



TEST REPORT

No. 2011TAR234

for

TCT Mobile Limited

GSM dual band mobile phone

Model Name: Mini Stone US

Marketing Name: one touch 602A

FCC ID : RAD176

with

Hardware Version: PIO

Software Version: V140

Issued Date: 2011-05-26

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

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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

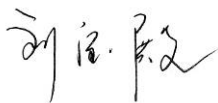
1.2. Testing Environment

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

1.3. Project data

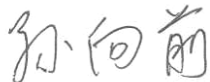
Testing Start Date: May16,2011
Testing End Date: May16,2011

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	Mini Stone US
Marketing Name	one touch 602A
FCC ID	RAD176
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	012676000002215	PIO	V140

*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	Travel Adapter	/
AE4	Battery	/
AE5	Battery	/
AE6	USB Cable	/
AE7	USB Cable	/
AE1		
Model	CBA3120AG0C2	
Manufacturer	TenPao	
Length of DC line	120cm	
AE2		
Model	CBA3120AG0C1	
Manufacturer	BYD	
Length of DC line	120cm	
AE3		
Model	CBA3002AG0C1	
Manufacturer	BYD	
Length of DC line	120cm	
AE4		
Model	CAB3120000C1	
Manufacturer	BYD	
Capacitance	850mAh	
Nominal Voltage	3.7V	

AE5

Model	CAB3120000C2
Manufacturer	Lishen
Capacitance	850mAh
Nominal Voltage	3.7V

AE6

Model	CDA3122001C1
Manufacturer	Juwei
Length of DC line	150cm

AE7

Model	CDA3122001C2
Manufacturer	Shenghua
Length of DC line	150cm

*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
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	Edition 2003

5. LABORATORY ENVIRONMENT

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

Temperature	Min. = 15 °C, Max. = 30 °C
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 °C, Max. = 35 °C
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 °C, Max. = 30 °C
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 °C, Max. = 30 °C
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:

$$\text{Result} = P_{\text{Mea}} + F_A + G_{\text{PL}}$$

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)	P_{Mea} (dBuV)	Polarity
3699.399	51.21	-19.5	33.4	37.31	HORIZONTAL
3661.323	51.06	-19.7	33.4	37.36	VERTICAL
3959.92	50.88	-19.7	33.4	37.18	HORIZONTAL
3685.371	50.82	-19.5	33.4	36.92	VERTICAL
3895.792	50.81	-19.8	33.4	37.21	HORIZONTAL
3715.431	50.78	-19.5	33.4	36.88	VERTICAL

Charging Mode(AE2)

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	P_{Mea} (dBuV)	Polarity
3559.118	50.58	-19.5	33.4	36.68	VERTICAL
3703.407	50.53	-19.4	33.4	36.53	HORIZONTAL
3753.507	50.49	-19.7	33.4	36.79	VERTICAL
3795.591	50.48	-19.7	33.4	36.78	VERTICAL
3478.958	50.46	-19.7	31.2	38.96	HORIZONTAL
3815.631	50.45	-19.5	33.4	36.55	HORIZONTAL

Charging Mode(AE3)

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	P_{Mea} (dBuV)	Polarity
3713.427	50.95	-19.5	33.4	37.05	VERTICAL
3907.816	50.81	-19.8	33.4	37.21	VERTICAL
3392.786	50.77	-19.5	31.2	39.07	HORIZONTAL
3603.206	50.74	-19.6	33.4	36.94	VERTICAL
3885.772	50.69	-19.7	33.4	36.99	HORIZONTAL
3695.391	50.66	-19.5	33.4	36.76	HORIZONTAL

USB Mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	F_A (dB/m)	P_{mea} (dBuV)	Polarity
3891.784	51.28	-19.8	33.4	37.68	HORIZONTAL
3603.206	51.2	-19.6	33.4	37.4	VERTICAL
3707.415	50.96	-19.4	33.4	36.96	HORIZONTAL
3683.367	50.9	-19.5	33.4	37	HORIZONTAL
3472.946	50.81	-19.7	31.2	39.31	HORIZONTAL
3737.475	50.74	-19.7	33.4	37.04	VERTICAL

Charging Mode(AE1)

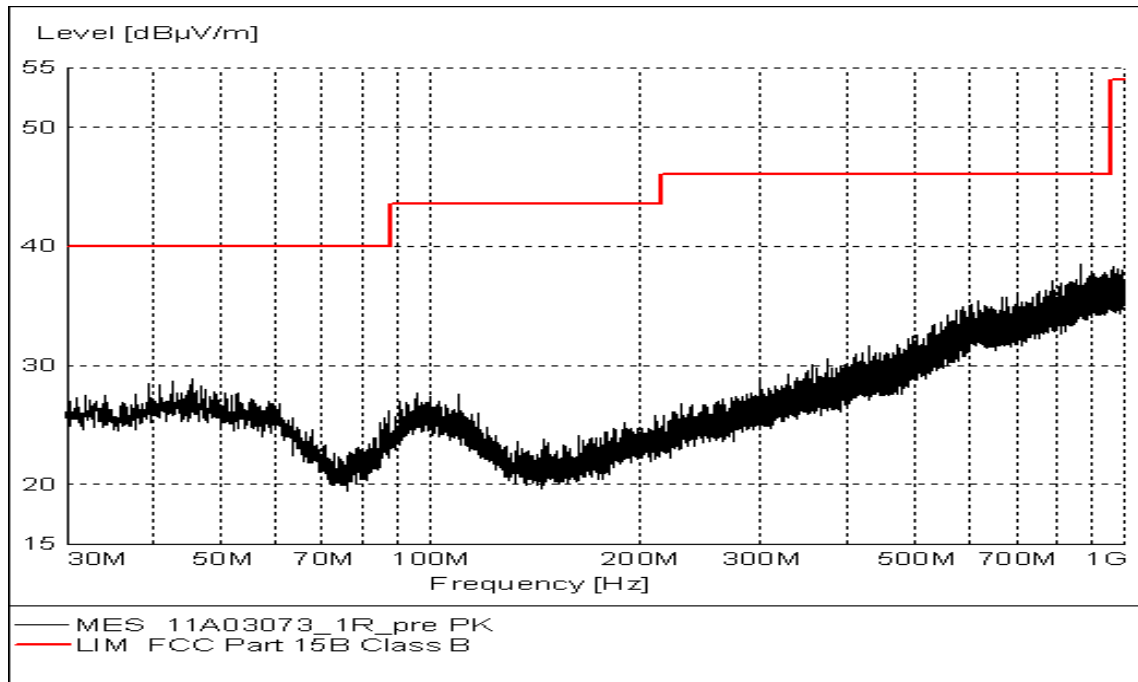


Figure A.1 Radiated Emission from 30MHz to 1GHz

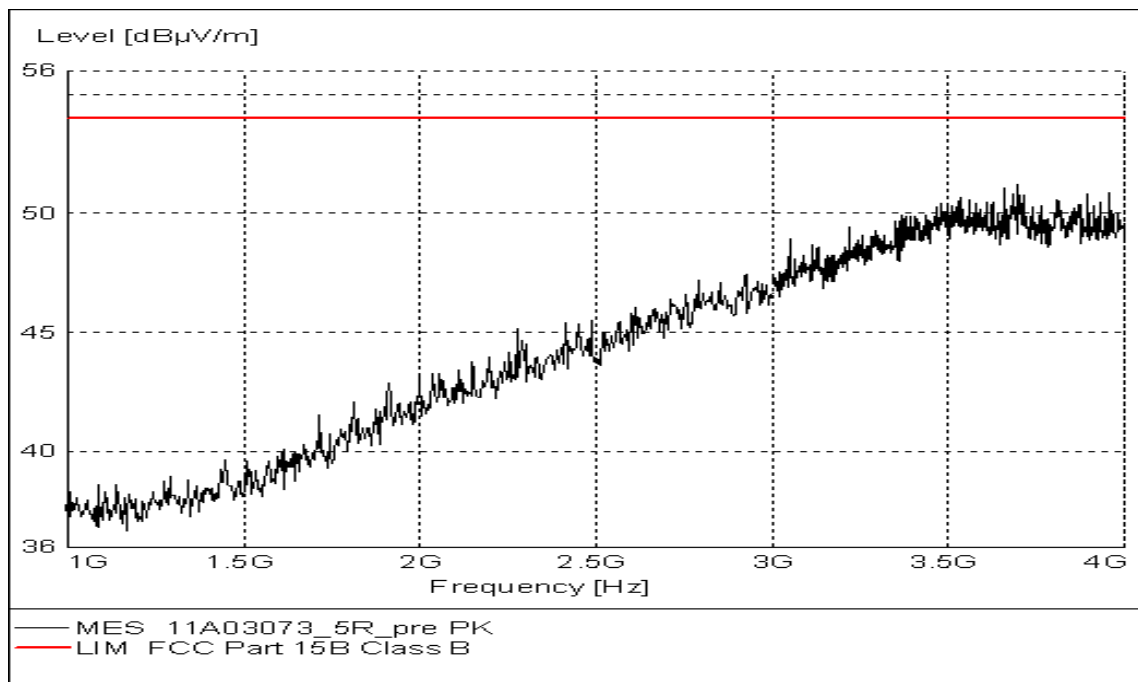


Figure A.2 Radiated Emission from 1GHz to 4GHz

Charging Mode(AE2)

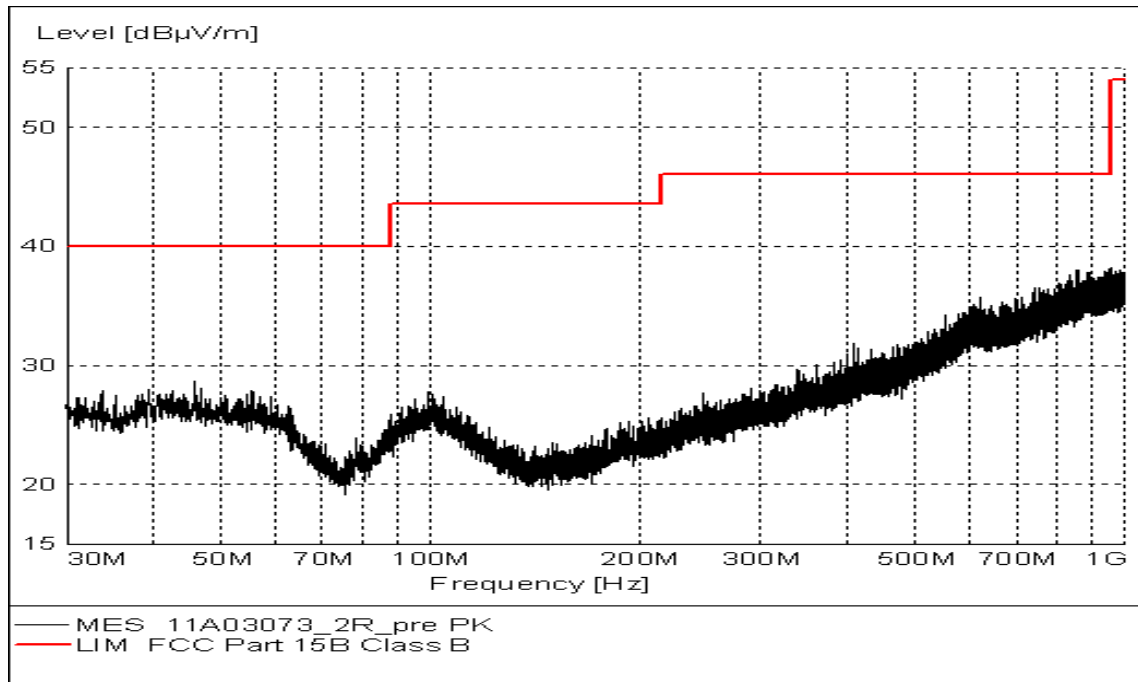


Figure A.3 Radiated Emission from 30MHz to 1GHz

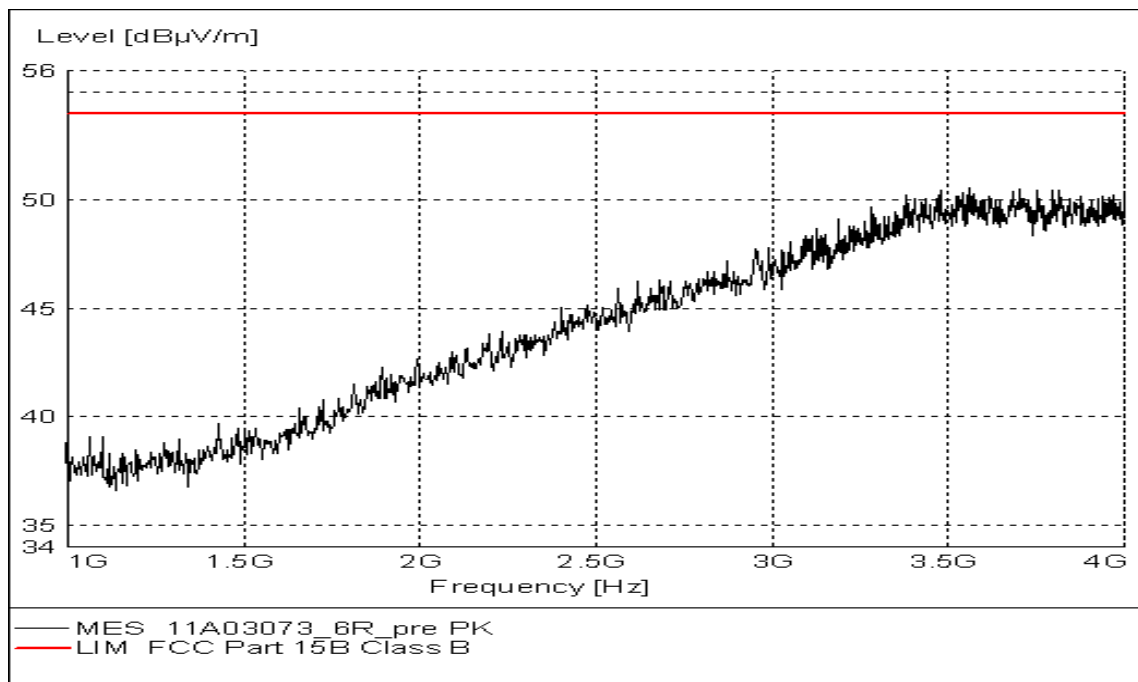


Figure A.4 Radiated Emission from 1GHz to 4GHz

Charging Mode(AE3)

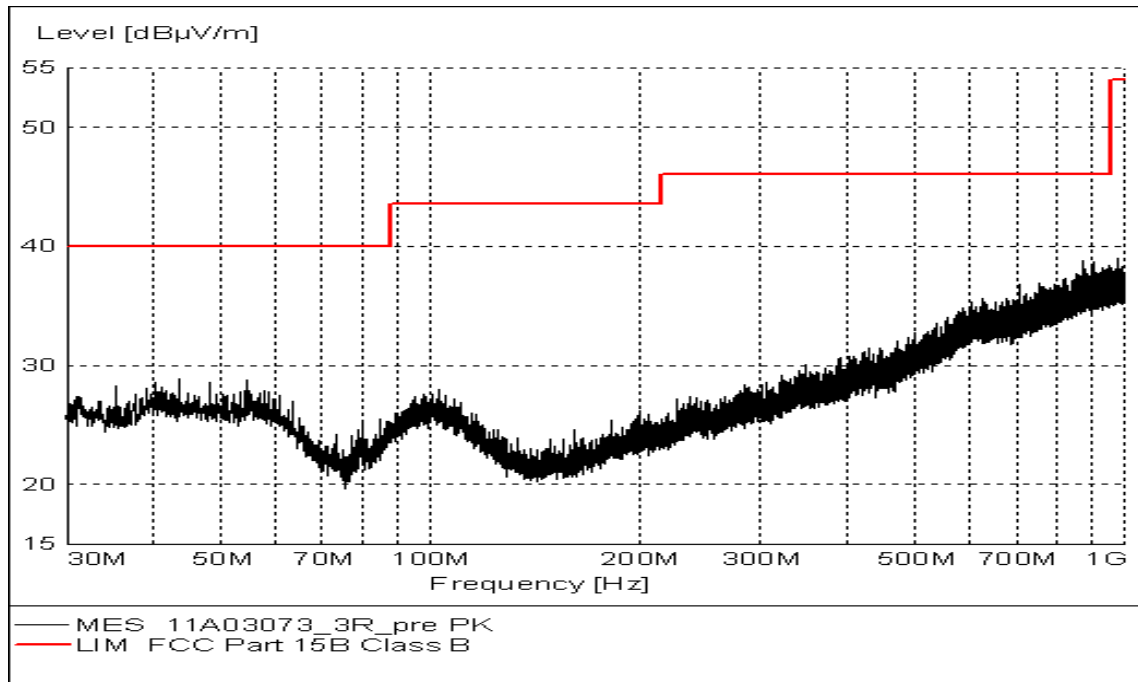


Figure A.5 Radiated Emission from 30MHz to 1GHz

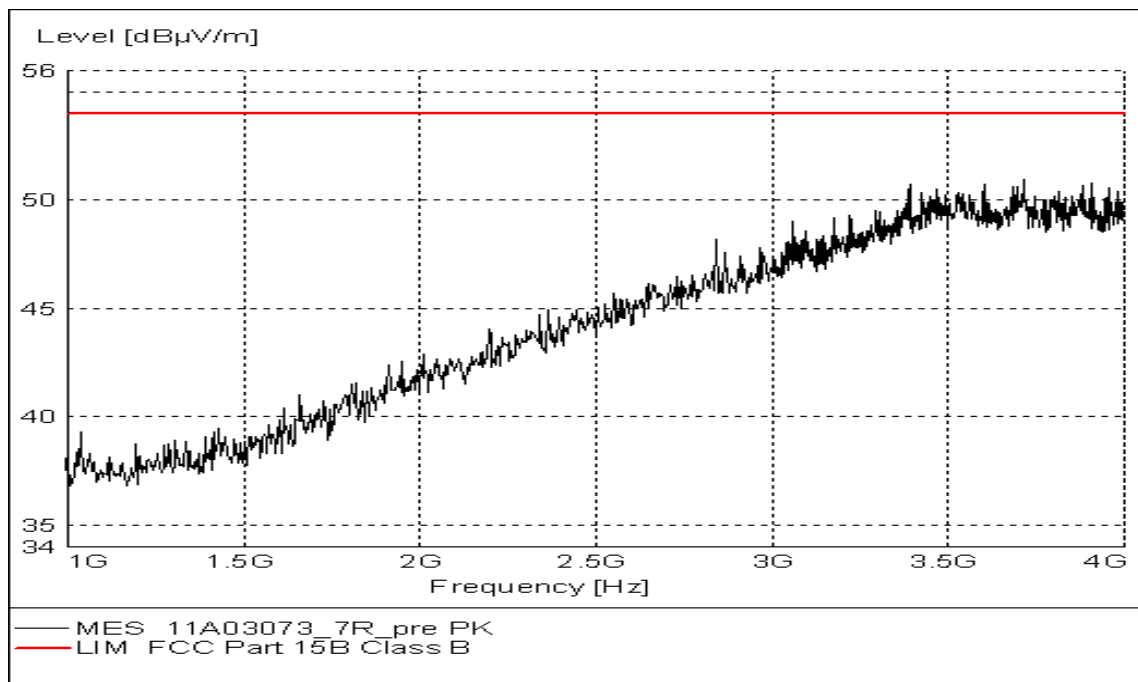


Figure A.6 Radiated Emission from 1GHz to 4GHz

USB Mode

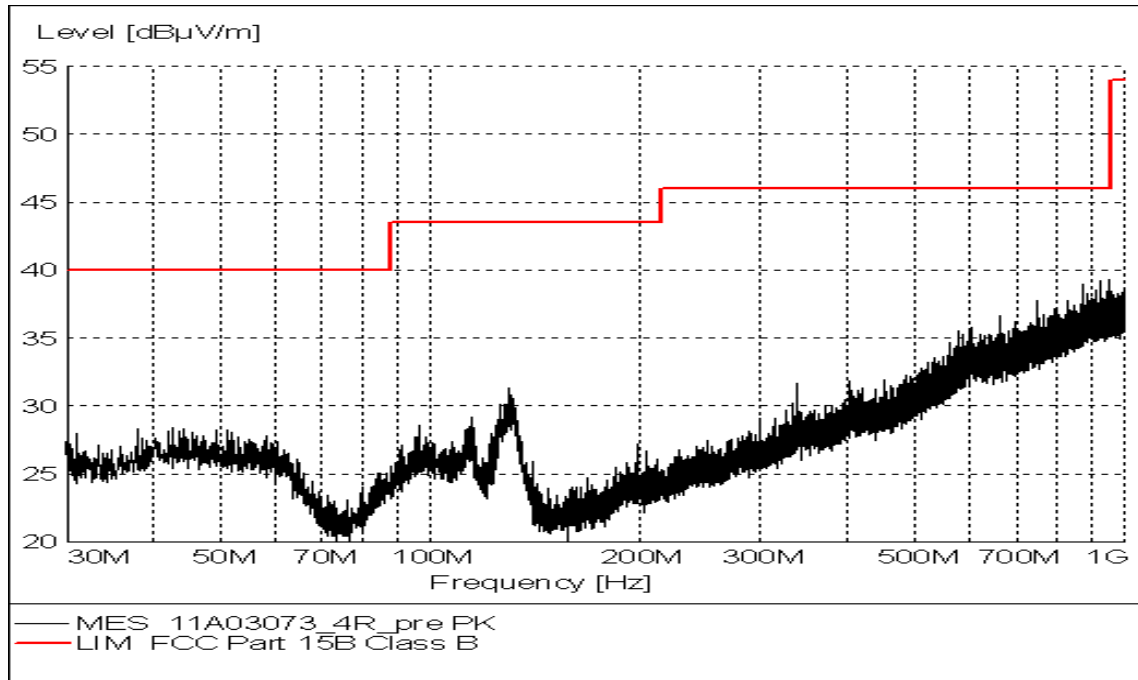


Figure A.7 Radiated Emission from 30MHz to 1GHz

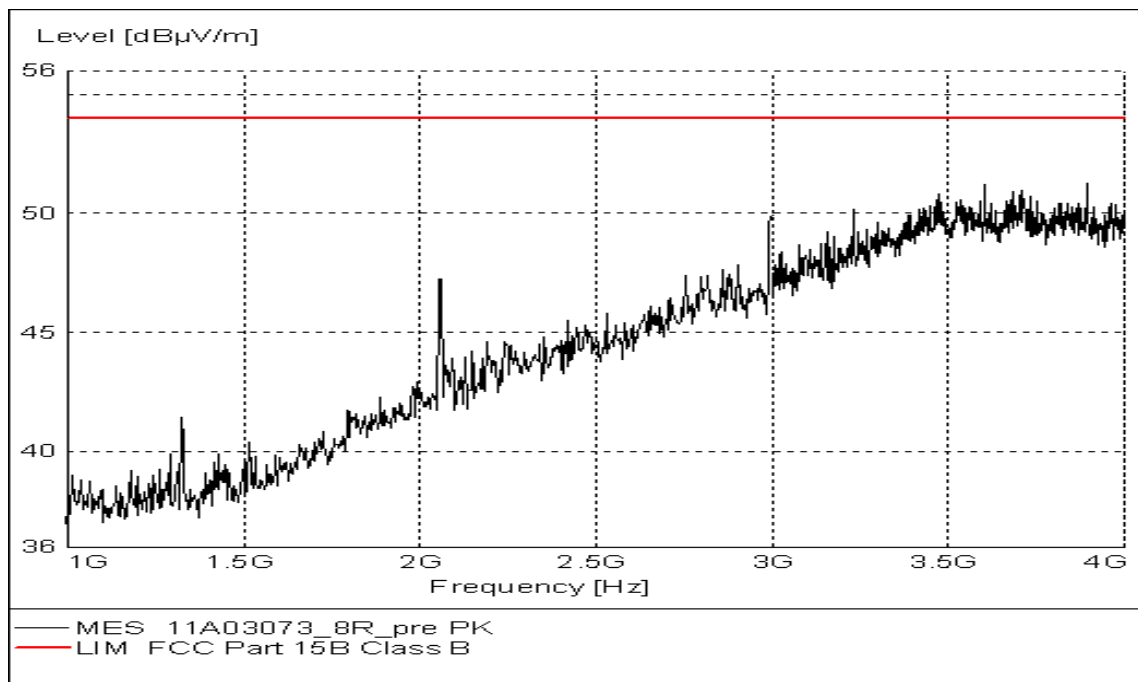


Figure A.8 Radiated Emission from 1GHz to 4GHz

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)

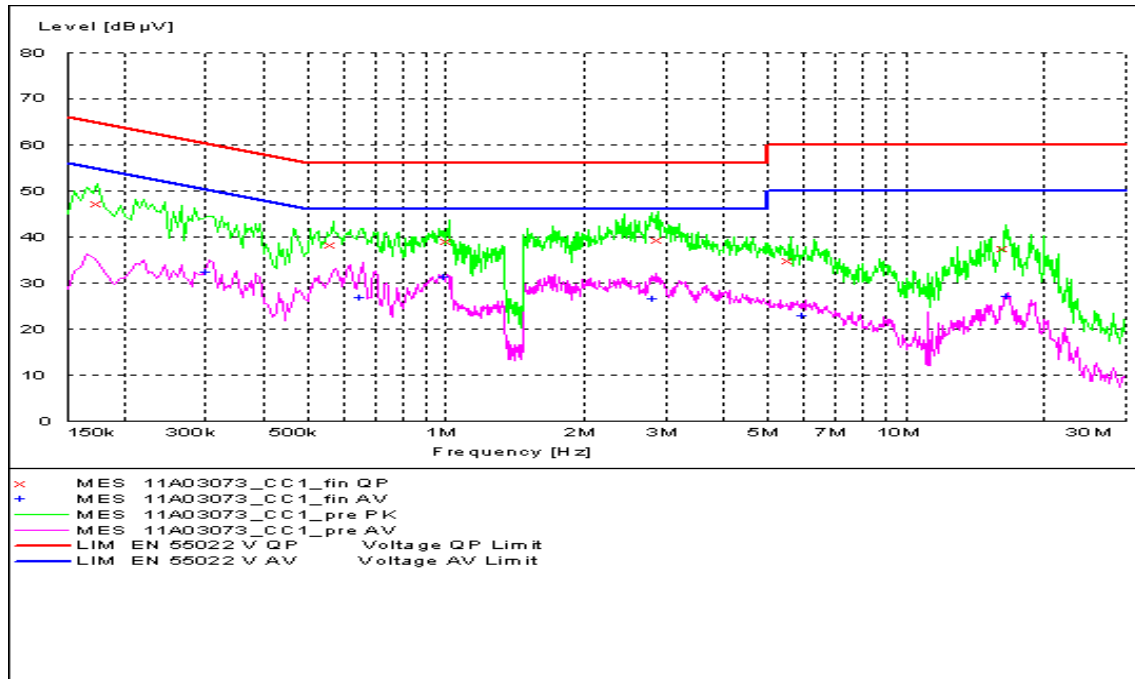


Figure A.9 Conducted Emission

MEASUREMENT RESULT: "11A03073_CC1_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.175000	47.20	10.1	65	17.5	L1	GND
0.565000	38.30	10.1	56	17.7	N	GND
1.015000	39.00	10.1	56	17.0	N	GND
2.892801	39.50	10.1	56	16.5	N	GND
5.587773	34.80	10.2	60	25.2	L1	GND
16.409980	37.50	10.3	60	22.5	L1	GND

MEASUREMENT RESULT: "11A03073_CC1_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.305000	32.20	10.1	50	17.9	L1	GND
0.655000	26.60	10.1	46	19.4	L1	GND
1.005000	31.20	10.1	46	14.8	N	GND
2.849839	26.50	10.1	46	19.5	L1	GND
6.021846	22.70	10.2	50	27.3	L1	GND
16.740650	27.10	10.3	50	22.9	L1	GND

Charging Mode(AE2)

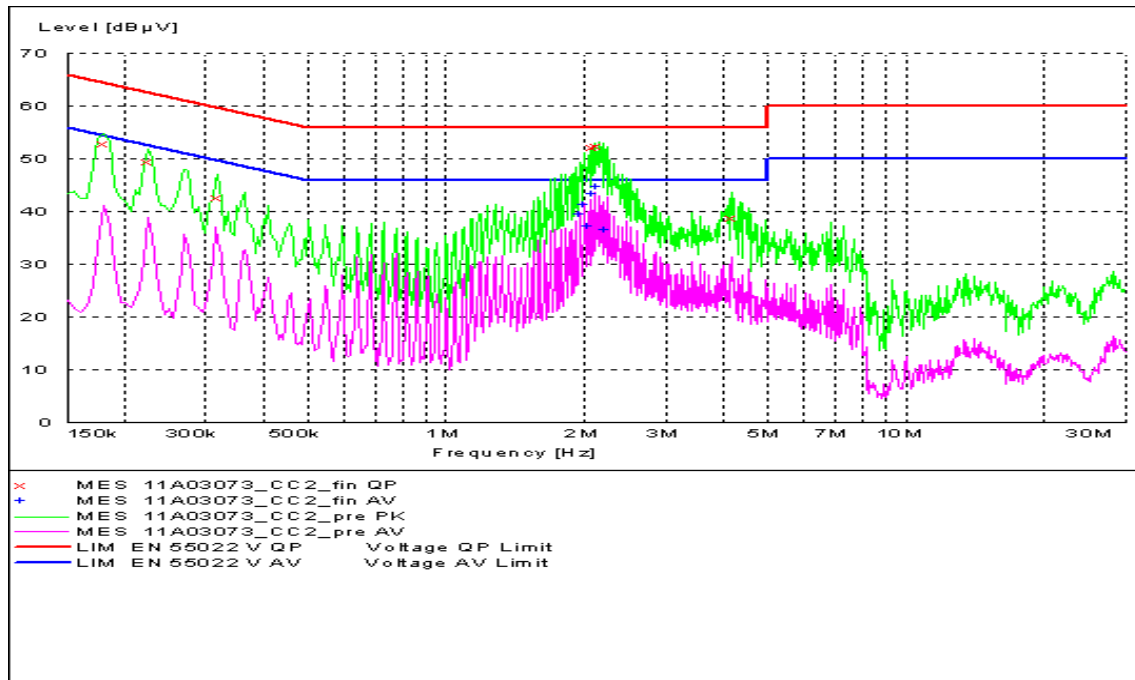


Figure A.10 Conducted Emission

MEASUREMENT RESULT: "11A03073_CC2_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
0.180000	52.90	10.1	65	11.6	L1	GND
0.225000	49.40	10.1	63	13.2	N	GND
0.320000	42.70	10.1	60	17.0	N	GND
2.091821	52.20	10.1	56	3.8	L1	GND
2.133972	52.40	10.1	56	3.6	L1	GND
4.184149	38.70	10.1	56	17.3	L1	GND

MEASUREMENT RESULT: "11A03073_CC2_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
1.955000	39.50	10.1	46	6.5	L1	GND
2.000000	41.30	10.1	46	4.7	L1	GND
2.050503	37.30	10.1	46	8.7	L1	GND
2.091821	43.40	10.1	46	2.6	L1	GND
2.133972	44.80	10.1	46	1.2	L1	GND
2.231944	36.60	10.1	46	9.4	L1	GND

Charging Mode(AE3)

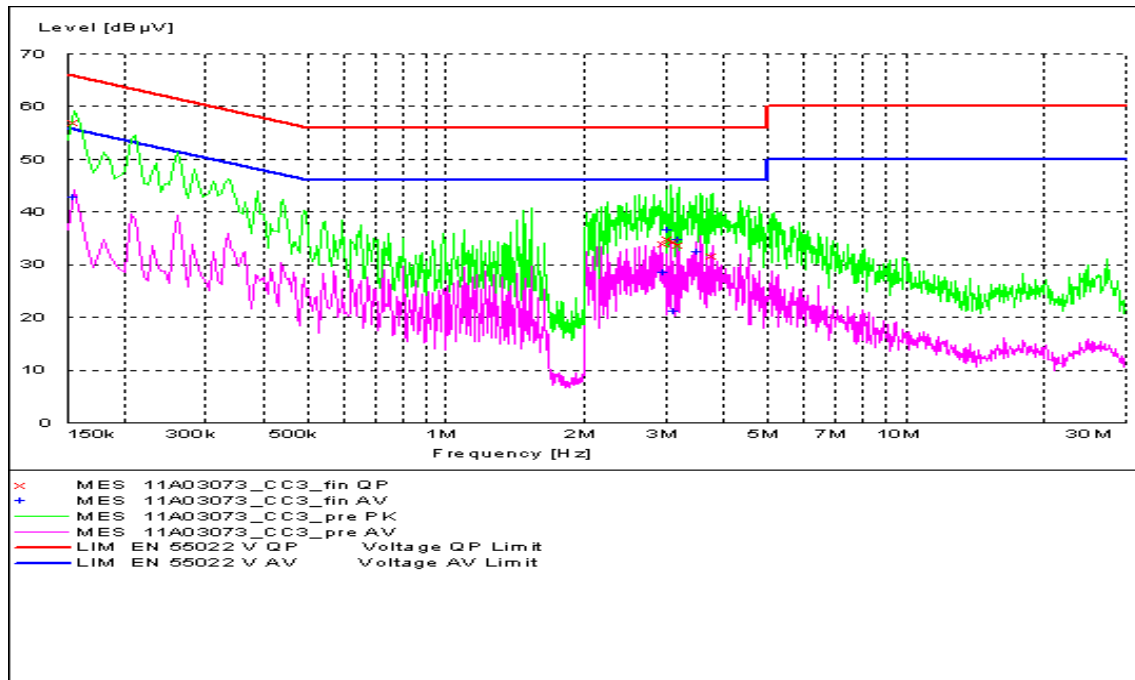


Figure A.11 Conducted Emission

MEASUREMENT RESULT: "11A03073_CC3_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
0.155000	57.10	10.1	66	8.6	L1	GND
3.010558	33.90	10.1	56	22.1	N	GND
3.055943	34.90	10.1	56	21.1	N	GND
3.164519	34.50	10.1	56	21.5	N	GND
3.212224	33.80	10.1	56	22.2	N	GND
3.805853	31.70	10.2	56	24.3	N	GND

MEASUREMENT RESULT: "11A03073_CC3_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
0.155000	42.70	10.1	56	13.1	N	GND
3.010558	28.50	10.1	46	17.5	L1	GND
3.055943	36.60	10.1	46	9.4	L1	GND
3.164519	21.00	10.1	46	25.0	L1	GND
3.212224	34.60	10.1	46	11.4	L1	GND
3.549172	32.40	10.1	46	13.6	L1	GND

USB Mode

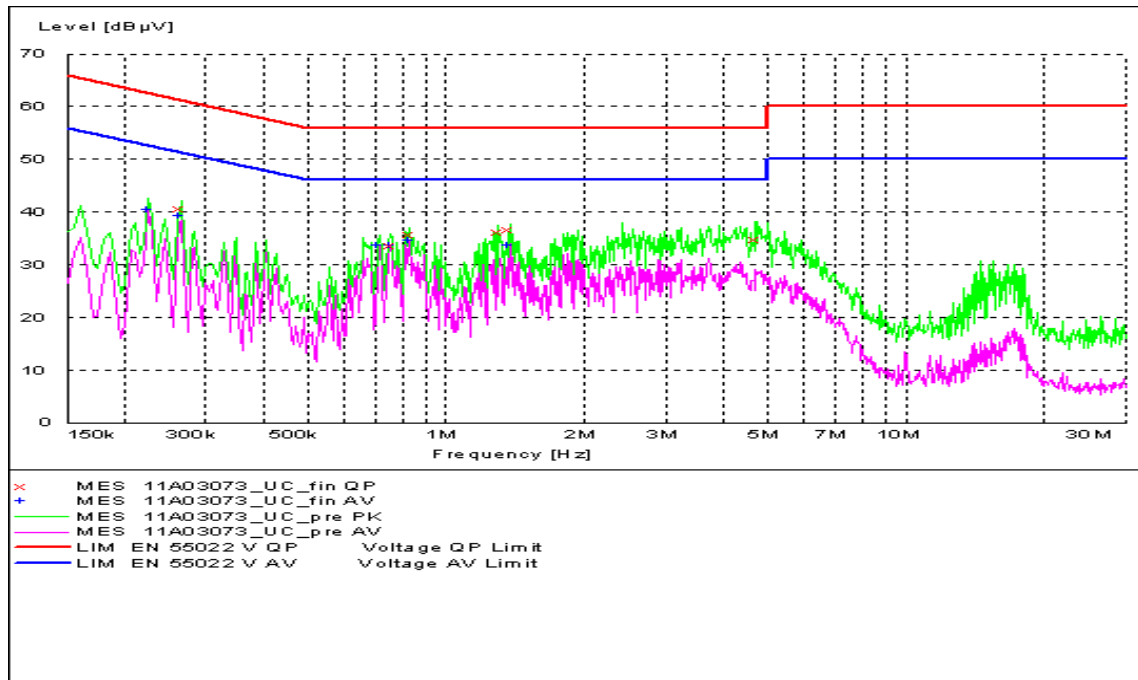


Figure A.12 Conducted Emission

MEASUREMENT RESULT: "11A03073_UC_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
0.265000	40.80	10.1	61	20.4	N	GND
0.755000	33.70	10.1	56	22.3	N	GND
0.830000	35.70	10.1	56	20.3	N	GND
1.300000	36.20	10.1	56	19.8	N	GND
1.375000	36.80	10.1	56	19.2	N	GND
4.716204	34.90	10.2	56	21.1	L1	GND

MEASUREMENT RESULT: "11A03073_UC_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB	/	/
0.225000	40.30	10.1	53	12.4	N	GND
0.265000	39.20	10.1	51	12.0	N	GND
0.715000	33.70	10.1	46	12.3	N	GND
0.755000	33.80	10.1	46	12.2	N	GND
0.830000	34.50	10.1	46	11.5	N	GND
1.375000	33.70	10.1	46	12.3	N	GND

END OF REPORT