

FCC TEST REPORT

For

LTE Remote Radio Unit

Model Number: ZXSDR A8988S S3600

FCC ID: Q78-A8988SS3600

Report Number : WT178007190

Test Laboratory : Shenzhen Academy of Metrology and Quality
Inspection
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Test report declaration

Applicant : ZTE Corporation
Address : ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China 518057
Manufacturer : ZTE Corporation
Address : ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China 518057
EUT Description : LTE Remote Radio Unit
Model No : ZXSDR A8988S S3600
Trade mark : ZTE
Serial Number : /
FCC ID : Q78-A8988SS3600

Test Standards:

FCC PART 90

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI/TIA-603-E (2016) & KDB971168 and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 90.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

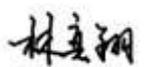
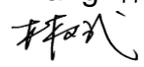
Project Engineer:	 _____ (Chen Silin 陈司林)	Date:	<u>Nov.10, 2017</u>
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Approved by:	 _____ (Lin Bin 林斌)	Date:	<u>Nov.10, 2017</u>

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TEST Results Summary

Table 1 Test Results Summary

FCC RULES	DESCRIPTION OF TEST	RESULT
§90.7	Verification of Unrestricted Contention Based Protocol operation	PASS

Remark: "N/A" means "Not applicable."

1. GENERAL INFORMATION

1.1. Report information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

The samples mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

1.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 582918.

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is 11177A-1 11177A-2.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

1.3. Measurement Uncertainty

For a 95% confidence level ($k = 2$), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Radiated Emission

30MHz~1000MHz 4.5dB

1GHz~26.5GHz 4.6dB

2. PRODUCT DESCRIPTION

2.1. EUT Description

The ZTE Corporation's product, model number: ZXSDR A8988S S3600 or the "EUT" as referred to in this report is a LTE Active Antenna Unit.

Technical specification:

Total Weight: 13kg

Volume: 15L

Dimensions (H*W*D): 450 mm x 372 mm x 93 mm

Input voltage: -48VDC (-60VDC to -37VDC)

Frequency range: 3650MHz~3700 MHz

Carrier and bandwidth: 1carrier, 20MHz; 3carriers, 20+20+10MHz

Max RF output power: 22dBm for 1carrier 20MHz; 26dBm for 3carriers 20+20+10MHz

Modulation type of emission: LTE

Appearance of EUT:

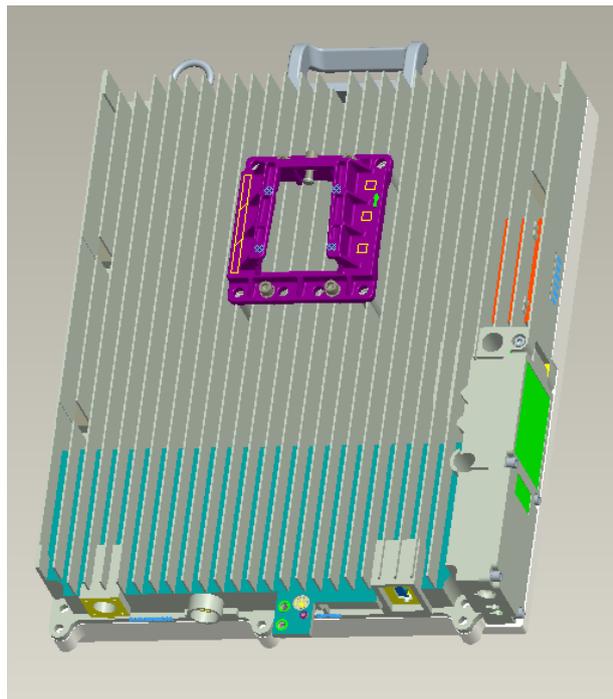


Figure 1 External View of the ZXSDR A8988S S3600

2.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **Q78-A8988SS3600** filing to comply with FCC PART 90.

2.3. Operating Condition of EUT

The maximum power levels are LTE Mode for QPSK, 16QAM, 64QAM link , only these modes were used for all tests.

Date of test: Oct.9, 2017 - Oct.25, 2017

Date of EUT Receive: Oct.9, 2017

3. TEST RESULTS

3.1.Verification of Unrestricted Contention Based Protocol operation

3.1.1.Applicable Standard: FCC §90.7

A protocol that allows multiple users to share the same spectrum by defining the events that must occur when two or more transmitters attempt to simultaneously access the same channel and establishing rules by which a transmitter provides reasonable opportunities for other transmitters to operate. Such a protocol may consist of procedures

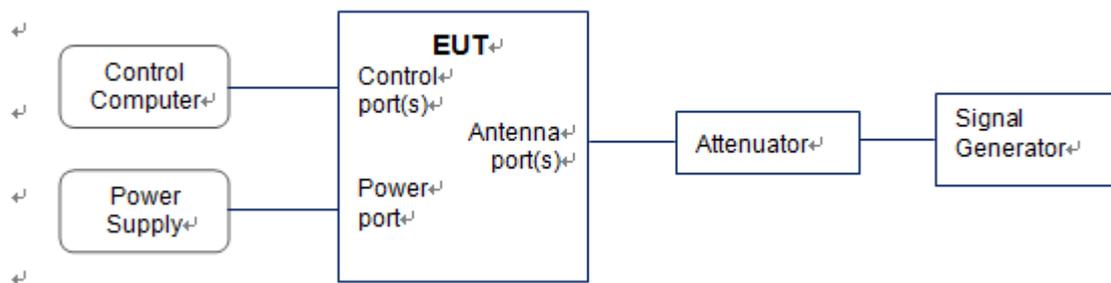
for initiating new transmissions,Procedures for determining the state of the channel (available or unavailable), and procedures for managing retransmissions in the event of a busy channel.

3.1.2.Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Signal Generator	SMBV100A	SB11873/02	2017.3.16	2018.3.15

***statement of traceability:** SMQ attests that all calibration has been performed per the A2LA requirements, traceable to NIM.

3.1.3.Test Procedure



All tests were performed as conducted measurements.

- 1) Power on EUT, set Interference detection switch ON and set interference detection threshold(this threshold can be configured by operator);
- 2) Adjust frequency and output power of signal generator to act as an interference at the antenna port;
- 3) Monitor EUT state on the control computer;
- 4) Set Interference detection switch OFF;
- 5) Repeat step 2)-3).

3.1.4.Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

3.1.5.Test Result: Pass

3.1.6.Test Mode: Transmitting LTE

3.1.7.Test Data:

Pi: interference power level
P: interference detection threshold
DL: down link
RRU work band: 3650~3700MHz
Outside the lower band: 3640MHz
In band low end: 3660MHz
In mid band: 3675MHz
In band high end: 3695MHz
Outside the higher band: 3710MHz

Wanted signal bandwidth (MHz)	Wanted signal Frequency (MHz)	Interference detection switch	Interference detection threshold P (dBm)	Interference signal location	Test Result
20	3650-3670	ON	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	ON	-80	in band low end	Pi>P:DL OFF Pi<P:DL ON
20	3650-3670	ON	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	ON	-80	in band high end	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	ON	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	OFF	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	OFF	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	OFF	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	OFF	-80	in band high end	Pi>P:DL ON Pi<P:DL ON
20	3650-3670	OFF	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	ON	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	ON	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	ON	-80	in mid band	Pi>P:DL OFF Pi<P:DL ON
20	3665-3685	ON	-80	in band high end	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	ON	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	OFF	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	OFF	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	OFF	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20	3665-3685	OFF	-80	in band high end	Pi>P:DL ON Pi<P:DL ON

Wanted signal bandwidth (MHz)	Wanted signal Frequency (MHz)	Interference detection switch	Interference detection threshold P (dBm)	Interference signal location	Test Result
20	3665-3685	OFF	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	ON	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	ON	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	ON	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	ON	-80	in band high end	Pi>P:DL OFF Pi<P:DL ON
20	3680-3700	ON	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	in band high end	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20	3680-3700	OFF	-80	mid band	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	ON	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	ON	-80	in band low end	Pi>P:DL OFF Pi<P:DL ON
20+20+10	3650-3700	ON	-80	in mid band	Pi>P:DL OFF Pi<P:DL ON
20+20+10	3650-3700	ON	-80	in band low end	Pi>P:DL OFF Pi<P:DL ON
20+20+10	3650-3700	ON	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	OFF	-80	outside the lower band	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	OFF	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	OFF	-80	in mid band	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	OFF	-80	in band low end	Pi>P:DL ON Pi<P:DL ON
20+20+10	3650-3700	OFF	-80	outside the higher band	Pi>P:DL ON Pi<P:DL ON

Notes:

CW signal was used as an interference signal for unlike systems;

Interference power level at antenna port can be detected by EUT and observed on the control computer.