TEST REPORT

No. 2011TAR329

for

TCT Mobile Limited

GSM dual band mobile phone

Model Name: Quartz A

Marketing Name: one touch 888A

FCC ID : RAD173

with

Hardware Version: PIO1

Software Version: SW821

Issued Date: 2011-06-28

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

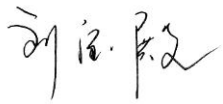
1.2. Testing Environment

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

1.3. Project data

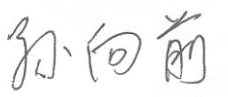
Testing Start Date:	Jun14,2011
Testing End Date:	Jun27,2011

1.4. Signature



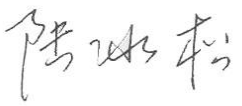
Liu Baodian

(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:	4/F, South Building,No.2966, Jinke Road, Zhangjiang High-Tech Park, Pudong,Shanghai, 201203, P.R.China
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

2.2. Manufacturer Information

Company Name:	TCT Mobile Limited
Address /Post:	4/F, South Building,No.2966, Jinke Road, Zhangjiang High-Tech Park, Pudong,Shanghai, 201203, 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 dual band mobile phone
Model Name	Quartz A
Marketing Name	one touch 888A
FCC ID	RAD173
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 MII 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	012663000060195	PIO1	SW821

*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	Travel Adapter	/
AE2	Travel Adapter	/
AE3	Battery	/
AE4	Battery	/
AE5	USB Cable	/
AE6	USB Cable	/

AE1

Model	CBA3120AG0C2
Manufacturer	TenPao
Length of DC line	120cm

AE2

Model	CBA3002AG0C1
Manufacturer	BYD
Length of DC line	120cm

AE3

Model	CAB3120000C1
Manufacturer	BYD
Capacitance	850mAh
Nominal Voltage	3.7V

AE4

Model	CAB3120000C2
Manufacturer	Lishen
Capacitance	850mAh
Nominal Voltage	3.7V

AE5

Model	CDA3122005C1
Manufacturer	Juwei
Length of DC line	100cm

AE6

Model	CDA3122005C2
Manufacturer	Shenhua
Length of DC line	100cm

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

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	2012-02-12
4	BiLog Antenna	VUL9163	9163-302	Schwarzbeck	2012-02-10
5	Signal Generator	SMB100A	102063	R&S	2012-03-05
6	LISN	ESH2-Z5	829991/012	R&S	2012-04-20
7	Universal Radio Communication Tester	CMU200	100680	R&S	2011-09-05
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2012-01-18
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-64 180-7AJ-D2MS	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH6596589 07ATOI40	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 – 2009, section 8.3.

A.1.2 EUT Operating Mode:

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.
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”, and including the gain of receive antenna and the path loss.

The measurement results are obtained as described below:

Result = P_{Mea} + F_A + G_{PL}

Where

F_A: Receive Antenna Factor

G_{PL}: Cable Loss

P_{Mea}: The measurement result on receiver.

Charging Mode(AE1)

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	PMea(dBuV)	Polarity
3595.19	51.23	-19.6	33.4	37.43	HORIZONTAL
3300.601	51.09	-19.6	31.2	39.49	VERTICAL
3613.226	50.9	-19.7	33.4	37.2	HORIZONTAL
3815.631	50.7	-19.5	33.4	36.8	VERTICAL
3599.198	50.69	-19.6	33.4	36.89	HORIZONTAL
3545.09	50.66	-19.5	33.4	36.76	VERTICAL

Charging Mode(AE2)

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	PMea(dBuV)	Polarity
3466.934	50.91	-19.6	31.2	39.31	VERTICAL
3507.014	50.44	-19.7	33.4	36.74	HORIZONTAL
3897.796	50.41	-19.8	33.4	36.81	VERTICAL
3549.098	50.29	-19.5	33.4	36.39	VERTICAL
3967.936	50.24	-19.6	33.4	36.44	HORIZONTAL
3793.587	50.23	-19.7	33.4	36.53	HORIZONTAL

USB Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	Pmea(dBuV)	Polarity
3480.962	51.57	-19.6	31.2	39.97	HORIZONTAL
3593.186	50.71	-19.6	33.4	36.91	VERTICAL
3721.443	50.59	-19.6	33.4	36.79	HORIZONTAL
3468.938	50.54	-19.6	31.2	38.94	HORIZONTAL
3715.431	50.53	-19.5	33.4	36.63	HORIZONTAL
3713.427	50.47	-19.5	33.4	36.57	VERTICAL

Charging Mode(AE1)

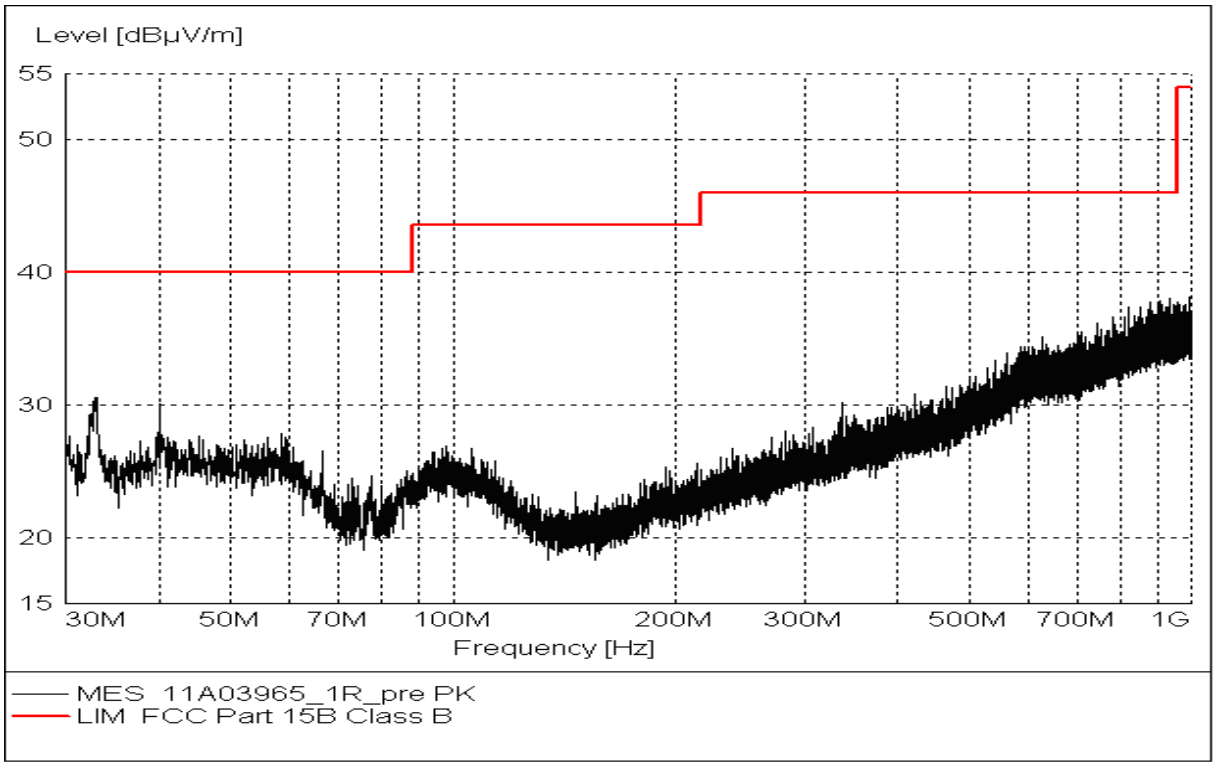


Figure A.1 Radiated Emission from 30MHz to 1GHz

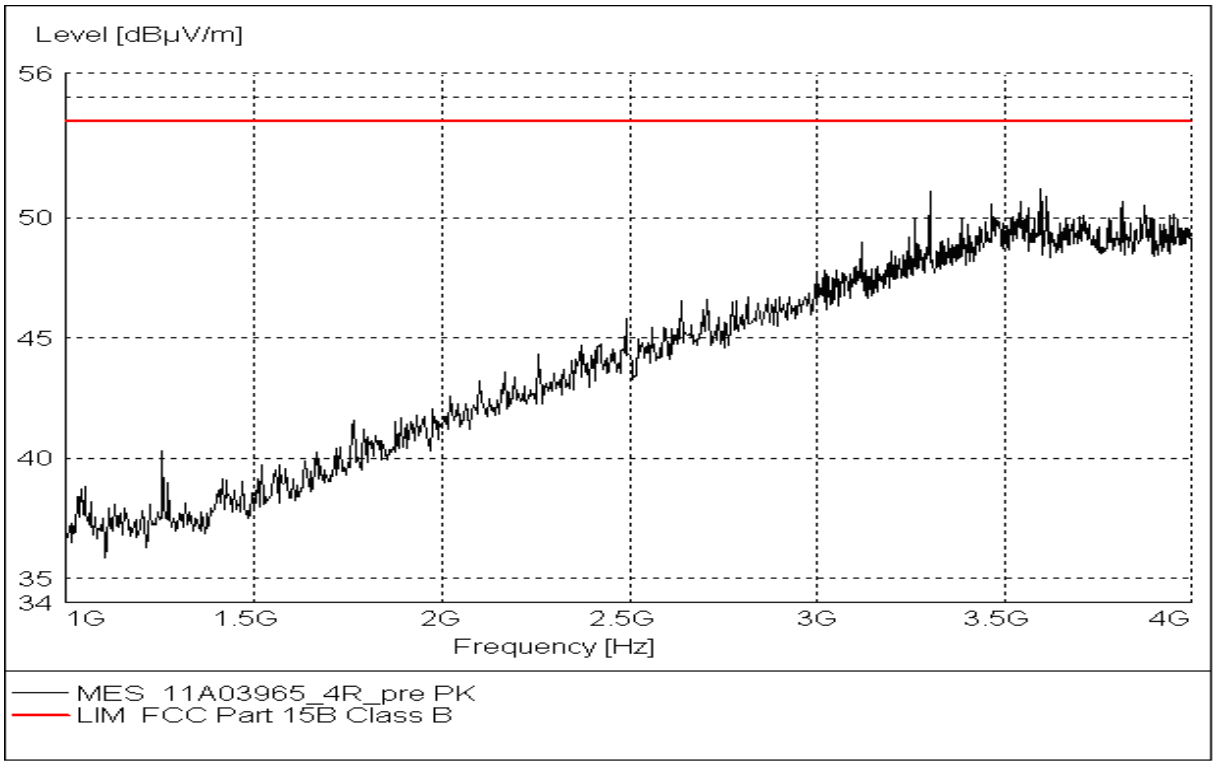


Figure A.2 Radiated Emission from 1GHz to 4GHz

Charging Mode(AE2)

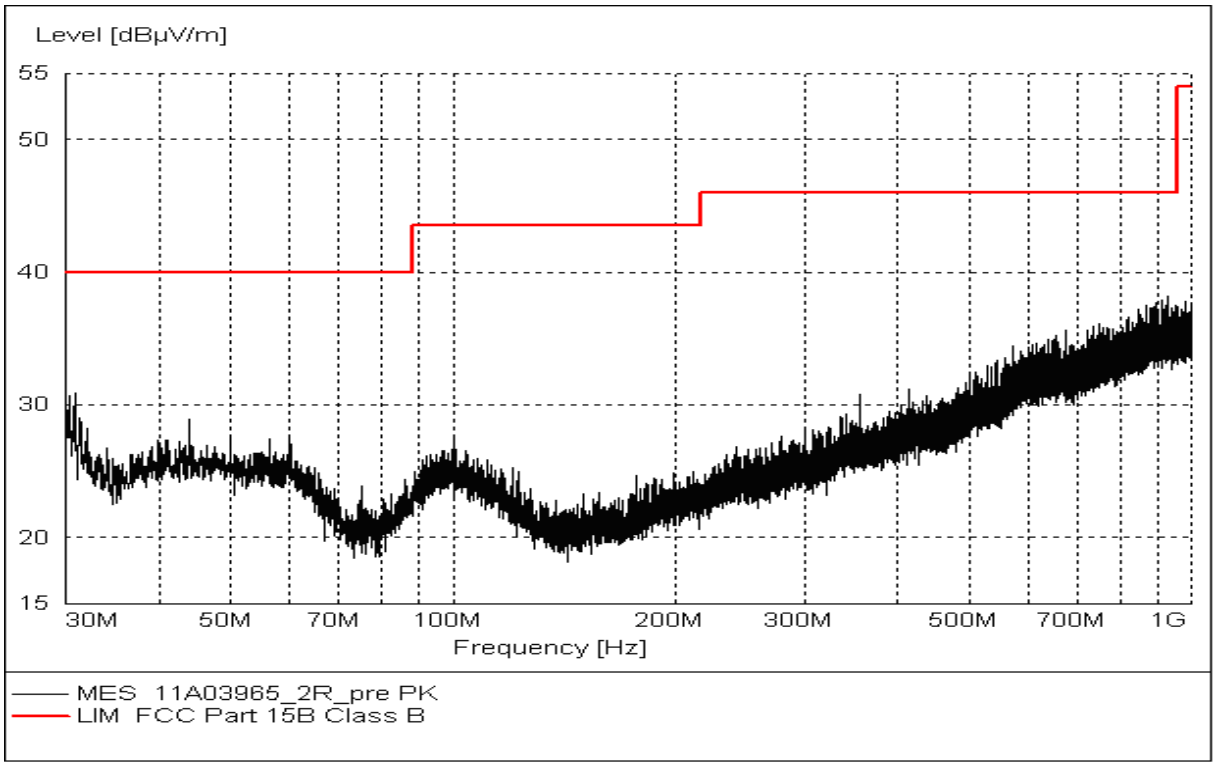


Figure A.3 Radiated Emission from 30MHz to 1GHz

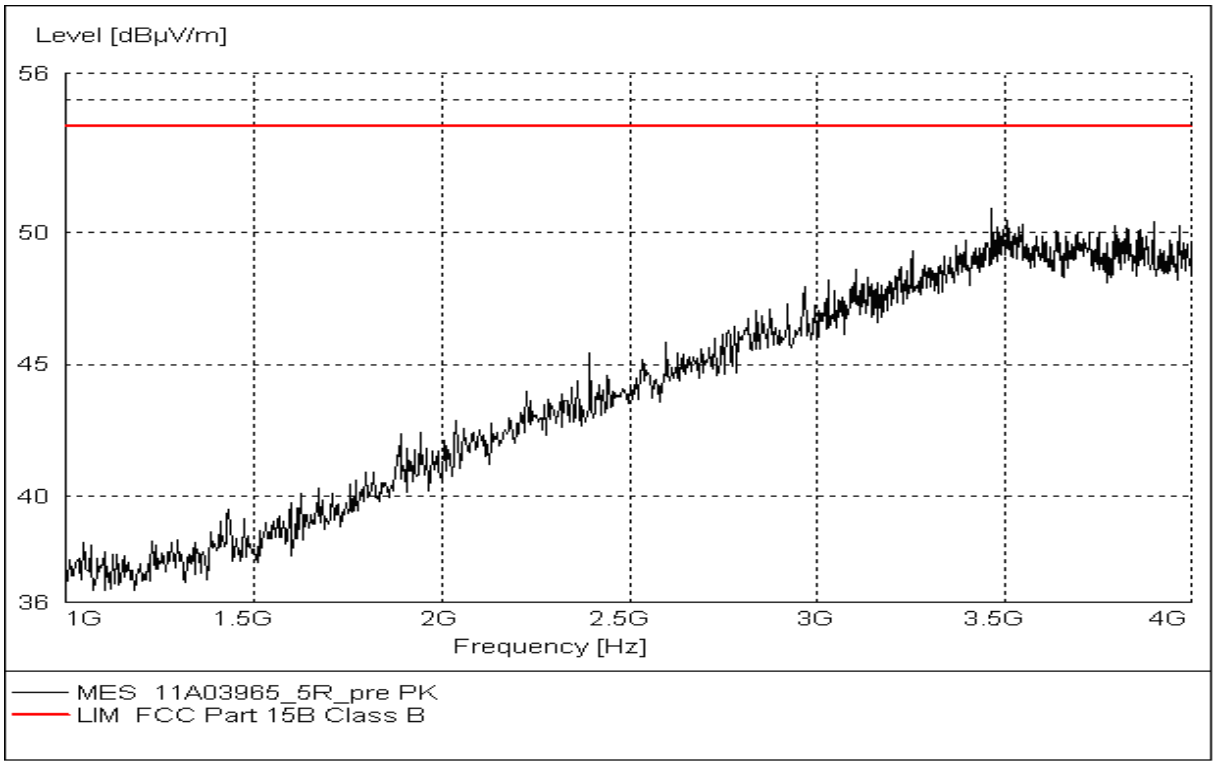


Figure A.4 Radiated Emission from 1GHz to 4GHz

USB Mode

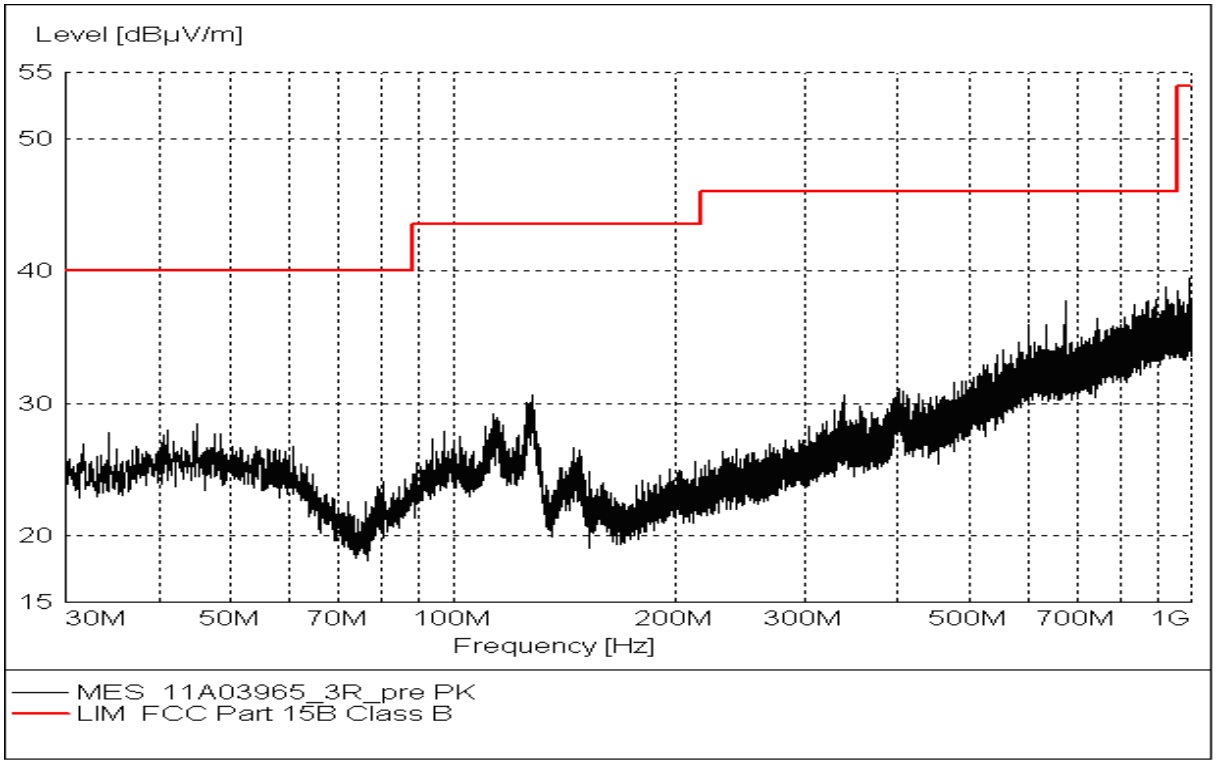


Figure A.5 Radiated Emission from 30MHz to 1GHz

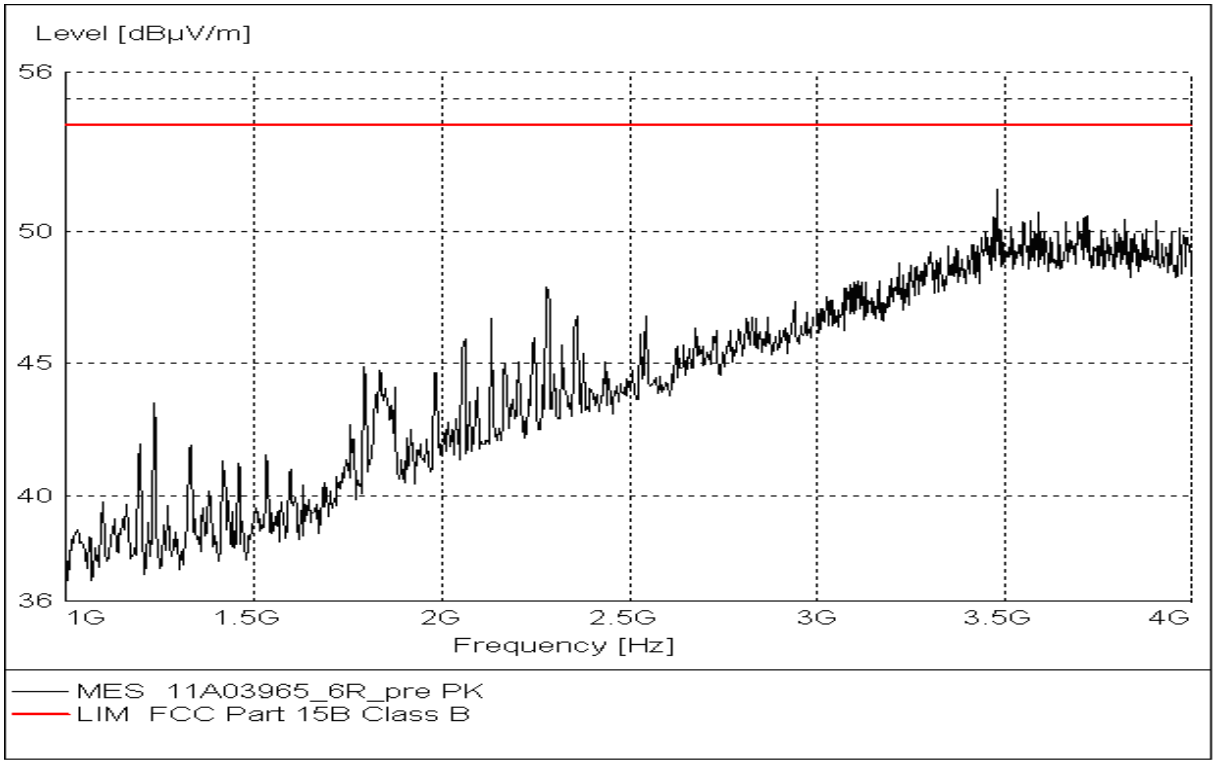


Figure A.6 Radiated Emission from 1GHz to 4GHz

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 150kHz to 30MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2009, 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.2.4 Measurement Results

Charging Mode(AE1)

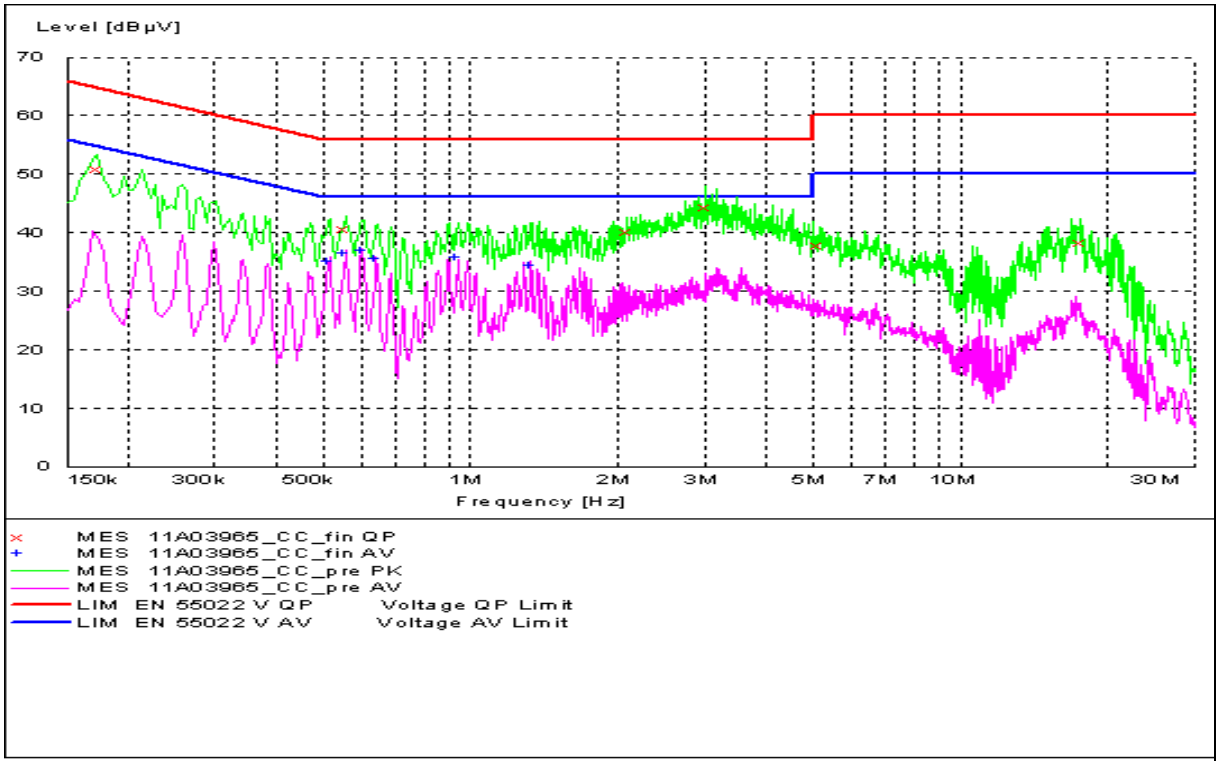


Figure A.7 Conducted Emission

MEASUREMENT RESULT: "11A03965_CC_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.172500	50.90	10.1	65	13.9	L1	GND
0.555000	40.70	10.1	56	15.3	N	GND
2.085658	40.20	10.1	56	15.8	L1	GND
3.023840	44.50	10.1	56	11.5	L1	GND
5.153768	37.80	10.2	60	22.2	L1	GND
17.547144	38.40	10.3	60	21.6	L1	GND

MEASUREMENT RESULT: "11A03965_CC_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.514500	35.10	10.1	46	10.9	N	GND
0.555000	36.50	10.1	46	9.5	N	GND
0.600000	37.00	10.1	46	9.0	N	GND
0.640500	35.60	10.1	46	10.4	N	GND
0.942000	35.70	10.1	46	10.3	N	GND
1.324500	34.40	10.1	46	11.6	N	GND

Charging Mode(AE2)

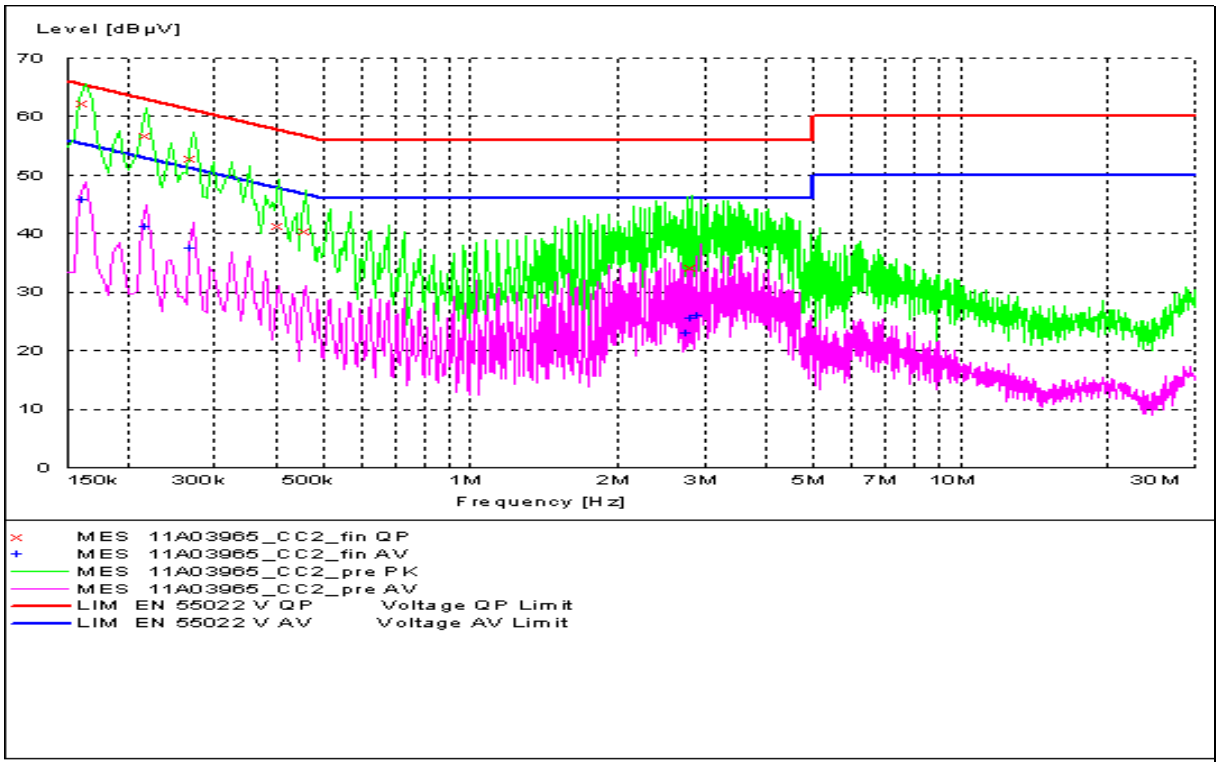


Figure A.8 Conducted Emission

MEASUREMENT RESULT: "11A03965_CC2_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.163500	62.30	10.1	65	3.0	L1	GND
0.217500	56.80	10.1	63	6.1	N	GND
0.271500	52.80	10.1	61	8.3	L1	GND
0.406500	41.30	10.1	58	16.4	L1	GND
0.460500	40.40	10.1	57	16.3	L1	GND
2.830989	34.10	10.1	56	21.9	L1	GND

MEASUREMENT RESULT: "11A03965_CC2_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.163500	45.70	10.1	55	9.5	N	GND
0.217500	41.20	10.1	53	11.7	N	GND
0.271500	37.30	10.1	51	13.7	L1	GND
2.772246	22.90	10.1	46	23.1	L1	GND
2.830989	25.40	10.1	46	20.6	L1	GND
2.934603	25.80	10.1	46	20.2	L1	GND

USB Mode

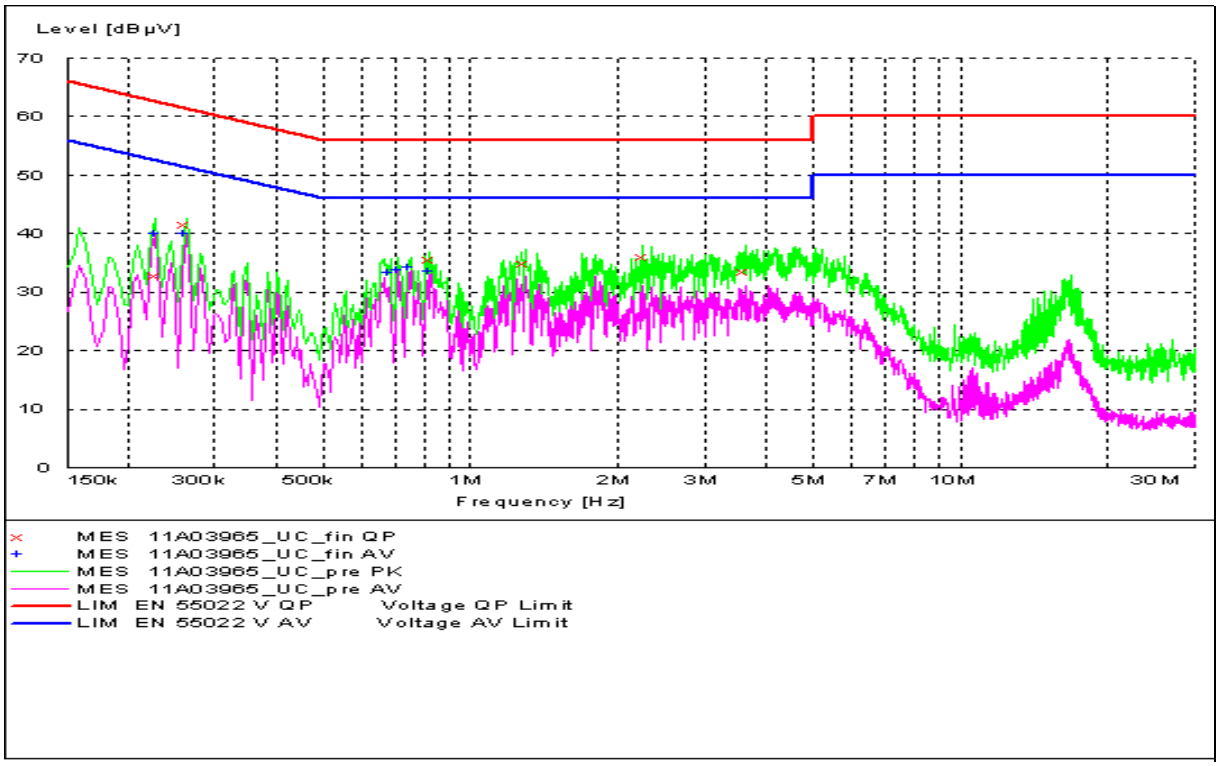


Figure A.9 Conducted Emission

MEASUREMENT RESULT: "11A03965_UC_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.226500	32.80	10.1	63	29.7	L1	GND
0.262500	41.50	10.1	61	19.9	N	GND
0.825000	35.70	10.1	56	20.3	N	GND
1.293000	35.00	10.1	56	21.0	N	GND
2.241122	36.00	10.1	56	20.0	N	GND
3.619218	33.50	10.1	56	22.5	N	GND

MEASUREMENT RESULT: "11A03965_UC_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB	/	/
0.226500	40.10	10.1	53	12.5	N	GND
0.262500	39.90	10.1	51	11.5	N	GND
0.685500	33.30	10.1	46	12.7	N	GND
0.712500	33.70	10.1	46	12.3	N	GND
0.753000	34.20	10.1	46	11.8	N	GND
0.825000	33.60	10.1	46	12.4	N	GND

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