TEST REPORT

No. 2013TAR370

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone

Model Name: Diablo HD AWS

Marketing Name：ONE TOUCH 6033Q

FCC ID : RAD372

with

Hardware Version: Proto04

Software Version: vAAR-AWS

Issued Date: 2013-05-17

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:

DAkks accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-12123/01-01

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)10-62304633-2561 , Fax:+86(0)10-62304633-2504 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:	0086-10-62304633-2561
Fax:	0086-10-62304633-2504

1.2. Testing Environment

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

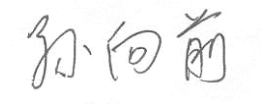
1.3. Project data

Testing Start Date:	Mar. 22nd, 2013
Testing End Date:	Mar. 29th, 2013

1.4. Signature

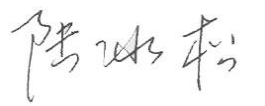
Qu Pengfei

(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 Limite
Address /Post:	5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0086-21-6146089
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. 201203
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0086-21-6146089
Fax:	0086-21-61460602

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone
Model Name	Diablo HD AWS
Marketing Name	ONE TOUCH 6033Q
FCC ID	RAD372
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.7VDC)

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	013696001601887	Proto04	vAAR-AWS

*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	Travel charger	/
AE3	USB cable	/
AE4	USB cable	/

AE1

Model	CAC1800001C3
Manufacturer	SCUD
Capacitance	1800mAh
Nominal voltage	3.8V

AE2

Model	CBA0003AG0C1
Manufacturer	BYD
Length of cable	\

AE3

Model	CDA0000025C1
Manufacturer	Shenghua
Length of cable	100cm

AE4

Model	CDA0000025C2
Manufacturer	Juwei
Length of cable	100cm

*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 + AE3	USB Mode
Set.2	EUT1+ AE1 + AE2+AE3	Charger

Note: The HSUPA/HSDPA/UMTS dualband / GSM quadband mobile phone One touch 6033Q manufactured by TCT Mobile Limited is a variant model based on One Touch 6033A for conformance test. According to the declaration of changes, No tests need to be performed. All results are coming from the initial model. The initial model report No. is 2013TAR245.

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	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
ICES-003	Information Technology Equipment (ITE) – Limits and methods of measurement	Issue 5

5. LABORATORY ENVIRONMENT

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

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 80 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω

Semi-anechoic chamber SAC-2 (10 meters×6.7meters×6.1meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3 m distance, from 30 to 1000 MHz
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. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

6. SUMMARY OF TEST RESULTS

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

No.	List	FCC rules	Verdict
1	Radiated Emission	15.109(a)	P
2	Conducted Emission	15.107(a)	P

No.	List	IC rules	Verdict
3	Radiated Emission	Section 5	P
4	Conducted Emission	Section 5	P

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	LISN	ESH2-Z5	829991/012	R&S	2014-04-14
2	Test Receiver	ESCI	100344	R&S	2014-03-28
3	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
4	Test Receiver	ESU26	100376	R&S	2013-11-07
5	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
6	Universal Radio Communication Tester	CMU200	100680	R&S	2013-09-05
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2014-03-16

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.

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
960-4000	500

A.1.4 Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz IF Bandwidth	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.

Charging Mode Set.2

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	PMea(dBuV)	Polarity
2999.800	42.4	-29.0	33.8	37.579	VERTICAL
3000.000	42.4	-28.4	34.1	36.672	VERTICAL
2997.200	42.3	-29.0	33.8	37.479	VERTICAL
2999.600	42.3	-29.0	33.8	37.479	VERTICAL
2998.200	42.3	-29.0	33.8	37.479	HORIZONTAL
2996.400	42.3	-29.0	33.8	37.479	VERTICAL

USB Mode Set.1

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	PMea(dBuV)	Polarity
3000.000	43.6	-28.4	34.1	37.872	HORIZONTAL
2999.800	43.2	-29.0	33.8	38.379	HORIZONTAL
2999.600	42.8	-29.0	33.8	37.979	HORIZONTAL
2999.400	42.5	-29.0	33.8	37.679	HORIZONTAL
2999.200	42.4	-29.0	33.8	37.579	VERTICAL
2994.800	42.3	-29.0	33.8	37.479	HORIZONTAL

Charging Mode Set.2

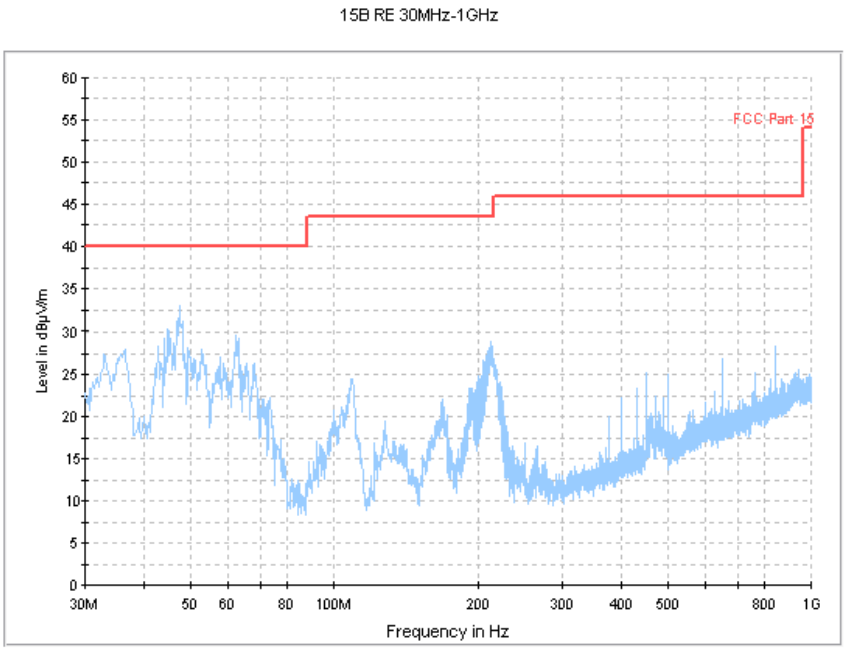


Figure A.1 Radiated Emission from 30MHz to 1GHz

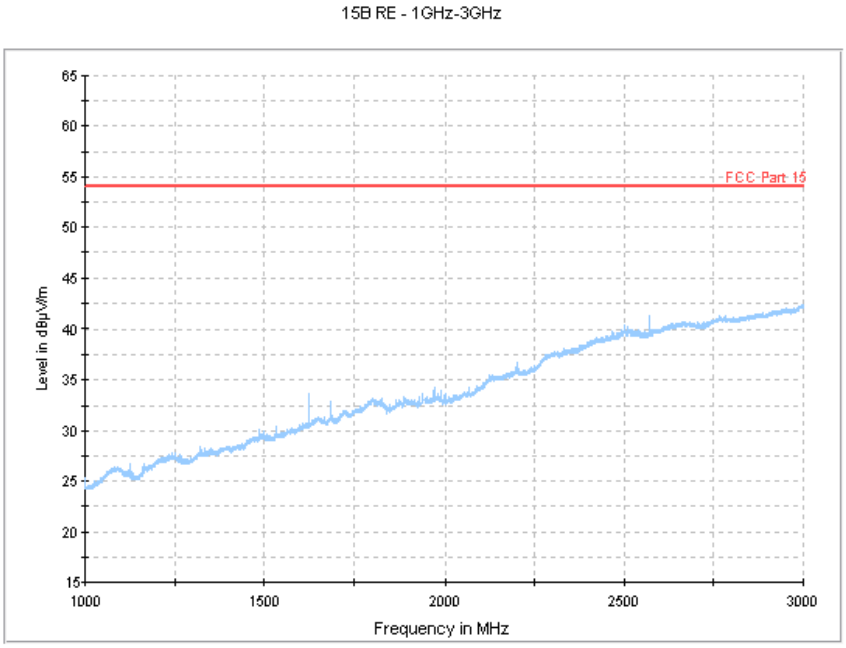


Figure A.2 Radiated Emission from 1GHz to 3GHz

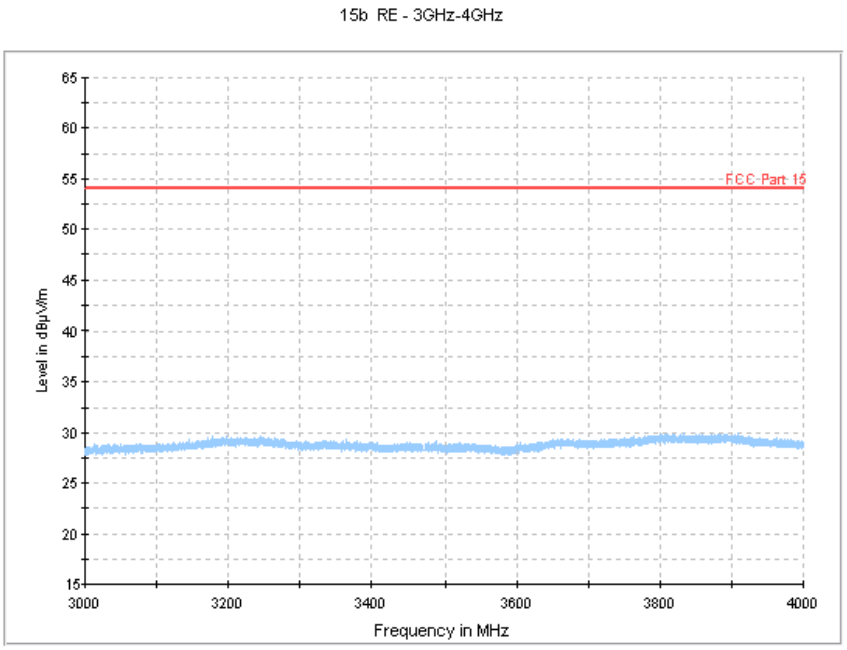


Figure A.3 Radiated Emission from 3GHz to 4GHz

USB Mode Set.1

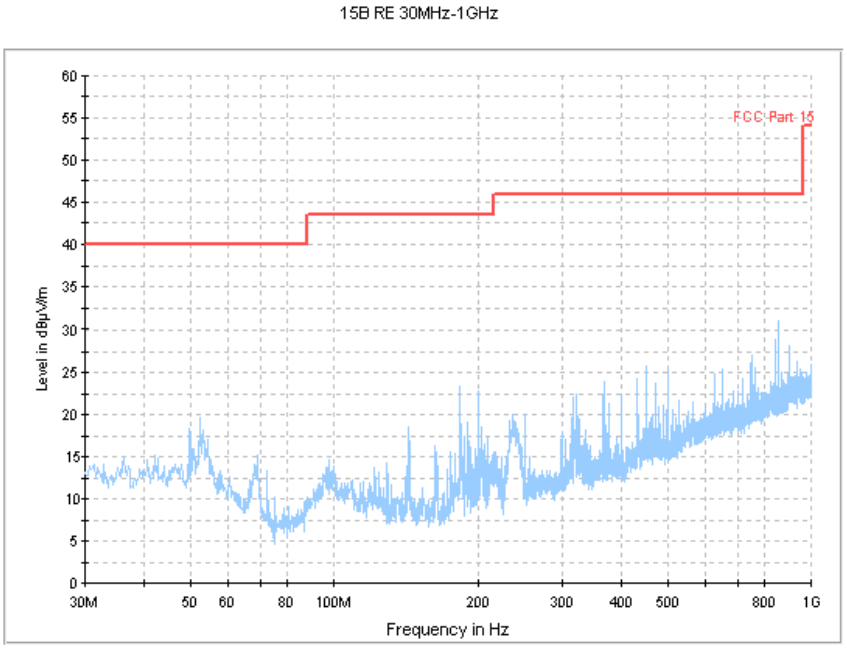


Figure A.4 Radiated Emission from 30MHz to 1GHz

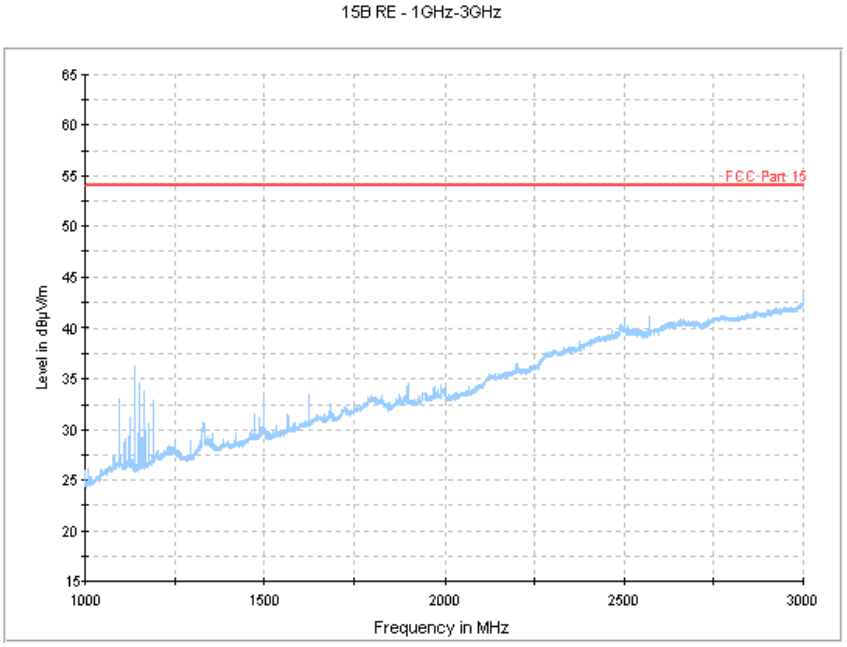


Figure A.5 Radiated Emission from 1GHz to 3GHz

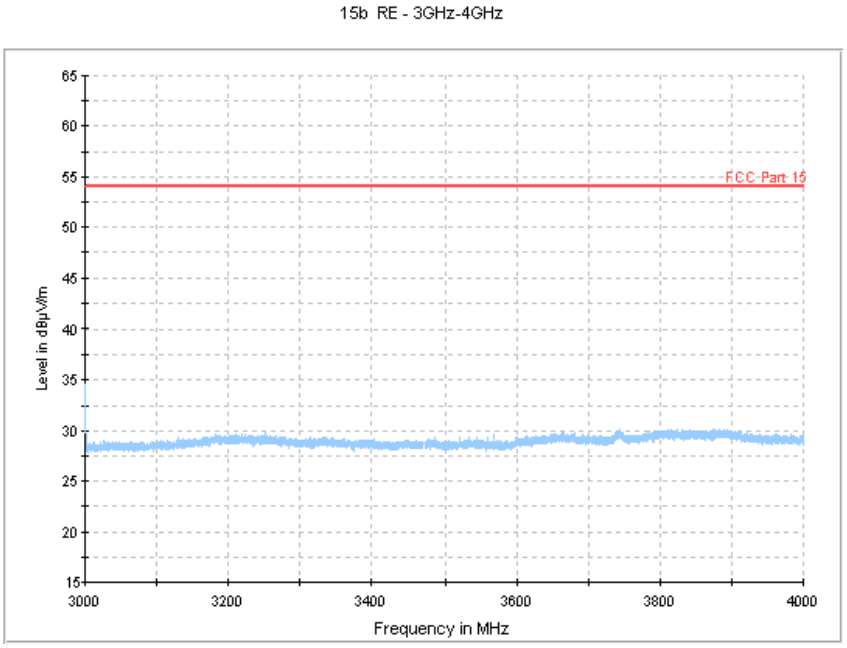


Figure A.6 Radiated Emission from 3GHz to 4GHz

A.2 Radiated Emission (IC: ICES-003 Section 5)

A.2.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and/or charging mode of MS) at a distance of 3 meters is tested. The test is in accordance with the procedures of CAN/CSA-CISPR 22-10.

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

Limit from CAN/CSA-CISPR 22-10

Frequency range (MHz)	Field strength limits* (dBμV/m)
30 to 230	40
230 to 1000	47

*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
1000 to 3000	50	70
3000 to 6000	54	74

A.2.4 Measurement Results

Charging Mode Set.2

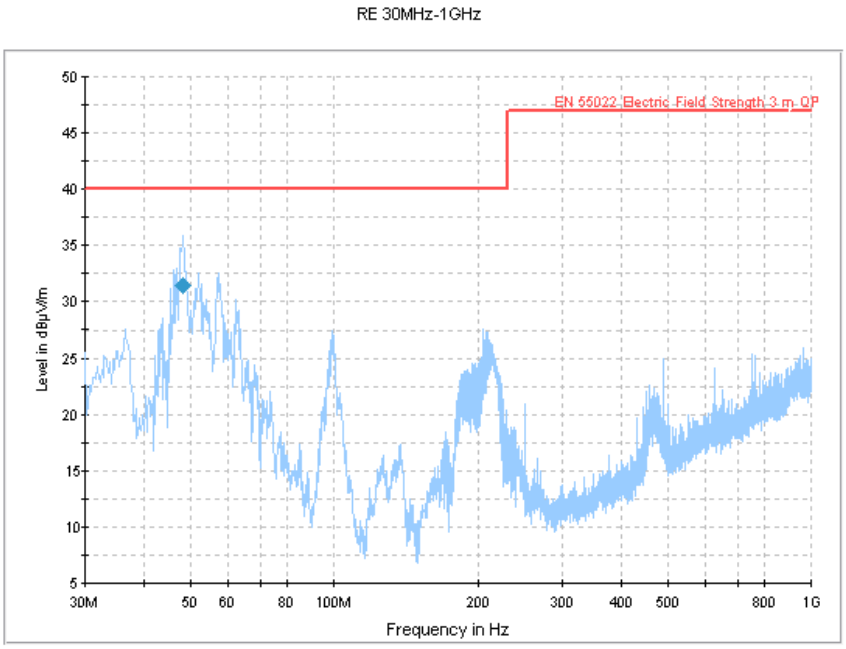


Figure B.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
48.236000	31.3	100.0	V	45.0	-24.1	8.7

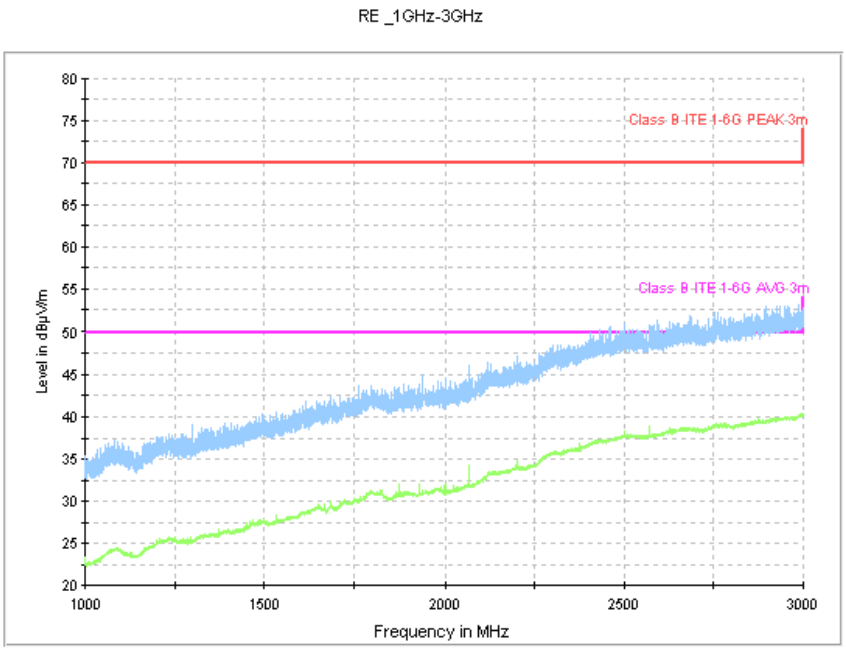


Figure B.8 Radiated Emission from 1GHz to 3GHz

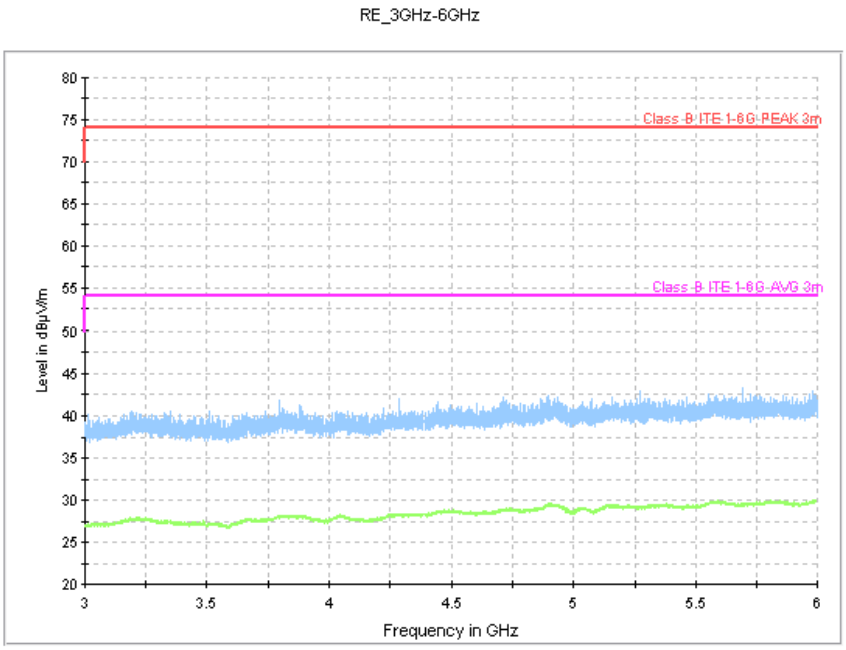


Figure B.9 Radiated Emission from 3GHz to 6GHz

USB Mode Set.1

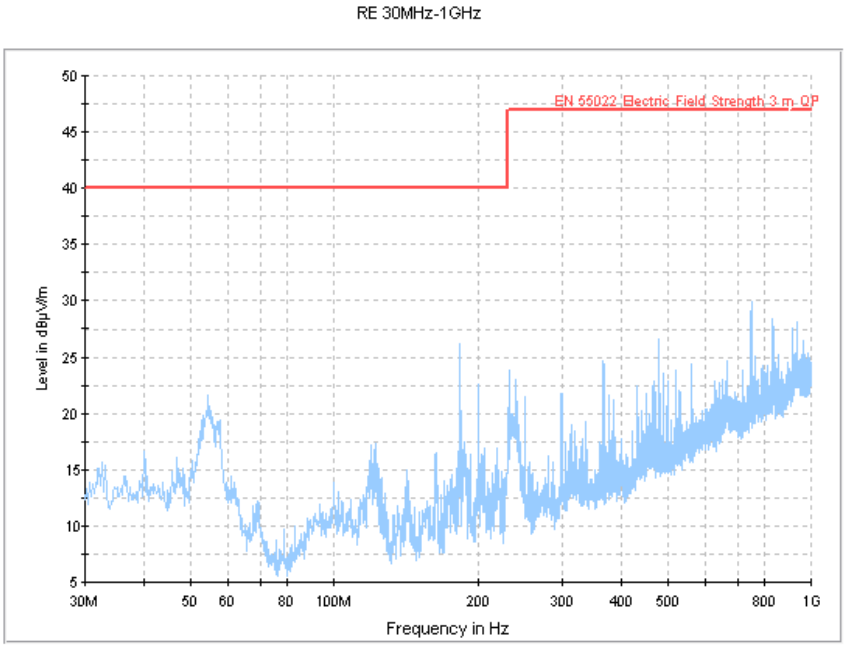


Figure B.10 Radiated Emission from 30MHz to 1GHz

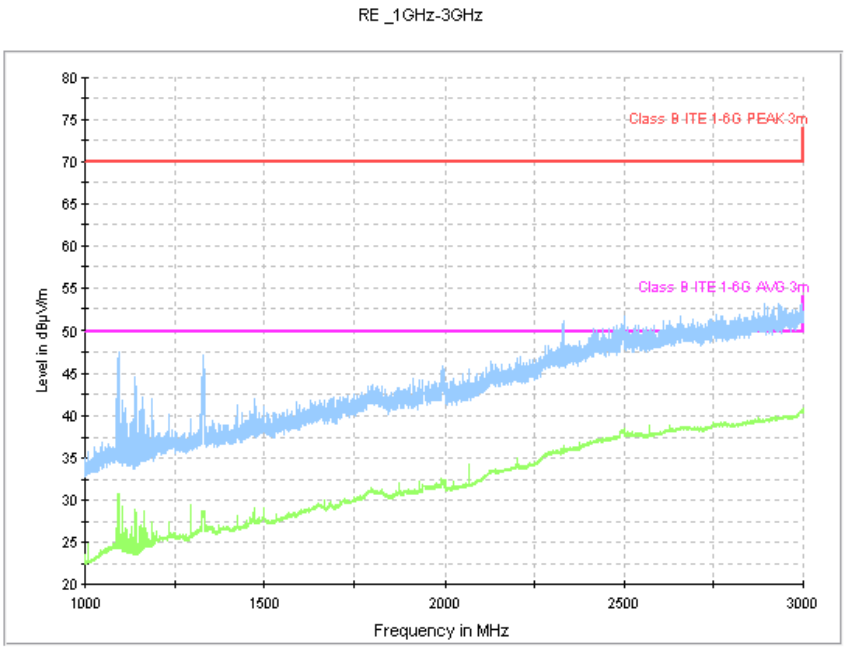


Figure B.11 Radiated Emission from 1GHz to 3GHz

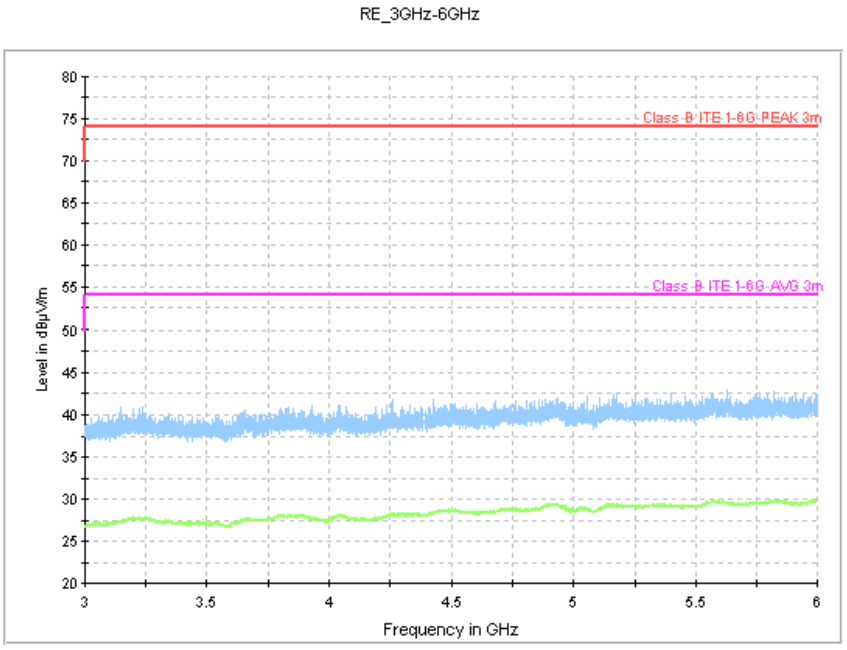


Figure B.12 Radiated Emission from 3GHz to 6GHz

A.3 Conducted Emission (§15.107(a)/ IC: ICES-003 Section 5)

A.3.1 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 and CAN/CSA-CISPR 22-10.

A.3.2 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.3.3 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.3.4 Test Condition in charging mode

Voltage（V）	Frequency（Hz）
120	60

RBW	Sweep Time(s)
9kHz	1

A.3.5 Measurement Results

Charging Mode Set.2

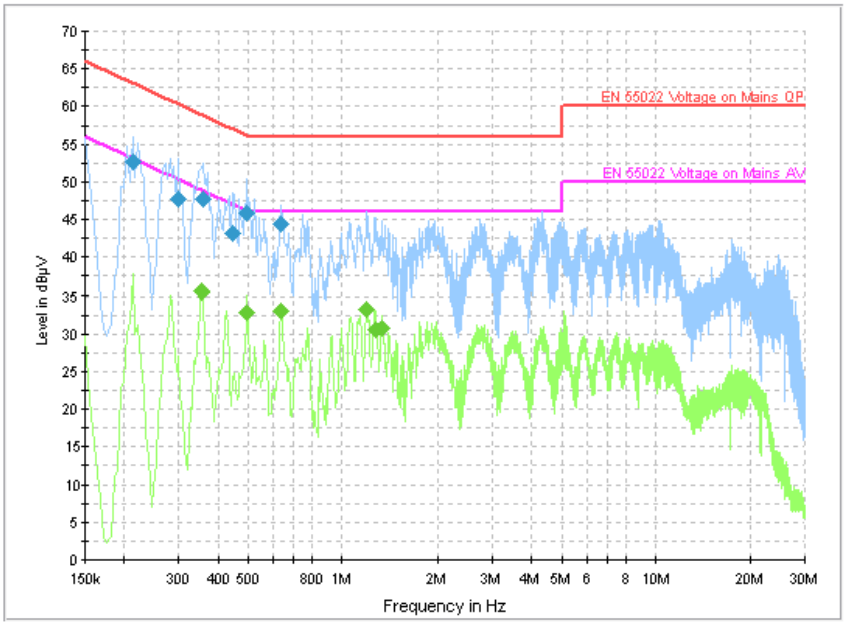


Figure A.13 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.213000	52.6	GND	L1	10.0	10.4	63.1
0.298500	47.7	GND	L1	10.0	12.6	60.3
0.357000	47.6	GND	L1	10.0	11.2	58.8
0.447000	43.1	GND	L1	10.0	13.8	56.9
0.496500	45.8	GND	L1	10.0	10.3	56.1
0.636000	44.3	GND	L1	10.0	11.7	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.352500	35.5	GND	N	10.0	13.4	48.9
0.496500	32.8	GND	L1	10.0	13.3	46.1
0.636000	33.0	GND	L1	10.0	13.0	46.0
1.198500	33.3	GND	L1	10.0	12.7	46.0
1.275000	30.6	GND	L1	10.0	15.4	46.0
1.347000	30.8	GND	L1	10.0	15.2	46.0

USB mode Set.1

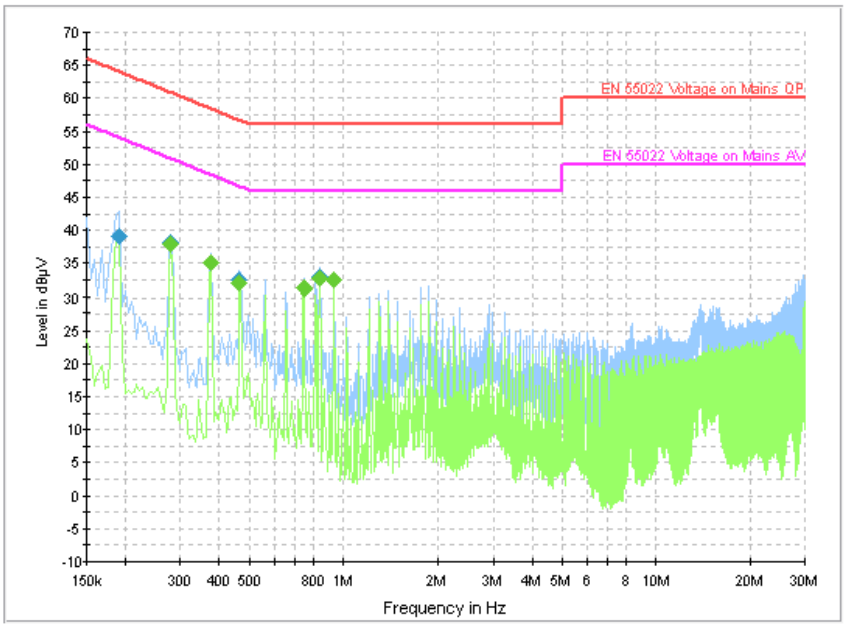


Figure A.14 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190500	39.1	GND	L1	10.0	25.0	64.0
0.280500	38.1	GND	N	10.0	22.7	60.8
0.375000	35.1	GND	N	10.0	23.3	58.4
0.465000	32.4	GND	N	10.0	24.2	56.6
0.838500	32.9	GND	N	10.0	23.1	56.0
0.933000	32.4	GND	N	10.0	23.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.280500	37.9	GND	N	10.0	12.9	50.8
0.375000	35.1	GND	N	10.0	13.3	48.4
0.465000	32.0	GND	N	10.0	14.6	46.6
0.748500	31.3	GND	N	10.0	14.7	46.0
0.838500	32.8	GND	N	10.0	13.2	46.0
0.933000	32.5	GND	N	10.0	13.5	46.0

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