FCC RF Test Report

APPLICANT	:	Quanta Computer Inc.
EQUIPMENT	:	Laptop Computer
BRAND NAME	:	OLPC
MODEL NAME	:	XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS
FCC ID	:	HFS-CL4
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was integrated the WLAN Module (Brand Name: Liteon / Model Name: WCBN603MH, FCC ID: HFS-CL4) during the test.

The product was received on Dec. 17, 2012 and completely tested on Feb. 25, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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
FR2D1707C	Rev. 01	Initial issue of report	Feb. 25, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.5	15.407(b)	A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 3.33 dB at 396.242 MHz for Quasi-Peak
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.40 dB at 7.210 MHz
3.7	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

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-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS
WLAN Module	Trade Name: Liteon Model Name: WCBN603MH
FCC ID	HFS-CL4
EUT supports Radios application	WLAN 11abgn / Bluetooth
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz
Maximum Output Power to Antenna	802.11a : 6.38 dBm / 0.0043 W 802.11n (HT 20) : 7.36 dBm / 0.0054 W 802.11n (HT 40) : 6.96 dBm / 0.0050 W
Antenna Type	Antenna : Monopole Antenna with gain 0.05 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Testing Site

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.			FCC/IC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928/4086E-1

1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D01 General UNII Test Procedures v01r02
- ANSI C63.10-2009

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1	36	5180	44	5220
	38	**5190**	**46**	**5230**
	40	5200	48	5240

Note: The above Frequency and Channel in boldface were 802.11n HT40.

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and antenna configurations as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

Channel	Frequency	5GHz 802.11a Average Output Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	**6.38**	6.32	6.32	6.12	6.25	6.13	6.22	6.23
CH 44	5220 MHz	6.18	6.01	5.96	6.08	6.02	5.86	6.03	5.82
CH 48	5240 MHz	6.21	6.13	6.12	6.11	6.13	6.12	6.18	6.13

Channel	Frequency	5GHz 802.11n HT 20 Average Output Power (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 36	5180 MHz	6.80	6.69	6.67	6.42	6.52	6.58	6.48	6.38
CH 44	5220 MHz	7.13	7.05	6.89	6.92	7.02	6.87	6.78	7.02
CH 48	5240 MHz	**7.36**	7.28	7.31	7.29	7.18	7.31	7.22	7.11

Channel	Frequency	5GHz 802.11n HT 40 Average Output Power (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 38	5190MHz	**6.96**	6.95	6.88	6.82	6.92	6.61	6.59	6.57
CH 46	5230MHz	6.91	6.78	6.82	6.75	6.68	6.57	6.85	6.90

2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	**Mode**	**Data rate**	**Test Channel**
Conducted TCs	**26dB BW Power Spectral Density**	**802.11a**	**54 Mbps**	**L/M/H**
		802.11n HT20	**6.5 Mbps**	**L/M/H**
		802.11n HT40	**13.5 Mbps**	**L/M/H**
	Output Power	**802.11a**	**54 Mbps**	**L/M/H**
		802.11n HT20	**6.5 Mbps**	**L/M/H**
		802.11n HT40	**13.5 Mbps**	**L/M/H**
	Peak Excursion	**802.11a**	**54 Mbps**	**L/M/H**
		802.11n HT20	**6.5 Mbps**	**L/M/H**
		802.11n HT40	**13.5 Mbps**	**L/M/H**
	Frequency Stability	**802.11a**	**54 Mbps**	**L/M/H**
		802.11n HT20	**6.5 Mbps**	**L/M/H**
		802.11n HT40	**13.5 Mbps**	**L/M/H**
Radiated TCs	**Radiated Band Edge**	**802.11a**	**54 Mbps**	**L/H**
		802.11n HT20	**6.5 Mbps**	**L/H**
		802.11n HT40	**13.5 Mbps**	**L/H**
	Radiated Spurious Emission	**802.11a**	**54 Mbps**	**L/M/H**
		802.11n HT20	**6.5 Mbps**	**L/M/H**
		802.11n HT40	**13.5 Mbps**	**L/M/H**
AC Conducted Emission	Mode 1 : **WLAN Link + Adapter 1 + TC for Sample 1** Mode 2 : WLAN Link + Adapter 2 + TC for Sample 2 Mode 3 : WLAN Link + Adapter 3 + TC for Sample 3 Mode 4 : WLAN Link + Adapter 4 + TC for Sample 4			

Remark:

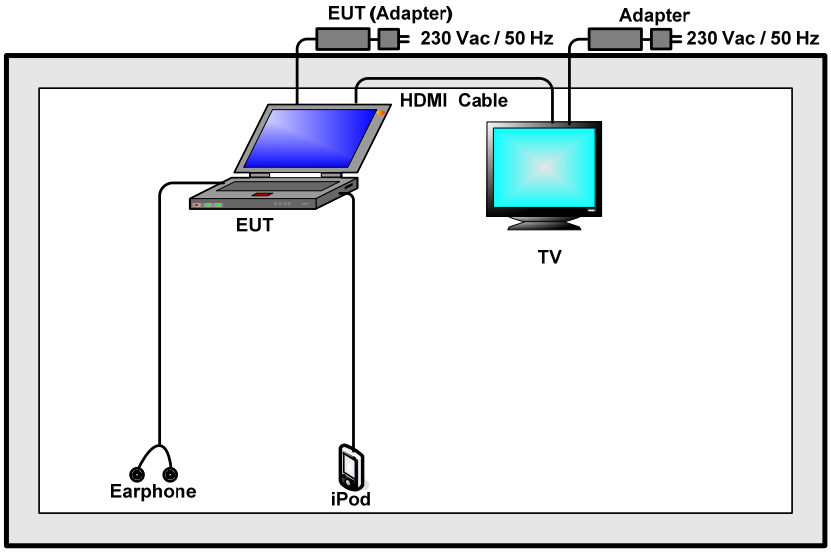
1. TC stands for Test Configuration, and consists of iPod, Earphone, HDMI Cable, SD Card.

2. The worst case of conducted emission is mode 1; only the test data of it was reported.

Ch. #		Band I：5150-5250 MHz
		802.11a
L	Low	36
M	Middle	44
H	High	48

2.4 Connection Diagram of Test System

<WLAN Tx/Rx Mode>



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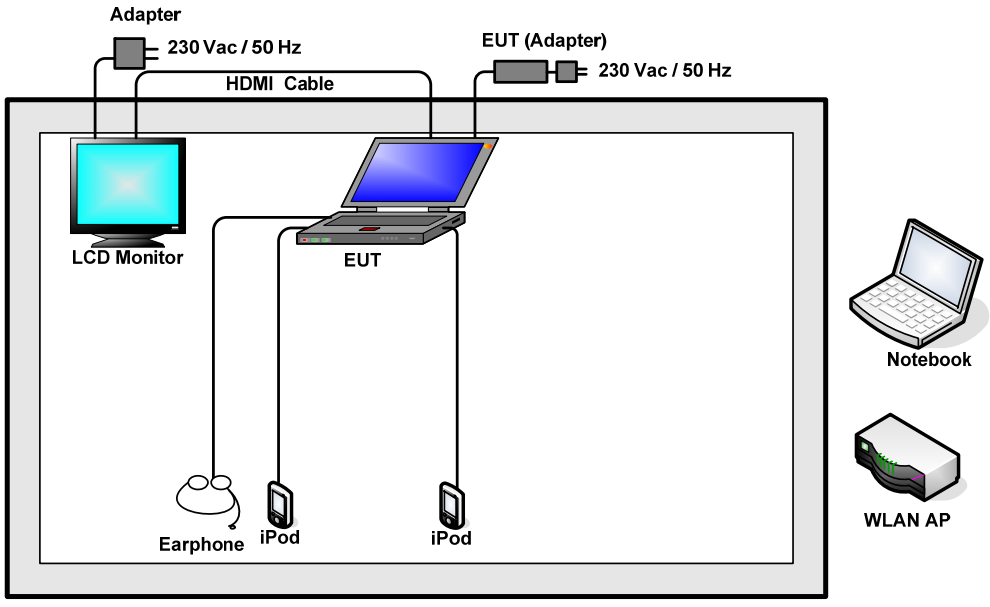


2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT	FCC DoC	N/A	Unshielded,1.8m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	Notebook	Dell	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
4.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
5.	Notebook	Dell	PP42L	N/A	N/A	AC I/P: Unshielded, 0.8 m DC O/P: Shielded, 1.8 m
6.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	Earphone	Lenovo	SH100	N/A	N/A	N/A
9.	Earphone	INTOPIC	Jazz-278	FCC DoC	Shielded, 2.2 m	N/A
10.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
11.	TV	Sony	KLV32V300A	FCC DoC	N/A	Unshielded, 1.8 m
12.	SD Card	Scan Disk	16G Class 10	FCC DoC	N/A	N/A

2.6 Description of RF Function Operation Test Setup

For WLAN function, turn on “Terminal” program under Linux system, the EUT will get into the engineering modes; then, entry instruction under CMD program in the notebook, the EUT will contact with WLAN AP for continuous transmitting and receiving signals.

2.7 Measurement Results Explanation Example

For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and 10dB attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and 10dB attenuator factor.
Offset = RF cable loss + attenuator factor.
Following table shows an offset computation example with cable loss 4.2 dB.

Example:
Offset (dB) = RF cable loss(dB) + attenuator factor(dB).
= 3.8 + 10 = 13.8 (dB)

3 Test Result

3.1 26dB Bandwidth Measurement

3.1.1 Description of Bandwidth Measurement

There is no restriction limits for bandwidth. The maximum conducted output power can be limited by measured emission bandwidth (B). For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B.

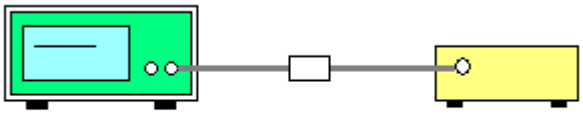
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02. Section D) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. Measure and record the results in the test report.

3.1.4 Test Setup

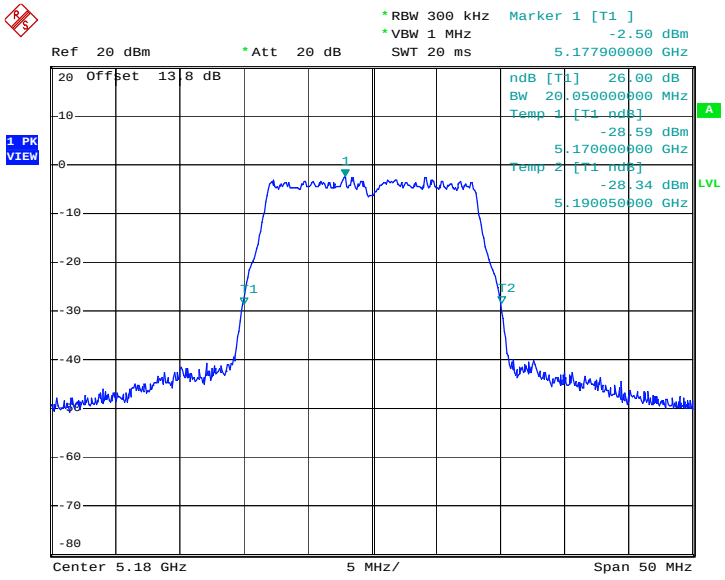


3.1.5 Test Result of 26dB Bandwidth Plots

Test Mode :	802.11a	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
CH 36	5180	20.050	N/A
CH 44	5220	20.050	N/A
CH 48	5240	20.050	N/A

26 dB Bandwidth Plot on 802.11a Channel 36



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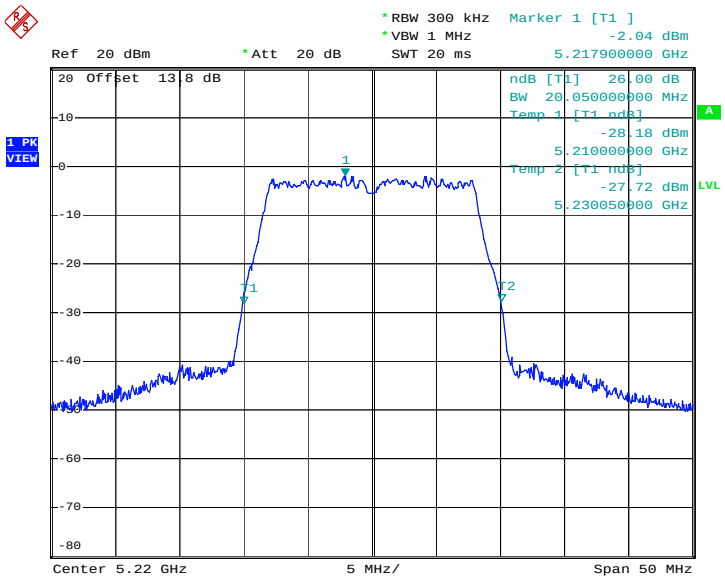
26 dB Bandwidth Plot on 802.11a Channel 44



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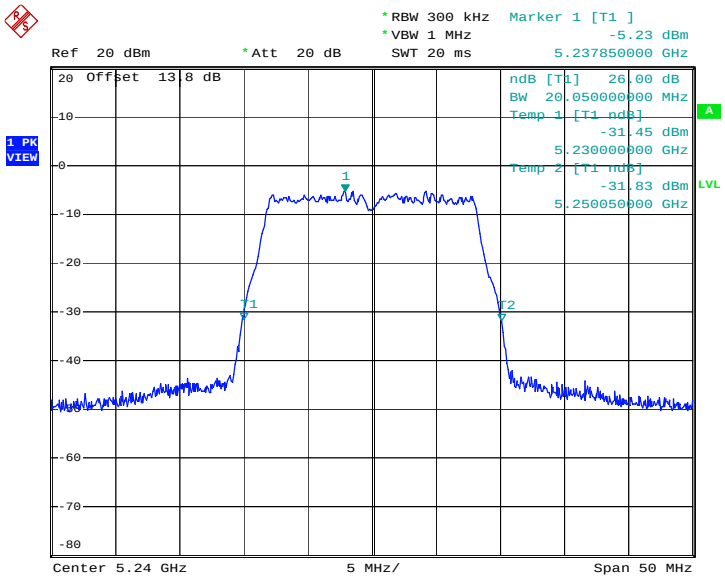
26 dB Bandwidth Plot on 802.11a Channel 48



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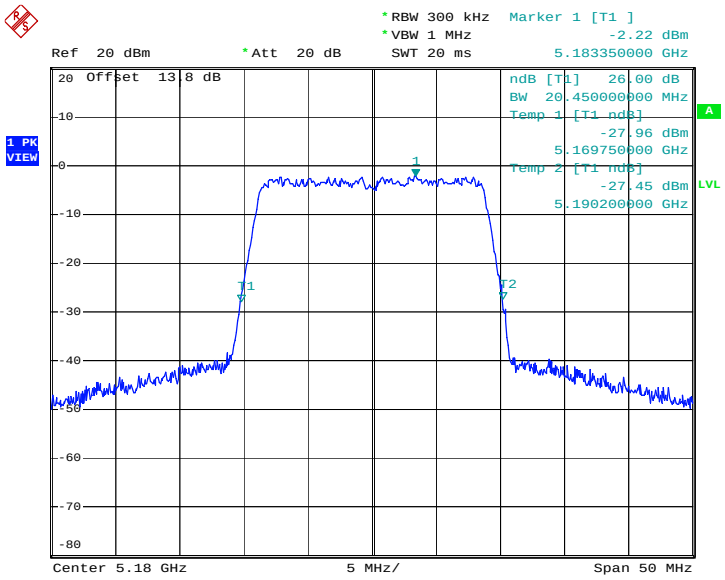
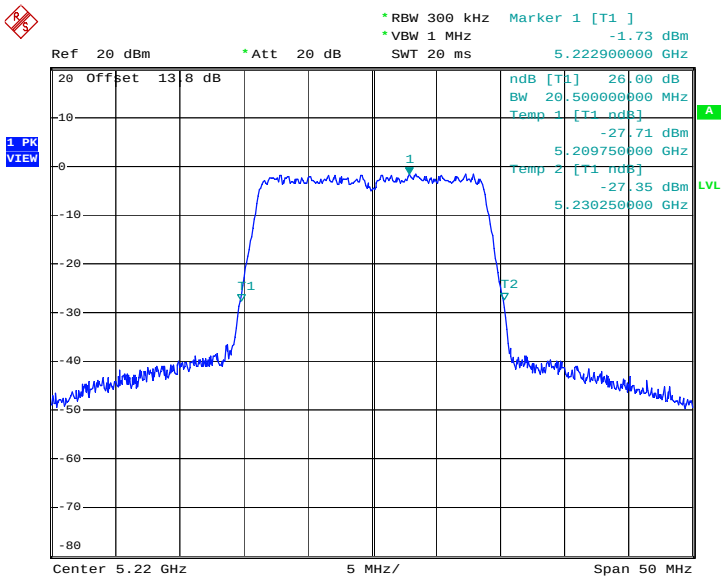
Test Mode :	802.11n HT20	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11n HT20 26dB Bandwidth (MHz)	Pass/Fail
CH 36	5180	20.450	N/A
CH 44	5220	20.500	N/A
CH 48	5240	20.500	N/A

26 dB Bandwidth Plot on 802.11n HT20 Channel 36



26 dB Bandwidth Plot on 802.11n HT20 Channel 44



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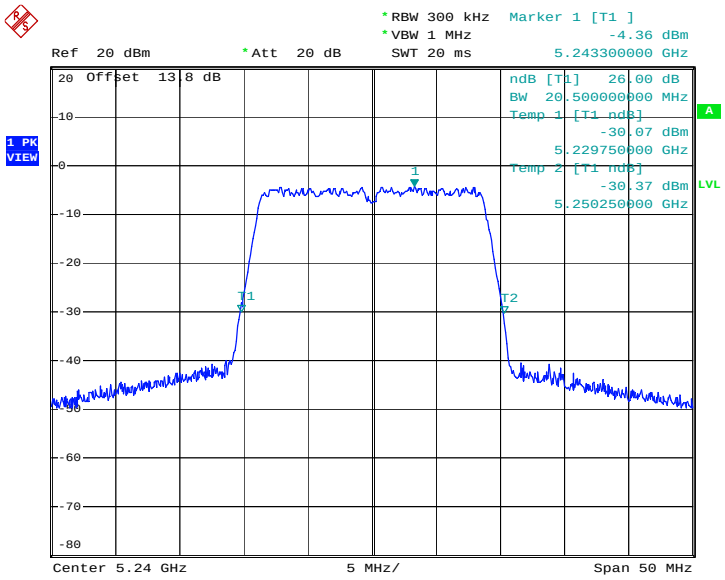
26 dB Bandwidth Plot on 802.11n HT20 Channel 48

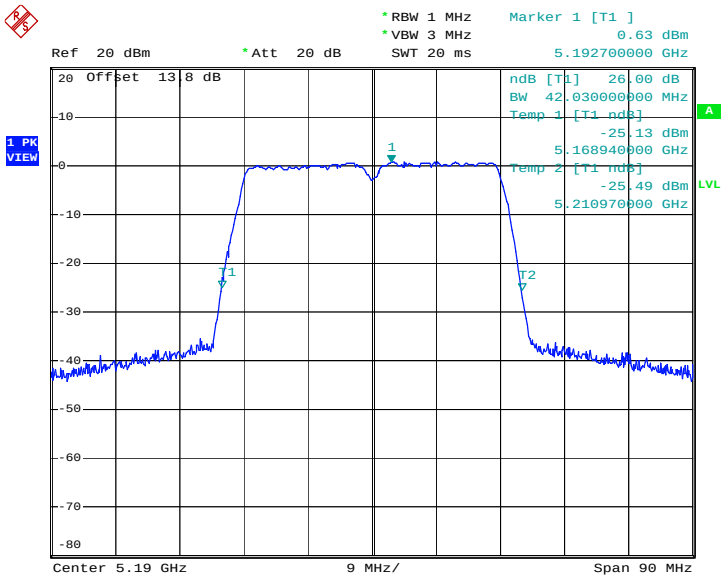


Date: 2.FEB.2013 22:57:49

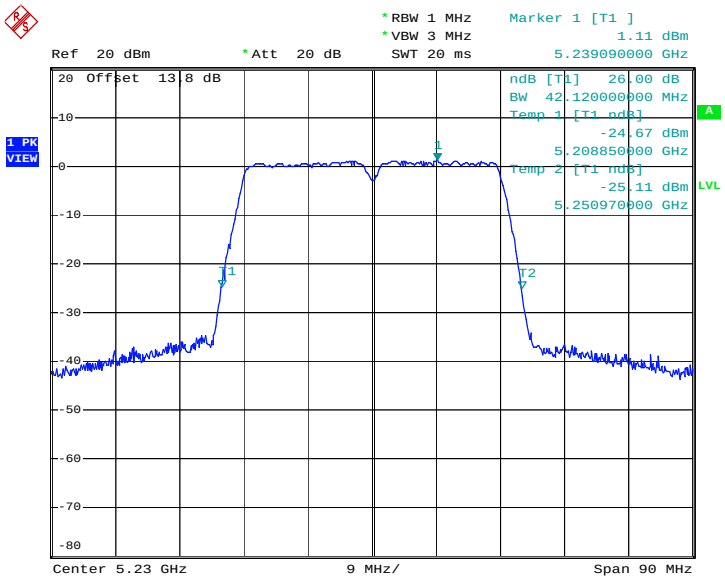
Test Mode :	802.11n HT40	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11n HT40 26dB Bandwidth (MHz)	Pass/Fail
CH 38	5190	42.030	N/A
CH 46	5230	42.120	N/A

26 dB Bandwidth Plot on 802.11n HT40 Channel 38



26 dB Bandwidth Plot on 802.11n HT40 Channel 46



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3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

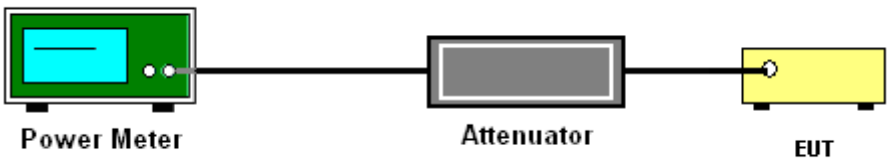
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	802.11a	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11a Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	6.38	6.38	17	Pass
44	5220	6.18	6.18	17	Pass
48	5240	6.21	6.21	17	Pass

Note:
1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).

Test Mode :	802.11n HT20	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11n HT20 Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	6.80	6.80	17	Pass
44	5220	7.13	7.13	17	Pass
48	5240	7.36	7.36	17	Pass

Note:
1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).

Test Mode :	802.11n HT40	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11n HT40 Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
38	5190	6.96	6.96	17	Pass
46	5230	6.91	6.91	17	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.15–5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

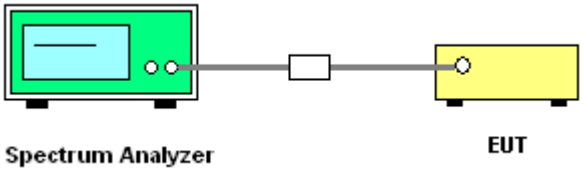
The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r01.
Section E) Peak power spectral density (PPSD).
Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r02.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 1 MHz.
   - Set VBW ≥ 3 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = sample
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



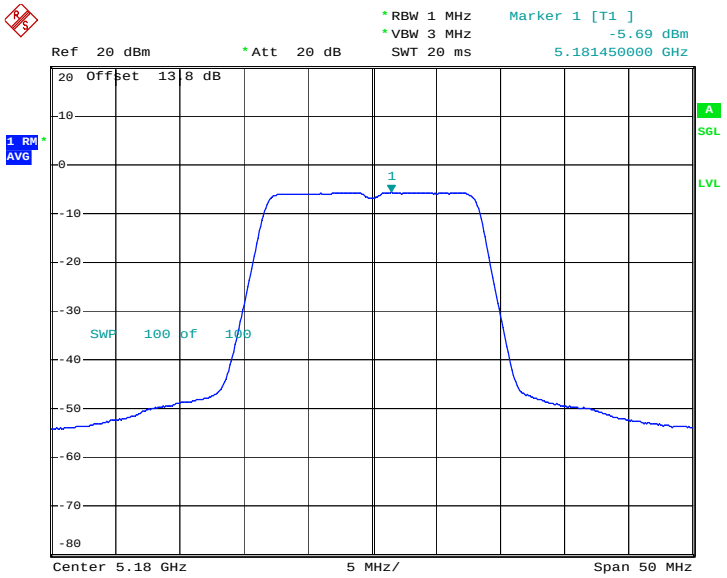
3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11a	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

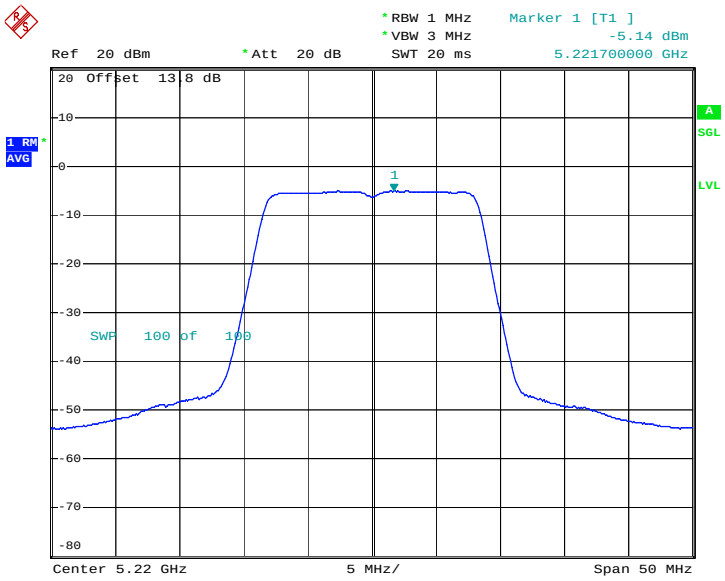
Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	-5.69	-5.69	4	Pass
44	5220	-5.14	-5.14	4	Pass
48	5240	-8.44	-8.44	4	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11a Channel 36

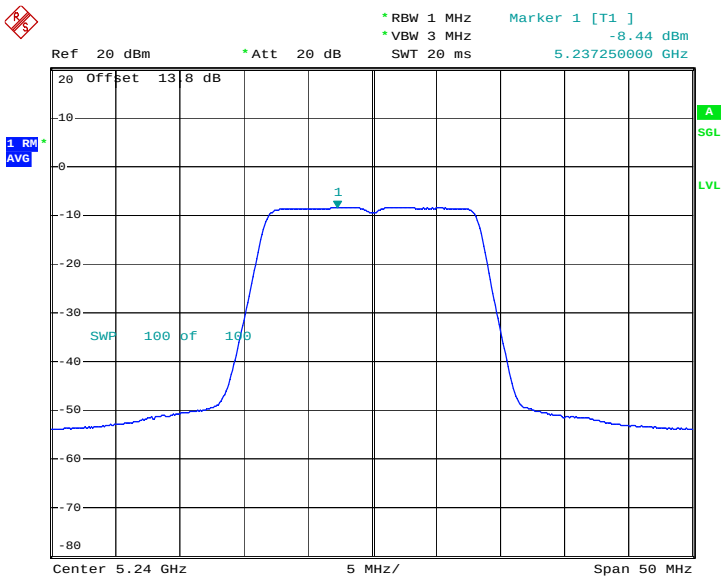


PSD Plot on 802.11a Channel 44



Date: 30.JAN.2013 01:01:05

PSD Plot on 802.11a Channel 48



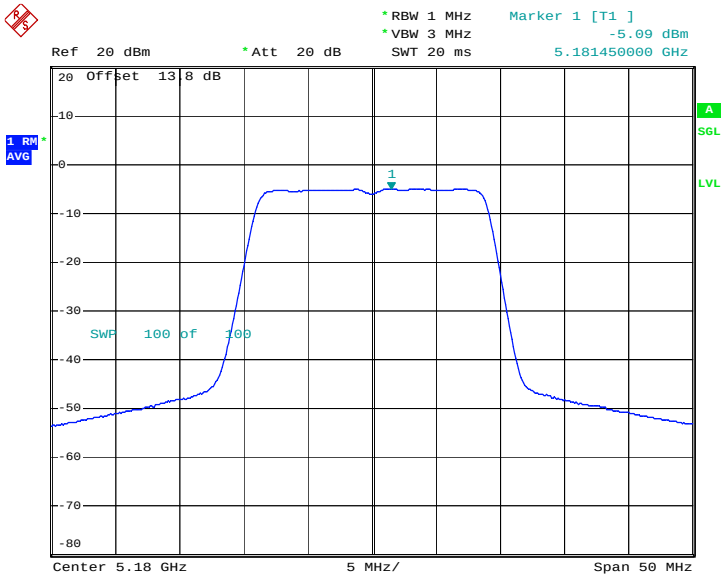
Date: 2.FEB.2013 22:54:23

Test Mode :	802.11n HT20	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

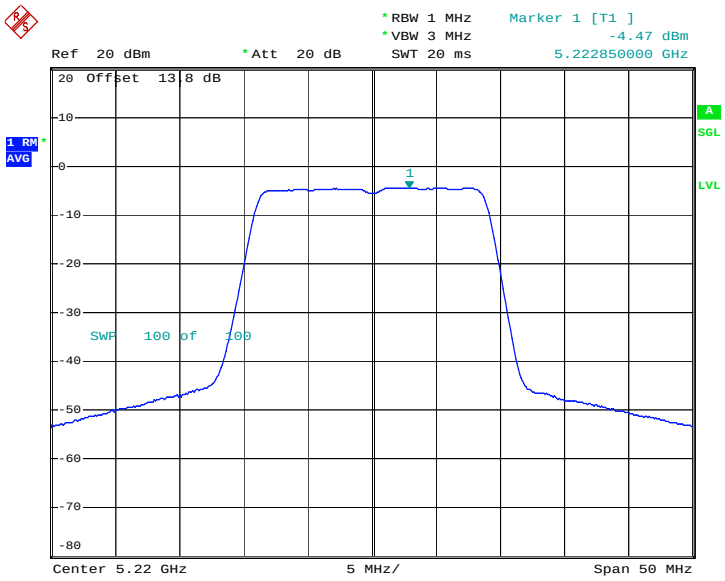
Channel	Frequency (MHz)	802.11n HT20 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	-5.09	-5.09	4	Pass
44	5220	-4.47	-4.47	4	Pass
48	5240	-7.11	-7.11	4	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11n HT20 channel 36

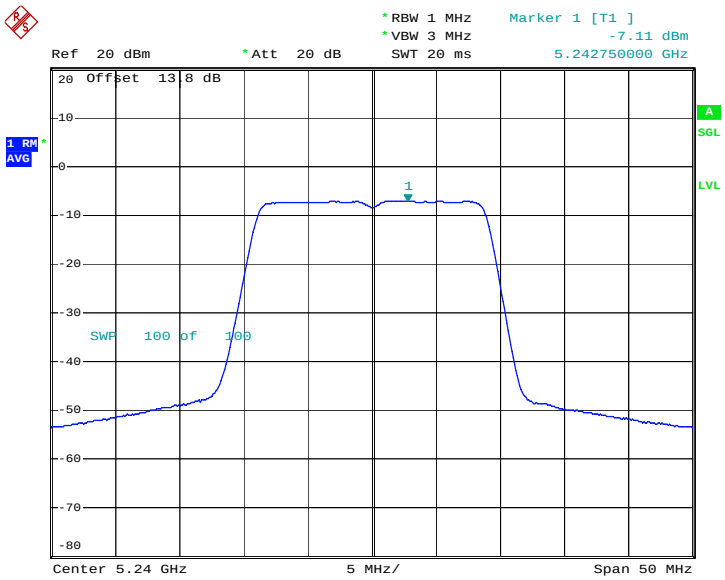


PSD Plot on 802.11n HT20 Channel 44



Date: 30.JAN.2013 00:47:19

PSD Plot on 802.11n HT20 Channel 48



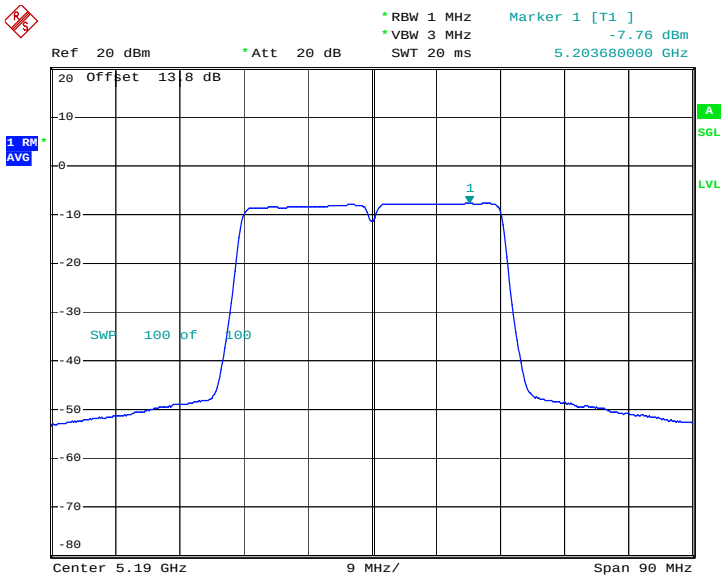
Date: 2.FEB.2013 22:58:05

Test Mode :	802.11n HT40	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%
Duty Cycle:	100%	Duty Factor:	0.00dB

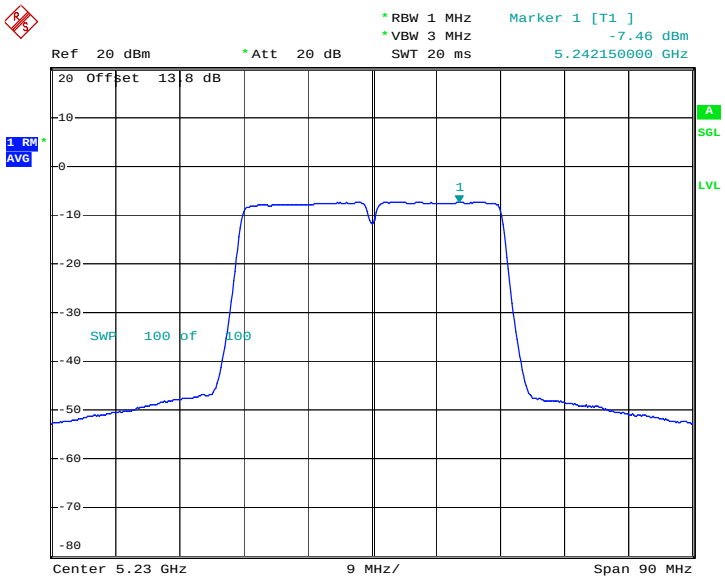
Channel	Frequency (MHz)	802.11n HT40 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
38	5190	-7.76	-7.76	4	Pass
46	5230	-7.46	-7.46	4	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11n HT40 Channel 38



PSD Plot on 802.11n HT40 Channel 46



Date: 30.JAN.2013 00:54:07

3.4 Peak Excursion Ratio Measurement

3.4.1 Limit of Peak Excursion Ratio

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

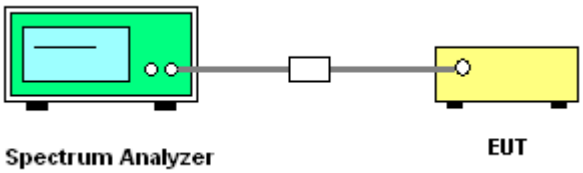
3.4.3 Test Procedures

T The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Section F) Peak excursion measurement

1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
   *Set RBW = 1MHz.
   *Set VBW ≥ 3MHz.
   *Detector = peak.
   *Trace mode = max-hold.
   *Allow the sweeps to continue until the trace stabilizes.
   *Use the peak search function to find the peak of the spectrum.
4. Use the procedure found under section 3.3 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

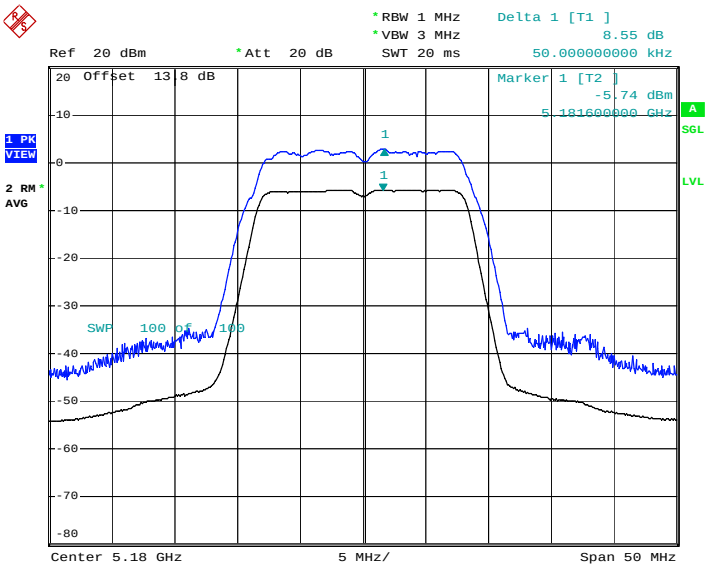
3.4.4 Test Setup



3.4.5 Test Result of Peak Excursion Ratio

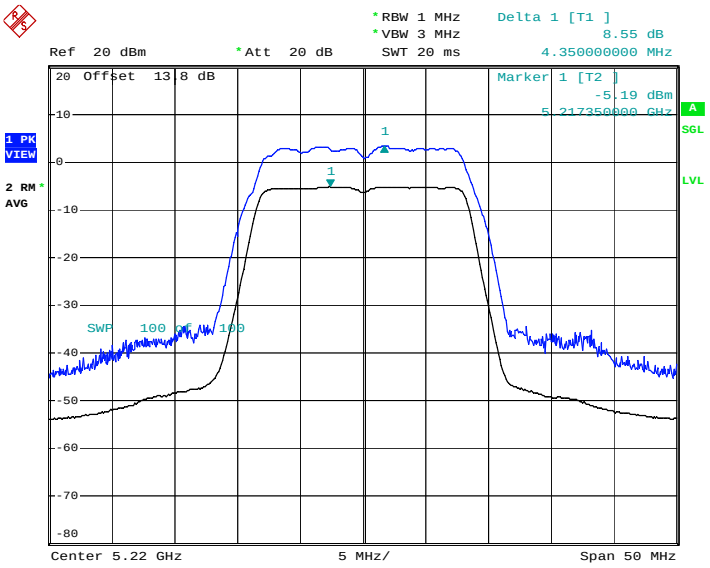
Test Mode :	802.11a	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Peak Excursion Ratio Plot on 802.11a Channel 36



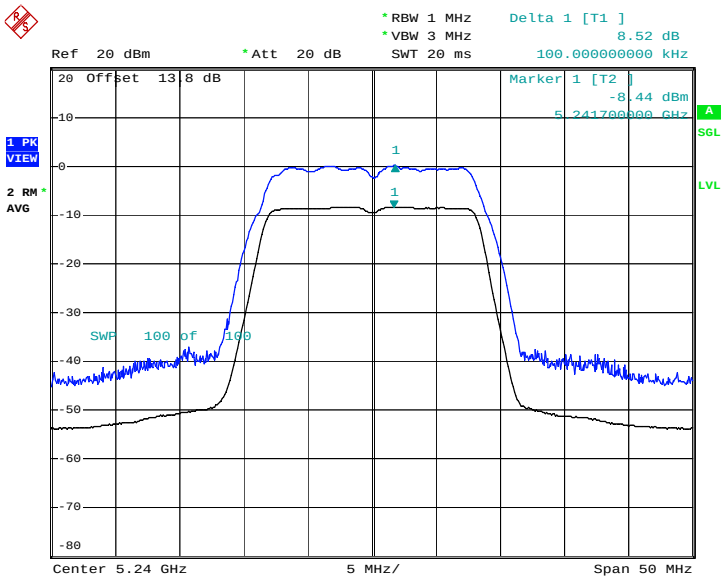
Date: 30.JAN.2013 00:57:04

Peak Excursion Ratio Plot on 802.11a Channel 44



Date: 30.JAN.2013 01:01:22

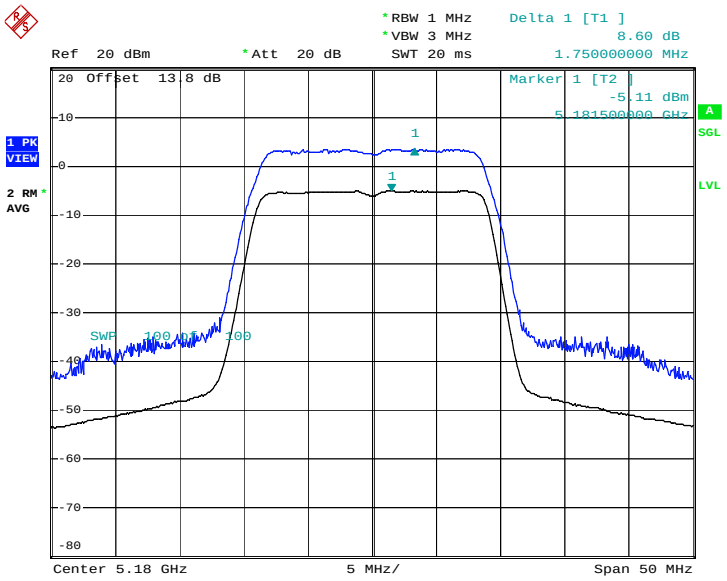
Peak Excursion Ratio Plot on 802.11a Channel 48



Date: 2.FEB.2013 22:54:40

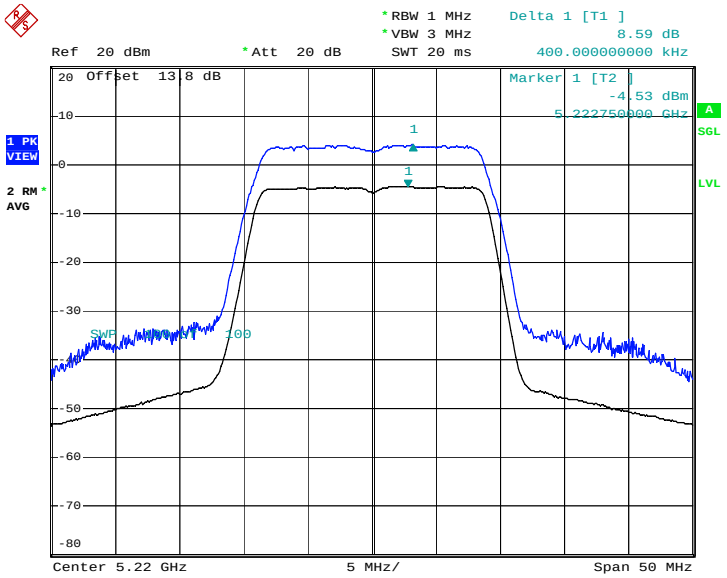
Test Mode :	802.11n HT20	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Peak Excursion Ratio Plot on 802.11n HT20 Channel 36



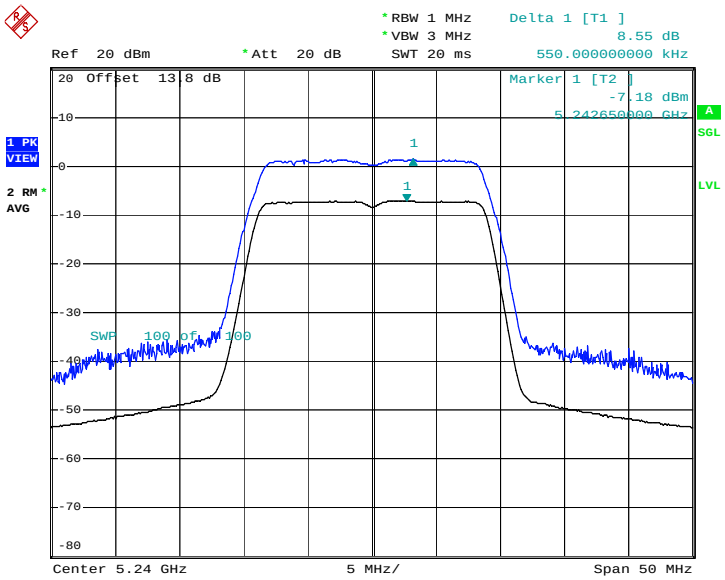
Date: 30.JAN.2013 00:41:56

Peak Excursion Ratio Plot on 802.11n HT20 Channel 44



Date: 30.JAN.2013 00:47:36

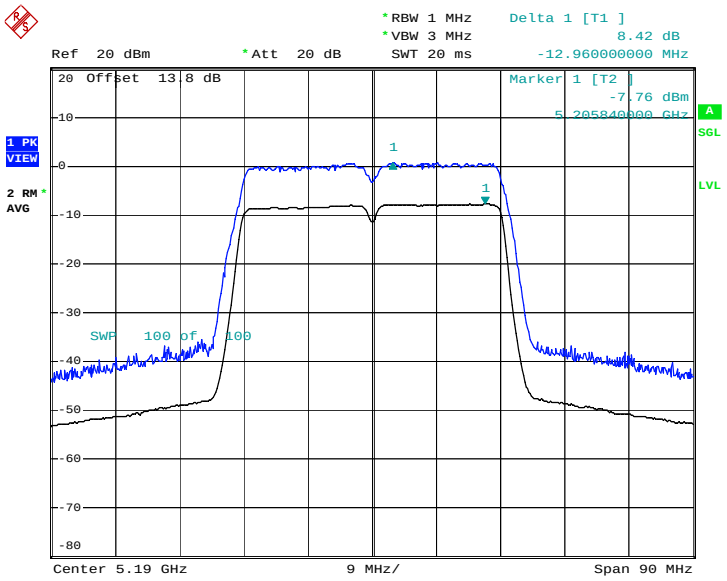
Peak Excursion Ratio Plot on 802.11n HT20 Channel 48



Date: 2.FEB.2013 22:58:23

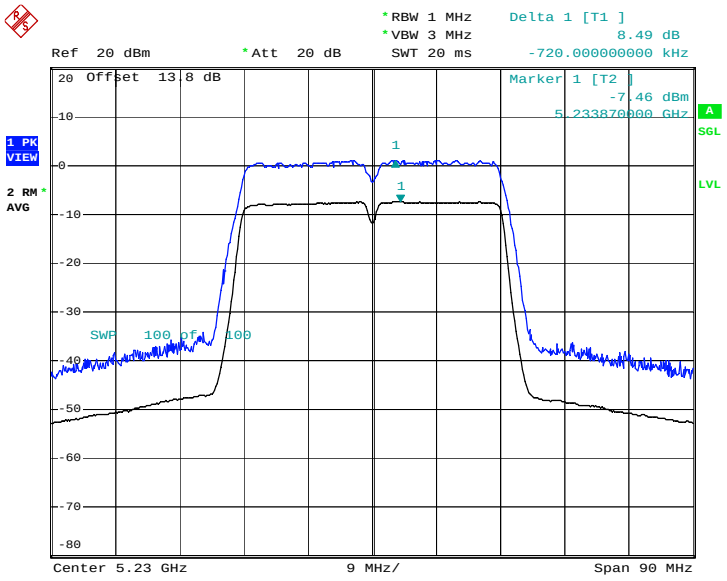
Test Mode :	802.11n HT40	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Peak Excursion Ratio Plot on 802.11n HT40 Channel 38



Date: 30.JAN.2013 00:50:59

Peak Excursion Ratio Plot on 802.11n HT40 Channel 46



Date: 30.JAN.2013 00:54:24

3.5 Unwanted Radiated Emission Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b) (1) to (6), and restricted bands per FCC Part15.205.

3.5.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz.

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

Note: The following formula is used to convert the EIRP to field strength.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

EIRP (dBm)	Field Strength at 3m (dBuV/m)
-17	78.3
- 27	68.3

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows the guidelines in fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement and FCC KDB 789033 D01 General UNII Test Procedures v01r02.

   Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 KHz
   - VBW = 300 KHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - The setting follows the G) 5) of FCC KDB 789033.
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

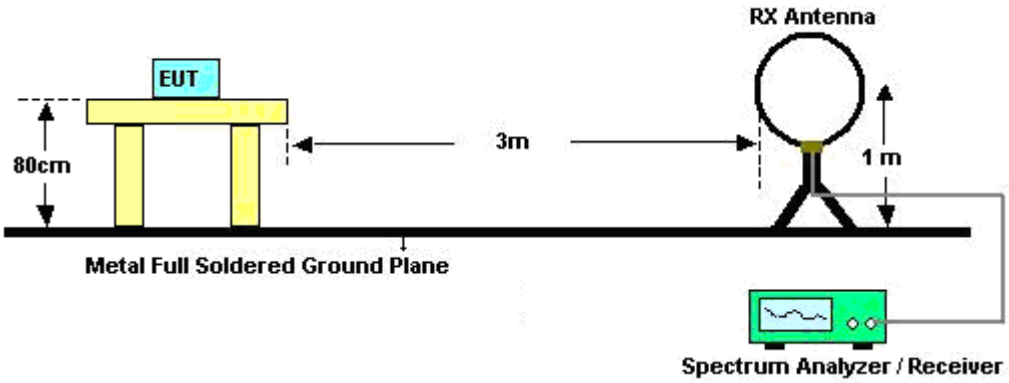
   - The setting follows G) 6) of FCC KDB 789033.
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle (%)	T(us)	1/T(KHz)	VBW Setting
802.11a	100.00	-	-	10Hz
802.11n (HT 20)	100.00	-	-	10Hz
802.11n (HT 40)	100.00	-	-	10Hz

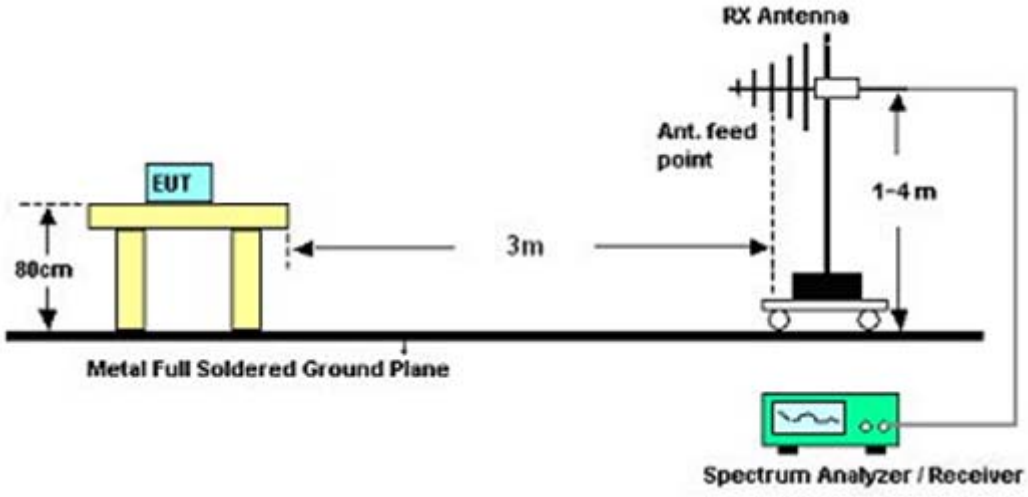
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

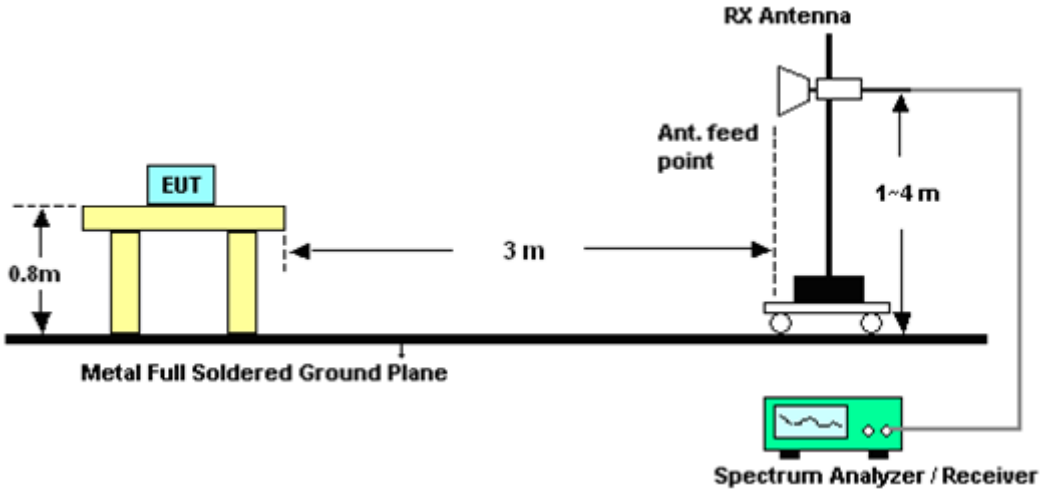
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result

3.5.6.1 Test Result of Radiated Band Edges

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5006.57	53.75	-20.25	74	46.86	35.2	3.18	31.49	100	116	Peak
5117.79	40.1	-13.9	54	33.1	35.23	3.2	31.43	100	116	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5123.82	53.95	-20.05	74	46.92	35.24	3.21	31.42	100	206	Peak
5116.45	40.21	-13.79	54	33.21	35.23	3.2	31.43	100	206	Average

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5352.97	53.21	-20.79	74	45.86	35.32	3.27	31.24	100	312	Peak
5351.54	40.42	-13.58	54	33.07	35.32	3.27	31.24	100	312	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5364.08	54.35	-19.65	74	46.98	35.33	3.27	31.23	121	345	Peak
5353.96	40.35	-13.65	54	33	35.32	3.27	31.24	121	345	Average

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5353.19	54.05	-19.95	74	46.7	35.32	3.27	31.24	100	78	Peak
5351.32	39.82	-14.18	54	32.47	35.32	3.27	31.24	100	93	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5363.86	53.76	-20.24	74	46.39	35.33	3.27	31.23	100	149	Peak
5351.32	39.83	-14.17	54	32.48	35.32	3.27	31.24	100	149	Average

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5128.32	52.62	-21.38	74	45.59	35.24	3.21	31.42	126	128	Peak
5119.74	38.56	-15.44	54	31.56	35.23	3.2	31.43	126	128	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5115.12	51.84	-22.16	74	44.84	35.23	3.2	31.43	120	129	Peak
5119.74	38.74	-15.26	54	31.74	35.23	3.2	31.43	120	130	Average

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5354.84	54.51	-19.49	74	47.16	35.32	3.27	31.24	100	269	Peak
5353.74	40.23	-13.77	54	32.88	35.32	3.27	31.24	100	269	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5367.27	53.87	-20.13	74	46.5	35.33	3.27	31.23	100	0	Peak
5353.96	40.38	-13.62	54	33.03	35.32	3.27	31.24	100	0	Average

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5351.54	54.01	-19.99	74	46.66	35.32	3.27	31.24	100	103	Peak
5355.83	39.64	-14.36	54	32.29	35.32	3.27	31.24	100	103	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5354.95	52.92	-21.08	74	45.57	35.32	3.27	31.24	179	201	Peak
5351.87	39.61	-14.39	54	32.26	35.32	3.27	31.24	179	201	Average

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5147.46	53.32	-20.68	74	46.27	35.25	3.21	31.41	100	266	Peak
5150	39.93	-14.07	54	32.88	35.25	3.21	31.41	100	267	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	57.05	-16.95	74	50	35.25	3.21	31.41	110	120	Peak
5150	43.19	-10.81	54	36.14	35.25	3.21	31.41	110	120	Average

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	46	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5363.45	54.22	-19.78	74	46.85	35.33	3.27	31.23	100	234	Peak
5351.2	39.26	-14.74	54	31.91	35.32	3.27	31.24	100	234	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5351.65	53.48	-20.52	74	46.13	35.32	3.27	31.24	120	132	Peak
5352.1	39.37	-14.63	54	32.02	35.32	3.27	31.24	120	132	Average

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	56.18	-17.82	74	49.13	35.25	3.21	31.41	100	136	Peak
5150	42.66	-11.34	54	35.61	35.25	3.21	31.41	100	130	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	53.66	-20.34	74	46.61	35.25	3.21	31.41	149	63	Peak
5150	40.86	-13.14	54	33.81	35.25	3.21	31.41	146	58	Average

<In Laptop Mode with Adapter 2 for Sample 2>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	50.56	-23.44	74	43.51	35.25	3.21	31.41	100	290	Peak
5150	38.83	-15.17	54	31.78	35.25	3.21	31.41	100	290	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	54.84	-19.16	74	47.79	35.25	3.21	31.41	100	50	Peak
5150	41.08	-12.92	54	34.03	35.25	3.21	31.41	100	50	Average

<In Laptop Mode with Adapter 3 for Sample 3>

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	49.77	-24.23	74	42.72	35.25	3.21	31.41	100	120	Peak
5150	38.72	-15.28	54	31.67	35.25	3.21	31.41	100	120	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	55.38	-18.62	74	48.33	35.25	3.21	31.41	100	154	Peak
5150	42.62	-11.38	54	35.57	35.25	3.21	31.41	100	154	Average

<In Laptop Mode with Adapter 4 for Sample 4>

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	52.78	-21.22	74	45.73	35.25	3.21	31.41	129	242	Peak
5150	40.2	-13.8	54	33.15	35.25	3.21	31.41	129	242	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	54.47	-19.53	74	47.42	35.25	3.21	31.41	100	51	Peak
5150	41.91	-12.09	54	34.86	35.25	3.21	31.41	100	51	Average

3.5.6.2 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	99.06	-	-	91.96	35.26	3.22	31.38	100	116	Peak
5180	88.38	-	-	81.28	35.26	3.22	31.38	100	116	Average
10360	27.25	-46.75	74	43.33	10.2	3.53	29.81	100	121	Peak

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	101.13	-	-	94.03	35.26	3.22	31.38	100	205	Peak
5180	89.87	-	-	82.77	35.26	3.22	31.38	100	205	Average
10360	26.6	-47.4	74	42.68	10.2	3.53	29.81	100	166	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5220	99.85	-	-	92.71	35.27	3.23	31.36	100	115	Peak
5220	88.8	-	-	81.66	35.27	3.23	31.36	100	115	Average
10440	27.29	-46.71	74	43.15	10.36	3.6	29.82	100	21	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5220	102.81	-	-	95.67	35.27	3.23	31.36	100	212	Peak
5220	91.53	-	-	84.39	35.27	3.23	31.36	100	212	Average
10440	26.96	-47.04	74	42.82	10.36	3.6	29.82	100	20	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	96.42	-	-	89.26	35.28	3.23	31.35	100	309	Peak
5240	85.28	-	-	78.12	35.28	3.23	31.35	100	309	Average
10480	27.72	-46.28	74	16.31	37.6	3.64	29.83	100	0	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	98.27	-	-	91.11	35.28	3.23	31.35	112	357	Peak
5240	87.61	-	-	80.45	35.28	3.23	31.35	112	357	Average
10480	27.52	-46.48	74	16.11	37.6	3.64	29.83	100	0	Peak

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	95.82	-	-	88.66	35.28	3.23	31.35	100	93	Peak
5240	84.11	-	-	76.95	35.28	3.23	31.35	100	93	Average
10480	27.72	-46.28	74	43.44	10.47	3.64	29.83	100	210	Peak

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	92.44	-	-	85.28	35.28	3.23	31.35	100	147	Peak
5240	81.85	-	-	74.69	35.28	3.23	31.35	100	147	Average
10480	27.52	-46.48	74	43.24	10.47	3.64	29.83	100	51	Peak

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	98.74	-	-	91.64	35.26	3.22	31.38	139	124	Peak
5180	87.88	-	-	80.78	35.26	3.22	31.38	139	124	Average
10360	27.08	-46.92	74	43.16	10.2	3.53	29.81	100	26	Peak

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	36	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	101.45	-	-	94.35	35.26	3.22	31.38	120	127	Peak
5180	90.63	-	-	83.53	35.26	3.22	31.38	120	127	Average
10360	27.46	-46.54	74	43.54	10.2	3.53	29.81	100	151	Peak

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5220	98.95	-	-	91.81	35.27	3.23	31.36	132	122	Peak
5220	87.95	-	-	80.81	35.27	3.23	31.36	132	122	Average
10440	27.41	-46.59	74	43.27	10.36	3.6	29.82	100	122	Peak

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5220	102.26	-	-	95.12	35.27	3.23	31.36	119	127	Peak
5220	91.69	-	-	84.55	35.27	3.23	31.36	119	127	Average
10440	27.3	-46.7	74	43.16	10.36	3.6	29.82	100	105	Peak

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	99.3	-	-	92.14	35.28	3.23	31.35	100	300	Peak
5240	88.11	-	-	80.95	35.28	3.23	31.35	100	300	Average
10480	28.29	-45.71	74	44.01	10.47	3.64	29.83	100	182	Peak

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	101.15	-	-	93.99	35.28	3.23	31.35	100	78	Peak
5240	90.03	-	-	82.87	35.28	3.23	31.35	100	78	Average
10480	28.48	-45.52	74	44.2	10.47	3.64	29.83	100	62	Peak

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	99.21	-	-	92.05	35.28	3.23	31.35	100	97	Peak
5240	87.98	-	-	80.82	35.28	3.23	31.35	100	97	Average
10480	28	-46	74	43.72	10.47	3.64	29.83	100	118	Peak

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Channel :	48	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5240	95.42	-	-	88.26	35.28	3.23	31.35	175	59	Peak
5240	83.92	-	-	76.76	35.28	3.23	31.35	175	59	Average
10480	27.39	-46.61	74	43.11	10.47	3.64	29.83	100	21	Peak

<In Laptop Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
239.987	34.25	-11.75	46	55.3	11.51	0.9	33.46	-	-	Peak
348.027	41.09	-4.91	46	58.89	14.46	1.1	33.36	100	155	Peak
432.546	40.71	-5.29	46	56.55	16.21	1.19	33.24	-	-	Peak
480.528	40.18	-5.82	46	55.19	16.87	1.28	33.16	-	-	Peak
721.726	36.56	-9.44	46	48.31	19.55	1.54	32.84	-	-	Peak
945.44	36.55	-17.45	54	46.53	20.71	1.75	32.44	-	-	Peak
5190	92.12	-	-	85.02	35.26	3.22	31.38	100	267	Peak
5190	81.24	-	-	74.14	35.26	3.22	31.38	100	267	Average
10380	28.4	-45.6	74	44.42	10.24	3.55	29.81	100	151	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
71.832	28.61	-11.39	40	56.21	5.46	0.53	33.59	-	-	Peak
96.099	30.17	-13.33	43.5	53.31	9.91	0.57	33.62	-	-	Peak
239.987	33.17	-12.83	46	54.22	11.51	0.9	33.46	-	-	Peak
420.58	37.56	-8.44	46	53.54	16.12	1.17	33.27	100	120	Peak
721.726	37.38	-8.62	46	49.13	19.55	1.54	32.84	-	-	Peak
945.44	36.23	-17.77	54	46.21	20.71	1.75	32.44	-	-	Peak
5190	98.88	-	-	91.78	35.26	3.22	31.38	110	120	Peak
5190	87.81	-	-	80.71	35.26	3.22	31.38	110	120	Average
10380	27.59	-46.41	74	43.61	10.24	3.55	29.81	100	90	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	46	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	1. 5230 MHz is fundamental signal which can be ignored. 2. 10460 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5230	94.97	-	-	87.81	35.28	3.23	31.35	122	123	Peak
5230	83.83	-	-	76.67	35.28	3.23	31.35	122	123	Average
10460	26.49	-47.51	74	42.31	10.4	3.61	29.83	100	0	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	46	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5230 MHz is fundamental signal which can be ignored. 2. 10460 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5230	98.94	-	-	91.78	35.28	3.23	31.35	107	121	Peak
5230	88.41	-	-	81.25	35.28	3.23	31.35	107	121	Average
10460	27.31	-46.69	74	43.13	10.4	3.61	29.83	100	19	Peak

<In Tablet Mode with Adapter 1 for Sample 1>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	3. 5190 MHz is fundamental signal which can be ignored. 4. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5190	96.59	-	-	89.49	35.26	3.22	31.38	100	130	Peak
5190	85.86	-	-	78.76	35.26	3.22	31.38	100	130	Average
10380	28.4	-45.6	74	44.42	10.24	3.55	29.81	100	60	Peak

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Vertical
Remark :	3. 5190 MHz is fundamental signal which can be ignored. 4. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5190	93.01	-	-	85.91	35.26	3.22	31.38	150	64	Peak
5190	81.6	-	-	74.5	35.26	3.22	31.38	150	64	Average
10380	27.59	-46.41	74	43.61	10.24	3.55	29.81	100	89	Peak

<In Laptop Mode with Adapter 2 for Sample 2>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
312.179	42.7	-3.3	46	61.76	13.3	1.01	33.37	-	-	Peak
348.027	39	-7	46	56.8	14.46	1.1	33.36	100	0	QP
360.448	41.1	-4.9	46	58.59	14.75	1.11	33.35	-	-	Peak
432.546	41.02	-4.98	46	56.86	16.21	1.19	33.24	-	-	Peak
480.528	40.19	-5.81	46	55.2	16.87	1.28	33.16	-	-	Peak
896.997	36.98	-9.02	46	47.21	20.45	1.76	32.44	-	-	Peak
5190	92.36	-	-	85.26	35.26	3.22	31.38	100	298	Peak
5190	81.45	-	-	74.35	35.26	3.22	31.38	100	298	Average
10380	28.24	-45.76	74	44.26	10.24	3.55	29.81	100	15	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
96.099	30.35	-13.15	43.5	53.49	9.91	0.57	33.62	-	-	Peak
239.987	32.44	-13.56	46	53.49	11.51	0.9	33.46	-	-	Peak
372.005	35.36	-10.64	46	52.46	15.12	1.12	33.34	-	-	Peak
396.242	37.25	-8.75	46	53.47	15.94	1.15	33.31	100	182	Peak
432.546	36.85	-9.15	46	52.69	16.21	1.19	33.24	-	-	Peak
721.726	36.47	-9.53	46	48.22	19.55	1.54	32.84	-	-	Peak
5190	98.05	-	-	90.95	35.26	3.22	31.38	100	50	Peak
5190	86.92	-	-	79.82	35.26	3.22	31.38	100	50	Average
10380	26.75	-47.25	74	42.77	10.24	3.55	29.81	100	66	Peak

<In Laptop Mode with Adapter 3 for Sample 3>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
300.367	38.79	-7.21	46	58.15	13.02	0.99	33.37	-	-	Peak
336.035	38.19	-7.81	46	56.3	14.17	1.08	33.36	100	321	QP
396.242	42.85	-3.15	46	59.07	15.94	1.15	33.31	-	-	Peak
420.58	42.45	-3.55	46	58.43	16.12	1.17	33.27	-	-	Peak
444.851	41.35	-4.65	46	57.08	16.28	1.2	33.21	-	-	Peak
480.528	41.55	-4.45	46	56.56	16.87	1.28	33.16	-	-	Peak
5190	92.81	-	-	85.71	35.26	3.22	31.38	126	120	Peak
5190	82.19	-	-	75.09	35.26	3.22	31.38	126	120	Average
10380	28.22	-45.78	74	44.24	10.24	3.55	29.81	100	109	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.057	32.09	-7.91	40	57.83	7.4	0.44	33.58	-	-	Peak
59.859	31.27	-8.73	40	59.07	5.3	0.48	33.58	-	-	Peak
72.084	31.46	-8.54	40	59.06	5.46	0.53	33.59	-	-	Peak
287.99	32.17	-13.83	46	51.76	12.82	0.98	33.39	-	-	Peak
444.851	33.88	-12.12	46	49.61	16.28	1.2	33.21	-	-	Peak
747.483	38.22	-7.78	46	49.53	19.88	1.59	32.78	100	165	Peak
5190	97.96	-	-	90.86	35.26	3.22	31.38	100	154	Peak
5190	86.12	-	-	79.02	35.26	3.22	31.38	100	154	Average
10380	26.77	-47.23	74	42.79	10.24	3.55	29.81	100	21	Peak

<In Laptop Mode with Adapter 4 for Sample 4>

Test Mode :	802.11n HT40	**Temperature :**	21~22°C
Test Channel :	38	**Relative Humidity :**	40~41%
Test Engineer :	Allen Cheng	**Polarization :**	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
239.987	33.99	-12.01	46	55.04	11.51	0.9	33.46	-	-	Peak
349.25	38.62	-7.38	46	56.4	14.48	1.1	33.36	-	-	Peak
396.242	42.67	-3.33	46	58.89	15.94	1.15	33.31	100	332	QP
408.946	41.41	-4.59	46	57.5	16.04	1.16	33.29	100	331	QP
480.528	39.86	-6.14	46	54.87	16.87	1.28	33.16	-	-	Peak
721.726	37.89	-8.11	46	49.64	19.55	1.54	32.84	-	-	Peak
5190	94.89	-	-	87.79	35.26	3.22	31.38	129	242	Peak
5190	83.38	-	-	76.28	35.26	3.22	31.38	129	242	Average
10380	28.29	-45.71	74	44.31	10.24	3.55	29.81	100	20	Peak

Test Mode :	802.11n HT40	Temperature :	21~22°C
Test Channel :	38	Relative Humidity :	40~41%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 10380 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
59.859	31.59	-8.41	40	59.39	5.3	0.48	33.58	-	-	Peak
300.367	34.91	-11.09	46	54.27	13.02	0.99	33.37	-	-	Peak
336.035	37.14	-8.86	46	55.25	14.17	1.08	33.36	-	-	Peak
408.946	37.83	-8.17	46	53.92	16.04	1.16	33.29	-	-	Peak
420.58	39.35	-6.65	46	55.33	16.12	1.17	33.27	100	109	Peak
747.483	37.62	-8.38	46	48.93	19.88	1.59	32.78	-	-	Peak
5190	96.23	-	-	89.13	35.26	3.22	31.38	100	51	Peak
5190	85.74	-	-	78.64	35.26	3.22	31.38	100	51	Average
10380	26.72	-47.28	74	42.74	10.24	3.55	29.81	100	100	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

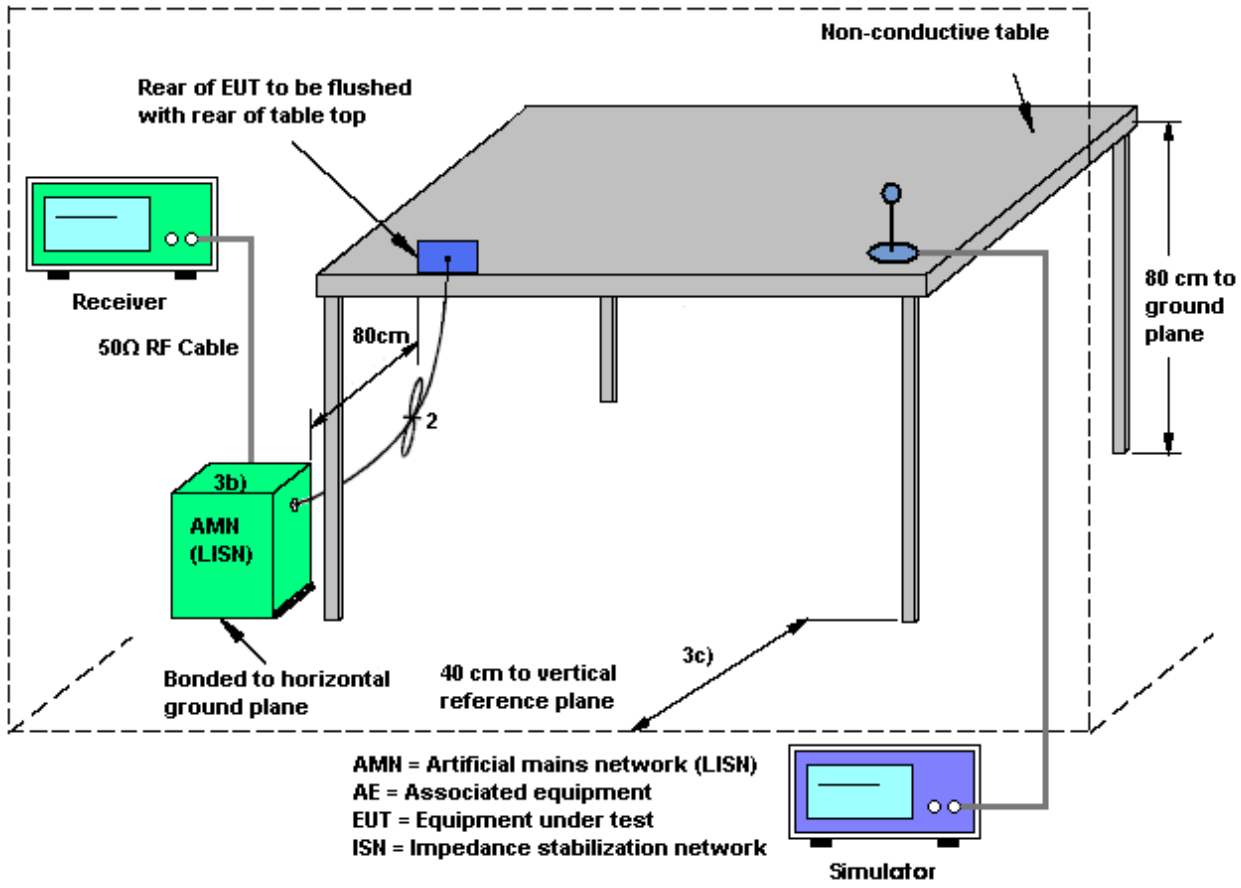
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

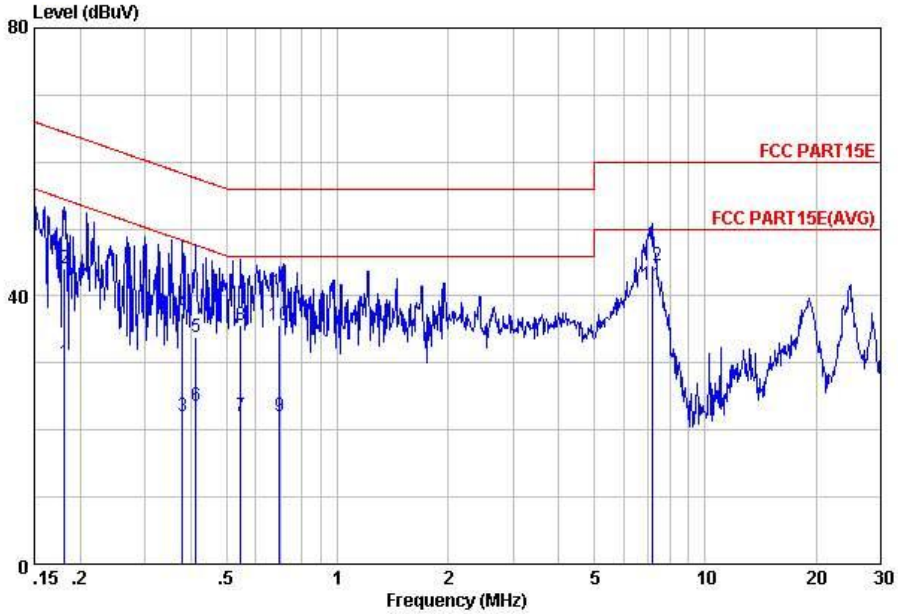
1. The testing follows the guidelines in ANSI C63.10-2009 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

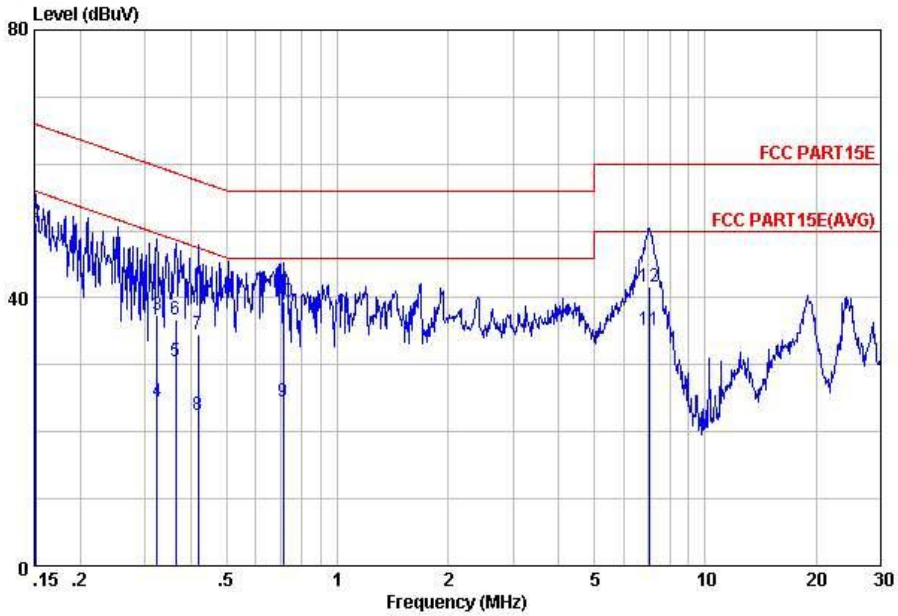
Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Adapter 1 + TC for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15E LISN-111230 LINE
Project : (FR) 2D1707
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.18	30.10	-24.32	54.42	19.96	-0.07	10.21	Average
2	0.18	44.20	-20.22	64.42	34.06	-0.07	10.21	QP
3	0.38	22.00	-26.30	48.30	11.83	-0.08	10.25	Average
4	0.38	37.50	-20.80	58.30	27.33	-0.08	10.25	QP
5	0.41	33.80	-23.79	57.59	23.63	-0.08	10.25	QP
6	0.41	23.60	-23.99	47.59	13.43	-0.08	10.25	Average
7	0.55	22.10	-23.90	46.00	11.92	-0.08	10.26	Average
8	0.55	35.60	-20.40	56.00	25.42	-0.08	10.26	QP
9	0.70	22.10	-23.90	46.00	11.92	-0.09	10.27	Average
10	0.70	35.60	-20.40	56.00	25.42	-0.09	10.27	QP
11	7.21	41.60	-8.40	50.00	31.38	-0.13	10.35	Average
12	7.21	44.50	-15.50	60.00	34.28	-0.13	10.35	QP

Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Adapter 1 + TC for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15E LISN-111230 NEUTRAL
Project : (FR) 2D1707
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	42.61	-13.30	55.91	32.50	-0.09	10.20	Average
2	0.15	51.31	-14.60	65.91	41.20	-0.09	10.20	QP
3	0.32	37.50	-22.12	59.62	27.34	-0.08	10.24	QP
4	0.32	24.60	-25.02	49.62	14.44	-0.08	10.24	Average
5	0.36	30.50	-18.15	48.65	20.33	-0.08	10.25	Average
6	0.36	36.80	-21.85	58.65	26.63	-0.08	10.25	QP
7	0.42	34.60	-22.86	57.46	24.43	-0.08	10.25	QP
8	0.42	22.50	-24.96	47.46	12.33	-0.08	10.25	Average
9	0.71	24.60	-21.40	46.00	14.41	-0.08	10.27	Average
10	0.71	39.50	-16.50	56.00	29.31	-0.08	10.27	QP
11	7.06	35.20	-14.80	50.00	24.98	-0.13	10.35	Average
12	7.06	41.60	-18.40	60.00	31.38	-0.13	10.35	QP

3.7 Frequency Stability Measurement

3.7.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

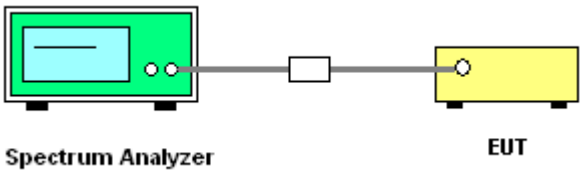
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.7.4 Test Setup



3.7.5 Test Result of Frequency Stability

Test Mode :	802.11a	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Low Frequency	High Frequency	Frequency Stability (ppm)
36	5180	5171.70	5188.25	-4.83
44	5220	5211.65	5228.35	0.00
48	5240	5231.65	5248.25	-9.54

Test Mode :	802.11n HT20	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Low Frequency	High Frequency	Frequency Stability (ppm)
36	5180	5171.10	5188.90	0.00
44	5220	5211.10	5228.90	0.00
48	5240	5231.10	5248.90	0.00

Test Mode :	802.11n HT40	Temperature :	20~21℃
Test Engineer :	Zhi Lu	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Low Frequency	High Frequency	Frequency Stability (ppm)
38	5190	5171.64	5208.27	-8.67
46	5230	5211.73	5248.27	0.00

3.8 Automatically Discontinue Transmission

3.8.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Result of Automatically Discontinue Transmission

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.9 Antenna Requirements

3.9.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.9.2 Antenna Connected Construction

Non-standard connector used.

3.9.3 Antenna Gain

The antenna gain is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Jan. 30, 2013~ Feb. 02, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 22, 2012	Jan. 30, 2013~ Feb. 02, 2013	Aug. 21, 2013	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 22, 2012	Jan. 30, 2013~ Feb. 02, 2013	Aug. 21, 2013	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 22, 2012	Jan. 30, 2013~ Feb. 02, 2013	Aug. 21, 2013	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Jan. 17, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	100400	9kHz~30GHz	Jun. 01, 2012	Jan. 17, 2013	May 31, 2013	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Jan. 17, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/ 001	9 kHz~30 MHz	Jul. 03, 2012	Jan. 17, 2013	Jul. 02, 2014	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2013	Jan. 17, 2013	Jan. 05, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	Jun. 01, 2012	Jan. 17, 2013	May 31, 2013	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	Jan. 17, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2012	Jan. 17, 2013	Nov. 06, 2013	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	9170249	15GHz~40GHz	Nov. 23, 2012	Jan. 17, 2013	Nov. 22, 2013	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	Feb. 25, 2013	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 29, 2012	Feb. 25, 2013	Dec. 28, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 29, 2012	Feb. 25, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Feb. 25, 2013	Nov. 14, 2013	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 29, 2012	Feb. 25, 2013	Dec. 28, 2013	Conduction (CO01-KS)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

Appendix A. Photographs of EUT

Please refer to Sporton report number EP2D1707 as below.

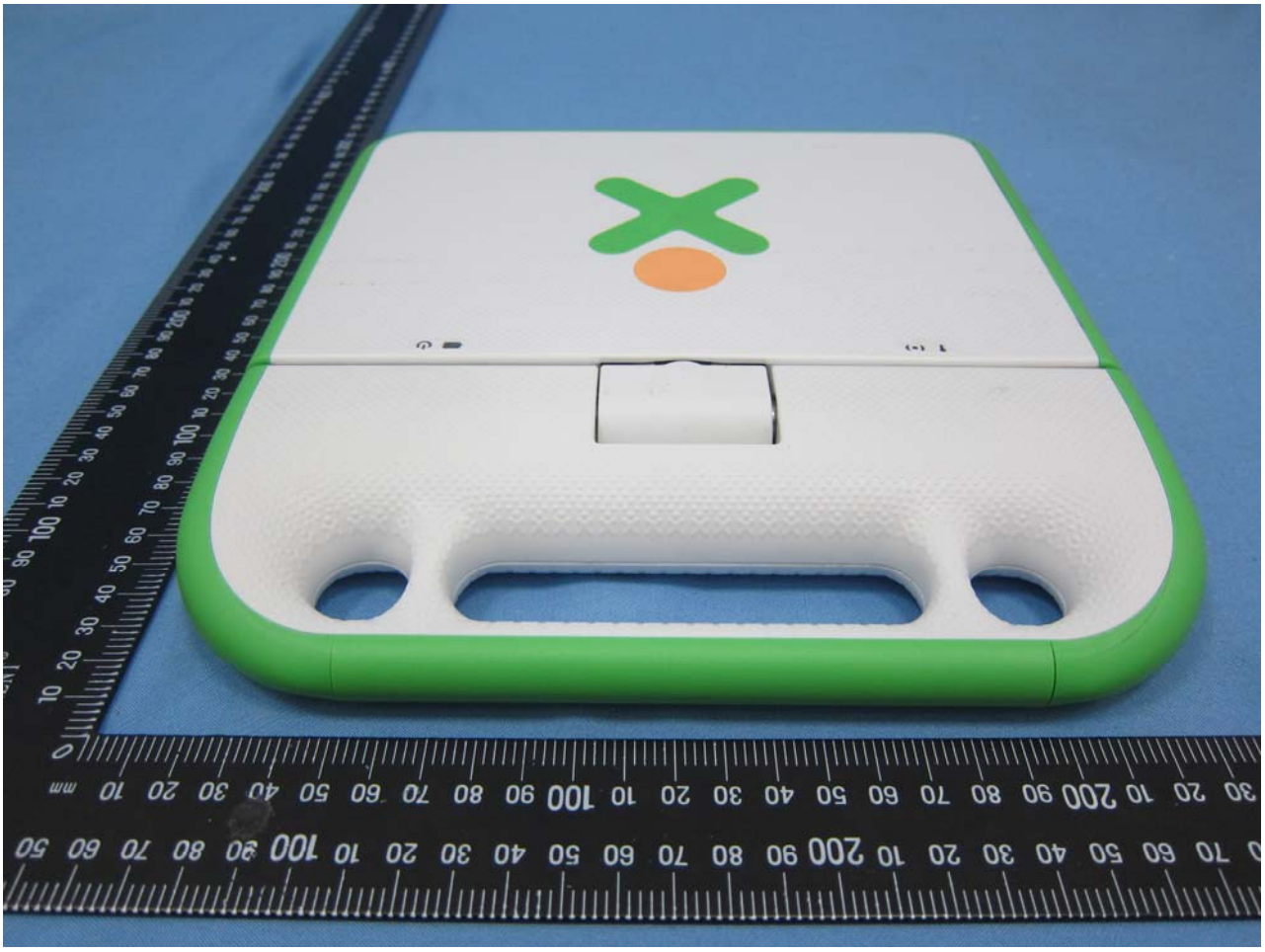
1. External Photograph of EUT

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

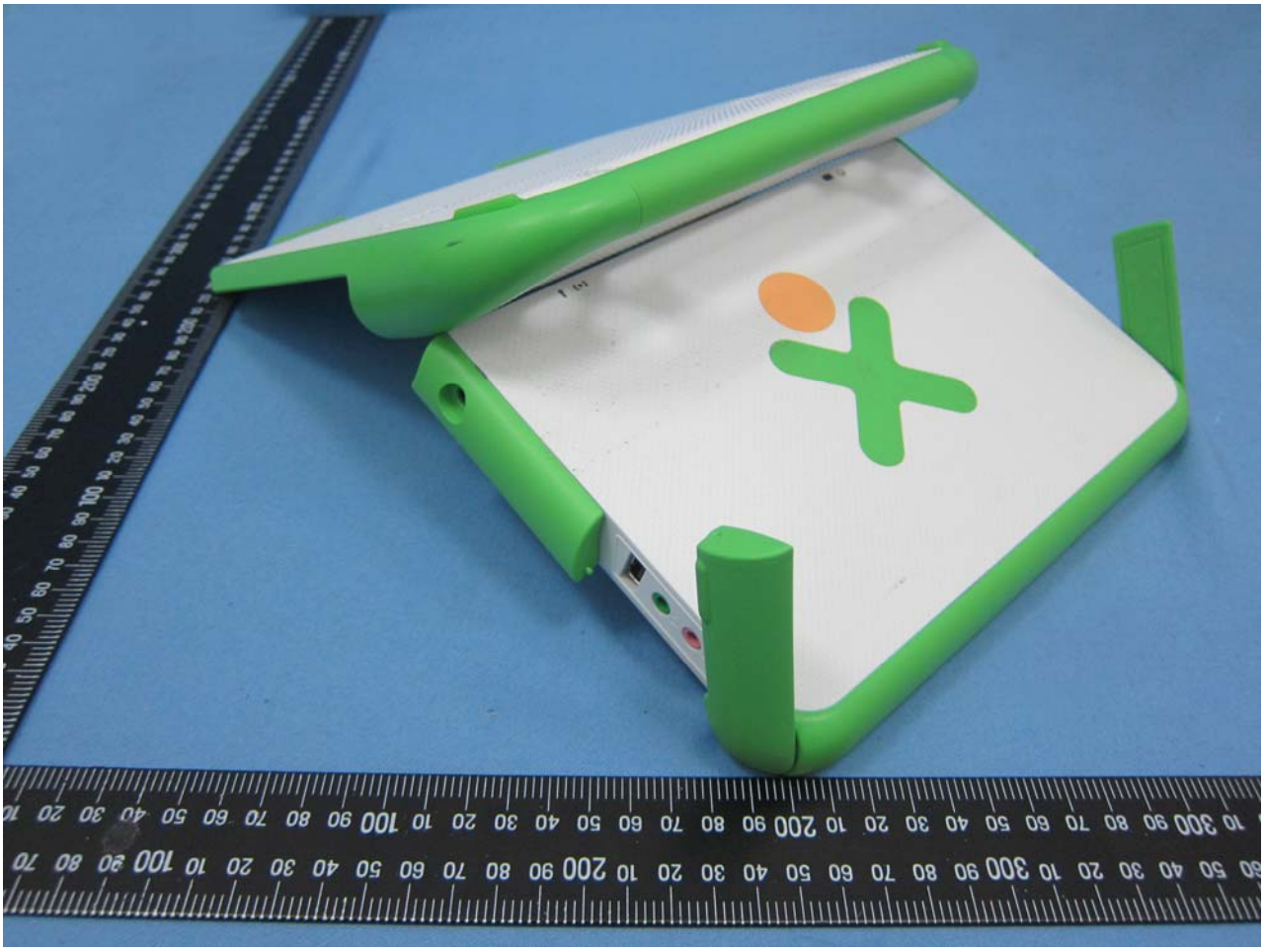


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

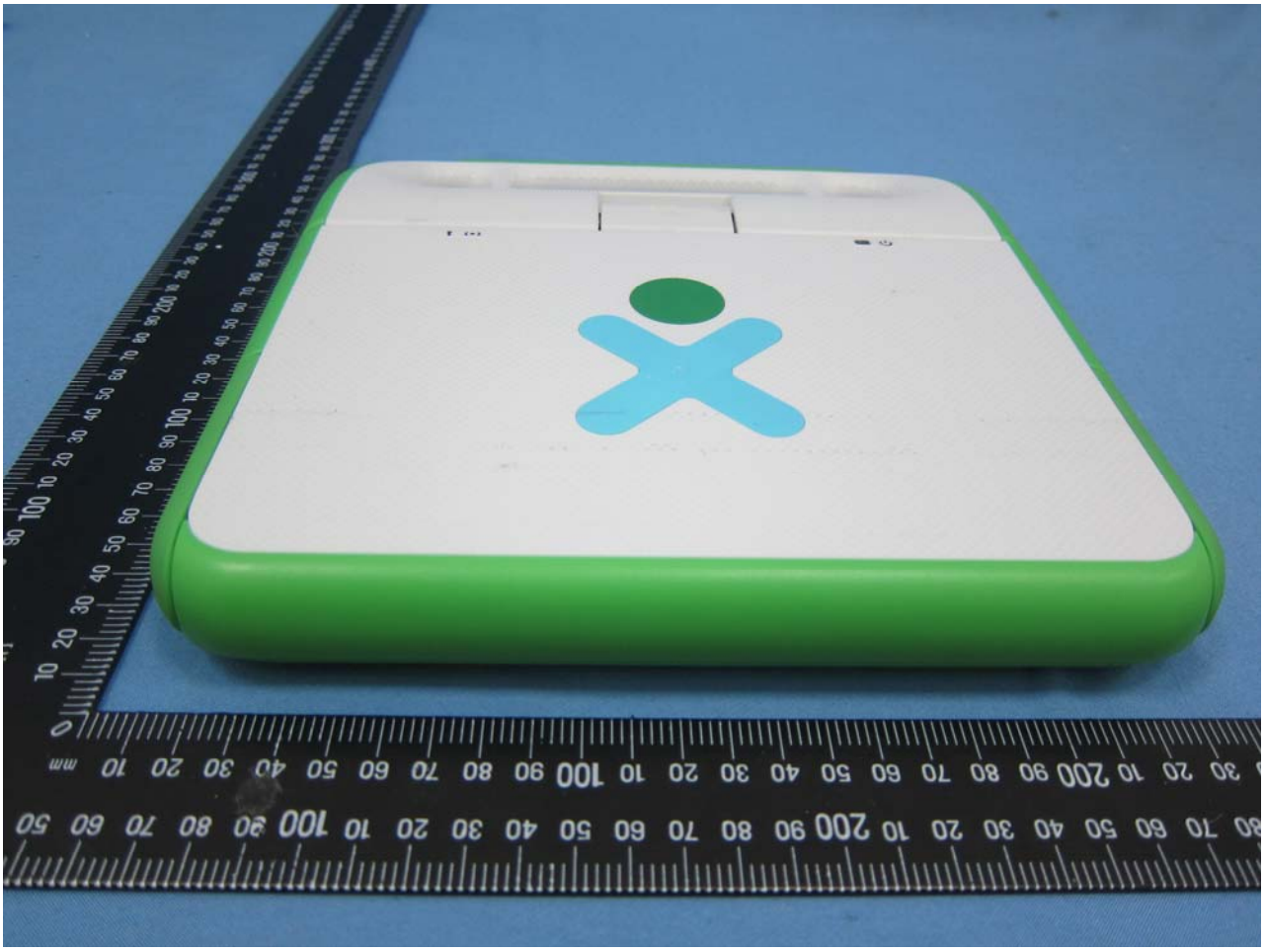
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

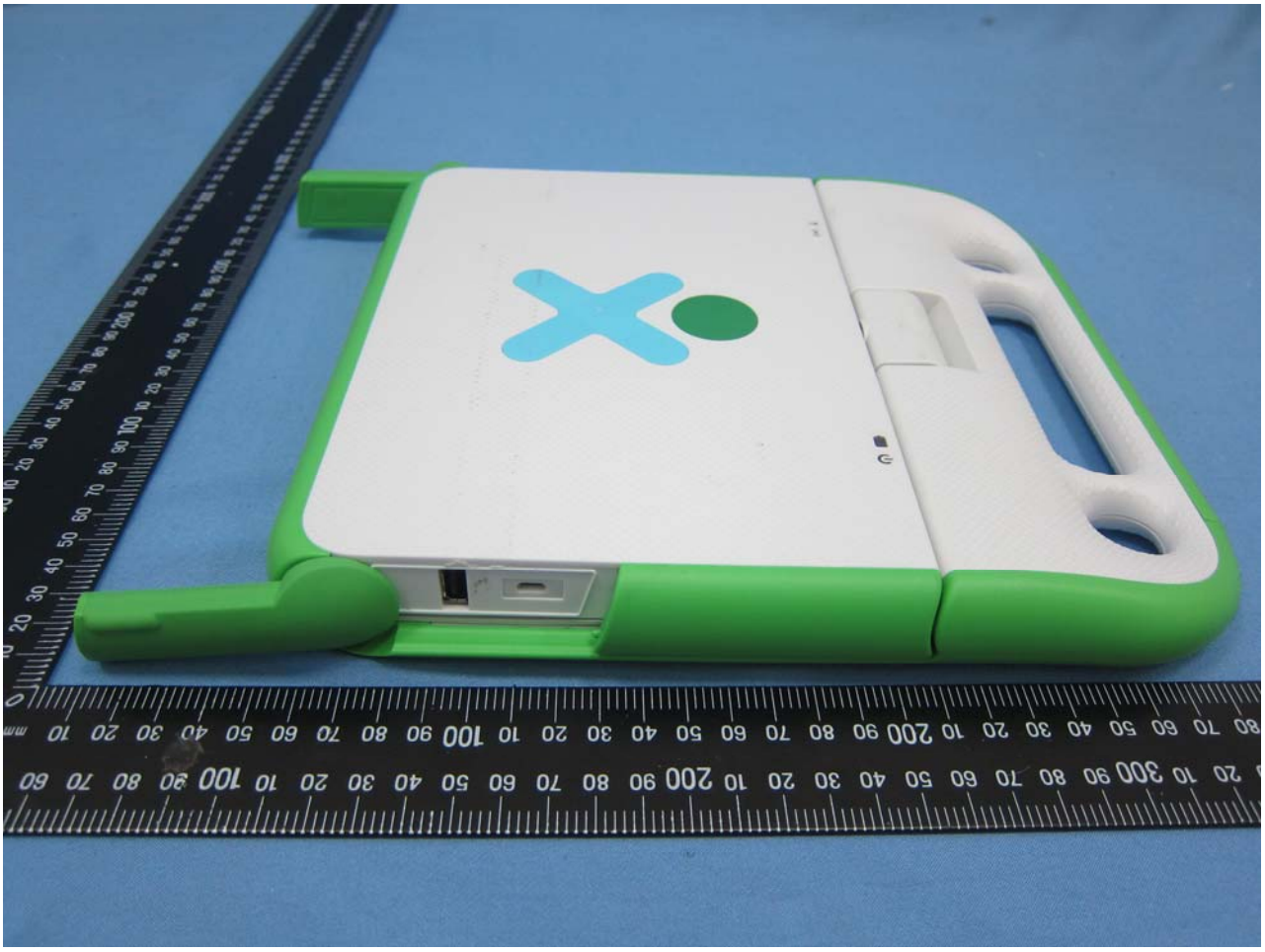


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

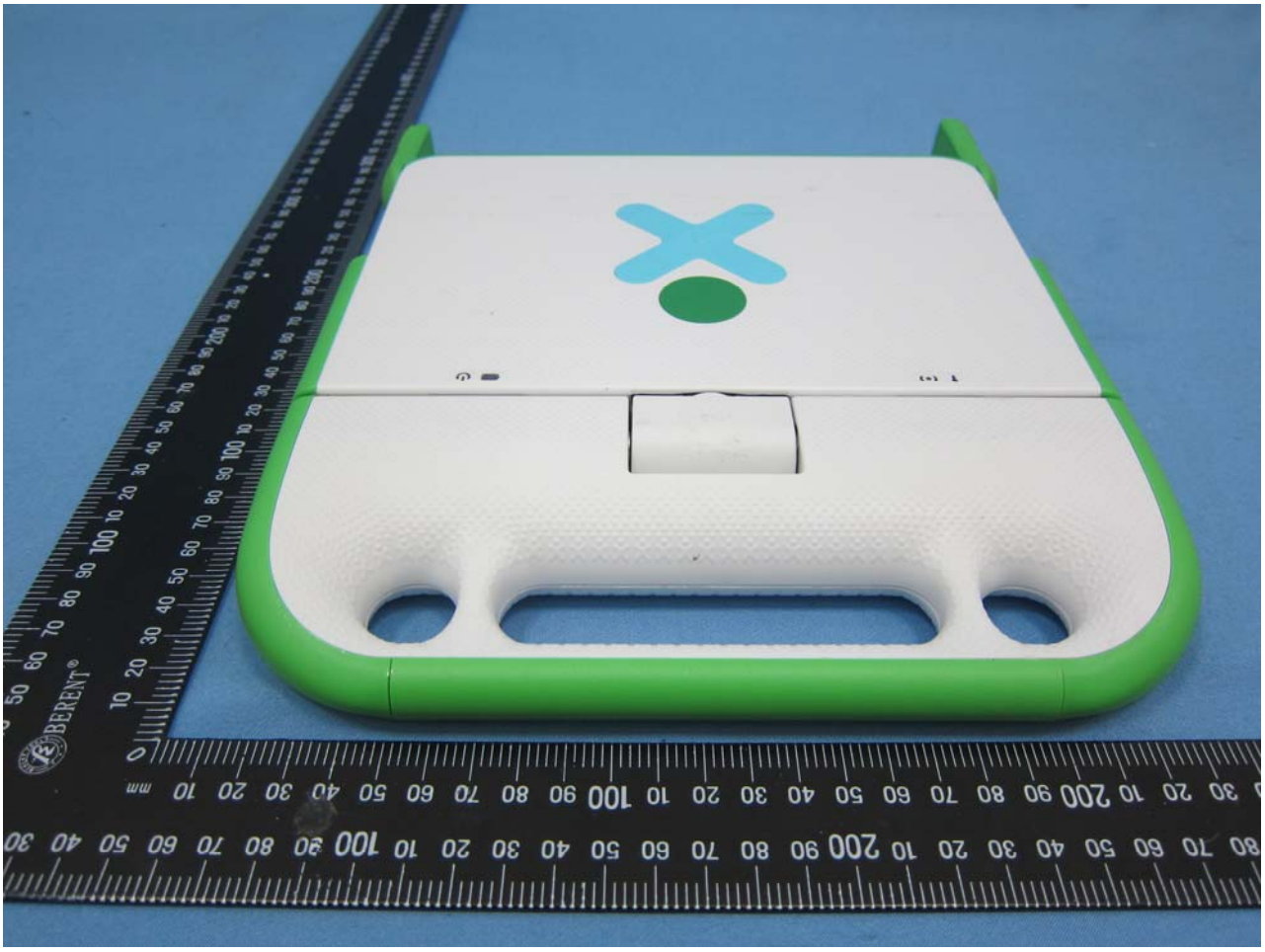
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



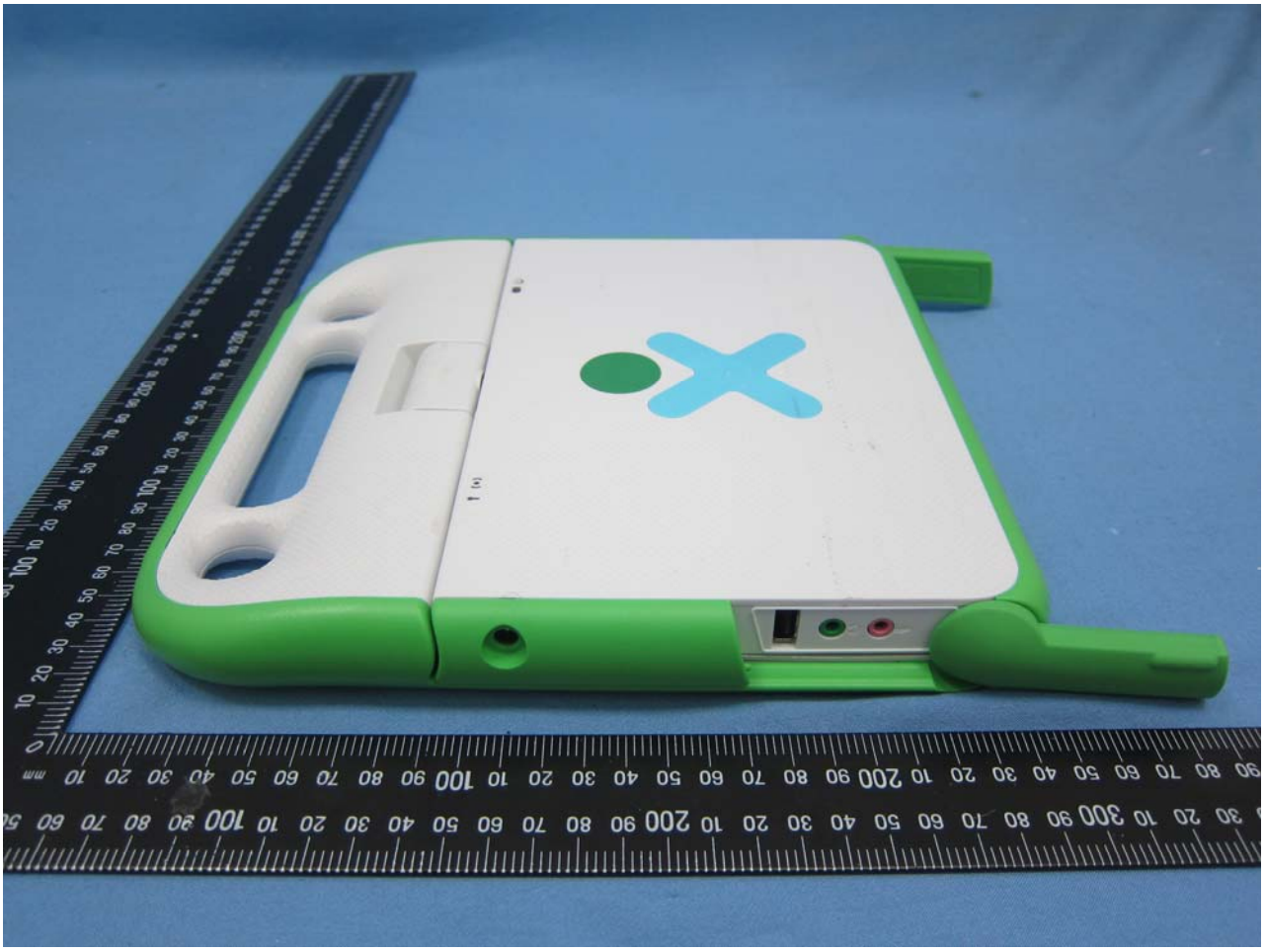
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



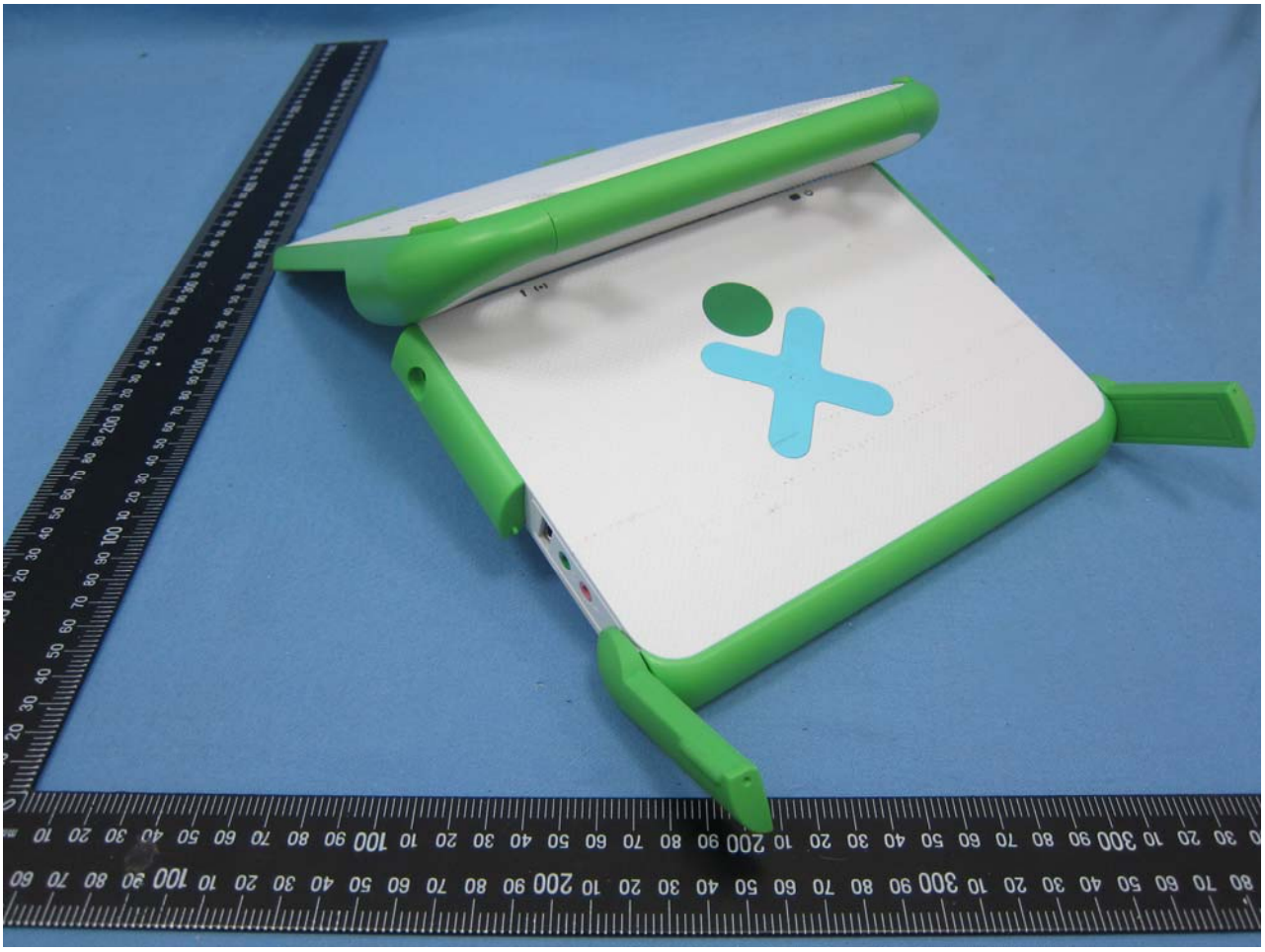
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

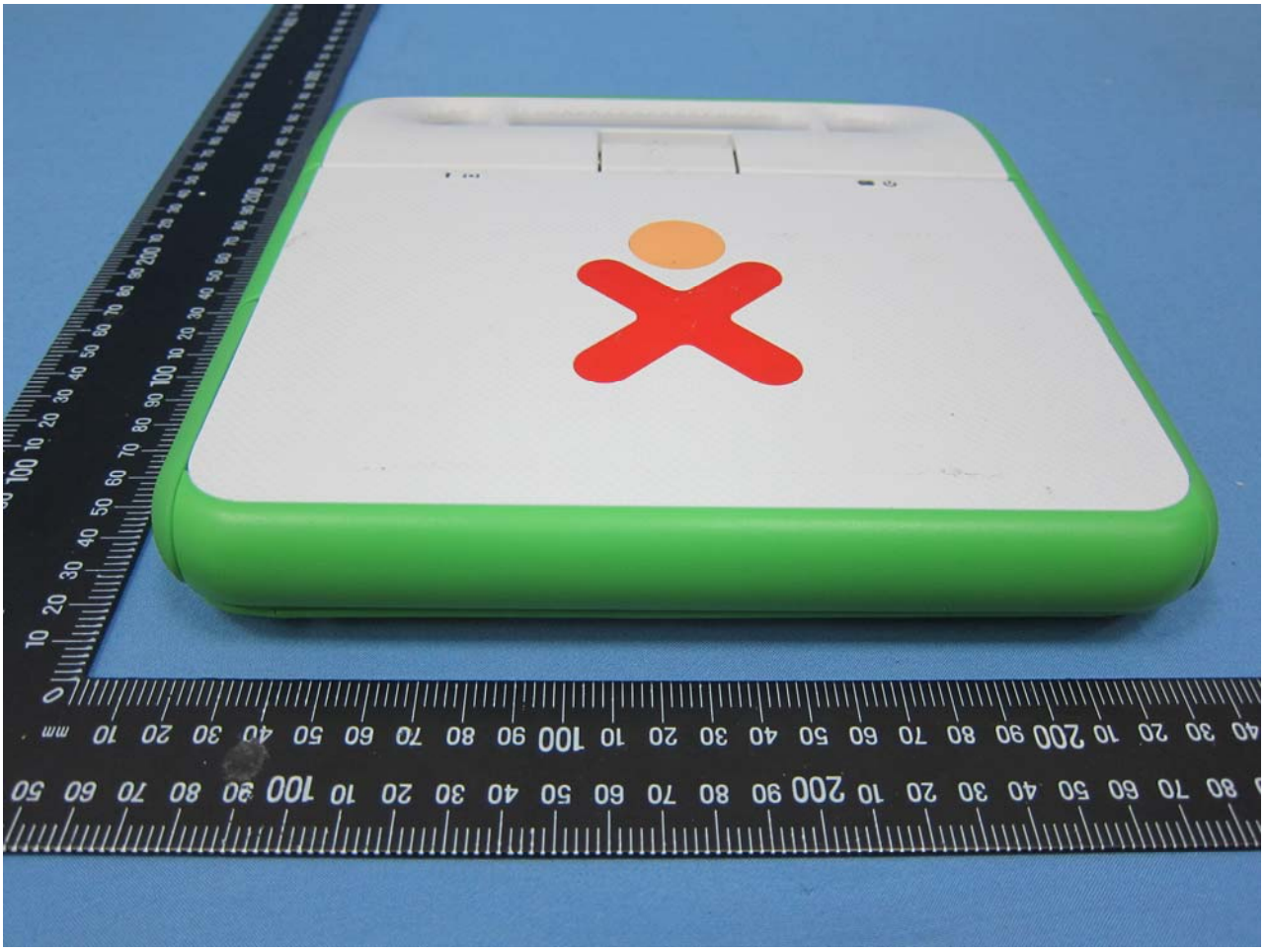
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

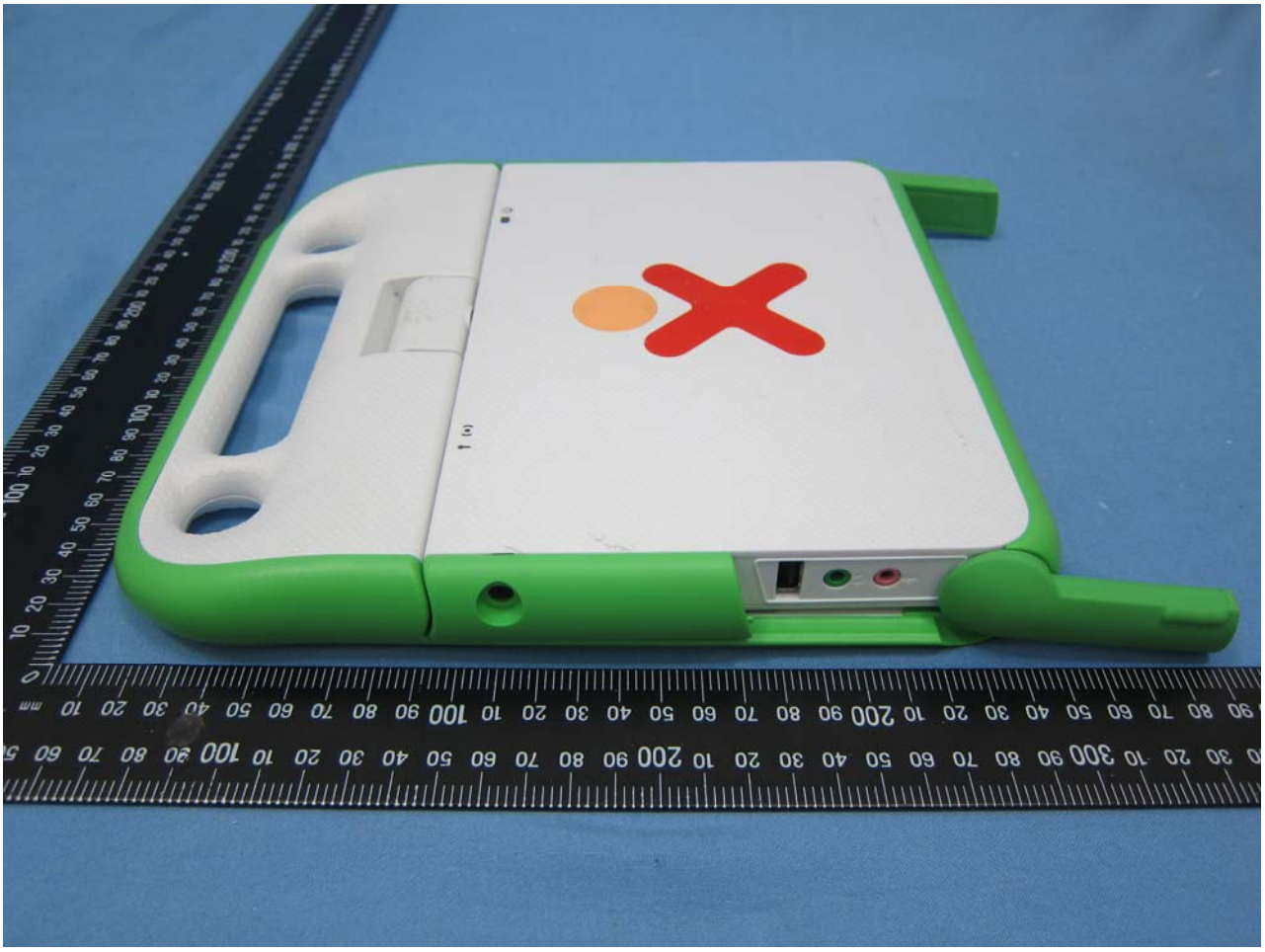
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

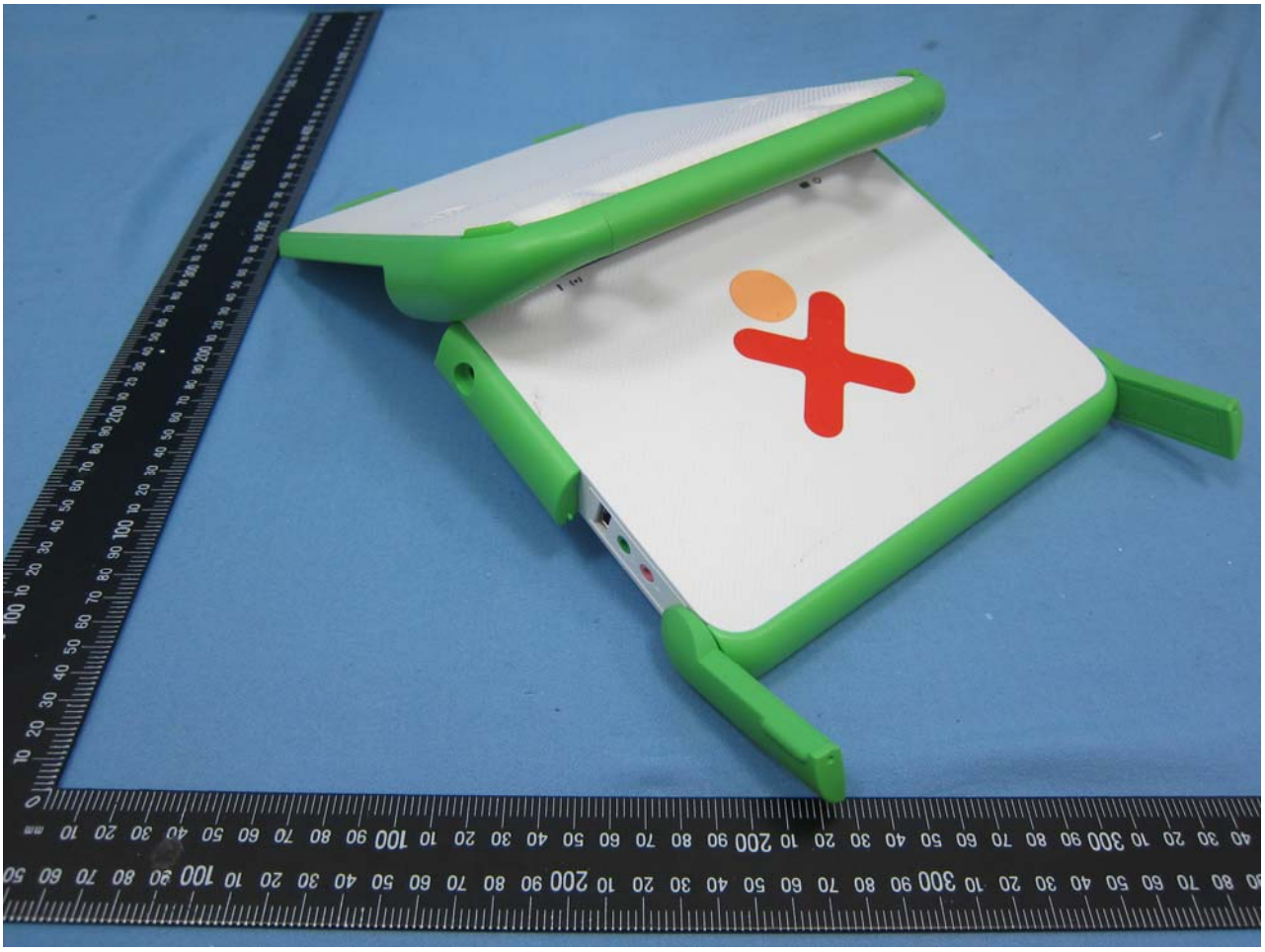
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

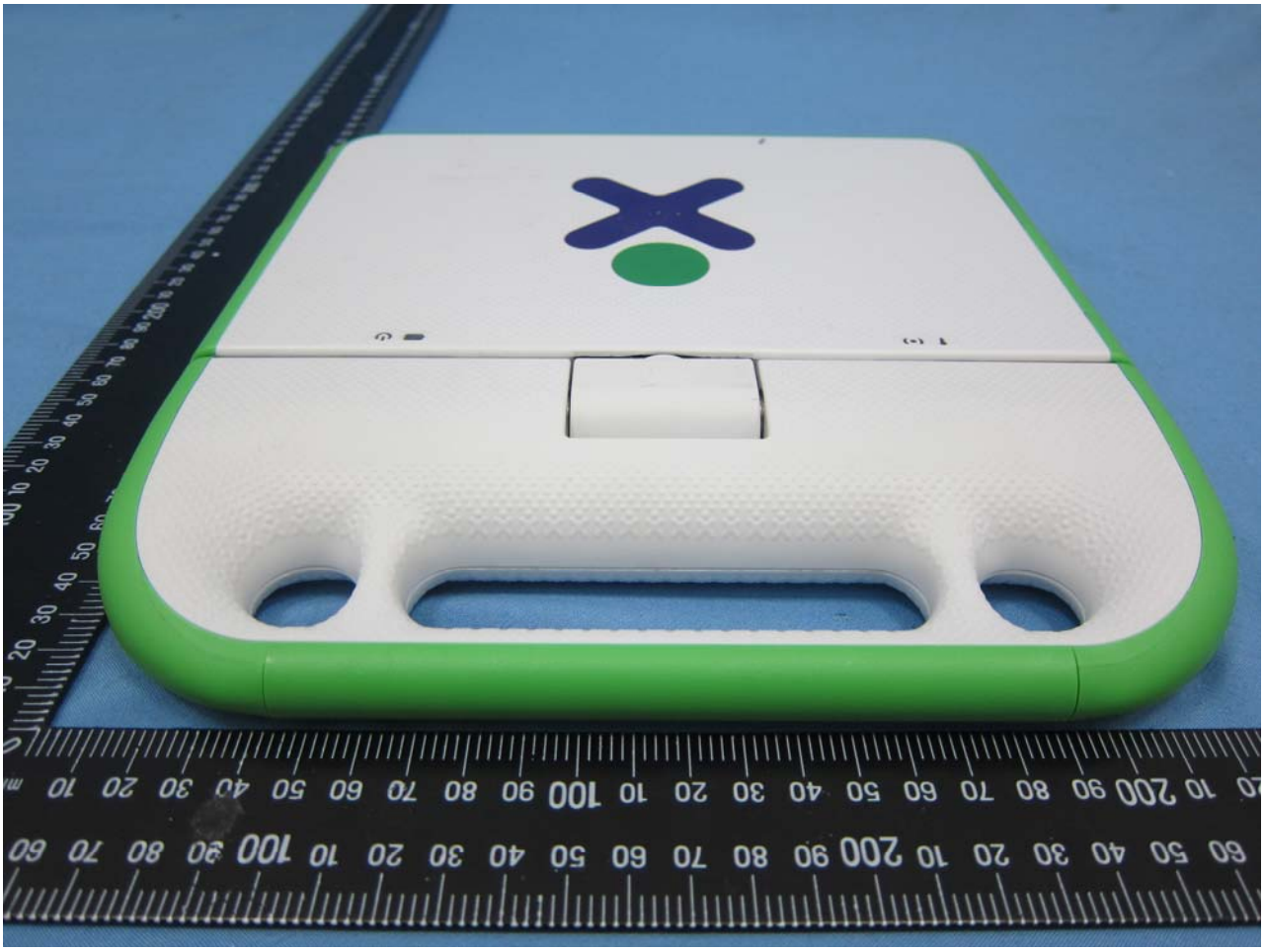


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

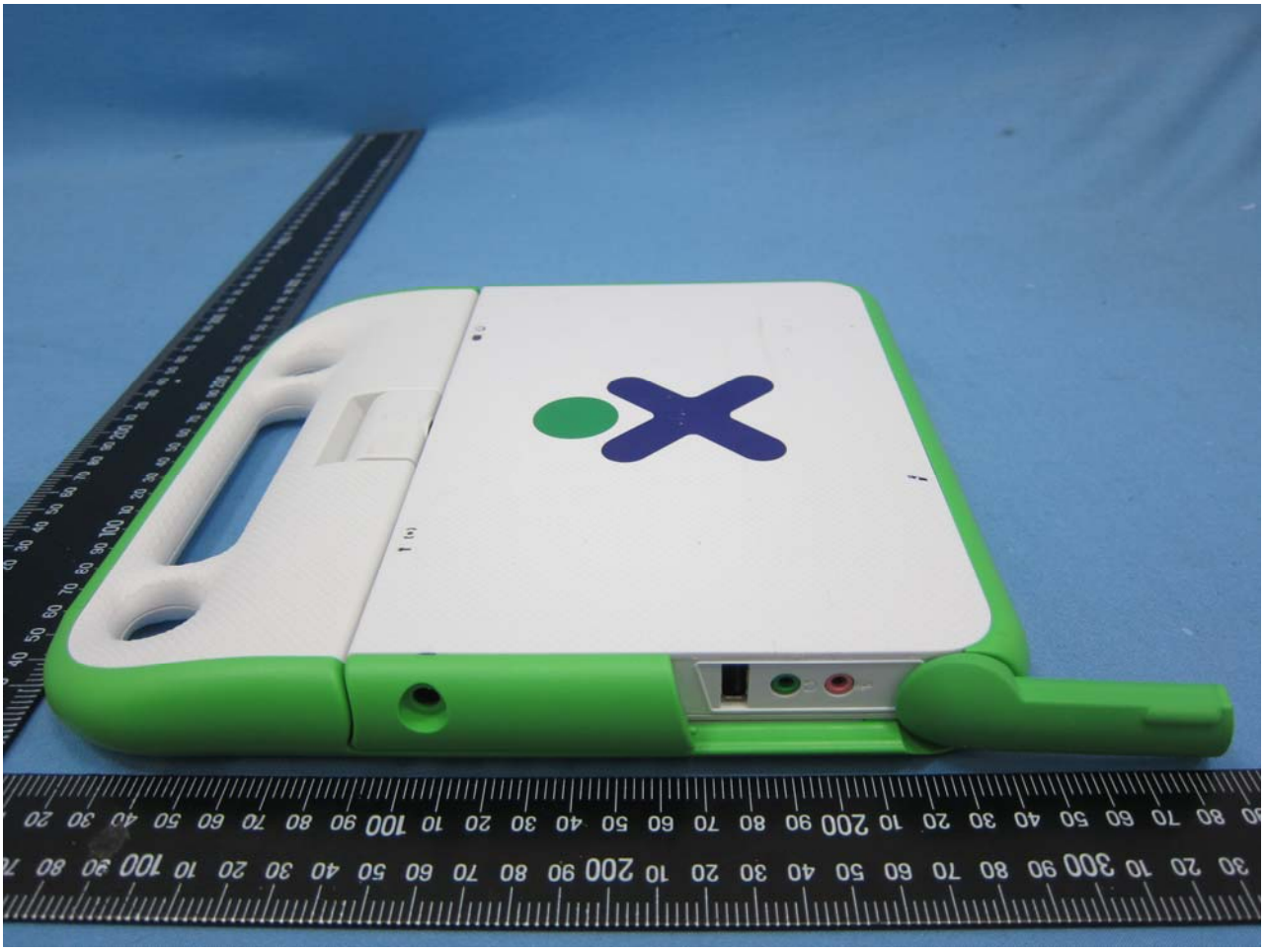
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



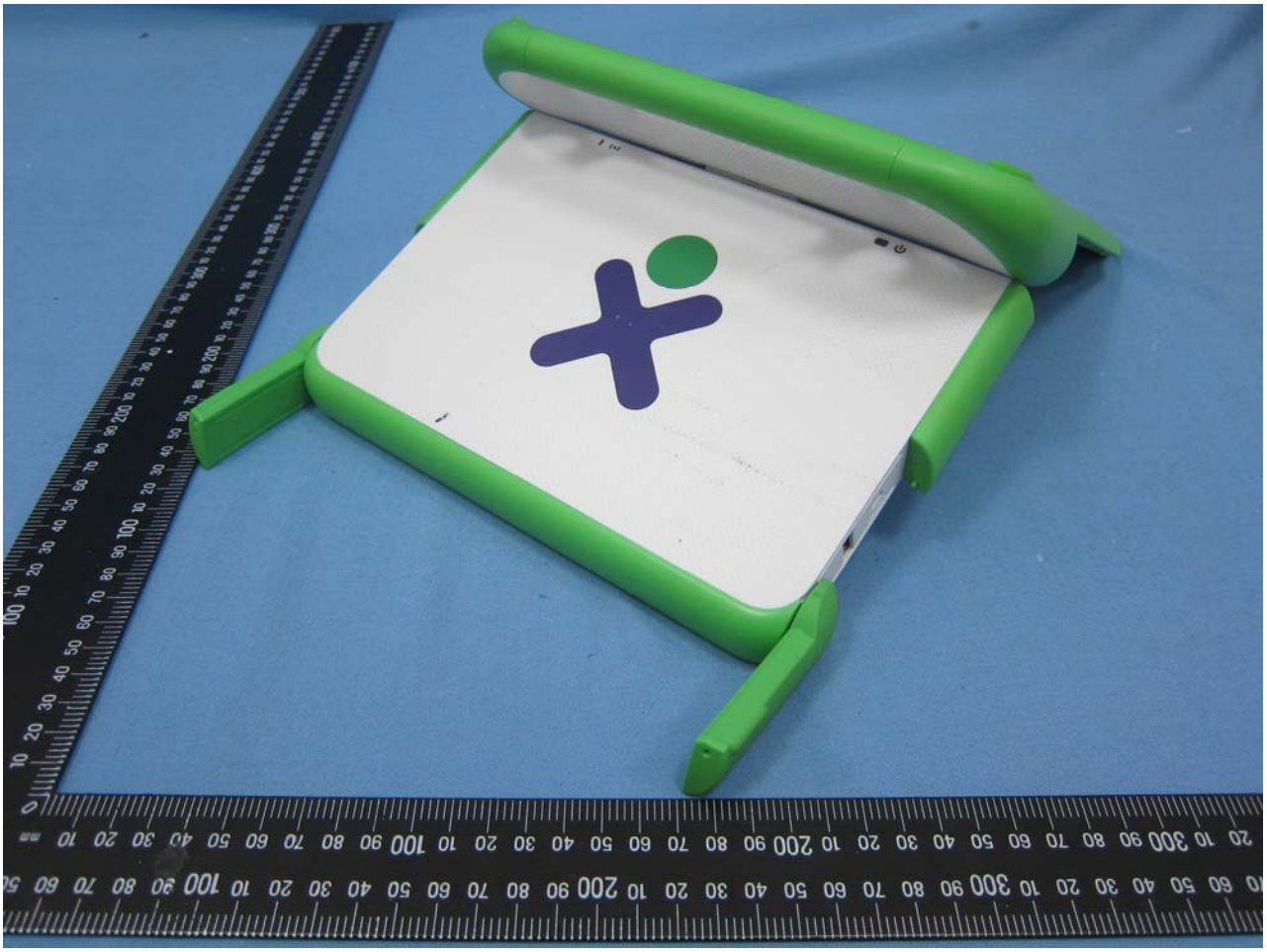
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



2. Photograph of Accessory

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

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	BX24-1203(X=U or P)
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-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

AC Adapter 1

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

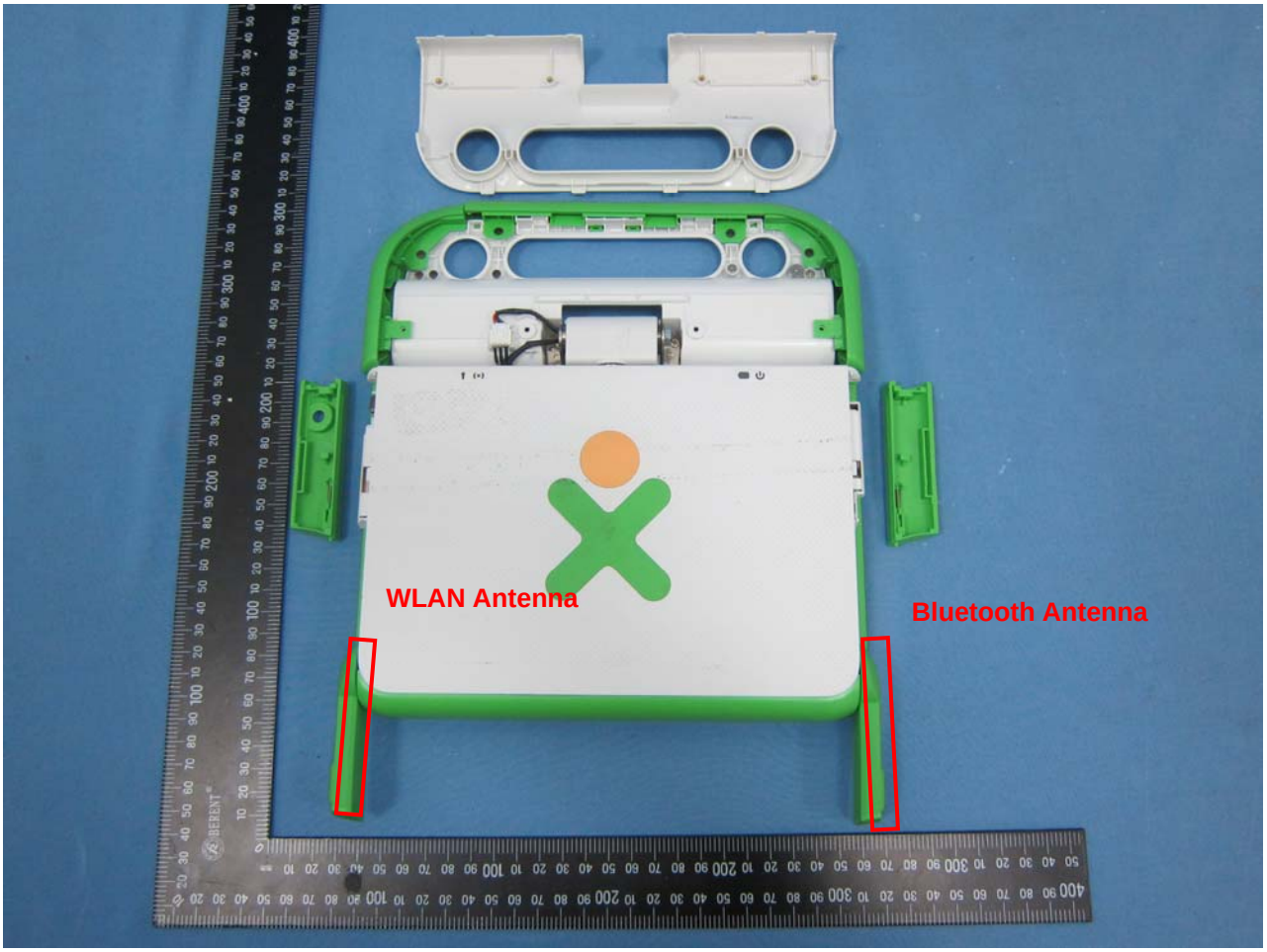
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

3. Internal Photograph of EUT

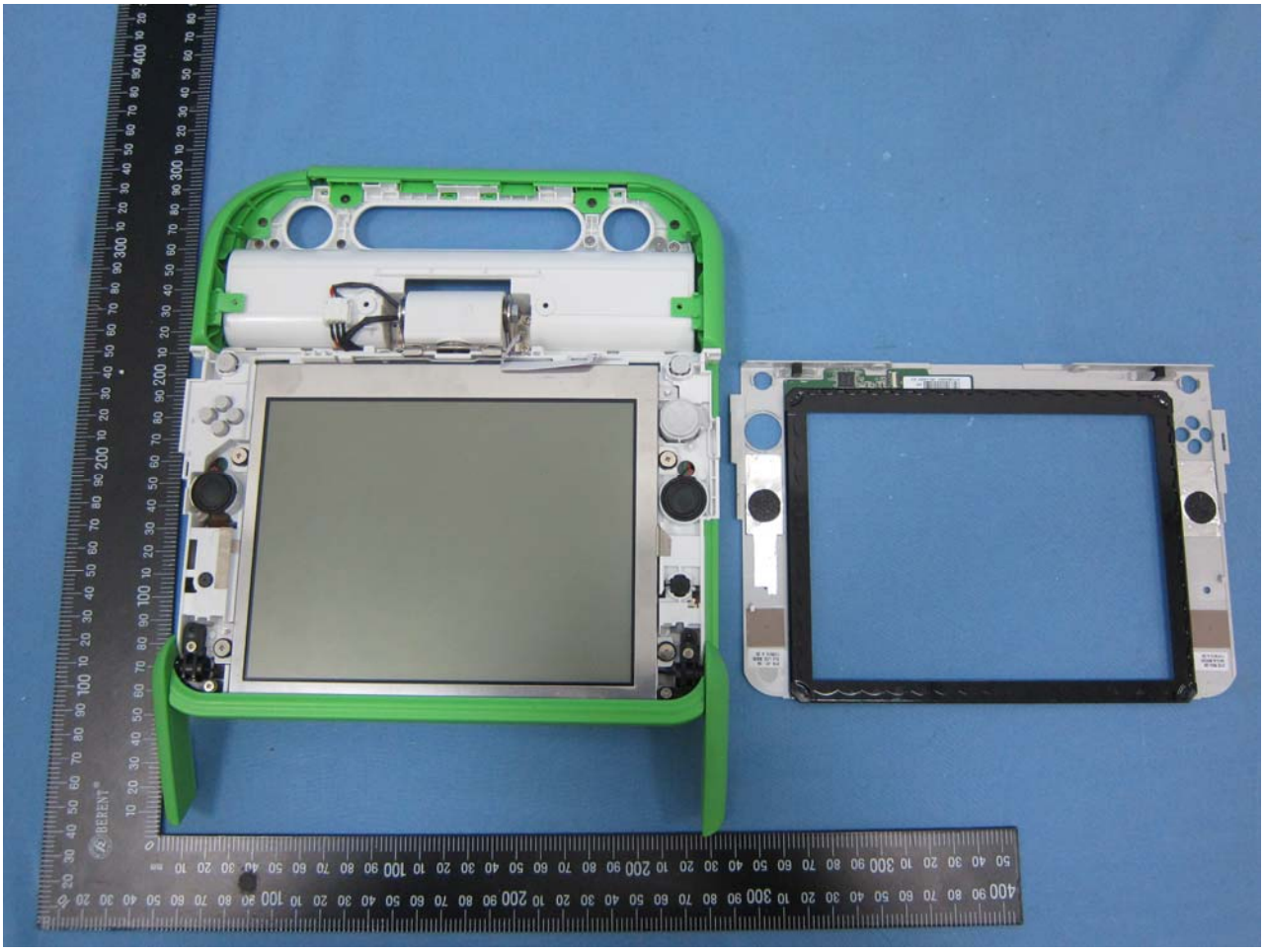
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

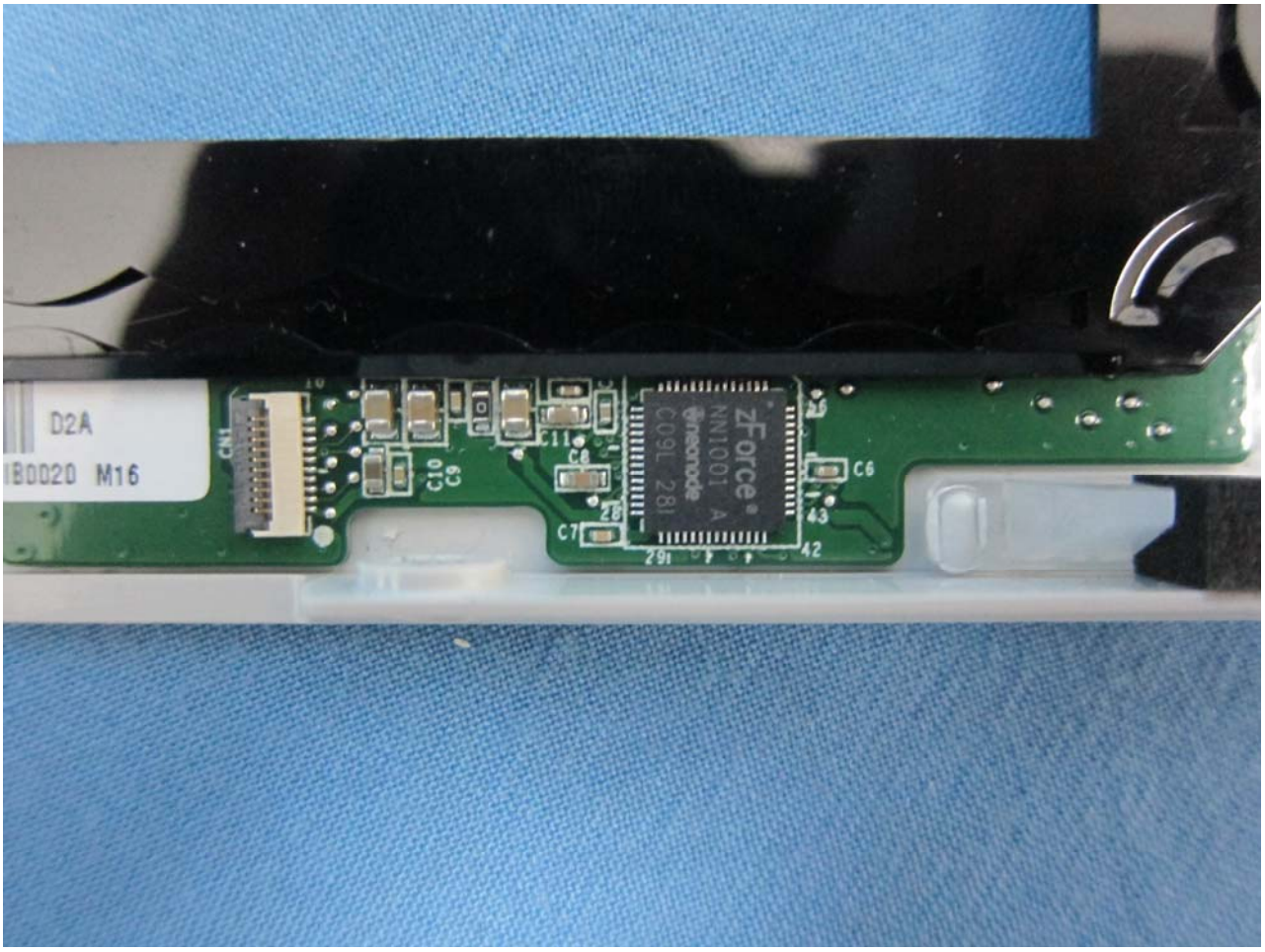
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

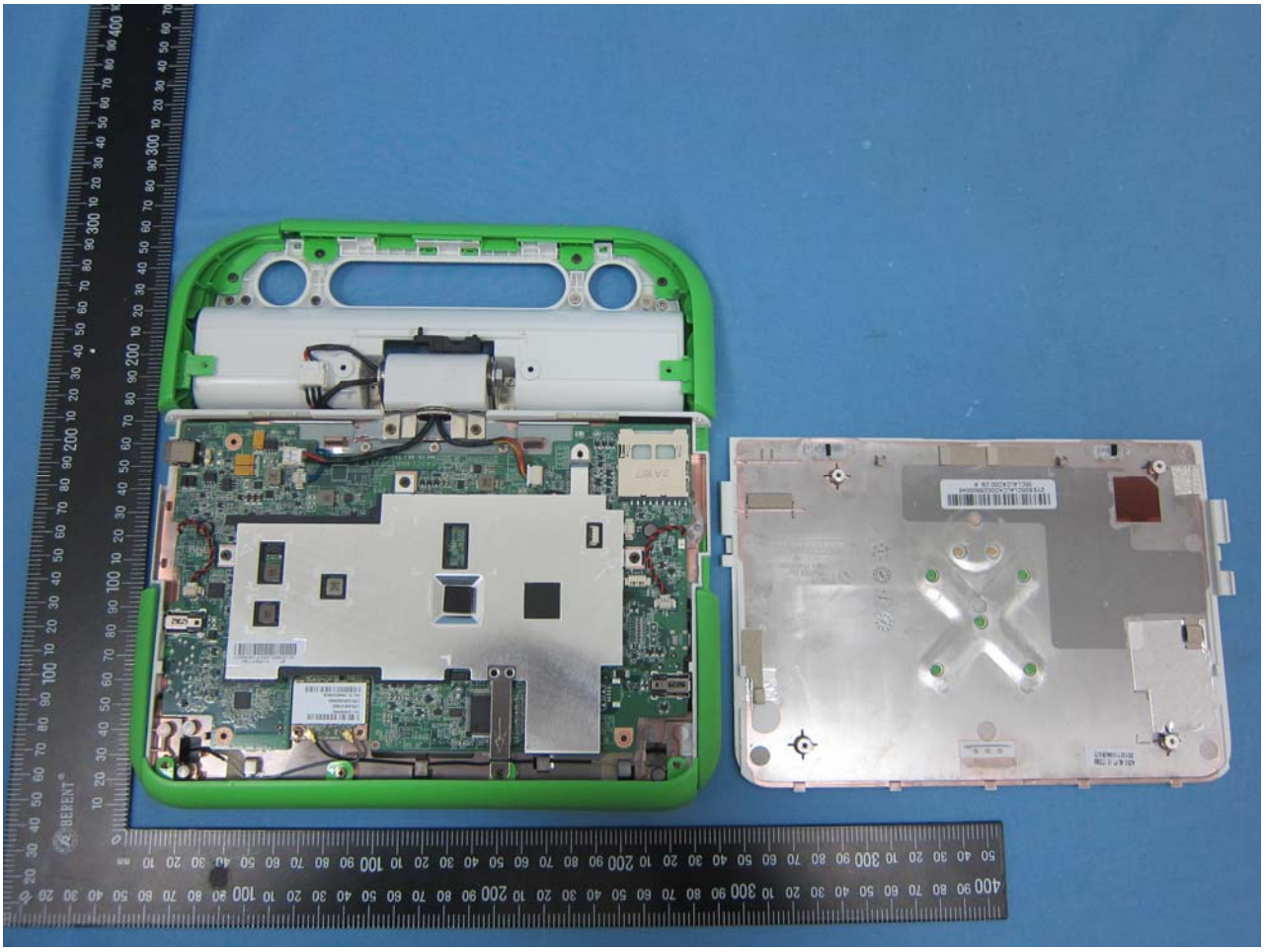


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

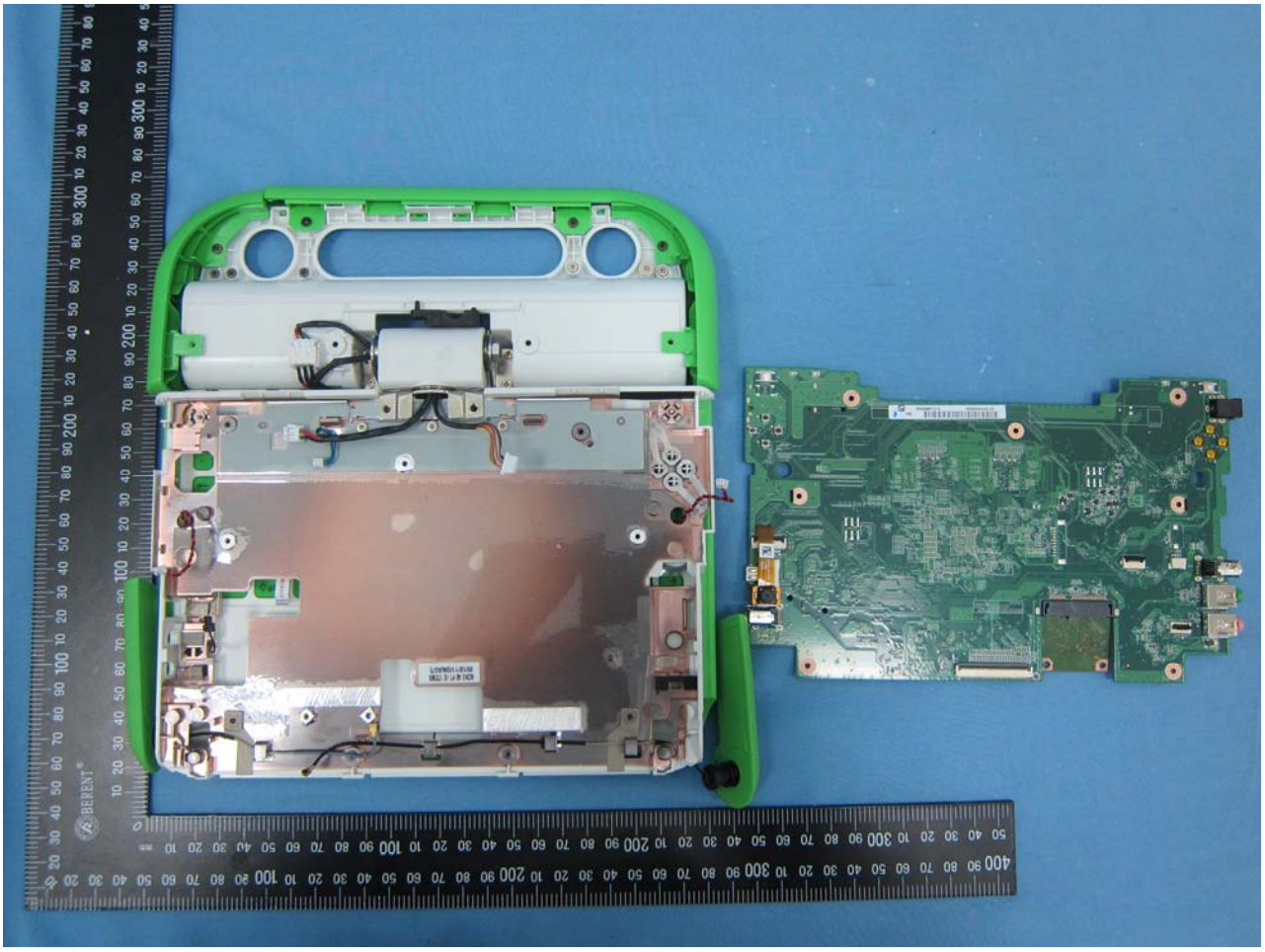


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

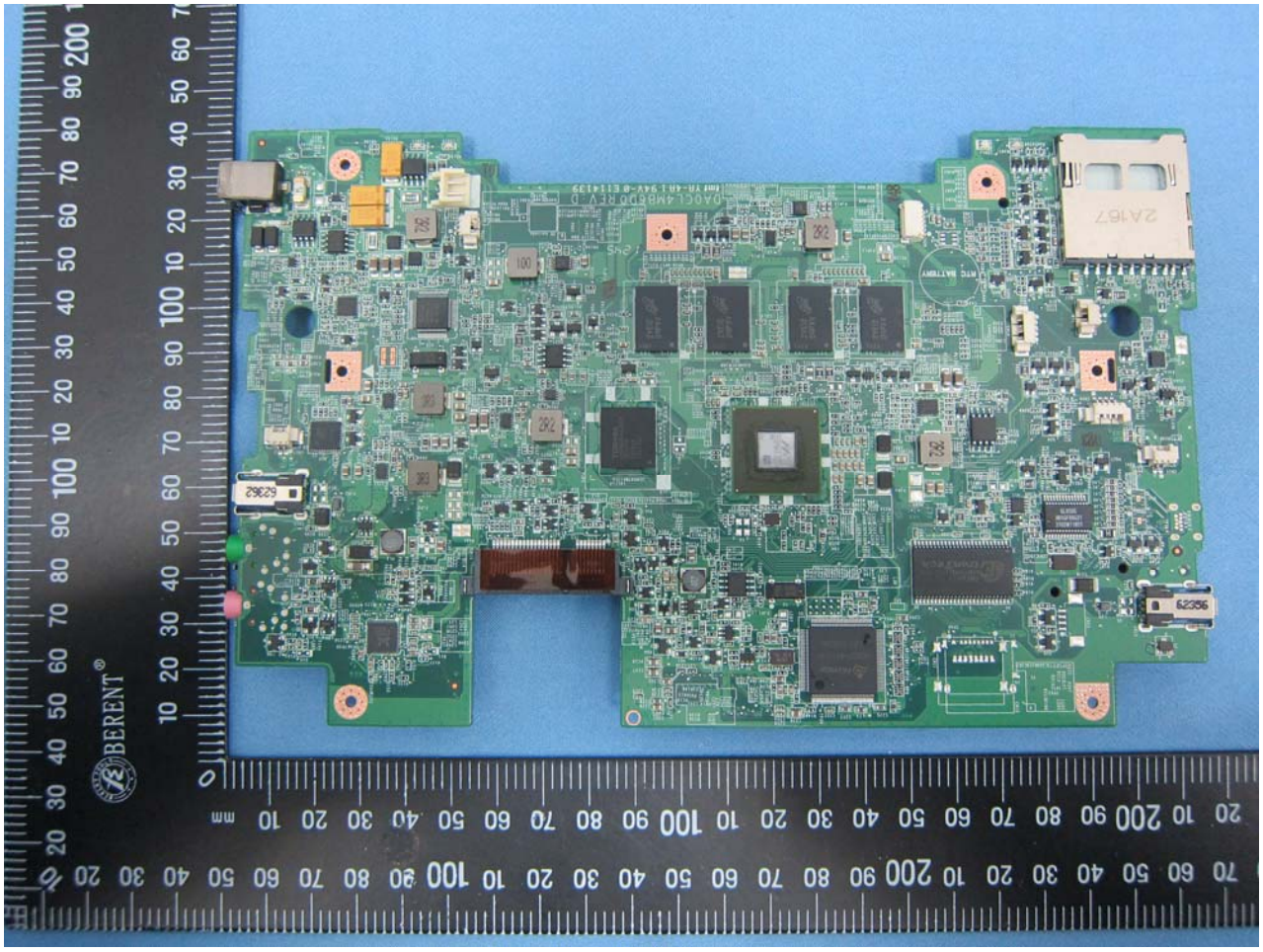
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



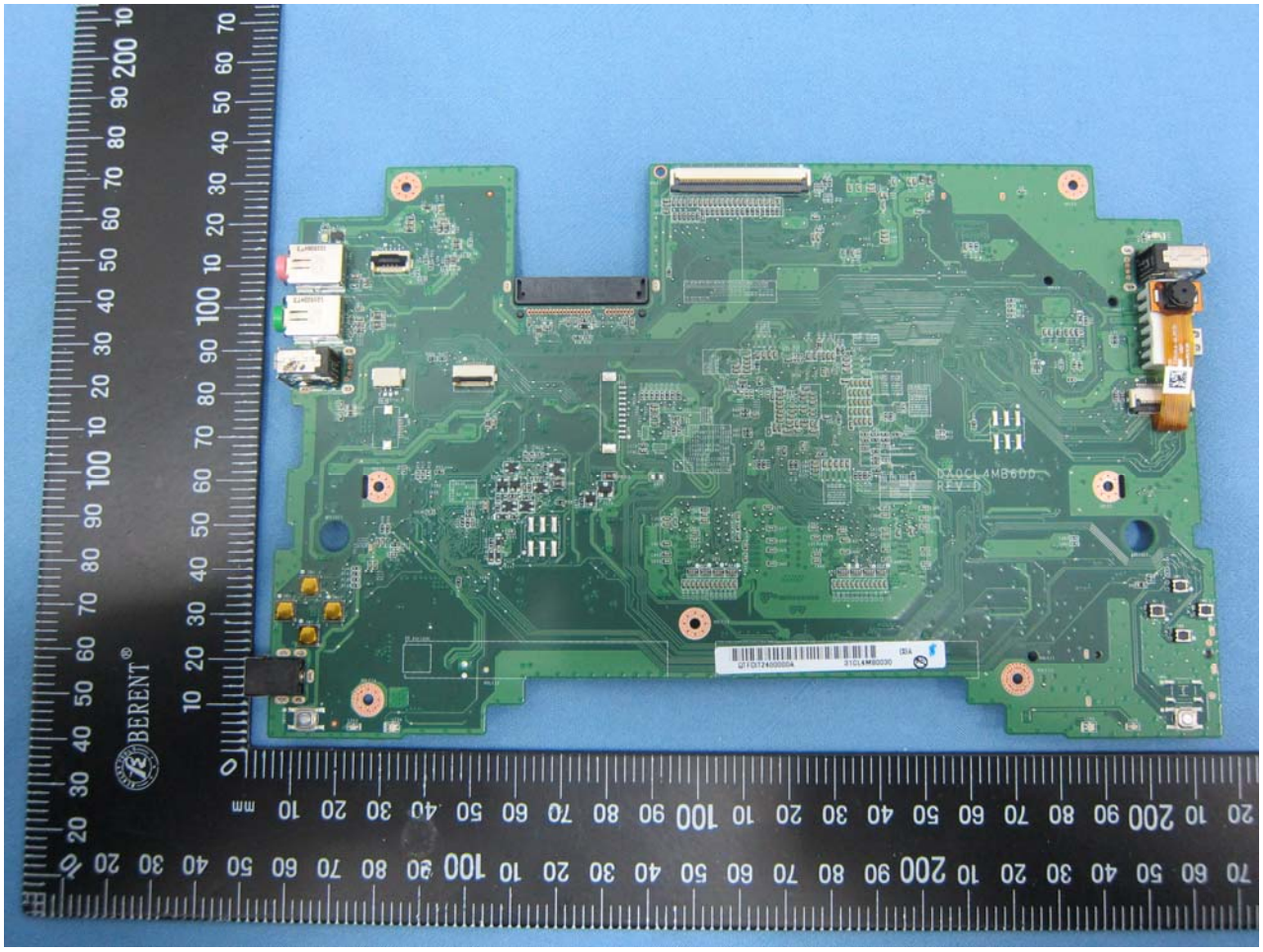
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



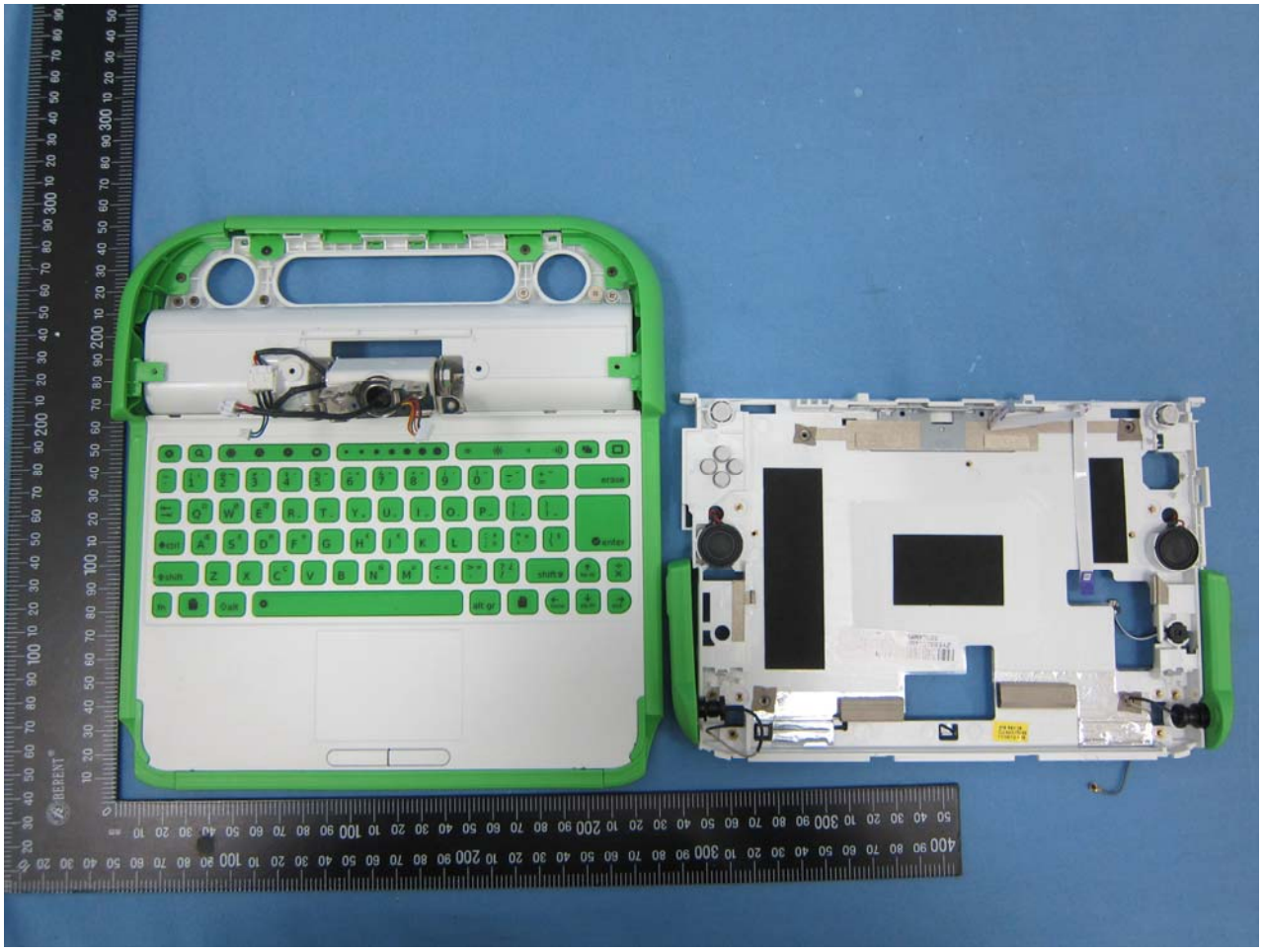
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



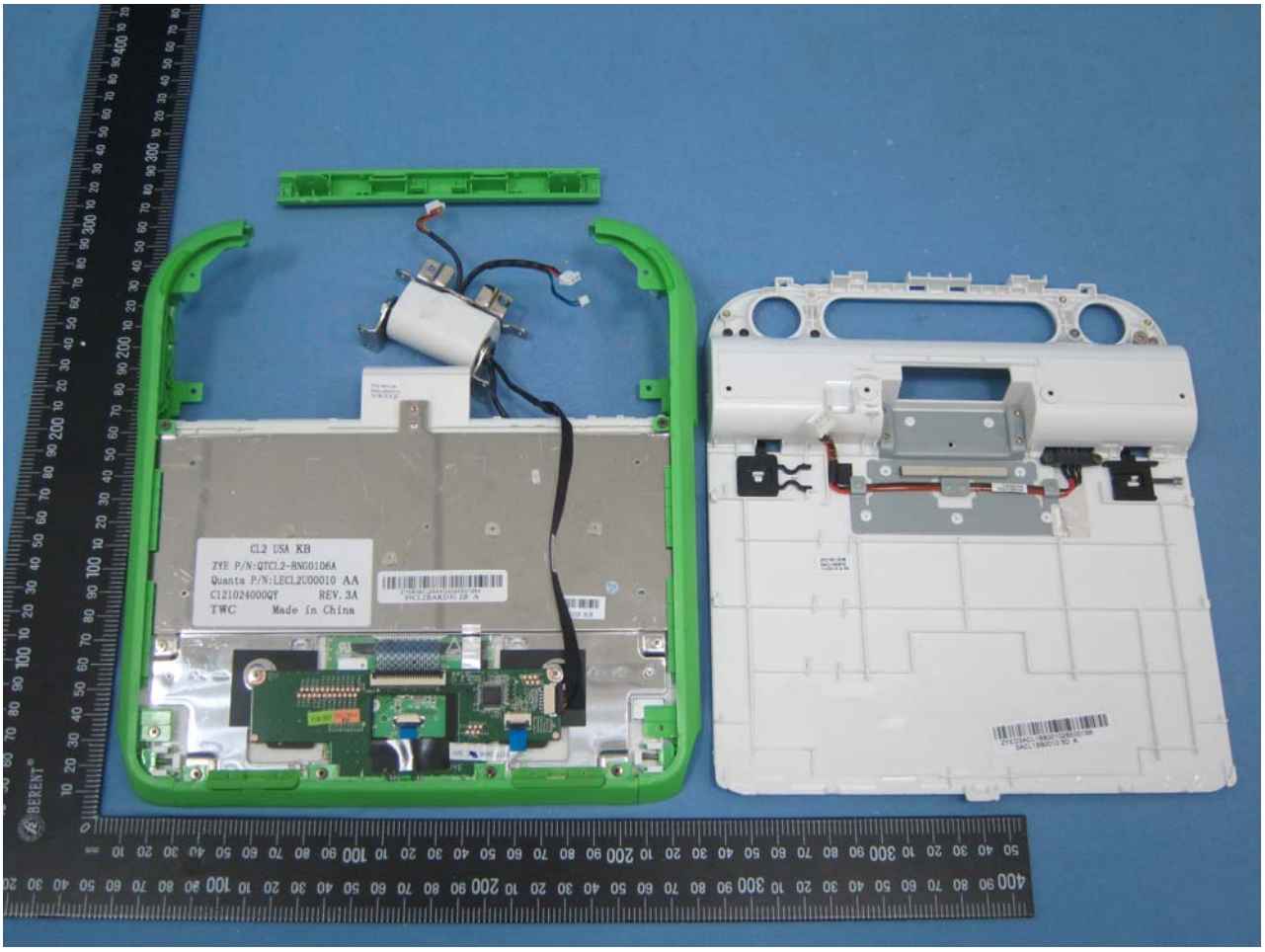
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



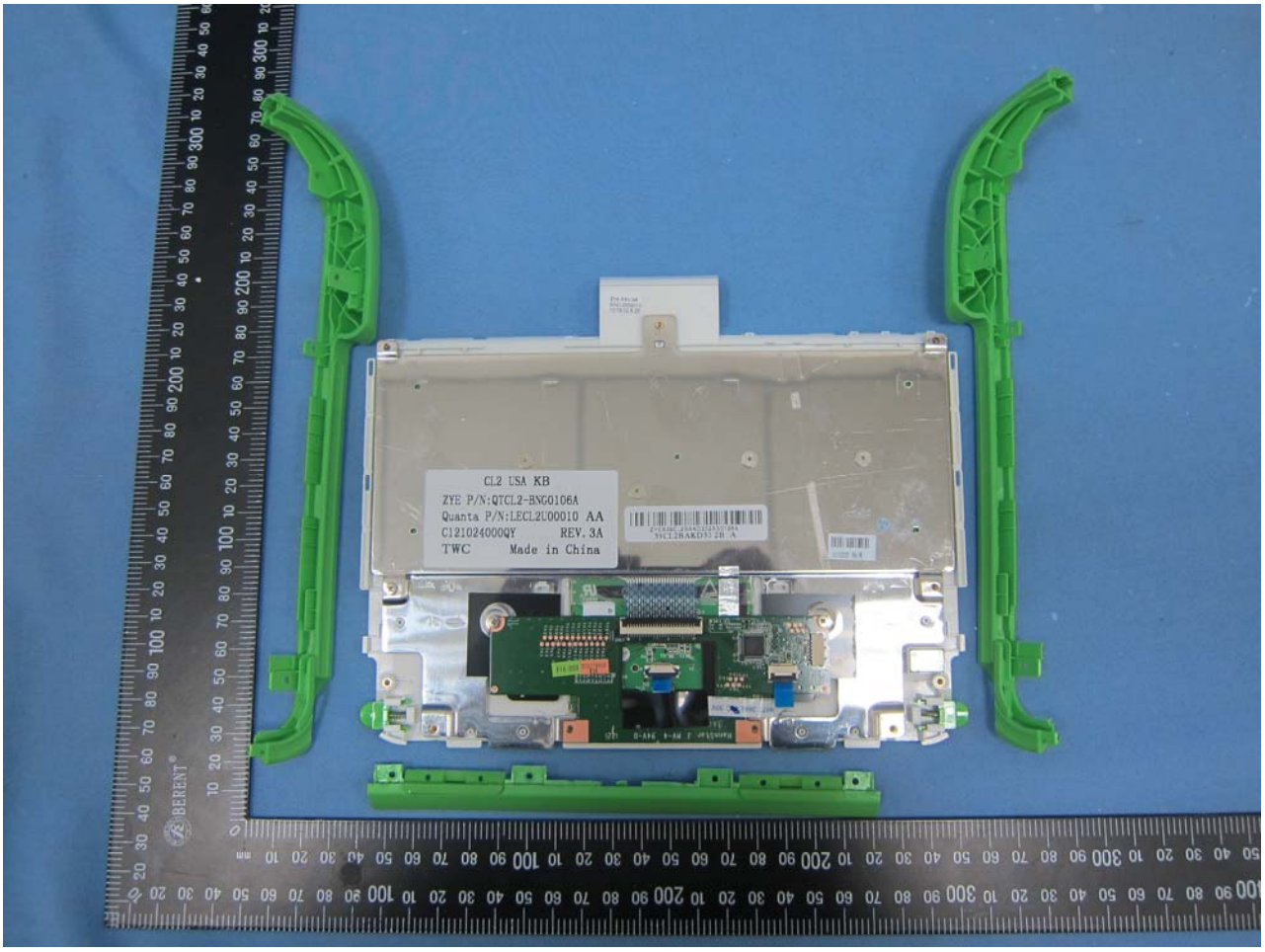
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

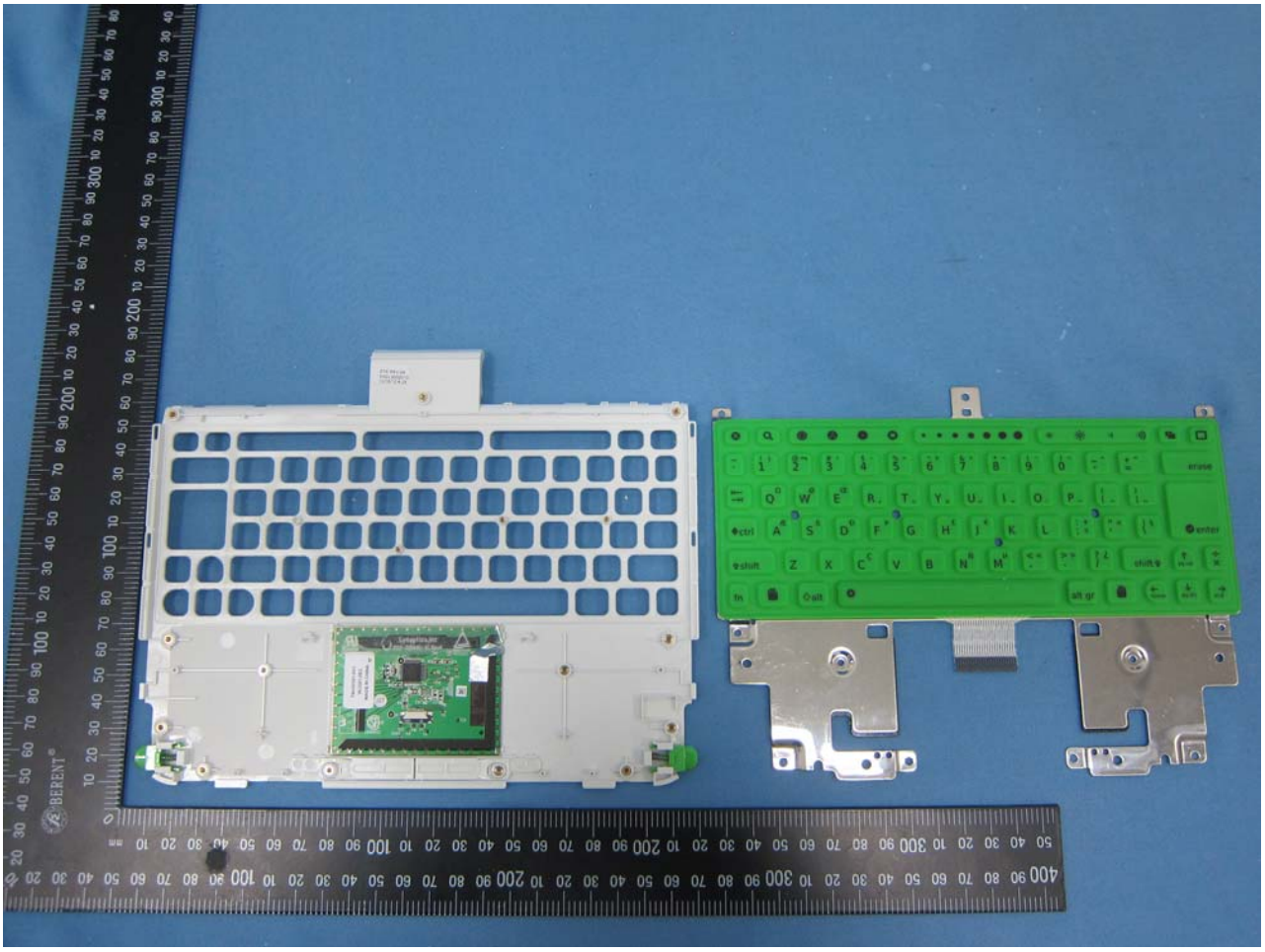


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

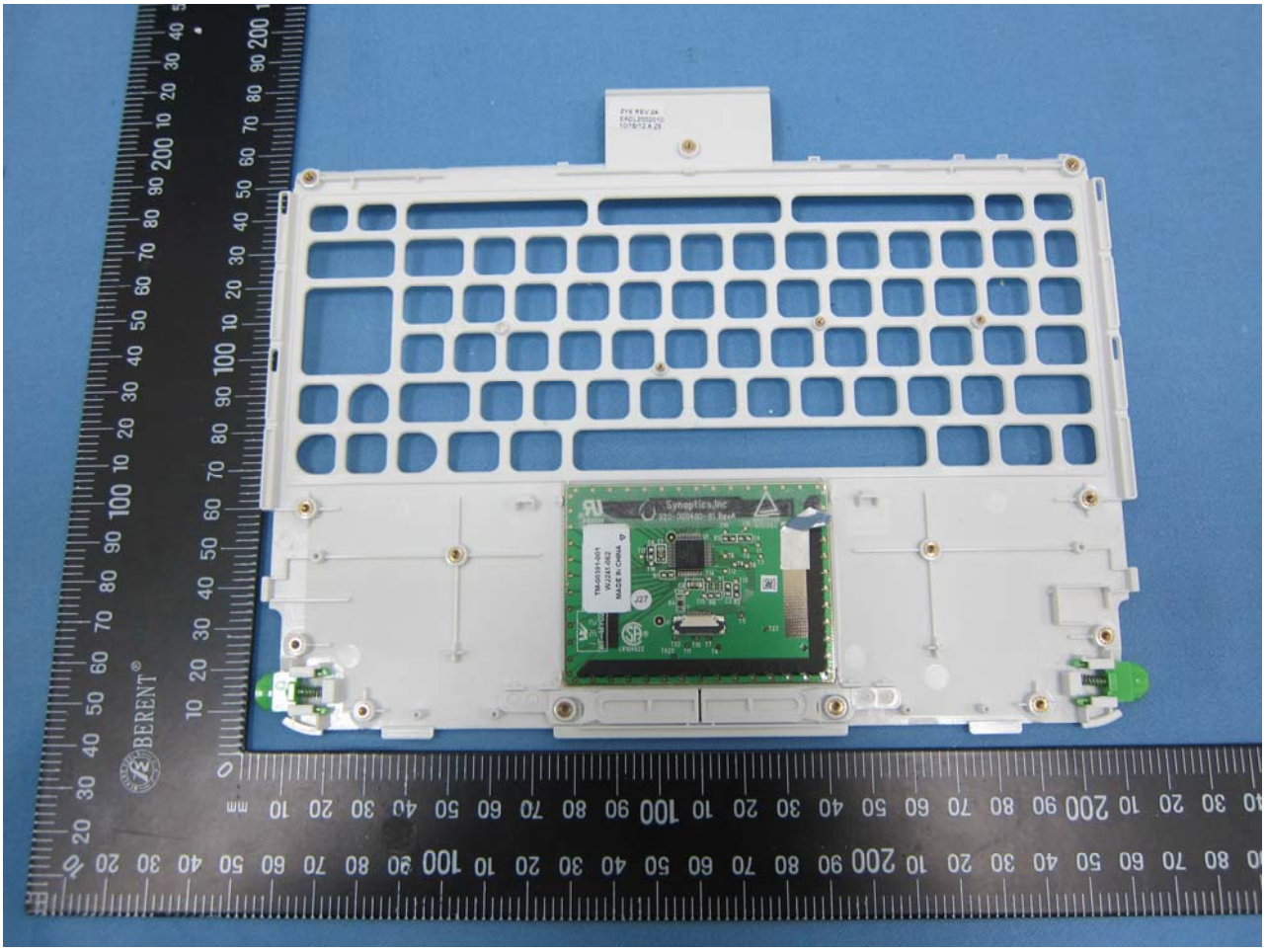


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

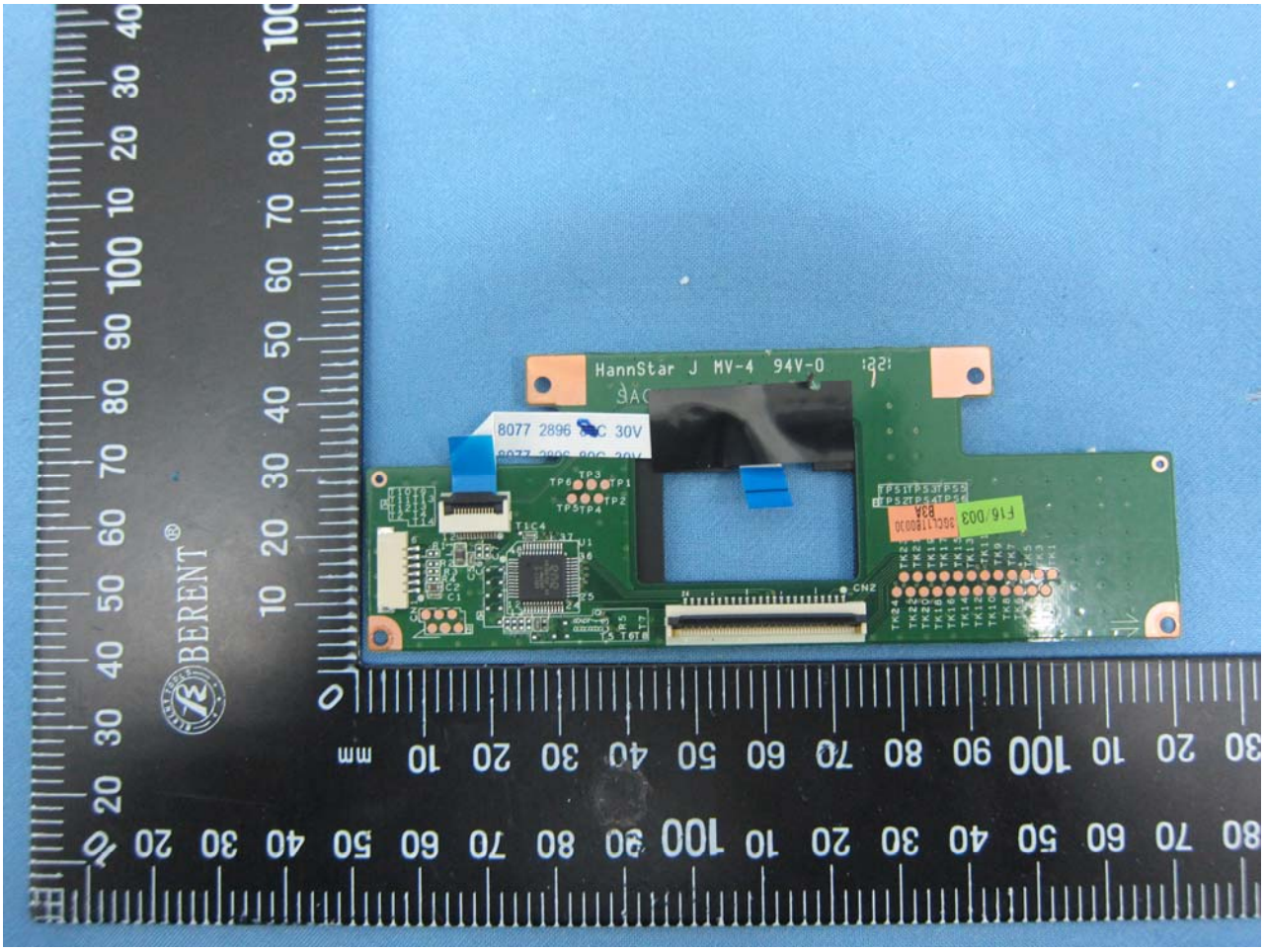
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



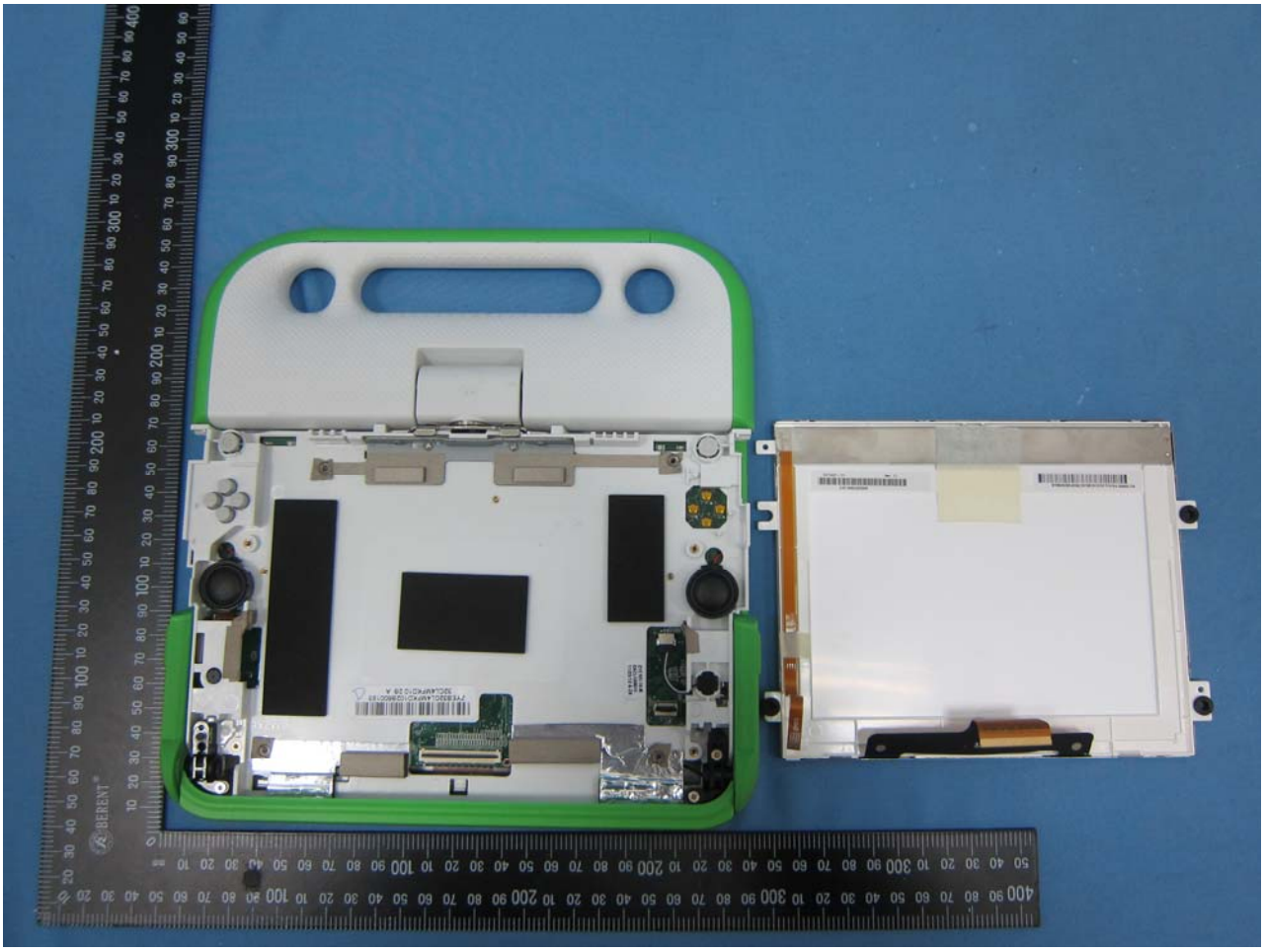
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

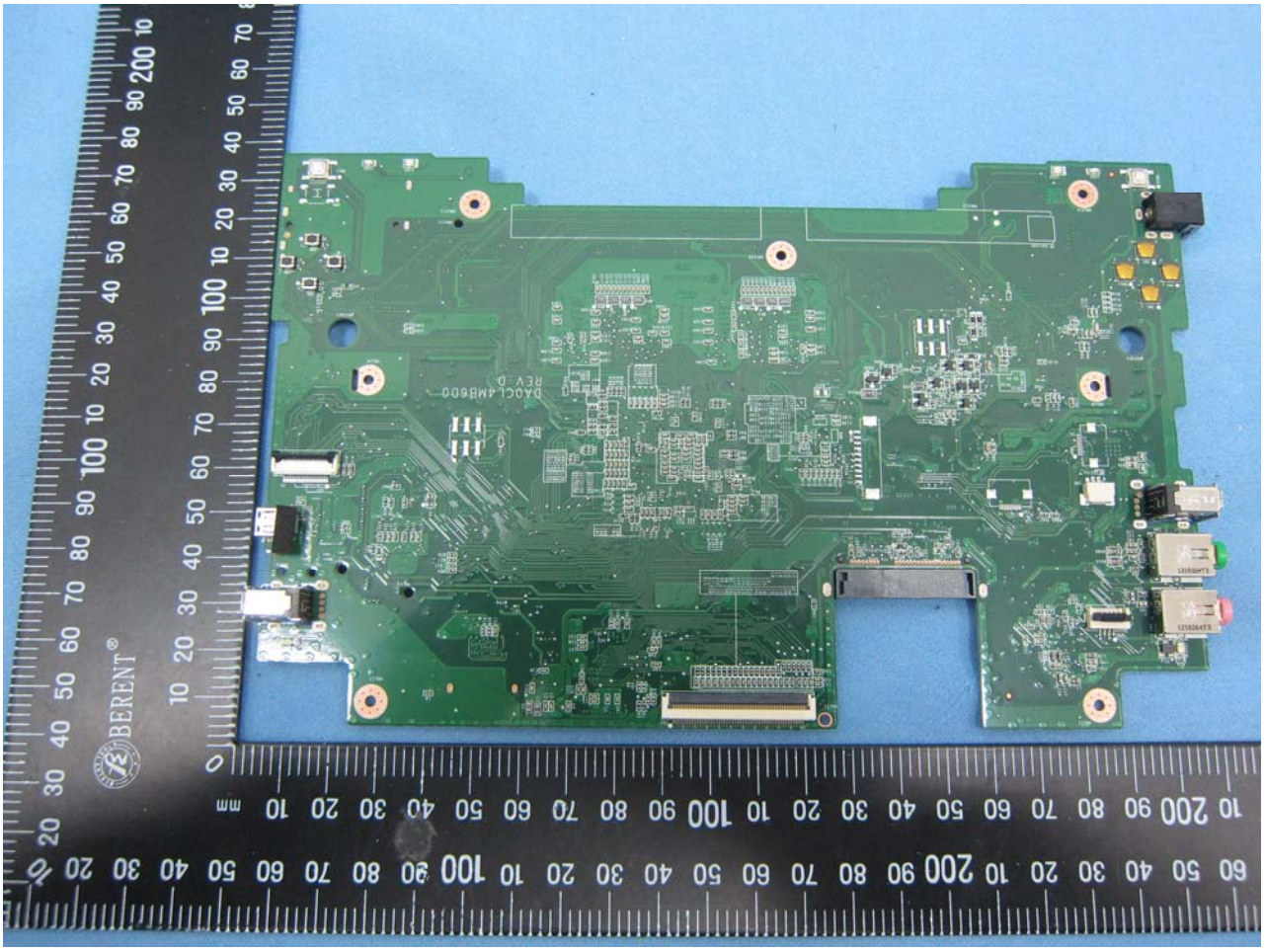
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



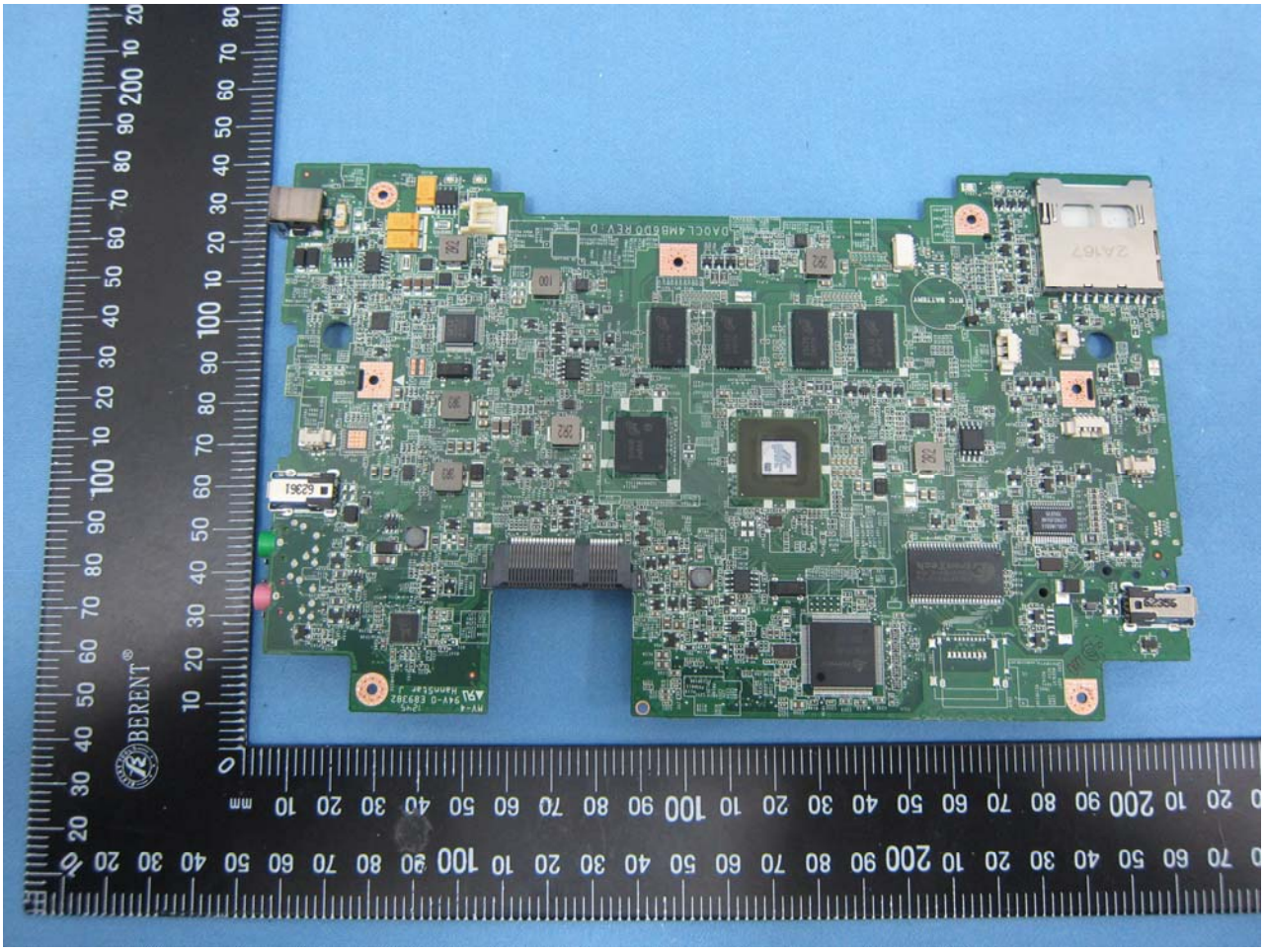
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

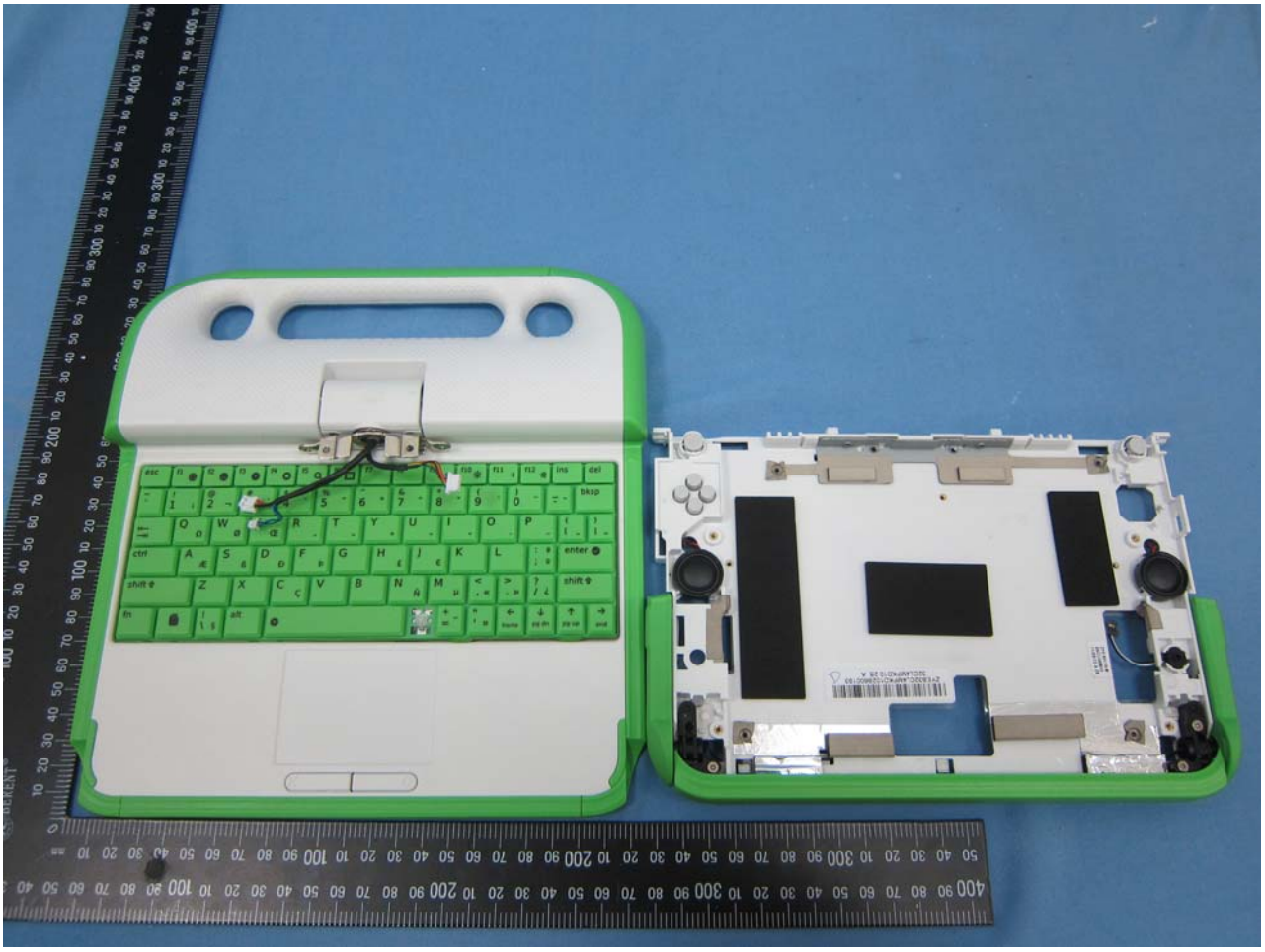
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



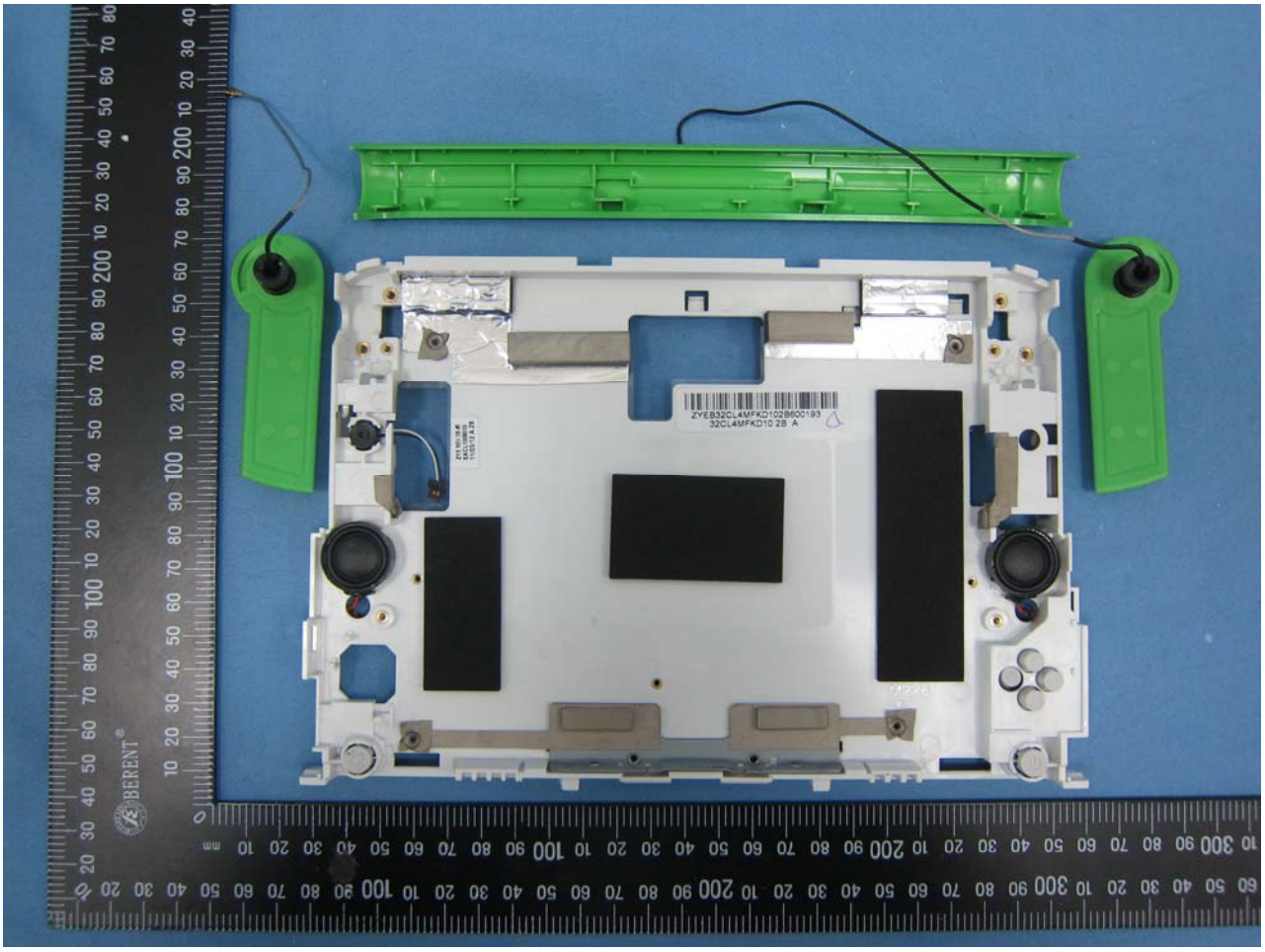
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



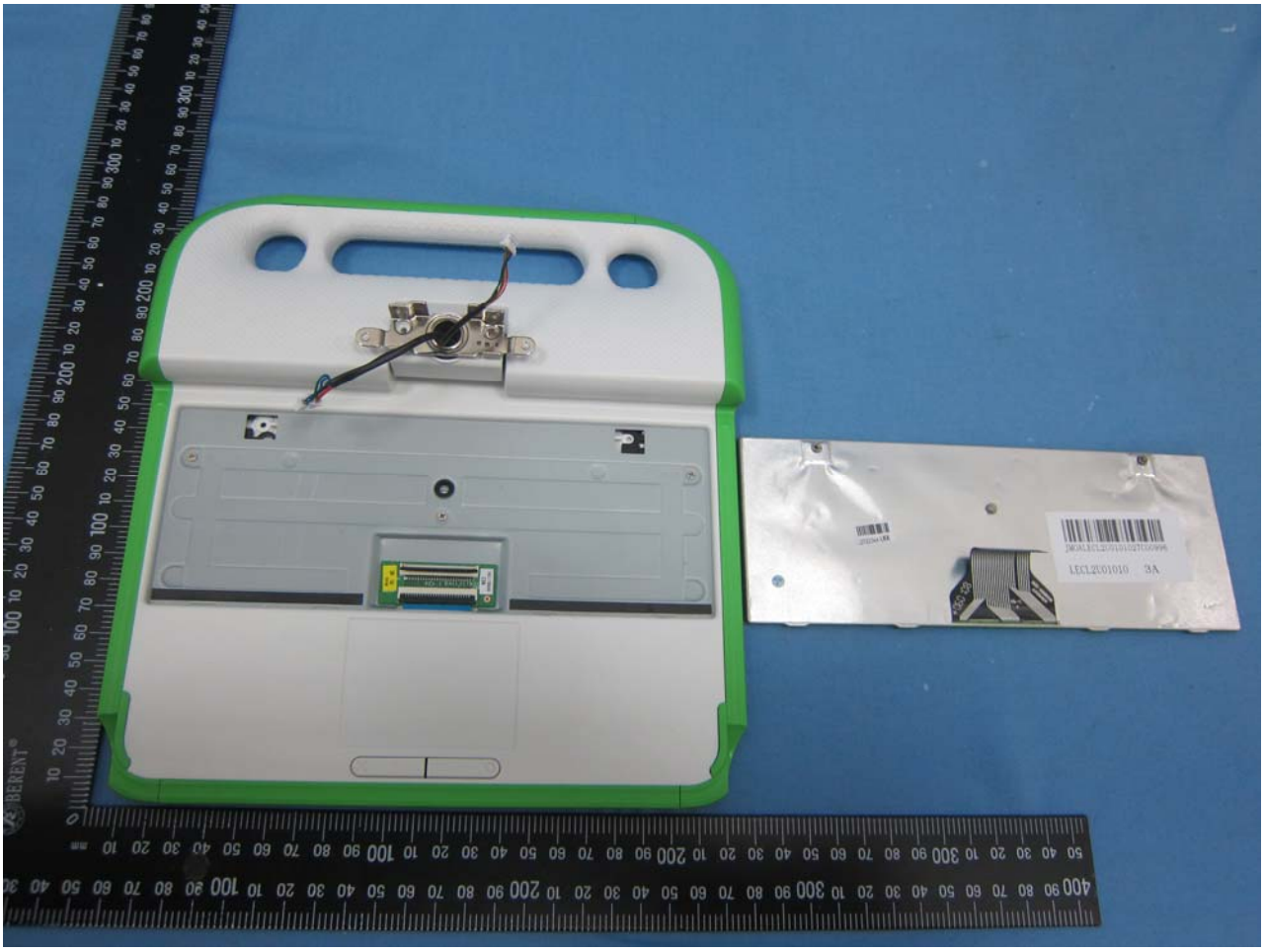
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



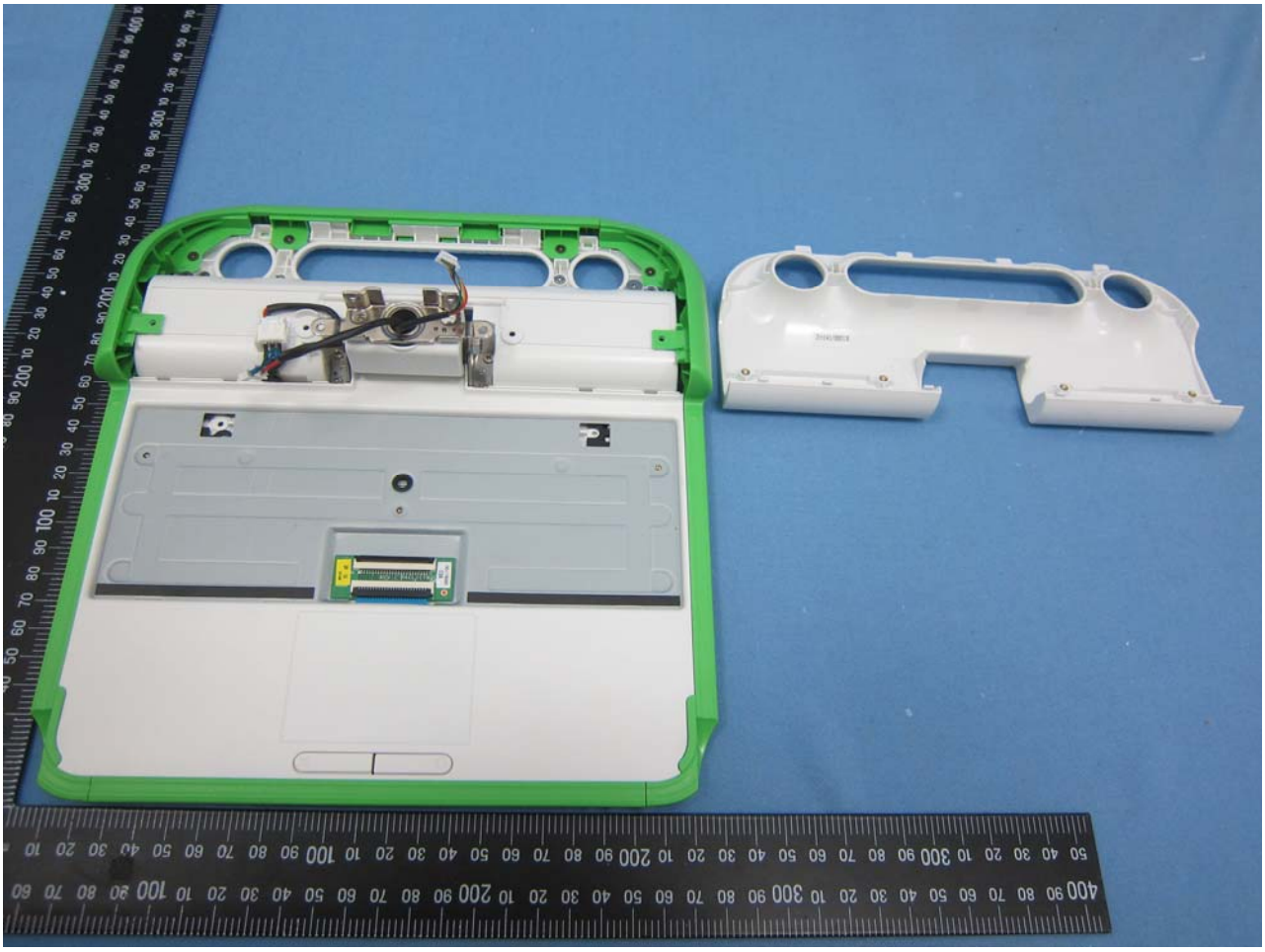
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



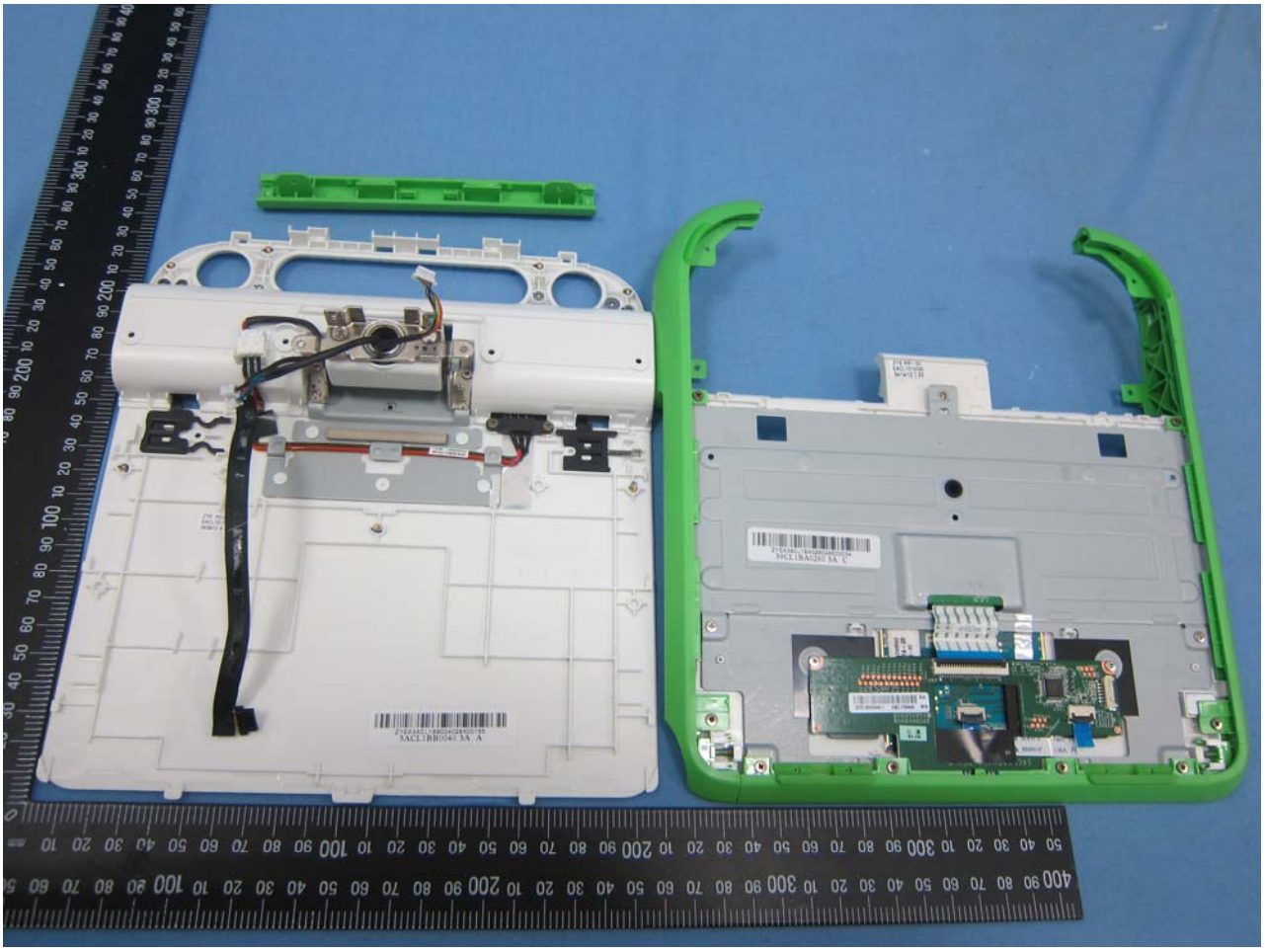
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



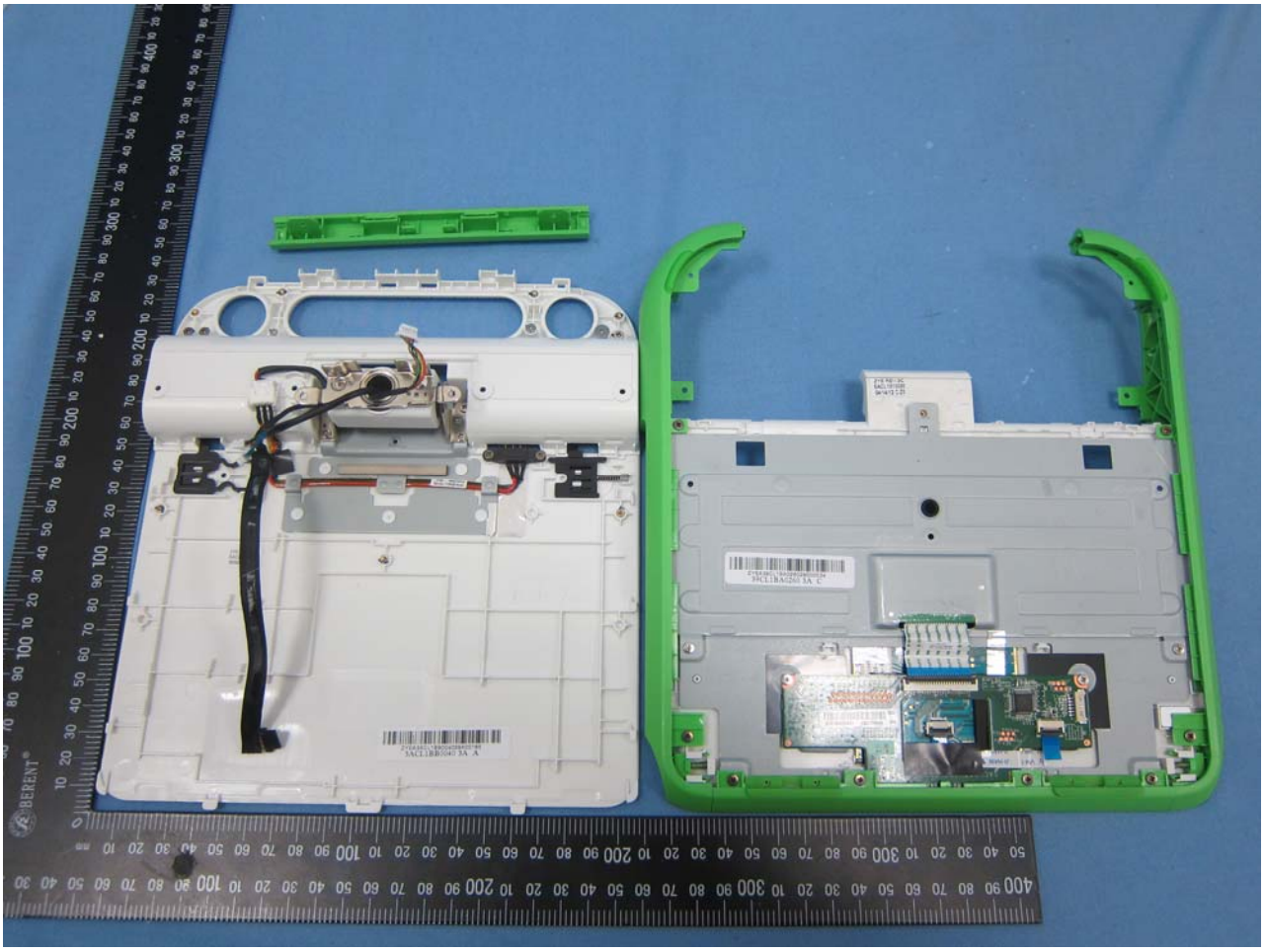
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

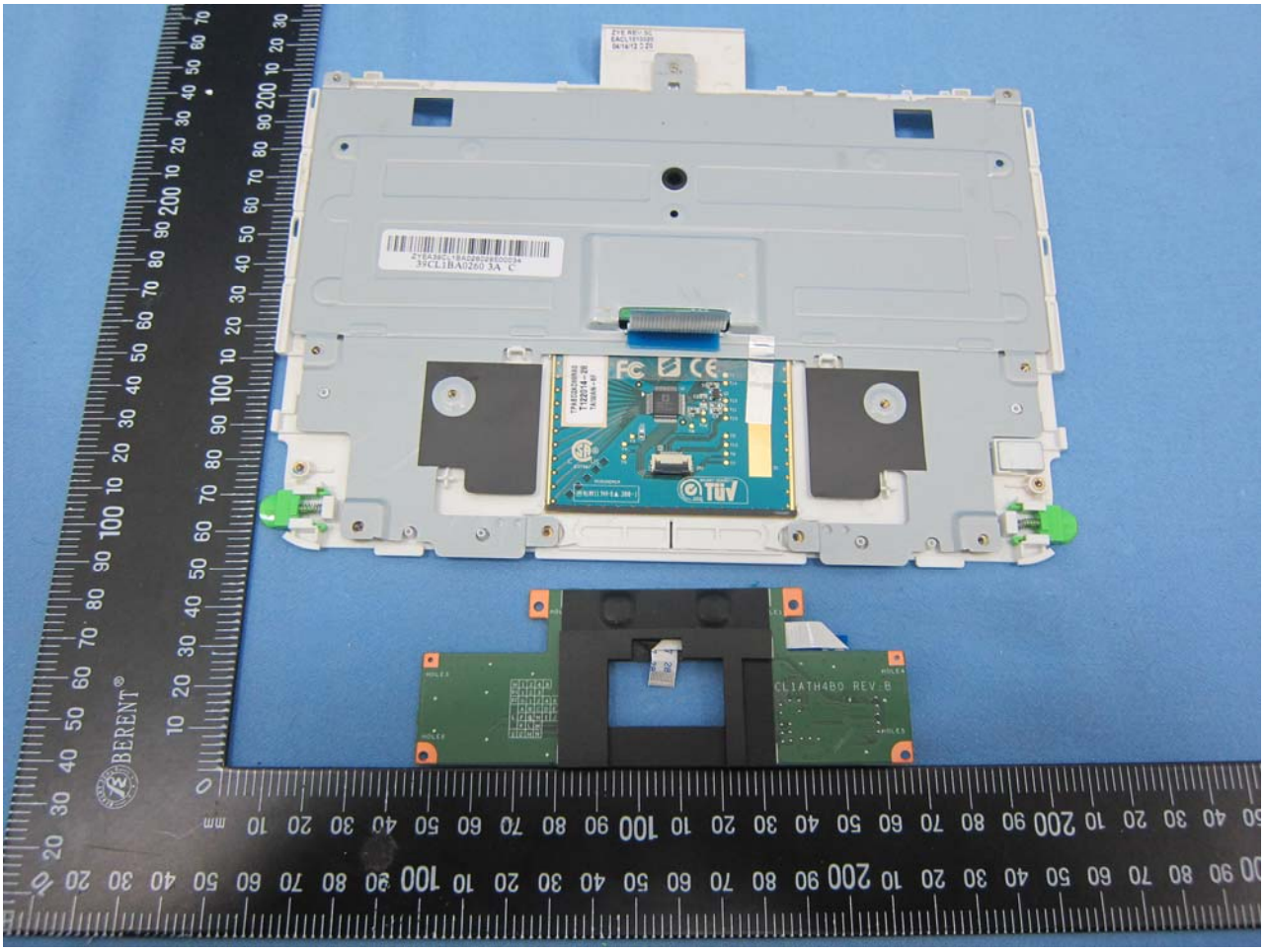


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

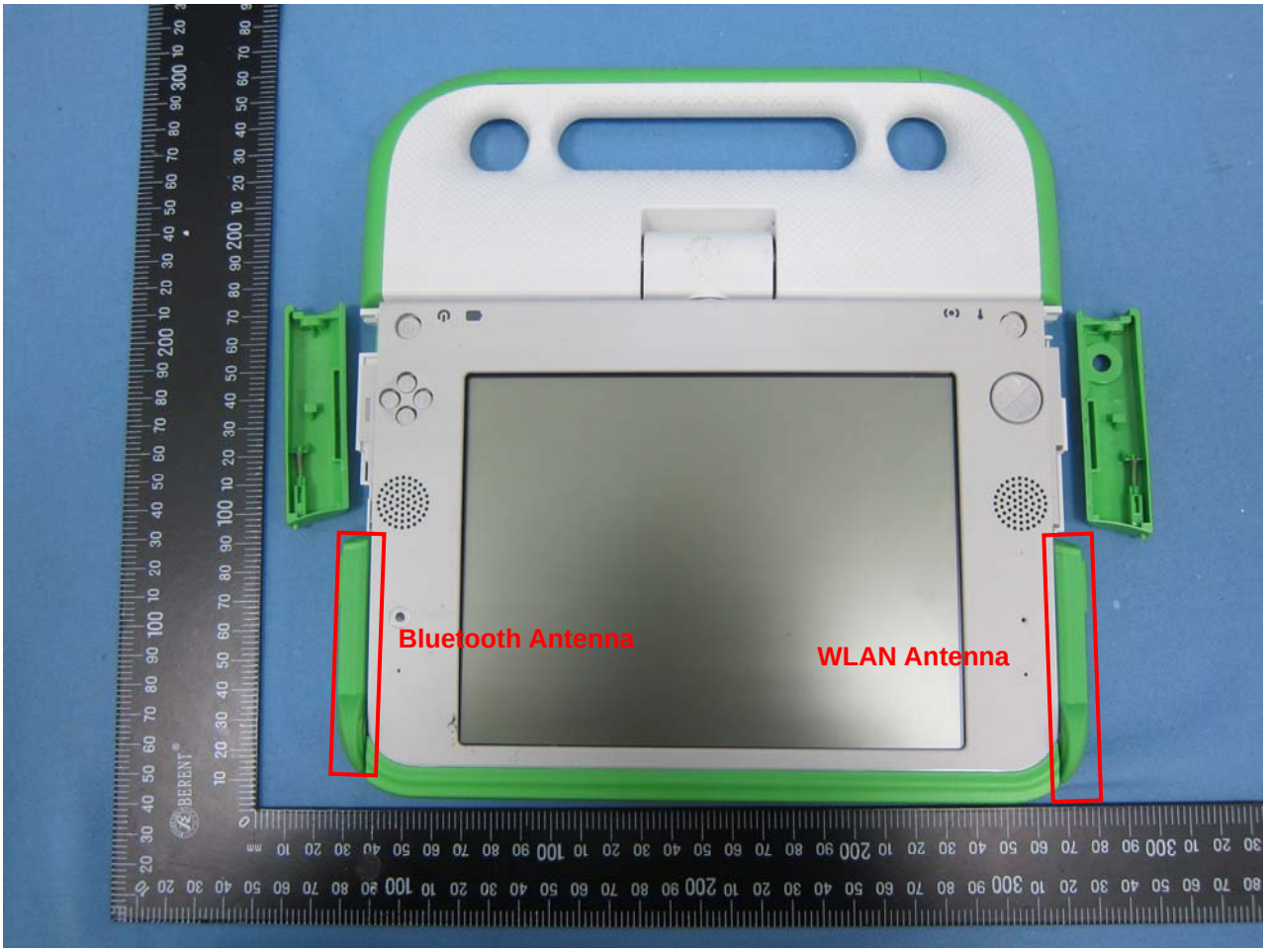
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

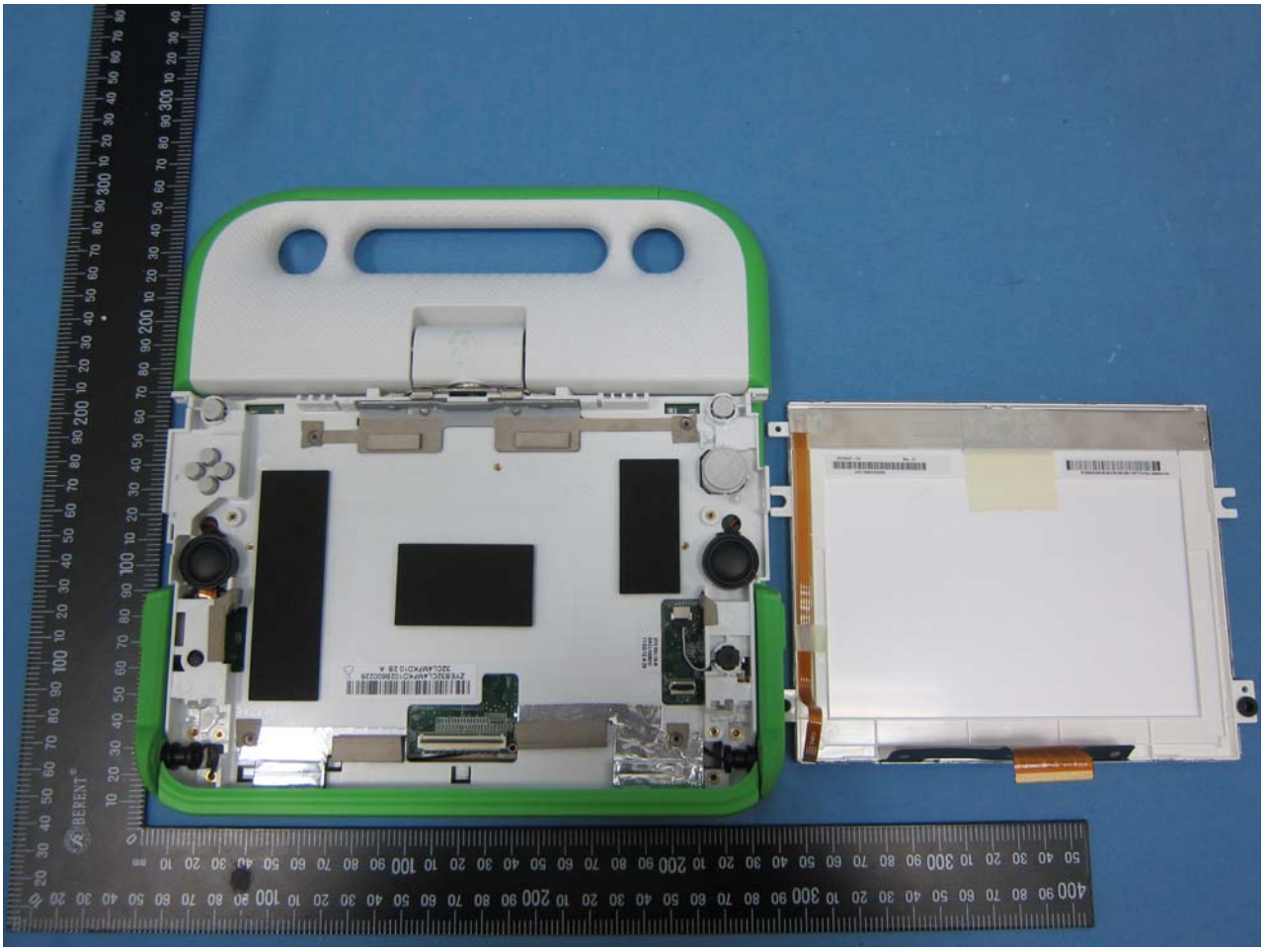
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



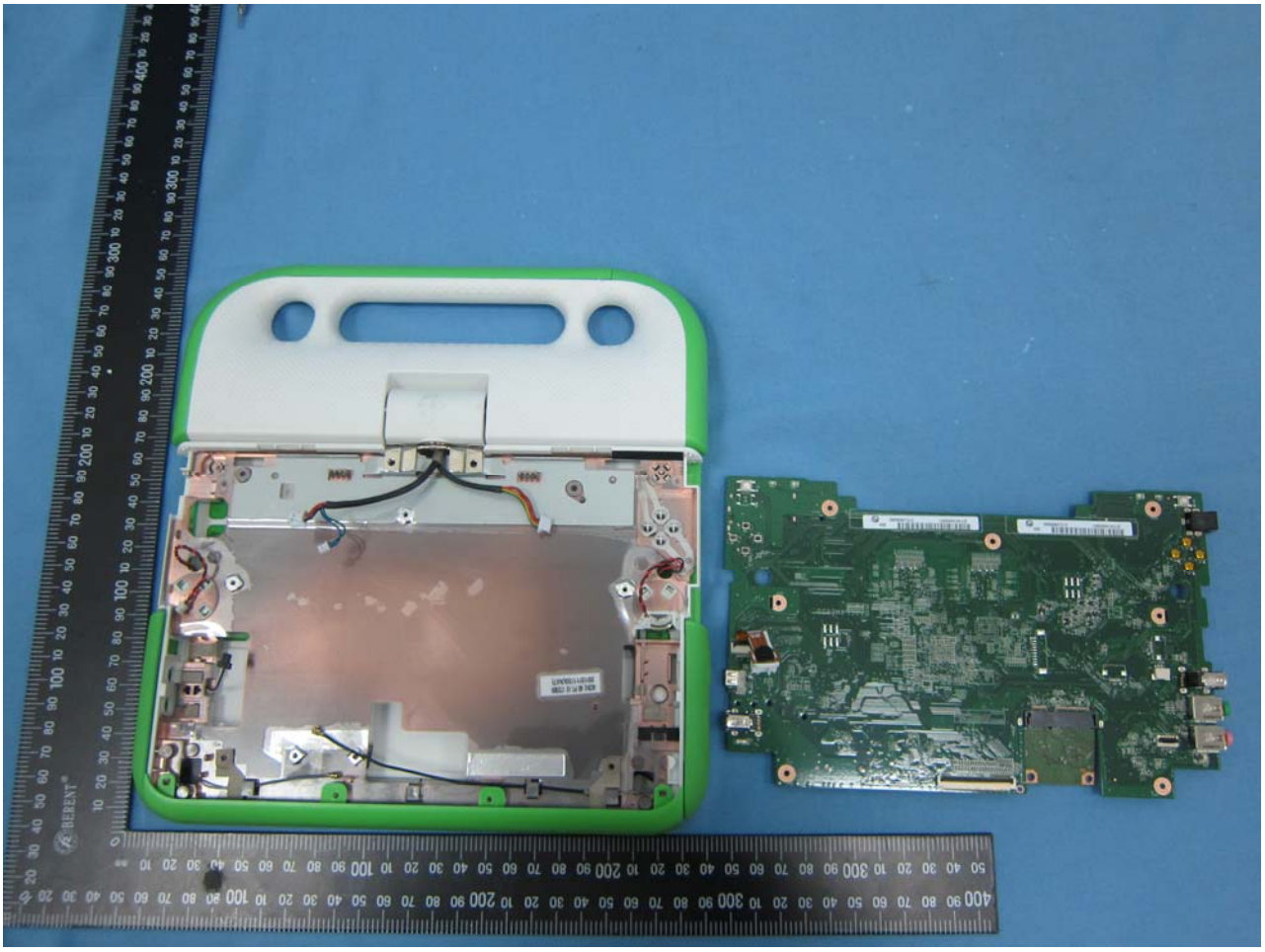
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

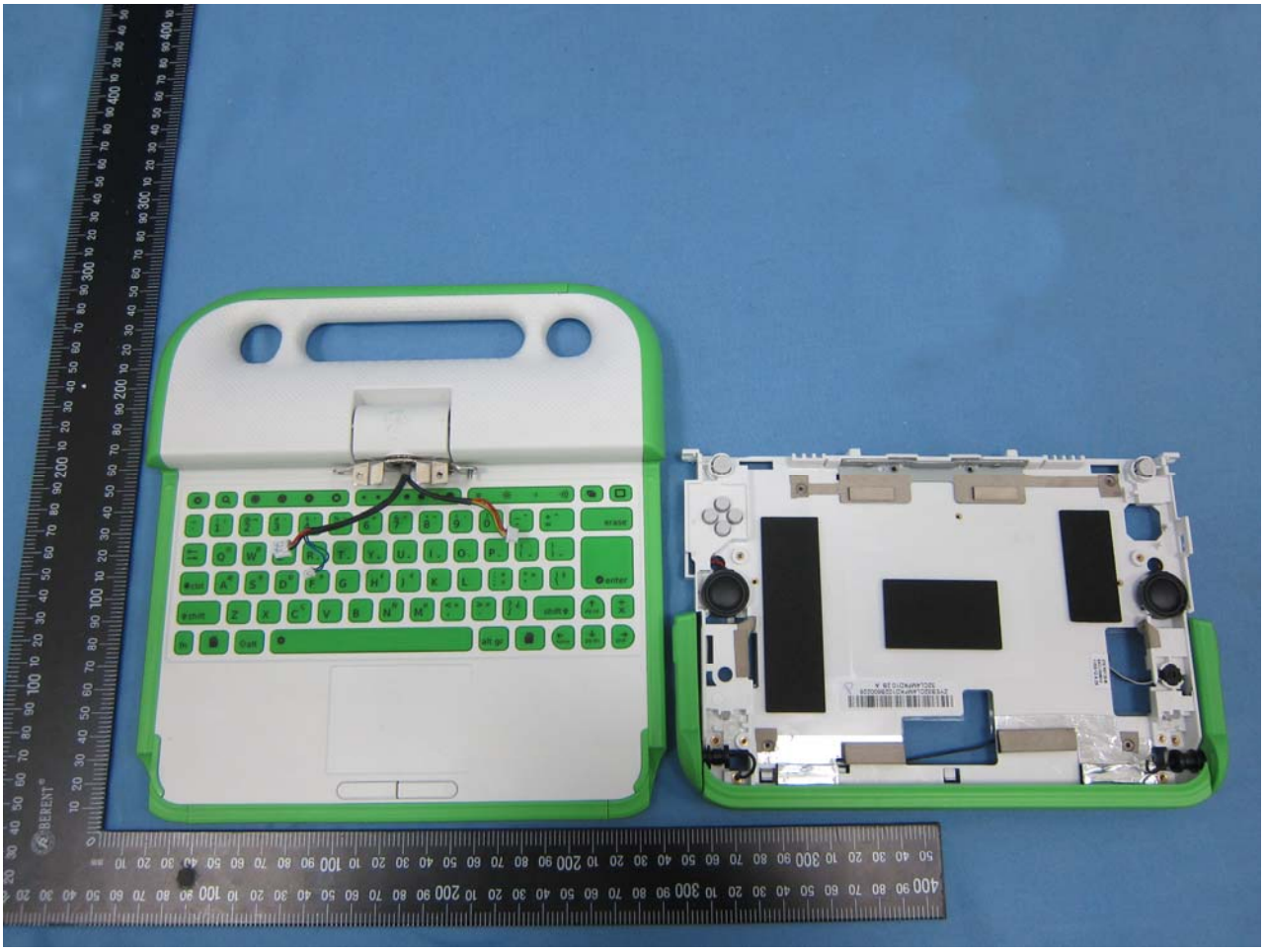


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

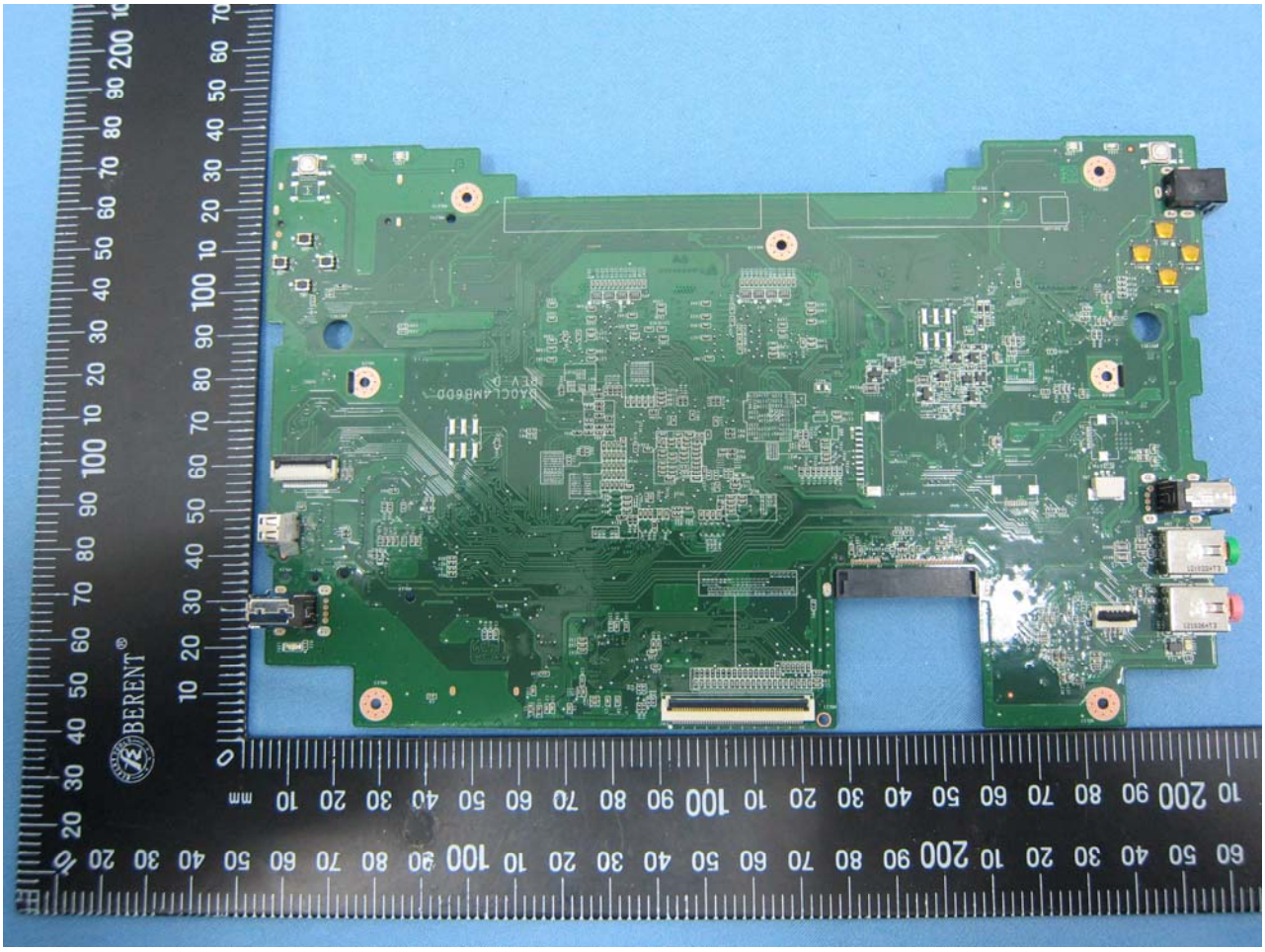
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



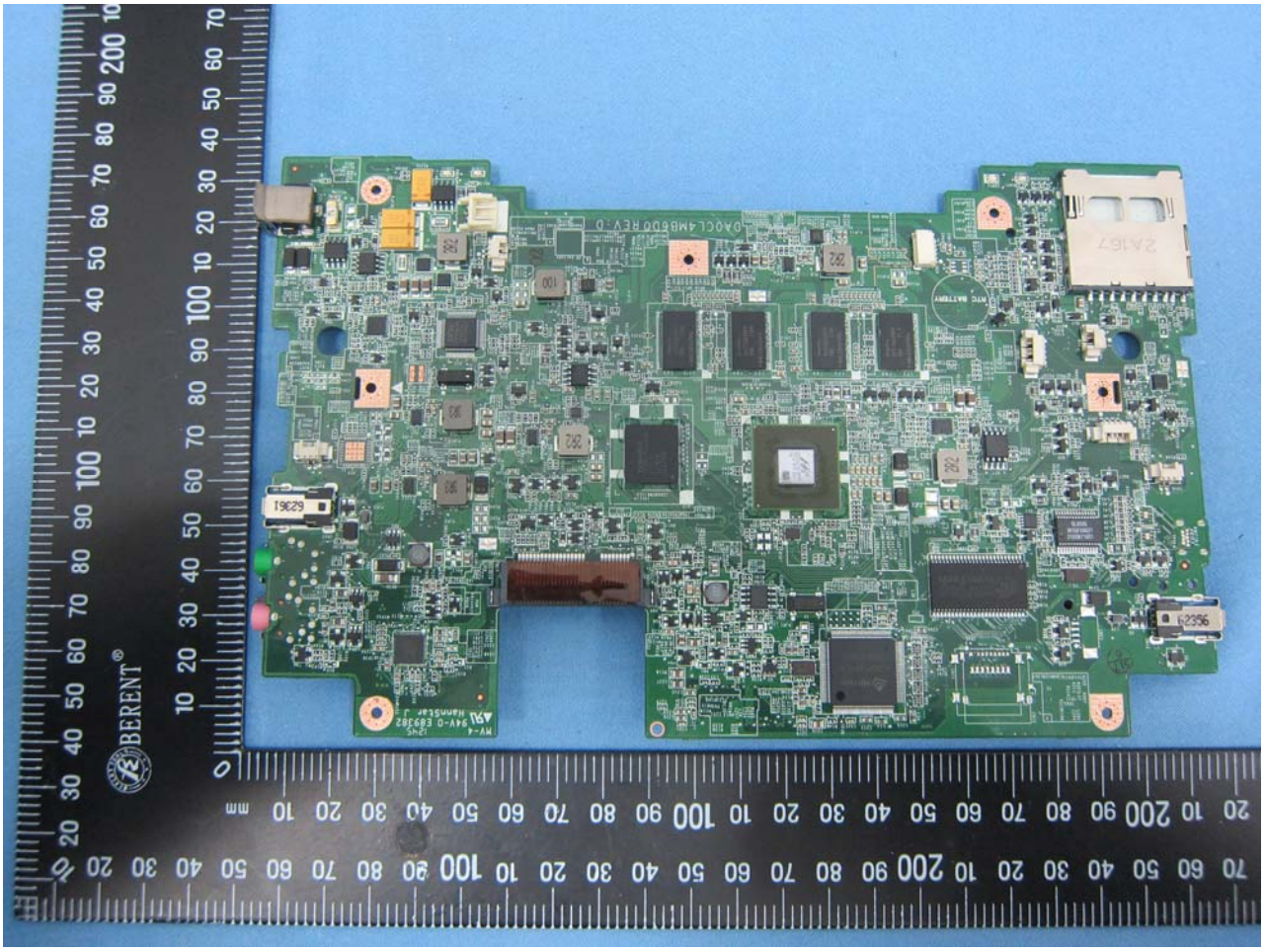
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



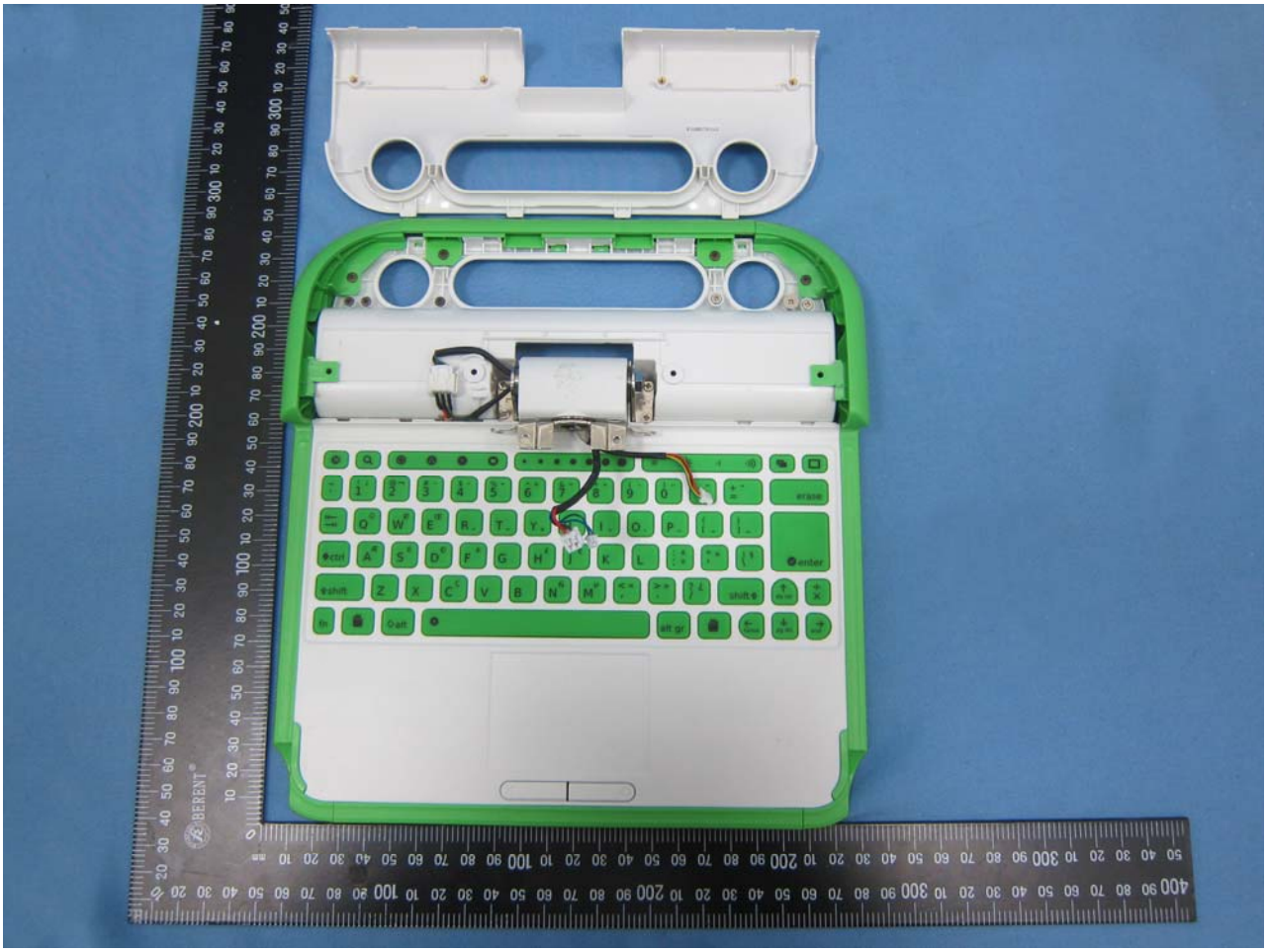
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



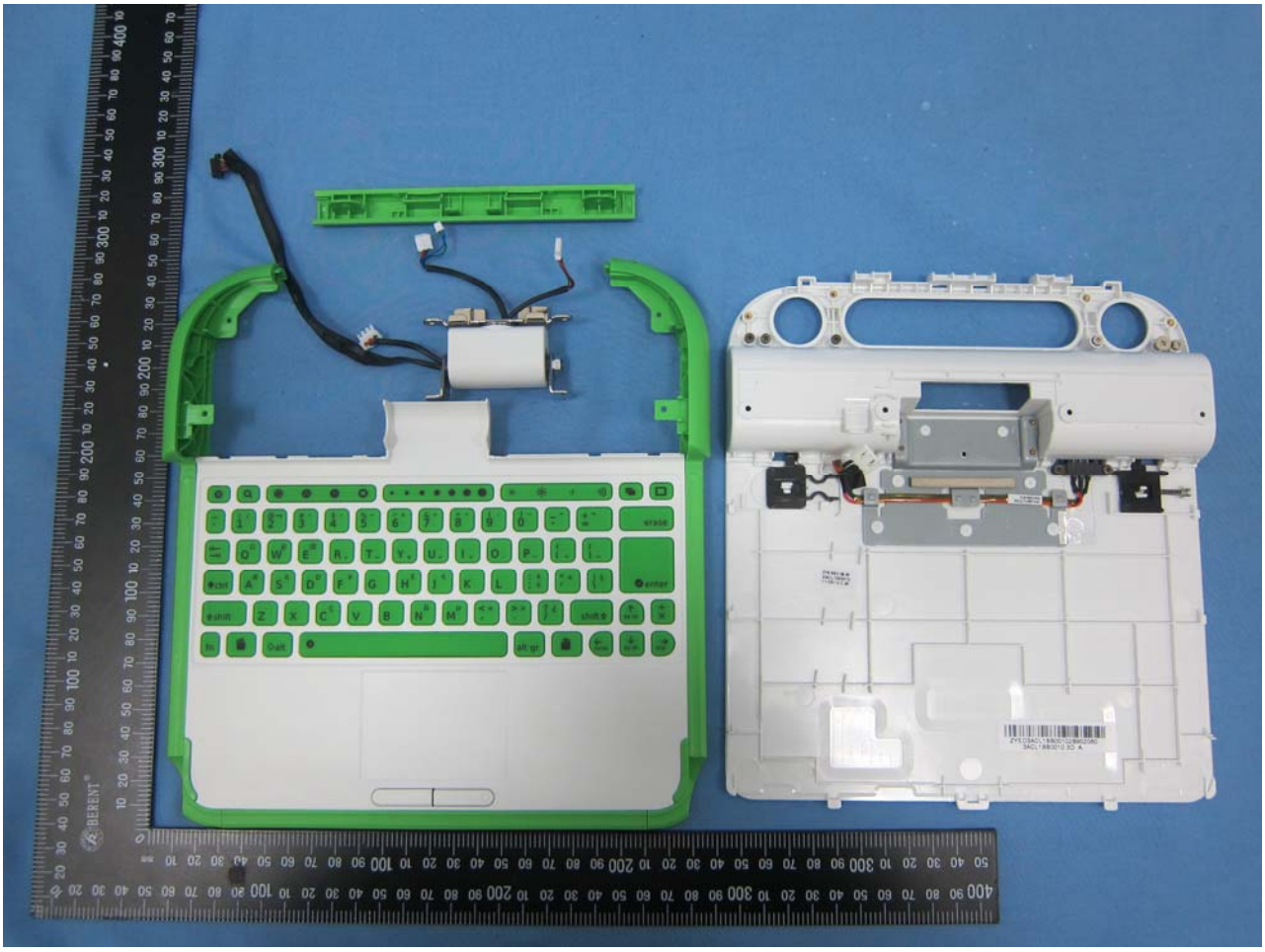
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



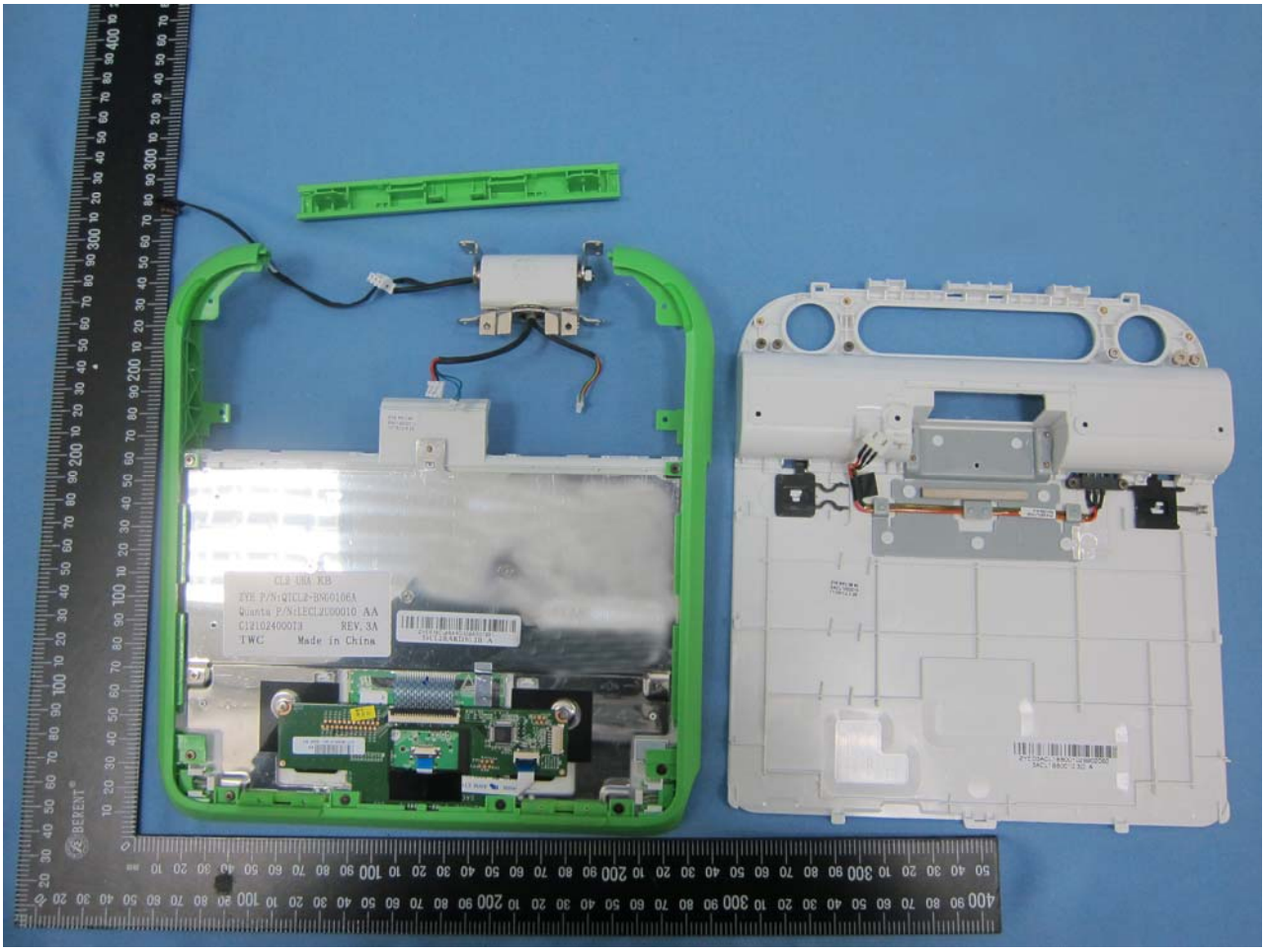
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

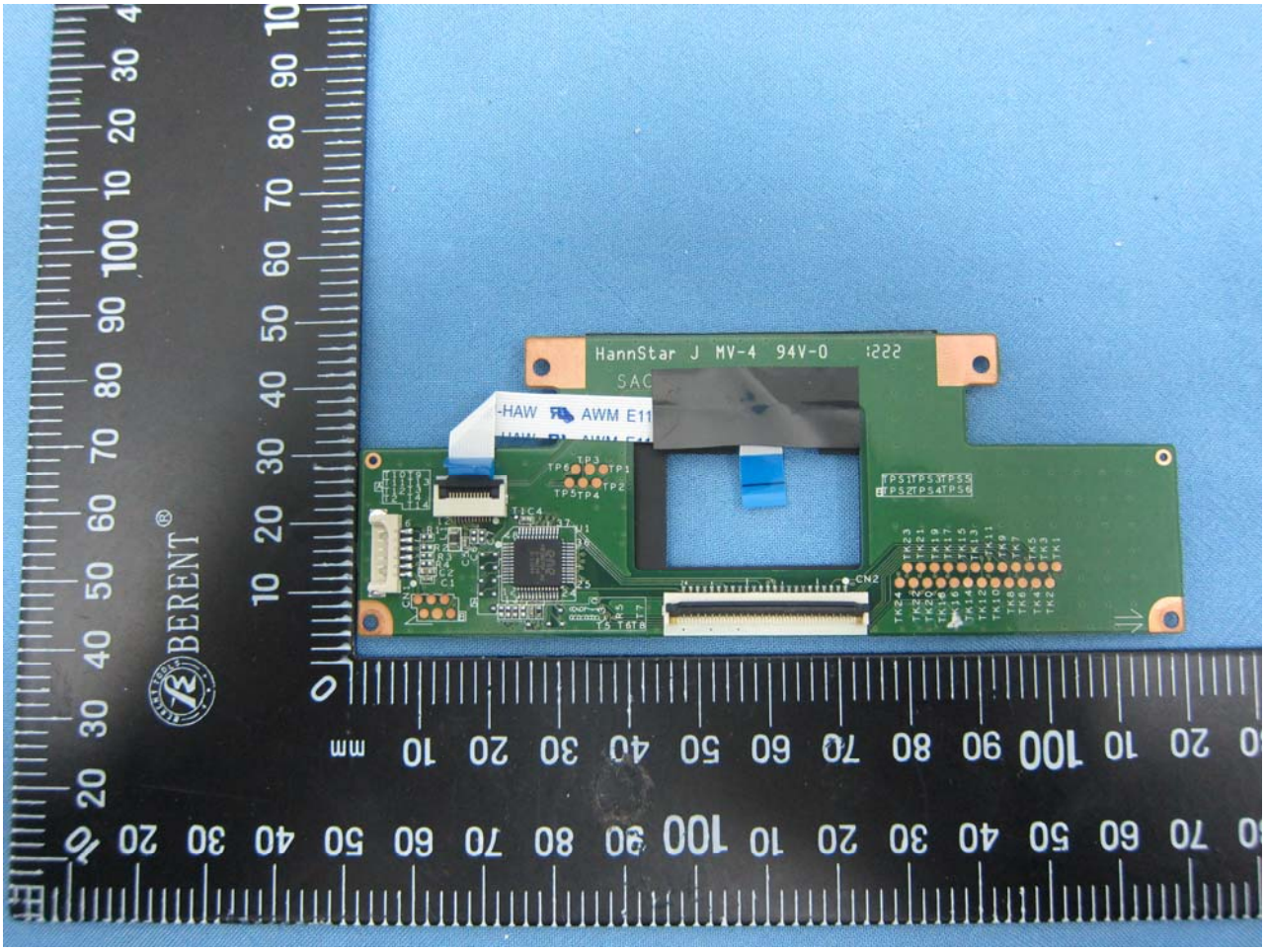


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



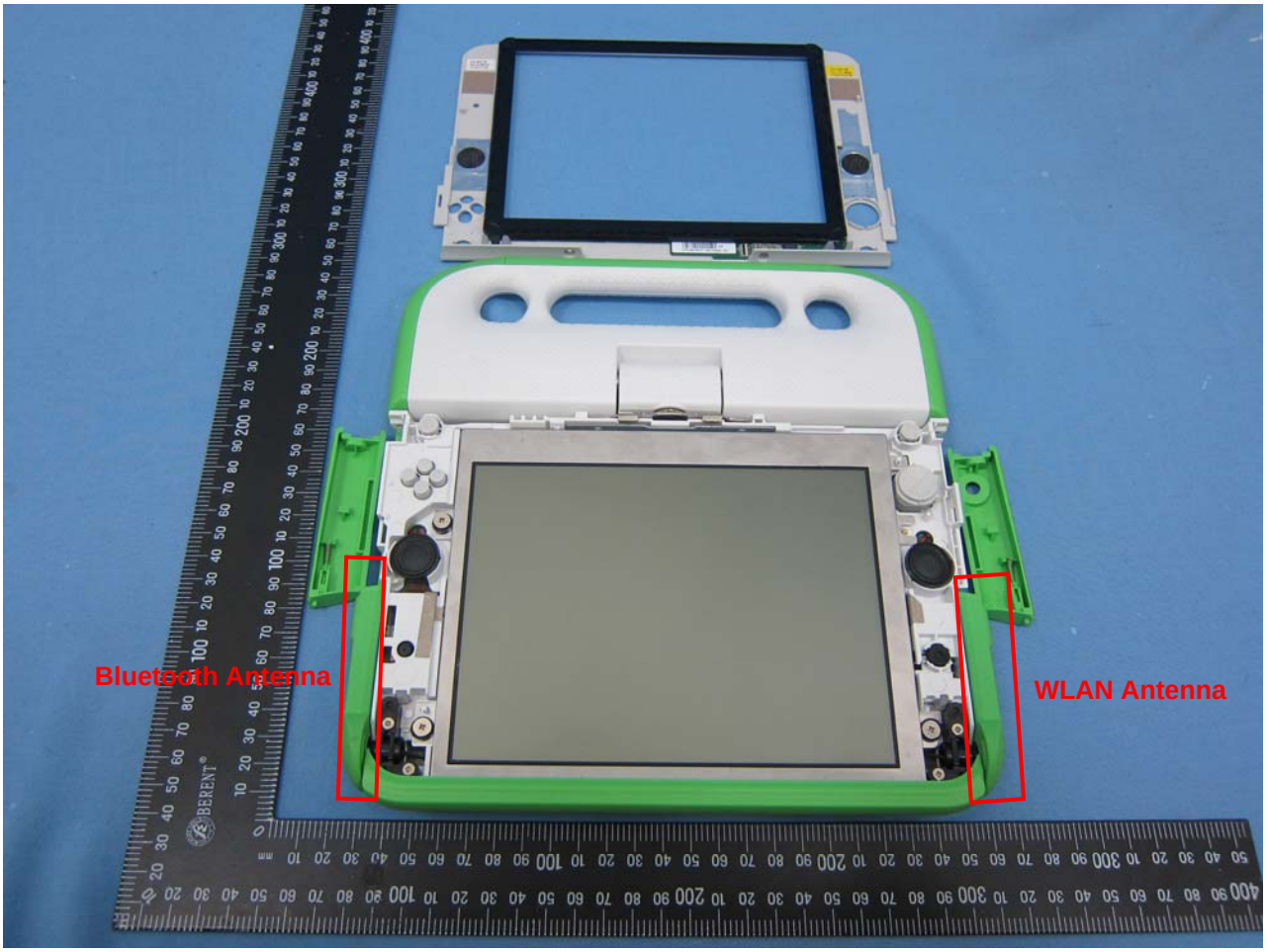
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



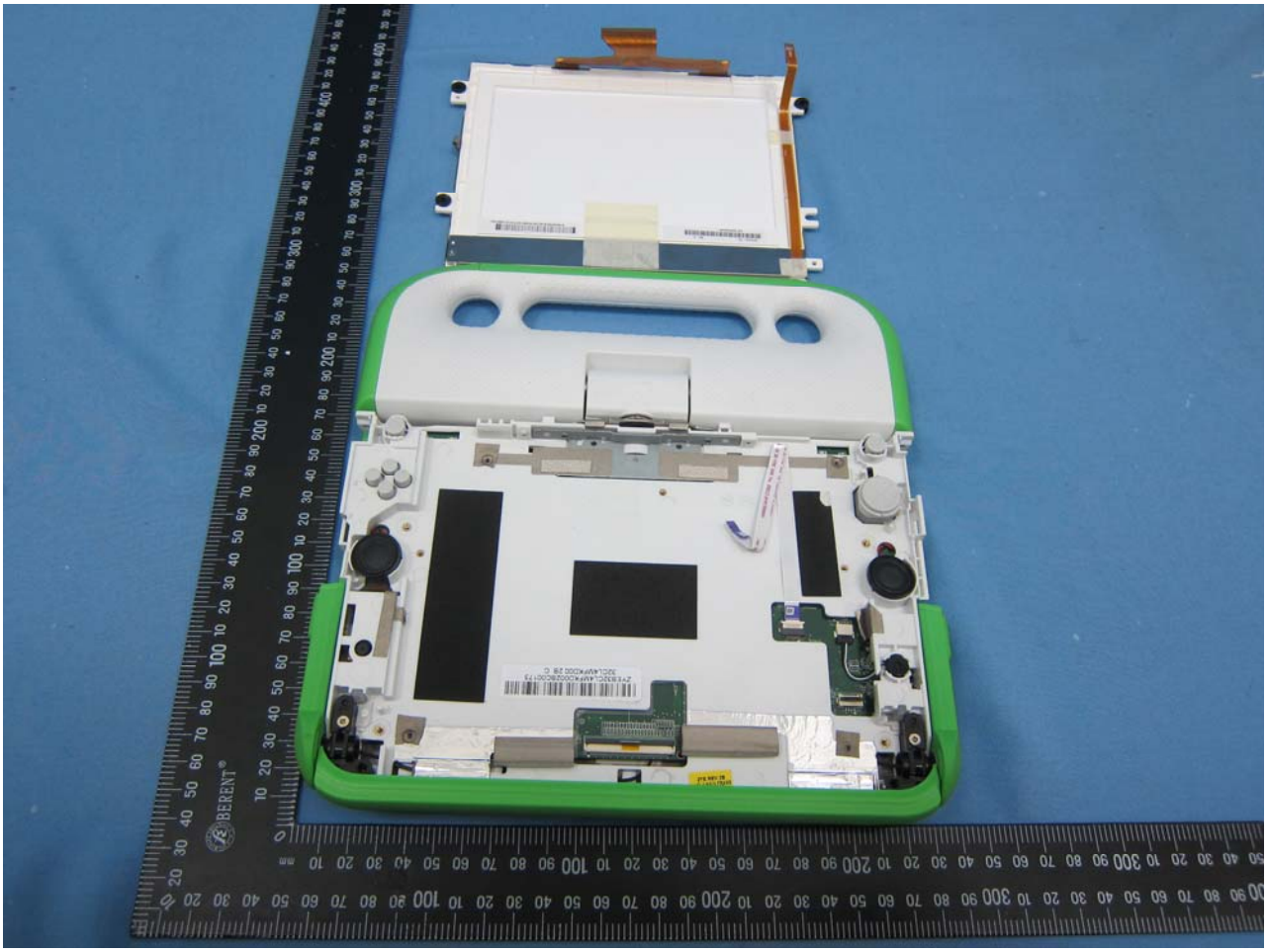
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



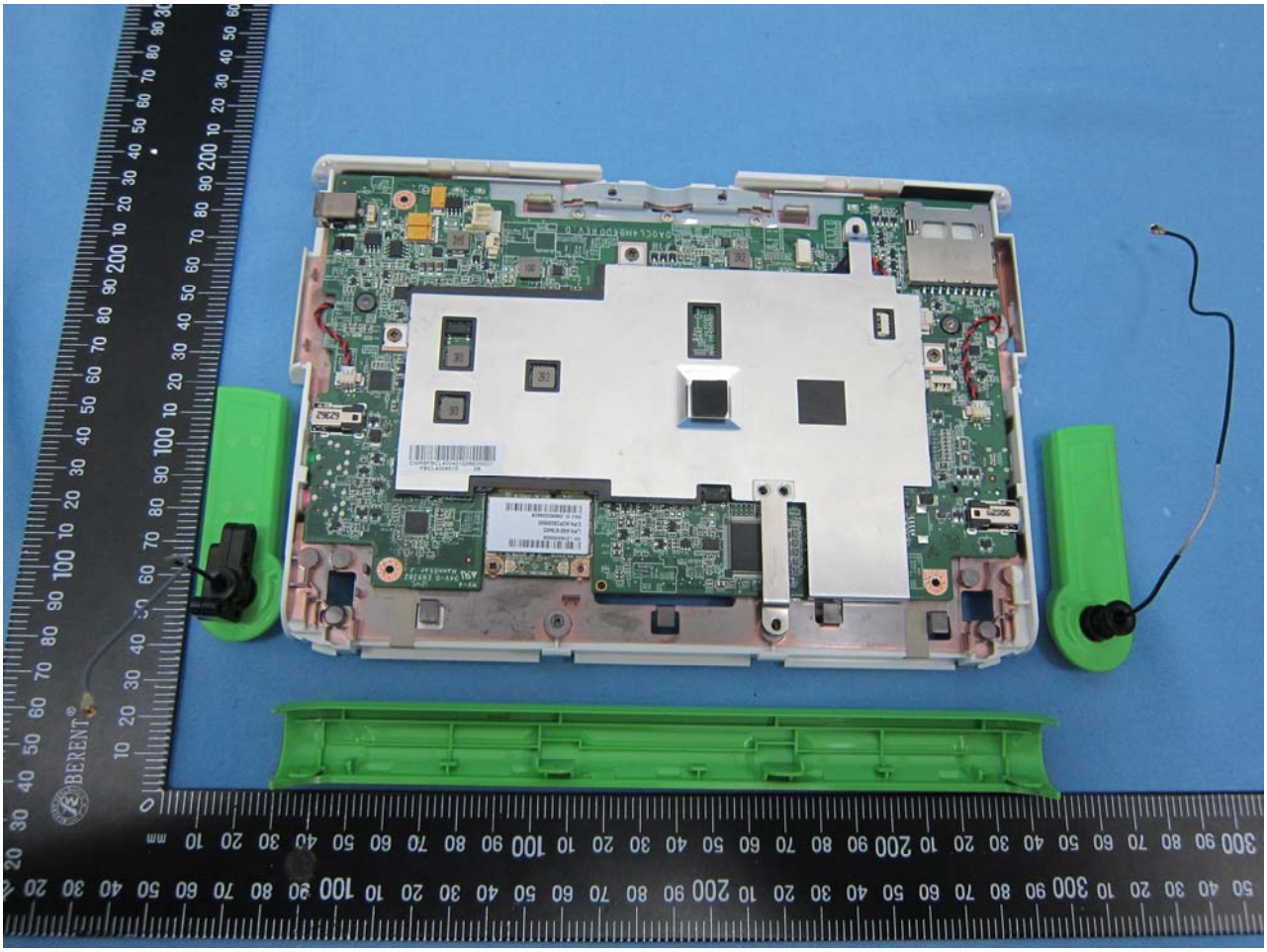
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

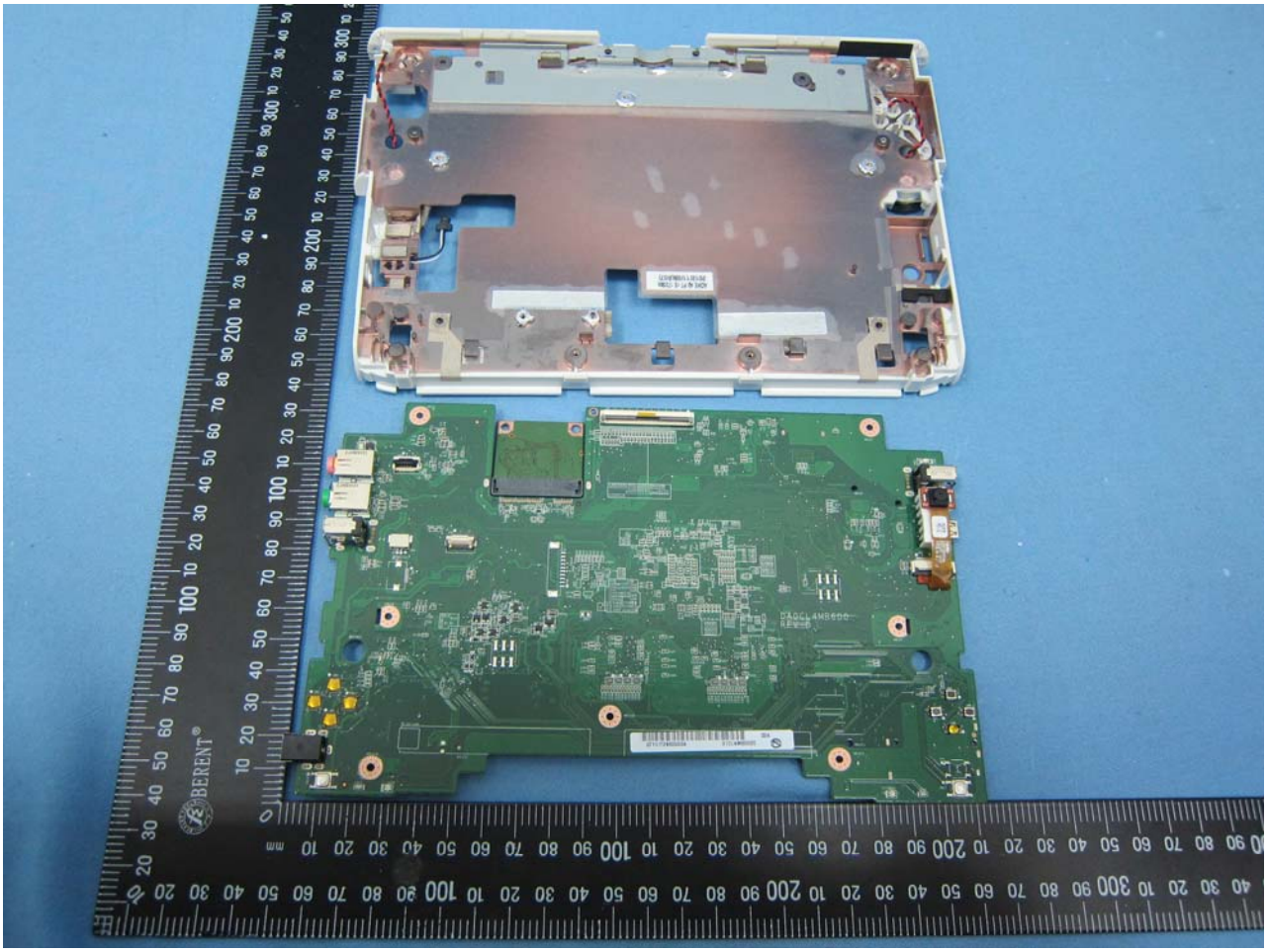


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

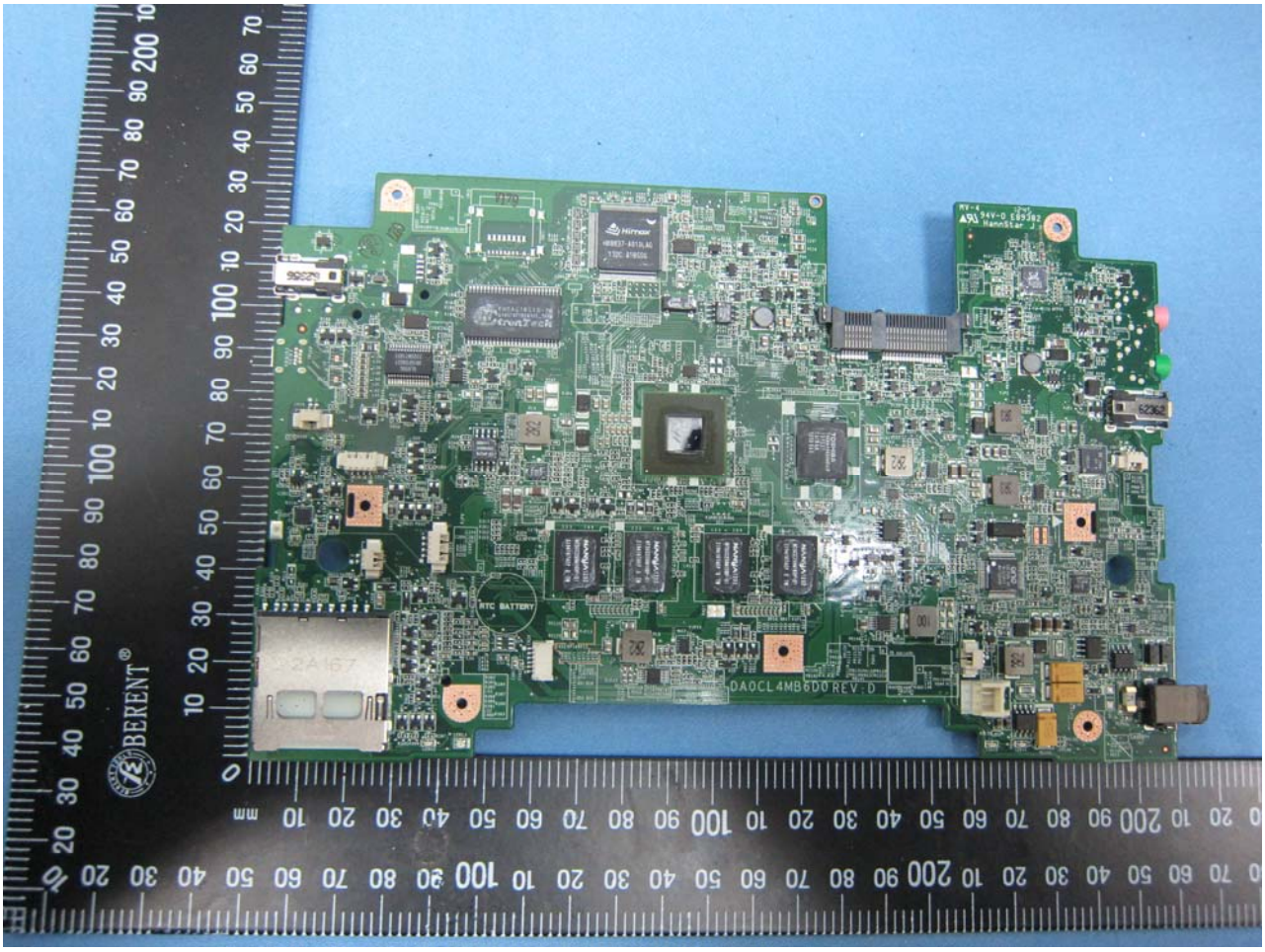
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



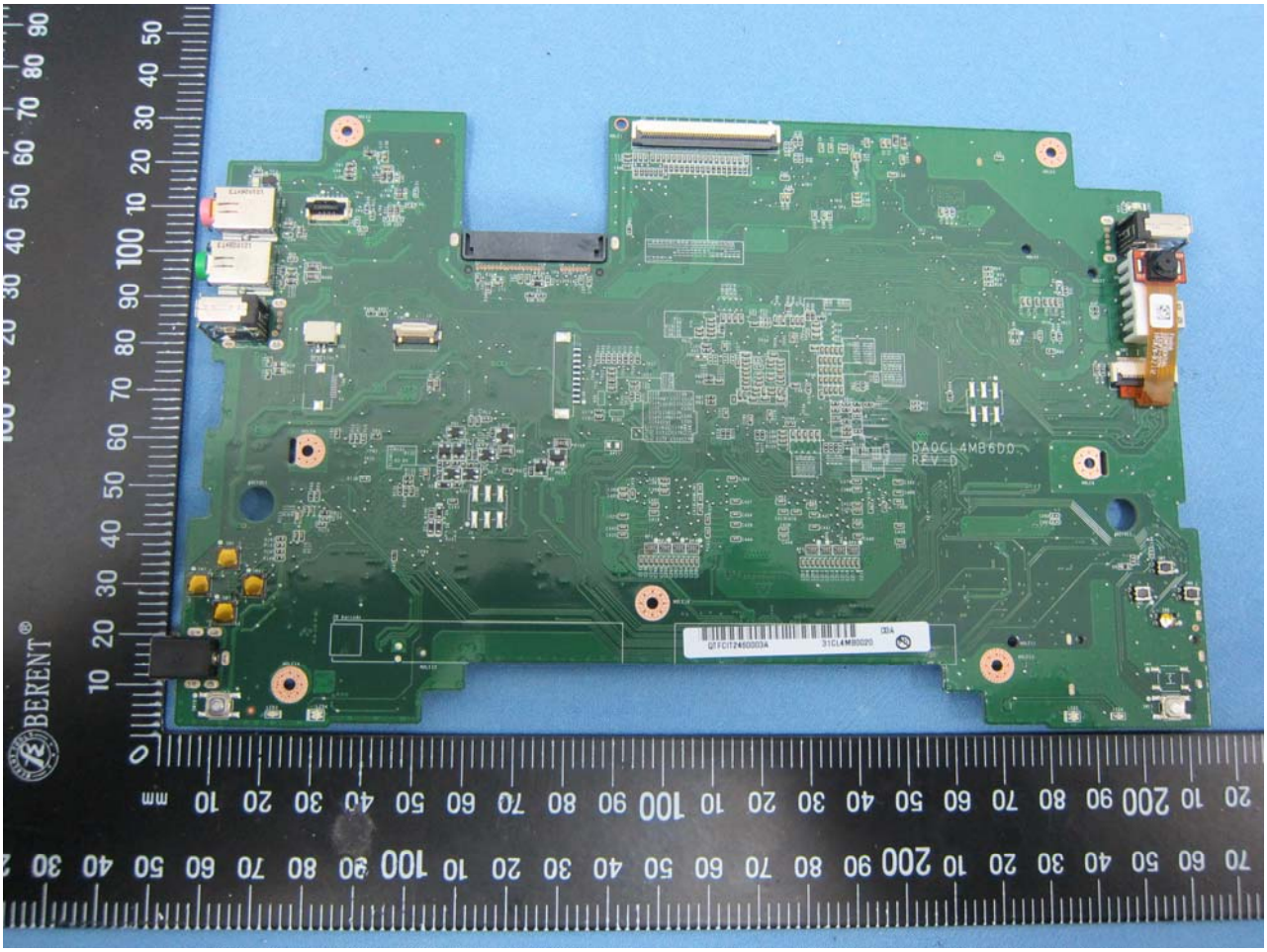
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



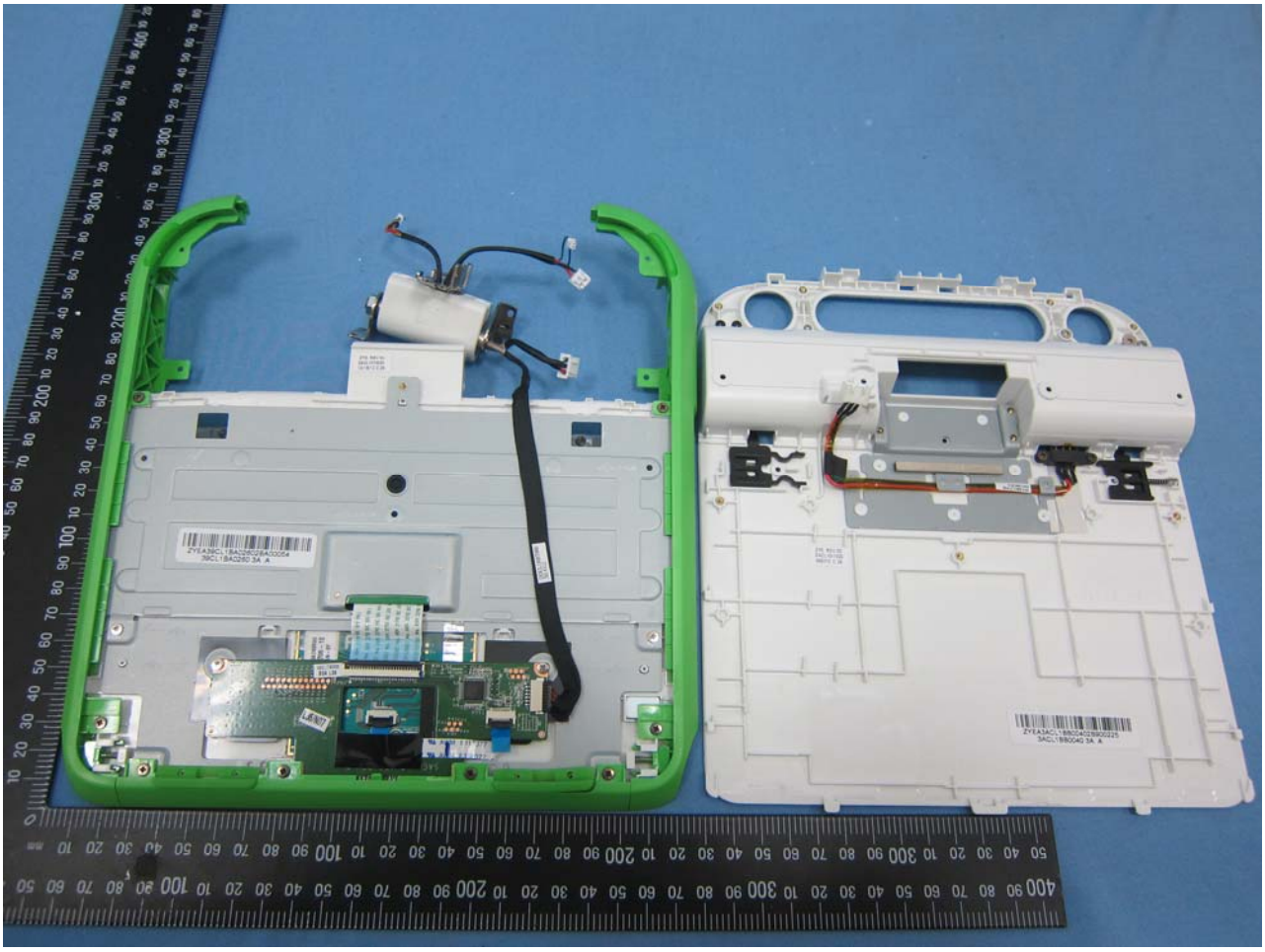
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



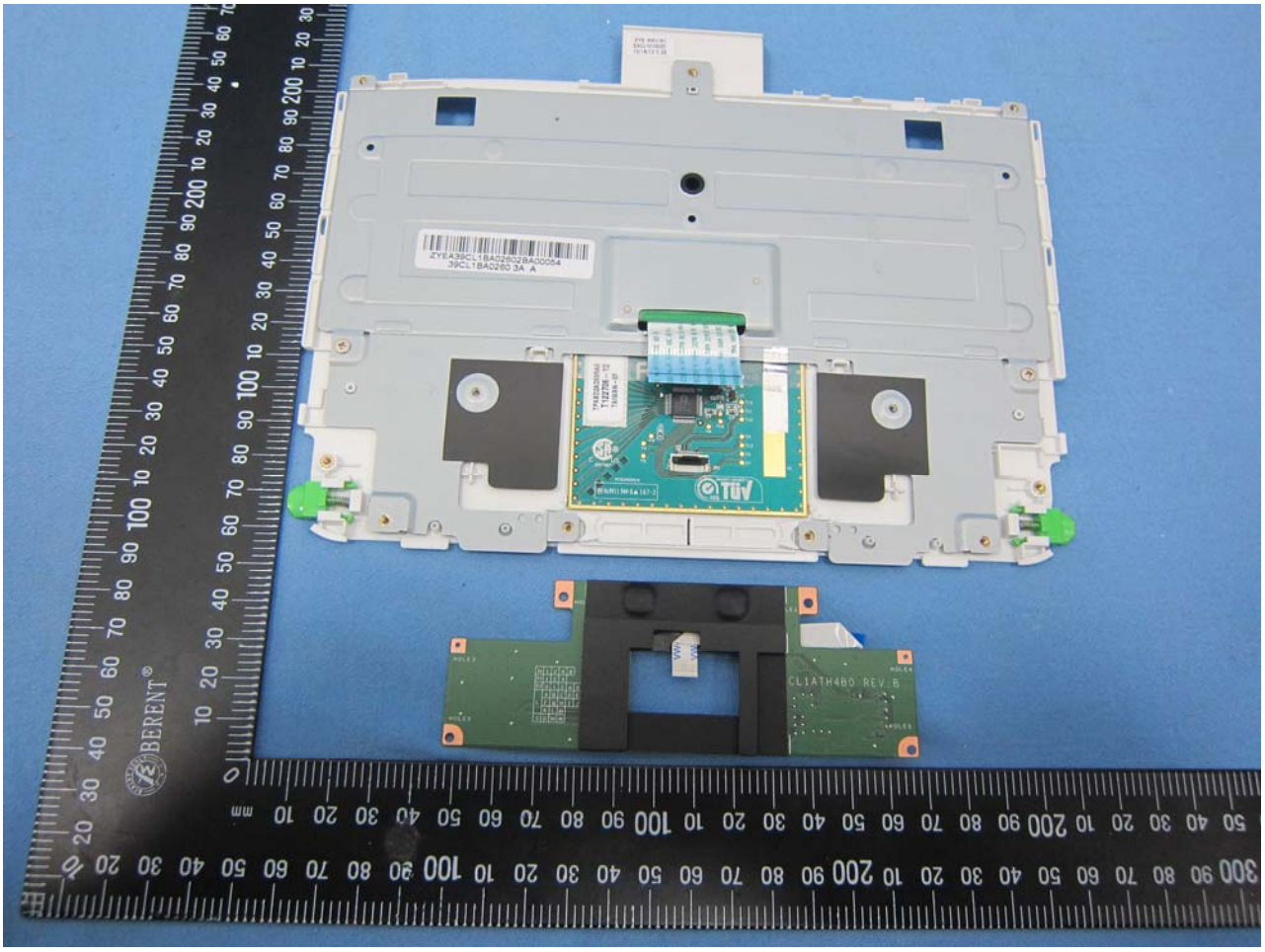
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



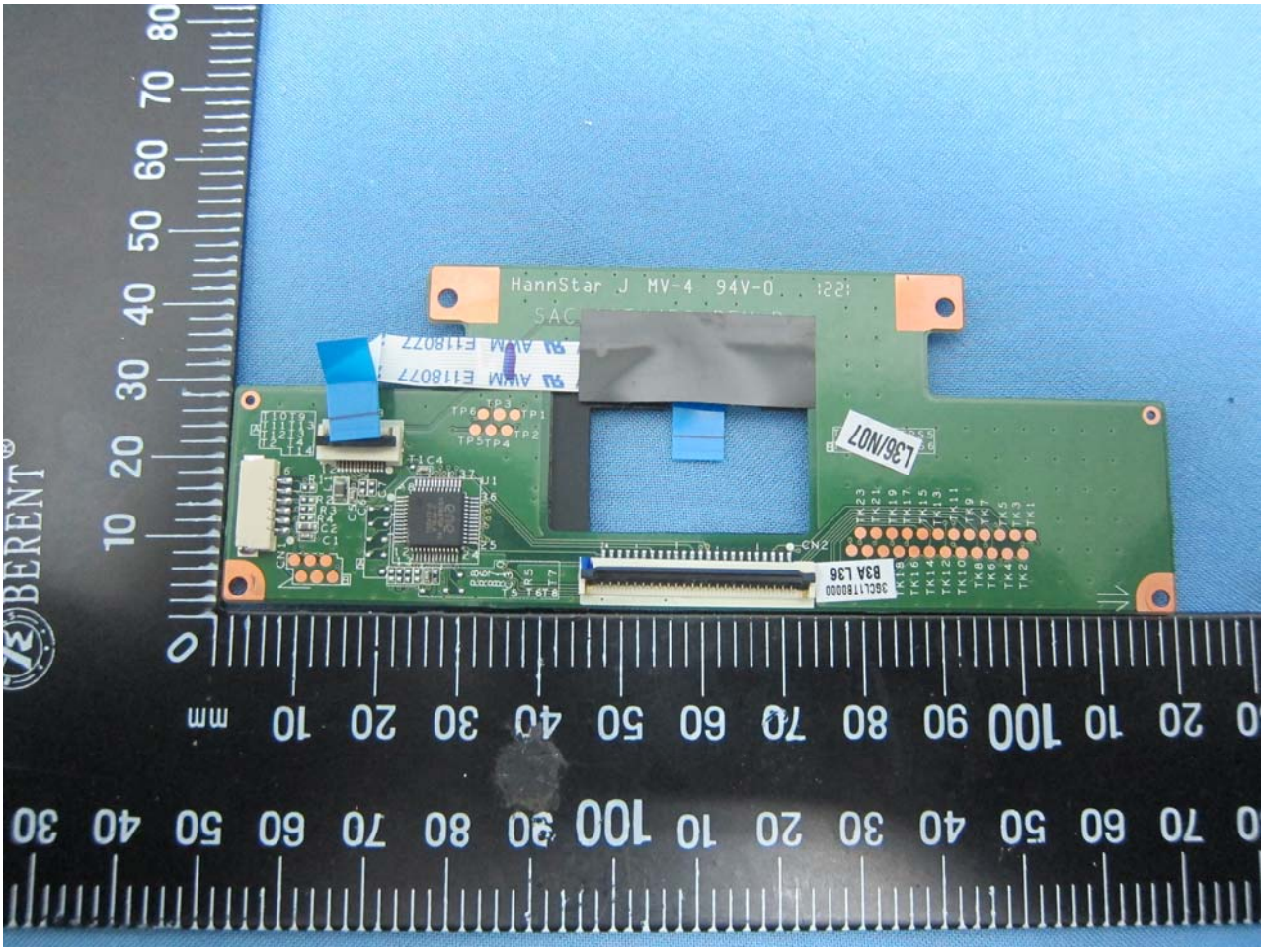
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

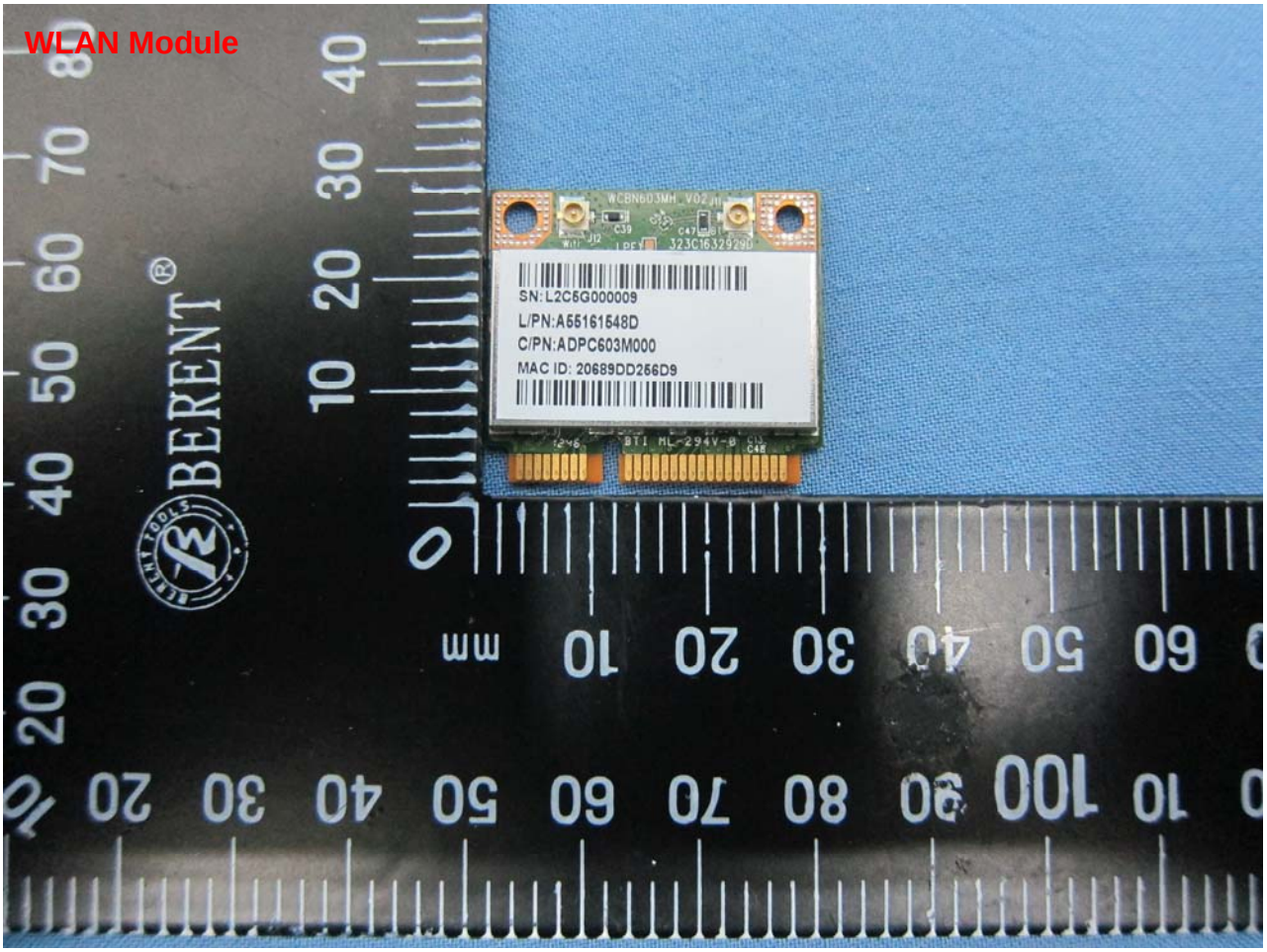
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



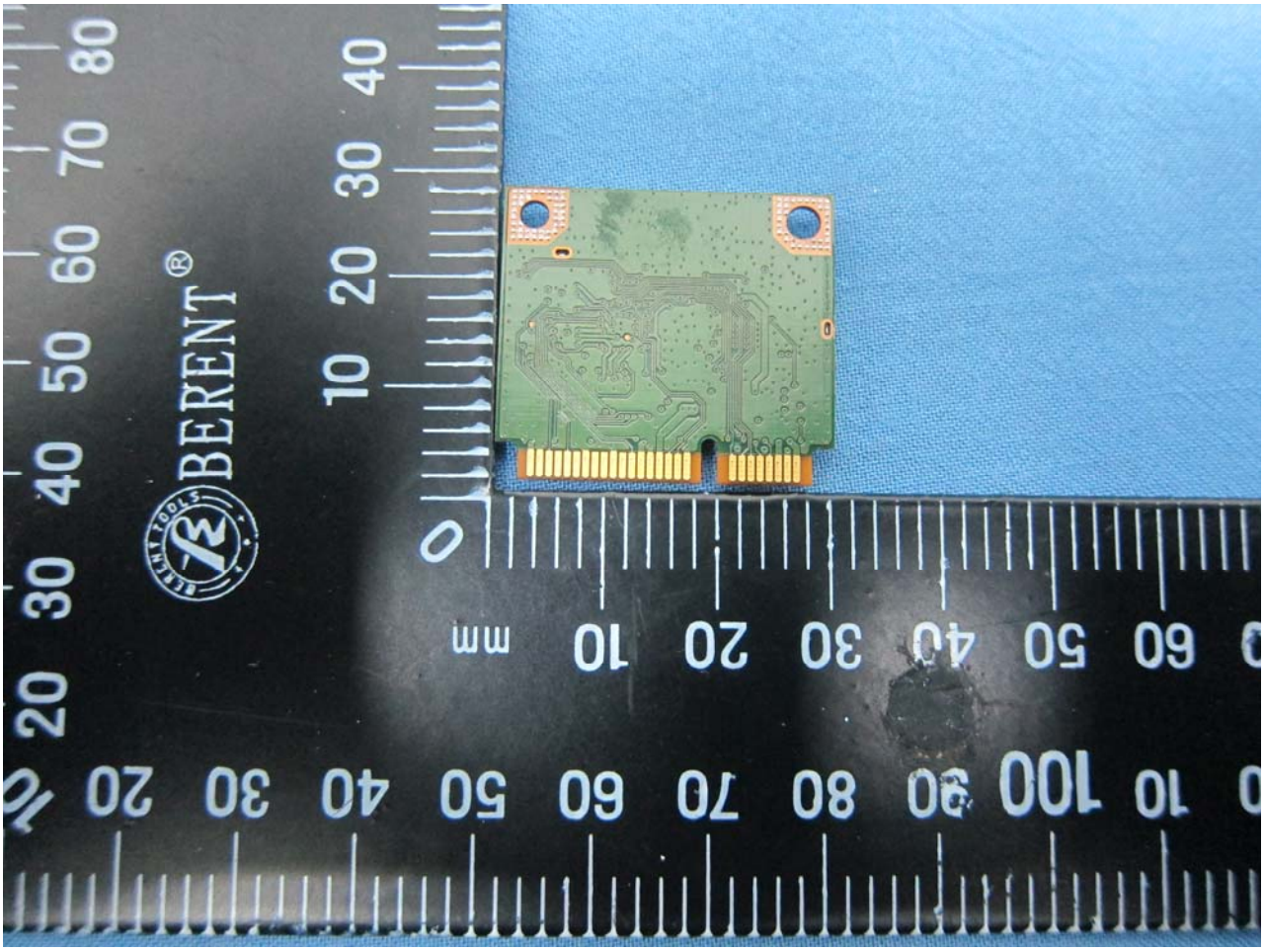
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



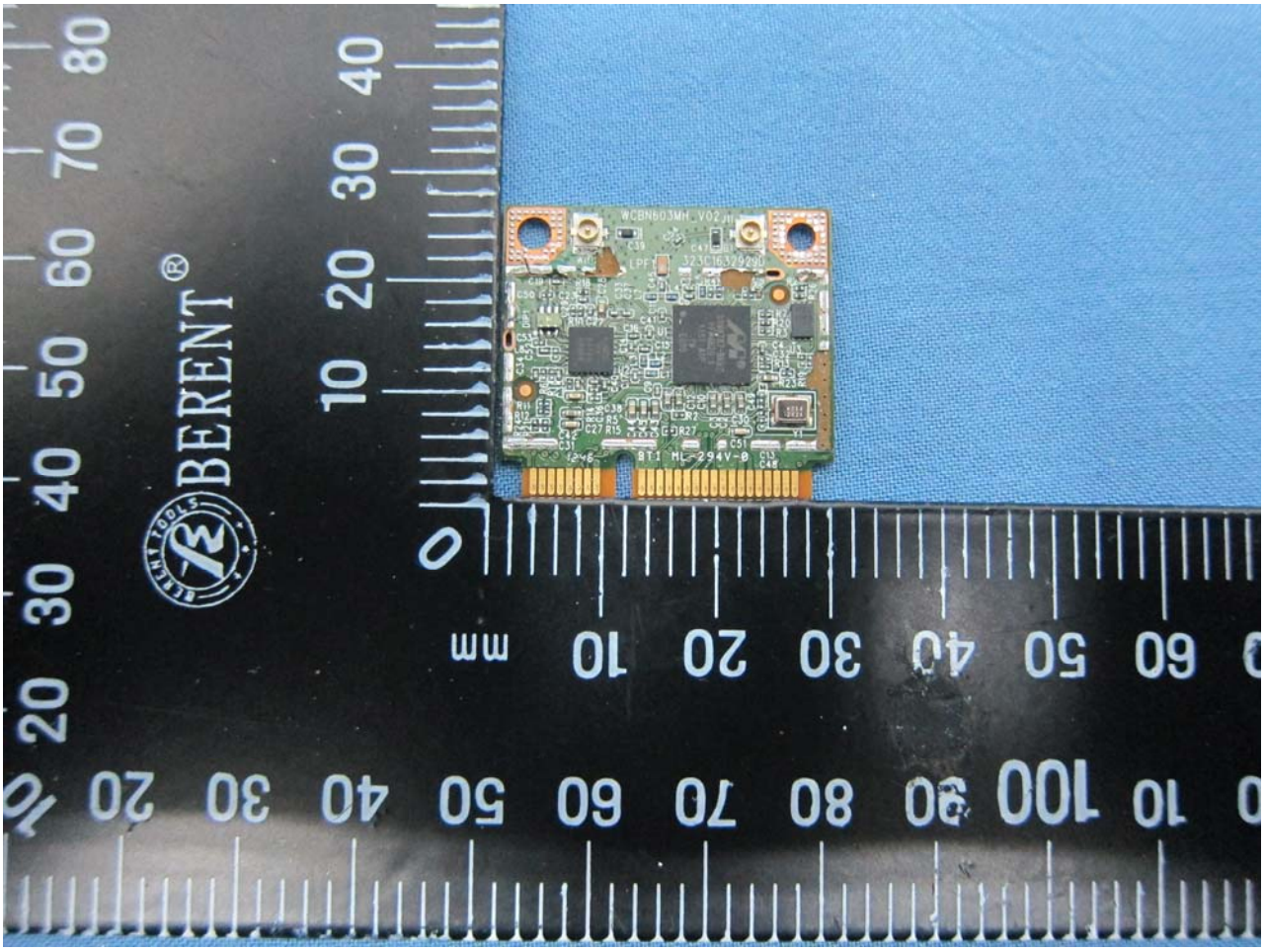
Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

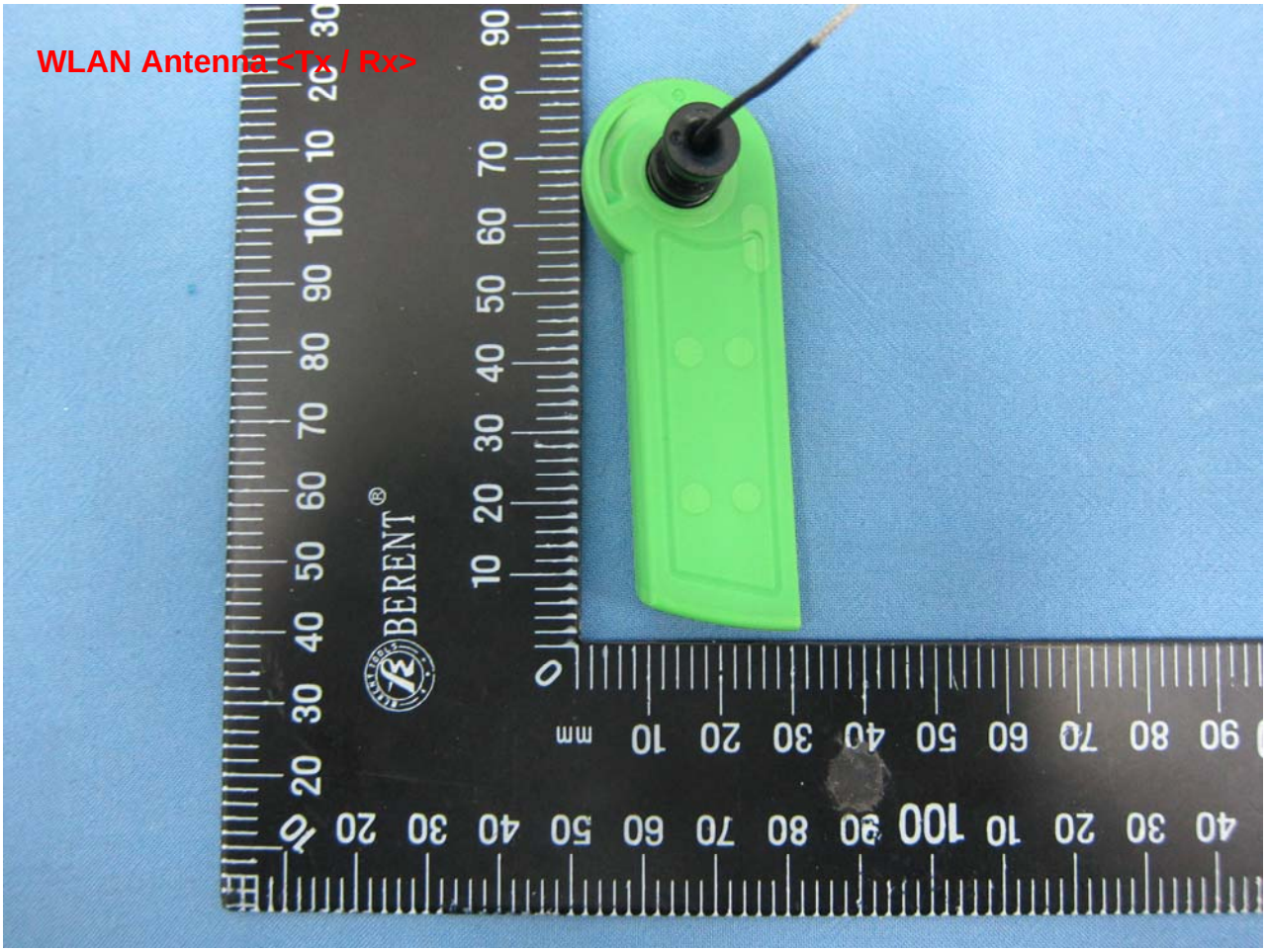


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

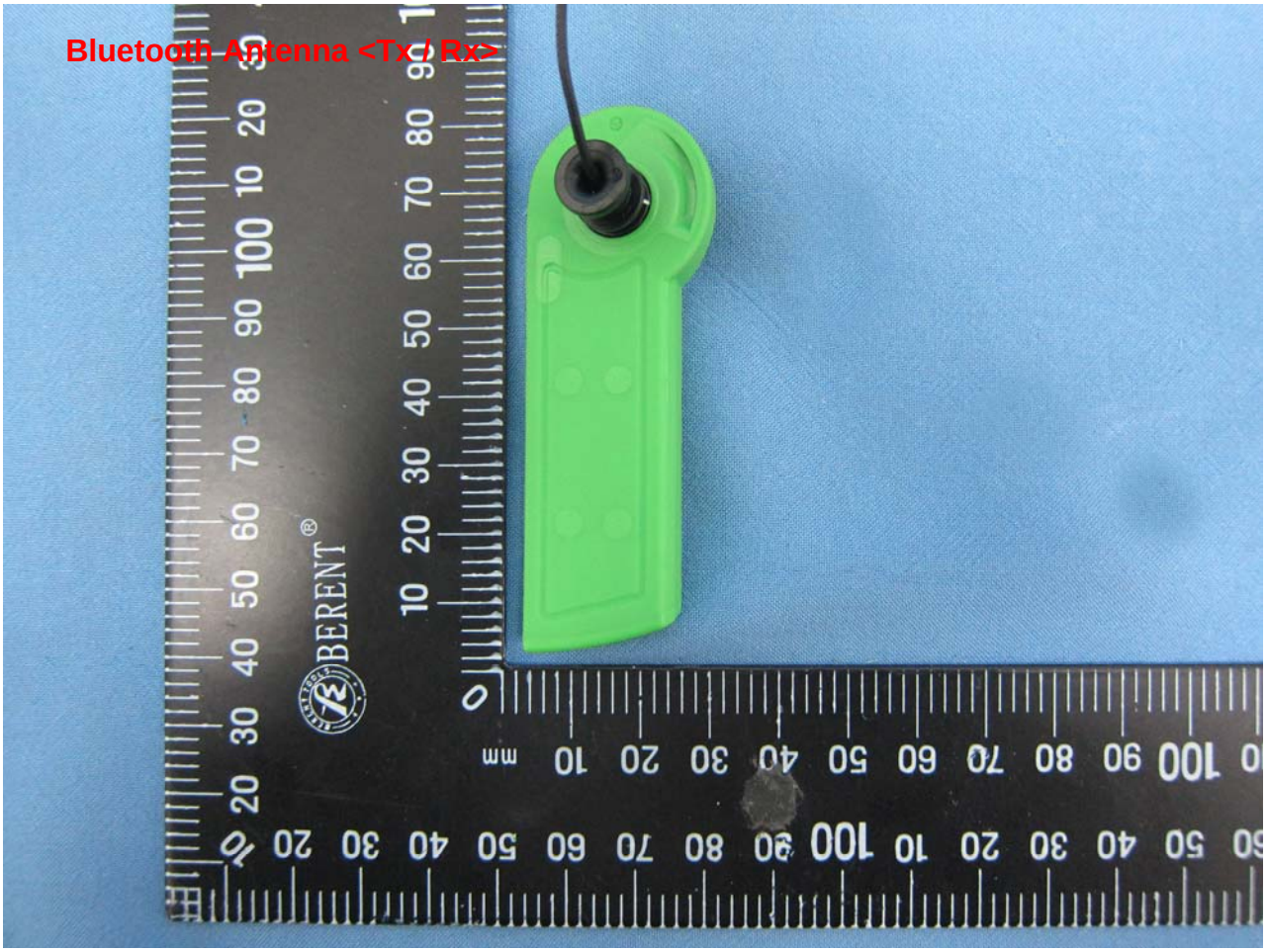


Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS

Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Brand Name: OLPC; Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS



Appendix B. Setup Photographs

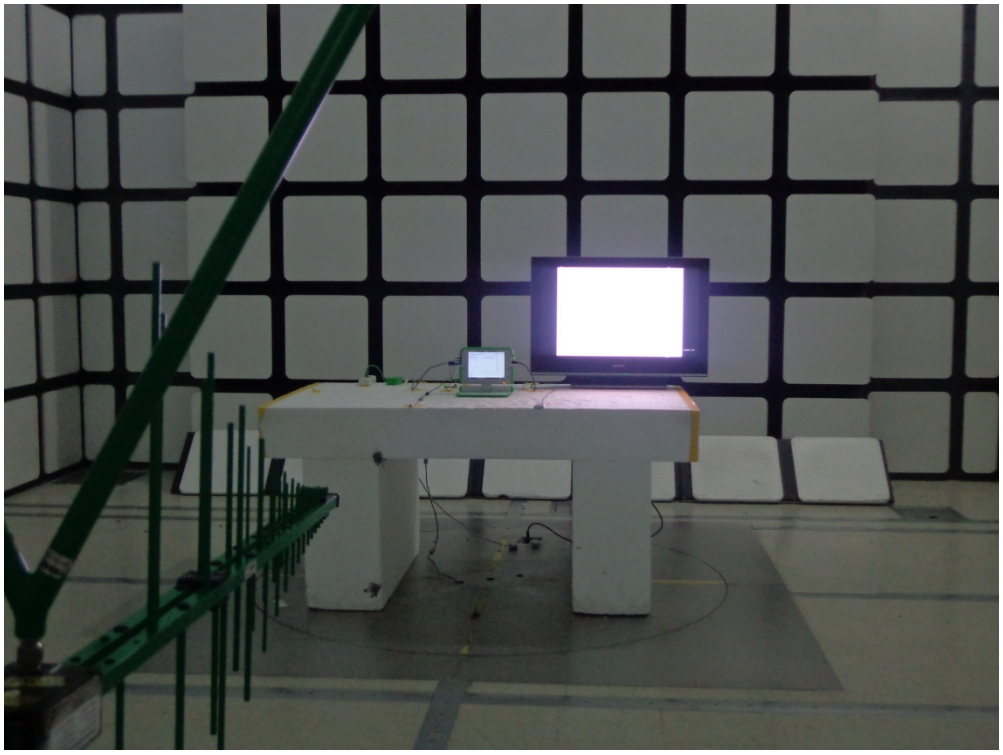
<Conducted Emission>

Mode 1

<Radiated Emission>

<Laptop Mode with Adapter 1 for Sample 1>

LF



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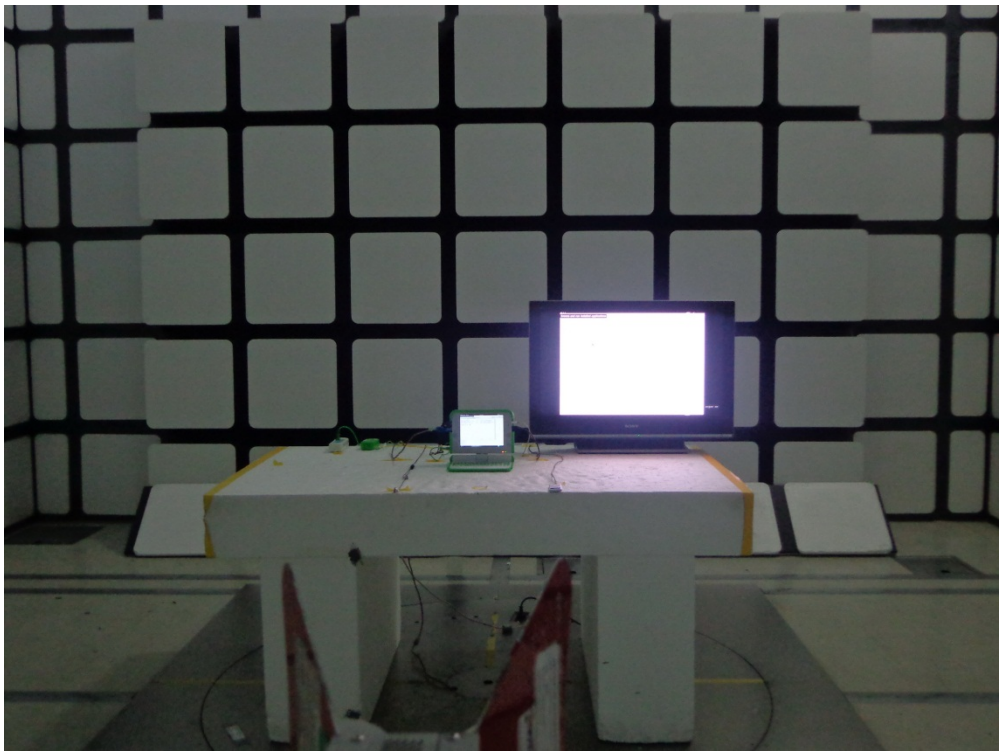
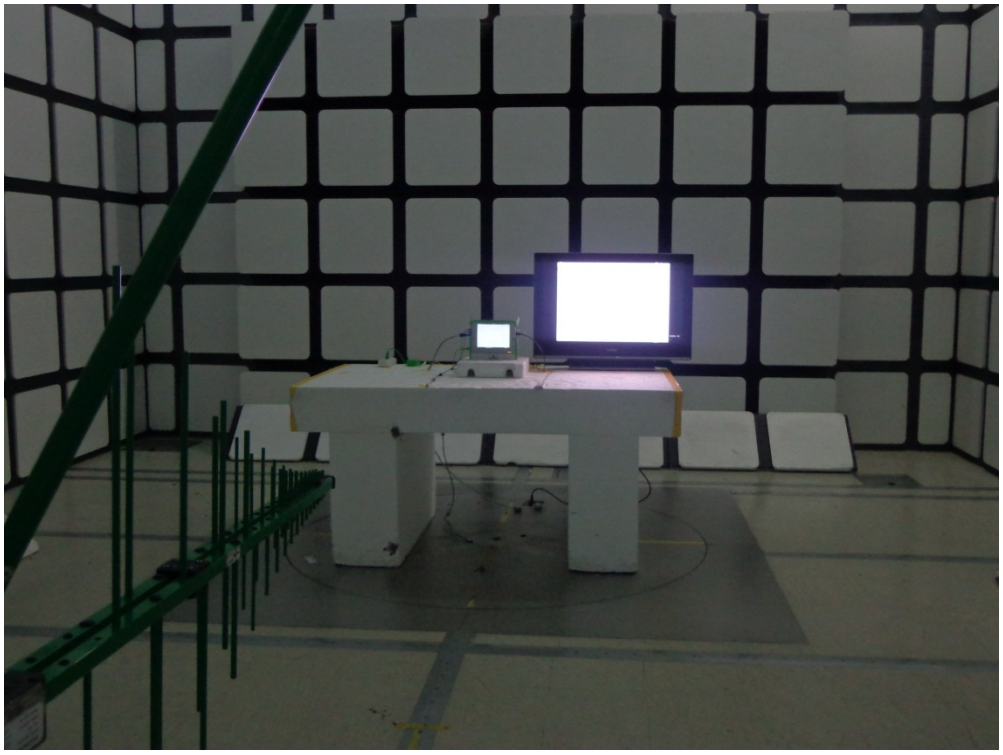


<Tablet Mode with Adapter 1 for Sample 1>

LF



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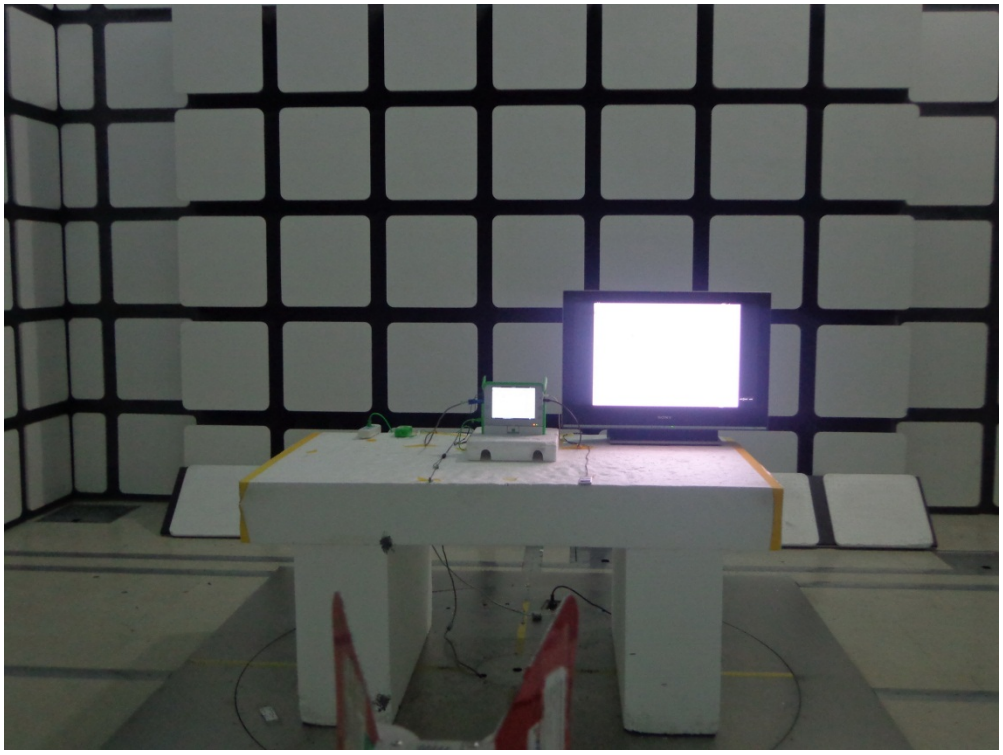

<Laptop Mode with Adapter 2 for Sample 2>

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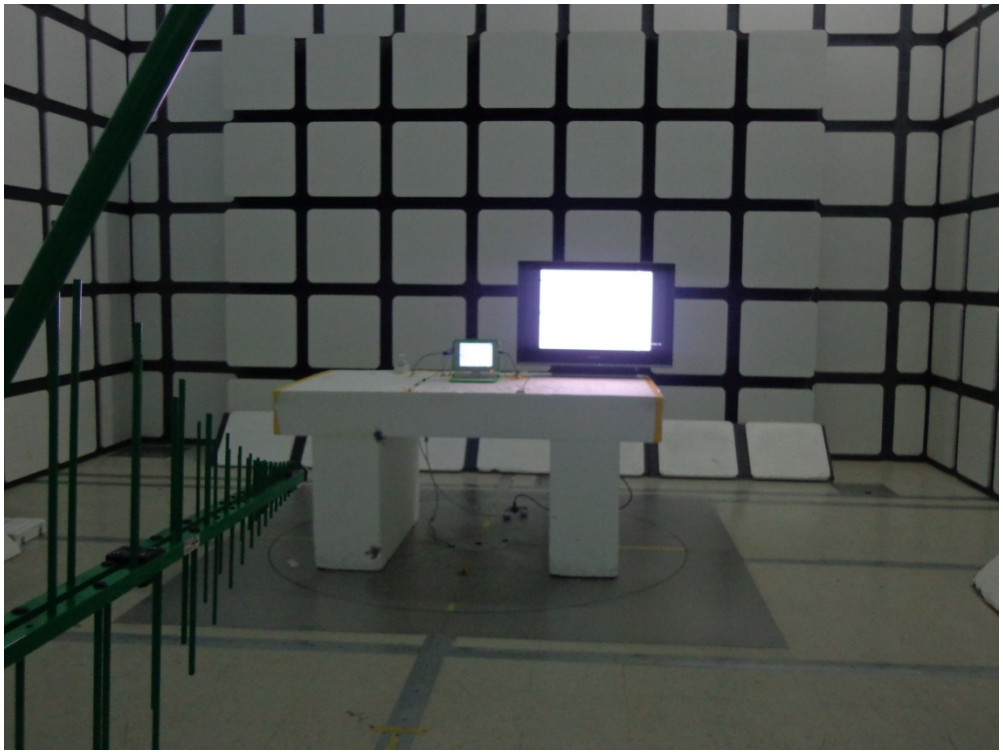

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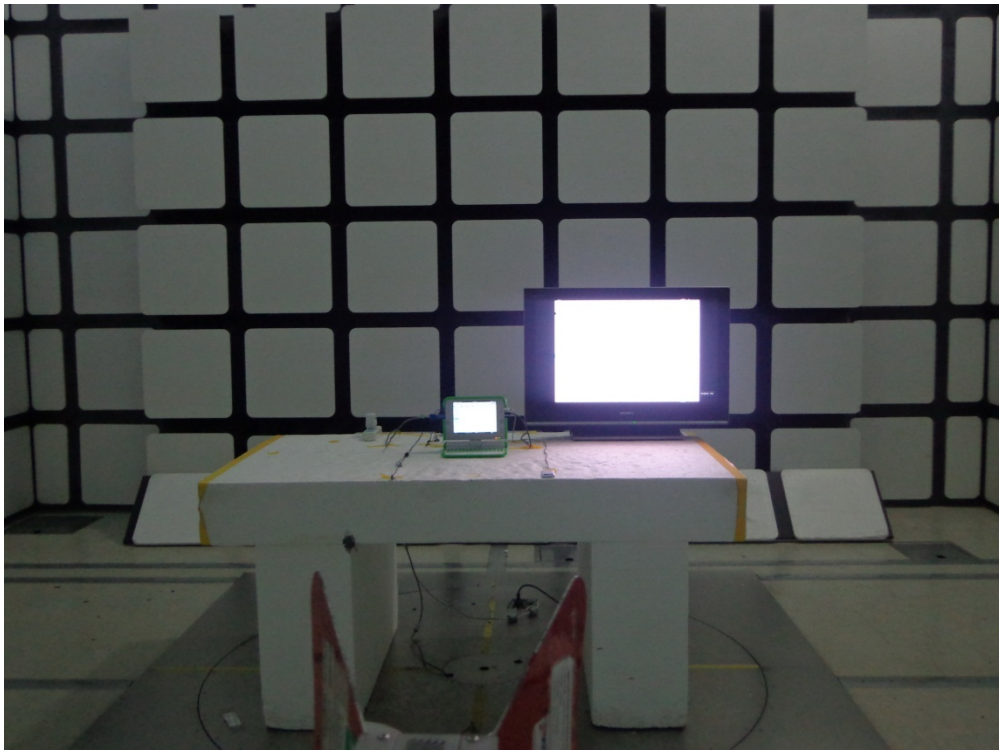
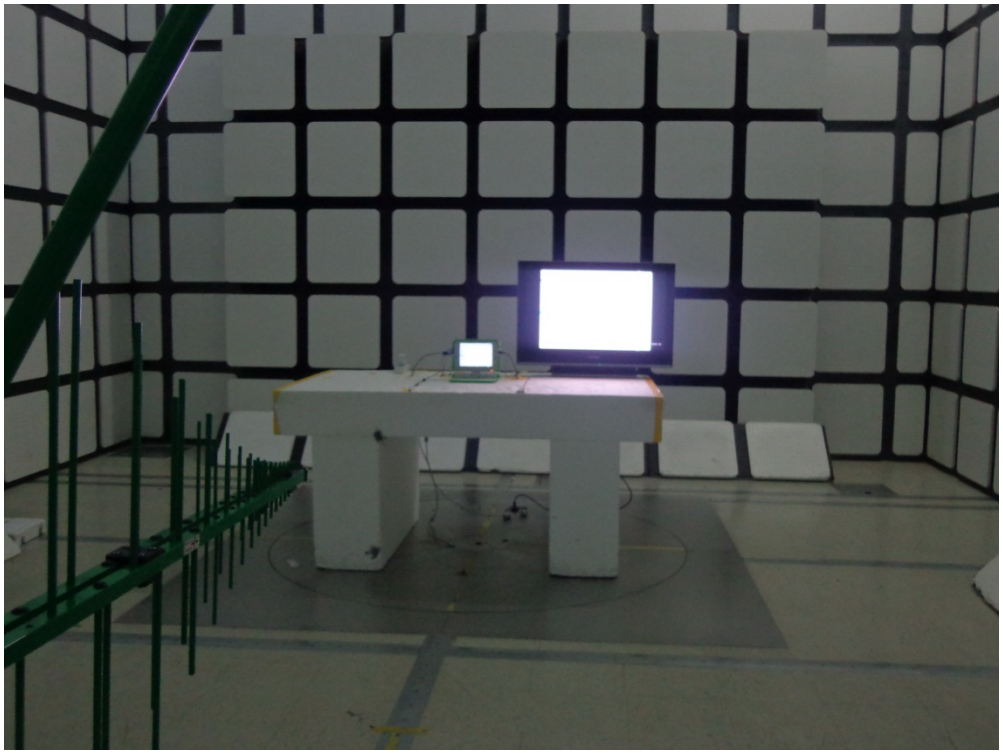


<Laptop Mode with Adapter 3 for Sample 3>

LF



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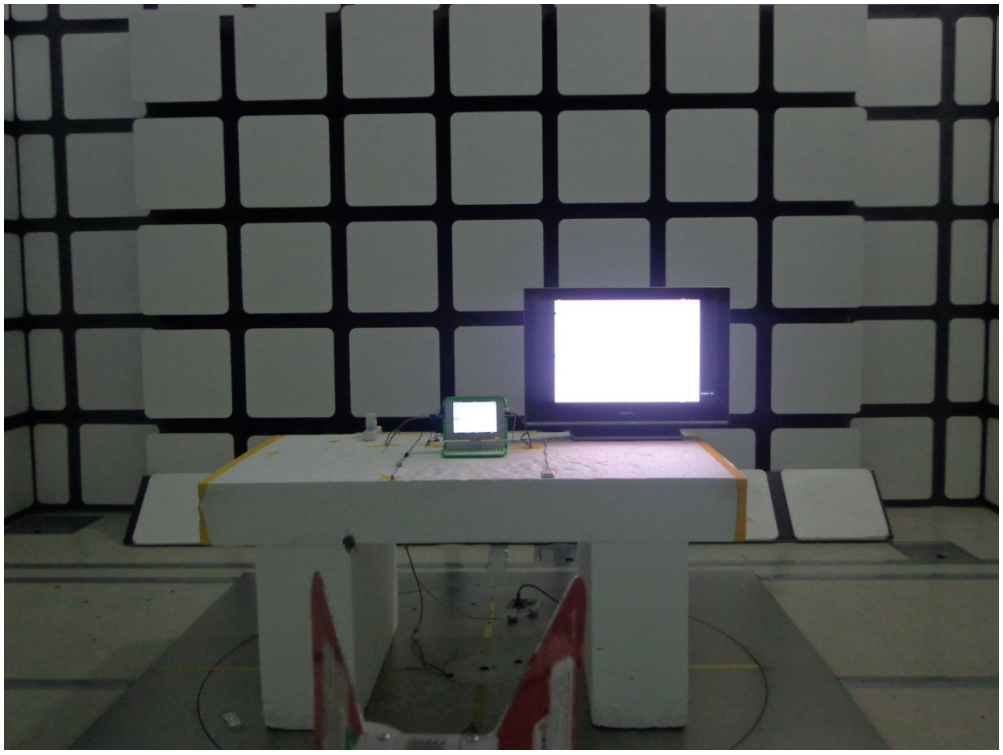

<Laptop Mode with Adapter 4 for Sample 4>

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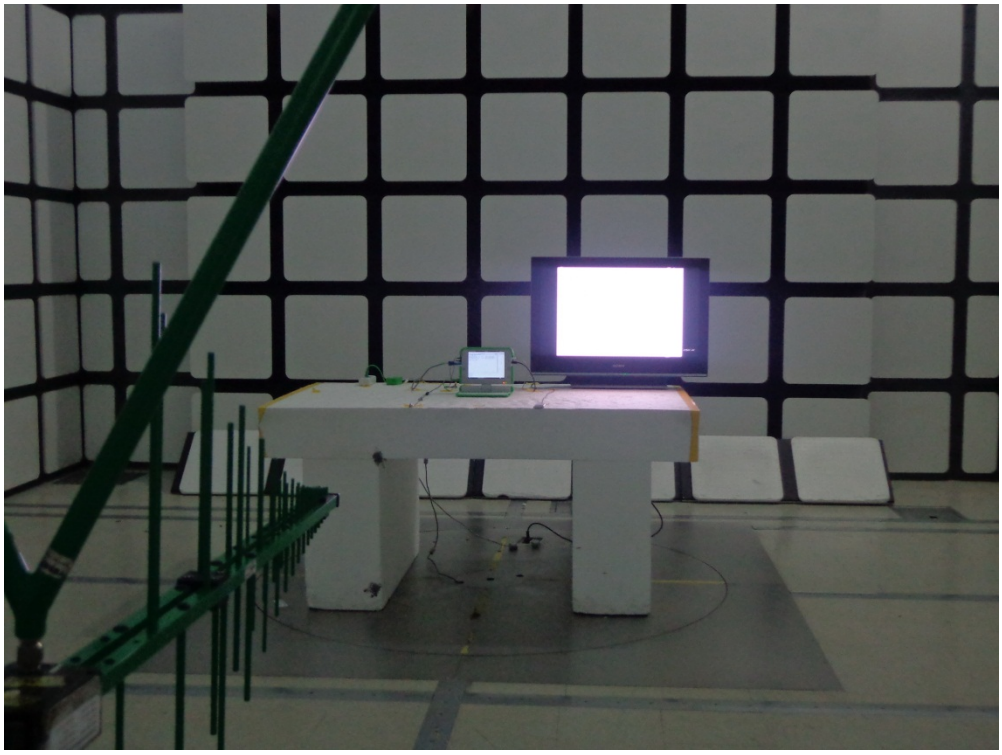

HF