

## FCC Test Report

### (PART 27)

**Report No.:** RF150901C09A-5

**FCC ID:** HFS-FT75

**Test Model:** FT7

**Received Date:** Sep. 01, 2015

**Test Date:** Sep. 07, 2015 ~ Sep. 16, 2015

**Issued Date:** Dec. 09, 2015

**Applicant:** Quanta Computer Inc.

**Address:** No. 188, Wen Hwa 2nd Rd., Guishan Dist., Tao Yuan City 333, Taiwan

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

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

**Test Location (1):** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan  
Hsien 333, Taiwan, R.O.C.



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### Release Control Record

| Issue No.      | Description      | Date Issued   |
|----------------|------------------|---------------|
| RF150901C09A-5 | Original Release | Dec. 09, 2015 |

## 1 Certificate of Conformity

**Product:** Tablet

**Brand:** C-Spire

**Test Model:** FT7

**Sample Status:** Identical Prototype

**Applicant:** Quanta Computer Inc.

**Test Date:** Sep. 07, 2015 ~ Sep. 16, 2015

**Standards:** FCC Part 27, Subpart C

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 :**

*Vera Huang*

**Date:**

Dec. 09, 2015

Vera Huang / Specialist

**Approved by :**

*Stanley Wu*

**Date:**

Dec. 09, 2015

Stanley Wu / Assistant Manager

## 2 Summary of Test Results

| Applied Standard: FCC Part 27 & Part 2 (LTE 12) |                              |        |                                                                                     |
|-------------------------------------------------|------------------------------|--------|-------------------------------------------------------------------------------------|
| FCC Clause                                      | Test Item                    | Result | Remarks                                                                             |
| 2.1046<br>27.50(C)(10)                          | Maximum Peak Output Power    | PASS   | Meet the requirement of limit.                                                      |
| 2.1055<br>27.54                                 | Frequency Stability          | PASS   | Meet the requirement of limit.                                                      |
| 2.1049<br>27.53(g)                              | Occupied Bandwidth           | PASS   | Meet the requirement of limit.                                                      |
| 27.50(d)(5)                                     | Peak to Average Ratio        | PASS   | Meet the requirement of limit.                                                      |
| 27.53(g)                                        | Band Edge Measurements       | PASS   | Meet the requirement of limit.                                                      |
| 2.1051<br>27.53(g)                              | Conducted Spurious Emissions | PASS   | Meet the requirement of limit.                                                      |
| 2.1053<br>27.53(g)                              | Radiated Spurious Emissions  | PASS   | Meet the requirement of limit.<br>Minimum passing margin is -30.12dB at 1415.00MHz. |

### 2.1 Measurement Uncertainty

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

| Measurement                        | Frequency       | Expanded Uncertainty (k=2) ( $\pm$ ) |
|------------------------------------|-----------------|--------------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz  | 2.44 dB                              |
| Radiated Emissions up to 1 GHz     | 30MHz ~ 200MHz  | 2.93 dB                              |
|                                    | 200MHz ~1000MHz | 2.95 dB                              |
| Radiated Emissions above 1 GHz     | 1GHz ~ 18GHz    | 2.26 dB                              |
|                                    | 18GHz ~ 40GHz   | 1.94 dB                              |

## 2.2 Test Site And Instruments

| Description & Manufacturer                     | Model No.      | Serial No.          | Date of Calibration | Due Date of Calibration |
|------------------------------------------------|----------------|---------------------|---------------------|-------------------------|
| Test Receiver<br>Agilent                       | N9038A         | MY51210203          | Jan. 21, 2015       | Jan. 21, 2016           |
| Spectrum Analyzer<br>Agilent                   | N9010A         | MY52220314          | Sep. 03, 2015       | Sep. 02, 2016           |
| Spectrum Analyzer<br>ROHDE & SCHWARZ           | FSU43          | 101261              | Dec. 10, 2014       | Dec. 09, 2015           |
| BILOG Antenna<br>SCHWARZBECK                   | VULB9168       | 9168-472            | Feb. 04, 2015       | Feb. 04, 2016           |
| HORN Antenna<br>SCHWARZBECK                    | BBHA 9120 D    | 9120D-969           | Feb. 09, 2015       | Feb. 09, 2016           |
| HORN Antenna<br>SCHWARZBECK                    | BBHA 9170      | 9170-480            | Feb. 04, 2015       | Feb. 04, 2016           |
| Preamplifier<br>EMCI                           | EMC 012645     | 980115              | Dec. 12, 2014       | Dec. 11, 2015           |
| Preamplifier<br>EMCI                           | EMC 184045     | 980116              | Jan. 09, 2015       | Jan. 08, 2016           |
| Preamplifier<br>EMCI                           | EMC 330H       | 980112              | Dec. 27, 2014       | Dec. 26, 2015           |
| Power Meter<br>Anritsu                         | ML2495A        | 1448002             | Jan. 05, 2015       | Jan. 04, 2016           |
| Power Sensor<br>Anritsu                        | MA2411B        | 1339230             | Jan. 05, 2015       | Jan. 04, 2016           |
| RF signal cable<br>HUBER+SUHNNER               | SUCOFLEX 104   | 309219/4<br>2950114 | Oct. 18, 2014       | Oct. 17, 2015           |
| RF signal cable<br>HUBER+SUHNNER               | SUCOFLEX 104   | 250130/4            | Oct. 18, 2014       | Oct. 17, 2015           |
| RF Coaxial Cable<br>Worken                     | 8D-FB          | Cable-Ch10-01       | Nov. 07, 2014       | Nov. 06, 2015           |
| Software<br>BV ADT                             | E3<br>6.120103 | NA                  | NA                  | NA                      |
| Antenna Tower<br>MF                            | MFA-440H       | NA                  | NA                  | NA                      |
| Turn Table<br>MF                               | MFT-201SS      | NA                  | NA                  | NA                      |
| Antenna Tower & Turn<br>Table Controller<br>MF | MF-7802        | 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 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 690701.
5. The IC Site Registration No. is IC7450F-10.

### 3 General Information

#### 3.1 General Description of EUT

|                     |                                                               |                  |
|---------------------|---------------------------------------------------------------|------------------|
| Product             | Tablet                                                        |                  |
| Brand               | C-Spire                                                       |                  |
| Test Model          | FT7                                                           |                  |
| Power Supply Rating | 5.0Vdc (adapter or host equipment)<br>3.8Vdc (Li-ion battery) |                  |
| Modulation Type     | LTE                                                           | QPSK, 16QAM      |
| Frequency Range     | LTE Band 12 (Channel Bandwidth: 1.4MHz)                       | 699.7 ~ 715.3MHz |
|                     | LTE Band 12 (Channel Bandwidth: 3MHz)                         | 700.5 ~ 714.5MHz |
|                     | LTE Band 12 (Channel Bandwidth: 5MHz)                         | 701.5 ~ 713.5MHz |
|                     | LTE Band 12 (Channel Bandwidth: 10MHz)                        | 704.0 ~ 711.0MHz |
| Emission Designator | LTE Band 12 (Channel Bandwidth: 1.4MHz)                       | 1M09G7D          |
|                     | LTE Band 12 (Channel Bandwidth: 3MHz)                         | 2M70G7D          |
|                     | LTE Band 12 (Channel Bandwidth: 5MHz)                         | 4M50G7D          |
|                     | LTE Band 12 (Channel Bandwidth: 10MHz)                        | 9M00W7D          |
| Max. ERP Power      | LTE Band 12 (Channel Bandwidth: 1.4MHz)                       | 49.55mW          |
|                     | LTE Band 12 (Channel Bandwidth: 3MHz)                         | 49.09mW          |
|                     | LTE Band 12 (Channel Bandwidth: 5MHz)                         | 52.00mW          |
|                     | LTE Band 12 (Channel Bandwidth: 10MHz)                        | 58.48mW          |
| Antenna Type        | Fixed Internal Antenna                                        |                  |
| Accessory Device    | Refer to Note as below                                        |                  |
| Data Cable Supplied | Refer to Note as below                                        |                  |

Note:

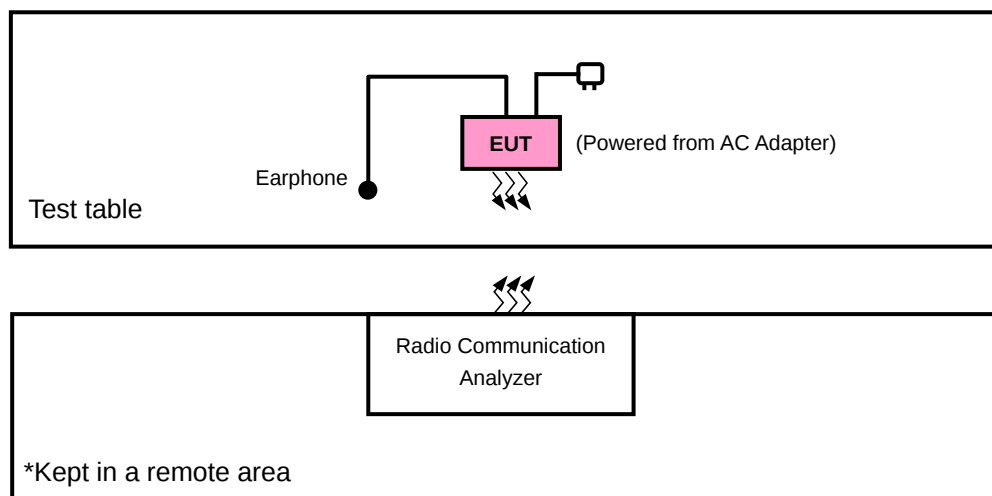
1. The EUT contains following accessory devices.

| Product        | Brand                                    | Model            | Description                            |
|----------------|------------------------------------------|------------------|----------------------------------------|
| Adapter        | Tamura                                   | NSS050200B       | I/P: 100-240Vac, 0.3A<br>O/P: 5Vdc, 2A |
| Battery        | Veken                                    | 141016           | 3.8Vdc, 3780mAh                        |
| USB Cable      | Elinke                                   | 18-94U1DG1-004G  | 1.03m cable                            |
| LCD Panel      | Shenzhen Laibao<br>Hi-Technology Co.,Ltd | ST070SI000BKF    | 6.98"                                  |
| Photo Camera   | Kingcome                                 | HM7P2-ALRFHQ     | 2M                                     |
| Video Camera   | Globaloptics                             | GEGR150012-2R    | 8M                                     |
| CPU            | Qualcomm                                 | MSM8916          | --                                     |
| eMMC (ROM)     | Kingston                                 | EMMC16G-S100-R09 | 16GB                                   |
| RAM            | Samsung                                  | K4E8E304EE-EGCE  | 8GB                                    |
| BT/WLAN Module | Qualcomm                                 | WCN3620          | --                                     |
| WWAN Module    | Qualcomm                                 | WCN3620          | --                                     |

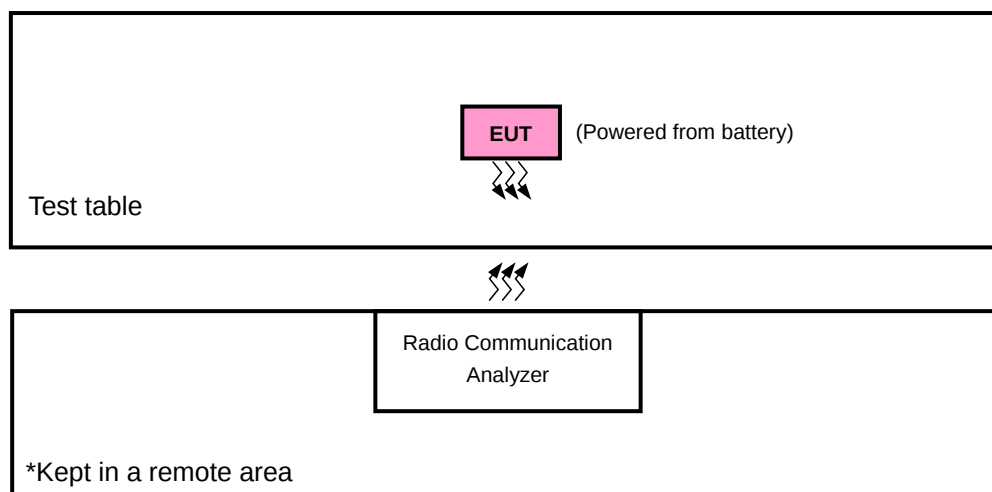
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

## 3.2 Configuration of System Under Test

### <Radiated Emission Test>



### <E.R.P. Test>



#### 3.2.1 Description of Support Units

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

| No. | Product                      | Brand   | Model No. | Serial No. | FCC ID |
|-----|------------------------------|---------|-----------|------------|--------|
| 1.  | Radio Communication Analyzer | Anritsu | MT8820C   | 6201300640 | N/A    |
| 2.  | Earphone                     | N/A     | N/A       | N/A        | N/A    |

| No. | Signal Cable Description Of The Above Support Units |
|-----|-----------------------------------------------------|
| 1.  | N/A                                                 |
| 2.  | N/A                                                 |

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 acted as 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 as the table below. Following channel(s) was (were) selected for the final test as listed below:

| Band        | ERP     | Radiated Emission |
|-------------|---------|-------------------|
| LTE Band 12 | Y-plane | Y-axis            |

#### LTE Band 12

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

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

#### **Test Condition:**

| Test Item             | Environmental Conditions | Input Power  | Tested By  |
|-----------------------|--------------------------|--------------|------------|
| ERP                   | 25deg. C, 65%RH          | 3.8Vdc       | Anson Lin  |
| Frequency Stability   | 25deg. C, 65%RH          | 3.8Vdc       | Howard Kao |
| Occupied Bandwidth    | 25deg. C, 65%RH          | 3.8Vdc       | Howard Kao |
| Band Edge             | 25deg. C, 65%RH          | 3.8Vdc       | Howard Kao |
| Peak to Average Ratio | 25deg. C, 65%RH          | 3.8Vdc       | Howard Kao |
| Conducuted Emission   | 25deg. C, 65%RH          | 3.8Vdc       | Howard Kao |
| Radiated Emission     | 25deg. C, 65%RH          | 120Vac, 60Hz | Gavin Wu   |

### **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**

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

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

## 4 Test Types and Results

### 4.1 Output Power Measurement

#### 4.1.1 Limits of Output Power Measurement

Portable stations (hand-held devices) operating in the 699-716 MHz band are limited to 3 watts ERP

#### 4.1.2 Test Procedures

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

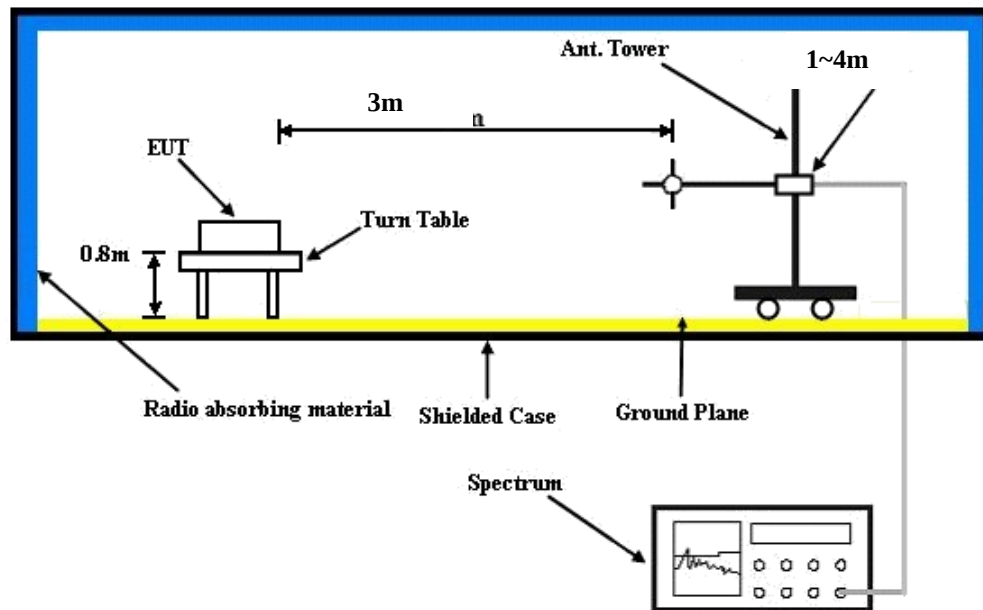
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5MHz for WCDMA and 10MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 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,  $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi}$ .

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

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

#### 4.1.3 Test Setup

##### EIRP / ERP MEASUREMENT:



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

##### CONDUCTED POWER MEASUREMENT:



#### 4.1.4 Test Results

##### CONDUCTED OUTPUT POWER (dBm)

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 3GPP MPR (dB) | 16QAM        |              |               | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
|           |         |           | Low Ch 23017 | Mid Ch 23095 | High Ch 23173 |               | Low Ch 23017 | Mid Ch 23095 | High Ch 23173 |               |
|           |         |           | 699.7 MHz    | 707.5 MHz    | 715.3 MHz     |               | 699.7 MHz    | 707.5 MHz    | 715.3 MHz     |               |
| 12 / 1.4M | 1       | 0         | 22.18        | 22.12        | 22.15         | 0             | 21.16        | 21.10        | 21.13         | 1             |
|           | 1       | 2         | 22.21        | 22.27        | 22.30         | 0             | 21.19        | 21.25        | 21.28         | 1             |
|           | 1       | 5         | 22.14        | 22.20        | 22.23         | 0             | 21.12        | 21.18        | 21.21         | 1             |
|           | 3       | 0         | 22.08        | 22.14        | 22.17         | 0             | 21.06        | 21.12        | 21.15         | 1             |
|           | 3       | 1         | 22.19        | 22.25        | 22.28         | 0             | 21.17        | 21.23        | 21.26         | 1             |
|           | 3       | 3         | 22.12        | 22.18        | 22.21         | 0             | 21.10        | 21.16        | 21.19         | 1             |
|           | 6       | 0         | 21.24        | 21.30        | 21.33         | 1             | 20.22        | 20.28        | 20.31         | 2             |

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 3GPP MPR (dB) | 16QAM        |              |               | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
|           |         |           | Low Ch 23025 | Mid Ch 23095 | High Ch 23165 |               | Low Ch 23025 | Mid Ch 23095 | High Ch 23165 |               |
|           |         |           | 700.5 MHz    | 707.5 MHz    | 714.5 MHz     |               | 700.5 MHz    | 707.5 MHz    | 714.5 MHz     |               |
| 12 / 3M   | 1       | 0         | 22.30        | 22.24        | 22.27         | 0             | 21.27        | 21.21        | 21.24         | 1             |
|           | 1       | 7         | 22.33        | 22.39        | 22.42         | 0             | 21.30        | 21.36        | 21.39         | 1             |
|           | 1       | 14        | 22.26        | 22.32        | 22.35         | 0             | 21.23        | 21.29        | 21.32         | 1             |
|           | 8       | 0         | 21.30        | 21.36        | 21.39         | 1             | 20.27        | 20.33        | 20.36         | 2             |
|           | 8       | 3         | 21.41        | 21.47        | 21.50         | 1             | 20.38        | 20.44        | 20.47         | 2             |
|           | 8       | 7         | 21.34        | 21.40        | 21.43         | 1             | 20.31        | 20.37        | 20.40         | 2             |
|           | 15      | 0         | 21.36        | 21.42        | 21.45         | 1             | 20.33        | 20.39        | 20.42         | 2             |

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 3GPP MPR (dB) | 16QAM        |              |               | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
|           |         |           | Low Ch 23035 | Mid Ch 23095 | High Ch 23155 |               | Low Ch 23035 | Mid Ch 23095 | High Ch 23155 |               |
|           |         |           | 701.5 MHz    | 707.5 MHz    | 713.5 MHz     |               | 701.5 MHz    | 707.5 MHz    | 713.5 MHz     |               |
| 12 / 5M   | 1       | 0         | 22.43        | 22.37        | 22.40         | 0             | 21.41        | 21.35        | 21.38         | 1             |
|           | 1       | 12        | 22.46        | 22.52        | 22.55         | 0             | 21.44        | 21.50        | 21.53         | 1             |
|           | 1       | 24        | 22.39        | 22.45        | 22.48         | 0             | 21.37        | 21.43        | 21.46         | 1             |
|           | 12      | 0         | 21.43        | 21.49        | 21.52         | 1             | 20.41        | 20.47        | 20.50         | 2             |
|           | 12      | 6         | 21.54        | 21.60        | 21.63         | 1             | 20.52        | 20.58        | 20.61         | 2             |
|           | 12      | 13        | 21.47        | 21.53        | 21.56         | 1             | 20.45        | 20.51        | 20.54         | 2             |
|           | 25      | 0         | 21.49        | 21.55        | 21.58         | 1             | 20.47        | 20.53        | 20.56         | 2             |

| Band / BW | RB Size | RB Offset | QPSK         |              |               | 3GPP MPR (dB) | 16QAM        |              |               | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
|           |         |           | Low Ch 23060 | Mid Ch 23095 | High Ch 23130 |               | Low Ch 23060 | Mid Ch 23095 | High Ch 23130 |               |
|           |         |           | 704.0 MHz    | 707.5 MHz    | 711.0 MHz     |               | 704.0 MHz    | 707.5 MHz    | 711.0 MHz     |               |
| 12 / 10M  | 1       | 0         | 22.57        | 22.51        | 22.54         | 0             | 21.54        | 21.48        | 21.51         | 1             |
|           | 1       | 24        | 22.60        | 22.66        | 22.69         | 0             | 21.57        | 21.63        | 21.66         | 1             |
|           | 1       | 49        | 22.53        | 22.59        | 22.62         | 0             | 21.50        | 21.56        | 21.59         | 1             |
|           | 25      | 0         | 21.57        | 21.63        | 21.66         | 1             | 20.54        | 20.60        | 20.63         | 2             |
|           | 25      | 12        | 21.68        | 21.74        | 21.77         | 1             | 20.65        | 20.71        | 20.74         | 2             |
|           | 25      | 25        | 21.61        | 21.67        | 21.70         | 1             | 20.58        | 20.64        | 20.67         | 2             |
|           | 50      | 0         | 21.63        | 21.69        | 21.72         | 1             | 20.60        | 20.66        | 20.69         | 2             |

ERP Power (dBm)

| LTE Band 12                      |         |                 |           |                       |          |         |                    |
|----------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 1.4MHz / QPSK |         |                 |           |                       |          |         |                    |
| Plane                            | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                                | 23017   | 699.7           | -11.26    | 30.36                 | 16.95    | 49.55   | H                  |
|                                  | 23095   | 707.5           | -11.27    | 30.17                 | 16.75    | 47.32   |                    |
|                                  | 23173   | 715.3           | -11.55    | 30.17                 | 16.47    | 44.36   |                    |
|                                  | 23017   | 699.7           | -20.45    | 32.03                 | 9.43     | 8.77    | V                  |
|                                  | 23095   | 707.5           | -20.62    | 31.98                 | 9.21     | 8.34    |                    |
|                                  | 23173   | 715.3           | -20.54    | 32.06                 | 9.37     | 8.65    |                    |

| LTE Band 12                       |         |                 |           |                       |          |         |                    |
|-----------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 1.4MHz / 16QAM |         |                 |           |                       |          |         |                    |
| Plane                             | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                                 | 23017   | 699.7           | -12.29    | 30.36                 | 15.92    | 39.08   | H                  |
|                                   | 23095   | 707.5           | -12.42    | 30.17                 | 15.60    | 36.31   |                    |
|                                   | 23173   | 715.3           | -12.34    | 30.17                 | 15.68    | 36.98   |                    |
|                                   | 23017   | 699.7           | -21.49    | 32.03                 | 8.39     | 6.90    | V                  |
|                                   | 23095   | 707.5           | -21.69    | 31.98                 | 8.14     | 6.52    |                    |
|                                   | 23173   | 715.3           | -21.75    | 32.06                 | 8.16     | 6.55    |                    |

| LTE Band 12                    |         |                 |           |                       |          |         |                    |
|--------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 3MHz / QPSK |         |                 |           |                       |          |         |                    |
| Plane                          | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                              | 23025   | 700.5           | -11.11    | 30.17                 | 16.91    | 49.09   | H                  |
|                                | 23095   | 707.5           | -11.48    | 30.17                 | 16.54    | 45.08   |                    |
|                                | 23165   | 714.5           | -11.32    | 30.18                 | 16.71    | 46.88   |                    |
|                                | 23025   | 700.5           | -20.36    | 31.96                 | 9.45     | 8.81    | V                  |
|                                | 23095   | 707.5           | -20.69    | 31.98                 | 9.14     | 8.20    |                    |
|                                | 23165   | 714.5           | -20.44    | 32.03                 | 9.44     | 8.79    |                    |

| LTE Band 12                     |         |                 |           |                       |          |         |                    |
|---------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 3MHz / 16QAM |         |                 |           |                       |          |         |                    |
| Plane                           | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                               | 23025   | 700.5           | -12.25    | 30.17                 | 15.77    | 37.76   | H                  |
|                                 | 23095   | 707.5           | -12.35    | 30.17                 | 15.67    | 36.90   |                    |
|                                 | 23165   | 714.5           | -12.24    | 30.18                 | 15.79    | 37.93   |                    |
|                                 | 23025   | 700.5           | -21.56    | 31.96                 | 8.25     | 6.68    | V                  |
|                                 | 23095   | 707.5           | -21.85    | 31.98                 | 7.98     | 6.28    |                    |
|                                 | 23165   | 714.5           | -21.99    | 32.03                 | 7.89     | 6.15    |                    |

| LTE Band 12                    |         |                 |           |                       |          |         |                    |
|--------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 5MHz / QPSK |         |                 |           |                       |          |         |                    |
| Plane                          | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                              | 23035   | 701.5           | -10.86    | 30.17                 | 17.16    | 52.00   | H                  |
|                                | 23095   | 707.5           | -10.96    | 30.17                 | 17.06    | 50.82   |                    |
|                                | 23155   | 713.5           | -10.92    | 30.18                 | 17.11    | 51.40   |                    |
|                                | 23035   | 701.5           | -20.11    | 31.96                 | 9.70     | 9.33    | V                  |
|                                | 23095   | 707.5           | -20.26    | 31.98                 | 9.57     | 9.06    |                    |
|                                | 23155   | 713.5           | -20.33    | 32.03                 | 9.55     | 9.02    |                    |

| LTE Band 12                     |         |                 |           |                       |          |         |                    |
|---------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 5MHz / 16QAM |         |                 |           |                       |          |         |                    |
| Plane                           | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                               | 23035   | 701.5           | -11.32    | 30.17                 | 16.70    | 46.77   | H                  |
|                                 | 23095   | 707.5           | -11.55    | 30.17                 | 16.47    | 44.36   |                    |
|                                 | 23155   | 713.5           | -11.78    | 30.18                 | 16.25    | 42.17   |                    |
|                                 | 23035   | 701.5           | -21.69    | 31.96                 | 8.12     | 6.49    | V                  |
|                                 | 23095   | 707.5           | -21.81    | 31.98                 | 8.02     | 6.34    |                    |
|                                 | 23155   | 713.5           | -21.88    | 32.03                 | 8.00     | 6.31    |                    |

| LTE Band 12                     |         |                 |           |                       |          |         |                    |
|---------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 10MHz / QPSK |         |                 |           |                       |          |         |                    |
| Plane                           | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                               | 23060   | 704.0           | -10.35    | 30.17                 | 17.67    | 58.48   | H                  |
|                                 | 23095   | 707.5           | -10.47    | 30.17                 | 17.55    | 56.89   |                    |
|                                 | 23130   | 711.0           | -10.69    | 30.18                 | 17.34    | 54.20   |                    |
|                                 | 23060   | 704.0           | -19.96    | 31.96                 | 9.85     | 9.66    | V                  |
|                                 | 23095   | 707.5           | -20.06    | 31.98                 | 9.77     | 9.48    |                    |
|                                 | 23130   | 711.0           | -20.26    | 32.03                 | 9.62     | 9.16    |                    |

| LTE Band 12                      |         |                 |           |                       |          |         |                    |
|----------------------------------|---------|-----------------|-----------|-----------------------|----------|---------|--------------------|
| Channel Bandwidth: 10MHz / 16QAM |         |                 |           |                       |          |         |                    |
| Plane                            | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor(dB) | ERP(dBm) | ERP(mW) | Polarization (H/V) |
| Y                                | 23060   | 704.0           | -11.35    | 30.17                 | 16.67    | 46.45   | H                  |
|                                  | 23095   | 707.5           | -11.96    | 30.17                 | 16.06    | 40.36   |                    |
|                                  | 23130   | 711.0           | -11.58    | 30.18                 | 16.45    | 44.16   |                    |
|                                  | 23060   | 704.0           | -21.03    | 31.96                 | 8.78     | 7.55    | V                  |
|                                  | 23095   | 707.5           | -21.66    | 31.98                 | 8.17     | 6.56    |                    |
|                                  | 23130   | 711.0           | -21.35    | 32.03                 | 8.53     | 7.13    |                    |

## 4.2 Frequency Stability Measurement

### 4.2.1 Limits of Frequency Stability Measurement

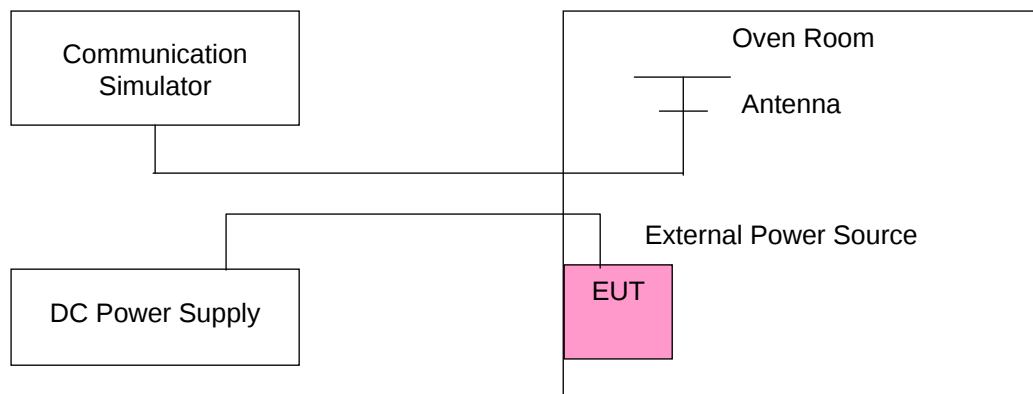
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 4.2.2 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  $\pm 0.5$  °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.

### 4.2.3 Test Setup



#### 4.2.4 Test Results

##### Frequency Error vs. Voltage

| Voltage<br>(Volts) | Frequency Error (ppm) |             |             |             | Limit (ppm) |
|--------------------|-----------------------|-------------|-------------|-------------|-------------|
|                    | LTE Band 12           |             |             |             |             |
|                    | 1.4MHz                | 3MHz        | 5MHz        | 10MHz       |             |
| 3.8                | 0.000734982           | 0.002035336 | 0.001964664 | 0.003250883 | 2.5         |
| 3.4                | 0.002911661           | 0.003363958 | 0.001130742 | 0.002120141 | 2.5         |
| 4.2                | 0.001978799           | 0.005583039 | 0.004452297 | 0.002855124 | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

##### Frequency Error vs. Temperature

| Temp. (°C) | Frequency Error (ppm) |              |              |              | Limit (ppm) |
|------------|-----------------------|--------------|--------------|--------------|-------------|
|            | LTE Band 12           |              |              |              |             |
|            | 1.4MHz                | 3MHz         | 5MHz         | 10MHz        |             |
| -30        | 0.00135689            | 0.005371025  | 0.005583039  | 0.001045936  | 2.5         |
| -20        | 0.001173145           | 0.004890459  | 0.002360424  | 0.000226148  | 2.5         |
| -10        | 0.001257951           | 0.000621908  | 0.002360424  | 0.000720848  | 2.5         |
| 0          | 0.005074205           | 0.005413428  | 0.001187279  | 0.002077739  | 2.5         |
| 10         | 0.001766784           | 0.00059364   | 0.002572438  | 0.005201413  | 2.5         |
| 20         | -0.00555477           | -0.001583039 | -0.001229682 | -0.001257951 | 2.5         |
| 30         | -0.001159011          | -0.003646643 | -0.004028269 | -0.003731449 | 2.5         |
| 40         | -0.003646643          | -0.005625442 | -0.004706714 | -0.003067138 | 2.5         |
| 50         | -0.002261484          | -0.000522968 | -0.000819788 | -0.004466431 | 2.5         |

### 4.3 Occupied Bandwidth Measurement

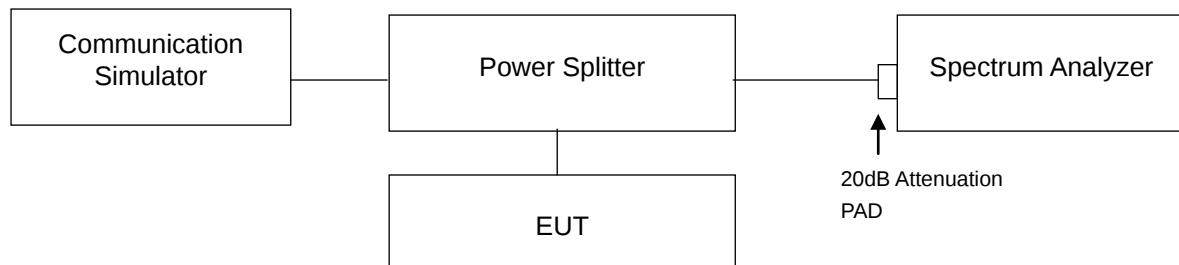
#### 4.3.1 Limits Of Occupied Bandwidth Measurement

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

#### 4.3.2 Test Procedure

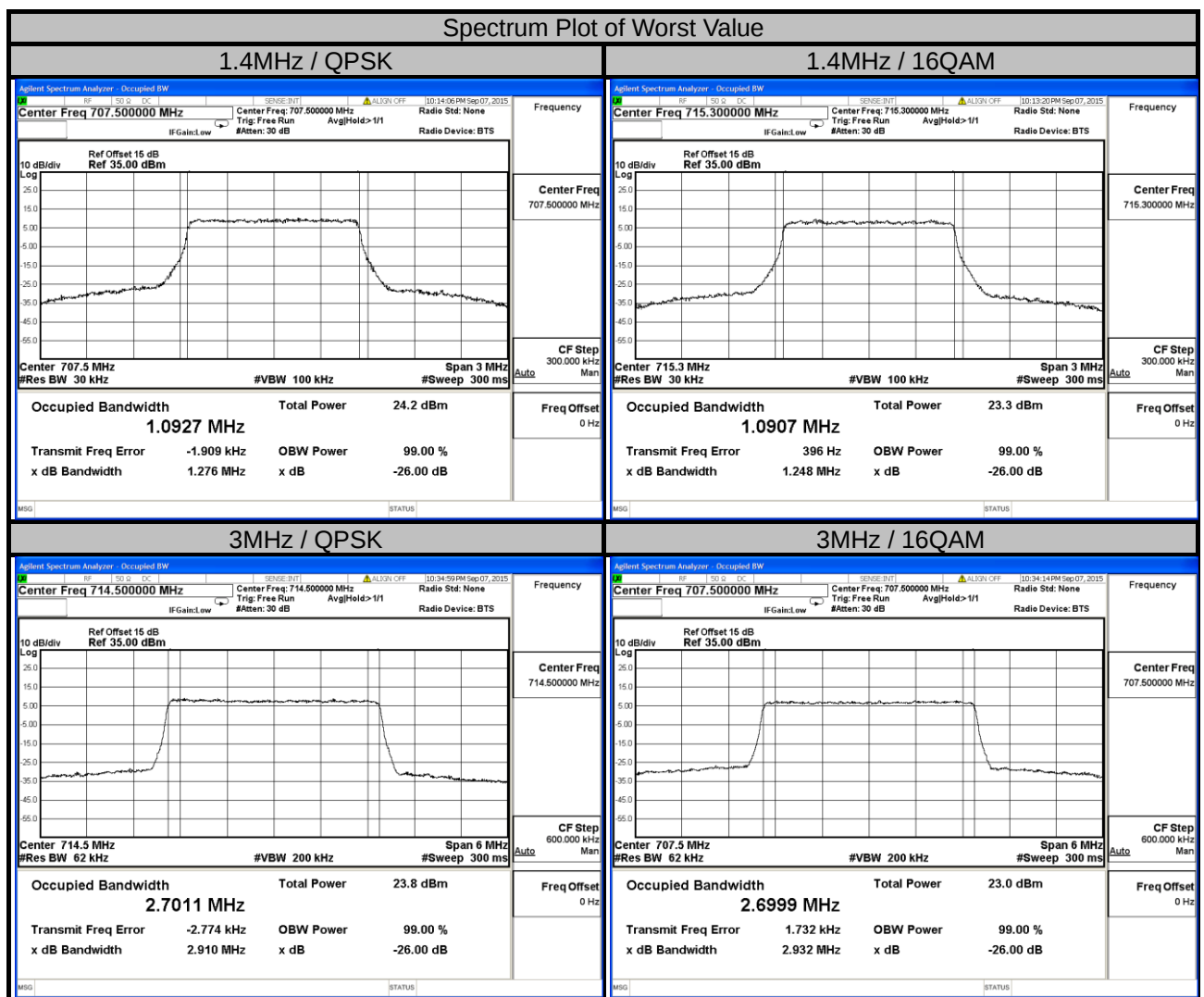
- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 4.3.3 Test Setup



#### 4.3.4 Test Result

| LTE Band 12               |                 |                              |        |                         |                 |                              |        |
|---------------------------|-----------------|------------------------------|--------|-------------------------|-----------------|------------------------------|--------|
| Channel Bandwidth: 1.4MHz |                 |                              |        | Channel Bandwidth: 3MHz |                 |                              |        |
| Channel                   | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |        | Channel                 | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |        |
|                           |                 | QPSK                         | 16QAM  |                         |                 | QPSK                         | 16QAM  |
| 23017                     | 699.7           | 1.0924                       | 1.0906 | 23025                   | 700.5           | 2.6963                       | 2.6971 |
| 23095                     | 707.5           | 1.0927                       | 1.0900 | 23095                   | 707.5           | 2.6975                       | 2.6999 |
| 23173                     | 715.3           | 1.0907                       | 1.0907 | 23165                   | 714.5           | 2.7011                       | 2.6994 |



# LTE Band 12

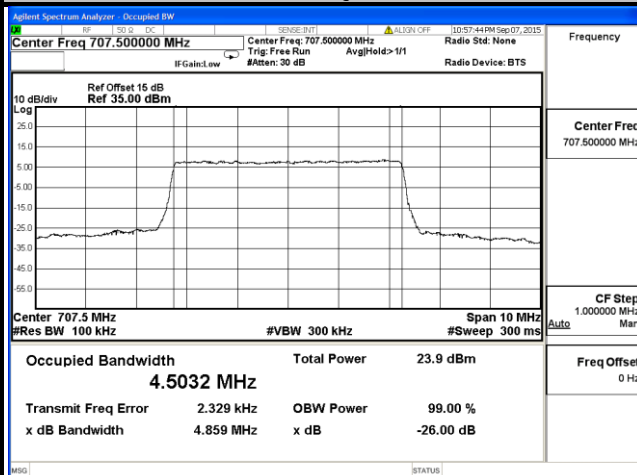
## Channel Bandwidth: 5MHz

## Channel Bandwidth: 10MHz

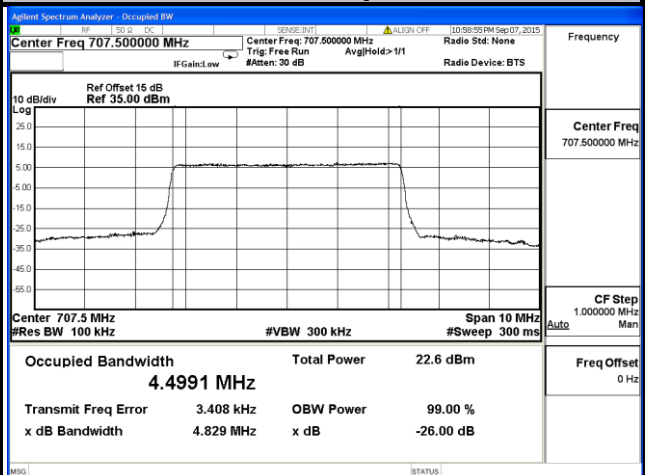
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |        | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |        |
|---------|-----------------|------------------------------|--------|---------|-----------------|------------------------------|--------|
|         |                 | QPSK                         | 16QAM  |         |                 | QPSK                         | 16QAM  |
| 23035   | 701.5           | 4.4977                       | 4.4930 | 23060   | 704.0           | 8.9857                       | 8.9886 |
| 23095   | 707.5           | 4.5032                       | 4.4991 | 23095   | 707.5           | 8.9979                       | 8.9981 |
| 23155   | 713.5           | 4.4981                       | 4.4974 | 23130   | 711.0           | 8.9711                       | 8.9683 |

## Spectrum Plot of Worst Value

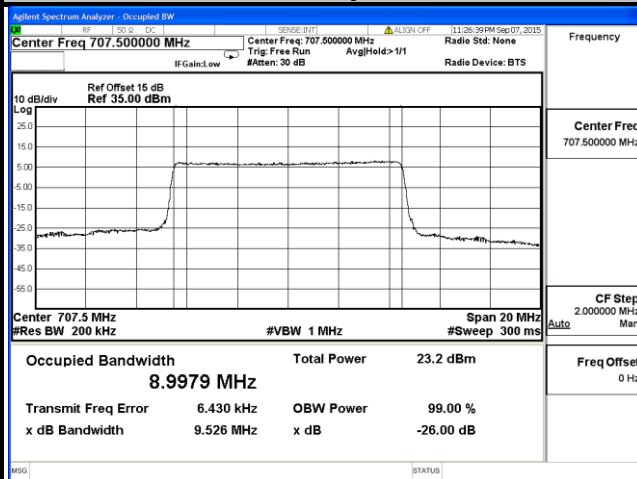
### 5MHz / QPSK



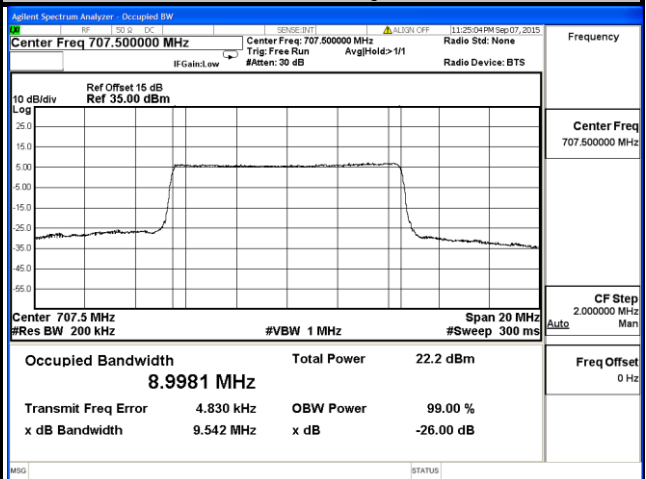
### 5MHz / 16QAM



### 10MHz / QPSK



### 10MHz / 16QAM



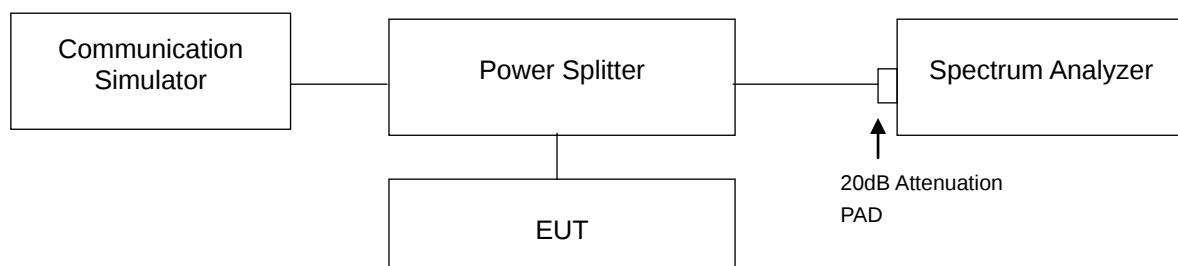
## 4.4 Band Edge Measurement

### 4.4.1 Limits of Band Edge Measurement

For operations in the 699-716 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

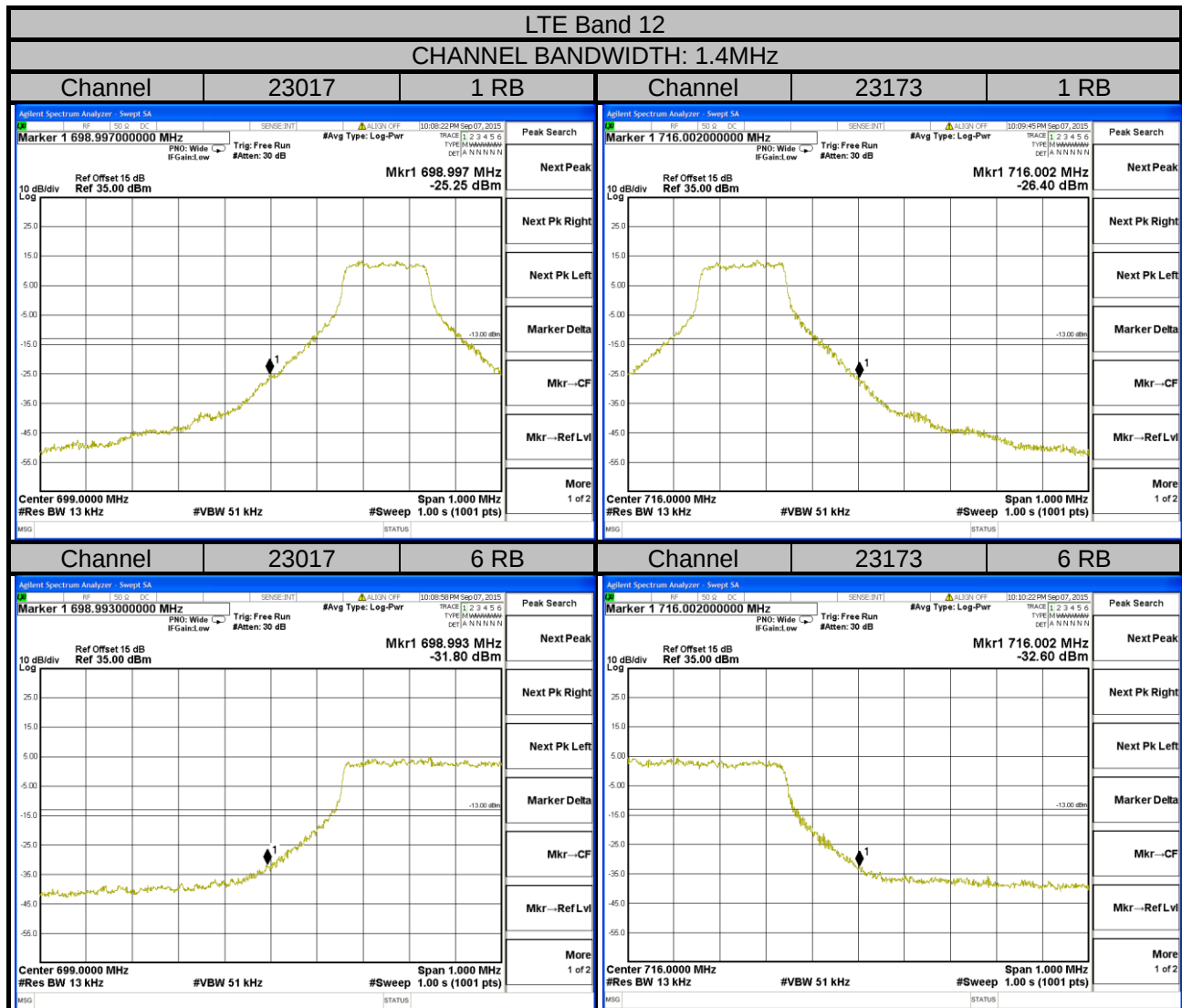
### 4.4.2 Test Setup



### 4.4.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (LTE Bandwidth 1.4MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Bandwidth 3MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Bandwidth 5MHz/10MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Bandwidth 15MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 180kHz and VB of the spectrum is 560kHz (LTE Bandwidth 20MHz).
- Record the max trace plot into the test report.

#### 4.4.4 Test Results





A D T

## LTE Band 12

Channel Bandwidth: 3MHz

Channel

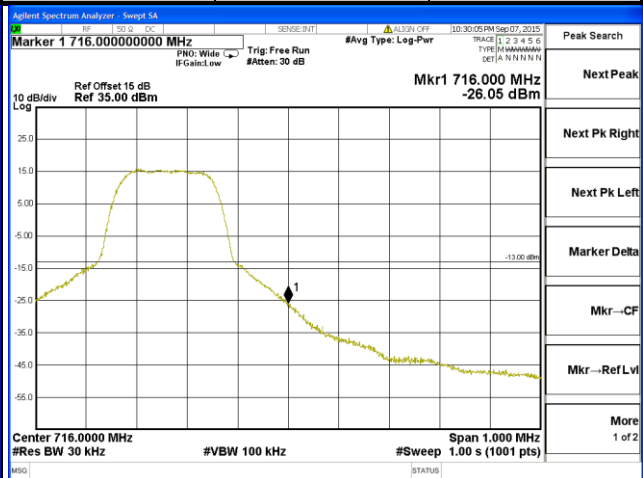
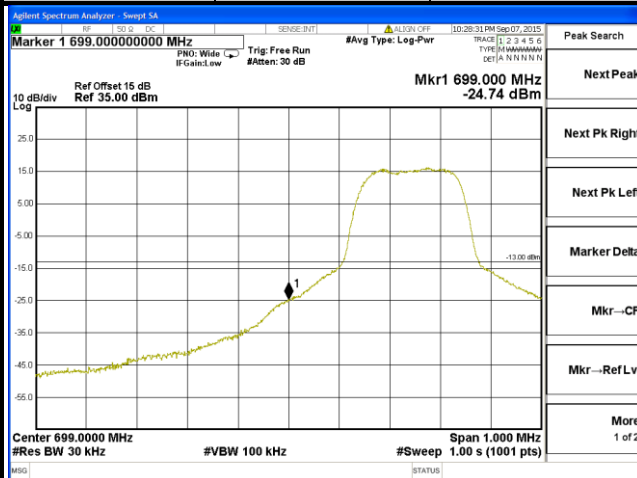
23025

1 RB

Channel

23165

1 RB



Channel

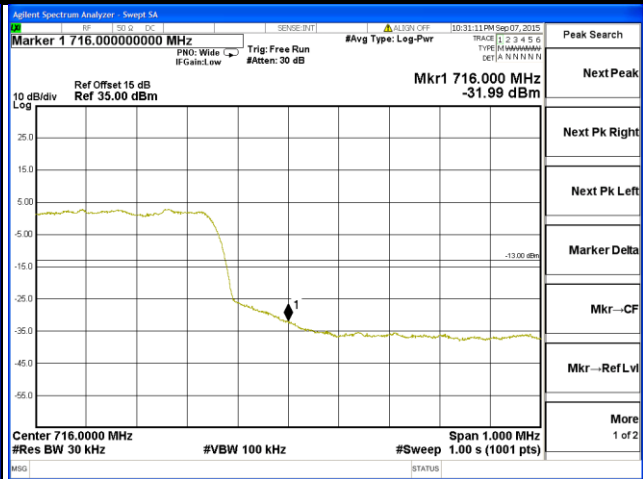
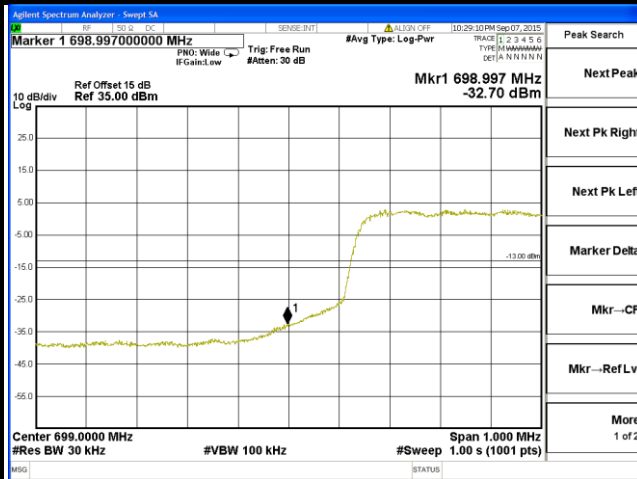
23025

15 RB

Channel

23165

15 RB





A D T

## LTE Band 12

Channel Bandwidth: 5MHz

Channel

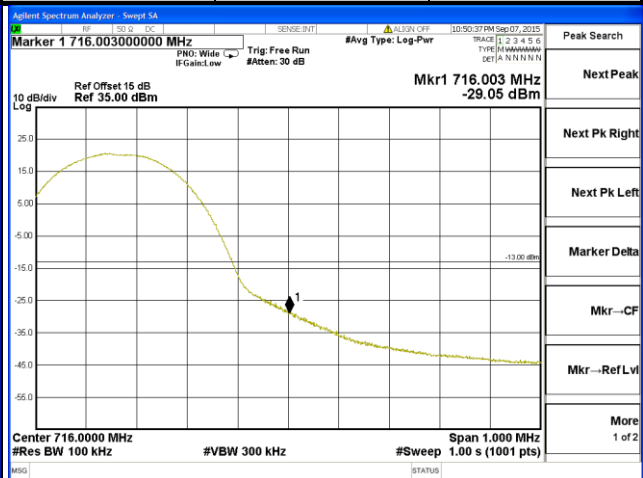
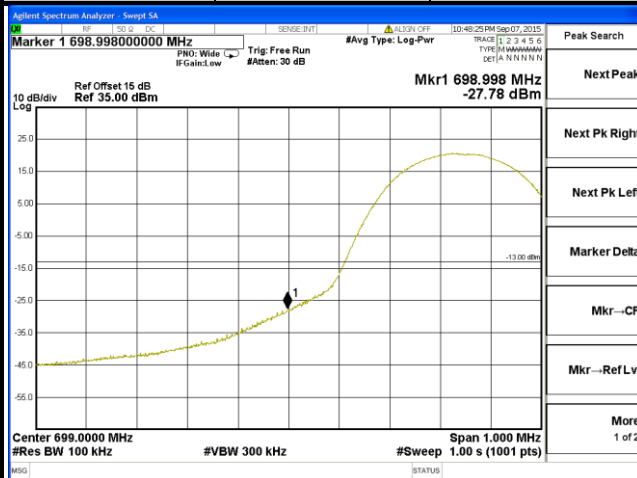
23035

1 RB

Channel

23155

1 RB



Channel

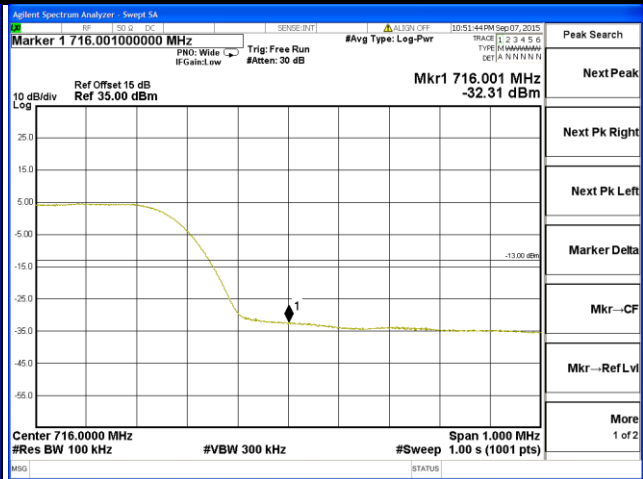
23035

25 RB

Channel

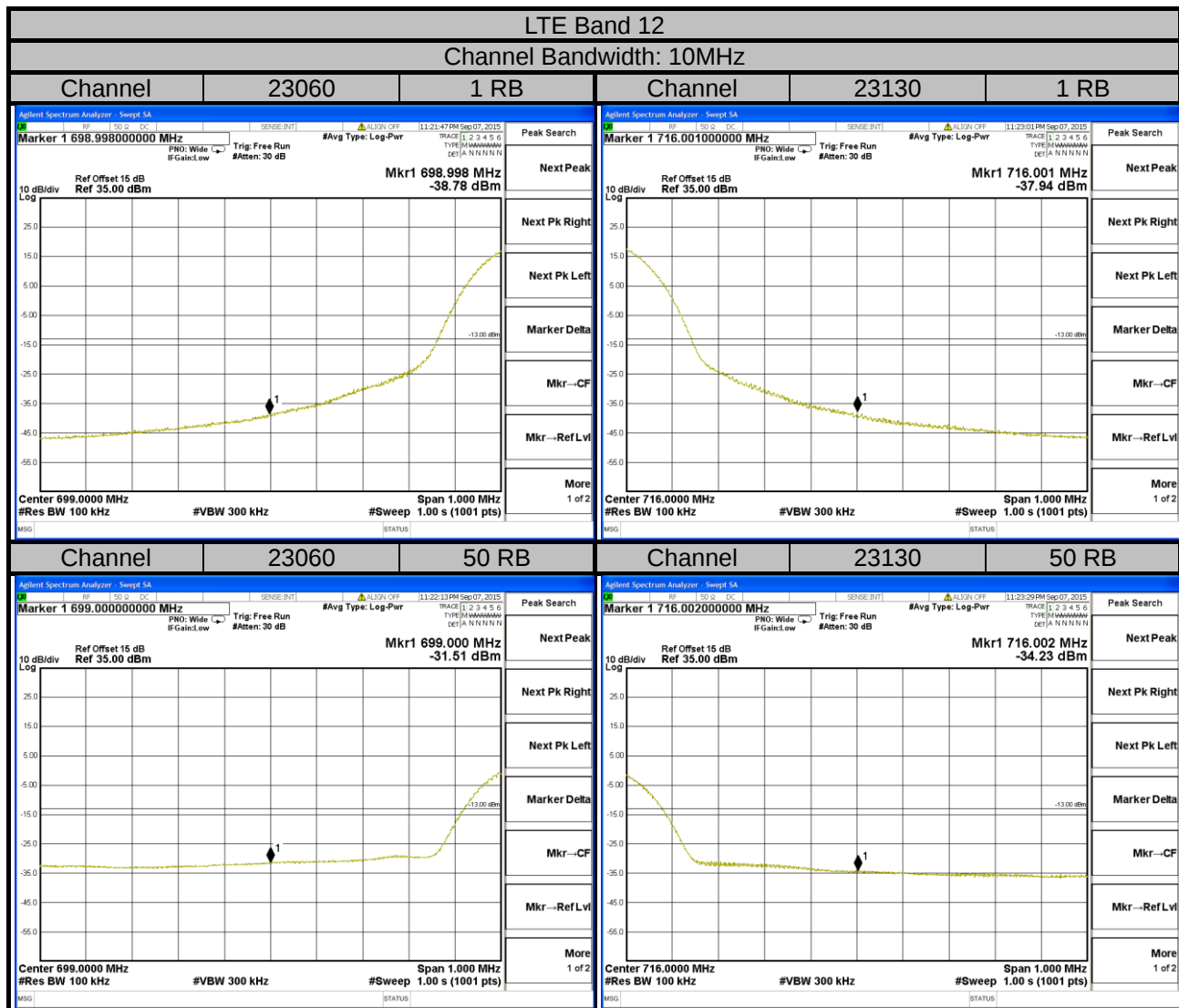
23155

25 RB





A D T

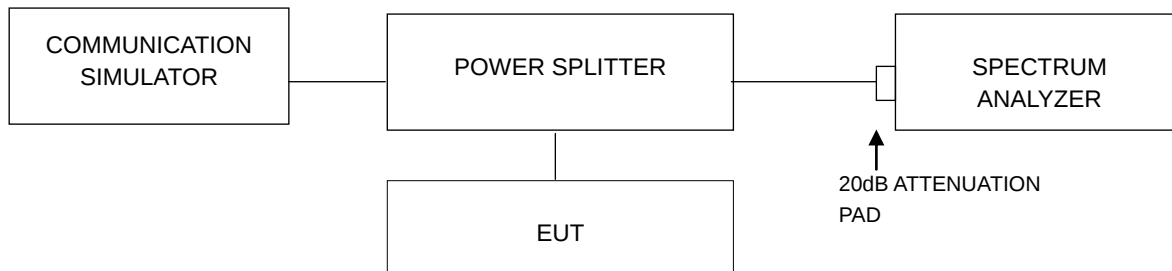


## 4.5 Peak To Average Ratio

### 4.5.1 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

### 4.5.2 Test Setup

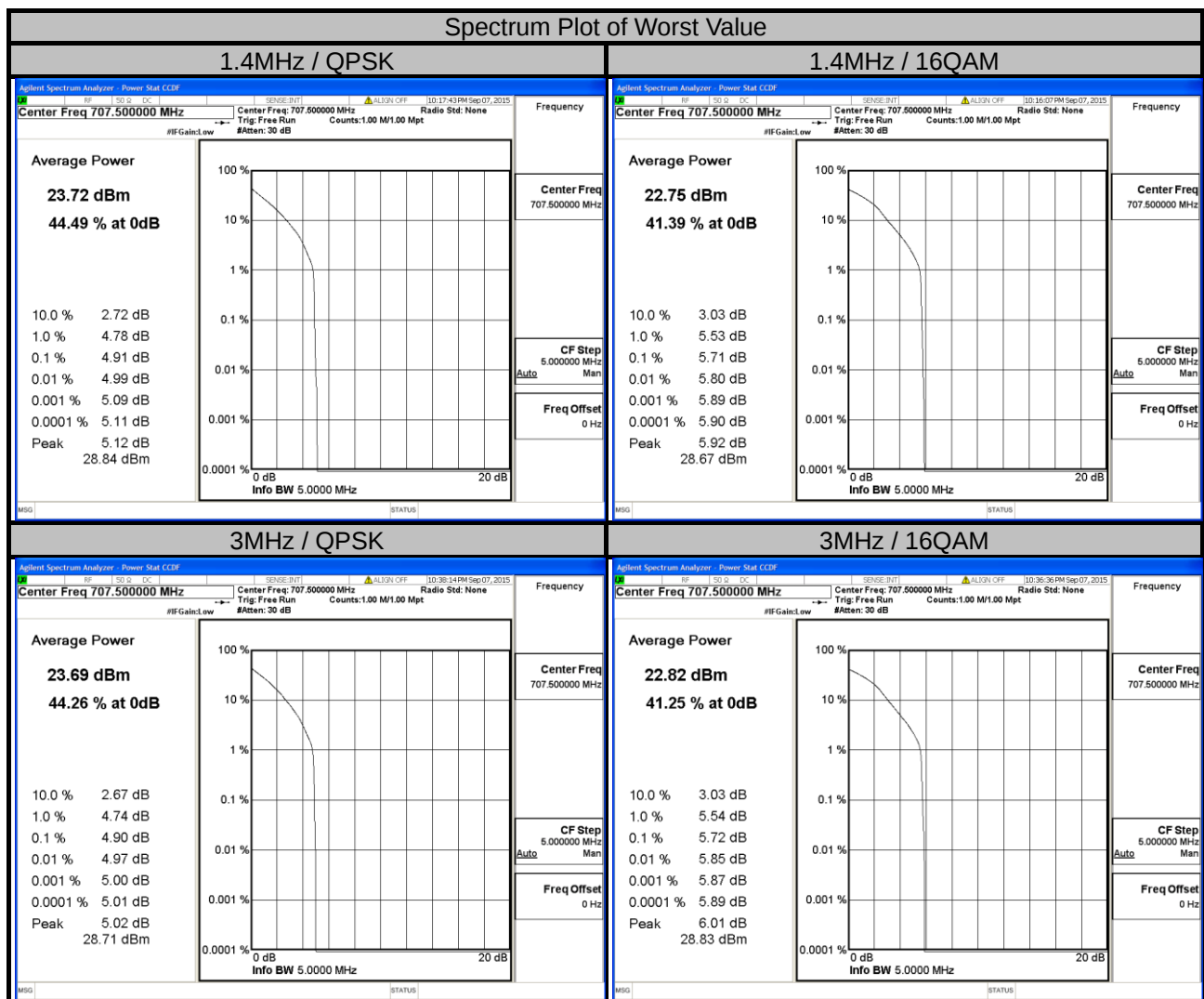


### 4.5.3 Test Procedures

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

#### 4.5.4 Test Results

| LTE Band 12               |                 |                            |       |                         |                 |                            |       |
|---------------------------|-----------------|----------------------------|-------|-------------------------|-----------------|----------------------------|-------|
| Channel Bandwidth: 1.4MHz |                 |                            |       | Channel Bandwidth: 3MHz |                 |                            |       |
| Channel                   | Frequency (MHz) | Peak to Average Ratio (dB) |       | Channel                 | Frequency (MHz) | Peak to Average Ratio (dB) |       |
|                           |                 | QPSK                       | 16QAM |                         |                 | QPSK                       | 16QAM |
| 23017                     | 699.7           | 4.49                       | 5.36  | 23025                   | 700.5           | 4.82                       | 5.54  |
| 23095                     | 707.5           | 4.91                       | 5.71  | 23095                   | 707.5           | 4.90                       | 5.72  |
| 23173                     | 715.3           | 4.82                       | 5.60  | 23165                   | 714.5           | 4.87                       | 5.61  |



# LTE Band 12

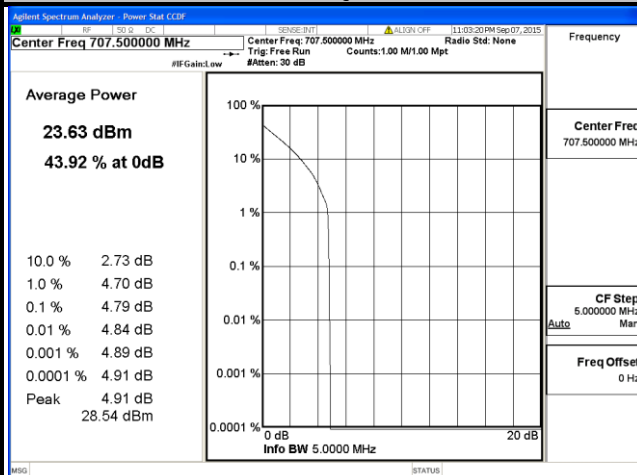
## Channel Bandwidth: 5MHz

## Channel Bandwidth: 10MHz

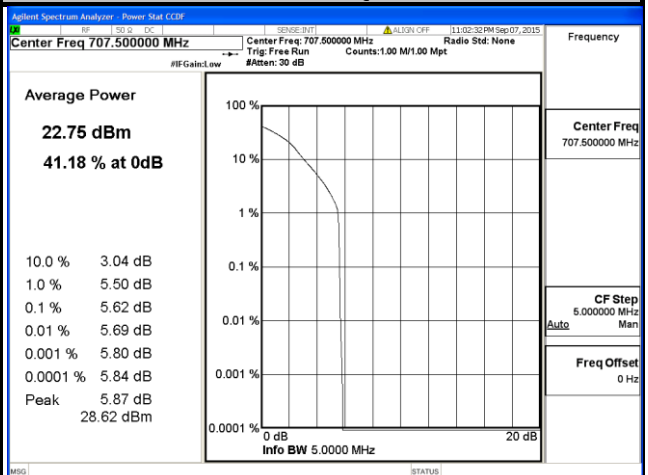
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) |       | Channel | Frequency (MHz) | Peak to Average Ratio (dB) |       |
|---------|-----------------|----------------------------|-------|---------|-----------------|----------------------------|-------|
|         |                 | QPSK                       | 16QAM |         |                 | QPSK                       | 16QAM |
| 23035   | 701.5           | 4.55                       | 5.53  | 23060   | 704.0           | 4.45                       | 5.48  |
| 23095   | 707.5           | 4.79                       | 5.62  | 23095   | 707.5           | 4.69                       | 5.48  |
| 23155   | 713.5           | 4.64                       | 5.41  | 23130   | 711.0           | 4.92                       | 5.78  |

## Spectrum Plot of Worst Value

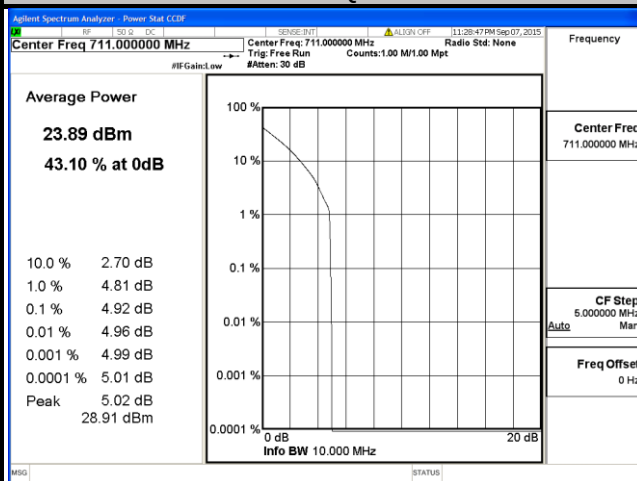
### 5MHz / QPSK



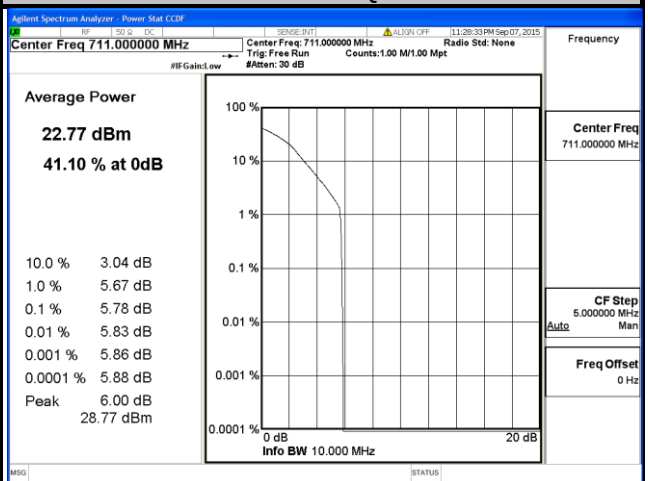
### 5MHz / 16QAM



### 10MHz / QPSK



### 10MHz / 16QAM

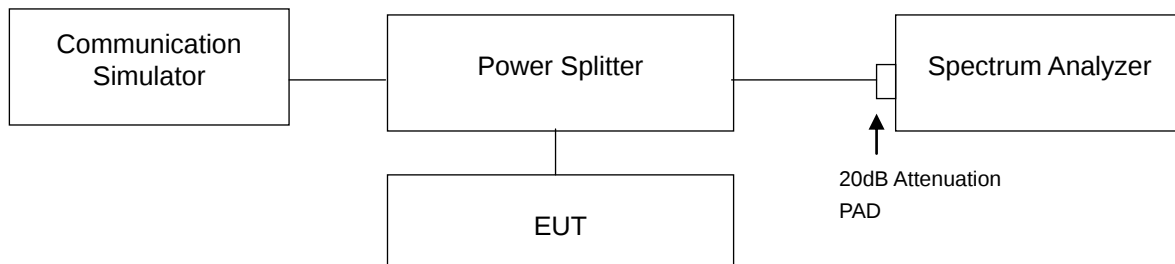


## 4.6 Conducted Spurious Emissions

### 4.6.1 Limits of Conducted Spurious Emissions Measurement

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

### 4.6.2 Test Setup

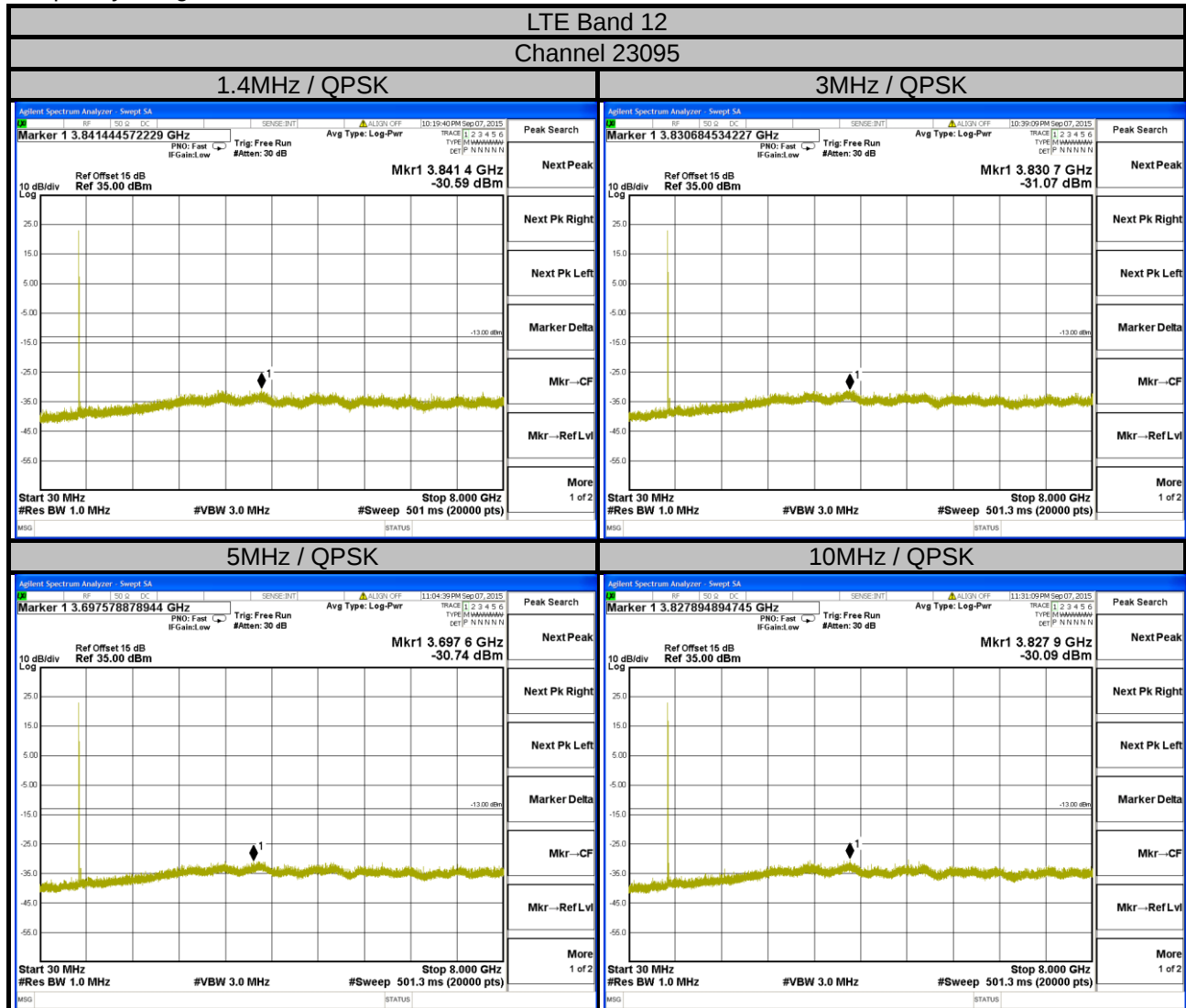


### 4.6.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30 MHz to 8GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

#### 4.6.4 Test Results

Frequency Range: 30MHz~8GHz



## 4.7 Radiated Emission Measurement

### 4.7.1 Limits of Radiated Emission Measurement

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

### 4.7.2 Test Procedure

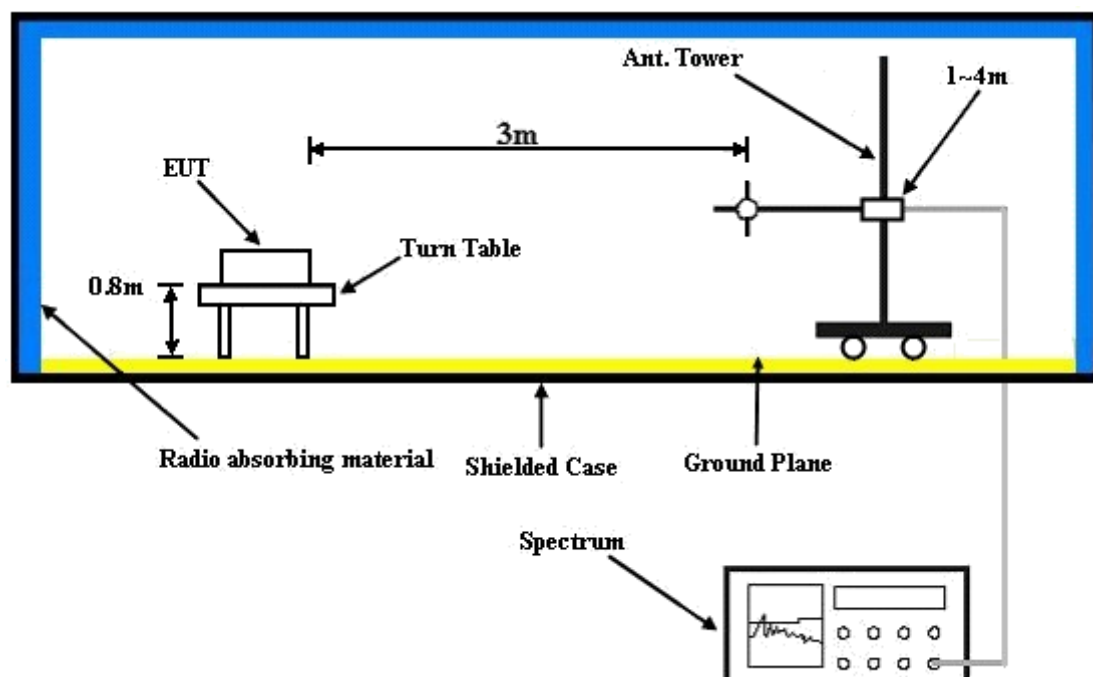
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from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

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

### 4.7.3 Deviation from Test Standard

No deviation.

### 4.7.4 Test Setup



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

#### 4.7.5 Test Results

LTE Band 12

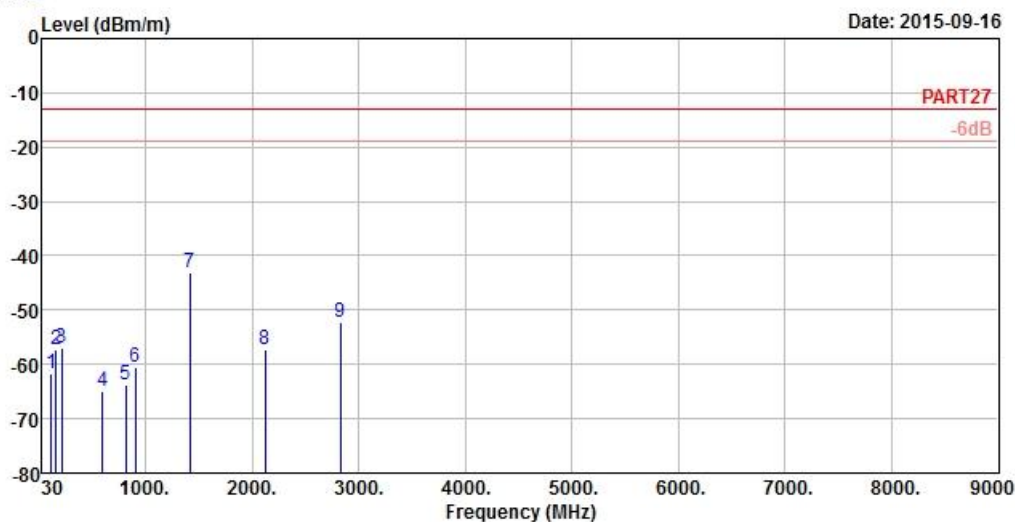
Channel Bandwidth: 10MHz / QPSK



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A D T

Data: 9



Site : 966 Chamber 5  
Condition: PART27 3m HORIZONTAL  
Remak : LTE Band 12\_QPSK\_10M(1.24)  
Tested by: Gavin Wu  
Plane : Y

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |
| 1    | 114.51  | -61.81 | -51.70     | -13.00     | -48.81     | -10.11 | Peak   |
| 2    | 159.60  | -57.41 | -52.57     | -13.00     | -44.41     | -4.84  | Peak   |
| 3    | 213.87  | -56.91 | -49.47     | -13.00     | -43.91     | -7.44  | Peak   |
| 4    | 596.80  | -64.83 | -63.92     | -13.00     | -51.83     | -0.91  | Peak   |
| 5    | 813.80  | -63.71 | -64.32     | -13.00     | -50.71     | 0.61   | Peak   |
| 6    | 900.60  | -60.51 | -61.11     | -13.00     | -47.51     | 0.60   | Peak   |
| 7 pp | 1415.00 | -43.12 | -28.78     | -13.00     | -30.12     | -14.34 | Peak   |
| 8    | 2122.50 | -57.17 | -44.93     | -13.00     | -44.17     | -12.24 | Peak   |
| 9    | 2830.00 | -52.16 | -42.45     | -13.00     | -39.16     | -9.71  | Peak   |

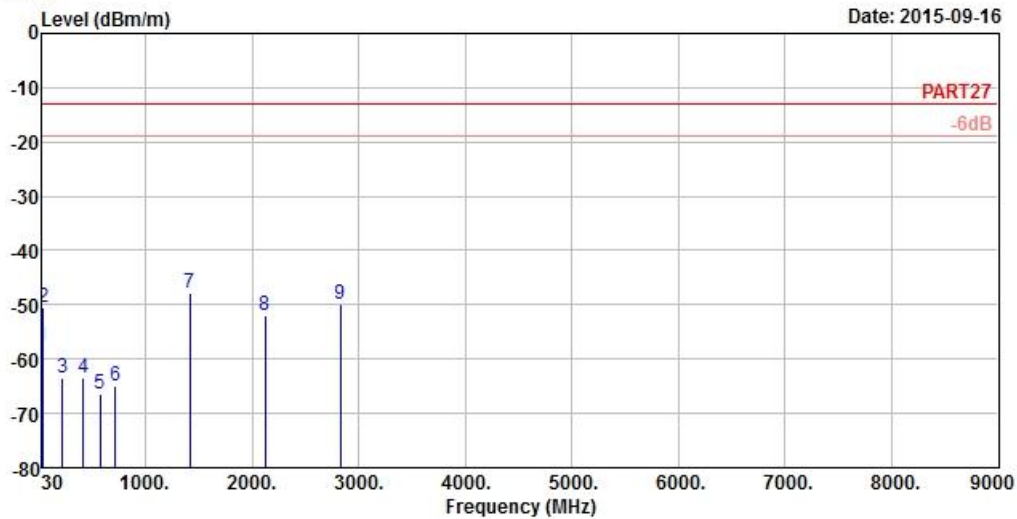


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2015-09-16



Site : 966 Chamber 5  
Condition: PART27 3m VERTICAL  
Remak : LTE Band 12\_QPSK\_10M(1.24)  
Tested by: Gavin Wu  
Plane : Y

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |
| 1    | 30.54   | -57.68 | -57.57     | -13.00     | -44.68     | -0.11  | Peak   |
| 2    | 40.80   | -50.53 | -50.65     | -13.00     | -37.53     | 0.12   | Peak   |
| 3    | 221.16  | -63.42 | -56.26     | -13.00     | -50.42     | -7.16  | Peak   |
| 4    | 419.00  | -63.37 | -57.58     | -13.00     | -50.37     | -5.79  | Peak   |
| 5    | 572.30  | -66.39 | -64.47     | -13.00     | -53.39     | -1.92  | Peak   |
| 6    | 716.50  | -64.96 | -65.19     | -13.00     | -51.96     | 0.23   | Peak   |
| 7 pp | 1415.00 | -47.86 | -33.52     | -13.00     | -34.86     | -14.34 | Peak   |
| 8    | 2122.50 | -51.99 | -39.75     | -13.00     | -38.99     | -12.24 | Peak   |
| 9    | 2830.00 | -49.95 | -40.24     | -13.00     | -36.95     | -9.71  | Peak   |

## 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.

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

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Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab/Telecom Lab**

Tel: 886-3-5935343

Fax: 886-3-5935342

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Tel: 886-3-3183232

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**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

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