# FCC Test Report
# (Part 24)

**Report No.:** RF171206E01C-1

**FCC ID:** NKRM14Q2SG

**Test Model:** M14Q2SG

**Received Date:** Jan. 02, 2019

**Test Date:** Jan. 03 ~ Jan. 15, 2019

**Issued Date:** Jan. 23, 2019

**Applicant:** Wistron NeWeb Corporation

**Address:** 20 Park Ave. II, Hsinchu Science Park, Hsichu 308, Taiwan

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration / Designation Number:** 788550 / TW0003

Testing Laboratory
2021

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RF171206E01C-1 | Original release | Jan. 23, 2019 |

## 1 Certificate of Conformity

**Product:** LGA Module

**Brand:** Wistron NeWeb Corporation

**Test Model:** M14Q2SG

**Sample Status:** Engineering sample

**Applicant:** Wistron NeWeb Corporation

**Test Date:** Jan. 03 ~ Jan. 15, 2019

**Standards:** FCC Part 24, Subpart E

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 :** Celine Chou , **Date:** Jan. 23, 2019

Celine Chou / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Jan. 23, 2019

Bruce Chen / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 24 & Part 2 | | | |
|---|---|---|---|
| FCC Clause | Test Item | Result | Remarks |
| 2.1046<br>24.232 | Effective radiated power | Pass | Meet the requirement of limit. |
| 2.1046<br>24.232(d) | Peak To Average Ratio | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement |
| 2.1055<br>24.235 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049<br>24.238(b) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 24.238(a) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>24.238 | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>24.238 | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is<br>-27.3dB at 142.52MHz. |

Note: 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 | 30MHz ~ 200MHz | 3.63 dB |
| | 200MHz ~1000MHz | 3.64 dB |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz | 2.29 dB |
| | 18GHz ~ 40GHz | 2.29 dB |

## 2.2 Test Site and Instruments

| Description & Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due |
|---|---|---|---|---|
| Test Receiver<br>ROHDE & SCHWARZ | ESIB7 | 100187 | May 29, 2018 | May 28, 2019 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSP40 | 100040 | Sep. 25, 2018 | Sep. 24, 2019 |
| BILOG Antenna<br>SCHWARZBECK | VULB9168 | 9168-155 | Nov. 21, 2018 | Nov. 20, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120D | 9120D-1170 | Nov. 25, 2018 | Nov. 24, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9170 | BBHA9170241 | Nov. 25, 2018 | Nov. 24, 2019 |
| Preamplifier<br>Agilent<br>(Below 1GHz) | 8447D | 2944A10631 | Aug. 08, 2018 | Aug. 07, 2019 |
| Preamplifier<br>KEYSIGHT<br>(Above 1GHz) | 83017A | MY53270295 | Jul. 02, 2018 | Jul. 01, 2019 |
| RF signal cable<br>HUBER+SUHNER | SUCOFLEX 104 | MY 13380+295012/04 | Aug. 08, 2018 | Aug. 07, 2019 |
| RF signal cable<br>HUBER+SUHNER | SUCOFLEX 104 | Cable-CH4-03 (250724) | Aug. 08, 2018 | Aug. 07, 2019 |
| Software<br>BV ADT | ADT_Radiated_<br>V7.6.15.9.5 | NA | NA | NA |
| Antenna Tower<br>inn-co GmbH | MA 4000 | 010303 | NA | NA |
| Antenna Tower Controller<br>BV ADT | AT100 | AT93021703 | NA | NA |
| Turn Table<br>BV ADT | TT100 | TT93021703 | NA | NA |
| Turn Table Controller<br>BV ADT | SC100 | SC93021703 | NA | NA |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| WIT Standard Temperature<br>And Humidity Chamber | TH-4S-C | W981030 | Jun. 04, 2018 | Jun. 03, 2019 |
| JFW 20dB attenuation | 50HF-020-SMA | NA | NA | NA |

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 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-4.

# 3 General Information

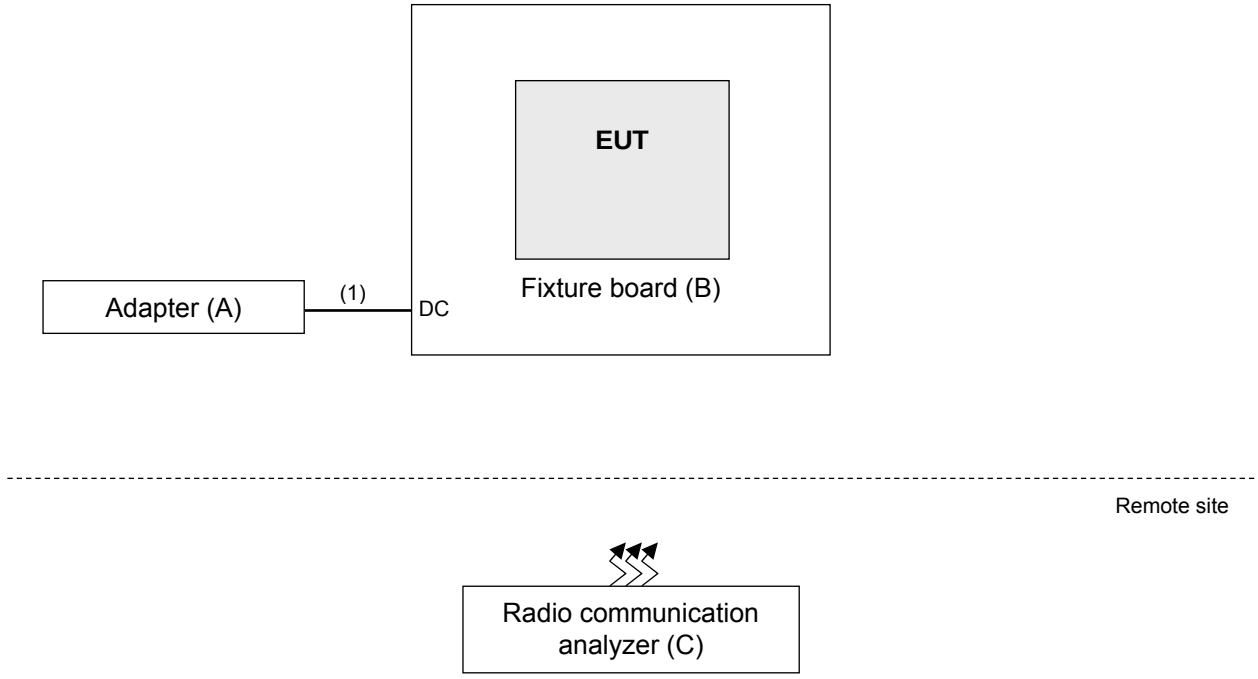
## 3.1 General Description of EUT

| | | | |
|---|---|---|---|
| Product | LGA Module | | |
| Brand | Wistron NeWeb Corporation | | |
| Test Model | M14Q2SG | | |
| Sample Status | Engineering sample | | |
| Power Supply Rating | 5Vdc (Host equipment) | | |
| Modulation Type | QPSK, 16QAM | | |
| Operating Frequency | LTE Band 25 (Channel Bandwidth: 1.4MHz) | 1850.7~1914.3MHz | |
| | LTE Band 25 (Channel Bandwidth: 3MHz) | 1851.5~1913.5MHz | |
| | LTE Band 25 (Channel Bandwidth: 5MHz) | 1852.5~1912.5MHz | |
| | LTE Band 25 (Channel Bandwidth: 10MHz) | 1855.0~1910.0MHz | |
| | LTE Band 25 (Channel Bandwidth: 15MHz) | 1857.5~1907.5MHz | |
| | LTE Band 25 (Channel Bandwidth: 20MHz) | 1860.0~1905.0MHz | |
| Max. EIRP Power | | QPSK | 16QAM |
| | LTE Band 25 (Channel Bandwidth: 1.4MHz) | 363.078mW (25.6dBm) | 288.403mW (24.6dBm) |
| | LTE Band 25 (Channel Bandwidth: 3MHz) | 338.844mW (25.3dBm) | 269.153mW (24.3dBm) |
| | LTE Band 25 (Channel Bandwidth: 5MHz) | 346.737mW (25.4dBm) | 295.121mW (24.7dBm) |
| | LTE Band 25 (Channel Bandwidth: 10MHz) | 346.737mW (25.4dBm) | 281.838mW (24.5dBm) |
| | LTE Band 25 (Channel Bandwidth: 15MHz) | 338.844mW (25.3dBm) | 269.153mW (24.3dBm) |
| | LTE Band 25 (Channel Bandwidth: 20MHz) | 354.813mW (25.5dBm) | 281.838mW (24.5dBm) |
| Emission Designator | | QPSK | 16QAM |
| | LTE Band 25 (Channel Bandwidth: 1.4MHz) | 1M09G7D | 1M09W7D |
| | LTE Band 25 (Channel Bandwidth: 3MHz) | 2M70G7D | 2M70W7D |
| | LTE Band 25 (Channel Bandwidth: 5MHz) | 4M49G7D | 4M49W7D |
| | LTE Band 25 (Channel Bandwidth: 10MHz) | 8M96G7D | 8M96W7D |
| | LTE Band 25 (Channel Bandwidth: 15MHz) | 13M5G7D | 13M4W7D |
| | LTE Band 25 (Channel Bandwidth: 20MHz) | 17M9G7D | 17M9W7D |
| Antenna Type | Dipole antenna with 0.6dBi gain | | |
| Antenna Connector | SMA | | |
| Accessory Device | NA | | |
| Cable Supplied | NA | | |

Note: The EUT uses following adapter. (For support unit only)

| | |
|---|---|
| Brand | I.T.E POWER SUPPLY |
| Model | MU24-Y120200-A1 |
| Input Power | 100-240Vac, 50/60Hz, 0.7A |
| Output Power | 12Vdc, 2A |
| Power Line | 1.5m cable without core attached on adapter |

## 3.2 Configuration of System under 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. | Adapter | I.T.E POWER SUPPLY | MU24-Y120200-A1 | NA | NA | Provided by manufacturer |
| B. | Fixture board | NA | NA | NA | NA | Provided by manufacturer |
| C. | Radio Communication Analyzer | Anritsu | MT8860C | 1702001 | NA | - |

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

| ID | Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|---|---|---|---|---|---|---|
| 1. | DC cable | 1 | 1.5 | - | 0 | Attached on adapter |

### 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, XYZ axis and antenna ports. The worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below:

LTE Band 25

| EUT Configure Mode | Test item | Available channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 26047 to 26683 | 26047 (1850.7MHz), 26365 (1882.5MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26365 (1882.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26365 (1882.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26365 (1882.5MHz), 26640 (1910.0MHz) | 10MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26365 (1882.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26365 (1882.5MHz), 26590 (1905.0MHz) | 20MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| - | Modulation Characteristics | 26065 to 26665 | 26365 (1882.5MHz) | 20MHz | QPSK / 16QAM | 100 RB / 0 RB Offset |
| - | Frequency Stability | 26047 to 26683 | 26047 (1850.7MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26640 (1910.0MHz) | 10MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26590 (1905.0MHz) | 20MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 26047 to 26683 | 26047 (1850.7MHz), 26365 (1882.5MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK / 16QAM | 6 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26365 (1882.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK / 16QAM | 15 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26365 (1882.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK / 16QAM | 25 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26365 (1882.5MHz), 26640 (1910.0MHz) | 10MHz | QPSK / 16QAM | 50 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26365 (1882.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK / 16QAM | 75 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26365 (1882.5MHz), 26590 (1905.0MHz) | 20MHz | QPSK / 16QAM | 100 RB / 0 RB Offset |

| EUT Configure Mode | Test item | Available channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Band Edge | 26047 to 26683 | 26047 (1850.7MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 5 RB Offset<br>6 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 14 RB Offset<br>15 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 24 RB Offset<br>25 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26640 (1910.0MHz) | 10MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset<br>50 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 74 RB Offset<br>75 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26590 (1905.0MHz) | 20MHz | QPSK | 1 RB / 0 RB Offset<br>1 RB / 99 RB Offset<br>100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 26047 to 26683 | 26047 (1850.7MHz), 26365 (1882.5MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26365 (1882.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26365 (1882.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26365 (1882.5MHz), 26640 (1910.0MHz) | 10MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26365 (1882.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26365 (1882.5MHz), 26590 (1905.0MHz) | 20MHz | QPSK / 16QAM | 1 RB / 0 RB Offset |
| - | Conducted Emission | 26047 to 26683 | 26047 (1850.7MHz), 26365 (1882.5MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 (1851.5MHz), 26365 (1882.5MHz), 26675 (1913.5MHz) | 3MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26365 (1882.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 (1855.0MHz), 26365 (1882.5MHz), 26640 (1910.0MHz) | 10MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 (1857.5MHz), 26365 (1882.5MHz), 26615 (1907.5MHz) | 15MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26365 (1882.5MHz), 26590 (1905.0MHz) | 20MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission Below 1GHz | 26047 to 26683 | 26047 (1850.7MHz) | 1.4MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz) | 5MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz) | 20MHz | QPSK | 1 RB / 0 RB Offset |

| EUT Configure Mode | Test item | Available channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Radiated Emission Above 1GHz | 26047 to 26683 | 26047 (1850.7MHz), 26365 (1882.5MHz), 26683 (1914.3MHz) | 1.4MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 (1852.5MHz), 26365 (1882.5MHz), 26665 (1912.5MHz) | 5MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 (1860.0MHz), 26365 (1882.5MHz), 26590 (1905.0MHz) | 20MHz | QPSK | 1 RB / 0 RB Offset |

Note:
1. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
2. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber. Low channel was the worst case for all final tests.
3. The conducted output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only EIRP, Modulation Characteristics, Emission Bandwidth and Peak to average ratio had been tested under QPSK and 16QAM modes, the other test items were performed under QPSK mode only.

**Test Condition:**

| Test Item | Environmental Conditions | Input Power (system) | Tested By |
|---|---|---|---|
| EIRP | 25deg. C, 70%RH | 120Vac, 60Hz | Noah Chang |
| Modulation Characteristics | 24deg. C, 64%RH | 120Vac, 60Hz | James Yang |
| Frequency Stability | 24deg. C, 64%RH | 5Vdc | James Yang |
| Occupied Bandwidth | 24deg. C, 64%RH | 120Vac, 60Hz | James Yang |
| Band Edge | 24deg. C, 64%RH | 120Vac, 60Hz | James Yang |
| Peak To Average Ratio | 24deg. C, 64%RH | 120Vac, 60Hz | James Yang |
| Conducted Emission | 24deg. C, 64%RH | 120Vac, 60Hz | James Yang |
| Radiated Emission | 25deg. C, 70%RH | 120Vac, 60Hz | Noah Chang |

### 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

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

**FCC 47 CFR Part 2**
**FCC 47 CFR Part 24**
**KDB 971168 D01 Power Meas License Digital Systems v03r01**
**ANSI/TIA/EIA-603-E 2016**
**ANSI 63.26-2015**

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

# 4 Test Types and Results

## 4.1 Output Power Measurement

### 4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.r.p.

### 4.1.2 Test Procedures

**EIRP / ERP Measurement:**

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) 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 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

Where:

$ERP/EIRP = P_{Meas} + G_T - L_C$

$P_{Meas}$ : Measure transmitter output power.
$G_T$ : Gain of the transmitting antenna.
$L_C$ : signal attenuation in the connecting cable between the transmitter and antenna.

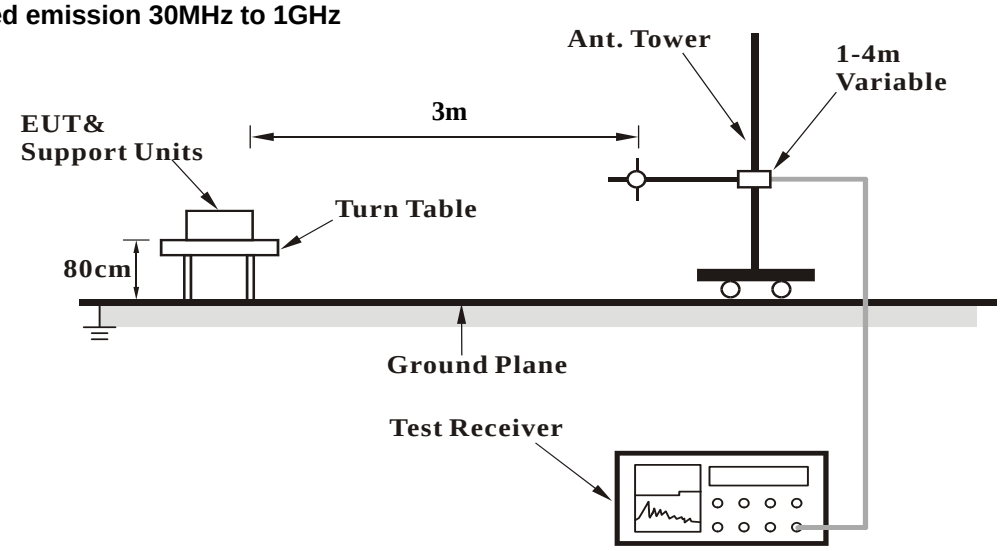
**Conducted Power Measurement:**

The EUT was set up for the maximum power with 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.

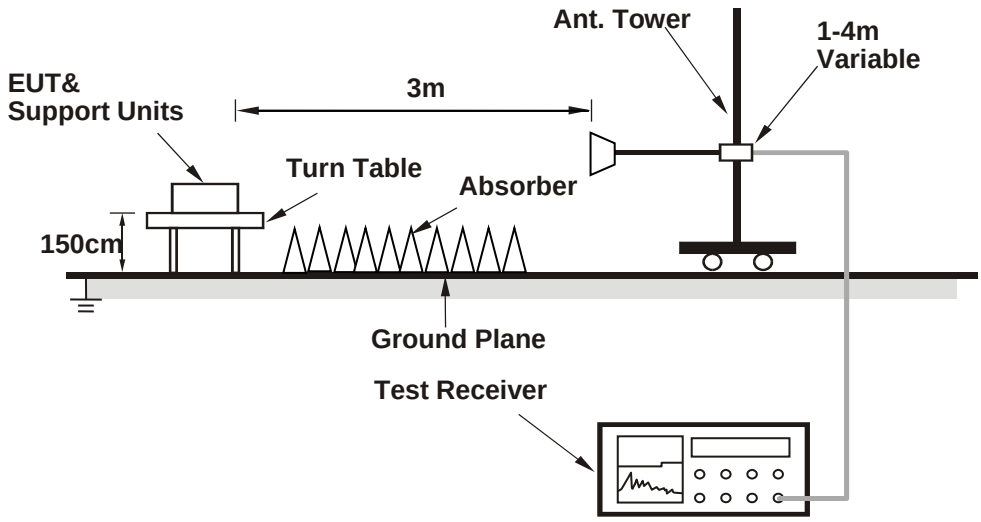
### 4.1.3 Test Setup

EIRP / ERP Measurement:

**For radiated emission 30MHz to 1GHz**




**For radiated emission above 1GHz**




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

Conducted Power Measurement:

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

### 4.1.4 Test Results

Conducted Output Power (dBm)

| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
|---|---|---|---|---|---|---|---|---|
| | | | Low CH 26047 1850.7 MHz | Mid CH 26365 1882.5 MHz | High CH 26683 1914.3 MHz | Low CH 26047 1850.7 MHz | Mid CH 26365 1882.5 MHz | High CH 26683 1914.3 MHz |
| 25 / 1.4M | 1 | 0 | 22.93 | 23.04 | 22.36 | 22.98 | 23.17 | 22.42 |
| | 1 | 2 | 22.87 | 23.00 | 22.35 | 22.86 | 23.05 | 22.40 |
| | 1 | 5 | 22.58 | 23.02 | 22.47 | 22.80 | 22.80 | 22.36 |
| | 3 | 0 | 21.96 | 21.81 | 21.46 | 21.72 | 21.95 | 21.01 |
| | 3 | 1 | 21.58 | 22.10 | 21.17 | 22.23 | 21.87 | 21.60 |
| | 3 | 3 | 22.38 | 21.99 | 21.54 | 22.31 | 21.87 | 21.28 |
| | 6 | 0 | 22.37 | 21.58 | 21.33 | 21.11 | 20.79 | 20.47 |
| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
| | | | Low CH 26055 1851.5 MHz | Mid CH 26365 1882.5 MHz | High CH 26675 1913.5 MHz | Low CH 26055 1851.5 MHz | Mid CH 26365 1882.5 MHz | High CH 26675 1913.5 MHz |
| 25 / 3M | 1 | 0 | 23.00 | 23.07 | 22.51 | 21.18 | 22.23 | 21.62 |
| | 1 | 7 | 22.90 | 23.01 | 22.79 | 21.20 | 22.22 | 21.60 |
| | 1 | 14 | 22.96 | 22.88 | 22.53 | 22.18 | 22.18 | 21.60 |
| | 8 | 0 | 22.13 | 21.88 | 21.55 | 22.00 | 21.65 | 21.45 |
| | 8 | 3 | 21.63 | 22.10 | 21.49 | 20.88 | 20.93 | 20.47 |
| | 8 | 7 | 21.94 | 21.96 | 21.72 | 21.18 | 20.96 | 20.50 |
| | 15 | 0 | 21.24 | 20.85 | 20.48 | 21.09 | 20.82 | 20.29 |
| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
| | | | Low CH 26065 1852.5 MHz | Mid CH 26365 1882.5 MHz | High CH 26665 1912.5 MHz | Low CH 26065 1852.5 MHz | Mid CH 26365 1882.5 MHz | High CH 26665 1912.5 MHz |
| 25 / 5M | 1 | 0 | 22.90 | 23.13 | 22.43 | 21.90 | 22.13 | 21.58 |
| | 1 | 12 | 22.79 | 23.05 | 22.56 | 21.84 | 22.11 | 21.53 |
| | 1 | 24 | 22.81 | 22.53 | 22.43 | 21.89 | 22.10 | 21.55 |
| | 12 | 0 | 22.08 | 21.82 | 21.50 | 21.77 | 21.81 | 21.09 |
| | 12 | 6 | 21.99 | 21.82 | 21.37 | 21.12 | 20.96 | 20.44 |
| | 12 | 13 | 22.19 | 21.88 | 21.72 | 21.20 | 21.00 | 20.67 |
| | 25 | 0 | 21.15 | 20.75 | 20.36 | 21.01 | 20.85 | 20.58 |

| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
|---|---|---|---|---|---|---|---|---|
| | | | Low CH 26090 | Mid CH 26365 | High CH 26640 | Low CH 26090 | Mid CH 26365 | High CH 26640 |
| | | | 1855 MHz | 1882.5 MHz | 1910 MHz | 1855 MHz | 1882.5 MHz | 1910 MHz |
| 25 / 10M | 1 | 0 | 22.81 | 23.09 | 22.50 | 21.99 | 22.11 | 21.57 |
| | 1 | 24 | 22.86 | 22.88 | 22.61 | 21.89 | 22.09 | 21.55 |
| | 1 | 49 | 22.85 | 22.77 | 22.43 | 21.97 | 22.10 | 21.51 |
| | 25 | 0 | 21.95 | 21.85 | 21.51 | 21.81 | 21.46 | 21.12 |
| | 25 | 12 | 21.97 | 21.72 | 21.41 | 20.98 | 20.79 | 20.62 |
| | 25 | 25 | 21.57 | 21.93 | 21.73 | 20.95 | 20.84 | 20.51 |
| | 50 | 0 | 20.87 | 20.74 | 20.49 | 21.00 | 20.79 | 21.52 |
| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
| | | | Low CH 26115 | Mid CH 26365 | High CH 26615 | Low CH 26115 | Mid CH 26365 | High CH 26615 |
| | | | 1857.5 MHz | 1882.5 MHz | 1907.5 MHz | 1857.5 MHz | 1882.5 MHz | 1907.5 MHz |
| 25 / 15M | 1 | 0 | 22.08 | 23.07 | 22.48 | 22.00 | 22.02 | 21.56 |
| | 1 | 37 | 22.17 | 23.00 | 22.78 | 21.94 | 21.86 | 21.62 |
| | 1 | 74 | 22.05 | 23.03 | 22.56 | 21.89 | 21.67 | 21.49 |
| | 36 | 0 | 22.54 | 22.36 | 22.56 | 21.70 | 21.60 | 21.54 |
| | 36 | 19 | 21.75 | 21.92 | 21.37 | 21.56 | 21.41 | 21.30 |
| | 36 | 39 | 22.18 | 22.17 | 21.92 | 21.58 | 21.40 | 21.22 |
| | 75 | 0 | 21.31 | 21.84 | 21.49 | 21.00 | 20.79 | 21.47 |
| Band / BW | RB Size | RB Offset | QPSK | | | 16QAM | | |
| | | | Low CH 26140 | Mid CH 26365 | High CH 26590 | Low CH 26140 | Mid CH 26365 | High CH 26590 |
| | | | 1860 MHz | 1882.5 MHz | 1905 MHz | 1860 MHz | 1882.5 MHz | 1905 MHz |
| 25 / 20M | 1 | 0 | 22.96 | 23.10 | 22.65 | 21.88 | 22.05 | 21.63 |
| | 1 | 50 | 22.98 | 22.76 | 22.87 | 21.69 | 21.89 | 21.63 |
| | 1 | 99 | 22.90 | 23.01 | 22.37 | 21.54 | 21.93 | 21.57 |
| | 50 | 0 | 21.83 | 21.59 | 21.50 | 21.75 | 21.67 | 21.48 |
| | 50 | 25 | 21.75 | 21.59 | 21.56 | 21.64 | 21.78 | 21.36 |
| | 50 | 50 | 22.10 | 22.04 | 21.87 | 21.66 | 21.64 | 21.50 |
| | 100 | 0 | 21.53 | 21.57 | 21.44 | 21.35 | 21.51 | 21.43 |

EIRP Power
Modulation Type: QPSK
LTE Band 25, Channel Bandwidth 1.4MHz

| MODE | | TX channel 26047 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.70 | -15.8 | 24.1 | 1.0 | 25.1 | 33.0 | -7.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.70 | -22.2 | 16.6 | 1.0 | 17.6 | 33.0 | -15.4 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.5 | 23.7 | 1.1 | 24.8 | 33.0 | -8.2 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.3 | 16.2 | 1.1 | 17.3 | 33.0 | -15.7 |

| MODE | | TX channel 26683 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1914.30 | -15.9 | 24.9 | 0.7 | 25.6 | 33.0 | -7.4 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1914.30 | -22.1 | 16.8 | 0.7 | 17.5 | 33.0 | -15.5 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 3MHz

| MODE | | TX channel 26055 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1851.50 | -15.9 | 24.0 | 1.0 | 25.0 | 33.0 | -8.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1851.50 | -22.6 | 16.2 | 1.0 | 17.2 | 33.0 | -15.8 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.2 | 24.0 | 1.1 | 25.1 | 33.0 | -7.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.6 | 15.9 | 1.1 | 17.0 | 33.0 | -16.0 |

| MODE | | TX channel 26675 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1913.50 | -16.2 | 24.6 | 0.7 | 25.3 | 33.0 | -7.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1913.50 | -22.5 | 16.4 | 0.7 | 17.1 | 33.0 | -15.9 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 5MHz

| MODE | | TX channel 26065 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1852.50 | -15.5 | 24.4 | 1.0 | 25.4 | 33.0 | -7.6 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1852.50 | -22.9 | 15.9 | 1.0 | 16.9 | 33.0 | -16.1 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.3 | 23.9 | 1.1 | 25.0 | 33.0 | -8.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.0 | 16.5 | 1.1 | 17.6 | 33.0 | -15.4 |

| MODE | | TX channel 26665 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1912.50 | -16.2 | 24.6 | 0.7 | 25.3 | 33.0 | -7.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1912.50 | -22.3 | 16.5 | 0.7 | 17.2 | 33.0 | -15.8 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 10MHz

| MODE | | TX channel 26090 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1855.00 | -16.2 | 23.8 | 1.0 | 24.8 | 33.0 | -8.2 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1855.00 | -22.5 | 16.3 | 1.0 | 17.3 | 33.0 | -15.7 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -15.9 | 24.3 | 1.1 | 25.4 | 33.0 | -7.6 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.5 | 16.0 | 1.1 | 17.1 | 33.0 | -15.9 |

| MODE | | TX channel 26640 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1910.00 | -16.3 | 24.5 | 0.7 | 25.2 | 33.0 | -7.8 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1910.00 | -22.0 | 16.8 | 0.7 | 17.5 | 33.0 | -15.5 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 15MHz

| MODE | | TX channel 26115 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1857.50 | -16.1 | 23.8 | 1.1 | 24.9 | 33.0 | -8.1 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1857.50 | -22.1 | 16.6 | 1.1 | 17.7 | 33.0 | -15.3 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.3 | 23.9 | 1.1 | 25.0 | 33.0 | -8.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.1 | 16.4 | 1.1 | 17.5 | 33.0 | -15.5 |

| MODE | | TX channel 26615 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1907.50 | -16.2 | 24.2 | 1.1 | 25.3 | 33.0 | -7.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1907.50 | -21.9 | 16.5 | 1.1 | 17.6 | 33.0 | -15.4 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 20MHz

| MODE | | TX channel 26140 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1860.00 | -15.5 | 24.4 | 1.1 | 25.5 | 33.0 | -7.5 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1860.00 | -22.5 | 16.1 | 1.1 | 17.2 | 33.0 | -15.8 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.2 | 24.0 | 1.1 | 25.1 | 33.0 | -7.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.6 | 15.9 | 1.1 | 17.0 | 33.0 | -16.0 |

| MODE | | TX channel 26590 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1905.00 | -16.5 | 23.9 | 1.1 | 25.0 | 33.0 | -8.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1905.00 | -21.9 | 16.5 | 1.1 | 17.6 | 33.0 | -15.4 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 16QAM

LTE Band 25, Channel Bandwidth 1.4MHz

| MODE | | TX channel 26047 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.70 | -16.8 | 23.0 | 1.1 | 24.1 | 33.0 | -8.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1850.70 | -23.0 | 15.7 | 1.1 | 16.8 | 33.0 | -16.2 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -17.3 | 22.9 | 1.1 | 24.0 | 33.0 | -9.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -23.3 | 15.2 | 1.1 | 16.3 | 33.0 | -16.7 |

| MODE | | TX channel 26683 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1914.30 | -17.0 | 23.8 | 0.8 | 24.6 | 33.0 | -8.4 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1914.30 | -22.6 | 16.2 | 0.8 | 17.0 | 33.0 | -16.0 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 3MHz

| MODE | | TX channel 26055 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1851.50 | -16.9 | 22.9 | 1.1 | 24.0 | 33.0 | -9.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1851.50 | -23.6 | 15.1 | 1.1 | 16.2 | 33.0 | -16.8 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -17.2 | 23.0 | 1.1 | 24.1 | 33.0 | -8.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.6 | 15.9 | 1.1 | 17.0 | 33.0 | -16.0 |

| MODE | | TX channel 26675 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1913.50 | -17.2 | 23.5 | 0.8 | 24.3 | 33.0 | -8.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1913.50 | -23.3 | 15.5 | 0.8 | 16.3 | 33.0 | -16.7 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 5MHz

| MODE | | TX channel 26065 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1852.50 | -16.2 | 23.6 | 1.1 | 24.7 | 33.0 | -8.3 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1852.50 | -23.8 | 14.9 | 1.1 | 16.0 | 33.0 | -17.0 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -17.3 | 22.9 | 1.1 | 24.0 | 33.0 | -9.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.5 | 16.0 | 1.1 | 17.1 | 33.0 | -15.9 |

| MODE | | TX channel 26665 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1912.50 | -17.2 | 23.6 | 0.7 | 24.3 | 33.0 | -8.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1912.50 | -23.3 | 15.5 | 0.7 | 16.2 | 33.0 | -16.8 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 10MHz

| MODE | | TX channel 26090 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1855.00 | -17.2 | 22.8 | 1.0 | 23.8 | 33.0 | -9.2 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1855.00 | -23.5 | 15.3 | 1.0 | 16.3 | 33.0 | -16.7 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -16.8 | 23.4 | 1.1 | 24.5 | 33.0 | -8.5 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -23.6 | 14.9 | 1.1 | 16.0 | 33.0 | -17.0 |

| MODE | | TX channel 26640 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1910.00 | -17.3 | 23.5 | 0.7 | 24.2 | 33.0 | -8.8 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1910.00 | -23.0 | 15.8 | 0.7 | 16.5 | 33.0 | -16.5 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 15MHz

| MODE | | TX channel 26115 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1857.50 | -17.1 | 22.8 | 1.1 | 23.9 | 33.0 | -9.1 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1857.50 | -22.8 | 15.9 | 1.1 | 17.0 | 33.0 | -16.0 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -17.3 | 22.9 | 1.1 | 24.0 | 33.0 | -9.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -23.1 | 15.4 | 1.1 | 16.5 | 33.0 | -16.5 |

| MODE | | TX channel 26615 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1907.50 | -17.2 | 23.2 | 1.1 | 24.3 | 33.0 | -8.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1907.50 | -22.9 | 15.5 | 1.1 | 16.6 | 33.0 | -16.4 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 25, Channel Bandwidth 20MHz

| MODE | | TX channel 26140 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1860.00 | -16.5 | 23.4 | 1.1 | 24.5 | 33.0 | -8.5 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1860.00 | -23.5 | 15.1 | 1.1 | 16.2 | 33.0 | -16.8 |

| MODE | | TX channel 26365 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -17.2 | 23.0 | 1.1 | 24.1 | 33.0 | -8.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1882.50 | -22.6 | 15.9 | 1.1 | 17.0 | 33.0 | -16.0 |

| MODE | | TX channel 26590 | | | | | |
|---|---|---|---|---|---|---|---|
| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1905.00 | -17.6 | 22.8 | 1.1 | 23.9 | 33.0 | -9.1 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 1905.00 | -21.9 | 16.5 | 1.1 | 17.6 | 33.0 | -15.4 |

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

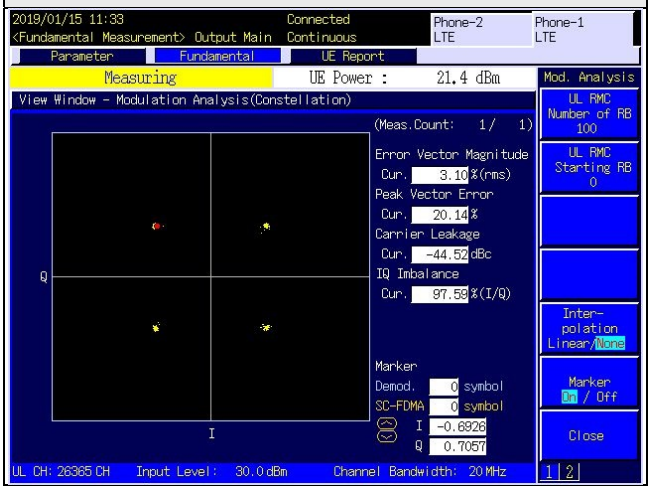
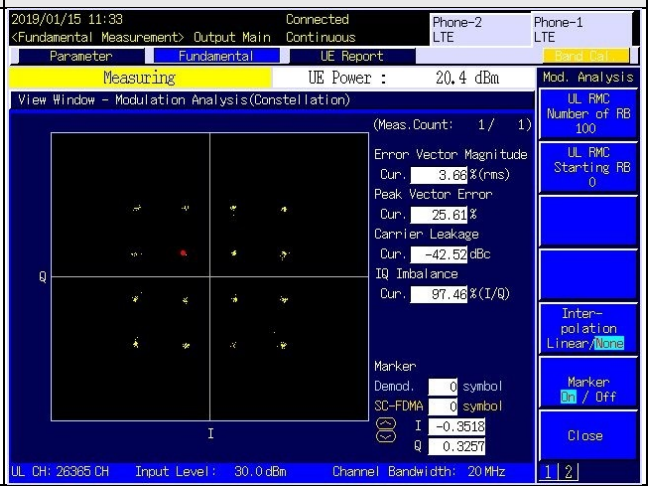
N/A

### 4.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

### 4.2.3 Test Setup

### 4.2.4 Test Results

| LTE Band 25 | |
|---|---|
| Spectrum Plot of Measurement Value | |
| Channel: 26365 / Frequency (MHz): 1882.5MHz | |
| QPSK | 16QAM |
|  |  |

## 4.3 Frequency Stability Measurement

### 4.3.1 Limits of Frequency Stabiliity Measurement

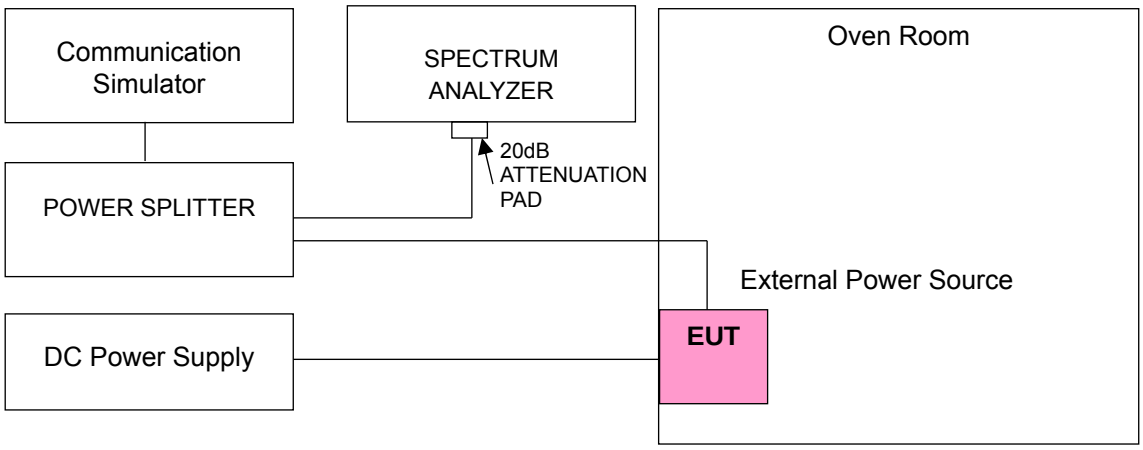
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

### 4.3.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

### 4.3.3 Conducted Setup



### 4.3.4 Test Results

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1850.700004 | 0.002 | 1914.300002 | 0.001 |
| 5 | 1850.700002 | 0.001 | 1914.300003 | 0.002 |
| 12 | 1850.700003 | 0.001 | 1914.300002 | 0.001 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1850.700003 | 0.002 | 1914.300003 | 0.002 |
| -20 | 1850.700004 | 0.002 | 1914.300003 | 0.002 |
| -10 | 1850.700004 | 0.002 | 1914.300003 | 0.001 |
| 0 | 1850.700003 | 0.001 | 1914.300001 | 0.001 |
| 10 | 1850.700002 | 0.001 | 1914.300002 | 0.001 |
| 20 | 1850.699997 | -0.002 | 1914.299999 | -0.001 |
| 30 | 1850.699996 | -0.002 | 1914.299996 | -0.002 |
| 40 | 1850.699997 | -0.002 | 1914.299996 | -0.002 |
| 50 | 1850.699996 | -0.002 | 1914.299996 | -0.002 |
| 60 | 1850.699999 | -0.001 | 1914.299996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1851.500001 | 0.001 | 1913.500002 | 0.001 |
| 5 | 1851.500001 | 0.001 | 1913.500001 | 0.001 |
| 12 | 1851.500004 | 0.002 | 1913.500003 | 0.001 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1851.500002 | 0.001 | 1913.500002 | 0.001 |
| -20 | 1851.500003 | 0.002 | 1913.500004 | 0.002 |
| -10 | 1851.500004 | 0.002 | 1913.500003 | 0.001 |
| 0 | 1851.500003 | 0.001 | 1913.500003 | 0.001 |
| 10 | 1851.500003 | 0.002 | 1913.500004 | 0.002 |
| 20 | 1851.499997 | -0.002 | 1913.499999 | -0.001 |
| 30 | 1851.499998 | -0.001 | 1913.499998 | -0.001 |
| 40 | 1851.499997 | -0.001 | 1913.499999 | -0.001 |
| 50 | 1851.499999 | -0.001 | 1913.499996 | -0.002 |
| 60 | 1851.499997 | -0.002 | 1913.499997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1852.500002 | 0.001 | 1912.500003 | 0.002 |
| 5 | 1852.500002 | 0.001 | 1912.500003 | 0.001 |
| 12 | 1852.500004 | 0.002 | 1912.500004 | 0.002 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1852.500003 | 0.002 | 1912.500002 | 0.001 |
| -20 | 1852.500001 | 0.001 | 1912.500004 | 0.002 |
| -10 | 1852.500003 | 0.002 | 1912.500002 | 0.001 |
| 0 | 1852.500002 | 0.001 | 1912.500001 | 0.001 |
| 10 | 1852.500003 | 0.002 | 1912.500001 | 0.001 |
| 20 | 1852.499998 | -0.001 | 1912.499998 | -0.001 |
| 30 | 1852.499996 | -0.002 | 1912.499999 | -0.001 |
| 40 | 1852.499996 | -0.002 | 1912.499999 | -0.001 |
| 50 | 1852.499996 | -0.002 | 1912.499999 | -0.001 |
| 60 | 1852.499998 | -0.001 | 1912.499996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1855.000003 | 0.002 | 1910.000003 | 0.002 |
| 5 | 1855.000002 | 0.001 | 1910.000001 | 0.001 |
| 12 | 1855.000002 | 0.001 | 1910.000004 | 0.002 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1855.000003 | 0.001 | 1910.000003 | 0.002 |
| -20 | 1855.000003 | 0.002 | 1910.000002 | 0.001 |
| -10 | 1855.000003 | 0.001 | 1910.000004 | 0.002 |
| 0 | 1855.000003 | 0.002 | 1910.000002 | 0.001 |
| 10 | 1855.000002 | 0.001 | 1910.000002 | 0.001 |
| 20 | 1854.999997 | -0.001 | 1909.999997 | -0.002 |
| 30 | 1854.999997 | -0.002 | 1909.999997 | -0.001 |
| 40 | 1854.999997 | -0.002 | 1909.999998 | -0.001 |
| 50 | 1854.999996 | -0.002 | 1909.999996 | -0.002 |
| 60 | 1854.999998 | -0.001 | 1909.999996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1857.500002 | 0.001 | 1907.500004 | 0.002 |
| 5 | 1857.500002 | 0.001 | 1907.500004 | 0.002 |
| 12 | 1857.500001 | 0.001 | 1907.500002 | 0.001 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1857.500002 | 0.001 | 1907.500003 | 0.001 |
| -20 | 1857.500002 | 0.001 | 1907.500001 | 0.001 |
| -10 | 1857.500004 | 0.002 | 1907.500002 | 0.001 |
| 0 | 1857.500003 | 0.002 | 1907.500004 | 0.002 |
| 10 | 1857.500001 | 0.001 | 1907.500003 | 0.001 |
| 20 | 1857.499997 | -0.002 | 1907.499997 | -0.001 |
| 30 | 1857.499997 | -0.001 | 1907.499997 | -0.002 |
| 40 | 1857.499997 | -0.002 | 1907.499996 | -0.002 |
| 50 | 1857.499997 | -0.001 | 1907.499999 | -0.001 |
| 60 | 1857.499997 | -0.001 | 1907.499996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 8 | 1860.000002 | 0.001 | 1905.000001 | 0.001 |
| 5 | 1860.000002 | 0.001 | 1905.000002 | 0.001 |
| 12 | 1860.000002 | 0.001 | 1905.000001 | 0.001 |

Note: The applicant defined the normal working voltage is from 5Vdc to 12Vdc.

Frequency Error vs. Temperature

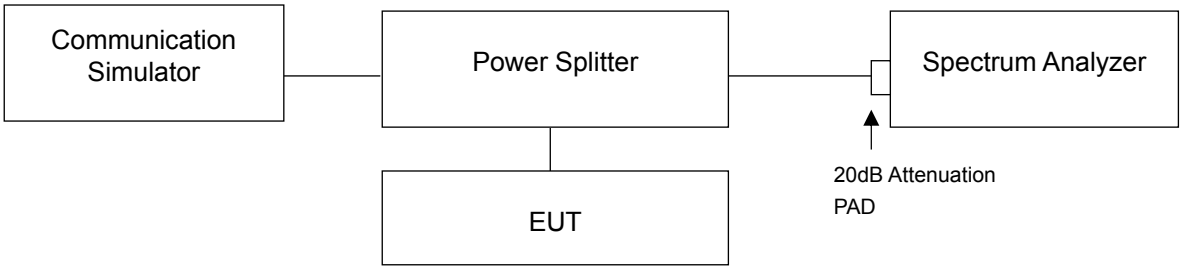
| Temp. (℃) | LTE Band 25 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1860.000002 | 0.001 | 1905.000003 | 0.002 |
| -20 | 1860.000002 | 0.001 | 1905.000001 | 0.001 |
| -10 | 1860.000001 | 0.001 | 1905.000004 | 0.002 |
| 0 | 1860.000002 | 0.001 | 1905.000002 | 0.001 |
| 10 | 1860.000003 | 0.002 | 1905.000002 | 0.001 |
| 20 | 1859.999999 | -0.001 | 1904.999998 | -0.001 |
| 30 | 1859.999997 | -0.002 | 1904.999998 | -0.001 |
| 40 | 1859.999997 | -0.002 | 1904.999997 | -0.001 |
| 50 | 1859.999997 | -0.002 | 1904.999997 | -0.001 |
| 60 | 1859.999997 | -0.002 | 1904.999998 | -0.001 |

## 4.4 Occupied Bandwidth Measurement

### 4.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

### 4.4.2 Test Setup



### 4.4.3 Test Result

Occupied Bandwidth

| LTE Band 25, Channel Bandwidth 1.4MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26047 | 1850.7 | 1.08 | 1.09 |
| 26365 | 1882.5 | 1.09 | 1.09 |
| 26683 | 1914.3 | 1.08 | 1.09 |

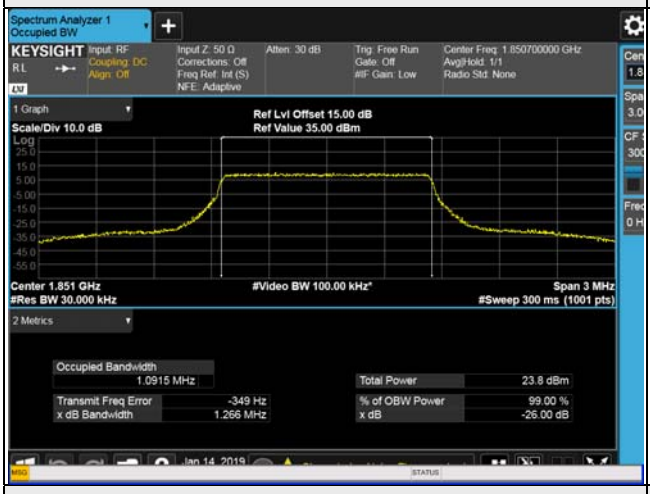
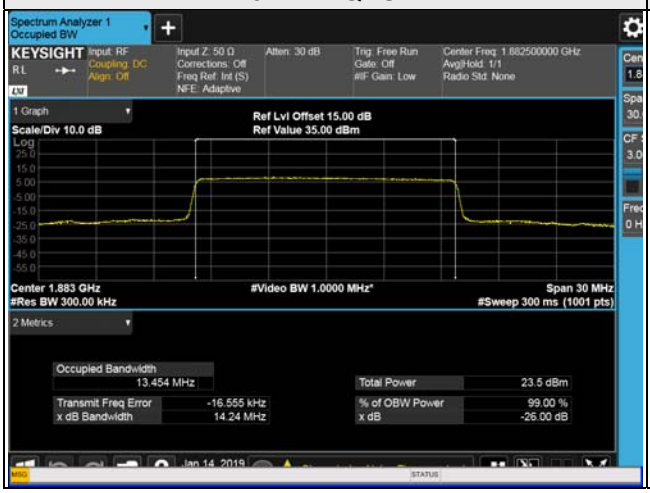
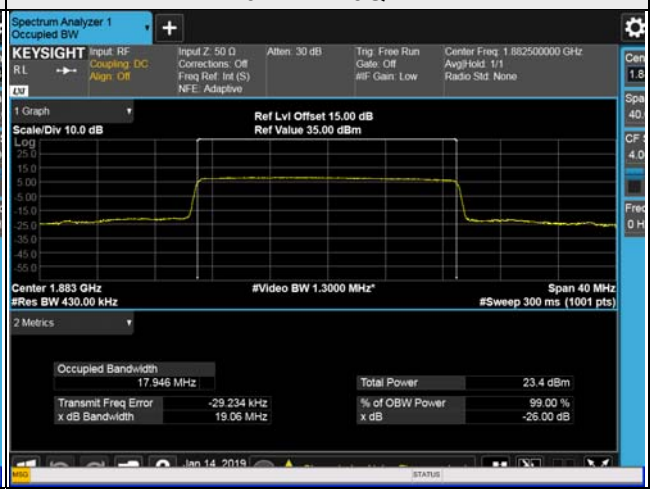
| LTE Band 25, Channel Bandwidth 3MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26055 | 1851.5 | 2.69 | 2.69 |
| 26365 | 1882.5 | 2.70 | 2.70 |
| 26675 | 1913.5 | 2.69 | 2.69 |

| LTE Band 25, Channel Bandwidth 5MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26065 | 1852.5 | 4.49 | 4.49 |
| 26365 | 1882.5 | 4.49 | 4.49 |
| 26665 | 1912.5 | 4.49 | 4.49 |

| LTE Band 25, Channel Bandwidth 10MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26090 | 1855.0 | 8.95 | 8.95 |
| 26365 | 1882.5 | 8.96 | 8.96 |
| 26640 | 1910.0 | 8.95 | 8.94 |

| LTE Band 25, Channel Bandwidth 15MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26115 | 1857.5 | 13.44 | 13.43 |
| 26365 | 1882.5 | 13.45 | 13.44 |
| 26615 | 1907.5 | 13.41 | 13.41 |

| LTE Band 25, Channel Bandwidth 20MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26140 | 1860.0 | 17.92 | 17.92 |
| 26365 | 1882.5 | 17.93 | 17.94 |
| 26590 | 1905.0 | 17.86 | 17.85 |

| Spectrum Plot of Worst Value | |
|---|---|
| 1.4MHz / 16QAM | 3MHz / QPSK |
|  | |
| 5MHz / QPSK | 10MHz / 16QAM |
| | |
| 15MHz / QPSK | 20MHz / 16QAM |
|  |  |

## 26dB Bandwidth

| LTE Band 25, Channel Bandwidth 1.4MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26047 | 1850.7 | 1.25 | 1.26 |
| 26365 | 1882.5 | 1.26 | 1.28 |
| 26683 | 1914.3 | 1.25 | 1.26 |

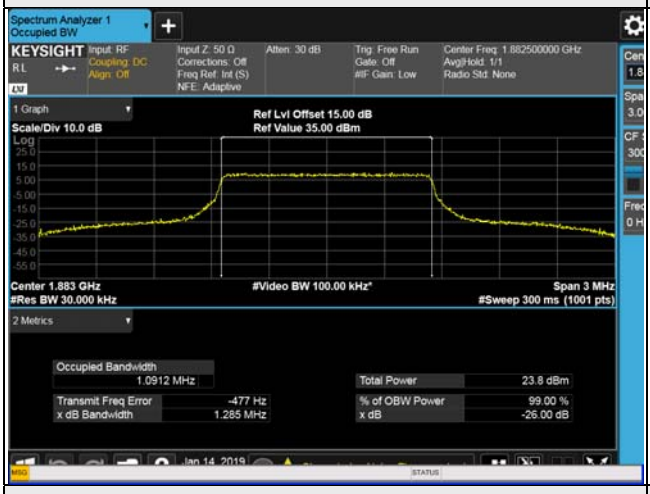
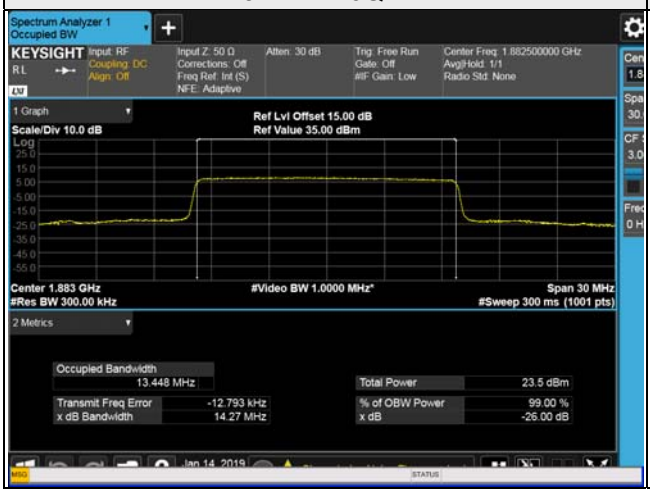
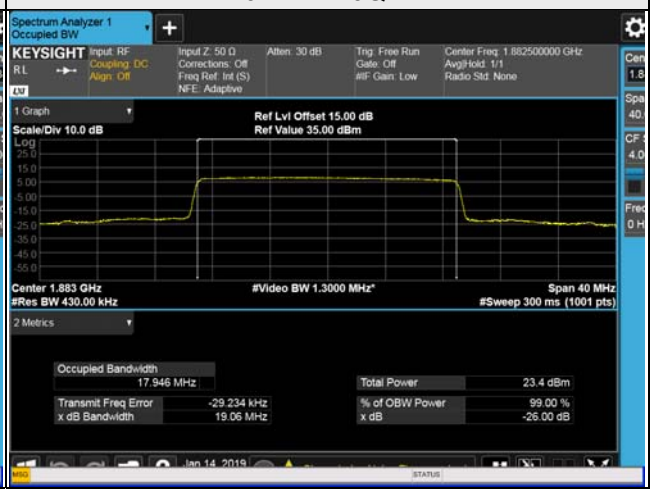
| LTE Band 25, Channel Bandwidth 3MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26055 | 1851.5 | 2.92 | 2.90 |
| 26365 | 1882.5 | 2.95 | 2.93 |
| 26675 | 1913.5 | 2.93 | 2.92 |

| LTE Band 25, Channel Bandwidth 5MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26065 | 1852.5 | 4.85 | 4.84 |
| 26365 | 1882.5 | 4.89 | 4.84 |
| 26665 | 1912.5 | 4.83 | 4.82 |

| LTE Band 25, Channel Bandwidth 10MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26090 | 1855.0 | 9.53 | 9.53 |
| 26365 | 1882.5 | 9.55 | 9.54 |
| 26640 | 1910.0 | 9.52 | 9.53 |

| LTE Band 25, Channel Bandwidth 15MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26115 | 1857.5 | 14.24 | 14.23 |
| 26365 | 1882.5 | 14.24 | 14.27 |
| 26615 | 1907.5 | 14.23 | 14.23 |

| LTE Band 25, Channel Bandwidth 20MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) | |
| | | QPSK | 16QAM |
| 26140 | 1860.0 | 19.04 | 19.04 |
| 26365 | 1882.5 | 19.04 | 19.06 |
| 26590 | 1905.0 | 19.00 | 18.98 |

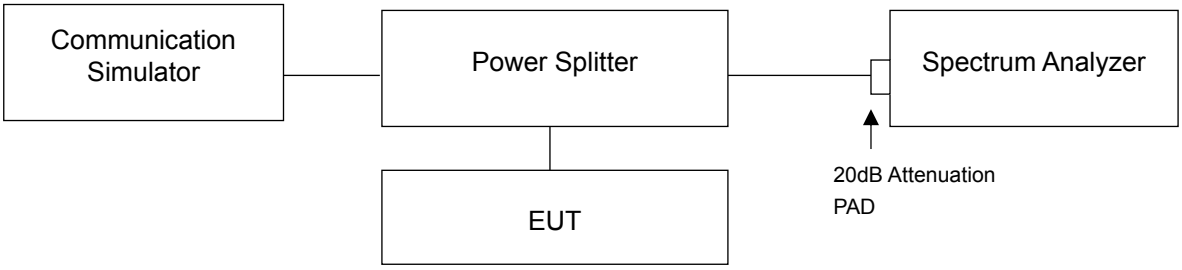
| Spectrum Plot of Worst Value | |
|---|---|
| 1.4MHz / 16QAM | 3MHz / QPSK |
|  | |
| 5MHz / QPSK | 10MHz / QPSK |
| | |
| 15MHz / 16QAM | 20MHz / 16QAM |
|  |  |

## 4.5 Band Edge Measurement

### 4.5.1 Limits of Band Edge Measurement

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

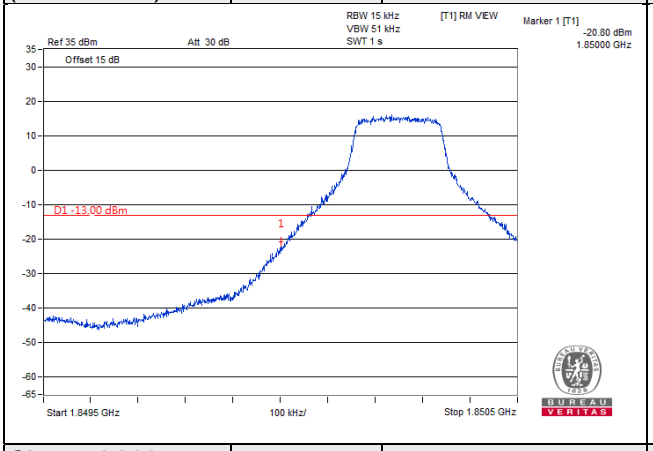
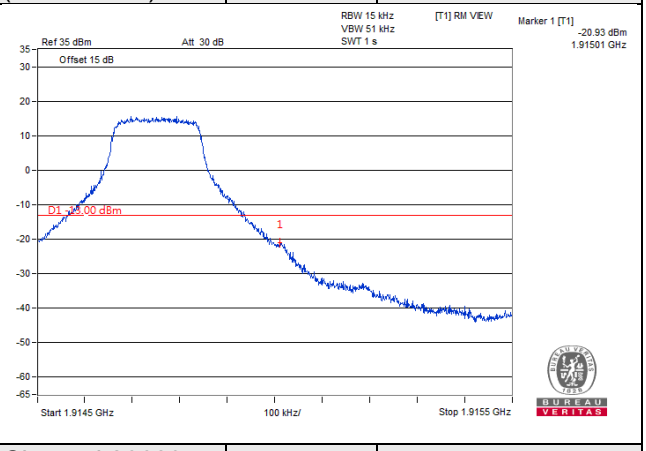
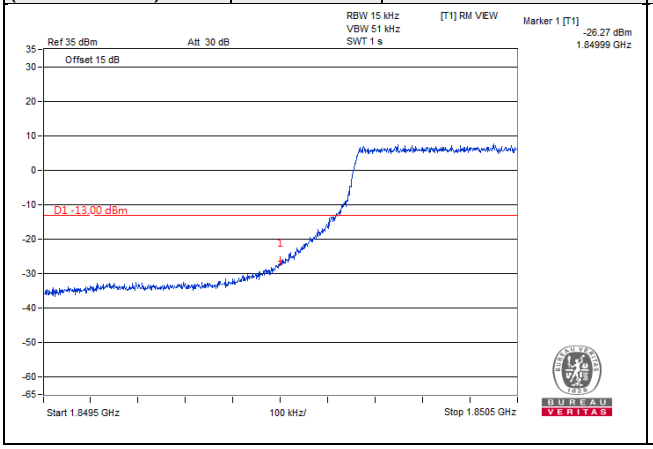
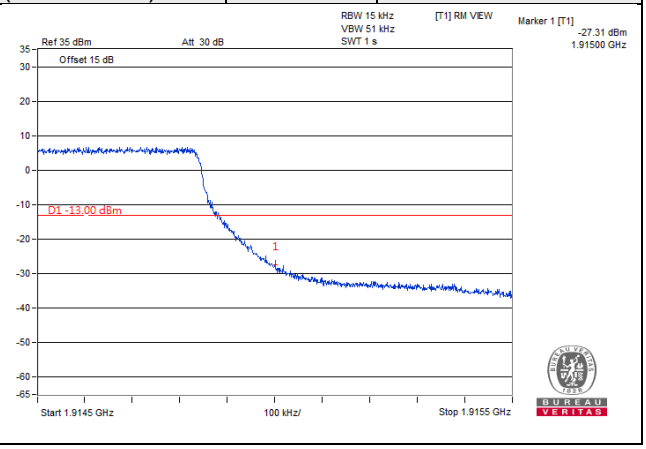
### 4.5.2 Test Setup

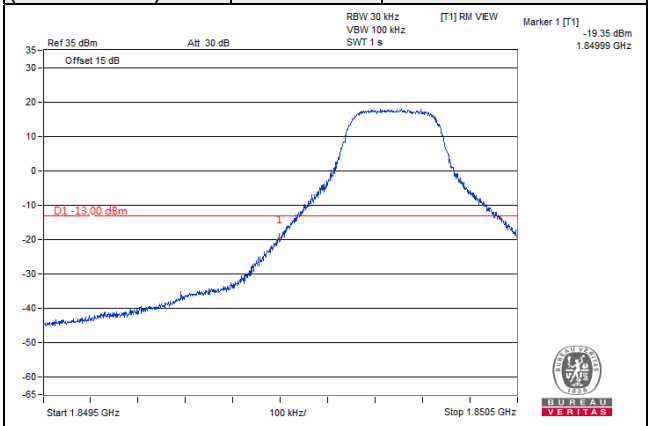
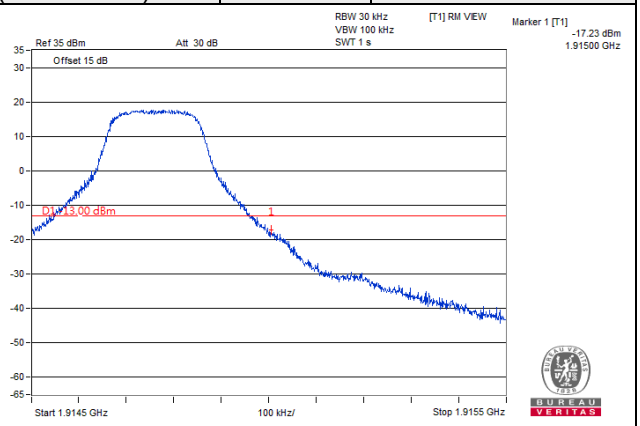
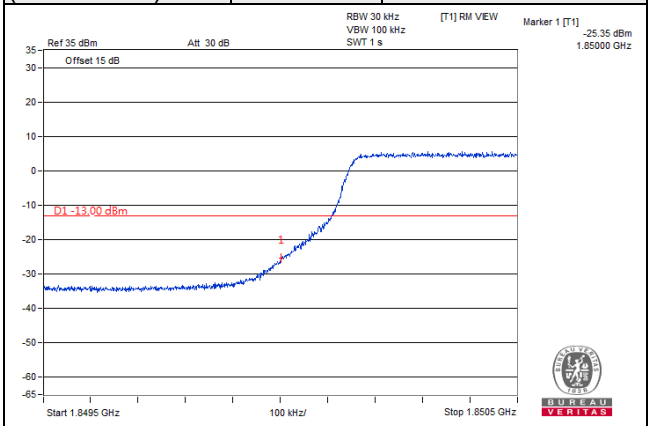
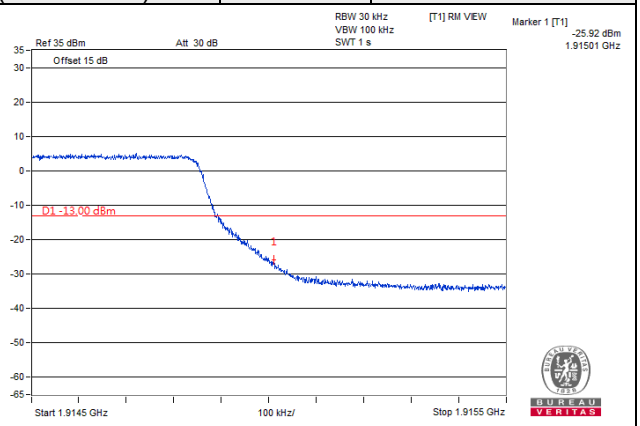


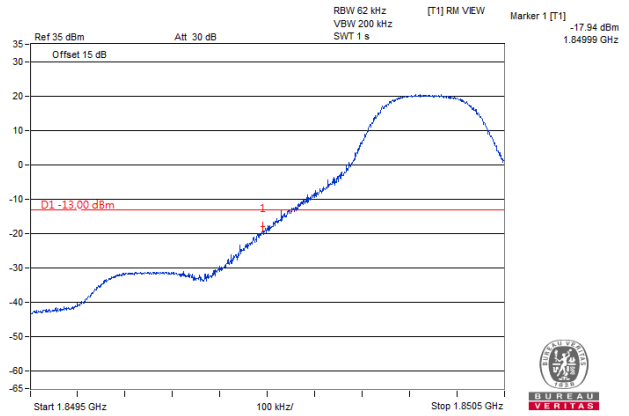
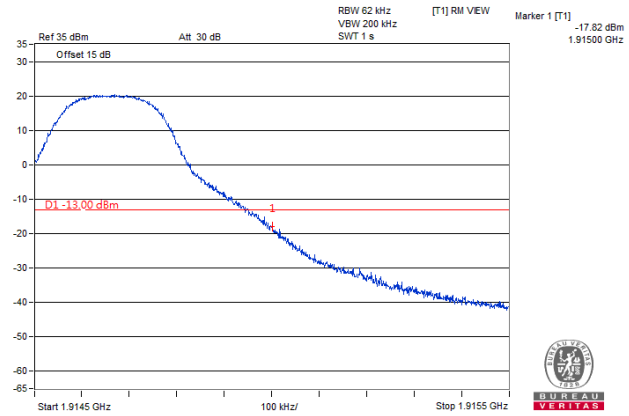
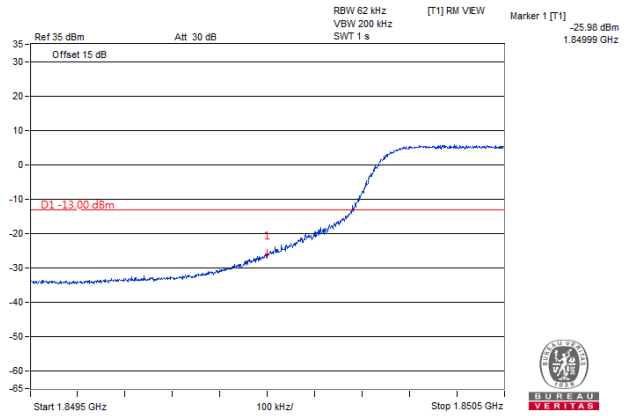
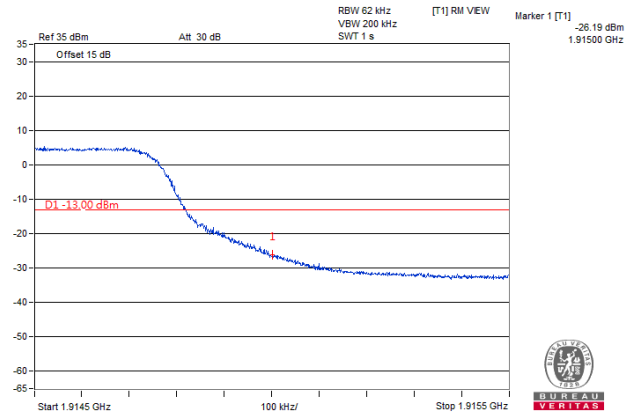

### 4.5.3 Test Procedures

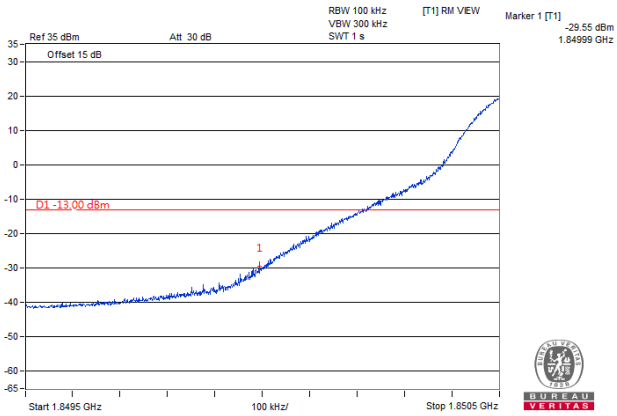
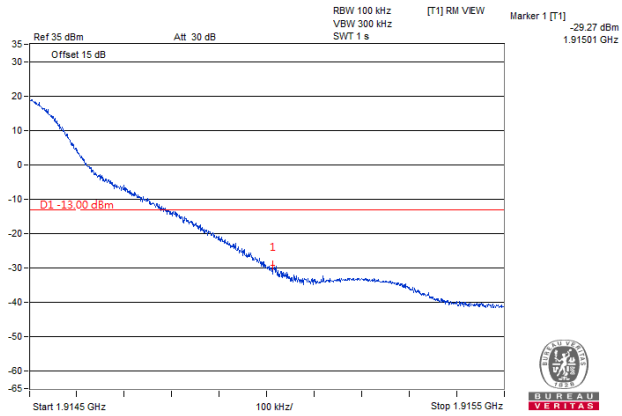
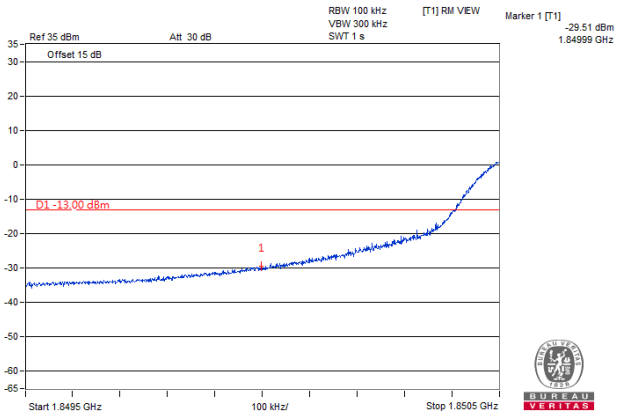
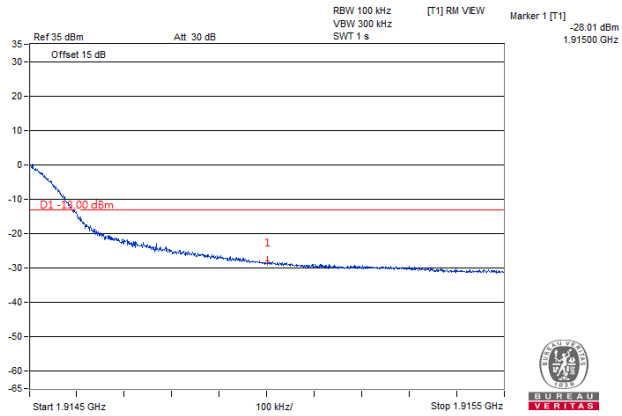
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).
c. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 62kHz and VB of the spectrum is 200kHz (LTE Channel Bandwidth 5MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz (LTE Channel Bandwidth 20MHz).
h. Record the max trace plot into the test report.

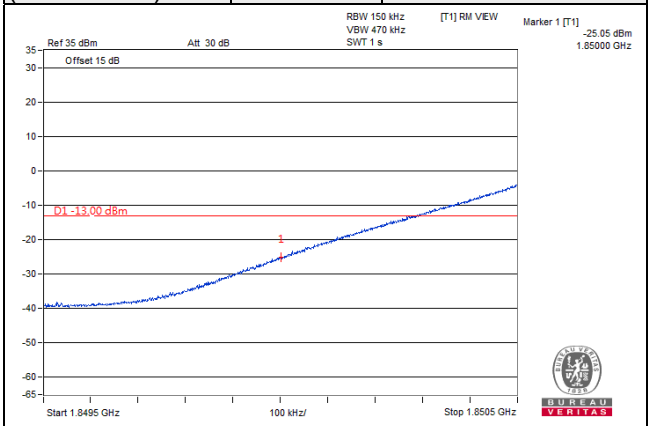
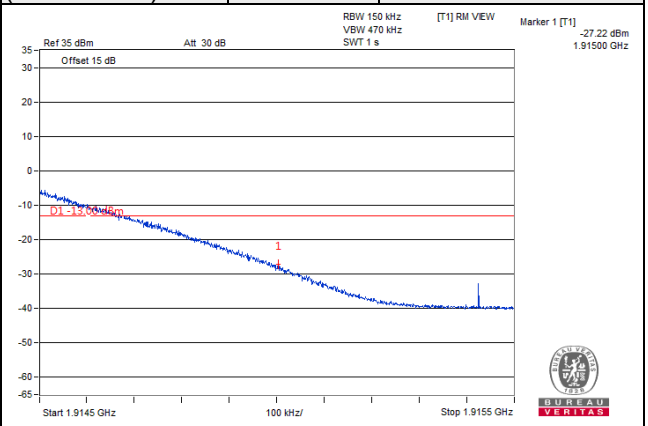
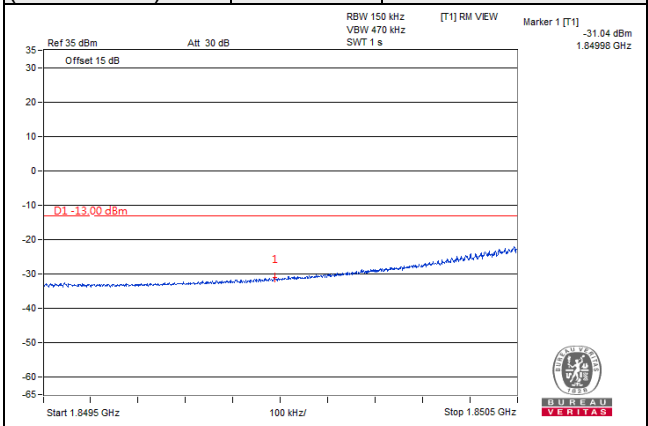
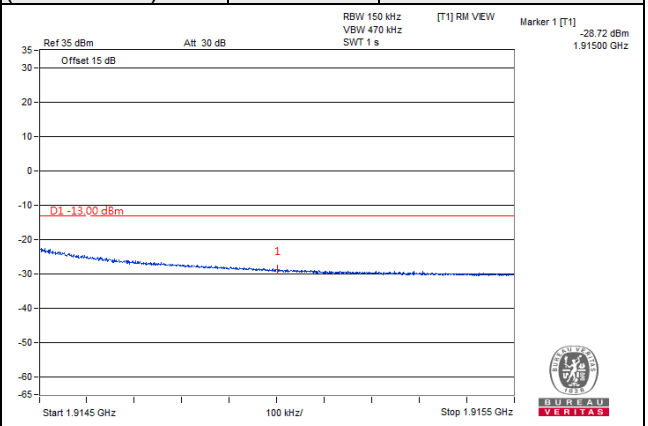
### 4.5.4 Test Results

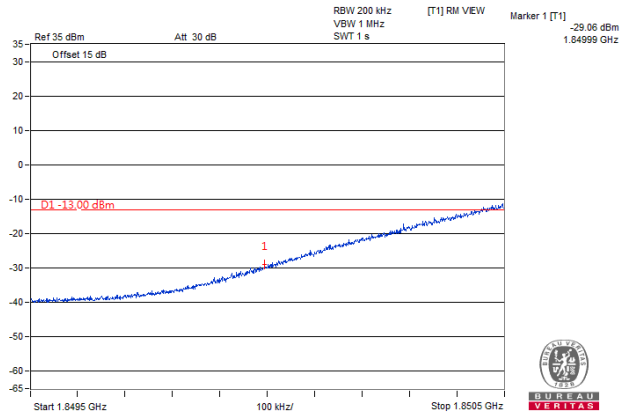
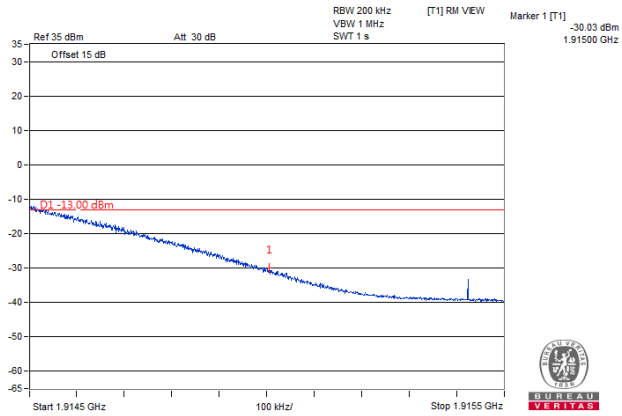
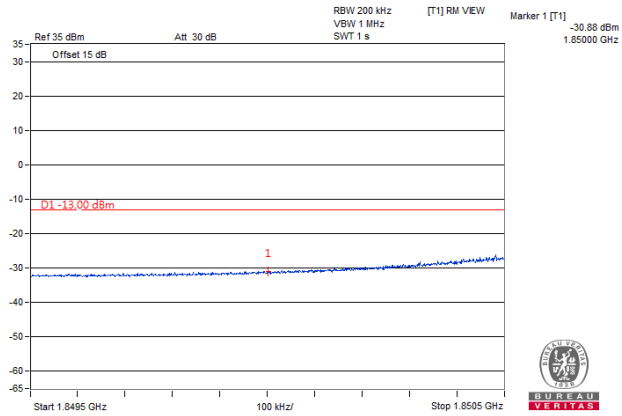
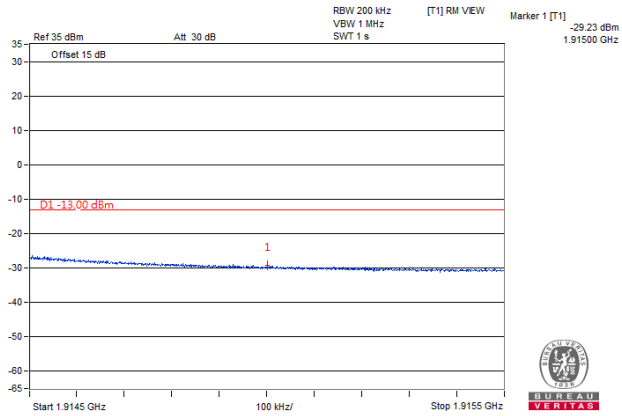
| LTE Band 25, Channel Bandwidth 1.4MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26047 (1850.7MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26683 (1914.3MHz) | QPSK | 1 RB / 5 RB Offset |
|   | | |   | | |
| Channel 26047 (1850.7MHz) | QPSK | 6 RB / 0 RB Offset | Channel 26683 (1914.3MHz) | QPSK | 6 RB / 0 RB Offset |
|   | | |   | | |

| LTE Band 25, Channel Bandwidth 3MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26055 (1851.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26675 (1913.5MHz) | QPSK | 1 RB / 14 RB Offset |
|  | | |  | | |
| Channel 26055 (1851.5MHz) | QPSK | 15 RB / 0 RB Offset | Channel 26675 (1913.5MHz) | QPSK | 15 RB / 0 RB Offset |
|  | | |  | | |

| LTE Band 25, Channel Bandwidth 5MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26065 (1852.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26665 (1912.5MHz) | QPSK | 1 RB / 24 RB Offset |
|   | | |   | | |
| Channel 26065 (1852.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 26665 (1912.5MHz) | QPSK | 25 RB / 0 RB Offset |
|   | | |   | | |

| LTE Band 25, Channel Bandwidth 10MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26090 (1855.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26640 (1910.0MHz) | QPSK | 1 RB / 49 RB Offset |
|   |   | | | |
| Channel 26090 (1855.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 26640 (1910.0MHz) | QPSK | 50 RB / 0 RB Offset |
|   |   | | | |

| LTE Band 25, Channel Bandwidth 15MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26115 (1857.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26615 (1907.5MHz) | QPSK | 1 RB / 74 RB Offset |
|  | | |  | | |
| Channel 26115 (1857.5MHz) | QPSK | 75 RB / 0 RB Offset | Channel 26615 (1907.5MHz) | QPSK | 75 RB / 0 RB Offset |
|  | | |  | | |

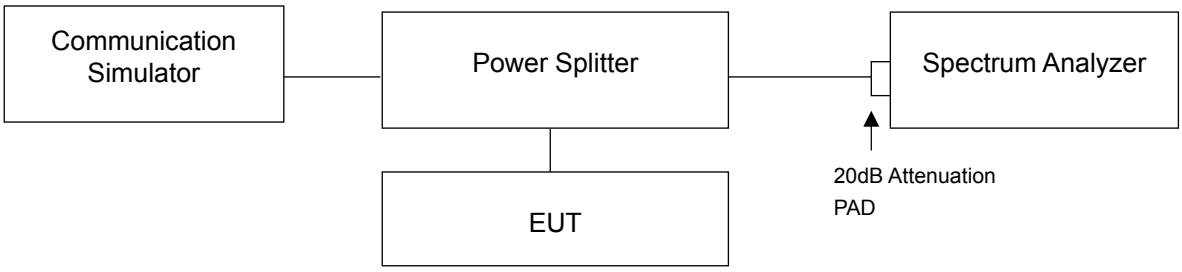
| LTE Band 25, Channel Bandwidth 20MHz | | | | | |
|---|---|---|---|---|---|
| Channel 26140 (1860.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26590 (1905.0MHz) | QPSK | 1 RB / 99 RB Offset |
|   | | |   | | |
| Channel 26140 (1860.0MHz) | QPSK | 100 RB / 0 RB Offset | Channel 26590 (1905.0MHz) | QPSK | 100 RB / 0 RB Offset |
|   | | |   | | |

## 4.6 Peak to Average Ratio

### 4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

### 4.6.2 Test Setup




### 4.6.3 Test Procedures

a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
b. Set the number of counts to a value that stabilizes the measured CCDF curve;
c. Record the maximum PAPR level associated with a probability of 0.1%.

### 4.6.4 Test Results

| LTE Band 25, Channel Bandwidth 1.4MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26047 | 1850.7 | 4.23 | 5.06 |
| 26365 | 1882.5 | 3.70 | 4.53 |
| 26683 | 1914.3 | 4.24 | 5.15 |

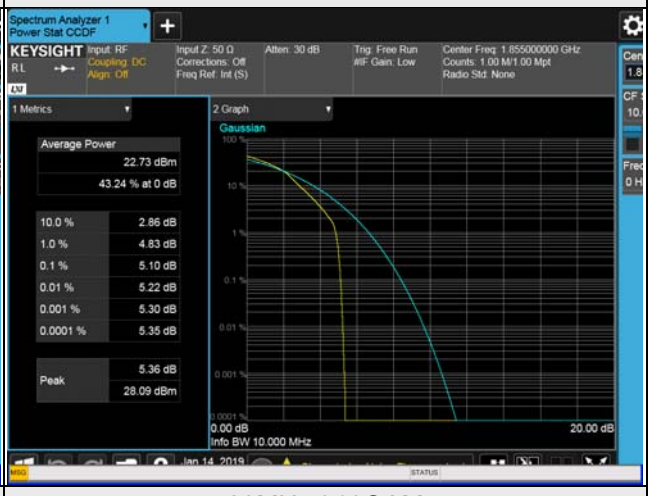
| LTE Band 25, Channel Bandwidth 3MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26055 | 1851.5 | 4.24 | 5.08 |
| 26365 | 1882.5 | 3.70 | 4.59 |
| 26675 | 1913.5 | 4.01 | 4.91 |

| LTE Band 25, Channel Bandwidth 5MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26065 | 1852.5 | 4.23 | 5.05 |
| 26365 | 1882.5 | 3.74 | 4.59 |
| 26665 | 1912.5 | 3.85 | 4.73 |

| LTE Band 25, Channel Bandwidth 10MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26090 | 1855.0 | 4.20 | 5.10 |
| 26365 | 1882.5 | 3.70 | 4.71 |
| 26640 | 1910.0 | 3.93 | 4.94 |

| LTE Band 25, Channel Bandwidth 15MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26115 | 1857.5 | 4.18 | 4.99 |
| 26365 | 1882.5 | 3.81 | 4.71 |
| 26615 | 1907.5 | 4.36 | 5.19 |

| LTE Band 25, Channel Bandwidth 20MHz | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | |
| | | QPSK | 16QAM |
| 26140 | 1860.0 | 4.22 | 5.06 |
| 26365 | 1882.5 | 3.96 | 4.86 |
| 26590 | 1905.0 | 4.49 | 5.25 |

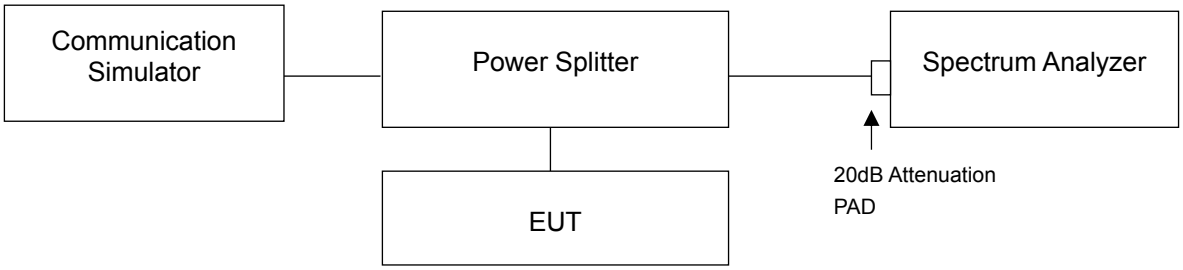
| Spectrum Plot of Worst Value | |
|---|---|
| 1.4MHz / 16QAM | 3MHz / 16QAM |
| | |
| 5MHz / 16QAM | 10MHz / 16QAM |
| |  |
| 15MHz / 16QAM | 20MHz / 16QAM |
| | |

## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions 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 equal to –13dBm.

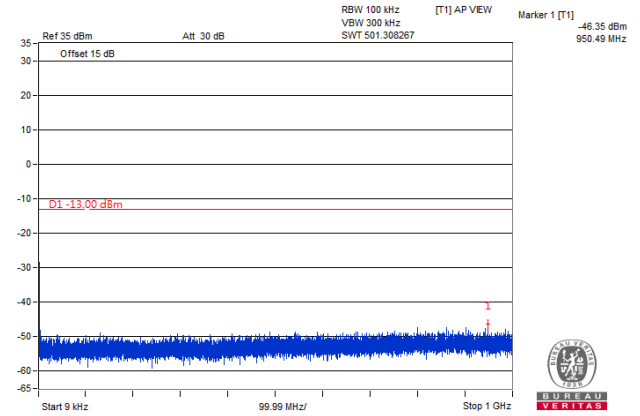
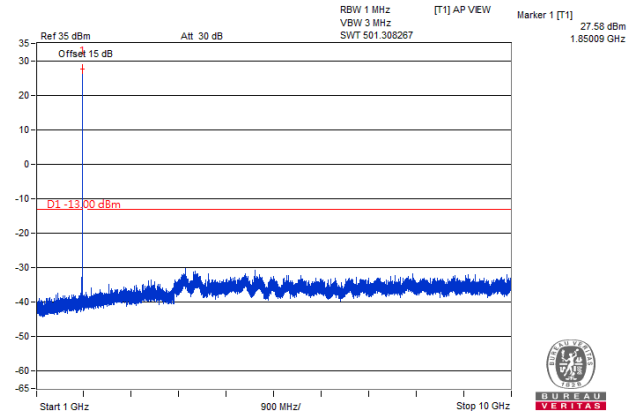
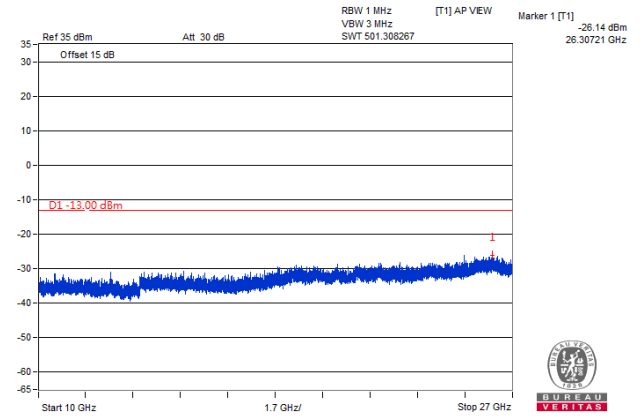
### 4.7.2 Test Setup

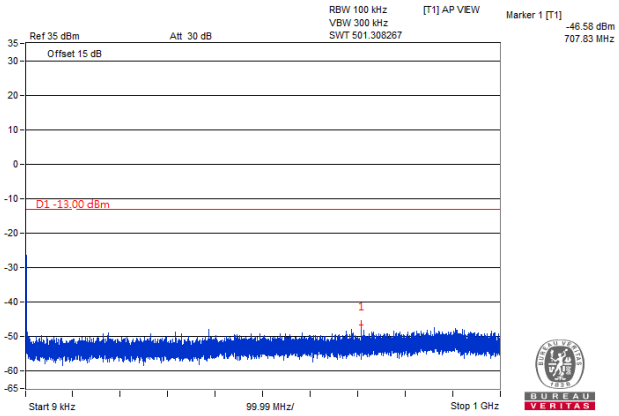
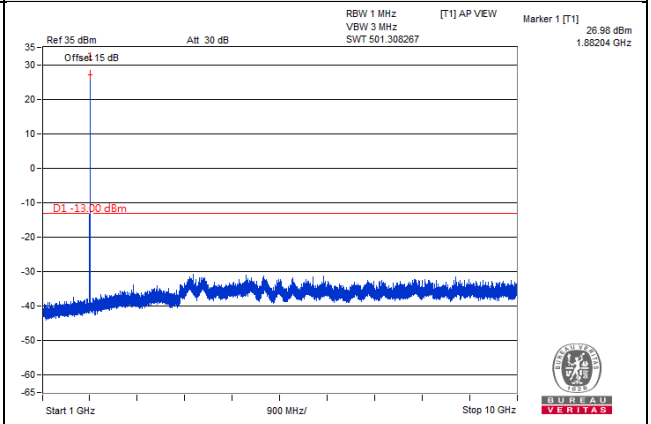
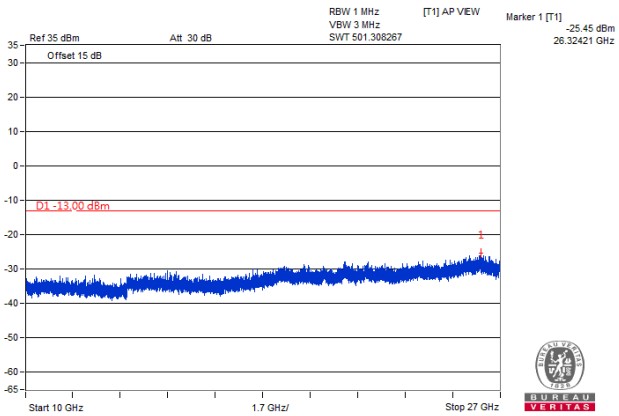


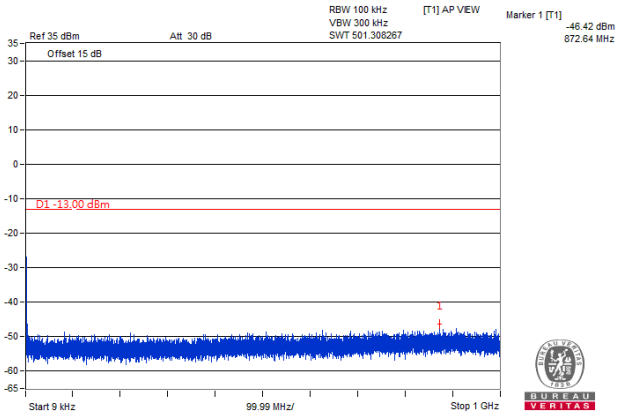
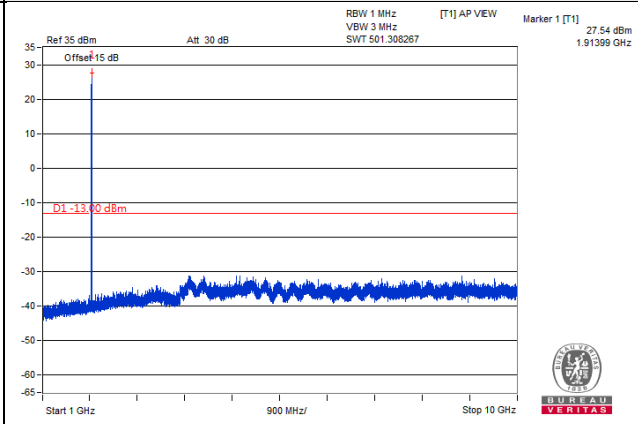
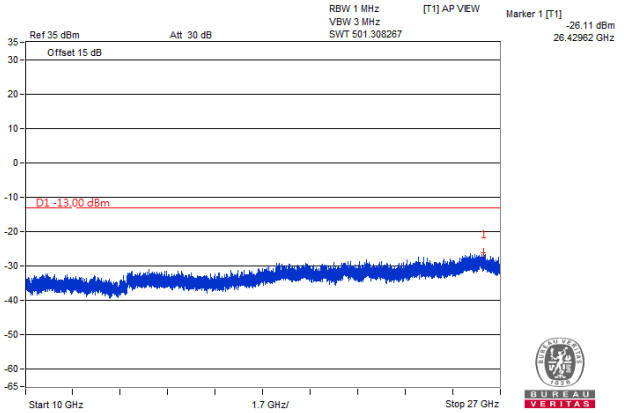

### 4.7.3 Test Procedure

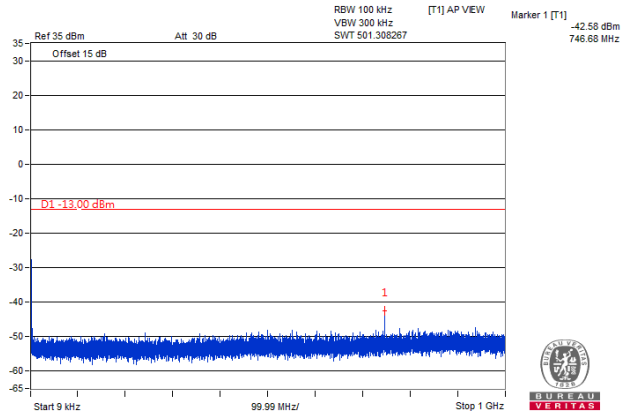
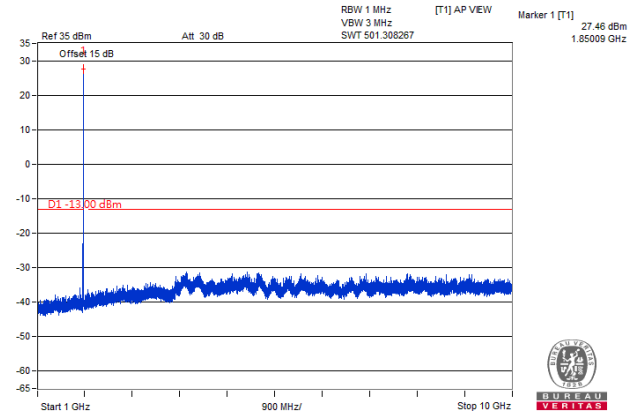
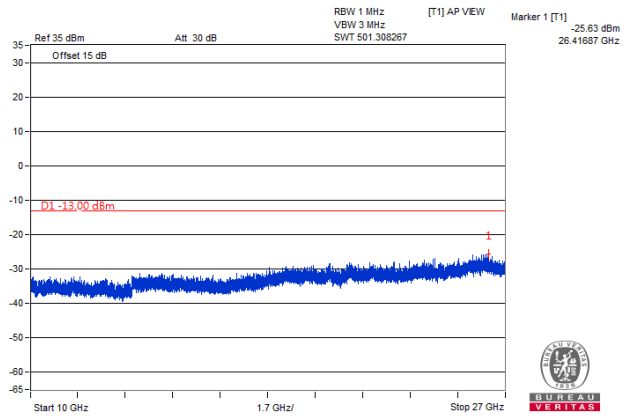
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1GHz. 20dB attenuation pad is connected with spectrum. RBW=100kHz and VBW=300kHz is used for conducted emission measurement.
c. Measuring frequency range is from 1GHz to 26.5GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

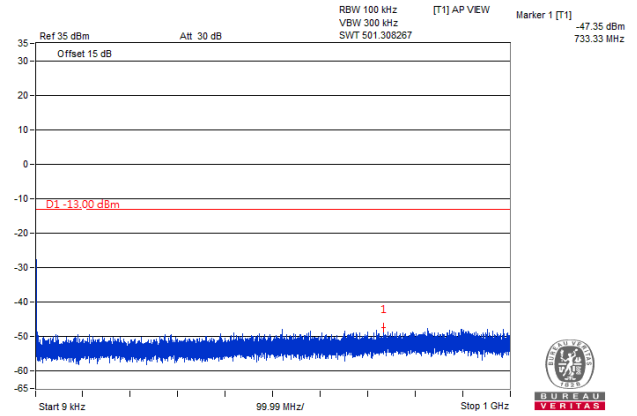
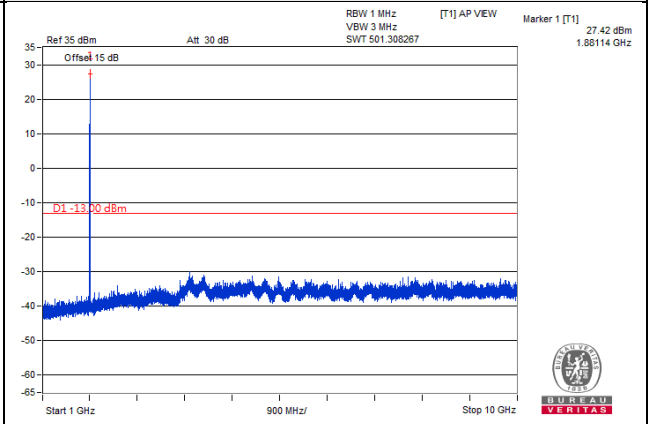
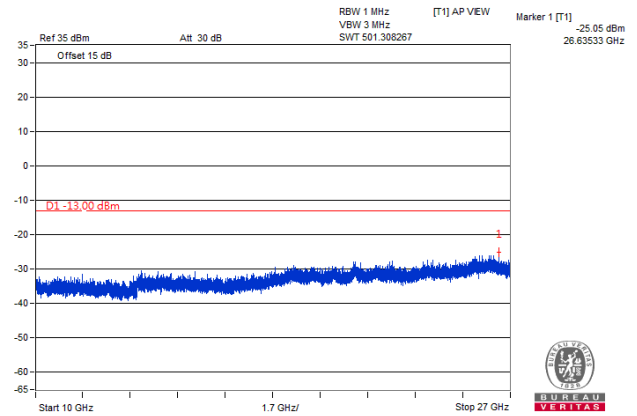
### 4.7.4 Test Results

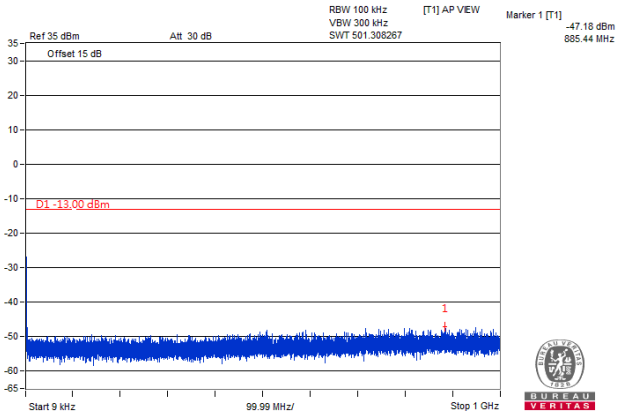
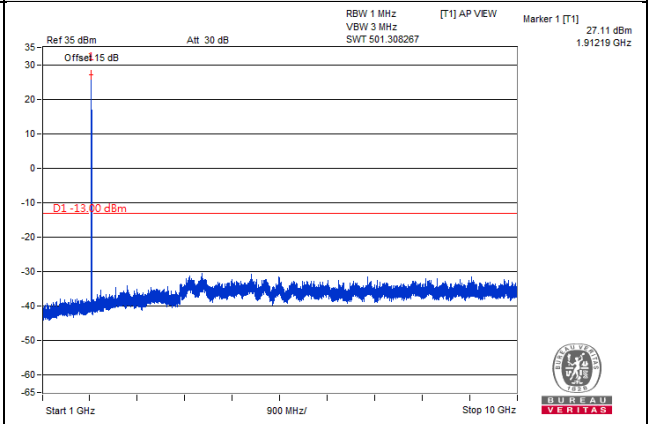
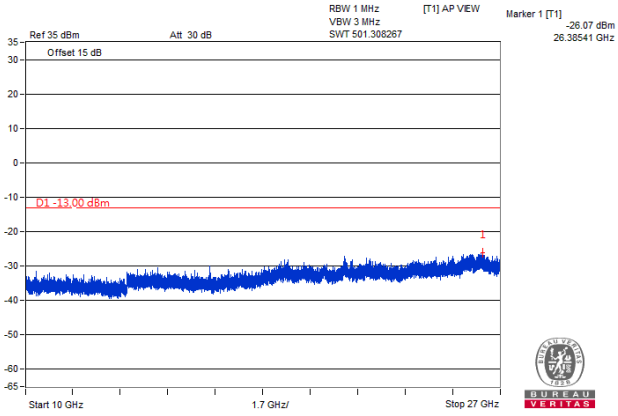
| LTE Band 25, Channel Bandwidth 1.4MHz | |
|---|---|
| Channel 26047 (1850.7MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

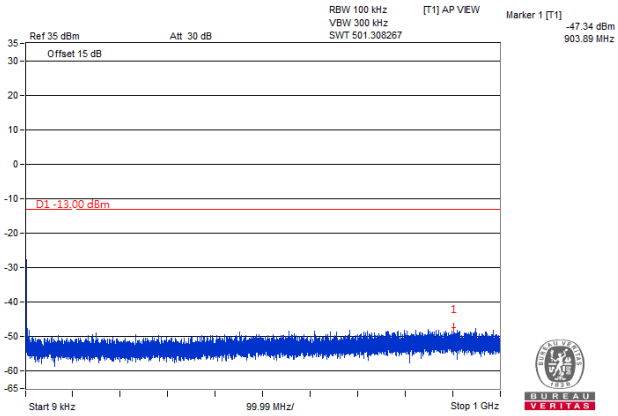
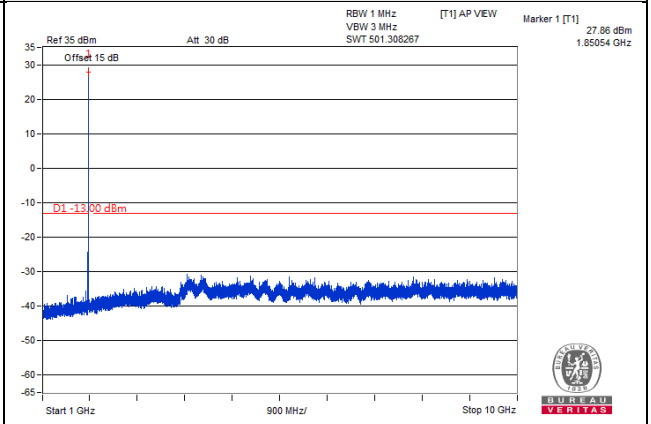
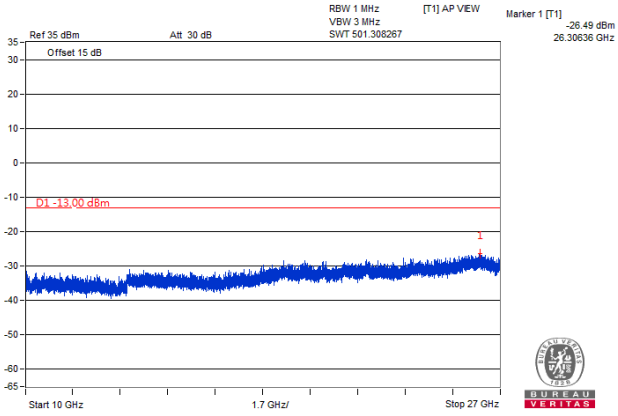
| LTE Band 25, Channel Bandwidth 1.4MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

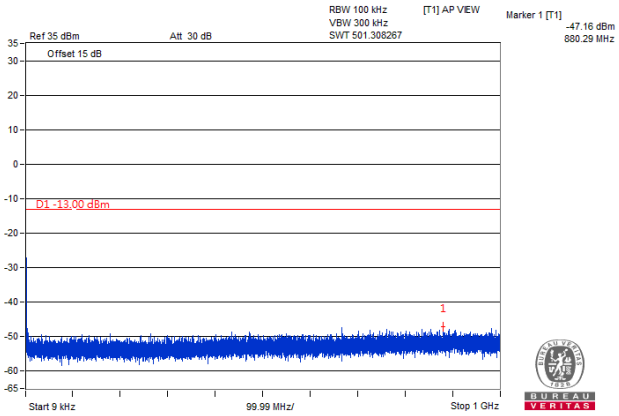
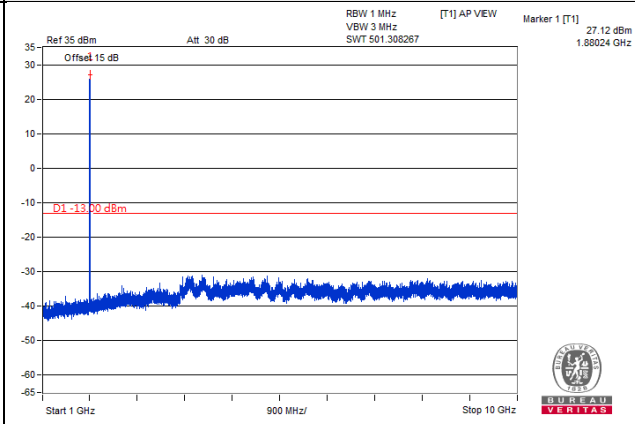
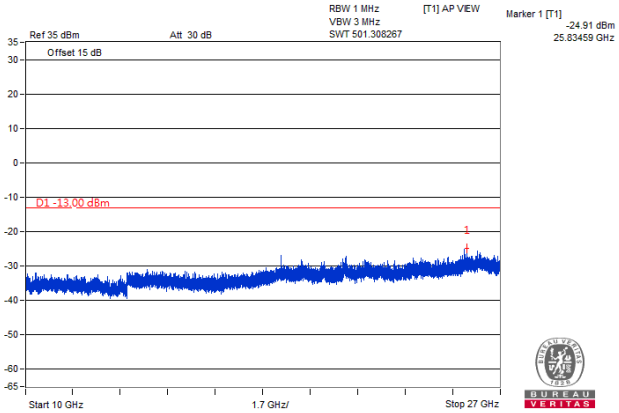
| LTE Band 25, Channel Bandwidth 1.4MHz | |
|---|---|
| Channel 26683 (1914.3MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

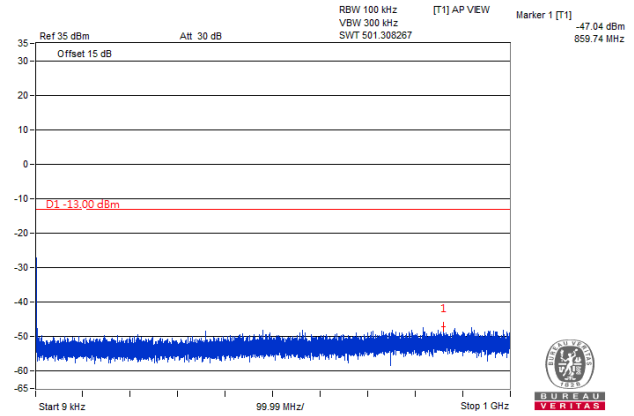
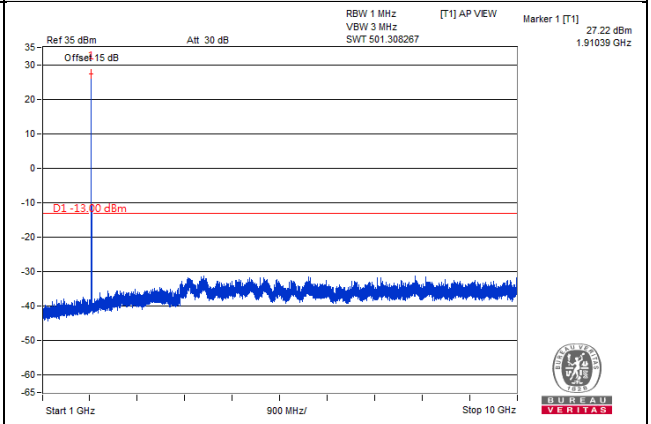
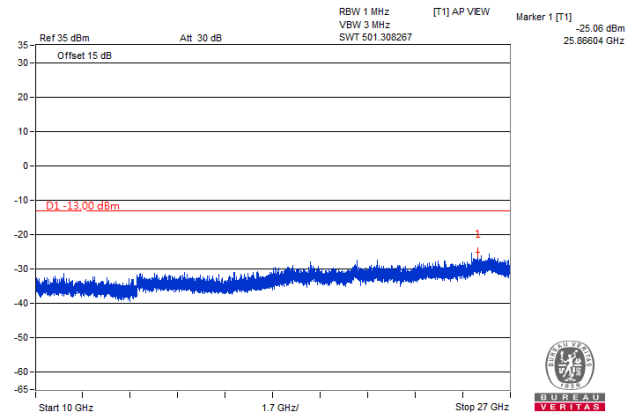
| LTE Band 25, Channel Bandwidth 3MHz | |
|---|---|
| Channel 26055 (1851.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

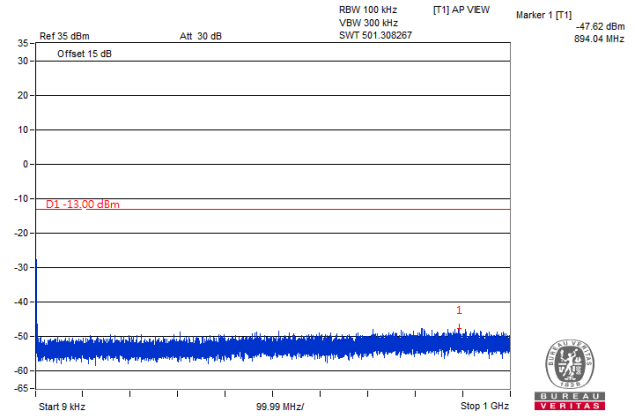
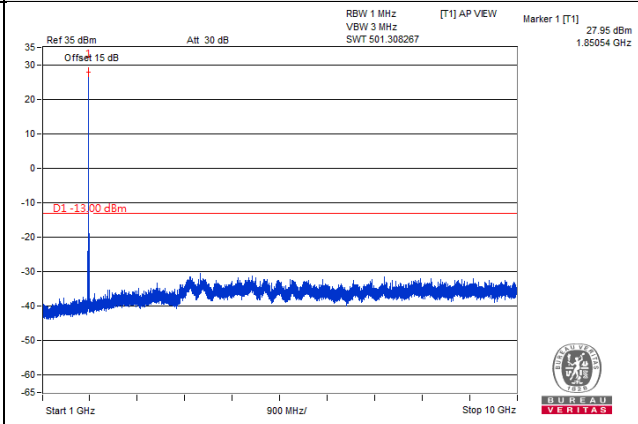
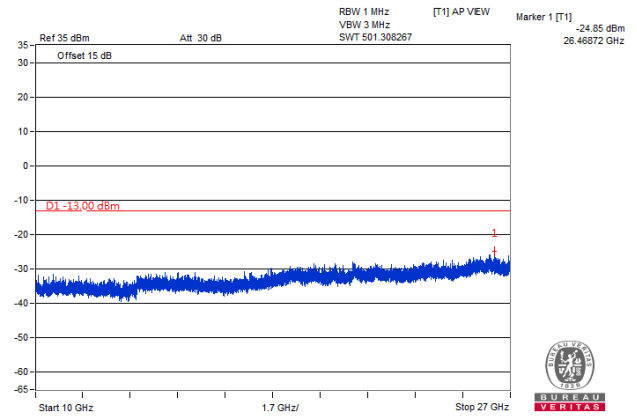
| LTE Band 25, Channel Bandwidth 3MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

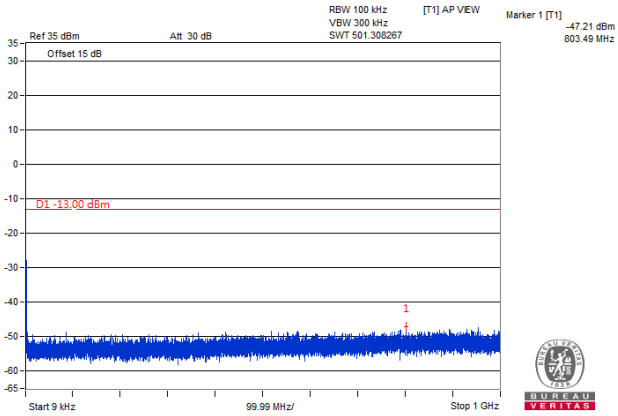
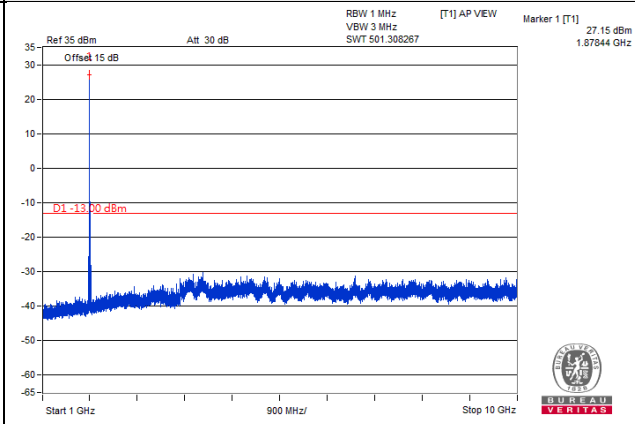
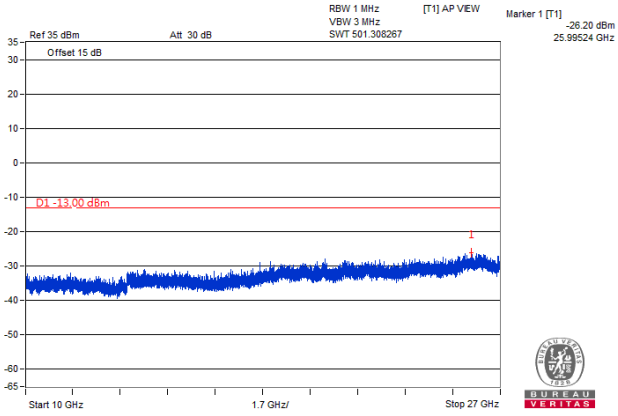
| LTE Band 25, Channel Bandwidth 3MHz | |
|---|---|
| Channel 26675 (1913.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

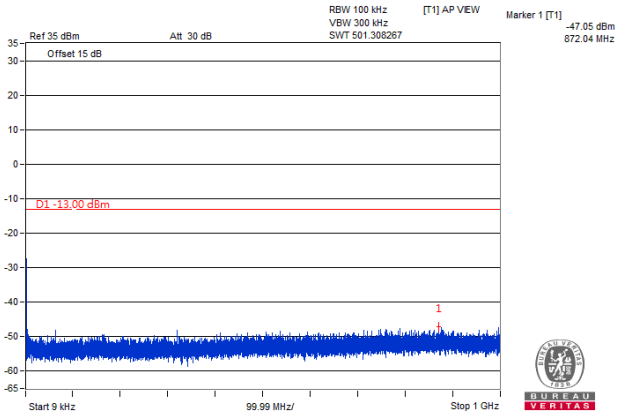
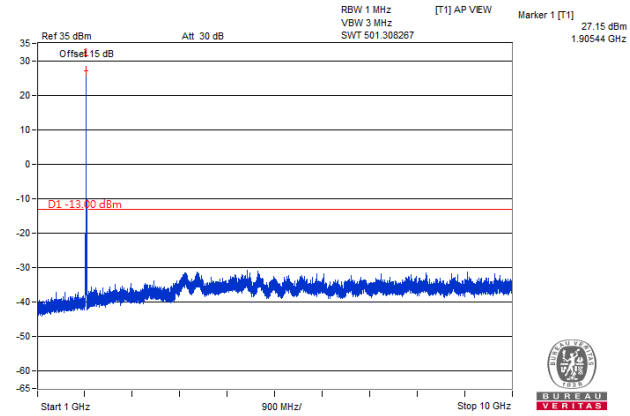
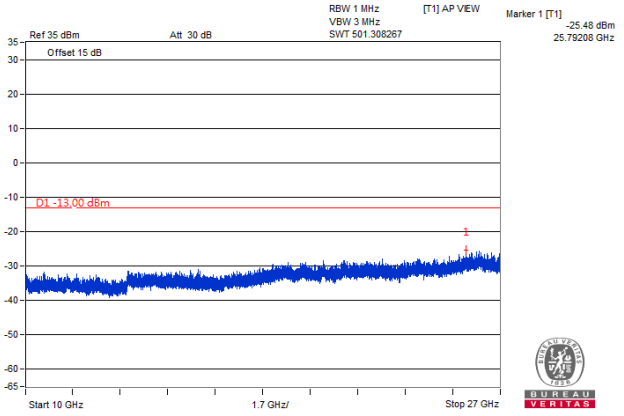
| LTE Band 25, Channel Bandwidth 5MHz | |
|---|---|
| Channel 26065 (1852.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

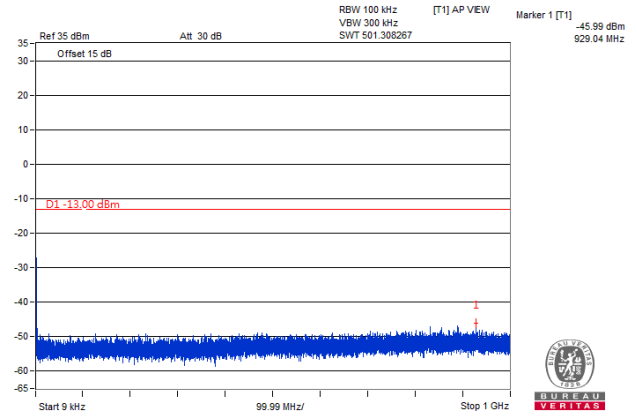
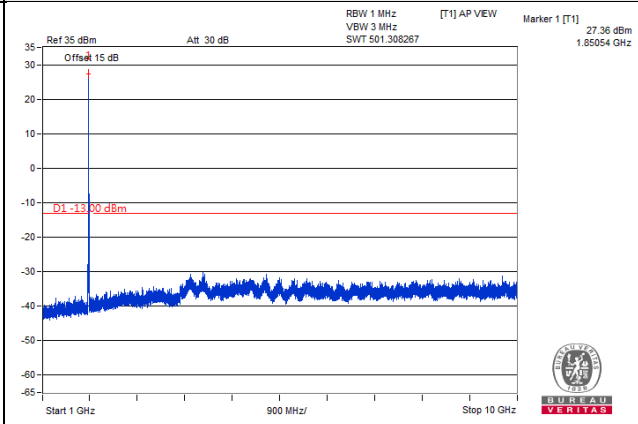
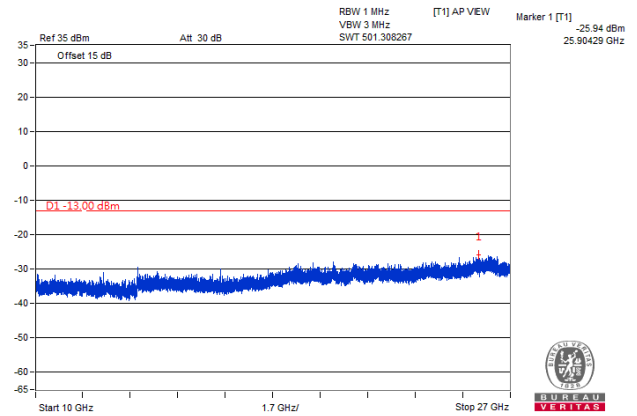
| LTE Band 25, Channel Bandwidth 5MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

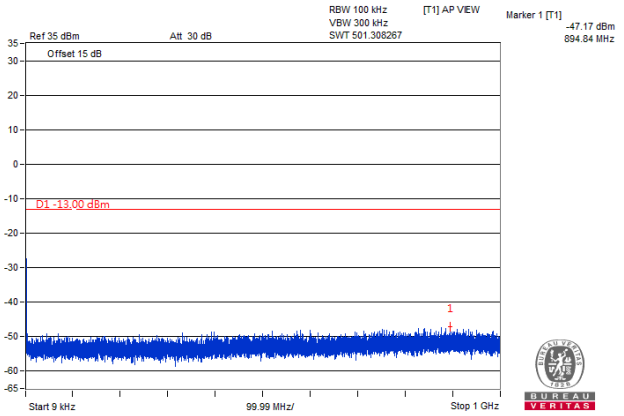
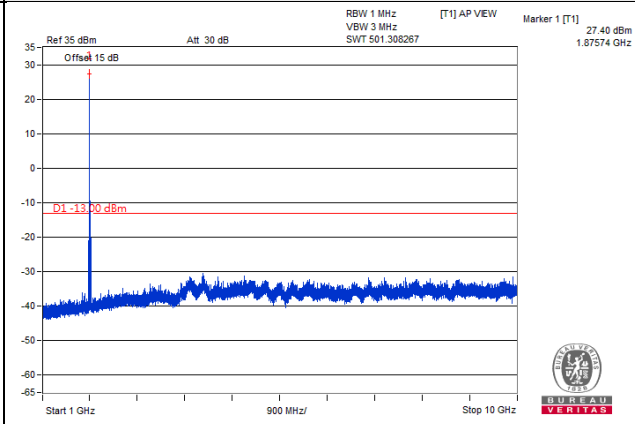
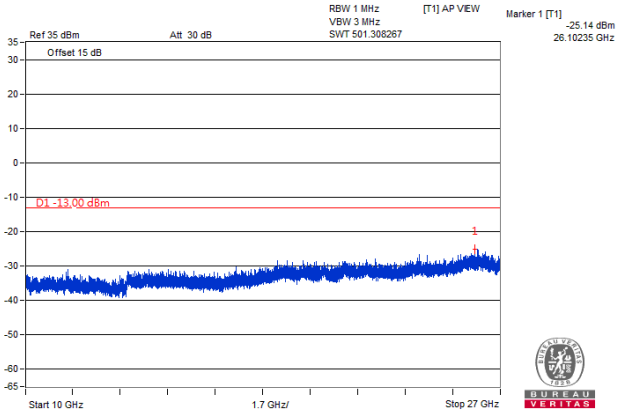
| LTE Band 25, Channel Bandwidth 5MHz | |
|---|---|
| Channel 26665 (1912.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

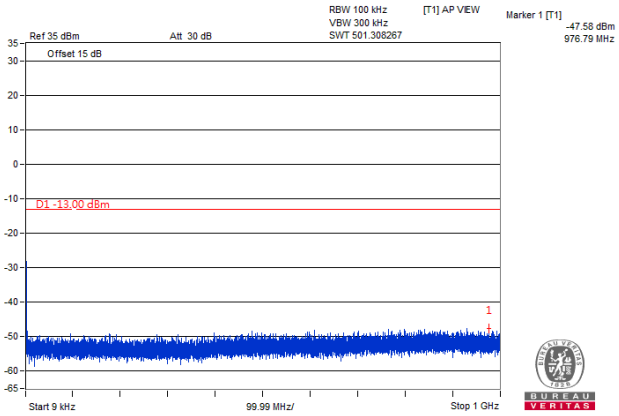
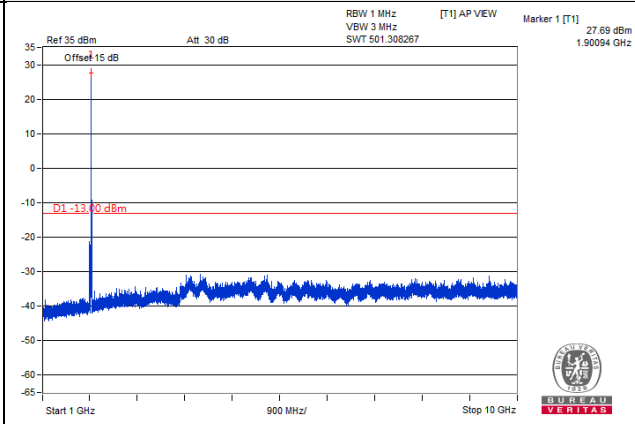
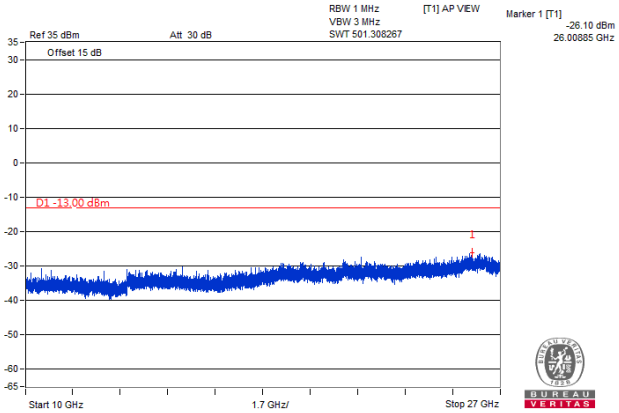
| LTE Band 25, Channel Bandwidth 10MHz | |
|---|---|
| Channel 26090 (1855.0MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

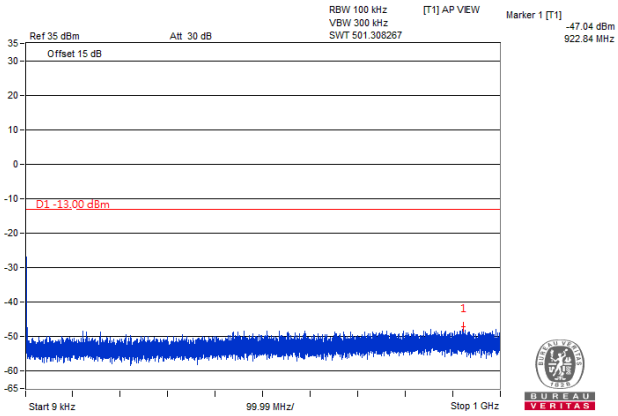
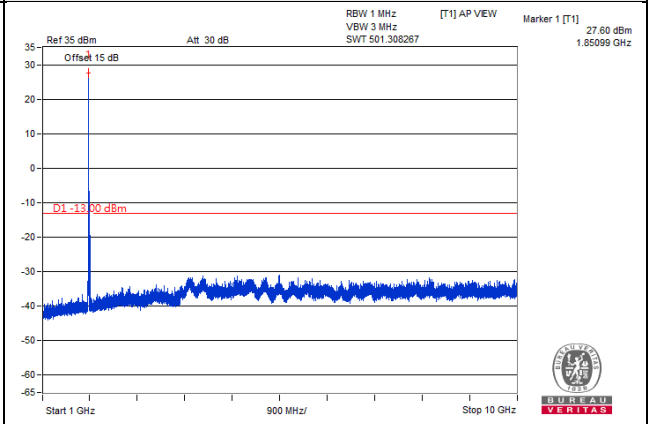
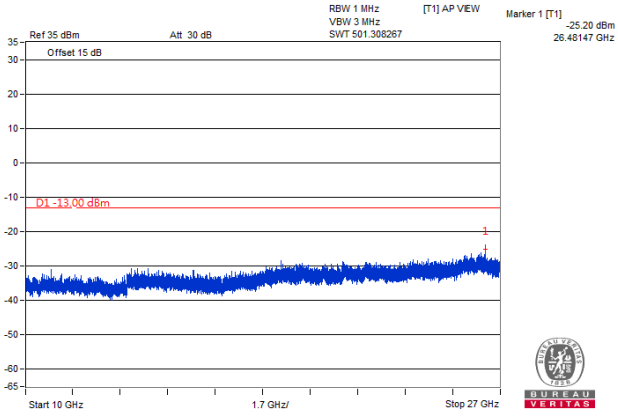
| LTE Band 25, Channel Bandwidth 10MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

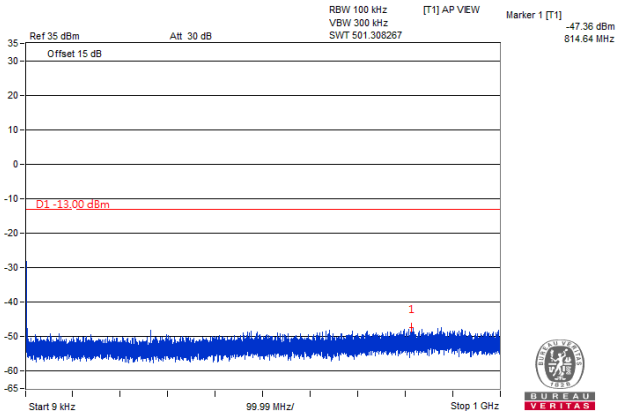
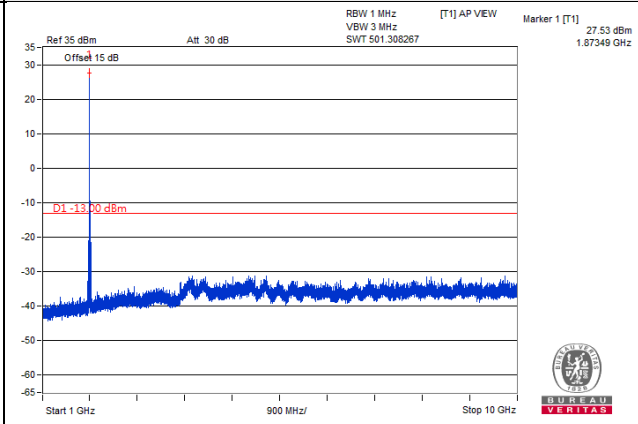
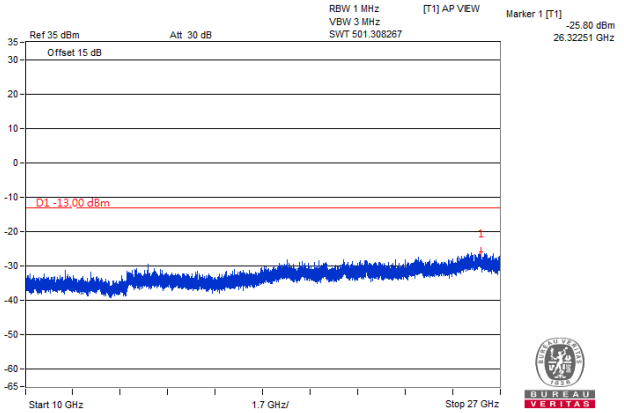
| LTE Band 25, Channel Bandwidth 10MHz | |
|---|---|
| Channel 26640 (1910.0MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

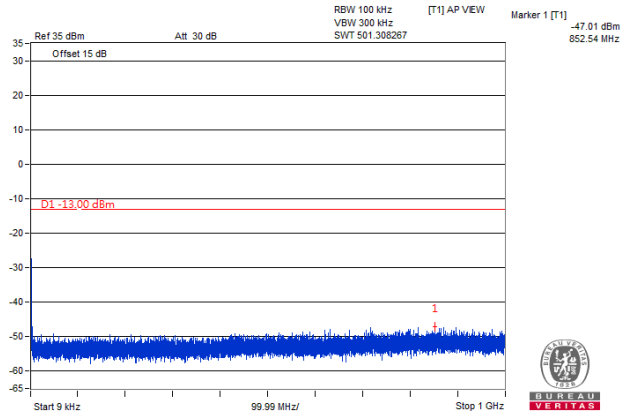
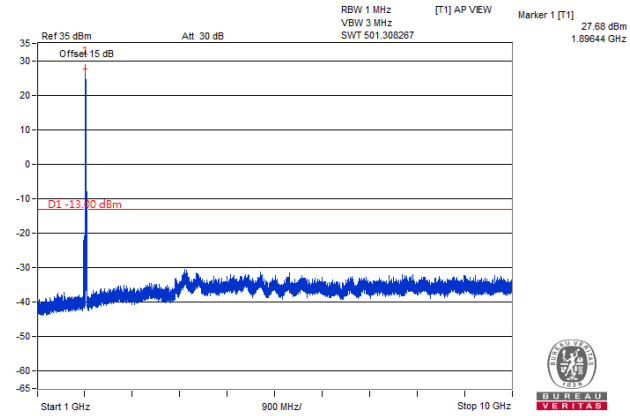
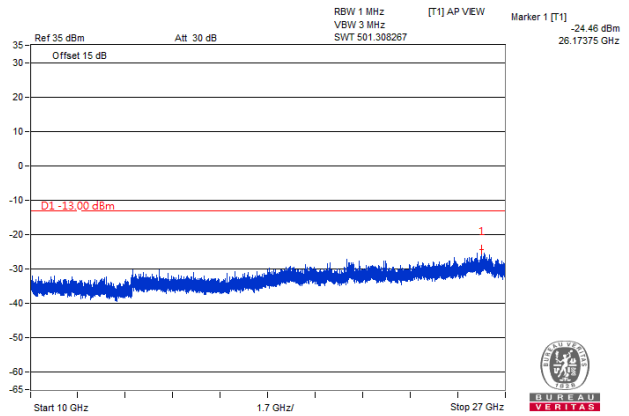
| LTE Band 25, Channel Bandwidth 15MHz | |
|---|---|
| Channel 26115 (1857.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

| LTE Band 25, Channel Bandwidth 15MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

| LTE Band 25, Channel Bandwidth 15MHz | |
|---|---|
| Channel 26615 (1907.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

| LTE Band 25, Channel Bandwidth 20MHz | |
|---|---|
| Channel 26140 (1860.0MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

| LTE Band 25, Channel Bandwidth 20MHz | |
|---|---|
| Channel 26365 (1882.5MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

| LTE Band 25, Channel Bandwidth 20MHz | |
|---|---|
| Channel 26590 (1905.0MHz) | |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~10GHz |
|   |   |
| Frequency Range : 10GHz~27GHz | |
|   | |

## 4.8 Radiated Emission Measurement

### 4.8.1 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 equal to –13dBm.

### 4.8.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

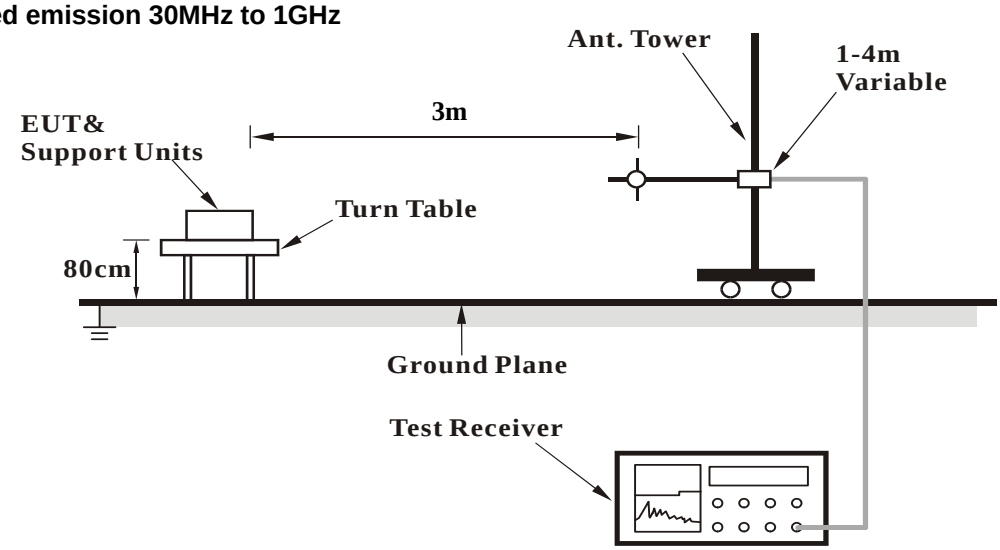
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.8.3 Deviation from Test Standard

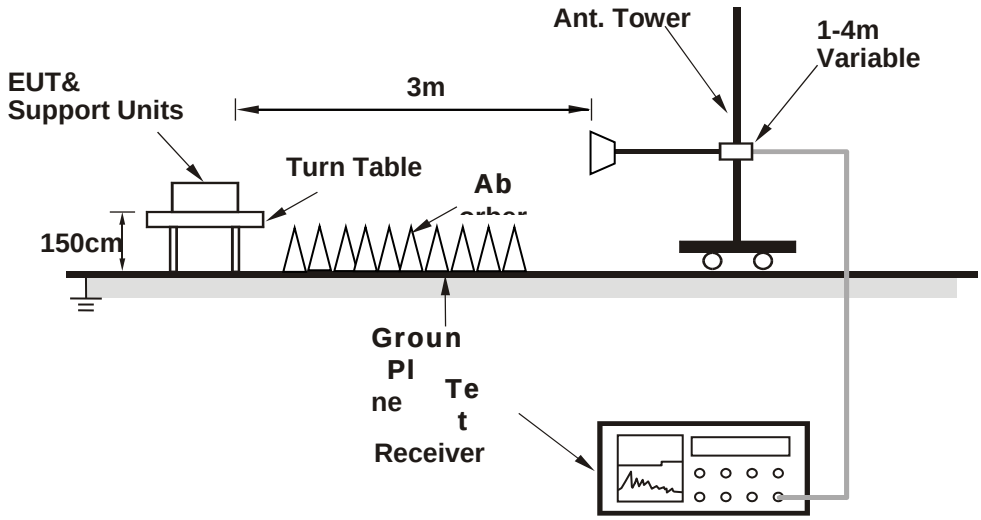
No deviation.

### 4.8.4 Test Setup

**For radiated emission 30MHz to 1GHz**




**For radiated emission above 1GHz**




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

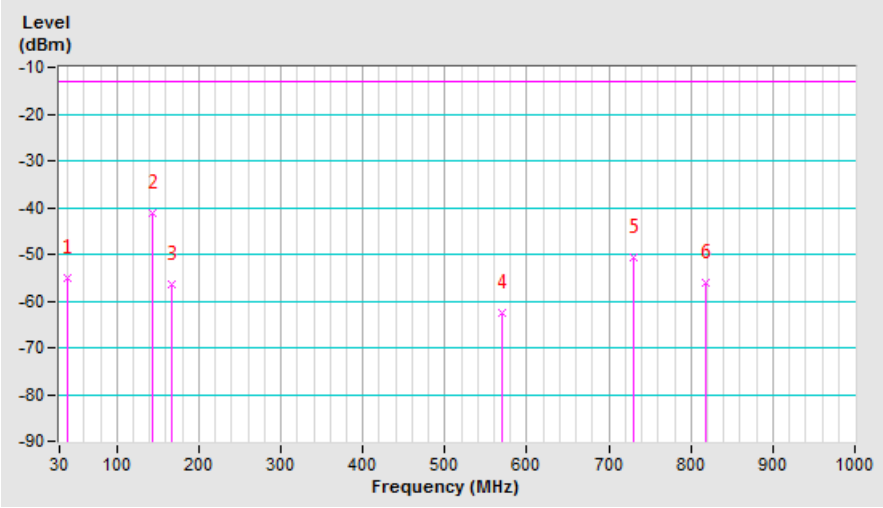
### 4.8.5 Test Results

Below 1GHz
LTE Band 25, Channel Bandwidth: 1.4MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26047 (1850.7MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 39.70 | -57.5 | -44.3 | -10.9 | -55.2 | -13.0 | -42.2 |
| 2 | 142.52 | -35.8 | -40.8 | -0.3 | -41.1 | -13.0 | -28.1 |
| 3 | 167.74 | -49.9 | -57.8 | 1.3 | -56.5 | -13.0 | -43.5 |
| 4 | 569.32 | -62.3 | -67.2 | 4.5 | -62.7 | -13.0 | -49.7 |
| 5 | 730.34 | -54.0 | -55.6 | 4.9 | -50.7 | -13.0 | -37.7 |
| 6 | 817.64 | -61.8 | -60.1 | 4.0 | -56.1 | -13.0 | -43.1 |

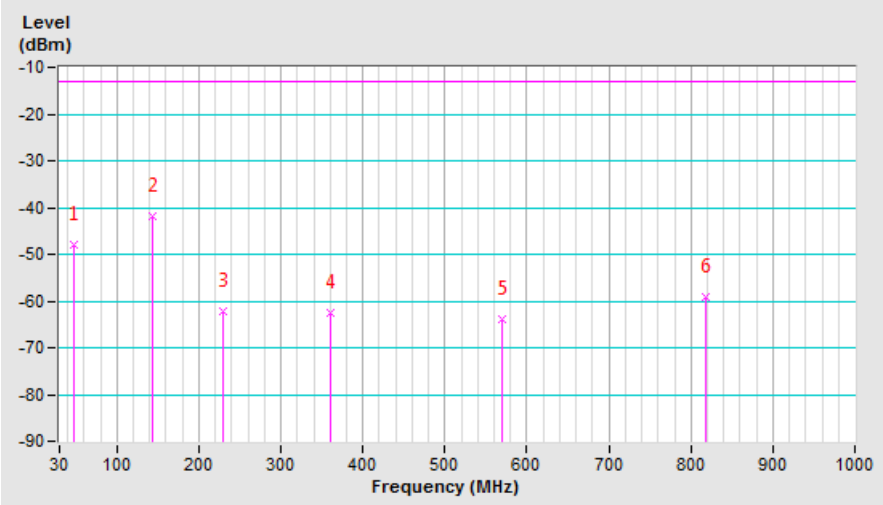
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



| Mode | TX channel 26047 (1850.7MHz) | Frequency Range | Below 1000 MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 47.46 | -41.9 | -38.2 | -9.7 | -47.9 | -13.0 | -34.9 |
| 2 | 142.52 | -38.8 | -41.6 | -0.3 | -41.9 | -13.0 | -28.9 |
| 3 | 229.82 | -61.2 | -67.6 | 5.4 | -62.2 | -13.0 | -49.2 |
| 4 | 359.80 | -61.3 | -67.7 | 5.2 | -62.5 | -13.0 | -49.5 |
| 5 | 569.32 | -65.8 | -68.5 | 4.5 | -64.0 | -13.0 | -51.0 |
| 6 | 817.64 | -65.5 | -63.2 | 4.0 | -59.2 | -13.0 | -46.2 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

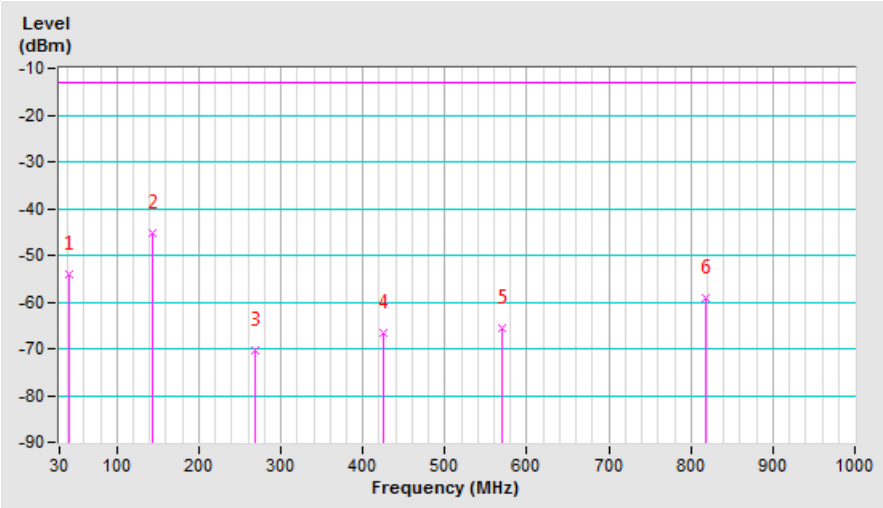


LTE Band 25, Channel Bandwidth: 5MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26065 (1852.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 41.64 | -57.2 | -43.6 | -10.6 | -54.2 | -13.0 | -41.2 |
| 2 | 142.52 | -39.8 | -44.8 | -0.3 | -45.1 | -13.0 | -32.1 |
| 3 | 268.62 | -65.0 | -75.7 | 5.3 | -70.4 | -13.0 | -57.4 |
| 4 | 425.76 | -65.2 | -71.9 | 5.2 | -66.7 | -13.0 | -53.7 |
| 5 | 569.32 | -65.2 | -70.1 | 4.5 | -65.6 | -13.0 | -52.6 |
| 6 | 817.64 | -64.9 | -63.2 | 4.0 | -59.2 | -13.0 | -46.2 |

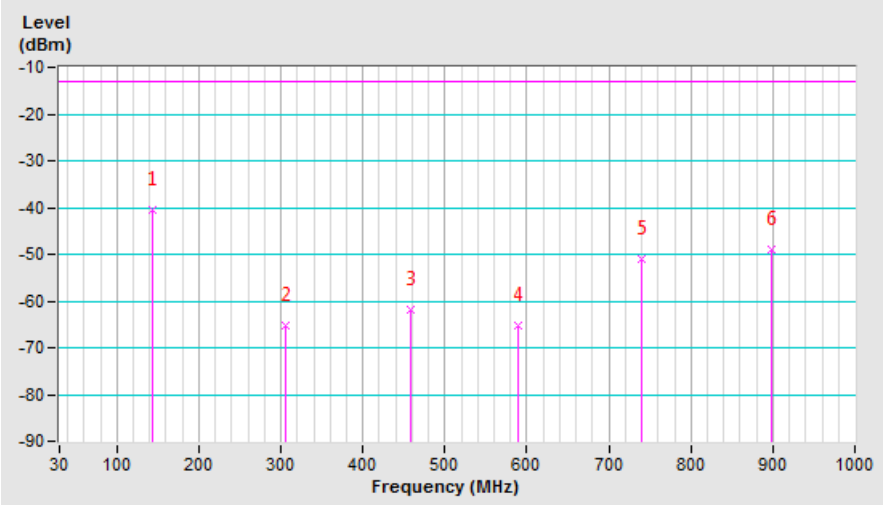
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



| Mode | TX channel 26065 (1852.5MHz) | Frequency Range | Below 1000 MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 142.52 | -37.4 | -40.2 | -0.3 | -40.5 | -13.0 | -27.5 |
| 2 | 305.48 | -64.6 | -70.4 | 5.1 | -65.3 | -13.0 | -52.3 |
| 3 | 458.74 | -60.8 | -66.8 | 5.0 | -61.8 | -13.0 | -48.8 |
| 4 | 588.72 | -68.4 | -69.9 | 4.5 | -65.4 | -13.0 | -52.4 |
| 5 | 740.04 | -56.6 | -55.8 | 4.8 | -51.0 | -13.0 | -38.0 |
| 6 | 899.12 | -56.1 | -52.9 | 3.9 | -49.0 | -13.0 | -36.0 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

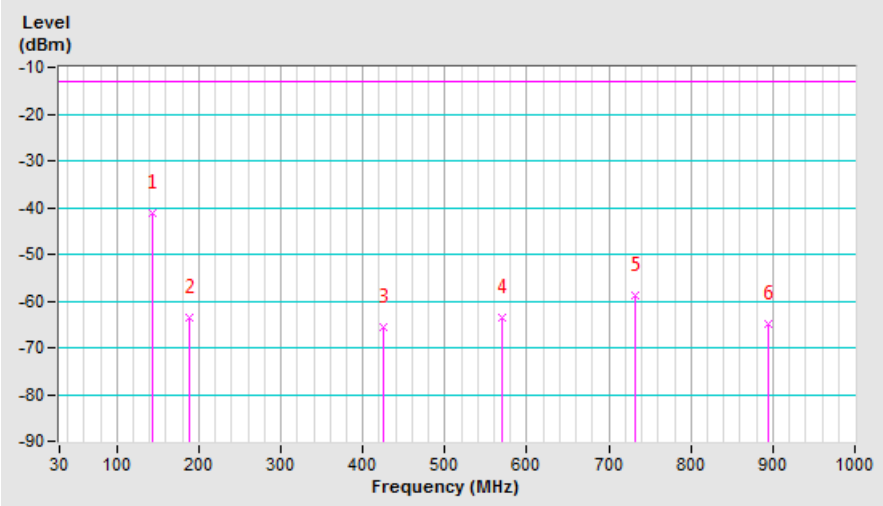


LTE Band 25, Channel Bandwidth: 20MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26140 (1860.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 142.52 | -36.0 | -41.0 | -0.3 | -41.3 | -13.0 | -28.3 |
| 2 | 189.08 | -54.8 | -67.6 | 4.1 | -63.5 | -13.0 | -50.5 |
| 3 | 425.76 | -64.2 | -70.9 | 5.2 | -65.7 | -13.0 | -52.7 |
| 4 | 569.32 | -63.1 | -68.0 | 4.5 | -63.5 | -13.0 | -50.5 |
| 5 | 732.28 | -62.3 | -63.8 | 4.9 | -58.9 | -13.0 | -45.9 |
| 6 | 895.24 | -71.4 | -68.7 | 3.9 | -64.8 | -13.0 | -51.8 |

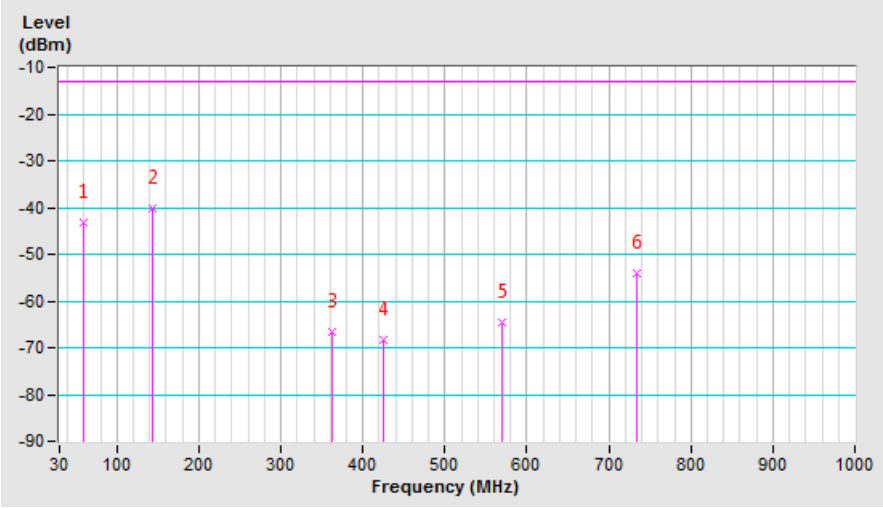
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



| Mode | TX channel 26140 (1860.0MHz) | Frequency Range | Below 1000 MHz |
|---|---|---|---|
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 59.10 | -35.9 | -35.3 | -7.8 | -43.1 | -13.0 | -30.1 |
| **2** | **142.52** | **-37.2** | **-40.0** | **-0.3** | **-40.3** | **-13.0** | **-27.3** |
| 3 | 361.74 | -65.3 | -71.7 | 5.2 | -66.5 | -13.0 | -53.5 |
| 4 | 425.76 | -66.6 | -73.4 | 5.2 | -68.2 | -13.0 | -55.2 |
| 5 | 569.32 | -66.5 | -69.2 | 4.5 | -64.7 | -13.0 | -51.7 |
| 6 | 734.22 | -59.6 | -58.8 | 4.8 | -54.0 | -13.0 | -41.0 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Above 1GHz
LTE Band 25, Channel Bandwidth 1.4MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26047 (1850.7MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3701.40 | -72.1 | -66.1 | 7.1 | -59.0 | -13.0 | -46.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3701.40 | -72.5 | -65.5 | 7.1 | -58.4 | -13.0 | -45.4 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -71.9 | -65.3 | 7.1 | -58.2 | -13.0 | -45.2 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -71.6 | -64.1 | 7.1 | -57.0 | -13.0 | -44.0 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26683 (1914.3MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3828.60 | -71.1 | -64.5 | 7.1 | -57.4 | -13.0 | -44.4 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3828.60 | -71.4 | -63.7 | 7.1 | -56.6 | -13.0 | -43.6 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 25, Channel Bandwidth 5MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26065 (1852.5MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3705.00 | -73.0 | -67.0 | 7.1 | -59.9 | -13.0 | -46.9 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3705.00 | -72.1 | -65.0 | 7.1 | -57.9 | -13.0 | -44.9 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -72.7 | -66.1 | 7.1 | -59.0 | -13.0 | -46.0 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -71.7 | -64.2 | 7.1 | -57.1 | -13.0 | -44.1 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26665 (1912.5MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3825.00 | -71.9 | -65.2 | 7.1 | -58.1 | -13.0 | -45.1 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3825.00 | -71.6 | -63.9 | 7.1 | -56.8 | -13.0 | -43.8 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 25, Channel Bandwidth 20MHz

| | | | |
|---|---|---|---|
| Mode | TX channel 26140 (1860.0MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3720.00 | -72.6 | -66.4 | 7.1 | -59.3 | -13.0 | -46.3 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3720.00 | -71.0 | -63.8 | 7.1 | -56.7 | -13.0 | -43.7 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -71.4 | -64.8 | 7.1 | -57.7 | -13.0 | -44.7 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3765.00 | -71.4 | -63.9 | 7.1 | -56.8 | -13.0 | -43.8 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

| | | | |
|---|---|---|---|
| Mode | TX channel 26590 (1905.0MHz) | Frequency Range | 1GHz ~ 18GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance: Horizontal at 3 M | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3810.00 | -71.5 | -64.7 | 7.1 | -57.6 | -13.0 | -44.6 |
| Antenna Polarity & Test Distance: Vertical at 3 M | | | | | | | |
| No. | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1 | 3810.00 | -71.9 | -64.2 | 7.1 | -57.1 | -13.0 | -44.1 |

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

## 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 and approved according to ISO/IEC 17025.

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


**Linko EMC/RF Lab**
Tel: 886-2-26052180
Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**
Tel: 886-3-6668565
Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**
Tel: 886-3-3183232
Fax: 886-3-3270892

**Email:** service.adt@tw.bureauveritas.com
**Web Site:** www.bureauveritas-adt.com


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

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