



TEST REPORT

Report No.: SRTC2012-H024-E0045

Product Name: GSM/GPRS Digital Mobile Phone

Product Model: ZTE-G S518G

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part15B (Certification)

(October 1, 2009 edition)

FCC ID: Q78-GS518G

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-68009202 Fax: 86-10-68009205

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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, Beijing China
City: Beijing
Country or Region: China
Contacted person: Wang Junfeng
Tel: +86 10 68009181 +86 10 68009202
Fax: +86 10 68009195 +86 10 68009205
Email: wangjf@srrc.org.cn / wangjunfeng@srtc.org.cn

1.3 Applicant's details

Company: ZTE Corporation
Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, 518057
City: Shenzhen
Country or Region: P.R.China
Grantee Code: Q78
Contacted person: Min Zhang
Tel: +86-021-68897541
Fax: +86-021-50801070
Email: zhang.min13@zte.com.cn

1.4 Manufacturer's details

Company: ZTE Corporation
Address: Zhongxing Bldg, Hi-Tech Park, NanShan District, 518057
City: Shenzhen
Country or Region: P.R.China
Contacted person: Li Dezi
Tel: +86-021-68895196
Fax: +86-021-50801070
Email: li.dezi@zte.com.cn

1.5 Application details

Date of reception of test sample: 30th July 2012

Date of test: 31st July 2012 to 6th August 2012

1.6 Reference specification

FCC Part 15B October 1, 2009 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	GSM/GPRS Digital Mobile Phone
FCC ID	Q78-GS518G
Frequency range	GSM850: Tx:824~849MHz Rx:869~894MHz PCS1900: Tx:1850~1910MHz Rx:1930~1990MHz
Rated output power	GSM850:33.0dBm PCS1900:30.0dBm
E.R.P. & E.I.R.P.	E.R.P.:30.4dBm E.I.R.P.:28.1dBm
Modulation type	GMSK
Emission Designator	300KGXW
Duplex mode	FDD
Equipment Class	Class B
Duplex spacing	GSM850:45MHz PCS1900:80MHz
Antenna type	Fixed Internal
USB Data Transfer Rate	12Mbps
Power Supply	Battery or charger
Rated Power Supply Voltage	3.7V
Extreme Temperature	Lowest: -30°C Highest: +50°C
Extreme Voltage	Minimum: 3.5V Maximum: 4.2V
HW Version	GMAVb
SW Version	ZTE-EN-8S-P120A70V1.0.0

1.7.2 EUT details

Name	Model	IMEI
GSM/GPRS Digital Mobile Phone	ZTE-G S518G	867771010000089

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger

Equipment	Charger
Manufacturer	RUIDE
Model Number	STC-A22O50I400M5-C
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

AE (Auxiliary Equipment) 2#: Battery

Equipment	Battery
Manufacturer	ZTE CORPORATION
Model Number	Li3707T42P3h463548
Capacity	720mAh
Rated Voltage	3.7V d.c.

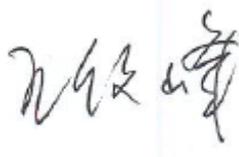
AE (Auxiliary Equipment) 3#: Headset

Equipment	Headset
Manufacturer	ZTE CORPORATION
Model Number	NLD-EM127E-035S

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

This Test Report Is Issued by: Mr. Song Qizhu Director of the test lab 	Checked by: Mr. Wang Junfeng Deputy director of the test lab 
Tested by: Mr. Du Hao Test engineer 	Issued date: 2012.09.10

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
24.6°C	36.4%	100.1kPa

Test Setup:

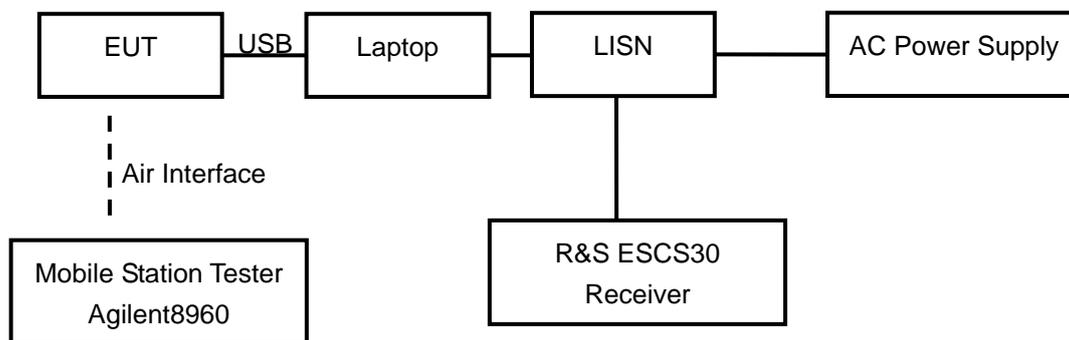


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.4m above the horizontal metal reference ground plane.

The EUT connect with a laptop via the USB cable. The accessories of the EUT are connected with the EUT such as headset etc. During the test the data transferring via USB cable between EUT and laptop 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 C63.4:2009. All tests are performed with the maximum RF transmit power setting and the maximum USB data transfer rate setting.

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.

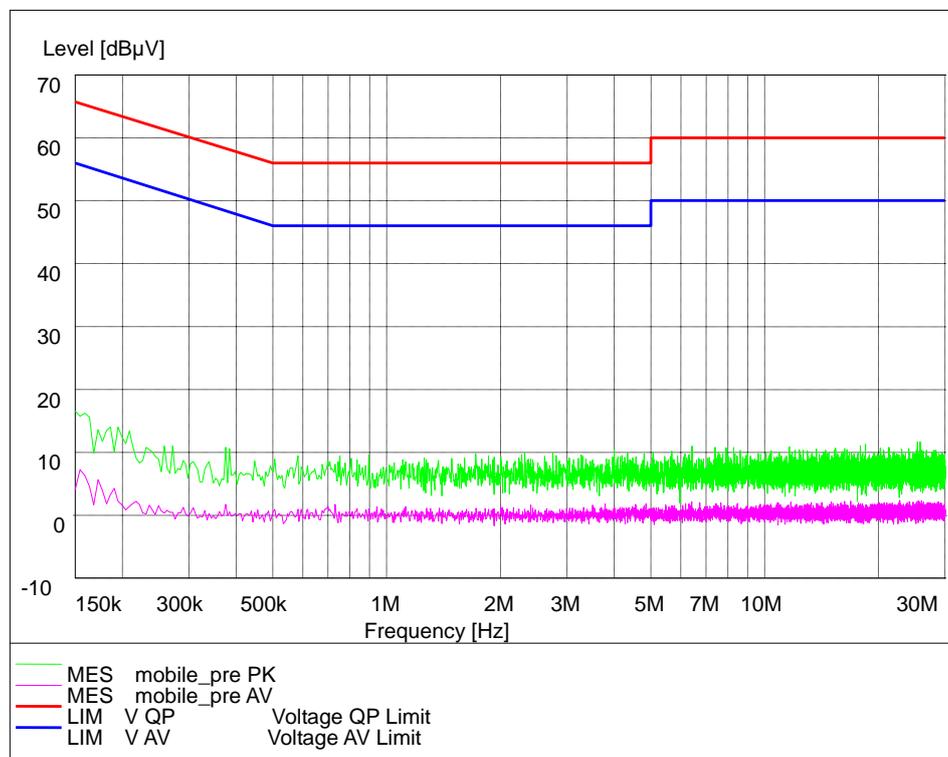
Limit:

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

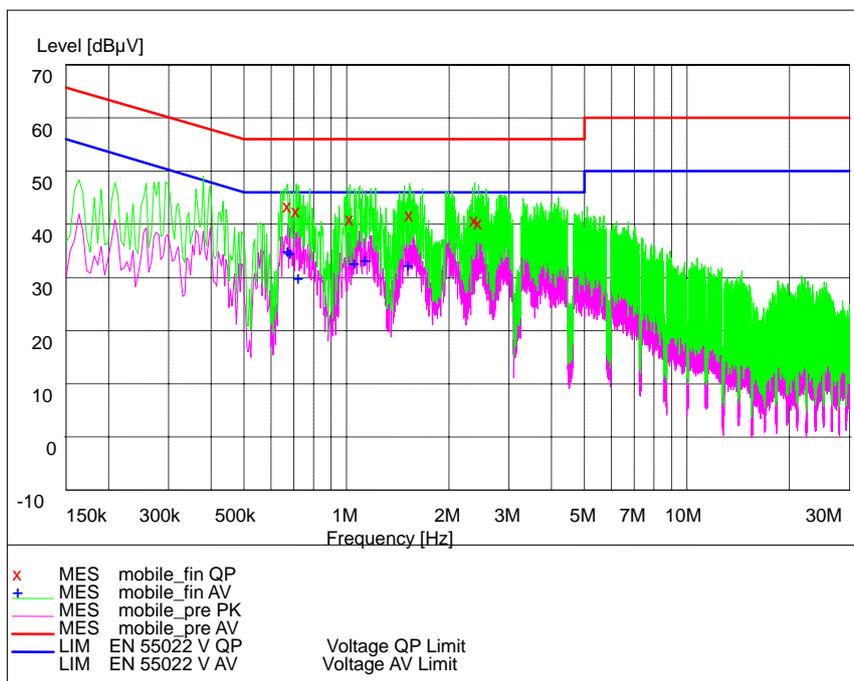
Test result:

Noise Level of The Measuring Instrument



L and N Line

GSM 850 Laptop+AE2#



L and N Line

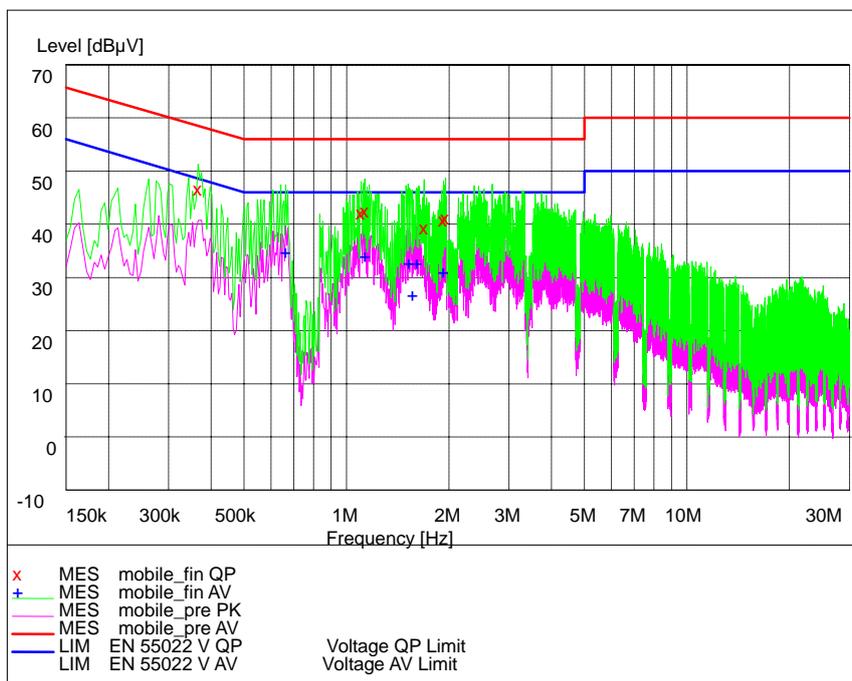
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.672000	45.60	20.4	56	10.4	L1	GND
0.712500	44.80	20.3	56	11.2	N	GND
1.023000	43.20	20.2	56	12.8	L1	GND
1.531500	43.90	20.2	56	12.1	L1	GND
2.377500	43.10	20.3	56	12.9	L1	GND
2.445000	42.50	20.3	56	13.5	L1	GND

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.672000	37.30	20.4	46	8.7	L1	GND
0.681000	36.80	20.3	46	9.2	L1	GND
0.721500	32.10	20.3	46	13.9	L1	GND
1.054500	34.90	20.2	46	11.1	L1	GND
1.135500	35.60	20.2	46	10.4	L1	GND
1.518000	34.50	20.2	46	11.5	L1	GND

PCS 1900 Laptop+AE2#



L and N Line

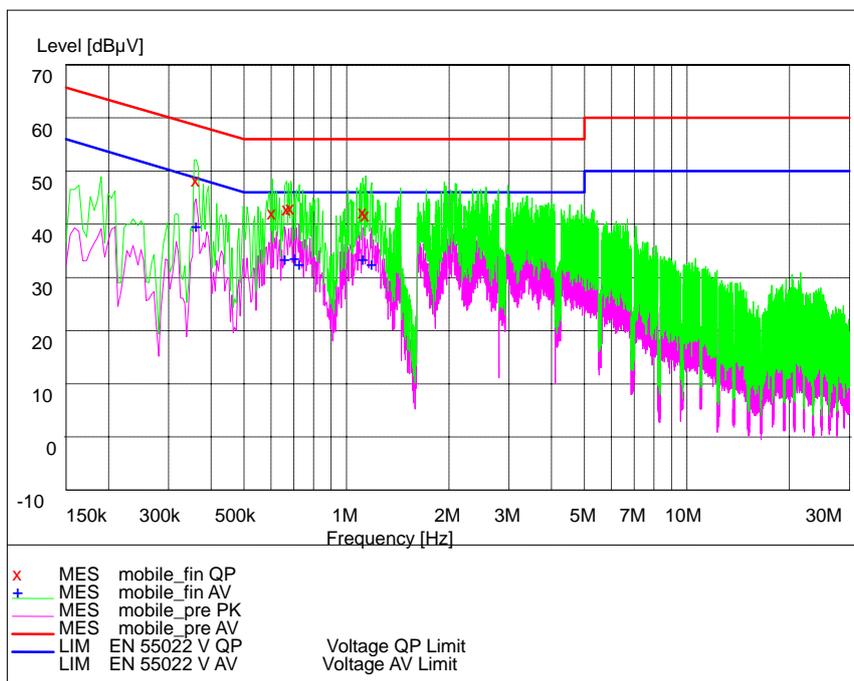
MEASUREMENT RESULT: "mobile_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.366000	48.80	20.2	59	10.2	L1	GND
1.104000	44.30	20.2	56	11.7	L1	GND
1.131000	44.80	20.2	56	11.2	N	GND
1.689000	41.60	20.2	56	14.4	N	GND
1.923000	43.00	20.2	56	13.0	L1	GND
1.954500	43.50	20.2	56	12.5	L1	GND

MEASUREMENT RESULT: "mobile_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.663000	37.00	20.3	46	9.0	L1	GND
1.131000	36.30	20.2	46	9.7	L1	GND
1.527000	34.90	20.2	46	11.1	L1	GND
1.563000	28.90	20.2	46	17.1	L1	GND
1.608000	34.90	20.2	46	11.1	L1	GND
1.923000	33.20	20.2	46	12.8	L1	GND

FM Radio Laptop+AE2#



L Line

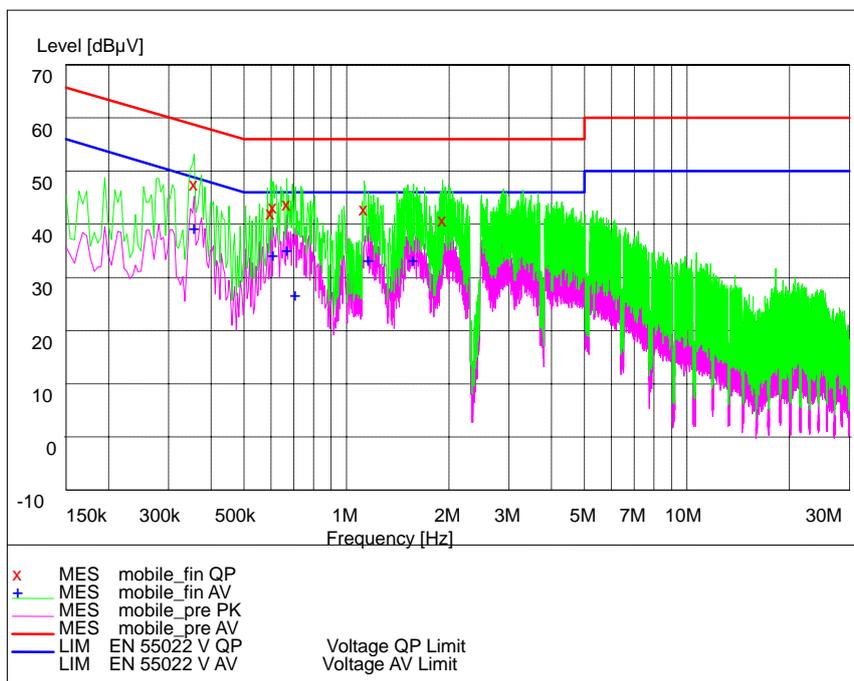
MEASUREMENT RESULT: "mobile_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.361500	50.40	20.2	59	8.6	L1	GND
0.604500	44.30	20.3	56	11.7	L1	GND
0.667500	45.10	20.3	56	10.9	L1	GND
0.685500	45.30	20.3	56	10.7	L1	GND
1.117500	44.50	20.2	56	11.5	L1	GND
1.140000	44.00	20.2	56	12.0	N	GND

MEASUREMENT RESULT: "mobile_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.361500	41.90	20.2	49	7.1	L1	GND
0.658500	35.70	20.3	46	10.3	L1	GND
0.703500	36.00	20.3	46	10.0	L1	GND
0.726000	34.70	20.3	46	11.3	L1	GND
1.117500	35.70	20.2	46	10.3	L1	GND
1.185000	34.80	20.2	46	11.2	L1	GND

MP3/MP4 Laptop+AE2#



L and N Line

MEASUREMENT RESULT: "mobile_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.357000	49.80	20.2	59	9.2	N	GND
0.600000	44.30	20.3	56	11.7	N	GND
0.609000	45.40	20.3	56	10.6	N	GND
0.667500	46.00	20.3	56	10.0	L1	GND
1.126500	45.00	20.2	56	11.0	N	GND
1.914000	42.90	20.2	56	13.1	N	GND

MEASUREMENT RESULT: "mobile_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.357000	41.50	20.2	49	7.5	L1	GND
0.609000	36.50	20.3	46	9.5	L1	GND
0.667500	37.40	20.3	46	8.6	L1	GND
0.708000	28.90	20.3	46	17.1	L1	GND
1.158000	35.50	20.2	46	10.5	L1	GND
1.572000	35.50	20.2	46	10.5	L1	GND

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
23.2°C	36.7%	99.9kPa

Test Setup:

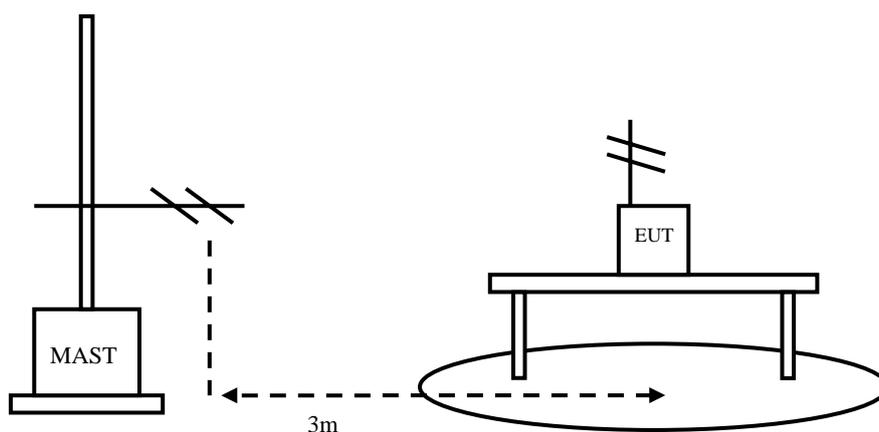


Figure 2

Test Procedure:

The EUT should be placed on a non-metallic table 80cm above the ground plane. 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. During the test the data transferring via USB cable between EUT and laptop is maintained. The test set-up and the test methods are performed according to ANSI C63.4:2009. All tests are performed with the maximum RF transmit power setting and the maximum USB data transfer rate setting.

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.

The measurement is carried out using a spectrum analyzer with the quasi-peak and average detector. The RBW is set to 100kHz for 30MHz to 1GHz, 1MHz for above 1GHz on spectrum analyzer. And VBW is set to a value equal to three times of the RBW on spectrum analyzer.

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:

GSM850 Mode

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{mea} (dBuV/m)	Polarity
32.63	20.01	8.1	11.91	Vertical
53.43	20.34	7.6	12.74	Vertical
86.26	21.62	8.9	12.72	Vertical
101.79	21.26	9.1	12.16	Horizontal
183.32	21.40	10.2	11.20	Vertical
960.32	29.97	24.3	5.67	Vertical

PCS1900 Mode

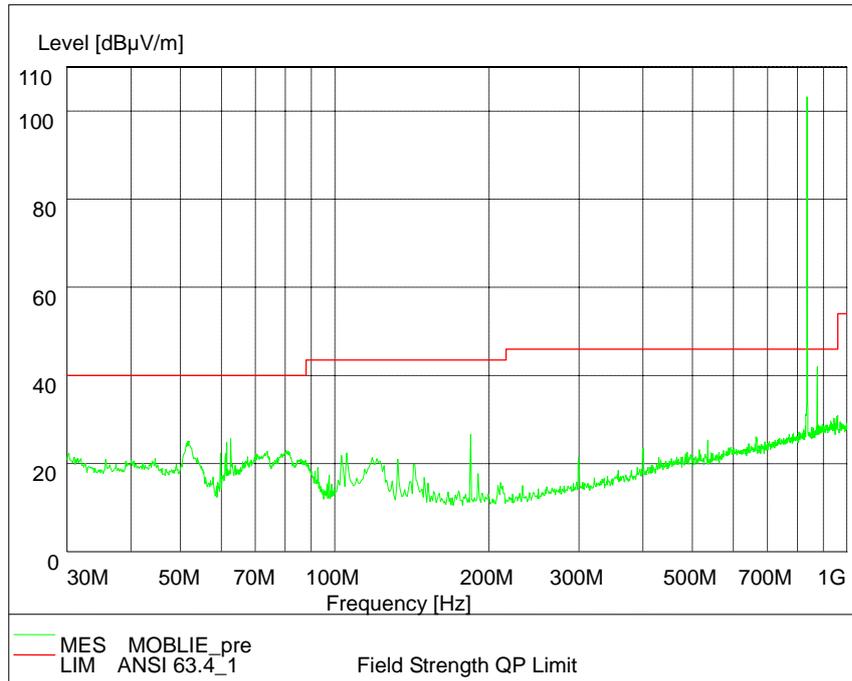
Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{mea} (dBuV/m)	Polarity
32.09	19.48	8.1	11.38	Vertical
52.87	19.84	7.6	12.24	Vertical
86.53	21.58	8.9	12.68	Vertical
101.87	21.08	9.1	11.98	Horizontal
183.66	20.95	10.2	10.75	Vertical
959.45	29.57	24.3	5.27	Vertical

FM Radio Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
32.29	20.03	8.1	11.93	Vertical
52.90	19.83	7.6	12.23	Vertical
86.75	21.70	8.9	12.80	Horizontal
101.92	20.71	9.1	11.61	Vertical
184.16	20.98	10.2	10.78	Vertical
959.62	29.76	24.3	5.46	Vertical

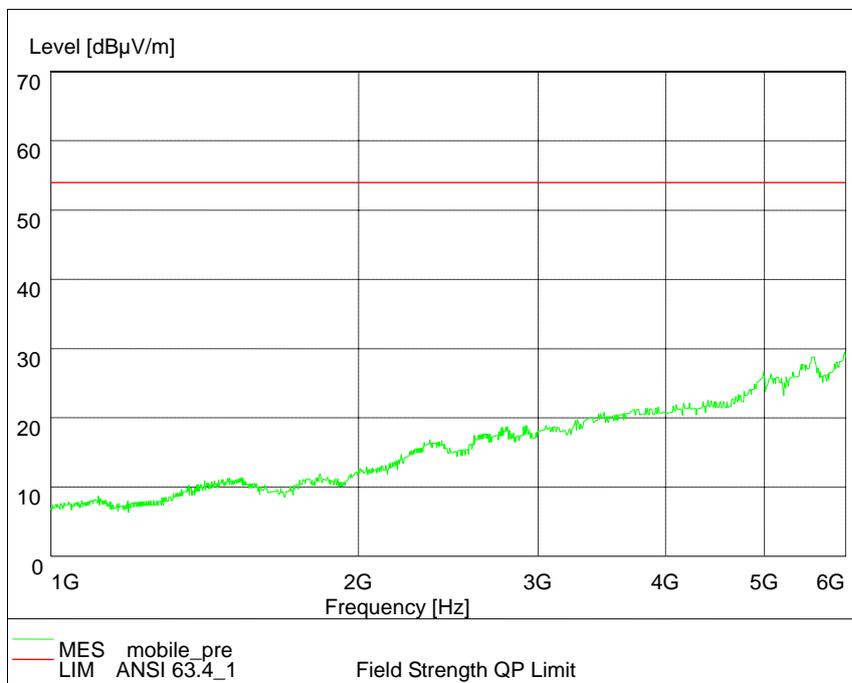
MP3/MP4 Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
32.65	19.65	8.1	11.55	Vertical
52.85	20.04	7.6	12.44	Vertical
86.74	21.97	8.9	13.07	Vertical
102.19	20.68	9.1	11.58	Horizontal
183.65	20.92	10.2	10.72	Vertical
959.51	29.29	24.3	4.99	Vertical

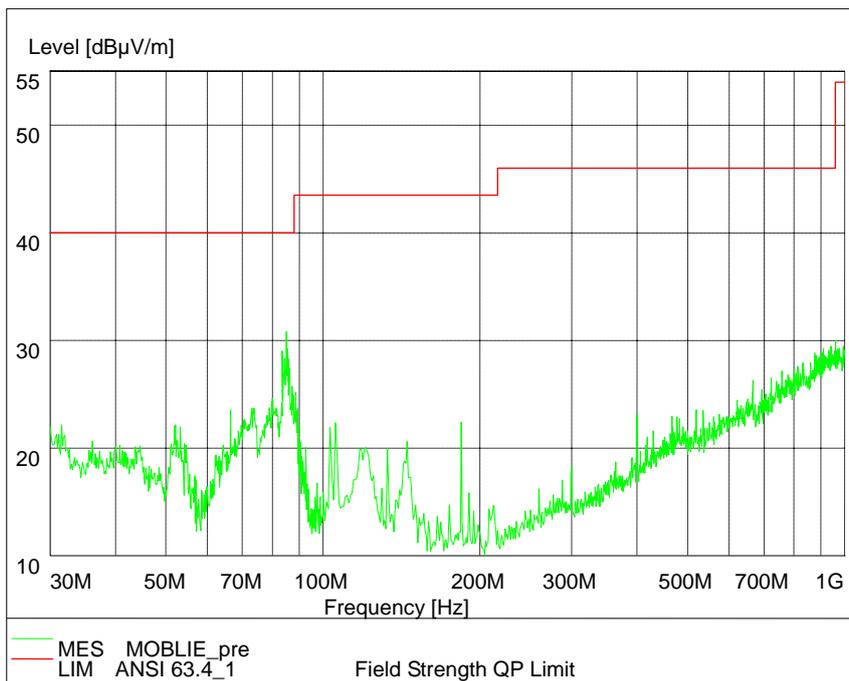


GSM 850(30MHz – 1GHz)

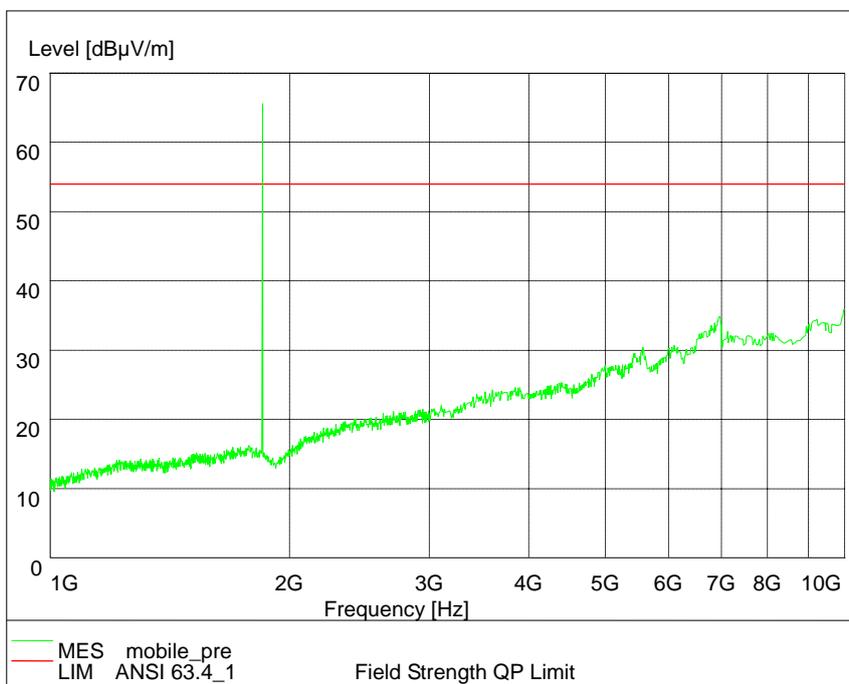
Note: The signal beyond the limit is the base station simulator carrier.



GSM 850(1GHz – 6GHz)

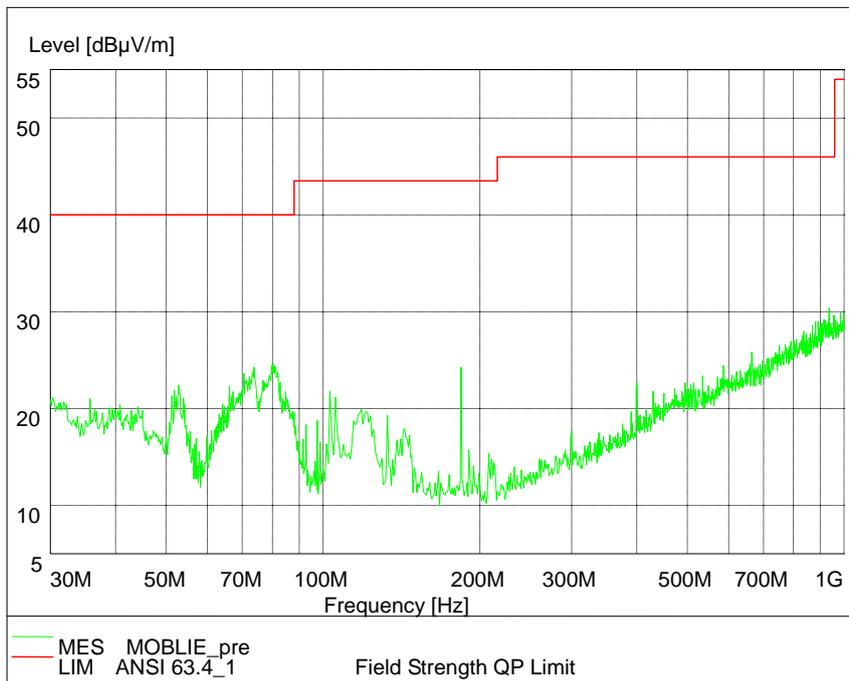


PCS 1900(30MHz – 1GHz)

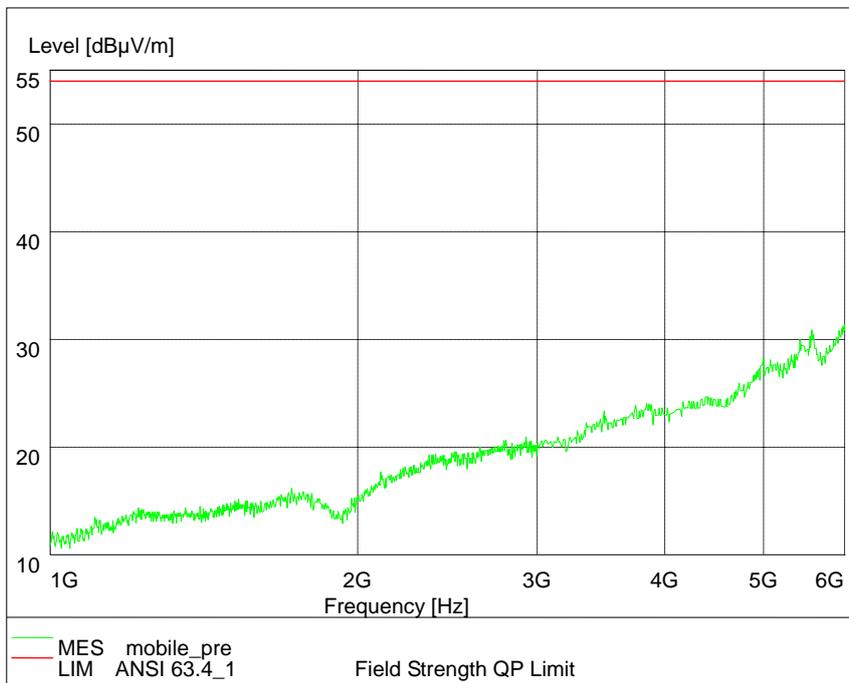


PCS 1900(1GHz – 10GHz)

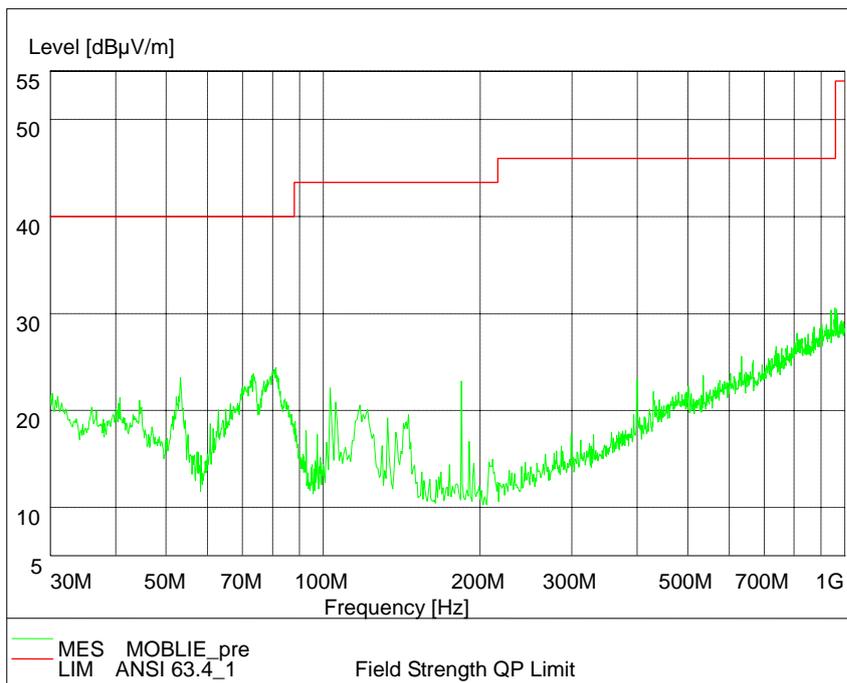
Note: The signals beyond the limit are the base station and simulator carrier.



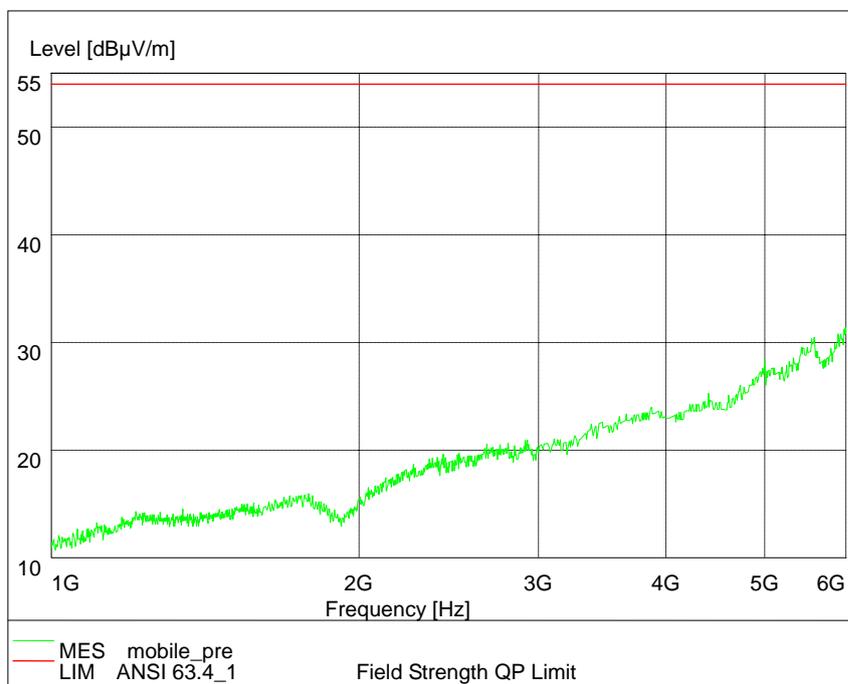
FM Radio (30MHz – 1GHz)



FM Radio (1GHz – 6GHz)



MP3/MP4 (30MHz – 1GHz)



MP3/MP4 (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	----	19 th Aug. 2012
2	ESI 40 EMI test receiver	R&S	100015	19 th Aug. 2012
3	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	19 th Aug. 2012
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	----	19 th Aug. 2012
5	ESCS30 EMI test receiver	R&S	100029	19 th Aug. 2012
6	HL562 Ultra log test antenna	R&S	100016	19 th Aug. 2012
7	ESH3-Z2 Pulse limiter	R&S	10002	19 th Aug. 2012
8	ESH3-Z5 Attenuator	R&S	100020	19 th Aug. 2012
9	ESH2Z11 LISN	R&S	50FH-020-10	19 th Aug. 2012
10	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	19 th Aug. 2012
11	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	19 th Aug. 2012
12	PS2000 Turn Table	FRANKONIA	----	19 th Aug. 2012
13	MA260 Antenna Master	FRANKONIA	----	19 th Aug. 2012
14	ES-K1EMI test software	R&S	----	19 th Aug. 2012
15	HL562 Receive antenna	R&S	100167	19 th Aug. 2012

Appendix