TEST REPORT

No. 2013TAR645

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS triband/GSM quadband mobile phone

Model Name: Yaris-4.5 US 1SIM ATV

Marketing Name: ONE TOUCH 5036A

FCC ID: RAD412

with

Hardware Version: proto

Software Version: vF06

Issued Date: Sep. 10th, 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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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

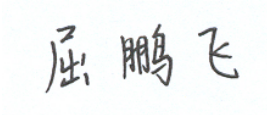
1.2. Testing Environment

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

1.3. Project data

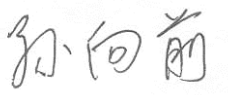
Testing Start Date:	Aug. 24th, 2013
Testing End Date:	Aug. 26th, 2013

1.4. Signature



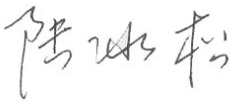
Qu Pengfei

(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 quadband mobile phone
Model Name	Yaris-4.5 US 1SIM ATV
Marketing Name	ONE TOUCH 5036A
FCC ID	RAD412
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
EUT2	013822000000408	proto	vF06

*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 charger	/
AE4	Travel charger	/
AE5	USB cable	/
AE6	USB cable	/
AE7	USB Cable	/
AE8	USB Cable	/

AE1

Model	CAB32E0000C1
Manufacturer	BYD
Capacitance	1800 mAh
Nominal voltage	3.7V

AE2

Model	CAB32E0000C2
Manufacturer	SUCD
Capacitance	1800 mAh
Nominal voltage	3.7V

AE3

Model	CBA3007AG0C1
Manufacturer	BYD
Length of cable	/

AE4

Model	CBA3007AG0C2
Manufacturer	Tenpao
Length of cable	/

AE5

Model	CDA3122002C2
Manufacturer	Shenghua
Length of cable	99 cm

AE6

Model	CDA3122002C1
Manufacturer	Juwei
Length of cable	100 cm

AE7

Model	CDA3122005C2
Manufacturer	Shenghua
Length of cable	99 cm

AE8

Model	CDA3122005C1
Manufacturer	Juwei
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.4	EUT2+ AE1 +AE3+AE5	Charging mode
Set.5	EUT2+ AE1 +AE4+AE5	Charging mode
Set.6	EUT2+ AE1 +AE5	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 - 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	ESCI	100766	R&S	2014-04-08
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	100680	R&S	2013-09-05
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2014-03-16
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.4:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2996.000	42.9	-29.0	33.2	38.679	HORIZONTAL
2996.200	42.8	-29.0	33.2	38.579	HORIZONTAL
2993.600	42.8	-29.0	33.2	38.579	VERTICAL
2997.400	42.8	-29.0	33.2	38.579	HORIZONTAL
2994.600	42.8	-29.0	33.2	38.579	VERTICAL
2995.200	42.8	-29.0	33.2	38.579	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2977.200	55.0	-29.0	33.1	50.879	VERTICAL
2993.000	54.5	-29.0	33.2	50.279	HORIZONTAL
2998.600	54.4	-29.0	33.2	50.179	VERTICAL
2980.200	54.3	-29.0	33.2	50.079	VERTICAL
2989.200	54.3	-29.0	33.2	50.079	VERTICAL
2971.200	54.3	-28.6	33.1	49.815	VERTICAL

Measurement result for Set.5:

Charging Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2996.000	42.9	-29.0	33.2	38.679	HORIZONTAL
2999.800	42.9	-29.0	33.2	38.679	HORIZONTAL
2994.800	42.8	-29.0	33.2	38.579	HORIZONTAL
2997.000	42.8	-29.0	33.2	38.579	HORIZONTAL
2995.000	42.8	-29.0	33.2	38.579	VERTICAL
2996.200	42.8	-29.0	33.2	38.579	VERTICAL

Charging Mode/Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea}(dBμV)	Polarity
2974.400	55.5	-28.6	33.1	51.015	VERTICAL
2989.800	55.1	-29.0	33.2	50.879	VERTICAL
2934.800	54.9	-28.1	32.5	50.511	VERTICAL
2985.200	54.7	-29.0	33.2	50.479	HORIZONTAL
2994.200	54.6	-29.0	33.2	50.379	HORIZONTAL
2972.000	54.5	-28.6	33.1	50.015	VERTICAL

Measurement result for Set.6:

USB Mode/Average detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
2999.200	43.0	-29.0	33.2	38.779	VERTICAL
2994.400	42.9	-29.0	33.2	38.679	VERTICAL
2995.600	42.9	-29.0	33.2	38.679	VERTICAL
3000.000	42.8	-28.4	32.8	38.372	HORIZONTAL
2996.800	42.8	-29.0	33.2	38.579	VERTICAL
2995.000	42.8	-29.0	33.2	38.579	HORIZONTAL

USB Mode/ Peak detector

Frequency(MHz)	Result(dBμV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea}(dBμV)	Polarity
2985.600	54.6	-29.0	33.2	50.379	VERTICAL
2911.400	54.4	-28.1	32.8	49.694	VERTICAL
2982.000	54.3	-29.0	33.2	50.079	HORIZONTAL
2987.400	54.2	-29.0	33.2	49.979	HORIZONTAL
2999.800	54.1	-29.0	33.2	49.879	HORIZONTAL
2995.000	54.1	-29.0	33.2	49.879	HORIZONTAL

Charging Mode, Set.4

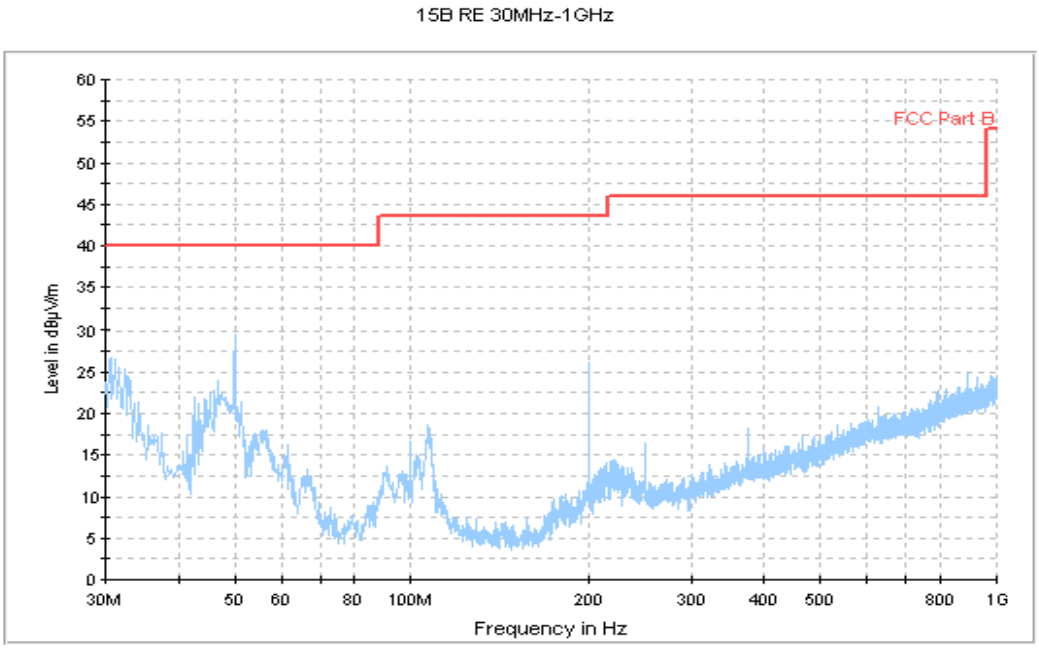


Figure A.1 Radiated Emission from 30MHz to 1GHz

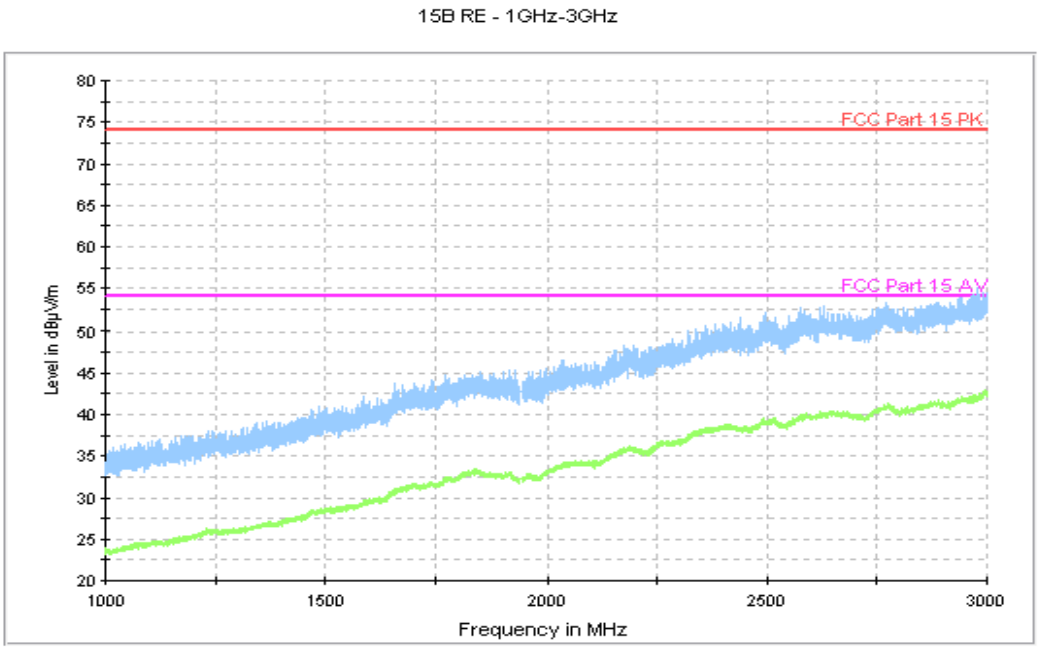


Figure A.2 Radiated Emission from 1GHz to 3GHz

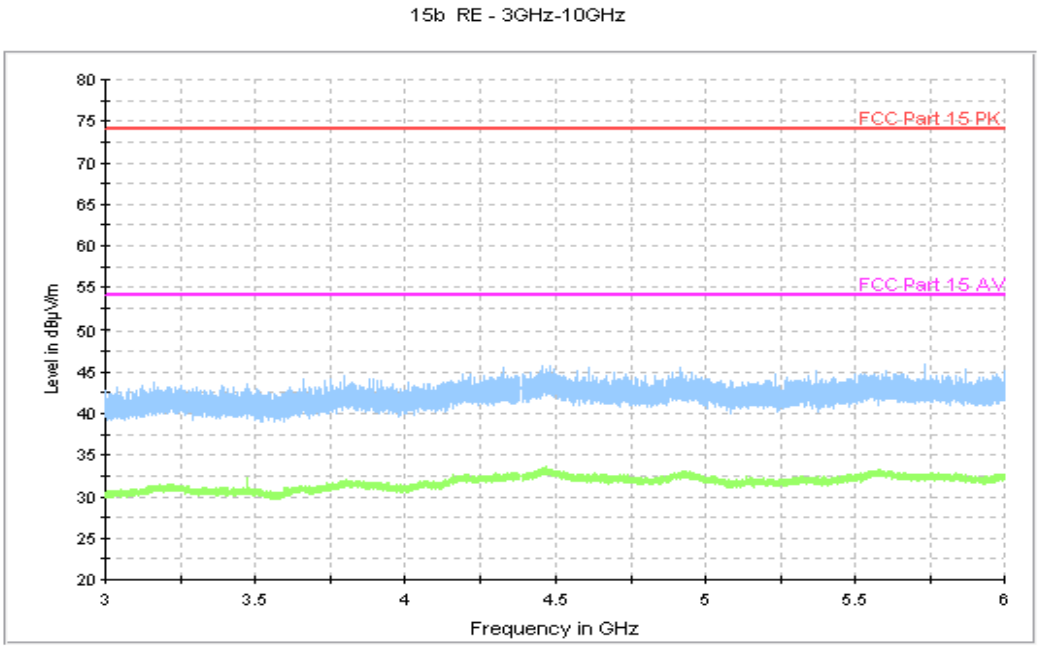


Figure A.3 Radiated Emission from 3GHz to 6GHz

Charging Mode, Set.5

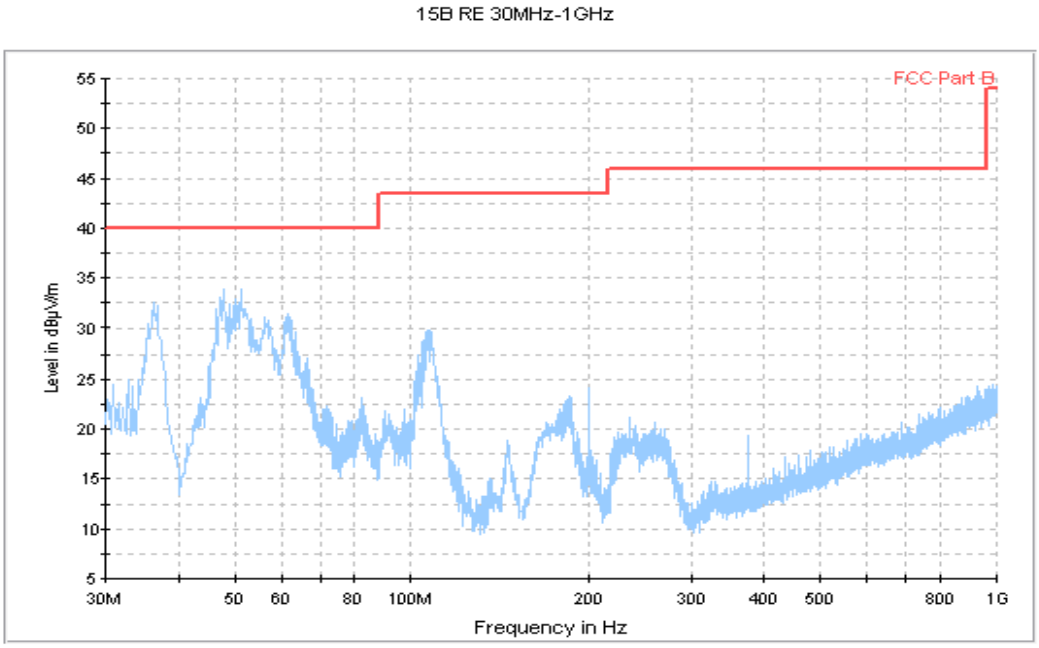


Figure A.4 Radiated Emission from 30MHz to 1GHz

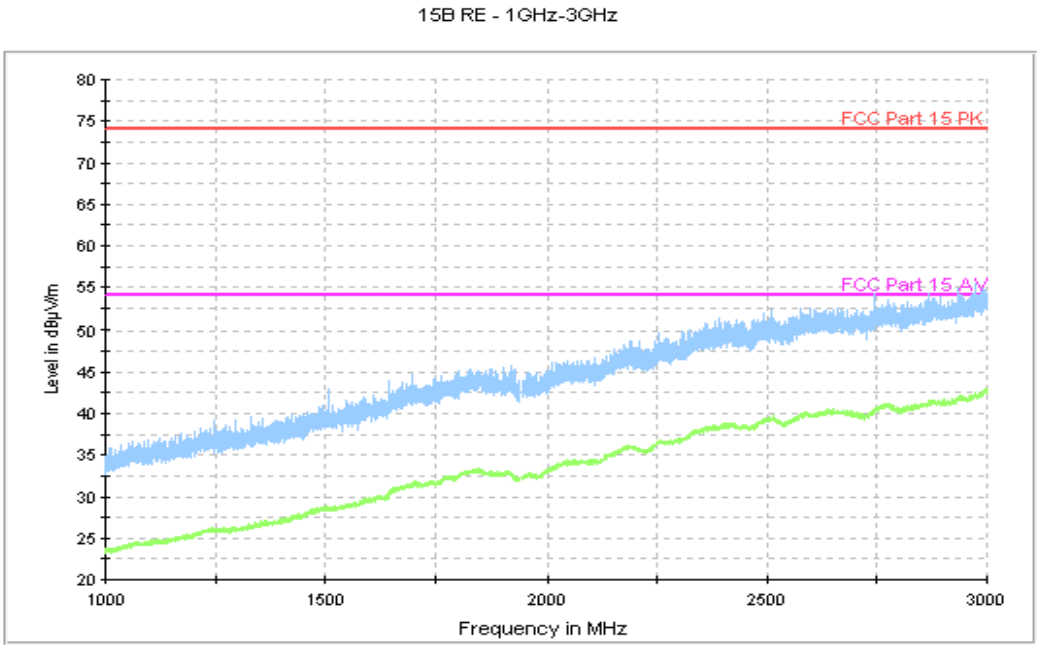


Figure A.5 Radiated Emission from 1GHz to 3GHz

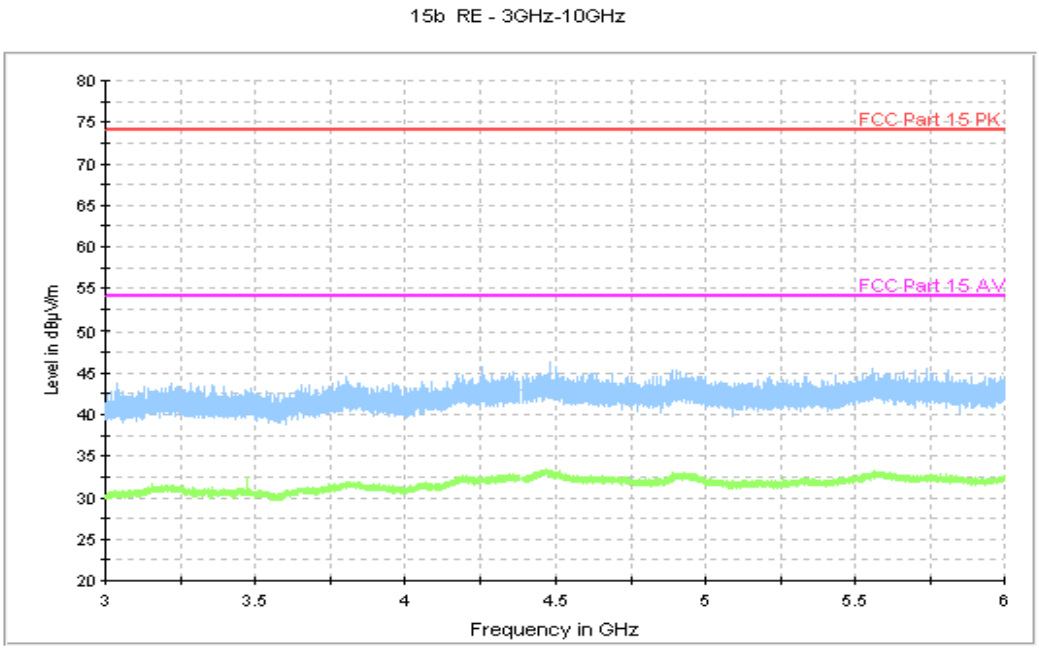


Figure A.6 Radiated Emission from 3GHz to 6GHz

USB Mode, Set.6

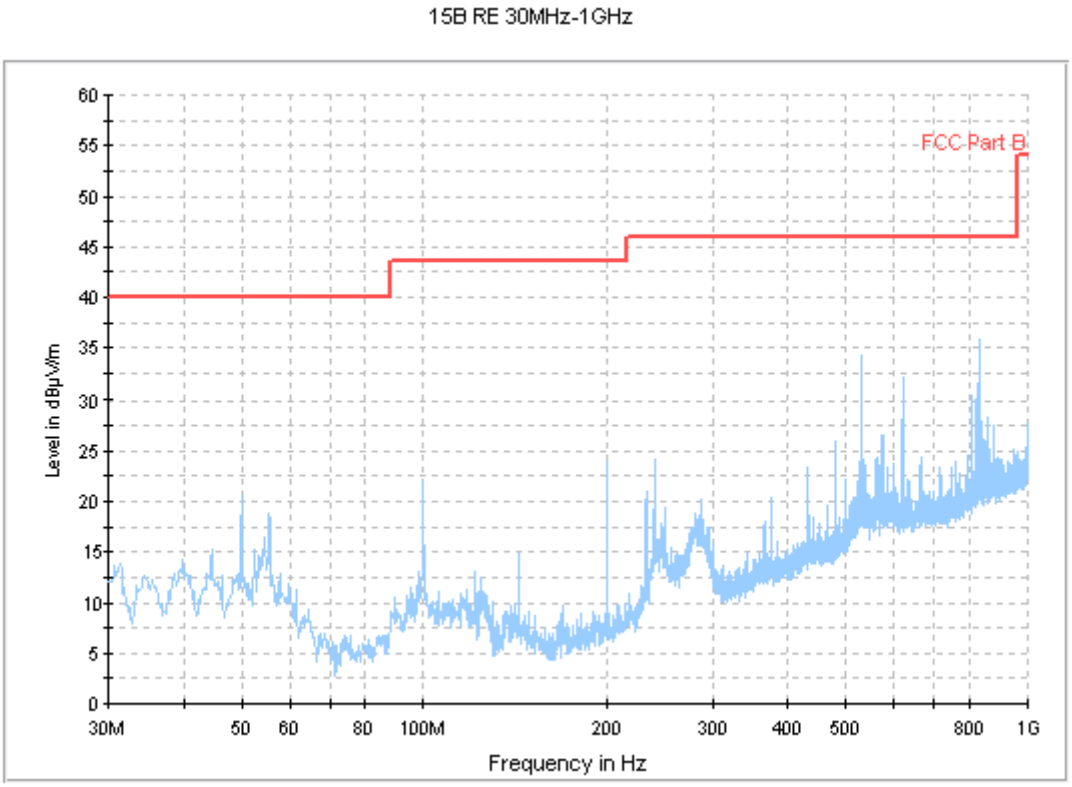


Figure A.7 Radiated Emission from 30MHz to 1GHz

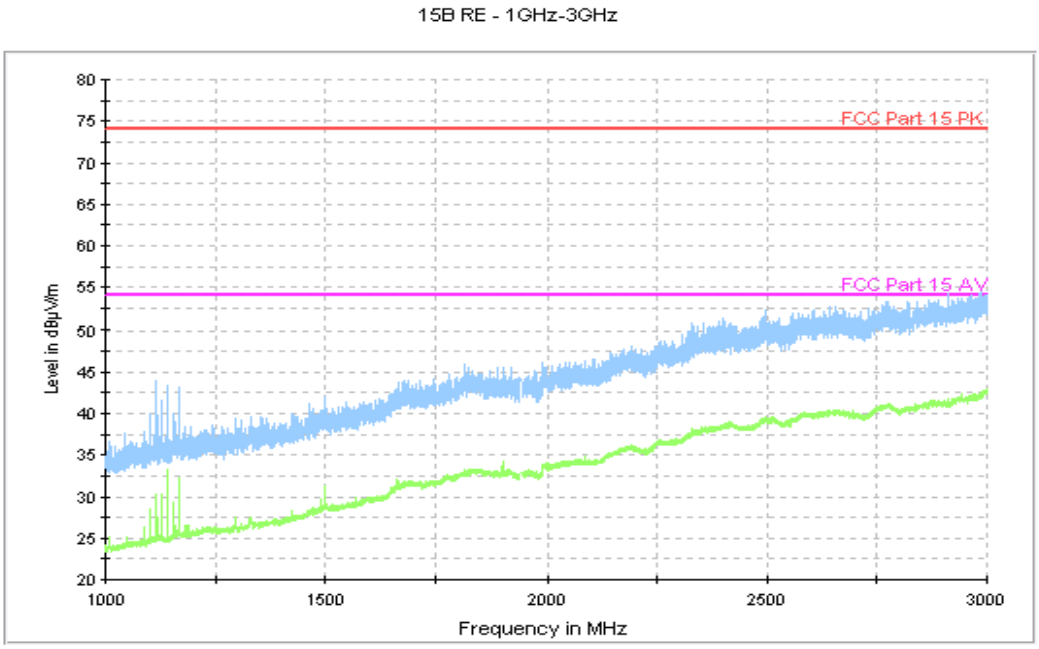


Figure A.8 Radiated Emission from 1GHz to 3GHz

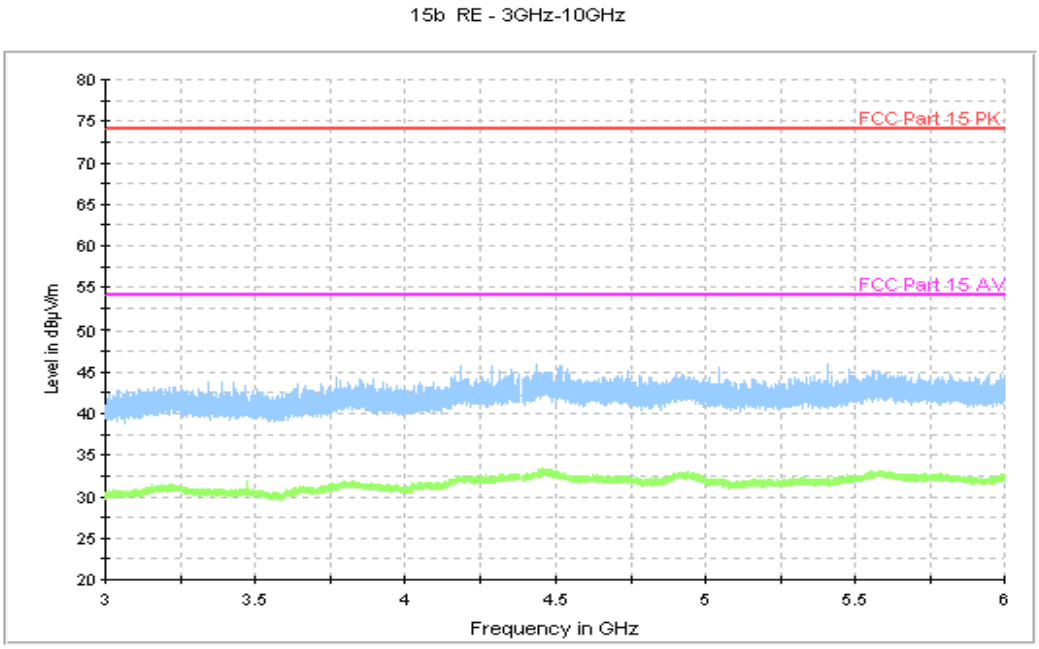


Figure A.9 Radiated Emission from 3GHz to 6GHz

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.4

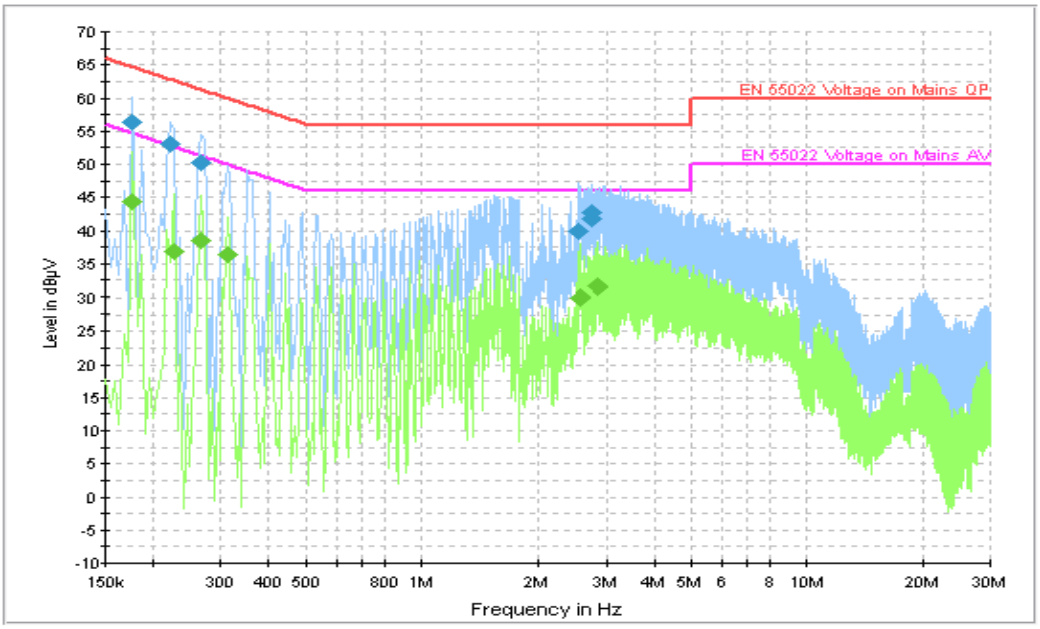


Figure A.10 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177001	56.3	GND	L1	9.9	8.3	64.6
0.222001	53.0	GND	L1	9.9	9.7	62.7
0.267001	50.2	GND	L1	9.9	11.1	61.2
2.526001	39.9	GND	N	9.9	16.1	56.0
2.733001	41.8	GND	N	9.9	14.2	56.0
2.760001	42.8	GND	N	9.9	13.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177001	44.3	GND	L1	9.9	10.4	54.6
0.226501	36.8	GND	N	9.9	15.8	52.6
0.267001	38.5	GND	N	9.9	12.7	51.2
0.312001	36.4	GND	L1	9.9	13.5	49.9
2.575501	30.1	GND	N	9.9	15.9	46.0
2.841001	31.6	GND	N	9.9	14.4	46.0

Charging Mode, Set.5

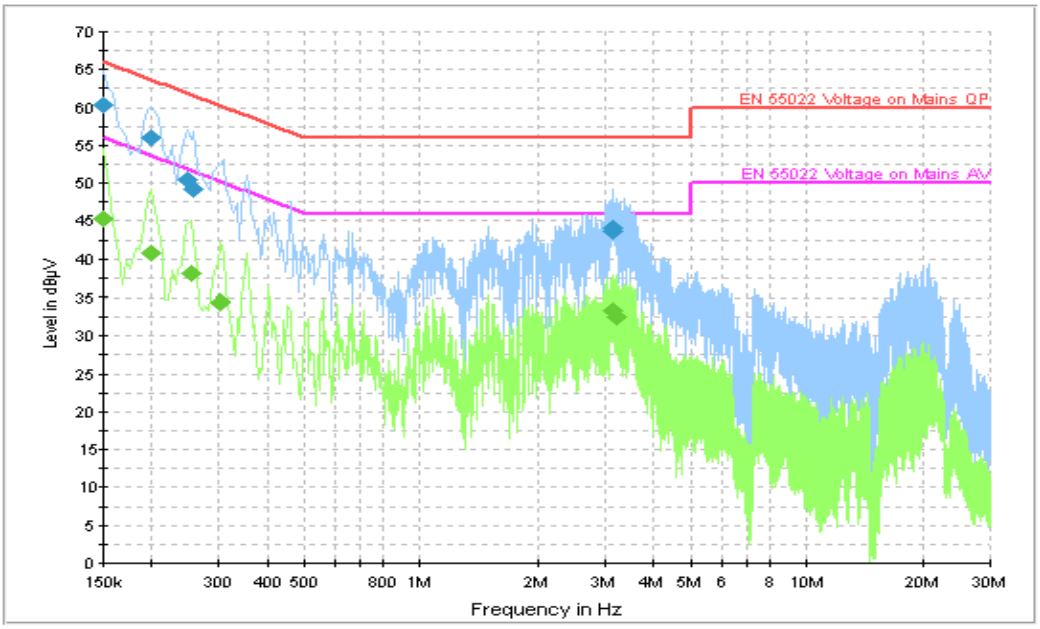


Figure A.11 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150001	60.3	GND	L1	9.9	5.7	66.0
0.199501	55.9	GND	L1	9.9	7.7	63.6
0.249001	50.4	GND	L1	9.9	11.4	61.8
0.258001	49.2	GND	L1	9.9	12.3	61.5
3.129001	43.7	GND	N	9.9	12.3	56.0
3.142501	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)
0.150001	45.2	GND	L1	9.9	10.8	56.0
0.199501	40.8	GND	L1	9.9	12.8	53.6
0.253501	38.1	GND	N	9.9	13.6	51.6
0.303001	34.3	GND	N	9.9	15.8	50.2
3.142501	33.4	GND	N	9.9	12.6	46.0
3.205501	32.6	GND	N	9.9	13.4	46.0

USB Mode, Set.6

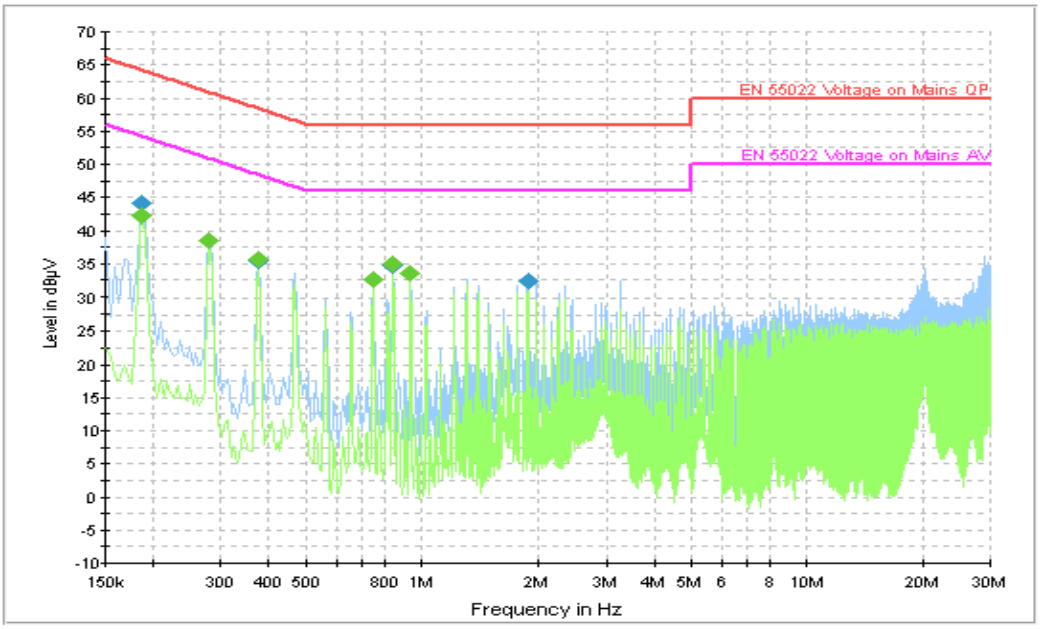


Figure A.12 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	44.0	GND	N	9.9	20.2	64.2
0.280501	38.5	GND	L1	9.9	22.3	60.8
0.375001	35.4	GND	L1	9.9	22.9	58.4
0.843001	34.7	GND	L1	9.9	21.3	56.0
0.937501	33.5	GND	L1	9.9	22.5	56.0
1.873501	32.3	GND	N	9.9	23.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186001	42.2	GND	N	9.9	12.0	54.2
0.280501	38.5	GND	L1	9.9	12.3	50.8
0.375001	35.7	GND	L1	9.9	12.7	48.4
0.748501	32.5	GND	L1	9.9	13.5	46.0
0.843001	35.0	GND	L1	9.9	11.0	46.0
0.937501	33.5	GND	L1	9.9	12.5	46.0

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