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# TEST REPORT

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Report No.: SRTC2017-9003(F)-0003  
Product Name: LTE/WCDMA/GSM(GPRS) Multi-Mode Digital  
Mobile Phone  
Model Name: ZTE BLADE A320  
Applicant: ZTE Corporation  
Manufacturer: ZTE Corporation  
Specification: FCC Part15B (Certification)  
(October 1, 2016 edition)  
FCC ID: SRQ-ZTEBLADEA320

The State Radio\_monitoring\_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

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

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## 1. General information

### 1.1 Notes of the test report

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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

### 1.3 Applicant'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

### 1.4 Manufacturer'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: 28<sup>th</sup> Mar. 2017

Date of test: 28<sup>th</sup> Mar. 2017 to 31<sup>th</sup> Mar. 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-ZTEBLADEA612
Frequency Range	GSM850/WCDMA Band V/ LTE band V: Tx:824~849MHz Rx:869~894MHz PCS1900/WCDMA Band II/LTE band II: Tx:1850~1910MHz Rx:1930~1990MHz WCDMA BAND IV/LTE band IV: Tx: 1710 MHz – 1755 MHz Rx: 2110 MHz – 2155 MHz LTE band VII:Tx: 2500 MHz – 2570 MHz Rx: 2620 MHz – 2690 MHz
Rated Output Power	GSM850:33.0dBm PCS1900:30.0dBm WCDMA:24.0dBm LTE:21.0dBm
Modulation Type	GSM/GPRS:GMSK EDGE:GMSK WCDMA:QPSK LTE:QPSK; 16QAM
Emission Designator	GSM/GPRS;EDGE;WCDMA;LTE
Duplex Mode	FDD
Equipment Class	Class B
Antenna Type	Fixed Internal Antenna
Power Supply	Battery or Charger
Rated Power Supply Voltage	3.8V
Extreme Temperature	Lowest: -30°C Highest: +50°C
Extreme Voltage	Minimum: 3.5V Maximum: 4.2V
HW Version	u4jB
SW Version	FLOW_JM_BA320_V1.0

### 1.7.2EUT details

Product Name	Model Name	IMEI
LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone	ZTE BLADE A320	863916030015070

### 1.7.3 Auxiliary equipment details

#### AE (Auxiliary Equipment) 1#: Charger

Equipment	TRAVELCHARGER
Manufacturer	瑞晶
Model Number	STC-A508A-Z
S/N	/
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

#### AE (Auxiliary Equipment) 2#: Battery

Equipment	Battery
Manufacturer	比克
Model Number	7.04.02.01.00068
S/N	/
Rated Voltage	3.8V

#### AE (Auxiliary Equipment) 3#: Battery

Equipment	Battery
Manufacturer	天贸
Model Number	7.04.02.01.00068
S/N	/
Rated Voltage	3.8V

#### AE (Auxiliary Equipment) 4#: Headset

Equipment	Headset
Manufacturer	KTC (勤增)
Model Number	DEM-79

#### AE (Auxiliary Equipment) 5#: Headset

Equipment	Headset
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Manufacturer	FDC(富德康)
Model Number	7.04.04.01.00017

AE (Auxiliary Equipment) 6#: USB Cable

Equipment	USB Cable
Manufacturer	凯宝
Model Number	80410500068

AE (Auxiliary Equipment) 7#: USB Cable

Equipment	USB Cable
Manufacturer	怡华兴
Model Number	80410500068

## 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  刘巍	Checked by Mr. He Jia Project manager of the test department  何佳
Tested by: Mr. Chen Huaiwei Test engineer  陈怀蔚	Issued date:  2017.4.14

## 2.2 Test result

### 2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
23.5	40.2%	101.8kPa

Test Setup with laptop:

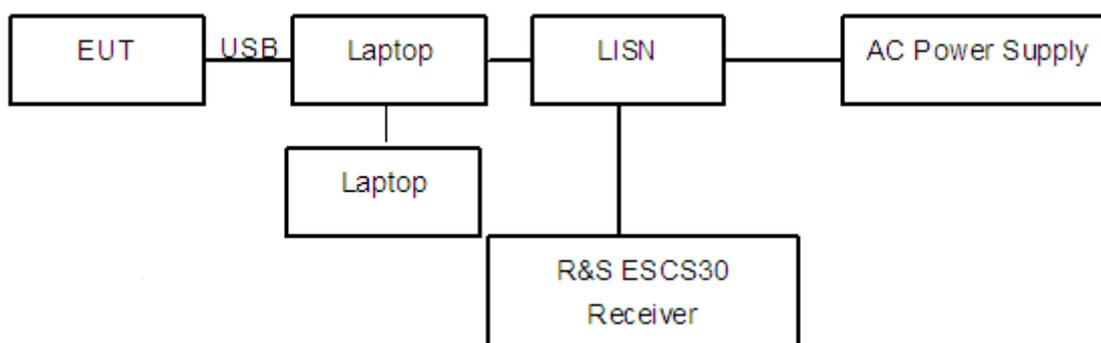


Figure 1

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:

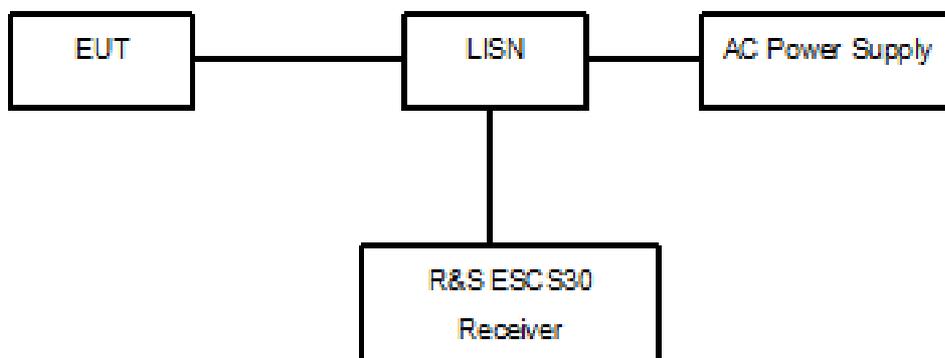


Figure 2

Test Procedure:

The EUT is placed on a non-metallic 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.

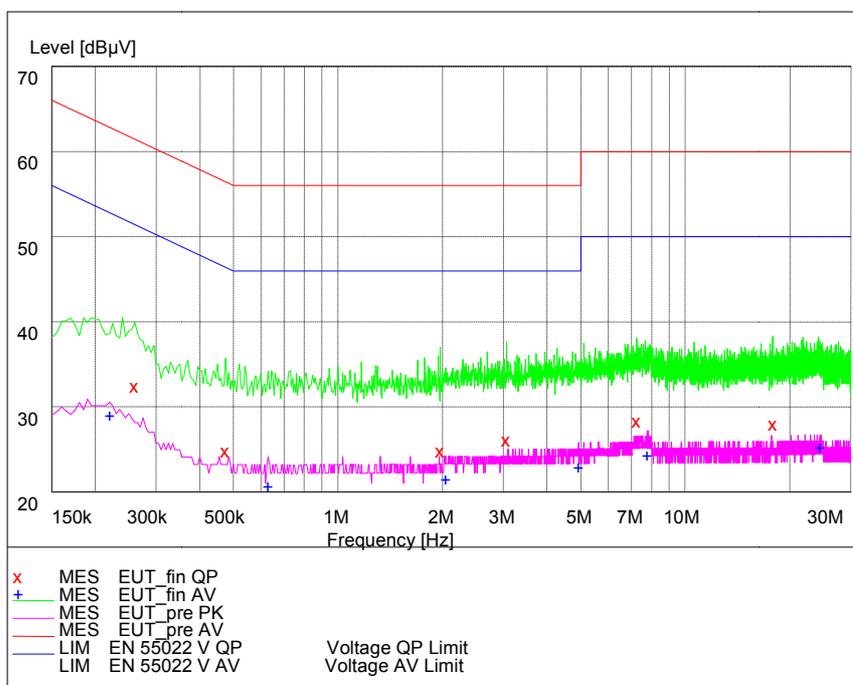
Limit:

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

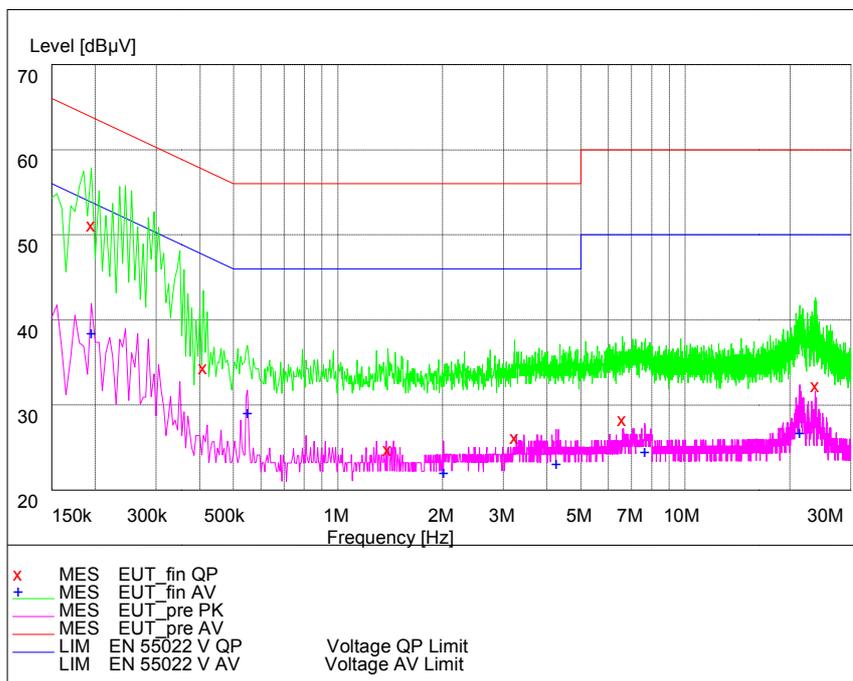
Test result:

Noise Level of the Measuring Instrument



Pic1. Conducted emission L and N Line

EUT+Laptop:



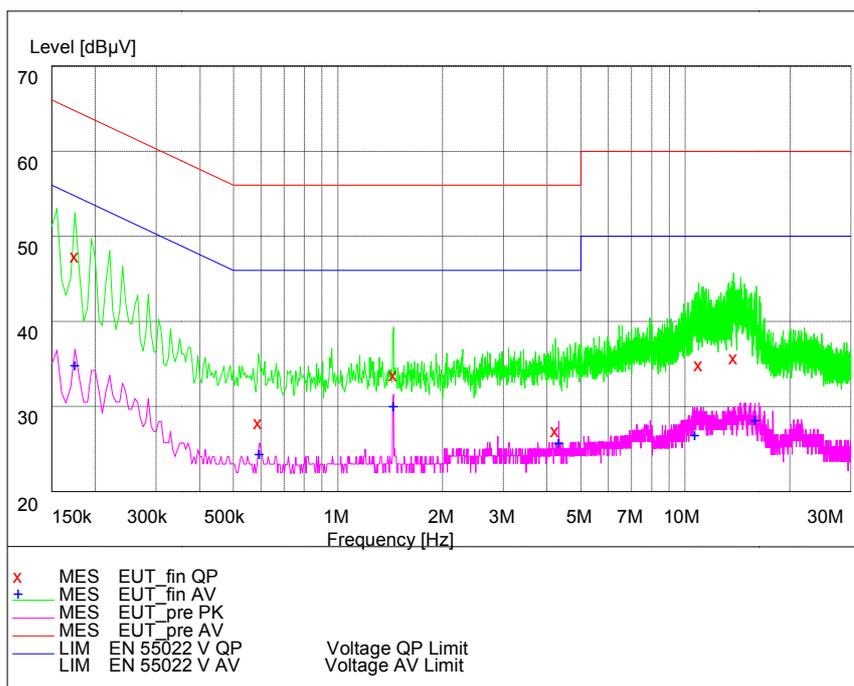
Pic2. Conducted emission L Line

**MEASUREMENT RESULT: "MOBILE\_fin QP"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.195000	52.50	29.7	64	11.4	---	---
0.410000	35.80	29.5	58	21.9	---	---
1.395000	26.20	29.5	56	29.8	---	---
3.230000	27.50	29.6	56	28.5	---	---
6.595000	29.70	29.7	60	30.3	---	---
23.755000	33.70	31.0	60	26.3	---	---

**MEASUREMENT RESULT: "MOBILE\_fin AV"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.195000	39.80	29.7	54	14.0	---	---
0.550000	30.40	29.5	46	15.6	---	---
2.015000	23.30	29.5	46	22.7	---	---
4.250000	24.40	29.6	46	21.6	---	---
7.645000	25.80	29.7	50	24.2	---	---
21.360000	28.10	30.5	50	21.9	---	---



Pic3. Conducted emission N Line

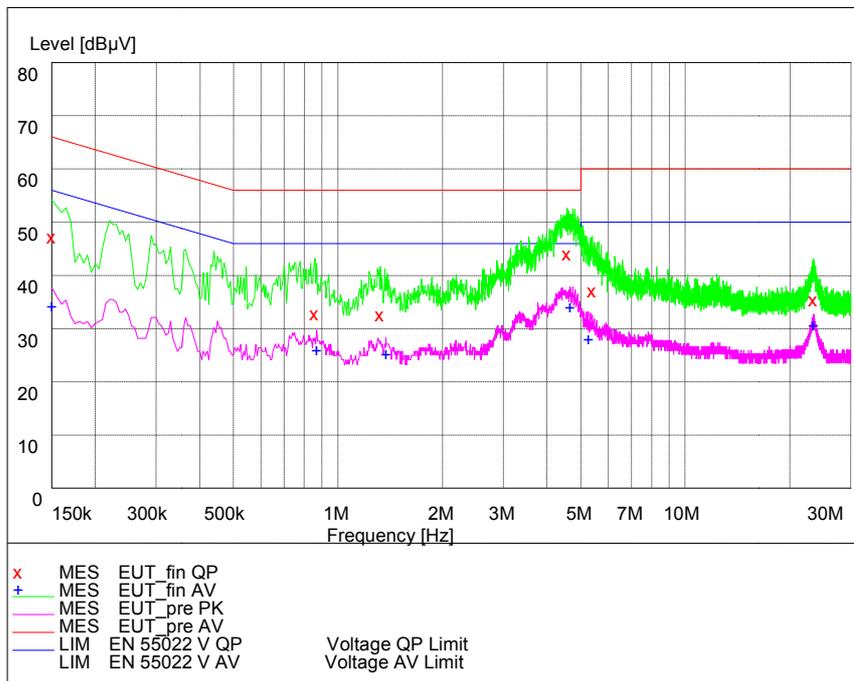
**MEASUREMENT RESULT: "MOBILE\_fin QP"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.175000	49.00	29.7	65	15.7	---	---
0.590000	29.50	29.5	56	26.5	---	---
1.445000	35.10	29.5	56	20.9	---	---
4.235000	28.60	29.6	56	27.4	---	---
10.950000	36.30	29.8	60	23.7	---	---
13.795000	37.10	30.0	60	22.9	---	---

**MEASUREMENT RESULT: "MOBILE\_fin AV"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.175000	36.20	29.7	55	18.5	---	---
0.595000	25.70	29.5	46	20.3	---	---
1.445000	31.30	29.5	46	14.7	---	---
4.330000	27.00	29.6	46	19.0	---	---
10.670000	28.00	29.8	50	22.0	---	---
15.880000	29.70	30.1	50	20.3	---	---

EUT+Charger:



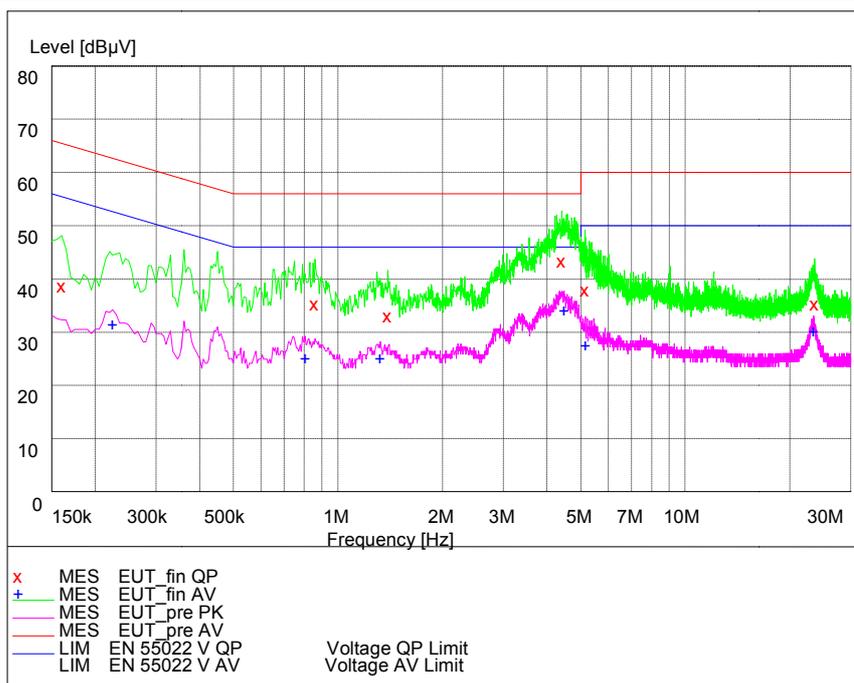
Pic4. Conducted emission L Line

**MEASUREMENT RESULT: "MOBILE\_fin QP"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150000	49.40	29.7	79	29.6	---	---
0.860000	35.10	29.5	73	37.9	---	---
1.325000	34.80	29.5	73	38.2	---	---
4.565000	46.30	29.6	73	26.7	---	---
5.410000	39.20	29.6	73	33.8	---	---
23.450000	37.60	30.9	73	35.4	---	---

**MEASUREMENT RESULT: "MOBILE\_fin AV"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150000	36.30	29.7	66	29.7	---	---
0.870000	28.00	29.5	60	32.0	---	---
1.375000	27.20	29.5	60	32.8	---	---
4.655000	36.00	29.6	60	24.0	---	---
5.265000	30.10	29.6	60	29.9	---	---
23.425000	32.80	30.9	60	27.2	---	---



Pic5. Conducted emission N Line

**MEASUREMENT RESULT: "MOBILE\_fin QP"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.160000	40.90	29.7	79	38.1	---	---
0.860000	37.40	29.5	73	35.6	---	---
1.395000	35.30	29.5	73	37.7	---	---
4.410000	45.60	29.6	73	27.4	---	---
5.155000	40.20	29.6	73	32.8	---	---
23.610000	37.40	30.9	73	35.6	---	---

**MEASUREMENT RESULT: "MOBILE\_fin AV"**

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.225000	33.60	29.6	66	32.4	---	---
0.805000	27.30	29.5	60	32.7	---	---
1.325000	27.30	29.5	60	32.7	---	---
4.475000	36.20	29.6	60	23.8	---	---
5.160000	29.60	29.6	60	30.4	---	---
23.435000	32.20	30.9	60	27.8	---	---

## 2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
23.2°C	39.8%	100.5kPa

Test Setup:

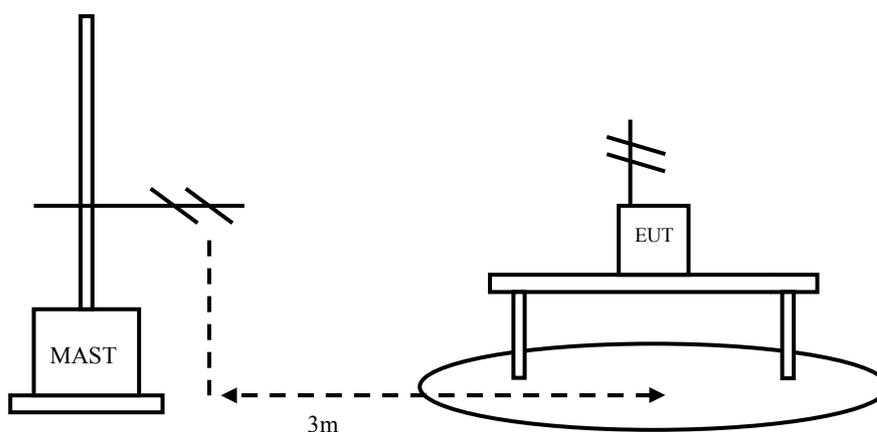


Figure 3

Test Procedure:

EUT+Laptop:

The EUT should be placed on a non-metallic table 80cm 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 to 4 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 table 80cm 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 in idle 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 to 4 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 the  $A_{Rpl}$  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:

$$\text{Result} = P_{\text{mea}} + A_{Rpl}$$

Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dB $\mu$ V/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	54
	Peak	74

Test result:

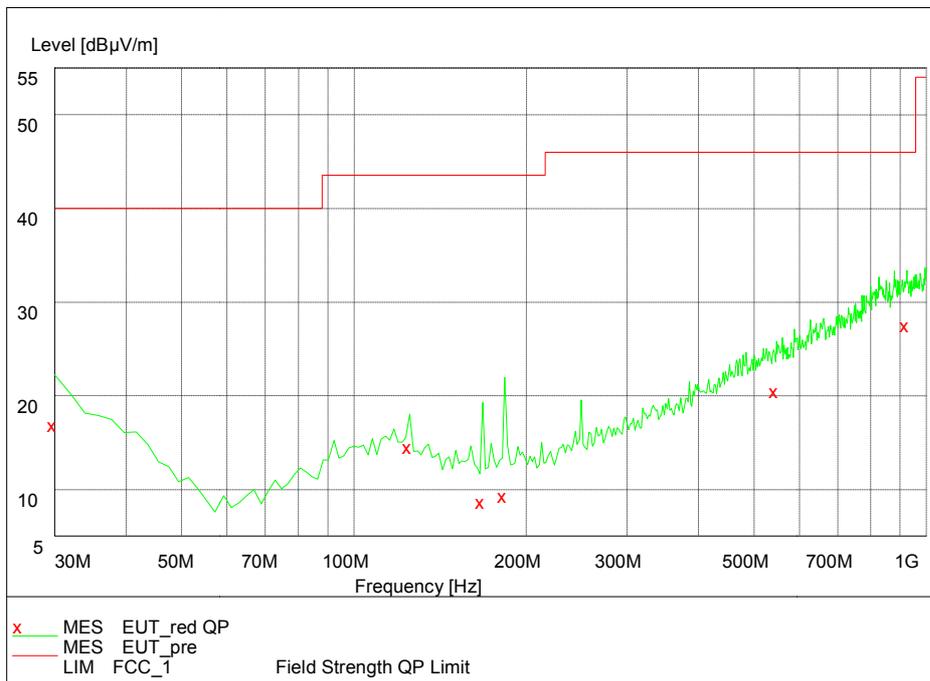
EUT+Laptop

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
30.00	18.00	16.0	2.00	Vertical
125.25	15.60	12.2	3.40	Vertical
168.01	9.80	9.2	0.60	Horizontal
183.56	10.40	10.0	0.40	Vertical
547.07	21.60	20.2	1.40	Vertical
926.13	28.60	28.3	0.30	Horizontal

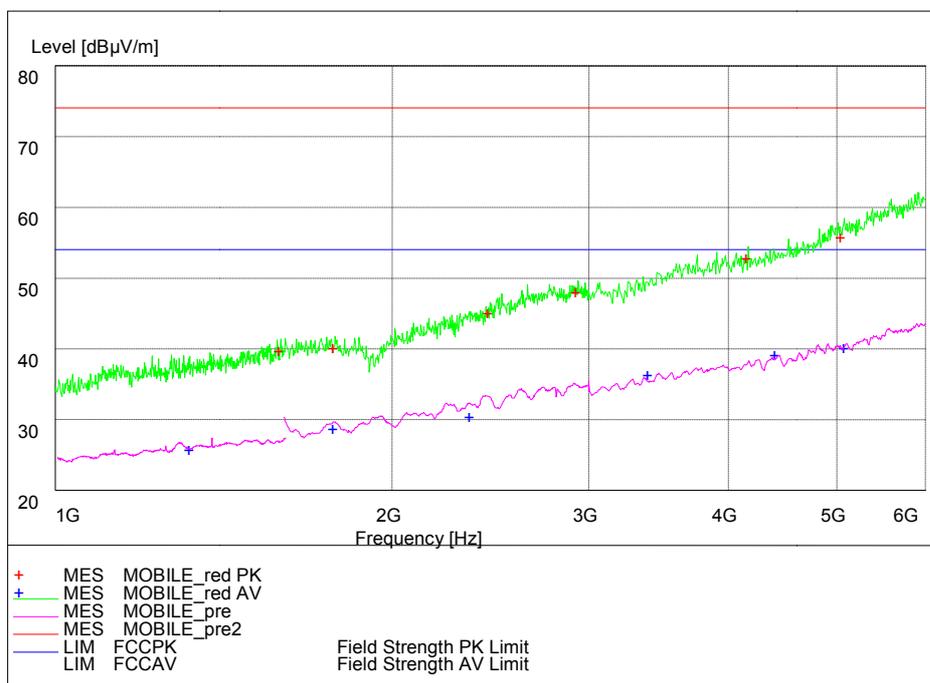
EUT+Charger

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
37.77	36.70	17.1	19.60	Horizontal
96.09	20.40	11.5	8.90	Vertical
99.97	21.90	12.1	9.80	Vertical
183.56	10.50	9.2	1.3	Vertical
480.98	20.20	20.1	0.1	Vertical
920.30	28.60	28.4	0.20	Vertical

EUT+Laptop:

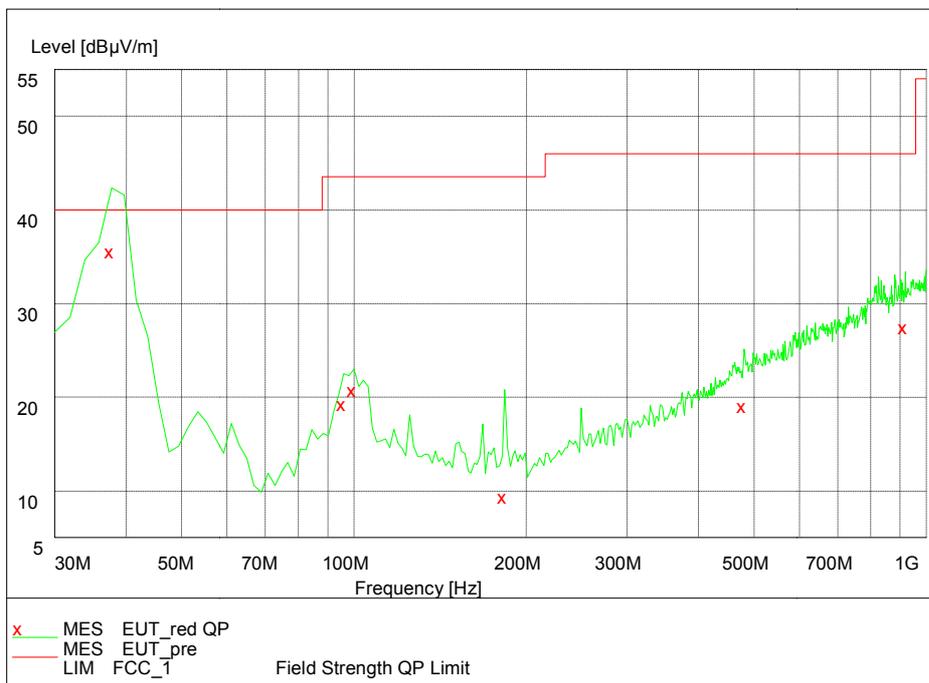


Pic6. Radiated emission(30MHz – 1GHz)

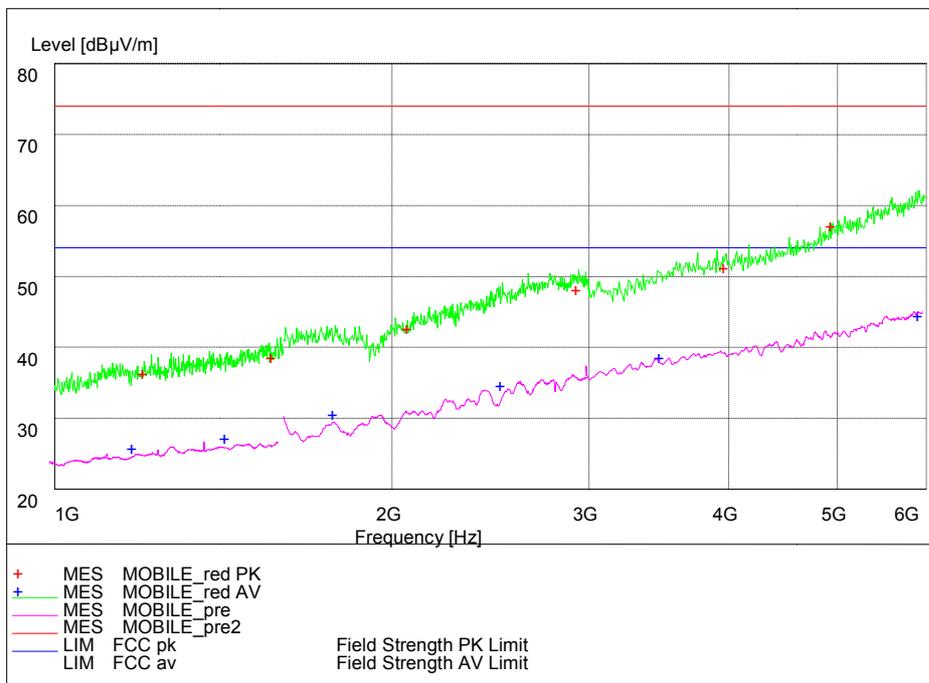


Pic7. Radiated emission (1GHz – 6GHz)

EUT+Charger:



Pic8. Radiated emission(30MHz – 1GHz)



Pic9. Radiated emission (1GHz – 6GHz)

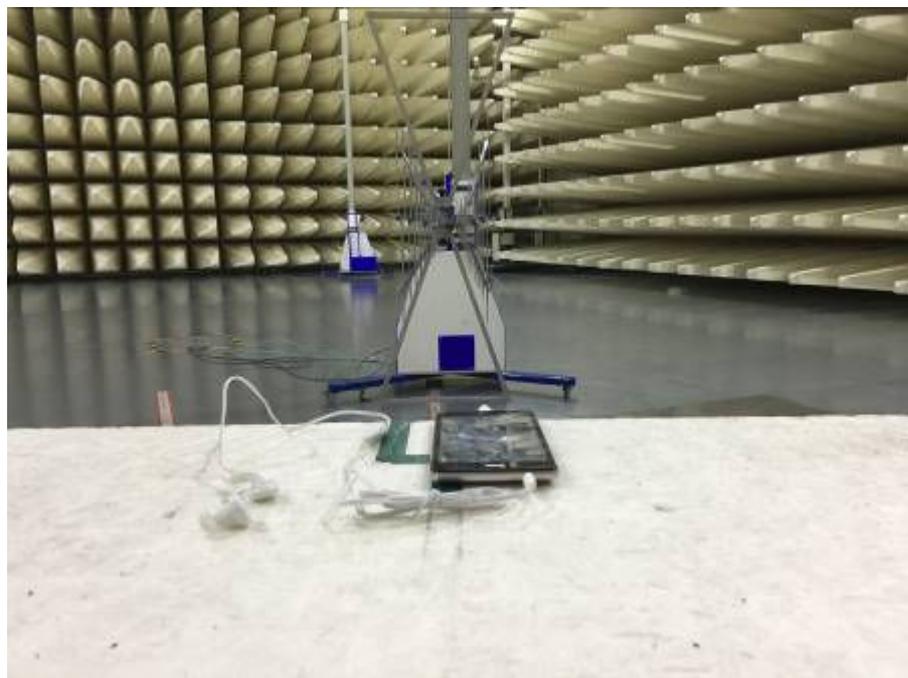
## 2.3. List of test equipments

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

## 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)