



FCC Test Report

Product Name: WCDMA/GPRS/GSM Mobile Phone With Bluetooth

Model Number: U1310

**Report No: SYBH(R) 015072008EB-2
FCC ID: QISU1310**

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REPORT ON **FCC Test of WCDMA/GPRS/GSM
Mobile Phone With Bluetooth**

M/N: U1310

Report No: SYBH(R) 015072008EB-2

REGULATION **FCC CFR47 Part 2: Subpart J;**

FCC CFR47 Part 24: Subpart E;

CONCLUSION There are 7 items need to be tested, 7 items have been tested. The sample of the model completely meets the requirements

Final Judgement: Pass

General Manager

2008.08.05

Date

张兴海

Name

signature



Technical Responsibility

For Area of Testing

2008.08.05

Date

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1 Summary

The table below summarizes the measurements and results for the WCDMA/GPRS/GSM Mobile Phone With Bluetooth. Detailed results and descriptions are shown in the following pages.

Table 1 Summary of results

| FCC Measurement Specification | FCC Limits Part(s) | Description | Result |
|--------------------------------------|---------------------------|--|--------------------|
| 2.1046 | 24.232 | Effective Radiated Power of Transmitter | PASS |
| 2.1053 | 24.238 | Radiated Spurious Emissions | PASS (Note) |

Note: The Radiated Spurious Emissions' test results are shown in the EMC report.



2 Product Description

2.1 Production Information

2.1.1 General Description

WCDMA/GPRS/GSM Mobile Phone With Bluetooth - U1310 is subscriber equipment in the WCDMA/GSM system. The frequency band is WCDMA/GSM/DCS/PCS. The WCDMA frequency band is Band I. The GSM/GPRS frequency band includes GSM900 and DCS1800 and PCS1900, PCS1900MHz band can be used in the U.S.A. The Mobile Phone implements such functions as RF signal receiving /Transmitting, WCDMA protocol processing, voice, video and MMS service etc. Externally it provides micro SD card interface, earphone port(to provide voice service), USIM card interface .It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

Note1: U1310 is the same as U1300/ U1300/V725/Vodafone 725, besides the antenna and ID. Thus only the EIRP is included in this report.

Note2: Only tests for GSM/GPRS PCS 1900MHz (PCS) band was included in this report for the requirement of FCC part 2 & 24.

2.1.2 Support function and Service

The WCDMA/GPRS/GSM Mobile Phone With Bluetooth support the function and service as follows:

Table 2 Service and Test mode List

| Service Name | Characteristic | Corresponding Test Mode | Note |
|----------------|------------------|-------------------------|----------|
| Voice and data | Modulation: GMSK | TM1 | GPRS/GSM |

Note: * The specified GPRS test conditions & settings are defined in 3GPP TS51.010 V5.4.0 and the EDGE test conditions & settings are defined in 3GPP TS51.010 V5.4.0.

2.2 Modification Information

For original equipment, following table is not application.

Table 3 Modification Information

| Model Number | Board/Module | Original Version | New Version | Modify Information |
|----------------|--------------|------------------|-------------|--------------------|
| Not applicable | | | | |
| | | | | |
| | | | | |

3 Test Site Description

The test site of:

***Huawei Technologies Co. Ltd.
P.O. Box 518129
Huawei base, bantian,
Longgang District, Shenzhen, China***

The test site description has been submitted to  and registration granted under the registration number **97456** on Aug 20, 2006. The test site has been accredited by



and the accredited number is **2174.01** in Jan of 2006.

3.1 Testing Period

The test have been performed during the period of

Jul. 29, 2008 – Aug. 05, 2008

3.2 General Set up Description

TM1: GPRS/GSM Mode with GMSK Modulation



4 Product Description

4.1 Technical Characteristics

4.1.1 Frequency Range

Table 4 Frequency Range

| | |
|----------------|------------------|
| Uplink band: | 1850 to 1910 MHz |
| Downlink band: | 1930 to 1990 MHz |

4.1.2 Channel Spacing / Separation

Table 5 Channel Spacing / Separation

| | |
|---------------------|----------|
| | GPRS/GSM |
| Channel spacing | 200k Hz |
| Channel separation: | 200k Hz |

4.1.3 Type of Emission

Table 6 Type of Emission

| | |
|-----------------------|----------|
| | GPRS/GSM |
| Emission Designation: | 300kGXW |

According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202

4.1.4 Environmental Requirements

Table 7 Environmental Requirements

| | |
|----------------------|----------|
| Minimum temperature: | - 10 °C |
| Maximum temperature: | + 55 °C |
| Relative Humidity: | 5%-95%RH |

4.1.5 Power Source

Table 8 Power Source

| | |
|---------------------|------------|
| AC voltage nominal: | ~120V |
| AC voltage range | ~100V-240V |
| AC current maximal: | 650mA |

4.1.6 Tune-up Procedure

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (9).

Please reference the document Tune-up Procedure in TCF.

4.1.7 Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8).

The voltage and current in the final RF stage is:

Table 9 Applied DC Voltages and Currents

| | |
|----------|--|
| Voltage: |  + 2.8V |
| Current: | 100mA According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8) |

4.2 EUT Identification List

4.2.1 Board Information

Table 10 Board Information

| WCDMA/GPRS/GSM Mobile Phone With Bluetooth | | |
|--|------------------|----------------|
| U1310 | | |
| Board and Module | | |
| Equipment Designation / Description | Serial Number | Remarks |
| MAINBOARD | VM2AA10852900172 | HD1U130M Ver.B |

4.2.2 Adapter Technical Data

| | | |
|--------------------|---|----------------------------------|
| AC/DCAdapter Model | : | TPCA-053065UY |
| Manufacturer | : | TECH-POWER INTERNATIONAL CO.,LTD |
| Input Voltage | : | ~100-240V 50/60Hz 0.2A |
| Output Voltage | : | 5.3V \equiv 650mA |
| Rated Power | : | 4W |
| S/N | : | TPI6B2500560 |

| | | |
|--------------------|---|---------------------------------------|
| AC/DCAdapter Model | : | CHG5365-3C |
| Manufacturer | : | Shenzhen Chi Yuan Industrial Co., Ltd |
| Input Voltage | : | ~100-240V 50/60Hz 0.2A |
| Output Voltage | : | 5.3V \equiv 650mA |
| Rated Power | : | 4W |
| S/N | : | HKY7C110287 |

| | | |
|--------------------|---|-------------------------------|
| AC/DCAdapter Model | : | HS-050040E1 |
| Manufacturer | : | Huawei Technologies Co., Ltd. |
| Input Voltage | : | ~100-240V 50/60Hz 0.2A |
| Output Voltage | : | 5.0V \equiv 400mA |
| Rated Power | : | 2W |
| S/N | : | HKA833000028 |

4.2.3 Battery Technical Data

| | |
|-------------------|--------------------------|
| Type: | Rechargeable Li-ion |
| Manufacturer: | FMT Electronics Co.,Ltd. |
| Battery Model: | HBU570 |
| Rated capacity: | 900mAh |
| Nominal Voltage: | \equiv +3.7V |
| Charging Voltage: | \equiv +4.2V |



4.2.4 FCC Identification

Grantee Code: QIS
Product Code: U1310
FCC Identification: QISU1310

5 Main Test Instruments

Table 11 Main Test Equipments

| Equipment Description | Manufacturer | Model | Serial Number | Calibrated until (MM.DD.YYYY) |
|--|--------------|-----------------------------|---------------|-------------------------------|
| Receiver | R&S | ESIB 26 | 100318 | 04.21.2009 |
| Loop Antenna | Schwarzbeck | FMZB1516 | 1516115 | 03.10.2009 |
| BiLog Antenna | Schaffner | CBL 6112B | 2536 | 03.17.2009 |
| Horn Antenna | ETS-Lindgren | 3117 | 00062553 | 08.15.2008 |
| Horn Antenna | ETS-Lindgren | 3160 | 00031541 | 08.03.2008 |
| Dipole | Schwarzbeck | D69250- UHAP/D69250-VHAP | 979/917 | 10.11.2008 |
| Signal Generator | R&S | SMT06 | 830264/009 | 05.11.2009 |
| Signal Generator | R&S | SMR 40 | 100325 | 05.11.2009 |
| Signal Generator | R&S | SMU200A | 101717 | 04.10.2009 |
| Power Supply | Keithley | 2306 | 1045337 | 05.11.2009 |
| Universal Radio Communication Tester | R&S | CMU200 | 105822 | 10.10.2008 |
| Wireless communication test set | Agilent | 8960 | GB43461081 | 05.10.2009 |
| Spectrum Analyzer | R&S | FSU26 | 200245 | 08.08.2008 |

6 Transmitter Measurements

6.1 Effective Isotropically Radiated Power of Transmitter (EIRP)

6.1.1 Test Conditions

Table 12 Test Conditions

| | |
|----------------------|--------------------------------------|
| Preconditioning: | 0.5 hour |
| Measured at: | enclosure |
| Ambient temperature: | 25 |
| Relative humidity: | 55% |
| Test Configurations: | TM1 at frequency Bottom、 Middle、 Top |

6.1.2 Test Specifications and Limits

6.1.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 24.232

6.1.2.2 Supporting Standards

Table 13 Supporting Standards:

| | |
|---------------------------|---|
| ANSI/TIA-603-C:2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| 3GPP TS51.010 V6.1.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification; |

6.1.2.3 Limits

Compliance with part 24.232, mobile/portable stations are limited to 2 watts EIRP peak power.
 $W(\text{dBm}) = 10 \cdot \log(W_{\text{In mWatts}})$.

Table 14 Limits

| | |
|------------------------------|-----------|
| Maximum Output Power (Watts) | < 2 Watts |
| Maximum Output Power (dBm) | < 33 dBm |

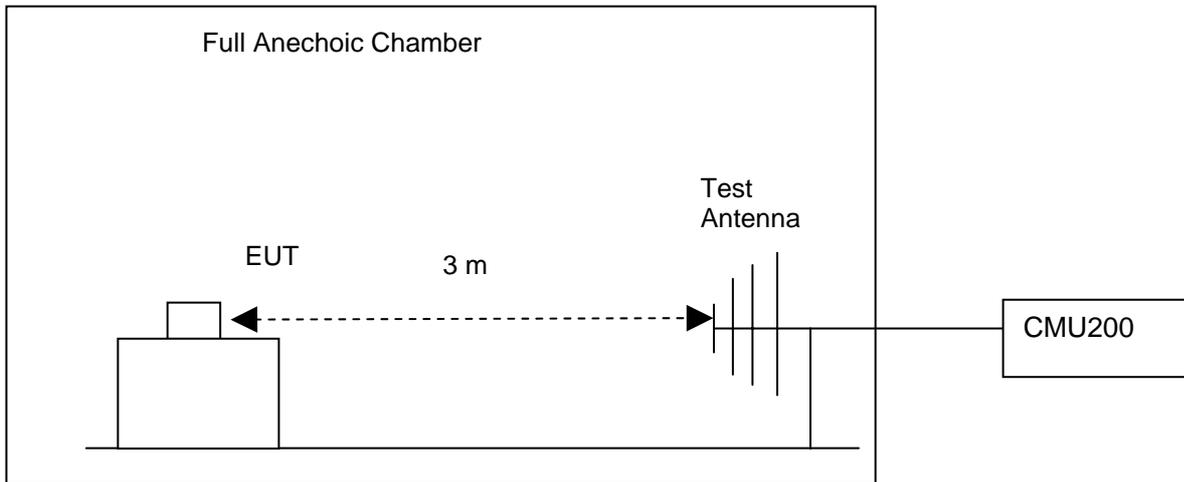
6.1.3 Test Method and Setup

- (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the Mobile Phone to the wireless communication tester CMU200 via the air interface. The band is set as PCS.
- (b) Test the Radiated maximum output power by the CMU200 received from test antenna.
- (c) Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step (b) on CMU200, and record the

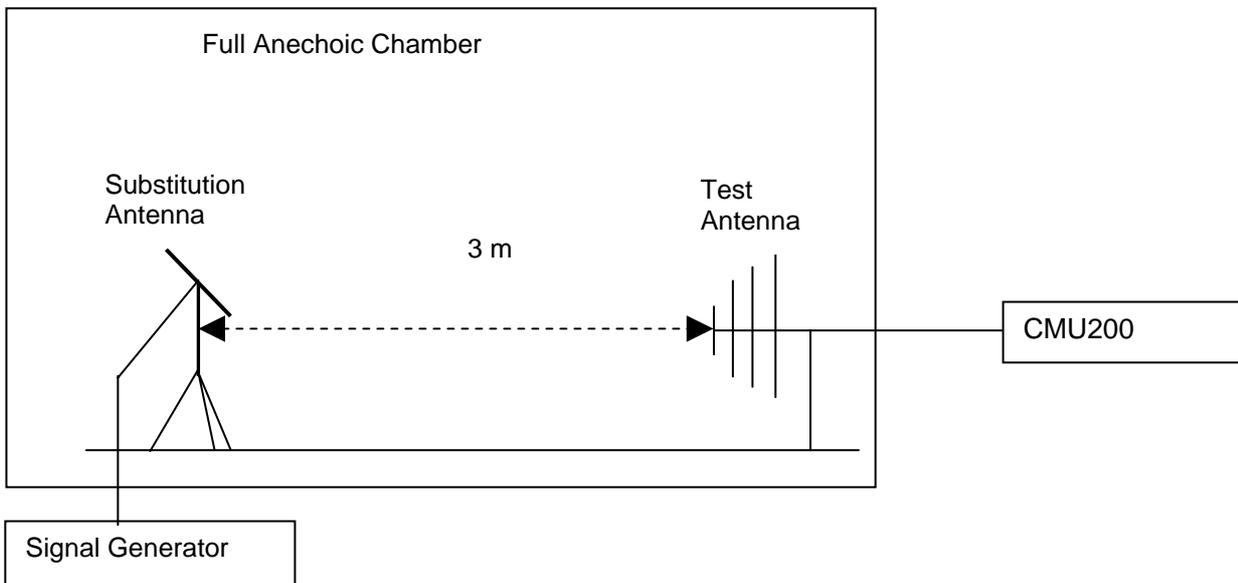
power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

Test setup

Step 1: Pre-test



Step 2: Substitution method to verify the maximum EIRP



Test Set-up

NOTE: Effective radiated power (EIRP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

There is a constant difference of 2.15 dB between EIRP and ERP.

$EIRP (dBm) = ERP (dBm) + 2.15$ (ITU-R Recommendation SM.329-10).

6.1.4 Measurement Results

6.1.4.1 Pre-test Results

Table 15 Pre-Measurement Results

| TEST CONDITIONS | | RF Output Power (EIRP) | | | | | |
|-----------------|---|----------------------------|-------|---------------------------|-------|----------------------------|-------|
| | | Channel512(B) 1850.2MHz | | Channel661 (M) 1880MHz | | Channel810(T) 1909.8MHz | |
| | | dBm | | dBm | | dBm | |
| | | Measured | Limit | Measured | Limit | Measured | Limit |
| TM1 | T _{nom} (25 °C) V _{nom} (3.7V) | 31.43 | 33 | 31.57 | 33 | 31.38 | 33 |

6.1.4.2 Substitution Results

Table 16 Substitution Results

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substitution Antenna Type | SGP [dBm] | Substitution Gain [dBi] | Cable Loss [dB] | Substitution Level (EIRP) [dBm] | Limit [dBm] | Result |
|-----------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| TM1 | 1850.2 | 31.43 | Horn Ant. | 27.66 | 4.6 | 1.0 | 31.26 | 33 | Pass |
| TM1 | 1880.0 | 31.57 | Horn Ant. | 27.58 | 4.6 | 1.0 | 31.18 | 33 | Pass |
| TM1 | 1909.8 | 31.38 | Horn Ant. | 27.54 | 4.8 | 1.0 | 31.34 | 33 | Pass |

Note: a, For get the EIRP (Efficient Isotropically Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

NOTE: SGP- Signal Generator Level

b, RBW=10kHz, VBW=300kHz, and integrated by the instrument to 200kHz for TM1.

6.1.5 Conclusion

The equipment **PASSED** the requirement of this clause.

7 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Table 17 System Measurement Uncertainty

| Items | | Extended Uncertainty |
|---|---------------------------|-----------------------------|
| Effective Radiated Power of Transmitter | EIRP (dBm) | U=3dB; k=2 |
| Band Width | Magnitude (%) | U = 0.2%; k=2 |
| Band Edge Compliance | Disturbance Power (dBm) | U = 2.0dB; k=2 |
| Conducted Spurious Emission at Antenna Terminal | Disturbance Power (dBm) | U = 2.0dB; k=2 |
| Frequency Stability | Frequency Accuracy(ppm) | U = 0.21ppm; k=2 |