# TEST REPORT

## REPORT NUMBER: B07GE6526-FCC-EMC

**ON**

**Type of Equipment:** GSM/GPRS Mobile phone
**Type of Designation:** EF90
**Manufacturer:** Ezze Mobile Tech

**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*
*Sep 28, 2007*

*Signature*

He Guili
**Director**

| | |
|---|---|
| **FCC ID:** | RV2EF90 |
| **Report Date:** | 2007-9-28 |

| | |
|---|---|
| **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.

# CONTENTS

# 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.

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## 1.2 Testers

Name: Lvke

Position: Engineer

Department: Department of EMC test

Duration of the test: 2007-09-26

Signature: 吕克

Name: Li Guoqing

Position: Engineer

Department: Department of EMC test

Duration of the test: 2007-09-17

Signature: 李国庆

Technical responsibility for area of testing:

Name: Zhang Xia

Position: Manager

Department: Department of EMC test

Date: 2007.9.28

Signature: 張夏

## 1.3 Testing Laboratory information

### 1.3.1 Location

| | |
|---|---|
| Name: | China Telecommunication Technology Labs. |
| Address: | No. 11, Yue Tan Nan Jie, Xi Cheng District<br>BEIJING<br>P. R. CHINA, 100045 |
| Tel: | +86 10 68094053 |
| Fax: | +86 10 68011404 |
| Email: | emc@chinattl.com |

### 1.3.2 Details of accreditation status

| | |
|---|---|
| Accredited by: | China National Accreditation for Laboratory (CNAL) |
| Registration number: | CNAL Registration No.L0570 |
| Standard: | ISO/IEC 17025 |

### 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 Applicant

| | |
|---|---|
| Name: | Ezze Mobile Tech |
| Address: | 1F, Bubmusa Bldg., 151-31, Nonhyun-dong, Kangnam-ku, Seoul |
| Country: | Korea |
| Telephone: | +82-2-519-7807 |
| Fax: | +82-2-519-7882 |
| Contact: | Han shin, Lee |
| Telephone: | +82-19-543-3776 |
| Email: | leehs@ezzemobile.com |

### 1.4.2 Manufacturer (if different from applicant in section 1.4.1)

| | |
|---|---|
| Name: | -- |
| Address: | -- |
| City: | -- |
| Country: | -- |

# 2 Test Item

## 2.1 General Information

| | |
|---|---|
| Manufacturer: | Ezze Mobile Tech |
| Name: | GSM/GPRS Mobile phone |
| Model Number: | EF90 |
| Serial Number: | 135790246811220 |
| Production Status: | Production |
| Receipt date of test item: | 2007-09-14 |

## 2.2 Outline of EUT

EUT is a GSM850/ PCS1900 GSM/GPRS Mobile phone. Its basic purpose is used for communications. It transmits from 824.20 – 848.80MHz (GSM850), 1850.20MHz – 1909.80MHz (PCS1900)) and receives from 869.20 – 893.80MHz (GSM850), 1930.20MHz – 1989.80MHz (PCS1900)).

## 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 Description | Manufacturer | Type | Serial No. | Remarks |
|---|---|---|---|---|---|
| A | Handset | Ezze Mobile Tech | EF90 | 135790246 811220 | None |
| B | Adaptor | Yu Feng | USB type | -- | None |
| C | Battery | Zhi-in | Li-ion | -- | None |

Cables:

| Item | Cable Type | Manufacturer | Length | Shield | Quantity | Remarks |
|---|---|---|---|---|---|---|
| 1 | DC cable on Adapter | Unknown | 1.80m | No | 1 | None |

## 2.5 Other Information

(a) GPRS Information

The multislot class of the GPRS mode is class 8 with mode class B.

(b) Emission Designator

The emission designator is 300KGXW.

(c) About Power Source

| Items | Relative Information |
|---|---|
| Adaptor | Input: 100~240Vac 50-60Hz Output: +5.0V |
| Battery | 3.7V 520mAh<br>Charge limit: 4.305V |

# 3 Summary of Test Results

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

| Specification Clause | Name of Test | Result |
|---|---|---|
| 2.1051, 24.238, 2.1053,22.917 | Radiated Spurious Emission | Pass |
| 2.1046,24.232 | Radiated RF Power Output | Pass |
| 22.913(a) | Effective Radiated Power (ERP) | Pass |

# 4 Test Results

## 4.1 Radiated Spurious Emission

| | |
|---|---|
| **Specifications:** | 2.1051, 24.238,2.1053,22.917 |
| **Date of Tests** | 2007.09.17 |
| **Test conditions:** | Ambient Temperature:15℃-35℃<br>Relative Humidity:30%-60%<br>Air pressure: 86-106kPa |
| **Operation Mode** | TX on, channel 190 and 661 |
| **Test Results:** | Pass |

**Test equipment Used:**

| Asset Number | Description | Manufacturer | Model Number | Serial Number | Cal Due | State |
|---|---|---|---|---|---|---|
| 7805 | EMI Test Receiver | R/S | ESIB26 | 100211 | 2008-01-10 | Normal |
| 7330 | Ultra Broadband Antenna | R/S | HL562 | 100013 | 2008-07-24 | Normal |
| 7330 | Double-Ridged Horn Antenna | R/S | HF906 | 100037 | 2008-01-09 | Normal |
| 713 | Fully-Anechoic Chamber | ETS | 11.8m×6.5m×6.3 m | -- | 2007-11-17 | Normal |
| 7330 | Universal Radio Communications Tester | R&S | CMU200 | 100233 | 2008-04-23 | Normal |

**Limit Level Construction:**
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 CMU 200 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.

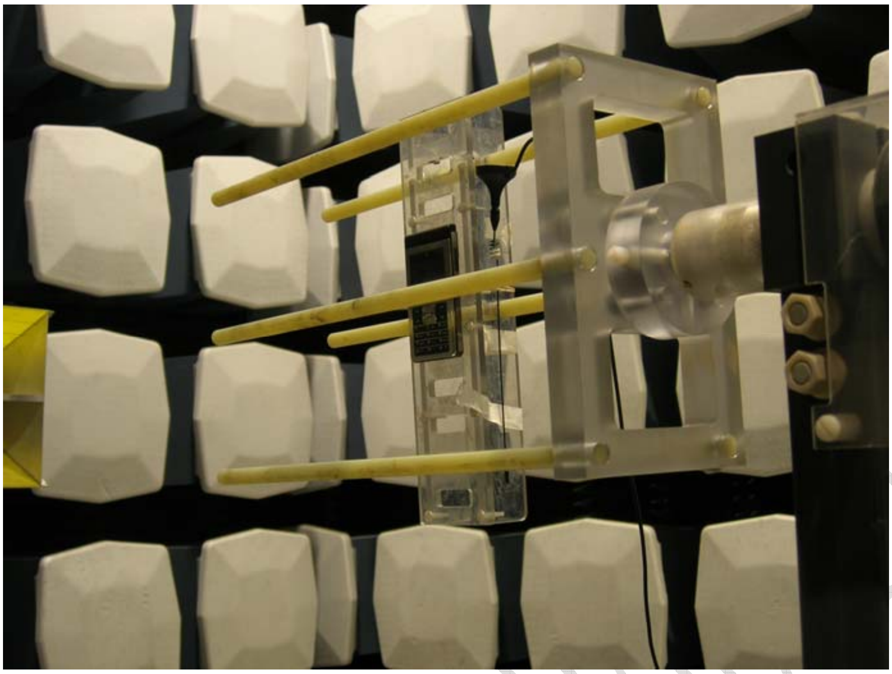


Figure SP

**Test Method:**

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 A fully charged battery was used during the test.

2 The investigated ARFCNs are 190 (836.6 MHz) and 661 (1880.0 MHz), which are the middle channel of GSM 850 MHz band and PCS 1900 MHz band respectively.

3 The investigated frequency range is 30 MHz ~ 20 GHz.

**Test Results Data:**

| Out of band emission | | | |
|---|---|---|---|
| Frequency [GHz] | SPU emission [dBm] | EUT pose [H/V] | Antenna Polarization [H/V] |
| 2.487374749 | -54.91 | V | H |
| 9.191983968 | -43.39 | V | H |
| 1.665731463 | -63.40 | H | H |
| 1.665731463 | -61.01 | H | V |
| 9.191983968 | -42.47 | H | V |
| 2.487374749 | -54.32 | V | V |
| 5.643486974 | -41.78 | V | H |
| 9.384168337 | -41.43 | V | H |
| 3.742484970 | -52.71 | H | H |
| 4.999599198 | -51.89 | H | H |
| 5.643486974 | -46.98 | H | H |
| 5.643486974 | -43.26 | V | V |
| 3.742484970 | -54.37 | H | V |
| 4.999599198 | -51.83 | H | V |
| 9.384168337 | -40.15 | H | V |

## 4.2 Radiated RF Power Output and ERP

| | |
|---|---|
| **Specifications:** | 2.1046,24.232,22.913(a) |
| **Date of Tests** | 2007.09.26 |
| **Test conditions:** | Ambient Temperature:15℃-35℃<br>Relative Humidity:30%-60%<br>Air pressure: 86-106kPa |
| **Operation Mode** | TX on, channel 128, 190, 251, 512, 661 and 810 |
| **Test Results:** | Pass |

**Test equipment Used:**

| Asset Number | Description | Manufacturer | Model Number | Serial Number | Cal Due | State |
|---|---|---|---|---|---|---|
| 7805 | EMI Test Receiver | R/S | ESIB26 | 100211 | 2008-01-10 | Normal |
| 7330 | Ultra Broadband Antenna | R/S | HL562 | 100013 | 2008-07-24 | Normal |
| 7330 | Double-Ridged Horn Antenna | R/S | HF906 | 100037 | 2008-01-09 | Normal |
| 713 | Fully-Anechoic Chamber | ETS | 11.8m×6.5m×6 .3m | -- | 2007-11-17 | Normal |
| 7330 | Universal Radio Communications Tester | R&S | CMU200 | 100233 | 2008-04-23 | 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 |

### Test Setup:

The EUT was set in an anechoic chamber. In the corner of the chamber there is a communication antenna, which is connected to the CMU 200 located outside the chamber. The test was done using an automated test system, where all test equipments were controlled by a computer.

## Test Method

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:

1 A fully charged battery was used during the test.
2 For GSM 850 MHz band, the ARFCN 128 (824.2 MHz), 190 (836.6 MHz) and 251 (848.8 MHz) are investigated, which are the lowest, middle and highest channel. For PCS 1900 MHz band, the ARFCN 512 (1850.2 MHz), 661 (1880.0 MHz) and 810 (1909.8 MHz) are investigated, which are the lowest, middle and highest channel.
3 ERP dBm = EIRP dBm – 2.15dB.



## ERP Value for GSM 850 band mode:

| ARFCN | Frequency [MHz] | ERP [dBm] |
|---|---|---|
| 128 | 824.228457 | 21.57 |
| 190 | 836.653307 | 20.18 |
| 251 | 848.777555 | 18.28 |

## EIRP Value for PCS 1900 band mode:

| ARFCN | Frequency [MHz] | EIRP [dBm] |
|---|---|---|
| 512 | 1850.10020 | 23.20 |
| 661 | 1879.08016 | 22.89 |
| 810 | 1909.89980 | 21.70 |

# Annex A External Photos

Picture 1 Front view of the handset

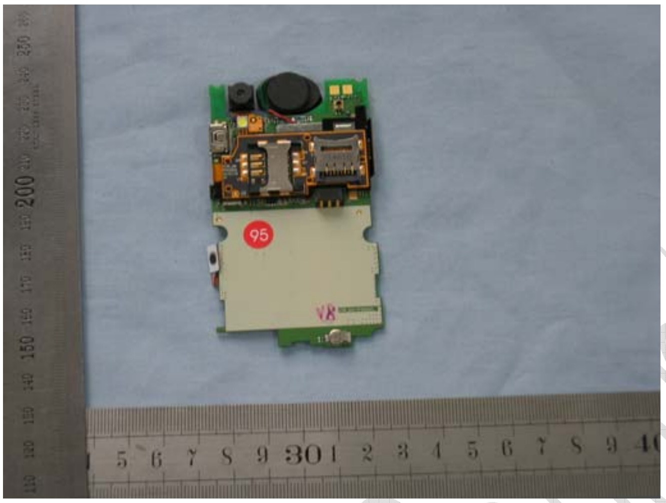
Picture 2 Back view of the handset

Picture 3 Adaptor

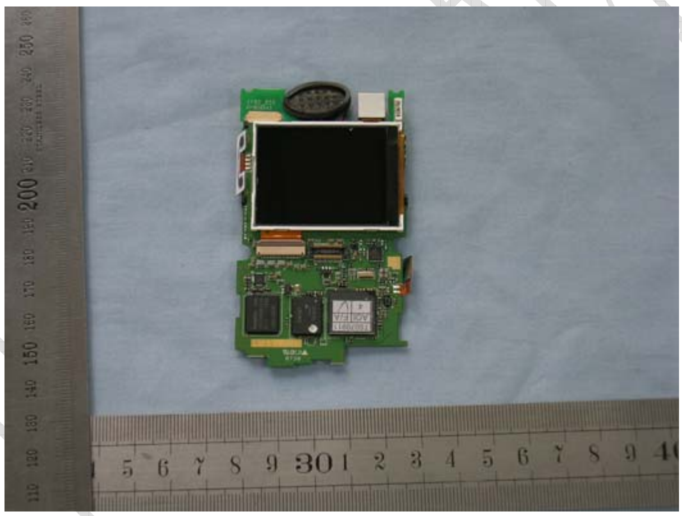
Picture 4 Adaptor

Picture 5 Battery

## Annex B Internal Photos

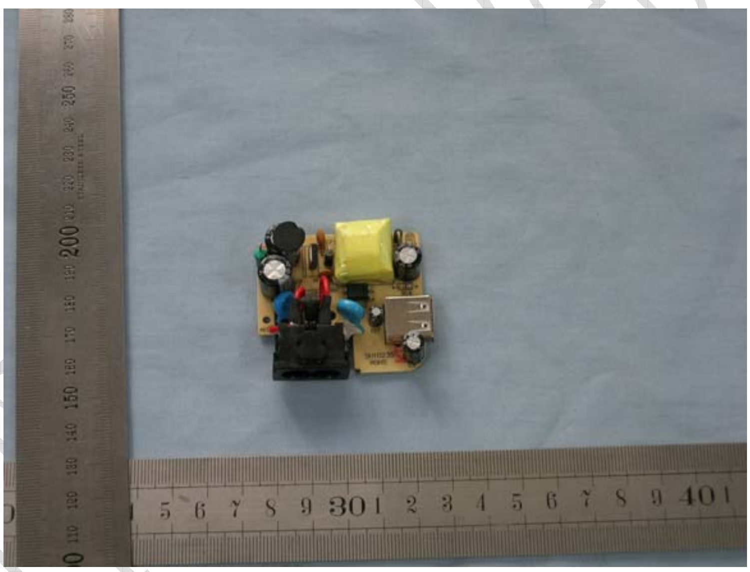


Picture 6 Front view of the internal structure



Picture 7 Back view of the internal structure

Picture 8 Internal front view of adaptor



Picture 9 Internal back view of the adaptor

# ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

**The End of this Report**