CE Radio Test Report

APPLICANT	**:**	**Quanta Computer Inc**
EQUIPMENT	**:**	**Laptop Computer**
BRAND NAME	**:**	**OLPC**
MODEL NAME	**:**	**XO-1.75; XO-1.75HS**
STANDARD	**:**	**ETSI EN 300 328 V1.7.1 (2006-10)**
TEST DATE(S)	**:**	**Dec. 02, 2011 ~ Dec. 05, 2011**

The product was integrated the WLAN Module (Brand Name: QMI / Model Name: EM113-MV) 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 Standard EN 300 328 V1.7.1 (2006-10).

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
ER172910A	Rev. 01	Initial issue of report	Dec. 14, 2011

SUMMARY OF TEST RESULT

CLAUSE (EN 300 328)	TEST PARAMETER	PASS/FAIL	REMARK
Transmitter Parameters			
4.3.1	Maximum Transmit Power	PASS	-
4.3.2	Maximum E.I.R.P. Spectral Density	PASS	-
4.3.3	Frequency Range	PASS	-
4.3.4	Frequency Hopping Requirements	Not Required	-
4.3.5	Medium Access Protocol	PASS	-
4.3.6	Transmitter Spurious Emissions	PASS	Under limit 12.03 dB at 4824.00 MHz
Receiver Parameters			
4.3.7	Receiver Spurious Emissions	PASS	Under limit 0.43 dB at 244.38 MHz

1. General Description

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 / Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	13
Channel Spacing	5 MHz
Maximum EIRP Average Power	802.11b : 19.83 dBm 802.11g : 16.82 dBm
Duty Cycle	802.11b : 100.00% 802.11g : 100.00%
Antenna Type	PIFA Antenna
Antenna Gain	3.15 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
3. 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. After pre-scan two types of EUT, there is no any difference for RF performance, so we only choose sample 1 (XO-1.75HS) to all test.

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. :** 05CH01-KS ; TH01-KS

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must complies with the requirements of **ETSI EN 300 328 V1.7.1 (2006-10).**

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

1.6 Description of Test System

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-30300	N/A	N/A	Unshielded, 1.8 m

1.7 Test Condition

Normal Voltage	DC 6.5V
Extreme Voltage	DC 5.4V and DC 7.5V
Normal Temperature	25℃
Extreme Temperature	0℃ and 45℃

Note: The manufacturer declared that the EUT could work properly between voltage 5.4V~7.5V.

2. Test Configuration of Equipment under Test

2.1 Conducted Power

a. During testing, the interface cables and equipment positions were varied according to European Standard EN 300 328 V1.7.1 (2006-10).

b. Preliminary tests were performed in different data rate and recorded the conducted power output in the following tables:

Channel	Frequency (MHz)	2.4GHz 802.11b Conducted Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	14.85	14.35	13.94	13.77
CH 07	2442 MHz	15.57	15.47	15.45	15.52
CH 13	2472 MHz	**15.94**	15.88	15.87	15.89

Channel	Frequency (MHz)	2.4GHz 802.11g Conducted Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	10.96	10.79	10.38	10.29	10.71	10.59	10.21	10.11
CH 07	2442 MHz	11.89	11.54	11.24	11.05	11.13	10.96	11.49	10.91
CH 13	2472 MHz	**13.67**	13.28	13.18	12.94	12.88	12.81	13.32	12.77

c. The data rates of WLAN 802.11b/g were set in 1Mbps for 802.11b and 6Mbps for 802.11g due to the highest conducted output power.

2.2 Test Mode

Frequency range of radiation was investigated from 30 MHz to 12750 MHz.

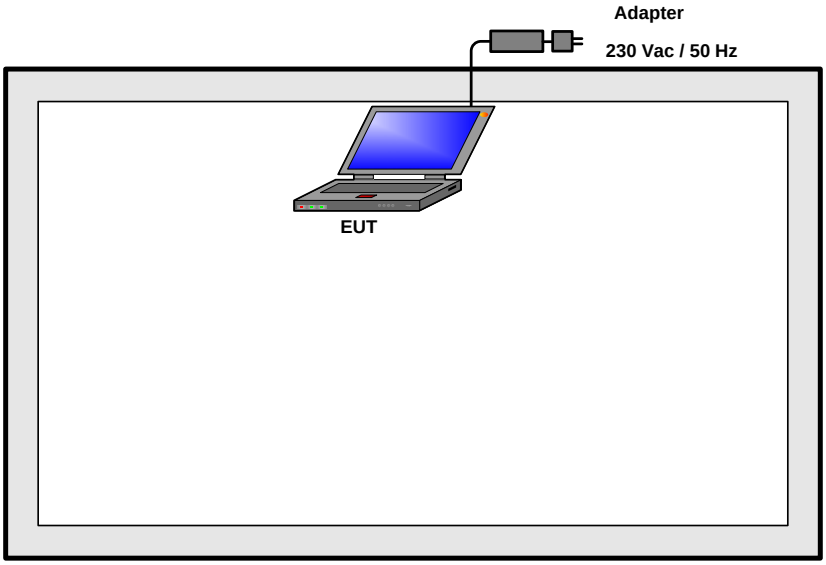
Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

Test Modes		
RF	**802.11b DSSS**	**802.11g OFDM**
Tx	**Mode 1: CH01 (2412MHz) in Laptop Mode** Mode 2: CH13 (2472MHz) in Laptop Mode **Mode 3: CH13 (2472MHz) in Tablet Mode**	Mode 4: CH01 (2412MHz) in Laptop Mode **Mode 5: CH13 (2472MHz) in Laptop Mode** **Mode 6: CH01 (2412MHz) in Tablet Mode**
Rx	Mode 1: CH01 (2412MHz) in Laptop Mode **Mode 2: CH13 (2472MHz) in Laptop Mode** Mode 3: CH01 (2412MHz) in Tablet Mode	Mode 4: CH01 (2412MHz) in Laptop Mode Mode 5: CH13 (2472MHz) in Laptop Mode Mode 6: CH13 (2472MHz) in Tablet Mode

Remark:

1. The worse cases of the Transmitter Radiated Spurious Emission (RSE) were 802.11b CH01 in Laptop Tx Mode, 802.11b CH13 in Tablet Tx Mode, 802.11g CH13 in Laptop Tx Mode and 802.11g CH01 in Tablet Tx Mode; only the test data of these modes were reported.
2. The Receiver Radiated Spurious Emission (RSE) is not obviously related to the different modulation, so only the data of the worst case of 802.11b CH13 in Laptop Rx mode was reported.

2.3 Connection Diagram of Test System



2.4 Test Software

Programmed RF utility, installed in the EUT provides functions like channel selection and power level for transmitting and receiving signals continuously.

3. Transmitter Parameters

3.1 Maximum Transmit Power

3.1.1 Limit of Effective Isotropic Radiated Power

SUBCLAUSE 4.3.1.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	20dBm / -10dBW

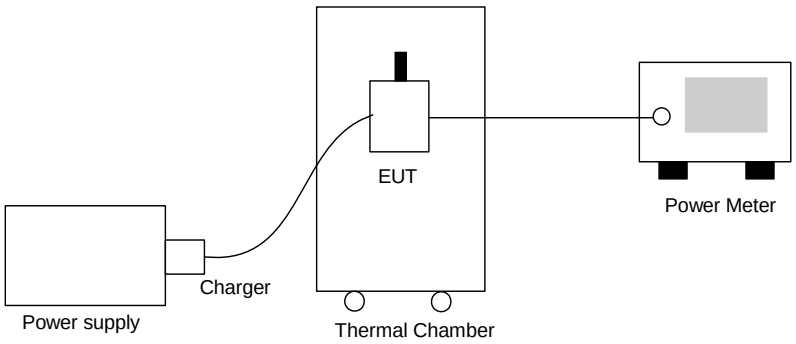
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

1. Placing the EUT in thermal chamber.
2. The transmitter output port was connected to the power meter.
3. Connecting the charger to power supply.
4. Setting thermal chamber temperature and power supply voltage at suitable values.
5. The power is equal to the reading on power meter plus cable loss.
6. Repeating step 4 and 5 at different condition and different channel.
7. The EIRP = A+G+10*log(1/x), where A is the power measured in (2), G is the gain of the antenna of the EUT in dBi and x is the duty cycle of the EUT in continuously transmitting mode.

3.1.4 Test Setup



3.1.5 Test Results

EUT Mode :	802.11b	**Temperature :**	24~25℃
Test Engineer :	Zhi Lu	**Relative Humidity :**	46~47%
Antenna Gain :	3.15 dBi	**Duty Cycle :**	100.00%

TEST CONDITIONS				MEASURED AVERAGE POWER (dBm)			TRANSMITTER POWER EIRP (AVERAGE) (dBm)		
				CH01 2412 MHz	CH 07 2442 MHz	CH 13 2472 MHz	CH01 2412 MHz	CH 07 2442 MHz	CH 13 2472 MHz
T nom (℃)	25	V nom(V)	6.5	-0.45	0.27	0.64	18.00	18.72	19.09
T min (℃)	0	V max(V)	7.5	-1.26	0.96	1.34	17.19	19.41	19.79
		V min(V)	5.4	-1.31	0.94	1.38	17.14	19.39	19.83
T max (℃)	45	V max(V)	7.5	-1.17	0.74	1.12	17.28	19.19	19.57
		V min(V)	5.4	-1.14	0.71	1.08	17.31	19.16	19.53
Measurement uncertainty				1.5dB					

Note:
Transmitter Power EIRP (Average) (dBm) = Measured average power (dBm) + cable loss (15.30 dB) + duty factor (0.00 dB) + Antenna gain (3.15 dBi).
For example: for Ch2412, (-0.45) dBm + 15.30 dB + 0.00 dB + 3.15 dBi. = 18.00 dBm (EIRP)

EUT Mode :	802.11g	Temperature :	24~25℃
Test Engineer :	Zhi Lu	Relative Humidity :	46~47%
Antenna Gain :	3.15 dBi	Duty Cycle :	100.00%

TEST CONDITIONS				MEASURED AVERAGE POWER (dBm)			TRANSMITTER POWER EIRP (AVERAGE) (dBm)		
				CH01 2412 MHz	CH 07 2442 MHz	CH 13 2472 MHz	CH01 2412 MHz	CH 07 2442 MHz	CH 13 2472 MHz
T nom (℃)	25	V nom(V)	6.5	-4.34	-3.41	-1.63	14.11	15.04	16.82
T min (℃)	0	V max(V)	7.5	-6.43	-4.04	-3.09	12.02	14.41	15.36
		V min(V)	5.4	-6.47	-4.06	-3.12	11.98	14.39	15.33
T max (℃)	45	V max(V)	7.5	-6.57	-3.49	-1.65	11.88	14.96	16.80
		V min(V)	5.4	-6.61	-3.53	-1.69	11.84	14.92	16.76
Measurement uncertainty				1.5dB					

Note:
Transmitter Power EIRP (Average) (dBm) = Measured average power (dBm) + cable loss (15.30 dB) + duty factor (0.00 dB) + Antenna gain (3.15 dBi).
For example: for Ch2412, (-4.34) dBm + 15.30 dB + 0.00 dB + 3.15 dBi. = 14.11 dBm (EIRP)

3.2 Maximum e.i.r.p. Spectral Density

3.2.1 Limit of Maximum Spectral Power Density

SUBCLAUSE 4.3.2.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	-20dBW / MHz 10dBm / MHz

Remark: Maximum spectral power density is not applicable to FHSS device.

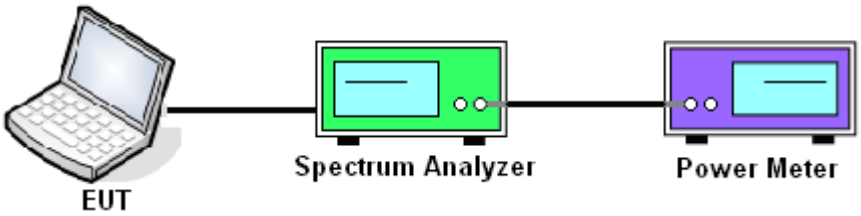
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedure

1. The transmitter output port was connected to spectrum analyzer directly and IF port of spectrum analyzer was connected to power meter.
2. The spectrum analyzer's resolution bandwidth was set at 1 MHz RBW and 1 MHz VBW under fundamental frequency.
3. The maximum spectral power density, e.i.r.p., is determined by summation of the conducted power density and antenna peak gain with 10log (1/x), where x is the duty cycle of the EUT in continuously transmitting mode.

3.2.4 Test Setup



3.2.5 Test Results

EUT Mode :	802.11b	**Temperature :**	24~25℃
Test Engineer :	Zhi Lu	**Relative Humidity :**	46~47%
Antenna Gain :	3.15 dBi	**Duty Cycle :**	100.00%

TEST CONDITIONS	Power Density (dBm/MHz)		
	CH 01 2412MHz	CH07 2442MHz	CH 13 2472MHz
Measured Power Density	4.01	6.23	6.64
Maximum Spectral Power Density EIRP (dBm)	7.16	9.38	9.79
Measurement uncertainty	3dB		

Note:
Maximum Spectral Power Density EIRP (dBm) = Measured Power Density (dBm) + duty factor (0.00 dB) + Antenna gain (3.15 dBi).
For example: for Ch2412, 4.01 dBm + 0.00 dB + 3.15 dBi. = 7.16 dBm (Maximum Spectral Power Density EIRP)

EUT Mode :	802.11g	**Temperature :**	24~25℃
Test Engineer :	Zhi Lu	**Relative Humidity :**	46~47%
Antenna Gain :	3.15 dBi	**Duty Cycle :**	100.00%

TEST CONDITIONS	Power Density (dBm/MHz)		
	CH 01 2412MHz	CH07 2442MHz	CH 13 2472MHz
Measured Power Density	-2.17	-2.16	1.23
Maximum Spectral Power Density EIRP (dBm)	0.98	0.99	4.38
Measurement uncertainty	3dB		

Note:
Maximum Spectral Power Density EIRP (dBm) = Measured Power Density (dBm) + duty factor (0.00 dB) + Antenna gain (3.15 dBi).
For example: for Ch2412, (-2.17) dBm + 0.00 dB + 3.15 dBi. = (0.98) dBm (Maximum Spectral Power Density EIRP)

3.3 Transmitter Frequency Range

3.3.1 Limit of Transmitter Frequency Range

SUBCLAUSE 4.3.3.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	f_L > 2400.0 MHz f_H < 2483.5 MHz

Remark: Lowest frequency band limit = 2400MHz, highest frequency band limit = 2454MHz for France

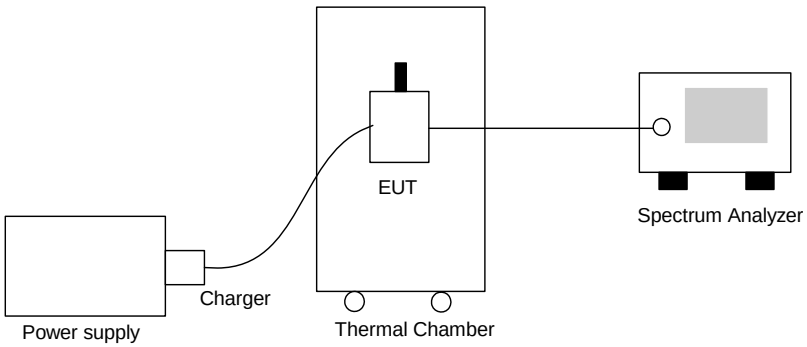
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedure

1. Placing the EUT in thermal chamber.
2. The transmitter output port was connected to the spectrum analyzer.
3. Connecting the charger to power supply.
4. The settings on spectrum analyzer are 100 kHz RBW and 100 kHz VBW.
5. Setting thermal chamber temperature and power supply voltage at suitable value.
6. Recording f_L or f_H according subclause 5.7.4
7. Repeating step 5 and 6 at different conditions and different channels.

3.3.4 Test Setup



3.3.5 Test Results

EUT Mode :	802.11b	**Temperature :**	24~25℃
Test Engineer :	Zhi Lu	**Relative Humidity :**	46~47%
Antenna Gain :	3.15 dBi	**Duty Cycle :**	100.00%

TEST CONDITIONS				FREQUENCY (MHz) at which –80 dBm/Hz occurs		
				CH 01 2412MHz	CH 07 2442MHz	CH 13 2472MHz
T nom (℃)	25	V nom (V)	6.5	2403.54	2450.64	2480.70
T min (℃)	0	V max (V)	7.5	2403.36	2450.88	2480.94
		V min (V)	5.4	2403.36	2450.88	2480.94
T max (℃)	45	V max (V)	7.5	2403.54	2450.64	2480.76
		V min (V)	5.4	2403.54	2450.64	2480.76
Measured frequencies (lowest and highest)				f_L = 2403.36	f_H = 2450.88	f_H = 2480.94
Measurement uncertainty				1×10^{-5}		

EUT Mode :	802.11g	**Temperature :**	24~25℃
Test Engineer :	Zhi Lu	**Relative Humidity :**	46~47%
Antenna Gain :	3.15 dBi	**Duty Cycle :**	100.00%

TEST CONDITIONS				FREQUENCY (MHz) at which –80 dBm/Hz occurs		
				CH 01 2412MHz	CH 07 2442MHz	CH 13 2472MHz
T nom (℃)	25	V nom (V)	6.5	2403.18	2451.30	2481.72
T min (℃)	0	V max (V)	7.5	2403.00	2451.78	2481.72
		V min (V)	5.4	2403.00	2451.78	2481.84
T max (℃)	45	V max (V)	7.5	2403.18	2451.06	2481.48
		V min (V)	5.4	2403.00	2451.12	2481.48
Measured frequencies (lowest and highest)				f_L = 2403.00	f_H = 2451.78	f_H = 2481.84
Measurement uncertainty				1×10^{-5}		

3.4 Frequency Hopping Requirements

3.4.1 Dwell Time

3.4.1.1 Limit of Dwell Time

SUBCLAUSE 4.3.4.1.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	The maximum dwell time shall be 0,4 s

Remark: Dwell Time is not applicable to DSSS/OFDM device.

3.4.2 Hopping Channel Separation

3.4.2.1 Limit of Hopping Channel Separation

SUBCLAUSE 4.3.4.2.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	At least 1 MHz

Remark: Hopping Channel Separation is not applicable to DSSS/OFDM device.

3.4.3 Hopping Sequence

3.4.3.1 Limit of Hopping Sequence

SUBCLAUSE 4.3.4.3.2	
TEST CONDITION	**LIMIT**
Under all Test Conditions	A minimum of 20 hopping channels

Remark: Hopping Sequence is not applicable to DSSS/OFDM device.

3.5 Medium Access Protocol

3.5.1 Definition and Requirement

A medium access protocol is a mechanism designed to facilitate spectrum sharing with other devices in a wireless network and the medium access protocol shall be implemented in WiFi and BT devices.

3.5.2 Declaration

According to the manufacturer's declaration and verification in live network, this device complies with this test case.

3.6 Transmitter Spurious Emissions

3.6.1 Limit of Transmitter Spurious Emissions

Transmitter limits for narrowband spurious emissions:

SUBCLAUSE 4.3.6.2	
FREQUENCY RANGE	**LIMIT WHEN OPERATING**
30 MHz to 1 GHz	-36 dBm
Above 1 GHz to 12,75 GHz	-30 dBm
1,8 GHz to 1,9 GHz 5,15 GHz to 5,3 GHz	-47 dBm

3.6.2 Measuring Instruments

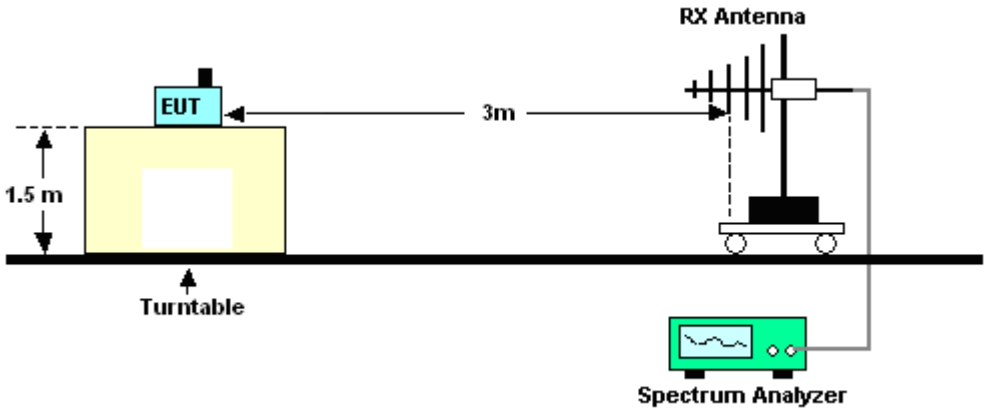
See list of measuring instruments of this test report.

3.6.3 Test Procedures

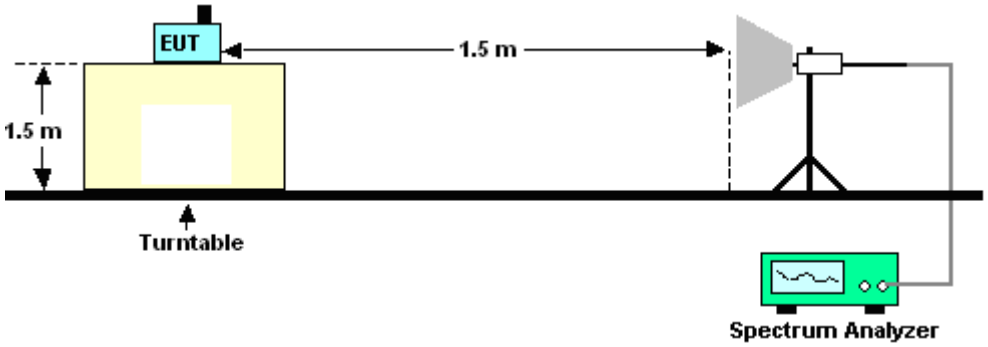
1. The EUT was placed on a turntable with 1.5m height.
2. The test distance between the receiving antenna and the EUT is 3m and the antenna is kept at 1.5m height.
3. Setting EUT in continuous Tx.
4. The table was rotated to search the highest radiated emission.
5. Repeating step 3 and 4 for different polarization and channel.

3.6.4 Test Setup

<Below 1GHz>

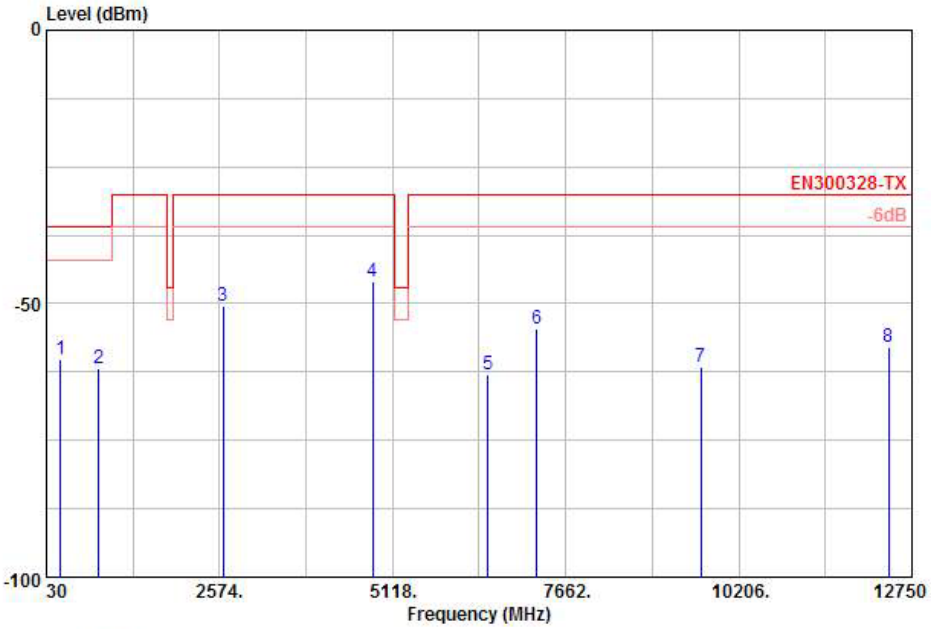


<Above 1GHz>



3.6.5 Test Result

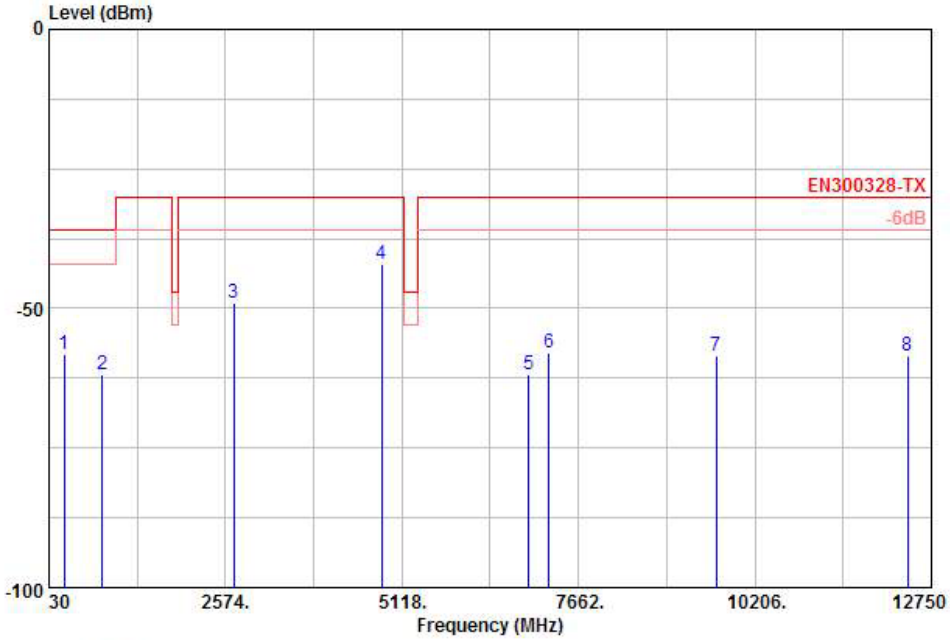
Test Mode :	Mode 1: CH01 (2412MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 HORIZONTAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	239.79	-60.15	-24.15	-36.00	-58.29	-1.86
2	797.70	-61.95	-25.95	-36.00	-67.35	5.40
3	2622.00	-50.53	-20.53	-30.00	-58.97	8.44
4	4824.00	-46.10	-16.10	-30.00	-57.82	11.72
5	6514.00	-62.92	-32.92	-30.00	-76.69	13.77
6	7234.00	-54.59	-24.59	-30.00	-68.07	13.48
7	9649.00	-61.51	-31.51	-30.00	-76.58	15.07
8	12411.75	-57.81	-27.81	-30.00	-77.89	20.08

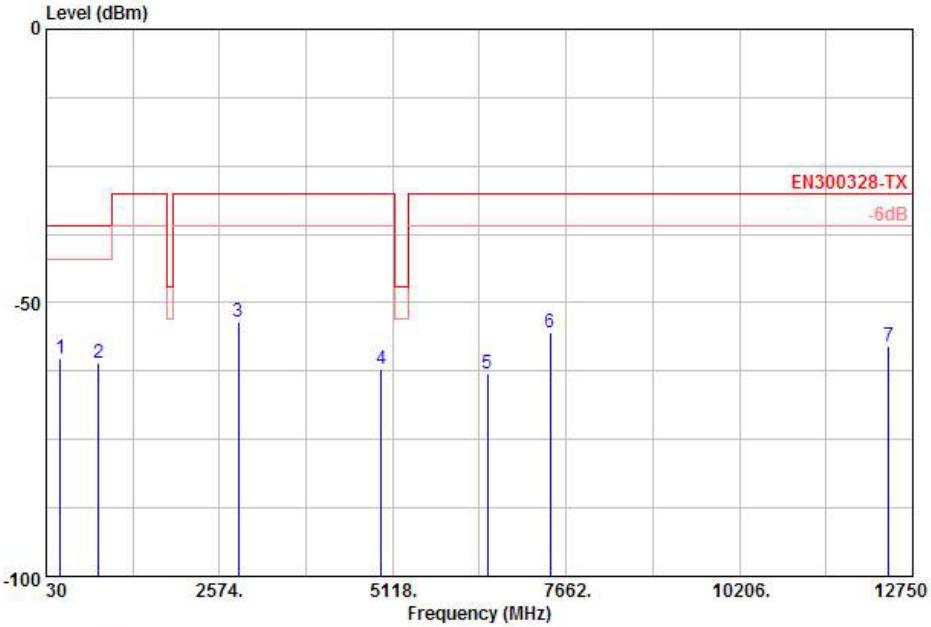
Test Mode :	Mode 1: CH01 (2412MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 VERTICAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	243.84	-58.18	-22.18	-36.00	-56.43	-1.75
2	797.70	-61.74	-25.74	-36.00	-67.14	5.40
3	2692.00	-48.89	-18.89	-30.00	-57.09	8.20
4	4824.00	-42.03	-12.03	-30.00	-53.85	11.82
5	6948.00	-61.83	-31.83	-30.00	-75.23	13.40
6	7234.00	-57.92	-27.92	-30.00	-71.25	13.33
7	9649.00	-58.49	-28.49	-30.00	-73.54	15.05
8	12409.00	-58.60	-28.60	-30.00	-78.65	20.05

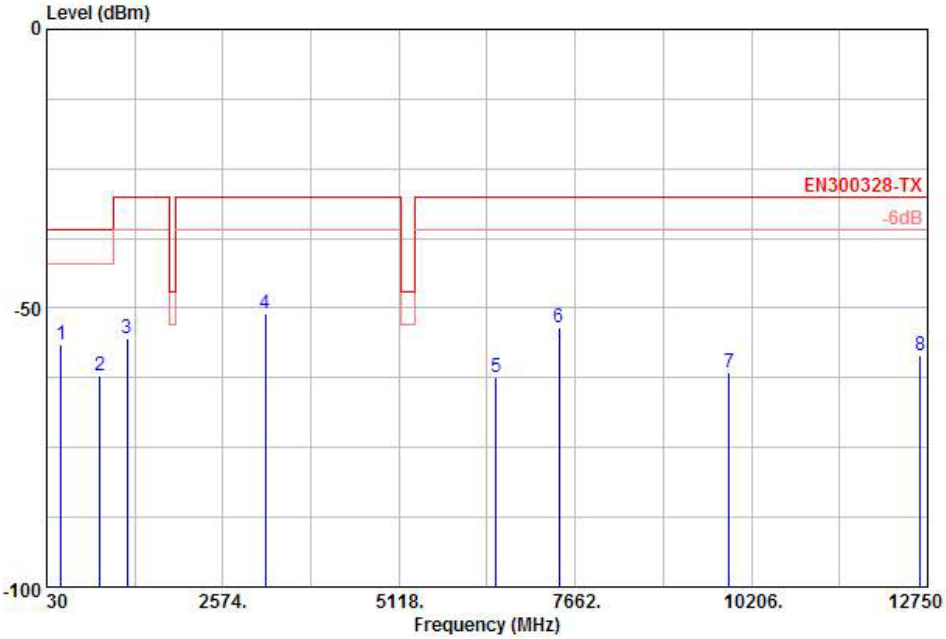
Test Mode :	Mode 3: CH13 (2472MHz) in Tablet Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 HORIZONTAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	241.14	-60.05	-24.05	-36.00	-58.19	-1.86
2	797.70	-61.07	-25.07	-36.00	-66.47	5.40
3	2846.00	-53.60	-23.60	-30.00	-62.20	8.60
4	4946.00	-62.00	-32.00	-30.00	-73.75	11.75
5	6508.00	-62.82	-32.82	-30.00	-76.59	13.77
6	7423.00	-55.48	-25.48	-30.00	-68.87	13.39
7	12398.00	-57.91	-27.91	-30.00	-77.97	20.06

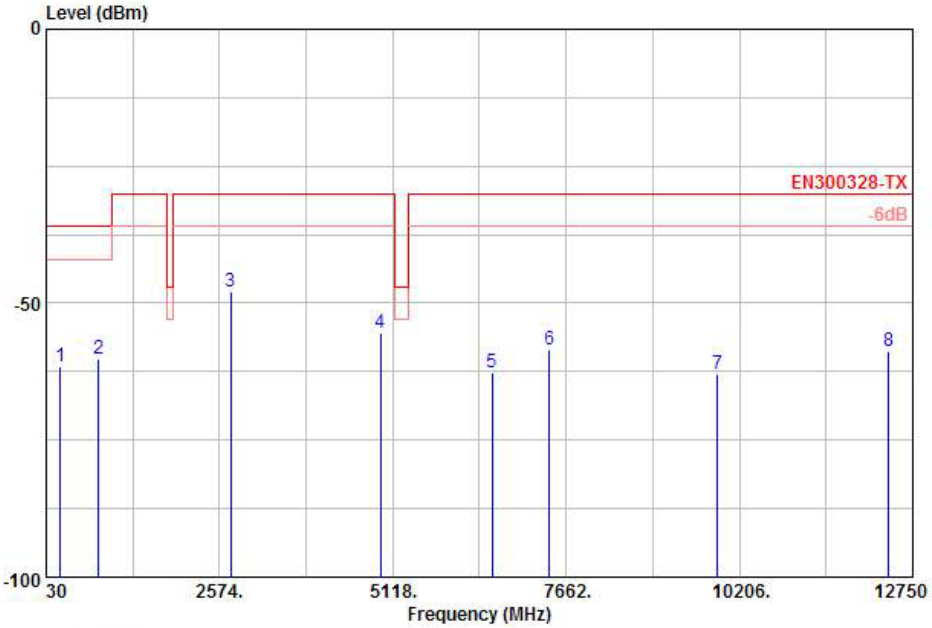
Test Mode :	Mode 3: CH13 (2472MHz) in Tablet Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 VERTICAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	241.41	-56.43	-20.43	-36.00	-54.62	-1.81
2	797.70	-62.09	-26.09	-36.00	-67.49	5.40
3	1196.00	-55.50	-25.50	-30.00	-57.12	1.62
4	3188.00	-50.94	-20.94	-30.00	-61.07	10.13
5	6516.00	-62.46	-32.46	-30.00	-76.30	13.84
6	7423.00	-53.44	-23.44	-30.00	-66.72	13.28
7	9889.00	-61.67	-31.67	-30.00	-76.92	15.25
8	12642.75	-58.41	-28.41	-30.00	-78.68	20.27

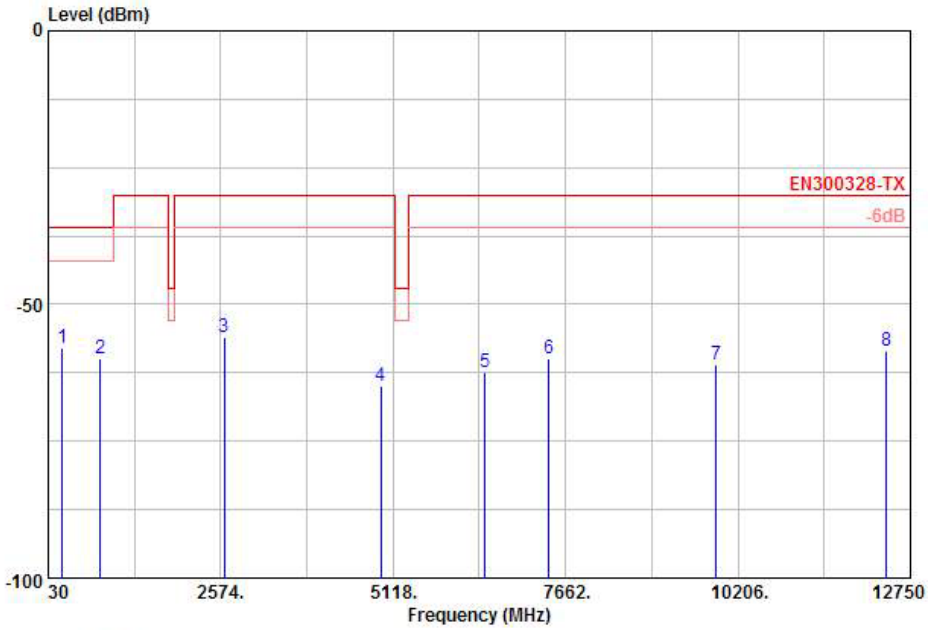
Test Mode :	Mode 5: CH13 (2472MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 HORIZONTAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	242.49	-61.58	-25.58	-36.00	-59.77	-1.81
2	797.70	-60.03	-24.03	-36.00	-65.43	5.40
3	2734.00	-48.05	-18.05	-30.00	-56.56	8.51
4	4942.00	-55.56	-25.56	-30.00	-67.31	11.75
5	6572.00	-62.66	-32.66	-30.00	-76.41	13.75
6	7414.00	-58.37	-28.37	-30.00	-71.76	13.39
7	9888.00	-63.03	-33.03	-30.00	-78.30	15.27
8	12395.25	-58.71	-28.71	-30.00	-78.77	20.06

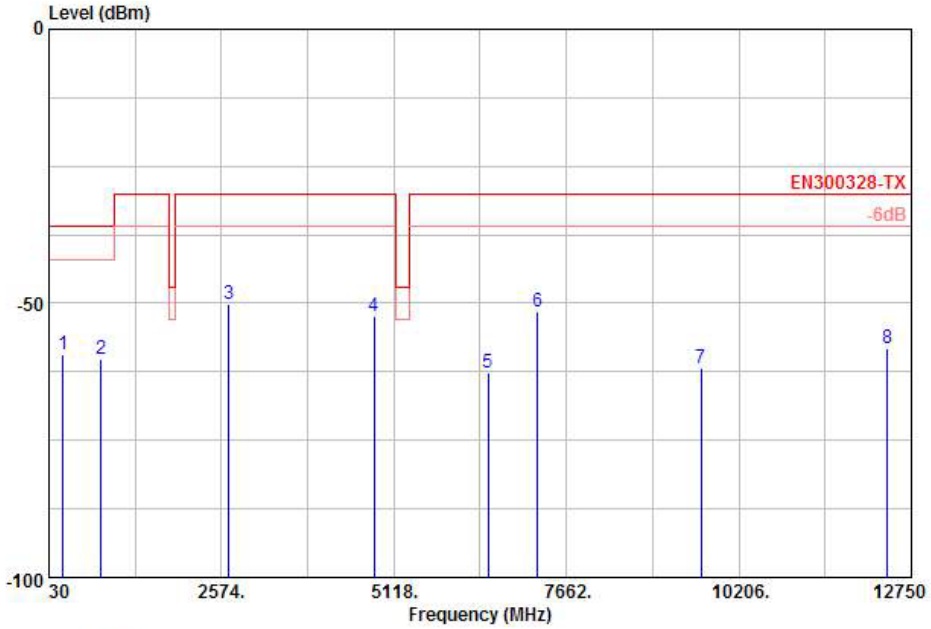
Test Mode :	Mode 5: CH13 (2472MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 VERTICAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	239.52	-57.97	-21.97	-36.00	-56.11	-1.86
2	797.70	-60.00	-24.00	-36.00	-65.40	5.40
3	2622.00	-55.93	-25.93	-30.00	-64.12	8.19
4	4942.00	-64.89	-34.89	-30.00	-76.76	11.87
5	6474.00	-62.45	-32.45	-30.00	-76.26	13.81
6	7414.00	-59.97	-29.97	-30.00	-73.25	13.28
7	9889.00	-61.11	-31.11	-30.00	-76.36	15.25
8	12392.50	-58.56	-28.56	-30.00	-78.57	20.01

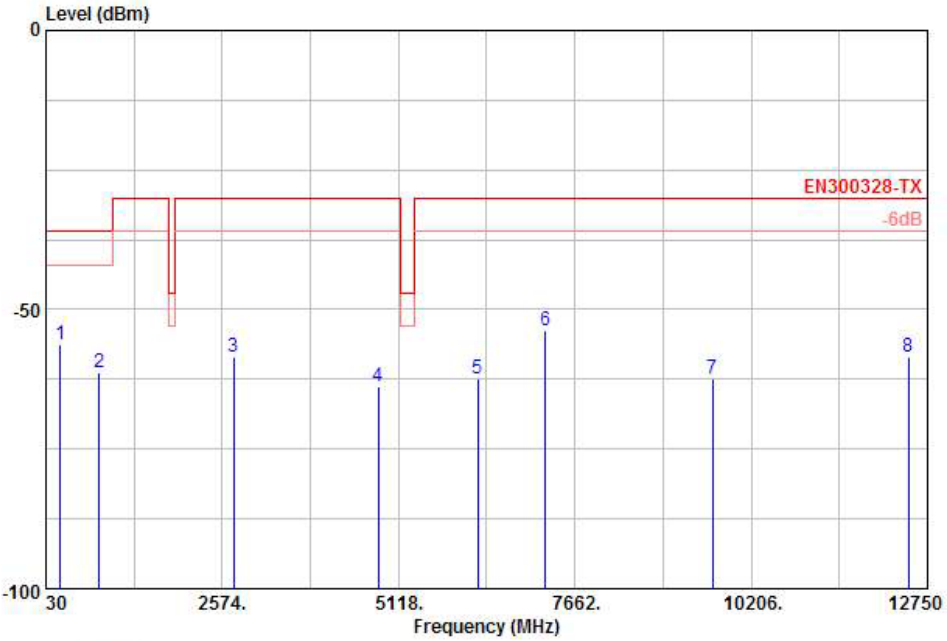
Test Mode :	Mode 6: CH01 (2412MHz) in Tablet Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 HORIZONTAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	239.79	-59.20	-23.20	-36.00	-57.34	-1.86
2	797.70	-60.13	-24.13	-36.00	-65.53	5.40
3	2686.00	-50.07	-20.07	-30.00	-58.48	8.41
4	4824.00	-52.38	-22.38	-30.00	-64.10	11.72
5	6508.00	-62.60	-32.60	-30.00	-76.37	13.77
6	7237.00	-51.47	-21.47	-30.00	-64.94	13.47
7	9649.00	-61.93	-31.93	-30.00	-77.00	15.07
8	12392.50	-58.11	-28.11	-30.00	-78.15	20.04

Test Mode :	Mode 6: CH01 (2412MHz) in Tablet Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical



Site : 05CH01-KS
Condition: EN300328-TX LF EIRP_090504 VERTICAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1	242.76	-56.17	-20.17	-36.00	-54.36	-1.81
2	797.70	-61.34	-25.34	-36.00	-66.74	5.40
3	2736.00	-58.56	-28.56	-30.00	-66.81	8.25
4	4824.00	-63.84	-33.84	-30.00	-75.66	11.82
5	6262.00	-62.40	-32.40	-30.00	-75.78	13.38
6	7237.00	-53.68	-23.68	-30.00	-67.00	13.32
7	9649.00	-62.38	-32.38	-30.00	-77.43	15.05
8	12477.75	-58.54	-28.54	-30.00	-78.70	20.16

4. Receiver Parameters

4.1 Receiver Spurious Emissions

4.1.1 Limit of Receiver Spurious Emissions

Narrowband spurious emission limits for receivers

SUBCLAUSE 4.3.7.2	
FREQUENCY RANGE	**LIMIT WHEN OPERATING**
30 MHz to 1 GHz	-57 dBm
Above 1 GHz to 12,75 GHz	-47 dBm

4.1.2 Measuring Instruments

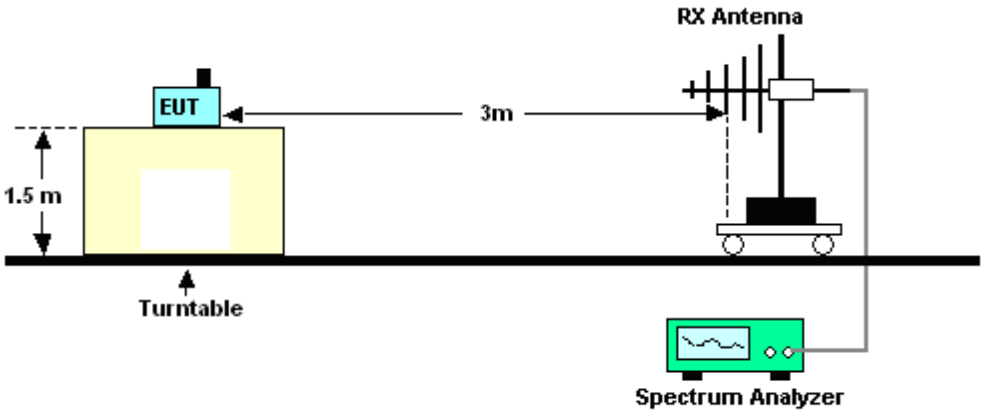
See list of measuring instruments of this test report.

4.1.3 Test Procedures

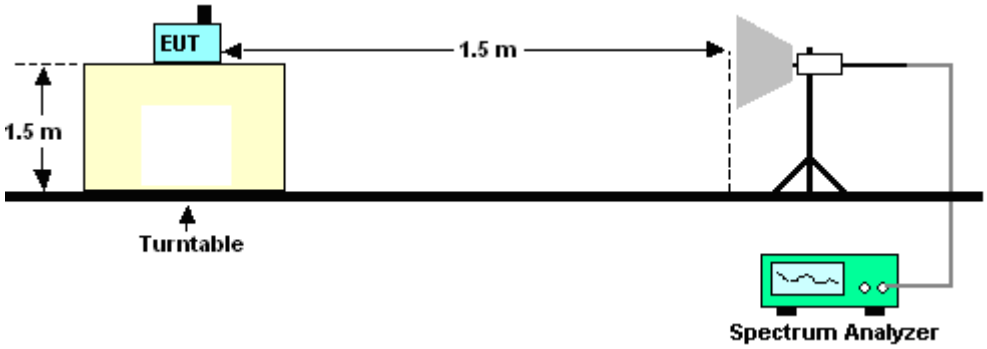
1. The EUT was placed on a turntable with 1.5m height.
2. The test distance between the receiving antenna and the EUT is 3m and the antenna is kept at 1.5m height.
3. Setting EUT in continuous Rx.
4. The table was rotated to search the highest radiated emission.
5. Repeating step 3 and 4 for different polarization and channel.

4.1.4 Test Setup

<Below 1GHz>

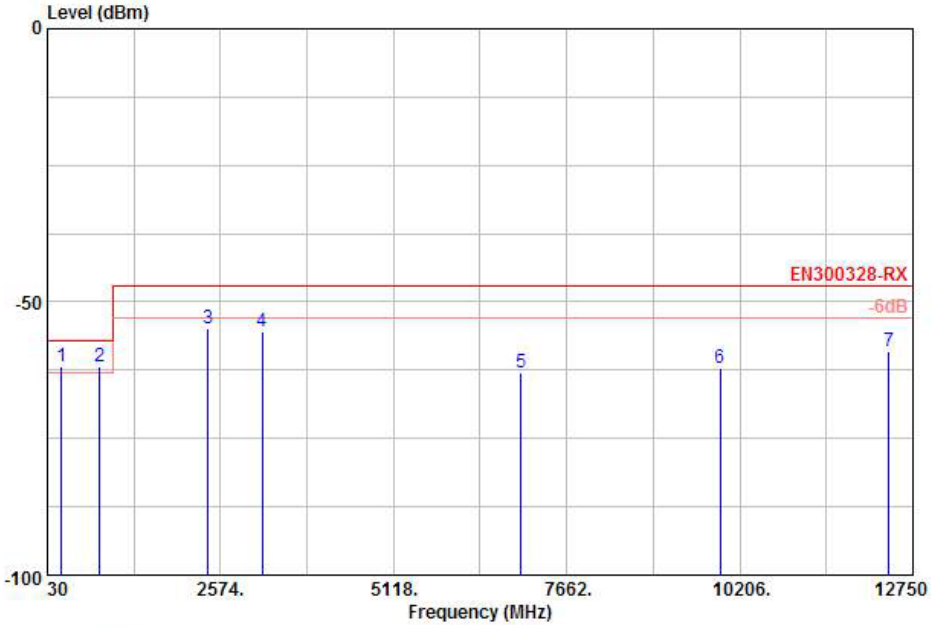


<Above 1GHz>



4.1.5 Test Result

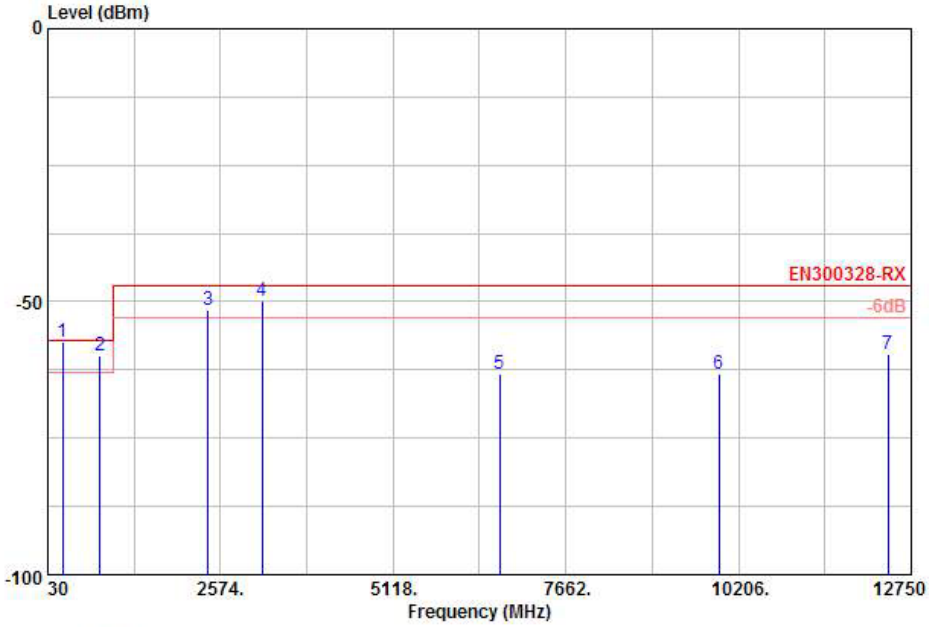
Test Mode :	Mode 2: CH13 (2472MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal



Site : 05CH01-KS
Condition: EN300328-RX LF EIRP_090504 HORIZONTAL
Project : (ER) 172910

		Freq	Level	Over Limit	Limit Line	Read Level	Factor
		MHz	dBm	dB	dBm	dBm	dB
1	!	241.95	-61.70	-4.70	-57.00	-59.89	-1.81
2	!	797.70	-61.78	-4.78	-57.00	-67.18	5.40
3		2392.00	-54.87	-7.87	-47.00	-62.86	7.99
4		3188.00	-55.56	-8.56	-47.00	-64.55	8.99
5		6990.00	-62.85	-15.85	-47.00	-75.99	13.14
6		9916.00	-62.12	-15.12	-47.00	-77.08	14.96
7		12392.50	-58.97	-11.97	-47.00	-78.22	19.25

Test Mode :	Mode 2: CH13 (2472MHz) in Laptop Mode	Temperature :	21~22℃
Test Distance :	3m (Below 1GHz) 1.5m (Above 1GHz)	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical



Site : 05CH01-KS
Condition: EN300328-RX LF EIRP_090504 VERTICAL
Project : (ER) 172910

	Freq	Level	Over Limit	Limit Line	Read Level	Factor
	MHz	dBm	dB	dBm	dBm	dB
1 !	244.38	-57.43	-0.43	-57.00	-55.68	-1.75
2 !	797.70	-59.94	-2.94	-57.00	-65.34	5.40
3 !	2392.00	-51.58	-4.58	-47.00	-59.41	7.83
4 !	3188.00	-49.90	-2.90	-47.00	-58.81	8.91
5	6692.00	-63.27	-16.27	-47.00	-76.38	13.11
6	9919.00	-63.28	-16.28	-47.00	-78.13	14.85
7	12403.50	-59.53	-12.53	-47.00	-78.58	19.05

5. Photographs of Radiated Emission Test Configuration

For Laptop Mode

LF

HF

For Tablet Mode

LF

HF

6. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Aug. 22, 2012	Conducted (TH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 07, 2011	Jan. 06, 2012	Conducted (TH01-KS)
DC Power Supply	TOPWARD	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Jan. 17, 2011	Jan. 16, 2012	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSP30	100399	9kHz~30GHz	Jun. 02, 2011	Jun. 01, 2012	Radiation (05CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23183	25MHz~2GHz	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	Nov. 16, 2011	Nov. 15, 2012	Radiation (05CH01-KS)

7. Uncertainty Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.15	Normal (k=2)	0.08
Antenna Factor Calibration	1.12	Normal (k=2)	0.56
Cable Loss Calibration	0.12	Normal (k=2)	0.06
Pre-Amplifier Gain Calibration	0.13	Normal (k=2)	0.07
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	2.10	Rectangular	1.21
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.58**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.16**		

Uncertainty of Radiated Emission Evaluation (1GHz ~ 40GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

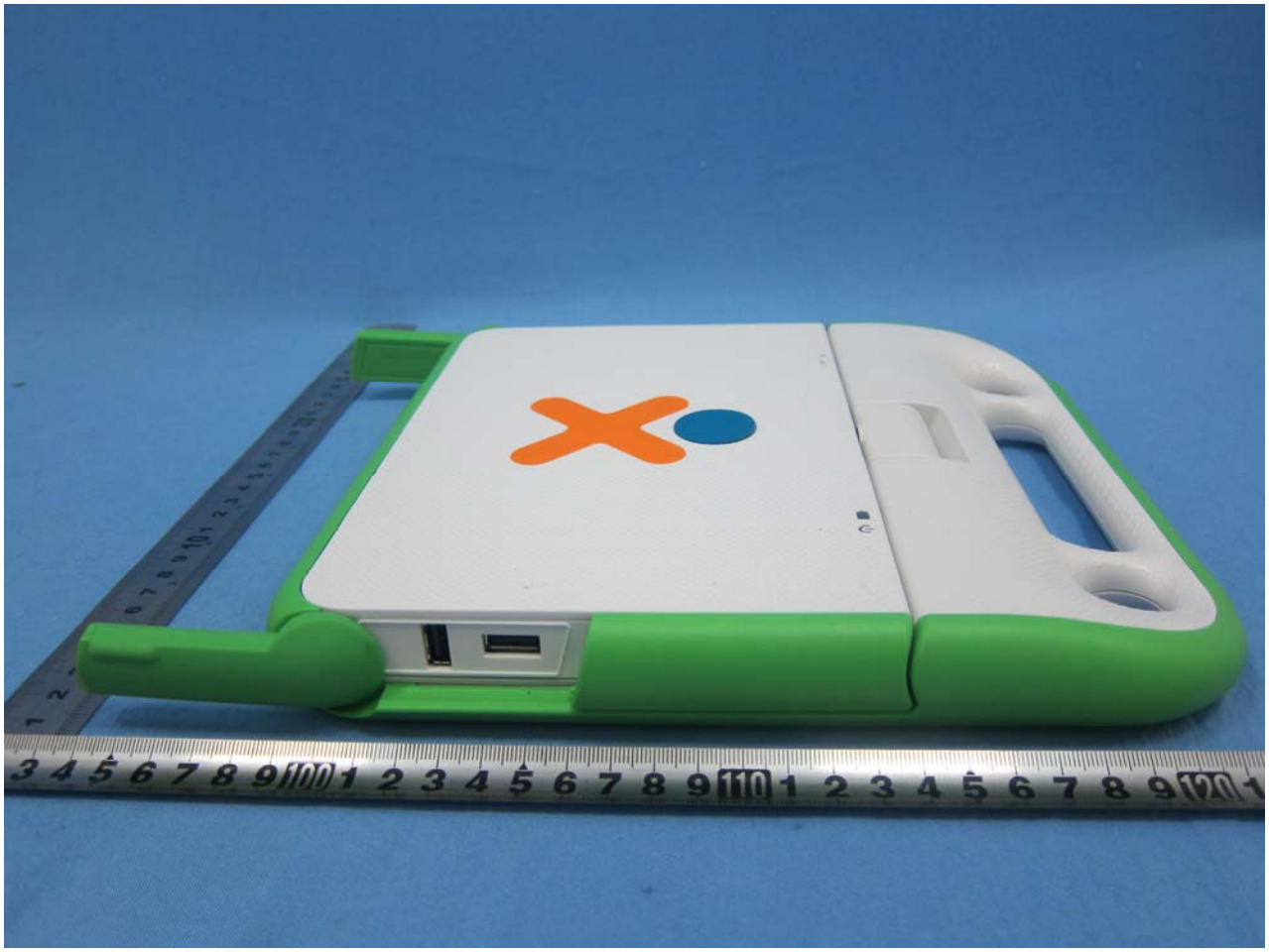
Appendix A. Photographs of EUT

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

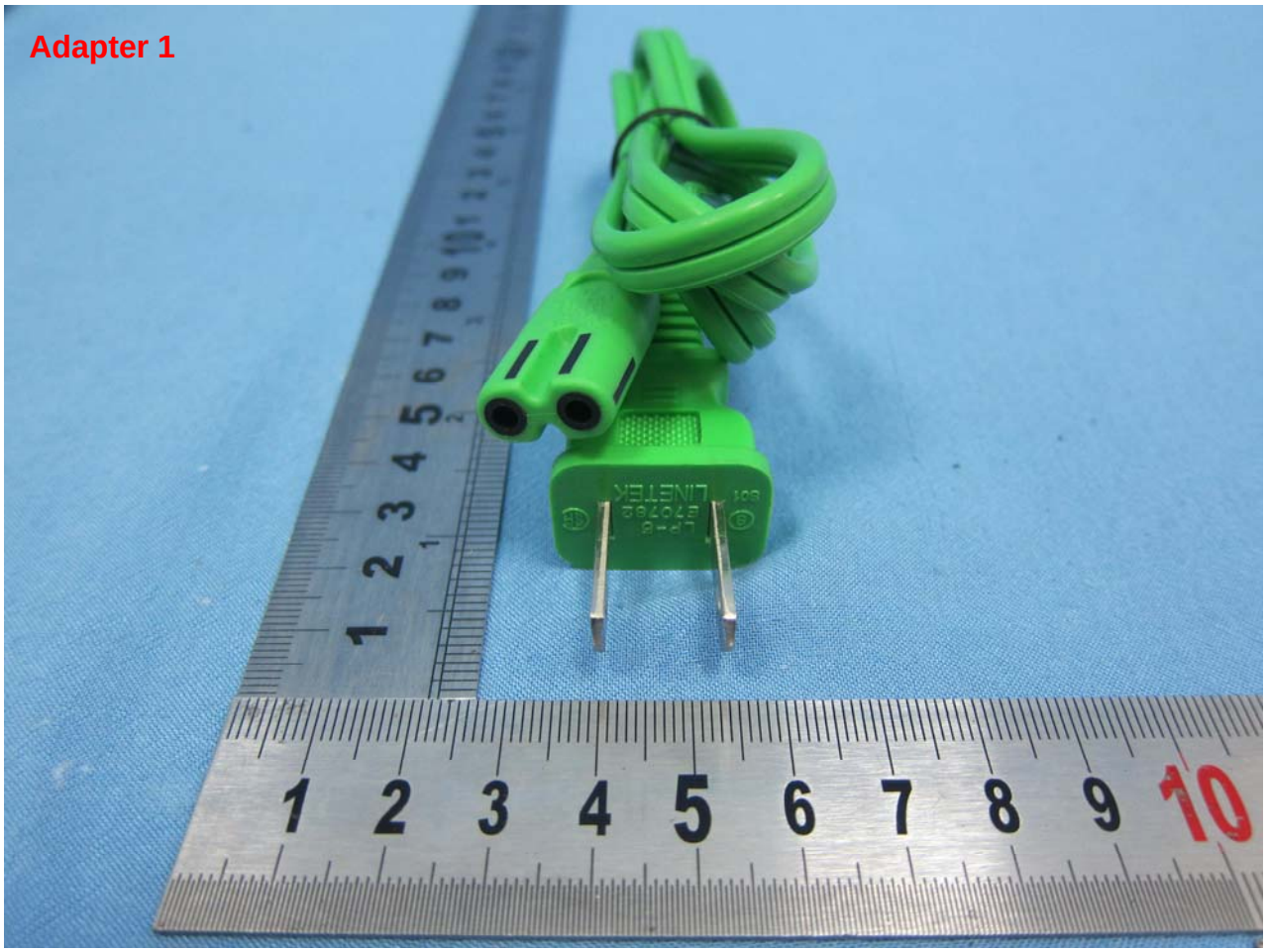
List of Accessory:

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

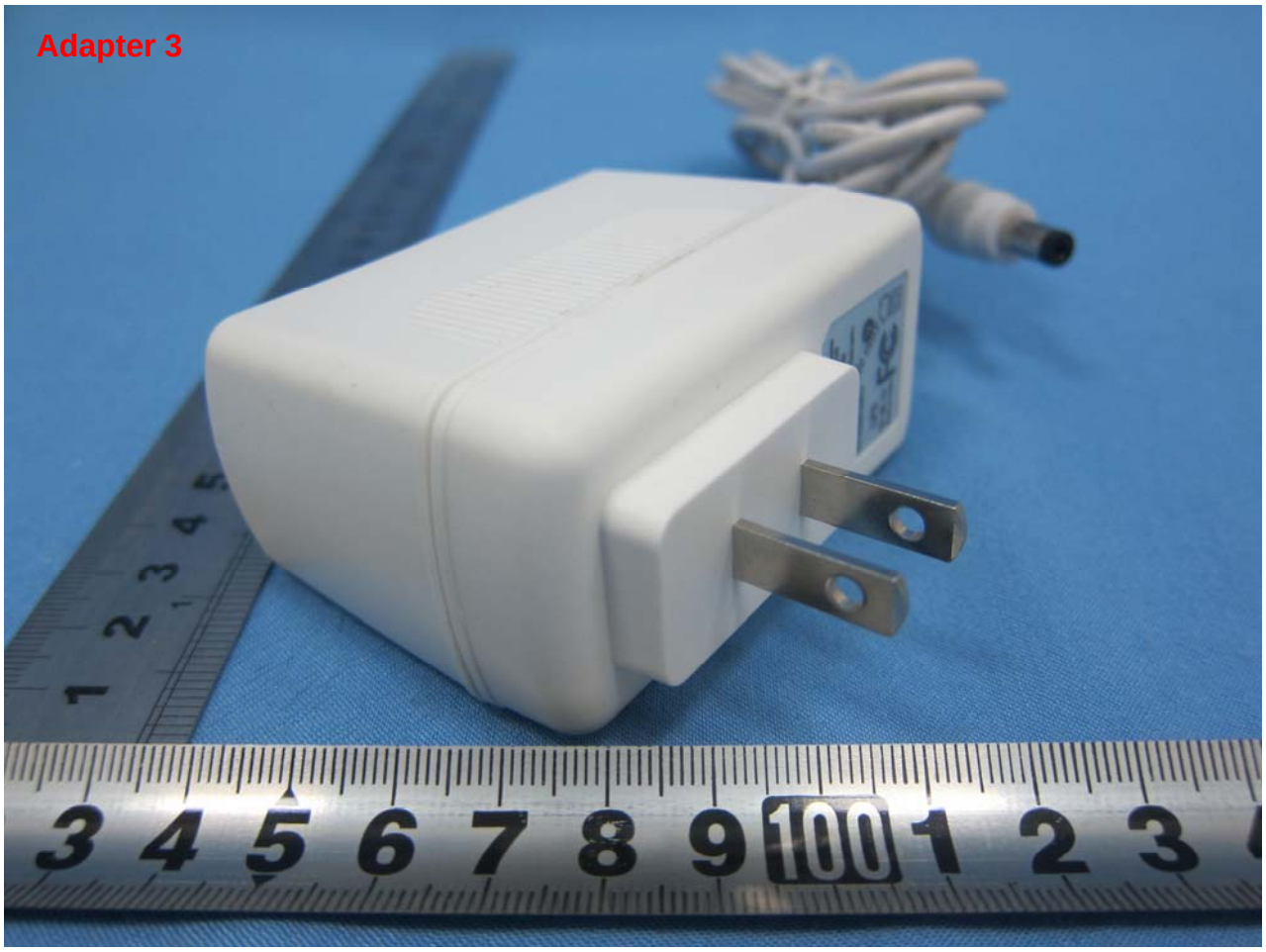
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

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

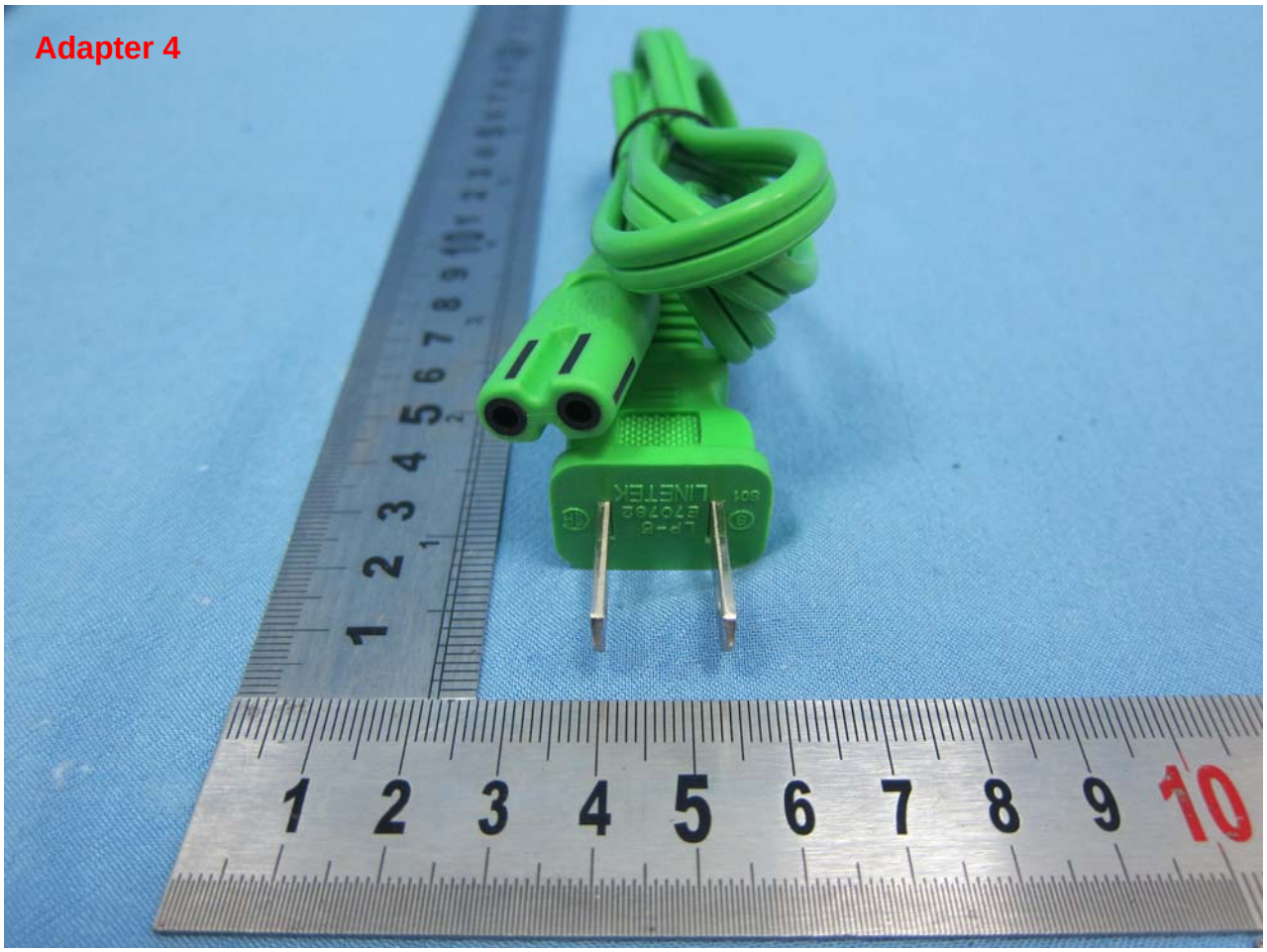
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



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



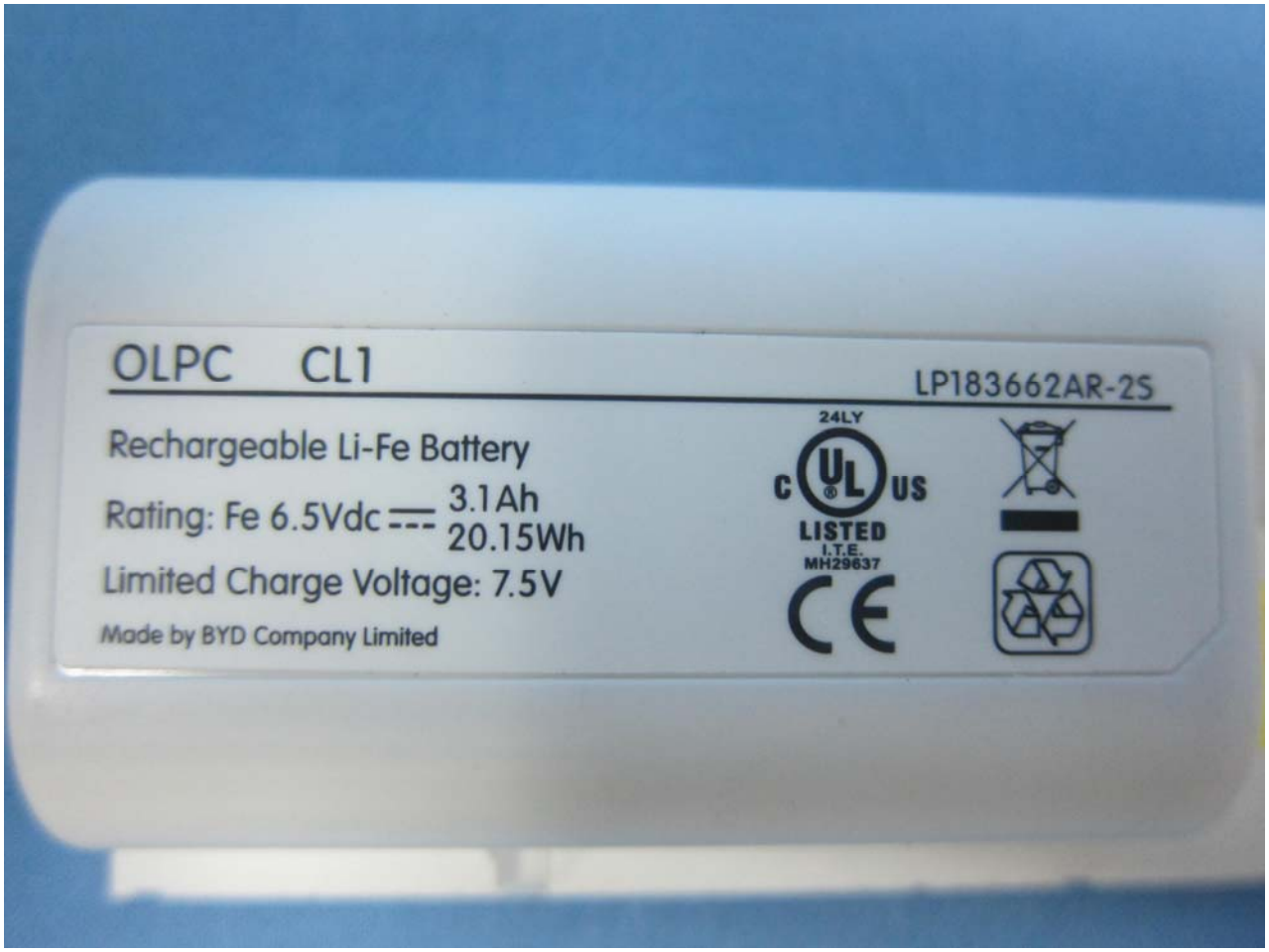
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

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

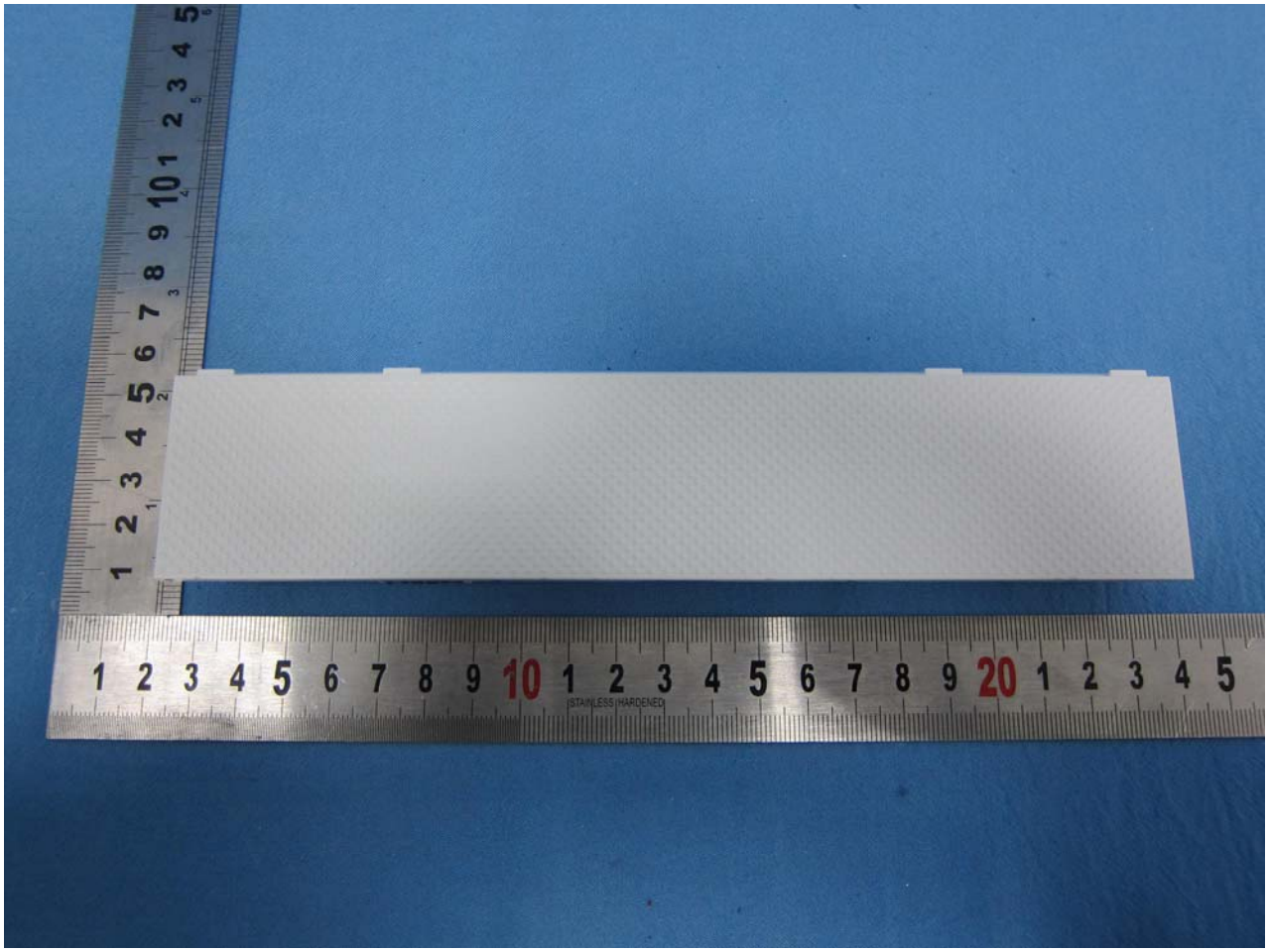
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

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



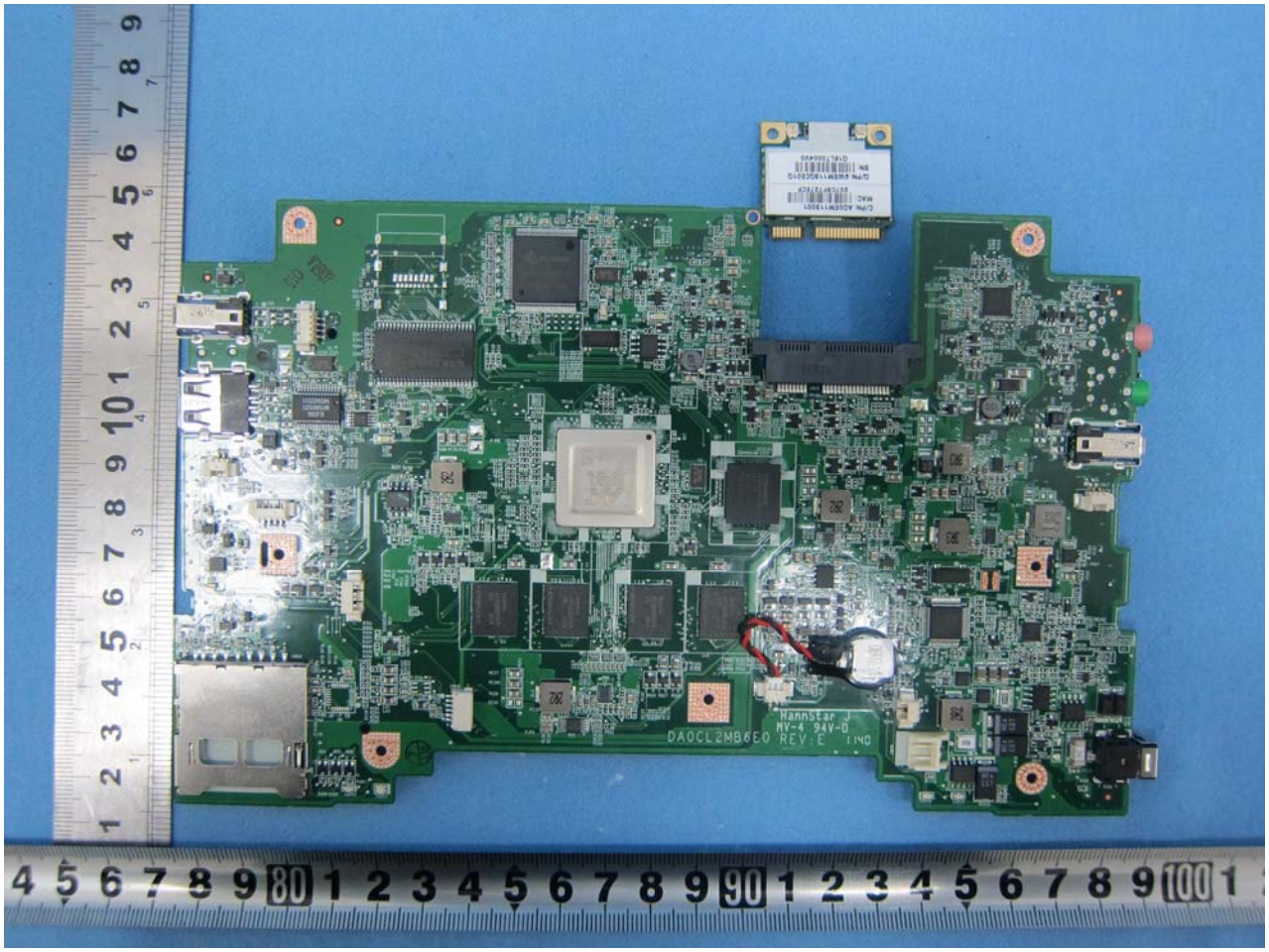
3. Internal Photograph of EUT

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

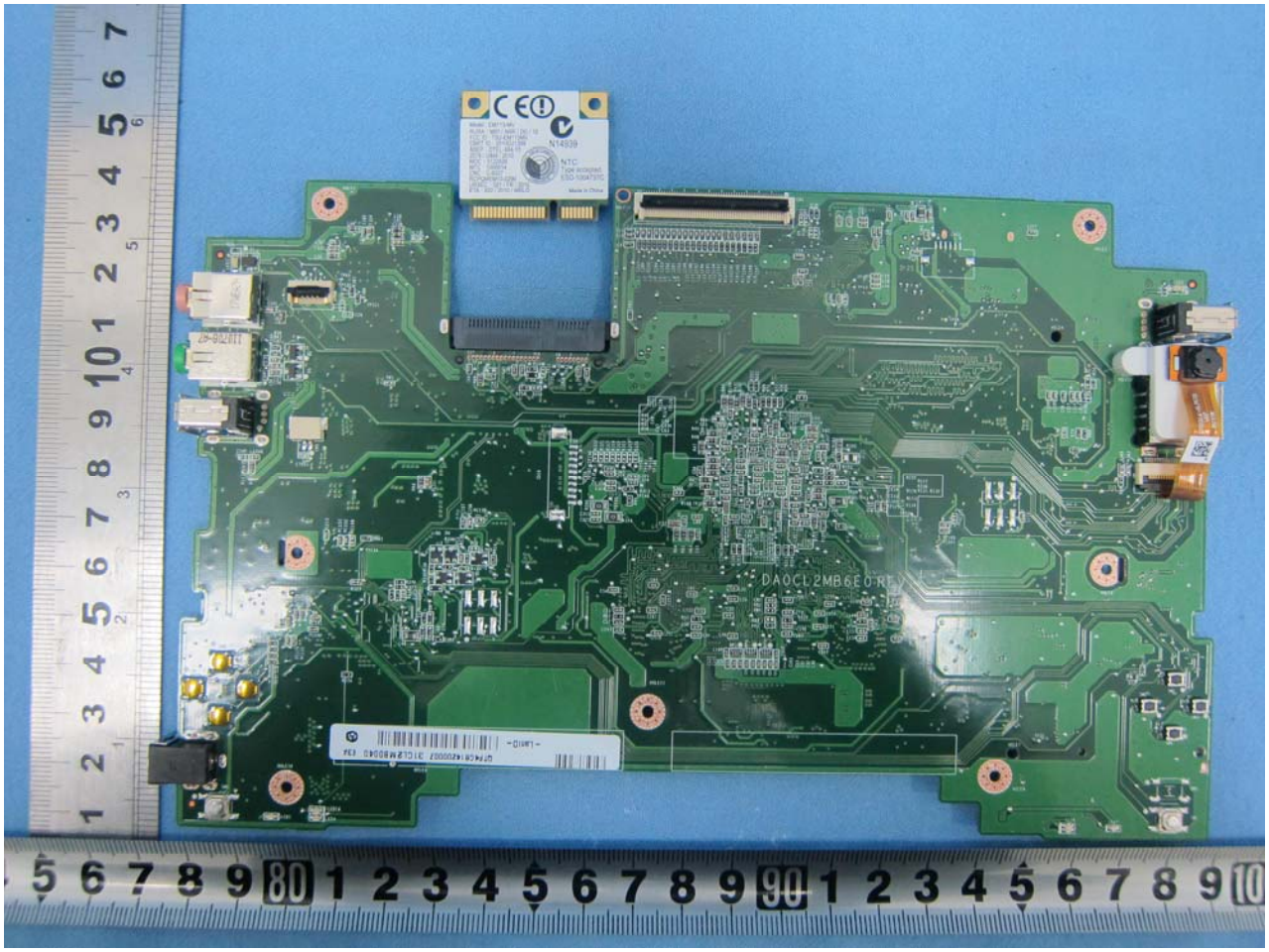
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

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

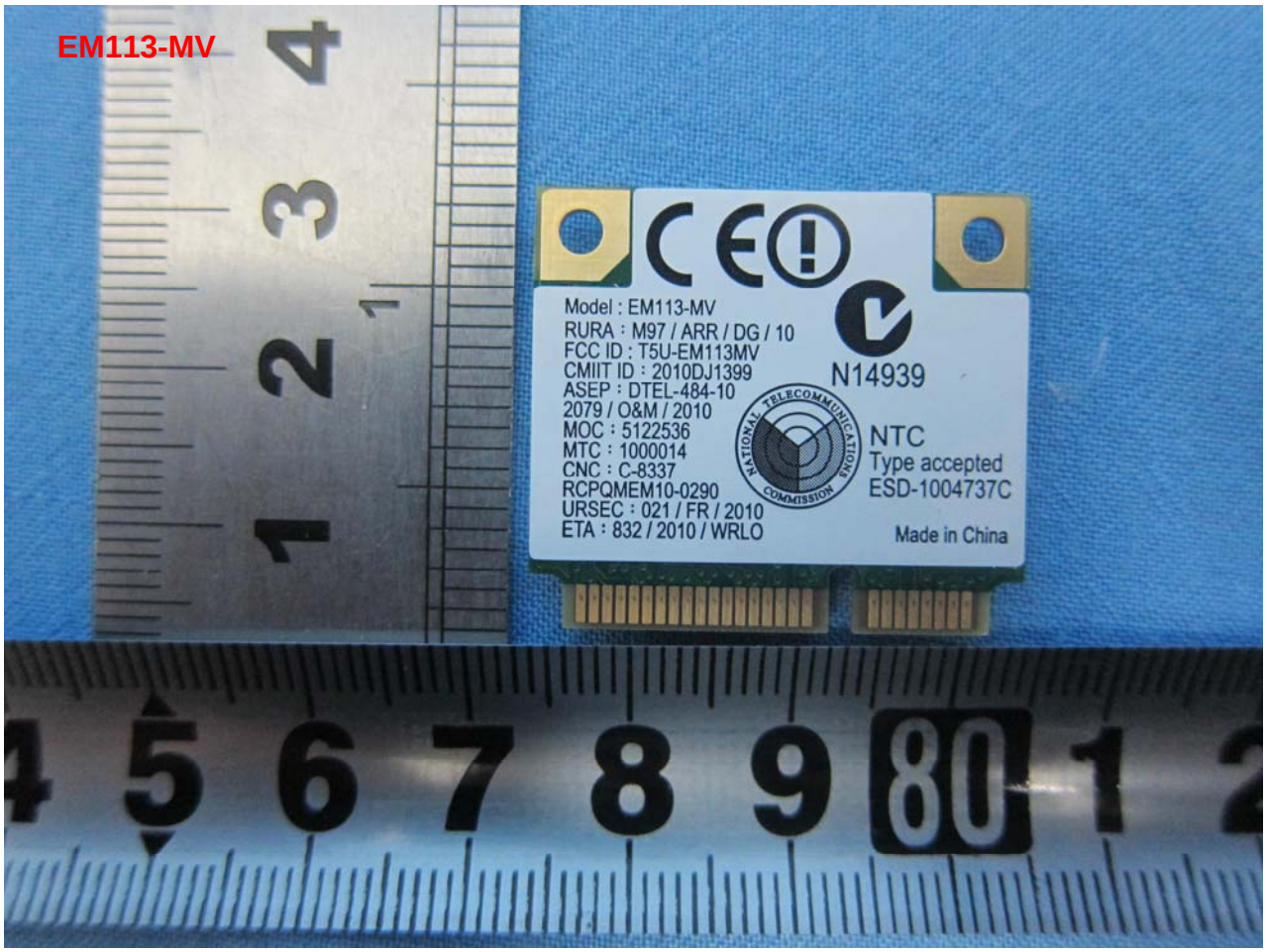
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



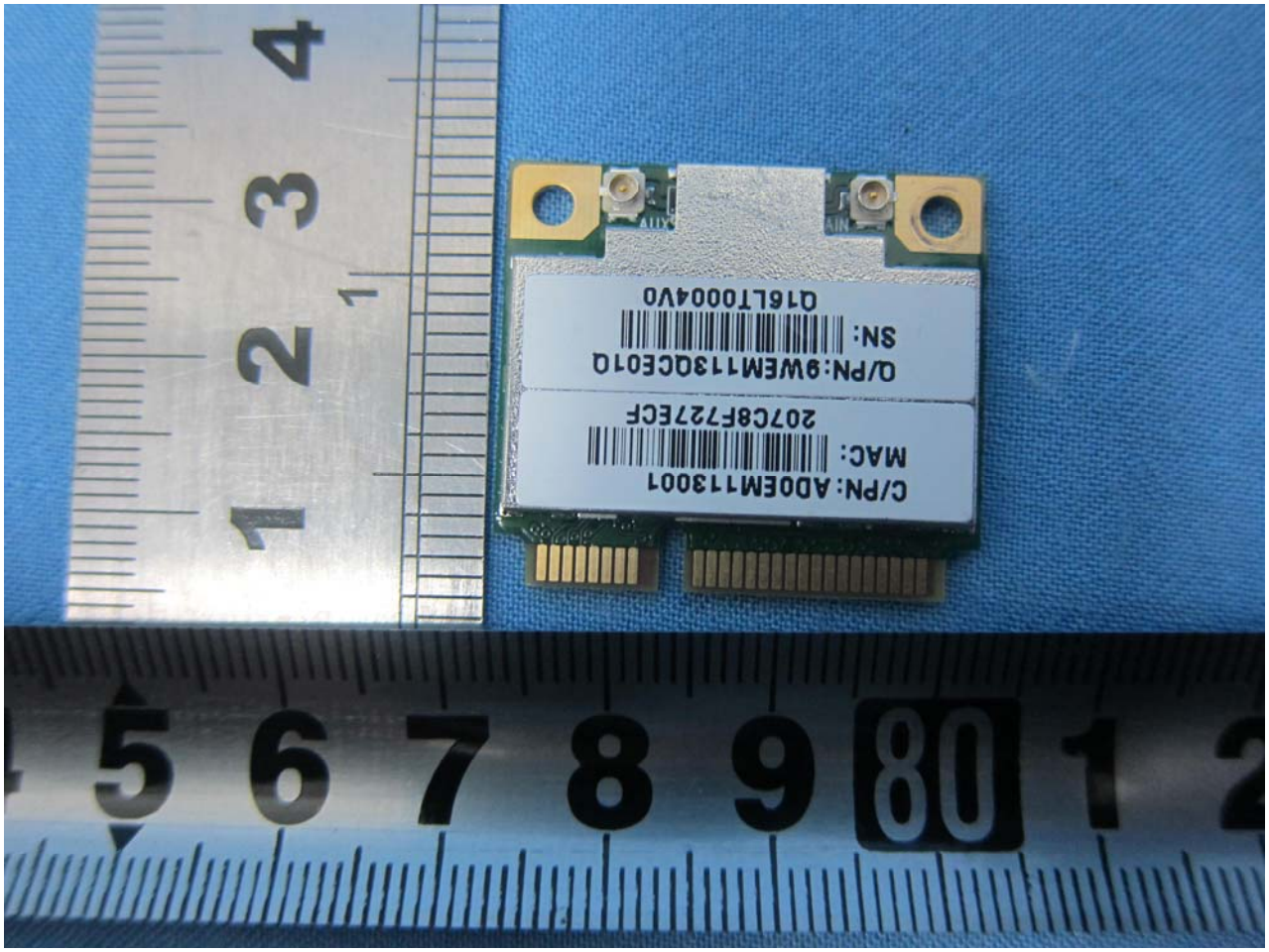
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



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



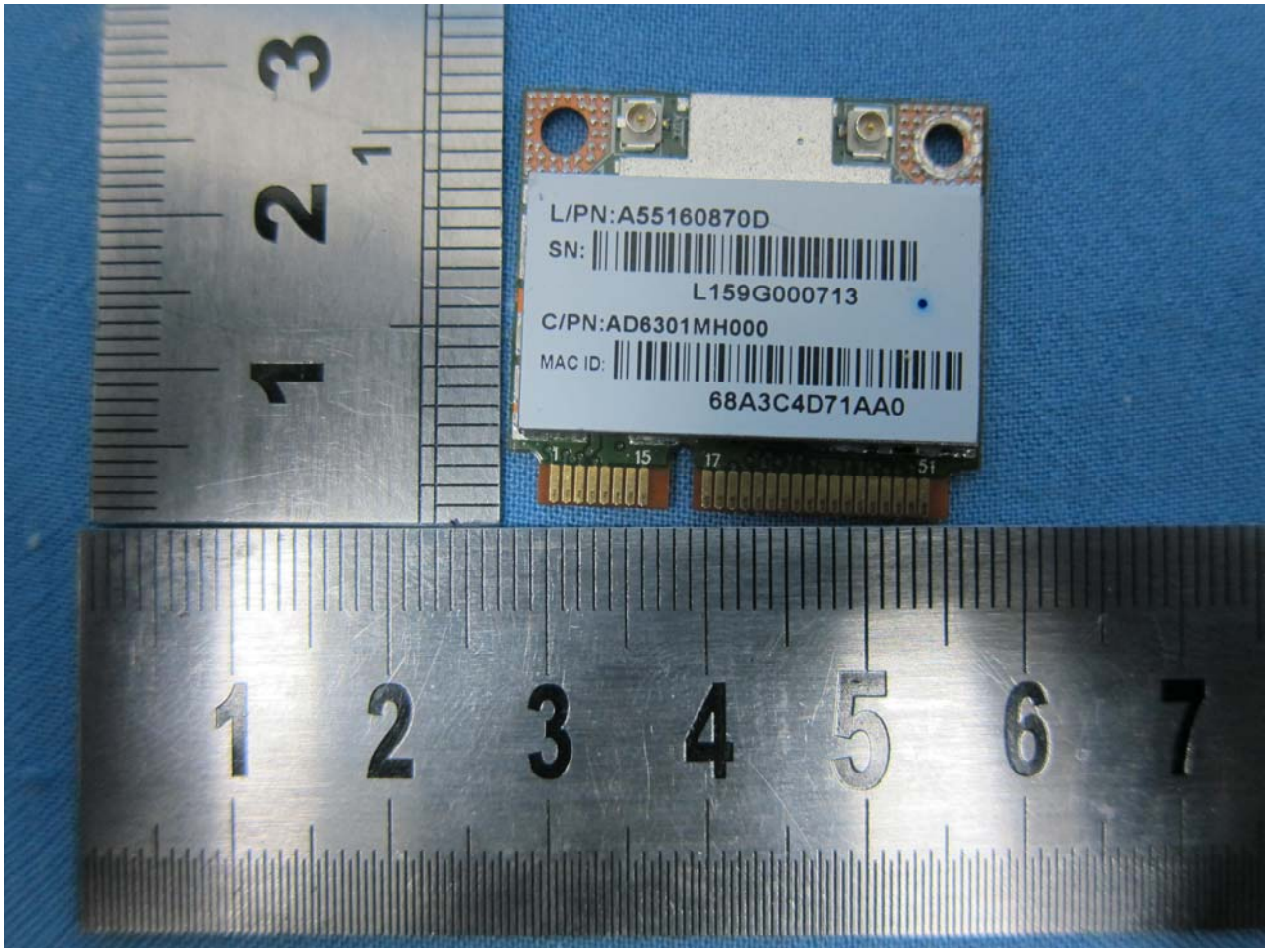
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



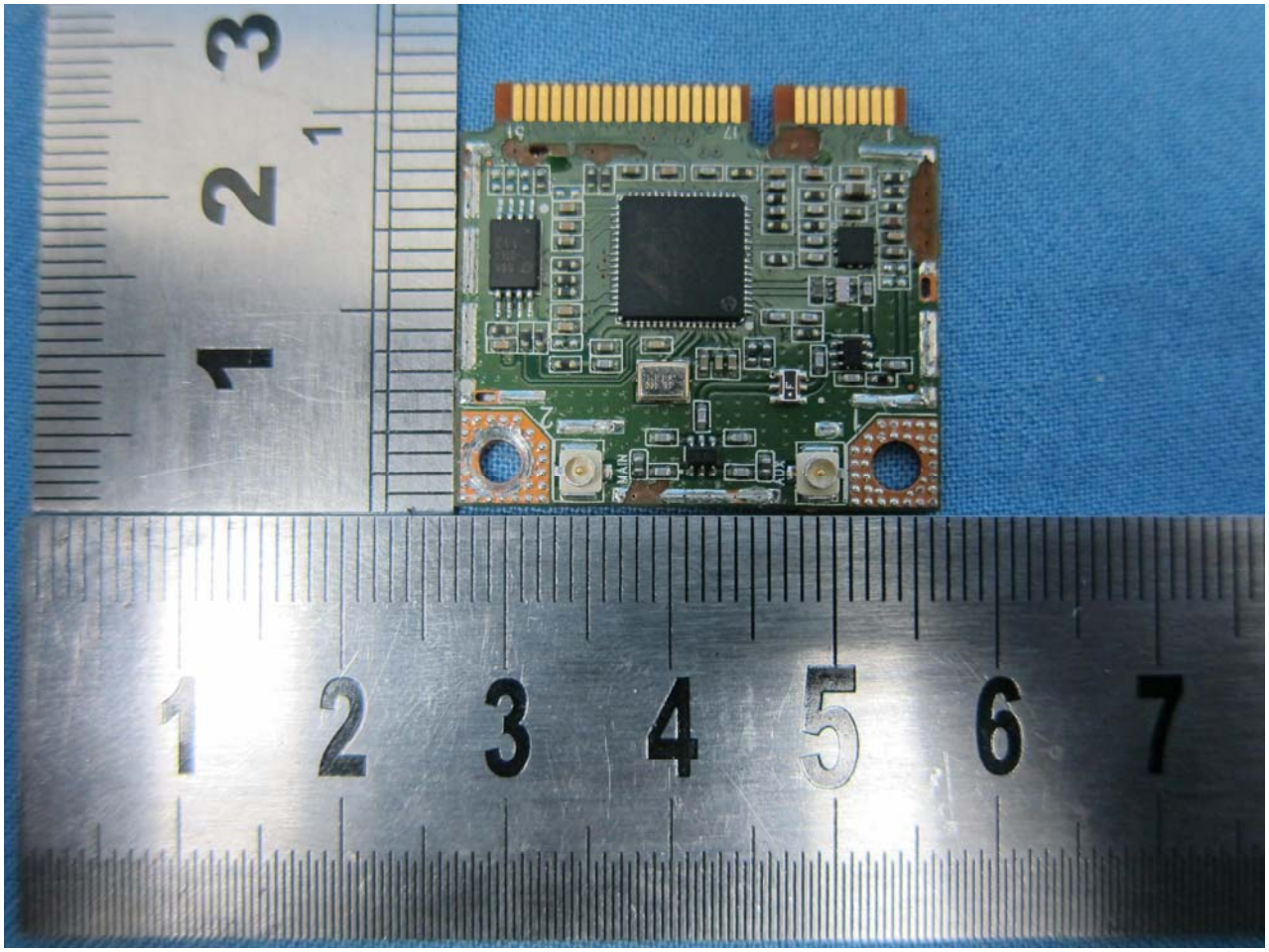
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS

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

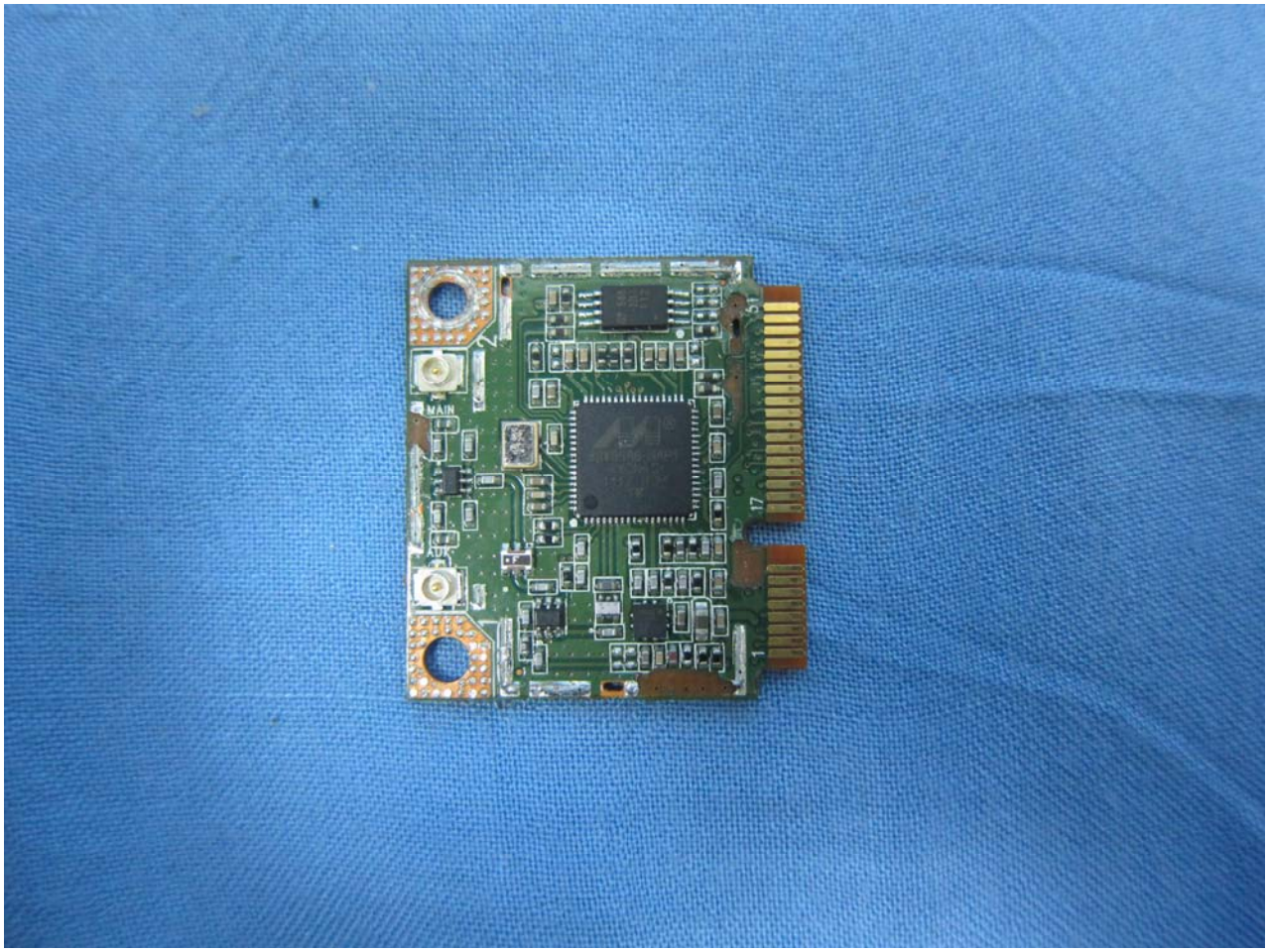
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



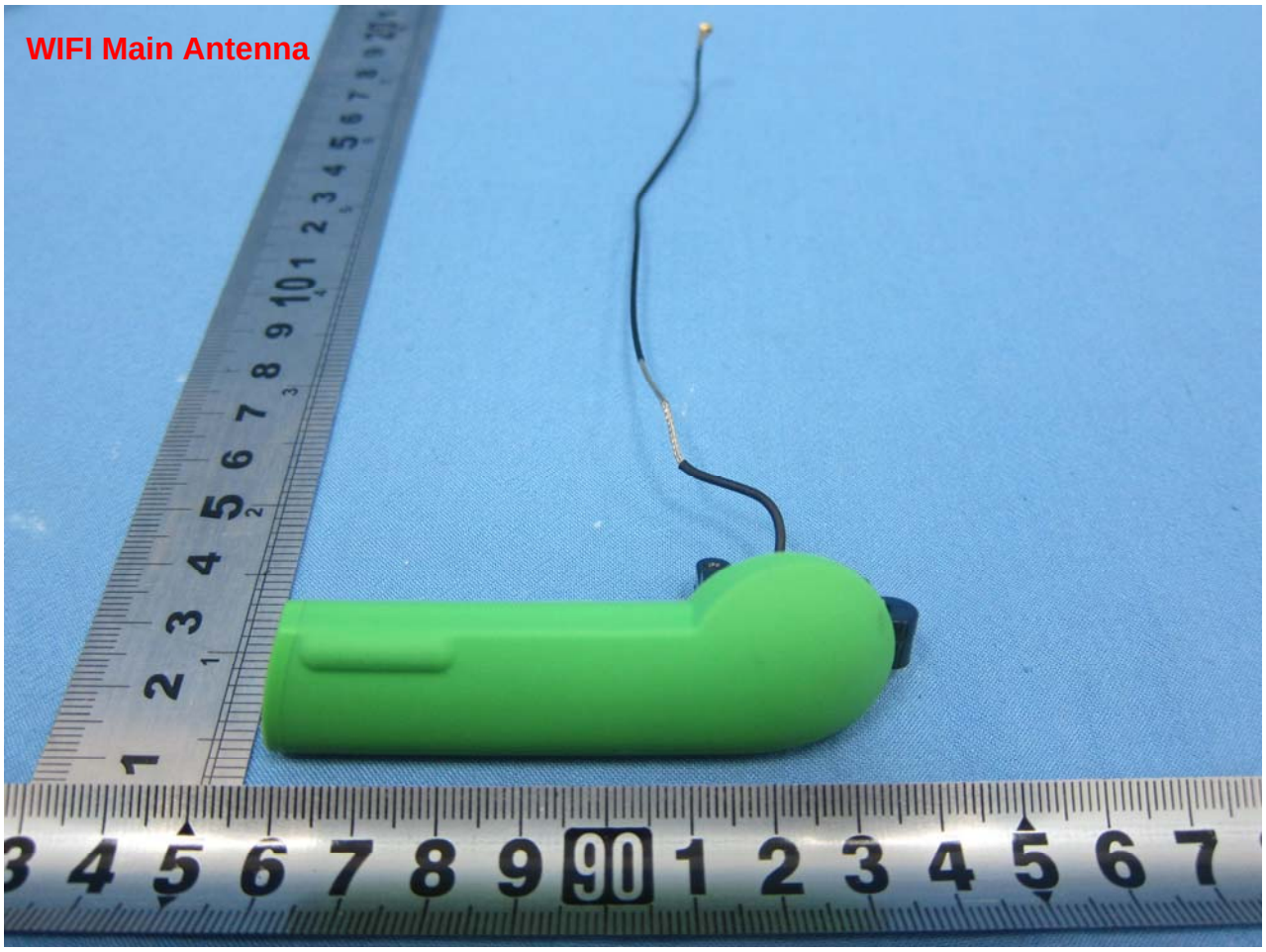
Brand Name: OLPC / Model Name: XO-1.75; XO-1.75HS



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