



# TEST REPORT

No. 2009TAR049

for

**ZTE CORPORATION**

**GSM Dual-band GPRS Digital Mobile Phone**

**Type: ZTE-G R230**

with

**Hardware Version: g6yB**

**Software Version: CE-CN-ZTE8-P103D2V1.0.0**

**Issued Date: Apr 28th, 2009**

**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 TMC Beijing.

**Test Laboratory:**

***DAR accreditation (DIN EN ISO/IEC 17025): No. DAT-P-114/01-01***

***FCC 2.948 Listed: No.733176***

***IC O.A.T.S listed: No.6629A-1***

TMC Beijing, Telecommunication Metrology Center of Ministry of Information Industry

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100083.

Tel:+86(0)10-62303288-2105, Fax:+86(0)10-62304793 Email:welcome@emcite.com. www.emcite.com

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## 1. Test Laboratory

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MII  
Address: No 52, Huayuan beilu, Haidian District, Beijing,P.R.China  
Postal Code: 100083  
Telephone: 00861062303288  
Fax: 00861062304793

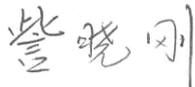
### 1.2. Testing Environment

Normal Temperature: 15-35℃  
Relative Humidity: 20-75%

### 1.3. Project data

Testing Start Date: Apr 15th, 2009  
Testing End Date: Apr 15th, 2009

### 1.4. Signature



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**Zi Xiaogang**  
**(Prepared this test report)**



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**Sun Xiangqian**  
**(Reviewed this test report)**



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**Lu Bingsong**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: ZTE Corporation  
Address /Post: #68 Zijin Hua Road, Nanjing, Jiangsu Province, China  
City: Nanjing  
Postal Code: /  
Country: China  
Telephone: +8613770921232  
Fax: /

### **2.2. Manufacturer Information**

Company Name: ZTE Corporation  
Address /Post: #68 Zijin Hua Road, Nanjing, Jiangsu Province, China  
City: Nanjing  
Postal Code: /  
Country: China  
Telephone: +8613770921232  
Fax: /

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

#### **3.1. About EUT**

|              |   |
|--------------|---|
| Description  | GSM Dual-band GPRS Digital Mobile Phone |
| Model Name   | ZTE-G R230                              |
| FCC ID       | Q78-GR230                               |
| Power supply | Battery or Charger (AC Adaptor)         |

Note: Photographs of EUT are shown in ANNEX A of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MII of People's Republic of China.

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

| EUT ID* | SN or IMEI      | HW Version | SW Version              |
|---------|-----------------|------------|-------------------------|
| N04     | 352173030001613 | g6yB       | CE-CN-ZTE8-P103D2V1.0.0 |

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

| AE ID* | Description    | SN |
|--------|----------------|----|
| AE1    | Battery        | /  |
| AE2    | Travel Adapter | /  |
| AE3    | Headset        | /  |

AE1

|                 |                    |
|-----------------|--------------------|
| Model           | Li3707T42P3h463548 |
| Manufacturer    | ZTE Corporation    |
| Capacitance     | 720mAh             |
| Nominal Voltage | 3.7V               |

AE2

|                   |  |
|-------------------|--|
| Model             | STC-A22O50U8-C                               |
| Manufacturer      | Shenzhen Ruide Electronic Industrial Co.,Ltd |
| Length of DC line | 180cm  |

AE3

|                   |                 |
|-------------------|-----------------|
| Model             | HMZ1-U8         |
| Manufacturer      | ZTE Corporation |
| Length of DC line | 150cm           |

\*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 15, Subpart B | Radio frequency devices  | V 10.1.07 |
| ANSI C63.4             | Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2003      |

## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

|                                   |   |
|-----------------------------------|---|
| Temperature                       | Min. = 15 °C, Max. = 30 °C                    |
| Relative humidity                 | Min. = 30 %, Max. = 60 %                      |
| Shielding effectiveness           | > 110 dB                                      |
| Electrical insulation             | > 10 kΩ                                       |
| Ground system resistance          | < 0.5 Ω                                       |
| Normalised site attenuation (NSA) | < ±3.2 dB, 10 m distance, from 30 to 1000 MHz |
| Uniformity of field strength      | Between 0 and 6 dB, from 80 to 2000 MHz       |

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

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. =30 %, Max. = 60 %    |
| Shielding effectiveness  | > 110 dB                   |
| Electrical insulation    | > 10 kΩ                    |
| Ground system resistance | < 0.5 Ω                    |

**Conducted chamber** did not exceed following limits along the EMC testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 30 °C |
| Relative humidity        | Min. = 30 %, Max. = 60 %   |
| Shielding effectiveness  | > 110 dB                   |
| Electrical insulation    | > 10 kΩ                    |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber** (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

|                              |   |
|------------------------------|---|
| Temperature                  | Min. = 15 °C, Max. = 30 °C              |
| Relative humidity            | Min. = 30 %, Max. = 60 %                |
| Shielding effectiveness      | > 110 dB                                |
| Electrical insulation        | > 10 kΩ                                 |
| Ground system resistance     | < 0.5 Ω                                 |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 2000 MHz |

## 6. SUMMARY OF TEST RESULTS

| Abbreviations used in this clause: |                |
|------------------------------------|----------------|
| P                                  | Pass           |
| NA                                 | Not applicable |
| F                                  | Fail           |

| Clause | List               | Clause in FCC rules | Verdict |
|--------|--------------------|---------------------|---------|
| 1      | Radiated Emission  | 15.109(a)           | P       |
| 2      | Conducted Emission | 15.107(a)           | P       |

## 7. Test Equipments Utilized

| NO. | Description                          | TYPE    | SERIES NUMBER | MANUFACTURER | CAL DUE DATE |
|-----|--------------------------------------|---------|---------------|--------------|--------------|
| 1   | Test Receiver                        | ESS     | 847151/015    | R&S          | 2009-10-30   |
| 2   | Test Receiver                        | ESI40   | 831564/002    | R&S          | 2010-2-11    |
| 3   | BiLog Antenna                        | 3142B   | 9908-1403     | EMCO         | 2010-1-16    |
| 4   | BiLog Antenna                        | VUL9163 | 9163 175      | Schwarzbeck  | 2009-9-19    |
| 5   | Signal Generator                     | SMT06   | 831285/005    | R&S          | 2009-12-26   |
| 6   | Signal Generator                     | SMP04   | 100070        | R&S          | 2010-4-20    |
| 7   | LISN                                 | ESH2-Z5 | 829991/012    | R&S          | 2009-9-13    |
| 8   | Spectrum Analyzer                    | FSU26   | 200030        | R&S          | 2009-6-18    |
| 9   | Universal Radio Communication Tester | CMU200  | 100680        | R&S          | 2009-8-23    |
| 10  | Dual-Ridge Waveguide Horn Antenna    | 3115    | 9906-5827     | EMCO         | 2010-3       |
| 11  | Dual-Ridge Waveguide Horn Antenna    | 3116    | 2663          | EMCO         | 2010-3       |
| 12  | Dual-Ridge Waveguide Horn Antenna    | 3116    | 2661          | EMCO         | 2010-3       |
| 13  | Climatic chamber                     | SH-241  | 92003546      | ESPEC        | 2009-5-15    |

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 Radiated Emission (§15.109(a))**

#### **A.1.1 Method of measurement**

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 – 2003, section 8.3. The test set-up please refers to Annex C.1.

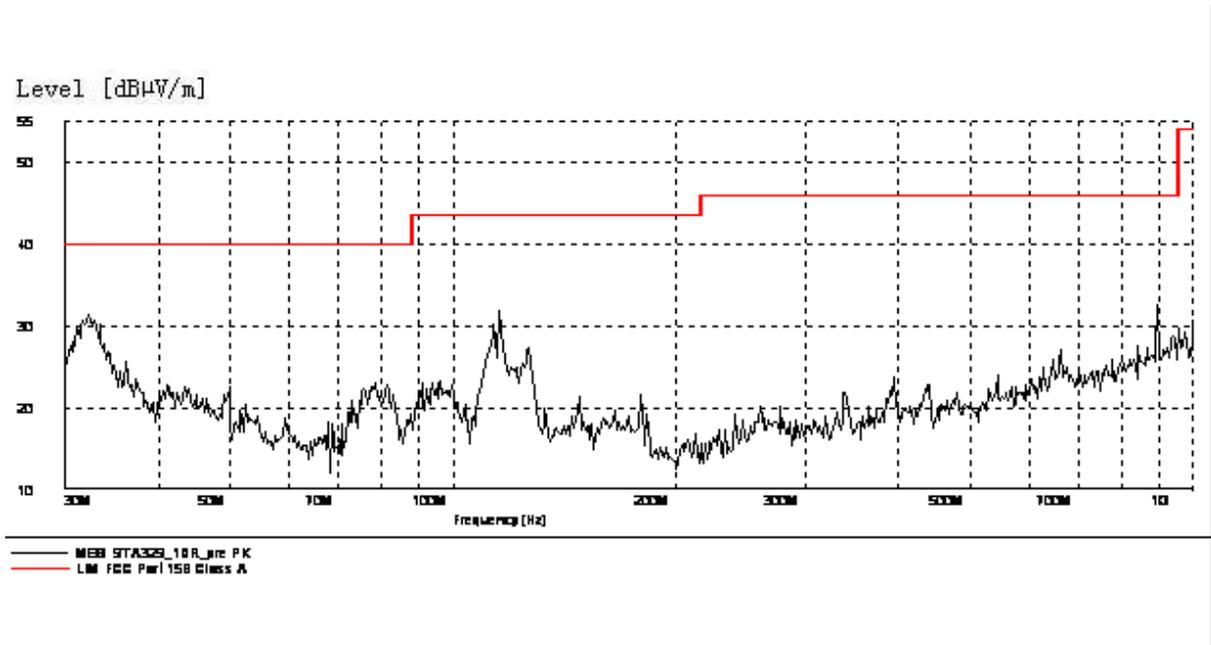
#### **A.1.2 EUT Operating Mode:**

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

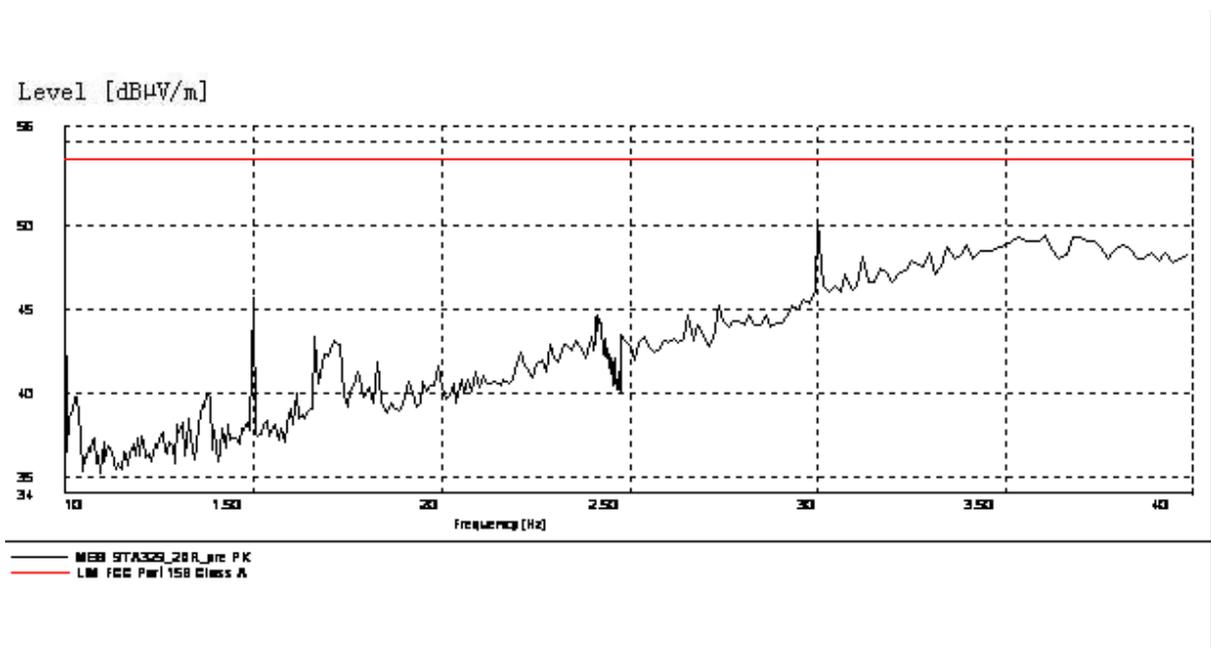
#### **A.1.3 Measurement Limit**

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88                       | 100                               |
| 88-216                      | 150                               |
| 216-960                     | 200                               |
| Above 960                   | 500                               |

**A.1.4 Measurement Results**  
**USB Mode**



**Figure A.1 Radiated Emission from 30MHz to 1GHz**



**Figure A.2 Radiated Emission from 1GHz to 4GHz**

## A.2 Conducted Emission (§15.107(a))

### A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2003, section 7.2. The test set-up please refers to Annex C.2.

### A.2.2 EUT Operating Mode:

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

### A.2.3 Measurement Limit

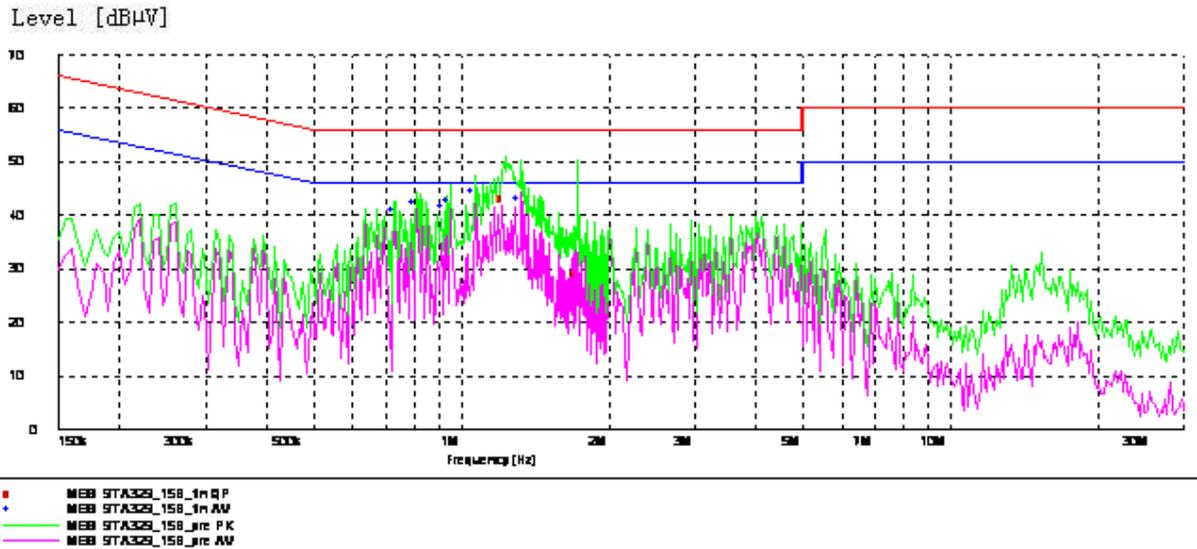
| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | Quasi-peak                   | Average   |
| 0.15-0.5                    | 66 to 56*                    | 56 to 46* |
| 0.5-5                       | 56                           | 46        |
| 5-30                        | 60                           | 50        |

\*Decreases with the logarithm of the frequency

### A.2.4 Test Condition in charging mode

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 110         | 60             |

**A.2.4 Measurement Results**  
**USB Mode**



**Figure A.3 Conducted Emission**

**MEASUREMENT RESULT: "9TA329\_15B\_fin QP"**

| Frequency<br>MHz | Level<br>dBµV | Transd<br>dB | Limit<br>dBµV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 1.225000         | 43.20         | 10.1         | 56            | 12.8         | N    | FLO |
| 1.730000         | 28.90         | 10.1         | 56            | 27.1         | L1   | FLO |

**MEASUREMENT RESULT: "9TA329\_15B\_fin AV"**

| Frequency<br>MHz | Level<br>dBµV | Transd<br>dB | Limit<br>dBµV | Margin<br>dB | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.735000         | 41.10         | 10.1         | 46            | 4.9          | N    | FLO |
| 0.810000         | 42.50         | 10.1         | 46            | 3.5          | N    | FLO |
| 0.930000         | 41.80         | 10.1         | 46            | 4.2          | N    | FLO |
| 0.950000         | 42.70         | 10.1         | 46            | 3.3          | L1   | FLO |
| 1.070000         | 44.40         | 10.1         | 46            | 1.6          | L1   | FLO |
| 1.325000         | 43.30         | 10.1         | 46            | 2.7          | L1   | FLO |

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