# FCC Test Report

# (PART 27)

| | |
|---|---|
| **Report No.:** | RF190417C27-7 |
| **FCC ID:** | POTWA02 |
| **Test Model:** | WA02 |
| **Received Date:** | Apr. 17, 2019 |
| **Test Date:** | Jun. 03 ~ Aug. 07, 2019 |
| **Issued Date:** | Sep. 19, 2019 |
| **Applicant:** | Inventec Appliances Corp. |
| **Address:** | 37 Wugong 5th road, New Taipei Industrial Park, Wugu District, New Taipei City, Taiwan 24890 |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories |
| **Lab Address:** | No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan |
| **Test Location:** | No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan |
| **FCC Registration / Designation Number:** | 788550 / TW0003 |

Testing Laboratory
2021

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RF190417C27-7 | Original Release | Sep. 19, 2019 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Notebook |
| **Brand:** | Inventec Appliances Corp. |
| **Test Model:** | WA02 |
| **Sample Status:** | Identical Prototype |
| **Applicant:** | Inventec Appliances Corp. |
| **Test Date:** | Jun. 03 ~ Aug. 07, 2019 |
| **Standards:** | FCC Part 27, Subpart C, L |

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 :** Gina Liu , **Date:** Sep. 19, 2019

Gina Liu / Specialist

**Approved by :** , **Date:** Sep. 19, 2019

Dylan Chiou / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 27 & Part 2 (LTE 4) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(d)(4) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -32.20 dB at 5160.00 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 66) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(d)(4) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -34.40 dB at 105.66 MHz. |

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 | 9 kHz ~ 30 MHz | 3.04 dB |
| | 30 MHz ~ 200 MHz | 2.93 dB |
| | 200 MHz ~ 1000 MHz | 2.95 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.26 dB |
| | 18 GHz ~ 40 GHz | 1.94 dB |

## 2.2 Test Site and Instruments

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|---|---|---|---|---|
| Test Receiver<br>Agilent | N9038A | MY51210203 | Mar. 18, 2019 | Mar. 17, 2020 |
| Spectrum Analyzer<br>Agilent | N9010A | MY52220314 | Dec. 13, 2018 | Dec. 12, 2019 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSU43 | 101261 | Apr. 15, 2019 | Apr. 14, 2020 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSW26 | 102023 | Oct. 11, 2018 | Oct. 10, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120D | 9120D-969 | Nov. 25, 2018 | Nov. 24, 2019 |
| BILOG Antenna<br>SCHWARZBECK | VULB 9168 | 9168-472 | Nov. 23, 2018 | Nov. 22, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9170 | 148 | Nov. 25, 2018 | Nov. 24, 2019 |
| Double Ridge Guide Horn Antenna EMCO | 3115 | 5619 | Nov. 25, 2018 | Nov. 24, 2019 |
| Fixed Attenuator<br>WOKEN | MDCS18N-10 | MDCS18N-10-01 | Apr. 15, 2019 | Apr. 14, 2020 |
| MXG Vector signal generator<br>Agilent | N5182B | MY53050430 | Nov. 19, 2018 | Nov. 18, 2019 |
| Preamplifier<br>EMCI | EMC 012645 | 980115 | Oct. 12, 2018 | Oct. 11, 2019 |
| Preamplifier<br>EMCI | EMC 330H | 980112 | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>HUBER+SUHNNER | EMC104-SM-SM-8000&3000 | 140811+170717 | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM-1000(140807) | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>WOKEN | 8D-FB | Cable-Ch10-01 | Oct. 12, 2018 | Oct. 11, 2019 |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| Software<br>BV ADT | E3<br>6.120103 | NA | NA | NA |
| Antenna Tower<br>MF | MFA-440H | NA | NA | NA |
| Turn Table<br>MF | MFT-201SS | NA | NA | NA |
| Antenna Tower &Turn Table Controller<br>MF | MF-7802 | NA | NA | NA |
| Radio Communication Analyzer<br>Anritsu | MT8821C | 6201462755 | Jan. 16, 2019 | Jan. 15, 2020 |
| Radio Communication Analyzer<br>Anritsu | MT8820C | 6201300640 | Aug. 16, 2017 | Aug. 15, 2019 |
| Temperature & Humidity Chamber | GTH-120-40-CP-AR | MAA1306-019 | Sep. 05, 2018 | Sep. 04, 2019 |
| AC Power Supply<br>EEC | 6905S | 1991553 | NA | NA |

Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.

## 3 General Information

### 3.1 General Description of EUT

| | | |
|---|---|---|
| **Product** | Notebook | |
| **Brand** | Inventec Appliances Corp. | |
| **Test Model** | WA02 | |
| **Status of EUT** | Identical Prototype | |
| **Power Supply Rating** | 5.0 Vdc / 12Vdc / 15Vdc / 20Vdc (adapter)<br>7.6 Vdc (Li-ion battery) | |
| **Modulation Type** | WCDMA | QPSK |
| | LTE | QPSK, 16QAM, 64QAM |
| **Frequency Range** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1710.7 ~ 1754.3 MHz |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 1711.5 ~ 1753.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 1712.5 ~ 1752.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 1715.0 ~ 1750.0 MHz |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 1717.5 ~ 1747.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 1720.0 ~ 1745.0 MHz |
| | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 1710.7 ~ 1779.3 MHz |
| | LTE Band 66 (Channel Bandwidth: 3 MHz) | 1711.5 ~ 1778.5 MHz |
| | LTE Band 66 (Channel Bandwidth: 5 MHz) | 1712.5 ~ 1777.5 MHz |
| | LTE Band 66 (Channel Bandwidth: 10 MHz) | 1715.0 ~ 1775.0 MHz |
| | LTE Band 66 (Channel Bandwidth: 15 MHz) | 1717.5 ~ 1772.5 MHz |
| | LTE Band 66 (Channel Bandwidth: 20 MHz) | 1720.0 ~ 1770.0 MHz |
| **Emission Designator** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1M09D7W |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 2M70G7D |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 4M50D7W |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 8M98D7W |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 13M5G7D |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 18M0D7W |
| | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 1M09D7W |
| | LTE Band 66 (Channel Bandwidth: 3 MHz) | 2M71G7D |
| | LTE Band 66 (Channel Bandwidth: 5 MHz) | 4M50D7W |
| | LTE Band 66 (Channel Bandwidth: 10 MHz) | 8M98D7W |
| | LTE Band 66 (Channel Bandwidth: 15 MHz) | 13M5G7D |
| | LTE Band 66 (Channel Bandwidth: 20 MHz) | 18M0D7W |
| **Max. EIRP Power** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 134.90 mW |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 141.25 mW |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 151.71 mW |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 162.18 mW |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 172.98 mW |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 181.55 mW |
| | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 146.55 mW |
| | LTE Band 66 (Channel Bandwidth: 3 MHz) | 158.49 mW |
| | LTE Band 66 (Channel Bandwidth: 5 MHz) | 170.22 mW |
| | LTE Band 66 (Channel Bandwidth: 10 MHz) | 178.24 mW |

| | | |
|---|---|---|
| | LTE Band 66 (Channel Bandwidth: 15 MHz) | 187.07 mW |
| | LTE Band 66 (Channel Bandwidth: 20 MHz) | 201.84 mW |
| **Antenna Type** | Monopole Antenna with 1 dBi gain (Main) / 0 dBi gain (Aux.) | |
| **Accessory Device** | Refer to Note as below | |
| **Data Cable Supplied** | Refer to Note as below | |

Note:

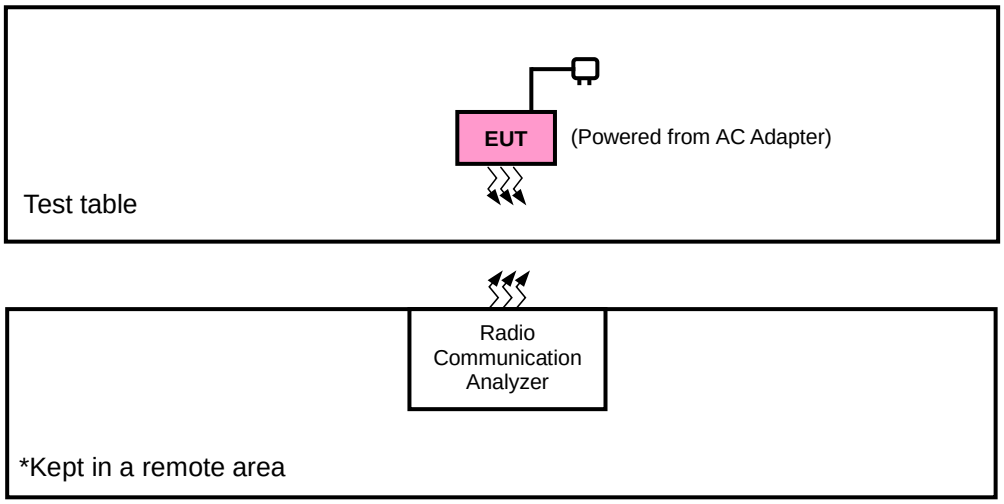
1. The EUT contains following accessory devices.

| Product | Brand | Model | Description |
|---|---|---|---|
| Adapter | DARFON | B230-201 | I/P: 100-240 Vac, 50/60 Hz, 0.7 A Max.<br>O/P: 5 Vdc, 3 A / 9 Vdc, 3 A / 12 Vdc, 2.5 A / 15 Vdc, 2 A / 20 Vdc, 1.5 A |
| Battery | GY | NA125S PL2983122 | 7.6 Vdc, 4200 mAh |

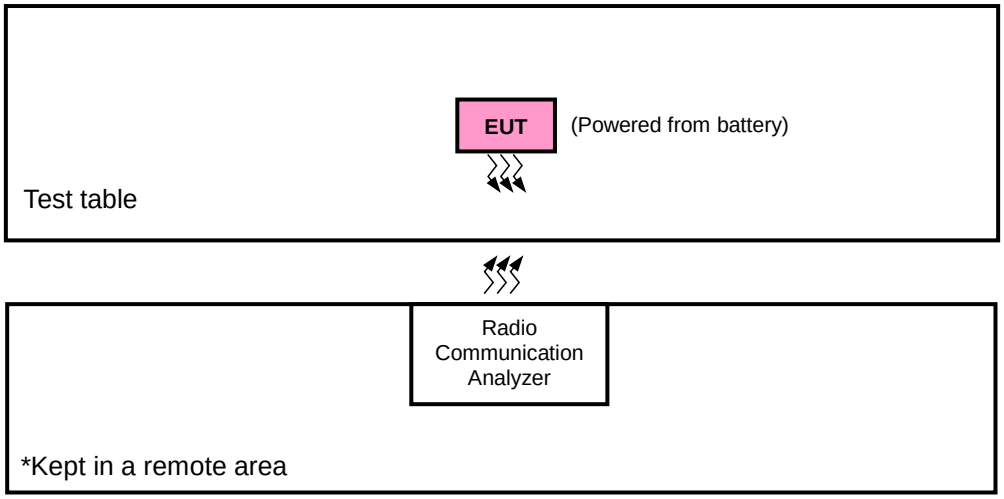
2. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

## 3.2 Configuration of System under Test

**<Radiated Emission Test>**




**<E.I.R.P. Test>**




### 3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

### 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 as the table below. Following channel(s) was (were) selected for the final test as listed below:

| Band | EIRP | Radiated Emission |
|---|---|---|
| LTE Band 4 | NB Mode | NB Mode |
| LTE Band 66 | NB Mode | NB Mode |

**LTE Band 4**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Modulation Characteristics | 20050 to 20300 | 20175 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Frequency Stability | 19957 to 20393 | 19957, 20393 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20385 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20375 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20350 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20325 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20300 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM, 64QAM | 6 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM, 64QAM | 15 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM, 64QAM | 25 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM, 64QAM | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM, 64QAM | 75 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Band Edge | 19957 to 20393 | 19957 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 20393 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 20385 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 20375 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 20350 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 20325 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 20300 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK | 1 RB / 0 RB Offset |

**Note:**

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.

## LTE Band 66

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Modulation Characteristics | 132072 to 132572 | 132322 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Frequency Stability | 131979 to 132665 | 131979, 132665 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132657 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132647 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132622 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132597 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132572 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM, 64QAM | 6 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM, 64QAM | 15 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM, 64QAM | 25 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM, 64QAM | 50 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM, 64QAM | 75 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Band Edge | 131979 to 132665 | 131979 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 132665 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 132657 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 132647 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 132622 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 132597 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 132572 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK | 1 RB / 0 RB Offset |

**Note:**

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.

**Test Condition:**

| Test Item | Environmental Conditions | Input Power | Tested By |
|---|---|---|---|
| EIRP | 25 deg. C, 65 % RH | 7.6 Vdc | Getaz Yang |
| Modulation Characteristics | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Frequency Stability | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Occupied Bandwidth | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Band Edge | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Peak to Average Ratio | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Conducted Emission | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Wayne Lin |
| Radiated Emission | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Getaz Yang |

### 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 27**
**KDB 971168 D01 Power Meas License Digital Systems v03r01**
**ANSI/TIA/EIA-603-E 2016**
**ANSI 63.26-2015**

**Note:** 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

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

### 4.1.2 Test Procedures

**EIRP / ERP Measurement:**

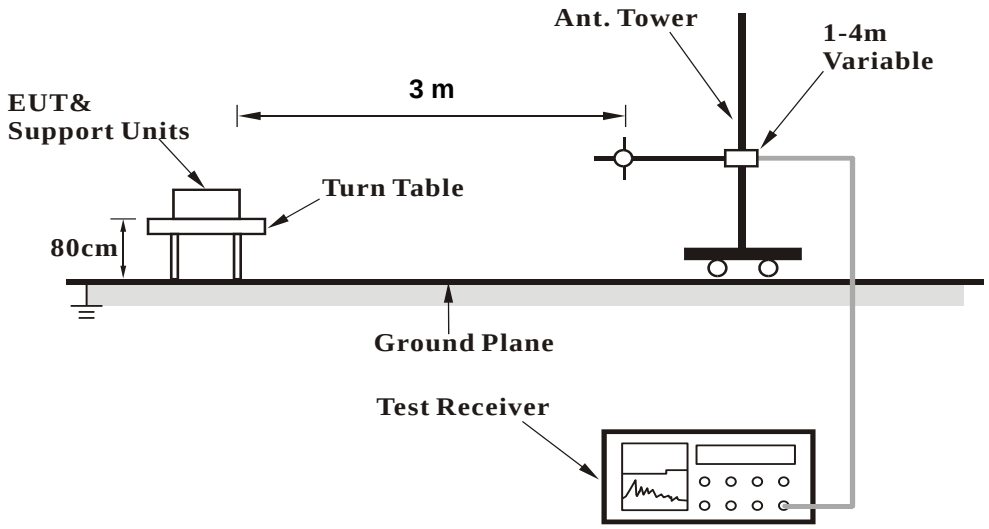
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
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 - 2.15 dB.

**Conducted Power Measurement:**

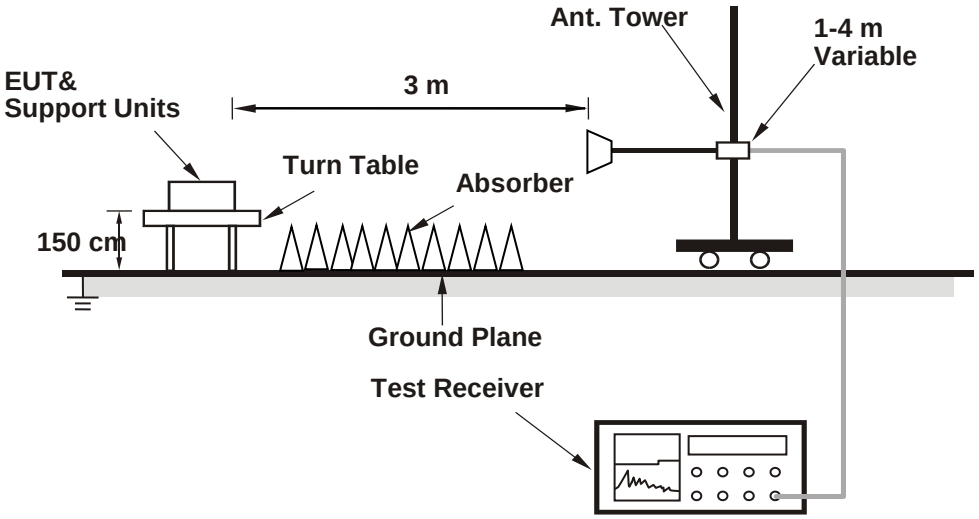
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

**EIRP / ERP Measurement:**
**<Radiated Emission below or equal 1 GHz>**




**<Radiated Emission above 1 GHz>**




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

**Conducted Power Measurement:**

### 4.1.4 Test Results

**Conducted Output Power (dBm)**

| LTE Band 4 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
| | | Channel | | 20050 | 20175 | 20300 | | | | Channel | | 20025 | 20175 | 20325 | |
| | | Frequency (MHz) | | 1720.0 | 1732.5 | 1745.0 | | | | Frequency (MHz) | | 1717.5 | 1732.5 | 1747.5 | |
| 20M | QPSK | 1 | 0 | 21.98 | 22.23 | 22.39 | 0 | 15M | QPSK | 1 | 0 | 21.95 | 22.13 | 22.36 | 0 |
| | | 1 | 50 | 21.80 | 22.05 | 22.21 | 0 | | | 1 | 37 | 21.78 | 22.01 | 22.13 | 0 |
| | | 1 | 99 | 21.65 | 21.90 | 22.06 | 0 | | | 1 | 74 | 21.63 | 21.86 | 22.05 | 0 |
| | | 50 | 0 | 20.85 | 21.10 | 21.26 | 1 | | | 36 | 0 | 20.85 | 21.02 | 21.23 | 1 |
| | | 50 | 25 | 20.66 | 20.91 | 21.07 | 1 | | | 36 | 19 | 20.59 | 20.85 | 21.03 | 1 |
| | | 50 | 50 | 21.02 | 21.27 | 21.43 | 1 | | | 36 | 39 | 21.01 | 21.24 | 21.33 | 1 |
| | | 100 | 0 | 20.74 | 20.99 | 21.15 | 1 | | | 75 | 0 | 20.64 | 20.94 | 21.08 | 1 |
| | 16QAM | 1 | 0 | 20.93 | 21.18 | 21.34 | 1 | | 16QAM | 1 | 0 | 20.91 | 21.11 | 21.30 | 1 |
| | | 1 | 50 | 20.90 | 21.15 | 21.31 | 1 | | | 1 | 37 | 20.88 | 21.07 | 21.30 | 1 |
| | | 1 | 99 | 20.82 | 21.07 | 21.23 | 1 | | | 1 | 74 | 20.79 | 20.98 | 21.15 | 1 |
| | | 50 | 0 | 19.88 | 20.13 | 20.29 | 2 | | | 36 | 0 | 19.82 | 20.05 | 20.28 | 2 |
| | | 50 | 25 | 19.67 | 19.92 | 20.08 | 2 | | | 36 | 19 | 19.66 | 19.88 | 20.02 | 2 |
| | | 50 | 50 | 20.11 | 20.36 | 20.52 | 2 | | | 36 | 39 | 20.08 | 20.28 | 20.42 | 2 |
| | | 100 | 0 | 19.71 | 19.96 | 20.12 | 2 | | | 75 | 0 | 19.63 | 19.87 | 20.07 | 2 |
| | 64QAM | 1 | 0 | 20.01 | 20.26 | 20.42 | 2 | | 64QAM | 1 | 0 | 19.92 | 20.19 | 20.41 | 2 |
| | | 1 | 50 | 19.87 | 20.12 | 20.28 | 2 | | | 1 | 37 | 19.80 | 20.07 | 20.23 | 2 |
| | | 1 | 99 | 19.84 | 20.09 | 20.25 | 2 | | | 1 | 74 | 19.80 | 20.09 | 20.17 | 2 |
| | | 50 | 0 | 18.91 | 19.16 | 19.32 | 3 | | | 36 | 0 | 18.85 | 19.06 | 19.29 | 3 |
| | | 50 | 25 | 18.72 | 18.97 | 19.13 | 3 | | | 36 | 19 | 18.69 | 18.89 | 19.10 | 3 |
| | | 50 | 50 | 19.07 | 19.32 | 19.48 | 3 | | | 36 | 39 | 19.03 | 19.28 | 19.45 | 3 |
| | | 100 | 0 | 18.82 | 19.07 | 19.23 | 3 | | | 75 | 0 | 18.73 | 18.98 | 19.17 | 3 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
| | | Channel | | 20000 | 20175 | 20350 | | | | Channel | | 19975 | 20175 | 20375 | |
| | | Frequency (MHz) | | 1715.0 | 1732.5 | 1750.0 | | | | Frequency (MHz) | | 1712.5 | 1732.5 | 1752.5 | |
| 10M | QPSK | 1 | 0 | 21.87 | 22.05 | 22.28 | 0 | 5M | QPSK | 1 | 0 | 21.86 | 22.15 | 22.23 | 0 |
| | | 1 | 24 | 21.66 | 21.91 | 22.08 | 0 | | | 1 | 12 | 21.74 | 21.97 | 21.96 | 0 |
| | | 1 | 49 | 21.45 | 21.76 | 21.96 | 0 | | | 1 | 24 | 21.56 | 21.78 | 21.93 | 0 |
| | | 25 | 0 | 20.69 | 20.88 | 21.16 | 1 | | | 12 | 0 | 20.64 | 21.03 | 20.96 | 1 |
| | | 25 | 12 | 20.49 | 20.83 | 20.82 | 1 | | | 12 | 6 | 20.45 | 20.82 | 20.83 | 1 |
| | | 25 | 25 | 20.87 | 21.17 | 21.22 | 1 | | | 12 | 13 | 20.93 | 21.26 | 21.27 | 1 |
| | | 50 | 0 | 20.53 | 20.85 | 20.98 | 1 | | | 25 | 0 | 20.69 | 20.90 | 20.86 | 1 |
| | 16QAM | 1 | 0 | 20.76 | 21.15 | 21.09 | 1 | | 16QAM | 1 | 0 | 20.78 | 21.12 | 21.20 | 1 |
| | | 1 | 24 | 20.84 | 21.06 | 21.12 | 1 | | | 1 | 12 | 20.80 | 21.02 | 21.18 | 1 |
| | | 1 | 49 | 20.75 | 21.01 | 21.15 | 1 | | | 1 | 24 | 20.67 | 20.99 | 21.06 | 1 |
| | | 25 | 0 | 19.81 | 20.01 | 20.16 | 2 | | | 12 | 0 | 19.64 | 20.03 | 20.26 | 2 |
| | | 25 | 12 | 19.61 | 19.82 | 20.04 | 2 | | | 12 | 6 | 19.53 | 19.74 | 19.93 | 2 |
| | | 25 | 25 | 20.11 | 20.23 | 20.49 | 2 | | | 12 | 13 | 20.00 | 20.28 | 20.42 | 2 |
| | | 50 | 0 | 19.63 | 19.90 | 19.90 | 2 | | | 25 | 0 | 19.59 | 19.81 | 20.02 | 2 |
| | 64QAM | 1 | 0 | 19.91 | 20.16 | 20.32 | 2 | | 64QAM | 1 | 0 | 19.80 | 20.18 | 20.28 | 2 |
| | | 1 | 24 | 19.71 | 20.02 | 20.21 | 2 | | | 1 | 12 | 19.75 | 20.01 | 20.26 | 2 |
| | | 1 | 49 | 19.68 | 19.94 | 20.16 | 2 | | | 1 | 24 | 19.70 | 19.92 | 20.13 | 2 |
| | | 25 | 0 | 18.75 | 19.02 | 19.17 | 3 | | | 12 | 0 | 18.75 | 18.95 | 19.16 | 3 |
| | | 25 | 12 | 18.59 | 18.79 | 18.94 | 3 | | | 12 | 6 | 18.58 | 18.86 | 19.06 | 3 |
| | | 25 | 25 | 18.95 | 19.13 | 19.38 | 3 | | | 12 | 13 | 18.91 | 19.16 | 19.42 | 3 |
| | | 50 | 0 | 18.66 | 18.92 | 19.15 | 3 | | | 25 | 0 | 18.63 | 18.90 | 19.06 | 3 |
| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
| | | Channel | | 19965 | 20175 | 20385 | | | | Channel | | 19957 | 20175 | 20393 | |
| | | Frequency (MHz) | | 1711.5 | 1732.5 | 1753.5 | | | | Frequency (MHz) | | 1710.7 | 1732.5 | 1754.3 | |
| 3M | QPSK | 1 | 0 | 21.80 | 22.12 | 22.23 | 0 | 1.4M | QPSK | 1 | 0 | 21.90 | 22.10 | 22.28 | 0 |
| | | 1 | 7 | 21.67 | 21.84 | 22.13 | 0 | | | 1 | 2 | 21.72 | 21.92 | 22.08 | 0 |
| | | 1 | 14 | 21.54 | 21.86 | 21.97 | 0 | | | 1 | 5 | 21.51 | 21.71 | 21.90 | 0 |
| | | 8 | 0 | 20.76 | 20.94 | 21.13 | 1 | | | 3 | 0 | 21.78 | 21.93 | 22.16 | 0 |
| | | 8 | 3 | 20.57 | 20.82 | 20.90 | 1 | | | 3 | 1 | 21.52 | 21.76 | 21.94 | 0 |
| | | 8 | 7 | 20.91 | 21.05 | 21.34 | 1 | | | 3 | 3 | 21.85 | 22.11 | 22.33 | 0 |
| | | 15 | 0 | 20.67 | 20.91 | 20.94 | 1 | | | 6 | 0 | 20.61 | 20.89 | 20.93 | 1 |
| | 16QAM | 1 | 0 | 20.75 | 21.09 | 21.18 | 1 | | 16QAM | 1 | 0 | 20.71 | 20.98 | 21.25 | 1 |
| | | 1 | 7 | 20.80 | 20.94 | 21.25 | 1 | | | 1 | 2 | 20.78 | 21.04 | 21.18 | 1 |
| | | 1 | 14 | 20.66 | 21.00 | 21.14 | 1 | | | 1 | 5 | 20.63 | 20.99 | 21.09 | 1 |
| | | 8 | 0 | 19.80 | 20.12 | 20.14 | 2 | | | 3 | 0 | 20.66 | 21.04 | 21.06 | 1 |
| | | 8 | 3 | 19.61 | 19.80 | 19.91 | 2 | | | 3 | 1 | 20.59 | 20.74 | 20.89 | 1 |
| | | 8 | 7 | 19.89 | 20.19 | 20.31 | 2 | | | 3 | 3 | 21.04 | 21.20 | 21.35 | 1 |
| | | 15 | 0 | 19.68 | 19.87 | 20.06 | 2 | | | 6 | 0 | 19.60 | 19.82 | 19.93 | 2 |
| | 64QAM | 1 | 0 | 19.95 | 20.07 | 20.35 | 2 | | 64QAM | 1 | 0 | 19.90 | 20.10 | 20.31 | 2 |
| | | 1 | 7 | 19.73 | 20.08 | 20.03 | 2 | | | 1 | 2 | 19.64 | 20.08 | 20.07 | 2 |
| | | 1 | 14 | 19.70 | 19.95 | 20.05 | 2 | | | 1 | 5 | 19.77 | 19.92 | 20.09 | 2 |
| | | 8 | 0 | 18.77 | 19.00 | 19.11 | 3 | | | 3 | 0 | 19.73 | 19.92 | 20.19 | 2 |
| | | 8 | 3 | 18.59 | 18.78 | 18.99 | 3 | | | 3 | 1 | 19.71 | 19.86 | 20.00 | 2 |
| | | 8 | 7 | 18.98 | 19.14 | 19.26 | 3 | | | 3 | 3 | 20.01 | 20.15 | 20.36 | 2 |
| | | 15 | 0 | 18.65 | 18.96 | 19.02 | 3 | | | 6 | 0 | 18.64 | 18.89 | 19.15 | 3 |

## LTE Band 66

| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Channel | | 132072 | 132322 | 132572 | | | | Channel | | 132047 | 132322 | 132597 | |
| | | Frequency (MHz) | | 1720.0 | 1745.0 | 1770.0 | | | | Frequency (MHz) | | 1717.5 | 1745.0 | 1772.5 | |
| 20M | QPSK | 1 | 0 | 22.48 | 22.67 | 22.54 | 0 | 15M | QPSK | 1 | 0 | 22.40 | 22.62 | 22.48 | 0 |
| | | 1 | 50 | 22.29 | 22.48 | 22.35 | 0 | | | 1 | 37 | 22.19 | 22.44 | 22.30 | 0 |
| | | 1 | 99 | 22.24 | 22.43 | 22.30 | 0 | | | 1 | 74 | 22.15 | 22.43 | 22.29 | 0 |
| | | 50 | 0 | 21.50 | 21.69 | 21.56 | 1 | | | 36 | 0 | 21.44 | 21.67 | 21.48 | 1 |
| | | 50 | 25 | 21.43 | 21.62 | 21.49 | 1 | | | 36 | 19 | 21.37 | 21.55 | 21.44 | 1 |
| | | 50 | 50 | 21.39 | 21.58 | 21.45 | 1 | | | 36 | 39 | 21.38 | 21.58 | 21.44 | 1 |
| | | 100 | 0 | 21.42 | 21.61 | 21.48 | 1 | | | 75 | 0 | 21.32 | 21.53 | 21.43 | 1 |
| | 16QAM | 1 | 0 | 21.53 | 21.72 | 21.59 | 1 | | 16QAM | 1 | 0 | 21.43 | 21.68 | 21.50 | 1 |
| | | 1 | 50 | 21.65 | 21.84 | 21.71 | 1 | | | 1 | 37 | 21.56 | 21.79 | 21.63 | 1 |
| | | 1 | 99 | 21.57 | 21.76 | 21.63 | 1 | | | 1 | 74 | 21.47 | 21.66 | 21.59 | 1 |
| | | 50 | 0 | 20.62 | 20.81 | 20.68 | 2 | | | 36 | 0 | 20.60 | 20.71 | 20.64 | 2 |
| | | 50 | 25 | 20.59 | 20.78 | 20.65 | 2 | | | 36 | 19 | 20.51 | 20.71 | 20.63 | 2 |
| | | 50 | 50 | 20.58 | 20.77 | 20.64 | 2 | | | 36 | 39 | 20.57 | 20.68 | 20.61 | 2 |
| | | 100 | 0 | 20.54 | 20.73 | 20.60 | 2 | | | 75 | 0 | 20.53 | 20.65 | 20.52 | 2 |
| | 64QAM | 1 | 0 | 20.59 | 20.78 | 20.65 | 2 | | 64QAM | 1 | 0 | 20.53 | 20.71 | 20.55 | 2 |
| | | 1 | 50 | 20.64 | 20.83 | 20.70 | 2 | | | 1 | 37 | 20.64 | 20.73 | 20.62 | 2 |
| | | 1 | 99 | 20.57 | 20.76 | 20.63 | 2 | | | 1 | 74 | 20.56 | 20.66 | 20.56 | 2 |
| | | 50 | 0 | 19.63 | 19.82 | 19.69 | 3 | | | 36 | 0 | 19.57 | 19.80 | 19.69 | 3 |
| | | 50 | 25 | 19.59 | 19.78 | 19.65 | 3 | | | 36 | 19 | 19.57 | 19.71 | 19.56 | 3 |
| | | 50 | 50 | 19.62 | 19.81 | 19.68 | 3 | | | 36 | 39 | 19.55 | 19.77 | 19.59 | 3 |
| | | 100 | 0 | 19.56 | 19.75 | 19.62 | 3 | | | 75 | 0 | 19.51 | 19.68 | 19.57 | 3 |

| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Channel | | 132022 | 132322 | 132622 | | | | Channel | | 131997 | 132322 | 132647 | |
| | | Frequency (MHz) | | 1715.0 | 1745.0 | 1775.0 | | | | Frequency (MHz) | | 1712.5 | 1745.0 | 1777.5 | |
| 10M | QPSK | 1 | 0 | 22.34 | 22.53 | 22.43 | 0 | 5M | QPSK | 1 | 0 | 22.29 | 22.53 | 22.30 | 0 |
| | | 1 | 24 | 22.17 | 22.44 | 22.26 | 0 | | | 1 | 12 | 22.10 | 22.42 | 22.13 | 0 |
| | | 1 | 49 | 22.07 | 22.33 | 22.17 | 0 | | | 1 | 24 | 22.20 | 22.35 | 22.02 | 0 |
| | | 25 | 0 | 21.42 | 21.60 | 21.50 | 1 | | | 12 | 0 | 21.34 | 21.55 | 21.35 | 1 |
| | | 25 | 12 | 21.27 | 21.55 | 21.45 | 1 | | | 12 | 6 | 21.38 | 21.45 | 21.21 | 1 |
| | | 25 | 25 | 21.34 | 21.37 | 21.29 | 1 | | | 12 | 13 | 21.18 | 21.43 | 21.32 | 1 |
| | | 50 | 0 | 21.27 | 21.57 | 21.36 | 1 | | | 25 | 0 | 21.25 | 21.51 | 21.17 | 1 |
| | 16QAM | 1 | 0 | 21.35 | 21.64 | 21.50 | 1 | | 16QAM | 1 | 0 | 21.35 | 21.55 | 21.41 | 1 |
| | | 1 | 24 | 21.58 | 21.80 | 21.58 | 1 | | | 1 | 12 | 21.46 | 21.71 | 21.53 | 1 |
| | | 1 | 49 | 21.42 | 21.67 | 21.41 | 1 | | | 1 | 24 | 21.50 | 21.62 | 21.61 | 1 |
| | | 25 | 0 | 20.42 | 20.71 | 20.56 | 2 | | | 12 | 0 | 20.46 | 20.70 | 20.54 | 2 |
| | | 25 | 12 | 20.46 | 20.67 | 20.41 | 2 | | | 12 | 6 | 20.42 | 20.65 | 20.49 | 2 |
| | | 25 | 25 | 20.40 | 20.68 | 20.40 | 2 | | | 12 | 13 | 20.43 | 20.69 | 20.47 | 2 |
| | | 50 | 0 | 20.30 | 20.63 | 20.55 | 2 | | | 25 | 0 | 20.44 | 20.55 | 20.44 | 2 |
| | 64QAM | 1 | 0 | 20.51 | 20.59 | 20.55 | 2 | | 64QAM | 1 | 0 | 20.47 | 20.68 | 20.64 | 2 |
| | | 1 | 24 | 20.58 | 20.68 | 20.56 | 2 | | | 1 | 12 | 20.44 | 20.60 | 20.58 | 2 |
| | | 1 | 49 | 20.46 | 20.62 | 20.48 | 2 | | | 1 | 24 | 20.52 | 20.62 | 20.44 | 2 |
| | | 25 | 0 | 19.54 | 19.67 | 19.56 | 3 | | | 12 | 0 | 19.53 | 19.65 | 19.56 | 3 |
| | | 25 | 12 | 19.36 | 19.69 | 19.54 | 3 | | | 12 | 6 | 19.51 | 19.73 | 19.40 | 3 |
| | | 25 | 25 | 19.43 | 19.77 | 19.60 | 3 | | | 12 | 13 | 19.57 | 19.69 | 19.52 | 3 |
| | | 50 | 0 | 19.48 | 19.69 | 19.48 | 3 | | | 25 | 0 | 19.47 | 19.62 | 19.56 | 3 |

| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) | BW | MCS Index | RB Size | RB Offset | Low | Mid | High | 3GPP MPR (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Channel | | 131987 | 132322 | 132657 | | | | Channel | | 131979 | 132322 | 132665 | |
| | | Frequency (MHz) | | 1711.5 | 1745.5 | 1778.5 | | | | Frequency (MHz) | | 1710.7 | 1745.0 | 1779.3 | |
| 3M | QPSK | 1 | 0 | 22.33 | 22.63 | 22.32 | 0 | 1.4M | QPSK | 1 | 0 | 22.28 | 22.60 | 22.47 | 0 |
| | | 1 | 7 | 22.27 | 22.32 | 22.17 | 0 | | | 1 | 2 | 22.18 | 22.26 | 22.16 | 0 |
| | | 1 | 14 | 22.03 | 22.35 | 22.23 | 0 | | | 1 | 5 | 22.13 | 22.38 | 22.29 | 0 |
| | | 8 | 0 | 21.29 | 21.49 | 21.44 | 1 | | | 3 | 0 | 22.32 | 22.60 | 22.42 | 0 |
| | | 8 | 3 | 21.27 | 21.53 | 21.45 | 1 | | | 3 | 1 | 22.29 | 22.53 | 22.42 | 0 |
| | | 8 | 7 | 21.21 | 21.44 | 21.37 | 1 | | | 3 | 3 | 22.33 | 22.46 | 22.26 | 0 |
| | | 15 | 0 | 21.27 | 21.52 | 21.36 | 1 | | | 6 | 0 | 21.36 | 21.53 | 21.33 | 1 |
| | 16QAM | 1 | 0 | 21.42 | 21.65 | 21.46 | 1 | | 16QAM | 1 | 0 | 21.39 | 21.62 | 21.49 | 1 |
| | | 1 | 7 | 21.48 | 21.76 | 21.51 | 1 | | | 1 | 2 | 21.52 | 21.75 | 21.57 | 1 |
| | | 1 | 14 | 21.46 | 21.60 | 21.45 | 1 | | | 1 | 5 | 21.37 | 21.64 | 21.47 | 1 |
| | | 8 | 0 | 20.41 | 20.62 | 20.58 | 2 | | | 3 | 0 | 21.41 | 21.57 | 21.61 | 1 |
| | | 8 | 3 | 20.40 | 20.69 | 20.56 | 2 | | | 3 | 1 | 21.38 | 21.61 | 21.59 | 1 |
| | | 8 | 7 | 20.47 | 20.70 | 20.48 | 2 | | | 3 | 3 | 21.48 | 21.65 | 21.61 | 1 |
| | | 15 | 0 | 20.52 | 20.66 | 20.42 | 2 | | | 6 | 0 | 20.38 | 20.59 | 20.42 | 2 |
| | 64QAM | 1 | 0 | 20.49 | 20.65 | 20.55 | 2 | | 64QAM | 1 | 0 | 20.56 | 20.73 | 20.51 | 2 |
| | | 1 | 7 | 20.51 | 20.74 | 20.54 | 2 | | | 1 | 2 | 20.62 | 20.69 | 20.68 | 2 |
| | | 1 | 14 | 20.51 | 20.57 | 20.56 | 2 | | | 1 | 5 | 20.45 | 20.64 | 20.52 | 2 |
| | | 8 | 0 | 19.48 | 19.78 | 19.51 | 3 | | | 3 | 0 | 20.58 | 20.75 | 20.67 | 2 |
| | | 8 | 3 | 19.54 | 19.71 | 19.59 | 3 | | | 3 | 1 | 20.44 | 20.69 | 20.48 | 2 |
| | | 8 | 7 | 19.62 | 19.67 | 19.65 | 3 | | | 3 | 3 | 20.62 | 20.68 | 20.43 | 2 |
| | | 15 | 0 | 19.41 | 19.69 | 19.49 | 3 | | | 6 | 0 | 19.40 | 19.64 | 19.49 | 3 |

**EIRP Power (dBm)**

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 19957 | 1710.7 | -15.37 | 36.45 | 21.08 | 128.23 | H |
| | 20175 | 1732.5 | -15.50 | 36.80 | 21.30 | 134.90 | |
| | 20393 | 1754.3 | -15.94 | 36.94 | 21.00 | 125.89 | |
| | 19957 | 1710.7 | -21.40 | 37.28 | 15.88 | 38.73 | V |
| | 20175 | 1732.5 | -21.62 | 37.63 | 16.01 | 39.90 | |
| | 20393 | 1754.3 | -21.91 | 37.64 | 15.73 | 37.41 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| NB | 19957 | 1710.7 | -16.31 | 36.45 | 20.14 | 103.28 | H |
| | 20175 | 1732.5 | -16.39 | 36.80 | 20.41 | 109.90 | |
| | 20393 | 1754.3 | -17.06 | 36.94 | 19.88 | 97.27 | |
| | 19957 | 1710.7 | -22.28 | 37.28 | 15.00 | 31.62 | V |
| | 20175 | 1732.5 | -22.61 | 37.63 | 15.02 | 31.77 | |
| | 20393 | 1754.3 | -22.98 | 37.64 | 14.66 | 29.24 | |
| **Channel Bandwidth: 1.4 MHz / 64QAM** | | | | | | | |
| NB | 19957 | 1710.7 | -17.42 | 36.45 | 19.03 | 79.98 | H |
| | 20175 | 1732.5 | -17.64 | 36.80 | 19.16 | 82.41 | |
| | 20393 | 1754.3 | -18.15 | 36.94 | 18.79 | 75.68 | |
| | 19957 | 1710.7 | -23.47 | 37.28 | 13.81 | 24.04 | V |
| | 20175 | 1732.5 | -23.76 | 37.63 | 13.87 | 24.38 | |
| | 20393 | 1754.3 | -24.05 | 37.64 | 13.59 | 22.86 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 19965 | 1711.5 | -15.09 | 36.45 | 21.36 | 136.77 | H |
| | 20175 | 1732.5 | -15.30 | 36.80 | 21.50 | 141.25 | |
| | 20385 | 1753.5 | -15.74 | 36.94 | 21.20 | 131.83 | |
| | 19965 | 1711.5 | -21.14 | 37.28 | 16.14 | 41.11 | V |
| | 20175 | 1732.5 | -21.37 | 37.63 | 16.26 | 42.27 | |
| | 20385 | 1753.5 | -21.62 | 37.64 | 16.02 | 39.99 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| NB | 19965 | 1711.5 | -16.11 | 36.45 | 20.34 | 108.14 | H |
| | 20175 | 1732.5 | -16.19 | 36.80 | 20.61 | 115.08 | |
| | 20385 | 1753.5 | -16.86 | 36.94 | 20.08 | 101.86 | |
| | 19965 | 1711.5 | -21.98 | 37.28 | 15.30 | 33.88 | V |
| | 20175 | 1732.5 | -22.36 | 37.63 | 15.27 | 33.65 | |
| | 20385 | 1753.5 | -22.78 | 37.64 | 14.86 | 30.62 | |
| **Channel Bandwidth: 3 MHz / 64QAM** | | | | | | | |
| NB | 19965 | 1711.5 | -17.17 | 36.45 | 19.28 | 84.72 | H |
| | 20175 | 1732.5 | -17.35 | 36.80 | 19.45 | 88.10 | |
| | 20385 | 1753.5 | -17.95 | 36.94 | 18.99 | 79.25 | |
| | 19965 | 1711.5 | -23.19 | 37.28 | 14.09 | 25.64 | V |
| | 20175 | 1732.5 | -23.47 | 37.63 | 14.16 | 26.06 | |
| | 20385 | 1753.5 | -23.77 | 37.64 | 13.87 | 24.38 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 19975 | 1712.5 | -14.80 | 36.45 | 21.65 | 146.22 | H |
| | 20175 | 1732.5 | -14.99 | 36.80 | 21.81 | 151.71 | |
| | 20375 | 1752.5 | -15.46 | 36.94 | 21.48 | 140.60 | |
| | 19975 | 1712.5 | -20.87 | 37.28 | 16.41 | 43.75 | V |
| | 20175 | 1732.5 | -21.08 | 37.63 | 16.55 | 45.19 | |
| | 20375 | 1752.5 | -21.38 | 37.64 | 16.26 | 42.27 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| NB | 19975 | 1712.5 | -15.79 | 36.45 | 20.66 | 116.41 | H |
| | 20175 | 1732.5 | -15.99 | 36.80 | 20.81 | 120.50 | |
| | 20375 | 1752.5 | -16.62 | 36.94 | 20.32 | 107.65 | |
| | 19975 | 1712.5 | -21.75 | 37.28 | 15.53 | 35.73 | V |
| | 20175 | 1732.5 | -22.04 | 37.63 | 15.59 | 36.22 | |
| | 20375 | 1752.5 | -22.55 | 37.64 | 15.09 | 32.28 | |
| **Channel Bandwidth: 5 MHz / 64QAM** | | | | | | | |
| NB | 19975 | 1712.5 | -16.92 | 36.45 | 19.53 | 89.74 | H |
| | 20175 | 1732.5 | -17.05 | 36.80 | 19.75 | 94.41 | |
| | 20375 | 1752.5 | -17.64 | 36.94 | 19.30 | 85.11 | |
| | 19975 | 1712.5 | -22.88 | 37.28 | 14.40 | 27.54 | V |
| | 20175 | 1732.5 | -23.16 | 37.63 | 14.47 | 27.99 | |
| | 20375 | 1752.5 | -23.53 | 37.64 | 14.11 | 25.76 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 20000 | 1715.0 | -14.74 | 36.64 | 21.90 | 154.88 | H |
| | 20175 | 1732.5 | -14.70 | 36.80 | 22.10 | 162.18 | |
| | 20350 | 1750.0 | -15.09 | 36.80 | 21.71 | 148.25 | |
| | 20000 | 1715.0 | -20.77 | 37.44 | 16.67 | 46.45 | V |
| | 20175 | 1732.5 | -20.87 | 37.63 | 16.76 | 47.42 | |
| | 20350 | 1750.0 | -21.10 | 37.64 | 16.54 | 45.08 | |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| NB | 20000 | 1715.0 | -15.75 | 36.64 | 20.89 | 122.74 | H |
| | 20175 | 1732.5 | -15.67 | 36.80 | 21.13 | 129.72 | |
| | 20350 | 1750.0 | -16.24 | 36.80 | 20.56 | 113.76 | |
| | 20000 | 1715.0 | -21.67 | 37.44 | 15.77 | 37.76 | V |
| | 20175 | 1732.5 | -21.75 | 37.63 | 15.88 | 38.73 | |
| | 20350 | 1750.0 | -22.25 | 37.64 | 15.39 | 34.59 | |
| **Channel Bandwidth: 10 MHz / 64QAM** | | | | | | | |
| NB | 20000 | 1715.0 | -16.80 | 36.64 | 19.84 | 96.38 | H |
| | 20175 | 1732.5 | -16.84 | 36.80 | 19.96 | 99.08 | |
| | 20350 | 1750.0 | -17.29 | 36.80 | 19.51 | 89.33 | |
| | 20000 | 1715.0 | -22.78 | 37.44 | 14.66 | 29.24 | V |
| | 20175 | 1732.5 | -22.90 | 37.63 | 14.73 | 29.72 | |
| | 20350 | 1750.0 | -23.31 | 37.64 | 14.33 | 27.10 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 15 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 20025 | 1717.5 | -14.20 | 36.45 | 22.25 | 167.88 | H |
| | 20175 | 1732.5 | -14.42 | 36.80 | 22.38 | 172.98 | |
| | 20325 | 1747.5 | -14.88 | 36.94 | 22.06 | 160.69 | |
| | 20025 | 1717.5 | -20.33 | 37.28 | 16.95 | 49.55 | V |
| | 20175 | 1732.5 | -20.59 | 37.63 | 17.04 | 50.58 | |
| | 20325 | 1747.5 | -20.84 | 37.64 | 16.80 | 47.86 | |
| **Channel Bandwidth: 15 MHz / 16QAM** | | | | | | | |
| NB | 20025 | 1717.5 | -15.26 | 36.45 | 21.19 | 131.52 | H |
| | 20175 | 1732.5 | -15.42 | 36.80 | 21.38 | 137.40 | |
| | 20325 | 1747.5 | -16.10 | 36.94 | 20.84 | 121.34 | |
| | 20025 | 1717.5 | -21.18 | 37.28 | 16.10 | 40.74 | V |
| | 20175 | 1732.5 | -21.44 | 37.63 | 16.19 | 41.59 | |
| | 20325 | 1747.5 | -22.00 | 37.64 | 15.64 | 36.64 | |
| **Channel Bandwidth: 15 MHz / 64QAM** | | | | | | | |
| NB | 20025 | 1717.5 | -16.31 | 36.45 | 20.14 | 103.28 | H |
| | 20175 | 1732.5 | -16.56 | 36.80 | 20.24 | 105.68 | |
| | 20325 | 1747.5 | -17.16 | 36.94 | 19.78 | 95.06 | |
| | 20025 | 1717.5 | -22.32 | 37.28 | 14.96 | 31.33 | V |
| | 20175 | 1732.5 | -22.66 | 37.63 | 14.97 | 31.41 | |
| | 20325 | 1747.5 | -23.08 | 37.64 | 14.56 | 28.58 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 20 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 20050 | 1720.0 | -14.00 | 36.45 | 22.45 | 175.79 | H |
| | 20175 | 1732.5 | -14.21 | 36.80 | 22.59 | 181.55 | |
| | 20300 | 1745.0 | -14.56 | 36.94 | 22.38 | 172.98 | |
| | 20050 | 1720.0 | -20.04 | 37.28 | 17.24 | 52.97 | V |
| | 20175 | 1732.5 | -20.31 | 37.63 | 17.32 | 53.95 | |
| | 20300 | 1745.0 | -20.53 | 37.64 | 17.11 | 51.40 | |
| **Channel Bandwidth: 20 MHz / 16QAM** | | | | | | | |
| NB | 20050 | 1720.0 | -14.96 | 36.45 | 21.49 | 140.93 | H |
| | 20175 | 1732.5 | -15.19 | 36.80 | 21.61 | 144.88 | |
| | 20300 | 1745.0 | -15.82 | 36.94 | 21.12 | 129.42 | |
| | 20050 | 1720.0 | -20.97 | 37.28 | 16.31 | 42.76 | V |
| | 20175 | 1732.5 | -21.23 | 37.63 | 16.40 | 43.65 | |
| | 20300 | 1745.0 | -21.69 | 37.64 | 15.95 | 39.36 | |
| **Channel Bandwidth: 20 MHz / 64QAM** | | | | | | | |
| NB | 20050 | 1720.0 | -16.08 | 36.45 | 20.37 | 108.89 | H |
| | 20175 | 1732.5 | -16.25 | 36.80 | 20.55 | 113.50 | |
| | 20300 | 1745.0 | -16.94 | 36.94 | 20.00 | 100.00 | |
| | 20050 | 1720.0 | -22.05 | 37.28 | 15.23 | 33.34 | V |
| | 20175 | 1732.5 | -22.39 | 37.63 | 15.24 | 33.42 | |
| | 20300 | 1745.0 | -22.81 | 37.64 | 14.83 | 30.41 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 131979 | 1710.7 | -15.06 | 36.45 | 21.39 | 137.72 | H |
| | 132322 | 1745.0 | -15.14 | 36.80 | 21.66 | 146.55 | |
| | 132665 | 1779.3 | -15.37 | 36.94 | 21.57 | 143.55 | |
| | 131979 | 1710.7 | -21.09 | 37.28 | 16.19 | 41.59 | V |
| | 132322 | 1745.0 | -21.25 | 37.63 | 16.38 | 43.45 | |
| | 132665 | 1779.3 | -21.31 | 37.64 | 16.33 | 42.95 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| NB | 131979 | 1710.7 | -16.19 | 36.45 | 20.26 | 106.17 | H |
| | 132322 | 1745.0 | -16.01 | 36.80 | 20.79 | 119.95 | |
| | 132665 | 1779.3 | -16.62 | 36.94 | 20.32 | 107.65 | |
| | 131979 | 1710.7 | -22.33 | 37.28 | 14.95 | 31.26 | V |
| | 132322 | 1745.0 | -22.06 | 37.63 | 15.57 | 36.06 | |
| | 132665 | 1779.3 | -22.57 | 37.64 | 15.07 | 32.14 | |
| **Channel Bandwidth: 1.4 MHz / 64QAM** | | | | | | | |
| NB | 131979 | 1710.7 | -17.33 | 36.45 | 19.12 | 81.66 | H |
| | 132322 | 1745.0 | -17.14 | 36.80 | 19.66 | 92.47 | |
| | 132665 | 1779.3 | -17.79 | 36.94 | 19.15 | 82.22 | |
| | 131979 | 1710.7 | -23.39 | 37.28 | 13.89 | 24.49 | V |
| | 132322 | 1745.0 | -23.20 | 37.63 | 14.43 | 27.73 | |
| | 132665 | 1779.3 | -23.56 | 37.64 | 14.08 | 25.59 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 131987 | 1711.5 | -14.86 | 36.45 | 21.59 | 144.21 | H |
| | 132322 | 1745.0 | -14.80 | 36.80 | 22.00 | 158.49 | |
| | 132657 | 1778.5 | -15.14 | 36.94 | 21.80 | 151.36 | |
| | 131987 | 1711.5 | -20.85 | 37.28 | 16.43 | 43.95 | V |
| | 132322 | 1745.0 | -21.01 | 37.63 | 16.62 | 45.92 | |
| | 132657 | 1778.5 | -21.08 | 37.64 | 16.56 | 45.29 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| NB | 131987 | 1711.5 | -15.92 | 36.45 | 20.53 | 112.98 | H |
| | 132322 | 1745.0 | -15.69 | 36.80 | 21.11 | 129.12 | |
| | 132657 | 1778.5 | -16.38 | 36.94 | 20.56 | 113.76 | |
| | 131987 | 1711.5 | -22.05 | 37.28 | 15.23 | 33.34 | V |
| | 132322 | 1745.0 | -21.84 | 37.63 | 15.79 | 37.93 | |
| | 132657 | 1778.5 | -22.26 | 37.64 | 15.38 | 34.51 | |
| **Channel Bandwidth: 3 MHz / 64QAM** | | | | | | | |
| NB | 131987 | 1711.5 | -17.04 | 36.45 | 19.41 | 87.30 | H |
| | 132322 | 1745.0 | -16.89 | 36.80 | 19.91 | 97.95 | |
| | 132657 | 1778.5 | -17.48 | 36.94 | 19.46 | 88.31 | |
| | 131987 | 1711.5 | -23.16 | 37.28 | 14.12 | 25.82 | V |
| | 132322 | 1745.0 | -22.95 | 37.63 | 14.68 | 29.38 | |
| | 132657 | 1778.5 | -23.34 | 37.64 | 14.30 | 26.92 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 131997 | 1712.5 | -14.61 | 36.45 | 21.84 | 152.76 | H |
| | 132322 | 1745.0 | -14.49 | 36.80 | 22.31 | 170.22 | |
| | 132647 | 1777.5 | -14.88 | 36.94 | 22.06 | 160.69 | |
| | 131997 | 1712.5 | -20.57 | 37.28 | 16.71 | 46.88 | V |
| | 132322 | 1745.0 | -20.76 | 37.63 | 16.87 | 48.64 | |
| | 132647 | 1777.5 | -20.87 | 37.64 | 16.77 | 47.53 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| NB | 131997 | 1712.5 | -15.66 | 36.45 | 20.79 | 119.95 | H |
| | 132322 | 1745.0 | -15.49 | 36.80 | 21.31 | 135.21 | |
| | 132647 | 1777.5 | -16.06 | 36.94 | 20.88 | 122.46 | |
| | 131997 | 1712.5 | -21.84 | 37.28 | 15.44 | 34.99 | V |
| | 132322 | 1745.0 | -21.63 | 37.63 | 16.00 | 39.81 | |
| | 132647 | 1777.5 | -22.01 | 37.64 | 15.63 | 36.56 | |
| **Channel Bandwidth: 5 MHz / 64QAM** | | | | | | | |
| NB | 131997 | 1712.5 | -16.73 | 36.45 | 19.72 | 93.76 | H |
| | 132322 | 1745.0 | -16.69 | 36.80 | 20.11 | 102.57 | |
| | 132647 | 1777.5 | -17.17 | 36.94 | 19.77 | 94.84 | |
| | 131997 | 1712.5 | -22.84 | 37.28 | 14.44 | 27.80 | V |
| | 132322 | 1745.0 | -22.73 | 37.63 | 14.90 | 30.90 | |
| | 132647 | 1777.5 | -23.02 | 37.64 | 14.62 | 28.97 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 132022 | 1715.0 | -14.46 | 36.64 | 22.18 | 165.20 | H |
| | 132322 | 1745.0 | -14.29 | 36.80 | 22.51 | 178.24 | |
| | 132622 | 1775.0 | -14.48 | 36.80 | 22.32 | 170.61 | |
| | 132022 | 1715.0 | -20.45 | 37.44 | 16.99 | 50.00 | V |
| | 132322 | 1745.0 | -20.54 | 37.63 | 17.09 | 51.17 | |
| | 132622 | 1775.0 | -20.60 | 37.64 | 17.04 | 50.58 | |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| NB | 132022 | 1715.0 | -15.61 | 36.64 | 21.03 | 126.77 | H |
| | 132322 | 1745.0 | -15.21 | 36.80 | 21.59 | 144.21 | |
| | 132622 | 1775.0 | -15.62 | 36.80 | 21.18 | 131.22 | |
| | 132022 | 1715.0 | -21.80 | 37.44 | 15.64 | 36.64 | V |
| | 132322 | 1745.0 | -21.34 | 37.63 | 16.29 | 42.56 | |
| | 132622 | 1775.0 | -21.74 | 37.64 | 15.90 | 38.90 | |
| **Channel Bandwidth: 10 MHz / 64QAM** | | | | | | | |
| NB | 132022 | 1715.0 | -16.63 | 36.64 | 20.01 | 100.23 | H |
| | 132322 | 1745.0 | -16.38 | 36.80 | 20.42 | 110.15 | |
| | 132622 | 1775.0 | -16.74 | 36.80 | 20.06 | 101.39 | |
| | 132022 | 1715.0 | -22.77 | 37.44 | 14.67 | 29.31 | V |
| | 132322 | 1745.0 | -22.47 | 37.63 | 15.16 | 32.81 | |
| | 132622 | 1775.0 | -22.80 | 37.64 | 14.84 | 30.48 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 15 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 132047 | 1717.5 | -13.92 | 36.45 | 22.53 | 179.06 | H |
| | 132322 | 1745.0 | -14.08 | 36.80 | 22.72 | 187.07 | |
| | 132597 | 1772.5 | -14.27 | 36.94 | 22.67 | 184.93 | |
| | 132047 | 1717.5 | -20.06 | 37.28 | 17.22 | 52.72 | V |
| | 132322 | 1745.0 | -20.25 | 37.63 | 17.38 | 54.70 | |
| | 132597 | 1772.5 | -20.33 | 37.64 | 17.31 | 53.83 | |
| **Channel Bandwidth: 15 MHz / 16QAM** | | | | | | | |
| NB | 132047 | 1717.5 | -15.15 | 36.45 | 21.30 | 134.90 | H |
| | 132322 | 1745.0 | -14.98 | 36.80 | 21.82 | 152.05 | |
| | 132597 | 1772.5 | -15.48 | 36.94 | 21.46 | 139.96 | |
| | 132047 | 1717.5 | -21.32 | 37.28 | 15.96 | 39.45 | V |
| | 132322 | 1745.0 | -21.08 | 37.63 | 16.55 | 45.19 | |
| | 132597 | 1772.5 | -21.48 | 37.64 | 16.16 | 41.30 | |
| **Channel Bandwidth: 15 MHz / 64QAM** | | | | | | | |
| NB | 132047 | 1717.5 | -16.13 | 36.45 | 20.32 | 107.65 | H |
| | 132322 | 1745.0 | -16.12 | 36.80 | 20.68 | 116.95 | |
| | 132597 | 1772.5 | -16.59 | 36.94 | 20.35 | 108.39 | |
| | 132047 | 1717.5 | -22.33 | 37.28 | 14.95 | 31.26 | V |
| | 132322 | 1745.0 | -22.23 | 37.63 | 15.40 | 34.67 | |
| | 132597 | 1772.5 | -22.55 | 37.64 | 15.09 | 32.28 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 20 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| NB | 132072 | 1720.0 | -13.66 | 36.45 | 22.79 | 190.11 | H |
| | 132322 | 1745.0 | -13.75 | 36.80 | 23.05 | 201.84 | |
| | 132572 | 1770.0 | -14.03 | 36.94 | 22.91 | 195.43 | |
| | 132072 | 1720.0 | -19.74 | 37.28 | 17.54 | 56.75 | V |
| | 132322 | 1745.0 | -19.90 | 37.63 | 17.73 | 59.29 | |
| | 132572 | 1770.0 | -20.03 | 37.64 | 17.61 | 57.68 | |
| **Channel Bandwidth: 20 MHz / 16QAM** | | | | | | | |
| NB | 132072 | 1720.0 | -14.87 | 36.45 | 21.58 | 143.88 | H |
| | 132322 | 1745.0 | -14.78 | 36.80 | 22.02 | 159.22 | |
| | 132572 | 1770.0 | -15.25 | 36.94 | 21.69 | 147.57 | |
| | 132072 | 1720.0 | -21.01 | 37.28 | 16.27 | 42.36 | V |
| | 132322 | 1745.0 | -20.82 | 37.63 | 16.81 | 47.97 | |
| | 132572 | 1770.0 | -21.17 | 37.64 | 16.47 | 44.36 | |
| **Channel Bandwidth: 20 MHz / 64QAM** | | | | | | | |
| NB | 132072 | 1720.0 | -15.88 | 36.45 | 20.57 | 114.02 | H |
| | 132322 | 1745.0 | -15.92 | 36.80 | 20.88 | 122.46 | |
| | 132572 | 1770.0 | -16.29 | 36.94 | 20.65 | 116.14 | |
| | 132072 | 1720.0 | -22.12 | 37.28 | 15.16 | 32.81 | V |
| | 132322 | 1745.0 | -21.96 | 37.63 | 15.67 | 36.90 | |
| | 132572 | 1770.0 | -22.29 | 37.64 | 15.35 | 34.28 | |

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

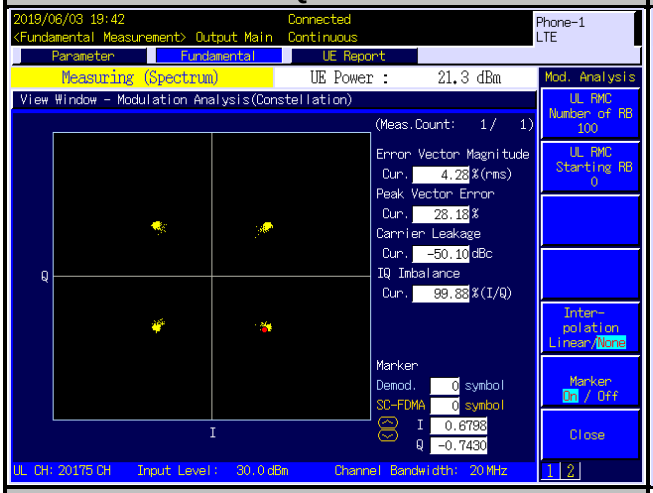
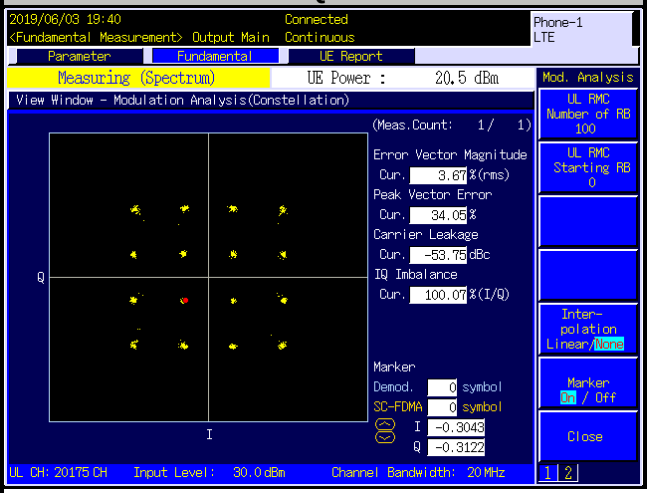
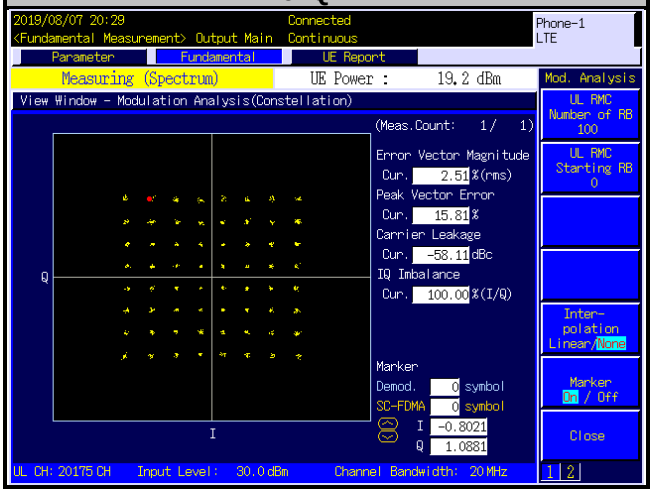
N/A

### 4.2.2 Test Setup


### 4.2.3 Test Procedure

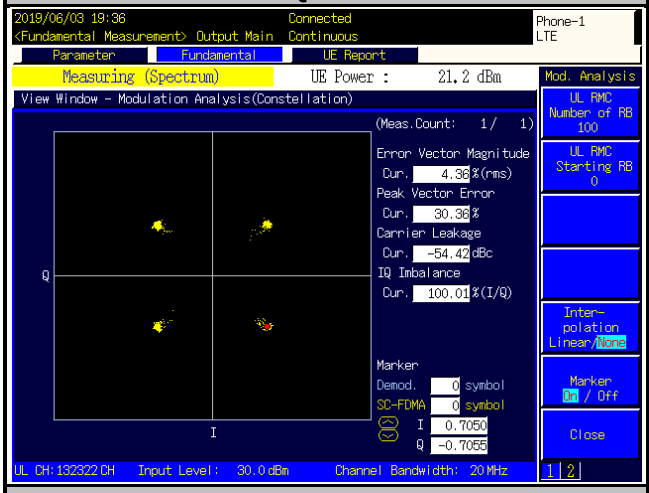
Connect the EUT to Communication Simulator via the antenna connector. The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

## 4.2.4 Test Results

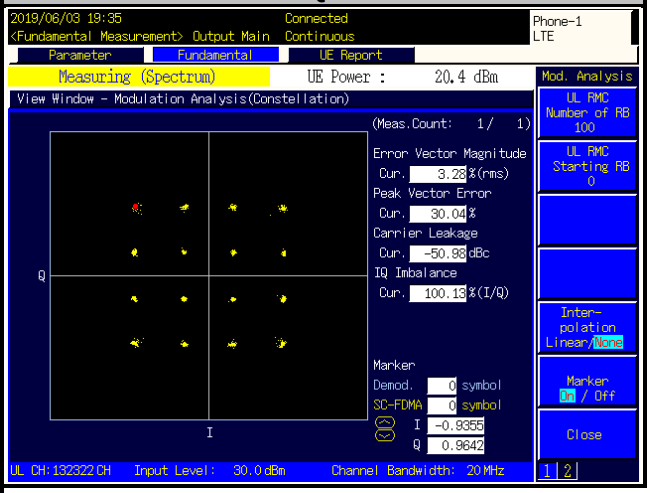
| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 4 | |
| Channel 20175 | |
| QPSK | 16QAM |
|  |  |
| 64QAM | |
|  | |

| Spectrum Plot of Measurement |
|---|
| LTE Band 66 |
| Channel 132322 |

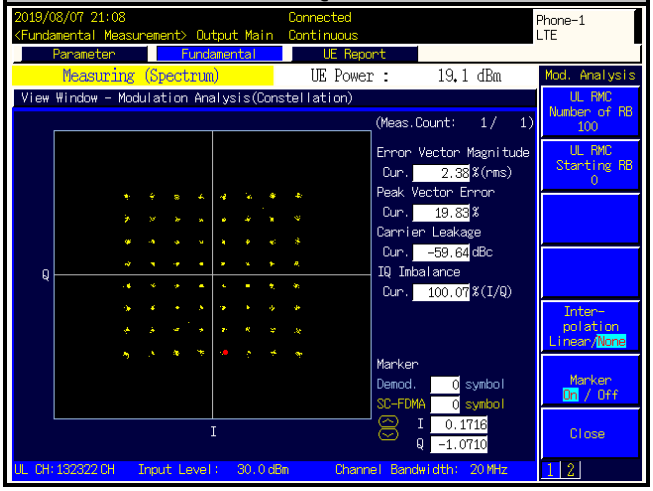
**QPSK**




**16QAM**




**64QAM**



## 4.3 Frequency Stability Measurement

### 4.3.1 Limits of Frequency Stability Measurement

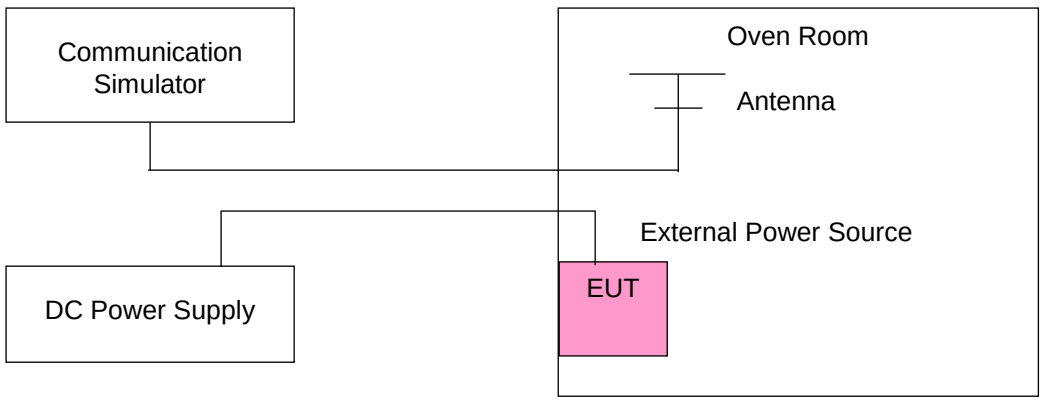
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 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 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700001 | 0.001 | 1754.300003 | 0.001 |
| 102 | 1710.700001 | 0.001 | 1754.300003 | 0.001 |
| 138 | 1710.700001 | 0.001 | 1754.300004 | 0.002 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1754.300001 | 0.001 |
| 10 | 1710.700002 | 0.001 | 1754.300001 | 0.001 |
| 20 | 1710.699998 | -0.001 | 1754.300003 | 0.002 |
| 30 | 1710.699998 | -0.001 | 1754.299996 | -0.002 |
| 40 | 1710.699998 | -0.001 | 1754.299996 | -0.002 |
| 50 | 1710.699997 | -0.002 | 1754.299997 | -0.002 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0˚C to 50˚C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700003 | 0.002 | 1754.300003 | 0.002 |
| 102 | 1710.700002 | 0.001 | 1754.300002 | 0.001 |
| 138 | 1710.700003 | 0.002 | 1754.300002 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700001 | 0.001 | 1754.300003 | 0.002 |
| 10 | 1710.700003 | 0.002 | 1754.300003 | 0.002 |
| 20 | 1710.699999 | -0.001 | 1754.300001 | 0.001 |
| 30 | 1710.699996 | -0.002 | 1754.299998 | -0.001 |
| 40 | 1710.699999 | -0.001 | 1754.299998 | -0.001 |
| 50 | 1710.699998 | -0.001 | 1754.299997 | -0.002 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700002 | 0.001 | 1754.300004 | 0.002 |
| 102 | 1710.700003 | 0.002 | 1754.300001 | 0.001 |
| 138 | 1710.700003 | 0.002 | 1754.300001 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700003 | 0.002 | 1754.300002 | 0.001 |
| 10 | 1710.700002 | 0.001 | 1754.300002 | 0.001 |
| 20 | 1710.699999 | -0.001 | 1754.300001 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1754.299999 | -0.001 |
| 40 | 1710.699999 | -0.001 | 1754.299997 | -0.002 |
| 50 | 1710.699998 | -0.001 | 1754.299998 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700003 | 0.002 | 1754.300001 | 0.001 |
| 102 | 1710.700003 | 0.002 | 1754.300003 | 0.002 |
| 138 | 1710.700001 | 0.001 | 1754.300002 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1754.300003 | 0.002 |
| 10 | 1710.700002 | 0.001 | 1754.300004 | 0.002 |
| 20 | 1710.699996 | -0.002 | 1754.300001 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1754.299997 | -0.002 |
| 40 | 1710.699998 | -0.001 | 1754.299998 | -0.001 |
| 50 | 1710.699997 | -0.002 | 1754.299996 | -0.002 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700003 | 0.002 | 1754.300001 | 0.001 |
| 102 | 1710.700004 | 0.002 | 1754.300002 | 0.001 |
| 138 | 1710.700004 | 0.002 | 1754.300003 | 0.002 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700003 | 0.002 | 1754.300004 | 0.002 |
| 10 | 1710.700003 | 0.002 | 1754.300003 | 0.002 |
| 20 | 1710.699997 | -0.002 | 1754.300001 | 0.001 |
| 30 | 1710.699999 | -0.001 | 1754.299999 | -0.001 |
| 40 | 1710.699997 | -0.002 | 1754.299999 | -0.001 |
| 50 | 1710.699999 | -0.001 | 1754.299999 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700002 | 0.001 | 1754.300003 | 0.002 |
| 102 | 1710.700002 | 0.001 | 1754.300001 | 0.001 |
| 138 | 1710.700003 | 0.002 | 1754.300002 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1754.300003 | 0.002 |
| 10 | 1710.700002 | 0.001 | 1754.300003 | 0.001 |
| 20 | 1710.699997 | -0.002 | 1754.300004 | 0.002 |
| 30 | 1710.699997 | -0.002 | 1754.299998 | -0.001 |
| 40 | 1710.699998 | -0.001 | 1754.299999 | -0.001 |
| 50 | 1710.699997 | -0.002 | 1754.299998 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700004 | 0.002 | 1779.300001 | 0.001 |
| 102 | 1710.700002 | 0.001 | 1779.300004 | 0.002 |
| 138 | 1710.700003 | 0.002 | 1779.300001 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1779.300003 | 0.002 |
| 10 | 1710.700002 | 0.001 | 1779.300002 | 0.001 |
| 20 | 1710.699998 | -0.001 | 1779.300002 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1779.299996 | -0.002 |
| 40 | 1710.699999 | -0.001 | 1779.299998 | -0.001 |
| 50 | 1710.699998 | -0.001 | 1779.299999 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700002 | 0.001 | 1779.300003 | 0.002 |
| 102 | 1710.700003 | 0.002 | 1779.300002 | 0.001 |
| 138 | 1710.700003 | 0.002 | 1779.300002 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700001 | 0.001 | 1779.300003 | 0.002 |
| 10 | 1710.700003 | 0.002 | 1779.300002 | 0.001 |
| 20 | 1710.699997 | -0.002 | 1779.300003 | 0.002 |
| 30 | 1710.699997 | -0.002 | 1779.299998 | -0.001 |
| 40 | 1710.699996 | -0.002 | 1779.299998 | -0.001 |
| 50 | 1710.699999 | -0.001 | 1779.299999 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700001 | 0.001 | 1779.300004 | 0.002 |
| 102 | 1710.700002 | 0.001 | 1779.300003 | 0.002 |
| 138 | 1710.700004 | 0.002 | 1779.300003 | 0.002 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700001 | 0.001 | 1779.300002 | 0.001 |
| 10 | 1710.700004 | 0.002 | 1779.300004 | 0.002 |
| 20 | 1710.699999 | -0.001 | 1779.300002 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1779.299996 | -0.002 |
| 40 | 1710.699998 | -0.001 | 1779.299999 | -0.001 |
| 50 | 1710.699999 | -0.001 | 1779.299996 | -0.002 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700003 | 0.002 | 1779.300002 | 0.001 |
| 102 | 1710.700001 | 0.001 | 1779.300002 | 0.001 |
| 138 | 1710.700003 | 0.002 | 1779.300004 | 0.002 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700004 | 0.002 | 1779.300001 | 0.001 |
| 10 | 1710.700003 | 0.002 | 1779.300002 | 0.001 |
| 20 | 1710.699997 | -0.002 | 1779.300003 | 0.002 |
| 30 | 1710.699997 | -0.002 | 1779.299997 | -0.002 |
| 40 | 1710.699998 | -0.001 | 1779.299998 | -0.001 |
| 50 | 1710.699997 | -0.002 | 1779.299999 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0˚C to 50˚C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700002 | 0.001 | 1779.300004 | 0.002 |
| 102 | 1710.700001 | 0.001 | 1779.300002 | 0.001 |
| 138 | 1710.700004 | 0.002 | 1779.300003 | 0.002 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1779.300004 | 0.002 |
| 10 | 1710.700001 | 0.001 | 1779.300002 | 0.001 |
| 20 | 1710.699999 | -0.001 | 1779.300001 | 0.001 |
| 30 | 1710.699997 | -0.002 | 1779.299998 | -0.001 |
| 40 | 1710.699996 | -0.002 | 1779.299997 | -0.002 |
| 50 | 1710.699997 | -0.002 | 1779.299998 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0˚C to 50˚C.

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 120 | 1710.700001 | 0.001 | 1779.300004 | 0.002 |
| 102 | 1710.700002 | 0.001 | 1779.300002 | 0.001 |
| 138 | 1710.700002 | 0.001 | 1779.300002 | 0.001 |

**Note:** The applicant defined the normal working voltage is from 102 Vac to 138 Vac.

Frequency Error vs. Temperature

| Temp. (℃ ) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 0 | 1710.700002 | 0.001 | 1779.300003 | 0.001 |
| 10 | 1710.700003 | 0.002 | 1779.300003 | 0.001 |
| 20 | 1710.699997 | -0.002 | 1779.300002 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1779.299998 | -0.001 |
| 40 | 1710.699997 | -0.002 | 1779.299997 | -0.002 |
| 50 | 1710.699996 | -0.002 | 1779.299998 | -0.001 |

**Note:** The applicant declared that the normal operating temperature of the EUT is from 0˚C to 50˚C.

## 4.4 Occupied Bandwidth Measurement

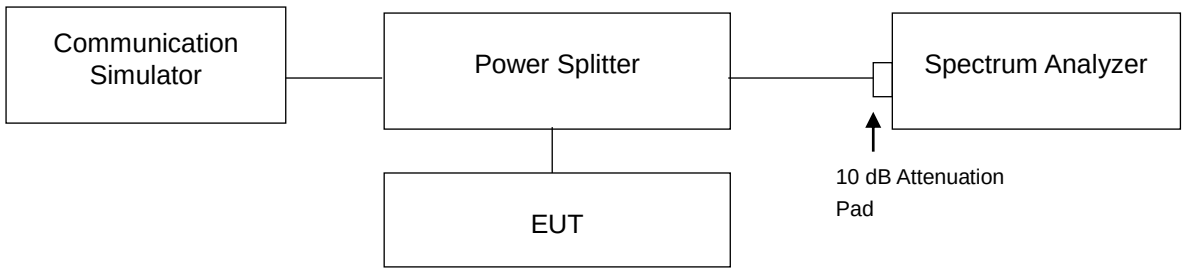
### 4.4.1 Limits of Occupied Bandwidth Measurement

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

### 4.4.2 Test Procedure

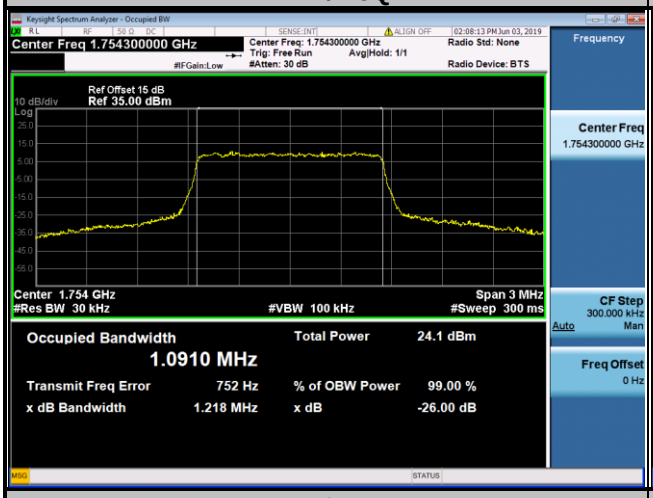
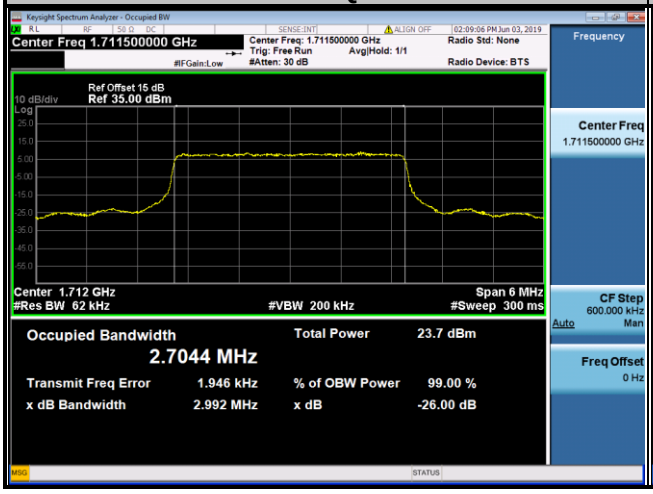
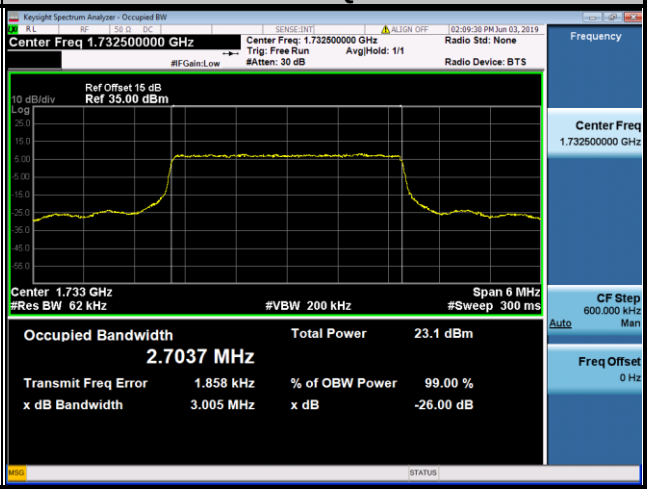
a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

### 4.4.3 Test Setup

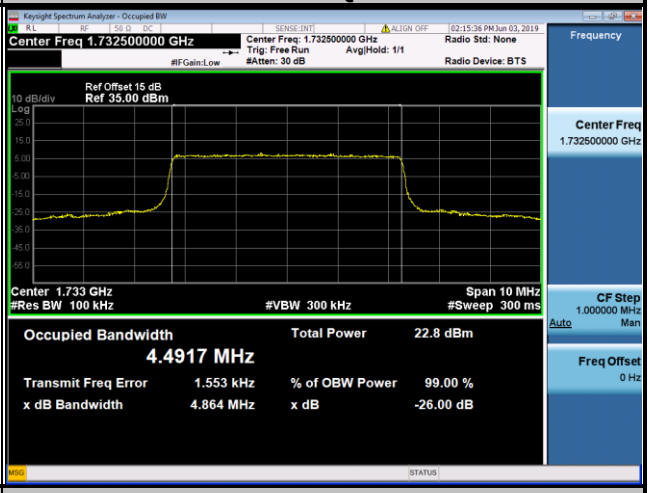
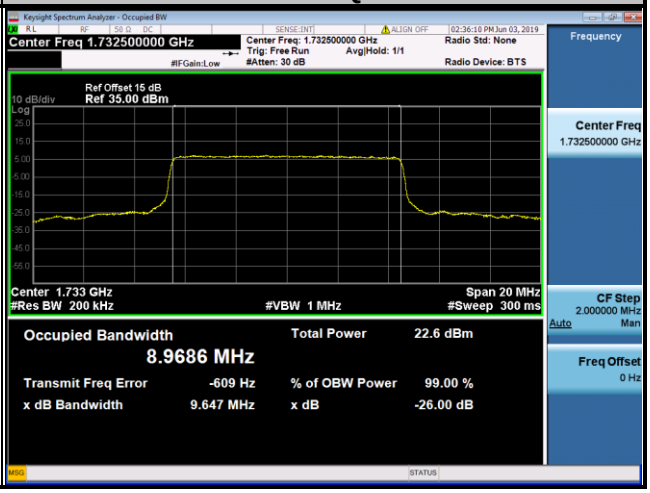


4.4.4 Test Result

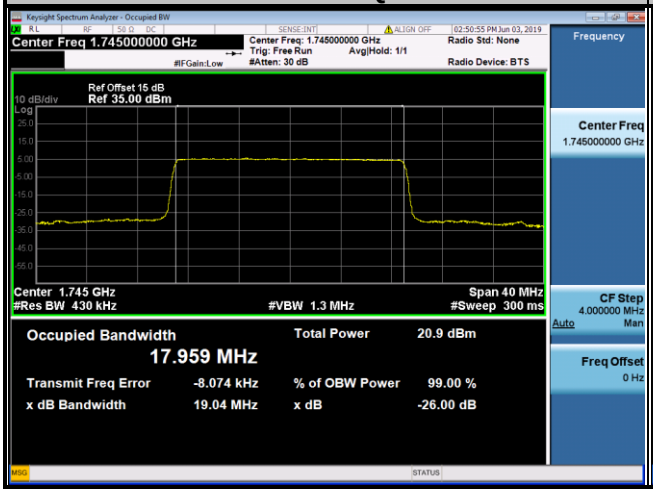
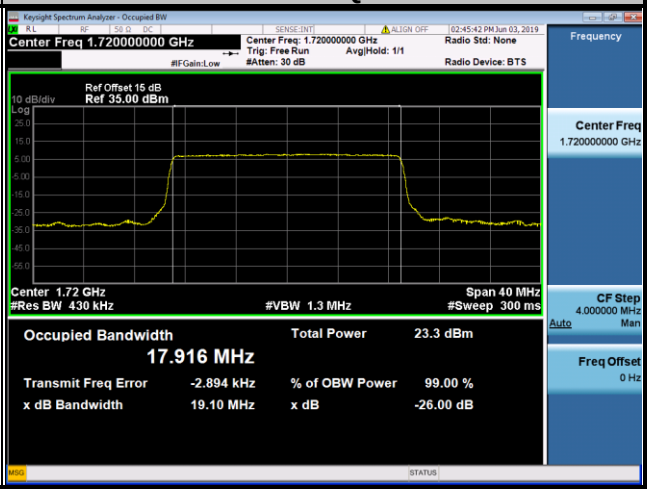
| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 19957 | 1710.7 | 1.0880 | 1.0897 | 1.0882 | 1.2430 | 1.2300 | 1.2190 |
| 20175 | 1732.5 | 1.0892 | 1.0895 | 1.0871 | 1.2430 | 1.2250 | 1.2120 |
| 20393 | 1754.3 | 1.0880 | 1.0910 | 1.0894 | 1.2260 | 1.2180 | 1.2250 |
| Channel Bandwidth: 3 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 19965 | 1711.5 | 2.7044 | 2.7008 | 2.6987 | 2.9920 | 2.9530 | 2.9020 |
| 20175 | 1732.5 | 2.7037 | 2.6995 | 2.6995 | 3.0050 | 2.9740 | 2.9120 |
| 20385 | 1753.5 | 2.6996 | 2.6963 | 2.6993 | 2.9380 | 2.9440 | 2.9180 |

| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 1.4 MHz / 16QAM | 1.4 MHz / QPSK |
|  |  |
| 3 MHz / QPSK | 3 MHz / QPSK |
|  |  |

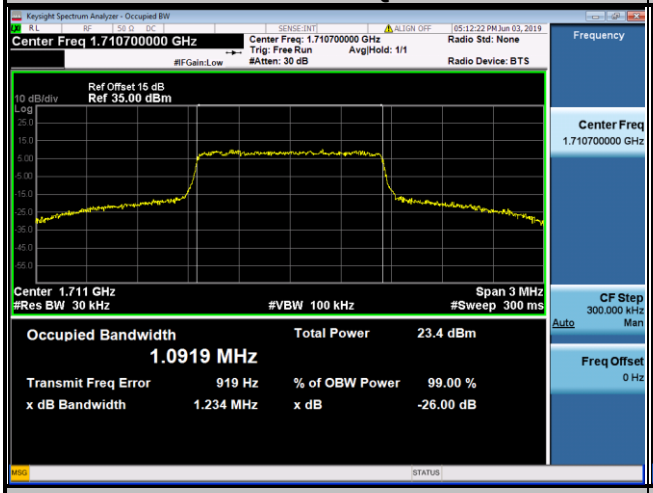
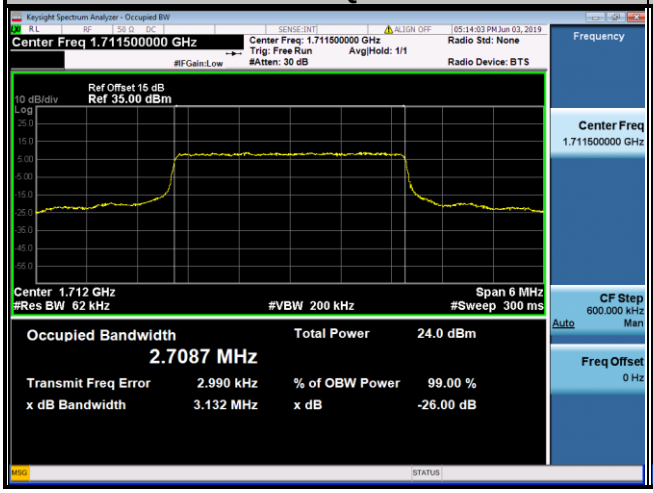
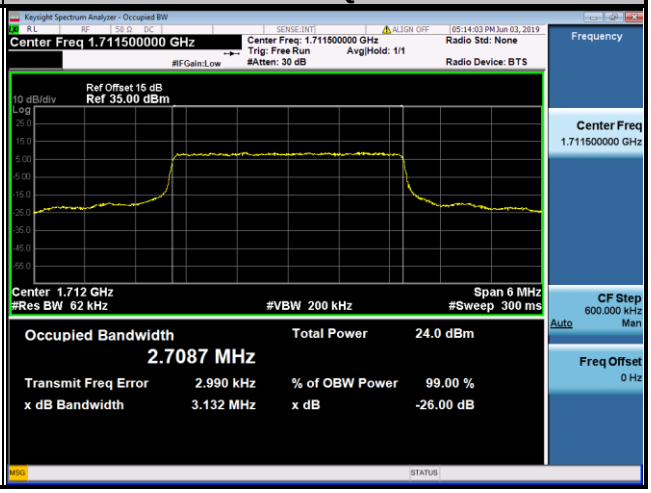
| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 19975 | 1712.5 | 4.4906 | 4.4903 | 4.5000 | 4.8550 | 4.8350 | 4.8520 |
| 20175 | 1732.5 | 4.4917 | 4.4903 | 4.4999 | 4.8640 | 4.8640 | 4.8530 |
| 20375 | 1752.5 | 4.4893 | 4.4875 | 4.5011 | 4.8420 | 4.8020 | 4.8550 |
| Channel Bandwidth: 10 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 20000 | 1715.0 | 8.9691 | 8.9709 | 8.9736 | 9.5890 | 9.5320 | 9.5380 |
| 20175 | 1732.5 | 8.9686 | 8.9736 | 8.9727 | 9.6470 | 9.5350 | 9.5340 |
| 20350 | 1750.0 | 8.9641 | 8.9731 | 8.9799 | 9.5340 | 9.5120 | 9.5330 |

| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 5 MHz / 64QAM | 5 MHz / QPSK |
|  |  |
| 10 MHz / 64QAM | 10 MHz / QPSK |
|  |  |

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 15 MHz** | | | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | | **26 dB Bandwidth (MHz)** | | |
| | | **QPSK** | **16QAM** | **64QAM** | **QPSK** | **16QAM** | **64QAM** |
| 20025 | 1717.5 | 13.460 | 13.445 | 13.445 | 14.309 | 14.265 | 14.265 |
| 20175 | 1732.5 | 13.450 | 13.441 | 13.444 | 14.344 | 14.258 | 14.268 |
| 20325 | 1747.5 | 13.460 | 13.452 | 13.451 | 14.297 | 14.250 | 14.269 |
| **Channel Bandwidth: 20 MHz** | | | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | | **26 dB Bandwidth (MHz)** | | |
| | | **QPSK** | **16QAM** | **64QAM** | **QPSK** | **16QAM** | **64QAM** |
| 20050 | 1720.0 | 17.916 | 17.939 | 17.940 | 19.101 | 19.030 | 19.041 |
| 20175 | 1732.5 | 17.898 | 17.927 | 17.934 | 19.080 | 19.036 | 19.035 |
| 20300 | 1745.0 | 17.939 | 17.959 | 17.948 | 19.098 | 19.038 | 19.041 |

| Spectrum Plot of Worst Value | |
|---|---|
| **99 % Occupied Bandwidth** | **26 dB Bandwidth** |
| **15 MHz / QPSK** | **15 MHz / QPSK** |
|  |  |
| **20 MHz / 16QAM** | **20 MHz / QPSK** |
|  |  |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 131979 | 1710.7 | 1.0909 | 1.0919 | 1.0890 | 1.2700 | 1.2340 | 1.2230 |
| 132322 | 1745.0 | 1.0884 | 1.0873 | 1.0891 | 1.2220 | 1.2190 | 1.2150 |
| 132665 | 1779.3 | 1.0873 | 1.0884 | 1.0894 | 1.2300 | 1.2210 | 1.2270 |
| Channel Bandwidth: 3 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 131987 | 1711.5 | 2.7087 | 2.7031 | 2.6971 | 3.1320 | 3.0270 | 2.9170 |
| 132322 | 1745.0 | 2.6999 | 2.6987 | 2.6981 | 2.9580 | 2.9450 | 2.9110 |
| 132657 | 1778.5 | 2.7025 | 2.6959 | 2.6976 | 2.9560 | 2.9350 | 2.9240 |

| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 1.4 MHz / 16QAM | 1.4 MHz / QPSK |
|  |  |
| 3 MHz / QPSK | 3 MHz / QPSK |
|  |  |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 131997 | 1712.5 | 4.4960 | 4.4964 | 4.5000 | 4.9670 | 4.8930 | 4.8300 |
| 132322 | 1745.0 | 4.4873 | 4.4915 | 4.4951 | 4.8310 | 4.8300 | 4.8480 |
| 132647 | 1777.5 | 4.4891 | 4.4909 | 4.5021 | 4.8460 | 4.8110 | 4.8550 |
| Channel Bandwidth: 10 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 132022 | 1715.0 | 8.9729 | 8.9739 | 8.9758 | 9.6440 | 9.5500 | 9.5470 |
| 132322 | 1745.0 | 8.9696 | 8.9692 | 8.9768 | 9.6070 | 9.5310 | 9.5410 |
| 132622 | 1775.0 | 8.9644 | 8.9757 | 8.9698 | 9.5760 | 9.5430 | 9.5370 |

| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 5 MHz / 64QAM | 5 MHz / QPSK |
|  |  |
| 10 MHz / 64QAM | 10 MHz / QPSK |
|  |  |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 132047 | 1717.5 | 13.460 | 13.449 | 13.444 | 14.365 | 14.269 | 14.269 |
| 132322 | 1745.0 | 13.455 | 13.453 | 13.446 | 14.344 | 14.280 | 14.257 |
| 132597 | 1772.5 | 13.465 | 13.453 | 13.434 | 14.370 | 14.279 | 14.242 |
| Channel Bandwidth: 20 MHz | | | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | 26 dB Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 132072 | 1720.0 | 17.923 | 17.943 | 17.938 | 19.149 | 19.033 | 19.054 |
| 132322 | 1745.0 | 17.944 | 17.967 | 17.954 | 19.159 | 19.052 | 19.042 |
| 132572 | 1770.0 | 17.960 | 17.978 | 17.943 | 19.768 | 19.143 | 19.028 |

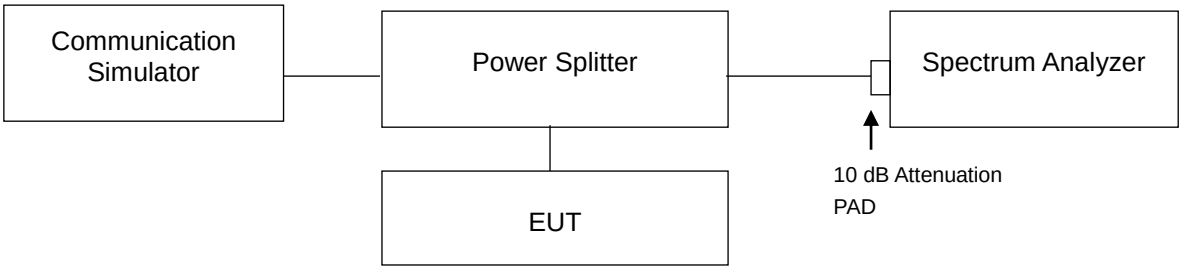
| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 15 MHz / QPSK | 15 MHz / QPSK |
|  |  |
| 20 MHz / 16QAM | 20 MHz / QPSK |
|  |  |

## 4.5 Band Edge Measurement

### 4.5.1 Limits of Band Edge Measurement

For operations in the 1710–1755 MHz and 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB.

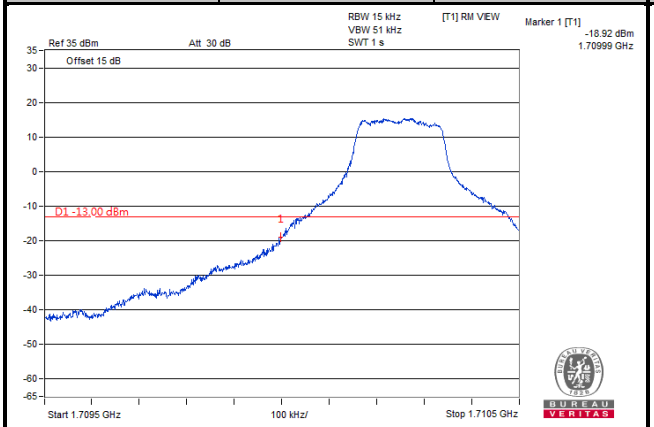
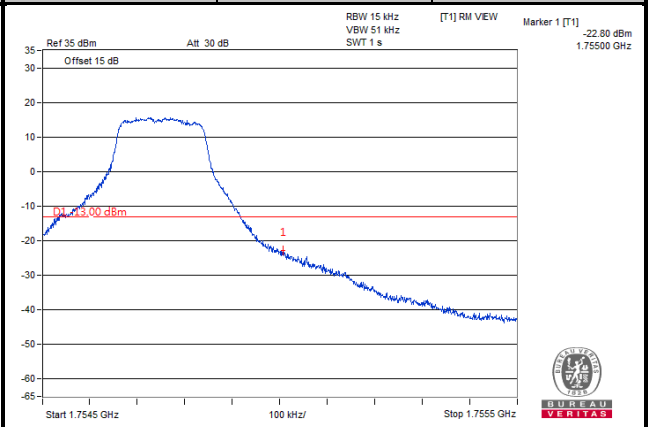
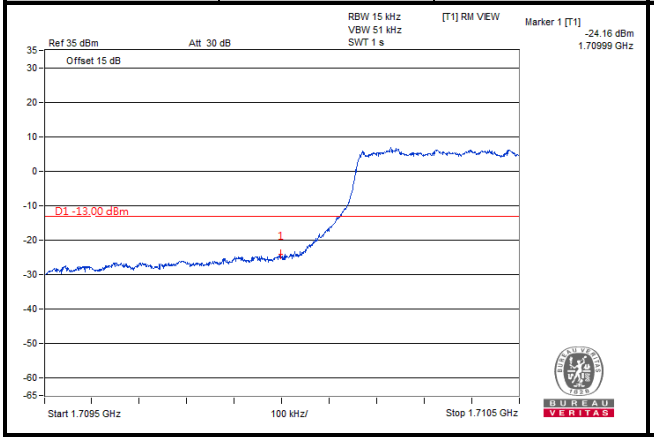
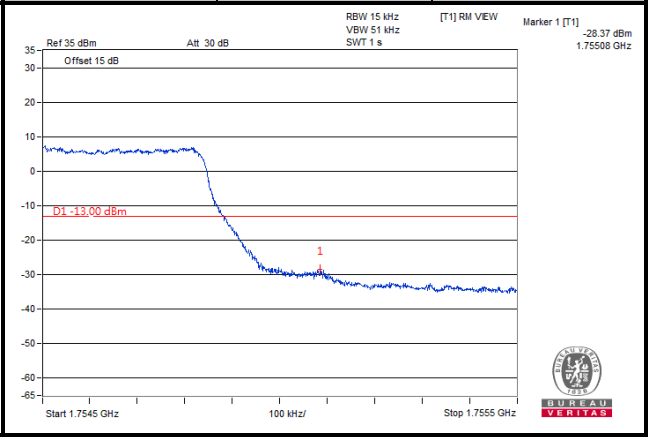
### 4.5.2 Test Setup

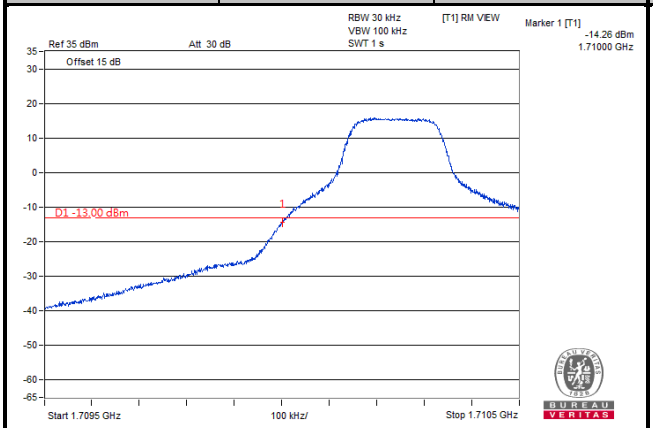
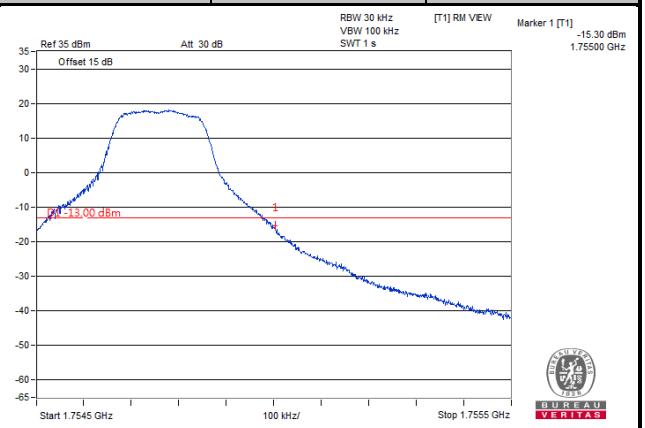
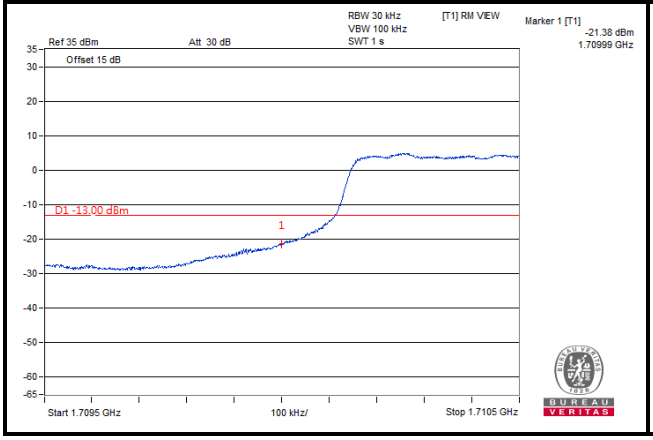
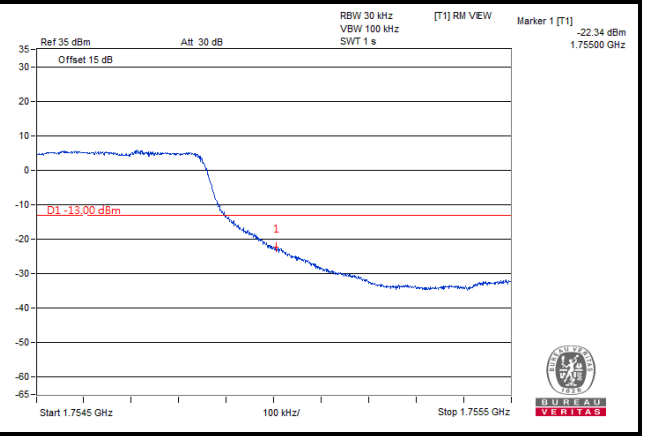


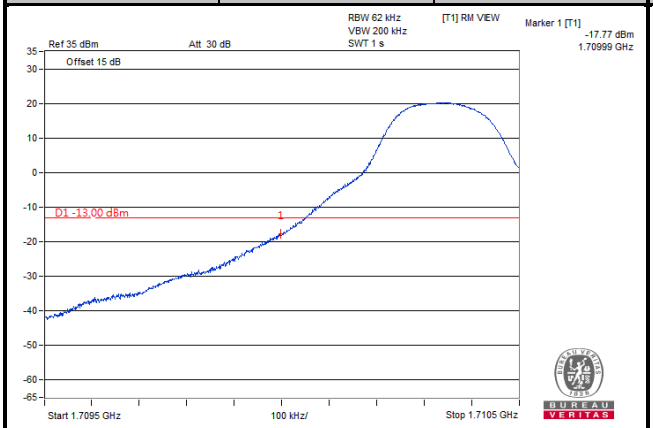
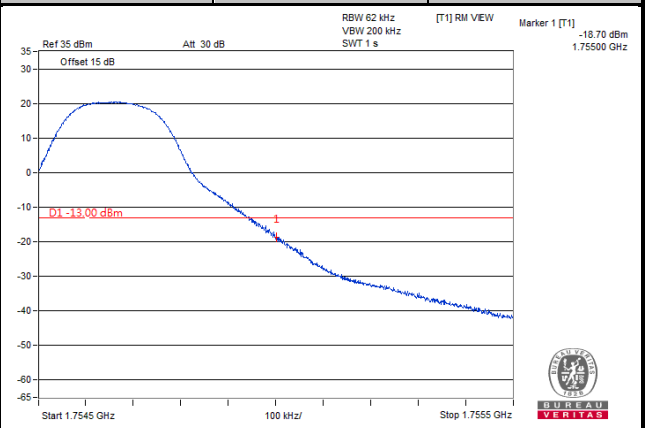
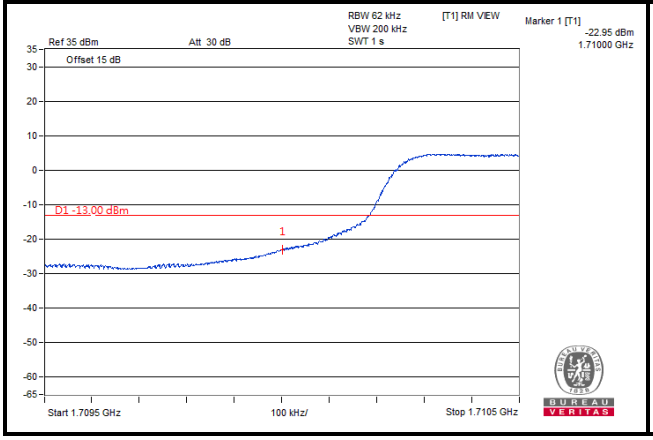
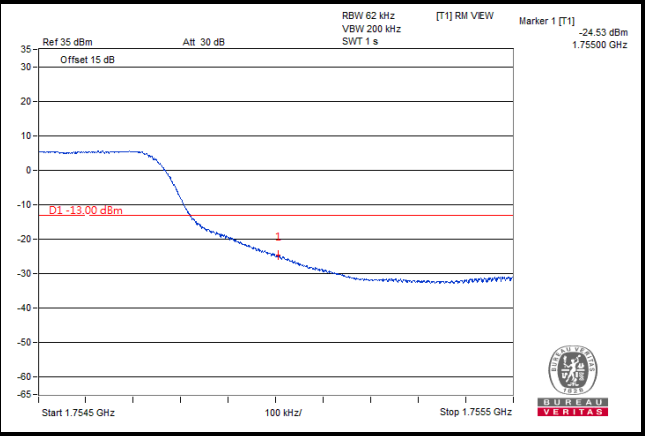

### 4.5.3 Test Procedures

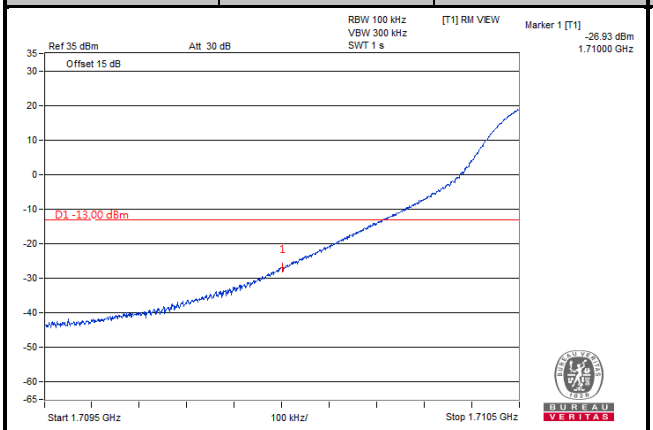
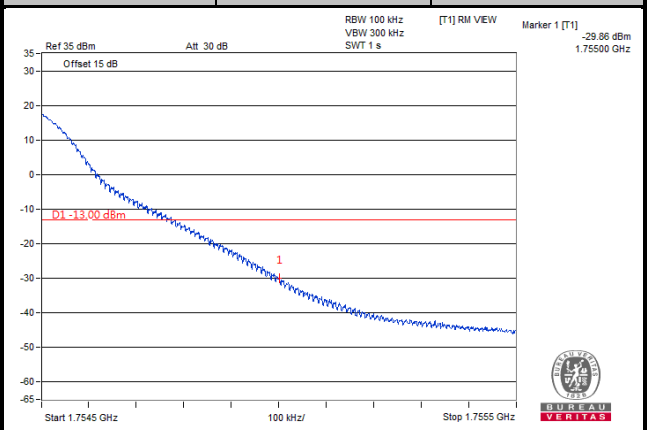
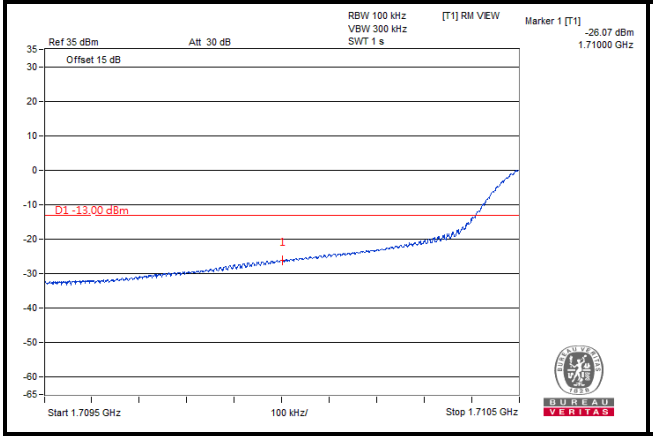
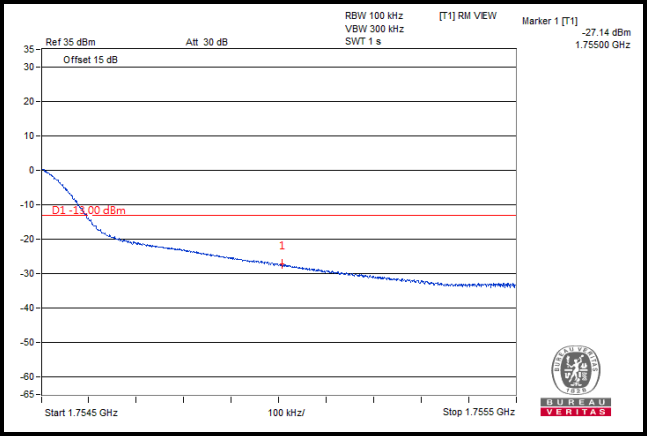
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 15 kHz and VB of the spectrum is 51 kHz (LTE Bandwidth 1.4 MHz).
c. The center frequency of spectrum is the band edge frequency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

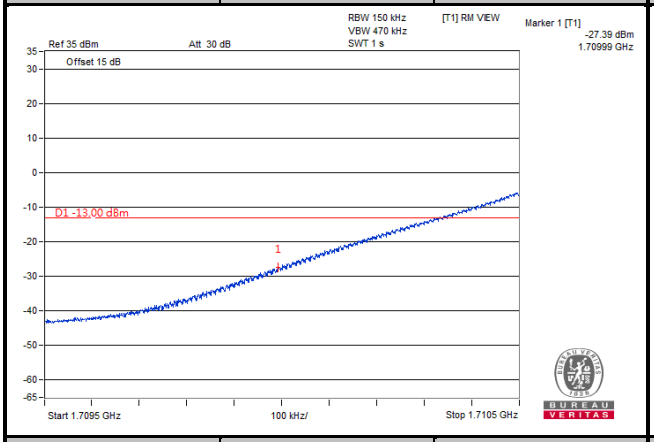
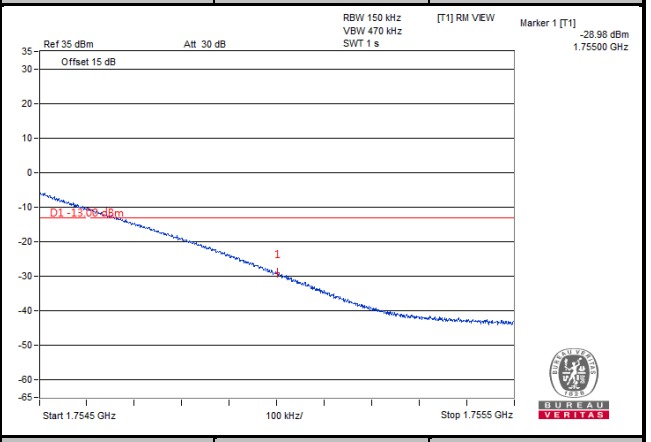
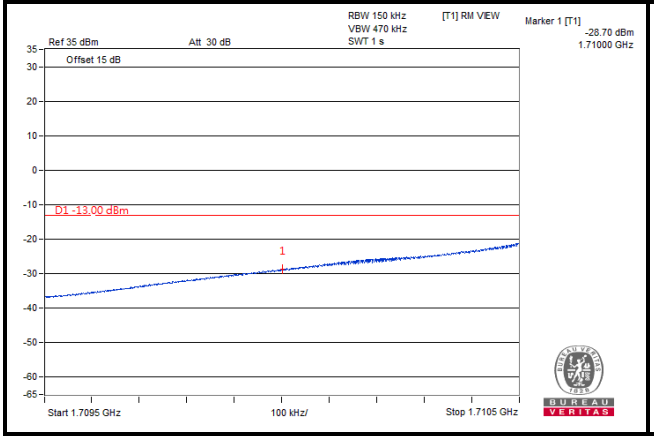
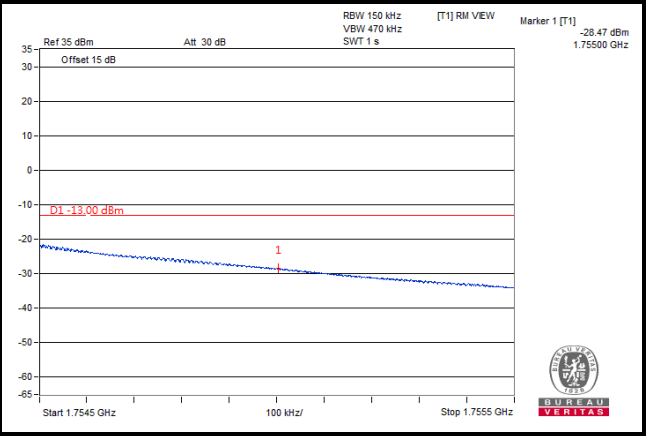
## 4.5.4 Test Results

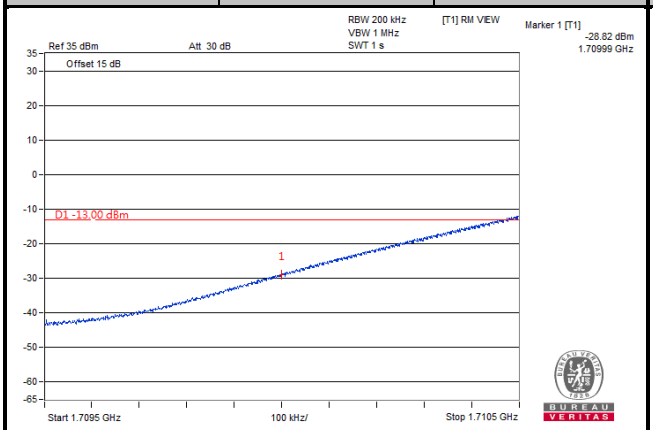
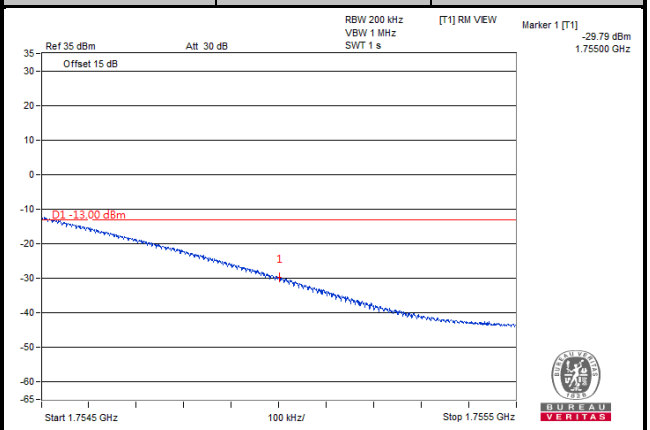
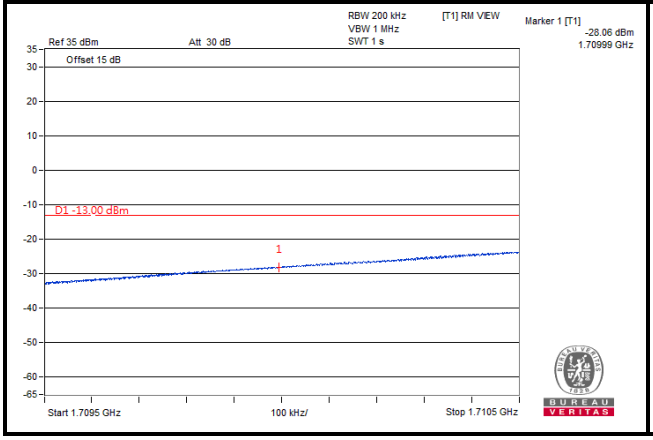
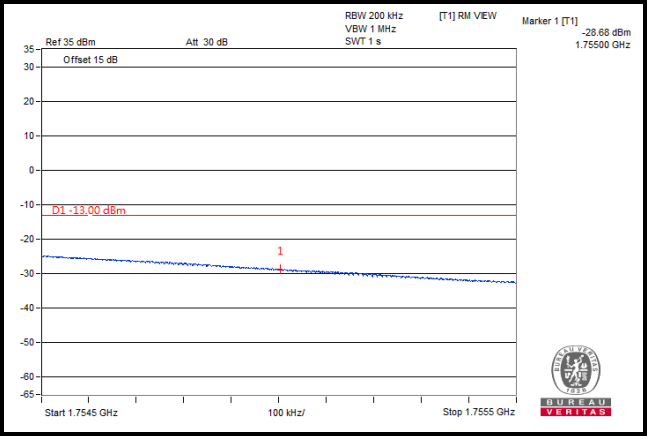
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 19957 | 1 RB | Channel | 20393 | 1 RB |
|  | | |  | | |
| Channel | 19957 | 6 RB | Channel | 20393 | 6 RB |
|  | | |  | | |

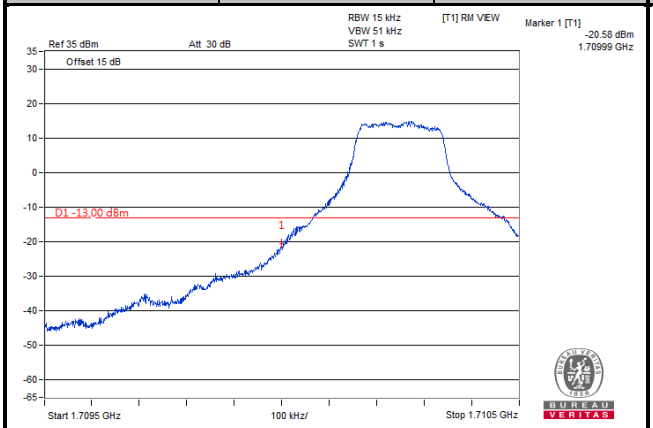
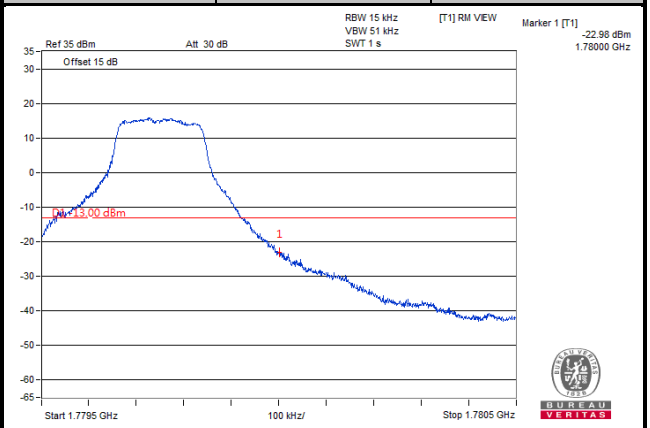
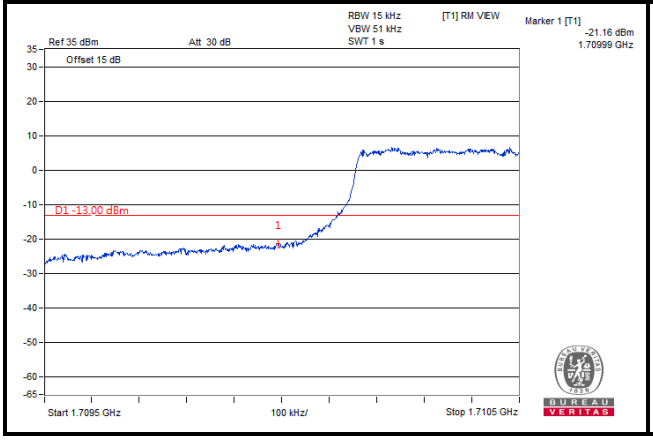
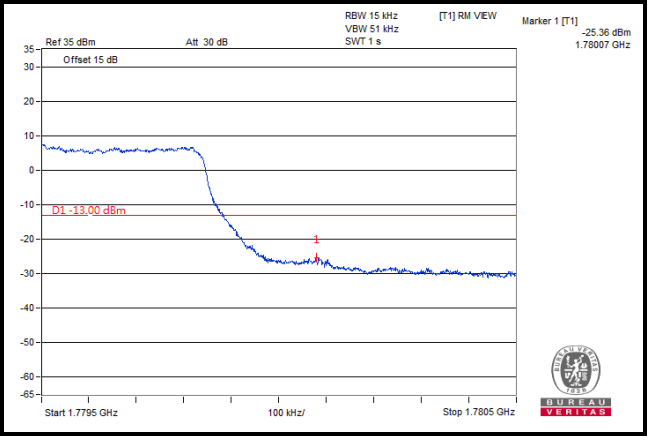
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 19965 | 1 RB | Channel | 20385 | 1 RB |
|  | | |  | | |
| Channel | 19965 | 15 RB | Channel | 20385 | 15 RB |
|  | | |  | | |

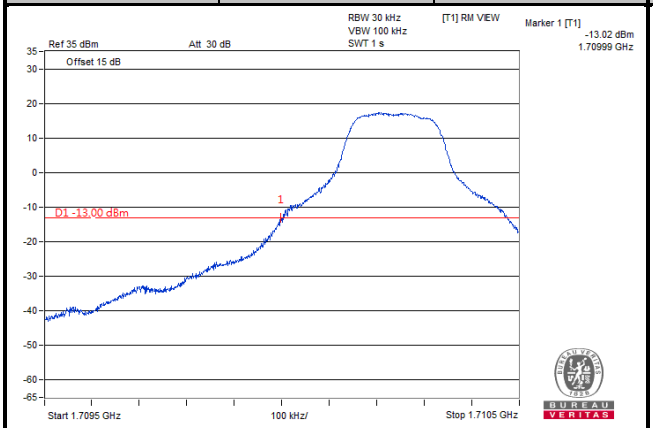
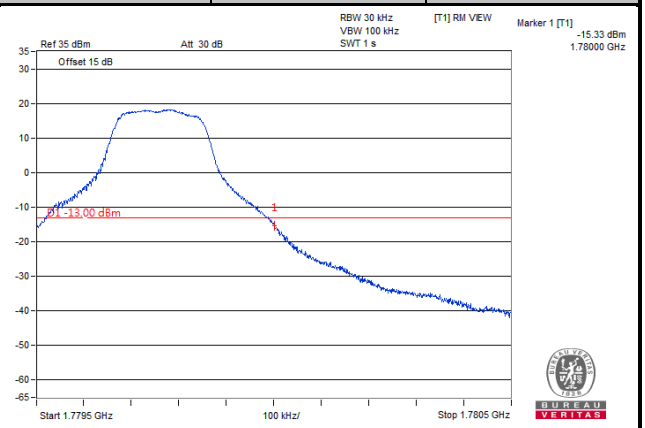
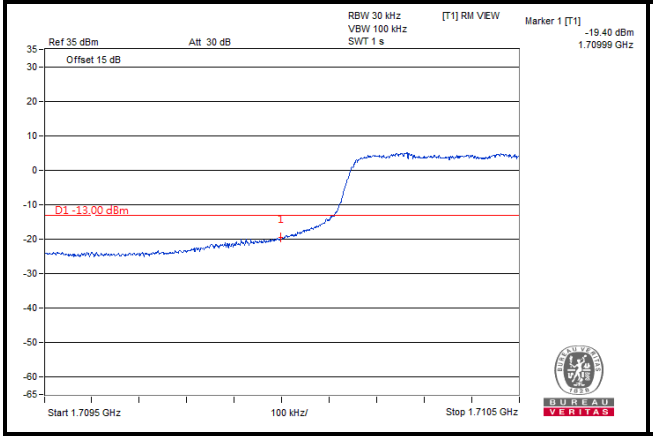
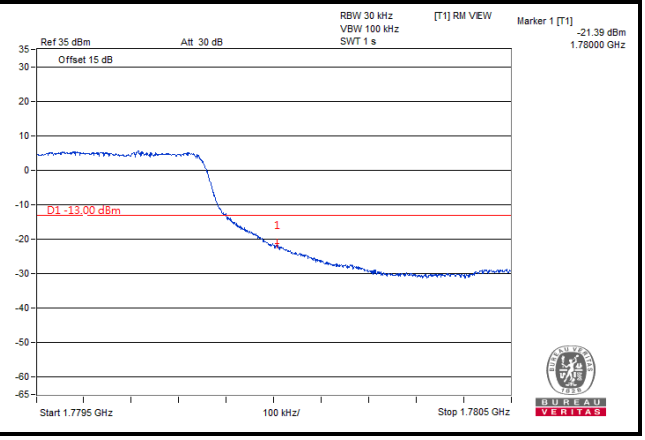
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 19975 | 1 RB | Channel | 20375 | 1 RB |
|  | | |  | | |
| Channel | 19975 | 25 RB | Channel | 20375 | 25 RB |
|  | | |  | | |

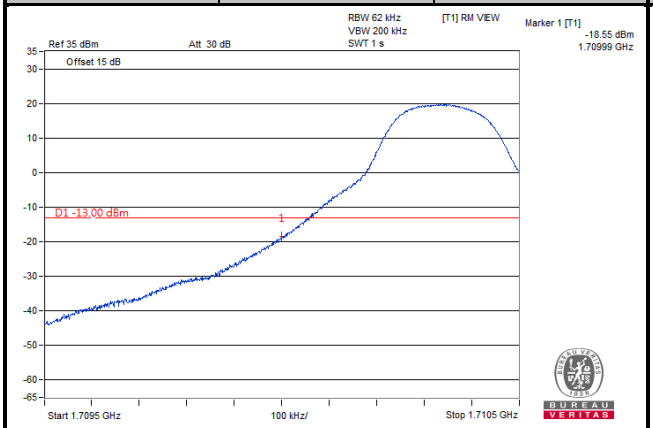
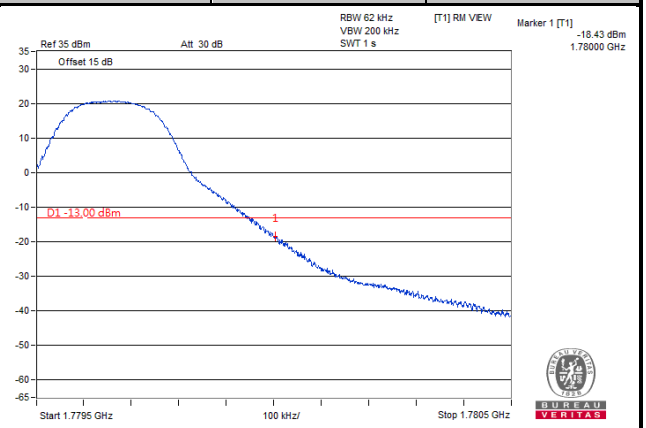
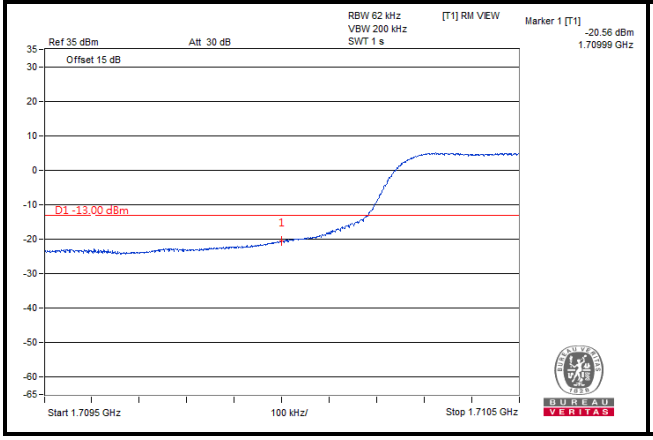
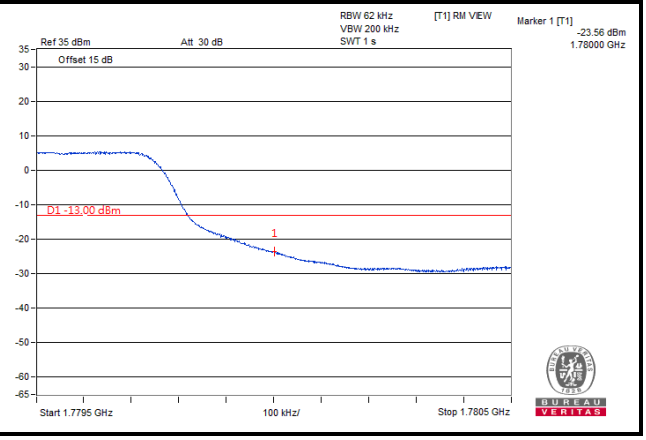
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 20000 | 1 RB | Channel | 20350 | 1 RB |
|  | | |  | | |
| Channel | 20000 | 50 RB | Channel | 20350 | 50 RB |
|  | | |  | | |

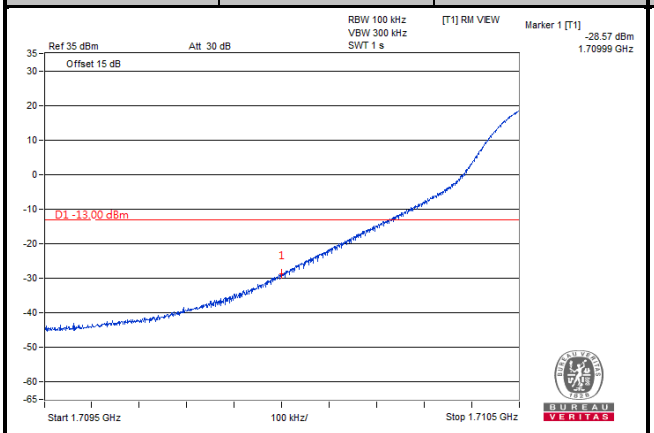
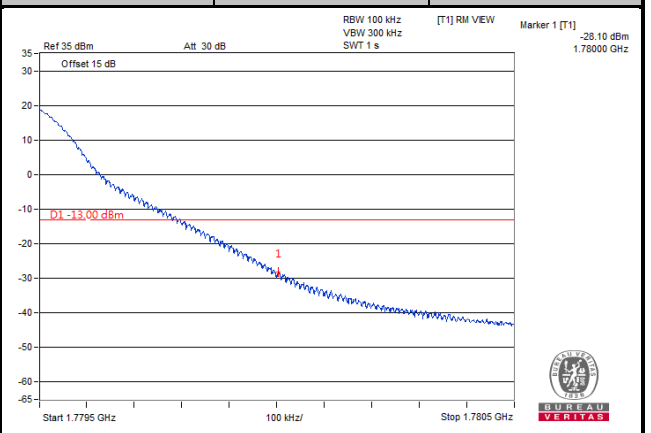
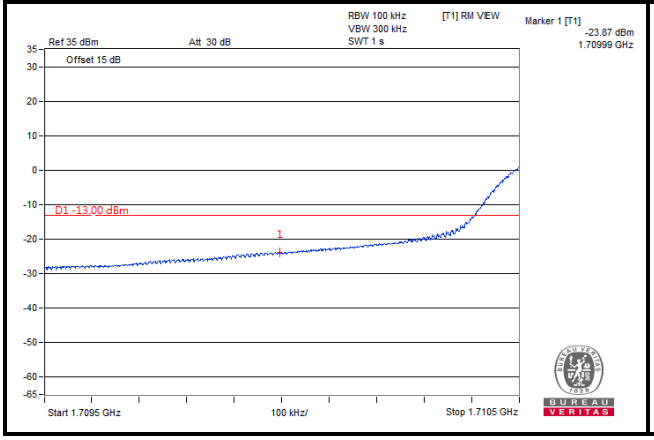
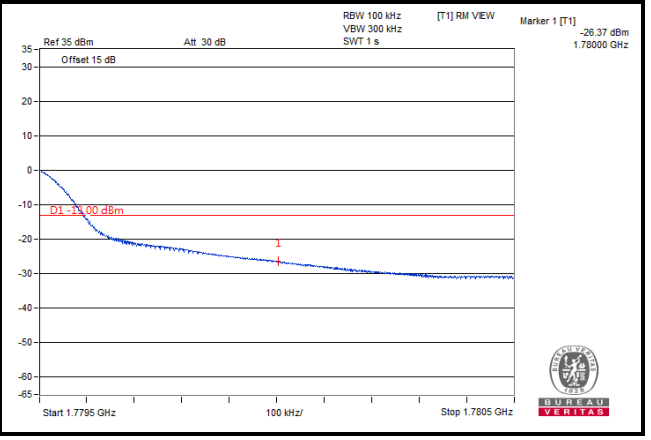
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | 20025 | 1 RB | Channel | 20325 | 1 RB |
|  | | |  | | |
| Channel | 20025 | 75 RB | Channel | 20325 | 75 RB |
|  | | |  | | |

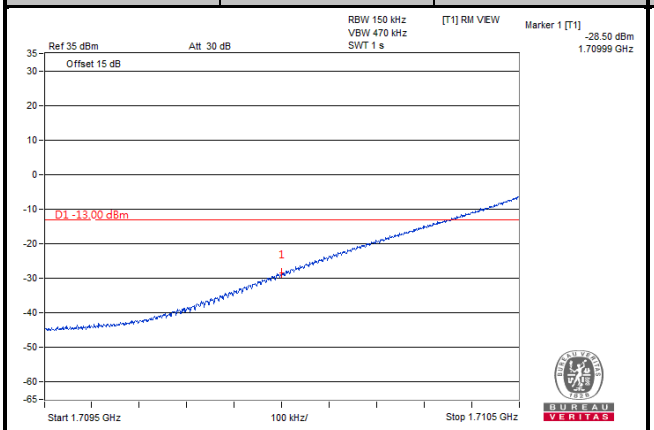
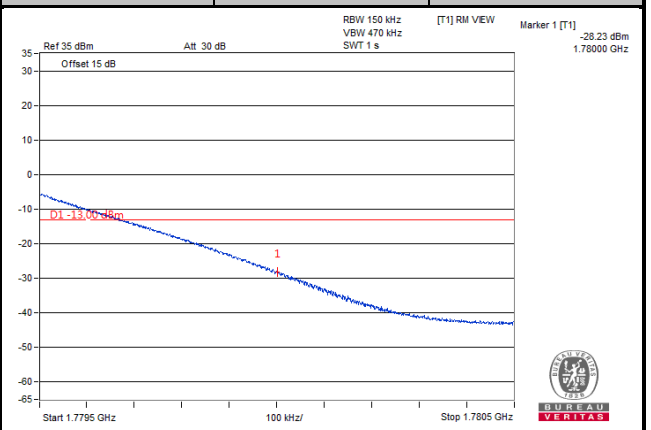
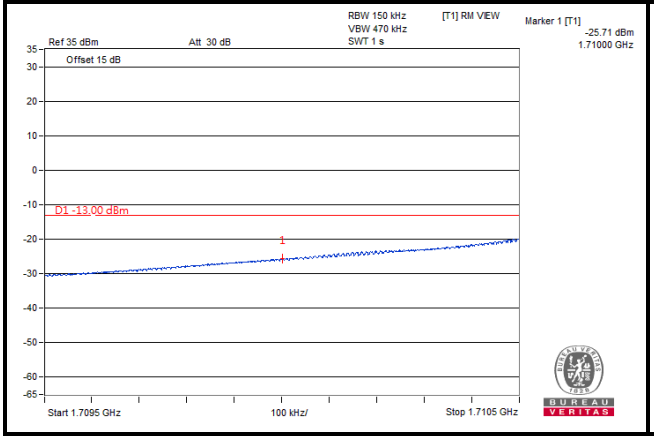
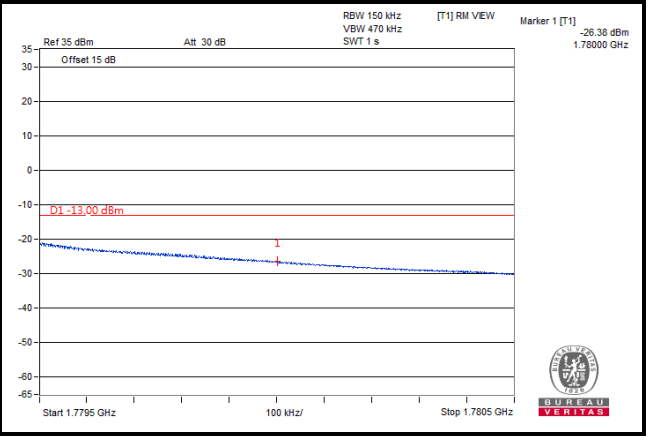
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | 20050 | 1 RB | Channel | 20300 | 1 RB |
|  | | |  | | |
| Channel | 20050 | 100 RB | Channel | 20300 | 100 RB |
|  | | |  | | |

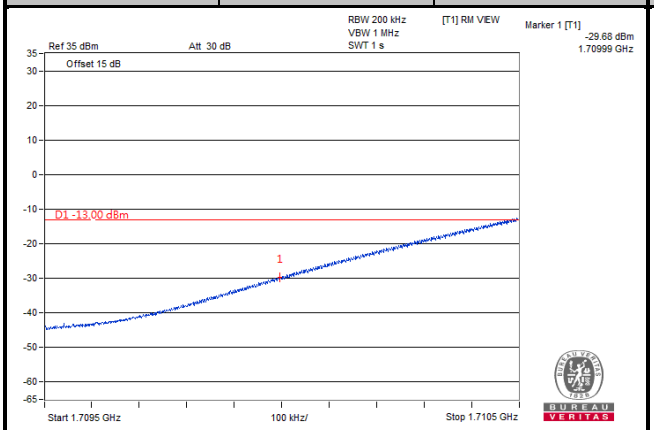
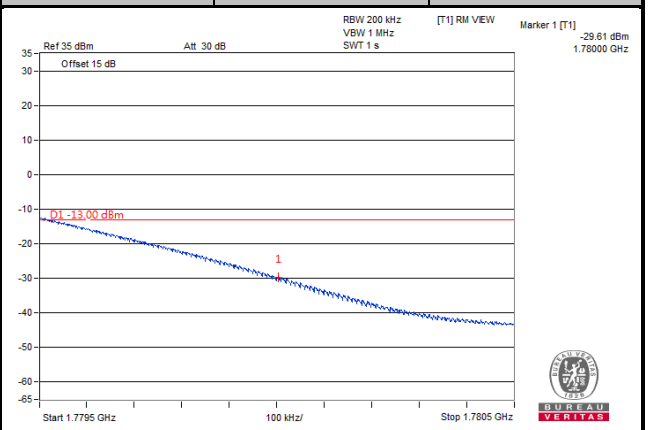
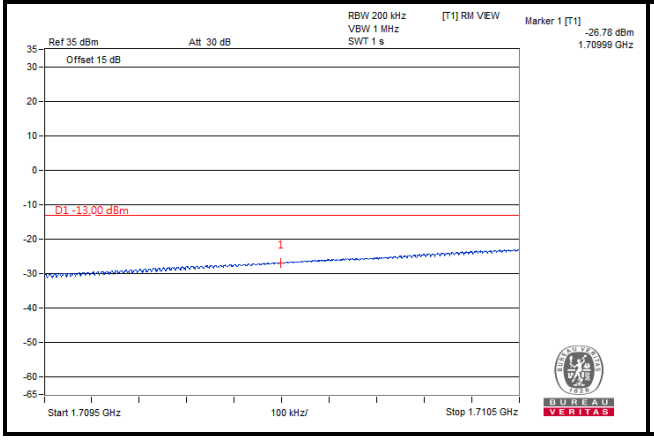
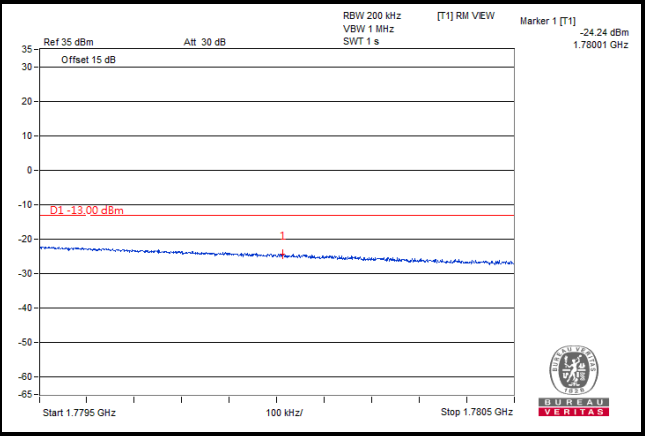
| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 131979 | 6 RB | Channel | 132665 | 6 RB |
|  | | |  | | |
| Channel | 131979 | 25 RB | Channel | 132665 | 25 RB |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 131987 | 1 RB | Channel | 132657 | 1 RB |
|  | | |  | | |
| Channel | 131987 | 15 RB | Channel | 132657 | 15 RB |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 131997 | 1 RB | Channel | 132647 | 1 RB |
|  | | |  | | |
| Channel | 131997 | 25 RB | Channel | 132647 | 25 RB |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 132022 | 1 RB | Channel | 132622 | 1 RB |
|  | | |  | | |
| Channel | 132022 | 50 RB | Channel | 132622 | 50 RB |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | 132047 | 1 RB | Channel | 132597 | 1 RB |
|  | | |  | | |
| Channel | 132047 | 75 RB | Channel | 132597 | 75 RB |
|  | | |  | | |

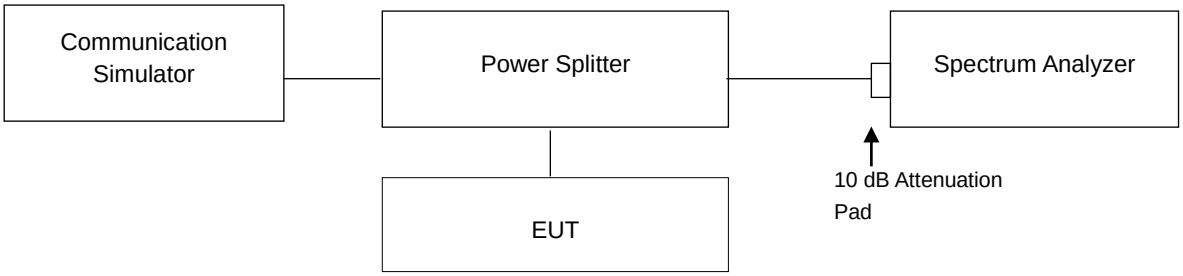
| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | 132072 | 1 RB | Channel | 132572 | 1 RB |
|  | | |  | | |
| Channel | 132072 | 100 RB | Channel | 132572 | 100 RB |
|  | | |  | | |

## 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



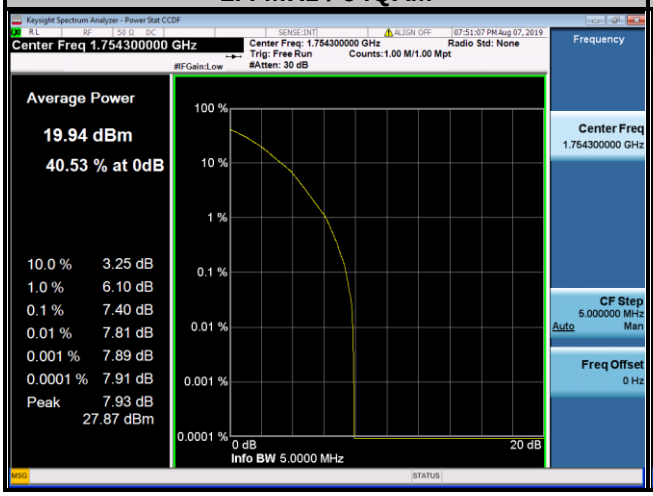

### 4.6.3 Test Procedures

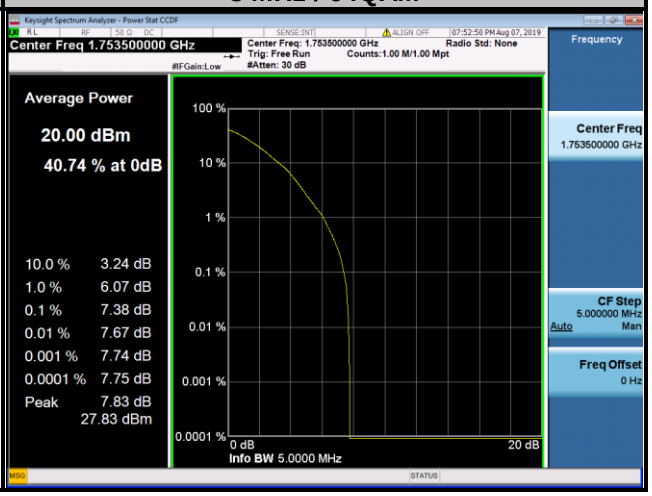
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

| LTE Band 4 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 19957 | 1710.7 | 2.06 | 2.95 | 5.79 | 19965 | 1711.5 | 2.03 | 2.92 | 5.75 |
| 20175 | 1732.5 | 2.79 | 3.84 | 6.17 | 20175 | 1732.5 | 3.01 | 4.18 | 6.35 |
| 20393 | 1754.3 | 3.40 | 4.73 | 7.40 | 20385 | 1753.5 | 3.19 | 4.54 | 7.38 |

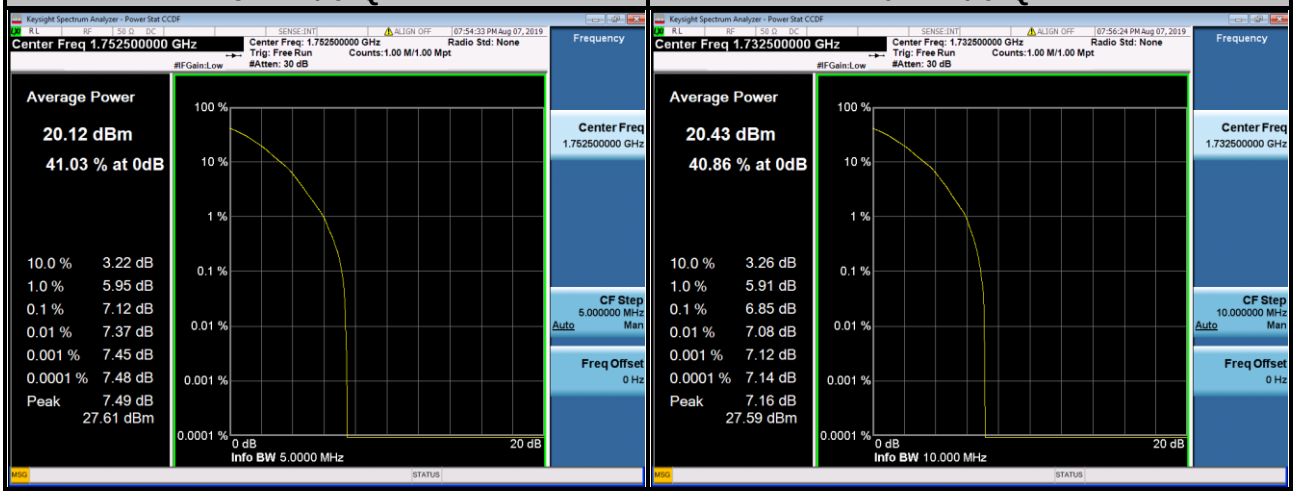
| Spectrum Plot of Worst Value | |
|---|---|
| 1.4 MHz / 64QAM | 3 MHz / 64QAM |



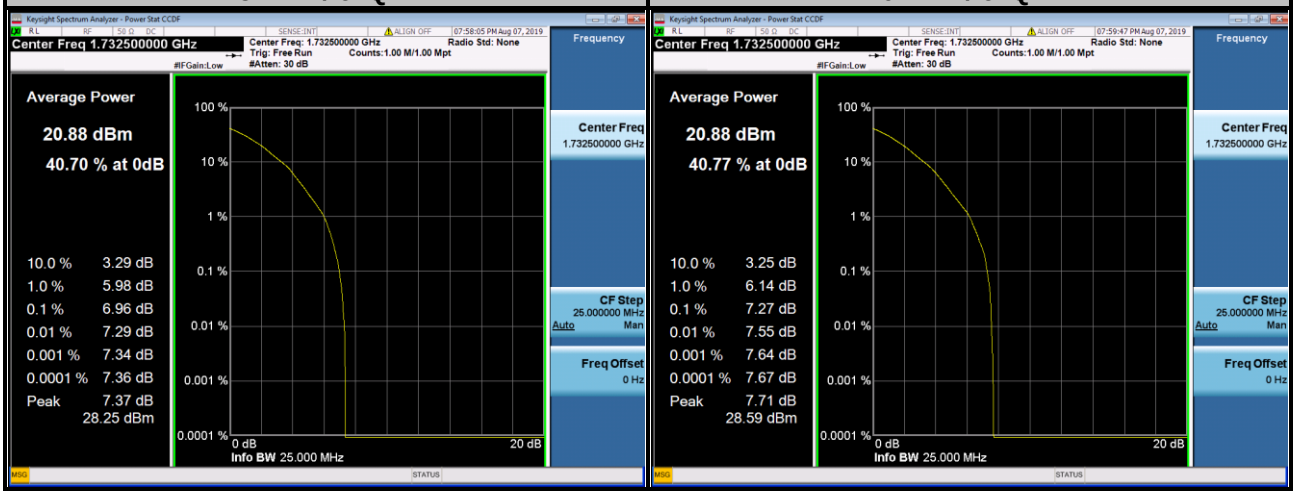
| LTE Band 4 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | Channel Bandwidth: 10 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 19975 | 1712.5 | 2.11 | 3.02 | 5.71 | 20000 | 1715.0 | 4.51 | 5.53 | 5.72 |
| 20175 | 1732.5 | 2.90 | 4.03 | 6.49 | 20175 | 1732.5 | 4.33 | 5.30 | 6.85 |
| 20375 | 1752.5 | 3.13 | 4.42 | 7.12 | 20350 | 1750.0 | 2.79 | 4.02 | 6.26 |

| Spectrum Plot of Worst Value | |
|---|---|
| 5 MHz / 64QAM | 10 MHz / 64QAM |

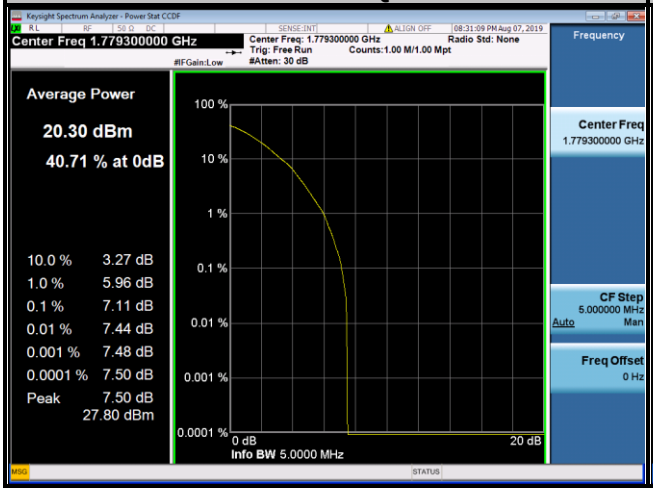
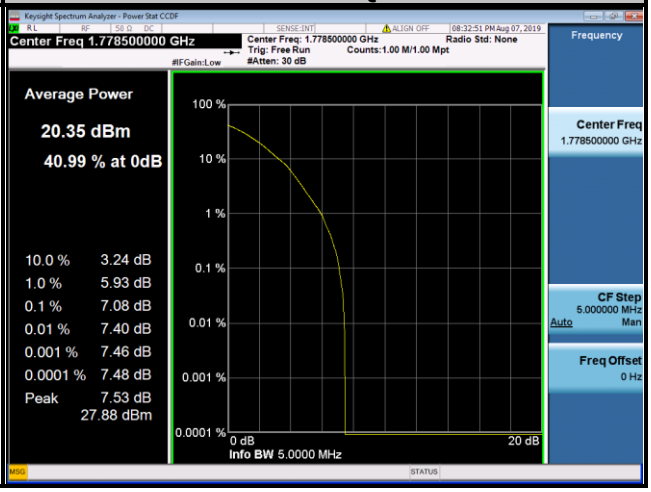


| LTE Band 4 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | Channel Bandwidth: 20 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 20025 | 1717.5 | 2.19 | 3.13 | 5.62 | 20050 | 1720.0 | 2.32 | 3.29 | 5.63 |
| 20175 | 1732.5 | 3.05 | 4.37 | 6.96 | 20175 | 1732.5 | 3.20 | 4.62 | 7.27 |
| 20325 | 1747.5 | 2.95 | 4.15 | 5.74 | 20300 | 1745.0 | 2.97 | 4.17 | 5.74 |

| Spectrum Plot of Worst Value | |
|---|---|
| 15 MHz / 64QAM | 20 MHz / 64QAM |

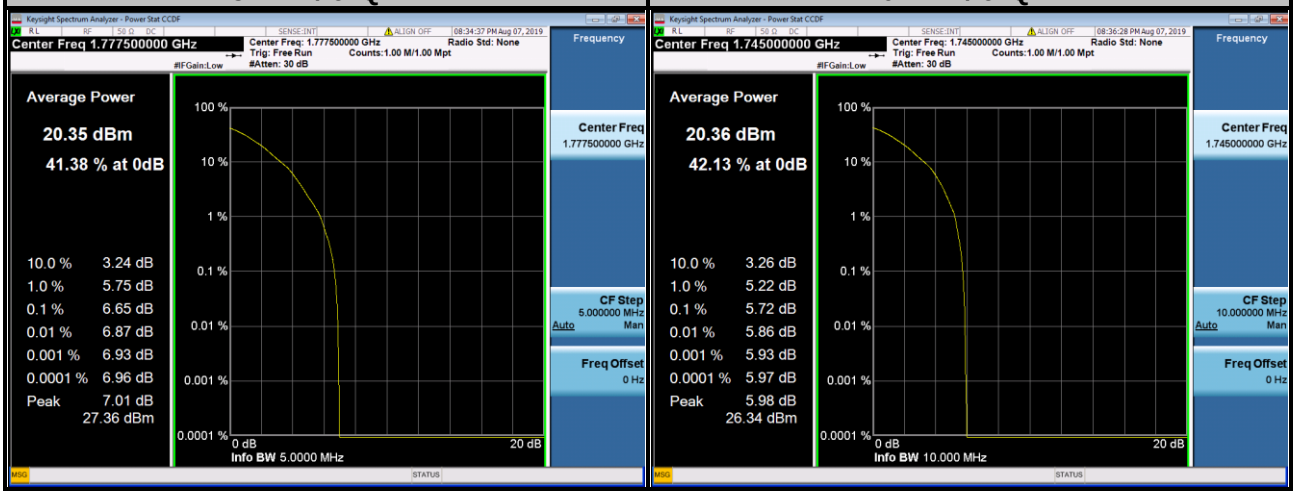


| LTE Band 66 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 131979 | 1710.7 | 2.33 | 3.29 | 5.77 | 131987 | 1711.5 | 2.29 | 3.26 | 5.73 |
| 132322 | 1745.0 | 3.01 | 4.14 | 6.07 | 132322 | 1745.0 | 2.91 | 4.06 | 5.85 |
| 132665 | 1779.3 | 3.17 | 4.43 | 7.11 | 132657 | 1778.5 | 3.13 | 4.46 | 7.08 |

| Spectrum Plot of Worst Value | |
|---|---|
| 1.4 MHz / 64QAM | 3 MHz / 64QAM |
|  |  |

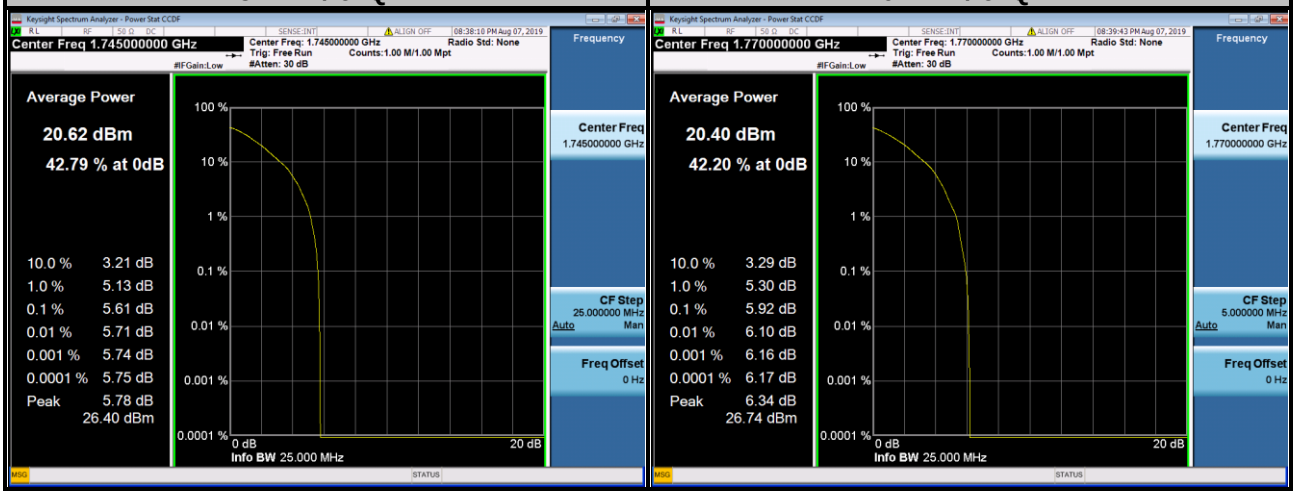
| LTE Band 66 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | Channel Bandwidth: 10 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 131997 | 1712.5 | 2.38 | 3.35 | 5.69 | 132022 | 1715.0 | 2.39 | 3.38 | 5.67 |
| 132322 | 1745.0 | 2.92 | 4.07 | 5.94 | 132322 | 1745.0 | 2.74 | 3.82 | 5.72 |
| 132647 | 1777.5 | 3.21 | 4.51 | 6.65 | 132622 | 1775.0 | 2.45 | 3.42 | 5.33 |

| Spectrum Plot of Worst Value | |
|---|---|
| 5 MHz / 64QAM | 10 MHz / 64QAM |



| LTE Band 66 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | Channel Bandwidth: 20 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 132047 | 1717.5 | 2.43 | 3.49 | 5.54 | 132072 | 1720.0 | 2.50 | 3.57 | 5.63 |
| 132322 | 1745.0 | 2.66 | 3.74 | 5.61 | 132322 | 1745.0 | 2.67 | 3.82 | 5.69 |
| 132597 | 1772.5 | 2.22 | 3.17 | 5.25 | 132572 | 1770.0 | 2.62 | 3.75 | 5.92 |

| Spectrum Plot of Worst Value | |
|---|---|
| 15 MHz / 64QAM | 20 MHz / 64QAM |

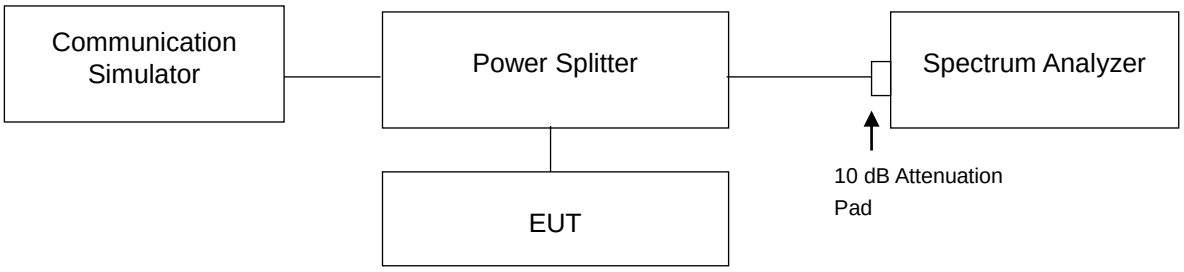


## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.

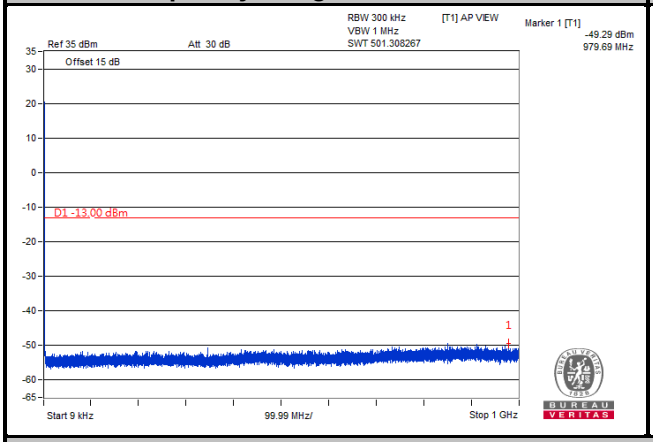
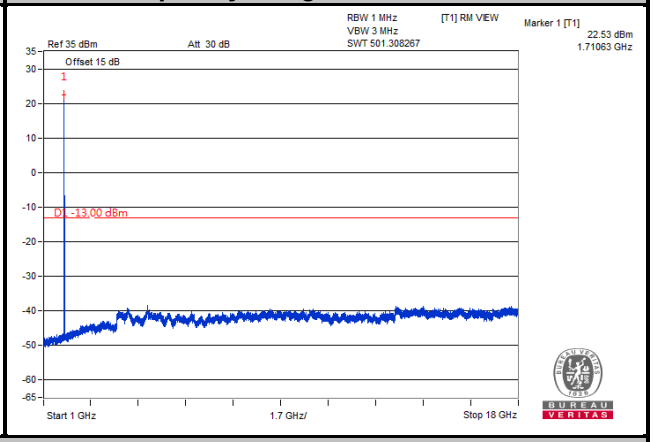
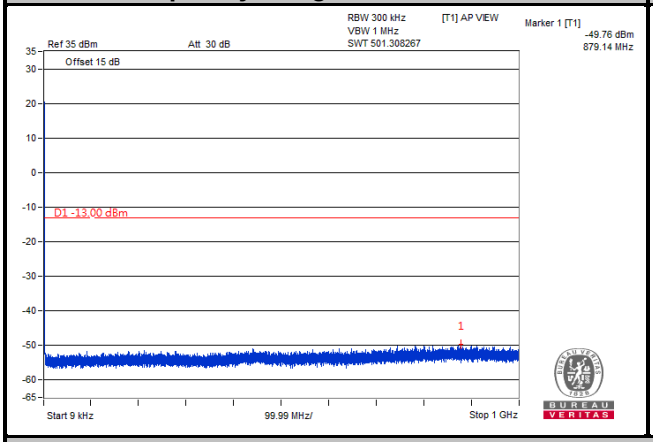
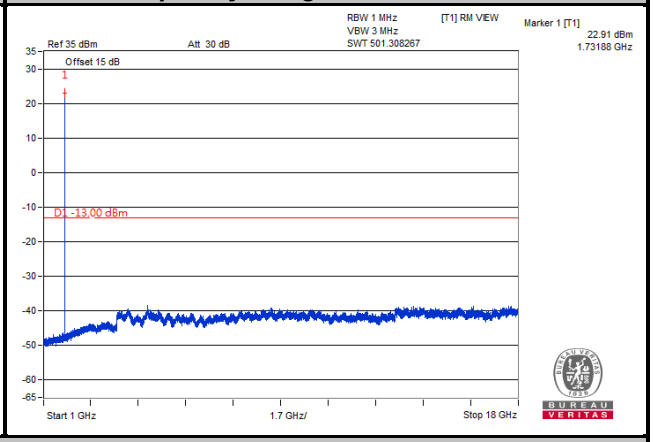
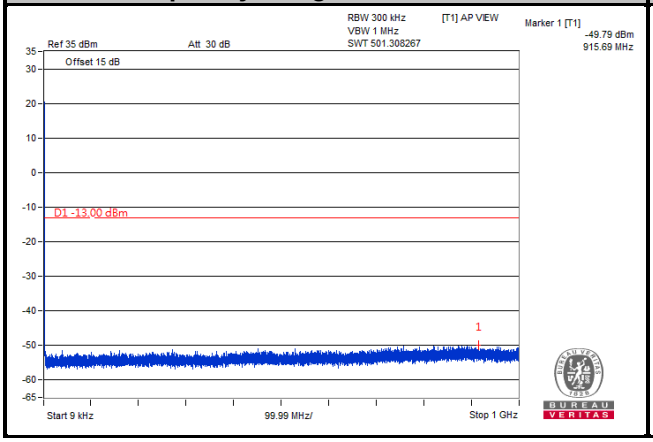
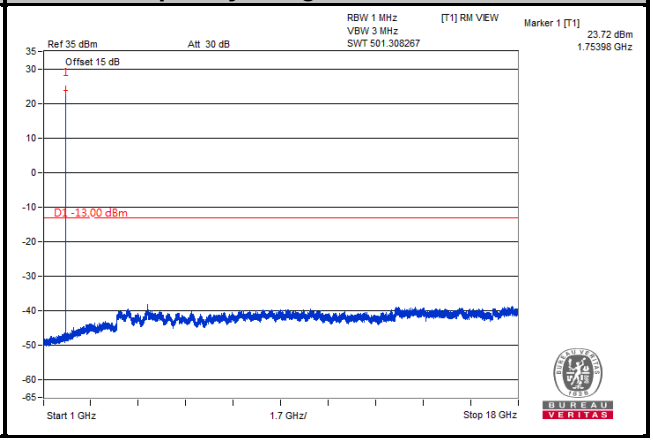
### 4.7.2 Test Setup




### 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 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 300 kHz and VBW = 1 MHz is used for conducted emission measurement.
c. Measuring frequency range is from 1 GHz to 18 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.
d. Spectrum RBW settings are referenced to ANSI C63.26 section 5.7.2.

## 4.7.4 Test Results

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 1.4 MHz | |
| Channel 19957 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20393 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |





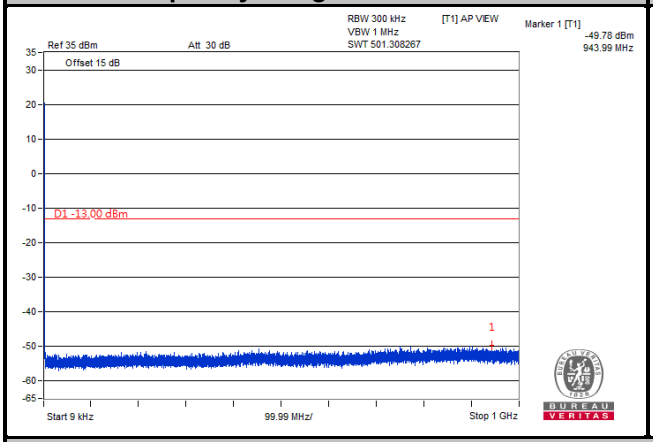
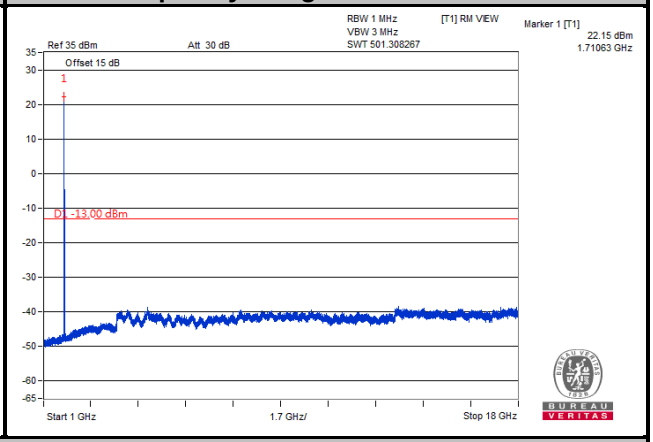
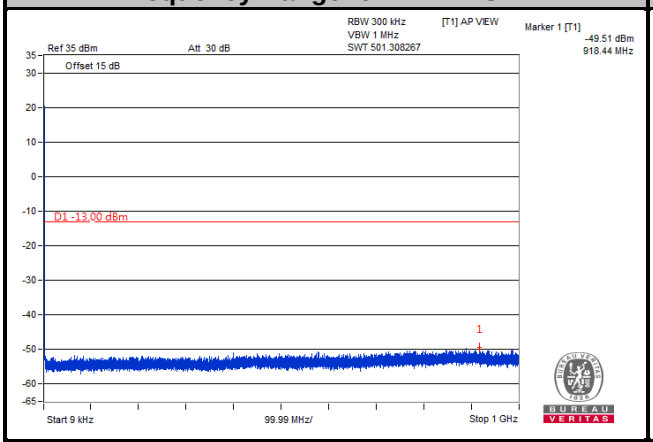
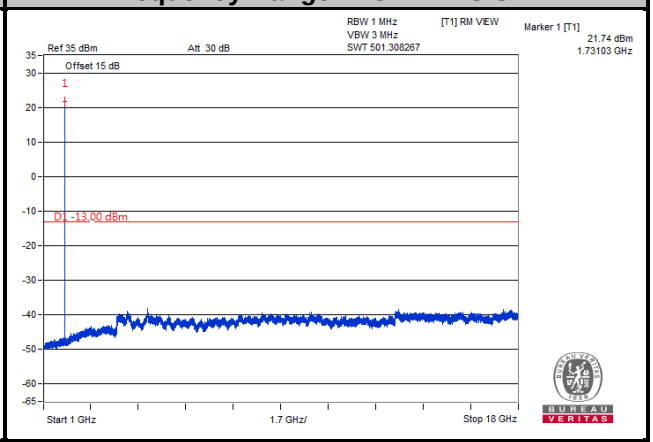
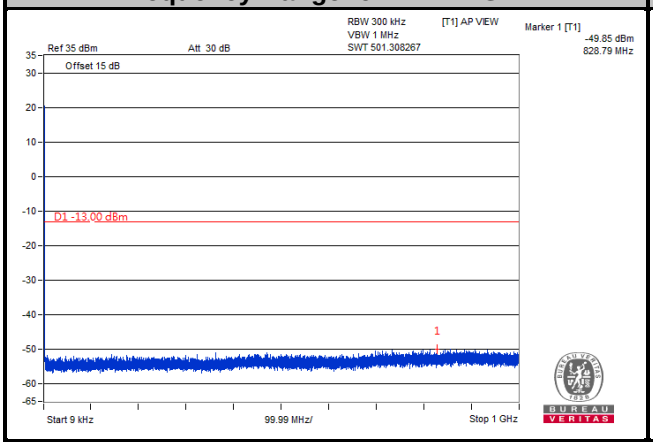
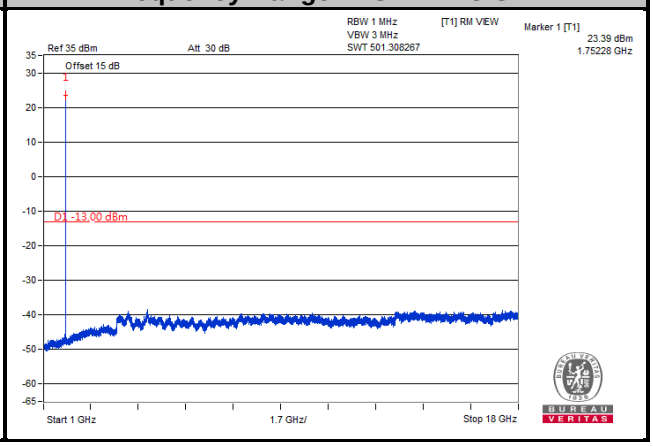




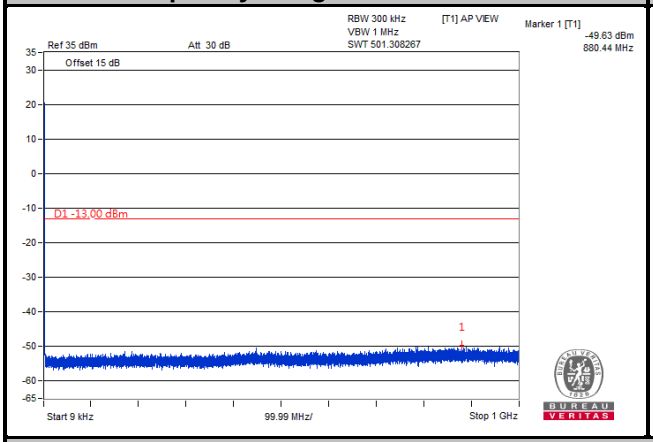
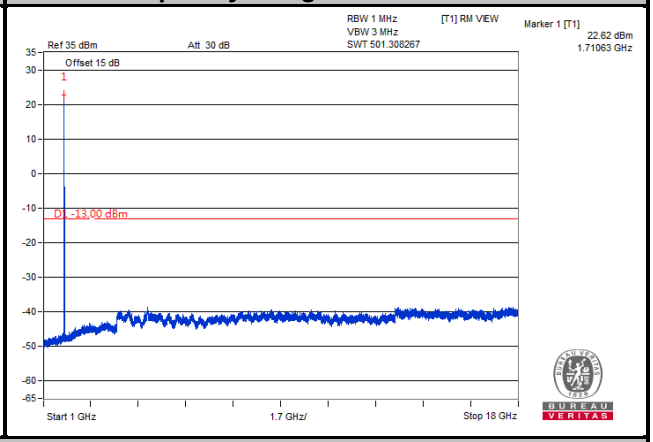
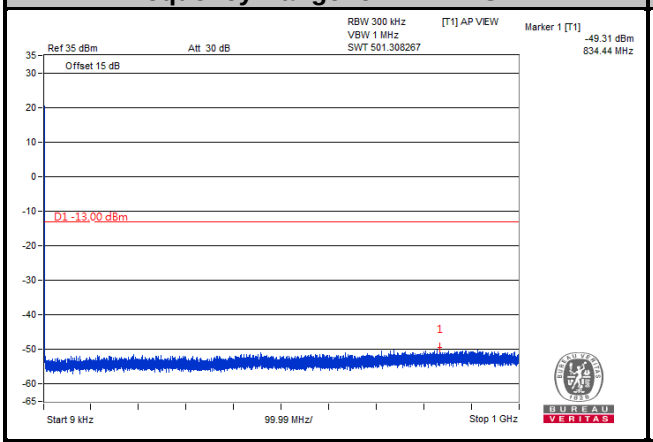
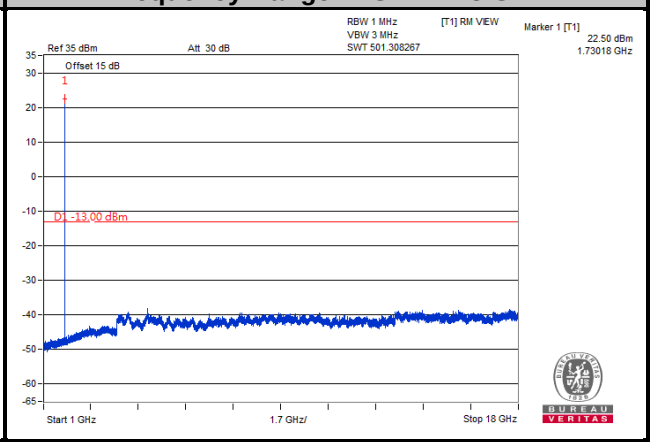
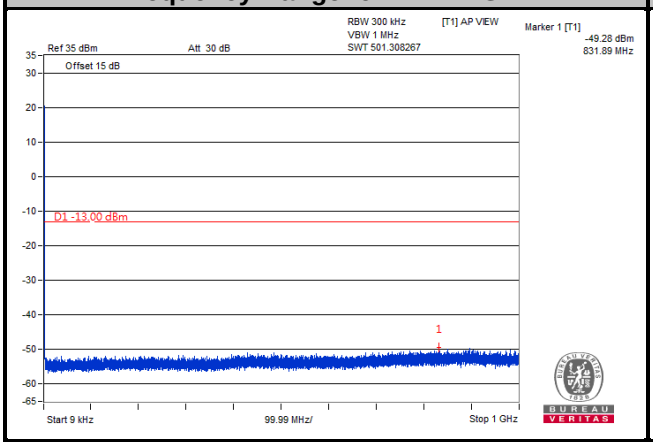
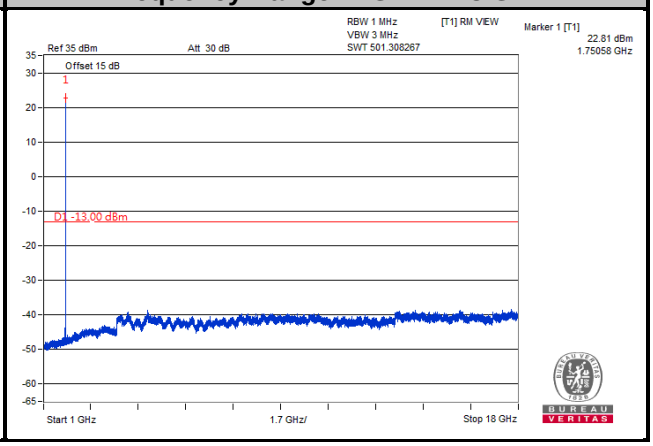




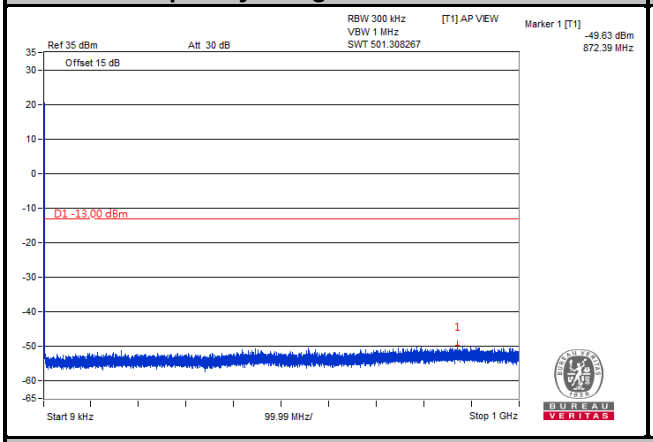
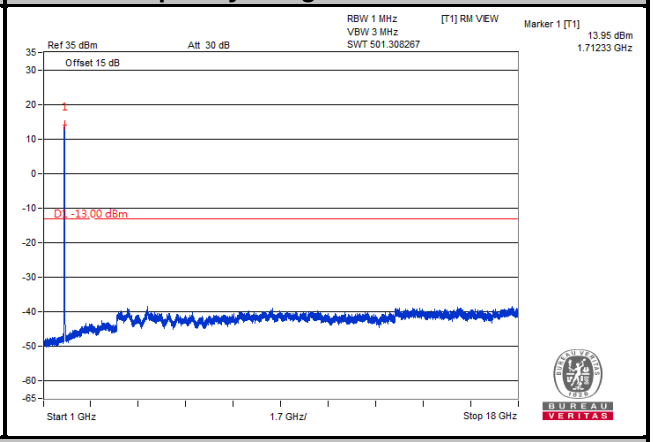
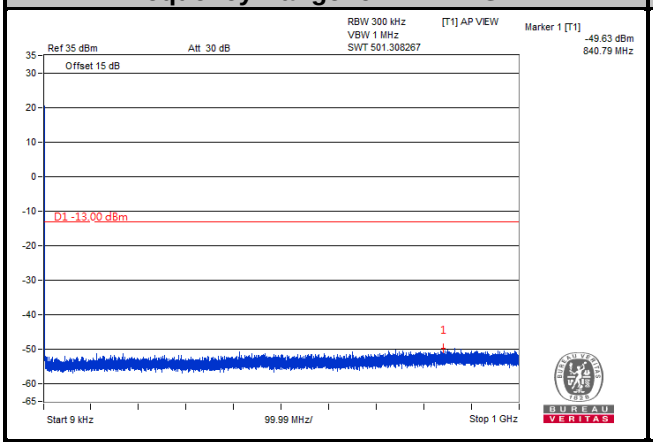
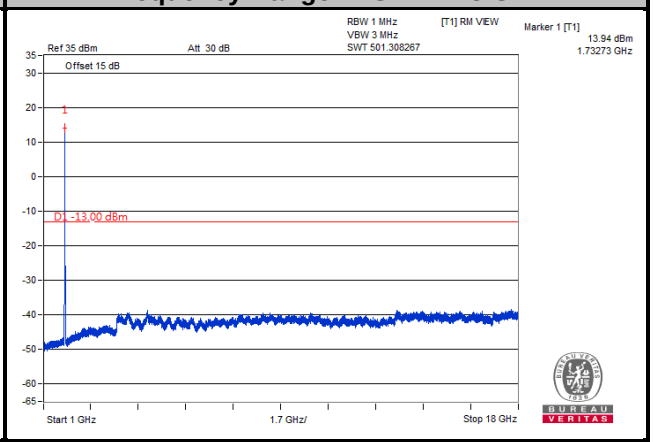
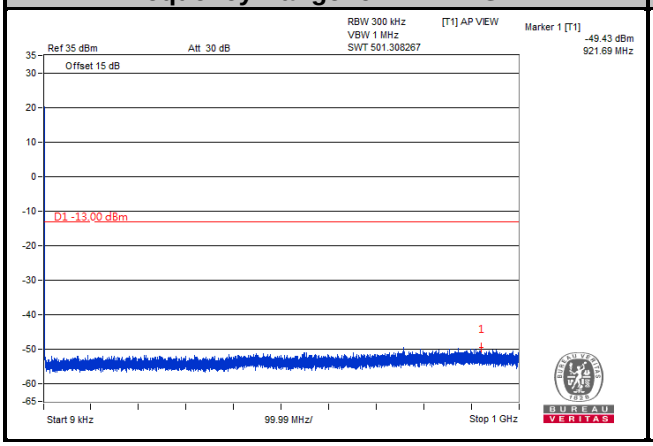
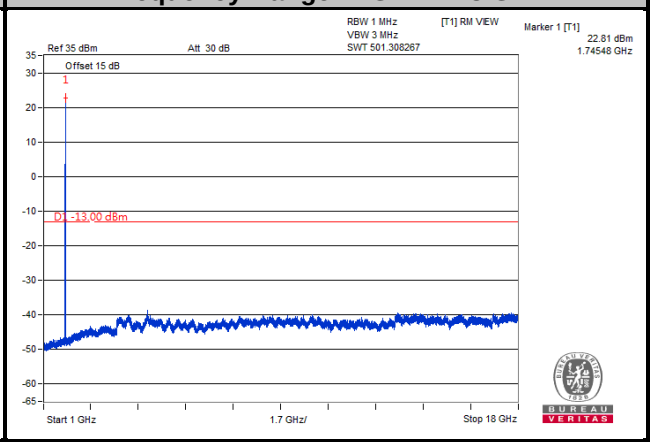
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 3 MHz | |
| Channel 19965 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20385 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

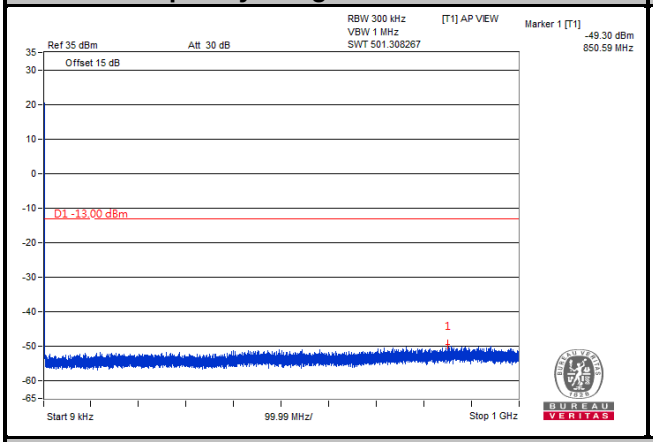
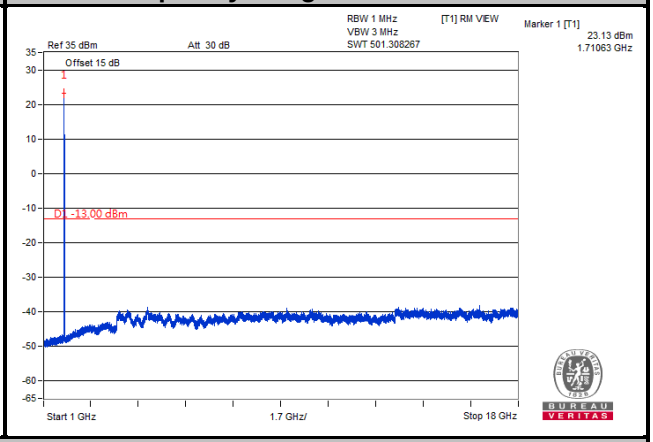
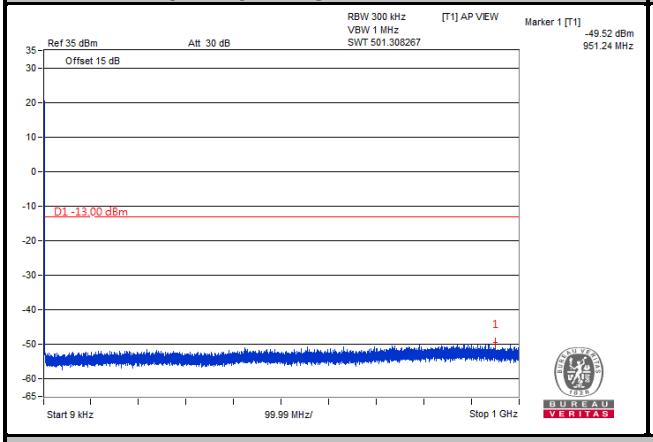
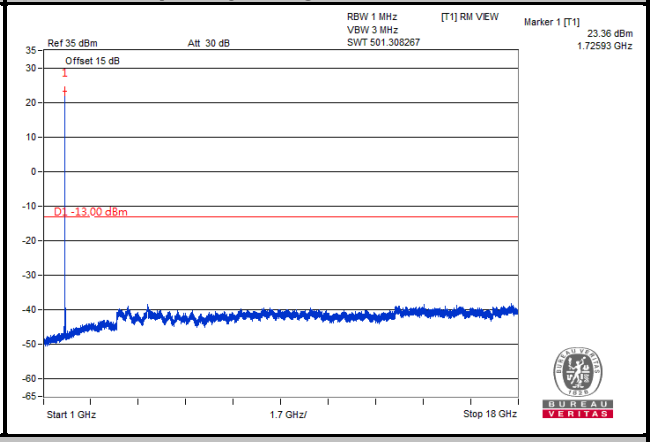
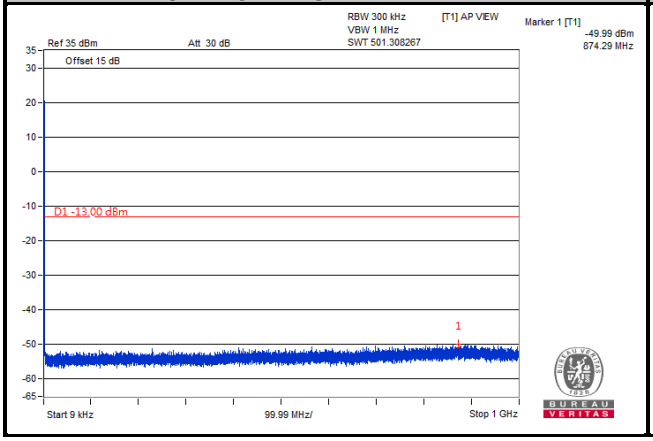
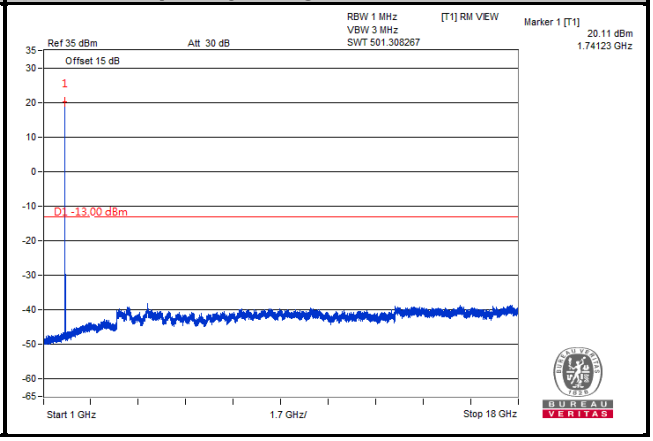
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 5 MHz | |
| Channel 19975 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20375 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

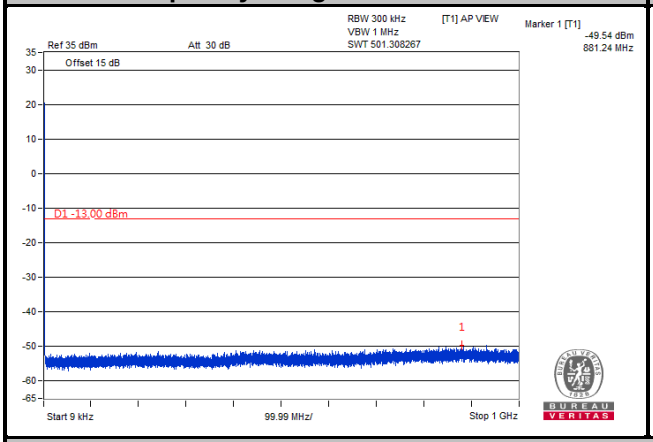
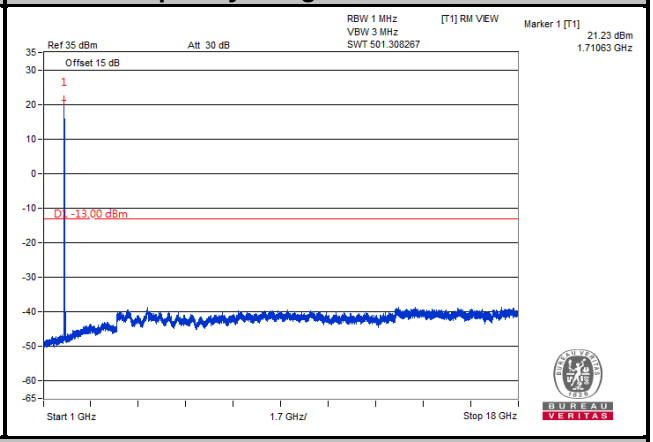
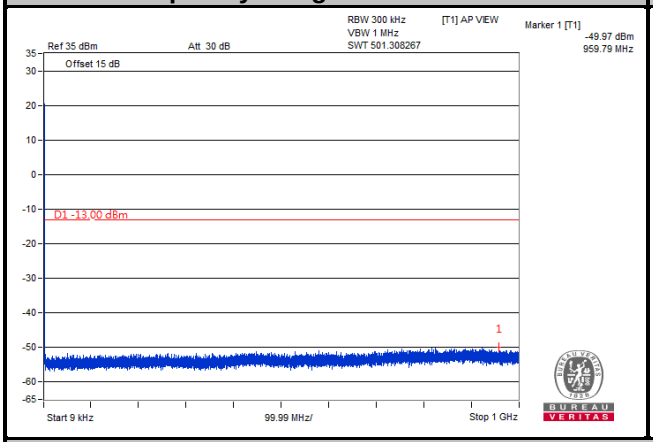
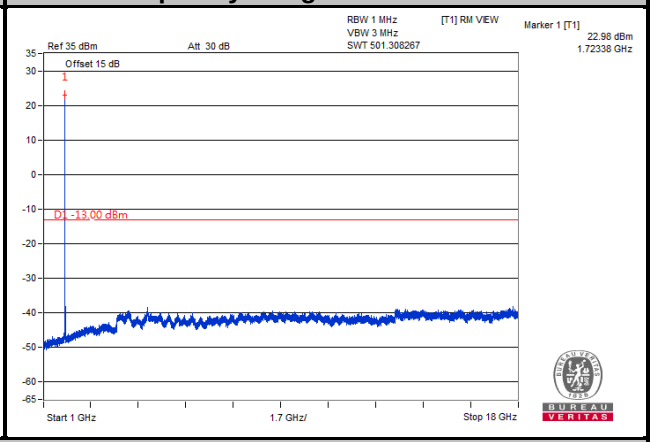
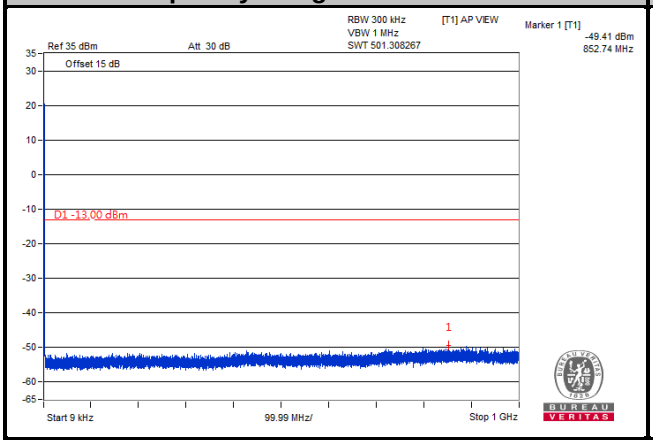
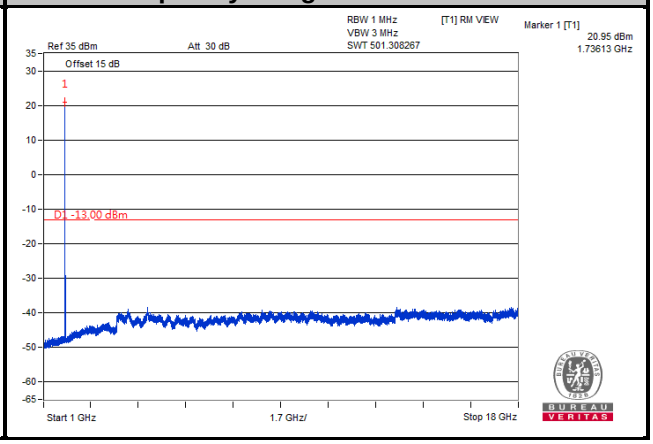
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 20000 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20350 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

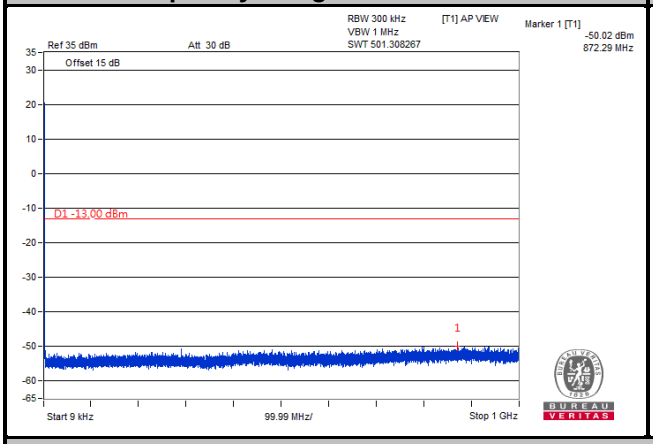
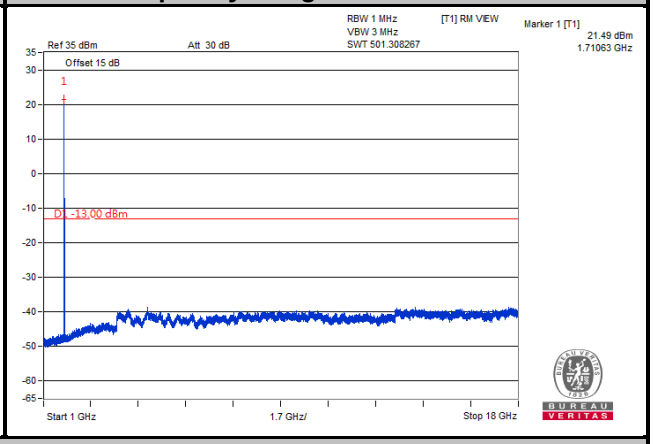
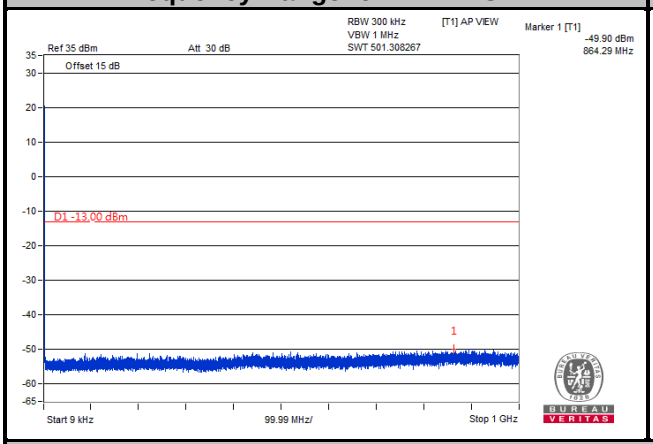
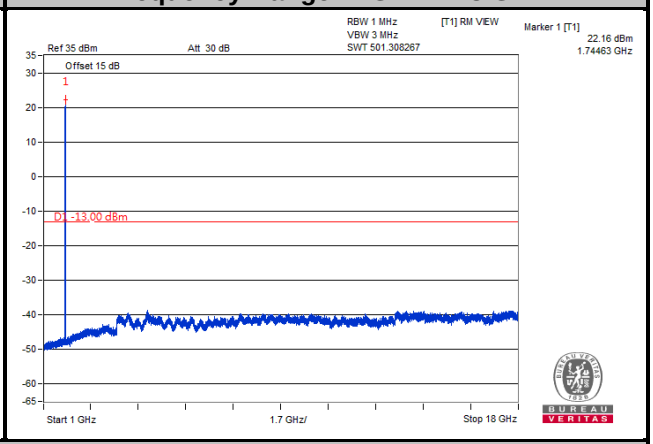
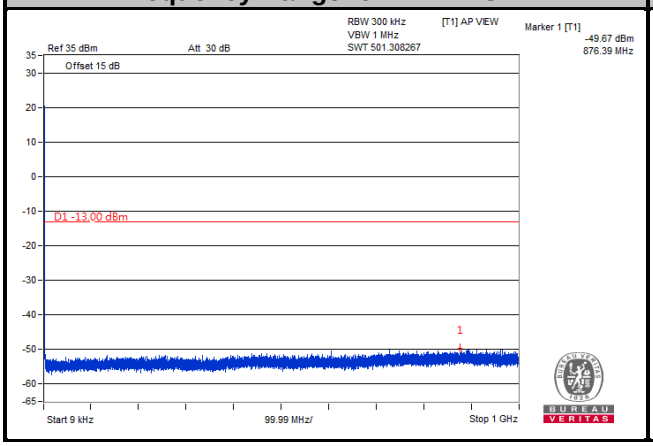
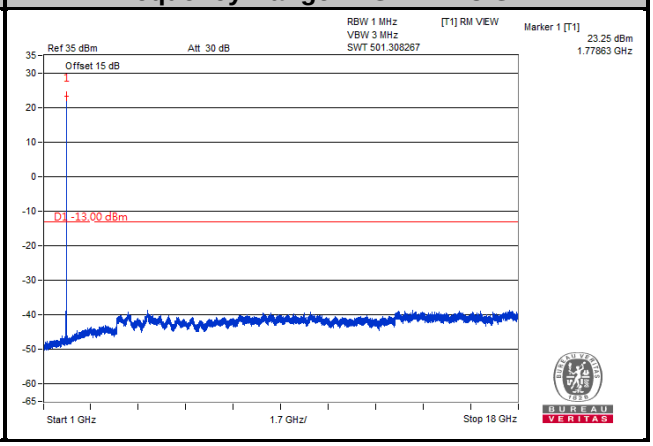
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 15 MHz | |
| Channel 20025 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20325 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

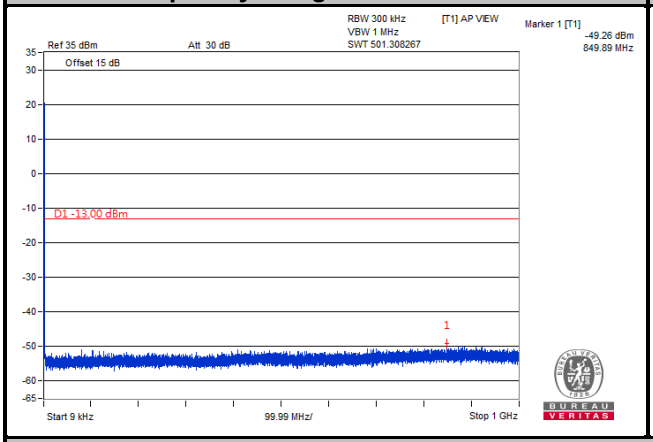
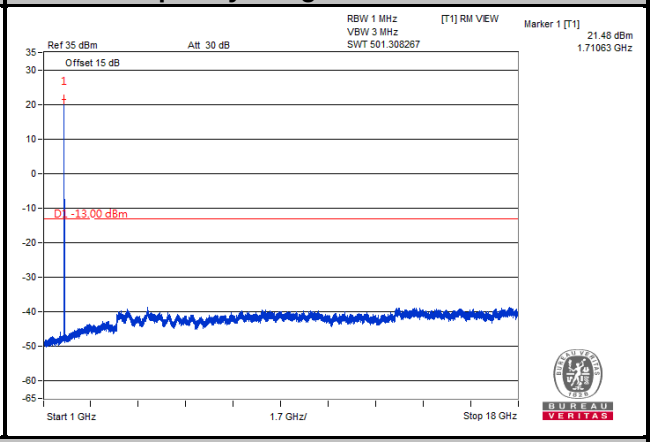
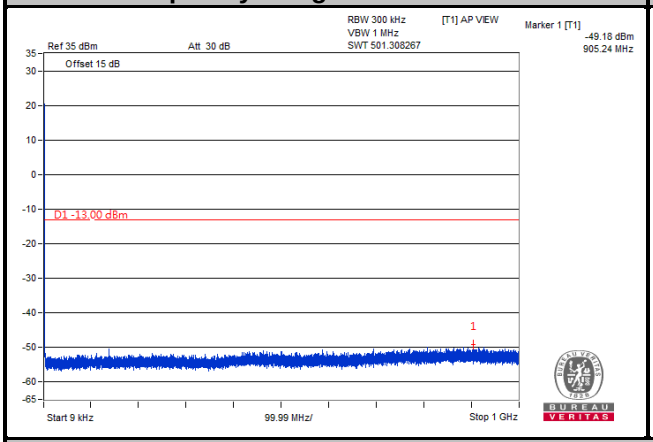
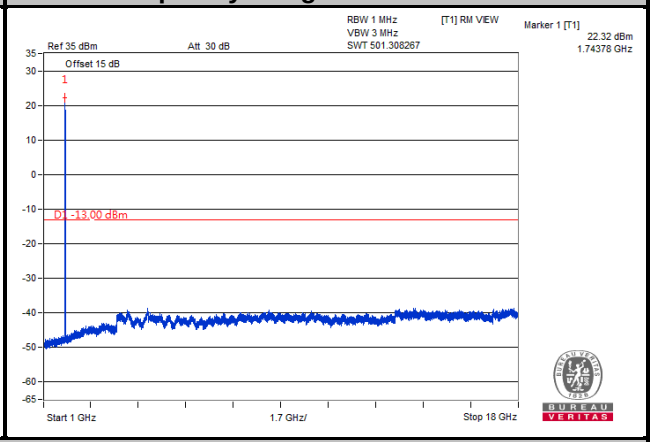
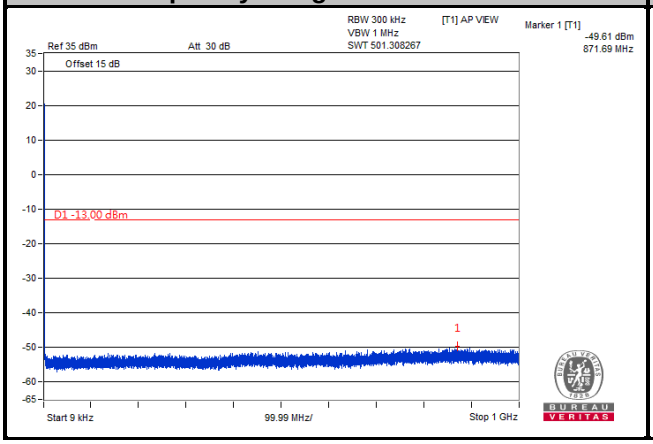
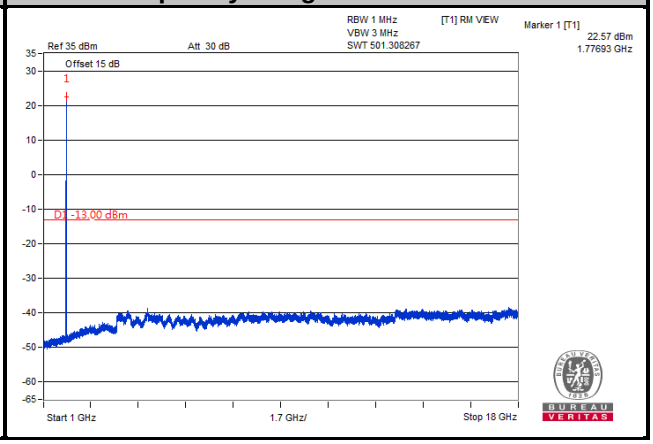
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 4 | |
|---|---|
| Channel Bandwidth: 20 MHz | |
| Channel 20050 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 20300 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

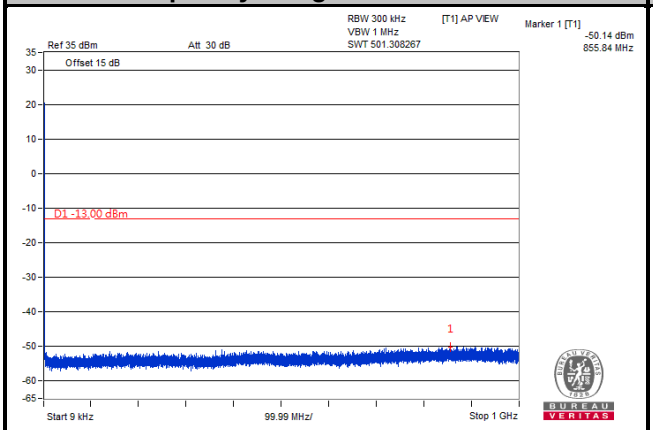
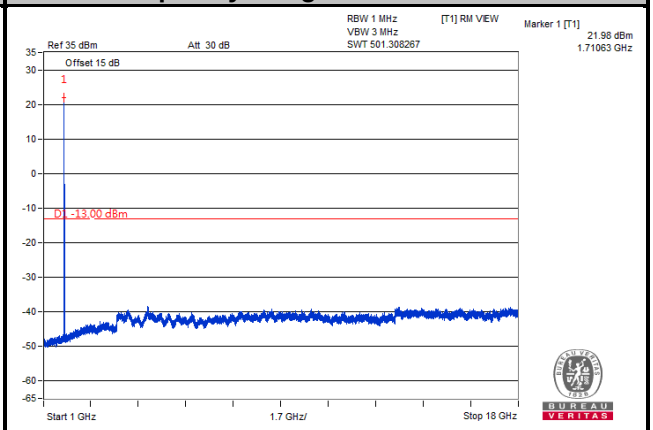
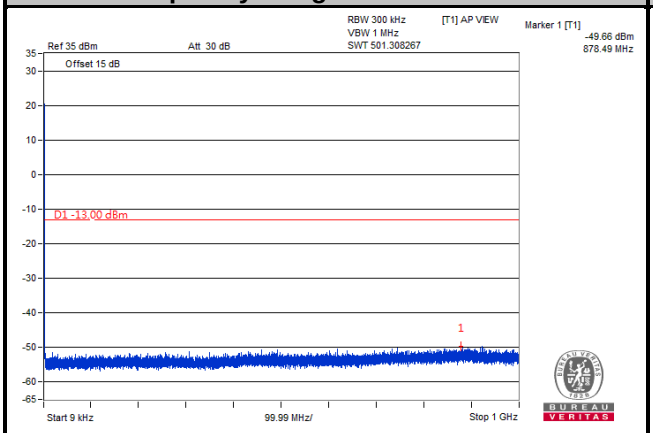
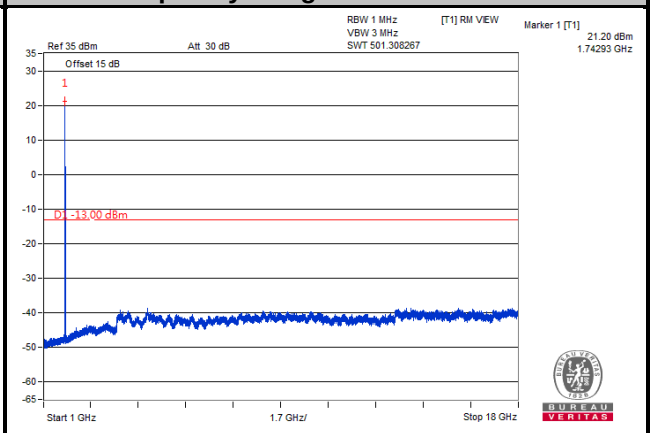
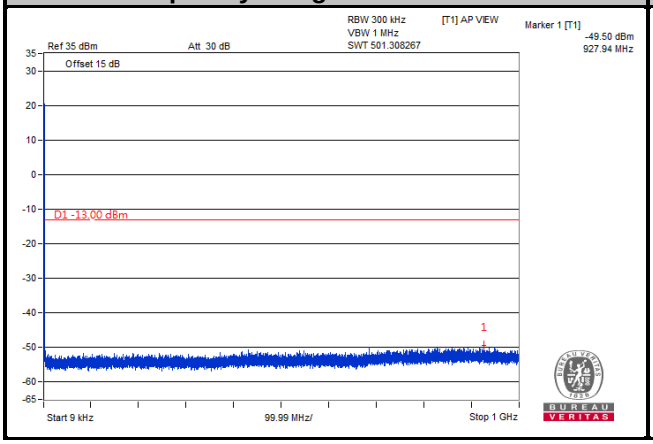
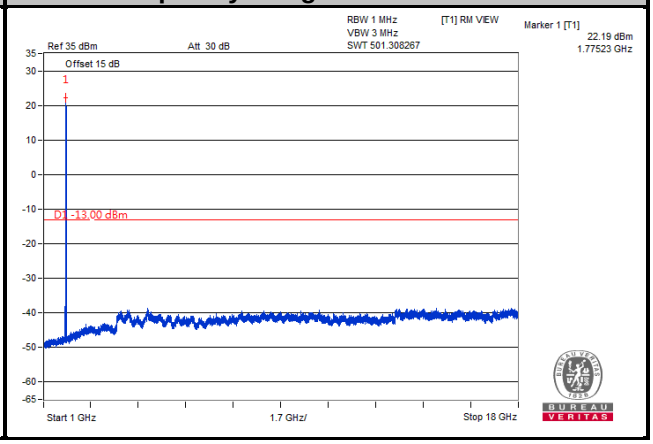
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 1.4 MHz | |
| Channel 131979 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132665 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

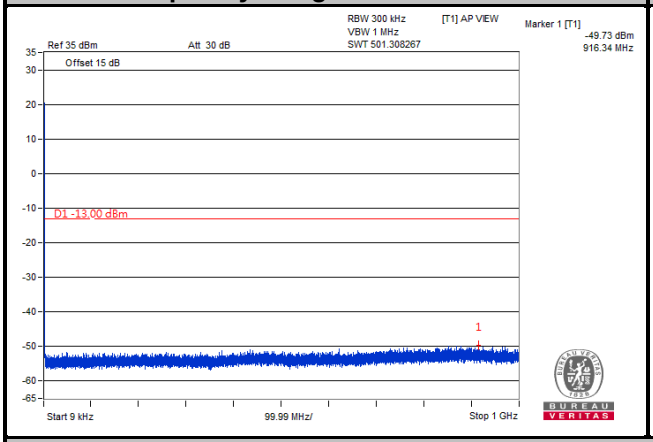
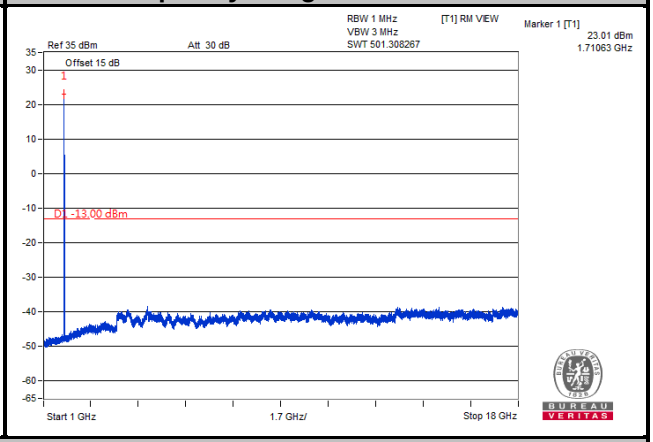
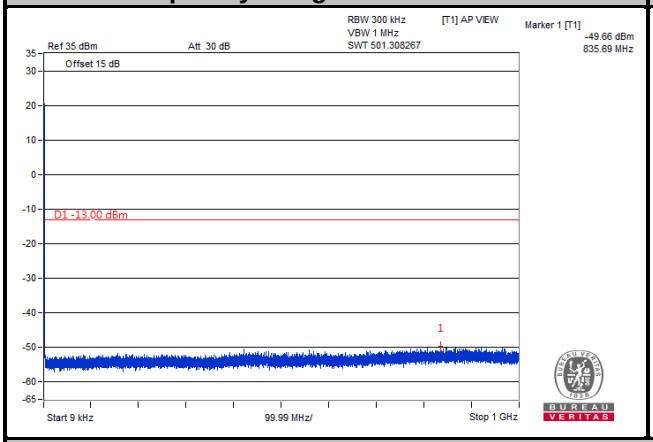
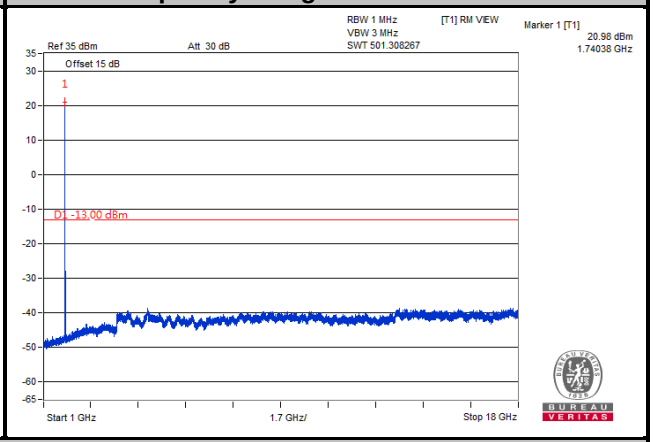
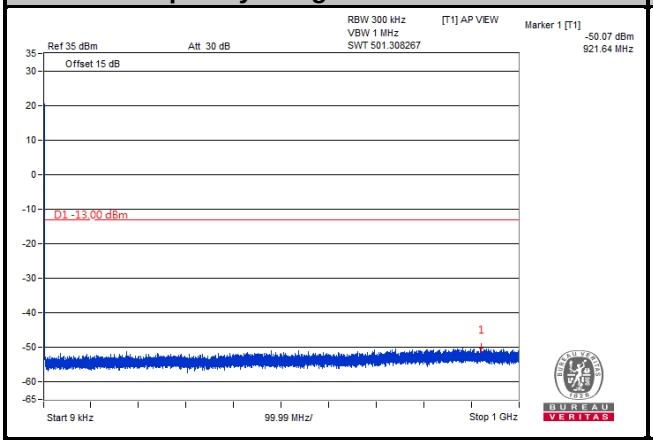
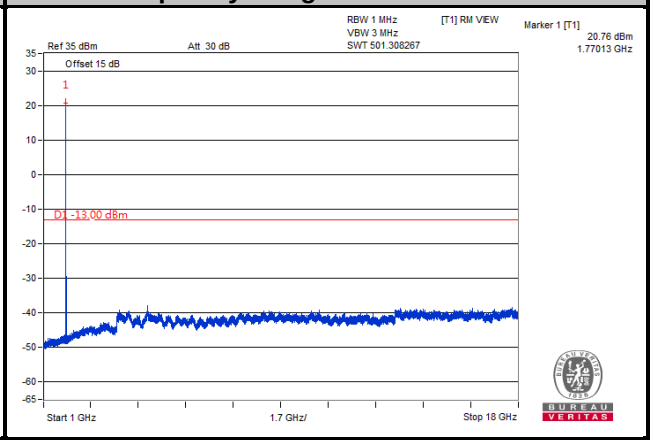
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 3 MHz | |
| Channel 131987 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132657 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

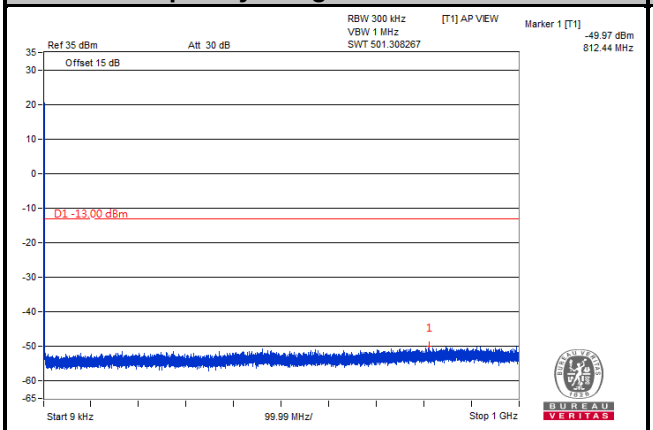
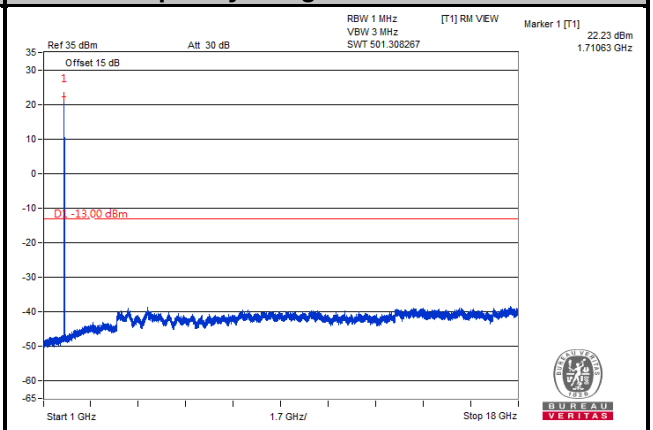
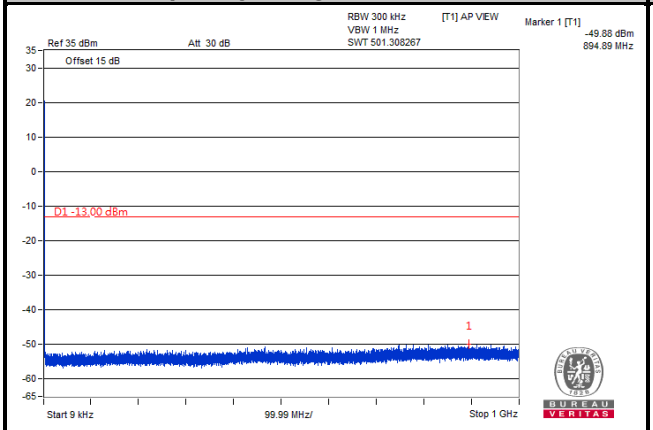
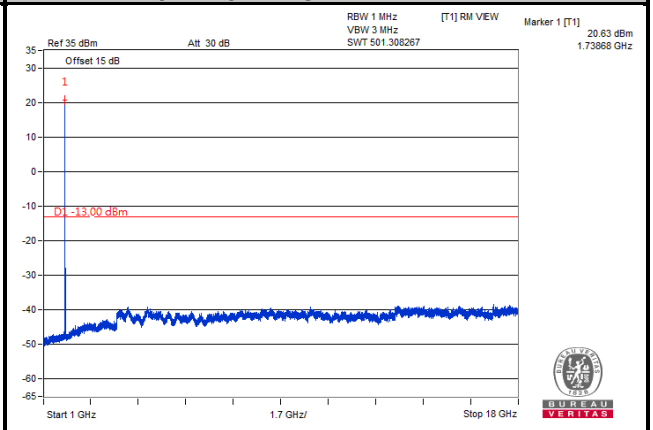
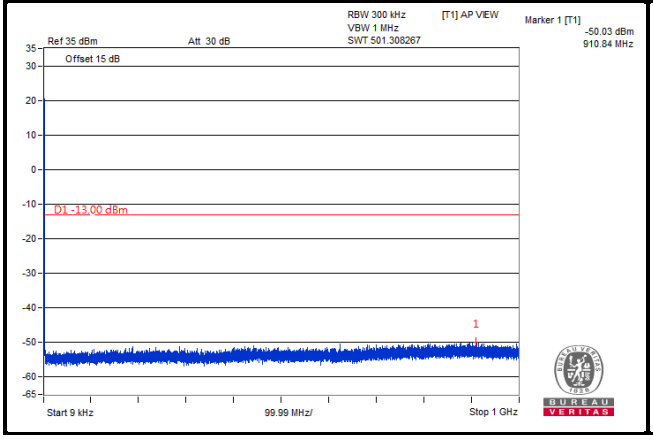
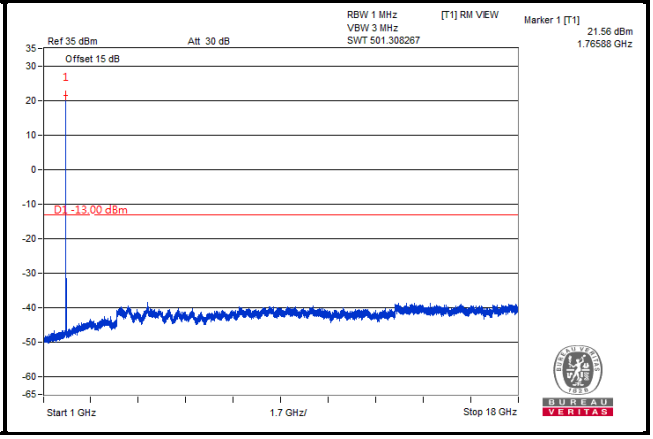
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 5 MHz | |
| Channel 131997 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132647 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

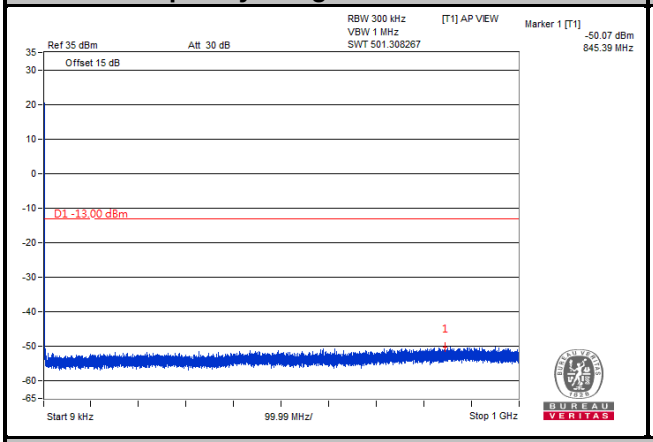
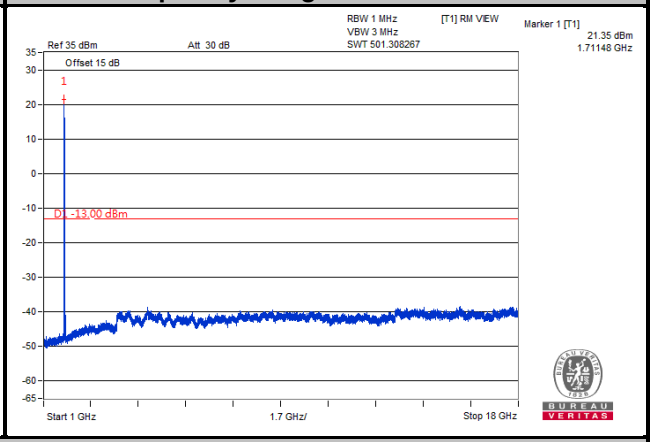
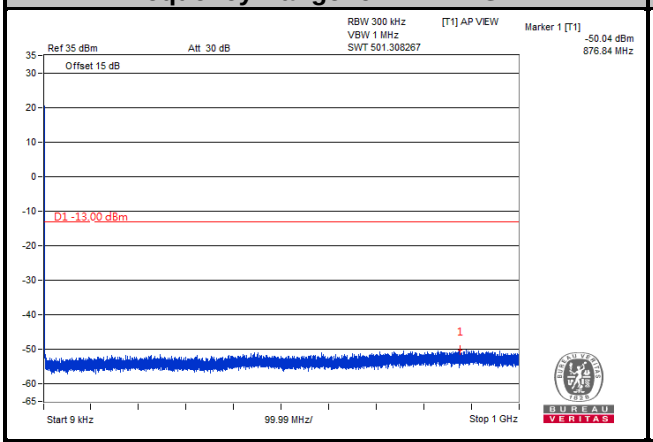
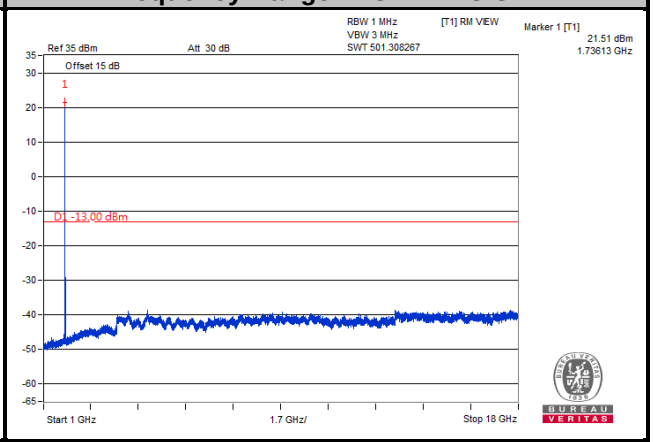
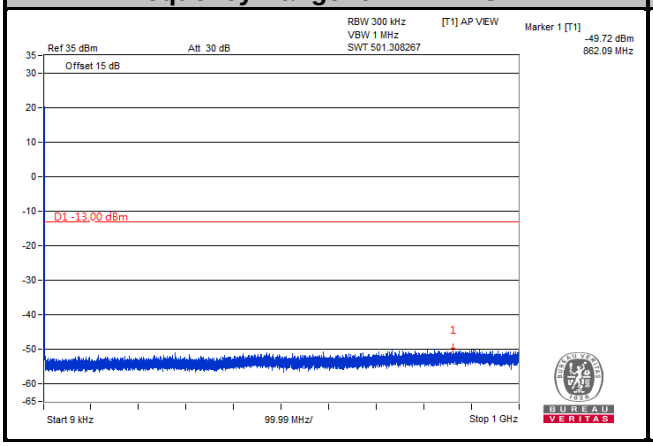
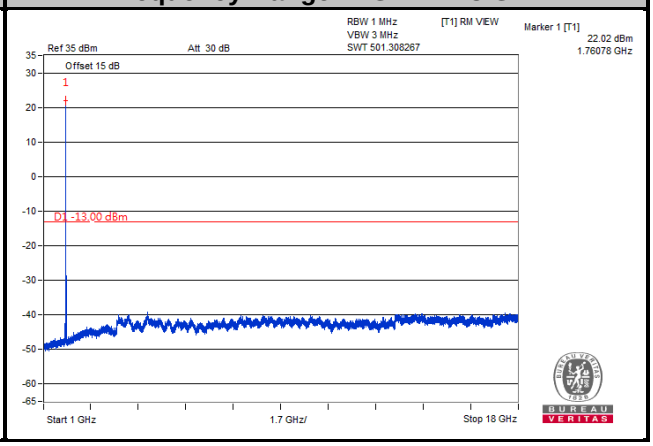
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 132022 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132622 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 15 MHz | |
| Channel 132047 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132597 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 66 | |
|---|---|
| Channel Bandwidth: 20 MHz | |
| Channel 132072 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132322 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |
| Channel 132572 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 18 GHz |
|  |  |

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

## 4.8 Radiated Emission Measurement

### 4.8.1 Limits of Radiated Emission Measurement

a. The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.

### 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 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The 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 - 2.15 dB.

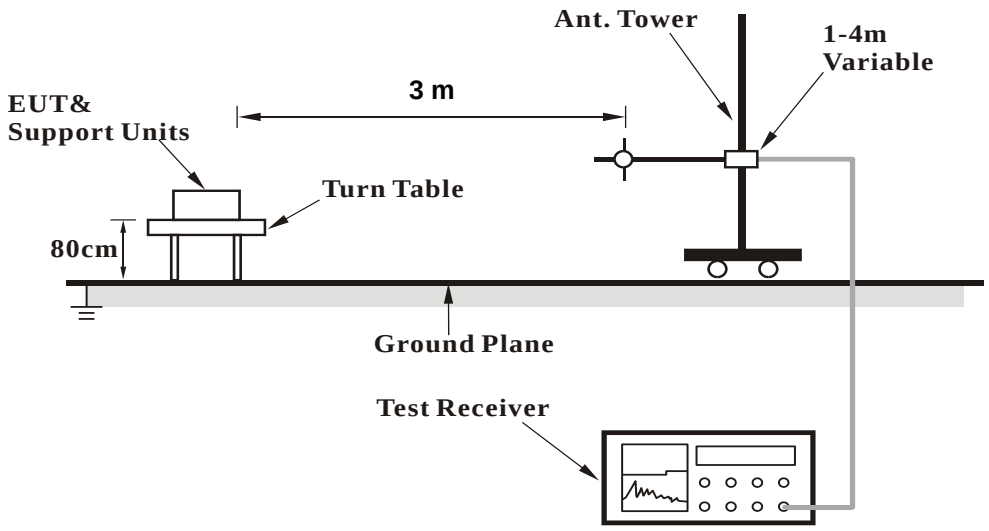
**Note:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

### 4.8.3 Deviation from Test Standard

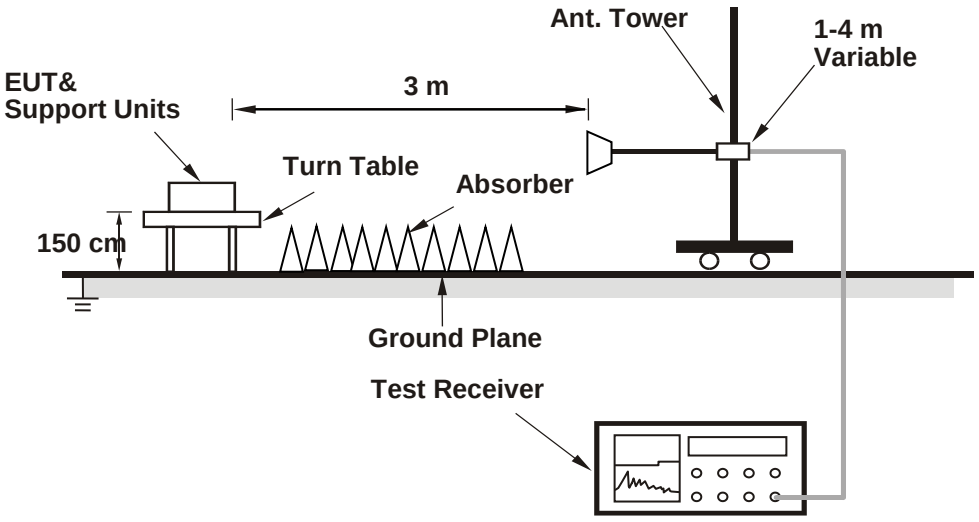
No deviation.

4.8.4 Test Setup

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




**<Radiated Emission above 1 GHz>**




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

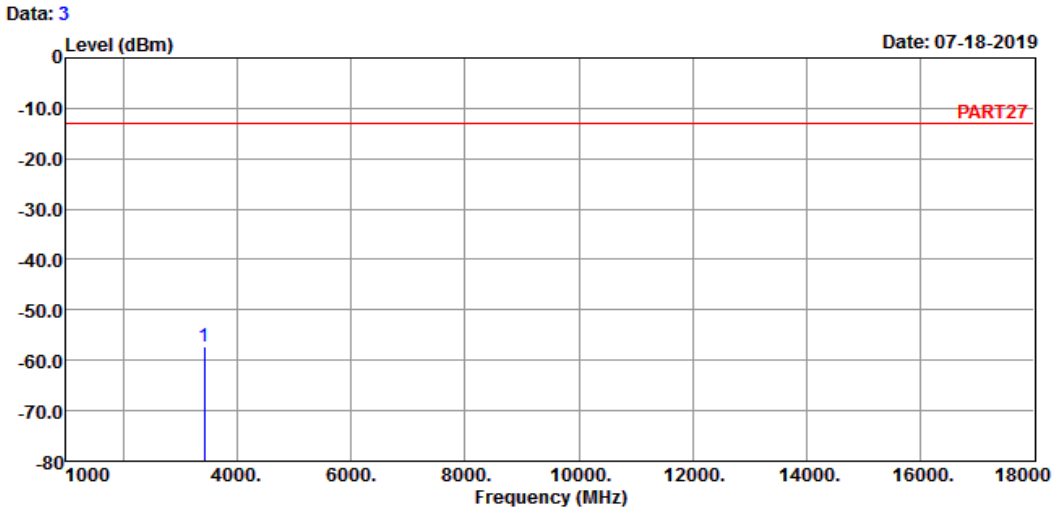
4.8.5 Test Results

**LTE Band 4**

**Channel Bandwidth: 1.4 MHz / QPSK**

**Low Channel**

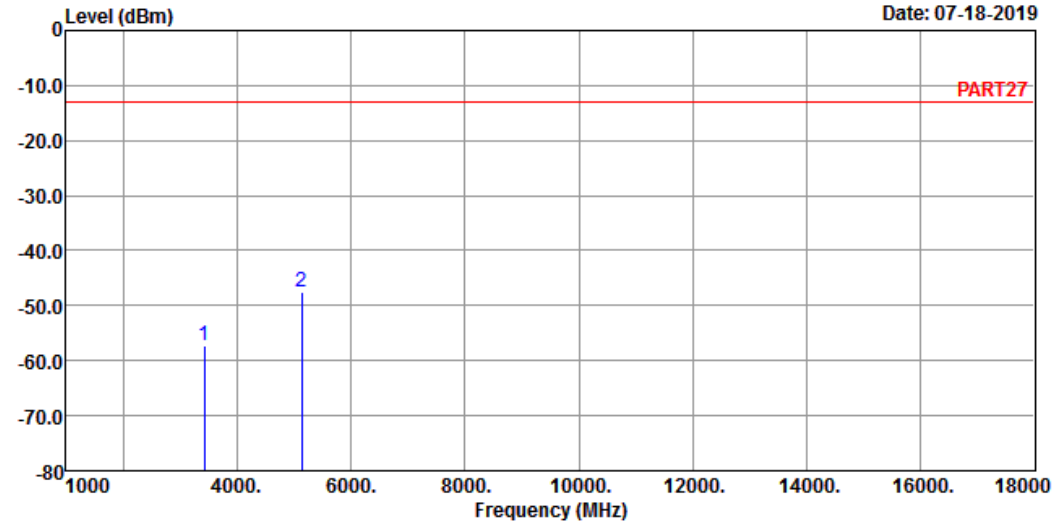
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3421.40 | -57.14 | -48.80 | -13.00 | -8.34 | -44.14 | Peak |

Data: 4

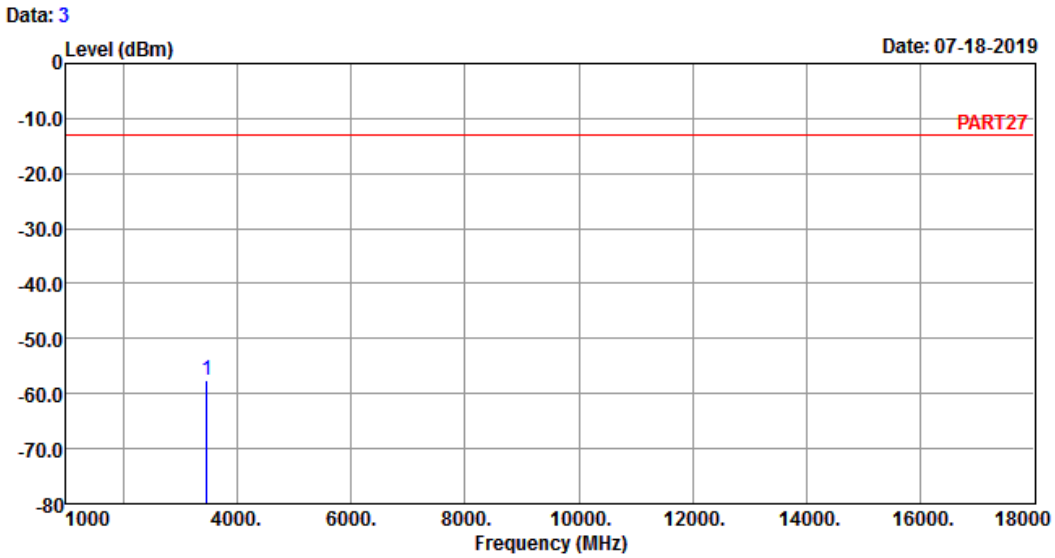



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3421.40 | -57.26 | -48.92 | -13.00 | -8.34 | -44.26 | Peak |
| 2 pp | 5132.10 | -47.65 | -45.91 | -13.00 | -1.74 | -34.65 | Peak |

## Middle Channel

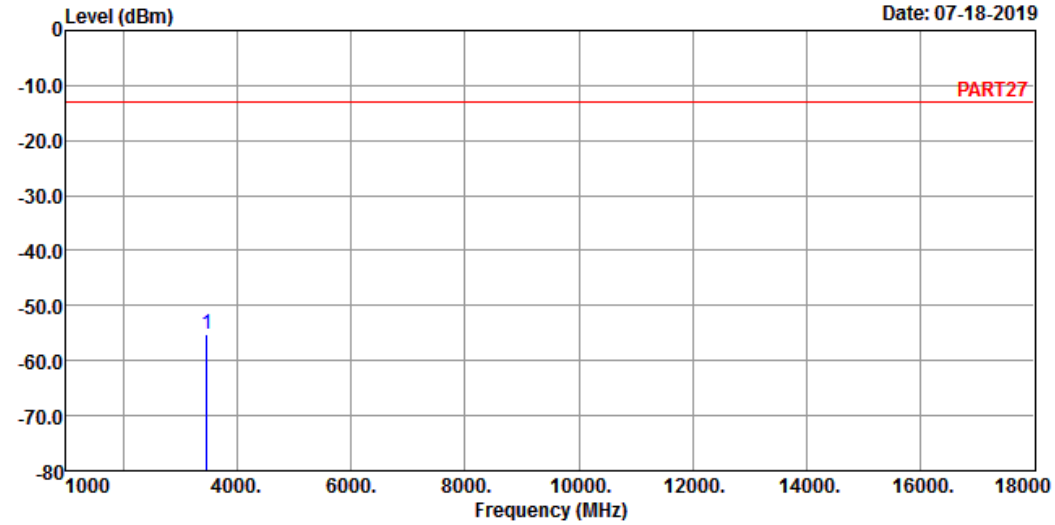
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_1.4M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -57.66 | -49.78 | -13.00 | -7.88 | -44.66 | Peak |

Data: 4

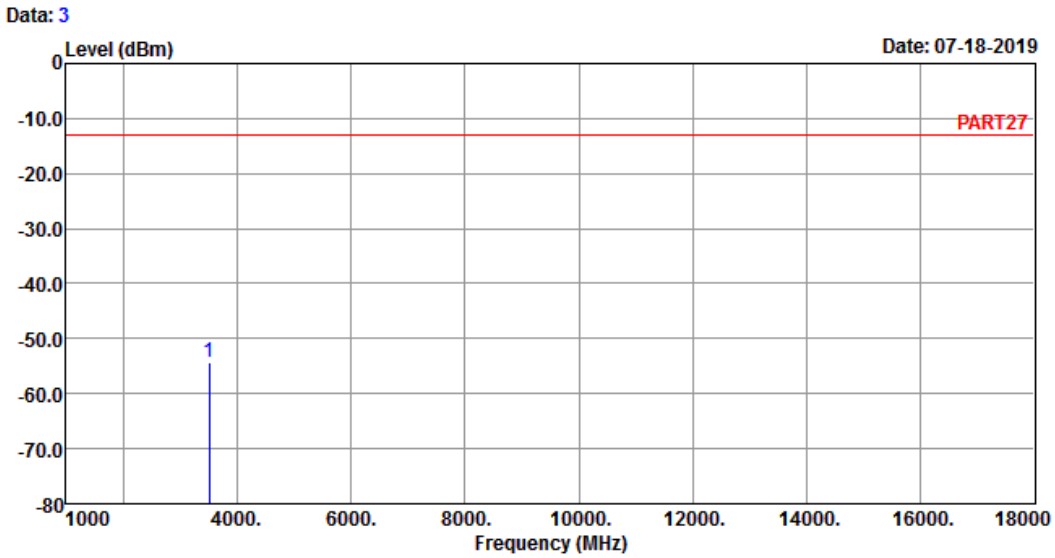



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_1.4M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -55.21 | -47.33 | -13.00 | -7.88 | -42.21 | Peak |

## High Channel

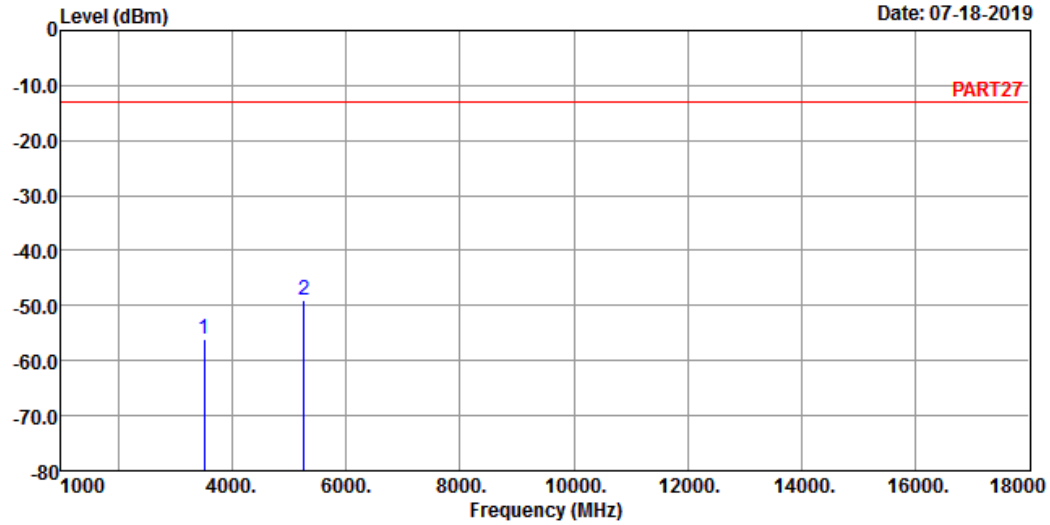
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_1.4M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3508.60 | -54.33 | -46.88 | -13.00 | -7.45 | -41.33 | Peak |

Data: 4

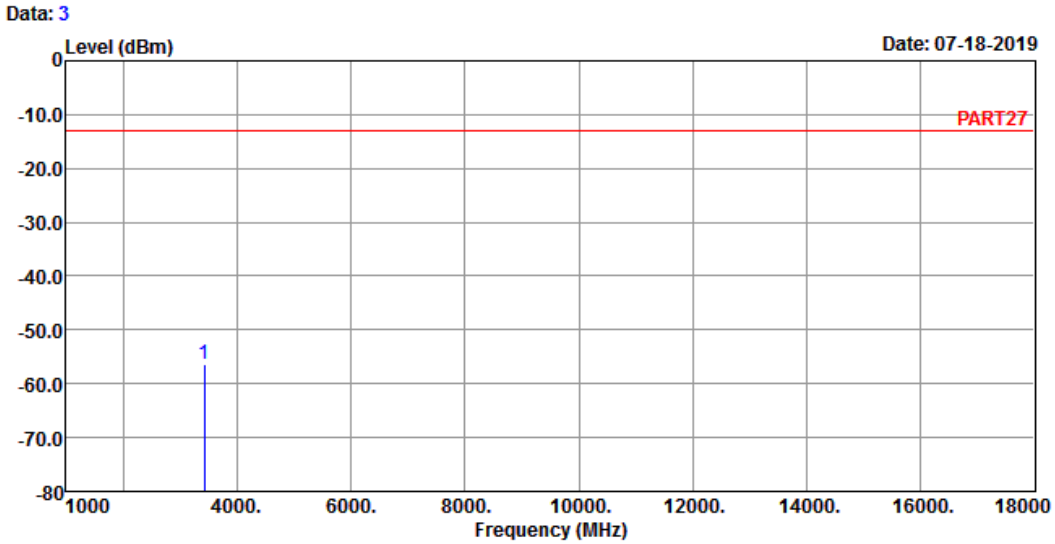



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_1.4M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3508.60 | -56.22 | -48.77 | -13.00 | -7.45 | -43.22 | Peak |
| 2 pp | 5262.90 | -49.11 | -46.59 | -13.00 | -2.52 | -36.11 | Peak |

## Channel Bandwidth: 5 MHz / QPSK
## Low Channel

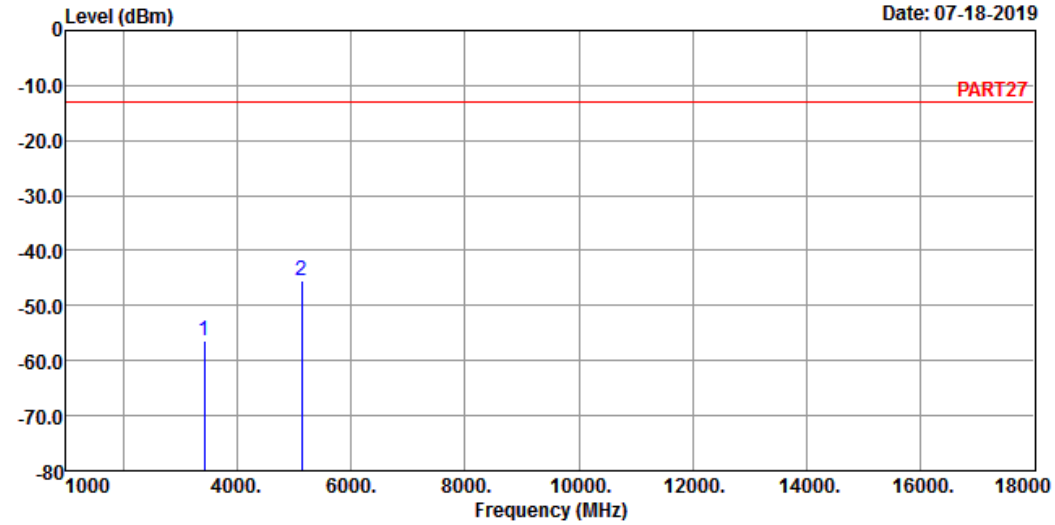
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_5M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3425.00 | -56.27 | -47.93 | -13.00 | -8.34 | -43.27 | Peak |

Data: 4

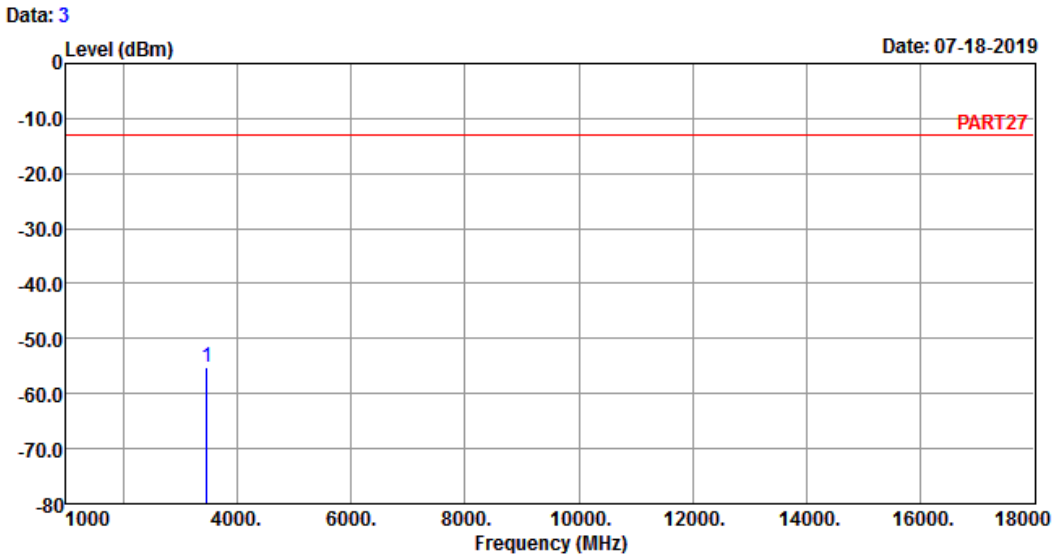



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_5M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3425.00 | -56.43 | -48.09 | -13.00 | -8.34 | -43.43 | Peak |
| 2 pp | 5137.50 | -45.51 | -43.77 | -13.00 | -1.74 | -32.51 | Peak |

## Middle Channel

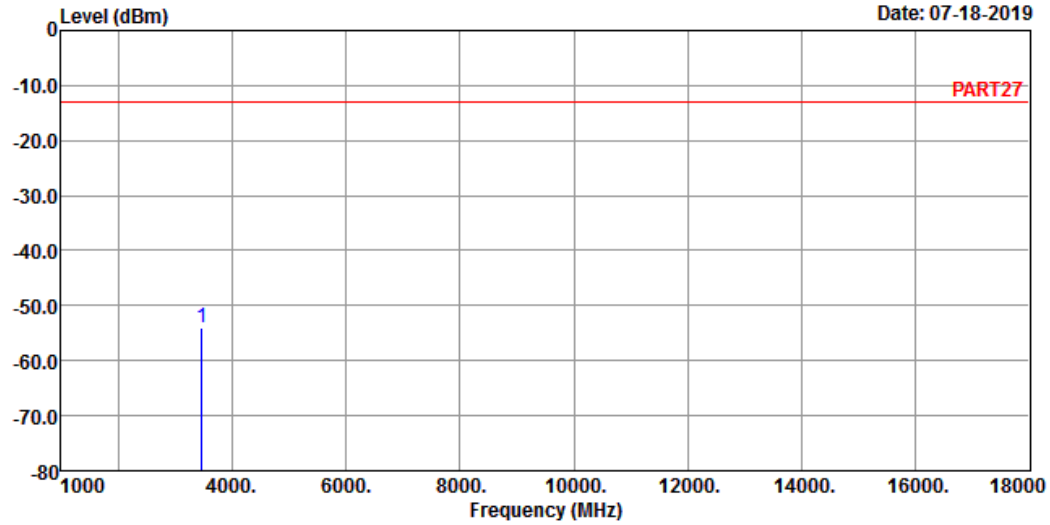
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_5M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -55.19 | -47.31 | -13.00 | -7.88 | -42.19 | Peak |

Data: 4

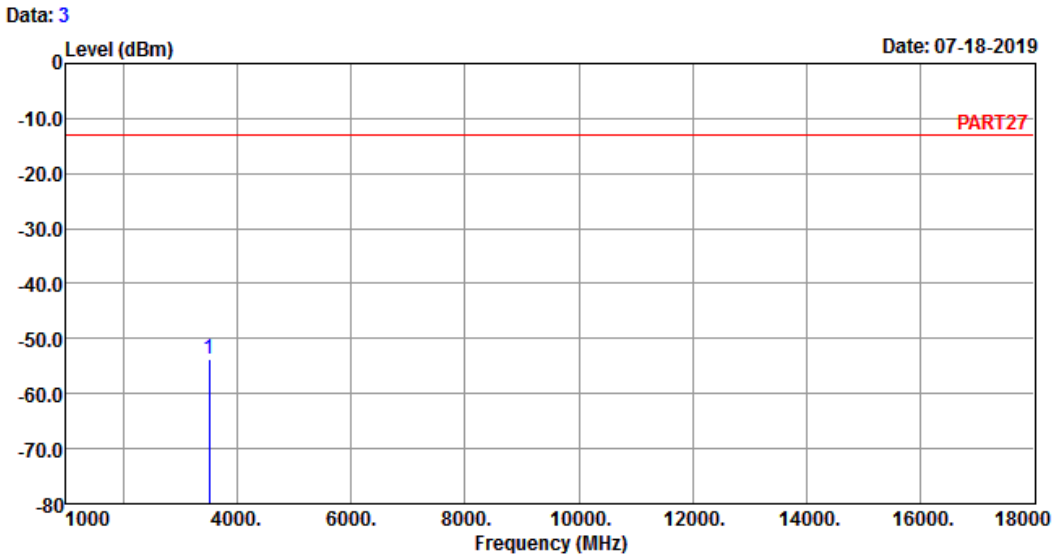



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_5M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -53.92 | -46.04 | -13.00 | -7.88 | -40.92 | Peak |

## High Channel

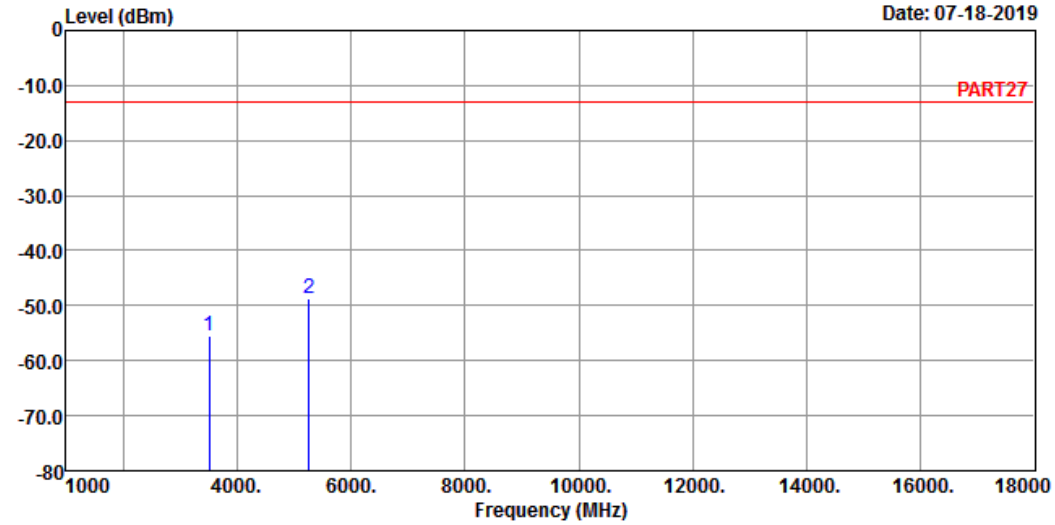
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_5M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3505.00 | -53.73 | -46.28 | -13.00 | -7.45 | -40.73 | Peak |

Data: 4

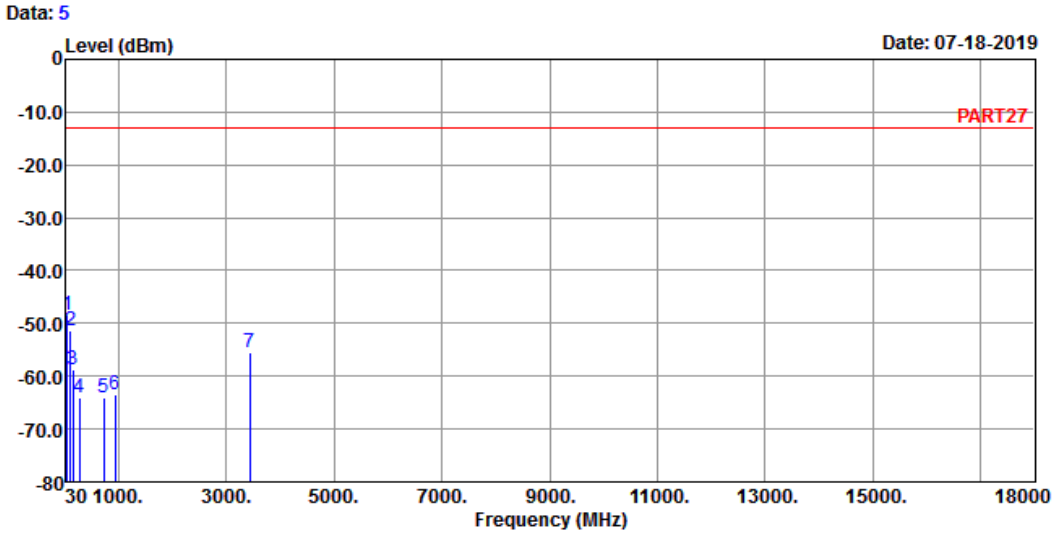



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_5M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3505.00 | -55.42 | -47.97 | -13.00 | -7.45 | -42.42 | Peak |
| 2 pp | 5257.50 | -48.71 | -46.19 | -13.00 | -2.52 | -35.71 | Peak |

## Channel Bandwidth: 20 MHz / QPSK
## Low Channel

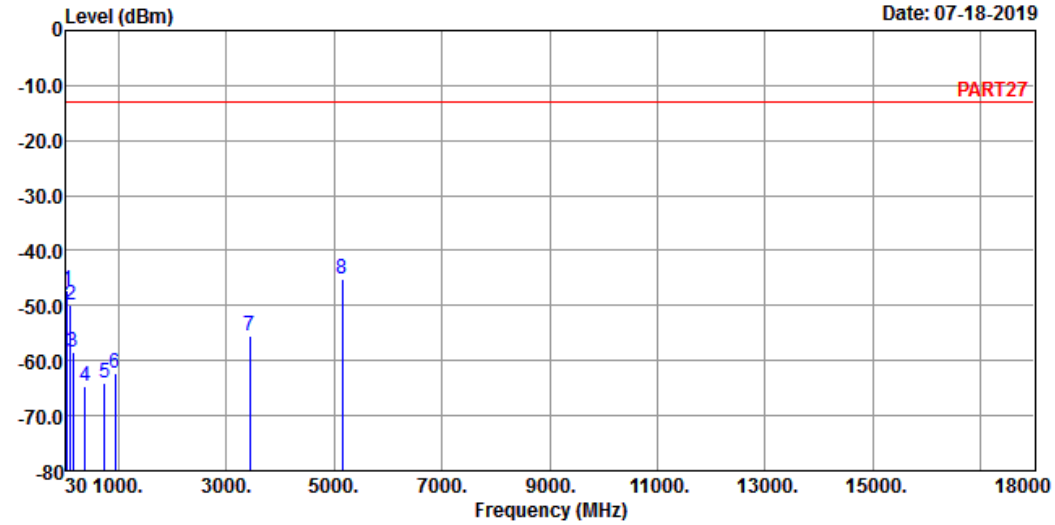
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_20M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 43.58 | -48.32 | -46.85 | -13.00 | -1.47 | -35.32 | Peak |
| 2 | 104.69 | -51.22 | -40.78 | -13.00 | -10.44 | -38.22 | Peak |
| 3 | 161.92 | -58.87 | -53.89 | -13.00 | -4.98 | -45.87 | Peak |
| 4 | 276.38 | -63.99 | -57.46 | -13.00 | -6.53 | -50.99 | Peak |
| 5 | 721.61 | -64.11 | -64.43 | -13.00 | 0.32 | -51.11 | Peak |
| 6 | 938.89 | -63.52 | -65.05 | -13.00 | 1.53 | -50.52 | Peak |
| 7 | 3440.00 | -55.41 | -47.19 | -13.00 | -8.22 | -42.41 | Peak |

Data: 6

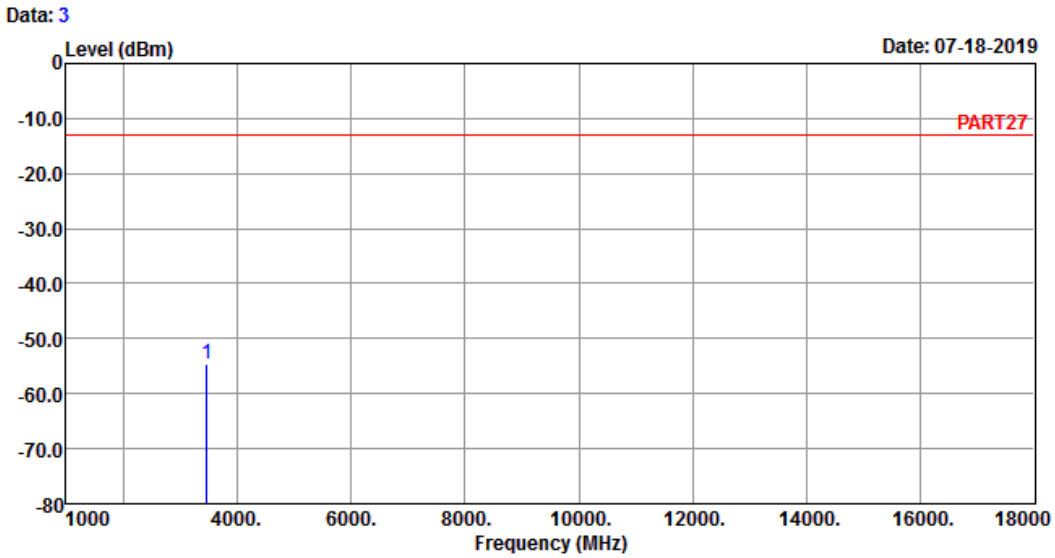



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_20M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 43.58 | -47.13 | -45.66 | -13.00 | -1.47 | -34.13 | Peak |
| 2 | 105.66 | -49.85 | -39.43 | -13.00 | -10.42 | -36.85 | Peak |
| 3 | 156.10 | -58.42 | -52.48 | -13.00 | -5.94 | -45.42 | Peak |
| 4 | 385.99 | -64.56 | -58.53 | -13.00 | -6.03 | -51.56 | Peak |
| 5 | 741.01 | -64.17 | -64.88 | -13.00 | 0.71 | -51.17 | Peak |
| 6 | 943.74 | -62.32 | -63.97 | -13.00 | 1.65 | -49.32 | Peak |
| 7 | 3440.00 | -55.47 | -47.25 | -13.00 | -8.22 | -42.47 | Peak |
| 8 pp | 5160.00 | -45.20 | -43.29 | -13.00 | -1.91 | -32.20 | Peak |

## Middle Channel

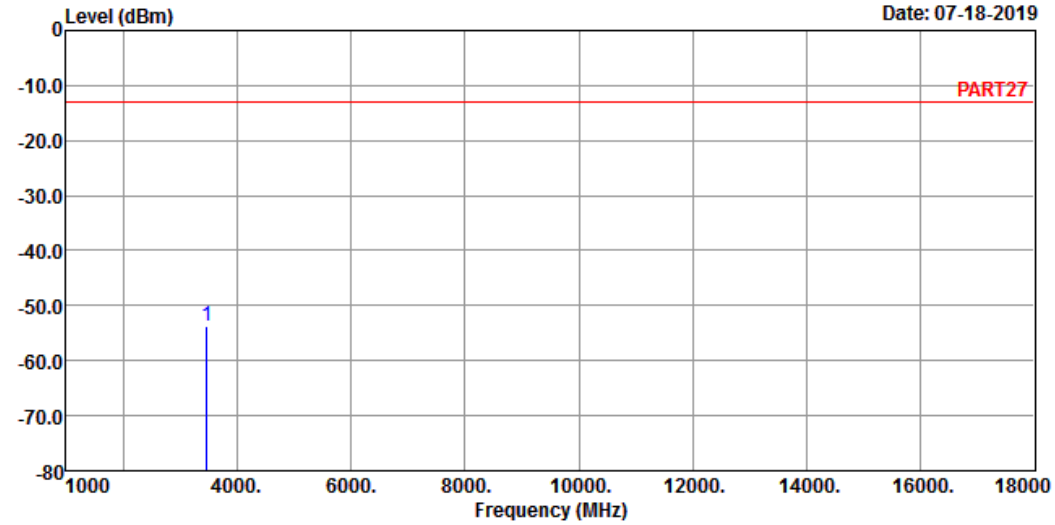
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_20M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -54.58 | -46.70 | -13.00 | -7.88 | -41.58 | Peak |

Data: 4

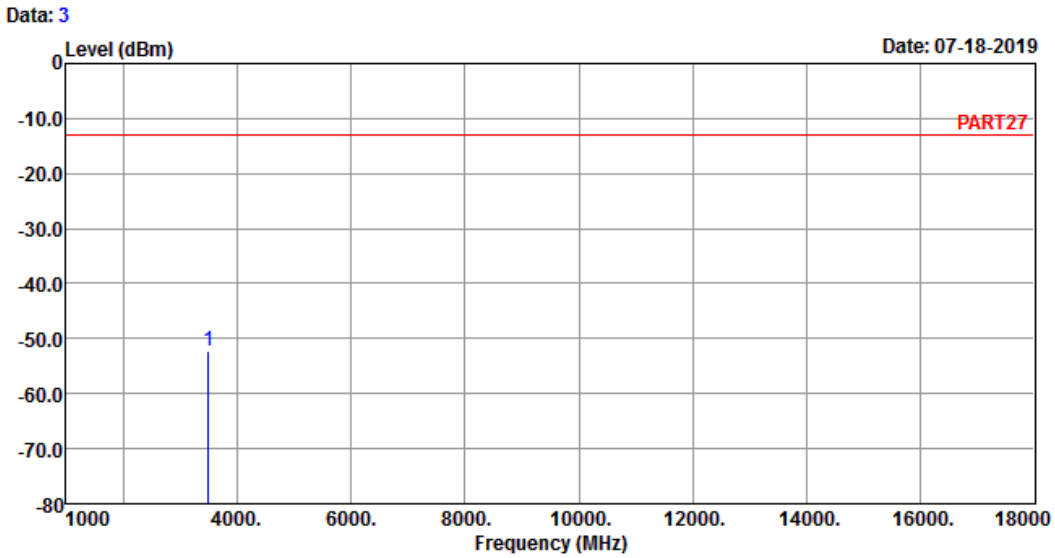



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_20M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3465.00 | -53.77 | -45.89 | -13.00 | -7.88 | -40.77 | Peak |

## High Channel

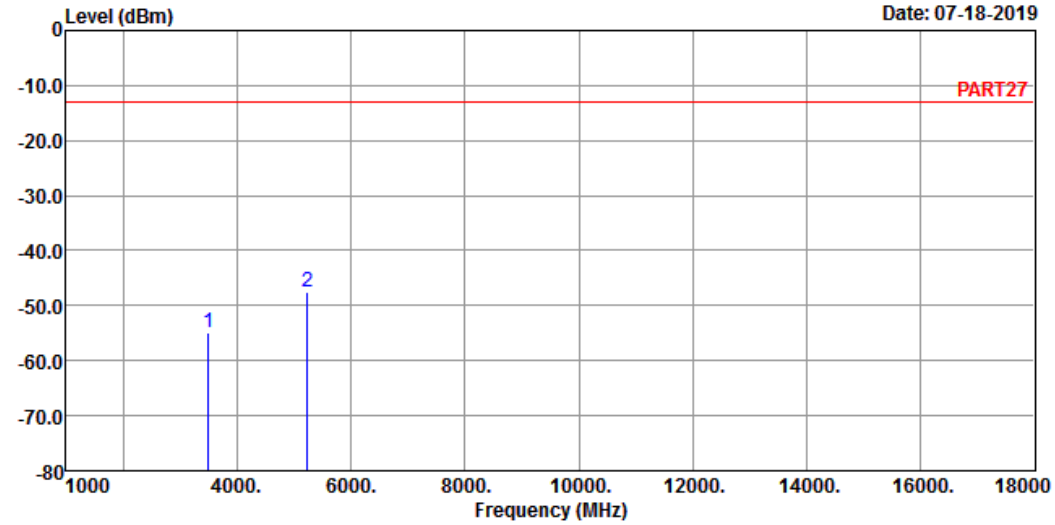
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_20M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -52.37 | -44.72 | -13.00 | -7.65 | -39.37 | Peak |

Data: 4

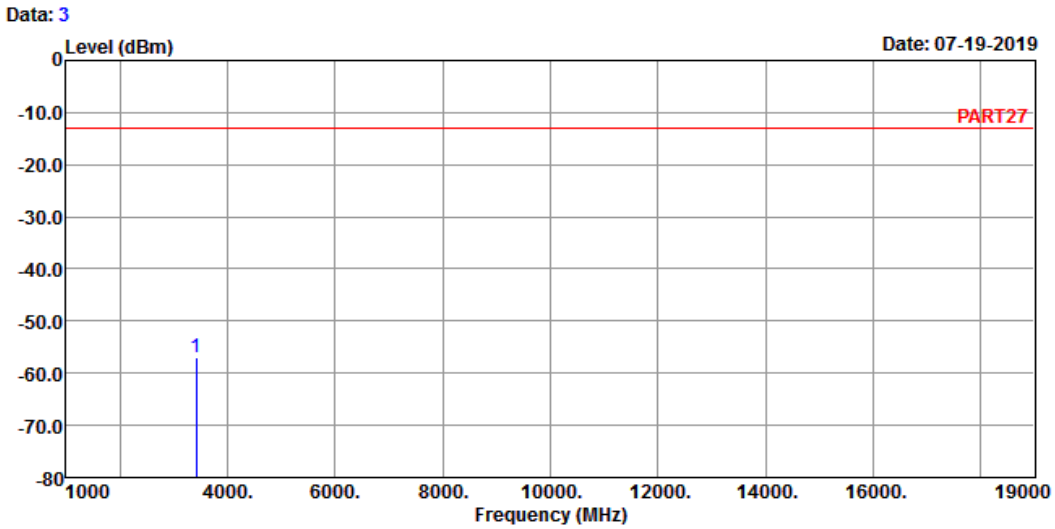



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 4 QPSK_20M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3490.00 | -54.92 | -47.27 | -13.00 | -7.65 | -41.92 | Peak |
| 2 pp | 5235.00 | -47.42 | -45.01 | -13.00 | -2.41 | -34.42 | Peak |

**LTE Band 66:**
**Channel Bandwidth: 1.4 MHz / QPSK**
**Low Channel**

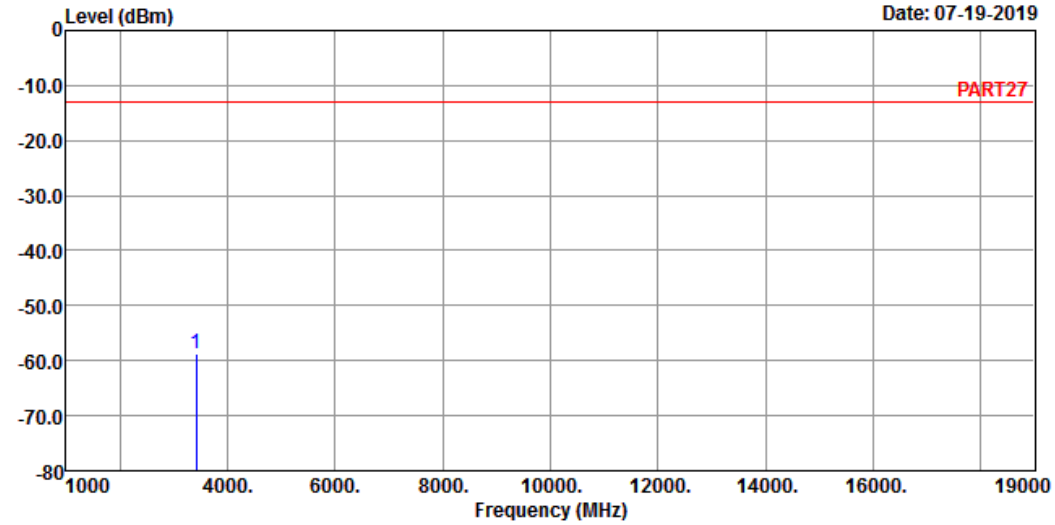
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3421.40 | -56.91 | -48.57 | -13.00 | -8.34 | -43.91 | Peak |

Data: 4

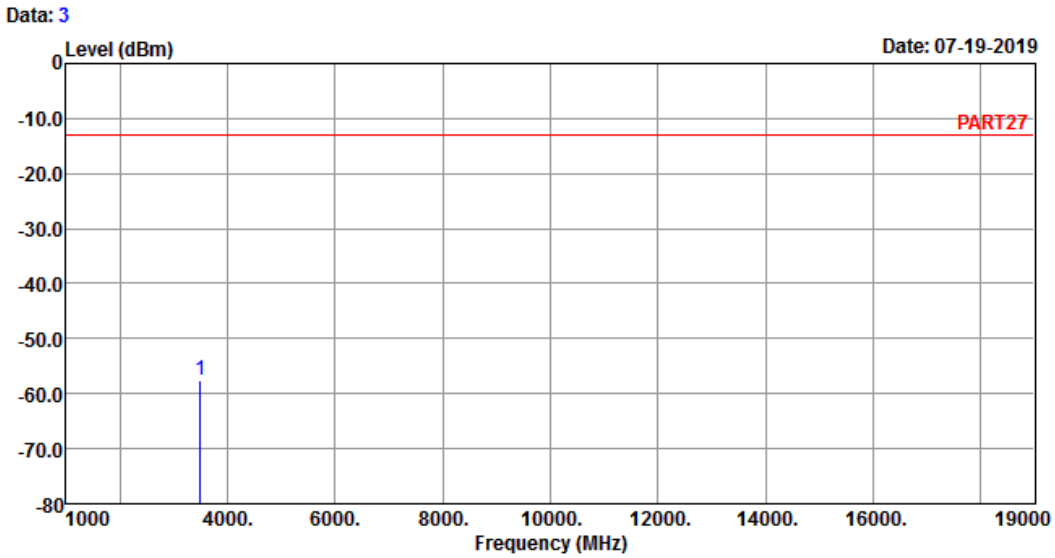



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3421.40 | -58.77 | -50.43 | -13.00 | -8.34 | -45.77 | Peak |

## Middle Channel

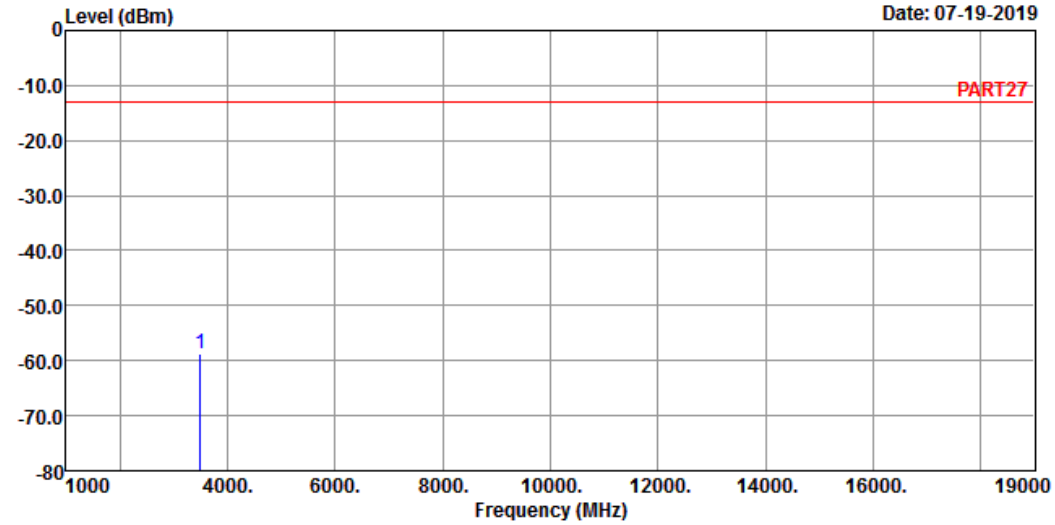
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_1.4M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -57.65 | -50.00 | -13.00 | -7.65 | -44.65 | Peak |

Data: 4

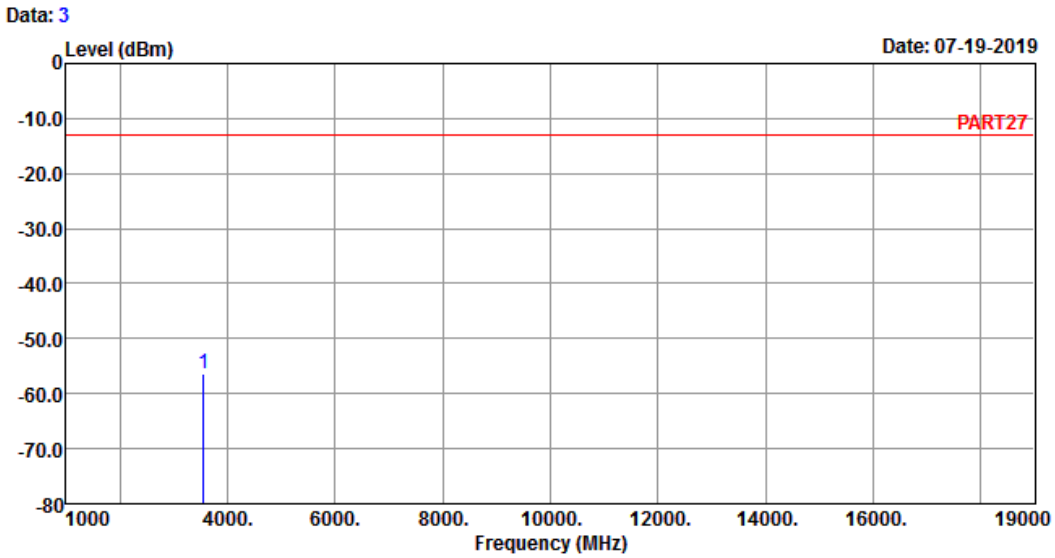



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_1.4M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -58.71 | -51.06 | -13.00 | -7.65 | -45.71 | Peak |

## High Channel

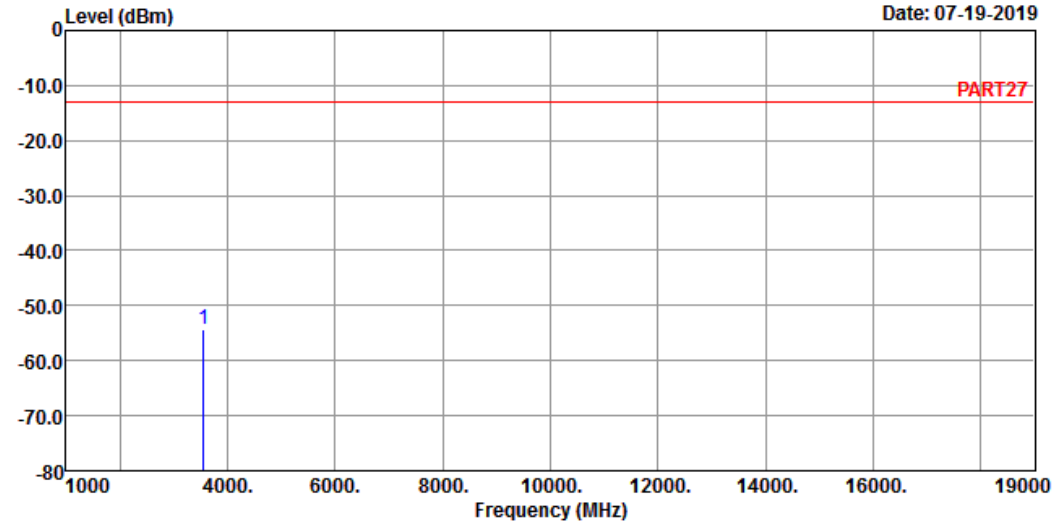
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_1.4M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3558.60 | -56.38 | -49.31 | -13.00 | -7.07 | -43.38 | Peak |

Data: 4

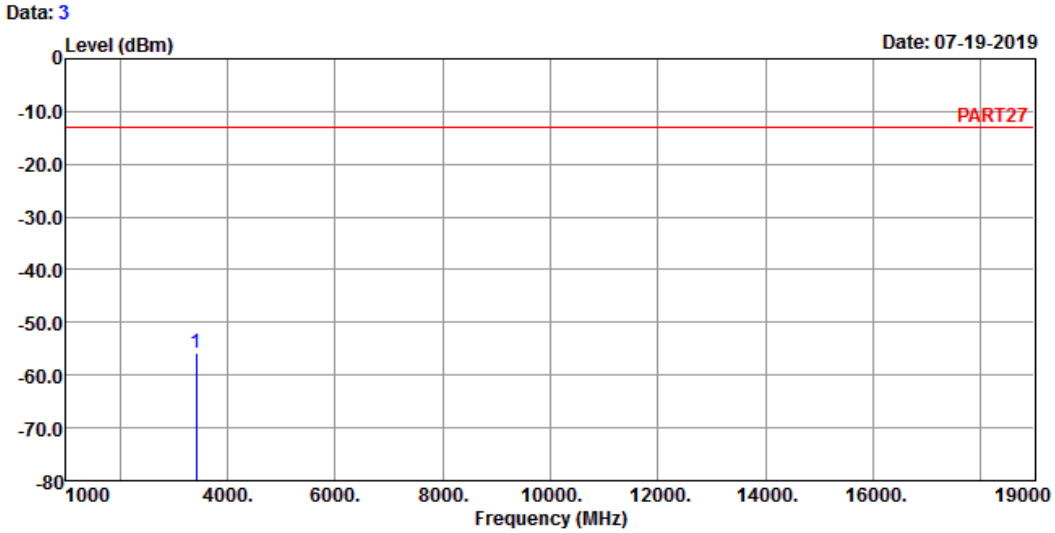



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_1.4M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3558.60 | -54.21 | -47.14 | -13.00 | -7.07 | -41.21 | Peak |

## Channel Bandwidth: 5 MHz / QPSK
## Low Channel

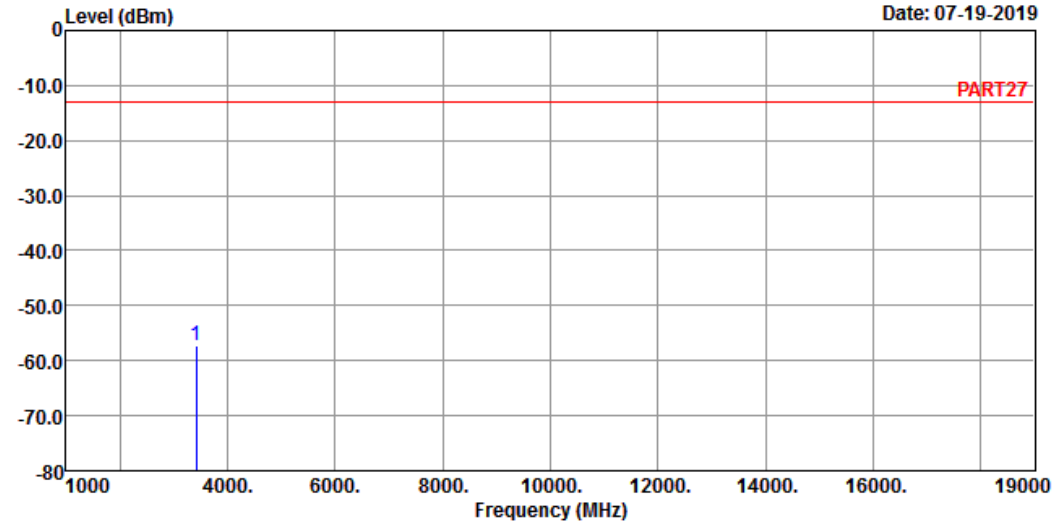
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_5M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3425.00 | -55.82 | -47.48 | -13.00 | -8.34 | -42.82 | Peak |

Data: 4

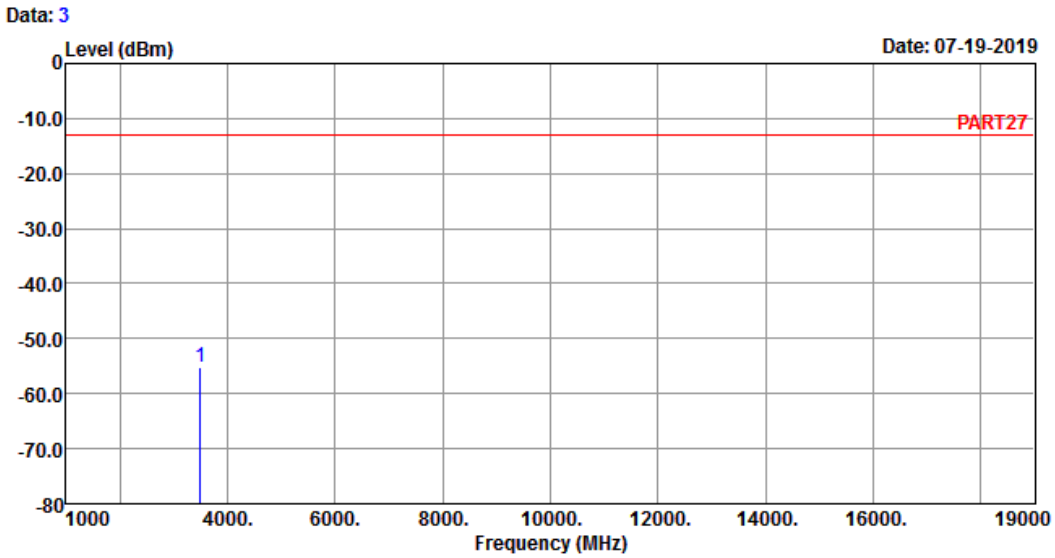



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_5M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3425.00 | -57.27 | -48.93 | -13.00 | -8.34 | -44.27 | Peak |

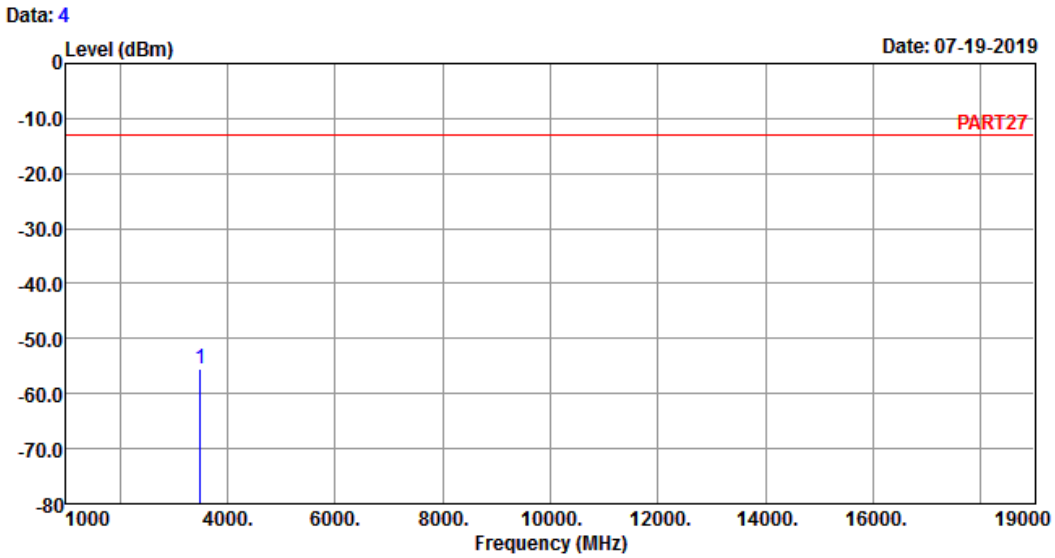
## Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_5M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -55.08 | -47.43 | -13.00 | -7.65 | -42.08 | Peak |

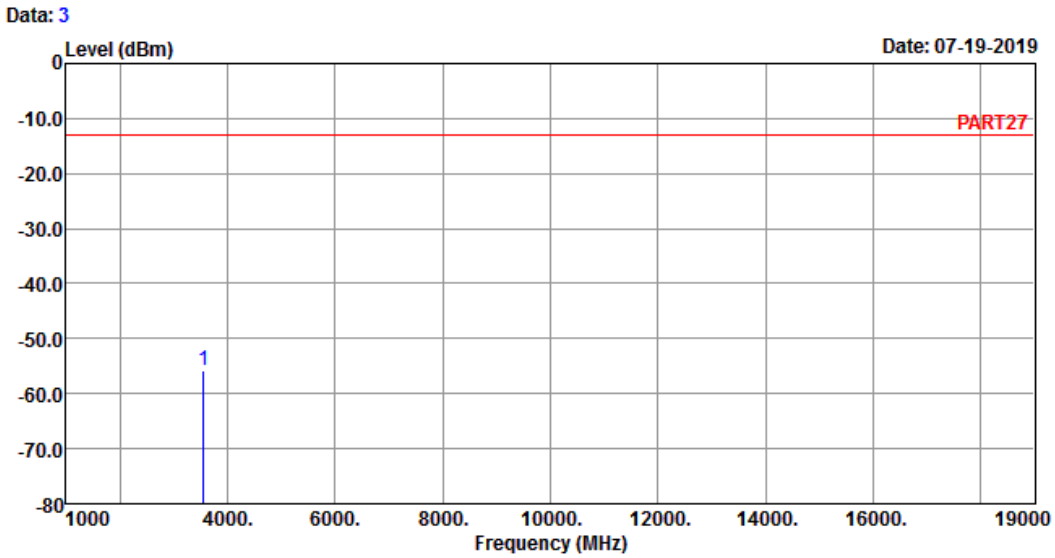



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_5M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -55.38 | -47.73 | -13.00 | -7.65 | -42.38 | Peak |

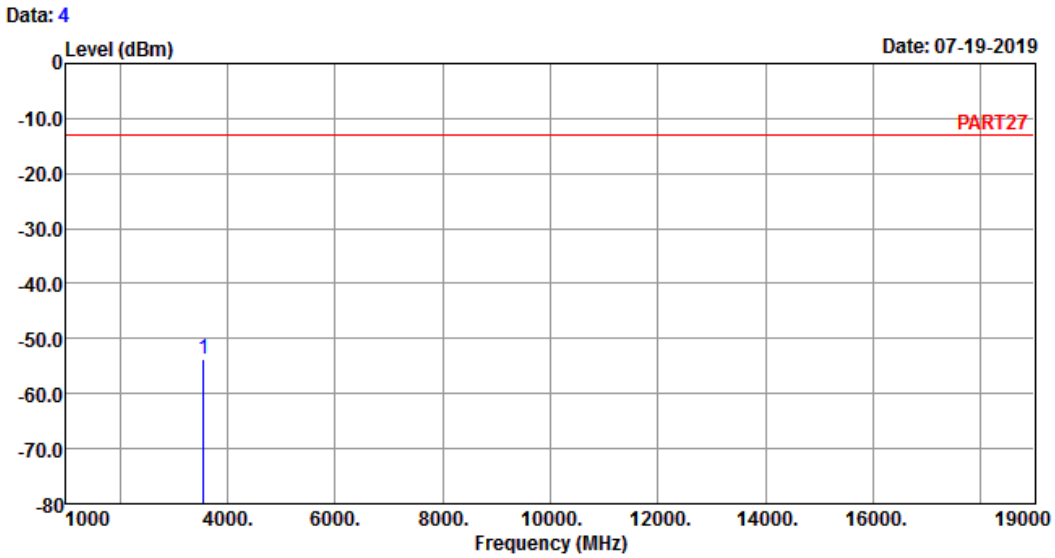
## High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_5M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3555.00 | -55.83 | -48.68 | -13.00 | -7.15 | -42.83 | Peak |

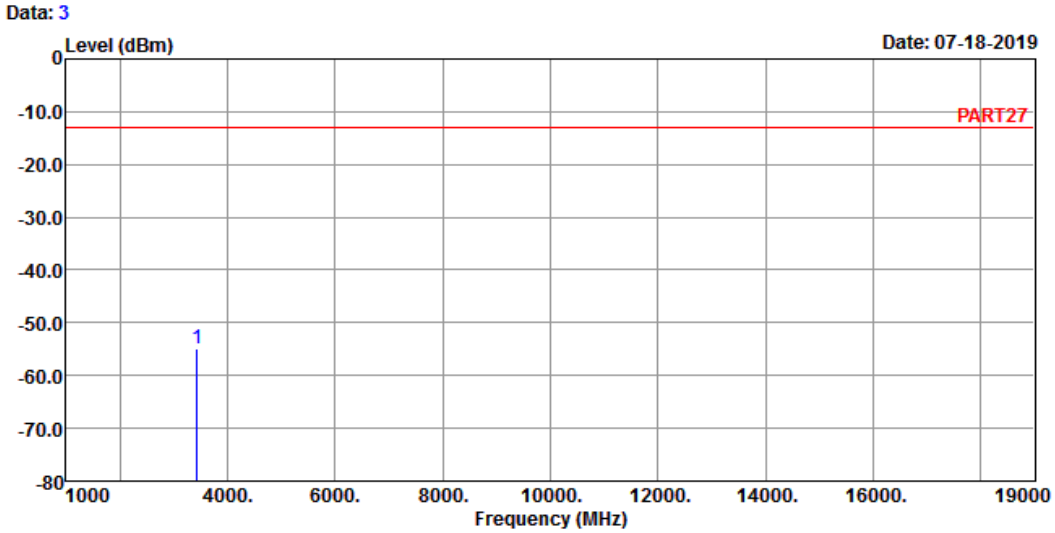



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_5M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3555.00 | -53.73 | -46.58 | -13.00 | -7.15 | -40.73 | Peak |

## Channel Bandwidth: 20 MHz / QPSK
## Low Channel

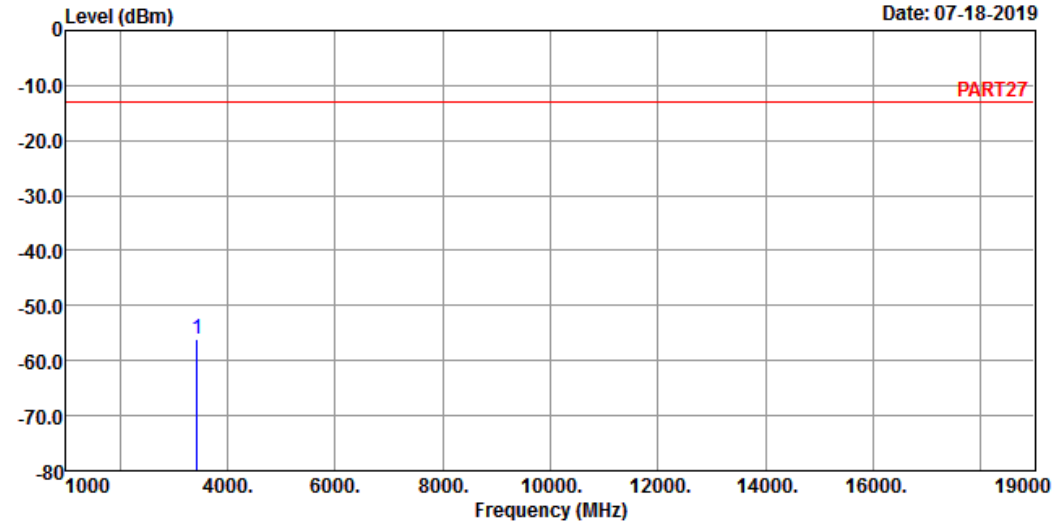
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_20M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3440.00 | -54.92 | -46.70 | -13.00 | -8.22 | -41.92 | Peak |

Data: 4

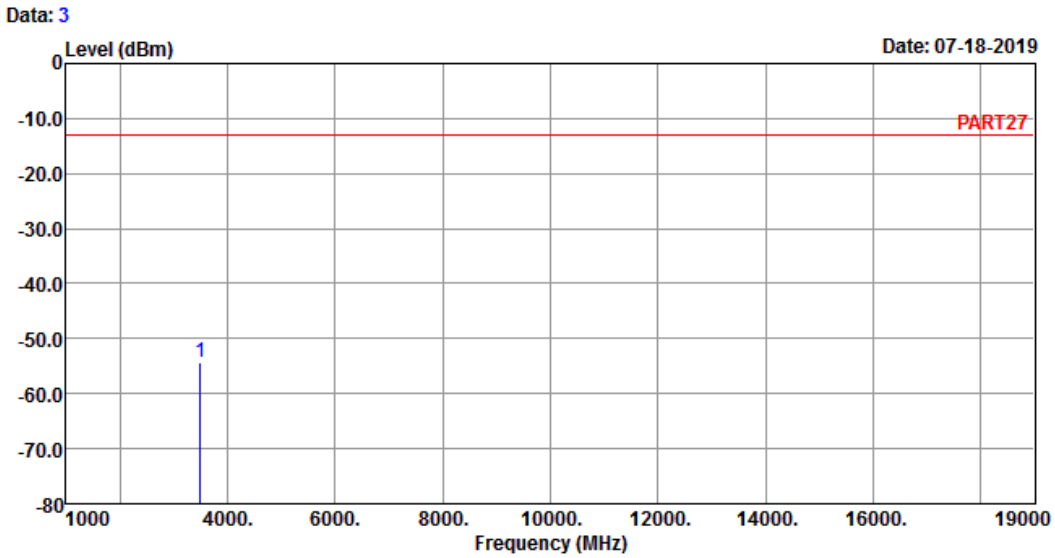



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_20M Link_L-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3440.00 | -56.07 | -47.85 | -13.00 | -8.22 | -43.07 | Peak |

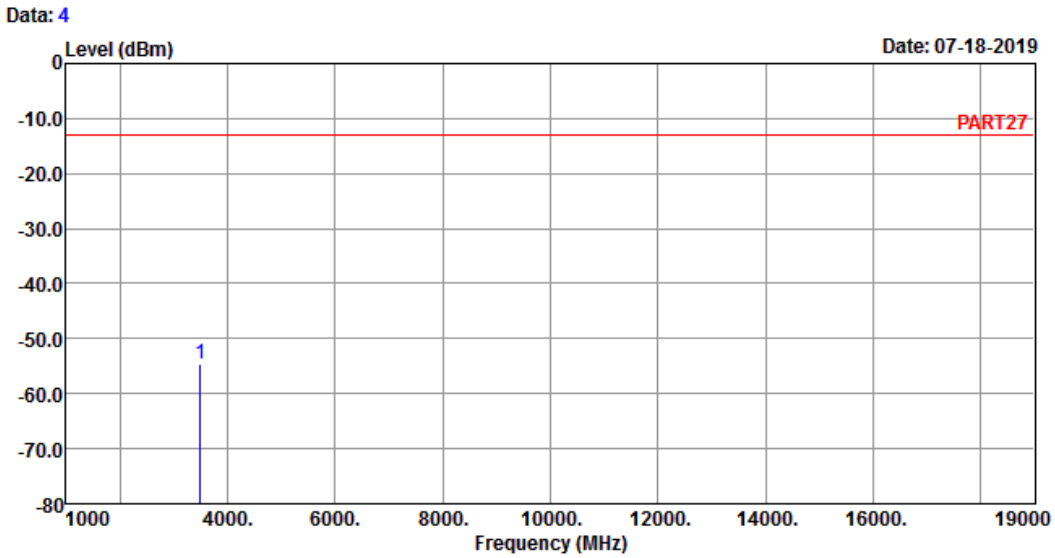
## Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_20M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -54.24 | -46.59 | -13.00 | -7.65 | -41.24 | Peak |

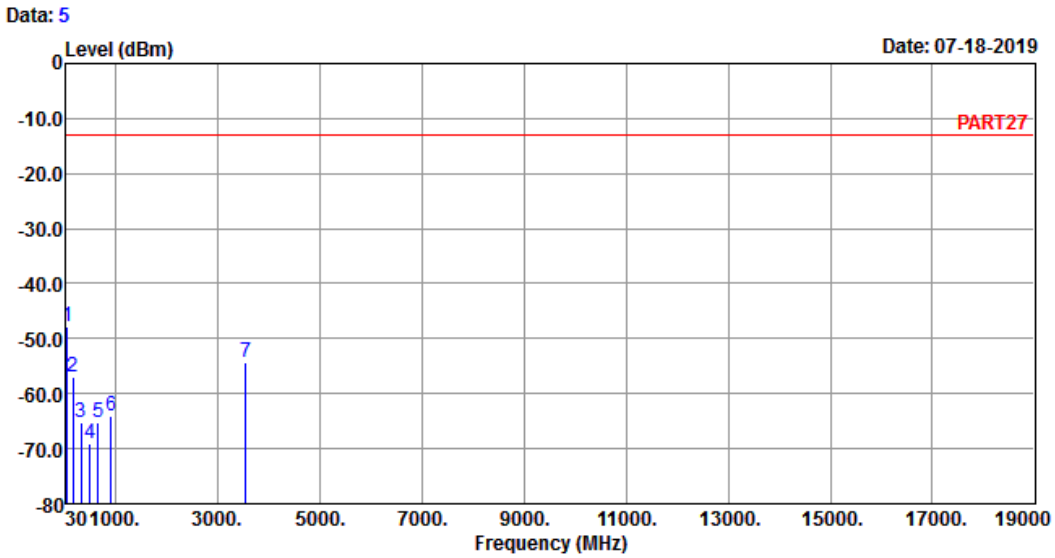



Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_20M Link_M-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3490.00 | -54.50 | -46.85 | -13.00 | -7.65 | -41.50 | Peak |

## High Channel

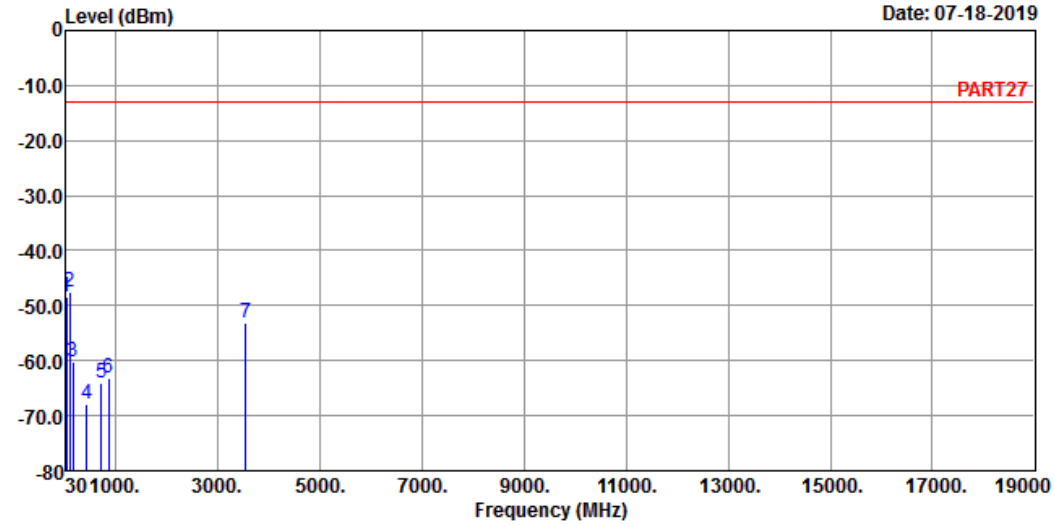
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_20M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 43.58 | -47.96 | -46.49 | -13.00 | -1.47 | -34.96 | Peak |
| 2 | 159.98 | -56.85 | -52.01 | -13.00 | -4.84 | -43.85 | Peak |
| 3 | 324.88 | -65.15 | -58.52 | -13.00 | -6.63 | -52.15 | Peak |
| 4 | 499.48 | -69.01 | -64.38 | -13.00 | -4.63 | -56.01 | Peak |
| 5 | 648.86 | -65.19 | -64.31 | -13.00 | -0.88 | -52.19 | Peak |
| 6 | 903.97 | -63.97 | -64.64 | -13.00 | 0.67 | -50.97 | Peak |
| 7 | 3540.00 | -54.27 | -47.05 | -13.00 | -7.22 | -41.27 | Peak |

Data: 6




Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 66 QPSK_20M Link_H-CH
Tested by: Getaz Yang

| | Freq | Level | Read Level | Limit Line | Factor | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 38.73 | -48.54 | -48.64 | -13.00 | 0.10 | -35.54 | Peak |
| 2 pp | 105.66 | -47.40 | -36.98 | -13.00 | -10.42 | -34.40 | Peak |
| 3 | 155.13 | -60.09 | -53.88 | -13.00 | -6.21 | -47.09 | Peak |
| 4 | 431.58 | -67.84 | -62.14 | -13.00 | -5.70 | -54.84 | Peak |
| 5 | 711.91 | -64.04 | -64.17 | -13.00 | 0.13 | -51.04 | Peak |
| 6 | 864.20 | -63.20 | -63.57 | -13.00 | 0.37 | -50.20 | Peak |
| 7 | 3540.00 | -53.18 | -45.96 | -13.00 | -7.22 | -40.18 | Peak |

## 5 Pictures of Test Arrangements

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

**Appendix – Information of the Testing Laboratories**

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

If you have any comments, please feel free to contact us at the following: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The address and road map of all our labs can be found in our web site also.

**--- END ---**