



EMF TEST REPORT

No. I14N00332-EMF

For

ZTE CORPORATION

GSM wireless data terminals

Model Name: ZTE MG2639

Marketing Name: ZTE MG2639

FCC ID: SRQ-MG2639

With

Hardware Version: MG2639_V3_B

Software Version: MG2639_V3_DFFF003

Issued Date: May 16th, 2014

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:

TMC Beijing, Telecommunication Metrology Center of MIIT

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1. Test Laboratory

1.1 Testing Location

Company Name: TMC Shenzhen, Telecommunication Metrology Center of MIIT
Address: No. 12building, Shangsha Innovation and Technology Park, Futian District, Shenzhen, P. R. China
Postal Code: 518048
Telephone: +86-755-33322000
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1.2 Testing Environment

Temperature: 18°C~25 °C,
Relative humidity: 30%~ 70%
Ground system resistance: < 0.5 Ω
Ambient noise & Reflection: < 0.012 W/kg

1.3 Project Data

Project Leader: Zhang Bojun
Test Engineer: Cao Junfei
Testing Start Date: May 08th, 2014
Testing End Date: May 14th, 2014

1.4 Signature



Cao Junfei
(Prepared this test report)



Zhang Bojun
(Reviewed this test report)



Lu Minniu
Director of the laboratory
(Approved this test report)

2 Client Information

2.1 Applicant Information

Company Name: ZTE CORPORATION
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2.2 Manufacturer Information

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

3.1 About EUT

Description:	GSM wireless data terminals
Model name:	ZTE MG2639
Marketing name:	ZTE MG2639
Operating mode(s):	GSM850/GSM1900
GPRS Multislot Class:	10
Device type:	Portable device
Accessories/Body-worn configurations:	/
Tested Tx Frequency:	824.2 – 848.8 MHz (GSM 850) 1850.2 – 1909.8 MHz (GSM 1900)

3.2 Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	/	MG2639_V3_B	MG2639_V3_DFFF003

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

3.3 Internal Identification of AE

AE ID*	Description	Model	SN	Manufacturer
AE1	/	/	/	/

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

4 Reference Documents

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v05r01: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.

FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices.

5 RF Exposure Limit

Limits for General Population/Uncontrolled Exposure in §1.1310

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

6 Friis Formula

Friis transmission formula : $P_d = (P_{out} * G) / (4 * \pi * r^2)$

where

P_d = power density in **W/m^2**

P_{out} = output power to antenna in **W**

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in **m**

P_d is the limit of MPE. If we know the maximum Gain of the antenna and the total power input to the antenna, through the calculation, we will know the MPE value at distance 20cm.

7 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

8 Test Results

8.1 The maximum antenna gain

The maximum antenna gain for external antenna is

GSM 850: 5dBi

GSM1900: 5dBi

8.2 Output Power Into Antenna & RF Exposure value at distance 20cm

Conducted Output power calculation:

mode	timeslot	Duty cycle	Peak Output Power (dBm)	Average Output Power(dBm)
GSM 850	1 slot	12.5%	32.09	23.06
GPRS 850	1 slot	12.5%	32.80	23.77
GPRS 850	2 slots	25%	31.80	25.78
GPRS 850	3 slots	37.5%	29.90	25.64
GPRS 850	4 slots	50%	28.90	25.89
GSM 1900	1 slot	12.5%	28.17	19.14
GPRS 1900	1 slot	12.5%	28.70	19.67
GPRS 1900	2 slots	25%	27.80	21.78
GPRS 1900	3 slots	37.5%	25.90	21.64
GPRS 1900	4 slots	50%	25.10	22.09

NOTES:

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

So the worst cases for each frequency band are:

Frequency band	Average Output Power(dBm)	Average Output Power(mW)	Antenna gain(dBi)	Antenna gain(numeric)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	PASS /FAIL
GSM 850	25.89	388.15	5	3.16	0.244	0.57	PASS
GSM 1900	22.09	161.81	5	3.16	0.101	1	PASS

END OF REPORT