, Add  $10 \log (1/\text{duty cycle})$  to the measured power level to compute the average power during continuous transmission.

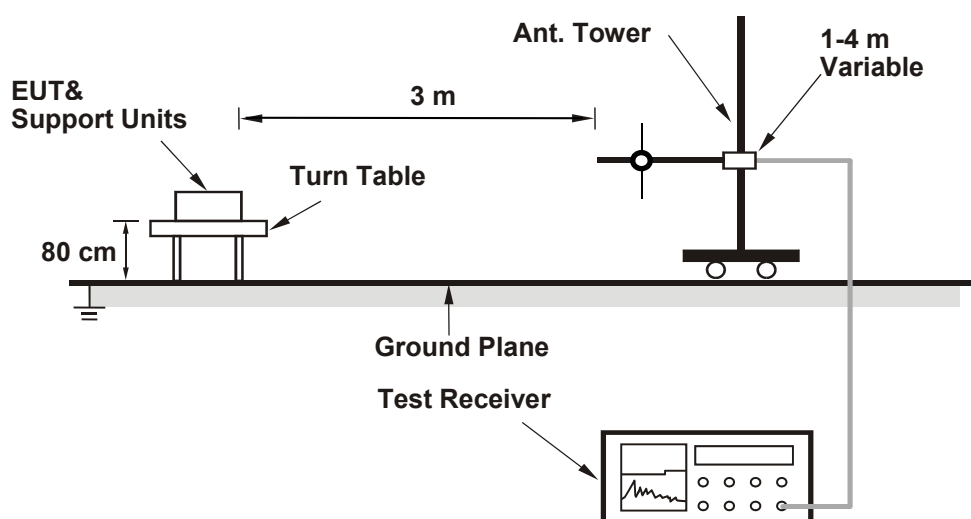
## 6.2 Radiated Spurious Emissions below 1GHz

### 6.2.1 Test Setup

#### For Radiated emission below 30 MHz



#### For Radiated emission above 30 MHz



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

## 6.2.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following ANSI C63.26 section 5.5 and 5.2.7
- e.  $EIRP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.
- f.  $ERP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$ ; where D is the measurement distance (in the far field region) in m.

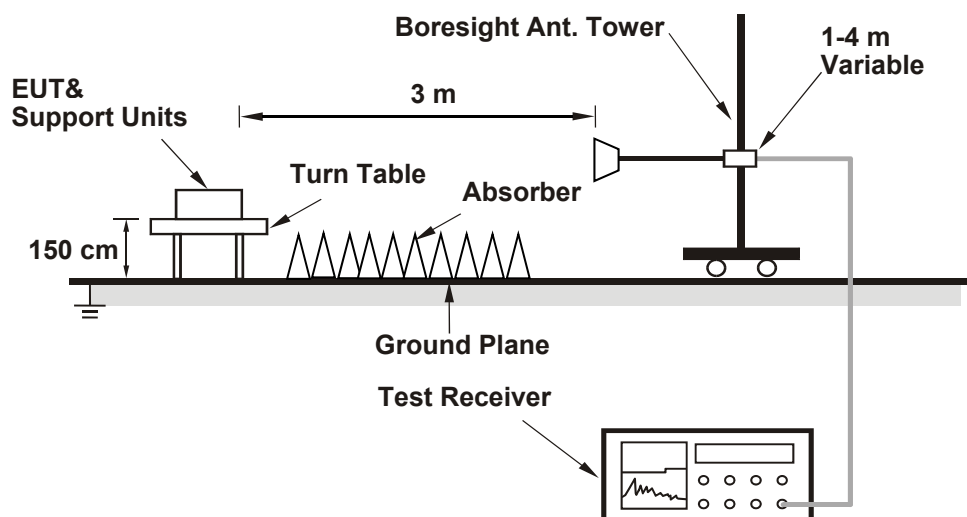
Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
2. The amplitude of spurious emissions in the range 9 kHz to 30 MHz which are attenuated more than 20 dB below the permissible value need not be reported.

## 6.3 Radiated Spurious Emissions above 1GHz

### 6.3.1 Test Setup

For radiated emission above 1 GHz



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

### 6.3.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.
- $ERP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8 - 2.15$ ; where D is the measurement distance (in the far field region) in m.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

## 7 Test Results of Test Item

### 7.1 Maximum EIRP

|                           |              |            |            |
|---------------------------|--------------|------------|------------|
| Environmental Conditions: | 25°C, 60% RH | Tested By: | Wade Huang |
|---------------------------|--------------|------------|------------|

#### 1TX

7.1.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 637000  | 3555                    | 115.88                  | -95.26                 | 115.345   | 20.62      | 23               |
|            | 641666  | 3624.99                 | 115.45                  | -95.26                 | 104.472   | 20.19      | 23               |
|            | 646332  | 3694.98                 | 115.89                  | -95.26                 | 115.611   | 20.63      | 23               |
| QPSK       | 637000  | 3555                    | 116.08                  | -95.26                 | 120.781   | 20.82      | 23               |
|            | 641666  | 3624.99                 | 115.54                  | -95.26                 | 106.66    | 20.28      | 23               |
|            | 646332  | 3694.98                 | 116.11                  | -95.26                 | 121.619   | 20.85      | 23               |
| 16QAM      | 637000  | 3555                    | 115.1                   | -95.26                 | 96.383    | 19.84      | 23               |
|            | 641666  | 3624.99                 | 115.17                  | -95.26                 | 97.949    | 19.91      | 23               |
|            | 646332  | 3694.98                 | 115.14                  | -95.26                 | 97.275    | 19.88      | 23               |
| 64QAM      | 637000  | 3555                    | 114.15                  | -95.26                 | 77.446    | 18.89      | 23               |
|            | 641666  | 3624.99                 | 113.83                  | -95.26                 | 71.945    | 18.57      | 23               |
|            | 646332  | 3694.98                 | 113.99                  | -95.26                 | 74.645    | 18.73      | 23               |
| 256QAM     | 637000  | 3555                    | 111.49                  | -95.26                 | 41.976    | 16.23      | 23               |
|            | 641666  | 3624.99                 | 111.52                  | -95.26                 | 42.267    | 16.26      | 23               |
|            | 646332  | 3694.98                 | 111.39                  | -95.26                 | 41.02     | 16.13      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: Full Power**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dB $\mu$ V/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 637334  | 3560.01                 | 115.75                        | -95.26                 | 111.944   | 20.49      | 23               |
|            | 641666  | 3624.99                 | 115.93                        | -95.26                 | 116.681   | 20.67      | 23               |
|            | 646000  | 3690                    | 115.73                        | -95.26                 | 111.429   | 20.47      | 23               |
| QPSK       | 637334  | 3560.01                 | 116.13                        | -95.26                 | 122.18    | 20.87      | 23               |
|            | 641666  | 3624.99                 | 116.21                        | -95.26                 | 124.451   | 20.95      | 23               |
|            | 646000  | 3690                    | 116.12                        | -95.26                 | 121.899   | 20.86      | 23               |
| 16QAM      | 637334  | 3560.01                 | 115.2                         | -95.26                 | 98.628    | 19.94      | 23               |
|            | 641666  | 3624.99                 | 115.37                        | -95.26                 | 102.565   | 20.11      | 23               |
|            | 646000  | 3690                    | 115.17                        | -95.26                 | 97.949    | 19.91      | 23               |
| 64QAM      | 637334  | 3560.01                 | 113.98                        | -95.26                 | 74.473    | 18.72      | 23               |
|            | 641666  | 3624.99                 | 114.05                        | -95.26                 | 75.683    | 18.79      | 23               |
|            | 646000  | 3690                    | 113.94                        | -95.26                 | 73.79     | 18.68      | 23               |
| 256QAM     | 637334  | 3560.01                 | 111.45                        | -95.26                 | 41.591    | 16.19      | 23               |
|            | 641666  | 3624.99                 | 111.49                        | -95.26                 | 41.976    | 16.23      | 23               |
|            | 646000  | 3690                    | 111.47                        | -95.26                 | 41.783    | 16.21      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dB $\mu$ V/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: Full Power**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dB $\mu$ V/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 637668  | 3565.02                 | 115.86                        | -95.26                 | 114.815   | 20.6       | 23               |
|            | 641666  | 3624.99                 | 115.9                         | -95.26                 | 115.878   | 20.64      | 23               |
|            | 645666  | 3684.99                 | 115.81                        | -95.26                 | 113.501   | 20.55      | 23               |
| QPSK       | 637668  | 3565.02                 | 116.19                        | -95.26                 | 123.88    | 20.93      | 23               |
|            | 641666  | 3624.99                 | 116.23                        | -95.26                 | 125.026   | 20.97      | 23               |
|            | 645666  | 3684.99                 | 116.18                        | -95.26                 | 123.595   | 20.92      | 23               |
| 16QAM      | 637668  | 3565.02                 | 115.24                        | -95.26                 | 99.541    | 19.98      | 23               |
|            | 641666  | 3624.99                 | 115.34                        | -95.26                 | 101.859   | 20.08      | 23               |
|            | 645666  | 3684.99                 | 115.2                         | -95.26                 | 98.628    | 19.94      | 23               |
| 64QAM      | 637668  | 3565.02                 | 114.08                        | -95.26                 | 76.208    | 18.82      | 23               |
|            | 641666  | 3624.99                 | 114.17                        | -95.26                 | 77.804    | 18.91      | 23               |
|            | 645666  | 3684.99                 | 114.06                        | -95.26                 | 75.858    | 18.8       | 23               |
| 256QAM     | 637668  | 3565.02                 | 111.38                        | -95.26                 | 40.926    | 16.12      | 23               |
|            | 641666  | 3624.99                 | 111.51                        | -95.26                 | 42.17     | 16.25      | 23               |
|            | 645666  | 3684.99                 | 111.23                        | -95.26                 | 39.537    | 15.97      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dB $\mu$ V/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: Full Power**

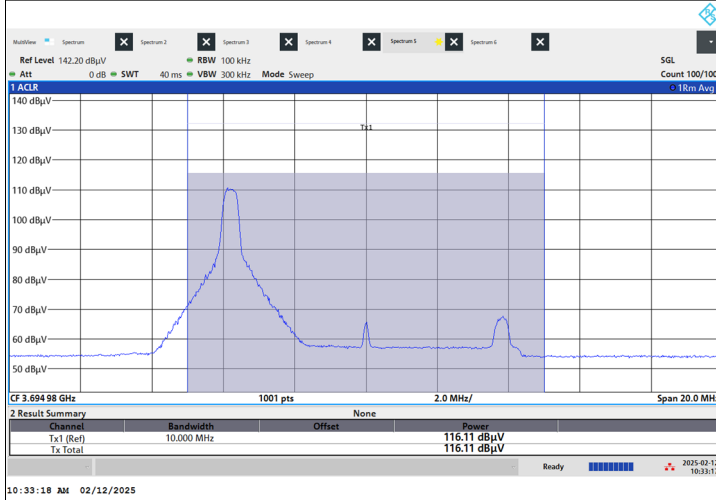
| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dB $\mu$ V/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 638000  | 3570                    | 115.94                        | -95.26                 | 116.95    | 20.68      | 23               |
|            | 641666  | 3624.99                 | 115.98                        | -95.26                 | 118.032   | 20.72      | 23               |
|            | 645332  | 3679.98                 | 115.92                        | -95.26                 | 116.413   | 20.66      | 23               |
| QPSK       | 638000  | 3570                    | 116.11                        | -95.26                 | 121.619   | 20.85      | 23               |
|            | 641666  | 3624.99                 | 116.14                        | -95.26                 | 122.462   | 20.88      | 23               |
|            | 645332  | 3679.98                 | 116.08                        | -95.26                 | 120.781   | 20.82      | 23               |
| 16QAM      | 638000  | 3570                    | 115.33                        | -95.26                 | 101.625   | 20.07      | 23               |
|            | 641666  | 3624.99                 | 115.39                        | -95.26                 | 103.039   | 20.13      | 23               |
|            | 645332  | 3679.98                 | 115.37                        | -95.26                 | 102.565   | 20.11      | 23               |
| 64QAM      | 638000  | 3570                    | 114                           | -95.26                 | 74.817    | 18.74      | 23               |
|            | 641666  | 3624.99                 | 114.21                        | -95.26                 | 78.524    | 18.95      | 23               |
|            | 645332  | 3679.98                 | 114.1                         | -95.26                 | 76.56     | 18.84      | 23               |
| 256QAM     | 638000  | 3570                    | 111.44                        | -95.26                 | 41.495    | 16.18      | 23               |
|            | 641666  | 3624.99                 | 111.48                        | -95.26                 | 41.879    | 16.22      | 23               |
|            | 645332  | 3679.98                 | 111.3                         | -95.26                 | 40.179    | 16.04      | 23               |

**Notes:**

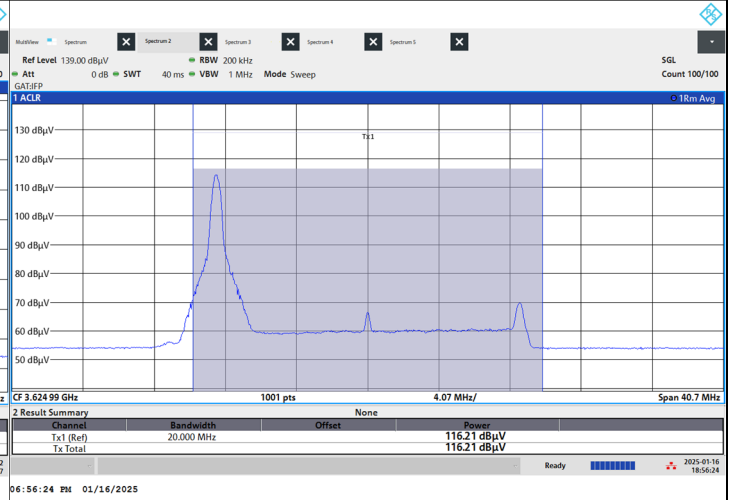
1. EIRP (dBm) = Field Strength (dB $\mu$ V/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

## Spectrum Plot of Worst Value

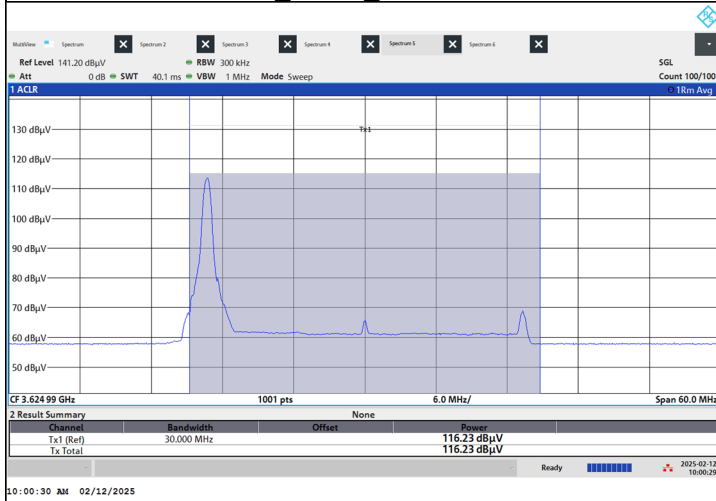
### 10M QPSK CH646332



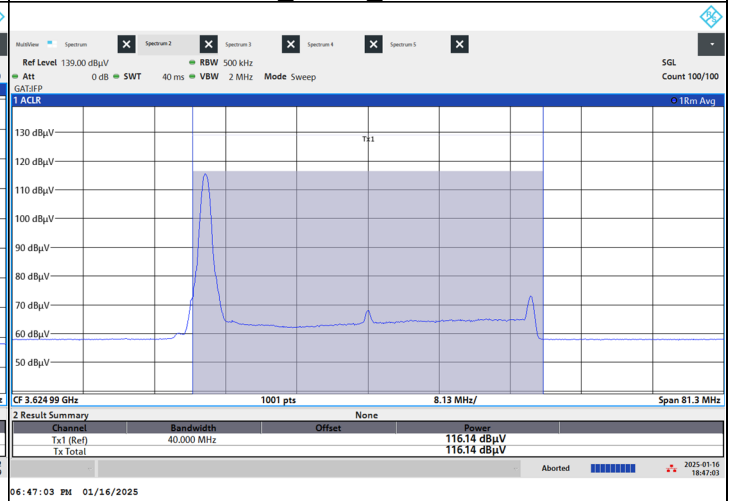
### 20M QPSK CH641666



### 30M QPSK CH641666



### 40M QPSK CH641666



**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: dBm/10 MHz**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 637334  | 3560.01                 | 115.58                  | -95.26                 | 107.647   | 20.32      | 23               |
|            | 641666  | 3624.99                 | 115.75                  | -95.26                 | 111.944   | 20.49      | 23               |
|            | 646000  | 3690                    | 115.55                  | -95.26                 | 106.905   | 20.29      | 23               |
| QPSK       | 637334  | 3560.01                 | 115.96                  | -95.26                 | 117.49    | 20.7       | 23               |
|            | 641666  | 3624.99                 | 116.16                  | -95.26                 | 123.027   | 20.9       | 23               |
|            | 646000  | 3690                    | 115.94                  | -95.26                 | 116.95    | 20.68      | 23               |
| 16QAM      | 637334  | 3560.01                 | 115.01                  | -95.26                 | 94.406    | 19.75      | 23               |
|            | 641666  | 3624.99                 | 115.19                  | -95.26                 | 98.401    | 19.93      | 23               |
|            | 646000  | 3690                    | 115.16                  | -95.26                 | 97.724    | 19.9       | 23               |
| 64QAM      | 637334  | 3560.01                 | 113.76                  | -95.26                 | 70.795    | 18.5       | 23               |
|            | 641666  | 3624.99                 | 113.85                  | -95.26                 | 72.277    | 18.59      | 23               |
|            | 646000  | 3690                    | 113.77                  | -95.26                 | 70.958    | 18.51      | 23               |
| 256QAM     | 637334  | 3560.01                 | 111.25                  | -95.26                 | 39.719    | 15.99      | 23               |
|            | 641666  | 3624.99                 | 111.27                  | -95.26                 | 39.902    | 16.01      | 23               |
|            | 646000  | 3690                    | 111.29                  | -95.26                 | 40.087    | 16.03      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: dBm/10 MHz**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 637668  | 3565.02                 | 115.67                  | -95.26                 | 109.901   | 20.41      | 23               |
|            | 641666  | 3624.99                 | 115.73                  | -95.26                 | 111.429   | 20.47      | 23               |
|            | 645666  | 3684.99                 | 115.61                  | -95.26                 | 108.393   | 20.35      | 23               |
| QPSK       | 637668  | 3565.02                 | 116.01                  | -95.26                 | 118.85    | 20.75      | 23               |
|            | 641666  | 3624.99                 | 116.12                  | -95.26                 | 121.899   | 20.86      | 23               |
|            | 645666  | 3684.99                 | 115.98                  | -95.26                 | 118.032   | 20.72      | 23               |
| 16QAM      | 637668  | 3565.02                 | 115.02                  | -95.26                 | 94.624    | 19.76      | 23               |
|            | 641666  | 3624.99                 | 115.16                  | -95.26                 | 97.724    | 19.9       | 23               |
|            | 645666  | 3684.99                 | 114.98                  | -95.26                 | 93.756    | 19.72      | 23               |
| 64QAM      | 637668  | 3565.02                 | 113.87                  | -95.26                 | 72.611    | 18.61      | 23               |
|            | 641666  | 3624.99                 | 113.96                  | -95.26                 | 74.131    | 18.7       | 23               |
|            | 645666  | 3684.99                 | 113.88                  | -95.26                 | 72.778    | 18.62      | 23               |
| 256QAM     | 637668  | 3565.02                 | 111.17                  | -95.26                 | 38.994    | 15.91      | 23               |
|            | 641666  | 3624.99                 | 111.3                   | -95.26                 | 40.179    | 16.04      | 23               |
|            | 645666  | 3684.99                 | 111.03                  | -95.26                 | 37.757    | 15.77      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: dBm/10 MHz**

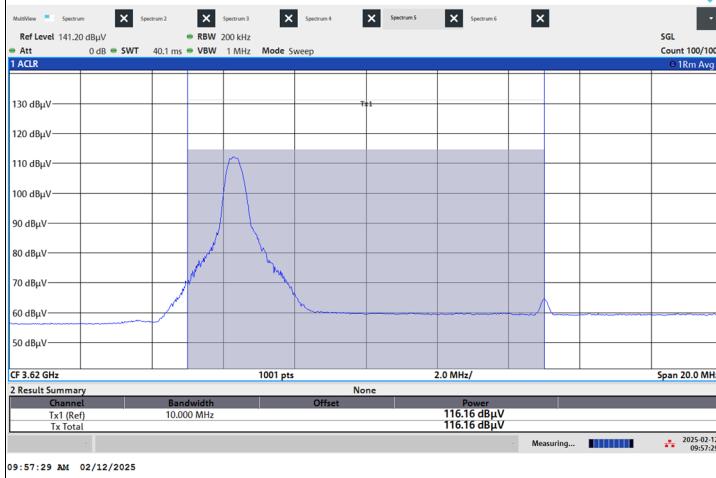
| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| BPSK       | 638000  | 3570                    | 115.75                  | -95.26                 | 111.944   | 20.49      | 23               |
|            | 641666  | 3624.99                 | 115.79                  | -95.26                 | 112.98    | 20.53      | 23               |
|            | 645332  | 3679.98                 | 115.7                   | -95.26                 | 110.662   | 20.44      | 23               |
| QPSK       | 638000  | 3570                    | 116.1                   | -95.26                 | 121.339   | 20.84      | 23               |
|            | 641666  | 3624.99                 | 116.21                  | -95.26                 | 124.451   | 20.95      | 23               |
|            | 645332  | 3679.98                 | 116.07                  | -95.26                 | 120.504   | 20.81      | 23               |
| 16QAM      | 638000  | 3570                    | 115.12                  | -95.26                 | 96.828    | 19.86      | 23               |
|            | 641666  | 3624.99                 | 115.18                  | -95.26                 | 98.175    | 19.92      | 23               |
|            | 645332  | 3679.98                 | 115.2                   | -95.26                 | 98.628    | 19.94      | 23               |
| 64QAM      | 638000  | 3570                    | 113.8                   | -95.26                 | 71.45     | 18.54      | 23               |
|            | 641666  | 3624.99                 | 114.03                  | -95.26                 | 75.336    | 18.77      | 23               |
|            | 645332  | 3679.98                 | 113.88                  | -95.26                 | 72.778    | 18.62      | 23               |
| 256QAM     | 638000  | 3570                    | 111.22                  | -95.26                 | 39.446    | 15.96      | 23               |
|            | 641666  | 3624.99                 | 111.37                  | -95.26                 | 40.832    | 16.11      | 23               |
|            | 645332  | 3679.98                 | 111.09                  | -95.26                 | 38.282    | 15.83      | 23               |

**Notes:**

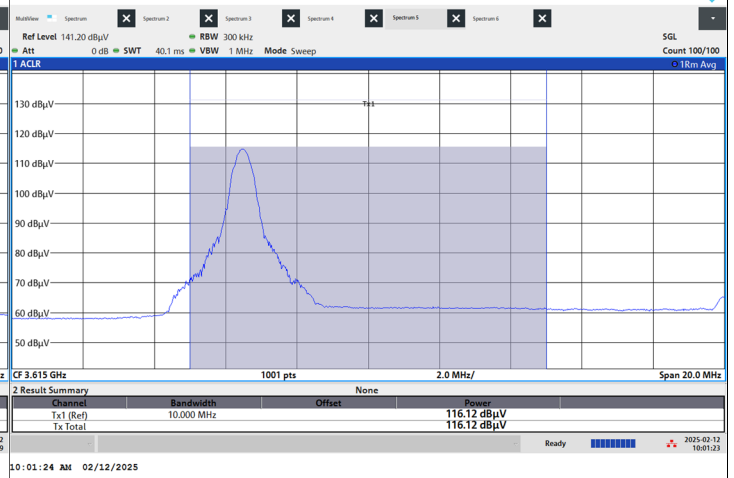
1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

## Spectrum Plot of Worst Value

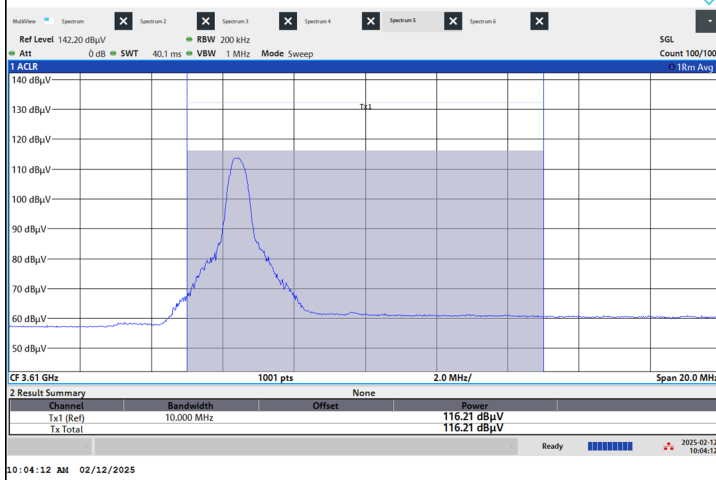
### 20M\_QPSK\_CH641666



### 30M\_QPSK\_CH641666



### 40M\_QPSK\_CH641666



## 2TX

### 7.1.2 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)

#### NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 10 MHz

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 637000  | 3555                    | 114.09                  | -95.26                 | 76.384    | 18.83      | 23               |
|            | 641666  | 3624.99                 | 114.43                  | -95.26                 | 82.604    | 19.17      | 23               |
|            | 646332  | 3694.98                 | 114.32                  | -95.26                 | 80.538    | 19.06      | 23               |
| 16QAM      | 637000  | 3555                    | 113.4                   | -95.26                 | 65.163    | 18.14      | 23               |
|            | 641666  | 3624.99                 | 113.57                  | -95.26                 | 67.764    | 18.31      | 23               |
|            | 646332  | 3694.98                 | 113.55                  | -95.26                 | 67.453    | 18.29      | 23               |
| 64QAM      | 637000  | 3555                    | 112.23                  | -95.26                 | 49.774    | 16.97      | 23               |
|            | 641666  | 3624.99                 | 112.27                  | -95.26                 | 50.234    | 17.01      | 23               |
|            | 646332  | 3694.98                 | 112.25                  | -95.26                 | 50.003    | 16.99      | 23               |
| 256QAM     | 637000  | 3555                    | 109.12                  | -95.26                 | 24.322    | 13.86      | 23               |
|            | 641666  | 3624.99                 | 109.7                   | -95.26                 | 27.797    | 14.44      | 23               |
|            | 646332  | 3694.98                 | 109.49                  | -95.26                 | 26.485    | 14.23      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

#### NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: Full Power

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 637334  | 3560.01                 | 114.42                  | -95.26                 | 82.414    | 19.16      | 23               |
|            | 641666  | 3624.99                 | 114.51                  | -95.26                 | 84.14     | 19.25      | 23               |
|            | 646000  | 3690                    | 114.41                  | -95.26                 | 82.224    | 19.15      | 23               |
| 16QAM      | 637334  | 3560.01                 | 113.34                  | -95.26                 | 64.269    | 18.08      | 23               |
|            | 641666  | 3624.99                 | 113.43                  | -95.26                 | 65.615    | 18.17      | 23               |
|            | 646000  | 3690                    | 113.42                  | -95.26                 | 65.464    | 18.16      | 23               |
| 64QAM      | 637334  | 3560.01                 | 112.19                  | -95.26                 | 49.317    | 16.93      | 23               |
|            | 641666  | 3624.99                 | 112.3                   | -95.26                 | 50.582    | 17.04      | 23               |
|            | 646000  | 3690                    | 112.1                   | -95.26                 | 48.306    | 16.84      | 23               |
| 256QAM     | 637334  | 3560.01                 | 109.6                   | -95.26                 | 27.164    | 14.34      | 23               |
|            | 641666  | 3624.99                 | 109.45                  | -95.26                 | 26.242    | 14.19      | 23               |
|            | 646000  | 3690                    | 109.3                   | -95.26                 | 25.351    | 14.04      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

### NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: Full Power

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 637668  | 3565.02                 | 114.22                  | -95.26                 | 78.705    | 18.96      | 23               |
|            | 641666  | 3624.99                 | 114.31                  | -95.26                 | 80.353    | 19.05      | 23               |
|            | 645666  | 3684.99                 | 114.29                  | -95.26                 | 79.983    | 19.03      | 23               |
| 16QAM      | 637668  | 3565.02                 | 113.28                  | -95.26                 | 63.387    | 18.02      | 23               |
|            | 641666  | 3624.99                 | 113.32                  | -95.26                 | 63.973    | 18.06      | 23               |
|            | 645666  | 3684.99                 | 113.39                  | -95.26                 | 65.013    | 18.13      | 23               |
| 64QAM      | 637668  | 3565.02                 | 112.06                  | -95.26                 | 47.863    | 16.8       | 23               |
|            | 641666  | 3624.99                 | 112.15                  | -95.26                 | 48.865    | 16.89      | 23               |
|            | 645666  | 3684.99                 | 112.05                  | -95.26                 | 47.753    | 16.79      | 23               |
| 256QAM     | 637668  | 3565.02                 | 109.21                  | -95.26                 | 24.831    | 13.95      | 23               |
|            | 641666  | 3624.99                 | 109.34                  | -95.26                 | 25.586    | 14.08      | 23               |
|            | 645666  | 3684.99                 | 109.24                  | -95.26                 | 25.003    | 13.98      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

### NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: Full Power

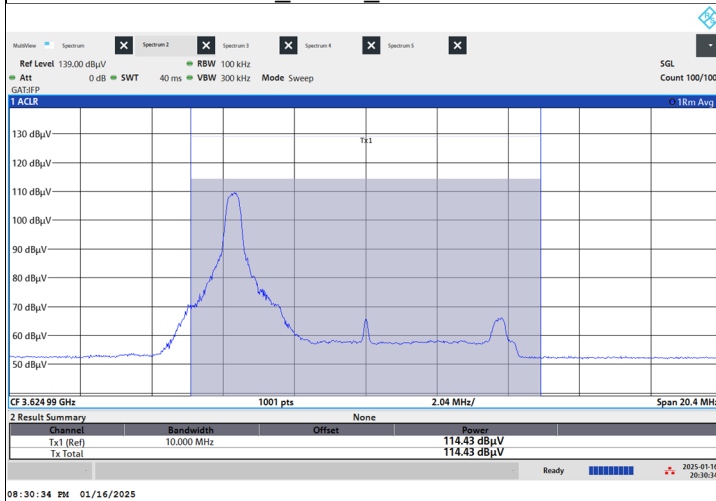
| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 638000  | 3570                    | 114.26                  | -95.26                 | 79.433    | 19         | 23               |
|            | 641666  | 3624.99                 | 114.43                  | -95.26                 | 82.604    | 19.17      | 23               |
|            | 645332  | 3679.98                 | 114.32                  | -95.26                 | 80.538    | 19.06      | 23               |
| 16QAM      | 638000  | 3570                    | 113.47                  | -95.26                 | 66.222    | 18.21      | 23               |
|            | 641666  | 3624.99                 | 113.59                  | -95.26                 | 68.077    | 18.33      | 23               |
|            | 645332  | 3679.98                 | 113.3                   | -95.26                 | 63.68     | 18.04      | 23               |
| 64QAM      | 638000  | 3570                    | 111.95                  | -95.26                 | 46.666    | 16.69      | 23               |
|            | 641666  | 3624.99                 | 112.18                  | -95.26                 | 49.204    | 16.92      | 23               |
|            | 645332  | 3679.98                 | 112.14                  | -95.26                 | 48.753    | 16.88      | 23               |
| 256QAM     | 638000  | 3570                    | 109.32                  | -95.26                 | 25.468    | 14.06      | 23               |
|            | 641666  | 3624.99                 | 109.44                  | -95.26                 | 26.182    | 14.18      | 23               |
|            | 645332  | 3679.98                 | 109.33                  | -95.26                 | 25.527    | 14.07      | 23               |

Notes:

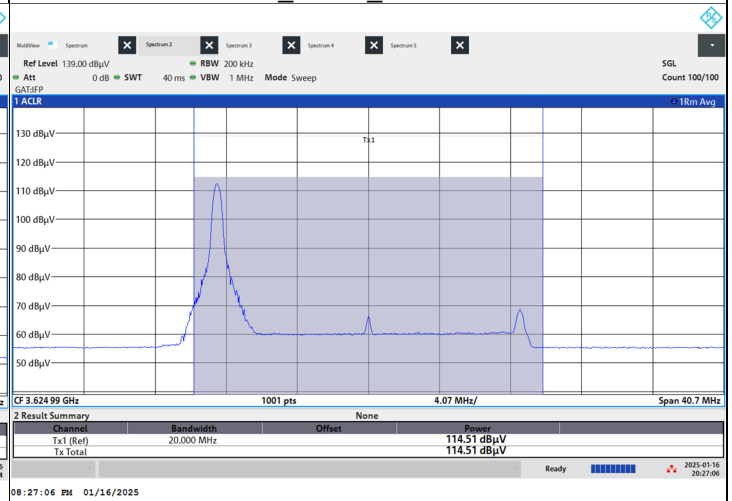
1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

## Spectrum Plot of Worst Value

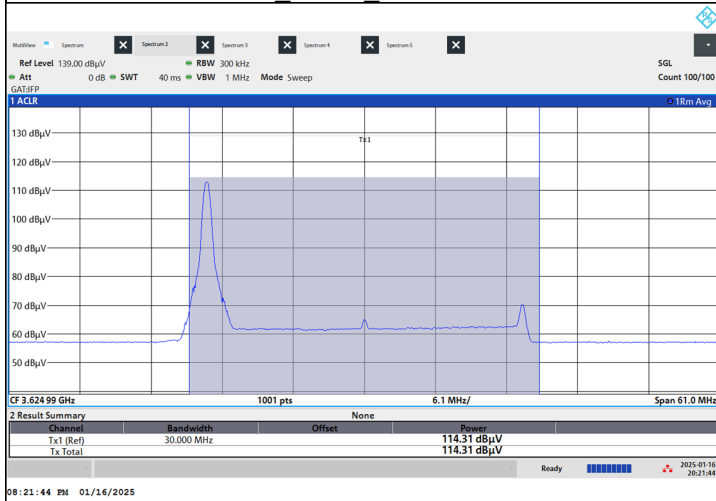
### 10M\_QPSK\_CH641666



### 20M\_QPSK\_CH641666



### 30M\_QPSK\_CH641666



### 40M\_QPSK\_CH641666



**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz, Output Power: dBm/10 MHz**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 637334  | 3560.01                 | 114.23                  | -95.26                 | 78.886    | 18.97      | 23               |
|            | 641666  | 3624.99                 | 114.4                   | -95.26                 | 82.035    | 19.14      | 23               |
|            | 646000  | 3690                    | 114.21                  | -95.26                 | 78.524    | 18.95      | 23               |
| 16QAM      | 637334  | 3560.01                 | 113.17                  | -95.26                 | 61.802    | 17.91      | 23               |
|            | 641666  | 3624.99                 | 113.21                  | -95.26                 | 62.373    | 17.95      | 23               |
|            | 646000  | 3690                    | 113.2                   | -95.26                 | 62.23     | 17.94      | 23               |
| 64QAM      | 637334  | 3560.01                 | 112.01                  | -95.26                 | 47.315    | 16.75      | 23               |
|            | 641666  | 3624.99                 | 112.09                  | -95.26                 | 48.195    | 16.83      | 23               |
|            | 646000  | 3690                    | 111.93                  | -95.26                 | 46.452    | 16.67      | 23               |
| 256QAM     | 637334  | 3560.01                 | 109.42                  | -95.26                 | 26.062    | 14.16      | 23               |
|            | 641666  | 3624.99                 | 109.45                  | -95.26                 | 26.242    | 14.19      | 23               |
|            | 646000  | 3690                    | 109.31                  | -95.26                 | 25.41     | 14.05      | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 30 MHz, Output Power: dBm/10 MHz**

| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 637668  | 3565.02                 | 114.07                  | -95.26                 | 76.033    | 18.81      | 23               |
|            | 641666  | 3624.99                 | 114.19                  | -95.26                 | 78.163    | 18.93      | 23               |
|            | 645666  | 3684.99                 | 114.15                  | -95.26                 | 77.446    | 18.89      | 23               |
| 16QAM      | 637668  | 3565.02                 | 113.07                  | -95.26                 | 60.395    | 17.81      | 23               |
|            | 641666  | 3624.99                 | 113.1                   | -95.26                 | 60.814    | 17.84      | 23               |
|            | 645666  | 3684.99                 | 113.22                  | -95.26                 | 62.517    | 17.96      | 23               |
| 64QAM      | 637668  | 3565.02                 | 111.96                  | -95.26                 | 46.774    | 16.7       | 23               |
|            | 641666  | 3624.99                 | 112.07                  | -95.26                 | 47.973    | 16.81      | 23               |
|            | 645666  | 3684.99                 | 111.99                  | -95.26                 | 47.098    | 16.73      | 23               |
| 256QAM     | 637668  | 3565.02                 | 109.25                  | -95.26                 | 25.061    | 13.99      | 23               |
|            | 641666  | 3624.99                 | 109.36                  | -95.26                 | 25.704    | 14.1       | 23               |
|            | 645666  | 3684.99                 | 109.26                  | -95.26                 | 25.119    | 14         | 23               |

Notes:

1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

**NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 40 MHz, Output Power: dBm/10 MHz**

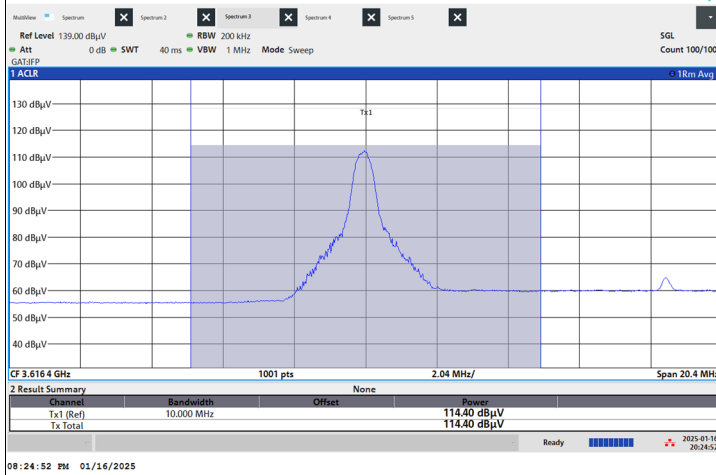
| Modulation | Channel | Channel Frequency (MHz) | Field Strength (dBμV/m) | Correction Factor (dB) | EIRP (mW) | EIRP (dBm) | EIRP Limit (dBm) |
|------------|---------|-------------------------|-------------------------|------------------------|-----------|------------|------------------|
| QPSK       | 638000  | 3570                    | 114.22                  | -95.26                 | 78.705    | 18.96      | 23               |
|            | 641666  | 3624.99                 | 114.39                  | -95.26                 | 81.846    | 19.13      | 23               |
|            | 645332  | 3679.98                 | 114.15                  | -95.26                 | 77.446    | 18.89      | 23               |
| 16QAM      | 638000  | 3570                    | 113.25                  | -95.26                 | 62.951    | 17.99      | 23               |
|            | 641666  | 3624.99                 | 113.37                  | -95.26                 | 64.714    | 18.11      | 23               |
|            | 645332  | 3679.98                 | 113.11                  | -95.26                 | 60.954    | 17.85      | 23               |
| 64QAM      | 638000  | 3570                    | 112                     | -95.26                 | 47.206    | 16.74      | 23               |
|            | 641666  | 3624.99                 | 112.2                   | -95.26                 | 49.431    | 16.94      | 23               |
|            | 645332  | 3679.98                 | 112.05                  | -95.26                 | 47.753    | 16.79      | 23               |
| 256QAM     | 638000  | 3570                    | 109.32                  | -95.26                 | 25.468    | 14.06      | 23               |
|            | 641666  | 3624.99                 | 109.42                  | -95.26                 | 26.062    | 14.16      | 23               |
|            | 645332  | 3679.98                 | 109.32                  | -95.26                 | 25.468    | 14.06      | 23               |

**Notes:**

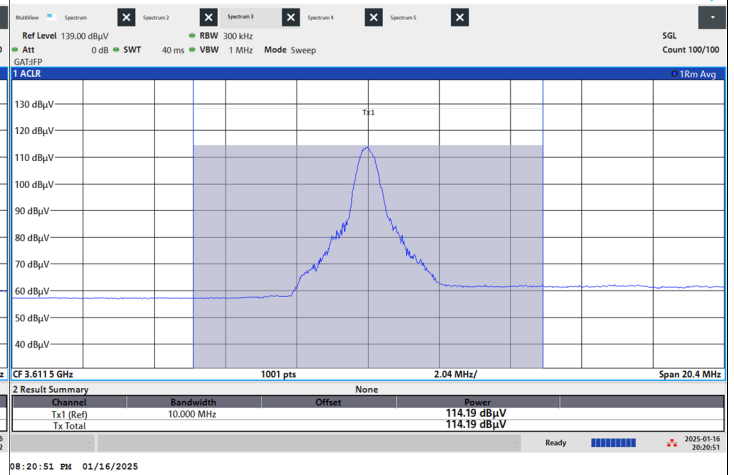
1. EIRP (dBm) = Field Strength (dBμV/m) + Correction Factor (dB)
2. Correction Factor (dB) =  $20\log(D) - 104.8$ ; where D is the measurement distance at 3 meters.

## Spectrum Plot of Worst Value

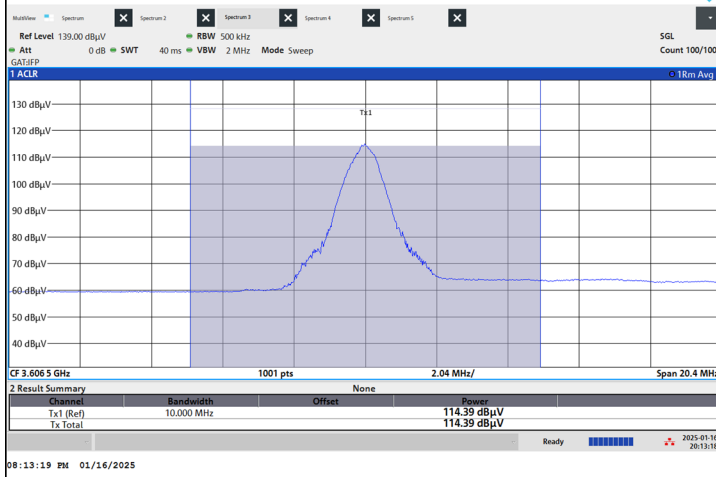
### 20M\_QPSK\_CH641666



### 30M\_QPSK\_CH641666



### 40M\_QPSK\_CH641666



## 7.2 Radiated Spurious Emissions below 1GHz

### 7.2.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)

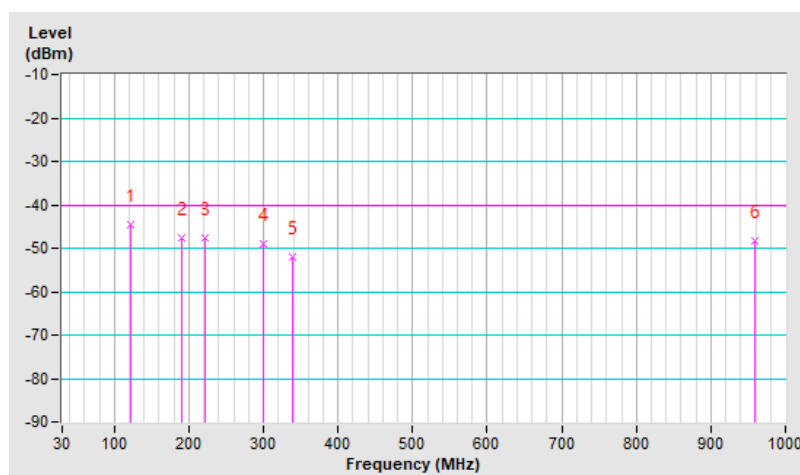
1TX

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 40MHz | <b>Channel</b>                           | CH 641666 : 3624.99 MHz |
| <b>Frequency Range</b> | 30 MHz ~ 1 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 121.18          | -44.50     | -40.00      | -4.50       | 1.00 H             | 81                   | 64.74            | -109.24                  |
| 2                                                    | 190.05          | -47.61     | -40.00      | -7.61       | 1.49 H             | 124                  | 62.62            | -110.23                  |
| 3                                                    | 222.06          | -47.58     | -40.00      | -7.58       | 1.49 H             | 103                  | 63.30            | -110.88                  |
| 4                                                    | 299.66          | -48.98     | -40.00      | -8.98       | 1.00 H             | 245                  | 57.89            | -106.87                  |
| 5                                                    | 339.43          | -51.93     | -40.00      | -11.93      | 2.00 H             | 196                  | 54.07            | -106.00                  |
| 6                                                    | 958.29          | -48.25     | -40.00      | -8.25       | 1.49 H             | 71                   | 46.27            | -94.52                   |

#### Remarks:

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

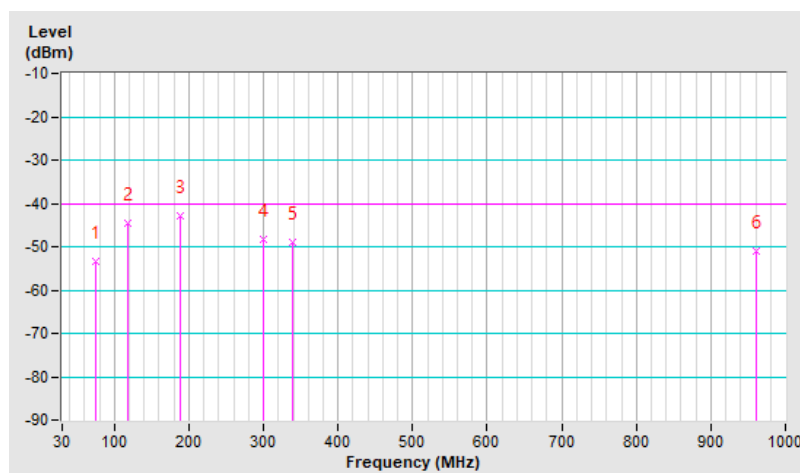


|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 40MHz | <b>Channel</b>                           | CH 641666 : 3624.99 MHz |
| <b>Frequency Range</b> | 30 MHz ~ 1 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |            |             |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 74.62           | -53.39     | -40.00      | -13.39      | 1.01 V             | 2                    | 57.42            | -110.81                  |
| 2                                                  | 118.27          | -44.59     | -40.00      | -4.59       | 1.01 V             | 12                   | 64.95            | -109.54                  |
| 3                                                  | 189.08          | -43.01     | -40.00      | -3.01       | 2.00 V             | 123                  | 67.11            | -110.12                  |
| 4                                                  | 300.63          | -48.33     | -40.00      | -8.33       | 1.51 V             | 176                  | 58.51            | -106.84                  |
| 5                                                  | 339.43          | -48.84     | -40.00      | -8.84       | 1.51 V             | 204                  | 57.16            | -106.00                  |
| 6                                                  | 960.23          | -50.99     | -40.00      | -10.99      | 1.01 V             | 58                   | 43.49            | -94.48                   |

#### Remarks:

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3.  $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



### 7.3 Radiated Spurious Emissions above 1GHz

7.3.1 NR n48 SCS 30 kHz (3.55 GHz ~ 3.7 GHz)

1TX

|                        |                                    |                                          |                      |
|------------------------|------------------------------------|------------------------------------------|----------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 10MHz | <b>Channel</b>                           | CH 637000 : 3555 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)    |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH       |
| <b>Tested By</b>       | Tank Wu                            |                                          |                      |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7110.00         | -50.03     | -40.00      | -10.03      | 1.18 H             | 145                  | 35.22            | -85.25                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7110.00         | -49.13     | -40.00      | -9.13       | 1.78 V             | 171                  | 36.12            | -85.25                   |

#### Remarks:

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 10MHz | <b>Channel</b>                           | CH 641666 : 3624.99 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -49.98     | -40.00      | -9.98       | 1.23 H             | 151                  | 35.62            | -85.60                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -49.18     | -40.00      | -9.18       | 1.89 V             | 183                  | 36.42            | -85.60                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 10MHz | <b>Channel</b>                           | CH 646332 : 3694.98 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7389.96         | -50.11     | -40.00      | -10.11      | 1.23 H             | 147                  | 35.04            | -85.15                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7389.96         | -49.25     | -40.00      | -9.25       | 1.71 V             | 182                  | 35.90            | -85.15                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 20MHz | <b>Channel</b>                           | CH 637334 : 3560.01 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Vincent Chen                       |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7120.02         | -50.30     | -40.00      | -10.30      | 1.23 H             | 149                  | 34.99            | -85.29                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7120.02         | -49.64     | -40.00      | -9.64       | 1.77 V             | 171                  | 35.65            | -85.29                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 20MHz | <b>Channel</b>                           | CH 641666 : 3624.99 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Vincent Chen                       |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -51.01     | -40.00      | -11.01      | 1.14 H             | 142                  | 34.59            | -85.60                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -49.72     | -40.00      | -9.72       | 1.77 V             | 172                  | 35.88            | -85.60                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                      |
|------------------------|------------------------------------|------------------------------------------|----------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 20MHz | <b>Channel</b>                           | CH 646000 : 3690 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)    |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH       |
| <b>Tested By</b>       | Vincent Chen                       |                                          |                      |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7380.00         | -50.43     | -40.00      | -10.43      | 1.14 H             | 145                  | 34.74            | -85.17                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7380.00         | -49.85     | -40.00      | -9.85       | 1.79 V             | 174                  | 35.32            | -85.17                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                      |
|------------------------|------------------------------------|------------------------------------------|----------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 40MHz | <b>Channel</b>                           | CH 638000 : 3570 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)    |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH       |
| <b>Tested By</b>       | Tank Wu                            |                                          |                      |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7140.00         | -49.66     | -40.00      | -9.66       | 1.23 H             | 153                  | 35.71            | -85.37                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7140.00         | -48.94     | -40.00      | -8.94       | 1.72 V             | 183                  | 36.43            | -85.37                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 40MHz | <b>Channel</b>                           | CH 641666 : 3624.99 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -49.69     | -40.00      | -9.69       | 1.31 H             | 144                  | 35.91            | -85.60                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7249.98         | -48.81     | -40.00      | -8.81       | 1.73 V             | 198                  | 36.79            | -85.60                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

|                        |                                    |                                          |                         |
|------------------------|------------------------------------|------------------------------------------|-------------------------|
| <b>RF Mode</b>         | NR n48<br>Channel Bandwidth: 40MHz | <b>Channel</b>                           | CH 645332 : 3679.98 MHz |
| <b>Frequency Range</b> | 1 GHz ~ 40 GHz                     | <b>Detector Function &amp; Bandwidth</b> | 1 MHz/3 MHz (RMS)       |
| <b>Input Power</b>     | 120 Vac, 60 Hz                     | <b>Environmental Conditions</b>          | 25 °C, 65 % RH          |
| <b>Tested By</b>       | Tank Wu                            |                                          |                         |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |            |             |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7359.96         | -49.92     | -40.00      | -9.92       | 1.21 H             | 138                  | 35.29            | -85.21                   |
| Antenna Polarity & Test Distance : Vertical at 3 m   |                 |            |             |             |                    |                      |                  |                          |
| No                                                   | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 7359.96         | -49.40     | -40.00      | -9.40       | 1.66 V             | 178                  | 35.81            | -85.21                   |

**Remarks:**

1.  $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2.  $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

## 8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

## 9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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