



TEST REPORT

No. 2011TAR047

for

ZTE Corporation

HSPA+ USB Stick

Model Name: MF668A

FCC ID : Q78-MF668A

with

Hardware Version: d32A

Software Version: BD_MF668AV1.0.0B02

Issued Date: 2011-01-28

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

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1. Test Laboratory

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan beilu, Haidian District, Beijing, P. R. China
Postal Code: 100191
Telephone: 00861062304633
Fax: 00861062304633

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 20-75%

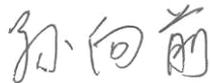
1.3. Project data

Testing Start Date: Jan 11, 2011
Testing End Date: Jan 15, 2011

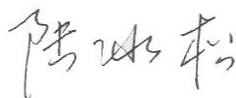
1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: ZTE CORPORATION
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan
District,Shenzhen, Guangdong, 518057, P.R.China
City: Shenzhen
Postal Code: 518057
Country: China
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2.2. Manufacturer Information

Company Name: ZTE CORPORATION
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan
District,Shenzhen, Guangdong, 518057, P.R.China
City: Shenzhen
Postal Code: 518057
Country: China
Telephone: +86-21-68897541
Fax: +86-21-50801070

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

| | |
|---------------------|------------------------------------|
| Description | HSPA+ USB Stick |
| Model Name | MF668A |
| FCC ID | Q78-MF668A |
| Extreme vol. Limits | 4.8VDC to 5.2VDC (nominal: 5.0VDC) |

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MII of People's Republic of China.

3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version |
|----------------|-------------------|-------------------|--------------------|
| N01 | 86485100000001 | d32A | BD_MF668AV1.0.0B02 |

*EUT ID: is used to identify the test sample in the lab internally.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|------------------------|--|--------------------------|
| FCC Part 15, Subpart B | Radio frequency devices | July 10, 2008 Edition |
| ANSI C63.4 | Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2003 |

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

| | |
|-----------------------------------|---|
| Temperature | Min. = 15 °C, Max. = 30 °C |
| Relative humidity | Min. = 30 %, Max. = 60 % |
| Shielding effectiveness | > 110 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |
| Normalised site attenuation (NSA) | < ±3.2 dB, 10 m distance, from 30 to 1000 MHz |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 2000 MHz |

Control room did not exceed following limits along the EMC testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. =30 %, Max. = 60 % |
| Shielding effectiveness | > 110 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |

Conducted chamber did not exceed following limits along the EMC testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 30 °C |
| Relative humidity | Min. = 30 %, Max. = 60 % |
| Shielding effectiveness | > 110 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

| | |
|------------------------------|---|
| Temperature | Min. = 15 °C, Max. = 30 °C |
| Relative humidity | Min. = 30 %, Max. = 60 % |
| Shielding effectiveness | > 110 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 2000 MHz |

6. SUMMARY OF TEST RESULTS

| Abbreviations used in this clause: | |
|---|----------------|
| P | Pass |
| NA | Not applicable |
| F | Fail |

| Clause | List | Clause in FCC rules | Verdict |
|---------------|--------------------|----------------------------|----------------|
| 1 | Radiated Emission | 15.109(a) | P |
| 2 | Conducted Emission | 15.107(a) | P |

7. Test Equipments Utilized

| NO. | Description | TYPE | SERIES NUMBER | MANUFACTURER | CAL DUE DATE |
|-----|--------------------------------------|---------------|------------------------------|--------------|--------------|
| 1 | Test Receiver | ESCI | 100344 | R&S | 2011-03-12 |
| 2 | Test Receiver | ESCI | 100766 | R&S | 2011-12-06 |
| 3 | Test Receiver | ESI40 | 831564/002 | R&S | 2011-02-12 |
| 4 | BiLog Antenna | VUL9163 | 9163-302 | Schwarzbeck | 2011-02-10 |
| 5 | Signal Generator | SMB100A | 102063 | R&S | 2011-03-05 |
| 6 | LISN | ESH2-Z5 | 829991/012 | R&S | 2011-04-20 |
| 7 | Universal Radio Communication Tester | CMU200 | 100680 | R&S | 2011-09-05 |
| 8 | Dual-Ridge Waveguide Horn Antenna | 3115 | 6914 | EMCO | 2011-3 |
| 9 | PC | OPTIPLEX 755 | 3908243625 | DELL | N/A |
| 10 | Monitor | E178FPc | CN-OWR979-641 80-7AJ-D2MS | DELL | N/A |
| 11 | Printer | DeskJet D2368 | TH72E12G7Q | HP | N/A |
| 12 | Keyboard | L100 | CN0RH65965890 7ATOI40 | DELL | N/A |
| 13 | Mouse | VR-301 | 6927225500198 | XINGYU | N/A |

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 8.3.

A.1.2 EUT Operating Mode:

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.1.3 Measurement Limit

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

A.1.4 Test Condition

| Frequency of emission (MHz) | RBW/VBW | Sweep Time(s) |
|-----------------------------|---------------|---------------|
| 30-1000 | 100KHz/300KHz | 5 |
| 1000-4000 | 1MHz/1MHz | 15 |

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + F_A + G_{\text{PL}}$$

Where

F_A : Receive Antenna Factor

G_{PL} : Cable Loss

P_{Mea} : The measurement result on receiver.

USB Mode

| Frequency(MHz) | Result(dBuV/m) | G_{PL} (dB) | F_A (dB) | P_{mea} (dBuV/m) | Polarity |
|----------------|----------------|----------------------|------------|---------------------------|------------|
| 3621.242 | 50.96 | -19.8 | 33.4 | 37.36 | VERTICAL |
| 3537.074 | 50.77 | -19.4 | 33.4 | 36.77 | VERTICAL |
| 3699.399 | 50.73 | -19.5 | 33.4 | 36.83 | VERTICAL |
| 3478.958 | 50.71 | -19.7 | 31.2 | 39.21 | HORIZONTAL |
| 3587.174 | 50.64 | -19.6 | 33.4 | 36.84 | VERTICAL |
| 3815.631 | 50.62 | -19.5 | 33.4 | 36.72 | VERTICAL |

USB Mode

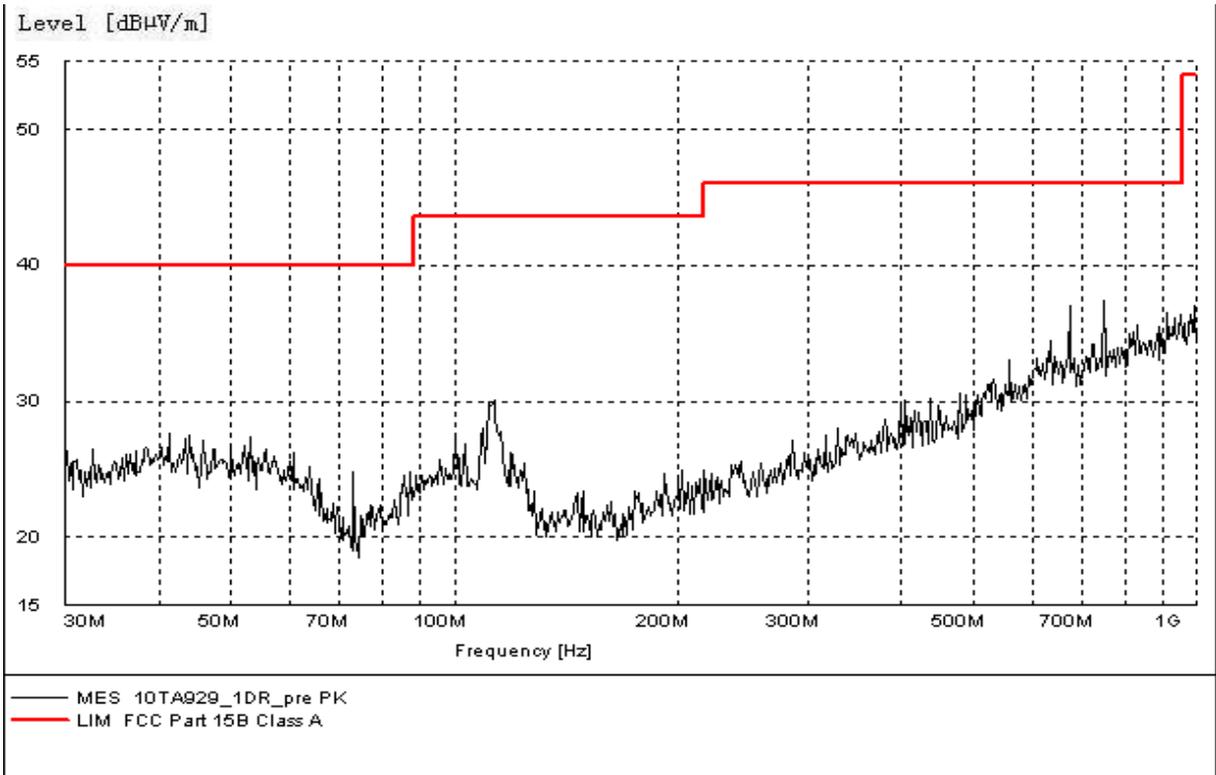


Figure A.1 Radiated Emission from 30MHz to 1GHz

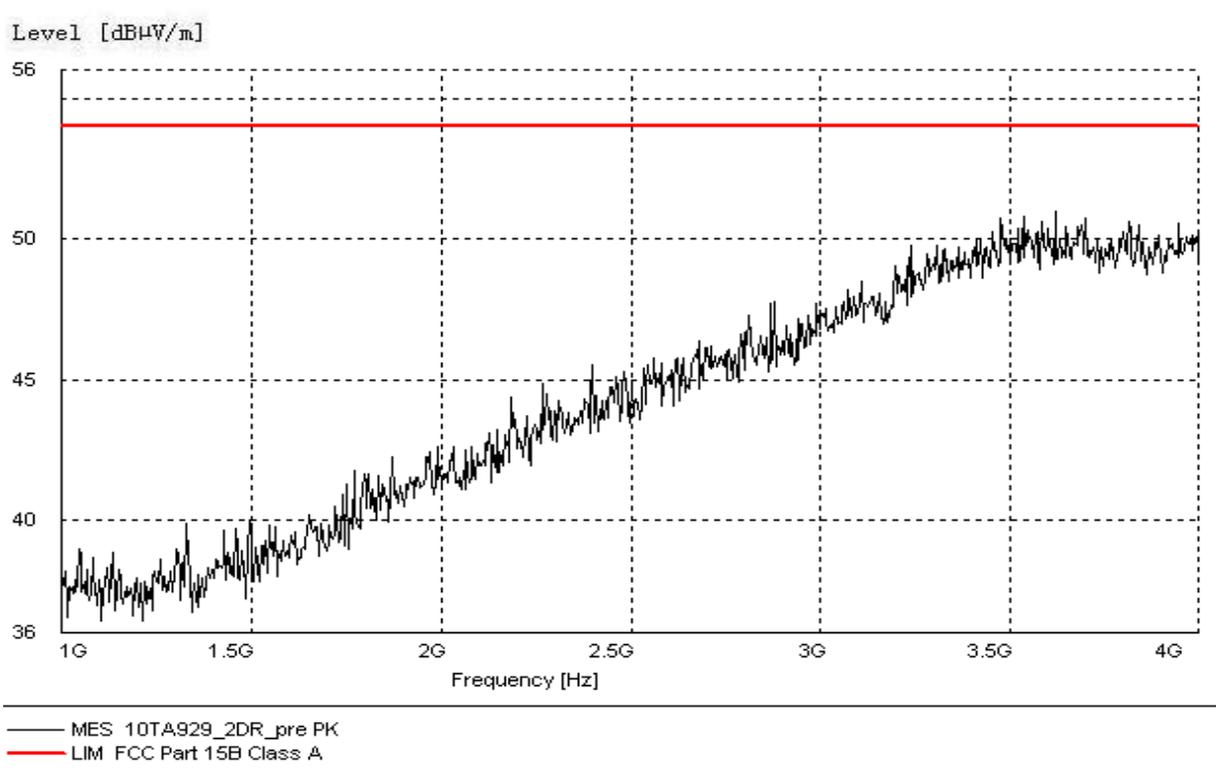


Figure A.2 Radiated Emission from 1GHz to 4GHz

A.2 Conducted Emission (§15.107(a))

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 7.2.

A.2.2 EUT Operating Mode:

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.2.3 Measurement Limit

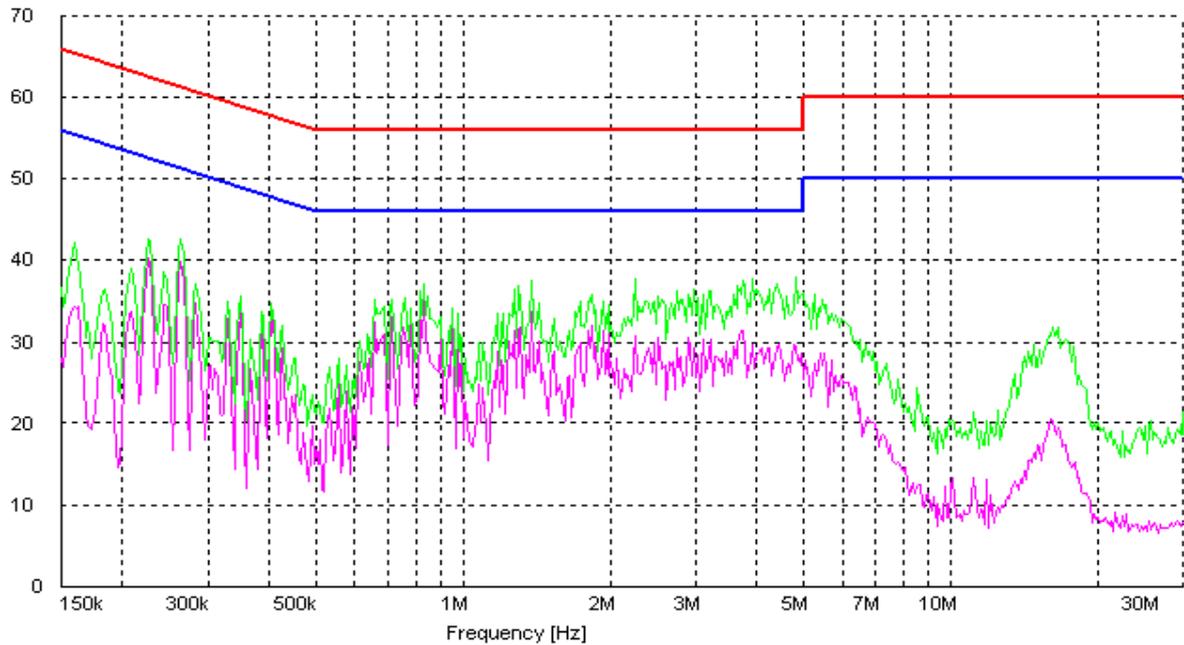
| Frequency of emission (MHz) | Conducted limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency

A.2.4 Measurement Results

USB Mode

Level [dBμV]



— MES 10TA929_15B_pre PK
— MES 10TA929_15B_pre AV
— LIM EN 55022 V QP Voltage QP Limit
— LIM EN 55022 V AV Voltage AV Limit

Figure A.3 Conducted Emission

MEASUREMENT RESULT: "10TA929_CC_fin QP"

| Frequency | Level | Transd | Limit | Margin | Line | PE |
|-----------|-------|--------|-------|--------|------|-----|
| MHz | dBμV | dB | dBμV | dB | | |
| 0.225563 | 42.71 | 10.1 | 63 | 20.3 | L1 | GND |
| 0.264490 | 42.67 | 10.1 | 61 | 18.3 | L1 | GND |
| 0.159228 | 42.18 | 10.1 | 65 | 22.8 | L1 | GND |
| 4.800770 | 37.85 | 10.2 | 56 | 18.1 | L1 | GND |
| 3.934444 | 37.73 | 10.2 | 56 | 18.7 | N | GND |
| 2.253650 | 37.69 | 10.2 | 56 | 18.3 | N | GND |

MEASUREMENT RESULT: "10TA929_CC_fin AV"

| Frequency | Level | Transd | Limit | Margin | Line | PE |
|-----------|-------|--------|-------|--------|------|-----|
| MHz | dBμV | dB | dBμV | dB | | |
| 0.225563 | 40.26 | 10.1 | 53 | 12.8 | L1 | GND |
| 0.261871 | 37.78 | 10.1 | 51 | 13.2 | L1 | GND |
| 0.830553 | 34.92 | 10.1 | 46 | 11.1 | L1 | GND |
| 0.162429 | 34.45 | 10.1 | 55 | 20.6 | L1 | GND |
| 1.379614 | 33.75 | 10.2 | 46 | 12.2 | L1 | GND |
| 0.814188 | 33.56 | 10.1 | 46 | 12.4 | L1 | GND |

END OF REPORT