# Partial FCC Test Report

# (PART 22)

| | |
|---|---|
| **Report No.:** | RFBHDI-WTW-P21120081-7 |
| **FCC ID:** | 2ATM8EG25G |
| **Test Model:** | EG25-G MINIPCIE |
| **Received Date:** | Dec. 24, 2021 |
| **Test Date:** | Jan. 19 ~ Mar. 29, 2022 |
| **Issued Date:** | Apr. 22, 2022 |
| **Applicant:** | Hawkeye Tech Co., Ltd. |
| **Address:** | 13F. No.736, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories |
| **Lab Address:** | No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan |
| **Test Location:** | No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan |
| **FCC Registration / Designation Number:** | 788550 / TW0003 |

Testing Laboratory
2021

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RFBHDI-WTW-P21120081-7 | Original Release | Apr. 22, 2022 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | LTE Module |
| **Brand:** | Hawkeye Tech Co., Ltd. |
| **Test Model:** | EG25-G MINIPCIE |
| **Sample Status:** | Engineering Sample |
| **Applicant:** | Hawkeye Tech Co., Ltd. |
| **Test Date:** | Jan. 19 ~ Mar. 29, 2022 |
| **Standards:** | FCC Part 22, Subpart H |

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.

**Prepared by :** Lena Wang , **Date:** Apr. 22, 2022

Lena Wang / Specialist

**Approved by :** Jeremy Lin , **Date:** Apr. 22, 2022

Jeremy Lin / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 22 & Part 2 | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>22.913 (a) | Effective Radiated Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | N/A | Refer to Note |
| 2.1046<br>22.913 (d) | Peak to Average Ratio | N/A | Refer to Note |
| 2.1055<br>22.355 | Frequency Stability | N/A | Refer to Note |
| 2.1049 | Occupied Bandwidth | N/A | Refer to Note |
| 22.917 | Band Edge Measurements | N/A | Refer to Note |
| 2.1051<br>22.917 | Conducted Spurious Emissions | N/A | Refer to Note |
| 2.1053<br>22.917 | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -30.80 dB at 30.97 MHz. |

Note:

1. This report is a partial report. Therefore, only test item of Effective Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to SGS report no.: HR/2019/1001601 for module (Brand: Quectel, Model: EG25-G MINIPCIE)
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:

| Measurement | Frequency | Expanded Uncertainty (k=2) (±) |
|---|---|---|
| Radiated Emissions up to 1 GHz | 9 kHz ~ 30 MHz | 3.0400 dB |
| | 30 MHz ~ 200 MHz | 2.0153 dB |
| | 200 MHz ~ 1000 MHz | 2.0224 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 1.0121 dB |
| | 18 GHz ~ 40 GHz | 1.1508 dB |

## 2.2 Test Site and Instruments

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|---|---|---|---|---|
| Spectrum Analyzer<br>Agilent | N9010A | MY52220207 | Jan. 06, 2022 | Jan. 05, 2023 |
| Test Receiver<br>Agilent | N9038A | MY51210203 | Sep. 22, 2021 | Sep. 21, 2022 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSU43 | 101261 | Apr. 12, 2021 | Apr. 11, 2022 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120D | 9120D-969 | Nov. 14, 2021 | Nov. 13, 2022 |
| BILOG Antenna<br>SCHWARZBECK | VULB 9168 | 9168-472 | Oct. 28, 2021 | Oct. 27, 2022 |
| Fixed Attenuator<br>WOKEN | MDCS18N-10 | MDCS18N-10-01 | Apr. 13, 2021 | Apr. 12, 2022 |
| MXG Vector signal generator<br>Agilent | N5182B | MY53050430 | Nov. 25, 2021 | Nov. 24, 2022 |
| Preamplifier<br>EMCI | EMC 012645 | 980115 | Oct. 05, 2021 | Oct. 04, 2022 |
| Preamplifier<br>EMCI | EMC 330H | 980112 | Oct. 05, 2021 | Oct. 04, 2022 |
| RF Coaxial Cable<br>EMCI | EMC104-SM-SM-8000 | 171005 | Oct. 05, 2021 | Oct. 04, 2022 |
| RF Coaxial Cable<br>HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM-1000(140807) | Oct. 05, 2021 | Oct. 04, 2022 |
| RF Coaxial Cable<br>WOKEN | 8D-FB | Cable-Ch10-01 | Oct. 05, 2021 | Oct. 04, 2022 |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| Software<br>BV ADT | E3<br>6.120103 | NA | NA | NA |
| Antenna Tower<br>MF | MFA-440H | NA | NA | NA |
| Turn Table<br>MF | MFT-201SS | NA | NA | NA |
| Antenna Tower &Turn Table Controller<br>MF | MF-7802 | NA | NA | NA |
| Radio Communication Analyzer<br>Anritsu | MT8820C | 6201010284 | Dec. 24, 2021 | Dec. 23, 2022 |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

## 3 General Information

### 3.1 General Description of EUT

| | | | |
|---|---|---|---|
| **Product** | LTE Module | | |
| **Brand** | Hawkeye Tech Co., Ltd. | | |
| **Test Model** | EG25-G MINIPCIE | | |
| **Status of EUT** | Engineering Sample | | |
| **Power Supply Rating** | 48Vdc (Adapter and PoE) | | |
| **Modulation Type** | GSM/GPRS | GMSK | |
| | EDGE | GMSK, 8PSK | |
| | WCDMA | QPSK | |
| | LTE | QPSK, 16QAM | |
| **Frequency Range** | GSM/GPRS/EDGE | 824.2 ~ 848.8 MHz | |
| | WCDMA | 826.4 ~ 846.6 MHz | |
| | LTE 5 (Channel Bandwidth: 1.4 MHz) | 824.7 ~ 848.3 MHz | |
| | LTE 5 (Channel Bandwidth: 3 MHz) | 825.5 ~ 847.5 MHz | |
| | LTE 5 (Channel Bandwidth: 5 MHz) | 826.5 ~ 846.5 MHz | |
| | LTE 5 (Channel Bandwidth: 10 MHz) | 829 ~ 844 MHz | |
| | LTE 26 (Channel Bandwidth: 1.4 MHz) | 824.7 ~ 848.3 MHz | |
| | LTE 26 (Channel Bandwidth: 3 MHz) | 825.5 ~ 847.5 MHz | |
| | LTE 26 (Channel Bandwidth: 5 MHz) | 826.5 ~ 846.5 MHz | |
| | LTE 26 (Channel Bandwidth: 10 MHz) | 829 ~ 844 MHz | |
| | LTE 26 (Channel Bandwidth: 15 MHz) | 831.5 ~ 841.5 MHz | |
| **Max. ERP Power** | GSM/GPRS | 1188.502 mW (30.75dBm) | |
| | WCDMA | 152.405 mW (21.83dBm) | |
| | | QPSK | 16QAM |
| | LTE 5 (Channel Bandwidth: 1.4 MHz) | 143.219 mW (21.56dBm) | 98.855 mW (19.95dBm) |
| | LTE 5 (Channel Bandwidth: 3 MHz) | 140.281 mW (21.47dBm) | 101.859 mW (20.08dBm) |
| | LTE 5 (Channel Bandwidth: 5 MHz) | 140.281 mW (21.47dBm) | 99.541 mW (19.98dBm) |
| | LTE 5 (Channel Bandwidth: 10 MHz) | 142.233 mW (21.53dBm) | 106.660 mW (20.28dBm) |
| | LTE 26 (Channel Bandwidth: 1.4 MHz) | 121.339 mW (20.84dBm) | 94.406 mW (19.75dBm) |
| | LTE 26 (Channel Bandwidth: 3 MHz) | 127.057 mW (21.04dBm) | 96.828 mW (19.86dBm) |
| | LTE 26 (Channel Bandwidth: 5 MHz) | 130.617 mW (21.16dBm) | 95.940 mW (19.82dBm) |
| | LTE 26 (Channel Bandwidth: 10 MHz) | 132.739 mW (21.23dBm) | 98.175 mW (19.92dBm) |
| | LTE 26 (Channel Bandwidth: 15 MHz) | 133.968 mW (21.27dBm) | 95.719 mW (19.81dBm) |

| | |
|---|---|
| **Antenna Type** | Dipole Antenna  with 0.3 dBi gain |
| **Accessory Device** | N/A |
| **Data Cable Supplied** | N/A |

Note:

1. The EUT was installed in a specific End-product.

| Product | Brand | Model | FCC ID |
|---|---|---|---|
| veeaHub | veeaHub | VHH09-4GL | 2ARXKVHE09-4GL |

2. The End-product contains following accessory devices.

| Product | Brand | Model | Description |
|---|---|---|---|
| Adapter | EDAC Power Electronics Co., Ltd. | EA1062SGR-480 | I/P: 100-240 Vac, 50/60 Hz, 2.5A<br>O/P: 48 Vdc, 1.35 A<br>1.2m DC cable with 1 core |

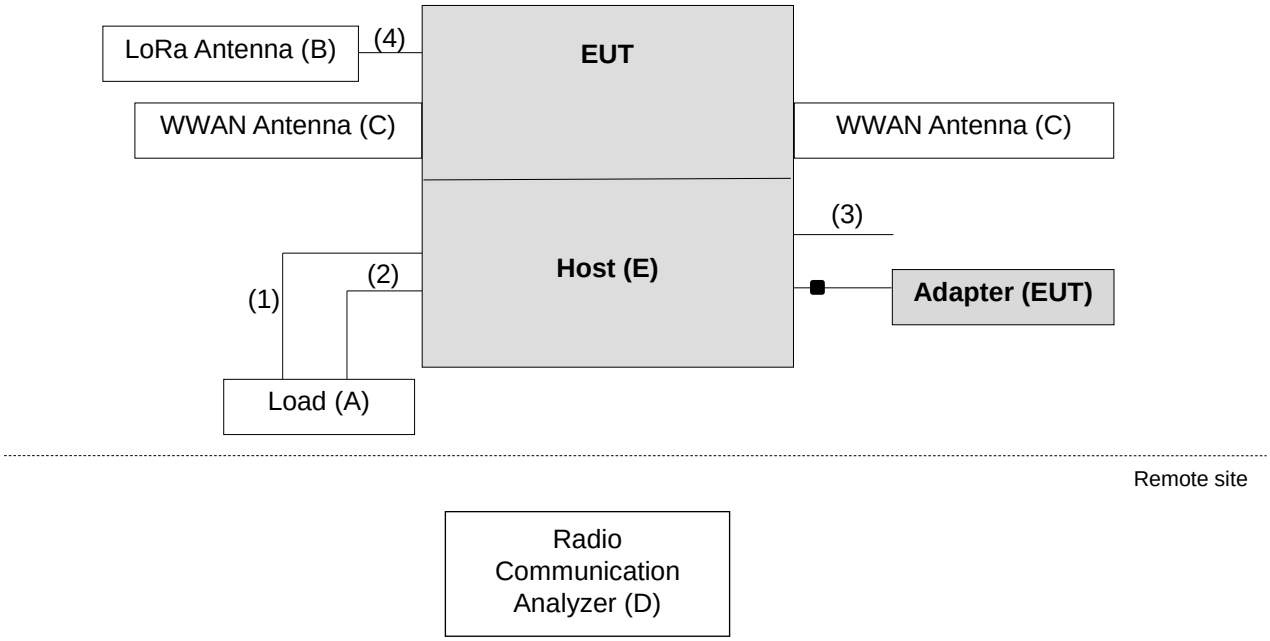
3. The End-product use following devices (Support unit).

| Product | Brand | Model | Description |
|---|---|---|---|
| PoE | N/A | APOE02-WM | O/P: 48 Vdc |

4. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
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 Configuration of System under Test

**<Radiated Emission Test> & <E.R.P. Test>**




### 3.2.1 Description of Support Units

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

| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks |
|---|---|---|---|---|---|---|
| A. | Load | NA | NA | NA | NA | - |
| B. | LoRa Antenna | PCTEL | MFB9155NF | NA | NA | Provided by manufacturer |
| C. | WWAN Antenna | 2J | 2J2124W -C315N | NA | NA | Provided by manufacturer |
| D. | Radio Communication Analyzer | Anritsu | MT8820C | 6201010284 | NA | - |
| E. | veeaHub | veeaHub | VHE09XXXXX (X=A-Z, 0-9, blank or "-") | NA | 2ARXKVHE09-4GL | Provided by manufacturer |

Note: All power cords of the above support units are non-shielded (1.8m).

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|---|---|---|---|---|---|---|
| 1. | LAN cable | 1 | 0.4 | N | 0 | RJ45, Cat5e |
| 2. | LAN cable | 1 | 0.4 | N | 0 | RJ45, Cat5e |
| 3. | RS232 cable | 1 | 0.4 | Y | 0 | - |
| 4. | Coaxial cable | 1 | 1.5 | Y | 0 | - |

### 3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, antenna degree 90° and 180°, and antenna ports.
The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

| Band | Radiated Emission |
|---|---|
| GSM | X-axis |
| WCDMA | X-axis |
| LTE Band 5 | X-axis |

**GSM**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| - | ERP | 128 to 251 | 128, 189, 251 | GSM, EDGE |
| - | Radiated Emission | 128 to 251 | 128 | GSM, EDGE |

**WCDMA**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| - | ERP | 4132 to 4233 | 4132, 4182, 4233 | WCDMA |
| - | Radiated Emission | 4132 to 4233 | 4132 | WCDMA |

**LTE Band 5**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | ERP | 20407 to 20643 | 20407, 20525, 20643 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20415 to 20635 | 20415, 20525, 20635 | 3 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20425 to 20625 | 20425, 20525, 20625 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20450 to 20600 | 20450, 20525, 20600 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| - | Radiated Emission | 20407 to 20643 | 20407 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |

**Note:**

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation and RB configurations according to Module report worst maximum output power.
2. For radiated emission, select the worst radiated emission channel for final testing.

**LTE Band 26**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | ERP | 26797 to 27033 | 26797, 26915, 27033 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 26805 to 27025 | 26805, 26915, 27025 | 3 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 26815 to 27015 | 26815, 26915, 27015 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 26840 to 26990 | 26840, 26915, 26990 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 26865 to 26965 | 26865, 26915, 26965 | 15 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation. Therefore, only ERP items had been tested under QPSK, 16QAM mode, the other items were performed under QPSK mode only.

**Test Condition:**

| Test Item | Environmental Conditions | Input Power | Tested By |
|---|---|---|---|
| ERP | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Vincent Chen |
| Radiated Emission | 23 deg. C, 65 % RH | 120 Vac, 60 Hz | Vincent Chen |

### 3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

### 3.5 General Description of Applied Standards and references

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

**Test Standard:**
**FCC 47 CFR Part 2**
**FCC 47 CFR Part 22**
**ANSI 63.26-2015**

**Note:** All test items have been performed and recorded as per the above standards.

**References Test Guidance:**
**KDB 971168 D01 Power Meas License Digital Systems v03r01**
**ANSI/TIA/EIA-603-E 2016**

**Note:** All test items have been performed as a reference to the above KDB test guidance.

# 4 Test Types and Results

## 4.1 Output Power Measurement

### 4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 7 watts e.r.p.

### 4.1.2 Test Procedures

**Conducted Power Measurement:**

The EUT was set up for the maximum power with GSM, WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

**Maximum EIRP / ERP**

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$EIRP = P_{Meas} + G_T$

$ERP = P_{Meas} + G_T - 2.15$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as $P_{Meas}$, e.g., dBm or dBW)

$P_{Meas}$ measured transmitter output power or PSD, in dBm or dBW

$G_T$ gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

### 4.1.3 Test Setup

**Conducted Power Measurement:**

4.1.4 Test Results

**Conducted Output Power (dBm)**

| Band | GSM850 | | |
|---|---|---|---|
| Channel | 128 | 189 | 251 |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 |
| GSM (GMSK, 1Tx-slot) | **32.60** | 32.44 | 32.58 |
| EDGE (8PSK, 1Tx-slot) | 28.27 | 28.12 | 28.30 |

| Band | WCDMA V | | |
|---|---|---|---|
| Channel | 4132 | 4182 | 4233 |
| Frequency (MHz) | 826.4 | 836.4 | 846.6 |
| RMC 12.2K | **23.68** | 23.62 | 23.61 |
| HSDPA Subtest-1 | 22.69 | 22.76 | 22.75 |
| HSUPA Subtest-1 | 22.18 | 22.24 | 22.24 |

| LTE Band 5 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20407 | 20525 | 20643 |
| | | Frequency (MHz) | | 824.7 | 836.5 | 848.3 |
| 1.4M | QPSK | 1 | 0 | 23.03 | 22.58 | 22.98 |
| | | 1 | 2 | **23.41** | 22.72 | 23.13 |
| | | 1 | 5 | 23.09 | 22.64 | 22.99 |
| | | 3 | 0 | 22.86 | 22.51 | 22.95 |
| | | 3 | 1 | 22.85 | 22.56 | 22.96 |
| | | 3 | 3 | 22.82 | 22.52 | 22.82 |
| | | 6 | 0 | 21.80 | 21.53 | 21.84 |
| | 16QAM | 1 | 0 | 21.76 | 21.66 | 21.73 |
| | | 1 | 2 | **21.80** | 21.67 | 21.78 |
| | | 1 | 5 | 21.61 | 21.51 | 21.55 |
| | | 3 | 0 | 21.62 | 21.54 | 21.51 |
| | | 3 | 1 | 21.41 | 21.44 | 21.33 |
| | | 3 | 3 | 21.40 | 21.49 | 21.32 |
| | | 6 | 0 | 20.25 | 20.42 | 20.34 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20415 | 20525 | 20635 |
| | | Frequency (MHz) | | 825.5 | 836.5 | 847.5 |
| 3M | QPSK | 1 | 0 | 23.17 | 22.55 | 23.04 |
| | | 1 | 7 | **23.32** | 22.94 | 23.30 |
| | | 1 | 14 | 23.29 | 22.86 | 23.28 |
| | | 8 | 0 | 22.09 | 21.61 | 22.17 |
| | | 8 | 3 | 22.14 | 21.69 | 22.27 |
| | | 8 | 7 | 22.03 | 21.64 | 22.22 |
| | | 15 | 0 | 22.02 | 21.64 | 22.32 |
| | 16QAM | 1 | 0 | 21.89 | 21.44 | 21.71 |
| | | 1 | 7 | **21.93** | 21.23 | 21.83 |
| | | 1 | 14 | 21.64 | 21.18 | 21.64 |
| | | 8 | 0 | 21.11 | 20.64 | 21.16 |
| | | 8 | 3 | 21.28 | 20.84 | 21.27 |
| | | 8 | 7 | 21.13 | 20.75 | 21.23 |
| | | 15 | 0 | 21.08 | 20.80 | 21.25 |

| LTE Band 5 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20425 | 20525 | 20625 |
| | | Frequency (MHz) | | 826.5 | 836.5 | 846.5 |
| 5M | QPSK | 1 | 0 | 22.92 | 22.33 | 22.86 |
| | | 1 | 12 | **23.32** | 22.76 | 23.25 |
| | | 1 | 24 | 23.24 | 22.67 | 23.19 |
| | | 12 | 0 | 22.14 | 21.56 | 22.03 |
| | | 12 | 6 | 22.18 | 21.61 | 22.18 |
| | | 12 | 13 | 22.09 | 21.63 | 22.22 |
| | | 25 | 0 | 22.01 | 21.59 | 22.13 |
| | 16QAM | 1 | 0 | 21.80 | 21.42 | 21.78 |
| | | 1 | 12 | **21.83** | 21.47 | 21.75 |
| | | 1 | 24 | 21.15 | 20.87 | 21.25 |
| | | 12 | 0 | 20.76 | 20.43 | 20.71 |
| | | 12 | 6 | 20.77 | 20.49 | 20.71 |
| | | 12 | 13 | 21.03 | 20.80 | 21.05 |
| | | 25 | 0 | 20.59 | 20.48 | 20.82 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20450 | 20525 | 20600 |
| | | Frequency (MHz) | | 829 | 836.5 | 844 |
| 10M | QPSK | 1 | 0 | 23.03 | 22.43 | 22.72 |
| | | 1 | 24 | **23.38** | 22.74 | 23.04 |
| | | 1 | 49 | 23.31 | 22.86 | 23.06 |
| | | 25 | 0 | 21.98 | 21.45 | 21.70 |
| | | 25 | 12 | 22.16 | 21.59 | 21.86 |
| | | 25 | 25 | 22.09 | 21.64 | 22.01 |
| | | 50 | 0 | 21.81 | 21.47 | 21.86 |
| | 16QAM | 1 | 0 | 21.87 | 21.37 | 21.68 |
| | | 1 | 24 | **22.13** | 21.47 | 21.78 |
| | | 1 | 49 | 21.80 | 21.73 | 22.06 |
| | | 25 | 0 | 20.71 | 20.46 | 20.92 |
| | | 25 | 12 | 20.97 | 20.79 | 21.32 |
| | | 25 | 25 | 20.88 | 20.72 | 21.28 |
| | | 50 | 0 | 20.70 | 20.64 | 21.24 |

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26797 | 26915 | 27033 |
| | | Frequency (MHz) | | 824.7 | 836.5 | 848.3 |
| 1.4M | QPSK | 1 | 0 | 22.52 | 22.27 | 22.58 |
| | | 1 | 2 | **22.69** | 22.35 | 22.52 |
| | | 1 | 5 | 22.40 | 22.24 | 22.68 |
| | | 3 | 0 | 22.22 | 22.18 | 22.52 |
| | | 3 | 1 | 22.23 | 22.30 | 22.56 |
| | | 3 | 3 | 22.13 | 22.23 | 22.40 |
| | | 6 | 0 | 21.01 | 21.20 | 21.33 |
| | 16QAM | 1 | 0 | 21.48 | 21.27 | 21.43 |
| | | 1 | 2 | **21.60** | 21.38 | 21.54 |
| | | 1 | 5 | 21.37 | 21.20 | 21.26 |
| | | 3 | 0 | 21.31 | 21.15 | 21.18 |
| | | 3 | 1 | 21.29 | 21.25 | 21.29 |
| | | 3 | 3 | 21.18 | 21.23 | 21.25 |
| | | 6 | 0 | 20.26 | 20.26 | 20.20 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26805 | 26915 | 27025 |
| | | Frequency (MHz) | | 825.5 | 836.5 | 847.5 |
| 3M | QPSK | 1 | 0 | 22.63 | 22.40 | 22.65 |
| | | 1 | 7 | **22.89** | 22.61 | 22.73 |
| | | 1 | 14 | 22.49 | 22.42 | 22.67 |
| | | 8 | 0 | 21.35 | 21.39 | 21.70 |
| | | 8 | 3 | 21.32 | 21.48 | 21.83 |
| | | 8 | 7 | 21.23 | 21.42 | 21.86 |
| | | 15 | 0 | 21.02 | 21.30 | 21.82 |
| | 16QAM | 1 | 0 | 21.52 | 21.04 | 21.37 |
| | | 1 | 7 | **21.71** | 21.23 | 21.53 |
| | | 1 | 14 | 21.36 | 21.08 | 21.67 |
| | | 8 | 0 | 20.55 | 20.36 | 20.86 |
| | | 8 | 3 | 20.57 | 20.35 | 20.81 |
| | | 8 | 7 | 20.67 | 20.43 | 20.91 |
| | | 15 | 0 | 20.61 | 20.37 | 20.81 |

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26815 | 26915 | 27015 |
| | | Frequency (MHz) | | 826.5 | 836.5 | 846.5 |
| 5M | QPSK | 1 | 0 | 22.53 | 22.22 | 22.50 |
| | | 1 | 12 | **23.01** | 22.77 | 22.97 |
| | | 1 | 24 | 22.77 | 22.48 | 22.74 |
| | | 12 | 0 | 21.45 | 21.20 | 21.50 |
| | | 12 | 6 | 21.54 | 21.36 | 21.75 |
| | | 12 | 13 | 21.57 | 21.40 | 21.83 |
| | | 25 | 0 | 21.52 | 21.35 | 21.72 |
| | 16QAM | 1 | 0 | 21.43 | 21.08 | 21.40 |
| | | 1 | 12 | **21.67** | 21.48 | 21.63 |
| | | 1 | 24 | 21.50 | 21.16 | 21.43 |
| | | 12 | 0 | 20.62 | 20.23 | 20.54 |
| | | 12 | 6 | 20.51 | 20.16 | 20.39 |
| | | 12 | 13 | 20.35 | 20.12 | 20.39 |
| | | 25 | 0 | 20.55 | 20.31 | 20.49 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26840 | 26915 | 26990 |
| | | Frequency (MHz) | | 829 | 836.5 | 844 |
| 10M | QPSK | 1 | 0 | 22.65 | 22.36 | 22.52 |
| | | 1 | 24 | **23.08** | 22.79 | 23.05 |
| | | 1 | 49 | 22.92 | 22.68 | 22.91 |
| | | 25 | 0 | 21.41 | 21.29 | 21.56 |
| | | 25 | 12 | 21.50 | 21.46 | 21.64 |
| | | 25 | 25 | 21.50 | 21.41 | 21.51 |
| | | 50 | 0 | 21.45 | 21.35 | 21.38 |
| | 16QAM | 1 | 0 | 21.46 | 21.31 | 21.47 |
| | | 1 | 24 | **21.77** | 21.51 | 21.56 |
| | | 1 | 49 | 21.17 | 21.22 | 21.36 |
| | | 25 | 0 | 20.31 | 20.31 | 20.46 |
| | | 25 | 12 | 20.37 | 20.36 | 20.49 |
| | | 25 | 25 | 20.34 | 20.40 | 20.43 |
| | | 50 | 0 | 20.19 | 20.33 | 20.45 |

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26865 | 26915 | 26965 |
| | | Frequency (MHz) | | 831.5 | 836.5 | 841.5 |
| 15M | QPSK | 1 | 0 | 22.49 | 22.29 | 22.32 |
| | | 1 | 37 | **23.12** | 22.88 | 22.82 |
| | | 1 | 74 | 22.86 | 22.66 | 22.53 |
| | | 36 | 0 | 21.38 | 21.29 | 21.12 |
| | | 36 | 19 | 21.45 | 21.37 | 21.10 |
| | | 36 | 39 | 21.30 | 21.32 | 21.15 |
| | | 75 | 0 | 21.12 | 21.25 | 21.07 |
| | 16QAM | 1 | 0 | 21.43 | 21.36 | 21.38 |
| | | 1 | 37 | **21.66** | 21.49 | 21.49 |
| | | 1 | 74 | 21.16 | 21.24 | 21.19 |
| | | 36 | 0 | 20.17 | 20.28 | 20.14 |
| | | 36 | 19 | 20.18 | 20.32 | 20.28 |
| | | 36 | 39 | 20.05 | 20.26 | 20.28 |
| | | 75 | 0 | 20.23 | 20.42 | 20.37 |

**ERP Power (dBm)**

| Band | GSM850 | | |
|---|---|---|---|
| Channel | 128 | 189 | 251 |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 |
| GSM (GMSK, 1Tx-slot) | **30.75** | 30.59 | 30.73 |
| EDGE (8PSK, 1Tx-slot) | 26.42 | 26.27 | 26.45 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| Band | WCDMA V | | |
|---|---|---|---|
| Channel | 4132 | 4182 | 4233 |
| Frequency (MHz) | 826.4 | 836.4 | 846.6 |
| RMC 12.2K | **21.83** | 21.77 | 21.76 |
| HSDPA Subtest-1 | 20.84 | 20.91 | 20.90 |
| HSUPA Subtest-1 | 20.33 | 20.39 | 20.39 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| LTE Band 5 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20407 | 20525 | 20643 |
| | | Frequency (MHz) | | 824.7 | 836.5 | 848.3 |
| 1.4M | QPSK | 1 | 0 | 21.18 | 20.73 | 21.13 |
| | | 1 | 2 | **21.56** | 20.87 | 21.28 |
| | | 1 | 5 | 21.24 | 20.79 | 21.14 |
| | | 3 | 0 | 21.01 | 20.66 | 21.10 |
| | | 3 | 1 | 21.00 | 20.71 | 21.11 |
| | | 3 | 3 | 20.97 | 20.67 | 20.97 |
| | | 6 | 0 | 19.95 | 19.68 | 19.99 |
| | 16QAM | 1 | 0 | 19.91 | 19.81 | 19.88 |
| | | 1 | 2 | **19.95** | 19.82 | 19.93 |
| | | 1 | 5 | 19.76 | 19.66 | 19.70 |
| | | 3 | 0 | 19.77 | 19.69 | 19.66 |
| | | 3 | 1 | 19.56 | 19.59 | 19.48 |
| | | 3 | 3 | 19.55 | 19.64 | 19.47 |
| | | 6 | 0 | 18.40 | 18.57 | 18.49 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20415 | 20525 | 20635 |
| | | Frequency (MHz) | | 825.5 | 836.5 | 847.5 |
| 3M | QPSK | 1 | 0 | 21.32 | 20.70 | 21.19 |
| | | 1 | 7 | **21.47** | 21.09 | 21.45 |
| | | 1 | 14 | 21.44 | 21.01 | 21.43 |
| | | 8 | 0 | 20.24 | 19.76 | 20.32 |
| | | 8 | 3 | 20.29 | 19.84 | 20.42 |
| | | 8 | 7 | 20.18 | 19.79 | 20.37 |
| | | 15 | 0 | 20.17 | 19.79 | 20.47 |
| | 16QAM | 1 | 0 | 20.04 | 19.59 | 19.86 |
| | | 1 | 7 | **20.08** | 19.38 | 19.98 |
| | | 1 | 14 | 19.79 | 19.33 | 19.79 |
| | | 8 | 0 | 19.26 | 18.79 | 19.31 |
| | | 8 | 3 | 19.43 | 18.99 | 19.42 |
| | | 8 | 7 | 19.28 | 18.90 | 19.38 |
| | | 15 | 0 | 19.23 | 18.95 | 19.40 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| LTE Band 5 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20425 | 20525 | 20625 |
| | | Frequency (MHz) | | 826.5 | 836.5 | 846.5 |
| 5M | QPSK | 1 | 0 | 21.07 | 20.48 | 21.01 |
| | | 1 | 12 | **21.47** | 20.91 | 21.40 |
| | | 1 | 24 | 21.39 | 20.82 | 21.34 |
| | | 12 | 0 | 20.29 | 19.71 | 20.18 |
| | | 12 | 6 | 20.33 | 19.76 | 20.33 |
| | | 12 | 13 | 20.24 | 19.78 | 20.37 |
| | | 25 | 0 | 20.16 | 19.74 | 20.28 |
| | 16QAM | 1 | 0 | 19.95 | 19.57 | 19.93 |
| | | 1 | 12 | **19.98** | 19.62 | 19.90 |
| | | 1 | 24 | 19.30 | 19.02 | 19.40 |
| | | 12 | 0 | 18.91 | 18.58 | 18.86 |
| | | 12 | 6 | 18.92 | 18.64 | 18.86 |
| | | 12 | 13 | 19.18 | 18.95 | 19.20 |
| | | 25 | 0 | 18.74 | 18.63 | 18.97 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 20450 | 20525 | 20600 |
| | | Frequency (MHz) | | 829 | 836.5 | 844 |
| 10M | QPSK | 1 | 0 | 21.18 | 20.58 | 20.87 |
| | | 1 | 24 | **21.53** | 20.89 | 21.19 |
| | | 1 | 49 | 21.46 | 21.01 | 21.21 |
| | | 25 | 0 | 20.13 | 19.60 | 19.85 |
| | | 25 | 12 | 20.31 | 19.74 | 20.01 |
| | | 25 | 25 | 20.24 | 19.79 | 20.16 |
| | | 50 | 0 | 19.96 | 19.62 | 20.01 |
| | 16QAM | 1 | 0 | 20.02 | 19.52 | 19.83 |
| | | 1 | 24 | **20.28** | 19.62 | 19.93 |
| | | 1 | 49 | 19.95 | 19.88 | 20.21 |
| | | 25 | 0 | 18.86 | 18.61 | 19.07 |
| | | 25 | 12 | 19.12 | 18.94 | 19.47 |
| | | 25 | 25 | 19.03 | 18.87 | 19.43 |
| | | 50 | 0 | 18.85 | 18.79 | 19.39 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26797 | 26915 | 27033 |
| | | Frequency (MHz) | | 824.7 | 836.5 | 848.3 |
| 1.4M | QPSK | 1 | 0 | 20.67 | 20.42 | 20.73 |
| | | 1 | 2 | **20.84** | 20.50 | 20.67 |
| | | 1 | 5 | 20.55 | 20.39 | 20.83 |
| | | 3 | 0 | 20.37 | 20.33 | 20.67 |
| | | 3 | 1 | 20.38 | 20.45 | 20.71 |
| | | 3 | 3 | 20.28 | 20.38 | 20.55 |
| | | 6 | 0 | 19.16 | 19.35 | 19.48 |
| | 16QAM | 1 | 0 | 19.63 | 19.42 | 19.58 |
| | | 1 | 2 | **19.75** | 19.53 | 19.69 |
| | | 1 | 5 | 19.52 | 19.35 | 19.41 |
| | | 3 | 0 | 19.46 | 19.30 | 19.33 |
| | | 3 | 1 | 19.44 | 19.40 | 19.44 |
| | | 3 | 3 | 19.33 | 19.38 | 19.40 |
| | | 6 | 0 | 18.41 | 18.41 | 18.35 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26805 | 26915 | 27025 |
| | | Frequency (MHz) | | 825.5 | 836.5 | 847.5 |
| 3M | QPSK | 1 | 0 | 20.78 | 20.55 | 20.80 |
| | | 1 | 7 | **21.04** | 20.76 | 20.88 |
| | | 1 | 14 | 20.64 | 20.57 | 20.82 |
| | | 8 | 0 | 19.50 | 19.54 | 19.85 |
| | | 8 | 3 | 19.47 | 19.63 | 19.98 |
| | | 8 | 7 | 19.38 | 19.57 | 20.01 |
| | | 15 | 0 | 19.17 | 19.45 | 19.97 |
| | 16QAM | 1 | 0 | 19.67 | 19.19 | 19.52 |
| | | 1 | 7 | **19.86** | 19.38 | 19.68 |
| | | 1 | 14 | 19.51 | 19.23 | 19.82 |
| | | 8 | 0 | 18.70 | 18.51 | 19.01 |
| | | 8 | 3 | 18.72 | 18.50 | 18.96 |
| | | 8 | 7 | 18.82 | 18.58 | 19.06 |
| | | 15 | 0 | 18.76 | 18.52 | 18.96 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26815 | 26915 | 27015 |
| | | Frequency (MHz) | | 826.5 | 836.5 | 846.5 |
| 5M | QPSK | 1 | 0 | 20.68 | 20.37 | 20.65 |
| | | 1 | 12 | **21.16** | 20.92 | 21.12 |
| | | 1 | 24 | 20.92 | 20.63 | 20.89 |
| | | 12 | 0 | 19.60 | 19.35 | 19.65 |
| | | 12 | 6 | 19.69 | 19.51 | 19.90 |
| | | 12 | 13 | 19.72 | 19.55 | 19.98 |
| | | 25 | 0 | 19.67 | 19.50 | 19.87 |
| | 16QAM | 1 | 0 | 19.58 | 19.23 | 19.55 |
| | | 1 | 12 | **19.82** | 19.63 | 19.78 |
| | | 1 | 24 | 19.65 | 19.31 | 19.58 |
| | | 12 | 0 | 18.77 | 18.38 | 18.69 |
| | | 12 | 6 | 18.66 | 18.31 | 18.54 |
| | | 12 | 13 | 18.50 | 18.27 | 18.54 |
| | | 25 | 0 | 18.70 | 18.46 | 18.64 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26840 | 26915 | 26990 |
| | | Frequency (MHz) | | 829 | 836.5 | 844 |
| 10M | QPSK | 1 | 0 | 20.80 | 20.51 | 20.67 |
| | | 1 | 24 | **21.23** | 20.94 | 21.20 |
| | | 1 | 49 | 21.07 | 20.83 | 21.06 |
| | | 25 | 0 | 19.56 | 19.44 | 19.71 |
| | | 25 | 12 | 19.65 | 19.61 | 19.79 |
| | | 25 | 25 | 19.65 | 19.56 | 19.66 |
| | | 50 | 0 | 19.60 | 19.50 | 19.53 |
| | 16QAM | 1 | 0 | 19.61 | 19.46 | 19.62 |
| | | 1 | 24 | **19.92** | 19.66 | 19.71 |
| | | 1 | 49 | 19.32 | 19.37 | 19.51 |
| | | 25 | 0 | 18.46 | 18.46 | 18.61 |
| | | 25 | 12 | 18.52 | 18.51 | 18.64 |
| | | 25 | 25 | 18.49 | 18.55 | 18.58 |
| | | 50 | 0 | 18.34 | 18.48 | 18.60 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

| LTE Band 26 | | | | | | |
|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High |
| | | Channel | | 26865 | 26915 | 26965 |
| | | Frequency (MHz) | | 831.5 | 836.5 | 841.5 |
| 15M | QPSK | 1 | 0 | 20.64 | 20.44 | 20.47 |
| | | 1 | 37 | **21.27** | 21.03 | 20.97 |
| | | 1 | 74 | 21.01 | 20.81 | 20.68 |
| | | 36 | 0 | 19.53 | 19.44 | 19.27 |
| | | 36 | 19 | 19.60 | 19.52 | 19.25 |
| | | 36 | 39 | 19.45 | 19.47 | 19.30 |
| | | 75 | 0 | 19.27 | 19.40 | 19.22 |
| | 16QAM | 1 | 0 | 19.58 | 19.51 | 19.53 |
| | | 1 | 37 | **19.81** | 19.64 | 19.64 |
| | | 1 | 74 | 19.31 | 19.39 | 19.34 |
| | | 36 | 0 | 18.32 | 18.43 | 18.29 |
| | | 36 | 19 | 18.33 | 18.47 | 18.43 |
| | | 36 | 39 | 18.20 | 18.41 | 18.43 |
| | | 75 | 0 | 18.38 | 18.57 | 18.52 |

*ERP = Conducted + antenna gain (0.3dBi)-2.15

## 4.2 Radiated Emission Measurement

### 4.2.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit is equal to -13 dBm.

### 4.2.2 Test Procedure

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. 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.

c. Following C63.26 section 5.5 and 5.2.7.
EIRP (dBm) = E (dBμV/m) + 20log (D) - 104.8; where D is the measurement distance (in the far field region) in m.
ERP (dBm) = E (dBμV/m) + 20log (D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

**NOTE:**

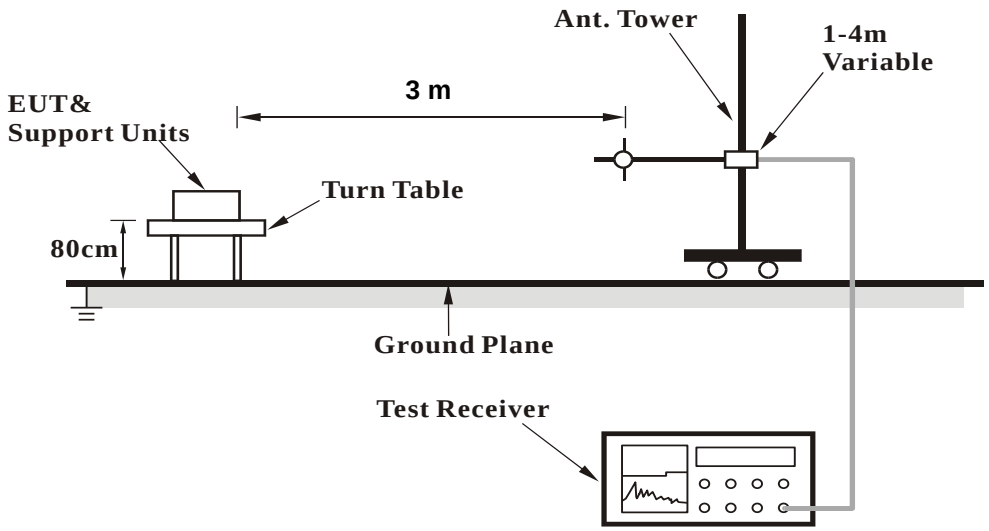
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. 9 kHz ~ 30 MHz Data:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

### 4.2.3 Deviation from Test Standard

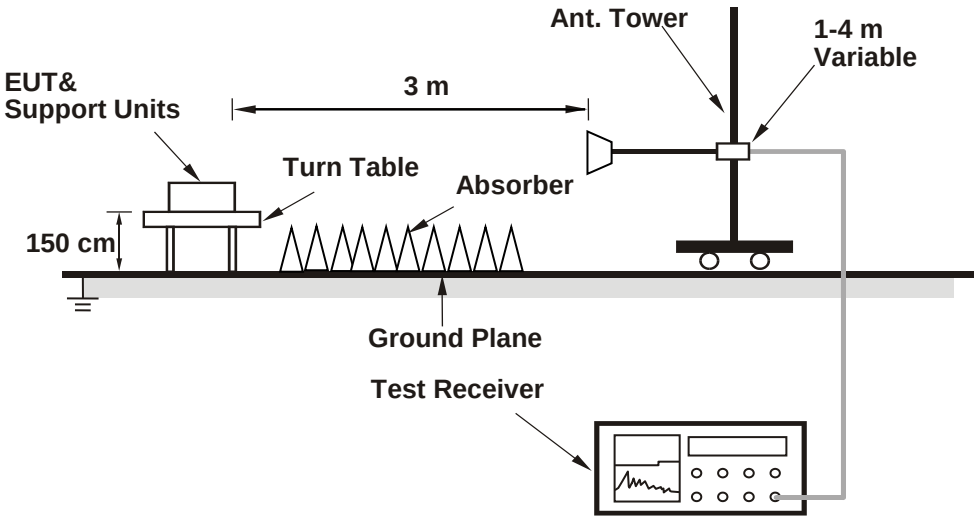
No deviation.

4.2.4 Test Setup

**<Radiated Emission below or equal 1 GHz>**




**<Radiated Emission above 1 GHz>**




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

4.2.5 Test Results

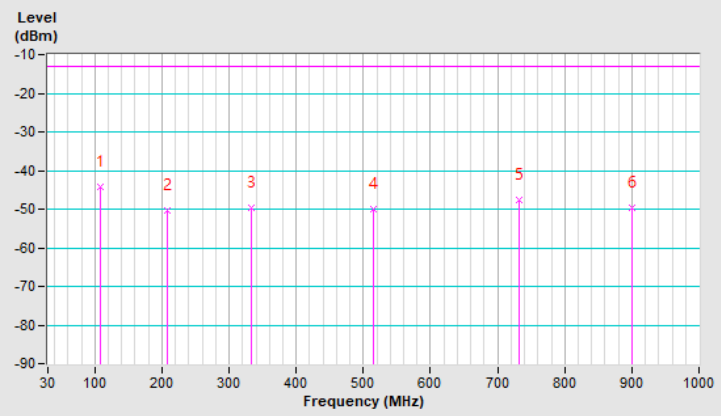
**Below 1GHz**

| RF Mode | TX GSM 850 | Channel | CH 128：824.2 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 107.60 | -44.28 | -13.00 | -31.28 | 1.98 H | 229 | 68.52 | -112.80 |
| 2 | 207.51 | -50.29 | -13.00 | -37.29 | 2.20 H | 76 | 63.34 | -113.63 |
| 3 | 332.64 | -49.75 | -13.00 | -36.75 | 1.78 H | 233 | 58.45 | -108.20 |
| 4 | 515.97 | -50.05 | -13.00 | -37.05 | 3.23 H | 93 | 53.18 | -103.23 |
| 5 | 732.28 | -47.51 | -13.00 | -34.51 | 1.52 H | 264 | 51.03 | -98.54 |
| 6 | 901.06 | -49.67 | -13.00 | -36.67 | 1.44 H | 74 | 46.18 | -95.85 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

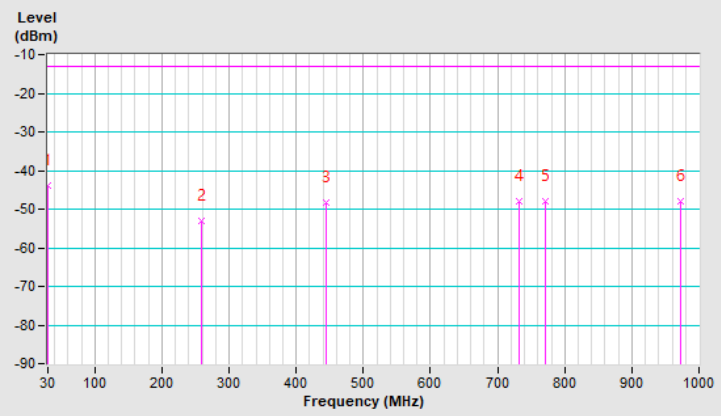


| RF Mode | TX GSM 850 | Channel | CH 128：824.2 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| **1** | **30.97** | **-43.80** | **-13.00** | **-30.80** | **2.00 V** | **305** | **67.93** | **-111.73** |
| 2 | 258.92 | -53.18 | -13.00 | -40.18 | 2.00 V | 331 | 58.47 | -111.65 |
| 3 | 444.19 | -48.20 | -13.00 | -35.20 | 2.00 V | 18 | 56.65 | -104.85 |
| 4 | 731.31 | -47.81 | -13.00 | -34.81 | 2.00 V | 284 | 50.76 | -98.57 |
| 5 | 771.08 | -48.12 | -13.00 | -35.12 | 2.00 V | 179 | 49.40 | -97.52 |
| 6 | 971.87 | -47.94 | -13.00 | -34.94 | 2.00 V | 179 | 46.45 | -94.39 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

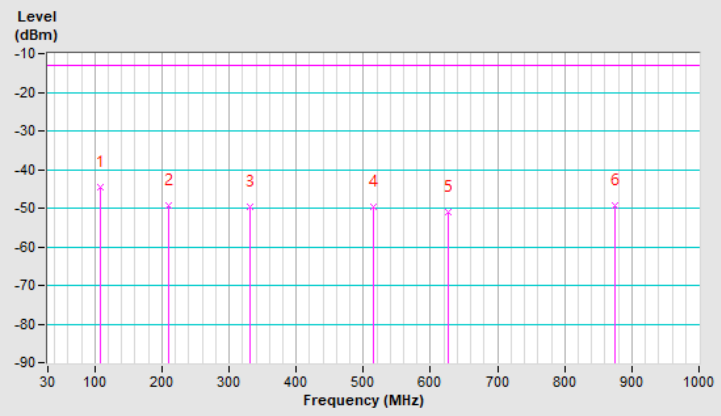


| RF Mode | TX WCDMA Band V | Channel | CH 4132：826.4 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 107.60 | -44.45 | -13.00 | -31.45 | 1.44 H | 228 | 68.35 | -112.80 |
| 2 | 209.45 | -49.28 | -13.00 | -36.28 | 1.77 H | 88 | 64.37 | -113.65 |
| 3 | 330.70 | -49.54 | -13.00 | -36.54 | 2.23 H | 237 | 58.73 | -108.27 |
| 4 | 515.00 | -49.82 | -13.00 | -36.82 | 1.09 H | 107 | 53.44 | -103.26 |
| 5 | 625.58 | -51.04 | -13.00 | -38.04 | 2.00 H | 247 | 49.20 | -100.24 |
| 6 | 874.87 | -49.21 | -13.00 | -36.21 | 2.22 H | 66 | 46.81 | -96.02 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

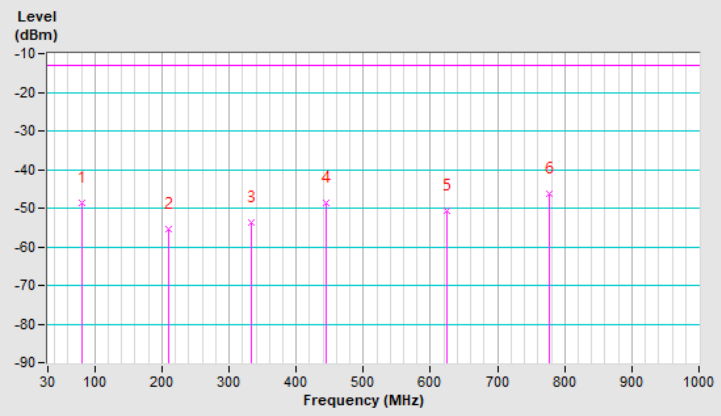


| RF Mode | TX WCDMA Band V | Channel | CH 4132：826.4 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 81.41 | -48.60 | -13.00 | -35.60 | 1.87 V | 333 | 66.73 | -115.33 |
| 2 | 210.42 | -55.26 | -13.00 | -42.26 | 1.63 V | 327 | 58.40 | -113.66 |
| 3 | 333.61 | -53.63 | -13.00 | -40.63 | 1.74 V | 106 | 54.54 | -108.17 |
| 4 | 444.19 | -48.73 | -13.00 | -35.73 | 2.22 V | 17 | 56.12 | -104.85 |
| 5 | 624.61 | -50.58 | -13.00 | -37.58 | 1.36 V | 272 | 49.69 | -100.27 |
| 6 | 776.90 | -46.30 | -13.00 | -33.30 | 2.02 V | 180 | 51.16 | -97.46 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

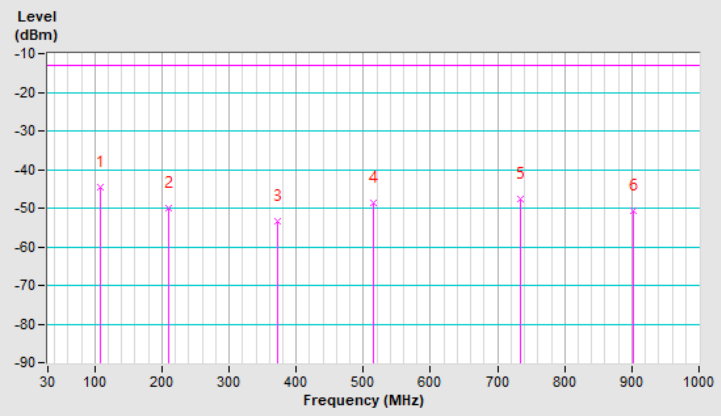


| RF Mode | TX LTE Band V-1.4MHz | Channel | CH 20407：824.7 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 107.60 | -44.68 | -13.00 | -31.68 | 1.78 H | 236 | 68.12 | -112.80 |
| 2 | 209.45 | -50.03 | -13.00 | -37.03 | 2.06 H | 82 | 63.62 | -113.65 |
| 3 | 372.41 | -53.24 | -13.00 | -40.24 | 1.88 H | 152 | 53.94 | -107.18 |
| 4 | 515.00 | -48.67 | -13.00 | -35.67 | 1.69 H | 107 | 54.59 | -103.26 |
| 5 | 734.22 | -47.54 | -13.00 | -34.54 | 2.32 H | 270 | 50.91 | -98.45 |
| 6 | 902.03 | -50.78 | -13.00 | -37.78 | 1.27 H | 79 | 45.02 | -95.80 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

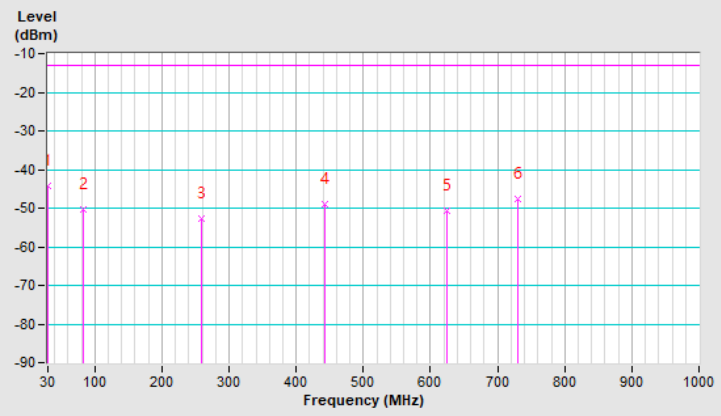


| RF Mode | TX LTE Band V-1.4MHz | Channel | CH 20407：824.7 MHz |
|---|---|---|---|
| Frequency Range | 30MHz ~ 1GHz | | |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 30.00 | -44.25 | -13.00 | -31.25 | 1.98 V | 302 | 67.14 | -111.39 |
| 2 | 82.38 | -50.19 | -13.00 | -37.19 | 2.40 V | 330 | 65.24 | -115.43 |
| 3 | 258.92 | -52.77 | -13.00 | -39.77 | 1.32 V | 333 | 58.88 | -111.65 |
| 4 | 442.25 | -48.82 | -13.00 | -35.82 | 2.24 V | 7 | 56.03 | -104.85 |
| 5 | 624.61 | -50.72 | -13.00 | -37.72 | 1.08 V | 278 | 49.55 | -100.27 |
| 6 | 730.34 | -47.47 | -13.00 | -34.47 | 1.96 V | 279 | 51.15 | -98.62 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



## Above 1GHz

| RF Mode | TX GSM 850 | Channel | CH 128：824.2 MHz |
|---|---|---|---|
| Frequency Range | 1GMHz ~ 18GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1648.40 | -53.00 | -13.00 | -40.00 | 2.00 H | 294 | 69.20 | -122.20 |
| **Antenna Polarity & Test Distance : Vertical at 3m** | | | | | | | | |
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1648.40 | -49.91 | -13.00 | -36.91 | 1.97 V | 78 | 72.29 | -122.20 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

| RF Mode | TX WCDMA Band V | Channel | CH 4132：826.4 MHz |
|---|---|---|---|
| Frequency Range | 1GMHz ~ 18GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1652.80 | -49.77 | -13.00 | -36.77 | 1.23 H | 123 | 72.43 | -122.20 |
| **Antenna Polarity & Test Distance : Vertical at 3m** | | | | | | | | |
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1652.80 | -48.97 | -13.00 | -35.97 | 1.56 V | 243 | 73.23 | -122.20 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

| RF Mode | TX LTE Band V-1.4MHz | Channel | CH 20407：824.7 MHz |
|---|---|---|---|
| Frequency Range | 1GMHz ~ 18GHz | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1649.40 | -49.68 | -13.00 | -36.68 | 1.00 H | 62 | 72.52 | -122.20 |
| **Antenna Polarity & Test Distance : Vertical at 3m** | | | | | | | | |
| No | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 1649.40 | -48.38 | -13.00 | -35.38 | 1.80 V | 283 | 73.82 | -122.20 |

**Remarks:**

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

**Appendix – 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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