

# TEST REPORT

REPORT NUMBER: 108GE5250-FCC-EMC

## ON

Type of Equipment: GSM Dual-Band Digital Mobile Phone

Type of Designation: ZTE A711G

Manufacturer:

ZTE CORPORATION

### ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS; e-CFR, March 23, 2006 PART 22, PUBLIC MOBILE SERVICES (Oct 1, 02 Edition) PART 24, PERSONAL COMMUNICATIONS SERVICES (Oct 1, 97 Edition)

China Telecommunication Technology Labs.

Month date, year July, 16, 2008

Signature

He Guili Director



FCC ID: Q78-ZTEA711G

**Report Date:** 2008-07-16

**Test Firm Name:** China Telecommunication Technology Labs

**Registration Number:** 840587

#### Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, and 24. The sample tested was found to comply with the requirements defined in the applied rules.



# REPORT NO.: 108GE5250-FCC-EMC

# **CONTENTS**

| 1 GENERAL INFORMATION                              | 4  |
|--|----|
| 1.1 Notes  |    |
| 1.3 TESTING LABORATORY INFORMATION                 |    |
| 2 TEST ITEM  | 8  |
| 2.1 GENERAL INFORMATION                            | O  |
| 2.4 EQUIPMENT CONFIGURATION                        | 8  |
| 3 SUMMARY OF TEST RESULTS                          | 10 |
| 4 TEST RESULTS OF MODE                             | 11 |
| 4.1 RADIATED SPURIOUS EMISSION                     | 17 |
| 4.4 Frequency Stability over Temperature Variation |    |
| 4.5 FREQUENCY STABILITY OVER VOLTAGE VARIATION     |    |
| 4.6 CONDUCTED RF POWER OUTPUT                      | 30 |
| 4.8 BAND EDGE                                      | 33 |
| ANNEX A EXTERNAL PHOTOS                            | 37 |
| ANNEX B INTERNAL PHOTOS                            | 40 |
| ANNEX C DEVIATIONS FROM PRESCRIBED TEST METHODS    | 45 |



### 1 General Information

#### 1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22 and 24.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

China Telecommunication Technology Labs. (CTTL) authorizes the applicant or manufacturer (see section 1.4) to reproduce this report provided, and the test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CTTL Mr. He Guili.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. CTTL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



REPORT NO.: 108GE5250-FCC-EMC

### 1.2 Testers

Name:

Lv Ke

Position:

Engineer

Department:

Department of EMC test

Signature:

Name:

Yuan Yuan

Position:

Engineer

Department:

Department of EMC test

Signature:

Name:

Li Dongjin

Position:

Engineer

Department:

Department of EMC test

Signature:

当

Editor of this test report:

Name:

Li Guoging

Position:

Engineer

Department:

Department of EMC test

Date:

2008-07-16

Signature:

本国本

Technical responsibility for area of testing:

Name:

Zou Dongyi

Position:

Manager

Department:

Department of EMC test

Date:

2008-07-16

Signature:

60 1 19



# 1.3 Testing Laboratory information

#### 1.3.1 Location

Name: China Telecommunication Technology Labs.

Address: No. 11, Yue Tan Nan Jie, Xi Cheng District

**BEIJING** 

P. R. CHINA, 100083

Tel: +86 10 68094053

Fax: +86 10 68011404

Email: <a href="mailto:emc@chinattl.com">emc@chinattl.com</a>

#### 1.3.2 Details of accreditation status

Accredited by: China National Accreditation Service for Conformity

Assessment (CNAS)

Registration number: CNAS Registration No. CNAS L0570

Standard: ISO/IEC 17025: 2005

### 1.3.3 Test location, where different from section 1.3.1

Name: -----

Street:

City: -----

Country: -----

Telephone: -----

Fax: -----

Postcode: -----



# 1.4 Details of applicant or manufacturer

| 1.4.1 Applica | nt |
|---------------|----|
|---------------|----|

Name: ZTE CORPORATION

Address: ZTE Plaza, Keji Road South, Hi-Tech Industrial

Park, Nanshan District, Shenzhen, Guangdong,

518057, P.R.China

Country: China

Telephone: +86-021-68896840

Fax: +86-21-50701080

Contact: Zhangmin

Telephone: 021-68896835

Email: Zhang.min13@zte.com.cn

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name:

Address:

1.4.3 Manufactory (if different from applicant in section 1.4.1)

Name: --

Address: --



# 2 Test Item

### 2.1 General Information

Manufacturer: ZTE CORPORATION

Name: GSM Dual-Band Digital Mobile Phone

Model Number: ZTE A711G

Serial Number: --

Production Status: Product
Receipt date of test item: 2008-05-19

### 2.2 Outline of EUT

E.U.T. is a GSM Dual-Band Digital Mobile Device.

# 2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

# 2.4 Equipment Configuration

Equipment configuration list:

| Item | Generic     | Manufacturer              | Туре              | Serial No. | Remark |
|------|-------------|---------------------------|-------------------|------------|--------|
| Item | Description | Wandacturer               | Турс              | Scriai No. | s      |
| Α    | handset     | ZTE CORPORATION           | ZTE A711G         |            | None   |
|      | 4           | Shenzhen Ruide            | STC-A22050U8      |            |        |
| В    | adapter     | Electronic Industrial     | -A                |            | None   |
| 4    |             | Co.,Ltd                   | -A                |            |        |
|      | battery     | CosLight/Ruide/BYD/Li     | Li3707T42P3h4     |            | None   |
| 6    | battery     | shen                      | 63848             |            | None   |
| D    | Headset     | Full-Sound (Dongguan)     | LIM <b>71</b> LIO |            | None   |
| D    | Heauset     | Electrical Products Ltd . | HMZ1-U8           |            | None   |

#### Cables:

| Item | Cable Type  | Manufacturer       | Length | Shield | Quantity | Remarks |
|------|-------------|--------------------|--------|--------|----------|---------|
| 1    | DC cable on | Unknown            | 1.0 m  | No     | 1        | None    |
|      | Adapter     | <b>3</b> 111111111 |        |        |          |         |



### 2.5 Other Information

(a) Modulation is GMSK.

(b) Emission Designator is 246KGXW.

(c) Version of hardware and software

HW Version: g3xA

SW Version: EP-BR-P108D2 (G) V1.0.0B08

(d) Adaptor information:

Input: 100-240VAC 50-60Hz 200mA

Output: 5.0V 700mA

(e) Battery information:

3.7VDC 720mA



# 3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

| GPRS mode:            |  |         |
|-----------------------|--|---------|
| Specification Clause  | Name of Test                               | Result  |
| 2.1051, 24.238,       | Radiated Spurious Emission                 | Pass    |
| 2.1053,22.917         | radiated oparious Emission                 | 1 433   |
| 2.1046,24.232         | Radiated RF Power Output                   | Pass    |
| 22.913(a)             | Effective Radiated Power (ERP)             | Pass    |
| 2.1049,22.917(b),     | Occupied Bandwidth                         | *Note 1 |
| 24.238(b)             | Occupied Baridwidth                        | Note i  |
| 2.1055,22.355,        | Frequency Stability over Temperature       | Pass    |
| 24.235                | Variation                                  | газз    |
| 2.1055,22.355,        | Frequency Stability over Voltage Variation | Pass    |
| 24.235                | Trequency Stability over voltage variation | F 433   |
| 2.1046,22.913(a),     | Conducted RF Power Output                  | Pass    |
| 24.232(c)             | Conducted Ki Fower Output                  | F d 3 3 |
| 2.1051,22.917,24.     | Conducted spurious emissions               | Pass    |
| 238                   | Conducted spundas emissions                | F (135) |
| Note 1: No applicable | e performance criteria.                    |         |



REPORT NO.: 108GE5250-FCC-EMC

# 4 Test Results of mode

### 4.1 Radiated Spurious Emission

| Specifi              | cations:          | 2.1051, 24.238, 2.1053, 22.917      |                            |               |            |        |
|----------------------|-------------------|-------------------------------------|----------------------------|---------------|------------|--------|
| Date o               | f Tests           | 2008-07-0                           | 2008-07-04,2008-07-11      |               |            |        |
| Test co              | onditions:        | Ambient Temperature: 15℃-35℃        |                            |               |            |        |
|                      |                   | Relative Hu                         | Relative Humidity: 30%-60% |               |            |        |
|                      |                   | Air pressure: 86-106kPa             |                            |               |            |        |
| Operat               | ion Mode          | TX on, channel 190 and 661 for GPRS |                            |               |            |        |
| Test Re              | esults:           | Pass                                |                            |               |            |        |
| Test equipment Used: |                   |                                     | )                          |               |            |        |
| Asset                | Description       |                                     |                            |               | Chaha      |        |
| Number               | Description       | Manufacturer                        | Model Number               | Serial Number | Cal Due    | State  |
| 7805                 | EMI Test Receiver | R/S                                 | ESI26                      | 100211        | 2009-01-03 | Normal |
| 7330                 | Ultra Broadband   | R/S                                 | HL562                      | 100013        | 2008-07-24 | Normal |

HF906

11.8m×6.5m×6.3

8960(E5515C)

CMU200

100037

GB41450323

1100000802

2009-01-14

2010-11-17

2009-06-13

Normal

Normal

Normal

Normal

# **Limit Level Construction:**

Double-Ridged

Horn Antenna

Fully-Anechoic

Chamber Wireless

Communications

Test Set Wireless

Communications

Test Set

7330

713

023

111835

R/S

**ETS** 

Agilent

R&S

According to Part 24.238 (a), i.e., Out of band emissions. 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  $43 + 10 \log(P) dB$ , so the limit level is:  $P(dBm) - (43 + 10 \log(P)) dB = -13dBm$ 

| Limits for Radiated spurious emissions (UE)       |             |  |
|---|-------------|--|
| Frequency range Limit Level /Resolution Bandwidth |             |  |
| 30 MHz to 20000 MHz                               | -13dBm/1MHz |  |

### **Test Setup:**

The EUT was placed in an anechoic chamber, see figure SP. The Wireless Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns. The test was done using an automated test system, where all test equipments were controlled by a computer.



REPORT NO.: 108GE5250-FCC-EMC



Figure SP

#### **Test Method:**

The measurement was performed accordance with section 2.2.12 of ANSI/TIA-603-B-2002: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

- 1 The maximum spurious emissions were searched by turning the azimuth of the turntable, shifting the polarization of the measuring antenna and changing the pose of the EUT.
- 2 Levels of EUT's transmitter harmonics and suspicious signals were recorded.
- 3 The recorded levels were corrected in the automated test system with the correction factors given by a substitution calibration made before the measurement. The calibration was made separately for vertical and horizontal polarization and the system uses different correction factors depending on the measuring antenna polarization.
- 4 The corrected values of radiated spurious emissions indicated as EIRP are reported.

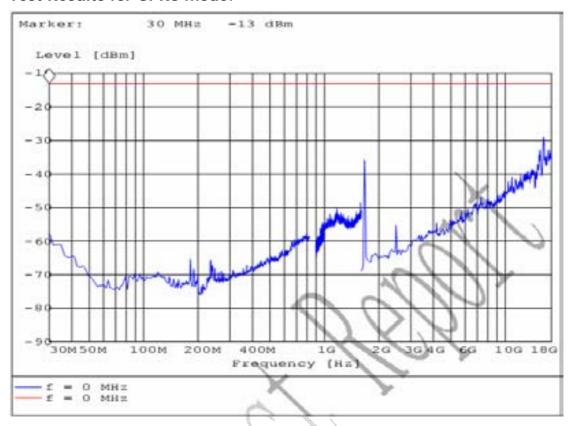
#### Note:

- 1 The investigated ARFCNs are 190 (836.6 MHz) and 661 (1880.0 MHz).
- 2 The investigated frequency range is 30 MHz ~ 18 GHz.

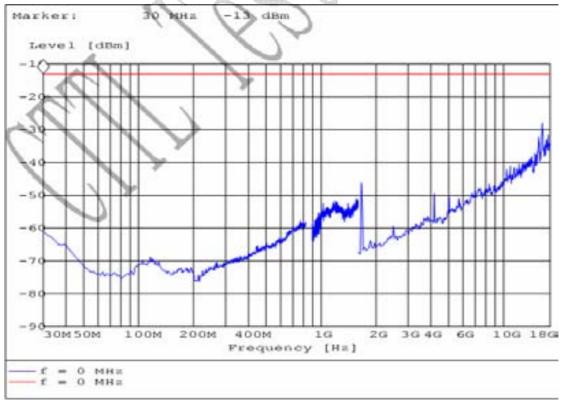


REPORT NO.: 108GE5250-FCC-EMC

### Test Results for GPRS mode:



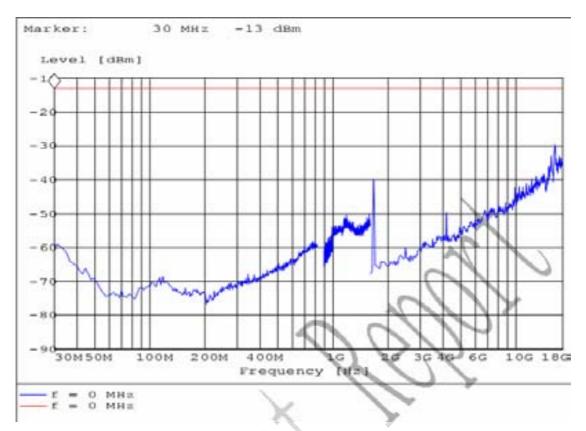
### S190VF for GPRS mode



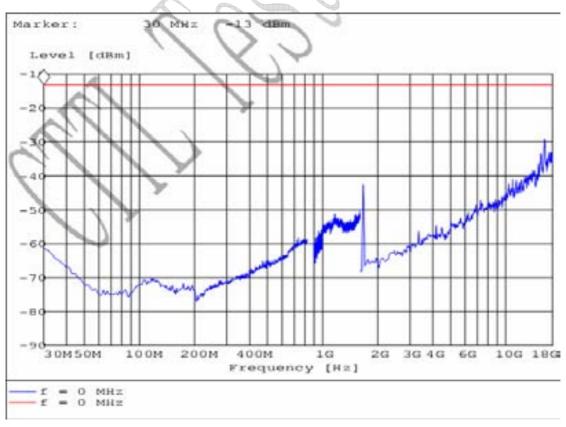
S190HF for GPRS mode



REPORT NO.: 108GE5250-FCC-EMC



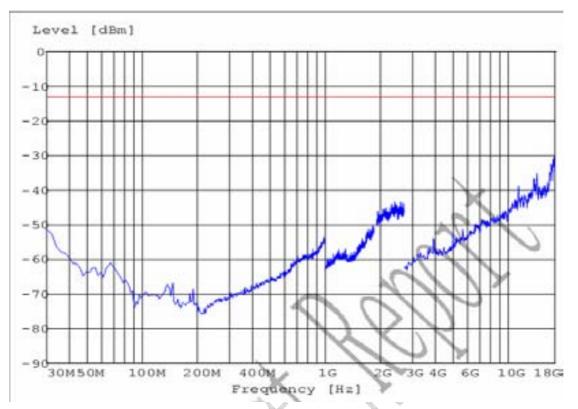
### S190VT for GPRS mode



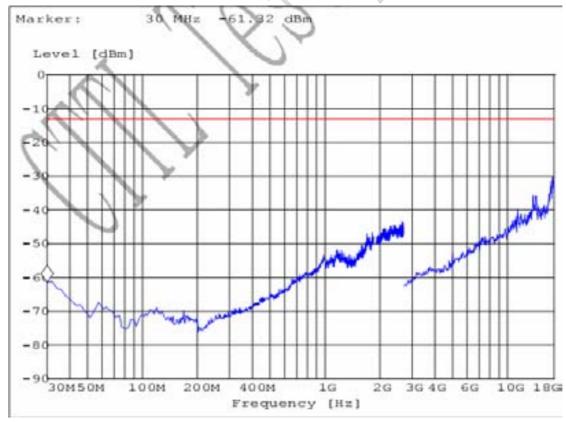
S190HT for GPRS mode



REPORT NO.: 108GE5250-FCC-EMC



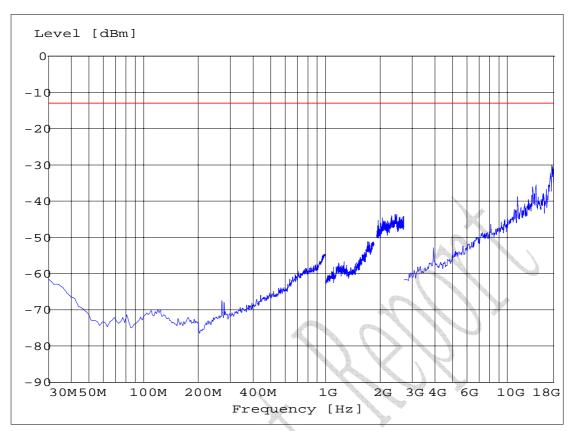
### S661VF for GPRS mode



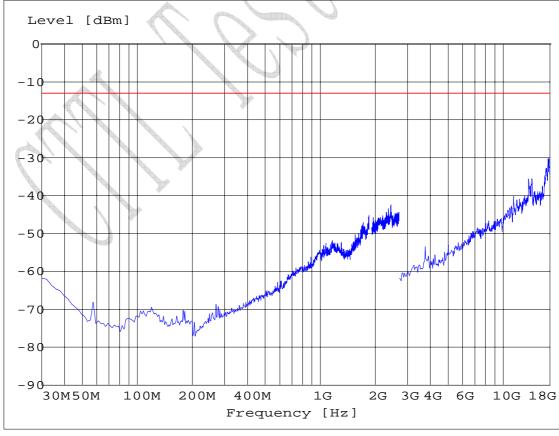
S661HF for GPRS mode



REPORT NO.: 108GE5250-FCC-EMC



### S661VT for GPRS mode



### S661HT for GPRS mode



REPORT NO.: 108GE5250-FCC-EMC

# 4.2 Radiated RF Power Output and ERP

| Specifications:  | 2.1046,24.232,22.913(a)                        |  |  |
|------------------|--|--|--|
| Date of Tests    | 2008-07-07                                     |  |  |
| Test conditions: | Ambient Temperature: 15°C-35°C                 |  |  |
|                  | Relative Humidity: 30%-60%                     |  |  |
|                  | Air pressure: 86-106kPa                        |  |  |
| Operation Mode   | TX on, channel 128, 190, 251, 512, 661 and 810 |  |  |
| Test Results:    | Pass   |  |  |
|                  |  |  |  |

### Test equipment Used:

|                 | rest equipment essu.                   |              |                     |               |            |        |
|-----------------|--|--------------|---------------------|---------------|------------|--------|
| Asset<br>Number | Description                            | Manufacturer | Model Number        | Serial Number | Cal Due    | State  |
| 7805            | EMI Test Receiver                      | R/S          | ESI26               | 100211        | 2009-01-04 | Normal |
| 7330            | Ultra Broadband<br>Antenna             | R/S          | HL562               | 100013        | 2008-07-24 | Normal |
| 7330            | Double-Ridged<br>Horn Antenna          | R/S          | HF906               | 100037        | 2009-01-14 | Normal |
| 713             | Fully-Anechoic<br>Chamber              | ETS          | 11.8m×6.5m×6<br>.3m |               | 2010-11-17 | Normal |
| 023             | Wireless<br>Communications<br>Test Set | Agilent      | 8960(E5515C)        | GB41450323    | 2009-06-13 | Normal |
| 111835          | Wireless<br>Communications<br>Test Set | R&S          | CMU200              | 1100000802    |            | Normal |

### **Limit Level Construction:**

(a) Radiated RF Power Output

According to Part 24.232(b), i.e., Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications, so the limit level is 2 W or 33 dBm.

(b) ERP

According to Part 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

| Limits for Radiated RF Power Output                     |                   |  |  |
|---|-------------------|--|--|
| Frequency range Limit Level (EIRP)/Resolution Bandwidth |                   |  |  |
| TX channel  | 33dBm/1MHz        |  |  |
| Limits for ERP  |                   |  |  |
| Frequency range   | Limit Level (ERP) |  |  |
| TX channel  | 7W                |  |  |



REPORT NO.: 108GE5250-FCC-EMC

FCC Parts 2, 22, 24 Equipment: ZTE A711G

# Test Setup:

The EUT was set in an anechoic chamber, which is connected to the Wireless Communications Test Set located outside the chamber over the air. The test was done using an automated test system, where all test equipments were controlled by a computer.

### Test Method

The measurement was performed accordance with section 2.2.17 of ANSI/TIA-603-B-2002: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

- 1 The maximum power was searched by turning the azimuth of the turntable, shifting the polarization of the measuring antenna and changing the pose of the EUT.
- 2 The measured levels are EIRP values corrected in the automated test system with the correction factors given by a substitution calibration made before the measurement. The calibration is made separately for vertical and horizontal polarization and the system uses different correction factors depending on the measuring antenna polarization.
- 3 The corrected maximum levels were reported for EIRP values, and ERP values can be calculated from EIRP values.

#### Note:

ERP dBm = EIRP dBm - 2.15dB.

# ERP Value for GPRS 850 band mode:

| ARFCN | Frequency | ERP   |
|-------|-----------|-------|
| ARFON | [MHz]     | [dBm] |
| 128   | 824.128   | 22.72 |
| 190   | 836.653   | 26.71 |
| 251   | 848.877   | 22.68 |

# EIRP Value for GPRS 1900 band mode:

| ARFCN | Frequency<br>[MHz] | EIRP<br>[dBm] |
|-------|--------------------|---------------|
| 512   | 1850.060           | 24.71         |
| 661   | 1879.919           | 24.95         |
| 810   | 1909.819           | 25.01         |



REPORT NO.: 108GE5250-FCC-EMC

# 4.3 Occupied bandwidth

| Specifications:     | 2.1049,22.917(b),24.238(b)                     |  |  |
|---------------------|--|--|--|
| Date of Test        | 2008-07-11                                     |  |  |
| Test conditions:    | Ambient Temperature: 15°C-35°C                 |  |  |
|                     | Relative Humidity: 30%-60%                     |  |  |
|                     | Air pressure: 86-106kPa                        |  |  |
| Operation Mode      | TX on, channel 128, 190, 251, 512, 661 and 810 |  |  |
| Test Results:       |  |  |  |
| Test equipment Used |  |  |  |

|                 | cot oquipment cocu.                    |              |                     |               |            |        |
|-----------------|--|--------------|---------------------|---------------|------------|--------|
| Asset<br>Number | Description                            | Manufacturer | Model Number        | Serial Number | Cal Due    | State  |
| 7805            | EMI Test Receiver                      | R/S          | ESI26               | 100211        | 2009-01-03 | Normal |
| 7330            | Ultra Broadband<br>Antenna             | R/S          | HL562               | 100013        | 2008-07-24 | Normal |
| 7330            | Double-Ridged<br>Horn Antenna          | R/S          | HF906               | 100037        | 2009-01-14 | Normal |
| 713             | Fully-Anechoic<br>Chamber              | ETS          | 11.8m×6.5m×6.3<br>m |               | 2010-11-17 | Normal |
| 023             | Wireless<br>Communications<br>Test Set | Agilent      | 8960(E5515C)        | GB41450323    | 2009-06-13 | Normal |
| 111835          | Wireless<br>Communications<br>Test Set | R&S          | CMU200              | 1100000802    |            | Normal |

# Test Setup

The situation under which maximum EIRP values were found in the measurement of the radiated RF power output was used to determine the 99% occupied bandwidth. The Wireless Communications Test Set was used to set the TX channel, power level and modulation.

### Test Method

The 99% occupied bandwidth was calculated form the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band.

Note: --

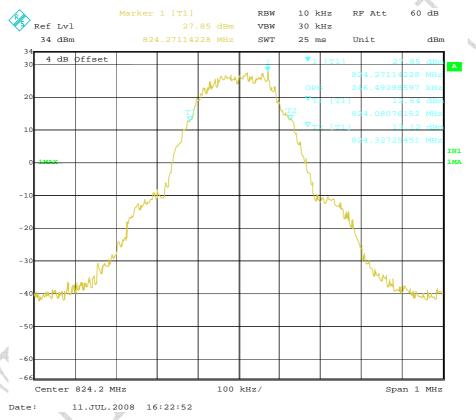


REPORT NO.: 108GE5250-FCC-EMC

# Results data of GPRS mode:

| EUT channel | 99% occupied bandwidth [kHz] |
|-------------|------------------------------|
| 128         | 246                          |
| 190         | 242                          |
| 251         | 240                          |
| 512         | 242                          |
| 661         | 244                          |
| 810         | 244                          |

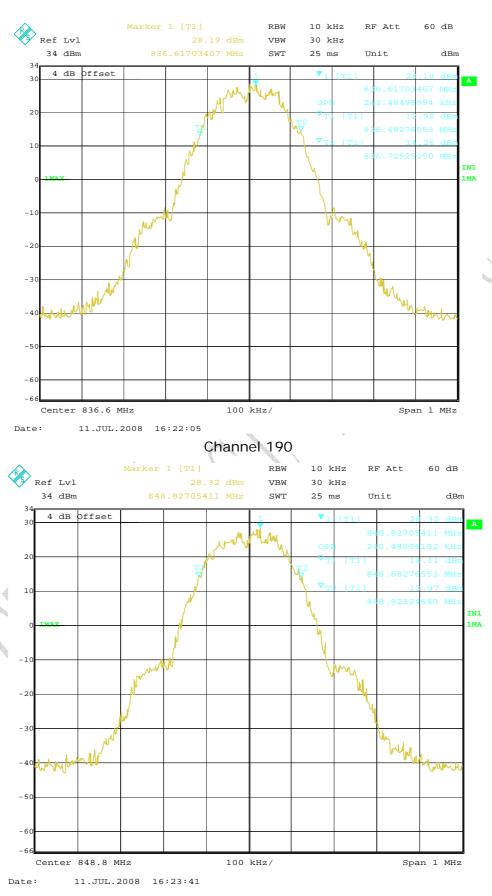
### Graphical results for GPRS mode:



Channel 128

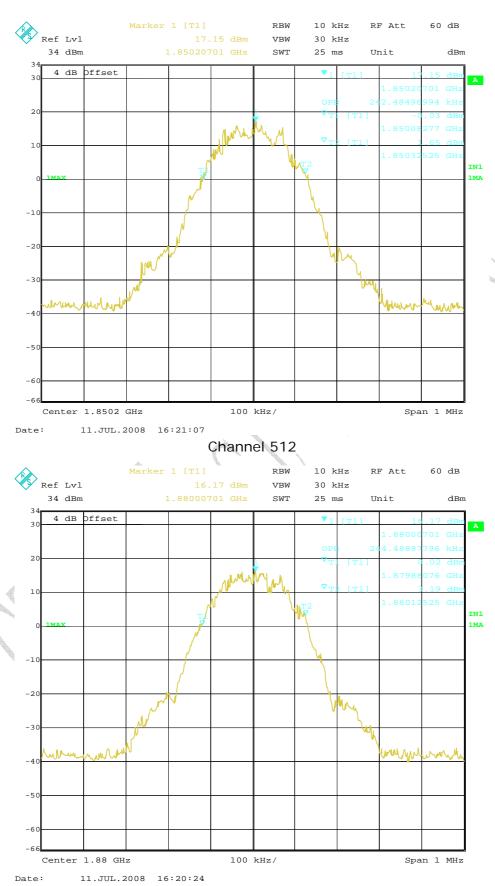


#### REPORT NO.: 108GE5250-FCC-EMC



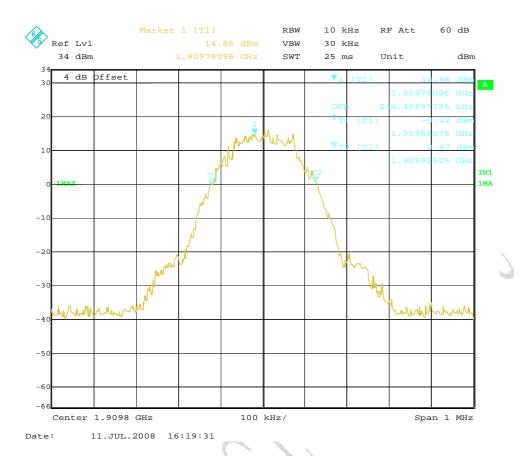
Channel 251







#### REPORT NO.: 108GE5250-FCC-EMC



Channel 810



# 4.4 Frequency Stability over Temperature Variation

| Specific        | cations:                                | 2.1055,22.3                          | 55,24.235       | 2.1055,22.355,24.235 |            |        |
|-----------------|---|--------------------------------------|-----------------|----------------------|------------|--------|
| Date of         | Test                                    | 2008-07-10                           |                 |                      |            |        |
| Test co         | nditions:                               | Ambient Temperature: -30°C-50°C      |                 |                      |            |        |
|                 |   | Relative Hum                         | nidity: 30%-60% | 6                    |            |        |
|                 |   | Air pressure:                        | 86-106kPa       |                      |            |        |
| Operati         | ion Mode                                | TX on, chanr                         | nel 190 and 661 |                      |            |        |
| Test Re         | sults:                                  | Pass                                 |                 |                      |            |        |
| Test eq         | uipment Use                             | ed:                                  |                 |                      | X          |        |
| Asset<br>Number | Description                             | Manufacturer                         | Model Number    | Serial Number        | Cal Due    | State  |
| 023             | Wireless Communication s Test Set       | Agilent                              | 8960(E5515C)    | GB41450323           | 2009-06-13 | Normal |
| 561             | Temperature<br>Chamber                  | Terchy Environmental Technology LTD. | MHU-800SR       | 84121202             | 2009-05-06 | Normal |
| 111835          | Wireless<br>Communication<br>s Test Set | R&S                                  | CMU200          | 1100000802           |            | Normal |
| Limit           | Limit                                   |                                      |                 |                      |            |        |
|                 | ncy deviation<br>[ppm]                  | ±2.5                                 |                 |                      |            |        |

# Test Setup

The EUT was placed in a temperature chamber, demonstrated as figure T. The wireless communications test set (test simulator) was used to set the TX channel and power levels, modulate the TX signal with different bit patterns and measure the frequency of TX.

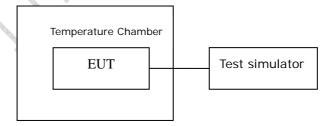


Figure T: setup for measurement of frequency stability over temperature variation



### Test Method

- 1. The EUT was turned off and placed in the temperature chamber.
- 3. The EUT temperature was allowed to stabilize for 45 minutes.
- 4. The EUT was turned on and set to transmit with test simulator.
- 5. The maximum transmit frequency deviation during one minute period was measured by Wireless Communications Test Set.
- 6. The steps 3-5 were repeated for -20°C, -10°C, 0°C, 10°C, 20°C, 30°C, 40°C and 50°C.

# Test results data for GPRS mode:

Table T1: frequency deviation over temperature variation for channel 190

| Temperature[°C] | Deviation[Hz] | Deviation[ppm] | Remarks |
|-----------------|---------------|----------------|---------|
| -30             | 11            | 0.013          | Pass    |
| -20             | 12            | 0.014          | Pass    |
| -10             | 10            | 0.012          | Pass    |
| 0               | 11            | 0.013          | Pass    |
| 10              | 15            | 0.018          | Pass    |
| 20              | 10            | 0.012          | Pass    |
| 30              | 12            | 0.014          | Pass    |
| 40              | 9             | 0.011          | Pass    |
| 50              | 8             | 0.009          | Pass    |

Table T2: frequency deviation over temperature variation for channel 661

| Temperature[°C] | Deviation[Hz] | Deviation[ppm] | Remarks |
|-----------------|---------------|----------------|---------|
| -30             | 33            | 0.018          | Pass    |
| -20             | 34            | 0.018          | Pass    |
| -10             | 29            | 0.015          | Pass    |
| 0               | 36            | 0.019          | Pass    |
| 10              | 31            | 0.016          | Pass    |
| 20              | 32            | 0.017          | Pass    |
| 30              | 29            | 0.015          | Pass    |
| 40              | 27            | 0.014          | Pass    |
| 50              | 29            | 0.015          | Pass    |



REPORT NO.: 108GE5250-FCC-EMC

FCC Parts 2, 22, 24 Equipment: ZTE A711G

# 4.5 Frequency Stability over Voltage Variation

| Specific | cations:                          | 2.1055,22.3   | 2.1055,22.355,24.235 |                   |            |         |
|----------|-----------------------------------|---------------|----------------------|-------------------|------------|---------|
| Date of  | Test                              | 2008-07-11    | 2008-07-11           |                   |            |         |
| Test co  | nditions:                         | Ambient Tem   | nperature: 15℃-      | 35℃               |            |         |
|          |                                   | Relative Hum  | nidity: 30%-60%      | 6                 |            |         |
|          |                                   | Air pressure: | 86-106kPa            |                   |            |         |
| Operati  | ion Mode                          | TX on, chanr  | nel 190 and 661      |                   |            |         |
| Test Re  | sults:                            | Pass          |                      |                   |            |         |
| Test eq  | uipment Use                       | sed:          |                      |                   |            |         |
| Asset    | D                                 |               | Marila I Nicorda     | Control Normalism |            | Q La La |
| Number   | Description                       | Manufacturer  | Model Number         | Serial Number     | Cal Due    | State   |
| 023      | Wireless Communication s Test Set | Agilent       | 8960(E5515C)         | GB41450323        | 2009-06-13 | Normal  |
| 111835   | Wireless Communication s Test Set | R&S           | CMU200               | 1100000802        |            | Normal  |
| 7982     | DC Power<br>Source                | 4NIC          | DH1715A-3            | 004224            |            | Normal  |
| Limit    |                                   |               | X                    |                   |            |         |
| •        | ncy deviation<br>[ppm]            |               | 0                    | ±2.5              |            |         |

# Test Setup

The EUT was placed in a shielding chamber and powered by the dummy battery which is connected to a DC power source, demonstrated as figure V. The wireless communications test set was used to set the TX channel and power level, modulate the TX signal with different bit patterns and measure the frequency of TX.

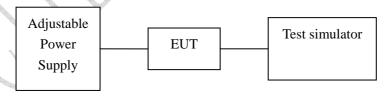


Figure V: test setup for measurement of frequency stability over voltage variation



REPORT NO.: 108GE5250-FCC-EMC

# Test Results data for GPRS mode:

Table V1: frequency deviation over voltage variation for channel 190

| Level   | Voltage[V] | Deviation[Hz] | Deviation[ppm] | Remarks |
|---------|------------|---------------|----------------|---------|
| Nominal | 3.7        | 34            | 0.041          | Pass    |
| Cut-off | 2.5        | 24            | 0.040          | Doce    |
| point   | 3.5        | 36            | 0.040          | Pass    |

Table V2: frequency deviation over voltage variation for channel 661

| Level   | Voltage[V] | Deviation[Hz] | Deviation[ppm] | Remarks |
|---------|------------|---------------|----------------|---------|
| Nominal | 3.7        | 34            | 0.018          | Pass    |
| Cut-off | 3.5        | 41            | 0.022          | Pass    |
| point   | 3.5        | т I           | 0.022          | 1 433   |



REPORT NO.: 108GE5250-FCC-EMC

# 4.6 Conducted RF Power Output

| Specifi         | cations:                               | 2.1046,22.913(a),24.232(c) |                |                |            |        |
|-----------------|--|----------------------------|----------------|----------------|------------|--------|
| Date o          | f Tests                                | 2008-07-11                 |                |                |            |        |
| Test co         | onditions:                             | Ambient Te                 | mperature: 15  | °C-35°C        |            |        |
|                 |  | Relative Hu                | ımidity: 30%-6 | 60%            |            |        |
|                 |  | Air pressur                | e: 86-106kPa   |                |            |        |
| Operat          | ion Mode                               | TX on, cha                 | nnel 128, 190  | , 251, 512, 66 | 61 and 810 |        |
| Test Re         | esults:                                | Pass                       |                |                |            |        |
| Test ed         | quipment Use                           | ed:                        |                |                |            |        |
| Asset<br>Number | Description                            | Manufacturer               | Model Number   | Serial Number  | Cal Due    | State  |
| 7805            | EMI Test Receiver                      | R/S                        | ESI26          | 100211         | 2009-01-04 | Normal |
| 023             | Wireless<br>Communications<br>Test Set | Agilent                    | 8960(E5515C)   | GB41450323     | 2009-06-13 | Normal |
|                 | Power spliter                          | Jie sai                    |                | 1000132        | 2009-01-04 | Normal |
| 111835          | Wireless<br>Communications<br>Test Set | R&S                        | CMU200         | 1100000802     |            | Normal |

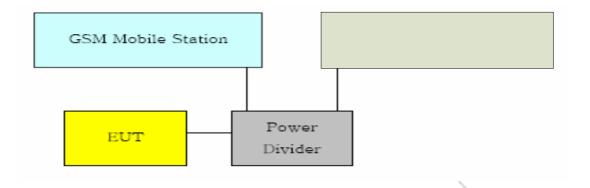
| Limits for Radiated RF Power Output |   |  |  |
|-------------------------------------|---|--|--|
| Frequency range                     | Limit Level (EIRP)/Resolution Bandwidth |  |  |
| TX channel                          | 33dBm/1MHz                              |  |  |
| Limits for ERP                      |   |  |  |
| Frequency range                     | Limit Level (ERP)                       |  |  |
| TX channel                          | 7W                                      |  |  |

# Test Setup:

During the process of testing, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26).



REPORT NO.: 108GE5250-FCC-EMC



### Test Method

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The lost of the cables the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 3) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.

### Note: --

# Test Results for GPRS mode:

EIRP Value for GPRS 850 band:

| ARFCN | Peak output power<br>[dBm] |
|-------|----------------------------|
| 128   | 30.71                      |
| 190   | 30.77                      |
| 251   | 30.71                      |

### EIRP Value for GPRS 1900 band:

| ARFCN | Peak output power [dBm] |  |
|-------|-------------------------|--|
| 512   | 18.86                   |  |
| 661   | 15.23                   |  |
| 810   | 16.99                   |  |



# 4.7 Conducted Spurious Emission

| Specifi              | cations:                               | 2.1051,22.917,24.238           |              |               |            |        |
|----------------------|--|--------------------------------|--------------|---------------|------------|--------|
| Date o               | f Tests                                | 2008-07-11                     |              |               |            |        |
| Test co              | onditions:                             | Ambient Temperature: 15°C-35°C |              |               |            |        |
|                      |  | Relative Humidity: 30%-60%     |              |               |            |        |
|                      |  | Air pressure: 86-106kPa        |              |               |            |        |
| Operat               | ion Mode                               | TX on, channel 190 and 661     |              |               |            |        |
| Test Re              | esults:                                | Pass                           |              |               |            |        |
| Test equipment Used: |  |                                |              |               |            |        |
| Asset                | Description                            | Manufacturer                   | Model Number | Serial Number | Cal Due    | State  |
| Number               | Description                            | Manufacturei                   | Model Number | Serial Number | Cal Due    | State  |
| 7805                 | EMI Test Receiver                      | R/S                            | ESI26        | 100211        | 2009-01-04 | Normal |
| 023                  | Wireless<br>Communications<br>Test Set | Agilent                        | 8960(E5515C) | GB41450323    | 2009-06-13 | Normal |
|                      |  |                                |              |               | 4 4 1      |        |

#### **Limit Level Construction:**

111835

Power spliter

Wireless

Communications

Test Set

Jie sai

R&S

According to Part 24.238 (a), i.e., Out of band emissions. 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, so the limit level is: P(dBm) - (43 + 10 log(P)) dB = -13dBm

CMU200

1000132

1100000802

2009-01-04

Normal

Normal

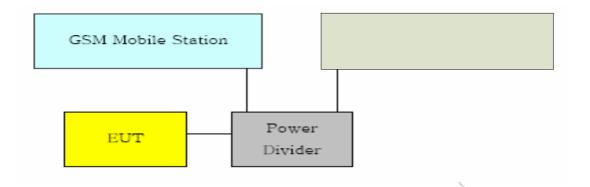
| Limits for Radiated spurious emissions(UE) |                                   |  |  |
|--|-----------------------------------|--|--|
| Frequency range                            | Limit Level /Resolution Bandwidth |  |  |
| 30 MHz to 20000 MHz                        | -13dBm/1MHz                       |  |  |

# Test Setup:

During the process of testing, the EUT was controlled via Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26)



REPORT NO.: 108GE5250-FCC-EMC



### Test Method

The measurement was performed accordance with section 2.2.13 of ANSI/TIA-603-B-2002: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

The following steps outline the procedure used to measure the conducted emissions from the EUT.

- 1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment under test, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz.
- 2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

Note: --

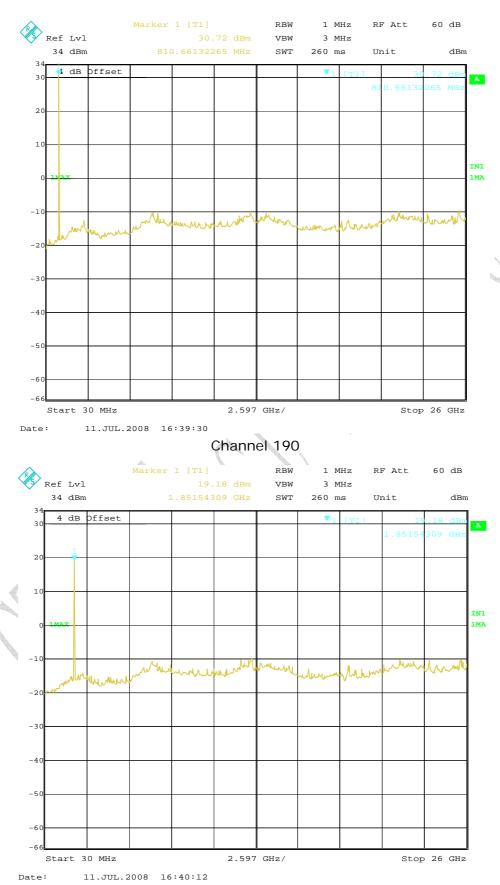
# Test Results for GPRS mode:

| Out of band emission |       |  |  |  |
|----------------------|-------|--|--|--|
| Frequency            | Level |  |  |  |
| [MHz]                | (dBm) |  |  |  |
| -2                   |       |  |  |  |

**Graphical results for GPRS mode:** 



#### REPORT NO.: 108GE5250-FCC-EMC



Channel 661



REPORT NO.: 108GE5250-FCC-EMC

# 4.8 Band Edge

|                 | _                                      |                                      |              |               |            |        |
|-----------------|--|--------------------------------------|--------------|---------------|------------|--------|
| Specifi         | cations:                               | 2.1051, 24.238, 2.1053, 22.917       |              |               |            |        |
| Date o          | f Tests                                | 2008-07-11                           |              |               |            |        |
| Test co         | onditions:                             | Ambient Temperature: 15°C-35°C       |              |               |            |        |
|                 |  | Relative Humidity: 30%-60%           |              |               |            |        |
|                 |  | Air pressure: 86-106kPa              |              |               |            |        |
| Operat          | ion Mode                               | TX on, channel 128, 251, 512 and 810 |              |               |            |        |
| Test R          | esults:                                | Pass                                 |              |               |            |        |
| Test e          | Test equipment Used:                   |                                      |              |               |            |        |
| Asset<br>Number | Description                            | Manufacturer                         | Model Number | Serial Number | Cal Due    | State  |
| 7805            | EMI Test Receiver                      | R/S                                  | ESI26        | 100211        | 2009-01-04 | Normal |
| 023             | Wireless<br>Communications<br>Test Set | Agilent                              | 8960(E5515C) | GB41450323    | 2009-06-13 | Normal |
|                 | Power spliter                          | Jie sai                              |              | 1000132       | 2009-01-04 | Normal |
| 111835          | Wireless<br>Communications             | R&S                                  | CMU200       | 1100000802    |            | Normal |

#### **Limit Level Construction:**

Test Set

According to Part 24.238 (a), i.e., Out of band emissions. 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, so the limit level is: P(dBm) - (43 + 10 log(P)) dB = -13dBm

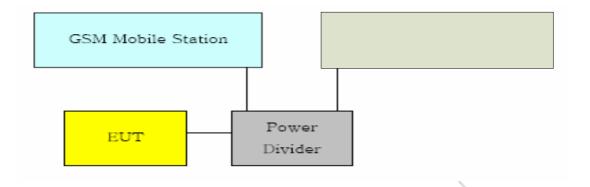
| Limits for Radiated spurious emissions(UE) |                                   |  |  |
|--|-----------------------------------|--|--|
| Frequency range                            | Limit Level /Resolution Bandwidth |  |  |
| 30 MHz to 20000 MHz                        | -13dBm/1MHz                       |  |  |

# Test Setup:

During the process of testing, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by Rhode & Schwarz EMI test receiver (ESI26).



REPORT NO.: 108GE5250-FCC-EMC



### Test Method

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The lost of the cables the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 3) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.

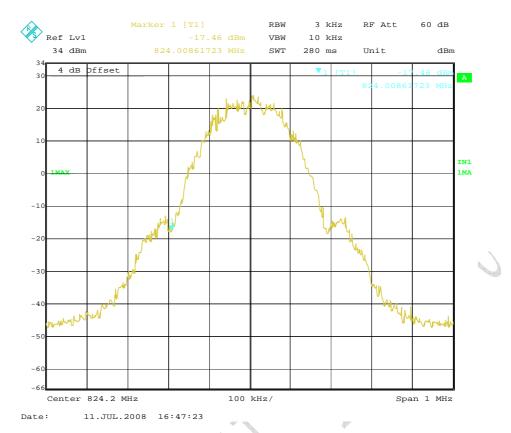
### Note: --

# Test Results for GPRS mode:

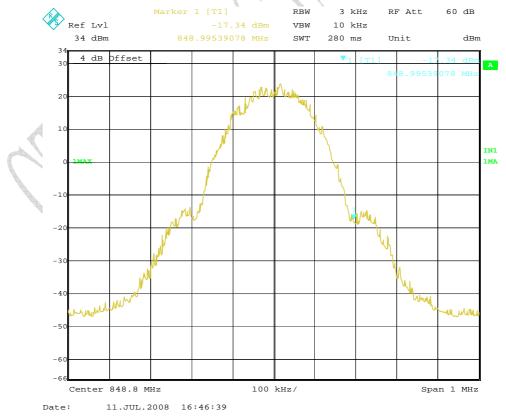
| Band-edge emission          |                 |             |  |  |
|-----------------------------|-----------------|-------------|--|--|
| EUT Channel                 | Frequency [MHz] | Level [dBm] |  |  |
| Channel 128 Left band edge  | 824.008         | -17.46      |  |  |
| Channel 251 Right band edge | 848.995         | -17.34      |  |  |
| Channel 512 Left band edge  | 1850.038        | -16.19      |  |  |
| Channel 810 Right band edge | 1909.962        | -16.43      |  |  |



#### REPORT NO.: 108GE5250-FCC-EMC



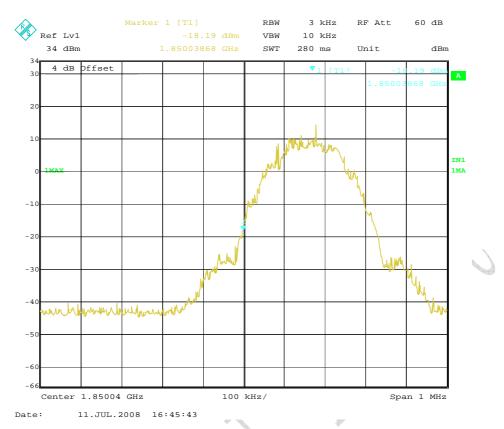
# Channel 128 Left band edge



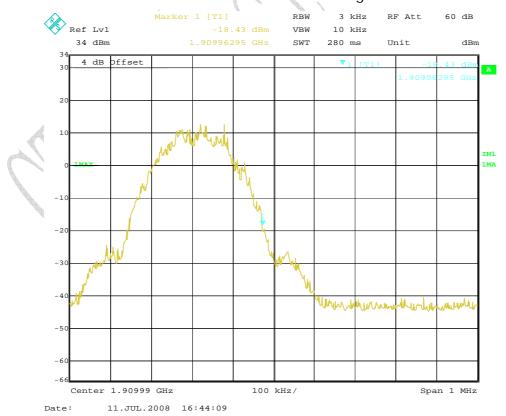
Channel 251 Right band edge



#### REPORT NO.: 108GE5250-FCC-EMC



### Channel 512 Left band edge



Channel 810 Right band edge

TTL

FCC Parts 2, 22, 24 Equipment: ZTE A711G

REPORT NO.: 108GE5250-FCC-EMC

# **Annex A External Photos**



Front



back





Back without battery



Adaptor and cable



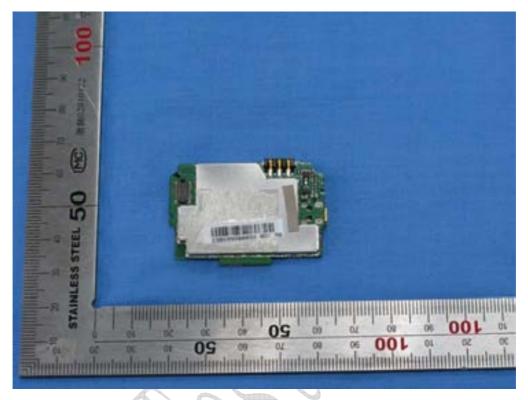


Battery

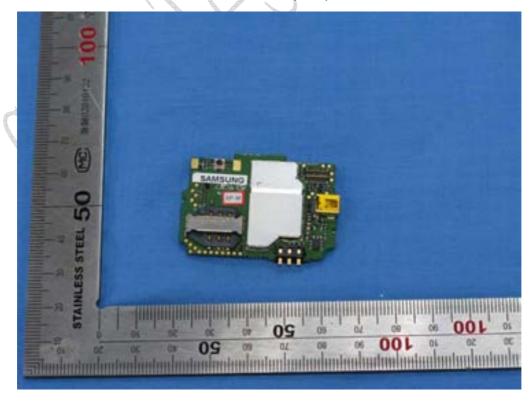


REPORT NO.: 108GE5250-FCC-EMC

# **Annex B Internal Photos**

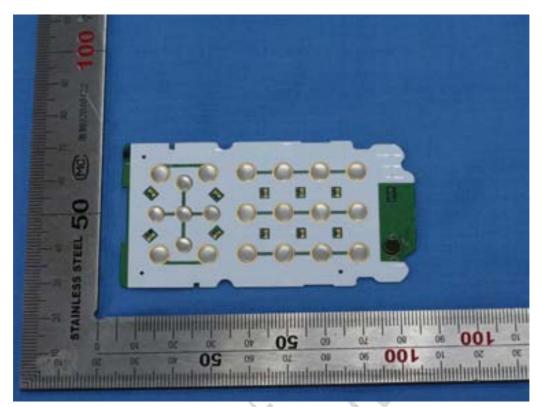


Main board (face)

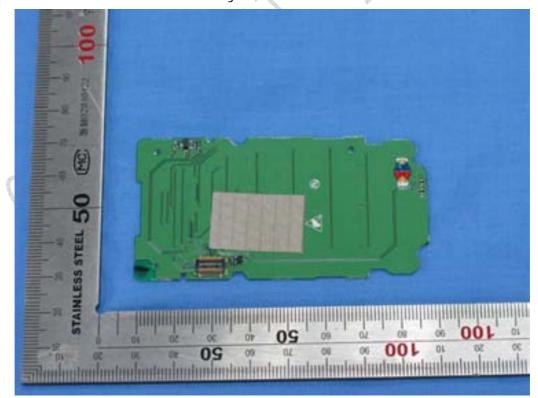


Main board (back)



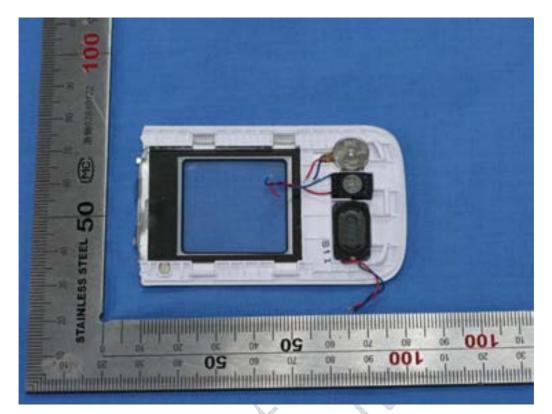


Keyboard (face)

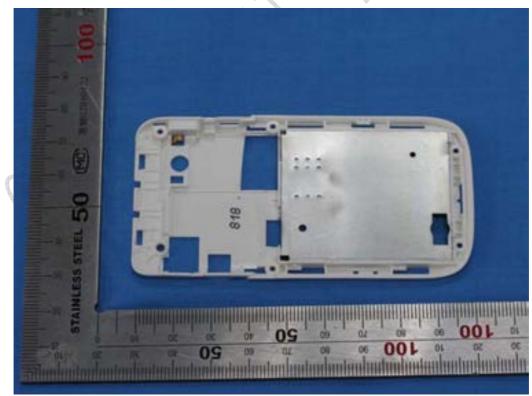


Keyboard (back)



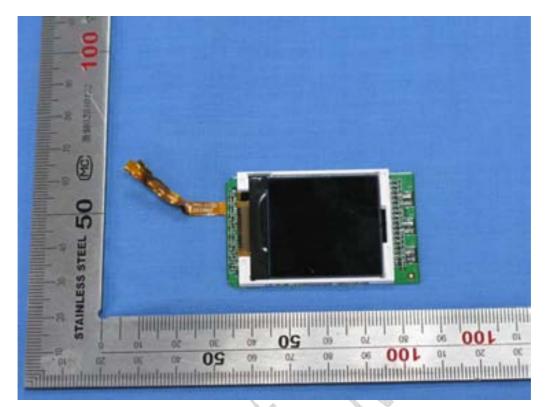


Shell internal structure

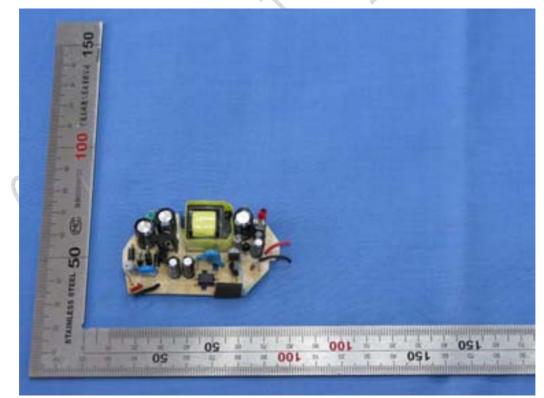


Shell internal structure



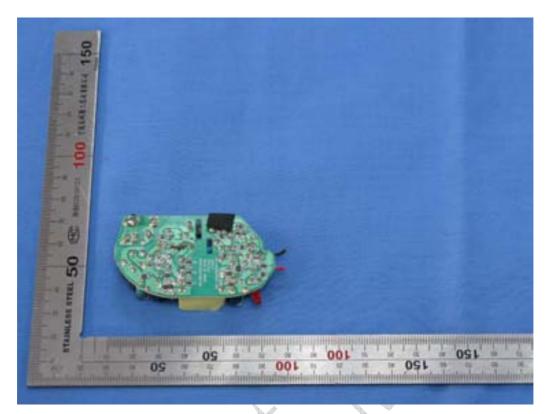






Adaptor face





Adaptor back



REPORT NO.: 108GE5250-FCC-EMC

# **ANNEX C Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

