
TEST REPORT

Report No.: SRTC2014-H024-E0011

Product Name: GSM/GPRS/EDGE/UMTS

Digital Mobile Phone with Bluetooth and WiFi

Marketing Name: ONE TOUCH 7040F

Product Model: Yaris-5

Applicant: TCT Mobile Limited

Manufacturer: TCT Mobile Limited

Specification: FCC Part15B (Certification)

(October 1, 2009 edition)

FCC ID: RAD474

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: TCT Mobile Limited
Address: 5F, C building, No. 232, Liang Jing Road ZhangJiang
High-Tech Park, Pudong Area
City: Shanghai
Country or Region: P.R.China
Grantee Code: RAD
Contacted person: Gong Zhizhou
Tel: +86-21-61460890
Fax: +86-21-61460602
Email: zhizhou.gong@tcl.com

1.4 Manufacturer's details

Company: TCT Mobile Limited
Address: 5F, C building, No. 232, Liang Jing Road ZhangJiang
High-Tech Park, Pudong Area
City: Shanghai
Country or Region: P.R.China
Contacted person: Gong Zhizhou
Tel: +86-21-61460890
Fax: +86-21-61460602
Email: zhizhou.gong@tcl.com

1.5 Application details

Date of reception of test sample: 25th January 2014

Date of test: 25th January 2014 to 16th February 2014

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/EDGE/UMTS Digital Mobile Phone with Bluetooth and WiFi
FCC ID	RAD474
Frequency Range	GSM850: Tx:824~849MHz Rx:869~894MHz PCS1900/WCDMA Band II: Tx:1850~1910MHz Rx:1930~1990MHz
Rated Output Power	GSM850:33.0dBm PCS1900:33.0dBm WCDMA:23.0dBm
E.R.P. & E.I.R.P.	E.R.P.:33.40dBm E.I.R.P.:30.40dBm
Modulation Type	GSM/GPRS:GMSK EDGE: GMSK(Uplink direction) 8PSK(Downlink direction) WCDMA:QPSK
Emission Designator	GSM/GPRS/EDGE:300KGXW WCDMA:4M50F9W
Duplex Mode	FDD
Equipment Class	Class B
Duplex Spacing	GSM850:45MHz PCS1900/WCDMA Band II:80MHz
Antenna Type	Fixed Internal
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: 4.35V
HW Version	PIO07
SW Version	AGJ

1.7.2 EUT details

Product Name	Marketing Name	Product Model	IMEI
GSM/GPRS/EDGE/UMTS Digital Mobile Phone with Bluetooth and WiFi	ONE TOUCH 7040F	Yaris-5	014039005201803

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger

Equipment	Charger
Manufacturer	Ten Pao Industrial Co., Ltd.
Model Number	S005UU0500100
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

AE (Auxiliary Equipment) 2#: Charger

Equipment	Charger
Manufacturer	HUIZHOU BYD ELECTRONIC CO., LTD.
Model Number	TUUS050100-A00
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

AE (Auxiliary Equipment) 3#: Battery

Equipment	Battery
Manufacturer	BYD COMPANY LIMITED
Model Number	TLi020F1
Capacity	2000mAh
Rated Voltage	4.35V d.c.

AE (Auxiliary Equipment) 4#: Battery

Equipment	Battery
Manufacturer	BYD COMPANY LIMITED
Model Number	TLi019B1
Capacity	1900mAh
Rated Voltage	4.35V d.c.

AE (Auxiliary Equipment) 5#: Battery

Equipment	Battery
Manufacturer	SCUD (FUJIAN) Electronics Co., Ltd.
Model Number	TLi019B2
Capacity	1900mAh
Rated Voltage	4.35V d.c.

AE (Auxiliary Equipment) 6#: Headset

Equipment	Headset
Manufacturer	Shenzhen Juwei Electronics Co., Ltd
Model Number	CCB3160A11C1

AE (Auxiliary Equipment) 7#: Headset

Equipment	Headset
Manufacturer	Dongguan Superfine Electronic Co., Ltd
Model Number	CCB3160A11C4

AE (Auxiliary Equipment) 8#: Data Cable

Equipment	Data Cable
Manufacturer	Shenzhen Juwei Electronics Co., Ltd
Model Number	CDA3122002C1

AE (Auxiliary Equipment) 9#: Data Cable

Equipment	Data Cable
Manufacturer	Huizhou Shenghua Industry Co., Ltd.
Model Number	CDA3122002C2

Note:

All the auxiliary equipments have been labeled with number in order to identify the test sample.

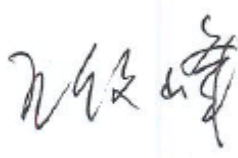
As the information described above, there are two different models of charger manufactured by two different companies, three different models of battery manufactured by two different companies, two different models of headset manufactured by two different companies and two different models of data cable manufactured by two different companies.

The relevant tests have been performed in order to verify in which combination case (EUT exercised by only one model of charger, one model of battery, one model of headset and one model of data cable) the EUT would have the worst features. So all the tests shown in this test report are performed when the EUT exercised by the charger S005UU0500100, the battery TLi019B2, the headset CCB3160A11C1 and the data cable CDA3122002C1.

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. Gong Jian Test engineer 	Issued date: 2014.03.07

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
21.2°C	37.1%	100.2kPa

Test Setup:

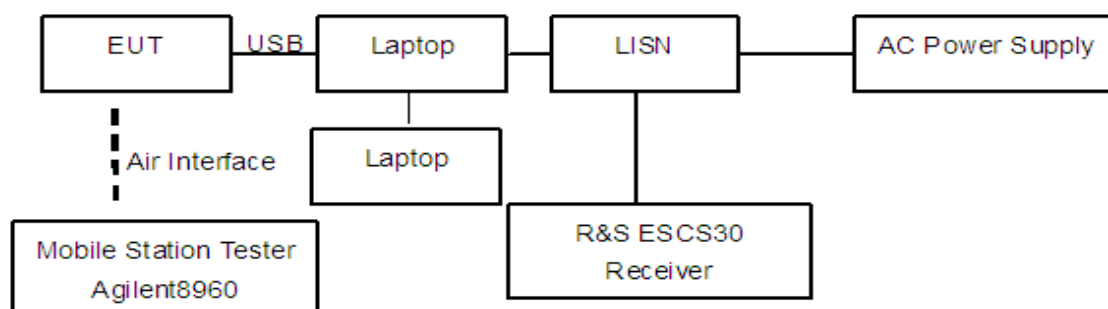


Figure 1

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 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 C63.4:2009.

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.

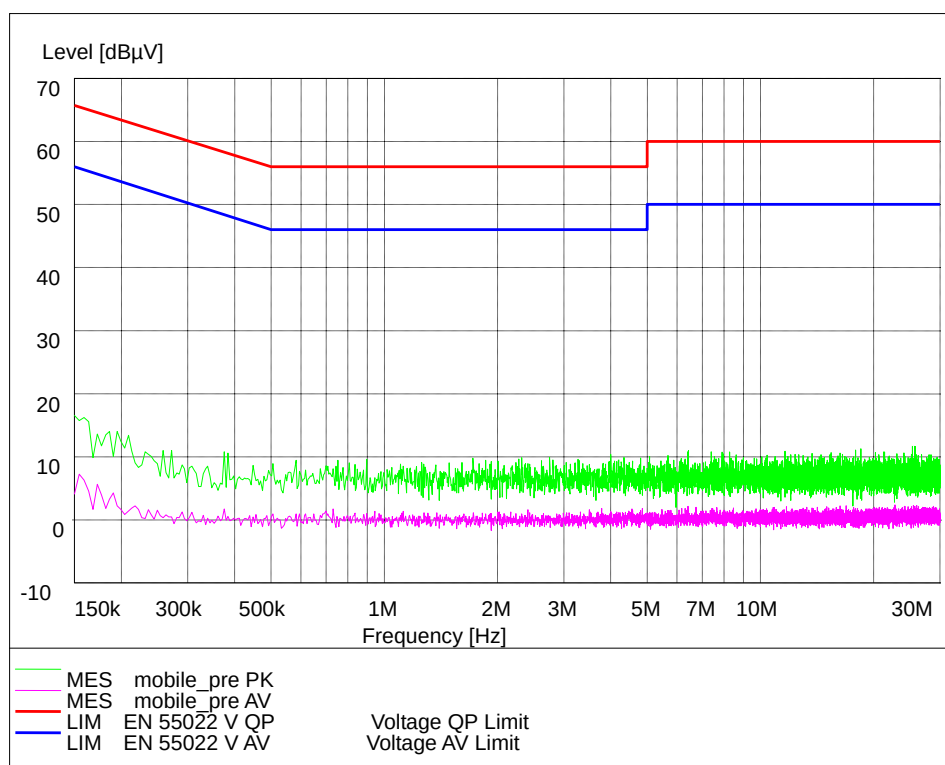
Limit:

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

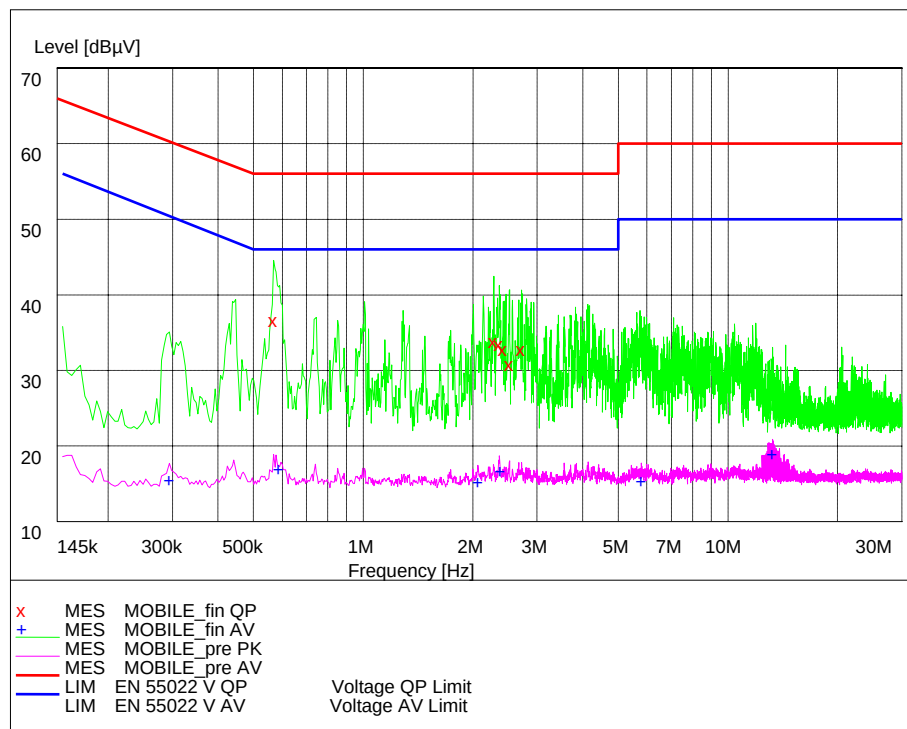
Test result:

Noise Level of The Measuring Instrument



L and N Line

GSM850 Laptop+ AE5#+AE6#+AE8#



L and N Line

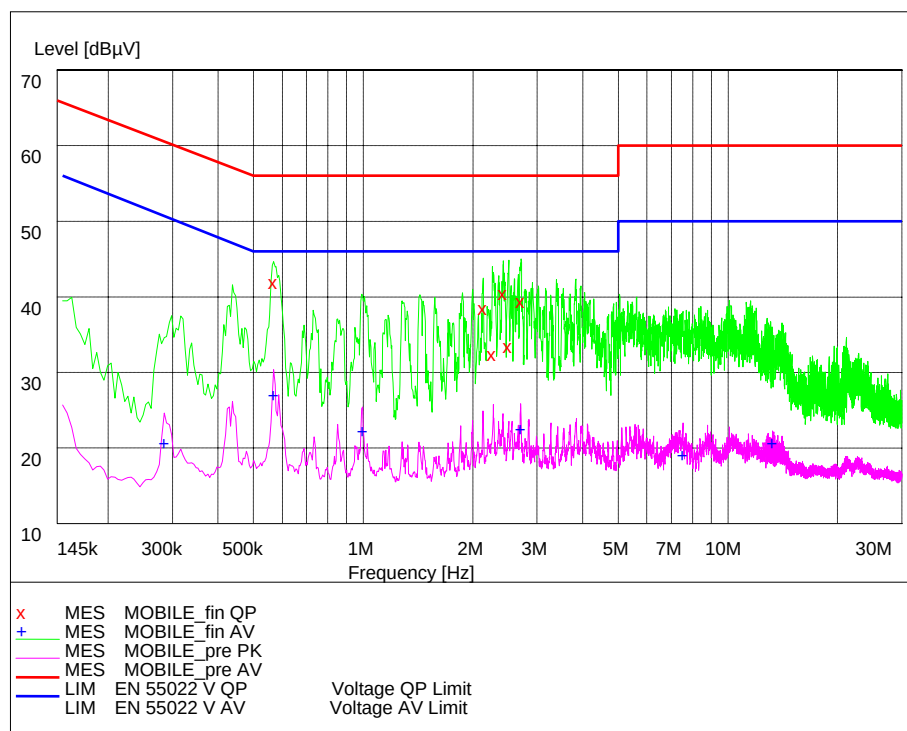
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV		dB	dBμV		dB
0.294000	17.00	20.3	50	33.4	L	---
0.586500	18.30	20.3	46	27.7	N	---
2.062500	16.70	20.4	46	29.3	L	---
2.373000	18.10	20.4	46	27.9	L	---
5.788500	16.80	20.6	50	33.2	L	---
13.254000	20.40	21.0	50	29.6	L	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV		dB	dBμV		dB
0.568500	38.00	20.3	56	18.0	L	---
2.283000	35.30	20.4	56	20.7	L	---
2.359500	34.90	20.4	56	21.1	L	---
2.427000	34.30	20.3	56	21.7	L	---
2.526000	32.30	20.3	56	23.7	L	---
2.715000	34.20	20.4	56	21.8	N	---

PCS1900 Laptop+ AE5#+AE6#+AE8#



L and N Line

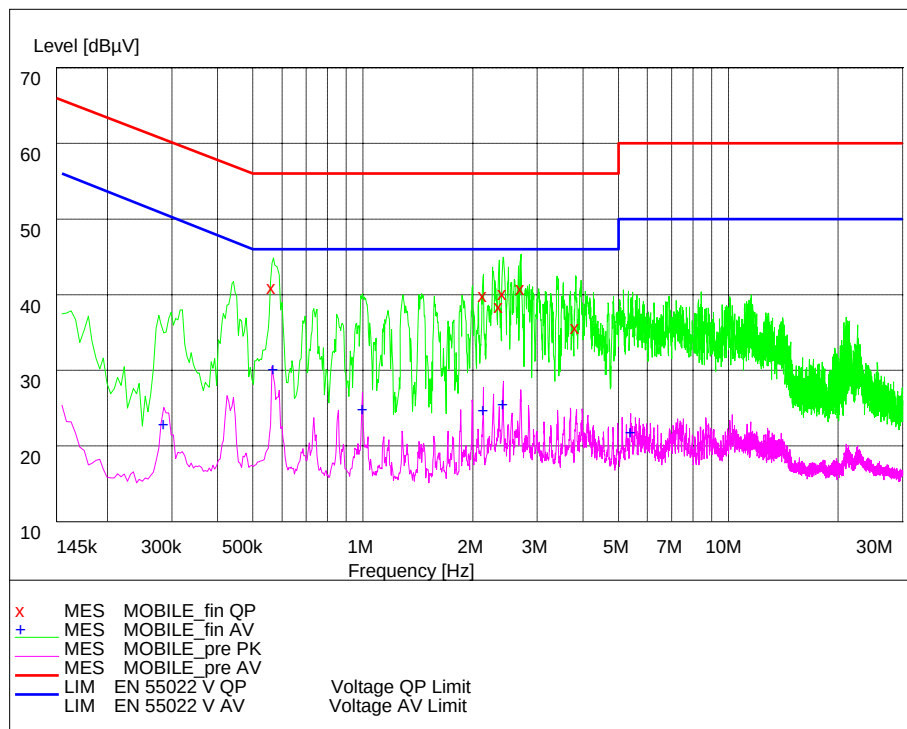
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.568500	43.40	20.3	56	12.6	L	---
2.134500	39.90	20.3	56	16.1	L	---
2.260500	33.90	20.4	56	22.1	L	---
2.422500	42.00	20.3	56	14.0	L	---
2.503500	34.90	20.3	56	21.1	L	---
2.710500	40.90	20.4	56	15.1	L	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.285000	22.10	20.2	51	28.6	L	---
0.568500	28.40	20.3	46	17.6	L	---
0.996000	23.70	20.2	46	22.3	N	---
2.706000	24.00	20.4	46	22.0	L	---
7.525500	20.50	20.7	50	29.5	L	---
13.254000	22.10	21.0	50	27.9	L	---

WCDMA BAND II Laptop+ AE5#+AE6#+AE8#



L and N Line

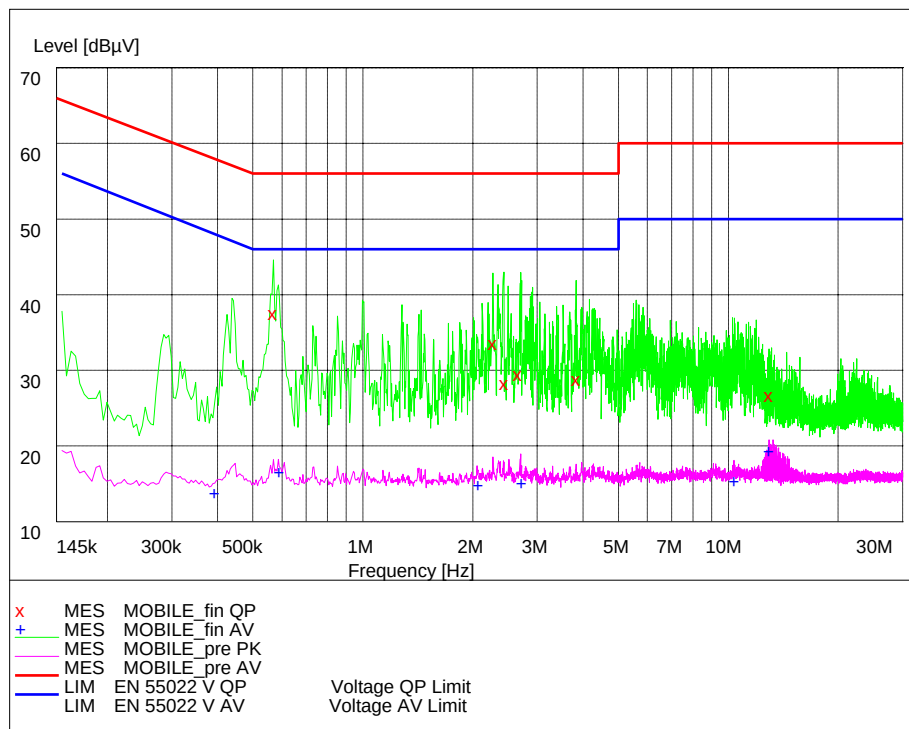
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV		dB	dBμV		dB
0.564000	42.40	20.3	56	13.6	L	---
2.134500	41.40	20.3	56	14.6	L	---
2.364000	39.90	20.4	56	16.1	L	---
2.418000	41.70	20.3	56	14.3	N	---
2.710500	42.30	20.4	56	13.7	L	---
3.822000	37.20	20.4	56	18.8	L	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV		dB	dBμV		dB
0.285000	24.40	20.2	51	26.3	L	---
0.568500	31.60	20.3	46	14.4	L	---
0.996000	26.30	20.2	46	19.7	L	---
2.134500	26.20	20.3	46	19.8	L	---
2.418000	27.00	20.3	46	19.0	L	---
5.401500	23.30	20.6	50	26.7	L	---

FM Radio Laptop+ AE5#+AE6#+AE8#



L and N Line

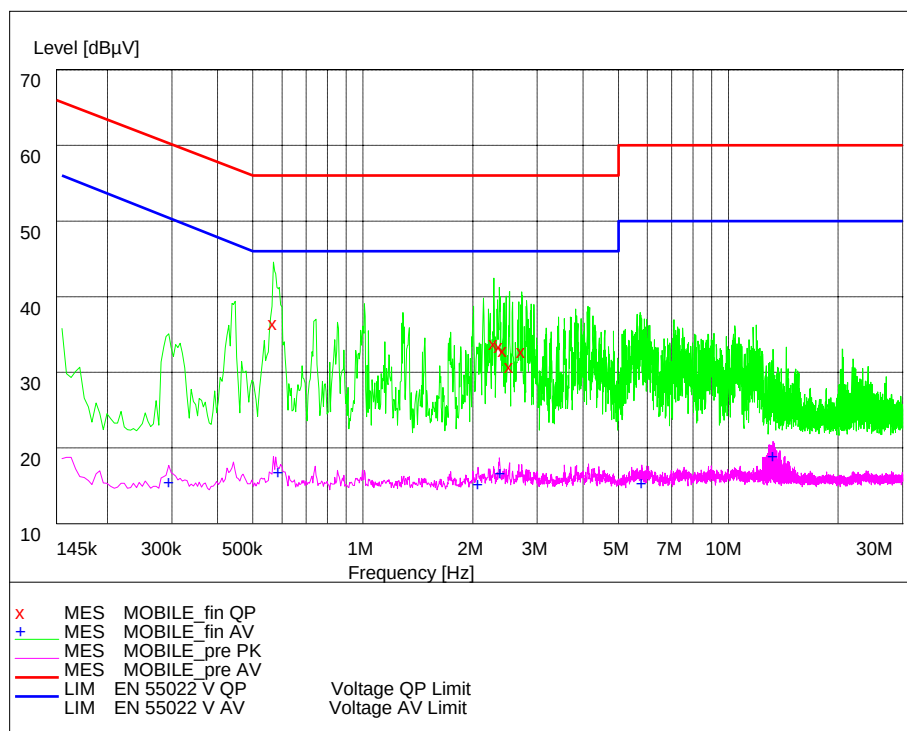
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.568500	39.00	20.3	56	17.0	L	---
2.278500	35.00	20.4	56	21.0	L	---
2.445000	29.70	20.3	56	26.3	N	---
2.665500	30.90	20.4	56	25.1	L	---
3.849000	30.20	20.4	56	25.8	L	---
12.949000	28.20	21.0	56	25.8	L	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.393000	15.20	20.3	48	32.8	L	---
0.591000	18.00	20.3	46	28.0	L	---
2.071500	16.20	20.4	46	29.8	N	---
2.719500	16.60	20.4	46	29.4	L	---
10.396500	16.80	20.9	50	33.2	L	---
12.934500	20.80	21.0	50	29.2	L	---

MP3/MP4 Laptop+ AE5#+AE6#+AE8#



L and N Line

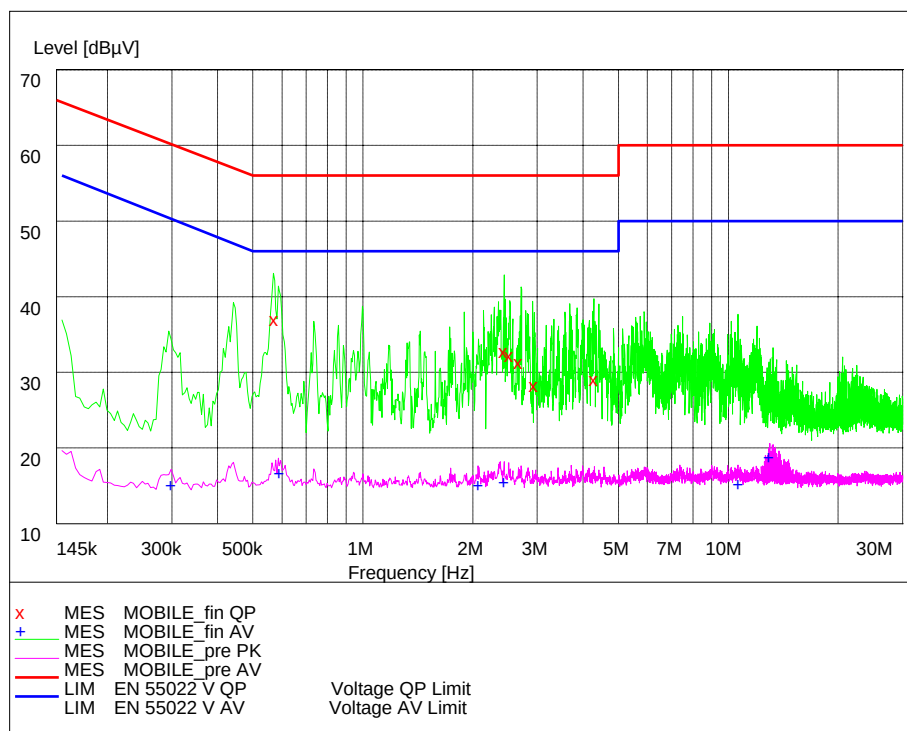
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.568500	38.00	20.3	56	18.0	L	---
2.283000	35.30	20.4	56	20.7	L	---
2.359500	34.90	20.4	56	21.1	L	---
2.427000	34.30	20.3	56	21.7	L	---
2.526000	32.30	20.3	56	23.7	N	---
2.715000	34.20	20.4	56	21.8	L	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.294000	17.00	20.3	50	33.4	L	---
0.586500	18.30	20.3	46	27.7	L	---
2.062500	16.70	20.4	46	29.3	N	---
2.373000	18.10	20.4	46	27.9	L	---
5.788500	16.80	20.6	50	33.2	L	---
13.254000	20.40	21.0	50	29.6	L	---

Camera Laptop+ AE5#+AE6#+AE8#



L and N Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.573000	38.40	20.3	56	17.6	L	---
2.431500	34.20	20.3	56	21.8	L	---
2.526000	33.70	20.3	56	22.3	L	---
2.674500	32.80	20.4	56	23.2	L	---
2.944500	29.70	20.4	56	26.3	L	---
4.303500	30.50	20.5	56	25.5	N	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line	PE
0.298500	16.60	20.3	50	33.6	L	---
0.591000	18.10	20.3	46	27.9	L	---
2.071500	16.60	20.4	46	29.4	L	---
2.431500	17.00	20.3	46	29.0	L	---
10.653000	16.70	20.9	50	33.3	L	---
12.934500	20.20	21.0	50	29.8	L	---

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
20.3°C	36.4%	100.2kPa

Test Setup:

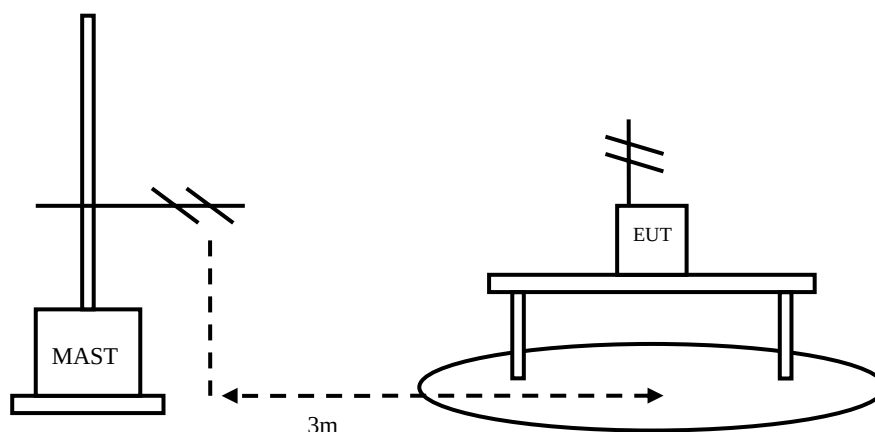


Figure 2

Test Procedure:

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 C63.4:2009.

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 (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	54
	Peak	74

Test result:

GSM850 Mode

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{mea} (dBuV/m)	Polarity
30.00	28.30	15.20	13.10	Vertical
71.52	19.90	6.90	13.00	Vertical
209.98	27.50	8.10	19.40	Vertical
443.44	21.50	16.10	5.40	Horizontal
837.02	89.00	22.90	66.10	Vertical
876.08	57.20	23.50	33.70	Vertical

PCS1900 Mode

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{mea} (dBuV/m)	Polarity
30.00	24.77	15.20	9.57	Vertical
43.46	20.54	13.30	7.24	Vertical
330.06	27.36	12.50	14.86	Vertical
685.37	29.57	20.60	8.97	Vertical
722.44	28.29	21.50	6.79	Vertical
902.80	26.59	24.00	2.59	Vertical

WCDMA BAND II Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.00	25.69	15.20	10.49	Vertical
42.62	21.05	13.90	7.15	Vertical
122.44	23.74	9.50	14.24	Vertical
722.44	27.55	21.50	6.05	Vertical
849.69	27.46	23.00	4.46	Vertical
899.79	24.72	23.90	0.82	Horizontal

FM Radio Mode

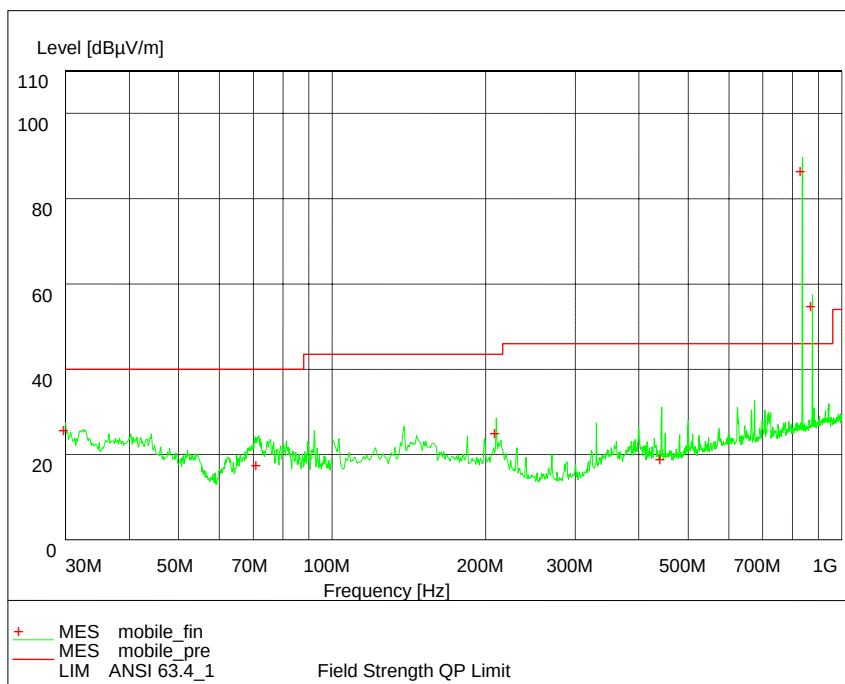
Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.00	25.24	15.20	10.04	Vertical
45.01	26.00	12.20	13.80	Vertical
92.57	26.01	8.40	17.61	Vertical
625.25	28.88	19.60	9.28	Vertical
723.45	28.63	21.50	7.13	Vertical
899.80	28.40	23.90	4.50	Horizontal

MP3/MP4 Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.00	23.87	15.20	8.67	Vertical
42.20	20.77	14.20	6.57	Vertical
330.06	27.34	12.50	14.84	Vertical
443.88	28.38	16.10	12.28	Vertical
624.24	27.21	19.60	7.61	Vertical
723.45	29.16	21.50	7.66	Vertical

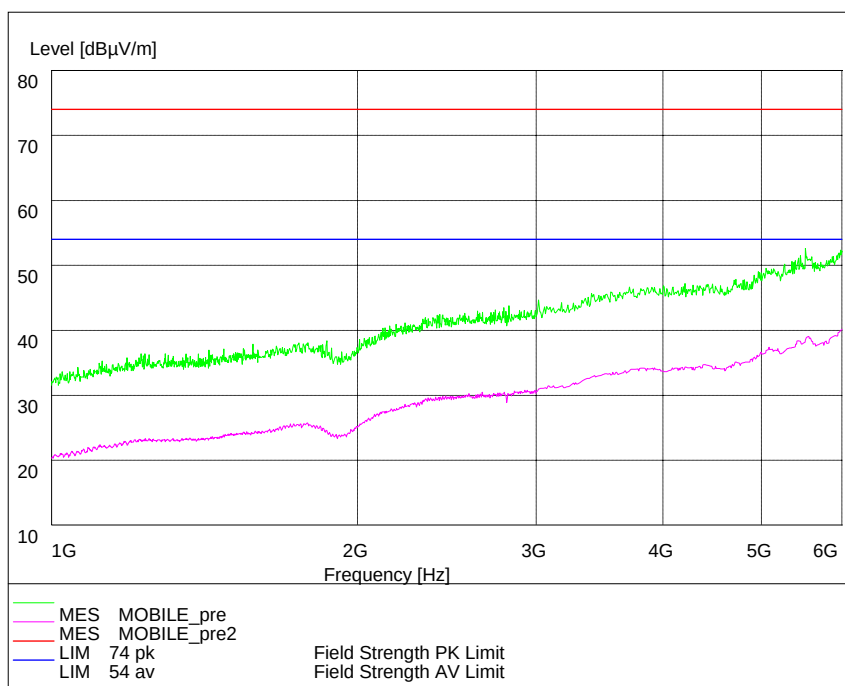
Camera Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.00	24.77	15.20	9.57	Vertical
43.46	20.54	13.30	7.24	Vertical
330.06	27.36	12.50	14.86	Vertical
679.34	27.57	20.60	6.97	Vertical
722.44	28.11	21.50	6.51	Vertical
902.80	28.02	24.00	4.02	Vertical

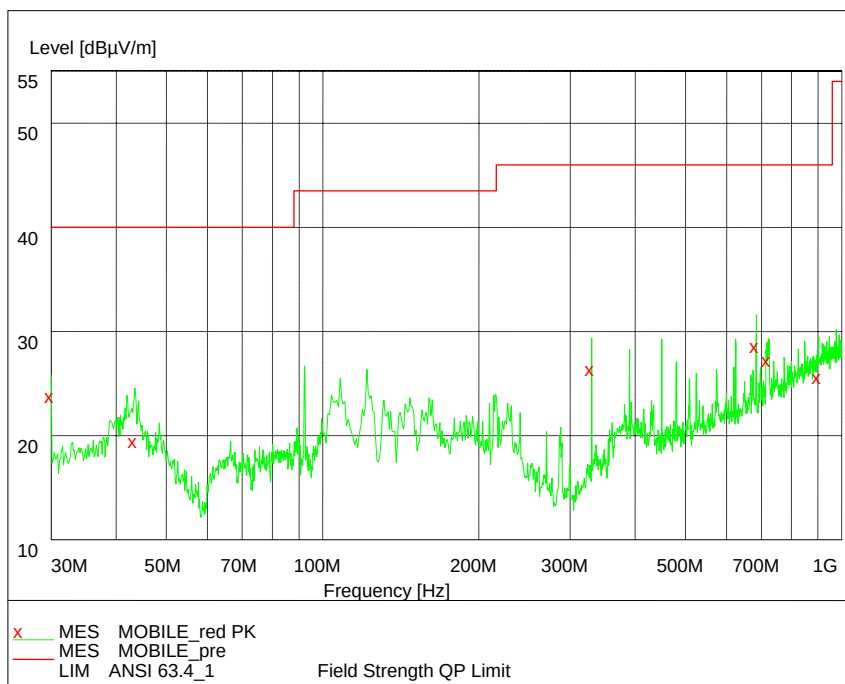


GSM850 (30MHz – 1GHz)

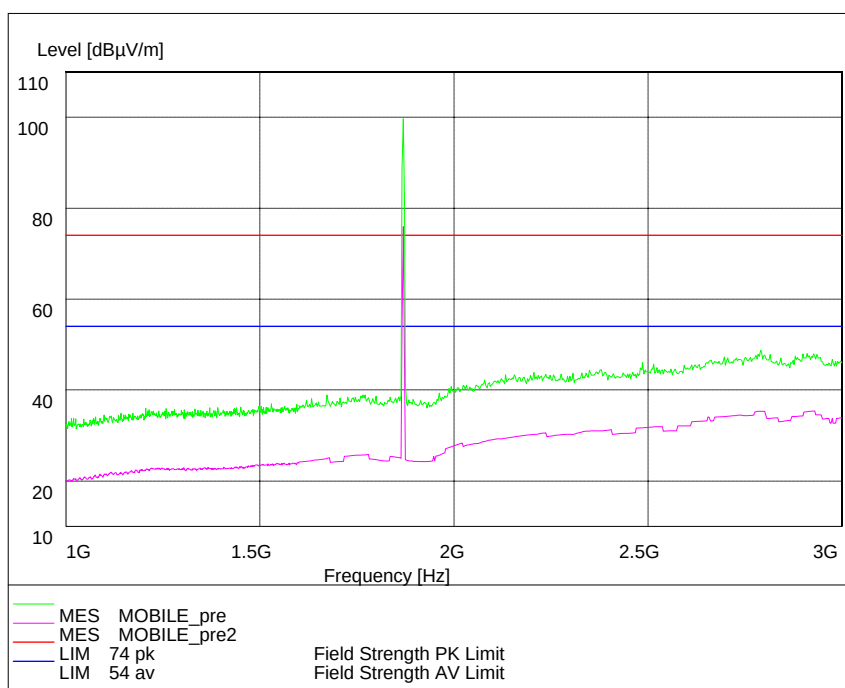
Note: The signal beyond the limit is the base station simulator carrier.



GSM850 (1GHz – 6GHz)

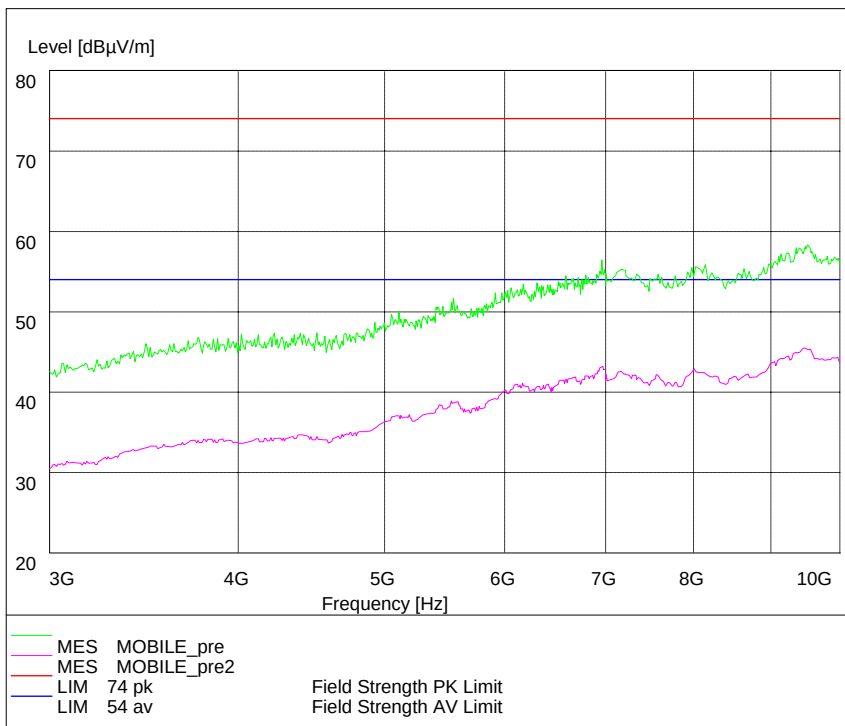


PCS1900 (30MHz – 1GHz)

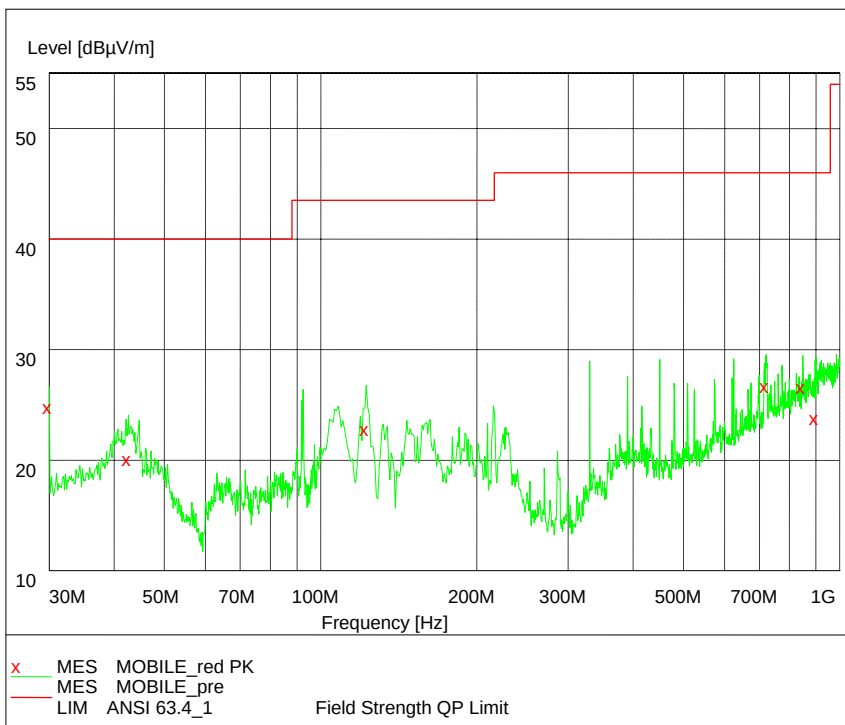


PCS1900 (1GHz – 3GHz)

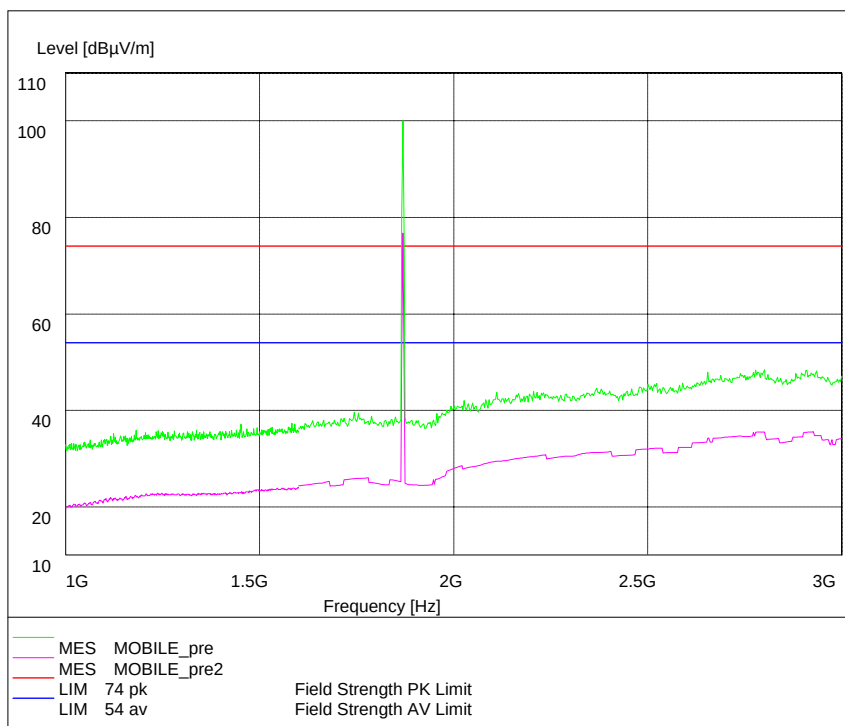
Note: The signals beyond the limit are the base station and simulator carrier.



PCS1900 (3GHz – 10GHz)

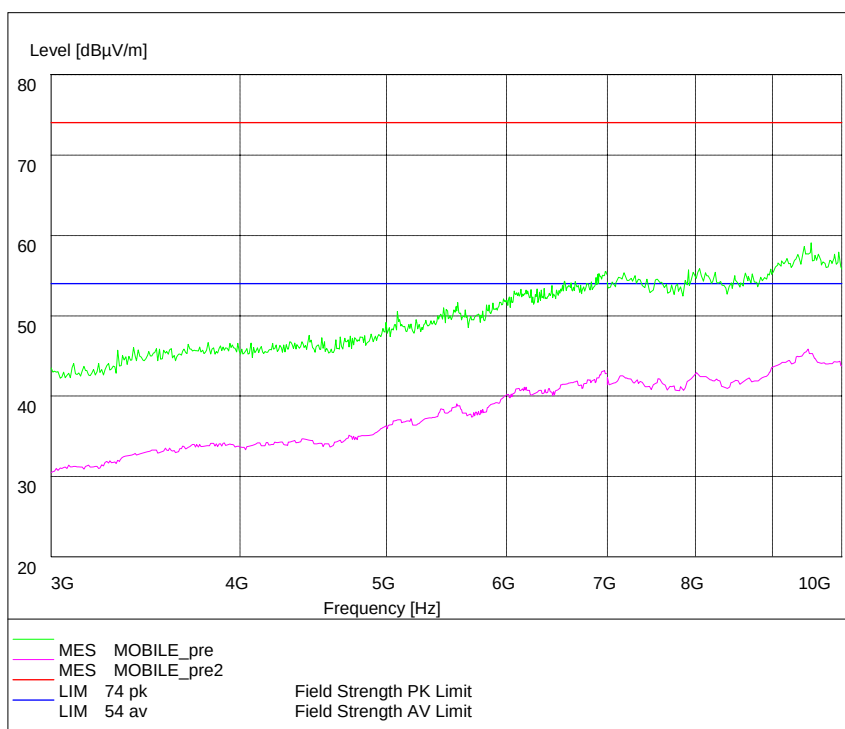


WCDMA BAND II (30MHz – 1GHz)

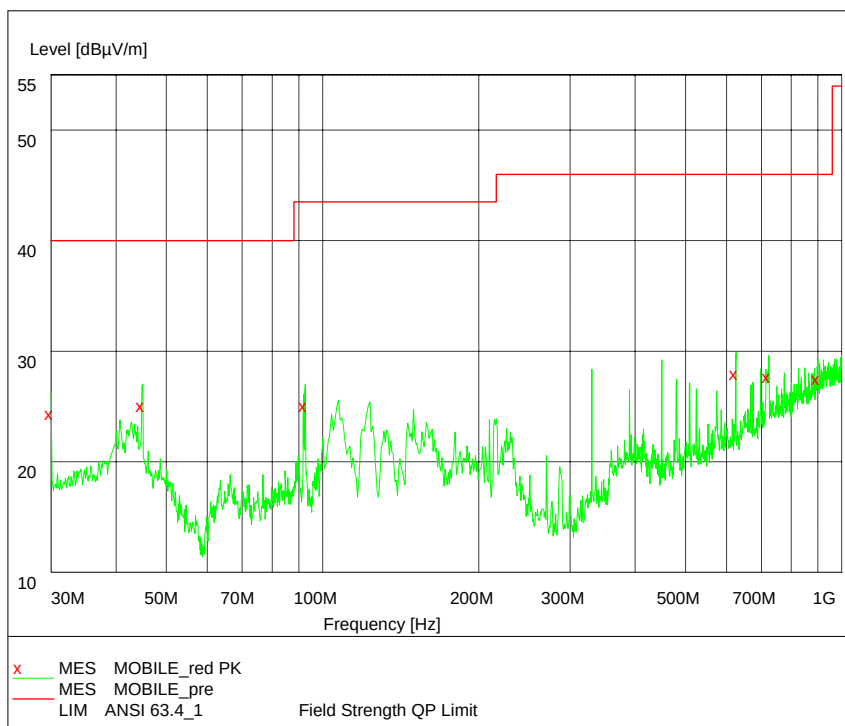


WCDMA BAND II (1GHz – 3GHz)

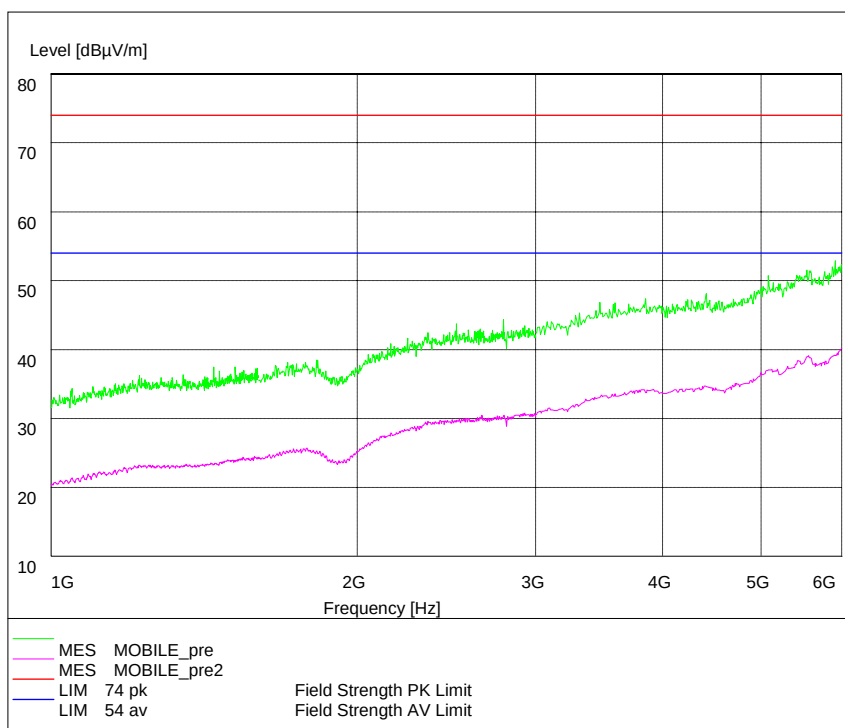
Note: The signal beyond the limit is the base station simulator carrier.



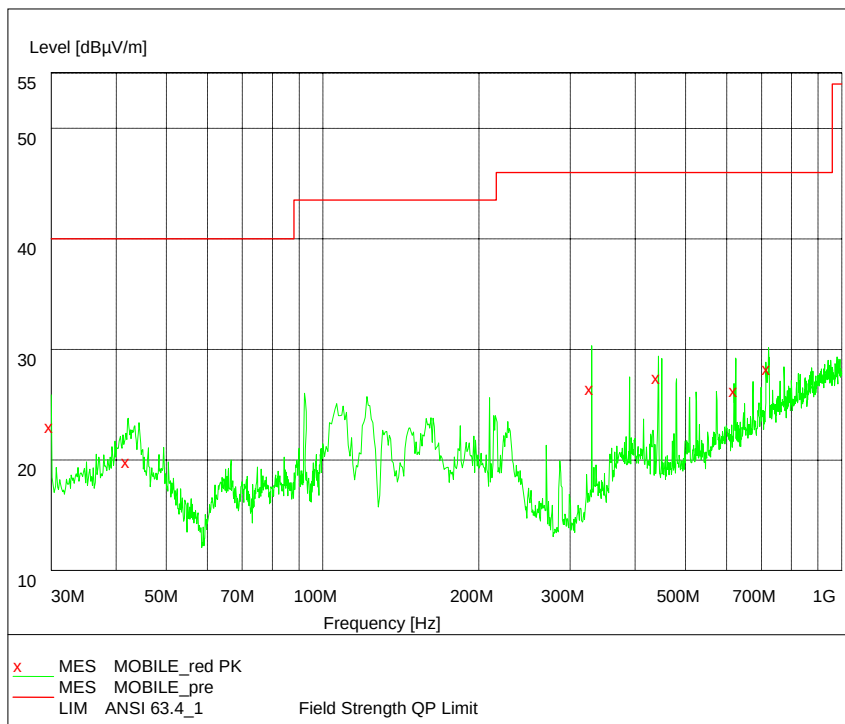
WCDMA BAND II (3GHz – 10GHz)



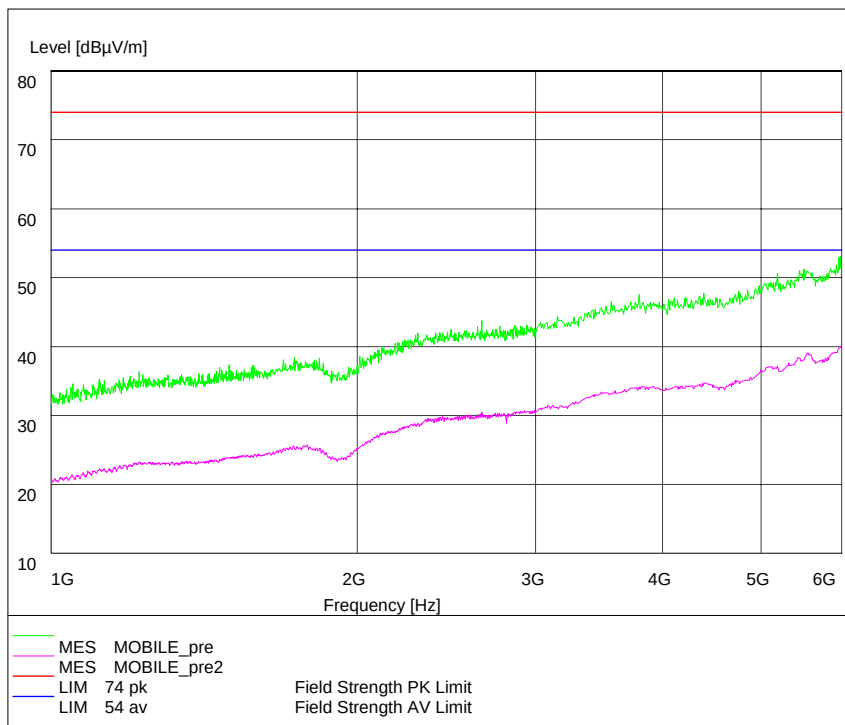
FM Radio (30MHz – 1GHz)



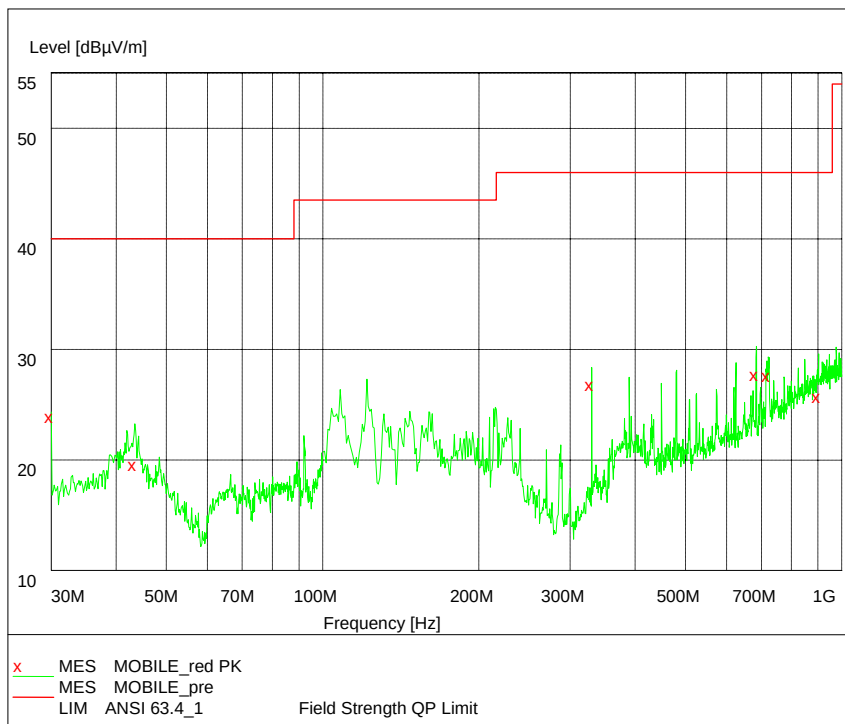
FM Radio (1GHz – 6GHz)



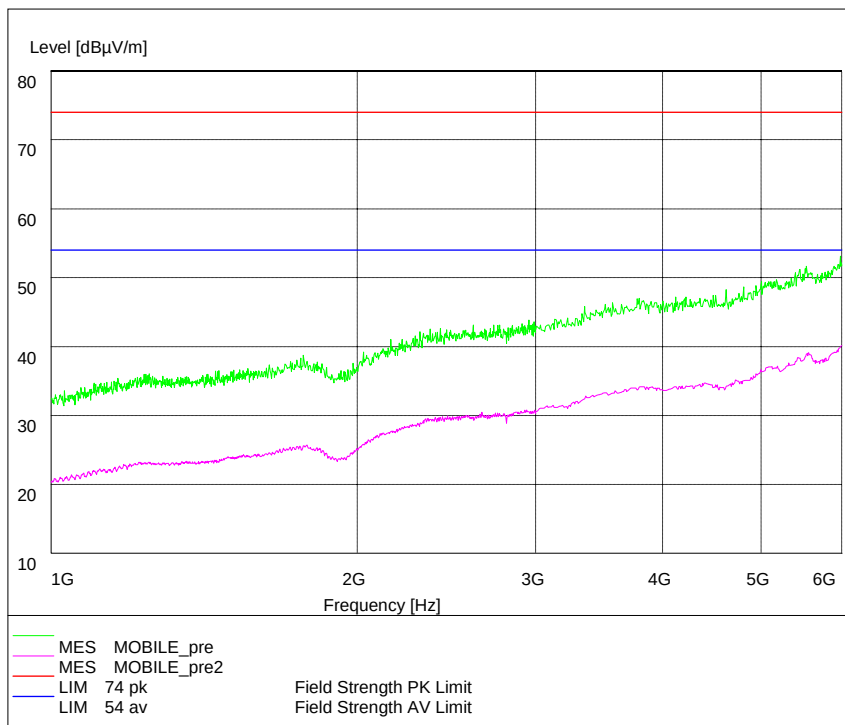
MP3/MP4 (30MHz – 1GHz)



MP3/MP4 (1GHz – 6GHz)



Camera (30MHz – 1GHz)



Camera (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. 2014
2	ESI 40 EMI test receiver	R&S	100015	19 th Aug. 2014
3	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	19 th Aug. 2014
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	19 th Aug. 2014
5	ESCS30 EMI test receiver	R&S	100029	19 th Aug. 2014
6	HL562 Ultra log test antenna	R&S	100016	19 th Aug. 2014
7	ESH3-Z2 Pulse limiter	R&S	10002	19 th Aug. 2014
8	ESH3-Z5 Attenuator	R&S	100020	19 th Aug. 2014
9	ESH2Z11 LISN	R&S	50FH-020-10	19 th Aug. 2014
10	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	19 th Aug. 2014
11	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	19 th Aug. 2014
12	PS2000 Turn Table	FRANKONIA	-----	19 th Aug. 2014
13	MA260 Antenna Master	FRANKONIA	-----	19 th Aug. 2014
14	ES-K1EMI test software	R&S	-----	19 th Aug. 2014
15	HL562 Receive antenna	R&S	100167	19 th Aug. 2014

Appendix

Appendix1 Test Setup