



Registration

No.910917



TEST REPORT

Report No.: SRTC2017-9003(F)-0008
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-ZTEBLADEA320A

The State Radio_monitoring_center Testing Center (SRTC)

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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)
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City: Beijing
Country or Region: China
Contacted person: Liu Jia
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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: 17thMay 2017

Date of test: 18thMay 2017 to 24thMay 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-ZTEBLADEA320A
Frequency Range	LTE band XII: Tx:699~716MHz Rx:729~746MHz LTE band XIII: Tx:777~787MHz Rx:746~756MHz LTE band XVII: Tx:704~716 MHz Rx:734~746 MHz 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 LTE band IV: Tx:1710~1755 MHz Rx:2110~2155 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: 3.5VMaximum: 4.2V
HW Version	u4jB
SW Version	FLOW_CW_BA320_V1.0

1.7.2 EUT details

Product Name	Model Name	IMEI
LTE/WCDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone	ZTE BLADE A320	863916030021292

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger

Equipment	TRAVELCHARGER
Manufacturer	Shenzhen DOKOCOM Energy Technology Co., LTD
Model Number	STC-A508A-A
S/N	
Input Voltage	100V-240V AC
Output Voltage	5.0V DC
Frequency	50/60Hz

AE (Auxiliary Equipment) 2#: Battery

Equipment	Lithium-Lion Battery
Manufacturer	Zhongshan Tianmao Battery Co.,Ltd
Model Number	Li3822T43P3h716043
S/N	/
Rated Voltage	3.8V

AE (Auxiliary Equipment) 3#: Headset

Equipment	Headset
Manufacturer	Shen zhen FDC Electronic Co.,Ltd.
Model Number	DEM-79

AE (Auxiliary Equipment) 4#: USB Cable

Equipment	USB Cable
Manufacturer	Shen zhen KB TECHNOLOGY Co.,Ltd
Model Number	080410500068

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. Liu Jian Test engineer 	Issued date: 2017.06.08

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
23.8°C	43.9%	100.7kPa

Test Setup with laptop:

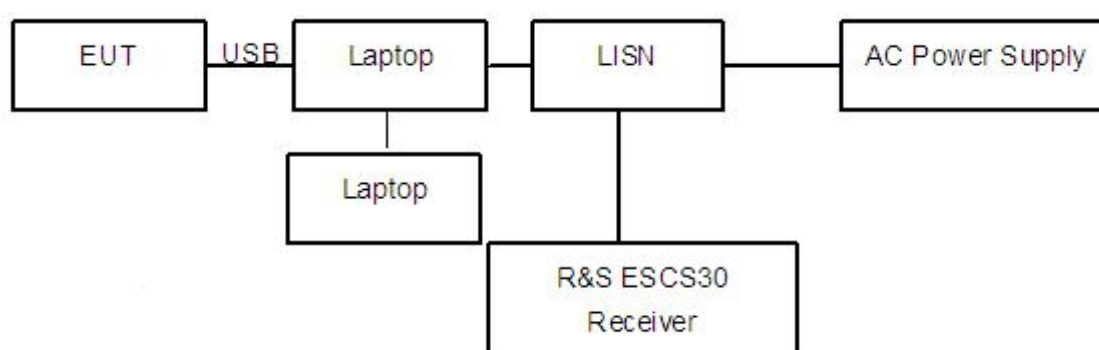


Figure 1

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:

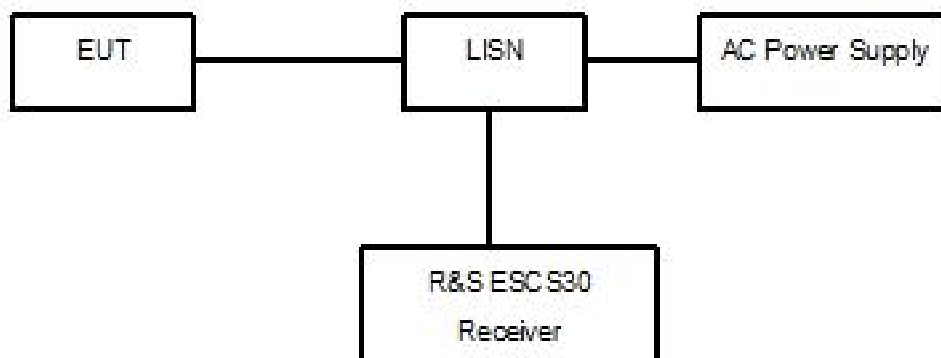


Figure 2

Test Procedure:

The EUT is placed on a non-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.

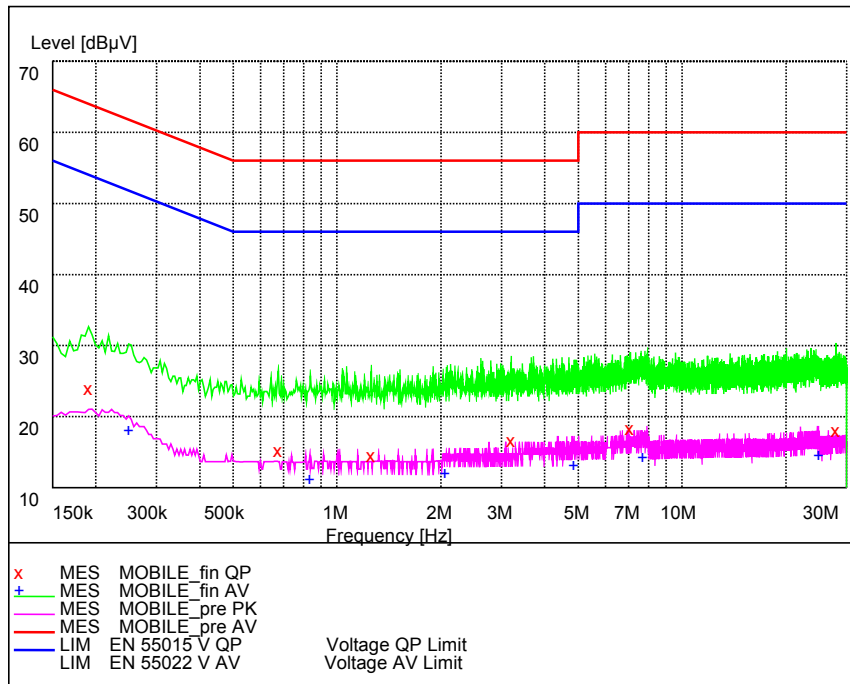
Limit:

Frequency of Emission(MHz)	Limits(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

Note: * Decreases with the logarithm of the frequency

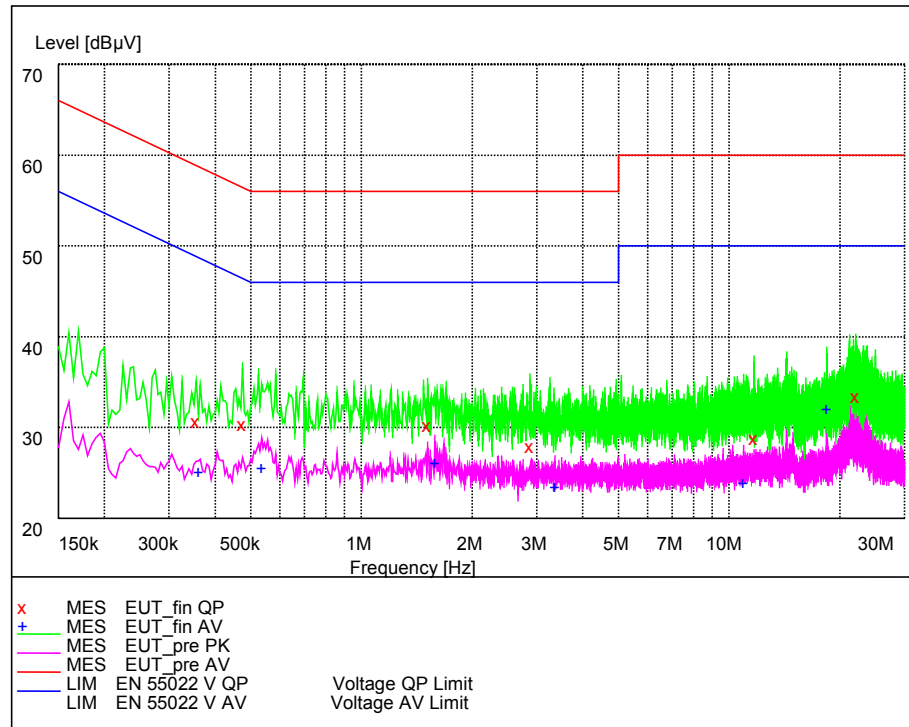
Test result:

Noise Level of the Measuring Instrument



Pic1. Conducted emission L and N Line

EUT+Laptop:



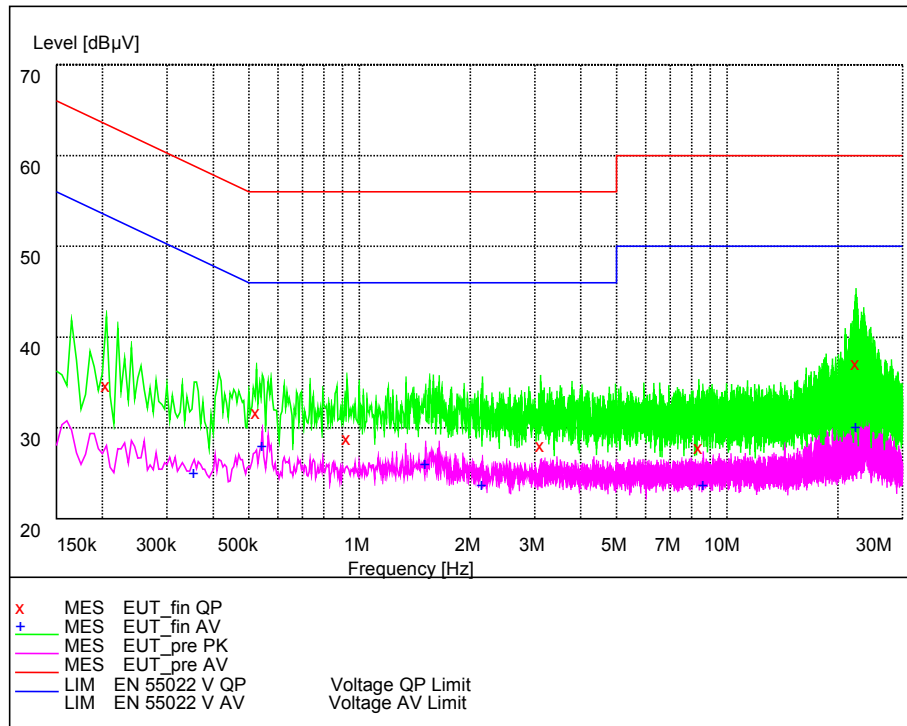
Pic2. Conducted emission L Line

MEASUREMENT RESULT: "EUT_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.355000	31.90	29.7	59	27.0	---	---
0.475000	31.60	29.7	56	24.8	---	---
1.515000	31.50	29.7	56	24.5	---	---
2.875000	29.20	29.8	56	26.8	---	---
11.705000	30.00	29.9	60	30.0	---	---
22.130000	34.70	30.0	60	25.3	---	---

MEASUREMENT RESULT: "EUT_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.360000	26.30	29.7	49	22.4	---	---
0.535000	26.70	29.7	46	19.3	---	---
1.585000	27.30	29.7	46	18.7	---	---
3.355000	24.70	29.8	46	21.3	---	---
10.945000	25.10	29.9	50	24.9	---	---
18.430000	33.20	29.9	50	16.8	---	---



Pic3. Conducted emission N Line

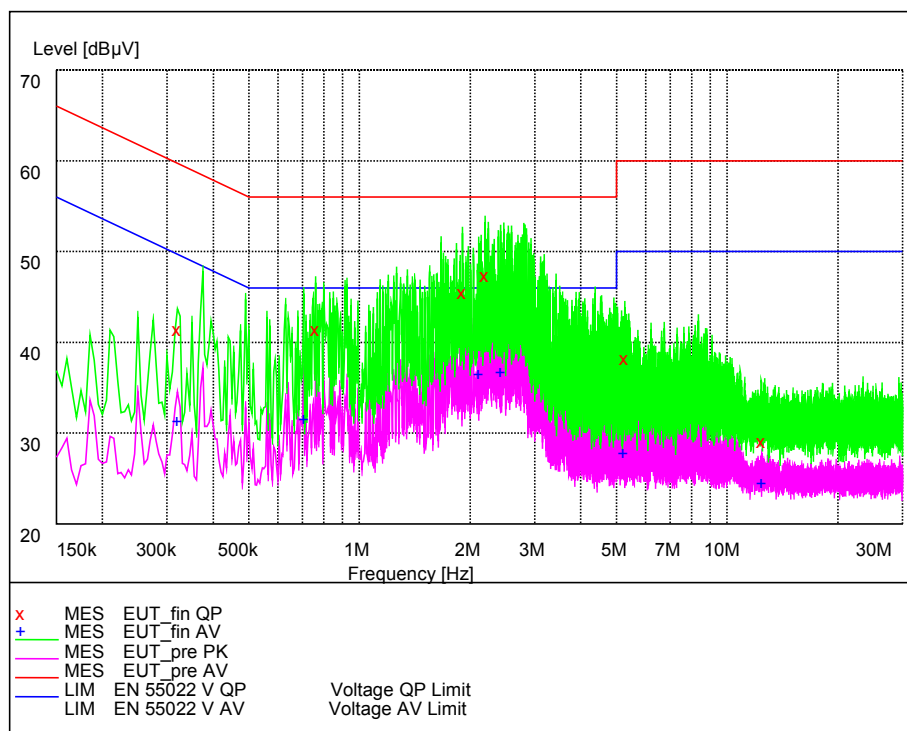
MEASUREMENT RESULT: "EUT_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.205000	35.90	29.7	63	27.5	---	---
0.525000	33.00	29.7	56	23.0	---	---
0.925000	30.10	29.7	56	25.9	---	---
3.115000	29.30	29.8	56	26.7	---	---
8.380000	29.10	29.8	60	30.9	---	---
22.465000	38.30	30.0	60	21.7	---	---

MEASUREMENT RESULT: "EUT_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.355000	26.30	29.7	49	22.6	---	---
0.545000	29.20	29.7	46	16.8	---	---
1.515000	27.20	29.7	46	18.8	---	---
2.160000	24.90	29.8	46	21.1	---	---
8.630000	24.90	29.9	50	25.1	---	---
22.465000	31.30	30.0	50	18.7	---	---

EUT+Charger:



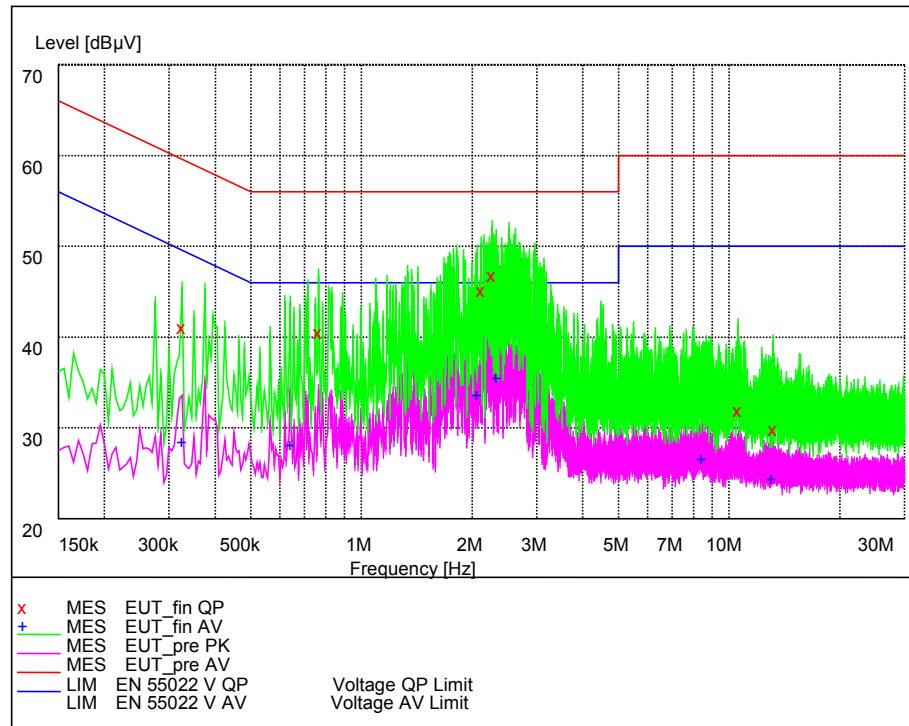
Pic4. Conducted emission L Line

MEASUREMENT RESULT: "EUT_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.320000	42.70	29.7	60	17.0	---	---
0.760000	42.70	29.6	56	13.3	---	---
1.905000	46.80	29.7	56	9.2	---	---
2.200000	48.60	29.8	56	7.4	---	---
5.275000	39.50	29.8	60	20.5	---	---
12.425000	30.30	29.9	60	29.7	---	---

MEASUREMENT RESULT: "EUT_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.320000	32.50	29.7	50	17.2	---	---
0.705000	32.80	29.7	46	13.2	---	---
2.115000	37.70	29.8	46	8.3	---	---
2.420000	38.00	29.8	46	8.0	---	---
5.225000	29.00	29.8	50	21.0	---	---
12.425000	25.70	29.9	50	24.3	---	---



Pic5. Conducted emission N Line

MEASUREMENT RESULT: "EUT_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.325000	42.30	29.7	60	17.3	---	---
0.765000	41.80	29.6	56	14.2	---	---
2.120000	46.40	29.8	56	9.6	---	---
2.265000	48.00	29.8	56	8.0	---	---
10.590000	33.20	29.9	60	26.8	---	---
13.175000	31.10	29.9	60	28.9	---	---

MEASUREMENT RESULT: "EUT_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.325000	29.70	29.7	50	19.8	---	---
0.640000	29.30	29.7	46	16.7	---	---
2.065000	34.80	29.8	46	11.2	---	---
2.330000	36.70	29.8	46	9.3	---	---
8.435000	27.70	29.8	50	22.3	---	---
13.035000	25.60	29.9	50	24.4	---	---

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
24.2°C	45.3%	100.9kPa

Test Setup:

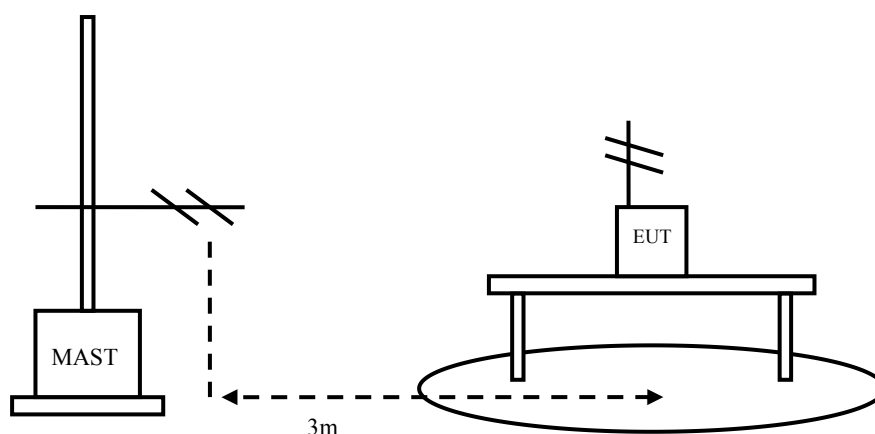


Figure 3

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 μ 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:

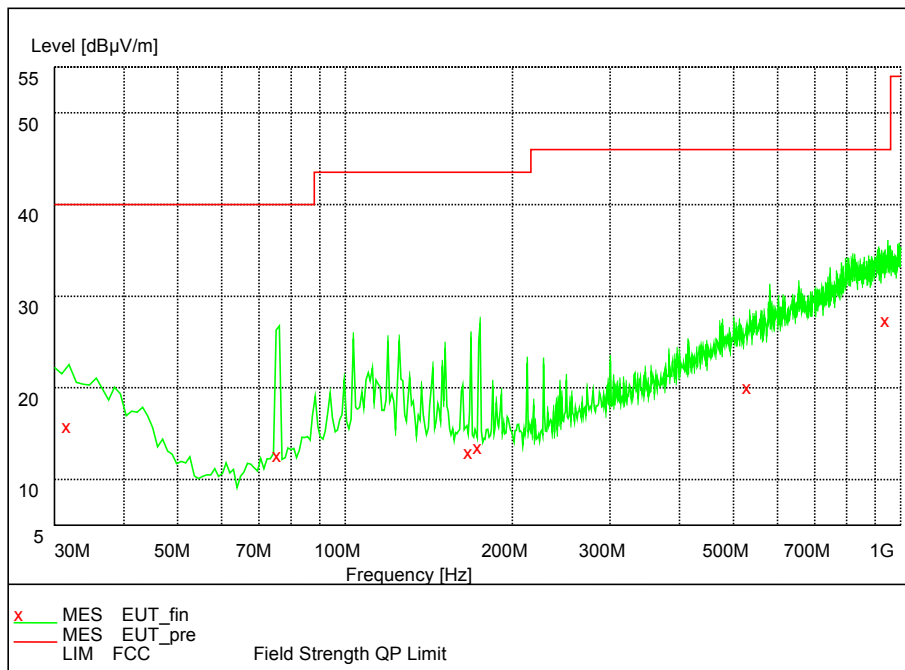
EUT+Laptop

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
31.88	17	7.4	9.60	Vertical
76.15	13.9	9.5	4.40	Vertical
168.45	14.4	10.90	3.50	Vertical
175.05	14.7	10.90	3.80	Vertical
535.07	21.2	13.6	7.60	Vertical
947.89	28.6	14.8	13.80	Vertical

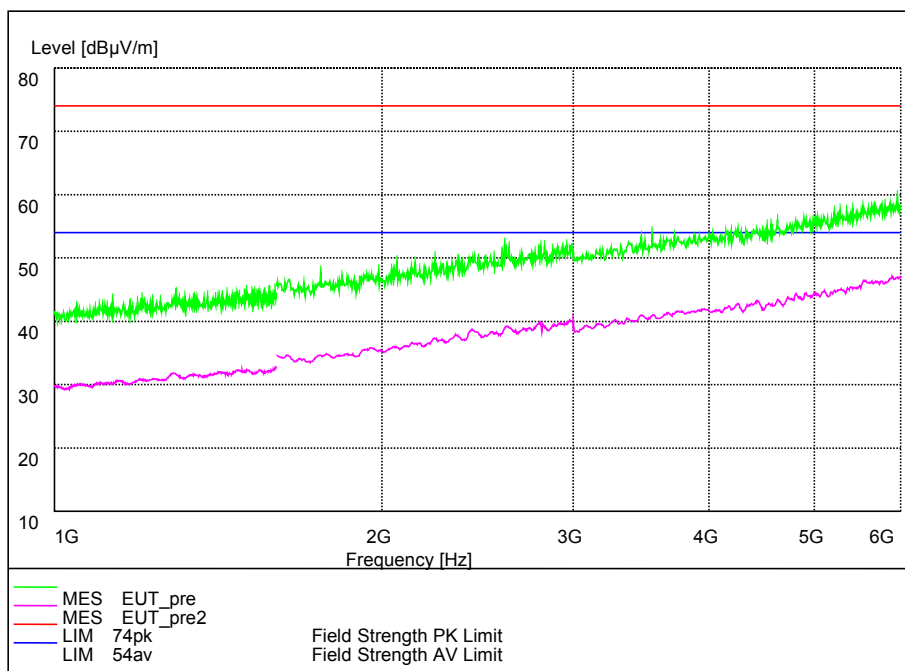
EUT+Charger

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity
30	18	7.4	10.60	Vertical
76.15	13.1	9.5	3.60	Vertical
119.47	14.6	10.10	4.50	Vertical
175.15	13.3	10.90	2.40	Vertical
535.07	21.3	13.6	7.70	Vertical
950.9	28.5	14.8	13.70	Vertical

EUT+Laptop:

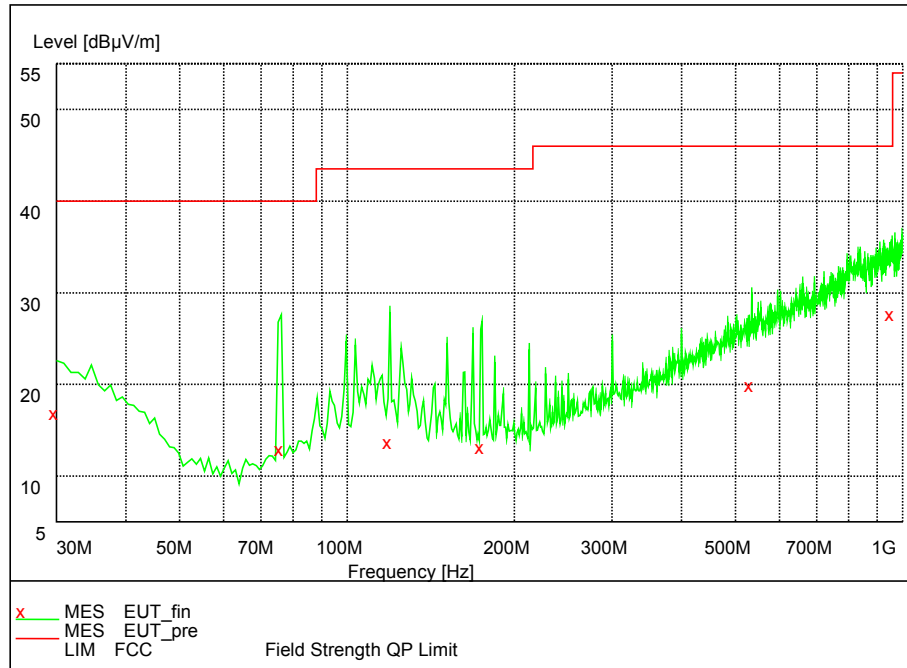


Pic6. Radiated emission(30MHz – 1GHz)

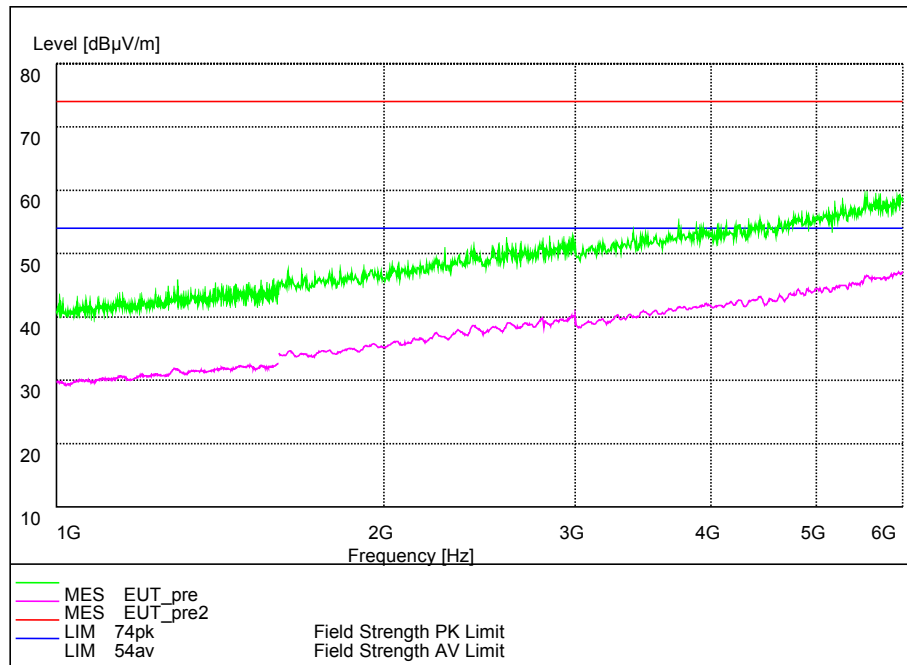


Pic7. Radiated emission (1GHz – 6GHz)

EUT+Charger:



Pic8. Radiated emission(30MHz – 1GHz)

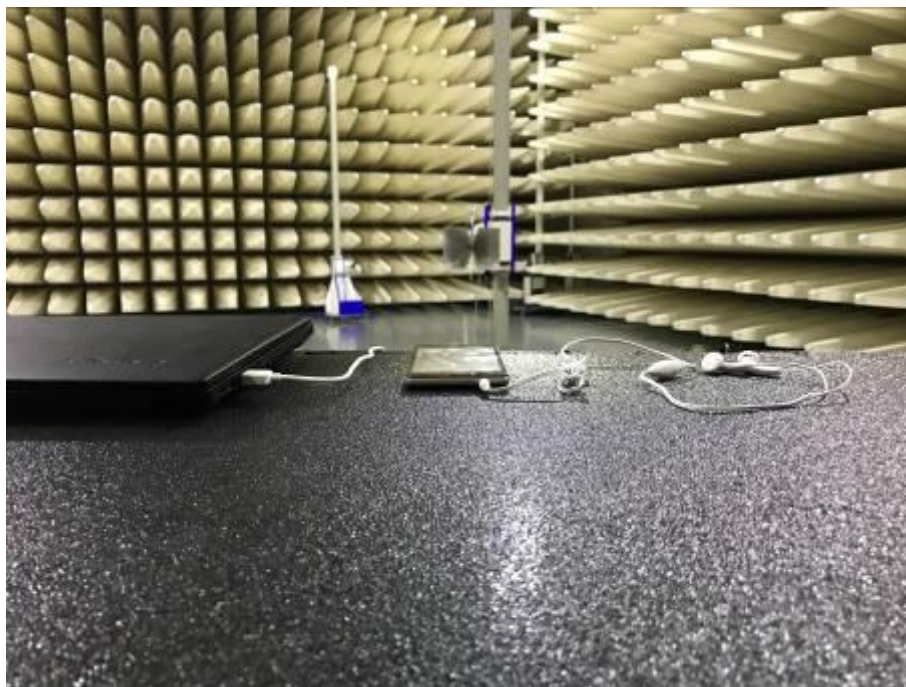


Pic9. Radiated emission (1GHz – 6GHz)

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Date	Calibration Due Date
1	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	-----	20 th Aug. 2016	19 th Aug. 2017
2	ESI 40EMI test receiver	R&S	100015	20 th Aug. 2016	19 th Aug. 2017
3	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	20 th Aug. 2016	19 th Aug. 2017
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	20 th Aug. 2016	19 th Aug. 2017
5	ESCS30EMI test receiver	R&S	100029	20 th Aug. 2016	19 th Aug. 2017
6	HL562 Ultra log test antenna	R&S	100016	20 th Aug. 2016	19 th Aug. 2017
7	ESH3-Z2 Pulse limiter	R&S	10002	20 th Aug. 2016	19 th Aug. 2017
8	ENV216 AMN	R&S	3560.6550.12	20 th Aug. 2016	19 th Aug. 2017
9	ESH2Z11 LISN	R&S	50FH-020-10	20 th Aug. 2016	19 th Aug. 2017
10	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	20 th Aug. 2016	19 th Aug. 2017
11	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100513	20 th Aug. 2016	19 th Aug. 2017
12	PS2000 Turn Table	FRANKONIA	-----	20 th Aug. 2016	19 th Aug. 2017
13	MA260 Antenna Master	FRANKONIA	-----	20 th Aug. 2016	19 th Aug. 2017
14	ES-K1EMI test software	R&S	-----	20 th Aug. 2016	19 th Aug. 2017
15	HL562 Receive antenna	R&S	100167	20 th Aug. 2016	19 th 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)