TEST REPORT

No. 2011TAR314

for

TCT Mobile Limited

GSM/GPRS/EDGE Quad bands mobile phone

Model Name: Sunstone US

Marketing Name: one touch 818A

FCC ID: RAD181

with

Hardware Version: PIO

Software Version: VA21

Issued Date: 2011-07-04

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191

Tel:+86(0)10-62304633 , Fax:+86(0)10-62304633 Email:welcome@emcite.com. www.emcite.com

CONTENTS

1. Test Laboratory

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No 52, Huayuan beilu, Haidian District, Beijing, P. R. China
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304633

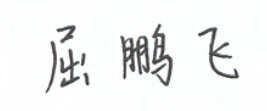
1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	20-75%

1.3. Project data

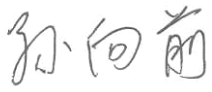
Testing Start Date:	Jun. 17, 2011
Testing End Date:	Jun. 18, 2011

1.4. Signature



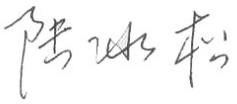
Qu Pengfei

(Prepared this test report)



Sun Xiangqian

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China.
City:	Shanghai
Postal Code:	201203
Country:	China
Contact Person:	Gong Zhizhou
Contact Email	zhizhou.gong@jrdcom.com
Telephone:	0086-21-61460890
Fax:	0086 21 61460602

2.2. Manufacturer Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China.
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0086-21-61460890
Fax:	0086 21 61460602

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM/GPRS/EDGE Quad bands mobile phone
Model Name	Sunstone US
Marketing Name	one touch 818A
FCC ID	RAD181
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012700000005497	PIO	VA21

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Battery	/
AE2	Battery	/
AE3	Travel Adapter	/
AE4	Travel Adapter	/
AE5	USB Cable	/
AE6	USB Cable	/

AE1

Model	CAB31L0000C1
Manufacturer	BYD
Capacitance	1000 mAh
Nominal Voltage	3.7V

AE2

Model	CAB31L0000C2
Manufacturer	BAK
Capacitance	1000 mAh
Nominal Voltage	3.7V

AE3

Model	CBA3120AG0C2
Manufacturer	Tenpao
Length of cable	120cm

AE4

Model	CBA3002AG0C1
Manufacturer	BYD
Length of cable	122.5cm

AE5

Model	CDA3122002C1
Manufacturer	Juwei
Length of cable	150cm

AE6

Model	CDA3122002C2
Manufacturer	Shenhua
Length of cable	150cm

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1+ AE1/AE2+AE3	--
Set.2	EUT1+ AE1/AE2+AE4	--
Set.3	EUT1+ AE1/AE2+ AE5/AE6	USB mode

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	July 10, 2008 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Clause	List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	P
2	Conducted Emission	15.107(a)	P

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESCI	100344	R&S	2012-03-12
2	Test Receiver	ESCI	100766	R&S	2011-12-06
3	Test Receiver	ESI40	831564/002	R&S	2012-02-11
4	BiLog Antenna	VUL9163	9163-302	Schwarzbeck	2012-02-10
5	Signal Generator	SMB100A	102063	R&S	2012-03-05
6	LISN	ESH2-Z5	R&S	829991/012	2012-04-17
7	Universal Radio Communication Tester	CMU200	100680	R&S	2011-09-05
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2012-2-18
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH659658907ATOI40	DELL	N/A
13	Mouse	VR-301	6927225500198	XINGYU	N/A

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.1.3 Measurement Limit

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

A.1.4 Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”. It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

Result = $P_{Mea} + A_{Rpl} = P_{Mea} + G_A + G_{PL}$

Where

G_A: Antenna factor of receive antenna

G_{PL}: Path Loss

P_{Mea}: Measurement result on receiver.

Set.1 Charging mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBuV)	Polarity
3432.866	50.98	-19.6	31.2	39.38	HORIZONTAL
3697.395	50.74	-19.5	33.4	36.84	VERTICAL
3450.902	50.65	-19.6	31.2	39.05	HORIZONTAL
3995.992	50.54	-19.3	33.4	36.44	VERTICAL
3863.727	50.52	-19.6	33.4	36.72	VERTICAL
3975.952	50.49	-19.4	33.4	36.49	VERTICAL

Set.2 Charging mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBuV)	Polarity
3641.283	50.70	-19.7	33.4	37.00	VERTICAL
3521.042	50.68	-19.6	33.4	36.88	HORIZONTAL
3845.691	50.61	-19.5	33.4	36.71	VERTICAL
3869.739	50.54	-19.6	33.4	36.74	VERTICAL
3549.098	50.48	-19.5	33.4	36.58	VERTICAL
3809.619	50.45	-19.5	33.4	36.55	HORIZONTAL

Set.3 USB mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBuV)	Polarity
3751.503	51.40	-19.7	33.4	37.70	VERTICAL
3701.403	51.27	-19.4	33.4	37.27	HORIZONTAL
3603.206	50.74	-19.6	33.4	36.94	VERTICAL
3466.934	50.73	-19.6	31.2	39.13	HORIZONTAL
3861.723	50.63	-19.6	33.4	36.83	HORIZONTAL
3547.094	50.62	-19.5	33.4	36.72	HORIZONTAL

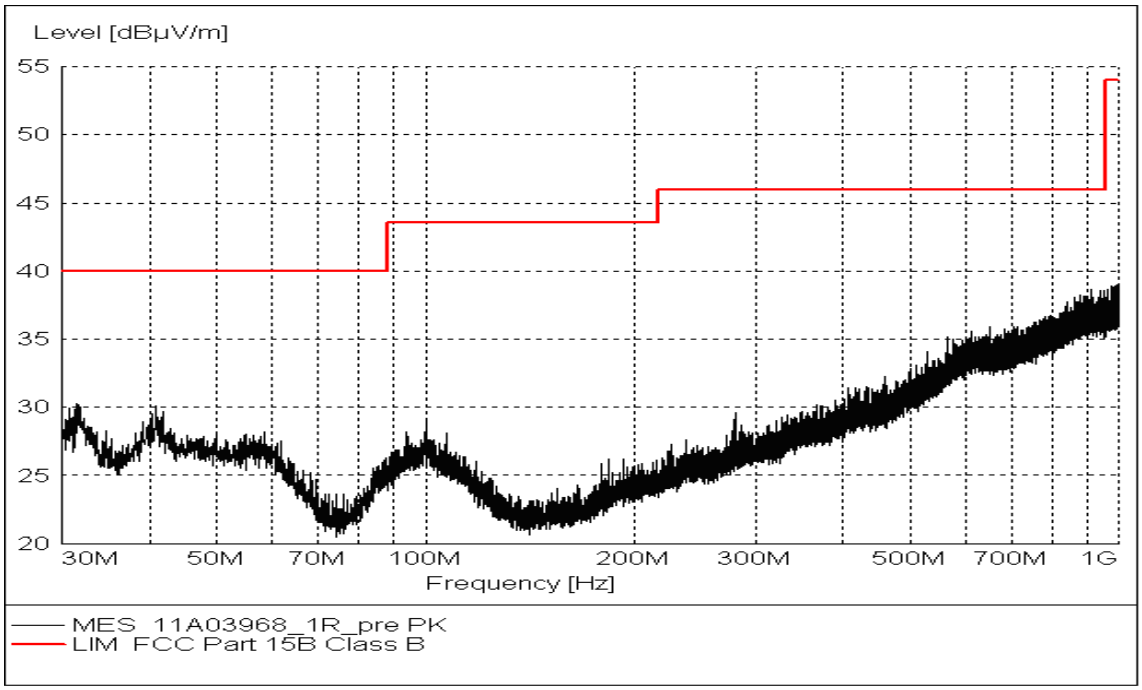


Figure A.1 Radiated Emission from 30MHz to 1GHz (Set.1, Charging mode)

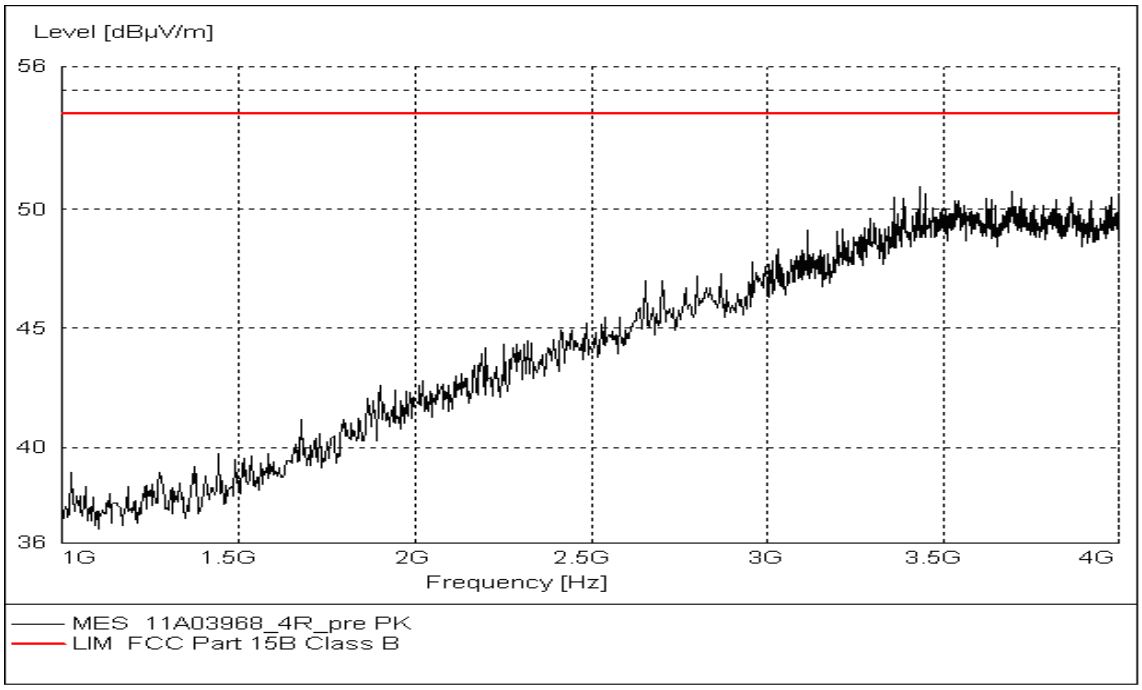


Figure A.2 Radiated Emission from 1GHz to 4GHz (Set.1, Charging mode)

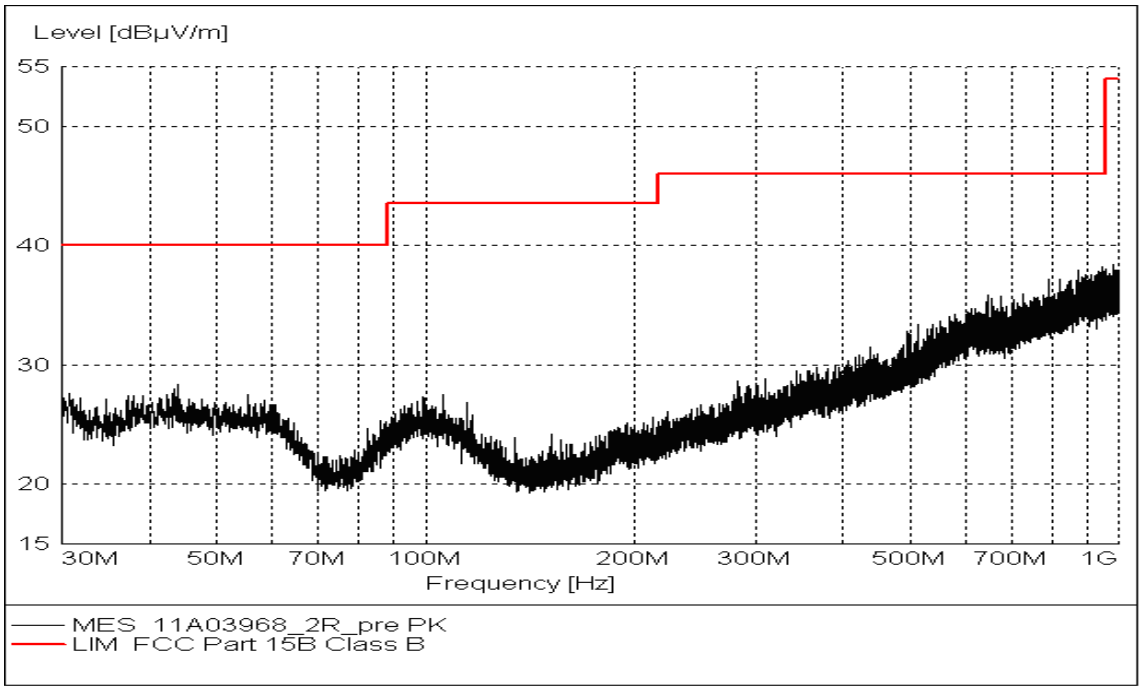


Figure A.3 Radiated Emission from 30MHz to 1GHz (Set.2, Charging mode)

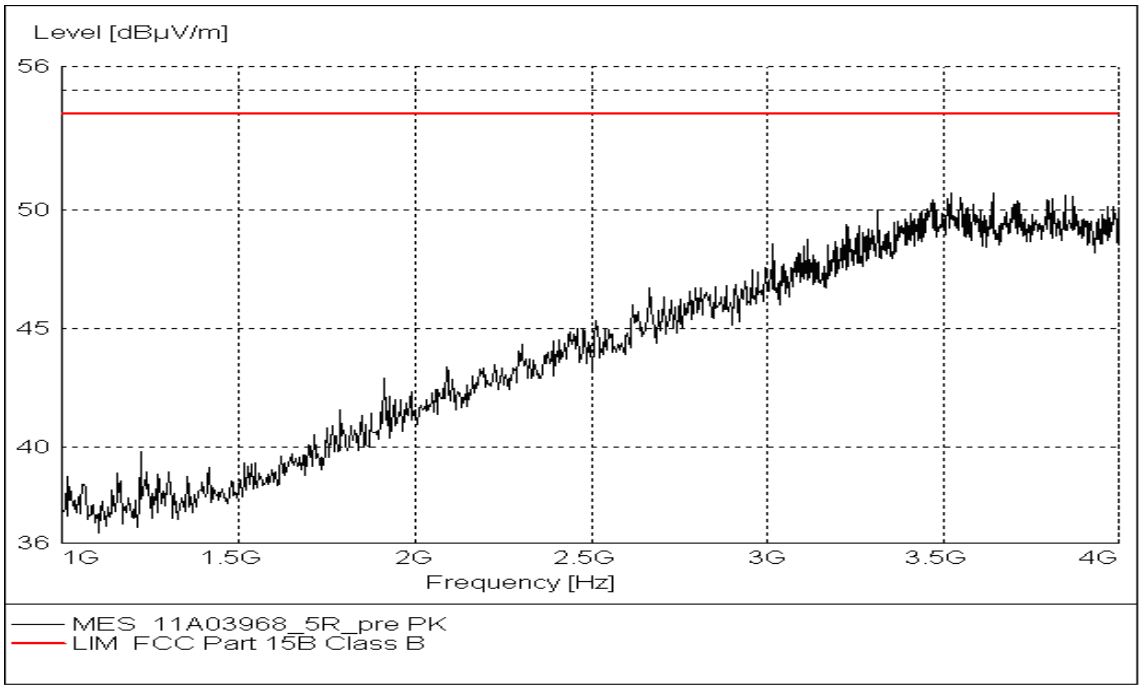


Figure A.4 Radiated Emission from 1GHz to 4GHz (Set.2, Charging mode)

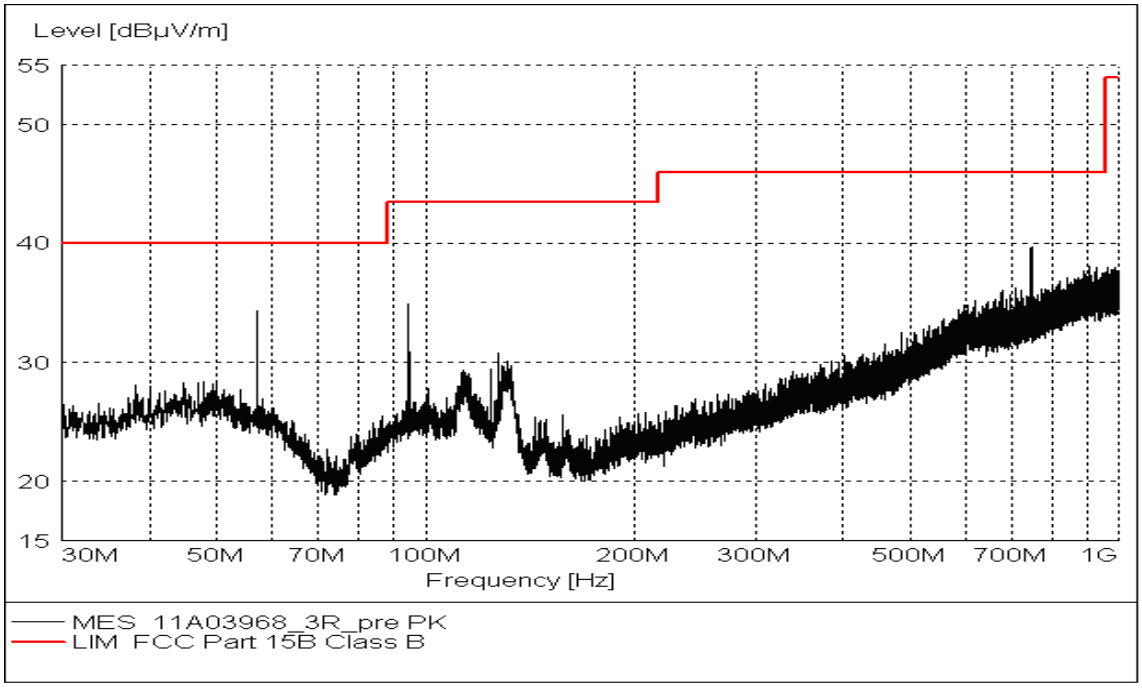


Figure A.5 Radiated Emission from 30MHz to 1GHz (Set.3, USB mode)

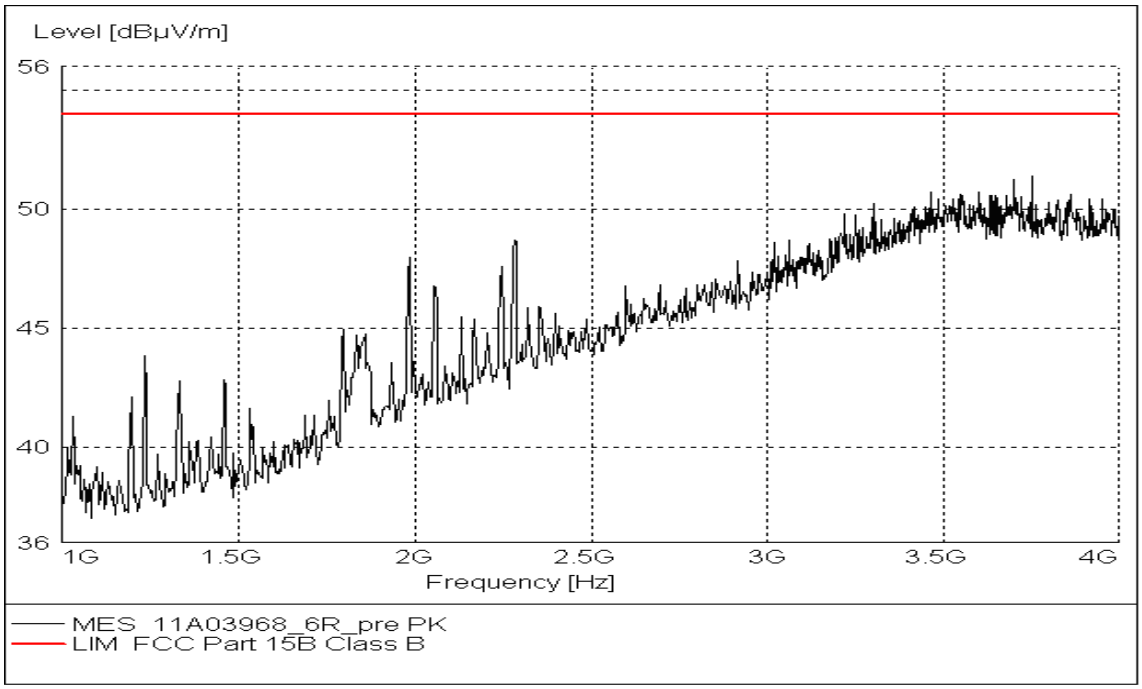


Figure A.6 Radiated Emission from 1GHz to 4GHz (Set.3, USB mode)

A.2 Conducted Emission (§15.107(a))

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 7.2.

A.2.2 EUT Operating Mode:

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

A.2.4 Test Condition in charging mode

Voltage（V）	Frequency（Hz）
120	60

RBW	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

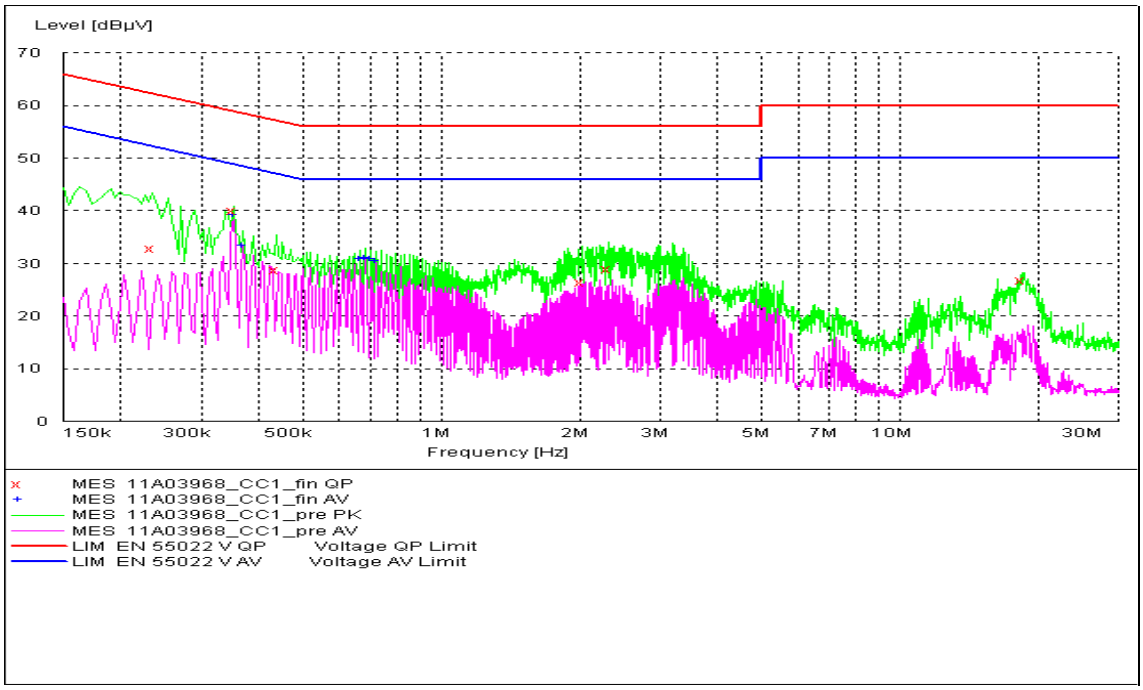


Figure A.7 Conducted Emission (Set.1, Charging mode)

MEASUREMENT RESULT: "11A03968_CC1_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.235500	32.80	10.1	62	29.4	L1	GND
0.352500	40.00	10.1	59	18.9	N	GND
0.438000	28.80	10.1	57	28.3	N	GND
2.030181	26.40	10.1	56	29.6	L1	GND
2.330116	29.00	10.1	56	27.0	L1	GND
18.574801	26.70	10.3	60	33.3	L1	GND

MEASUREMENT RESULT: "11A03968_CC1_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.352500	39.20	10.1	49	9.7	N	GND
0.370500	33.30	10.1	49	15.2	N	GND
0.667500	30.90	10.1	46	15.1	N	GND
0.685500	31.00	10.1	46	15.0	N	GND
0.703500	30.80	10.1	46	15.2	N	GND
0.721500	30.40	10.1	46	15.6	N	GND

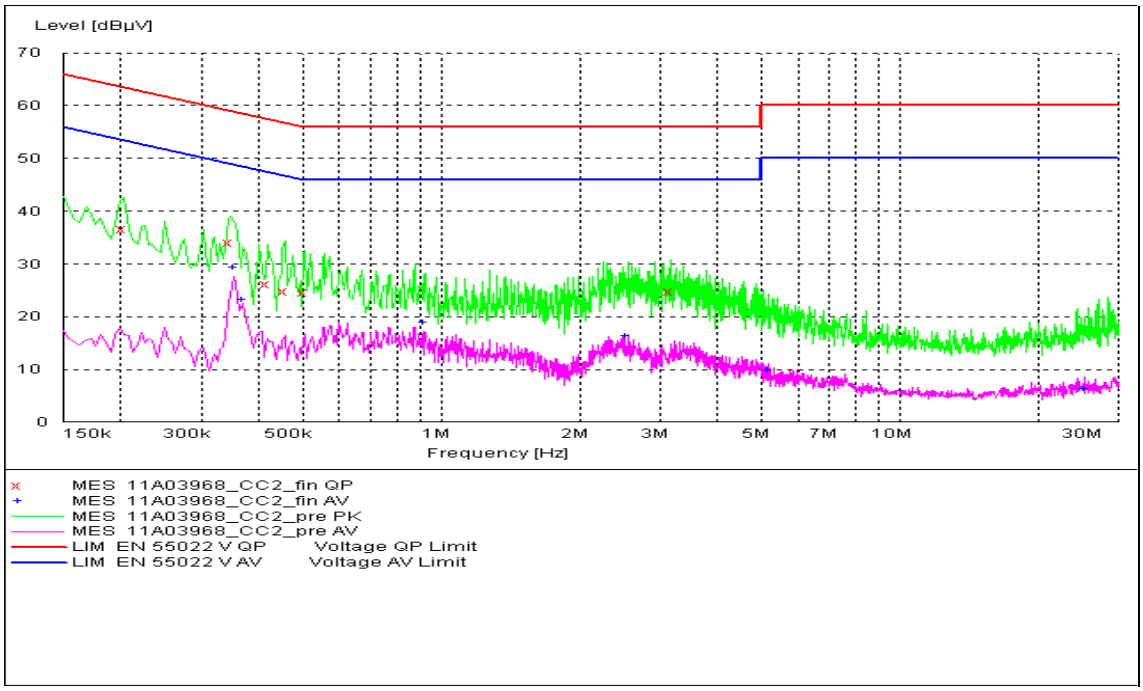


Figure A.8 Conducted Emission (Set.2, Charging mode)

MEASUREMENT RESULT: "11A03968_CC2_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.204000	36.70	10.1	63	26.7	L1	GND
0.348000	34.00	10.1	59	25.0	L1	GND
0.420000	26.20	10.1	57	31.3	N	GND
0.456000	24.80	10.1	57	32.0	L1	GND
0.505500	24.50	10.1	56	31.5	N	GND
3.172296	24.70	10.1	56	31.3	L1	GND

MEASUREMENT RESULT: "11A03968_CC2_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.352500	29.20	10.1	49	19.7	N	GND
0.370500	23.30	10.1	49	25.2	N	GND
0.919500	18.90	10.1	46	27.1	N	GND
2.549210	16.30	10.1	46	29.7	L1	GND
5.169229	9.90	10.2	50	40.1	L1	GND
25.212699	6.30	10.3	50	43.7	L1	GND

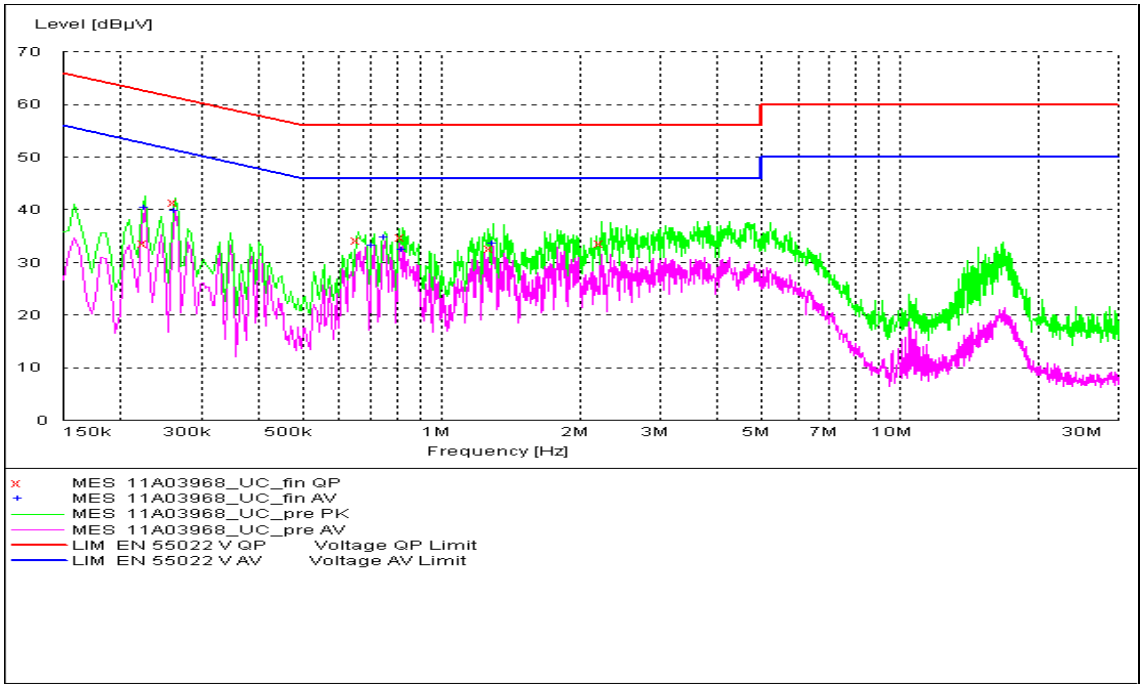


Figure A.9 Conducted Emission (Set.3, USB mode)

MEASUREMENT RESULT: "11A03968_UC_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.226500	33.50	10.1	63	29.1	L1	GND
0.262500	41.40	10.1	61	20.0	N	GND
0.658500	34.10	10.1	56	21.9	N	GND
0.825000	34.70	10.1	56	21.3	N	GND
1.293000	32.70	10.1	56	23.3	N	GND
2.241122	33.50	10.1	56	22.5	L1	GND

MEASUREMENT RESULT: "11A03968_UC_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.226500	40.30	10.1	53	12.3	N	GND
0.262500	39.70	10.1	51	11.6	N	GND
0.712500	33.20	10.1	46	12.8	N	GND
0.753000	34.80	10.1	46	11.2	N	GND
0.825000	32.50	10.1	46	13.5	N	GND
1.297500	33.60	10.1	46	12.4	N	GND

*****END OF REPORT*****