# FCC Test Report

# (PART 24)

| | |
|---|---|
| **Report No.:** | RFBERD-WTW-P22060603-1 |
| **FCC ID:** | HD5-CN85L1N |
| **Test Model:** | CN85L1N |
| **Received Date:** | Sep. 04, 2018 |
| **Test Date:** | Sep. 13, 2018 ~ Oct. 17, 2018 |
| **Issued Date:** | Jul. 04, 2022 |
| **Applicant:** | Honeywell International Inc. |
| **Address:** | 9680 Old Bailes Road, Fort Mill, SC 29707 USA |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch<br>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 |
|---|---|---|
| RFBERD-WTW-P22060603-1 | Original Release | Jul. 04, 2022 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Mobile computer |
| **Brand:** | Honeywell |
| **Test Model:** | CN85L1N |
| **Sample Status:** | Engineering Sample |
| **Applicant:** | Honeywell International Inc. |
| **Test Date:** | Sep. 13, 2018 ~ Oct. 17, 2018 |
| **Standards:** | FCC Part 24, Subpart E |

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

**Prepared by :** Lena Wang , **Date:** Jul. 04, 2022

Lena Wang / Specialist

**Approved by :** Jeremy Lin , **Date:** Jul. 04, 2022

Jeremy Lin / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 24 & Part 2 | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>24.232 | Effective Isotropic Radiated Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1046<br>24.232(d) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 2.1055<br>24.235 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049<br>24.238(b) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 24.238(b) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>24.238 | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>24.238 | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -24.95 dB at 5553.75 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 | Expended Uncertainty (k=2) (±) |
|---|---|---|
| Radiated Emissions up to 1 GHz | 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. 16, 2018 | Mar. 15, 2019 |
| Spectrum Analyzer<br>Agilent | N9010A | MY52220314 | Nov. 24, 2017 | Nov. 23, 2018 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSU43 | 101261 | Jan. 11, 2018 | Jan. 10, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120 D | 9120D-969 | Dec. 12, 2017 | Dec. 11, 2018 |
| BILOG Antenna<br>SCHWARZBECK | VULB9168 | 9168-472 | Dec. 06, 2017 | Dec. 05, 2018 |
| Horn Antenna<br>SCHWARZBECK | BBHA 9170 | 148 | Dec. 13, 2017 | Dec. 12, 2018 |
| Fixed Attenuator<br>Mini-Circuits | MDCS18N-10 | MDCS18N-10-01 | Apr. 16, 2018 | Apr. 15, 2019 |
| MXG Vector signal generator<br>Agilent | N5182B | MY53050430 | Oct. 24, 2017 | Oct. 23, 2018 |
| Preamplifier<br>EMCI | EMC 012645 | 980115 | Oct. 20, 2017 | Oct. 19, 2018 |
| Preamplifier<br>EMCI | EMC 330H | 980112 | Oct. 13, 2017 | Oct. 12, 2018 |
| | | | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>HUBER+SUHNNER | EMC104-SM-SM-8000&3000 | 140811+170717 | Oct. 20, 2017 | Oct. 19, 2018 |
| RF Coaxial Cable<br>HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM-1000(140807) | Oct. 20, 2017 | Oct. 19, 2018 |
| RF Coaxial Cable<br>Worken | 8D-FB | Cable-Ch10-01 | Oct. 20, 2017 | Oct. 19, 2018 |
| 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 |
| Communications Tester-Wireless<br>Agilent | 8960 Series 10 | MY53201073 | Jun. 28, 2017 | Jun. 27, 2019 |
| 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 |
| DC Power Supply<br>Topward | 33010D | 807748 | Oct. 25, 2016 | Oct. 24, 2018 |

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. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.

## 3 General Information

### 3.1 General Description of EUT

| | | |
|---|---|---|
| **Product** | Mobile computer | |
| **Brand** | Honeywell | |
| **Test Model** | CN85L1N | |
| **Status of EUT** | Engineering Sample | |
| **Power Supply Rating** | 3.85 Vdc (battery) | |
| **Modulation Type** | GSM/GPRS | GMSK |
| | EDGE | GMSK, 8PSK |
| | WCDMA | QPSK |
| | CDMA | QPSK, OQPSK, HPSK |
| | LTE | QPSK, 16QAM, 64QAM |
| **Frequency Range** | GSM/GPRS/EDGE | 1850.2 ~ 1909.8 MHz |
| | WCDMA | 1852.4 ~ 1907.6 MHz |
| | CDMA | 1851.25 ~ 1908.75 MHz |
| | LTE Band 2 (Channel Bandwidth: 1.4 MHz) | 1850.7 ~ 1909.3 MHz |
| | LTE Band 2 (Channel Bandwidth: 3 MHz) | 1851.5 ~ 1908.5 MHz |
| | LTE Band 2 (Channel Bandwidth: 5 MHz) | 1852.5 ~ 1907.5 MHz |
| | LTE Band 2 (Channel Bandwidth: 10 MHz) | 1855.0 ~ 1905.0 MHz |
| | LTE Band 2 (Channel Bandwidth: 15 MHz) | 1857.5 ~ 1902.5 MHz |
| | LTE Band 2 (Channel Bandwidth: 20 MHz) | 1860.0 ~ 1900.0 MHz |
| | LTE Band 25 (Channel Bandwidth: 1.4 MHz) | 1850.7 ~ 1914.3 MHz |
| | LTE Band 25 (Channel Bandwidth: 3 MHz) | 1851.5 ~ 1913.5 MHz |
| | LTE Band 25 (Channel Bandwidth: 5 MHz) | 1852.5 ~ 1912.5 MHz |
| | LTE Band 25 (Channel Bandwidth: 10 MHz) | 1855.0 ~ 1910.0 MHz |
| | LTE Band 25 (Channel Bandwidth: 15 MHz) | 1857.5 ~ 1907.5 MHz |
| | LTE Band 25 (Channel Bandwidth: 20 MHz) | 1860.0 ~ 1905.0 MHz |
| **Max. EIRP Power** | GSM/GPRS | 1083.93 mW |
| | EDGE | 572.80 mW |
| | WCDMA | 345.94 mW |
| | CDMA | 348.34 mW |
| | LTE Band 2 (Channel Bandwidth: 1.4 MHz) | 229.09 mW |
| | LTE Band 2 (Channel Bandwidth: 3 MHz) | 243.78 mW |
| | LTE Band 2 (Channel Bandwidth: 5 MHz) | 258.82 mW |
| | LTE Band 2 (Channel Bandwidth: 10 MHz) | 277.97 mW |
| | LTE Band 2 (Channel Bandwidth: 15 MHz) | 296.48 mW |
| | LTE Band 2 (Channel Bandwidth: 20 MHz) | 312.61 mW |
| | LTE Band 25 (Channel Bandwidth: 1.4 MHz) | 179.89 mW |
| | LTE Band 25 (Channel Bandwidth: 3 MHz) | 191.43 mW |
| | LTE Band 25 (Channel Bandwidth: 5 MHz) | 200.91 mW |
| | LTE Band 25 (Channel Bandwidth: 10 MHz) | 212.81 mW |
| | LTE Band 25 (Channel Bandwidth: 15 MHz) | 229.09 mW |

| | | |
|---|---|---|
| | LTE Band 25 (Channel Bandwidth: 20 MHz) | 242.66 mW |
| **Emission Designator** | GSM/GPRS | 246KGXW |
| | EDGE | 250KG7W |
| | WCDMA | 4M14F9W |
| | CDMA | 1M28F9W |
| | LTE Band 2 (Channel Bandwidth: 1.4 MHz) | 1M09W7D |
| | LTE Band 2 (Channel Bandwidth: 3 MHz) | 2M71W7D |
| | LTE Band 2 (Channel Bandwidth: 5 MHz) | 4M50W7D |
| | LTE Band 2 (Channel Bandwidth: 10 MHz) | 8M99W7D |
| | LTE Band 2 (Channel Bandwidth: 15 MHz) | 13M5W7D |
| | LTE Band 2 (Channel Bandwidth: 20 MHz) | 18M0W7D |
| | LTE Band 25 (Channel Bandwidth: 1.4 MHz) | 1M09W7D |
| | LTE Band 25 (Channel Bandwidth: 3 MHz) | 2M71W7D |
| | LTE Band 25 (Channel Bandwidth: 5 MHz) | 4M50W7D |
| | LTE Band 25 (Channel Bandwidth: 10 MHz) | 8M99G7D |
| | LTE Band 25 (Channel Bandwidth: 15 MHz) | 13M5G7D |
| | LTE Band 25 (Channel Bandwidth: 20 MHz) | 18M0W7D |
| **Antenna Type** | PIFA Antenna with 1.6 dBi gain (Main) / 1.2 dBi gain (Aux.) | |
| **HW Version** | V1.0 | |
| **HW P/N** | V2.0 (DVT) | |
| **SW Version** | OS.02.001-HON01.102 | |
| **SW P/N** | 86.00.35-(0206) | |
| **Accessory Device** | Refer to Note as below | |
| **Data Cable Supplied** | Refer to Note as below | |

Note:

1. This report is issued as a supplementary report to BV CPS report no. RF180904C09-1. The difference compared with original report is disable radio 2 by software, after the evaluation, it does not affect the original data, so the original test data is quoted.
2. The host devices are list as below table for difference of SKU.

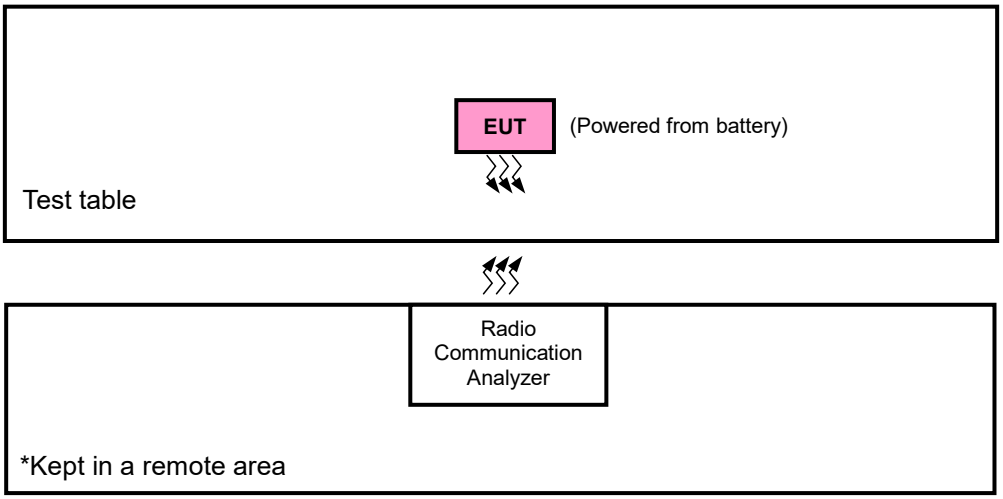
| Brand | Model | Product Name | USI FG P/N | Description |
|---|---|---|---|---|
| Honeywell | CN85L1N | Mobile computer | 5487-273335-01 | CN85G4/UPS/6703SR/CAM/WAN/GMS/FCC |
| Honeywell | CN85L1N | Mobile computer | 5487-275335-01 | CN85G4/UPS/6703SR/CAM/WAN/GMS/FCC/ No 2nd BT/No Zigbee |

3. The EUT contains following accessory devices.

| Product | Brand | Model | Description |
|---|---|---|---|
| Battery | Inventus Power, Inc. / Honeywell | CW-BAT | 3.85 Vdc, 5800 mAh, 22.3 Wh |

4. The above Antenna information refers to the manufacturer's antenna specifications, the laboratory shall not be held responsible.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

## 3.2 Configuration of System under Test




### 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 |
|---|---|---|
| **GSM** | X-plane | X-axis |
| **EDGE** | X-plane | X-axis |
| **WCDMA** | X-plane | X-axis |
| **CDMA** | X-plane | X-axis |
| **LTE Band 2** | X-plane | Z-axis |
| **LTE Band 25** | X-plane | Z-axis |

**GSM**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| - | EIRP | 512 to 810 | 512, 661, 810 | GSM, EDGE |
| - | Modulation Characteristics | 512 to 810 | 512 | GSM, EDGE |
| - | Frequency Stability | 512 to 810 | 512, 810 | GSM, EDGE |
| - | Occupied Bandwidth | 512 to 810 | 512, 661, 810 | GSM, EDGE |
| - | Band Edge | 512 to 810 | 512, 810 | GSM, EDGE |
| - | Peak to Average Ratio | 512 to 810 | 512, 661, 810 | GSM, EDGE |
| - | Conducted Emission | 512 to 810 | 512, 661, 810 | GSM, EDGE |
| - | Radiated Emission | 512 to 810 | 512, 661, 810 | GSM, EDGE |

## WCDMA

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| - | EIRP | 9262 to 9538 | 9262, 9400, 9538 | WCDMA |
| - | Modulation Characteristics | 9262 to 9538 | 9262 | WCDMA |
| - | Frequency Stability | 9262 to 9538 | 9262, 9538 | WCDMA |
| - | Occupied Bandwidth | 9262 to 9538 | 9262, 9400, 9538 | WCDMA |
| - | Band Edge | 9262 to 9538 | 9262, 9538 | WCDMA |
| - | Peak to Average Ratio | 9262 to 9538 | 9262, 9400, 9538 | WCDMA |
| - | Conducted Emission | 9262 to 9538 | 9262, 9400, 9538 | WCDMA |
| - | Radiated Emission | 9262 to 9538 | 9262, 9400, 9538 | WCDMA |

## CDMA

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|---|---|---|---|---|
| - | ERP | 25 to 1175 | 25, 600, 1175 | 1xRTT |
| - | Modulation Characteristics | 25 to 1175 | 600 | 1xRTT |
| - | Frequency Stability | 25 to 1175 | 25, 1175 | 1xRTT |
| - | Occupied Bandwidth | 25 to 1175 | 25, 600, 1175 | 1xRTT |
| - | Band Edge | 25 to 1175 | 25, 600, 1175 | 1xRTT |
| - | Peak to Average Ratio | 25 to 1175 | 25, 1175 | 1xRTT |
| - | Conducted Emission | 25 to 1175 | 25, 600, 1175 | 1xRTT |
| - | Radiated Emission | 25 to 1175 | 25, 600, 1175 | 1xRTT |

## LTE Band 2

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 18607 to 19193 | 18607, 18900, 19193 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615, 18900, 19185 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625, 18900, 19175 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650, 18900, 19150 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675, 18900, 19125 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700, 18900, 19100 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Modulation Characteristics | 18700 to 19100 | 18900 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Frequency Stability | 18607 to 19193 | 18607, 19193 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615, 19185 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625, 19175 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650, 19150 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675, 19125 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700, 19100 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 18607 to 19193 | 18607, 18900, 19193 | 1.4 MHz | QPSK, 16QAM, 64QAM | 6 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615, 18900, 19185 | 3 MHz | QPSK, 16QAM, 64QAM | 15 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625, 18900, 19175 | 5 MHz | QPSK, 16QAM, 64QAM | 25 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650, 18900, 19150 | 10 MHz | QPSK, 16QAM, 64QAM | 50 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675, 18900, 19125 | 15 MHz | QPSK, 16QAM, 64QAM | 75 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700, 18900, 19100 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 18607 to 19193 | 18607, 18900, 19193 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615, 18900, 19185 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625, 18900, 19175 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650, 18900, 19150 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675, 18900, 19125 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700, 18900, 19100 | 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 | 18607 to 19193 | 18607 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 19193 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 19185 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 19175 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 19150 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 19125 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 19100 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 18607 to 19193 | 18607, 18900, 19193 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18615 to 19185 | 18615, 18900, 19185 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18625 to 19175 | 18625, 18900, 19175 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18650 to 19150 | 18650, 18900, 19150 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18675 to 19125 | 18675, 18900, 19125 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 18700 to 19100 | 18700, 18900, 19100 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 18700 to 19100 | 18700, 18900, 19100 | 20 MHz | QPSK | 1 RB / 0 RB Offset |

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

## LTE Band 25

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 26047 to 26683 | 26047, 26365, 26683 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055, 26365, 26675 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065, 26365, 26665 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090, 26365, 26640 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115, 26365, 26615 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140, 26365, 26590 | 20 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Modulation Characteristics | 26065 to 26665 | 26365 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| - | Frequency Stability | 26047 to 26683 | 26047, 26683 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055, 26675 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065, 26665 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090, 26640 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115, 26615 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140, 26590 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 26047 to 26683 | 26047, 26365, 26683 | 1.4 MHz | QPSK, 16QAM, 64QAM | 6 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055, 26365, 26675 | 3 MHz | QPSK, 16QAM, 64QAM | 15 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065, 26365, 26665 | 5 MHz | QPSK, 16QAM, 64QAM | 25 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090, 26365, 26640 | 10 MHz | QPSK, 16QAM, 64QAM | 50 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115, 26365, 26615 | 15 MHz | QPSK, 16QAM, 64QAM | 75 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140, 26365, 26590 | 20 MHz | QPSK, 16QAM, 64QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 26047 to 26683 | 26047, 26365, 26683 | 1.4 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055, 26365, 26675 | 3 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065, 26365, 26665 | 5 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090, 26365, 26640 | 10 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115, 26365, 26615 | 15 MHz | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140, 26365, 26590 | 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 | 26047 to 26683 | 26047 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 26683 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 1 RB / 0 RB Offset |
| | | | 26675 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 26665 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 26640 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 26615 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 26590 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 26047 to 26683 | 26047, 26365, 26683 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26055 to 26675 | 26055, 26365, 26675 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26065 to 26665 | 26065, 26365, 26665 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26090 to 26640 | 26090, 26365, 26640 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26115 to 26615 | 26115, 26365, 26615 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 26140 to 26590 | 26140, 26365, 26590 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 18700 to 19100 | 18700, 18900, 19100 | 20 MHz | QPSK | 1 RB / 0 RB Offset |

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**Test Condition:**

| Test Item | Environmental Conditions | Input Power | Tested By |
|---|---|---|---|
| EIRP | 26 deg. C, 58 % RH | 3.85 Vdc | Jisyong Wang |
| Modulation Characteristics | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Frequency Stability | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Occupied Bandwidth | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Band Edge | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Peak to Average Ratio | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Conducted Emission | 26 deg. C, 58 % RH | 3.85 Vdc | Gavin Wu |
| Radiated Emission | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Jisyong Wang / Thomas Wei |

### 3.4 EUT Operating Conditions

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

### 3.5 General Description of Applied Standards and references

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

**Test Standard:**
**FCC 47 CFR Part 2**
**FCC 47 CFR Part 24**
**ANSI 63.26-2015**

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

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

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

# 4 Test Types and Results

## 4.1 Output Power Measurement

### 4.1.1 Limits of Output Power Measurement

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

### 4.1.2 Test Procedures

**EIRP / ERP Measurement:**

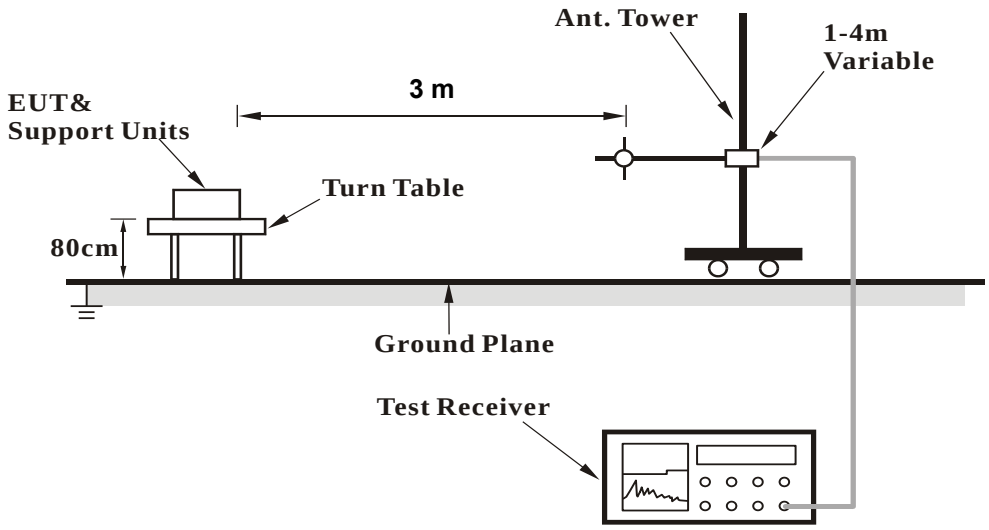
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GSM, GPRS & EDGE, 5 MHz for WCDMA and CDMA, and 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 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:**

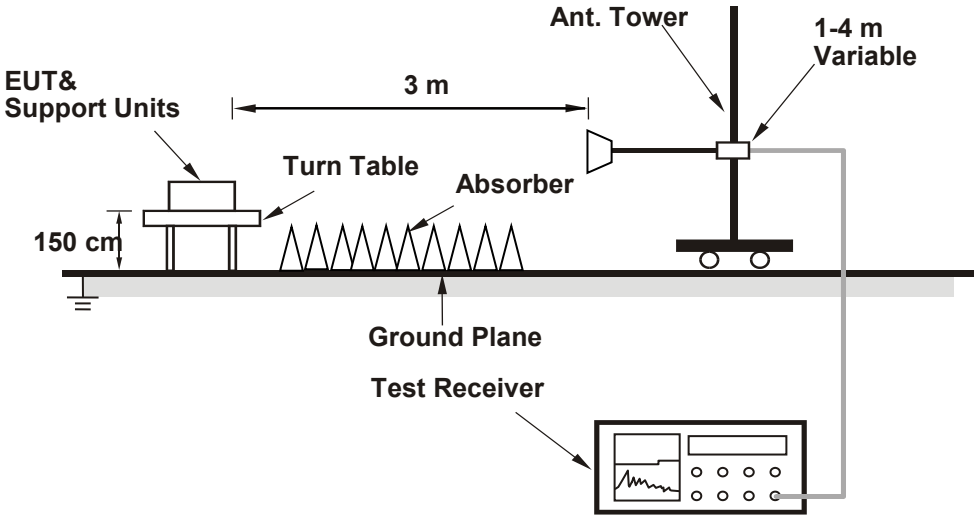
The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, CDMA, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

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)**

| Band | GSM1900 | | |
|---|---|---|---|
| Channel | 512 | 661 | 810 |
| Frequency (MHz) | 1850.2 | 1880.0 | 1909.8 |
| GSM (GMSK, 1Tx-slot) | 29.72 | 29.69 | 30.02 |
| GPRS (GMSK, 1Tx-slot) | 29.72 | 29.76 | 29.94 |
| GPRS (GMSK, 2Tx-slot) | 26.86 | 26.85 | 26.91 |
| GPRS (GMSK, 3Tx-slot) | 24.83 | 24.79 | 24.95 |
| GPRS (GMSK, 4Tx-slot) | 23.59 | 23.65 | 23.95 |
| EDGE (8PSK, 1Tx-slot) | 27.25 | 27.21 | 27.31 |
| EDGE (8PSK, 2Tx-slot) | 24.16 | 24.14 | 24.17 |
| EDGE (8PSK, 3Tx-slot) | 22.35 | 22.31 | 22.31 |
| EDGE (8PSK, 4Tx-slot) | 21.11 | 21.08 | 21.14 |

| Band | WCDMA II | | |
|---|---|---|---|
| Channel | 9262 | 9400 | 9538 |
| Frequency (MHz) | 1852.4 | 1880.0 | 1907.6 |
| RMC 12.2K | 23.67 | 23.56 | 23.49 |
| HSDPA Subtest-1 | 22.88 | 22.77 | 22.70 |
| HSDPA Subtest-2 | 22.87 | 22.76 | 22.69 |
| HSDPA Subtest-3 | 22.39 | 22.28 | 22.21 |
| HSDPA Subtest-4 | 22.33 | 22.22 | 22.15 |
| DC-HSDPA Subtest-1 | 22.86 | 22.75 | 22.68 |
| DC-HSDPA Subtest-2 | 22.85 | 22.74 | 22.67 |
| DC-HSDPA Subtest-3 | 22.38 | 22.27 | 22.20 |
| DC-HSDPA Subtest-4 | 22.32 | 22.21 | 22.14 |
| HSUPA Subtest-1 | 22.82 | 22.71 | 22.64 |
| HSUPA Subtest-2 | 20.84 | 20.73 | 20.66 |
| HSUPA Subtest-3 | 21.81 | 21.70 | 21.63 |
| HSUPA Subtest-4 | 20.82 | 20.71 | 20.64 |
| HSUPA Subtest-5 | 22.81 | 22.70 | 22.63 |

| Band | CDMA | | |
|---|---|---|---|
| Channel | 25 | 600 | 1175 |
| Frequency (MHz) | 1851.25 | 1880 | 1908.75 |
| RC1+SO55 | 23.62 | 23.65 | 23.68 |
| RC3+SO55 | 23.65 | 23.68 | 23.71 |
| RC3+SO32 (+F-SCH) | 23.63 | 23.66 | 23.69 |
| RC3+SO32 (+SCH) | 23.58 | 23.61 | 23.64 |
| RTAP 153.6 | 23.61 | 23.64 | 23.67 |
| RETAP 4096 | 23.48 | 23.51 | 23.54 |

## LTE Band 2

| 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 | | 18700 | 18900 | 19100 | | | | Channel | | 18675 | 18900 | 19125 | |
| | | Frequency (MHz) | | 1860.0 | 1880.0 | 1900.0 | | | | Frequency (MHz) | | 1857.5 | 1880.0 | 1902.5 | |
| 20M | QPSK | 1 | 0 | 24.35 | 24.51 | 24.52 | 0 | 15M | QPSK | 1 | 0 | 24.28 | 24.31 | 24.47 | 0 |
| | | 1 | 50 | 24.20 | 24.12 | 24.21 | 0 | | | 1 | 37 | 24.20 | 24.07 | 24.13 | 0 |
| | | 1 | 99 | 24.24 | 24.16 | 24.25 | 0 | | | 1 | 74 | 24.17 | 24.12 | 24.20 | 0 |
| | | 50 | 0 | 23.30 | 23.22 | 23.31 | 1 | | | 36 | 0 | 23.20 | 23.19 | 23.22 | 1 |
| | | 50 | 25 | 23.22 | 23.14 | 23.23 | 1 | | | 36 | 19 | 23.22 | 23.04 | 23.23 | 1 |
| | | 50 | 50 | 23.27 | 23.19 | 23.28 | 1 | | | 36 | 39 | 23.18 | 23.18 | 23.21 | 1 |
| | | 100 | 0 | 23.26 | 23.18 | 23.27 | 1 | | | 75 | 0 | 23.24 | 23.11 | 23.27 | 1 |
| | 16QAM | 1 | 0 | 23.28 | 23.30 | 23.44 | 1 | | 16QAM | 1 | 0 | 23.20 | 23.32 | 23.39 | 1 |
| | | 1 | 50 | 23.17 | 23.07 | 23.11 | 1 | | | 1 | 37 | 23.14 | 23.04 | 23.18 | 1 |
| | | 1 | 99 | 23.21 | 23.16 | 23.23 | 1 | | | 1 | 74 | 23.21 | 23.09 | 23.13 | 1 |
| | | 50 | 0 | 22.25 | 22.15 | 22.29 | 2 | | | 36 | 0 | 22.13 | 22.04 | 22.30 | 2 |
| | | 50 | 25 | 22.15 | 22.14 | 22.13 | 2 | | | 36 | 19 | 22.14 | 22.02 | 22.21 | 2 |
| | | 50 | 50 | 22.26 | 22.11 | 22.22 | 2 | | | 36 | 39 | 22.15 | 22.08 | 22.11 | 2 |
| | | 100 | 0 | 22.26 | 22.10 | 22.21 | 2 | | | 75 | 0 | 22.18 | 22.01 | 22.14 | 2 |
| | 64QAM | 1 | 0 | 22.31 | 22.37 | 22.44 | 2 | | 64QAM | 1 | 0 | 22.26 | 22.28 | 22.41 | 2 |
| | | 1 | 50 | 22.10 | 22.09 | 22.15 | 2 | | | 1 | 37 | 22.13 | 22.02 | 22.12 | 2 |
| | | 1 | 99 | 22.19 | 22.12 | 22.25 | 2 | | | 1 | 74 | 22.12 | 22.11 | 22.20 | 2 |
| | | 50 | 0 | 21.28 | 21.21 | 21.27 | 3 | | | 36 | 0 | 21.15 | 21.14 | 21.14 | 3 |
| | | 50 | 25 | 21.21 | 21.12 | 21.19 | 3 | | | 36 | 19 | 21.15 | 20.96 | 21.21 | 3 |
| | | 50 | 50 | 21.25 | 21.18 | 21.20 | 3 | | | 36 | 39 | 21.15 | 21.07 | 21.16 | 3 |
| | | 100 | 0 | 21.17 | 21.10 | 21.24 | 3 | | | 75 | 0 | 21.18 | 21.07 | 21.17 | 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 | | 18650 | 18900 | 19150 | | | | Channel | | 18625 | 18900 | 19175 | |
| | | Frequency (MHz) | | 1855.0 | 1880.0 | 1905.0 | | | | Frequency (MHz) | | 1852.5 | 1880.0 | 1907.5 | |
| 10M | QPSK | 1 | 0 | 24.20 | 24.28 | 24.34 | 0 | 5M | QPSK | 1 | 0 | 24.21 | 24.28 | 24.33 | 0 |
| | | 1 | 24 | 24.08 | 24.09 | 24.10 | 0 | | | 1 | 12 | 24.14 | 24.06 | 24.10 | 0 |
| | | 1 | 49 | 24.05 | 24.14 | 24.13 | 0 | | | 1 | 24 | 24.14 | 23.96 | 24.00 | 0 |
| | | 25 | 0 | 23.22 | 23.10 | 23.20 | 1 | | | 12 | 0 | 23.06 | 23.06 | 23.10 | 1 |
| | | 25 | 12 | 23.10 | 23.11 | 23.10 | 1 | | | 12 | 6 | 23.17 | 23.05 | 23.07 | 1 |
| | | 25 | 25 | 23.18 | 23.01 | 23.10 | 1 | | | 12 | 13 | 23.12 | 23.07 | 23.07 | 1 |
| | | 50 | 0 | 23.17 | 23.05 | 23.16 | 1 | | | 25 | 0 | 23.13 | 23.12 | 22.97 | 1 |
| | 16QAM | 1 | 0 | 23.21 | 23.25 | 23.39 | 1 | | 16QAM | 1 | 0 | 23.15 | 23.25 | 23.18 | 1 |
| | | 1 | 24 | 23.15 | 22.90 | 22.99 | 1 | | | 1 | 12 | 23.08 | 22.94 | 23.04 | 1 |
| | | 1 | 49 | 23.04 | 22.90 | 23.01 | 1 | | | 1 | 24 | 23.11 | 23.03 | 23.10 | 1 |
| | | 25 | 0 | 22.13 | 22.02 | 22.17 | 2 | | | 12 | 0 | 22.13 | 22.02 | 22.06 | 2 |
| | | 25 | 12 | 22.09 | 22.00 | 22.00 | 2 | | | 12 | 6 | 22.14 | 22.04 | 22.06 | 2 |
| | | 25 | 25 | 22.14 | 21.95 | 22.06 | 2 | | | 12 | 13 | 22.19 | 22.07 | 22.12 | 2 |
| | | 50 | 0 | 22.15 | 21.97 | 22.11 | 2 | | | 25 | 0 | 22.06 | 22.08 | 22.14 | 2 |
| | 64QAM | 1 | 0 | 22.08 | 22.11 | 22.20 | 2 | | 64QAM | 1 | 0 | 22.13 | 22.16 | 22.31 | 2 |
| | | 1 | 24 | 22.01 | 21.83 | 22.02 | 2 | | | 1 | 12 | 22.03 | 22.07 | 22.01 | 2 |
| | | 1 | 49 | 21.98 | 22.02 | 22.02 | 2 | | | 1 | 24 | 22.05 | 21.98 | 22.08 | 2 |
| | | 25 | 0 | 21.13 | 21.16 | 21.15 | 3 | | | 12 | 0 | 21.07 | 21.03 | 21.10 | 3 |
| | | 25 | 12 | 21.11 | 20.86 | 21.09 | 3 | | | 12 | 6 | 21.01 | 21.05 | 20.93 | 3 |
| | | 25 | 25 | 21.15 | 21.08 | 20.94 | 3 | | | 12 | 13 | 21.16 | 21.09 | 21.12 | 3 |
| | | 50 | 0 | 21.04 | 20.94 | 21.20 | 3 | | | 25 | 0 | 21.12 | 20.92 | 20.96 | 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 | | 18615 | 18900 | 19185 | | | | Channel | | 18607 | 18900 | 19193 | |
| | | Frequency (MHz) | | 1851.5 | 1880.0 | 1908.5 | | | | Frequency (MHz) | | 1850.7 | 1880.0 | 1909.3 | |
| 3M | QPSK | 1 | 0 | 24.25 | 24.29 | 24.27 | 0 | 1.4M | QPSK | 1 | 0 | 24.30 | 24.34 | 24.35 | 0 |
| | | 1 | 7 | 24.03 | 24.00 | 24.11 | 0 | | | 1 | 2 | 24.09 | 23.93 | 24.08 | 0 |
| | | 1 | 14 | 24.20 | 24.06 | 24.09 | 0 | | | 1 | 5 | 24.09 | 24.06 | 24.11 | 0 |
| | | 8 | 0 | 23.16 | 23.14 | 23.11 | 1 | | | 3 | 0 | 24.23 | 24.10 | 24.25 | 0 |
| | | 8 | 3 | 23.10 | 22.98 | 23.14 | 1 | | | 3 | 1 | 24.08 | 24.02 | 24.12 | 0 |
| | | 8 | 7 | 23.14 | 23.04 | 23.21 | 1 | | | 3 | 3 | 24.06 | 24.11 | 24.23 | 0 |
| | | 15 | 0 | 23.20 | 22.98 | 23.23 | 1 | | | 6 | 0 | 23.16 | 23.02 | 23.14 | 1 |
| | 16QAM | 1 | 0 | 23.16 | 23.17 | 23.37 | 1 | | 16QAM | 1 | 0 | 23.21 | 23.25 | 23.26 | 1 |
| | | 1 | 7 | 23.04 | 22.98 | 23.02 | 1 | | | 1 | 2 | 22.91 | 22.91 | 23.02 | 1 |
| | | 1 | 14 | 23.08 | 23.01 | 22.98 | 1 | | | 1 | 5 | 23.12 | 22.97 | 23.09 | 1 |
| | | 8 | 0 | 22.08 | 22.02 | 22.16 | 2 | | | 3 | 0 | 23.11 | 23.13 | 23.19 | 1 |
| | | 8 | 3 | 22.12 | 21.93 | 22.02 | 2 | | | 3 | 1 | 23.16 | 22.99 | 23.07 | 1 |
| | | 8 | 7 | 22.05 | 21.99 | 22.07 | 2 | | | 3 | 3 | 23.13 | 22.94 | 23.16 | 1 |
| | | 15 | 0 | 22.08 | 22.05 | 22.06 | 2 | | | 6 | 0 | 22.10 | 22.10 | 21.99 | 2 |
| | 64QAM | 1 | 0 | 22.25 | 22.30 | 22.35 | 2 | | 64QAM | 1 | 0 | 22.17 | 22.21 | 22.23 | 2 |
| | | 1 | 7 | 22.03 | 22.09 | 21.99 | 2 | | | 1 | 2 | 21.89 | 21.92 | 22.05 | 2 |
| | | 1 | 14 | 22.01 | 22.00 | 22.00 | 2 | | | 1 | 5 | 22.06 | 22.03 | 21.98 | 2 |
| | | 8 | 0 | 21.17 | 21.07 | 21.16 | 3 | | | 3 | 0 | 22.05 | 22.13 | 22.17 | 2 |
| | | 8 | 3 | 21.04 | 20.97 | 21.06 | 3 | | | 3 | 1 | 22.00 | 21.83 | 22.12 | 2 |
| | | 8 | 7 | 21.02 | 20.93 | 21.16 | 3 | | | 3 | 3 | 22.10 | 22.08 | 22.03 | 2 |
| | | 15 | 0 | 21.11 | 20.94 | 21.10 | 3 | | | 6 | 0 | 21.21 | 20.96 | 21.17 | 3 |

## LTE Band 25

| 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 | | 26140 | 26365 | 26590 | | | | Channel | | 26115 | 26365 | 26615 | |
| | | Frequency (MHz) | | 1860.0 | 1882.5 | 1905.0 | | | | Frequency (MHz) | | 1857.5 | 1882.5 | 1907.5 | |
| 20M | QPSK | 1 | 0 | 23.39 | 23.21 | 23.25 | 0 | 15M | QPSK | 1 | 0 | 23.31 | 23.19 | 23.16 | 0 |
| | | 1 | 50 | 23.31 | 23.13 | 23.17 | 0 | | | 1 | 37 | 23.23 | 23.09 | 23.15 | 0 |
| | | 1 | 99 | 23.22 | 23.04 | 23.08 | 0 | | | 1 | 74 | 23.14 | 23.01 | 22.98 | 0 |
| | | 50 | 0 | 22.25 | 22.07 | 22.11 | 1 | | | 36 | 0 | 22.17 | 22.02 | 22.10 | 1 |
| | | 50 | 25 | 22.14 | 21.96 | 22.00 | 1 | | | 36 | 19 | 22.09 | 21.89 | 21.97 | 1 |
| | | 50 | 50 | 22.10 | 21.92 | 21.96 | 1 | | | 36 | 39 | 22.08 | 21.91 | 21.94 | 1 |
| | | 100 | 0 | 22.14 | 21.96 | 22.00 | 1 | | | 75 | 0 | 22.05 | 21.96 | 21.90 | 1 |
| | 16QAM | 1 | 0 | 22.32 | 22.14 | 22.15 | 1 | | 16QAM | 1 | 0 | 22.31 | 22.14 | 22.16 | 1 |
| | | 1 | 50 | 22.29 | 22.03 | 22.12 | 1 | | | 1 | 37 | 22.25 | 22.04 | 22.09 | 1 |
| | | 1 | 99 | 22.13 | 22.02 | 22.02 | 1 | | | 1 | 74 | 22.08 | 22.00 | 21.98 | 1 |
| | | 50 | 0 | 21.25 | 20.98 | 21.03 | 2 | | | 36 | 0 | 21.12 | 21.00 | 20.94 | 2 |
| | | 50 | 25 | 21.14 | 20.96 | 20.99 | 2 | | | 36 | 19 | 21.09 | 20.86 | 20.91 | 2 |
| | | 50 | 50 | 21.10 | 20.90 | 20.91 | 2 | | | 36 | 39 | 20.97 | 20.83 | 20.82 | 2 |
| | | 100 | 0 | 21.14 | 20.93 | 20.99 | 2 | | | 75 | 0 | 20.98 | 20.92 | 20.89 | 2 |
| | 64QAM | 1 | 0 | 21.37 | 21.12 | 21.16 | 2 | | 64QAM | 1 | 0 | 21.21 | 21.06 | 21.23 | 2 |
| | | 1 | 50 | 21.28 | 21.06 | 21.07 | 2 | | | 1 | 37 | 21.21 | 21.02 | 21.07 | 2 |
| | | 1 | 99 | 21.21 | 20.96 | 21.03 | 2 | | | 1 | 74 | 21.16 | 21.00 | 21.02 | 2 |
| | | 50 | 0 | 20.23 | 20.05 | 20.04 | 3 | | | 36 | 0 | 20.13 | 19.94 | 20.00 | 3 |
| | | 50 | 25 | 20.13 | 19.91 | 19.92 | 3 | | | 36 | 19 | 20.01 | 19.83 | 19.84 | 3 |
| | | 50 | 50 | 20.04 | 19.92 | 19.86 | 3 | | | 36 | 39 | 20.04 | 19.84 | 19.92 | 3 |
| | | 100 | 0 | 20.13 | 19.87 | 19.95 | 3 | | | 75 | 0 | 19.98 | 19.88 | 19.91 | 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 | | 26090 | 26365 | 26640 | | | | Channel | | 26065 | 26365 | 26665 | |
| | | Frequency (MHz) | | 2855.0 | 1882.5 | 1910.0 | | | | Frequency (MHz) | | 1852.5 | 1882.5 | 1912.5 | |
| 10M | QPSK | 1 | 0 | 23.17 | 23.10 | 23.12 | 0 | 5M | QPSK | 1 | 0 | 23.19 | 23.09 | 23.05 | 0 |
| | | 1 | 24 | 23.24 | 22.89 | 23.00 | 0 | | | 1 | 12 | 23.26 | 22.97 | 22.94 | 0 |
| | | 1 | 49 | 23.10 | 22.85 | 22.95 | 0 | | | 1 | 24 | 22.97 | 22.89 | 23.01 | 0 |
| | | 25 | 0 | 22.04 | 21.85 | 22.07 | 1 | | | 12 | 0 | 22.20 | 21.88 | 21.86 | 1 |
| | | 25 | 12 | 22.08 | 21.88 | 21.89 | 1 | | | 12 | 6 | 22.04 | 21.80 | 21.71 | 1 |
| | | 25 | 25 | 21.97 | 21.82 | 21.84 | 1 | | | 12 | 13 | 21.85 | 21.77 | 21.81 | 1 |
| | | 50 | 0 | 21.98 | 21.78 | 21.90 | 1 | | | 25 | 0 | 22.01 | 21.75 | 21.70 | 1 |
| | 16QAM | 1 | 0 | 22.15 | 22.12 | 22.07 | 1 | | 16QAM | 1 | 0 | 22.28 | 22.00 | 22.02 | 1 |
| | | 1 | 24 | 22.10 | 21.88 | 21.97 | 1 | | | 1 | 12 | 22.14 | 21.92 | 21.90 | 1 |
| | | 1 | 49 | 22.01 | 21.94 | 21.78 | 1 | | | 1 | 24 | 22.02 | 21.88 | 21.85 | 1 |
| | | 25 | 0 | 21.03 | 20.95 | 20.90 | 2 | | | 12 | 0 | 20.98 | 20.94 | 20.93 | 2 |
| | | 25 | 12 | 21.03 | 20.80 | 20.77 | 2 | | | 12 | 6 | 21.10 | 20.79 | 20.80 | 2 |
| | | 25 | 25 | 20.97 | 20.73 | 20.87 | 2 | | | 12 | 13 | 20.92 | 20.83 | 20.85 | 2 |
| | | 50 | 0 | 20.97 | 20.65 | 20.91 | 2 | | | 25 | 0 | 20.86 | 20.73 | 20.95 | 2 |
| | 64QAM | 1 | 0 | 21.26 | 20.93 | 21.11 | 2 | | 64QAM | 1 | 0 | 21.10 | 21.00 | 21.11 | 2 |
| | | 1 | 24 | 21.17 | 20.95 | 21.09 | 2 | | | 1 | 12 | 21.16 | 21.05 | 21.04 | 2 |
| | | 1 | 49 | 20.99 | 20.86 | 20.84 | 2 | | | 1 | 24 | 21.18 | 20.94 | 21.04 | 2 |
| | | 25 | 0 | 20.21 | 19.88 | 19.80 | 3 | | | 12 | 0 | 20.16 | 19.86 | 19.82 | 3 |
| | | 25 | 12 | 20.07 | 19.82 | 19.92 | 3 | | | 12 | 6 | 19.92 | 19.76 | 19.83 | 3 |
| | | 25 | 25 | 19.91 | 19.71 | 19.75 | 3 | | | 12 | 13 | 19.95 | 19.85 | 19.77 | 3 |
| | | 50 | 0 | 19.92 | 19.78 | 19.80 | 3 | | | 25 | 0 | 19.97 | 19.81 | 19.81 | 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 | | 26055 | 26365 | 26675 | | | | Channel | | 26047 | 26365 | 26683 | |
| | | Frequency (MHz) | | 1851.5 | 1882.5 | 1913.5 | | | | Frequency (MHz) | | 1850.7 | 1882.5 | 1914.3 | |
| 3M | QPSK | 1 | 0 | 23.21 | 22.97 | 23.18 | 0 | 1.4M | QPSK | 1 | 0 | 23.33 | 23.05 | 23.06 | 0 |
| | | 1 | 7 | 23.14 | 22.95 | 22.98 | 0 | | | 1 | 2 | 23.21 | 22.91 | 23.05 | 0 |
| | | 1 | 14 | 23.12 | 23.02 | 23.04 | 0 | | | 1 | 5 | 23.11 | 22.98 | 23.00 | 0 |
| | | 8 | 0 | 22.10 | 21.98 | 21.95 | 1 | | | 3 | 0 | 23.14 | 22.93 | 23.05 | 0 |
| | | 8 | 3 | 21.98 | 21.80 | 21.80 | 1 | | | 3 | 1 | 23.13 | 22.76 | 22.85 | 0 |
| | | 8 | 7 | 21.93 | 21.87 | 21.82 | 1 | | | 3 | 3 | 22.98 | 22.85 | 22.79 | 0 |
| | | 15 | 0 | 21.96 | 21.90 | 21.92 | 1 | | | 6 | 0 | 22.07 | 21.88 | 21.78 | 1 |
| | 16QAM | 1 | 0 | 22.28 | 21.97 | 22.02 | 1 | | 16QAM | 1 | 0 | 22.15 | 22.02 | 22.03 | 1 |
| | | 1 | 7 | 22.10 | 22.00 | 21.92 | 1 | | | 1 | 2 | 22.08 | 21.92 | 22.04 | 1 |
| | | 1 | 14 | 22.08 | 21.93 | 21.92 | 1 | | | 1 | 5 | 21.92 | 21.91 | 21.91 | 1 |
| | | 8 | 0 | 21.14 | 20.98 | 20.86 | 2 | | | 3 | 0 | 22.05 | 21.93 | 21.92 | 1 |
| | | 8 | 3 | 20.95 | 20.79 | 20.84 | 2 | | | 3 | 1 | 22.01 | 21.83 | 21.81 | 1 |
| | | 8 | 7 | 20.91 | 20.80 | 20.73 | 2 | | | 3 | 3 | 21.91 | 21.85 | 21.76 | 1 |
| | | 15 | 0 | 20.95 | 20.79 | 20.89 | 2 | | | 6 | 0 | 20.85 | 20.77 | 20.87 | 2 |
| | 64QAM | 1 | 0 | 21.23 | 21.19 | 21.17 | 2 | | 64QAM | 1 | 0 | 21.16 | 20.94 | 21.13 | 2 |
| | | 1 | 7 | 21.20 | 20.85 | 20.96 | 2 | | | 1 | 2 | 21.17 | 21.03 | 20.95 | 2 |
| | | 1 | 14 | 21.12 | 20.91 | 20.95 | 2 | | | 1 | 5 | 20.94 | 20.95 | 20.93 | 2 |
| | | 8 | 0 | 20.14 | 19.92 | 20.06 | 3 | | | 3 | 0 | 21.05 | 20.87 | 20.87 | 2 |
| | | 8 | 3 | 20.09 | 19.72 | 19.89 | 3 | | | 3 | 1 | 20.84 | 20.84 | 20.96 | 2 |
| | | 8 | 7 | 20.04 | 19.84 | 19.75 | 3 | | | 3 | 3 | 20.84 | 20.71 | 20.74 | 2 |
| | | 15 | 0 | 19.85 | 19.83 | 19.85 | 3 | | | 6 | 0 | 20.01 | 19.82 | 19.86 | 3 |

**EIRP Power (dBm)**

| GSM | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 512 | 1850.2 | -6.55 | 36.57 | 30.02 | 1004.62 | H |
| | 661 | 1880.0 | -7.23 | 37.22 | 29.99 | 997.70 | |
| | 810 | 1909.8 | -6.83 | 37.18 | 30.35 | 1083.93 | |
| | 512 | 1850.2 | -13.26 | 37.65 | 24.39 | 274.79 | V |
| | 661 | 1880.0 | -13.22 | 37.58 | 24.36 | 272.90 | |
| | 810 | 1909.8 | -12.76 | 37.48 | 24.72 | 296.48 | |

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

| EDGE | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 512 | 1850.2 | -9.08 | 36.57 | 27.49 | 561.05 | H |
| | 661 | 1880.0 | -9.80 | 37.22 | 27.42 | 552.08 | |
| | 810 | 1909.8 | -9.60 | 37.18 | 27.58 | 572.80 | |
| | 512 | 1850.2 | -16.39 | 37.65 | 21.26 | 133.66 | V |
| | 661 | 1880.0 | -16.42 | 37.58 | 21.16 | 130.62 | |
| | 810 | 1909.8 | -16.18 | 37.48 | 21.30 | 134.90 | |

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

| WCDMA | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 9262 | 1852.4 | -11.18 | 36.57 | 25.39 | 345.94 | H |
| | 9400 | 1880.0 | -12.01 | 37.22 | 25.21 | 331.89 | |
| | 9538 | 1907.6 | -12.02 | 37.18 | 25.16 | 328.10 | |
| | 9262 | 1852.4 | -18.44 | 37.65 | 19.21 | 83.37 | V |
| | 9400 | 1880.0 | -18.55 | 37.58 | 19.03 | 79.98 | |
| | 9538 | 1907.6 | -18.50 | 37.48 | 18.98 | 79.07 | |

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

| CDMA | | | | | | | |
|---|---|---|---|---|---|---|---|
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 25 | 1851.25 | -11.23 | 36.57 | 25.34 | 341.98 | H |
| | 600 | 1880.00 | -11.83 | 37.22 | 25.39 | 345.94 | |
| | 1175 | 1908.75 | -11.76 | 37.18 | 25.42 | 348.34 | |
| | 25 | 1851.25 | -18.18 | 37.65 | 19.47 | 88.51 | V |
| | 600 | 1880.00 | -18.02 | 37.58 | 19.56 | 90.36 | |
| | 1175 | 1908.75 | -17.89 | 37.48 | 19.59 | 90.99 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 18607 | 1850.7 | -12.97 | 36.57 | 23.60 | 229.09 | H |
| | 18900 | 1880.0 | -13.95 | 37.22 | 23.27 | 212.32 | |
| | 19193 | 1909.3 | -14.54 | 37.18 | 22.64 | 183.65 | |
| | 18607 | 1850.7 | -20.20 | 37.65 | 17.45 | 55.59 | V |
| | 18900 | 1880.0 | -20.46 | 37.58 | 17.12 | 51.52 | |
| | 19193 | 1909.3 | -20.99 | 37.48 | 16.49 | 44.57 | |
| Channel Bandwidth: 1.4 MHz / 16QAM | | | | | | | |
| X | 18607 | 1850.7 | -14.00 | 36.57 | 22.57 | 180.72 | H |
| | 18900 | 1880.0 | -14.98 | 37.22 | 22.24 | 167.49 | |
| | 19193 | 1909.3 | -15.57 | 37.18 | 21.61 | 144.88 | |
| | 18607 | 1850.7 | -21.23 | 37.65 | 16.42 | 43.85 | V |
| | 18900 | 1880.0 | -21.49 | 37.58 | 16.09 | 40.64 | |
| | 19193 | 1909.3 | -22.02 | 37.48 | 15.46 | 35.16 | |
| Channel Bandwidth: 1.4 MHz / 64QAM | | | | | | | |
| X | 18607 | 1850.7 | -14.98 | 36.57 | 21.59 | 144.21 | H |
| | 18900 | 1880.0 | -15.96 | 37.22 | 21.26 | 133.66 | |
| | 19193 | 1909.3 | -16.55 | 37.18 | 20.63 | 115.61 | |
| | 18607 | 1850.7 | -22.21 | 37.65 | 15.44 | 34.99 | V |
| | 18900 | 1880.0 | -22.47 | 37.58 | 15.11 | 32.43 | |
| | 19193 | 1909.3 | -23.00 | 37.48 | 14.48 | 28.05 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 18615 | 1851.5 | -12.70 | 36.57 | 23.87 | 243.78 | H |
| | 18900 | 1880.0 | -13.68 | 37.22 | 23.54 | 225.94 | |
| | 19185 | 1908.5 | -14.27 | 37.18 | 22.91 | 195.43 | |
| | 18615 | 1851.5 | -19.93 | 37.65 | 17.72 | 59.16 | V |
| | 18900 | 1880.0 | -20.19 | 37.58 | 17.39 | 54.83 | |
| | 19185 | 1908.5 | -20.72 | 37.48 | 16.76 | 47.42 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| **X** | 18615 | 1851.5 | -13.66 | 36.57 | 22.91 | 195.43 | H |
| | 18900 | 1880.0 | -14.64 | 37.22 | 22.58 | 181.13 | |
| | 19185 | 1908.5 | -15.23 | 37.18 | 21.95 | 156.68 | |
| | 18615 | 1851.5 | -20.89 | 37.65 | 16.76 | 47.42 | V |
| | 18900 | 1880.0 | -21.15 | 37.58 | 16.43 | 43.95 | |
| | 19185 | 1908.5 | -21.68 | 37.48 | 15.80 | 38.02 | |
| **Channel Bandwidth: 3 MHz / 64QAM** | | | | | | | |
| **X** | 18615 | 1851.5 | -14.71 | 36.57 | 21.86 | 153.46 | H |
| | 18900 | 1880.0 | -15.69 | 37.22 | 21.53 | 142.23 | |
| | 19185 | 1908.5 | -16.28 | 37.18 | 20.90 | 123.03 | |
| | 18615 | 1851.5 | -21.94 | 37.65 | 15.71 | 37.24 | V |
| | 18900 | 1880.0 | -22.20 | 37.58 | 15.38 | 34.51 | |
| | 19185 | 1908.5 | -22.73 | 37.48 | 14.75 | 29.85 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 18625 | 1852.5 | -12.44 | 36.57 | 24.13 | 258.82 | H |
| | 18900 | 1880.0 | -13.42 | 37.22 | 23.80 | 239.88 | |
| | 19175 | 1907.5 | -14.01 | 37.18 | 23.17 | 207.49 | |
| | 18625 | 1852.5 | -19.67 | 37.65 | 17.98 | 62.81 | V |
| | 18900 | 1880.0 | -19.93 | 37.58 | 17.65 | 58.21 | |
| | 19175 | 1907.5 | -20.46 | 37.48 | 17.02 | 50.35 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| **X** | 18625 | 1852.5 | -13.48 | 36.57 | 23.09 | 203.70 | H |
| | 18900 | 1880.0 | -14.46 | 37.22 | 22.76 | 188.80 | |
| | 19175 | 1907.5 | -15.05 | 37.18 | 22.13 | 163.31 | |
| | 18625 | 1852.5 | -20.71 | 37.65 | 16.94 | 49.43 | V |
| | 18900 | 1880.0 | -20.97 | 37.58 | 16.61 | 45.81 | |
| | 19175 | 1907.5 | -21.50 | 37.48 | 15.98 | 39.63 | |
| **Channel Bandwidth: 5 MHz / 64QAM** | | | | | | | |
| **X** | 18625 | 1852.5 | -14.45 | 36.57 | 22.12 | 162.93 | H |
| | 18900 | 1880.0 | -15.43 | 37.22 | 21.79 | 151.01 | |
| | 19175 | 1907.5 | -16.02 | 37.18 | 21.16 | 130.62 | |
| | 18625 | 1852.5 | -21.68 | 37.65 | 15.97 | 39.54 | V |
| | 18900 | 1880.0 | -21.94 | 37.58 | 15.64 | 36.64 | |
| | 19175 | 1907.5 | -22.47 | 37.48 | 15.01 | 31.70 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 18650 | 1855.0 | -12.13 | 36.57 | 24.44 | 277.97 | H |
| | 18900 | 1880.0 | -13.11 | 37.22 | 24.11 | 257.63 | |
| | 19150 | 1905.0 | -13.70 | 37.18 | 23.48 | 222.84 | |
| | 18650 | 1855.0 | -19.36 | 37.65 | 18.29 | 67.45 | V |
| | 18900 | 1880.0 | -19.62 | 37.58 | 17.96 | 62.52 | |
| | 19150 | 1905.0 | -20.15 | 37.48 | 17.33 | 54.08 | |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| **X** | 18650 | 1855.0 | -13.11 | 36.57 | 23.46 | 221.82 | H |
| | 18900 | 1880.0 | -14.09 | 37.22 | 23.13 | 205.59 | |
| | 19150 | 1905.0 | -14.68 | 37.18 | 22.50 | 177.83 | |
| | 18650 | 1855.0 | -20.34 | 37.65 | 17.31 | 53.83 | V |
| | 18900 | 1880.0 | -20.60 | 37.58 | 16.98 | 49.89 | |
| | 19150 | 1905.0 | -21.13 | 37.48 | 16.35 | 43.15 | |
| **Channel Bandwidth: 10 MHz / 64QAM** | | | | | | | |
| **X** | 18650 | 1855.0 | -14.14 | 36.57 | 22.43 | 174.98 | H |
| | 18900 | 1880.0 | -15.12 | 37.22 | 22.10 | 162.18 | |
| | 19150 | 1905.0 | -15.71 | 37.18 | 21.47 | 140.28 | |
| | 18650 | 1855.0 | -21.37 | 37.65 | 16.28 | 42.46 | V |
| | 18900 | 1880.0 | -21.63 | 37.58 | 15.95 | 39.36 | |
| | 19150 | 1905.0 | -22.16 | 37.48 | 15.32 | 34.04 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 15 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 18675 | 1857.5 | -11.85 | 36.57 | 24.72 | 296.48 | H |
| | 18900 | 1880.0 | -12.83 | 37.22 | 24.39 | 274.79 | |
| | 19125 | 1902.5 | -13.42 | 37.18 | 23.76 | 237.68 | |
| | 18675 | 1857.5 | -19.08 | 37.65 | 18.57 | 71.94 | V |
| | 18900 | 1880.0 | -19.34 | 37.58 | 18.24 | 66.68 | |
| | 19125 | 1902.5 | -19.87 | 37.48 | 17.61 | 57.68 | |
| **Channel Bandwidth: 15 MHz / 16QAM** | | | | | | | |
| **X** | 18675 | 1857.5 | -12.88 | 36.57 | 23.69 | 233.88 | H |
| | 18900 | 1880.0 | -13.86 | 37.22 | 23.36 | 216.77 | |
| | 19125 | 1902.5 | -14.45 | 37.18 | 22.73 | 187.50 | |
| | 18675 | 1857.5 | -20.11 | 37.65 | 17.54 | 56.75 | V |
| | 18900 | 1880.0 | -20.37 | 37.58 | 17.21 | 52.60 | |
| | 19125 | 1902.5 | -20.90 | 37.48 | 16.58 | 45.50 | |
| **Channel Bandwidth: 15 MHz / 64QAM** | | | | | | | |
| **X** | 18675 | 1857.5 | -13.87 | 36.57 | 22.70 | 186.21 | H |
| | 18900 | 1880.0 | -14.85 | 37.22 | 22.37 | 172.58 | |
| | 19125 | 1902.5 | -15.44 | 37.18 | 21.74 | 149.28 | |
| | 18675 | 1857.5 | -21.10 | 37.65 | 16.55 | 45.19 | V |
| | 18900 | 1880.0 | -21.36 | 37.58 | 16.22 | 41.88 | |
| | 19125 | 1902.5 | -21.89 | 37.48 | 15.59 | 36.22 | |

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

| LTE Band 2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 20 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 18700 | 1860.0 | -11.62 | 36.57 | 24.95 | 312.61 | H |
| | 18900 | 1880.0 | -12.60 | 37.22 | 24.62 | 289.73 | |
| | 19100 | 1900.0 | -13.19 | 37.18 | 23.99 | 250.61 | |
| | 18700 | 1860.0 | -18.85 | 37.65 | 18.80 | 75.86 | V |
| | 18900 | 1880.0 | -19.11 | 37.58 | 18.47 | 70.31 | |
| | 19100 | 1900.0 | -19.64 | 37.48 | 17.84 | 60.81 | |
| **Channel Bandwidth: 20 MHz / 16QAM** | | | | | | | |
| **X** | 18700 | 1860.0 | -12.64 | 36.57 | 23.93 | 247.17 | H |
| | 18900 | 1880.0 | -13.62 | 37.22 | 23.60 | 229.09 | |
| | 19100 | 1900.0 | -14.21 | 37.18 | 22.97 | 198.15 | |
| | 18700 | 1860.0 | -19.87 | 37.65 | 17.78 | 59.98 | V |
| | 18900 | 1880.0 | -20.13 | 37.58 | 17.45 | 55.59 | |
| | 19100 | 1900.0 | -20.66 | 37.48 | 16.82 | 48.08 | |
| **Channel Bandwidth: 20 MHz / 64QAM** | | | | | | | |
| **X** | 18700 | 1860.0 | -13.66 | 36.57 | 22.91 | 195.43 | H |
| | 18900 | 1880.0 | -14.64 | 37.22 | 22.58 | 181.13 | |
| | 19100 | 1900.0 | -15.23 | 37.18 | 21.95 | 156.68 | |
| | 18700 | 1860.0 | -20.89 | 37.65 | 16.76 | 47.42 | V |
| | 18900 | 1880.0 | -21.15 | 37.58 | 16.43 | 43.95 | |
| | 19100 | 1900.0 | -21.68 | 37.48 | 15.80 | 38.02 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26047 | 1850.7 | -14.02 | 36.57 | 22.55 | 179.89 | H |
| | 26365 | 1882.5 | -15.17 | 37.22 | 22.05 | 160.32 | |
| | 26683 | 1914.3 | -16.88 | 39.09 | 22.21 | 166.34 | |
| | 26047 | 1850.7 | -20.95 | 37.65 | 16.70 | 46.77 | V |
| | 26365 | 1882.5 | -21.38 | 37.58 | 16.20 | 41.69 | |
| | 26683 | 1914.3 | -21.56 | 37.92 | 16.36 | 43.25 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| **X** | 26047 | 1850.7 | -15.14 | 36.57 | 21.43 | 139.00 | H |
| | 26365 | 1882.5 | -16.29 | 37.22 | 20.93 | 123.88 | |
| | 26683 | 1914.3 | -18.00 | 39.09 | 21.09 | 128.53 | |
| | 26047 | 1850.7 | -22.07 | 37.65 | 15.58 | 36.14 | V |
| | 26365 | 1882.5 | -22.50 | 37.58 | 15.08 | 32.21 | |
| | 26683 | 1914.3 | -22.68 | 37.92 | 15.24 | 33.42 | |
| **Channel Bandwidth: 1.4 MHz / 64QAM** | | | | | | | |
| **X** | 26047 | 1850.7 | -16.13 | 36.57 | 20.44 | 110.66 | H |
| | 26365 | 1882.5 | -17.28 | 37.22 | 19.94 | 98.63 | |
| | 26683 | 1914.3 | -18.99 | 39.09 | 20.10 | 102.33 | |
| | 26047 | 1850.7 | -23.06 | 37.65 | 14.59 | 28.77 | V |
| | 26365 | 1882.5 | -23.49 | 37.58 | 14.09 | 25.64 | |
| | 26683 | 1914.3 | -23.67 | 37.92 | 14.25 | 26.61 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26055 | 1851.5 | -13.75 | 36.57 | 22.82 | 191.43 | H |
| | 26365 | 1882.5 | -14.90 | 37.22 | 22.32 | 170.61 | |
| | 26675 | 1913.5 | -16.63 | 39.11 | 22.48 | 177.01 | |
| | 26055 | 1851.5 | -20.68 | 37.65 | 16.97 | 49.77 | V |
| | 26365 | 1882.5 | -21.11 | 37.58 | 16.47 | 44.36 | |
| | 26675 | 1913.5 | -21.30 | 37.93 | 16.63 | 46.03 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| **X** | 26055 | 1851.5 | -14.74 | 36.57 | 21.83 | 152.41 | H |
| | 26365 | 1882.5 | -15.89 | 37.22 | 21.33 | 135.83 | |
| | 26675 | 1913.5 | -17.62 | 39.11 | 21.49 | 140.93 | |
| | 26055 | 1851.5 | -21.67 | 37.65 | 15.98 | 39.63 | V |
| | 26365 | 1882.5 | -22.10 | 37.58 | 15.48 | 35.32 | |
| | 26675 | 1913.5 | -22.29 | 37.93 | 15.64 | 36.64 | |
| **Channel Bandwidth: 3 MHz / 64QAM** | | | | | | | |
| **X** | 26055 | 1851.5 | -15.85 | 36.57 | 20.72 | 118.03 | H |
| | 26365 | 1882.5 | -17.00 | 37.22 | 20.22 | 105.20 | |
| | 26675 | 1913.5 | -18.73 | 39.11 | 20.38 | 109.14 | |
| | 26055 | 1851.5 | -22.78 | 37.65 | 14.87 | 30.69 | V |
| | 26365 | 1882.5 | -23.21 | 37.58 | 14.37 | 27.35 | |
| | 26675 | 1913.5 | -23.40 | 37.93 | 14.53 | 28.38 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26065 | 1852.5 | -13.54 | 36.57 | 23.03 | 200.91 | H |
| | 26365 | 1882.5 | -14.69 | 37.22 | 22.53 | 179.06 | |
| | 26665 | 1912.5 | -15.42 | 38.11 | 22.69 | 185.78 | |
| | 26065 | 1852.5 | -20.47 | 37.65 | 17.18 | 52.24 | V |
| | 26365 | 1882.5 | -20.90 | 37.58 | 16.68 | 46.56 | |
| | 26665 | 1912.5 | -21.12 | 37.96 | 16.84 | 48.31 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| **X** | 26065 | 1852.5 | -14.56 | 36.57 | 22.01 | 158.85 | H |
| | 26365 | 1882.5 | -15.71 | 37.22 | 21.51 | 141.58 | |
| | 26665 | 1912.5 | -16.44 | 38.11 | 21.67 | 146.89 | |
| | 26065 | 1852.5 | -21.49 | 37.65 | 16.16 | 41.30 | V |
| | 26365 | 1882.5 | -21.92 | 37.58 | 15.66 | 36.81 | |
| | 26665 | 1912.5 | -22.14 | 37.96 | 15.82 | 38.19 | |
| **Channel Bandwidth: 5 MHz / 64QAM** | | | | | | | |
| **X** | 26065 | 1852.5 | -15.53 | 36.57 | 21.04 | 127.06 | H |
| | 26365 | 1882.5 | -16.68 | 37.22 | 20.54 | 113.24 | |
| | 26665 | 1912.5 | -17.41 | 38.11 | 20.70 | 117.49 | |
| | 26065 | 1852.5 | -22.46 | 37.65 | 15.19 | 33.04 | V |
| | 26365 | 1882.5 | -22.89 | 37.58 | 14.69 | 29.44 | |
| | 26665 | 1912.5 | -23.11 | 37.96 | 14.85 | 30.55 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26090 | 1855.0 | -13.29 | 36.57 | 23.28 | 212.81 | H |
| | 26365 | 1882.5 | -14.44 | 37.22 | 22.78 | 189.67 | |
| | 26640 | 1910.0 | -15.25 | 38.19 | 22.94 | 196.79 | |
| | 26090 | 1855.0 | -20.22 | 37.65 | 17.43 | 55.34 | V |
| | 26365 | 1882.5 | -20.65 | 37.58 | 16.93 | 49.32 | |
| | 26640 | 1910.0 | -21.06 | 38.15 | 17.09 | 51.17 | |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| **X** | 26090 | 1855.0 | -14.52 | 36.57 | 22.05 | 160.32 | H |
| | 26365 | 1882.5 | -15.67 | 37.22 | 21.55 | 142.89 | |
| | 26640 | 1910.0 | -16.48 | 38.19 | 21.71 | 148.25 | |
| | 26090 | 1855.0 | -21.45 | 37.65 | 16.20 | 41.69 | V |
| | 26365 | 1882.5 | -21.88 | 37.58 | 15.70 | 37.15 | |
| | 26640 | 1910.0 | -22.29 | 38.15 | 15.86 | 38.55 | |
| **Channel Bandwidth: 10 MHz / 64QAM** | | | | | | | |
| **X** | 26090 | 1855.0 | -15.51 | 36.57 | 21.06 | 127.64 | H |
| | 26365 | 1882.5 | -16.66 | 37.22 | 20.56 | 113.76 | |
| | 26640 | 1910.0 | -17.47 | 38.19 | 20.72 | 118.03 | |
| | 26090 | 1855.0 | -22.44 | 37.65 | 15.21 | 33.19 | V |
| | 26365 | 1882.5 | -22.87 | 37.58 | 14.71 | 29.58 | |
| | 26640 | 1910.0 | -23.28 | 38.15 | 14.87 | 30.69 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 15 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26115 | 1857.5 | -12.97 | 36.57 | 23.60 | 229.09 | H |
| | 26365 | 1882.5 | -14.12 | 37.22 | 23.10 | 204.17 | |
| | 26615 | 1907.5 | -14.97 | 38.23 | 23.26 | 211.84 | |
| | 26115 | 1857.5 | -19.90 | 37.65 | 17.75 | 59.57 | V |
| | 26365 | 1882.5 | -20.33 | 37.58 | 17.25 | 53.09 | |
| | 26615 | 1907.5 | -20.81 | 38.22 | 17.41 | 55.08 | |
| **Channel Bandwidth: 15 MHz / 16QAM** | | | | | | | |
| **X** | 26115 | 1857.5 | -14.09 | 36.57 | 22.48 | 177.01 | H |
| | 26365 | 1882.5 | -15.24 | 37.22 | 21.98 | 157.76 | |
| | 26615 | 1907.5 | -16.09 | 38.23 | 22.14 | 163.68 | |
| | 26115 | 1857.5 | -21.02 | 37.65 | 16.63 | 46.03 | V |
| | 26365 | 1882.5 | -21.45 | 37.58 | 16.13 | 41.02 | |
| | 26615 | 1907.5 | -21.93 | 38.22 | 16.29 | 42.56 | |
| **Channel Bandwidth: 15 MHz / 64QAM** | | | | | | | |
| **X** | 26115 | 1857.5 | -15.21 | 36.57 | 21.36 | 136.77 | H |
| | 26365 | 1882.5 | -16.36 | 37.22 | 20.86 | 121.90 | |
| | 26615 | 1907.5 | -17.21 | 38.23 | 21.02 | 126.47 | |
| | 26115 | 1857.5 | -22.14 | 37.65 | 15.51 | 35.56 | V |
| | 26365 | 1882.5 | -22.57 | 37.58 | 15.01 | 31.70 | |
| | 26615 | 1907.5 | -23.05 | 38.22 | 15.17 | 32.89 | |

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

| LTE Band 25 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 20 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| **X** | 26140 | 1860.0 | -12.72 | 36.57 | 23.85 | 242.66 | H |
| | 26365 | 1882.5 | -13.87 | 37.22 | 23.35 | 216.27 | |
| | 26590 | 1905.0 | -15.21 | 38.72 | 23.51 | 224.39 | |
| | 26140 | 1860.0 | -19.65 | 37.65 | 18.00 | 63.10 | V |
| | 26365 | 1882.5 | -20.08 | 37.58 | 17.50 | 56.23 | |
| | 26590 | 1905.0 | -19.90 | 37.56 | 17.66 | 58.34 | |
| **Channel Bandwidth: 20 MHz / 16QAM** | | | | | | | |
| **X** | 26140 | 1860.0 | -13.97 | 36.57 | 22.60 | 181.97 | H |
| | 26365 | 1882.5 | -15.12 | 37.22 | 22.10 | 162.18 | |
| | 26590 | 1905.0 | -16.46 | 38.72 | 22.26 | 168.27 | |
| | 26140 | 1860.0 | -20.90 | 37.65 | 16.75 | 47.32 | V |
| | 26365 | 1882.5 | -21.33 | 37.58 | 16.25 | 42.17 | |
| | 26590 | 1905.0 | -21.15 | 37.56 | 16.41 | 43.75 | |
| **Channel Bandwidth: 20 MHz / 64QAM** | | | | | | | |
| **X** | 26140 | 1860.0 | -15.20 | 36.57 | 21.37 | 137.09 | H |
| | 26365 | 1882.5 | -16.35 | 37.22 | 20.87 | 122.18 | |
| | 26590 | 1905.0 | -17.69 | 38.72 | 21.03 | 126.77 | |
| | 26140 | 1860.0 | -22.13 | 37.65 | 15.52 | 35.65 | V |
| | 26365 | 1882.5 | -22.56 | 37.58 | 15.02 | 31.77 | |
| | 26590 | 1905.0 | -22.38 | 37.56 | 15.18 | 32.96 | |

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

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

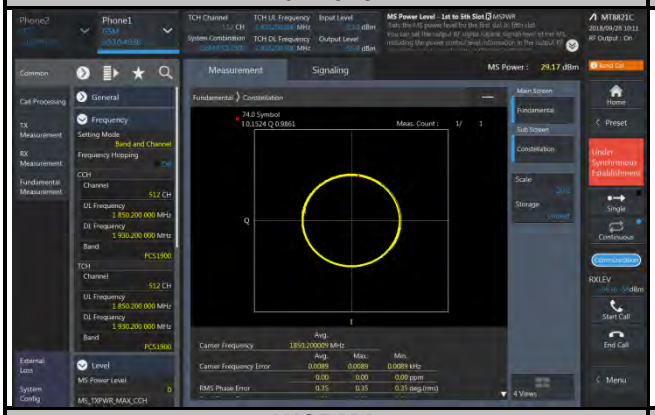
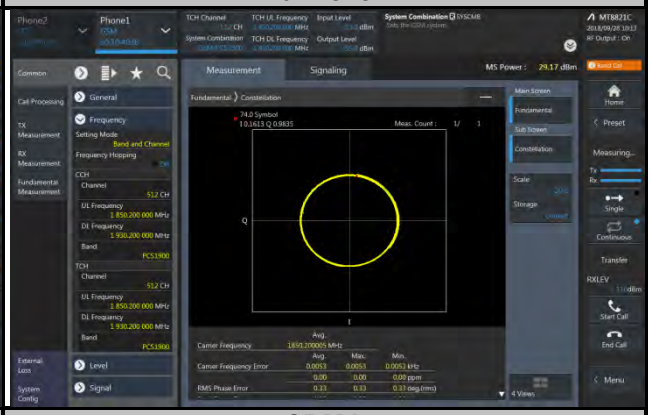
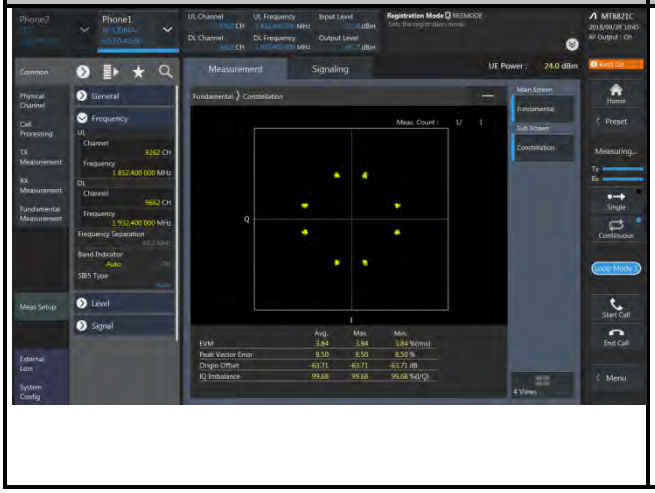
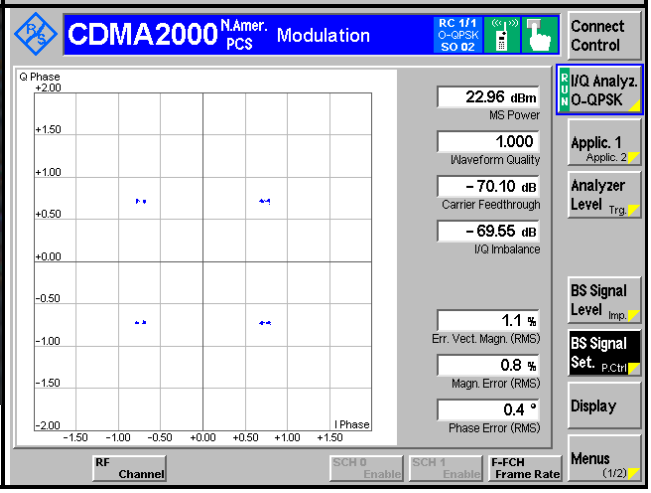
N/A

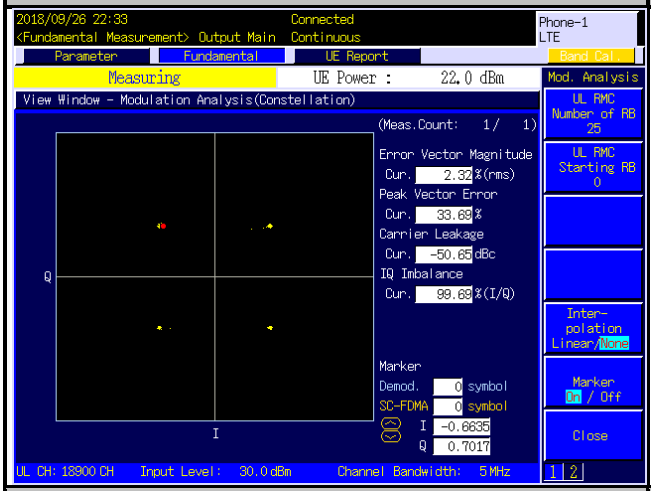
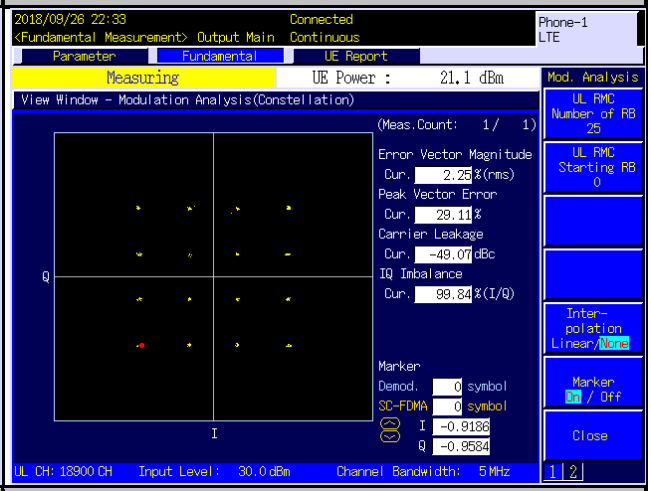
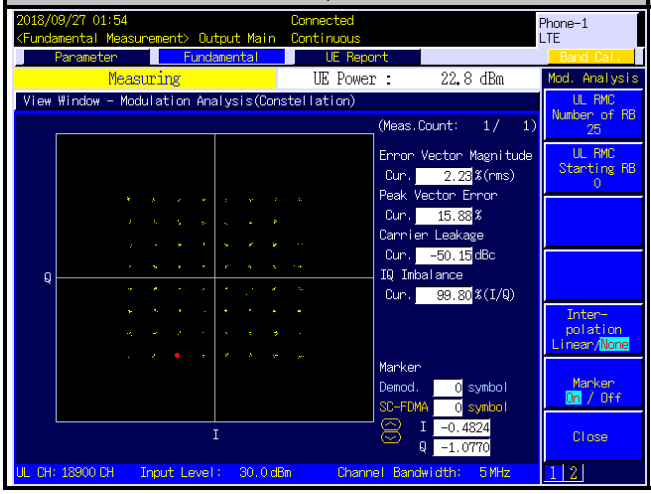
### 4.2.2 Test Setup

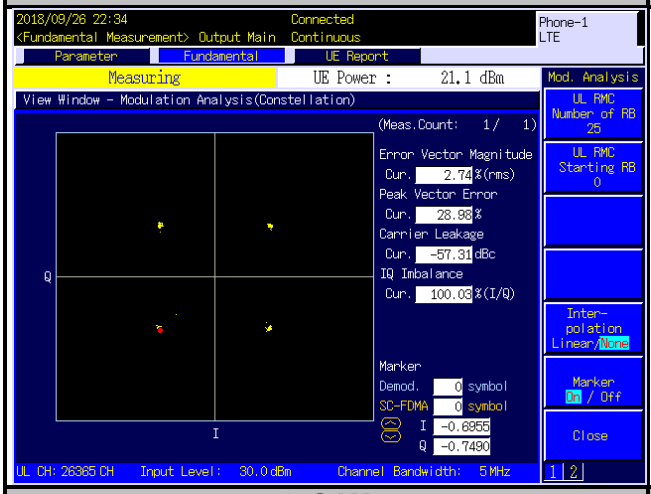
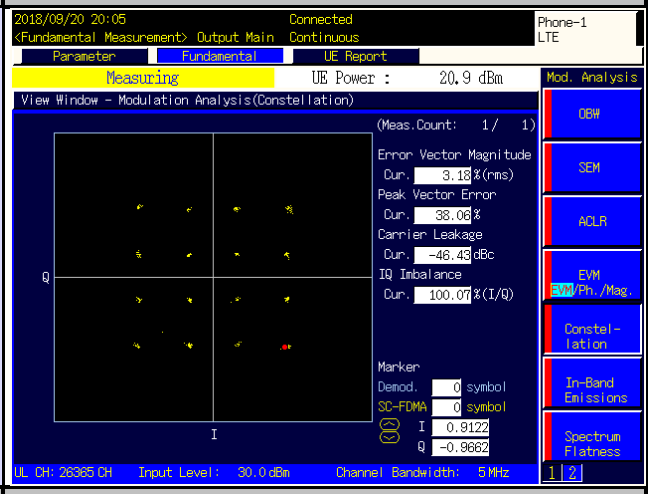
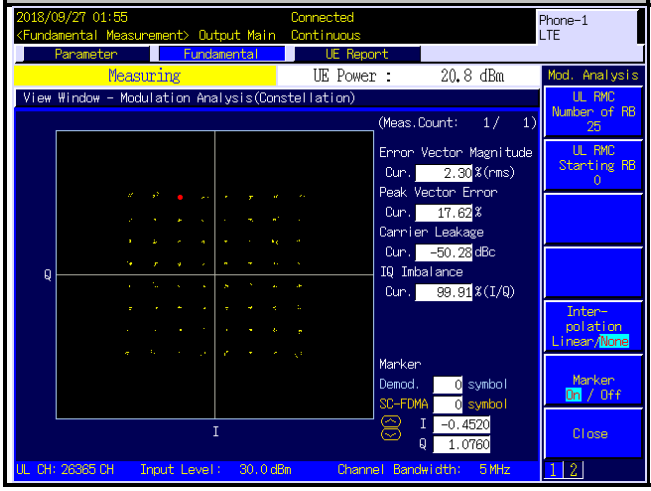

### 4.2.3 Test Procedure

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 | |
|---|---|
| **GSM** | **EDGE** |
| **Channel 512** | **Channel 512** |
|  |  |
| **WCDMA** | **CDMA** |
| **Channel 9262** | **Channel 600** |
|  |   |

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 2 | |
| Channel 18900 | |
| QPSK | 16QAM |
|  |  |
| 64QAM | |
|  | |

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 25 | |
| Channel 26365 | |
| QPSK | 16QAM |
|  |  |
| 64QAM | |
|  | |

## 4.3 Frequency Stability Measurement

### 4.3.1 Limits of Frequency Stability Measurement

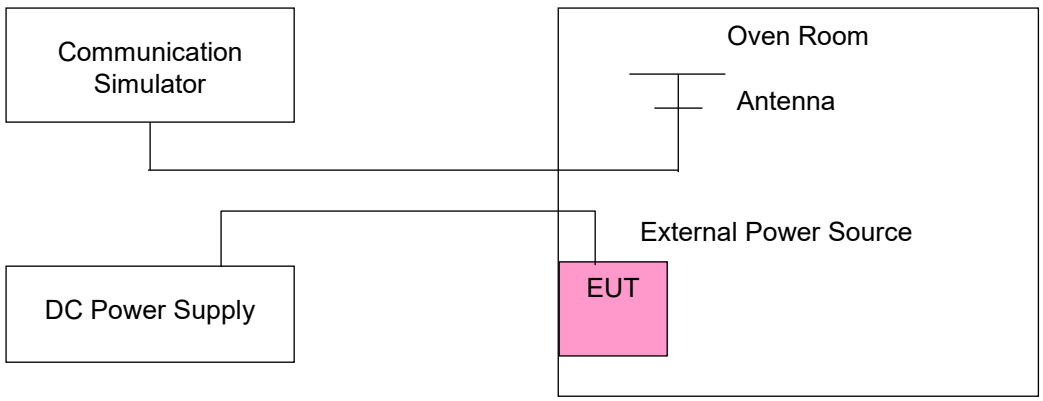
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 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) | GSM | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1850.200001 | 0.001 | 1909.800003 | 0.002 | 2.5 |
| 3.27 | 1850.200004 | 0.002 | 1909.800002 | 0.001 | 2.5 |
| 4.43 | 1850.200004 | 0.002 | 1909.800001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | GSM | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1850.200002 | 0.001 | 1909.800001 | 0.001 | 2.5 |
| -20 | 1850.200004 | 0.002 | 1909.800001 | 0.001 | 2.5 |
| -10 | 1850.200004 | 0.002 | 1909.800002 | 0.001 | 2.5 |
| 0 | 1850.200002 | 0.001 | 1909.800002 | 0.001 | 2.5 |
| 10 | 1850.200001 | 0.001 | 1909.800001 | 0.001 | 2.5 |
| 20 | 1850.199998 | -0.001 | 1909.799998 | -0.001 | 2.5 |
| 30 | 1850.199998 | -0.001 | 1909.799999 | -0.001 | 2.5 |
| 40 | 1850.199997 | -0.002 | 1909.799997 | -0.001 | 2.5 |
| 50 | 1850.199998 | -0.001 | 1909.799998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | EDGE | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1850.200003 | 0.002 | 1909.800002 | 0.001 | 2.5 |
| 3.27 | 1850.200002 | 0.001 | 1909.800003 | 0.002 | 2.5 |
| 4.43 | 1850.200004 | 0.002 | 1909.800003 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | EDGE | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1850.200003 | 0.002 | 1909.800001 | 0.001 | 2.5 |
| -20 | 1850.200003 | 0.001 | 1909.800002 | 0.001 | 2.5 |
| -10 | 1850.200002 | 0.001 | 1909.800004 | 0.002 | 2.5 |
| 0 | 1850.200002 | 0.001 | 1909.800003 | 0.001 | 2.5 |
| 10 | 1850.200003 | 0.002 | 1909.800002 | 0.001 | 2.5 |
| 20 | 1850.199996 | -0.002 | 1909.799998 | -0.001 | 2.5 |
| 30 | 1850.199999 | -0.001 | 1909.799997 | -0.002 | 2.5 |
| 40 | 1850.199998 | -0.001 | 1909.799996 | -0.002 | 2.5 |
| 50 | 1850.199999 | -0.001 | 1909.799996 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | WCDMA | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1852.400004 | 0.002 | 1907.600001 | 0.001 | 2.5 |
| 3.27 | 1852.400001 | 0.001 | 1907.600001 | 0.001 | 2.5 |
| 4.43 | 1852.400002 | 0.001 | 1907.600001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | WCDMA | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1852.400002 | 0.001 | 1907.600002 | 0.001 | 2.5 |
| -20 | 1852.400003 | 0.002 | 1907.600003 | 0.001 | 2.5 |
| -10 | 1852.400004 | 0.002 | 1907.600002 | 0.001 | 2.5 |
| 0 | 1852.400002 | 0.001 | 1907.600004 | 0.002 | 2.5 |
| 10 | 1852.400004 | 0.002 | 1907.600002 | 0.001 | 2.5 |
| 20 | 1852.399997 | -0.002 | 1907.599999 | -0.001 | 2.5 |
| 30 | 1852.399997 | -0.002 | 1907.599997 | -0.002 | 2.5 |
| 40 | 1852.399997 | -0.002 | 1907.599997 | -0.002 | 2.5 |
| 50 | 1852.399996 | -0.002 | 1907.599997 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | CDMA | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1851.250004 | 0.002 | 1908.750002 | 0.001 | 2.5 |
| 3.27 | 1851.250004 | 0.002 | 1908.750002 | 0.001 | 2.5 |
| 4.43 | 1851.250004 | 0.002 | 1908.750002 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | CDMA | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1851.250002 | 0.001 | 1908.750002 | 0.001 | 2.5 |
| -20 | 1851.250002 | 0.001 | 1908.750004 | 0.002 | 2.5 |
| -10 | 1851.250002 | 0.001 | 1908.750003 | 0.002 | 2.5 |
| 0 | 1851.250003 | 0.002 | 1908.750004 | 0.002 | 2.5 |
| 10 | 1851.250001 | 0.001 | 1908.750003 | 0.002 | 2.5 |
| 20 | 1851.249996 | -0.002 | 1908.749997 | -0.002 | 2.5 |
| 30 | 1851.249997 | -0.001 | 1908.749996 | -0.002 | 2.5 |
| 40 | 1851.249997 | -0.001 | 1908.749996 | -0.002 | 2.5 |
| 50 | 1851.249996 | -0.002 | 1908.749998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1850.700002 | 0.001 | 1909.300000 | 0.002 | 2.5 |
| 3.27 | 1850.700001 | 0.001 | 1909.300003 | 0.002 | 2.5 |
| 4.43 | 1850.700001 | 0.001 | 1909.300003 | 0.002 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1850.700002 | 0.001 | 1909.300002 | 0.001 | 2.5 |
| -20 | 1850.700003 | 0.002 | 1909.300002 | 0.001 | 2.5 |
| -10 | 1850.700003 | 0.002 | 1909.300004 | 0.002 | 2.5 |
| 0 | 1850.700002 | 0.001 | 1909.300004 | 0.002 | 2.5 |
| 10 | 1850.700002 | 0.001 | 1909.300003 | 0.001 | 2.5 |
| 20 | 1850.699996 | -0.002 | 1909.299997 | -0.002 | 2.5 |
| 30 | 1850.699999 | -0.001 | 1909.299997 | -0.002 | 2.5 |
| 40 | 1850.699997 | -0.001 | 1909.299998 | -0.001 | 2.5 |
| 50 | 1850.699998 | -0.001 | 1909.299998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1851.500002 | 0.001 | 1907.500003 | 0.002 | 2.5 |
| 3.27 | 1851.500004 | 0.002 | 1907.500001 | 0.001 | 2.5 |
| 4.43 | 1851.500003 | 0.002 | 1907.500002 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1851.500003 | 0.002 | 1907.500003 | 0.002 | 2.5 |
| -20 | 1851.500002 | 0.001 | 1907.500002 | 0.001 | 2.5 |
| -10 | 1851.500003 | 0.001 | 1907.500002 | 0.001 | 2.5 |
| 0 | 1851.500002 | 0.001 | 1907.500002 | 0.001 | 2.5 |
| 10 | 1851.500002 | 0.001 | 1907.500003 | 0.001 | 2.5 |
| 20 | 1851.499999 | -0.001 | 1907.499998 | -0.001 | 2.5 |
| 30 | 1851.499998 | -0.001 | 1907.499996 | -0.002 | 2.5 |
| 40 | 1851.499998 | -0.001 | 1907.499997 | -0.002 | 2.5 |
| 50 | 1851.499997 | -0.002 | 1907.499997 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1852.500003 | 0.001 | 1907.500004 | 0.002 | 2.5 |
| 3.27 | 1852.500004 | 0.002 | 1907.500001 | 0.001 | 2.5 |
| 4.43 | 1852.500003 | 0.001 | 1907.500001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1852.500003 | 0.001 | 1907.500004 | 0.002 | 2.5 |
| -20 | 1852.500004 | 0.002 | 1907.500002 | 0.001 | 2.5 |
| -10 | 1852.500003 | 0.002 | 1907.500004 | 0.002 | 2.5 |
| 0 | 1852.500003 | 0.002 | 1907.500002 | 0.001 | 2.5 |
| 10 | 1852.500003 | 0.002 | 1907.500002 | 0.001 | 2.5 |
| 20 | 1852.499998 | -0.001 | 1907.499999 | -0.001 | 2.5 |
| 30 | 1852.499999 | -0.001 | 1907.499997 | -0.002 | 2.5 |
| 40 | 1852.499997 | -0.002 | 1907.499999 | -0.001 | 2.5 |
| 50 | 1852.499999 | -0.001 | 1907.499998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1855.000003 | 0.001 | 1905.000004 | 0.002 | 2.5 |
| 3.27 | 1855.000003 | 0.002 | 1905.000002 | 0.001 | 2.5 |
| 4.43 | 1855.000003 | 0.002 | 1905.000001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1855.000001 | 0.001 | 1905.000003 | 0.001 | 2.5 |
| -20 | 1855.000002 | 0.001 | 1905.000004 | 0.002 | 2.5 |
| -10 | 1855.000004 | 0.002 | 1905.000001 | 0.001 | 2.5 |
| 0 | 1855.000002 | 0.001 | 1905.000003 | 0.001 | 2.5 |
| 10 | 1855.000002 | 0.001 | 1905.000003 | 0.002 | 2.5 |
| 20 | 1854.999998 | -0.001 | 1904.999996 | -0.002 | 2.5 |
| 30 | 1854.999998 | -0.001 | 1904.999998 | -0.001 | 2.5 |
| 40 | 1854.999996 | -0.002 | 1904.999997 | -0.002 | 2.5 |
| 50 | 1854.999997 | -0.002 | 1904.999999 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1857.500004 | 0.002 | 1902.500003 | 0.002 | 2.5 |
| 3.27 | 1857.500002 | 0.001 | 1902.500002 | 0.001 | 2.5 |
| 4.43 | 1857.500002 | 0.001 | 1902.500004 | 0.002 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1857.500003 | 0.002 | 1902.500002 | 0.001 | 2.5 |
| -20 | 1857.500002 | 0.001 | 1902.500003 | 0.001 | 2.5 |
| -10 | 1857.500004 | 0.002 | 1902.500003 | 0.002 | 2.5 |
| 0 | 1857.500004 | 0.002 | 1902.500003 | 0.002 | 2.5 |
| 10 | 1857.500003 | 0.002 | 1902.500002 | 0.001 | 2.5 |
| 20 | 1857.499998 | -0.001 | 1902.499996 | -0.002 | 2.5 |
| 30 | 1857.499997 | -0.002 | 1902.499997 | -0.002 | 2.5 |
| 40 | 1857.499998 | -0.001 | 1902.499996 | -0.002 | 2.5 |
| 50 | 1857.499998 | -0.001 | 1902.499996 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1860.000003 | 0.002 | 1900.000001 | 0.001 | 2.5 |
| 3.27 | 1860.000004 | 0.002 | 1900.000003 | 0.001 | 2.5 |
| 4.43 | 1860.000003 | 0.001 | 1900.000003 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 2 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1860.000003 | 0.001 | 1900.000003 | 0.001 | 2.5 |
| -20 | 1860.000001 | 0.001 | 1900.000003 | 0.001 | 2.5 |
| -10 | 1860.000002 | 0.001 | 1900.000003 | 0.001 | 2.5 |
| 0 | 1860.000001 | 0.001 | 1900.000004 | 0.002 | 2.5 |
| 10 | 1860.000003 | 0.002 | 1900.000002 | 0.001 | 2.5 |
| 20 | 1859.999999 | -0.001 | 1899.999998 | -0.001 | 2.5 |
| 30 | 1859.999996 | -0.002 | 1899.999997 | -0.002 | 2.5 |
| 40 | 1859.999997 | -0.002 | 1899.999998 | -0.001 | 2.5 |
| 50 | 1859.999996 | -0.002 | 1899.999998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1850.700004 | 0.002 | 1914.300004 | 0.002 | 2.5 |
| 3.27 | 1850.700001 | 0.001 | 1914.300004 | 0.002 | 2.5 |
| 4.43 | 1850.700001 | 0.001 | 1914.300004 | 0.002 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1850.700002 | 0.001 | 1914.300001 | 0.001 | 2.5 |
| -20 | 1850.700003 | 0.002 | 1914.300003 | 0.001 | 2.5 |
| -10 | 1850.700004 | 0.002 | 1914.300001 | 0.001 | 2.5 |
| 0 | 1850.700004 | 0.002 | 1914.300003 | 0.001 | 2.5 |
| 10 | 1850.700003 | 0.001 | 1914.300003 | 0.001 | 2.5 |
| 20 | 1850.699999 | -0.001 | 1914.299998 | -0.001 | 2.5 |
| 30 | 1850.699997 | -0.002 | 1914.299997 | -0.001 | 2.5 |
| 40 | 1850.699996 | -0.002 | 1914.299996 | -0.002 | 2.5 |
| 50 | 1850.699997 | -0.002 | 1914.299996 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1851.500001 | 0.001 | 1913.500002 | 0.001 | 2.5 |
| 3.27 | 1851.500002 | 0.001 | 1913.500003 | 0.001 | 2.5 |
| 4.43 | 1851.500002 | 0.001 | 1913.500004 | 0.002 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1851.500002 | 0.001 | 1913.500001 | 0.001 | 2.5 |
| -20 | 1851.500001 | 0.001 | 1913.500002 | 0.001 | 2.5 |
| -10 | 1851.500003 | 0.001 | 1913.500003 | 0.001 | 2.5 |
| 0 | 1851.500002 | 0.001 | 1913.500001 | 0.001 | 2.5 |
| 10 | 1851.500003 | 0.002 | 1913.500002 | 0.001 | 2.5 |
| 20 | 1851.499996 | -0.002 | 1913.499997 | -0.001 | 2.5 |
| 30 | 1851.499998 | -0.001 | 1913.499997 | -0.002 | 2.5 |
| 40 | 1851.499998 | -0.001 | 1913.499998 | -0.001 | 2.5 |
| 50 | 1851.499996 | -0.002 | 1913.499998 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1852.500003 | 0.001 | 1912.500002 | 0.001 | 2.5 |
| 3.27 | 1852.500002 | 0.001 | 1912.500004 | 0.002 | 2.5 |
| 4.43 | 1852.500002 | 0.001 | 1912.500001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1852.500003 | 0.002 | 1912.500003 | 0.002 | 2.5 |
| -20 | 1852.500004 | 0.002 | 1912.500002 | 0.001 | 2.5 |
| -10 | 1852.500001 | 0.001 | 1912.500002 | 0.001 | 2.5 |
| 0 | 1852.500003 | 0.001 | 1912.500001 | 0.001 | 2.5 |
| 10 | 1852.500004 | 0.002 | 1912.500001 | 0.001 | 2.5 |
| 20 | 1852.499996 | -0.002 | 1912.499997 | -0.002 | 2.5 |
| 30 | 1852.499999 | -0.001 | 1912.499998 | -0.001 | 2.5 |
| 40 | 1852.499998 | -0.001 | 1912.499997 | -0.002 | 2.5 |
| 50 | 1852.499999 | -0.001 | 1912.499999 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1855.000003 | 0.002 | 1910.000004 | 0.002 | 2.5 |
| 3.27 | 1855.000004 | 0.002 | 1910.000001 | 0.001 | 2.5 |
| 4.43 | 1855.000003 | 0.002 | 1910.000001 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1855.000002 | 0.001 | 1910.000004 | 0.002 | 2.5 |
| -20 | 1855.000002 | 0.001 | 1910.000002 | 0.001 | 2.5 |
| -10 | 1855.000004 | 0.002 | 1910.000003 | 0.001 | 2.5 |
| 0 | 1855.000002 | 0.001 | 1910.000002 | 0.001 | 2.5 |
| 10 | 1855.000001 | 0.001 | 1910.000002 | 0.001 | 2.5 |
| 20 | 1854.999999 | -0.001 | 1909.999997 | -0.002 | 2.5 |
| 30 | 1854.999998 | -0.001 | 1909.999997 | -0.001 | 2.5 |
| 40 | 1854.999998 | -0.001 | 1909.999997 | -0.002 | 2.5 |
| 50 | 1854.999997 | -0.001 | 1909.999997 | -0.001 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1857.500003 | 0.001 | 1907.500003 | 0.002 | 2.5 |
| 3.27 | 1857.500002 | 0.001 | 1907.500003 | 0.001 | 2.5 |
| 4.43 | 1857.500002 | 0.001 | 1907.500002 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1857.500002 | 0.001 | 1907.500003 | 0.001 | 2.5 |
| -20 | 1857.500004 | 0.002 | 1907.500003 | 0.002 | 2.5 |
| -10 | 1857.500004 | 0.002 | 1907.500001 | 0.001 | 2.5 |
| 0 | 1857.500004 | 0.002 | 1907.500001 | 0.001 | 2.5 |
| 10 | 1857.500002 | 0.001 | 1907.500003 | 0.002 | 2.5 |
| 20 | 1857.499997 | -0.002 | 1907.499997 | -0.002 | 2.5 |
| 30 | 1857.499999 | -0.001 | 1907.499998 | -0.001 | 2.5 |
| 40 | 1857.499997 | -0.002 | 1907.499996 | -0.002 | 2.5 |
| 50 | 1857.499996 | -0.002 | 1907.499996 | -0.002 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| 3.85 | 1860.000002 | 0.001 | 1905.000003 | 0.001 | 2.5 |
| 3.27 | 1860.000003 | 0.002 | 1905.000004 | 0.002 | 2.5 |
| 4.43 | 1860.000002 | 0.001 | 1905.000003 | 0.001 | 2.5 |

**Note:** The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

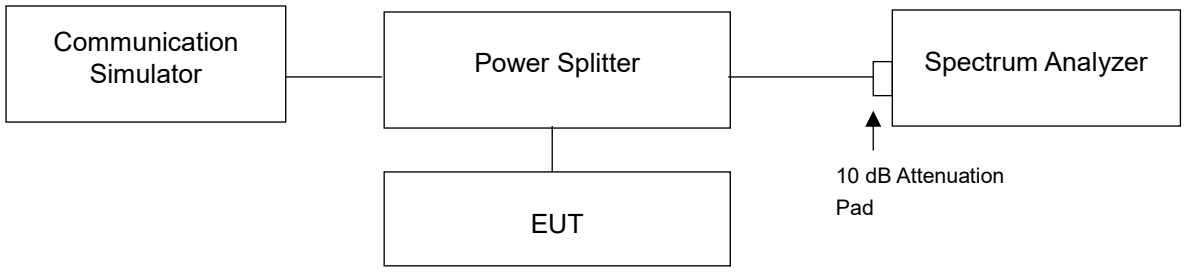
| Temp. (℃) | LTE Band 25 | | | | Limit (ppm) |
|---|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | | |
| | Low Channel | | High Channel | | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) | |
| -30 | 1860.000003 | 0.002 | 1905.000002 | 0.001 | 2.5 |
| -20 | 1860.000002 | 0.001 | 1905.000004 | 0.002 | 2.5 |
| -10 | 1860.000001 | 0.001 | 1905.000004 | 0.002 | 2.5 |
| 0 | 1860.000004 | 0.002 | 1905.000003 | 0.001 | 2.5 |
| 10 | 1860.000001 | 0.001 | 1905.000002 | 0.001 | 2.5 |
| 20 | 1859.999996 | -0.002 | 1904.999996 | -0.002 | 2.5 |
| 30 | 1859.999997 | -0.002 | 1904.999997 | -0.002 | 2.5 |
| 40 | 1859.999999 | -0.001 | 1904.999998 | -0.001 | 2.5 |
| 50 | 1859.999997 | -0.002 | 1904.999998 | -0.001 | 2.5 |

## 4.4 Occupied Bandwidth Measurement

### 4.4.1 Test Procedure

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

### 4.4.2 Test Setup



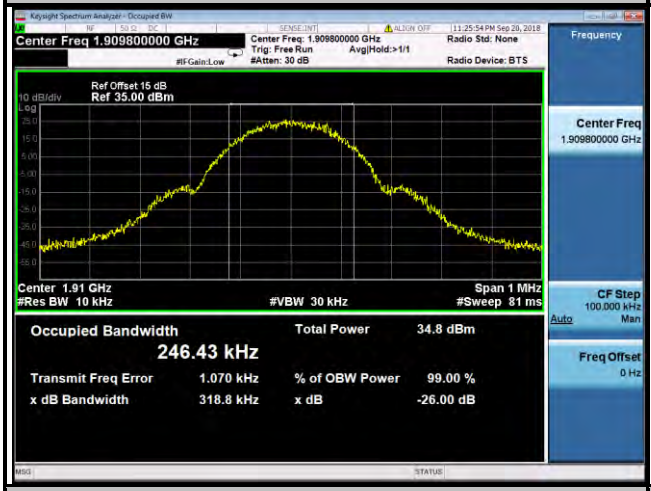
4.4.3 Test Result

| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (kHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) |
|---|---|---|---|---|---|---|
| | | GSM | EDGE | | | WCDMA |
| 512 | 1850.2 | 246.15 | 247.85 | 9262 | 1852.4 | 4.1375 |
| 661 | 1880.0 | 245.14 | 249.65 | 9400 | 1880.0 | 4.1438 |
| 810 | 1909.8 | 246.43 | 248.33 | 9538 | 1907.6 | 4.1371 |

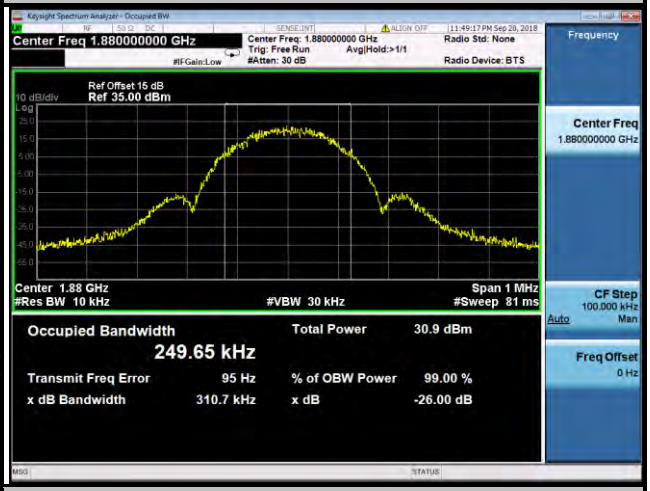
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (kHz) |
|---|---|---|
| | | CDMA |
| 25 | 1851.25 | 1.2826 |
| 600 | 1880.00 | 1.2731 |
| 1175 | 1908.75 | 1.2797 |

**Spectrum Plot of Worst Value**

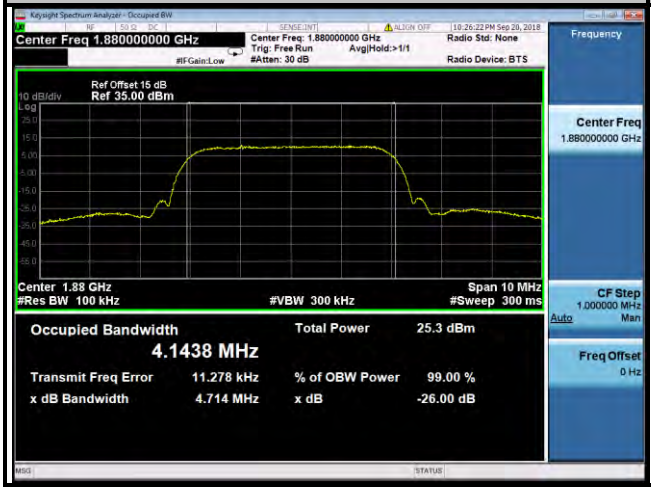
**GSM**



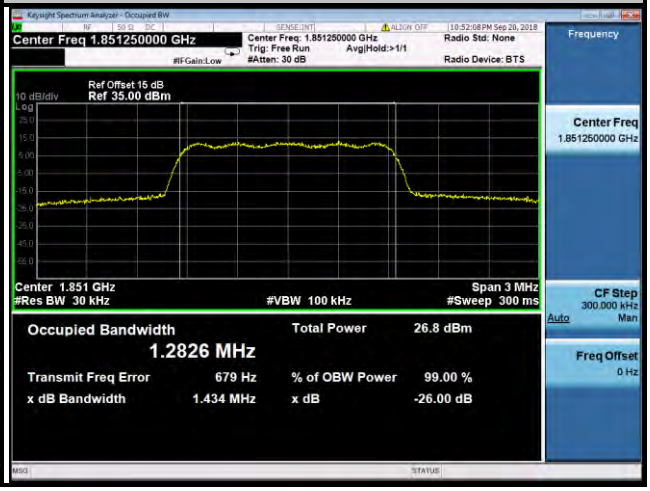

**EDGE**




**WCDMA**

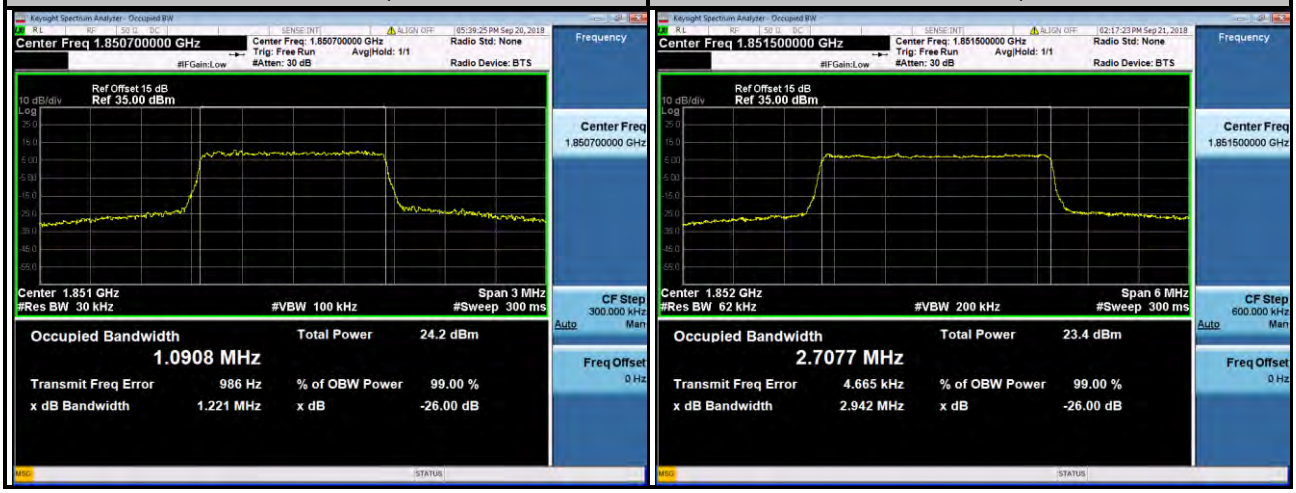



**CDMA**



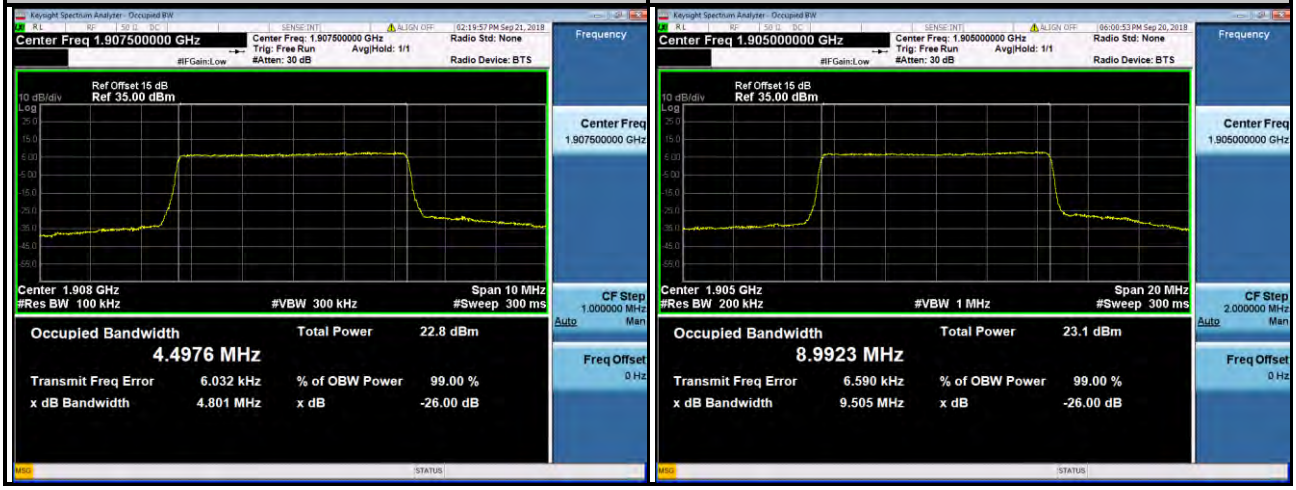
| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 18607 | 1850.7 | 1.0886 | 1.0908 | 1.0878 | 18615 | 1851.5 | 2.7056 | 2.7006 | 2.7077 |
| 18900 | 1880.0 | 1.0878 | 1.0889 | 1.0878 | 18900 | 1880.0 | 2.7024 | 2.6998 | 2.7057 |
| 19193 | 1909.3 | 1.0865 | 1.0890 | 1.0852 | 19185 | 1908.5 | 2.6997 | 2.6800 | 2.7020 |

| Spectrum Plot of Worst Value | |
|---|---|
| 1.4 MHz / 16QAM | 3 MHz / 64QAM |



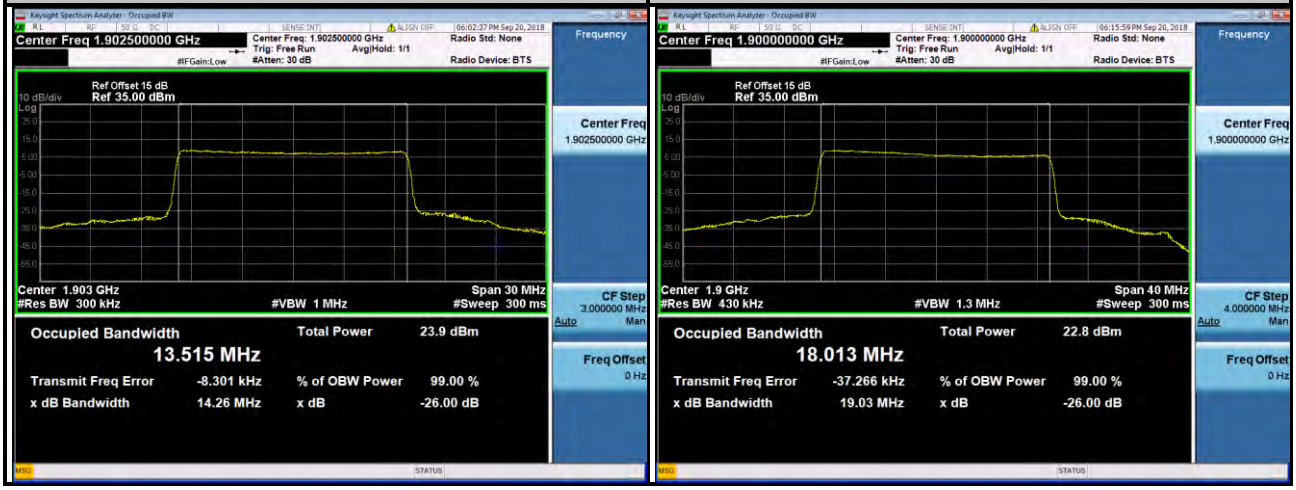
| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | Channel Bandwidth: 10 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 18625 | 1852.5 | 4.4948 | 4.4974 | 4.4974 | 18650 | 1855.0 | 8.9540 | 8.9572 | 8.9496 |
| 18900 | 1880.0 | 4.4952 | 4.4957 | 4.4958 | 18900 | 1880.0 | 8.9773 | 8.9802 | 8.9725 |
| 19175 | 1907.5 | 4.4942 | 4.4945 | 4.4976 | 19150 | 1905.0 | 8.9885 | 8.9923 | 8.9835 |

| Spectrum Plot of Worst Value | |
|---|---|
| 5 MHz / 64QAM | 10 MHz / 16QAM |



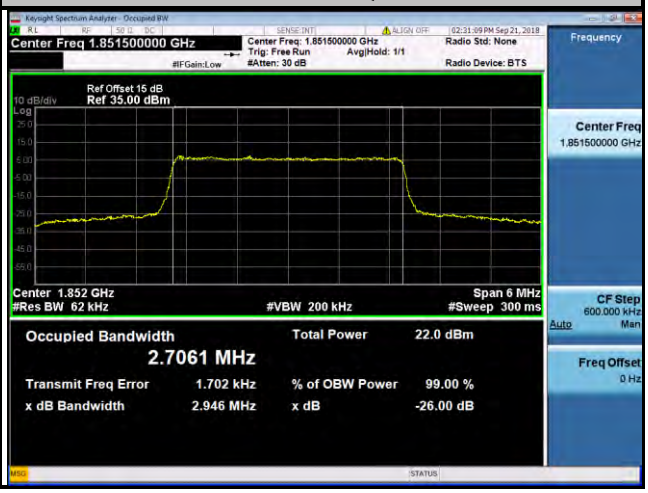
| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | Channel Bandwidth: 20 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 18675 | 1857.5 | 13.406 | 13.393 | 13.388 | 18700 | 1860.0 | 17.844 | 17.863 | 17.866 |
| 18900 | 1880.0 | 13.480 | 13.462 | 13.458 | 18900 | 1880.0 | 17.962 | 17.971 | 17.968 |
| 19125 | 1902.5 | 13.515 | 13.500 | 13.495 | 19100 | 1900.0 | 17.994 | 18.013 | 17.994 |

| Spectrum Plot of Worst Value | |
|---|---|
| 15 MHz / QPSK | 20 MHz / 16QAM |

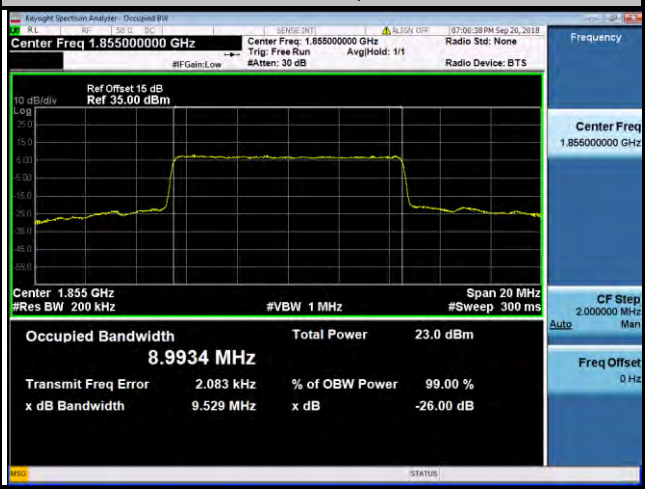


| LTE Band 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 26047 | 1850.7 | 1.0878 | 1.0919 | 1.0879 | 26055 | 1851.5 | 2.7035 | 2.7009 | 2.7061 |
| 26365 | 1882.5 | 1.0869 | 1.0914 | 1.0873 | 26365 | 1882.5 | 2.7046 | 2.6999 | 2.7048 |
| 26683 | 1914.3 | 1.0866 | 1.0896 | 1.0877 | 26675 | 1913.5 | 2.7032 | 2.6988 | 2.7053 |

| Spectrum Plot of Worst Value | |
|---|---|
| 1.4 MHz / 16QAM | 3 MHz / 64QAM |

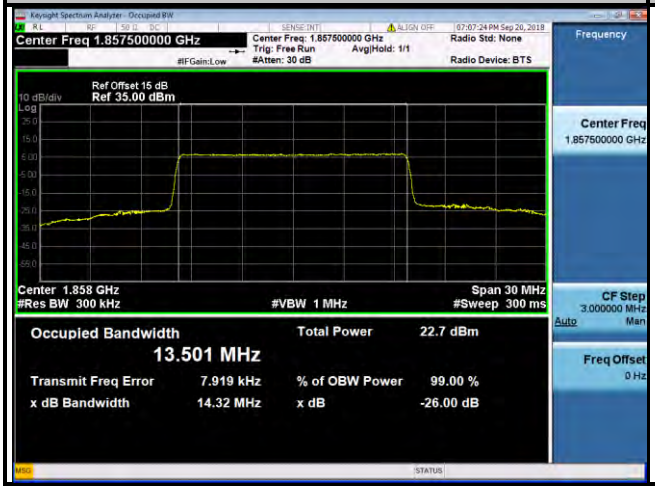



| LTE Band 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | Channel Bandwidth: 10 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 26065 | 1852.5 | 4.4962 | 4.4958 | 4.4935 | 26090 | 1855.0 | 8.9934 | 8.9878 | 8.9846 |
| 26365 | 1882.5 | 4.4958 | 4.4938 | 4.4990 | 26365 | 1882.5 | 8.9819 | 8.9823 | 8.9767 |
| 26665 | 1912.5 | 4.4951 | 4.4941 | 4.4952 | 26640 | 1910.0 | 8.9787 | 8.9773 | 8.9750 |

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

| LTE BAND 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | Channel Bandwidth: 20 MHz | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 26115 | 1857.5 | 13.501 | 13.482 | 13.476 | 26140 | 1860.0 | 17.970 | 17.984 | 17.979 |
| 26365 | 1882.5 | 13.479 | 13.462 | 13.457 | 26365 | 1882.5 | 17.961 | 17.972 | 17.967 |
| 26615 | 1907.5 | 13.457 | 13.447 | 13.439 | 26590 | 1905.0 | 17.895 | 17.905 | 17.906 |

| Spectrum Plot of Worst Value | |
|---|---|
| 15 MHz / QPSK | 20 MHz / 16QAM |

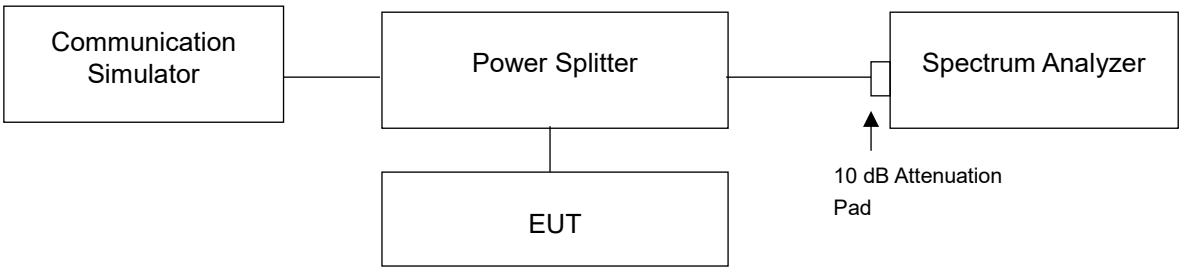



## 4.5 Band Edge Measurement

### 4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

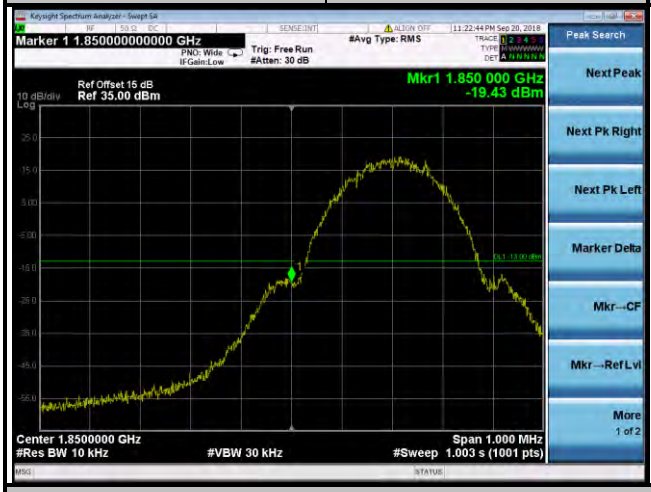
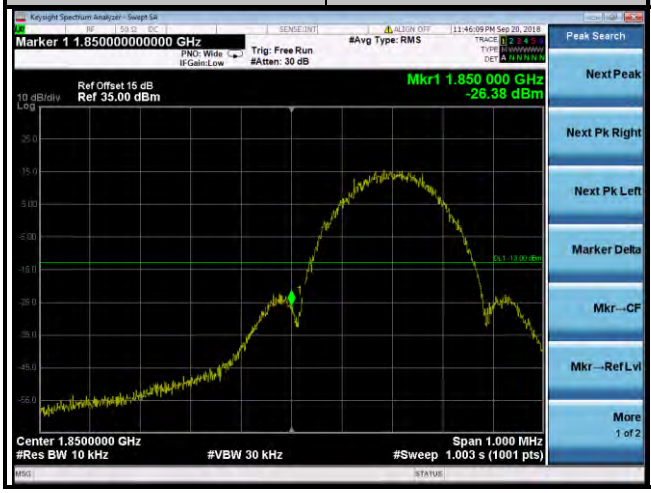
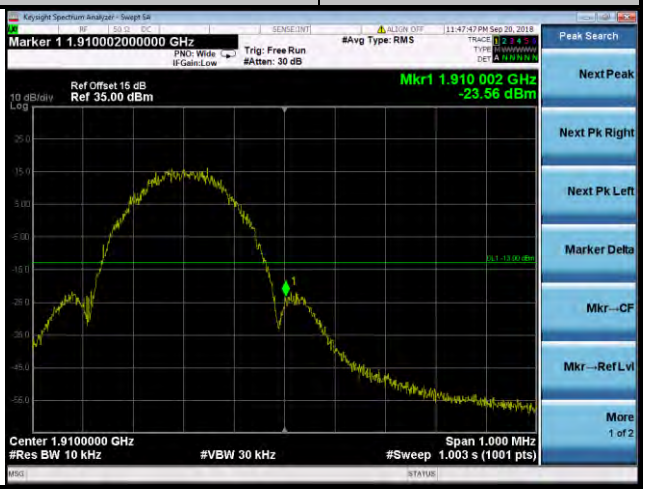
### 4.5.2 Test Setup

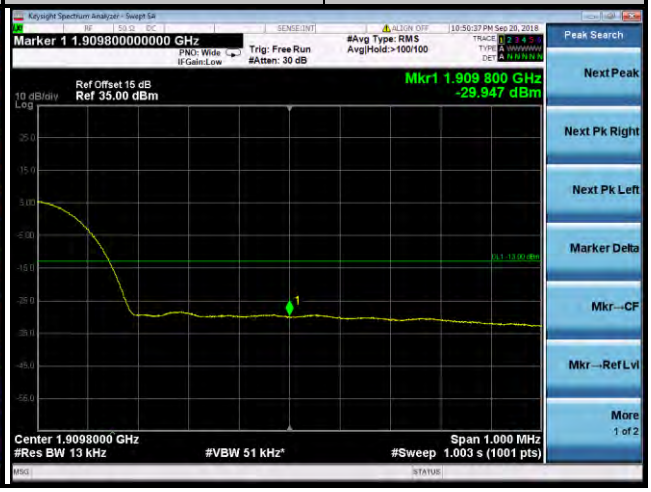


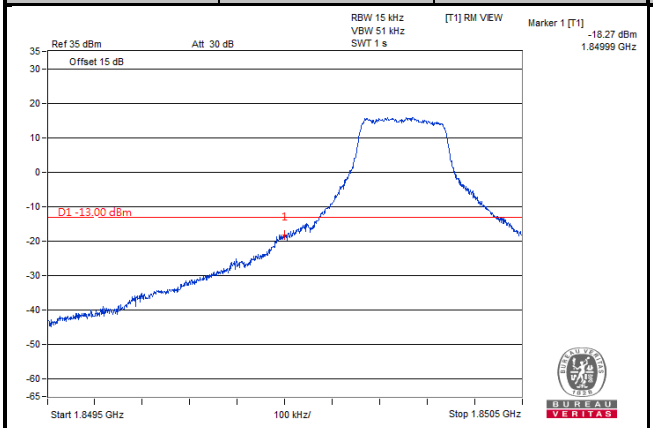
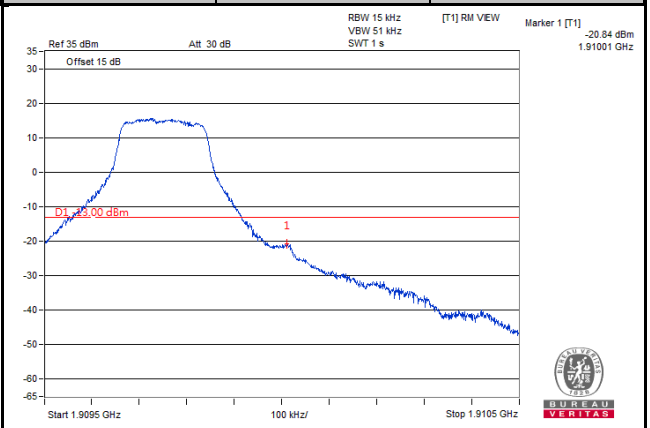
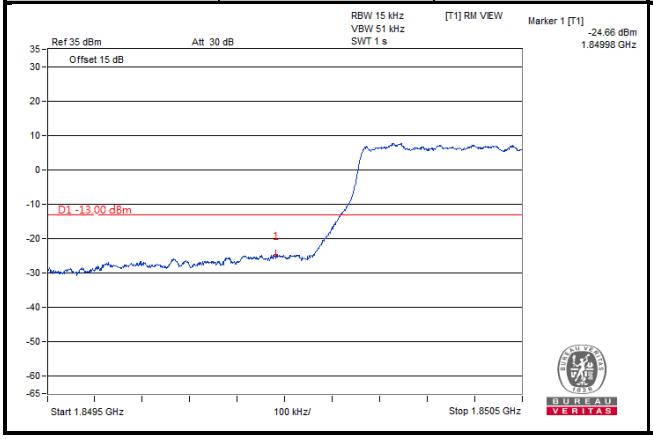
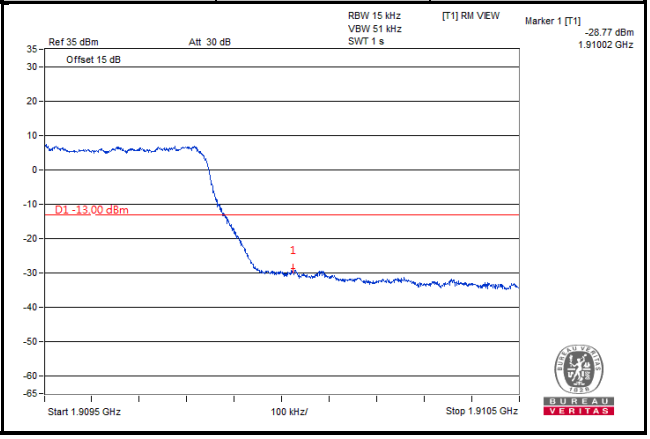

### 4.5.3 Test Procedures

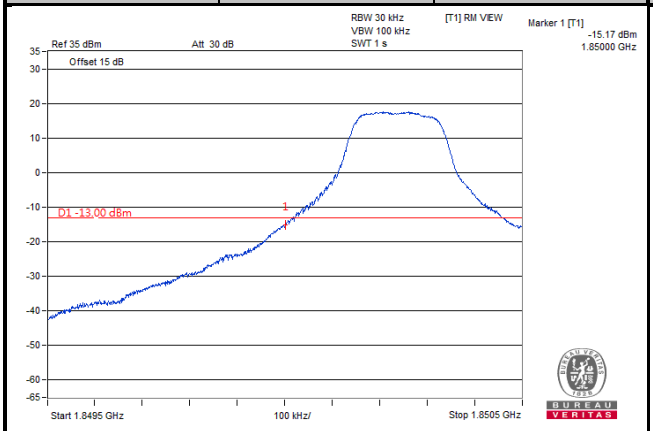
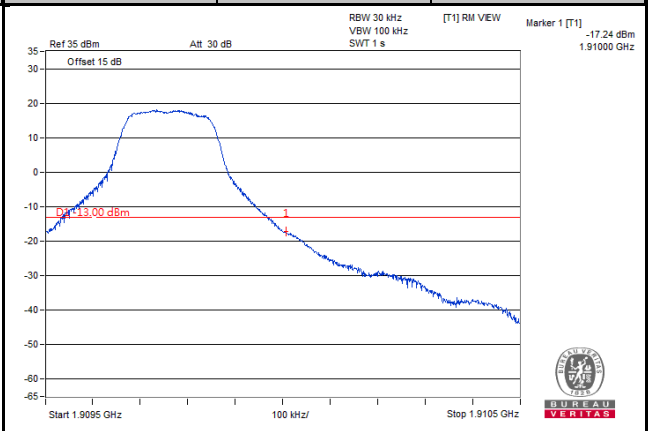
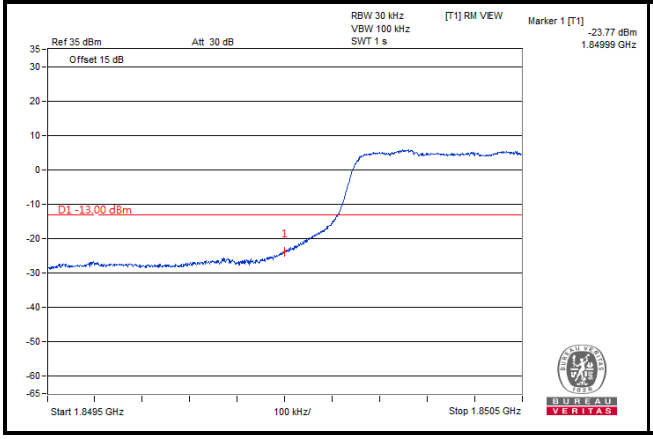
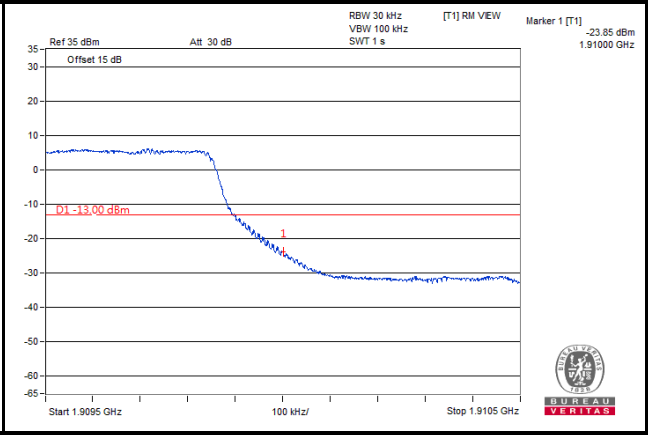
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 10 kHz and VB of the spectrum is 30 kHz (GSM/GPRS/EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (WCDMA).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 13 kHz and VB of the spectrum is 51 kHz (CDMA).
e. 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).
f. 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).
g. 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).
h. 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).
i. 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).
j. 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).
k. Record the max trace plot into the test report.

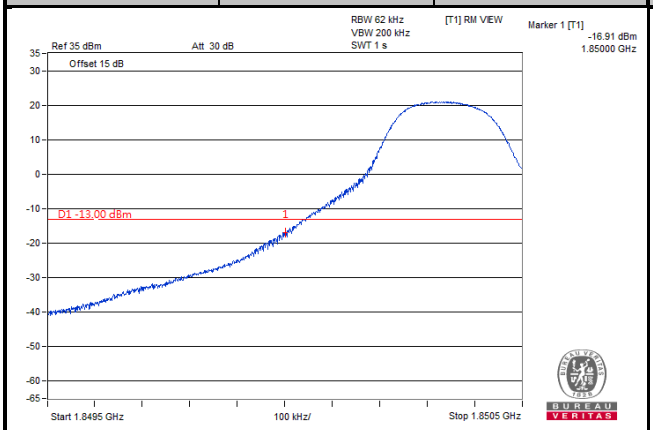
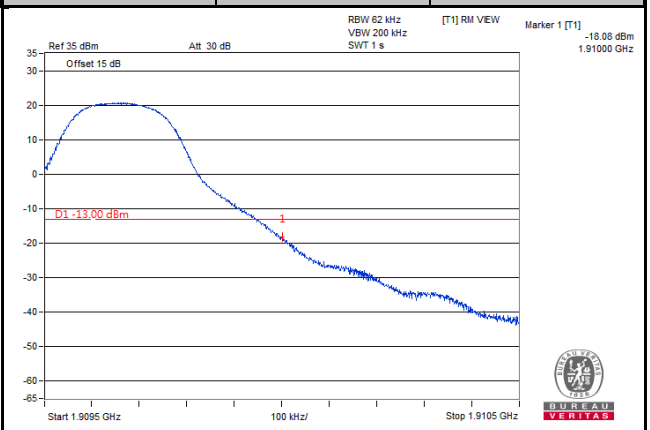
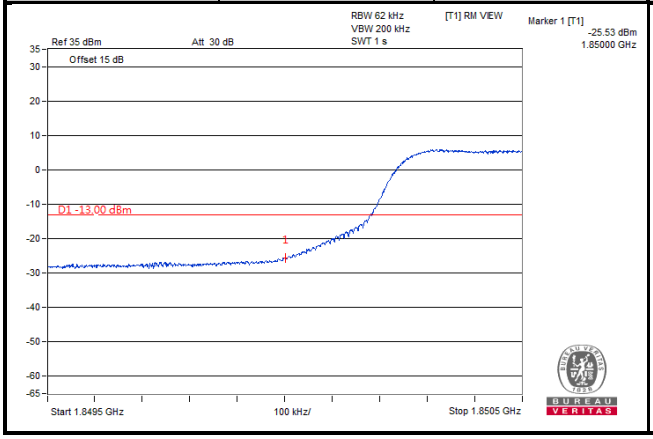
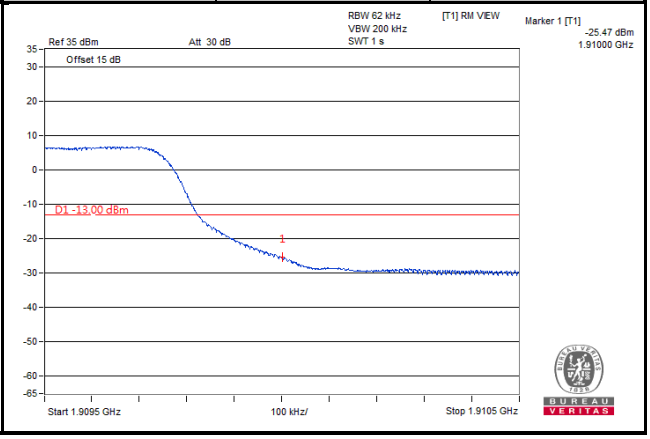
## 4.5.4 Test Results

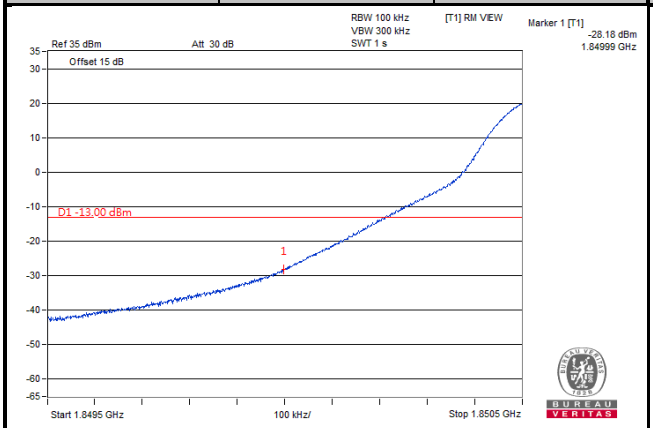
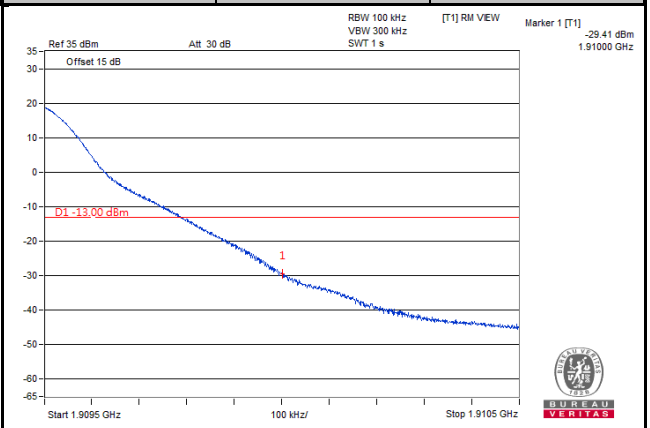
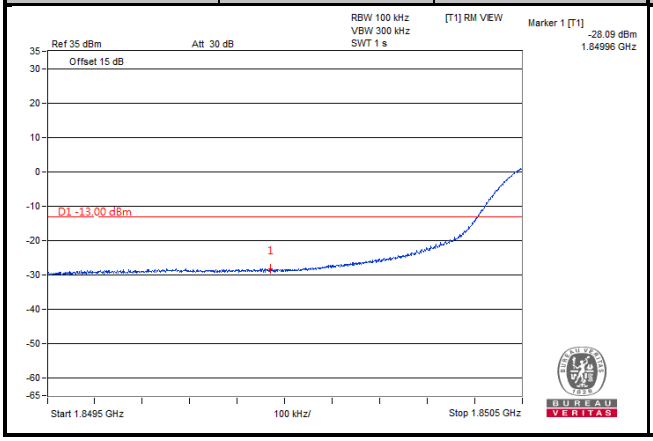
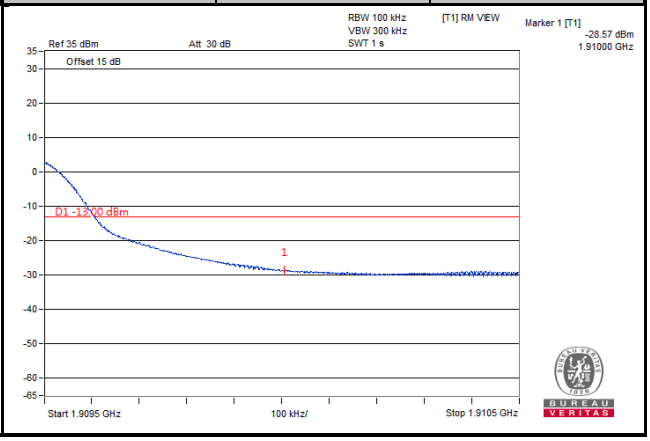
| GSM | | | |
|---|---|---|---|
| Channel | 512 | Channel | 810 |
|  | |  | |
| **EDGE** | | | |
| Channel | 512 | Channel | 810 |
|  | |  | |

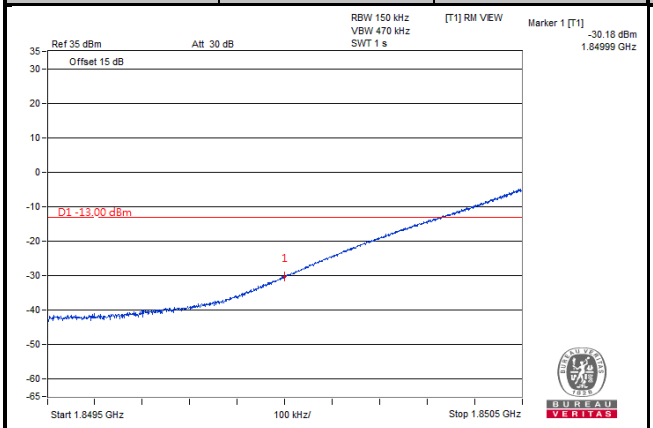
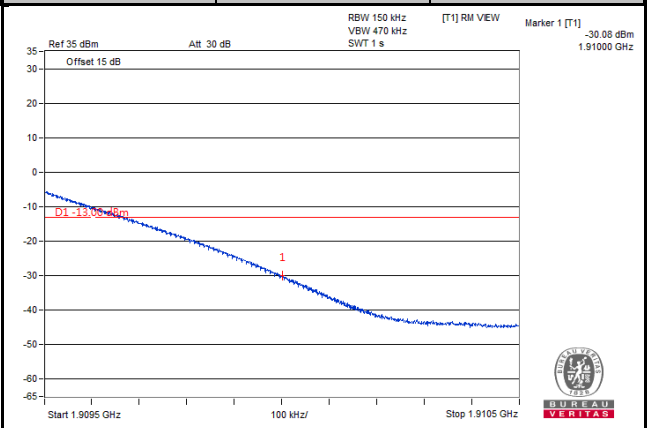
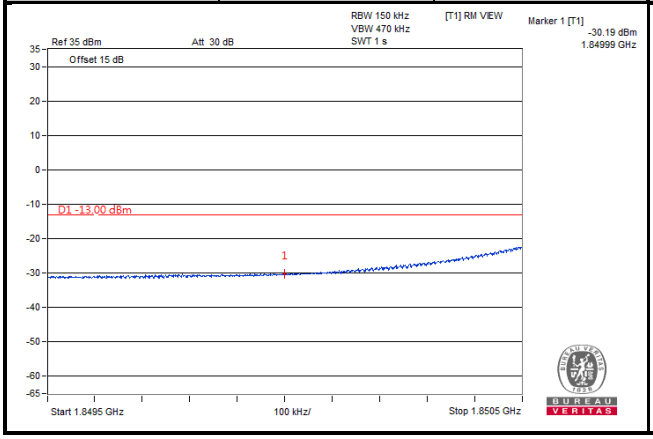
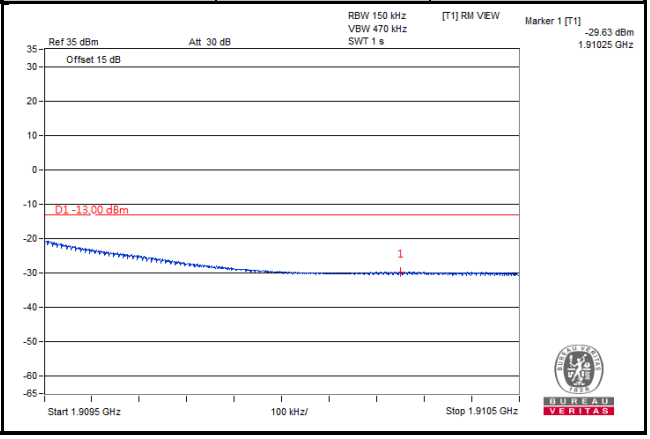
| WCDMA | | | |
|---|---|---|---|
| Channel | 9262 | Channel | 9538 |
|  | |  | |
| CDMA | | | |
| Channel | 25 | Channel | 1175 |
|  | |  | |

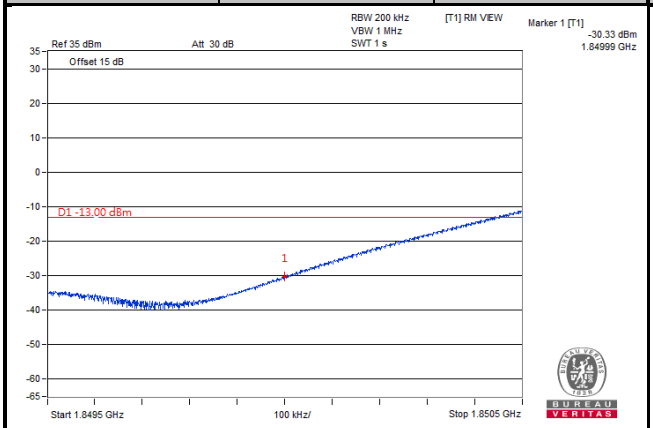
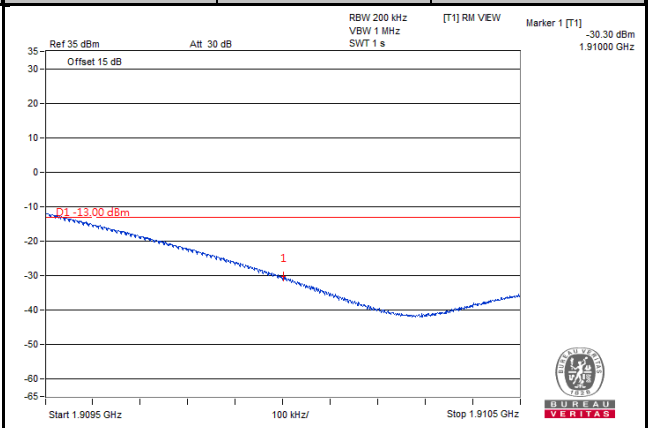
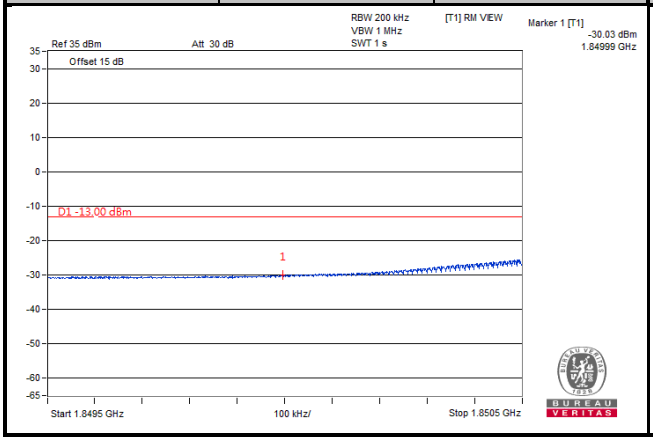
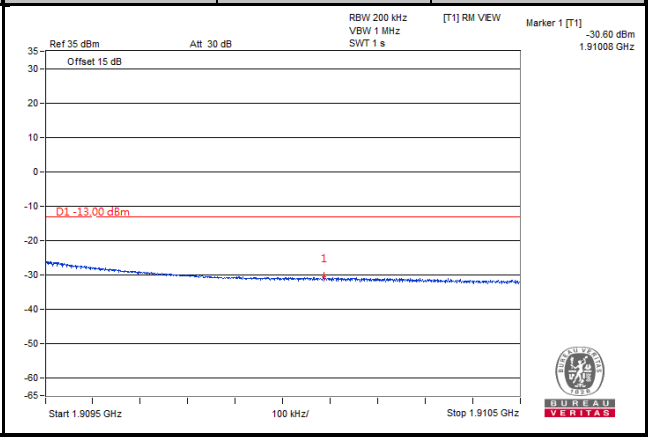
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 18607 | 1 RB | Channel | 19193 | 1 RB |
|  | | |  | | |
| Channel | 18607 | 6 RB | Channel | 19193 | 6 RB |
|  | | |  | | |

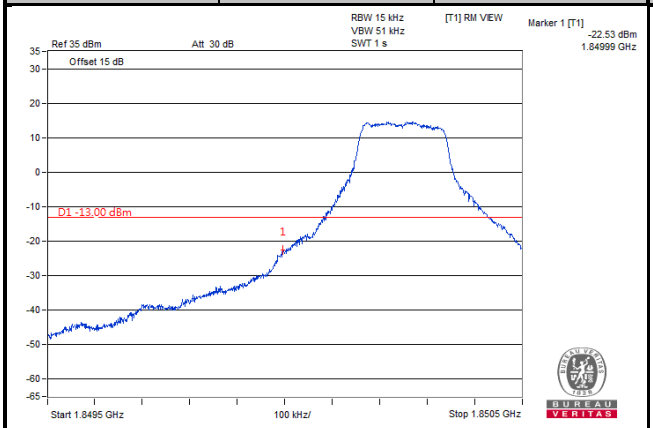
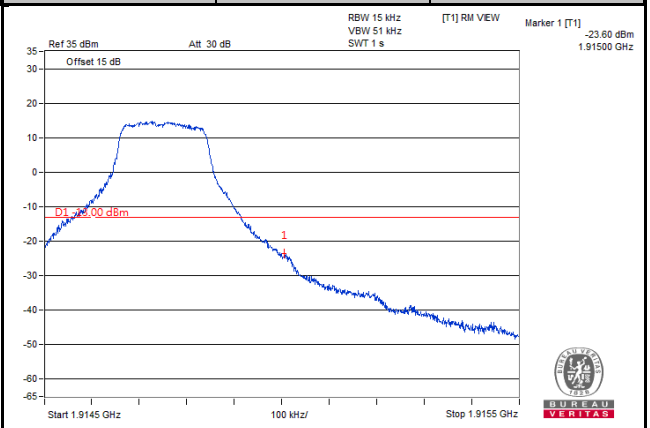
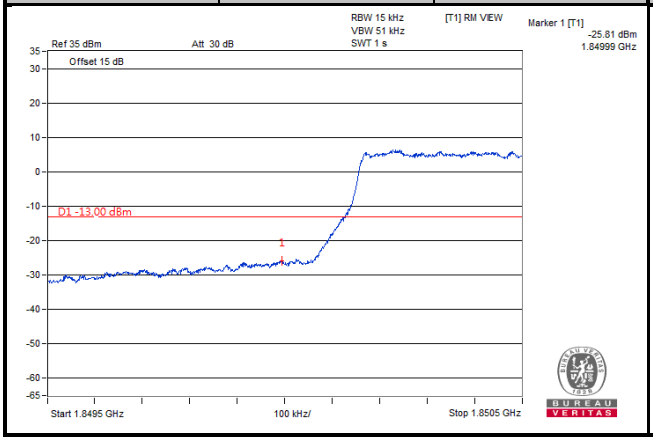
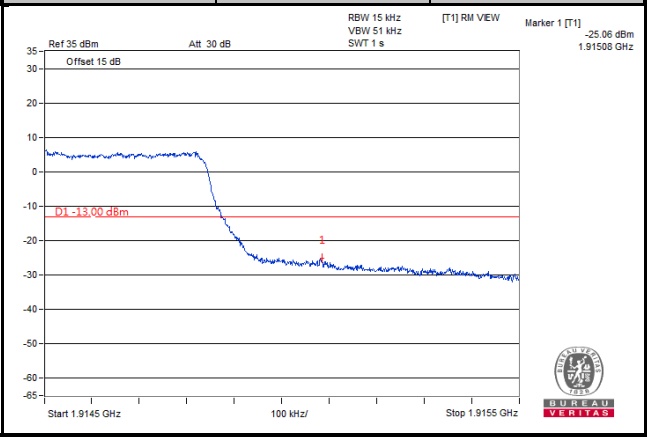
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 18615 | 1 RB | Channel | 19185 | 1 RB |
|  | | |  | | |
| Channel | 18615 | 15 RB | Channel | 19185 | 15 RB |
|  | | |  | | |

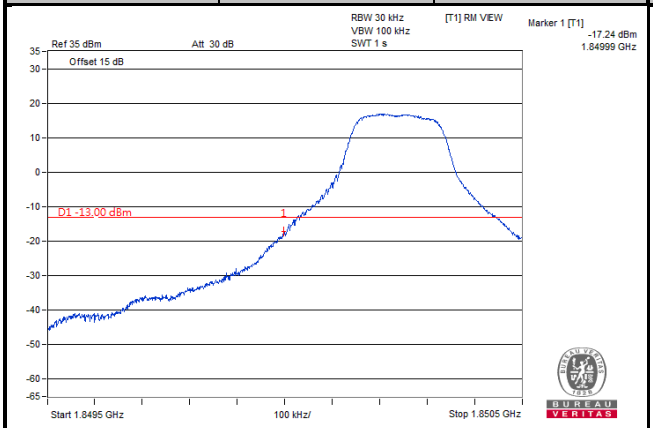
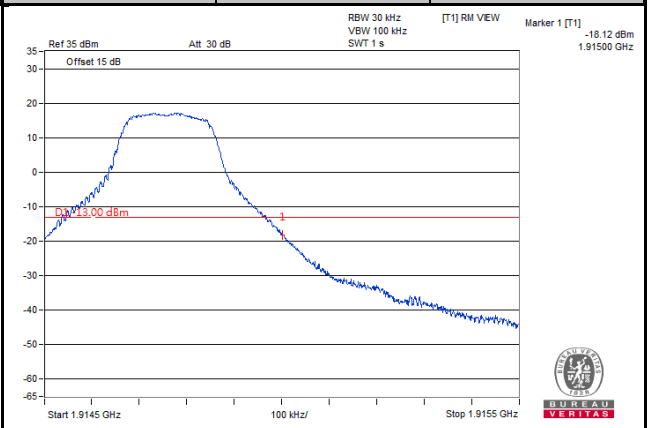
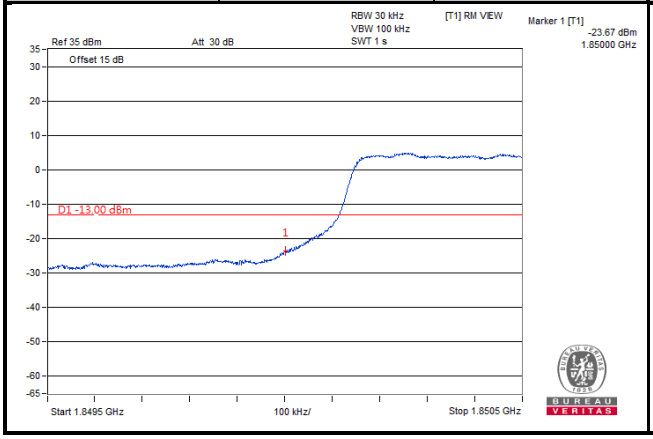
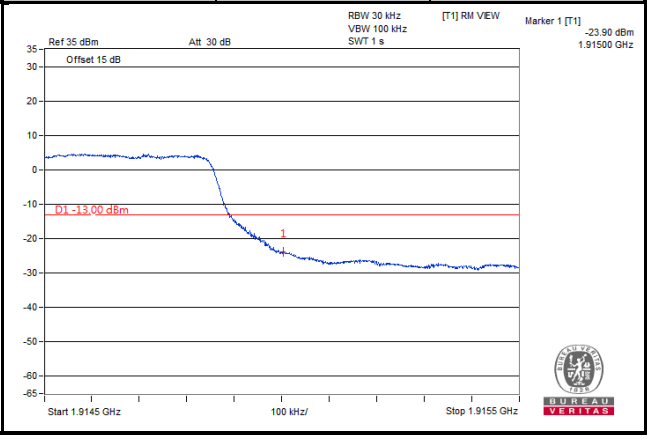
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 18625 | 1 RB | Channel | 19175 | 1 RB |
|  | | |  | | |
| Channel | 18625 | 25 RB | Channel | 19175 | 25 RB |
|  | | |  | | |

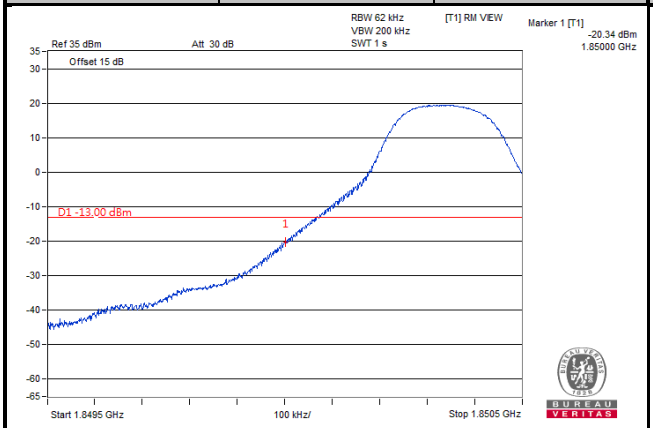
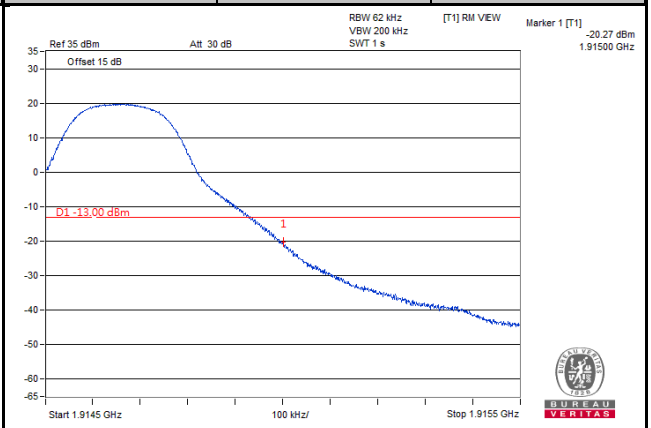
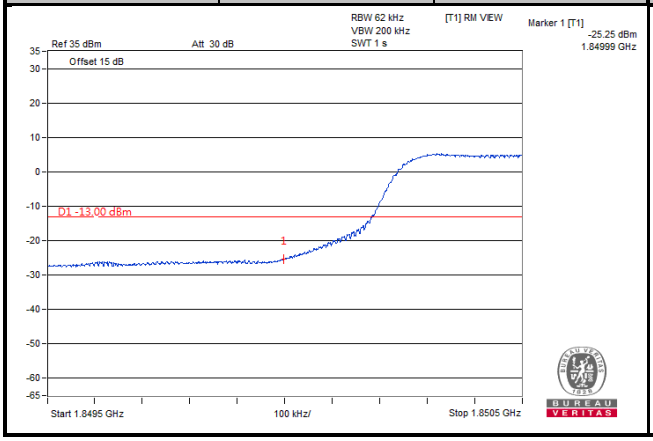
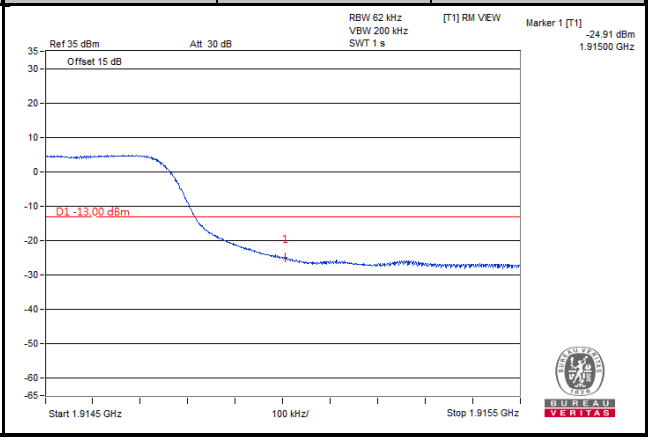
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 18650 | 1 RB | Channel | 19150 | 1 RB |
|  | | |  | | |
| Channel | 18650 | 50 RB | Channel | 19150 | 50 RB |
|  | | |  | | |

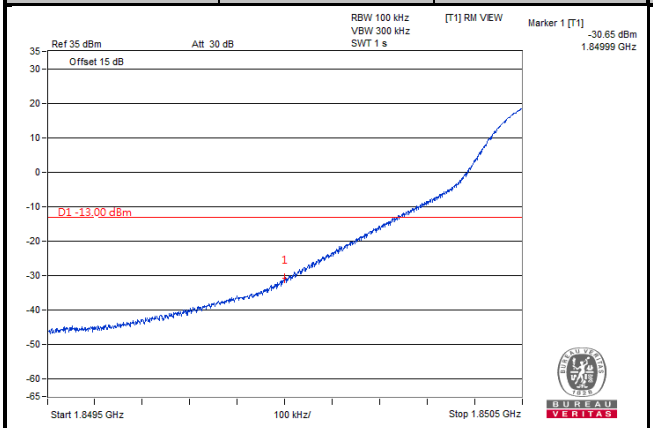
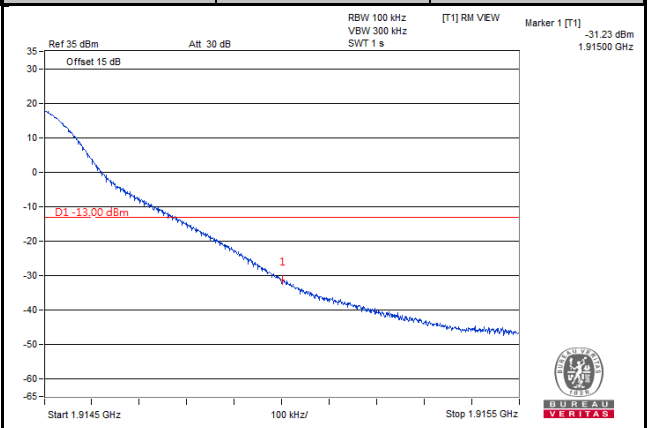
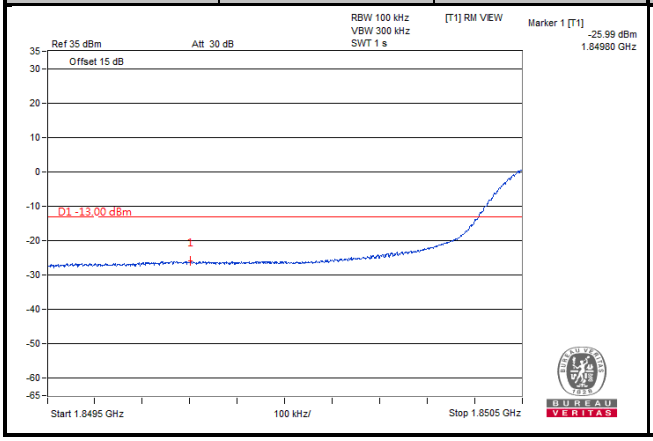
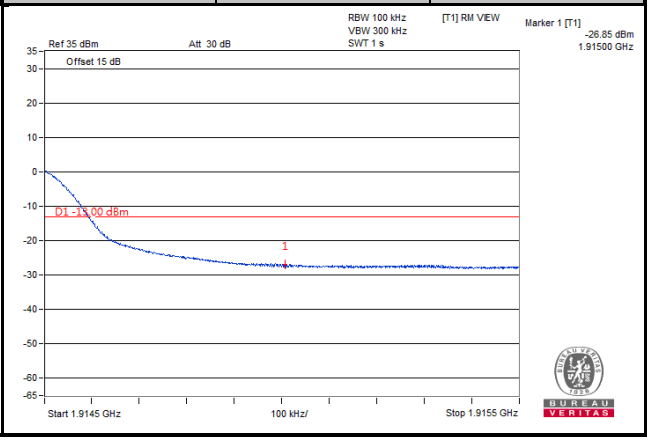
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | 18675 | 1 RB | Channel | 19125 | 1 RB |
|  | | |  | | |
| Channel | 18675 | 75 RB | Channel | 19125 | 75 RB |
|  | | |  | | |

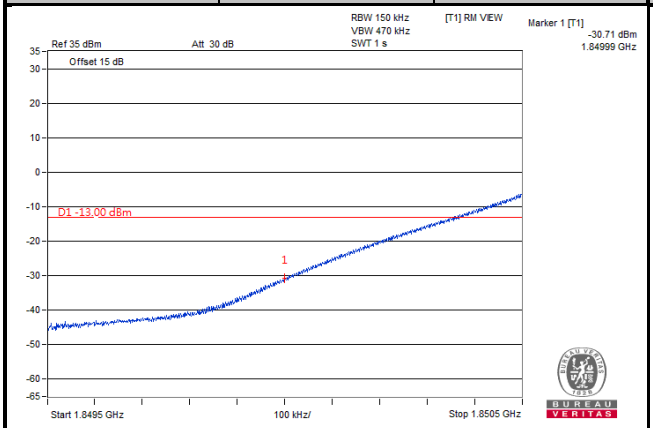
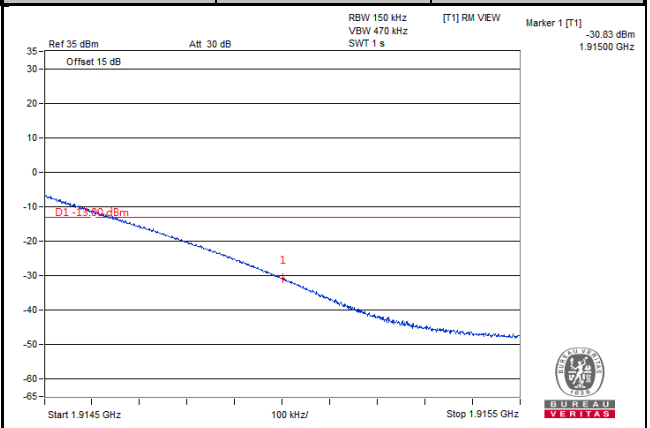
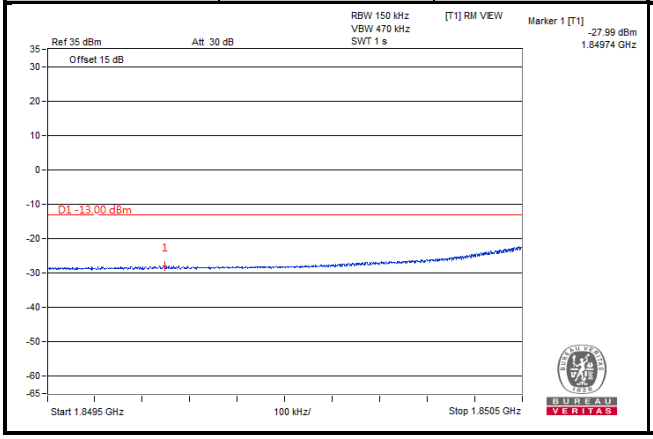
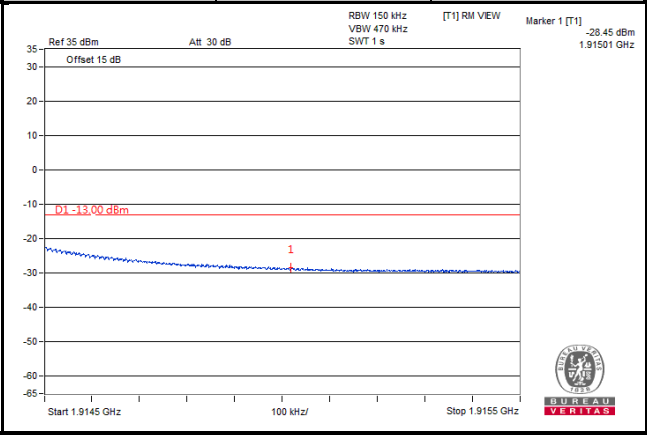
| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | 18700 | 1 RB | Channel | 19100 | 1 RB |
|  | | |  | | |
| Channel | 18700 | 100 RB | Channel | 19100 | 100 RB |
|  | | |  | | |

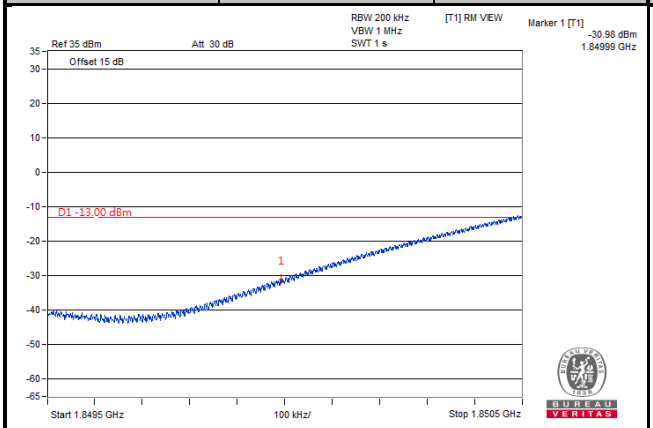
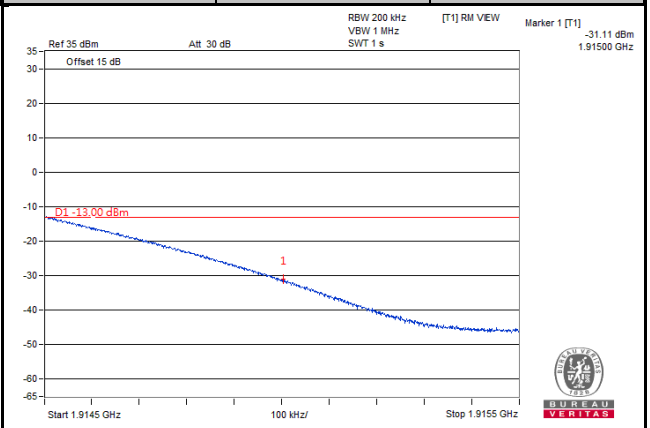
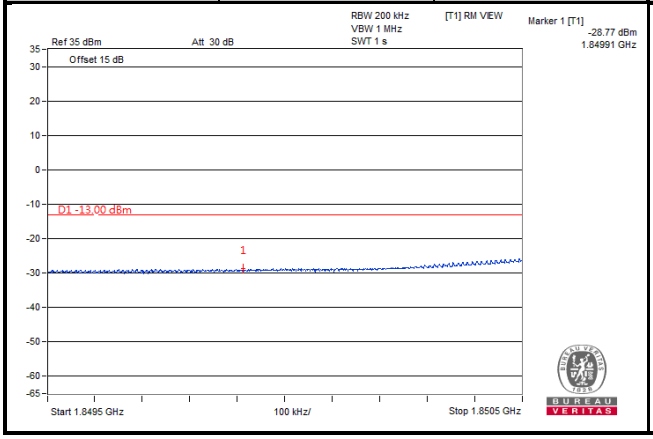
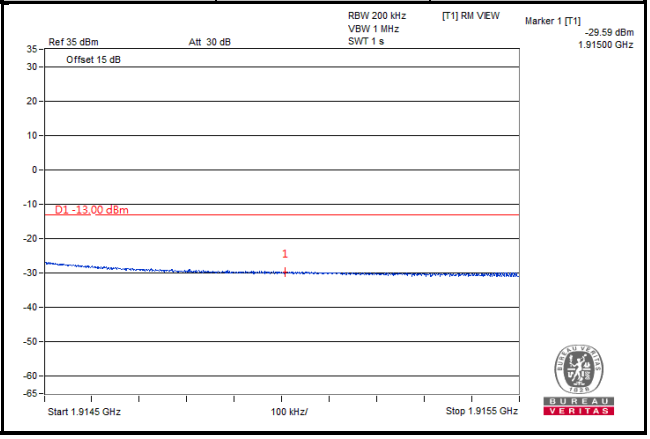
| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 26047 | 1 RB | Channel | 26683 | 1 RB |
|  | | |  | | |
| Channel | 26047 | 6 RB | Channel | 26683 | 6 RB |
|  | | |  | | |

| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 26055 | 1 RB | Channel | 26675 | 1 RB |
|  | | |  | | |
| Channel | 26055 | 15 RB | Channel | 26675 | 15 RB |
|  | | |  | | |

| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 26065 | 1 RB | Channel | 26665 | 1 RB |
|  | | |  | | |
| Channel | 26065 | 25 RB | Channel | 26665 | 25 RB |
|  | | |  | | |

| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 26090 | 1 RB | Channel | 26640 | 1 RB |
|  | | |  | | |
| Channel | 26090 | 50 RB | Channel | 26640 | 50 RB |
|  | | |  | | |

| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | 26115 | 1 RB | Channel | 26615 | 1 RB |
|  | | |  | | |
| Channel | 26115 | 75 RB | Channel | 26615 | 75 RB |
|  | | |  | | |

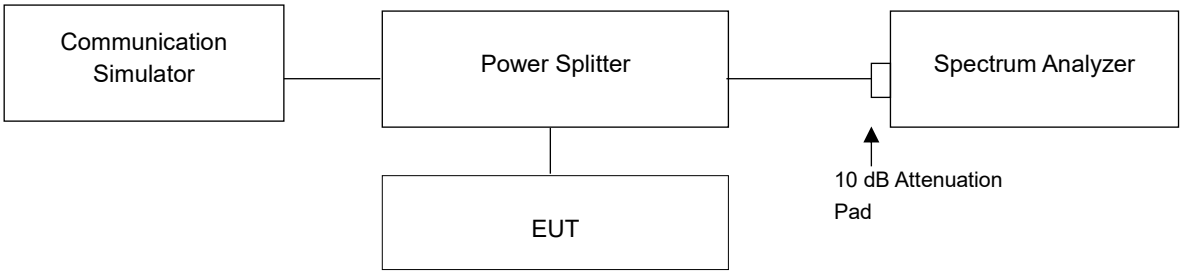
| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | 26140 | 1 RB | Channel | 26590 | 1 RB |
|  | | |  | | |
| Channel | 26140 | 100 RB | Channel | 26590 | 100 RB |
|  | | |  | | |

## 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 %.

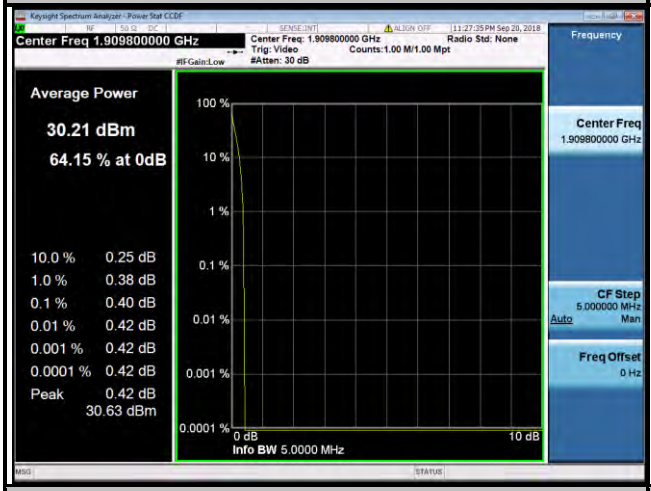
4.6.4 Test Results

| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) |
|---|---|---|---|---|---|---|
| | | GSM | EDGE | | | WCDMA |
| 512 | 1850.2 | 0.35 | 3.43 | 9262 | 1852.4 | 3.23 |
| 661 | 1880.0 | 0.38 | 3.45 | 9400 | 1880.0 | 3.26 |
| 810 | 1909.8 | 0.40 | 3.43 | 9538 | 1907.6 | 3.24 |

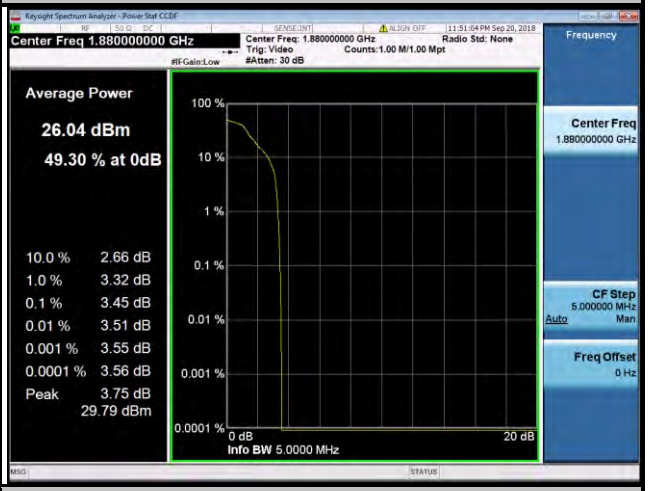
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) |
|---|---|---|
| | | CDMA |
| 25 | 1851.25 | 3.66 |
| 600 | 1880.00 | 4.36 |
| 1175 | 1908.75 | 3.23 |

**Spectrum Plot of Worst Value**

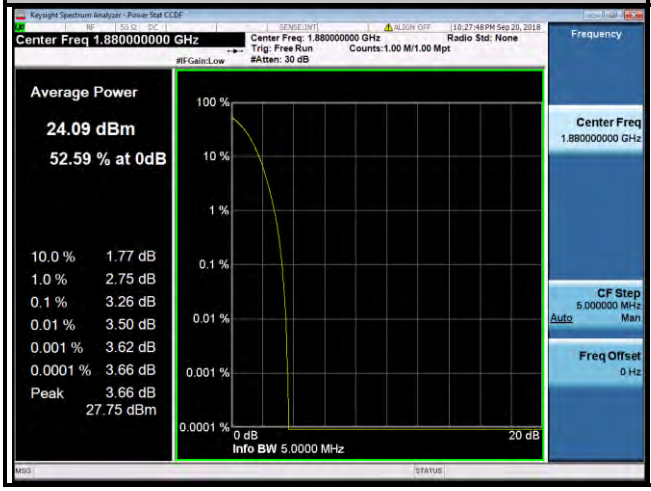
**GSM**



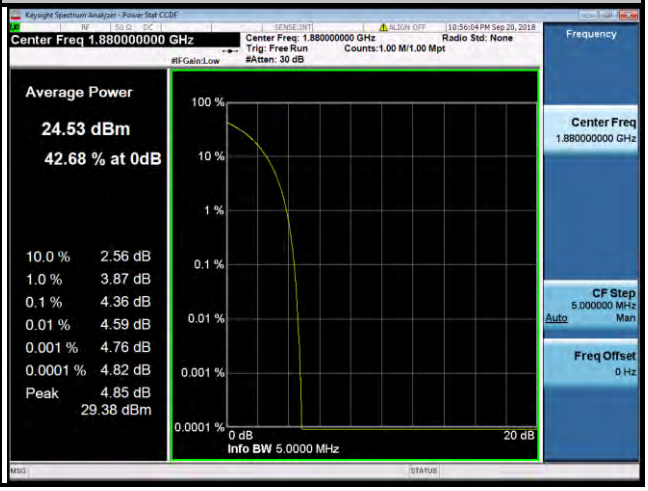

**EDGE**



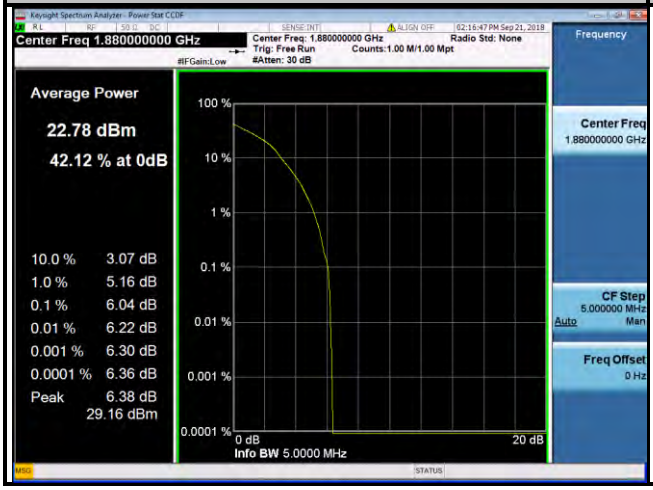
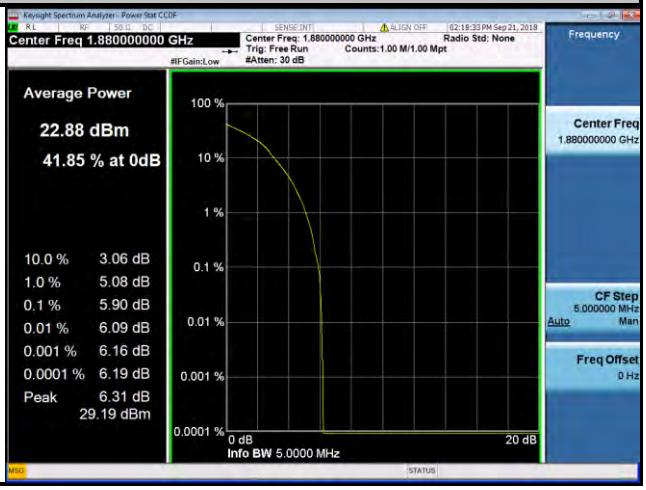

**WCDMA**



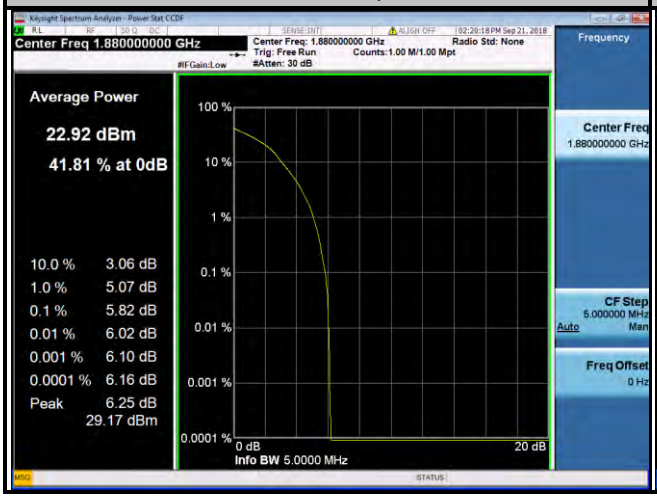
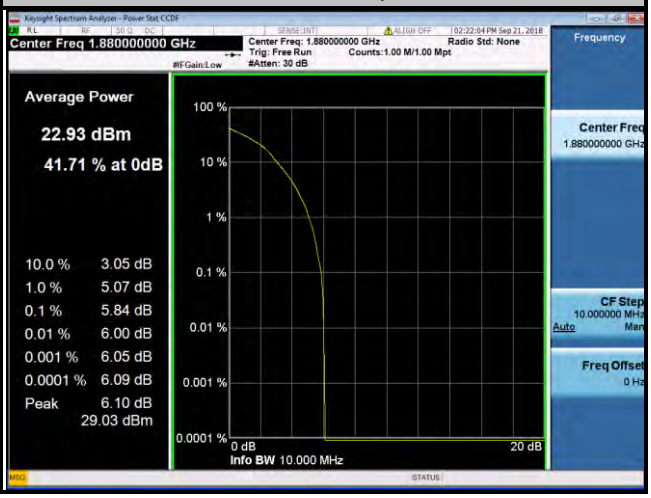

**CDMA**



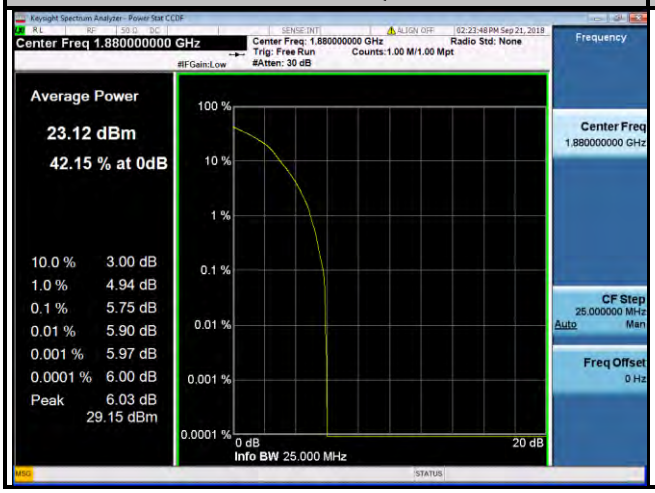
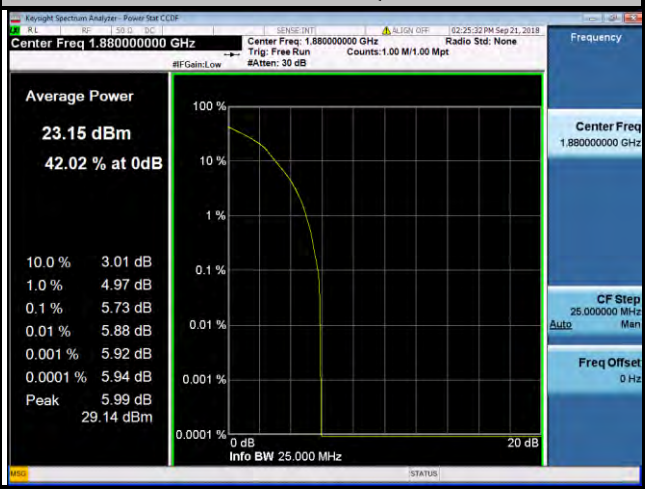
| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 18607 | 1850.7 | 4.30 | 5.07 | 5.08 | 18615 | 1851.5 | 4.20 | 5.03 | 4.98 |
| 18900 | 1880.0 | 5.24 | 5.94 | 6.04 | 18900 | 1880.0 | 5.17 | 5.87 | 5.90 |
| 19193 | 1909.3 | 4.48 | 5.31 | 5.21 | 19185 | 1908.5 | 4.88 | 5.59 | 5.63 |

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

| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 |
| 18625 | 1852.5 | 4.26 | 5.02 | 4.96 | 18650 | 1855.0 | 4.20 | 4.92 | 4.92 |
| 18900 | 1880.0 | 5.10 | 5.80 | 5.82 | 18900 | 1880.0 | 5.05 | 5.74 | 5.84 |
| 19175 | 1907.5 | 4.97 | 5.72 | 5.69 | 19150 | 1905.0 | 4.94 | 5.63 | 5.61 |

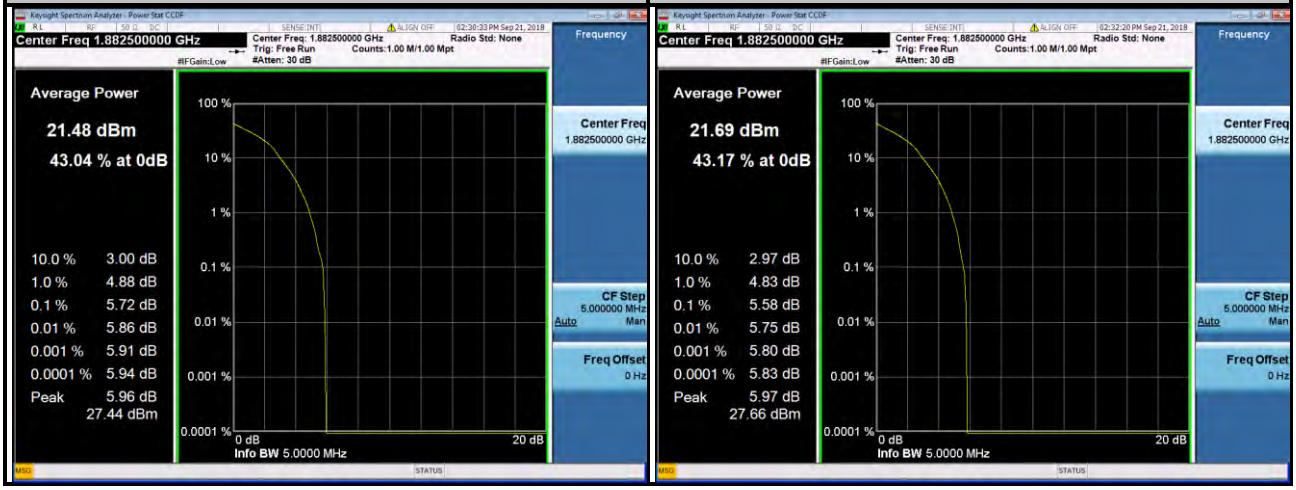
| Spectrum Plot of Worst Value | |
|---|---|
| 5 MHz / 64QAM | 10 MHz / 64QAM |
|  |  |

| LTE Band 2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 |
| 18675 | 1857.5 | 4.14 | 4.87 | 4.92 | 18700 | 1860.0 | 4.11 | 4.83 | 4.81 |
| 18900 | 1880.0 | 4.94 | 5.64 | 5.75 | 18900 | 1880.0 | 4.94 | 5.64 | 5.73 |
| 19125 | 1902.5 | 4.43 | 5.23 | 5.20 | 19100 | 1900.0 | 4.44 | 5.19 | 5.25 |

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

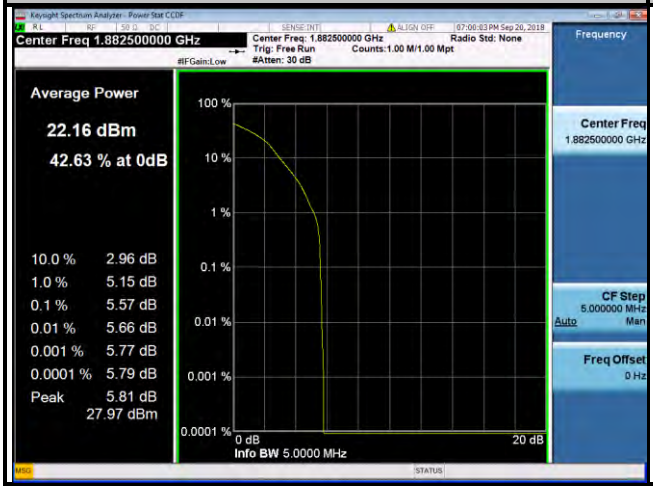
| LTE Band 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | Channel Bandwidth: 3 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 26047 | 1850.7 | 4.76 | 5.48 | 5.51 | 26055 | 1851.5 | 4.73 | 5.42 | 5.35 |
| 26365 | 1882.5 | 4.85 | 5.63 | 5.72 | 26365 | 1882.5 | 4.79 | 5.49 | 5.58 |
| 26683 | 1914.3 | 4.29 | 5.10 | 5.16 | 26675 | 1913.5 | 4.36 | 5.16 | 5.12 |

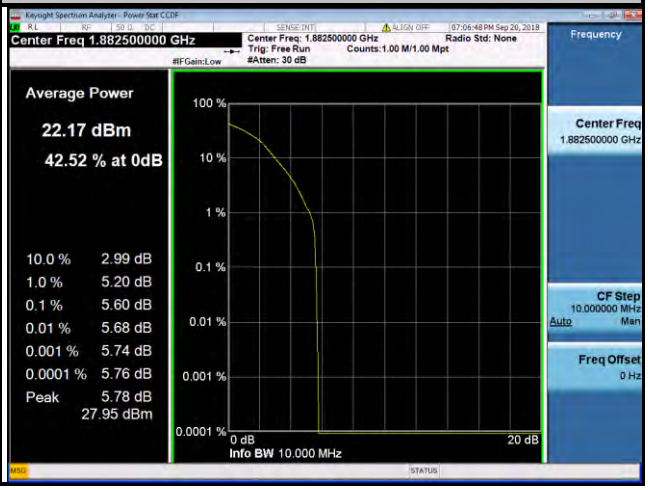
| Spectrum Plot of Worst Value | |
|---|---|
| 1.4 MHz / 64QAM | 3 MHz / 64QAM |



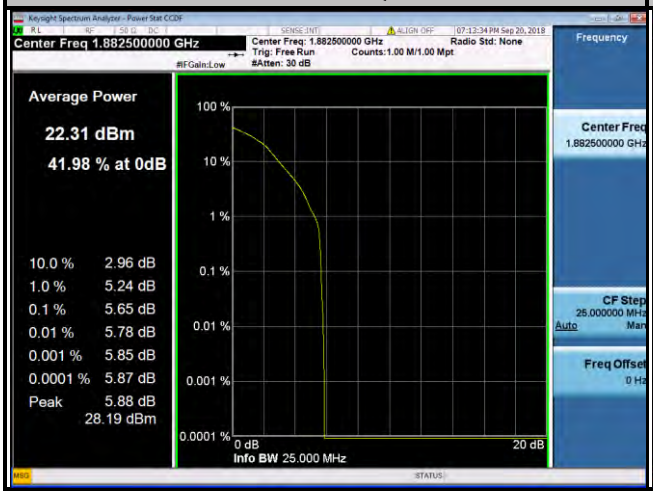
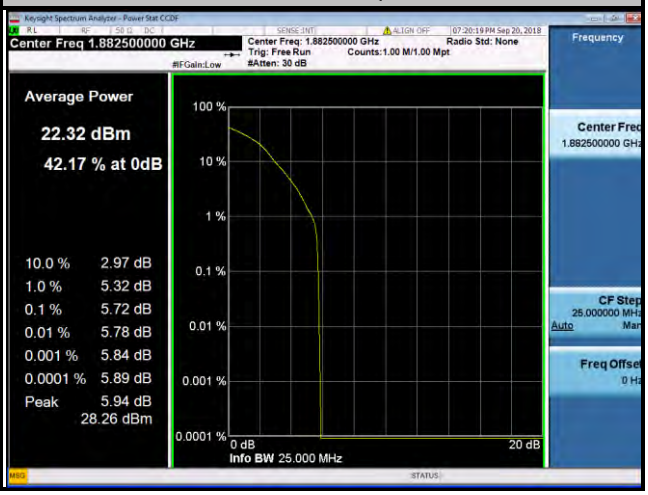
| LTE Band 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | Channel Bandwidth: 10 MHz | | | | |
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | |
| | | QPSK | 16QAM | 64QAM | | | QPSK | 16QAM | 64QAM |
| 26065 | 1852.5 | 4.66 | 5.44 | 5.29 | 26090 | 1855.0 | 4.71 | 5.40 | 5.30 |
| 26365 | 1882.5 | 4.79 | 5.57 | 5.54 | 26365 | 1882.5 | 4.82 | 5.60 | 5.58 |
| 26665 | 1912.5 | 4.45 | 5.22 | 5.19 | 26640 | 1910.0 | 4.58 | 5.36 | 5.38 |

| Spectrum Plot of Worst Value | |
|---|---|
| 5 MHz / 16QAM | 10 MHz / 16QAM |



| LTE Band 25 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 |
| 26115 | 1857.5 | 4.61 | 5.31 | 5.20 | 26140 | 1860.0 | 4.56 | 5.32 | 5.11 |
| 26365 | 1882.5 | 4.86 | 5.65 | 5.60 | 26365 | 1882.5 | 4.93 | 5.72 | 5.68 |
| 26615 | 1907.5 | 4.79 | 5.58 | 5.61 | 26590 | 1905.0 | 4.89 | 5.68 | 5.55 |

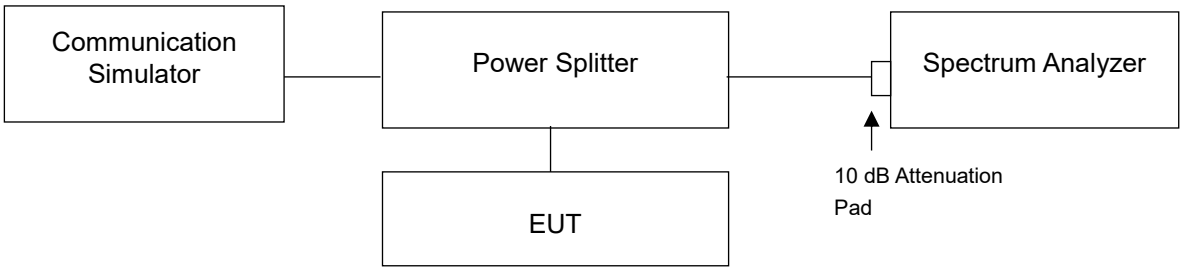
| Spectrum Plot of Worst Value | |
|---|---|
| 15 MHz / 16QAM | 20 MHz / 16QAM |
|  |  |

## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions Measurement

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

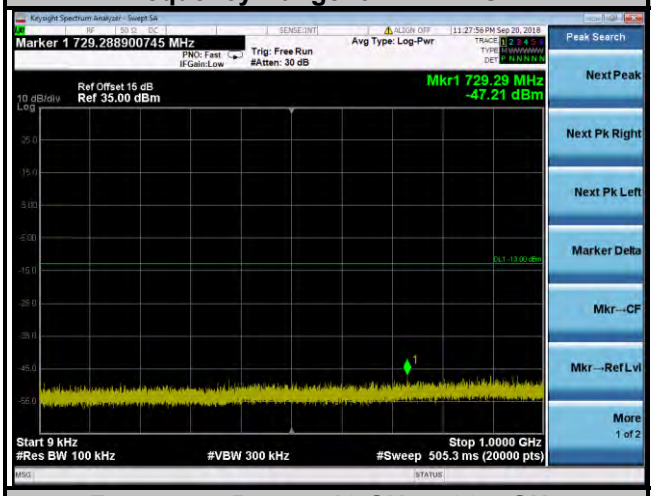
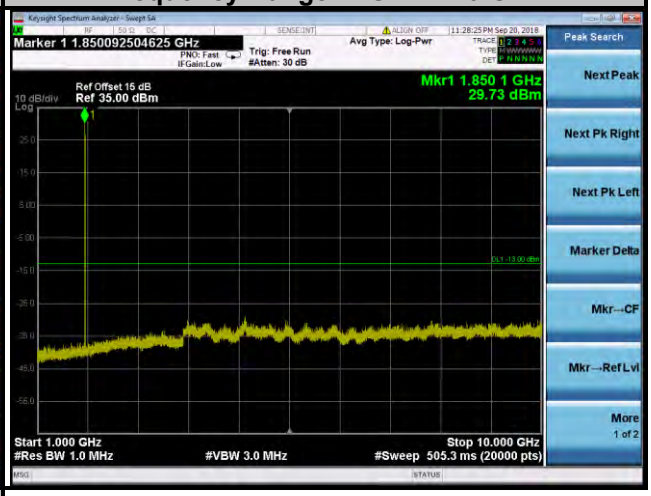
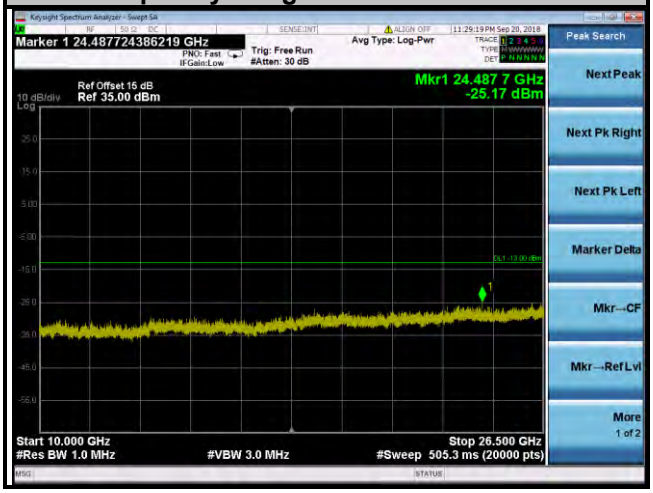
### 4.7.2 Test Setup




### 4.7.3 Test Procedure

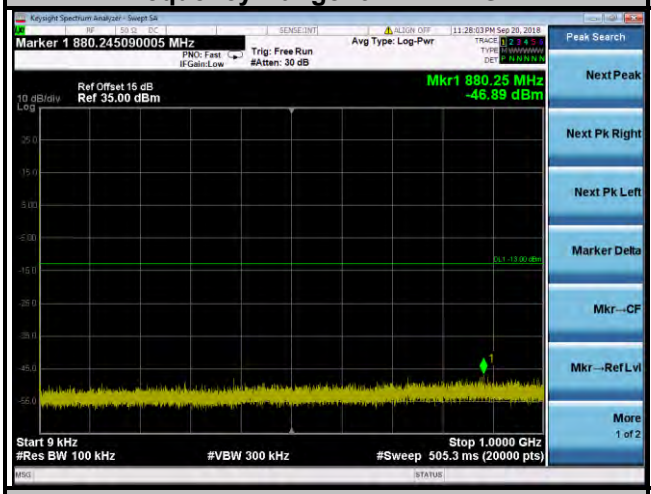
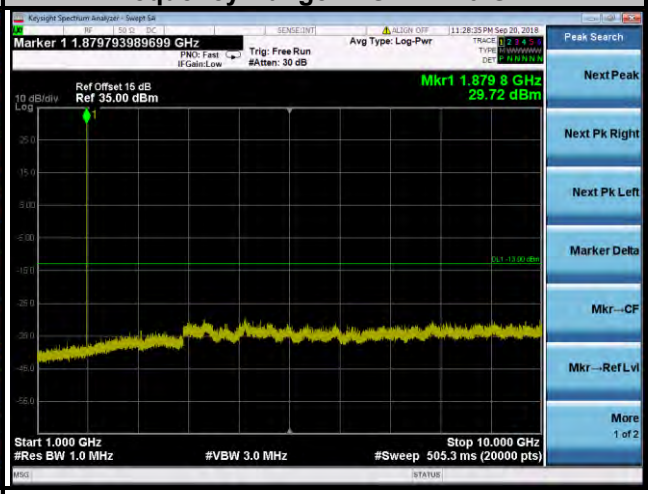
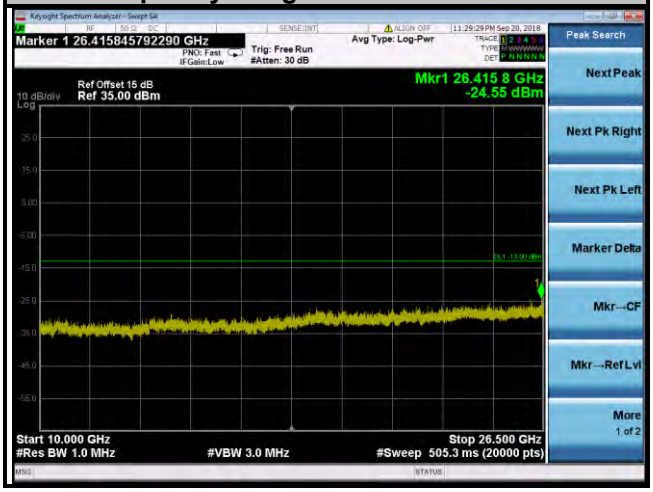
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz is used for conducted emission measurement.
c. For LTE, measuring frequency range is from 1 GHz to 26.5 GHz / 27 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

4.7.4 Test Results

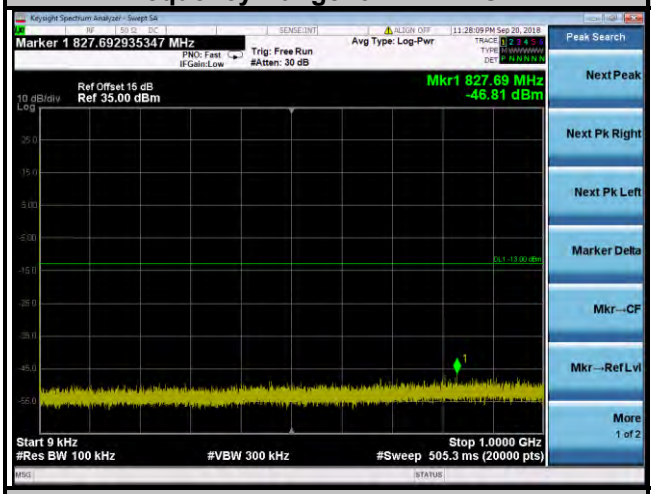
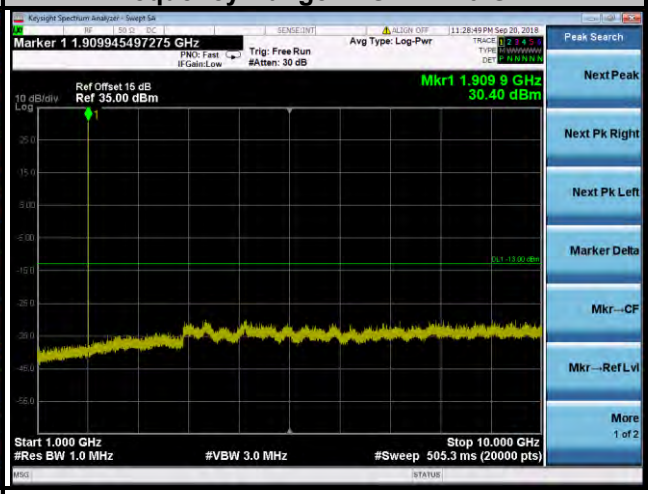
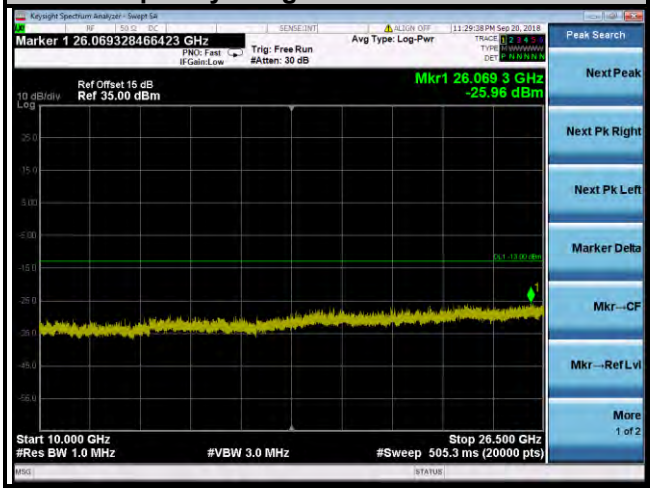
| GSM | |
|---|---|
| Channel 512 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |



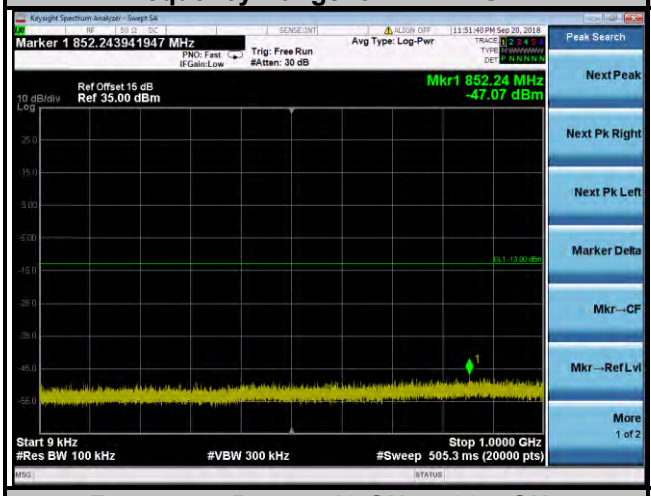
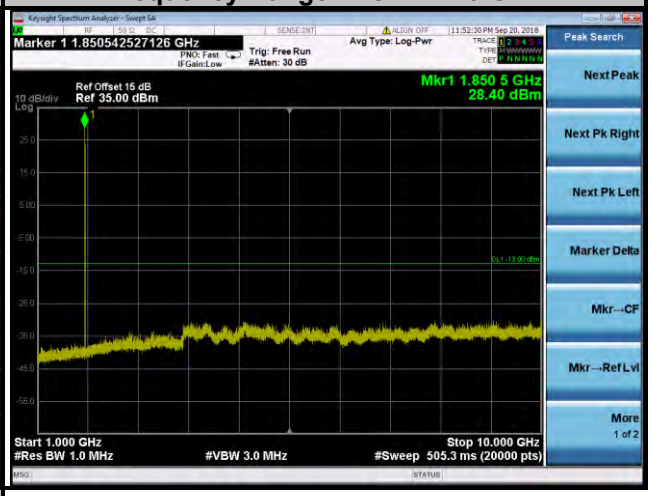
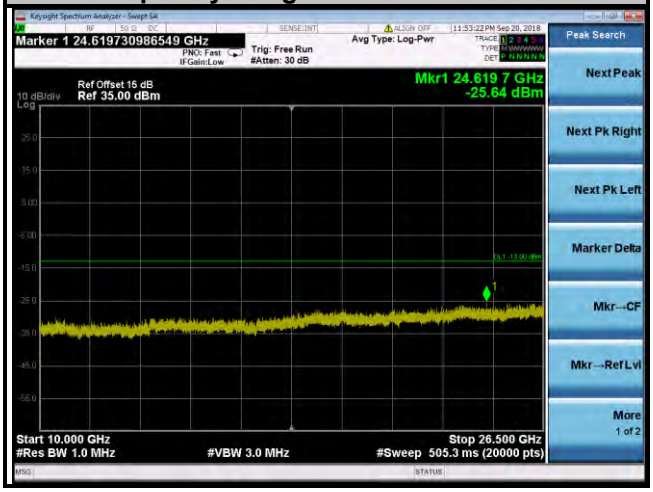
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| GSM | |
|---|---|
| Channel 661 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

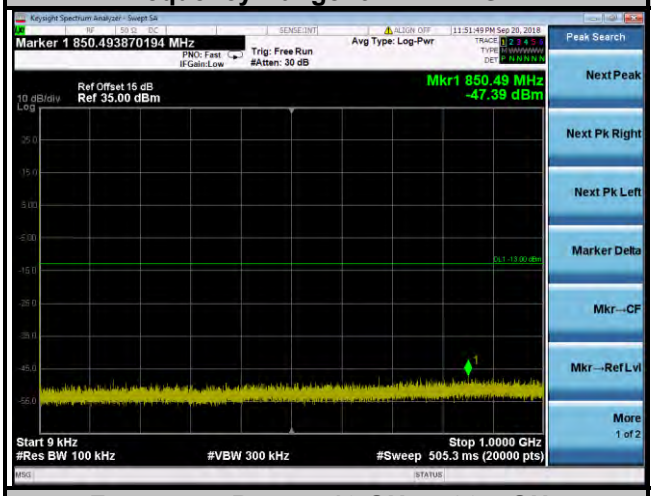
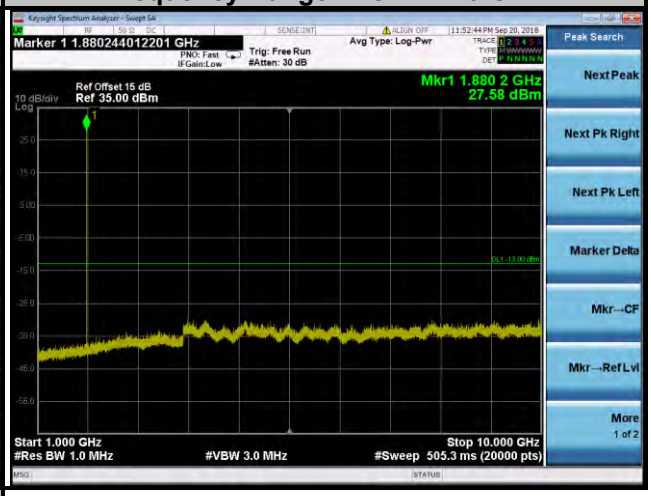
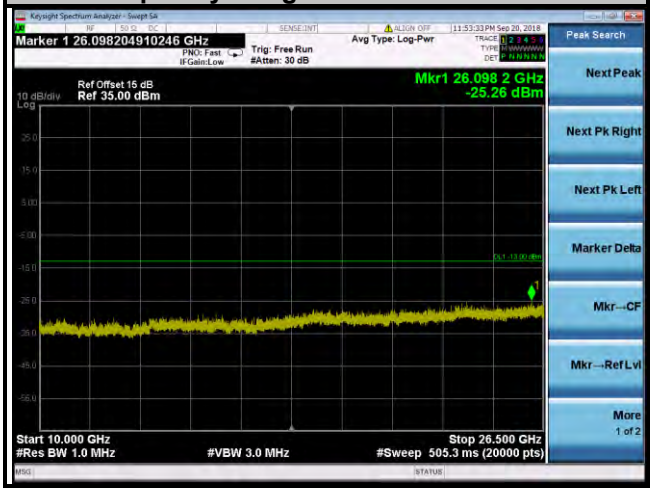
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| GSM | |
|---|---|
| Channel 810 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

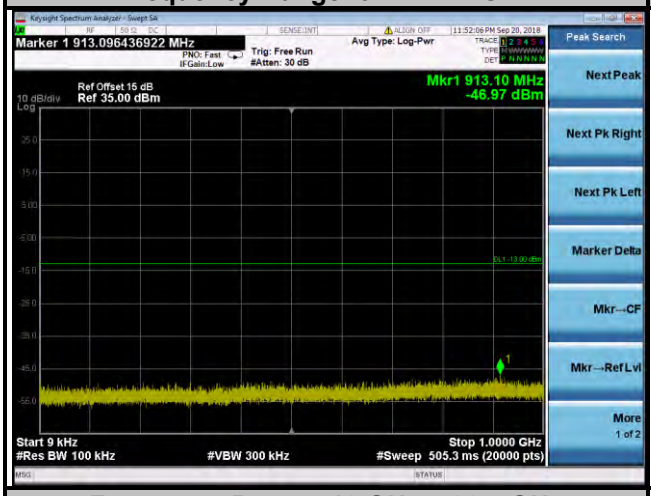
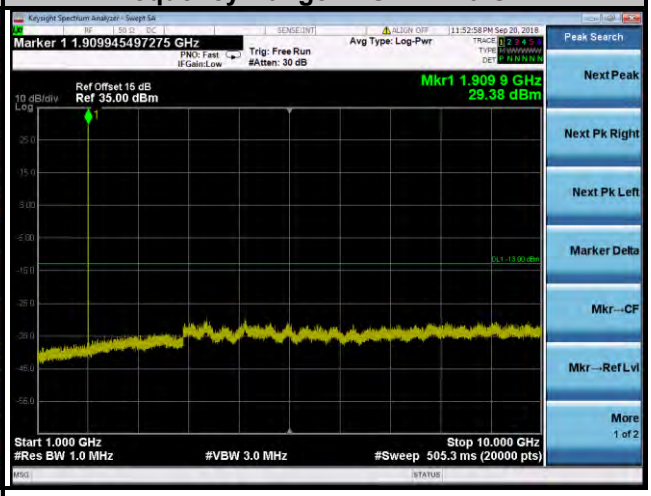
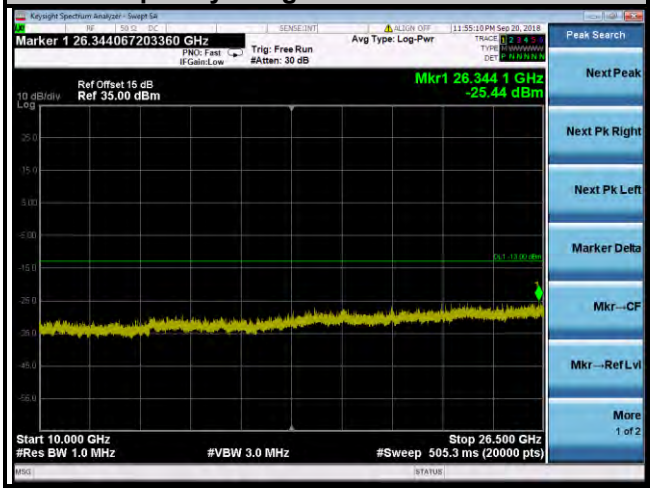
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| EDGE | |
|---|---|
| Channel 512 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

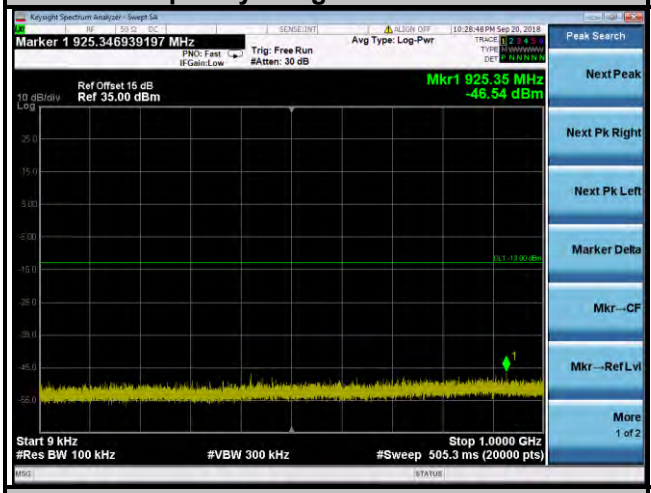
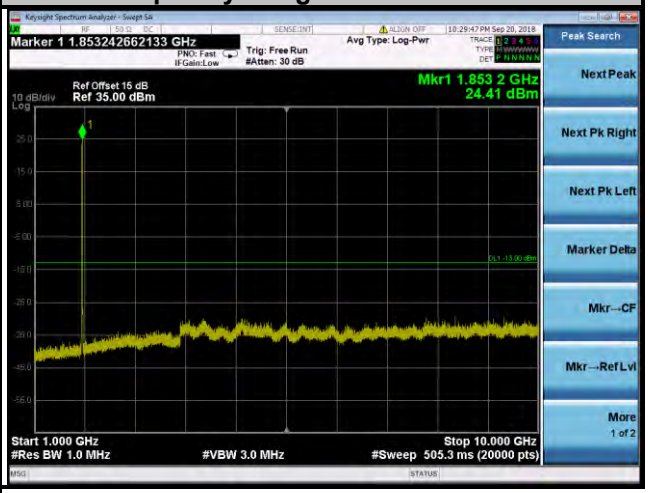
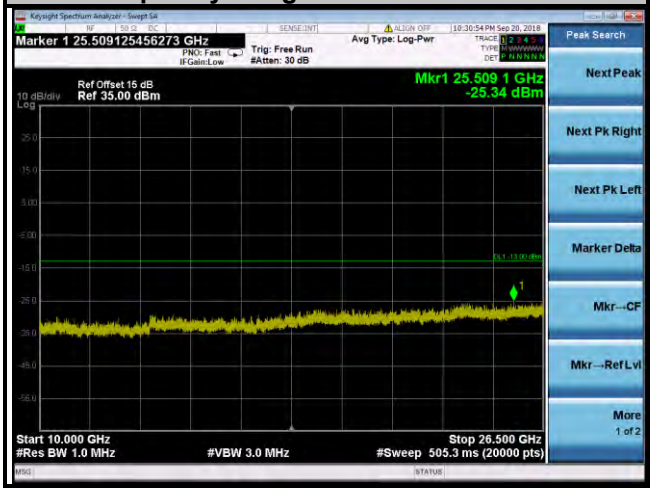
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| EDGE | |
|---|---|
| Channel 661 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

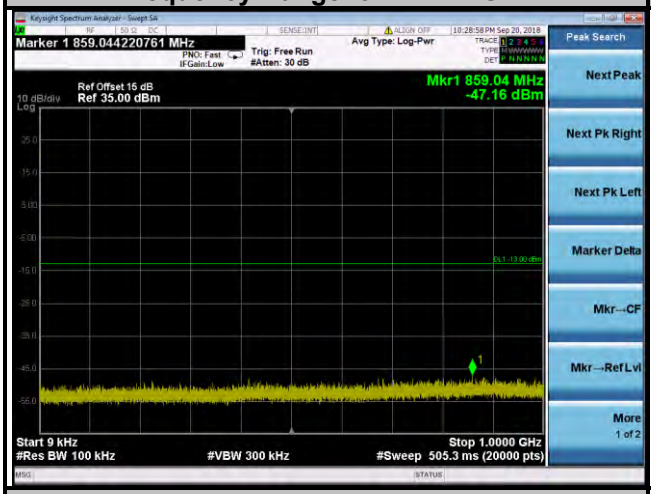
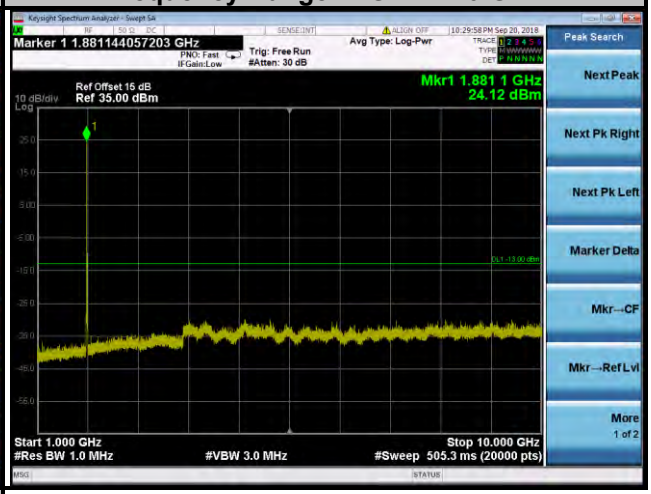
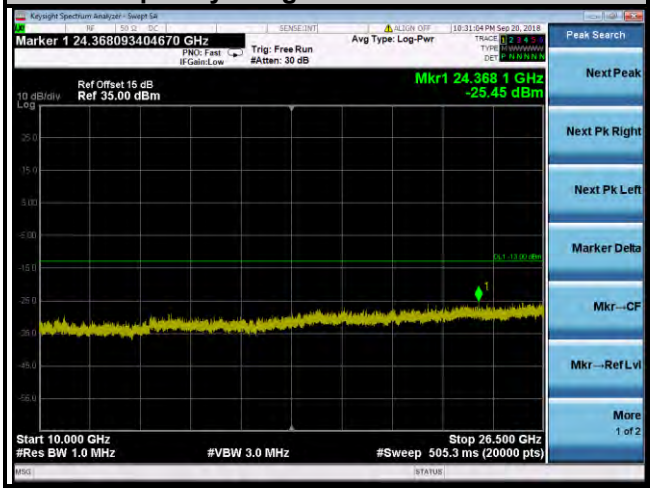
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| EDGE | |
|---|---|
| Channel 810 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

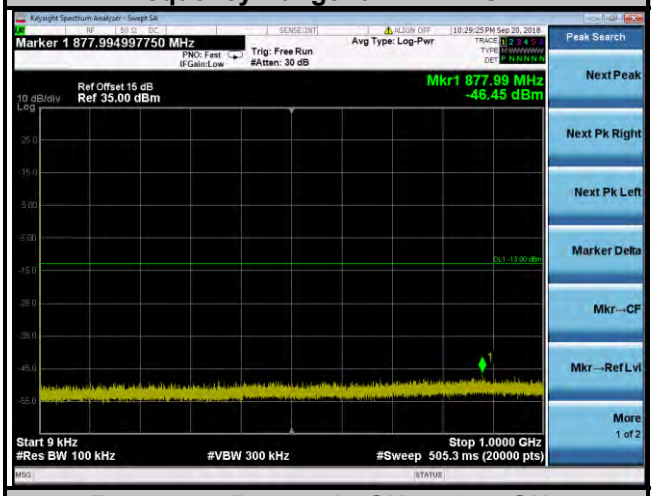
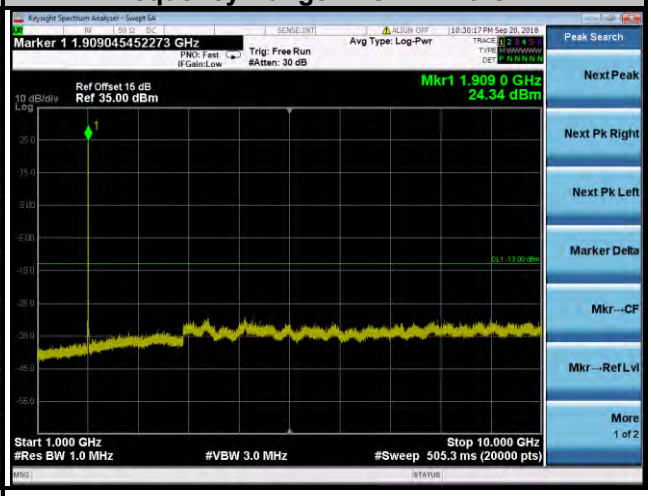
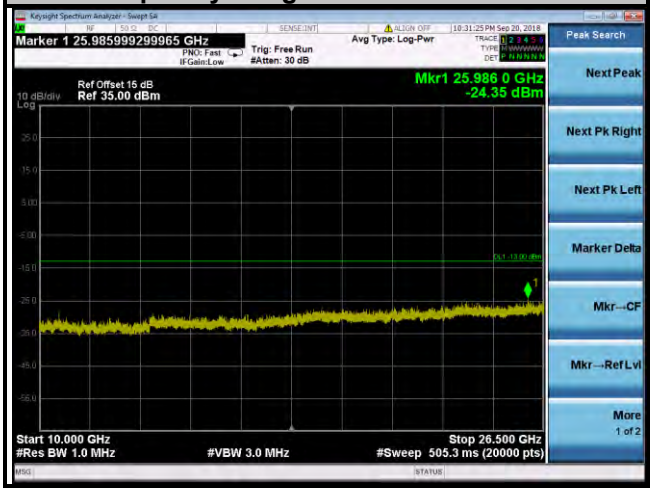
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| WCDMA | |
|---|---|
| Channel 9262 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

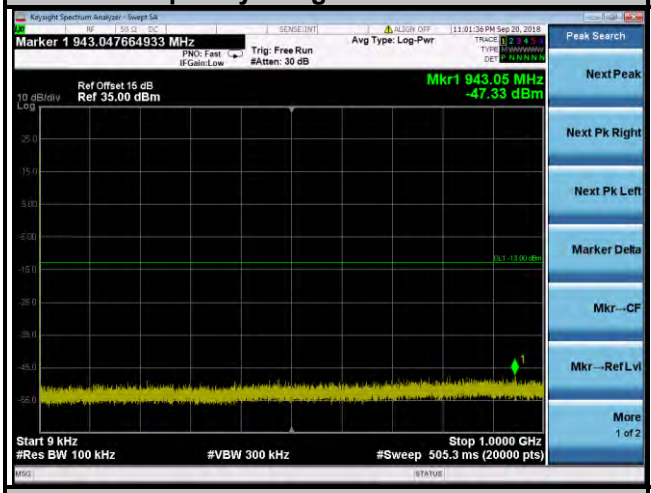
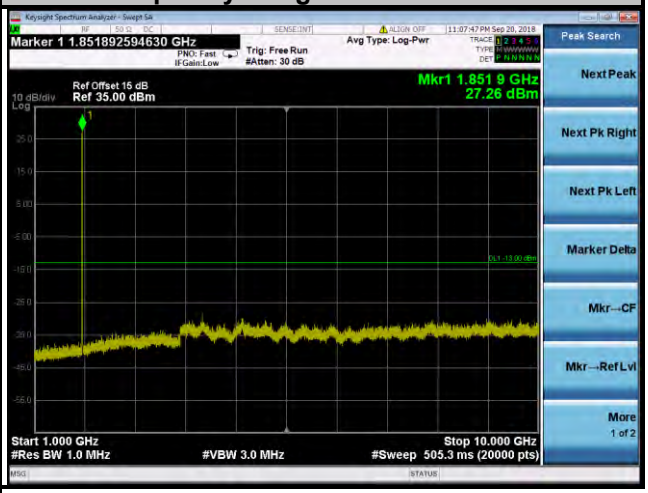
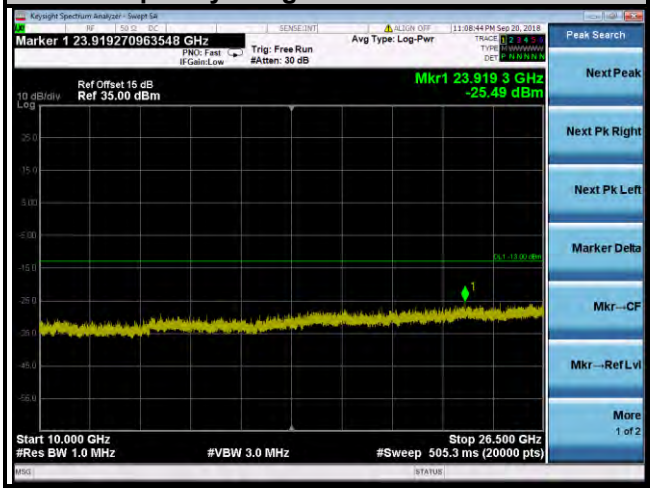
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| WCDMA | |
|---|---|
| Channel 9400 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

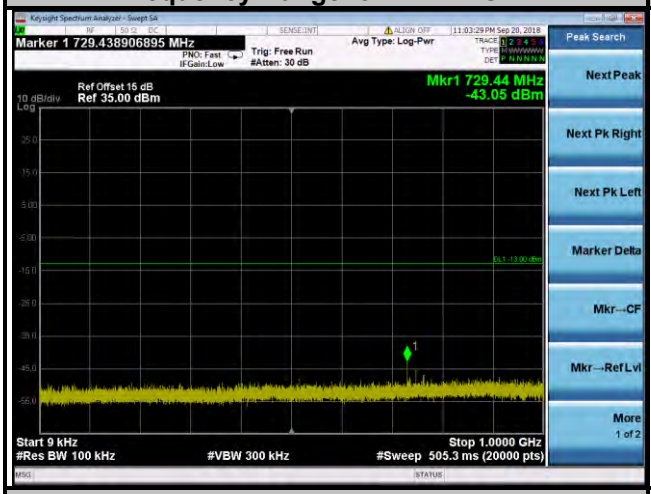
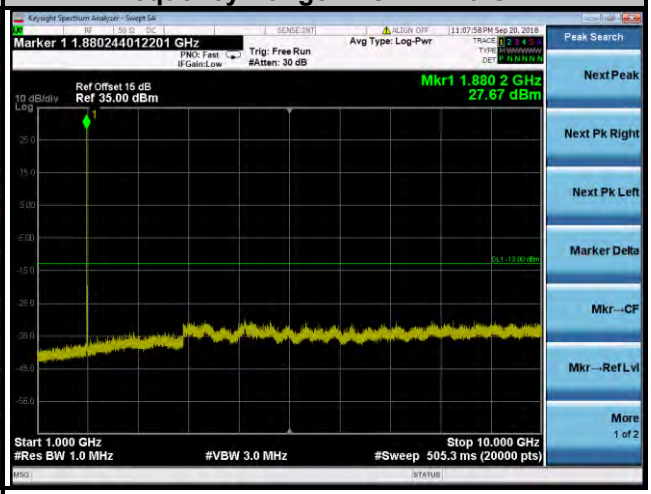
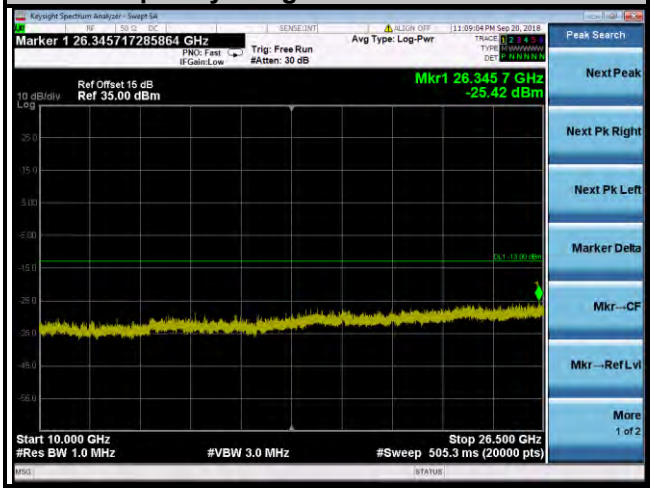
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| WCDMA | |
|---|---|
| Channel 9538 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

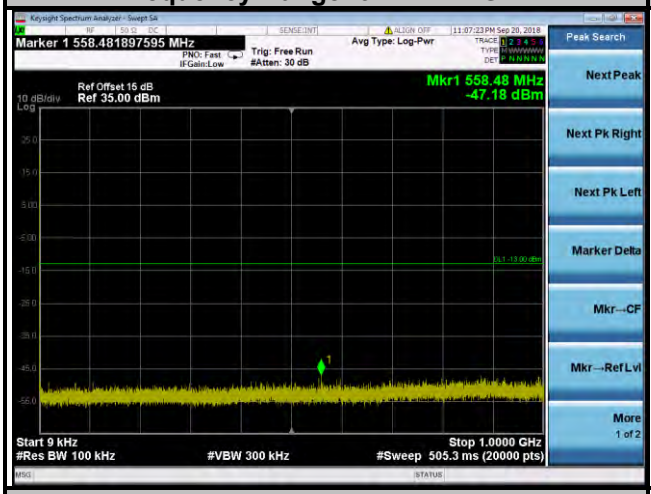
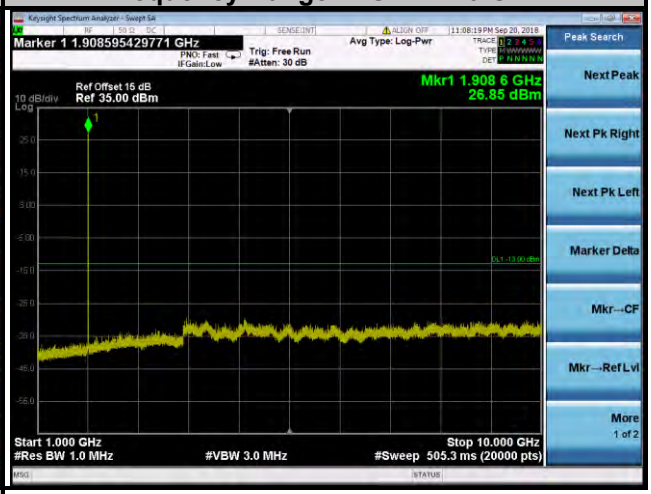
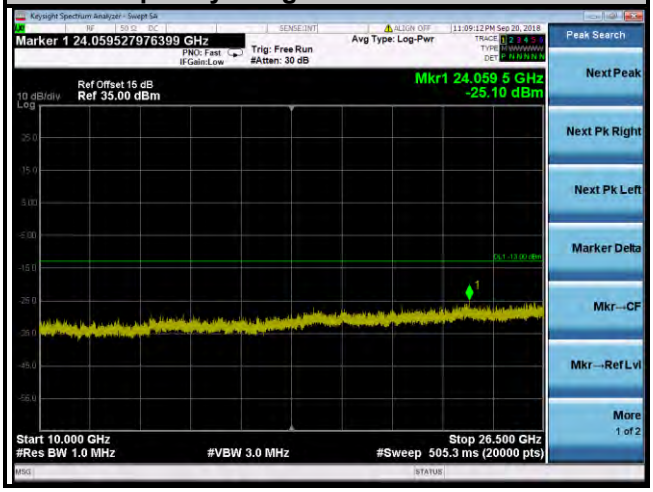
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| CDMA | |
|---|---|
| Channel 25 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

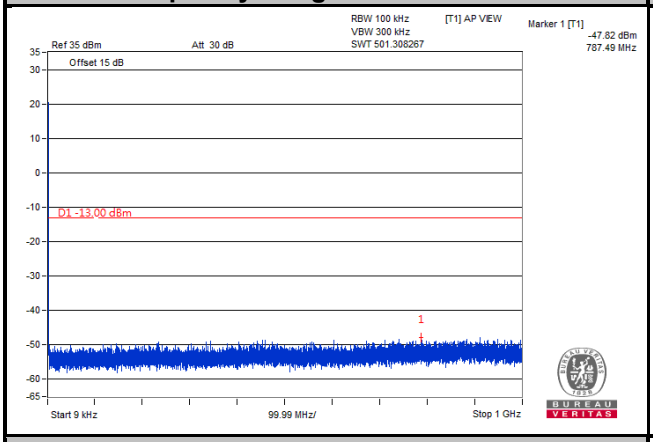
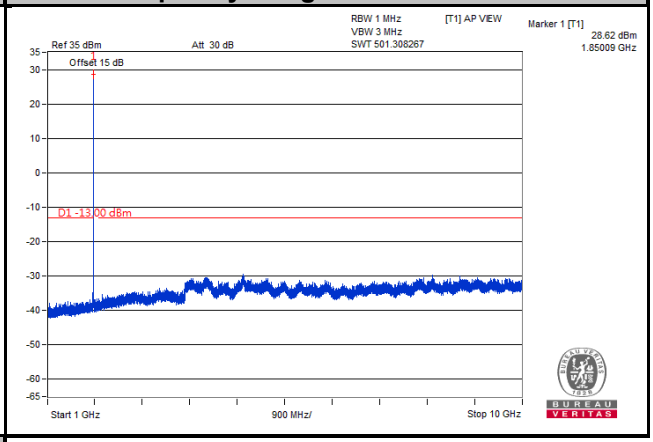
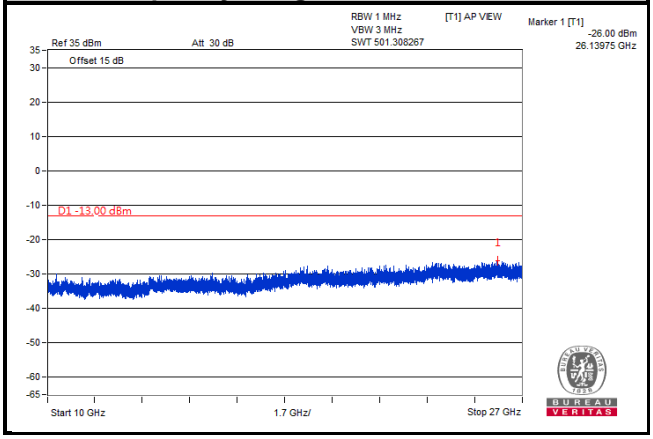
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| CDMA | |
|---|---|
| Channel 600 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

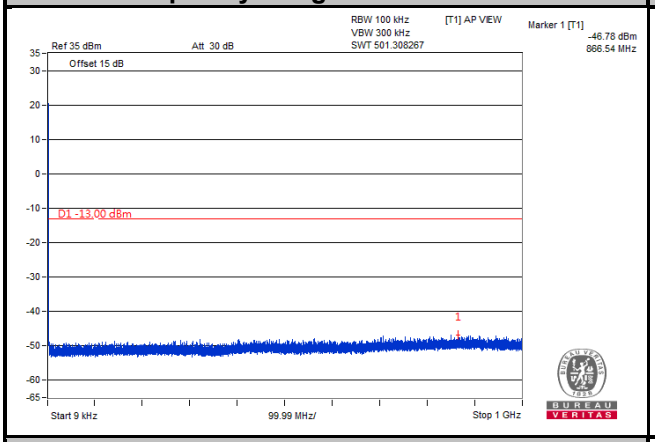
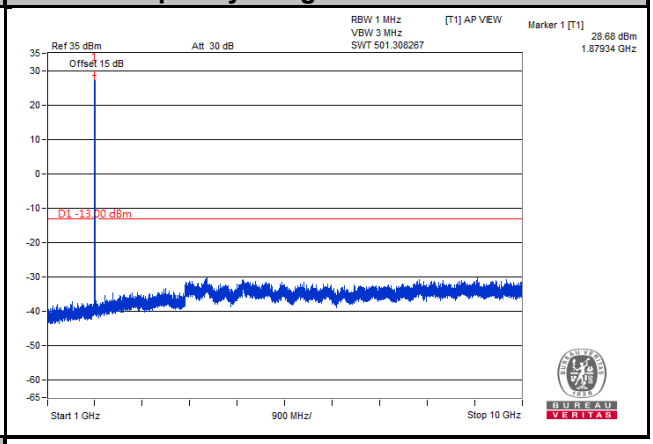
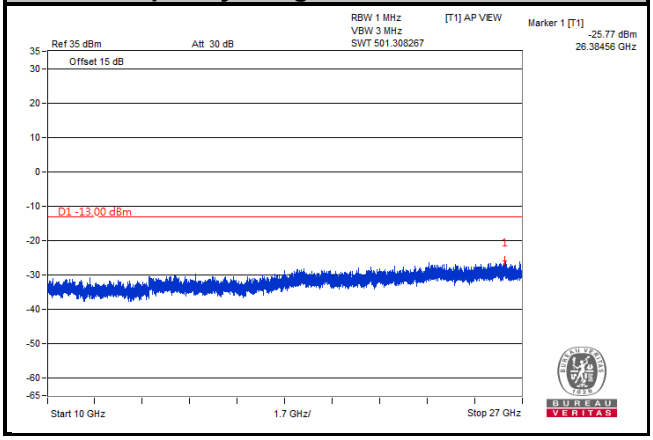
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| CDMA | |
|---|---|
| Channel 1175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 26.5 GHz | |
|  | |

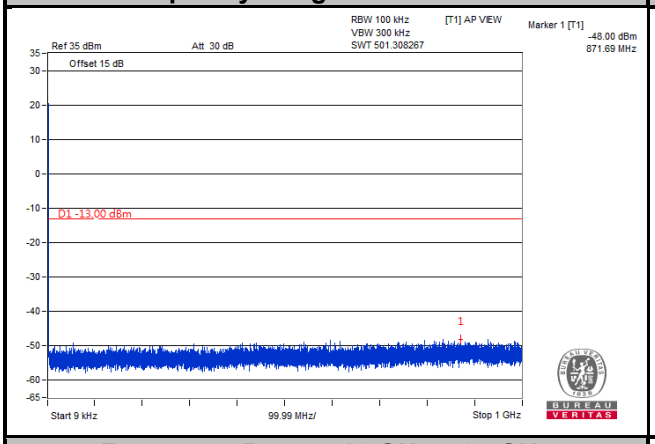
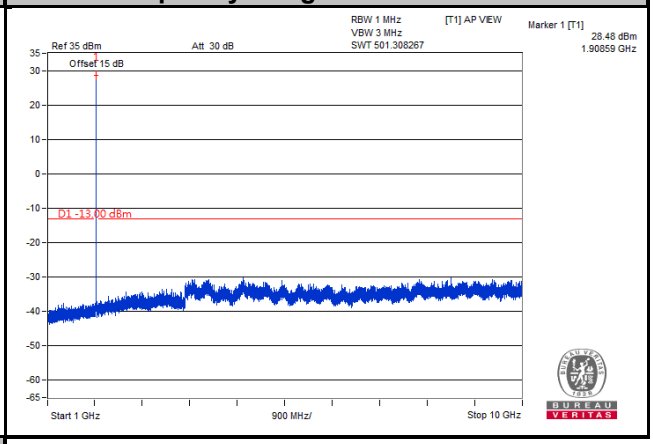
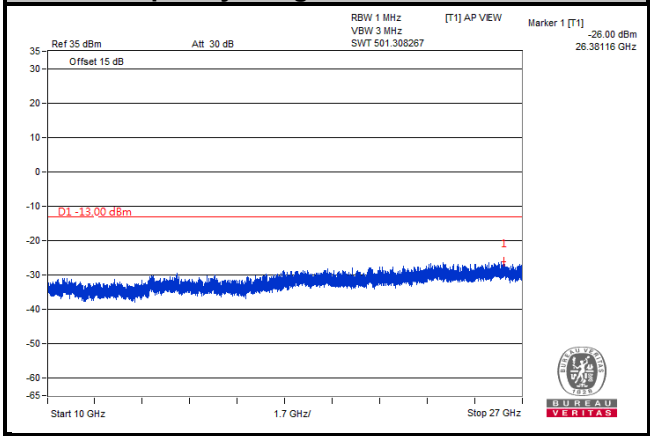
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 1.4 MHz | |
| Channel 18607 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

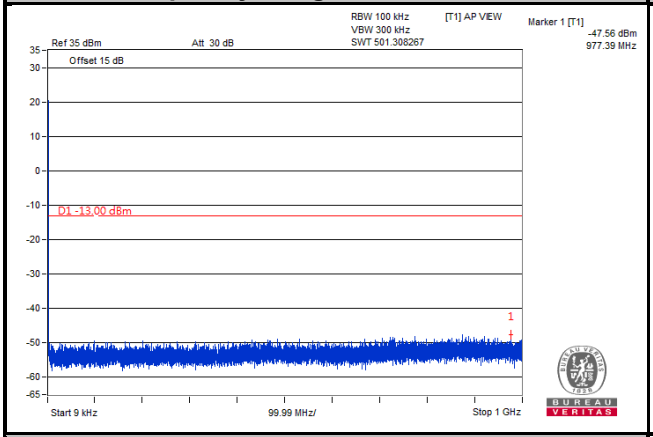
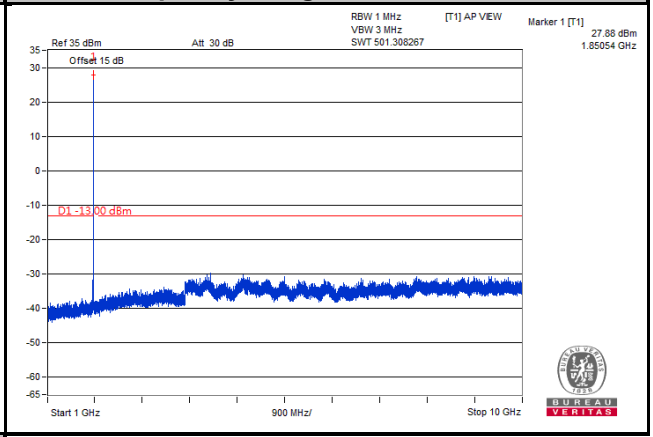
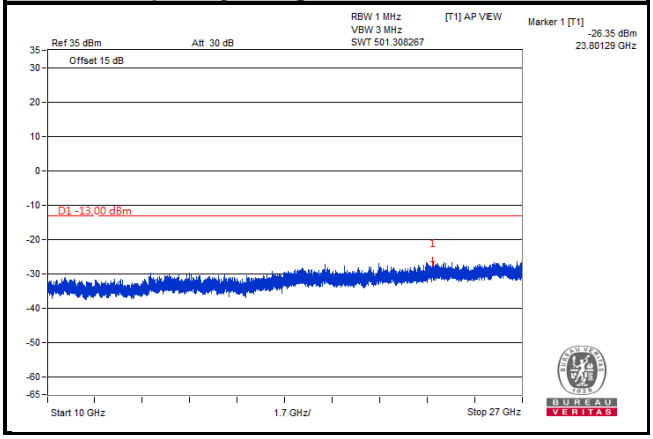
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 1.4 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

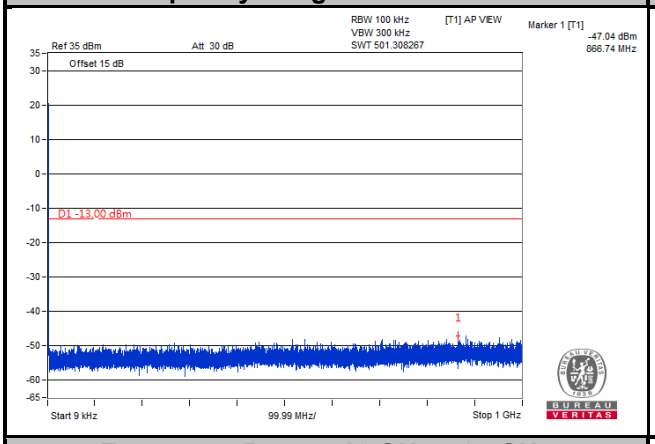
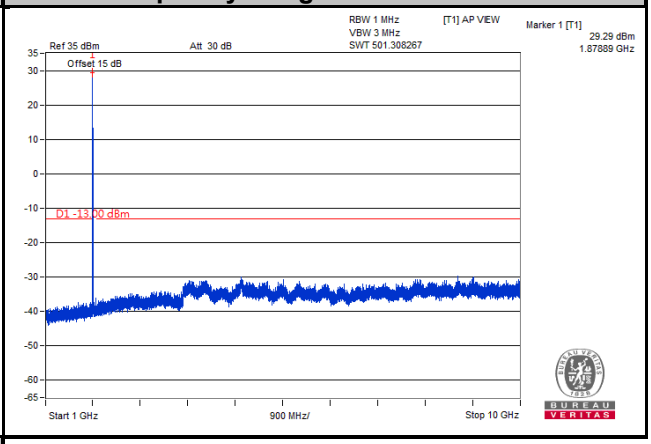
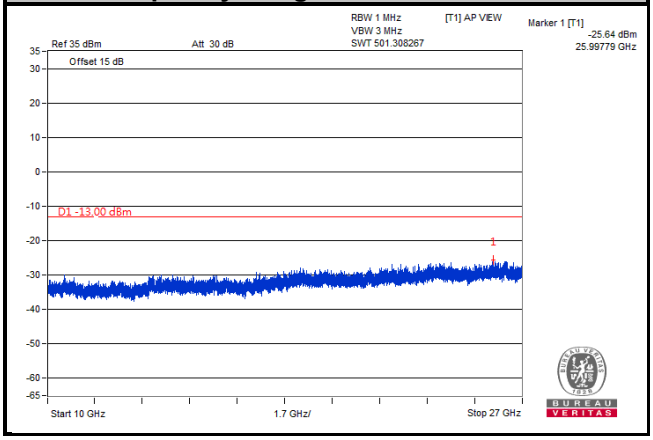
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 1.4 MHz | |
| Channel 19193 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

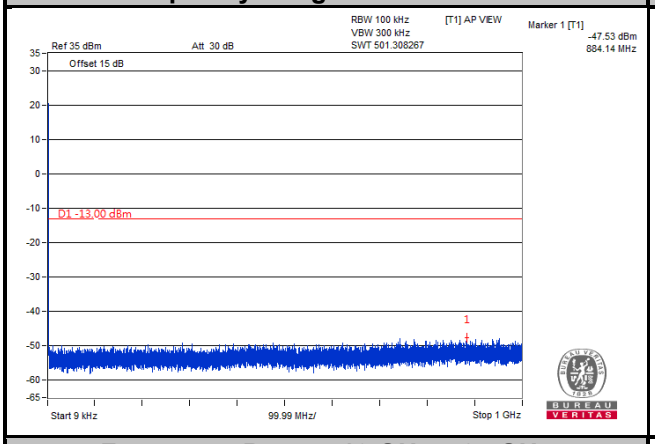
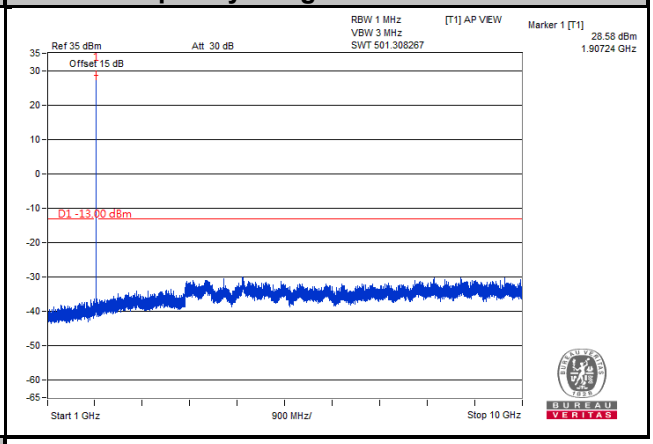
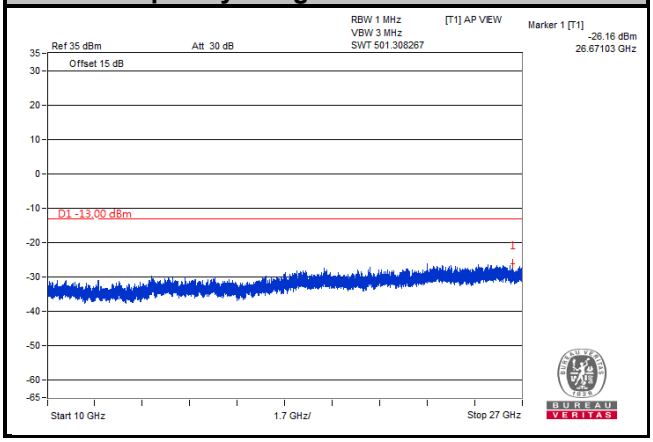
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 3 MHz | |
| Channel 18615 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 3 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

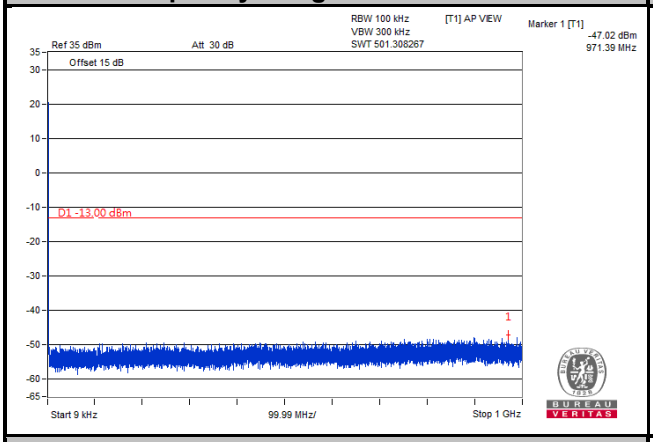
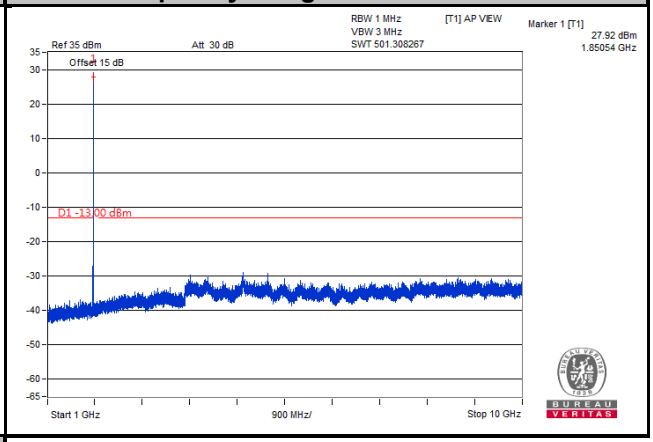
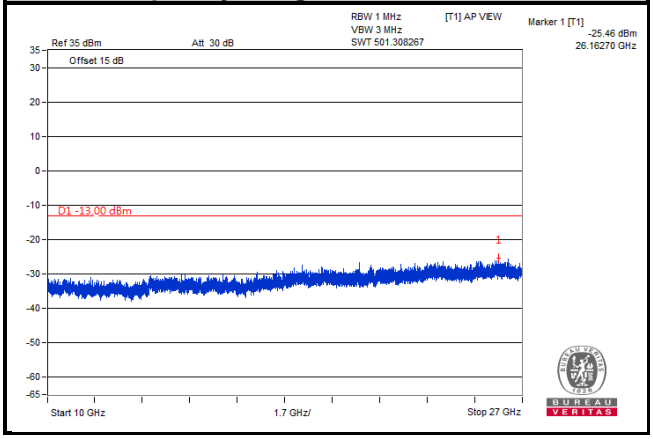
| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 3 MHz | |
| Channel 19185 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |



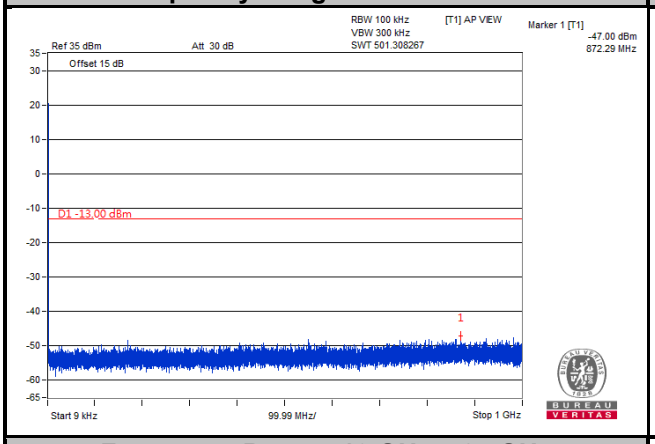
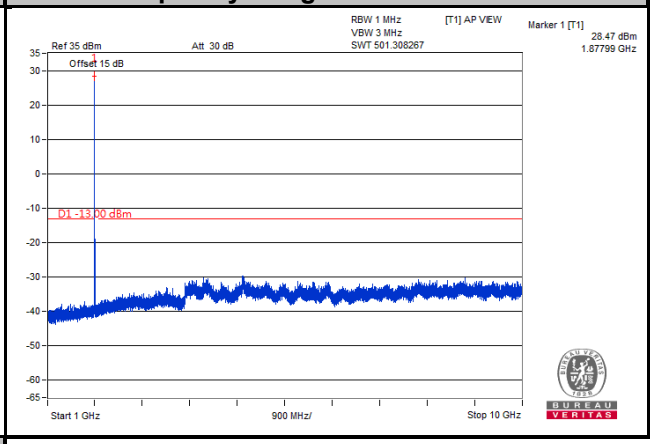
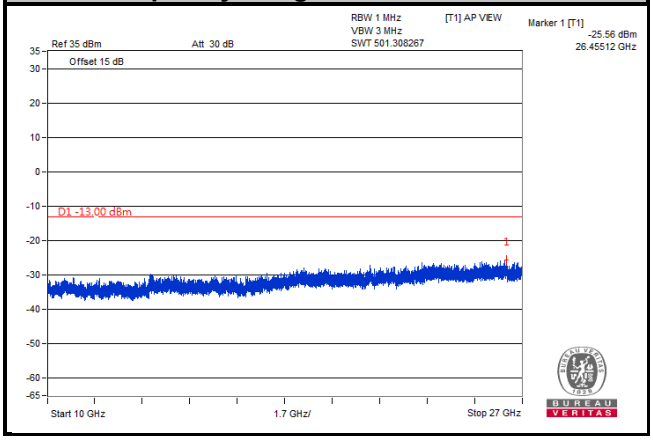




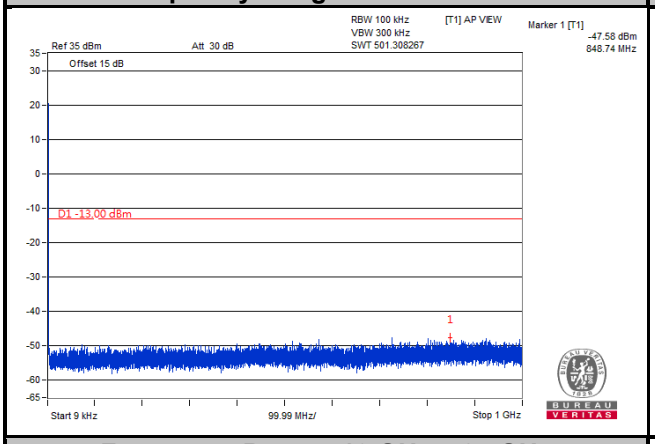
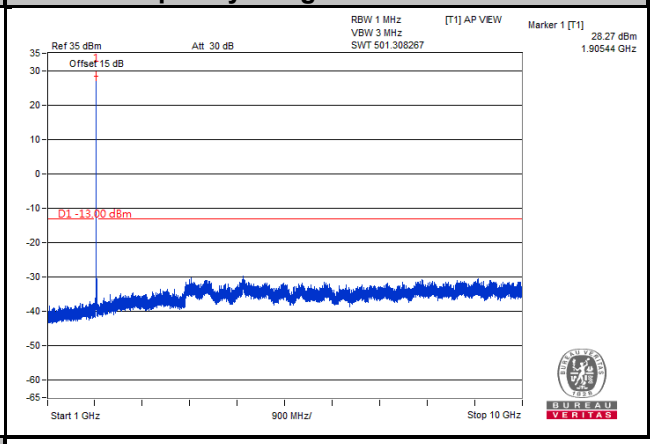
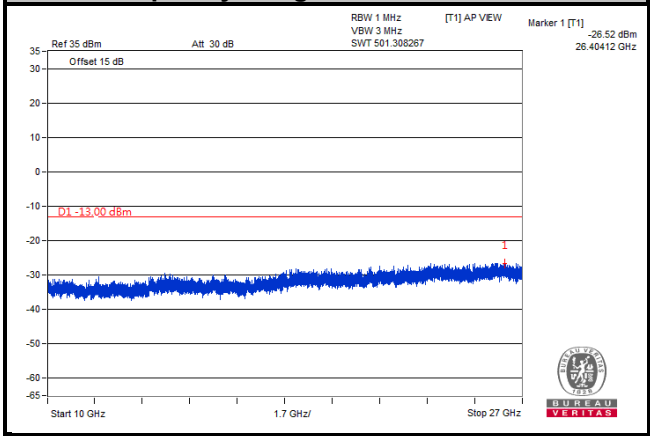
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 5 MHz | |
| Channel 18625 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

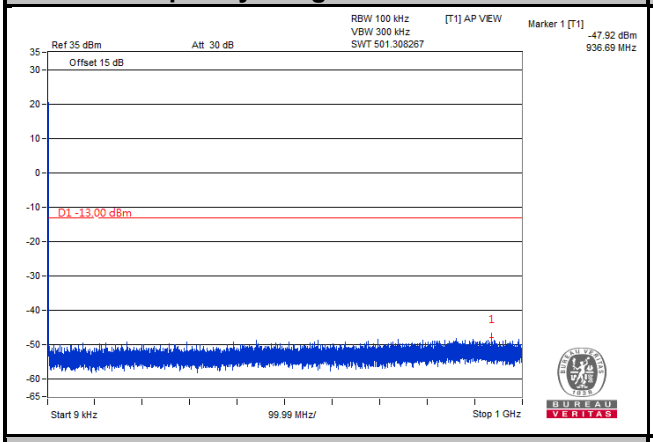
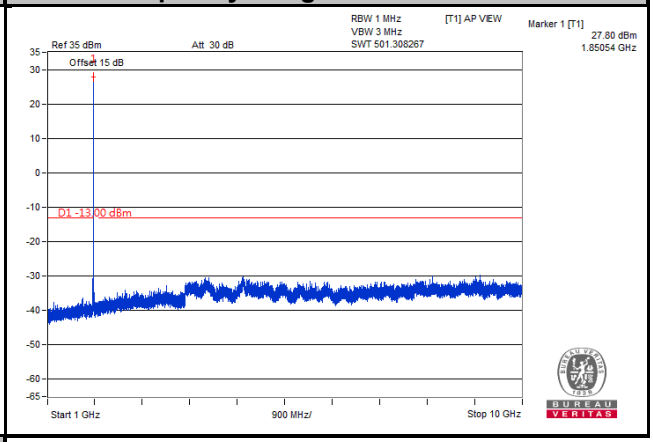
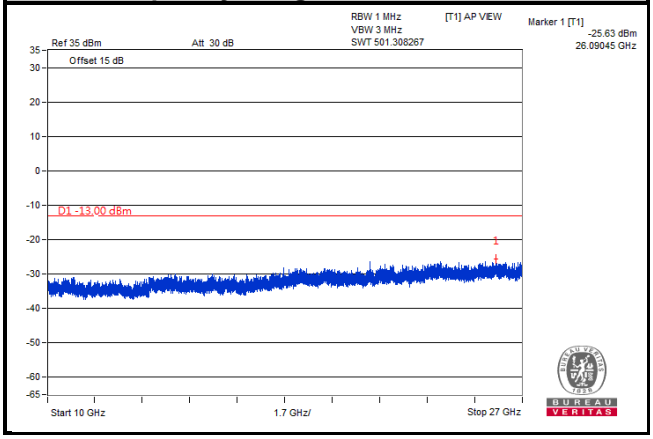
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 5 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

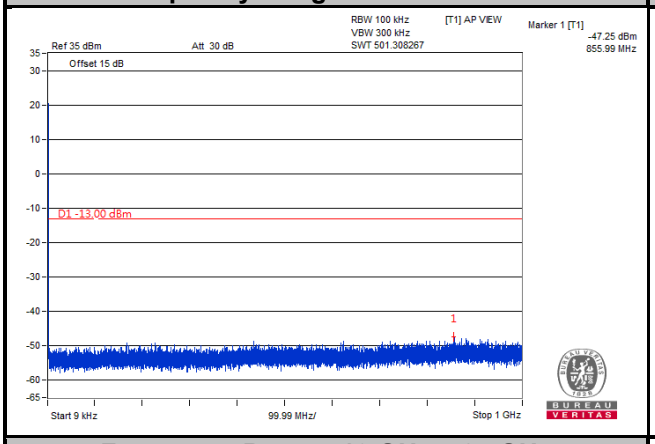
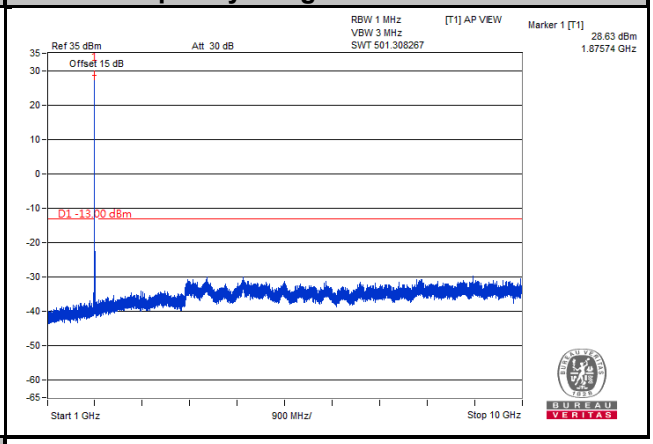
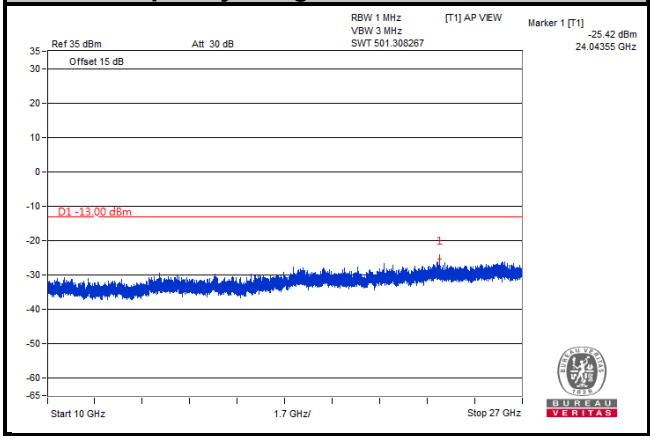
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 5 MHz | |
| Channel 19175 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

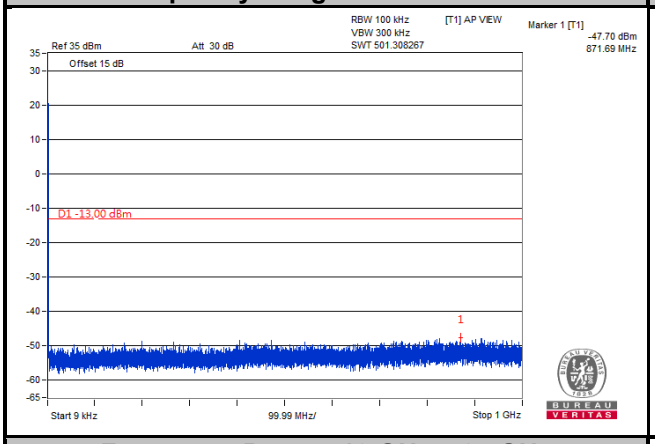
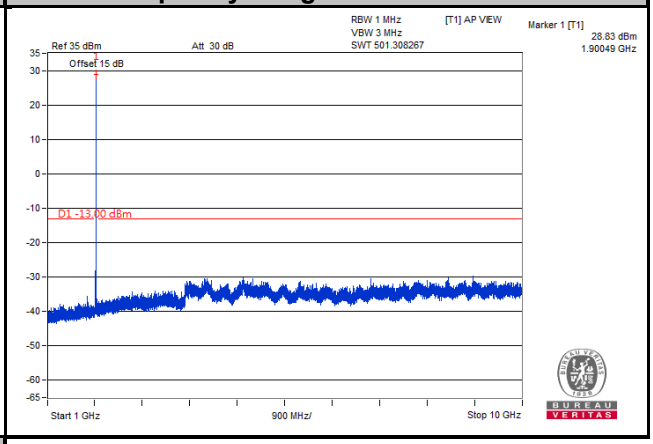
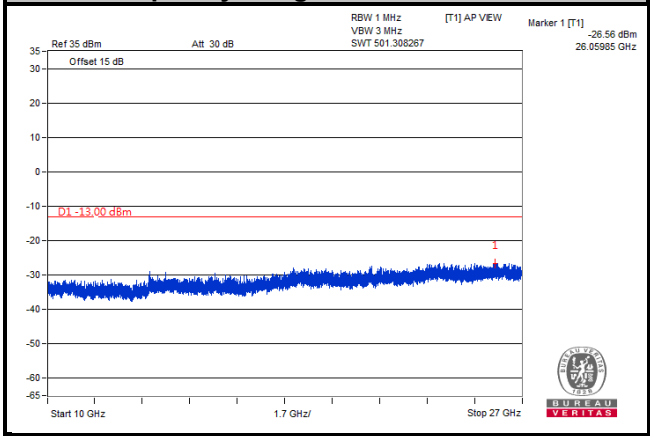
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 18650 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

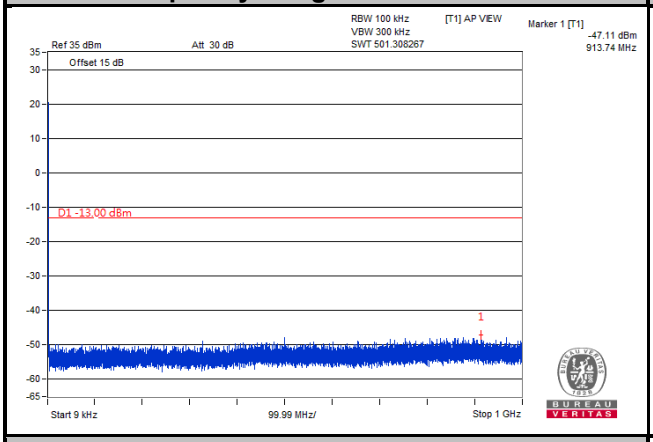
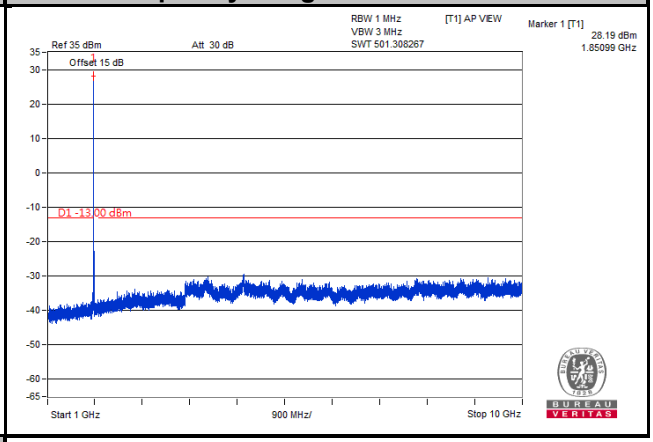
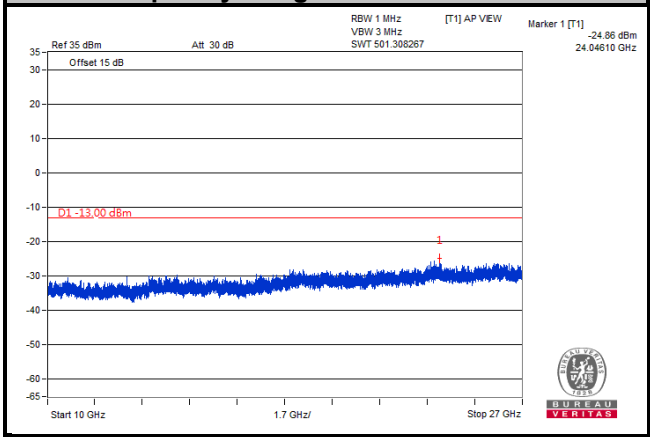
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 19150 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

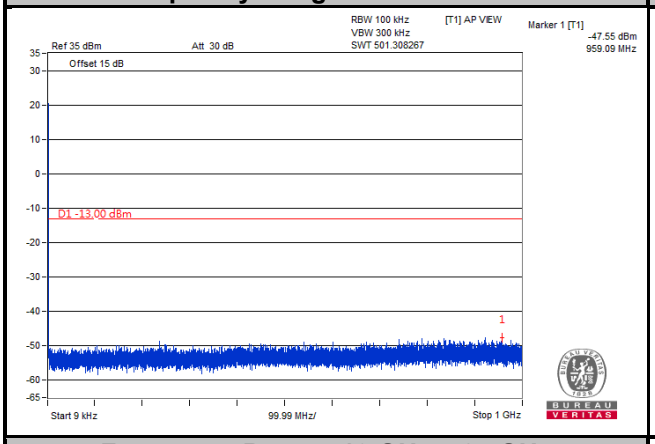
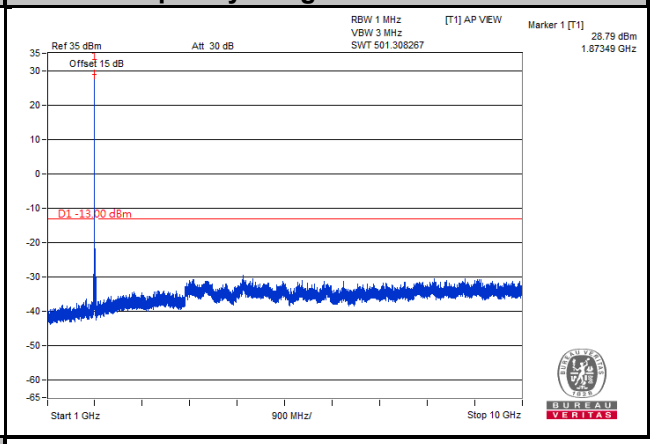
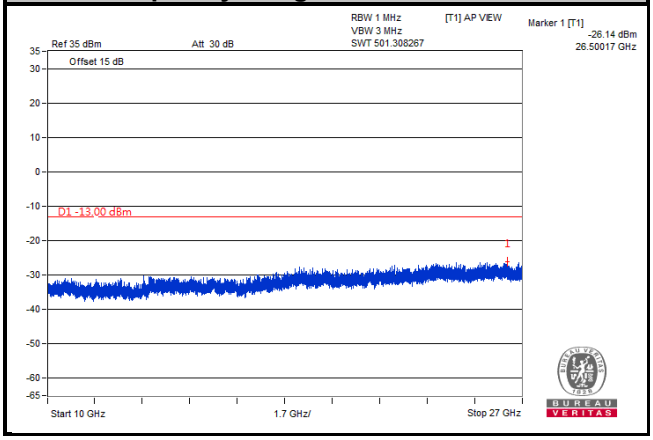
| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 15 MHz | |
| Channel 18675 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |



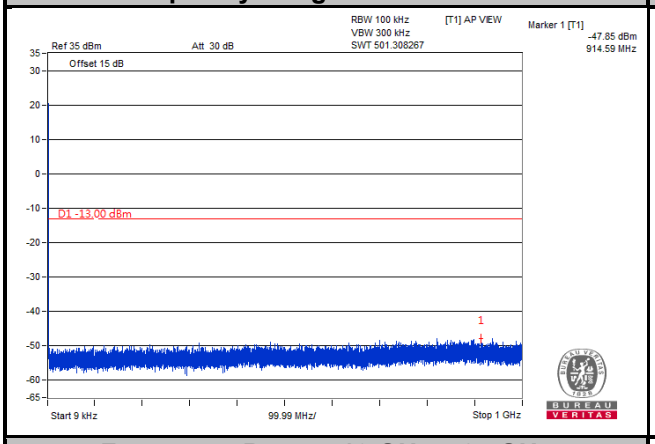
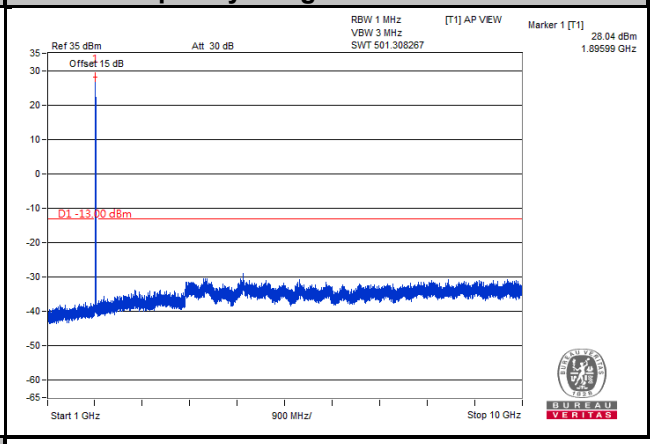
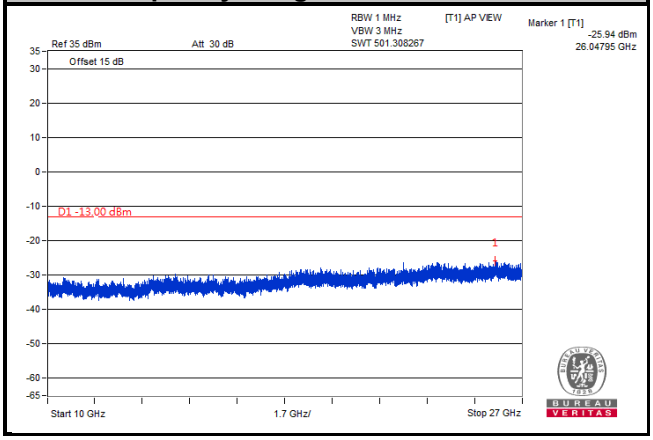




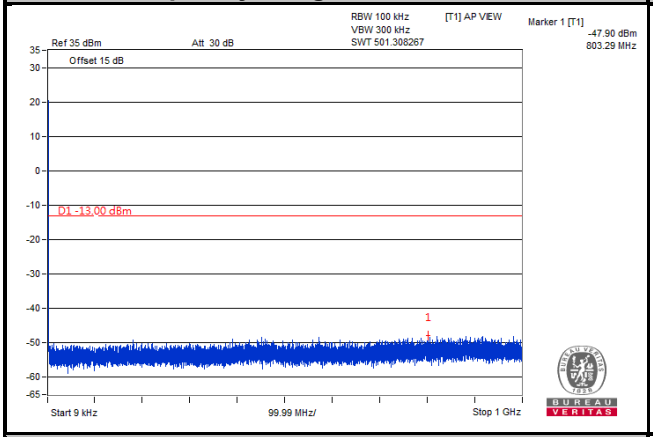
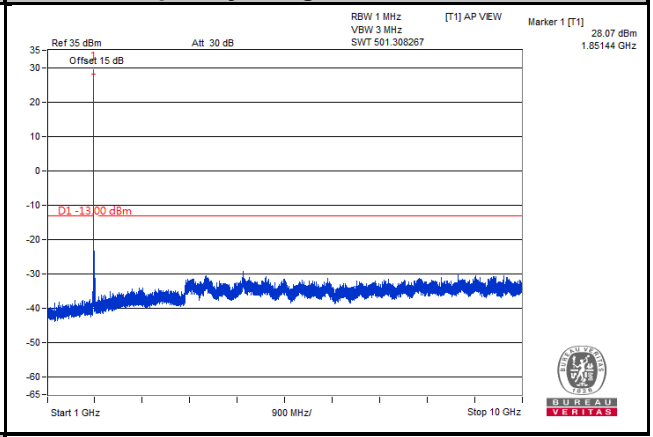
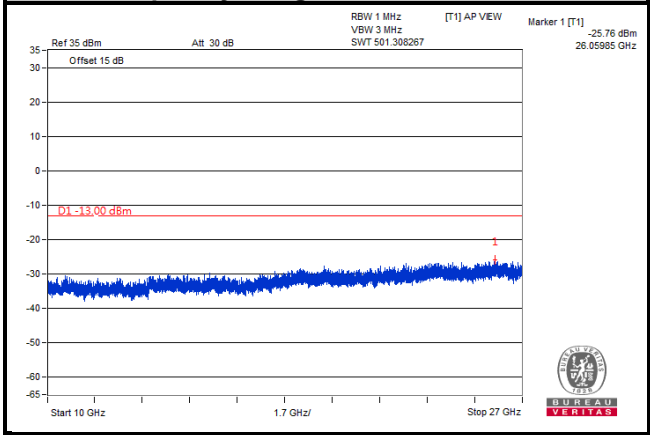
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 15 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 15 MHz | |
| Channel 19125 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

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

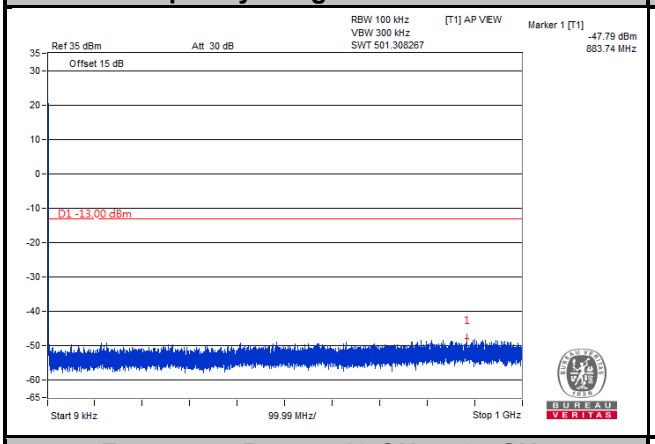
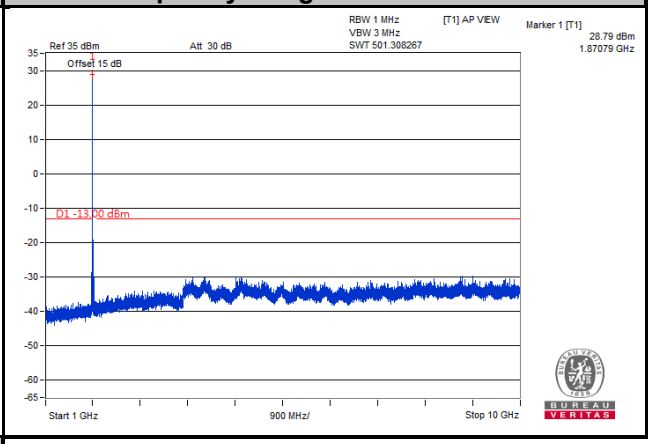
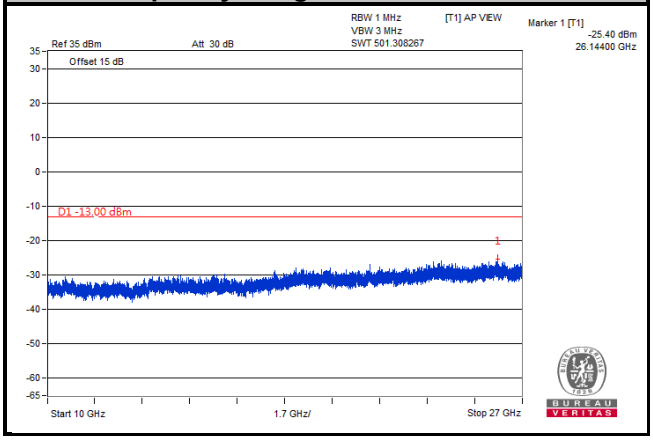
| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 20 MHz | |
| Channel 18700 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |



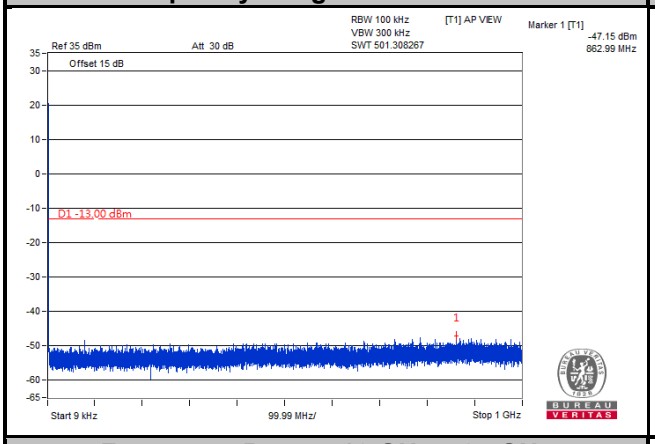
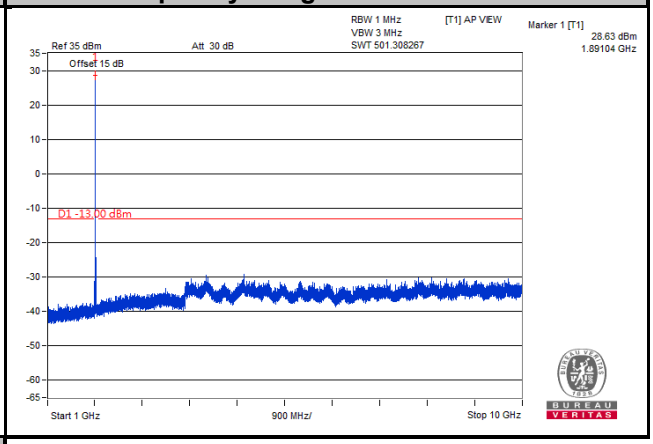
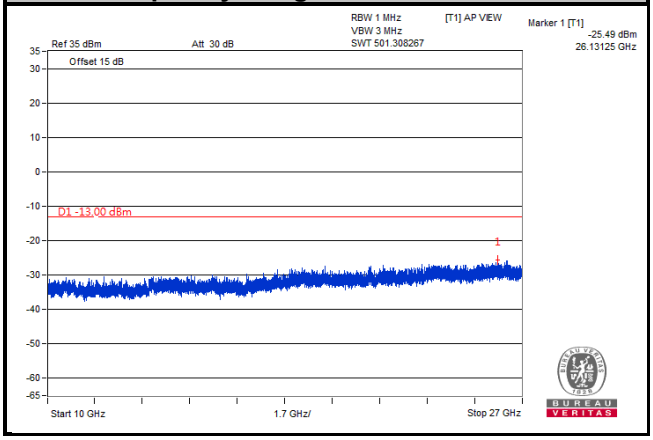




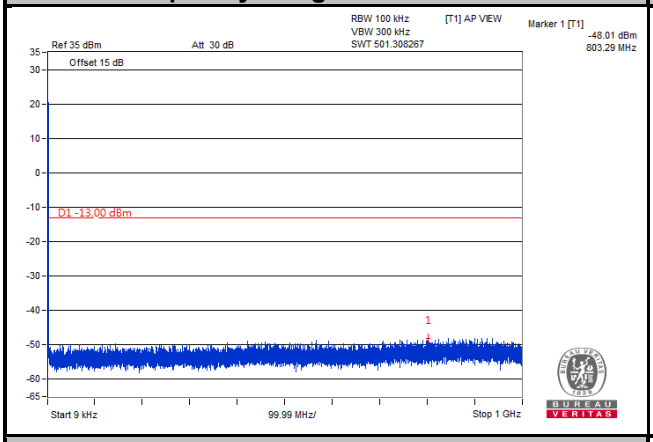
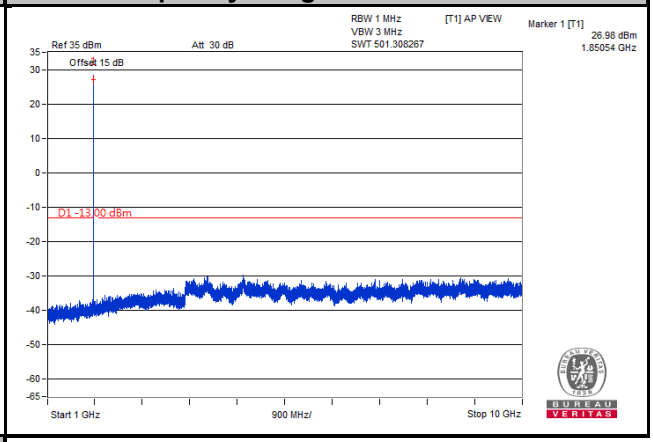
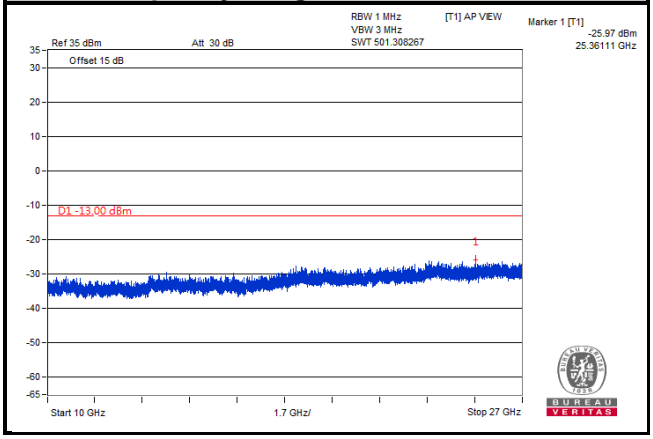
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 20 MHz | |
| Channel 18900 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

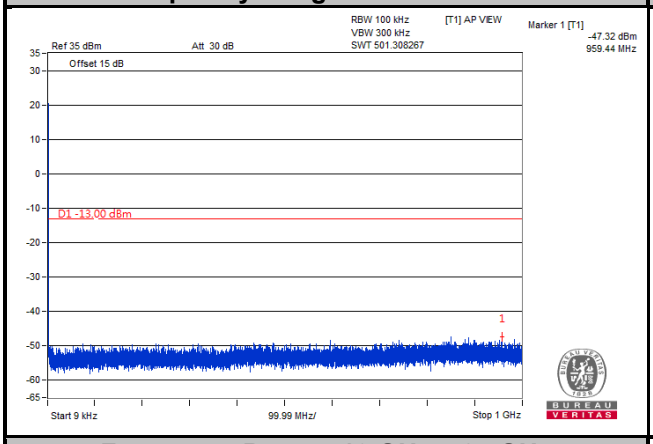
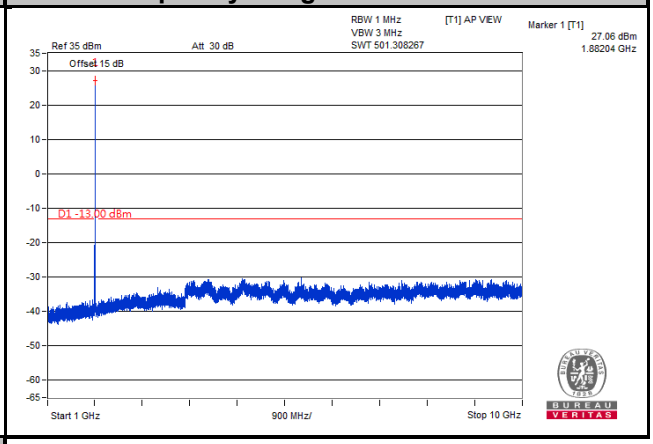
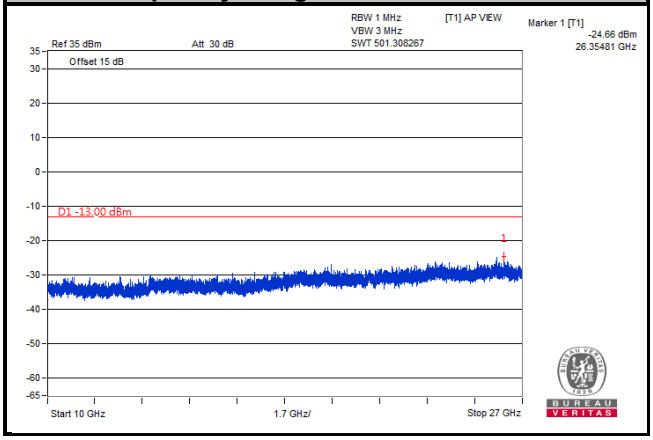
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

| LTE Band 2 | |
|---|---|
| Channel Bandwidth: 20 MHz | |
| Channel 19100 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |

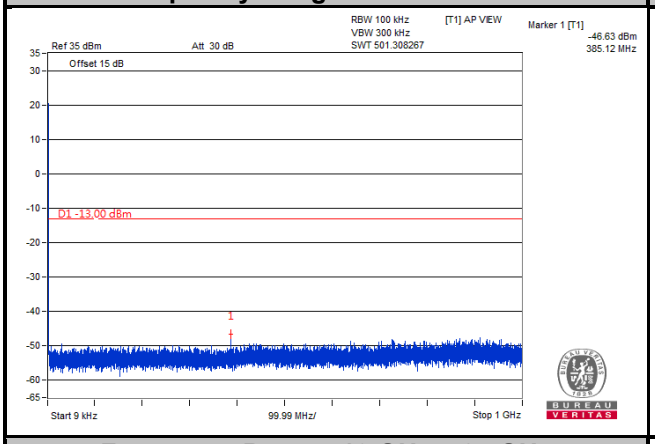
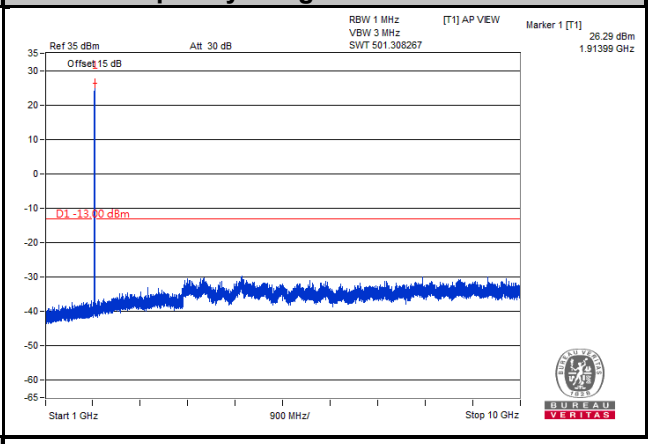
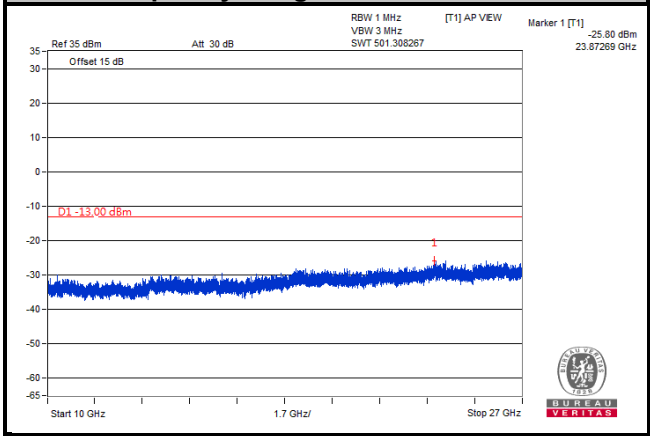
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

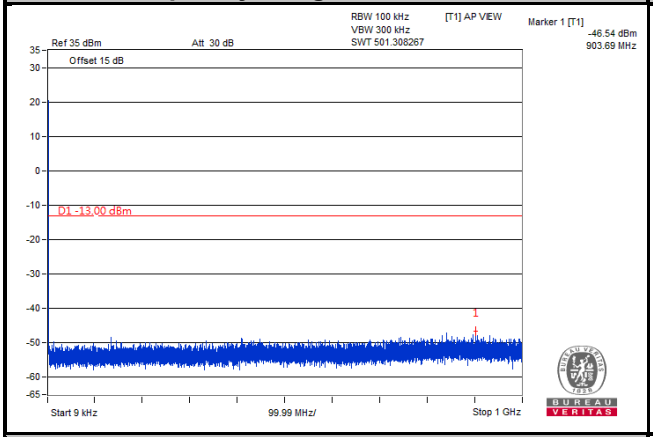
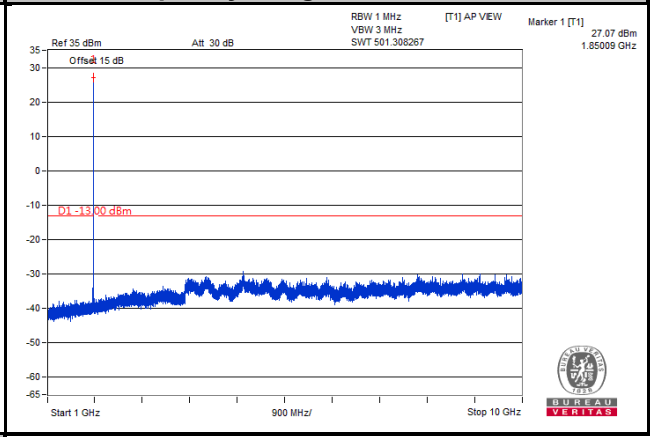
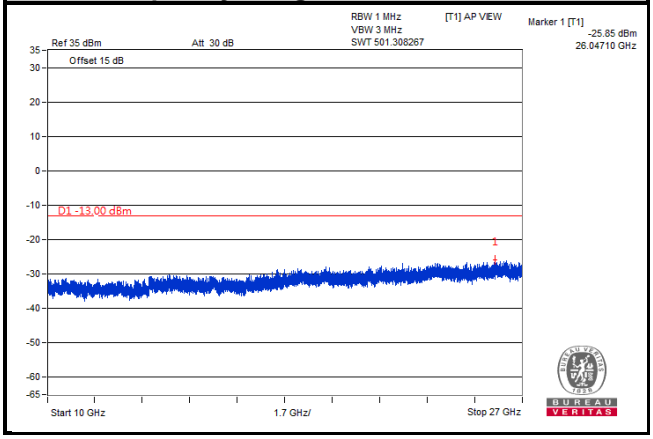
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

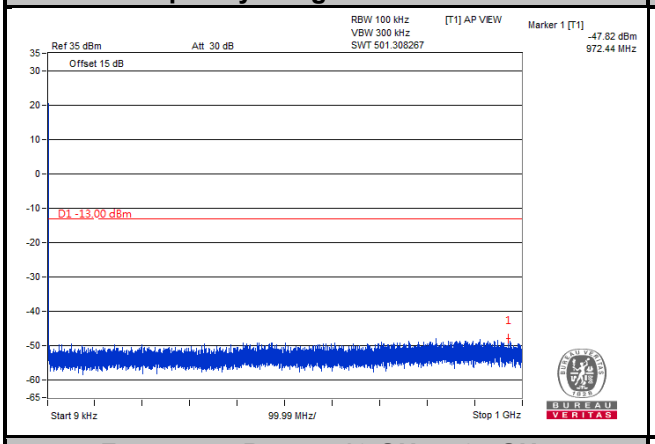
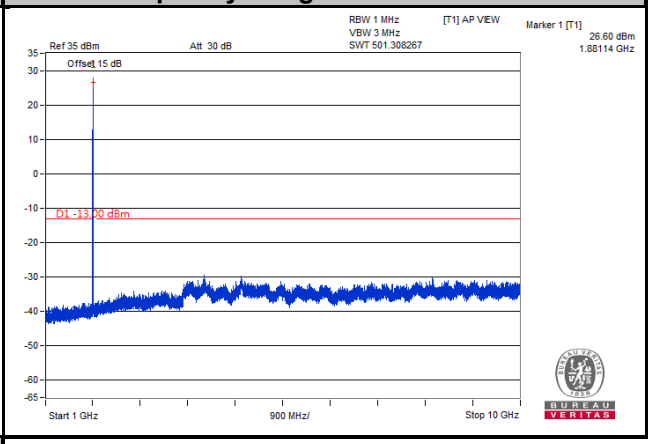
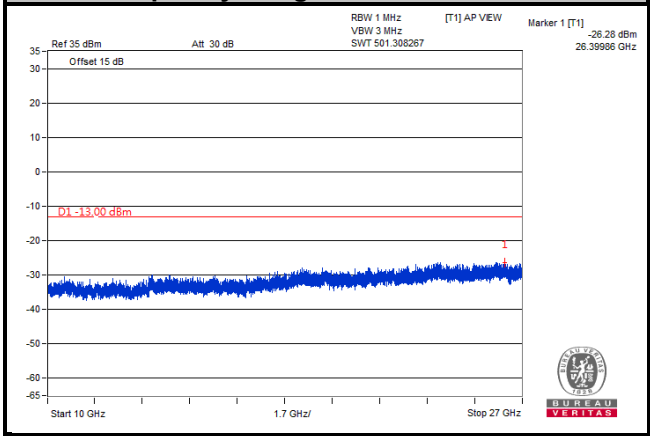
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

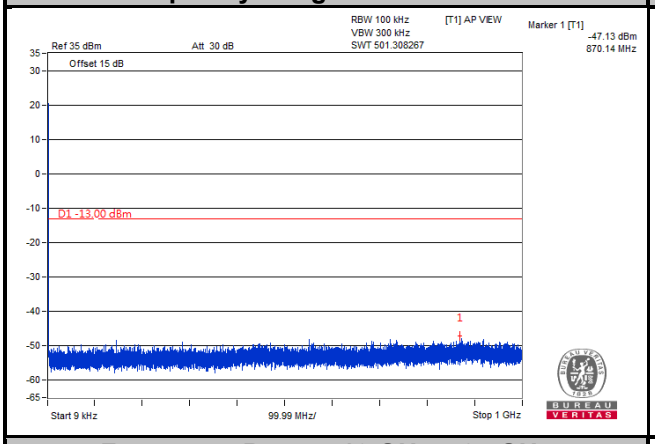
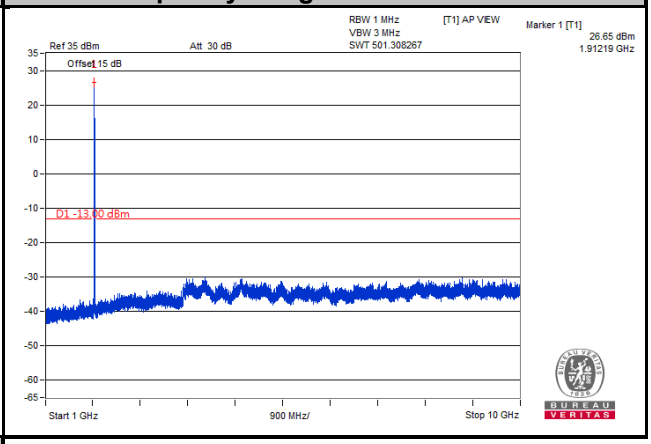
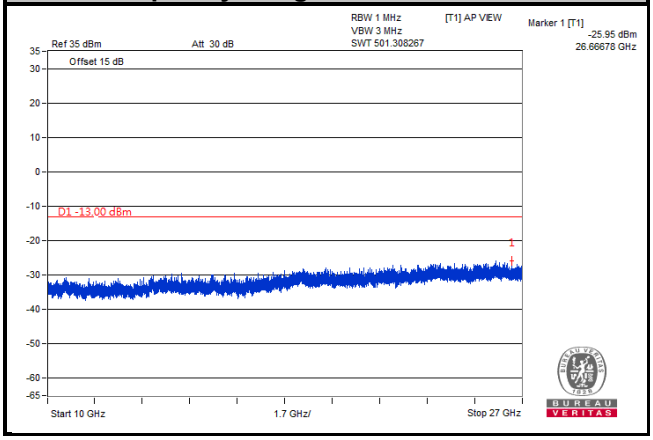
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

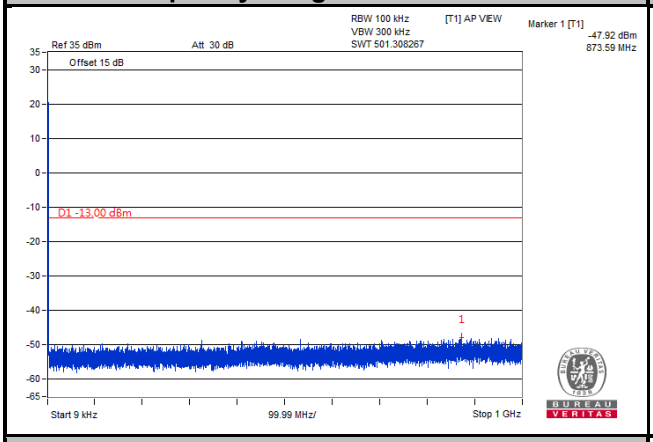
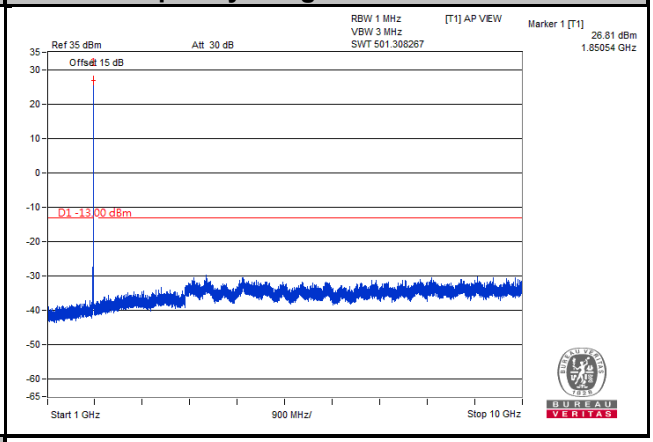
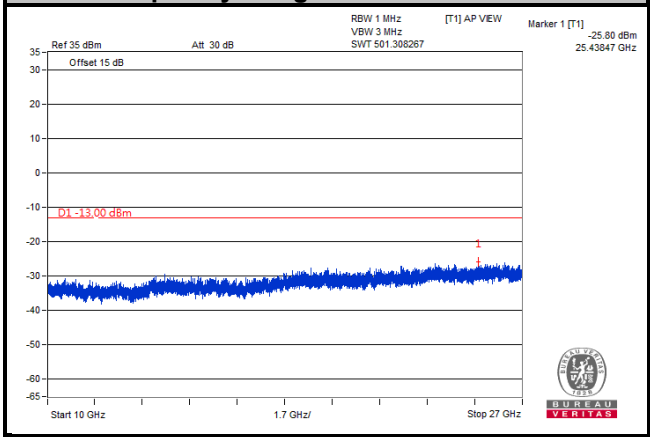
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

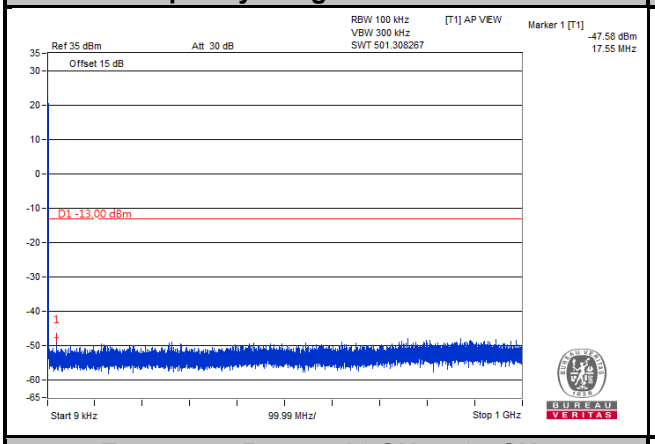
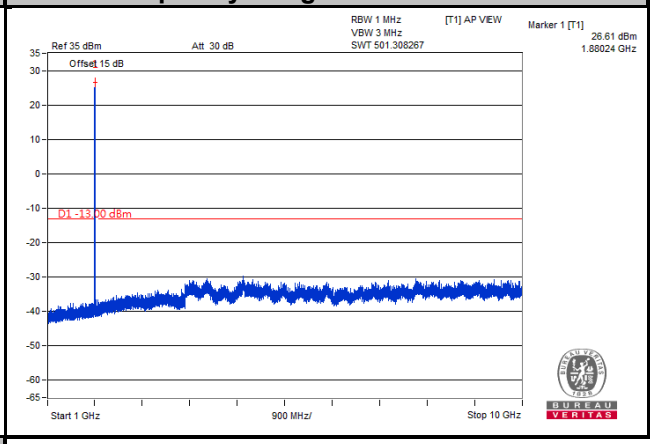
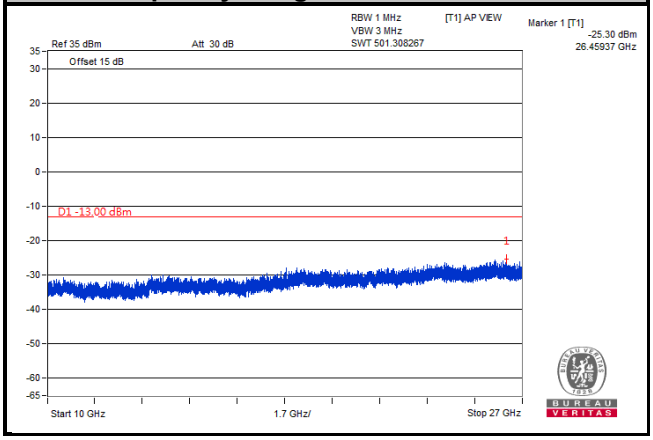
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

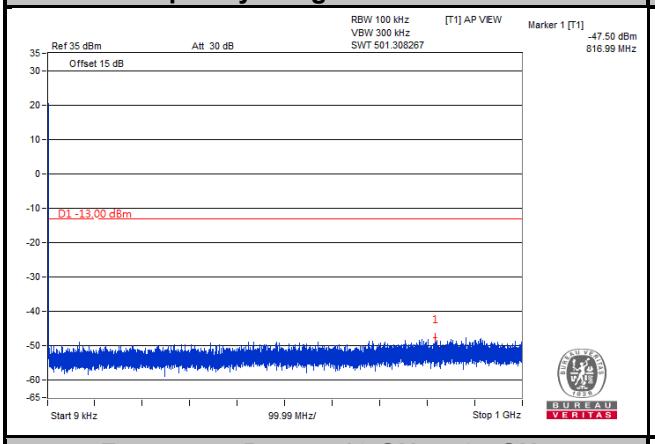
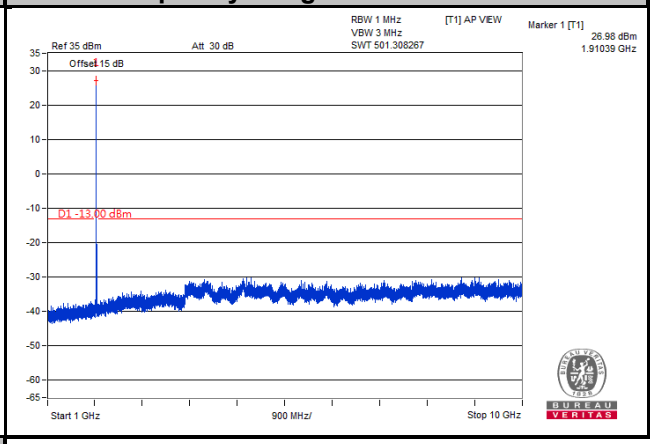
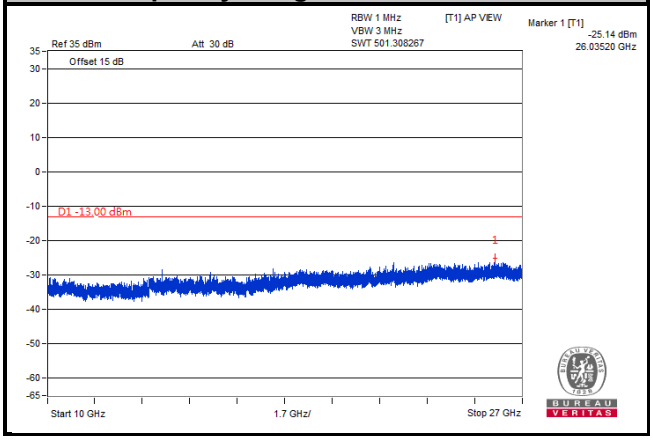
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

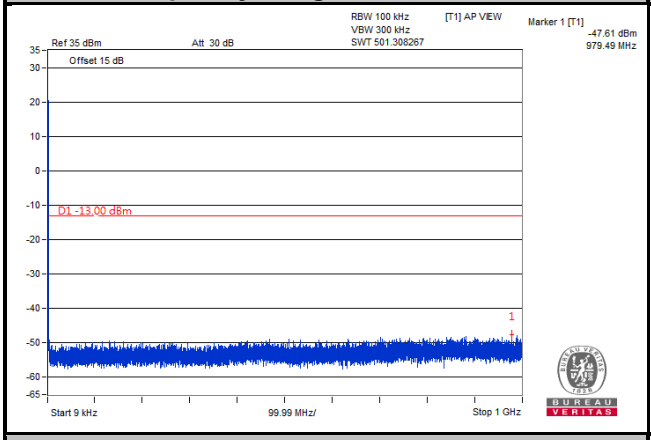
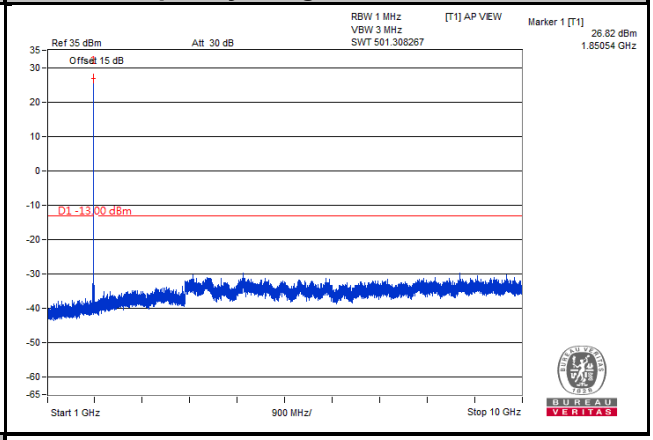
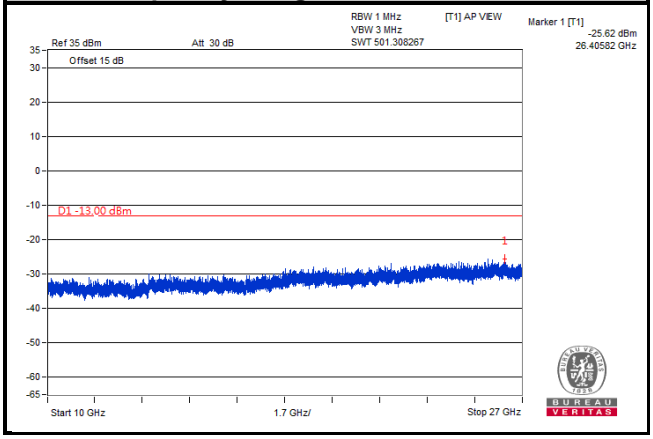
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

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

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

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

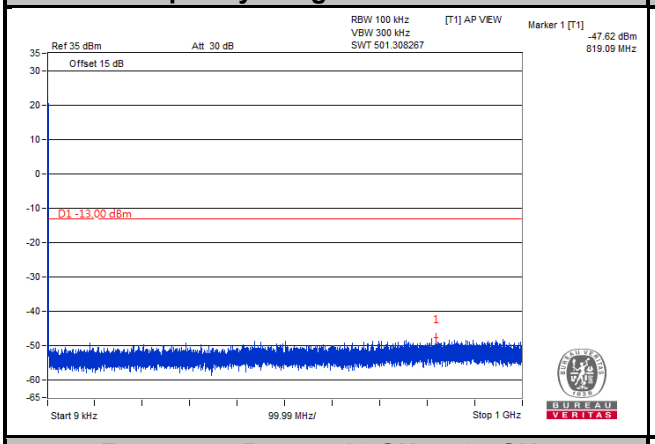
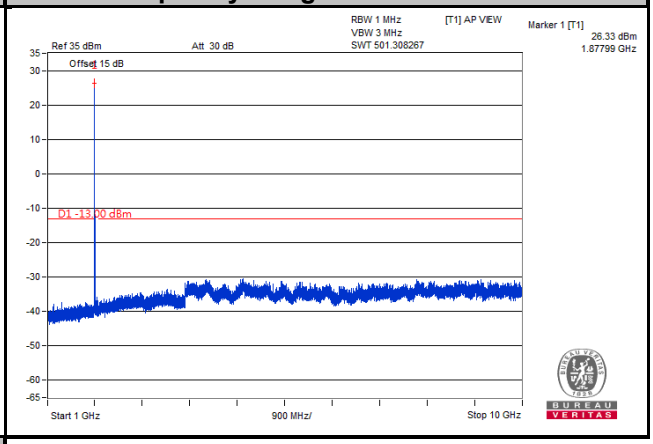
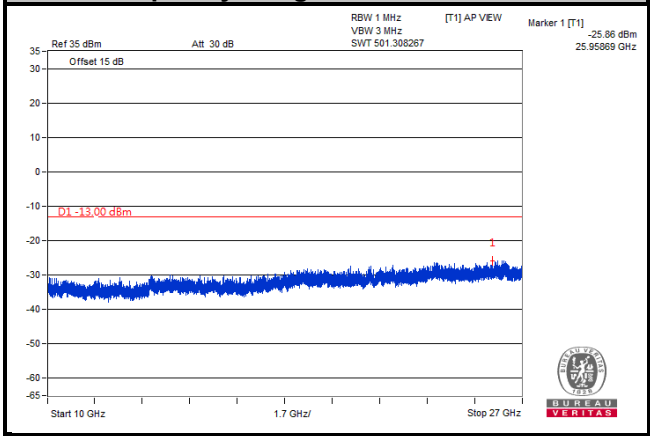
| LTE Band 25 | |
|---|---|
| Channel Bandwidth: 10 MHz | |
| Channel 26090 | |
| Frequency Range: 9 kHz ~ 1 GHz | Frequency Range: 1 GHz ~ 10 GHz |
|  |  |
| Frequency Range: 10 GHz ~ 27 GHz | |
|  | |



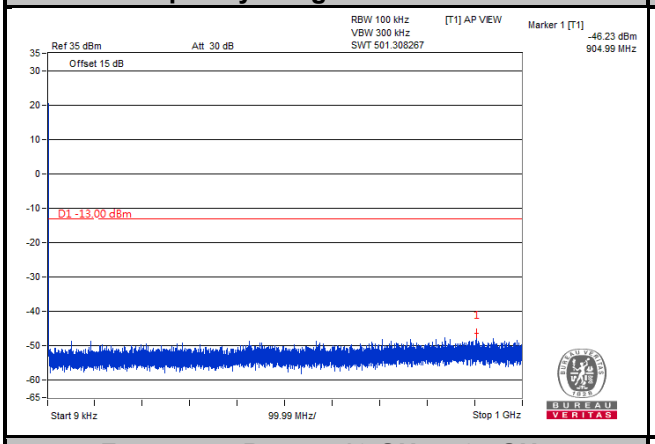
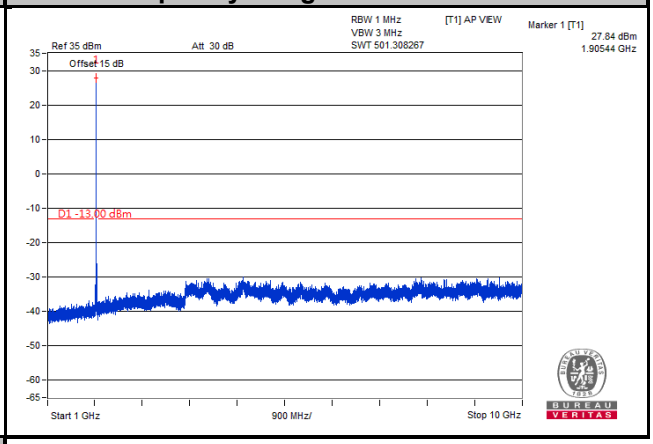
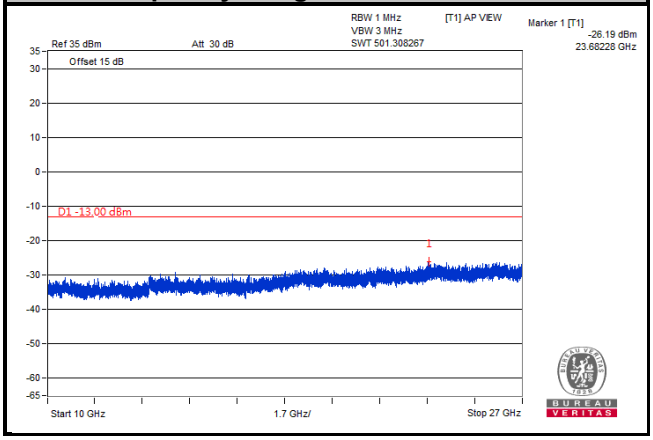




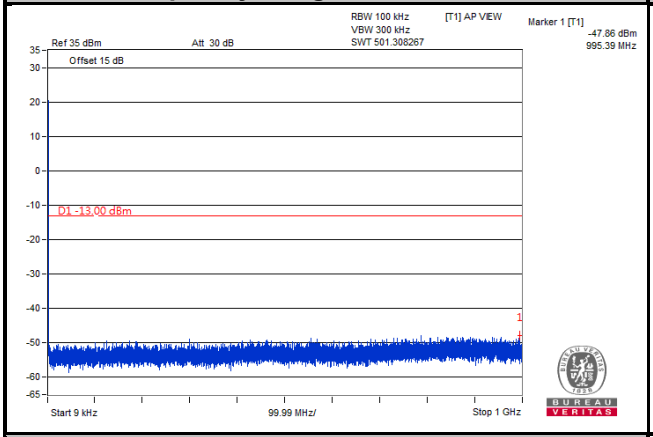
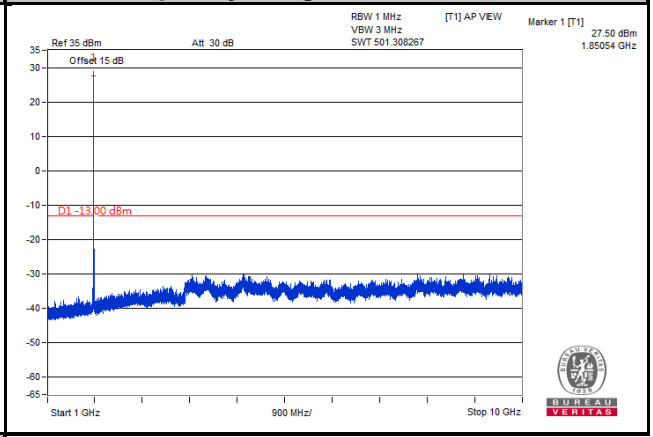
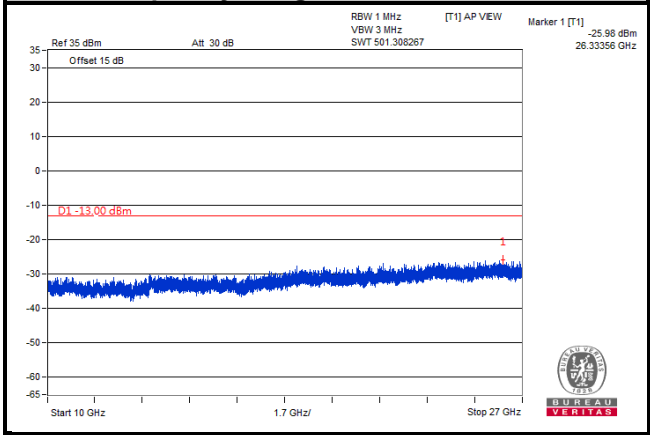
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

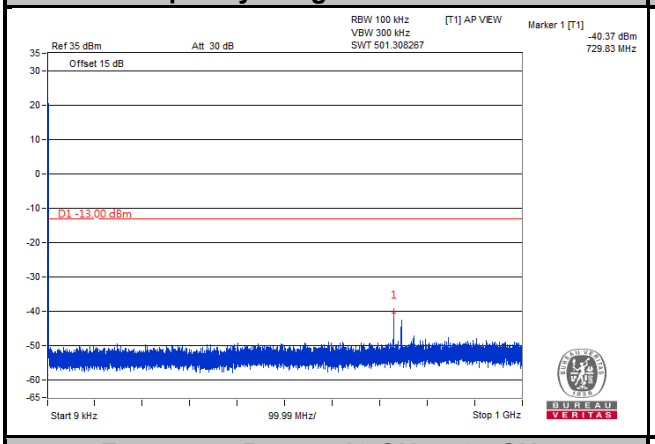
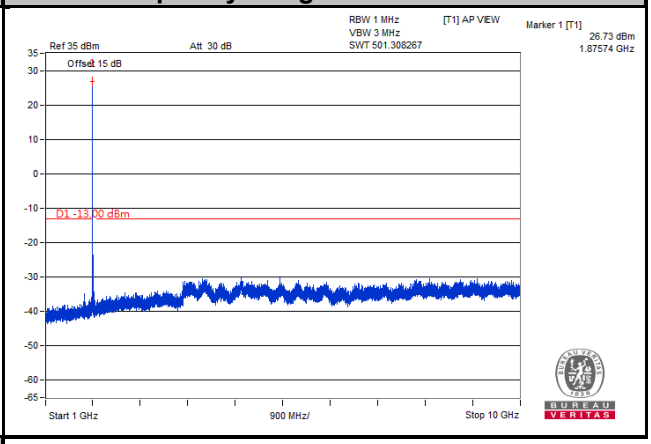
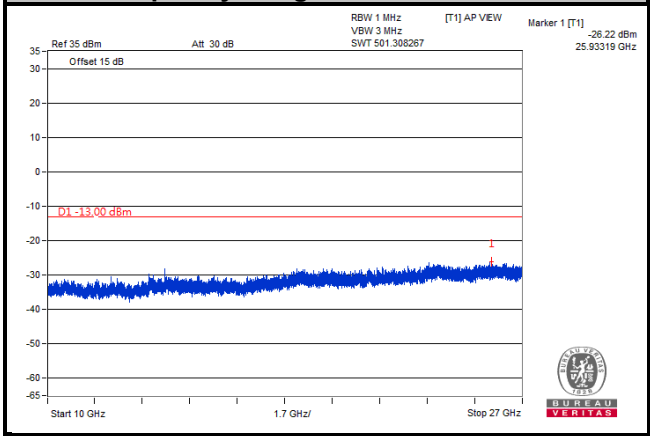
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

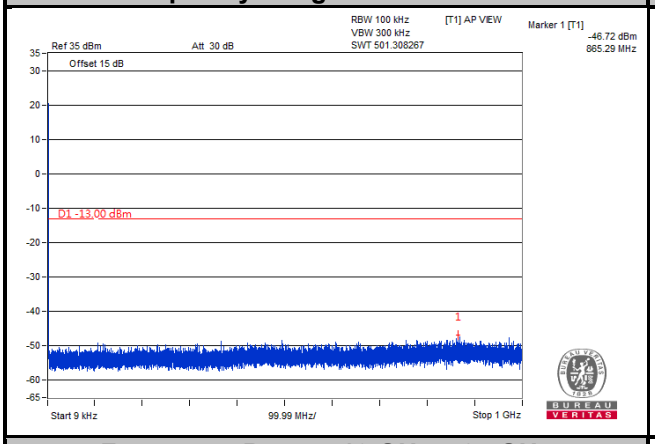
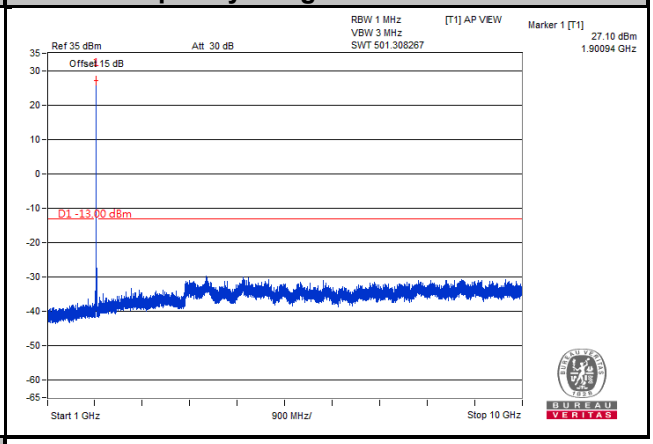
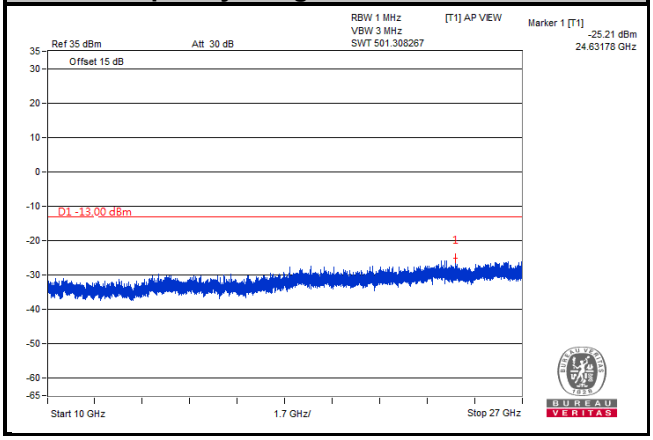
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

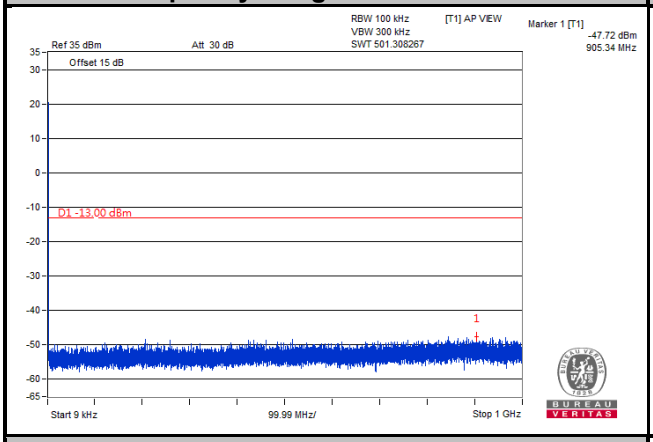
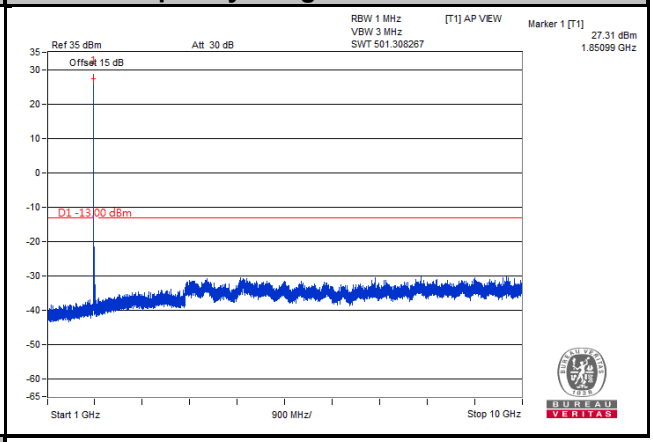
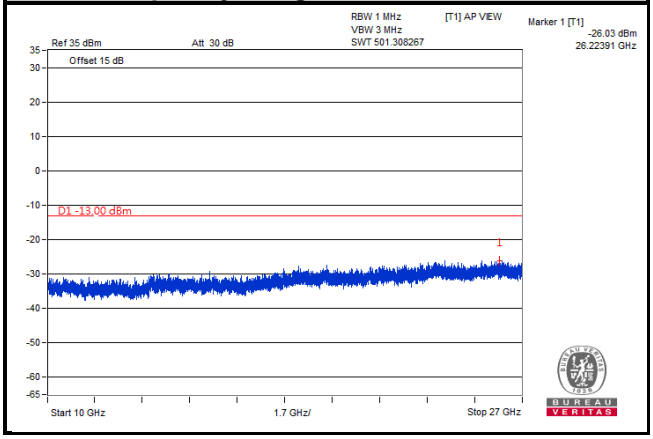
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

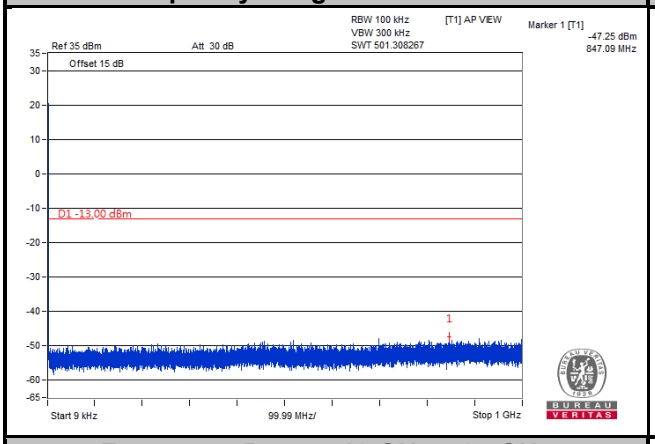
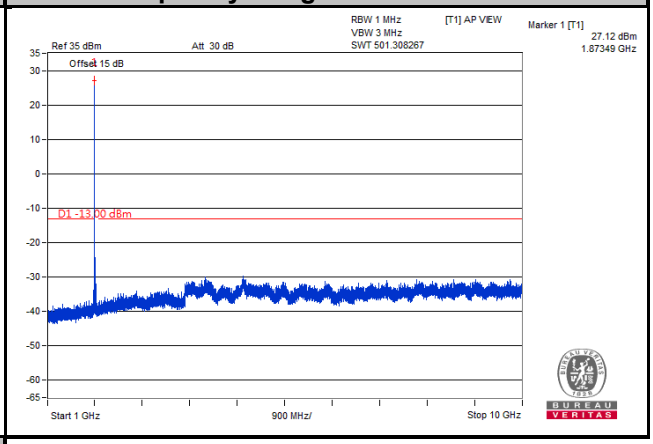
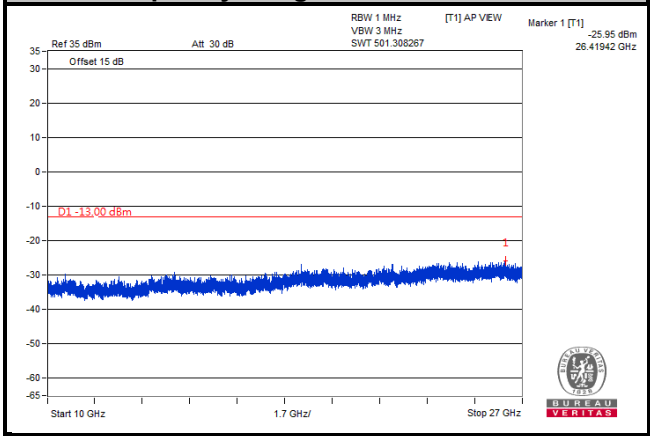
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

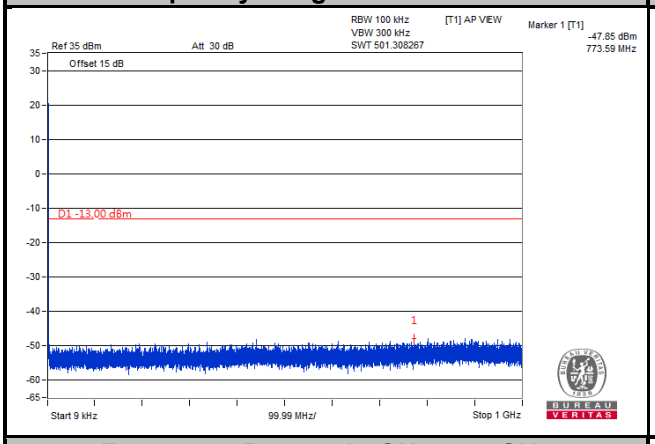
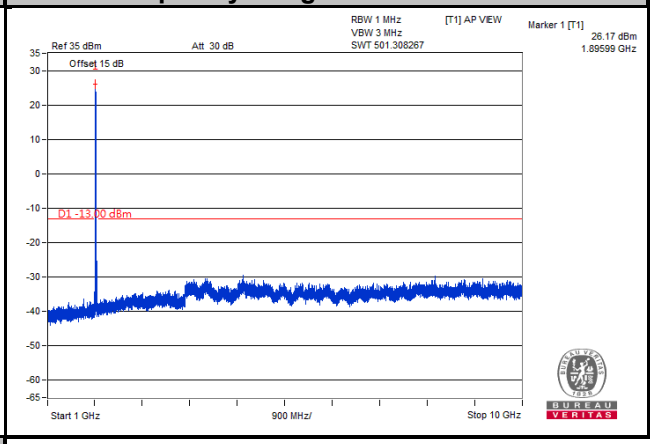
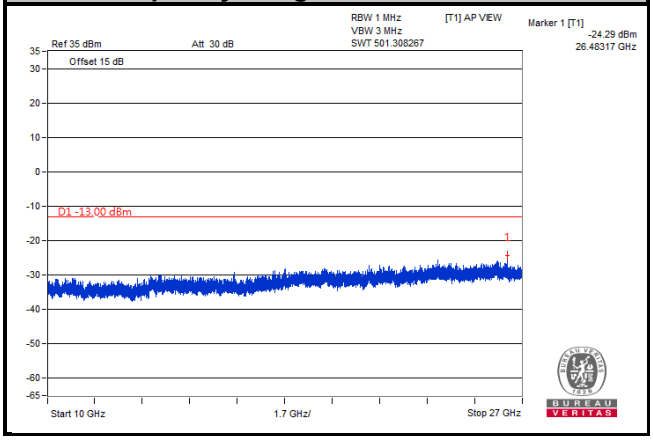
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

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

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

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

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

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

### 4.8.2 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.

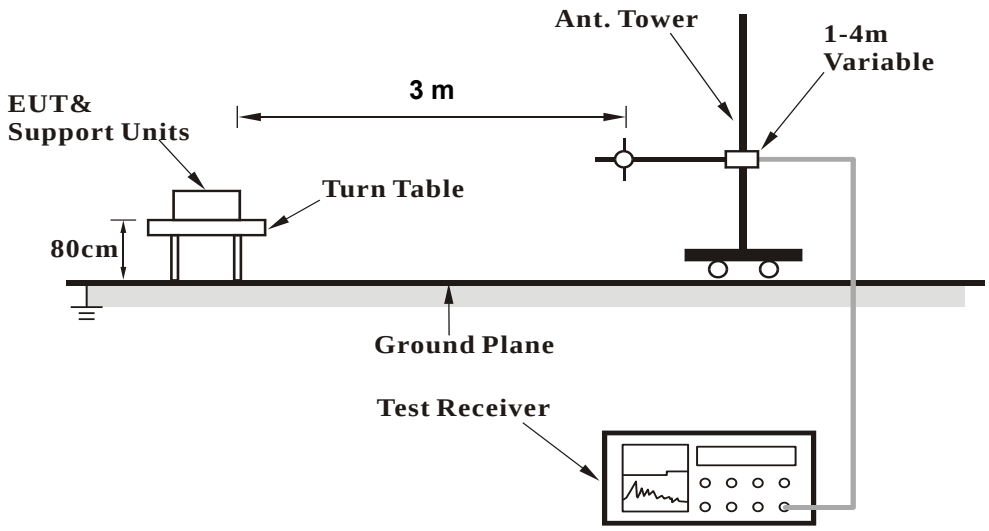
**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

### 4.8.3 Deviation from Test Standard

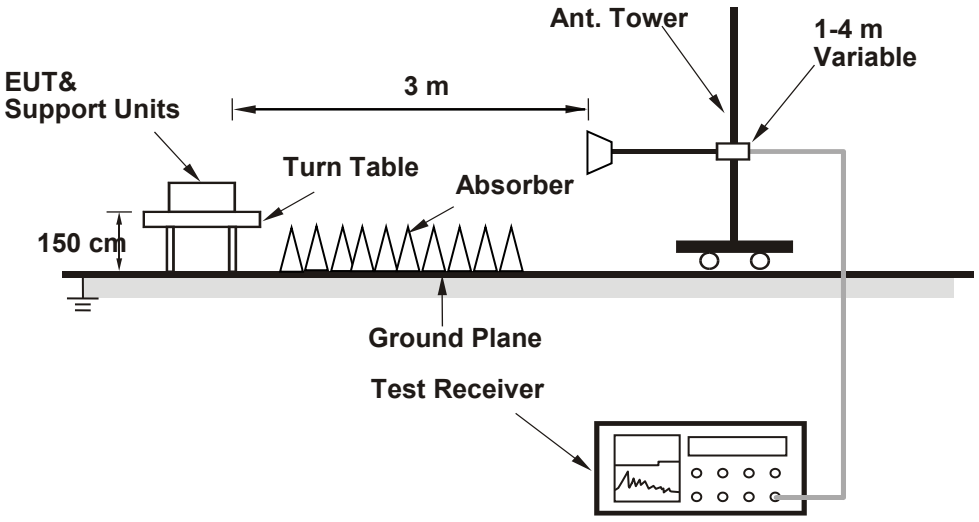
No deviation.

4.8.4 Test Setup

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




**<Radiated Emission above 1 GHz>**



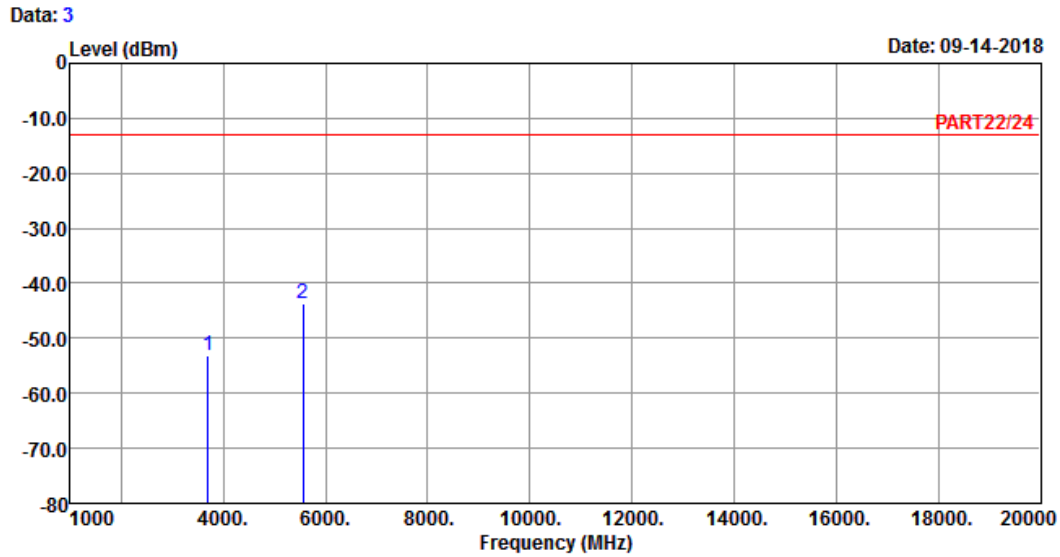

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 Test Results

**GSM:**

**Low Channel**

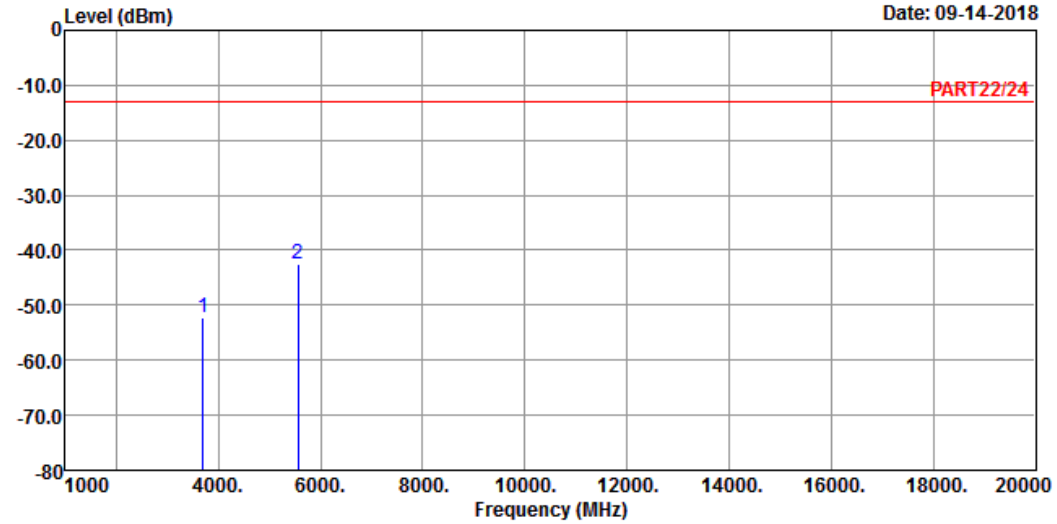
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : GPRS 1900 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3700.40 | -52.99 | -44.82 | -13.00 | -39.99 | -8.17 | Peak |
| 2 pp | 5550.60 | -43.65 | -42.20 | -13.00 | -30.65 | -1.45 | Peak |

Data: 4

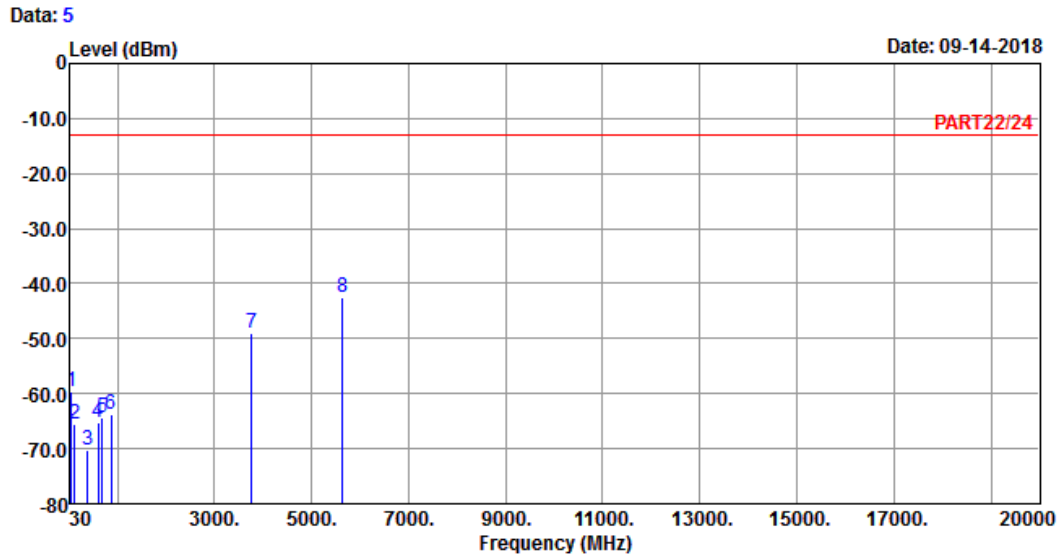



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : GPRS 1900 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3700.40 | -52.23 | -44.06 | -13.00 | -39.23 | -8.17 | Peak |
| 2 pp | 5550.60 | -42.51 | -41.06 | -13.00 | -29.51 | -1.45 | Peak |

## Middle Channel

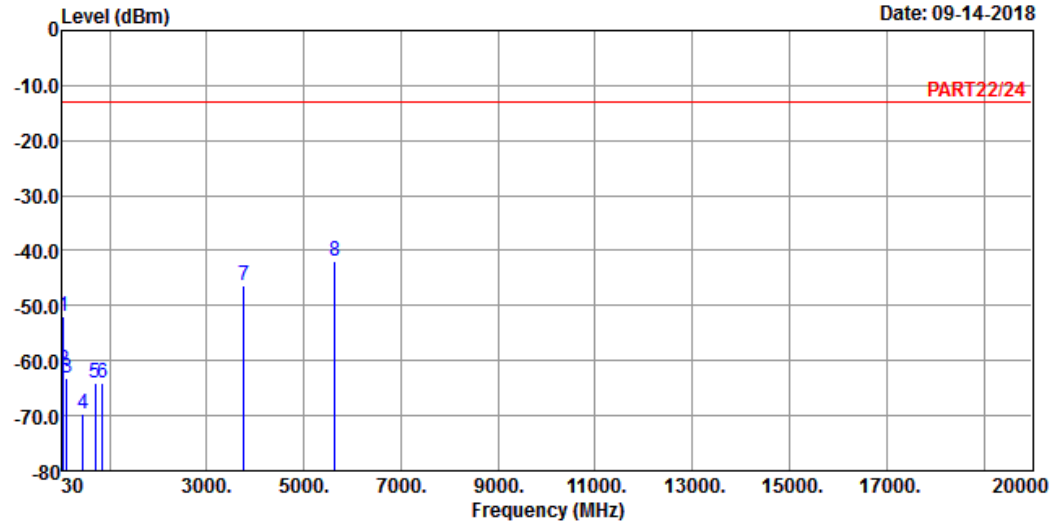
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : GPRS 1900 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 52.31 | -59.59 | -54.05 | -13.00 | -46.59 | -5.54 | Peak |
| 2 | 115.36 | -65.43 | -55.36 | -13.00 | -52.43 | -10.07 | Peak |
| 3 | 383.08 | -70.26 | -64.22 | -13.00 | -57.26 | -6.04 | Peak |
| 4 | 596.48 | -65.26 | -64.35 | -13.00 | -52.26 | -0.91 | Peak |
| 5 | 683.78 | -64.44 | -64.08 | -13.00 | -51.44 | -0.36 | Peak |
| 6 | 870.99 | -63.77 | -64.18 | -13.00 | -50.77 | 0.41 | Peak |
| 7 | 3760.00 | -48.95 | -40.89 | -13.00 | -35.95 | -8.06 | Peak |
| 8 pp | 5640.00 | -42.65 | -40.71 | -13.00 | -29.65 | -1.94 | Peak |

Data: 6

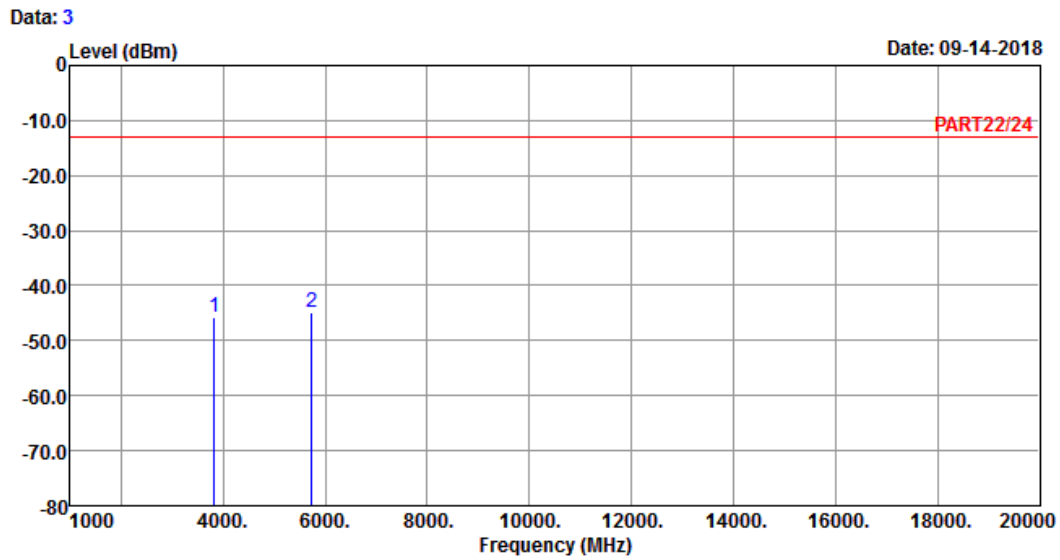



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : GPRS 1900 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 43.58 | -51.83 | -50.36 | -13.00 | -38.83 | -1.47 | Peak |
| 2 | 52.31 | -61.65 | -56.11 | -13.00 | -48.65 | -5.54 | Peak |
| 3 | 118.27 | -63.26 | -53.32 | -13.00 | -50.26 | -9.94 | Peak |
| 4 | 459.71 | -69.78 | -64.41 | -13.00 | -56.78 | -5.37 | Peak |
| 5 | 697.36 | -63.96 | -63.82 | -13.00 | -50.96 | -0.14 | Peak |
| 6 | 854.50 | -64.20 | -64.52 | -13.00 | -51.20 | 0.32 | Peak |
| 7 | 3760.00 | -46.25 | -38.19 | -13.00 | -33.25 | -8.06 | Peak |
| 8 pp | 5640.00 | -41.98 | -40.04 | -13.00 | -28.98 | -1.94 | Peak |

## High Channel

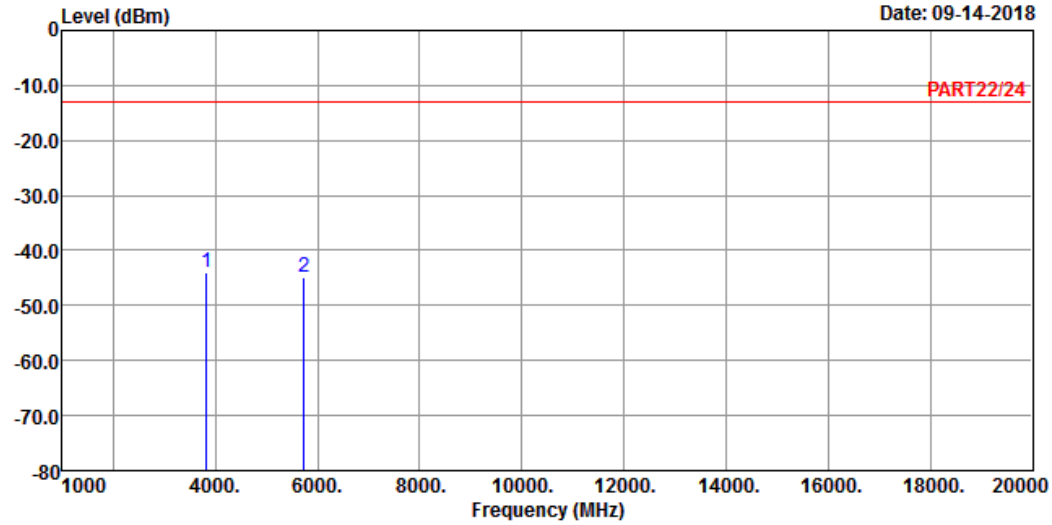
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : GPRS 1900 Link_H-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3819.60 | -45.62 | -37.94 | -13.00 | -32.62 | -7.68 | Peak |
| 2 pp | 5729.40 | -44.85 | -43.27 | -13.00 | -31.85 | -1.58 | Peak |

Data: 4




Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : GPRS 1900 Link_H-CH
Tested by: Jisyong Wang

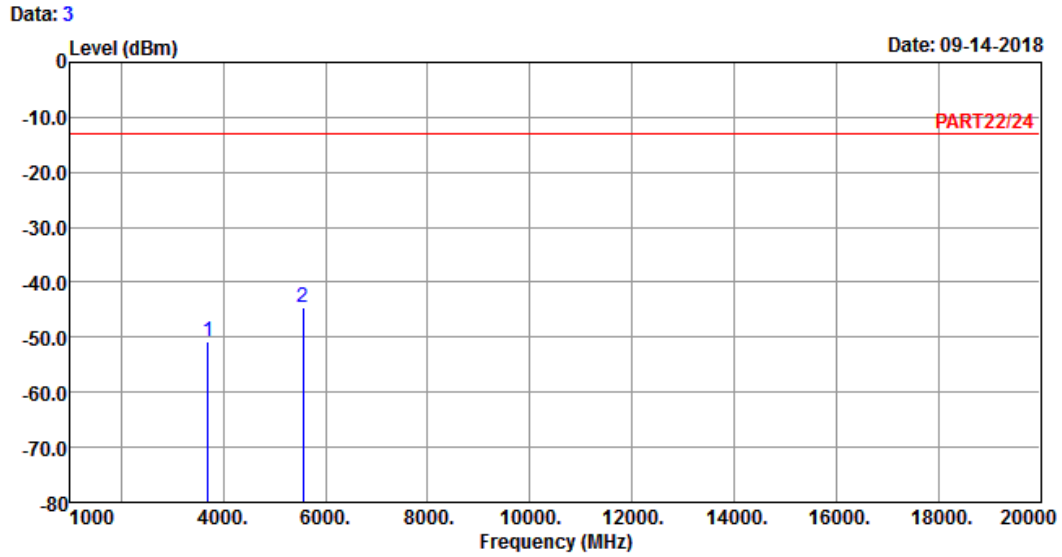
| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3819.60 | -43.99 | -36.31 | -13.00 | -30.99 | -7.68 | Peak |
| 2 | 5729.40 | -44.75 | -43.17 | -13.00 | -31.75 | -1.58 | Peak |

## EDGE:

## Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

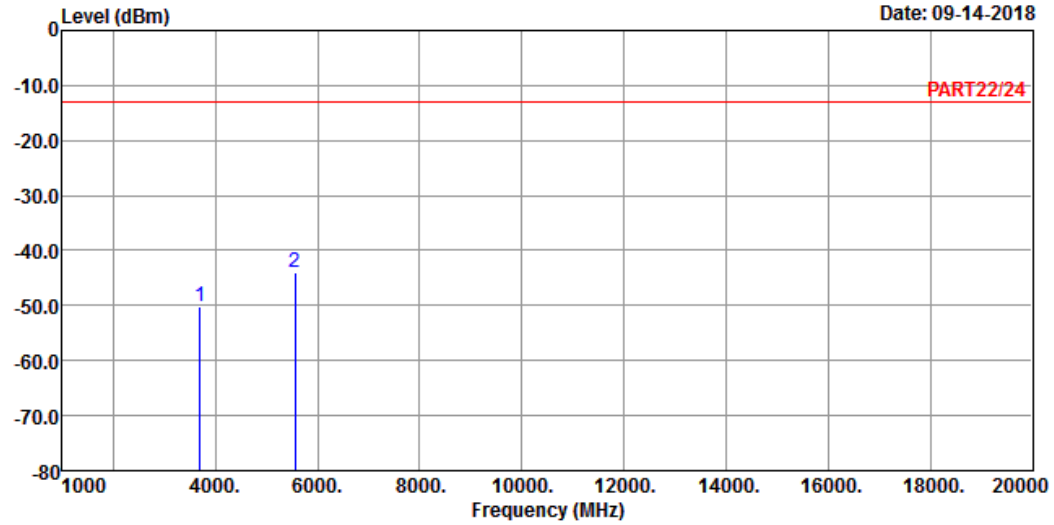
A D T




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : EDGE 1900 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3700.40 | -50.85 | -42.68 | -13.00 | -37.85 | -8.17 | Peak |
| 2 pp | 5550.60 | -44.65 | -43.20 | -13.00 | -31.65 | -1.45 | Peak |

Data: 4

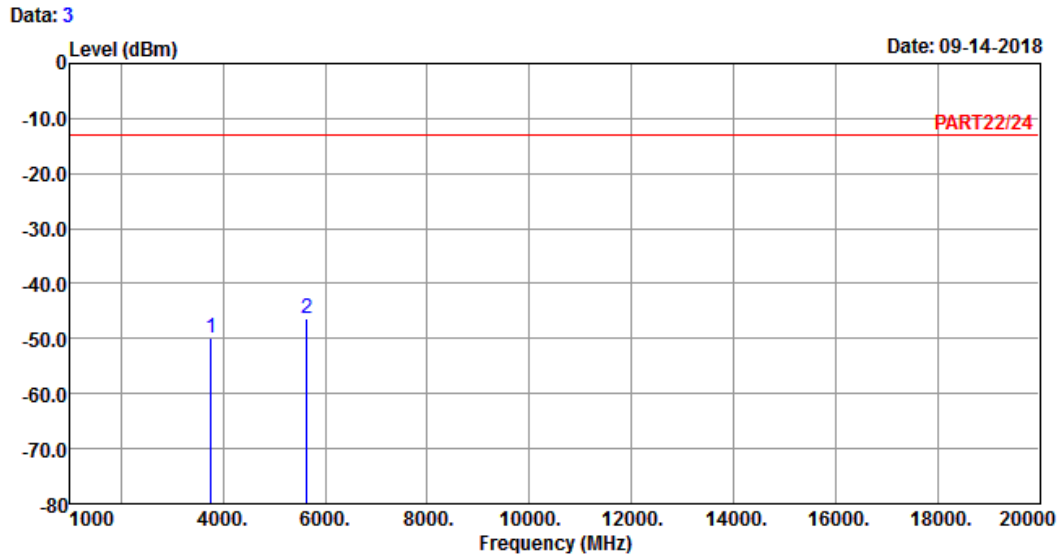



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : EDGE 1900 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3700.40 | -50.23 | -42.06 | -13.00 | -37.23 | -8.17 | Peak |
| 2 pp | 5550.60 | -43.95 | -42.50 | -13.00 | -30.95 | -1.45 | Peak |

## Middle Channel

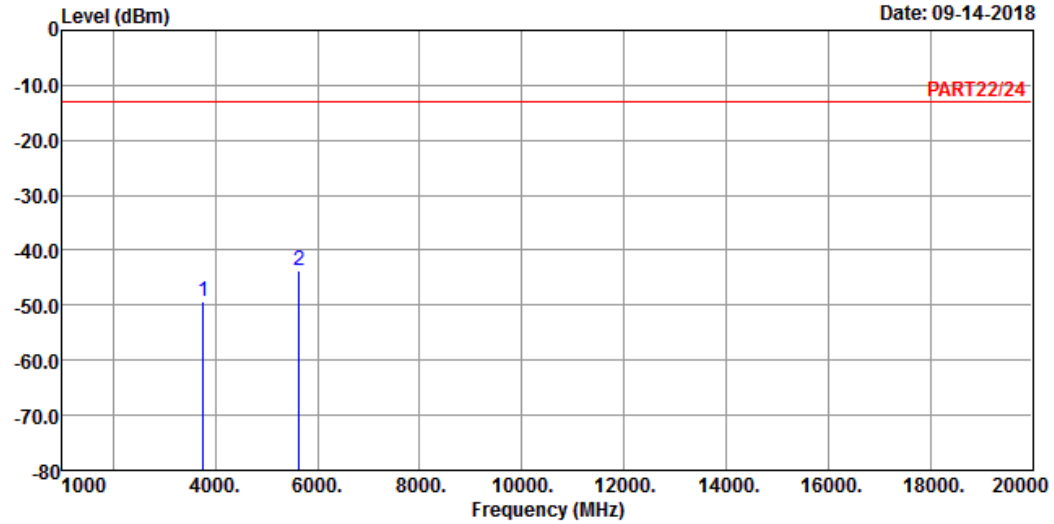
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : EDGE 1900 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3760.00 | -49.85 | -41.79 | -13.00 | -36.85 | -8.06 | Peak |
| 2 pp | 5640.00 | -46.23 | -44.29 | -13.00 | -33.23 | -1.94 | Peak |

Data: 4

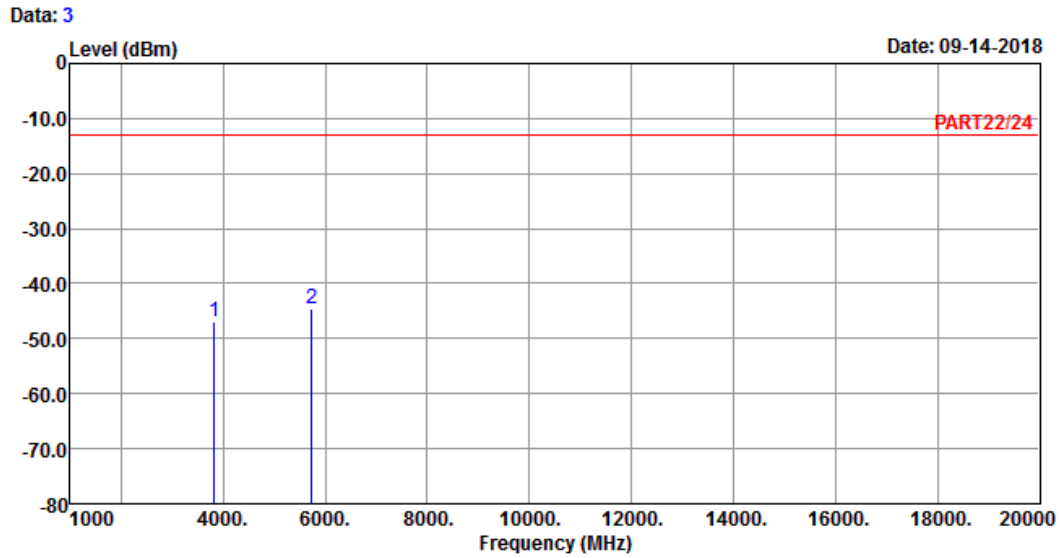



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : EDGE 1900 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3760.00 | -49.25 | -41.19 | -13.00 | -36.25 | -8.06 | Peak |
| 2 pp | 5640.00 | -43.65 | -41.71 | -13.00 | -30.65 | -1.94 | Peak |

## High Channel

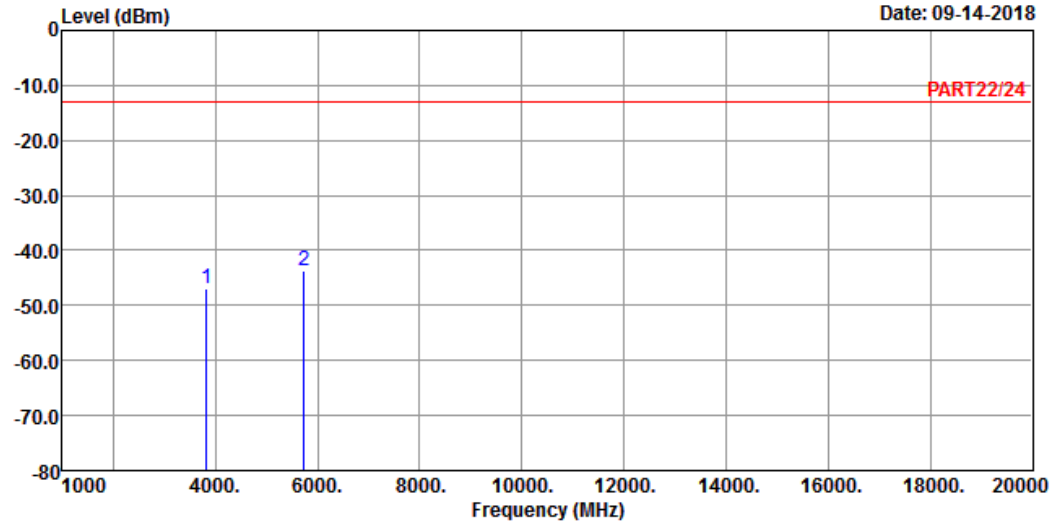
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : EDGE 1900 Link_H-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3819.60 | -46.85 | -39.17 | -13.00 | -33.85 | -7.68 | Peak |
| 2 pp | 5729.40 | -44.62 | -43.04 | -13.00 | -31.62 | -1.58 | Peak |

Data: 4




Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : EDGE 1900 Link_H-CH
Tested by: Jisyong Wang

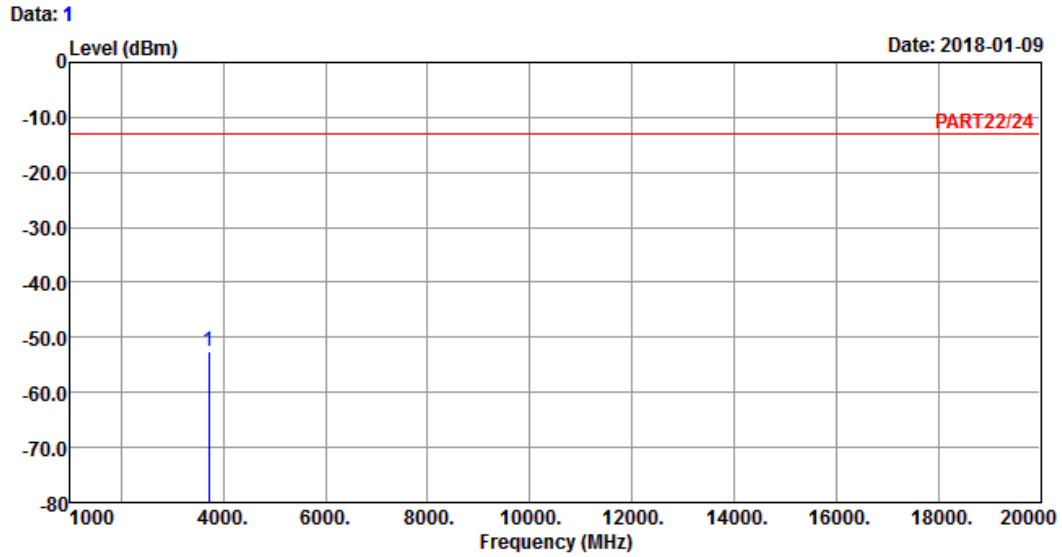
| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3819.60 | -46.92 | -39.24 | -13.00 | -33.92 | -7.68 | Peak |
| 2 pp | 5729.40 | -43.58 | -42.00 | -13.00 | -30.58 | -1.58 | Peak |

**WCDMA:**

**Low Channel**

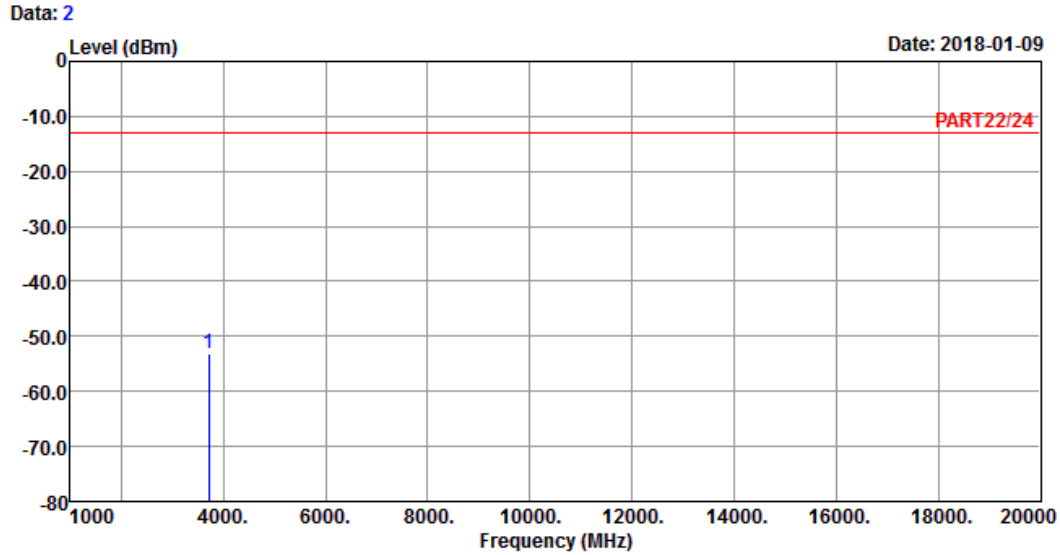
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : WCDMA Band 2 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3704.80 | -52.67 | -44.50 | -13.00 | -39.67 | -8.17 | Peak |

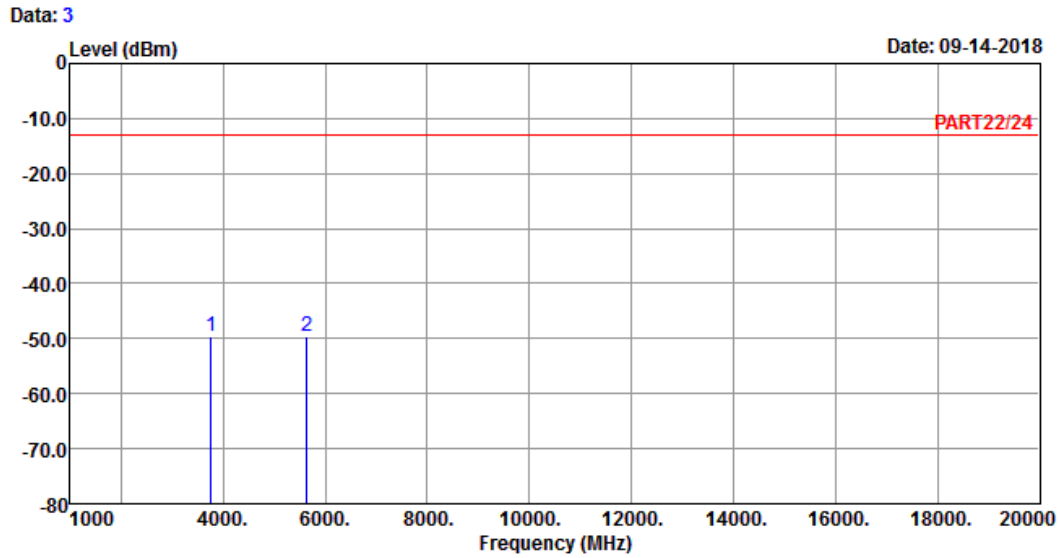



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : WCDMA Band 2 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3704.80 | -53.14 | -44.97 | -13.00 | -40.14 | -8.17 | Peak |

## Middle Channel

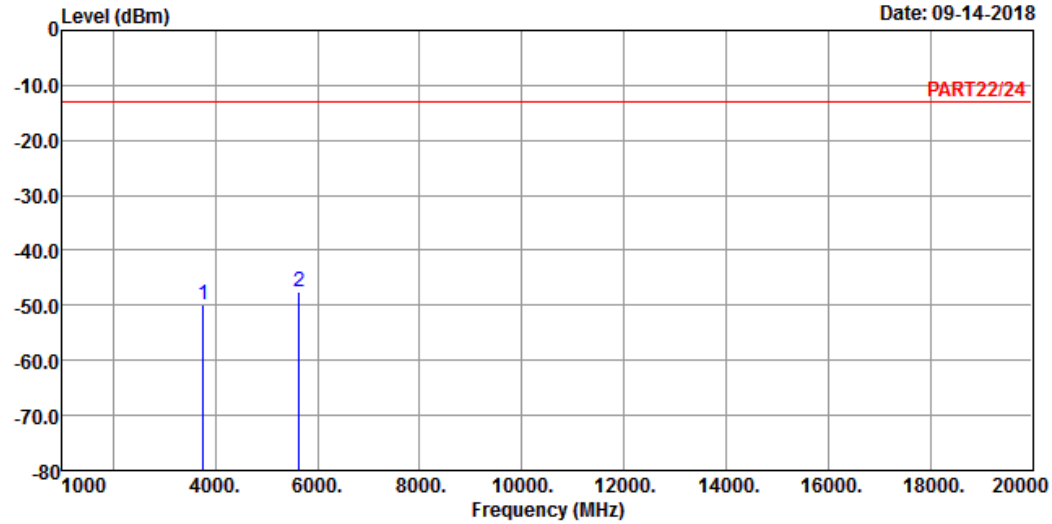
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : WCDMA Band 2 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3760.00 | -49.52 | -41.46 | -13.00 | -36.52 | -8.06 | Peak |
| 2 | 5640.00 | -49.63 | -47.69 | -13.00 | -36.63 | -1.94 | Peak |

Data: 4

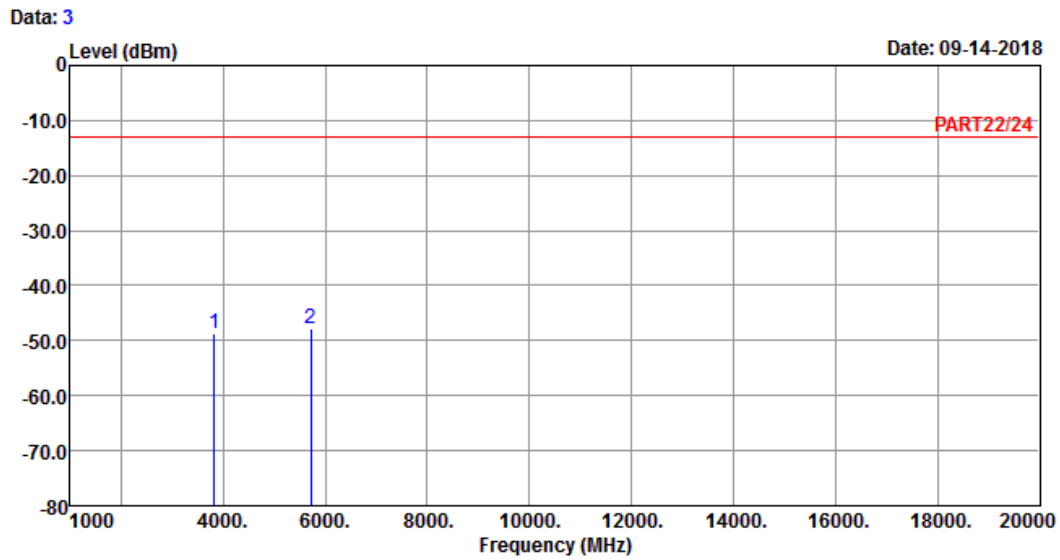



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : WCDMA Band 2 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3760.00 | -49.85 | -41.79 | -13.00 | -36.85 | -8.06 | Peak |
| 2 pp | 5640.00 | -47.62 | -45.68 | -13.00 | -34.62 | -1.94 | Peak |

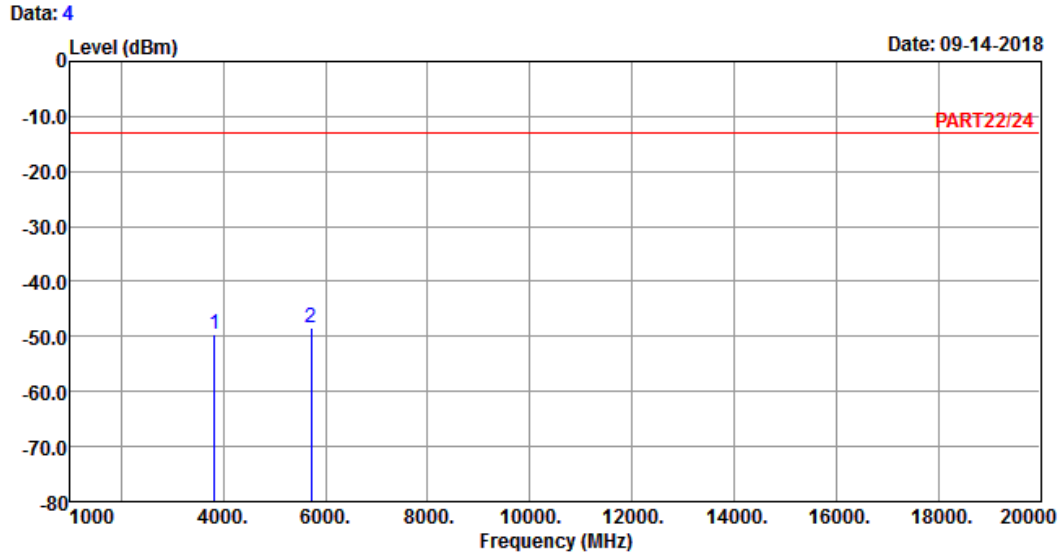
## High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : WCDMA Band 2 Link_H-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3815.20 | -48.65 | -40.87 | -13.00 | -35.65 | -7.78 | Peak |
| 2 pp | 5722.80 | -47.95 | -46.19 | -13.00 | -34.95 | -1.76 | Peak |




Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : WCDMA Band 2 Link_H-CH
Tested by: Jisyong Wang

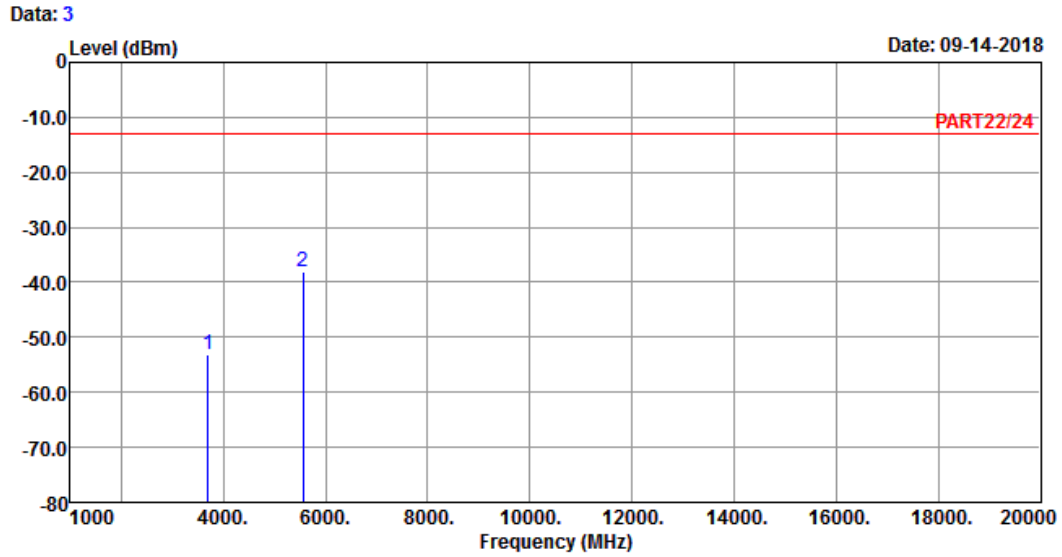
| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3815.20 | -49.52 | -41.74 | -13.00 | -36.52 | -7.78 | Peak |
| 2 pp | 5722.80 | -48.37 | -46.61 | -13.00 | -35.37 | -1.76 | Peak |

## CDMA:

## Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

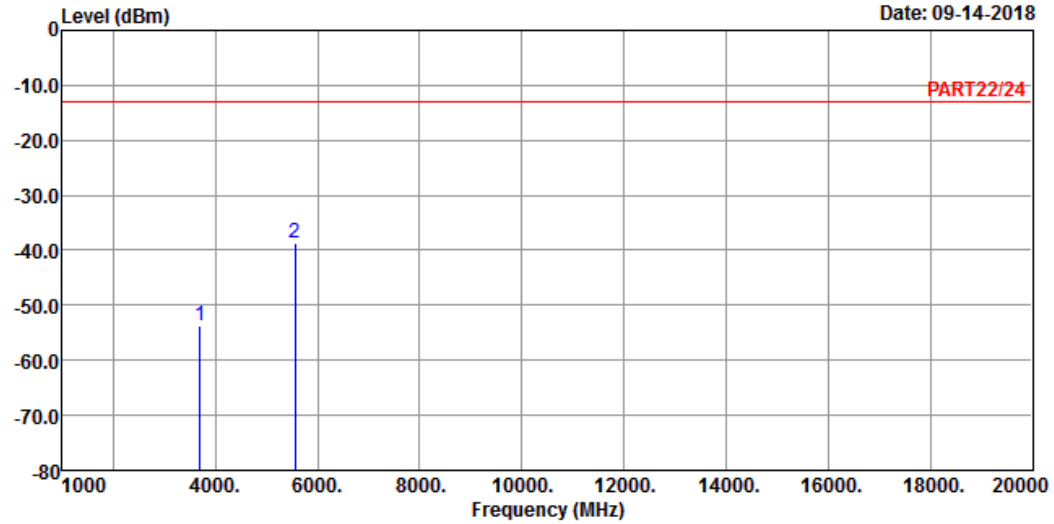
A D T




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : CDMA BC1 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3702.50 | -53.26 | -45.09 | -13.00 | -40.26 | -8.17 | Peak |
| 2 pp | 5553.75 | -37.95 | -36.50 | -13.00 | -24.95 | -1.45 | Peak |

Data: 4

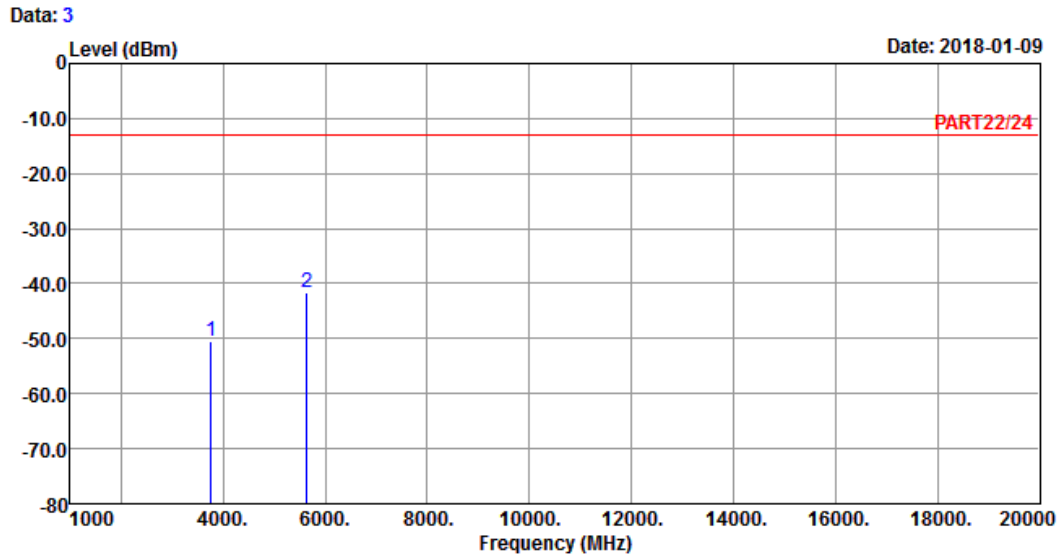



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : CDMA BC1 Link_L-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3702.50 | -53.65 | -45.48 | -13.00 | -40.65 | -8.17 | Peak |
| 2 pp | 5553.75 | -38.63 | -37.18 | -13.00 | -25.63 | -1.45 | Peak |

## Middle Channel

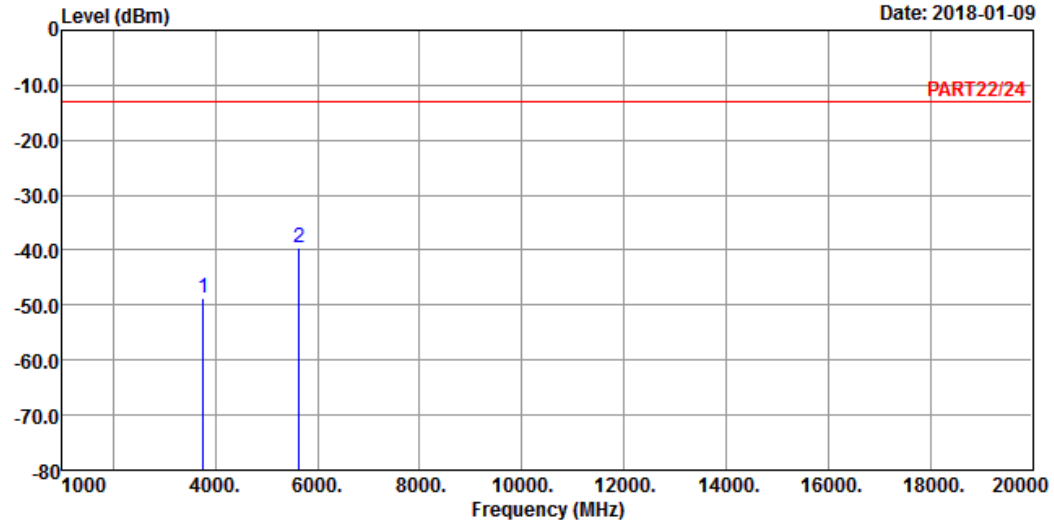
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : CDMA BC1 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3760.00 | -50.47 | -42.41 | -13.00 | -37.47 | -8.06 | Peak |
| 2 pp | 5640.00 | -41.72 | -39.78 | -13.00 | -28.72 | -1.94 | Peak |

Data: 4



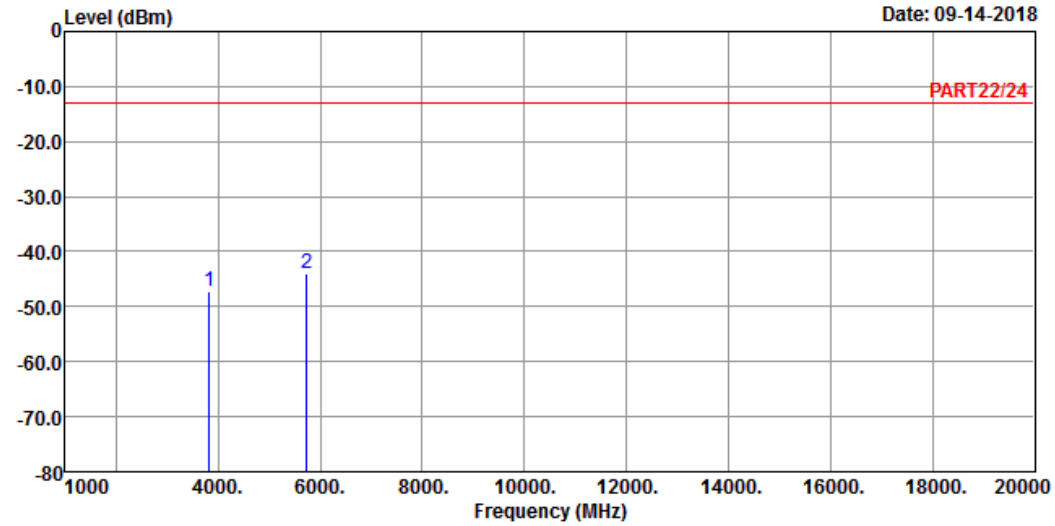

Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : CDMA BC1 Link_M-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3760.00 | -48.61 | -40.55 | -13.00 | -35.61 | -8.06 | Peak |
| 2 pp | 5640.00 | -39.45 | -37.51 | -13.00 | -26.45 | -1.94 | Peak |

## High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

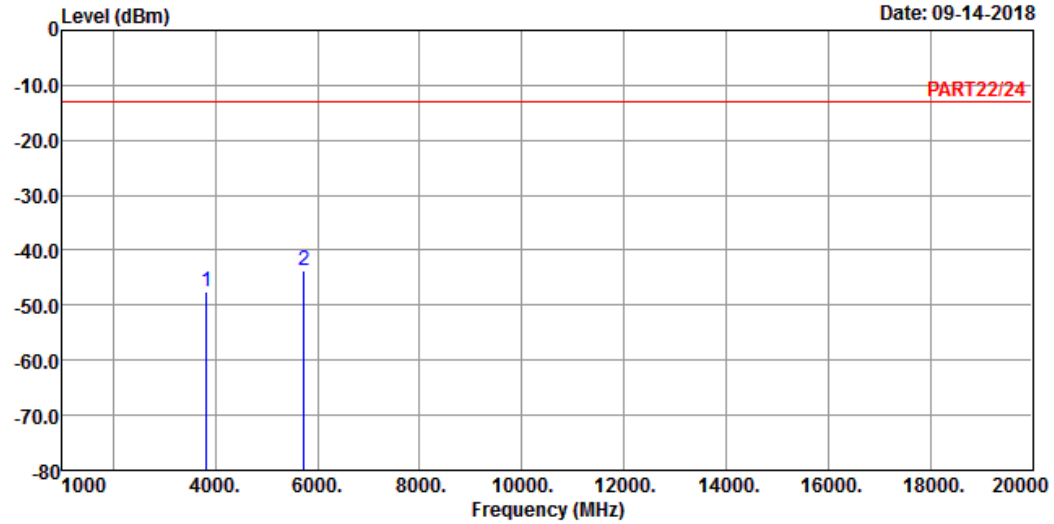
Data: 3




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remark : CDMA BC1 Link_H-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3817.50 | -47.25 | -39.57 | -13.00 | -34.25 | -7.68 | Peak |
| 2 pp | 5726.25 | -44.02 | -42.44 | -13.00 | -31.02 | -1.58 | Peak |

Data: 4

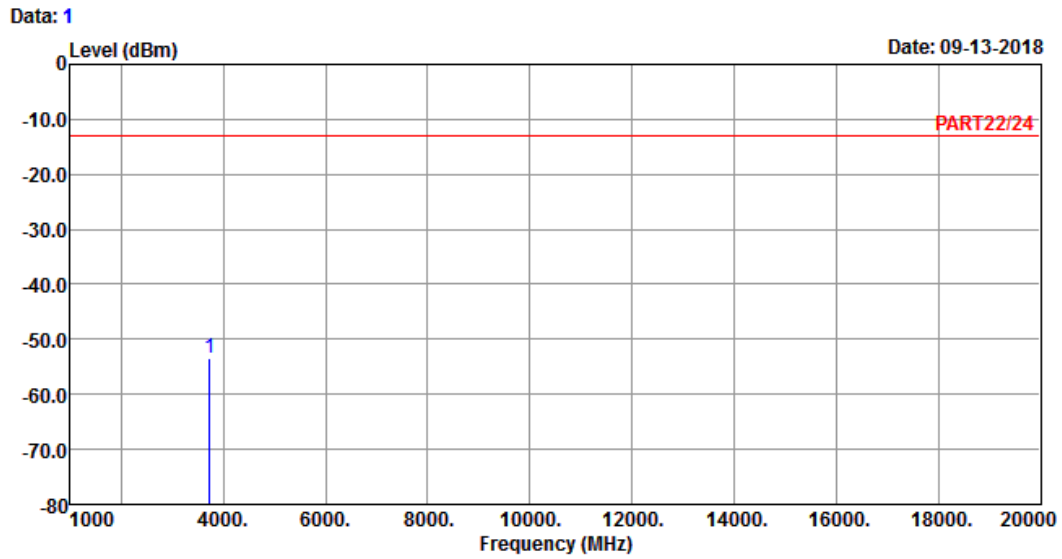



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remark : CDMA BC1 Link_H-CH
Tested by: Jisyong Wang

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 3817.50 | -47.52 | -39.84 | -13.00 | -34.52 | -7.68 | Peak |
| 2 pp | 5726.25 | -43.62 | -42.04 | -13.00 | -30.62 | -1.58 | Peak |

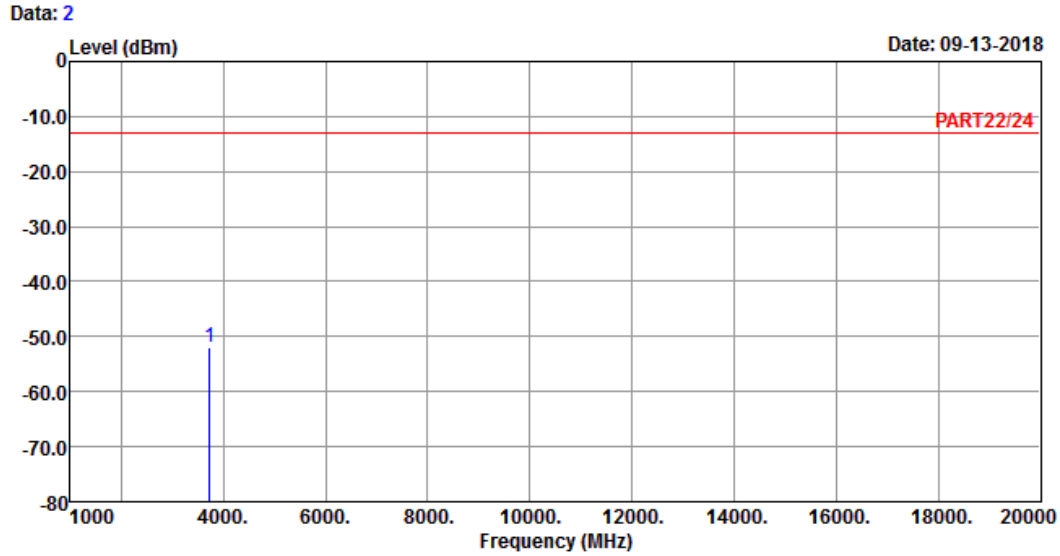
**LTE Band 2**
**Channel Bandwidth: 20 MHz / QPSK**
**Low Channel**

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 2 QPSK_20M Link_L-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3720.00 | -53.29 | -46.47 | -13.00 | -40.29 | -6.82 | Peak |

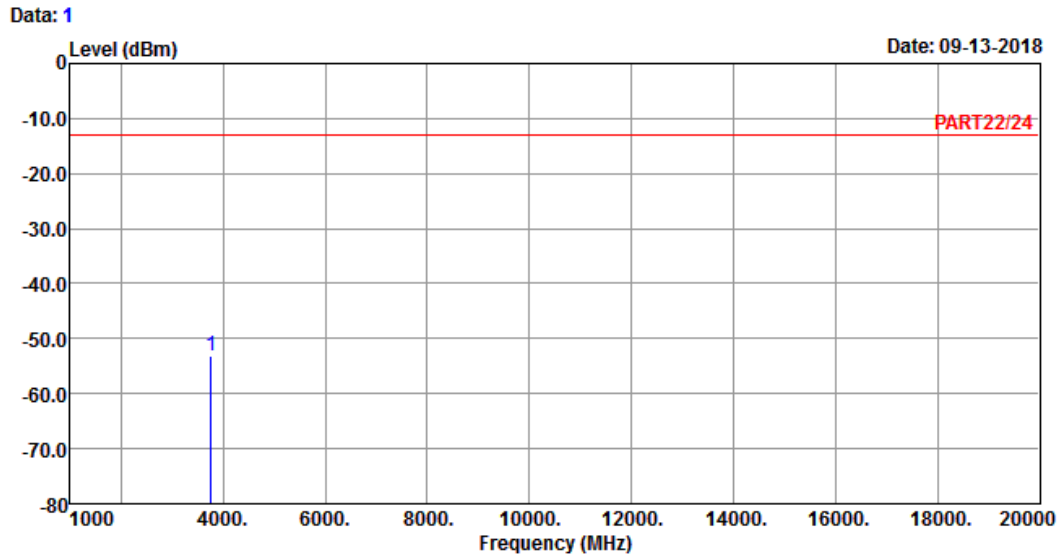



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 2 QPSK_20M Link_L-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3720.00 | -51.87 | -45.05 | -13.00 | -38.87 | -6.82 | Peak |

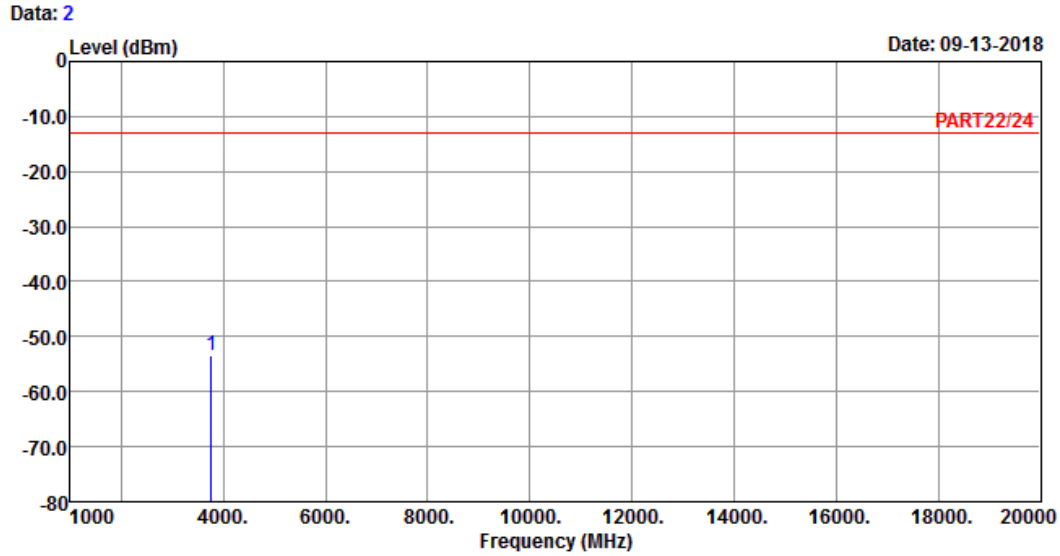
## Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 2 QPSK_20M Link_M-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3760.00 | -53.03 | -46.38 | -13.00 | -40.03 | -6.65 | Peak |

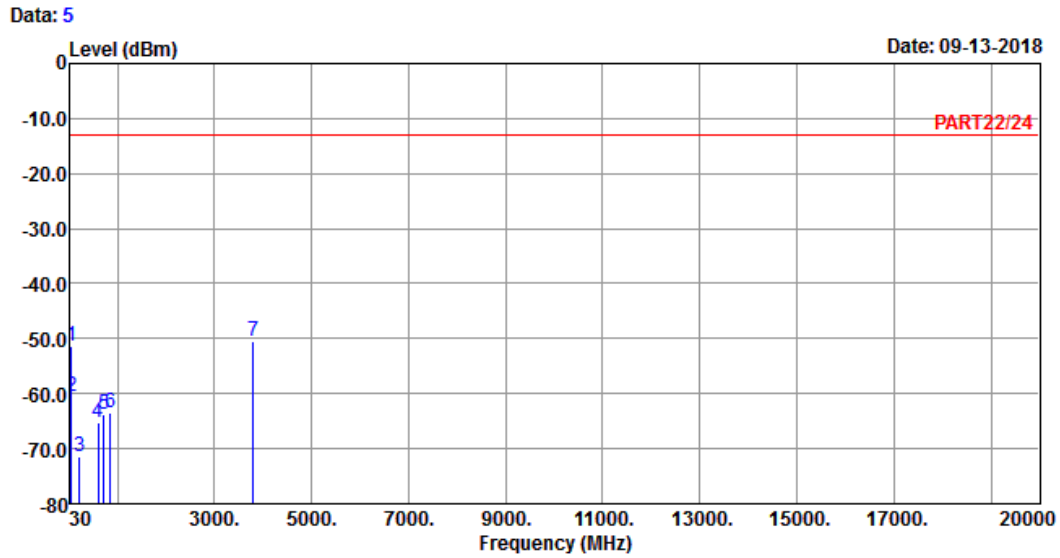



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 2 QPSK_20M Link_M-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3760.00 | -53.57 | -46.92 | -13.00 | -40.57 | -6.65 | Peak |

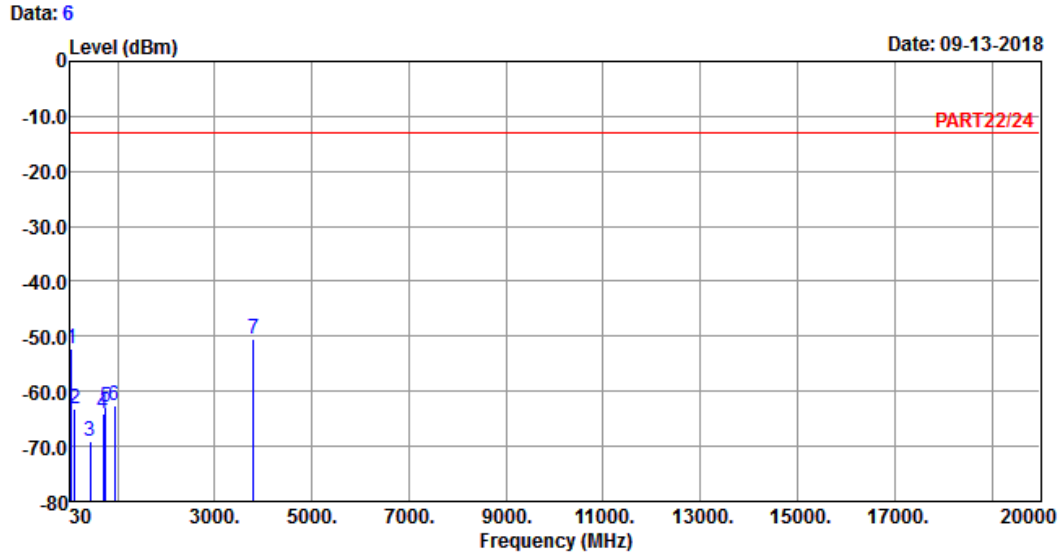
## High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 2 QPSK_20M Link_H-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 43.58 | -51.22 | -49.75 | -13.00 | -38.22 | -1.47 | Peak |
| 2 | 52.31 | -60.61 | -55.07 | -13.00 | -47.61 | -5.54 | Peak |
| 3 | 223.03 | -71.44 | -64.36 | -13.00 | -58.44 | -7.08 | Peak |
| 4 | 606.18 | -65.39 | -64.62 | -13.00 | -52.39 | -0.77 | Peak |
| 5 | 724.52 | -63.66 | -64.04 | -13.00 | -50.66 | 0.38 | Peak |
| 6 | 862.26 | -63.53 | -63.89 | -13.00 | -50.53 | 0.36 | Peak |
| 7 pp | 3800.00 | -50.37 | -43.94 | -13.00 | -37.37 | -6.43 | Peak |

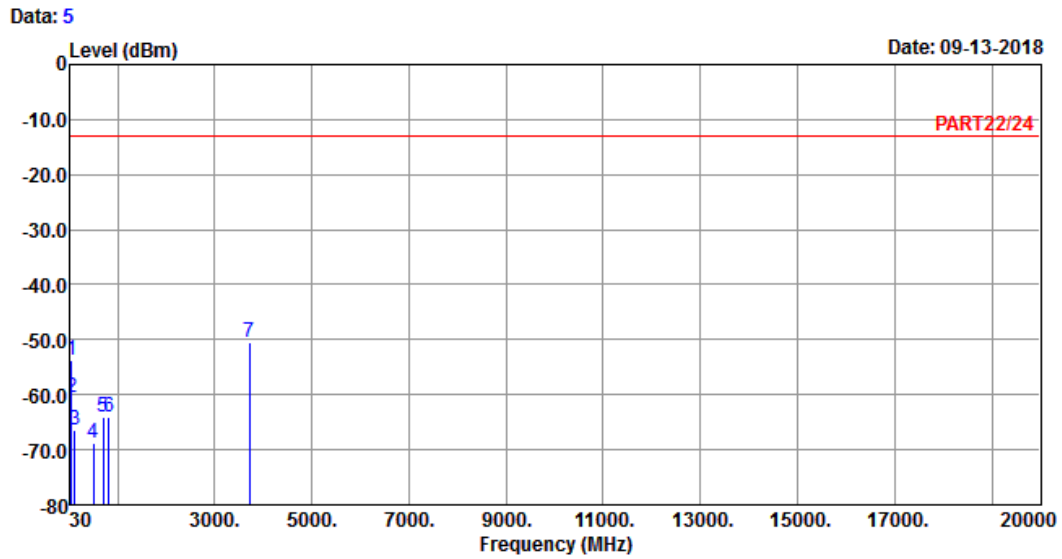



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 2 QPSK_20M Link_H-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 44.55 | -52.11 | -50.12 | -13.00 | -39.11 | -1.99 | Peak |
| 2 | 116.33 | -63.11 | -53.09 | -13.00 | -50.11 | -10.02 | Peak |
| 3 | 431.58 | -69.10 | -63.40 | -13.00 | -56.10 | -5.70 | Peak |
| 4 | 699.30 | -64.05 | -63.94 | -13.00 | -51.05 | -0.11 | Peak |
| 5 | 755.56 | -62.98 | -63.84 | -13.00 | -49.98 | 0.86 | Peak |
| 6 | 937.92 | -62.65 | -64.16 | -13.00 | -49.65 | 1.51 | Peak |
| 7 pp | 3800.00 | -50.34 | -43.91 | -13.00 | -37.34 | -6.43 | Peak |

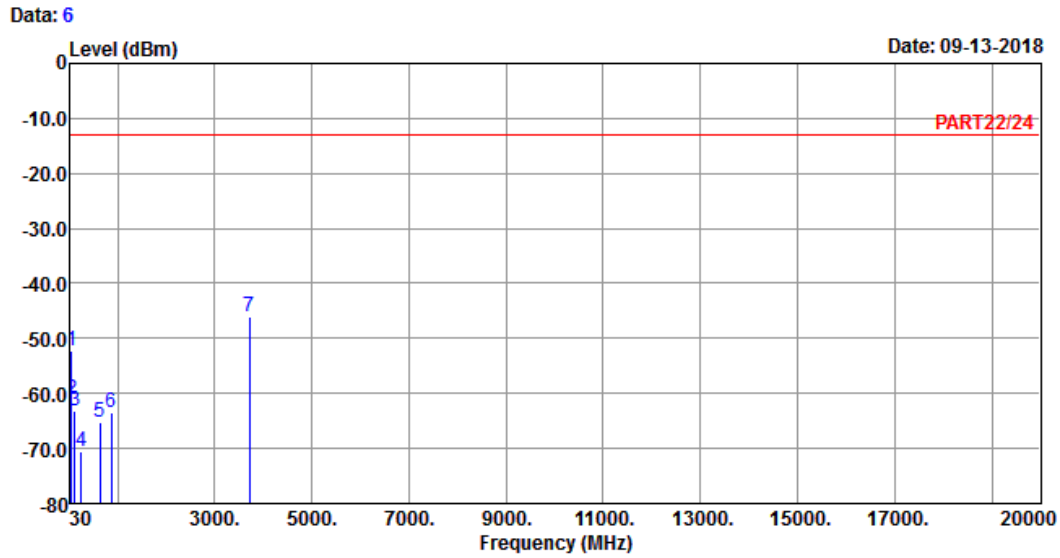
**LTE Band 25**
**Channel Bandwidth: 20 MHz / QPSK**
**Low Channel**

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 25 QPSK_20M Link_L-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 45.52 | -53.76 | -51.26 | -13.00 | -40.76 | -2.50 | Peak |
| 2 | 52.31 | -60.61 | -55.07 | -13.00 | -47.61 | -5.54 | Peak |
| 3 | 115.36 | -66.55 | -56.48 | -13.00 | -53.55 | -10.07 | Peak |
| 4 | 502.39 | -68.77 | -64.23 | -13.00 | -55.77 | -4.54 | Peak |
| 5 | 711.91 | -64.15 | -64.28 | -13.00 | -51.15 | 0.13 | Peak |
| 6 | 819.58 | -64.03 | -64.59 | -13.00 | -51.03 | 0.56 | Peak |
| 7 pp | 3720.00 | -50.48 | -43.66 | -13.00 | -37.48 | -6.82 | Peak |

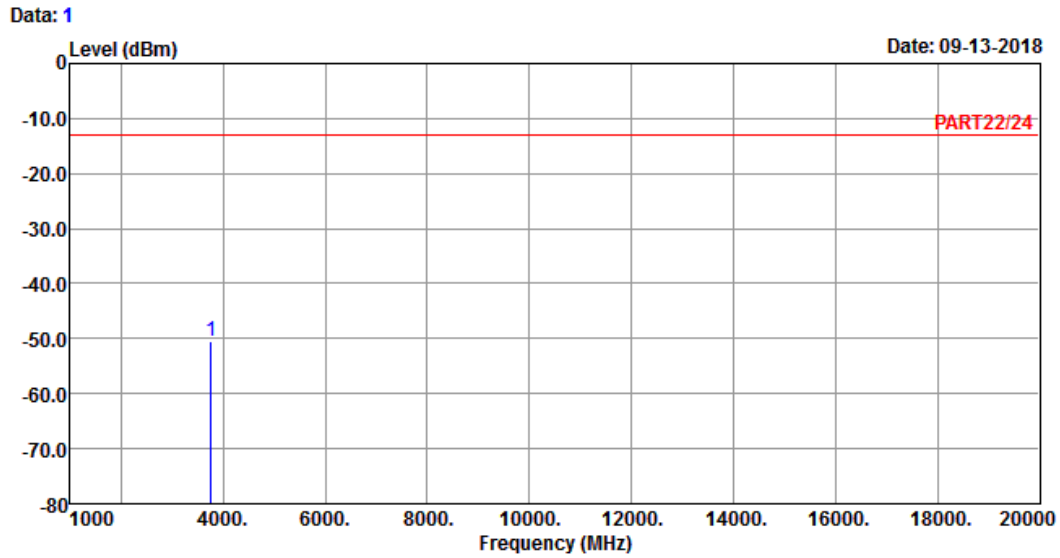



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 25 QPSK_20M Link_L-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 44.55 | -52.11 | -50.12 | -13.00 | -39.11 | -1.99 | Peak |
| 2 | 53.28 | -61.07 | -55.26 | -13.00 | -48.07 | -5.81 | Peak |
| 3 | 116.33 | -63.11 | -53.09 | -13.00 | -50.11 | -10.02 | Peak |
| 4 | 259.89 | -70.59 | -64.40 | -13.00 | -57.59 | -6.19 | Peak |
| 5 | 637.22 | -65.14 | -64.29 | -13.00 | -52.14 | -0.85 | Peak |
| 6 | 867.11 | -63.44 | -63.83 | -13.00 | -50.44 | 0.39 | Peak |
| 7 pp | 3720.00 | -46.16 | -39.34 | -13.00 | -33.16 | -6.82 | Peak |

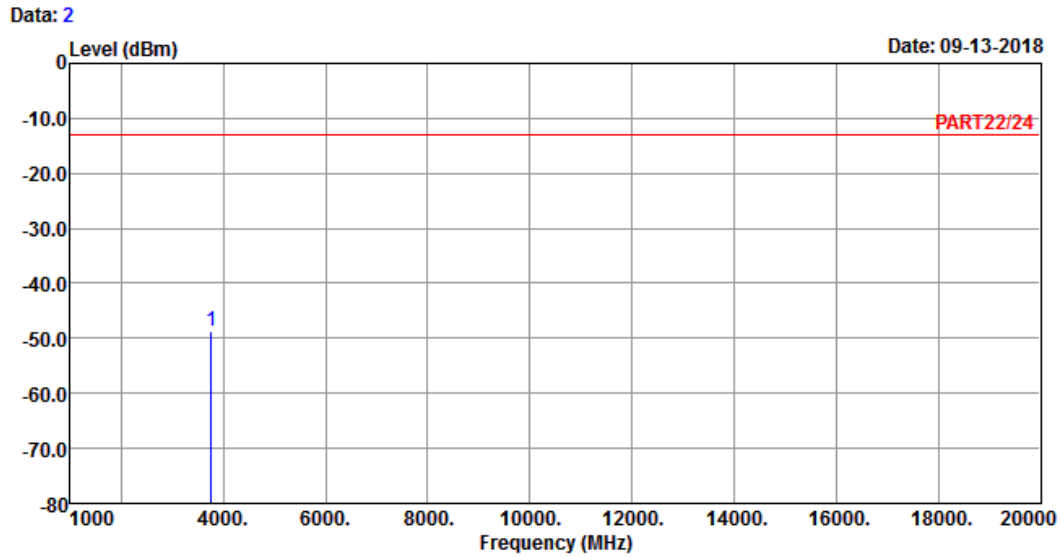
## Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 25 QPSK_20M Link_M-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3765.00 | -50.46 | -43.86 | -13.00 | -37.46 | -6.60 | Peak |

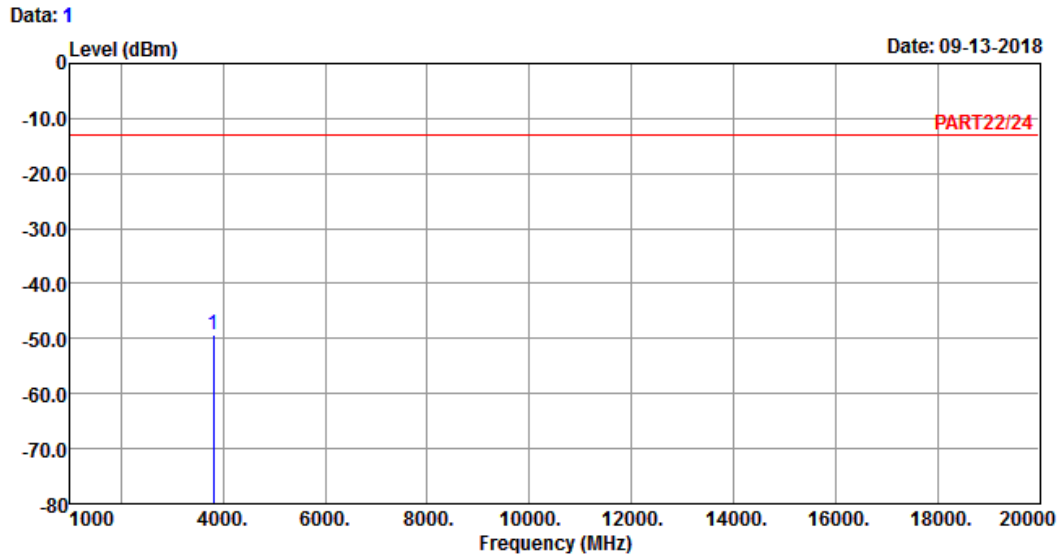



Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 25 QPSK_20M Link_M-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3765.00 | -48.80 | -42.20 | -13.00 | -35.80 | -6.60 | Peak |

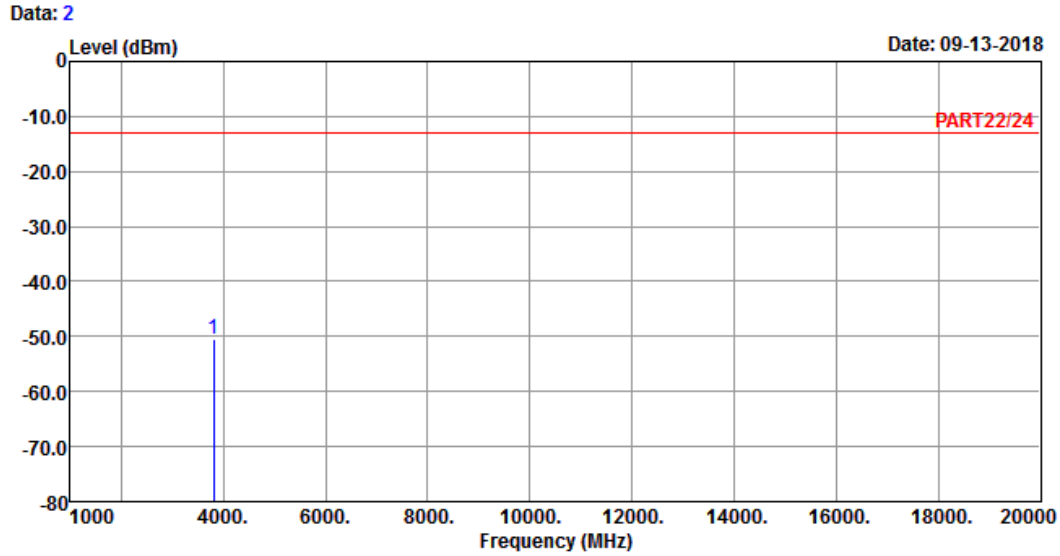
## High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




Site : 966 Chamber 5
Condition: PART22/24 HORIZONTAL
Remak : LTE Band 25 QPSK_20M Link_H-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3810.00 | -49.37 | -42.97 | -13.00 | -36.37 | -6.40 | Peak |




Site : 966 Chamber 5
Condition: PART22/24 VERTICAL
Remak : LTE Band 25 QPSK_20M Link_H-CH
Tested by: Thomas Wei

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 pp | 3810.00 | -50.54 | -44.14 | -13.00 | -37.54 | -6.40 | 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:


**Lin Kou EMC/RF Lab**
Tel: 886-2-26052180
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**Hsin Chu EMC/RF/Telecom Lab**
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**Email:** service.adt@tw.bureauveritas.com
**Web Site:** www.bureauveritas-adt.com


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

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