TEST REPORT

No. 2013TAR532

for

TCT Mobile Limited

HSUPA/HSDPA+/UMTS triband/GSM quad-band mobile phone

Model Name: YarisM US 2SIM

Marketing Name: ONE TOUCH 4033E

FCC ID: RAD389

with

Hardware Version: Proto

Software Version: VC86

Issued Date: Aug. 13th, 2013

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:

FCC 2.948 Listed: No.733176

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

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CONTENTS

1. Test Laboratory

1.1. Testing Location

Location D

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No.18A, Kangding Street, Beijing Economic-Technological Development Area, Beijing, China
Postal Code:	100176

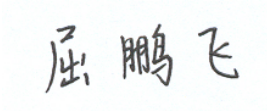
1.2. Testing Environment

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

1.3. Project data

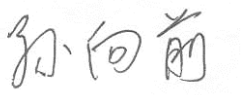
Testing Start Date:	Jul. 03rd, 2013
Testing End Date:	Jul. 05th, 2013

1.4. Signature



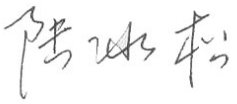
Qu Pengfei

(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, C 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, C 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	HSUPA/HSDPA+/UMTS triband/GSM quad-band mobile phone
Model Name	YarisM US 2SIM
Marketing Name	ONE TOUCH 4033E
FCC ID	RAD389
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	013767000101377	Proto	VC86

*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	B1112466CAA
AE2	Battery	FMTBRYC512000357
AE3	Battery	/
AE4	Battery	BAK2012102400754
AE5	Battery	/
AE6	Travel charger	/
AE7	Travel charger	/
AE8	USB cable	/
AE9	USB cable	/
AE10	USB Cable	/
AE11	USB Cable	/
AE12	Battery	/

AE1

Model	CAB31P0000C1
Manufacturer	BYD
Capacitance	1300 mAh
Nominal Voltage	3.7 V

AE2

Model	CAB31P0000C3
Manufacturer	SCUD
Capacitance	1300 mAh
Nominal Voltage	3.7 V

AE3

Model	CAB60B0000C1
Manufacturer	BYD
Capacitance	1400 mAh
Nominal Voltage	3.7 V

AE4

Model	CAB60B0000C2
Manufacturer	BAK
Capacitance	1400 mAh
Nominal Voltage	3.7 V

AE5

Model	CAB1400002C1
Manufacturer	BYD
Capacitance	1400 mAh
Nominal Voltage	3.7 V

AE12

Model	CAB31P0000C2
Manufacturer	BAK
Capacitance	1300 mAh
Nominal Voltage	3.7 V

AE6

Model	CBA3007AG0C1
Manufacturer	BYD
Length of cable	101 cm (length of USB cable)

AE7

Model	CBA3007AG0C2
Manufacturer	Tenpao
Length of cable	101 cm (length of USB cable)

AE8

Model	CDA3122002C1
Manufacturer	Juwei
Length of cable	101 cm

AE9

Model	CDA3122002C2
Manufacturer	Shenghua
Length of cable	100 cm

AE10

Model	CDA3122005C1
Manufacturer	Juwei
Length of cable	101 cm

AE11

Model	CDA3122005C2
Manufacturer	Shenghua
Length of cable	100 cm

*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/AE4 + AE6 + AE10/AE11	Charging mode
Set.2	EUT1+ AE1/AE2/AE4 + AE7 + AE10/AE11	Charging mode
Set.3	EUT1+ AE1/AE2/AE4 + AE10/AE11	USB mode

Note: The HSUPA/HSDPA+/UMTS triband/GSM quad-band mobile phone ONE TOUCH 4033E manufactured by TCT Mobile Limited is a variant model based on ONE TOUCH 4033A for conformance test. According to the declaration of changes, no test needs to been performed, all results are cited from the initial model. The report number for initial model is 2013TAR529.

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 - Unintentional Radiators	10-1-12 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 SAC-2 (10 meters×6.7 meters×6.15 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Fully-anechoic chamber FAC-3 (9 meters×6.5 meters×4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz -1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

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

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz－1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail
Location Column	A/B/C/D	The test is performed in test location A, B, C or D which are described in section 1.1 of this report

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

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESU26	100376	R&S	2013-11-07
2	Test Receiver	ESU26	100235	R&S	2014-01-05
3	EMI Antenna	VULB 9163	9163-514	Schwarzbeck	2014-11-10
4	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
5	LISN	ESH3-Z5	825562/028	R&S	2014-06-12
6	Universal Radio Communication Tester	CMU200	102228	R&S	2014-06-23
7	Universal Radio Communication Tester	CMW500	127406	R&S	2014-01-27
8	PC	OPTIPLEX 755	3908243625	DELL	N/A
9	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A
10	Printer	LaserJet 1160	CNM2D33740	HP	N/A
11	Keyboard	L100	CN0RH659658907ATOI40	DELL	N/A
12	Mouse	M-UAE119	LZ935220ZRC	Lenovo	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 range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

A.1.4 Test Condition

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average

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.

Measurement uncertainty (worst case): U = 4.3 dB, k=2.

Measurement result for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2986.000	41.9	-29.0	33.2	37.679	HORIZONTAL
2996.600	42.2	-29.0	33.2	37.979	VERTICAL
2929.000	41.6	-28.1	32.5	37.211	VERTICAL
2970.200	42.0	-28.6	33.1	37.515	HORIZONTAL
2883.400	41.5	-27.8	32.3	37.003	VERTICAL
2977.000	41.9	-29.0	33.1	37.779	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2986.000	54.7	-29.0	33.2	50.479	HORIZONTAL
2996.600	54.5	-29.0	33.2	50.279	VERTICAL
2929.000	54.4	-28.1	32.5	50.011	VERTICAL
2970.200	54.3	-28.6	33.1	49.815	HORIZONTAL
2883.400	54.3	-27.8	32.3	49.803	VERTICAL
2977.000	54.2	-29.0	33.1	50.079	VERTICAL

Measurement result for Set.2:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
3000.000	43.2	-28.4	32.8	38.772	HORIZONTAL
2994.200	42.1	-29.0	33.2	37.879	VERTICAL
2999.600	42.7	-29.0	33.2	38.479	HORIZONTAL
2999.800	42.8	-29.0	33.2	38.579	HORIZONTAL
2979.600	42.0	-29.0	33.1	37.879	VERTICAL
2993.200	42.5	-29.0	33.2	38.279	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
3000.000	55.6	-28.4	32.8	51.172	HORIZONTAL
2994.200	54.9	-29.0	33.2	50.679	VERTICAL
2999.600	54.8	-29.0	33.2	50.579	HORIZONTAL
2999.800	54.8	-29.0	33.2	50.579	HORIZONTAL
2979.600	54.4	-29.0	33.1	50.279	VERTICAL
2993.200	54.4	-29.0	33.2	50.179	VERTICAL

Measurement result for Set.3:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
2871.200	41.3	-27.8	31.9	37.203	VERTICAL
2999.200	42.7	-29.0	33.2	38.479	HORIZONTAL
2993.600	42.1	-29.0	33.2	37.879	VERTICAL
3000.000	43.3	-28.4	32.8	38.872	HORIZONTAL
2966.600	41.9	-28.6	33.1	37.415	HORIZONTAL
2882.800	41.4	-27.8	32.3	36.903	VERTICAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
2871.200	55.3	-27.8	31.9	51.203	VERTICAL
2999.200	54.6	-29.0	33.2	50.379	HORIZONTAL
2993.600	54.4	-29.0	33.2	50.179	VERTICAL
3000.000	54.4	-28.4	32.8	49.972	HORIZONTAL
2966.600	54.2	-28.6	33.1	49.715	HORIZONTAL
2882.800	54.2	-27.8	32.3	49.703	VERTICAL

Charging Mode, Set.1

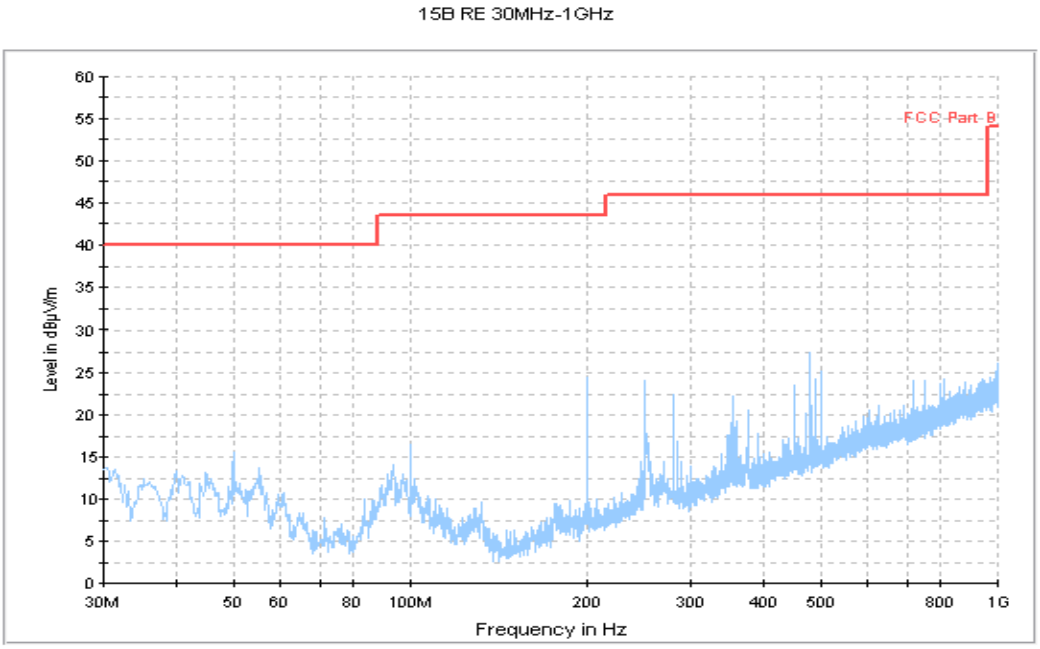


Figure A.1 Radiated Emission from 30MHz to 1GHz

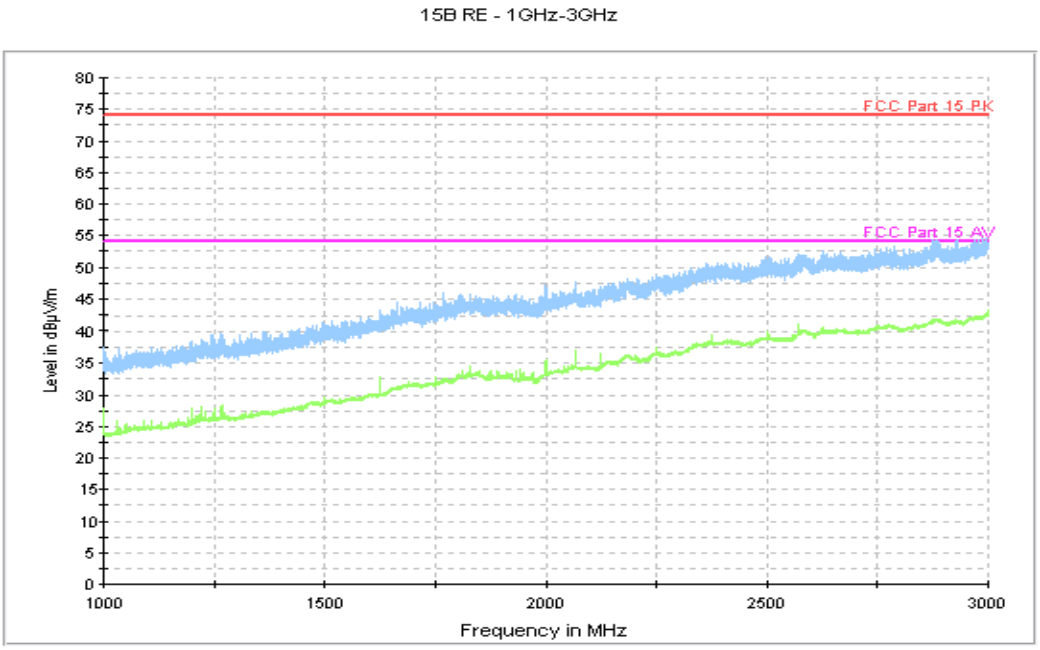


Figure A.2 Radiated Emission from 1GHz to 3GHz

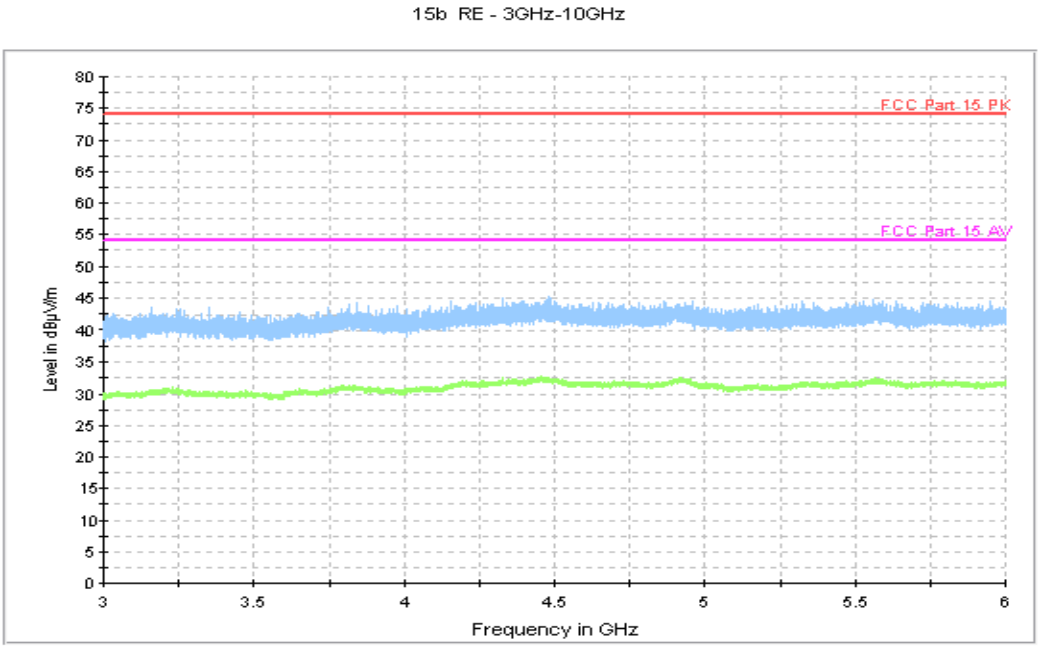


Figure A.3 Radiated Emission from 3GHz to 6GHz

Charging Mode, Set.2

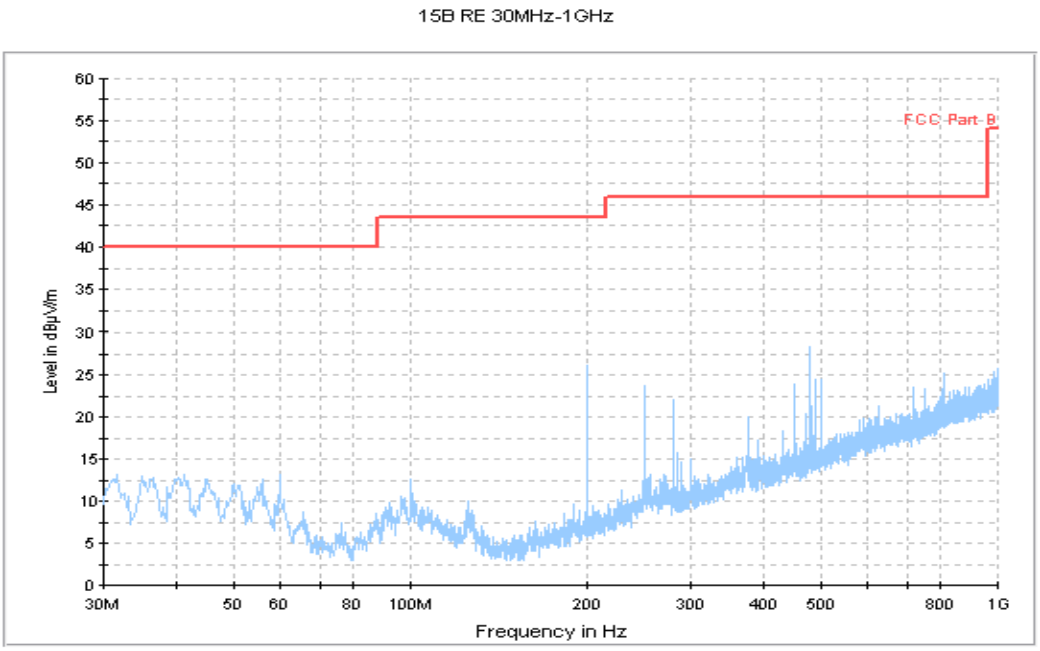


Figure A.4 Radiated Emission from 30MHz to 1GHz

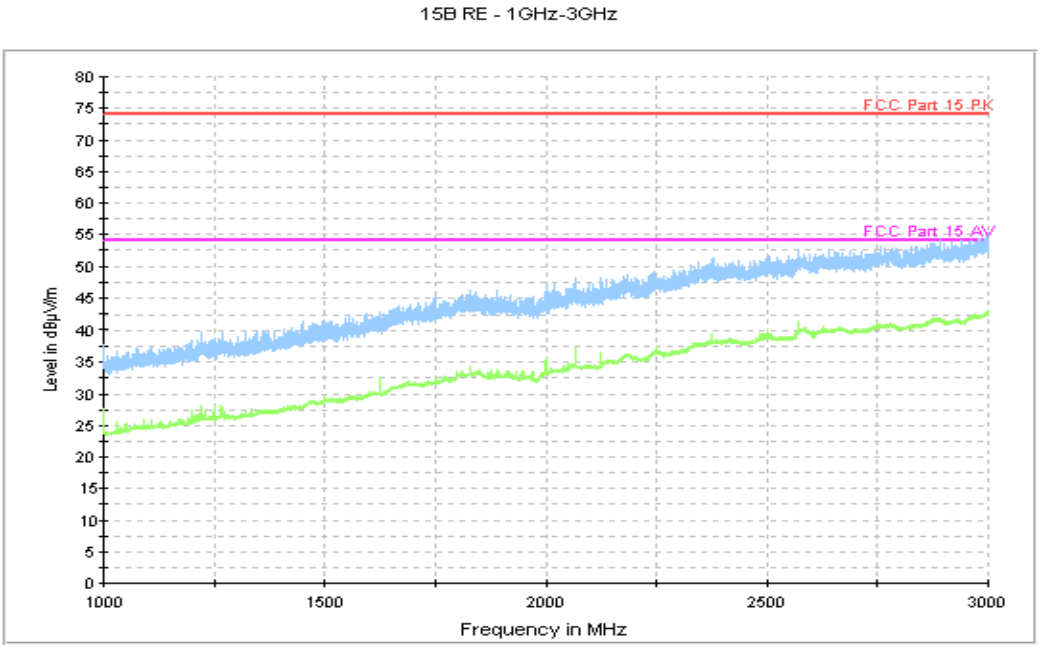


Figure A.5 Radiated Emission from 1GHz to 3GHz

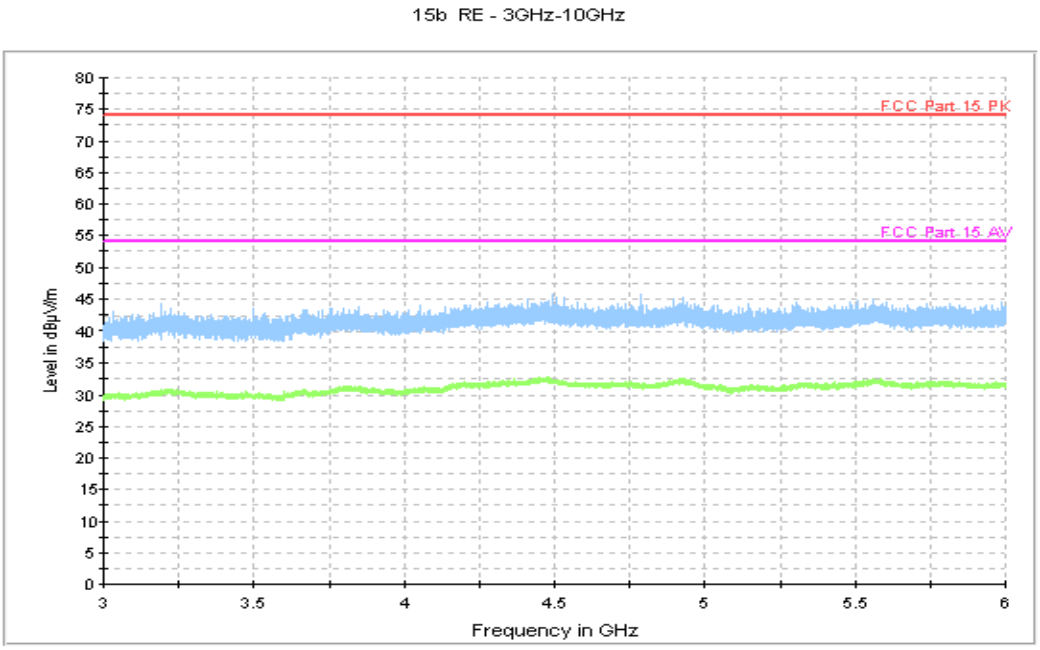


Figure A.6 Radiated Emission from 3GHz to 6GHz

USB Mode, Set.3

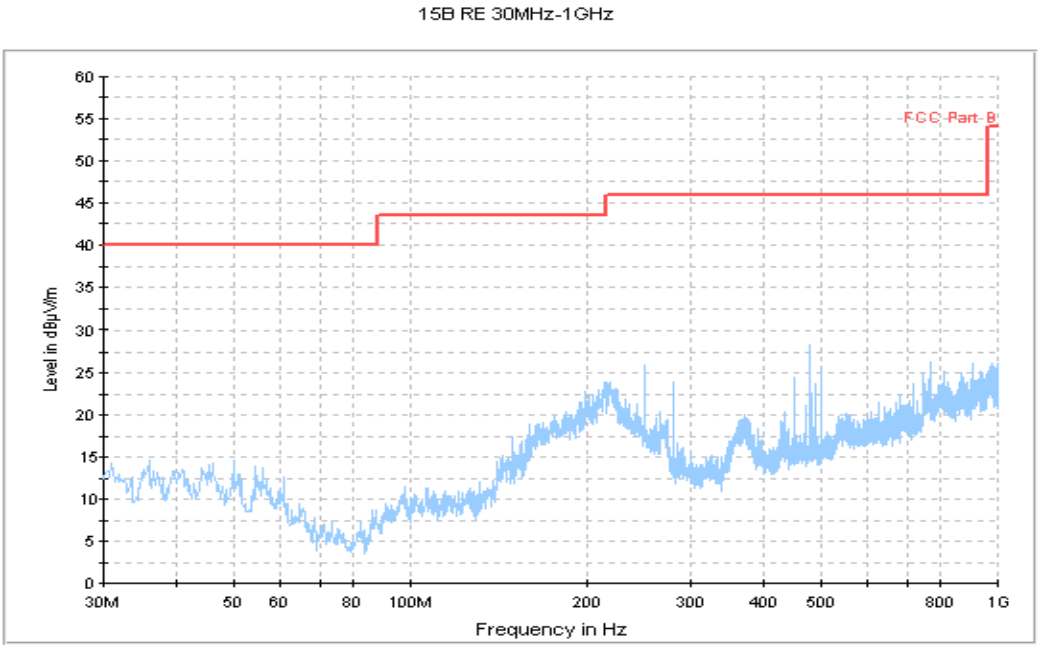


Figure A.7 Radiated Emission from 30MHz to 1GHz

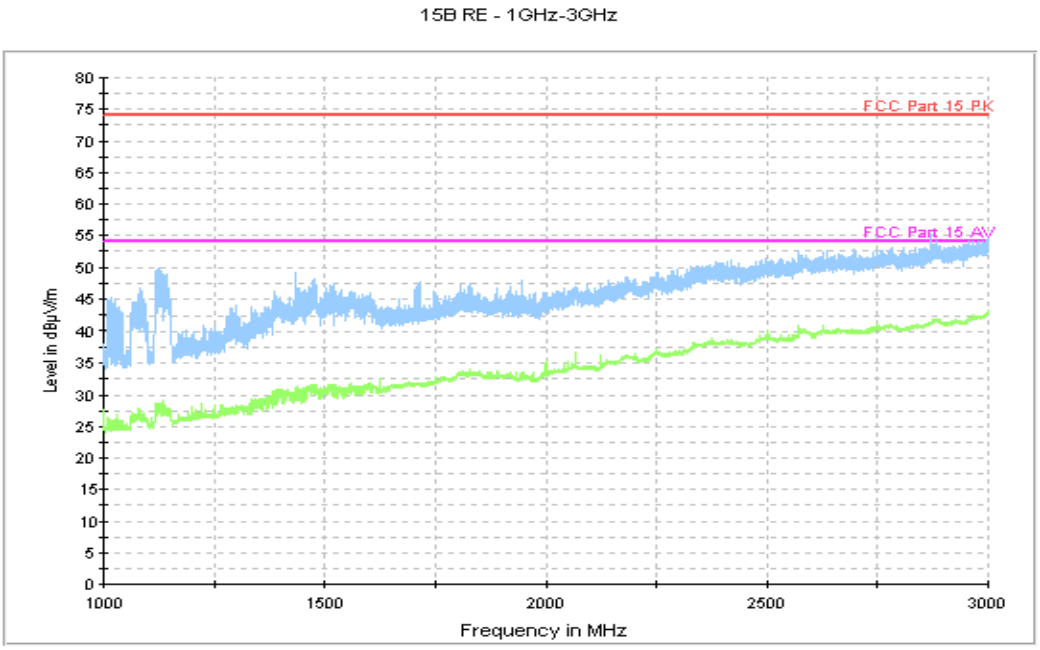


Figure A.8 Radiated Emission from 1GHz to 3GHz

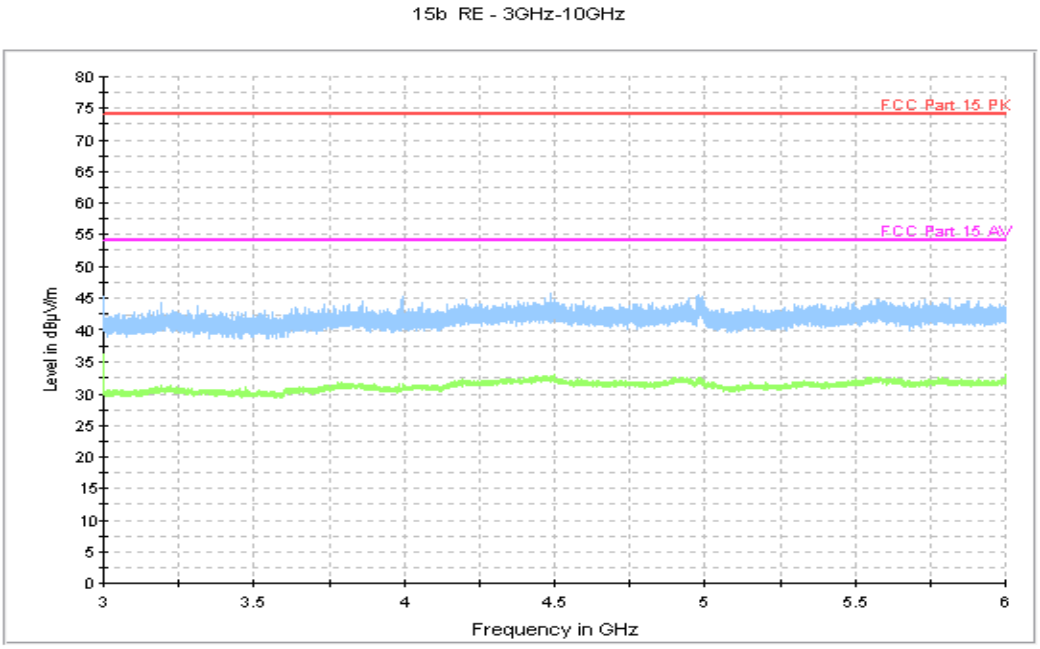


Figure A.9 Radiated Emission from 3GHz to 10GHz

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/IF bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

Measurement uncertainty: *U*= 2.9 dB, *k*=2.

Charging Mode, Set.1

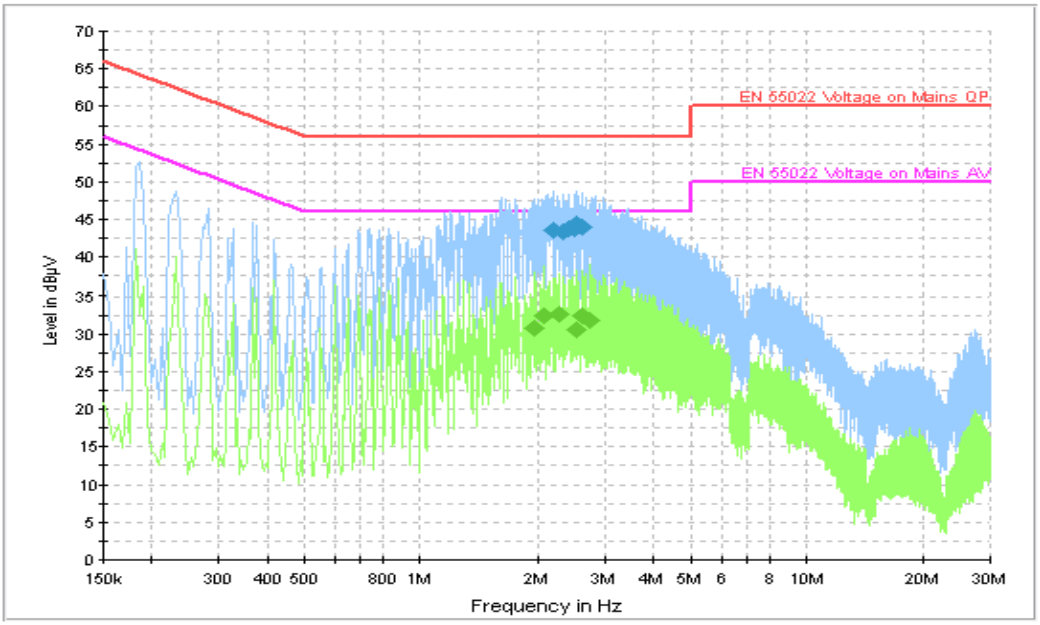


Figure A.10 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.197501	43.6	GND	N	9.9	12.4	56.0
2.319001	43.3	GND	N	9.9	12.7	56.0
2.409001	43.8	GND	N	9.9	12.2	56.0
2.499001	43.9	GND	N	9.9	12.1	56.0
2.530501	44.3	GND	N	9.9	11.7	56.0
2.593501	44.0	GND	N	9.9	12.0	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.954501	30.7	GND	N	9.9	15.3	46.0
2.076001	32.4	GND	N	9.9	13.6	46.0
2.274001	32.6	GND	N	9.9	13.4	46.0
2.517001	30.5	GND	N	9.9	15.5	46.0
2.593501	32.5	GND	N	9.9	13.5	46.0
2.715001	31.7	GND	N	9.9	14.3	46.0

Charging Mode, Set.2

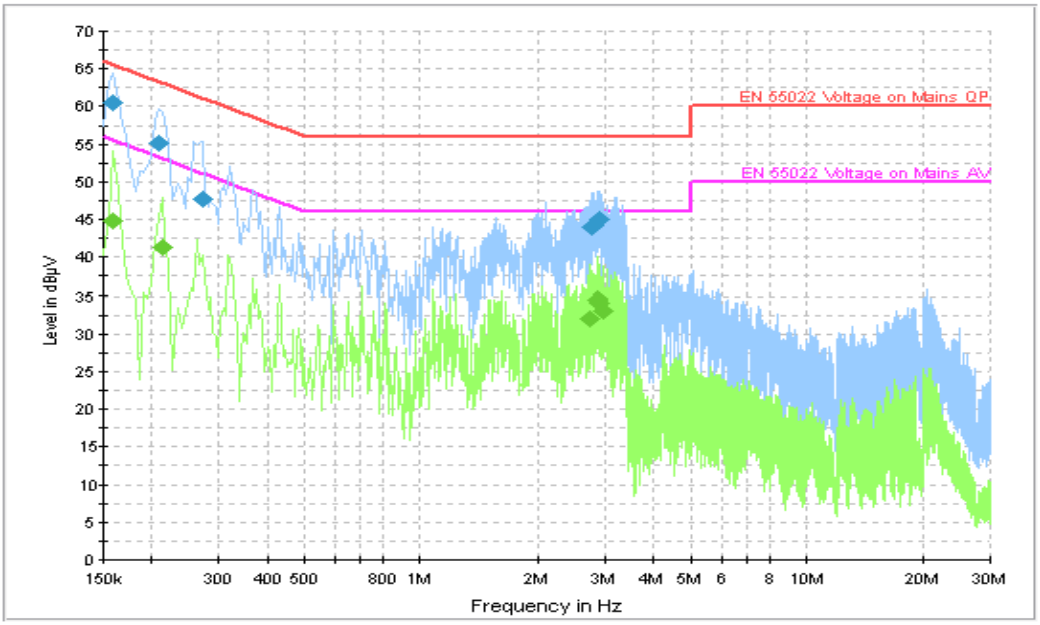


Figure A.11 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159001	60.5	GND	L1	9.9	5.0	65.5
0.208501	55.1	GND	L1	9.9	8.2	63.3
0.271501	47.6	GND	L1	9.9	13.5	61.1
2.773501	44.0	GND	N	9.9	12.0	56.0
2.805001	44.2	GND	N	9.9	11.8	56.0
2.895001	44.9	GND	N	9.9	11.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159001	44.9	GND	L1	9.9	10.7	55.5
0.213001	41.3	GND	N	9.9	11.8	53.1
2.728501	32.1	GND	N	9.9	13.9	46.0
2.850001	34.5	GND	N	9.9	11.5	46.0
2.895001	34.1	GND	N	9.9	11.9	46.0
2.971501	32.9	GND	N	9.9	13.1	46.0

USB Mode, Set.3

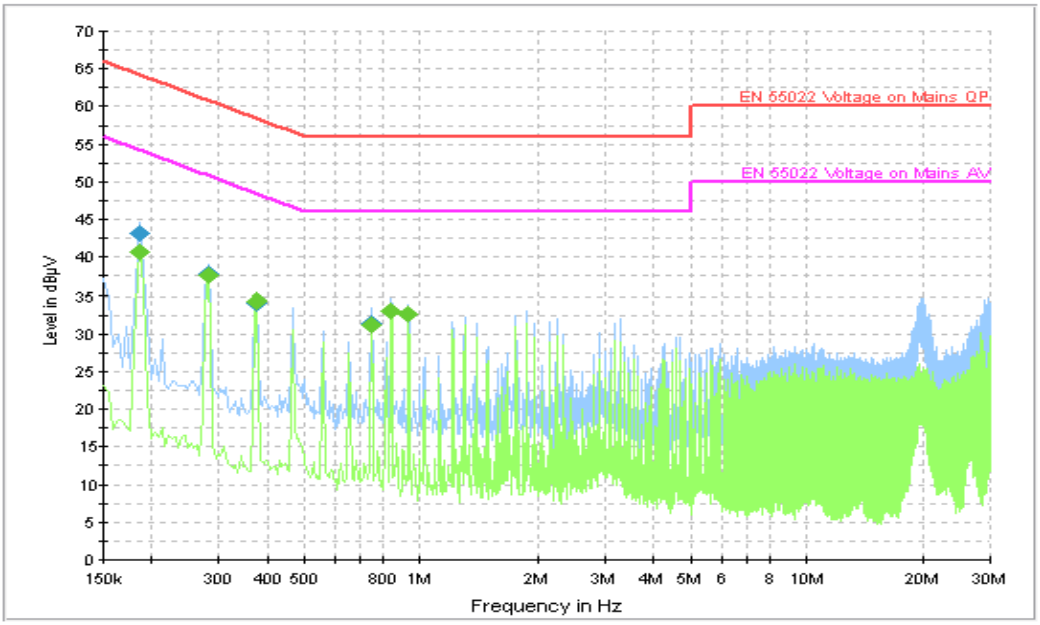


Figure A.12 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	43.2	GND	N	9.9	21.0	64.2
0.280501	37.7	GND	L1	9.9	23.1	60.8
0.375001	34.1	GND	L1	9.9	24.3	58.4
0.748501	31.4	GND	L1	9.9	24.6	56.0
0.838501	33.1	GND	L1	9.9	22.9	56.0
0.933001	32.7	GND	L1	9.9	23.3	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	40.7	GND	N	9.9	13.5	54.2
0.280501	37.5	GND	L1	9.9	13.3	50.8
0.375001	34.3	GND	L1	9.9	14.1	48.4
0.748501	31.2	GND	L1	9.9	14.8	46.0
0.838501	33.1	GND	L1	9.9	12.9	46.0
0.933001	32.5	GND	L1	9.9	13.5	46.0

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