



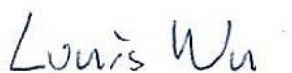
# FCC RADIO TEST REPORT

FCC ID : ZMOL860GL16R  
Equipment : LTE Module  
Brand Name : Fibocom Wireless Inc.  
Model Name : L860-GL-16  
Applicant : Fibocom Wireless Inc.  
1101, Tower A, Building 6, Shenzhen  
International, Innovation Valley, Dashi 1st Rd,  
Nanshan, ShenZhen, China  
Manufacturer : LCFC (HeFei) Electronics Technology Co., Ltd.  
No. 3188-1, Yungu Road (Hefei Export  
Processing Zone), Hefei Economics &  
Technology Development Area, Anhui, CHINA  
Standard : FCC 47 CFR Part 2, 96

Equipment: Fibocom L860-GL-16 tested inside of Lenovo Notebook Computer.

The product was received on Oct. 18, 2021 and testing was started from Oct. 29, 2021 and completed on Nov. 25, 2021. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.



Approved by: Louis Wu

*Sporton International Inc. Wensan Laboratory*



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## History of this test report

| Report No. | Version | Description             | Issued Date   |
|------------|---------|-------------------------|---------------|
| FG1O1550F  | 01      | Initial issue of report | Jan. 04, 2022 |
|            |         |                         |               |
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## Summary of Test Result

| Report Clause | Ref Std. Clause   | Test Items                                    | Result (PASS/FAIL) | Remark                                     |
|---------------|-------------------|-----------------------------------------------|--------------------|--------------------------------------------|
| 3.2           | §2.1046           | Conducted Output Power                        | Reporting only     | -                                          |
| -             | §96.41            | Peak-to-Average Ratio                         | -                  | See Note                                   |
| 3.3           | §96.41            | Effective Isotropic Radiated Power            | Pass               | -                                          |
| -             | §2.1049<br>§96.41 | Occupied Bandwidth                            | -                  | See Note                                   |
| -             | §2.1051<br>§96.41 | Conducted Band Edge Measurement               | -                  | See Note                                   |
| -             | §2.1051<br>§96.41 | Conducted Spurious Emission                   | -                  | See Note                                   |
| -             | §2.1055           | Frequency Stability for Temperature & Voltage | -                  | See Note                                   |
| 4.4           | §2.1051<br>§96.41 | Radiated Spurious Emission                    | Pass               | Under limit<br>9.06 dB at<br>28411.000 MHz |

**Note:**

1. The module (Model: L860-GL-16) makes no difference after verifying output power, this report reuses test data from the module report.
2. Conducted power was verified to be consistent with the original modular approval, so the output power level in the original modular grant is referenced in this report for determining EIRP of this host product

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Sheng Kuo**

**Report Producer: Tina Chuang**

# 1 General Description

## 1.1 Product Feature of Equipment Under Test

| Product Feature                 |                       |
|---------------------------------|-----------------------|
| Equipment                       | LTE Module            |
| Brand Name                      | Fibocom Wireless Inc. |
| Model Name                      | L860-GL-16            |
| FCC ID                          | ZMOL860GL16R          |
| Sample 1                        | EUT with Host 1       |
| Sample 2                        | EUT with Host 2       |
| EUT supports Radios application | WCDMA/HSPA/LTE/GNSS   |
| EUT Stage                       | Production Unit       |

**Remark:**

1. The above EUT's information was declared by manufacturer.
2. Equipment: Fibocom L860-GL-16 tested inside of Lenovo Notebook Computer.

The product was installed into Notebook Computer (Brand Name: Lenovo, Model Name: TP00136A; TP00136B; TP00136C) during test, and the host information was recorded in the following table.

| Host Information |                         |
|------------------|-------------------------|
| Host 1           | Host with AWAN Antenna  |
| Host 2           | Host with Speed Antenna |

| WWAN Antenna Information |              |             |                 |                     |
|--------------------------|--------------|-------------|-----------------|---------------------|
| Main Antenna             | Manufacturer | AWAN        | Peak gain (dBi) | LTE Band 48 : -1.57 |
|                          | Part number  | DC33001VX00 | Type            | PIFA                |
|                          | Manufacturer | Speed       | Peak gain (dBi) | LTE Band 48 : -1.57 |
|                          | Part number  | DC33001VY00 | Type            | PIFA                |

**Remark:**

1. All the tests were performed with "Speed Antenna" as representative.
2. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

## 1.2 Product Specification of Equipment Under Test

| Product Specification is subject to this standard |                                  |
|---------------------------------------------------|----------------------------------|
| Tx Frequency                                      | 3552.5 MHz ~ 3697.5 MHz          |
| Rx Frequency                                      | 3552.5 MHz ~ 3697.5 MHz          |
| Bandwidth                                         | 5 MHz / 10 MHz / 15 MHz / 20 MHz |
| Maximum Output Power to Antenna                   | 20.88 dBm                        |
| Type of Modulation                                | QPSK / 16QAM / 64QAM             |

## 1.3 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.4 Testing Location

|                              |                                                                                                               |
|------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>             | Sporton International Inc. EMC & Wireless Communications Laboratory                                           |
| <b>Test Site Location</b>    | No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333                                                         |
| <b>Test Site No.</b>         | <b>Sporton Site No.</b>                                                                                       |
|                              | TH03-HY (TAF Code: 1190)                                                                                      |
| <b>Test Engineer</b>         | Benjamin Lin                                                                                                  |
| <b>Temperature (°C)</b>      | 23.5~25                                                                                                       |
| <b>Relative Humidity (%)</b> | 49.4~52                                                                                                       |
| <b>Remark</b>                | The Conducted test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory. |

|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| <b>Test Site</b>             | Sporton International Inc. Wensan Laboratory                                 |
| <b>Test Site Location</b>    | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010 |
| <b>Test Site No.</b>         | <b>Sporton Site No.</b>                                                      |
|                              | 03CH12-HY                                                                    |
| <b>Test Engineer</b>         | Jack Cheng, Lance Chiang and Chuan Chu                                       |
| <b>Temperature (°C)</b>      | 22.8~26.8°C                                                                  |
| <b>Relative Humidity (%)</b> | 56.0~66.0%                                                                   |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

## 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

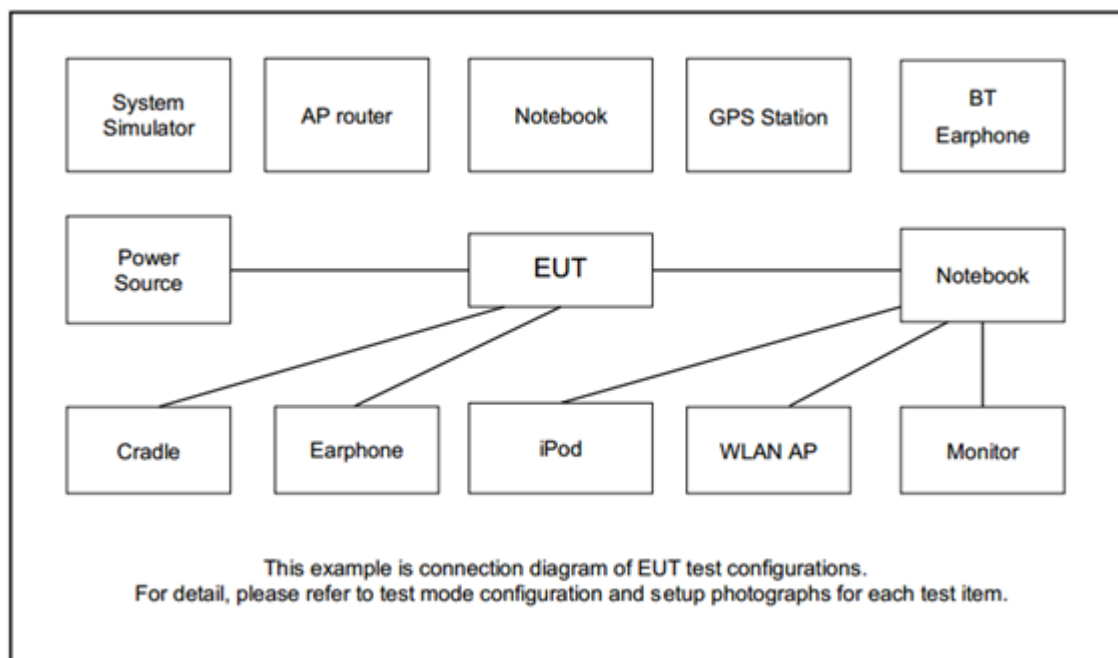
## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

| Test Items                 | Band                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       | RB #       |      |      | Test Channel |   |   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|---|----|----|----|------------|-------|-------|------------|------|------|--------------|---|---|
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 1          | Half | Full | L            | M | H |
| Max. Output Power          | 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -               | - | v | v  | v  | v  | v          | v     | v     | v          |      | v    | v            | v | v |
| E.I.R.P                    | 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -               | - | v | v  | v  | v  | v          | v     | v     | Max. Power |      |      |              |   |   |
| Radiated Spurious Emission | 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -               | - |   |    |    | v  | v          |       |       | v          |      |      | v            | v | v |
| Remark                     | <ol style="list-style-type: none"> <li>The mark "v" means that this configuration is chosen for testing</li> <li>The mark "-" means that this bandwidth is not supported.</li> <li>The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</li> <li>All the radiated test cases were performed with Battery 1.</li> </ol> |                 |   |   |    |    |    |            |       |       |            |      |      |              |   |   |

### 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration

| Item | Equipment        | Brand Name | Model No. | FCC ID       | Data Cable        | Power Cord        |
|------|------------------|------------|-----------|--------------|-------------------|-------------------|
| 1.   | System Simulator | Anritsu    | MT8821C   | N/A          | N/A               | Unshielded, 1.8 m |
| 2.   | iPod Earphone    | Apple      | N/A       | Verification | Unshielded, 1.0 m | N/A               |

## 2.4 Frequency List of Low/Middle/High Channels

| LTE Band 48 Channel and Frequency List |                        |        |        |         |
|----------------------------------------|------------------------|--------|--------|---------|
| BW [MHz]                               | Channel/Frequency(MHz) | Lowest | Middle | Highest |
| 20                                     | Channel                | 55340  | 55990  | 56640   |
|                                        | Frequency              | 3560.0 | 3625.0 | 3690.0  |
| 15                                     | Channel                | 55315  | 55990  | 56665   |
|                                        | Frequency              | 3557.5 | 3625.0 | 3692.5  |
| 10                                     | Channel                | 55290  | 55990  | 56690   |
|                                        | Frequency              | 3555.0 | 3625.0 | 3695.0  |
| 5                                      | Channel                | 55265  | 55990  | 56715   |
|                                        | Frequency              | 3552.5 | 3625.0 | 3697.5  |

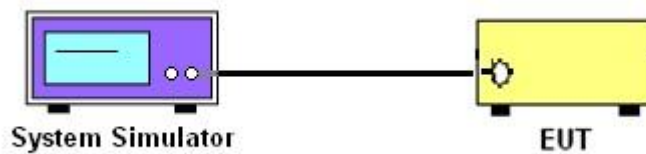
### 3 Conducted Test Items

#### 3.1 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.1 Test Setup

##### 3.1.2 Conducted Output Power



##### 3.1.3 Test Result of Conducted Test

Please refer to Appendix A.



## **3.2 Conducted Output Power**

### **3.2.1 Description of the Conducted Output Power Measurement**

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

### **3.2.2 Test Procedures**

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

### 3.3 EIRP

#### 3.3.1 Description of the EIRP Measurement

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for LTE Band 48.

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$ , where

$P_T$  = transmitter output power in dBm

$G_T$  = gain of the transmitting antenna in dBi

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna in dB

| Device          | Maximum EIRP<br>(dBm/10 MHz) | Maximum PSD<br>(dBm/MHz) |
|-----------------|------------------------------|--------------------------|
| End User Device | 23                           | n/a                      |

**Remark:** Total channel power is complied with EIRP limit 23dBm/10MHz.

#### 3.3.1 Test Procedures

The testing follows procedure in Section 5.2 of ANSI C63.26-2015 and KDB 940660 D01 Part 96 CBRS Eqpt v03 Section 3.2(b)(2)

Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.

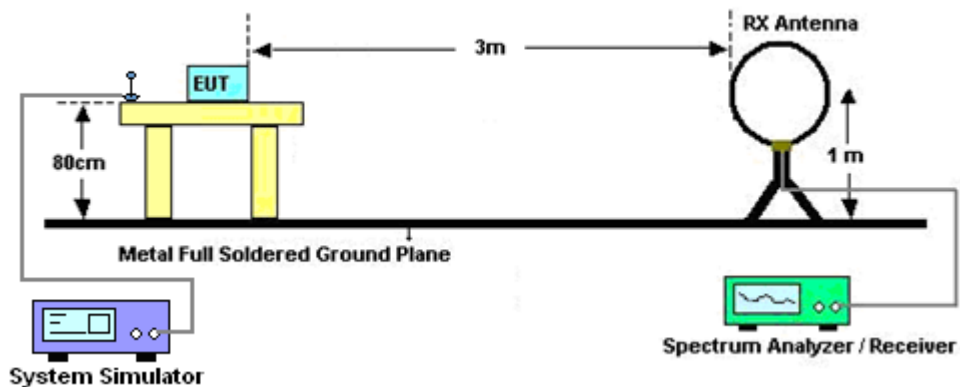
## 4 Radiated Test Items

### 4.1 Measuring Instruments

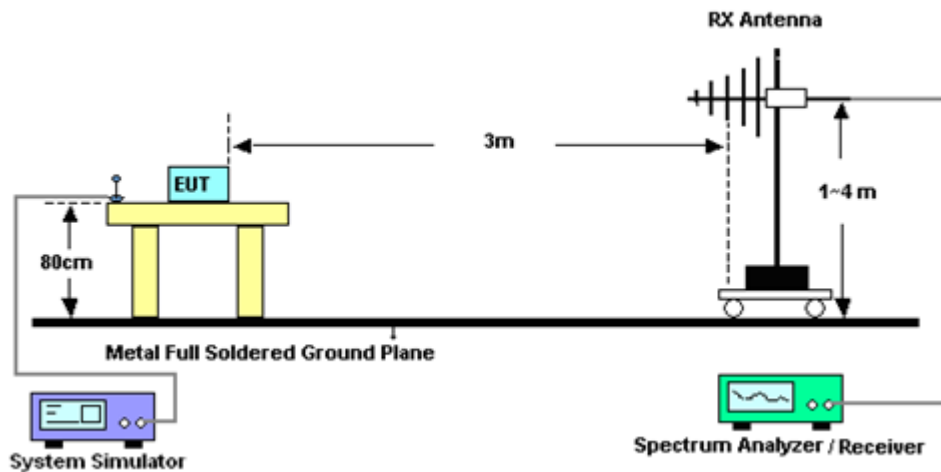
See list of measuring instruments of this test report.

### 4.2 Test Setup

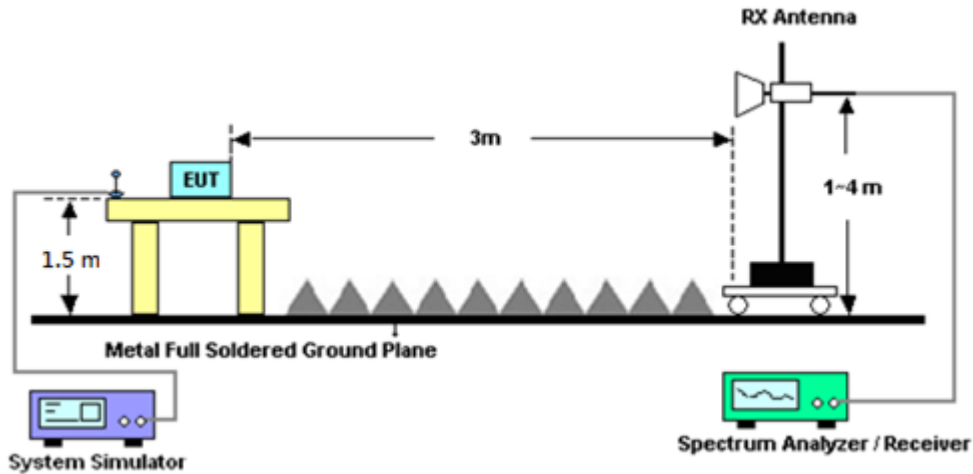
For radiated test below 30MHz



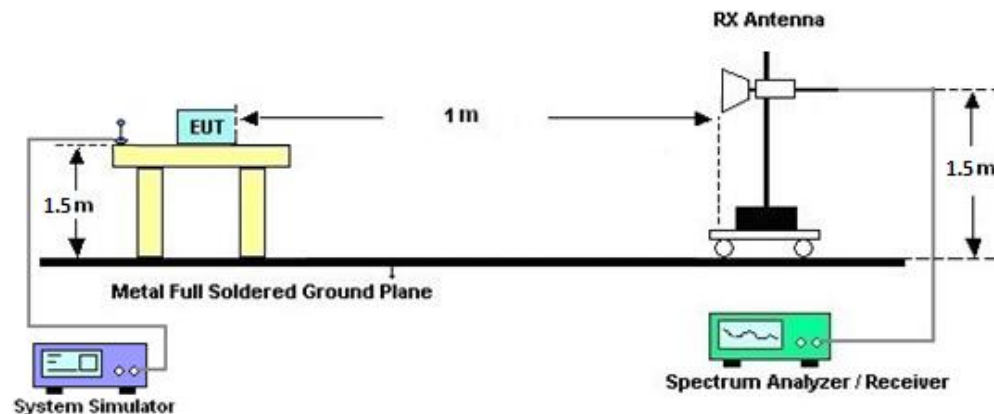
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



## 4.3 Test Result of Radiated Test

Please refer to Appendix B.

### Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

## 4.4 Radiated Spurious Emission

### 4.4.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least -40dBm / MHz. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.  
$$\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$$
$$\text{ERP (dBm)} = \text{EIRP} - 2.15$$
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.  
The limit line is -40dBm/MHz



## 5 List of Measuring Equipment

| Instrument                | Brand Name          | Model No.                            | Serial No.           | Characteristics             | Calibration Date | Test Date                       | Due Date      | Remark                   |
|---------------------------|---------------------|--------------------------------------|----------------------|-----------------------------|------------------|---------------------------------|---------------|--------------------------|
| Loop Antenna              | Rohde & Schwarz     | HFH2-Z2                              | 100315               | 9 kHz~30 MHz                | Jan. 04, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Jan. 03, 2022 | Radiation<br>(03CH12-HY) |
| Bilog Antenna             | TESEQ               | CCBL 6111D &<br>00800N1D01N<br>-06   | 41912 & 05           | 30MHz~1GHz                  | Feb. 08, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Feb. 07, 2022 | Radiation<br>(03CH12-HY) |
| Bilog Antenna             | TESEQ               | CCBL 6111D &<br>00800N1D01N<br>-06   | 40103 & 07           | 30MHz~1GHz                  | Apr. 28, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Apr. 27, 2022 | Radiation<br>(03CH12-HY) |
| Horn Antenna              | SCHWARZBE<br>CK     | BBHA 9120 D                          | 9120D-1326           | 1GHz~18GHz                  | Oct. 25, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Oct. 24, 2022 | Radiation<br>(03CH12-HY) |
| Horn Antenna              | SCHWARZBE<br>CK     | BBHA 9120 D                          | 9120D-1212           | 1GHz~18GHz                  | May 18, 2021     | Nov. 14, 2021~<br>Nov. 25, 2021 | May 17, 2022  | Radiation<br>(03CH12-HY) |
| SHF-EHF Horn<br>Antenna   | SCHWARZBE<br>CK     | BBHA 9170                            | BBHA91705<br>84      | 18GHz~40GHz                 | Dec. 11, 2020    | Nov. 14, 2021~<br>Nov. 25, 2021 | Dec. 10, 2021 | Radiation<br>(03CH12-HY) |
| SHF-EHF Horn<br>Antenna   | SCHWARZBE<br>CK     | BBHA 9170                            | BBHA91705<br>76      | 18GHz~40GHz                 | May 21, 2021     | Nov. 14, 2021~<br>Nov. 25, 2021 | May 20, 2022  | Radiation<br>(03CH12-HY) |
| Preamplifier              | COM-POWER           | PA-103                               | 161075               | 10MHz~1GHz                  | Mar. 24, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Mar. 23, 2022 | Radiation<br>(03CH12-HY) |
| Preamplifier              | Agilent             | 8449B                                | 3008A02375           | 1GHz~26.5GHz                | May 25, 2021     | Nov. 14, 2021~<br>Nov. 25, 2021 | May 24, 2022  | Radiation<br>(03CH12-HY) |
| Preamplifier              | JPA0118-55-3<br>03K | JPA0118-55-30<br>3K                  | 1710001800<br>054002 | 1GHz-18GHz                  | Jun. 16, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Jun. 15, 2022 | Radiation<br>(03CH12-HY) |
| Preamplifier              | EMEC                | EM18G40G                             | 060715               | 18GHz~40GHz                 | Dec. 11, 2020    | Nov. 14, 2021~<br>Nov. 25, 2021 | Dec. 10, 2021 | Radiation<br>(03CH12-HY) |
| Spectrum<br>Analyzer      | Agilent             | N9010A                               | MY53470118           | 10Hz~44GHz                  | Jan. 15, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Jan. 14, 2022 | Radiation<br>(03CH12-HY) |
| Filter                    | Wainwright          | WLKS1200-12<br>SS                    | SN2                  | 1.2GHz Low<br>Pass Filter   | Mar. 17, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Mar. 16, 2022 | Radiation<br>(03CH12-HY) |
| Filter                    | Wainwright          | WHKX12-2700<br>-3000-18000-6<br>0ST  | SN2                  | 3GHz High Pass<br>Filter    | Jul. 12, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Jul. 11, 2022 | Radiation<br>(03CH12-HY) |
| Filter                    | Wainwright          | WHKX8-5872.<br>5-6750-18000-<br>40ST | SN2                  | 6.75GHz High<br>Pass Filter | Mar. 17, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Mar. 16, 2022 | Radiation<br>(03CH12-HY) |
| RF Cable                  | HUBER +<br>SUHNER   | SUCOFLEX<br>104                      | MY9837/4PE           | 9kHz~30MHz                  | Mar. 11, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Mar. 10, 2022 | Radiation<br>(03CH12-HY) |
| RF Cable                  | HUBER +<br>SUHNER   | SUCOFLEX<br>126E                     | 0058/126E            | 30MHz~18GHz                 | Dec. 11, 2020    | Nov. 14, 2021~<br>Nov. 25, 2021 | Dec. 10, 2021 | Radiation<br>(03CH12-HY) |
| RF Cable                  | HUBER +<br>SUHNER   | SUCOFLEX<br>102                      | 505134/2             | 30MHz~40GHz                 | Feb. 22, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Feb. 21, 2022 | Radiation<br>(03CH12-HY) |
| RF Cable                  | HUBER +<br>SUHNER   | SUCOFLEX<br>102                      | 800740/2             | 30MHz~40GHz                 | Feb. 22, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Feb. 21, 2022 | Radiation<br>(03CH12-HY) |
| Antenna Mast              | EMEC                | AM-BS-4500-B                         | N/A                  | 1m~4m                       | N/A              | Nov. 14, 2021~<br>Nov. 25, 2021 | N/A           | Radiation<br>(03CH12-HY) |
| Turn Table                | EMEC                | TT2000                               | N/A                  | 0~360 Degree                | N/A              | Nov. 14, 2021~<br>Nov. 25, 2021 | N/A           | Radiation<br>(03CH12-HY) |
| Hygrometer                | TECPEL              | DTM-303B                             | TP140349             | N/A                         | Sep. 30, 2021    | Nov. 14, 2021~<br>Nov. 25, 2021 | Sep. 29, 2022 | Radiation<br>(03CH12-HY) |
| Software                  | Audix               | E3<br>6.2009-8-24                    | RK-000989            | N/A                         | N/A              | Nov. 14, 2021~<br>Nov. 25, 2021 | N/A           | Radiation<br>(03CH12-HY) |
| Base Station<br>(Measure) | Anritsu             | MT8821C                              | 6262025341           | N/A                         | Oct. 05, 2021    | Oct. 29, 2021                   | Oct. 04, 2022 | Conducted<br>(TH03-HY)   |

## 6 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|                                                                            |         |
|----------------------------------------------------------------------------|---------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2Uc(y)$ ) | 3.10 dB |
|----------------------------------------------------------------------------|---------|

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

|                                                                            |         |
|----------------------------------------------------------------------------|---------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2Uc(y)$ ) | 3.39 dB |
|----------------------------------------------------------------------------|---------|

### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

|                                                                            |         |
|----------------------------------------------------------------------------|---------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2Uc(y)$ ) | 4.34 dB |
|----------------------------------------------------------------------------|---------|



## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power & EIRP)

| LTE Band 48 Maximum Average Power [dBm] (GT - LC = -1.57 dB) |                    |           |        |        |        |         |            |          |
|--------------------------------------------------------------|--------------------|-----------|--------|--------|--------|---------|------------|----------|
| BW [MHz]                                                     | RB Size            | RB Offset | Mod    | Lowest | Middle | Highest | EIRP (dBm) | EIRP (W) |
| 20                                                           | 1                  | 0         | QPSK   | 20.65  | 20.77  | 20.70   | 19.31      | 0.0853   |
| 20                                                           | 1                  | 99        |        | 20.60  | 20.88  | 20.64   |            |          |
| 20                                                           | 100                | 0         |        | 19.50  | 19.75  | 19.60   |            |          |
| 20                                                           | 1                  | 0         | 16-QAM | 19.88  | 19.96  | 19.85   | 18.39      | 0.0690   |
| 20                                                           | 1                  | 0         | 64-QAM | 18.60  | 18.91  | 18.85   | 17.34      | 0.0542   |
| Limit                                                        | EIRP < 23dBm/10MHz |           |        | Result |        |         | Pass       |          |

| LTE Band 48 Maximum Average Power [dBm] (GT - LC = -1.57 dB) |                    |           |        |        |        |         |            |          |
|--------------------------------------------------------------|--------------------|-----------|--------|--------|--------|---------|------------|----------|
| BW [MHz]                                                     | RB Size            | RB Offset | Mod    | Lowest | Middle | Highest | EIRP (dBm) | EIRP (W) |
| 15                                                           | 1                  | 0         | QPSK   | 20.63  | 20.75  | 20.66   | 19.18      | 0.0828   |
| 15                                                           | 1                  | 0         | 16-QAM | 19.76  | 20.08  | 19.78   | 18.51      | 0.0710   |
| 15                                                           | 1                  | 0         | 64-QAM | 18.52  | 18.86  | 18.82   | 17.29      | 0.0536   |
| Limit                                                        | EIRP < 23dBm/10MHz |           |        | Result |        |         | Pass       |          |

| LTE Band 48 Maximum Average Power [dBm] (GT - LC = -1.57 dB) |                    |           |        |        |        |         |            |          |
|--------------------------------------------------------------|--------------------|-----------|--------|--------|--------|---------|------------|----------|
| BW [MHz]                                                     | RB Size            | RB Offset | Mod    | Lowest | Middle | Highest | EIRP (dBm) | EIRP (W) |
| 10                                                           | 1                  | 0         | QPSK   | 20.65  | 20.80  | 20.62   | 19.23      | 0.0838   |
| 10                                                           | 1                  | 0         | 16-QAM | 19.60  | 19.73  | 19.77   | 18.20      | 0.0661   |
| 10                                                           | 1                  | 0         | 64-QAM | 18.85  | 19.14  | 18.85   | 17.57      | 0.0571   |
| Limit                                                        | EIRP < 23dBm/10MHz |           |        | Result |        |         | Pass       |          |

| LTE Band 48 Maximum Average Power [dBm] (GT - LC = -1.57 dB) |                    |           |        |        |        |         |            |          |
|--------------------------------------------------------------|--------------------|-----------|--------|--------|--------|---------|------------|----------|
| BW [MHz]                                                     | RB Size            | RB Offset | Mod    | Lowest | Middle | Highest | EIRP (dBm) | EIRP (W) |
| 5                                                            | 1                  | 0         | QPSK   | 20.53  | 20.69  | 20.59   | 19.12      | 0.0817   |
| 5                                                            | 1                  | 0         | 16-QAM | 19.95  | 19.85  | 19.82   | 18.38      | 0.0689   |
| 5                                                            | 1                  | 0         | 64-QAM | 19.52  | 19.21  | 19.06   | 17.95      | 0.0624   |
| Limit                                                        | EIRP < 23dBm/10MHz |           |        | Result |        |         | Pass       |          |



## Appendix B. Test Results of Radiated Test

LTE Band 48

| LTE Band 48 / 20MHz / QPSK |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|----------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                    | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                     | 7100                 | -55.77          | -40              | -15.77                  | -56.63                  | -65.74                   | 1.77                       | 11.74                       | H                     |
|                            | 10655                | -58.64          | -40              | -18.64                  | -63.03                  | -67.07                   | 2.47                       | 10.90                       | H                     |
|                            | 14205                | -57.16          | -40              | -17.16                  | -67.52                  | -66.00                   | 2.87                       | 11.71                       | H                     |
|                            | 21307                | -54.67          | -40              | -14.67                  | -76.48                  | -71.39                   | 1.98                       | 18.70                       | H                     |
|                            | 24859                | -52.40          | -40              | -12.40                  | -77.16                  | -68.41                   | 2.07                       | 18.07                       | H                     |
|                            | 28411                | -51.07          | -40              | -11.07                  | -76.38                  | -68.32                   | 2.32                       | 19.56                       | H                     |
|                            | 7100                 | -56.05          | -40              | -16.05                  | -56.52                  | -66.02                   | 1.77                       | 11.74                       | V                     |
|                            | 10655                | -58.62          | -40              | -18.62                  | -62.75                  | -67.05                   | 2.47                       | 10.90                       | V                     |
|                            | 14205                | -57.28          | -40              | -17.28                  | -67.36                  | -66.12                   | 2.87                       | 11.71                       | V                     |
|                            | 21307                | -54.65          | -40              | -14.65                  | -76.33                  | -71.37                   | 1.98                       | 18.70                       | V                     |
|                            | 24859                | -50.38          | -40              | -10.38                  | -76.35                  | -66.39                   | 2.07                       | 18.07                       | V                     |
|                            | 28411                | -49.06          | -40              | -9.06                   | -76.19                  | -66.31                   | 2.32                       | 19.56                       | V                     |
| Middle                     | 7230                 | -56.62          | -40              | -16.62                  | -57.9                   | -66.31                   | 1.84                       | 11.53                       | H                     |
|                            | 10850                | -58.32          | -40              | -18.32                  | -63.12                  | -66.65                   | 2.57                       | 10.90                       | H                     |
|                            | 14462                | -57.19          | -40              | -17.19                  | -67.54                  | -65.43                   | 2.85                       | 11.09                       | H                     |
|                            | 18077                | -54.20          | -40              | -14.20                  | -72.14                  | -70.43                   | 1.76                       | 17.98                       | H                     |
|                            | 21696                | -54.64          | -40              | -14.64                  | -76.04                  | -71.43                   | 1.99                       | 18.78                       | H                     |
|                            | 25314                | -52.07          | -40              | -12.07                  | -77.27                  | -68.67                   | 2.14                       | 18.74                       | H                     |
|                            | 7230                 | -55.14          | -40              | -15.14                  | -56.16                  | -64.83                   | 1.84                       | 11.53                       | V                     |
|                            | 10850                | -59.00          | -40              | -19.00                  | -63.59                  | -67.33                   | 2.57                       | 10.90                       | V                     |
|                            | 14462                | -57.65          | -40              | -17.65                  | -67.18                  | -65.89                   | 2.85                       | 11.09                       | V                     |
|                            | 18077                | -55.32          | -40              | -15.32                  | -72.33                  | -71.55                   | 1.76                       | 17.98                       | V                     |
|                            | 21696                | -54.35          | -40              | -14.35                  | -75.74                  | -71.14                   | 1.99                       | 18.78                       | V                     |
|                            | 25314                | -50.37          | -40              | -10.37                  | -76.84                  | -66.97                   | 2.14                       | 18.74                       | V                     |



|         |       |        |     |        |        |        |      |       |   |
|---------|-------|--------|-----|--------|--------|--------|------|-------|---|
| Highest | 7360  | -51.13 | -40 | -11.13 | -52.51 | -60.54 | 1.91 | 11.32 | H |
|         | 11045 | -56.86 | -40 | -16.86 | -62.2  | -65.18 | 2.63 | 10.95 | H |
|         | 14724 | -56.08 | -40 | -16.08 | -67.57 | -64.88 | 2.91 | 11.72 | H |
|         | 18399 | -55.74 | -40 | -15.74 | -74.01 | -71.79 | 1.87 | 17.92 | H |
|         | 22084 | -55.30 | -40 | -15.30 | -77.2  | -72.09 | 2.08 | 18.87 | H |
|         | 25770 | -51.37 | -40 | -11.37 | -77.26 | -68.39 | 2.03 | 19.05 | H |
|         | 7360  | -52.11 | -40 | -12.11 | -53.3  | -61.52 | 1.91 | 11.32 | V |
|         | 11045 | -55.99 | -40 | -15.99 | -61.16 | -64.31 | 2.63 | 10.95 | V |
|         | 14724 | -57.51 | -40 | -17.51 | -67.33 | -66.31 | 2.91 | 11.72 | V |
|         | 18399 | -56.75 | -40 | -16.75 | -74.14 | -72.80 | 1.87 | 17.92 | V |
|         | 22084 | -54.97 | -40 | -14.97 | -76.87 | -71.76 | 2.08 | 18.87 | V |
|         | 25770 | -50.24 | -40 | -10.24 | -77.31 | -67.26 | 2.03 | 19.05 | V |

**Remark:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.