

**Intertek**

27 Oct, 2011

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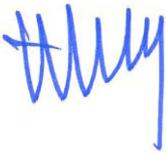
Dear Royce Wang:

Enclosed you will find your file copy of an Original Grant of Part 22 Certification report (FCC ID: Q78-AC8730). Model: AC8730.

For your reference, TCB will normally take another 1 weeks for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,



Leung Wai Leung, Tommy  
Deputy General Manager

Enclosure

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China  
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: [www.china.intertek-etlsemko.com](http://www.china.intertek-etlsemko.com)

## List of Exhibits

<b>Exhibit Type</b>	<b>File Description</b>	<b>Filename</b>
Test Report	Test Report	report.pdf
Operational Description	Technical Description	descri.pdf
Test Report	Bandwidth Plot	99% bw.pdf
Test Report	Spurious Emissions	cspurious.pdf
Test Report	Bandedge Plot	be.pdf
RF Exposure Info	SAR Report	sar report 1 of 3.pdf sar report 2 of 3.pdf sar report 3 of 3.pdf
External Photos	External Photo	external photos.pdf
Internal Photos	Internal Photo	internal photos.pdf
ID Label/Location Info	Label Artwork and Location	label.pdf
Schematics	Circuit Diagram	circuit.pdf
User Manual	User Manual	manual.pdf
Part List/Tune Up Info	Tune Up Procedure	tuneup.pdf
Part List/Tune Up Info	Part List	partlist.pdf
Cover Letter	Letter of Agency	letter of agency.pdf
Cover Letter	Confidentiality Request	request.pdf

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## TEST REPORT

**Report Number: SZ11100068-1**

Application  
for  
Original Grant  
of 47 CFR Part 22 Certification

CDMA 1X Wireless data Terminal

**FCC ID: Q78-AC8730**

Prepared and Checked by:

Approved by:



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Billy Li  
Team Leader  
27 Oct, 2011



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Leung Wai Leung, Tommy  
Deputy General Manager  
27 Oct, 2011

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF No.: FCC 22H&24E\_a

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## INTERTEK TESTING SERVICES

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### GENERAL INFORMATION

<b>Applicant Name:</b>	ZTE Corporation
<b>Applicant Address:</b>	ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong China
<b>FCC Specification Standard:</b>	FCC Part 22: 2010
<b>FCC ID:</b>	Q78-AC8730
<b>FCC Model(s):</b>	AC8730
<b>Type of EUT:</b>	CDMA1X
<b>Description of EUT:</b>	CDMA 1X Wireless data Terminal
<b>Brand Name:</b>	ZTE 中兴
<b>Serial Number:</b>	N/A
<b>Sample Receipt Date:</b>	10 Oct, 2011
<b>Date of Test:</b>	10 Oct, 2011 to 27 Oct, 2011
<b>Report Date:</b>	27 Oct, 2011
<b>Environmental Conditions:</b>	Temperature: 25 ± 10°C Humidity: 10 to 90%

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## Appendix – Exhibits for Application of Certification

## INTERTEK TESTING SERVICES

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### 1.0 Summary of Test Results

Test Items	FCC Section	Results	Details see section
Channels for Cellular and Broadband PCS Services	22.905	Pass	4.1
RF Output Power	2.1046 22.913	Pass	4.3
Occupied Bandwidth	2.1049	Pass	4.4
Spurious Emissions at Antenna Terminals	2.1051 2.1057 22.917	Pass	4.5
Power of Spurious Emissions	2.1053 2.1057 22.917	Pass	4.6
Blockage at antenna terminal	22.917	Pass	4.7
Frequency Stability	2.1055 22.355	Pass	4.8
RF Exposure	1.1307 2.1093	Pass	4.9

### 1.1 Statement of Compliance

The equipment under test is found to be complying with the applicable requirements of following standards:

FCC Part 22: 2010

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### 2.0 General Description

#### 2.1 Product Description

The AC8730 is a CDMA 1X Wireless data Terminal.

The Cellular radiotelephone service frequency ranges of the EUT are as below:

CDMA1X 800MHz frequency band:

Tx: 824 - 849MHz

Rx: 869 - 894MHz

The EUT is powered by a PC USB Port.

The antenna used in the EUT is integral, and the test sample is a prototype.

The circuit description is attached in the Appendix and saved with filename: descri.pdf.

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### 2.3 Test Methodology

Preliminary radiated scans and all radiated measurements were performed in semi-anechoic chamber. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All measurements were made in accordance with the procedures in 47 CFR Part 2, Part 22 and TIA-603-C.

### 2.4 Test Facility

The facilities used to collect the radiated data and conducted data are in **Interterk Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC.

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### 3.0 System Test Configuration

#### 3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was controlled by communication tester to produce maximum power. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by PC USB Port during the test.

For the measurements, the EUT is attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational to simulate typical use.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna polarization is varied during the search for maximum signal level. Only the worst-case polarization is reported. For each spurious, raise and lower the test antenna from 1m to 4m to obtain a maximum reading on the spectrum analyzer. Radiated emissions are taken at three meters. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

The power level of EUT is set for maximum power levels by the communication tester.

For the 800MHz band, according to 22.917, compliance with the rule is based on the use of instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion are measured, and the limit are according to FCC Part 15 Section 15.109.

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### 3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode.

All relevant operation modes have been tested, and the worst case data is included in this report.

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### 3.2 Description of Accessories

No accessory.

### 3.3 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 3.4 Equipment Modification

Any modifications installed previous to testing by ZTE Corporation will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

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### 4.0 Test Results

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). Configuration photographs and data tables of the emissions are included.

#### 4.1 Channels for Cellular Services (FCC Part 22.905)

The following frequency bands are allocated for assignment to service providers in the Cellular Radiotelephone Services by FCC:

##### CDMA 1X 800MHz:

###### (a) Channel Block A:

869 - 880 MHz paired with 824 - 835 MHz

890 - 891.5 MHz paired with 845 - 846.5 MHz

###### (b) Channel Block B:

880 - 890 MHz paired with 835 - 845 MHz

891.5 - 894 MHz paired with 846 - 849 MHz

The frequency range of the EUT is as below:

##### CDMA 1X 800MHz:

Tx: 824 - 849MHz

Rx: 869 - 894MHz

Channel List: 1013-1023 and 1-777

Channel Spacing: 30 KHz

As a result, the frequency range of the EUT fits into the allocated frequency blocks.

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### 4.2 RF Power Output (FCC Part 2.1046, 22.913)

The RF power output is measured at the RF output terminal. The limit is as follows:  
Part 22.913 (for 850MHz band):

- [ ] ≤ 500W ERP (57dBm) for base stations and cellular repeaters
- [√] ≤ 7W ERP (38.5dBm) for mobile and auxiliary test transmitters

Test results:

ARFCN	Frequency (MHz)	Radio Configuration and conducted Power (dBm)			
		RC1	RC1	RC3	RC3
		SO2	SO55	SO2	SO55
1013	824.70	23.29	22.88	23.01	22.78
384	836.52	23.02	22.98	23.27	23.15
777	848.31	23.30	22.98	22.78	22.86

### Worst Case ERP

Band	ARFCN	Frequency (MHz)	Antenna Gain (dBi)	Measured output power (dBm)	*ERP (dBm)	Limit (dBm)	Verdict
CDMA1X 800MHz	1013	824.70	-3	23.29	18.14	38.5	PASS
	384	836.52	-3	23.27	18.12	38.5	PASS
	777	848.31	-3	23.30	18.15	38.5	PASS

\*ERP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi) - 2.15dB

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### 4.3 Occupied Bandwidth (FCC Part 2.1049)

From 2.1049, occupied bandwidth is defined as the measured spectral width of an emission. The measurement determines occupied bandwidth as the difference between upper and lower frequencies where 0.5% of the emission power is above the upper frequency and 0.5% of the emission power is below the lower frequency.

The 26dB bandwidth is also recorded to determine the resolution bandwidth used in measurements, as specified in 22.917.

#### Test results:

Band	ARFCN	Frequency (MHz)	99% Bandwidth (kHz)	26dB Bandwidth (kHz)
CDMA 800MHz	384	836.52	1.27	1.43

The plots of 99% bandwidth are saved in the file 99% bw.pdf.

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### 4.4 Spurious Emissions at Antenna Terminals (FCC Part 2.1051, 2.1057, 22.917)

The conducted spurious emissions is measured from 9kHz up to the 10<sup>th</sup> harmonic of fundamental emission.

According to 22.917 and 24.238, 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, i.e. at or below -13dBm.

Test results:

Band	ARFCN	Channel Frequency (MHz)	Verdict
CDMA 800MHz	384	836.52	PASS

The plots are saved in the file cspurious.pdf.

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### 4.5 Power of Spurious Emissions (FCC Part 2.1053, 2.1057, 22.917)

The radiated spurious emissions are tested per TIA/EIA-603 using the Substitution Method and measured from 9KHz up to the 10<sup>th</sup> harmonic of fundamental emission.

According to 22.917, 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, i.e. at or below -13dBm.

Test results:

CDMA 800MHz band (ARFCN =384, Channel frequency = 836.52MHz):

Polarization	Frequency (MHz)	Measured ERP (dBm)	Limit ERP (dBm)	Margin (dB)
V	\	\	\	\
H	\	\	\	\

Remarks: the magnitudes of spurious emission which are attenuated more than 20 dB below the permissible value are not reported.

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### 4.6 Blockedge at Antenna Terminals (FCC Part 22.917)

In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.

The power of any emission at the blockedge must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB, i.e. at or below -13dBm.

Test results:

Band	ARFCN	Channel Frequency (MHz)	Worst case bandedge emission (dBm)	Limit (dBm)	Verdict
CDMA 800MHz	1013	824.70	-16.59	-13	PASS
	777	848.31	-13.37	-13	PASS

The plots are saved in the file be.pdf.

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### 4.7 Frequency Stability (FCC Part 2.1055, 22.355, 24.235)

The frequency stability is measured with the temperature variation range of -30°C to +50°C (10°C increment), and voltage supply variation range of 85% to 115% of nominal AC supply voltage, and/or nominal to battery end points for hand-carried battery-powered supplies.

[  ] AC nominal supply voltage: 120VAC (Powered by PC USB Port)

[  ] Battery nominal voltage: \_\_\_\_\_VDC; End points: \_\_\_\_\_ VDC

20°C is taken as temperature in normal condition.

For the 850MHz band, according to 22.355, the stability requirements are: ±1.5ppm for mobile units and ±2.5ppm for portable units.

Test results:

CDMA 800MHz band (AFRCN =384, Channel frequency =836.52 MHz):

Input voltage (VDC)	Temperature (°C)	Frequency deviation (Hz)	Limit (Hz)	Limit (ppm)	Verdict
120	-30	-10	±2091.3	±2.5	PASS
	-20	-11			PASS
	-10	-10			PASS
	0	-8			PASS
	+10	-7			PASS
	+20	-8			PASS
	+30	-9			PASS
	+40	-12			PASS
	+50	-15			PASS
102	+20	-7			PASS
138	+20	-8			PASS

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### 4.8 Radio Frequency Exposure Compliance

EUT is subject to the radio frequency exposure requirements specified in FCC Rule § 1.1307(b), 2.1093. It shall be considered to operate in a “general population / uncontrolled” environment.

- Portable unit: EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). It is in compliance with the SAR evaluation requirements. The caution statement is saved as filename: RF exposure info.pdf. A SAR test report was submitted at same time and saved as SAR Report.pdf.
- Mobile unit: EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to OET Bulletin 65(Edition 97-01). The evaluation calculation results are saved as filename: RF exposure info.pdf.

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### 5.0 Equipment List

Equipment	Spectrum Analyzer	Temperature & Humidity Chamber	Universal Radio Communication Tester
Registration No.	SB7941/02	SB2697	SB3441
Manufacturer	R&S	ESPEC	R&S
Model No.	FSU26	LHU-213	CMU200
Calibration Date	2011.01.21	2011.07.28	2011.03.31
Calibration Due Date	2012.01.21	2012.07.28	2012.03.31

Equipment	Broadband antenna	Horn Antenna	EMI Test Receiver
Registration No.	SB5472/02	SB3435	SB3436
Manufacturer	SCHWARZBE CK	R&S	R&S
Model No.	VULB9163	HF906	ESI26
Calibration Date	2011.01.17	2011.01.17	2011.01.21
Calibration Due Date	2012.01.17	2012.01.17	2012.01.21

Equipment	Notch Filter	3m chamber	Directional Bridge
Registration No.	SB3445	SB3450/01	SZ070-04
Manufacturer	R&S	Albatross Projects	Agilent
Model No.	TS-NDTC	N/A	86205A
Calibration Date	2011.01.26	2010.10.21	2010.12.30
Calibration Due Date	2012.01.26	2012.10.21	2011.12.30

**END OF TEST REPORT**

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**APPENDIX  
EXHIBITS OF APPLICATION FOR CERTIFICATION**