Registration

No.910917

TEST REPORT

Report No.:	SRTC2017-9003(F)-0139
Product Name:	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model Name:	602ZT
Applicant:	ZTE Corporation
Manufacturer:	ZTE Corporation
Specification:	FCC Part15B (Certification) (October 1, 2016 edition)
FCC ID:	SRQ-602ZT

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-57996181 Fax: 86-10-57996288

CONTENTS

1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).
The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
Address: No.80 Beilishi Road, Xicheng District
City: Beijing
Country or Region: China
Contacted person: Liu Jia
Tel: +86 10 57996181
Fax: +86 10 57996288
Email: liujiaf@srtc.org.cn

1.3Applicant's details

Company:ZTE Corporation
Address:ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Guangdong
City: Shenzhen
Country or Region: P.R.China
Contacted person: Min Zhang
Tel: 021-68897867
Fax: 021-50801070
Email: zhang.min13@zte.com.cn

1.4Manufacturer's details

Company:ZTE Corporation
Address:ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Guangdong
City: Shenzhen
Country or Region: P.R.China
Contacted person: Min Zhang
Tel: 021-68897867
Fax: 021-50801070
Email: zhang.min13@zte.com.cn

1.5 Application details

Date of reception of test sample: 12th Apr. 2017
Date of test: 12th Apr. 2017 to 26th Apr. 2017

1.6 Reference specification

FCC Part 15B, 2016 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
FCC ID	SRQ-602ZT
Frequency Range	PCS1900 Tx:1850~1910MHz Rx:1930~1990MHz LTE band 41:Tx: 2545 MHz – 2595 MHz Rx: 2545 MHz – 2595 MHz
Rated Output Power	PCS1900:30.0dBm LTE:21.0dBm
Modulation Type	GSM/GPRS:GMSK EDGE:GMSK LTE:QPSK; 16QAM
Emission Designator	GSM/GPRS;EDGE;LTE
Duplex Mode	TDD
Equipment Class	Class B
Antenna Type	Fixed Internal Antenna
Power Supply	Battery or Charger
Rated Power Supply Voltage	3.85V
Extreme Temperature	-15℃ ～ +55℃
Extreme Voltage	Minimum: 3.47V Maximum: 4.24V
HW Version	csrB
SW Version	602ZT a0.1

1.7.2EUT details

Product Name	Model Name	IMEI
LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone	602ZT	864766030001391

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Battery

Equipment	Li-Lon
Manufacturer	BYD
Model Number	Li3824T44P4h716043
S/N	
Capacity	2400mAh
Nominal Voltage	3.85V

AE (Auxiliary Equipment) 2#: Charger

Equipment	TRAVELCHARGER
Manufacturer	Shenzhen DOKOCOM Energy Technology Co., LTD
Model Number	STC-A508A-Z
S/N	/

AE (Auxiliary Equipment) 3#: USB Cable

Equipment	USB Cable
Manufacturer	Shen Zhen Shi Yi HUA XING Electron Co.,Ltd
Model Number	080410500068

AE (Auxiliary Equipment) 4#: Headset

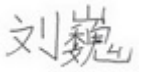
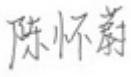
Equipment	Headset
Manufacturer	FDC
Model Number	DEM-76

NOTE: Accessories (Charger/USB Cable/Headset) are provided by test lab.

2.Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	Conducted emissions	15.107	Pass
2	Radiated emissions	15.109	Pass

Approved by Mr. LiuWei Director of the test department 	Checked by Mr. He Jia Project manager of the test department 
Tested by: Mr. Chen Huaiwei Test engineer 	Issued date: 2017.04.26

2.2 Test result

2.2.1Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
24.5	40.5%	101.7kPa

Test Setup with laptop:

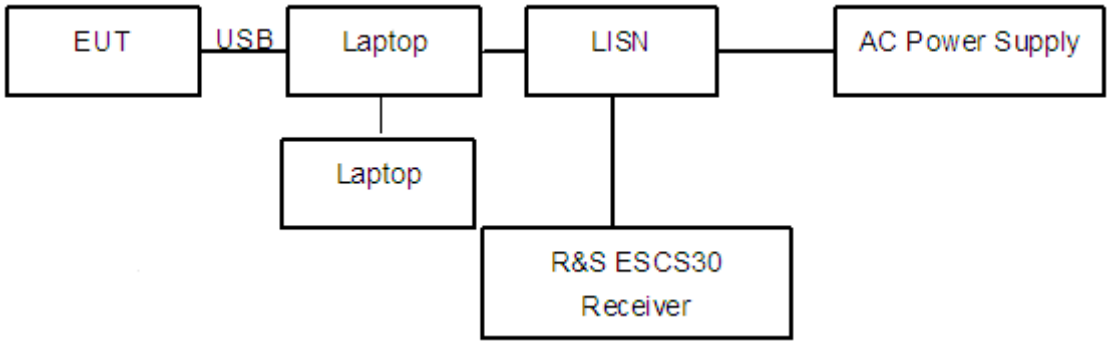


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The accessories of the EUT are connected with the EUT such as headset etc. The EUT was exercised during the testing by data read and write cycles repeated with internal storages connecting with a laptop via the USB cable. The laptop's LAN port is connected with another laptop via cable. And the data transferring between two laptops is maintained.
The AC main power supply of the laptop is connected to LISN and LISN is connected to the reference ground. The test set-up and the test methods are performed according to ANSI C63.4:2014.
Then start the test software ES-K1. Sweep the whole frequency band through the range from 150 KHz to 30 MHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.
The data of cable loss has been calibrated in full testing frequency range before the testing.

Test Setup with charger:

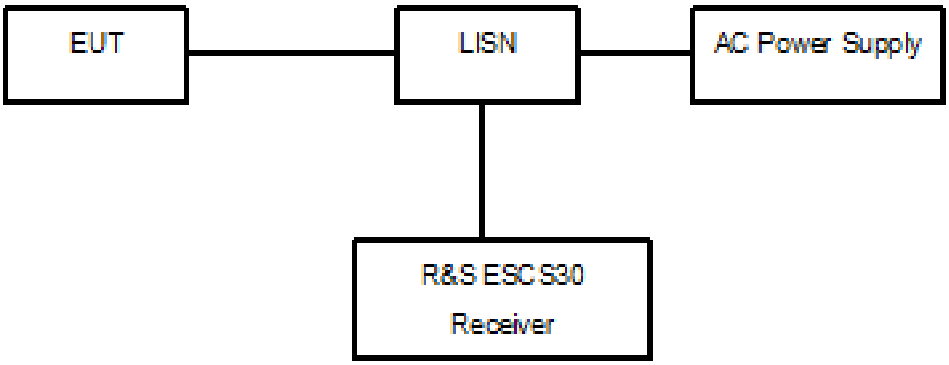


Figure 2

Test Procedure:

The EUT is placed on a non-matellic table 0.8m above the horizontal metal reference ground plane. The EUT is connected with LISN via the charger. The LISN is connected to the reference ground. The accessories of the EUT are connected with the EUT such as headset etc.
The test set-up and the test methods are performed according to ANSI C63.4:2014. Then start the test software ES-K1. Sweep the whole frequency band through the range from 150 KHz to 30 MHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.
The data of cable loss has been calibrated in full testing frequency range before the testing.

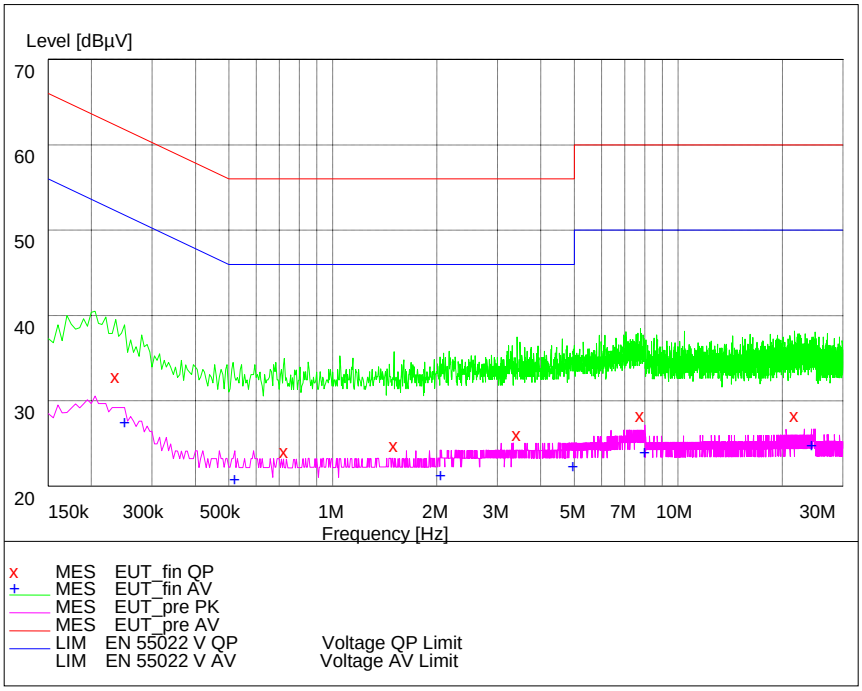
Limit:

Frequency of Emission(MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15～0.5	66 to 56*	56 to 46*
0.5～5	56	46
5～30	60	50

Note: * Decreases with the logarithm of the frequency

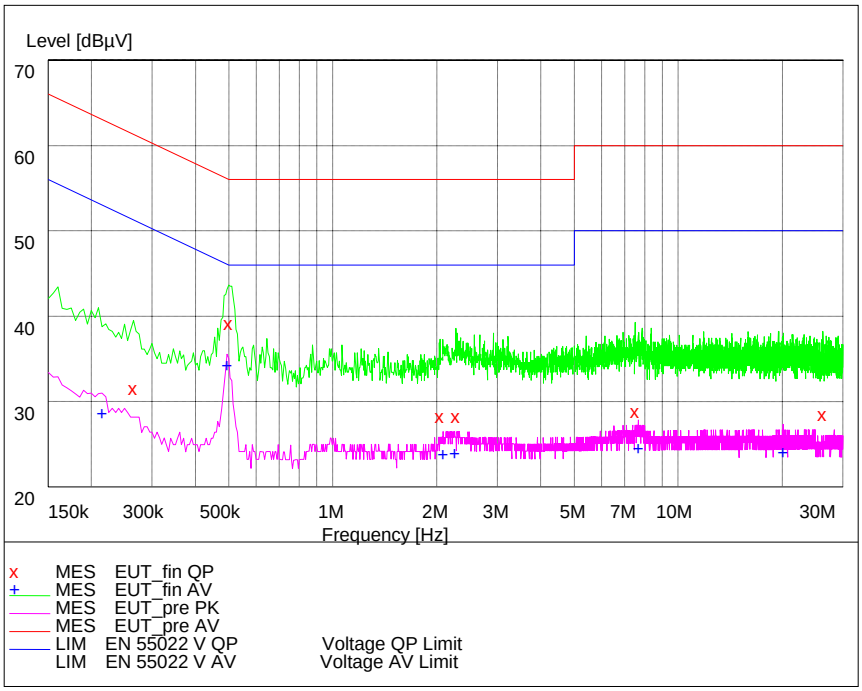
Test result:

Noise Level of the Measuring Instrument



Pic1.Conducted emission L and N Line

EUT+Laptop:



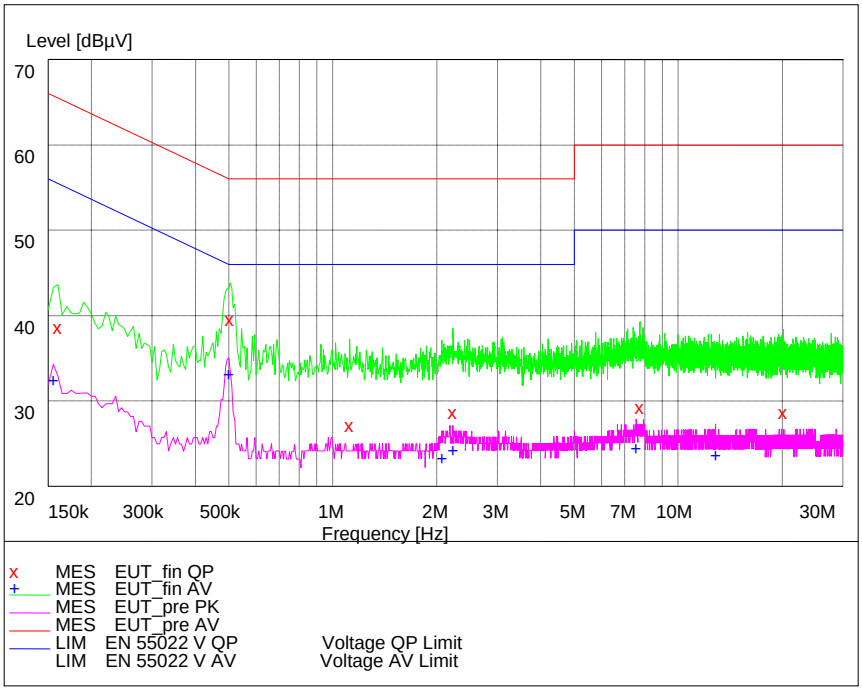
Pic2. Conducted emission L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.265000	32.90	29.6	61	28.3	---	---
0.500000	40.50	29.5	56	15.5	---	---
2.045000	29.60	29.6	56	26.4	---	---
2.275000	29.60	29.6	56	26.4	---	---
7.510000	30.20	29.7	60	29.8	---	---
26.270000	29.90	31.4	60	30.1	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.215000	30.00	29.6	53	23.0	---	---
0.495000	35.60	29.5	46	10.5	---	---
2.090000	25.10	29.6	46	20.9	---	---
2.255000	25.30	29.6	46	20.7	---	---
7.665000	25.90	29.7	50	24.1	---	---
20.150000	25.40	30.4	50	24.6	---	---



Pic3. Conducted emission N Line

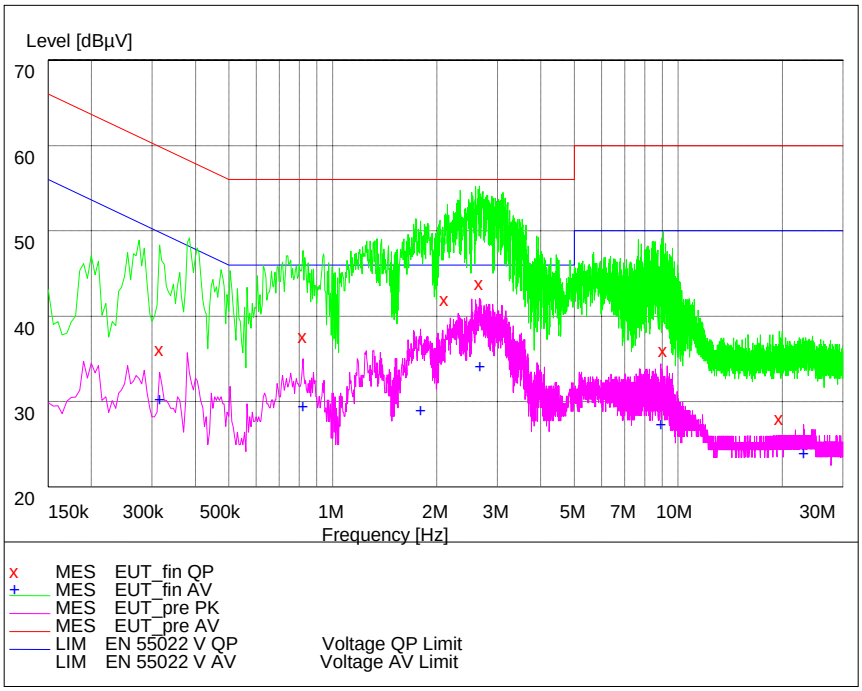
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.160000	40.00	29.7	66	25.5	---	---
0.505000	41.00	29.5	56	15.0	---	---
1.120000	28.50	29.5	56	27.5	---	---
2.230000	30.00	29.6	56	26.0	---	---
7.765000	30.60	29.7	60	29.4	---	---
20.195000	30.00	30.4	60	30.0	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.155000	33.80	29.7	56	21.9	---	---
0.500000	34.40	29.5	46	11.6	---	---
2.070000	24.70	29.6	46	21.3	---	---
2.230000	25.60	29.6	46	20.4	---	---
7.570000	25.80	29.7	50	24.2	---	---
12.860000	25.00	29.9	50	25.0	---	---

EUT+Charger:



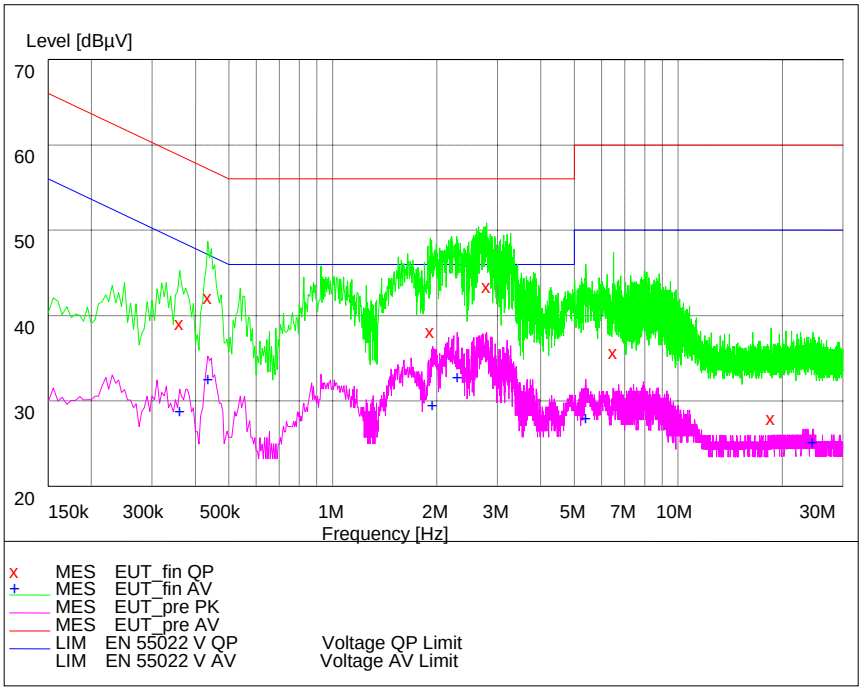
Pic4. Conducted emission L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.315000	37.50	29.6	60	22.4	---	---
0.820000	39.00	29.5	56	17.0	---	---
2.115000	43.30	29.5	56	12.7	---	---
2.660000	45.20	29.5	56	10.8	---	---
9.065000	37.30	29.8	60	22.7	---	---
19.635000	29.40	30.4	60	30.6	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.315000	31.60	29.6	50	18.2	---	---
0.820000	30.80	29.5	46	15.2	---	---
1.795000	30.30	29.5	46	15.7	---	---
2.670000	35.50	29.5	46	10.5	---	---
8.920000	28.70	29.7	50	21.3	---	---
23.105000	25.30	30.8	50	24.7	---	---



Pic5. Conducted emission N Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.360000	40.50	29.5	59	18.2	---	---
0.435000	43.50	29.5	57	13.6	---	---
1.915000	39.50	29.5	56	16.5	---	---
2.795000	44.80	29.6	56	11.2	---	---
6.510000	37.00	29.7	60	23.0	---	---
18.600000	29.30	30.3	60	30.7	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.360000	30.10	29.5	49	18.6	---	---
0.435000	33.90	29.5	47	13.2	---	---
1.945000	30.80	29.5	46	15.2	---	---
2.295000	34.10	29.6	46	11.9	---	---
5.405000	29.40	29.6	50	20.6	---	---
24.495000	26.50	31.1	50	23.5	---	---

2.2.2RadiatedEmissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
22.5°C	41.2%	100.8kPa

Test Setup:

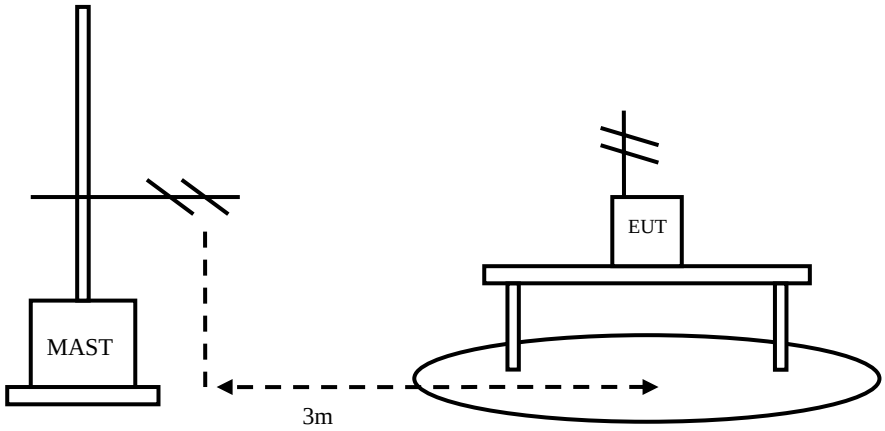


Figure 3

Test Procedure:

EUT+Laptop:
The EUT should be placed on a non-metallic table80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.
The accessories of the EUT are connected with the EUT such as headset etc.The EUT was exercised during the testing by data read and write cycles repeated with internal storages connecting with a laptop via the USB cable. The laptop's LAN port is connected with another laptop via cable. And the data transferring between two laptops is maintained. The test set-up and the test methods are performed according to ANSI C63.4:2014
Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna HL562.
During the test, the height of receive antenna shall be moved from 1 to4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:

1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.
The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing.

EUT+Charger:
The EUT should be placed on a non-metallic table80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.
The EUT should work inidle mode. The accessories of the EUT are connected with the EUT such as headset etc.The test set-up and the test methods are performed according to ANSI C63.4:2014.
Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna HL562.
During the test, the height of receive antenna shall be moved from 1 to4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:
1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.
The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing.

A “reference path loss” is established and theA_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.
The measurement results are obtained as described below:
Result= $P_{mea} + A_{Rpl}$

Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dBμV/m)
30～88	Quasi-peak	40
88～216	Quasi-peak	43.5
216～960	Quasi-peak	46
960～1000	Quasi-peak	54
1000～5th harmonic of the highest frequency or 40GHz, whichever is lower	Average Peak	54 74

Test result:

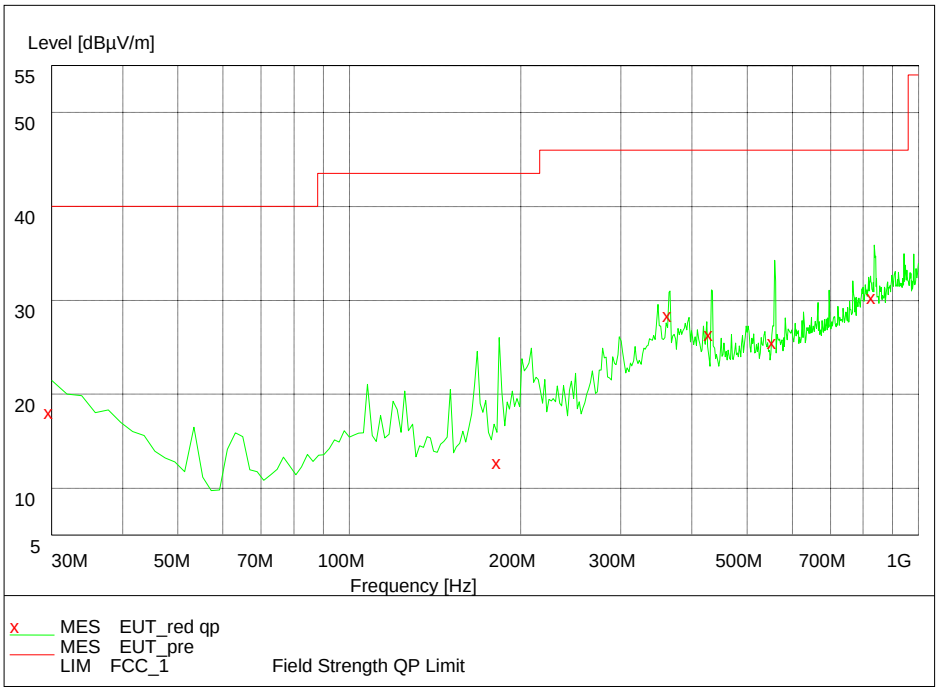
EUT+Laptop

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
30.00	19.20	21.00	-1.80	Vertical
183.56	13.90	11.00	2.90	Vertical
366.29	29.50	17.20	12.30	Vertical
432.38	27.50	19.50	8.00	Vertical
558.73	26.70	22.40	4.30	Vertical
836.71	31.40	27.80	3.60	Horizontal

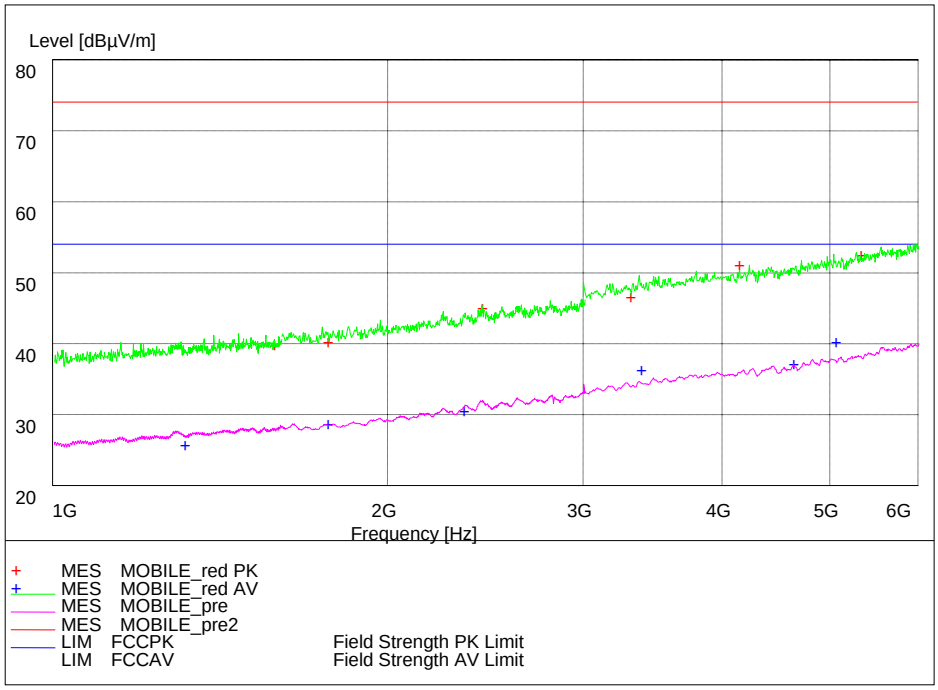
EUT+Charger

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
30.00	21.20	21.00	0.20	Vertical
107.75	14.90	12.50	2.40	Vertical
150.52	15.40	10.50	4.90	Horizontal
168.01	11.30	10.60	0.70	Vertical
183.56	10.80	11.00	-0.20	Vertical
937.79	28.50	28.20	0.30	Vertical

EUT+Laptop:

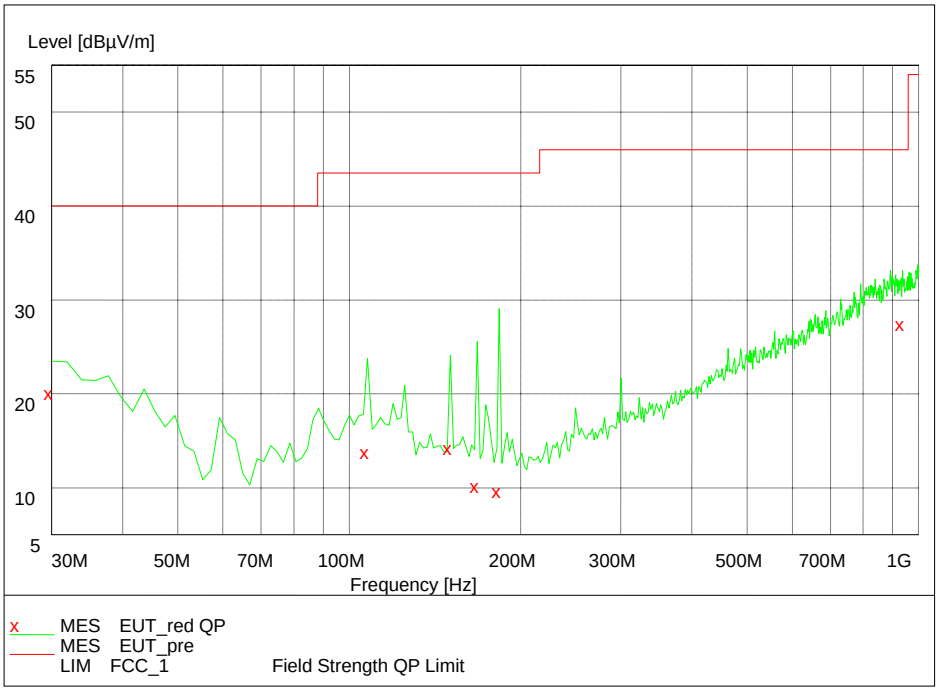


Pic6. Radiated emission(30MHz – 1GHz)

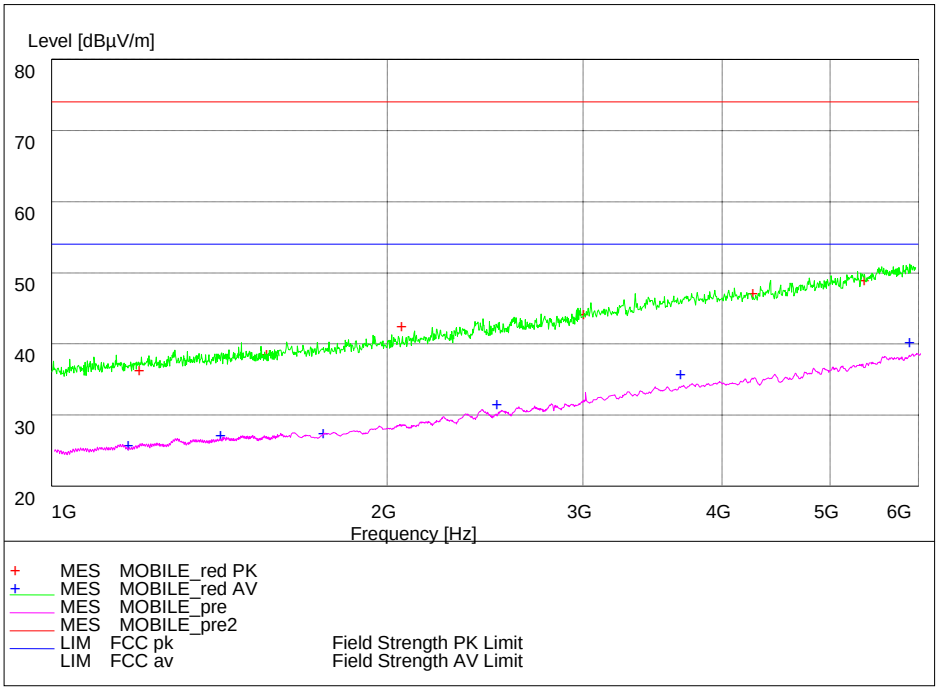


Pic7. Radiated emission (1GHz – 6GHz)

EUT+Charger:



Pic8. Radiated emission(30MHz – 1GHz)



Pic9. Radiated emission (1GHz – 6GHz)

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date
1	23.18m×16.88m×9.60mSemi-AnechoicChamber	FRANKONIA	-----	20th Aug. 2017
2	ESI 40EMI test receiver	R&S	100015	20th Aug. 2017
3	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	20th Aug. 2017
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	20th Aug. 2017
5	ESCS30EMI test receiver	R&S	100029	20th Aug. 2017
6	HL562Ultra log test antenna	R&S	100016	20th Aug. 2017
7	ESH3-Z2 Pulse limiter	R&S	10002	20th Aug. 2017
8	LS16C AMN	AFJ	16011306281	20th Aug. 2017
9	ESH2Z11 LISN	R&S	50FH-020-10	20th Aug. 2017
10	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	20th Aug. 2017
11	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	20th Aug. 2017
12	PS2000 Turn Table	FRANKONIA	-----	20th Aug. 2017
13	MA260 Antenna Master	FRANKONIA	-----	20th Aug. 2017
14	ES-K1EMI test software	R&S	-----	20th Aug. 2017
15	HL562 Receive antenna	R&S	100167	20th Aug. 2017

Appendix

Appendix1 Test Setup

Registration
No.910917

Appendix1 TEST SETUP

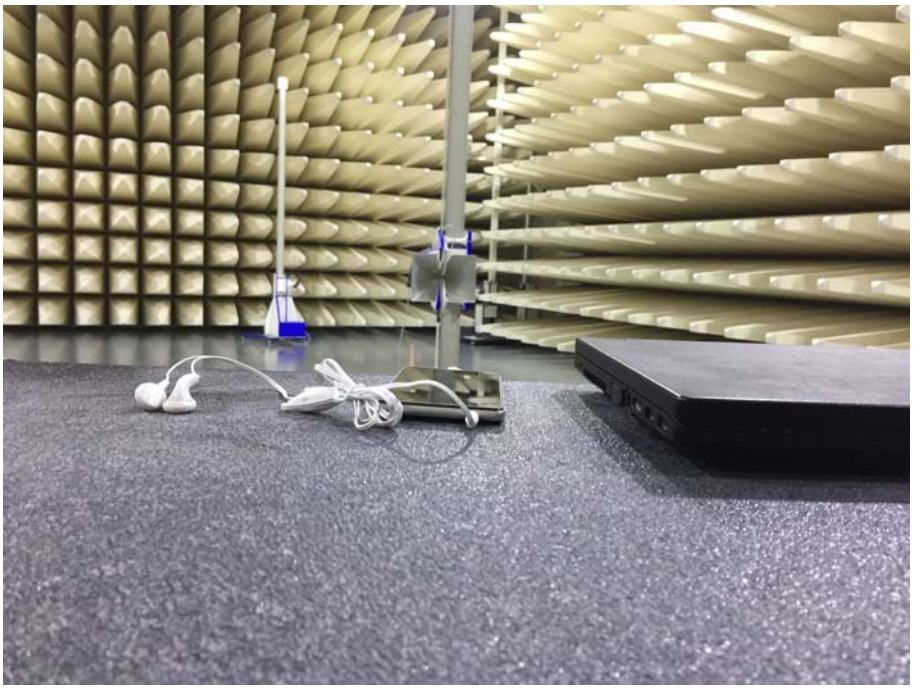
Report No.:	SRTC2017-9003(F)-0139
Product Name:	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model Name:	602ZT
Applicant:	ZTE Corporation
Manufacturer:	ZTE Corporation
Specification:	FCC Part15B (Certification) (October 1, 2016 edition)
FCC ID:	SRQ-602ZT

The State Radio_monitoring_center Testing Center (SRTC)

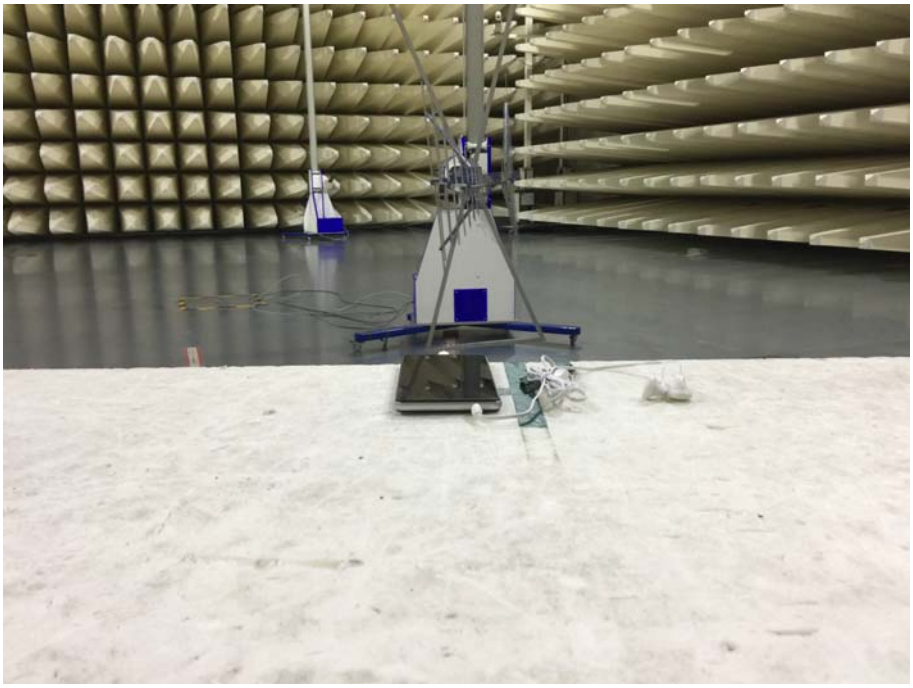
No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-57996181 Fax: 86-10-57996288

Appendix1 Test Setup

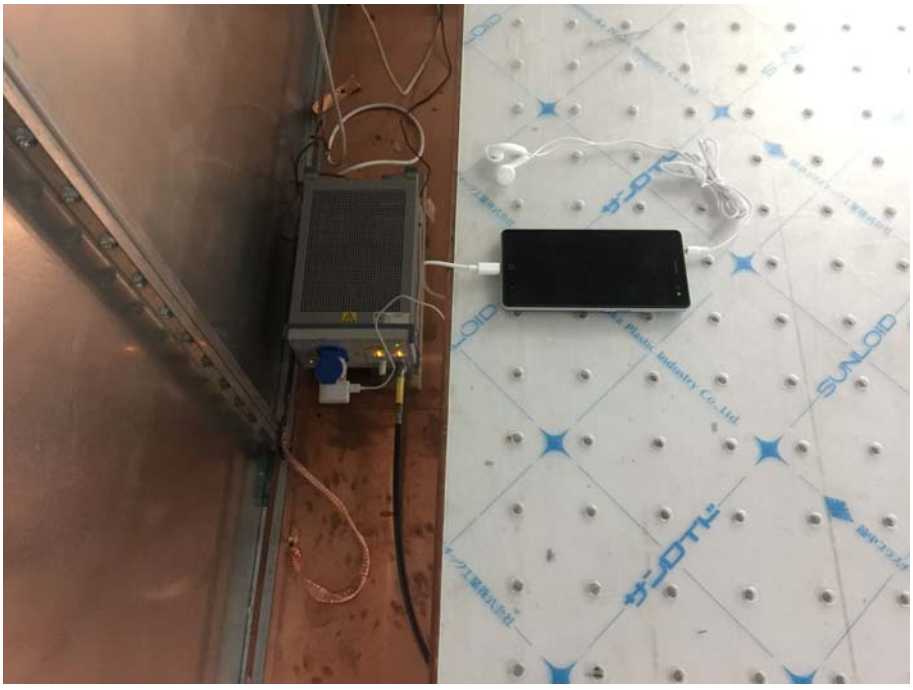


Radiated Emissions Test Setup（with laptop）



Radiated Emissions Test Setup (with charger)

Conducted Emissions Test Setup（with laptop）



Conducted Emissions Test Setup (with charger)