



*Shenzhen Huaxin Information Technology Service Co., Ltd*

## **FCC TEST REPORT**

**FCC ID: 2ARH7-A-N70ST**

On Behalf of

**Shadowtrack Technologies, Inc.**

**ShadowDevice**

**Model No.: A-N70ST**

Prepared for : Shadowtrack Technologies, Inc.  
Address : 5100 Village Walk, Suite 100, Covington LA 70433

Prepared By : Shenzhen Huaxin Information Technology Service Co., Ltd  
101, R & D Building, No.3 guansheng 4th Road, Luhu  
Address : Community, Guanhu Street, Longhua District, Shenzhen,  
Guangdong, China

Report Number : HX230925R003  
Date of Receipt : Sep.15th, 2023  
Date of Test : Sep.15th, 2023- Sep.25th, 2023  
Date of Report : Sep.25th, 2023  
Version Number : V0

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## TEST REPORT DECLARATION

Applicant : Shadowtrack Technologies, Inc.  
Address : 5100 Village Walk, Suite 100, Covington LA 70433  
Manufacturer : ThinkRace Technology Co., Limited  
Address : 21/F Hing Lung Commercial Building 68-74 Bonham Strand East Sheung Wan  
Hongkong  
EUT Description : ShadowDevice

(A) Model No. : A-N70ST

(B) Trademark : ShadoTrack

Measurement Standard Used:

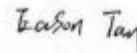
**FCC CFR Title 47 Part 2**  
**FCC CFR Title 47 Part 22 Subpart H**  
**FCC CFR Title 47 Part 24 Subpart E**  
**FCC CFR Title 47 Part 27**

The device described above is tested by Shenzhen Huaxin Information Technology Service Co., Ltd. to determine the maximum emission levels emanating from the device. The test results are contained in this test report and Shenzhen Huaxin Information Technology Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Huaxin Information Technology Service Co., Ltd.

Tested by (name + signature).....: Eason Tan  
Project Engineer



Approved by (name + signature).....: Michael Wu  
Project Manager



Date of issue.....: Sep.25th, 2023



**Revision History**

| Revision | Issue Date     | Revisions              | Revised By |
|----------|----------------|------------------------|------------|
| V0       | Sep.25th, 2023 | Initial released Issue | Eason Tan  |

## 1 Test Summary

| Test Item                              | Section in CFR 47                                                                                                    | Result |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------|
| RF Output Power&EIRP/ERP               | Part 2.1046<br>Part 22.913(a) (5)<br>Part 24.232 (c)<br>Part 27.50 (d)(4)<br>Part 27.50 (c)(10)<br>Part 27.50 (h)(2) | Pass   |
| Peak-To-Average Ratio                  | Part 2.1046<br>Part 22.913(d)<br>Part 24.232 (d)<br>Part 27.50(d)                                                    | Pass   |
| Modulation Characteristics             | Part 2.1047                                                                                                          | N/A    |
| 99% & -26 dB Occupied Bandwidth        | Part 2.1049<br>Part 22.917<br>Part 24.238<br>Part 27.53(a)                                                           | Pass   |
| Spurious Emissions at Antenna Terminal | Part 2.1051<br>Part 22.917 (a)<br>Part 24.238 (a)<br>Part 27.53 (h)/(m)                                              | Pass   |
| Field Strength of Spurious Radiation   | Part 2.1053<br>Part 22.917 (a)<br>Part 24.238 (a)<br>Part 27.53 (h)/(m)                                              | Pass   |
| Out of band emission, Band Edge        | Part 22.917 (a)<br>Part 24.238 (a)<br>Part 27.53(h)/(m)                                                              | Pass   |
| Frequency stability vs. temperature    | Part 2.1055(a)(1)(b)                                                                                                 | Pass   |
| Frequency stability vs. voltage        | Part 2.1055(d)(1)(2)                                                                                                 | Pass   |

*Note: 1. Pass: The EUT complies with the essential requirements in the standard.*

*2. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.*

## 2 General Information

### 2.1 General Description of EUT

#### Description of Device (EUT)

|              |                |
|--------------|----------------|
| Description  | : ShadowDevice |
| Trademark    | : ShadoTrack   |
| Model Number | : A-N70ST      |
| DIFF.        | : /            |
| Test Voltage | : DC 3.8V      |

|               |                          |
|---------------|--------------------------|
| Support Bands | : LTE Band 2/4/5/7/12/17 |
|---------------|--------------------------|

|                   |                                                                                                                                                                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channel Bandwidth | : LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 17: 5MHz, 10MHz |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|              |                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TX Frequency | : LTE Band 2: 1850 ~ 1910 MHz<br>LTE Band 4: 1710 ~ 1755 MHz<br>LTE Band 5: 824 ~ 849 MHz<br>LTE Band 7: 2500 ~ 2570 MHz<br>LTE Band 12: 699MHz ~ 716MHz<br>LTE Band 17: 704 MHz ~ 716 MHz |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |               |
|-----------------|---------------|
| Modulation type | : QPSK, 16QAM |
|-----------------|---------------|

|              |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Antenna Type | : Internal antenna ,<br>LTE Band 2: Maximum Gain is 0.51dBi.<br>LTE Band 4: Maximum Gain is 0.48dBi.<br>LTE Band 5: Maximum Gain is 0.50dBi.<br>LTE Band 7: Maximum Gain is 0.53dBi.<br>LTE Band 12: Maximum Gain is 0.12dBi.<br>LTE Band 17: Maximum Gain is 0.11dBi.<br>(Antenna information is provided by applicant.)<br>There is WWAN diversity antenna inside the product, which is only for receiving function. |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                  |        |
|------------------|--------|
| Software version | : V1.0 |
|------------------|--------|

|                  |        |
|------------------|--------|
| Hardware version | : V1.0 |
|------------------|--------|

Remark 1: The worst-case simultaneous transmission configuration was evaluated with no non-compliance found. Results in this report are only for 4G function, and there is no other transmitter involved.

## 2.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H and Part 24 subpart E and Part 27 of the FCC CFR 47 Rules.

## 2.3 Test Facility

|                                                                                            |                                                                                                                            |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Company Name:                                                                              | Shenzhen Huaxin Information Technology Service Co., Ltd                                                                    |
| Address:                                                                                   | 101, R & D Building, No.3 guansheng 4th Road, Luhua Community, Guanhu Street, Longhua District, Shenzhen, Guangdong, China |
| Telephone:                                                                                 | 0775-21018313                                                                                                              |
| Fax:                                                                                       | 0775-21018313                                                                                                              |
| FCC Test Firm Registration Number: 932271<br>Designation Number: CN1344<br>CAB ID : CN0147 |                                                                                                                            |

## 2.4 Accessories of Device (EUT)

Accessories : /  
 Manufacturer : /  
 Model : /  
 Ratings : /

## 2.5 Tested Supporting System Details

| No. | Description | Manufacturer | Model         | Serial Number | Certification or SDOC |
|-----|-------------|--------------|---------------|---------------|-----------------------|
| 1.  | Notebook PC | Lenovo       | ThinkPad E460 | N/A           | SDOC                  |

## 2.6 Test Conditions

| Items              | Required  | Actual |
|--------------------|-----------|--------|
| Temperature range: | 15-35℃    | 24℃    |
| Humidity range:    | 25-75%    | 56%    |
| Pressure range:    | 86-106kPa | 98kPa  |

## 2.7 Measurement Uncertainty

| Item                                   | MU      | Remark      |
|----------------------------------------|---------|-------------|
| Conducted Emission (9K~0.15MHz)        | 2.18dB  |             |
| Conducted Emission (0.15M~30MHz)       | 2.17dB  |             |
| Radiation Emission ,3m (30MHz~1GHz)    | 4.45 dB | Polarize: V |
|                                        | 2.76 dB | Polarize: H |
| Radiation Emission, 3m (1GHz~6GHz)     | 4.02 dB |             |
| Radiation Emission ,3m (6GHz~18GHz)    | 4.30 dB |             |
| RF output power (conducted)            | 0.41 dB |             |
| Power Spectral Density (conducted)     | 0.39 dB |             |
| Spurious emissions (conducted)         | 0.59 dB |             |
| Occupied Channel Bandwidth (conducted) | 4.22%   |             |



### 3 Test Instruments list

| Equipment                             | Manufacture  | Model No.             | Firmware version | Serial No.  | Last cal.  | Cal Interval |
|---------------------------------------|--------------|-----------------------|------------------|-------------|------------|--------------|
| 9*6*6 anechoic chamber                | Mao Rui      | 9*6*6                 | N/A              | N/A         | 2022.06.15 | 3Year        |
| Spectrum analyzer                     | R&S          | FSV40-N               | V7.0-4-62-2      | 101795      | 2023.09.17 | 1Year        |
| Spectrum analyzer                     | Agilent      | N9020A                | A.14.16          | MY51280803  | 2023.04.15 | 1Year        |
| Receiver                              | R&S          | ESR7                  | 5.812            | 102543      | 2022.10.20 | 1Year        |
| Receiver                              | R&S          | ESCI                  | N/A              |             | 2022.10.20 | 1Year        |
| Bilog Antenna                         | Schwarzbeck  | VULB 9168             | N/A              | 01318       | 2022.06.19 | 2Year        |
| Horn Antenna                          | A.H. Systems | SAS-571               | N/A              | 915         | 2022.06.17 | 2Year        |
| Active Loop Antenna                   | Schwarzbeck  | FMZB 1519B            | N/A              | N/A         |            | 2Year        |
| RF Cable                              | /            | N/J-NJ-RG58(1G) 9m    | N/A              | RE1         | 2023.09.17 | 1Year        |
| RF Cable                              | /            | N/J-NJ-RG58(1G) 10m   | N/A              | RE2         | 2023.09.17 | 1Year        |
| RF Cable                              | /            | N/J-SMAAJ-406(18G) 9m | N/A              | CE1         | 2023.09.17 | 1Year        |
| Pre-amplifier                         | HP           | 8447D                 | N/A              | 1616A02061  | 2023.04.15 | 1Year        |
| Pre-amplifier                         | Agilent      | 8449B                 | N/A              | 3008A00551  | 2023.04.15 | 1Year        |
| L.I.S.N.#1                            | R&S          | ESH3-Z5               | N/A              | 894981/024  | 2023.03.28 | 1Year        |
| L.I.S.N.#2                            | R&S          | ENV216                | N/A              | 101291      | 2023.03.28 | 1 Year       |
| Horn Antenna                          | A.H. Systems | SAS-571               | N/A              | 915         | 2022.06.17 | 2 Year       |
| power amplifier                       | Micotop      | MPA-80-1000-250       | N/A              | MPA2206215  | 2023.04.15 | 1 Year       |
| Power Meter                           | Keysight     | E9300A                | N/A              | MY45105087  | 2023.04.15 | 1 Year       |
| Power Sensor                          | Keysight     | E9300A                | N/A              | MY55060025  | 2023.04.15 | 1 Year       |
| power amplifier                       | Weihuang     | WHTH-1000-40-880      | N/A              | MPA2206216  | 2023.04.15 | 1 Year       |
| Switching Mode Power Supply           | PinHong      | PH-1110               | N/A              | 20220423007 | 2023.04.15 | 1 Year       |
| Adjustable attenuator                 | MWRFTest     | N/A                   | N/A              | /           | /          | /            |
| 10dB Attenuator                       | /            | 10dB                  | N/A              | N/A         | 2023.09.17 | 1 Year       |
| Temperature and humidity test chamber | Asprey       | LX-150L               | N/A              | N/A         | 2023.04.2  | 1 Year       |

| Software Information |                  |              |          |
|----------------------|------------------|--------------|----------|
| Test Item            | Software Name    | Manufacturer | Version  |
| RE                   | EMC-I            | SKET         | V1.4.0.1 |
| CE                   | EMC-I            | SKET         | V1.4.0.1 |
| RF-CE                | RF Test Software | TACHOY       | V2.0     |

## 4 System test configuration

### 4.1 Test mode

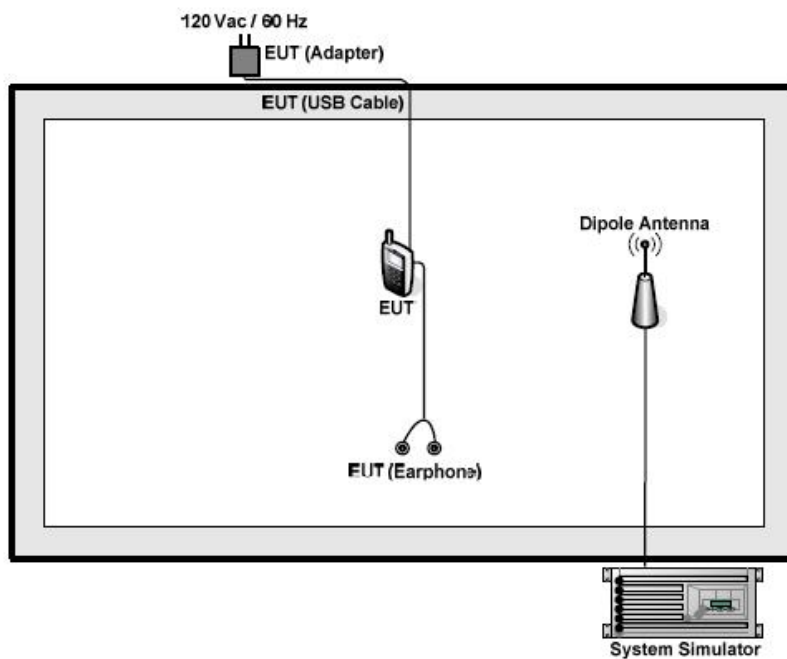
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

| Test modes  |                         |                         |
|-------------|-------------------------|-------------------------|
| Band        | Radiated                | Conducted               |
| LTE Band 2  | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |
| LTE Band 4  | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |
| LTE Band 5  | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |
| LTE Band 7  | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |
| LTE Band 12 | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |
| LTE Band 17 | ■ QPSK link, 16QAM link | ■ QPSK link, 16QAM link |

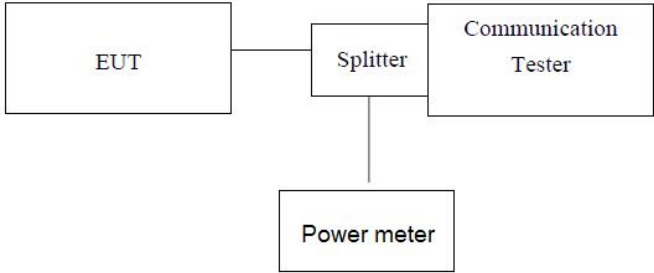
Note: Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas License Digital Systems v03r1 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

### 4.2 Configuration of Tested System



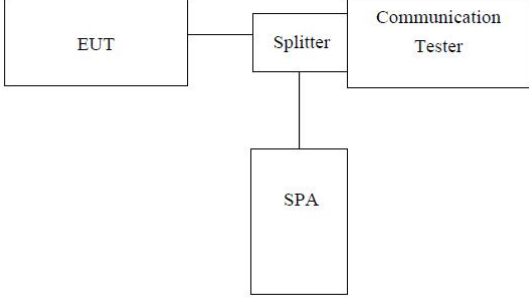
### 4.3 Conducted Output Power & EIRP/ERP

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC part22.913(a) (5), FCC part24.232(b) ,FCC Part 27.50 (d)(4)/(h)<br>FCC Part 27.50 (c)(10),FCC Part 27.50 (h)(2)                                                                                                                                                                                                                                                                                                                                                                              |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Limit:            | LTE Band 2: 2W<br>LTE Band 4: 1W<br>LTE Band 5: 7W<br>LTE Band 7: 2W<br>LTE Band 12: 3W<br>LTE Band 17: 2W                                                                                                                                                                                                                                                                                                                                                                                       |
| Test setup:       |  <p><i>Note: Measurement setup for testing on Antenna connector</i></p>                                                                                                                                                                                                                                                                                                                                        |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The transmitter output port was connected to base station.</li> <li>2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.</li> <li>3. Set EUT at maximum power through base station.</li> <li>4. Select lowest, middle, and highest channels for each band and different modulation.</li> <li>5. Measure the maximum burst average power.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

#### 4.4 Peak-to-Average Ratio

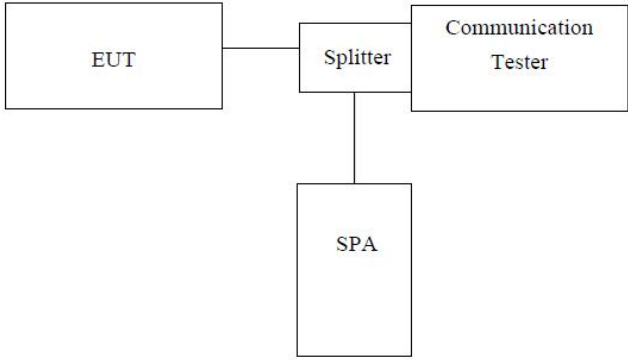
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Part 22.913(d), FCC part24.232(d) and FCC part27.50(d)(5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Limit:       | Used complementary cumulative distribution function (CCDF) of analyzer to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test setup:       |  <pre> graph LR     EUT[EUT] --- Splitter[Splitter]     Splitter --- CT[Communication Tester]     Splitter --- SPA[SPA] </pre> <p><i>Note: Measurement setup for testing on Antenna connector</i></p>                                                                                                                                                                                                                                                                                |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.7</li> <li>2. The EUT was connected to spectrum and system simulator via a power divider</li> <li>3. Using the CCDF measurement of spectrum analyzer;</li> <li>4. Set RBW<math>\geq</math>OBW or specified reference bandwidth;</li> <li>5. Set the number of counts to a value that stabilizes the measured CCDF curve;</li> <li>6. Set the measurement interval as 1ms</li> <li>7. Record the maximum PAPR level associated with a probability of 0.1%.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

#### Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

*Note: All bandwidth and modulation are tested, only the worst results are reported.*

#### 4.5 Occupy Bandwidth

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC part22.913(a), FCC part24.232(b) and FCC part27.53(a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test setup:       |  <pre> graph LR     EUT[EUT] --- Splitter[Splitter]     Splitter --- CT[Communication Tester]     Splitter --- SPA[SPA] </pre> <p><i>Note: Measurement setup for testing on Antenna connector</i></p>                                                                                                                                                                                                                                              |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer, set center frequency to channel center frequency.</li> <li>2. RBW was set to about 1%-5% of emission OBW, VBW<math>\geq</math> 3 X RBW.</li> <li>3. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.</li> <li>4. Use the 99% OBW function, The 99% power OBW can be found on the plot, determine the "-26dB amplitude" as equal to reference value -26dB.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

#### Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

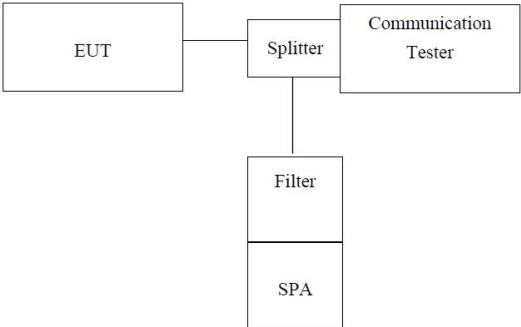
*Note: All bandwidth and modulation are tested, only the worst results are reported.*



#### 4.6 MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 24E & Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

#### 4.7 Out of band emission at antenna terminals

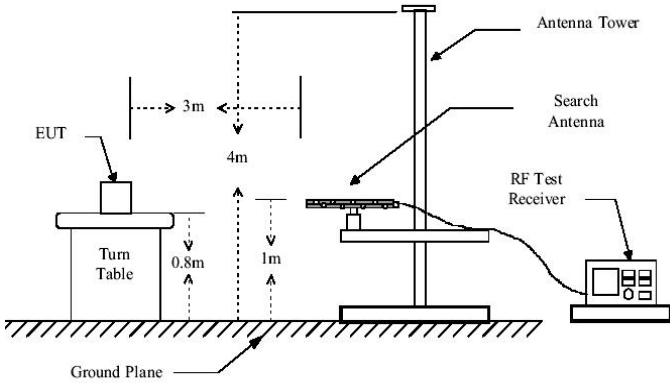
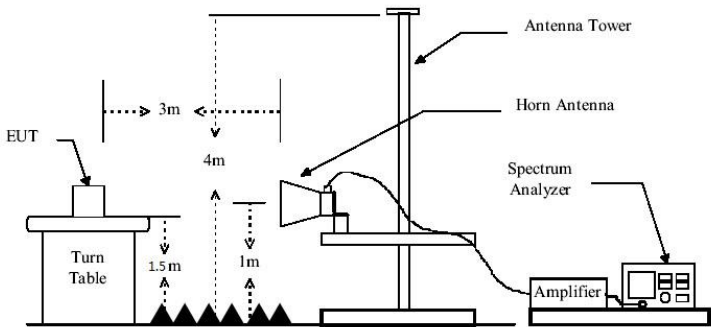
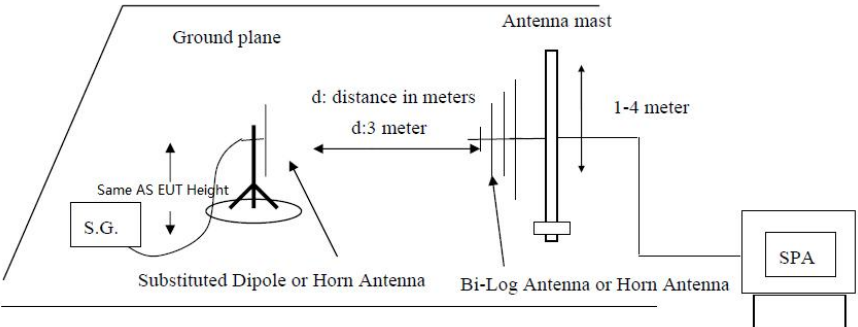
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC part22.913(a), FCC part24.238(a), FCC part27.53(h) and FCC part27.53(m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Limit:            | Band 2/4/5/12/17:-13dBm<br>Band 7:-25dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test setup:       |  <p><i>Note: Measurement setup for testing on Antenna connector</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.</li> <li>3 For the out of band: Set the RBW=1MHz, VBW = 3MHz, Start=30MHz, Stop= 10th harmonic.</li> <li>4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

#### Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

*Note: All bandwidth and modulation are tested, only the worst result is reported.*

#### 4.8 Field strength of spurious radiation measurement

|                   |                                                                                                                                                                                                                                                                                                                             |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC part22.913(a), FCC part24.238(a) and FCC part27.53                                                                                                                                                                                                                                                                      |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                            |
| Limit:            | Band 2/4/5/12/17:-13dBm<br>Band 7:-25dBm                                                                                                                                                                                                                                                                                    |
| Test setup:       | <p>Below 1GHz</p>  <p>Above 1GHz</p>  <p>Substituted method:</p>  |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Procedure:   | <ol style="list-style-type: none"><li>1. The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.</li><li>2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.</li><li>3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.</li><li>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.<br/><math display="block">\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}</math></li></ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Measurement Data:

| LTE Band 2_ 20 MHz_ QPSK |           |            |                   |             |        |        |            |
|--------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                      | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                          | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel           |           |            |                   |             |        |        |            |
| 1                        | 94.979    | -63.41     | -3.56             | -66.97      | -13.00 | -53.97 | Horizontal |
| 2                        | 771.047   | -74.88     | 11.40             | -63.48      | -13.00 | -50.48 | Horizontal |
| 3                        | 965.474   | -78.32     | 14.34             | -63.98      | -13.00 | -50.98 | Horizontal |
| 4                        | 3720.000  | -57.47     | 6.82              | -50.65      | -13.00 | -37.65 | Horizontal |
| 5                        | 5580.000  | -45.59     | 10.86             | -34.73      | -13.00 | -21.73 | Horizontal |
| 6                        | 38.908    | -56.01     | -1.41             | -57.42      | -13.00 | -44.42 | Vertical   |
| 7                        | 92.997    | -51.44     | -3.72             | -55.16      | -13.00 | -42.16 | Vertical   |
| 8                        | 965.474   | -65.48     | 13.21             | -52.27      | -13.00 | -39.27 | Vertical   |
| 9                        | 3720.000  | -55.86     | 6.81              | -49.05      | -13.00 | -36.05 | Vertical   |
| 10                       | 5580.000  | -44.79     | 11.34             | -33.45      | -13.00 | -20.45 | Vertical   |
| Middle Channel           |           |            |                   |             |        |        |            |
| 1                        | 38.096    | -68.34     | -0.15             | -68.49      | -13.00 | -55.49 | Horizontal |
| 2                        | 94.979    | -64.69     | -3.56             | -68.25      | -13.00 | -55.25 | Horizontal |
| 3                        | 965.474   | -79.35     | 14.34             | -65.01      | -13.00 | -52.01 | Horizontal |
| 4                        | 3760.000  | -58.68     | 6.93              | -51.75      | -13.00 | -38.75 | Horizontal |
| 5                        | 5640.000  | -48.03     | 10.84             | -37.19      | -13.00 | -24.19 | Horizontal |
| 6                        | 37.830    | -56.51     | -0.74             | -57.25      | -13.00 | -44.25 | Vertical   |
| 7                        | 92.346    | -52.01     | -3.77             | -55.78      | -13.00 | -42.78 | Vertical   |
| 8                        | 965.474   | -65.31     | 13.21             | -52.10      | -13.00 | -39.10 | Vertical   |
| 9                        | 3760.000  | -57.30     | 6.93              | -50.37      | -13.00 | -37.37 | Vertical   |
| 10                       | 5640.000  | -44.42     | 11.32             | -33.10      | -13.00 | -20.10 | Vertical   |
| Highest Channel          |           |            |                   |             |        |        |            |
| 1                        | 37.302    | -68.53     | 0.24              | -68.29      | -13.00 | -55.29 | Horizontal |
| 2                        | 91.700    | -65.03     | -3.81             | -68.84      | -13.00 | -55.84 | Horizontal |
| 3                        | 965.474   | -72.46     | 14.34             | -58.12      | -13.00 | -45.12 | Horizontal |
| 4                        | 3800.000  | -57.21     | 7.03              | -50.18      | -13.00 | -37.18 | Horizontal |
| 5                        | 5700.000  | -46.22     | 10.83             | -35.39      | -13.00 | -22.39 | Horizontal |
| 6                        | 37.565    | -56.05     | -0.56             | -56.61      | -13.00 | -43.61 | Vertical   |
| 7                        | 93.653    | -50.10     | -3.65             | -53.75      | -13.00 | -40.75 | Vertical   |
| 8                        | 965.474   | -69.30     | 13.21             | -56.09      | -13.00 | -43.09 | Vertical   |
| 9                        | 3800.000  | -55.60     | 7.05              | -48.55      | -13.00 | -35.55 | Vertical   |
| 10                       | 5700.000  | -46.54     | 11.29             | -35.25      | -13.00 | -22.25 | Vertical   |



| LTE Band 4_ 20 MHz_ QPSK |           |            |                   |             |        |        |            |
|--------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                      | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                          | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel           |           |            |                   |             |        |        |            |
| 1                        | 38.096    | -66.68     | -0.15             | -66.83      | -13.00 | -53.83 | Horizontal |
| 2                        | 214.606   | -70.34     | -0.27             | -70.61      | -13.00 | -57.61 | Horizontal |
| 3                        | 965.474   | -72.48     | 14.34             | -58.14      | -13.00 | -45.14 | Horizontal |
| 4                        | 3440.000  | -29.43     | 5.94              | -23.49      | -13.00 | -10.49 | Horizontal |
| 5                        | 5160.000  | -64.48     | 9.17              | -55.31      | -13.00 | -42.31 | Horizontal |
| 6                        | 38.096    | -56.12     | -0.90             | -57.02      | -13.00 | -44.02 | Vertical   |
| 7                        | 92.346    | -51.04     | -3.77             | -54.81      | -13.00 | -41.81 | Vertical   |
| 8                        | 965.474   | -69.56     | 13.21             | -56.35      | -13.00 | -43.35 | Vertical   |
| 9                        | 3440.000  | -40.89     | 5.75              | -35.14      | -13.00 | -22.14 | Vertical   |
| 10                       | 5160.000  | -53.20     | 9.53              | -43.67      | -13.00 | -30.67 | Vertical   |
| Middle Channel           |           |            |                   |             |        |        |            |
| 1                        | 37.830    | -68.30     | -0.02             | -68.32      | -13.00 | -55.32 | Horizontal |
| 2                        | 145.811   | -68.33     | -2.60             | -70.93      | -13.00 | -57.93 | Horizontal |
| 3                        | 965.474   | -71.94     | 14.34             | -57.60      | -13.00 | -44.60 | Horizontal |
| 4                        | 3465.000  | -30.91     | 6.02              | -24.89      | -13.00 | -11.89 | Horizontal |
| 5                        | 5197.500  | -64.13     | 9.31              | -54.82      | -13.00 | -41.82 | Horizontal |
| 6                        | 38.096    | -55.16     | -0.90             | -56.06      | -13.00 | -43.06 | Vertical   |
| 7                        | 93.653    | -50.78     | -3.65             | -54.43      | -13.00 | -41.43 | Vertical   |
| 8                        | 965.474   | -69.35     | 13.21             | -56.14      | -13.00 | -43.14 | Vertical   |
| 9                        | 3465.000  | -40.32     | 5.87              | -34.45      | -13.00 | -21.45 | Vertical   |
| 10                       | 5197.500  | -56.36     | 9.69              | -46.67      | -13.00 | -33.67 | Vertical   |
| Highest Channel          |           |            |                   |             |        |        |            |
| 1                        | 38.365    | -67.50     | -0.28             | -67.78      | -13.00 | -54.78 | Horizontal |
| 2                        | 54.135    | -63.53     | -5.31             | -68.84      | -13.00 | -55.84 | Horizontal |
| 3                        | 965.474   | -72.62     | 14.34             | -58.28      | -13.00 | -45.28 | Horizontal |
| 4                        | 3490.000  | -38.71     | 6.11              | -32.60      | -13.00 | -19.60 | Horizontal |
| 5                        | 5235.000  | -64.98     | 9.50              | -55.48      | -13.00 | -42.48 | Horizontal |
| 6                        | 38.365    | -55.48     | -1.07             | -56.55      | -13.00 | -43.55 | Vertical   |
| 7                        | 93.653    | -51.64     | -3.65             | -55.29      | -13.00 | -42.29 | Vertical   |
| 8                        | 965.474   | -69.38     | 13.21             | -56.17      | -13.00 | -43.17 | Vertical   |
| 9                        | 3490.000  | -51.12     | 5.99              | -45.13      | -13.00 | -32.13 | Vertical   |
| 10                       | 5235.000  | -64.90     | 9.89              | -55.01      | -13.00 | -42.01 | Vertical   |

| LTE Band 5_ 10 MHz_ QPSK |           |            |                   |             |        |        |            |
|--------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                      | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                          | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel           |           |            |                   |             |        |        |            |
| 1                        | 280.294   | -88.14     | 30.61             | -57.53      | -13.00 | -44.53 | Horizontal |
| 2                        | 509.356   | -87.79     | 36.71             | -51.08      | -13.00 | -38.08 | Horizontal |
| 3                        | 744.427   | -87.37     | 40.32             | -47.05      | -13.00 | -34.05 | Horizontal |
| 4                        | 1658.000  | -65.75     | 0.11              | -65.64      | -13.00 | -52.64 | Horizontal |
| 5                        | 2487.000  | -64.90     | 2.76              | -62.14      | -13.00 | -49.14 | Horizontal |
| 6                        | 96.323    | -81.97     | 25.37             | -56.60      | -13.00 | -43.60 | Vertical   |
| 7                        | 505.789   | -87.06     | 36.97             | -50.09      | -13.00 | -37.09 | Vertical   |
| 8                        | 723.793   | -86.87     | 39.41             | -47.46      | -13.00 | -34.46 | Vertical   |
| 9                        | 1658.000  | -66.11     | -0.66             | -66.77      | -13.00 | -53.77 | Vertical   |
| 10                       | 2487.000  | -65.65     | 2.36              | -63.29      | -13.00 | -50.29 | Vertical   |
| Middle Channel           |           |            |                   |             |        |        |            |
| 1                        | 360.977   | -88.00     | 33.10             | -54.90      | -13.00 | -41.90 | Horizontal |
| 2                        | 481.511   | -87.76     | 36.14             | -51.62      | -13.00 | -38.62 | Horizontal |
| 3                        | 781.961   | -86.77     | 41.05             | -45.72      | -13.00 | -32.72 | Horizontal |
| 4                        | 1673.000  | -65.23     | 0.19              | -65.04      | -13.00 | -52.04 | Horizontal |
| 5                        | 2509.500  | -66.35     | 2.82              | -63.53      | -13.00 | -50.53 | Horizontal |
| 6                        | 91.057    | -81.63     | 24.97             | -56.66      | -13.00 | -43.66 | Vertical   |
| 7                        | 350.972   | -87.82     | 33.16             | -54.66      | -13.00 | -41.66 | Vertical   |
| 8                        | 679.435   | -87.12     | 38.56             | -48.56      | -13.00 | -35.56 | Vertical   |
| 9                        | 1673.000  | -65.42     | -0.57             | -65.99      | -13.00 | -52.99 | Vertical   |
| 10                       | 2509.500  | -65.02     | 2.41              | -62.61      | -13.00 | -49.61 | Vertical   |
| Highest Channel          |           |            |                   |             |        |        |            |
| 1                        | 95.649    | -86.75     | 25.33             | -61.42      | -13.00 | -48.42 | Horizontal |
| 2                        | 527.571   | -88.15     | 37.49             | -50.66      | -13.00 | -37.66 | Horizontal |
| 3                        | 693.910   | -87.29     | 40.62             | -46.67      | -13.00 | -33.67 | Horizontal |
| 4                        | 1688.000  | -64.02     | 0.28              | -63.74      | -13.00 | -50.74 | Horizontal |
| 5                        | 2532.000  | -65.58     | 2.89              | -62.69      | -13.00 | -49.69 | Horizontal |
| 6                        | 94.314    | -81.34     | 25.22             | -56.12      | -13.00 | -43.12 | Vertical   |
| 7                        | 491.770   | -87.70     | 36.63             | -51.07      | -13.00 | -38.07 | Vertical   |
| 8                        | 728.897   | -87.38     | 39.32             | -48.06      | -13.00 | -35.06 | Vertical   |
| 9                        | 1688.000  | -64.02     | -0.47             | -64.49      | -13.00 | -51.49 | Vertical   |
| 10                       | 2532.000  | -65.58     | 2.47              | -63.11      | -13.00 | -50.11 | Vertical   |



| LTE Band 7_ 20 MHz_ QPSK |           |            |                   |             |        |        |            |
|--------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                      | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                          | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel           |           |            |                   |             |        |        |            |
| 1                        | 36.781    | -68.38     | 0.51              | -67.87      | -25.00 | -42.87 | Horizontal |
| 2                        | 56.071    | -63.89     | -5.46             | -69.35      | -25.00 | -44.35 | Horizontal |
| 3                        | 965.474   | -72.24     | 14.34             | -57.90      | -25.00 | -32.90 | Horizontal |
| 4                        | 5020.000  | -59.58     | 8.68              | -50.90      | -25.00 | -25.90 | Horizontal |
| 5                        | 7530.000  | -65.40     | 13.00             | -52.40      | -25.00 | -27.40 | Horizontal |
| 6                        | 38.636    | -55.26     | -1.25             | -56.51      | -25.00 | -43.51 | Vertical   |
| 7                        | 91.057    | -51.67     | -3.87             | -55.54      | -25.00 | -42.54 | Vertical   |
| 8                        | 965.474   | -69.28     | 13.21             | -56.07      | -25.00 | -43.07 | Vertical   |
| 9                        | 5020.000  | -59.85     | 8.98              | -50.87      | -25.00 | -25.87 | Vertical   |
| 10                       | 7530.000  | -65.25     | 13.10             | -52.15      | -25.00 | -27.15 | Vertical   |
| Middle Channel           |           |            |                   |             |        |        |            |
| 1                        | 38.636    | -67.41     | -0.43             | -67.84      | -25.00 | -42.84 | Horizontal |
| 2                        | 57.669    | -63.43     | -5.57             | -69.00      | -25.00 | -44.00 | Horizontal |
| 3                        | 965.474   | -72.67     | 14.34             | -58.33      | -25.00 | -33.33 | Horizontal |
| 4                        | 5070.000  | -60.44     | 8.86              | -51.58      | -25.00 | -26.58 | Horizontal |
| 5                        | 7605.000  | -63.48     | 13.16             | -50.32      | -25.00 | -25.32 | Horizontal |
| 6                        | 37.830    | -55.43     | -0.74             | -56.17      | -25.00 | -31.17 | Vertical   |
| 7                        | 92.346    | -50.72     | -3.77             | -54.49      | -25.00 | -29.49 | Vertical   |
| 8                        | 965.474   | -69.03     | 13.21             | -55.82      | -25.00 | -30.82 | Vertical   |
| 9                        | 5070.000  | -60.84     | 9.18              | -51.66      | -25.00 | -26.66 | Vertical   |
| 10                       | 7605.000  | -65.86     | 13.26             | -52.60      | -25.00 | -27.60 | Vertical   |
| Highest Channel          |           |            |                   |             |        |        |            |
| 1                        | 37.830    | -67.28     | -0.02             | -67.30      | -25.00 | -42.30 | Horizontal |
| 2                        | 56.071    | -63.69     | -5.46             | -69.15      | -25.00 | -44.15 | Horizontal |
| 3                        | 965.474   | -72.52     | 14.34             | -58.18      | -25.00 | -33.18 | Horizontal |
| 4                        | 5120.000  | -60.51     | 9.03              | -51.48      | -25.00 | -26.48 | Horizontal |
| 5                        | 7680.000  | -63.28     | 13.31             | -49.97      | -25.00 | -24.97 | Horizontal |
| 6                        | 38.096    | -54.66     | -0.90             | -55.56      | -25.00 | -30.56 | Vertical   |
| 7                        | 94.979    | -49.89     | -3.56             | -53.45      | -25.00 | -28.45 | Vertical   |
| 8                        | 965.474   | -68.86     | 13.21             | -55.65      | -25.00 | -30.65 | Vertical   |
| 9                        | 5120.000  | -60.99     | 9.37              | -51.62      | -25.00 | -26.62 | Vertical   |
| 10                       | 7680.000  | -64.66     | 13.41             | -51.25      | -25.00 | -26.25 | Vertical   |

| LTE Band 12_ 10 MHz_ QPSK |           |            |                   |             |        |        |            |
|---------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                       | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                           | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel            |           |            |                   |             |        |        |            |
| 1                         | 341.244   | -87.86     | 32.72             | -55.14      | -13.00 | -42.14 | Horizontal |
| 2                         | 562.014   | -86.80     | 37.42             | -49.38      | -13.00 | -36.38 | Horizontal |
| 3                         | 674.677   | -86.96     | 40.21             | -46.75      | -13.00 | -33.75 | Horizontal |
| 4                         | 1408.000  | -62.53     | -0.43             | -62.96      | -13.00 | -49.96 | Horizontal |
| 5                         | 2112.000  | -63.86     | 2.00              | -61.86      | -13.00 | -48.86 | Horizontal |
| 6                         | 90.420    | -80.66     | 24.93             | -55.73      | -13.00 | -42.73 | Vertical   |
| 7                         | 353.447   | -87.78     | 33.14             | -54.64      | -13.00 | -41.64 | Vertical   |
| 8                         | 481.511   | -87.02     | 36.37             | -50.65      | -13.00 | -37.65 | Vertical   |
| 9                         | 1408.000  | -60.44     | -1.20             | -61.64      | -13.00 | -48.64 | Vertical   |
| 10                        | 2112.000  | -62.15     | 1.52              | -60.63      | -13.00 | -47.63 | Vertical   |
| Middle Channel            |           |            |                   |             |        |        |            |
| 1                         | 346.074   | -88.11     | 32.97             | -55.14      | -13.00 | -42.14 | Horizontal |
| 2                         | 403.934   | -88.12     | 35.06             | -53.06      | -13.00 | -40.06 | Horizontal |
| 3                         | 615.774   | -87.87     | 39.12             | -48.75      | -13.00 | -35.75 | Horizontal |
| 4                         | 1415.000  | -62.30     | -0.44             | -62.74      | -13.00 | -49.74 | Horizontal |
| 5                         | 2122.500  | -63.07     | 2.00              | -61.07      | -13.00 | -48.07 | Horizontal |
| 6                         | 92.346    | -80.46     | 25.07             | -55.39      | -13.00 | -42.39 | Vertical   |
| 7                         | 471.467   | -87.13     | 36.03             | -51.10      | -13.00 | -38.10 | Vertical   |
| 8                         | 573.988   | -87.98     | 38.38             | -49.60      | -13.00 | -36.60 | Vertical   |
| 9                         | 1415.000  | -61.60     | -1.22             | -62.82      | -13.00 | -49.82 | Vertical   |
| 10                        | 2122.500  | -63.08     | 1.53              | -61.55      | -13.00 | -48.55 | Vertical   |
| Highest Channel           |           |            |                   |             |        |        |            |
| 1                         | 363.523   | -88.08     | 33.09             | -54.99      | -13.00 | -41.99 | Horizontal |
| 2                         | 520.208   | -87.52     | 37.25             | -50.27      | -13.00 | -37.27 | Horizontal |
| 3                         | 679.435   | -86.07     | 40.32             | -45.75      | -13.00 | -32.75 | Horizontal |
| 4                         | 1422.000  | -62.14     | -0.45             | -62.59      | -13.00 | -49.59 | Horizontal |
| 5                         | 2133.000  | -62.91     | 2.01              | -60.90      | -13.00 | -47.90 | Horizontal |
| 6                         | 97.002    | -80.20     | 25.42             | -54.78      | -13.00 | -41.78 | Vertical   |
| 7                         | 421.329   | -87.38     | 35.33             | -52.05      | -13.00 | -39.05 | Vertical   |
| 8                         | 520.208   | -87.21     | 37.28             | -49.93      | -13.00 | -36.93 | Vertical   |
| 9                         | 1422.000  | -63.41     | -1.24             | -64.65      | -13.00 | -51.65 | Vertical   |
| 10                        | 2133.000  | -64.36     | 1.53              | -62.83      | -13.00 | -49.83 | Vertical   |

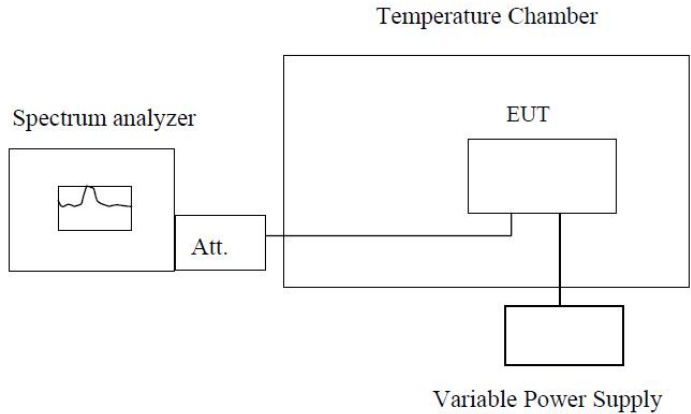


| LTE Band 17_ 10 MHz_ QPSK |           |            |                   |             |        |        |            |
|---------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                       | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                           | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel            |           |            |                   |             |        |        |            |
| 1                         | 42.931    | -84.65     | 26.71             | -57.94      | -13.00 | -44.94 | Horizontal |
| 2                         | 478.139   | -88.12     | 36.12             | -52.00      | -13.00 | -39.00 | Horizontal |
| 3                         | 602.929   | -87.70     | 38.90             | -48.80      | -13.00 | -35.80 | Horizontal |
| 4                         | 1418.000  | -64.22     | -0.46             | -64.68      | -13.00 | -51.68 | Horizontal |
| 5                         | 2127.000  | -64.97     | 2.00              | -62.97      | -13.00 | -49.97 | Horizontal |
| 6                         | 92.346    | -80.32     | 25.07             | -55.25      | -13.00 | -42.25 | Vertical   |
| 7                         | 481.511   | -87.22     | 36.37             | -50.85      | -13.00 | -37.85 | Vertical   |
| 8                         | 628.894   | -87.10     | 37.85             | -49.25      | -13.00 | -36.25 | Vertical   |
| 9                         | 1418.000  | -64.50     | -1.24             | -65.74      | -13.00 | -52.74 | Vertical   |
| 10                        | 2127.000  | -65.56     | 1.52              | -64.04      | -13.00 | -51.04 | Vertical   |
| Middle Channel            |           |            |                   |             |        |        |            |
| 1                         | 276.382   | -87.55     | 30.52             | -57.03      | -13.00 | -44.03 | Horizontal |
| 2                         | 542.610   | -87.21     | 37.46             | -49.75      | -13.00 | -36.75 | Horizontal |
| 3                         | 637.795   | -87.69     | 39.29             | -48.40      | -13.00 | -35.40 | Horizontal |
| 4                         | 1420.000  | -64.03     | -0.45             | -64.48      | -13.00 | -51.48 | Horizontal |
| 5                         | 2130.000  | -65.26     | 2.00              | -63.26      | -13.00 | -50.26 | Horizontal |
| 6                         | 91.700    | -79.33     | 25.03             | -54.30      | -13.00 | -41.30 | Vertical   |
| 7                         | 427.292   | -88.09     | 35.47             | -52.62      | -13.00 | -39.62 | Vertical   |
| 8                         | 624.490   | -87.33     | 37.87             | -49.46      | -13.00 | -36.46 | Vertical   |
| 9                         | 1420.000  | -63.40     | -1.24             | -64.64      | -13.00 | -51.64 | Vertical   |
| 10                        | 2130.000  | -64.17     | 1.53              | -62.64      | -13.00 | -49.64 | Vertical   |
| Highest Channel           |           |            |                   |             |        |        |            |
| 1                         | 266.839   | -88.61     | 30.31             | -58.30      | -13.00 | -45.30 | Horizontal |
| 2                         | 406.782   | -88.53     | 35.04             | -53.49      | -13.00 | -40.49 | Horizontal |
| 3                         | 542.610   | -87.10     | 37.46             | -49.64      | -13.00 | -36.64 | Horizontal |
| 4                         | 1422.000  | -63.00     | -0.45             | -63.45      | -13.00 | -50.45 | Horizontal |
| 5                         | 2133.000  | -66.78     | 2.01              | -64.77      | -13.00 | -51.77 | Horizontal |
| 6                         | 92.346    | -79.13     | 25.07             | -54.06      | -13.00 | -41.06 | Vertical   |
| 7                         | 401.105   | -86.96     | 34.33             | -52.63      | -13.00 | -39.63 | Vertical   |
| 8                         | 558.079   | -86.84     | 38.02             | -48.82      | -13.00 | -35.82 | Vertical   |
| 9                         | 1422.000  | -63.83     | -1.24             | -65.07      | -13.00 | -52.07 | Vertical   |
| 10                        | 2133.000  | -65.34     | 1.53              | -63.81      | -13.00 | -50.81 | Vertical   |

## Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

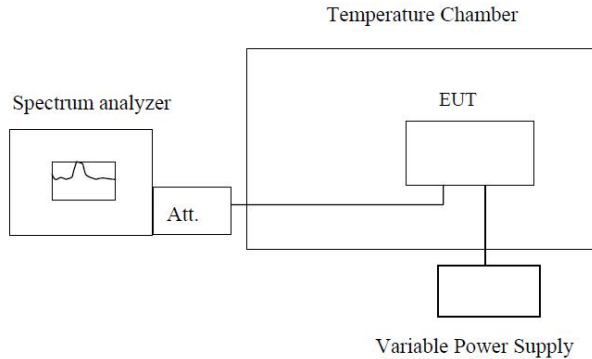
#### 4.9 Frequency stability V.S. Temperature measurement

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part2.1055(a)(1)(b), FCC part90.213.(a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Limit:            | 2.5ppm(Part 22)<br>Within the authorized bands of operation(Part 24, Part 27)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test setup:       |  <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test procedure:   | <ol style="list-style-type: none"> <li>1. The equipment under test was connected to an external DC power supply and input rated voltage.</li> <li>2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.</li> <li>3. The EUT was placed inside the temperature chamber.</li> <li>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.</li> <li>5. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.</li> <li>6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Remark:           | If all frequencies stability are comply with the lower limit, then all results can be considered qualified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

#### Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

**4.10 Frequency stability V.S. Voltage measurement**

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part2.1055(d)(1)(2), FCC part90.213.(a)                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Method:      | ANSI C63.26:2015                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Limit:            | 2.5ppm<br>Band II & Band VII should be within authorized band.                                                                                                                                                                                                                                                                                                                                                                                   |
| Test setup:       |  <p style="text-align: center;">Temperature Chamber</p> <p style="text-align: center;">Spectrum analyzer</p> <p style="text-align: center;">Att.</p> <p style="text-align: center;">EUT</p> <p style="text-align: center;">Variable Power Supply</p> <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>                                   |
| Test procedure:   | <ol style="list-style-type: none"> <li>1. Set chamber temperature to 20°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.</li> <li>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.</li> <li>3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</li> </ol> |
| Test Instruments: | Refer to section 3 for details                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test mode:        | Refer to section 4.1 for details                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Remark:           | If all frequencies stability are comply with the lower limit, then all results can be considered qualified                                                                                                                                                                                                                                                                                                                                       |

#### Measurement Data

Please refer to separated files for APPENDIX I TEST RESULTS.

#### **4.11 Test Setup Photo**

Please refer to separated files for APPENDIX IV Test Setup Photos.

**-----END OF REPORT-----**