



*Full*

## **TEST REPORT**

**No. I20D00005-SRD06**

*For*

**Client: Micronet**

**Production: Micronet SmartCam (ENH)**

**Model Name: Micronet SmartCam**

**Brand Name: TREQ**

**FCC ID: U8O-A9**

**IC ID: 12186A-A9**

**Hardware Version: 1.01**

**Software Version: OS SW: ver\_9.10.x**

**Issued date: 2020-07-29**

## NOTE

1. The test results in this test report relate only to the devices specified in this report.
2. This report shall not be reproduced except in full without the written approval of East China Institute of Telecommunications.
3. For the test results, the uncertainty of measurement is not taken into account when judging the compliance with specification, and the results of measurement or the average value of measurement results are taken as the criterion of the compliance with specification directly.

**Test Laboratory:**

East China Institute of Telecommunications

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**Revision Version**

| Report Number   | Revision | Date       | Memo                            |
|-----------------|----------|------------|---------------------------------|
| I20D00005-SRD06 | 00       | 2020-07-29 | Initial creation of test report |

## CONTENTS

|            |                                                               |    |
|------------|---------------------------------------------------------------|----|
| 1.         | TEST LABORATORY .....                                         | 6  |
| 1.1.       | TESTING LOCATION .....                                        | 6  |
| 1.2.       | TESTING ENVIRONMENT .....                                     | 6  |
| 1.3.       | PROJECT DATA .....                                            | 6  |
| 1.4.       | SIGNATURE .....                                               | 6  |
| 2.         | CLIENT INFORMATION .....                                      | 7  |
| 2.1.       | APPLICANT INFORMATION .....                                   | 7  |
| 2.2.       | MANUFACTURER INFORMATION .....                                | 7  |
| 3.         | EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) ..... | 8  |
| 3.1.       | ABOUT EUT .....                                               | 8  |
| 3.2.       | INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....     | 8  |
| 3.3.       | INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....      | 8  |
| 4.         | REFERENCE DOCUMENTS.....                                      | 9  |
| 4.1.       | REFERENCE DOCUMENTS FOR TESTING .....                         | 9  |
| 5.         | TEST RESULTS.....                                             | 10 |
| 5.1.       | SUMMARY OF TEST RESULTS.....                                  | 10 |
| 5.2.       | STATEMENTS.....                                               | 11 |
| 6.         | TEST EQUIPMENT UTILIZED .....                                 | 12 |
| 7.         | TEST ENVIRONMENT .....                                        | 13 |
| 8.         | MEASUREMENT UNCERTAINTY .....                                 | 14 |
| ANNEX A.   | MEASUREMENT RESULTS.....                                      | 15 |
| ANNEX A.1. | EMISSION LIMIT .....                                          | 15 |
| ANNEX B.   | DEVIATIONS FROM PRESCRIBED TEST METHODS.....                  | 25 |
| ANNEX C.   | DETAILED TEST RESULTS .....                                   | 26 |
| ANNEX C.1. | MAIN TERMS .....                                              | 26 |

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>ANNEX C.2. TERMS USED IN CONDITION COLUMN .....</b> | <b>26</b> |
| <b>ANNEX C.3. TERMS USED IN VERDICT COLUMN.....</b>    | <b>26</b> |
| <b>ANNEX C.4. TERMS USED IN NOTE COLUMN .....</b>      | <b>26</b> |
| <b>ANNEX D. ACCREDITATION CERTIFICATE.....</b>         | <b>27</b> |

## 1. Test Laboratory

### 1.1. Testing Location

|                     |                                                                          |
|---------------------|--------------------------------------------------------------------------|
| Company Name        | East China Institute of Telecommunications                               |
| Address             | Block No.4, No.766, Jingang Road, Pudong District, Shanghai, P. R. China |
| Postal Code         | 201206                                                                   |
| Telephone           | (+86)-021-63843300                                                       |
| FCC registration No | CN1177                                                                   |

### 1.2. Testing Environment

|                    |           |
|--------------------|-----------|
| Normal Temperature | 15°C-35°C |
| Relative Humidity  | 25%-75%   |

### 1.3. Project data

|                    |            |
|--------------------|------------|
| Project Leader     | Zhou Yan   |
| Testing Start Date | 2020-04-01 |
| Testing End Date   | 2020-04-07 |

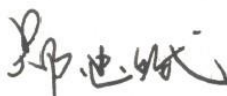
### 1.4. Signature



Liu Yan  
(Prepared this test report)



Fan Songyan  
(Reviewed this test report)



Zheng Zhongbin  
(Approved this test report)

## 2. Client Information

### 2.1. Applicant Information

|              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| Company Name | Micronet                                                              |
| Address      | 1865 West 2100 South, Suite 2Salt Lake City, Utah 84119 United States |
| Telephone    | +1-801-990-8700                                                       |
| Postcode     | 84119                                                                 |

### 2.2. Manufacturer Information

|              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| Company Name | Micronet                                                              |
| Address      | 1865 West 2100 South, Suite 2Salt Lake City, Utah 84119 United States |
| Telephone    | +1-801-990-8700                                                       |
| Postcode     | 84119                                                                 |

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

|                                   |                                                                          |
|-----------------------------------|--------------------------------------------------------------------------|
| Production                        | Micronet SmartCam (ENH)                                                  |
| Model name                        | Micronet SmartCam                                                        |
| GSM Frequency Band                | GSM850/GSM900/GSM1800/GSM1900                                            |
| UMTS Frequency Band               | Band I/II/IV/V/VIII                                                      |
| CDMA Frequency Band               | NA                                                                       |
| LTE Frequency Band                | Band 1/2/3/4/5/7/8/12/13/17/20/28                                        |
| Additional Communication Function | BT/BLE/2.4G WLAN 802.11 b/g/n20/n40/5G WLAN 802.11 a20/n20/n40/ac20/ac40 |
| Extreme Temperature               | -20/+70°C                                                                |
| Nominal Voltage                   | 12/24V                                                                   |
| Extreme High Voltage              | 32V                                                                      |
| Extreme Low Voltage               | 8V                                                                       |

Note:

- Photographs of EUT are shown in ANNEX A of this test report.
- The value of the antenna gain is provided by the customer. For specific antenna information, please check the antenna specifications of the customer.

#### 3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version        | Date of receipt |
|---------|------------|------------|-------------------|-----------------|
| N01     | /          | 1.01       | OS SW: ver_9.10.x | 2020-01-08      |

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

| AE ID* | Description | SN  |
|--------|-------------|-----|
| AE1    | RF cable    | --- |

\*AE ID: is used to identify the test sample in the lab internally.



## 4. Reference Documents

### 4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference      | Title                                                                                                           | Version    |
|----------------|-----------------------------------------------------------------------------------------------------------------|------------|
| FCC Part 2     | FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS                                   | 2018-10-01 |
| FCC Part 22    | PUBLIC MOBILE SERVICES                                                                                          | 2018-10-01 |
| FCC Part 24    | PERSONAL COMMUNICATIONS SERVICES                                                                                | 2018-10-01 |
| FCC Part 27    | MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES                                                                  | 2018-10-01 |
| ANSI/TIA-603-E | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                             | 2016       |
| ANSI C63.26    | American National Standard of Procedures for Compliance Testing of Licensed Transmitters Used in Licensed Radio | 2015       |
| KDB 971168 D01 | Measurement Guidance for Certification of Licensed Digital Transmitters                                         | v03r01     |
| RSS 133        | 2 GHz Personal Communications Services                                                                          | 2018-01    |
| RSS 139        | Advanced Wireless Services Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz                     | 2015-07    |
| RSS 132        | Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz                                   | 2013-10    |
| RSS 130        | Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands 698-756 MHz and 777-787 MHz          | 2019-02    |

## 5. Test Results

### 5.1. Summary of Test Results

#### LTE Band 2

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-133 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 24.238(a), 2.1051   | 6.5                                    | A.2                    | P       |

#### LTE Band 4

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-139 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 27.53(h), 2.1051    | 6.6                                    | A.2                    | P       |

#### LTE Band 5

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-132 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 22.917, 2.1051      | 6.6                                    | A.2                    | P       |

#### LTE Band 7

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-199 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 27.53(m), 2.1051    | 6.6                                    | A.2                    | P       |

#### LTE Band 12

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-130 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 2     | Emission Limit | 27.53(g), 2.1051    | 4.6                                    | A.2                    | P       |

### LTE Band 13

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-130 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 27.53(c), 2.1051    | 4.6                                    | A.2                    | P       |

### LTE Band 17

| Items | Test Name      | Clause in FCC rules | Clause in IC rules RSS-Gen and RSS-130 | Section in this report | Verdict |
|-------|----------------|---------------------|----------------------------------------|------------------------|---------|
| 1     | Emission Limit | 27.53(g), 2.1051    | 4.6                                    | A.2                    | P       |

Note: please refer to Annex C in this test report for the detailed test results.

The following terms are used in the above table.

|    |                                                                                |
|----|--------------------------------------------------------------------------------|
| P  | Pass, the EUT complies with the essential requirements in the standard.        |
| NM | Not measure, the test was not measured by ECIT.                                |
| NA | Not applicable, the test was not applicable.                                   |
| F  | Fail, the EUT does not comply with the essential requirements in the standard. |

## 5.2. Statements

The Micronet SmartCam is a new product for testing.

ECIT only performed test cases which identified with P/NM/NA/F results in Annex C.

In this report, we only retest and report the radiation test data. And the conduct test results please refer to report No: I19D00117-SRD06-LTE, which was prepared by East China Institute of Telecommunications.

ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

## 6. Test Equipment Utilized

### Radiated emission test system

The test equipment and ancillaries used are as follows.

| No. | Equipment                            | Model    | Serial Number | Manufacturer | Calibration date | Cal.interval |
|-----|--------------------------------------|----------|---------------|--------------|------------------|--------------|
| 1   | Universal Radio Communication Tester | CMW500   | 104178        | R&S          | 2019-05-10       | 1 year       |
| 2   | Test Receiver                        | ESU40    | 100307        | R&S          | 2019-05-10       | 1 year       |
| 3   | TRILOG Broadband Antenna             | VULB9163 | VULB9163-515  | Schwarzbeck  | 2020-02-28       | 2 years      |
| 4   | Double Ridged Guide Antenna          | ETS-3117 | 135890        | ETS          | 2020-02-28       | 2 years      |
| 5   | 2-Line V-Network                     | ENV216   | 101380        | R&S          | 2019-05-10       | 1 year       |
| 6   | RF Signal Generator                  | SMF100A  | 102314        | R&S          | 2019-05-10       | 1 year       |
| 7   | Amplifier                            | SCU08    | 10146         | R&S          | 2019-05-10       | 1 year       |

### Anechoic chamber

Fully anechoic chamber by ETS.

## 7. Test Environment

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 20%, Max. = 75 %    |
| Shielding effectiveness  | > 100 dB                   |
| Ground system resistance | < 0.5 Ω                    |

**Control room** did not exceed following limits along the EMC testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. =25 %, Max. =75 %     |
| Shielding effectiveness  | > 100 dB                   |
| Electrical insulation    | > 10 kΩ                    |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber1** (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

|                              |                                            |
|------------------------------|--------------------------------------------|
| Temperature                  | Min. = 15 °C, Max. = 35 °C                 |
| Relative humidity            | Min. = 25 %, Max. = 75 %                   |
| Shielding effectiveness      | > 100 dB                                   |
| Electrical insulation        | > 10 kΩ                                    |
| Ground system resistance     | < 0.5 Ω                                    |
| VSWR                         | Between 0 and 6 dB, from 1GHz to 18GHz     |
| Site Attenuation Deviation   | Between -4 and 4 dB,30MHz to 1GHz          |
| Uniformity of field strength | Between 0 and 6 dB, from 80MHz to 3000 MHz |

## 8. Measurement Uncertainty

Measurement uncertainty for all the testing in this report are within the limit specified in ECIT documents. The detailed measurement uncertainty to see the column, k=2

| Measurement Items                       | Range              | Confidence Level | Calculated Uncertainty |
|-----------------------------------------|--------------------|------------------|------------------------|
| Maximum Peak Output Power               | 30MHz-3600MHz      | 95%              | $\pm 0.544\text{dB}$   |
| EBW and VBW                             | 30MHz-3600MHz      | 95%              | $\pm 62.04\text{Hz}$   |
| Transmitter Spurious Emission-Conducted | 30MHz-2GHz         | 95%              | $\pm 0.90\text{dB}$    |
| Transmitter Spurious Emission-Conducted | 2GHz-3.6GHz        | 95%              | $\pm 0.88\text{dB}$    |
| Transmitter Spurious Emission-Conducted | 3.6GHz-8GHz        | 95%              | $\pm 0.96\text{dB}$    |
| Transmitter Spurious Emission-Conducted | 8GHz-20GHz         | 95%              | $\pm 0.94\text{dB}$    |
| Transmitter Spurious Emission-Radiated  | 9KHz-30MHz         | 95%              | $\pm 5.66\text{dB}$    |
| Transmitter Spurious Emission-Radiated  | 30MHz-1000MHz      | 95%              | $\pm 4.98\text{dB}$    |
| Transmitter Spurious Emission-Radiated  | 1000MHz -18000MHz  | 95%              | $\pm 5.06\text{dB}$    |
| Transmitter Spurious Emission-Radiated  | 18000MHz -40000MHz | 95%              | $\pm 5.20\text{dB}$    |
| Frequency stability                     | 1MHz-16GHz         | 95%              | $\pm 62.04\text{Hz}$   |

## ANNEX A. MEASUREMENT RESULTS

### ANNEX A.1. EMISSION LIMIT

#### Reference

FCC: CFR 2.1051, 22.917,24.238(a), 27.53(g), 27.53(h) , 27.53(m).

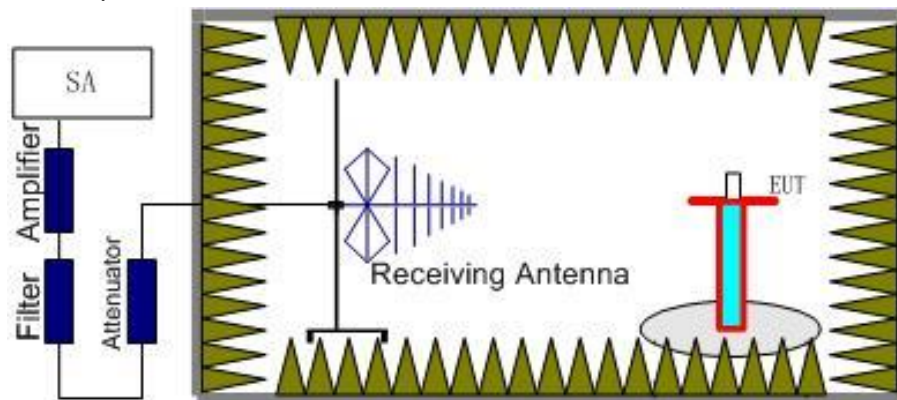
#### A.2.1 Measurement Method

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

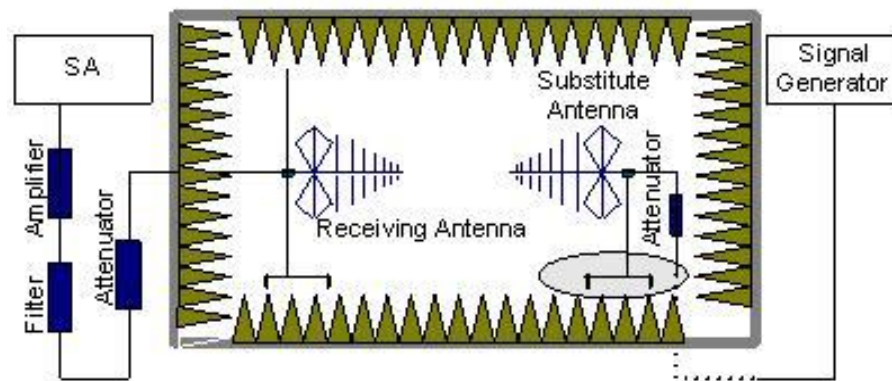
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917,Part 24.238(a), Part 27.53(g), Part 27.53(h), Part 27.53(m). The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 2,4,5,7,12,13,17.

#### The procedure of radiated spurious emissions is as follows:

- Below 1 GHz ,EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Above 1 GHz ,EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



- The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
- The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss ( $P_{pl}$ ) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain ( $G_a$ ) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss ( $P_{pl}$ ) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dB}$ .

### A.2.2 Measurement Limit

Part 22.917, Part 24.238(a), Part 27.53(g), Part 27.53(h), Part 27.53(m) all specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power ( $P$ ) by a factor of at least  $43 + 10 \log(P)$  dB. The specification that emissions shall be attenuated below the transmitter power ( $P$ ) by at least  $43 + 10 \log(P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

### A.2.3 Measurement Results

7. Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 2,4,5,7,12,13,17. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation



was seen from a carrier in one block of the LTE Bands2,4,5,7,12,13,17. into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The evaluated frequency range is from 30MHz to 26GHz.

**This data is obtained by testing at 12V**

#### RSE-LTE2-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3702.8          | -57.18     | 6.6       | 7.7      | -56.08          | -13         | V            |
| 4511.2          | -54.36     | 7.3       | 7.3      | -54.36          | -13         | V            |
| 5554.4          | -45.28     | 8.2       | 9.5      | -43.98          | -13         | V            |
| 7406.4          | -48.47     | 9.7       | 14.6     | -43.57          | -13         | V            |
| 9257.6          | -51.93     | 10.6      | 18.5     | -44.03          | -13         | V            |
| 11119.0         | -50.69     | 12.1      | 18.1     | -44.69          | -13         | V            |

#### RSE-LTE2-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3741.6          | -57.04     | 6.6       | 7.7      | -55.94          | -13         | V            |
| 4658.4          | -54.2      | 7.5       | 7.9      | -53.8           | -13         | H            |
| 5627.6          | -41.53     | 8.3       | 10.5     | -39.33          | -13         | V            |
| 7506.0          | -43.79     | 9.7       | 14.6     | -38.89          | -13         | V            |
| 9382.8          | -49.42     | 10.7      | 18.6     | -41.52          | -13         | V            |
| 11448.0         | -48.6      | 12.1      | 18.1     | -42.6           | -13         | V            |

#### RSE-LTE2-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3803.2          | -57.33     | 6.7       | 7.7      | -56.33          | -13         | V            |
| 4676.8          | -52.49     | 7.5       | 7.9      | -52.09          | -13         | V            |
| 5706.8          | -41.57     | 8.5       | 10.5     | -39.57          | -13         | V            |
| 7606.4          | -42.41     | 9.7       | 14.6     | -37.51          | -13         | V            |
| 9508.8          | -49.2      | 10.7      | 18.6     | -41.3           | -13         | H            |
| 11453.6         | -49.33     | 12.3      | 18.1     | -43.53          | -13         | V            |

**RSE-LTE4-L**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3433.6          | -55.97     | 6.4       | 4.7      | -57.67          | -13         | V            |
| 5136.4          | -46.86     | 7.9       | 8.7      | -46.06          | -13         | V            |
| 6846.4          | -41.91     | 9.2       | 12.3     | -38.81          | -13         | V            |
| 8557.6          | -47.86     | 10.3      | 18.1     | -40.06          | -13         | V            |
| 10275.2         | -51.24     | 11.5      | 17.4     | -45.34          | -13         | H            |
| 12069.6         | -46.26     | 12.6      | 17.1     | -41.76          | -13         | H            |

**RSE-LTE4-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3474.4          | -56.63     | 6.4       | 4.7      | -58.33          | -13         | V            |
| 5187.2          | -47.65     | 8.0       | 8.7      | -46.95          | -13         | V            |
| 6916.4          | -42.64     | 9.3       | 12.9     | -39.04          | -13         | V            |
| 8645.6          | -52.16     | 10.3      | 18.5     | -43.96          | -13         | H            |
| 10802.4         | -49.73     | 11.7      | 17.3     | -44.13          | -13         | V            |
| 12919.4         | -47.86     | 13.0      | 20.2     | -40.66          | -13         | V            |

**RSE-LTE4-H**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3492.4          | -55.82     | 6.4       | 4.7      | -57.52          | -13         | V            |
| 5239.6          | -47.66     | 8.0       | 8.7      | -46.96          | -13         | V            |
| 6986.8          | -40.29     | 9.3       | 12.9     | -36.69          | -13         | V            |
| 8732.8          | -48.01     | 10.4      | 18.5     | -39.91          | -13         | H            |
| 10531.2         | -50.3      | 11.6      | 17.1     | -44.8           | -13         | V            |
| 12258.6         | -45.99     | 12.6      | 17.5     | -41.09          | -13         | V            |

**RSE-LTE5-L**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1652.8          | -46.11     | 4.3       | 2.9      | -47.51          | -13         | H            |
| 2486.2          | -38.62     | 5.4       | 3.7      | -40.32          | -13         | H            |
| 3304.8          | -48.26     | 6.2       | 4.7      | -49.76          | -13         | H            |
| 4130.8          | -52.21     | 7.0       | 7.7      | -51.51          | -13         | V            |
| 4957.6          | -49.11     | 7.7       | 9.0      | -47.81          | -13         | V            |
| 5819.6          | -54.98     | 8.4       | 10.5     | -52.88          | -13         | H            |

**RSE-LTE5-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1666.7          | -47.28     | 4.3       | 2.9      | -48.68          | -13         | V            |
| 2517.3          | -38.86     | 5.4       | 3.7      | -40.56          | -13         | V            |
| 3330.0          | -43.62     | 6.2       | 4.7      | -45.12          | -13         | H            |
| 4162.4          | -51.08     | 7.0       | 7.7      | -50.38          | -13         | V            |
| 4995.6          | -46.29     | 7.8       | 9.0      | -45.09          | -13         | V            |
| 5887.2          | -55.01     | 8.5       | 10.4     | -53.11          | -13         | V            |

**RSE-LTE5-H**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1693.3          | -48.22     | 4.4       | 2.9      | -49.72          | -13         | V            |
| 2531.9          | -39        | 5.4       | 3.7      | -40.7           | -13         | V            |
| 3365.2          | -49.46     | 6.2       | 4.7      | -50.96          | -13         | H            |
| 4203.6          | -54.99     | 7.0       | 7.7      | -54.29          | -13         | V            |
| 5070.4          | -53.07     | 7.8       | 9.0      | -51.87          | -13         | H            |
| 5896.4          | -54.38     | 8.5       | 10.4     | -52.48          | -13         | H            |

**RSE-LTE7-L**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3605.2          | -46.35     | 6.5       | 4.7      | -48.15          | -13         | V            |
| 5020.0          | -44.94     | 7.8       | 9.0      | -43.74          | -13         | H            |
| 6383.2          | -48.23     | 8.9       | 11.5     | -45.63          | -13         | H            |
| 7537.2          | -48.06     | 9.7       | 14.6     | -43.16          | -13         | V            |
| 10055.2         | -45.57     | 11.3      | 17.6     | -39.27          | -13         | V            |
| 12179.5         | -37.72     | 12.6      | 17.5     | -32.82          | -13         | H            |

**RSE-LTE7-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3610.8          | -46.44     | 6.5       | 4.7      | -48.24          | -13         | V            |
| 5039.6          | -44.85     | 7.8       | 9.0      | -43.65          | -13         | V            |
| 7473.6          | -47.93     | 9.7       | 14.6     | -43.03          | -13         | V            |
| 8883.2          | -49.16     | 10.4      | 18.3     | -41.26          | -13         | H            |
| 10381.2         | -44.76     | 11.6      | 17.1     | -39.26          | -13         | V            |
| 12772.8         | -38.07     | 12.7      | 19.2     | -31.57          | -13         | H            |

**RSE-LTE7-H**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 3610.4          | -46.36     | 6.5       | 4.7      | -48.16          | -13         | V            |
| 5062.4          | -44.96     | 7.8       | 9.0      | -43.76          | -13         | V            |
| 6562.0          | -45.67     | 9.0       | 11.5     | -43.17          | -13         | H            |
| 7519.2          | -48.11     | 9.7       | 14.6     | -43.21          | -13         | H            |
| 10210.8         | -45.68     | 11.3      | 17.4     | -39.58          | -13         | V            |
| 12295.0         | -38.14     | 12.7      | 17.5     | -33.34          | -13         | H            |

**RSE-LTE12-L**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1398.4          | -46.25     | 4.0       | 3.4      | -46.85         | -13         | H            |
| 2462.7          | -37.51     | 5.3       | 3.7      | -39.11         | -13         | V            |
| 3496.0          | -41.74     | 6.4       | 4.7      | -43.44         | -13         | H            |
| 4894.8          | -49.3      | 7.7       | 9.0      | -48            | -13         | V            |
| 6453.6          | -52.34     | 8.9       | 11.5     | -49.74         | -13         | H            |
| 8044.6          | -54.23     | 9.9       | 16.6     | -47.53         | -13         | H            |

**RSE-LTE12-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1633.4          | -47.24     | 4.3       | 2.9      | -48.64         | -13         | H            |
| 2185.4          | -40.21     | 5.0       | 3.3      | -41.91         | -13         | H            |
| 2903.5          | -33.1      | 5.8       | 4.7      | -34.2          | -13         | V            |
| 3523.2          | -41.11     | 6.4       | 4.7      | -42.81         | -13         | H            |
| 4929.2          | -45.67     | 7.7       | 9.0      | -44.37         | -13         | V            |
| 6383.6          | -52.88     | 8.9       | 11.5     | -50.28         | -13         | V            |

**RSE-LTE12-H**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1429.9          | -40.09     | 4.1       | 3.4      | -40.79         | -13         | H            |
| 1920.4          | -43.98     | 4.7       | 2.8      | -45.88         | -13         | V            |
| 2550.8          | -38.32     | 5.4       | 3.7      | -40.02         | -13         | H            |
| 3574.0          | -35.92     | 6.4       | 4.7      | -37.62         | -13         | H            |
| 5004.0          | -43.58     | 7.8       | 9.0      | -42.38         | -13         | V            |
| 6433.6          | -51.03     | 8.9       | 11.5     | -48.43         | -13         | H            |

**RSE-LTE13-L**

| Frequency<br>(MHz) | PMea<br>(dBm) | Pcl<br>(dBm) | Ga<br>(dBd) | Peak ERP<br>(dBm) | Limit<br>(dBm) | Polarization |
|--------------------|---------------|--------------|-------------|-------------------|----------------|--------------|
| 1554.5             | -36.31        | 4.2          | 3.4         | -37.11            | -13            | H            |
| 1998.3             | -43.11        | 4.8          | 2.8         | -45.11            | -13            | H            |
| 2718.5             | -36.75        | 5.6          | 4.1         | -38.25            | -13            | V            |
| 3594.4             | -52.38        | 6.5          | 4.7         | -54.18            | -13            | V            |
| 4988.8             | -50.07        | 7.8          | 9.0         | -48.87            | -13            | V            |
| 6086.4             | -52.51        | 8.7          | 10.4        | -50.81            | -13            | H            |

**RSE-LTE13-M**

| Frequency<br>(MHz) | PMea<br>(dBm) | Pcl<br>(dBm) | Ga<br>(dBd) | Peak ERP<br>(dBm) | Limit<br>(dBm) | Polarization |
|--------------------|---------------|--------------|-------------|-------------------|----------------|--------------|
| 1559.7             | -37.27        | 4.2          | 3.4         | -38.07            | -13            | H            |
| 2208.5             | -40.07        | 5.0          | 3.3         | -41.77            | -13            | V            |
| 2866.2             | -33.82        | 5.8          | 4.1         | -35.52            | -13            | V            |
| 3604.4             | -52.44        | 6.5          | 4.7         | -54.24            | -13            | V            |
| 4994.8             | -50.4         | 7.8          | 9.0         | -49.2             | -13            | V            |
| 5996.4             | -50.78        | 8.6          | 10.4        | -48.98            | -13            | V            |

**RSE-LTE13-H**

| Frequency<br>(MHz) | PMea<br>(dBm) | Pcl<br>(dBm) | Ga<br>(dBd) | Peak ERP<br>(dBm) | Limit<br>(dBm) | Polarization |
|--------------------|---------------|--------------|-------------|-------------------|----------------|--------------|
| 1564.5             | -35.64        | 4.2          | 3.4         | -36.44            | -13            | H            |
| 2087.3             | -43.57        | 4.9          | 2.8         | -45.67            | -13            | V            |
| 2873.8             | -33.73        | 5.8          | 4.1         | -35.43            | -13            | V            |
| 3612.8             | -52.53        | 6.5          | 4.7         | -54.33            | -13            | V            |
| 4996.4             | -49.92        | 7.8          | 9.0         | -48.72            | -13            | V            |
| 6109.6             | -53.61        | 8.7          | 10.4        | -51.91            | -13            | V            |

**RSE-LTE17-L**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1408.4          | -47.8      | 4.0       | 3.4      | -48.4           | -13         | H            |
| 1949.5          | -42.9      | 4.7       | 2.8      | -44.8           | -13         | H            |
| 2604.2          | -36.81     | 5.5       | 3.7      | -38.61          | -13         | H            |
| 3521.6          | -38.66     | 6.4       | 4.7      | -40.36          | -13         | H            |
| 4930.0          | -43.78     | 7.7       | 9.0      | -42.48          | -13         | V            |
| 6338.8          | -52.01     | 8.8       | 10.8     | -50.01          | -13         | H            |

**RSE-LTE17-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1415.7          | -40.33     | 4.0       | 3.4      | -40.93          | -13         | H            |
| 1846.7          | -44.64     | 4.6       | 2.9      | -46.34          | -13         | H            |
| 2691.2          | -36.1      | 5.6       | 4.1      | -37.6           | -13         | V            |
| 3538.8          | -38.51     | 6.4       | 4.7      | -40.21          | -13         | H            |
| 4954.4          | -44.27     | 7.7       | 9.0      | -42.97          | -13         | V            |
| 6456.8          | -53.46     | 8.9       | 11.5     | -50.86          | -13         | V            |

**RSE-LTE17-H**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBi) | Peak EIRP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|-----------------|-------------|--------------|
| 1422.6          | -40.45     | 4.0       | 3.4      | -41.05          | -13         | H            |
| 1895.1          | -43.67     | 4.7       | 2.8      | -45.57          | -13         | V            |
| 2608.8          | -37.16     | 5.5       | 3.7      | -38.96          | -13         | V            |
| 3556.8          | -43.05     | 6.4       | 4.7      | -44.75          | -13         | H            |
| 4979.6          | -47.96     | 7.8       | 9.0      | -46.76          | -13         | V            |
| 6626.4          | -53.92     | 9.1       | 12.3     | -50.72          | -13         | V            |

This data is obtained by testing at 24V

#### RSE-LTE13-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1069.8          | -42.14     | 3.5       | 1.6      | -44.04         | -13         | H            |
| 1554.5          | -39.24     | 4.2       | 3.4      | -40.04         | -13         | H            |
| 2331.5          | -40.3      | 5.2       | 3.3      | -42.2          | -13         | H            |
| 3104.4          | -57.04     | 6.0       | 4.7      | -58.34         | -13         | V            |
| 3913.6          | -56.81     | 6.8       | 7.7      | -55.91         | -13         | H            |
| 4669.2          | -53.56     | 7.5       | 7.9      | -53.16         | -13         | V            |

#### RSE-LTE13-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1072.5          | -43.1      | 3.5       | 1.6      | -45            | -13         | H            |
| 1559.7          | -39.33     | 4.2       | 3.4      | -40.13         | -13         | H            |
| 2339.6          | -40.39     | 5.2       | 3.3      | -42.29         | -13         | H            |
| 3119.6          | -57.15     | 6.0       | 4.7      | -58.45         | -13         | H            |
| 3907.6          | -56.32     | 6.8       | 7.7      | -55.42         | -13         | V            |
| 4688.0          | -53.55     | 7.5       | 7.9      | -53.15         | -13         | V            |

#### RSE-LTE13-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1067.2          | -39.38     | 3.5       | 1.6      | -41.28         | -13         | H            |
| 1564.5          | -38.51     | 4.2       | 3.4      | -39.31         | -13         | H            |
| 2346.9          | -39.21     | 5.2       | 3.3      | -41.11         | -13         | H            |
| 3138.4          | -56.83     | 6.0       | 4.7      | -58.13         | -13         | V            |
| 3911.6          | -56.92     | 6.8       | 7.7      | -56.02         | -13         | V            |
| 4703.6          | -53.61     | 7.5       | 7.9      | -53.21         | -13         | H            |

Note: the EUT was displayed in several different direction, the worst cases were shown.



## **ANNEX B. Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

**ANNEX C. Detailed Test Results****ANNEX C.1. Main Terms**

|            |                                                                                                                |
|------------|----------------------------------------------------------------------------------------------------------------|
| Verdict    | Verdict of each test cases.                                                                                    |
| Test cases | Test cases identification number and description in ETSI EN 300 328 test specification and ETSI specification. |

**ANNEX C.2. Terms used in Condition column**

|      |                    |
|------|--------------------|
| Tnom | Normal temperature |
| Tmin | Low temperature    |
| Tmax | High temperature   |
| Vnom | Normal voltage     |

**ANNEX C.3. Terms used in Verdict column**

|    |                                                                                |
|----|--------------------------------------------------------------------------------|
| P  | Pass,the EUT complies with the essential requirements in the standard.         |
| NM | Not measure, the test was not measured by ECIT.                                |
| NA | Not applicable, the test was not applicable.                                   |
| F  | Fail, the EUT does not comply with the essential requirements in the standard. |

**ANNEX C.4. Terms used in Note column**

|          |                                                                                                                                       |
|----------|---------------------------------------------------------------------------------------------------------------------------------------|
| EUT ID   | EUT ID (e.g N01, N02.....) is used to identify the EUT tested used for each test cases as specified in section 3 of this test report. |
| Lab Code | Lab code is used to identify the subcontracted lab if this test cases is performed in the subcontracted lab.                          |

Subcontracted test lab code: N/A

## ANNEX D. Accreditation Certificate



\*\*\*\*\*END OF REPORT\*\*\*\*\*