
TEST REPORT

Report No.: SRTC2015-9003(F)-0003

Product Name: GSM quad band mobile phone

Model Name: 1017G

Applicant: TCL Communication Ltd.

Manufacturer: TCL Communication Ltd.

Specification: FCC Part15B (Certification)

(October 1, 2009 edition)

FCC ID: 2ACCB012

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

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

CONTENTS

1. General information	3
1.1 Notes of the test report	3
1.2 Information about the testing laboratory.....	3
1.3 Applicant's details	3
1.4 Manufacturer's details.....	3
1.5 Application details	4
1.6 Reference specification.....	4
1.7 Information of EUT	4
1.7.1 General information.....	4
1.7.2 EUT details	5
1.7.3 Auxiliary equipment details.....	5
2. Test information	7
2.1 Summary of the test results.....	7
2.2 Test result.....	8
2.2.1 Conducted Emissions-FCC Part15.107	8
2.2.2 Radiated Emissions-FCC Part15.109	18
2.3. List of test equipments	26
Appendix	27

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: Wang Junfeng
Tel: +86 10 68009181 +86 10 68009202
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Email: wangjf@srrc.org.cn / wangjunfeng@srtc.org.cn

1.3 Applicant's details

Company: TCL Communication Ltd.
Address: 5F, E building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China
City: Shanghai
Country or Region: P.R.China
Grantee Code: 2ACCJ
Contacted person: Houhua.FAN
Tel: +86-21- 61460666
Fax: +86-21- 61460602
Email: houhua.fan@tcl.com

1.4 Manufacturer's details

Company: TCL Communication Ltd.
Address: 5F, E building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China
City: Shanghai
Country or Region: P.R.China
Contacted person: Houhua.FAN
Tel: +86-21- 61460666
Fax: +86-21- 61460602
Email: houhua.fan@tcl.com

1.5 Application details

Date of reception of test sample: 21st April 2015

Date of test: 21st April 2015 to 24th April 2015

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 quad band mobile phone
FCC ID	2ACCJB012
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.:31.98dBm E.I.R.P.:29.29dBm
Modulation Type	GSM/GPRS:GMSK
Emission Designator	GSM/GPRS
Duplex Mode	FDD
Equipment Class	Class B
Duplex Spacing	GSM850:45MHz PCS1900:80MHz
Antenna Type	Fixed Internal
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	1203_MB_PCB_V0.1
SW Version	1017G_L3EN_V01_150408_MCP32+32_FM_LATAM_AL

1.7.2 EUT details

Product Name	Model Name	IMEI
GSM quad band mobile phone	1017G	014365000006990

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger

Equipment	Charger
Manufacturer	AOHAI
Model Number	A220-1501-500200
S/N	CBA0053AG0C4
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

AE (Auxiliary Equipment) 2#: Charger

Equipment	Charger
Manufacturer	BYD
Model Number	WUS550mA5V00-02
S/N	CBA3002AG0C1
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

AE (Auxiliary Equipment) 3#: Battery

Equipment	Battery
Manufacturer	BYD
Model Number	CAB0400000C1
Capacity	400mAh
Rated Voltage	3.7V d.c.

AE (Auxiliary Equipment) 4#: Headset

Equipment	Headset
Manufacturer	JIAYIKANG
Model Number	CCB0010A11C7

AE (Auxiliary Equipment) 5#: Headset

Equipment	Headset
Manufacturer	JIAYIKANG
Model Number	CCB0010A10C7

AE (Auxiliary Equipment) 6#: USB Cable

Equipment	USB Cable
Manufacturer	JIAYIKANG
Model Number	CDA0000049C3

AE (Auxiliary Equipment) 7#: USB Cable

Equipment	USB Cable
Manufacturer	BYD
Model Number	CDA0000030C3

Note:

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

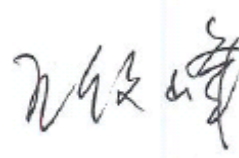
As the information described above, there are two different models of charger manufactured by two different companies, one battery, two different models of headset manufactured by two different companies and two different models of USB cable manufactured by two different companies.

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 battery CAB0400000C1, the headset CCB0010A11C7 and the USB cable CDA0000030C3.

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

<p>This Test Report Is Issued by: Mr. Song Qizhu Director of the test lab</p> 	<p>Checked by: Mr. Wang Junfeng Deputy director of the test lab</p> 
<p>Tested by: Mr. Gong Jian Test engineer</p> 	<p>Issued date:</p> <p>2015.04.30</p>

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
24.4	38.6%	101.5kPa

Test Setup:

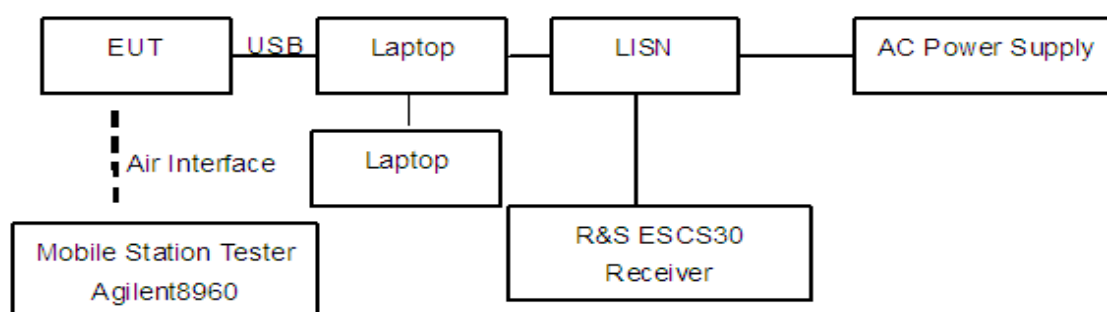


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. 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 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.

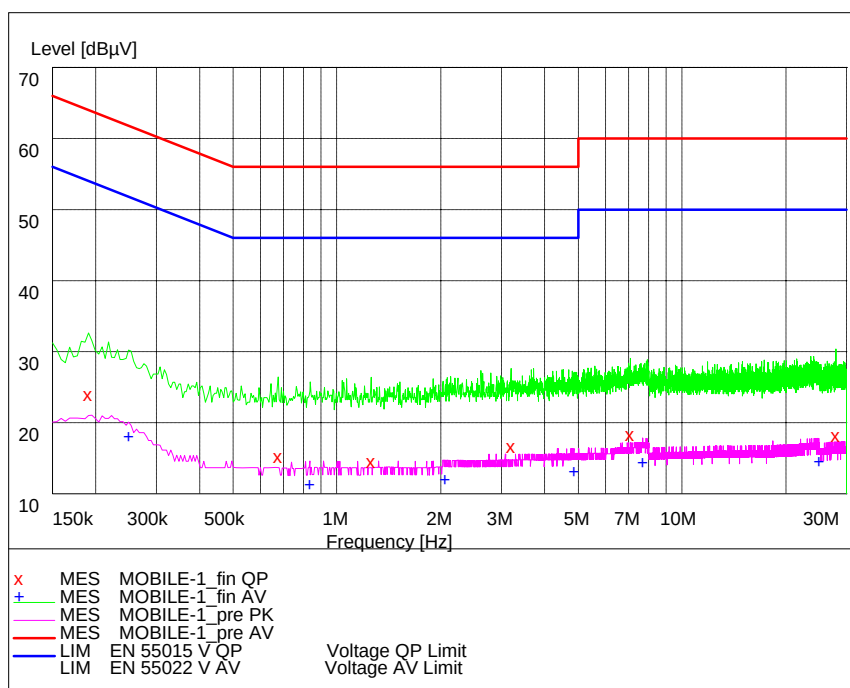
Limit:

Frequency of Emission(MHz)	Limits(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

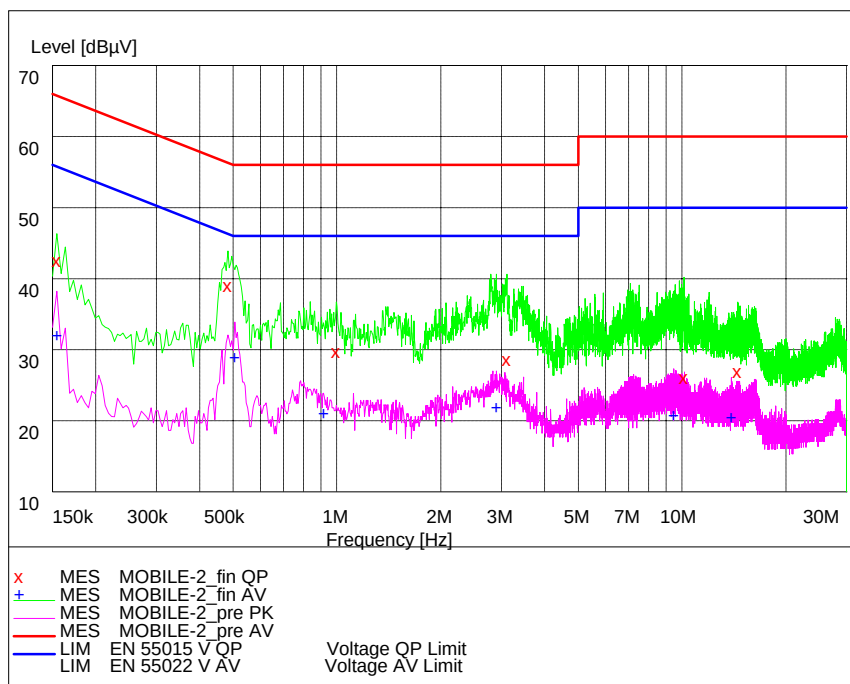
Test result:

Noise Level of the Measuring Instrument



L and N Line

GSM850 LAPTOP+ AE3#+AE4#+AE7#



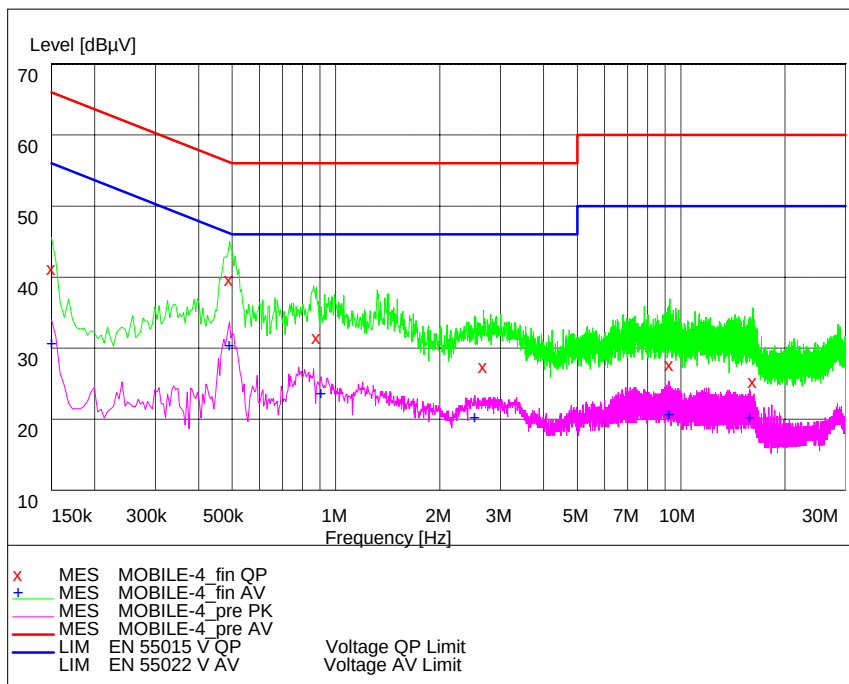
L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.154500	44.20	20.1	66	21.6	---	---
0.483000	40.80	20.2	56	15.5	---	---
0.996000	31.50	20.1	56	24.5	---	---
3.111000	30.30	20.3	56	25.7	---	---
10.140000	27.70	20.6	60	32.3	---	---
14.496000	28.60	20.7	60	31.4	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.154500	33.70	20.1	56	22.1	---	---
0.505500	30.50	20.2	46	15.5	---	---
0.915000	22.60	20.2	46	23.4	---	---
2.899500	23.60	20.3	46	22.4	---	---
9.478500	22.40	20.6	50	27.6	---	---
13.920000	22.10	20.7	50	27.9	---	---



N Line

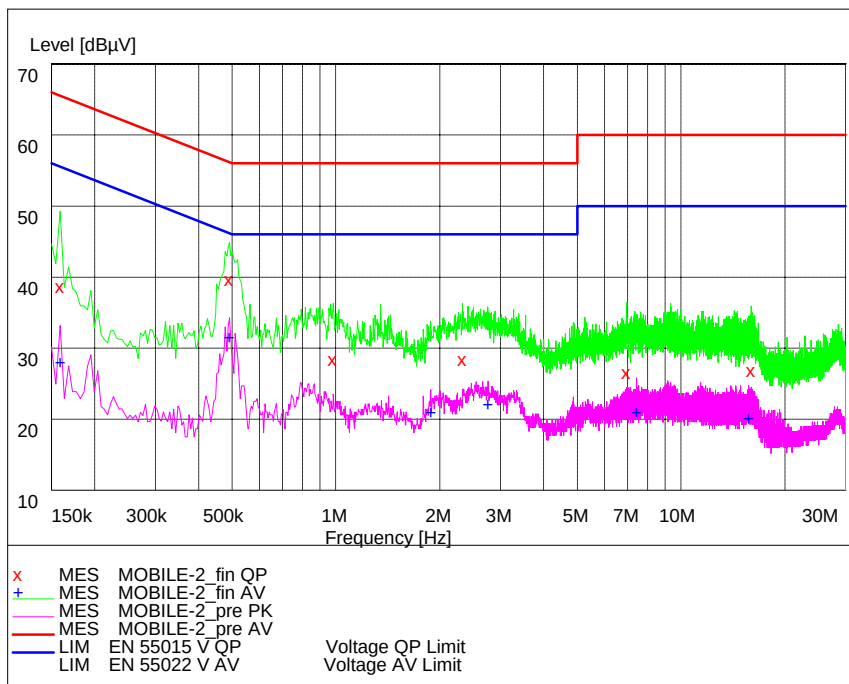
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	42.90	20.1	66	23.1	---	---
0.492000	41.30	20.2	56	14.9	---	---
0.879000	33.10	20.2	56	22.9	---	---
2.679000	29.00	20.3	56	27.0	---	---
9.276000	29.30	20.6	60	30.7	---	---
16.183500	27.00	20.8	60	33.0	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	32.30	20.1	56	23.7	---	---
0.492000	32.10	20.2	46	14.1	---	---
0.906000	25.30	20.2	46	20.7	---	---
2.526000	21.90	20.2	46	24.1	---	---
9.222000	22.30	20.6	50	27.7	---	---
15.823500	21.80	20.8	50	28.2	---	---

PCS1900 LAPTOP+ AE3#+AE4#+AE7#



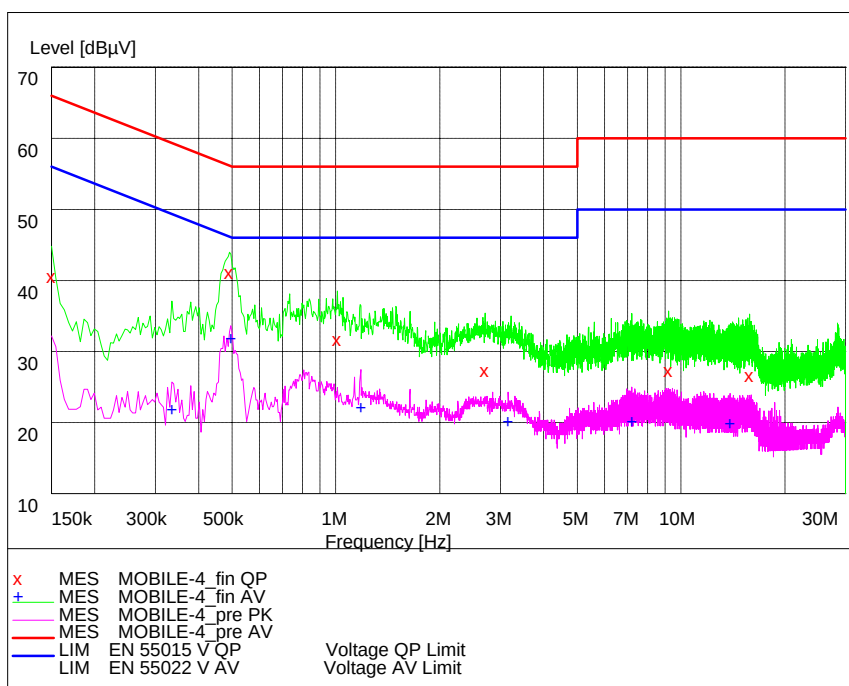
L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.159000	40.40	20.2	66	25.1	---	---
0.492000	41.40	20.2	56	14.7	---	---
0.982500	30.10	20.1	56	25.9	---	---
2.328000	30.10	20.3	56	25.9	---	---
6.954000	28.30	20.5	60	31.7	---	---
15.981000	28.50	20.8	60	31.5	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.159000	29.60	20.2	56	25.9	---	---
0.492000	33.10	20.2	46	13.0	---	---
1.882500	22.60	20.2	46	23.4	---	---
2.760000	23.70	20.3	46	22.3	---	---
7.440000	22.60	20.5	50	27.4	---	---
15.738000	21.70	20.8	50	28.3	---	---



N Line

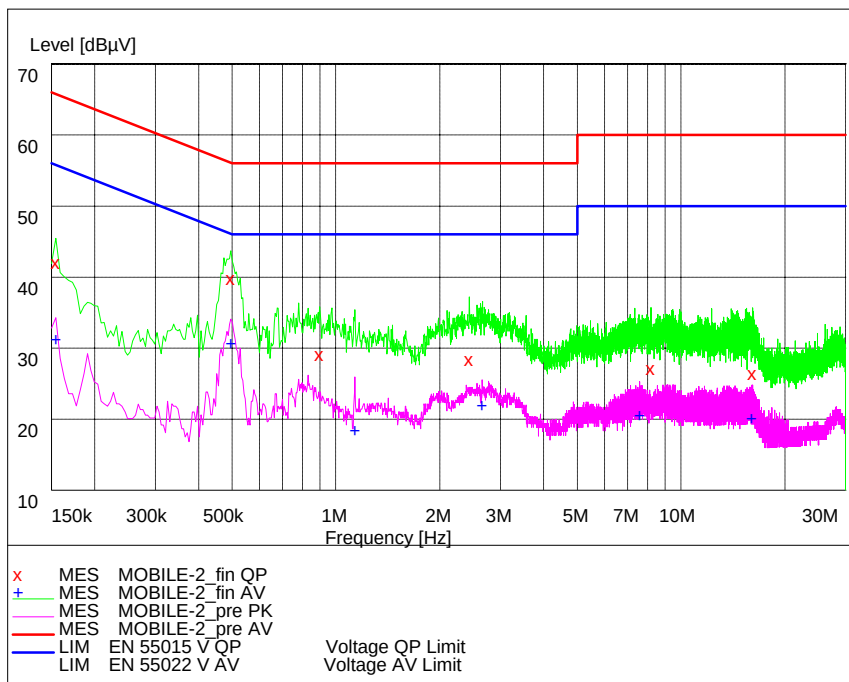
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	42.20	20.1	66	23.8	---	---
0.492000	42.80	20.2	56	13.3	---	---
1.009500	33.40	20.1	56	22.6	---	---
2.706000	29.00	20.3	56	27.0	---	---
9.217500	29.00	20.6	60	31.0	---	---
15.819000	28.30	20.8	60	31.7	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.334500	23.50	20.1	49	25.9	---	---
0.496500	33.50	20.2	46	12.6	---	---
1.180500	23.80	20.1	46	22.2	---	---
3.156000	21.80	20.3	46	24.2	---	---
7.201500	21.80	20.5	50	28.2	---	---
13.861500	21.50	20.7	50	28.5	---	---

FM Radio LAPTOP+ AE3#+AE4#+AE7#



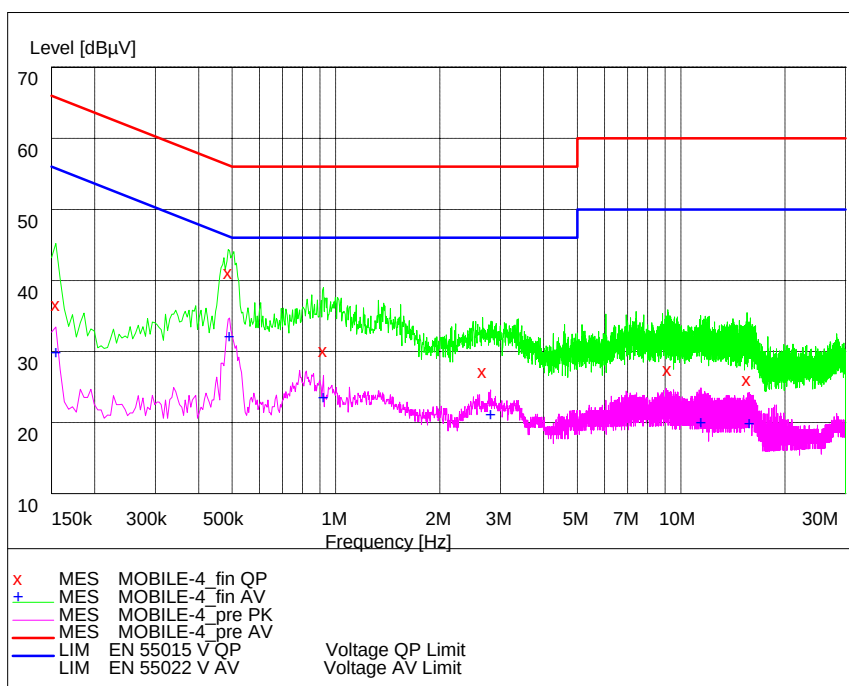
L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.154500	43.70	20.1	66	22.0	---	---
0.496500	41.50	20.2	56	14.5	---	---
0.897000	30.70	20.1	56	25.3	---	---
2.436000	30.10	20.2	56	25.9	---	---
8.196000	28.70	20.4	60	31.3	---	---
16.138500	28.10	20.8	60	31.9	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
0.154500	32.90	20.1	56	22.9	---	---
0.496500	32.30	20.2	46	13.7	---	---
1.135500	20.10	20.1	46	25.9	---	---
2.652000	23.60	20.2	46	22.4	---	---
7.588500	22.10	20.5	50	27.9	---	---
16.017000	21.70	20.8	50	28.3	---	---



N Line

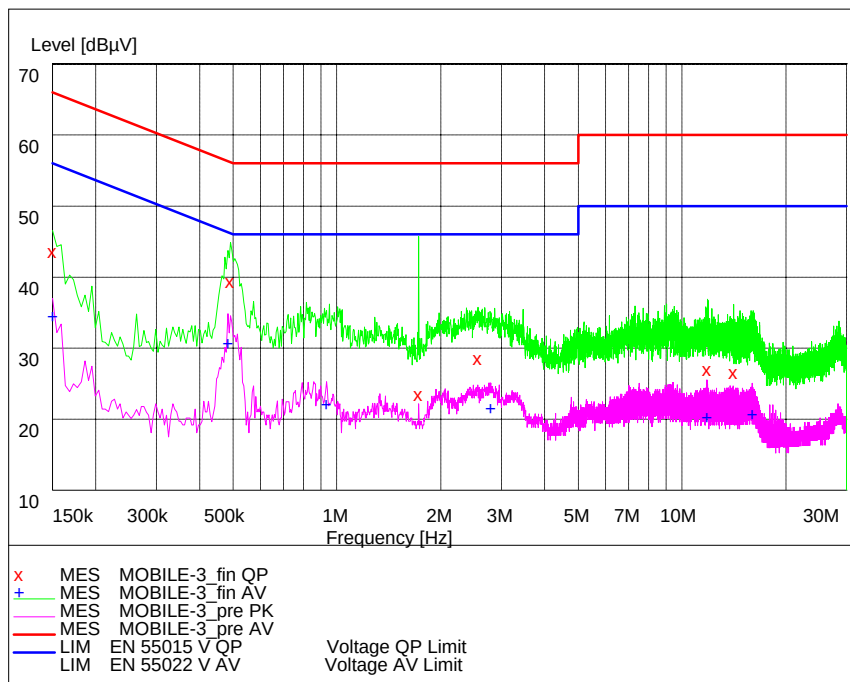
MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.154500	38.20	20.1	66	27.6	---	---
0.487500	42.70	20.2	56	13.5	---	---
0.919500	31.90	20.2	56	24.1	---	---
2.661000	28.80	20.2	56	27.2	---	---
9.159000	29.20	20.6	60	30.8	---	---
15.535500	27.70	20.8	60	32.3	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
0.154500	31.50	20.1	56	24.3	---	---
0.492000	33.70	20.2	46	12.5	---	---
0.919500	25.20	20.2	46	20.8	---	---
2.805000	22.80	20.3	46	23.2	---	---
11.440500	21.70	20.6	50	28.3	---	---
15.774000	21.50	20.8	50	28.5	---	---

MP3/MP4 LAPTOP+ AE3#+AE4#+AE7#



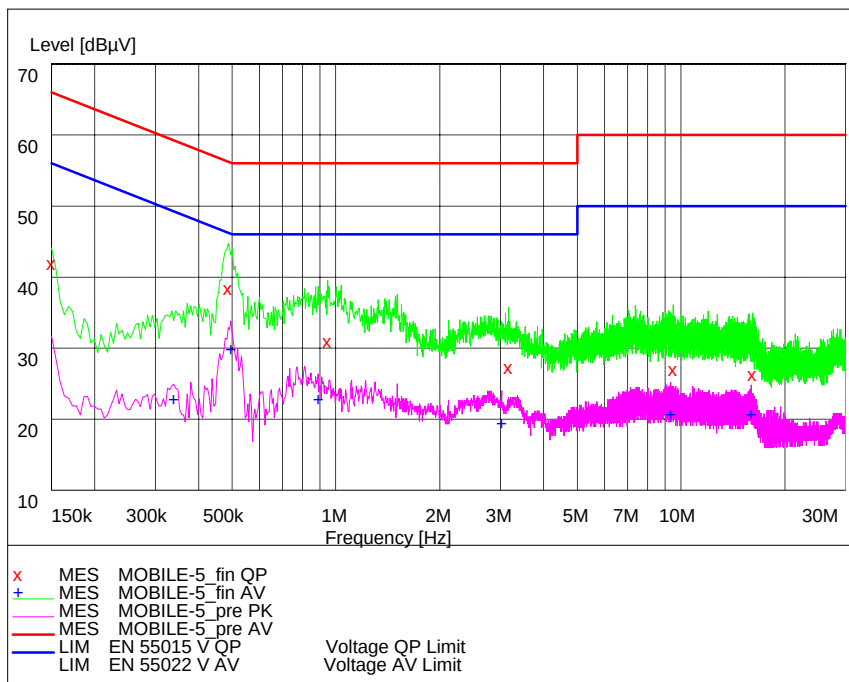
L Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	45.20	20.1	66	20.8	---	---
0.492000	41.10	20.2	56	15.0	---	---
1.725000	25.20	20.2	56	30.8	---	---
2.566500	30.20	20.2	56	25.8	---	---
11.868000	28.60	20.7	60	31.4	---	---
14.122500	28.20	20.7	60	31.8	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	36.10	20.1	56	19.9	---	---
0.483000	32.40	20.2	46	13.9	---	---
0.933000	23.80	20.2	46	22.2	---	---
2.791500	23.20	20.3	46	22.8	---	---
11.814000	21.80	20.7	50	28.2	---	---
16.008000	22.30	20.8	50	27.7	---	---



N Line

MEASUREMENT RESULT: "MOBILE_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	43.60	20.1	66	22.4	---	---
0.487500	40.00	20.2	56	16.3	---	---
0.946500	32.60	20.2	56	23.4	---	---
3.165000	28.90	20.3	56	27.1	---	---
9.487500	28.60	20.6	60	31.4	---	---
16.147500	27.90	20.8	60	32.1	---	---

MEASUREMENT RESULT: "MOBILE_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.339000	24.40	20.1	49	24.9	---	---
0.496500	31.40	20.2	46	14.6	---	---
0.888000	24.50	20.2	46	21.5	---	---
3.021000	21.10	20.3	46	24.9	---	---
9.330000	22.30	20.6	50	27.7	---	---
16.008000	22.30	20.8	50	27.7	---	---

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
24.2°C	33.5%	100.9kPa

Test Setup:

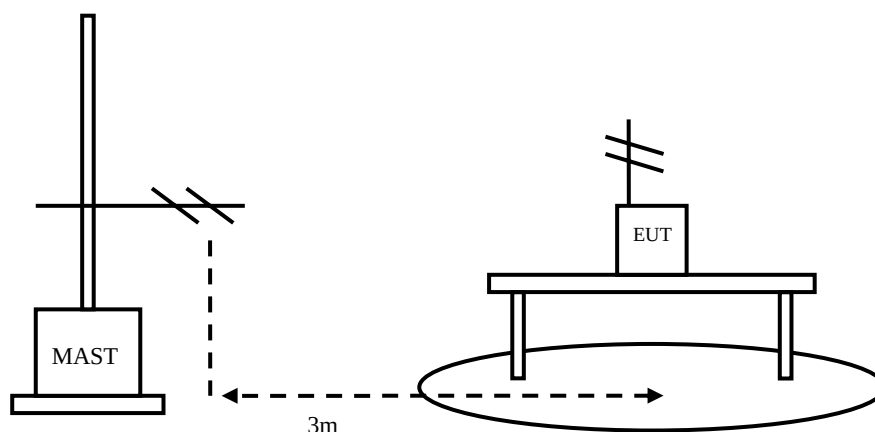


Figure 2

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 typical mode. 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 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
33.28	25.02	21.00	4.02	Vertical
201.20	22.06	10.90	11.16	Vertical
210.01	22.58	11.70	10.88	Vertical
435.64	27.04	19.40	7.64	Horizontal
870.03	36.01	27.30	8.71	Vertical

PCS1900 Mode

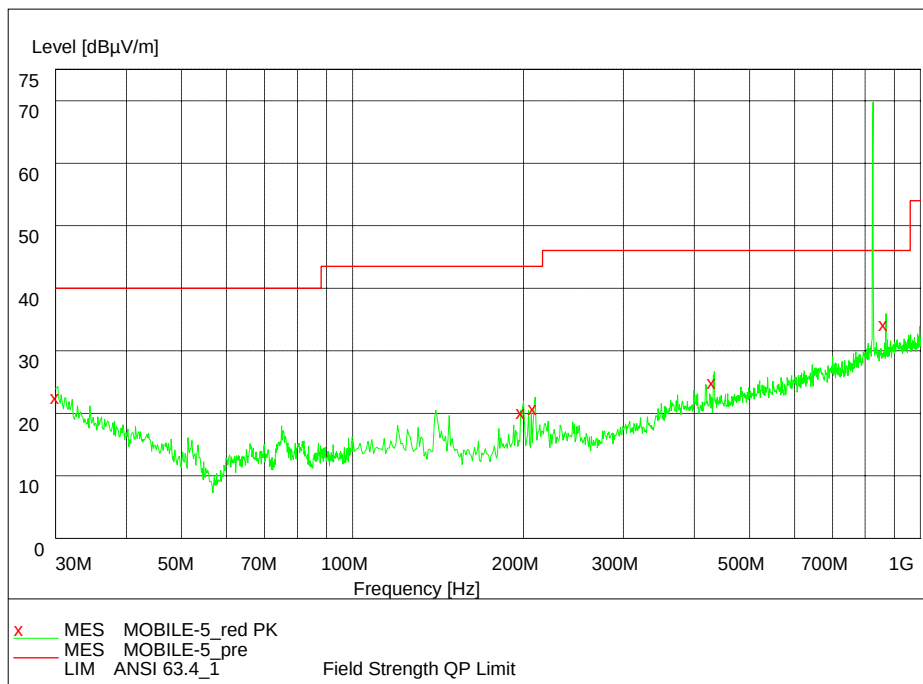
Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{mea} (dBuV/m)	Polarity
32.28	23.92	21.00	2.92	Vertical
75.81	17.04	8.80	8.24	Vertical
209.81	22.50	11.70	10.80	Vertical
418.23	25.48	19.00	6.48	Vertical
500.00	25.50	21.10	4.40	Horizontal
936.97	32.44	27.90	4.54	Vertical

FM Radio Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.56	21.14	20.80	0.34	Vertical
86.81	13.12	10.80	2.32	Vertical
149.69	18.38	10.40	7.98	Vertical
475.95	23.33	20.70	2.63	Vertical
500.00	24.63	21.10	3.53	Vertical
944.88	33.34	28.00	5.34	Horizontal

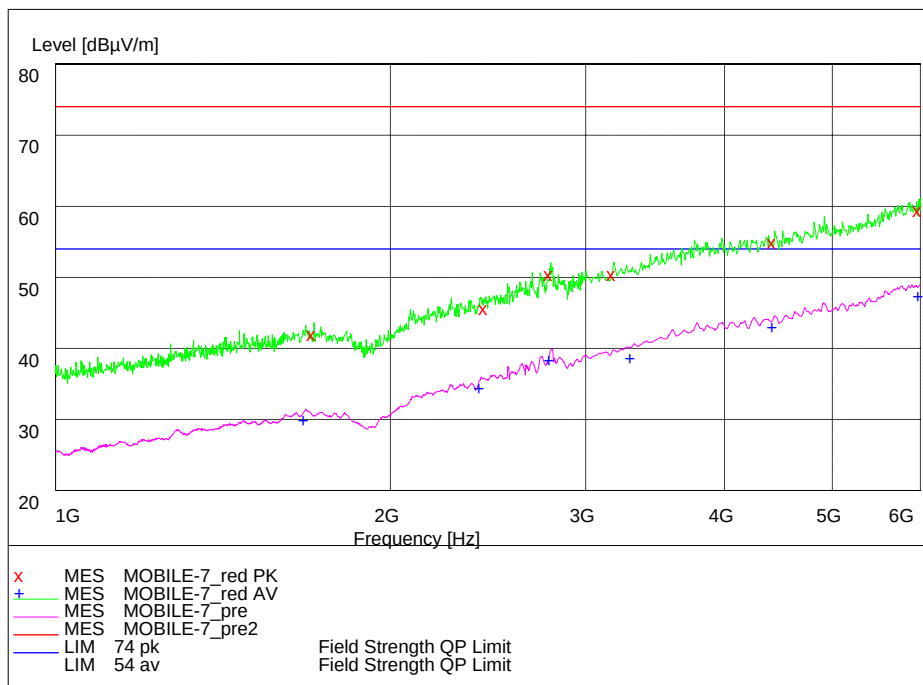
MP3/MP4 Mode

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{mea} (dBuV/m)	Polarity
30.00	21.77	21.10	0.67	Vertical
87.79	14.11	10.80	3.31	Vertical
99.85	15.35	12.00	3.35	Horizontal
467.13	23.93	20.40	3.53	Vertical
528.05	24.87	21.50	3.37	Vertical
959.91	32.20	28.40	3.80	Vertical

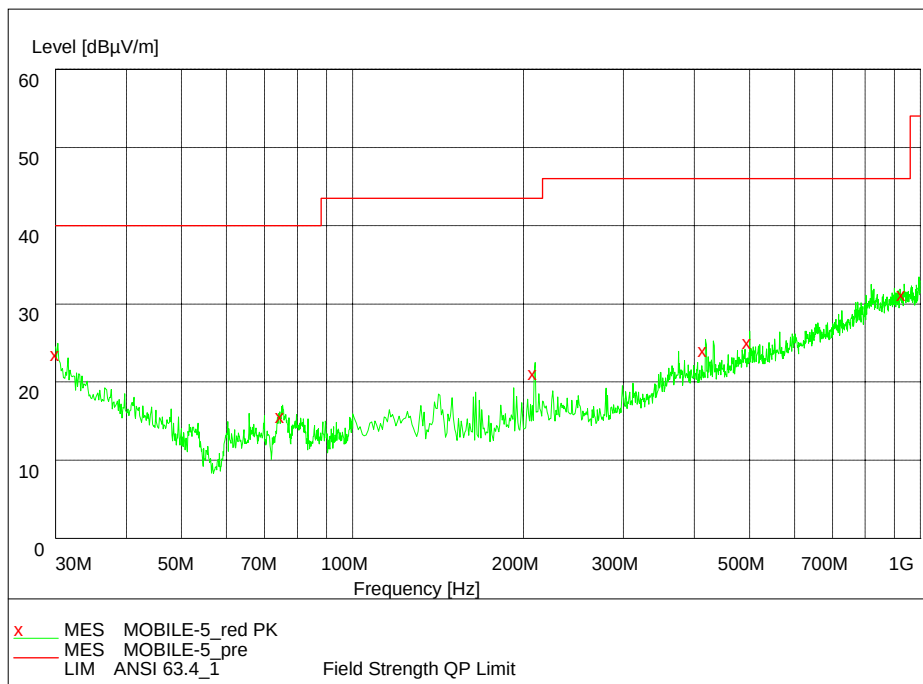


GSM850 (30MHz – 1GHz)

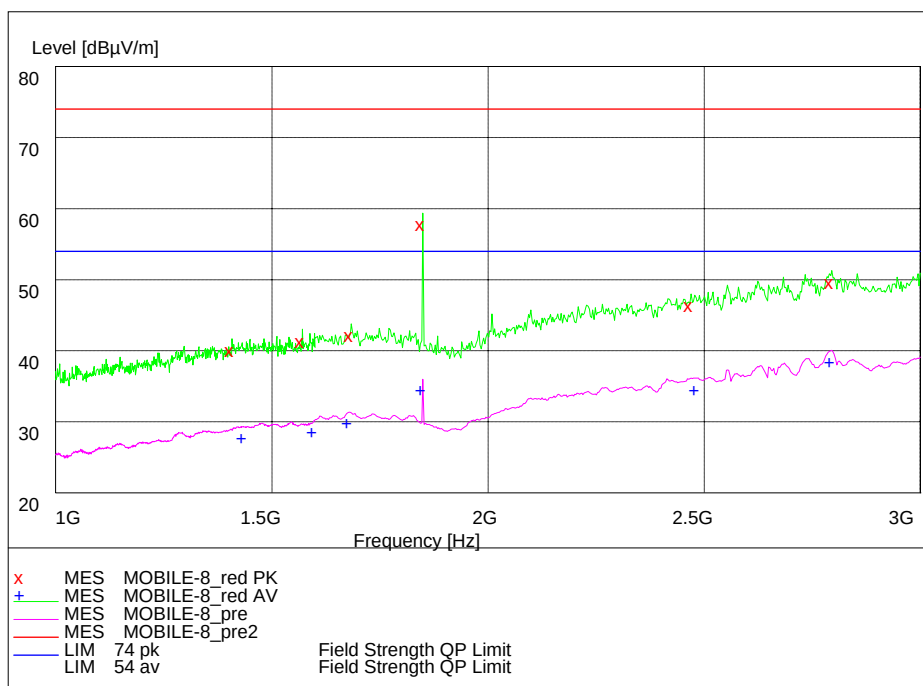
Note: The signal beyond the limit is the base station simulator carrier.



GSM850 (1GHz – 6GHz)

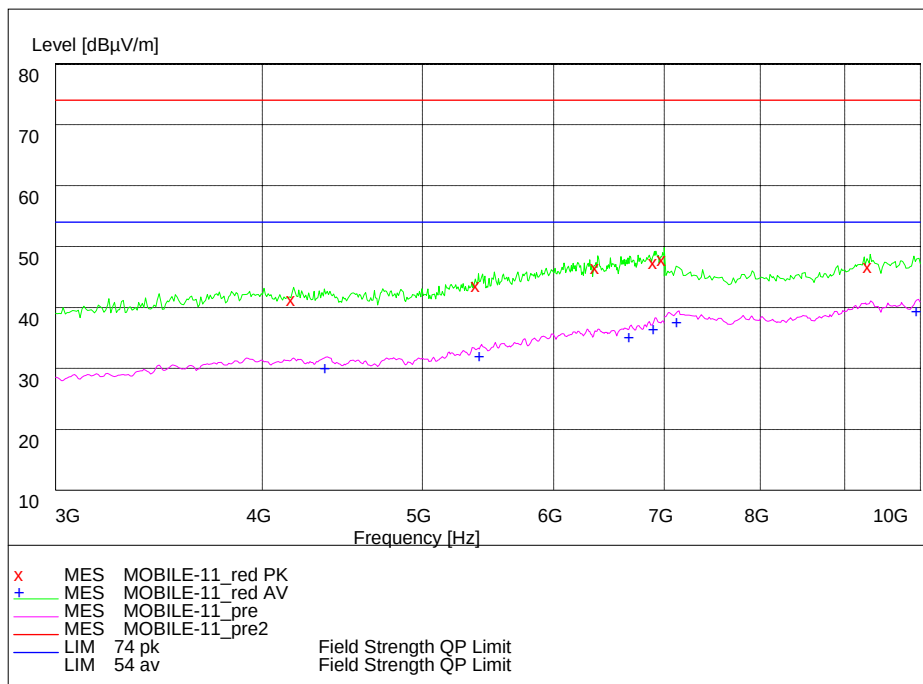


PCS1900 (30MHz – 1GHz)

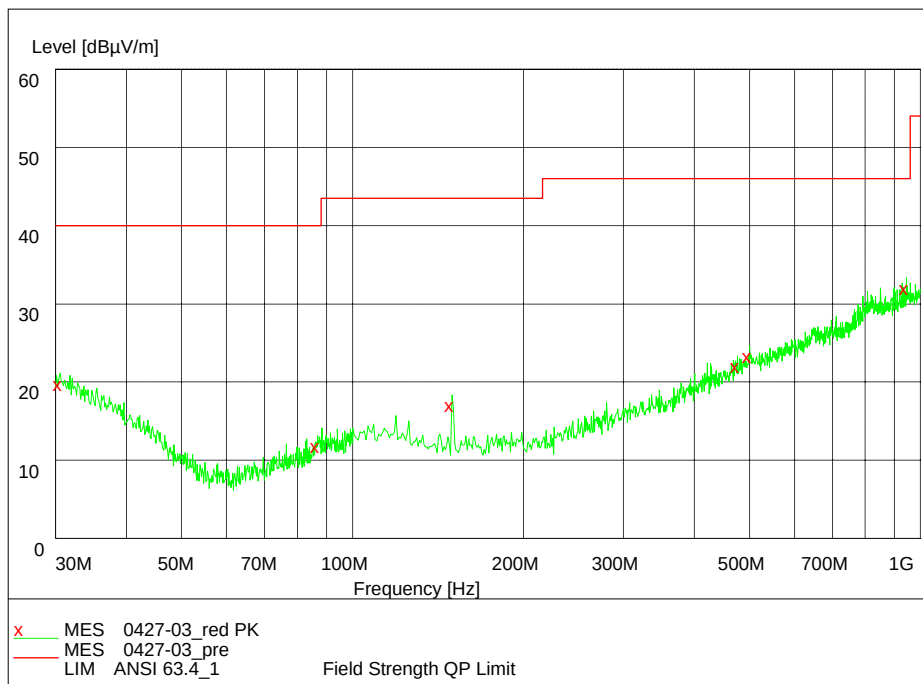


PCS1900 (1GHz – 3GHz)

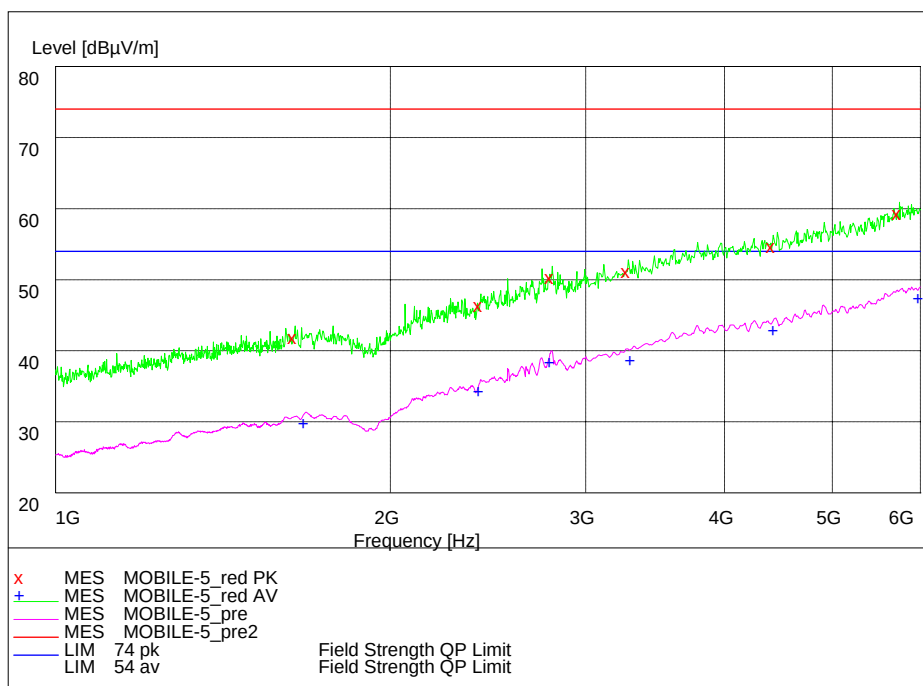
Note: The signals beyond the limit are the base station and simulator carrier.



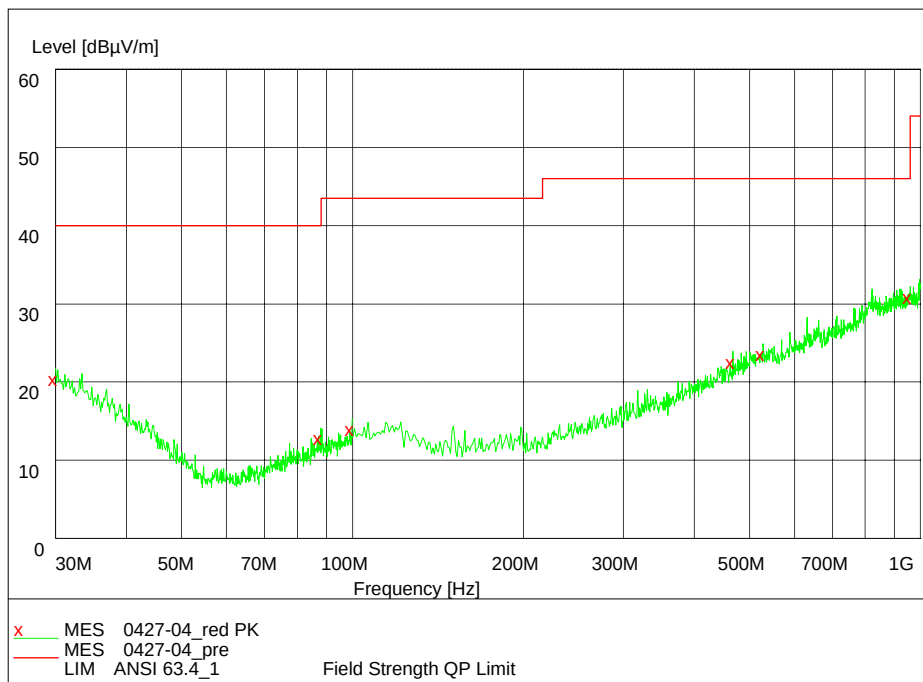
PCS1900 (3GHz – 10GHz)



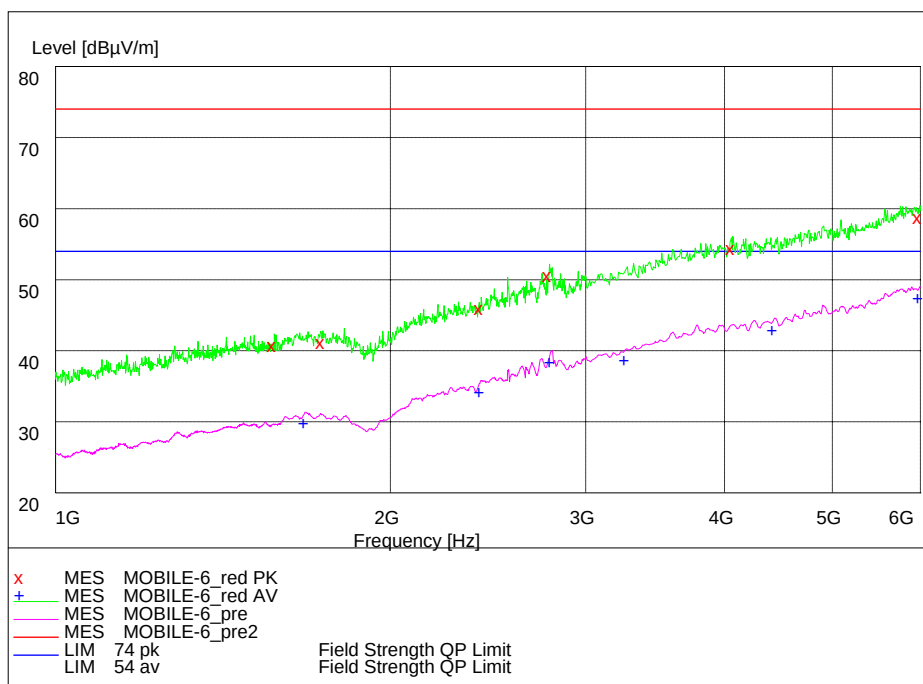
FM Radio (30MHz – 1GHz)



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	-----	20 th Aug. 2015
2	ESI 40 EMI test receiver	R&S	100015	20 th Aug. 2015
3	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	20 th Aug. 2015
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	20 th Aug. 2015
5	ESCS30 EMI test receiver	R&S	100029	20 th Aug. 2015
6	HL562 Ultra log test antenna	R&S	100016	20 th Aug. 2015
7	ESH3-Z2 Pulse limiter	R&S	10002	20 th Aug. 2015
8	LS16C AMN	AFJ	16011306281	20 th Aug. 2015
9	ESH2Z11 LISN	R&S	50FH-020-10	20 th Aug. 2015
10	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	20 th Aug. 2015
11	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	20 th Aug. 2015
12	PS2000 Turn Table	FRANKONIA	-----	20 th Aug. 2015
13	MA260 Antenna Master	FRANKONIA	-----	20 th Aug. 2015
14	ES-K1EMI test software	R&S	-----	20 th Aug. 2015
15	HL562 Receive antenna	R&S	100167	20 th Aug. 2015

Appendix

Appendix1 Test Setup