

# FCC TEST REPORT

Product Name: Tablet 10.1 inch Android 10  
Trade Mark: Compumax  
Model No.: BlueS10  
Report Number: 201211012RFM-2  
Test Standards: FCC 47 CFR Part 27  
FCC ID: 2AHF7-BLUES10-  
Test Result: PASS  
Date of Issue: January 28, 2021

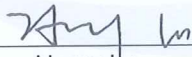
Prepared for:

**Compumax Computer S.A.S**  
**Calle 41 N 35-47 Bucaramanga, Santander, Colombia**

Prepared by:

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**  
**16/F, Block A, Building 6, Baoneng Science and Technology Park,**  
**Qingxiang Road No.1, Longhua New District, Shenzhen, China**  
**TEL: +86-755-2823 0888**  
**FAX: +86-755-2823 0886**

Prepared by:

  
Henry Lu

Team Leader

Reviewed by:

  
Kevin Liang  
Assistant Manager

Approved by:



Date:

January 28, 2021

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: [info@uttlab.com](mailto:info@uttlab.com)

<http://www.uttlab.com>

UTTR-RF-FCC4G-V1.0

## Version

| Version No. | Date             | Description |
|-------------|------------------|-------------|
| V1.0        | January 28, 2021 | Original    |



## Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: [info@uttlab.com](mailto:info@uttlab.com)

<http://www.uttlab.com>

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## 1. GENERAL INFORMATION

### 1.1 CLIENT INFORMATION

|                                 |                                                                    |
|---------------------------------|--------------------------------------------------------------------|
| <b>Applicant:</b>               | Compumax Computer S.A.S                                            |
| <b>Address of Applicant:</b>    | Calle 41 N 35-47 Bucaramanga, Santander, Colombia                  |
| <b>Manufacturer:</b>            | Xiamen Candour Co., Ltd.                                           |
| <b>Address of Manufacturer:</b> | C&D International Building, No.1699 Huandao East Road,Xiamen,China |

### 1.2 EUT INFORMATION

#### 1.2.1 General Description of EUT

|                               |                                       |                        |                |
|-------------------------------|---------------------------------------|------------------------|----------------|
| <b>Product Name:</b>          | Tablet 10.1 inch Android 10           |                        |                |
| <b>Model No.:</b>             | BlueS10                               |                        |                |
| <b>Trade Mark:</b>            | Compumax                              |                        |                |
| <b>DUT Stage:</b>             | Production Unit                       |                        |                |
| <b>EUT Supports Function:</b> | <b>GSM Bands:</b>                     | GSM850/1900            |                |
|                               | <b>UTRA Bands:</b>                    | Band II/ Band IV       |                |
|                               | <b>E-UTRA Bands:</b>                  | FDD Band 4/ Band 7     |                |
|                               |                                       | TDD Band 38            |                |
|                               | <b>2.4 GHz ISM Band:</b>              | IEEE 802.11b/g/n       |                |
|                               |                                       | Bluetooth V4.1         |                |
|                               | <b>5 GHz U-NII Bands:</b>             | 5 150 MHz to 5 250 MHz | IEEE 802.11a/n |
|                               |                                       | 5 250 MHz to 5 350 MHz | IEEE 802.11a/n |
|                               |                                       | 5 725 MHz to 5 850 MHz | IEEE 802.11a/n |
| <b>Sample Received Date:</b>  | December 16, 2020                     |                        |                |
| <b>Sample Tested Date:</b>    | December 25, 2020 to January 21, 2021 |                        |                |

#### 1.2.2 Description of Accessories

| Adapter              |                                   |
|----------------------|-----------------------------------|
| <b>Model No.:</b>    | JK055180-S37USV                   |
| <b>Input:</b>        | 100-240 V~50/60 Hz 0.5 A          |
| <b>Output:</b>       | 5.5 V $\pm$ 1.8 A 9.9 W           |
| <b>Manufacturer:</b> | SHENZHEN JUKE ELECTRONICS CO.,LTD |

| Battery                        |                                          |
|--------------------------------|------------------------------------------|
| <b>Model No.:</b>              | 2898140-6200mAh-3.8V                     |
| <b>Battery Type:</b>           | Lithium-ion Polymer Rechargeable Battery |
| <b>Rated Voltage:</b>          | 3.8 Vdc                                  |
| <b>Limited Charge Voltage:</b> | 4.4 Vdc                                  |
| <b>Rated Capacity:</b>         | 6200 mAh                                 |
| <b>Manufacturer:</b>           | Guangdong Yongbang New Energy Co., Ltd   |

| DC Cable     |                            |
|--------------|----------------------------|
| Description: | DC port                    |
| Cable Type:  | Unshielded without ferrite |
| Length:      | 1.0 Meter                  |

### 1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

|                           |                                             |             |
|---------------------------|---------------------------------------------|-------------|
| Support Networks:         | LTE                                         |             |
| Type of Modulation:       | LTE Band 4/7/38:                            | QPSK, 16QAM |
| Antenna Type:             | PIFA Antenna                                |             |
| Antenna Gain:             | LTE Band 4:                                 | 1.0 dBi     |
|                           | LTE Band 7:                                 | 1.0 dBi     |
|                           | LTE Band 38:                                | 0.7 dBi     |
| IEMI:                     | Radiation: 359225080037072, 359225080037073 |             |
|                           | Conducted: 359225080037078, 359225080037079 |             |
| Normal Test Voltage:      | 3.8 Vdc                                     |             |
| Extreme Test Voltage:     | 3.45 to 4.4Vdc                              |             |
| Extreme Test Temperature: | -20 °C to +55 °C                            |             |

| Summary of Results: |       |            |                 |                           |                    |          |              |                     |
|---------------------|-------|------------|-----------------|---------------------------|--------------------|----------|--------------|---------------------|
| Bands               | BW    | Modulation | Frequency Range | Max RF Output Power (dBm) |                    | EIRP (W) | 99% BW (MHz) | Emission Designator |
|                     | (MHz) |            | (MHz)           | Conducted (Average)       | ERP/EIRP (Average) |          |              |                     |
| 4                   | 1.4   | QPSK       | 1710.7-1754.3   | 23.05                     | 24.05              | 0.25410  | 1.1061       | 1M11G7W             |
|                     |       | 16QAM      |                 | 22.47                     | 23.47              | 0.22233  | 1.1006       | 1M10D7W             |
|                     | 3     | QPSK       | 1711.5-1753.5   | 23.07                     | 24.07              | 0.25527  | 2.7012       | 2M70G7W             |
|                     |       | 16QAM      |                 | 22.54                     | 23.54              | 0.22594  | 2.6939       | 2M70D7W             |
|                     | 5     | QPSK       | 1712.5-1752.5   | 23.10                     | 24.10              | 0.25704  | 4.5504       | 4M55G7W             |
|                     |       | 16QAM      |                 | 22.47                     | 23.47              | 0.22233  | 4.5497       | 4M55D7W             |
|                     | 10    | QPSK       | 1715-1750       | 23.08                     | 24.08              | 0.25586  | 9.0297       | 9M03G7W             |
|                     |       | 16QAM      |                 | 22.49                     | 23.49              | 0.22336  | 9.0165       | 9M02D7W             |
|                     | 15    | QPSK       | 1717.5-1747.5   | 23.03                     | 24.03              | 0.25293  | 13.543       | 13M5G7W             |
|                     |       | 16QAM      |                 | 22.48                     | 23.48              | 0.22284  | 13.582       | 13M6D7W             |
|                     | 20    | QPSK       | 1720-1745       | 23.13                     | 24.13              | 0.25882  | 18.063       | 18M1G7W             |
|                     |       | 16QAM      |                 | 22.62                     | 23.62              | 0.23014  | 18.061       | 18M1D7W             |

#### Shenzhen UnionTrust Quality and Technology Co., Ltd.

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Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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| Summary of Results: |       |            |                 |                           |                    |          |              |                     |
|---------------------|-------|------------|-----------------|---------------------------|--------------------|----------|--------------|---------------------|
| Bands               | BW    | Modulation | Frequency Range | Max RF Output Power (dBm) |                    | EIRP (W) | 99% BW (MHz) | Emission Designator |
|                     | (MHz) |            | (MHz)           | Conducted (Average)       | ERP/EIRP (Average) |          |              |                     |
| 7                   | 5     | QPSK       | 2502.5-2567.5   | 23.79                     | 24.79              | 0.30130  | 4.5420       | 4M54G7W             |
|                     |       | 16QAM      |                 | 23.26                     | 24.26              | 0.26669  | 4.5609       | 4M56D7W             |
|                     | 10    | QPSK       | 2505-2565       | 23.87                     | 24.87              | 0.30690  | 9.0336       | 9M03G7W             |
|                     |       | 16QAM      |                 | 23.26                     | 24.26              | 0.26669  | 9.0287       | 9M03D7W             |
|                     | 15    | QPSK       | 2507.5-2562.5   | 23.89                     | 24.89              | 0.30832  | 13.546       | 13M5G7W             |
|                     |       | 16QAM      |                 | 23.42                     | 24.42              | 0.27669  | 13.529       | 13M5D7W             |
|                     | 20    | QPSK       | 2510-2560       | 23.94                     | 24.94              | 0.31189  | 18.026       | 18M0G7W             |
|                     |       | 16QAM      |                 | 23.43                     | 24.43              | 0.27733  | 18.070       | 18M1D7W             |
| 38                  | 5     | QPSK       | 2572.5-2617.5   | 23.98                     | 24.68              | 0.29376  | 4.5221       | 4M52G7W             |
|                     |       | 16QAM      |                 | 23.05                     | 23.75              | 0.23714  | 4.5108       | 4M51D7W             |
|                     | 10    | QPSK       | 2575-2615       | 23.87                     | 24.57              | 0.28642  | 9.0490       | 9M05G7W             |
|                     |       | 16QAM      |                 | 23.00                     | 23.70              | 0.23442  | 9.0197       | 9M02D7W             |
|                     | 15    | QPSK       | 2577.5-2612.5   | 24.00                     | 24.70              | 0.29512  | 13.514       | 13M5G7W             |
|                     |       | 16QAM      |                 | 23.10                     | 23.80              | 0.23988  | 13.614       | 13M6D7W             |
|                     | 20    | QPSK       | 2580-2610       | 24.04                     | 24.74              | 0.29785  | 18.030       | 18M0G7W             |
|                     |       | 16QAM      |                 | 23.19                     | 23.89              | 0.24491  | 18.081       | 18M1D7W             |

## 1.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

### 1) Support Equipment

| Description | Manufacturer | Model No. | Serial Number | Supplied by |
|-------------|--------------|-----------|---------------|-------------|
| -           | -            | -         | -             | -           |

### 2) Support Cable

| Cable No. | Description   | Connector | Length     | Supplied by |
|-----------|---------------|-----------|------------|-------------|
| 1         | Antenna Cable | SMA       | 0.30 Meter | UnionTrust  |

## 1.5 TEST LOCATION

### Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109

Telephone: +86 (0) 755 2823 0888

Fax: +86 (0) 755 2823 0886

## 1.6 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

### Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

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Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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**CNAS-Lab Code: L9069**

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

**A2LA-Lab Certificate No.: 4312.01**

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

**ISED Wireless Device Testing Laboratories**

CAB identifier: CN0032

**FCC Accredited Lab.**

Designation Number: CN1194

Test Firm Registration Number: 259480

## 1.7 DEVIATION FROM STANDARDS

None.

## 1.8 ABNORMALITIES FROM STANDARD CONDITIONS

None.

## 1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

## 1.10 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| No. | Item                                    | Measurement Uncertainty  |
|-----|-----------------------------------------|--------------------------|
| 1   | Conducted emission 9KHz-150KHz          | ±3.2 dB                  |
| 2   | Conducted emission 150KHz-30MHz         | ±2.7 dB                  |
| 3   | Radiated spurious emissions 30MHz-1GHz  | ± 4.9 dB                 |
| 4   | Radiated spurious emissions 1GHz-18GHz  | ± 4.8 dB                 |
| 5   | Radiated spurious emissions 18GHz-40GHz | ± 5.1 dB                 |
| 6   | Occupied Bandwidth                      | ± 1.86 %                 |
| 7   | DC Supply Voltages                      | ± 0.68 %                 |
| 8   | Temperature                             | ± 0.62 °C                |
| 9   | Humidity                                | ± 3.9 %                  |
| 10  | Conducted spurious emissions            | ± 2.7 dB                 |
| 11  | DC Supply Voltages                      | ± 0.68 %                 |
| 12  | AC Supply Voltages                      | ± 1.2 %                  |
| 13  | Radio Frequency                         | ± 6.5 x 10 <sup>-8</sup> |
| 14  | RF Power, Conducted                     | ± 0.9 dB                 |

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## 2. TEST SUMMARY

| FCC 47 CFR Part 27 Test Cases (LTE Band 4 ) |                                                         |                                         |        |
|---------------------------------------------|---------------------------------------------------------|-----------------------------------------|--------|
| Test Item                                   | Test Requirement                                        | Test Method                             | Result |
| Equivalent Isotropic Radiated Power (EIRP)  | FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4) | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Conducted Output Power                      | FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4) | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Peak-to-average ratio                       | FCC 47 CFR Part 27.50(d)(5)                             | KDB 971168 D01v03r01                    | PASS   |
| 99%&26dB Bandwidth                          | FCC 47 CFR Part 2.1049(h) & FCC 47 CFR Part 27.53(h)    | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Band Edge at antenna terminals              | FCC 47 CFR Part 27.53(h)(1)                             | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Spurious emissions at antenna terminals     | FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(h)       | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Field strength of spurious radiation        | FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(h)       | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Frequency stability                         | FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54          | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |

| FCC 47 CFR Part 27 Test Cases (LTE Band 7 & Band 38 ) |                                                         |                                         |        |
|-------------------------------------------------------|---------------------------------------------------------|-----------------------------------------|--------|
| Test Item                                             | Test Requirement                                        | Test Method                             | Result |
| Equivalent Isotropic Radiated Power (EIRP)            | FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(h)(2) | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Conducted Output Power                                | FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(h)(2) | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Peak-to-average ratio                                 | FCC 47 CFR Part 27.50(d)(5)                             | KDB 971168 D01v03r01                    | PASS   |
| 99%&26dB Bandwidth                                    | FCC 47 CFR Part 2.1049(h)                               | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Band Edge at antenna terminals                        | FCC 47 CFR Part 27.53(m)(4)                             | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Spurious emissions at antenna terminals               | FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(m)(4)    | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Field strength of spurious radiation                  | FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(m)(4)    | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |
| Frequency stability                                   | FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54          | ANSI C63.26-2015 & KDB 971168 D01v03r01 | PASS   |

### 3. EQUIPMENT LIST

| Radiated Emission Test Equipment List |                                   |              |            |                            |                         |                             |
|---------------------------------------|-----------------------------------|--------------|------------|----------------------------|-------------------------|-----------------------------|
| Used                                  | Equipment                         | Manufacturer | Model No.  | Serial Number              | Cal. date (mm dd, yyyy) | Cal. Due date (mm dd, yyyy) |
| <input checked="" type="checkbox"/>   | 3M Chamber & Accessory Equipment  | ETS-LINDGREN | 3M         | N/A                        | Dec. 03, 2018           | Dec. 03, 2021               |
| <input checked="" type="checkbox"/>   | Receiver                          | R&S          | ESIB26     | 100114                     | Nov. 18, 2020           | Nov. 18, 2021               |
| <input type="checkbox"/>              | Loop Antenna                      | ETS-LINDGREN | 6502       | 00202525                   | Nov. 14, 2020           | Nov. 13, 2021               |
| <input checked="" type="checkbox"/>   | Broadband Antenna                 | ETS-LINDGREN | 3142E      | 00201566                   | Nov. 14, 2020           | Nov. 13, 2021               |
| <input checked="" type="checkbox"/>   | 6dB Attenuator                    | Talent       | RA6A5-N-18 | 18103001                   | Nov. 14, 2020           | Nov.13, 2021                |
| <input checked="" type="checkbox"/>   | Preamplifier                      | HP           | 8447F      | 2805A02960                 | Nov. 10, 2020           | Nov. 9, 2021                |
| <input type="checkbox"/>              | Broadband Antenna (Pre-amplifier) | ETS-LINDGREN | 3142E-PA   | 00201891                   | May. 30, 2020           | May. 29, 2021               |
| <input type="checkbox"/>              | 6dB Attenuator                    | Talent       | RA6A5-N-18 | 18103002                   | Nov. 18, 2020           | Nov. 17, 2021               |
| <input type="checkbox"/>              | Horn Antenna                      | ETS-LINDGREN | 3117       | 00164202                   | Nov. 14, 2020           | Nov. 13, 2021               |
| <input checked="" type="checkbox"/>   | Horn Antenna (Pre-amplifier)      | ETS-LINDGREN | 3117-PA    | 00201874                   | May. 30, 2020           | May. 29, 2021               |
| <input type="checkbox"/>              | Horn Antenna                      | ETS-LINDGREN | 3116C      | 00200180                   | Jun.19, 2020            | Jun. 18, 2021               |
| <input checked="" type="checkbox"/>   | Horn Antenna (Pre-amplifier)      | ETS-LINDGREN | 3116C-PA   | 00202652                   | Nov. 17, 2020           | Nov. 16, 2021               |
| <input checked="" type="checkbox"/>   | Multi device Controller           | ETS-LINDGREN | 7006-001   | 00160105                   | N/A                     | N/A                         |
| <input checked="" type="checkbox"/>   | Test Software                     | Audix        | e3         | Software Version: 9.160323 |                         |                             |

| RF Test Equipment List              |                                      |              |           |                        |                         |                             |
|-------------------------------------|--------------------------------------|--------------|-----------|------------------------|-------------------------|-----------------------------|
| Used                                | Equipment                            | Manufacturer | Model No. | Serial Number          | Cal. date (mm dd, yyyy) | Cal. Due date (mm dd, yyyy) |
| <input checked="" type="checkbox"/> | Receiver                             | R&S          | ESR7      | 1316.3003K07-101181-K3 | Nov. 18, 2020           | Nov.18, 2021                |
| <input checked="" type="checkbox"/> | EXA Spectrum Analyzer                | KEYSIGHT     | N9010A    | MY51440197             | Nov. 10, 2020           | Nov. 10, 2021               |
| <input checked="" type="checkbox"/> | Wideband Radio Communication Tester  | R&S          | CMW500    | 120932                 | Jul. 20, 2020           | Jul. 19, 2021               |
| <input type="checkbox"/>            | Wideband Radio Communication Tester  | R&S          | CMW500    | 119583                 | Jul. 20, 2020           | Jul. 19, 2021               |
| <input type="checkbox"/>            | Universal Radio Communication Tester | R&S          | CMU200    | 114713                 | Nov. 10, 2020           | Nov. 10, 2021               |
| <input checked="" type="checkbox"/> | DC Source                            | KIKUSUI      | PWR400L   | LK003024               | N/A                     | N/A                         |
| <input checked="" type="checkbox"/> | Digital multimeter                   | FLUKE        | 15B+      | 30701460WS15           | Nov. 12, 2020           | Nov. 11, 2021               |
| <input checked="" type="checkbox"/> | Temp & Humidity chamber              | Votisch      | VT4002    | 58566133290020         | May. 11, 2020           | May. 10, 2021               |

#### Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-FCC4G-V1.0

#### 4. TEST CONFIGURATION

##### 4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

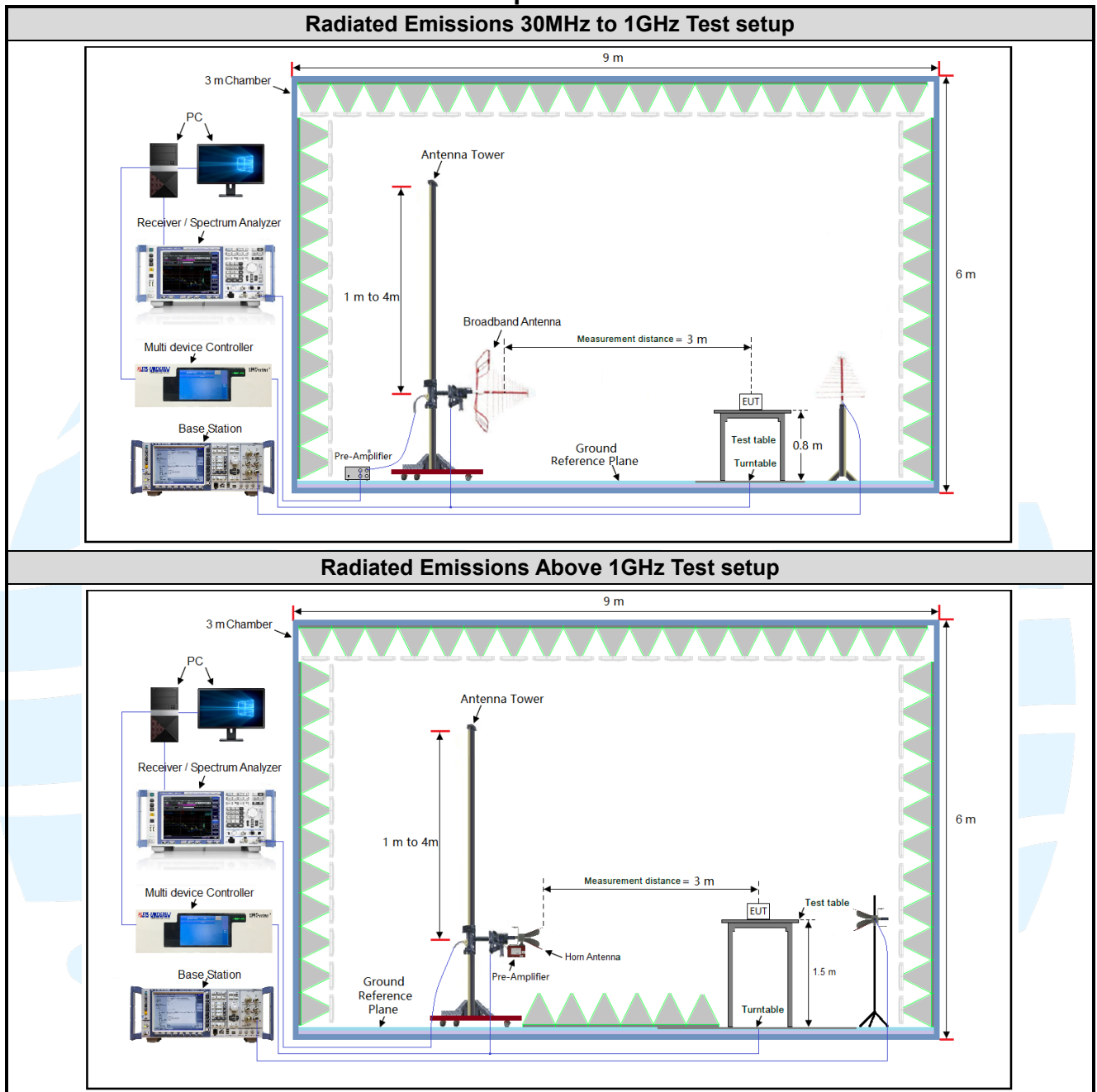
| Test Environment | Selected Values During Tests |             |                       |
|------------------|------------------------------|-------------|-----------------------|
| Test Condition   | Ambient                      |             |                       |
|                  | Temperature (°C)             | Voltage (V) | Relative Humidity (%) |
| TN/VN            | +15 to +35                   | 3.8         | 20 to 75              |
| TL/VL            | -20                          | 3.45        | 20 to 75              |
| TH/VL            | +55                          | 3.45        | 20 to 75              |
| TL/VH            | -20                          | 4.4         | 20 to 75              |
| TH/VH            | +55                          | 4.4         | 20 to 75              |

**Remark:**

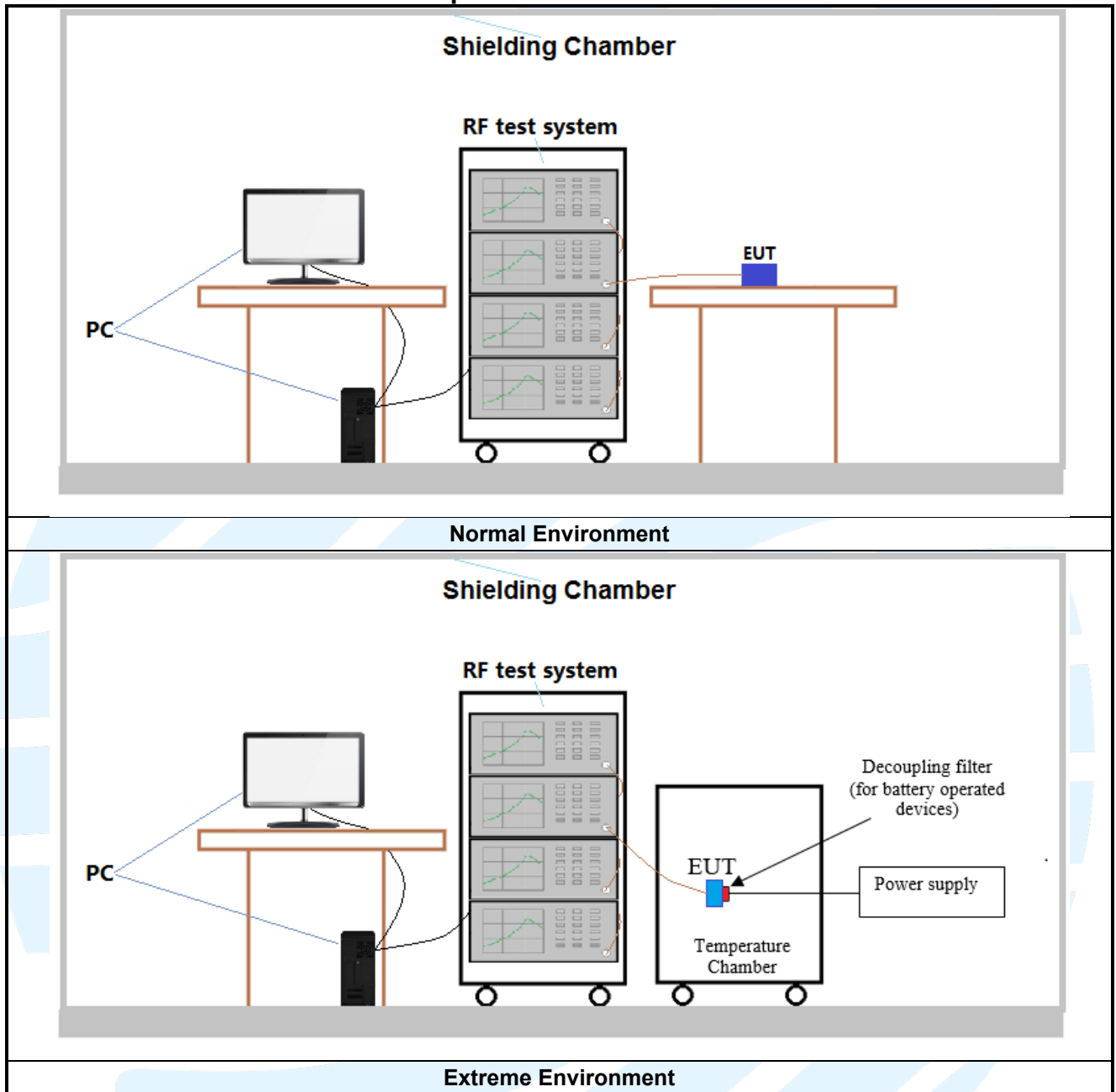
- 1) The EUT just work in such extreme temperature of -20 °C to +55 °C and the extreme voltage of 3.45 V to 4.4 V, so here the EUT is tested in the temperature of -20 °C to +55 °C and the voltage of 3.45 V to 4.4 V.
- 2) VN: Normal Voltage; TN: Normal Temperature;  
TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;  
VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

## 4.2 TEST SETUP

### 4.2.1 For Radiated Emissions test setup



#### 4.2.2 For Conducted RF test setup



### 4.3 TEST CHANNELS

| Band                            | Test Frequency ID | Bandwidth (MHz)   | Number [UL] | Frequency of Uplink (MHz) |
|---------------------------------|-------------------|-------------------|-------------|---------------------------|
| LTE Band 4<br>TX: 1710-1755MHz  | Low Range         | 1.4               | 19957       | 1710.7                    |
|                                 |                   | 3                 | 19965       | 1711.5                    |
|                                 |                   | 5                 | 19975       | 1712.5                    |
|                                 |                   | 10                | 20000       | 1715                      |
|                                 |                   | 15                | 20025       | 1717.5                    |
|                                 |                   | 20                | 20050       | 1720                      |
|                                 | Middle Range      | 1.4/3/5/10/ 15/20 | 20175       | 1732.5                    |
|                                 | High Range        | 1.4               | 20393       | 1754.3                    |
|                                 |                   | 3                 | 20385       | 1753.5                    |
|                                 |                   | 5                 | 20375       | 1752.5                    |
|                                 |                   | 10                | 20350       | 1750                      |
|                                 |                   | 15                | 20325       | 1747.5                    |
|                                 |                   | 20                | 20300       | 1745                      |
| LTE Band 7<br>TX: 2500-2570MHz  | Low Range         | 5                 | 20775       | 2502.5                    |
|                                 |                   | 10                | 20800       | 2505                      |
|                                 |                   | 15                | 20825       | 2507.5                    |
|                                 |                   | 20                | 20850       | 2510                      |
|                                 | Middle Range      | 5/10/15/20        | 21100       | 2535                      |
|                                 | High Range        | 5                 | 21425       | 2567.5                    |
|                                 |                   | 10                | 21400       | 2565                      |
|                                 |                   | 15                | 21375       | 2562.5                    |
|                                 |                   | 20                | 21350       | 2560                      |
| LTE Band 38<br>TX: 2570-2620MHz | Low Range         | 5                 | 37775       | 2572.5                    |
|                                 |                   | 10                | 37800       | 2575                      |
|                                 |                   | 15                | 37825       | 2577.5                    |
|                                 |                   | 20                | 37850       | 2580                      |
|                                 | Middle Range      | 5/10/ 15/20       | 38000       | 2595                      |
|                                 | High Range        | 5                 | 38225       | 2617.5                    |
|                                 |                   | 10                | 38200       | 2615                      |
|                                 |                   | 15                | 38175       | 2612.5                    |
|                                 |                   | 20                | 38150       | 2610                      |

#### 4.4 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 3.8V battery. Only the worst case data were recorded in this test report.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X/Y/Z axis, and antenna ports.

The worst case was found when positioned as the table below.

| Band        | Mode | Antenna Port | Worst-case axis positioning |
|-------------|------|--------------|-----------------------------|
| LTE Band 4  | 1TX  | Chain 0      | X axis                      |
| LTE Band 7  | 1TX  | Chain 0      | X axis                      |
| LTE Band 38 | 1TX  | Chain 0      | X axis                      |

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.



## 4.5 PRE-SCAN

Pre-scan under all rate at lowest middle and highest channel, find the transmitter power as below.

### 4.5.1 LTE Band 4

| LTE Band 4 Maximum Average Power (dBm) |      |        |              |       |       |                           |        |              |       |       |
|----------------------------------------|------|--------|--------------|-------|-------|---------------------------|--------|--------------|-------|-------|
| Modulation                             | RB   |        | Test Channel |       |       | RB                        |        | Test Channel |       |       |
|                                        | Size | Offset | Low          | Mid   | High  | Size                      | Offset | Low          | Mid   | High  |
| Channel Bandwidth: 1.4 MHz             |      |        |              |       |       | Channel Bandwidth: 3 MHz  |        |              |       |       |
| QPSK                                   | 1    | 0      | 22.60        | 22.77 | 22.70 | 1                         | 0      | 22.73        | 22.80 | 22.65 |
|                                        | 1    | 2      | 23.05        | 22.98 | 22.93 | 1                         | 7      | 22.93        | 23.07 | 23.00 |
|                                        | 1    | 5      | 22.80        | 22.76 | 22.73 | 1                         | 14     | 22.89        | 22.71 | 22.88 |
|                                        | 3    | 0      | 22.98        | 22.83 | 22.77 | 8                         | 0      | 21.83        | 21.88 | 21.71 |
|                                        | 3    | 1      | 22.91        | 22.81 | 22.81 | 8                         | 3      | 21.97        | 21.89 | 21.75 |
|                                        | 3    | 3      | 22.96        | 22.95 | 22.64 | 8                         | 7      | 21.94        | 21.82 | 21.79 |
|                                        | 6    | 0      | 21.86        | 21.86 | 21.88 | 15                        | 0      | 21.87        | 21.89 | 21.88 |
| 16QAM                                  | 1    | 0      | 22.01        | 22.07 | 22.30 | 1                         | 0      | 21.95        | 21.96 | 22.20 |
|                                        | 1    | 2      | 22.21        | 22.36 | 22.47 | 1                         | 7      | 22.34        | 22.37 | 22.54 |
|                                        | 1    | 5      | 22.01        | 22.30 | 22.21 | 1                         | 14     | 22.11        | 22.38 | 22.20 |
|                                        | 3    | 0      | 21.94        | 21.92 | 21.80 | 8                         | 0      | 20.96        | 20.88 | 20.77 |
|                                        | 3    | 1      | 21.86        | 21.97 | 22.05 | 8                         | 3      | 21.00        | 21.01 | 21.04 |
|                                        | 3    | 3      | 21.89        | 21.93 | 21.90 | 8                         | 7      | 20.98        | 20.95 | 20.88 |
|                                        | 6    | 0      | 21.00        | 20.89 | 20.77 | 15                        | 0      | 20.88        | 20.87 | 20.84 |
| Channel Bandwidth: 5 MHz               |      |        |              |       |       | Channel Bandwidth: 10 MHz |        |              |       |       |
| QPSK                                   | 1    | 0      | 22.68        | 22.80 | 22.79 | 1                         | 0      | 22.65        | 22.81 | 22.65 |
|                                        | 1    | 12     | 23.10        | 23.05 | 23.06 | 1                         | 24     | 23.08        | 23.05 | 23.06 |
|                                        | 1    | 24     | 22.89        | 22.79 | 22.77 | 1                         | 49     | 22.91        | 22.79 | 22.84 |
|                                        | 12   | 0      | 21.93        | 21.81 | 21.75 | 25                        | 0      | 21.81        | 21.86 | 21.72 |
|                                        | 12   | 6      | 21.99        | 21.89 | 21.77 | 25                        | 12     | 21.95        | 22.00 | 21.80 |
|                                        | 12   | 13     | 21.93        | 21.92 | 21.79 | 25                        | 25     | 21.90        | 21.84 | 21.83 |
|                                        | 25   | 0      | 21.74        | 21.86 | 21.87 | 50                        | 0      | 21.89        | 21.88 | 21.82 |
| 16QAM                                  | 1    | 0      | 21.97        | 21.95 | 22.23 | 1                         | 0      | 21.88        | 22.00 | 22.25 |
|                                        | 1    | 12     | 22.30        | 22.32 | 22.47 | 1                         | 24     | 22.30        | 22.27 | 22.49 |
|                                        | 1    | 24     | 22.09        | 22.24 | 22.14 | 1                         | 49     | 21.94        | 22.30 | 22.13 |
|                                        | 12   | 0      | 20.90        | 21.01 | 20.89 | 25                        | 0      | 20.89        | 20.94 | 20.80 |
|                                        | 12   | 6      | 20.93        | 21.05 | 20.94 | 25                        | 12     | 20.88        | 20.99 | 20.90 |
|                                        | 12   | 13     | 21.04        | 21.03 | 20.86 | 25                        | 25     | 21.00        | 21.03 | 20.84 |
|                                        | 25   | 0      | 20.97        | 20.91 | 20.86 | 50                        | 0      | 20.91        | 20.95 | 20.80 |
| Channel Bandwidth: 15 MHz              |      |        |              |       |       | Channel Bandwidth: 20 MHz |        |              |       |       |
| QPSK                                   | 1    | 0      | 22.73        | 22.71 | 22.67 | 1                         | 0      | 22.80        | 22.91 | 22.79 |
|                                        | 1    | 37     | 22.94        | 23.03 | 22.99 | 1                         | 50     | 23.10        | 23.09 | 23.13 |
|                                        | 1    | 74     | 22.79        | 22.71 | 22.76 | 1                         | 99     | 22.96        | 22.82 | 22.92 |
|                                        | 37   | 0      | 21.82        | 21.83 | 21.84 | 50                        | 0      | 21.99        | 21.99 | 21.90 |
|                                        | 37   | 19     | 21.95        | 21.92 | 21.86 | 50                        | 25     | 22.00        | 22.01 | 21.94 |
|                                        | 37   | 39     | 21.87        | 21.89 | 21.80 | 50                        | 50     | 21.98        | 21.99 | 21.84 |
|                                        | 75   | 0      | 21.75        | 21.90 | 21.93 | 100                       | 0      | 21.94        | 21.98 | 22.01 |
| 16QAM                                  | 1    | 0      | 21.93        | 21.94 | 22.23 | 1                         | 0      | 22.07        | 22.13 | 22.31 |
|                                        | 1    | 37     | 22.20        | 22.41 | 22.48 | 1                         | 50     | 22.35        | 22.44 | 22.62 |
|                                        | 1    | 74     | 21.96        | 22.23 | 22.12 | 1                         | 99     | 22.14        | 22.39 | 22.23 |
|                                        | 37   | 0      | 20.86        | 21.00 | 20.78 | 50                        | 0      | 21.03        | 21.08 | 20.96 |
|                                        | 37   | 19     | 21.00        | 20.90 | 21.02 | 50                        | 25     | 21.05        | 21.10 | 21.08 |
|                                        | 37   | 39     | 20.98        | 20.96 | 20.80 | 50                        | 50     | 21.07        | 21.05 | 20.96 |
|                                        | 75   | 0      | 20.90        | 20.90 | 20.80 | 100                       | 0      | 21.07        | 21.01 | 20.95 |

#### 4.5.2 LTE Band 7

| LTE Band 7 Maximum Average Power (dBm) |      |        |              |       |       |                           |        |              |       |       |
|----------------------------------------|------|--------|--------------|-------|-------|---------------------------|--------|--------------|-------|-------|
| Modulation                             | RB   |        | Test Channel |       |       | RB                        |        | Test Channel |       |       |
|                                        | Size | Offset | Low          | Mid   | High  | Size                      | Offset | Low          | Mid   | High  |
| Channel Bandwidth: 5 MHz               |      |        |              |       |       | Channel Bandwidth: 10 MHz |        |              |       |       |
| QPSK                                   | 1    | 0      | 23.49        | 23.49 | 23.57 | 1                         | 0      | 23.51        | 23.39 | 23.63 |
|                                        | 1    | 12     | 23.76        | 23.79 | 23.71 | 1                         | 24     | 23.87        | 23.78 | 23.75 |
|                                        | 1    | 24     | 23.58        | 23.55 | 23.47 | 1                         | 49     | 23.57        | 23.62 | 23.60 |
|                                        | 12   | 0      | 22.41        | 22.74 | 22.65 | 25                        | 0      | 22.49        | 22.76 | 22.59 |
|                                        | 12   | 6      | 22.65        | 22.77 | 22.70 | 25                        | 12     | 22.66        | 22.68 | 22.63 |
|                                        | 12   | 13     | 22.51        | 22.60 | 22.57 | 25                        | 25     | 22.50        | 22.59 | 22.61 |
| 16QAM                                  | 25   | 0      | 22.60        | 22.68 | 22.54 | 50                        | 0      | 22.64        | 22.54 | 22.67 |
|                                        | 1    | 0      | 22.67        | 23.01 | 22.66 | 1                         | 0      | 22.71        | 22.91 | 22.71 |
|                                        | 1    | 12     | 23.17        | 23.26 | 23.01 | 1                         | 24     | 23.06        | 23.26 | 22.89 |
|                                        | 1    | 24     | 22.82        | 23.02 | 22.78 | 1                         | 49     | 22.79        | 23.03 | 22.62 |
|                                        | 12   | 0      | 21.45        | 21.71 | 21.54 | 25                        | 0      | 21.43        | 21.62 | 21.64 |
|                                        | 12   | 6      | 21.60        | 21.69 | 21.72 | 25                        | 12     | 21.70        | 21.65 | 21.56 |
| 16QAM                                  | 12   | 13     | 21.63        | 21.62 | 21.65 | 25                        | 25     | 21.62        | 21.70 | 21.65 |
|                                        | 25   | 0      | 21.65        | 21.58 | 21.61 | 50                        | 0      | 21.59        | 21.71 | 21.55 |
| Channel Bandwidth: 15 MHz              |      |        |              |       |       | Channel Bandwidth: 20 MHz |        |              |       |       |
| QPSK                                   | 1    | 0      | 23.45        | 23.43 | 23.61 | 1                         | 0      | 23.64        | 23.55 | 23.64 |
|                                        | 1    | 37     | 23.76        | 23.89 | 23.82 | 1                         | 50     | <b>23.94</b> | 23.90 | 23.91 |
|                                        | 1    | 74     | 23.62        | 23.49 | 23.57 | 1                         | 99     | 23.62        | 23.63 | 23.66 |
|                                        | 37   | 0      | 22.48        | 22.68 | 22.71 | 50                        | 0      | 22.59        | 22.76 | 22.73 |
|                                        | 37   | 19     | 22.78        | 22.71 | 22.63 | 50                        | 25     | 22.79        | 22.77 | 22.75 |
|                                        | 37   | 39     | 22.65        | 22.61 | 22.64 | 50                        | 50     | 22.68        | 22.78 | 22.64 |
|                                        | 75   | 0      | 22.54        | 22.56 | 22.51 | 100                       | 0      | 22.65        | 22.74 | 22.69 |
| 16QAM                                  | 1    | 0      | 22.82        | 22.95 | 22.70 | 1                         | 0      | 22.83        | 23.05 | 22.81 |
|                                        | 1    | 37     | 23.16        | 23.42 | 23.06 | 1                         | 50     | 23.20        | 23.43 | 23.07 |
|                                        | 1    | 74     | 22.75        | 23.07 | 22.67 | 1                         | 99     | 22.86        | 23.13 | 22.80 |
|                                        | 37   | 0      | 21.42        | 21.71 | 21.69 | 50                        | 0      | 21.58        | 21.75 | 21.73 |
|                                        | 37   | 19     | 21.74        | 21.65 | 21.67 | 50                        | 25     | 21.74        | 21.71 | 21.75 |
|                                        | 37   | 39     | 21.65        | 21.64 | 21.47 | 50                        | 50     | 21.68        | 21.80 | 21.66 |
|                                        | 75   | 0      | 21.58        | 21.58 | 21.58 | 100                       | 0      | 21.66        | 21.73 | 21.66 |

### 4.5.3 LTE Band 38

| LTE Band 38 Maximum Average Power (dBm) |      |        |              |       |       |                           |        |              |       |       |
|-----------------------------------------|------|--------|--------------|-------|-------|---------------------------|--------|--------------|-------|-------|
| Modulation                              | RB   |        | Test Channel |       |       | RB                        |        | Test Channel |       |       |
|                                         | Size | Offset | Low          | Mid   | High  | Size                      | Offset | Low          | Mid   | High  |
| Channel Bandwidth: 5 MHz                |      |        |              |       |       | Channel Bandwidth: 10 MHz |        |              |       |       |
| QPSK                                    | 1    | 0      | 23.64        | 23.57 | 23.47 | 1                         | 0      | 23.49        | 23.40 | 23.45 |
|                                         | 1    | 12     | 23.98        | 23.80 | 23.55 | 1                         | 24     | 23.87        | 23.85 | 23.56 |
|                                         | 1    | 24     | 23.67        | 23.46 | 23.37 | 1                         | 49     | 23.61        | 23.37 | 23.26 |
|                                         | 12   | 0      | 22.53        | 22.53 | 22.52 | 25                        | 0      | 22.67        | 22.59 | 22.65 |
|                                         | 12   | 6      | 22.59        | 22.64 | 22.57 | 25                        | 12     | 22.65        | 22.67 | 22.55 |
|                                         | 12   | 13     | 22.55        | 22.60 | 22.52 | 25                        | 25     | 22.60        | 22.65 | 22.57 |
| 16QAM                                   | 25   | 0      | 22.69        | 22.66 | 22.49 | 50                        | 0      | 22.52        | 22.59 | 22.49 |
|                                         | 1    | 0      | 22.73        | 22.55 | 22.50 | 1                         | 0      | 22.81        | 22.57 | 22.39 |
|                                         | 1    | 12     | 23.05        | 22.92 | 22.86 | 1                         | 24     | 23.00        | 22.94 | 22.85 |
|                                         | 1    | 24     | 22.73        | 22.58 | 22.39 | 1                         | 49     | 22.74        | 22.49 | 22.42 |
|                                         | 12   | 0      | 21.61        | 21.48 | 21.53 | 25                        | 0      | 21.66        | 21.57 | 21.67 |
|                                         | 12   | 6      | 21.59        | 21.64 | 21.57 | 25                        | 12     | 21.67        | 21.53 | 21.46 |
| 16QAM                                   | 12   | 13     | 21.52        | 21.51 | 21.68 | 25                        | 25     | 21.53        | 21.58 | 21.69 |
|                                         | 25   | 0      | 21.51        | 21.57 | 21.64 | 50                        | 0      | 21.59        | 21.58 | 21.45 |
| Channel Bandwidth: 15 MHz               |      |        |              |       |       | Channel Bandwidth: 20 MHz |        |              |       |       |
| QPSK                                    | 1    | 0      | 23.49        | 23.52 | 23.37 | 1                         | 0      | 23.65        | 23.58 | 23.53 |
|                                         | 1    | 37     | 24.00        | 23.78 | 23.59 | 1                         | 50     | <b>24.04</b> | 23.91 | 23.74 |
|                                         | 1    | 74     | 23.53        | 23.49 | 23.37 | 1                         | 99     | 23.67        | 23.52 | 23.39 |
|                                         | 37   | 0      | 22.63        | 22.67 | 22.57 | 50                        | 0      | 22.71        | 22.70 | 22.66 |
|                                         | 37   | 19     | 22.58        | 22.59 | 22.53 | 50                        | 25     | 22.71        | 22.72 | 22.72 |
|                                         | 37   | 39     | 22.64        | 22.66 | 22.66 | 50                        | 50     | 22.73        | 22.69 | 22.71 |
| 16QAM                                   | 75   | 0      | 22.52        | 22.63 | 22.53 | 100                       | 0      | 22.70        | 22.72 | 22.67 |
|                                         | 1    | 0      | 22.79        | 22.55 | 22.36 | 1                         | 0      | 22.88        | 22.66 | 22.53 |
|                                         | 1    | 37     | 23.10        | 22.84 | 22.70 | 1                         | 50     | 23.19        | 23.01 | 22.88 |
|                                         | 1    | 74     | 22.72        | 22.62 | 22.43 | 1                         | 99     | 22.88        | 22.64 | 22.51 |
|                                         | 37   | 0      | 21.54        | 21.61 | 21.68 | 50                        | 0      | 21.74        | 21.65 | 21.71 |
|                                         | 37   | 19     | 21.66        | 21.58 | 21.59 | 50                        | 25     | 21.70        | 21.73 | 21.64 |
| 16QAM                                   | 37   | 39     | 21.52        | 21.57 | 21.66 | 50                        | 50     | 21.69        | 21.70 | 21.76 |
|                                         | 75   | 0      | 21.56        | 21.67 | 21.54 | 100                       | 0      | 21.67        | 21.69 | 21.64 |

## 5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

### 5.1 REFERENCE DOCUMENTS FOR TESTING

| No. | Identity           | Document Title                                                                                    |
|-----|--------------------|---------------------------------------------------------------------------------------------------|
| 1   | FCC 47 CFR Part 2  | Frequency allocations and radio treaty matters; general rules and regulations                     |
| 2   | FCC 47 CFR Part 27 | Miscellaneous Wireless Communications Services                                                    |
| 3   | ANSI C63.26-2015   | American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services |
| 4   | KDB 971168 D01     | KDB 971168 D01 Power Meas License Digital Systems v03r01                                          |

### 5.2 ERP OR EIRP

**Test Requirement:** FCC 47 CFR Part 2.1046(a)

**LTE Band 4 :** FCC 47 CFR Part 27.50(d)(4)

**LTE Band 7 & Band 38:** FCC 47 CFR Part 27.50(h)(2)

**Test Method:** KDB 971168 D01v03r01 Section 5.6 & ANSI C63.26-2015

**Limit:**

**FCC 47 CFR Part 27.50(d)(4):**

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

**FCC 47 CFR Part 27.50(h)(2):**

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power

**Test Procedure:**

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P<sub>Meas</sub>, typically dBW or dBm);

P<sub>Meas</sub> = measured transmitter output power or PSD, in dBm or dBW;

G<sub>T</sub> = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

1) L<sub>C</sub> = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

**Test Setup:** Refer to section 4.2.1 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** See table below

### 5.2.1 LTE Band 4

| LTE Band 4 Maximum EIRP (dBm) |            |             |             |             |        |
|-------------------------------|------------|-------------|-------------|-------------|--------|
| Channel                       | QPSK; RB:1 | 16QAM; RB:1 | 64QAM; RB:1 | Limit (dBm) | Result |
| Channel Bandwidth: 1.4MHz     |            |             |             |             |        |
| Lowest                        | 24.05      | 23.21       | /           | 30.00       | Pass   |
| Middle                        | 23.98      | 23.36       | /           | 30.00       | Pass   |
| Highest                       | 23.93      | 23.47       | /           | 30.00       | Pass   |
| Channel Bandwidth: 3MHz       |            |             |             |             |        |
| Lowest                        | 23.93      | 23.34       | /           | 30.00       | Pass   |
| Middle                        | 24.07      | 23.37       | /           | 30.00       | Pass   |
| Highest                       | 24.00      | 23.54       | /           | 30.00       | Pass   |
| Channel Bandwidth: 5MHz       |            |             |             |             |        |
| Lowest                        | 24.10      | 23.30       | /           | 30.00       | Pass   |
| Middle                        | 24.05      | 23.32       | /           | 30.00       | Pass   |
| Highest                       | 24.06      | 23.47       | /           | 30.00       | Pass   |
| Channel Bandwidth: 10MHz      |            |             |             |             |        |
| Lowest                        | 24.08      | 23.30       | /           | 30.00       | Pass   |
| Middle                        | 24.05      | 23.27       | /           | 30.00       | Pass   |
| Highest                       | 24.06      | 23.49       | /           | 30.00       | Pass   |
| Channel Bandwidth: 15MHz      |            |             |             |             |        |
| Lowest                        | 23.94      | 23.20       | /           | 30.00       | Pass   |
| Middle                        | 24.03      | 23.41       | /           | 30.00       | Pass   |
| Highest                       | 23.99      | 23.48       | /           | 30.00       | Pass   |
| Channel Bandwidth: 20MHz      |            |             |             |             |        |
| Lowest                        | 24.10      | 23.35       | /           | 30.00       | Pass   |
| Middle                        | 24.09      | 23.44       | /           | 30.00       | Pass   |
| Highest                       | 24.13      | 23.62       | /           | 30.00       | Pass   |

### 5.2.2 LTE Band 7

| LTE Band 7 Maximum EIRP (dBm) |            |             |             |             |        |
|-------------------------------|------------|-------------|-------------|-------------|--------|
| Channel                       | QPSK; RB:1 | 16QAM; RB:1 | 64QAM; RB:1 | Limit (dBm) | Result |
| Channel Bandwidth: 5MHz       |            |             |             |             |        |
| Lowest                        | 24.76      | 24.17       | /           | 33.01       | Pass   |
| Middle                        | 24.79      | 24.26       | /           | 33.01       | Pass   |
| Highest                       | 24.71      | 24.01       | /           | 33.01       | Pass   |
| Channel Bandwidth: 10MHz      |            |             |             |             |        |
| Lowest                        | 24.87      | 24.06       | /           | 33.01       | Pass   |
| Middle                        | 24.78      | 24.26       | /           | 33.01       | Pass   |
| Highest                       | 24.75      | 23.89       | /           | 33.01       | Pass   |
| Channel Bandwidth: 15MHz      |            |             |             |             |        |
| Lowest                        | 24.76      | 24.16       | /           | 33.01       | Pass   |
| Middle                        | 24.89      | 24.42       | /           | 33.01       | Pass   |
| Highest                       | 24.82      | 24.06       | /           | 33.01       | Pass   |
| Channel Bandwidth: 20MHz      |            |             |             |             |        |
| Lowest                        | 24.94      | 24.20       | /           | 33.01       | Pass   |
| Middle                        | 24.90      | 24.43       | /           | 33.01       | Pass   |
| Highest                       | 24.91      | 24.07       | /           | 33.01       | Pass   |

### 5.2.3 LTE Band 38

| LTE Band 38 Maximum EIRP (dBm) |            |             |             |             |        |
|--------------------------------|------------|-------------|-------------|-------------|--------|
| Channel                        | QPSK; RB:1 | 16QAM; RB:1 | 64QAM; RB:1 | Limit (dBm) | Result |
| Channel Bandwidth: 5MHz        |            |             |             |             |        |
| Lowest                         | 24.68      | 23.75       | /           | 33.01       | Pass   |
| Middle                         | 24.50      | 23.62       | /           | 33.01       | Pass   |
| Highest                        | 24.25      | 23.56       | /           | 33.01       | Pass   |
| Channel Bandwidth: 10MHz       |            |             |             |             |        |
| Lowest                         | 24.57      | 23.70       | /           | 33.01       | Pass   |
| Middle                         | 24.55      | 23.64       | /           | 33.01       | Pass   |
| Highest                        | 24.26      | 23.55       | /           | 33.01       | Pass   |
| Channel Bandwidth: 15MHz       |            |             |             |             |        |
| Lowest                         | 24.70      | 23.80       | /           | 33.01       | Pass   |
| Middle                         | 24.48      | 23.54       | /           | 33.01       | Pass   |
| Highest                        | 24.29      | 23.40       | /           | 33.01       | Pass   |
| Channel Bandwidth: 20MHz       |            |             |             |             |        |
| Lowest                         | 24.74      | 23.89       | /           | 33.01       | Pass   |
| Middle                         | 24.61      | 23.71       | /           | 33.01       | Pass   |
| Highest                        | 24.44      | 23.58       | /           | 33.01       | Pass   |



### 5.3 CONDUCTED OUTPUT POWER

FCC 47 CFR Part 2.1046(a)

**Test Requirement:** **LTE Band 4:** FCC 47 CFR Part 27.50(d)(4)  
**LTE Band 7 & Band 38:** FCC 47 CFR Part 27.50(h)(2)

**Test Method:** KDB 971168 D01v03r01 & ANSI C63.26-2015

**Limit:**

**FCC 47 CFR Part 27.50(d)(4):**

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

**FCC 47 CFR Part 27.50(h)(2):**

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

**Test Procedure:**

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

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** [The full result refer to section 4.5 for details.](#)

## 5.4 PEAK-TO-AVERAGE RATIO

**Test Requirement:** LTE Band 4: FCC 47 CFR Part 27.50(d)(5)  
**Test Method:** LTE Band 7 & Band 38: FCC 47 CFR Part 27.50(d)(5)  
KDB 971168 D01v03r01 Section 5.7  
**Limit:** 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

### Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

- 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 %

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** See table below

### 5.4.1 LTE Band 4

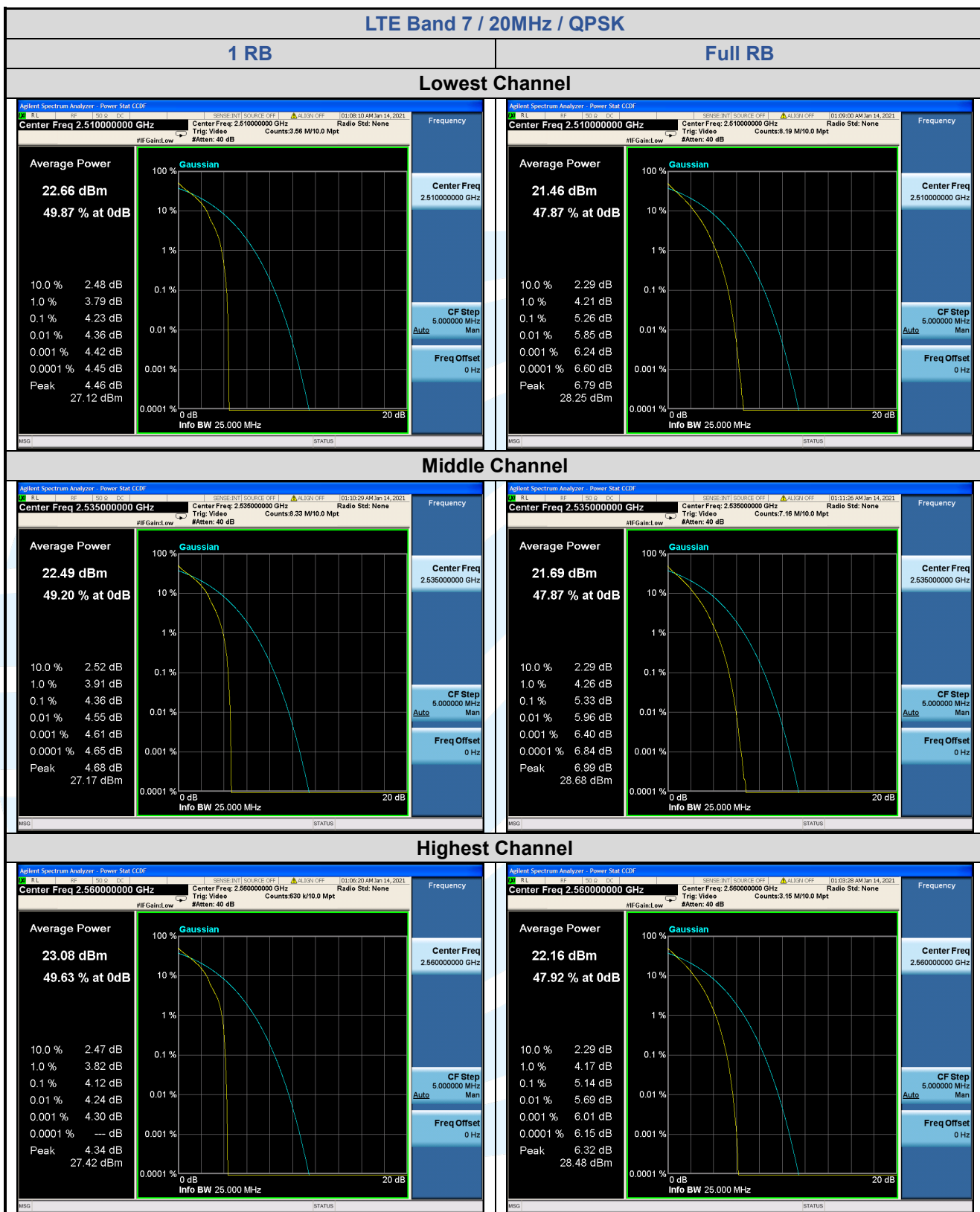
| LTE Band 4 Peak-to-average ratio (dB) |                  |                           |       |       |            |        |
|---------------------------------------|------------------|---------------------------|-------|-------|------------|--------|
| Channel                               | RB Configuration | Channel Bandwidth: 20 MHz |       |       | Limit (dB) | Result |
|                                       |                  | QPSK                      | 16QAM | 64QAM |            |        |
| Lowest                                | 1 RB             | 4.67                      | 5.68  | /     | 13         | Pass   |
|                                       | Full RB          | 5.47                      | 6.21  | /     | 13         | Pass   |
| Middle                                | 1 RB             | 5.21                      | 5.71  | /     | 13         | Pass   |
|                                       | Full RB          | 5.66                      | 6.45  | /     | 13         | Pass   |
| Highest                               | 1 RB             | 5.42                      | 6.18  | /     | 13         | Pass   |
|                                       | Full RB          | 5.52                      | 6.28  | /     | 13         | Pass   |





#### 5.4.2 LTE Band 7

| LTE Band 7 Peak-to-average ratio (dB) |                  |                           |       |       |            |        |
|---------------------------------------|------------------|---------------------------|-------|-------|------------|--------|
| Channel                               | RB Configuration | Channel Bandwidth: 20 MHz |       |       | Limit (dB) | Result |
|                                       |                  | QPSK                      | 16QAM | 64QAM |            |        |
| Lowest                                | 1 RB             | 4.23                      | 5.25  | /     | 13         | Pass   |
|                                       | Full RB          | 5.26                      | 5.98  | /     | 13         | Pass   |
| Middle                                | 1 RB             | 4.36                      | 4.99  | /     | 13         | Pass   |
|                                       | Full RB          | 5.33                      | 6.07  | /     | 13         | Pass   |
| Highest                               | 1 RB             | 4.12                      | 5.03  | /     | 13         | Pass   |
|                                       | Full RB          | 5.14                      | 5.93  | /     | 13         | Pass   |

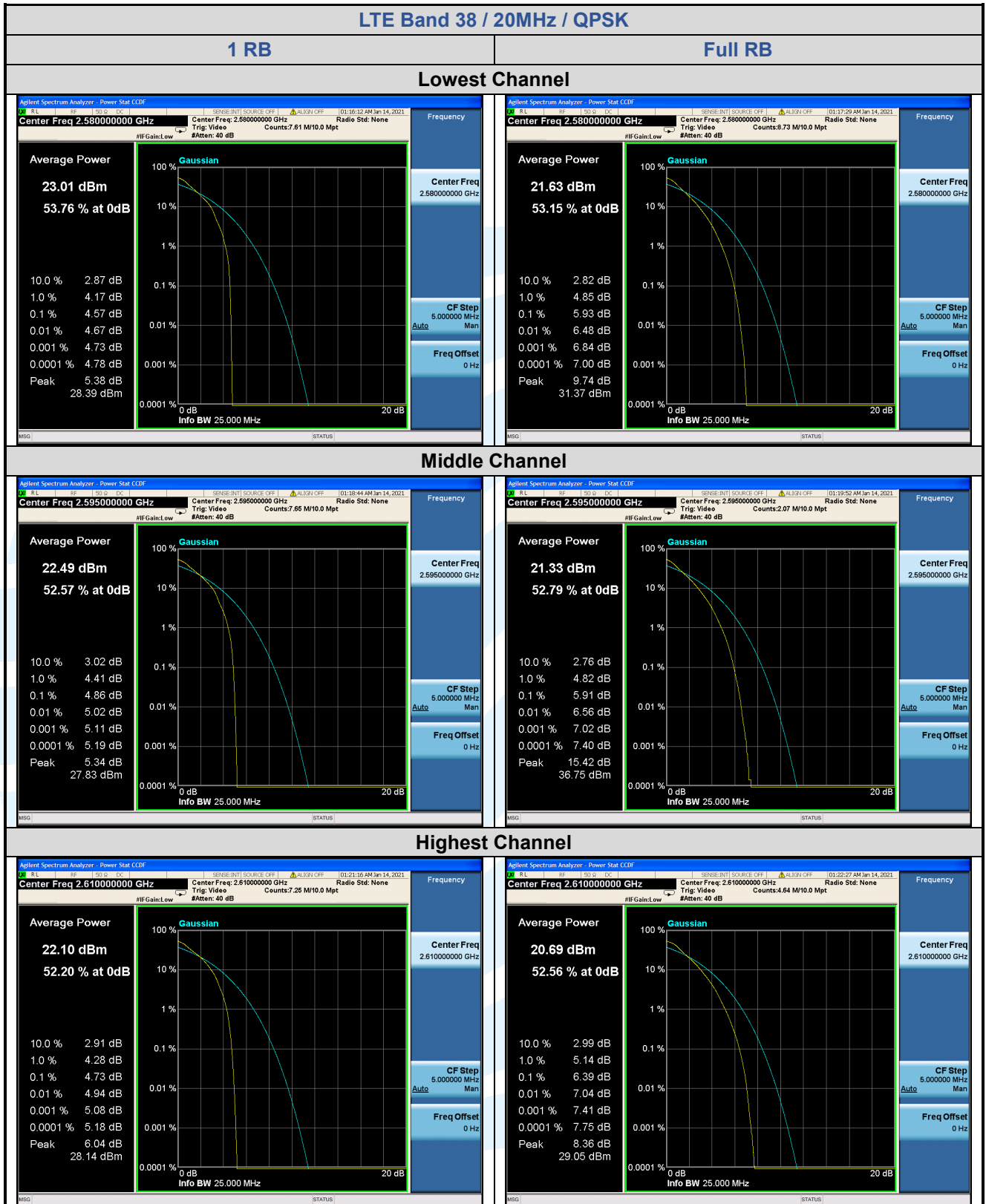


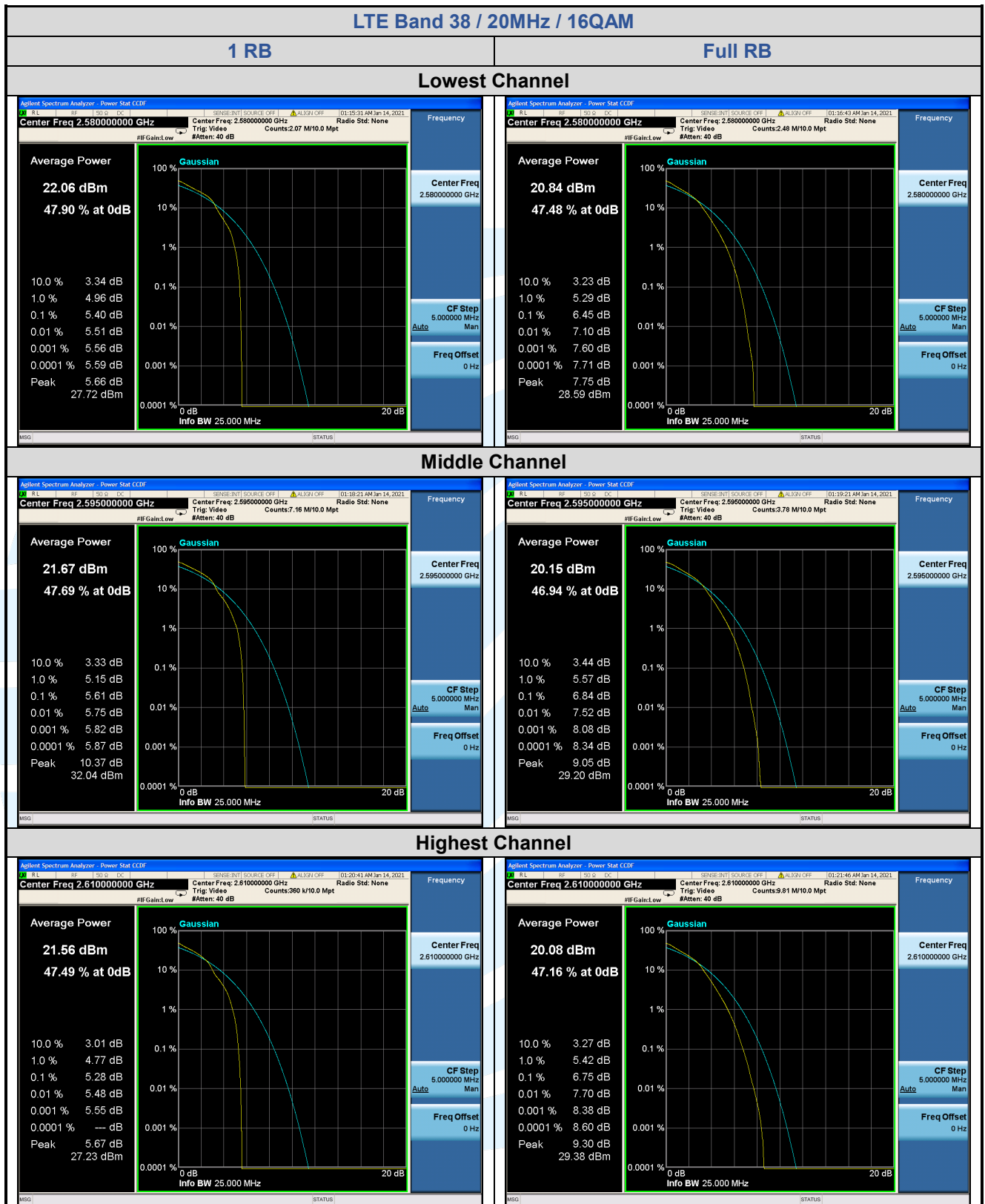




### 5.4.3 LTE Band 38

| LTE Band 38 Peak-to-average ratio (dB) |                  |                           |       |       |            |        |
|----------------------------------------|------------------|---------------------------|-------|-------|------------|--------|
| Channel                                | RB Configuration | Channel Bandwidth: 20 MHz |       |       | Limit (dB) | Result |
|                                        |                  | QPSK                      | 16QAM | 64QAM |            |        |
| Lowest                                 | 1 RB             | 4.57                      | 5.40  | /     | 13         | Pass   |
|                                        | Full RB          | 5.93                      | 6.45  | /     | 13         | Pass   |
| Middle                                 | 1 RB             | 4.86                      | 5.61  | /     | 13         | Pass   |
|                                        | Full RB          | 5.91                      | 6.84  | /     | 13         | Pass   |
| Highest                                | 1 RB             | 4.73                      | 5.28  | /     | 13         | Pass   |
|                                        | Full RB          | 6.39                      | 6.75  | /     | 13         | Pass   |





## 5.599%&26DB BANDWIDTH

**Test Requirement:** FCC 47 CFR Part 2.1049(h)

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 4

**Limit:** No Limit, for reporting purposes only.

**Test Procedure:**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** See table below

### 5.5.1 LTE Band 4

| LTE Band 4                 |                  |        |                |       |       |              |        |       |
|----------------------------|------------------|--------|----------------|-------|-------|--------------|--------|-------|
| Channel                    | RB Configuration |        | 26 dB BW (MHz) |       |       | 99% BW (MHz) |        |       |
|                            | Size             | Offset | QPSK           | 16QAM | 64QAM | QPSK         | 16QAM  | 64QAM |
| Channel Bandwidth: 1.4 MHz |                  |        |                |       |       |              |        |       |
| Lowest                     | 6                | 0      | 1.287          | 1.288 | /     | 1.1061       | 1.0958 | /     |
| Middle                     | 6                | 0      | 1.282          | 1.301 | /     | 1.0939       | 1.1006 | /     |
| Highest                    | 6                | 0      | 1.299          | 1.278 | /     | 1.0989       | 1.0964 | /     |
| Channel Bandwidth: 3 MHz   |                  |        |                |       |       |              |        |       |
| Lowest                     | 15               | 0      | 2.930          | 2.936 | /     | 2.7012       | 2.6913 | /     |
| Middle                     | 15               | 0      | 2.933          | 2.937 | /     | 2.6950       | 2.6925 | /     |
| Highest                    | 15               | 0      | 2.933          | 2.930 | /     | 2.7007       | 2.6939 | /     |
| Channel Bandwidth: 5 MHz   |                  |        |                |       |       |              |        |       |
| Lowest                     | 25               | 0      | 5.183          | 5.205 | /     | 4.5214       | 4.5497 | /     |
| Middle                     | 25               | 0      | 5.331          | 5.288 | /     | 4.5504       | 4.5248 | /     |
| Highest                    | 25               | 0      | 5.212          | 5.200 | /     | 4.5256       | 4.5407 | /     |
| Channel Bandwidth: 10 MHz  |                  |        |                |       |       |              |        |       |
| Lowest                     | 50               | 0      | 10.15          | 10.18 | /     | 9.0167       | 9.0107 | /     |
| Middle                     | 50               | 0      | 10.22          | 10.10 | /     | 9.0297       | 9.0129 | /     |
| Highest                    | 50               | 0      | 10.06          | 10.13 | /     | 8.9996       | 9.0165 | /     |
| Channel Bandwidth: 15 MHz  |                  |        |                |       |       |              |        |       |
| Lowest                     | 75               | 0      | 15.21          | 15.12 | /     | 13.516       | 13.532 | /     |
| Middle                     | 75               | 0      | 15.18          | 17.75 | /     | 13.543       | 13.582 | /     |
| Highest                    | 75               | 0      | 15.08          | 15.01 | /     | 13.468       | 13.518 | /     |
| Channel Bandwidth: 20 MHz  |                  |        |                |       |       |              |        |       |
| Lowest                     | 100              | 0      | 20.10          | 20.75 | /     | 18.063       | 18.061 | /     |
| Middle                     | 100              | 0      | 19.75          | 19.90 | /     | 17.993       | 18.051 | /     |
| Highest                    | 100              | 0      | 19.82          | 19.94 | /     | 17.983       | 18.005 | /     |

## Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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