



# **TEST REPORT**

**No. I21N01062-EMC-GSM**

**for**

**Rootcloud technology CO.,LTD**

**T-AMS PRO**

**Model Name: LI1520-DC-T-GL PRO**

**FCC ID: 2A07J-LI1520**

**with**

**Hardware Version: V1.0**

**Software Version: V1.0**

**Issued Date: 2021-07-01**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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No. I21N01062-EMC-GSM

## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b> | <b>Issue Date</b> |
|----------------------|-----------------|--------------------|-------------------|
| I21N01062-EMC-GSM    | Rev.0           | 1st edition        | 2021-07-01        |

Note: the latest revision of the test report supersedes all previous version

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## 1. Summary of Test Report

### 1.1. Test Items

|                     |                              |
|---------------------|------------------------------|
| Description         | T-AMS PRO                    |
| Model Name          | LI1520-DC-T-GL PRO           |
| Applicant's name    | Rootcloud technology CO.,LTD |
| Manufacturer's Name | Rootcloud technology CO.,LTD |

### 1.2. Test Standards

|                  |                 |
|------------------|-----------------|
| FCC Part 2/22/24 | 10-1-19 Edition |
| ANSI C63.26      | 2015            |
| KDB971168 D01    | v03r01          |

### 1.3. Test Result

Total test 2 items, pass 2 items. Please refer to "6 Summary of Test Results" for detail.

### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000

### 1.5. Project Data

Testing Start Date: 2020-05-21

Testing End Date: 2021-06-28

### 1.6. Signature



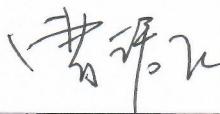
Liang Yong

(Prepared this test report)



Zhang Yunzhuan

(Reviewed this test report)



Cao Junfei

(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Rootcloud technology CO.,LTD  
Address: Room 303-309, No. 3, East Road, Pazhou Avenue, Haizhu District,  
Guangzhou 510335  
Contact: Joyce Wu  
Email: Huiyan.wu@rootcloud.com  
Tel.: +86 18306678502

### **2.2. Manufacturer Information**

Company Name: Rootcloud technology CO.,LTD  
Address: Room 303-309, No. 3, East Road, Pazhou Avenue, Haizhu District,  
Guangzhou 510335  
Contact: Joyce Wu  
Email: Huiyan.wu@rootcloud.com  
Tel.: +86 18306678502

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

#### 3.1. About EUT

|                              |                              |
|------------------------------|------------------------------|
| Description                  | T-AMS PRO                    |
| Model Name                   | LI1520-DC-T-GL PRO           |
| FCC ID                       | 2AO7J-LI1520                 |
| Frequency Bands              | GSM850; GSM1900              |
| Antenna                      | External antenna             |
| Power Source                 | DC12V/DC 24V                 |
| Condition of EUT as received | No abnormality in appearance |

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

| EUT ID* | IMEI            | HW Version | SW Version |
|---------|-----------------|------------|------------|
| UT03aa  | 867698042521149 | V1.0       | V1.0       |

Sample Arrival Date  
2021-04-08

\*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     |
|--------|-----------------|
| AE1    | GPS/4G Antenna  |
| AE2    | DC power supply |
| AE3    | USB flash disk  |

##### AE1

|              |                    |
|--------------|--------------------|
| Model        | DAMGA2Y1G1X-SG-J5M |
| Manufacturer | GLEAD Electronics  |

##### AE2

|              |          |
|--------------|----------|
| Model        | ZUP60-14 |
| Manufacturer | /        |

##### AE3

|              |         |
|--------------|---------|
| Model        | CZ73    |
| Manufacturer | SanDisk |

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

AE2/AE3: just for testing.

### 3.4. **General Description**

The Equipment under Test (EUT) is a model of T-AMS PRO with external antenna.

It consists of normal options: GPS/4G Antenna.

Manual and specifications of the EUT were provided to fulfill the test.

Samples (EUT+AE) undergoing test were selected by the client. Relevant information is provided by the client.

This report is based on LTE Module EG25-G, EG25-G MINIPCIE for for conformance test.

According to the declaration by manufacturer, the following tests need to be performed.

| NO. | Test item                            | EUT Operating Mode |
|-----|--------------------------------------|--------------------|
| 1   | Out power                            | GSM                |
| 2   | Field strength of spurious radiation | GSM                |

Other results are cited from the report of LTE Module EG25-G, EG25-G.

## **4. Reference Documents**

### **4.1. Reference Documents for testing**

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

| <b>Reference</b> | <b>Title</b>                                                                                         | <b>Version</b>     |
|------------------|------------------------------------------------------------------------------------------------------|--------------------|
| FCC Part 22      | PUBLIC MOBILE SERVICES                                                                               | 10-1-19<br>Edition |
| FCC Part 2       | FREQUENCY ALLOCATIONS AND RADIO TREATY<br>MATTERS; GENERAL RULES AND REGULATIONS                     | 10-1-19<br>Edition |
| FCC Part 24      | PERSONAL COMMUNICATIONS SERVICES                                                                     | 10-1-19<br>Edition |
| ANSI C63.26      | American National Standard for Compliance Testing of<br>Transmitters Used in Licensed Radio Services | 2015               |
| KDB971168 D01    | Power Meas License Digital Systems                                                                   | v03r01             |

## 5. LABORATORY ENVIRONMENT

**Fully-anechoic chamber** did not exceed following limits along the EMC testing

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| Temperature                        | Min. = 15 °C, Max. = 35 °C                  |
| Relative humidity                  | Min. = 15 %, Max. = 75 %                    |
| Shielding effectiveness            | 0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB   |
| Electrical insulation              | > 2M $\Omega$                               |
| Ground system resistance           | < 4 $\Omega$                                |
| Voltage Standing Wave Ratio (VSWR) | $\leq$ 6 dB, from 1 to 18 GHz, 3 m distance |
| Uniformity of field strength       | Between 0 and 6 dB, from 80 to 6000 MHz     |

## 6. SUMMARY OF TEST RESULTS

| Abbreviations used in this clause: |    |                |
|------------------------------------|----|----------------|
| Verdict Column                     | P  | Pass           |
|                                    | F  | Fail           |
|                                    | NA | Not applicable |
|                                    | NM | Not measured   |

### GSM850

| Items | List                                 | Clause in FCC rules | Section in this report | Verdict |
|-------|--------------------------------------|---------------------|------------------------|---------|
| 1     | Output Power                         | 2.1046/22.913       | A.1                    | P       |
| 2     | Field Strength of Spurious Radiation | 2.1053/22.917       | A.2                    | P       |

### PCS1900

| Items | List                                 | Clause in FCC rules | Section in this report | Verdict |
|-------|--------------------------------------|---------------------|------------------------|---------|
| 1     | Output Power                         | 2.1046/24.232       | A.1                    | P       |
| 2     | Field Strength of Spurious Radiation | 2.1053/24.238       | A.2                    | P       |

## **7. Statement**

Since the client provides the information of samples in this report, the laboratory is not responsible for the authenticity of sample information.

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

## 8. Test Facilities Utilized

| NO. | Description                          | TYPE                  | Manufacture  | series number | CAL DUE DATE |
|-----|--------------------------------------|-----------------------|--------------|---------------|--------------|
| 1   | Test Receiver                        | ESR7                  | R&S          | 101676        | 2021-11-25   |
| 2   | BiLog Antenna                        | 3142E                 | ETS-lindgren | 0224831       | 2024-05-24   |
| 3   | Horn Antenna                         | 3117                  | ETS-lindgren | 00066577      | 2022-04-02   |
| 4   | Horn Antenna                         | QSH-SL-18<br>-26-S-20 | Q-par        | 17013         | 2023-01-06   |
| 5   | Antenna                              | BBHA<br>9120D         | Schwarzbeck  | 1593          | 2022-12-05   |
| 6   | Antenna                              | VUBA 9117             | Schwarzbeck  | 207           | 2023-07-15   |
| 7   | Antenna                              | QWH-SL-18<br>-40-K-SG | Q-par        | 15979         | 2023-01-06   |
| 8   | preamplifier                         | 83017A                | Agilent      | MY39501110    | /            |
| 9   | Signal Generator                     | SMB100A               | R&S          | 179725        | 2021-11-25   |
| 10  | Fully Anechoic Chamber               | FACT3-2.0             | ETS-Lindgren | 1285          | 2021-07-19   |
| 11  | Spectrum Analyzer                    | FSV40                 | R&S          | 101192        | 2022-01-13   |
| 12  | Universal Radio Communication Tester | CMU200                | R&S          | 114545        | 2022-01-13   |

Note: CAL.: Calibration

### Test software

| Item     | Name  | Vesion           |
|----------|-------|------------------|
| Radiated | EMC32 | Version 10.50.40 |

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 OUTPUT POWER**

#### **Reference**

FCC: CFR Part 2.1046, 22.913, 24.232.

#### **A.1.1 Summary**

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure max power transmission and proper modulation.

This result contains max output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

#### **A.1.2 Radiated**

##### **A.1.2.1 Description**

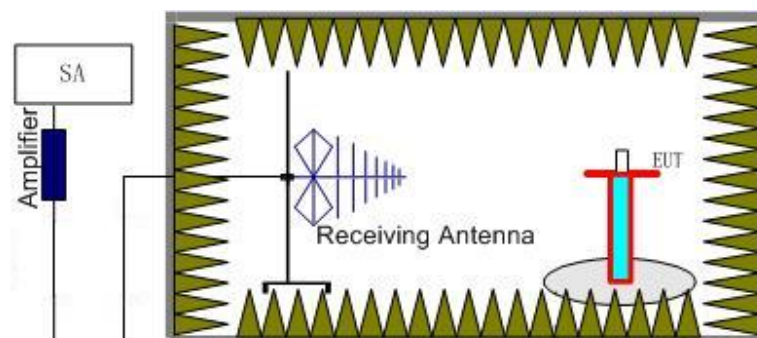
This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(c) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

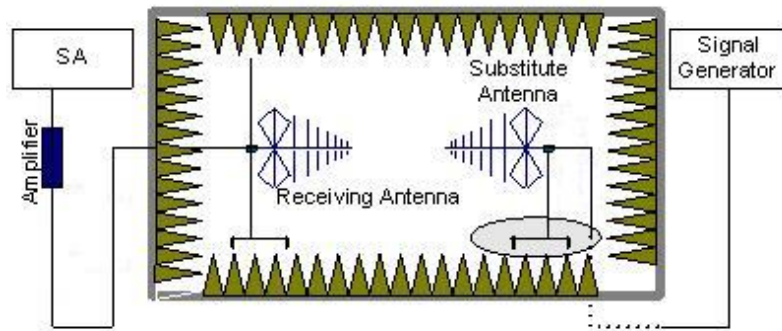
Rule Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

##### **A.1.2.2 Method of Measurement**

1. 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 transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. 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).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a 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, and adjust the level of the signal generator output until the value of the receiver reach 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. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna.

The cable loss ( $P_{cl}$ ), the Substitution Antenna Gain(dBi) ( $G_a$ ) and the Amplifier Gain ( $P_{Ag}$ ) should be recorded after test.

The measurement results are obtained as described below:

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

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 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.1.2.3 Measurement result

#### GSM 850-ERP 22.913(a)

##### Limits

|       | Power Step | Burst Peak ERP (dBm) |
|-------|------------|----------------------|
| GPRS  | 3          | ≤38.45dBm (7W)       |
| EGPRS | 6          | ≤38.45dBm (7W)       |

##### Measurement result

##### GPRS

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | P <sub>cl</sub> (dB)+<br>P <sub>Ag</sub> (dB) | Ga Antenna<br>Gain(dBi) | Correction<br>(dB) | ERP(dBm)     | Limit(dBm)   | Polarization |
|----------------|------------------------|-----------------------------------------------|-------------------------|--------------------|--------------|--------------|--------------|
| <b>824.20</b>  | <b>-4.25</b>           | <b>-33.60</b>                                 | <b>-0.79</b>            | <b>2.15</b>        | <b>26.41</b> | <b>38.45</b> | H            |
| 836.60         | -5.67                  | -33.50                                        | -0.74                   | 2.15               | 24.94        | 38.45        | H            |
| 848.80         | -7.33                  | -33.50                                        | -0.73                   | 2.15               | 23.29        | 38.45        | <b>H</b>     |

##### EGPRS-8PSK

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | P <sub>cl</sub> (dB)+<br>P <sub>Ag</sub> (dB) | Ga Antenna<br>Gain(dBi) | Correction<br>(dB) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|------------------------|-----------------------------------------------|-------------------------|--------------------|----------|------------|--------------|
| 824.20         | -6.83                  | -33.60                                        | -0.79                   | 2.15               | 23.83    | 38.45      | H            |
| 836.60         | -10.68                 | -33.50                                        | -0.74                   | 2.15               | 19.93    | 38.45      | H            |
| 848.80         | -9.90                  | -33.50                                        | -0.73                   | 2.15               | 20.72    | 38.45      | H            |

Frequency: 848.80MHz

Peak ERP(dBm)=P<sub>Mea</sub>(-4.25dBm)-(P<sub>cl</sub>+P<sub>Ag</sub>)(-33.60dB)+Ga(-0.79dB)-2.15dB=26.41dBm

##### ANALYZER SETTINGS: RBW = VBW = 3MHz

Note: The maximum value of expanded measurement uncertainty for this test item is U =

2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

**Note: Both of Vertical and Horizontal polarizations are evaluated, but only the worst case is recorded in this report.**

# PCS1900-EIRP 24.232(c)

## Limits

|       | Power Step | Burst Peak EIRP (dBm) |
|-------|------------|-----------------------|
| GPRS  | 3          | ≤33dBm (2W)           |
| EGPRS | 5          | ≤33dBm (2W)           |

## Measurement result

### GPRS

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB) | Ga Antenna Gain(dBi) | EIRP(dBm)    | Limit(dBm)   | Polarization |
|----------------|------------------------|--------------------------------------------|----------------------|--------------|--------------|--------------|
| 1850.20        | -11.87                 | -29.40                                     | 8.10                 | 25.63        | 33.00        | H            |
| 1880.00        | -12.49                 | -29.30                                     | 8.10                 | 24.91        | 33.00        | H            |
| <b>1909.80</b> | <b>-10.85</b>          | <b>-29.30</b>                              | <b>8.10</b>          | <b>26.55</b> | <b>33.00</b> | <b>H</b>     |

### EGPRS-8PSK

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB) | Ga Antenna Gain(dBi) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|------------------------|--------------------------------------------|----------------------|-----------|------------|--------------|
| 1850.20        | -15.27                 | -29.40                                     | 8.10                 | 22.23     | 33.00      | H            |
| 1880.00        | -15.58                 | -29.30                                     | 8.10                 | 21.82     | 33.00      | H            |
| 1909.80        | -14.39                 | -29.30                                     | 8.10                 | 23.01     | 33.00      | H            |

Frequency: 1880.00MHz

Peak EIRP(dBm)= P<sub>Mea</sub>(-10.85dBm) –(P<sub>cl</sub>+P<sub>Ag</sub>)(-29.40dB)+Ga (8.10dB) =26.55dBm

### ANALYZER SETTINGS: RBW = VBW = 3MHz

Note: The maximum value of expanded measurement uncertainty for this test item is U =

2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

**Note: Both of Vertical and Horizontal polarizations are evaluated, but only the worst case is recorded in this report.**

## **A.2 FIELD STRENGTH OF SPURIOUS RADIATION**

### **Reference**

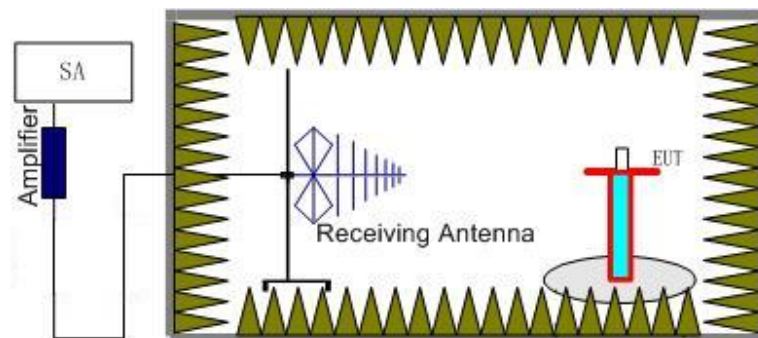
FCC: CFR 2.1053, 22.917, 24.238.

### **A.2.1 Measurement Method**

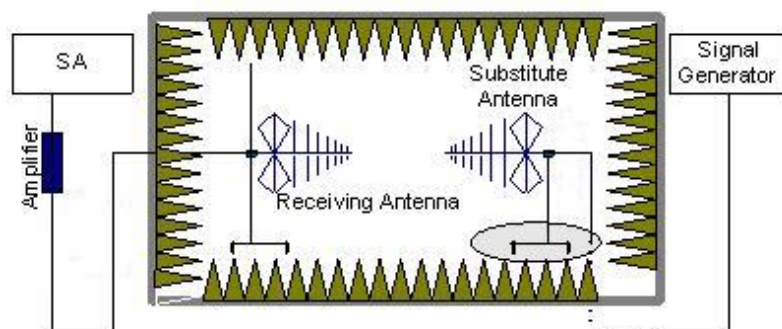
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set 1MHz as outlined in Part 24.238 and Part 22.917. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of GPRS1900 and GPRS850.

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

1. 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.



2. 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).
3. 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, and adjust the level of the signal generator output until the value of the receiver reach 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(dBi) ( $G_a$ ) should be recorded after test.

A 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 (2.15 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 24.238 and Part 22.917 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**

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) and GSM850 band (824.2MHz, 836.6MHz, 848.8MHz) . 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 PCS1900 ,GSM850 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.

#### A.2.4 Measurement Results Table

| Frequency   | Channel | Frequency Range | Result |
|-------------|---------|-----------------|--------|
| GPRS 850MHz | Low     | 30MHz-10GHz     | Pass   |
|             | Middle  | 30MHz-10GHz     | Pass   |
|             | High    | 30MHz-10GHz     | Pass   |
| GPRS1900MHz | Low     | 30MHz-20GHz     | Pass   |
|             | Middle  | 30MHz-20GHz     | Pass   |
|             | High    | 30MHz-20GHz     | Pass   |

#### A.2.5 Sweep Table

| Working Frequency | Subrange (GHz) | RBW    | VBW    | Sweep time (s) |
|-------------------|----------------|--------|--------|----------------|
| 850MHz            | 0.03~1         | 100KHz | 300KHz | 10             |
|                   | 1-2            | 1 MHz  | 3 MHz  | 2              |
|                   | 2~5            | 1 MHz  | 3 MHz  | 3              |
|                   | 5~8            | 1 MHz  | 3 MHz  | 3              |
|                   | 8~10           | 1 MHz  | 3 MHz  | 3              |
| 1900MHz           | 0.03~1         | 100KHz | 300KHz | 10             |
|                   | 1-2            | 1 MHz  | 3 MHz  | 2              |
|                   | 2~5            | 1 MHz  | 3 MHz  | 3              |
|                   | 5~8            | 1 MHz  | 3 MHz  | 3              |
|                   | 8~11           | 1 MHz  | 3 MHz  | 3              |
|                   | 11~14          | 1 MHz  | 3 MHz  | 3              |
|                   | 14~18          | 1 MHz  | 3 MHz  | 3              |
|                   | 18~20          | 1 MHz  | 3 MHz  | 2              |

**GPRS Mode Channel 128/824.2MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak ERP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|---------------|-------------|--------------|
| 2939.47        | -46.01                 | 1.00      | 10.70             | -38.46        | -13.00      | H            |
| 5139.00        | -64.28                 | 1.30      | 12.50             | -55.23        | -13.00      | H            |
| 5871.50        | -64.45                 | 1.40      | 13.10             | -54.90        | -13.00      | V            |
| 6974.00        | -62.67                 | 1.80      | 12.40             | -54.22        | -13.00      | H            |
| 7970.00        | -60.32                 | 1.90      | 11.30             | -53.07        | -13.00      | V            |
| 9862.50        | -58.91                 | 2.20      | 11.20             | -52.06        | -13.00      | H            |

**GPRS Mode Channel 190/836.6MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak ERP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|---------------|-------------|--------------|
| 2959.47        | -46.23                 | 1.00      | 10.70             | -38.68        | -13.00      | V            |
| 5171.50        | -63.20                 | 1.60      | 12.50             | -54.45        | -13.00      | H            |
| 6239.00        | -64.03                 | 1.60      | 13.10             | -54.68        | -13.00      | V            |
| 7284.50        | -61.98                 | 1.90      | 12.00             | -54.03        | -13.00      | H            |
| 8375.00        | -60.75                 | 1.80      | 11.30             | -53.40        | -13.00      | V            |
| 9932.00        | -57.65                 | 2.20      | 11.20             | -50.80        | -13.00      | H            |

**GPRS Mode Channel 251/848.8MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak ERP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|---------------|-------------|--------------|
| 2961.87        | -46.71                 | 1.00      | 10.70             | -39.16        | -13.00      | V            |
| 5875.50        | -63.93                 | 1.40      | 13.10             | -54.38        | -13.00      | H            |
| 6551.00        | -62.44                 | 1.70      | 12.40             | -53.89        | -13.00      | V            |
| 7515.00        | -61.52                 | 1.90      | 11.30             | -54.27        | -13.00      | V            |
| 8475.50        | -60.21                 | 1.80      | 11.30             | -52.86        | -13.00      | H            |
| 9847.00        | -59.59                 | 2.30      | 11.20             | -52.84        | -13.00      | V            |

Note: The maximum value of expanded measurement uncertainty for this test item is  $U = 2.72\text{dB}(30\text{MHz}-3\text{GHz})/3.60\text{dB}(3\text{GHz}-18\text{GHz})/3.58\text{dB}(18\text{GHz}-26.5\text{GHz}), k = 2$

**GPRS Mode Channel 512/1850.2MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak EIRP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|----------------|-------------|--------------|
| 2935.47        | -45.59                 | 1.00      | 10.70             | -35.89         | -13.00      | V            |
| 7400.50        | -59.60                 | 1.90      | 12.00             | -49.50         | -13.00      | V            |
| 10344.50       | -58.66                 | 2.10      | 11.30             | -49.46         | -13.00      | H            |
| 12250.00       | -57.22                 | 2.60      | 12.60             | -47.22         | -13.00      | V            |
| 15015.50       | -56.15                 | 2.40      | 12.40             | -46.15         | -13.00      | H            |
| 17808.50       | -52.55                 | 3.60      | 12.80             | -43.35         | -13.00      | H            |

**GPRS Mode Channel 661/1880.0MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak EIRP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|----------------|-------------|--------------|
| 2958.93        | -46.43                 | 1.00      | 10.70             | -36.73         | -13.00      | V            |
| 8336.50        | -59.98                 | 1.80      | 11.30             | -50.48         | -13.00      | H            |
| 9970.00        | -57.95                 | 2.20      | 11.20             | -48.95         | -13.00      | H            |
| 12130.50       | -57.63                 | 2.70      | 12.60             | -47.73         | -13.00      | V            |
| 14320.50       | -55.84                 | 2.60      | 11.90             | -46.54         | -13.00      | H            |
| 17804.50       | -52.98                 | 3.60      | 12.80             | -43.78         | -13.00      | H            |

**GPRS Mode Channel 810/1909.8MHz**

| Frequency(MHz) | P <sub>Mea</sub> (dBm) | Path loss | Antenna Gain(dBi) | Peak EIRP(dBm) | Limit (dBm) | Polarization |
|----------------|------------------------|-----------|-------------------|----------------|-------------|--------------|
| 2841.60        | -45.75                 | 1.00      | 10.70             | -36.05         | -13.00      | V            |
| 8023.50        | -60.07                 | 2.00      | 11.30             | -50.77         | -13.00      | H            |
| 9486.00        | -58.51                 | 2.10      | 11.60             | -49.01         | -13.00      | H            |
| 11999.50       | -56.79                 | 2.60      | 11.00             | -48.39         | -13.00      | V            |
| 14840.50       | -54.96                 | 2.70      | 11.20             | -46.46         | -13.00      | V            |
| 17814.50       | -52.05                 | 3.60      | 12.80             | -42.85         | -13.00      | H            |

Note: The maximum value of expanded measurement uncertainty for this test item is  $U = 2.72\text{dB}(30\text{MHz}-3\text{GHz})/3.60\text{dB}(3\text{GHz}-18\text{GHz})/3.58\text{dB}(18\text{GHz}-40\text{GHz})$ ,  $k = 2$

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