# FCC Test Report

# (PART 27)

| | |
|---|---|
| **Report No.:** | RF181126C15-2 |
| **FCC ID:** | N7NHL78 |
| **Test Model:** | HL7800 |
| **Received Date:** | Nov. 26, 2018 |
| **Test Date:** | Jun. 30 ~ Jul. 09, 2018 (Cat-M1)<br>Dec. 06, 2018 ~ May 17, 2019 (NB-IoT) |
| **Issued Date:** | May 30, 2019 |
| **Applicant:** | Sierra Wireless Inc. |
| **Address:** | 13811 Wireless Way, Richmond, BC, Canada V6V3A4 |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch |
| **Lab Address:** | No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan ( R.O.C ) |
| **Test Location:** | No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C) |
| **FCC Registration / Designation Number:** | 788550 / TW0003 |

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| RF181126C15-2 | Original Release | May 30, 2019 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Embedded Module |
| **Brand:** | AirPrime |
| **Test Model:** | HL7800 |
| **Sample Status:** | Engineering Sample |
| **Applicant:** | Sierra Wireless Inc. |
| **Test Date:** | Jun. 30 ~ Jul. 09, 2018 (Cat-M1)<br>Dec. 06, 2018 ~ May 17, 2019 (NB-IoT) |
| **Standards:** | FCC Part 27, Subpart C, H, F, L |

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

**Prepared by :** _____ , **Date:** May 30, 2019

Ivonne Wu / Supervisor

**Approved by :** _____ , **Date:** May 30, 2019

Dylan Chiou / Project Engineer

## 2 Summary of Test Results

| Applied Standard: FCC Part 27 & Part 2 (LTE 4) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(d)(4) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -23.28 dB at 6980.00 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 12) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(c)(10) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| --- | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(g) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(g) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(g) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -30.13 dB at 1415.00 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 13) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(b)(10) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| --- | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(c)(2)(4) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(c)(2)&(f) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(c)(2)&(f) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -13.24 dB at 1564.00 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 17) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(c)(10) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| --- | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(g) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(g) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(g) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -32.86 dB at 2112.30 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 66) | | | |
|---|---|---|---|
| **FCC Clause** | **Test Item** | **Result** | **Remarks** |
| 2.1046<br>27.50(d)(4) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1047 | Modulation Characteristics | Pass | Meet the requirement. |
| 2.1055<br>27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051<br>27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053<br>27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit.<br>Minimum passing margin is -29.69 dB at 3490.00 MHz. |

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 2.1 Measurement Uncertainty

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

| Measurement | Frequency | Expanded Uncertainty (k=2) (±) |
|---|---|---|
| Radiated Emissions up to 1 GHz | 9 kHz ~ 30 MHz | 3.04 dB |
| | 30 MHz ~ 200 MHz | 2.93 dB |
| | 200 MHz ~ 1000 MHz | 2.95 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.26 dB |
| | 18 GHz ~ 40 GHz | 1.94 dB |

## 2.2 Test Site and Instruments

**Test Date: Jun. 30 ~ Jul. 09, 2018**

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|---|---|---|---|---|
| Test Receiver Agilent | N9038A | MY51210203 | Mar. 16, 2018 | Mar. 15, 2019 |
| Spectrum Analyzer Agilent | N9010A | MY52220314 | Nov. 24, 2017 | Nov. 23, 2018 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSU43 | 101261 | Jan. 11, 2018 | Jan. 10, 2019 |
| Double Ridge Guide Horn Antenna EMCO | 3115 | 5619 | Nov. 30, 2017 | Nov. 29, 2018 |
| BILOG Antenna SCHWARZBECK | VULB 9168 | 9168-153 | Dec. 06, 2017 | Dec. 05, 2018 |
| Radio Communication Analyzer Anritsu | MT8820C | 6201300640 | Aug. 16, 2017 | Aug. 15, 2019 |
| Preamplifier EMCI | EMC 012645 | 980115 | Oct. 20, 2017 | Oct. 19, 2018 |
| Preamplifier EMCI | EMC 184045 | 980116 | Oct. 20, 2017 | Oct. 19, 2018 |
| Preamplifier EMCI | EMC 330H | 980112 | Oct. 13, 2017 | Oct. 12, 2018 |
| Power Meter Anritsu | ML2495A | 1012010 | Aug. 15, 2017 | Aug. 14, 2018 |
| Power Sensor Anritsu | MA2411B | 1315050 | Aug. 15, 2017 | Aug. 14, 2018 |
| RF Coaxial Cable HUBER+SUHNNER | EMC104-SM-SM-8000&3000 | 140811+170717 | Oct. 20, 2017 | Oct. 19, 2018 |
| RF Coaxial Cable HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM-1000(140807) | Oct. 20, 2017 | Oct. 19, 2018 |
| RF Coaxial Cable Worken | 8D-FB | Cable-Ch10-01 | Oct. 20, 2017 | Oct. 19, 2018 |
| Software BV ADT | E3 6.120103 | NA | NA | NA |
| Antenna Tower MF | MFA-440H | NA | NA | NA |
| Turn Table MF | MFT-201SS | NA | NA | NA |
| Antenna Tower &Turn Table Controller MF | MF-7802 | NA | NA | NA |
| DC Power Supply Topward | 33010D | 807748 | Oct. 25, 2016 | Oct. 24, 2018 |
| STANDARD TEMPERATURE &HUMIDITY CHAMBER TERCHY | MHU-225AU | 920842 | Jun. 01, 2018 | May 30, 2019 |

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.

**Test Date: Dec. 06, 2018 ~ May 17, 2019**

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|---|---|---|---|---|
| Test Receiver<br>Agilent | N9038A | MY52260177 | Aug. 20, 2018 | Aug. 19, 2019 |
| Spectrum Analyzer<br>Keysight | N9010A | MY56070348 | Sep. 06, 2018 | Sep. 05, 2019 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSW26 | 102023 | Oct. 11, 2018 | Oct. 10, 2019 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120 D | 9120D-969 | Nov. 25, 2018 | Nov. 24, 2019 |
| BILOG Antenna<br>SCHWARZBECK | VULB9168 | 9168-472 | Nov. 23, 2018 | Nov. 22, 2019 |
| Double Ridge Guide Horn Antenna EMCO | 3115 | 5619 | Nov. 25, 2018 | Nov. 24, 2019 |
| BILOG Antenna<br>SCHWARZBECK | VULB 9168 | 9168-153 | Nov. 23, 2018 | Nov. 22, 2019 |
| Fixed Attenuator<br>Mini-Circuits | MDCS18N-10 | MDCS18N-10-01 | Apr. 16, 2018 | Apr. 15, 2019 |
| | | | Apr. 15, 2019 | Apr. 14, 2020 |
| MXG Vector signal generator<br>Agilent | N5182B | MY53050430 | Nov. 19, 2018 | Nov. 18, 2019 |
| Preamplifier<br>EMCI | EMC 012645 | 980115 | Oct. 12, 2018 | Oct. 11, 2019 |
| Preamplifier<br>EMCI | EMC 330H | 980112 | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>HUBER+SUHNNER | EMC104-SM-SM-8000&3000 | 140811+170717 | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM-1000(140807) | Oct. 12, 2018 | Oct. 11, 2019 |
| RF Coaxial Cable<br>WOKEN | 8D-FB | Cable-Ch10-01 | Oct. 12, 2018 | Oct. 11, 2019 |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| Software<br>BV ADT | E3<br>6.120103 | NA | NA | NA |
| Antenna Tower<br>MF | MFA-440H | NA | NA | NA |
| Turn Table<br>MF | MFT-201SS | NA | NA | NA |
| Antenna Tower &Turn Table Controller<br>MF | MF-7802 | NA | NA | NA |
| Radio Communication Analyzer<br>ANRITSU | MT8821C | 6201664741 | Jul. 04, 2018 | Jul. 03, 2019 |
| Temperature & Humidity Chamber | GTH-120-40-CP-AR | MAA1306-019 | Sep. 05, 2018 | Sep. 04, 2019 |
| DC Power Supply<br>Topward | 33010D | 807748 | NA | NA |

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

## 3 General Information

### 3.1 General Description of EUT

| | | | |
|---|---|---|---|
| **Product** | Embedded Module | | |
| **Brand** | AirPrime | | |
| **Test Model** | HL7800 | | |
| **Status of EUT** | Engineering Sample | | |
| **Power Supply Rating** | 5.0 Vdc (host equipment)<br>12.0 Vdc (adapter) | | |
| **Modulation Type** | **Cat-M1** | QPSK, 16QAM | |
| | **NB-IoT** | BPSK, QPSK | |
| **Frequency Range** | **Cat-M1** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1710.7 ~ 1754.3 MHz |
| | | LTE Band 4 (Channel Bandwidth: 3 MHz) | 1711.5 ~ 1753.5 MHz |
| | | LTE Band 4 (Channel Bandwidth: 5 MHz) | 1712.5 ~ 1752.5 MHz |
| | | LTE Band 4 (Channel Bandwidth: 10 MHz) | 1715.0 ~ 1750.0 MHz |
| | | LTE Band 4 (Channel Bandwidth: 15 MHz) | 1717.5 ~ 1747.5 MHz |
| | | LTE Band 4 (Channel Bandwidth: 20 MHz) | 1720.0 ~ 1745.0 MHz |
| | | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 699.7 ~ 715.3 MHz |
| | | LTE Band 12 (Channel Bandwidth: 3 MHz) | 700.5 ~ 714.5 MHz |
| | | LTE Band 12 (Channel Bandwidth: 5 MHz) | 701.5 ~ 713.5 MHz |
| | | LTE Band 12 (Channel Bandwidth: 10 MHz) | 704.0 ~ 711.0 MHz |
| | | LTE Band 13 (Channel Bandwidth: 5 MHz) | 779.5 ~ 784.5 MHz |
| | | LTE Band 13 (Channel Bandwidth: 10 MHz) | 782.0 MHz |
| | | LTE Band 17 (Channel Bandwidth: 5 MHz) | 706.5 ~ 713.5 MHz |
| | | LTE Band 17 (Channel Bandwidth: 10 MHz) | 709.0 ~ 711.0 MHz |
| | | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 1710.7 ~ 1779.3 MHz |
| | | LTE Band 66 (Channel Bandwidth: 3 MHz) | 1711.5 ~ 1778.5 MHz |
| | | LTE Band 66 (Channel Bandwidth: 5 MHz) | 1712.5 ~ 1777.5 MHz |
| | | LTE Band 66 (Channel Bandwidth: 10 MHz) | 1715.0 ~ 1775.0 MHz |
| | | LTE Band 66 (Channel Bandwidth: 15 MHz) | 1717.5 ~ 1772.5 MHz |
| | | LTE Band 66 (Channel Bandwidth: 20 MHz) | 1720.0 ~ 1770.0 MHz |
| | **NB-IoT** | LTE Band 4 | 1710.1 ~ 1754.9 MHz |
| | | LTE Band 12 | 699.1 ~ 715.9 MHz |
| | | LTE Band 13 | 777.1 ~ 786.9 MHz |
| | | LTE Band 17 | 704.1 ~ 715.9 MHz |
| | | LTE Band 66 | 1710.1 ~ 1779.9 MHz |

| | | | |
|---|---|---|---|
| **Emission Designator** | **Cat-M1** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1M09G7D |
| | | LTE Band 4 (Channel Bandwidth: 3 MHz) | 1M09G7D |
| | | LTE Band 4 (Channel Bandwidth: 5 MHz) | 1M09G7D |
| | | LTE Band 4 (Channel Bandwidth: 10 MHz) | 1M09G7D |
| | | LTE Band 4 (Channel Bandwidth: 15 MHz) | 1M10G7D |
| | | LTE Band 4 (Channel Bandwidth: 20 MHz) | 1M09G7D |
| | | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 1M09G7D |
| | | LTE Band 12 (Channel Bandwidth: 3 MHz) | 1M09G7D |
| | | LTE Band 12 (Channel Bandwidth: 5 MHz) | 1M08G7D |
| | | LTE Band 12 (Channel Bandwidth: 10 MHz) | 1M09G7D |
| | | LTE Band 13 (Channel Bandwidth: 5 MHz) | 1M09G7D |
| | | LTE Band 13 (Channel Bandwidth: 10 MHz) | 1M09G7D |
| | | LTE Band 17 (Channel Bandwidth: 5 MHz) | 1M09G7D |
| | | LTE Band 17 (Channel Bandwidth: 10 MHz) | 1M09G7D |
| | | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 1M09G7D |
| | | LTE Band 66 (Channel Bandwidth: 3 MHz) | 1M08G7D |
| | | LTE Band 66 (Channel Bandwidth: 5 MHz) | 1M09G7D |
| | | LTE Band 66 (Channel Bandwidth: 10 MHz) | 1M09G7D |
| | | LTE Band 66 (Channel Bandwidth: 15 MHz) | 1M10G7D |
| | | LTE Band 66 (Channel Bandwidth: 20 MHz) | 1M09G7D |
| | **NB-IoT** | LTE Band 4 | 1K94G7D |
| | | LTE Band 12 | 1K92G7D |
| | | LTE Band 13 | 1K94G7D |
| | | LTE Band 17 | 1K92G7D |
| | | LTE Band 66 | 1K97G7D |
| **Max. ERP Power** | **Cat-M1** | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 329.61 mW |
| | | LTE Band 12 (Channel Bandwidth: 3 MHz) | 314.05 mW |
| | | LTE Band 12 (Channel Bandwidth: 5 MHz) | 292.42 mW |
| | | LTE Band 12 (Channel Bandwidth: 10 MHz) | 277.97 mW |
| | | LTE Band 13 (Channel Bandwidth: 5 MHz) | 283.79 mW |
| | | LTE Band 13 (Channel Bandwidth: 10 MHz) | 264.85 mW |
| | | LTE Band 17 (Channel Bandwidth: 5 MHz) | 285.76 mW |
| | | LTE Band 17 (Channel Bandwidth: 10 MHz) | 265.46 mW |
| | **NB-IoT** | LTE Band 12 | 171.40 mW (BPSK)<br>213.80 mW (QPSK) |
| | | LTE Band 13 | 152.41 mW (BPSK)<br>186.64 mW (QPSK) |
| | | LTE Band 17 | 138.68 mW (BPSK)<br>144.21 mW (QPSK) |

| | | | |
|---|---|---|---|
| **Max. EIRP Power** | **Cat-M1** | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 314.77 mW |
| | | LTE Band 4 (Channel Bandwidth: 3 MHz) | 297.17 mW |
| | | LTE Band 4 (Channel Bandwidth: 5 MHz) | 276.69 mW |
| | | LTE Band 4 (Channel Bandwidth: 10 MHz) | 263.63 mW |
| | | LTE Band 4 (Channel Bandwidth: 15 MHz) | 247.74 mW |
| | | LTE Band 4 (Channel Bandwidth: 20 MHz) | 234.42 mW |
| | | LTE Band 66 (Channel Bandwidth: 1.4 MHz) | 289.07 mW |
| | | LTE Band 66 (Channel Bandwidth: 3 MHz) | 269.77 mW |
| | | LTE Band 66 (Channel Bandwidth: 5 MHz) | 254.68 mW |
| | | LTE Band 66 (Channel Bandwidth: 10 MHz) | 239.88 mW |
| | | LTE Band 66 (Channel Bandwidth: 15 MHz) | 223.36 mW |
| | | LTE Band 66 (Channel Bandwidth: 20 MHz) | 209.89 mW |
| | **NB-IoT** | LTE Band 4 | 229.61 mW (BPSK)<br>272.90 mW (QPSK) |
| | | LTE Band 66 | 245.47 mW (BPSK)<br>294.44 mW (QPSK) |
| **Antenna Type** | Dipole Antenna with 2 dBi gain | | |
| **Accessory Device** | Refer to Note as below | | |
| **Data Cable Supplied** | Refer to Note as below | | |

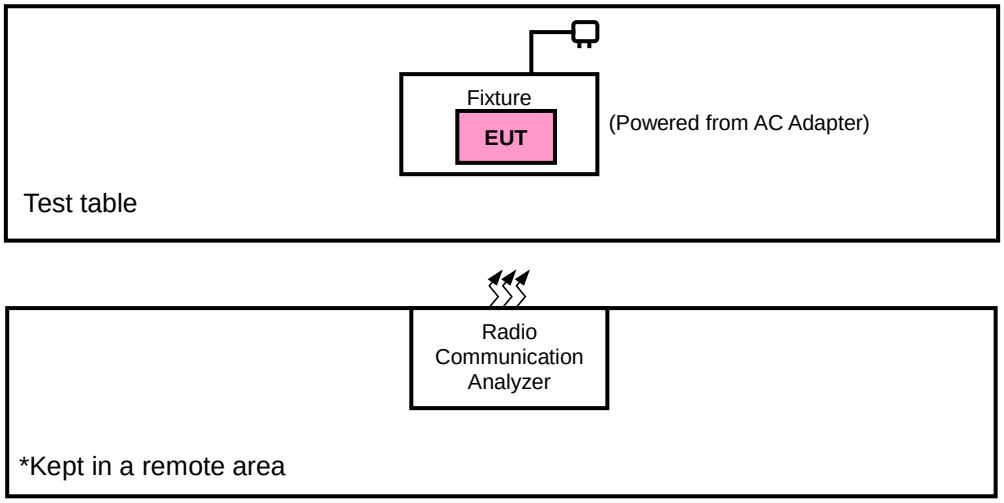
Note:

1. This report is issued as a supplementary report to BV CPS report no.: RF180425C07A-2. The difference compared with original report is enabled NB-IoT function via software (as listed below). All the test items for NB-IoT were tested. For Cat-M1, only the worst case of radiated spurious emissions for LTE B4/B14 and effective radiated power for LTE B12/B25 in the original report were verified, and the other test data from the original report are kept in this report.

| Report No. | FCC ID | Model | Difference |
|---|---|---|---|
| RF180425C07A-2 | N7NHL78M | HL7800-M | Support Cat-M1 |
| RF181126C15-2 | N7NHL78 | HL7800 | Support Cat-M1 and NB-IoT |

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

## 3.2 Configuration of System under Test




### 3.2.1 Description of Support Units

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

| No. | Product | Brand | Model No. | Serial No. | FCC ID |
|---|---|---|---|---|---|
| 1. | Adapter | N/A | N/A | N/A | N/A |

| No. | Signal Cable Description Of The Above Support Units |
|---|---|
| 1. | N/A |

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 was provided by client.

### 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 | ERP / EIRP | Radiated Emission |
|---|---|---|
| **LTE Band 4** | X-plane (Cat-M1)<br>Z-plane (NB-IoT) | Z-axis |
| **LTE Band 12** | X-plane (Cat-M1)<br>Z-plane (NB-IoT) | Z-axis |
| **LTE Band 13** | X-plane (Cat-M1)<br>X-plane (NB-IoT) | Z-axis (Cat-M1)<br>X-axis (NB-IoT) |
| **LTE Band 17** | X-plane (Cat-M1)<br>Z-plane (NB-IoT) | Z-axis |
| **LTE Band 66** | X-plane (Cat-M1)<br>Z-plane (NB-IoT) | Z-axis |

**Cat-M1**

**LTE Band 4**

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 1 RB / 5 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 1 RB / 14 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 1 RB / 49 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 1 RB / 74 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 1 RB / 99 RB Offset |
| - | Modulation characteristics | 19975 to 20375 | 20175 | 5 MHz | QPSK, 16QAM | 5 RB / 0 RB Offset |
| - | Frequency Stability | 19957 to 20393 | 19957, 20393 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | 19965 to 20385 | 19965, 20385 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | 19975 to 20375 | 19975, 20375 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | 20000 to 20350 | 20000, 20350 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | 20025 to 20325 | 20025, 20325 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | 20050 to 20300 | 20050, 20300 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| - | Occupied Bandwidth | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 15 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 75 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 1 RB / 2 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 1 RB / 7 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 12 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 36 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Band Edge | 19957 to 20393 | 19957 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 20393 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 20385 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 20375 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 20350 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 20325 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 20300 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK | 1 RB / 7 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK | 12 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK | 36 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK | 50 RB / 0 RB Offset |
| - | Radiated Emission | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK | 12 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK | 50 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 12

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | ERP | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 1 RB / 2 RB Offset |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 1 RB / 7 RB Offset |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Modulation characteristics | 23035 to 23155 | 23095 | 5 MHz | QPSK, 16QAM | 5 RB / 0 RB Offset |
| - | Frequency Stability | 23017 to 23173 | 23017, 23173 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | 23025 to 23165 | 23025, 23165 | 3 MHz | QPSK | 1 RB / 7 RB Offset |
| | | 23035 to 23155 | 23035, 23155 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23060 to 23130 | 23060, 23130 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Occupied Bandwidth | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 15 RB / 0 RB Offset |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| - | Peak to Average Ratio | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| - | Band Edge | 23017 to 23173 | 23017 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 23173 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 23025 to 23165 | 23025 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 23165 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 23035 to 23155 | 23035 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 23155 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 23060 to 23130 | 23060 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 23130 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| - | Conducted Emission | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 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 13

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | ERP | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Modulation characteristics | 23205 to 23255 | 23230 | 5 MHz | QPSK, 16QAM | 5 RB / 0 RB Offset |
| - | Frequency Stability | 23205 to 23255 | 23205, 23255 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Occupied Bandwidth | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| - | Peak to Average Ratio | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| - | Band Edge | 23205 to 23255 | 23205 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 23255 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 23230 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| - | Conducted Emission | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 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 17

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | ERP | 23755 to 23825 | 23755, 23790, 23825 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset |
| | | 23780 to 23800 | 23780, 23790, 23800 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Modulation characteristics | 23755 to 23825 | 23790 | 5 MHz | QPSK, 16QAM | 5 RB / 0 RB Offset |
| - | Frequency Stability | 23755 to 23825 | 23755, 23825 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23780 to 23800 | 23780, 23800 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Occupied Bandwidth | 23755 to 23825 | 23755, 23790, 23825 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 23780 to 23800 | 23780, 23790, 23800 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| - | Peak to Average Ratio | 23755 to 23825 | 23755, 23790, 23825 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset |
| | | 23780 to 23800 | 23780, 23790, 23800 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Band Edge | 23755 to 23825 | 23755 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 23825 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 23780 to 23800 | 23780 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 23800 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| - | Conducted Emission | 23755 to 23825 | 23755, 23790, 23825 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23780 to 23800 | 23780, 23790, 23800 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Radiated Emission | 23755 to 23825 | 23755, 23790, 23825 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23780 to 23800 | 23780, 23790, 23800 | 10 MHz | QPSK | 1 RB / 24 RB Offset |

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

## LTE Band 66

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | EIRP | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM | 1 RB / 5 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM | 1 RB / 14 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM | 1 RB / 49 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM | 1 RB / 74 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM | 1 RB / 99 RB Offset |
| - | Modulation characteristics | 131997 to 132647 | 132322 | 5 MHz | QPSK, 16QAM | 5 RB / 0 RB Offset |
| - | Frequency Stability | 131979 to 132665 | 131979, 132665 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | 131987 to 132657 | 131987, 132657 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | 131997 to 132647 | 131997, 132647 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | 132022 to 132622 | 132022, 132622 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | 132047 to 132597 | 132047, 132597 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | 132072 to 132572 | 132072, 132572 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| - | Occupied Bandwidth | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM | 15 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM | 75 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK, 16QAM | 1 RB / 2 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK, 16QAM | 1 RB / 7 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK, 16QAM | 12 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK, 16QAM | 36 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|---|---|---|---|---|---|---|
| - | Band Edge | 131979 to 132665 | 131979 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | | 132665 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset |
| | | | | | | 6 RB / 0 RB Offset |
| | | 131987 to 132657 | 131987 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | | 132657 | 3 MHz | QPSK | 1 RB / 14 RB Offset |
| | | | | | | 15 RB / 0 RB Offset |
| | | 131997 to 132647 | 131997 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | | 132647 | 5 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 25 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | | 132622 | 10 MHz | QPSK | 1 RB / 49 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | | 132597 | 15 MHz | QPSK | 1 RB / 74 RB Offset |
| | | | | | | 75 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| | | | 132572 | 20 MHz | QPSK | 1 RB / 99 RB Offset |
| | | | | | | 100 RB / 0 RB Offset |
| - | Conducted Emission | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | 131987 to 132657 | 131987, 132322, 132657 | 3 MHz | QPSK | 1 RB / 7 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK | 12 RB / 0 RB Offset |
| | | 132022 to 132622 | 132022, 132322, 132622 | 10 MHz | QPSK | 50 RB / 0 RB Offset |
| | | 132047 to 132597 | 132047, 132322, 132597 | 15 MHz | QPSK | 36 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK | 50 RB / 0 RB Offset |
| - | Radiated Emission | 131979 to 132665 | 131979, 132322, 132665 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | 131997 to 132647 | 131997, 132322, 132647 | 5 MHz | QPSK | 12 RB / 0 RB Offset |
| | | 132072 to 132572 | 132072, 132322, 132572 | 20 MHz | QPSK | 50 RB / 0 RB Offset |

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

## NB-IoT

### LTE Band 4

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Sub-carrier Bandwidth | Modulation | $N_{tones}$ |
|---|---|---|---|---|---|---|
| - | EIRP | 19951 to 20399 | 19951, 20175, 20399 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 3@3 |
| - | Modulation Characteristics | 19951 to 20399 | 20175 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| - | Frequency Stability | 19951 to 20399 | 19951, 20399 | 15 kHz | QPSK | 3@3 |
| - | Occupied Bandwidth | 19951 to 20399 | 19951 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 20195 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 20399 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Peak to Average Ratio | 19951 to 20399 | 20195 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| - | Band Edge | 19951 to 20399 | 19951 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 20399 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Conducted Emission | 19951 to 20399 | 19951, 20175, 20399 | 15 kHz | QPSK | 3@3 |
| - | Radiated Emission | 19951 to 20399 | 19951, 20175, 20399 | 15 kHz | QPSK | 3@3 |

**Note:**

1. Selection is tested with Stand-alone, In-band and Guard-band, the worst case was found in Stand-alone.
2. For radiated emission and conducted emission test, pre-tested BPSK, QPSK modulation type and found QPSK was the worst, therefore chosen for the final test.
3. The emission measurement was based on the worst maximum conducted power.

## LTE Band 12

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Sub-carrier Bandwidth | Modulation | $N_{tones}$ |
|---|---|---|---|---|---|---|
| - | ERP | 23011 to 23179 | 23011, 23095, 23179 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 3@3 |
| - | Modulation Characteristics | 23011 to 23179 | 23095 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| - | Frequency Stability | 23011 to 23179 | 23011, 23179 | 15 kHz | QPSK | 3@3 |
| - | Occupied Bandwidth | 23011 to 23179 | 23011 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23095 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23179 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Band Edge | 23011 to 23179 | 23011 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23179 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Peak to Average Ratio | 23011 to 23179 | 23095 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| - | Conducted Emission | 23011 to 23179 | 23011, 23095, 23179 | 15 kHz | QPSK | 3@3 |
| - | Radiated Emission | 23011 to 23179 | 23011, 23095, 23179 | 15 kHz | QPSK | 3@3 |

**Note:**

1. Selection is tested with Stand-alone, In-band and Guard-band, the worst case was found in Stand-alone.
2. For radiated emission and conducted emission test, pre-tested BPSK, QPSK modulation type and found QPSK was the worst, therefore chosen for the final test.
3. The emission measurement was based on the worst maximum conducted power.

## LTE Band 13

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Sub-carrier Bandwidth | Modulation | $N_{tones}$ |
|---|---|---|---|---|---|---|
| - | ERP | 23181 to 23279 | 23181, 23230, 23279 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 3@3 |
| - | Modulation Characteristics | 23181 to 23279 | 23230 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| - | Frequency Stability | 23181 to 23279 | 23181, 23279 | 15 kHz | QPSK | 3@3 |
| - | Occupied Bandwidth | 23181 to 23279 | 23181 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23230 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23279 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Band Edge | 23181 to 23279 | 23181 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23279 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Peak to Average Ratio | 23181 to 23279 | 23230 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| - | Conducted Emission | 23181 to 23279 | 23181, 23230, 23279 | 15 kHz | QPSK | 3@3 |
| - | Radiated Emission | 23181 to 23279 | 23181, 23230, 23279 | 15 kHz | QPSK | 3@3 |

**Note:**

1. Selection is tested with Stand-alone, In-band and Guard-band, the worst case was found in Stand-alone.
2. For radiated emission and conducted emission test, pre-tested BPSK, QPSK modulation type and found QPSK was the worst, therefore chosen for the final test.
3. The emission measurement was based on the worst maximum conducted power.

## LTE Band 17

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Sub-carrier Bandwidth | Modulation | $N_{tones}$ |
|---|---|---|---|---|---|---|
| - | ERP | 23731 to 23849 | 23731, 23790, 23849 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 3@3 |
| - | Modulation Characteristics | 23731 to 23849 | 23790 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| - | Frequency Stability | 23731 to 23849 | 23731, 23849 | 15 kHz | QPSK | 3@3 |
| - | Occupied Bandwidth | 23731 to 23849 | 23731 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23790 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23849 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Band Edge | 23731 to 23849 | 23731 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 23849 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Peak to Average Ratio | 23731 to 23849 | 23790 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| - | Conducted Emission | 23731 to 23849 | 23731, 23790, 23849 | 15 kHz | QPSK | 3@3 |
| - | Radiated Emission | 23731 to 23849 | 23731, 23790, 23849 | 15 kHz | QPSK | 3@3 |

**Note:**

1. Selection is tested with Stand-alone, In-band and Guard-band, the worst case was found in Stand-alone.
2. For radiated emission and conducted emission test, pre-tested BPSK, QPSK modulation type and found QPSK was the worst, therefore chosen for the final test.
3. The emission measurement was based on the worst maximum conducted power.

## LTE Band 66

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Sub-carrier Bandwidth | Modulation | $N_{tones}$ |
|---|---|---|---|---|---|---|
| - | EIRP | 131973 to 132671 | 131973, 132322, 132671 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 3@3 |
| - | Modulation Characteristics | 19951 to 20399 | 132322 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| - | Frequency Stability | 131973 to 132671 | 131973, 132671 | 15 kHz | QPSK | 3@3 |
| - | Occupied Bandwidth | 131973 to 132671 | 131973 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 132322 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 132671 | 3.75 kHz | BPSK | 1@47 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Peak to Average Ratio | 131973 to 132671 | 132322 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| - | Band Edge | 131973 to 132671 | 131973 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@0 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| | | | 132671 | 3.75 kHz | BPSK | 1@0 |
| | | | | 15 kHz | QPSK | 1@11 |
| | | | | | | 3@3 |
| | | | | | | 12@0 |
| - | Conducted Emission | 131973 to 132671 | 131973, 132322, 132671 | 15 kHz | QPSK | 3@3 |
| - | Radiated Emission | 131973 to 132671 | 131973, 132322, 132671 | 15 kHz | QPSK | 3@3 |

**Note:**

1. Selection is tested with Stand-alone, In-band and Guard-band, the worst case was found in Stand-alone.
2. For radiated emission and conducted emission test, pre-tested BPSK, QPSK modulation type and found QPSK was the worst, therefore chosen for the final test.
3. The emission measurement was based on the worst maximum conducted power.

**Test Condition:**

| Test Item | Environmental Conditions | Input Power | Tested By |
|---|---|---|---|
| ERP / EIRP | 25 deg. C, 65 % RH | 12 Vdc | Jisyong Wang / Thomas Wei |
| Modulation Characteristics | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Frequency Stability | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Occupied Bandwidth | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Band Edge | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Peak to Average Ratio | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Conducted Emission | 25 deg. C, 65 % RH | 12 Vdc | Getaz Yang |
| Radiated Emission | 25 deg. C, 65 % RH | 12 Vdc | 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

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

**FCC 47 CFR Part 2**
**FCC 47 CFR Part 27**
**KDB 971168 D01 Power Meas License Digital Systems v03r01**
**ANSI/TIA/EIA-603-E 2016**
**ANSI 63.26-2015**

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

# 4 Test Types and Results

## 4.1 Output Power Measurement

### 4.1.1 Limits of Output Power Measurement

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

Portable stations (hand-held devices) operating in the 746-757 MHz, 776-788 MHz and 805-806 MHz band are limited to 3 watts ERP

Portable stations (hand-held device) operating in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

### 4.1.2 Test Procedures

**EIRP / ERP Measurement:**

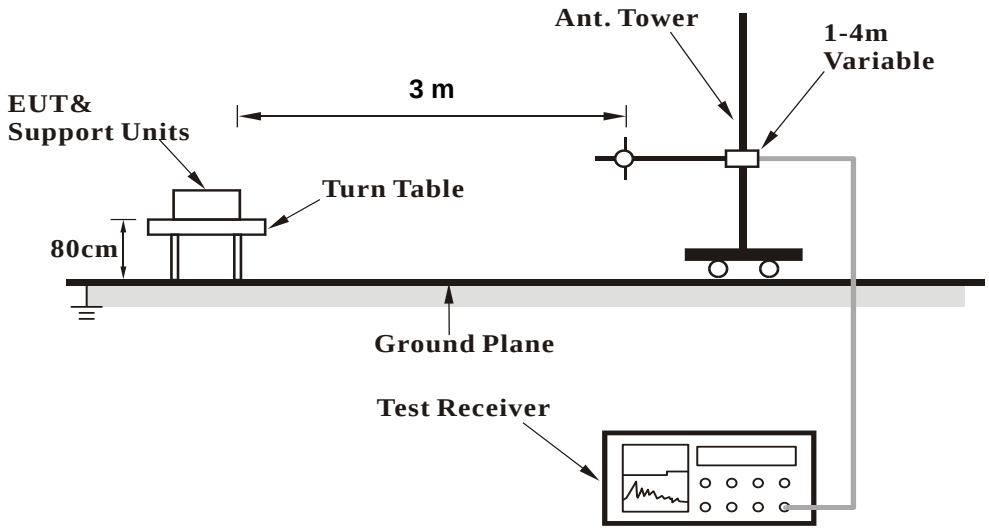
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

**Conducted Power Measurement:**

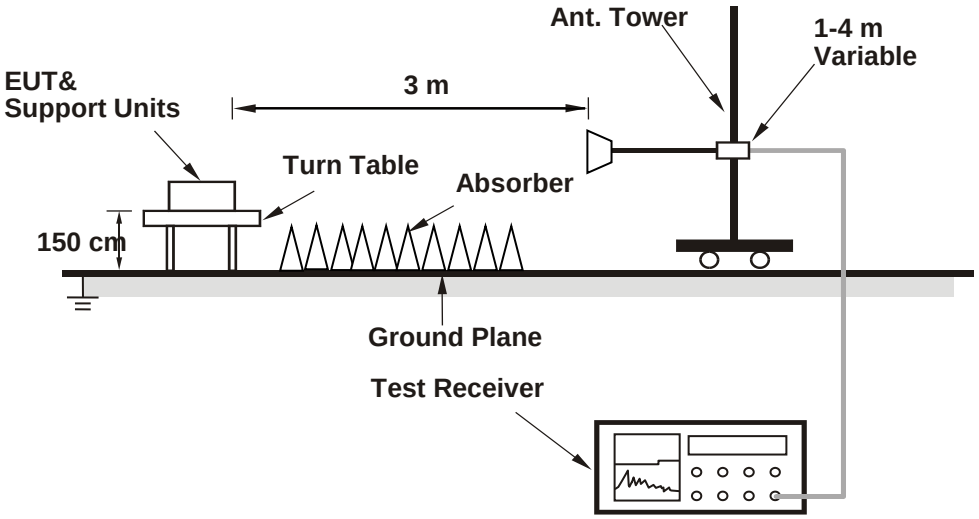
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

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




**<Radiated Emission above 1 GHz>**




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

**Conducted Power Measurement:**

4.1.4 Test Results

**Conducted Output Power (dBm)**

**Cat-M1**

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 1.4 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 19957 | 1710.7 | QPSK | 1 | 0 | 0 | -85 | 24.08 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.69 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.96 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.12 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.57 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.64 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.77 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.41 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 24.04 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.62 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.99 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.14 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.56 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.64 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.81 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.47 |
| High Range | 20393 | 1754.3 | QPSK | 1 | 0 | 0 | -85 | 23.85 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.47 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.88 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.97 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.37 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.51 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.68 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.37 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 3 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 19965 | 1711.5 | QPSK | 1 | 0 | 0 | -85 | 22.92 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.91 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.84 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.92 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.93 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.81 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.01 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.94 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.11 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.12 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.87 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.86 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.58 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 20.55 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.39 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.32 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 22.81 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.78 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.82 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.84 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.84 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.82 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.94 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.96 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 20.99 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 20.98 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 21.02 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 20.84 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.47 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 20.44 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.19 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.12 |
| High Range | 20385 | 1753.5 | QPSK | 1 | 0 | 0 | -85 | 22.59 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.58 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.68 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.71 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.61 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.77 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.76 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.89 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 20.85 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 20.87 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 20.95 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 20.99 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 20.43 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 20.75 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.3 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.31 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 19975 | 1712.5 | QPSK | 1 | 0 | 0 | -85 | 22.77 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.75 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.67 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.69 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.76 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.81 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.74 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.97 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.92 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.79 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.96 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.12 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.18 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.35 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.84 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.89 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.23 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.72 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 21.84 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.86 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.48 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 20.58 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 22.79 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.84 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.86 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.81 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.98 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.94 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.79 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.91 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.68 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.76 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.87 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.98 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.17 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.96 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.23 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.76 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 21.86 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.47 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.42 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 20.44 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| High Range | 20375 | 1752.5 | QPSK | 1 | 0 | 0 | -85 | 22.67 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.97 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.89 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.71 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.67 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.77 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.94 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.81 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.78 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.01 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.17 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.83 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.14 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.13 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.13 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.23 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.56 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 21.96 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.42 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.44 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 20.44 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 10 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 20000 | 1715 | QPSK | 1 | 0 | 0 | -85 | 22.76 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.96 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.99 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.87 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.81 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.85 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.86 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.83 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.81 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.92 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.05 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.01 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.98 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.93 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.16 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.23 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.59 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 21.68 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.96 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.89 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.83 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.86 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.78 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.87 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.88 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.94 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.92 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.97 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.43 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.06 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.04 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.97 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.17 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.1 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.56 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 21.72 |
| High Range | 20350 | 1750 | QPSK | 1 | 0 | 0 | -85 | 22.71 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.76 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.77 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.72 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.76 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.73 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.68 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.78 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.87 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.87 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.91 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.96 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.13 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 21.97 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 21.97 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 21.96 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.08 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.98 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.65 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 21.54 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 15 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 20025 | 1717.5 | QPSK | 1 | 0 | 0 | -85 | 22.96 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.91 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.93 |
| | | | QPSK | 1 | 5 | 5 | -85 | 22.92 |
| | | | QPSK | 1 | 0 | 11 | -85 | 22.92 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.93 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 3 | 3 | 11 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 0 | -85 | 23.05 |
| | | | QPSK | 6 | 0 | 11 | -85 | 22.95 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 23.04 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 23 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 22.99 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 23 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.69 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 22.9 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.56 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.84 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 22.82 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.93 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.87 |
| | | | QPSK | 1 | 5 | 5 | -85 | 22.91 |
| | | | QPSK | 1 | 0 | 11 | -85 | 22.93 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.87 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.98 |
| | | | QPSK | 3 | 3 | 11 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 6 | 0 | 11 | -85 | 22.98 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.87 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 23.02 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.97 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 22.91 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.76 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.82 |
| High Range | 20325 | 1747.5 | QPSK | 1 | 0 | 0 | -85 | 22.76 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.72 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.71 |
| | | | QPSK | 1 | 5 | 5 | -85 | 22.77 |
| | | | QPSK | 1 | 0 | 11 | -85 | 22.76 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 3 | 3 | 11 | -85 | 22.75 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.84 |
| | | | QPSK | 6 | 0 | 11 | -85 | 22.85 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 22.45 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 22.47 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 22.33 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 21.84 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.89 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 22.65 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.52 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.65 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.86 |

| LTE Band 4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 20 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 20050 | 1720 | QPSK | 1 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.84 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.96 |
| | | | QPSK | 1 | 0 | 15 | -85 | 22.85 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.88 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.86 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.97 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.89 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.87 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.93 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.9 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 23.02 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.91 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 22.93 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.78 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.88 |
| Mid. Range | 20175 | 1732.5 | QPSK | 1 | 0 | 0 | -85 | 22.97 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.88 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.86 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.74 |
| | | | QPSK | 1 | 0 | 15 | -85 | 22.71 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.74 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.99 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.76 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.89 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.96 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.93 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.97 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 22.93 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.87 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 22.94 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.68 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.75 |
| High Range | 20300 | 1745 | QPSK | 1 | 0 | 0 | -85 | 22.85 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.87 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.77 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.87 |
| | | | QPSK | 1 | 0 | 15 | -85 | 22.81 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.77 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.95 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.69 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.87 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.78 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.05 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.98 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.97 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 22.57 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 22.21 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.77 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 22.72 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.68 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.69 |

| LTE Band 12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 1.4 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23017 | 699.7 | QPSK | 1 | 0 | 0 | -85 | 24.21 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.77 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.17 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.26 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.57 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.82 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.11 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.1 |
| Mid. Range | 23095 | 707.5 | QPSK | 1 | 0 | 0 | -85 | 23.91 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.77 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.16 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.25 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.57 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.81 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.06 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.09 |
| High Range | 23173 | 715.3 | QPSK | 1 | 0 | 0 | -85 | 24.13 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.67 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.06 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.13 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.49 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.72 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.99 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.87 |

| LTE Band 12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 3 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23025 | 700.5 | QPSK | 1 | 0 | 0 | -85 | 23.65 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.82 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.77 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.81 |
| | | | QPSK | 3 | 3 | 0 | -85 | 23.51 |
| | | | QPSK | 3 | 3 | 1 | -85 | 23.61 |
| | | | QPSK | 6 | 0 | 0 | -85 | 23.52 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.64 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.76 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.88 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.67 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.84 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 21.81 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.43 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.44 |
| Mid. Range | 23095 | 707.5 | QPSK | 1 | 0 | 0 | -85 | 23.67 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.66 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.81 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.79 |
| | | | QPSK | 3 | 3 | 0 | -85 | 23.49 |
| | | | QPSK | 3 | 3 | 1 | -85 | 23.52 |
| | | | QPSK | 6 | 0 | 0 | -85 | 23.24 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.96 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.56 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.66 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.57 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.78 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.79 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 21.8 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.53 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.44 |
| High Range | 23165 | 714.5 | QPSK | 1 | 0 | 0 | -85 | 23.79 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.83 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.85 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.72 |
| | | | QPSK | 3 | 3 | 0 | -85 | 23.56 |
| | | | QPSK | 3 | 3 | 1 | -85 | 23.61 |
| | | | QPSK | 6 | 0 | 0 | -85 | 23.26 |
| | | | QPSK | 6 | 0 | 1 | -85 | 23.31 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.88 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.78 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.68 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.74 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.81 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 21.67 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.54 |
| | | | 16QAM | 6 | 0 | 1 | -85 | 21.63 |

| LTE Band 12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23035 | 701.5 | QPSK | 1 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.95 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.95 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.89 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.86 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.91 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.01 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.93 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.99 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.02 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.98 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.17 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.91 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.94 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.98 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.94 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.04 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.02 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.02 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 22.03 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 22.01 |
| Mid. Range | 23095 | 707.5 | QPSK | 1 | 0 | 0 | -85 | 22.89 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.77 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.98 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.94 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.97 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.9 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.95 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.89 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.92 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.89 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.76 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.97 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.91 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.94 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.88 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.88 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.79 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.96 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 21.87 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.98 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.76 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.79 |

| LTE Band 12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| High Range | 23155 | 713.5 | QPSK | 1 | 0 | 0 | -85 | 22.98 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.98 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.96 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.93 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.94 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.89 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.94 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.99 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.87 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.85 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.84 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.96 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.97 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.87 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.89 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.94 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 21.85 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.67 |
| | | | 16QAM | 6 | 0 | 1 | -85 | 21.74 |
| | | | 16QAM | 6 | 0 | 3 | -85 | 21.59 |

| LTE Band 12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 10 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23060 | 704 | QPSK | 1 | 0 | 0 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.04 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.03 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.01 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.05 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.89 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.76 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.91 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.96 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.04 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.98 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 23.02 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 23.01 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.97 |
| | | | 16QAM | 6 | 0 | 7 | -85 | 21.88 |
| Mid. Range | 23095 | 707.5 | QPSK | 1 | 0 | 0 | -85 | 23.07 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.04 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.01 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.05 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.99 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.98 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.01 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.88 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.78 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.99 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.94 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.91 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.01 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.95 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 23.02 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.96 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 21.67 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.87 |
| | | | 16QAM | 6 | 0 | 7 | -85 | 21.89 |
| High Range | 23130 | 711 | QPSK | 1 | 0 | 0 | -85 | 23.12 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.11 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.05 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.07 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.09 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.98 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.95 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.97 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.87 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.99 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.04 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.12 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.09 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.98 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.95 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.94 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.94 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.99 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.87 |
| | | | 16QAM | 6 | 0 | 7 | -85 | 21.78 |

| LTE Band 13 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23205 | 779.5 | QPSK | 1 | 0 | 0 | -85 | 23.21 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.24 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.42 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.38 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.41 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.38 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.52 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.54 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.57 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.59 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.78 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.59 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.56 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.58 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.58 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.77 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.73 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.34 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.46 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.94 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.17 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.18 |
| Mid. Range | 23230 | 782 | QPSK | 1 | 0 | 0 | -85 | 23.32 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.36 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.39 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.33 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.49 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.67 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.64 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.63 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.62 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.67 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.88 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.75 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.61 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.71 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.69 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.83 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.83 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.22 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.45 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.97 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.05 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.27 |

| LTE Band 13 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| High Range | 23255 | 784.5 | QPSK | 1 | 0 | 0 | -85 | 23.41 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.42 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.47 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.49 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.66 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.54 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.79 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.6 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.78 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.77 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.77 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.77 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.83 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.76 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.94 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.88 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.43 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.59 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.15 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.22 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.48 |

| LTE Band 13 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 10 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Mid. Range | 23230 | 782 | QPSK | 1 | 0 | 0 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.17 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.24 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.27 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.24 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.15 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.17 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.55 |
| | | | QPSK | 6 | 0 | 7 | -85 | 22.84 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.49 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.19 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.12 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.77 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.89 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.15 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.81 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.02 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 22.78 |

| LTE Band 17 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23755 | 706.5 | QPSK | 1 | 0 | 0 | -85 | 23.62 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.71 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.61 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.69 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.79 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.71 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.94 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.82 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.98 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.96 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.97 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.56 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.61 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.34 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.31 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.37 |
| Mid. Range | 23790 | 710 | QPSK | 1 | 0 | 0 | -85 | 23.67 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.68 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.45 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.64 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.71 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.66 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.98 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.82 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.93 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.91 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.94 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.89 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.94 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.99 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.59 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.56 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.31 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.34 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.29 |

| LTE Band 17 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| High Range | 23825 | 713.5 | QPSK | 1 | 0 | 0 | -85 | 23.61 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.67 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.76 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.68 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.64 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.61 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.92 |
| | | | QPSK | 3 | 3 | 3 | -85 | 22.79 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.97 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.97 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.98 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 23.04 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.97 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.94 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.96 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.56 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.97 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.33 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.34 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.45 |

| LTE Band 17 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 10 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 23780 | 709 | QPSK | 1 | 0 | 0 | -85 | 23.73 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.42 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.68 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.73 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.41 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.39 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.71 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.52 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 6 | 0 | 7 | -85 | 22.85 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.34 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.12 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.44 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.26 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.16 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.98 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 23.12 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 23.02 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.71 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 22.52 |
| Mid. Range | 23790 | 710 | QPSK | 1 | 0 | 0 | -85 | 23.71 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.44 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.64 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.18 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.44 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.34 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.67 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.69 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 6 | 0 | 7 | -85 | 22.88 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.38 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.41 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.25 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.22 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 23.46 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 22.69 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.82 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.72 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 22.91 |
| High Range | 23800 | 711 | QPSK | 1 | 0 | 0 | -85 | 23.42 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.59 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.57 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.57 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.61 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.32 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.64 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.67 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.87 |
| | | | QPSK | 6 | 0 | 7 | -85 | 22.75 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.07 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.16 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.12 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.27 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 23.36 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 23.01 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 22.97 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.76 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 22.75 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 1.4 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 131979 | 1710.7 | QPSK | 1 | 0 | 0 | -85 | 23.58 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.53 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.31 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.18 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.99 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.02 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.69 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.16 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 23.63 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.54 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.43 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.24 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.42 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.37 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.36 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.37 |
| High Range | 132665 | 1779.3 | QPSK | 1 | 0 | 0 | -85 | 23.17 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.19 |
| | | | QPSK | 3 | 3 | 0 | -85 | 22.02 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.66 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.71 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.88 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.32 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.97 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 3 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 131987 | 1711.5 | QPSK | 1 | 0 | 0 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.97 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.12 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.94 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.99 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.86 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.83 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.81 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.02 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.12 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 22.02 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 22.11 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.67 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 21.39 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.76 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.82 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 23.12 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.02 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.32 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.33 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.99 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.97 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.91 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.83 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.05 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 23.14 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 23.03 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.18 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 22.08 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.97 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 22.12 |
| High Range | 132657 | 1778.5 | QPSK | 1 | 0 | 0 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.95 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.94 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.89 |
| | | | QPSK | 3 | 3 | 0 | -85 | 21.58 |
| | | | QPSK | 3 | 3 | 1 | -85 | 21.54 |
| | | | QPSK | 6 | 0 | 0 | -85 | 20.59 |
| | | | QPSK | 6 | 0 | 1 | -85 | 20.43 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 21.77 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 21.78 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 21.76 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 21.33 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 21.26 |
| | | | 16QAM | 3 | 3 | 1 | -85 | 21.56 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.58 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.44 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 131997 | 1712.5 | QPSK | 1 | 0 | 0 | -85 | 22.97 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.91 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.94 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.89 |
| | | | QPSK | 1 | 0 | 3 | -85 | 21.89 |
| | | | QPSK | 1 | 5 | 3 | -85 | 21.88 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.77 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.92 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.84 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.65 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.55 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.17 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.06 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 23.02 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 23.01 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.14 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.12 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.72 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.87 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 21.11 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 21.32 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 21.23 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 23.07 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 0 | 1 | -85 | 23.13 |
| | | | QPSK | 1 | 5 | 1 | -85 | 23.09 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.13 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.01 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.37 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.97 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.83 |
| | | | QPSK | 6 | 0 | 1 | -85 | 22.17 |
| | | | QPSK | 6 | 0 | 3 | -85 | 22.25 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.16 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.14 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 23.21 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 23.04 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.12 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.12 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.03 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.02 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.07 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 22.14 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 22.14 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 5 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| High Range | 132647 | 1777.5 | QPSK | 1 | 0 | 0 | -85 | 22.93 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.69 |
| | | | QPSK | 1 | 0 | 1 | -85 | 22.73 |
| | | | QPSK | 1 | 5 | 1 | -85 | 22.78 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.67 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.88 |
| | | | QPSK | 3 | 0 | 0 | -85 | 21.84 |
| | | | QPSK | 3 | 3 | 3 | -85 | 21.78 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.79 |
| | | | QPSK | 6 | 0 | 1 | -85 | 21.62 |
| | | | QPSK | 6 | 0 | 3 | -85 | 21.68 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.56 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 1 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 1 | -85 | 23.07 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.99 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.91 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.24 |
| | | | 16QAM | 3 | 3 | 3 | -85 | 22.21 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 20.72 |
| | | | 16QAM | 5 | 0 | 1 | -85 | 20.66 |
| | | | 16QAM | 5 | 0 | 3 | -85 | 20.73 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 10 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 132022 | 1715 | QPSK | 1 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.94 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.98 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.04 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.95 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.96 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.04 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.95 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.18 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.99 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.94 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.93 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 21.95 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 21.89 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.82 |
| | | | 16QAM | 6 | 0 | 7 | -85 | 21.8 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.96 |
| | | | QPSK | 1 | 0 | 3 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 3 | -85 | 23.04 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.01 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.04 |
| | | | QPSK | 4 | 0 | 0 | -85 | 23.15 |
| | | | QPSK | 4 | 2 | 7 | -85 | 23.02 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.91 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.93 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.12 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.22 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 23.32 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 23.06 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.04 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 23.01 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 23.01 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 23.14 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.11 |
| | | | 16QAM | 5 | 0 | 7 | -85 | 22.03 |
| High Range | 132622 | 1775 | QPSK | 1 | 0 | 0 | -85 | 22.67 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.65 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.72 |
| | | | QPSK | 1 | 0 | 3 | -85 | 22.7 |
| | | | QPSK | 1 | 5 | 3 | -85 | 22.68 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.71 |
| | | | QPSK | 4 | 0 | 0 | -85 | 22.98 |
| | | | QPSK | 4 | 2 | 7 | -85 | 22.88 |
| | | | QPSK | 6 | 0 | 0 | -85 | 21.23 |
| | | | QPSK | 6 | 0 | 7 | -85 | 21.18 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.75 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.88 |
| | | | 16QAM | 1 | 0 | 3 | -85 | 22.67 |
| | | | 16QAM | 1 | 5 | 3 | -85 | 22.75 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.81 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.69 |
| | | | 16QAM | 4 | 2 | 0 | -85 | 21.02 |
| | | | 16QAM | 4 | 2 | 7 | -85 | 21.33 |
| | | | 16QAM | 6 | 0 | 0 | -85 | 21.14 |
| | | | 16QAM | 6 | 0 | 7 | -85 | 20.87 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 15 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 132047 | 1717.5 | QPSK | 1 | 0 | 0 | -85 | 22.96 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.03 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.97 |
| | | | QPSK | 1 | 5 | 5 | -85 | 23.04 |
| | | | QPSK | 1 | 0 | 11 | -85 | 23.11 |
| | | | QPSK | 1 | 5 | 11 | -85 | 23.05 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.13 |
| | | | QPSK | 3 | 3 | 11 | -85 | 22.88 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.77 |
| | | | QPSK | 6 | 0 | 11 | -85 | 22.54 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.44 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.17 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 22.39 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 22.56 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 22.53 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 22.47 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 23.44 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 22.61 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.97 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.45 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 23.14 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.1 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.93 |
| | | | QPSK | 1 | 5 | 5 | -85 | 22.92 |
| | | | QPSK | 1 | 0 | 11 | -85 | 22.93 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.91 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.13 |
| | | | QPSK | 3 | 3 | 11 | -85 | 22.94 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.87 |
| | | | QPSK | 6 | 0 | 11 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.23 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.19 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 23.02 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 23.16 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 23.12 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 23.04 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 23.11 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 23.12 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 22.67 |
| High Range | 132597 | 1772.5 | QPSK | 1 | 0 | 0 | -85 | 22.78 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.89 |
| | | | QPSK | 1 | 0 | 5 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 5 | -85 | 22.93 |
| | | | QPSK | 1 | 0 | 11 | -85 | 22.87 |
| | | | QPSK | 1 | 5 | 11 | -85 | 22.95 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.04 |
| | | | QPSK | 3 | 3 | 11 | -85 | 23.01 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.84 |
| | | | QPSK | 6 | 0 | 11 | -85 | 21.87 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.96 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.96 |
| | | | 16QAM | 1 | 0 | 5 | -85 | 22.95 |
| | | | 16QAM | 1 | 5 | 5 | -85 | 22.91 |
| | | | 16QAM | 1 | 0 | 11 | -85 | 22.89 |
| | | | 16QAM | 1 | 5 | 11 | -85 | 22.76 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 23.01 |
| | | | 16QAM | 3 | 3 | 11 | -85 | 23.03 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.84 |
| | | | 16QAM | 5 | 0 | 11 | -85 | 21.56 |

| LTE Band 66 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BW (MHz): 20 | | | | | | | | |
| Test Frequency ID | $N_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | | EUT | |
| | | | Modulation | RB Size | RB Offset | Narrowband Index | Cell Power (dBm/15 kHz) | Power (dBm) |
| Low Range | 132072 | 1720 | QPSK | 1 | 0 | 0 | -85 | 23.11 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.02 |
| | | | QPSK | 1 | 0 | 7 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 7 | -85 | 23.01 |
| | | | QPSK | 1 | 0 | 15 | -85 | 23.02 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.99 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.14 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.66 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.76 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.95 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.67 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.87 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 23.01 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.87 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 22.84 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 22.76 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 23.09 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 23.23 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 23.07 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.95 |
| Mid. Range | 132322 | 1745 | QPSK | 1 | 0 | 0 | -85 | 22.97 |
| | | | QPSK | 1 | 5 | 0 | -85 | 23.21 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.95 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.97 |
| | | | QPSK | 1 | 0 | 15 | -85 | 22.91 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.91 |
| | | | QPSK | 3 | 0 | 0 | -85 | 23.19 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.82 |
| | | | QPSK | 6 | 0 | 0 | -85 | 23.01 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.78 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 23.03 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 23.12 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.87 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 22.93 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 23.13 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 23.12 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 22.87 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 22.94 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.84 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.88 |
| High Range | 132572 | 1770 | QPSK | 1 | 0 | 0 | -85 | 22.86 |
| | | | QPSK | 1 | 5 | 0 | -85 | 22.79 |
| | | | QPSK | 1 | 0 | 7 | -85 | 22.84 |
| | | | QPSK | 1 | 5 | 7 | -85 | 22.87 |
| | | | QPSK | 1 | 0 | 15 | -85 | 22.79 |
| | | | QPSK | 1 | 5 | 15 | -85 | 22.81 |
| | | | QPSK | 3 | 0 | 0 | -85 | 22.87 |
| | | | QPSK | 3 | 3 | 15 | -85 | 22.75 |
| | | | QPSK | 6 | 0 | 0 | -85 | 22.72 |
| | | | QPSK | 6 | 0 | 15 | -85 | 22.65 |
| | | | 16QAM | 1 | 0 | 0 | -85 | 22.81 |
| | | | 16QAM | 1 | 5 | 0 | -85 | 22.88 |
| | | | 16QAM | 1 | 0 | 7 | -85 | 22.91 |
| | | | 16QAM | 1 | 5 | 7 | -85 | 23.02 |
| | | | 16QAM | 1 | 0 | 15 | -85 | 22.98 |
| | | | 16QAM | 1 | 5 | 15 | -85 | 22.99 |
| | | | 16QAM | 3 | 0 | 0 | -85 | 23.05 |
| | | | 16QAM | 3 | 3 | 15 | -85 | 23.01 |
| | | | 16QAM | 5 | 0 | 0 | -85 | 22.67 |
| | | | 16QAM | 5 | 0 | 15 | -85 | 22.5 |

## NB-IoT

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Stand-alone** | | | | | | | |
| **$N_{UL}$** | **$M_{UL}$** | **Frequency of Uplink (MHz)** | **Test Configuration Initial of Power** | | | **EUT** | |
| | | | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **Cell Power (dBm/15 kHz)** | **Power (dBm)** |
| 19951 | 0 | 1710.1 | BPSK | 1@0 | 3.75 | -110 | 20.62 |
| | | | QPSK | 1@0 | 15 | -110 | 21.14 |
| | | | QPSK | 3@3 | 15 | -110 | 21.23 |
| | | | QPSK | 12@0 | 15 | -110 | 20.33 |
| 20175 | 0 | 1732.5 | BPSK | 1@0 | 3.75 | -110 | 22.84 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.83 |
| | | | QPSK | 1@0 | 15 | -110 | 22.96 |
| | | | QPSK | 1@11 | 15 | -110 | 22.89 |
| | | | QPSK | 3@3 | 15 | -110 | 23.13 |
| | | | QPSK | 12@0 | 15 | -110 | 22.79 |
| 20399 | 0 | 1754.9 | BPSK | 1@47 | 3.75 | -110 | 21.25 |
| | | | QPSK | 1@11 | 15 | -110 | 21.21 |
| | | | QPSK | 3@3 | 15 | -110 | 21.33 |
| | | | QPSK | 12@0 | 15 | -110 | 20.31 |

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **In-Band** | **BW (MHz): 3** | | | | | | |
| **$N_{UL}$** | **$M_{UL}$** | **Frequency of Uplink (MHz)** | **Test Configuration Initial of Power** | | | **EUT** | |
| | | | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **Cell Power (dBm/15 kHz)** | **Power (dBm)** |
| 19956 | 0 | 1710.6 | BPSK | 1@0 | 3.75 | -110 | 22.86 |
| | | | QPSK | 1@0 | 15 | -110 | 23.01 |
| | | | QPSK | 3@3 | 15 | -110 | 23.11 |
| | | | QPSK | 12@0 | 15 | -110 | 22.71 |
| 20166 | 0 | 1731.6 | BPSK | 1@0 | 3.75 | -110 | 22.92 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.87 |
| | | | QPSK | 1@0 | 15 | -110 | 23.01 |
| | | | QPSK | 1@11 | 15 | -110 | 22.89 |
| | | | QPSK | 3@3 | 15 | -110 | 23.02 |
| | | | QPSK | 12@0 | 15 | -110 | 22.99 |
| 20394 | 0 | 1754.4 | BPSK | 1@47 | 3.75 | -110 | 22.66 |
| | | | QPSK | 1@11 | 15 | -110 | 22.79 |
| | | | QPSK | 3@3 | 15 | -110 | 22.88 |
| | | | QPSK | 12@0 | 15 | -110 | 22.74 |

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **In-Band** | **BW (MHz): 10** | **NB-IoT PRB: 30** | | | | | |
| **$N_{UL}$** | **$M_{UL}$** | **Frequency of Uplink (MHz)** | **Test Configuration Initial of Power** | | | **EUT** | |
| | | | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **Cell Power (dBm/15 kHz)** | **Power (dBm)** |
| 20010 | -2 | 1715.99 | BPSK | 1@0 | 3.75 | -110 | 22.91 |
| | | | QPSK | 1@0 | 15 | -110 | 22.99 |
| | | | QPSK | 3@3 | 15 | -110 | 23.05 |
| | | | QPSK | 12@0 | 15 | -110 | 23 |
| 20185 | -2 | 1733.49 | BPSK | 1@0 | 3.75 | -110 | 22.83 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.93 |
| | | | QPSK | 1@0 | 15 | -110 | 22.86 |
| | | | QPSK | 1@11 | 15 | -110 | 22.97 |
| | | | QPSK | 3@3 | 15 | -110 | 23.12 |
| | | | QPSK | 12@0 | 15 | -110 | 22.89 |
| 20360 | -2 | 1750.99 | BPSK | 1@47 | 3.75 | -110 | 22.65 |
| | | | QPSK | 1@11 | 15 | -110 | 22.79 |
| | | | QPSK | 3@3 | 15 | -110 | 22.85 |
| | | | QPSK | 12@0 | 15 | -110 | 22.74 |

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 35 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 20019 | -2 | 1716.89 | BPSK | 1@0 | 3.75 | -110 | 22.88 |
| | | | QPSK | 1@0 | 15 | -110 | 22.67 |
| | | | QPSK | 3@3 | 15 | -110 | 23.04 |
| | | | QPSK | 12@0 | 15 | -110 | 22.85 |
| 20194 | -2 | 1734.39 | BPSK | 1@0 | 3.75 | -110 | 22.88 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.82 |
| | | | QPSK | 1@0 | 15 | -110 | 22.94 |
| | | | QPSK | 1@11 | 15 | -110 | 22.95 |
| | | | QPSK | 3@3 | 15 | -110 | 23.01 |
| | | | QPSK | 12@0 | 15 | -110 | 22.99 |
| 20369 | -2 | 1751.89 | BPSK | 1@47 | 3.75 | -110 | 22.79 |
| | | | QPSK | 1@11 | 15 | -110 | 22.84 |
| | | | QPSK | 3@3 | 15 | -110 | 22.91 |
| | | | QPSK | 12@0 | 15 | -110 | 22.89 |

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Guard-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 19951 | 0 | 1710.1 | BPSK | 1@0 | 3.75 | -110 | 22.85 |
| | | | QPSK | 1@0 | 15 | -110 | 22.97 |
| | | | QPSK | 3@3 | 15 | -110 | 23.12 |
| | | | QPSK | 12@0 | 15 | -110 | 22.86 |
| 20151 | 0 | 1730.1 | BPSK | 1@0 | 3.75 | -110 | 22.95 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.92 |
| | | | QPSK | 1@0 | 15 | -110 | 23.03 |
| | | | QPSK | 1@11 | 15 | -110 | 22.99 |
| | | | QPSK | 3@3 | 15 | -110 | 23.1 |
| | | | QPSK | 12@0 | 15 | -110 | 22.99 |
| 20399 | 0 | 1754.9 | BPSK | 1@47 | 3.75 | -110 | 22.64 |
| | | | QPSK | 1@11 | 15 | -110 | 22.75 |
| | | | QPSK | 3@3 | 15 | -110 | 22.89 |
| | | | QPSK | 12@0 | 15 | -110 | 22.83 |

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stand-alone | | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23011 | 0 | 699.1 | BPSK | 1@0 | 3.75 | -110 | 22.93 |
| | | | QPSK | 1@0 | 15 | -110 | 22.95 |
| | | | QPSK | 3@3 | 15 | -110 | 22.96 |
| | | | QPSK | 12@0 | 15 | -110 | 21.62 |
| 23095 | 0 | 707.5 | BPSK | 1@0 | 3.75 | -110 | 24.26 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.35 |
| | | | QPSK | 1@0 | 15 | -110 | 24.36 |
| | | | QPSK | 1@11 | 15 | -110 | 24.29 |
| | | | QPSK | 3@3 | 15 | -110 | 24.51 |
| | | | QPSK | 12@0 | 15 | -110 | 24.19 |
| 23179 | 0 | 715.9 | BPSK | 1@47 | 3.75 | -110 | 22.84 |
| | | | QPSK | 1@11 | 15 | -110 | 22.9 |
| | | | QPSK | 3@3 | 15 | -110 | 22.91 |
| | | | QPSK | 12@0 | 15 | -110 | 21.67 |

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 3 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23016 | 0 | 699.6 | BPSK | 1@0 | 3.75 | -110 | 24.31 |
| | | | QPSK | 1@0 | 15 | -110 | 24.45 |
| | | | QPSK | 3@3 | 15 | -110 | 24.37 |
| | | | QPSK | 12@0 | 15 | -110 | 24.23 |
| 23086 | 0 | 706.6 | BPSK | 1@0 | 3.75 | -110 | 24.28 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.33 |
| | | | QPSK | 1@0 | 15 | -110 | 24.33 |
| | | | QPSK | 1@11 | 15 | -110 | 24.31 |
| | | | QPSK | 3@3 | 15 | -110 | 24.5 |
| | | | QPSK | 12@0 | 15 | -110 | 24.17 |
| 23174 | 0 | 715.4 | BPSK | 1@47 | 3.75 | -110 | 24.12 |
| | | | QPSK | 1@11 | 15 | -110 | 24.26 |
| | | | QPSK | 3@3 | 15 | -110 | 24.32 |
| | | | QPSK | 12@0 | 15 | -110 | 24.11 |

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 30 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23070 | -2 | 704.99 | BPSK | 1@0 | 3.75 | -110 | 24.26 |
| | | | QPSK | 1@0 | 15 | -110 | 24.08 |
| | | | QPSK | 3@3 | 15 | -110 | 24.42 |
| | | | QPSK | 12@0 | 15 | -110 | 24.04 |
| 23105 | -2 | 708.49 | BPSK | 1@0 | 3.75 | -110 | 24.29 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.28 |
| | | | QPSK | 1@0 | 15 | -110 | 24.03 |
| | | | QPSK | 1@11 | 15 | -110 | 24.39 |
| | | | QPSK | 3@3 | 15 | -110 | 24.49 |
| | | | QPSK | 12@0 | 15 | -110 | 24.13 |
| 23140 | -2 | 711.99 | BPSK | 1@47 | 3.75 | -110 | 24.23 |
| | | | QPSK | 1@11 | 15 | -110 | 24.32 |
| | | | QPSK | 3@3 | 15 | -110 | 24.41 |
| | | | QPSK | 12@0 | 15 | -110 | 24.16 |

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 35 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23079 | -2 | 705.89 | BPSK | 1@0 | 3.75 | -110 | 24.36 |
| | | | QPSK | 1@0 | 15 | -110 | 24.11 |
| | | | QPSK | 3@3 | 15 | -110 | 24.41 |
| | | | QPSK | 12@0 | 15 | -110 | 24.16 |
| 23114 | -2 | 709.39 | BPSK | 1@0 | 3.75 | -110 | 24.27 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.22 |
| | | | QPSK | 1@0 | 15 | -110 | 24.11 |
| | | | QPSK | 1@11 | 15 | -110 | 24.28 |
| | | | QPSK | 3@3 | 15 | -110 | 24.45 |
| | | | QPSK | 12@0 | 15 | -110 | 24.28 |
| 23149 | -2 | 712.89 | BPSK | 1@47 | 3.75 | -110 | 24.29 |
| | | | QPSK | 1@11 | 15 | -110 | 24.31 |
| | | | QPSK | 3@3 | 15 | -110 | 24.37 |
| | | | QPSK | 12@0 | 15 | -110 | 24.1 |

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Guard-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23011 | 0 | 699.1 | BPSK | 1@0 | 3.75 | -110 | 24.16 |
| | | | QPSK | 1@0 | 15 | -110 | 24.37 |
| | | | QPSK | 3@3 | 15 | -110 | 24.45 |
| | | | QPSK | 12@0 | 15 | -110 | 24.42 |
| 23071 | 0 | 705.1 | BPSK | 1@0 | 3.75 | -110 | 24.22 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.23 |
| | | | QPSK | 1@0 | 15 | -110 | 24.32 |
| | | | QPSK | 1@11 | 15 | -110 | 24.29 |
| | | | QPSK | 3@3 | 15 | -110 | 24.44 |
| | | | QPSK | 12@0 | 15 | -110 | 24.36 |
| 23179 | 0 | 715.9 | BPSK | 1@47 | 3.75 | -110 | 24.19 |
| | | | QPSK | 1@11 | 15 | -110 | 24.32 |
| | | | QPSK | 3@3 | 15 | -110 | 24.41 |
| | | | QPSK | 12@0 | 15 | -110 | 24.3 |

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stand-alone | | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23181 | 0 | 777.1 | BPSK | 1@0 | 3.75 | -110 | 22.24 |
| | | | QPSK | 1@0 | 15 | -110 | 22.31 |
| | | | QPSK | 3@3 | 15 | -110 | 22.33 |
| | | | QPSK | 12@0 | 15 | -110 | 21.1 |
| 23230 | 0 | 782 | BPSK | 1@0 | 3.75 | -110 | 23.45 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.44 |
| | | | QPSK | 1@0 | 15 | -110 | 23.5 |
| | | | QPSK | 1@11 | 15 | -110 | 23.49 |
| | | | QPSK | 3@3 | 15 | -110 | 23.49 |
| | | | QPSK | 12@0 | 15 | -110 | 23.53 |
| 23279 | 0 | 786.9 | BPSK | 1@47 | 3.75 | -110 | 22.31 |
| | | | QPSK | 1@11 | 15 | -110 | 22.32 |
| | | | QPSK | 3@3 | 15 | -110 | 22.34 |
| | | | QPSK | 12@0 | 15 | -110 | 21.04 |

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23187 | 0 | 777.7 | BPSK | 1@0 | 3.75 | -110 | 23.45 |
| | | | QPSK | 1@0 | 15 | -110 | 23.48 |
| | | | QPSK | 3@3 | 15 | -110 | 23.52 |
| | | | QPSK | 12@0 | 15 | -110 | 23.41 |
| 23221 | 0 | 781.1 | BPSK | 1@0 | 3.75 | -110 | 23.56 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.42 |
| | | | QPSK | 1@0 | 15 | -110 | 23.47 |
| | | | QPSK | 1@11 | 15 | -110 | 23.43 |
| | | | QPSK | 3@3 | 15 | -110 | 23.65 |
| | | | QPSK | 12@0 | 15 | -110 | 23.49 |
| 23273 | 0 | 786.3 | BPSK | 1@47 | 3.75 | -110 | 23.67 |
| | | | QPSK | 1@11 | 15 | -110 | 23.56 |
| | | | QPSK | 3@3 | 15 | -110 | 23.64 |
| | | | QPSK | 12@0 | 15 | -110 | 23.56 |

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 30 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23240 | -2 | 782.99 | BPSK | 1@0 | 3.75 | -110 | 23.51 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.65 |
| | | | QPSK | 1@0 | 15 | -110 | 23.52 |
| | | | QPSK | 1@11 | 15 | -110 | 23.64 |
| | | | QPSK | 3@3 | 15 | -110 | 23.41 |
| | | | QPSK | 12@0 | 15 | -110 | 23.64 |

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 35 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23249 | -2 | 783.89 | BPSK | 1@0 | 3.75 | -110 | 23.6 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.52 |
| | | | QPSK | 1@0 | 15 | -110 | 23.45 |
| | | | QPSK | 1@11 | 15 | -110 | 23.53 |
| | | | QPSK | 3@3 | 15 | -110 | 23.71 |
| | | | QPSK | 12@0 | 15 | -110 | 23.62 |

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Guard-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23181 | 0 | 777.1 | BPSK | 1@0 | 3.75 | -110 | 23.49 |
| | | | QPSK | 1@0 | 15 | -110 | 23.65 |
| | | | QPSK | 3@3 | 15 | -110 | 23.49 |
| | | | QPSK | 12@0 | 15 | -110 | 23.61 |
| 23206 | 0 | 779.6 | BPSK | 1@0 | 3.75 | -110 | 23.33 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.47 |
| | | | QPSK | 1@0 | 15 | -110 | 23.36 |
| | | | QPSK | 1@11 | 15 | -110 | 23.37 |
| | | | QPSK | 3@3 | 15 | -110 | 23.42 |
| | | | QPSK | 12@0 | 15 | -110 | 23.38 |
| 23279 | 0 | 786.9 | BPSK | 1@47 | 3.75 | -110 | 23.71 |
| | | | QPSK | 1@11 | 15 | -110 | 23.62 |
| | | | QPSK | 3@3 | 15 | -110 | 23.42 |
| | | | QPSK | 12@0 | 15 | -110 | 23.49 |

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stand-alone | | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23731 | 0 | 704.1 | BPSK | 1@0 | 3.75 | -110 | 22.23 |
| | | | QPSK | 1@0 | 15 | -110 | 22.46 |
| | | | QPSK | 3@3 | 15 | -110 | 22.34 |
| | | | QPSK | 12@0 | 15 | -110 | 21.62 |
| 23790 | 0 | 710 | BPSK | 1@0 | 3.75 | -110 | 24.21 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.3 |
| | | | QPSK | 1@0 | 15 | -110 | 24.27 |
| | | | QPSK | 1@11 | 15 | -110 | 24.18 |
| | | | QPSK | 3@3 | 15 | -110 | 24.38 |
| | | | QPSK | 12@0 | 15 | -110 | 24.22 |
| 23849 | 0 | 715.9 | BPSK | 1@47 | 3.75 | -110 | 22.34 |
| | | | QPSK | 1@11 | 15 | -110 | 22.4 |
| | | | QPSK | 3@3 | 15 | -110 | 22.39 |
| | | | QPSK | 12@0 | 15 | -110 | 21.67 |

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23737 | 0 | 704.7 | BPSK | 1@0 | 3.75 | -110 | 24.3 |
| | | | QPSK | 1@0 | 15 | -110 | 24.22 |
| | | | QPSK | 3@3 | 15 | -110 | 24.27 |
| | | | QPSK | 12@0 | 15 | -110 | 24.23 |
| 23781 | 0 | 709.1 | BPSK | 1@0 | 3.75 | -110 | 24.28 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.29 |
| | | | QPSK | 1@0 | 15 | -110 | 24.3 |
| | | | QPSK | 1@11 | 15 | -110 | 24.31 |
| | | | QPSK | 3@3 | 15 | -110 | 24.35 |
| | | | QPSK | 12@0 | 15 | -110 | 24.07 |
| 23843 | 0 | 715.3 | BPSK | 1@47 | 3.75 | -110 | 24.02 |
| | | | QPSK | 1@11 | 15 | -110 | 24.16 |
| | | | QPSK | 3@3 | 15 | -110 | 24.26 |
| | | | QPSK | 12@0 | 15 | -110 | 24.18 |

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 5 | NB-IoT PRB: 30 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23790 | -2 | 709.99 | BPSK | 1@0 | 3.75 | -110 | 24.26 |
| | | | QPSK | 1@0 | 15 | -110 | 24.08 |
| | | | QPSK | 3@3 | 15 | -110 | 24.26 |
| | | | QPSK | 12@0 | 15 | -110 | 24.04 |
| 23800 | -2 | 710.99 | BPSK | 1@0 | 3.75 | -110 | 24.29 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.28 |
| | | | QPSK | 1@0 | 15 | -110 | 24.03 |
| | | | QPSK | 1@11 | 15 | -110 | 24.33 |
| | | | QPSK | 3@3 | 15 | -110 | 24.31 |
| | | | QPSK | 12@0 | 15 | -110 | 24.13 |
| 23810 | -2 | 711.99 | BPSK | 1@47 | 3.75 | -110 | 24.23 |
| | | | QPSK | 1@11 | 15 | -110 | 24.24 |
| | | | QPSK | 3@3 | 15 | -110 | 24.11 |
| | | | QPSK | 12@0 | 15 | -110 | 24.16 |

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 35 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23799 | -2 | 710.89 | BPSK | 1@0 | 3.75 | -110 | 24.16 |
| | | | QPSK | 1@0 | 15 | -110 | 24.11 |
| | | | QPSK | 3@3 | 15 | -110 | 24.31 |
| | | | QPSK | 12@0 | 15 | -110 | 24.16 |
| 23809 | -2 | 711.89 | BPSK | 1@0 | 3.75 | -110 | 24.27 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.16 |
| | | | QPSK | 1@0 | 15 | -110 | 24.11 |
| | | | QPSK | 1@11 | 15 | -110 | 24.28 |
| | | | QPSK | 3@3 | 15 | -110 | 24.34 |
| | | | QPSK | 12@0 | 15 | -110 | 24.26 |
| 23819 | -2 | 712.89 | BPSK | 1@47 | 3.75 | -110 | 24.21 |
| | | | QPSK | 1@11 | 15 | -110 | 24.3 |
| | | | QPSK | 3@3 | 15 | -110 | 24.31 |
| | | | QPSK | 12@0 | 15 | -110 | 24.1 |

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Guard-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 23731 | 0 | 704.1 | BPSK | 1@0 | 3.75 | -110 | 24.16 |
| | | | QPSK | 1@0 | 15 | -110 | 24.19 |
| | | | QPSK | 3@3 | 15 | -110 | 24.25 |
| | | | QPSK | 12@0 | 15 | -110 | 24.12 |
| 23766 | 0 | 707.6 | BPSK | 1@0 | 3.75 | -110 | 24.22 |
| | | | BPSK | 1@47 | 3.75 | -110 | 24.23 |
| | | | QPSK | 1@0 | 15 | -110 | 24.32 |
| | | | QPSK | 1@11 | 15 | -110 | 24.29 |
| | | | QPSK | 3@3 | 15 | -110 | 24.13 |
| | | | QPSK | 12@0 | 15 | -110 | 24.36 |
| 23849 | 0 | 715.9 | BPSK | 1@47 | 3.75 | -110 | 24.19 |
| | | | QPSK | 1@11 | 15 | -110 | 24.32 |
| | | | QPSK | 3@3 | 15 | -110 | 24.34 |
| | | | QPSK | 12@0 | 15 | -110 | 24.3 |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stand-alone | | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 131973 | 0 | 1710.1 | BPSK | 1@0 | 3.75 | -110 | 21.48 |
| | | | QPSK | 1@0 | 15 | -110 | 21.58 |
| | | | QPSK | 3@3 | 15 | -110 | 21.66 |
| | | | QPSK | 12@0 | 15 | -110 | 20.39 |
| 132322 | 0 | 1745 | BPSK | 1@0 | 3.75 | -110 | 23.01 |
| | | | BPSK | 1@47 | 3.75 | -110 | 23.07 |
| | | | QPSK | 1@0 | 15 | -110 | 23.06 |
| | | | QPSK | 1@11 | 15 | -110 | 23.11 |
| | | | QPSK | 3@3 | 15 | -110 | 23.65 |
| | | | QPSK | 12@0 | 15 | -110 | 23.22 |
| 132671 | 0 | 1779.9 | BPSK | 1@47 | 3.75 | -110 | 21.54 |
| | | | QPSK | 1@11 | 15 | -110 | 21.69 |
| | | | QPSK | 3@3 | 15 | -110 | 21.7 |
| | | | QPSK | 12@0 | 15 | -110 | 20.41 |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 3 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 131978 | 0 | 1710.6 | BPSK | 1@0 | 3.75 | -110 | 22.49 |
| | | | QPSK | 1@0 | 15 | -110 | 22.92 |
| | | | QPSK | 3@3 | 15 | -110 | 23.11 |
| | | | QPSK | 12@0 | 15 | -110 | 23.03 |
| 132313 | 0 | 1744.1 | BPSK | 1@0 | 3.75 | -110 | 22.47 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.45 |
| | | | QPSK | 1@0 | 15 | -110 | 22.98 |
| | | | QPSK | 1@11 | 15 | -110 | 22.95 |
| | | | QPSK | 3@3 | 15 | -110 | 23.24 |
| | | | QPSK | 12@0 | 15 | -110 | 23.1 |
| 132666 | 0 | 1779.4 | BPSK | 1@47 | 3.75 | -110 | 22.49 |
| | | | QPSK | 1@11 | 15 | -110 | 23.01 |
| | | | QPSK | 3@3 | 15 | -110 | 23.12 |
| | | | QPSK | 12@0 | 15 | -110 | 23.05 |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 30 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 132032 | -2 | 1715.99 | BPSK | 1@0 | 3.75 | -110 | 22.77 |
| | | | QPSK | 1@0 | 15 | -110 | 22.75 |
| | | | QPSK | 3@3 | 15 | -110 | 23.24 |
| | | | QPSK | 12@0 | 15 | -110 | 23.2 |
| 132332 | -2 | 1745.99 | BPSK | 1@0 | 3.75 | -110 | 22.81 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.79 |
| | | | QPSK | 1@0 | 15 | -110 | 22.83 |
| | | | QPSK | 1@11 | 15 | -110 | 22.77 |
| | | | QPSK | 3@3 | 15 | -110 | 23.15 |
| | | | QPSK | 12@0 | 15 | -110 | 23.16 |
| 132632 | -2 | 1775.99 | BPSK | 1@47 | 3.75 | -110 | 22.81 |
| | | | QPSK | 1@11 | 15 | -110 | 22.79 |
| | | | QPSK | 3@3 | 15 | -110 | 23.16 |
| | | | QPSK | 12@0 | 15 | -110 | 23.11 |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| In-Band | BW (MHz): 10 | NB-IoT PRB: 35 | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 132041 | -2 | 1716.89 | BPSK | 1@0 | 3.75 | -110 | 22.7 |
| | | | QPSK | 1@0 | 15 | -110 | 22.74 |
| | | | QPSK | 3@3 | 15 | -110 | 23.22 |
| | | | QPSK | 12@0 | 15 | -110 | 23.16 |
| 132341 | -2 | 1746.89 | BPSK | 1@0 | 3.75 | -110 | 22.75 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.74 |
| | | | QPSK | 1@0 | 15 | -110 | 22.87 |
| | | | QPSK | 1@11 | 15 | -110 | 22.91 |
| | | | QPSK | 3@3 | 15 | -110 | 23.1 |
| | | | QPSK | 12@0 | 15 | -110 | 23.13 |
| 132641 | -2 | 1776.89 | BPSK | 1@47 | 3.75 | -110 | 22.83 |
| | | | QPSK | 1@11 | 15 | -110 | 22.84 |
| | | | QPSK | 3@3 | 15 | -110 | 23.22 |
| | | | QPSK | 12@0 | 15 | -110 | 23.19 |

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Guard-Band | BW (MHz): 5 | | | | | | |
| $N_{UL}$ | $M_{UL}$ | Frequency of Uplink (MHz) | Test Configuration Initial of Power | | | EUT | |
| | | | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | Cell Power (dBm/15 kHz) | Power (dBm) |
| 131973 | 0 | 1710.1 | BPSK | 1@0 | 3.75 | -110 | 22.79 |
| | | | QPSK | 1@0 | 15 | -110 | 22.63 |
| | | | QPSK | 3@3 | 15 | -110 | 23.04 |
| | | | QPSK | 12@0 | 15 | -110 | 23.01 |
| 132298 | 0 | 1742.6 | BPSK | 1@0 | 3.75 | -110 | 22.81 |
| | | | BPSK | 1@47 | 3.75 | -110 | 22.67 |
| | | | QPSK | 1@0 | 15 | -110 | 22.89 |
| | | | QPSK | 1@11 | 15 | -110 | 22.91 |
| | | | QPSK | 3@3 | 15 | -110 | 23.15 |
| | | | QPSK | 12@0 | 15 | -110 | 23.17 |
| 132671 | 0 | 1779.9 | BPSK | 1@47 | 3.75 | -110 | 22.77 |
| | | | QPSK | 1@11 | 15 | -110 | 22.69 |
| | | | QPSK | 3@3 | 15 | -110 | 23.11 |
| | | | QPSK | 12@0 | 15 | -110 | 23.04 |

**ERP Power (dBm)**

**Cat-M1**

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **ERP (dBm)** | **ERP (mW)** | **Polarization (H/V)** |
| X | 23017 | 699.7 | -3.13 | 30.36 | 25.08 | 322.11 | H |
| | 23095 | 707.5 | -3.04 | 30.17 | 24.98 | 314.77 | |
| | 23173 | 715.3 | -3.01 | 30.17 | 25.01 | 316.96 | |
| | 23017 | 699.7 | -10.56 | 32.03 | 19.32 | 85.51 | V |
| | 23095 | 707.5 | -10.84 | 31.98 | 18.99 | 79.25 | |
| | 23173 | 715.3 | -10.74 | 32.06 | 19.17 | 82.60 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| X | 23017 | 699.7 | -4.02 | 30.36 | 24.19 | 262.42 | H |
| | 23095 | 707.5 | -4.00 | 30.17 | 24.02 | 252.35 | |
| | 23173 | 715.3 | -3.94 | 30.17 | 24.08 | 255.86 | |
| | 23017 | 699.7 | -11.55 | 32.03 | 18.33 | 68.08 | V |
| | 23095 | 707.5 | -11.83 | 31.98 | 18.00 | 63.10 | |
| | 23173 | 715.3 | -11.73 | 32.06 | 18.18 | 65.77 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **ERP (dBm)** | **ERP (mW)** | **Polarization (H/V)** |
| X | 23025 | 700.5 | -3.05 | 30.17 | 24.97 | 314.05 | H |
| | 23095 | 707.5 | -3.22 | 30.17 | 24.80 | 302.00 | |
| | 23165 | 714.5 | -3.17 | 30.18 | 24.86 | 306.20 | |
| | 23025 | 700.5 | -10.70 | 31.96 | 19.11 | 81.47 | V |
| | 23095 | 707.5 | -11.05 | 31.98 | 18.78 | 75.51 | |
| | 23165 | 714.5 | -10.92 | 32.03 | 18.96 | 78.70 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| X | 23025 | 700.5 | -4.08 | 30.17 | 23.94 | 247.74 | H |
| | 23095 | 707.5 | -4.25 | 30.17 | 23.77 | 238.23 | |
| | 23165 | 714.5 | -4.20 | 30.18 | 23.83 | 241.55 | |
| | 23025 | 700.5 | -11.73 | 31.96 | 18.08 | 64.27 | V |
| | 23095 | 707.5 | -12.08 | 31.98 | 17.75 | 59.57 | |
| | 23165 | 714.5 | -11.95 | 32.03 | 17.93 | 62.09 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23035 | 701.5 | -3.36 | 30.17 | 24.66 | 292.42 | H |
| | 23095 | 707.5 | -3.53 | 30.17 | 24.49 | 281.19 | |
| | 23155 | 713.5 | -3.48 | 30.18 | 24.55 | 285.10 | |
| | 23035 | 701.5 | -11.01 | 31.96 | 18.80 | 75.86 | V |
| | 23095 | 707.5 | -11.36 | 31.98 | 18.47 | 70.31 | |
| | 23155 | 713.5 | -11.23 | 32.03 | 18.65 | 73.28 | |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| X | 23035 | 701.5 | -4.39 | 30.17 | 23.63 | 230.67 | H |
| | 23095 | 707.5 | -4.56 | 30.17 | 23.46 | 221.82 | |
| | 23155 | 713.5 | -4.51 | 30.18 | 23.52 | 224.91 | |
| | 23035 | 701.5 | -12.04 | 31.96 | 17.77 | 59.84 | V |
| | 23095 | 707.5 | -12.39 | 31.98 | 17.44 | 55.46 | |
| | 23155 | 713.5 | -12.26 | 32.03 | 17.62 | 57.81 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23060 | 704.0 | -3.58 | 30.17 | 24.44 | 277.97 | H |
| | 23095 | 707.5 | -3.75 | 30.17 | 24.27 | 267.30 | |
| | 23130 | 711.0 | -3.70 | 30.18 | 24.33 | 271.02 | |
| | 23060 | 704.0 | -11.23 | 31.96 | 18.58 | 72.11 | V |
| | 23095 | 707.5 | -11.58 | 31.98 | 18.25 | 66.83 | |
| | 23130 | 711.0 | -11.45 | 32.03 | 18.43 | 69.66 | |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| X | 23060 | 704.0 | -4.69 | 30.17 | 23.33 | 215.28 | H |
| | 23095 | 707.5 | -4.86 | 30.17 | 23.16 | 207.01 | |
| | 23130 | 711.0 | -4.81 | 30.18 | 23.22 | 209.89 | |
| | 23060 | 704.0 | -12.34 | 31.96 | 17.47 | 55.85 | V |
| | 23095 | 707.5 | -12.69 | 31.98 | 17.14 | 51.76 | |
| | 23130 | 711.0 | -12.56 | 32.03 | 17.32 | 53.95 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **ERP (dBm)** | **ERP (mW)** | **Polarization (H/V)** |
| X | 23205 | 779.5 | -5.70 | 32.24 | 24.39 | 274.79 | H |
| | 23230 | 782.0 | -5.49 | 32.17 | 24.53 | 283.79 | |
| | 23255 | 784.5 | -5.46 | 32.11 | 24.50 | 281.84 | |
| | 23205 | 779.5 | -11.89 | 32.43 | 18.39 | 69.02 | V |
| | 23230 | 782.0 | -11.50 | 32.42 | 18.77 | 75.34 | |
| | 23255 | 784.5 | -11.72 | 32.46 | 18.59 | 72.28 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| X | 23205 | 779.5 | -6.71 | 32.24 | 23.38 | 217.77 | H |
| | 23230 | 782.0 | -6.50 | 32.17 | 23.52 | 224.91 | |
| | 23255 | 784.5 | -6.47 | 32.11 | 23.49 | 223.36 | |
| | 23205 | 779.5 | -12.90 | 32.43 | 17.38 | 54.70 | V |
| | 23230 | 782.0 | -12.51 | 32.42 | 17.76 | 59.70 | |
| | 23255 | 784.5 | -12.73 | 32.46 | 17.58 | 57.28 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **ERP (dBm)** | **ERP (mW)** | **Polarization (H/V)** |
| X | 23230 | 782.0 | -5.79 | 32.17 | 24.23 | 264.85 | H |
| | 23230 | 782.0 | -11.80 | 32.42 | 18.47 | 70.31 | V |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| X | 23230 | 782.0 | -6.78 | 32.17 | 23.24 | 210.86 | H |
| | 23230 | 782.0 | -12.79 | 32.42 | 17.48 | 55.98 | V |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23755 | 706.5 | -3.65 | 30.36 | 24.56 | 285.76 | H |
| | 23790 | 710.0 | -3.57 | 30.17 | 24.45 | 278.61 | |
| | 23825 | 713.5 | -3.54 | 30.17 | 24.48 | 280.54 | |
| | 23755 | 706.5 | -11.35 | 32.03 | 18.53 | 71.29 | V |
| | 23790 | 710.0 | -11.58 | 31.98 | 18.25 | 66.83 | |
| | 23825 | 713.5 | -11.52 | 32.06 | 18.39 | 69.02 | |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| X | 23755 | 706.5 | -4.67 | 30.36 | 23.54 | 225.94 | H |
| | 23790 | 710.0 | -4.59 | 30.17 | 23.43 | 220.29 | |
| | 23825 | 713.5 | -4.56 | 30.17 | 23.46 | 221.82 | |
| | 23755 | 706.5 | -12.37 | 32.03 | 17.51 | 56.36 | V |
| | 23790 | 710.0 | -12.60 | 31.98 | 17.23 | 52.84 | |
| | 23825 | 713.5 | -12.54 | 32.06 | 17.37 | 54.58 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23780 | 709.0 | -3.78 | 30.17 | 24.24 | 265.46 | H |
| | 23790 | 710.0 | -3.89 | 30.17 | 24.13 | 258.82 | |
| | 23800 | 711.0 | -3.87 | 30.18 | 24.16 | 260.62 | |
| | 23780 | 709.0 | -11.60 | 31.96 | 18.21 | 66.22 | V |
| | 23790 | 710.0 | -11.90 | 31.98 | 17.93 | 62.09 | |
| | 23800 | 711.0 | -11.81 | 32.03 | 18.07 | 64.12 | |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| X | 23780 | 709.0 | -4.77 | 30.17 | 23.25 | 211.35 | H |
| | 23790 | 710.0 | -4.88 | 30.17 | 23.14 | 206.06 | |
| | 23800 | 711.0 | -4.86 | 30.18 | 23.17 | 207.49 | |
| | 23780 | 709.0 | -12.59 | 31.96 | 17.22 | 52.72 | V |
| | 23790 | 710.0 | -12.89 | 31.98 | 16.94 | 49.43 | |
| | 23800 | 711.0 | -12.80 | 32.03 | 17.08 | 51.05 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

**NB-IoT**

| LTE Band 12 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| Z | 23011 | 699.1 | -13.40 | 30.36 | 14.81 | 30.27 | H |
| | 23095 | 707.5 | -13.04 | 30.17 | 14.98 | 31.48 | |
| | 23179 | 715.9 | -13.12 | 30.17 | 14.90 | 30.90 | |
| | 23011 | 699.1 | -7.67 | 32.03 | 22.21 | 166.34 | V |
| | 23095 | 707.5 | -7.49 | 31.98 | 22.34 | 171.40 | |
| | 23179 | 715.9 | -7.65 | 32.06 | 22.26 | 168.27 | |
| QPSK | | | | | | | |
| Z | 23011 | 699.1 | -12.62 | 30.36 | 15.59 | 36.22 | H |
| | 23095 | 707.5 | -12.28 | 30.17 | 15.74 | 37.50 | |
| | 23179 | 715.9 | -12.36 | 30.17 | 15.66 | 36.81 | |
| | 23011 | 699.1 | -6.76 | 32.03 | 23.12 | 205.12 | V |
| | 23095 | 707.5 | -6.53 | 31.98 | 23.30 | 213.80 | |
| | 23179 | 715.9 | -6.69 | 32.06 | 23.22 | 209.89 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 13 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23181 | 777.1 | -8.26 | 32.24 | 21.83 | 152.41 | H |
| | 23230 | 782.0 | -8.28 | 32.17 | 21.74 | 149.28 | |
| | 23279 | 786.9 | -8.34 | 32.11 | 21.62 | 145.21 | |
| | 23181 | 777.1 | -14.78 | 32.43 | 15.50 | 35.48 | V |
| | 23230 | 782.0 | -14.85 | 32.42 | 15.42 | 34.83 | |
| | 23279 | 786.9 | -14.99 | 32.46 | 15.32 | 34.04 | |
| QPSK | | | | | | | |
| X | 23181 | 777.1 | -7.38 | 32.24 | 22.71 | 186.64 | H |
| | 23230 | 782.0 | -7.38 | 32.17 | 22.64 | 183.65 | |
| | 23279 | 786.9 | -7.41 | 32.11 | 22.55 | 179.89 | |
| | 23181 | 777.1 | -13.95 | 32.43 | 16.33 | 42.95 | V |
| | 23230 | 782.0 | -14.03 | 32.42 | 16.24 | 42.07 | |
| | 23279 | 786.9 | -14.13 | 32.46 | 16.18 | 41.50 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

| LTE Band 17 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| Z | 23731 | 704.1 | -14.40 | 30.36 | 13.81 | 24.04 | H |
| | 23790 | 710 | -14.48 | 30.17 | 13.54 | 22.59 | |
| | 23849 | 715.9 | -14.36 | 30.17 | 13.66 | 23.23 | |
| | 23731 | 704.1 | -8.46 | 32.03 | 21.42 | 138.68 | V |
| | 23790 | 710 | -8.55 | 31.98 | 21.28 | 134.28 | |
| | 23849 | 715.9 | -8.53 | 32.06 | 21.38 | 137.40 | |
| QPSK | | | | | | | |
| Z | 23731 | 704.1 | -14.33 | 30.36 | 13.88 | 24.43 | H |
| | 23790 | 710 | -14.38 | 30.17 | 13.64 | 23.12 | |
| | 23849 | 715.9 | -14.31 | 30.17 | 13.71 | 23.50 | |
| | 23731 | 704.1 | -8.29 | 32.03 | 21.59 | 144.21 | V |
| | 23790 | 710 | -8.50 | 31.98 | 21.33 | 135.83 | |
| | 23849 | 715.9 | -8.45 | 32.06 | 21.46 | 139.96 | |

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

**EIRP Power (dBm)**

**Cat-M1**

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 19957 | 1710.7 | -11.47 | 36.45 | 24.98 | 314.77 | H |
| | 20175 | 1732.5 | -11.91 | 36.80 | 24.89 | 308.32 | |
| | 20393 | 1754.3 | -12.19 | 36.94 | 24.75 | 298.54 | |
| | 19957 | 1710.7 | -18.49 | 37.28 | 18.79 | 75.68 | V |
| | 20175 | 1732.5 | -19.10 | 37.63 | 18.53 | 71.29 | |
| | 20393 | 1754.3 | -19.40 | 37.64 | 18.24 | 66.68 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| X | 19957 | 1710.7 | -12.48 | 36.45 | 23.97 | 249.46 | H |
| | 20175 | 1732.5 | -12.92 | 36.80 | 23.88 | 244.34 | |
| | 20393 | 1754.3 | -13.20 | 36.94 | 23.74 | 236.59 | |
| | 19957 | 1710.7 | -19.50 | 37.28 | 17.78 | 59.98 | V |
| | 20175 | 1732.5 | -20.11 | 37.63 | 17.52 | 56.49 | |
| | 20393 | 1754.3 | -20.41 | 37.64 | 17.23 | 52.84 | |

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

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 19965 | 1711.5 | -11.72 | 36.45 | 24.73 | 297.17 | H |
| | 20175 | 1732.5 | -12.16 | 36.80 | 24.64 | 291.07 | |
| | 20385 | 1753.5 | -12.44 | 36.94 | 24.50 | 281.84 | |
| | 19965 | 1711.5 | -18.74 | 37.28 | 18.54 | 71.45 | V |
| | 20175 | 1732.5 | -19.35 | 37.63 | 18.28 | 67.30 | |
| | 20385 | 1753.5 | -19.65 | 37.64 | 17.99 | 62.95 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| X | 19965 | 1711.5 | -12.71 | 36.45 | 23.74 | 236.59 | H |
| | 20175 | 1732.5 | -13.15 | 36.80 | 23.65 | 231.74 | |
| | 20385 | 1753.5 | -13.43 | 36.94 | 23.51 | 224.39 | |
| | 19965 | 1711.5 | -19.73 | 37.28 | 17.55 | 56.89 | V |
| | 20175 | 1732.5 | -20.34 | 37.63 | 17.29 | 53.58 | |
| | 20385 | 1753.5 | -20.64 | 37.64 | 17.00 | 50.12 | |

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

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 19975 | 1712.5 | -12.03 | 36.45 | 24.42 | 276.69 | H |
| | 20175 | 1732.5 | -12.47 | 36.80 | 24.33 | 271.02 | |
| | 20375 | 1752.5 | -12.75 | 36.94 | 24.19 | 262.42 | |
| | 19975 | 1712.5 | -19.05 | 37.28 | 18.23 | 66.53 | V |
| | 20175 | 1732.5 | -19.66 | 37.63 | 17.97 | 62.66 | |
| | 20375 | 1752.5 | -19.96 | 37.64 | 17.68 | 58.61 | |
| **Channel Bandwidth: 5 MHz / 16QAM** | | | | | | | |
| X | 19975 | 1712.5 | -13.05 | 36.45 | 23.40 | 218.78 | H |
| | 20175 | 1732.5 | -13.49 | 36.80 | 23.31 | 214.29 | |
| | 20375 | 1752.5 | -13.77 | 36.94 | 23.17 | 207.49 | |
| | 19975 | 1712.5 | -20.07 | 37.28 | 17.21 | 52.60 | V |
| | 20175 | 1732.5 | -20.68 | 37.63 | 16.95 | 49.55 | |
| | 20375 | 1752.5 | -20.98 | 37.64 | 16.66 | 46.34 | |

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

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 10 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 20000 | 1715.0 | -12.43 | 36.64 | 24.21 | 263.63 | H |
| | 20175 | 1732.5 | -12.68 | 36.80 | 24.12 | 258.23 | |
| | 20350 | 1750.0 | -12.82 | 36.80 | 23.98 | 250.03 | |
| | 20000 | 1715.0 | -19.42 | 37.44 | 18.02 | 63.39 | V |
| | 20175 | 1732.5 | -19.87 | 37.63 | 17.76 | 59.70 | |
| | 20350 | 1750.0 | -20.17 | 37.64 | 17.47 | 55.85 | |
| **Channel Bandwidth: 10 MHz / 16QAM** | | | | | | | |
| X | 20000 | 1715.0 | -13.44 | 36.64 | 23.20 | 208.93 | H |
| | 20175 | 1732.5 | -13.69 | 36.80 | 23.11 | 204.64 | |
| | 20350 | 1750.0 | -13.83 | 36.80 | 22.97 | 198.15 | |
| | 20000 | 1715.0 | -20.43 | 37.44 | 17.01 | 50.23 | V |
| | 20175 | 1732.5 | -20.88 | 37.63 | 16.75 | 47.32 | |
| | 20350 | 1750.0 | -21.18 | 37.64 | 16.46 | 44.26 | |

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

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 20025 | 1717.5 | -12.51 | 36.45 | 23.94 | 247.74 | H |
| | 20175 | 1732.5 | -12.95 | 36.80 | 23.85 | 242.66 | |
| | 20325 | 1747.5 | -13.23 | 36.94 | 23.71 | 234.96 | |
| | 20025 | 1717.5 | -19.53 | 37.28 | 17.75 | 59.57 | V |
| | 20175 | 1732.5 | -20.14 | 37.63 | 17.49 | 56.10 | |
| | 20325 | 1747.5 | -20.44 | 37.64 | 17.20 | 52.48 | |
| Channel Bandwidth: 15 MHz / 16QAM | | | | | | | |
| X | 20025 | 1717.5 | -13.53 | 36.45 | 22.92 | 195.88 | H |
| | 20175 | 1732.5 | -13.97 | 36.80 | 22.83 | 191.87 | |
| | 20325 | 1747.5 | -14.25 | 36.94 | 22.69 | 185.78 | |
| | 20025 | 1717.5 | -20.55 | 37.28 | 16.73 | 47.10 | V |
| | 20175 | 1732.5 | -21.16 | 37.63 | 16.47 | 44.36 | |
| | 20325 | 1747.5 | -21.46 | 37.64 | 16.18 | 41.50 | |

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

| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 20050 | 1720.0 | -12.75 | 36.45 | 23.70 | 234.42 | H |
| | 20175 | 1732.5 | -13.19 | 36.80 | 23.61 | 229.61 | |
| | 20300 | 1745.0 | -13.47 | 36.94 | 23.47 | 222.33 | |
| | 20050 | 1720.0 | -19.77 | 37.28 | 17.51 | 56.36 | V |
| | 20175 | 1732.5 | -20.38 | 37.63 | 17.25 | 53.09 | |
| | 20300 | 1745.0 | -20.68 | 37.64 | 16.96 | 49.66 | |
| Channel Bandwidth: 20 MHz / 16QAM | | | | | | | |
| X | 20050 | 1720.0 | -13.77 | 36.45 | 22.68 | 185.35 | H |
| | 20175 | 1732.5 | -14.21 | 36.80 | 22.59 | 181.55 | |
| | 20300 | 1745.0 | -14.49 | 36.94 | 22.45 | 175.79 | |
| | 20050 | 1720.0 | -20.79 | 37.28 | 16.49 | 44.57 | V |
| | 20175 | 1732.5 | -21.40 | 37.63 | 16.23 | 41.98 | |
| | 20300 | 1745.0 | -21.70 | 37.64 | 15.94 | 39.26 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 131979 | 1710.7 | -11.88 | 36.45 | 24.57 | 286.42 | H |
| | 132322 | 1745.0 | -12.19 | 36.80 | 24.61 | 289.07 | |
| | 132665 | 1779.3 | -12.74 | 36.94 | 24.20 | 263.03 | |
| | 131979 | 1710.7 | -18.86 | 37.28 | 18.42 | 69.50 | V |
| | 132322 | 1745.0 | -19.05 | 37.63 | 18.58 | 72.11 | |
| | 132665 | 1779.3 | -19.37 | 37.64 | 18.27 | 67.14 | |
| **Channel Bandwidth: 1.4 MHz / 16QAM** | | | | | | | |
| X | 131979 | 1710.7 | -12.90 | 36.45 | 23.55 | 226.46 | H |
| | 132322 | 1745.0 | -13.21 | 36.80 | 23.59 | 228.56 | |
| | 132665 | 1779.3 | -13.76 | 36.94 | 23.18 | 207.97 | |
| | 131979 | 1710.7 | -19.88 | 37.28 | 17.40 | 54.95 | V |
| | 132322 | 1745.0 | -20.07 | 37.63 | 17.56 | 57.02 | |
| | 132665 | 1779.3 | -20.39 | 37.64 | 17.25 | 53.09 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Channel Bandwidth: 3 MHz / QPSK** | | | | | | | |
| **Plane** | **Channel** | **Frequency (MHz)** | **Reading (dBm)** | **Correction Factor (dB)** | **EIRP (dBm)** | **EIRP (mW)** | **Polarization (H/V)** |
| X | 131987 | 1711.5 | -12.18 | 36.45 | 24.27 | 267.30 | H |
| | 132322 | 1745.0 | -12.49 | 36.80 | 24.31 | 269.77 | |
| | 132657 | 1778.5 | -13.04 | 36.94 | 23.90 | 245.47 | |
| | 131987 | 1711.5 | -19.16 | 37.28 | 18.12 | 64.86 | V |
| | 132322 | 1745.0 | -19.35 | 37.63 | 18.28 | 67.30 | |
| | 132657 | 1778.5 | -19.67 | 37.64 | 17.97 | 62.66 | |
| **Channel Bandwidth: 3 MHz / 16QAM** | | | | | | | |
| X | 131987 | 1711.5 | -13.16 | 36.45 | 23.29 | 213.30 | H |
| | 132322 | 1745.0 | -13.47 | 36.80 | 23.33 | 215.28 | |
| | 132657 | 1778.5 | -14.02 | 36.94 | 22.92 | 195.88 | |
| | 131987 | 1711.5 | -20.14 | 37.28 | 17.14 | 51.76 | V |
| | 132322 | 1745.0 | -20.33 | 37.63 | 17.30 | 53.70 | |
| | 132657 | 1778.5 | -20.65 | 37.64 | 16.99 | 50.00 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 131997 | 1712.5 | -12.43 | 36.45 | 24.02 | 252.35 | H |
| | 132322 | 1745.0 | -12.74 | 36.80 | 24.06 | 254.68 | |
| | 132647 | 1777.5 | -13.29 | 36.94 | 23.65 | 231.74 | |
| | 131997 | 1712.5 | -19.41 | 37.28 | 17.87 | 61.24 | V |
| | 132322 | 1745.0 | -19.60 | 37.63 | 18.03 | 63.53 | |
| | 132647 | 1777.5 | -19.92 | 37.64 | 17.72 | 59.16 | |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| X | 131997 | 1712.5 | -13.46 | 36.45 | 22.99 | 199.07 | H |
| | 132322 | 1745.0 | -13.77 | 36.80 | 23.03 | 200.91 | |
| | 132647 | 1777.5 | -14.32 | 36.94 | 22.62 | 182.81 | |
| | 131997 | 1712.5 | -20.44 | 37.28 | 16.84 | 48.31 | V |
| | 132322 | 1745.0 | -20.63 | 37.63 | 17.00 | 50.12 | |
| | 132647 | 1777.5 | -20.95 | 37.64 | 16.69 | 46.67 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 132022 | 1715.0 | -12.88 | 36.64 | 23.76 | 237.68 | H |
| | 132322 | 1745.0 | -13.00 | 36.80 | 23.80 | 239.88 | |
| | 132622 | 1775.0 | -13.41 | 36.80 | 23.39 | 218.27 | |
| | 132022 | 1715.0 | -19.83 | 37.44 | 17.61 | 57.68 | V |
| | 132322 | 1745.0 | -19.86 | 37.63 | 17.77 | 59.84 | |
| | 132622 | 1775.0 | -20.18 | 37.64 | 17.46 | 55.72 | |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| X | 132022 | 1715.0 | -13.87 | 36.64 | 22.77 | 189.23 | H |
| | 132322 | 1745.0 | -13.99 | 36.80 | 22.81 | 190.99 | |
| | 132622 | 1775.0 | -14.40 | 36.80 | 22.40 | 173.78 | |
| | 132022 | 1715.0 | -20.82 | 37.44 | 16.62 | 45.92 | V |
| | 132322 | 1745.0 | -20.85 | 37.63 | 16.78 | 47.64 | |
| | 132622 | 1775.0 | -21.17 | 37.64 | 16.47 | 44.36 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 132047 | 1717.5 | -13.00 | 36.45 | 23.45 | 221.31 | H |
| | 132322 | 1745.0 | -13.31 | 36.80 | 23.49 | 223.36 | |
| | 132597 | 1772.5 | -13.86 | 36.94 | 23.08 | 203.24 | |
| | 132047 | 1717.5 | -19.98 | 37.28 | 17.30 | 53.70 | V |
| | 132322 | 1745.0 | -20.17 | 37.63 | 17.46 | 55.72 | |
| | 132597 | 1772.5 | -20.49 | 37.64 | 17.15 | 51.88 | |
| Channel Bandwidth: 15 MHz / 16QAM | | | | | | | |
| X | 132047 | 1717.5 | -14.02 | 36.45 | 22.43 | 174.98 | H |
| | 132322 | 1745.0 | -14.33 | 36.80 | 22.47 | 176.60 | |
| | 132597 | 1772.5 | -14.88 | 36.94 | 22.06 | 160.69 | |
| | 132047 | 1717.5 | -21.00 | 37.28 | 16.28 | 42.46 | V |
| | 132322 | 1745.0 | -21.19 | 37.63 | 16.44 | 44.06 | |
| | 132597 | 1772.5 | -21.51 | 37.64 | 16.13 | 41.02 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| X | 132072 | 1720.0 | -13.27 | 36.45 | 23.18 | 207.97 | H |
| | 132322 | 1745.0 | -13.58 | 36.80 | 23.22 | 209.89 | |
| | 132572 | 1770.0 | -14.13 | 36.94 | 22.81 | 190.99 | |
| | 132072 | 1720.0 | -20.25 | 37.28 | 17.03 | 50.47 | V |
| | 132322 | 1745.0 | -20.44 | 37.63 | 17.19 | 52.36 | |
| | 132572 | 1770.0 | -20.76 | 37.64 | 16.88 | 48.75 | |
| Channel Bandwidth: 20 MHz / 16QAM | | | | | | | |
| X | 132072 | 1720.0 | -14.26 | 36.45 | 22.19 | 165.58 | H |
| | 132322 | 1745.0 | -14.57 | 36.80 | 22.23 | 167.11 | |
| | 132572 | 1770.0 | -15.12 | 36.94 | 21.82 | 152.05 | |
| | 132072 | 1720.0 | -21.24 | 37.28 | 16.04 | 40.18 | V |
| | 132322 | 1745.0 | -21.43 | 37.63 | 16.20 | 41.69 | |
| | 132572 | 1770.0 | -21.75 | 37.64 | 15.89 | 38.82 | |

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

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| LTE Band 4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 19951 | 1710.1 | -18.93 | 36.45 | 17.52 | 56.49 | H |
| | 20175 | 1732.5 | -19.20 | 36.80 | 17.60 | 57.54 | |
| | 20399 | 1754.9 | -19.50 | 36.94 | 17.44 | 55.46 | |
| | 19951 | 1710.1 | -13.76 | 37.28 | 23.52 | 224.91 | V |
| | 20175 | 1732.5 | -14.02 | 37.63 | 23.61 | 229.61 | |
| | 20399 | 1754.9 | -14.21 | 37.64 | 23.43 | 220.29 | |
| QPSK | | | | | | | |
| Z | 19951 | 1710.1 | -18.10 | 36.45 | 18.35 | 68.39 | H |
| | 20175 | 1732.5 | -18.38 | 36.80 | 18.42 | 69.50 | |
| | 20399 | 1754.9 | -18.67 | 36.94 | 18.27 | 67.14 | |
| | 19951 | 1710.1 | -12.99 | 37.28 | 24.29 | 268.53 | V |
| | 20175 | 1732.5 | -13.27 | 37.63 | 24.36 | 272.90 | |
| | 20399 | 1754.9 | -13.42 | 37.64 | 24.22 | 264.24 | |

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

| LTE Band 66 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | Reading (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 131973 | 1710.1 | -18.88 | 36.45 | 17.57 | 57.15 | H |
| | 132322 | 1745.0 | -19.07 | 36.80 | 17.73 | 59.29 | |
| | 132671 | 1779.9 | -19.30 | 36.94 | 17.64 | 58.08 | |
| | 131973 | 1710.1 | -13.60 | 37.28 | 23.68 | 233.35 | V |
| | 132322 | 1745.0 | -13.73 | 37.63 | 23.90 | 245.47 | |
| | 132671 | 1779.9 | -13.85 | 37.64 | 23.79 | 239.33 | |
| QPSK | | | | | | | |
| Z | 131973 | 1710.1 | -18.07 | 36.45 | 18.38 | 68.87 | H |
| | 132322 | 1745.0 | -18.21 | 36.80 | 18.59 | 72.28 | |
| | 132671 | 1779.9 | -18.49 | 36.94 | 18.45 | 69.98 | |
| | 131973 | 1710.1 | -12.91 | 37.28 | 24.37 | 273.53 | V |
| | 132322 | 1745.0 | -12.94 | 37.63 | 24.69 | 294.44 | |
| | 132671 | 1779.9 | -13.22 | 37.64 | 24.42 | 276.69 | |

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

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

N/A

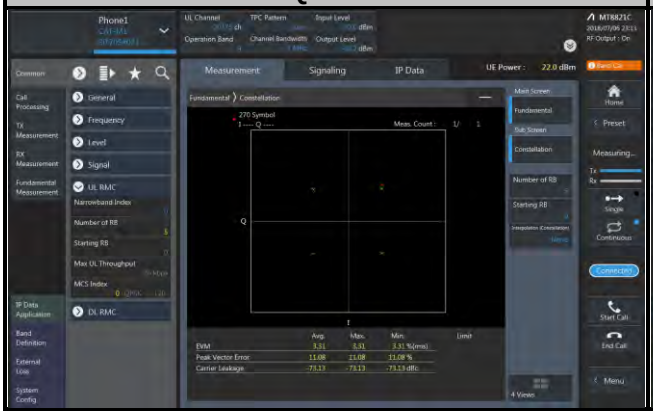
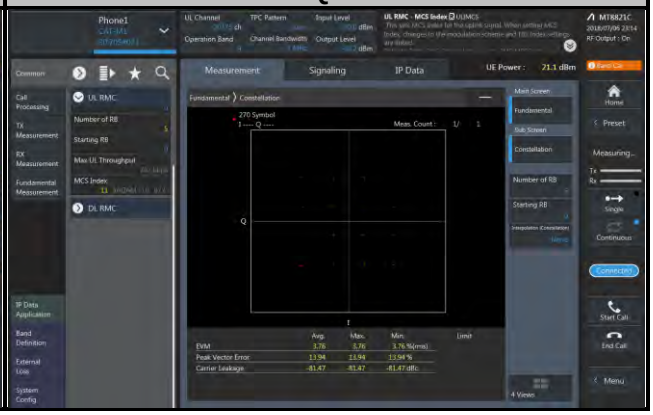
### 4.2.2 Test Setup

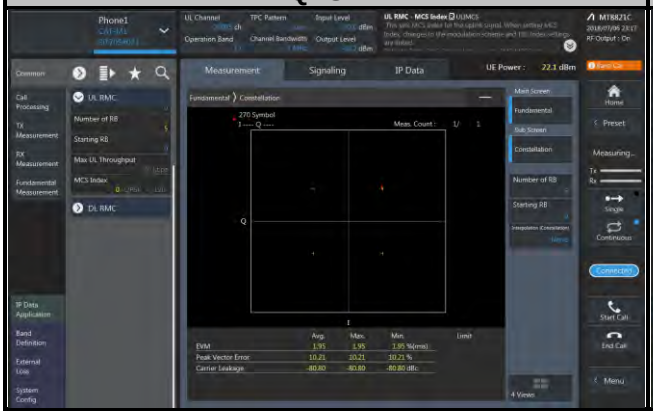
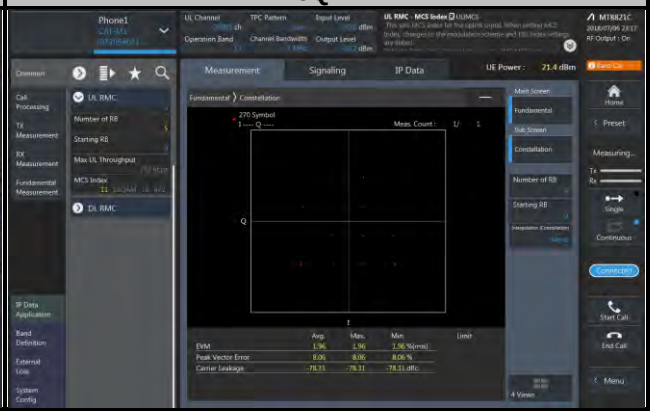

### 4.2.3 Test Procedure

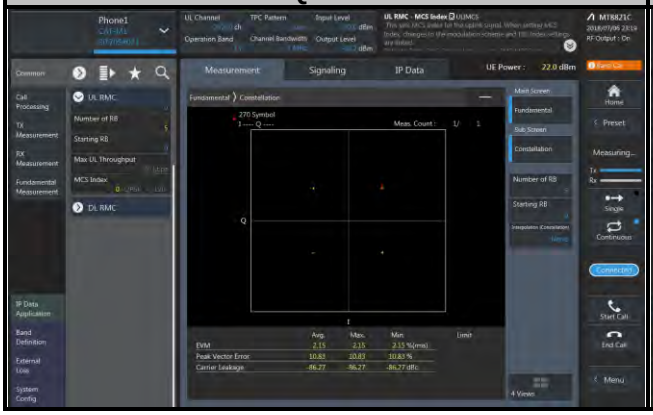
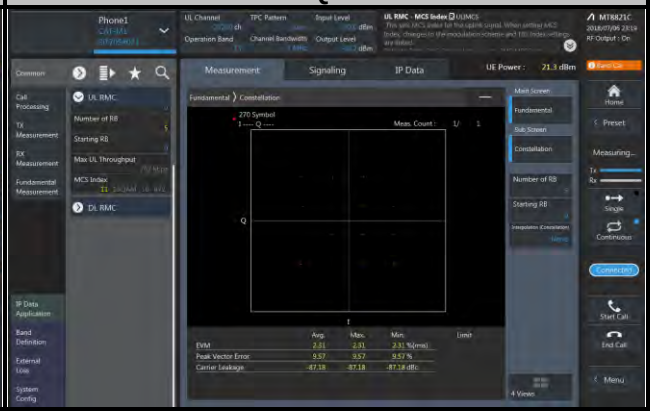
Connect the EUT to Communication Simulator via the antenna connector. The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

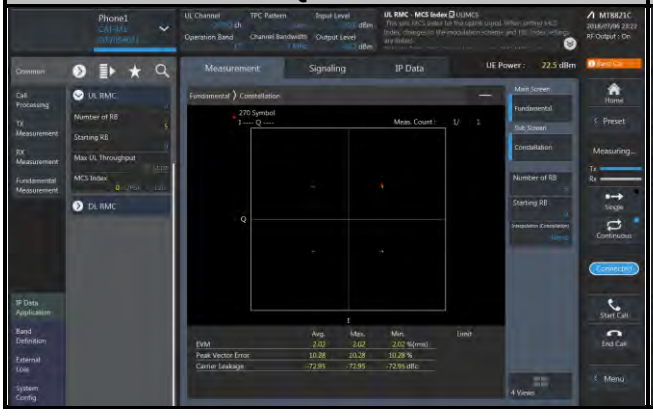
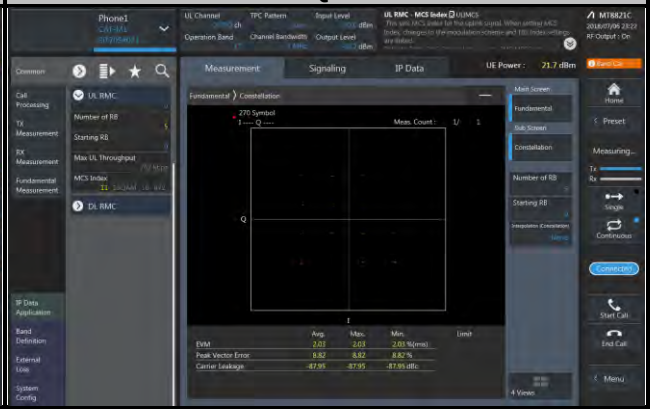
4.2.4 Test Results

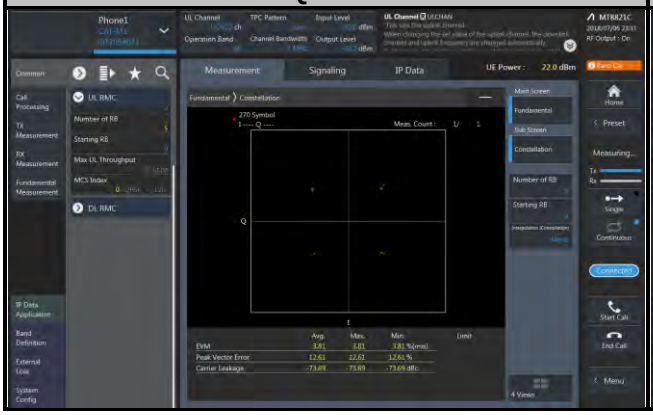
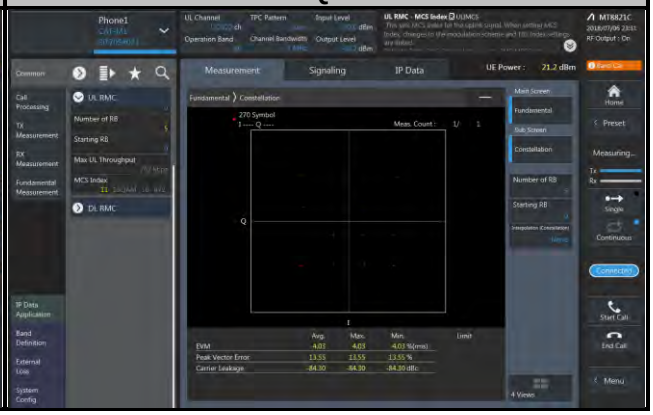
**Cat-M1**

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

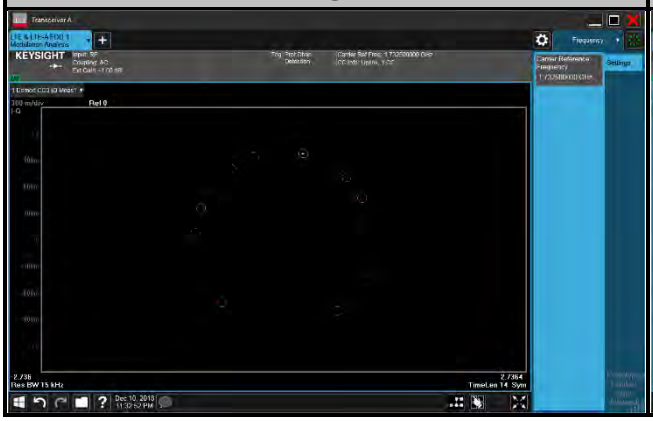
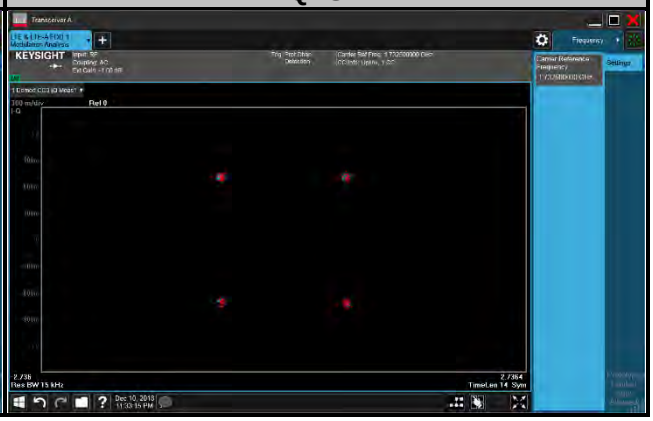
| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 12 | |
| Channel 23095 | |
| QPSK | 16QAM |
|  |  |

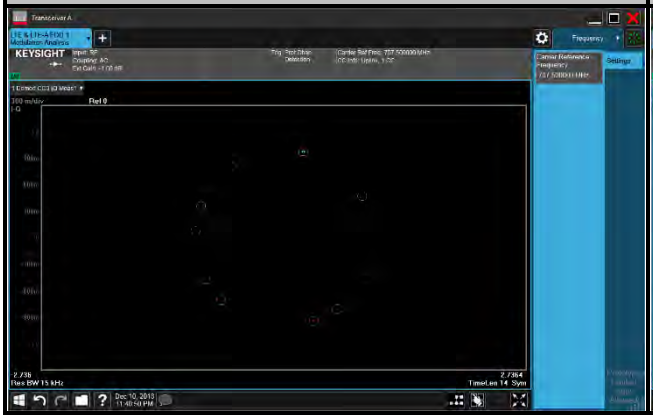
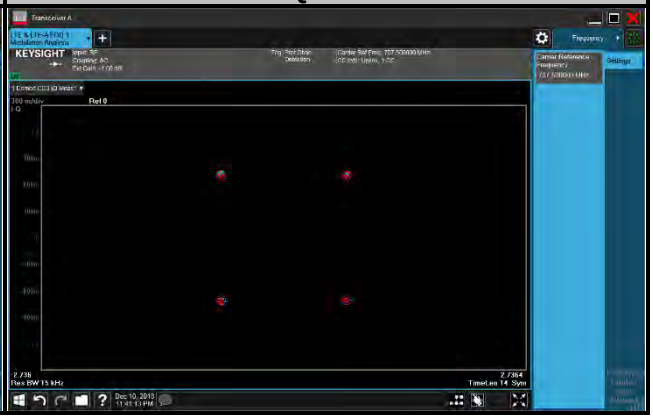
| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 13 | |
| Channel 23230 | |
| QPSK | 16QAM |
|  |  |

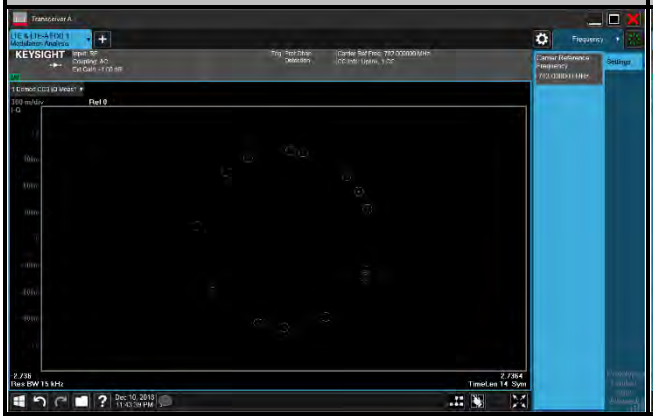
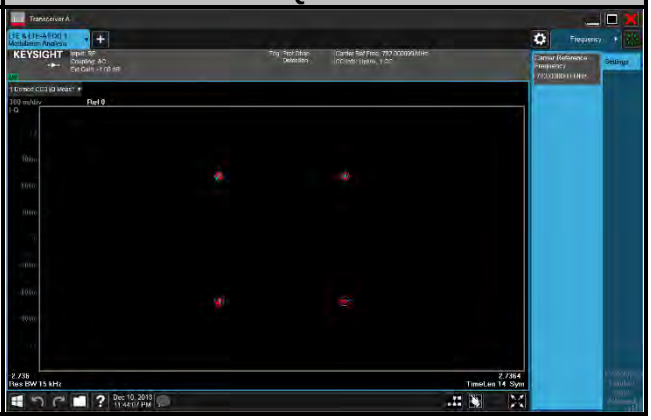
| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 17 | |
| Channel 23790 | |
| QPSK | 16QAM |
|  |  |

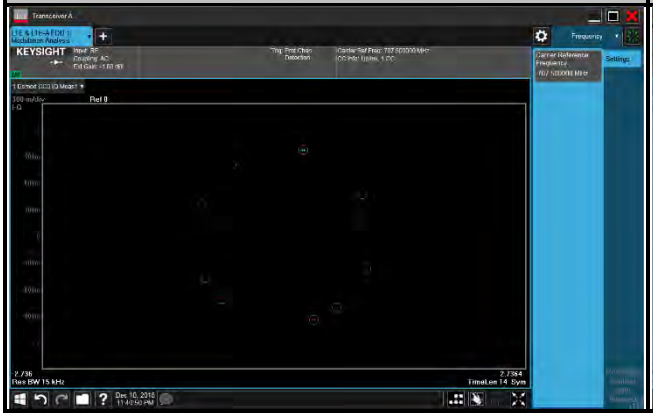
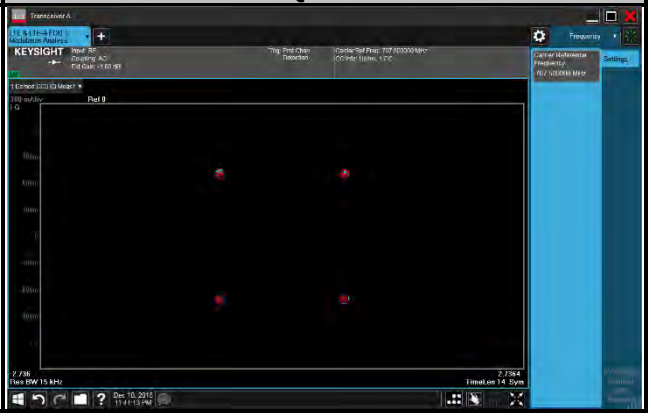
| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 66 | |
| Channel 132322 | |
| QPSK | 16QAM |
|  |  |

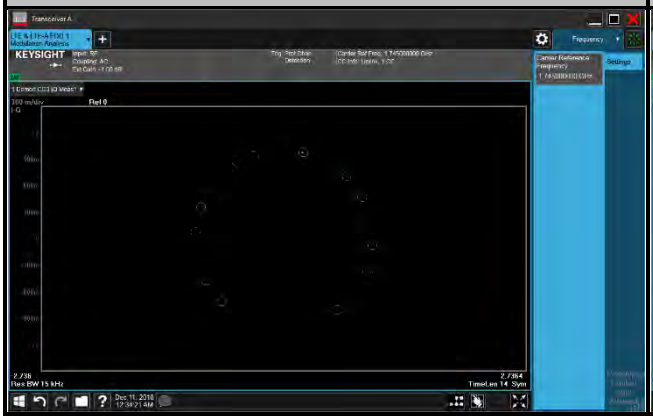
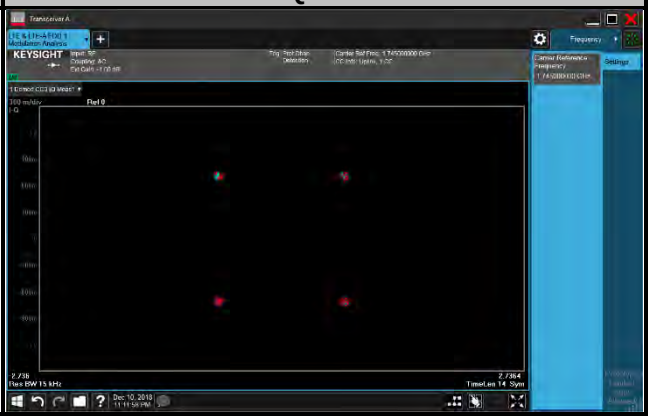
## NB-IoT

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 4 | |
| Channel 20175 | |
| BPSK | QPSK |
|  |  |

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 12 | |
| Channel 23095 | |
| BPSK | QPSK |
|  |  |

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 13 | |
| Channel 23230 | |
| BPSK | QPSK |
|  |  |

| Spectrum Plot of Measurement | |
|---|---|
| LTE Band 17 | |
| Channel 23790 | |
| BPSK | QPSK |
|  |  |

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

## 4.3 Frequency Stability Measurement

### 4.3.1 Limits of Frequency Stability Measurement

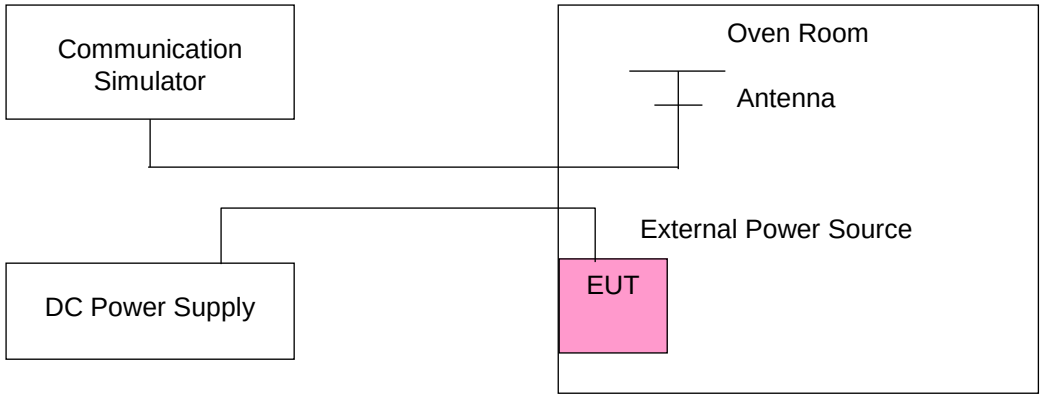
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 4.3.2 Test Procedure

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

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

### 4.3.3 Test Setup



4.3.4 Test Results

**Cat-M1**

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1710.700002 | 0.001 | 1754.300002 | 0.001 |
| 10.2 | 1710.700002 | 0.001 | 1754.300001 | 0.001 |
| 13.8 | 1710.700004 | 0.002 | 1754.300002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1710.700002 | 0.001 | 1754.300002 | 0.001 |
| -20 | 1710.700003 | 0.002 | 1754.300002 | 0.001 |
| -10 | 1710.700001 | 0.001 | 1754.300004 | 0.002 |
| 0 | 1710.700002 | 0.001 | 1754.300003 | 0.002 |
| 10 | 1710.700003 | 0.002 | 1754.300003 | 0.002 |
| 20 | 1710.700002 | 0.001 | 1754.300002 | 0.001 |
| 30 | 1710.699997 | -0.002 | 1754.299997 | -0.002 |
| 40 | 1710.699997 | -0.002 | 1754.299997 | -0.002 |
| 50 | 1710.699996 | -0.002 | 1754.299997 | -0.002 |
| 60 | 1710.699997 | -0.002 | 1754.299998 | -0.001 |
| 70 | 1710.699996 | -0.002 | 1754.299997 | -0.002 |
| 80 | 1710.699996 | -0.002 | 1754.299997 | -0.002 |
| 85 | 1710.699998 | -0.001 | 1754.299998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1711.500002 | 0.001 | 1753.500004 | 0.002 |
| 10.2 | 1711.500002 | 0.001 | 1753.500002 | 0.001 |
| 13.8 | 1711.500002 | 0.001 | 1753.500002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1711.500002 | 0.001 | 1753.500003 | 0.001 |
| -20 | 1711.500002 | 0.001 | 1753.500003 | 0.002 |
| -10 | 1711.500003 | 0.002 | 1753.500004 | 0.002 |
| 0 | 1711.500003 | 0.002 | 1753.500001 | 0.001 |
| 10 | 1711.500001 | 0.001 | 1753.500003 | 0.002 |
| 20 | 1711.500001 | 0.001 | 1753.500004 | 0.002 |
| 30 | 1711.499998 | -0.001 | 1753.499998 | -0.001 |
| 40 | 1711.499997 | -0.002 | 1753.499998 | -0.001 |
| 50 | 1711.499996 | -0.002 | 1753.499999 | -0.001 |
| 60 | 1711.499996 | -0.002 | 1753.499999 | -0.001 |
| 70 | 1711.499996 | -0.002 | 1753.499998 | -0.001 |
| 50 | 1711.499999 | -0.001 | 1753.499997 | -0.002 |
| 85 | 1711.499996 | -0.002 | 1753.499996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1712.500003 | 0.002 | 1752.500003 | 0.002 |
| 10.2 | 1712.500002 | 0.001 | 1752.500004 | 0.002 |
| 13.8 | 1712.500003 | 0.002 | 1752.500003 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1712.500004 | 0.002 | 1752.500002 | 0.001 |
| -20 | 1712.500004 | 0.002 | 1752.500004 | 0.002 |
| -10 | 1712.500004 | 0.002 | 1752.500004 | 0.002 |
| 0 | 1712.500003 | 0.002 | 1752.500003 | 0.002 |
| 10 | 1712.500003 | 0.002 | 1752.500002 | 0.001 |
| 20 | 1712.500002 | 0.001 | 1752.500003 | 0.001 |
| 30 | 1712.499998 | -0.001 | 1752.499997 | -0.002 |
| 40 | 1712.499996 | -0.002 | 1752.499999 | -0.001 |
| 50 | 1712.499997 | -0.002 | 1752.499998 | -0.001 |
| 60 | 1712.499997 | -0.002 | 1752.499996 | -0.002 |
| 70 | 1712.499999 | -0.001 | 1752.499999 | -0.001 |
| 50 | 1712.499999 | -0.001 | 1752.499999 | -0.001 |
| 85 | 1712.499997 | -0.002 | 1752.499997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1715.000002 | 0.001 | 1750.000003 | 0.002 |
| 10.2 | 1715.000002 | 0.001 | 1750.000003 | 0.002 |
| 13.8 | 1715.000003 | 0.002 | 1750.000003 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1715.000002 | 0.001 | 1750.000003 | 0.002 |
| -20 | 1715.000003 | 0.002 | 1750.000001 | 0.001 |
| -10 | 1715.000002 | 0.001 | 1750.000002 | 0.001 |
| 0 | 1715.000003 | 0.002 | 1750.000002 | 0.001 |
| 10 | 1715.000002 | 0.001 | 1750.000002 | 0.001 |
| 20 | 1715.000003 | 0.002 | 1750.000004 | 0.002 |
| 30 | 1714.999998 | -0.001 | 1749.999996 | -0.002 |
| 40 | 1714.999997 | -0.002 | 1749.999999 | -0.001 |
| 50 | 1714.999996 | -0.002 | 1749.999999 | -0.001 |
| 60 | 1714.999996 | -0.002 | 1749.999996 | -0.002 |
| 70 | 1714.999998 | -0.001 | 1749.999997 | -0.002 |
| 50 | 1714.999997 | -0.002 | 1749.999997 | -0.002 |
| 85 | 1714.999996 | -0.002 | 1749.999996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1717.500002 | 0.001 | 1747.500002 | 0.001 |
| 10.2 | 1717.500002 | 0.001 | 1747.500003 | 0.002 |
| 13.8 | 1717.500004 | 0.002 | 1747.500002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1717.500003 | 0.002 | 1747.500001 | 0.001 |
| -20 | 1717.500002 | 0.001 | 1747.500003 | 0.002 |
| -10 | 1717.500004 | 0.002 | 1747.500003 | 0.002 |
| 0 | 1717.500002 | 0.001 | 1747.500003 | 0.002 |
| 10 | 1717.500004 | 0.002 | 1747.500004 | 0.002 |
| 20 | 1717.500004 | 0.002 | 1747.500003 | 0.002 |
| 30 | 1717.499999 | -0.001 | 1747.499997 | -0.002 |
| 40 | 1717.499999 | -0.001 | 1747.499997 | -0.002 |
| 50 | 1717.499998 | -0.001 | 1747.499996 | -0.002 |
| 60 | 1717.499997 | -0.002 | 1747.499996 | -0.002 |
| 70 | 1717.499999 | -0.001 | 1747.499997 | -0.002 |
| 50 | 1717.499997 | -0.002 | 1747.499999 | -0.001 |
| 85 | 1717.499999 | -0.001 | 1747.499997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1720.000003 | 0.002 | 1745.000004 | 0.002 |
| 10.2 | 1720.000004 | 0.002 | 1745.000003 | 0.002 |
| 13.8 | 1720.000001 | 0.001 | 1745.000002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1720.000001 | 0.001 | 1745.000004 | 0.002 |
| -20 | 1720.000004 | 0.002 | 1745.000002 | 0.001 |
| -10 | 1720.000002 | 0.001 | 1745.000002 | 0.001 |
| 0 | 1720.000004 | 0.002 | 1745.000003 | 0.002 |
| 10 | 1720.000003 | 0.002 | 1745.000001 | 0.001 |
| 20 | 1720.000001 | 0.001 | 1745.000004 | 0.002 |
| 30 | 1719.999998 | -0.001 | 1744.999999 | -0.001 |
| 40 | 1719.999998 | -0.001 | 1744.999999 | -0.001 |
| 50 | 1719.999998 | -0.001 | 1744.999999 | -0.001 |
| 60 | 1719.999996 | -0.002 | 1744.999998 | -0.001 |
| 70 | 1719.999999 | -0.001 | 1744.999996 | -0.002 |
| 50 | 1719.999999 | -0.001 | 1744.999997 | -0.002 |
| 85 | 1719.999998 | -0.001 | 1744.999998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 699.700002 | 0.002 | 715.300003 | 0.004 |
| 10.2 | 699.700002 | 0.003 | 715.300003 | 0.004 |
| 13.8 | 699.700001 | 0.001 | 715.300004 | 0.006 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 699.700002 | 0.002 | 715.300002 | 0.002 |
| -20 | 699.700004 | 0.006 | 715.300003 | 0.004 |
| -10 | 699.700002 | 0.003 | 715.300004 | 0.005 |
| 0 | 699.700001 | 0.002 | 715.300002 | 0.003 |
| 10 | 699.700003 | 0.004 | 715.300002 | 0.003 |
| 20 | 699.700002 | 0.003 | 715.300003 | 0.004 |
| 30 | 699.699998 | -0.003 | 715.299998 | -0.003 |
| 40 | 699.699998 | -0.003 | 715.299998 | -0.003 |
| 50 | 699.699999 | -0.002 | 715.299999 | -0.001 |
| 60 | 699.699997 | -0.005 | 715.299996 | -0.005 |
| 70 | 699.699997 | -0.005 | 715.299998 | -0.003 |
| 80 | 699.699996 | -0.005 | 715.299998 | -0.002 |
| 85 | 699.699997 | -0.004 | 715.299999 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 700.500003 | 0.004 | 714.500004 | 0.005 |
| 10.2 | 700.500004 | 0.006 | 714.500003 | 0.004 |
| 13.8 | 700.500003 | 0.004 | 714.500003 | 0.004 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 700.500002 | 0.003 | 714.500002 | 0.003 |
| -20 | 700.500004 | 0.005 | 714.500002 | 0.003 |
| -10 | 700.500002 | 0.003 | 714.500003 | 0.005 |
| 0 | 700.500002 | 0.003 | 714.500002 | 0.002 |
| 10 | 700.500001 | 0.002 | 714.500002 | 0.003 |
| 20 | 700.500003 | 0.005 | 714.500002 | 0.003 |
| 30 | 700.499996 | -0.005 | 714.499997 | -0.004 |
| 40 | 700.499998 | -0.003 | 714.499998 | -0.002 |
| 50 | 700.499998 | -0.003 | 714.499998 | -0.003 |
| 60 | 700.499997 | -0.004 | 714.499996 | -0.005 |
| 70 | 700.499999 | -0.002 | 714.499998 | -0.003 |
| 50 | 700.499998 | -0.003 | 714.499998 | -0.003 |
| 85 | 700.499997 | -0.005 | 714.499998 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 701.500003 | 0.005 | 713.500001 | 0.002 |
| 10.2 | 701.500001 | 0.002 | 713.500001 | 0.002 |
| 13.8 | 701.500003 | 0.004 | 713.500002 | 0.003 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 701.500001 | 0.002 | 713.500001 | 0.002 |
| -20 | 701.500004 | 0.005 | 713.500001 | 0.001 |
| -10 | 701.500004 | 0.005 | 713.500002 | 0.002 |
| 0 | 701.500004 | 0.005 | 713.500002 | 0.002 |
| 10 | 701.500003 | 0.005 | 713.500003 | 0.004 |
| 20 | 701.500004 | 0.006 | 713.500002 | 0.003 |
| 30 | 701.499999 | -0.002 | 713.499997 | -0.005 |
| 40 | 701.499998 | -0.003 | 713.499996 | -0.005 |
| 50 | 701.499996 | -0.005 | 713.499998 | -0.003 |
| 60 | 701.499998 | -0.003 | 713.499997 | -0.004 |
| 70 | 701.499999 | -0.002 | 713.499998 | -0.003 |
| 50 | 701.499996 | -0.005 | 713.499996 | -0.005 |
| 85 | 701.499997 | -0.005 | 713.499998 | -0.003 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 704.000001 | 0.002 | 711.000002 | 0.002 |
| 10.2 | 704.000001 | 0.001 | 711.000004 | 0.005 |
| 13.8 | 704.000004 | 0.005 | 711.000002 | 0.003 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 704.000003 | 0.005 | 711.000003 | 0.004 |
| -20 | 704.000004 | 0.006 | 711.000003 | 0.005 |
| -10 | 704.000003 | 0.004 | 711.000004 | 0.005 |
| 0 | 704.000001 | 0.001 | 711.000003 | 0.004 |
| 10 | 704.000002 | 0.003 | 711.000004 | 0.006 |
| 20 | 704.000003 | 0.004 | 711.000004 | 0.005 |
| 30 | 703.999998 | -0.002 | 710.999998 | -0.003 |
| 40 | 703.999998 | -0.003 | 710.999996 | -0.006 |
| 50 | 703.999998 | -0.003 | 710.999997 | -0.005 |
| 60 | 703.999998 | -0.003 | 710.999997 | -0.005 |
| 70 | 703.999999 | -0.002 | 710.999997 | -0.004 |
| 50 | 703.999997 | -0.005 | 710.999997 | -0.004 |
| 85 | 703.999997 | -0.004 | 710.999999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 13 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 779.500001 | 0.001 | 784.500003 | 0.004 |
| 10.2 | 779.500004 | 0.005 | 784.500003 | 0.003 |
| 13.8 | 779.500003 | 0.004 | 784.500003 | 0.003 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 13 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 779.500001 | 0.001 | 784.500002 | 0.002 |
| -20 | 779.500002 | 0.003 | 784.500004 | 0.005 |
| -10 | 779.500002 | 0.002 | 784.500003 | 0.004 |
| 0 | 779.500002 | 0.002 | 784.500004 | 0.005 |
| 10 | 779.500004 | 0.005 | 784.500002 | 0.002 |
| 20 | 779.500001 | 0.002 | 784.500003 | 0.003 |
| 30 | 779.499996 | -0.005 | 784.499996 | -0.005 |
| 40 | 779.499997 | -0.004 | 784.499997 | -0.004 |
| 50 | 779.499997 | -0.004 | 784.499996 | -0.005 |
| 60 | 779.499999 | -0.002 | 784.499999 | -0.001 |
| 70 | 779.499998 | -0.002 | 784.499998 | -0.003 |
| 80 | 779.499998 | -0.003 | 784.499997 | -0.003 |
| 85 | 779.499998 | -0.003 | 784.499997 | -0.004 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 13 | |
|---|---|---|
| | Channel Bandwidth: 10 MHz | |
| | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 782.000002 | 0.003 |
| 10.2 | 782.000004 | 0.005 |
| 13.8 | 782.000002 | 0.003 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 13 | |
|---|---|---|
| | Channel Bandwidth: 10 MHz | |
| | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 782.000002 | 0.003 |
| -20 | 782.000001 | 0.001 |
| -10 | 782.000003 | 0.004 |
| 0 | 782.000004 | 0.005 |
| 10 | 782.000002 | 0.002 |
| 20 | 782.000004 | 0.005 |
| 30 | 781.999998 | -0.003 |
| 40 | 781.999997 | -0.004 |
| 50 | 781.999999 | -0.002 |
| 60 | 781.999999 | -0.002 |
| 70 | 781.999996 | -0.005 |
| 50 | 781.999998 | -0.003 |
| 85 | 781.999999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 706.500002 | 0.002 | 713.500003 | 0.004 |
| 10.2 | 706.500001 | 0.002 | 713.500002 | 0.002 |
| 13.8 | 706.500003 | 0.005 | 713.500004 | 0.005 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 706.500003 | 0.004 | 713.500001 | 0.002 |
| -20 | 706.500002 | 0.003 | 713.500001 | 0.002 |
| -10 | 706.500004 | 0.005 | 713.500002 | 0.002 |
| 0 | 706.500004 | 0.005 | 713.500002 | 0.003 |
| 10 | 706.500003 | 0.005 | 713.500003 | 0.004 |
| 20 | 706.500003 | 0.005 | 713.500003 | 0.004 |
| 30 | 706.499999 | -0.002 | 713.499997 | -0.004 |
| 40 | 706.499997 | -0.005 | 713.499997 | -0.004 |
| 50 | 706.499997 | -0.005 | 713.499998 | -0.002 |
| 60 | 706.499998 | -0.003 | 713.499997 | -0.005 |
| 70 | 706.499998 | -0.004 | 713.499997 | -0.004 |
| 80 | 706.499998 | -0.004 | 713.499999 | -0.001 |
| 85 | 706.499996 | -0.005 | 713.499999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 709.000003 | 0.004 | 711.000001 | 0.001 |
| 10.2 | 709.000003 | 0.004 | 711.000001 | 0.002 |
| 13.8 | 709.000002 | 0.002 | 711.000001 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 709.000004 | 0.005 | 711.000004 | 0.005 |
| -20 | 709.000001 | 0.002 | 711.000002 | 0.002 |
| -10 | 709.000003 | 0.004 | 711.000001 | 0.002 |
| 0 | 709.000003 | 0.004 | 711.000002 | 0.002 |
| 10 | 709.000002 | 0.003 | 711.000002 | 0.002 |
| 20 | 709.000003 | 0.004 | 711.000003 | 0.005 |
| 30 | 708.999996 | -0.005 | 710.999999 | -0.002 |
| 40 | 708.999998 | -0.003 | 710.999997 | -0.005 |
| 50 | 708.999999 | -0.002 | 710.999999 | -0.002 |
| 60 | 708.999998 | -0.003 | 710.999999 | -0.002 |
| 70 | 708.999998 | -0.004 | 710.999998 | -0.003 |
| 50 | 708.999998 | -0.003 | 710.999997 | -0.004 |
| 85 | 708.999997 | -0.005 | 710.999997 | -0.004 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1710.700004 | 0.002 | 1779.300004 | 0.002 |
| 10.2 | 1710.700004 | 0.002 | 1779.300002 | 0.001 |
| 13.8 | 1710.700004 | 0.002 | 1779.300004 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1710.700002 | 0.001 | 1779.300003 | 0.002 |
| -20 | 1710.700002 | 0.001 | 1779.300001 | 0.001 |
| -10 | 1710.700004 | 0.002 | 1779.300001 | 0.001 |
| 0 | 1710.700001 | 0.001 | 1779.300003 | 0.001 |
| 10 | 1710.700001 | 0.001 | 1779.300001 | 0.001 |
| 20 | 1710.700004 | 0.002 | 1779.300001 | 0.001 |
| 30 | 1710.699998 | -0.001 | 1779.299996 | -0.002 |
| 40 | 1710.699998 | -0.001 | 1779.299997 | -0.001 |
| 50 | 1710.699997 | -0.002 | 1779.299996 | -0.002 |
| 60 | 1710.699999 | -0.001 | 1779.299999 | -0.001 |
| 70 | 1710.699998 | -0.001 | 1779.299997 | -0.002 |
| 80 | 1710.699996 | -0.002 | 1779.299996 | -0.002 |
| 85 | 1710.699997 | -0.002 | 1779.299999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1711.500003 | 0.002 | 1778.500004 | 0.002 |
| 10.2 | 1711.500001 | 0.001 | 1778.500003 | 0.002 |
| 13.8 | 1711.500001 | 0.001 | 1778.500004 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 3 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1711.500002 | 0.001 | 1778.500002 | 0.001 |
| -20 | 1711.500001 | 0.001 | 1778.500003 | 0.002 |
| -10 | 1711.500002 | 0.001 | 1778.500002 | 0.001 |
| 0 | 1711.500003 | 0.002 | 1778.500002 | 0.001 |
| 10 | 1711.500003 | 0.002 | 1778.500003 | 0.002 |
| 20 | 1711.500003 | 0.002 | 1778.500002 | 0.001 |
| 30 | 1711.499997 | -0.002 | 1778.499996 | -0.002 |
| 40 | 1711.499997 | -0.002 | 1778.499998 | -0.001 |
| 50 | 1711.499999 | -0.001 | 1778.499999 | -0.001 |
| 60 | 1711.499997 | -0.002 | 1778.499999 | -0.001 |
| 70 | 1711.499999 | -0.001 | 1778.499997 | -0.002 |
| 50 | 1711.499997 | -0.002 | 1778.499999 | -0.001 |
| 85 | 1711.499998 | -0.001 | 1778.499996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1712.500001 | 0.001 | 1777.500003 | 0.002 |
| 10.2 | 1712.500002 | 0.001 | 1777.500001 | 0.001 |
| 13.8 | 1712.500002 | 0.001 | 1777.500002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1712.500002 | 0.001 | 1777.500003 | 0.002 |
| -20 | 1712.500003 | 0.002 | 1777.500002 | 0.001 |
| -10 | 1712.500004 | 0.002 | 1777.500003 | 0.001 |
| 0 | 1712.500002 | 0.001 | 1777.500002 | 0.001 |
| 10 | 1712.500001 | 0.001 | 1777.500002 | 0.001 |
| 20 | 1712.500003 | 0.002 | 1777.500002 | 0.001 |
| 30 | 1712.499998 | -0.001 | 1777.499999 | -0.001 |
| 40 | 1712.499997 | -0.002 | 1777.499999 | -0.001 |
| 50 | 1712.499997 | -0.002 | 1777.499997 | -0.002 |
| 60 | 1712.499996 | -0.002 | 1777.499998 | -0.001 |
| 70 | 1712.499999 | -0.001 | 1777.499996 | -0.002 |
| 50 | 1712.499997 | -0.002 | 1777.499998 | -0.001 |
| 85 | 1712.499999 | -0.001 | 1777.499999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1715.000004 | 0.002 | 1775.000004 | 0.002 |
| 10.2 | 1715.000001 | 0.001 | 1775.000002 | 0.001 |
| 13.8 | 1715.000003 | 0.002 | 1775.000002 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 3.30 | 1715.000003 | 1775.000003 | 0.002 |
| -20 | 2.80 | 1715.000003 | 1775.000003 | 0.002 |
| -10 | 1.00 | 1715.000001 | 1775.000002 | 0.001 |
| 0 | 1.20 | 1715.000001 | 1775.000003 | 0.002 |
| 10 | 3.70 | 1715.000004 | 1775.000002 | 0.001 |
| 20 | 1.80 | 1715.000002 | 1775.000004 | 0.002 |
| 30 | -1.60 | 1714.999998 | 1774.999997 | -0.002 |
| 40 | -3.90 | 1714.999996 | 1774.999997 | -0.002 |
| 50 | -3.40 | 1714.999997 | 1774.999997 | -0.002 |
| 60 | -1.40 | 1714.999999 | 1774.999997 | -0.002 |
| 70 | -3.10 | 1714.999997 | 1774.999998 | -0.001 |
| 50 | -2.60 | 1714.999997 | 1774.999996 | -0.002 |
| 85 | -2.20 | 1714.999998 | 1774.999998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1717.500002 | 0.001 | 1772.500001 | 0.001 |
| 10.2 | 1717.500002 | 0.001 | 1772.500004 | 0.002 |
| 13.8 | 1717.500001 | 0.001 | 1772.500004 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1717.500004 | 0.002 | 1772.500004 | 0.002 |
| -20 | 1717.500004 | 0.002 | 1772.500004 | 0.002 |
| -10 | 1717.500003 | 0.002 | 1772.500003 | 0.002 |
| 0 | 1717.500002 | 0.001 | 1772.500002 | 0.001 |
| 10 | 1717.500002 | 0.001 | 1772.500002 | 0.001 |
| 20 | 1717.500002 | 0.001 | 1772.500002 | 0.001 |
| 30 | 1717.499997 | -0.002 | 1772.499997 | -0.002 |
| 40 | 1717.499999 | -0.001 | 1772.499997 | -0.001 |
| 50 | 1717.499998 | -0.001 | 1772.499999 | -0.001 |
| 60 | 1717.499999 | -0.001 | 1772.499996 | -0.002 |
| 70 | 1717.499997 | -0.002 | 1772.499997 | -0.002 |
| 50 | 1717.499997 | -0.002 | 1772.499997 | -0.001 |
| 85 | 1717.499997 | -0.002 | 1772.499999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1720.000002 | 0.001 | 1770.000002 | 0.001 |
| 10.2 | 1720.000002 | 0.001 | 1770.000002 | 0.001 |
| 13.8 | 1720.000003 | 0.002 | 1770.000003 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Channel Bandwidth: 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1720.000003 | 0.002 | 1770.000003 | 0.002 |
| -20 | 1720.000003 | 0.002 | 1770.000003 | 0.001 |
| -10 | 1720.000004 | 0.002 | 1770.000002 | 0.001 |
| 0 | 1720.000002 | 0.001 | 1770.000002 | 0.001 |
| 10 | 1720.000004 | 0.002 | 1770.000003 | 0.002 |
| 20 | 1720.000004 | 0.002 | 1770.000001 | 0.001 |
| 30 | 1719.999997 | -0.002 | 1769.999997 | -0.002 |
| 40 | 1719.999998 | -0.001 | 1769.999998 | -0.001 |
| 50 | 1719.999997 | -0.002 | 1769.999996 | -0.002 |
| 60 | 1719.999996 | -0.002 | 1769.999997 | -0.002 |
| 70 | 1719.999996 | -0.002 | 1769.999998 | -0.001 |
| 50 | 1719.999996 | -0.002 | 1769.999998 | -0.001 |
| 85 | 1719.999996 | -0.002 | 1769.999999 | -0.001 |

**NB-IoT**

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1710.100003 | 0.002 | 1754.900002 | 0.001 |
| 10.2 | 1710.100003 | 0.002 | 1754.900003 | 0.002 |
| 13.8 | 1710.100002 | 0.001 | 1754.900004 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 4 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1710.100001 | 0.001 | 1754.900004 | 0.002 |
| -20 | 1710.100004 | 0.002 | 1754.900002 | 0.001 |
| -10 | 1710.100002 | 0.001 | 1754.900001 | 0.001 |
| 0 | 1710.100004 | 0.002 | 1754.900001 | 0.001 |
| 10 | 1710.100004 | 0.002 | 1754.900004 | 0.002 |
| 20 | 1710.099997 | -0.002 | 1754.899998 | -0.001 |
| 30 | 1710.099997 | -0.002 | 1754.899999 | -0.001 |
| 40 | 1710.099997 | -0.002 | 1754.899997 | -0.002 |
| 50 | 1710.099998 | -0.001 | 1754.899999 | -0.001 |
| 60 | 1710.099997 | -0.002 | 1754.899999 | -0.001 |
| 70 | 1710.099996 | -0.002 | 1754.899999 | -0.001 |
| 80 | 1710.099999 | -0.001 | 1754.899996 | -0.002 |
| 85 | 1710.099999 | -0.001 | 1754.899996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 699.100003 | 0.005 | 715.900003 | 0.004 |
| 10.2 | 699.100002 | 0.003 | 715.900002 | 0.003 |
| 13.8 | 699.100004 | 0.005 | 715.900002 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 12 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 699.100003 | 0.005 | 715.900002 | 0.003 |
| -20 | 699.100003 | 0.004 | 715.900003 | 0.004 |
| -10 | 699.100002 | 0.002 | 715.900002 | 0.003 |
| 0 | 699.100003 | 0.004 | 715.900003 | 0.005 |
| 10 | 699.100002 | 0.003 | 715.900004 | 0.006 |
| 20 | 699.099997 | -0.005 | 715.899998 | -0.003 |
| 30 | 699.099999 | -0.002 | 715.899999 | -0.002 |
| 40 | 699.099996 | -0.005 | 715.899996 | -0.005 |
| 50 | 699.099997 | -0.004 | 715.899996 | -0.005 |
| 60 | 699.099997 | -0.005 | 715.899996 | -0.006 |
| 70 | 699.099997 | -0.005 | 715.899998 | -0.003 |
| 80 | 699.099997 | -0.004 | 715.899996 | -0.005 |
| 85 | 699.099997 | -0.004 | 715.899999 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 13 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 777.100003 | 0.004 | 786.900003 | 0.003 |
| 10.2 | 777.100004 | 0.005 | 786.900002 | 0.002 |
| 13.8 | 777.100003 | 0.004 | 786.900001 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 13 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 777.100002 | 0.002 | 786.900004 | 0.005 |
| -20 | 777.100002 | 0.002 | 786.900003 | 0.003 |
| -10 | 777.100002 | 0.003 | 786.900002 | 0.003 |
| 0 | 777.100002 | 0.002 | 786.900001 | 0.001 |
| 10 | 777.100003 | 0.003 | 786.900001 | 0.001 |
| 20 | 777.099998 | -0.002 | 786.899997 | -0.004 |
| 30 | 777.099998 | -0.003 | 786.899998 | -0.003 |
| 40 | 777.099999 | -0.001 | 786.899999 | -0.002 |
| 50 | 777.099999 | -0.001 | 786.899998 | -0.002 |
| 60 | 777.099998 | -0.003 | 786.899998 | -0.003 |
| 70 | 777.099997 | -0.003 | 786.899996 | -0.005 |
| 80 | 777.099997 | -0.004 | 786.899997 | -0.004 |
| 85 | 777.099998 | -0.002 | 786.899998 | -0.003 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 699.100003 | 0.004 | 715.900003 | 0.005 |
| 10.2 | 699.100002 | 0.003 | 715.900003 | 0.004 |
| 13.8 | 699.100003 | 0.005 | 715.900002 | 0.002 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 17 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 699.100003 | 0.005 | 715.900002 | 0.002 |
| -20 | 699.100003 | 0.004 | 715.900002 | 0.003 |
| -10 | 699.100001 | 0.002 | 715.900003 | 0.004 |
| 0 | 699.100002 | 0.003 | 715.900003 | 0.004 |
| 10 | 699.100002 | 0.003 | 715.900003 | 0.005 |
| 20 | 699.099997 | -0.004 | 715.899997 | -0.004 |
| 30 | 699.099999 | -0.002 | 715.899998 | -0.003 |
| 40 | 699.099997 | -0.004 | 715.899998 | -0.003 |
| 50 | 699.099998 | -0.003 | 715.899997 | -0.005 |
| 60 | 704.099998 | -0.003 | 715.899996 | -0.006 |
| 70 | 704.099997 | -0.005 | 715.899998 | -0.003 |
| 80 | 704.099997 | -0.004 | 715.899996 | -0.005 |
| 85 | 699.099998 | -0.002 | 715.899999 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Volts) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 12 | 1710.100002 | 0.001 | 1779.900002 | 0.001 |
| 10.2 | 1710.100003 | 0.002 | 1779.900003 | 0.002 |
| 13.8 | 1710.100003 | 0.002 | 1779.900001 | 0.001 |

**Note:** The fixture defined the normal working voltage of the adapter is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

| Temp. (℃) | LTE Band 66 | | | |
|---|---|---|---|---|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1710.100002 | 0.001 | 1779.900003 | 0.002 |
| -20 | 1710.100004 | 0.002 | 1779.900003 | 0.002 |
| -10 | 1710.100004 | 0.002 | 1779.900002 | 0.001 |
| 0 | 1710.100002 | 0.001 | 1779.900003 | 0.002 |
| 10 | 1710.100004 | 0.002 | 1779.900001 | 0.001 |
| 20 | 1710.099999 | -0.001 | 1779.899999 | -0.001 |
| 30 | 1710.099998 | -0.001 | 1779.899998 | -0.001 |
| 40 | 1710.099996 | -0.002 | 1779.899996 | -0.002 |
| 50 | 1710.099997 | -0.002 | 1779.899999 | -0.001 |
| 60 | 1710.099998 | -0.001 | 1779.899999 | -0.001 |
| 70 | 1710.099996 | -0.002 | 1779.899999 | -0.001 |
| 80 | 1710.099997 | -0.002 | 1779.899996 | -0.002 |
| 85 | 1710.099999 | -0.001 | 1779.899997 | -0.002 |

## 4.4 Occupied Bandwidth Measurement

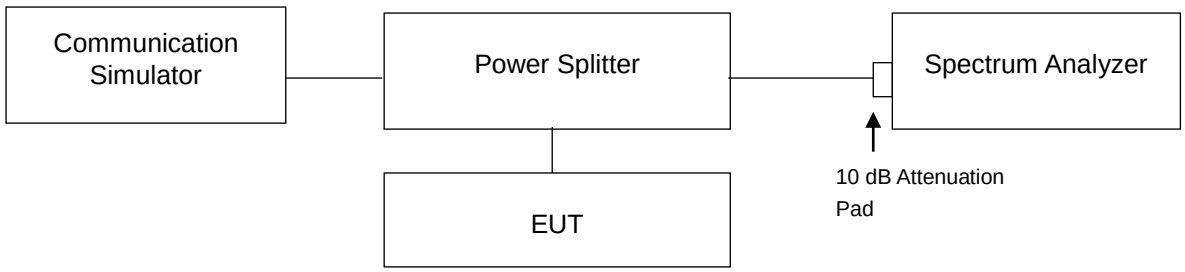
### 4.4.1 Limits of Occupied Bandwidth Measurement

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

### 4.4.2 Test Procedure

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

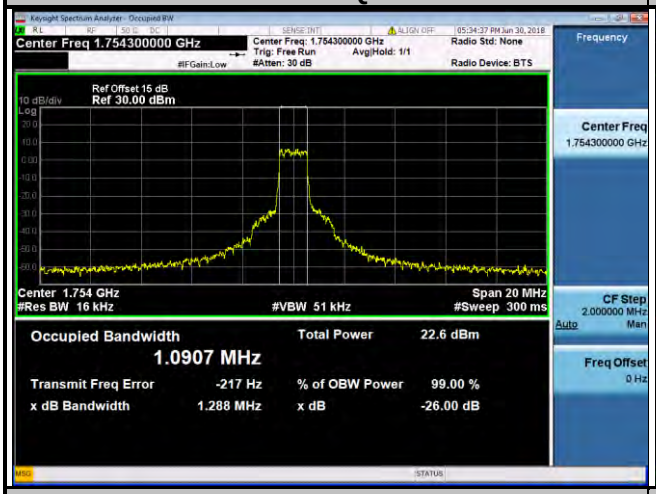
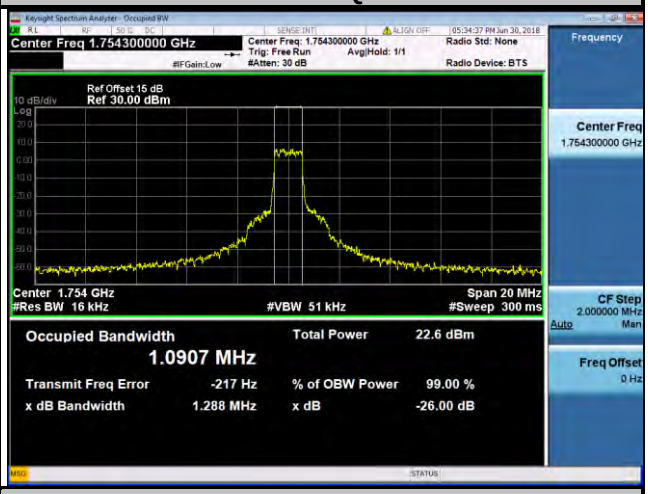
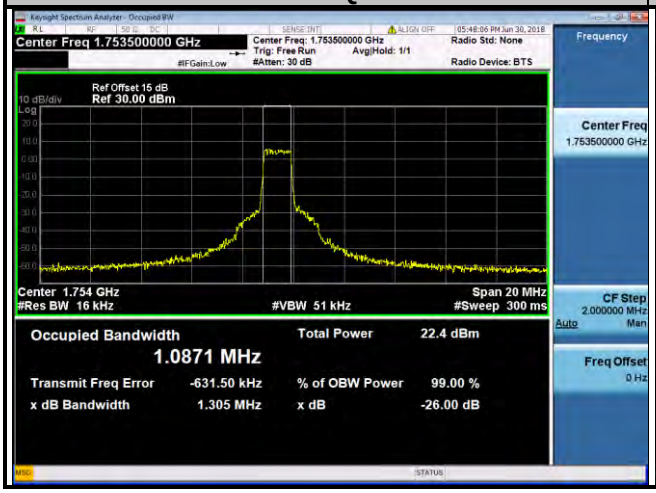
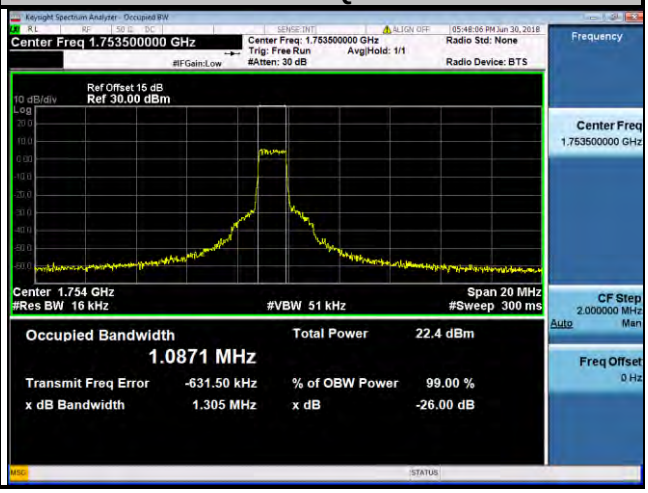
### 4.4.3 Test Setup



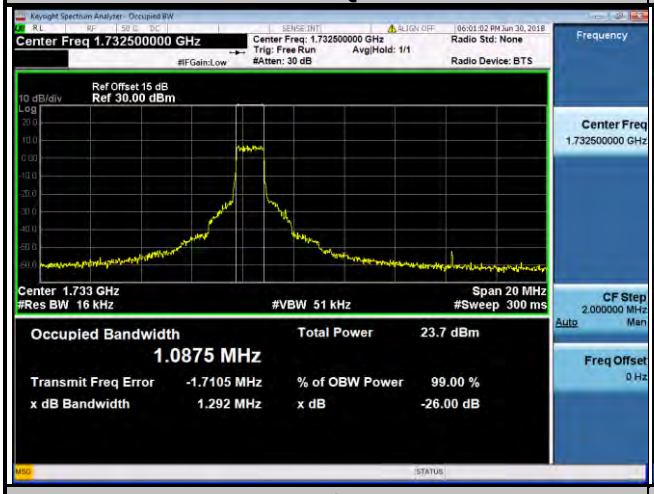
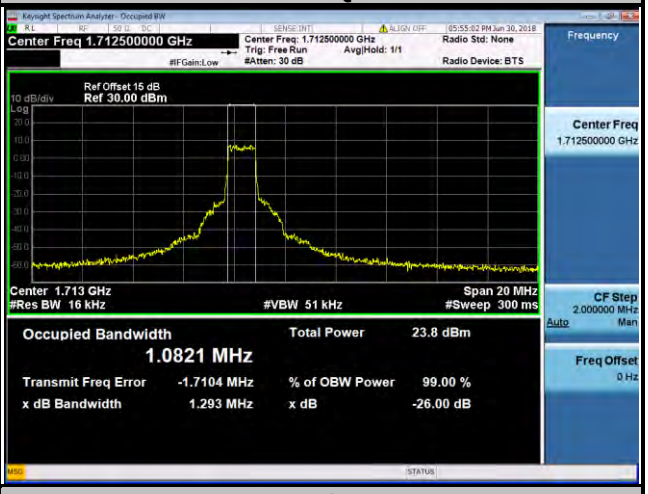
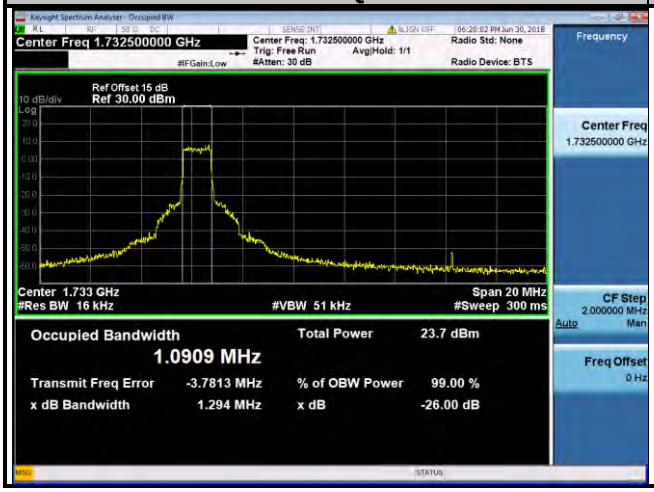
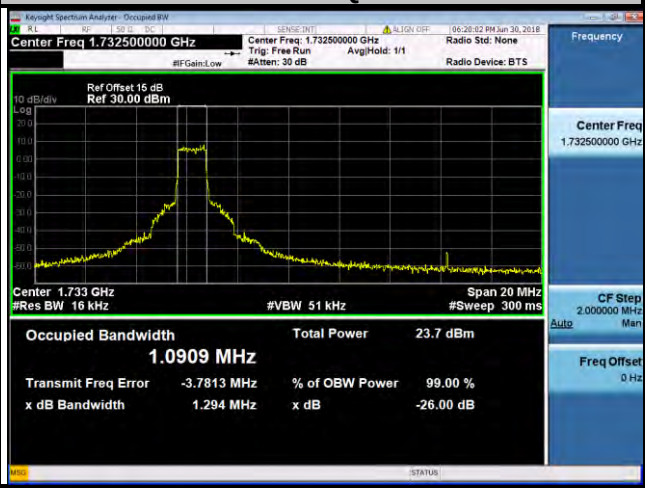
4.4.4 Test Result

**Cat-M1**

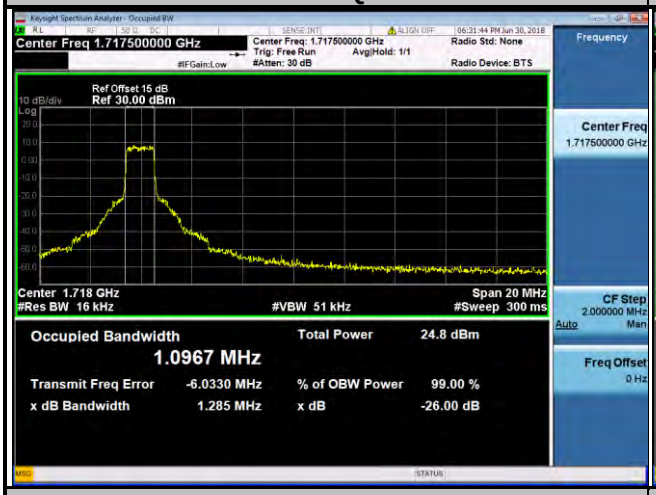
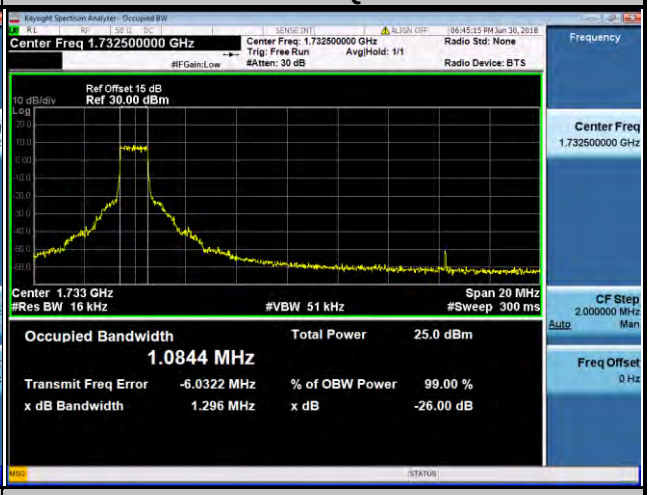
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 19957 | 1710.7 | 1.0862 | 0.9147 | 1.288 | 1.248 |
| 20175 | 1732.5 | 1.0898 | 0.9127 | 1.272 | 1.245 |
| 20393 | 1754.3 | 1.0907 | 0.9136 | 1.288 | 1.247 |
| **Channel Bandwidth: 3 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 19965 | 1711.5 | 1.0804 | 0.9160 | 1.277 | 1.231 |
| 20175 | 1732.5 | 1.0863 | 0.9203 | 1.261 | 1.229 |
| 20385 | 1753.5 | 1.0871 | 0.9216 | 1.305 | 1.215 |

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

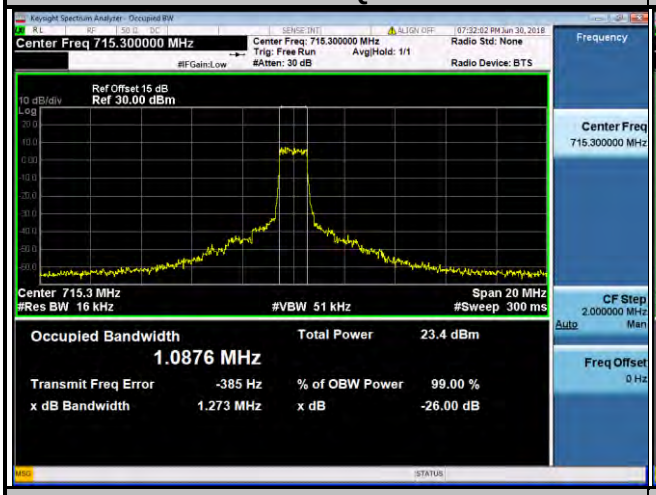
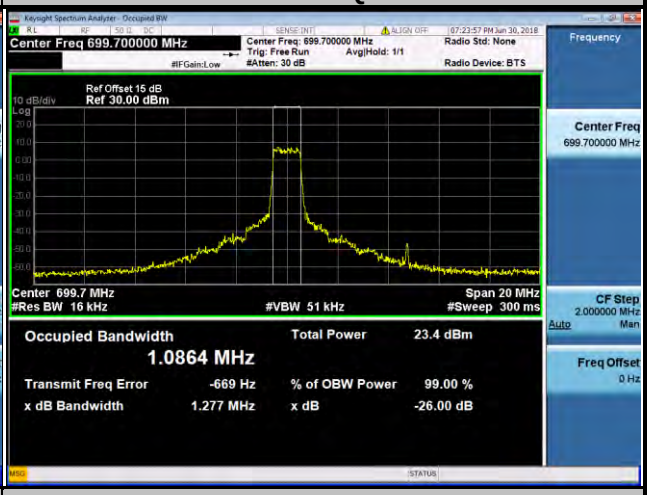
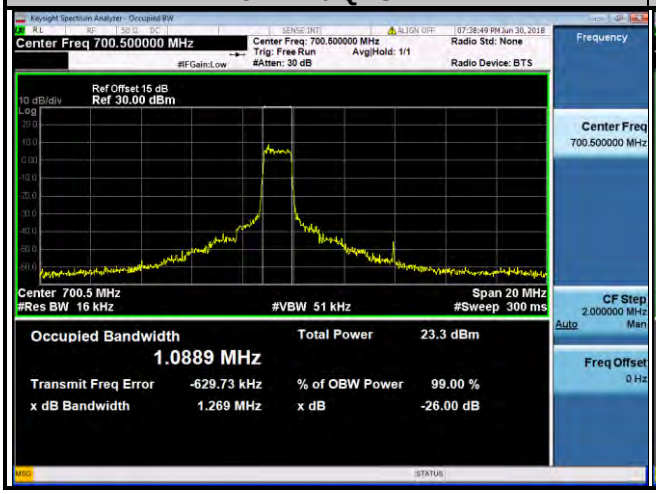
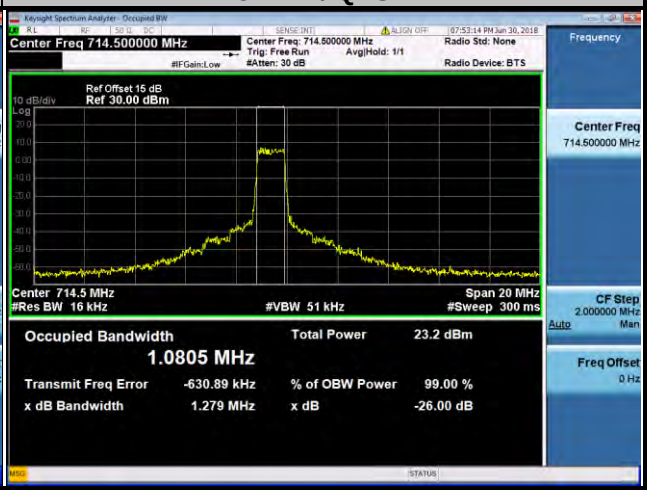
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| **Channel Bandwidth: 5 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 19975 | 1712.5 | 1.0821 | 0.9209 | 1.293 | 1.240 |
| 20175 | 1732.5 | 1.0875 | 0.9147 | 1.292 | 1.212 |
| 20375 | 1752.5 | 1.0823 | 0.9204 | 1.287 | 1.202 |
| **Channel Bandwidth: 10 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 20000 | 1715.0 | 1.0890 | 0.9155 | 1.273 | 1.274 |
| 20175 | 1732.5 | 1.0909 | 0.9161 | 1.294 | 1.235 |
| 20350 | 1750.0 | 1.0895 | 0.9206 | 1.292 | 1.246 |

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

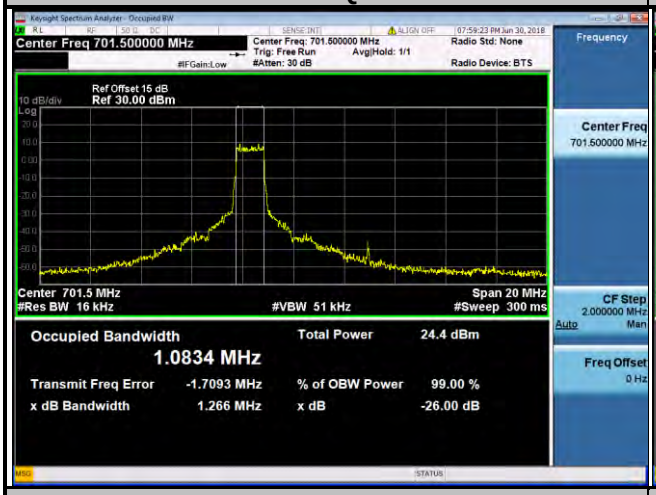
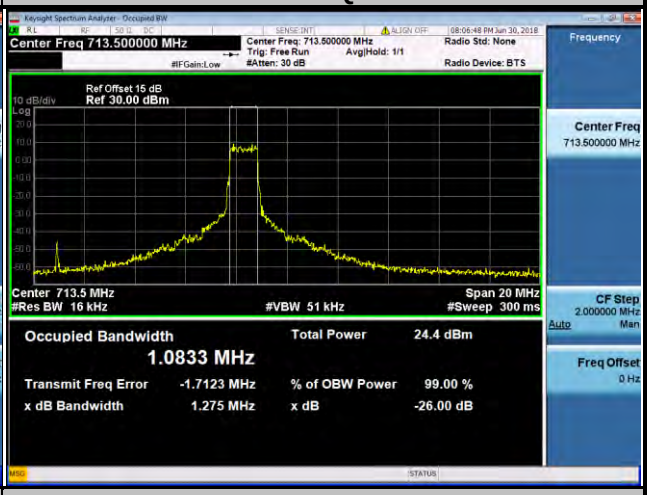
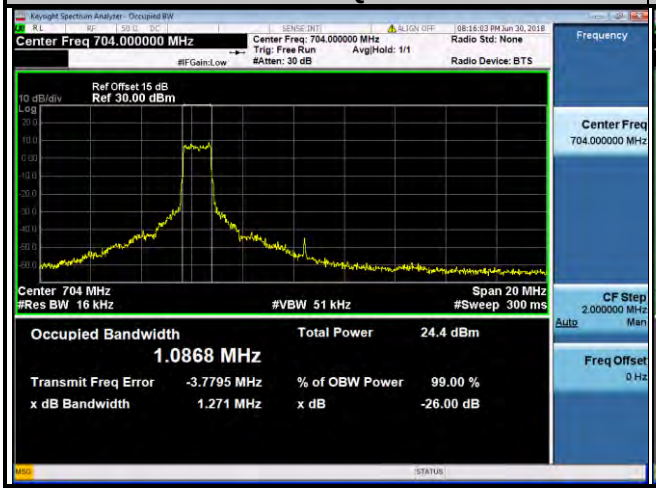
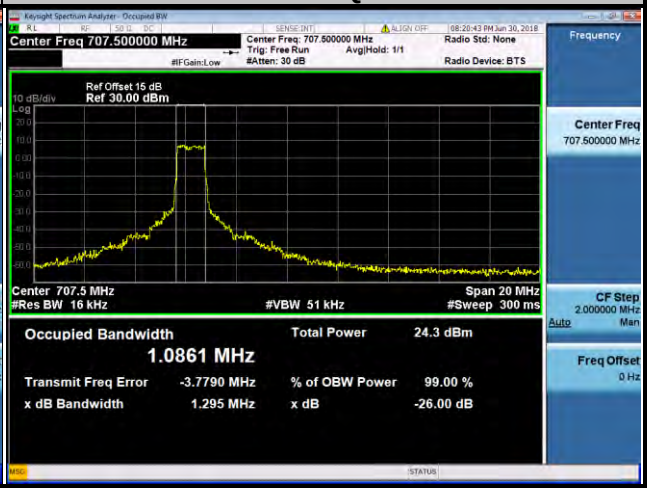
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 20025 | 1717.5 | 1.0967 | 0.9179 | 1.285 | 1.278 |
| 20175 | 1732.5 | 1.0844 | 0.9184 | 1.296 | 1.245 |
| 20325 | 1747.5 | 1.0844 | 0.9122 | 1.284 | 1.257 |
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 20050 | 1720.0 | 1.0871 | 0.9164 | 1.291 | 1.263 |
| 20175 | 1732.5 | 1.0900 | 0.9162 | 1.291 | 1.212 |
| 20300 | 1745.0 | 1.0884 | 0.9161 | 1.283 | 1.264 |

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

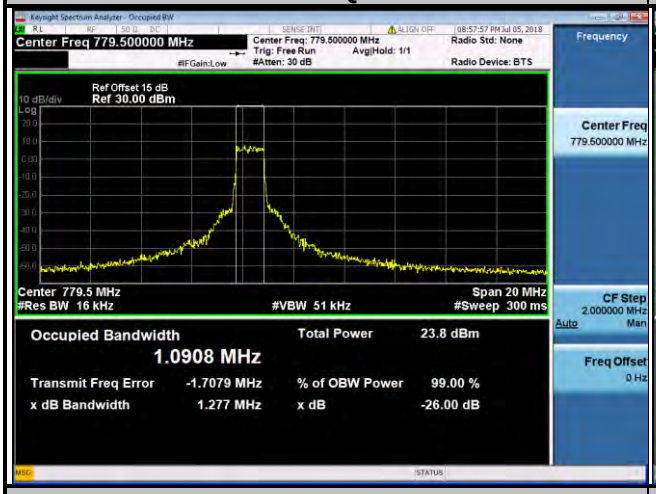
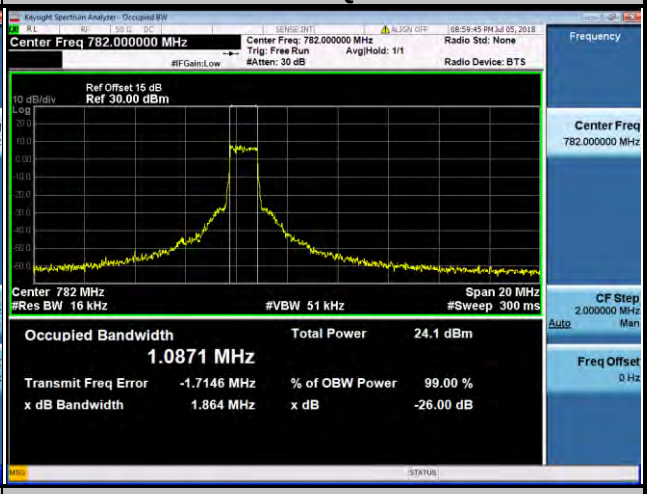
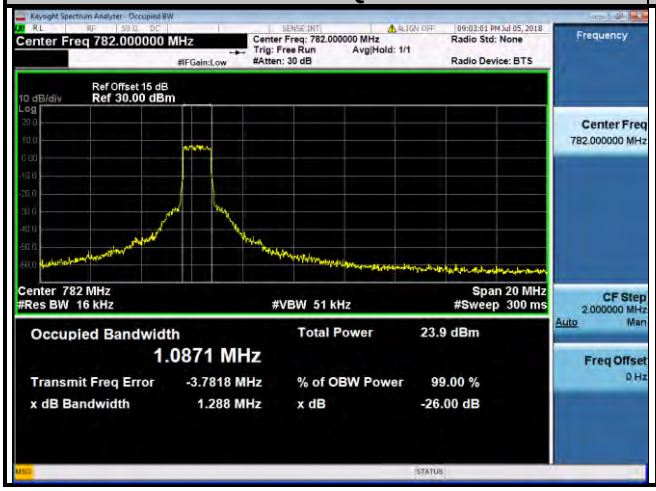
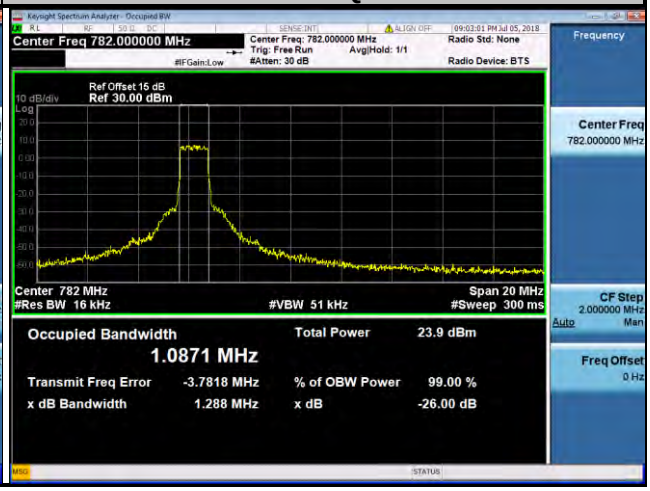
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23017 | 699.7 | 1.0864 | 0.9114 | 1.277 | 1.231 |
| 23095 | 707.5 | 1.0864 | 0.9134 | 1.273 | 1.188 |
| 23173 | 715.3 | 1.0876 | 0.9124 | 1.273 | 1.227 |
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23025 | 700.5 | 1.0889 | 0.9181 | 1.269 | 1.246 |
| 23095 | 707.5 | 1.0786 | 0.9147 | 1.256 | 1.234 |
| 23165 | 714.5 | 1.0805 | 0.9148 | 1.279 | 1.236 |

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

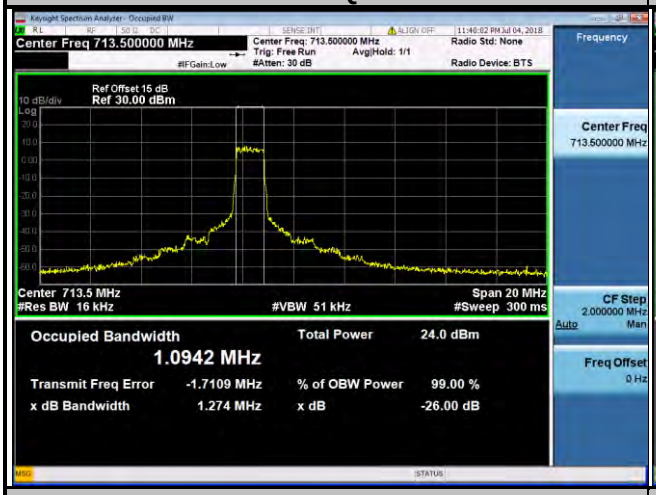
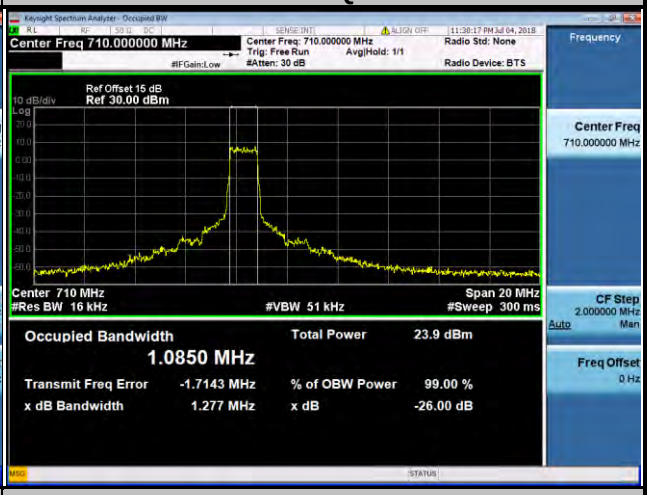
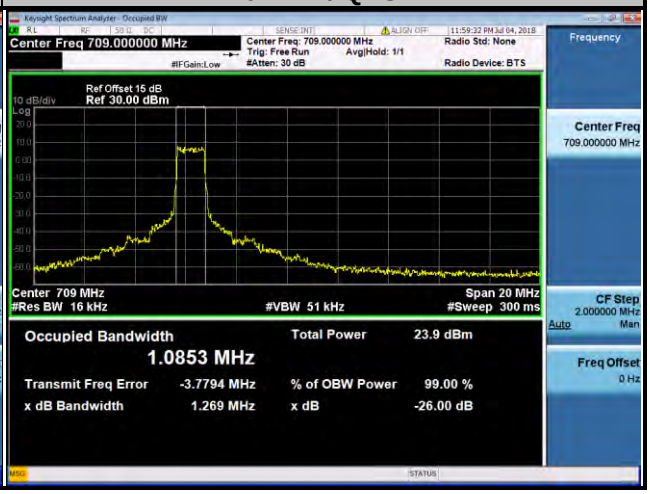
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23035 | 701.5 | 1.0834 | 0.9176 | 1.266 | 1.178 |
| 23095 | 707.5 | 1.0793 | 0.9192 | 1.262 | 1.248 |
| 23155 | 713.5 | 1.0833 | 0.9100 | 1.275 | 1.218 |
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23060 | 704.0 | 1.0868 | 0.9145 | 1.271 | 1.222 |
| 23095 | 707.5 | 1.0861 | 0.9126 | 1.295 | 1.227 |
| 23130 | 711.0 | 1.0868 | 0.9145 | 1.276 | 1.165 |

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

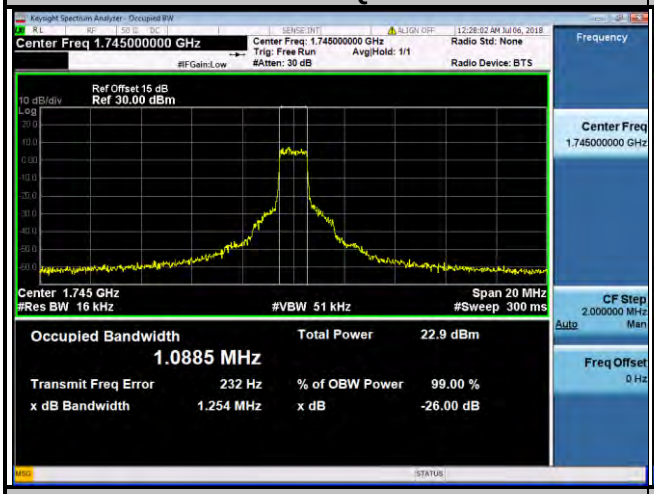
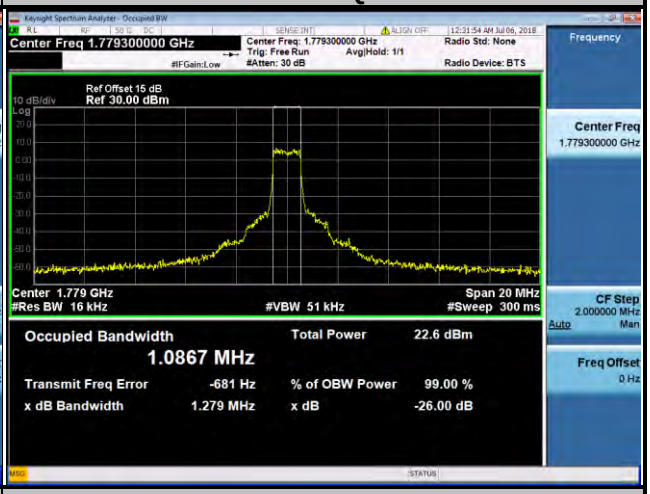
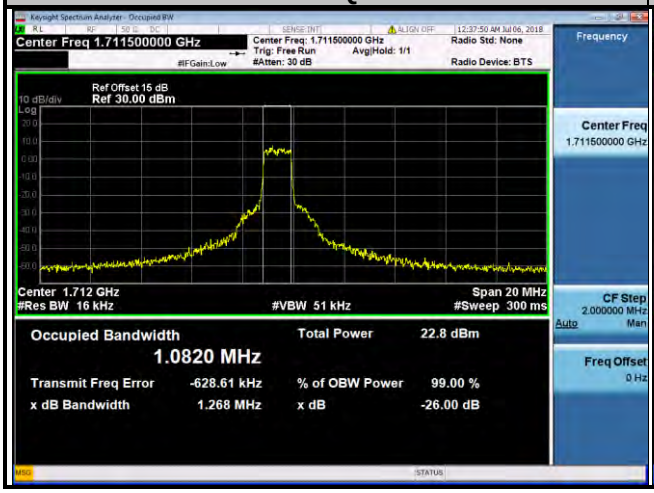
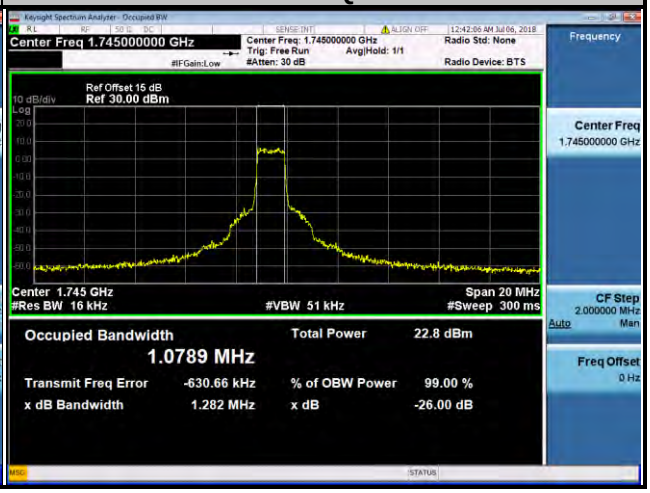
| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23205 | 779.5 | 1.0908 | 0.9137 | 1.277 | 1.242 |
| 23230 | 782.0 | 1.0871 | 0.9086 | 1.864 | 1.252 |
| 23255 | 784.5 | 1.0780 | 0.9168 | 1.283 | 1.213 |
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23230 | 782.0 | 1.0871 | 0.9121 | 1.288 | 1.236 |

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

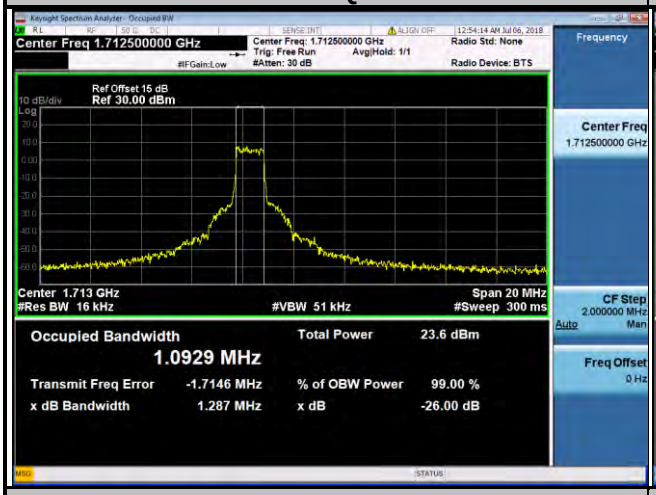
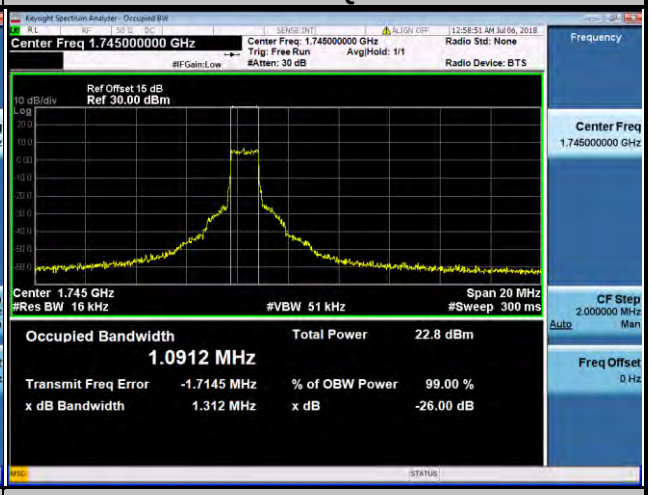
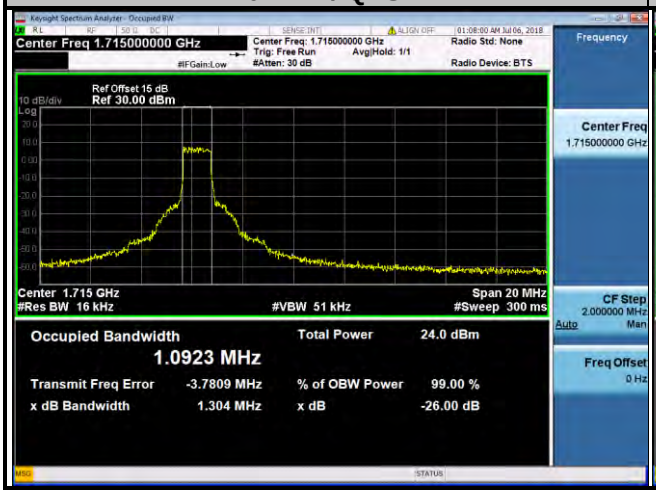
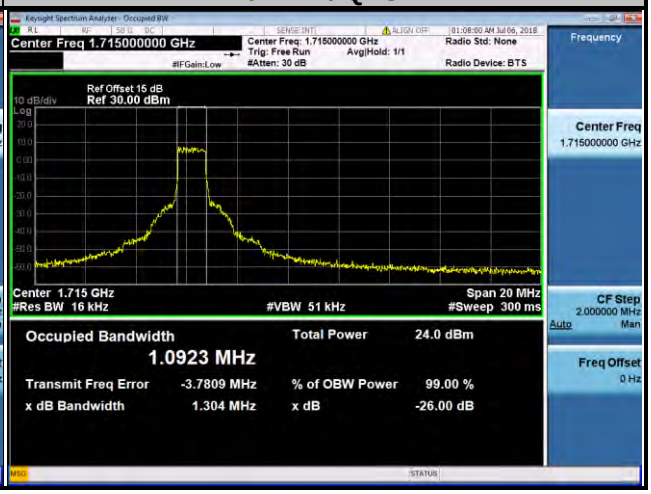
| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23755 | 706.5 | 1.0888 | 0.9244 | 1.273 | 1.207 |
| 23790 | 710.0 | 1.0850 | 0.9132 | 1.277 | 1.242 |
| 23825 | 713.5 | 1.0942 | 0.9168 | 1.274 | 1.219 |
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 23780 | 709.0 | 1.0853 | 0.9162 | 1.269 | 1.218 |
| 23790 | 710.0 | 1.0894 | 0.9128 | 1.246 | 1.217 |
| 23800 | 711.0 | 1.0897 | 0.9154 | 1.264 | 1.221 |

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

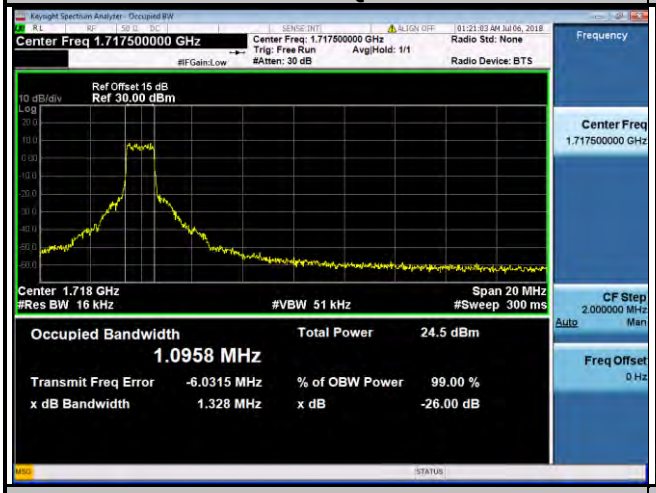
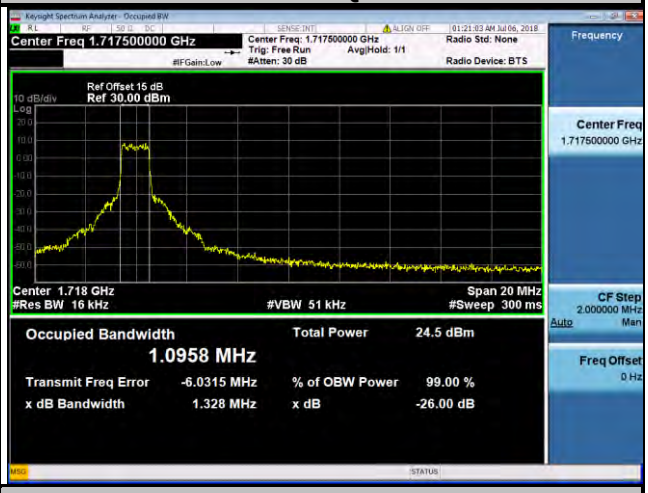
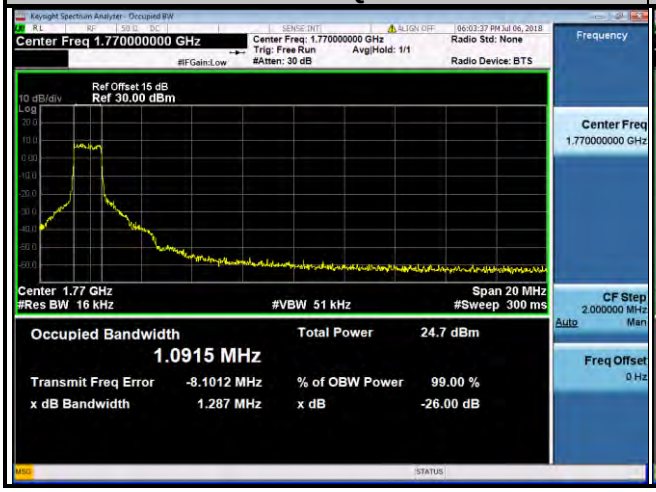
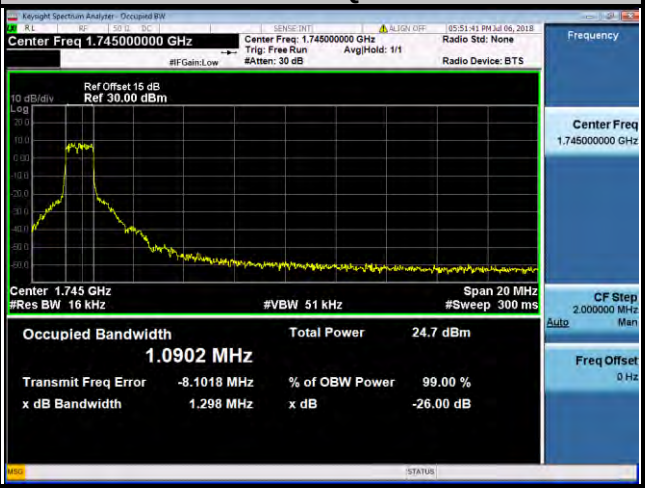
| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| **Channel Bandwidth: 1.4 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 131979 | 1710.7 | 1.0877 | 0.9155 | 1.275 | 1.292 |
| 132322 | 1745.0 | 1.0885 | 0.9166 | 1.254 | 1.285 |
| 132665 | 1779.3 | 1.0867 | 0.9150 | 1.279 | 1.251 |
| **Channel Bandwidth: 3 MHz** | | | | | |
| **Channel** | **Frequency (MHz)** | **99 % Occupied Bandwidth (MHz)** | | **26 dB Bandwidth (MHz)** | |
| | | **QPSK** | **16QAM** | **QPSK** | **16QAM** |
| 131987 | 1711.5 | 1.0820 | 0.9245 | 1.268 | 1.268 |
| 132322 | 1745.0 | 1.0789 | 0.9109 | 1.282 | 1.238 |
| 132657 | 1778.5 | 1.0806 | 0.9107 | 1.264 | 1.264 |

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

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 131997 | 1712.5 | 1.0929 | 0.9145 | 1.287 | 1.233 |
| 132322 | 1745.0 | 1.0912 | 0.9128 | 1.312 | 1.274 |
| 132647 | 1777.5 | 1.0869 | 0.9141 | 1.281 | 1.258 |
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 132022 | 1715.0 | 1.0923 | 0.9174 | 1.304 | 1.253 |
| 132322 | 1745.0 | 1.0900 | 0.9160 | 1.282 | 1.285 |
| 132622 | 1775.0 | 1.0858 | 0.9116 | 1.258 | 1.257 |

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

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 132047 | 1717.5 | 1.0958 | 0.9259 | 1.328 | 1.259 |
| 132322 | 1745.0 | 1.0936 | 0.9182 | 1.277 | 1.292 |
| 132597 | 1772.5 | 1.0825 | 0.9102 | 1.281 | 1.217 |
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | 26 dB Bandwidth (MHz) | |
| | | QPSK | 16QAM | QPSK | 16QAM |
| 132072 | 1720.0 | 1.0897 | 0.9155 | 1.295 | 1.300 |
| 132322 | 1745.0 | 1.0902 | 0.9203 | 1.298 | 1.291 |
| 132572 | 1770.0 | 1.0915 | 0.9182 | 1.287 | 1.269 |

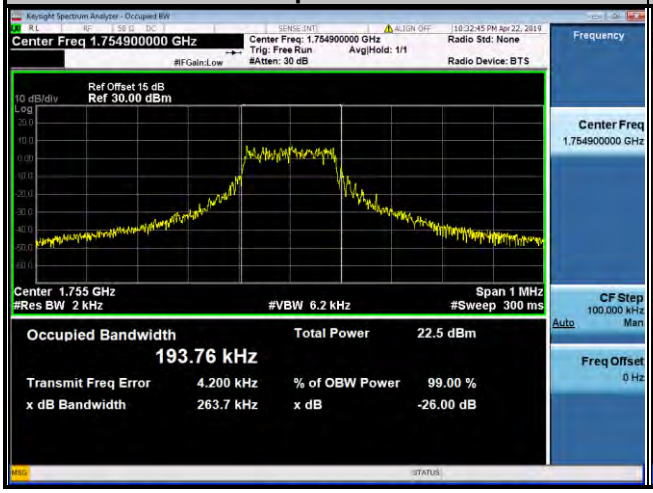
| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
| 15 MHz / QPSK | 15 MHz / QPSK |
|  |  |
| 20 MHz / QPSK | 20 MHz / QPSK |
|  |  |

## NB-IoT

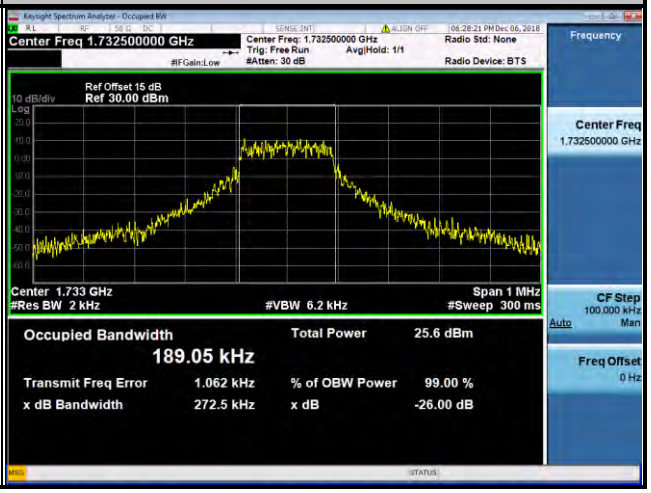
| LTE Band 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **99 % Occupied Bandwidth (kHz)** | **26 dB Bandwidth (kHz)** |
| 19951 | 1710.1 | BPSK | 1@0 | 3.75 | 65.04 | 106.60 |
| | | QPSK | 1@0 | 15 | 95.50 | 112.10 |
| | | QPSK | 3@3 | 15 | 103.06 | 181.30 |
| | | QPSK | 12@0 | 15 | 193.36 | 271.50 |
| 20175 | 1732.5 | BPSK | 1@0 | 3.75 | 54.98 | 37.63 |
| | | QPSK | 1@0 | 15 | 97.55 | 113.00 |
| | | QPSK | 3@3 | 15 | 102.93 | 155.50 |
| | | QPSK | 12@0 | 15 | 189.05 | 272.50 |
| 20399 | 1754.9 | BPSK | 1@47 | 3.75 | 58.04 | 37.80 |
| | | QPSK | 1@11 | 15 | 95.61 | 115.00 |
| | | QPSK | 3@3 | 15 | 100.68 | 156.50 |
| | | QPSK | 12@0 | 15 | 193.76 | 263.70 |

**Spectrum Plot of Worst Value**

**99 % Occupied Bandwidth**



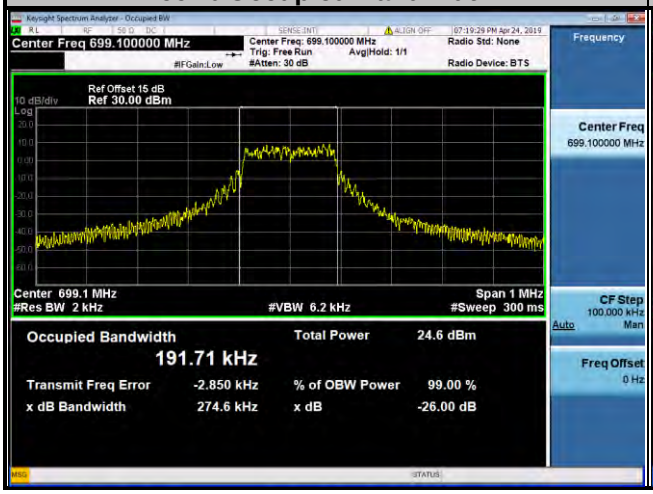

**26 dB Bandwidth**



| LTE Band 12 | | | | | | |
|---|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **99 % Occupied Bandwidth (kHz)** | **26 dB Bandwidth (kHz)** |
| 23011 | 699.1 | BPSK | 1@0 | 3.75 | 55.76 | 37.61 |
| | | QPSK | 1@0 | 15 | 95.09 | 114.20 |
| | | QPSK | 3@3 | 15 | 112.51 | 171.50 |
| | | QPSK | 12@0 | 15 | 191.71 | 274.60 |
| 23095 | 707.5 | BPSK | 1@0 | 3.75 | 53.24 | 37.32 |
| | | QPSK | 1@0 | 15 | 96.17 | 112.60 |
| | | QPSK | 3@3 | 15 | 95.78 | 152.70 |
| | | QPSK | 12@0 | 15 | 188.56 | 259.10 |
| 23179 | 715.9 | BPSK | 1@47 | 3.75 | 55.21 | 37.58 |
| | | QPSK | 1@11 | 15 | 95.22 | 113.90 |
| | | QPSK | 3@3 | 15 | 111.99 | 170.10 |
| | | QPSK | 12@0 | 15 | 189.00 | 275.10 |

**Spectrum Plot of Worst Value**

**99 % Occupied Bandwidth**

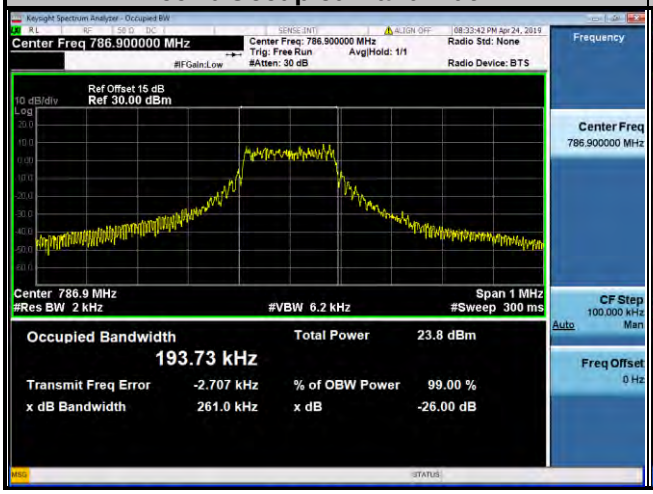



**26 dB Bandwidth**

| LTE Band 13 | | | | | | |
|---|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **99 % Occupied Bandwidth (kHz)** | **26 dB Bandwidth (kHz)** |
| 23181 | 777.1 | BPSK | 1@0 | 3.75 | 54.93 | 37.38 |
| | | QPSK | 1@0 | 15 | 95.53 | 126.40 |
| | | QPSK | 3@3 | 15 | 108.86 | 170.80 |
| | | QPSK | 12@0 | 15 | 191.07 | 274.00 |
| 23230 | 782 | BPSK | 1@0 | 3.75 | 55.31 | 37.57 |
| | | QPSK | 1@0 | 15 | 97.13 | 100.50 |
| | | QPSK | 3@3 | 15 | 98.43 | 152.30 |
| | | QPSK | 12@0 | 15 | 184.67 | 263.60 |
| 23279 | 786.9 | BPSK | 1@47 | 3.75 | 51.22 | 37.04 |
| | | QPSK | 1@11 | 15 | 91.53 | 112.80 |
| | | QPSK | 3@3 | 15 | 112.65 | 182.60 |
| | | QPSK | 12@0 | 15 | 193.73 | 261.00 |

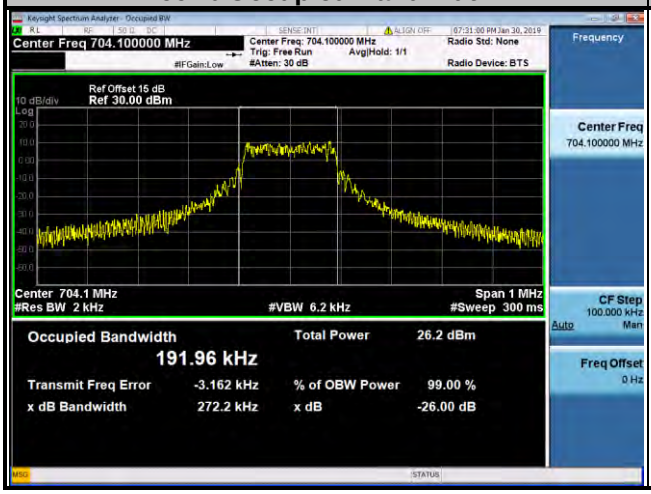
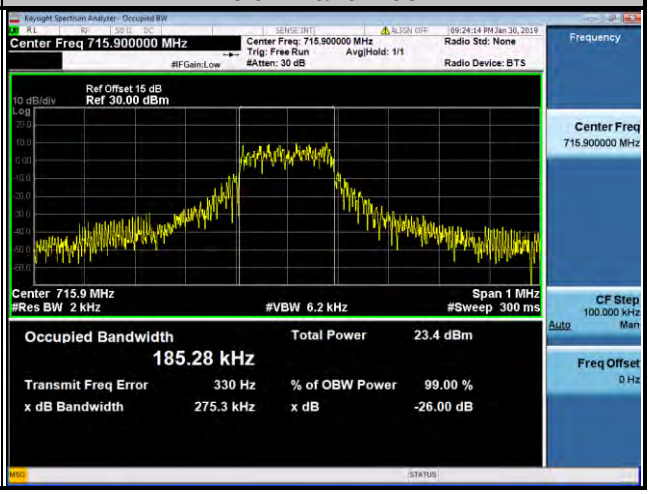
**Spectrum Plot of Worst Value**

**99 % Occupied Bandwidth**




**26 dB Bandwidth**

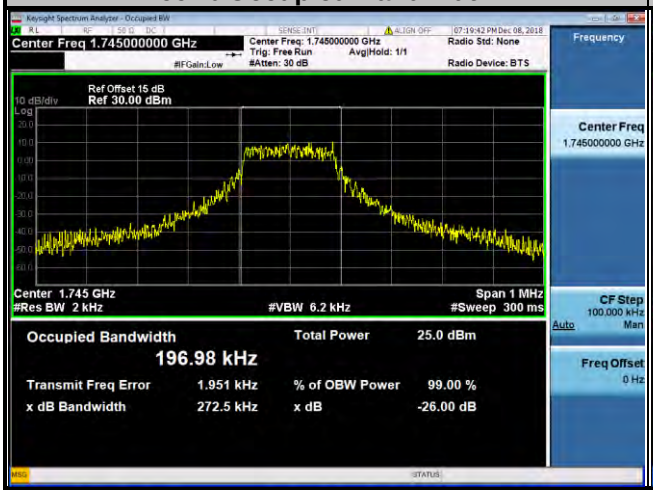
| LTE Band 17 | | | | | | |
|---|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Modulation | $N_{tones}$ | Sub-carrier Spacing (kHz) | 99 % Occupied Bandwidth (kHz) | 26 dB Bandwidth (kHz) |
| 23731 | 704.1 | BPSK | 1@0 | 3.75 | 107.49 | 110.10 |
| | | QPSK | 1@0 | 15 | 118.54 | 135.30 |
| | | QPSK | 3@3 | 15 | 109.63 | 169.90 |
| | | QPSK | 12@0 | 15 | 191.96 | 272.20 |
| 23790 | 710 | BPSK | 1@0 | 3.75 | 108.86 | 110.70 |
| | | QPSK | 1@0 | 15 | 119.12 | 136.30 |
| | | QPSK | 3@3 | 15 | 115.18 | 170.10 |
| | | QPSK | 12@0 | 15 | 188.82 | 274.50 |
| 23849 | 715.9 | BPSK | 1@47 | 3.75 | 108.83 | 110.40 |
| | | QPSK | 1@11 | 15 | 116.97 | 135.90 |
| | | QPSK | 3@3 | 15 | 111.71 | 182.80 |
| | | QPSK | 12@0 | 15 | 185.28 | 275.30 |

| Spectrum Plot of Worst Value | |
|---|---|
| 99 % Occupied Bandwidth | 26 dB Bandwidth |
|  |  |

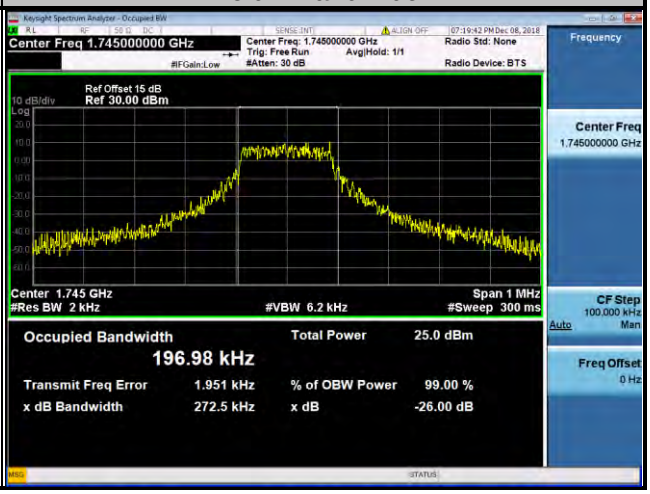
| LTE Band 66 | | | | | | |
|---|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Modulation** | **$N_{tones}$** | **Sub-carrier Spacing (kHz)** | **99 % Occupied Bandwidth (kHz)** | **26 dB Bandwidth (kHz)** |
| 131973 | 1710.1 | BPSK | 1@0 | 3.75 | 58.50 | 37.68 |
| | | QPSK | 1@0 | 15 | 96.78 | 114.00 |
| | | QPSK | 3@3 | 15 | 111.98 | 169.70 |
| | | QPSK | 12@0 | 15 | 195.23 | 265.60 |
| 132322 | 1745 | BPSK | 1@0 | 3.75 | 55.70 | 37.67 |
| | | QPSK | 1@0 | 15 | 98.35 | 114.90 |
| | | QPSK | 3@3 | 15 | 110.72 | 153.20 |
| | | QPSK | 12@0 | 15 | 196.98 | 272.50 |
| 132671 | 1779.9 | BPSK | 1@47 | 3.75 | 52.40 | 37.37 |
| | | QPSK | 1@11 | 15 | 94.42 | 113.40 |
| | | QPSK | 3@3 | 15 | 110.86 | 182.50 |
| | | QPSK | 12@0 | 15 | 194.32 | 260.10 |

**Spectrum Plot of Worst Value**

**99 % Occupied Bandwidth**




**26 dB Bandwidth**



## 4.5 Band Edge Measurement

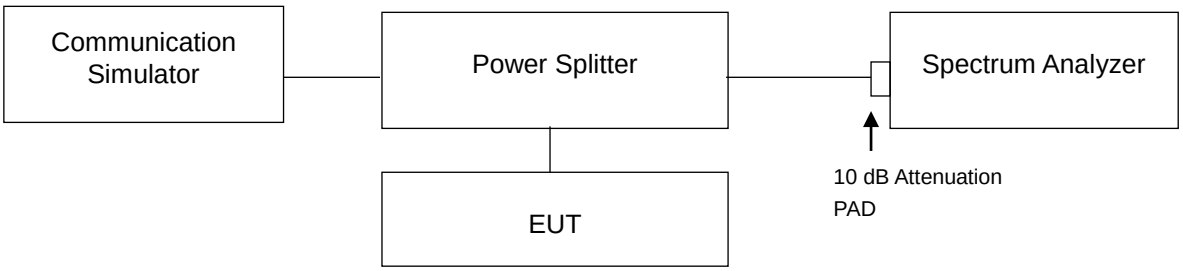
### 4.5.1 Limits of Band Edge Measurement

For operations in the 698-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.
However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.
On all frequencies between 763-775 MHz and 793-805 MHz, by a factor no less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

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

### 4.5.2 Test Setup

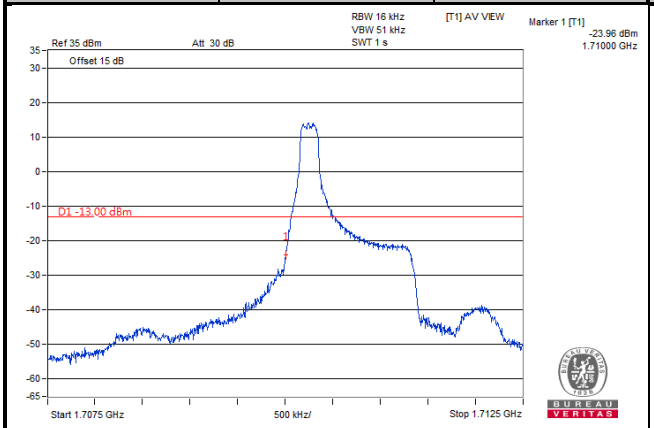
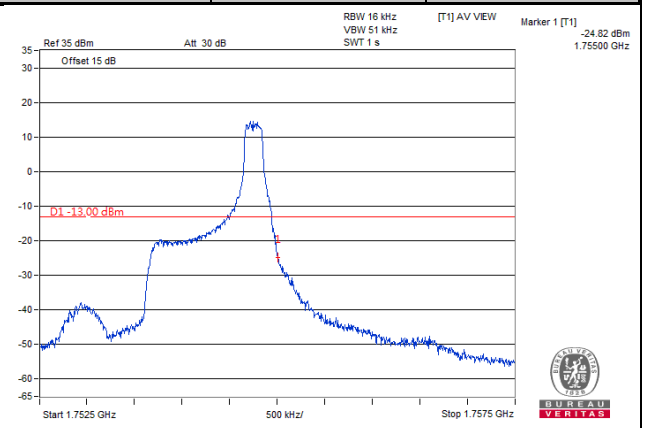
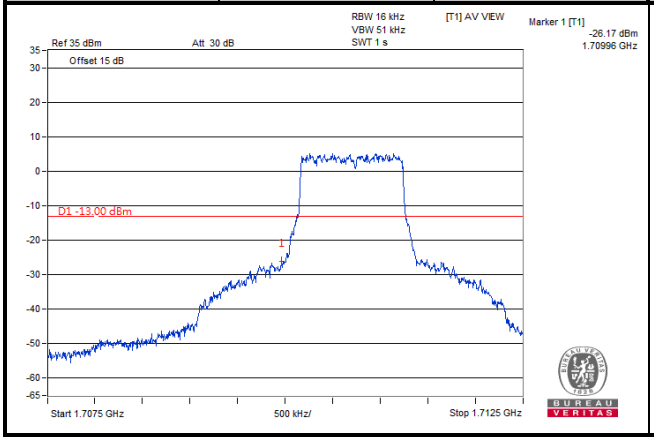
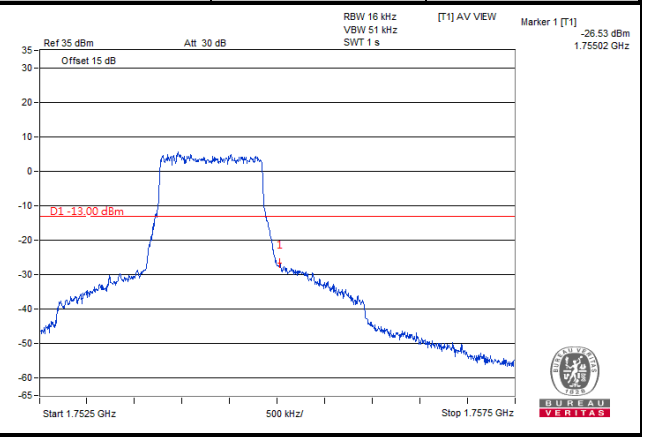


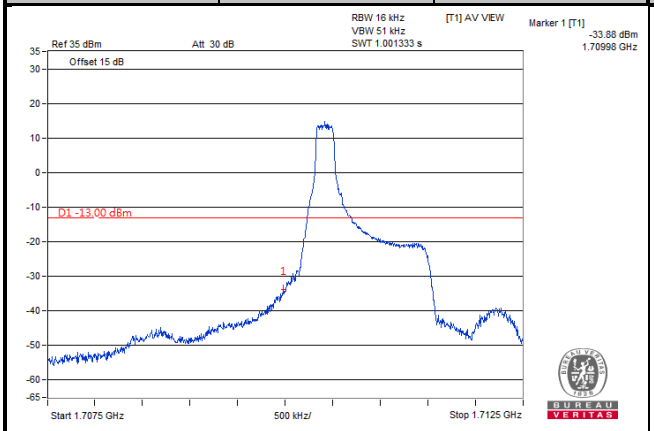
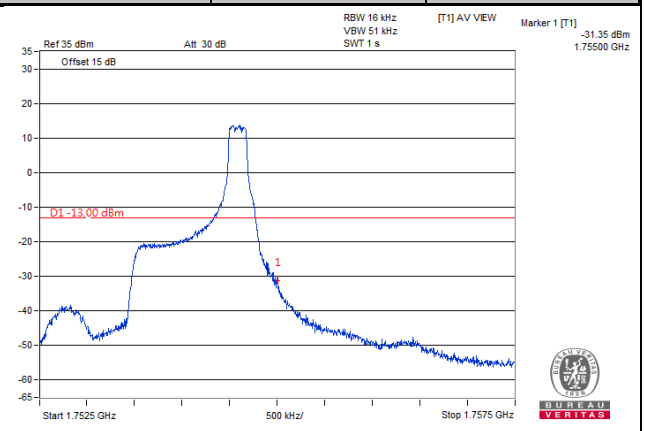
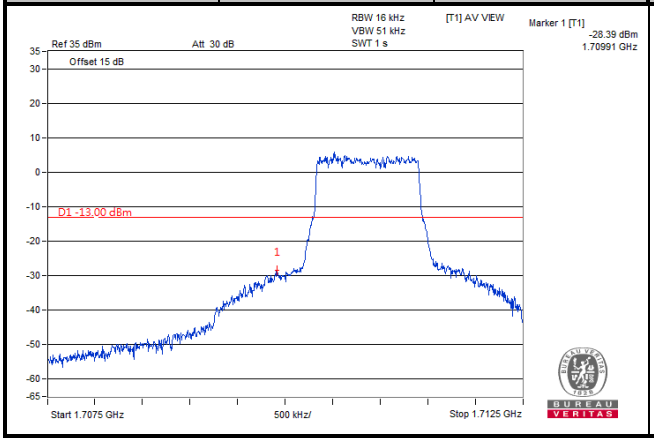
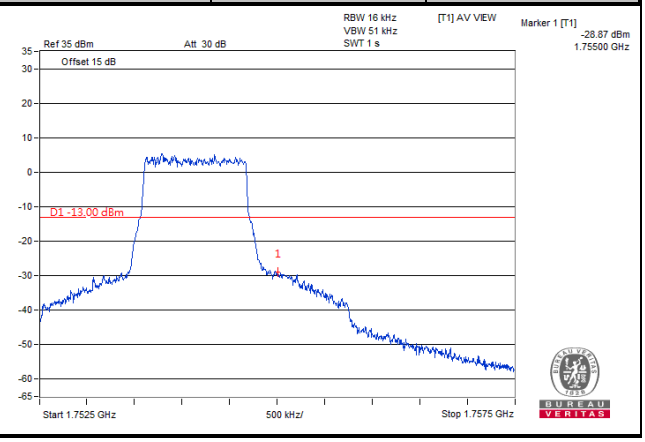
### 4.5.3 Test Procedures

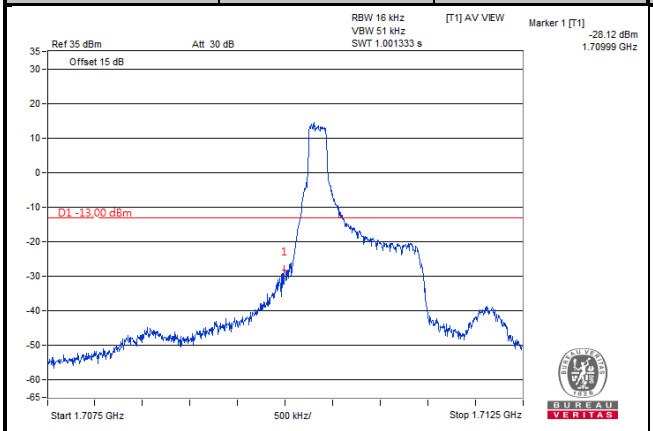
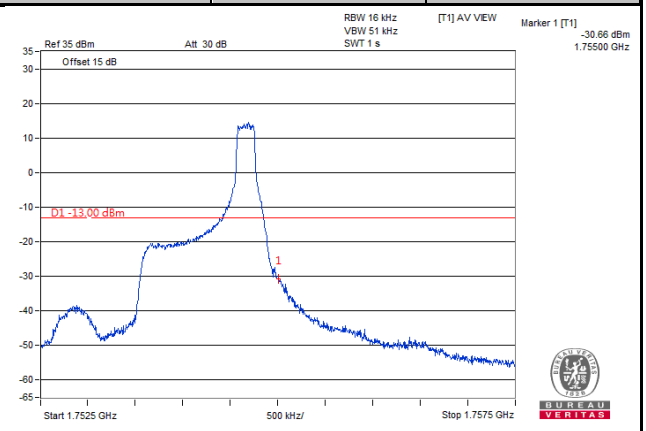
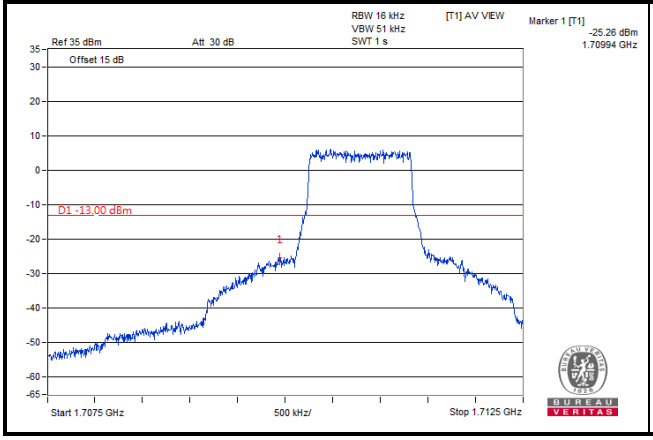
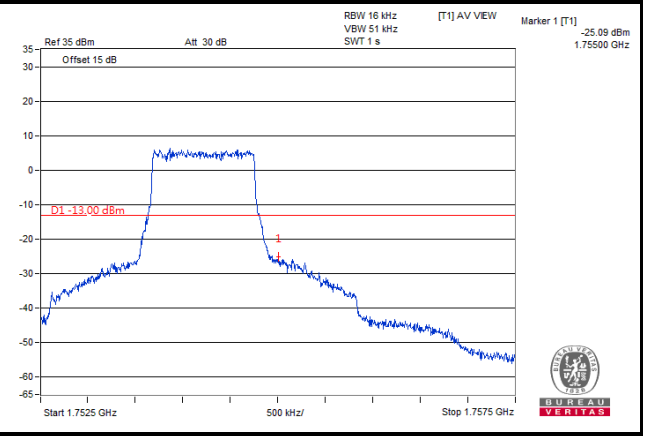
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 1.4 MHz) for Cat-M1.
c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 62 kHz and VB of the spectrum is 200 kHz (LTE Bandwidth 3 MHz) for Cat-M1.
d. 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 5 MHz) for Cat-M1.
e. 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 10 MHz) for Cat-M1.
f. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 300 kHz and VB of the spectrum is 1 MHz (LTE Bandwidth 15 MHz) for Cat-M1.
g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 300 kHz and VB of the spectrum is 1 MHz (LTE Bandwidth 20 MHz) for Cat-M1.
h. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 Hz and VB of the spectrum is 160 Hz (BPSK) for NB-IoT.
i. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 200 Hz or 2 kHz and VB of the spectrum is 620 Hz or 6.2 kHz (QPSK) for NB-IoT.
a. Record the max. trace plot into the test report.

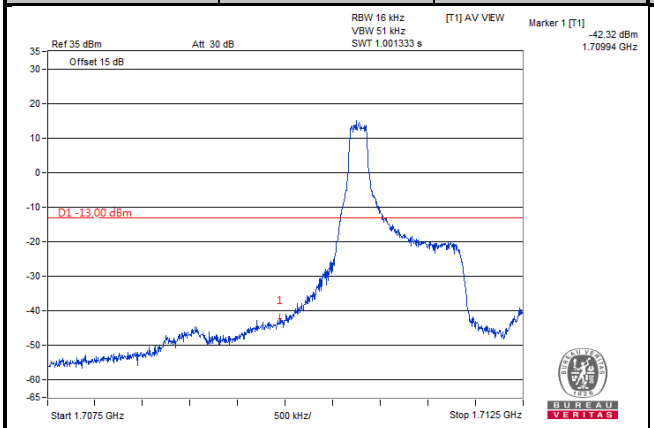
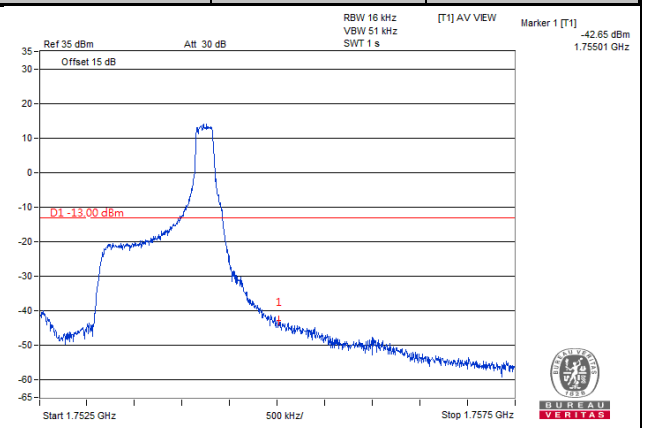
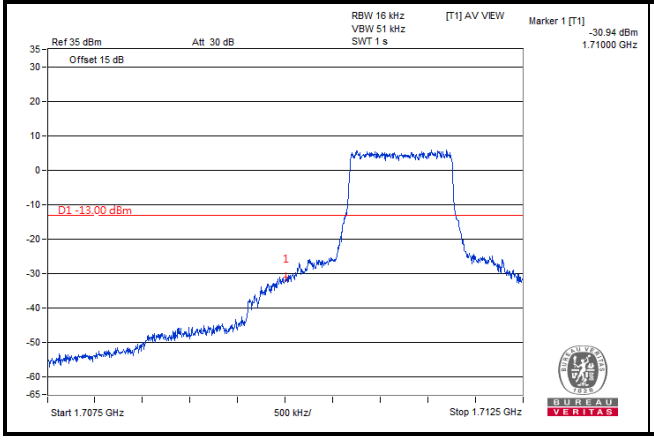
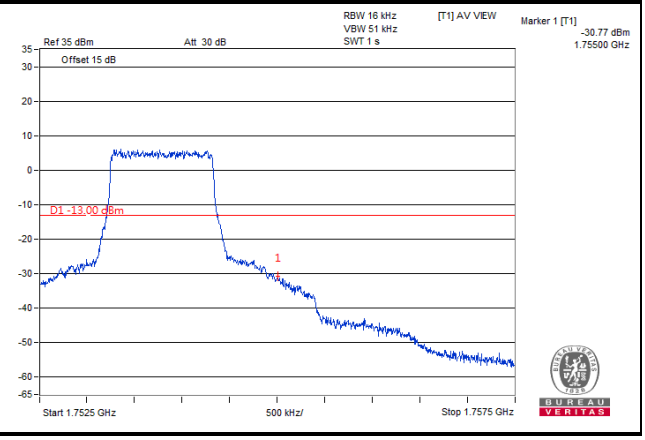
4.5.4 Test Results

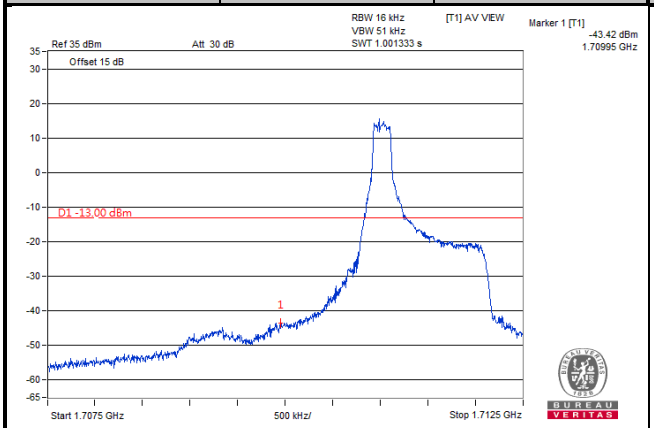
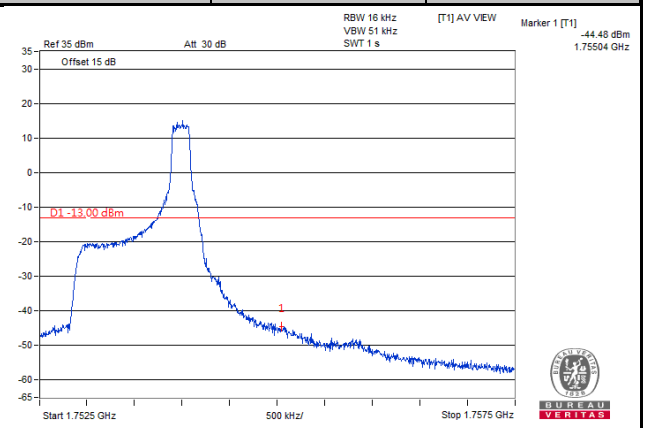
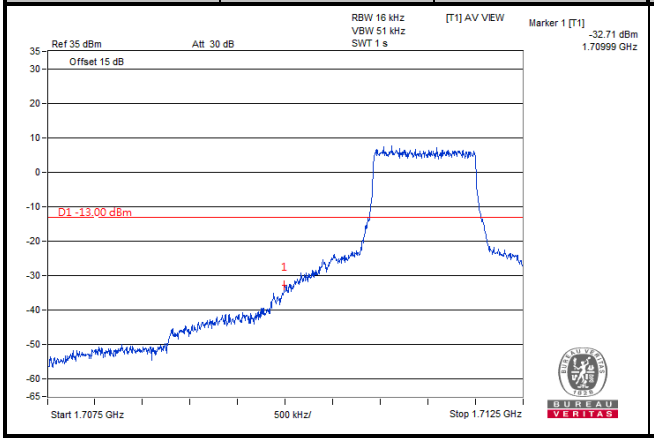
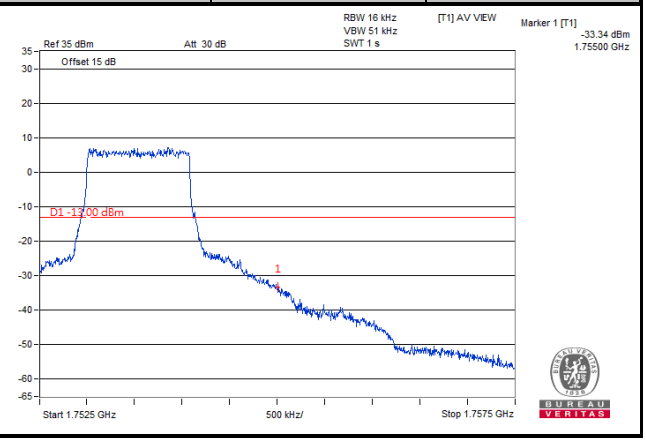
**Cat-M1**

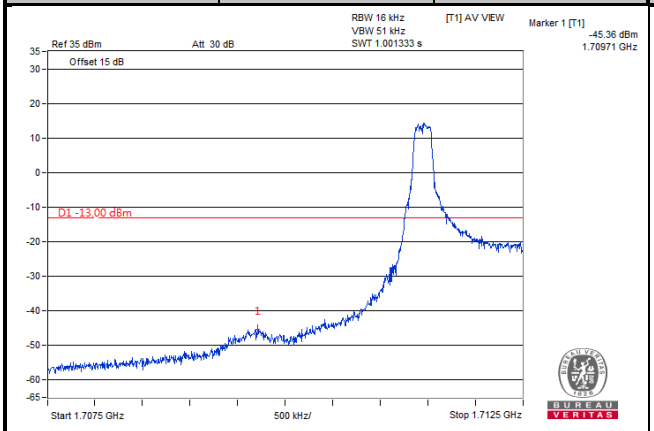
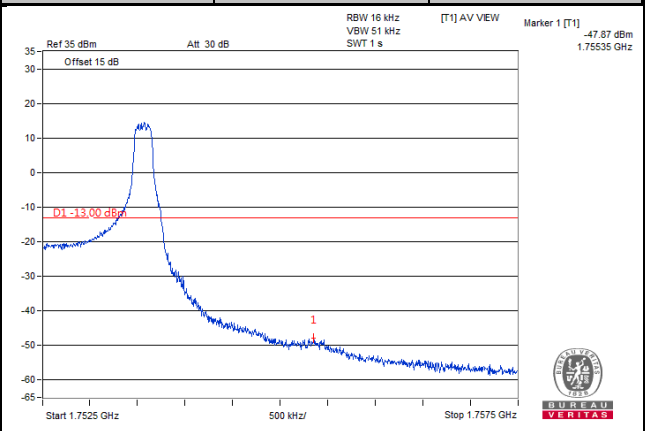
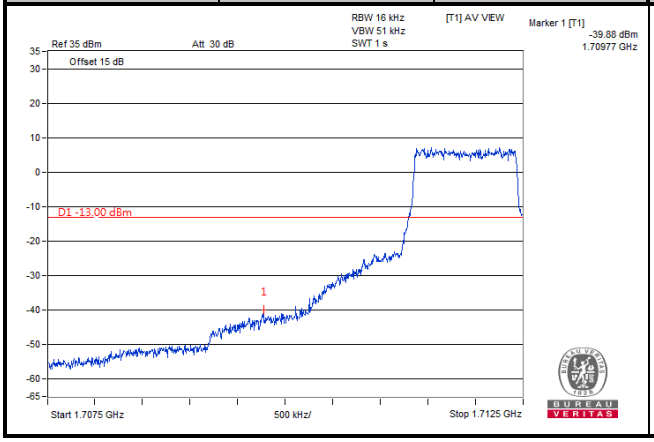
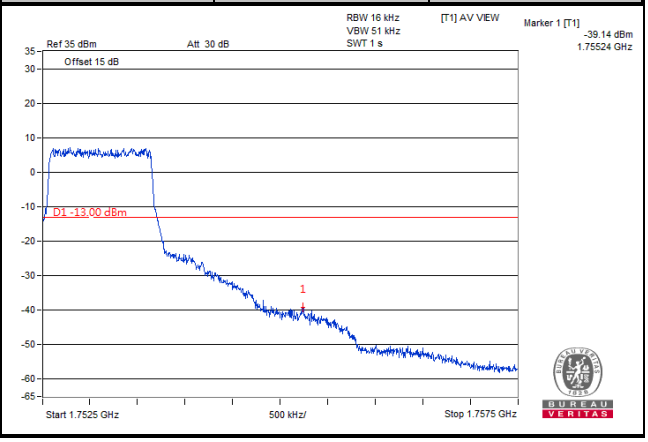
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 19957 | 1 RB | Channel | 20393 | 1 RB |
|  | | |  | | |
| Channel | 19957 | 6 RB | Channel | 20393 | 6 RB |
|  | | |  | | |

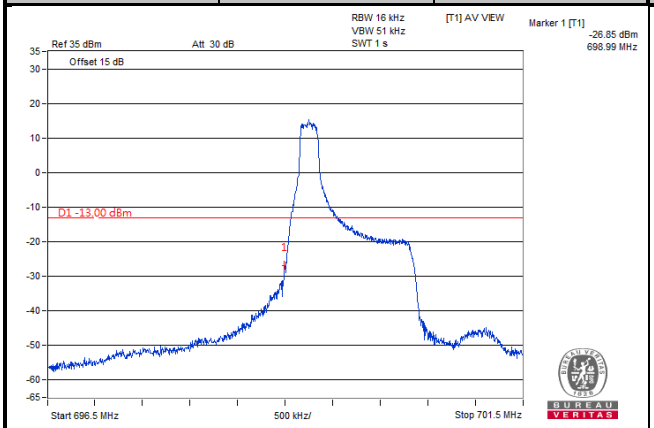
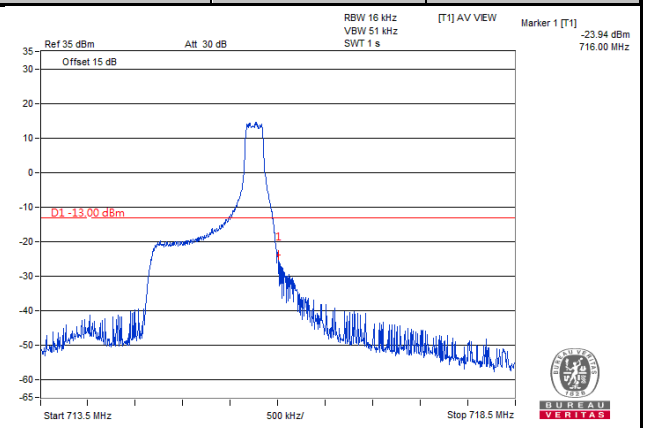
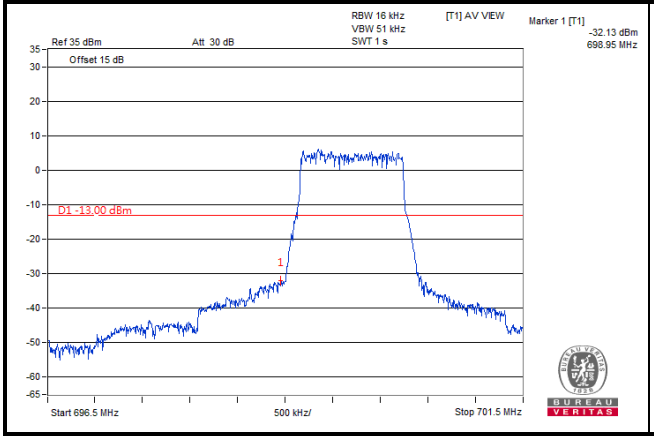
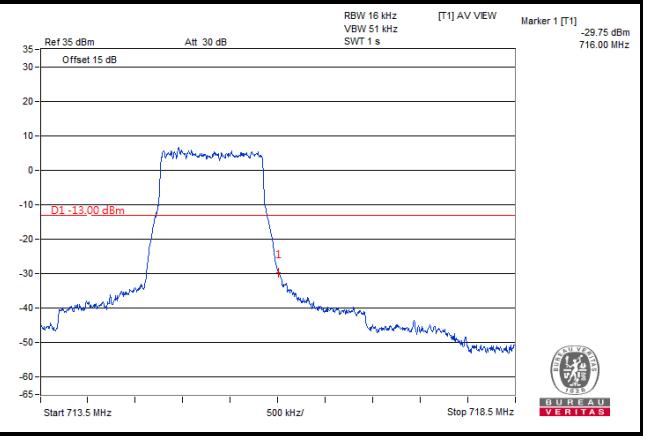
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 19965 | 1 RB | Channel | 20385 | 1 RB |
|  | | |  | | |
| Channel | 19965 | 15 RB | Channel | 20385 | 15 RB |
|  | | |  | | |

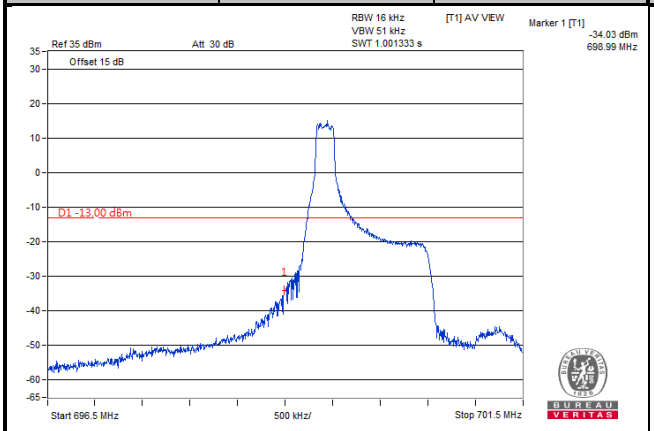
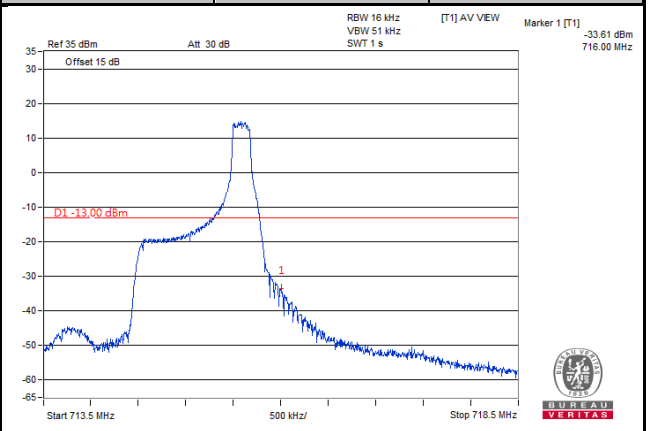
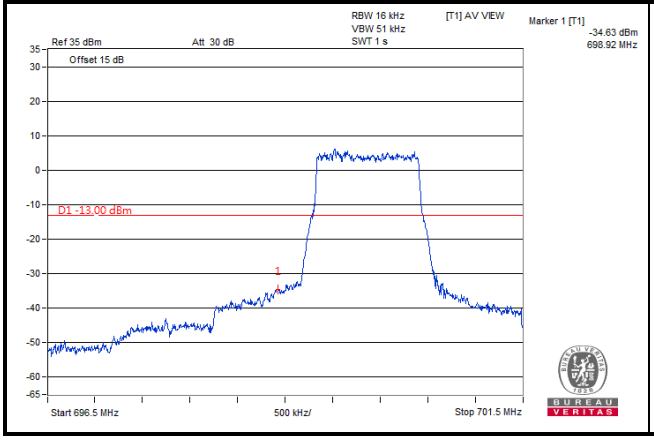
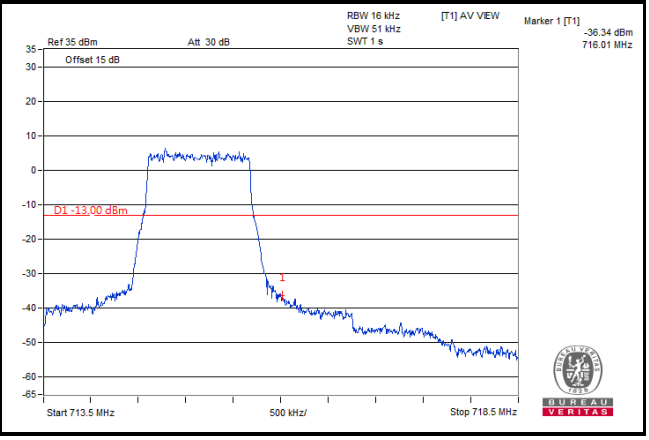
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 19975 | 1 RB | Channel | 20375 | 1 RB |
|  | | |  | | |
| Channel | 19975 | 25 RB | Channel | 20375 | 25 RB |
|  | | |  | | |

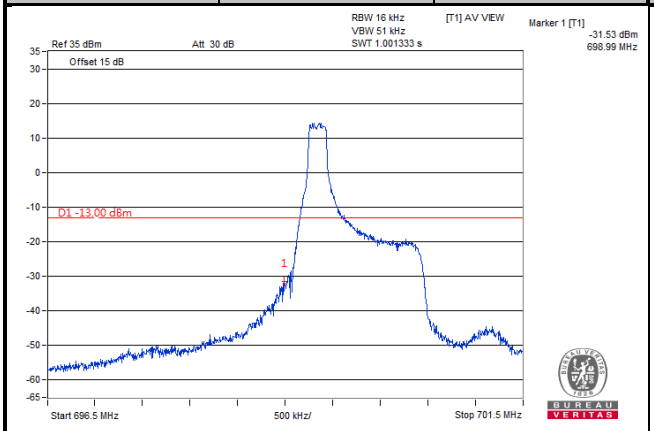
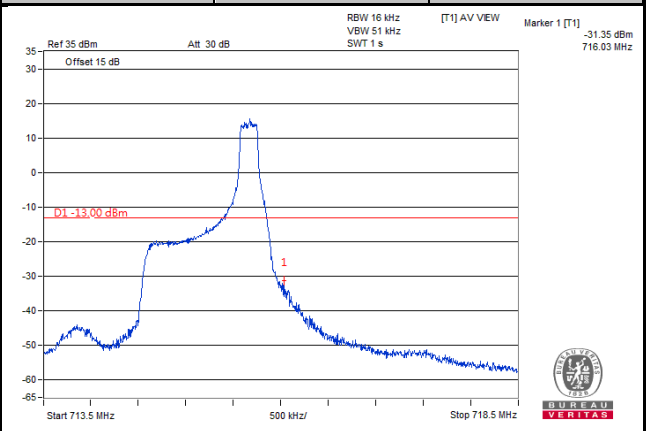
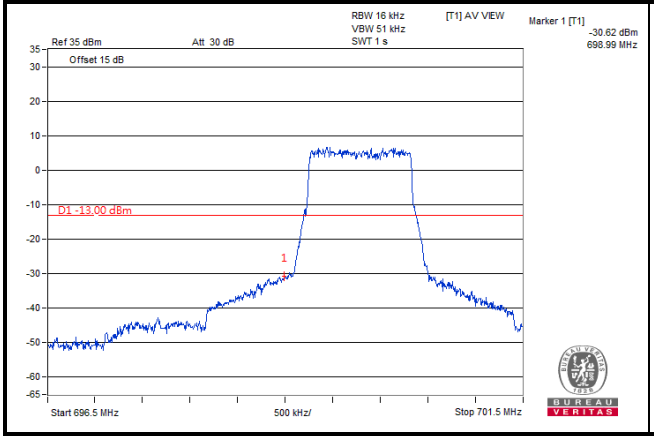
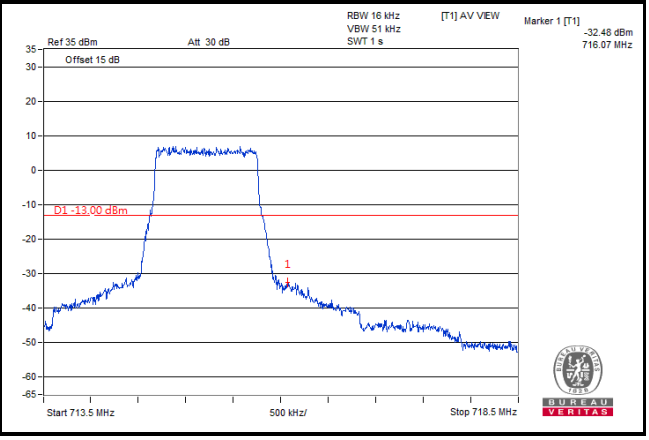
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 20000 | 1 RB | Channel | 20350 | 1 RB |
|  | | |  | | |
| Channel | 20000 | 50 RB | Channel | 20350 | 50 RB |
|  | | |  | | |

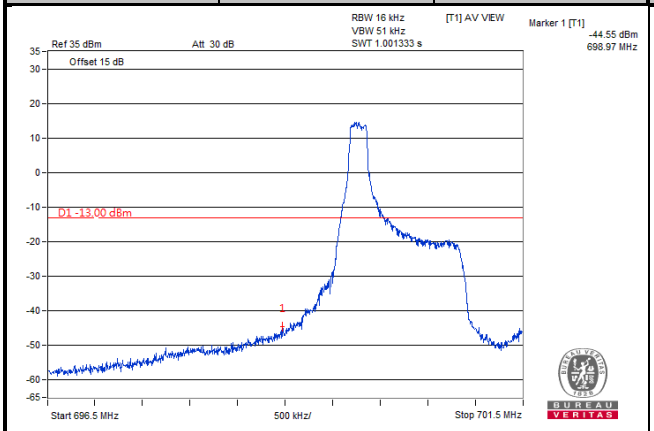
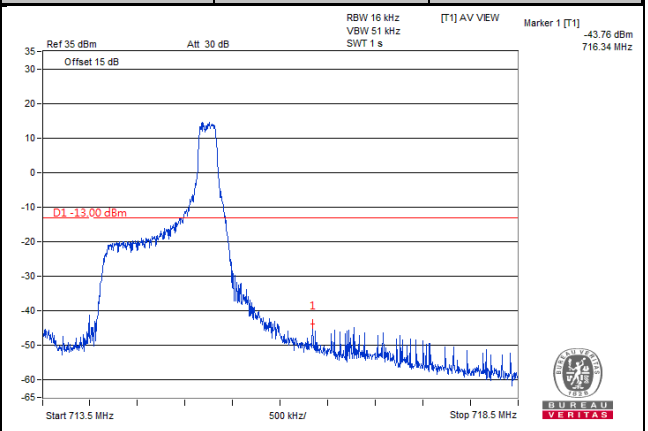
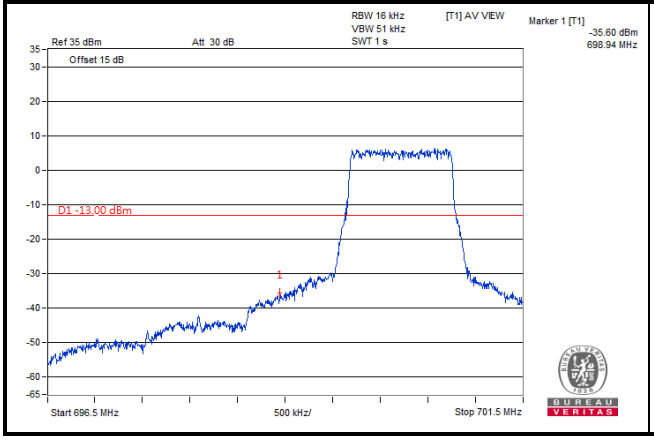
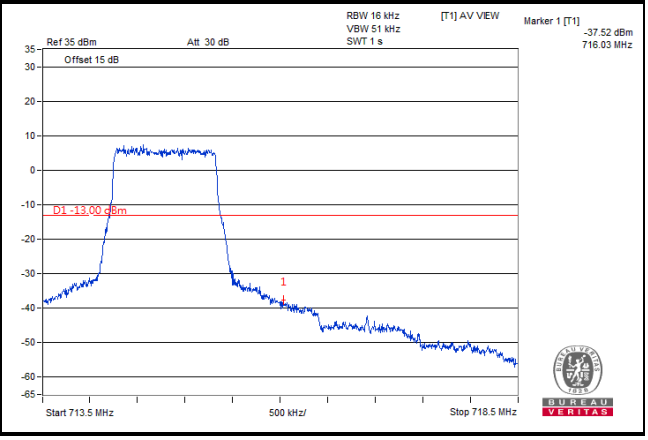
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 15 MHz | | | | | |
| Channel | 20025 | 1 RB | Channel | 20325 | 1 RB |
|  | | |  | | |
| Channel | 20025 | 75 RB | Channel | 20325 | 75 RB |
|  | | |  | | |

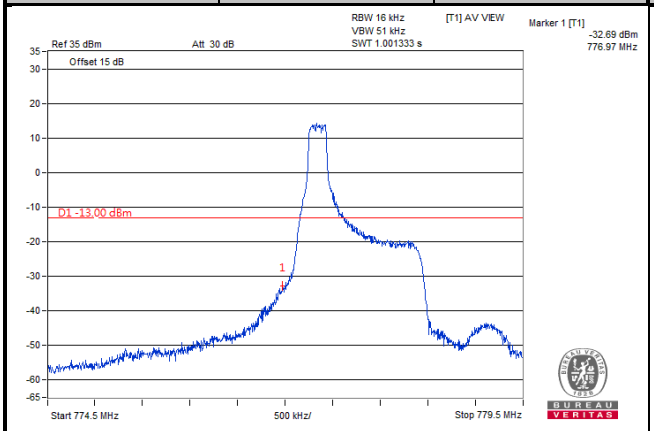
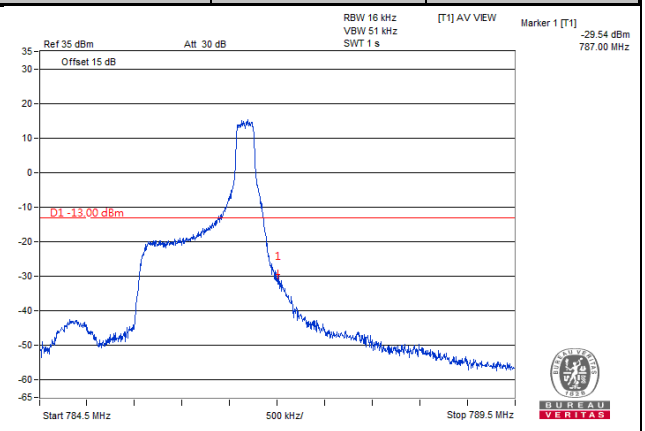
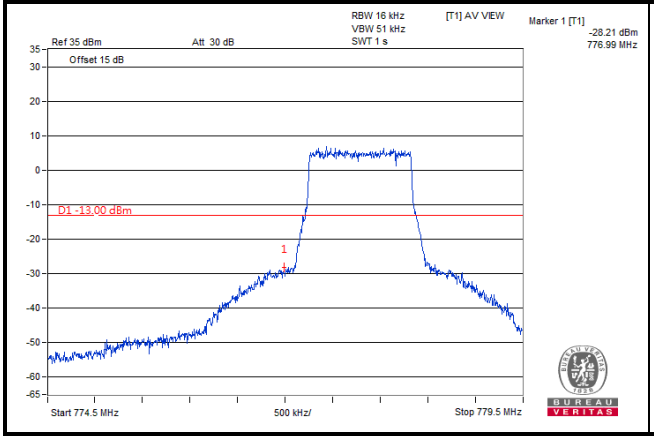
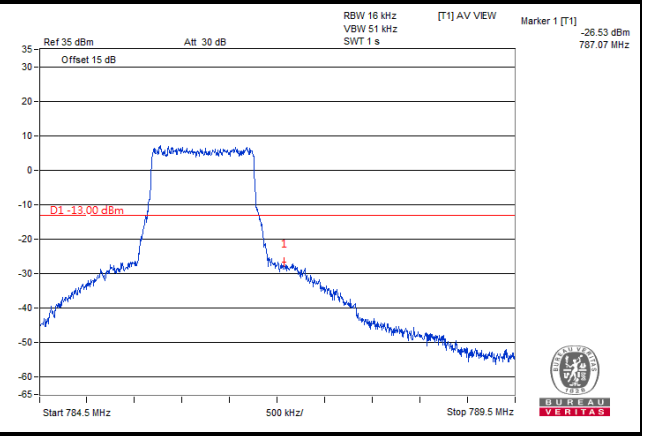
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 20 MHz | | | | | |
| Channel | 20050 | 1 RB | Channel | 20300 | 1 RB |
|  | | |  | | |
| Channel | 20050 | 100 RB | Channel | 20300 | 100 RB |
|  | | |  | | |

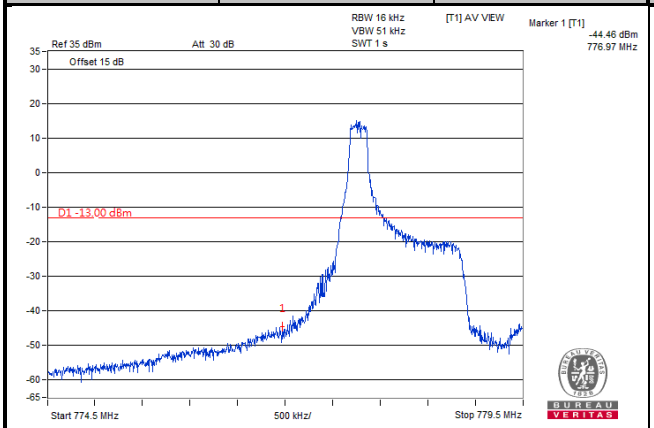
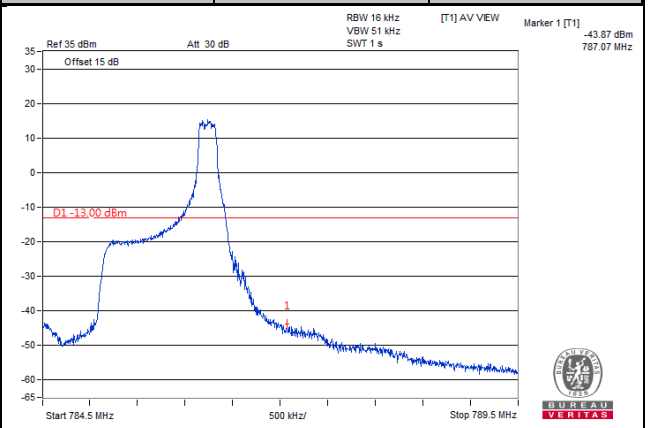
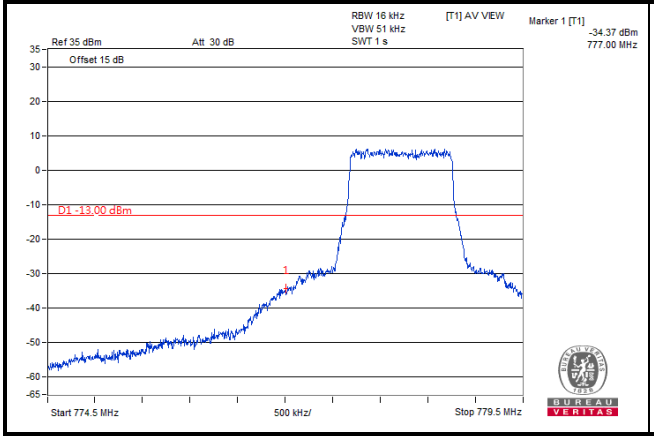
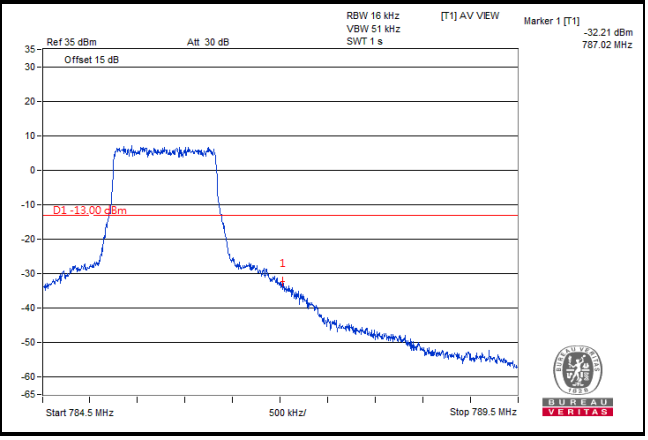
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 23017 | 1 RB | Channel | 23173 | 1 RB |
|  | | |  | | |
| Channel | 23017 | 6 RB | Channel | 23173 | 6 RB |
|  | | |  | | |

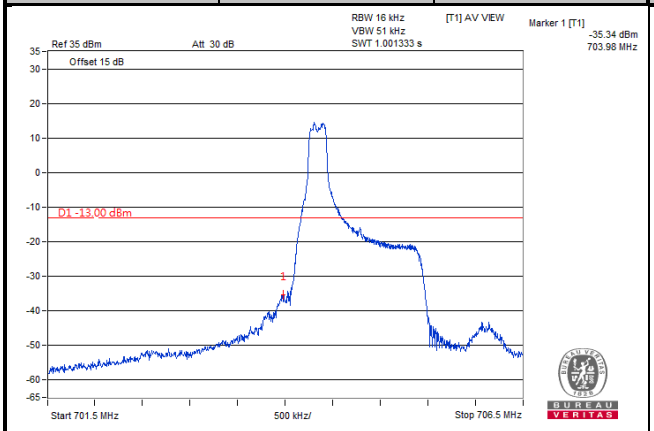
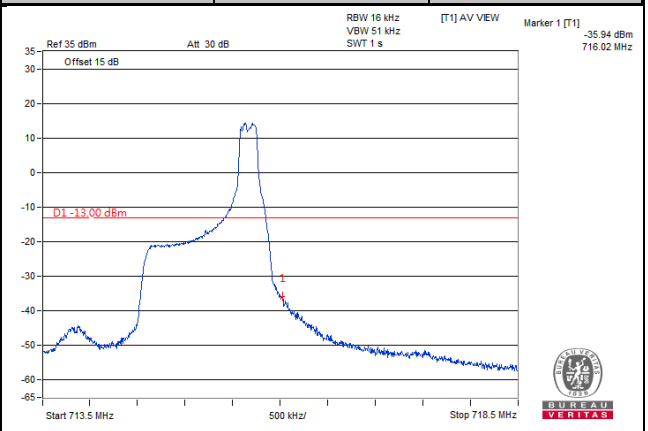
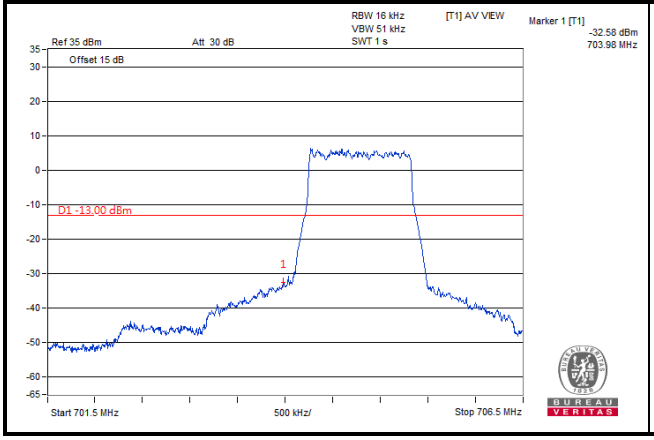
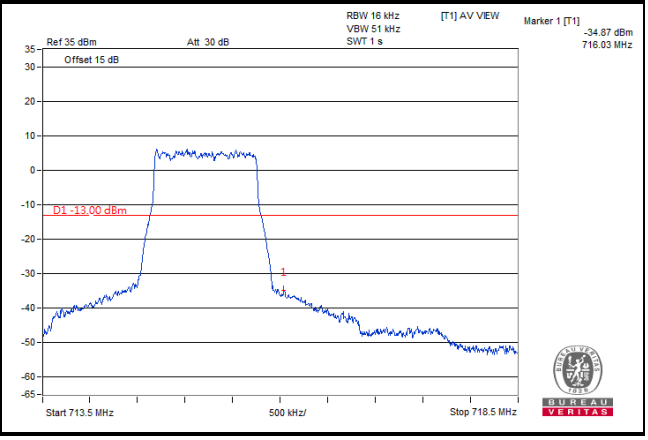
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 3 MHz | | | | | |
| Channel | 23025 | 1 RB | Channel | 23165 | 1 RB |
|  | | |  | | |
| Channel | 23025 | 15 RB | Channel | 23165 | 15 RB |
|  | | |  | | |

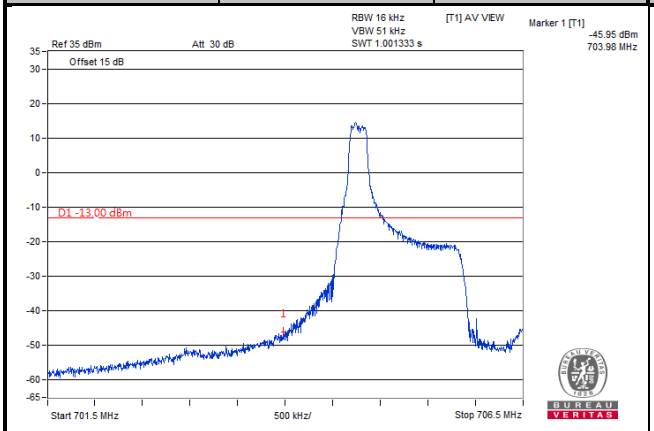
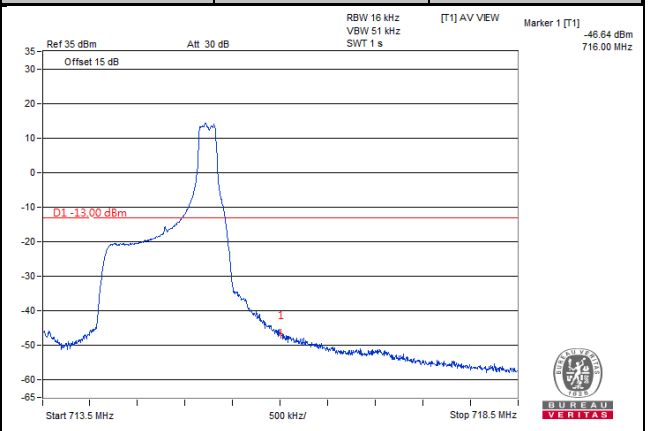
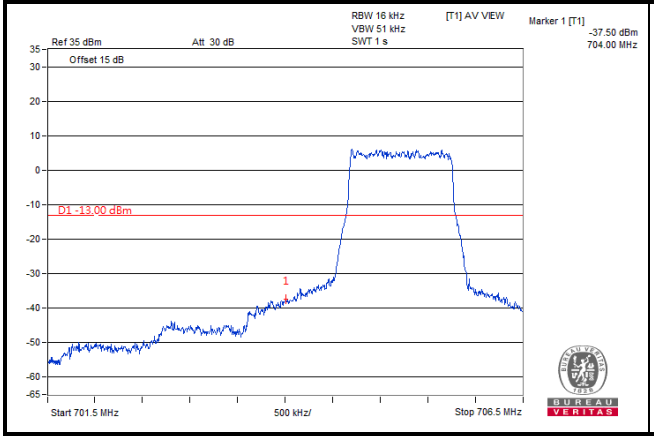
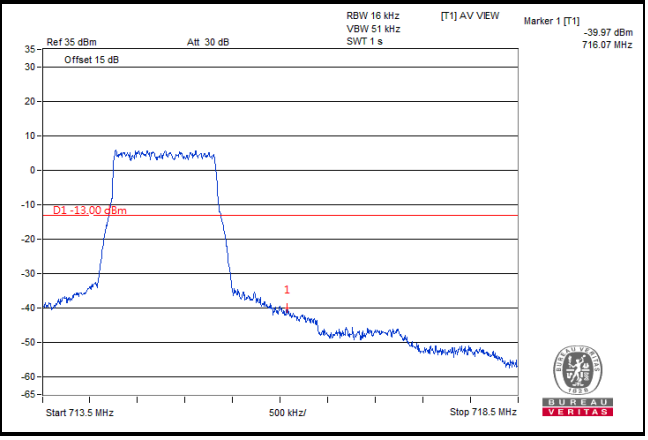
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 23035 | 1 RB | Channel | 23155 | 1 RB |
|  | | |  | | |
| Channel | 23035 | 25 RB | Channel | 23155 | 25 RB |
|  | | |  | | |

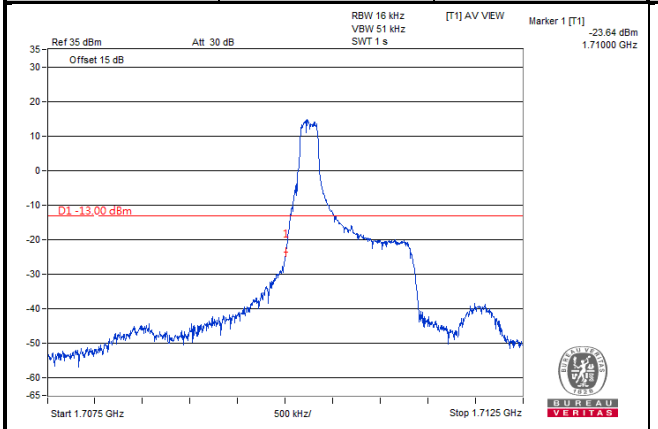
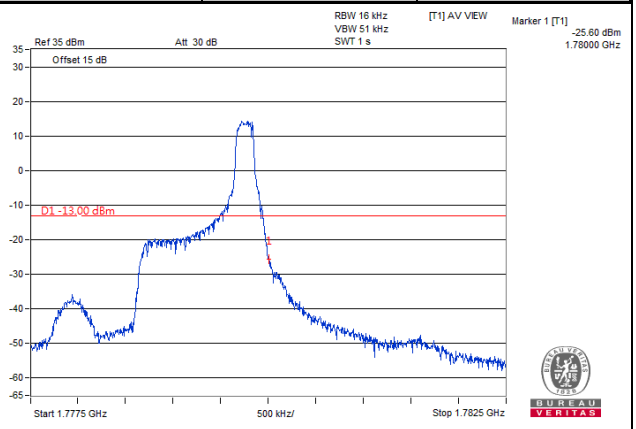
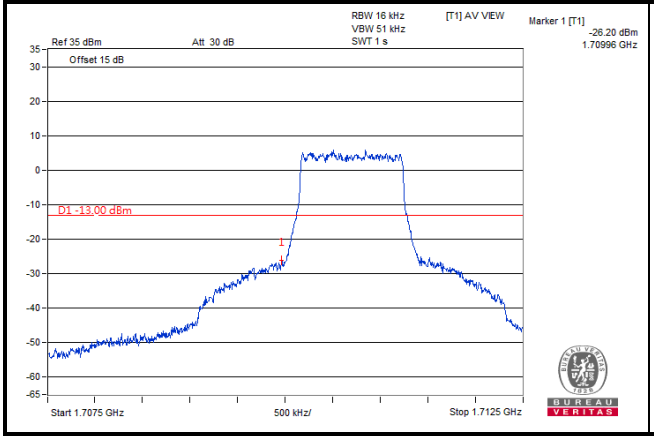
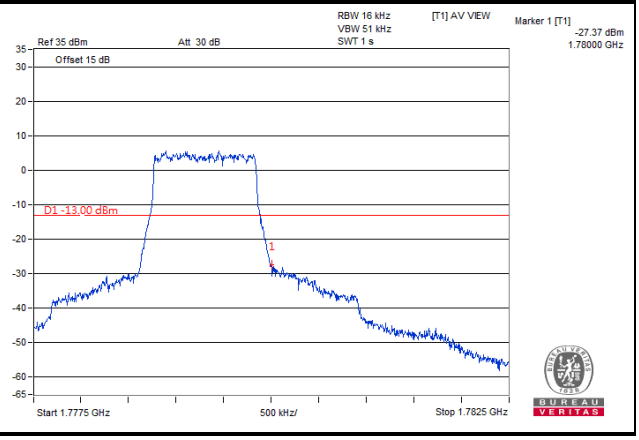
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 23060 | 1 RB | Channel | 23130 | 1 RB |
|  | | |  | | |
| Channel | 23060 | 50 RB | Channel | 23130 | 50 RB |
|  | | |  | | |

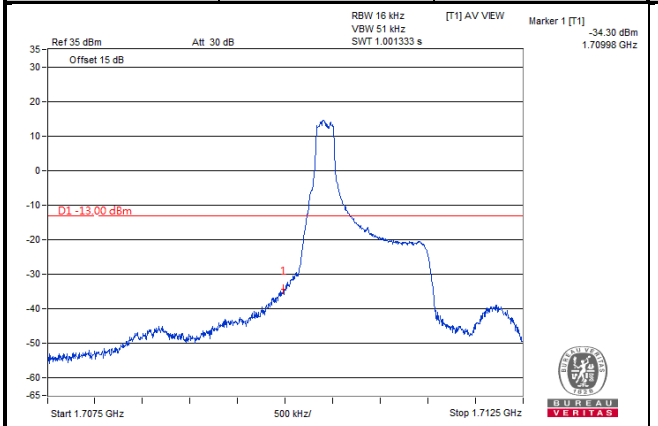
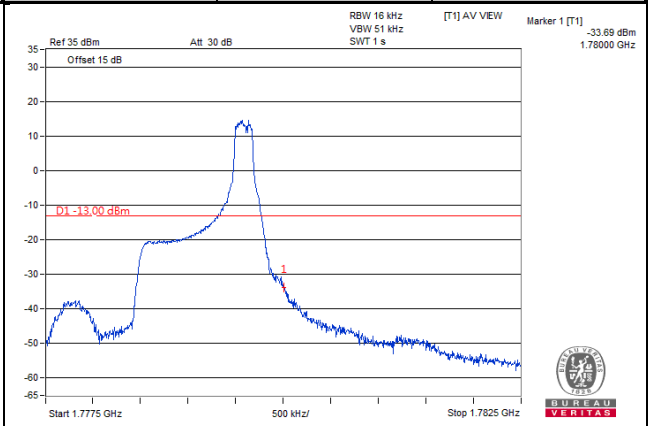
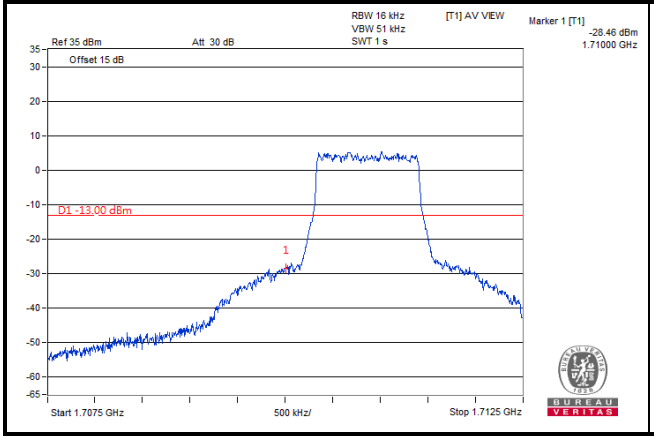
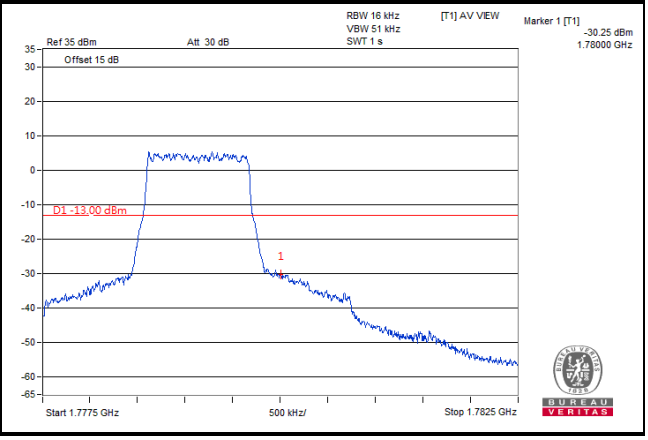
| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 23205 | 1 RB | Channel | 23255 | 1 RB |
|  | | |  | | |
| Channel | 23205 | 25 RB | Channel | 23255 | 25 RB |
|  | | |  | | |

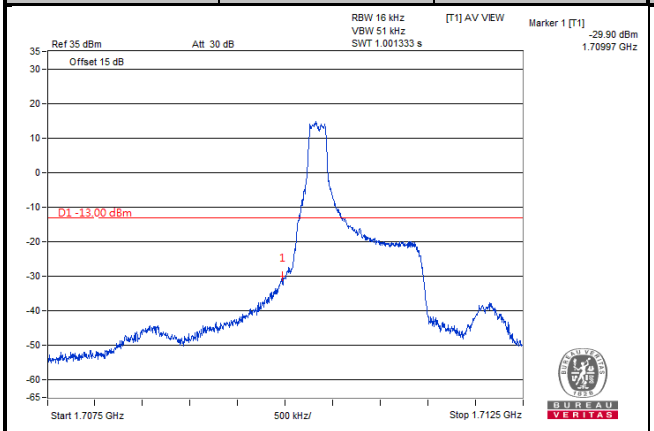
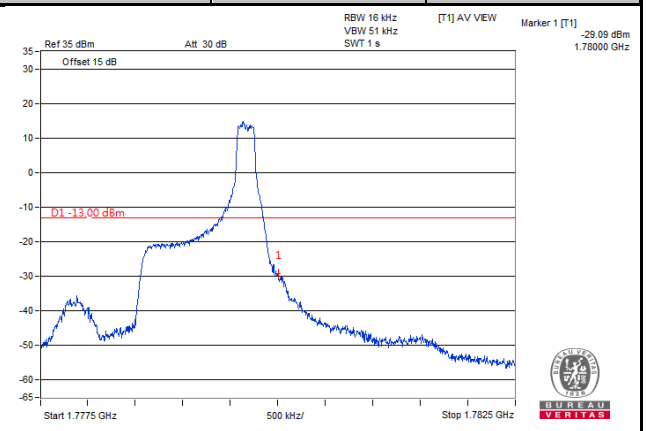
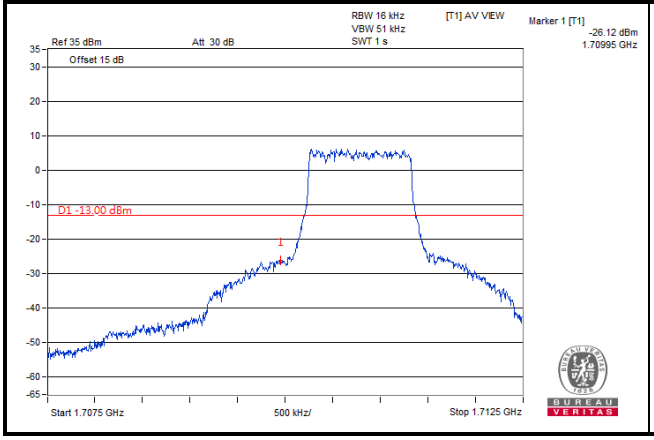
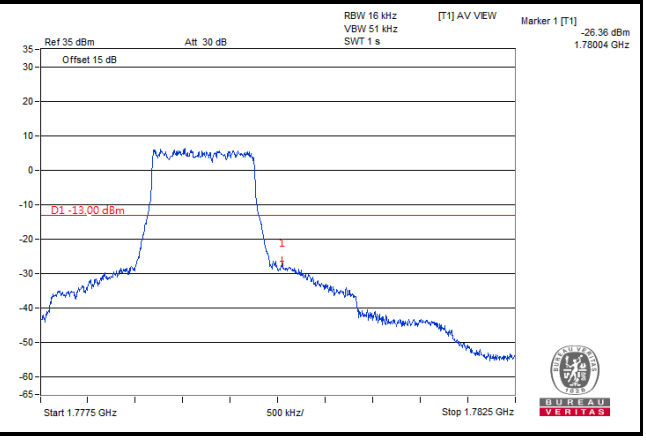
| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 23230 | 1 RB | Channel | 23230 | 1 RB |
|  | | |  | | |
| Channel | 23230 | 50 RB | Channel | 23230 | 50 RB |
|  | | |  | | |

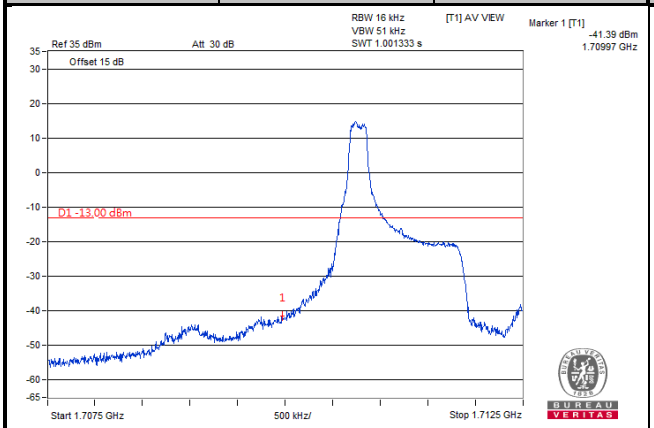
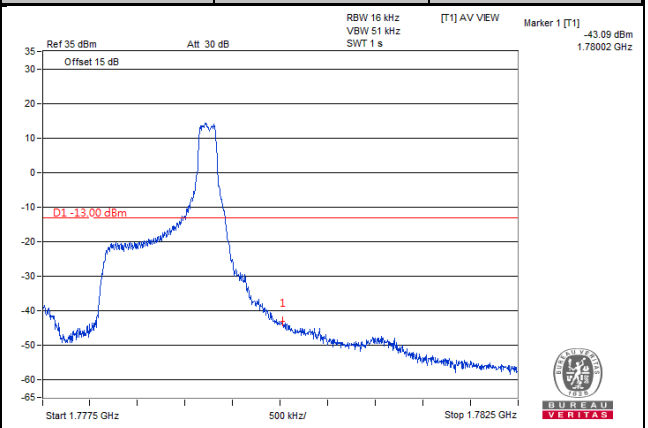
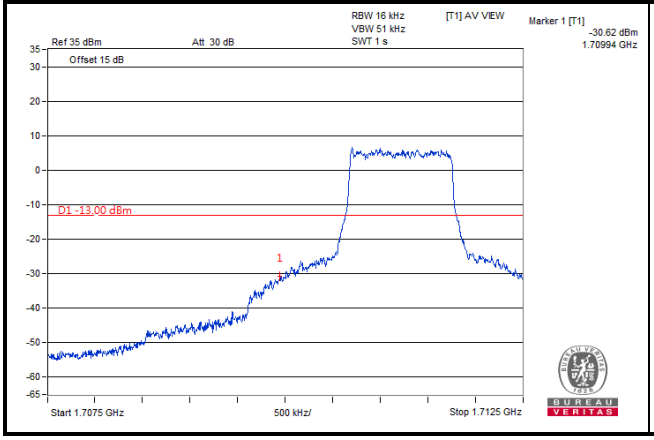
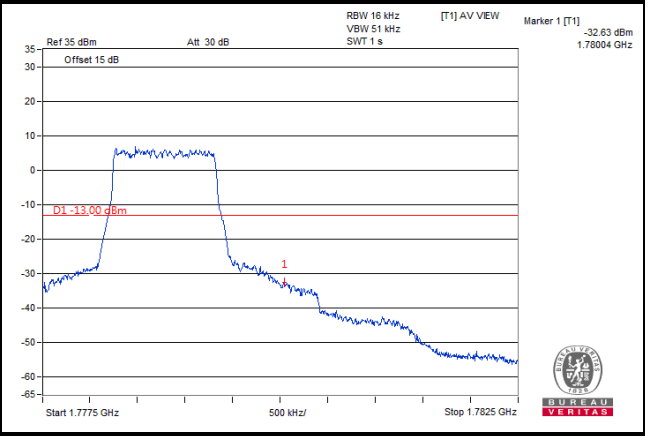
| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 23755 | 1 RB | Channel | 23825 | 1 RB |
|  | | |  | | |
| Channel | 23755 | 25 RB | Channel | 23825 | 25 RB |
|  | | |  | | |

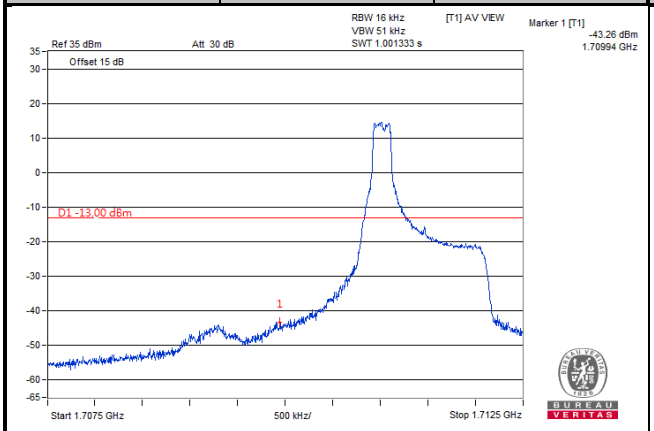
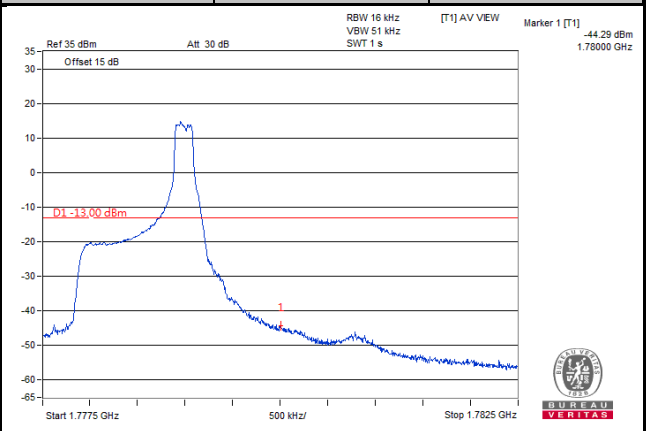
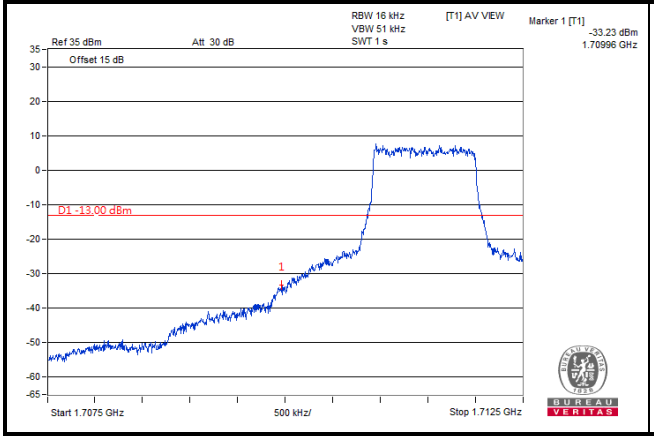
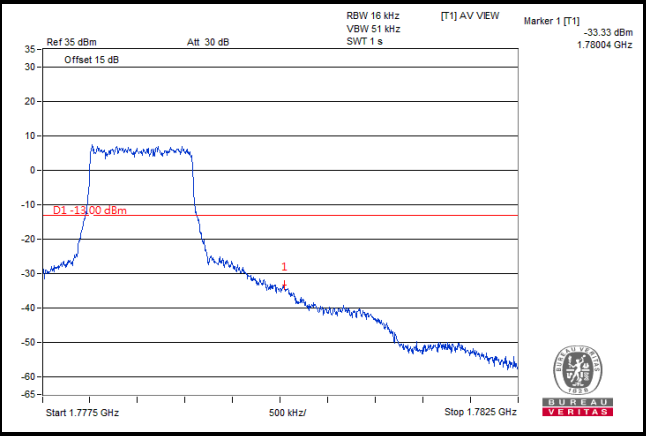
| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 23780 | 1 RB | Channel | 23800 | 1 RB |
|  | | |  | | |
| Channel | 23780 | 50 RB | Channel | 23800 | 50 RB |
|  | | |  | | |

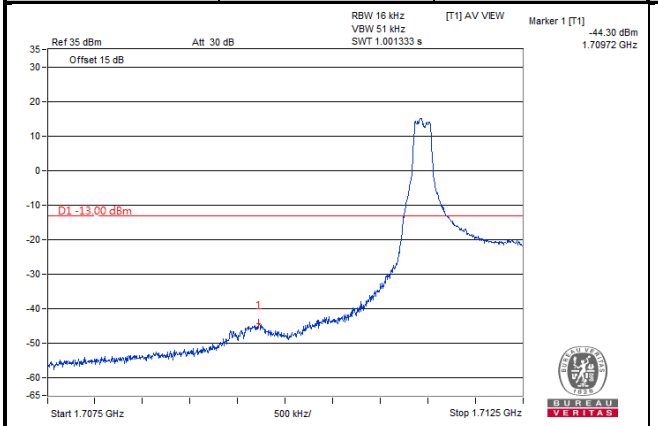
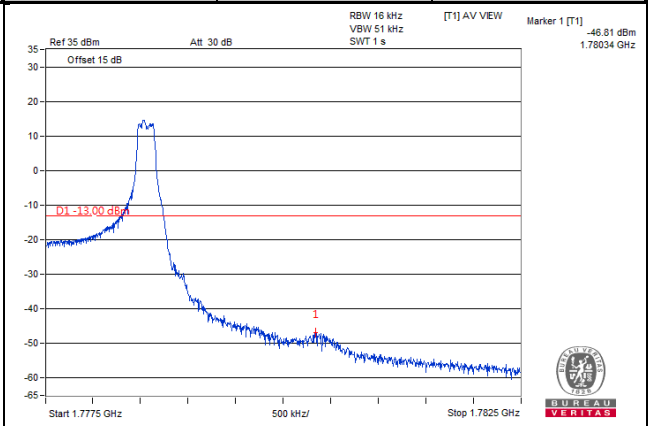
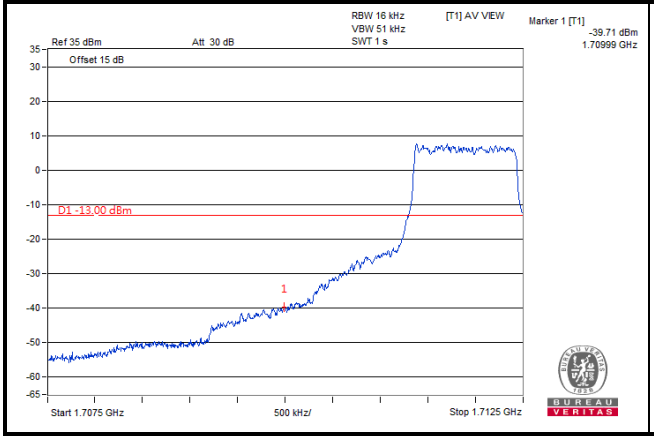
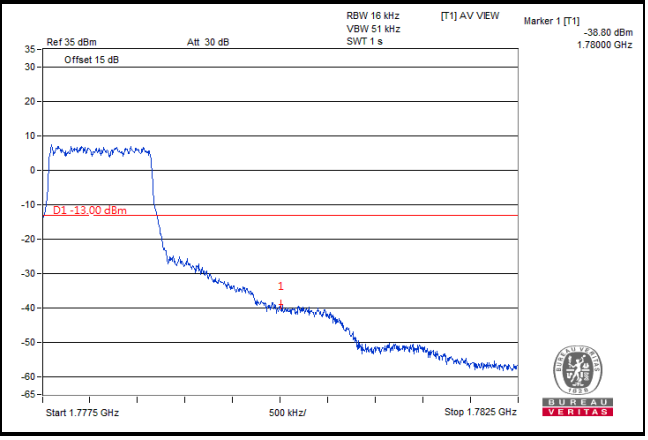
| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 1.4 MHz | | | | | |
| Channel | 131979 | 6 RB | Channel | 131979 | 6 RB |
|  | | |  | | |
| Channel | 131979 | 25 RB | Channel | 131979 | 25 RB |
|  | | |  | | |

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

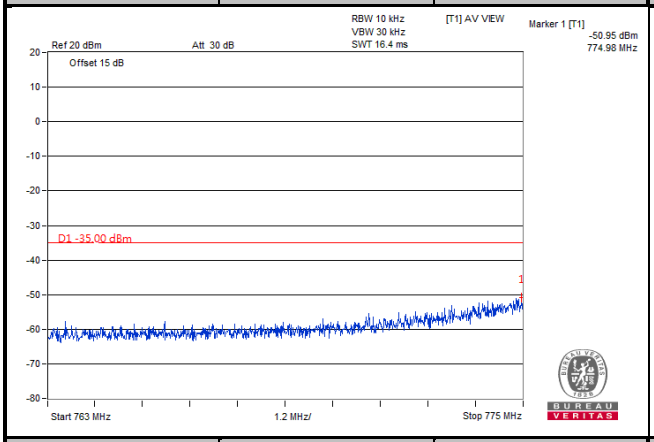
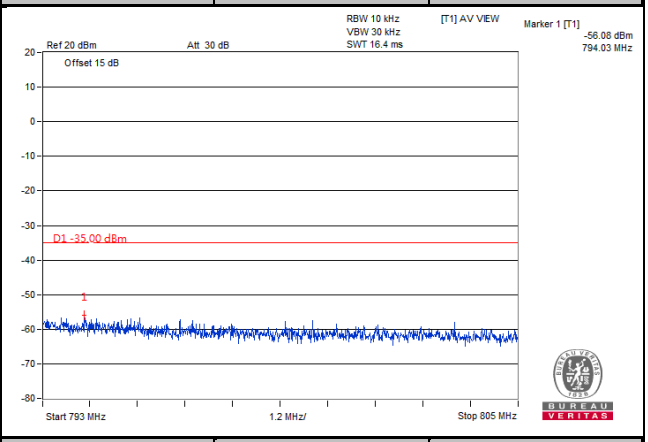
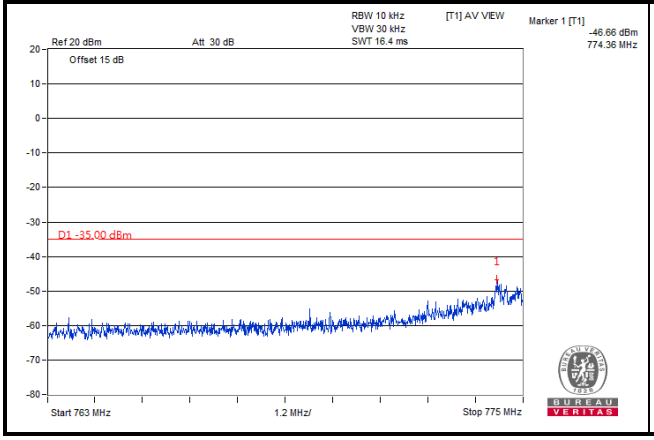
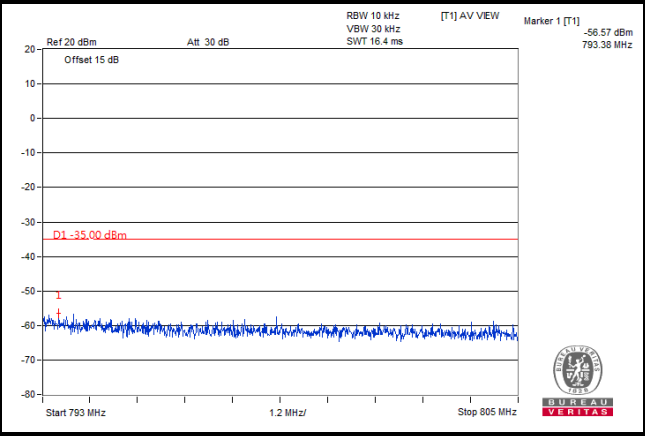
| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 131997 | 1 RB | Channel | 132647 | 1 RB |
|  | | |  | | |
| Channel | 131997 | 25 RB | Channel | 132647 | 25 RB |
|  | | |  | | |

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

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

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

**Emission Mask**

| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 5 MHz | | | | | |
| Channel | 23205 | 1 RB | Channel | 23255 | 1 RB |
|  | | |  | | |
| Channel | 23205 | 25 RB | Channel | 23255 | 25 RB |
|  | | |  | | |





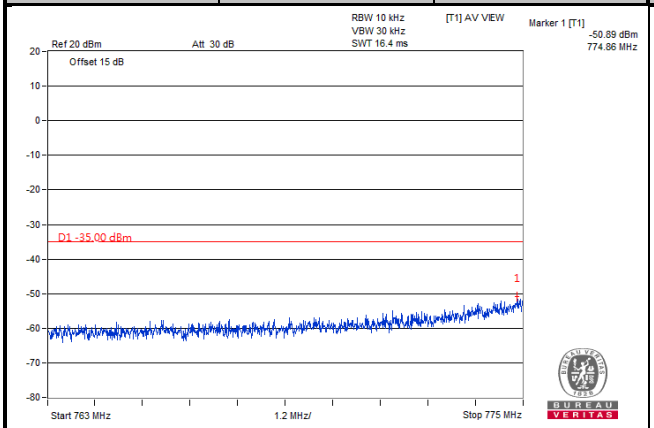
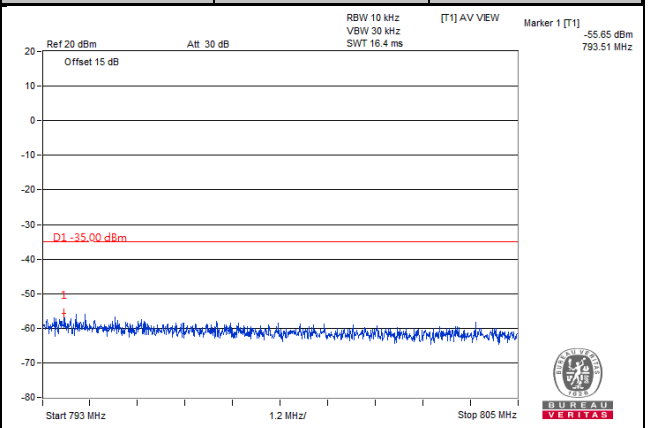
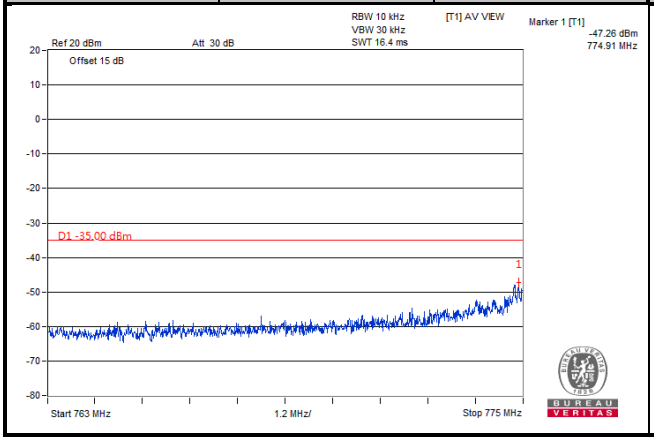
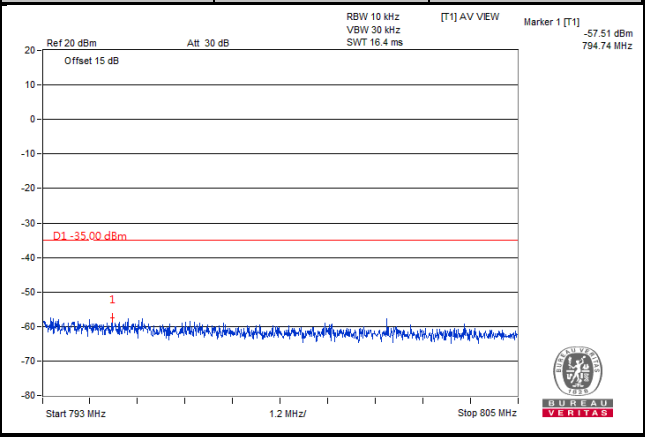




For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is 65+10log(P[watt]) in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

10log(10kHz/6.25kHz) = 2.04 dB

Limit line = -35 dBm + 2.04 dB = -32.96 dBm

| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| Channel Bandwidth: 10 MHz | | | | | |
| Channel | 23230 | 1 RB | Channel | 23230 | 1 RB |
|  | | |  | | |
| Channel | 23230 | 50 RB | Channel | 23230 | 50 RB |
|  | | |  | | |







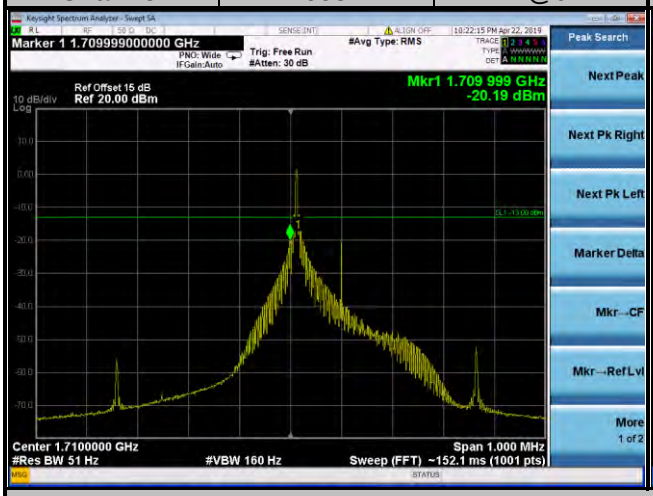
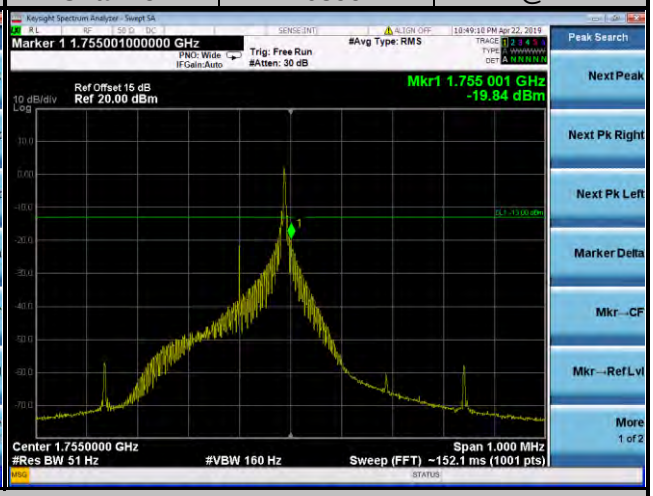
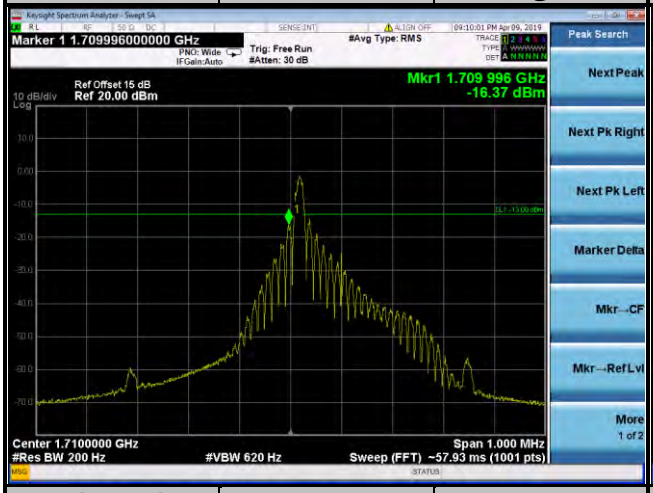
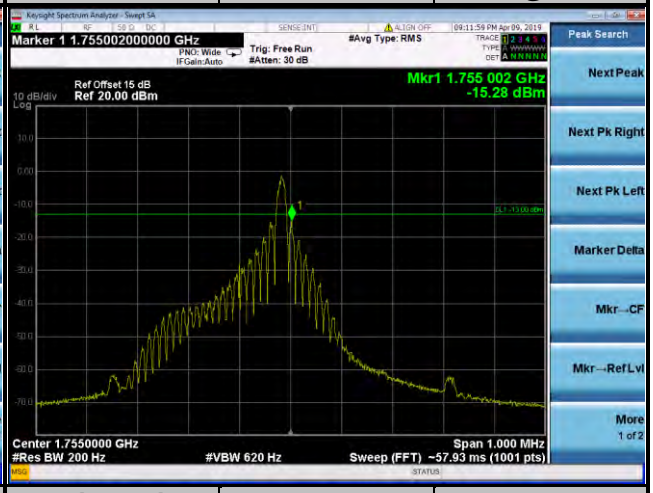
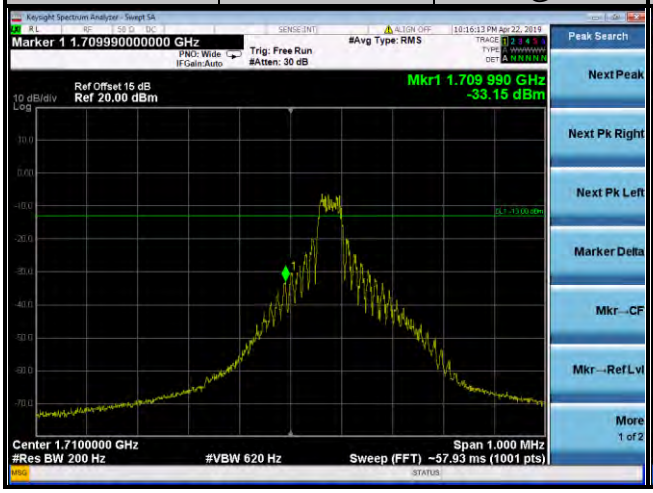
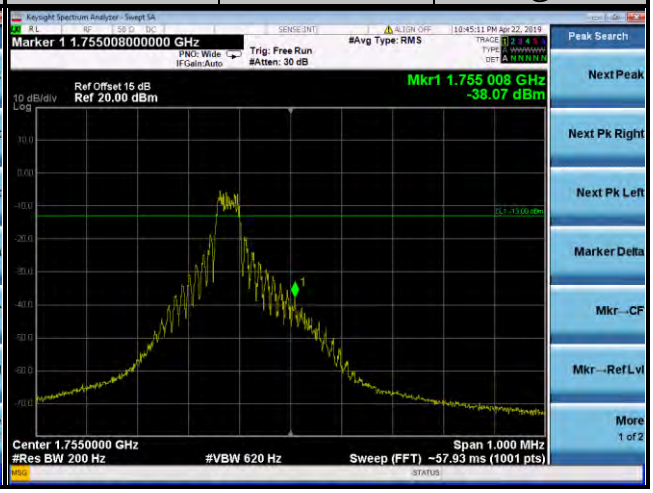


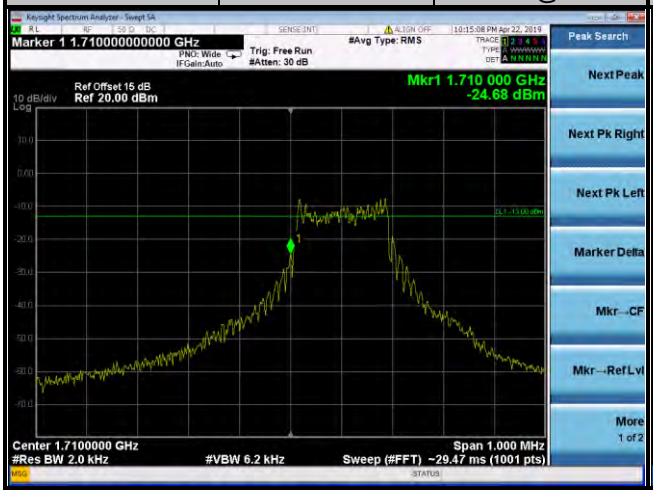
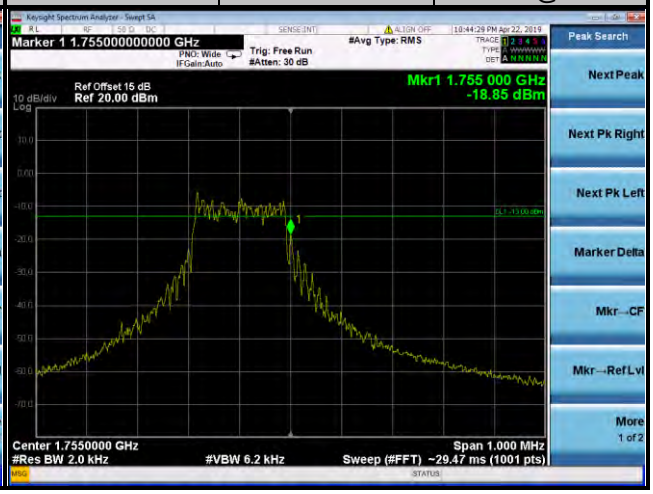
For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is 65+10log(P[watt]) in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

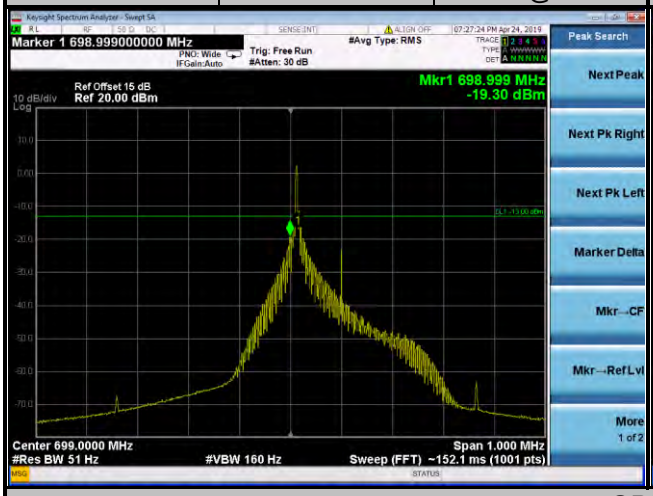
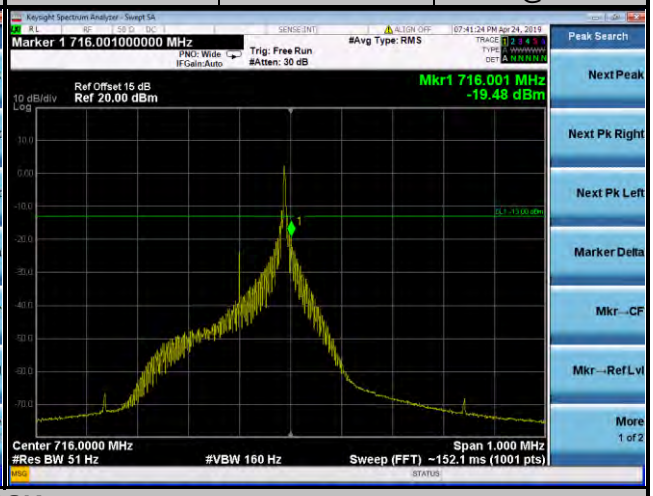
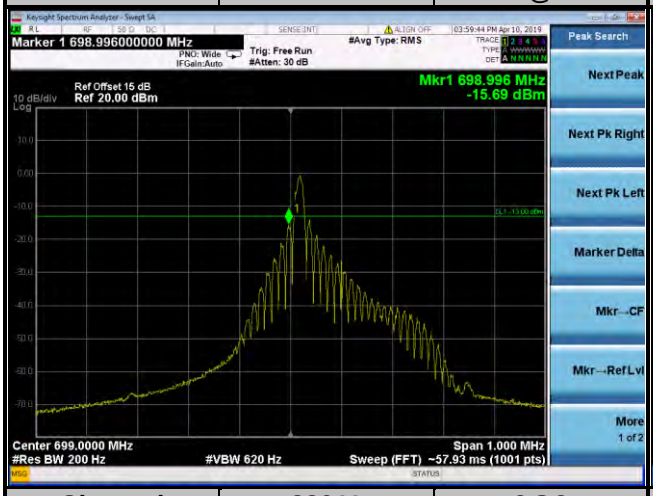
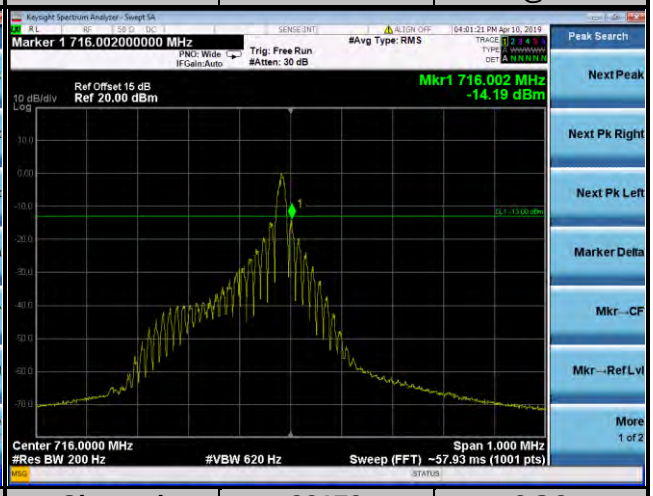
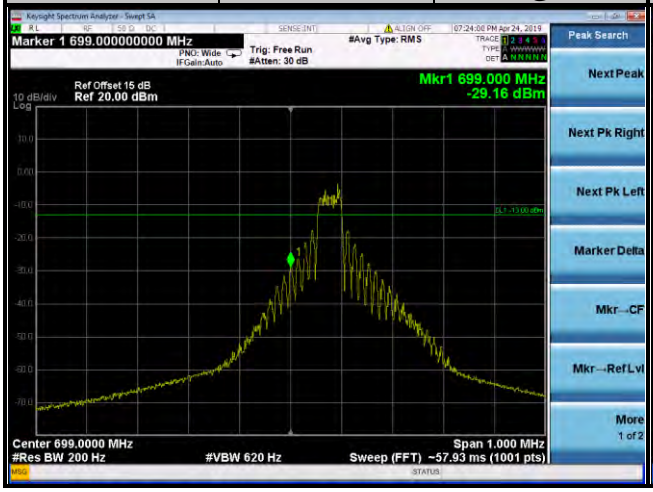
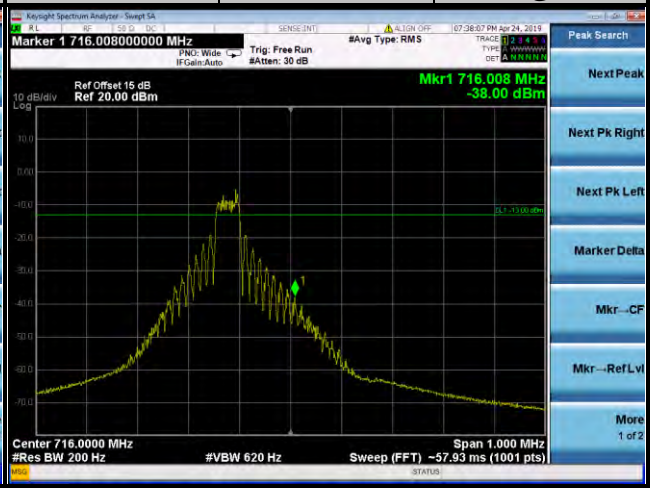
10log(10kHz/6.25kHz) = 2.04 dB

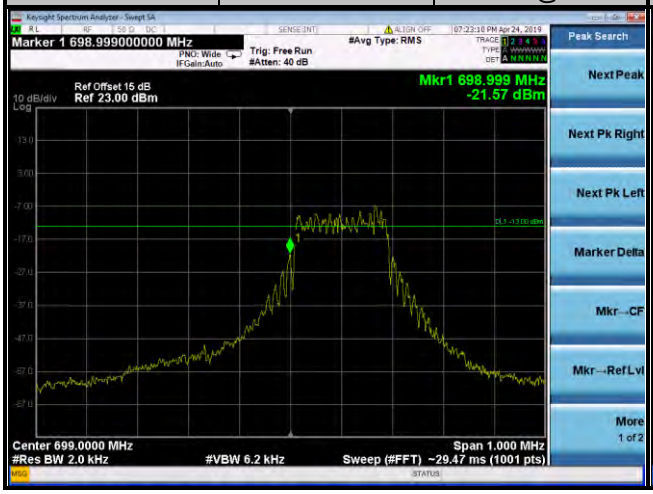
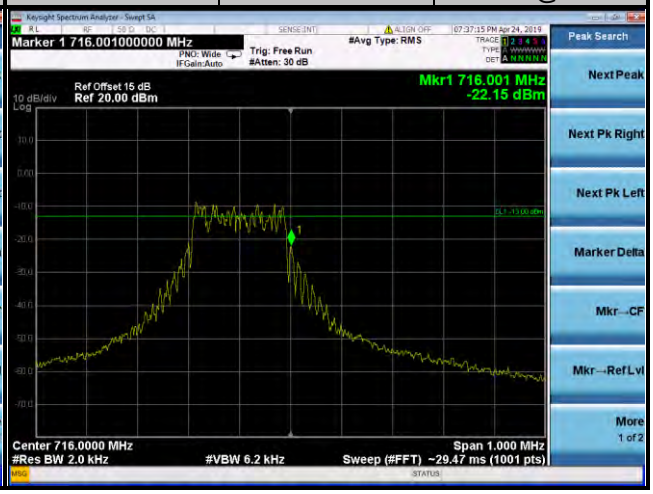
Limit line = -35 dBm + 2.04 dB =-32.96 dBm

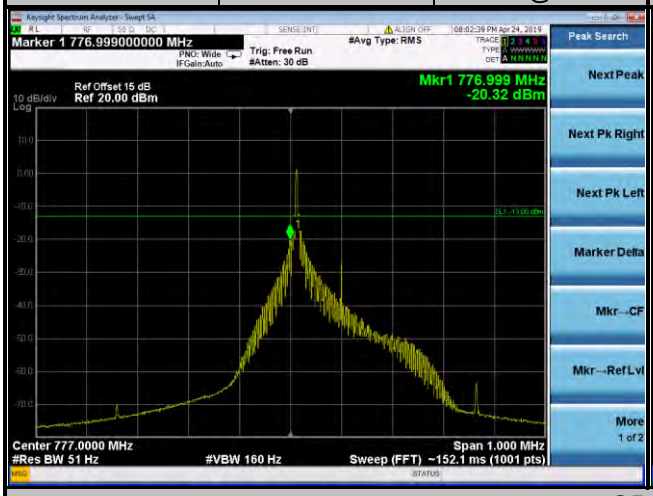
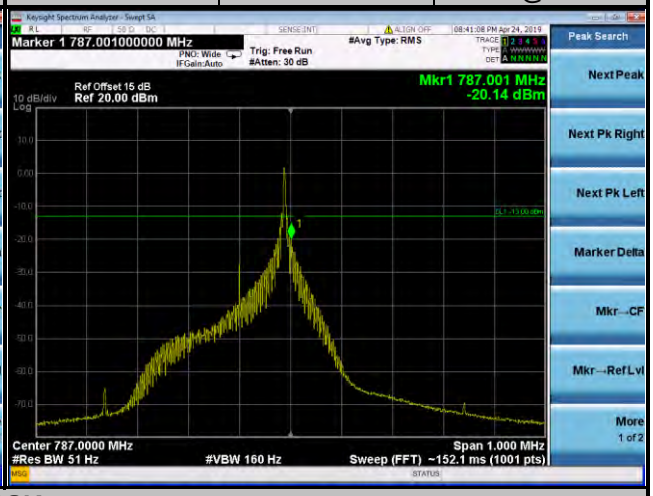
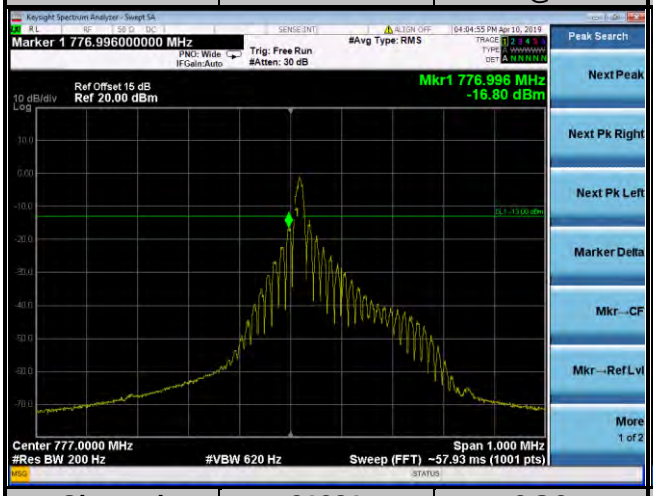
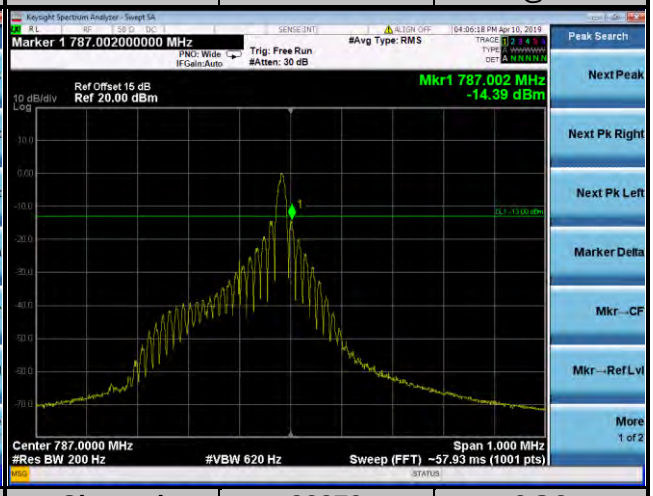
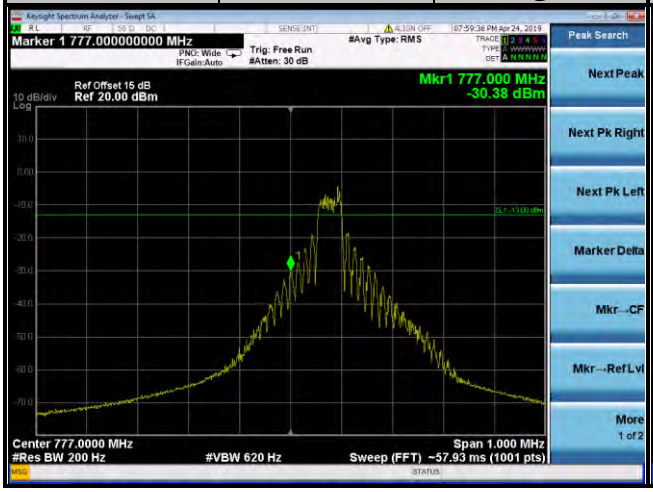
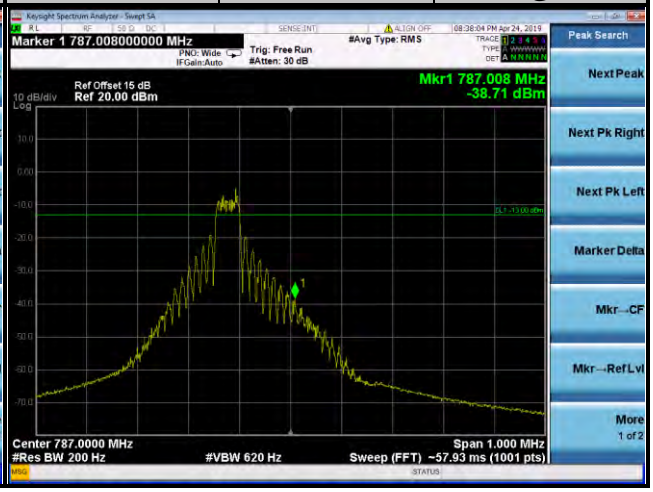
## NB-IoT

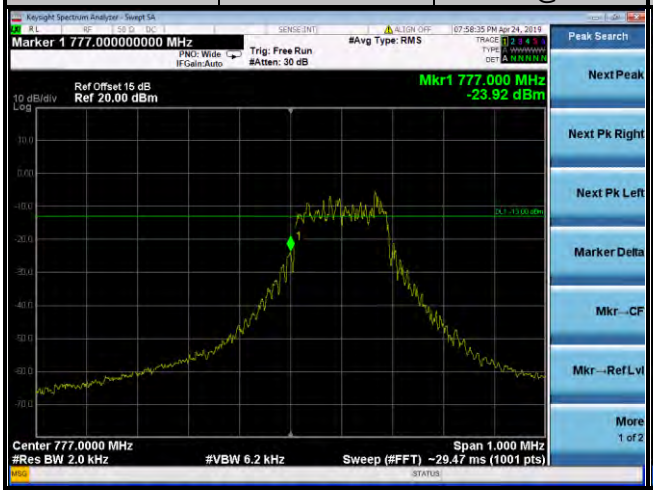
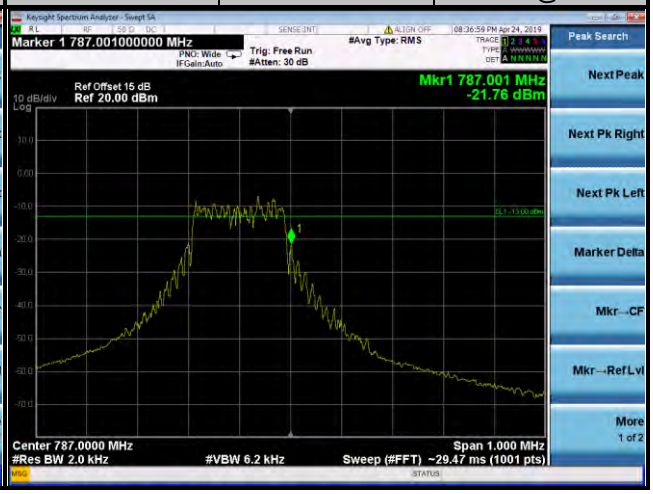
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| **BPSK** | | | | | |
| **Channel** | **19951** | **1@0** | **Channel** | **20399** | **1@47** |
|  | | |  | | |
| **QPSK** | | | | | |
| **Channel** | **19951** | **1@0** | **Channel** | **20399** | **1@11** |
|  | | |  | | |
| **Channel** | **19951** | **3@3** | **Channel** | **20399** | **3@3** |
|  | | |  | | |

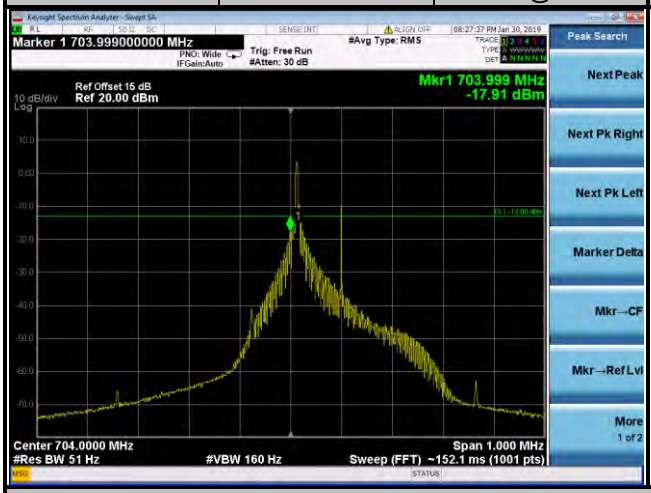
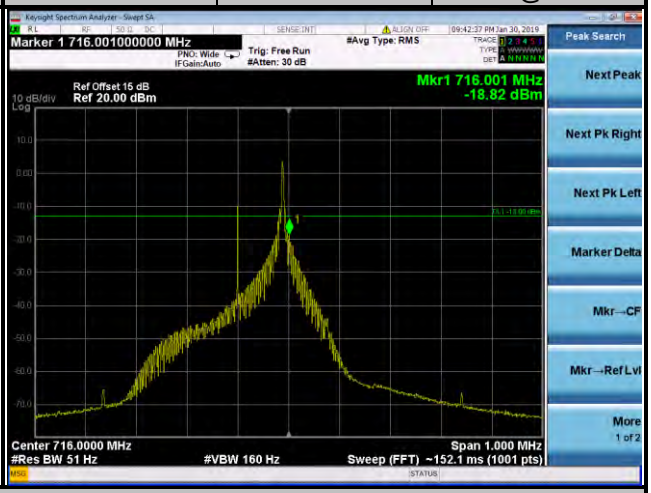
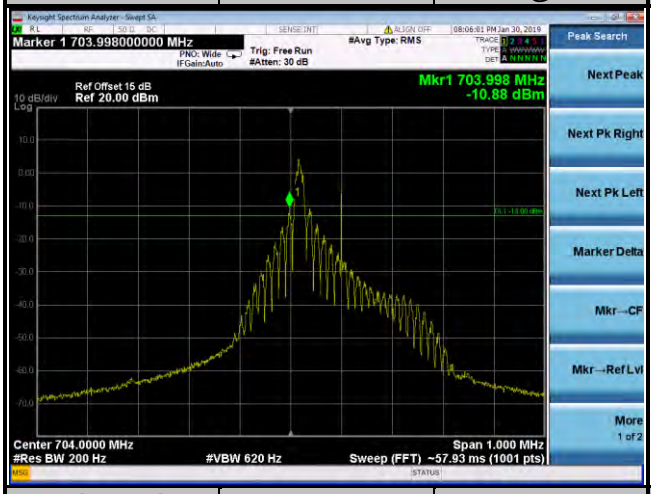
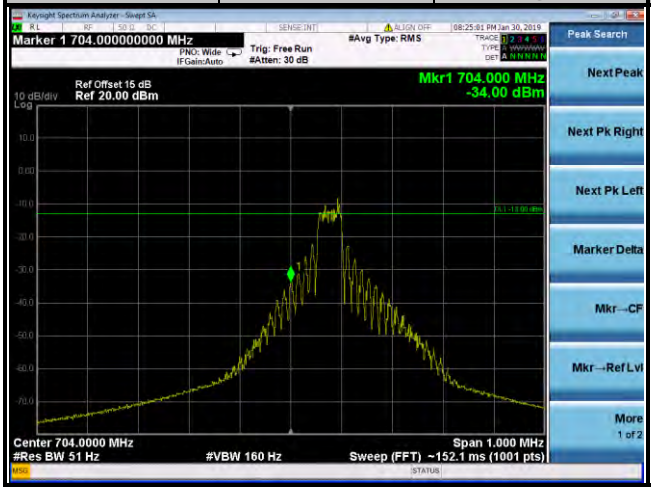
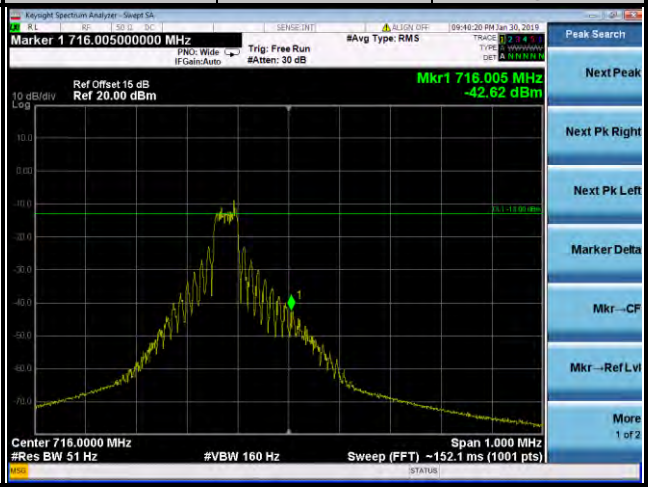
| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| QPSK | | | | | |
| Channel | 19951 | 12@0 | Channel | 20399 | 12@0 |
|  | | |  | | |

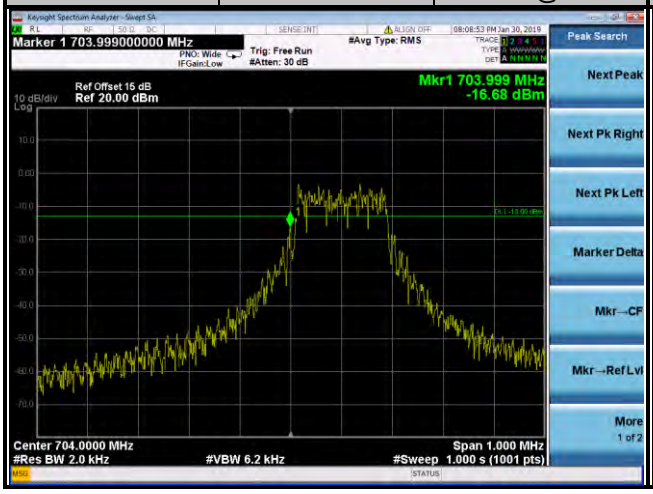
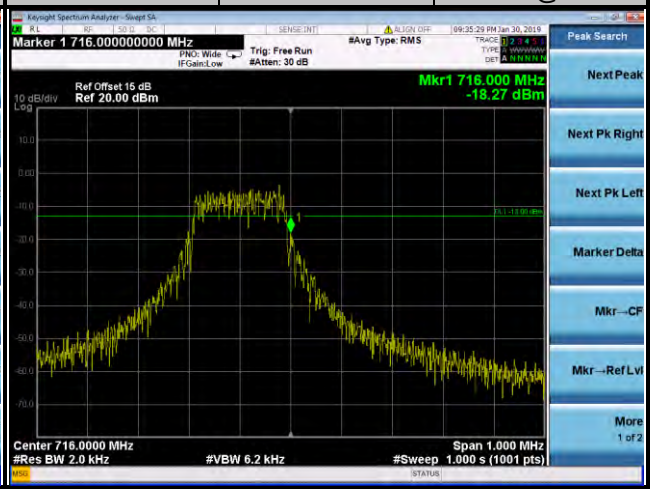
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| BPSK | | | | | |
| Channel | 23011 | 1@0 | Channel | 23179 | 1@47 |
|  | | |  | | |
| QPSK | | | | | |
| Channel | 23011 | 1@0 | Channel | 23179 | 1@11 |
|  | | |  | | |
| Channel | 23011 | 3@3 | Channel | 23179 | 3@3 |
|  | | |  | | |

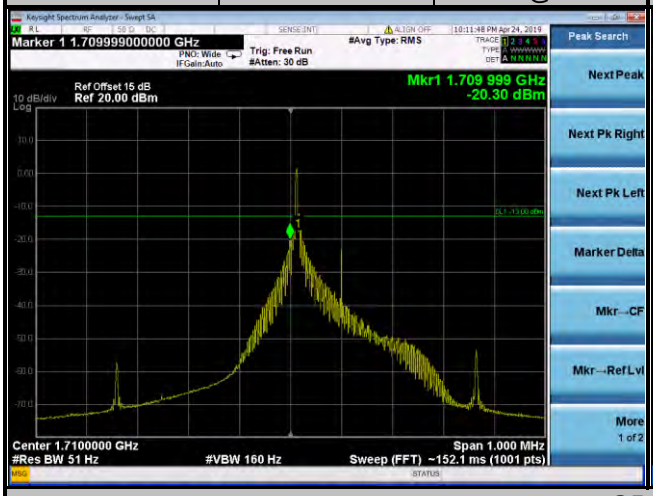
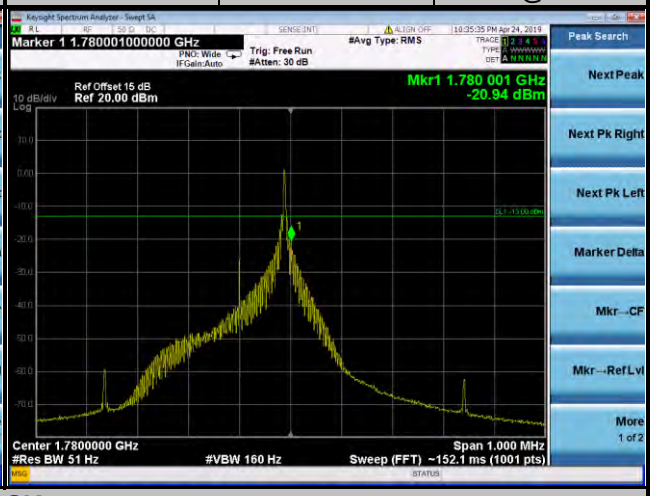
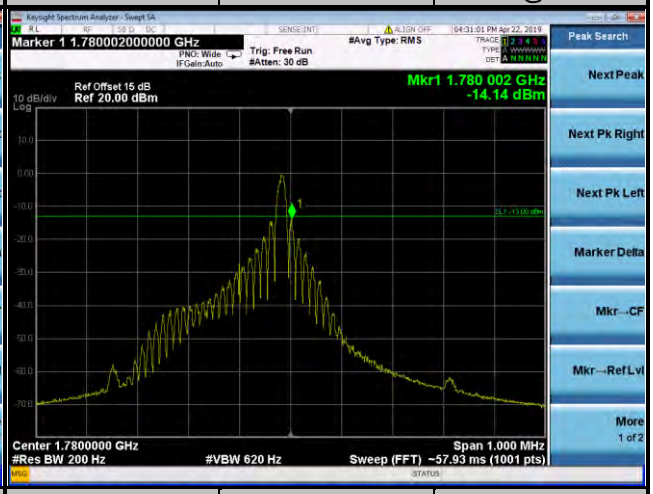
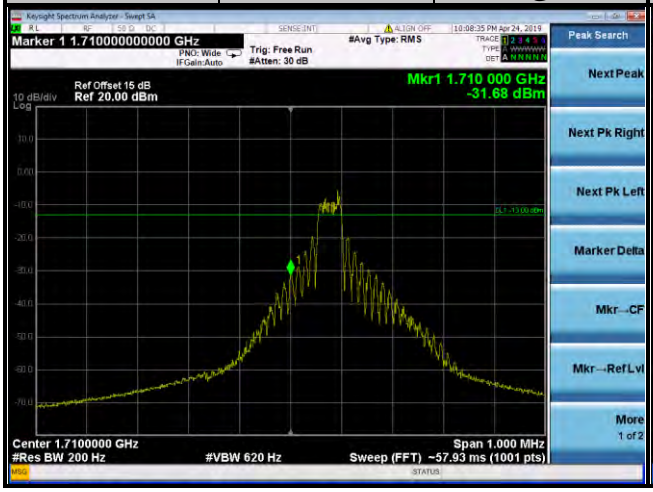
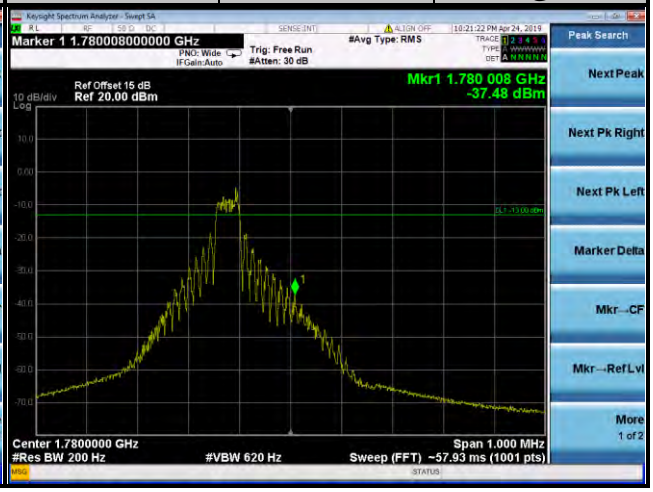
| LTE Band 12 | | | | | |
|---|---|---|---|---|---|
| QPSK | | | | | |
| Channel | 23011 | 12@0 | Channel | 23179 | 12@0 |
|  | | |  | | |

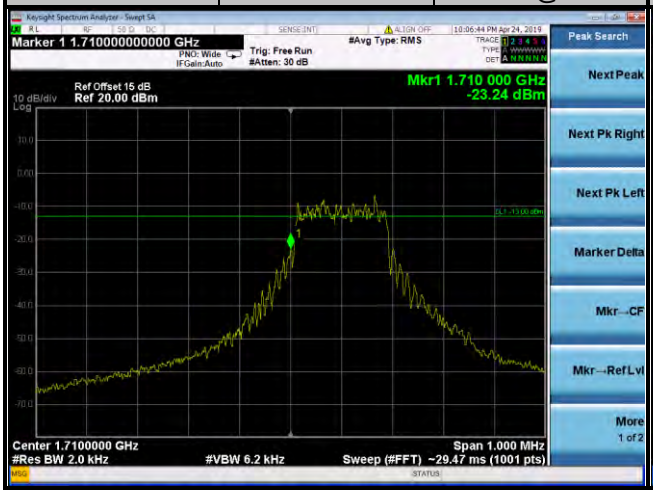
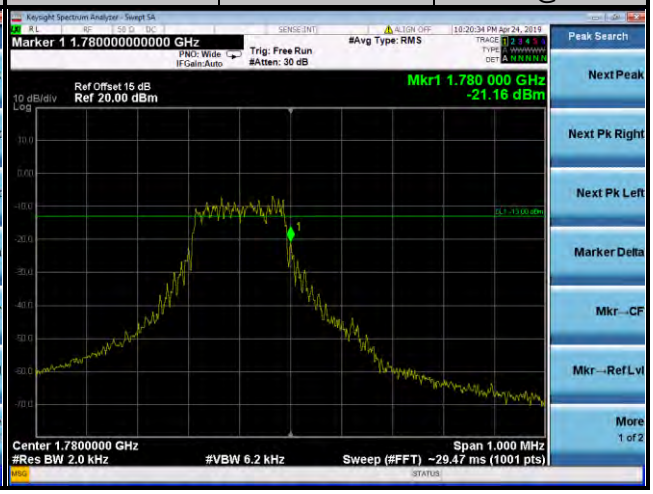
| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| BPSK | | | | | |
| Channel | 21381 | 1@0 | Channel | 23279 | 1@47 |
|  | | |  | | |
| QPSK | | | | | |
| Channel | 21381 | 1@0 | Channel | 23279 | 1@11 |
|  | | |  | | |
| Channel | 21381 | 3@3 | Channel | 23279 | 3@3 |
|  | | |  | | |

| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| QPSK | | | | | |
| Channel | 21381 | 12@0 | Channel | 23279 | 12@0 |
|  | | |  | | |

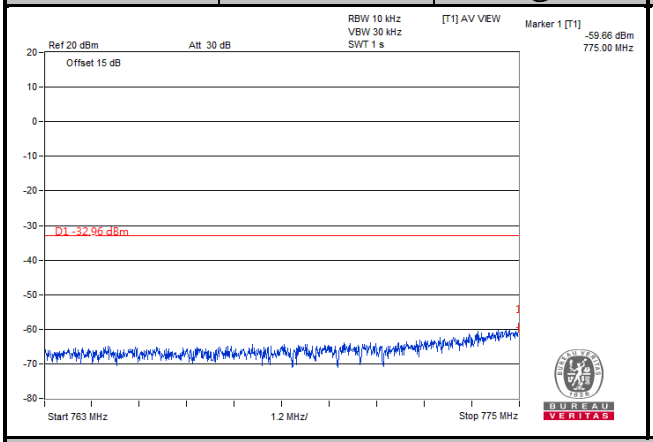
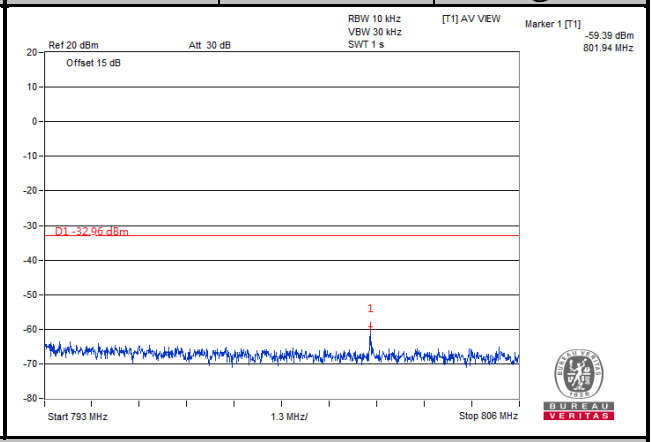
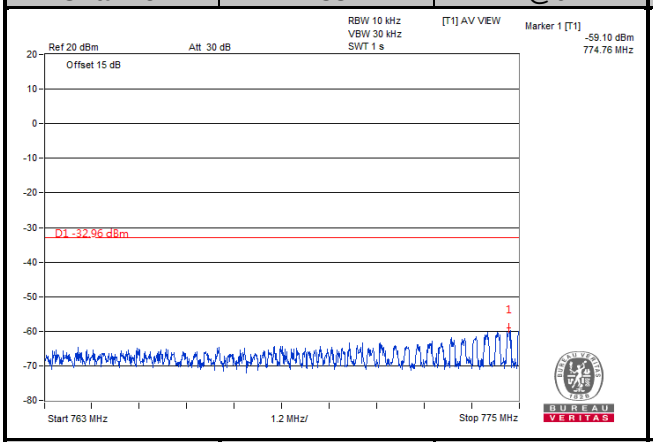
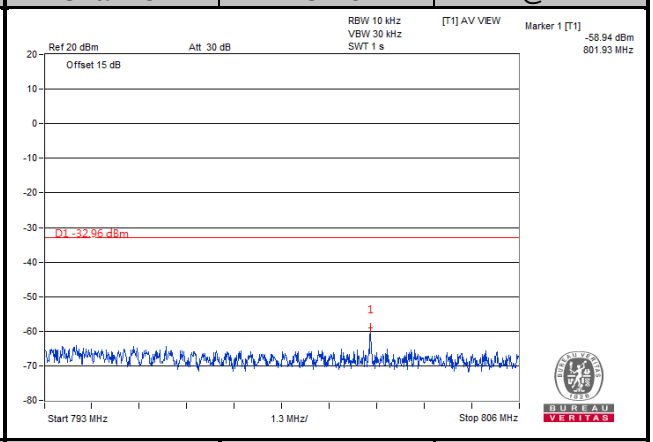
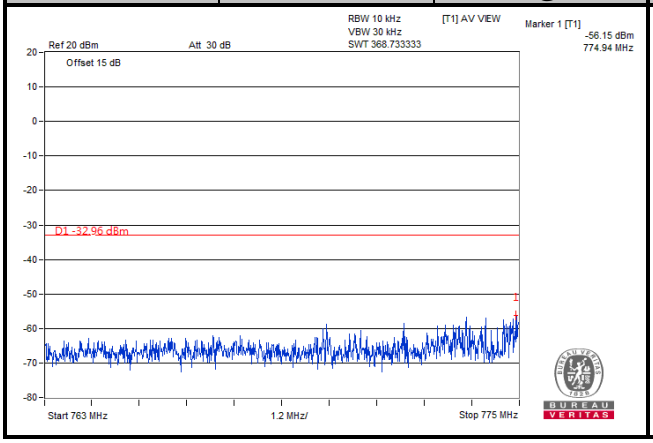
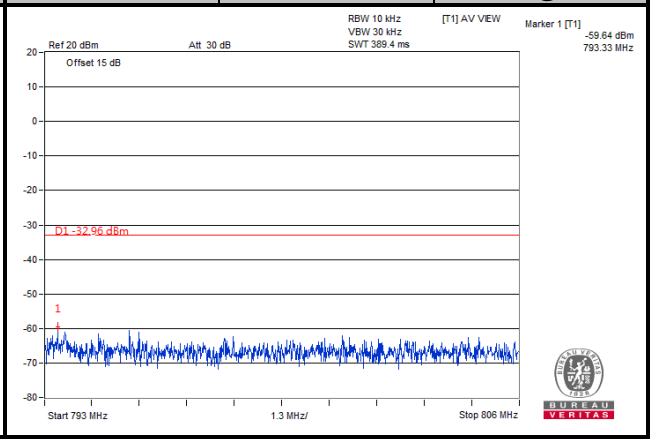
| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| BPSK | | | | | |
| Channel | 23731 | 1@0 | Channel | 23849 | 1@47 |
|  | | |  | | |
| QPSK | | | | | |
| Channel | 23731 | 1@0 | Channel | 23849 | 1@11 |
|  | | |  | | |
| Channel | 23731 | 3@3 | Channel | 23849 | 3@3 |
|  | | |  | | |

| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| QPSK | | | | | |
| Channel | 23731 | 12@0 | Channel | 23849 | 12@0 |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| BPSK | | | | | |
| Channel | 131973 | 1@0 | Channel | 132671 | 1@47 |
|  | | |  | | |
| QPSK | | | | | |
| Channel | 131973 | 1@0 | Channel | 132671 | 1@11 |
|  | | |  | | |
| Channel | 131973 | 3@3 | Channel | 132671 | 3@3 |
|  | | |  | | |

| LTE Band 66 | | | | | |
|---|---|---|---|---|---|
| QPSK | | | | | |
| Channel | 131973 | 12@0 | Channel | 132671 | 12@0 |
|  | | |  | | |

**Emission Mask**

| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| **BPSK** | | | | | |
| **Channel** | **21381** | **1@0** | **Channel** | **23279** | **1@0** |
|  | | |  | | |
| **QPSK** | | | | | |
| **Channel** | **21381** | **1@0** | **Channel** | **23279** | **1@11** |
|  | | |  | | |
| **Channel** | **21381** | **12@0** | **Channel** | **23279** | **12@0** |
|  | | |  | | |

For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is 65+10log(P[watt]) in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

10log(10kHz/6.25kHz) = 2.04 dB

Limit line = -35 dBm + 2.04 dB = -32.96 dBm