TEST REPORT

No. 2012TAR348

for

Sony Mobile Communications AB

GSM 850/900/1800/1900 quad bands and UMTS FDD 1/2/4/5/8 mobile phone

Type: PM-0200-BV

FCC ID: PY7PM-0200

IC No.: 4170B-PM0200

with

Hardware Version: A

Software Version: 6.1.E.0.35

Issued Date: Jul. 05th, 2012

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.

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CONTENTS

1. Test Laboratory

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No 52, Huayuan Bei Road, Haidian District, Beijing, P.R. China
Postal Code:	100191
Telephone:	+86-10-62304633-2678
Fax:	+86-10-62304633-2504

1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	20-75%
Air pressure:	980 - 1040 hPa

The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

1.3. Project data

Receipt of Sample:	May 14th, 2012
Testing Start Date:	Jul. 04th, 2012
Testing End Date:	Jul. 04th, 2012

1.4. Signature

Qu Pengfei
(Prepared this test report)

Sun Xiangqian
(Reviewed this test report)

Song Chongwen
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Sony Mobile Communications (China) Co. Ltd
Address /Post:	Sony Mobile R&D Center, No. 16, Guangshun South Street, Chaoyang District
City:	Beijing
Postal Code:	100102
Country:	China
Contact Person:	Ma, Gang
Telephone:	+86-10-58656312
Fax:	+86-10-58659049

2.2. Manufacturer Information

Company Name:	Sony Mobile Communications AB
Address /Post:	Nya Vattentornet, 22188 Lund, Sweden
City:	Lund
Postal Code:	22188
Country:	Sweden
Contact Person:	Nordlof, Anders
Telephone:	+46-10-802 3919
Fax:	+46-10-800 2441

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

3.1. About EUT

Description	GSM 850/900/1800/1900, GPRS, EDGE, WCDMA FDD Band 1/2/4/5/8, BT EDR2.0, WLAN (802.11 b/g/n), FM, GPS receiver mobile phone
Type	PM-0200-BV
FCC ID	PY7PM-0200
IC No	4170B-PM0200
Frequency range	GSM 850: 824.2 MHz - 848.8 MHz PCS 1900: 1850.2 MHz -1909.8 MHz WCDMA FDD Band 2:1850 MHz -1910 MHz WCDMA FDD Band 4:1710 MHz -1755 MHz WCDMA FDD Band 5:824 MHz - 849 MHz
Antenna	Internal
Power supply	Battery or charger (travel adapter / vehicle adapter)
Output power	32.67 dBm maximum ERP measured for GSM850 32.90 dBm maximum EIRP measured for PCS1900 28.66 dBm maximum EIRP measured for WCDMA FDD Band 2 28.49 dBm maximum EIRP measured for WCDMA FDD Band 4 26.83 dBm maximum ERP measured for WCDMA FDD Band 5
Extreme vol. Limits	3.5VDC to 4.1VDC (nominal: 3.7VDC)
Extreme temp. Tolerance	-30°C to +50°C

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	IMEI	HW Version	SW Version
N01	CB5A1K245R	004402145746859	A	6.1.E.0.35

*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	Revision
AE2	USB Cable	120812AD128862E	1

AE2

Commercial name	EC480
Manufacturer	Sony Mobile
Length of cable	78 cm

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

3.4. General Description

The Equipment Under Test (EUT) is a model of GSM 850/900/1800/1900 quad bands and UMTS FDD 1/2/4/5/8 mobile phone with integrated antenna and inbuilt Li-Polymer battery.
The EUT supports GSM 850/900/1800/1900MHz bands and WCDMA FDD bands 1/2/4/5/8. It also supports GPRS service with multi-slots class 10 and EGPRS service with multi-slots class 10 too. The HSDPA and HSUPA features are also supported.
It has MP3, camera, FM radio, USB memory, GPS receiver, NFC, Bluetooth (EDR), ANT+, WLAN (802.11 b/g/n) and Wi-Fi hotspot functions.
It consists of normal option: USB cable.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the client.

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	10-1-10 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	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard Digital Apparatus	Issue 4

5. LABORATORY ENVIRONMENT

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

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

Fully-anechoic chamber 2 (8.6 meters×6.1 meters×3.85 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1 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 4000 MHz

Semi-anechoic chamber 2 / Fully-anechoic chamber 3 (10 meters×6.7 meters×6.15 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
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
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

6. SUMMARY OF TEST RESULTS

6.1. Summary of test results

Abbreviations used in this clause:

P	Pass
NA	Not applicable
F	Fail

Items	Test Name	Clause in FCC rules	Clause in IC rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)	Section 5.5	B.1	P
2	Conducted Emission	15.107(a)	Section 5.3	B.2	P

6.2. Statements

The test cases listed in section 6.1 of this report for the EUT specified in section 3 were performed by TMC according to the standards or reference documents in section 4.1

The EUT met all applicable requirements of the standards or reference documents in section 4.1.

This report only deals with the USB memory function among the features described in section 3.

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESU26	100376	R&S	2012-11-08
2	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
3	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
4	LISN	ESH2-Z5	829991/012	R&S	2013-04-16
5	Test Receiver	ESCI	100344	R&S	2013-03-28
6	PC	OPTIPLEX 755	3908243625	DELL	N/A
7	Monitor	E178FPc	CN-OWR979-64180-7AJ-D2MS	DELL	N/A
8	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
9	Keyboard	L100	CN0RH659658907ATOI40	DELL	N/A
10	Mouse	M-BZ96C	810-000207	Logitech	N/A

ANNEX A: EUT photograph

Mobile Phone

Mobile Phone

Mobile Phone

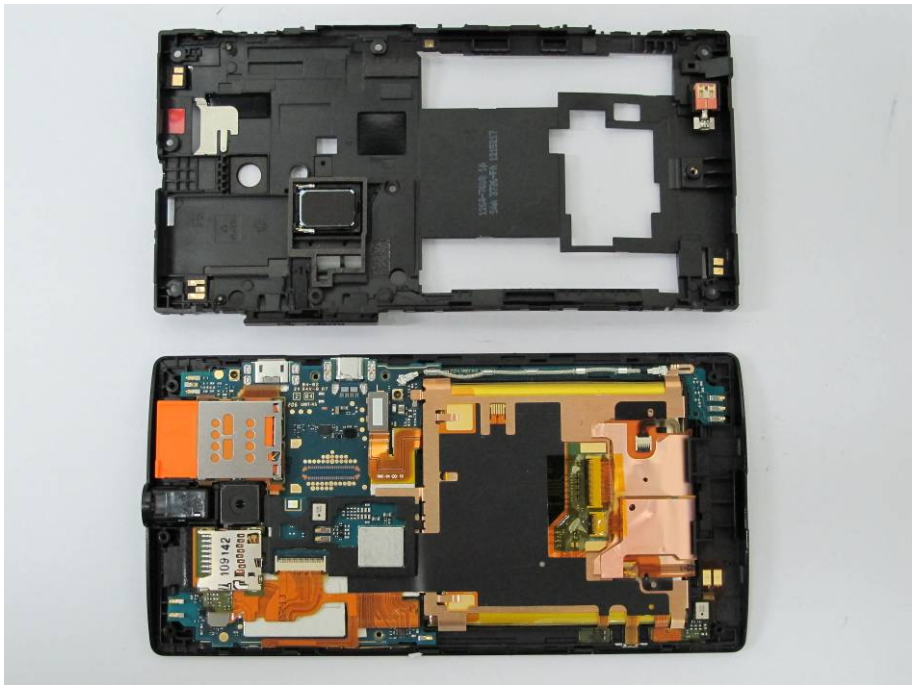
Mobile Phone

Mobile Phone

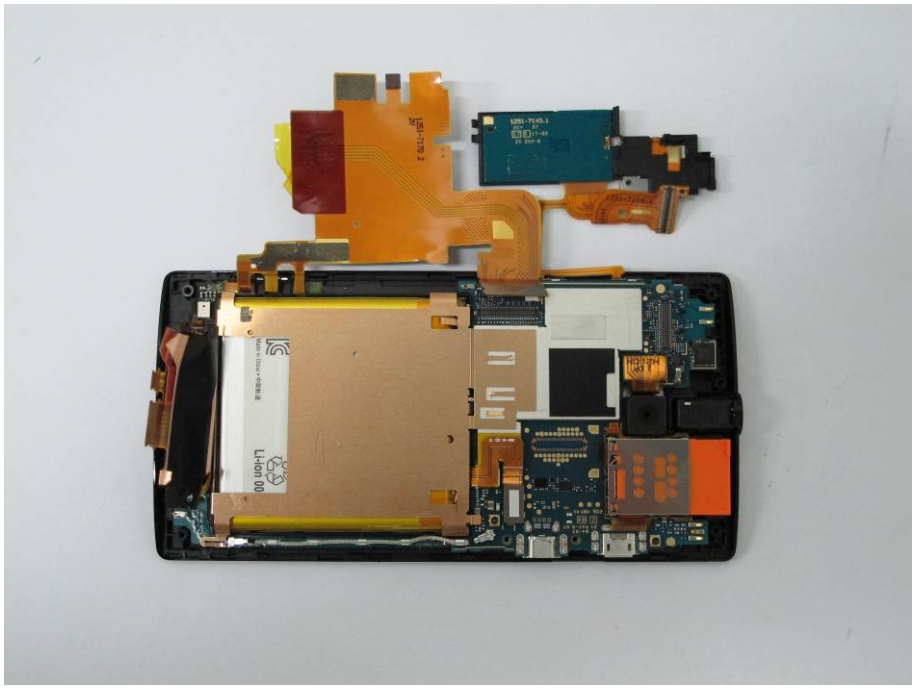
Mobile Phone

Label of Mobile Phone

Mobile Phone Disassembly

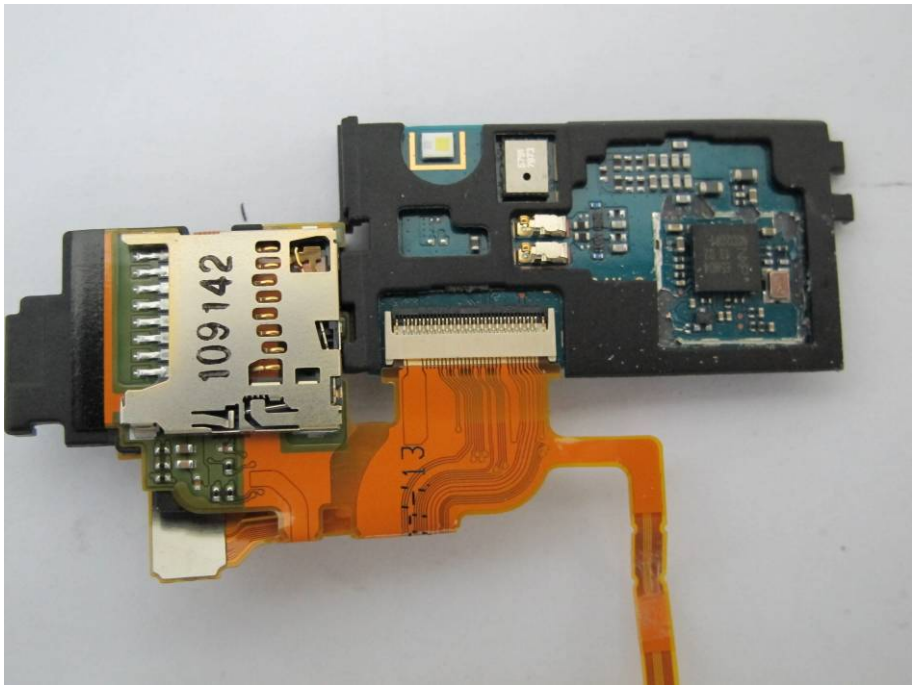


Mobile Phone Disassembly



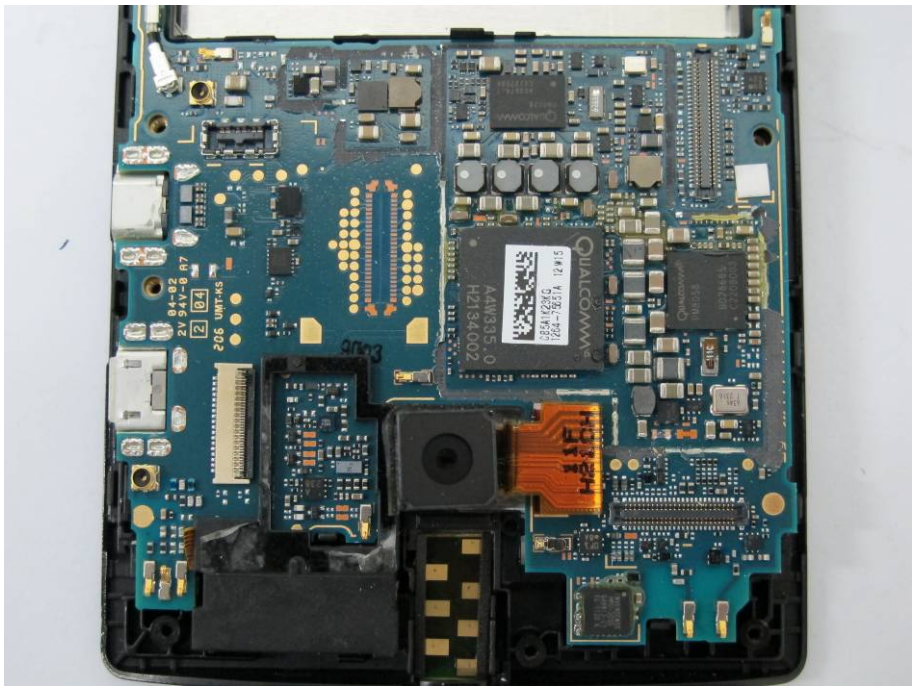
Mobile Phone Disassembly

Mobile Phone Disassembly



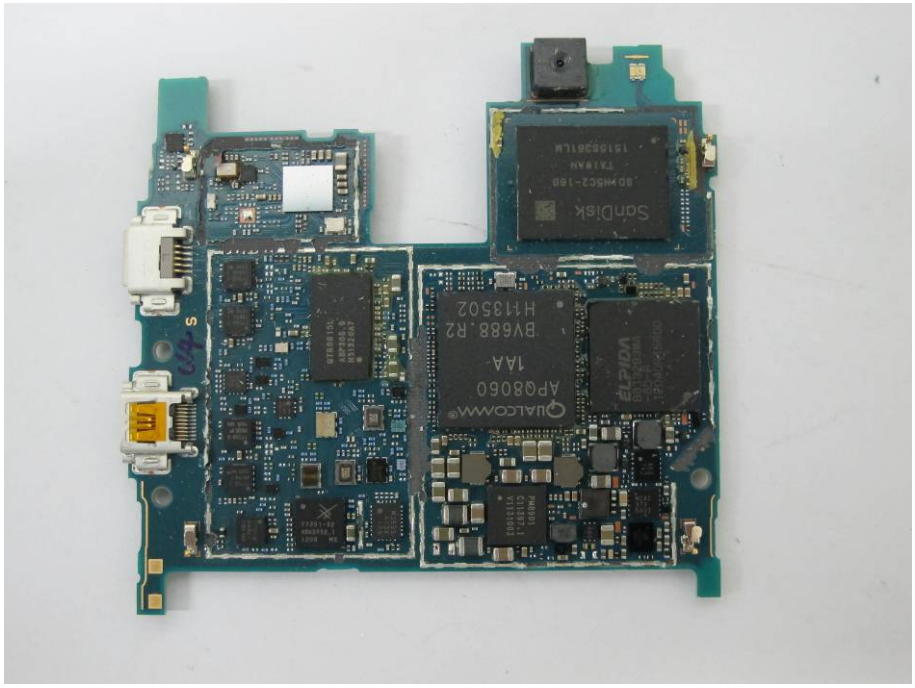
Mobile Phone Disassembly

Mobile Phone Disassembly

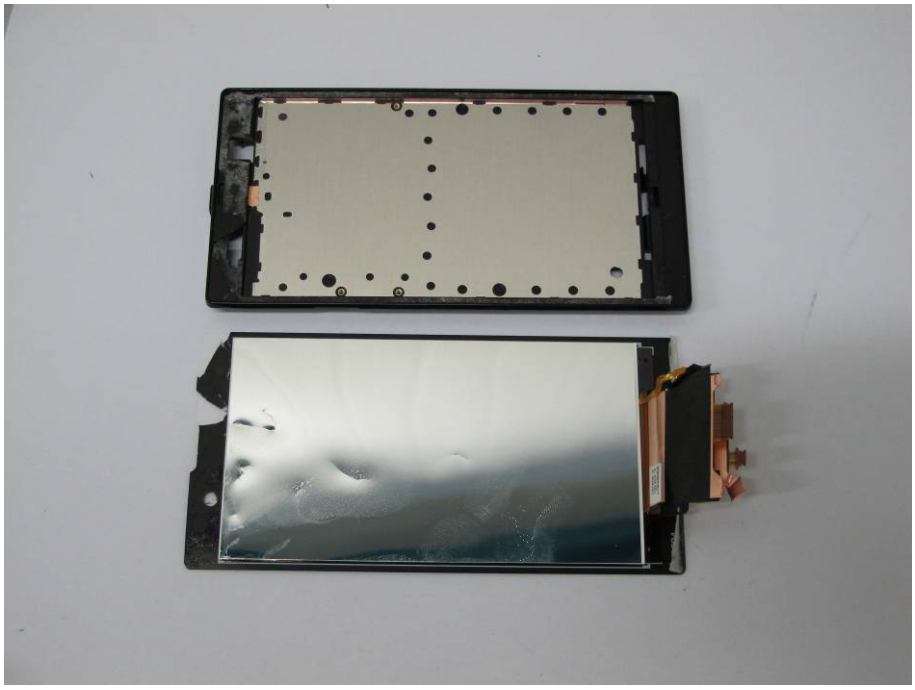


Mobile Phone Disassembly

Mobile Phone Disassembly



Mobile Phone Disassembly



Mobile Phone Disassembly

Inbuilt Li-Polymer Battery

USB Cable

ANNEX B: MEASUREMENT RESULTS

B.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a)

IC: ICES-003 Section 5.5.

B.1.1 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. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 8.3.

B.1.2 EUT Operating Mode:

EUT Setup: N01 + AE2

The MS is operating under the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is OPTIPLEX 755, and the serial number of the PC is 3908243625. A software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

B.1.3 Test layout: see Pic.1 in ANNEX C.

B.1.4 Measurement Limit

Limit from CFR Part 15.109(a)

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

Limit from ICES-003 Section 5.5

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.

B.1.5 Measurement Results

USB Mode

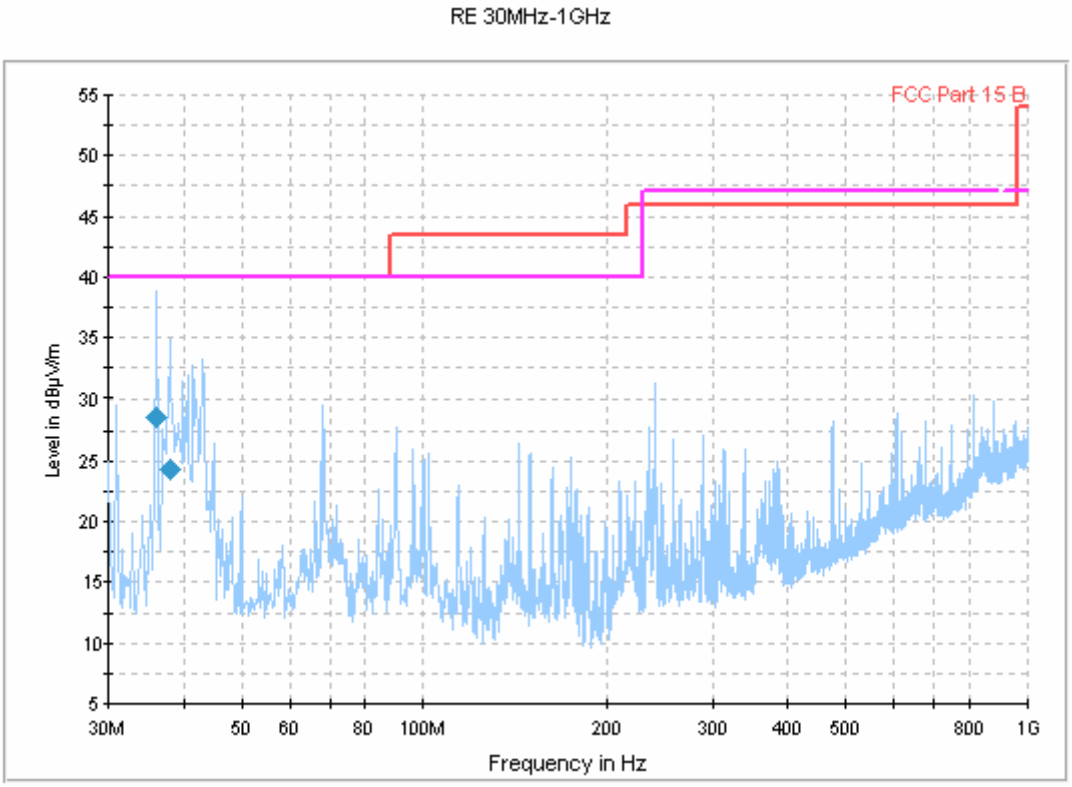


Figure B.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
36.014000	28.7	100.0	V	262.0	-27.0	11.3
37.954000	24.4	100.0	V	229.0	-26.5	15.6

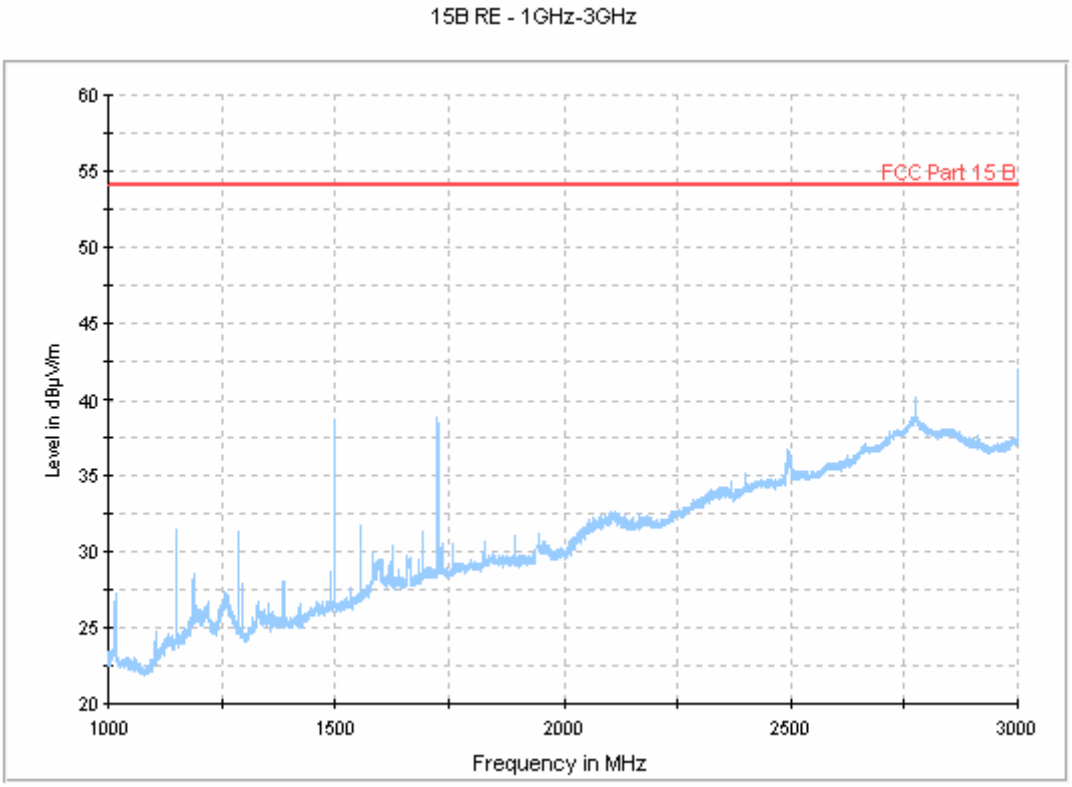


Figure B.2 Radiated Emission from 1GHz to 3GHz

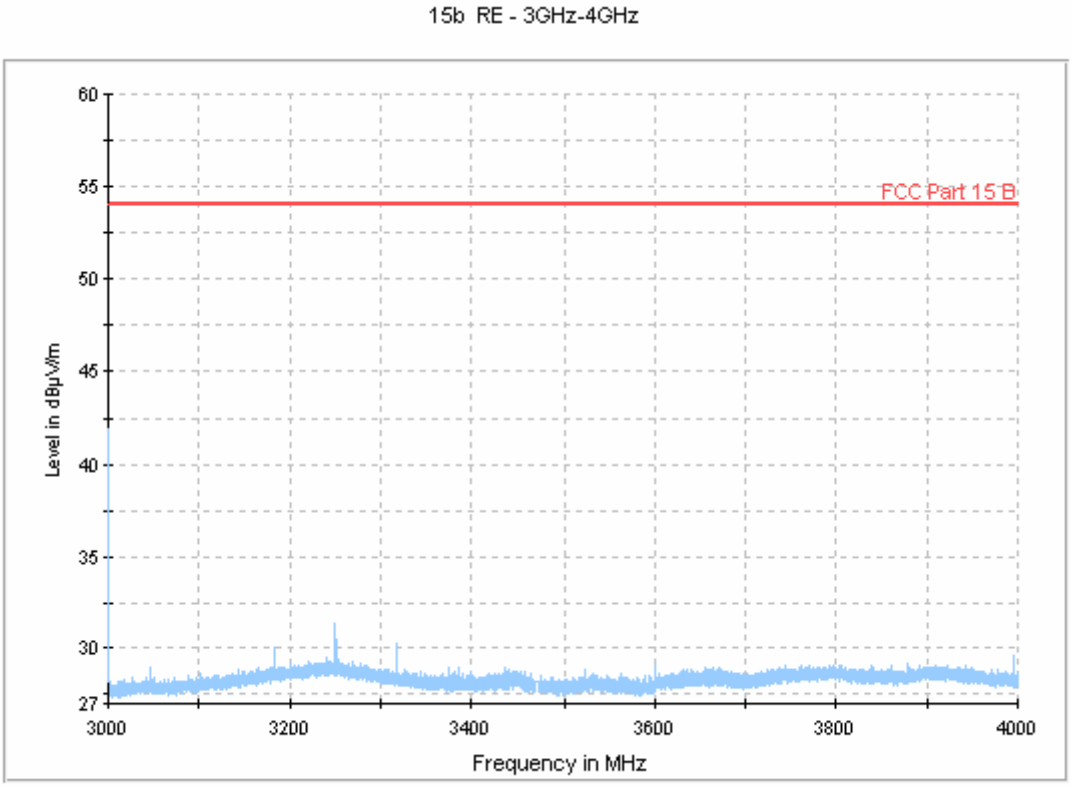


Figure B.3 Radiated Emission from 3GHz to 4GHz

B.2 Conducted Emission

Reference

FCC: CFR Part 15.107(a)

IC: ICES-003 Section 5.3.

B.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 30MHz shall not exceed the limits. Test is performed in accordance with the procedures of ANSI C63.4-2003, section 7.2.

B.2.2 EUT Operating Mode:

EUT Setup: N01 + AE2

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode. The model of the PC is OPTIPLEX 755, and the serial number of the PC is 3908243625. A software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

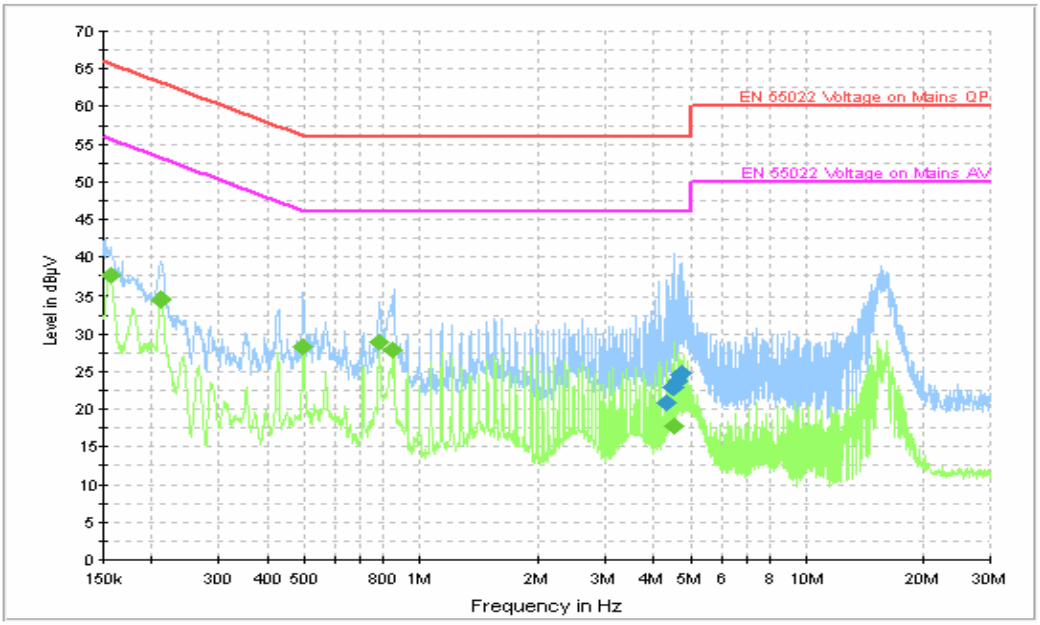
B.2.3 Test layout: see Pic.2 in ANNEX C.

B.2.4 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		

B.2.5 Measurement Results

USB Mode



IF bandwidth 9 kHz

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Fig B.4 Conducted Continuous Emission from 150 kHz to 30 MHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.322531	20.9	GND	N	10.4	35.1	56.0
4.467333	22.9	GND	N	10.4	33.1	56.0
4.534747	22.9	GND	N	10.4	33.1	56.0
4.603177	23.7	GND	N	10.4	32.3	56.0
4.672640	24.6	GND	N	10.5	31.4	56.0
4.743152	24.9	GND	N	10.5	31.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156424	37.5	GND	N	10.2	18.2	55.7
0.212324	34.5	GND	L1	10.2	18.6	53.1
0.497124	28.3	GND	N	10.3	17.8	46.0
0.781457	28.9	GND	N	10.3	17.1	46.0
0.852378	27.8	GND	N	10.3	18.2	46.0
4.534747	17.8	GND	N	10.4	28.2	46.0

ANNEX C: TEST LAYOUT

Pic.1 Radiated emission

Pic.2 Conducted emission

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