

## FCC Test Report (Part 27)

**Report No.:** RF170412C17-8

**FCC ID:** Q3N-RS50

**Test Model:** RS50

**Received Date:** Apr. 12, 2017

**Test Date:** Apr. 18 ~ May 24, 2017

**Issued Date:** May 31, 2017

**Applicant:** CIPHERLAB CO., LTD

**Address:** 12F, 333 Dunhua S. Rd., Sec. 2 Taipei, Taiwan 106

**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.)



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### Release Control Record

| Issue No.     | Description      | Date Issued  |
|---------------|------------------|--------------|
| RF170412C17-8 | Original release | May 31, 2017 |

## 1 Certificate of Conformity

**Product:** Mobile Computer

**Brand:** CIPHERLAB

**Test Model:** RS50

**Sample Status:** Engineering sample

**Applicant:** CIPHERLAB CO., LTD

**Test Date:** Apr. 18 ~ May 24, 2017

**Standards:** FCC Part 27, Subpart L, F

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 EMC characteristics under the conditions specified in this report.

**Prepared by :**

  
Pettie Chen / Senior Specialist

**Date:**

May 31, 2017

**Approved by :**

  
Burce Chen / Project Engineer

**Date:**

May 31, 2017

## 2 Summary of Test Results

| Applied Standard: FCC Part 27 & Part 2 |                        |                        |                                                                       |        |                                                                                      |
|----------------------------------------|------------------------|------------------------|-----------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|
| FCC Clause                             |                        |                        | Test Item                                                             | Result | Remarks                                                                              |
| WCDMA Band 4 /<br>LTE Band 4           | LTE Band 13            | LTE Band 17            |                                                                       |        |                                                                                      |
| 2.1046<br>27.50(d)(4)                  | 2.1046<br>27.50(b)(10) | 2.1046<br>27.50(c)(10) | Equivalent Isotropically<br>Radiated Power                            | Pass   | Meet the requirement of limit.                                                       |
| ----                                   | ----                   | ----                   | Peak To Average Ratio                                                 | Pass   | Meet the requirement of limit.                                                       |
| 2.1055<br>27.54                        | 2.1055<br>27.54        | 2.1055<br>27.54        | Frequency Stability<br>Stay with the authorized<br>bands of operation | Pass   | Meet the requirement of limit.                                                       |
| 2.1049<br>27.53(m)(6)                  | 2.1049<br>27.53(m)(6)  | 2.1049<br>27.53(m)(6)  | Emission Bandwidth                                                    | Pass   | Meet the requirement of limit.                                                       |
| 2.1051<br>27.53(h)                     | 2.1051<br>27.53(c)     | 2.1051<br>27.53(g)     | Band Edge<br>Measurements                                             | Pass   | Meet the requirement of limit.                                                       |
| 2.1051<br>27.53(h)                     | 2.1051<br>27.53(c)     | 2.1051<br>27.53(g)     | Conducted Spurious<br>Emissions                                       | Pass   | Meet the requirement of limit.                                                       |
| 2.1051<br>27.53(h)                     | 2.1051<br>27.53(c)     | 2.1051<br>27.53(g)     | Radiated Spurious<br>Emissions                                        | Pass   | Meet the requirement of limit.<br>Minimum passing margin is<br>-4.7dB at 5197.50MHz. |

### 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<br>(k=2) (±) |
|--------------------------------|-----------------|-----------------------------------|
| Radiated Emissions up to 1 GHz | 30MHz ~ 200MHz  | 3.86 dB                           |
|                                | 200MHz ~1000MHz | 3.87 dB                           |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz    | 2.29 dB                           |
|                                | 18GHz ~ 40GHz   | 2.29 dB                           |

## 2.2 Test Site and Instruments

| Description & Manufacturer           | Model No.                    | Serial No.                     | Cal. Date     | Cal. Due      |
|--------------------------------------|------------------------------|--------------------------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ     | ESIB7                        | 100187                         | May 02, 2017  | May 01, 2018  |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSP40                        | 100041                         | Nov. 16, 2016 | Nov. 15, 2017 |
| BILOG Antenna<br>SCHWARZBECK         | VULB9168                     | 9168-171                       | Dec. 28, 2016 | Dec. 27, 2017 |
| HORN Antenna<br>SCHWARZBECK          | 9120D                        | 209                            | Dec. 27, 2016 | Dec. 26, 2017 |
| HORN Antenna<br>SCHWARZBECK          | BBHA 9170                    | BBHA9170241                    | Dec. 14, 2016 | Dec. 13, 2017 |
| Loop Antenna                         | EM-6879                      | 269                            | Aug. 11, 2016 | Aug. 10, 2017 |
| Preamplifier<br>Agilent              | 8447D                        | 2944A10738                     | Aug. 22, 2016 | Aug. 21, 2017 |
| Preamplifier<br>Agilent              | 8449B                        | 3008A01922                     | Sep. 18, 2016 | Sep. 17, 2017 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 104                 | Cable-CH3-03 (214378)          | Aug. 22, 2016 | Aug. 21, 2017 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 106                 | Cable-CH3-03<br>(309224+12738) | Aug. 22, 2016 | Aug. 21, 2017 |
| Software<br>BV ADT                   | ADT_Radiated_<br>V7.6.15.9.4 | NA                             | NA            | NA            |
| Antenna Tower<br>inn-co GmbH         | MA 4000                      | 013303                         | NA            | NA            |
| Antenna Tower Controller<br>BV ADT   | AT100                        | AT93021702                     | NA            | NA            |
| Turn Table<br>BV ADT                 | TT100                        | TT93021702                     | NA            | NA            |
| Turn Table Controller<br>BV ADT      | SC100                        | SC93021702                     | NA            | NA            |
| JFW 20dB attenuation                 | 50HF-020-SMA                 | NA                             | NA            | NA            |

- Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. The test was performed in HwaYa Chamber 3.
  3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 988962.
  5. The IC Site Registration No. is IC 7450F-3.

### 3 General Information

#### 3.1 General Description of EUT

|                     |                                                                                                          |                          |                       |
|---------------------|----------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|
| Product             | Mobile Computer                                                                                          |                          |                       |
| Brand               | CIPHERLAB                                                                                                |                          |                       |
| Test Model          | RS50                                                                                                     |                          |                       |
| Status of EUT       | Engineering sample                                                                                       |                          |                       |
| Nominal Voltage     | 5Vdc (adapter)<br>3.8Vdc (battery)                                                                       |                          |                       |
| Modulation Type     | WCDMA: BPSK, QPSK<br>HSDPA: BPSK<br>HSUPA: QPSK<br>LTE: QPSK, 16QAM                                      |                          |                       |
| Operating Frequency | WCDMA Band 4                                                                                             |                          | 1712.4MHz ~ 1752.6MHz |
|                     | LTE Band 4                                                                                               | Channel Bandwidth 1.4MHz | 1710.7MHz ~ 1754.3MHz |
|                     |                                                                                                          | Channel Bandwidth 3MHz   | 1711.5MHz ~ 1753.5MHz |
|                     |                                                                                                          | Channel Bandwidth 5MHz   | 1712.5MHz ~ 1752.5MHz |
|                     |                                                                                                          | Channel Bandwidth 10MHz  | 1715MHz ~ 1750MHz     |
|                     |                                                                                                          | Channel Bandwidth 15MHz  | 1717.5MHz ~ 1747.5MHz |
|                     |                                                                                                          | Channel Bandwidth 20MHz  | 1720MHz ~ 1745MHz     |
|                     | LTE Band 13                                                                                              | Channel Bandwidth 5MHz   | 779.5MHz ~ 784.5MHz   |
|                     |                                                                                                          | Channel Bandwidth 10MHz  | 782MHz                |
|                     | LTE Band 17                                                                                              | Channel Bandwidth 5MHz   | 706.5MHz ~ 713.5MHz   |
|                     |                                                                                                          | Channel Bandwidth 10MHz  | 709MHz ~ 711MHz       |
| Max. EIRP Power     | WCDMA Band 4                                                                                             |                          | 269.153mW (24.3dBm)   |
|                     | LTE Band 4                                                                                               | Channel Bandwidth 1.4MHz | 851.138mW (29.3dBm)   |
|                     |                                                                                                          | Channel Bandwidth 3MHz   | 851.138mW (29.3dBm)   |
|                     |                                                                                                          | Channel Bandwidth 5MHz   | 870.964mW (29.4dBm)   |
|                     |                                                                                                          | Channel Bandwidth 10MHz  | 891.251mW (29.5dBm)   |
|                     |                                                                                                          | Channel Bandwidth 15MHz  | 831.764mW (29.2dBm)   |
| Max. ERP Power      | LTE Band 13                                                                                              | Channel Bandwidth 20MHz  | 794.328mW (29.0dBm)   |
|                     |                                                                                                          | Channel Bandwidth 5MHz   | 331.131mW (25.2dBm)   |
|                     | LTE Band 17                                                                                              | Channel Bandwidth 10MHz  | 331.131mW (25.2dBm)   |
|                     |                                                                                                          | Channel Bandwidth 5MHz   | 239.883mW (23.8dBm)   |
| Antenna Type        | LTE Band 17                                                                                              | Channel Bandwidth 10MHz  | 251.189mW (24.0dBm)   |
|                     |                                                                                                          | Channel Bandwidth 5MHz   | 251.189mW (24.0dBm)   |
|                     | WCDMA Band 4: PIFA antenna with 1.72dBi gain                                                             |                          |                       |
|                     | LTE Band 4:<br>Main Ant.: PIFA antenna with 1.72dBi gain<br>Aux. Ant.: PIFA antenna with -3.08dBi gain   |                          |                       |
| Antenna Type        | LTE Band 13:<br>Main Ant.: PIFA antenna with -0.42dBi gain<br>Aux. Ant.: PIFA antenna with -5.51dBi gain |                          |                       |
|                     | LTE Band 17:<br>Main Ant.: PIFA antenna with -0.76dBi gain<br>Aux. Ant.: PIFA antenna with -6.13dBi gain |                          |                       |

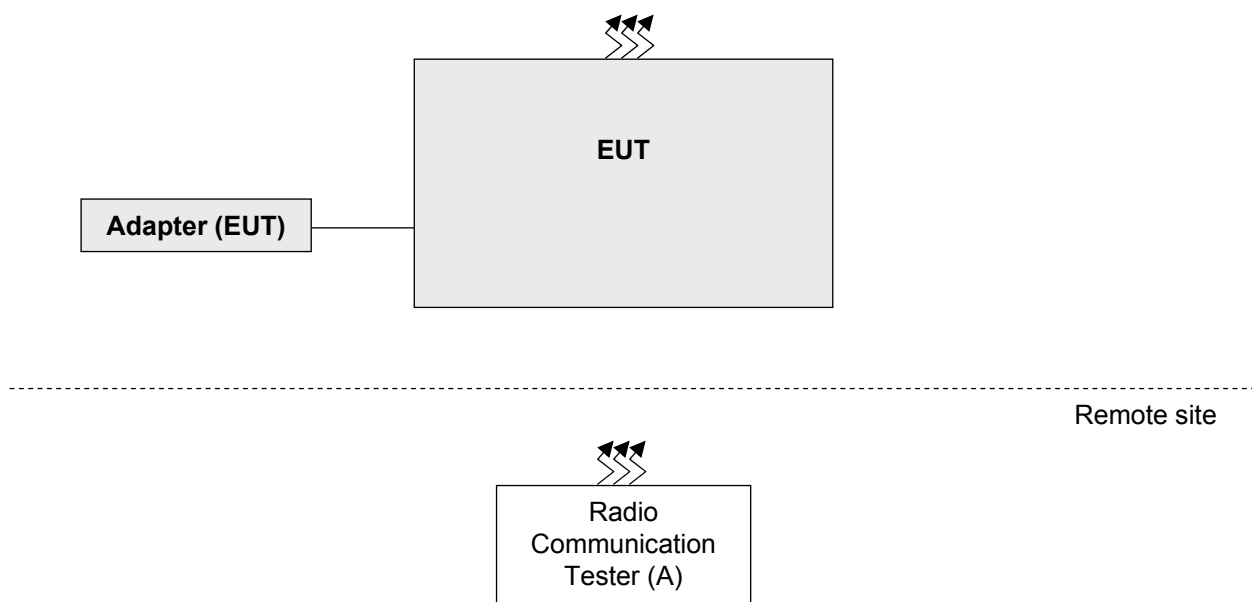
|                     |                                     |
|---------------------|-------------------------------------|
| Antenna Connector   | spring                              |
| Accessory Device    | Adapter, Battery                    |
| Data Cable Supplied | 1.5m shielded USB cable with 1 core |

Note:

1. The EUT uses following accessory devices.

| Component | Vendor                             | Model        | Specification                                                  |
|-----------|------------------------------------|--------------|----------------------------------------------------------------|
| Adapter   | Sunny COMPUTER TECHNOLOGY CO.,LTD. | SYS1561-1005 | I/P: 100-240Vac, 1.0A MAX, 50-60Hz<br>O/P: +5Vdc, 2A, 10W MAX. |
| Battery   | CIPHERLAB                          | BA-0115A3    | 3.8Vdc                                                         |

### 3.2 Configuration of System under Test



#### 3.2.1 Description of Support Units

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

| ID | Product                    | Brand | Model No. | Serial No. | FCC ID | Remarks |
|----|----------------------------|-------|-----------|------------|--------|---------|
| A. | Radio Communication Tester | R&S   | CMU200    | 123112     | NA     | -       |

Note:

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

### 3.3 Test Mode Applicability and Tested Channel Detail

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

#### WCDMA Band 4 Mode

| EUT Configure Mode | Test Item                    | Available Channel | Tested Channel                                          | Mode                |
|--------------------|------------------------------|-------------------|---------------------------------------------------------|---------------------|
| -                  | EIRP                         | 1312 to 1513      | 1312(1712.4MHz),<br>1413(1732.6MHz),<br>1513(1752.6MHz) | WCDMA               |
| -                  | Frequency Stability          | 1312 to 1513      | 1413(1732.6MHz)                                         | WCDMA               |
| -                  | Occupied Bandwidth           | 1312 to 1513      | 1312(1712.4MHz),<br>1413(1732.6MHz),<br>1513(1752.6MHz) | WCDMA, HSDPA, HSUPA |
| -                  | Band Edge                    | 1312 to 1513      | 1312(1712.4MHz),<br>1513(1752.6MHz)                     | WCDMA, HSDPA, HSUPA |
| -                  | Peak To Average Ratio        | 1312 to 1513      | 1312(1712.4MHz),<br>1413(1732.6MHz),<br>1513(1752.6MHz) | WCDMA, HSDPA, HSUPA |
| -                  | Conducted Emission           | 1312 to 1513      | 1312(1712.4MHz),<br>1413(1732.6MHz),<br>1513(1752.6MHz) | WCDMA, HSDPA, HSUPA |
| -                  | Radiated Emission Below 1GHz | 1312 to 1513      | 1312(1712.4MHz)                                         | WCDMA               |
| -                  | Radiated Emission Above 1GHz | 1312 to 1513      | 1312(1712.4MHz),<br>1413(1732.6MHz),<br>1513(1752.6MHz) | WCDMA               |

# LTE Band 4

| Test Item                  | Available Channel | Tested Channel                                             | Channel Bandwidth | Modulation  | Mode                                                              |
|----------------------------|-------------------|------------------------------------------------------------|-------------------|-------------|-------------------------------------------------------------------|
| Output Power               | 19957 to 20393    | 19957(1710.7MHz),<br>20175(1732.5MHz),<br>20393(1754.3MHz) | 1.4MHz            | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 19965 to 20385    | 19965(1711.5MHz),<br>20175(1732.5MHz),<br>20385(1753.5MHz) | 3MHz              | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 19975 to 20375    | 19975(1712.5MHz),<br>20175(1732.5MHz),<br>20375(1752.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 20000 to 20350    | 20000(1715.0MHz),<br>20175(1732.5MHz),<br>20350(1750.0MHz) | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 20025 to 20325    | 20025(1717.5MHz),<br>20175(1732.5MHz),<br>20325(1747.5MHz) | 15MHz             | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 20050 to 20300    | 20050(1720.0MHz),<br>20175(1732.5MHz),<br>20300(1745.0MHz) | 20MHz             | QPSK        | 1 RB / 0 RB Offset                                                |
| Modulation characteristics | 19957 to 20393    | 20175(1732.5MHz),                                          | 1.4MHz            | QPSK        | 1 RB / 0 RB Offset                                                |
|                            | 20050 to 20300    | 20175(1732.5MHz),                                          | 20MHz             | QPSK        | 1 RB / 0 RB Offset                                                |
| Frequency Stability        | 19957 to 20393    | 20175(1732.5MHz)                                           | 1.4MHz            | QPSK        | 1 RB / 0 RB Offset                                                |
| Emission Bandwidth         | 19957 to 20393    | 19957(1710.7MHz),<br>20175(1732.5MHz),<br>20393(1754.3MHz) | 1.4MHz            | QPSK, 16QAM | 6 RB / 0 RB Offset                                                |
|                            | 19965 to 20385    | 19965(1711.5MHz),<br>20175(1732.5MHz),<br>20385(1753.5MHz) | 3MHz              | QPSK, 16QAM | 15 RB / 0 RB Offset                                               |
|                            | 19975 to 20375    | 19975(1712.5MHz),<br>20175(1732.5MHz),<br>20375(1752.5MHz) | 5MHz              | QPSK, 16QAM | 25 RB / 0 RB Offset                                               |
|                            | 20000 to 20350    | 20000(1715.0MHz),<br>20175(1732.5MHz),<br>20350(1750.0MHz) | 10MHz             | QPSK, 16QAM | 50 RB / 0 RB Offset                                               |
|                            | 20025 to 20325    | 20025(1717.5MHz),<br>20175(1732.5MHz),<br>20325(1747.5MHz) | 15MHz             | QPSK, 16QAM | 75 RB / 0 RB Offset                                               |
|                            | 20050 to 20300    | 20050(1720.0MHz),<br>20175(1732.5MHz),<br>20300(1745.0MHz) | 20MHz             | QPSK, 16QAM | 100 RB / 0 RB Offset                                              |
| Channel Edge               | 19957 to 20393    | 19957(1710.7MHz),<br>20393(1754.3MHz)                      | 1.4MHz            | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 5 RB Offset<br>6 RB / 0 RB Offset    |
|                            | 19965 to 20385    | 19965(1711.5MHz),<br>20385(1753.5MHz)                      | 3MHz              | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 14 RB Offset<br>15 RB / 0 RB Offset  |
|                            | 19975 to 20375    | 19975(1712.5MHz),<br>20375(1752.5MHz)                      | 5MHz              | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 24 RB Offset<br>25 RB / 0 RB Offset  |
|                            | 20000 to 20350    | 20000(1715.0MHz),<br>20350(1750.0MHz)                      | 10MHz             | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset<br>50 RB / 0 RB Offset  |
|                            | 20025 to 20325    | 20025(1717.5MHz),<br>20325(1747.5MHz)                      | 15MHz             | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 74 RB Offset<br>75 RB / 0 RB Offset  |
|                            | 20050 to 20300    | 20050(1720.0MHz),<br>20300(1745.0MHz)                      | 20MHz             | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 99 RB Offset<br>100 RB / 0 RB Offset |

| Test Item                       | Available Channel | Tested Channel                                             | Channel Bandwidth | Modulation | Mode               |
|---------------------------------|-------------------|------------------------------------------------------------|-------------------|------------|--------------------|
| Conducted Emission              | 19957 to 20393    | 19957(1710.7MHz),<br>20175(1732.5MHz),<br>20393(1754.3MHz) | 1.4MHz            | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19965 to 20385    | 19965(1711.5MHz),<br>20175(1732.5MHz),<br>20385(1753.5MHz) | 3MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19975 to 20375    | 19975(1712.5MHz),<br>20175(1732.5MHz),<br>20375(1752.5MHz) | 5MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20000 to 20350    | 20000(1715.0MHz),<br>20175(1732.5MHz),<br>20350(1750.0MHz) | 10MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20025 to 20325    | 20025(1717.5MHz),<br>20175(1732.5MHz),<br>20325(1747.5MHz) | 15MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20050 to 20300    | 20050(1720.0MHz),<br>20175(1732.5MHz),<br>20300(1745.0MHz) | 20MHz             | QPSK       | 1 RB / 0 RB Offset |
| Radiated Emission<br>Below 1GHz | 19957 to 20393    | 19957(1710.7MHz)                                           | 1.4MHz            | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19965 to 20385    | 19965(1711.5MHz)                                           | 3MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19975 to 20375    | 19975(1712.5MHz)                                           | 5MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20000 to 20350    | 20000(1715.0MHz)                                           | 10MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20025 to 20325    | 20025(1717.5MHz)                                           | 15MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20050 to 20300    | 20050(1720.0MHz)                                           | 20MHz             | QPSK       | 1 RB / 0 RB Offset |
| Radiated Emission<br>Above 1GHz | 19957 to 20393    | 19957(1710.7MHz),<br>20175(1732.5MHz),<br>20393(1754.3MHz) | 1.4MHz            | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19965 to 20385    | 19965(1711.5MHz),<br>20175(1732.5MHz),<br>20385(1753.5MHz) | 3MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 19975 to 20375    | 19975(1712.5MHz),<br>20175(1732.5MHz),<br>20375(1752.5MHz) | 5MHz              | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20000 to 20350    | 20000(1715.0MHz),<br>20175(1732.5MHz),<br>20350(1750.0MHz) | 10MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20025 to 20325    | 20025(1717.5MHz),<br>20175(1732.5MHz),<br>20325(1747.5MHz) | 15MHz             | QPSK       | 1 RB / 0 RB Offset |
|                                 | 20050 to 20300    | 20050(1720.0MHz),<br>20175(1732.5MHz),<br>20300(1745.0MHz) | 20MHz             | QPSK       | 1 RB / 0 RB Offset |

# LTE Band 13

| Test Item                    | Available Channel | Tested Channel                                          | Channel Bandwidth | Modulation  | Mode                                                             |
|------------------------------|-------------------|---------------------------------------------------------|-------------------|-------------|------------------------------------------------------------------|
| Output Power                 | 23205 to 23255    | 23205(779.5MHz),<br>23230(782.0MHz),<br>23255(784.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Modulation characteristics   | 23205 to 23255    | 23230(782.0MHz),                                        | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23230             | 23230(782.0MHz),                                        | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Frequency Stability          | 23205 to 23255    | 23230(782.0MHz)                                         | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
| Emission Bandwidth           | 23205 to 23255    | 23205(779.5MHz),<br>23230(782.0MHz),<br>23255(784.5MHz) | 5MHz              | QPSK, 16QAM | 25 RB / 0 RB Offset                                              |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK, 16QAM | 50 RB / 0 RB Offset                                              |
| Channel Edge                 | 23205 to 23255    | 23205(779.5MHz),<br>23255(784.5MHz)                     | 5MHz              | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 24 RB Offset<br>25 RB / 0 RB Offset |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset<br>50 RB / 0 RB Offset |
| Conducted Emission           | 23205 to 23255    | 23205(779.5MHz),<br>23230(782.0MHz),<br>23255(784.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Radiated Emission Below 1GHz | 23205 to 23255    | 23205(779.5MHz)                                         | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Radiated Emission Above 1GHz | 23205 to 23255    | 23205(779.5MHz),<br>23230(782.0MHz),<br>23255(784.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23230             | 23230(782.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |

## LTE Band 17

| Test Item                    | Available Channel | Tested Channel                                          | Channel Bandwidth | Modulation  | Mode                                                             |
|------------------------------|-------------------|---------------------------------------------------------|-------------------|-------------|------------------------------------------------------------------|
| Output Power                 | 23755 to 23825    | 23755(706.5MHz),<br>23790(710.0MHz),<br>23825(713.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23780 to 23800    | 23780(709.0MHz),<br>23790(710.0MHz),<br>23800(711.0MHz) | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Modulation characteristics   | 23755 to 23825    | 23790(710.0MHz)                                         | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23780 to 23800    | 23790(710.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Frequency Stability          | 23755 to 23825    | 23790(710.0MHz)                                         | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
| Emission Bandwidth           | 23755 to 23825    | 23755(706.5MHz),<br>23790(710.0MHz),<br>23825(713.5MHz) | 5MHz              | QPSK, 16QAM | 25 RB / 0 RB Offset                                              |
|                              | 23780 to 23800    | 23780(709.0MHz),<br>23790(710.0MHz),<br>23800(711.0MHz) | 10MHz             | QPSK, 16QAM | 50 RB / 0 RB Offset                                              |
| Channel Edge                 | 23755 to 23825    | 23755(706.5MHz),<br>23825(713.5MHz)                     | 5MHz              | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 24 RB Offset<br>25 RB / 0 RB Offset |
|                              | 23780 to 23800    | 23780(709.0MHz),<br>23800(711.0MHz)                     | 10MHz             | QPSK        | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset<br>50 RB / 0 RB Offset |
| Conducted Emission           | 23755 to 23825    | 23755(706.5MHz),<br>23790(710.0MHz),<br>23825(713.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23780 to 23800    | 23780(709.0MHz),<br>23790(710.0MHz),<br>23800(711.0MHz) | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Radiated Emission Below 1GHz | 23755 to 23825    | 23755(706.5MHz)                                         | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23780 to 23800    | 23780(710.0MHz)                                         | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |
| Radiated Emission Above 1GHz | 23755 to 23825    | 23755(706.5MHz),<br>23790(710.0MHz),<br>23825(713.5MHz) | 5MHz              | QPSK        | 1 RB / 0 RB Offset                                               |
|                              | 23780 to 23800    | 23780(709.0MHz),<br>23790(710.0MHz),<br>23800(711.0MHz) | 10MHz             | QPSK        | 1 RB / 0 RB Offset                                               |

### Note:

1. For radiated emission below 1 GHz, the low, mid and high channels were pre-tested in chamber. The low channel was the worst case and chosen for final test.
2. The conducted output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only Emission Bandwidth had been tested under QPSK and 16QAM modes, the others test items were performed under QPSK mode only.
3. The EUT supported 1 antenna transmitter for licence parameter.

### Test Condition:

| Test Item                  | Environmental Conditions                              | Input Power  | Tested By                              |
|----------------------------|-------------------------------------------------------|--------------|----------------------------------------|
| Output Power               | 24deg. C, 64%RH                                       | 120Vac, 60Hz | Match Tsui                             |
| Modulation characteristics | 24deg. C, 64%RH                                       | 120Vac, 60Hz | Match Tsui                             |
| Frequency Stability        | 24deg. C, 64%RH                                       | 3.8Vdc       | Match Tsui                             |
| Emission Bandwidth         | 24deg. C, 64%RH                                       | 120Vac, 60Hz | Match Tsui                             |
| Channel Edge               | 24deg. C, 64%RH                                       | 120Vac, 60Hz | Match Tsui                             |
| Conducted Emission         | 24deg. C, 64%RH                                       | 120Vac, 60Hz | Match Tsui                             |
| Radiated Emission          | 19deg. C, 66%RH<br>20deg. C, 66%RH<br>25deg. C, 66%RH | 120Vac, 60Hz | James Yang<br>Chris Lin<br>Jones Chang |

### **3.4 EUT Operating Conditions**

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

### **3.5 General Description of Applied Standards**

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

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 27**

**KDB 971168 D01 Power Meas License Digital Systems v02r02**

**ANSI/TIA/EIA-603-C 2004**

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

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).  
The test report has been issued separately.

## **4 Test Types and Results**

### **4.1 Output Power Measurement**

#### **4.1.1 Limits of Output Power Measurement**

Mobile / Portable station are limited to 2 watts e.r.p. for WCDMA, 1 watts e.i.r.p for LTE Band 4 and 3 watts e.r.p for LTE Band 13 & 17.

#### **4.1.2 Test Procedures**

##### **EIRP / ERP Measurement:**

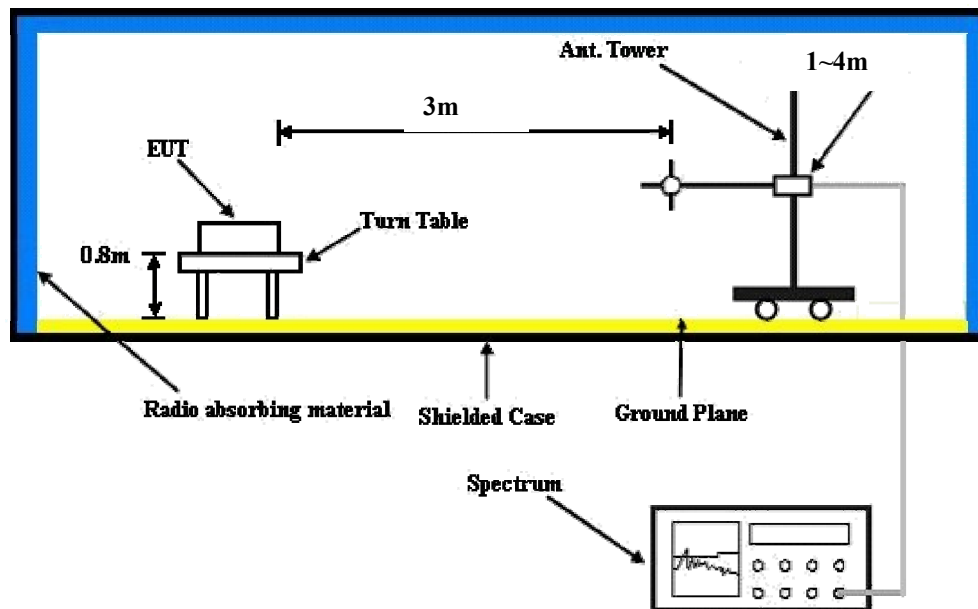
- a. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 5MHz for WCDMA, HSDPA, HSUPA mode and 5MHz for LTE Mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ . E.R.P power can be calculated from E.I.R.P power by subtracting the gain of dipole,  $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15\text{dBi}$ .

##### **Conducted Power Measurement:**

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

#### 4.1.3 Test Setup

EIRP / ERP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



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

#### 4.1.4 Test Results

##### CONDUCTED OUTPUT POWER (dBm)

| Band            | WCDMA IV |        |        |
|-----------------|----------|--------|--------|
| Channel         | 1312     | 1413   | 1513   |
| Frequency (MHz) | 1712.4   | 1732.6 | 1752.6 |
| RMC 12.2K       | 21.25    | 21.29  | 21.31  |
| HSDPA Subtest-1 | 20.27    | 20.32  | 20.34  |
| HSDPA Subtest-2 | 20.16    | 20.29  | 20.31  |
| HSDPA Subtest-3 | 19.82    | 19.84  | 19.87  |
| HSDPA Subtest-4 | 19.78    | 19.81  | 19.84  |
| HSUPA Subtest-1 | 20.29    | 20.34  | 20.36  |
| HSUPA Subtest-2 | 18.42    | 18.45  | 18.49  |
| HSUPA Subtest-3 | 19.25    | 19.33  | 19.35  |
| HSUPA Subtest-4 | 18.00    | 18.04  | 18.10  |
| HSUPA Subtest-5 | 20.24    | 20.32  | 20.34  |

# CONDUCTED OUTPUT POWER (dBm)

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|-----------|---------|-----------|--------------|--------------|---------------|--------------|--------------|---------------|
|           |         |           | Low CH 19957 | Mid CH 20175 | High CH 20393 | Low CH 19957 | Mid CH 20175 | High CH 20393 |
|           |         |           | 1710.7 MHz   | 1732.5 MHz   | 1754.3 MHz    | 1710.7 MHz   | 1732.5 MHz   | 1754.3 MHz    |
| 4 / 1.4M  | 1       | 0         | 21.94        | 21.91        | 21.89         | 20.93        | 20.90        | 20.88         |
|           | 1       | 2         | 21.90        | 21.87        | 21.82         | 20.89        | 20.86        | 20.81         |
|           | 1       | 5         | 21.76        | 21.73        | 21.67         | 20.75        | 20.72        | 20.66         |
|           | 3       | 0         | 21.92        | 21.89        | 21.87         | 20.90        | 20.87        | 20.85         |
|           | 3       | 1         | 21.88        | 21.85        | 21.80         | 20.86        | 20.83        | 20.78         |
|           | 3       | 3         | 21.74        | 21.71        | 21.65         | 20.72        | 20.69        | 20.63         |
|           | 6       | 0         | 20.92        | 20.89        | 20.84         | 19.91        | 19.88        | 19.83         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 19965 | Mid CH 20175 | High CH 20385 | Low CH 19965 | Mid CH 20175 | High CH 20385 |
|           |         |           | 1711.5 MHz   | 1732.5 MHz   | 1753.5 MHz    | 1711.5 MHz   | 1732.5 MHz   | 1753.5 MHz    |
| 4 / 3M    | 1       | 0         | 21.96        | 21.93        | 21.91         | 20.95        | 20.92        | 20.90         |
|           | 1       | 7         | 21.92        | 21.89        | 21.84         | 20.91        | 20.88        | 20.83         |
|           | 1       | 14        | 21.78        | 21.75        | 21.69         | 20.77        | 20.74        | 20.68         |
|           | 8       | 0         | 21.13        | 21.01        | 20.97         | 20.12        | 20.00        | 19.96         |
|           | 8       | 3         | 20.96        | 20.93        | 20.88         | 19.95        | 19.92        | 19.87         |
|           | 8       | 7         | 20.86        | 20.83        | 20.81         | 19.85        | 19.82        | 19.80         |
|           | 15      | 0         | 20.94        | 20.91        | 20.86         | 19.93        | 19.90        | 19.85         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 19975 | Mid CH 20175 | High CH 20375 | Low CH 19975 | Mid CH 20175 | High CH 20375 |
|           |         |           | 1712.5 MHz   | 1732.5 MHz   | 1752.5 MHz    | 1712.5 MHz   | 1732.5 MHz   | 1752.5 MHz    |
| 4 / 5M    | 1       | 0         | 21.98        | 21.95        | 21.93         | 20.97        | 20.94        | 20.92         |
|           | 1       | 12        | 21.94        | 21.91        | 21.86         | 20.93        | 20.90        | 20.85         |
|           | 1       | 24        | 21.80        | 21.77        | 21.71         | 20.79        | 20.76        | 20.70         |
|           | 12      | 0         | 21.15        | 21.03        | 20.99         | 20.14        | 20.02        | 19.98         |
|           | 12      | 6         | 20.98        | 20.95        | 20.90         | 19.97        | 19.94        | 19.89         |
|           | 12      | 13        | 20.88        | 20.85        | 20.83         | 19.87        | 19.84        | 19.82         |
|           | 25      | 0         | 20.96        | 20.93        | 20.88         | 19.95        | 19.92        | 19.87         |

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|-----------|---------|-----------|--------------|--------------|---------------|--------------|--------------|---------------|
|           |         |           | Low CH 20000 | Mid CH 20175 | High CH 20350 | Low CH 20000 | Mid CH 20175 | High CH 20350 |
|           |         |           | 1715 MHz     | 1732.5 MHz   | 1750 MHz      | 1715 MHz     | 1732.5 MHz   | 1750 MHz      |
| 4 / 10M   | 1       | 0         | 21.99        | 21.96        | 21.94         | 20.98        | 20.95        | 20.93         |
|           | 1       | 24        | 21.95        | 21.92        | 21.87         | 20.94        | 20.91        | 20.86         |
|           | 1       | 49        | 21.81        | 21.78        | 21.72         | 20.80        | 20.77        | 20.71         |
|           | 25      | 0         | 21.16        | 21.04        | 21.00         | 20.15        | 20.03        | 19.99         |
|           | 25      | 12        | 20.99        | 20.96        | 20.91         | 19.98        | 19.95        | 19.90         |
|           | 25      | 25        | 20.89        | 20.86        | 20.84         | 19.88        | 19.85        | 19.83         |
|           | 50      | 0         | 20.97        | 20.94        | 20.89         | 19.96        | 19.93        | 19.88         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 20025 | Mid CH 20175 | High CH 20325 | Low CH 20025 | Mid CH 20175 | High CH 20325 |
|           |         |           | 1717.5 MHz   | 1732.5 MHz   | 1747.5 MHz    | 1717.5 MHz   | 1732.5 MHz   | 1747.5 MHz    |
| 4 / 15M   | 1       | 0         | 22.02        | 21.99        | 21.97         | 21.01        | 20.98        | 20.96         |
|           | 1       | 37        | 21.98        | 21.95        | 21.90         | 20.97        | 20.94        | 20.89         |
|           | 1       | 74        | 21.84        | 21.81        | 21.75         | 20.83        | 20.80        | 20.74         |
|           | 36      | 0         | 21.19        | 21.07        | 21.03         | 20.18        | 20.06        | 20.02         |
|           | 36      | 19        | 21.02        | 20.99        | 20.94         | 20.01        | 19.98        | 19.93         |
|           | 36      | 39        | 20.92        | 20.89        | 20.87         | 19.91        | 19.88        | 19.86         |
|           | 75      | 0         | 21.00        | 20.97        | 20.92         | 19.99        | 19.96        | 19.91         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 20050 | Mid CH 20175 | High CH 20300 | Low CH 20050 | Mid CH 20175 | High CH 20300 |
|           |         |           | 1720 MHz     | 1732.5 MHz   | 1745 MHz      | 1720 MHz     | 1732.5 MHz   | 1745 MHz      |
| 4 / 20M   | 1       | 0         | 22.08        | 22.05        | 22.03         | 21.07        | 21.04        | 21.02         |
|           | 1       | 50        | 22.04        | 22.01        | 21.96         | 21.03        | 21.00        | 20.95         |
|           | 1       | 99        | 21.90        | 21.87        | 21.81         | 20.89        | 20.86        | 20.80         |
|           | 50      | 0         | 21.25        | 21.13        | 21.09         | 20.24        | 20.12        | 20.08         |
|           | 50      | 25        | 21.08        | 21.05        | 21.00         | 20.07        | 20.04        | 19.99         |
|           | 50      | 50        | 20.98        | 20.95        | 20.93         | 19.97        | 19.94        | 19.92         |
|           | 100     | 0         | 21.06        | 21.03        | 20.98         | 20.05        | 20.02        | 19.97         |

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|-----------|---------|-----------|--------------|--------------|---------------|--------------|--------------|---------------|
|           |         |           | Low CH 23205 | Mid CH 23230 | High CH 23255 | Low CH 23205 | Mid CH 23230 | High CH 23255 |
|           |         |           | 779.5 MHz    | 782 MHz      | 784.5 MHz     | 779.5 MHz    | 782 MHz      | 784.5 MHz     |
| 13 / 5M   | 1       | 0         | 23.55        | 23.58        | 23.53         | 22.58        | 22.61        | 22.54         |
|           | 1       | 12        | 23.57        | 23.59        | 23.54         | 22.59        | 22.62        | 22.56         |
|           | 1       | 24        | 23.52        | 23.54        | 23.45         | 22.53        | 22.56        | 22.45         |
|           | 12      | 0         | 22.55        | 22.58        | 22.53         | 21.53        | 21.56        | 21.49         |
|           | 12      | 6         | 22.61        | 22.64        | 22.59         | 21.62        | 21.64        | 21.57         |
|           | 12      | 13        | 22.55        | 22.57        | 22.52         | 21.51        | 21.55        | 21.47         |
|           | 25      | 0         | 22.58        | 22.60        | 22.55         | 21.55        | 21.59        | 21.51         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Mid CH 23230 |              |               | Mid CH 23230 |              |               |
|           |         |           | 782MHz       |              |               | 782MHz       |              |               |
| 13 / 10M  | 1       | 0         | 23.62        |              |               | 22.65        |              |               |
|           | 1       | 24        | 23.67        |              |               | 22.72        |              |               |
|           | 1       | 49        | 23.56        |              |               | 22.59        |              |               |
|           | 25      | 0         | 22.70        |              |               | 21.72        |              |               |
|           | 25      | 12        | 22.69        |              |               | 21.70        |              |               |
|           | 25      | 25        | 22.60        |              |               | 21.58        |              |               |
|           | 50      | 0         | 22.65        |              |               | 21.66        |              |               |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 23755 | Mid CH 23790 | High CH 23825 | Low CH 23755 | Mid CH 23790 | High CH 23825 |
|           |         |           | 706.5 MHz    | 710 MHz      | 713.5 MHz     | 706.5 MHz    | 710 MHz      | 713.5 MHz     |
| 17 / 5M   | 1       | 0         | 23.49        | 23.52        | 23.53         | 22.53        | 22.55        | 22.59         |
|           | 1       | 12        | 23.46        | 23.49        | 23.51         | 22.48        | 22.53        | 22.54         |
|           | 1       | 24        | 23.55        | 23.60        | 23.62         | 22.63        | 22.66        | 22.67         |
|           | 12      | 0         | 22.45        | 22.46        | 22.57         | 21.42        | 21.44        | 21.51         |
|           | 12      | 6         | 22.36        | 22.37        | 22.38         | 21.31        | 21.33        | 21.38         |
|           | 12      | 13        | 22.49        | 22.52        | 22.54         | 21.48        | 21.53        | 21.55         |
|           | 25      | 0         | 22.42        | 22.43        | 22.48         | 21.38        | 21.40        | 21.44         |
| Band / BW | RB Size | RB Offset | QPSK         |              |               | 16QAM        |              |               |
|           |         |           | Low CH 23780 | Mid CH 23790 | High CH 23800 | Low CH 23780 | Mid CH 23790 | High CH 23800 |
|           |         |           | 709 MHz      | 710 MHz      | 711 MHz       | 709 MHz      | 710 MHz      | 711 MHz       |
| 17 / 10M  | 1       | 0         | 23.59        | 23.60        | 23.61         | 22.59        | 22.61        | 22.62         |
|           | 1       | 24        | 23.58        | 23.59        | 23.60         | 22.57        | 22.59        | 22.61         |
|           | 1       | 49        | 23.63        | 23.66        | 23.67         | 22.65        | 22.69        | 22.70         |
|           | 25      | 0         | 22.58        | 22.59        | 22.61         | 21.55        | 21.56        | 21.61         |
|           | 25      | 12        | 22.51        | 22.52        | 22.55         | 21.46        | 21.48        | 21.49         |
|           | 25      | 25        | 22.63        | 22.65        | 22.66         | 21.60        | 21.63        | 21.64         |
|           | 50      | 0         | 22.56        | 22.57        | 22.60         | 21.52        | 21.54        | 21.58         |

EIRP Power (dBm)

WCDMA Band 4 Mode

|                                                     |             |                 |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|-----------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 1312 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1712.40     | -28.8           | 8.8                   | 1.0                    | 9.8        | 30.0        | -20.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1712.40     | -16.7           | 21.9                  | 1.0                    | 22.9       | 30.0        | -7.1        |

|                                                     |             |                 |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|-----------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 1413 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.60     | -27.3           | 10.4                  | 1.0                    | 11.4       | 30.0        | -18.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.60     | -15.4           | 23.1                  | 1.0                    | 24.1       | 30.0        | -5.9        |

|                                                     |             |                 |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|-----------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 1513 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1752.60     | -25.7           | 12.0                  | 1.1                    | 13.1       | 30.0        | -16.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                 |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)   | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1752.60     | -15.1           | 23.2                  | 1.1                    | 24.3       | 30.0        | -5.7        |

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

LTE Band 4

Channel Bandwidth: 1.4MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 19957 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1710.70     | -24.1            | 13.4                  | 1.0                    | 14.4       | 30.0        | -15.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1710.70     | -10.7            | 27.9                  | 1.0                    | 28.9       | 30.0        | -1.1        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -20.5            | 17.2                  | 1.0                    | 18.2       | 30.0        | -11.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -10.2            | 28.3                  | 1.0                    | 29.3       | 30.0        | -0.7        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20393 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1754.30     | -24.3            | 13.4                  | 1.1                    | 14.5       | 30.0        | -15.5       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1754.30     | -11.6            | 26.7                  | 1.1                    | 27.8       | 30.0        | -2.2        |

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

Channel Bandwidth: 3MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 19965 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1711.50     | -23.2            | 14.4                  | 1.0                    | 15.4       | 30.0        | -14.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1711.50     | -10.3            | 28.3                  | 1.0                    | 29.3       | 30.0        | -0.7        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -20.3            | 17.4                  | 1.0                    | 18.4       | 30.0        | -11.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -10.2            | 28.3                  | 1.0                    | 29.3       | 30.0        | -0.7        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20385 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1753.50     | -23.4            | 14.3                  | 1.1                    | 15.4       | 30.0        | -14.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1753.50     | -11.1            | 27.2                  | 1.1                    | 28.3       | 30.0        | -1.7        |

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

Channel Bandwidth: 5MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 19975 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1712.50     | -23.4            | 14.2                  | 1.0                    | 15.2       | 30.0        | -14.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1712.50     | -10.4            | 28.2                  | 1.0                    | 29.2       | 30.0        | -0.8        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -22.1            | 15.6                  | 1.0                    | 16.6       | 30.0        | -13.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -10.1            | 28.4                  | 1.0                    | 29.4       | 30.0        | -0.6        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20375 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1752.50     | -22.9            | 14.8                  | 1.1                    | 15.9       | 30.0        | -14.1       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1752.50     | -11.1            | 27.2                  | 1.1                    | 28.3       | 30.0        | -1.7        |

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

Channel Bandwidth: 10MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20000 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1715.00     | -22.4            | 15.2                  | 1.0                    | 16.2       | 30.0        | -13.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1715.00     | -10.0            | 28.5                  | 1.0                    | 29.5       | 30.0        | -0.5        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -22.0            | 15.7                  | 1.0                    | 16.7       | 30.0        | -13.3       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -10.3            | 28.2                  | 1.0                    | 29.2       | 30.0        | -0.8        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20350 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1750.00     | -22.4            | 15.2                  | 1.1                    | 16.3       | 30.0        | -13.7       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1750.00     | -10.6            | 27.7                  | 1.1                    | 28.8       | 30.0        | -1.2        |

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

Channel Bandwidth: 15MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20025 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1717.50     | -21.8            | 15.8                  | 1.0                    | 16.8       | 30.0        | -13.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1717.50     | -10.4            | 28.1                  | 1.0                    | 29.1       | 30.0        | -0.9        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -20.4            | 17.3                  | 1.0                    | 18.3       | 30.0        | -11.7       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -11.1            | 27.4                  | 1.0                    | 28.4       | 30.0        | -1.6        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20325 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1747.50     | -21.6            | 16.0                  | 1.1                    | 17.1       | 30.0        | -12.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1747.50     | -10.2            | 28.1                  | 1.1                    | 29.2       | 30.0        | -0.8        |

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

Channel Bandwidth: 20MHz

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20050 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1720.00     | -23.0            | 14.6                  | 1.0                    | 15.6       | 30.0        | -14.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1720.00     | -10.6            | 27.9                  | 1.0                    | 28.9       | 30.0        | -1.1        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20175 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -23.6            | 14.1                  | 1.0                    | 15.1       | 30.0        | -14.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1732.50     | -10.7            | 27.8                  | 1.0                    | 28.8       | 30.0        | -1.2        |

|                                                     |             |                  |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|------------|-------------|-------------|
| MODE                                                |             | TX channel 20300 |                       |                        |            |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1745.00     | -23.7            | 14.0                  | 1.0                    | 15.0       | 30.0        | -15.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1745.00     | -10.4            | 28.0                  | 1.0                    | 29.0       | 30.0        | -1.0        |

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

LTE Band 13

Channel Bandwidth: 5MHz

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23205 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 779.50      | -5.8             | 25.4                  | -0.5                   | 24.9      | 34.8        | -9.9        |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 779.50      | -8.6             | 25.0                  | -0.5                   | 24.5      | 34.8        | -10.3       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23230 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 782.00      | -5.6             | 25.7                  | -0.5                   | 25.2      | 34.8        | -9.6        |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 782.00      | -8.8             | 24.8                  | -0.5                   | 24.3      | 34.8        | -10.5       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23255 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 784.50      | -6.9             | 24.4                  | -0.4                   | 24.0      | 34.8        | -10.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 784.50      | -10.2            | 23.3                  | -0.4                   | 22.9      | 34.8        | -11.9       |

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

Channel Bandwidth: 10MHz

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23230 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 782.00      | -5.6             | 25.7                  | -0.5                   | 25.2      | 34.8        | -9.6        |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 782.00      | -8.6             | 25.0                  | -0.5                   | 24.5      | 34.8        | -10.3       |

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

LTE Band 17

Channel Bandwidth: 5MHz

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23755 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 706.50      | -5.2             | 24.3                  | -0.5                   | 23.8      | 34.8        | -11.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 706.50      | -10.0            | 22.5                  | -0.5                   | 22.0      | 34.8        | -12.8       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23790 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 710.00      | -6.3             | 23.2                  | -0.5                   | 22.7      | 34.8        | -12.1       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 710.00      | -10.9            | 21.3                  | -0.5                   | 20.8      | 34.8        | -14.0       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23825 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 713.50      | -6.4             | 23.3                  | -0.5                   | 22.8      | 34.8        | -12.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 713.50      | -11.1            | 21.4                  | -0.5                   | 20.9      | 34.8        | -13.9       |

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

Channel Bandwidth: 10MHz

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23780 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 709.00      | -5.4             | 24.0                  | -0.5                   | 23.5      | 34.8        | -11.3       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 709.00      | -10.1            | 22.1                  | -0.5                   | 21.6      | 34.8        | -13.2       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23790 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 710.00      | -5.0             | 24.5                  | -0.5                   | 24.0      | 34.8        | -10.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 710.00      | -10.1            | 22.2                  | -0.5                   | 21.7      | 34.8        | -13.1       |

|                                                     |             |                  |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|------------------|-----------------------|------------------------|-----------|-------------|-------------|
| MODE                                                |             | TX channel 23800 |                       |                        |           |             |             |
| Antenna Polarity & Test Distance: Horizontal at 3 M |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 711.00      | -5.6             | 23.9                  | -0.5                   | 23.4      | 34.8        | -11.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |                  |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm)    | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 711.00      | -10.4            | 22.0                  | -0.5                   | 21.5      | 34.8        | -13.3       |

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

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

N/A

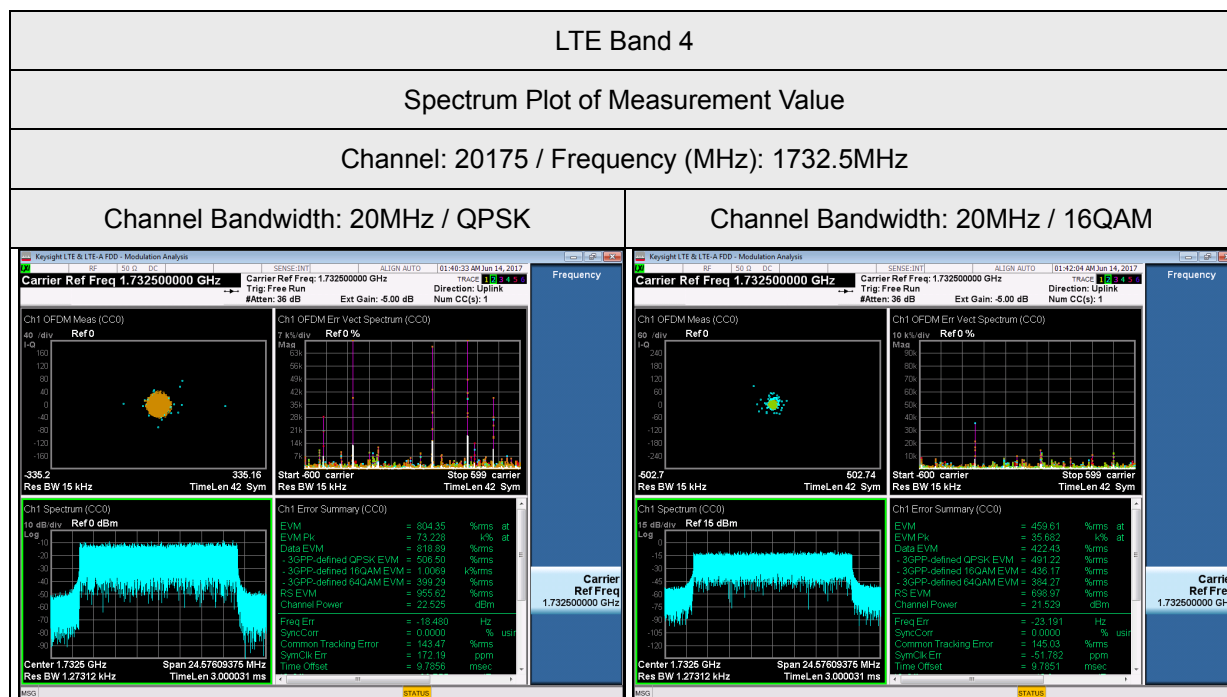
### 4.2.2 Test Procedure

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

### 4.2.3 Test Setup



#### 4.2.4 Test Results



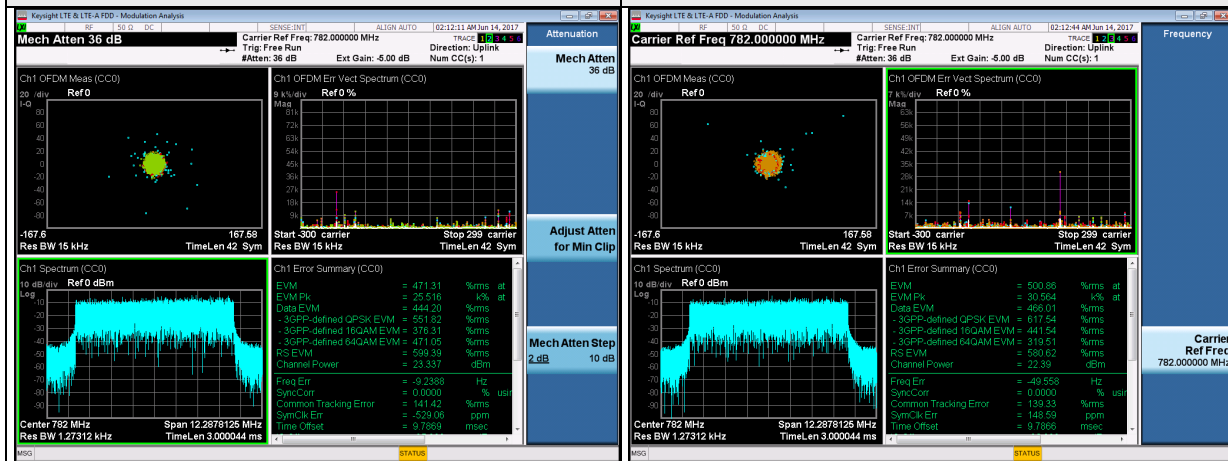
# LTE Band 13

## Spectrum Plot of Measurement Value

Channel: 23230 / Frequency (MHz): 782.0MHz

Channel Bandwidth: 10MHz / QPSK

Channel Bandwidth: 10MHz / 16QAM



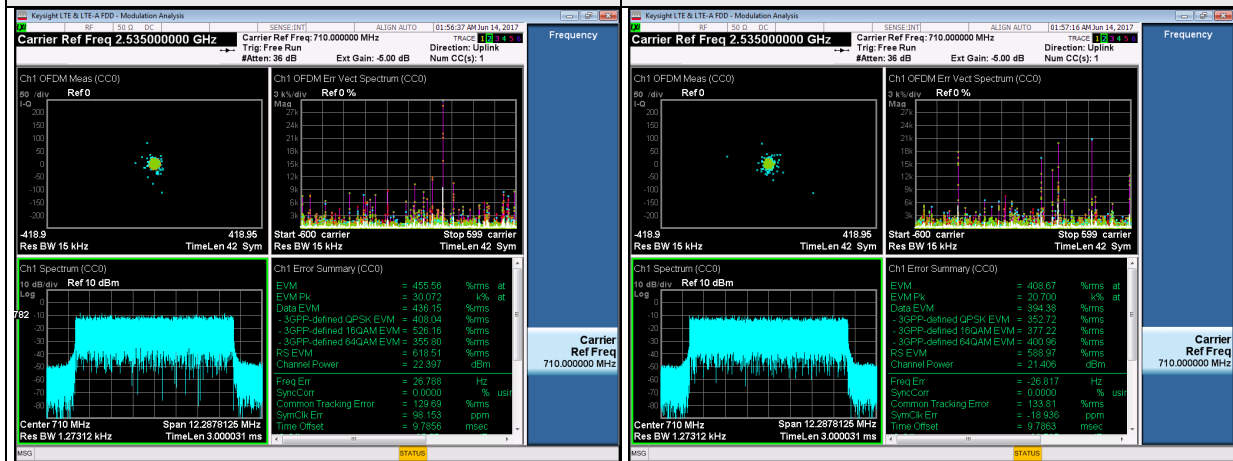
# LTE Band 17

## Spectrum Plot of Measurement Value

Channel: 23790 / Frequency (MHz): 710.0MHz

Channel Bandwidth: 10MHz / QPSK

Channel Bandwidth: 10MHz / 16QAM



### 4.3 Frequency Stability Measurement

#### 4.3.1 Limits of Frequency Stability Measurement

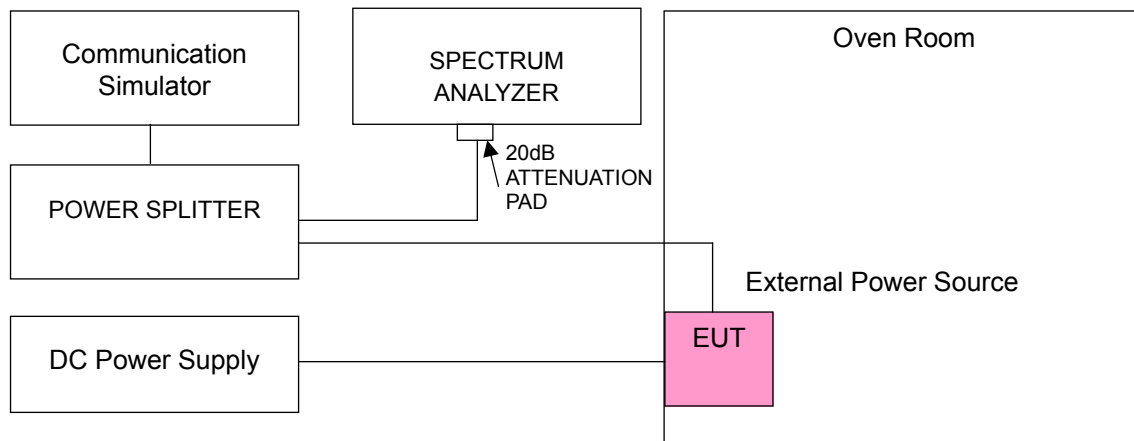
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT  $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$ .

#### 4.3.2 Test Procedure

- 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.
- 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.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

#### 4.3.3 Test Setup



#### 4.3.4 Test Results

##### Frequency Error vs. Voltage

| Voltage (Volts) | Frequency Error (ppm) |            |             |             | Limit (ppm) |
|-----------------|-----------------------|------------|-------------|-------------|-------------|
|                 | WCDMA Band 4          | LTE Band 4 | LTE Band 13 | LTE Band 17 |             |
| 4.3             | -0.005                | -0.005     | -0.008      | -0.013      | 2.5         |
| 3.8             | -0.005                | -0.004     | -0.007      | -0.012      | 2.5         |
| 3.6             | -0.005                | -0.005     | -0.008      | -0.012      | 2.5         |

Note: The applicant defined the normal working voltage is from 3.8Vdc to 4.3Vdc.

##### Frequency Error vs. Temperature

| Voltage (Volts) | Frequency Error (ppm) |            |             |             | Limit (ppm) |
|-----------------|-----------------------|------------|-------------|-------------|-------------|
|                 | WCDMA Band 4          | LTE Band 4 | LTE Band 13 | LTE Band 17 |             |
| 50              | -0.006                | -0.005     | -0.009      | -0.014      | 2.5         |
| 40              | -0.005                | -0.005     | -0.008      | -0.014      | 2.5         |
| 30              | -0.005                | -0.005     | -0.008      | -0.013      | 2.5         |
| 20              | -0.005                | -0.004     | -0.007      | -0.012      | 2.5         |
| 10              | -0.005                | -0.005     | -0.008      | -0.011      | 2.5         |
| 0               | -0.006                | -0.006     | -0.011      | -0.015      | 2.5         |
| -10             | -0.007                | -0.007     | -0.014      | -0.017      | 2.5         |
| -20             | -0.008                | -0.007     | -0.015      | -0.017      | 2.5         |

## 4.4 Emission Bandwidth Measurement

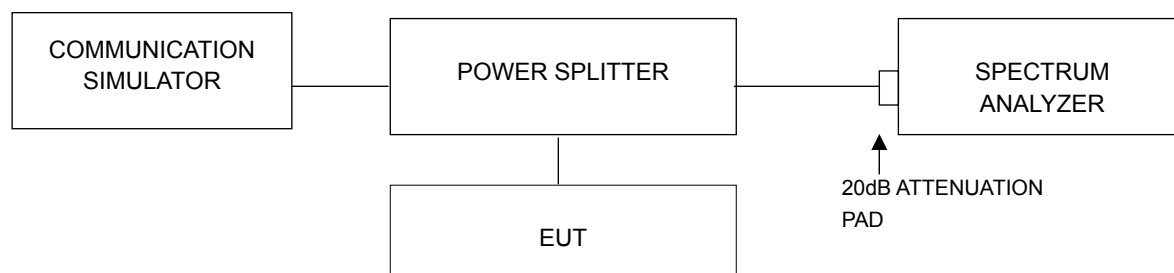
### 4.4.1 Limits of Emission Bandwidth Measurement

According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

### 4.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 3MHz and 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 15MHz) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz). The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

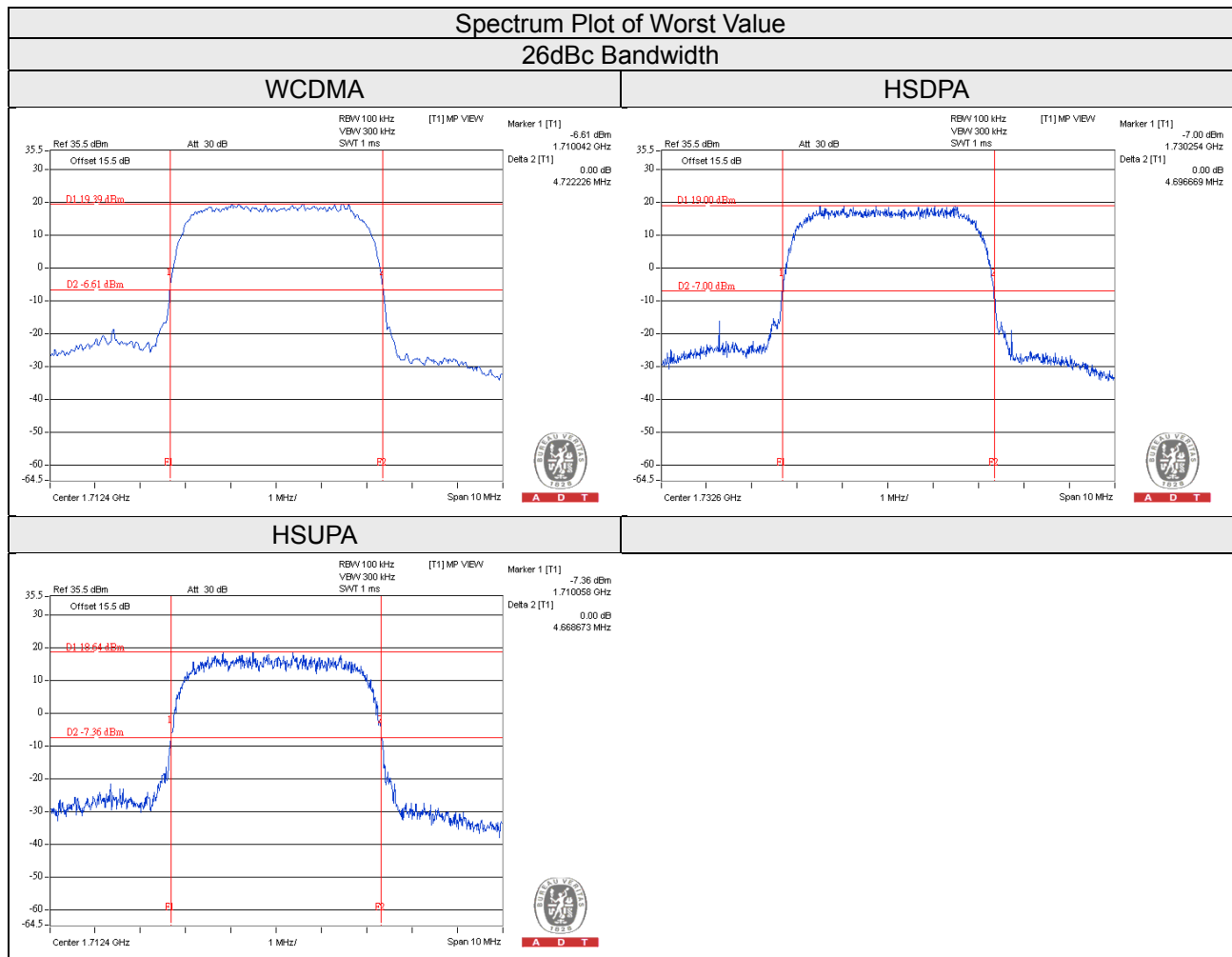
### 4.4.3 Test Setup



#### 4.4.4 Test Result

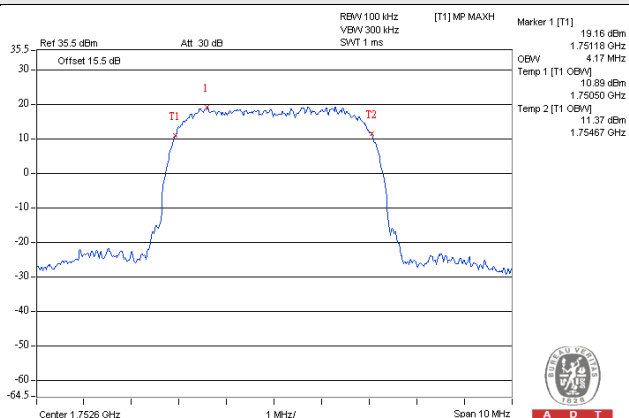
##### WCDMA Band 4

| Channel | Frequency (MHz) | 26dBc Bandwidth (MHz) |       |       | Occupied Bandwidth (MHz) |       |       |
|---------|-----------------|-----------------------|-------|-------|--------------------------|-------|-------|
|         |                 | WCDMA                 | HSDPA | HSUPA | WCDMA                    | HSDPA | HSUPA |
| 1312    | 1712.4          | 4.722                 | 4.639 | 4.669 | 4.15                     | 4.18  | 4.12  |
| 1413    | 1732.6          | 4.696                 | 4.697 | 4.663 | 4.15                     | 4.15  | 4.12  |
| 1513    | 1752.6          | 4.700                 | 4.663 | 4.634 | 4.17                     | 4.17  | 4.17  |

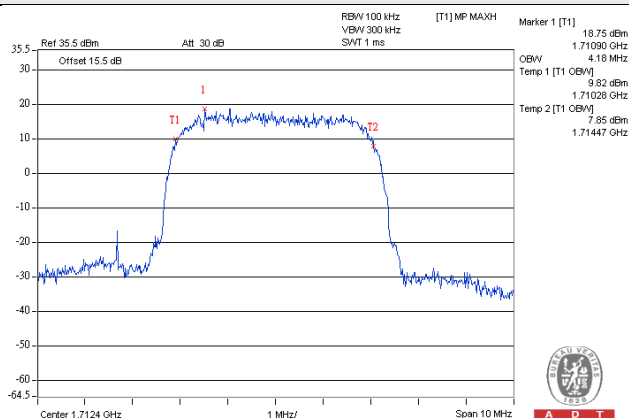


## Occupied Bandwidth

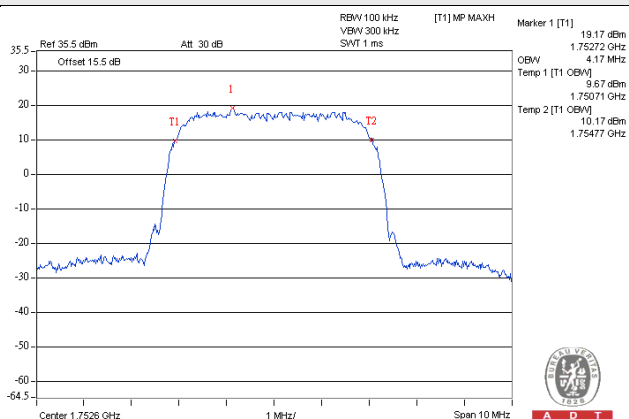
### WCDMA



### HSDPA



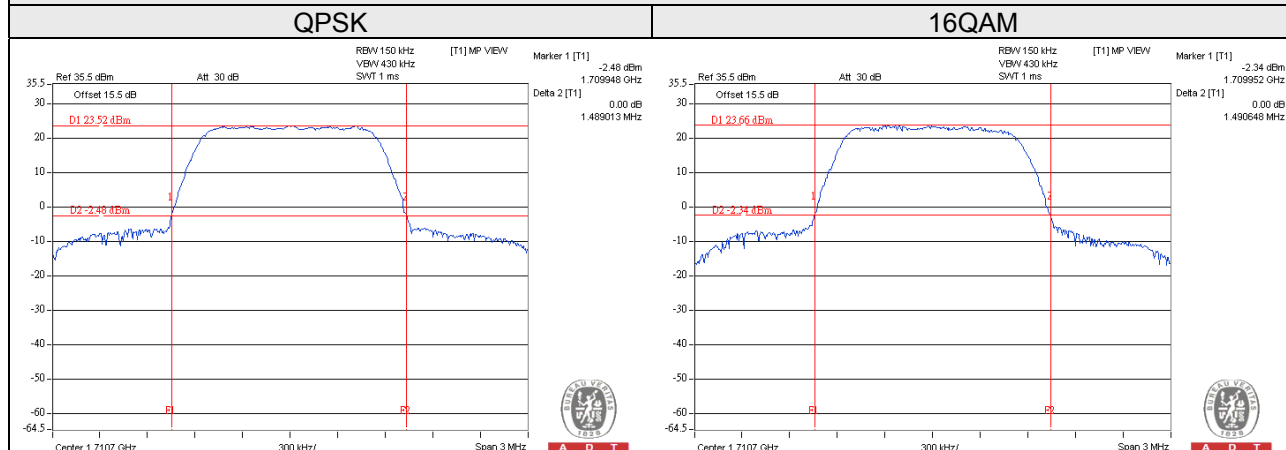
### HSUPA



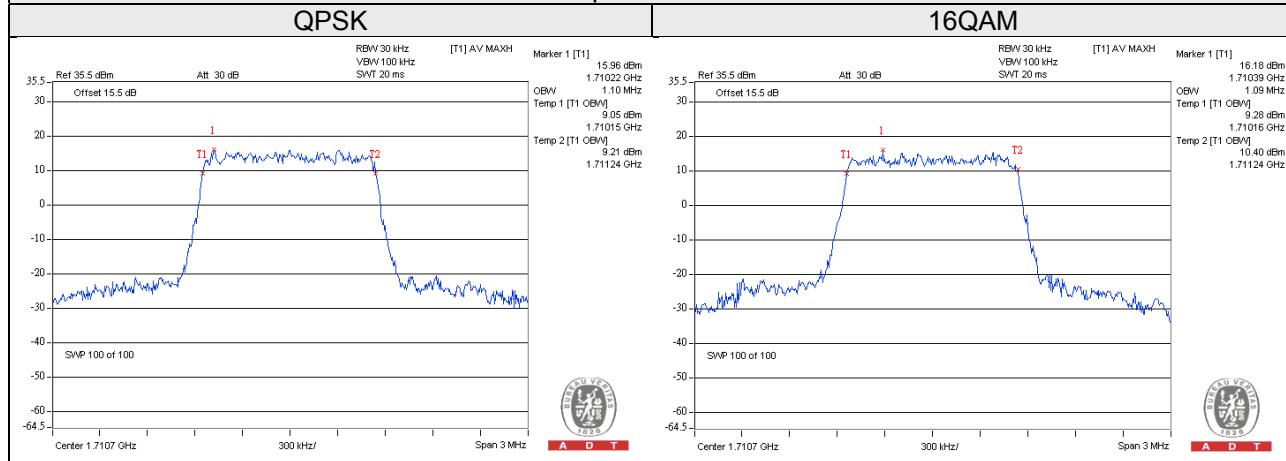
# LTE Band 4

| Channel Bandwidth: 1.4MHz |                 |                       |       |                          |       |
|---------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                   | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                           |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 19957                     | 1710.7          | 1.489                 | 1.491 | 1.10                     | 1.09  |
| 20175                     | 1732.5          | 1.484                 | 1.475 | 1.09                     | 1.09  |
| 20393                     | 1754.3          | 1.472                 | 1.480 | 1.08                     | 1.08  |

## Spectrum Plot of Worst Value 26dBc Bandwidth

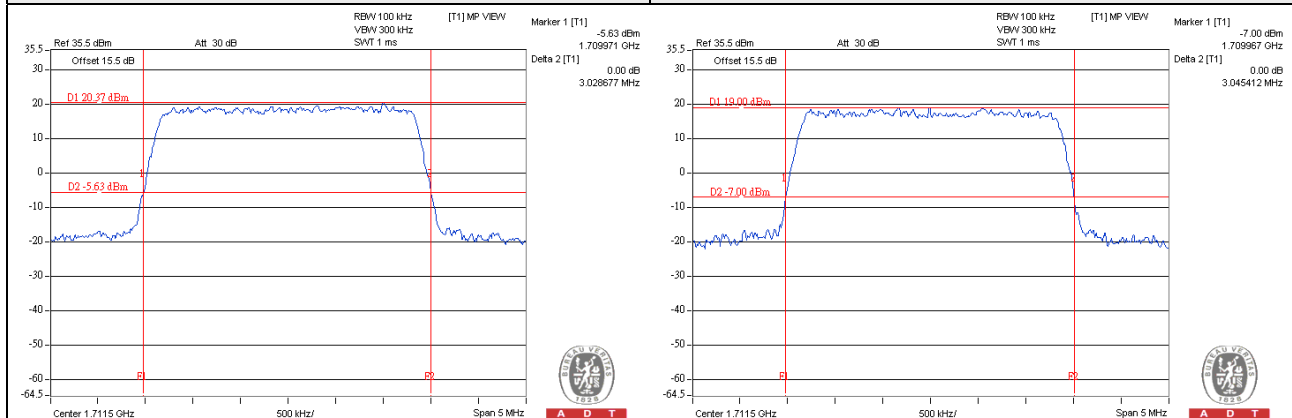


## Occupied Bandwidth

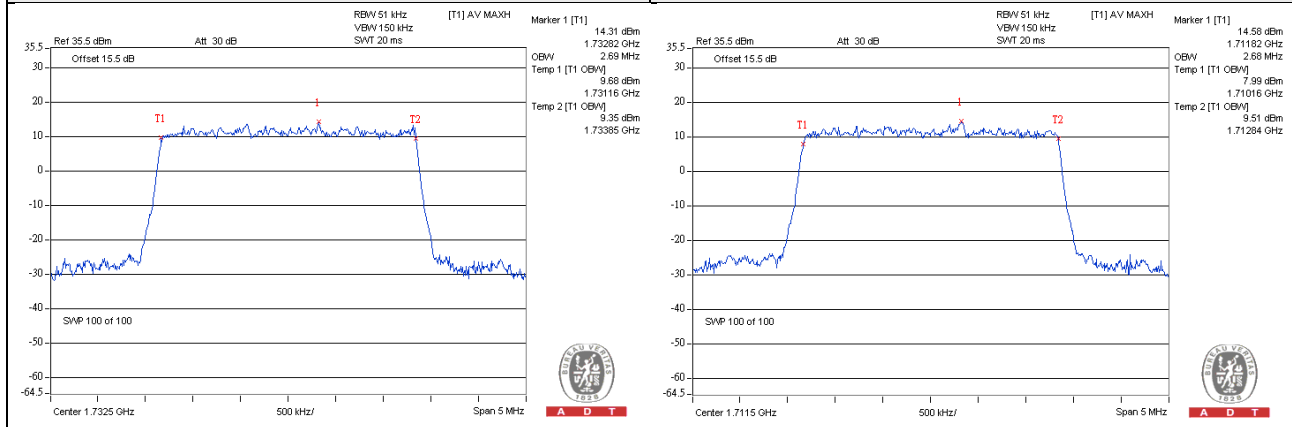


| Channel Bandwidth: 3MHz |                 |                       |       |                          |       |
|-------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                 | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                         |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 19965                   | 1711.5          | 3.029                 | 3.045 | 2.68                     | 2.68  |
| 20175                   | 1732.5          | 3.018                 | 3.032 | 2.69                     | 2.68  |
| 20385                   | 1753.5          | 3.024                 | 3.024 | 2.68                     | 2.68  |

| Spectrum Plot of Worst Value |       |
|------------------------------|-------|
| 26dBc Bandwidth              |       |
| QPSK                         | 16QAM |

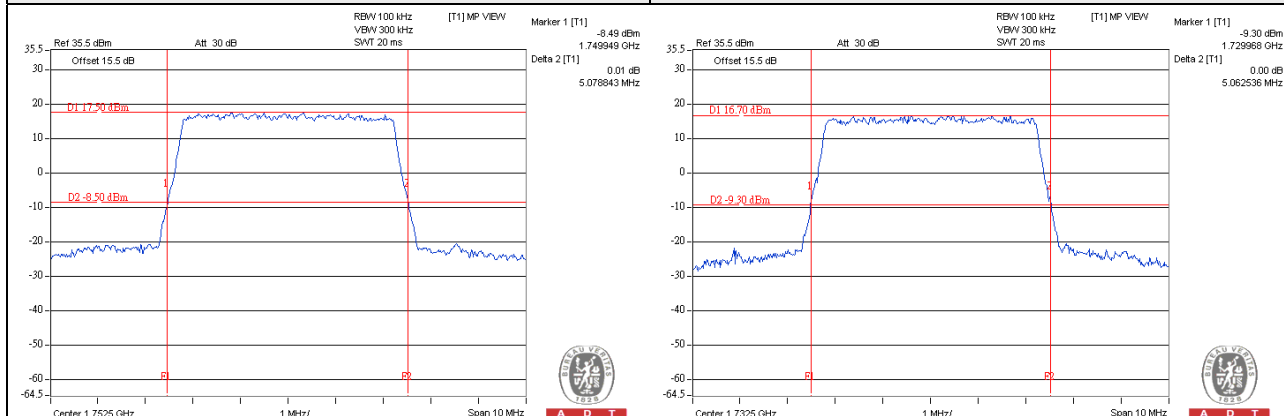


| Occupied Bandwidth |       |
|--------------------|-------|
| QPSK               | 16QAM |

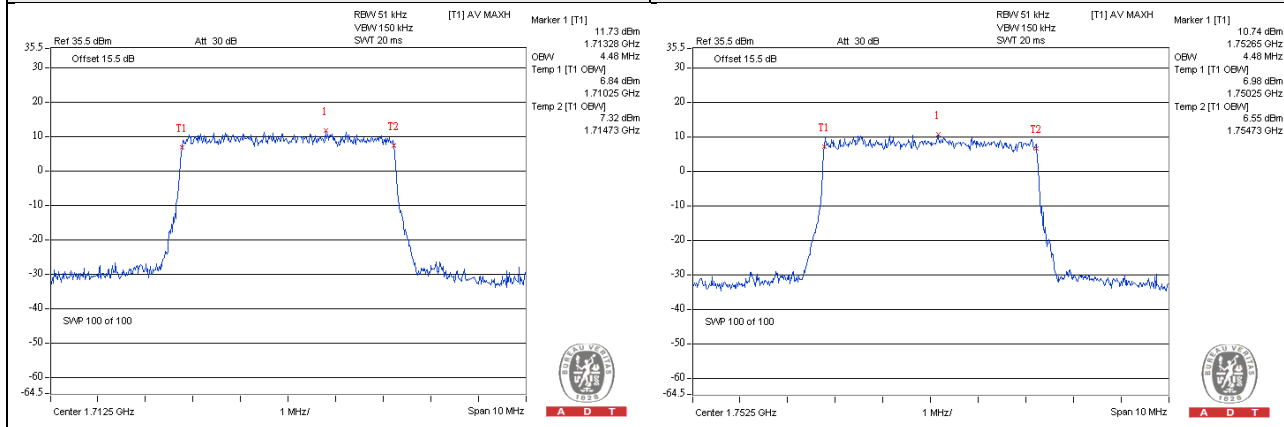


| Channel Bandwidth: 5MHz |                 |                       |       |                          |       |
|-------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                 | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                         |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 19975                   | 1712.5          | 5.050                 | 5.039 | 4.48                     | 4.47  |
| 20175                   | 1732.5          | 5.034                 | 5.063 | 4.47                     | 4.48  |
| 20375                   | 1752.5          | 5.079                 | 5.042 | 4.47                     | 4.48  |

| Spectrum Plot of Worst Value |       |
|------------------------------|-------|
| 26dBc Bandwidth              |       |
| QPSK                         | 16QAM |



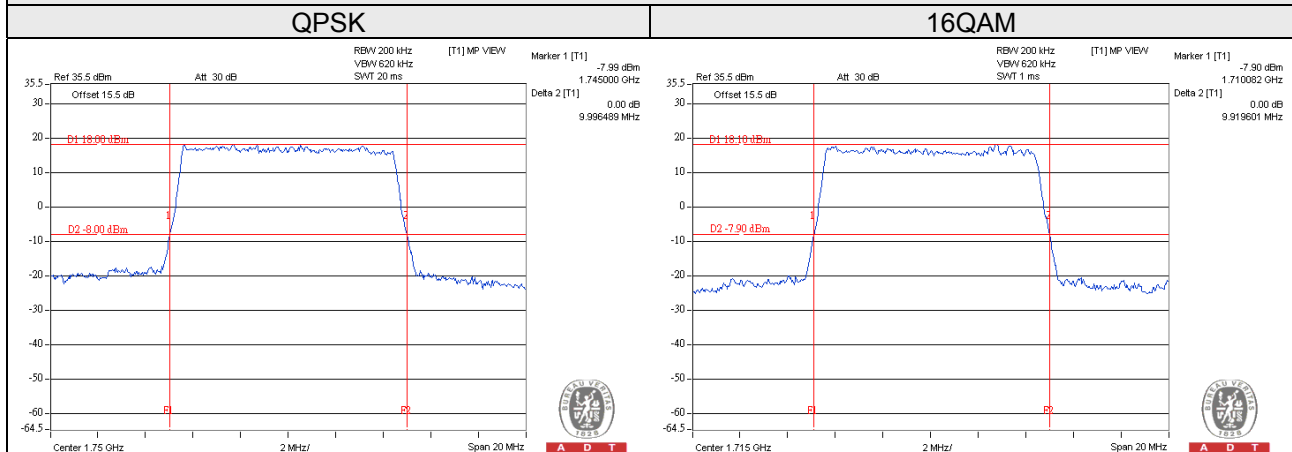
| Occupied Bandwidth |       |
|--------------------|-------|
| QPSK               | 16QAM |



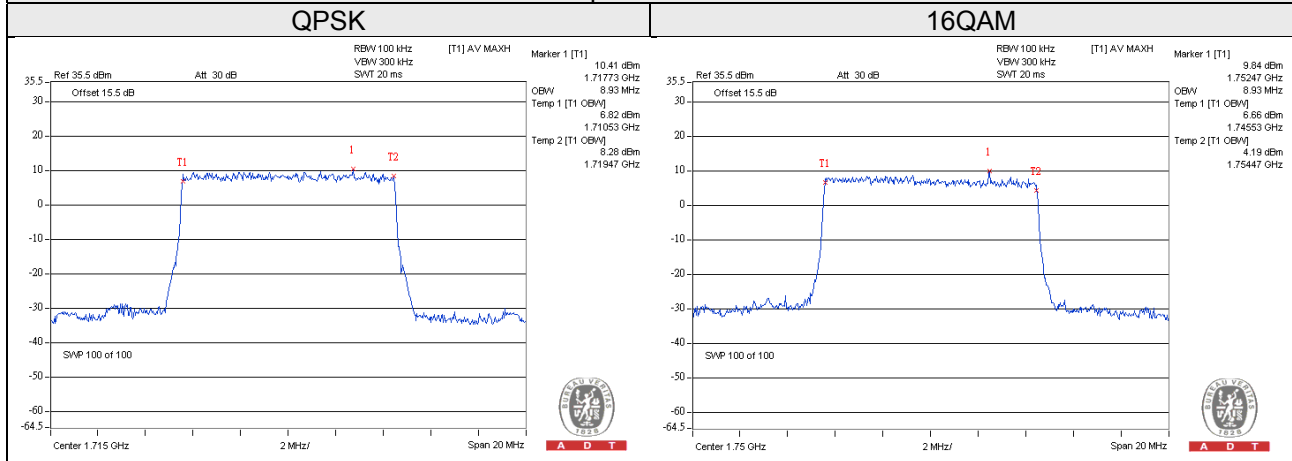
| Channel Bandwidth: 10MHz |                 |                       |       |                          |       |
|--------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                  | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                          |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 20000                    | 1715.0          | 9.948                 | 9.920 | 8.93                     | 8.93  |
| 20175                    | 1732.5          | 9.962                 | 9.910 | 8.93                     | 8.93  |
| 20350                    | 1750.0          | 9.996                 | 9.892 | 8.93                     | 8.93  |

### Spectrum Plot of Worst Value

#### 26dBc Bandwidth

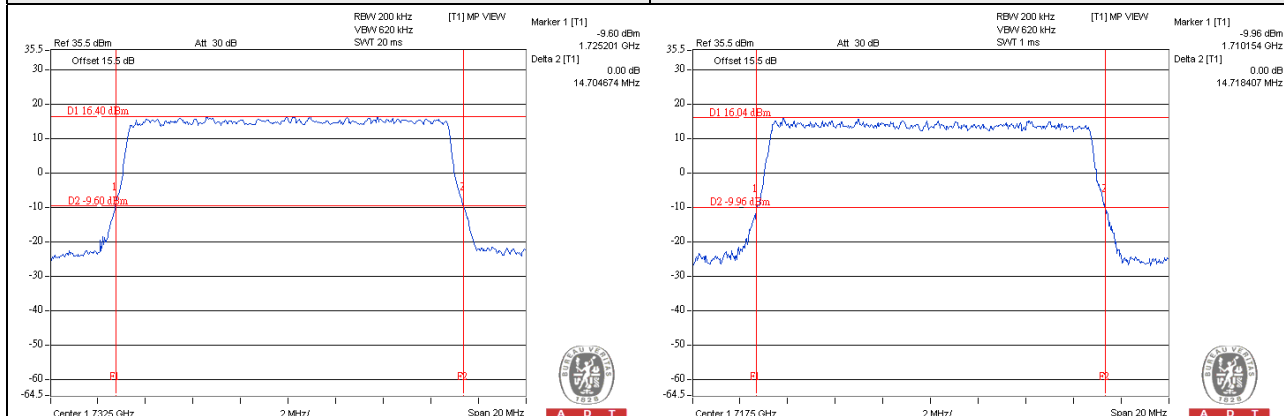


### Occupied Bandwidth

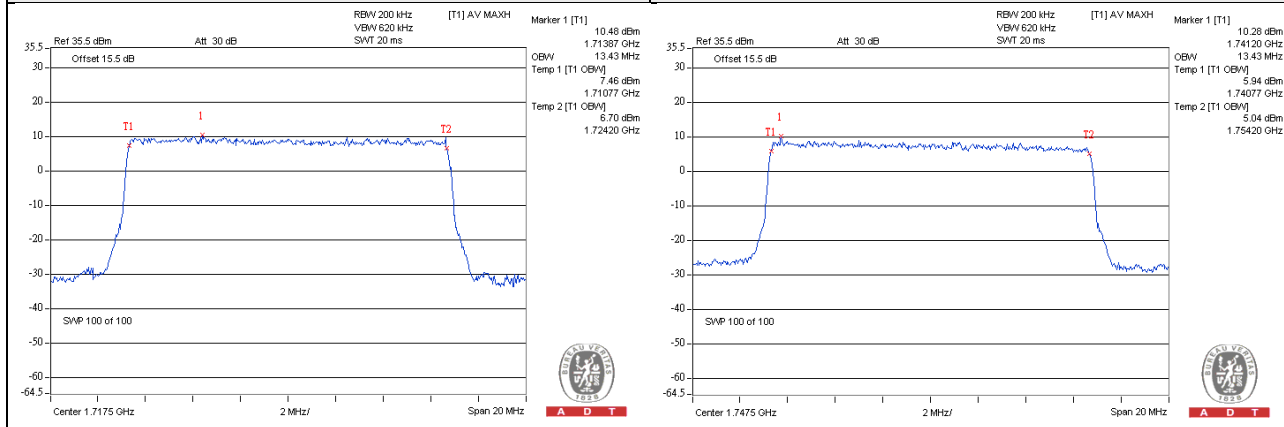


| Channel Bandwidth: 15MHz |                 |                       |        |                          |       |
|--------------------------|-----------------|-----------------------|--------|--------------------------|-------|
| Channel                  | Frequency (MHz) | 26dBc Bandwidth (MHz) |        | Occupied Bandwidth (MHz) |       |
|                          |                 | QPSK                  | 16QAM  | QPSK                     | 16QAM |
| 20025                    | 1717.5          | 14.629                | 14.718 | 13.43                    | 13.40 |
| 20175                    | 1732.5          | 14.705                | 14.703 | 13.43                    | 13.43 |
| 20325                    | 1747.5          | 14.675                | 14.668 | 13.40                    | 13.43 |

| Spectrum Plot of Worst Value |       |
|------------------------------|-------|
| 26dBc Bandwidth              |       |
| QPSK                         | 16QAM |

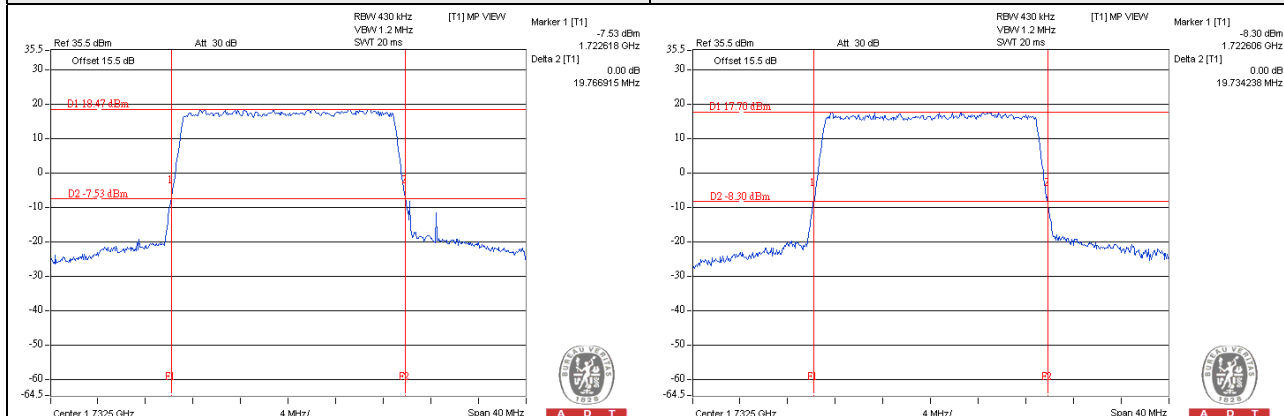


| Occupied Bandwidth |       |
|--------------------|-------|
| QPSK               | 16QAM |

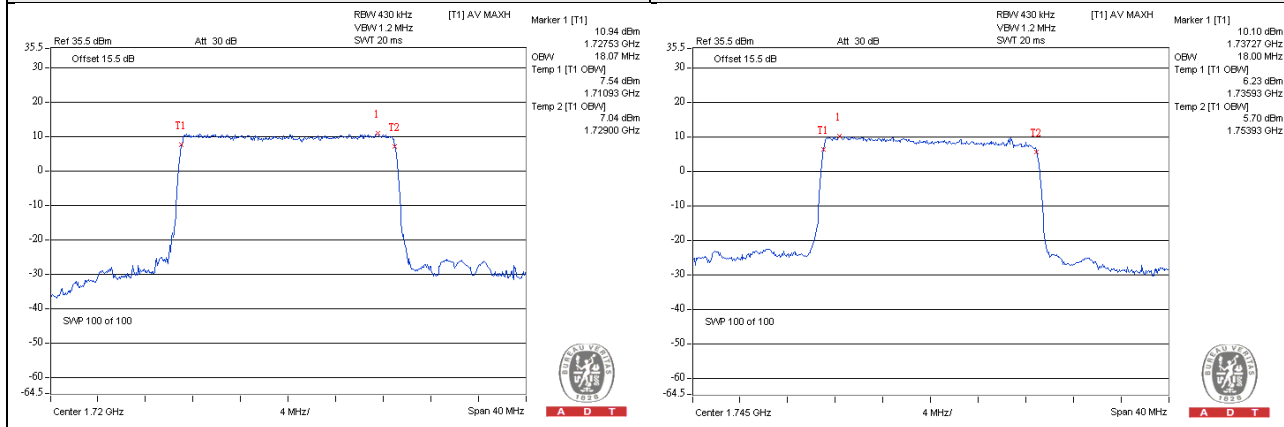


| Channel Bandwidth: 20MHz |                 |                       |        |                          |       |
|--------------------------|-----------------|-----------------------|--------|--------------------------|-------|
| Channel                  | Frequency (MHz) | 26dBc Bandwidth (MHz) |        | Occupied Bandwidth (MHz) |       |
|                          |                 | QPSK                  | 16QAM  | QPSK                     | 16QAM |
| 20050                    | 1720.0          | 19.690                | 19.693 | 18.07                    | 18.00 |
| 20175                    | 1732.5          | 19.767                | 19.734 | 18.00                    | 18.00 |
| 20300                    | 1745.0          | 19.708                | 19.645 | 18.00                    | 18.00 |

| Spectrum Plot of Worst Value |       |
|------------------------------|-------|
| 26dBc Bandwidth              |       |
| QPSK                         | 16QAM |



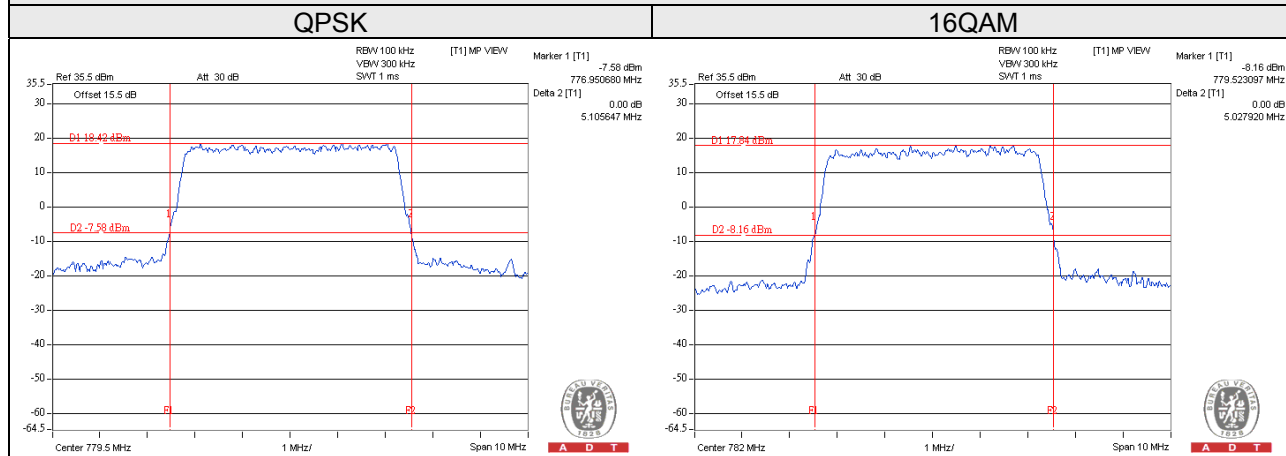
| Occupied Bandwidth |       |
|--------------------|-------|
| QPSK               | 16QAM |



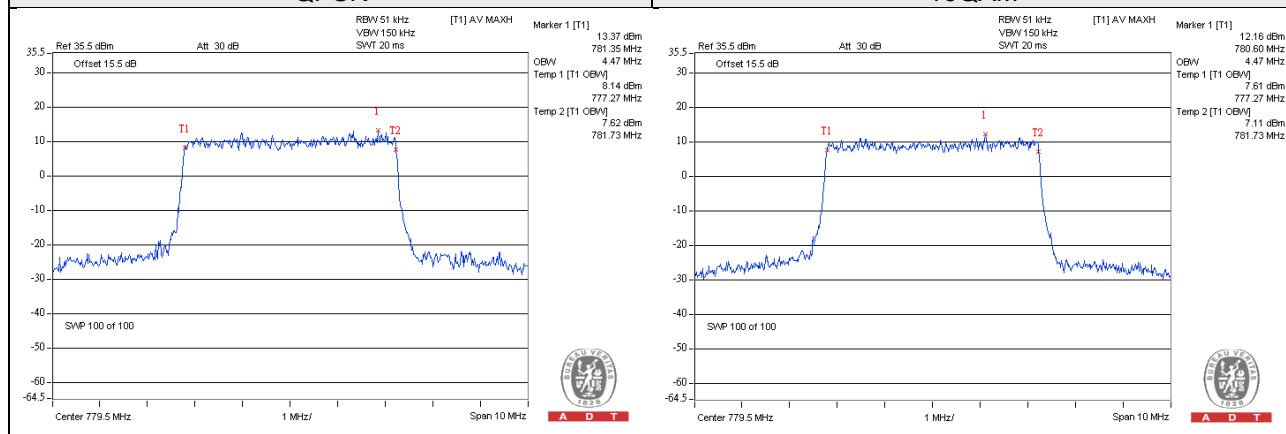
# LTE Band 13

| Channel Bandwidth: 5MHz |                 |                       |       |                          |       |
|-------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                 | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                         |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 23205                   | 779.5           | 5.106                 | 5.011 | 4.47                     | 4.47  |
| 23230                   | 782.0           | 5.058                 | 5.028 | 4.47                     | 4.47  |
| 23255                   | 784.5           | 5.015                 | 4.965 | 4.45                     | 4.45  |

## Spectrum Plot of Worst Value 26dBc Bandwidth

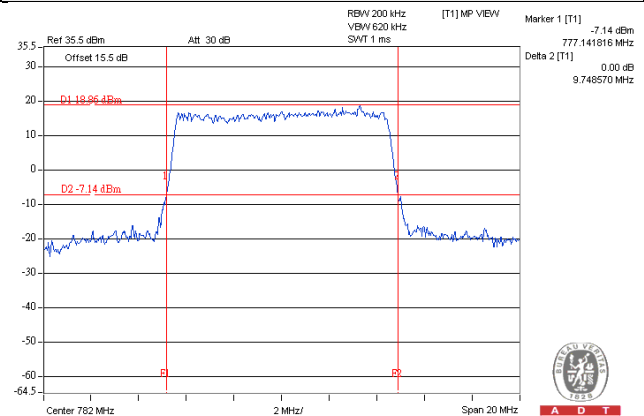
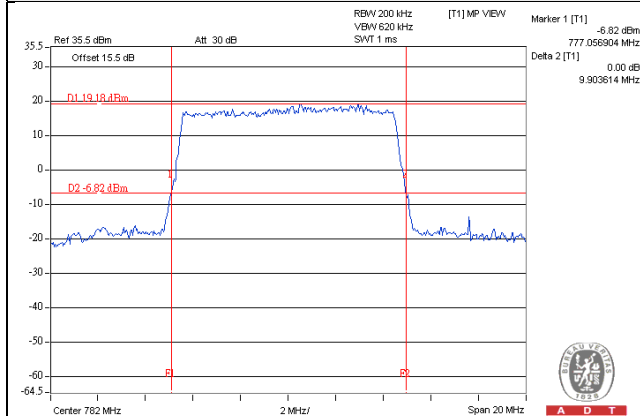


## Occupied Bandwidth

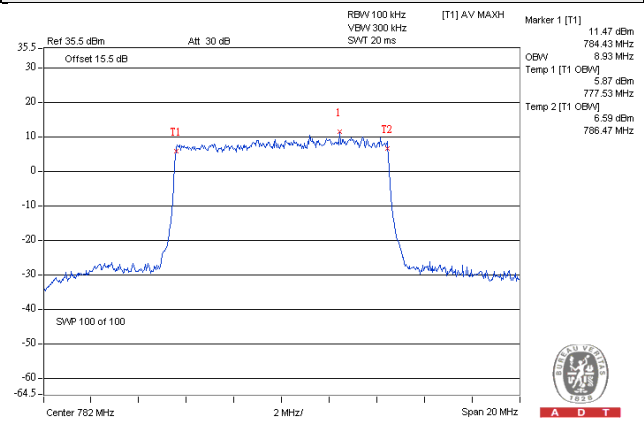
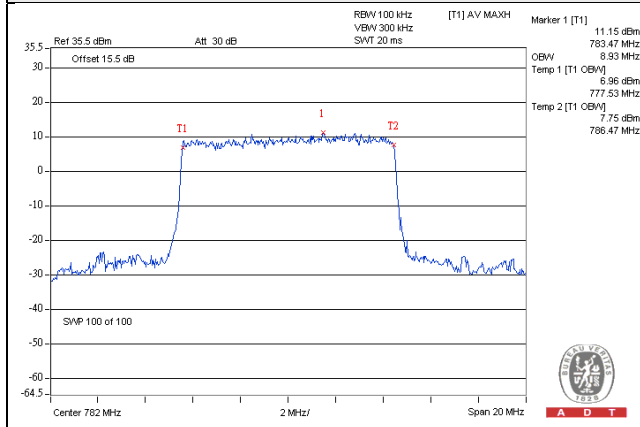


| Channel Bandwidth: 10MHz |                 |                       |       |                          |       |
|--------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                  | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                          |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 23230                    | 782.0           | 9.904                 | 9.749 | 8.93                     | 8.93  |

| Spectrum Plot of Worst Value |       |
|------------------------------|-------|
| 26dBc Bandwidth              |       |
| QPSK                         | 16QAM |



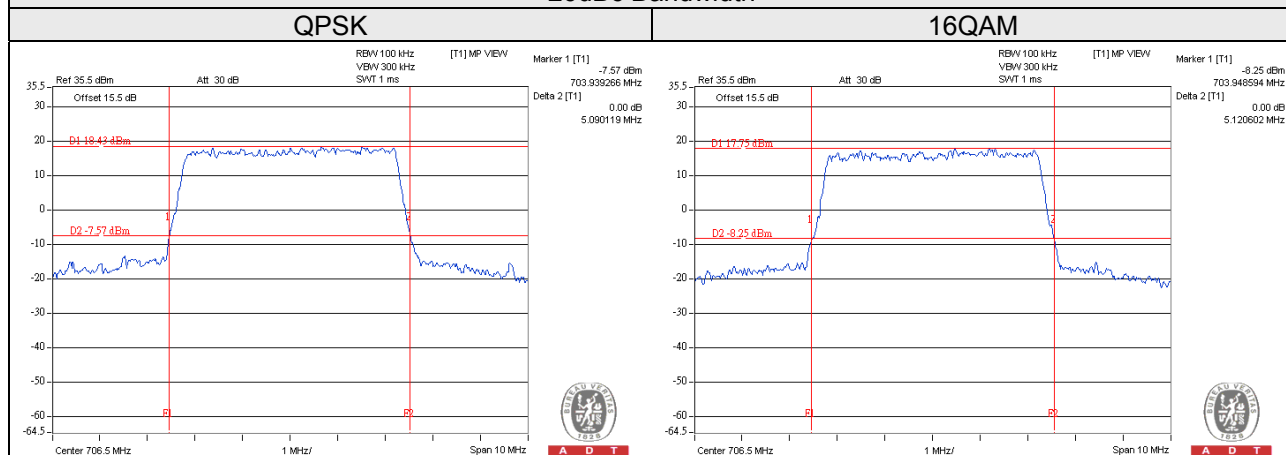
| Occupied Bandwidth |       |
|--------------------|-------|
| QPSK               | 16QAM |



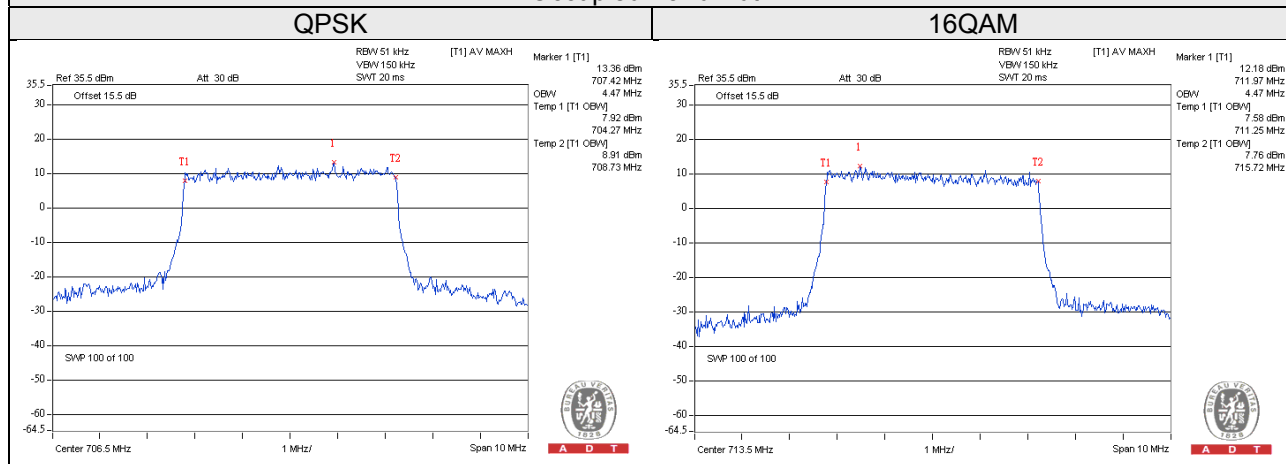
# LTE Band 17

| Channel Bandwidth: 5MHz |                 |                       |       |                          |       |
|-------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                 | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                         |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 23755                   | 706.5           | 5.090                 | 5.121 | 4.47                     | 4.47  |
| 23790                   | 710.0           | 5.026                 | 5.017 | 4.47                     | 4.45  |
| 23825                   | 713.5           | 5.043                 | 5.029 | 4.47                     | 4.47  |

## Spectrum Plot of Worst Value 26dBc Bandwidth



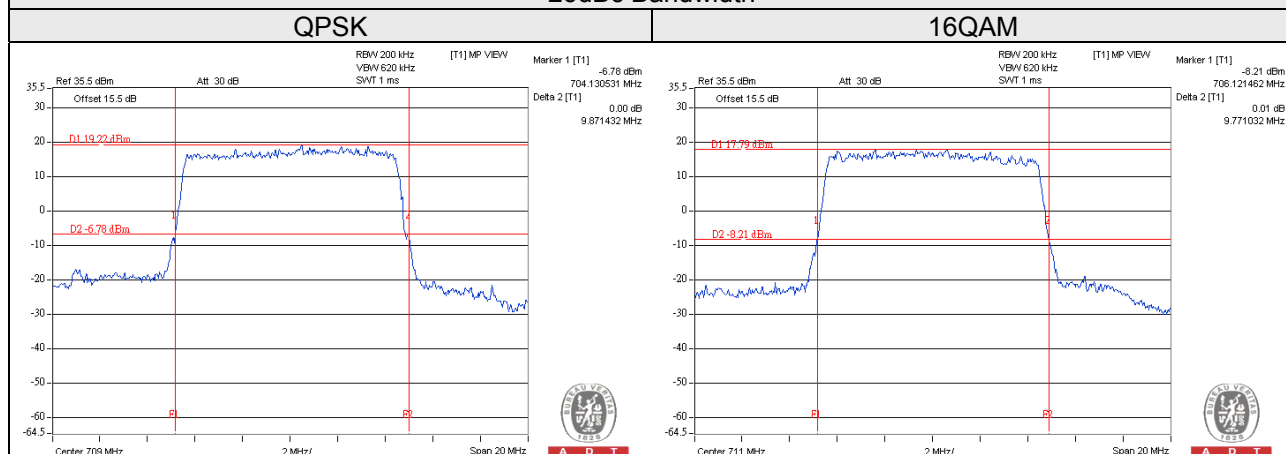
## Occupied Bandwidth



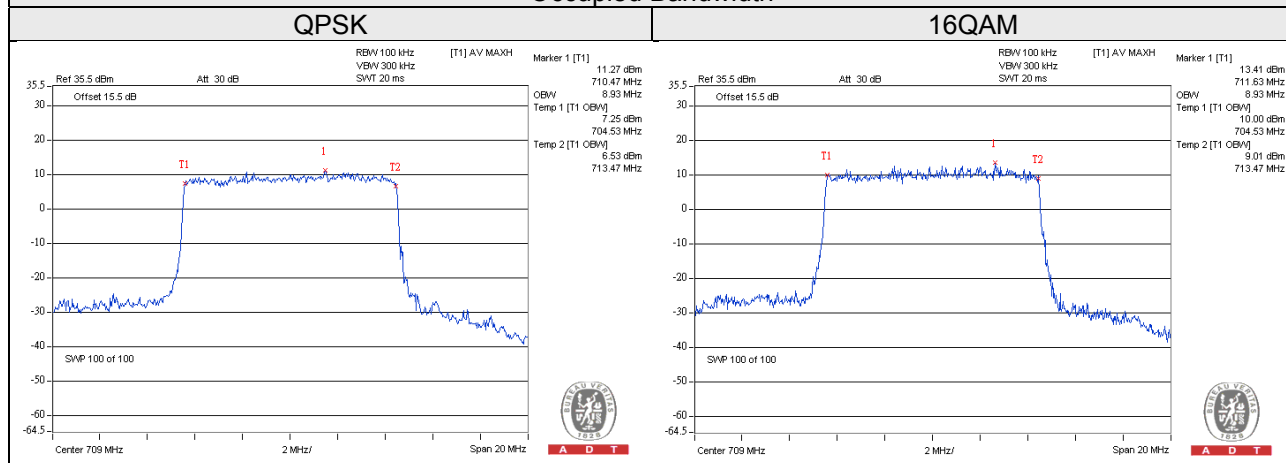
| Channel Bandwidth: 10MHz |                 |                       |       |                          |       |
|--------------------------|-----------------|-----------------------|-------|--------------------------|-------|
| Channel                  | Frequency (MHz) | 26dBc Bandwidth (MHz) |       | Occupied Bandwidth (MHz) |       |
|                          |                 | QPSK                  | 16QAM | QPSK                     | 16QAM |
| 23780                    | 709.0           | 9.871                 | 9.724 | 8.93                     | 8.93  |
| 23790                    | 710.0           | 9.719                 | 9.770 | 8.90                     | 8.90  |
| 23800                    | 711.0           | 9.854                 | 9.771 | 8.90                     | 8.93  |

### Spectrum Plot of Worst Value

#### 26dBc Bandwidth



### Occupied Bandwidth



## 4.5 Channel Edge Measurement

### 4.5.1 Limits of Band Edge Measurement

For WCDMA Band 4, LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

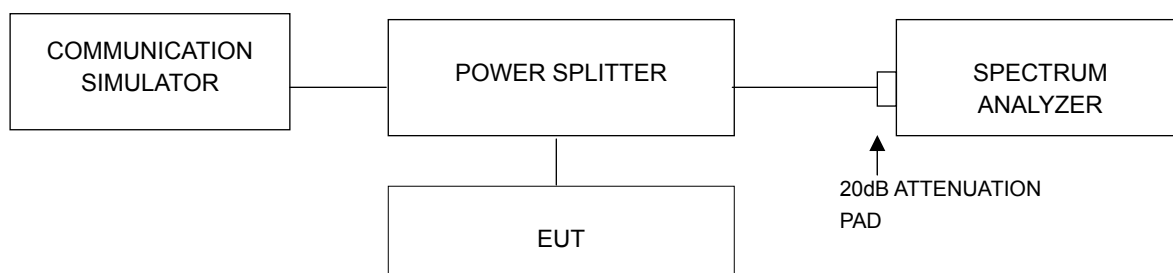
For LTE Band 13

According to FCC 27.53(c) (2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB.

For LTE Band 17

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 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.

### 4.5.2 Test Setup

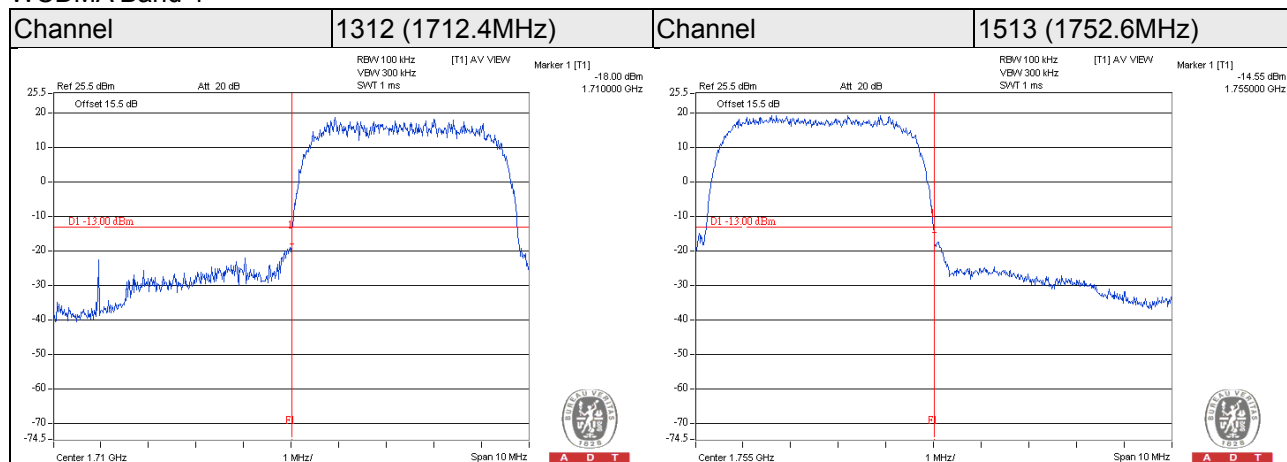


### 4.5.3 Test Procedures

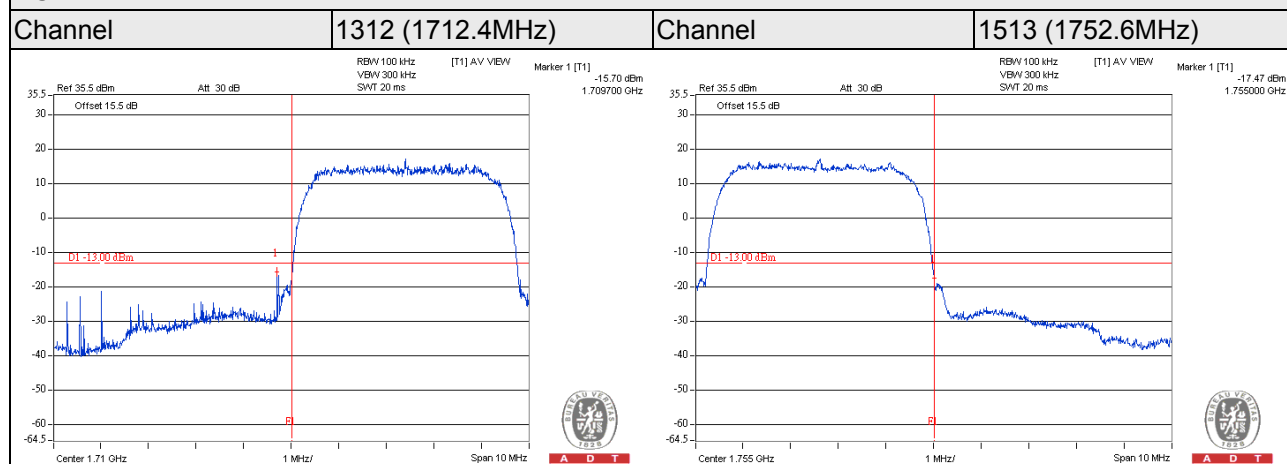
- The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz and 3MHz), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 15MHz) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz).
- Record the max trace plot into the test report.

## 4.5.4 Test Results

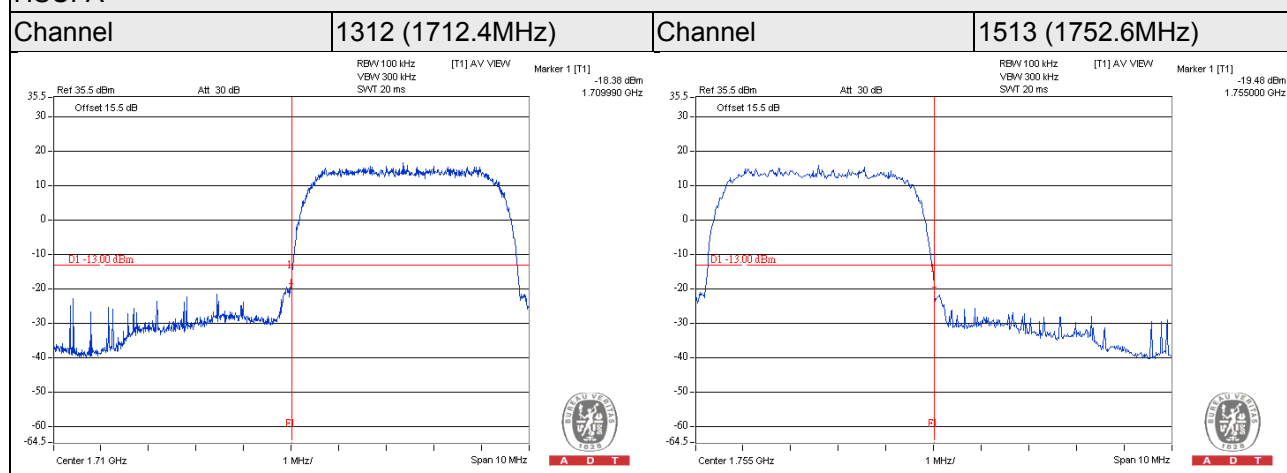
### WCDMA Band 4



### HSDPA



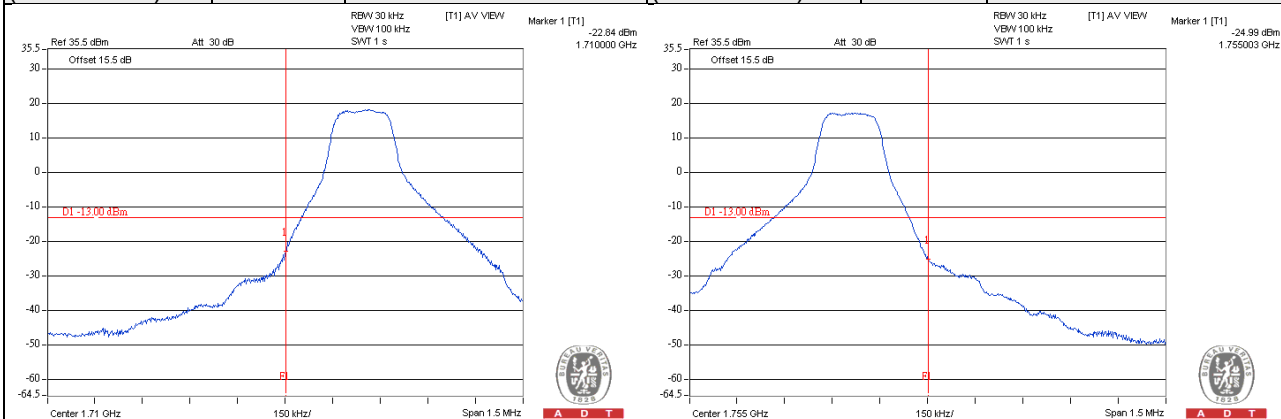
### HSUPA



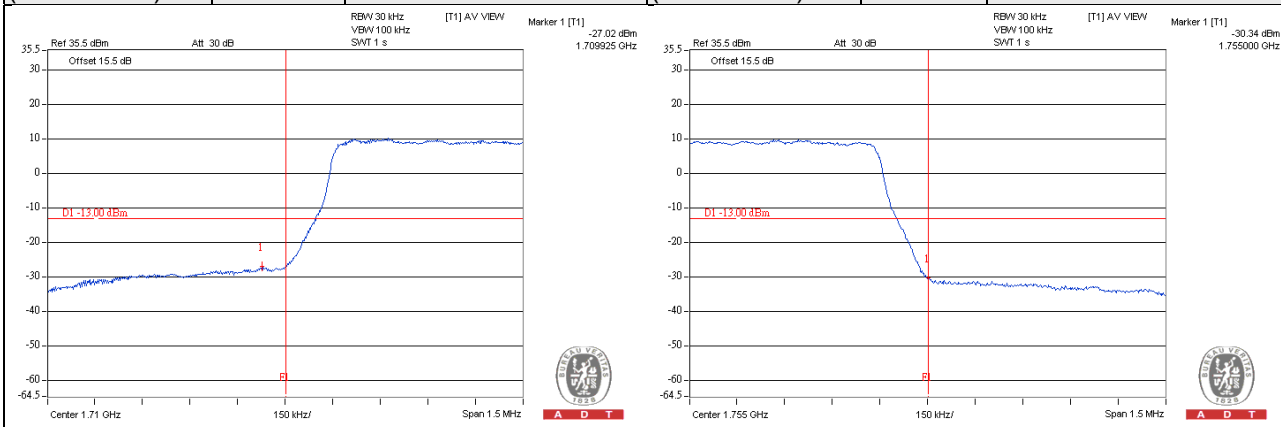
# LTE Band 4

Channel Bandwidth: 1.4MHz

|                              |      |                    |                              |      |                    |
|------------------------------|------|--------------------|------------------------------|------|--------------------|
| Channel 19957<br>(1710.7MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20393<br>(1754.3MHz) | QPSK | 1 RB / 5 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|--------------------|

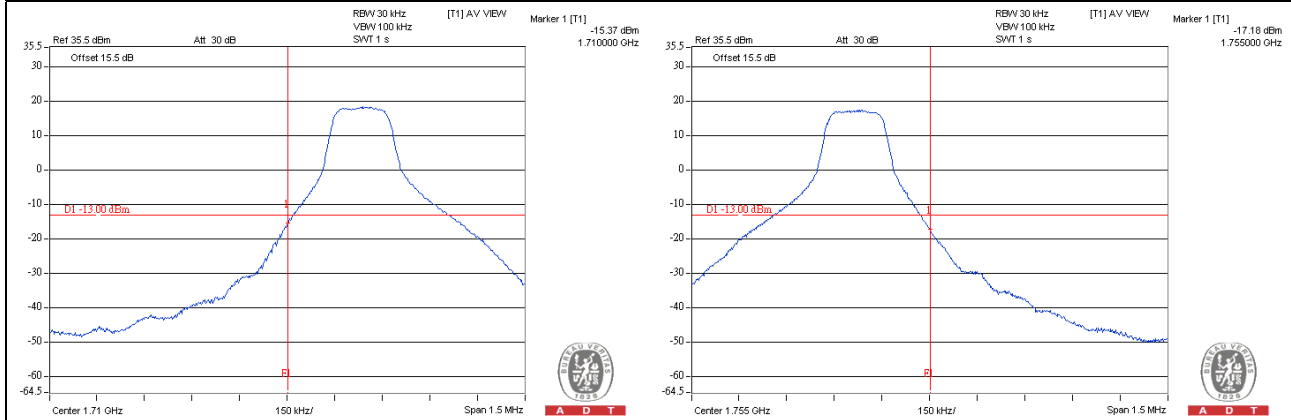


|                              |      |                    |                              |      |                    |
|------------------------------|------|--------------------|------------------------------|------|--------------------|
| Channel 19957<br>(1710.7MHz) | QPSK | 6 RB / 0 RB Offset | Channel 20393<br>(1754.3MHz) | QPSK | 6 RB / 0 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|--------------------|

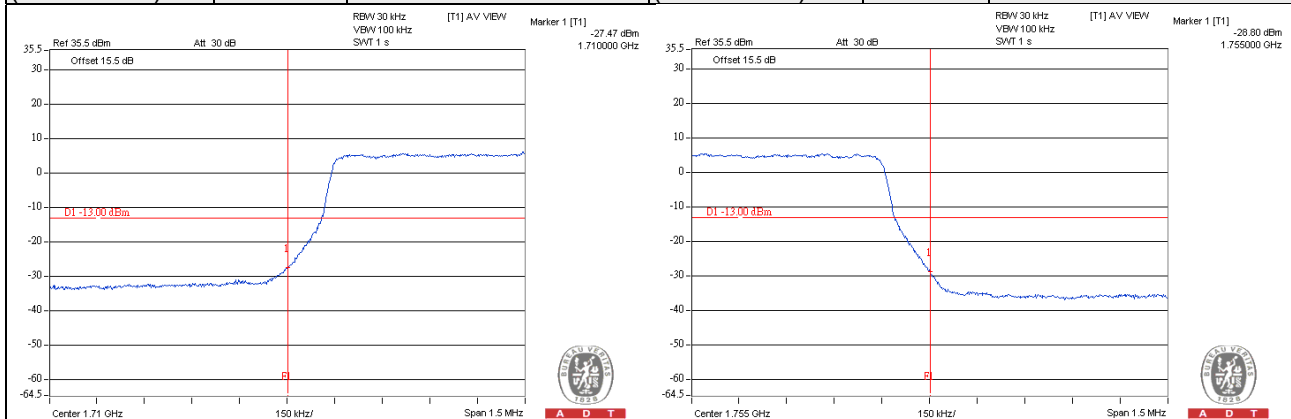


# Channel Bandwidth: 3MHz

|                              |      |                    |                              |      |                     |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 19965<br>(1711.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20385<br>(1753.5MHz) | QPSK | 1 RB / 14 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

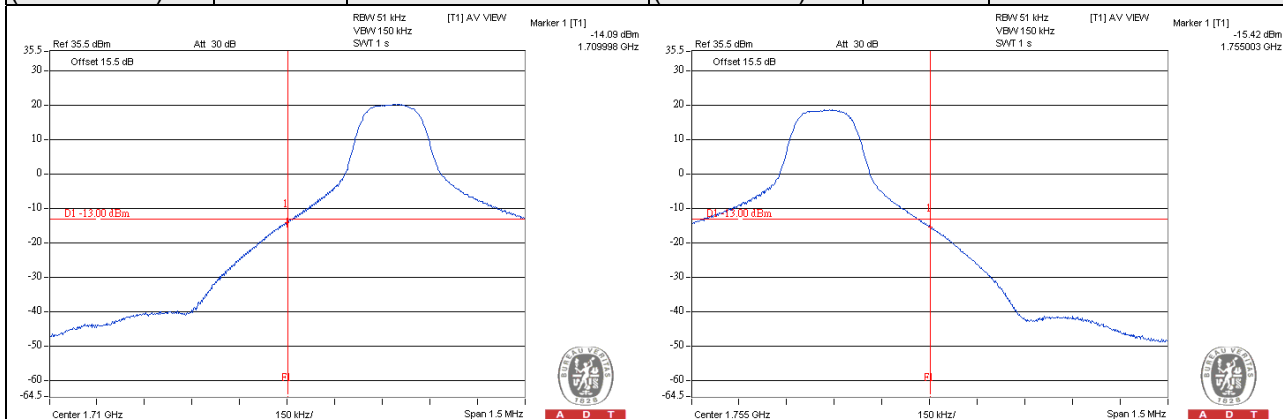


|                              |      |                     |                              |      |                     |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 19965<br>(1711.5MHz) | QPSK | 15 RB / 0 RB Offset | Channel 20385<br>(1753.5MHz) | QPSK | 15 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

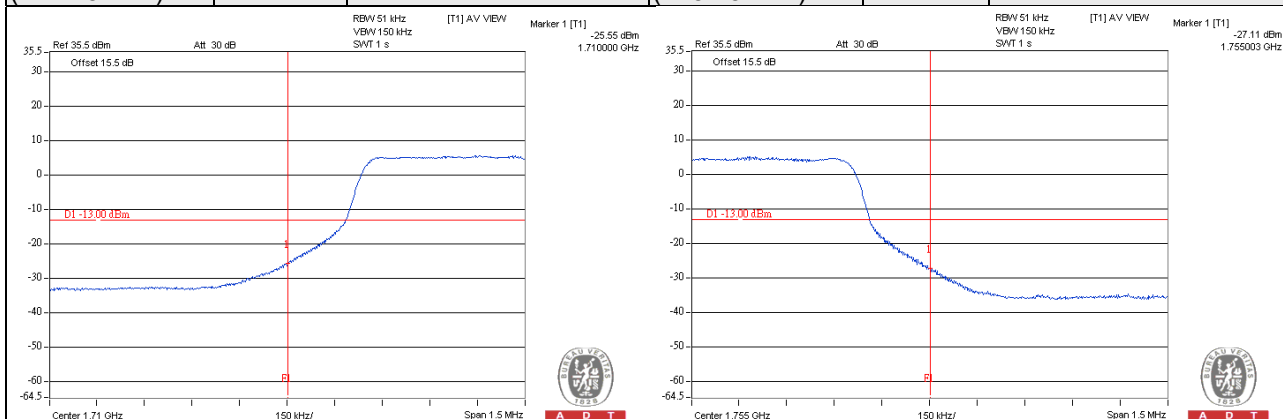


Channel Bandwidth: 5MHz

|                              |      |                    |                              |      |                     |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 19975<br>(1712.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20375<br>(1752.5MHz) | QPSK | 1 RB / 24 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

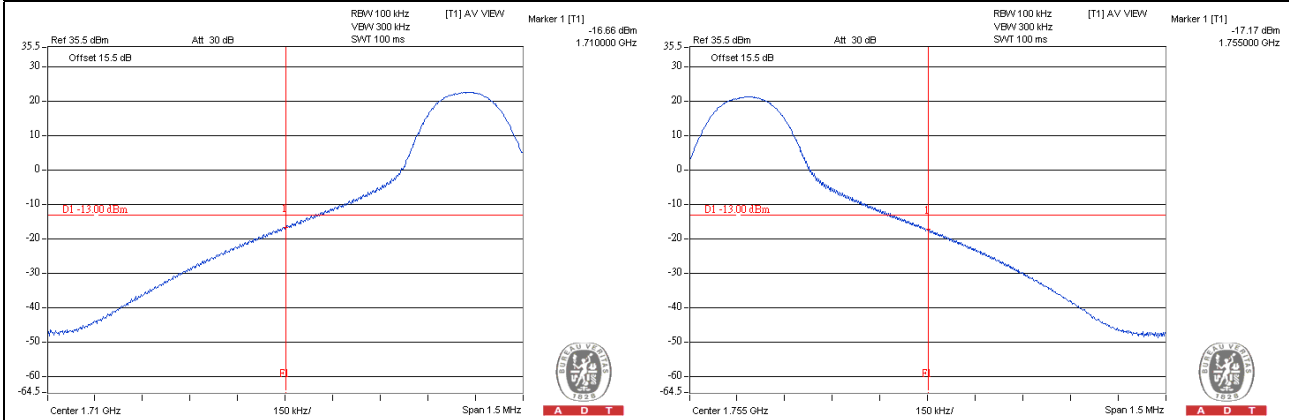


|                              |      |                     |                              |      |                     |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 19975<br>(1712.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 20375<br>(1752.5MHz) | QPSK | 25 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

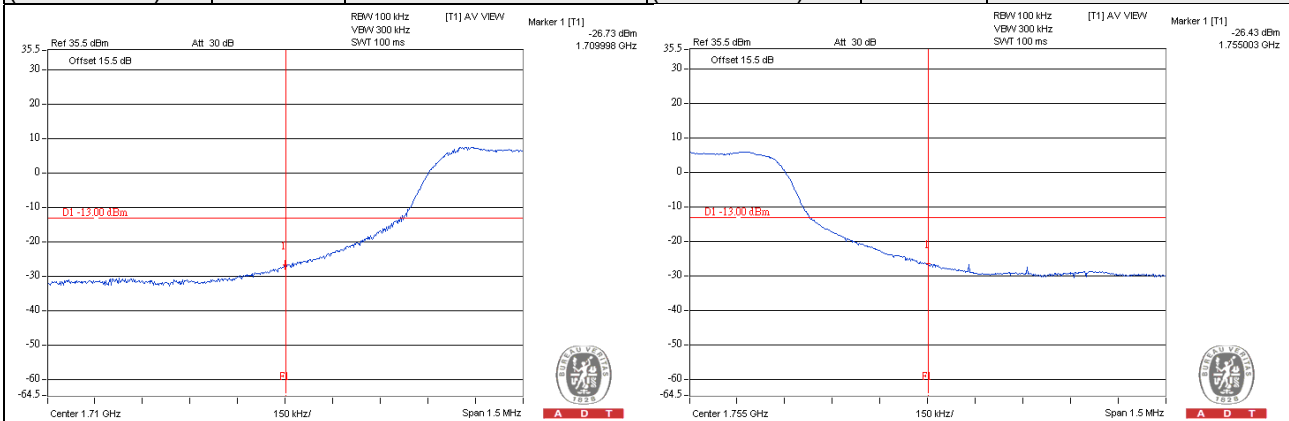


Channel Bandwidth: 10MHz

|                              |      |                    |                              |      |                     |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 20000<br>(1715.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20350<br>(1750.0MHz) | QPSK | 1 RB / 49 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

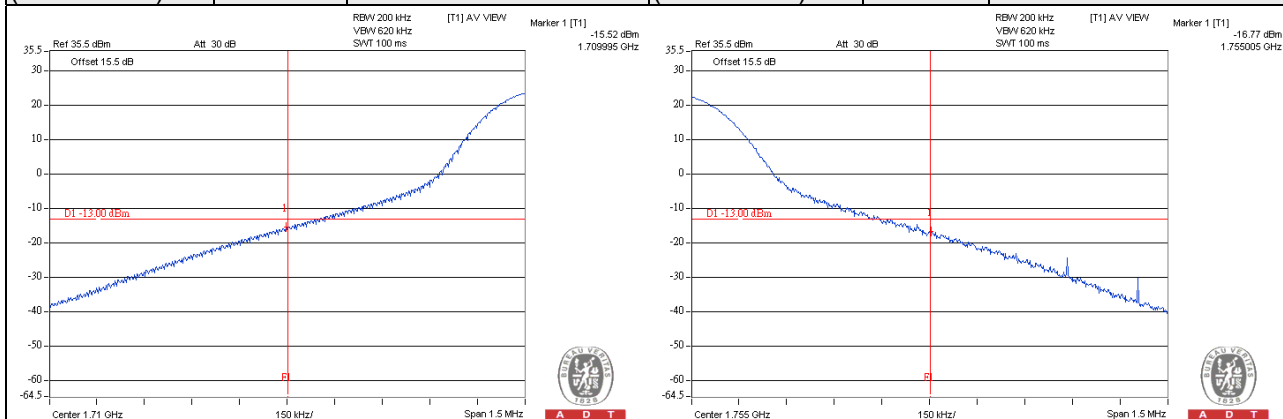


|                              |      |                     |                              |      |                     |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 20000<br>(1715.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 20350<br>(1750.0MHz) | QPSK | 50 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

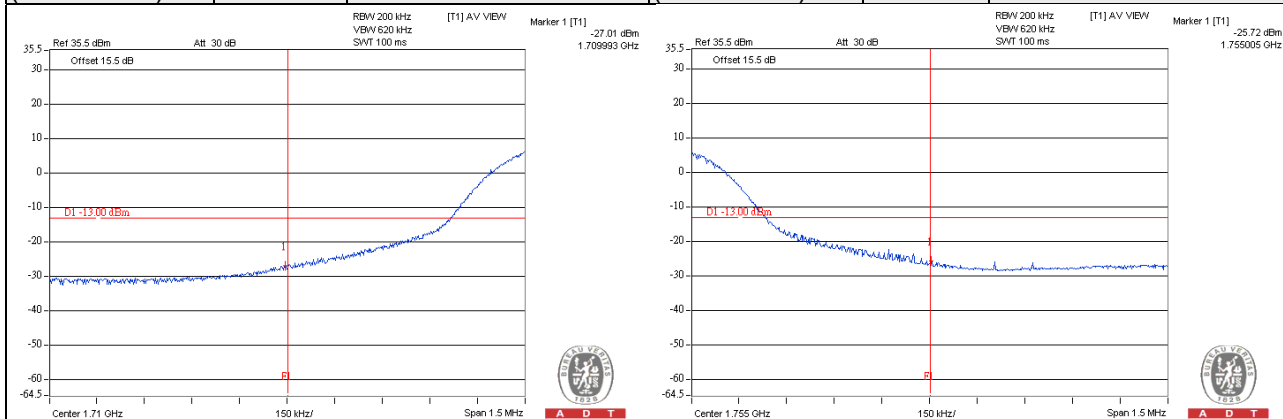


# Channel Bandwidth: 15MHz

|                              |      |                    |                              |      |                     |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 20025<br>(1717.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20325<br>(1747.5MHz) | QPSK | 1 RB / 74 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

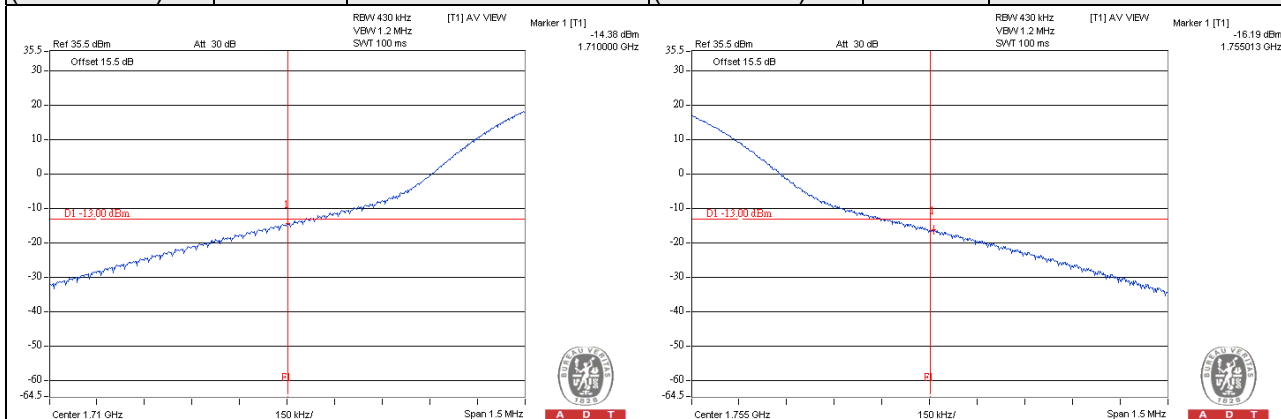


|                              |      |                     |                              |      |                     |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 20025<br>(1717.5MHz) | QPSK | 75 RB / 0 RB Offset | Channel 20325<br>(1747.5MHz) | QPSK | 75 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

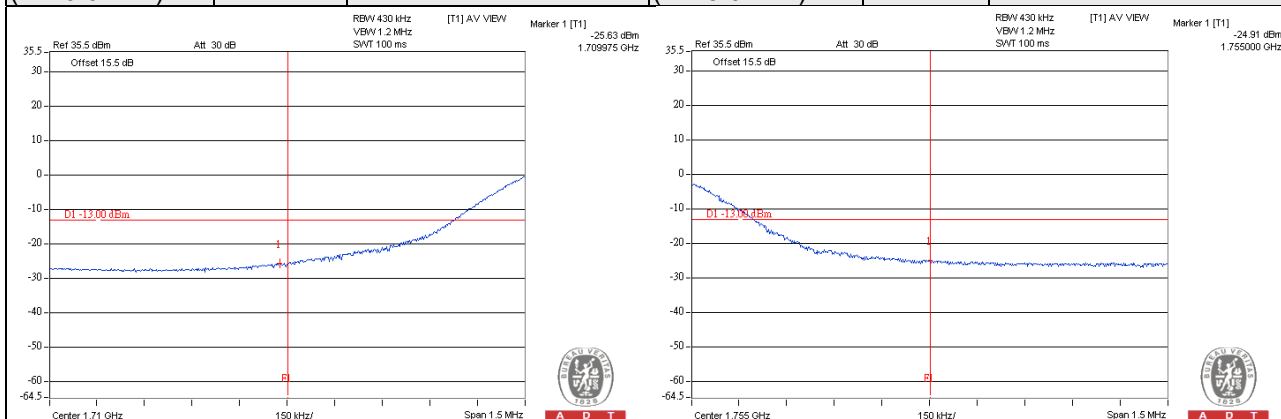


Channel Bandwidth: 20MHz

|                              |      |                    |                              |      |                     |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 20050<br>(1720.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 20300<br>(1745.0MHz) | QPSK | 1 RB / 99 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|



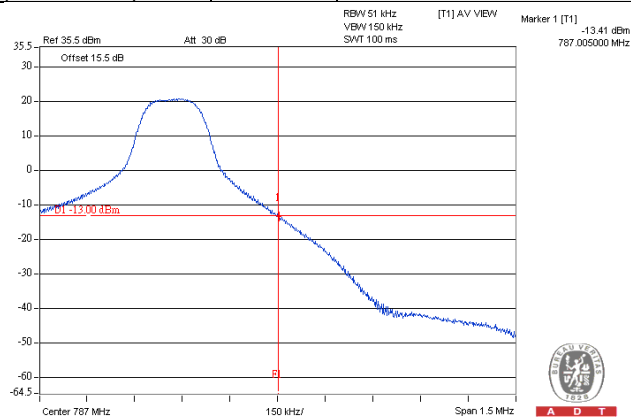
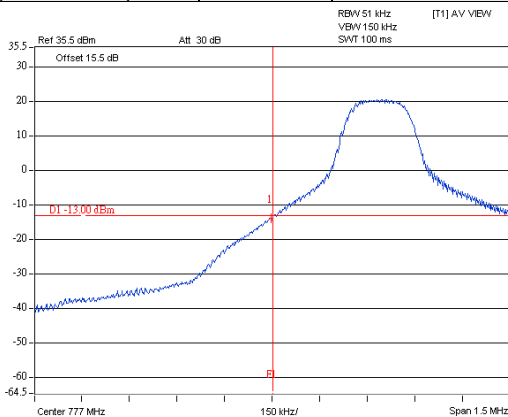
|                              |      |                      |                              |      |                      |
|------------------------------|------|----------------------|------------------------------|------|----------------------|
| Channel 20050<br>(1720.0MHz) | QPSK | 100 RB / 0 RB Offset | Channel 20300<br>(1745.0MHz) | QPSK | 100 RB / 0 RB Offset |
|------------------------------|------|----------------------|------------------------------|------|----------------------|



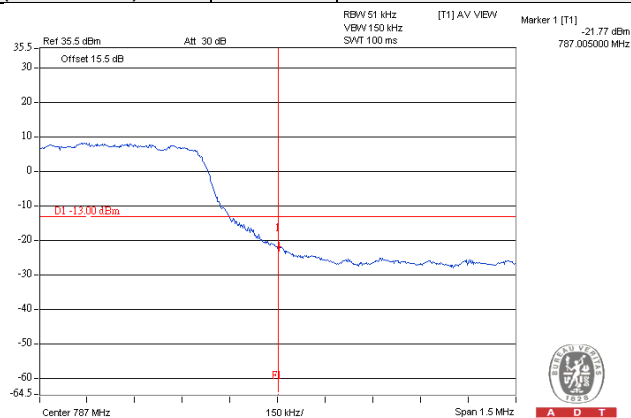
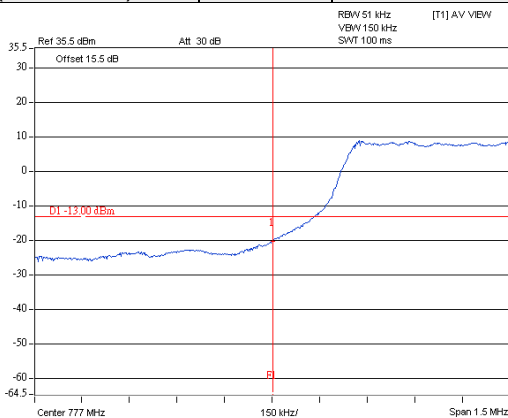
# LTE Band 13

Channel Bandwidth: 5MHz

|                             |      |                    |                             |      |                     |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|
| Channel 23205<br>(779.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23255<br>(784.5MHz) | QPSK | 1 RB / 24 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|

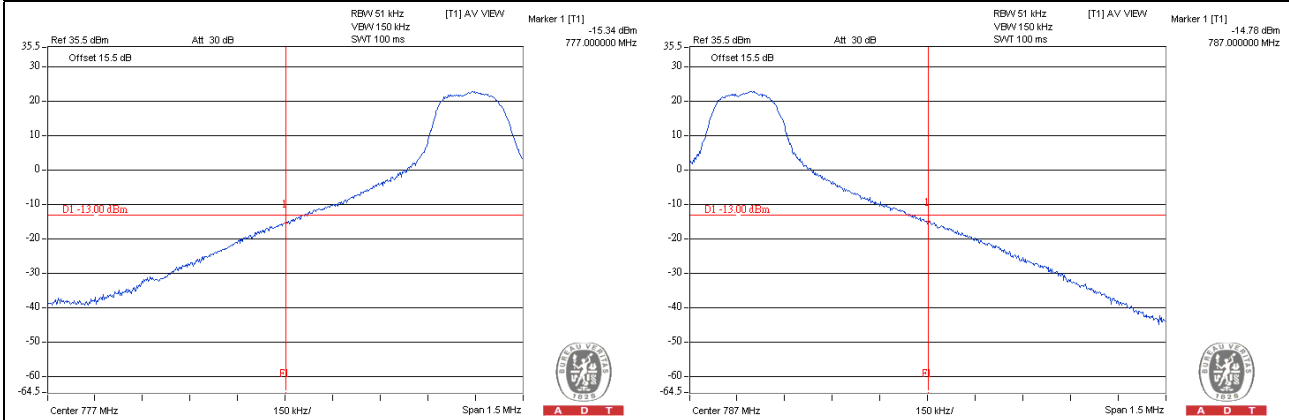


|                             |      |                     |                             |      |                     |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|
| Channel 23205<br>(779.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 23255<br>(784.5MHz) | QPSK | 25 RB / 0 RB Offset |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|

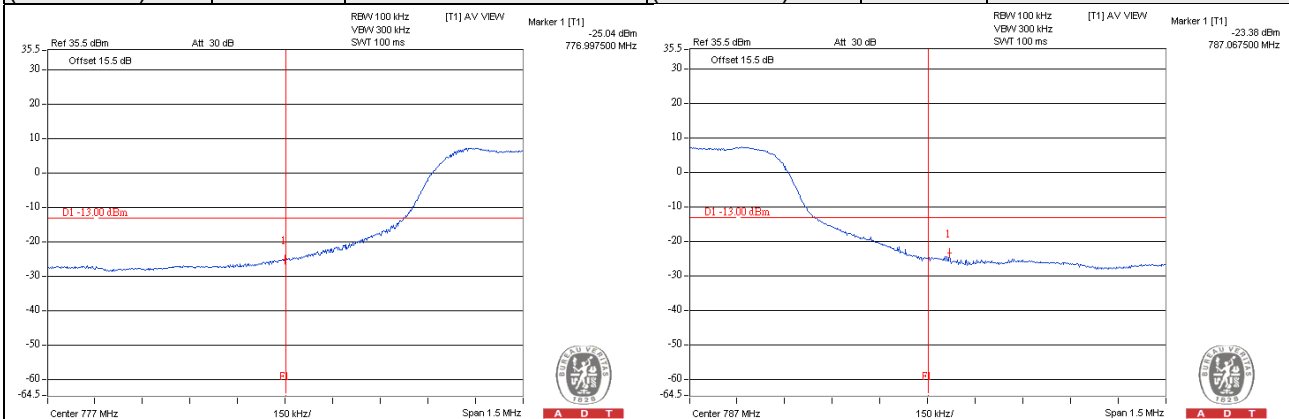


Channel Bandwidth: 10MHz

|                             |      |                    |                             |      |                     |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|
| Channel 23230<br>(782.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23230<br>(782.0MHz) | QPSK | 1 RB / 49 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|



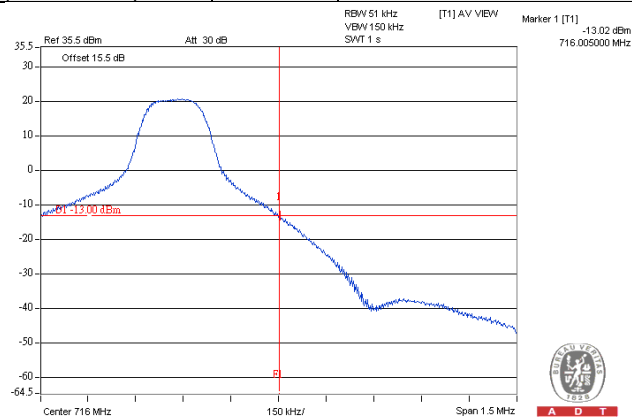
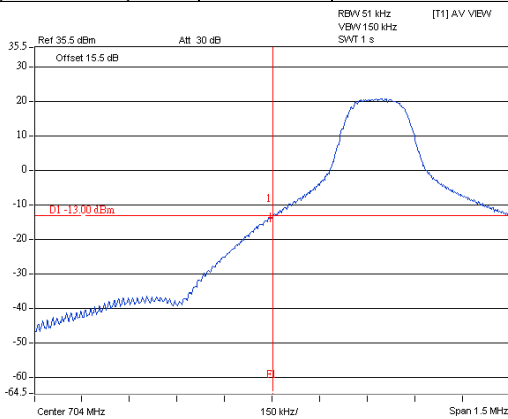
|                             |      |                     |                             |      |                     |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|
| Channel 23230<br>(782.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 23230<br>(782.0MHz) | QPSK | 50 RB / 0 RB Offset |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|



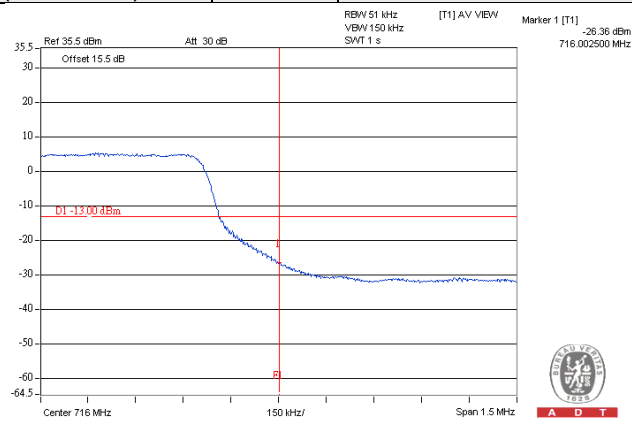
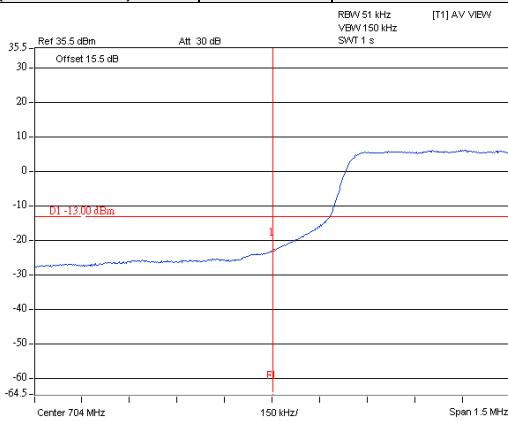
# LTE Band 17

Channel Bandwidth: 5MHz

|                             |      |                    |                             |      |                     |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|
| Channel 23755<br>(706.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23825<br>(713.5MHz) | QPSK | 1 RB / 24 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|

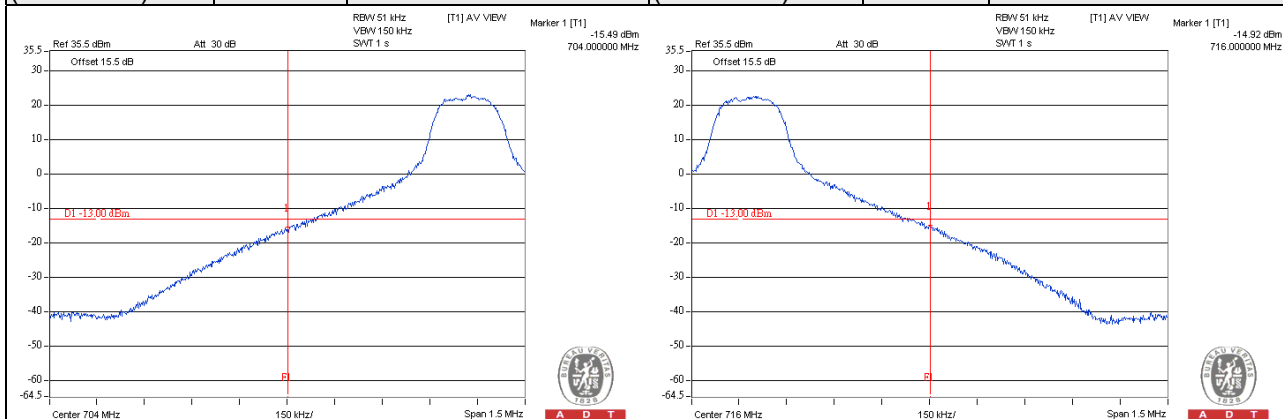


|                             |      |                     |                             |      |                     |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|
| Channel 23755<br>(706.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 23825<br>(713.5MHz) | QPSK | 25 RB / 0 RB Offset |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|

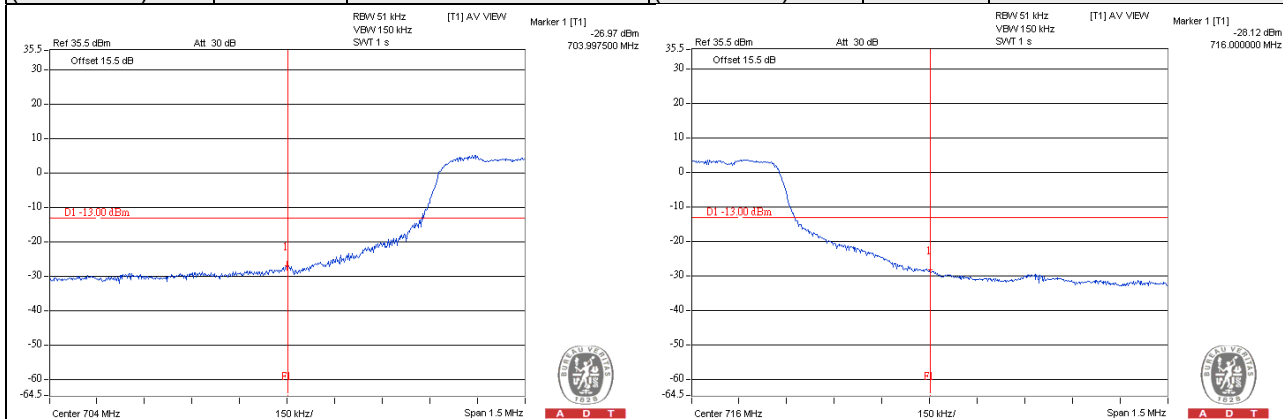


Channel Bandwidth: 10MHz

|                             |      |                    |                             |      |                     |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|
| Channel 23780<br>(709.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23790<br>(711.0MHz) | QPSK | 1 RB / 49 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|



|                             |      |                     |                             |      |                     |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|
| Channel 23780<br>(709.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 23790<br>(711.0MHz) | QPSK | 50 RB / 0 RB Offset |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|

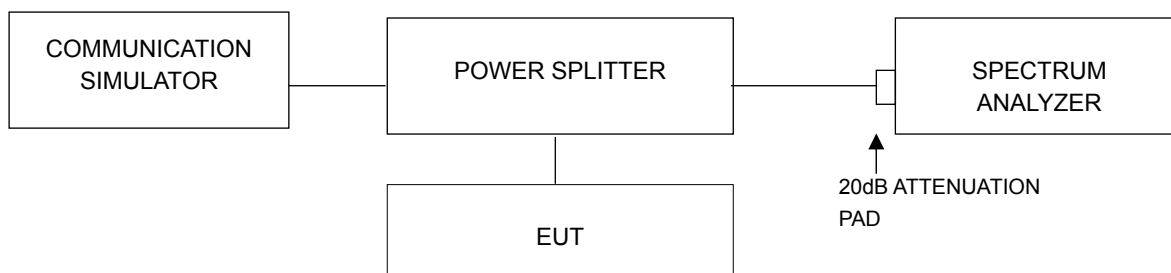


## 4.6 Peak to Average Ratio

### 4.6.1 Limits of Peak to Average Ratio Measurement

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

### 4.6.2 Test Setup



### 4.6.3 Test Procedures

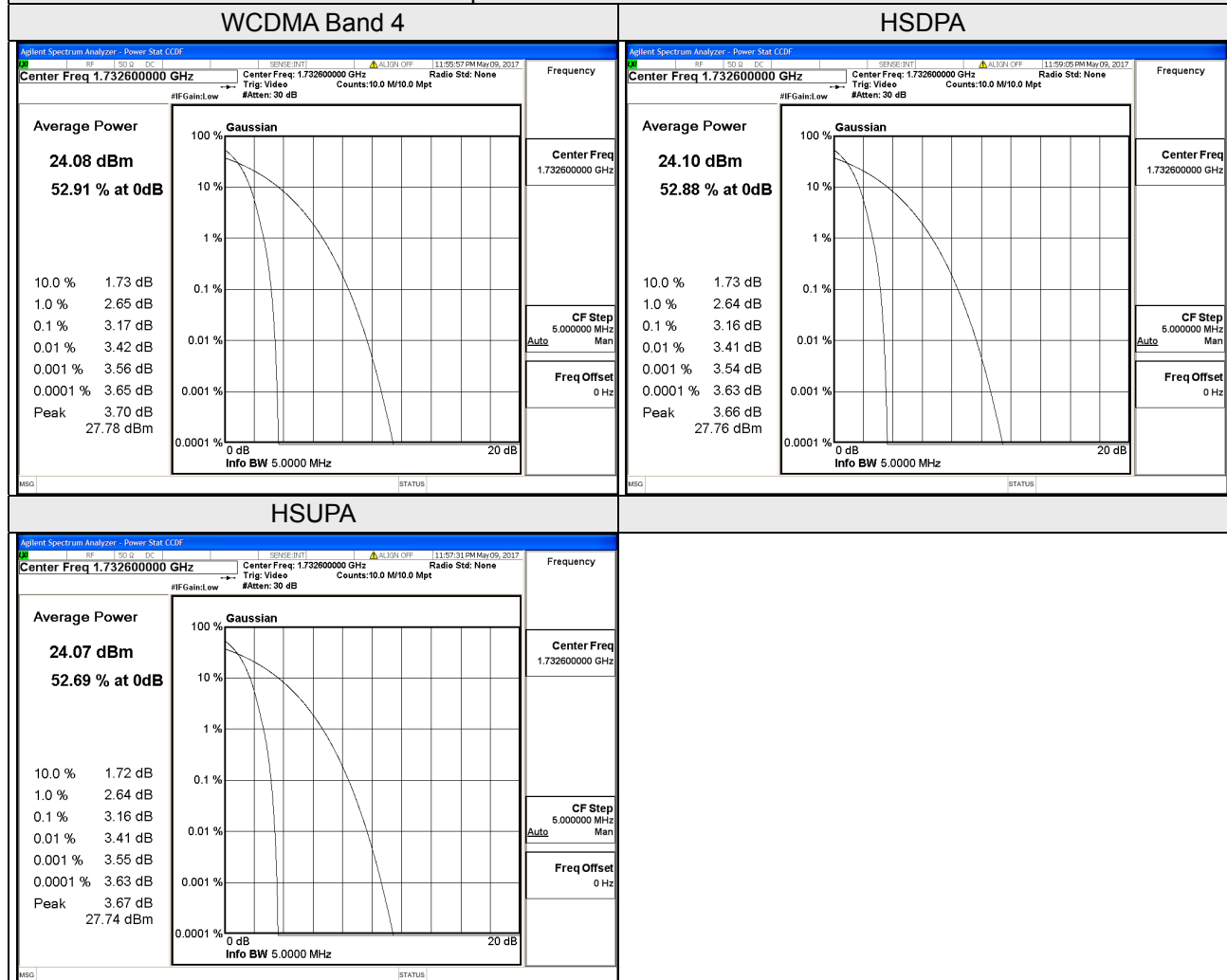
- Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

#### 4.6.4 Test Results

##### WCDMA Band 4

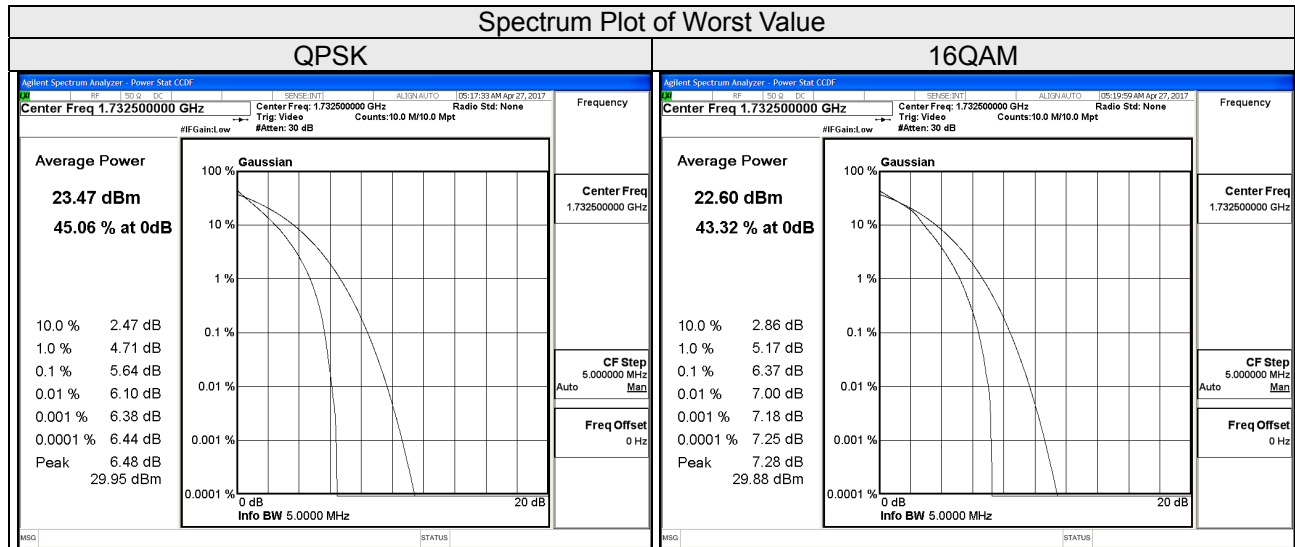
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |       |
|---------|-----------------|----------------------------|-------|-------|
|         |                 | WCDMA                      | HSDPA | HSUPA |
| 1312    | 1712.4          | 3.08                       | 3.07  | 3.08  |
| 1413    | 1732.6          | 3.17                       | 3.16  | 3.16  |
| 1513    | 1752.6          | 3.05                       | 3.06  | 3.05  |

##### Spectrum Plot of Worst Value

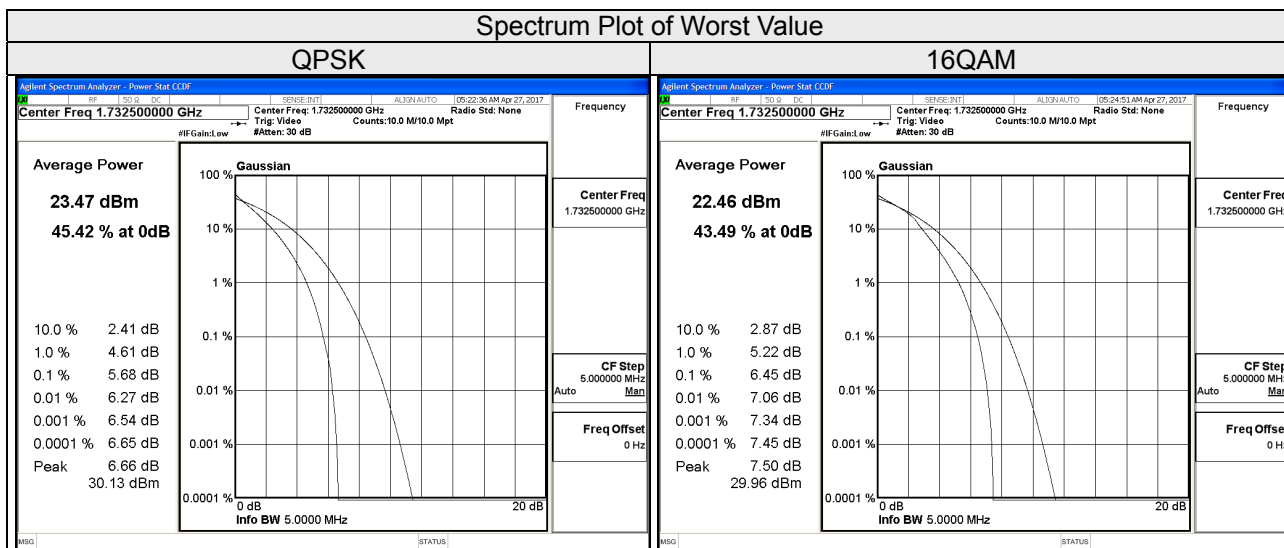


# LTE Band 4

| Channel Bandwidth: 1.4MHz |                 |                            |       |
|---------------------------|-----------------|----------------------------|-------|
| Channel                   | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|                           |                 | QPSK                       | 16QAM |
| 19957                     | 1710.7          | 5.36                       | 6.08  |
| 20175                     | 1732.5          | 5.64                       | 6.37  |
| 20393                     | 1754.3          | 5.40                       | 6.11  |



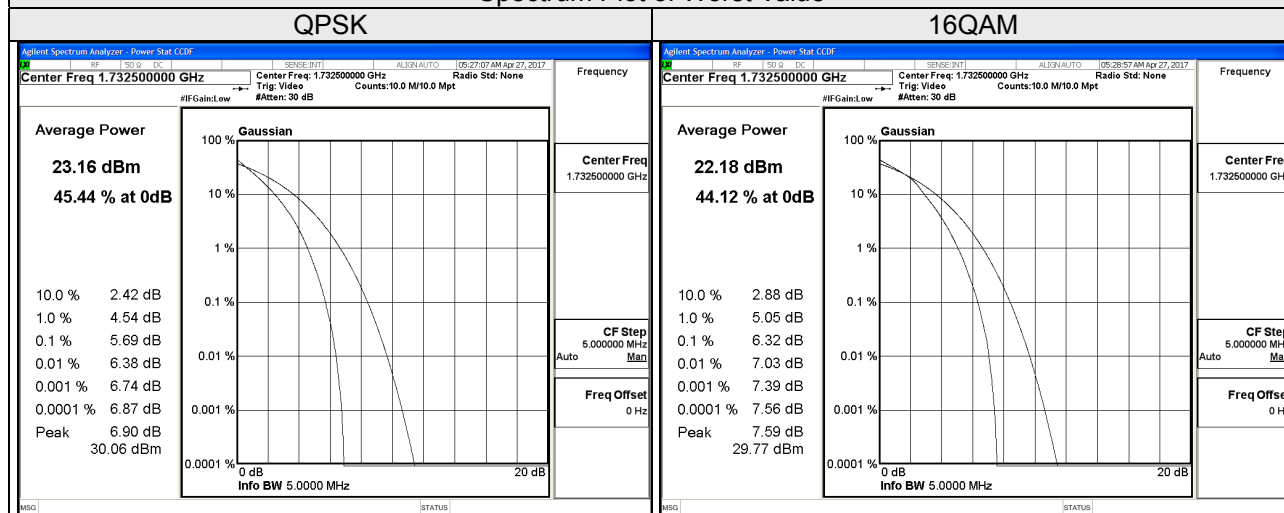
| Channel Bandwidth: 3MHz |                 |                            |       |
|-------------------------|-----------------|----------------------------|-------|
| Channel                 | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|                         |                 | QPSK                       | 16QAM |
| 19965                   | 1711.5          | 5.45                       | 6.19  |
| 20175                   | 1732.5          | 5.68                       | 6.45  |
| 20385                   | 1753.5          | 5.41                       | 6.19  |



### Channel Bandwidth: 5MHz

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |
| 19975   | 1712.5          | 5.58                       | 6.20  |
| 20175   | 1732.5          | 5.69                       | 6.32  |
| 20375   | 1752.5          | 5.52                       | 6.14  |

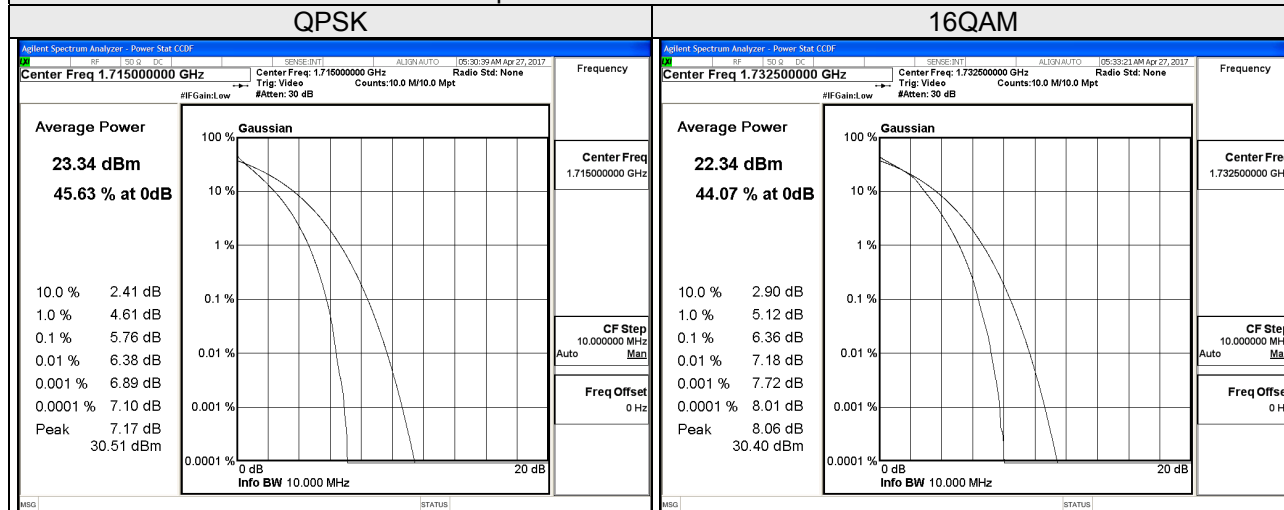
### Spectrum Plot of Worst Value



### Channel Bandwidth: 10MHz

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |
| 20000   | 1715.0          | 5.76                       | 6.33  |
| 20175   | 1732.5          | 5.73                       | 6.36  |
| 20350   | 1750.0          | 5.44                       | 6.04  |

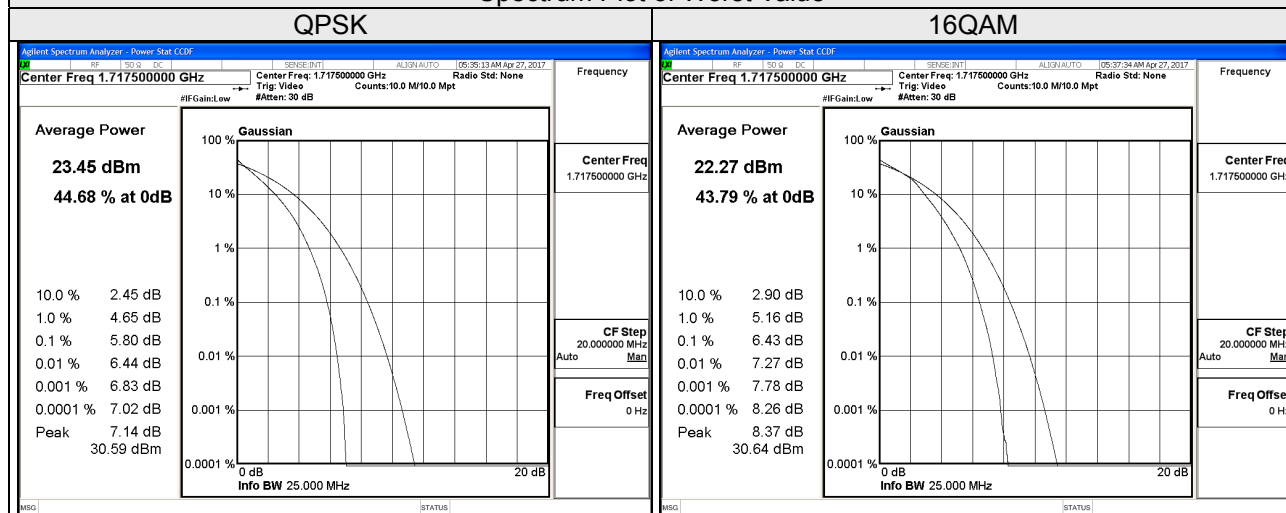
### Spectrum Plot of Worst Value



### Channel Bandwidth: 15MHz

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |
| 20025   | 1717.5          | 5.80                       | 6.43  |
| 20175   | 1732.5          | 5.66                       | 6.30  |
| 20325   | 1747.5          | 5.24                       | 5.89  |

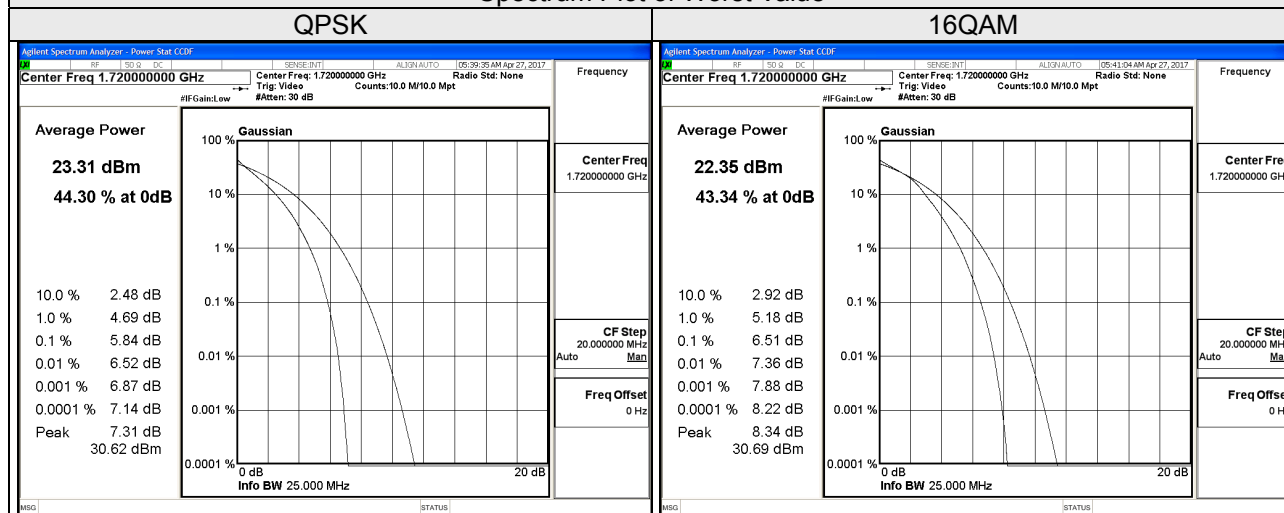
### Spectrum Plot of Worst Value



### Channel Bandwidth: 20MHz

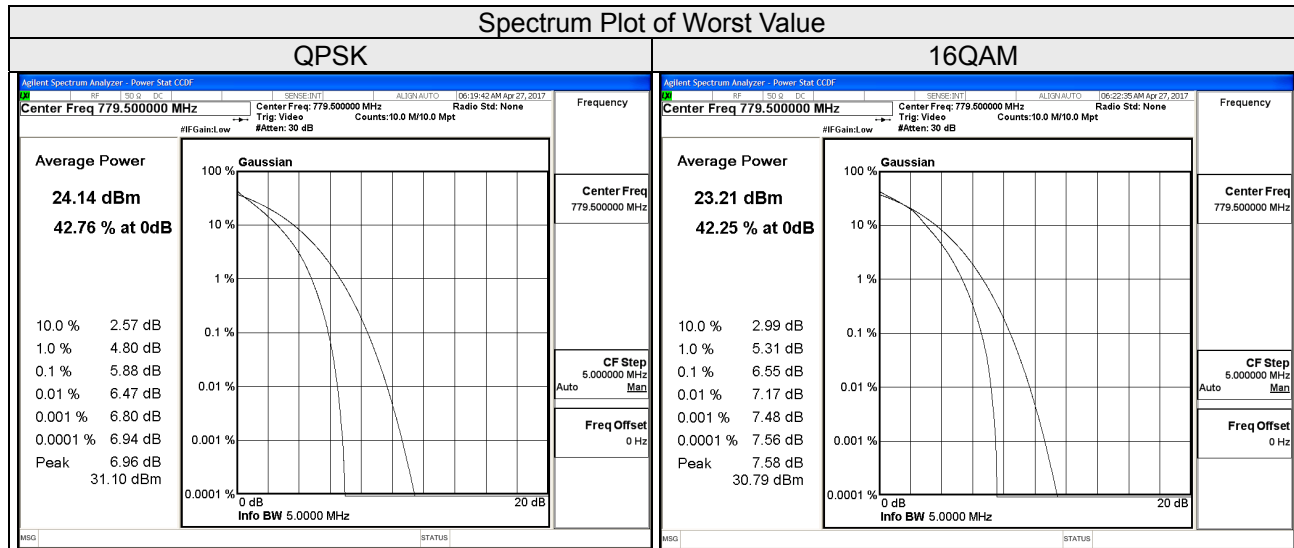
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |
| 20050   | 1720.0          | 5.84                       | 6.51  |
| 20175   | 1732.5          | 5.62                       | 6.35  |
| 20300   | 1745.0          | 5.36                       | 6.05  |

### Spectrum Plot of Worst Value

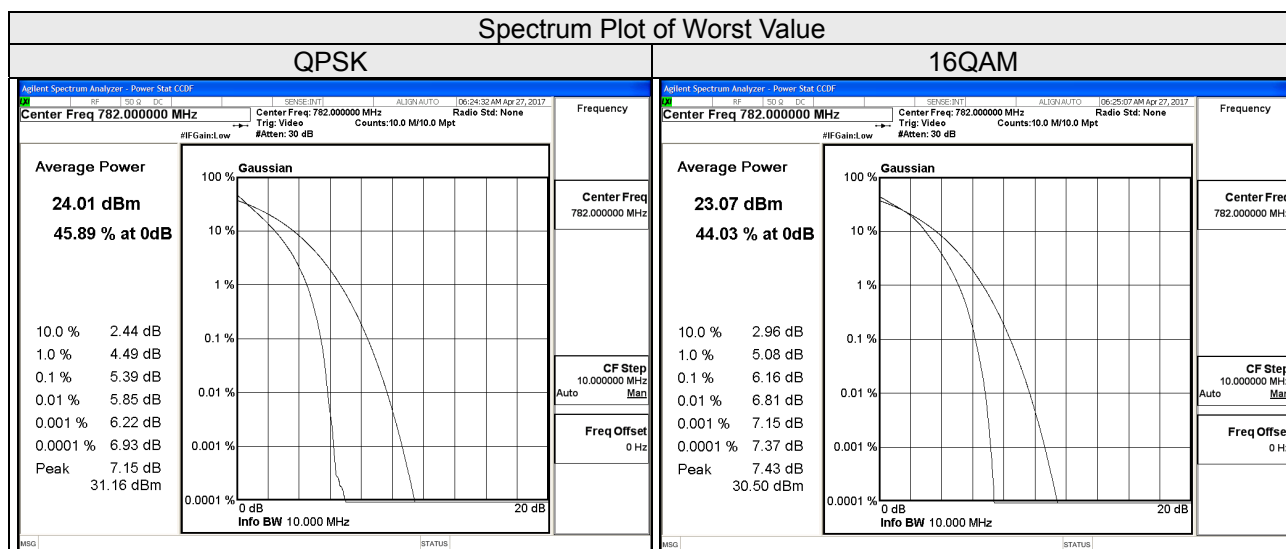


# LTE Band 13

| Channel Bandwidth: 5MHz |                 |                            |       |
|-------------------------|-----------------|----------------------------|-------|
| Channel                 | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|                         |                 | QPSK                       | 16QAM |
| 23205                   | 779.5           | 5.88                       | 6.55  |
| 23230                   | 782.0           | 5.73                       | 6.47  |
| 23255                   | 784.5           | 5.12                       | 5.85  |

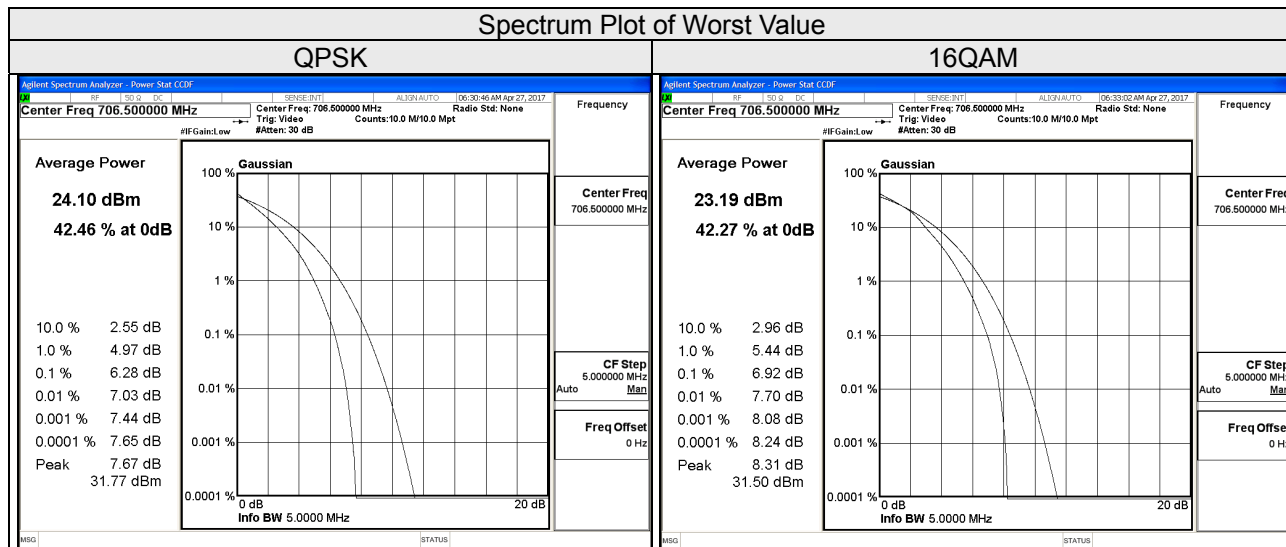


| Channel Bandwidth: 10MHz |                 |                            |       |
|--------------------------|-----------------|----------------------------|-------|
| Channel                  | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|                          |                 | QPSK                       | 16QAM |
| 23230                    | 782.0           | 5.39                       | 6.16  |



# LTE Band 17

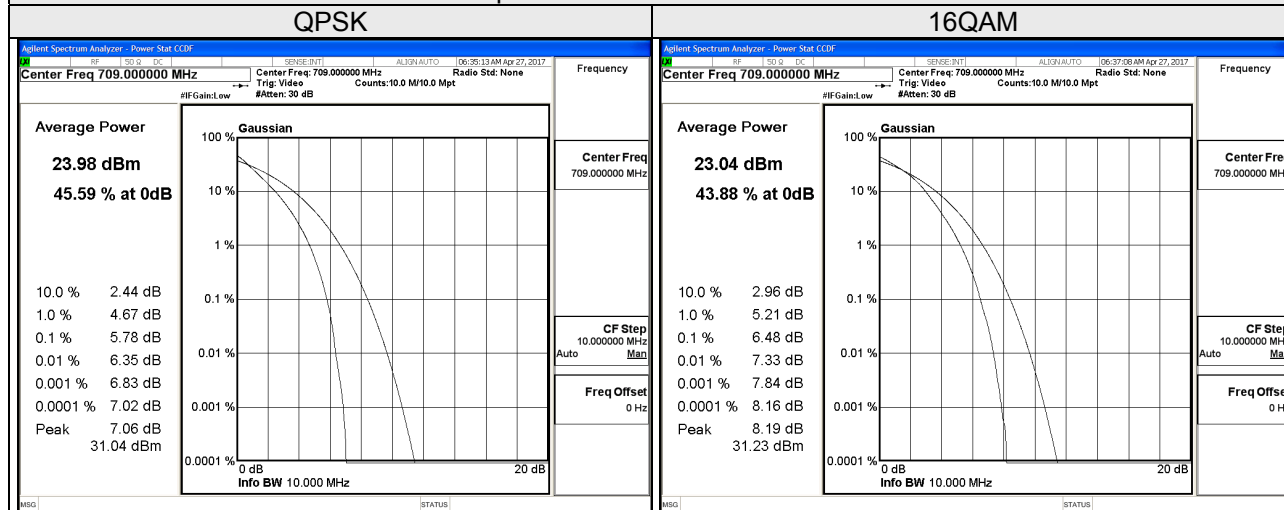
| Channel Bandwidth: 5MHz |                 |                            |       |
|-------------------------|-----------------|----------------------------|-------|
| Channel                 | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|                         |                 | QPSK                       | 16QAM |
| 23755                   | 706.5           | 6.28                       | 6.92  |
| 23790                   | 710.0           | 5.72                       | 6.41  |
| 23825                   | 713.5           | 5.55                       | 6.17  |



### Channel Bandwidth: 10MHz

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |
| 23780   | 709.0           | 5.78                       | 6.48  |
| 23790   | 710.0           | 5.72                       | 6.41  |
| 23800   | 711.0           | 5.71                       | 6.39  |

### Spectrum Plot of Worst Value



## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions Measurement

For WCDMA Band 4, LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

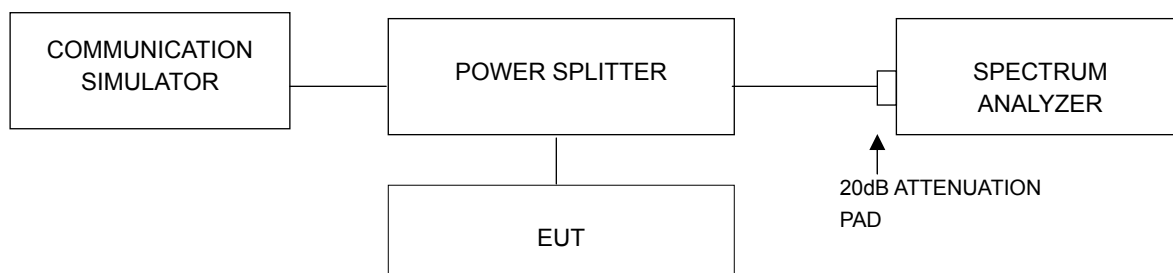
For LTE Band 13

According to FCC 27.53(c) (2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB.

For LTE Band 17

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 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.

### 4.7.2 Test Setup



### 4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 20GHz for WCDMA Band 4, LTE Band 4 and 9kHz to 9GHz for LTE Band 13 & 17, it shall be connected to the 20dB pad attenuated the carried frequency. The spectrum set RB = 1MHz, VB = 3MHz.

#### 4.7.4 Test Results

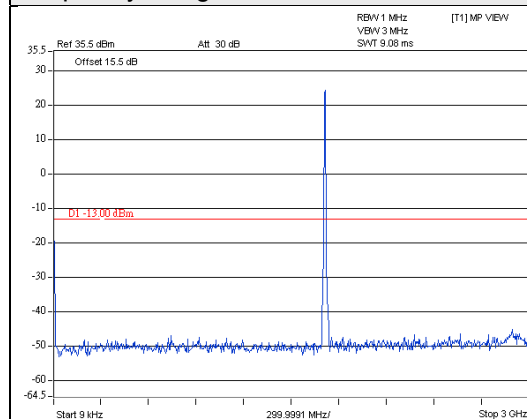
WCDMA Band 4

WCDMA

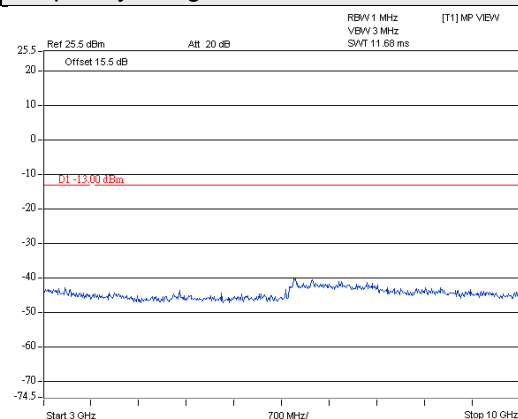
Channel 1312 (1712.4MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

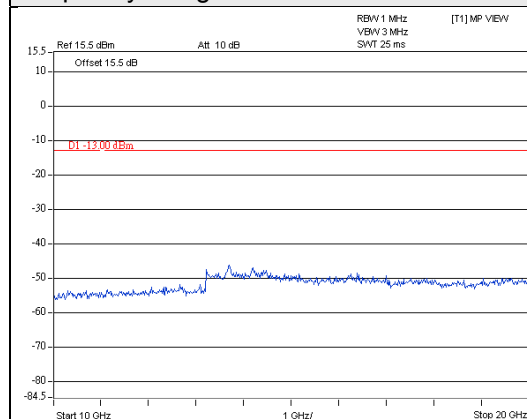


A D T



A D T

Frequency Range : 10GHz~20GHz



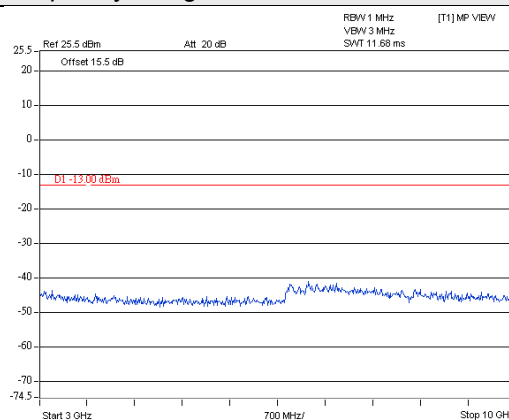
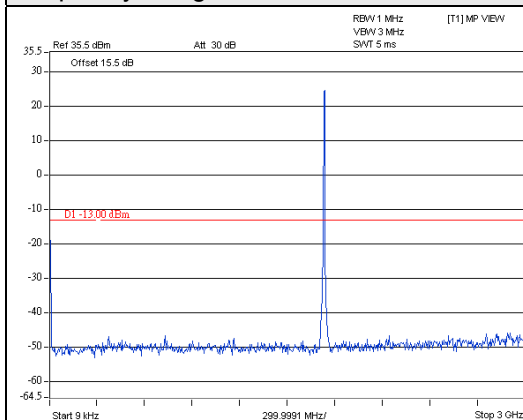
A D T

# WCDMA

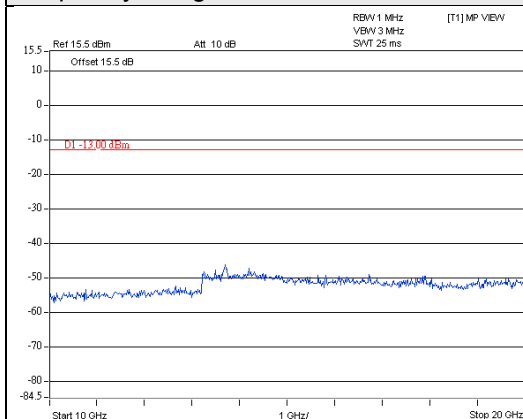
Channel 1413 (1732.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

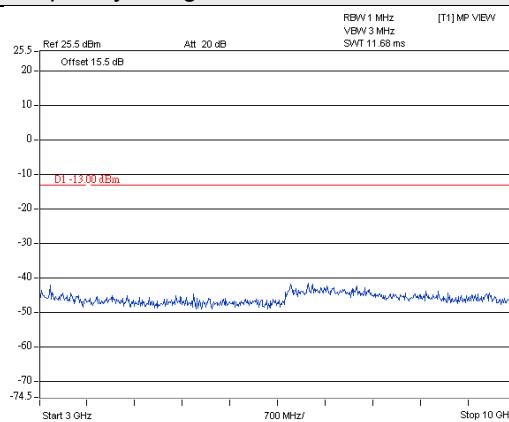
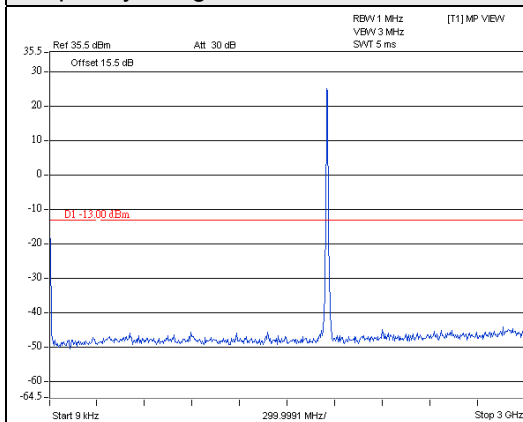


# WCDMA

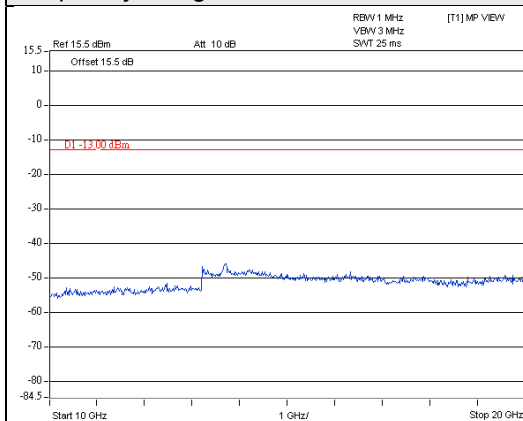
Channel 1513 (1752.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

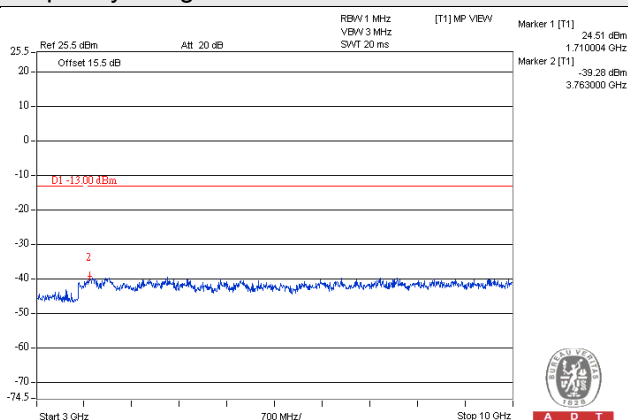
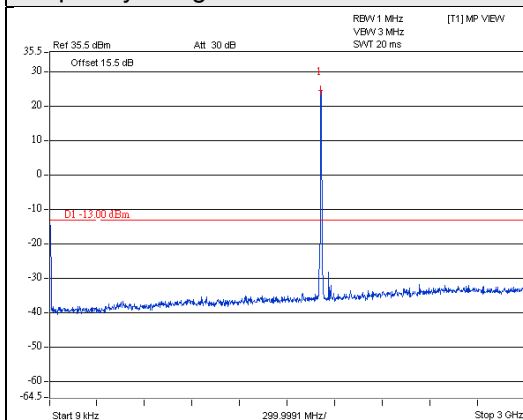


# HSDPA

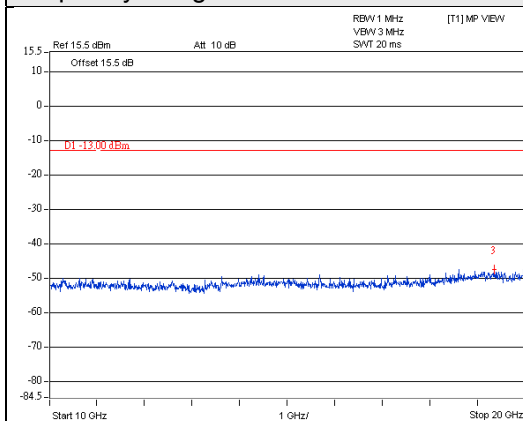
Channel 1312 (1712.4MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

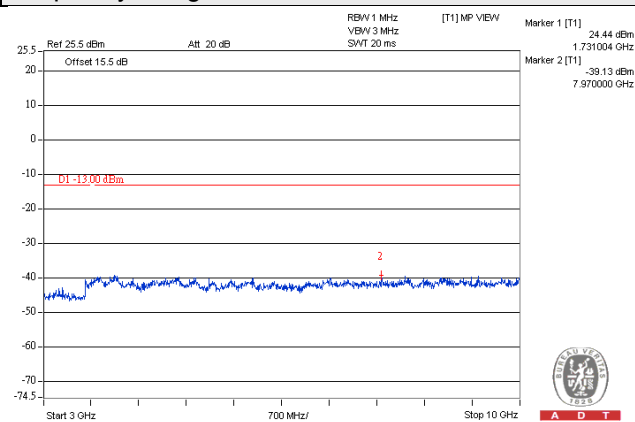
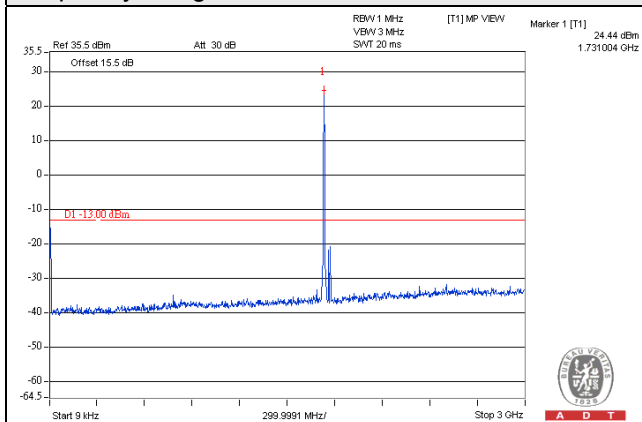


# HSDPA

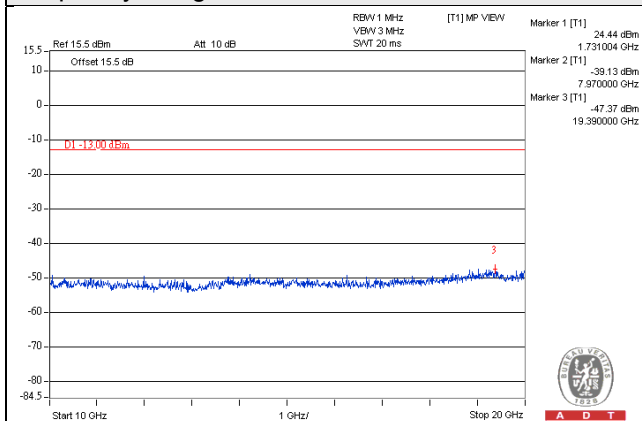
Channel 1413 (1732.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

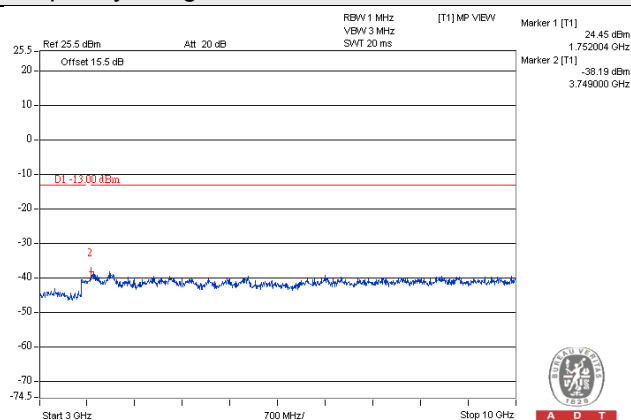
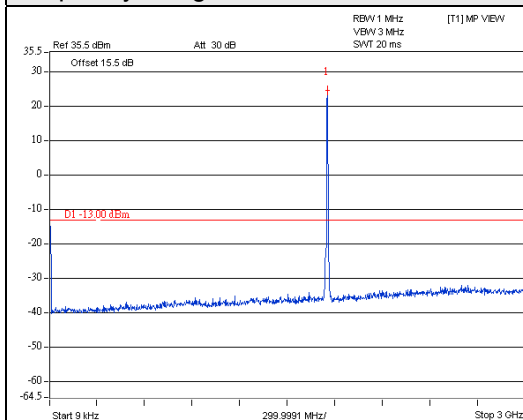


# HSDPA

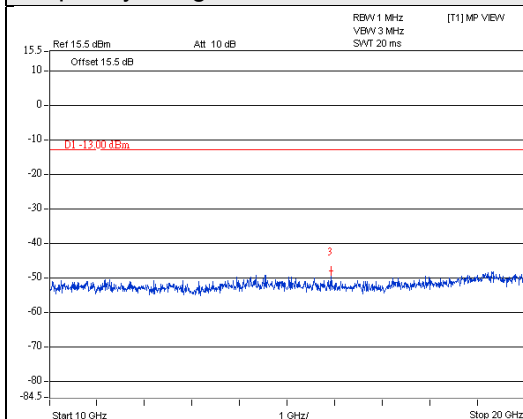
Channel 1513 (1752.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

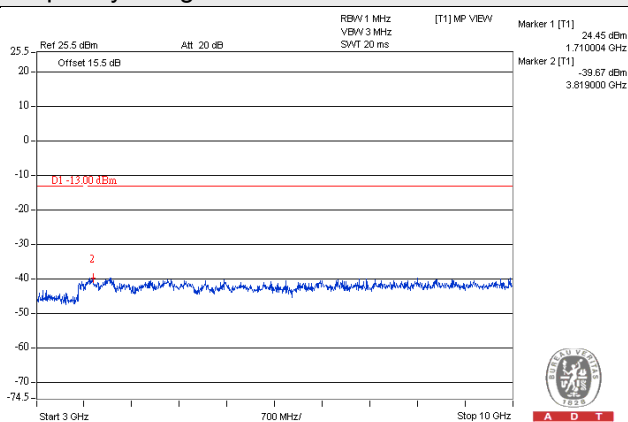
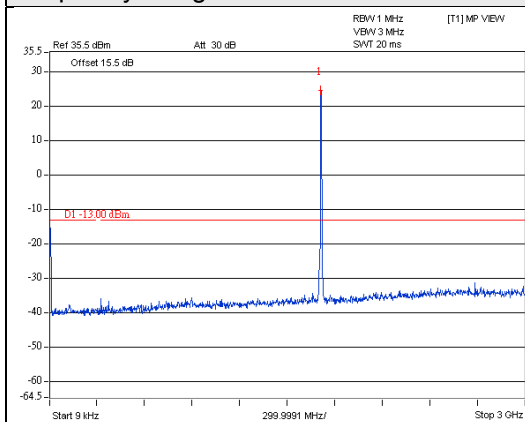


# HSUPA

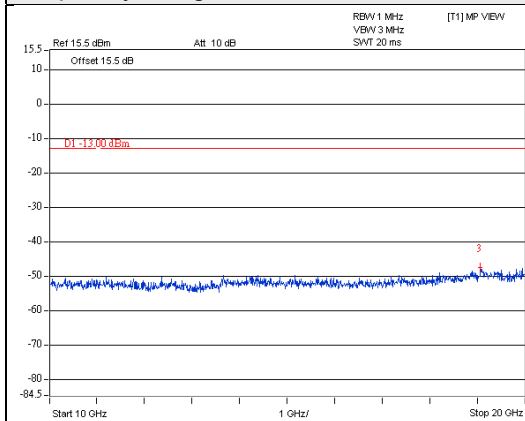
Channel 1312 (1712.4MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

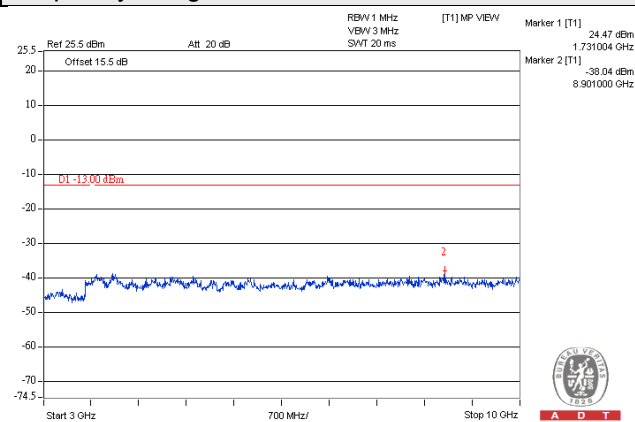
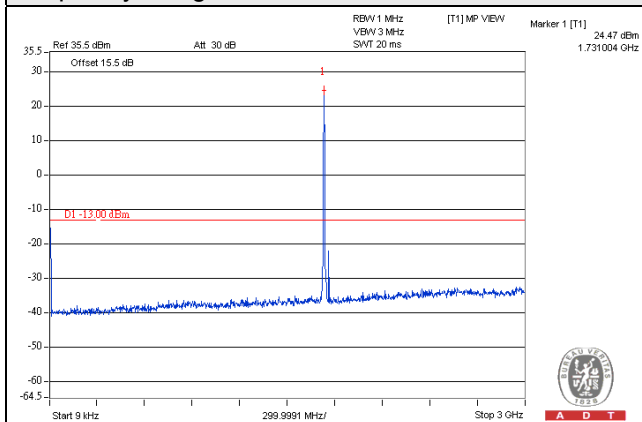


# HSUPA

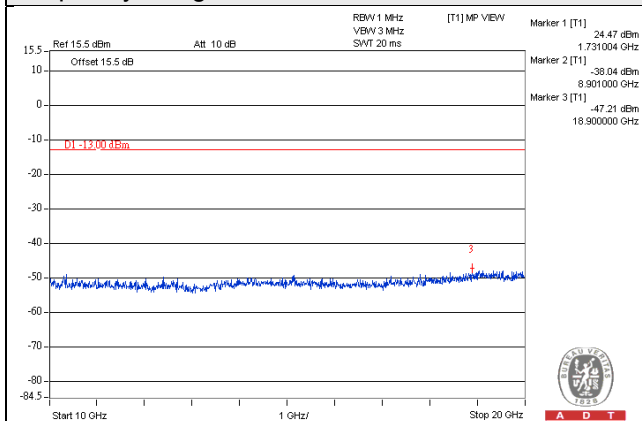
Channel 1413 (1732.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

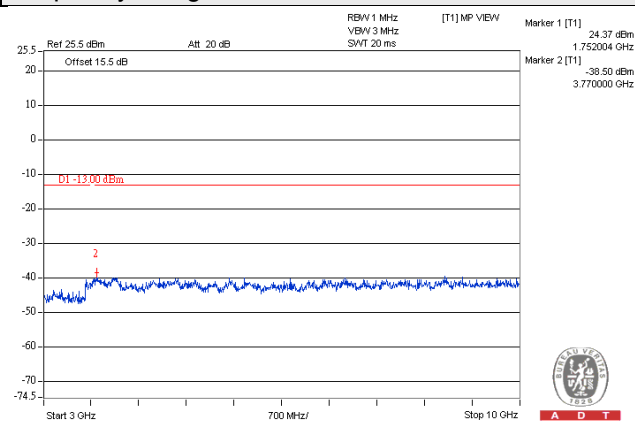
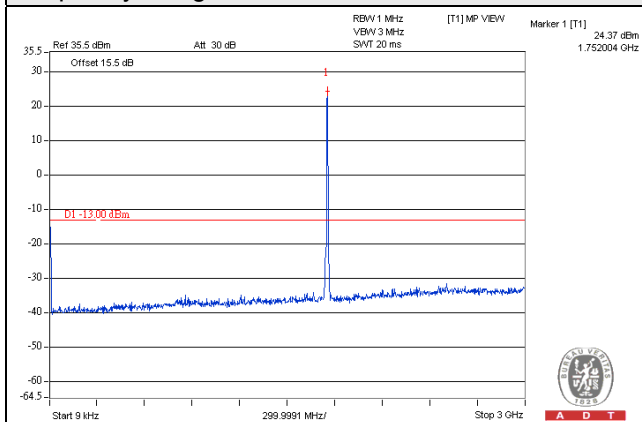


# HSUPA

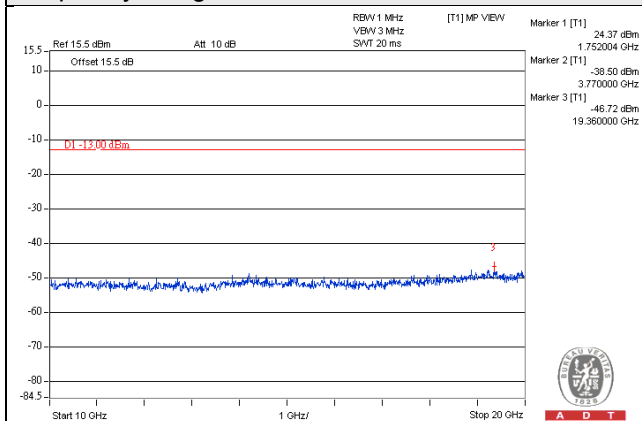
Channel 1513 (1752.6MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz



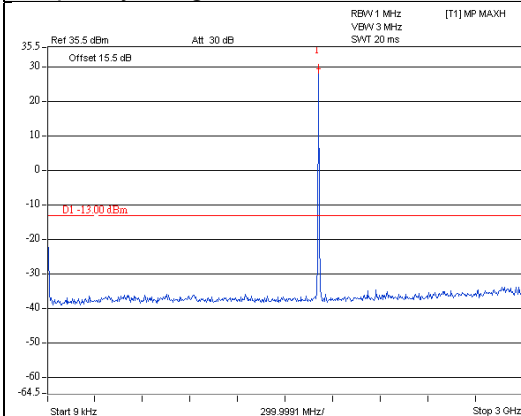
# LTE Band 4

Channel Bandwidth: 1.4MHz

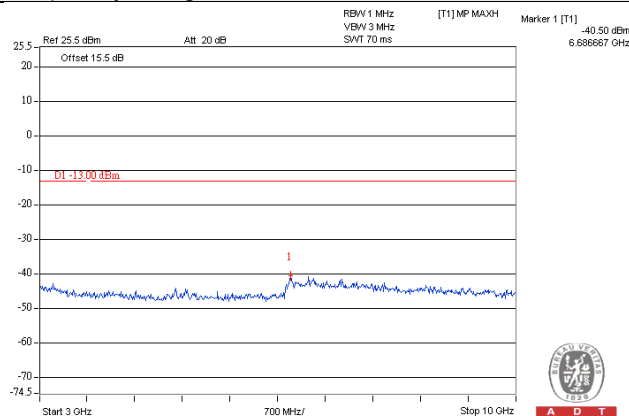
Channel 19957 (1710.7MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

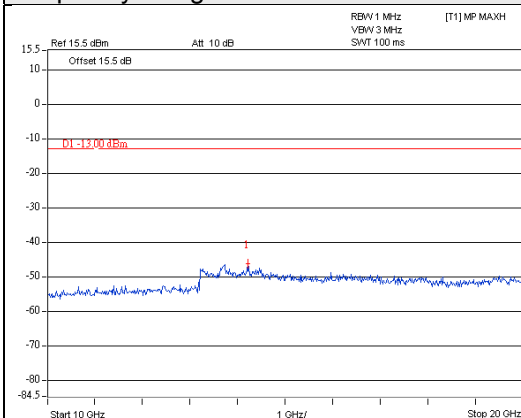


A D T



A D T

Frequency Range : 10GHz~20GHz



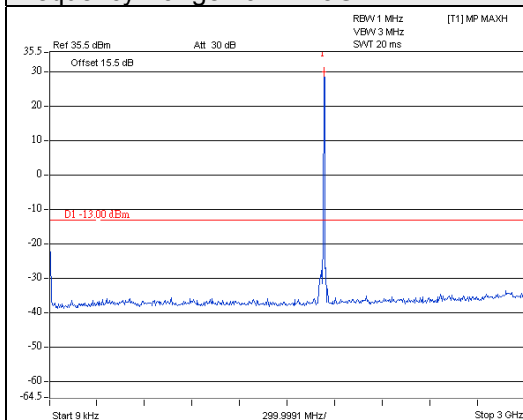
A D T

Channel Bandwidth: 1.4MHz

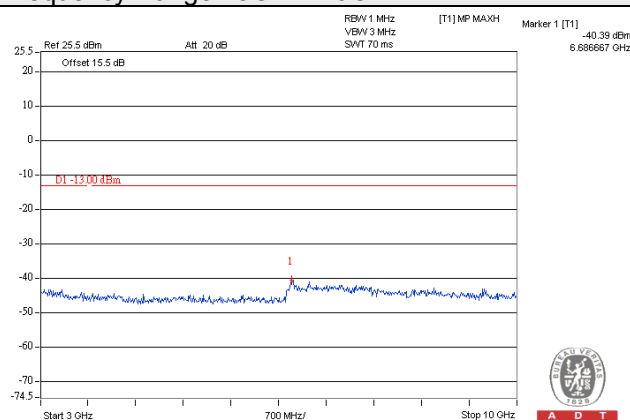
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

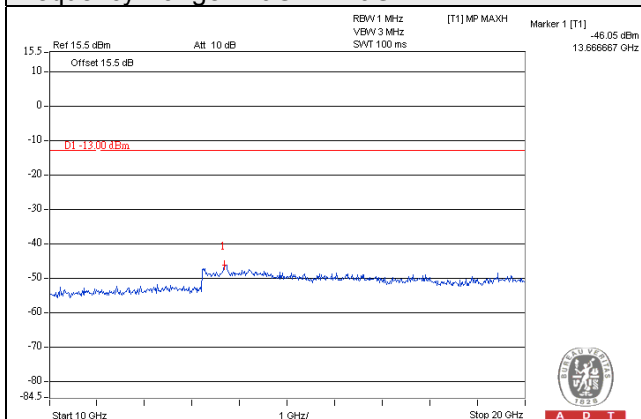


A D T



A D T

Frequency Range : 10GHz~20GHz



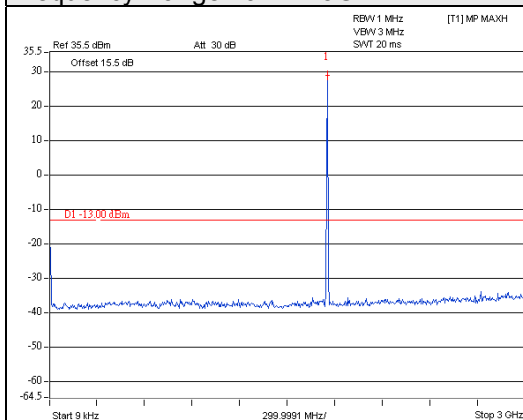
A D T

Channel Bandwidth: 1.4MHz

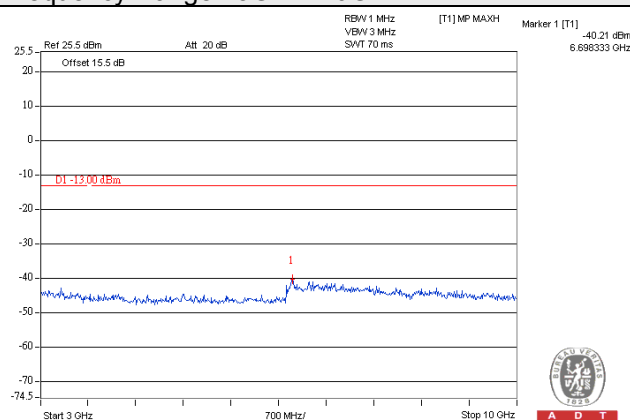
Channel 20393 (1754.3MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

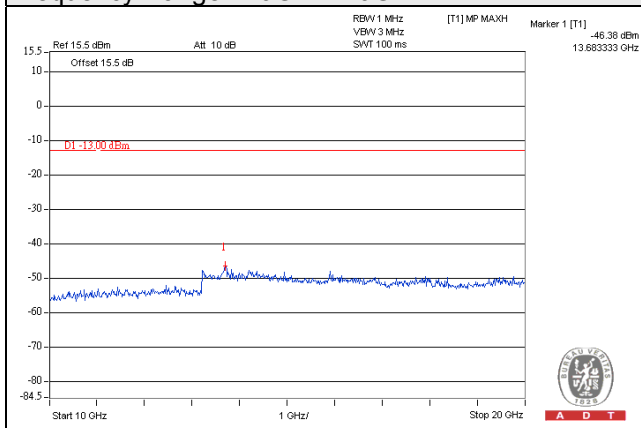


A D T



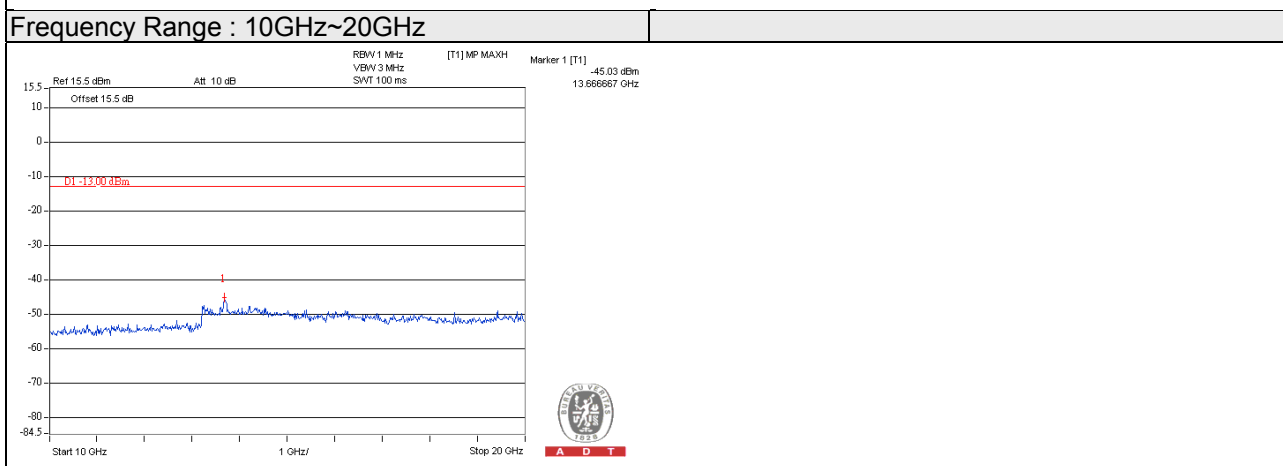
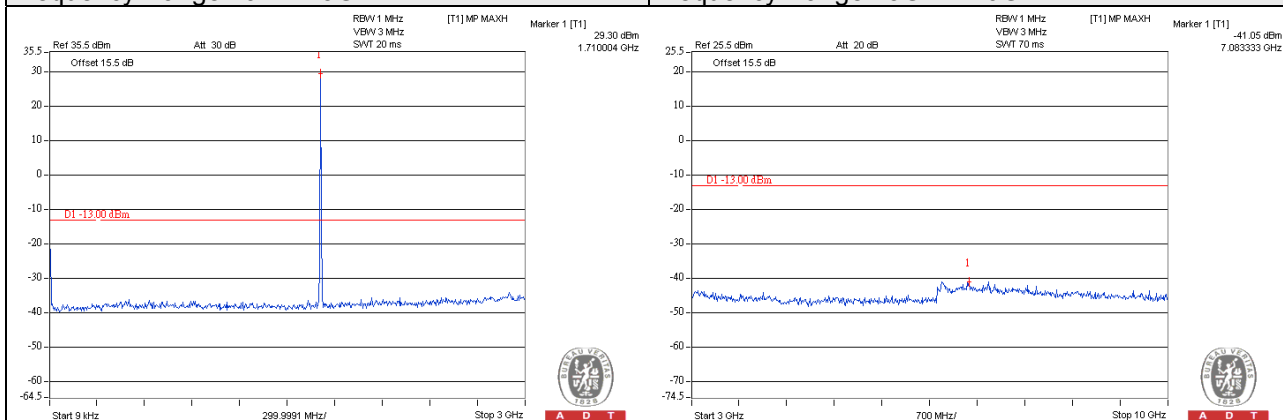
A D T

Frequency Range : 10GHz~20GHz

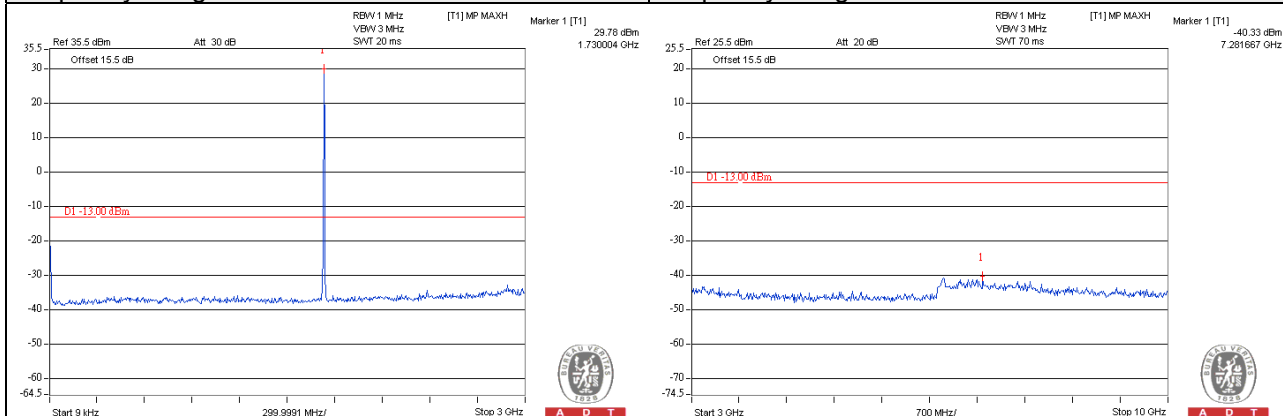


A D T

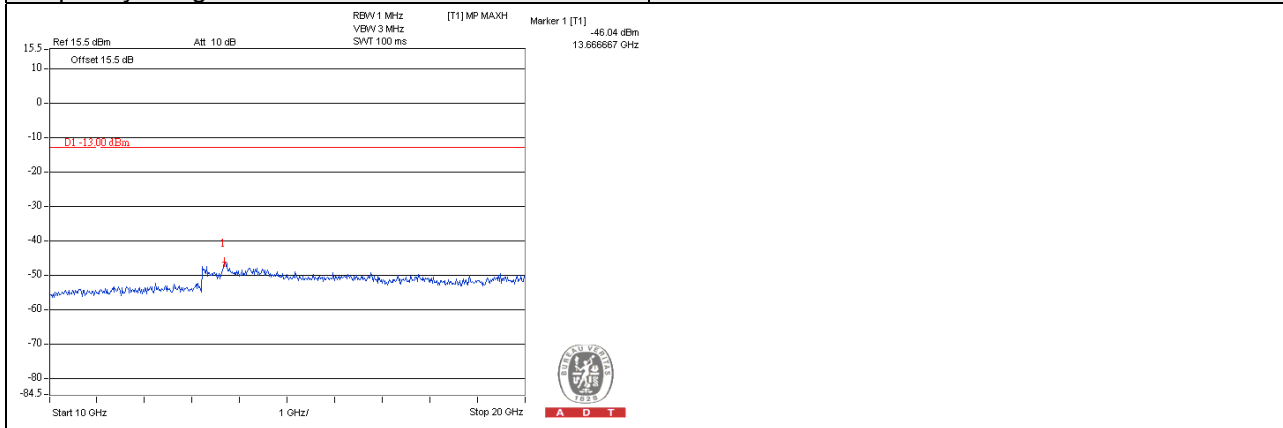
|                             |                              |
|-----------------------------|------------------------------|
| Channel Bandwidth: 3MHz     |                              |
| Channel 19965 (1711.5MHz)   |                              |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |



|                             |                              |
|-----------------------------|------------------------------|
| Channel Bandwidth: 3MHz     |                              |
| Channel 20175 (1732.5MHz)   |                              |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |



|                               |
|-------------------------------|
| Frequency Range : 10GHz~20GHz |
|-------------------------------|

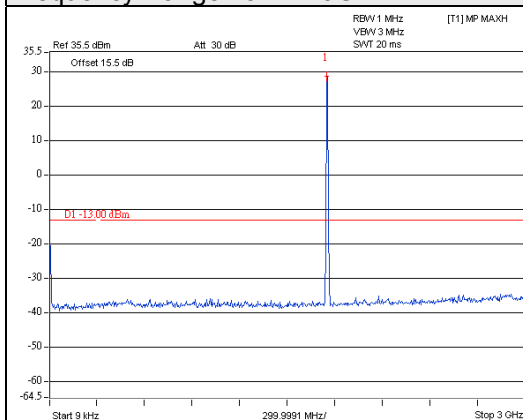


Channel Bandwidth: 3MHz

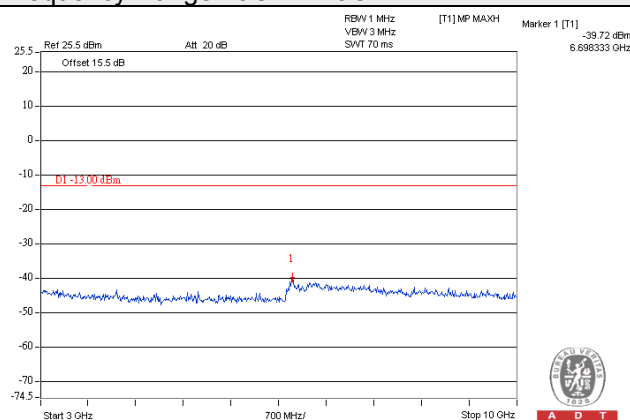
Channel 20385 (1753.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

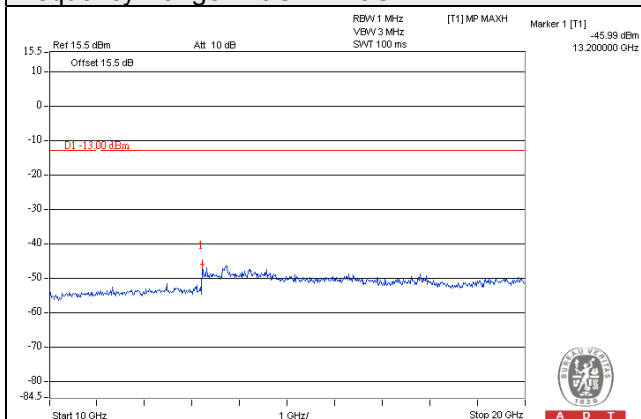


A D T



A D T

Frequency Range : 10GHz~20GHz



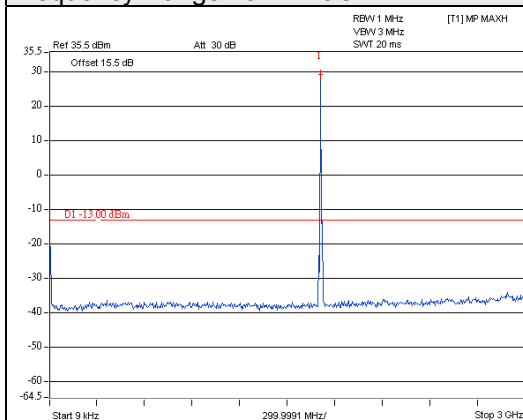
A D T

Channel Bandwidth: 5MHz

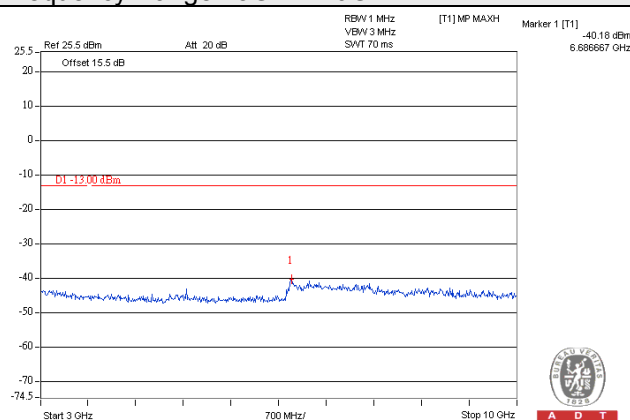
Channel 19975 (1712.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

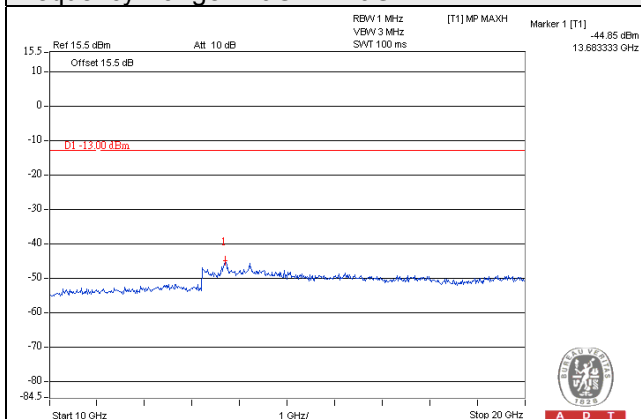


A D T



A D T

Frequency Range : 10GHz~20GHz



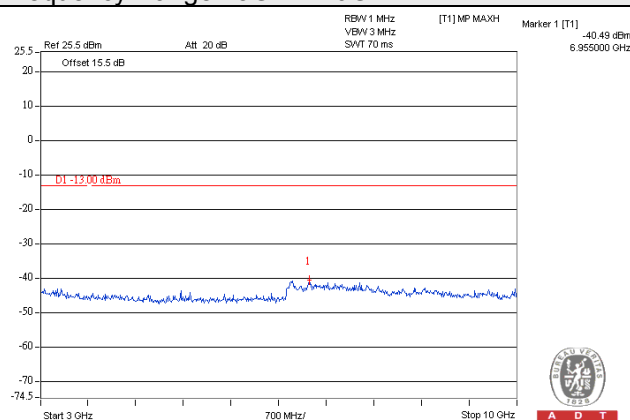
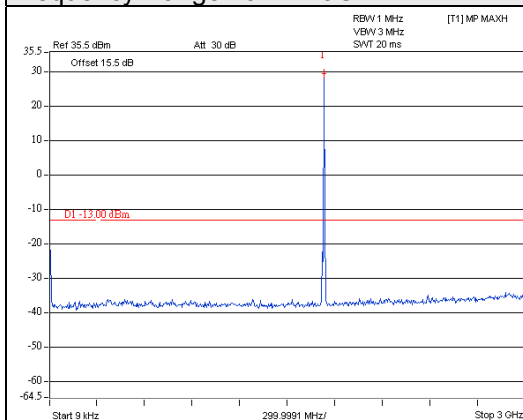
A D T

Channel Bandwidth: 5MHz

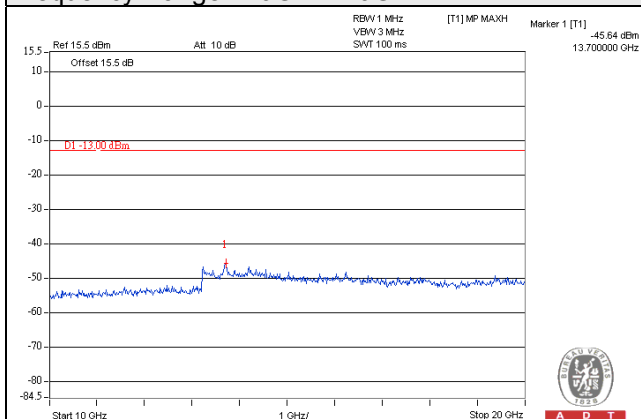
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

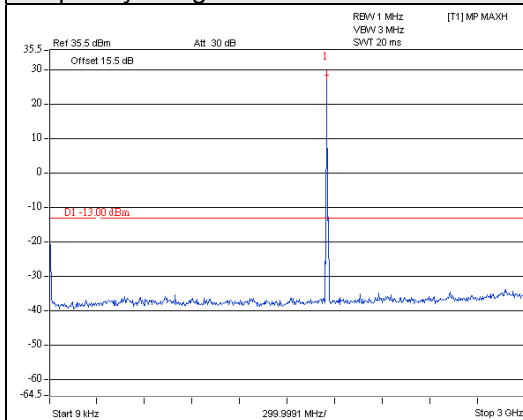


Channel Bandwidth: 5MHz

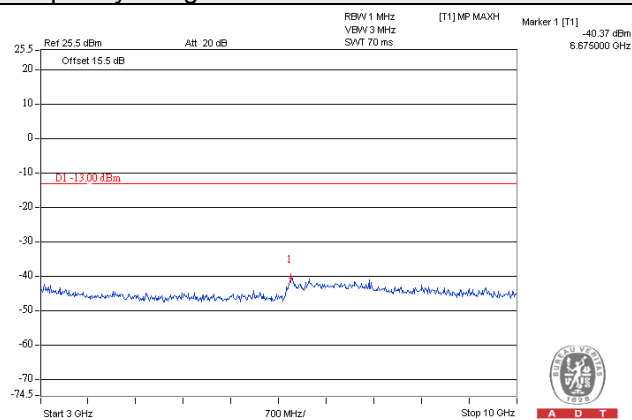
Channel 20375 (1752.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

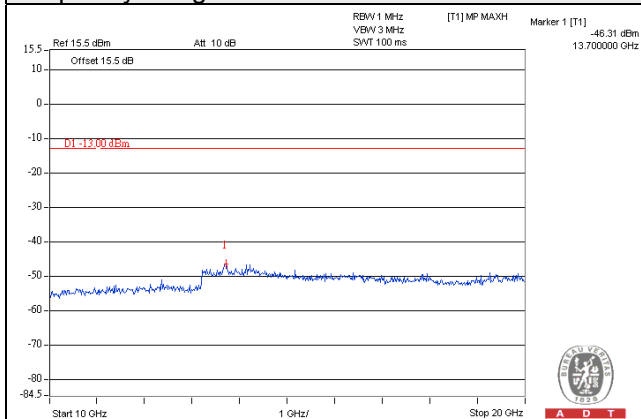


A D T



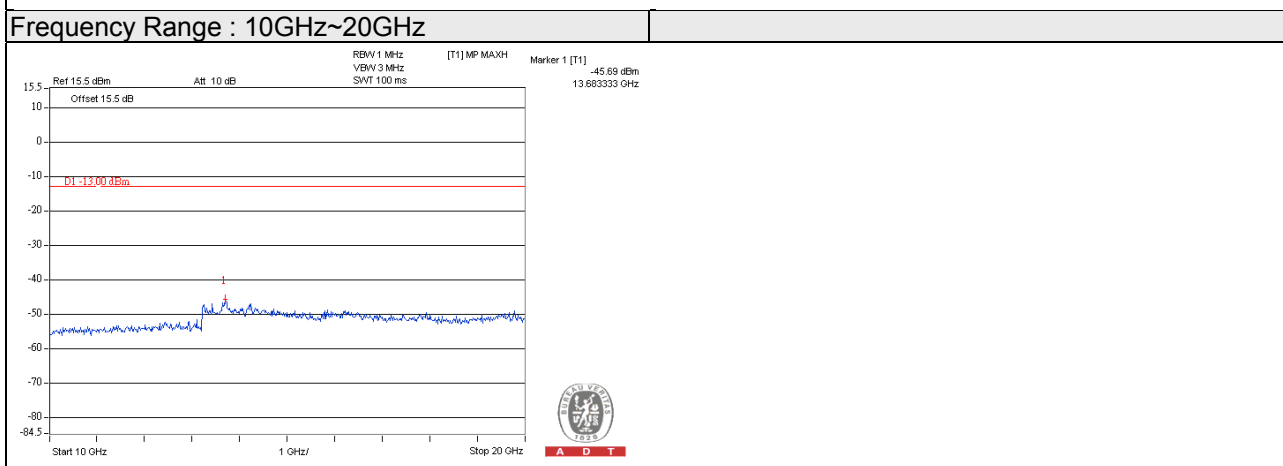
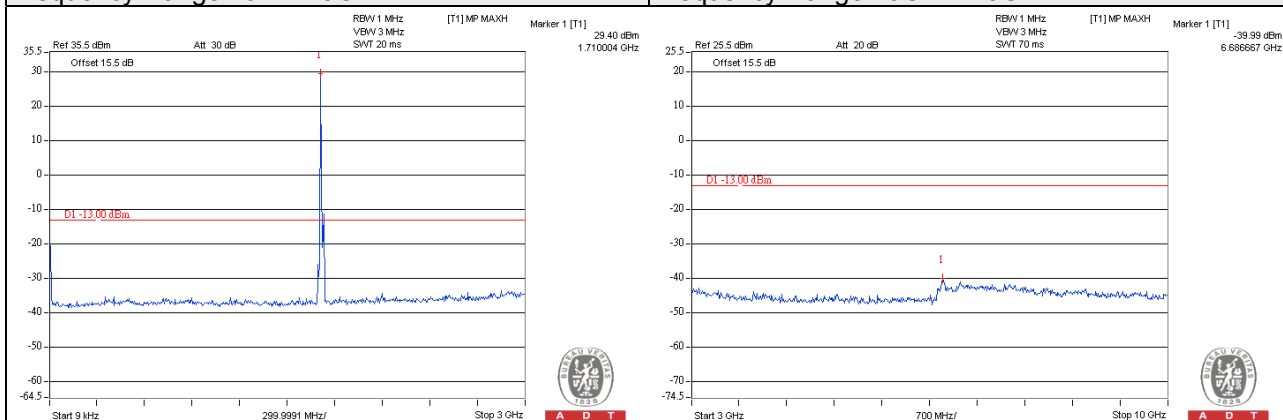
A D T

Frequency Range : 10GHz~20GHz



A D T

|                             |                              |
|-----------------------------|------------------------------|
| Channel Bandwidth: 10MHz    |                              |
| Channel 20000 (1715.0MHz)   |                              |
| Frequency Range : 9kHz~3GHz | Frequency Range : 3GHz~10GHz |

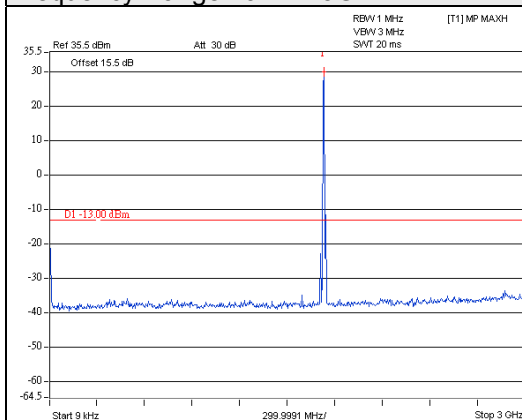


Channel Bandwidth: 10MHz

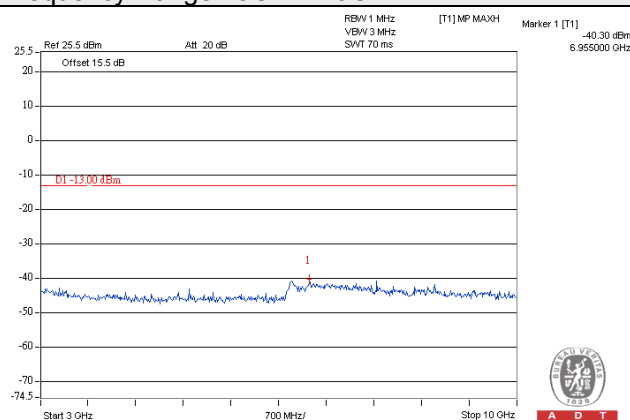
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

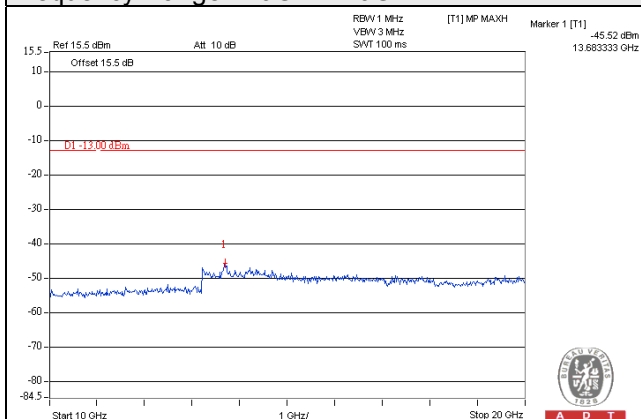


A D T



A D T

Frequency Range : 10GHz~20GHz



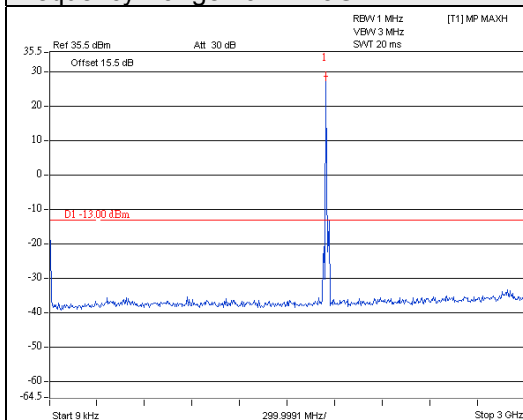
A D T

Channel Bandwidth: 10MHz

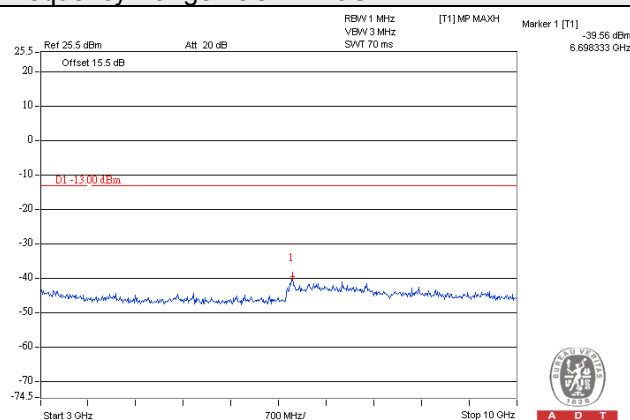
Channel 20350 (1750.0MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

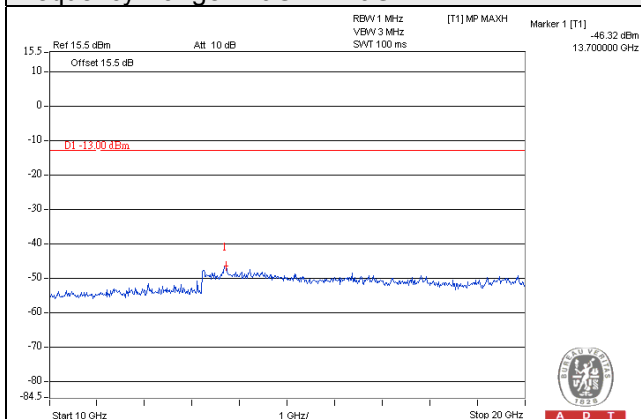


A D T



A D T

Frequency Range : 10GHz~20GHz



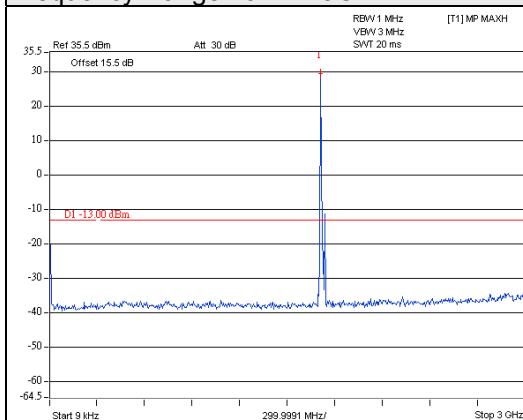
A D T

Channel Bandwidth: 15MHz

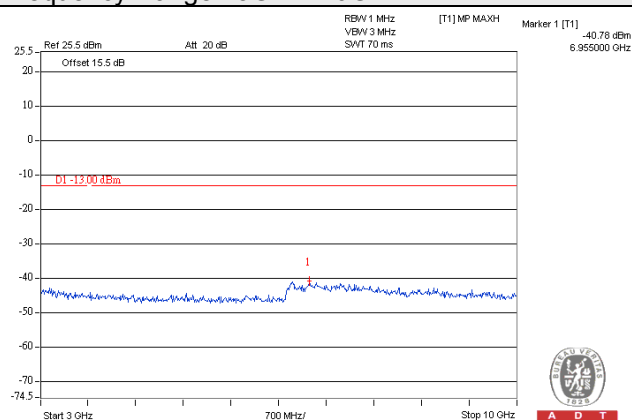
Channel 20025 (1717.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

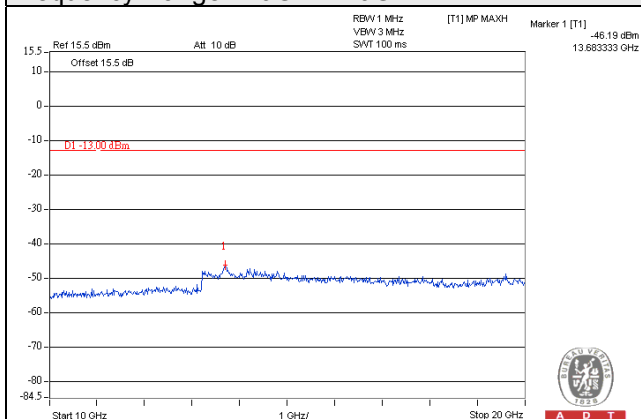


A D T



A D T

Frequency Range : 10GHz~20GHz



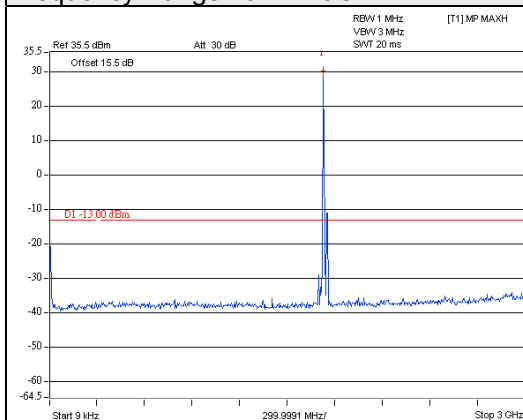
A D T

Channel Bandwidth: 15MHz

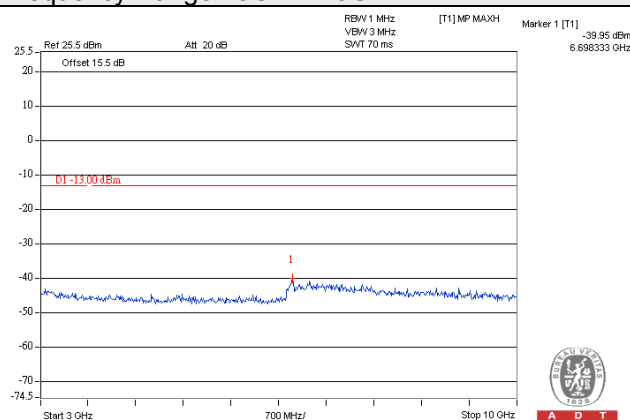
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

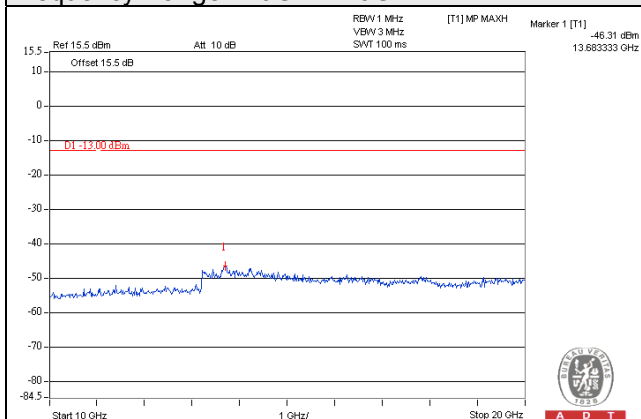


A D T



A D T

Frequency Range : 10GHz~20GHz



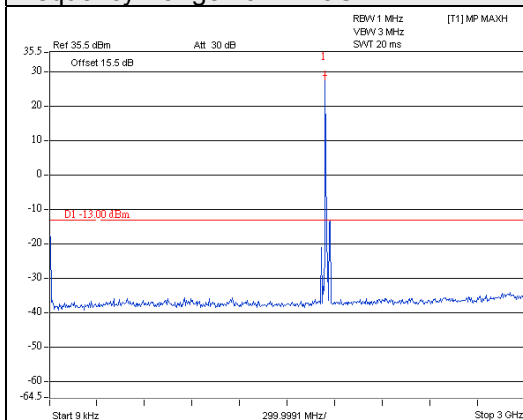
A D T

Channel Bandwidth: 15MHz

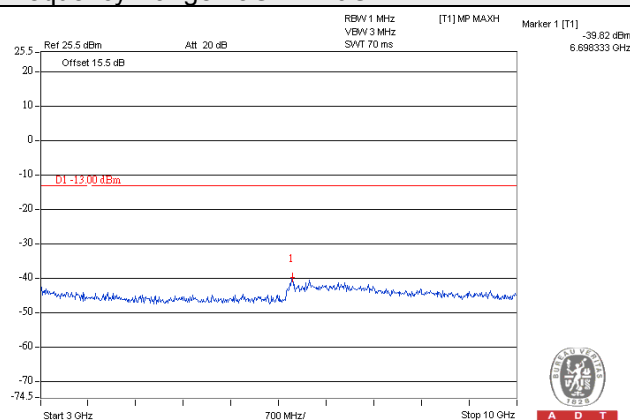
Channel 20325 (1747.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

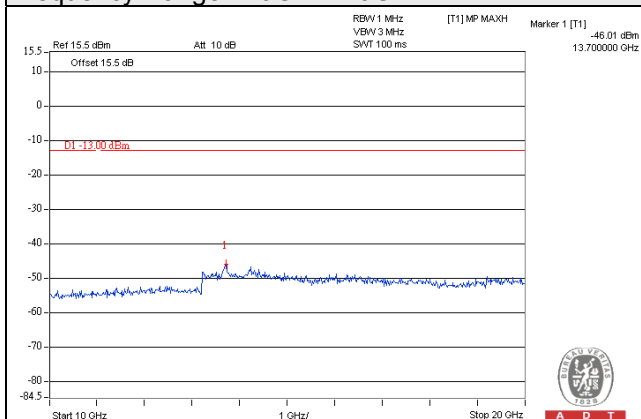


A D T



A D T

Frequency Range : 10GHz~20GHz



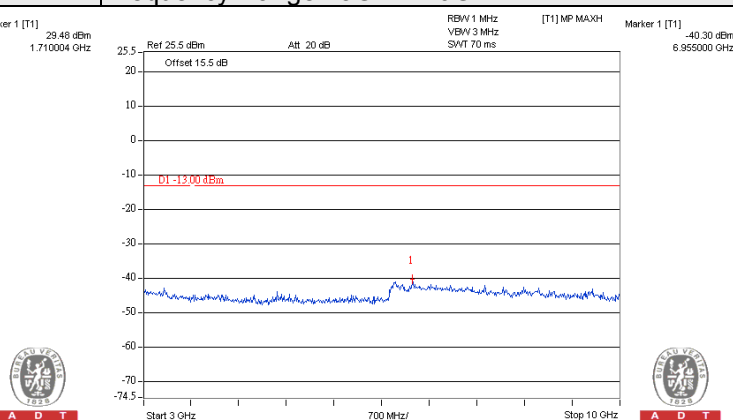
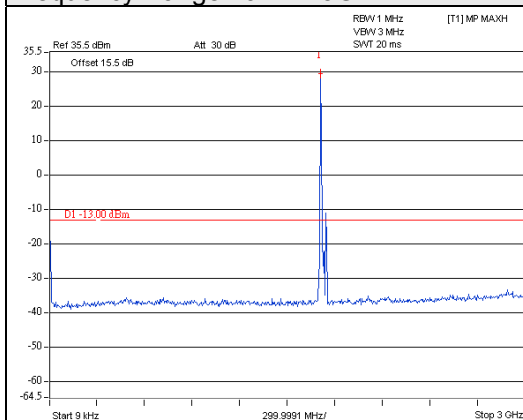
A D T

Channel Bandwidth: 20MHz

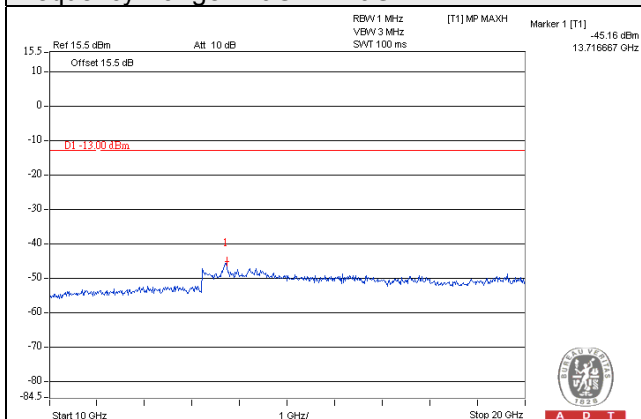
Channel 20050 (1720.0MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

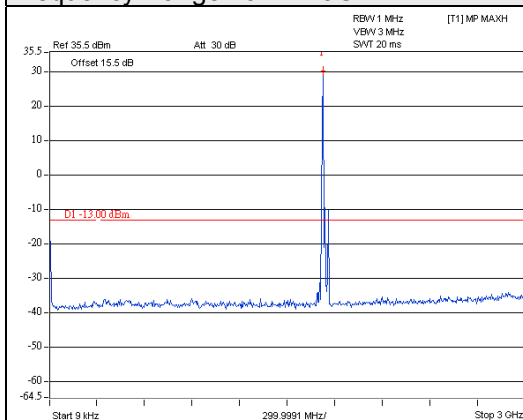


Channel Bandwidth: 20MHz

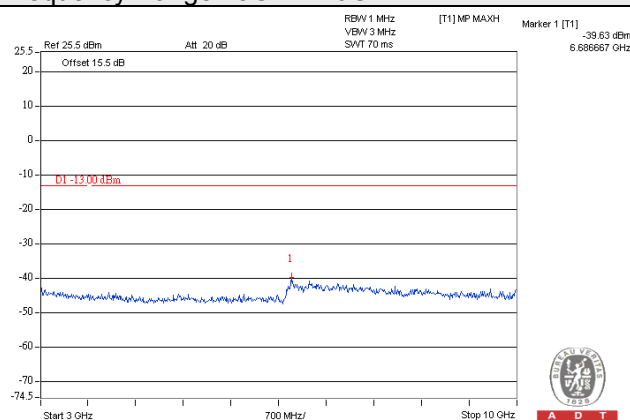
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

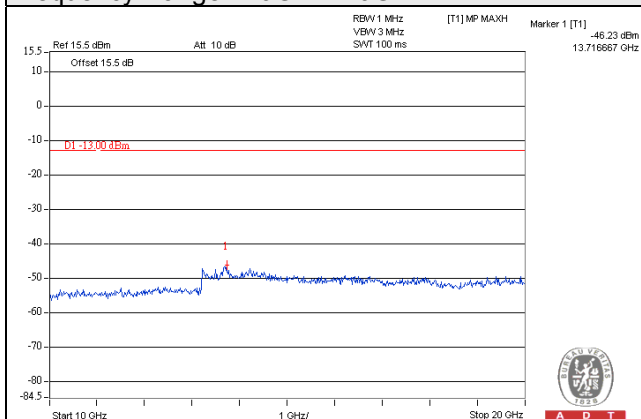


A D T



A D T

Frequency Range : 10GHz~20GHz



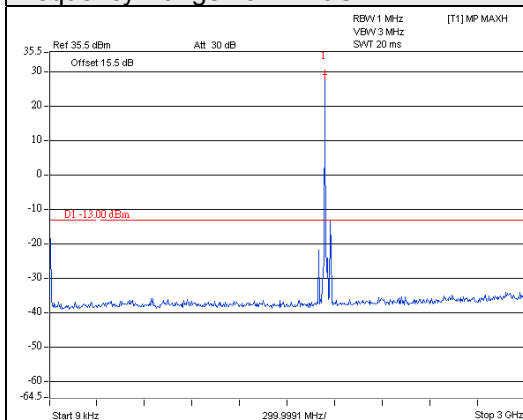
A D T

Channel Bandwidth: 20MHz

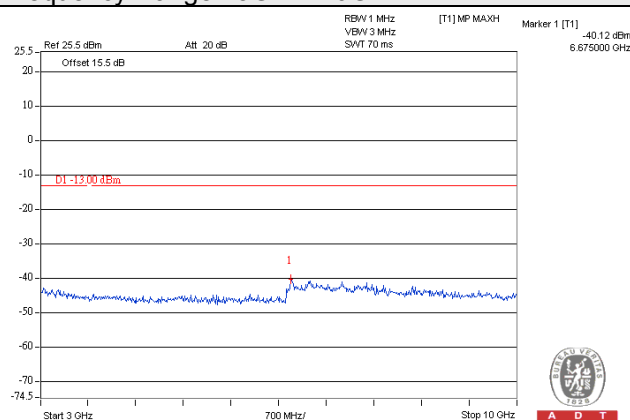
Channel 20300 (1745.0MHz)

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz

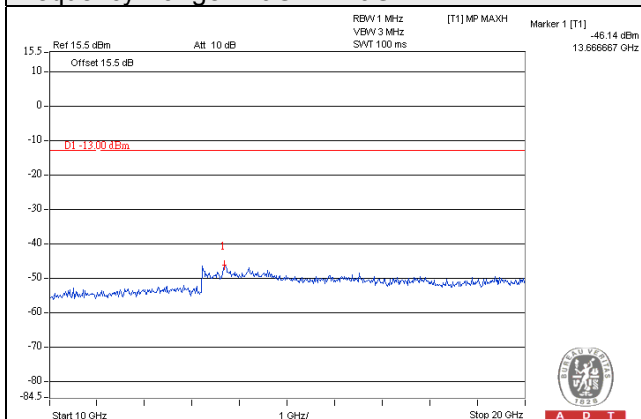


A D T



A D T

Frequency Range : 10GHz~20GHz



A D T

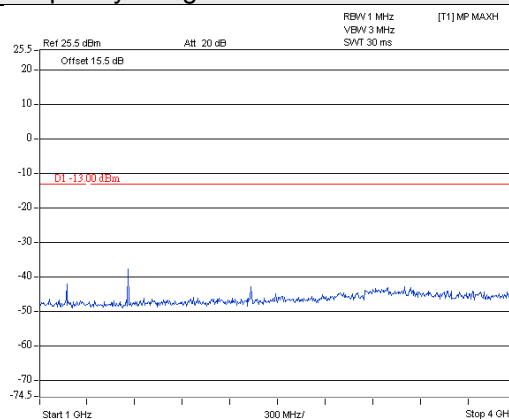
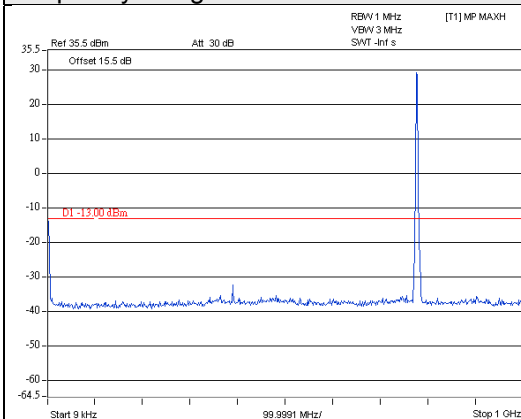
# LTE Band 13

Channel Bandwidth: 5MHz

Channel 23205 (779.5MHz)

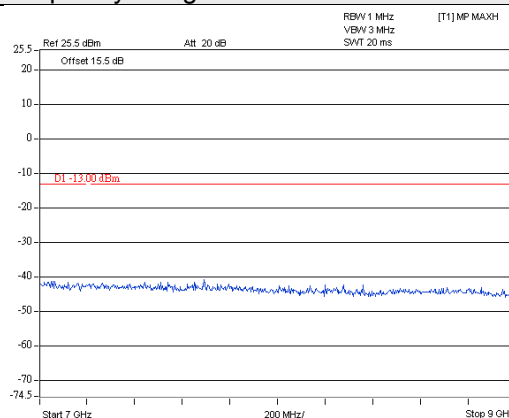
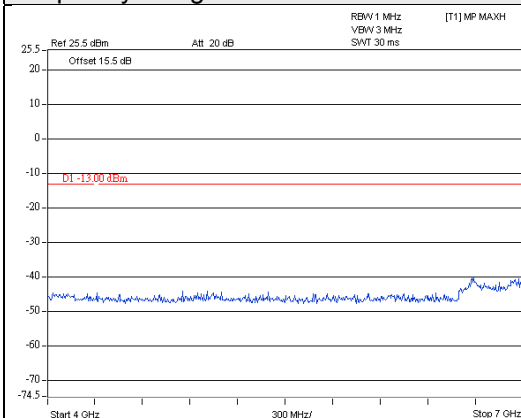
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz

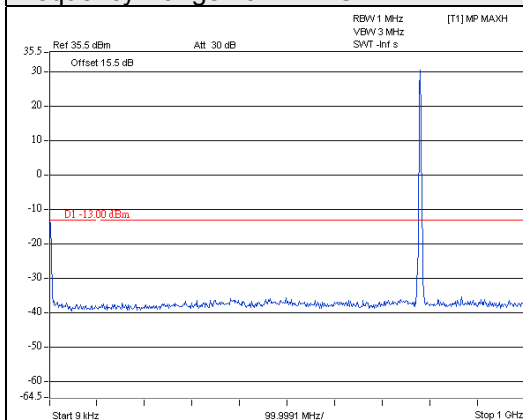


Channel Bandwidth: 5MHz

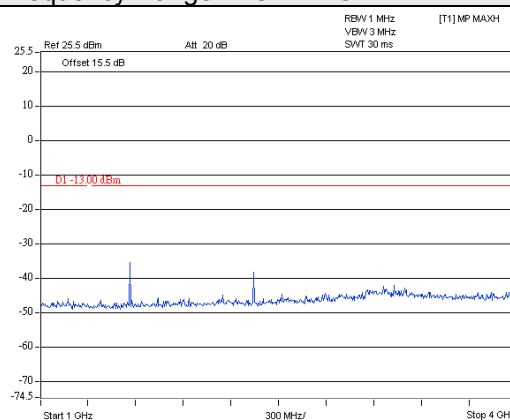
Channel 23230 (782.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



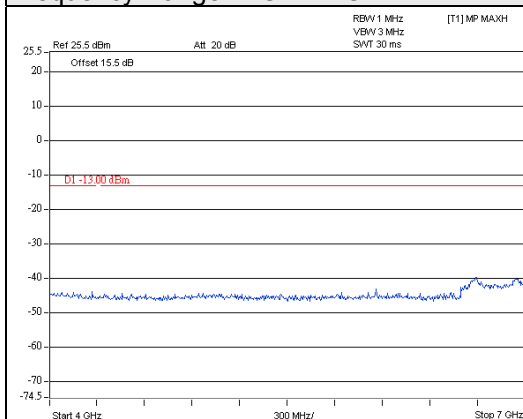
A D T



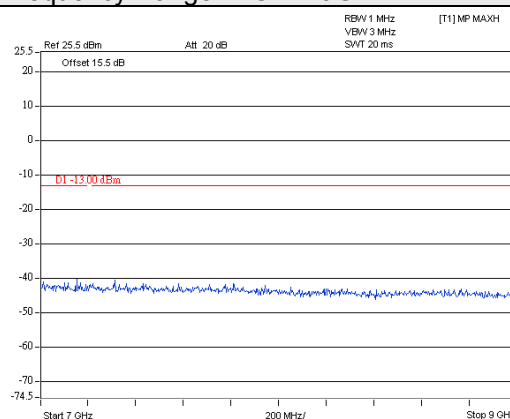
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz

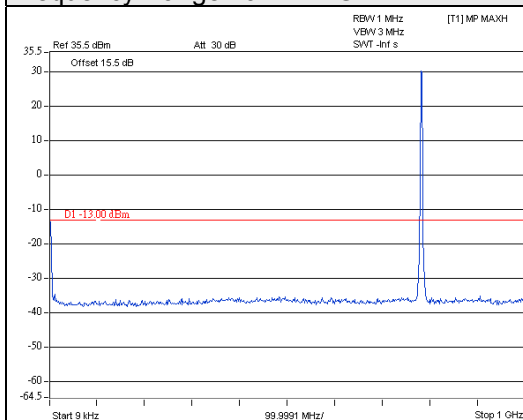


A D T

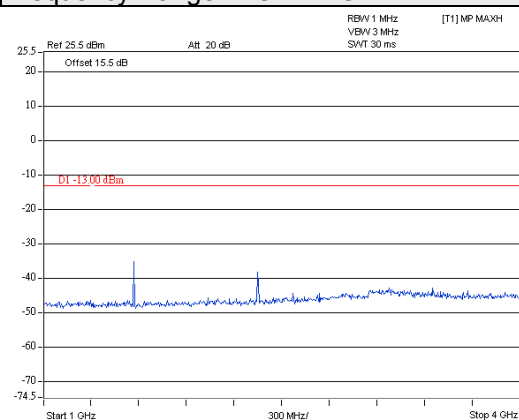


A D T

|                             |                             |
|-----------------------------|-----------------------------|
| Channel Bandwidth: 5MHz     |                             |
| Channel 23255 (784.5MHz)    |                             |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~4GHz |

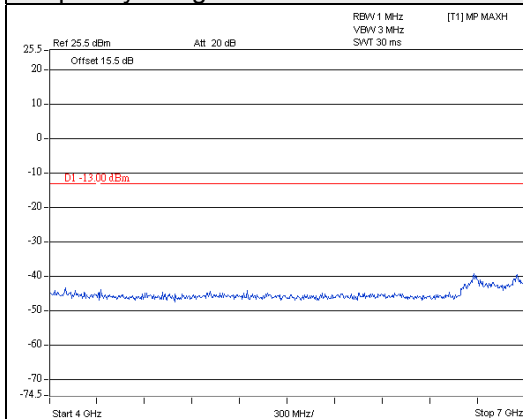


A D T

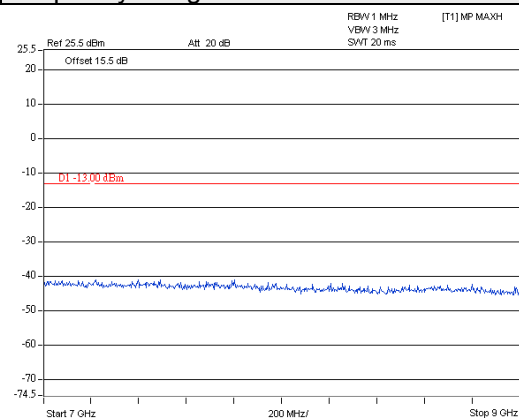


A D T

|                             |                             |
|-----------------------------|-----------------------------|
| Frequency Range : 4GHz~7GHz | Frequency Range : 7GHz~9GHz |
|-----------------------------|-----------------------------|



A D T



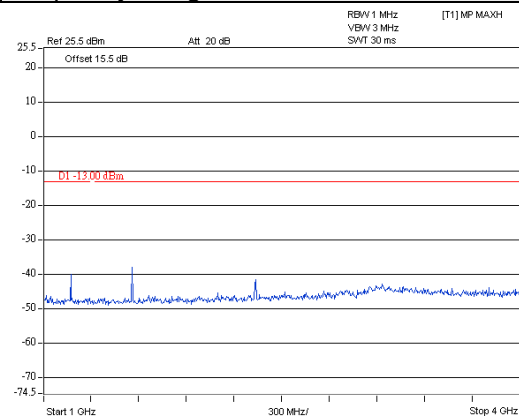
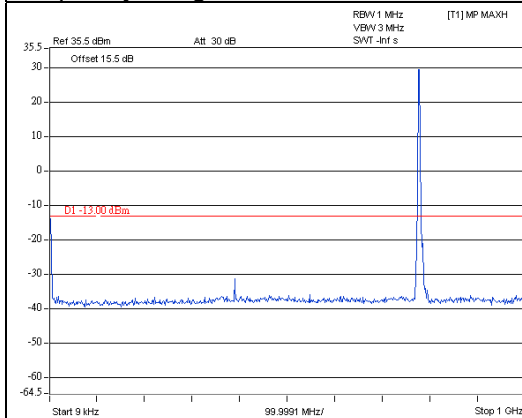
A D T

Channel Bandwidth: 10MHz

Channel 23230 (782.0MHz)

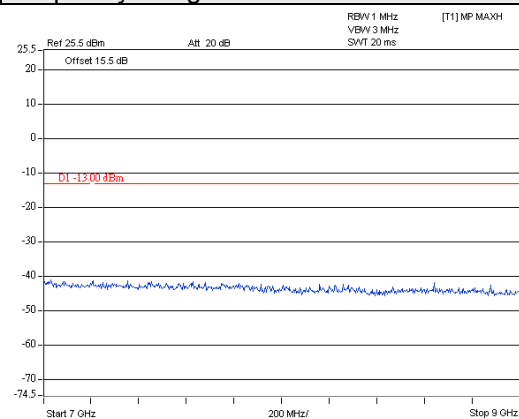
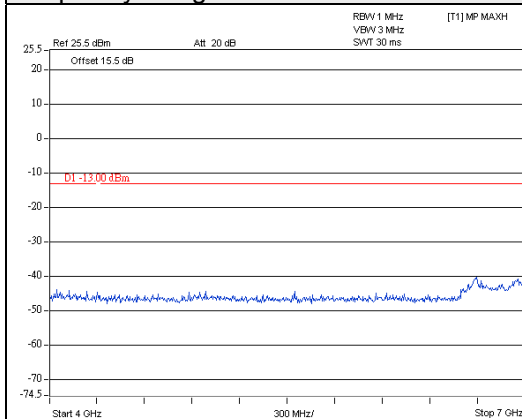
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz



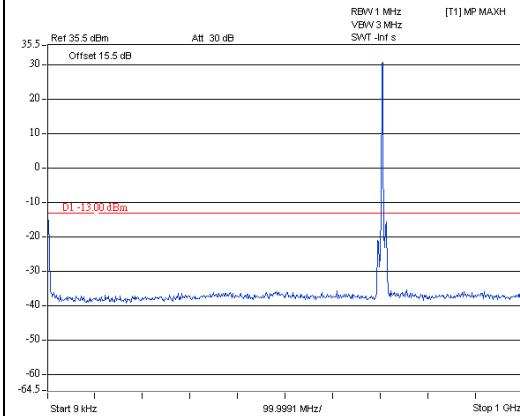
# LTE Band 17

Channel Bandwidth: 5MHz

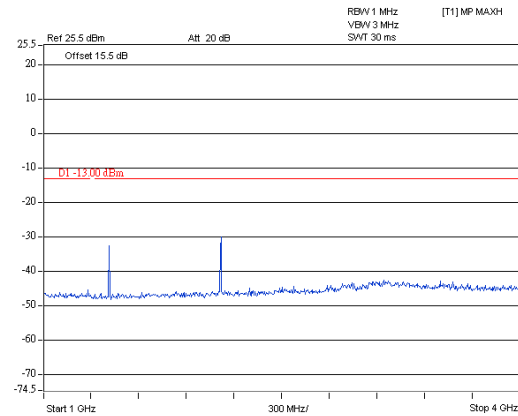
Channel 23775 (706.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



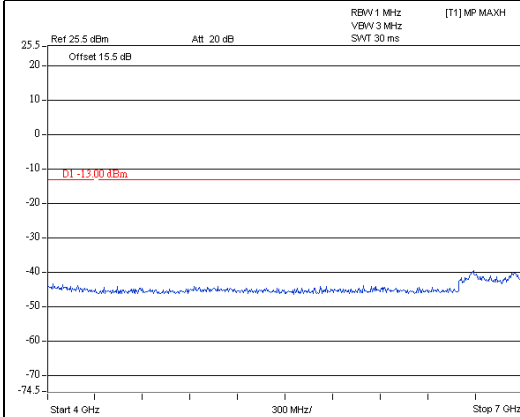
A D T



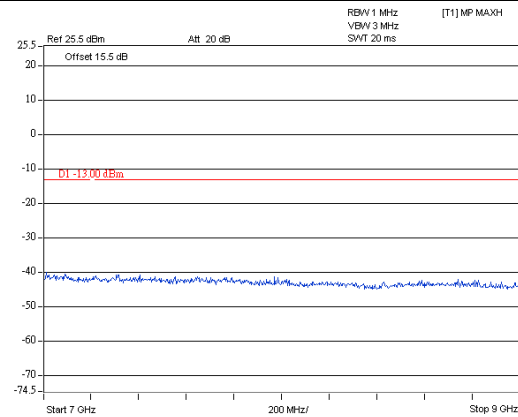
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz

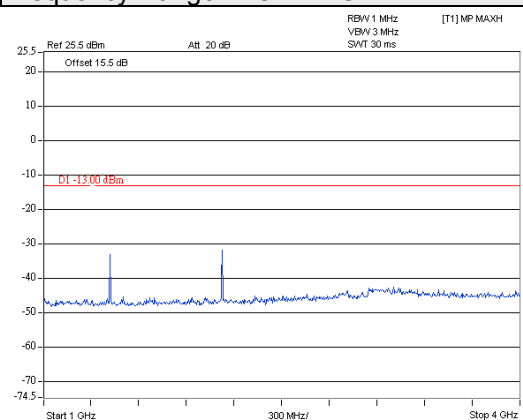
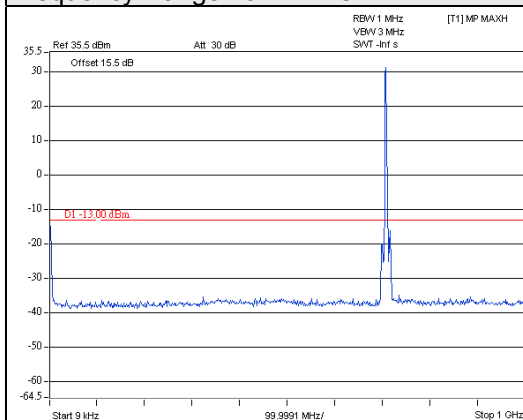


A D T

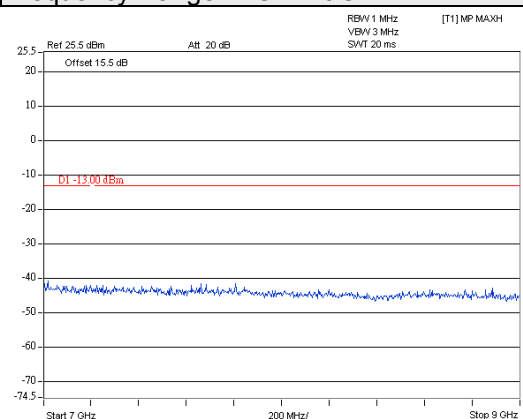
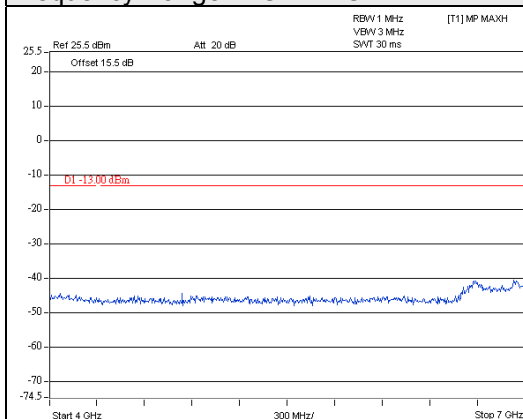


A D T

|                             |                             |
|-----------------------------|-----------------------------|
| Channel Bandwidth: 5MHz     |                             |
| Channel 23790 (710.0MHz)    |                             |
| Frequency Range : 9kHz~1GHz | Frequency Range : 1GHz~4GHz |



|                             |                             |
|-----------------------------|-----------------------------|
| Frequency Range : 4GHz~7GHz | Frequency Range : 7GHz~9GHz |
|-----------------------------|-----------------------------|

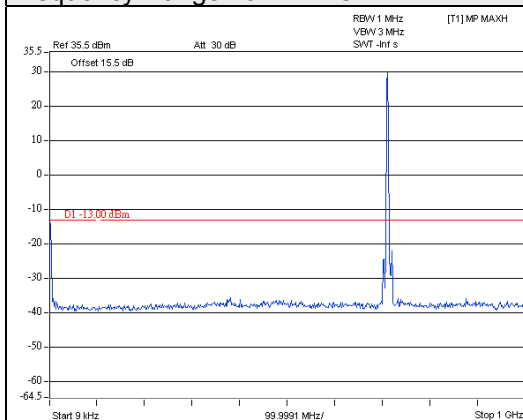


Channel Bandwidth: 5MHz

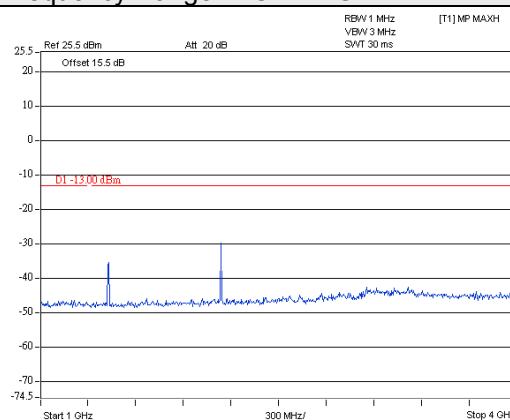
Channel 23825 (713.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



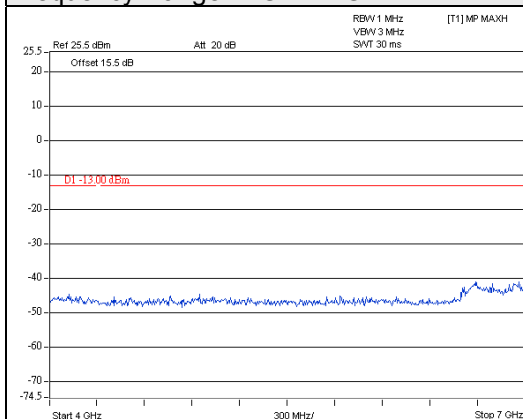
A D T



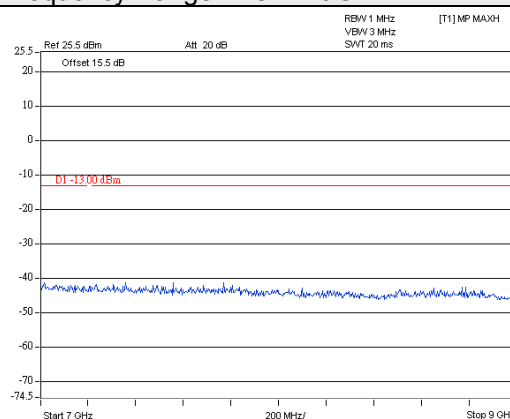
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz



A D T



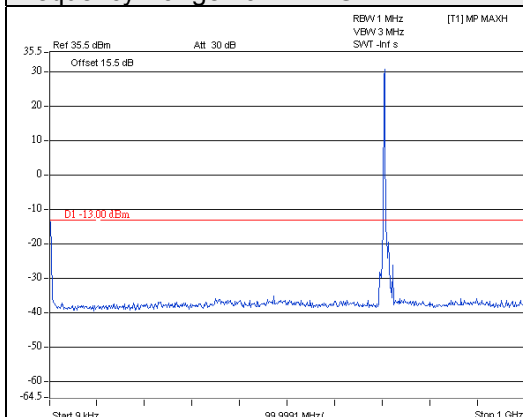
A D T

Channel Bandwidth: 10MHz

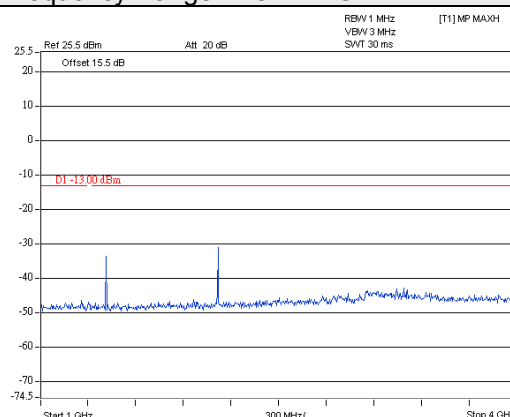
Channel 23780 (709.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



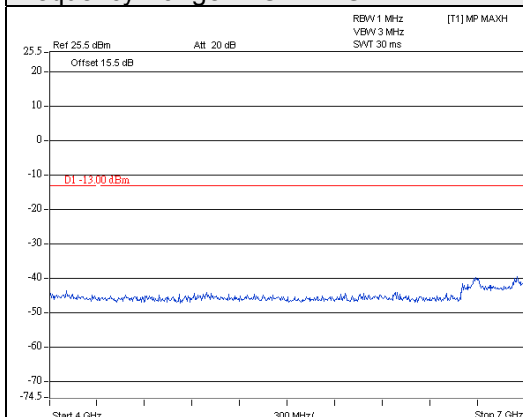
A D T



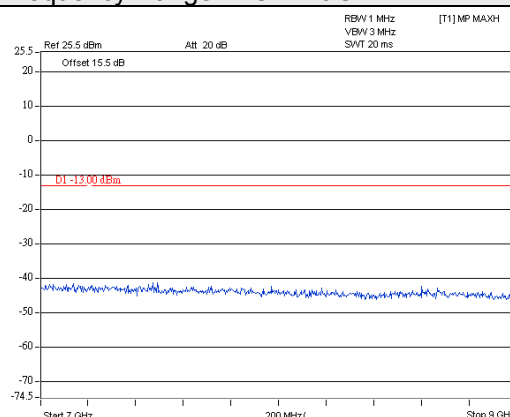
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz



A D T



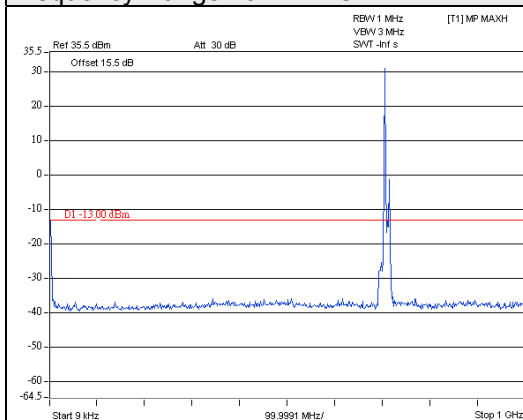
A D T

Channel Bandwidth: 10MHz

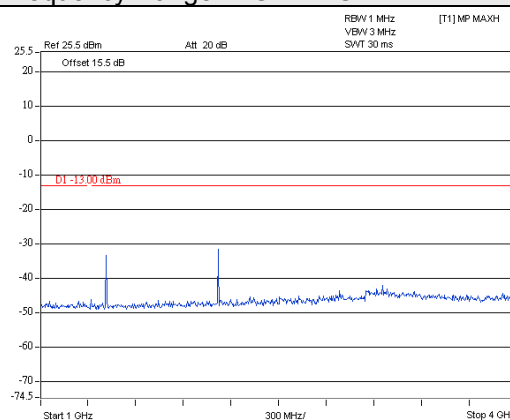
Channel 23790 (710.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



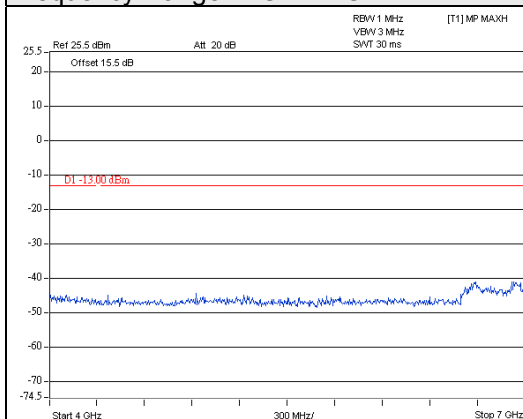
A D T



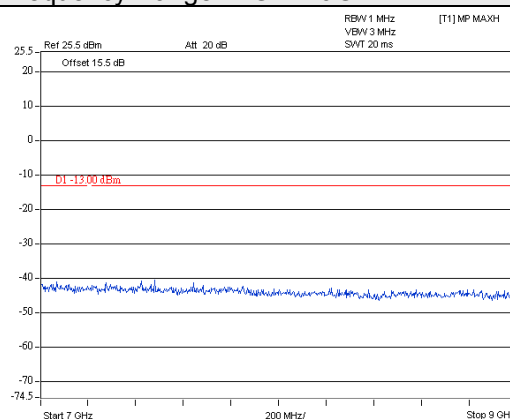
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz



A D T



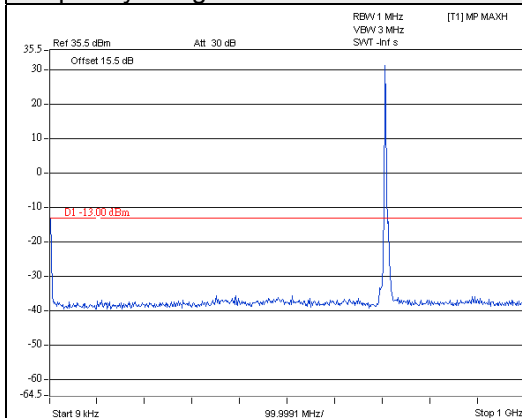
A D T

Channel Bandwidth: 10MHz

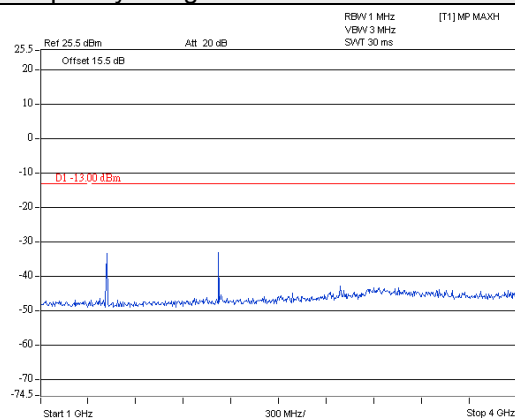
Channel 23800 (711.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~4GHz



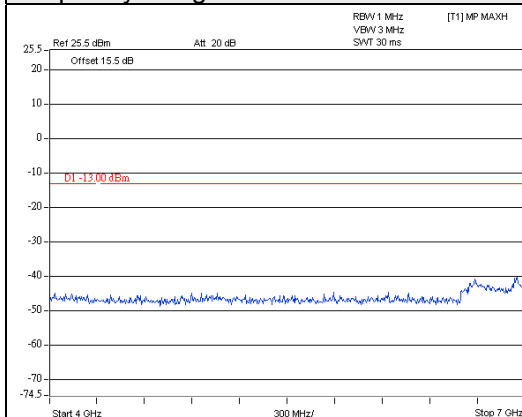
A D T



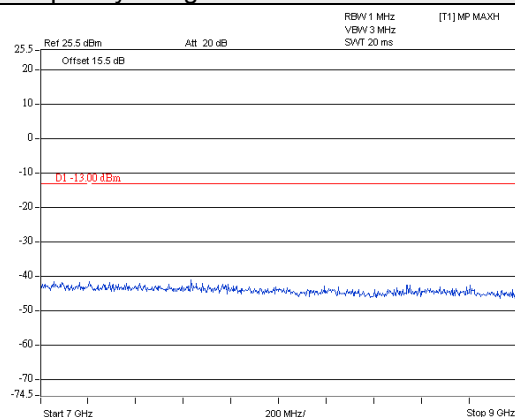
A D T

Frequency Range : 4GHz~7GHz

Frequency Range : 7GHz~9GHz



A D T



A D T

## 4.8 Radiated Emission Measurement

### 4.8.1 Limits of Radiated Emission Measurement

For WCDMA Band 4, LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

For LTE Band 13

According to FCC 27.53(c) (2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB.

For LTE Band 17

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 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.

### 4.8.2 Test Procedure

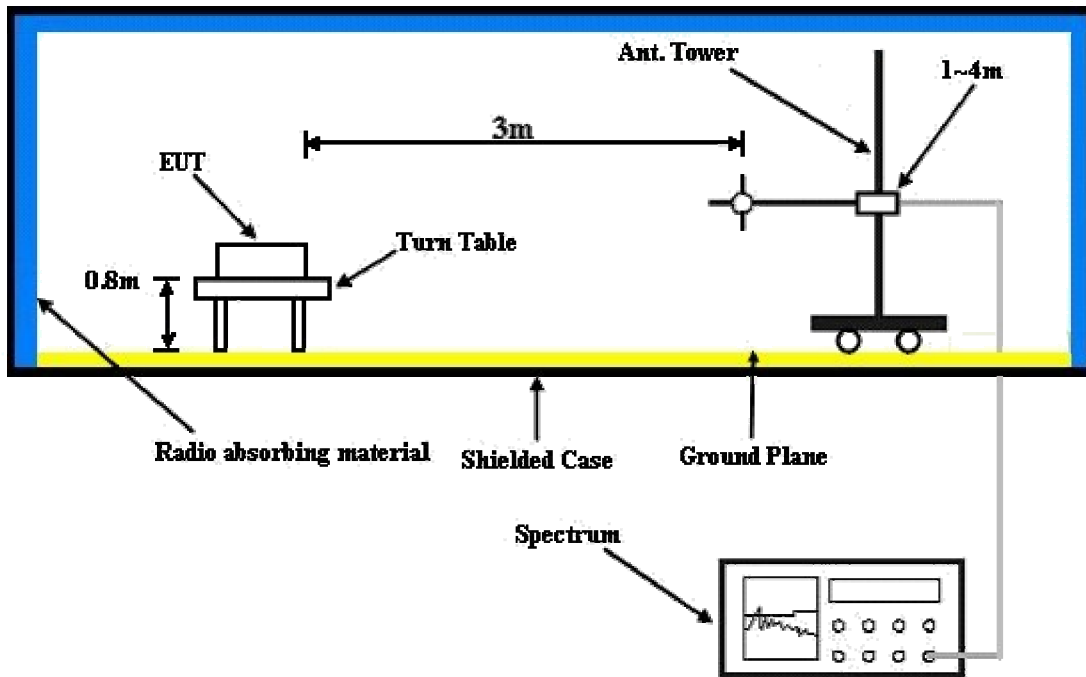
- The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The substitution 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
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}.$

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

### 4.8.3 Deviation from Test Standard

No deviation.

#### 4.8.4 Test Setup



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

#### 4.8.5 Test Results

Below 1GHz

WCDMA Band 4

|                          |                                |                 |                |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode                     | TX channel 1312<br>(1712.4MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 19deg. C, 66%RH                | Input Power     | 120Vac, 60Hz   |
| Tested By                | James Yang                     |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 119.24      | -45.6         | -55.9                 | 0.1                    | -55.8      | -13.0       | -42.8       |
| 2                                                   | 154.16      | -50.4         | -57.6                 | 0.1                    | -57.5      | -13.0       | -44.5       |
| 3                                                   | 216.24      | -47.1         | -63.3                 | 5.4                    | -57.9      | -13.0       | -44.9       |
| 4                                                   | 398.60      | -61.8         | -69.5                 | 5.2                    | -64.3      | -13.0       | -51.3       |
| 5                                                   | 542.16      | -56.7         | -62.9                 | 4.7                    | -58.2      | -13.0       | -45.2       |
| 6                                                   | 891.36      | -68.2         | -66.3                 | 3.9                    | -62.4      | -13.0       | -49.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 51.34       | -46.2         | -46.7                 | -8.9                   | -55.6      | -13.0       | -42.6       |
| 2                                                   | 138.64      | -47.8         | -52.8                 | -0.3                   | -53.1      | -13.0       | -40.1       |
| 3                                                   | 249.22      | -57.2         | -63.8                 | 5.4                    | -58.4      | -13.0       | -45.4       |
| 4                                                   | 553.80      | -61.4         | -66.4                 | 4.7                    | -61.7      | -13.0       | -48.7       |
| 5                                                   | 701.24      | -66.2         | -67.1                 | 5.2                    | -61.9      | -13.0       | -48.9       |
| 6                                                   | 889.42      | -60.5         | -58.0                 | 3.9                    | -54.1      | -13.0       | -41.1       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 4

Channel Bandwidth: 1.4MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 19957<br>(1710.7MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 66.86       | -59.0         | -59.2                 | -5.8                   | -65.0      | -13.0       | -52.0       |
| 2                                                   | 140.58      | -59.5         | -64.8                 | -0.3                   | -65.1      | -13.0       | -52.1       |
| 3                                                   | 222.06      | -61.2         | -74.8                 | 5.4                    | -69.4      | -13.0       | -56.4       |
| 4                                                   | 435.46      | -67.8         | -74.3                 | 5.2                    | -69.1      | -13.0       | -56.1       |
| 5                                                   | 606.18      | -67.1         | -71.0                 | 4.5                    | -66.5      | -13.0       | -53.5       |
| 6                                                   | 798.24      | -67.7         | -66.4                 | 4.0                    | -62.4      | -13.0       | -49.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 66.86       | -58.5         | -59.2                 | -5.8                   | -65.0      | -13.0       | -52.0       |
| 2                                                   | 297.72      | -67.5         | -73.4                 | 5.1                    | -68.3      | -13.0       | -55.3       |
| 3                                                   | 445.16      | -67.2         | -73.3                 | 5.0                    | -68.3      | -13.0       | -55.3       |
| 4                                                   | 536.34      | -67.7         | -71.8                 | 4.7                    | -67.1      | -13.0       | -54.1       |
| 5                                                   | 656.62      | -70.8         | -71.0                 | 4.9                    | -66.1      | -13.0       | -53.1       |
| 6                                                   | 788.54      | -69.5         | -67.3                 | 4.1                    | -63.2      | -13.0       | -50.2       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 19965<br>(1711.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 62.98       | -60.3         | -59.0                 | -6.8                   | -65.8      | -13.0       | -52.8       |
| 2                                                   | 130.88      | -59.0         | -66.0                 | -0.1                   | -66.1      | -13.0       | -53.1       |
| 3                                                   | 202.66      | -59.0         | -73.0                 | 5.4                    | -67.6      | -13.0       | -54.6       |
| 4                                                   | 464.56      | -66.8         | -73.0                 | 5.0                    | -68.0      | -13.0       | -55.0       |
| 5                                                   | 621.70      | -67.3         | -70.9                 | 4.6                    | -66.3      | -13.0       | -53.3       |
| 6                                                   | 823.46      | -67.8         | -66.0                 | 4.0                    | -62.0      | -13.0       | -49.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 66.86       | -53.6         | -54.3                 | -5.8                   | -60.1      | -13.0       | -47.1       |
| 2                                                   | 231.76      | -61.6         | -67.5                 | 5.4                    | -62.1      | -13.0       | -49.1       |
| 3                                                   | 394.72      | -65.0         | -71.0                 | 5.2                    | -65.8      | -13.0       | -52.8       |
| 4                                                   | 546.04      | -67.7         | -71.2                 | 4.7                    | -66.5      | -13.0       | -53.5       |
| 5                                                   | 668.26      | -68.1         | -68.0                 | 5.0                    | -63.0      | -13.0       | -50.0       |
| 6                                                   | 829.28      | -68.9         | -66.5                 | 4.0                    | -62.5      | -13.0       | -49.5       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 19975<br>(1712.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 62.98       | -59.2         | -57.9                 | -6.8                   | -64.7      | -13.0       | -51.7       |
| 2                                                   | 196.84      | -60.2         | -74.2                 | 5.1                    | -69.1      | -13.0       | -56.1       |
| 3                                                   | 317.12      | -62.3         | -71.8                 | 5.2                    | -66.6      | -13.0       | -53.6       |
| 4                                                   | 530.52      | -66.4         | -71.9                 | 4.7                    | -67.2      | -13.0       | -54.2       |
| 5                                                   | 660.50      | -67.5         | -70.9                 | 4.9                    | -66.0      | -13.0       | -53.0       |
| 6                                                   | 837.04      | -68.3         | -66.4                 | 4.0                    | -62.4      | -13.0       | -49.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 84.32       | -51.2         | -54.9                 | -0.5                   | -55.4      | -13.0       | -42.4       |
| 2                                                   | 169.68      | -62.3         | -63.6                 | 1.6                    | -62.0      | -13.0       | -49.0       |
| 3                                                   | 270.56      | -63.7         | -65.8                 | 5.3                    | -60.5      | -13.0       | -47.5       |
| 4                                                   | 478.14      | -66.6         | -72.6                 | 5.0                    | -67.6      | -13.0       | -54.6       |
| 5                                                   | 621.70      | -68.2         | -67.8                 | 4.6                    | -63.2      | -13.0       | -50.2       |
| 6                                                   | 895.24      | -68.7         | -65.6                 | 3.9                    | -61.7      | -13.0       | -48.7       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 20000<br>(1715.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 142.52      | -60.1         | -65.1                 | -0.3                   | -65.4      | -13.0       | -52.4       |
| 2                                                   | 200.72      | -58.5         | -72.6                 | 5.4                    | -67.2      | -13.0       | -54.2       |
| 3                                                   | 330.70      | -60.4         | -69.3                 | 5.2                    | -64.1      | -13.0       | -51.1       |
| 4                                                   | 468.44      | -66.7         | -72.8                 | 5.0                    | -67.8      | -13.0       | -54.8       |
| 5                                                   | 668.26      | -67.4         | -70.7                 | 5.0                    | -65.7      | -13.0       | -52.7       |
| 6                                                   | 800.18      | -67.1         | -65.8                 | 4.0                    | -61.8      | -13.0       | -48.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 62.98       | -49.0         | -49.5                 | -6.8                   | -56.3      | -13.0       | -43.3       |
| 2                                                   | 262.80      | -62.7         | -65.9                 | 5.3                    | -60.6      | -13.0       | -47.6       |
| 3                                                   | 447.10      | -66.9         | -73.0                 | 5.0                    | -68.0      | -13.0       | -55.0       |
| 4                                                   | 681.84      | -68.0         | -68.1                 | 5.1                    | -63.0      | -13.0       | -50.0       |
| 5                                                   | 794.36      | -67.7         | -65.6                 | 4.1                    | -61.5      | -13.0       | -48.5       |
| 6                                                   | 926.28      | -68.6         | -64.2                 | 3.9                    | -60.3      | -13.0       | -47.3       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 20025<br>(1717.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 41.64       | -58.3         | -44.7                 | -10.6                  | -55.3      | -13.0       | -42.3       |
| 2                                                   | 142.52      | -59.7         | -64.7                 | -0.3                   | -65.0      | -13.0       | -52.0       |
| 3                                                   | 340.40      | -60.7         | -69.3                 | 5.1                    | -64.2      | -13.0       | -51.2       |
| 4                                                   | 507.24      | -66.6         | -72.5                 | 4.8                    | -67.7      | -13.0       | -54.7       |
| 5                                                   | 687.66      | -67.9         | -71.5                 | 5.2                    | -66.3      | -13.0       | -53.3       |
| 6                                                   | 823.46      | -68.3         | -66.5                 | 4.0                    | -62.5      | -13.0       | -49.5       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 66.86       | -52.4         | -53.1                 | -5.8                   | -58.9      | -13.0       | -45.9       |
| 2                                                   | 268.62      | -64.7         | -66.8                 | 5.3                    | -61.5      | -13.0       | -48.5       |
| 3                                                   | 476.20      | -67.2         | -73.1                 | 5.0                    | -68.1      | -13.0       | -55.1       |
| 4                                                   | 613.94      | -68.0         | -67.7                 | 4.6                    | -63.1      | -13.0       | -50.1       |
| 5                                                   | 773.02      | -68.0         | -66.0                 | 4.3                    | -61.7      | -13.0       | -48.7       |
| 6                                                   | 937.92      | -60.0         | -55.1                 | 3.9                    | -51.2      | -13.0       | -38.2       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

|                          |                                 |                 |                |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode                     | TX channel 20050<br>(1720.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                       |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 39.70       | -56.3         | -43.1                 | -10.9                  | -54.0      | -13.0       | -41.0       |
| 2                                                   | 134.76      | -59.3         | -65.6                 | -0.3                   | -65.9      | -13.0       | -52.9       |
| 3                                                   | 326.82      | -60.4         | -69.3                 | 5.2                    | -64.1      | -13.0       | -51.1       |
| 4                                                   | 520.82      | -66.4         | -72.1                 | 4.8                    | -67.3      | -13.0       | -54.3       |
| 5                                                   | 699.30      | -67.9         | -71.4                 | 5.3                    | -66.1      | -13.0       | -53.1       |
| 6                                                   | 939.86      | -60.1         | -56.9                 | 3.9                    | -53.0      | -13.0       | -40.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 86.26       | -48.7         | -53.3                 | 0.1                    | -53.2      | -13.0       | -40.2       |
| 2                                                   | 173.56      | -55.0         | -57.2                 | 2.1                    | -55.1      | -13.0       | -42.1       |
| 3                                                   | 423.82      | -67.2         | -74.0                 | 5.2                    | -68.8      | -13.0       | -55.8       |
| 4                                                   | 617.82      | -67.7         | -67.3                 | 4.6                    | -62.7      | -13.0       | -49.7       |
| 5                                                   | 788.54      | -68.3         | -66.1                 | 4.1                    | -62.0      | -13.0       | -49.0       |
| 6                                                   | 858.38      | -68.3         | -65.8                 | 3.9                    | -61.9      | -13.0       | -48.9       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 13

Channel Bandwidth: 5MHz

|                          |                                |                 |                |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode                     | TX channel 23205<br>(779.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                      |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 41.64       | -56.4         | -44.3                 | -10.6                  | -54.9     | -13.0       | -41.9       |
| 2                                                   | 111.48      | -48.0         | -58.9                 | 0.4                    | -58.5     | -13.0       | -45.5       |
| 3                                                   | 191.02      | -47.5         | -62.3                 | 4.3                    | -58.0     | -13.0       | -45.0       |
| 4                                                   | 414.12      | -59.0         | -66.4                 | 5.2                    | -61.2     | -13.0       | -48.2       |
| 5                                                   | 528.58      | -56.0         | -62.4                 | 4.7                    | -57.7     | -13.0       | -44.7       |
| 6                                                   | 968.96      | -69.2         | -65.9                 | 3.9                    | -62.0     | -13.0       | -49.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 95.96       | -35.6         | -45.9                 | 1.0                    | -44.9     | -13.0       | -31.9       |
| 2                                                   | 156.10      | -48.2         | -52.9                 | 0.2                    | -52.7     | -13.0       | -39.7       |
| 3                                                   | 297.72      | -56.2         | -62.6                 | 5.1                    | -57.5     | -13.0       | -44.5       |
| 4                                                   | 423.82      | -61.2         | -68.4                 | 5.2                    | -63.2     | -13.0       | -50.2       |
| 5                                                   | 631.40      | -65.8         | -66.7                 | 4.6                    | -62.1     | -13.0       | -49.1       |
| 6                                                   | 953.44      | -68.0         | -64.3                 | 3.9                    | -60.4     | -13.0       | -47.4       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                |                 |                |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode                     | TX channel 23230<br>(782.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 20deg. C, 66%RH                | Input Power     | 120Vac, 60Hz   |
| Tested By                | Chris Lin                      |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 41.64       | -58.5         | -46.4                 | -10.6                  | -57.0     | -13.0       | -44.0       |
| 2                                                   | 113.42      | -48.2         | -58.9                 | 0.3                    | -58.6     | -13.0       | -45.6       |
| 3                                                   | 189.08      | -47.1         | -61.9                 | 4.1                    | -57.8     | -13.0       | -44.8       |
| 4                                                   | 388.90      | -57.5         | -66.0                 | 5.2                    | -60.8     | -13.0       | -47.8       |
| 5                                                   | 530.52      | -57.2         | -63.7                 | 4.7                    | -59.0     | -13.0       | -46.0       |
| 6                                                   | 976.72      | -69.5         | -66.0                 | 3.9                    | -62.1     | -13.0       | -49.1       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 55.22       | -46.2         | -46.6                 | -8.7                   | -55.3     | -13.0       | -42.3       |
| 2                                                   | 132.82      | -46.1         | -53.2                 | -0.1                   | -53.3     | -13.0       | -40.3       |
| 3                                                   | 297.72      | -55.9         | -62.2                 | 5.1                    | -57.1     | -13.0       | -44.1       |
| 4                                                   | 528.58      | -59.8         | -65.5                 | 4.7                    | -60.8     | -13.0       | -47.8       |
| 5                                                   | 660.50      | -65.8         | -66.7                 | 4.9                    | -61.8     | -13.0       | -48.8       |
| 6                                                   | 988.36      | -70.0         | -65.3                 | 3.9                    | -61.4     | -13.0       | -48.4       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 17

Channel Bandwidth: 5MHz

|                          |                                |                 |                |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode                     | TX channel 23755<br>(706.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz   |
| Tested By                | James Yang                     |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 51.34       | -54.2         | -47.9                 | -8.9                   | -56.8     | -13.0       | -43.8       |
| 2                                                   | 191.02      | -47.2         | -62.1                 | 4.3                    | -57.8     | -13.0       | -44.8       |
| 3                                                   | 297.72      | -59.8         | -69.3                 | 5.1                    | -64.2     | -13.0       | -51.2       |
| 4                                                   | 398.60      | -59.0         | -66.7                 | 5.2                    | -61.5     | -13.0       | -48.5       |
| 5                                                   | 528.58      | -56.5         | -62.9                 | 4.7                    | -58.2     | -13.0       | -45.2       |
| 6                                                   | 934.04      | -68.5         | -65.9                 | 3.9                    | -62.0     | -13.0       | -49.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 49.40       | -44.8         | -44.8                 | -9.3                   | -54.1     | -13.0       | -41.1       |
| 2                                                   | 90.14       | -37.9         | -47.4                 | 1.1                    | -46.3     | -13.0       | -33.3       |
| 3                                                   | 134.76      | -45.7         | -51.9                 | -0.3                   | -52.2     | -13.0       | -39.2       |
| 4                                                   | 297.72      | -55.8         | -62.1                 | 5.1                    | -57.0     | -13.0       | -44.0       |
| 5                                                   | 528.58      | -60.2         | -65.9                 | 4.7                    | -61.2     | -13.0       | -48.2       |
| 6                                                   | 802.12      | -65.0         | -63.0                 | 4.0                    | -59.0     | -13.0       | -46.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                |                 |                |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode                     | TX channel 23780<br>(710.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz   |
| Tested By                | James Yang                     |                 |                |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 39.70       | -57.8         | -47.2                 | -10.9                  | -58.1     | -13.0       | -45.1       |
| 2                                                   | 191.02      | -46.5         | -61.4                 | 4.3                    | -57.1     | -13.0       | -44.1       |
| 3                                                   | 266.68      | -56.5         | -68.3                 | 5.3                    | -63.0     | -13.0       | -50.0       |
| 4                                                   | 410.24      | -58.5         | -66.1                 | 5.2                    | -60.9     | -13.0       | -47.9       |
| 5                                                   | 528.58      | -57.5         | -64.0                 | 4.7                    | -59.3     | -13.0       | -46.3       |
| 6                                                   | 885.54      | -68.8         | -67.0                 | 3.9                    | -63.1     | -13.0       | -50.1       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 53.28       | -46.2         | -46.8                 | -8.5                   | -55.3     | -13.0       | -42.3       |
| 2                                                   | 156.10      | -48.3         | -53.0                 | 0.2                    | -52.8     | -13.0       | -39.8       |
| 3                                                   | 297.72      | -56.1         | -62.5                 | 5.1                    | -57.4     | -13.0       | -44.4       |
| 4                                                   | 429.64      | -61.4         | -68.6                 | 5.2                    | -63.4     | -13.0       | -50.4       |
| 5                                                   | 528.58      | -59.5         | -65.2                 | 4.7                    | -60.5     | -13.0       | -47.5       |
| 6                                                   | 802.12      | -65.8         | -63.8                 | 4.0                    | -59.8     | -13.0       | -46.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Above 1GHz  
WCDMA Band 4

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 1312<br>(1712.4MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 19deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3424.80     | -55.7         | -51.5                 | 7.1                    | -44.4      | -13.0       | -31.4       |
| 2                                                   | 5137.20     | -45.2         | -33.5                 | 6.6                    | -26.9      | -13.0       | -13.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3424.80     | -55.5         | -51.5                 | 7.1                    | -44.4      | -13.0       | -31.4       |
| 2                                                   | 5137.20     | -45.0         | -35.2                 | 6.6                    | -28.6      | -13.0       | -15.6       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 1413<br>(1732.6MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 19deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.20     | -55.8         | -51.3                 | 7.1                    | -44.2      | -13.0       | -31.2       |
| 2                                                   | 5197.80     | -45.8         | -34.5                 | 6.7                    | -27.8      | -13.0       | -14.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.20     | -54.4         | -49.9                 | 7.1                    | -42.8      | -13.0       | -29.8       |
| 2                                                   | 5197.80     | -43.7         | -33.5                 | 6.7                    | -26.8      | -13.0       | -13.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 1513<br>(1752.6MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 19deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3505.20     | -57.0         | -52.3                 | 7.2                    | -45.1      | -13.0       | -32.1       |
| 2                                                   | 5257.80     | -44.9         | -33.6                 | 6.7                    | -26.9      | -13.0       | -13.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3505.20     | -55.6         | -50.8                 | 7.2                    | -43.6      | -13.0       | -30.6       |
| 2                                                   | 5257.80     | -43.8         | -33.4                 | 6.7                    | -26.7      | -13.0       | -13.7       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 4

Channel Bandwidth: 1.4MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 19957<br>(1710.7MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3421.40     | -54.7         | -45.8                 | 1.9                    | -43.9      | -13.0       | -30.9       |
| 2                                                   | 5132.10     | -44.8         | -34.8                 | 0.8                    | -34.0      | -13.0       | -21.0       |
| 3                                                   | 6842.80     | -55.7         | -44.8                 | -0.1                   | -44.9      | -13.0       | -31.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3421.40     | -55.3         | -47.5                 | 1.9                    | -45.6      | -13.0       | -32.6       |
| 2                                                   | 5132.10     | -41.9         | -33.0                 | 0.8                    | -32.2      | -13.0       | -19.2       |
| 3                                                   | 6842.80     | -52.6         | -42.8                 | -0.1                   | -42.9      | -13.0       | -29.9       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |                |               |                       |                        |              |              |             |
|-----------------------------------------------------|----------------|---------------|-----------------------|------------------------|--------------|--------------|-------------|
| No.                                                 | Freq. (MHz)    | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm)   | Limit (dBm)  | Margin (dB) |
| 1                                                   | 3465.00        | -53.1         | -48.6                 | 7.1                    | -41.5        | -13.0        | -28.5       |
| 2                                                   | <b>5197.50</b> | <b>-35.7</b>  | <b>-24.4</b>          | <b>6.7</b>             | <b>-17.7</b> | <b>-13.0</b> | <b>-4.7</b> |
| 3                                                   | 6930.00        | -56.6         | -39.0                 | 4.8                    | -34.2        | -13.0        | -21.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |                |               |                       |                        |              |              |             |
| No.                                                 | Freq. (MHz)    | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm)   | Limit (dBm)  | Margin (dB) |
| 1                                                   | 3465.00        | -51.4         | -46.9                 | 7.1                    | -39.8        | -13.0        | -26.8       |
| 2                                                   | 5197.50        | -39.3         | -29.1                 | 6.7                    | -22.4        | -13.0        | -9.4        |
| 3                                                   | 6930.00        | -53.5         | -37.4                 | 4.8                    | -32.6        | -13.0        | -19.6       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20393<br>(1754.3MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3508.00     | -58.6         | -53.9                 | 7.2                    | -46.7      | -13.0       | -33.7       |
| 2                                                   | 5262.90     | -41.5         | -30.2                 | 6.7                    | -23.5      | -13.0       | -10.5       |
| 3                                                   | 7017.20     | -50.8         | -32.3                 | 4.7                    | -27.6      | -13.0       | -14.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3508.00     | -57.8         | -53.0                 | 7.2                    | -45.8      | -13.0       | -32.8       |
| 2                                                   | 5262.90     | -42.3         | -31.9                 | 6.7                    | -25.2      | -13.0       | -12.2       |
| 3                                                   | 7017.20     | -58.8         | -42.1                 | 4.7                    | -37.4      | -13.0       | -24.4       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 19965<br>(1711.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3423.00     | -58.2         | -43.0                 | -4.4                   | -47.4      | -13.0       | -34.4       |
| 2                                                   | 5134.50     | -47.9         | -31.6                 | -5.5                   | -37.1      | -13.0       | -24.1       |
| 3                                                   | 6846.00     | -59.9         | -42.7                 | -6.4                   | -49.1      | -13.0       | -36.1       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3423.00     | -57.7         | -43.6                 | -4.4                   | -48.0      | -13.0       | -35.0       |
| 2                                                   | 5134.50     | -46.1         | -30.9                 | -5.5                   | -36.4      | -13.0       | -23.4       |
| 3                                                   | 6846.00     | -59.9         | -43.8                 | -6.4                   | -50.2      | -13.0       | -37.2       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -58.1         | -42.8                 | -4.5                   | -47.3      | -13.0       | -34.3       |
| 2                                                   | 5197.50     | -46.2         | -29.9                 | -5.5                   | -35.4      | -13.0       | -22.4       |
| 3                                                   | 6930.00     | -60.2         | -42.9                 | -6.5                   | -49.4      | -13.0       | -36.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -56.0         | -41.8                 | -4.5                   | -46.3      | -13.0       | -33.3       |
| 2                                                   | 5197.50     | -43.0         | -27.8                 | -5.5                   | -33.3      | -13.0       | -20.3       |
| 3                                                   | 6930.00     | -59.3         | -43.1                 | -6.5                   | -49.6      | -13.0       | -36.6       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20385<br>(1753.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3507.00     | -59.2         | -43.9                 | -4.5                   | -48.4      | -13.0       | -35.4       |
| 2                                                   | 5260.50     | -46.4         | -30.0                 | -5.6                   | -35.6      | -13.0       | -22.6       |
| 3                                                   | 7014.00     | -59.4         | -42.1                 | -6.5                   | -48.6      | -13.0       | -35.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3507.00     | -59.1         | -44.9                 | -4.5                   | -49.4      | -13.0       | -36.4       |
| 2                                                   | 5260.50     | -46.2         | -30.9                 | -5.6                   | -36.5      | -13.0       | -23.5       |
| 3                                                   | 7014.00     | -59.5         | -43.3                 | -6.5                   | -49.8      | -13.0       | -36.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 19975<br>(1712.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3425.00     | -57.8         | -42.6                 | -4.4                   | -47.0      | -13.0       | -34.0       |
| 2                                                   | 5137.50     | -50.6         | -34.3                 | -5.5                   | -39.8      | -13.0       | -26.8       |
| 3                                                   | 6850.00     | -59.4         | -42.2                 | -6.4                   | -48.6      | -13.0       | -35.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3425.00     | -59.5         | -45.4                 | -4.4                   | -49.8      | -13.0       | -36.8       |
| 2                                                   | 5137.50     | -48.1         | -32.9                 | -5.5                   | -38.4      | -13.0       | -25.4       |
| 3                                                   | 6850.00     | -59.8         | -43.7                 | -6.4                   | -50.1      | -13.0       | -37.1       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -58.1         | -42.8                 | -4.5                   | -47.3      | -13.0       | -34.3       |
| 2                                                   | 5197.50     | -49.2         | -32.9                 | -5.5                   | -38.4      | -13.0       | -25.4       |
| 3                                                   | 6930.00     | -59.3         | -42.0                 | -6.5                   | -48.5      | -13.0       | -35.5       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -59.6         | -45.4                 | -4.5                   | -49.9      | -13.0       | -36.9       |
| 2                                                   | 5197.50     | -46.7         | -31.5                 | -5.5                   | -37.0      | -13.0       | -24.0       |
| 3                                                   | 6930.00     | -59.7         | -43.5                 | -6.5                   | -50.0      | -13.0       | -37.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20375<br>(1752.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3505.00     | -60.4         | -45.1                 | -4.5                   | -49.6      | -13.0       | -36.6       |
| 2                                                   | 5257.50     | -50.2         | -33.8                 | -5.6                   | -39.4      | -13.0       | -26.4       |
| 3                                                   | 7010.00     | -59.7         | -42.4                 | -6.5                   | -48.9      | -13.0       | -35.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3505.00     | -58.3         | -44.1                 | -4.5                   | -48.6      | -13.0       | -35.6       |
| 2                                                   | 5257.50     | -48.2         | -32.9                 | -5.6                   | -38.5      | -13.0       | -25.5       |
| 3                                                   | 7010.00     | -59.8         | -43.6                 | -6.5                   | -50.1      | -13.0       | -37.1       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20000<br>(1715.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3430.00     | -54.9         | -39.7                 | -4.4                   | -44.1      | -13.0       | -31.1       |
| 2                                                   | 5145.00     | -44.8         | -28.5                 | -5.5                   | -34.0      | -13.0       | -21.0       |
| 3                                                   | 6860.00     | -55.3         | -38.1                 | -6.4                   | -44.5      | -13.0       | -31.5       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3430.00     | -54.8         | -40.7                 | -4.4                   | -45.1      | -13.0       | -32.1       |
| 2                                                   | 5145.00     | -45.7         | -30.5                 | -5.5                   | -36.0      | -13.0       | -23.0       |
| 3                                                   | 6860.00     | -51.7         | -35.6                 | -6.4                   | -42.0      | -13.0       | -29.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -53.9         | -38.6                 | -4.5                   | -43.1      | -13.0       | -30.1       |
| 2                                                   | 5197.50     | -40.1         | -23.8                 | -5.5                   | -29.3      | -13.0       | -16.3       |
| 3                                                   | 6930.00     | -53.2         | -35.9                 | -6.5                   | -42.4      | -13.0       | -29.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -53.4         | -39.2                 | -4.5                   | -43.7      | -13.0       | -30.7       |
| 2                                                   | 5197.50     | -41.5         | -26.3                 | -5.5                   | -31.8      | -13.0       | -18.8       |
| 3                                                   | 6930.00     | -50.8         | -34.6                 | -6.5                   | -41.1      | -13.0       | -28.1       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20350<br>(1750.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3500.00     | -54.7         | -39.4                 | -4.5                   | -43.9      | -13.0       | -30.9       |
| 2                                                   | 5250.00     | -41.6         | -25.2                 | -5.6                   | -30.8      | -13.0       | -17.8       |
| 3                                                   | 7000.00     | -51.1         | -33.8                 | -6.5                   | -40.3      | -13.0       | -27.3       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3500.00     | -56.1         | -41.9                 | -4.5                   | -46.4      | -13.0       | -33.4       |
| 2                                                   | 5250.00     | -42.5         | -27.2                 | -5.6                   | -32.8      | -13.0       | -19.8       |
| 3                                                   | 7000.00     | -49.5         | -33.3                 | -6.5                   | -39.8      | -13.0       | -26.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20025<br>(1717.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3435.00     | -54.1         | -49.9                 | 7.1                    | -42.8      | -13.0       | -29.8       |
| 2                                                   | 5152.50     | -45.6         | -34.1                 | 6.7                    | -27.4      | -13.0       | -14.4       |
| 3                                                   | 6870.00     | -53.1         | -36.1                 | 4.9                    | -31.2      | -13.0       | -18.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3435.00     | -54.2         | -50.0                 | 7.1                    | -42.9      | -13.0       | -29.9       |
| 2                                                   | 5152.50     | -47.1         | -37.3                 | 6.7                    | -30.6      | -13.0       | -17.6       |
| 3                                                   | 6870.00     | -53.4         | -38.0                 | 4.9                    | -33.1      | -13.0       | -20.1       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -54.3         | -49.8                 | 7.1                    | -42.7      | -13.0       | -29.7       |
| 2                                                   | 5197.50     | -41.3         | -30.0                 | 6.7                    | -23.3      | -13.0       | -10.3       |
| 3                                                   | 6930.00     | -57.7         | -40.1                 | 4.8                    | -35.3      | -13.0       | -22.3       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -54.4         | -49.9                 | 7.1                    | -42.8      | -13.0       | -29.8       |
| 2                                                   | 5197.50     | -42.3         | -32.1                 | 6.7                    | -25.4      | -13.0       | -12.4       |
| 3                                                   | 6930.00     | -54.9         | -38.8                 | 4.8                    | -34.0      | -13.0       | -21.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20325<br>(1747.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3495.00     | -55.3         | -50.7                 | 7.2                    | -43.5      | -13.0       | -30.5       |
| 2                                                   | 5242.50     | -43.1         | -31.7                 | 6.6                    | -25.1      | -13.0       | -12.1       |
| 3                                                   | 6990.00     | -50.9         | -32.4                 | 4.7                    | -27.7      | -13.0       | -14.7       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3495.00     | -55.0         | -50.3                 | 7.2                    | -43.1      | -13.0       | -30.1       |
| 2                                                   | 5242.50     | -42.1         | -31.7                 | 6.6                    | -25.1      | -13.0       | -12.1       |
| 3                                                   | 6990.00     | -52.8         | -36.0                 | 4.7                    | -31.3      | -13.0       | -18.3       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20050<br>(1720.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3440.00     | -55.0         | -50.7                 | 7.1                    | -43.6      | -13.0       | -30.6       |
| 2                                                   | 5160.00     | -44.8         | -33.3                 | 6.7                    | -26.6      | -13.0       | -13.6       |
| 3                                                   | 6880.00     | -50.5         | -33.5                 | 4.9                    | -28.6      | -13.0       | -15.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3440.00     | -53.4         | -49.2                 | 7.1                    | -42.1      | -13.0       | -29.1       |
| 2                                                   | 5160.00     | -47.0         | -37.1                 | 6.7                    | -30.4      | -13.0       | -17.4       |
| 3                                                   | 6880.00     | -51.3         | -35.8                 | 4.9                    | -30.9      | -13.0       | -17.9       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20175<br>(1732.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -55.0         | -50.5                 | 7.1                    | -43.4      | -13.0       | -30.4       |
| 2                                                   | 5197.50     | -41.5         | -30.2                 | 6.7                    | -23.5      | -13.0       | -10.5       |
| 3                                                   | 6930.00     | -54.2         | -36.6                 | 4.8                    | -31.8      | -13.0       | -18.8       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3465.00     | -54.9         | -50.4                 | 7.1                    | -43.3      | -13.0       | -30.3       |
| 2                                                   | 5197.50     | -42.2         | -32.0                 | 6.7                    | -25.3      | -13.0       | -12.3       |
| 3                                                   | 6930.00     | -48.9         | -32.8                 | 4.8                    | -28.0      | -13.0       | -15.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                 |                 |               |
|--------------------------|---------------------------------|-----------------|---------------|
| Mode                     | TX channel 20300<br>(1745.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 20deg. C, 66%RH                 | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                      |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |            |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|------------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3490.00     | -55.7         | -51.1                 | 7.2                    | -43.9      | -13.0       | -30.9       |
| 2                                                   | 5235.00     | -40.2         | -28.8                 | 6.6                    | -22.2      | -13.0       | -9.2        |
| 3                                                   | 6980.00     | -52.5         | -34.1                 | 4.7                    | -29.4      | -13.0       | -16.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |            |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 3490.00     | -53.2         | -48.5                 | 7.2                    | -41.3      | -13.0       | -28.3       |
| 2                                                   | 5235.00     | -42.0         | -31.6                 | 6.6                    | -25.0      | -13.0       | -12.0       |
| 3                                                   | 6980.00     | -54.4         | -37.7                 | 4.7                    | -33.0      | -13.0       | -20.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 13

Channel Bandwidth: 5MHz

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23205<br>(779.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                    |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1559.00     | -54.2         | -55.3                 | 5.3                    | -50.0     | -13.0       | -37.0       |
| 2                                                   | 2338.50     | -57.5         | -55.9                 | 6.4                    | -49.5     | -13.0       | -36.5       |
| 3                                                   | 3118.00     | -58.4         | -53.7                 | 6.5                    | -47.2     | -13.0       | -34.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1559.00     | -56.5         | -57.2                 | 5.3                    | -51.9     | -13.0       | -38.9       |
| 2                                                   | 2338.50     | -54.3         | -51.0                 | 6.4                    | -44.6     | -13.0       | -31.6       |
| 3                                                   | 3118.00     | -58.1         | -54.1                 | 6.5                    | -47.5     | -13.0       | -34.5       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23230<br>(782.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                    |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1564.00     | -49.5         | -50.7                 | 5.3                    | -45.4     | -13.0       | -32.4       |
| 2                                                   | 2346.00     | -58.2         | -56.6                 | 6.4                    | -50.2     | -13.0       | -37.2       |
| 3                                                   | 3128.00     | -58.5         | -53.8                 | 6.6                    | -47.2     | -13.0       | -34.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1564.00     | -52.3         | -52.9                 | 5.3                    | -47.7     | -13.0       | -34.7       |
| 2                                                   | 2346.00     | -55.9         | -52.5                 | 6.4                    | -46.2     | -13.0       | -33.2       |
| 3                                                   | 3128.00     | -58.4         | -54.3                 | 6.6                    | -47.8     | -13.0       | -34.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23255<br>(784.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                    |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1569.00     | -51.2         | -52.5                 | 5.3                    | -47.2     | -13.0       | -34.2       |
| 2                                                   | 2353.50     | -59.0         | -57.3                 | 6.4                    | -51.0     | -13.0       | -38.0       |
| 3                                                   | 3138.00     | -58.8         | -54.0                 | 6.6                    | -47.4     | -13.0       | -34.4       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1569.00     | -53.7         | -54.3                 | 5.3                    | -49.0     | -13.0       | -36.0       |
| 2                                                   | 2353.50     | -59.0         | -55.6                 | 6.4                    | -49.2     | -13.0       | -36.2       |
| 3                                                   | 3138.00     | -58.3         | -54.2                 | 6.6                    | -47.6     | -13.0       | -34.6       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23230<br>(782.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | Jones Chang                    |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1564.00     | -57.0         | -58.2                 | 5.3                    | -52.9     | -13.0       | -39.9       |
| 2                                                   | 2346.00     | -60.5         | -58.9                 | 6.4                    | -52.5     | -13.0       | -39.5       |
| 3                                                   | 3128.00     | -58.6         | -53.9                 | 6.6                    | -47.3     | -13.0       | -34.3       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1564.00     | -58.3         | -58.9                 | 5.3                    | -53.7     | -13.0       | -40.7       |
| 2                                                   | 2346.00     | -60.2         | -56.8                 | 6.4                    | -50.5     | -13.0       | -37.5       |
| 3                                                   | 3128.00     | -59.0         | -54.9                 | 6.6                    | -48.4     | -13.0       | -35.4       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 17

Channel Bandwidth: 5MHz

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23755<br>(706.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1413.00     | -40.7         | -40.5                 | 4.7                    | -35.8     | -13.0       | -22.8       |
| 2                                                   | 2119.50     | -45.5         | -44.0                 | 6.3                    | -37.7     | -13.0       | -24.7       |
| 3                                                   | 2826.00     | -59.7         | -57.3                 | 6.4                    | -50.9     | -13.0       | -37.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1413.00     | -43.5         | -43.4                 | 4.7                    | -38.7     | -13.0       | -25.7       |
| 2                                                   | 2119.50     | -40.4         | -37.6                 | 6.3                    | -31.3     | -13.0       | -18.3       |
| 3                                                   | 2826.00     | -59.4         | -55.6                 | 6.4                    | -49.2     | -13.0       | -36.2       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23790<br>(710.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1420.00     | -42.5         | -42.4                 | 4.8                    | -37.6     | -13.0       | -24.6       |
| 2                                                   | 2130.00     | -47.5         | -46.0                 | 6.3                    | -39.7     | -13.0       | -26.7       |
| 3                                                   | 2840.00     | -59.2         | -56.6                 | 6.4                    | -50.2     | -13.0       | -37.2       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1420.00     | -46.1         | -46.1                 | 4.8                    | -41.3     | -13.0       | -28.3       |
| 2                                                   | 2130.00     | -43.4         | -40.6                 | 6.3                    | -34.3     | -13.0       | -21.3       |
| 3                                                   | 2840.00     | -60.1         | -56.3                 | 6.4                    | -49.9     | -13.0       | -36.9       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23825<br>(713.5MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1427.00     | -45.1         | -45.0                 | 4.8                    | -40.2     | -13.0       | -27.2       |
| 2                                                   | 2140.50     | -50.4         | -48.8                 | 6.3                    | -42.5     | -13.0       | -29.5       |
| 3                                                   | 2854.00     | -59.9         | -57.0                 | 6.4                    | -50.6     | -13.0       | -37.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1427.00     | -47.9         | -48.0                 | 4.8                    | -43.2     | -13.0       | -30.2       |
| 2                                                   | 2140.50     | -45.5         | -42.7                 | 6.3                    | -36.4     | -13.0       | -23.4       |
| 3                                                   | 2854.00     | -59.6         | -55.8                 | 6.4                    | -49.4     | -13.0       | -36.4       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23780<br>(709.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1418.00     | -38.4         | -38.3                 | 4.8                    | -33.5     | -13.0       | -20.5       |
| 2                                                   | 2127.00     | -44.8         | -43.3                 | 6.3                    | -37.0     | -13.0       | -24.0       |
| 3                                                   | 2836.00     | -59.6         | -57.0                 | 6.4                    | -50.6     | -13.0       | -37.6       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1418.00     | -43.3         | -43.3                 | 4.8                    | -38.5     | -13.0       | -25.5       |
| 2                                                   | 2127.00     | -40.8         | -38.0                 | 6.3                    | -31.7     | -13.0       | -18.7       |
| 3                                                   | 2836.00     | -59.0         | -55.2                 | 6.4                    | -48.8     | -13.0       | -35.8       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23790<br>(710.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1420.00     | -40.1         | -40.0                 | 4.8                    | -35.2     | -13.0       | -22.2       |
| 2                                                   | 2130.00     | -45.9         | -44.4                 | 6.3                    | -38.1     | -13.0       | -25.1       |
| 3                                                   | 2840.00     | -59.0         | -56.4                 | 6.4                    | -50.0     | -13.0       | -37.0       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1420.00     | -43.9         | -43.9                 | 4.8                    | -39.1     | -13.0       | -26.1       |
| 2                                                   | 2130.00     | -41.6         | -38.8                 | 6.3                    | -32.5     | -13.0       | -19.5       |
| 3                                                   | 2840.00     | -59.2         | -55.4                 | 6.4                    | -49.0     | -13.0       | -36.0       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

|                          |                                |                 |               |
|--------------------------|--------------------------------|-----------------|---------------|
| Mode                     | TX channel 23800<br>(711.0MHz) | Frequency Range | Above 1000MHz |
| Environmental Conditions | 25deg. C, 66%RH                | Input Power     | 120Vac, 60Hz  |
| Tested By                | James Yang                     |                 |               |

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1422.00     | -40.4         | -40.3                 | 4.8                    | -35.5     | -13.0       | -22.5       |
| 2                                                   | 2133.00     | -47.5         | -46.0                 | 6.3                    | -39.7     | -13.0       | -26.7       |
| 3                                                   | 2844.00     | -59.0         | -56.3                 | 6.4                    | -49.9     | -13.0       | -36.9       |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 1422.00     | -44.6         | -44.7                 | 4.8                    | -39.9     | -13.0       | -26.9       |
| 2                                                   | 2133.00     | -41.3         | -38.5                 | 6.3                    | -32.2     | -13.0       | -19.2       |
| 3                                                   | 2844.00     | -59.4         | -55.6                 | 6.4                    | -49.2     | -13.0       | -36.2       |

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

## 5 Pictures of Test Arrangements

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

## Appendix – Information on the Testing Laboratories

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

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

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