CE EMC Test Report

APPLICANT	:	Quanta Computer Inc
EQUIPMENT	:	Laptop Computer
BRAND NAME	:	OLPC
MODEL NAME	:	XO-1.75; XO-1.75HS
STANDARD	:	ETSI EN 301 489-1 V1.8.1 (2008-04) ETSI EN 301 489-17 V2.1.1 (2009-05)
TEST DATE(S)	:	Nov. 22, 2011 ~ Nov. 26, 2011

The product was integrated the WLAN Module (Brand Name: QMI / Model Name: EM113-MV or Brand Name: Lite-On / Model Name: WN6301MH) during the test.

The measurements shown in this test report were made in accordance with the procedures given in EUROPEAN COUNCIL DIRECTIVE 1999/5/EC and found to be in compliance with ETSI EN 301 489-1 V1.8.1 (2008-04), ETSI EN 301 489-17 V2.1.1 (2009-05).

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
EH172910	Rev. 01	Initial issue of report	Dec. 14, 2011

SUMMARY OF TEST RESULT

CLAUSE (EN 301 489-1)	TEST PARAMETER	TEST STANDARD	RESULT (PASS/FAIL)	REMARK
EMC Emission Measurements				
8.2	Radiated Emission	EN 55022 Class B	PASS	Under limit 1.83 dB at 184.23 MHz
8.3 / 8.4	Conducted Emission	EN 55022 Class B	PASS	Under limit 8.67 dB at 0.16 MHz
8.5	Harmonic Current Emissions	EN 61000-3-2	PASS	-
8.6	Voltage Fluctuations and Flicker	EN 61000-3-3	PASS	-
Immunity Tests				
9.2	RF Electromagnetic Field	EN 61000-4-3	PASS	-
9.3	Electrostatic Discharge	EN 61000-4-2	PASS	-
9.4	Fast Transients, Common Mode	EN 61000-4-4	PASS	-
9.5	Radio frequency, Common Mode	EN 61000-4-6	PASS	-
9.7	Voltage Dips and Interruptions	EN 61000-4-11	PASS	-
9.8	Surges	EN 61000-4-5	PASS	-

1. General Description of Equipment under Test

1.1 Applicant

Quanta Computer Inc
No.188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, TaiWan

1.2 Manufacturer

Quanta Computer Inc
No.188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, TaiWan

1.3 Feature of Equipment under Test

Product Feature & Specification	
Equipment	Laptop Computer
Brand Name	OLPC
Model Name	XO-1.75; XO-1.75HS
Tx Frequency	2400 MHz ~ 2483.5 MHz
Rx Frequency	2400 MHz ~ 2483.5 MHz
Antenna Type	PIFA Antenna
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The difference between sample 1(XO-1.75HS) and sample 2 (XO-1.75) is only for keyboard. The others are the same including circuit design, PCB board, structure and all components. It is special to declare.

List of Accessory:

Specification of Accessory		
AC Adapter 1	**Brand Name**	DARFON
	Model Name	BB0J-C
AC Adapter 2	**Brand Name**	Bestec
	Model Name	NA0241WAA
AC Adapter 3	**Brand Name**	DARFON
	Model Name	BU24-1203
AC Adapter 4	**Brand Name**	Bestec
	Model Name	BT-AG250SDF
Battery	**Brand Name**	OLPC
	Model Name	CL1

Remark: For accessories equipped with this EUT, please refer to Appendix A.

1.4 Testing Facility

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	**Sporton Site No. :** **EMI Test :** CO01-KS ; OS01-KS; 05CH01-KS **EMS Test :** ES01-KS ; RS01-KS ; CS01-KS
Test Condition	Test Voltage : AC 230V / 50Hz Test Distance : 10 m for radiated emission 30MHz ~ 1000MHz : 3 m for radiated emission 1000MHz ~ 6000MHz : 3 m for radio frequency electromagnetic field immunity

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanglong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589 FAX: +86-755-8637-9595
Test Site No.	**Sporton Site No. :** **EMS Test :** EX01-SZ
Test Condition	Test Voltage : AC 230V / 50Hz

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must complies with the requirements of

- **ETSI EN 301 489-1 V1.8.1 (2008-04)**
- **ETSI EN 301 489-17 V2.1.1 (2009-05)**

EMI Test :

- **EN 55022:2006/A1:2007 Class B** (Radiated Emission)
- **EN 55022:2006/A1:2007 Class B** (Conducted Emission)
- **EN 61000-3-2:2006+A1:2008+A2:2009** (Harmonic)
- **EN 61000-3-3:2008** (Flicker)

EMS Test :

- **EN 61000-4-2:2009** (ESD)
- **EN 61000-4-3:2006** (RS)
- **EN 61000-4-4:2004+A1:2010** (EFT)
- **EN 61000-4-5:2006** (SURGE)
- **EN 61000-4-6:2009** (CS)
- **EN 61000-4-11:2004** (DIPs)

Note: All test items were verified and recorded according to the standards and without any deviation during the tests.

1.6 Performance Criteria

CLAUSE 6 of EN301 489 –1	
Criteria	**Performance criteria**
CT/CR	During and after the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the apparatus is used as intended.
TT/TR	After the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the apparatus is used as intended.

1.7 Description of Test System

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	SD Card	Kingston	SD4/4GB	N/A	N/A	N/A
2.	WLAN AP	D-Link	DIR-855	KA2DIR5855A2	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-615	N/A	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	IBM	I706	FCC DoC	N/A	AC I/P: Unshielded, 1.0 m DC O/P: Shielded, 1.8 m
6.	Earphone	InTopic	Jazz-278	FCC DoC	shielded, 2.2 m	N/A
7.	Earphone	Eimuse	E-500MV	FCC DoC	shielded, 2.2 m	N/A
8.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
9.	iPod	Apple	A1366	N/A	N/A	N/A

2. Test Configuration of Equipment under Test

2.1 Test Mode

Frequency range was investigated: Conducted emission test: from 150 kHz to 30 MHz; Radiated emission test: from 30 MHz to 6000 MHz; Radio frequency electromagnetic field immunity test: 80 MHz to 1000 MHz and 1400 MHz to 2700 MHz.

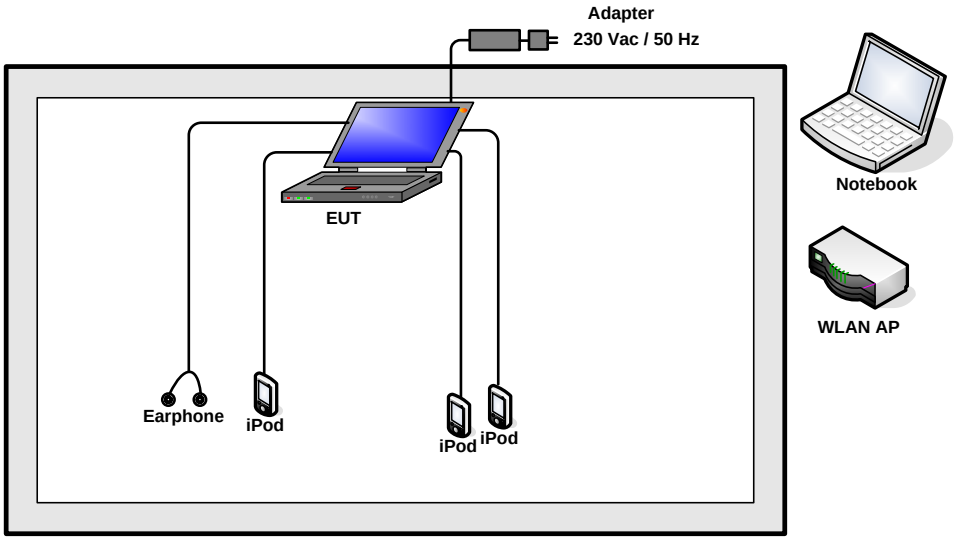
Test Item		
Radiated Emission		
Mode 1	:	WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 3	:	**WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2** <Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2 <Fig.1>
Conducted Emission		
Mode 1	:	WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 3	:	**WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2** <Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2 <Fig.1>
Harmonics Test		
Mode 1	:	**WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1**<Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2<Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2<Fig.1>
Flicker Test		
Mode 1	:	**WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1**<Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2<Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2<Fig.1>
RS Test		
Mode 1	:	**WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1 <Fig.1>**
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2 <Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2 <Fig.1>
ESD Test		
Mode 1	:	WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2<Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2<Fig.1>
Mode 5	:	WLAN Link(EM113-MV) + RAM1GB for Sample 2<Fig.2>

CS Test		
Mode 1	:	**WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1 <Fig.1>**
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1 <Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2 <Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2 <Fig.1>
EMS Test (EFT、Surge、Dip)		
Mode 1	:	WLAN Link(WN6301MH) + Adapter 1 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 2	:	WLAN Link(WN6301MH) + Adapter 2 + RAM 512MB + TC for Sample 1<Fig.1>
Mode 3	:	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2<Fig.1>
Mode 4	:	WLAN Link(EM113-MV) + Adapter 4 + RAM1GB + TC for Sample 2<Fig.1>

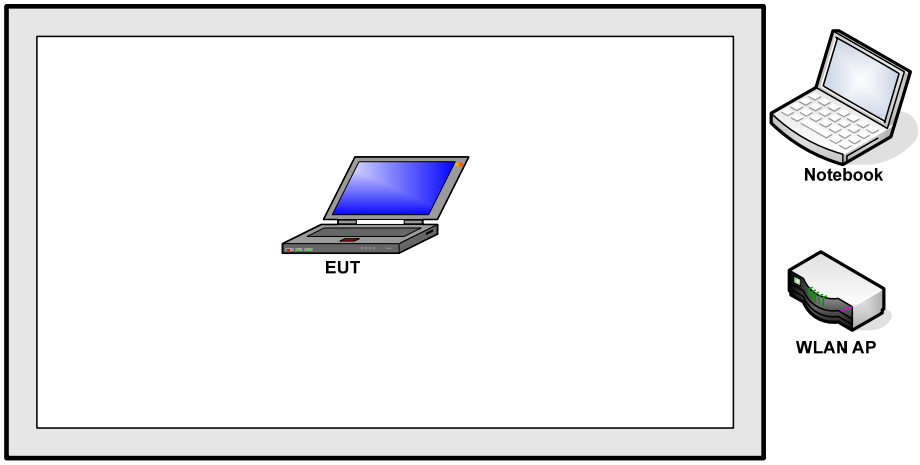
Remark:

1. TC stands for Test Configuration, and consists of iPods and earphone.
2. The above test modes in boldface were the worst cases of conducted emission, radiated emission, harmonics and flicker, RS and CS tests; only the test data of these modes was reported.

2.2 Connection Diagram of Test System



<Fig. 1>



<Fig. 2>

2.3 Test Software

The EUT was attached to the WLAN AP, and was in WLAN link mode during the testing. Using the terminal, and then execute the test program, installed in the EUT for active sync files transfer with iPod.

Before testing, during and after, they are under being monitored. The CT/CR and TT/TR in section 1.6 performance criterion was used for judgment.

3. EMC Emission Measurements

3.1 Test of Radiated Emission

Radiated emissions from 30 MHz to 6000 MHz were measured with a bandwidth of 120 kHz below 1GHz and 1MHz above 1GHz according to the methods defines in European Standard EN 55022 and EN 55016-2-3. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 3.1.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

3.1.1 Measuring Instruments

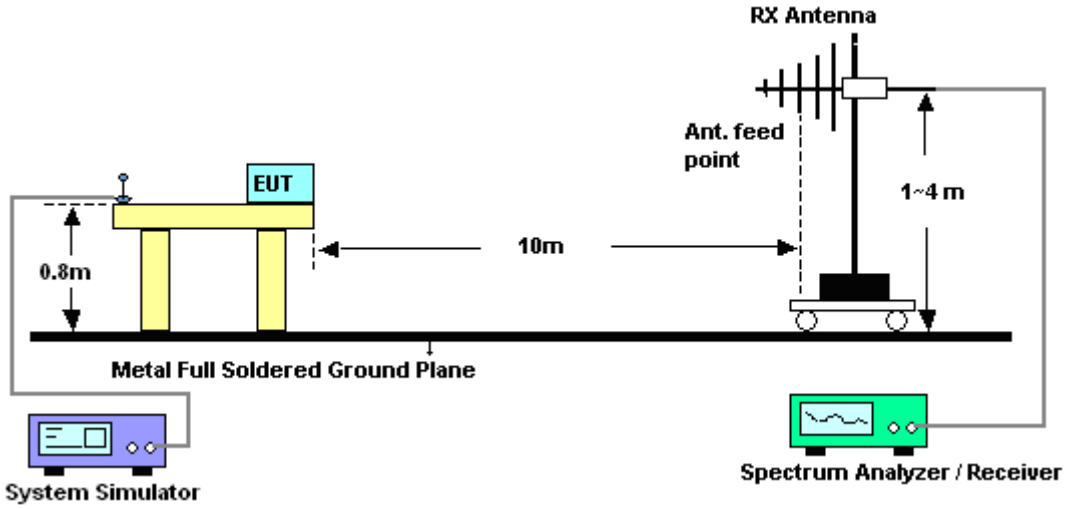
See list of measuring instruments of this test report.

3.1.2 Test Procedures

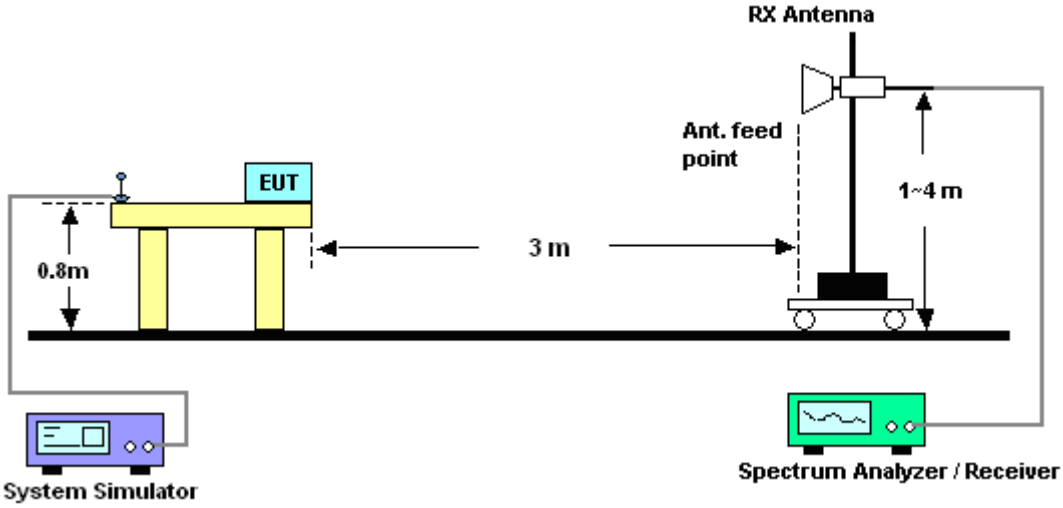
a. The EUT was placed on a turntable with 0.8 meter above ground.
b. The EUT was set 10 meters for frequency 30 MHz to 1000 MHz and 3 meters for frequency 1000 MHz to 6000 MHz from the receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The height of the antenna is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
e. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.

3.1.3 Test Setup

<Radiated Emissions Frequency: 30 MHz to 1000 MHz>



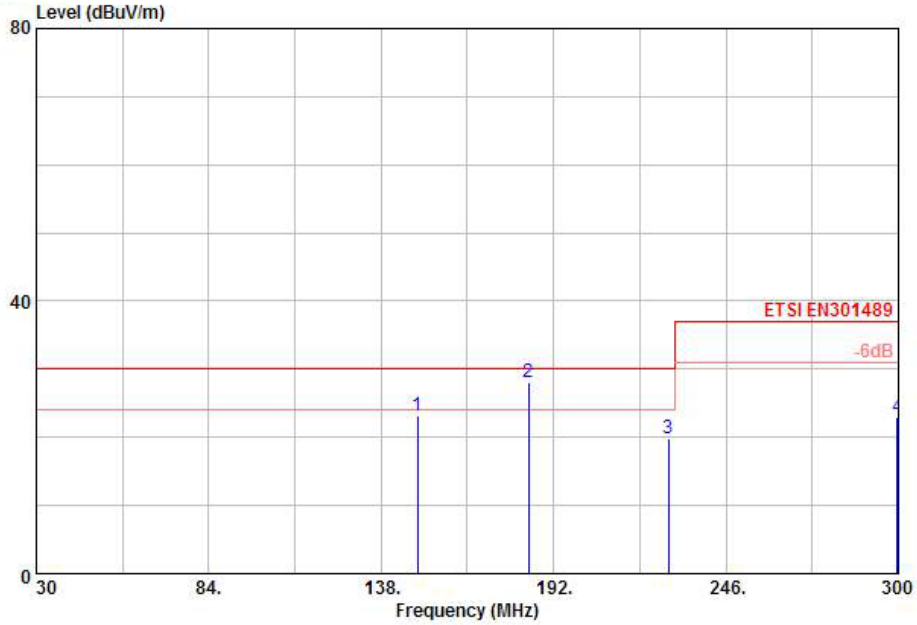
<Radiated Emissions Frequency: 1000 MHz to 6000 MHz>



3.1.4 Test Result

Test Mode :	Mode 3	Temperature :	20~21°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Distance :	10m	Polarization :	Horizontal
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

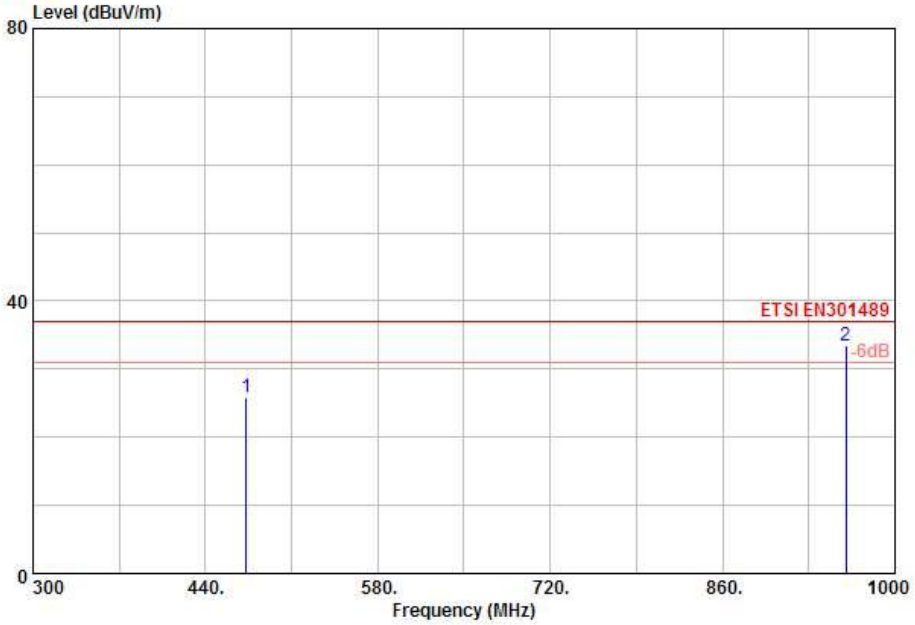


Site : OS01-KS
Condition: ETSI EN301489 10m LF ANT-081217 HORIZONTAL
Project : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	149.31	23.07	-6.93	30.00	39.97	9.85	1.30	28.05	---	---	Peak
2 !	184.23	28.17	-1.83	30.00	46.42	8.36	1.48	28.09	140	127	QP
3	227.88	19.86	-10.14	30.00	37.40	8.95	1.67	28.16	200	133	QP
4	299.66	23.04	-13.96	37.00	36.64	12.84	1.91	28.35	---	---	Peak

Test Mode :	Mode 3	Temperature :	20~21°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Distance :	10m	Polarization :	Horizontal
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

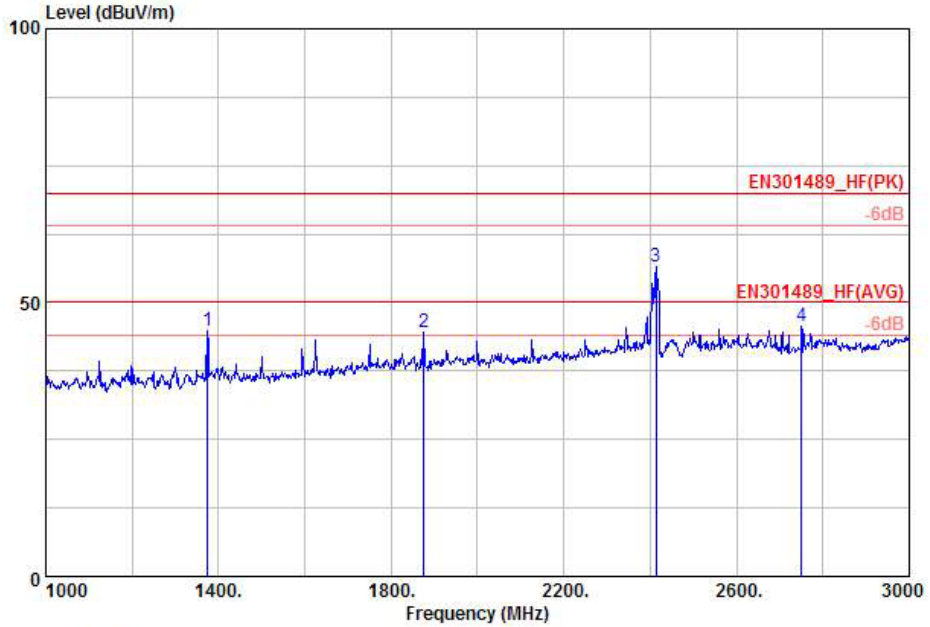


Site : OS01-KS
Condition: ETSI EN301489 10m LF ANT-081217 HORIZONTAL
Project : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	473.29	25.92	-11.08	37.00	34.79	17.00	2.52	28.39	---	---	Peak
2 !	960.23	33.50	-3.50	37.00	35.68	20.72	3.94	26.84	100	0	QP

Test Mode :	Mode 3	**Temperature :**	21~22°C
Test Engineer :	Infi Li	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		
Remark :	#3 is RF signal which can be ignored.		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

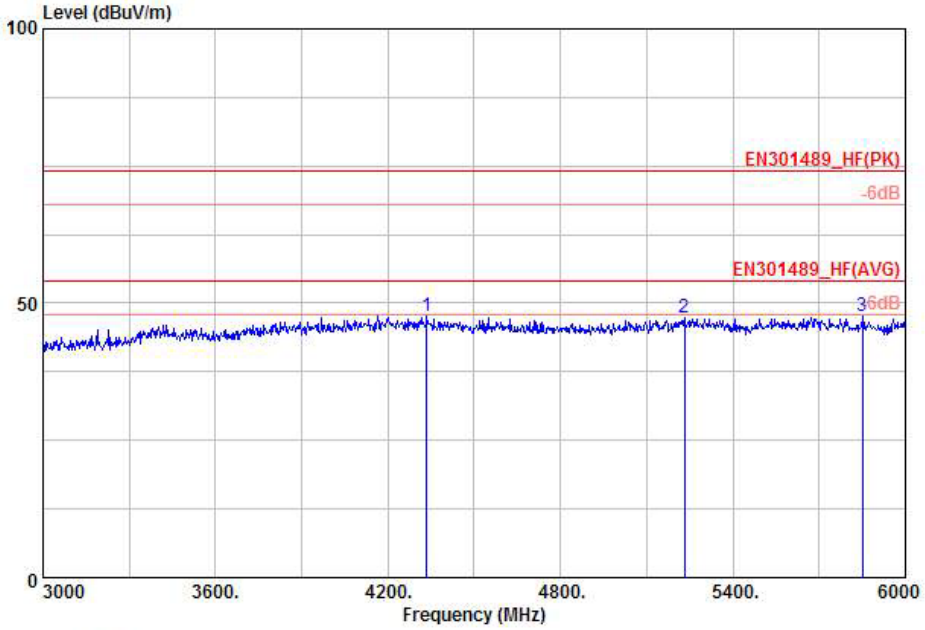


Site : 05CH01-KS
Condition: EN301489_HF(PK) 3m 301489_HF_100620 HORIZONTAL
Preject : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1374.00	44.71	-25.29	70.00	45.70	27.71	4.46	33.16	---	---	Peak
2	1876.00	44.64	-25.36	70.00	42.59	29.86	5.26	33.07	---	---	Peak
3	2414.00	56.41	-13.59	70.00	51.45	32.08	5.94	33.06	---	---	Peak
4	2750.00	45.55	-24.45	70.00	40.32	32.10	6.33	33.20	---	---	Peak

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Infi Li	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

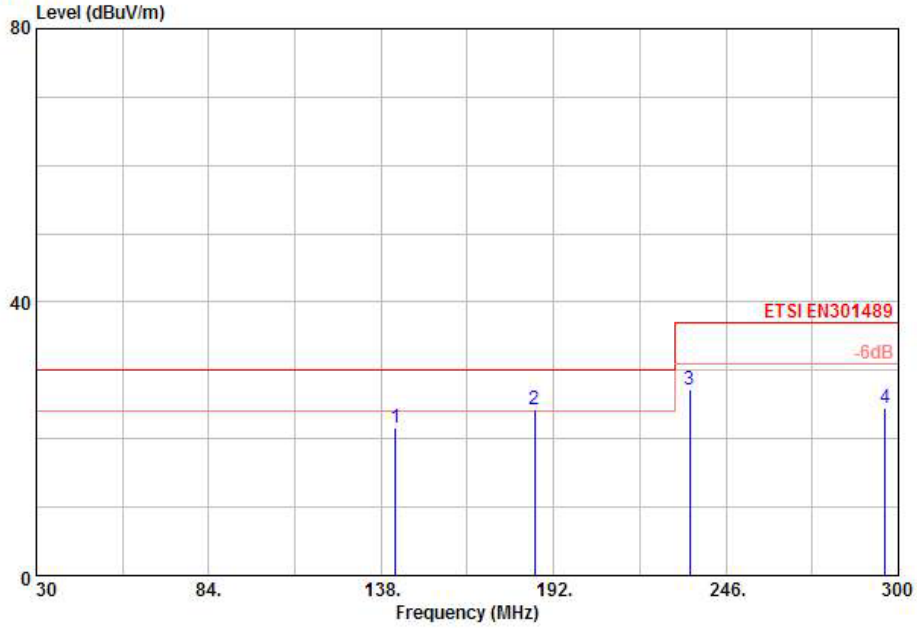


Site : 05CH01-KS
Condition: EN301489_HF(PK) 3m 301489_HF_100620 HORIZONTAL
Preject : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4335.00	47.58	-26.42	74.00	38.16	33.77	8.32	32.67	---	---	Peak
2	5232.00	47.30	-26.70	74.00	37.44	34.36	8.79	33.29	---	---	Peak
3	5850.00	47.69	-26.31	74.00	37.54	35.01	8.77	33.63	---	---	Peak

Test Mode :	Mode 3	Temperature :	20~21°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Distance :	10m	Polarization :	Vertical
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

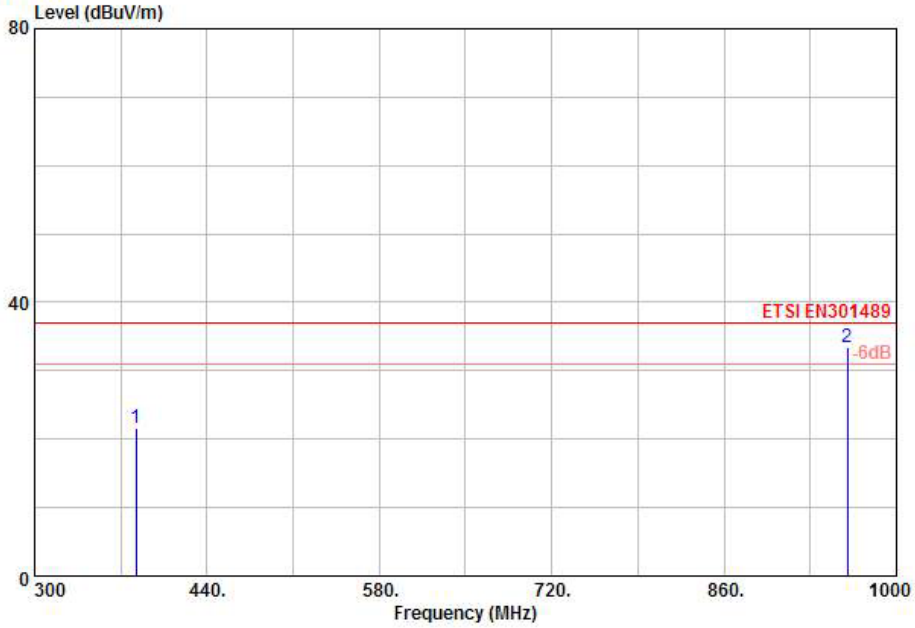


Site : OS01-KS
Condition: ETSI EN301489 10m LF ANT-081217 VERTICAL
Project : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	142.52	21.72	-8.28	30.00	37.94	10.57	1.26	28.05	---	---	Peak
2 !	186.17	24.26	-5.74	30.00	42.49	8.37	1.49	28.09	200	360	QP
3	234.67	27.13	-9.87	37.00	43.40	10.20	1.70	28.17	100	200	QP
4	295.78	24.54	-12.46	37.00	38.17	12.80	1.91	28.34	---	---	Peak

Test Mode :	Mode 3	Temperature :	20~21°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Distance :	10m	Polarization :	Vertical
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

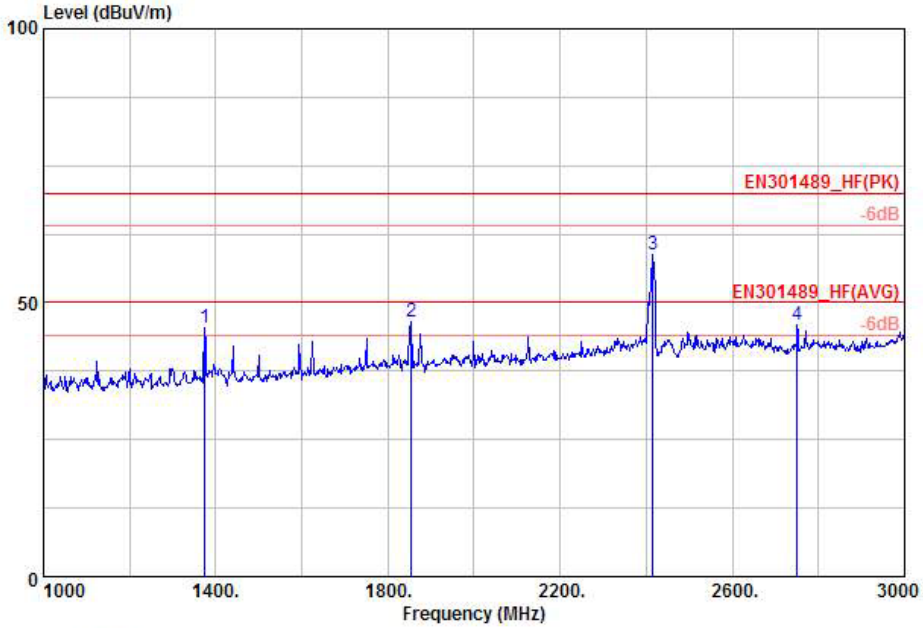


Site : OS01-KS
Condition: ETSI EN301489 10m LF ANT-081217 VERTICAL
Project : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	382.11	21.71	-15.29	37.00	32.79	15.06	2.26	28.40	---	---	Peak
2 !	960.23	33.32	-3.68	37.00	35.50	20.72	3.94	26.84	102	223	QP

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Infi Li	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		
Remark :	#3 is RF signal which can be ignored.		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

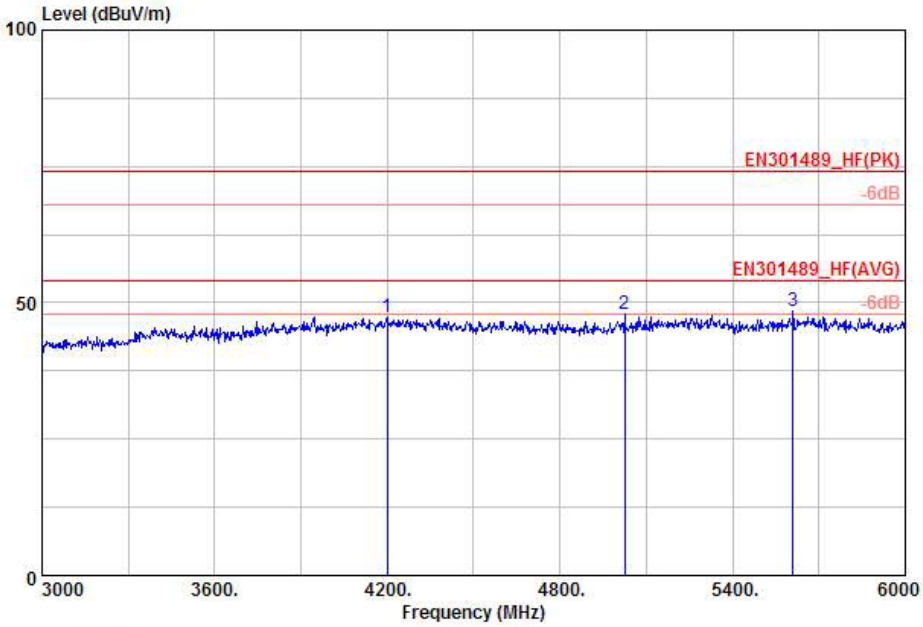


Site : 05CH01-KS
Condition: EN301489_HF(PK) 3m 301489_HF_100620 VERTICAL
Preject : (EW) 172910
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1374.00	45.29	-24.71	70.00	46.28	27.71	4.46	33.16	---	---	Peak
2	1854.00	46.50	-23.50	70.00	44.55	29.77	5.23	33.05	---	---	Peak
3	2416.00	58.67	-11.33	70.00	53.71	32.08	5.94	33.06	---	---	Peak
4	2750.00	45.92	-24.08	70.00	40.69	32.10	6.33	33.20	---	---	Peak

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Infi Li	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		

■ Emission level (dBuV/m) = 20 log Emission level (uV/m)
■ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
■ The test that passed at the minimum margin was marked by the frame in the following test record

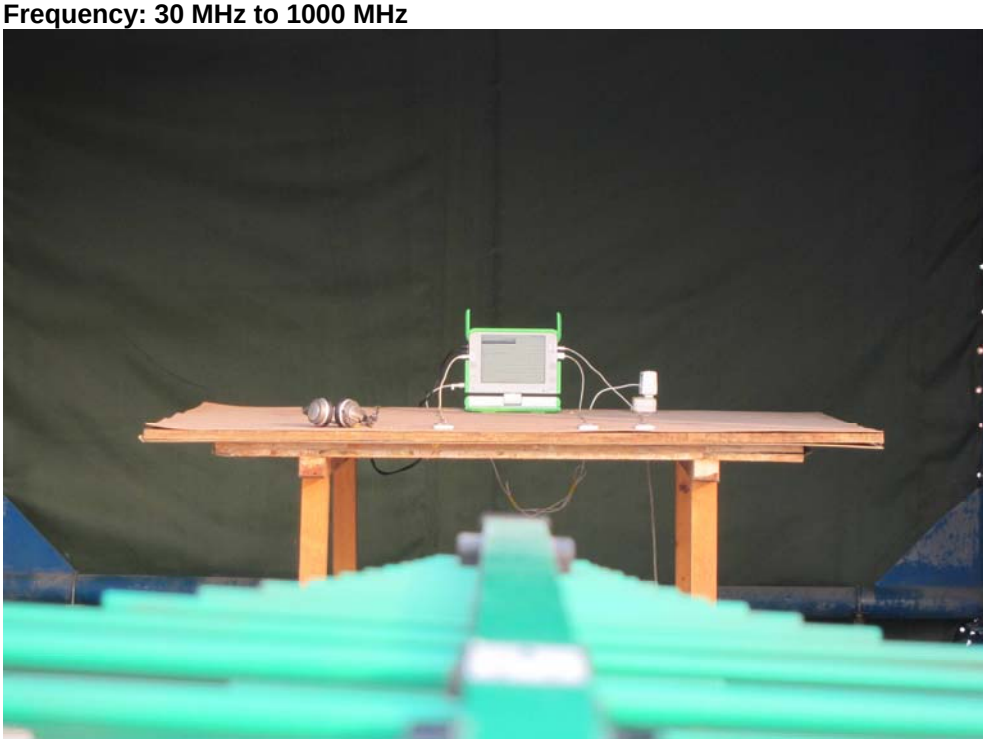


Site : 05CH01-KS
Condition: EN301489_HF(PK) 3m 301489_HF_100620 VERTICAL
Preject : (EW) 172910
Mode : Mode 3

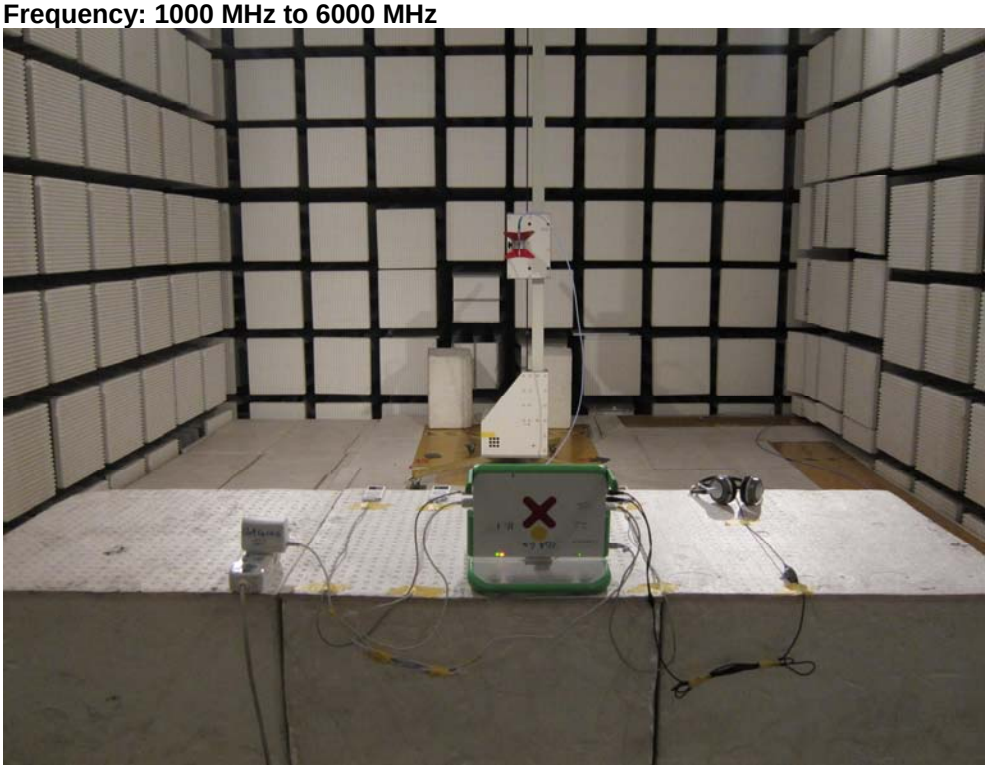
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4200.00	47.48	-26.52	74.00	38.09	33.73	8.03	32.37	---	---	Peak
2	5025.00	47.87	-26.13	74.00	38.33	34.12	8.61	33.19	---	---	Peak
3	5610.00	48.59	-25.41	74.00	38.79	34.76	8.55	33.51	---	---	Peak

3.1.5 Setup Photographs

Mode 3
Frequency: 30 MHz to 1000 MHz



Frequency: 1000 MHz to 6000 MHz



3.2 Test of Conducted Emission

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 kHz and return leads of the EUT according to the methods defined in European Standard EN 55022. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position producing maximum conducted emissions.

3.2.1 Limits for Conducted Emissions

For this product which is designed to be connected to the 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 below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

For a device, which is designed to be connected to the telecommunication line, the radio frequency voltage that is conducted back onto the telecommunication line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	Voltage		Current	
	QP Limit (dBuV)	AV Limit (dBuV)	QP Limit (dBuA)	AV Limit (dBuA)
0.15~0.5	84~74	74~64	40~30	30~20
0.5~30	74	64	30	20

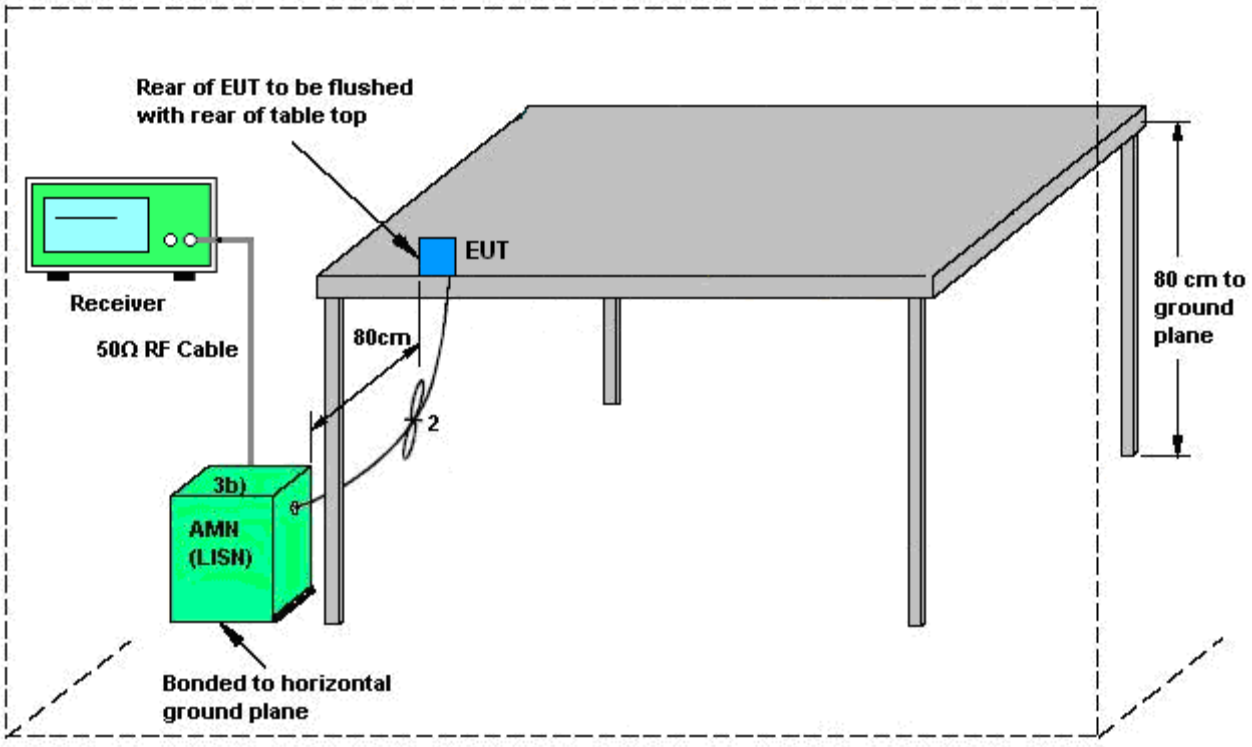
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedure

a. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was scanned.
h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

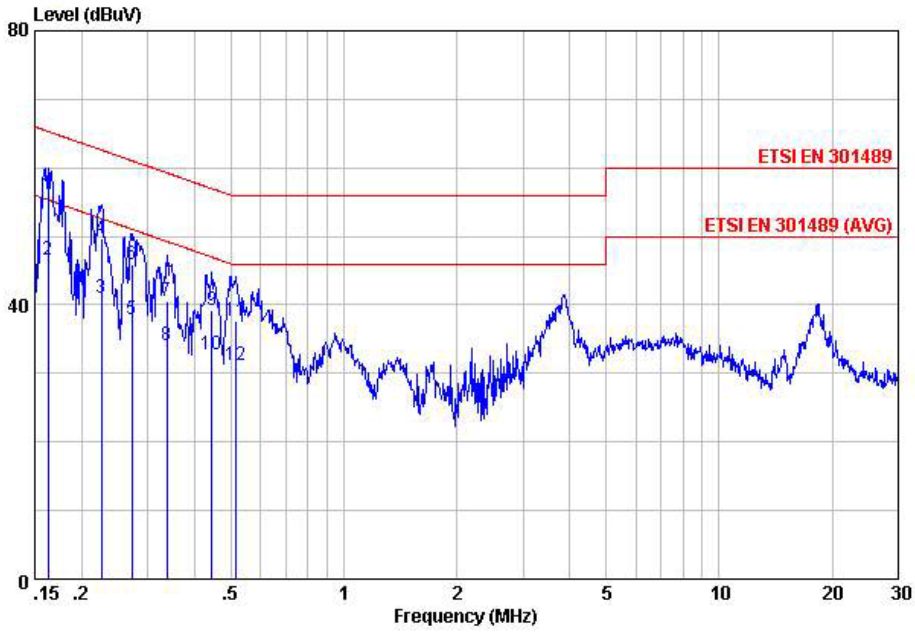
3.2.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.2.5 Test Results

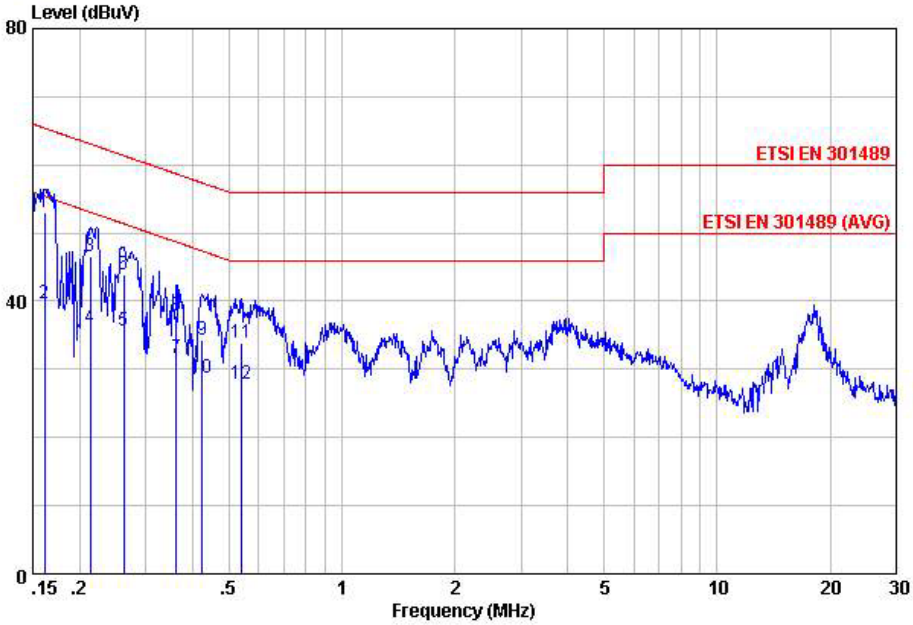
Test Mode :	Mode 3	Temperature :	21~22℃
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Voltage :	230Vac / 50Hz	Phase :	Line
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: ETSI EN 301489 LISN-100807 LINE
Project : (EW) 172910
mode : mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	56.17	-9.17	65.34	46.10	-0.07	10.14	QP
2	0.16	46.67	-8.67	55.34	36.60	-0.07	10.14	Average
3	0.23	40.98	-11.63	52.61	30.89	-0.07	10.16	Average
4	0.23	49.58	-13.03	62.61	39.49	-0.07	10.16	QP
5	0.27	37.89	-13.18	51.07	27.80	-0.07	10.16	Average
6	0.27	45.99	-15.08	61.07	35.90	-0.07	10.16	QP
7	0.34	40.60	-18.67	59.27	30.50	-0.08	10.18	QP
8	0.34	34.10	-15.17	49.27	24.00	-0.08	10.18	Average
9	0.44	39.22	-17.76	56.98	29.10	-0.08	10.20	QP
10	0.44	32.82	-14.16	46.98	22.70	-0.08	10.20	Average
11	0.52	37.73	-18.27	56.00	27.60	-0.08	10.21	QP
12	0.52	31.23	-14.77	46.00	21.10	-0.08	10.21	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Voltage :	230Vac / 50Hz	Phase :	Neutral
Function Type :	WLAN Link(EM113-MV) + Adapter 3 + RAM1GB + TC for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition: ETSI EN 301489 LISN-100807 NEUTRAL
Project : (EW) 172910
mode : mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	53.06	-12.32	65.38	43.01	-0.09	10.14	QP
2	0.16	39.76	-15.62	55.38	29.71	-0.09	10.14	Average
3	0.21	46.68	-16.37	63.05	36.60	-0.07	10.15	QP
4	0.21	36.18	-16.87	53.05	26.10	-0.07	10.15	Average
5	0.26	35.59	-15.79	51.38	25.50	-0.07	10.16	Average
6	0.26	43.99	-17.39	61.38	33.90	-0.07	10.16	QP
7	0.36	31.71	-26.98	58.69	21.61	-0.08	10.18	Peak
8	0.36	37.81	-20.88	58.69	27.71	-0.08	10.18	QP
9	0.42	34.42	-22.95	57.37	24.30	-0.08	10.20	QP
10	0.42	28.82	-18.55	47.37	18.70	-0.08	10.20	Average
11	0.54	33.83	-22.17	56.00	23.70	-0.08	10.21	QP
12	0.54	27.83	-18.17	46.00	17.70	-0.08	10.21	Average

3.2.6 Setup Photographs

Mode 3

3.3 Harmonics Test

3.3.1 Limit of Harmonic Current Emissions

Harmonic current emissions evaluate the potential for the EUT to cause distortion on the AC power lines. It is applicable to electrical and electronic equipment having an input current ≦16 A par phase, and intended to be connected to public low-voltage distribution systems. EUT has been specified power less than or equal to 600 W and complies with Class D equipment and limits.

Class D Limits Table:

Harmonic Order	Max. permissible harmonic current per watt (mA/W)	Max. permissible harmonic current (A)
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13 ≦ n ≦ 39	3.85/n	0.15×15/n

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

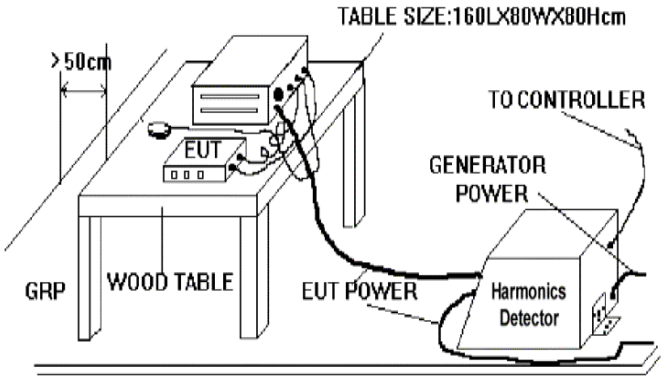
3.3.3 Test Procedure

The measurement of harmonic currents shall be performed as follows:

i. For each harmonic order, measure the 1.5 s smoothed r.m.s. harmonic current in each DFT time window as defined in EN / IEC 61000-4-7: 2002.

ii. Calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period Short cyclic (T cycle ≦ 2.5 min). Because of synchronisation to meet the requirements for repeatability in 5%.

3.3.4 Test Setup



3.3.5 Test Equipment Settings

The following table is the setting of harmonic tester.

Harmonic and Flicker Tester	Setting
Line Voltage	230 V
Line Frequency	50 Hz
Pst Integration Time	10 minutes
Pst Integration Periods	1
Measurement Delay	10.0 seconds
Test Duration	2.00 minutes

3.3.6 Test Result

Test Standard	EN 61000-3-2:2006+A1:2008+A2:2009
Product Standard	EN 301 489-17
Ambient Temperature	22~23℃
Relative Humidity	42~43%
Test Date	Nov. 22, 2011
Test Engineer	Morris Li
Test Time	1 x 10min = 10min (100 %)
Test Result	PASS

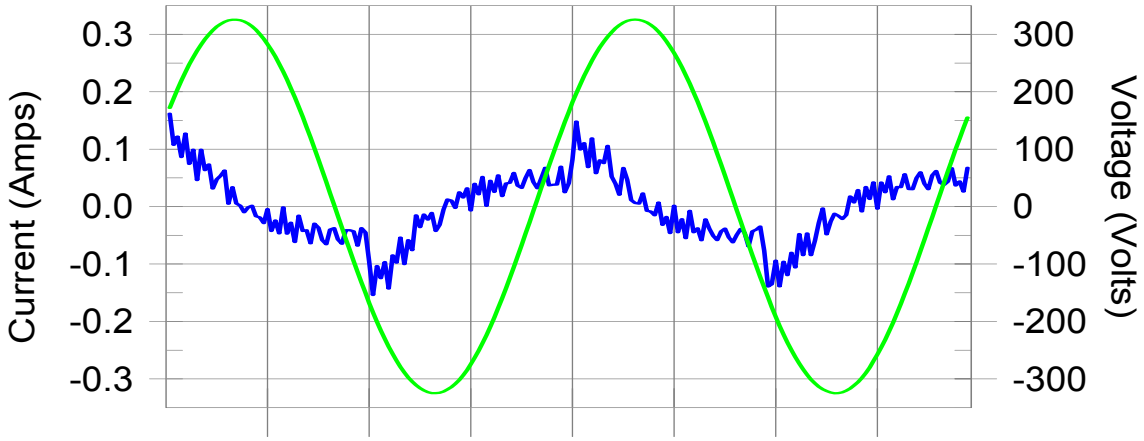
3.3.7 Test Data

Harmonics – Class-D per Ed. 3.0 (2005-11) (Run time)

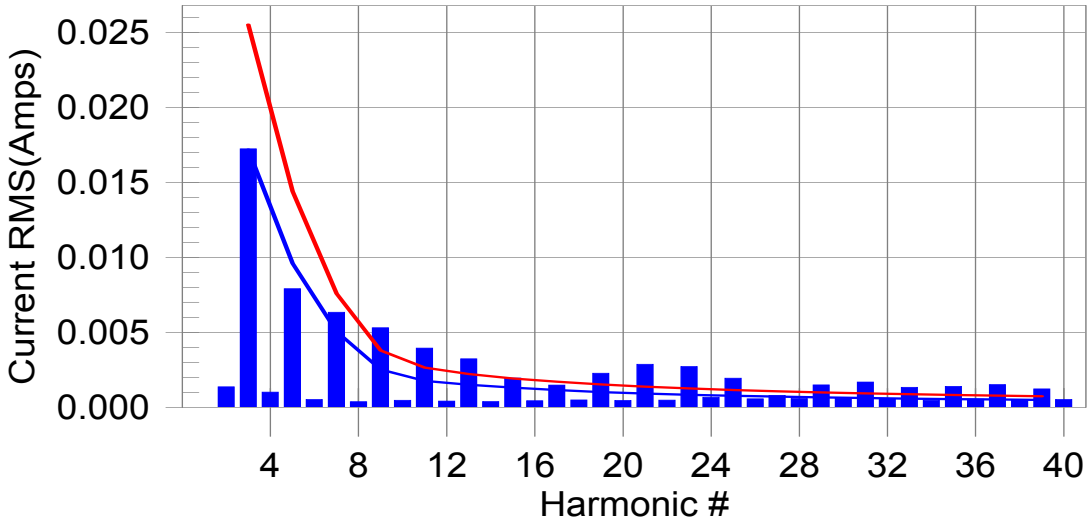
EUT: Notebook **Tested by: Morris**
Test category: Class-D per Ed. 3.0 (2005-11) (European limits) **Test Margin: 100**
Test date: 2011-11-22 **Start time: 9:37:53** **End time: 9:48:14**
Test duration (min): 10 **Data file name: H-000045.cts_data**
Comment: Mode 1
Customer: (EW)172901

Test Result: N/L **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class D limit line **European Limits**



Test result: N/L Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary (Run time)

EUT: Notebook **Tested by: Morris**
Test category: Class-D per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 2011-11-22 Start time: 9:37:53 End time: 9:48:14
Test duration (min): 10 Data file name: H-000045.cts_data
Comment: Mode 1
Customer: (EW)172901

Test Result: N/L Source qualification: Normal
THC(A): 0.00 I-THD(%): 0.00 POHC(A): 0.000 POHC Limit(A): 0.000
Highest parameter values during test:
V_RMS (Volts): 230.10 Frequency(Hz): 49.98
I_Peak (Amps): 0.246 I_RMS (Amps): 0.060
I_Fund (Amps): 0.053 Crest Factor: 4.156
Power (Watts): 5.1 Power Factor: 0.367

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001						
3	0.016	0.017	0.0	0.017	0.026	0.00	N/L
4	0.001						
5	0.008	0.010	0.0	0.008	0.014	0.00	N/L
6	0.001						
7	0.006	0.005	0.0	0.006	0.008	0.00	N/L
8	0.000						
9	0.005	0.003	0.0	0.005	0.004	0.00	N/L
10	0.000						
11	0.004	0.002	0.0	0.004	0.003	0.00	N/L
12	0.000						
13	0.003	0.002	0.0	0.003	0.002	0.00	N/L
14	0.000						
15	0.002	0.001	0.0	0.002	0.002	0.00	N/L
16	0.000						
17	0.001	0.001	0.0	0.001	0.002	0.00	N/L
18	0.000						
19	0.002	0.001	0.0	0.002	0.002	0.00	N/L
20	0.000						
21	0.003	0.001	0.0	0.003	0.001	0.00	N/L
22	0.000						
23	0.003	0.001	0.0	0.003	0.001	0.00	N/L
24	0.001						
25	0.002	0.001	0.0	0.002	0.001	0.00	N/L
26	0.001						
27	0.001	0.001	0.0	0.001	0.001	0.00	N/L
28	0.001						
29	0.001	0.001	0.0	0.002	0.001	0.00	N/L
30	0.001						
31	0.001	0.001	0.0	0.002	0.001	0.00	N/L
32	0.001						
33	0.001	0.001	0.0	0.001	0.001	0.00	N/L
34	0.000						
35	0.001	0.001	0.0	0.001	0.001	0.00	N/L
36	0.001						
37	0.001	0.001	0.0	0.002	0.001	0.00	N/L
38	0.001						
39	0.001	0.001	0.0	0.001	0.001	0.00	N/L
40	0.001						

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

EUT: Notebook **Tested by: Morris**
Test category: Class-D per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 2011-11-22 Start time: 9:37:53 End time: 9:48:14
Test duration (min): 10 Data file name:
H-000045.cts_data
Comment: Mode 1
Customer: (EW)172901

Test Result: N/L **Source qualification: Normal**

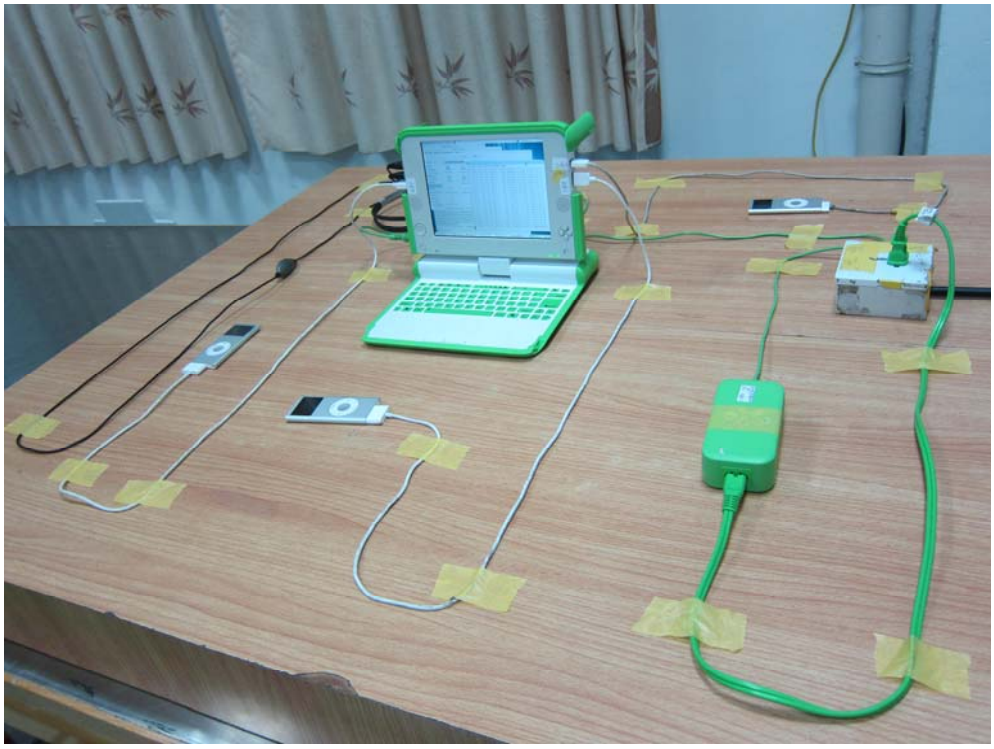
Highest parameter values during test:

Voltage (Vrms):	**230.10**	**Frequency(Hz):**	**49.98**
I_Peak (Amps):	**0.246**	**I_RMS (Amps):**	**0.060**
I_Fund (Amps):	**0.053**	**Crest Factor:**	**4.156**
Power (Watts):	**5.1**	**Power Factor:**	**0.367**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.351	0.460	76.31	OK
3	0.223	2.070	10.78	OK
4	0.164	0.460	35.54	OK
5	0.122	0.920	13.30	OK
6	0.089	0.460	19.42	OK
7	0.093	0.690	13.40	OK
8	0.062	0.460	13.49	OK
9	0.070	0.460	15.15	OK
10	0.058	0.460	12.65	OK
11	0.054	0.230	23.37	OK
12	0.044	0.230	18.96	OK
13	0.044	0.230	19.34	OK
14	0.035	0.230	15.15	OK
15	0.037	0.230	16.13	OK
16	0.033	0.230	14.20	OK
17	0.032	0.230	14.01	OK
18	0.029	0.230	12.64	OK
19	0.031	0.230	13.61	OK
20	0.025	0.230	10.90	OK
21	0.027	0.230	11.72	OK
22	0.023	0.230	9.94	OK
23	0.026	0.230	11.24	OK
24	0.024	0.230	10.63	OK
25	0.024	0.230	10.42	OK
26	0.022	0.230	9.53	OK
27	0.025	0.230	10.99	OK
28	0.023	0.230	9.87	OK
29	0.024	0.230	10.36	OK
30	0.022	0.230	9.73	OK
31	0.020	0.230	8.75	OK
32	0.022	0.230	9.38	OK
33	0.018	0.230	8.00	OK
34	0.016	0.230	6.89	OK
35	0.017	0.230	7.21	OK
36	0.014	0.230	6.30	OK
37	0.016	0.230	7.07	OK
38	0.014	0.230	6.27	OK
39	0.015	0.230	6.56	OK
40	0.014	0.230	6.10	OK

3.3.8 Setup Photographs

Mode 1



3.4 Voltage Fluctuation and Flicker Measurement

3.4.1 Limit of Voltage Fluctuation and Flicker

The objective of voltage changes, voltage fluctuations and flicker in public low voltage supply systems during equipment with rated current ≦ 16 A per phase, ensures that home appliances and certain other electrical equipment do not adversely affect lighting equipment when connected to the same power system.

Voltage Fluctuation and Flicker Limits:

— the value of Pst shall not be greater than 1.0;

— the value of Plt shall not be greater than 0.65;

— the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms.

— the relative steady-state voltage change, dc, shall not exceed 3.3 %;

— the maximum relative voltage change, dmax, shall not exceed 4.0 %;

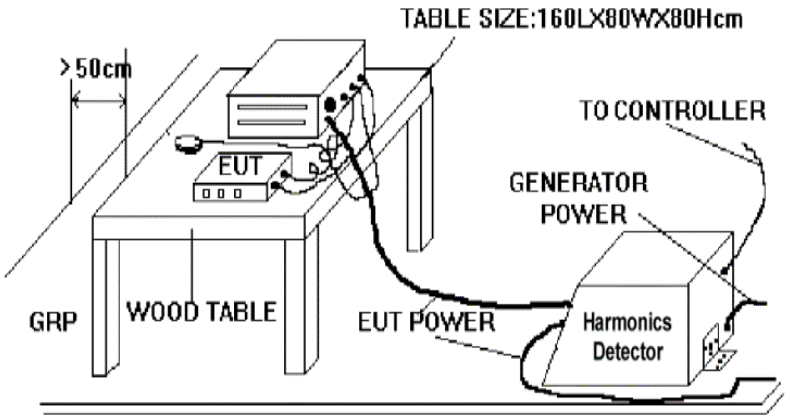
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

The total impedance of the test circuit, excluding the appliance under test, but including the internal impedance of the supply source, shall be equal to the reference impedance. The stability and tolerance of the reference impedance shall be adequate to ensure that the overall accuracy of ±8% is achieved during the whole assessment procedure.

3.4.4 Test Setup



3.4.5 Test Equipment Settings

The following table is the setting of flicker tester.

Harmonic and Flicker Tester	Setting
Line Voltage	230 V
Line Frequency	50 Hz
Pst Integration Time	10 minutes
Pst Integration Periods	1
Measurement Delay	10.0 seconds
Test Duration	2.00 minutes

3.4.6 Test Result

Test Standard	EN 61000-3-3:2008
Product Standard	EN 301 489-17
Ambient Temperature	22~23℃
Relative Humidity	42~43%
Test Date	Nov. 22, 2011
Test Engineer	Morris Li
Test Time	1 x 10min = 10min (100 %)
Test Result	PASS

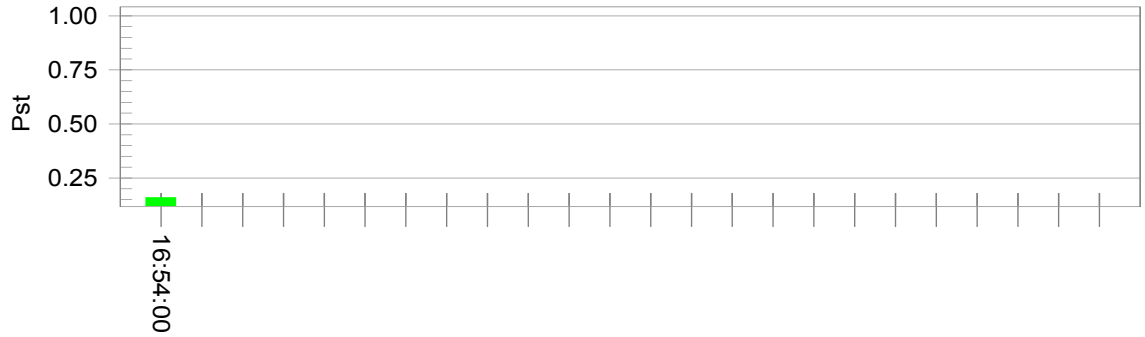
3.4.7 Test Data

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

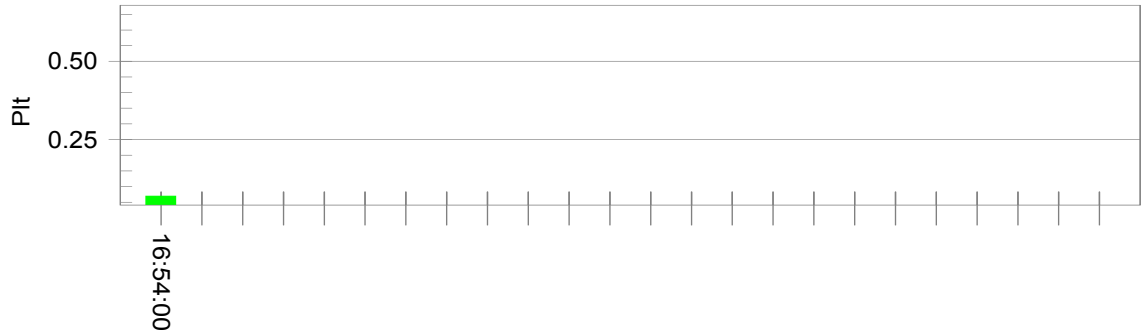
EUT: Notebook **Tested by: Morris**
Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2011-11-22 Start time: 16:43:40 End time: 16:54:01
Test duration (min): 10 Data file name: F-000029.cts_data
Comment: Mode 1
Customer: (EW)172910

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line

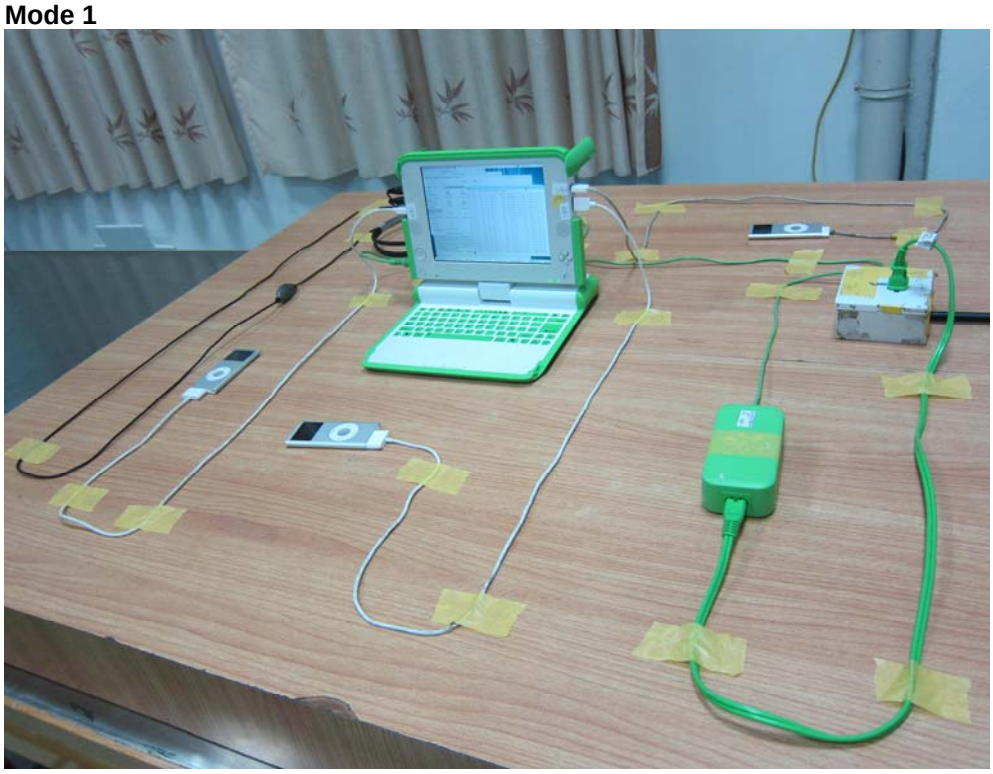


Parameter values recorded during the test:
Vrms at the end of test (Volt):230.03

Highest dt (%):	**0.23**	**Test limit (%):**	**3.30**	**Pass**
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-0.23**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.160**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.070**	**Test limit:**	**0.650**	**Pass**

3.4.8 Setup Photographs

Mode 1



4. Immunity Tests

4.1 Radio Frequency Electromagnetic Field Immunity Test (RS)

4.1.1 Limit of Radio Frequency Electromagnetic Field Test (RS)

Most electronic equipment is in some manner affected by electromagnetic radiation. RF immunity test entails the equipment under test to a uniform field of radiated electromagnetic energy of a specified electromagnetic field strength, and at the same time, monitoring the functionality of the device as the frequency is swept over a specified frequency range. This test assesses the ability of the EUT to operate as intended in the presence of a radio frequency electromagnetic field disturbance.

The preferential range of test field strength levels for the RS test is given in following levels:
80 MHz ~ 1 GHz: 3V/m; 1.4 GHz ~ 2.7 GHz: 3V/m.

Required performance criterion is CT/CR (Continuous Phenomena for Transmitter / Receiver).

4.1.2 Measuring Instruments

See list of measuring instruments of this test report.

4.1.3 Test Procedures

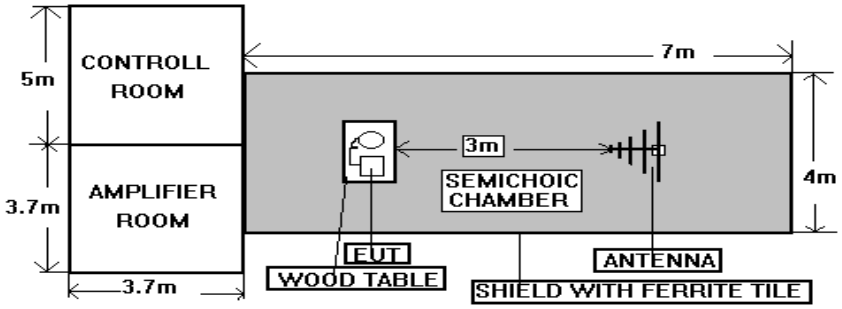
The equipment under test is placed in the center of the enclosure on a wooden table. The equipment is then connected to power and signal leads according to pertinent installation instructions.

a. The antenna which is enabling the complete frequency range of 80-1000 MHz and 1400-2700 MHz is placed 3m away from the equipment. The required field strength is determined by placing the field strength meter(s) on top of or directly alongside the equipment under test and monitoring the field strength meter via a remote field strength indicator outside the enclosure while adjusting the continuous-wave to the antenna.

b. The test is performed with the antenna facing the front and back sides of the EUT with or without the headset. Both vertical and horizontal polarizations from antenna are tested.

c. At each of the above conditions, the frequency range is swept at 80-1000 MHz and 1400-2700MHz. The exclusion band for receivers and receiver sections of transceivers is the band of frequencies over which no immunity tests with radiated RF are made.

4.1.4 Test Setup



NOTE: The SPORTON 7m x 4m x 4m semi-anechoic chamber is in compliance with the sixteen points uniform field requirement as stated in IEC 61000-4-3 Section 6.2.

The procedure defined in this part requires the generation of electromagnetic fields within which the test sample is placed and its operation observed. To generate fields that are useful for simulation of actual (field) conditions may require significant antenna drive power and the resultant high field strength levels. To comply with local regulations and to prevent biological hazards to the testing personnel, it is recommended that these tests be carried out in a shielded enclosure or semi-anechoic chamber.

4.1.5 Test Severity Levels

Frequency Band: 80-1000 MHz and 1400-2700 MHz.

Level	Test field strength (V/m)
1	1
2	3
3	10
X	Specified

Remark: "X" is an open class.

4.1.6 Test Result

Test Standard	EN 61000-4-3:2006
Product Standard	EN 301 489-17
Required Performance Criteria	CT/CR
EUT Performance	CT/CR
Frequency Range	80-1000 MHz, 1400-2700 MHz
Field Strength	3 V/m (Modulated 1kHz, 80% AM) - Level 2
Ambient Temperature	20~21℃
Relative Humidity	47~48%
Atmospheric Pressure	98kPa
Test Date	Nov. 23, 2011
Test Engineer	Adam Guo
Test Result	PASS

Remark:

1. There is no unintentional operation during this test.
2. Refer to following pages for test data.

4.1.7 Setup Photographs

Mode 1
Position 0°

Mode 1
Position 180°

4.2 Electrostatic Discharge Test (ESD)

4.2.1 Limit of Electrostatic Discharge Test

This test assesses the ability of the EUT to operate as intended in the event of an electrostatic discharge. Air discharges and contact charges are estimated to enclosure of EUT on all connectors and conducting surfaces.

Contact Discharges to the conductive surfaces and to coupling planes:

The EUT shall be exposed to at least 20 discharges 10 each at negative and positive polarity. One of the test points shall be subjected to at least 50 indirect discharges (contact) to the center of the front edge of the horizontal coupling plane (HCP). The remaining three test points shall each receive at least 50 direct contact discharges. If there is no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. [See EN 61000-4-2 for use of the Vertical Coupling Plane (VCP)]. Tests shall be performed at a maximum repetition rate of one discharge per second.

Air Discharge at seam between apertures and insulation surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. This investigation should be restricted to those areas normally handled by the user. A minimum of 10 single air discharges of each polarity and test level shall be applied to the selected test point for each area.

The preferential range of test levels for the ESD test is given in following levels:
Contact discharge test voltage ±4kV; Air discharge test voltage ±8 kV.
Required performance criterion is the criteria TT/TR (Transient Phenomena for Transmitter / Receiver).

4.2.2 Measuring Instruments

See list of measuring instruments of this test report.

4.2.3 Test Procedure

a. In the case of air discharge testing, the climatic conditions shall be within the following ranges:
   - ambient temperature: 15℃ to 35℃;
   - relative humidity : 30% to 60%;
   - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar).

b. Test programs and software shall be chosen so as to exercise all normal modes of operation of the EUT. The use of special exercising software is encouraged, but permitted only where it can be shown that the EUT is being comprehensively exercised.

c. The test voltage shall be increased from the minimum to the selected test severity level, in order to determine any threshold of failure. The final test level should not exceed the product specification value in order to avoid damage to the equipment.

d. The test shall be performed with both air discharge and contact discharge. On pre-selected points, at least 10 single discharges (in the most sensitive polarity) shall be applied on air discharge. On pre-selected points, at least 10 single discharges (in the most sensitive polarity) shall be applied on contact discharge.

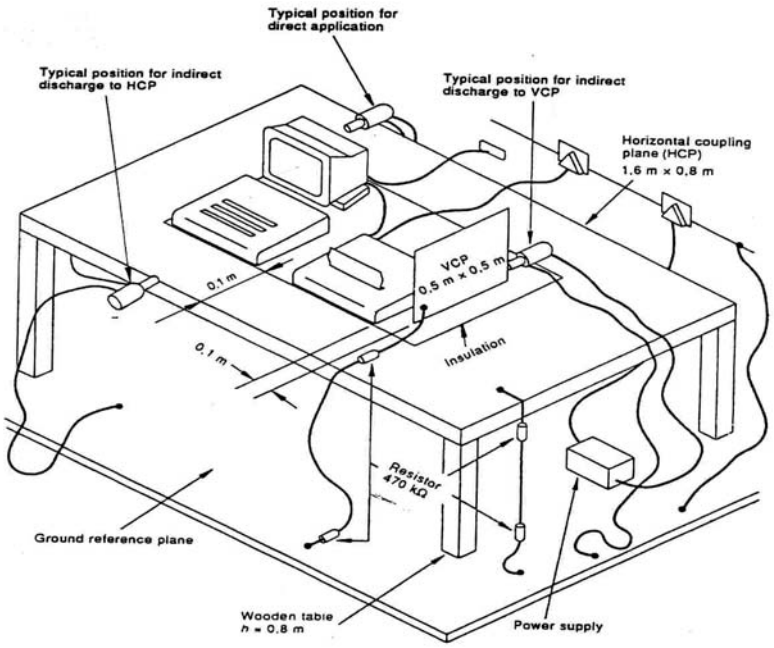
e. For the time interval between successive single discharges, an initial value of one second is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.

f. In the case of contact discharges, the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

g. In the case of painted surface covering a conducting substrate, the following procedure shall be adopted :
   - If the coating is not declared to be an insulating coating by the equipment manufacturer, then the pointed tip of the generator shall penetrate the coating so as to make contact with the conducting substrate.
   - Coating declared as insulating by the manufacturer shall only be submitted to the air discharge.
   - The contact discharge test shall not be applied to such surfaces.

h. In the case of air discharges, the round discharge tip of the discharge electrode shall be approached as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator (discharge electrode) shall be removed from the EUT. The generator is then retriggered for a new single discharge. This procedure shall be repeated until the discharges are completed. In the case of an air discharge test, the discharge switch, which is used for contact discharge, shall be closed.

4.2.4 Test Setup



The test setup consists of the discharge generator, EUT and auxiliary instrument necessary to perform DIRECT and INDIRECT application of discharges to the EUT, in the following manner:

a. CONTACT DISCHARGE to the conductive surfaces and to the coupling plane;
b. AIR DISCHARGE at insulating surfaces.

A ground reference plane was provided on the floor of the test site. It was a metallic sheet (copper or aluminum) of 0.25 mm, minimum thickness; other metallic may be used but they shall have at least 0.65 mm thickness. In SPORTON, we provided 1 mm thickness aluminum ground reference plane or 1 mm thickness stainless steel ground reference plane. The minimum size of the ground reference plane is 1 m x 1 m, the exact size depending on the dimensions of the EUT. It was connected to the protective grounding system.

The EUT was arranged and connected according to its functional requirements. A distance of 1m minimum was provided between the EUT and the wall of the lab and any other metallic structure. In cases where this length exceeds the length necessary to apply the discharges to the selected points, the excess length shall, where possible, be placed non-inductively off the ground reference plane and shall not be less than 0.2m to other conductive parts in the test setup.

Where the EUT is installed on a metal table, the table was connected to the reference plane via a cable with a 470k ohm resister located at each end, to prevent a build-up of charge. The test setup was consisted a wooden table, 0.8m high, standing on the ground reference plane. A HCP, 1.6 m x 0.8 m, was placed on the table. The EUT and cables was isolated from the HCP by an insulating support 0.5 mm thick. The VCP size is 0.5 m x 0.5 m.

4.2.5 Test Severity Levels

Level	Test Voltage (kV) of Air Discharge	Test Voltage (kV) of Contact discharge
1	±2	±2
2	±4	±4
3	±8	±6
4	±15	±8
X	Specified	Specified

Remark: "X" is an open level.

4.2.6 Test Equipment Settings

Test Condition of Air Discharge		
Test Point	**Voltage**	**Tested No.**
Please refer to the red arrow on the photo	±2 / ±4 / ±8 kV	BY 10

Test Condition of Contact Discharge		
Test Point	**Voltage**	**Tested No.**
VCP	±2 / ±4 kV	BY 10
HCP	±2 / ±4 kV	BY 10
Please refer to the yellow arrow on the photo	±2 / ±4 kV	BY 10

4.2.7 Test Result

Test Standard	EN 61000-4-2:2009
Product Standard	EN 301 489-17
Required Performance Criteria	TT/TR
EUT Performance	CT/CR
Tested Voltage	±2 / ±4 / ±8 kV for air discharge - Level 3
	±2 / ±4 kV for contact discharge - Level 2
Ambient Temperature	22~23℃
Relative Humidity	42~43%
Atmospheric Pressure	98kPa
Test Date	Nov. 25, 2011
Test Engineer	Morris Li
Test Result	PASS

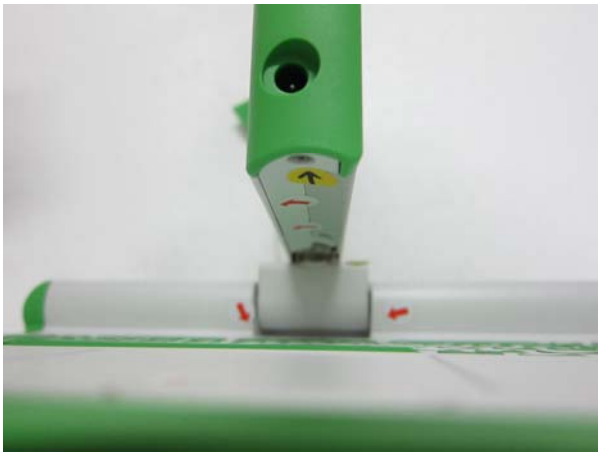
Remark: Refer to following photo pages for test points.

4.2.8 Photos for Identification of ESD Test Points

Mode 1~2



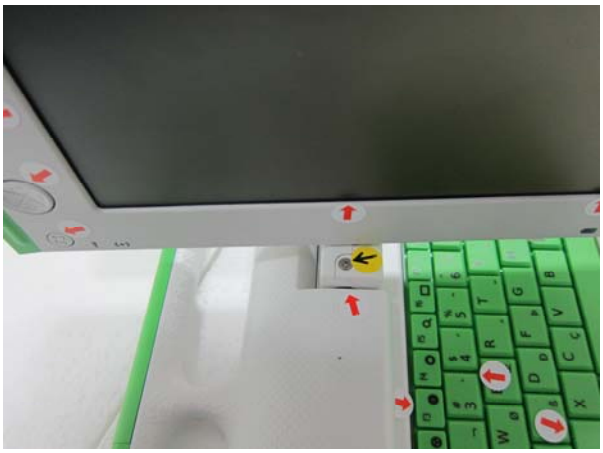


Mode 3~5





4.2.9 Setup Photographs

Mode 1

Mode 2

Mode 3

Mode 4

Mode 5

4.3 Fast Transients, Common Mode (EFT/BURST)

4.3.1 Measuring Instruments

See list of measuring instruments of this test report.

4.3.2 Test Procedure

a. In order to minimize the effect of environmental parameters on test results, the climatic conditions when test is carried out shall comply with the following requirements:
   - ambient temperature: 15℃ to 35℃;
   - relative humidity : 25% to 75%;
   - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar).

b. In order to minimize the effect of environmental parameters on test results, the electromagnetic environment of the laboratory shall not influence the test results.

c. The test results may be classified on the basic of the operating conditions and the functional specification of the equipment under test, according to the following performance criteria :
   - Normal performance within the specification limits.
   - Temporary degradation or loss of function or performance which is self-recoverable.
   - Temporary degradation or loss of function or performance which requires operator intervention or system reset.
   - Degradation or loss of function which is not recoverable due to damage of equipment (components).

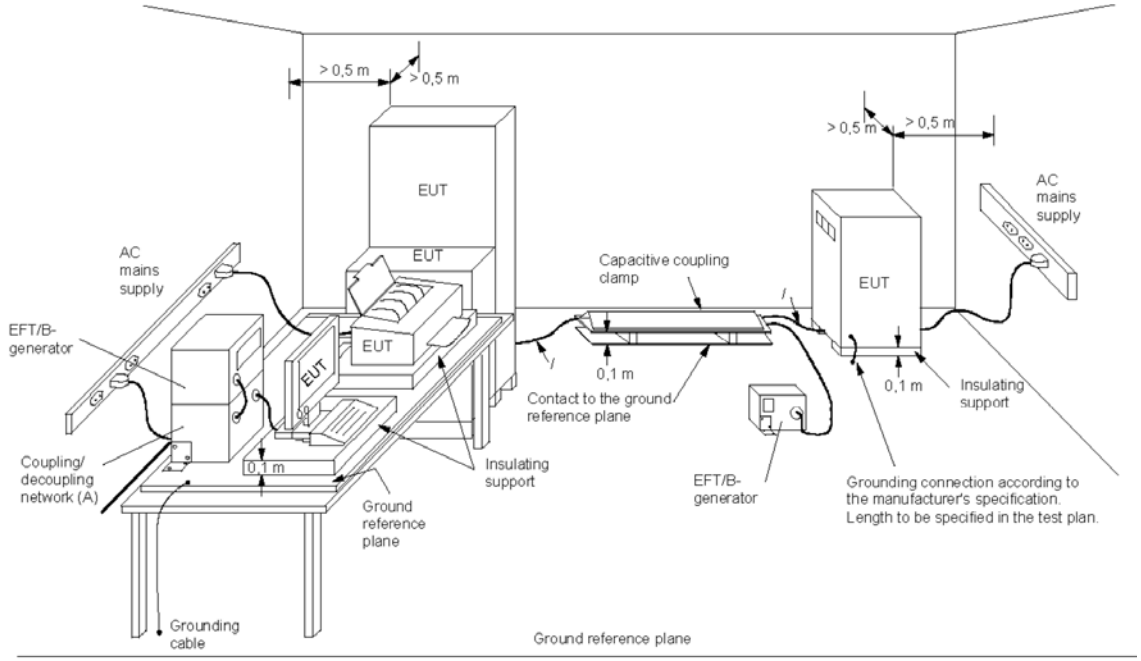
4.3.3 Test on Power Line

a. The EFT/B-generator was located on the GRP. The length from the EFT/B-generator to the EUT does not exceed 1 m.
b. The EFT/B-generator provides the ability to apply the test voltage in a non-symmetrical condition to the power supply input terminals of the EUT.

4.3.4 Test on Communication Lines

a. The coupling clamp is composed of a clamp unit for housing the cable (length more than 3 m), and was placed on the GRP.
b. The coupling clamp provides the ability of coupling the fast transient/bursts to the cable under test.

4.3.5 Test Setup



The EUT was placed on a ground reference plane and was insulated from it by an insulating support about 0.1m thick. If the EUT is table-top equipment, it was located approximately 0.8m above the GRP. The GRP was a metallic sheet (copper or aluminum) of 0.25 mm, minimum thickness; other metallic may be used but they shall have at least 0.65 mm thickness. It shall project beyond the EUT by at least 0.1m on all sides and connected to the protective earth. In the SPORTON EMC LAB., we provided 1 mm thickness aluminum ground reference plane or 1 mm thickness stainless steel ground reference plane. The minimum size of the ground reference plane is 1 m x 1 m, the exact size depending on the dimensions of the EUT. It was connected to the protective grounding system. The EUT was arranged and connected according to its functional requirements. The minimum distance between the EUT and other conductive structures, except the GRP beneath the EUT, was more than 0.5 m. Using the coupling clamp, the minimum distance between the coupling plates and all other conductive structures, except the GRP beneath the EUT, was more than 0.5 m. The length of the signal and power lines between the coupling device and the EUT was 1m or less. If the manufacturer provides a non-detachable supply cable more than 0.5 m ± 0.05 m long with the equipment, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0.1 m above the ground reference plane.

4.3.6 Test Severity Levels

The following test severity levels are recommended for the fast transient/burst test:

Open circuit output test voltage ± 10%		
Level	**On Power Supply**	**On I/O signal, data and control line**
1	0.5 kV	0.25 kV
2	1.0 kV	0.50 kV
3	2.0 kV	1.00 kV
4	4.0 kV	2.00 kV
X	Specified	Specified

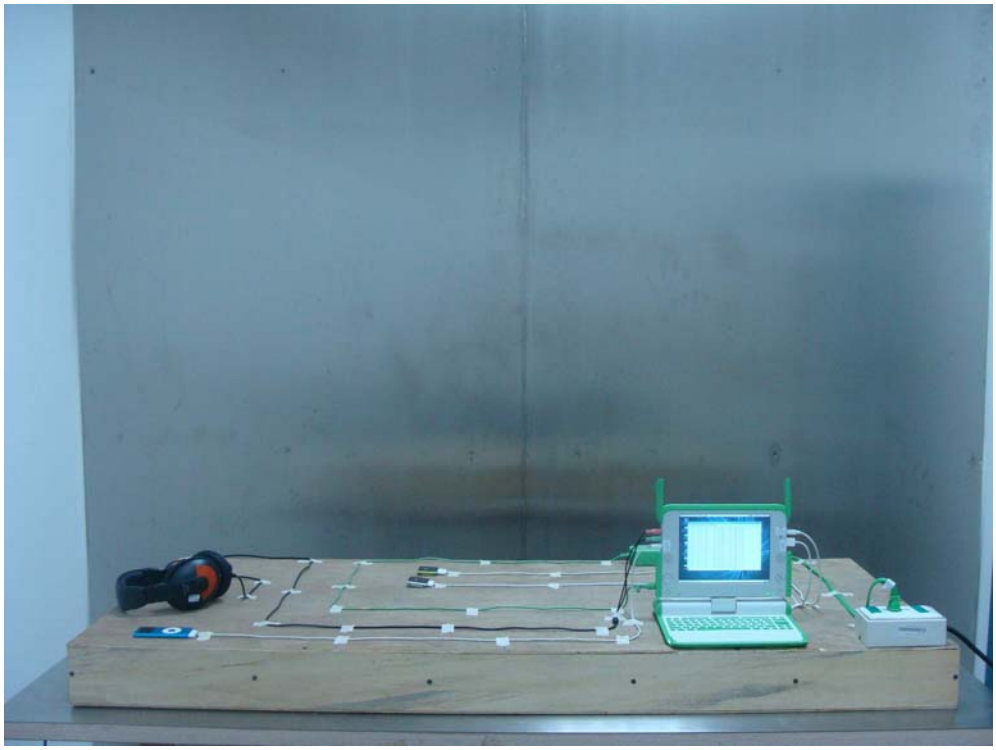
Remark: "X" is an open level. The level is subject to negotiation between the user and the manufacturer or is specified by the manufacturer.

4.3.7 Test Result

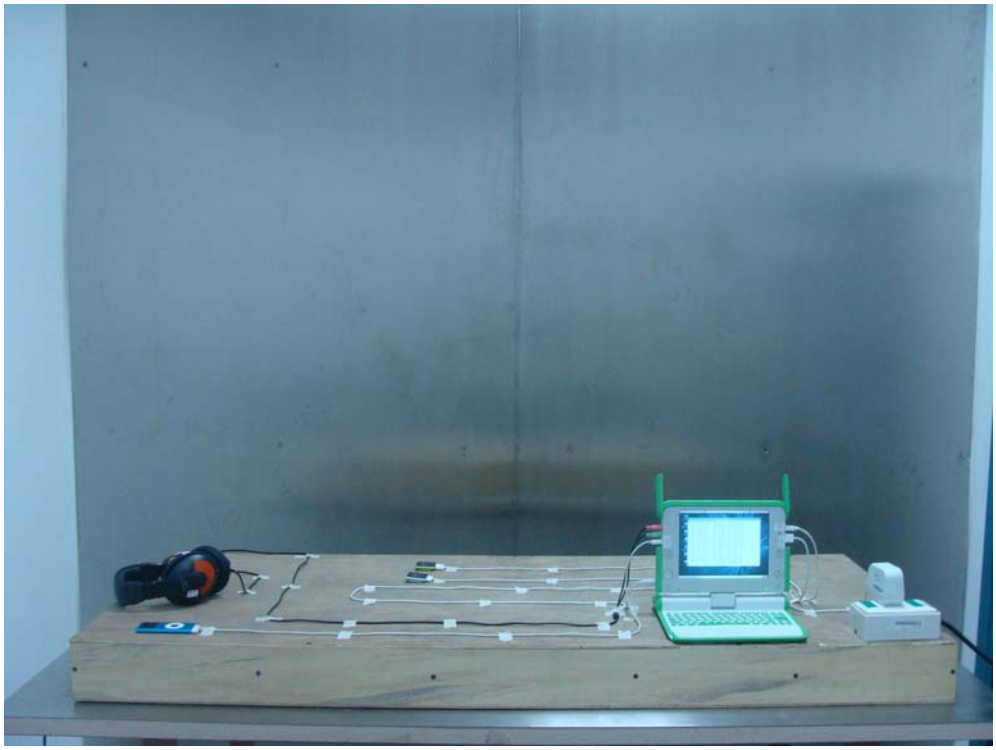
Test Standard	EN 61000-4-4:2004+A1:2010
Product Standard	EN 301 489-17
Required Performance Criteria	TT/TR
EUT Performance	CT/CR
Level	on Input AC Power Port - 2
Test Voltage	on Input AC Power Port - ±1.0 kV
Ambient Temperature	22~23℃
Relative Humidity	44~46%
Atmospheric Pressure	98kPa
Test Date	Nov. 26, 2011
Test Engineer	Lei Wang
Test Result	PASS

4.3.8 Setup Photographs

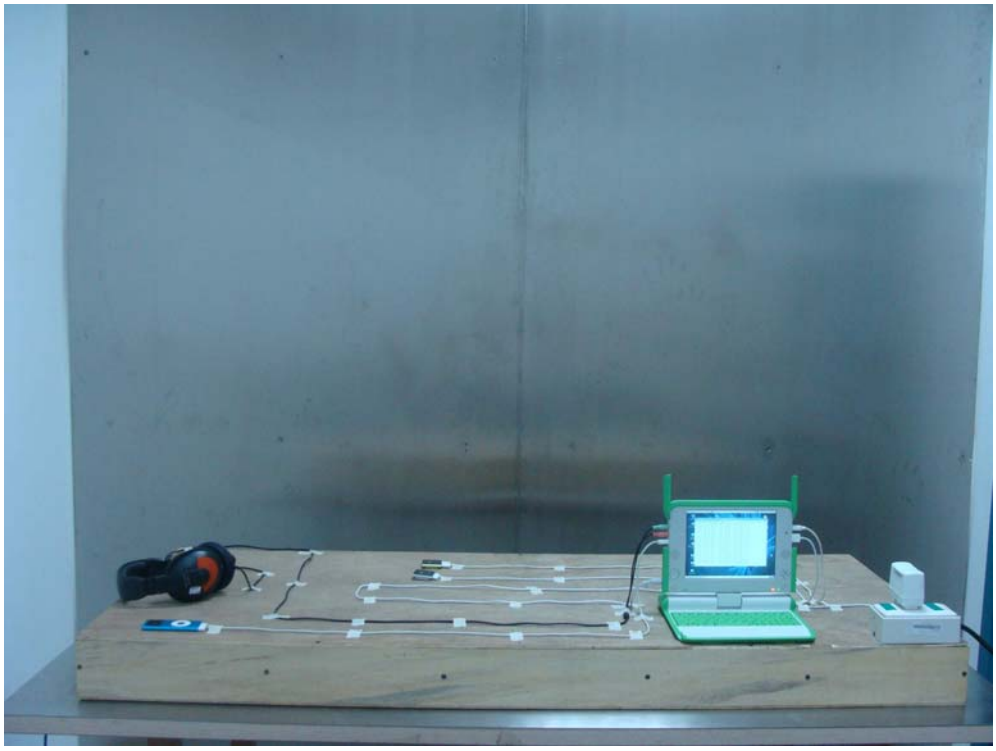
Mode 1



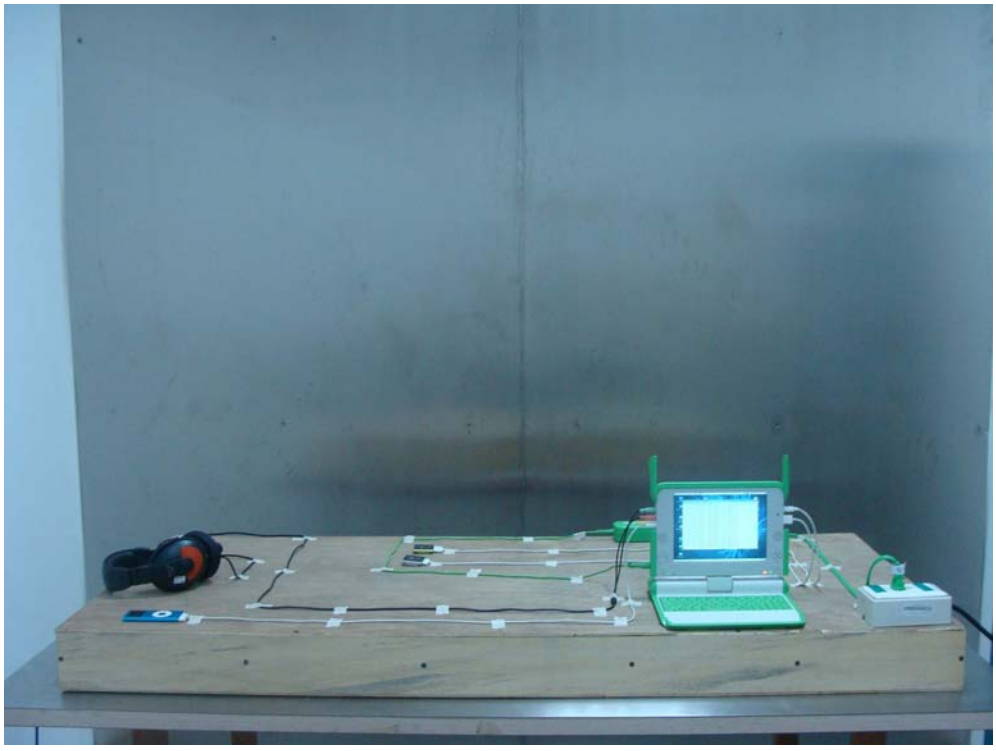
Mode 2



Mode 3



Mode 4



4.4 Radio frequency, Common mode (CS)

4.4.1 Limit of Conducted Disturbances Induced by RF Field Immunity (CS)

This test assesses the ability of the EUT to operate as intended in the presence of a radio frequency electromagnetic disturbance on the input/output ports.
The preferential range of test field strength levels for the CS test is given in following levels:
150 kHz ~ 80 MHz: 3 Vrms
Required performance criterion is the criteria CT/CR (Continuous Phenomena for Transmitter / Receiver).

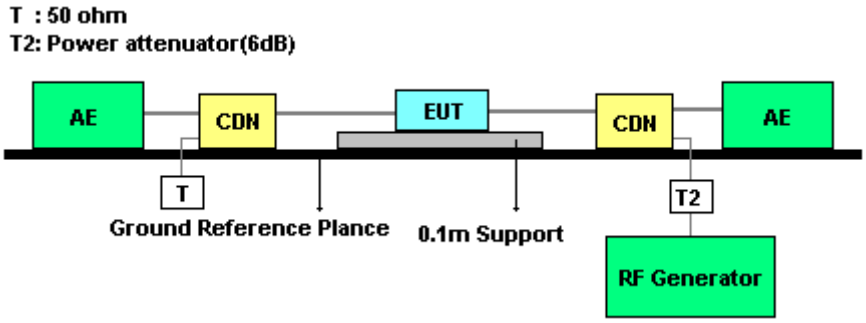
4.4.2 Measuring Instruments

See list of measuring instruments of this test report.

4.4.3 Test Procedures

a. The EUT shall be operated within its intended climatic conditions. The temperature and relative humidity should be recorded.
b. This test method can be performed without using a sell shielded enclosure. This is because the disturbance levels applied and the geometry of the setups are not likely to radiate a high amount of energy, especially at the lower frequencies. If under certain circumstances the radiated energy is too high, a shielded enclosure has to be used.
c. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF-input ports of the coupling devices are terminated by a 50 ohm load resistor.
d. The frequency range is swept from 150 kHz to 80 MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF-signal level or to switch coupling devices as necessary. The rate of sweep shall no exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall no exceed 1% of the start and thereafter 1% of the preceding frequency value.
e. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies e.g. clock frequency (ies) and harmonics or frequencies of dominant interest shall be analyzed separately.
f. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.
g. The use of special exercising programs is recommended.
h. Testing shall be performed according to a Test Plan, which shall be included in the test report.
i. It may be necessary to carry out some investigatory testing in order to establish some aspects of the test plan.

4.4.4 Test Setup



4.4.5 Test Severity Levels

Level	Voltage Level (EMF)
1	1 V rms
2	3 V rms
3	10 V rms
x	Specified

Remark: "X" is an open class. This level can be specified in the product specification.

4.4.6 Test Result

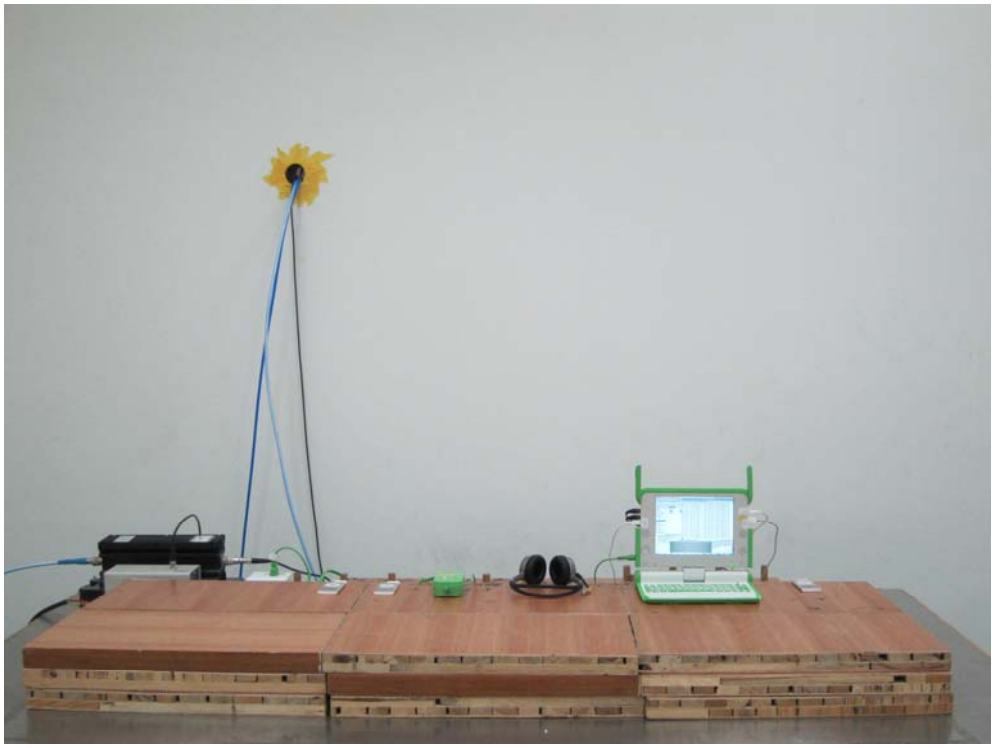
Test Standard	EN 61000-4-6:2009
Product Standard	EN 301 489-17
Required Performance Criteria	CT/CR
EUT Performance	CT/CR
Frequency Range	0.15 MHz to 80 MHz
Level	2
Test Voltage	3 V rms (Modulated, 1kHz, 80%, AM)
Dwell Time	2.9 seconds
Frequency Step Size	1% increment for 150kHz~80MHz
Coupling Mode	CDN-M2 for AC power ports
Ambient Temperature	20~22℃
Relative Humidity	45~46%
Atmospheric Pressure	98kPa
Test Date	Nov. 23, 2011
Test Engineer	Adam Guo
Test Result	PASS

Remark:

1. There is no unintentional operation during this test.
2. Refer to following pages for test data.

4.4.7 Setup Photographs

Mode 1



4.5 Voltage Dips and Interruptions

4.5.1 Limit of Voltage Dips and Interruptions Test

These tests assess the ability of the EUT to operate as intended in the event of voltage dips and interruptions present on the AC mains power input ports. Voltage failures occur following switching operations, short-circuits, response of fuses and when running up heavy loads. The following table is the limits of the dips and Interruption Immunity Test.

Voltage	Residual	Periods	Performance Criterion
Dips	0%	10 ms	TT/TR
	0%	20 ms	TT/TR
	70%	500 ms	TT/TR
Interruption	0%	5000 ms	TT/TR

4.5.2 Measuring Instruments

See list of measuring instruments of this test report.

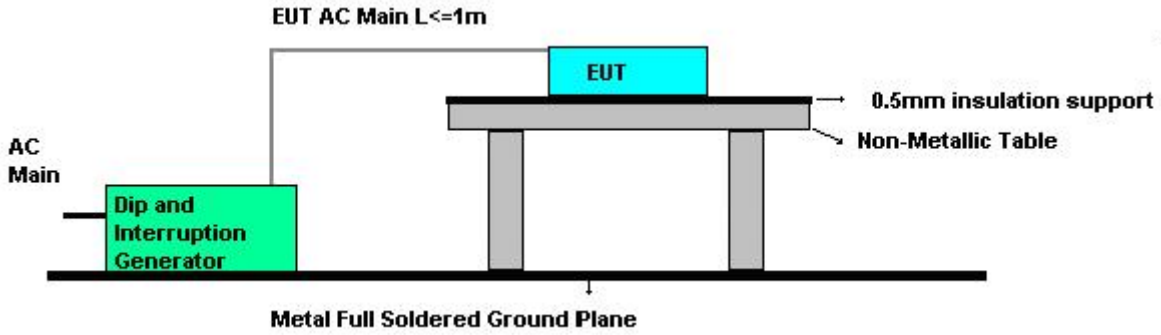
4.5.3 Test Procedures

a. The climatic conditions shall comply with the following requirements :
   - ambient temperature : 15 ℃ to 35 ℃
   - relative humidity : 10 % to 75 %
   - atmospheric pressure : 86 kPa to 106 kPa (860 mbar to 1060 mba)

b. The EUT is powered up to a nominal voltage of 230 VAC 50 Hz, and then software-controlled voltage dips and interruptions are introduced.

c. Test Conditions
   - Source voltage and frequency : 230V / 50Hz, Single phase.
   - Test of interval : 10 sec.
   - Level and duration : Sequence of 3 dips/interrupts.
   - Voltage rise (and fall) time : 1 ~ 5 μs.

4.5.4 Test Setup



4.5.5 Test Severity Levels

Voltage Dip Residual (%)	Test Duration (ms)
0	10
0	20
70	500

Interruption Residual (%)	Test Duration (ms)
0	5000

4.5.6 Test Record

Test Record of Voltage Interruption:

Voltage (V)	Phase Angle								Residual (%)	Duration (ms)
	0 °	45 °	90 °	135 °	180 °	225 °	270 °	315 °		
230	CT/CR								0%	5000

Test Record of Voltage Dips:

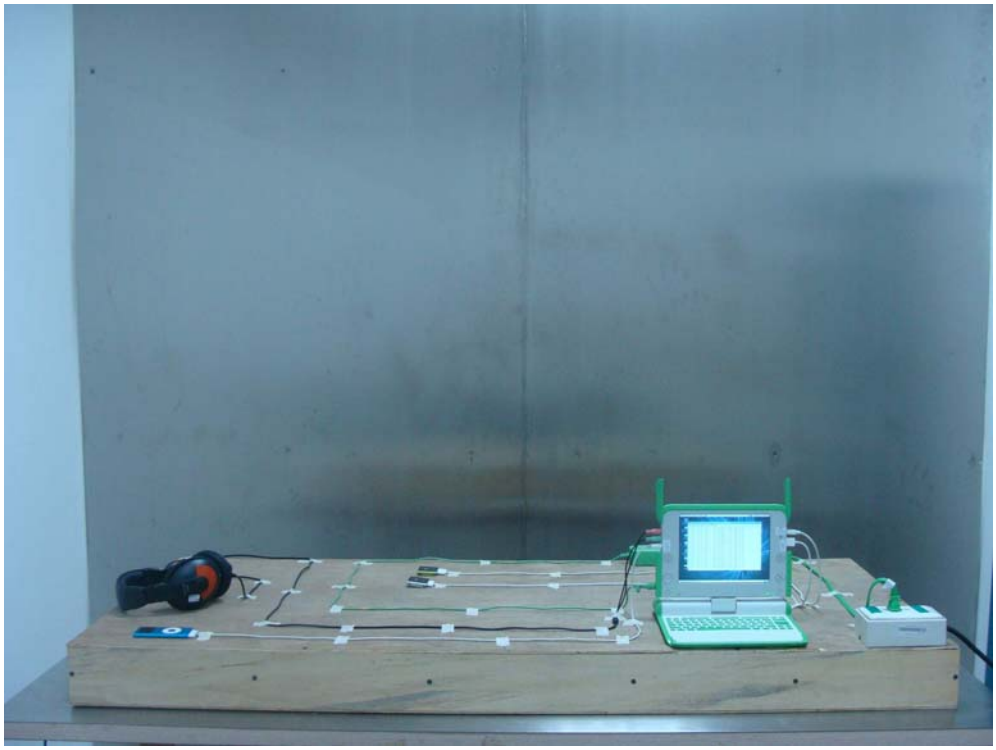
Voltage (V)	Phase Angle								Residual (%)	Duration (ms)
	0 °	45 °	90 °	135 °	180 °	225 °	270 °	315 °		
230	CT/CR								0%	10
230	CT/CR								0%	20
230	CT/CR								70%	500

4.5.7 Test Result

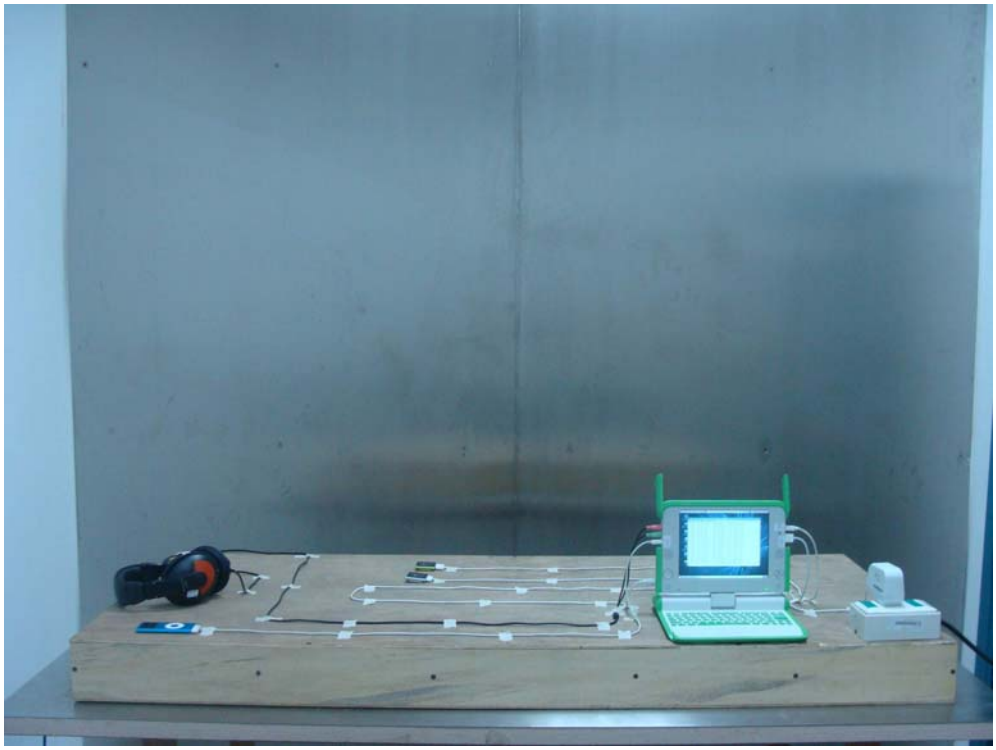
Test Standard	EN 61000-4-11:2004
Product Standard	EN 301 489-17
Required Performance Criteria	TT/TR
EUT Performance	CT/CR
Ambient Temperature	22~23℃
Relative Humidity	44~46%
Atmospheric Pressure	98kPa
Test Date	Nov. 26, 2011
Test Engineer	Lei Wang
Test Result	PASS

4.5.8 Setup Photographs

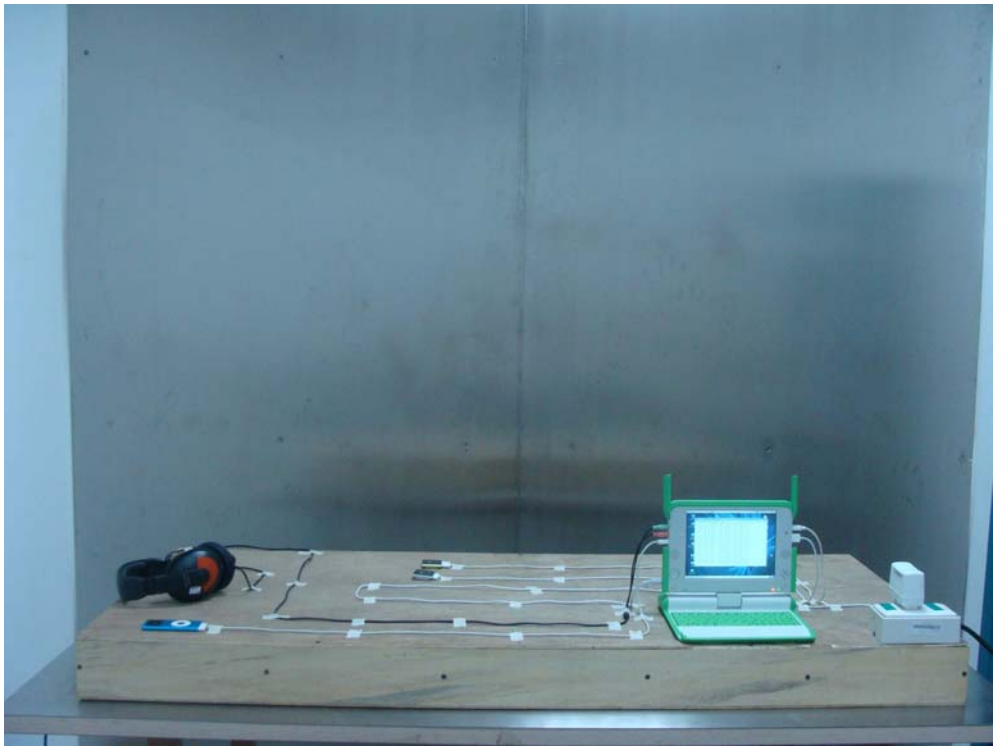
Mode 1



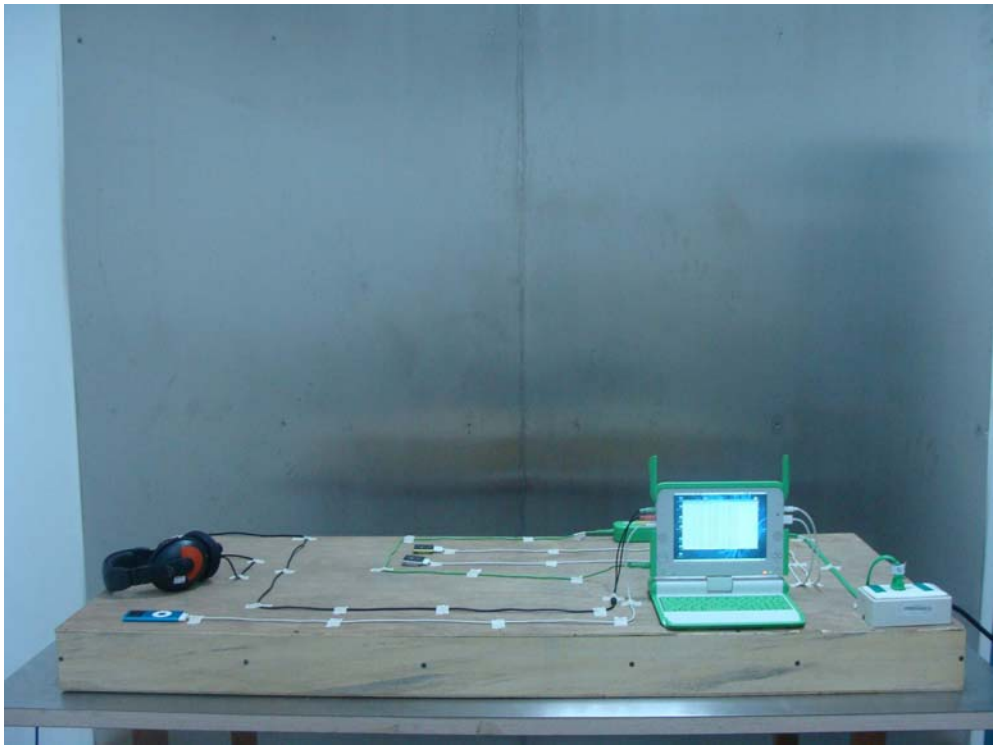
Mode 2



Mode 3



Mode 4



4.6 Surges

4.6.1 Limit of Surge Immunity

This test simulates a lightning event by inducing transients onto the AC/DC power supply lines in common and differential mode.
Each device was tested in a total of two surge configurations:

Line to Ground (L-G): Combination Wave, Line to Protective Earth with 9uF and 10Ohm and Neutral to Protective Earth with 9uF and 10Ohm, common mode, generator earthed.

Line to Line (L-L): Combination Wave, Line to Neutral with 18uF, differential mode, generator floated.

The preferential range of test peak voltage levels for the Surge test is given in following levels:
AC/DC power Line: Line to line: ±1kV; Line to ground: ±2kV
Outdoor Telecommunication Line: Line to ground: ±1kV
Indoor Telecommunication Line: Line to ground: ±0.5kV
Required performance criterion is the criteria CT/CR (Continuous Phenomena for Transmitter / Receiver).

4.6.2 Measuring Instruments

See list of measuring instruments of this test report.

4.6.3 Test Procedure

a. Climatic conditions

The climatic conditions shall comply with the following requirements :

- ambient temperature : 15 ℃ to 35 ℃
- relative humidity : 10 % to 75 %
- atmospheric pressure : 86 kPa to 106 kPa (860 mbar to 1060 mbar)

b. Electromagnetic conditions

The electromagnetic environment of the laboratory shall not influence the test results.

c. The test shall be performed according to the test plan that shall specify the test set-up with

- generator and other equipment utilized;
- test level (voltage/current);
- generator source impedance;
- internal or external generator trigger;
- number of tests : at least five positive and five negative at the selected points;
- repetition rate : maximum 1/min.
- inputs and outputs to be tested;
- representative operating conditions of the EUT;
- sequence of application of the surge to the circuit;
- phase angle in the case of a.c. power supply;
- actual installation conditions, for example :
  AC : neutral earthed,
  DC : (+) or (-) earthed to simulated the actual earthing conditions.

d. If not otherwise specified the surges have to be applied synchronized to the voltage phase at the zero-crossing and the peak value of the a.c. voltage wave (positive and negative).

e. The surges have to be applied line to line and line(s) and earth. When testing line to earth, the test voltage has to be applied successively between each of the lines and earth, if there is no other specification.

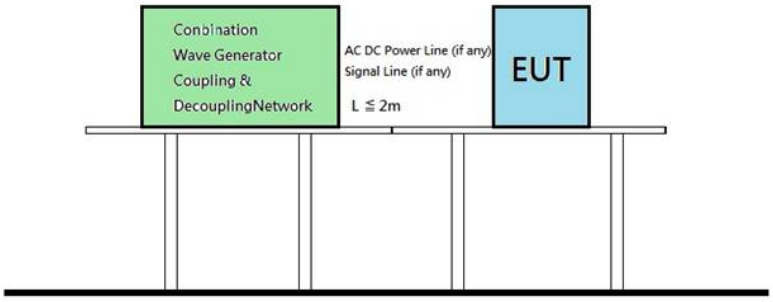
f. The test procedure shall also consider the non-linear current-voltage characteristics of the equipment under test. Therefore the test voltage has to be increased by steps up to the test level specified in the product standard or test plan.

g. All lower levels including the selected test level shall be satisfied. For testing the secondary protection, the output voltage of the generator shall be increased up to the worst-case voltage breakdown level (let-through level) of the primary protection.

h. If the actual operating signal sources are not available, the may be simulated. Under no circumstances may the test level exceed the product specification. The test shall be carried out according the test plan.

i. To find all critical points of the duty cycle of the equipment, a sufficient number of positive and negative test pulses shall be applied. For acceptance test previously unstressed equipment shall be used to the protection devices shall be replaced.

4.6.4 Test Setup



4.6.5 Test Level

Level	Open-circuit test voltage, ± 10%, kV
1	0.5
2	1.0
3	2.0
4	4.0
x	Specified
NOTE - x is an open class. This level can be specified in the product specification.	

4.6.6 Test Record

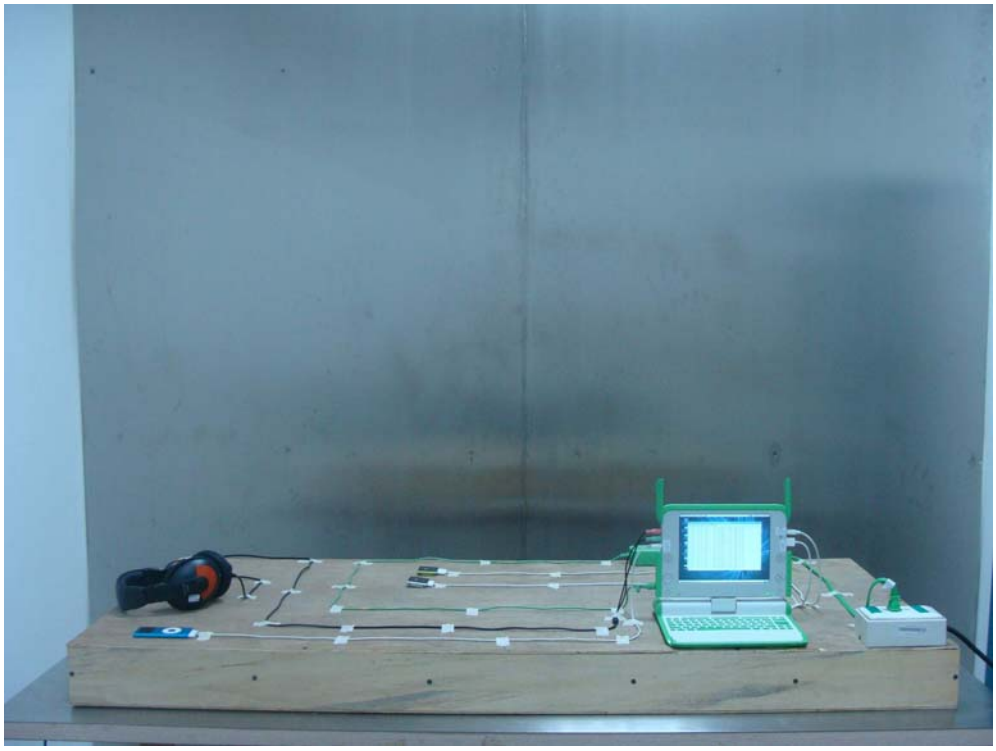
Voltage (kV)	Test Location	Polarity	Phase Angle				Test Result
			0°	90°	180°	270°	
1.0 kV	L – N	+	CT/CR	CT/CR	CT/CR	CT/CR	**PASS**
		–	CT/CR	CT/CR	CT/CR	CT/CR	**PASS**

4.6.7 Test Result

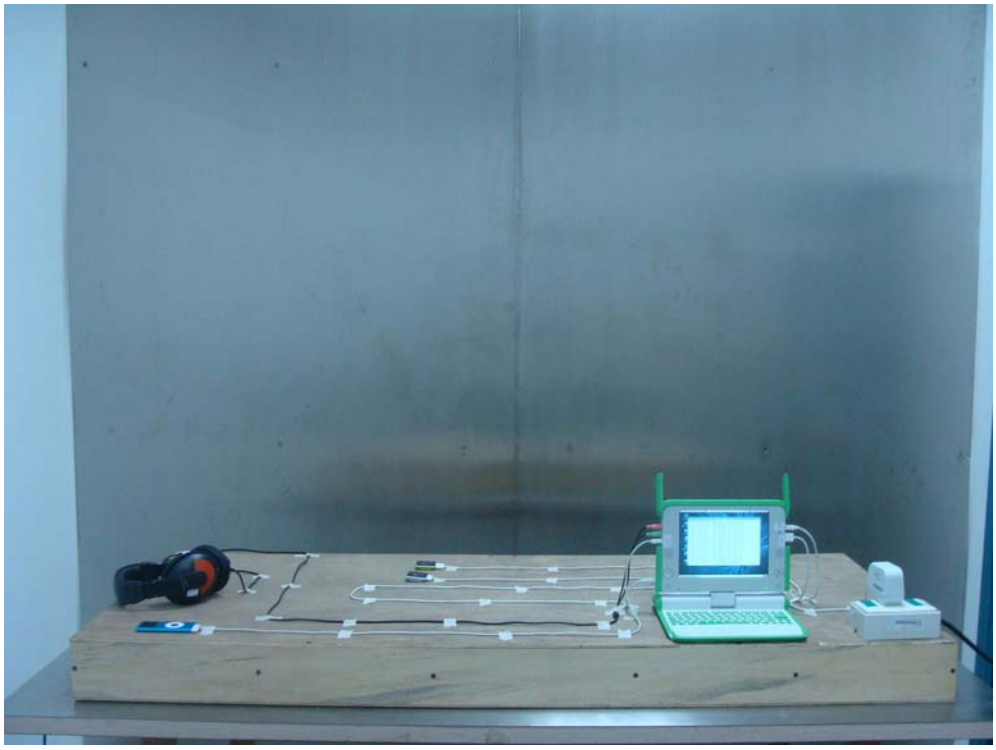
Test Standard	EN 61000-4-5:2006
Product Standard	EN 301 489-17
Required Performance Criteria	TT/TR
EUT Performance	CT/CR
Surge Wave Form (Tr/Th)	1, 2/50（8/20）μs
Level	on Input AC Power Port : 2,
Test Voltage	on Input AC Power Port : ±1 kV
Ambient Temperature	22~23℃
Relative Humidity	44~46%
Atmospheric Pressure	98kPa
Test Date	Nov. 26, 2011
Test Engineer	Lei Wang
Test Result	PASS

4.6.8 Setup Photographs

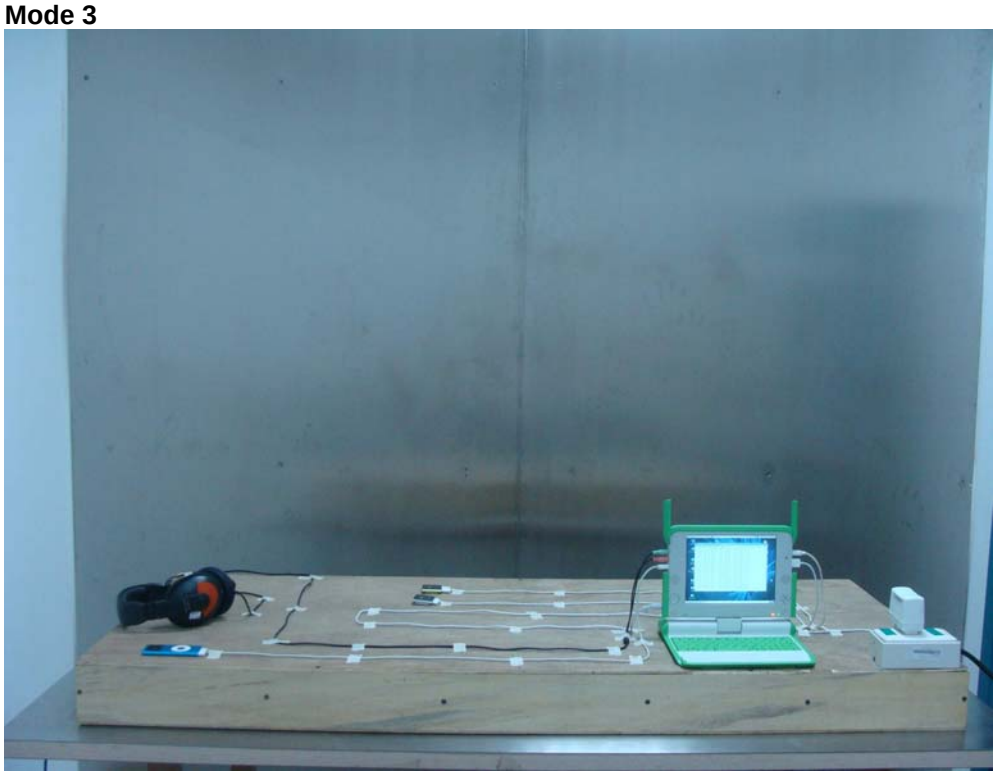
Mode 1



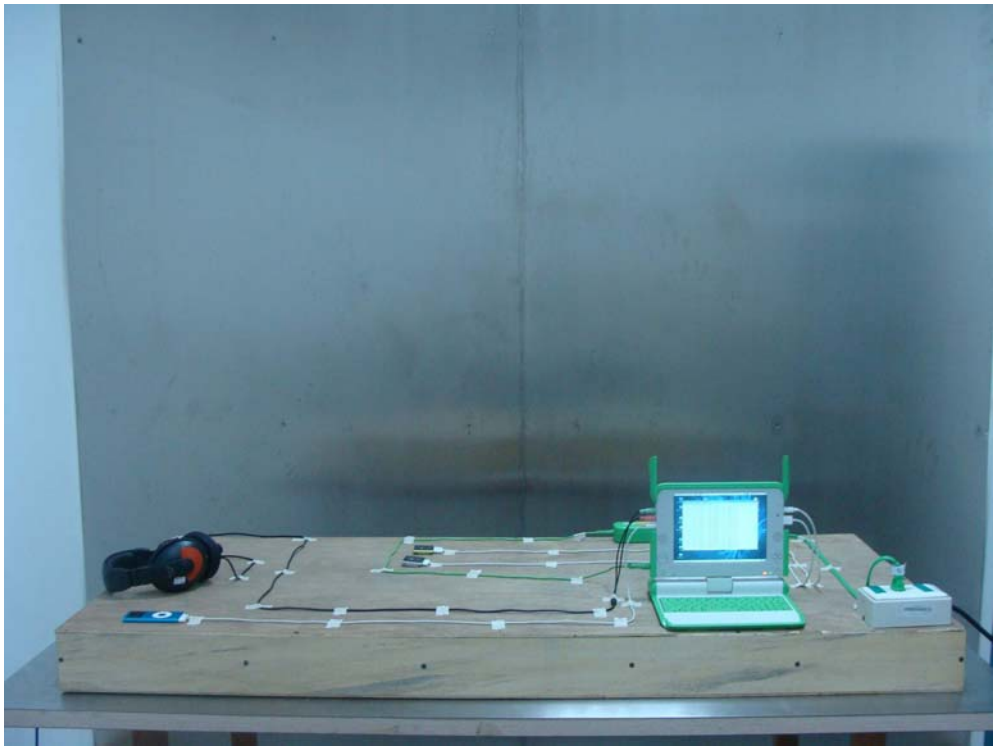
Mode 2



Mode 3



Mode 4



5. Uncertainty Measurement

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.07	Normal (k=2)	0.04
Antenna Factor Calibration	0.92	Normal (k=2)	0.46
Cable Loss Calibration	0.19	Normal (k=2)	0.10
Pre-Amplifier Gain Calibration	0.21	Normal (k=2)	0.11
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.54	Rectangular	0.89
Mismatch	+0.24 / -0.24	U-Shape	0.17
Combined Standard Uncertainty Uc(y)	**1.29**		
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y))	**2.58**		

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	±0.1	Normal (k=1)	0.10
Attenuation: Antenna Receiver	±0.1	Normal (k=2)	0.05
Receiver Corrections	±1.0	Normal (k=2)	0.50
Antenna Factor	±1.3	Normal (k=2)	0.65
Horn Antenna Correction:			
AF Frequency Interpolation	±0.5	Rectangular	0.29
AF Height Deviations	±0.5	Rectangular	0.29
Directivity Difference	±1.0	Rectangular	0.58
Phase Centre Location	±1.0	Rectangular	0.58
Cross-Polarization	±0.9	Rectangular	0.52
Mismatch: Antenna Receiver	+0.9 / -1.0	U-Shape	0.67
Site Corrections:			
Site Imperfections	±5.4	Triangular	2.21
Measurement System Repeatability	±0.20	Rectangular	0.117
Cable Loss	±0.68	Rectangular	0.394
Pre-Amplifier Factor	±0.06	Rectangular	0.037
Combined Standard Uncertainty Uc(y)	**2.6**		
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y))	**5.3**		

6. List of Measuring Equipment

<EMI>

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Nov. 08, 2012	Radiation (OS01-KS)
Bilog Antenna	SCHAFFNER	CBL611D	23183	25MHz ~ 2GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (OS01-KS)
Controller	MF	MF7802	N/A	N/A	N/A	N/A	Radiation (OS01-KS)
Preamplifier	Wireless	FPA-6592G	060004	30M~2000MHz	Dec. 09, 2010	Dec. 08, 2011	Radiation (OS01-KS)
Turn Table	MF	N/A	N/A	N/A	N/A	N/A	Radiation (OS01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	Jun. 02, 2011	Jun. 01, 2012	Radiation (05CH01-KS)
Bilog Antenna	SCHAFFNER	CBL611D	23183	25MHz~2GHz	Dec. 27, 2010	Dec. 26, 2011	Radiation (05CH01-KS)
DRG	ETS-Lindgren	3117	00075957	1GHz~18GHz	Dec. 27, 2010	Dec. 26, 2011	Radiation (05CH01-KS)
Amplifier	Wireless	FPA6592G	060007	30MHz~2GHz	Feb. 08, 2011	Feb. 07, 2012	Radiation (05CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (05CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 02, 2011	Jun. 01, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Nov. 15, 2012	Conduction (CO01-KS)
Harmonic/ Flicker Test System	California	PACS-1	72568	N/A	Oct. 11, 2011	Oct. 10, 2012	Harmonics, Flicker (EX01-KS)
Programmable AC Source	Chroma	61601	ABO000000882	0-300V	Oct. 11, 2011	Oct. 10, 2012	Harmonics, Flicker (EX01-KS)

<EMS>

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Field Sensor	ETS-Lindgren	HI-6005	69910	100kHz~6GHz	Mar. 11, 2011	Mar. 10, 2012	RS (RS01-KS)
RS test system	R&S	TS9981(IMS)	100002	N/A	Dec. 01, 2010	Nov. 30, 2011	RS (RS01-KS)
Average power sensor	R&S	NRP-Z91	100381	9k-6G	Dec. 01, 2010	Nov. 30, 2011	RS (RS01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23183	25MHz~2GHz	Calibrated as part of system	Calibrated as part of system	RS (RS01-KS)
Power Amplifier	AR	250W1000AAM	325367	80~1000MHz, 250W	Calibrated as part of system	Calibrated as part of system	RS (RS01-KS)
Power Amplifier	AR	120S1G3M1	325544	0.8~3GHz,60W	Calibrated as part of system	Calibrated as part of system	RS (RS01-KS)
ESD Generator	TESEQ	NSG 437	369	±0.5 kV~15 kV	Oct. 12, 2011	Oct. 11, 2012	ESD (ES01-KS)
Coupling/Decoupling Network	TESEQ	CDN M016	24477	26MHz~230MHz	Aug. 23, 2011	Aug. 22, 2012	Conducted (CS01-KS)
BCI Probe	FCC	F-140A	656	10kHz~230MHz	Aug. 23, 2011	Aug. 22, 2012	Conducted (CS01-KS)
RF Current Probe	FCC	F-65A	156	10kHz~1GHz	Aug. 23, 2011	Aug. 22, 2012	Conducted (CS01-KS)
BCI JIG	FCC	FCC-BCICF-1	636	10kHz~230MHz	Aug. 23, 2011	Aug. 22, 2012	Conducted (CS01-KS)
AC Power Source	Chroma	61602	ABP000000810	N/A	Nov. 16, 2011	Nov. 15, 2012	Conducted (CS01-KS)
EMC test system	Teseq AG	NSG3040	1746	N/A	Aug. 24, 2011	Aug. 23, 2012	EX01-SZ (EMS)
Single motor driven variable transformer	Teseq AG	VAR 3005-S16	126	0kV-4.4kV	Aug. 24, 2011	Aug. 23, 2012	EX01-SZ (EMS)

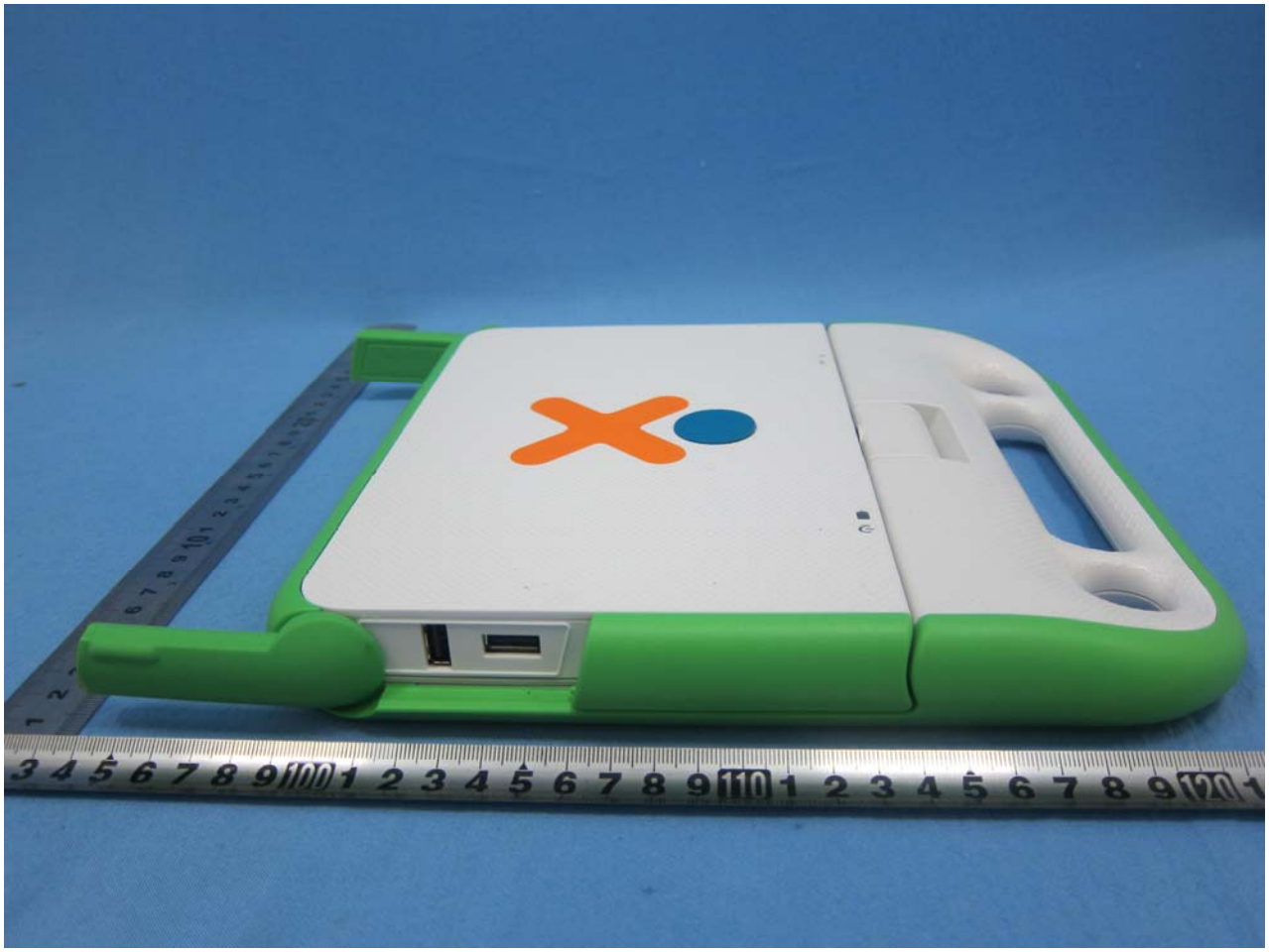
Appendix A. Photographs of EUT

Please refer to Sporton report number EP172910 as below.

1. External Photograph of EUT

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

2. Photograph of Accessory

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

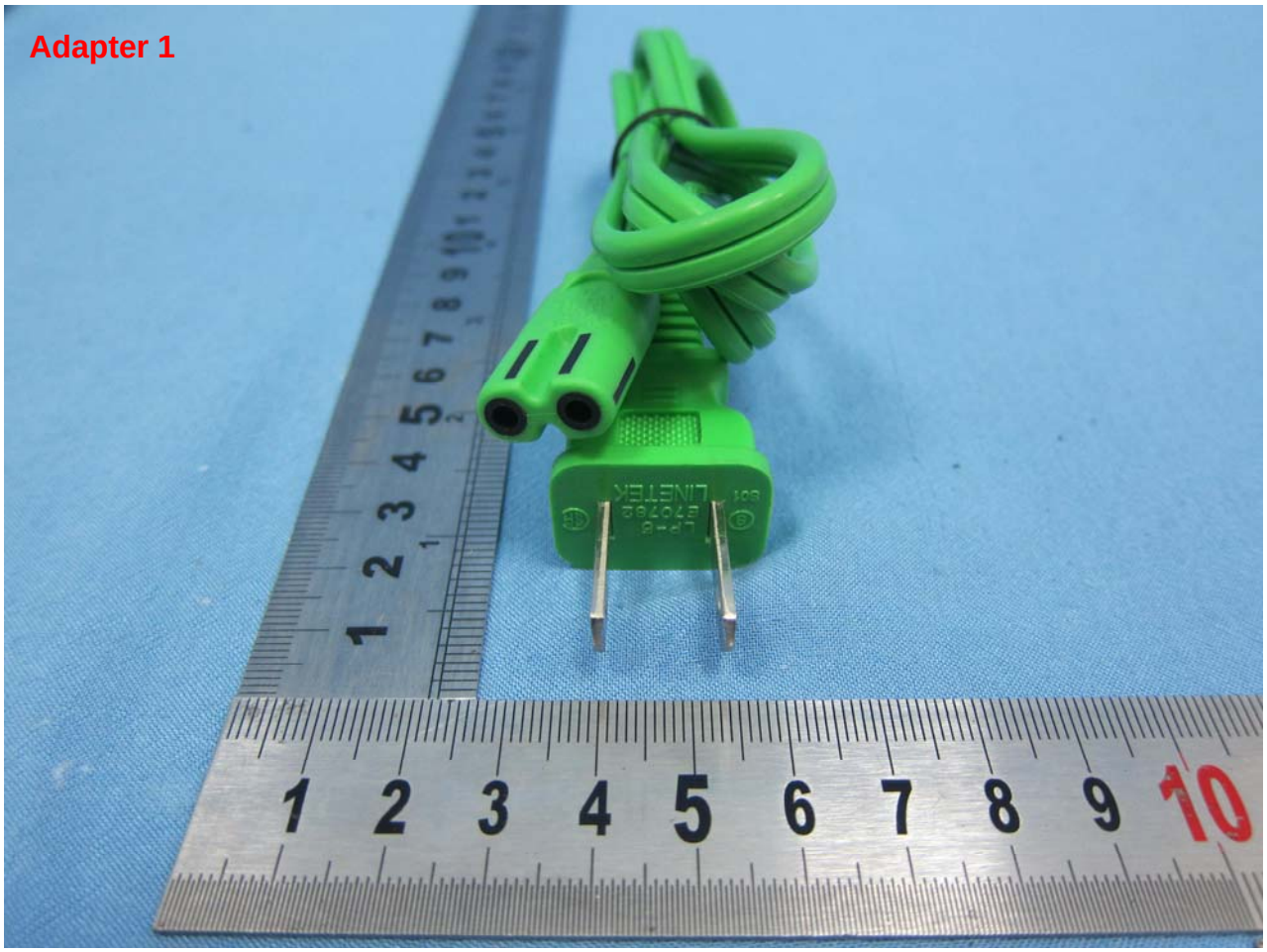
List of Accessory:

Specification of Accessory		
AC Adapter 1	**Brand Name**	DARFON
	Model Name	BB0J-C
AC Adapter 2	**Brand Name**	Bestec
	Model Name	NA0241WAA
AC Adapter 3	**Brand Name**	DARFON
	Model Name	BU24-1203
AC Adapter 4	**Brand Name**	Bestec
	Model Name	BT-AG250SDF
Battery	**Brand Name**	OLPC
	Model Name	CL1

Remark: For accessories equipped with this EUT, please refer to the following photos.

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

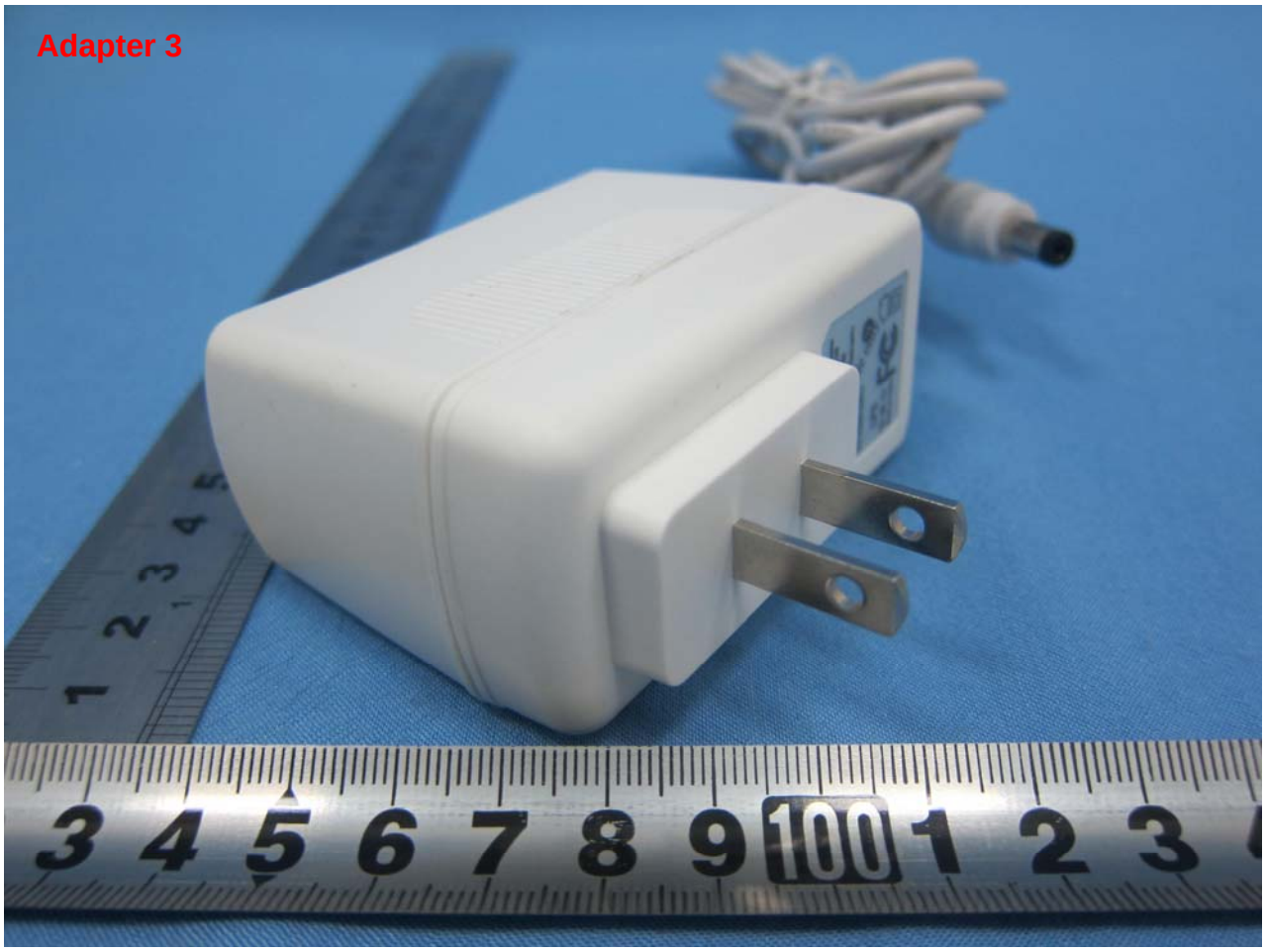
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

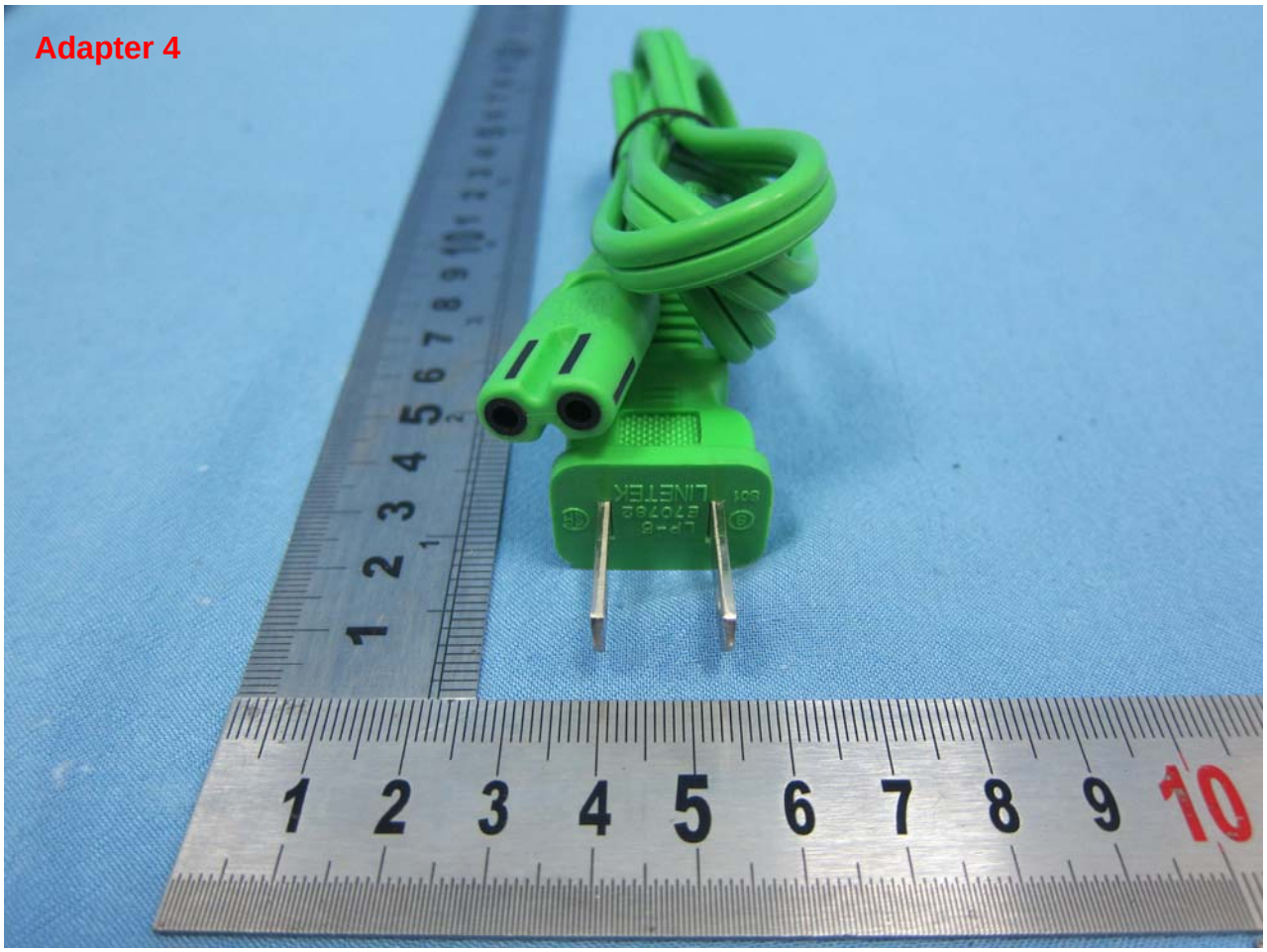
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



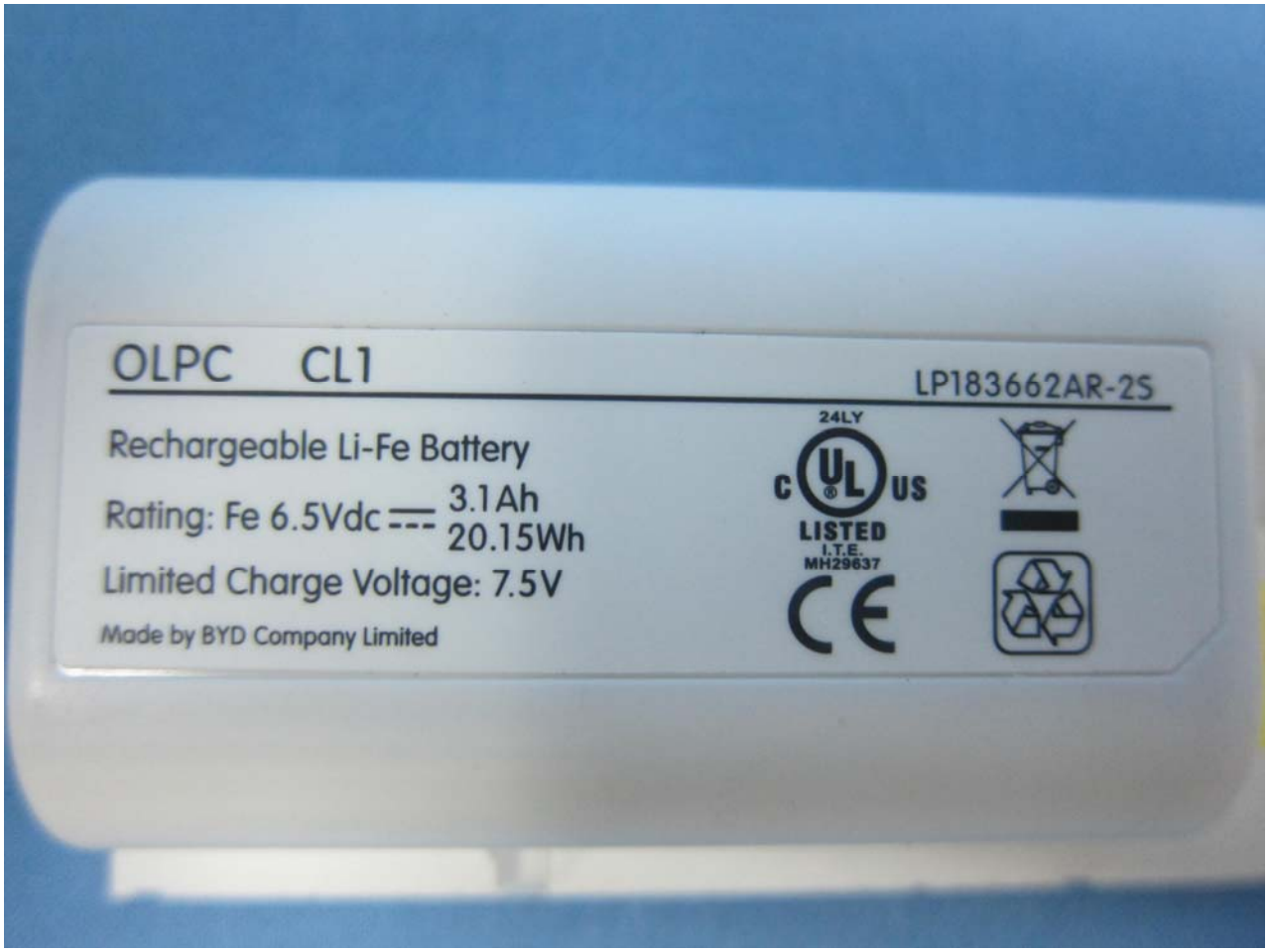
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

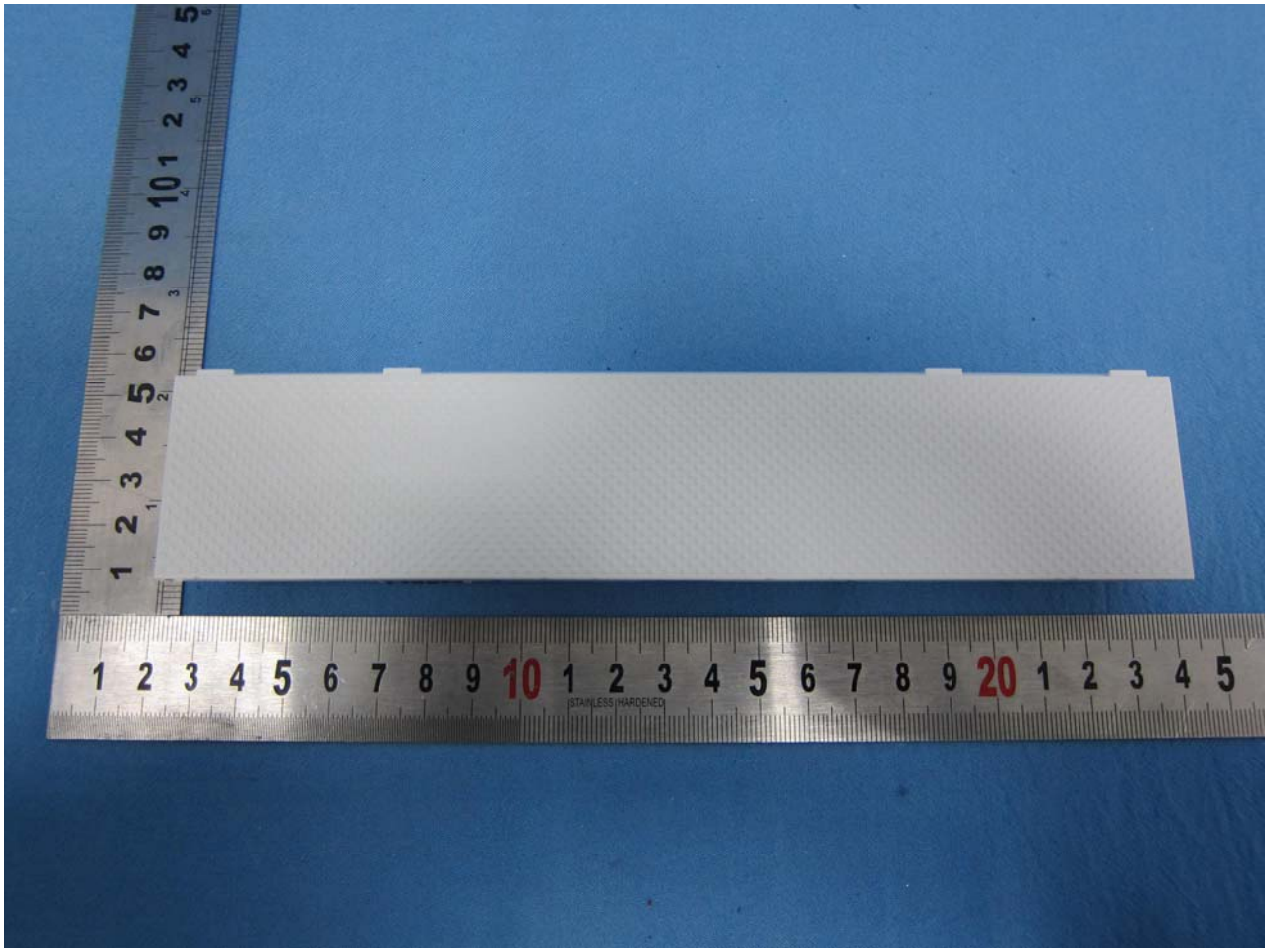
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



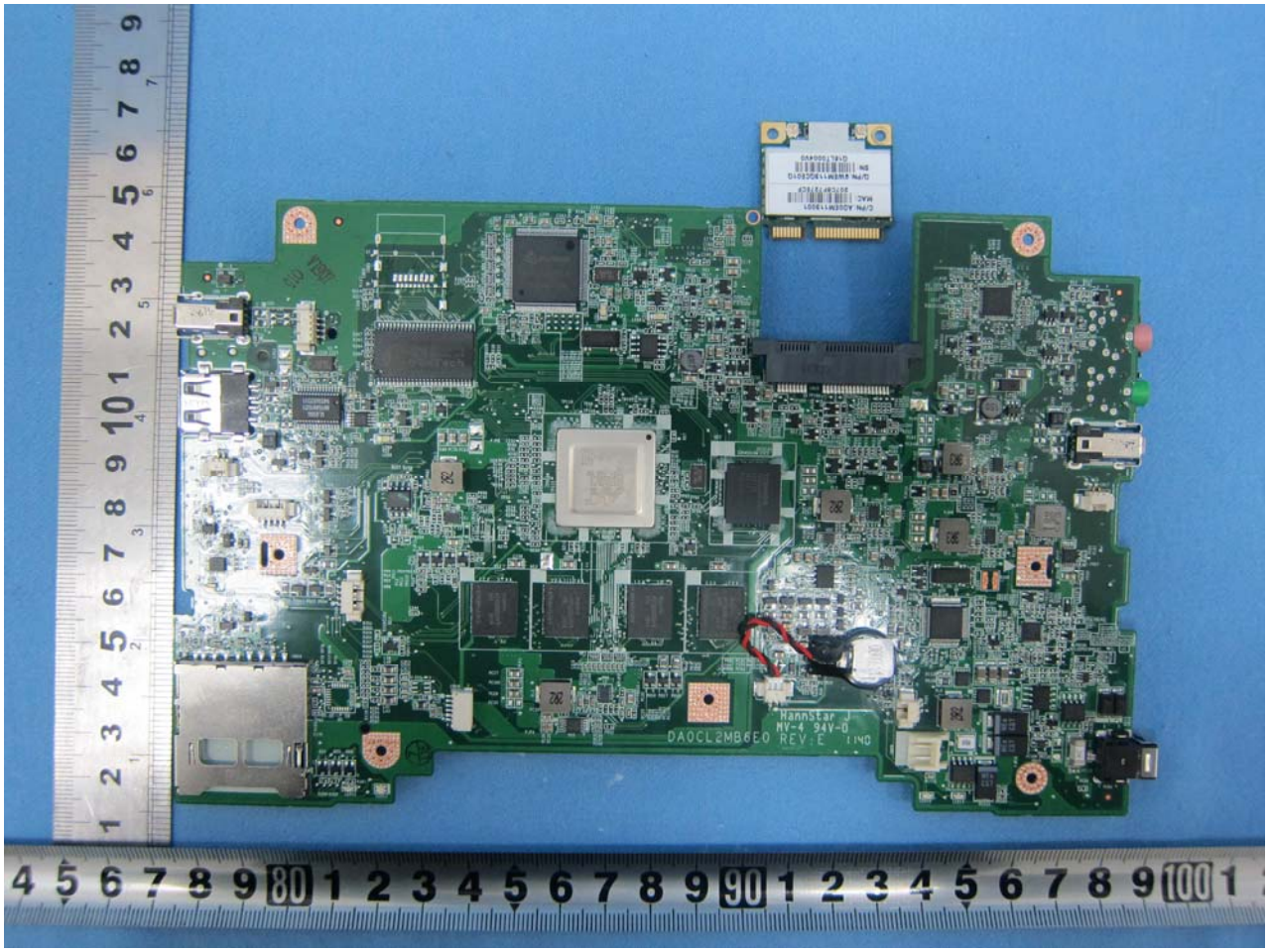
3. Internal Photograph of EUT

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

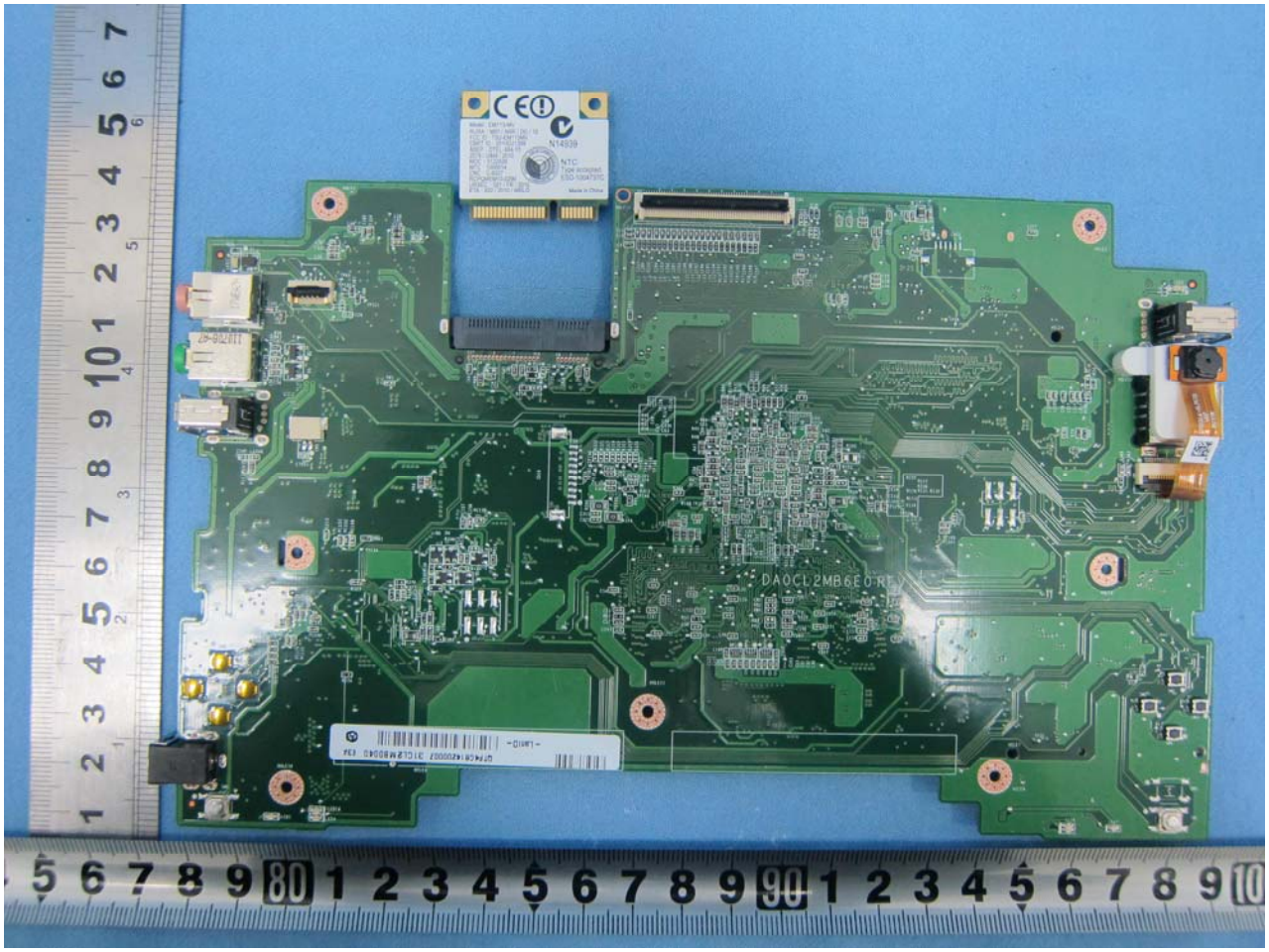
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

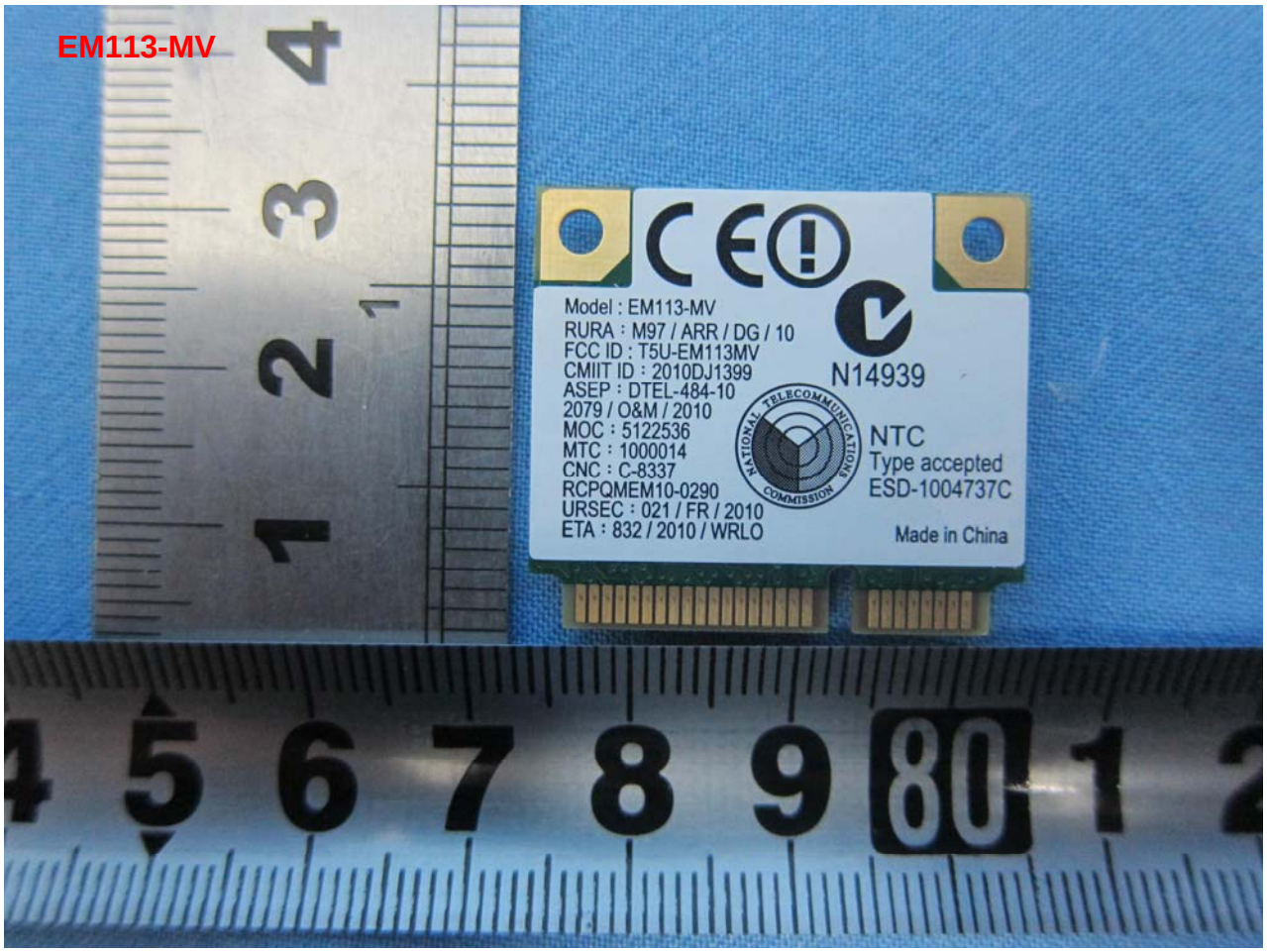
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



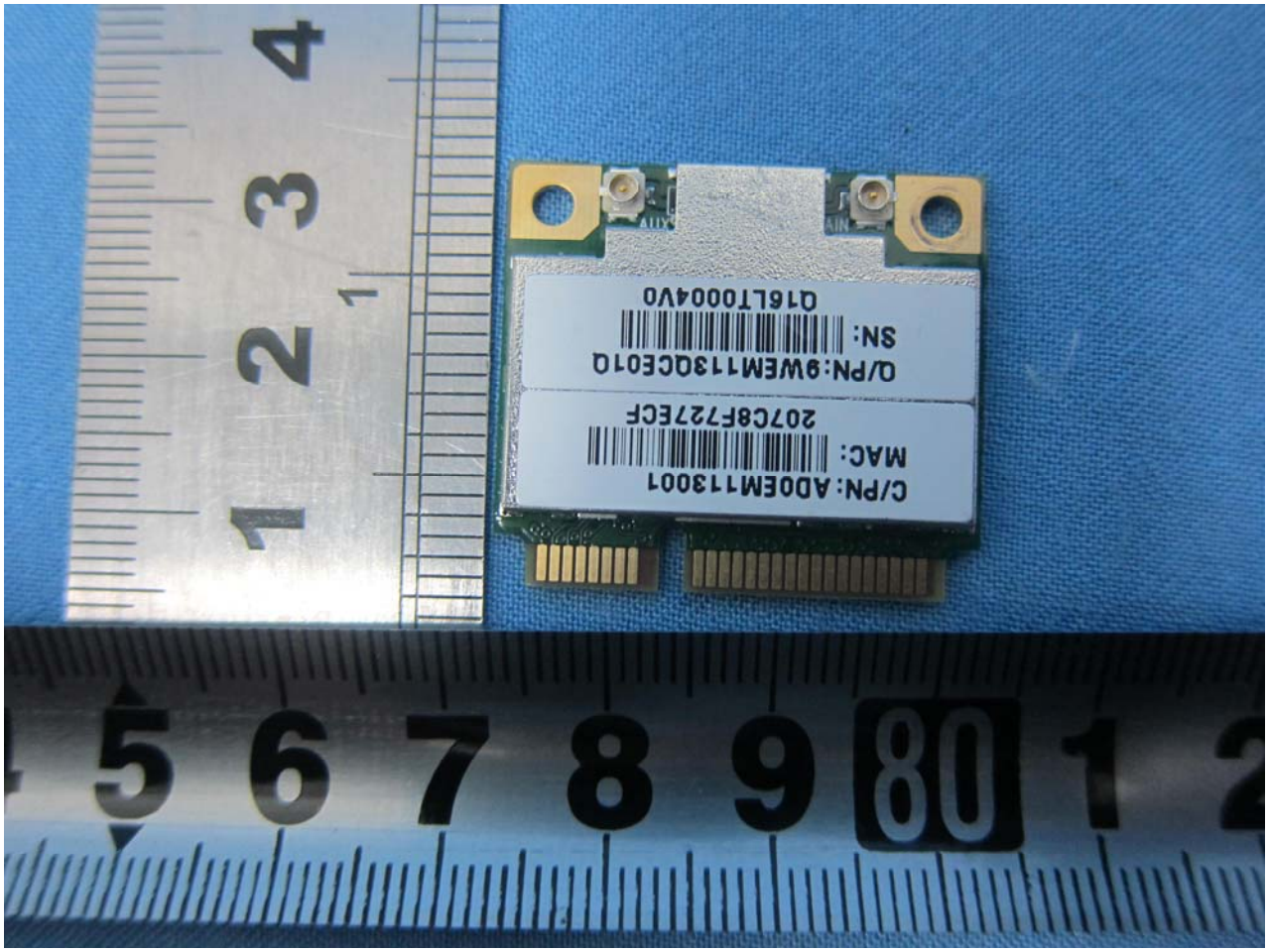
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



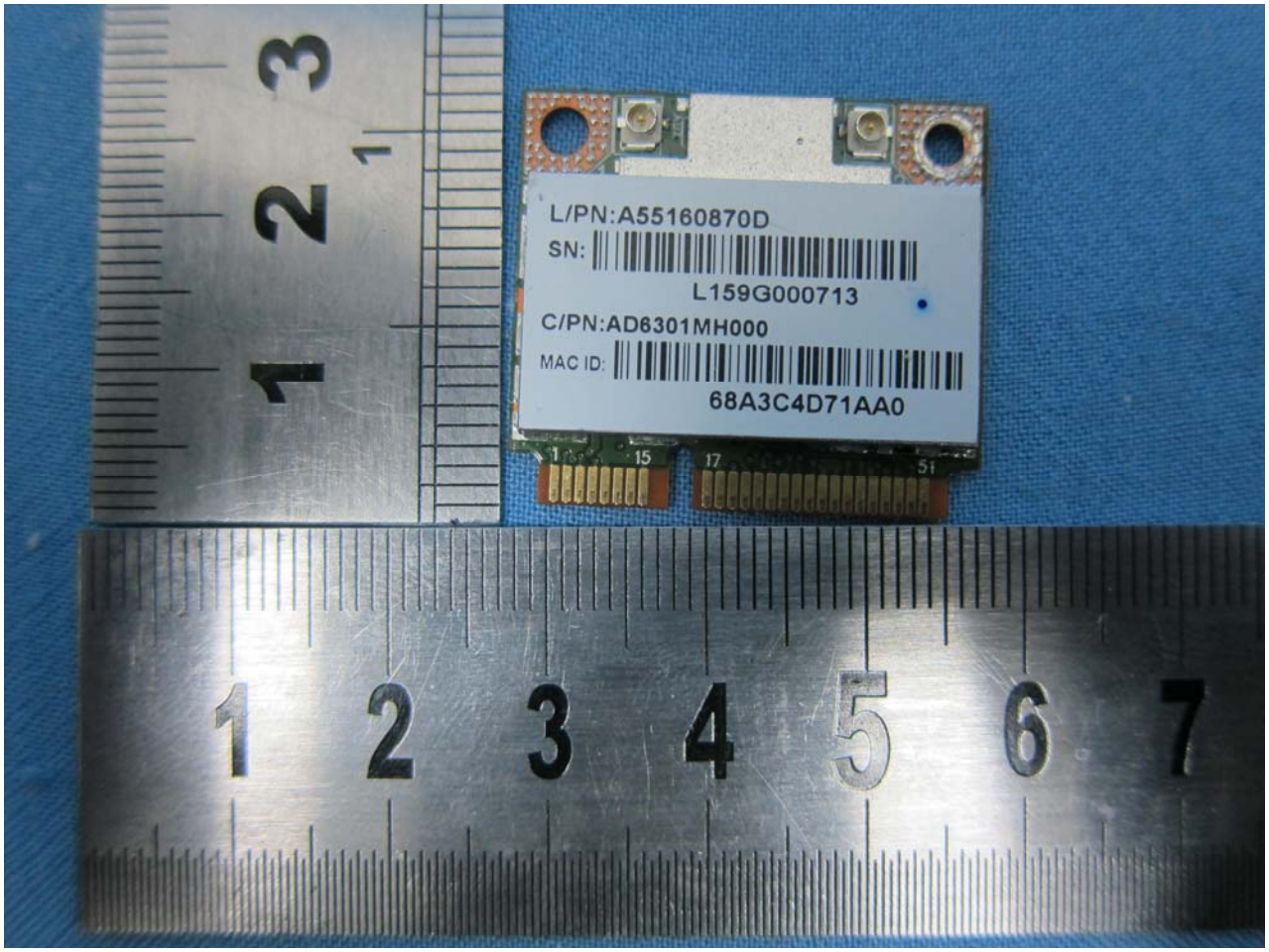
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



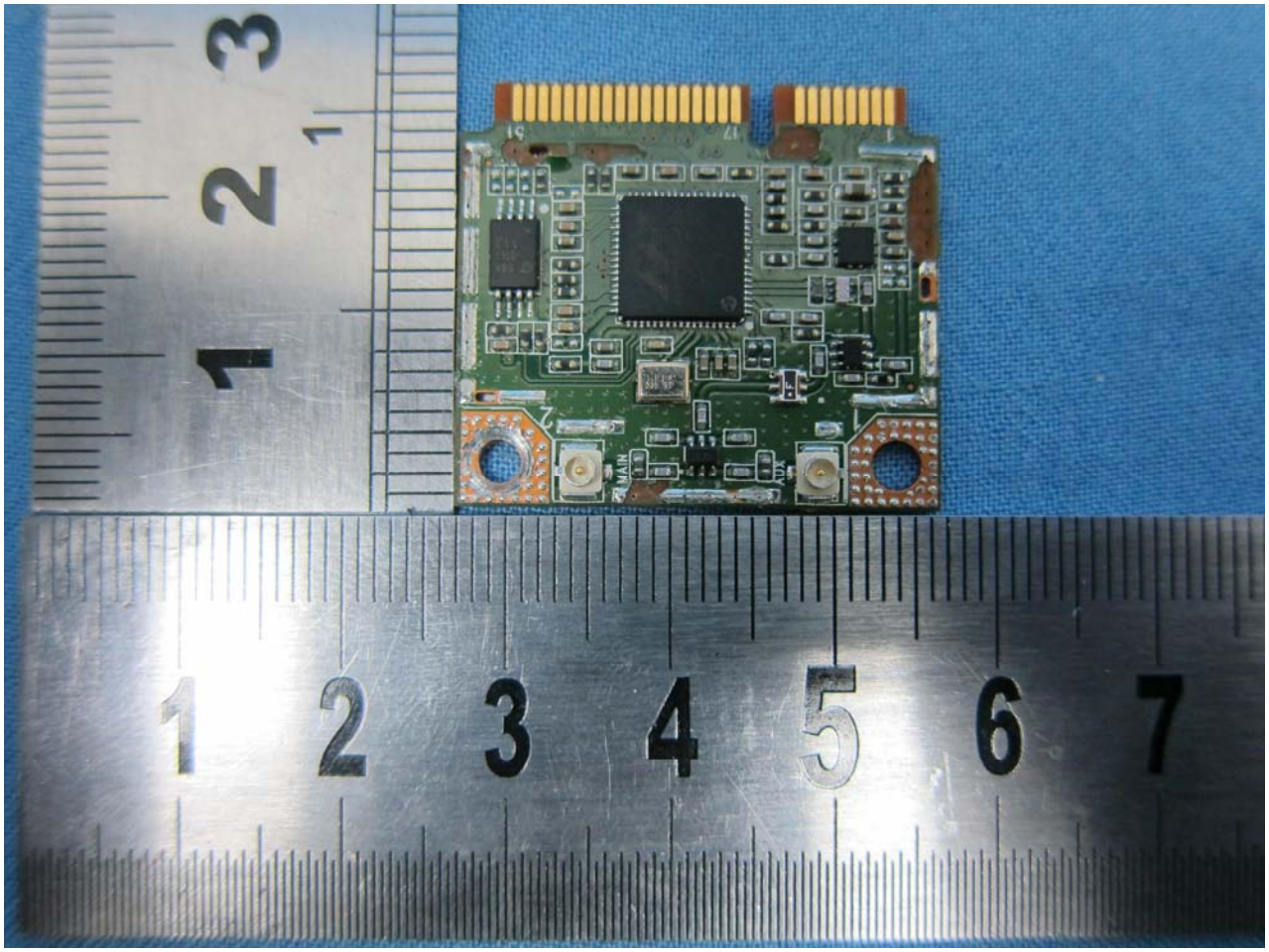
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

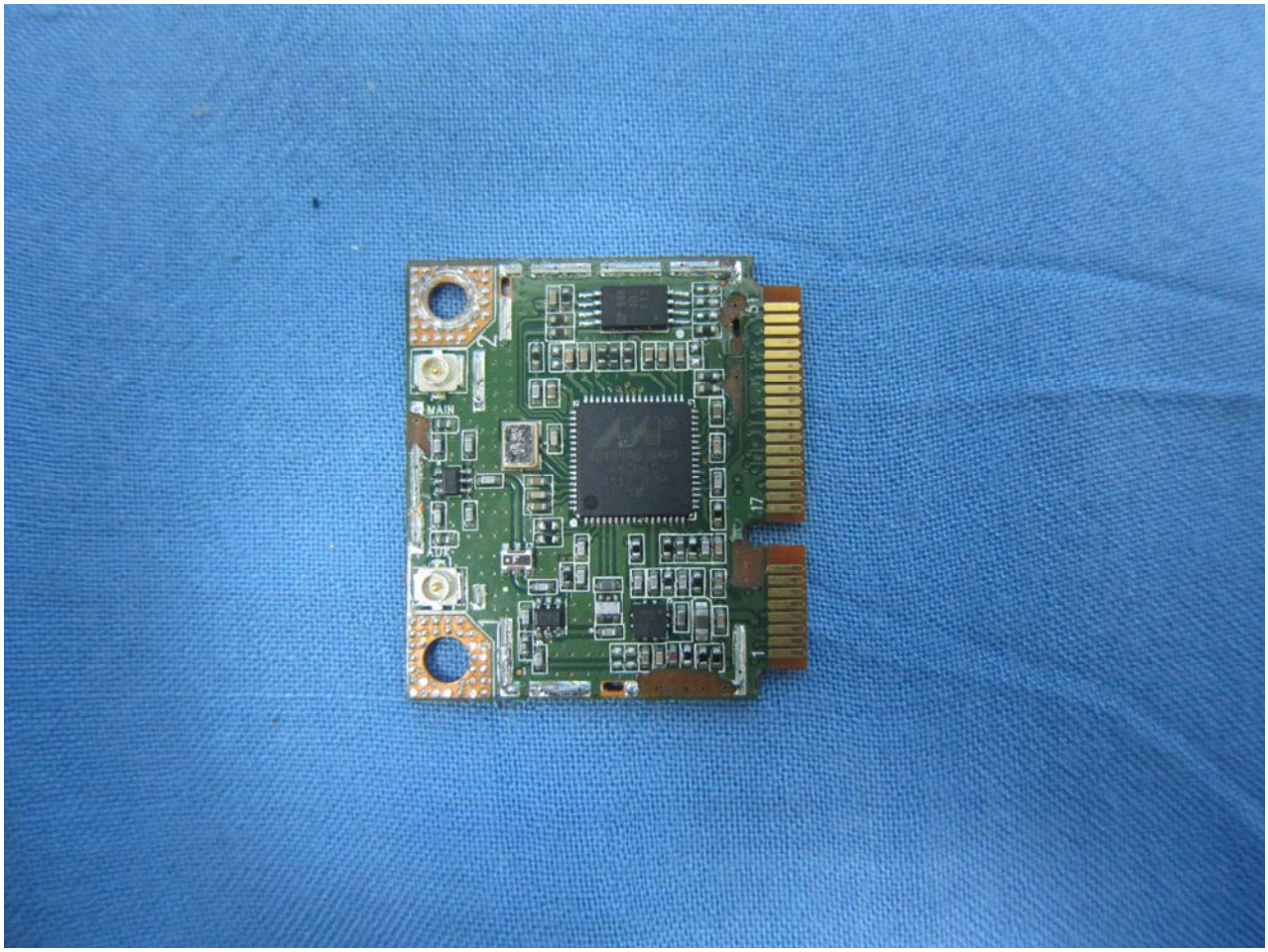
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



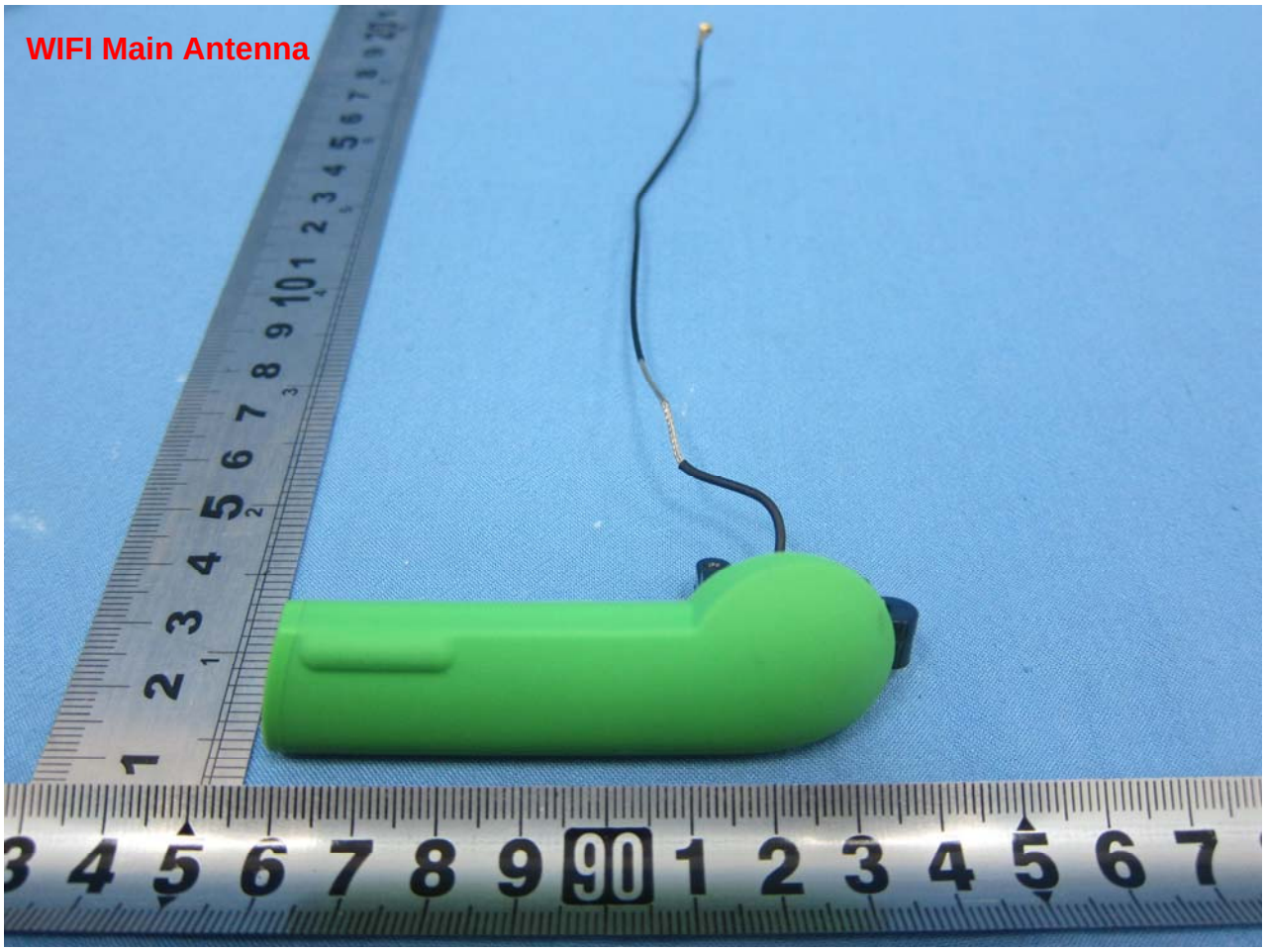
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS