



# Part 24

# TEST REPORT

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|                     |   |
|---------------------|---|
| <b>Product Name</b> | PV GPRS Data Logger                                 |
| <b>Model Name</b>   | TK-G10-01,TK-G10-08,TK-G10-16,TK-G10-08S,TK-G10-16S |
| <b>FCC ID</b>       | A69GPRS01   |
| <b>Client</b>       | Shanghai Taoke Network Co.,Ltd                      |

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**TA Technology (Shanghai) Co., Ltd.**

TA Technology (Shanghai) Co., Ltd.  
Test Report

Registration Num:428261

Report No.: RZA1108-1392RF02

Page 2 of 32

**GENERAL SUMMARY**

|                              |   |                   |   |
|------------------------------|---|-------------------|---|
| <b>Product Name</b>          | PV GPRS Data Logger   | <b>Model Name</b> | TK-G10-01,TK-G10-08,TK-G10-16,TK-G10-08S,TK-G10-16S |
| <b>FCC ID</b>                | A69GPRS01   |                   |   |
| <b>Report No.</b>            | RZA1108-1392RF02  |                   |   |
| <b>Client</b>                | Shanghai Taoke Network Co.,Ltd  |                   |   |
| <b>Manufacturer</b>          | Shanghai Taoke Network Co.,Ltd  |                   |   |
| <b>Reference Standard(s)</b> | <p><b>FCC CFR47 Part 2 (2010-12)</b> Frequency Allocations And Radio Treaty Matters;<br/>General Rules And Regulations</p> <p><b>FCC CFR47 Part 24E (2010-12)</b> Personal Communications Services</p> <p><b>ANSI/TIA-603-C(2004)</b> Land mobile FM or PM Communications Equipment Measurements and Performance Standards.</p> |                   |   |
| <b>Conclusion</b>            | <p>Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: <b>Pass</b></p> <p>(Stamp)</p> <p>Date of issue: November 3<sup>rd</sup>, 2011</p>                          |                   |   |
| <b>Comment</b>               | The test result only responds to the measured sample.   |                   |   |

Approved by 杨伟中

Director

Revised by 徐凯

RF Manager

Performed by 王军

RF Engineer

## TABLE OF CONTENT

|  |    |
|--|----|
| 1. General Information .....                       | 4  |
| 1.1. Notes of the test report .....                | 4  |
| 1.2. Testing laboratory .....                      | 4  |
| 1.3. Applicant Information .....                   | 5  |
| 1.4. Manufacturer Information.....                 | 5  |
| 1.5. Information of EUT.....                       | 6  |
| 1.6. Test Date .....                               | 7  |
| 2. Test Information .....                          | 8  |
| 2.1. Summary of test results .....                 | 8  |
| 2.2. RF Power Output .....                         | 9  |
| 2.3. Effective Isotropic Radiated Power .....      | 11 |
| 2.4. Occupied Bandwidth.....                       | 14 |
| 2.5. Band Edge Compliance .....                    | 17 |
| 2.6. Frequency Stability .....                     | 19 |
| 2.7. Spurious Emissions at Antenna Terminals ..... | 21 |
| 2.1. Radiates Spurious Emission .....              | 25 |
| 3. Main Test Instruments .....                     | 30 |
| ANNEX A: EUT Appearance and Test Setup.....        | 31 |
| A.1 EUT Appearance .....                           | 31 |
| A.2 Test Setup.....                                | 32 |

## 1. General Information

### 1.1. Notes of the test report

**TA Technology (Shanghai) Co., Ltd.** guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at **TA Technology (Shanghai) Co., Ltd.** at the time of execution of the test.

**TA Technology (Shanghai) Co., Ltd.** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

### 1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.

Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong

City: Shanghai

Post code: 201201

Country: P. R. China

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E-mail: [yangweizhong@ta-shanghai.com](mailto:yangweizhong@ta-shanghai.com)

### **1.3. Applicant Information**

Company: Shanghai Taoke Network Co.,Ltd

Address: Room 201, Building.2, No.215, Rd Yaohua, Dist.Pudong

City: Shanghai

Postal Code: /

Country: P.R.China

Contact: Lu Jianzhou

Telephone: +86 013916398386

Fax: +86 21 60936519

### **1.4. Manufacturer Information**

Company: Shanghai Taoke Network Co.,Ltd

Address: Room 201, Building.2, No.215, Rd Yaohua, Dist.Pudong

City: Shanghai

Postal Code: /

Country: P.R.China

Telephone: +86 013916398386

Fax: +86 21 60936519

## 1.5. Information of EUT

### General information

|  |   |                 |                 |
|--|---|-----------------|-----------------|
| Name of EUT:                           | PV GPRS Data Logger                           |                 |                 |
| IMEI:                                  | /   |                 |                 |
| Hardware Version:                      | DAU-SPS-ENT V0.02                             |                 |                 |
| Software Version:                      | V1.00.ENT.002                                 |                 |                 |
| Antenna Type:                          | External Antenna                              |                 |                 |
| Device Operating Configurations:       |   |                 |                 |
| Operating Mode(s):                     | GSM1900; (tested)                             |                 |                 |
| Test Modulation:                       | (GSM)GMSK                                     |                 |                 |
| GPRS Multislot Class:                  | 10  |                 |                 |
| Maximum E.I.R.P.                       | GSM 1900: 26.11 dBm                           |                 |                 |
| Power Supply:                          | Battery or Charger                            |                 |                 |
| Rated Power Supply Voltage:            | 12V   |                 |                 |
| Extreme Temperature:                   | Lowest: -10°C      Highest: +55°C             |                 |                 |
| Test Channel:<br>(Low - Middle - High) | 512 - 661 - 810      (GSM 1900)      (tested) |                 |                 |
| Operating Frequency Range(s)           | Band  | Tx (MHz)        | Rx (MHz)        |
|  | GSM1900                                       | 1850.2 ~ 1909.8 | 1930.2 ~ 1989.8 |

**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**  
**Registration Num:428261**

Report No.: RZA1108-1392RF02

Page 7 of 32

**Auxiliary equipment details**

**AE1: Charger**

Model: YH-S15AV1201000

Manufacturer: Yuhang Electric Appliance Co.,Ltd.

S/N: /

Equipment Under Test (EUT) is PV GPRS Data Logger. The EUT is tested GSM1900 in this report.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

**1.6. Test Date**

The test is performed from September 9, 2011 to September 16, 2011.

**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**

Registration Num:428261

Report No.: RZA1108-1392RF02

Page 8 of 32

## **2. Test Information**

### **2.1. Summary of test results**

| <b>Number</b> | <b>Test Case</b>                        | <b>Clause in FCC rules</b> | <b>Verdict</b> |
|---------------|---|----------------------------|----------------|
| 1             | RF power output                         | 2.1046                     | PASS           |
| 2             | Effective Isotropic Radiated power      | 24.232                     | PASS           |
| 3             | Occupied Bandwidth                      | 2.1049                     | PASS           |
| 4             | Band Edge Compliance                    | 24.238                     | PASS           |
| 5             | Frequency Stability                     | 2.1055 / 24.235            | PASS           |
| 6             | Spurious Emissions at Antenna Terminals | 2.1051 / 24.238            | PASS           |
| 7             | Radiates Spurious Emission              | 2.1053 / 24.238            | PASS           |

## 2.2. RF Power Output

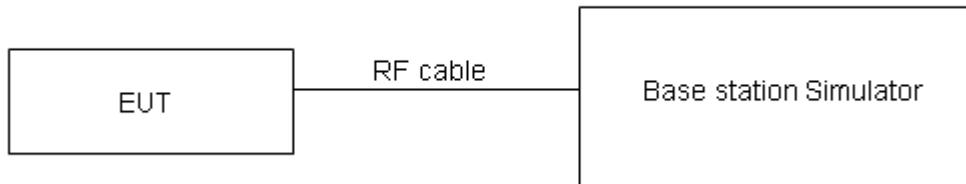
### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

### Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

### Limits

No specific RF power output requirements in part 2.1046.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.4$  dB.

## Test Results

| GSM 1900       |          | Conducted Power(dBm) |              |              |
|----------------|----------|----------------------|--------------|--------------|
|                |          | Channel 512          | Channel 661  | Channel 810  |
|                |          | 1850.2(MHz)          | 1880(MHz)    | 1909.8(MHz)  |
| GPRS<br>(GMSK) | 1TXslot  | <b>27.45</b>         | <b>27.58</b> | <b>27.48</b> |
|                | 2TXslots | 27.41                | 27.55        | 27.45        |

Note:

- 1) The maximum RF Output Power numbers are marked in bold.
- 2) The following testing in GPRS is set to 1TXslot based on the maximum RF Output Power.

## 2.3. Effective Isotropic Radiated Power

### Ambient condition

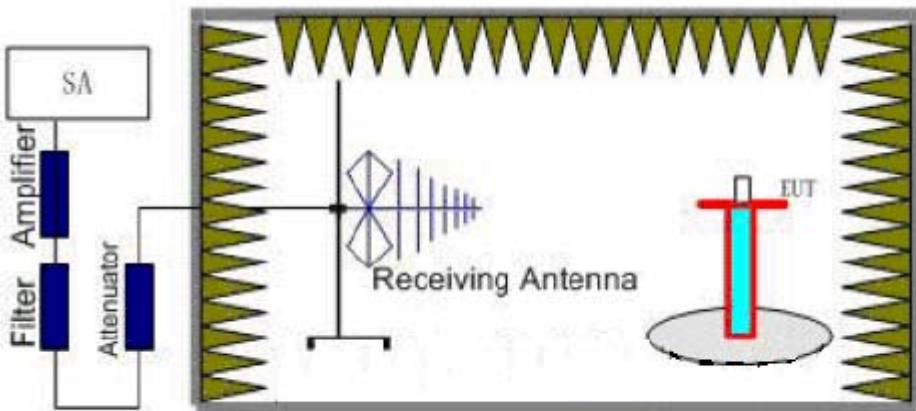
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

The measurement procedures in TIA- 603C are used.

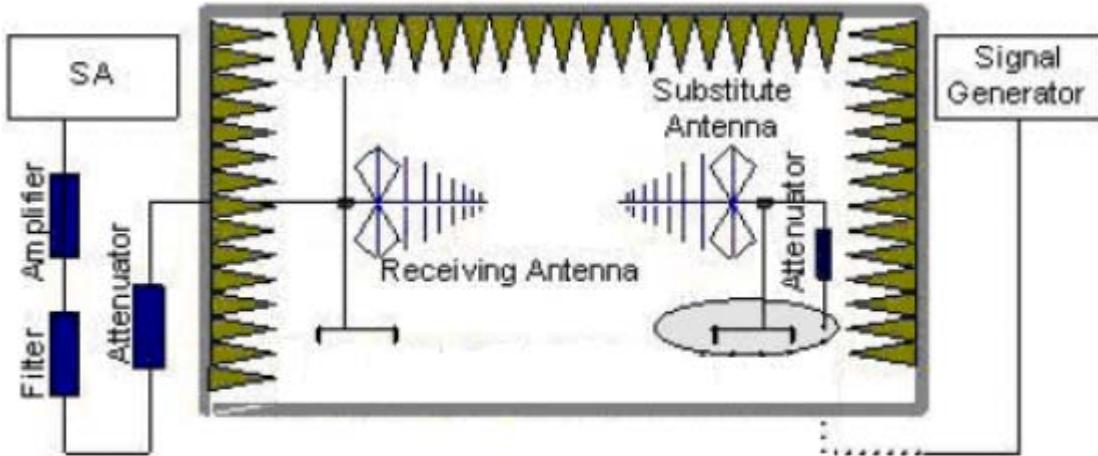
#### Step 1:

The measurement is carried out in the semi-anechoic chamber.. EUT was placed on a 0.8 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



#### Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a 30dB amplifier and a Tx cable. Then the Analyzer reading which is equal to LVL is recorded while the antenna was moving up and down. The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



$$E.R.P = S.G + 30. - \text{Tx Cable loss} + \text{Substitution antenna gain} - 2.15.$$

$$EIRP = E.R.P + 2.15$$

### Limits

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts EIRP. Peak power" and Rule Part 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".

|              |                             |
|--------------|-----------------------------|
| Limit (EIRP) | $\leq 2 \text{ W (33 dBm)}$ |
|--------------|-----------------------------|

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 1.19 \text{ dB}$

**TA Technology (Shanghai) Co., Ltd.****Test Report**

Registration Num:428261

Report No.: RZA1108-1392RF02

Page 13 of 32

**Test Results: Pass**

|                                | Channel | Polarization | LVL<br>(dBm) | SG+30<br>(dBm) | Gain<br>(dBi) | Cable<br>Loss<br>(dBm) | E.I.R.P.<br>(dBm) |
|--------------------------------|---------|--------------|--------------|----------------|---------------|------------------------|-------------------|
| <b>GSM 1900<br/>GPRS(GMSK)</b> | 512     | Vertical     | -16.38       | 43.21          | 1.06          | 18.16                  | 26.11             |
|                                | 661     | Vertical     | -17.09       | 42.66          | 1.24          | 18.31                  | 25.59             |
|                                | 810     | Vertical     | -15.33       | 42.24          | 1.38          | 18.33                  | 25.29             |

Note: 1. E.R.P = S.G+30. - Tx Cable loss + Substitution antenna gain - 2.15.

2. EIRP = E.R.P + 2.15

## 2.4. Occupied Bandwidth

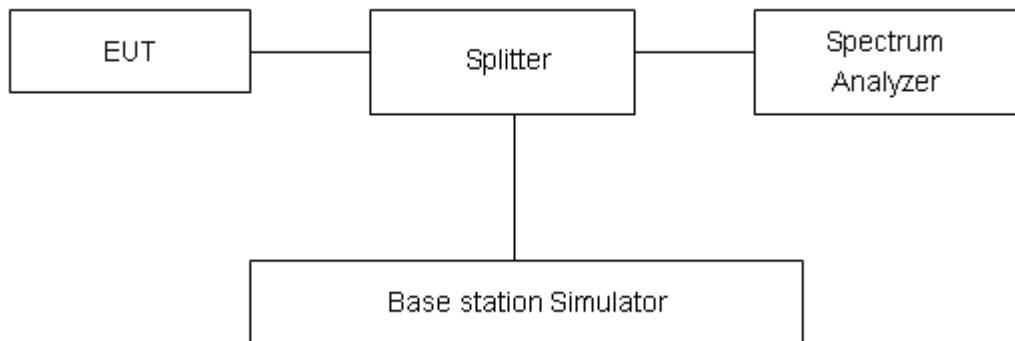
### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900. 99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

### Test Setup



### Limits

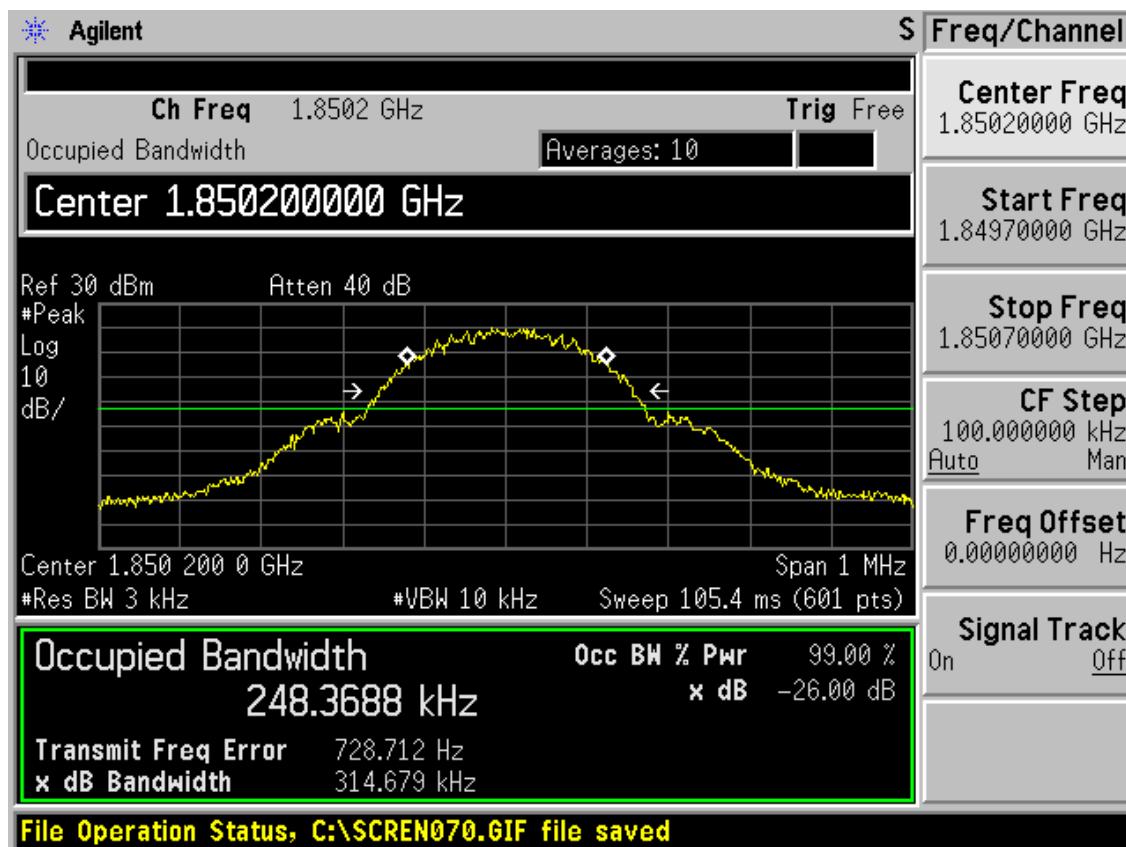
No specific occupied bandwidth requirements in part 2.1049.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 624\text{Hz}$ .

## Test Result

|               | Channel | Frequency (MHz) | 99% Power Bandwidth (kHz) | -26dBc Bandwidth(kHz) |
|---------------|---------|-----------------|---------------------------|-----------------------|
| GSM 1900+GPRS | 512     | 1850.2          | 248.3688                  | 314.679               |
|               | 661     | 1880.0          | 250.3281                  | 316.706               |
|               | 810     | 1909.8          | 245.1176                  | 313.444               |



GSM1900 GPRS CH512 Occupied Bandwidth

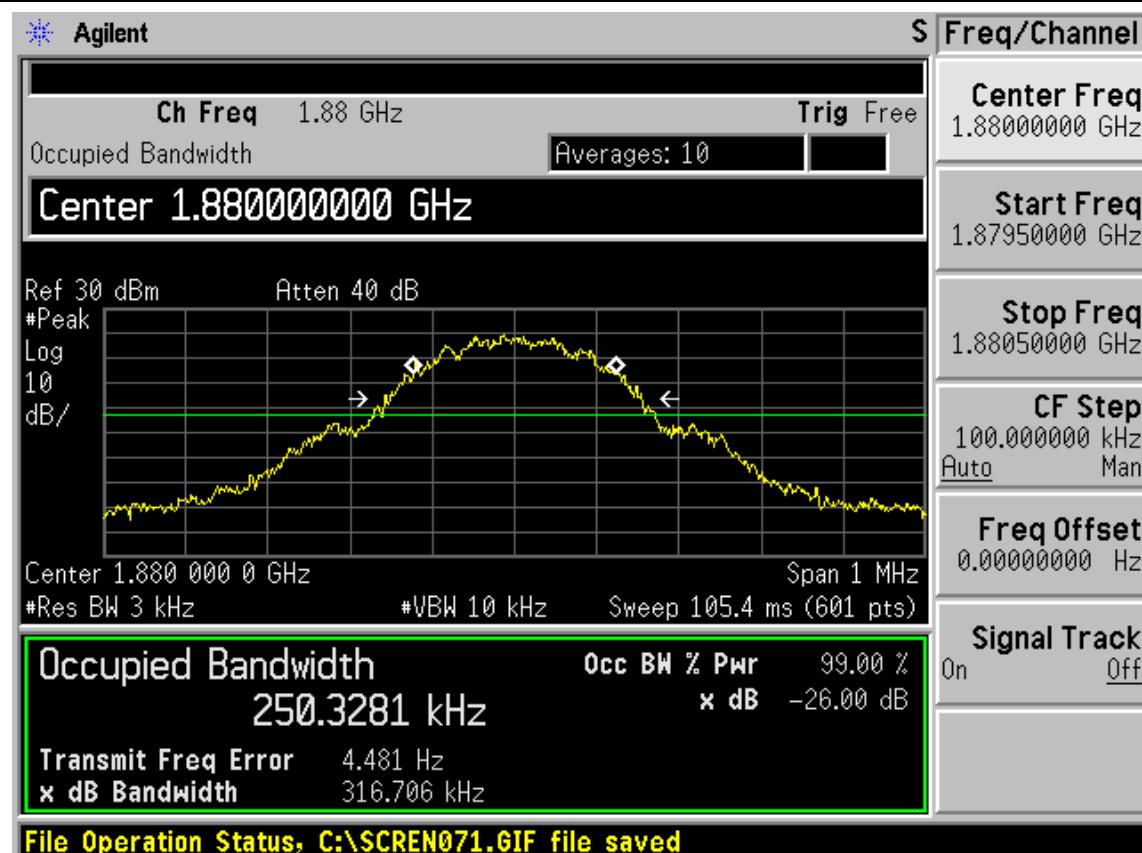
# TA Technology (Shanghai) Co., Ltd.

## Test Report

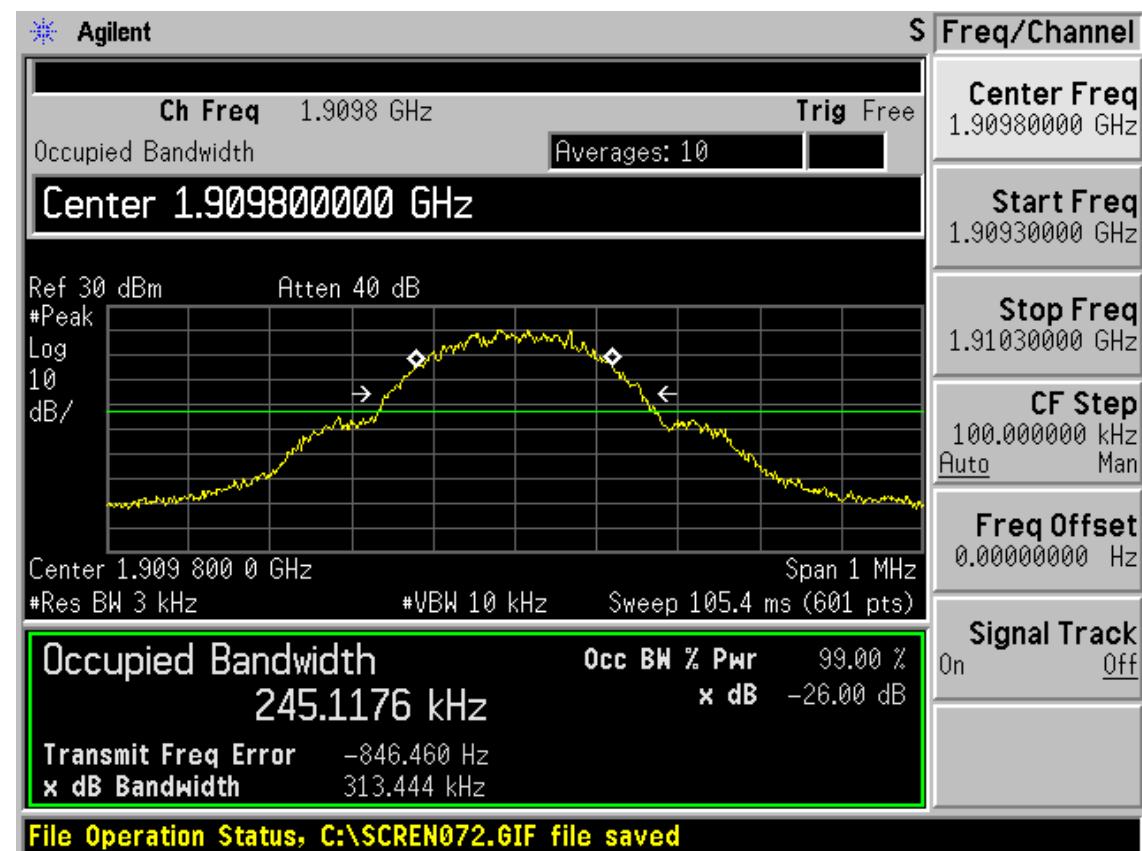
Registration Num:428261

Report No.: RZA1108-1392RF02

Page 16of 32



GSM 1900 GPRS CH661 Occupied Bandwidth



GSM 1900 GPRS CH810 Occupied Bandwidth

## 2.5. Band Edge Compliance

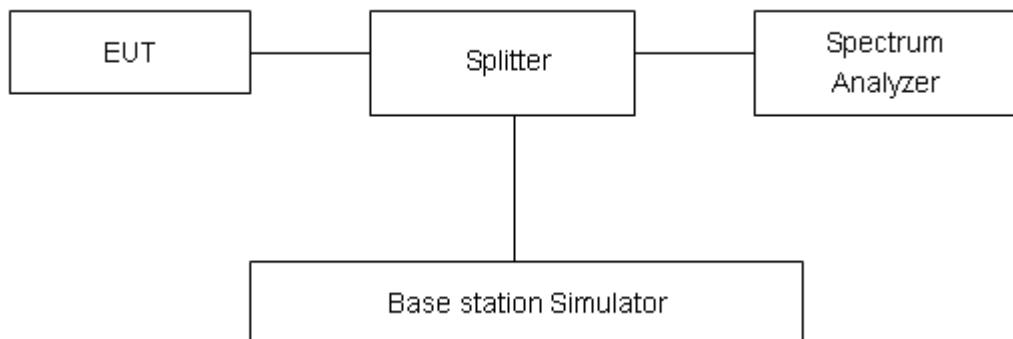
### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900. Spectrum analyzer plots are included on the following pages.

### Test Setup



### Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB.”

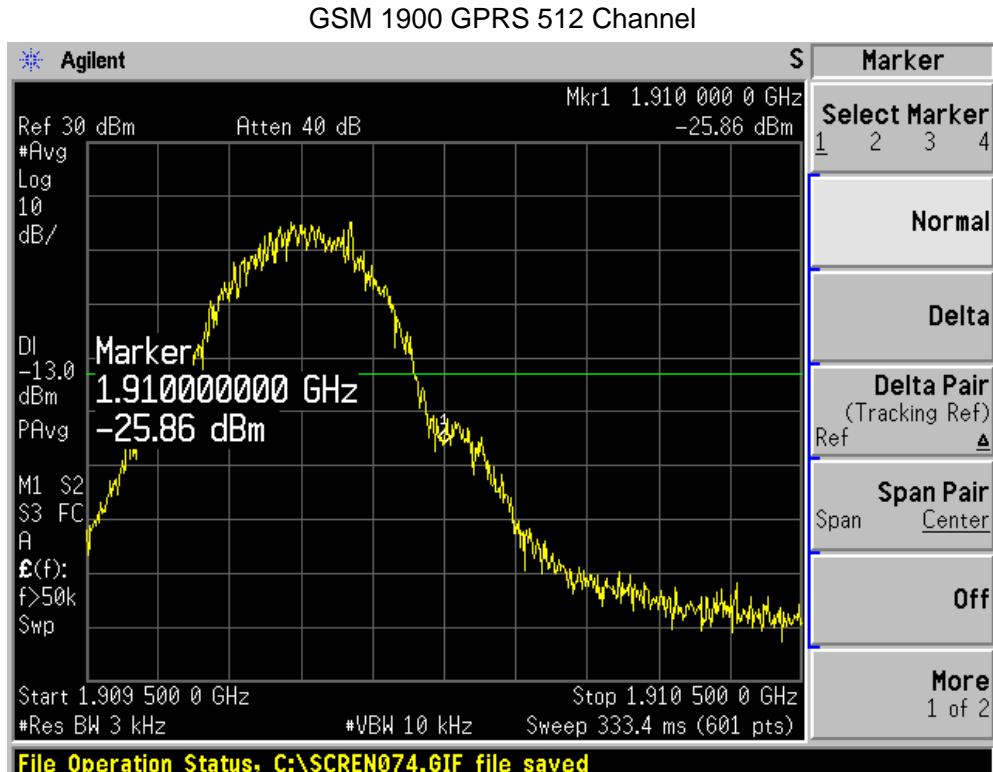
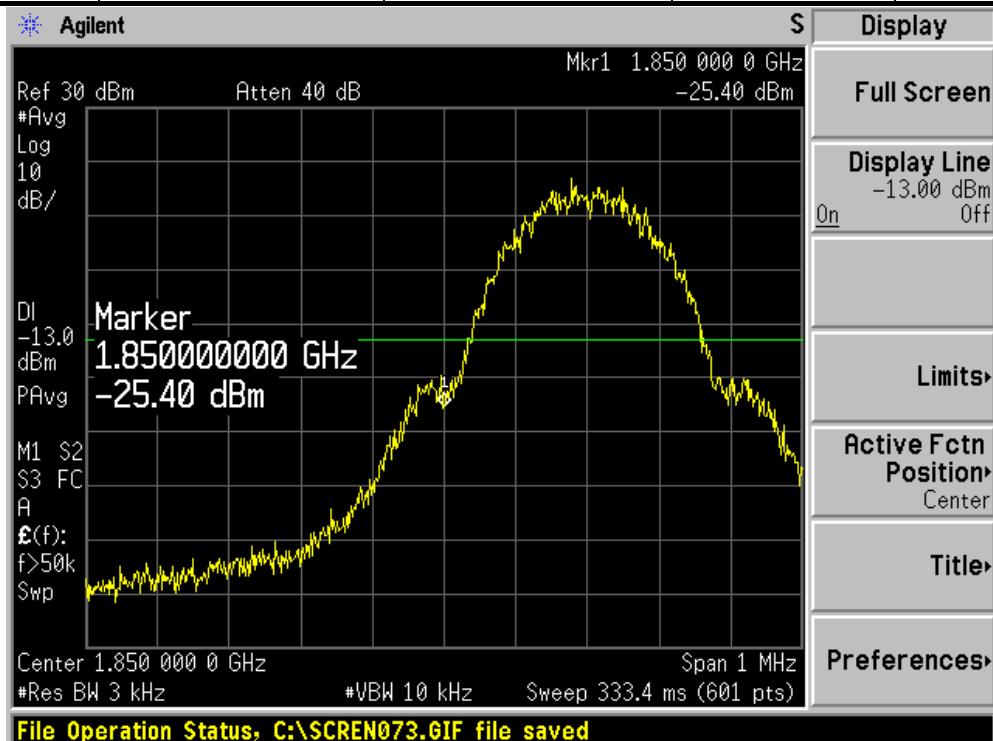
|       |         |
|-------|---------|
| Limit | -13 dBm |
|-------|---------|

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ ,  $U=0.684\text{dB}$ .

## Test Result:

|                  | Carrier frequency (MHz) | Reference value (dBm) | Limit | Conclusion |
|------------------|-------------------------|-----------------------|-------|------------|
| GSM<br>1900+GPRS | 1850.0                  | -25.40                | -13   | PASS       |
|                  | 1910.0                  | -25.86                | -13   | PASS       |



GSM1900 GPRS 810 Channel

## 2.6. Frequency Stability

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

#### 1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

#### 2. Frequency Stability (Voltage Variation)

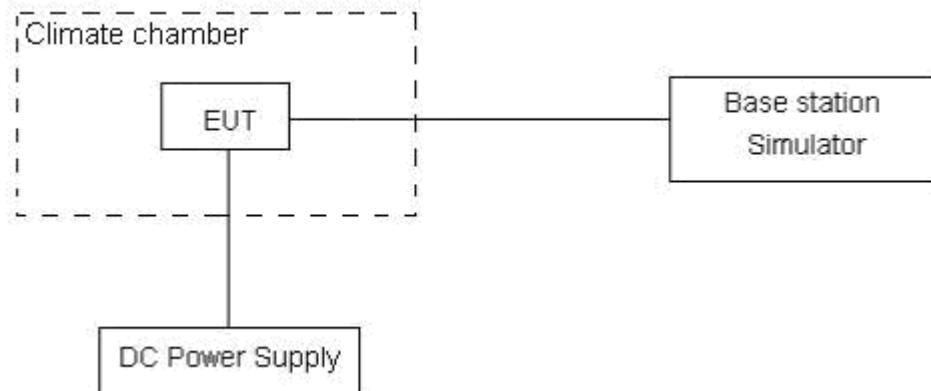
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of 12V.

### Test setup



**Limits**

No specific frequency stability requirements in part 24.235

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 3$ ,  $U = 0.01\text{ppm}$ .

**Test Result**

| Temperature<br>(° C) | Test Results (ppm) / 12 V Power supply |
|----------------------|--|
|                      | Channel 661                            |
| -30                  | 1.2598                                 |
| -20                  | 1.0654                                 |
| -10                  | 0.8894                                 |
| 0                    | 0.3548                                 |
| 10                   | 0.5784                                 |
| 20                   | 0.6399                                 |
| 30                   | 0.8514                                 |
| 40                   | 0.7584                                 |
| 50                   | 0.7655                                 |

| Voltage<br>(V) | Test Results(ppm) / 20° C |
|----------------|---------------------------|
|                | Channel 661               |
| 12             | 0.6399                    |

## 2.7. Spurious Emissions at Antenna Terminals

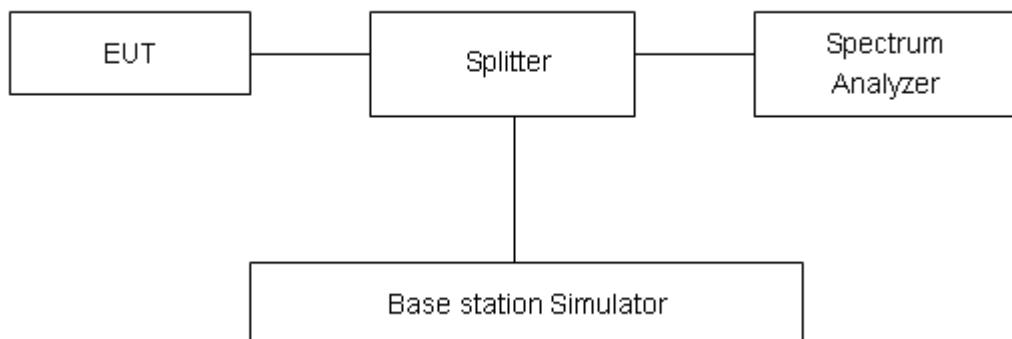
### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. For GSM 1900, RBW and VBW are set to 100 kHz, Sweep is set to ATUO.

### Test setup



### Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB.”

| Limit | -13 dBm |
|-------|---------|
|       |         |

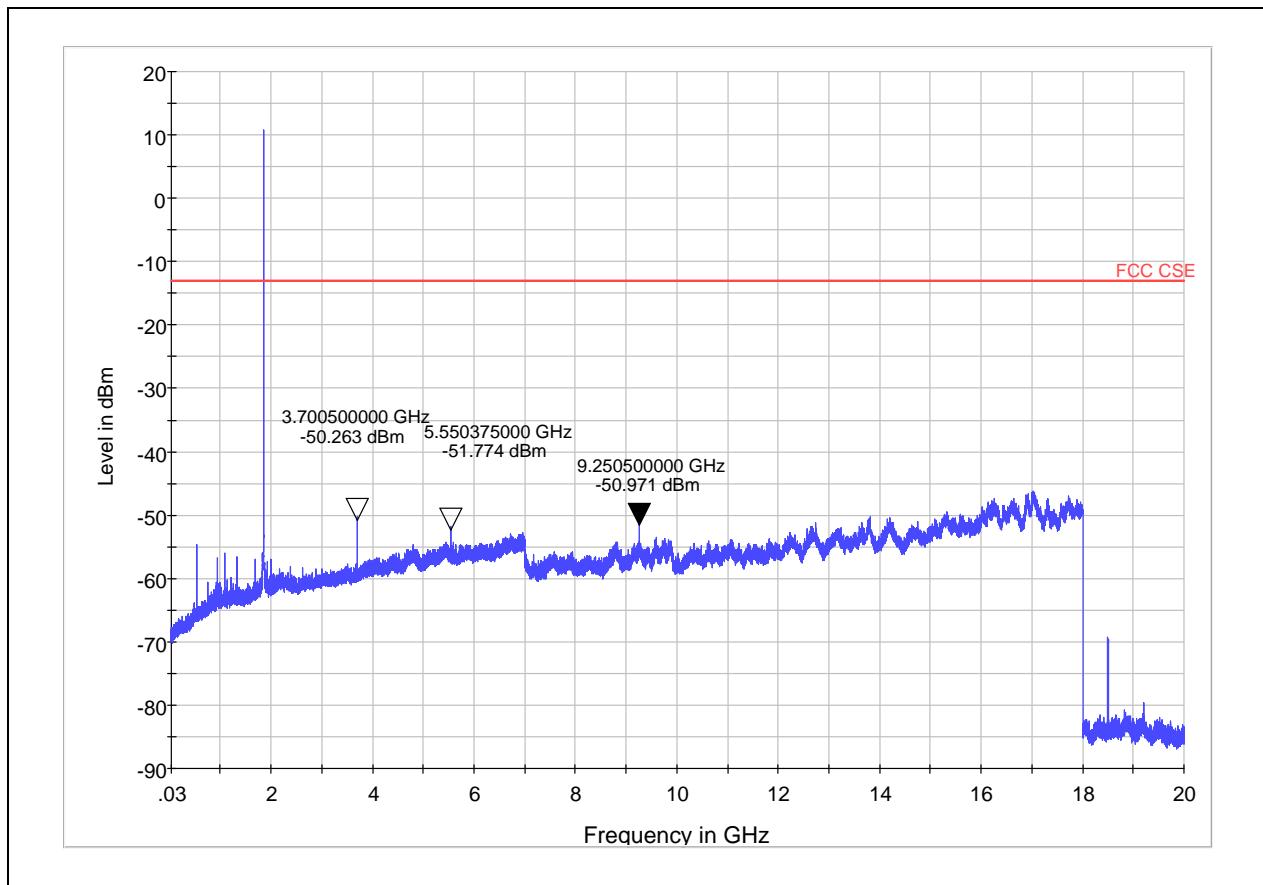
### Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75 % confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency     | Uncertainty |
|---------------|-------------|
| 100kHz-2GHz   | 0.684 dB    |
| 2GHz-12.75GHz | 1.407 dB    |

## Test Result

GSM 1900 GPRS CH 512



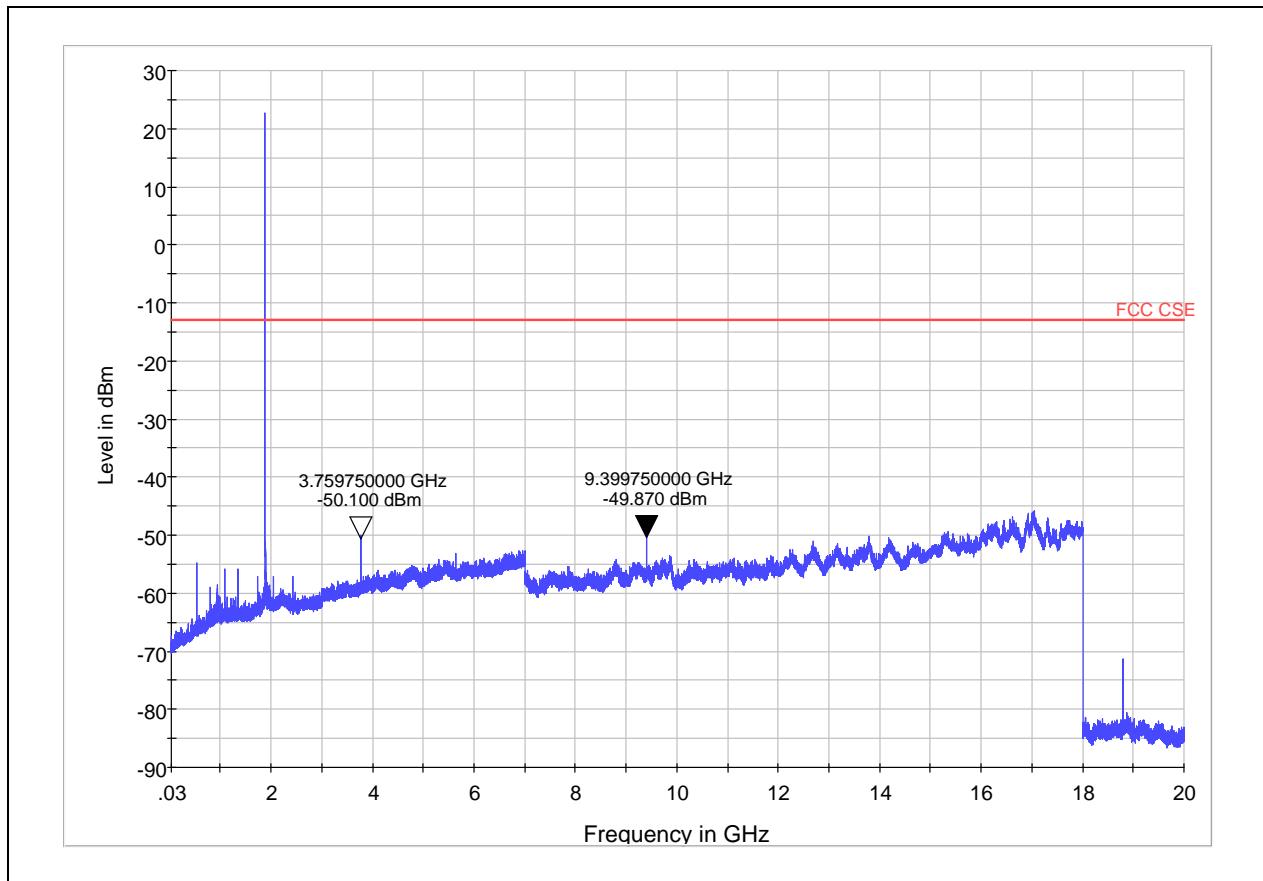
Note: The signal beyond the limit is carrier.  
 GSM 1900 GPRS 512 Channel 30MHz~20GHz

| Harmonic | TX ch.512 Frequency (MHz) | Level (dBm) | Limit (dBm) | Margin (dB) |
|----------|---------------------------|-------------|-------------|-------------|
| 2        | 3700.5                    | -50.263     | -13         | 37.263      |
| 3        | 5550.375                  | -51.774     | -13         | 38.774      |
| 4        | 7400.8                    | Nf          | -13         | /           |
| 5        | 9250.5                    | -50.971     | -13         | 37.971      |
| 6        | 11101.2                   | Nf          | -13         | /           |
| 7        | 12951.4                   | Nf          | -13         | /           |
| 8        | 14801.6                   | Nf          | -13         | /           |
| 9        | 16651.8                   | Nf          | -13         | /           |
| 10       | 18502                     | Nf          | -13         | /           |

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

GSM 1900 GPRS CH 661



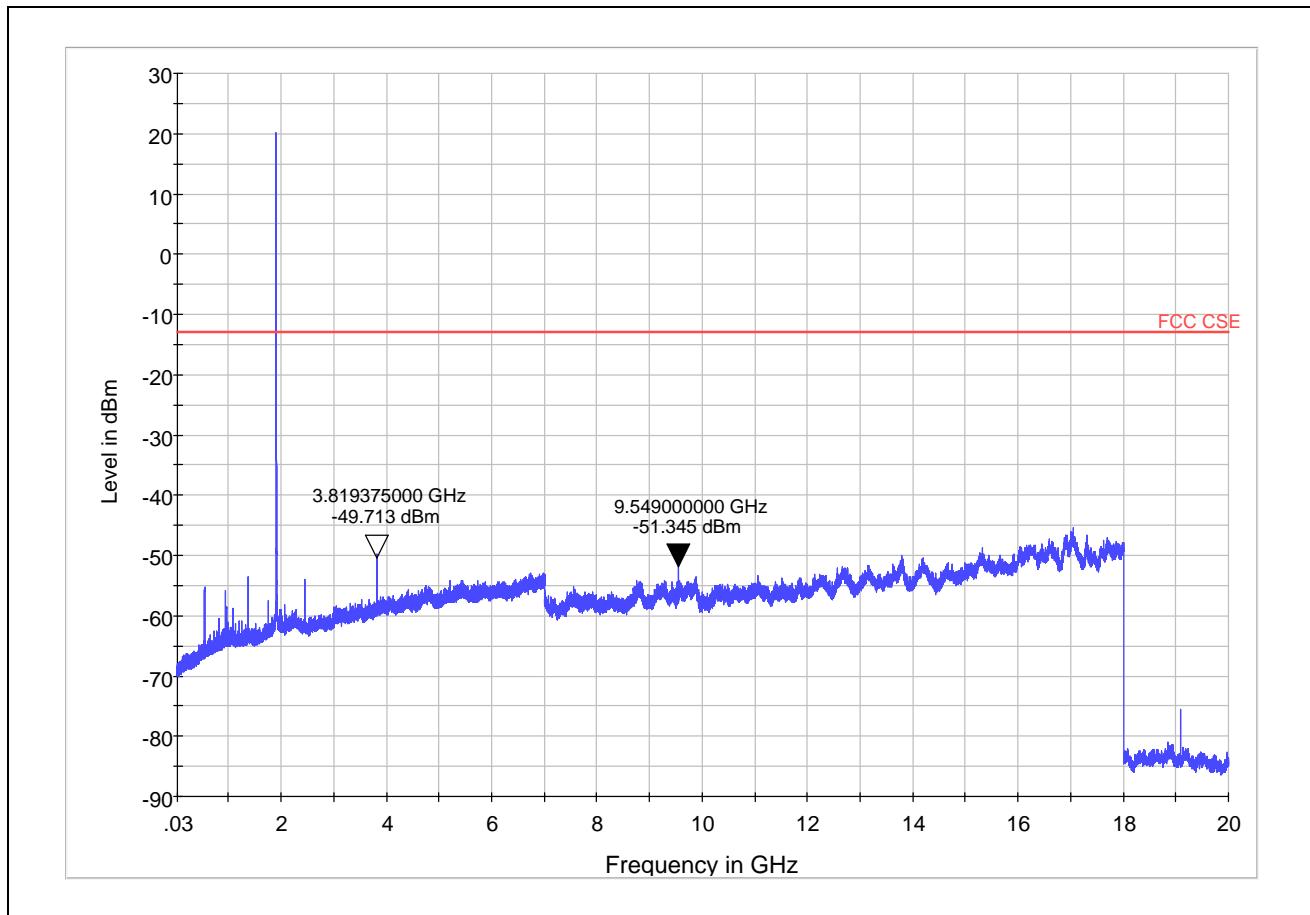
Note: The signal beyond the limit is carrier.  
 GSM 1900 GPRS 661 Channel 30MHz~20GHz

| Harmonic | TX ch.661 Frequency (MHz) | Level (dBm) | Limit (dBm) | Margin (dB) |
|----------|---------------------------|-------------|-------------|-------------|
| 2        | 3759.75                   | -50.10      | -13         | 37.10       |
| 3        | 5640                      | Nf          | -13         | /           |
| 4        | 7520                      | Nf          | -13         | /           |
| 5        | 9399.75                   | -49.87      | -13         | 36.87       |
| 6        | 11280                     | Nf          | -13         | /           |
| 7        | 13160                     | Nf          | -13         | /           |
| 8        | 15040                     | Nf          | -13         | /           |
| 9        | 16920                     | Nf          | -13         | /           |
| 10       | 18800                     | Nf          | -13         | /           |

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

GSM 1900 GPRS CH 810



Note: The signal beyond the limit is carrier.

GSM 1900 GPRS 810 Channel 30MHz~20GHz

| Harmonic | TX ch.810 Frequency (MHz) | Level (dBm) | Limit (dBm) | Margin (dB) |
|----------|---------------------------|-------------|-------------|-------------|
| 2        | 3819.375                  | -49.713     | -13         | 36.713      |
| 3        | 5729.4                    | Nf          | -13         | /           |
| 4        | 7639.2                    | Nf          | -13         | /           |
| 5        | 9549                      | -51.345     | -13         | 38.345      |
| 6        | 11458.8                   | Nf          | -13         | /           |
| 7        | 13368.6                   | Nf          | -13         | /           |
| 8        | 15278.4                   | Nf          | -13         | /           |
| 9        | 17188.2                   | Nf          | -13         | /           |
| 10       | 19098                     | Nf          | -13         | /           |

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

## 2.1. Radiates Spurious Emission

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

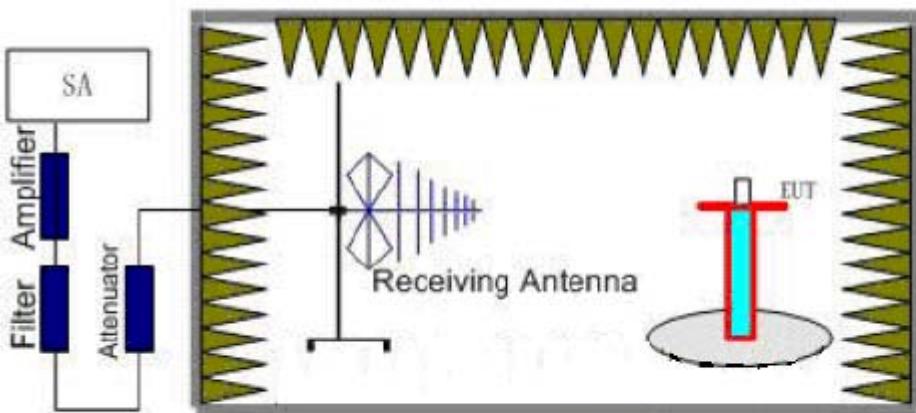
The measurements procedures in TIA -603C are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The procedure of Radiates Spurious Emission is as follows:

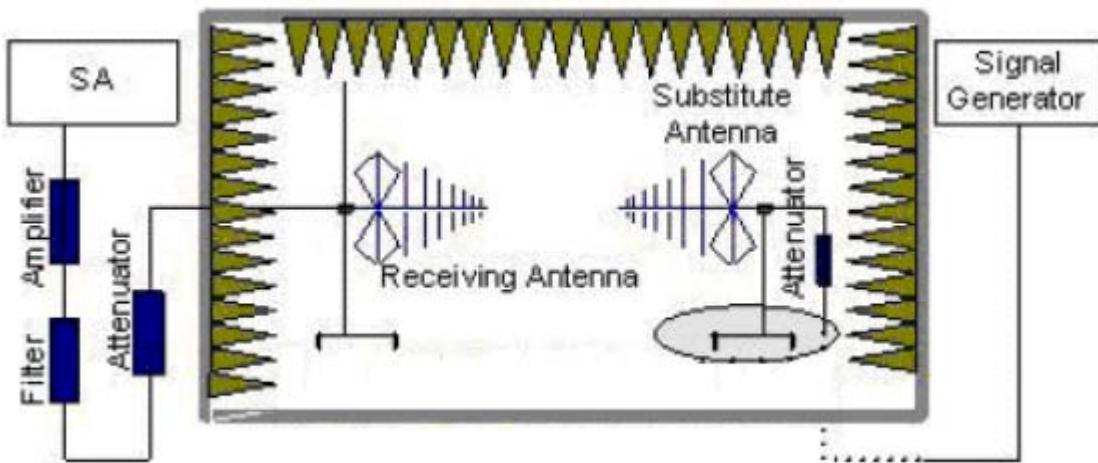
Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 0.8 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL). Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



$$\text{E.R.P (peak power)} = \text{S.G.} - \text{Tx Cable loss} + \text{Substitution antenna gain} - 2.15.$$

$$\text{EIRP} = \text{E.R.P} + 2.15$$

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the antenna is vertical.

### Limits

Rule Part 24.238(a) specifies that "on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB."

|       |         |
|-------|---------|
| Limit | -13 dBm |
|-------|---------|

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ ,  $U = 3.55$  dB.

**Test Result**

GSM 1900 GPRS CH 512

| Harmonic | TX ch.512 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|------------------|-------------|-------------|---------------|
| 2        | 3700.4                    | -39.51   | 16.8            | 11.05      | -45.26           | -13         | 32.26       | 180           |
| 3        | 5550.6                    | -45.11   | 18.1            | 12.65      | -50.56           | -13         | 37.56       | 180           |
| 4        | 7400.8                    | /        | /               | /          | Nf               | -13         | /           | /             |
| 5        | 9251                      | /        | /               | /          | Nf               | -13         | /           | /             |
| 6        | 11101.2                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 7        | 12951.4                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 8        | 14801.6                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 9        | 16651.8                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 10       | 18502                     | /        | /               | /          | Nf               | -13         | /           | /             |

Nf: noise floor

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

**TA Technology (Shanghai) Co., Ltd.****Test Report**

Registration Num:428261

Report No.: RZA1108-1392RF02

Page 28 of 32

GSM 1900 GPRS CH 661

| Harmonic | TX ch.661 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|------------------|-------------|-------------|---------------|
| 2        | 3760                      | -32.81   | 17.1            | 11.07      | -38.84           | -13         | 25.84       | 180           |
| 3        | 5640                      | /        | /               | /          | Nf               | -13         | /           | /             |
| 4        | 7520                      | /        | /               | /          | Nf               | -13         | /           | /             |
| 5        | 9400                      | /        | /               | /          | Nf               | -13         | /           | /             |
| 6        | 11280                     | /        | /               | /          | Nf               | -13         | /           | /             |
| 7        | 13160                     | /        | /               | /          | Nf               | -13         | /           | /             |
| 8        | 15040                     | /        | /               | /          | Nf               | -13         | /           | /             |
| 9        | 16920                     | /        | /               | /          | Nf               | -13         | /           | /             |
| 10       | 18800                     | /        | /               | /          | Nf               | -13         | /           | /             |

Nf: noise floor

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

**TA Technology (Shanghai) Co., Ltd.****Test Report**

Registration Num:428261

Report No.: RZA1108-1392RF02

Page 29 of 32

GSM 1900 GPRS CH 810

| Harmonic | TX ch.810 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|------------------|-------------|-------------|---------------|
| 2        | 3819.6                    | -32.54   | 18.1            | 12.07      | -38.57           | -13         | 25.57       | 180           |
| 3        | 5729.4                    | /        | /               | /          | Nf               | -13         | /           | /             |
| 4        | 7639.2                    | /        | /               | /          | Nf               | -13         | /           | /             |
| 5        | 9549                      | /        | /               | /          | Nf               | -13         | /           | /             |
| 6        | 11458.8                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 7        | 13368.6                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 8        | 15278.4                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 9        | 17188.2                   | /        | /               | /          | Nf               | -13         | /           | /             |
| 10       | 19098                     | /        | /               | /          | Nf               | -13         | /           | /             |

Nf: noise floor

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

### 3. Main Test Instruments

| No. | Name                                 | Type         | Manufacturer | Serial Number | Calibration Date | Valid Period |
|-----|--------------------------------------|--------------|--------------|---------------|------------------|--------------|
| 01  | Power Splitter                       | SHX-GF2-2-13 | Hua Xiang    | 10120101      | NA               | NA           |
| 02  | Spectrum Analyzer                    | E4445A       | Agilent      | MY46181146    | 2011-06-07       | One year     |
| 03  | Universal Radio Communication Tester | E5515C       | Agilent      | MY48367192    | 2011-06-03       | One year     |
| 04  | Signal Analyzer                      | FSV          | R&S          | 100815        | 2011-06-27       | One year     |
| 05  | Signal generator                     | SMR27        | R&S          | 1606.6000.02  | 2011-06-27       | One year     |
| 06  | EMI Test Receiver                    | ESCI         | R&S          | 100948        | 2011-06-30       | One year     |
| 07  | Trilog Antenna                       | VUBL 9163    | SCHWARZB ECK | 9163-201      | 2010-06-29       | Two years    |
| 08  | Horn Antenna                         | HF907        | R&S          | 100126        | 2011-07-01       | Two years    |
| 09  | Climatic Chamber                     | PT-30B       | Re Ce        | 20101891      | 2010-09-10       | Three years  |
| 10  | Semi-Anechoic Chamber                | 9.6*6.7*6.6m | ETS-Lindgren | NA            | NA               | NA           |
| 11  | EMI test software                    | ES-K1        | R&S          | NA            | NA               | NA           |

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