

# **FCC REPORT**

## **(LTE)**

**Applicant:** Baicells Technologies Co., Ltd.

**Address of Applicant:** 9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China

**Equipment Under Test (EUT)**

Product Name: LTE Base Station

Model No.: sBS71040

Trade mark: Baicells

**FCC ID:** 2AG32SBS71040

**Applicable standards:** FCC CFR Title 47 Part 2  
FCC CFR Title 47 Part 27 Subpart M

**Date of sample receipt:** 17 Jun., 2021

**Date of Test:** 05 Jul., to 13 Sep., 2021

**Date of report issued:** 13 Sep., 2021

**Test Result:** PASS\*

\*In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2. Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | 13 Sep., 2021 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

**Tested by:** Mike.ou **Date:** 13 Sep., 2021  
**Test Engineer**

**Reviewed by:** Winner Zhang **Date:** 13 Sep., 2021  
**Project Engineer**

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## 4. Test Summary

| Test Items   | Section in CFR 47  | Result   |
|--|--|--|
| RF Exposure (SAR)  | Part 1.1307<br>Part 2.1093   | (Please refer to FCC Exposure Evaluation Report) |
| RF Output Power  | Part 27.50 (h)(1)  | Pass   |
| Peak-to-Average Ratio  | Report only  | Report only                                      |
| 99% & -26 dB Occupied Bandwidth  | Part 2.1049<br>Part 27.53(m)   | Pass   |
| Out of band emission at antenna terminals  | Part 2.1053<br>Part 27.53(m)   | Pass   |
| Field strength of spurious radiation   | Part 27.53(m)  | Pass   |
| Frequency stability vs. temperature  | Part 27.54<br>Part 2.1055(a)(1)(b)   | Pass   |
| Frequency stability vs. voltage  | Part 27.54<br>Part 2.1055(d)(2)  | Pass   |
| <b>Remark:</b><br>1. Pass: The EUT complies with the essential requirements in the standard.<br>2. Offset Ext Gain = ATT loss + Cable loss + Duty cycle correction |  |  |
| <b>Test Method:</b>  | ANSI/TIA-603-E-2016<br>ANSI C63.26-2015<br>KDB 662911 D01 Multiple Transmitter Output v02r01 |  |

## 5. General Information

### 5.1 Client Information

|               |   |
|---------------|---|
| Applicant:    | Baicells Technologies Co., Ltd.                                     |
| Address:      | 9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China |
| Manufacturer: | Baicells Technologies Co., Ltd.                                     |
| Address:      | 9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China |

### 5.2 General Description of E.U.T.

|                            |  |
|----------------------------|--|
| Product Name:              | LTE Base Station   |
| Model No.:                 | sBS71040   |
| Operation Frequency range: | LTE Band 41: TX: 2496MHz-2690MHz RX: 2496 MHz-2690 MHz   |
| Modulation type:           | Uplink: QPSK, 16QAM, 64QAM, 256QAM   |
|                            | Downlink: QPSK, 16QAM, 64QAM, 256QAM   |
| Antenna type:              | External Antenna   |
| Antenna gain:              | LTE Band 41: 18.0 dBi(declare by Applicant)  |
| AC adapter:                | Model: HEP-480-54  |
|                            | Input: AC100-240V 50/60Hz 5.5~2.2A   |
|                            | Output: DC 54.0V=== 8.9A   |
| Test Sample Condition:     | The applicant provided engineering samples for staying in continuously transmitting for testing. |

**Operation Frequency List:**

| LTE Band 41 (10MHz) |                 | LTE Band 41 (20MHz) |                 |
|---------------------|-----------------|---------------------|-----------------|
| Channel             | Frequency (MHz) | Channel             | Frequency (MHz) |
| 39700               | 2501.00         | 39750               | 2506.00         |
| 39701               | 2501.10         | 39751               | 2506.10         |
| ....                | ....            | ....                | ....            |
| 40619               | 2592.90         | 40619               | 2592.90         |
| 40620               | 2593.00         | 40620               | 2593.00         |
| 40621               | 2593.10         | 40621               | 2593.10         |
| ...                 | ....            | ...                 | ....            |
| 41539               | 2684.90         | 41489               | 2680.90         |
| 41540               | 2685.00         | 41490               | 2680.00         |

Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

| LTE Band 41 (10MHz) |       |                 | LTE Band 41 (20MHz) |       |                 |
|---------------------|-------|-----------------|---------------------|-------|-----------------|
| Channel             |       | Frequency (MHz) | Channel             |       | Frequency (MHz) |
| Lowest channel      | 39700 | 2501.0          | Lowest channel      | 39750 | 2506.0          |
| Middle channel      | 40620 | 2593.0          | Middle channel      | 40620 | 2593.0          |
| Highest channel     | 41540 | 2685.0          | Highest channel     | 41490 | 2680.0          |

### 5.3 Test environment and mode

| Operating Environment:   |   |
|--|---|
| Temperature:   | Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C                       |
| Humidity:  | 20 % ~ 75 % RH  |
| Atmospheric Pressure:  | 1008 mbar   |
| Voltage:   | Nominal: 120Vac, Extreme: Low 102Vac, High 138Vac                 |
| Test mode:   |   |
| LTE QPSK mode  | Keep the EUT communication with simulated station in QPSK mode    |
| LTE 16-QAM mode  | Keep the EUT communication with simulated station in 16-QAM mode  |
| LTE 64-QAM mode  | Keep the EUT communication with simulated station in 64-QAM mode  |
| LTE 256-QAM mode   | Keep the EUT communication with simulated station in 256-QAM mode |
| Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report. |   |

### 5.4 Description of Support Units

| Test Equipment | Manufacturer | Model No. | Serial No. |
|----------------|--------------|-----------|------------|
| LENOVO         | Laptop       | SL510     | DoC        |

### 5.5 Measurement Uncertainty

| Parameters  | Expanded Uncertainty<br>(Confidence of 95%) |
|---|---|
| Radiated Emission (9kHz ~ 30MHz) for 3m SAC   | 3.13 dB                                     |
| Radiated Emission (30MHz ~ 1GHz) for 3m SAC   | 4.45 dB                                     |
| Radiated Emission (1GHz ~ 18GHz) for 3m SAC   | 5.34 dB                                     |
| Radiated Emission (18GHz ~ 40GHz) for 3m SAC  | 5.34 dB                                     |
| <b>Note:</b> The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.26-2015. All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance. |   |

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

|  |
|--|
| This is an original grant, no related submittals and grants. |
|--|

### 5.7 Additions to, deviations, or exclusions from the method

|    |
|----|
| No |
|----|

### 5.8 Laboratory Facility

|   |
|---|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC - Designation No.: CN1211</b><br/>JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 727551.</li> <li>● <b>ISED – CAB identifier.: CN0021</b><br/>The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.</li> <li>● <b>A2LA - Registration No.: 4346.01</b><br/>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <a href="https://portal.a2la.org/scopepdf/4346-01.pdf">https://portal.a2la.org/scopepdf/4346-01.pdf</a></li> </ul> |
|---|

## 5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

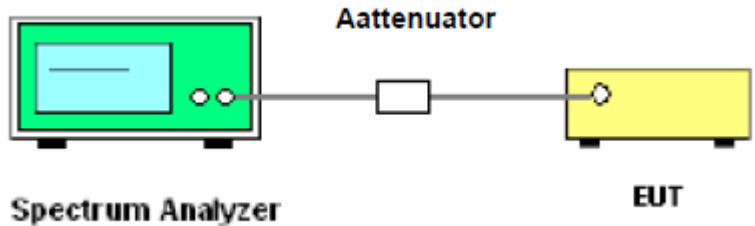
## 5.10 Test Instruments list

| 6 Radiated Emission: |                 |               |                   |                     |                          |
|----------------------|-----------------|---------------|-------------------|---------------------|--------------------------|
| Test Equipment       | Manufacturer    | Model No.     | Management Number | Cal.Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC               | ETS             | 9m*6m*6m      | WXJ001-1          | 01-19-2021          | 01-18-2024               |
| BiConiLog Antenna    | SCHWARZBECK     | VULB9163      | WXJ002            | 03-03-2021          | 03-02-2022               |
| Biconical Antenna    | SCHWARZBECK     | VUBA9117      | WXJ002-1          | 06-20-2021          | 06-19-2022               |
| Horn Antenna         | SCHWARZBECK     | BBHA9120D     | WXJ002-2          | 03-03-2021          | 03-02-2022               |
| Horn Antenna         | SCHWARZBECK     | BBHA9120D     | WXJ002-3          | 06-18-2021          | 06-17-2022               |
| Pre-amplifier        | HP              | 8447D         | WXG001-2          | 03-07-2021          | 03-06-2022               |
| Pre-amplifier        | SKET            | LNPA_0118G-50 | WXG001-3          | 03-07-2021          | 03-06-2022               |
| EMI Test Receiver    | Rohde & Schwarz | ESRP7         | WXJ003-1          | 03-03-2021          | 03-02-2022               |
| Spectrum analyzer    | Rohde & Schwarz | FSP30         | WXJ004            | 03-03-2021          | 03-02-2022               |
| Signal Generator     | Agilent         | N5173B        | WXJ006-7          | 03-25-2021          | 03-24-2022               |
| RF Switch Unit       | Tonscend        | JS0806-F      | WXJ089            | N/A                 |                          |
| Test Software        | Tonscend        | TS+           | Version: 3.0.0.1  |                     |                          |

| Conducted method:        |              |           |                     |                      |                          |
|--------------------------|--------------|-----------|---------------------|----------------------|--------------------------|
| Test Equipment           | Manufacturer | Model No. | Management Number   | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| Spectrum Analyzer        | Keysight     | N9020B    | WXJ081-1            | 07-02-2021           | 07-01-2022               |
| RF Control Unit          | Tonscend     | JS0806-1  | WXG010-2            | N/A                  | N/A                      |
| RF Control Unit          | Tonscend     | JS0806-1  | WXG010-3            | N/A                  | N/A                      |
| Band Reject Filter Group | Tonscend     | JS0806-F  | WXG010-4            | N/A                  | N/A                      |
| Test Software            | Tonscend     | TS+       | Version: 2.6.9.0526 |                      |                          |

## 6. Test results

### 6.1 Conducted Output Power

|                   |  |
|-------------------|--|
| Test Requirement: | Part 27.50 (h)(1)  |
| Limit:            | Main, booster and base stations. (i) The maximum EIRP of a main, booster or base station shall not exceed $33 \text{ dBW} + 10\log(X/Y) \text{ dBW}$ , where X is the actual channel width in MHz and Y is either 6 MHz if prior to transition or the station is in the MBS following transition or 5.5 MHz if the station is in the LBS and UBS following transition, except as provided in paragraph(h)(1)(ii) of this section.  |
| Test Setup:       |  <p>The diagram shows a Spectrum Analyzer (green box) connected to an Attenuator (white box), which is then connected to the EUT (yellow box). The labels 'Spectrum Analyzer', 'Attenuator', and 'EUT' are placed below their respective components.</p>   |
| Test Procedure:   | <p>For Maximum EIRP</p> <ol style="list-style-type: none"> <li>1. Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.</li> <li>2. Set span to <math>2 \times</math> to <math>3 \times</math> the OBW.</li> <li>3. Set RBW = 1% to 5% of the OBW.</li> <li>4. Set VBW <math>\geq 3 \times</math> RBW.</li> <li>5. Set number of measurement points in sweep <math>\geq 2 \times</math> span / RBW.</li> <li>6. Sweep time: <ol style="list-style-type: none"> <li>1) Set = auto-couple, or</li> <li>2) Set <math>\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]</math> for single sweep (automation-compatible) measurement.</li> </ol> </li> <li>7. Detector = power averaging (rms).</li> <li>8. Set sweep trigger to "free run."</li> <li>9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.</li> <li>10. Compute power by integrating the spectrum across the OBW(10MHz) of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW(10MHz) band edges.</li> <li>11. Add <math>10 \log (1/\text{duty cycle})</math> to the measured power level to compute the average power during continuous transmission.</li> <li>12. <math>\text{EIRP} = \text{P}_{\text{Meas}} + G_T</math>.</li> </ol> <p><math>\text{P}_{\text{Meas}}</math> measured transmitter output power.<br/> <math>G_T</math> gain of the transmitting antenna.</p> |
| Test Instruments: | Refer to section 5.10 for details  |
| Test mode:        | Refer to section 5.3 for details   |
| Test results:     | Passed   |

### Measurement Data:

| Band width | Modulation | Channel | ANT 0 Output Power (dBm) | ANT 1 Output Power (dBm) | ANT 2 Output Power (dBm) | ANT 3 Output Power (dBm) | Total Power (dBm) | Gain (dBi) | Eirp  | Limit (dBm) | Verdict |
|------------|------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------|------------|-------|-------------|---------|
| 10MHz      | 256QAM     | 39700   | 36.74                    | 36.65                    | 36.85                    | 36.90                    | 42.81             | 18.0       | 60.81 | 65.22       | PASS    |
| 10MHz      | 256QAM     | 40620   | 37.33                    | 37.07                    | 36.84                    | 36.94                    | 43.07             | 18.0       | 61.07 | 65.22       | PASS    |
| 10MHz      | 256QAM     | 41540   | 36.97                    | 36.89                    | 37.02                    | 37.28                    | 43.06             | 18.0       | 61.06 | 65.22       | PASS    |
| 10MHz      | QPSK       | 39700   | 36.78                    | 36.97                    | 36.39                    | 36.40                    | 42.66             | 18.0       | 60.66 | 65.22       | PASS    |
| 10MHz      | QPSK       | 40620   | 37.12                    | 36.94                    | 36.71                    | 36.60                    | 42.87             | 18.0       | 60.87 | 65.22       | PASS    |
| 10MHz      | QPSK       | 41540   | 36.39                    | 36.69                    | 36.48                    | 36.51                    | 42.54             | 18.0       | 60.54 | 65.22       | PASS    |
| 20MHz      | 256QAM     | 39750   | 36.60                    | 37.25                    | 37.09                    | 37.07                    | 43.03             | 18.0       | 61.03 | 68.23       | PASS    |
| 20MHz      | 256QAM     | 40620   | 37.08                    | 37.21                    | 36.75                    | 36.85                    | 43.00             | 18.0       | 61.00 | 68.23       | PASS    |
| 20MHz      | 256QAM     | 41490   | 37.37                    | 36.64                    | 37.14                    | 37.15                    | 43.10             | 18.0       | 61.10 | 68.23       | PASS    |
| 20MHz      | QPSK       | 39750   | 36.71                    | 36.99                    | 36.28                    | 36.20                    | 42.58             | 18.0       | 60.58 | 68.23       | PASS    |
| 20MHz      | QPSK       | 40620   | 36.97                    | 36.98                    | 36.91                    | 36.75                    | 42.92             | 18.0       | 60.92 | 68.23       | PASS    |
| 20MHz      | QPSK       | 41490   | 36.80                    | 37.01                    | 36.30                    | 36.88                    | 42.78             | 18.0       | 60.78 | 68.23       | PASS    |

Remark:

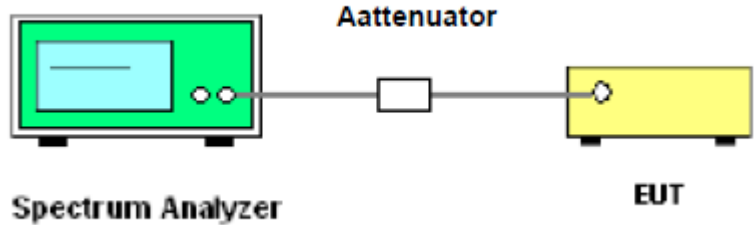
- ANT 0, ANT 1, ANT 2, ANT 3 is 4\*4MIMO
- All transmit signals are completely uncorrelated with each other, Directional gain = GANT =18dBi

| Band width | Modulation | Channel | ANT 4 Output Power (dBm) | ANT 5 Output Power (dBm) | ANT 6 Output Power (dBm) | ANT 7 Output Power (dBm) | Total Power (dBm) | Gain (dBi) | Eirp  | Limit (dBm) | Verdict |
|------------|------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------|------------|-------|-------------|---------|
| 10MHz      | 256QAM     | 39700   | 36.92                    | 36.85                    | 37.04                    | 36.76                    | 42.91             | 18.0       | 60.91 | 65.22       | PASS    |
| 10MHz      | 256QAM     | 40620   | 37.03                    | 36.98                    | 37.23                    | 37.06                    | 43.10             | 18.0       | 61.10 | 65.22       | PASS    |
| 10MHz      | 256QAM     | 41540   | 37.09                    | 37.34                    | 36.90                    | 36.95                    | 43.09             | 18.0       | 61.09 | 65.22       | PASS    |
| 10MHz      | QPSK       | 39700   | 36.64                    | 36.71                    | 36.77                    | 36.61                    | 42.70             | 18.0       | 60.70 | 65.22       | PASS    |
| 10MHz      | QPSK       | 40620   | 36.46                    | 35.66                    | 36.56                    | 37.03                    | 42.48             | 18.0       | 60.48 | 65.22       | PASS    |
| 10MHz      | QPSK       | 41540   | 36.58                    | 37.12                    | 36.71                    | 36.65                    | 42.79             | 18.0       | 60.79 | 65.22       | PASS    |
| 20MHz      | 256QAM     | 39750   | 37.05                    | 37.15                    | 37.09                    | 37.35                    | 43.18             | 18.0       | 61.18 | 68.23       | PASS    |
| 20MHz      | 256QAM     | 40620   | 36.93                    | 37.56                    | 36.93                    | 37.55                    | 43.27             | 18.0       | 61.27 | 68.23       | PASS    |
| 20MHz      | 256QAM     | 41490   | 37.10                    | 37.01                    | 37.16                    | 37.17                    | 43.13             | 18.0       | 61.13 | 68.23       | PASS    |
| 20MHz      | QPSK       | 39750   | 36.77                    | 36.41                    | 36.56                    | 37.18                    | 42.76             | 18.0       | 60.76 | 68.23       | PASS    |
| 20MHz      | QPSK       | 40620   | 36.81                    | 37.08                    | 36.93                    | 37.00                    | 42.98             | 18.0       | 60.98 | 68.23       | PASS    |
| 20MHz      | QPSK       | 41490   | 36.85                    | 36.97                    | 36.76                    | 37.07                    | 42.93             | 18.0       | 60.93 | 68.23       | PASS    |

Remark:

- ANT 4, ANT 5, ANT 6, ANT 7 is 4\*4MIMO
- All transmit signals are completely uncorrelated with each other, Directional gain = GANT =18dBi

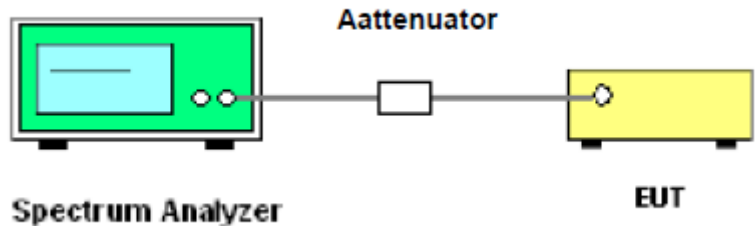
## 6.2 Peak-to-Average Ratio

|                   |  |
|-------------------|--|
| Test Requirement: | Report only  |
| Limit:            | N/A  |
| Test Setup:       |  <p>The diagram illustrates the test setup. A green Spectrum Analyzer is connected via a cable to a white Attenuator, which is then connected to a yellow EUT (Equipment Under Test).</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 Set the CCDF option in spectrum analyzer, <math>RBW \geq OBW</math>,</li> <li>3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.</li> <li>4 Repeat step 1~3 at other frequency and modulations.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details  |
| Test mode:        | Refer to section 5.3 for details   |
| Test results:     | Passed   |

### Measurement Data:

Refer to Appendix A - Antenna0~3, Appendix B - Antenna4~7

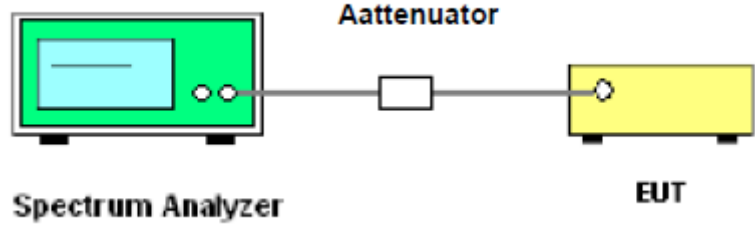
### 6.3 Occupy Bandwidth

|                   |   |
|-------------------|---|
| Test Requirement: | Part 27.53(m)   |
| Test Setup:       |  <p>The diagram illustrates the test setup. On the left is a green box labeled 'Spectrum Analyzer'. A cable connects its output to a small white box labeled 'Attenuator'. Another cable connects the attenuator to a yellow box labeled 'EUT' (Equipment Under Test).</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</li> <li>2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW.</li> <li>3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.</li> </ol> |
| Test Instruments: | Refer to section 5.10 for details   |
| Test mode:        | Refer to section 5.3 for details  |
| Test results:     | Passed  |

### Measurement Data:

Refer to Appendix A - Antenna0~3, Appendix B - Antenna4~7

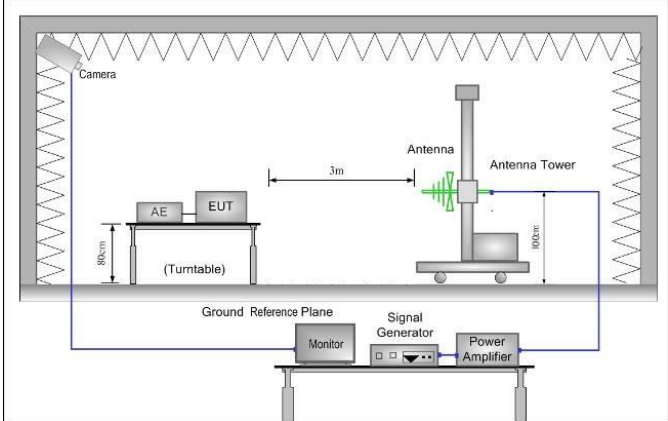
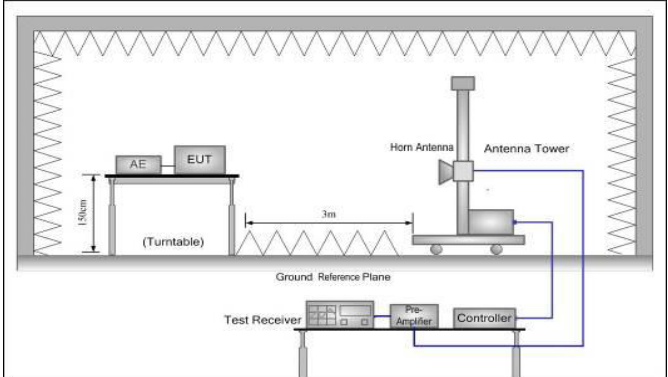
## 6.4 Out of band emission at antenna terminals

|                   |  |
|-------------------|--|
| Test Requirement: | Part 27.53(m)(2)   |
| Limit:            | LTE Band 41:<br>For all fixed digital user stations, the attenuation factor shall be not less than $43 + 10 \log (P)$ dB at the channel edge.  |
| Test Setup:       |  <p>The diagram shows a Spectrum Analyzer (green box) connected to an Attenuator (white box), which is then connected to the EUT (yellow box). The labels 'Spectrum Analyzer', 'Attenuator', and 'EUT' are placed below their respective components.</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 For the out of band: for Band 41 set the RBW=1 MHz, VBW=3 MHz Start=30MHz, Stop= 10th harmonic.</li> <li>3 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 5.10 for details  |
| Test mode:        | Refer to section 5.3 for details   |
| Test results:     | Passed   |
| Remark:           | Pre-scan all modulation type (QPSK, 16-QAM, 64-QAM, 256-QAM), and found the QPKS was the worst case. so only the worst case test data.)  |

## Measurement Data:

Refer to Appendix A - Antenna0~3, Appendix B - Antenna4~7

## 6.5 Field strength of spurious radiation measurement

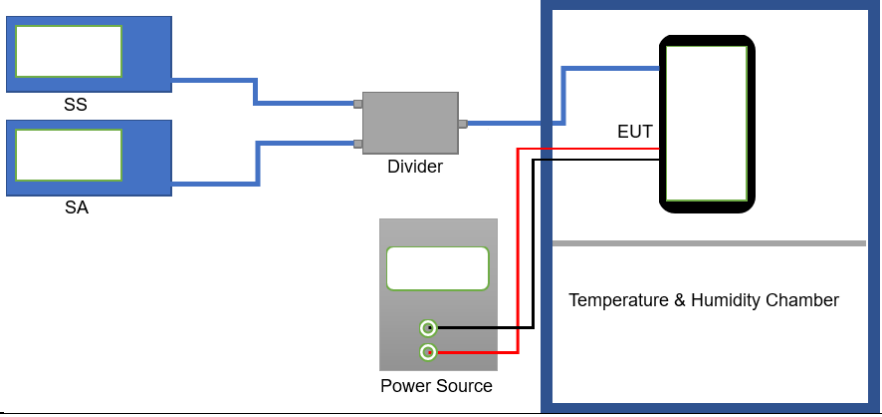
|                   |   |
|-------------------|---|
| Test Requirement: | Part 27.53(m)(2)  |
| Limit:            | LTE Band 41:<br>For all fixed digital user stations, the attenuation factor shall be not less than $43 + 10 \log (P)$ dB at the channel edge.   |
| Test setup:       | <p>Below 1GHz</p>  <p>Above 1GHz</p>   |
| Test Procedure:   | <ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.</li> <li>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>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>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">ERP / EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}</math> </li> </ol> |
| Test Instruments: | Refer to section 5.10 for details   |
| Test mode:        | Refer to section 5.3 for details.   |
| Test results:     | Passed  |
| Remark:           | Pre-scan all modulation type (QPSK, 16-QAM, 64-QAM, 256-QAM), and found the QPKS was the worst case. so only the worst case test data.)   |

**Measurement Data:**
**LTE Band 41 part:**

| Band 41 (10MHz)   |                               |             |                                  |                  |             |              |
|---|-------------------------------|-------------|----------------------------------|------------------|-------------|--------------|
| Lowest channel  |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5002.00   | -48.48                        | 4.56        | -43.92                           | -13.00           | 30.92       | Vertical     |
| 7503.00   | -49.87                        | 13.14       | -36.73                           | -13.00           | 23.73       | Vertical     |
| 10004.00  | -49.96                        | 16.89       | -33.07                           | -13.00           | 20.07       | Vertical     |
| 5002.00   | -48.39                        | 4.56        | -43.83                           | -13.00           | 30.83       | Horizontal   |
| 7503.00   | -48.81                        | 13.14       | -35.67                           | -13.00           | 22.67       | Horizontal   |
| 10004.00  | -50.27                        | 16.89       | -33.38                           | -13.00           | 20.38       | Horizontal   |
| Middle channel  |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5186.00   | -48.84                        | 4.76        | -44.08                           | -13.00           | 31.08       | Vertical     |
| 7779.00   | -50.04                        | 13.48       | -36.56                           | -13.00           | 23.56       | Vertical     |
| 10372.00  | -49.95                        | 18.00       | -31.95                           | -13.00           | 18.95       | Vertical     |
| 5186.00   | -48.48                        | 4.76        | -43.72                           | -13.00           | 30.72       | Horizontal   |
| 7779.00   | -49.10                        | 13.48       | -35.62                           | -13.00           | 22.62       | Horizontal   |
| 10372.00  | -49.96                        | 18.00       | -31.96                           | -13.00           | 18.96       | Horizontal   |
| Highest channel   |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5370.00   | -48.06                        | 5.50        | -42.56                           | -13.00           | 29.56       | Vertical     |
| 8055.00   | -49.69                        | 13.31       | -36.38                           | -13.00           | 23.38       | Vertical     |
| 10740.00  | -50.19                        | 19.50       | -30.69                           | -13.00           | 17.69       | Vertical     |
| 5370.00   | -48.10                        | 5.50        | -42.60                           | -13.00           | 29.60       | Horizontal   |
| 8055.00   | -49.07                        | 13.31       | -35.76                           | -13.00           | 22.76       | Horizontal   |
| 10740.00  | -50.29                        | 19.50       | -30.79                           | -13.00           | 17.79       | Horizontal   |
| <b>Remark:</b><br>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report. |                               |             |                                  |                  |             |              |

| Band 41 (20MHz)   |                               |             |                                  |                  |             |              |
|---|-------------------------------|-------------|----------------------------------|------------------|-------------|--------------|
| Lowest channel  |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5012.00   | -48.26                        | 4.56        | -43.70                           | -13.00           | 30.70       | Vertical     |
| 7518.00   | -50.01                        | 13.29       | -36.72                           | -13.00           | 23.72       | Vertical     |
| 10024.00  | -49.50                        | 16.93       | -32.57                           | -13.00           | 19.57       | Vertical     |
| 5012.00   | -48.21                        | 4.56        | -43.65                           | -13.00           | 30.65       | Horizontal   |
| 7518.00   | -48.53                        | 13.29       | -35.24                           | -13.00           | 22.24       | Horizontal   |
| 10024.00  | -50.49                        | 16.93       | -33.56                           | -13.00           | 20.56       | Horizontal   |
| Middle channel  |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5186.00   | -48.60                        | 4.76        | -43.84                           | -13.00           | 30.84       | Vertical     |
| 7779.00   | -49.86                        | 13.48       | -36.38                           | -13.00           | 23.38       | Vertical     |
| 10372.00  | -49.89                        | 18.00       | -31.89                           | -13.00           | 18.89       | Vertical     |
| 5186.00   | -48.07                        | 4.76        | -43.31                           | -13.00           | 30.31       | Horizontal   |
| 7779.00   | -48.72                        | 13.48       | -35.24                           | -13.00           | 22.24       | Horizontal   |
| 10372.00  | -50.15                        | 18.00       | -32.15                           | -13.00           | 19.15       | Horizontal   |
| Highest channel   |                               |             |                                  |                  |             |              |
| Frequency (MHz)   | Spurious Emission level (dBm) | Factor (dB) | Level at antenna terminals (dBm) | Limit Line (dBm) | Margin (dB) | Polarization |
| 5360.00   | -48.21                        | 5.41        | -42.80                           | -13.00           | 29.80       | Vertical     |
| 8040.00   | -50.11                        | 13.33       | -36.78                           | -13.00           | 23.78       | Vertical     |
| 10720.00  | -50.50                        | 19.67       | -30.83                           | -13.00           | 17.83       | Vertical     |
| 5360.00   | -48.49                        | 5.41        | -43.08                           | -13.00           | 30.08       | Horizontal   |
| 8040.00   | -49.21                        | 13.33       | -35.88                           | -13.00           | 22.88       | Horizontal   |
| 10720.00  | -50.37                        | 19.67       | -30.70                           | -13.00           | 17.70       | Horizontal   |
| <b>Remark:</b><br>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report. |                               |             |                                  |                  |             |              |

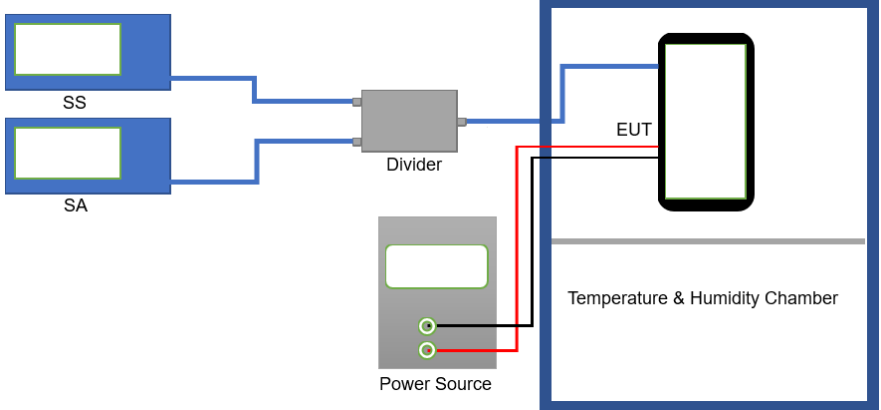
## 6.6 Frequency stability V.S. Temperature measurement

|                   |   |
|-------------------|---|
| Test Requirement: | Part 27.54, Part 2.1055(a)(1)(b)  |
| Limit:            | Within authorized band for Band 41  |
| Test setup:       |   |
| 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 5.10 for details   |
| Test mode:        | Refer to section 5.3 for details  |
| Test results:     | Passed  |

### Measurement Data:

Refer to Appendix A - Antenna0~3, Appendix B - Antenna4~7

## 6.7 Frequency stability V.S. Voltage measurement

|                   |  |
|-------------------|--|
| Test Requirement: | Part 27.54, Part 2.1055(d)(2)  |
| Limit:            | Within authorized band for Band 41   |
| Test setup:       |  <p>The diagram illustrates the test setup. A Power Source (represented by a green box with two terminals) is connected via red and black wires to a Divider (a grey box). The Divider is connected to a Temperature &amp; Humidity Chamber (a large blue-outlined rectangle). Inside the chamber, the Equipment Under Test (EUT, represented by a black-outlined rectangle) is connected to the Divider. Additionally, a Spectrum Analyzer (SA, represented by a green box) and a Signal Source (SS, represented by a green box) are connected to the Divider. The chamber is labeled 'Temperature &amp; Humidity Chamber'.</p> |
| Test procedure:   | <ol style="list-style-type: none"> <li>1. Set chamber temperature to 25°C. Use a variable AC 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 specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</li> </ol>   |
| Test Instruments: | Refer to section 5.10 for details  |
| Test mode:        | Refer to section 5.3 for details   |
| Test results:     | Passed   |

### Measurement Data:

Refer to Appendix A - Antenna0~3, Appendix B - Antenna4~7