CE

SPORTON LAB.

Certificate No: EC0N1818

CERTIFICATE

TAF
Testing Laboratory
1190

EQUIPMENT : Rugged Tablet Computer

MODEL NO. : RTC-1000xx (xx is D1 or blank)

APPLICANT : AAEON Technology Inc.
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
Taipei, Taiwan, R.O.C.

SPORTON LAB.

I HEREBY CERTIFY THAT:

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN ACCORDANCE WITH THE PROCEDURES GIVEN IN **EUROPEAN COUNCIL DIRECTIVE 2004/108/EC.** THE EQUIPMENT WAS **PASSED** THE TEST PERFORMED ACCORDING TO

European Standard EN 55022:2006/A1:2007 Class B, EN 61000-3-2:2006, EN 61000-3-3:1995/A1:2001/A2:2005 and EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A1:1998/A2:2000 , IEC 61000-4-3:1995/A1:1998/A2:2000, IEC 61000-4-4:2004, IEC 61000-4-5:1995/A1:2000, IEC 61000-4-6:1996/A1:2000, IEC 61000-4-8:1993/A1:2000, IEC 61000-4-11:1994/A1:2000).

THE TEST WAS CARRIED OUT ON **Jan. 11, 2011** AT SPORTON INTERNATIONAL INC. LAB.

Jones Chan Jan. 20. 2011

Jones Chan
Supervisor

CE EMC TEST REPORT

according to

**European Standard EN 55022:2006/A1:2007 Class B,
EN 61000-3-2:2006, EN 61000-3-3:1995/A1:2001/A2:2005 and
EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A1:1998/A2:2000
IEC 61000-4-3:1995/A1:1998/A2:2000, IEC 61000-4-4:2004
IEC 61000-4-5:1995/A1:2000, IEC 61000-4-6:1996/A1:2000
IEC 61000-4-8:1993/A1:2000, IEC 61000-4-11:1994/A1:2000)**

Equipment : Rugged Tablet Computer

Model No. : RTC-1000xx (xx is D1 or blank)

Applicant : **AAEON Technology Inc.**
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- This test report is only applicable to European Community.

TAF
Testing Laboratory
1190

SPORTON International Inc.

No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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History of this test report

Original Report Issue Date: Jan. 12, 2011

■ No additional attachment.

☐ Additional attachment were issued as following record:

Report No.	Issue Date	Description

Certificate No. : EC0N1818

CERTIFICATE OF COMPLIANCE

according to

**European Standard EN 55022:2006/A1:2007 Class B,
EN 61000-3-2:2006, EN 61000-3-3:1995/A1:2001/A2:2005 and
EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A1:1998/A2:2000
IEC 61000-4-3:1995/A1:1998/A2:2000, IEC 61000-4-4:2004
IEC 61000-4-5:1995/A1:2000, IEC 61000-4-6:1996/A1:2000
IEC 61000-4-8:1993/A1:2000, IEC 61000-4-11:1994/A1:2000)**

Equipment : Rugged Tablet Computer

Model No. : RTC-1000xx (xx is D1 or blank)

Applicant : **AAEON Technology Inc.**
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **EUROPEAN COUNCIL DIRECTIVE 2004/108/EC.** The equipment was ***passed*** the test performed according to **European Standard EN 55022:2006/A1:2007 Class B, EN 61000-3-2:2006, EN 61000-3-3:1995/A1:2001/A2:2005 and EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A1:1998/A2:2000 , IEC 61000-4-3:1995/A1:1998/A2:2000, IEC 61000-4-4:2004, IEC 61000-4-5:1995/A1:2000, IEC 61000-4-6:1996/A1:2000, IEC 61000-4-8:1993/A1:2000, IEC 61000-4-11:1994/A1:2000).**

The test was carried out on **Jan. 11, 2011** at **SPORTON International Inc.** LAB.

Jones Chan Jan. 20, 2011

Jones Chan
Supervisor

SPORTON International Inc.

No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

AAEON Technology Inc.

5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.

1.2 Manufacturer

Same as 1.1.

1.3 Basic Description of Equipment under Test

Equipment	:	Rugged Tablet Computer
Model No.	:	RTC-1000xx (xx is D1 or blank)
Trade Name	:	AAEON
RJ45 Cable	:	Non-Shielded, 10 m
Power Supply Type	:	Switching
AC Power Cable	:	Non-Shielded, 1.8m, 3 pin
DC Power Cable	:	Braided-Shielded, 1.5 m, 2 pin

1.4 Feature of Equipment under Test

Description	Brand	Model	Spec.
CPU	Intel®	U2500	1.2G
LCD Display	CPT	CLAA102NA0ACW	10.2" 16:9 TFT LCD with Touch Screen (AOT)
Memory	Team	TSDD1024M667C5-E	DDR2 667 1GB
HDD	WD	WD800BEVT-00A23T0	800GB
WLAN 802.11 b/g + Bluetooth® 2.0 Class 1 Module	Elias	AWM-S0021M	802.11 b/g + Bluetooth
MODEM	AGERE	D40 AM5	56Kbps
Battery	JS power	DR202	3S3P 11.1V 7800mAh
Power Adapter	LI SHIN	0335A2065	Input: 100-240Vac, 50-60Hz, 1.7A Output: 20Vdc, 3.25A

Please refer to manufacturer's specifications or Users' Manual

2. Test Configuration of Equipment under Test

2.1 Test Manner

a. During testing, the interface cables and equipment positions were varied according to European Standard EN 55022.

b. The complete test system included remote workstation, DELL LCD Monitor, ACEEX Modem, HAWK Headset, pqi CF Card+PCMCIA, Apple IPod Nano (x2), pqi CF Card, Microsoft USB Mouse, DELL USB Keyboard and EUT for EMI test. The remote workstation included DELL Notebook, D-Link AP and Sony Ericsson Bluetooth headset.

c. The following test was for conducted and radiated final test:
Mode 1. LCD+D-SUB 1024*600 60Hz, LAN: 100M

d. The following tests were referring to conducted worst case **" Mode 1 "** for Disturbances at Telecommunication Ports final test:
Mode 1 (a). ISN LAN 100Mbps 10%
Mode 2 (b). ISN LAN 10Mbps 10%

e. The complete test system included remote workstation, ViewSonic LCD Monitor, Terasys USB 2.0 HDD (x4), KOKA Headset, SanDisk Memory Card and EUT for EMS test. The remote workstation included DELL Notebook, D-Link AP, Sony Ericsson Mobile Phone.

f. Frequency range investigated: Conducted 150 KHz to 30 MHz, Radiated 30 MHz to 6,000 MHz.

2.2 Description of Test System

< EMI >

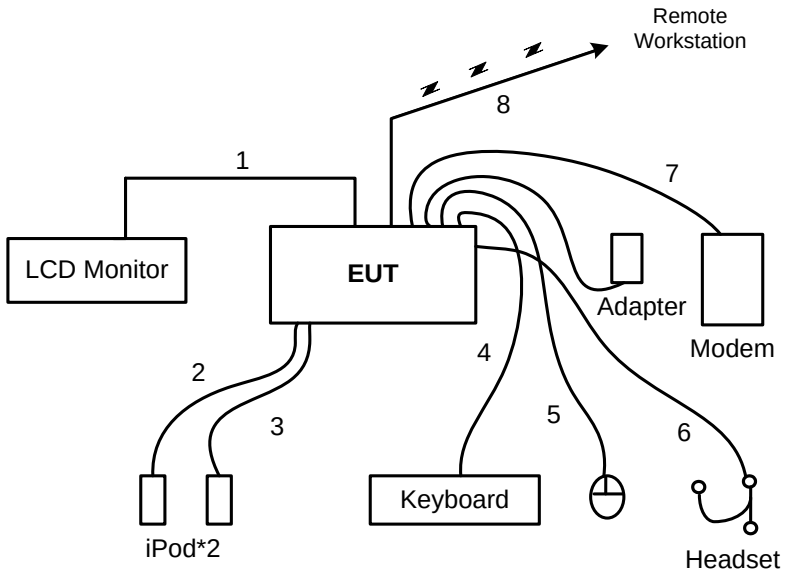
For conducted emission & radiated emission

No.	Description	Manufacturer	Model	FCC ID	Signal Cable Description
1	LCD Monitor	DELL	2408WFPb	DoC	D-Sub Cable, D-Shielded, 1.8m (with two cores)
2	Modem	ACEEX	DM1414	IFAX1414	Shielded, 1.15m
3	HEADSET	HAWK	03-MSB301	---	Audio Cable, Non-Shielded, 2.1m
4	CF Card	pqi	CompactFlash 256MB	---	---
5	iPod nano (x2)	Apple	A1199	DoC	USB Cable, D- Shielded, 1.0m
6	USB Mouse	Microsoft	1004	N/A	Non-Shielded, 1.8m
7	CF Card+PCMCIA	pqi	CompactFlash 40X	N/A	
8	USB Keyboard	DELL	SK-8115	N/A	AL-F-Shielded, 1.9m
9	Notebook (Remote Workstation)	DELL	PP32LB	DoC	---
10	Bluetooth Headset (Remote Workstation)	Sony Ericsson	HBH-PV702	N/A	---
11	AP (Remote Workstation)	D-Link	DNS-G120	---	Power Cord, AC Input: Non-Shielded, 1.8m DC Output: Non-Shielded, 1.8m (with a core)

< EMS >

No.	Description	Manufacturer	Model	FCC ID	Signal Cable Description
1	LCD Monitor	ViewSonic	VX1940W	DoC	D-Sub Cable, D-Shielded, 1.7m (with two cores)
2	Headset	KOKA	HD-305	N/A	Non-Shielded, 1.2m
3	USB 2.0 HDD (x4)	TERASYS	F12-UF	DoC	USB Cable, Shielded, 1.6m
4	Memory Card	SanDisk	1GB	N/A	---
8	Notebook (Remote Workstation)	DELL	PP01L	---	---
9	AP (Remote Workstation)	D-Link	DNS-G120	---	Power Cord, AC Input: Non-Shielded, 1.8m DC Output: Non-Shielded, 1.8m (with a core)
10	Mobile Phone (Remote Workstation)	Sony Ericsson	K800i	N/A	---

2.3 Connection Diagram of Test System



The support unit 4 and support unit 7 insert into EUT.

1. The D-Sub cable is connected from EUT to the support unit 1.
2. The USB cable is connected from EUT to the support unit 5.
3. The USB cable is connected from EUT to the support unit 5.
4. The USB cable is connected from EUT to the support unit 8.
5. The USB cable is connected from EUT to the support unit 6.
6. The Audio cable is connected from EUT to the support unit 3.
7. The I/O cable is connected from EUT to the support unit 2.
8. The RJ45 cable is connected from EUT to remote workstation.

Note: Above support unit on behalf of the meaning, please refer to section 2.2 (EMI part).

3. Test Software

< EMI >

An executive program, “WINEMC.EXE” under WIN XP, which generates a complete line of continuously repeating “H“ pattern was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.
b. The EUT reads the test program from the hard disk drive and runs it.
c. The EUT sends "H" messages to the monitor, and the monitor displays "H" patterns on the screen.
d. The EUT sends "H" messages to the internal hard disk, and the hard disk reads and writes the message.
e. Repeat the steps from c to d.

At the same time, the following programs were executed:
- Executed "BurnIn.exe" to read and write data from USB 2.0 HDD and CF card.
- Executed "Windows Media Player.exe" to play audio and video to headset.
- Executed "Wireless" to link with the remote workstation to receive and transmit data by AP.
- Executed "Bluetooth.exe" to link with the remote workstation to receive and transmit data by Bluetooth.
- Executed "Ping.exe" to link with the remote workstation to receive and transmit data via RJ45 cable.

< EMS >

An executive program, “EMCTEST.EXE” under WIN XP, which generates a complete line of continuously repeating “H“ pattern was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.
b. The EUT reads the test program from the hard disk drive and runs it.
c. The EUT sends "H" messages to the monitor, and the monitor displays "H" patterns on the screen.
d. The EUT sends "H" messages to the internal hard disk, and the hard disk reads and writes the message.
e. Repeat the steps from c to d.

At the same time, the following programs were executed:
- Executed "Winthrax.exe" to read and write data from USB 2.0 HDD and memory card.
- Executed "Windows Media Player.exe" to play audio and video to headset.
- Executed "Ping.exe" to link with the remote workstation to receive and transmit data via RJ45 cable.
- Executed "Wireless" to link with the remote workstation to receive and transmit data by AP.
- Executed "Bluetooth.exe" to link with the remote workstation to receive and transmit data by Bluetooth.

4. General Information of Test

4.1 Test Facility

< EMI >

For Conducted Emission

Test Site Location : No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL 886-3-327-3456
FAX 886-3-318-0055

Test Site No. : CO04-HY

For Radiated Emission

Test Site Location : No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL: 886-3-327-3456
FAX: 886-3-318-0055

Test Site No. : 10CH02-HY

< EMS >

Test Site Location : No. 52 Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL 886-3-327-3456
FAX 886-3-318-0055

4.2 Uncertainty of Test Site

Test Items	Test Site No.	Uncertainty	Remark
Conducted Emissions	CO04-HY	± 2.26dB	Confidence levels of 95%
Radiated Emissions below 1GHz	10CH02-HY	± 2.96dB	Confidence levels of 95%
Radiated Emissions above 1GHz	10CH02-HY	± 4.87dB	Confidence levels of 95%

4.3 Test Voltage

230V / 50Hz

4.4 Standard for Methods of Measurement

EMI Test (Conduction and Radiation)	:	European Standard EN 55022 Class B
Harmonics Test	:	European Standard EN 61000-3-2
Voltage Fluctuations Test	:	European Standard EN 61000-3-3
EMS Test	:	European Standard EN 55024 (ESD: IEC 61000-4-2, RS: IEC 61000-4-3, EFT: IEC 61000-4-4, SURGE: IEC 61000-4-5, CS: IEC 61000-4-6, Power Frequency Magnetic Field: IEC 61000-4-8, DIPS: IEC 61000-4-11)

4.5 Test in Compliance with

EMI Test (Conduction and Radiation)	:	European Standard EN 55022 Class B
Harmonics Test	:	European Standard EN 61000-3-2
Voltage Fluctuations Test	:	European Standard EN 61000-3-3
EMS Test	:	European Standard EN 55024 (ESD: IEC 61000-4-2, RS: IEC 61000-4-3, EFT: IEC 61000-4-4, SURGE: IEC 61000-4-5, CS: IEC 61000-4-6, Power Frequency Magnetic Field: IEC 61000-4-8, DIPS: IEC 61000-4-11)

4.6 Frequency Range Investigated

a. Conducted emission test: from 150 kHz to 30 MHz
b. Radiated emission test: from 30 MHz to 6,000 MHz
c. Radio frequency electromagnetic field immunity test : 80-1,000 MHz

4.7 Test Distance

a. The test distance of radiated emission from antenna to EUT is 10 M (from 30 MHz~1 GHz).
b. The test distance of radiated emission from antenna to EUT is 3 M (from 1 GHz~6 GHz).
c. The test distance of radio frequency electromagnetic field immunity test from antenna to EUT is 3 M.

5. Test of Conducted Powerline

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 kHz and return leads of the EUT according to the methods defined in European Standard EN 55022 Clause 9. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position producing maximum conducted emissions.

5.1 Description of Major Test Instruments

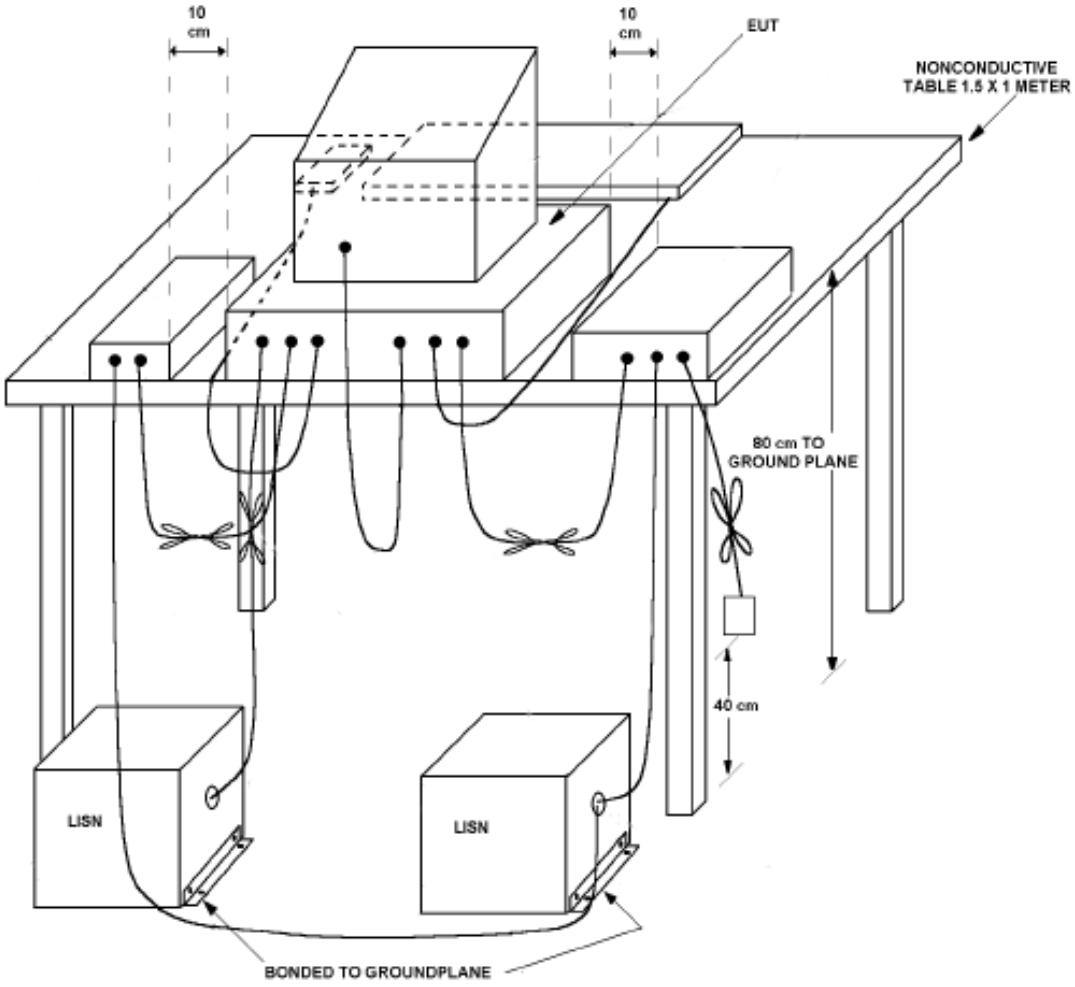
- Test Receiver (R&S ESCS 30)

Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

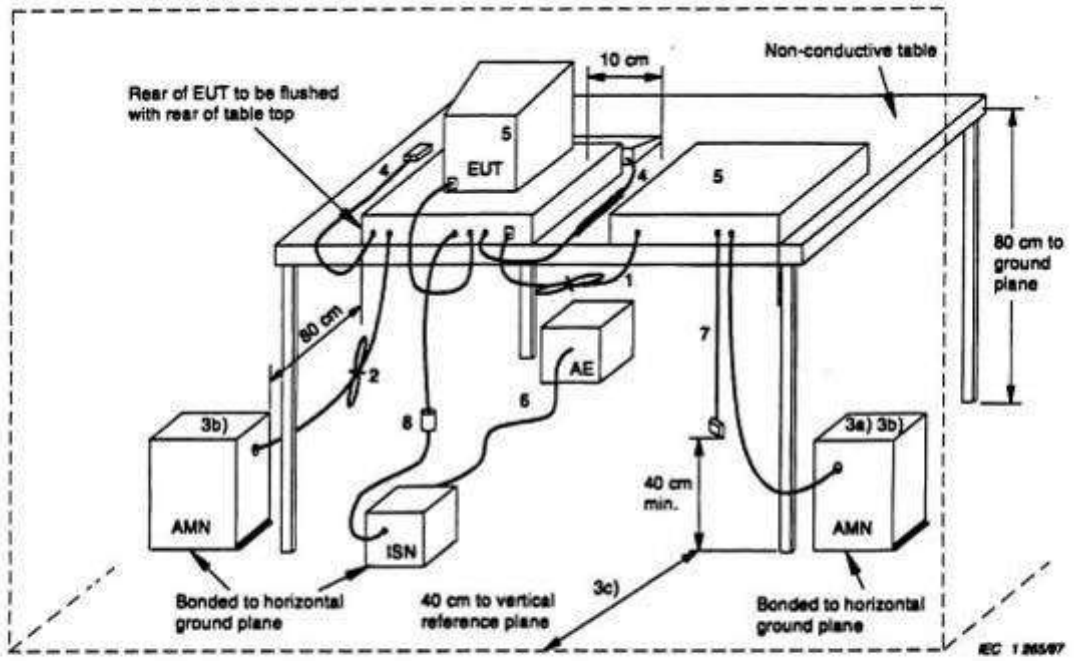
5.2 Test Procedures

a. The EUT warm up about 15 minutes then start test.
b. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
c. Connect EUT to the power mains through a line impedance stabilization network (LISN).
d. Connect telecommunication port to ISN (Impedance Stabilization Network).
e. All the support units are connect to the other LISN.
f. The LISN provides 50 ohm coupling impedance for the measuring instrument.
g. The CISPR states that a 50 ohm , 50 microhenry LISN should be used.
h. Both sides of AC line were checked for maximum conducted interference.
i. The frequency range from 150 kHz to 30 MHz was searched.
j. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.3 Typical Test Setup Layout of Conducted Powerline



5.4 Typical Test Setup Layout of Disturbances at Telecommunication Ports



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

1) If cables, which hang closer than 40 cm to the horizontal metal groundplane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.

2) Excess mains cord shall be bundled in the centre or shortened to appropriate length.

3) EUT is connected to one artificial mains network (AMN). All AMNs and ISNs may alternatively be connected to a vertical reference plane or metal wall (see figures 5 and 6).

a) All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.

b) AMN and ISN are 80 cm from the EUT and at least 80 cm from other units and other metal planes.

c) Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.

4) Cables of hand operated devices, such as keyboards, mouses, etc. shall be placed as for normal usage.

5) Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.

6) I/O signal cable intended for external connection.

7) The end of the I/O signal cables which are not connected to an AE may be terminated, if required, using correct terminating impedance.

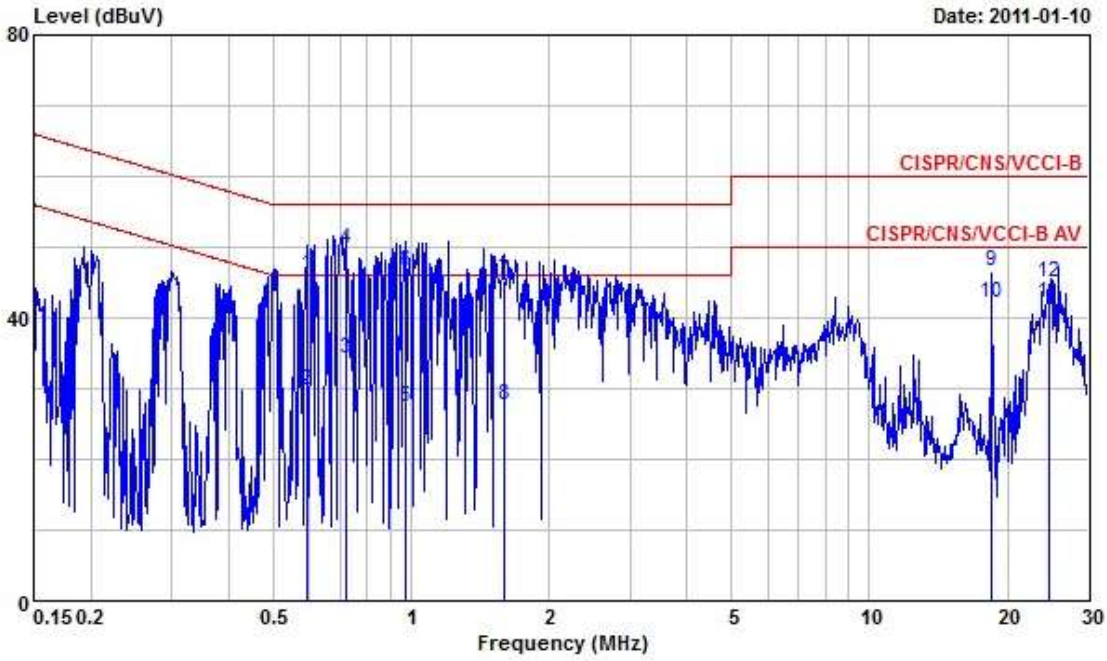
8) If used, the current probe shall be placed at 0,1 m from the ISN.

5.5 Test Result of AC Powerline Conducted Emission

Test Mode	Mode 1	Temperature	20.8℃
Test Engineer	Jason	Humidity	53.4%

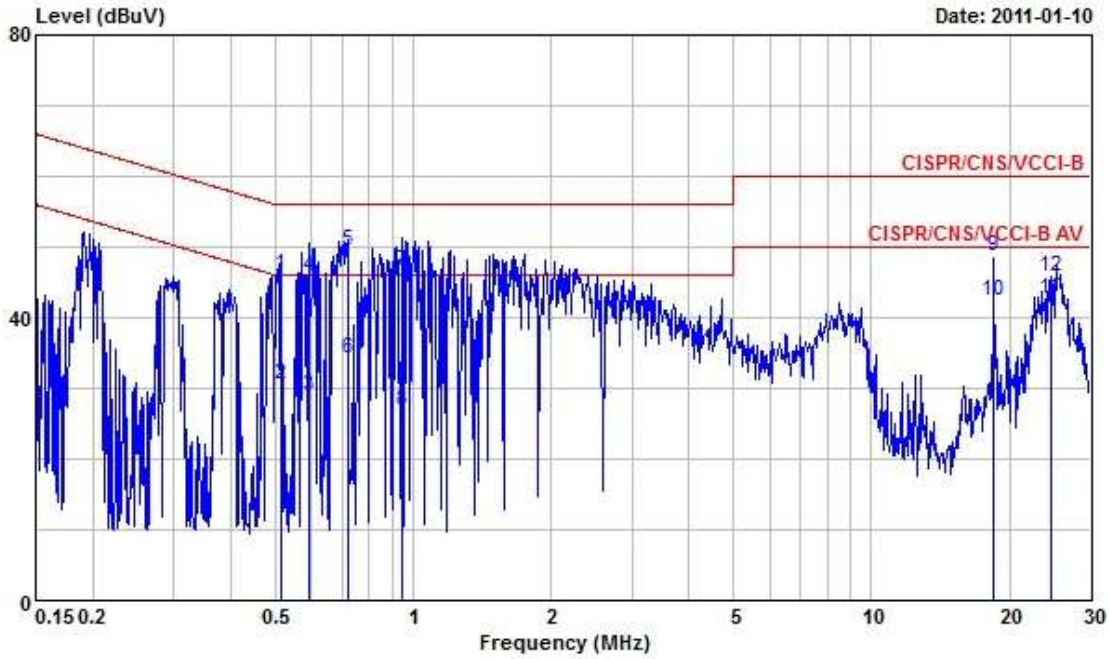
Note: Corrected Reading (dBμV) = Probe Factor + Cable Loss + Read Level = Level

■ **The test was passed at the minimum margin that marked by the frame in the following data**



Site : CO04-HY
Condition : CISPR/CNS/VCCI-B LISN 2009 0324 99041 LINE
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
Model : RTC-1000x
Memo : LCD+D-SUB 1024*600 60Hz
Memo :
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.5916410	46.04	-9.96	56.00	45.90	0.10	0.04	QP
2	0.5916410	29.65	-16.35	46.00	29.51	0.10	0.04	Average
3	0.7197740	34.21	-11.79	46.00	34.05	0.10	0.06	Average
4	0.7197740	49.70	-6.30	56.00	49.54	0.10	0.06	QP
5	0.9683980	27.31	-18.69	46.00	27.10	0.11	0.10	Average
6	0.9683980	46.61	-9.39	56.00	46.40	0.11	0.10	QP
7	1.590	45.35	-10.65	56.00	45.13	0.12	0.10	QP
8	1.590	27.51	-18.49	46.00	27.29	0.12	0.10	Average
9	18.514	46.49	-13.51	60.00	45.95	0.38	0.16	QP
10	18.514	42.02	-7.98	50.00	41.48	0.38	0.16	Average
11	24.575	42.06	-7.94	50.00	41.31	0.47	0.28	Average
12	24.575	45.07	-14.93	60.00	44.32	0.47	0.28	QP



Site : CO04-HY
Condition : CISPR/CNS/VCCI-B LISN 2009 0324 99041 NEUTRAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
Model : RTC-1000x
Memo : LCD+D-SUB 1024*600 60Hz
Memo :
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.5155030	46.03	-9.97	56.00	45.91	0.09	0.03	QP
2	0.5155030	30.47	-15.53	46.00	30.35	0.09	0.03	Average
3	0.5907410	28.95	-17.05	46.00	28.82	0.09	0.04	Average
4	0.5907410	45.73	-10.27	56.00	45.60	0.09	0.04	QP
5	0.7197740	49.49	-6.51	56.00	49.34	0.09	0.06	QP
6	0.7197740	34.11	-11.89	46.00	33.96	0.09	0.06	Average
7	0.9480900	46.65	-9.35	56.00	46.46	0.10	0.09	QP
8	0.9480900	26.73	-19.27	46.00	26.54	0.10	0.09	Average
9	18.515	48.57	-11.43	60.00	48.04	0.38	0.15	QP
10	18.515	42.24	-7.76	50.00	41.71	0.38	0.15	Average
11	24.576	42.60	-7.40	50.00	41.84	0.48	0.28	Average
12	24.576	45.91	-14.09	60.00	45.15	0.48	0.28	QP

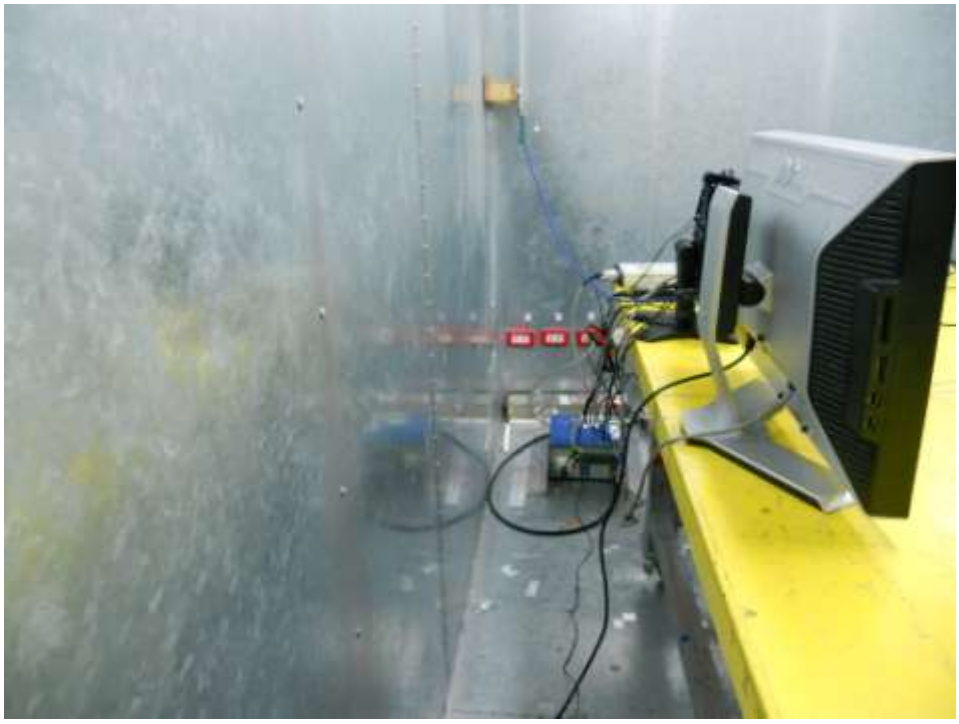
5.6 Photographs of Conducted Power line Test Configuration

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



SIDE VIEW

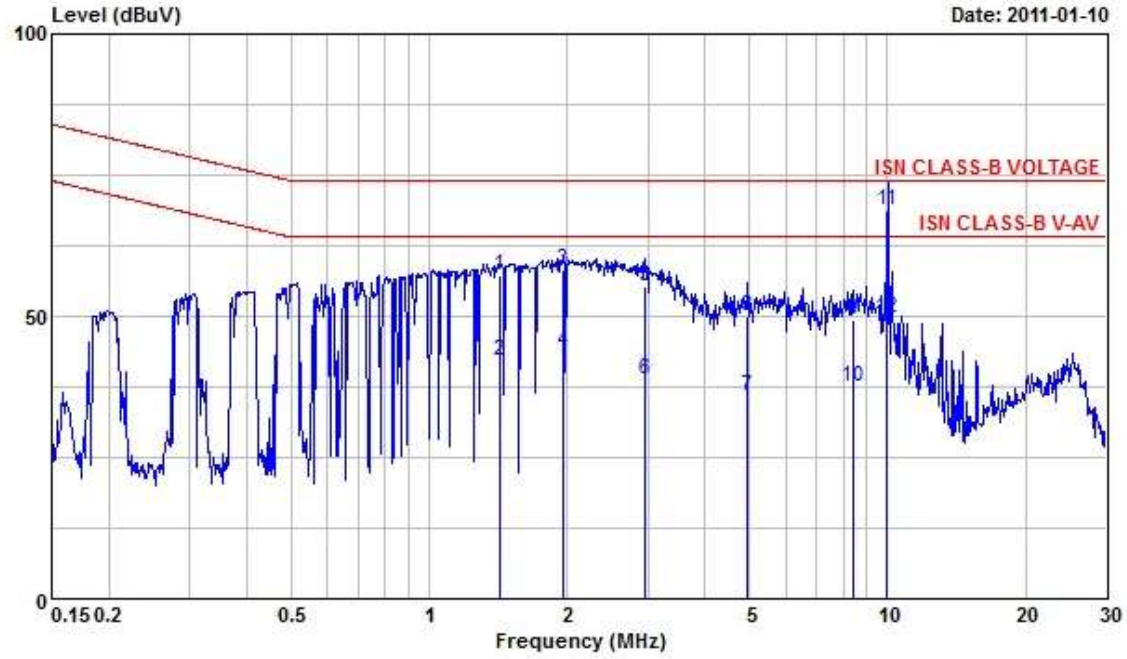


5.7 Test Result of Disturbances at Telecommunication Port

Test Mode	Mode 1 (a)	Temperature	20.8℃
Test Engineer	Jason	Humidity	53.4%

Note: Corrected Reading (dBμV) = Probe Factor + Cable Loss + Read Level = Level

■ **The test was passed at the minimum margin that marked by the frame in the following data**



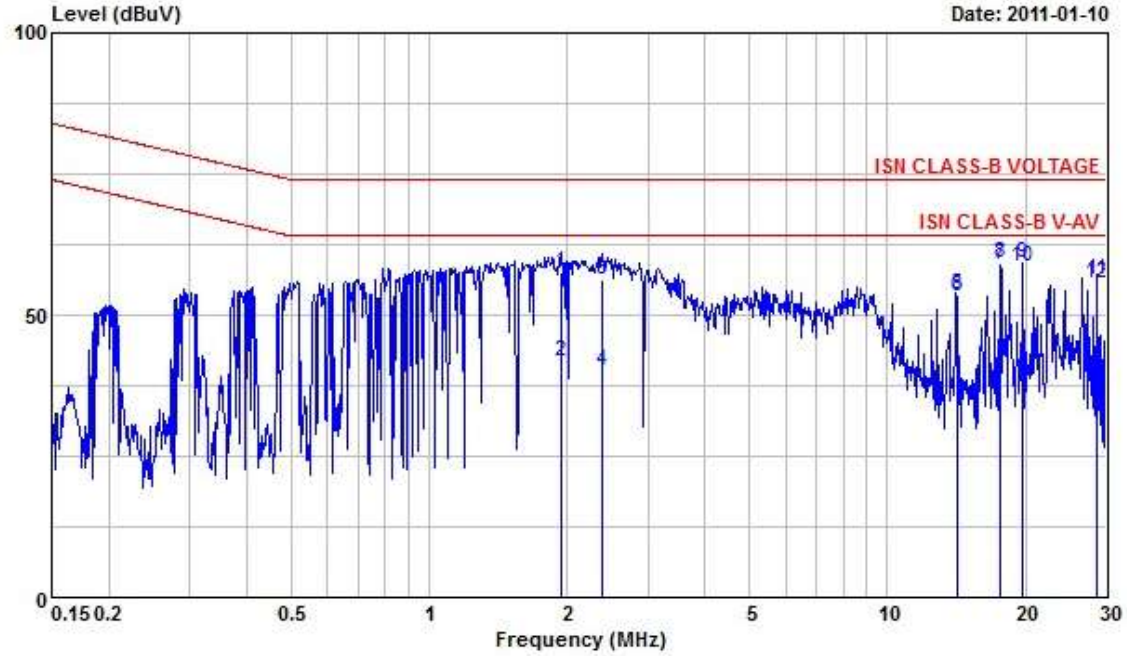
Site : CO04-HY
Condition : ISN CLASS-B VOLTAGE ISN-T400-2009-06
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
Model : RTC-1000x
Memo : LCD+D-SUB 1024*600 60Hz
Memo : ISN 10Mbps 10%
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	1.420	57.12	-16.88	74.00	47.37	9.65	0.10	QP
2	1.420	42.06	-21.94	64.00	32.31	9.65	0.10	Average
3	1.960	58.24	-15.76	74.00	48.49	9.65	0.10	QP
4	1.960	43.83	-20.17	64.00	34.08	9.65	0.10	Average
5	2.950	55.13	-18.87	74.00	45.38	9.65	0.10	QP
6	2.950	38.74	-25.26	64.00	28.99	9.65	0.10	Average
7	4.951	36.00	-28.00	64.00	26.25	9.65	0.10	Average
8	4.951	50.02	-23.98	74.00	40.27	9.65	0.10	QP
9	8.410	49.45	-24.55	74.00	39.70	9.65	0.10	QP
10	8.410	37.62	-26.38	64.00	27.87	9.65	0.10	Average
11 @	10.000	68.84	-5.16	74.00	59.09	9.65	0.10	QP
12	10.000	49.53	-14.47	64.00	39.78	9.65	0.10	Average

Test Mode	Mode 2 (b)	Temperature	20.8℃
Test Engineer	Jason	Humidity	53.4%

Note: Corrected Reading (dBμV) = Probe Factor + Cable Loss + Read Level = Level

■ The test was passed at the minimum margin that marked by the frame in the following data



Site : CO04-HY
Condition : ISN CLASS-B VOLTAGE ISN-T400-2009-06
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
Model : RTC-1000x
Memo : LCD+D-SUB 1024*600 60Hz
Memo : ISN 100Mbps 10%
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	1.940	57.49	-16.51	74.00	47.74	9.65	0.10	QP
2	1.940	41.94	-22.06	64.00	32.19	9.65	0.10	Average
3	2.380	56.27	-17.73	74.00	46.52	9.65	0.10	QP
4	2.380	40.04	-23.96	64.00	30.29	9.65	0.10	Average
5	14.212	53.67	-20.33	74.00	43.74	9.66	0.27	QP
6	14.212	53.40	-10.60	64.00	43.47	9.66	0.27	Average
7	17.694	58.79	-5.21	64.00	48.94	9.66	0.19	Average
8	17.694	59.34	-14.66	74.00	49.49	9.66	0.19	QP
9	19.709	59.05	-14.95	74.00	49.28	9.66	0.11	QP
10	19.709	58.43	-5.57	64.00	48.66	9.66	0.11	Average
11	28.686	56.23	-17.77	74.00	46.04	9.67	0.52	QP
12	28.686	55.58	-8.42	64.00	45.39	9.67	0.52	Average

5.8 Photographs of Disturbances at Telecommunication Ports Test Configuration

- The photographs show the configuration that generates the maximum emission.

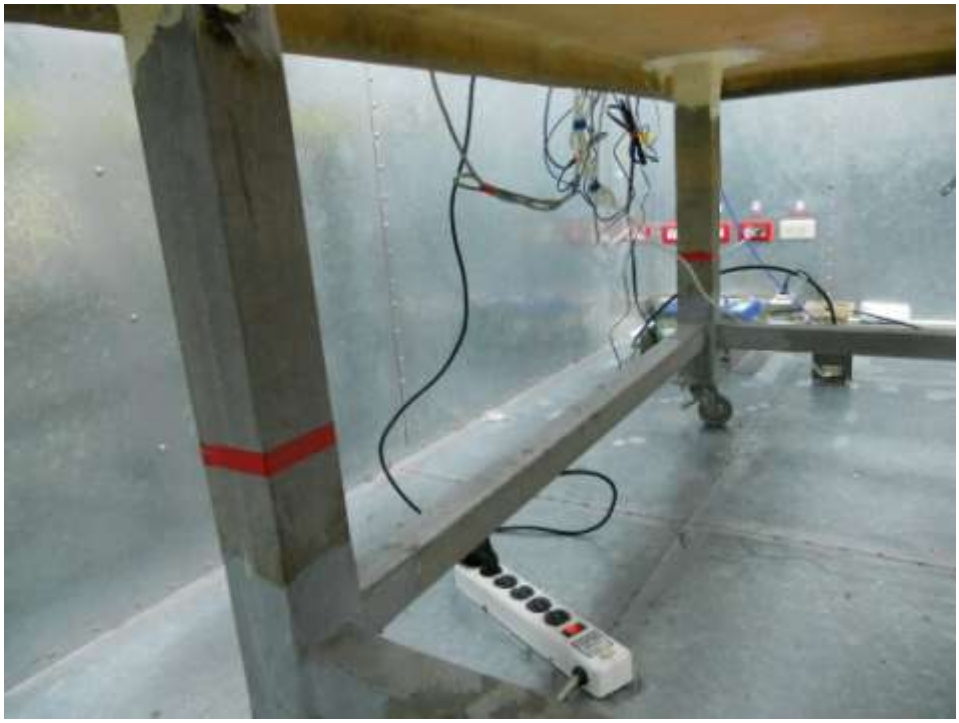
FRONT VIEW



REAR VIEW



SIDE VIEW



6. Test of Radiated Emission

Radiated emissions below 1 GHz were measured with a bandwidth of 120 kHz for 30 MHz to 1,000 MHz and bandwidth of 1 MHz for above 1 GHz 5th harmonic of the highest frequency or 6 GHz, whichever is lower according to the methods defines in European Standard EN 55022. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1 Description of Major Test Instruments

6.1.1 From 30MHz to 1GHz

- Amplifier (HP 8447D)
  RF Gain 25 dB
  Signal Input 0.1 MHz - 1.3 GHz

- Spectrum Analyzer (ADVANTEST R3261C)
  Attenuation 10 dB
  Start Frequency 30 MHz
  Stop Frequency 1000 MHz
  Resolution Bandwidth 120 kHz
  Signal Input 9 kHz - 2.6 GHz

- Test Receiver (R&S ESCS 30)
  Resolution Bandwidth 120 kHz
  Frequency Band 9 kHz - 2.75 GHz
  Quasi-Peak Detector ON for Quasi-Peak Mode
  OFF for Peak Mode

6.1.2 From 1GHz to 6GHz

- Amplifier (EMCI EMC330)
  RF Gain 30 dB
  Signal Input 1GHz - 8GHz

- Test Receiver (R&S ESI)
  Attenuation 10 dB
  Start Frequency 1000 MHz
  Stop Frequency 6000 MHz
  Resolution Bandwidth 1000 MHz
  Signal Input 20 Hz - 7 GHz

6.2 Test Procedures

< Below 1GHz >

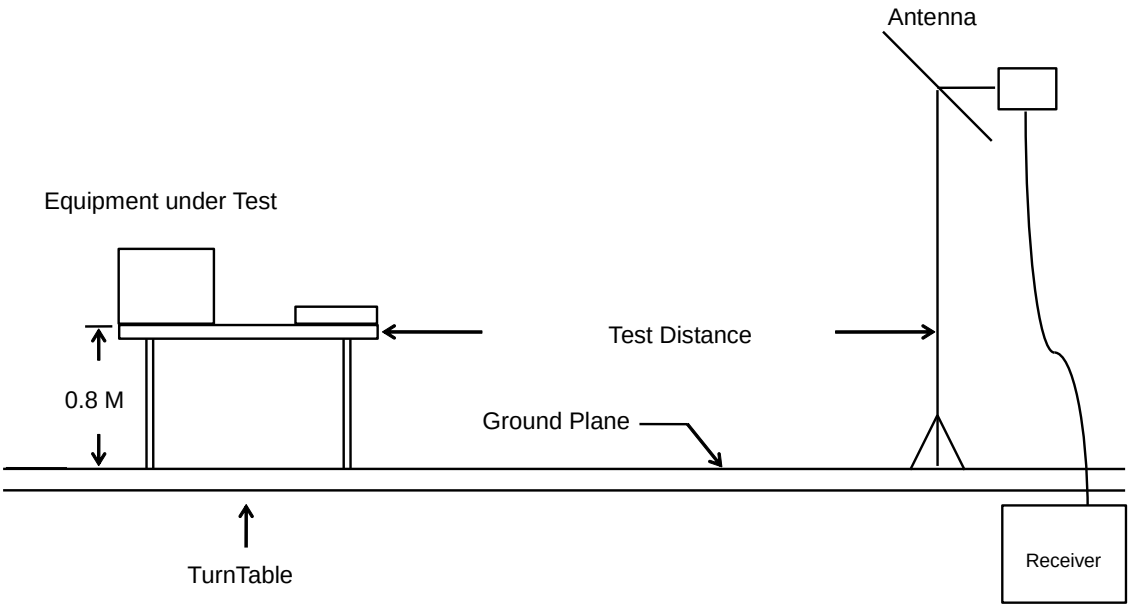
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 10 meters from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

< Above 1GHz >

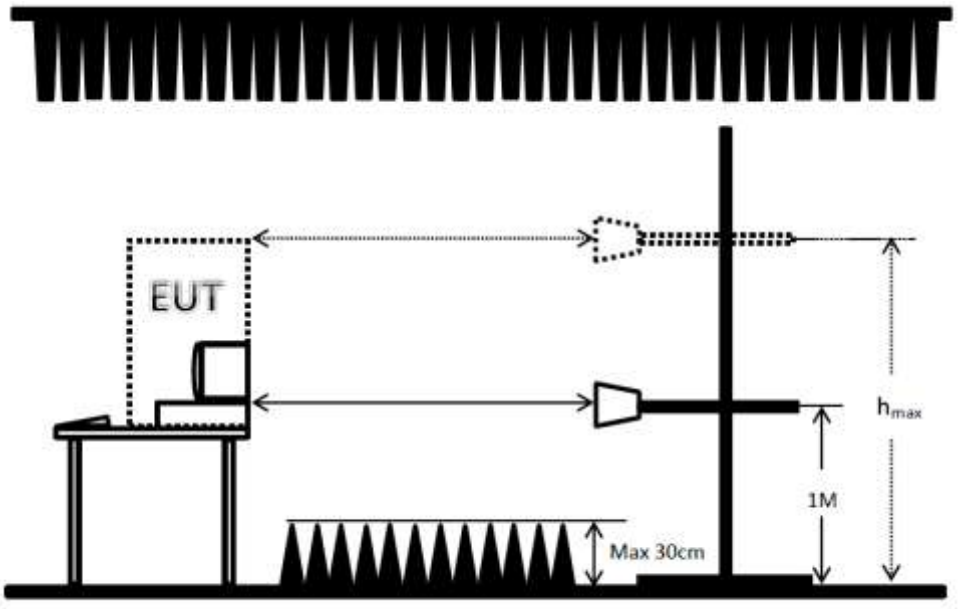
a. Same test set up as below 1GHz radiated testing
b. The EUT was set 3 meters from the interference-receiving antenna which was mounted on the top of a variable height antenna tower
c. There should be absorber placed between the EUT and Antenna and its located size should let the test site meet CISPR16-1-4 requirement.
d. The table was rotated 360 degrees to determine the position of the highest radiation.
e. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
f. Set the DRG Horn Antenna (Model: 3115) at 1M height, then run the turn table to get the maximum noise reading from Horizontal and Vertical polarity separately.
g. When EUT locating on the turn-table, and its height is over 172cm (Antenna's 3dB beam width of 6GHz is 27°), the DRG Horn Antenna must be raised up and descended down, then turning around the turn-table to get the maximum noise reading of the Horizontal and Vertical polarity separately. Note the maximum raise up height is same as the top of EUT.
h. If emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

6.3 Typical Test Setup Layout of Radiated Emission

< Below 1GHz >



< Above 1GHz >



Remark: When EUT's height is over 172cm, h_{max} = top of EUT

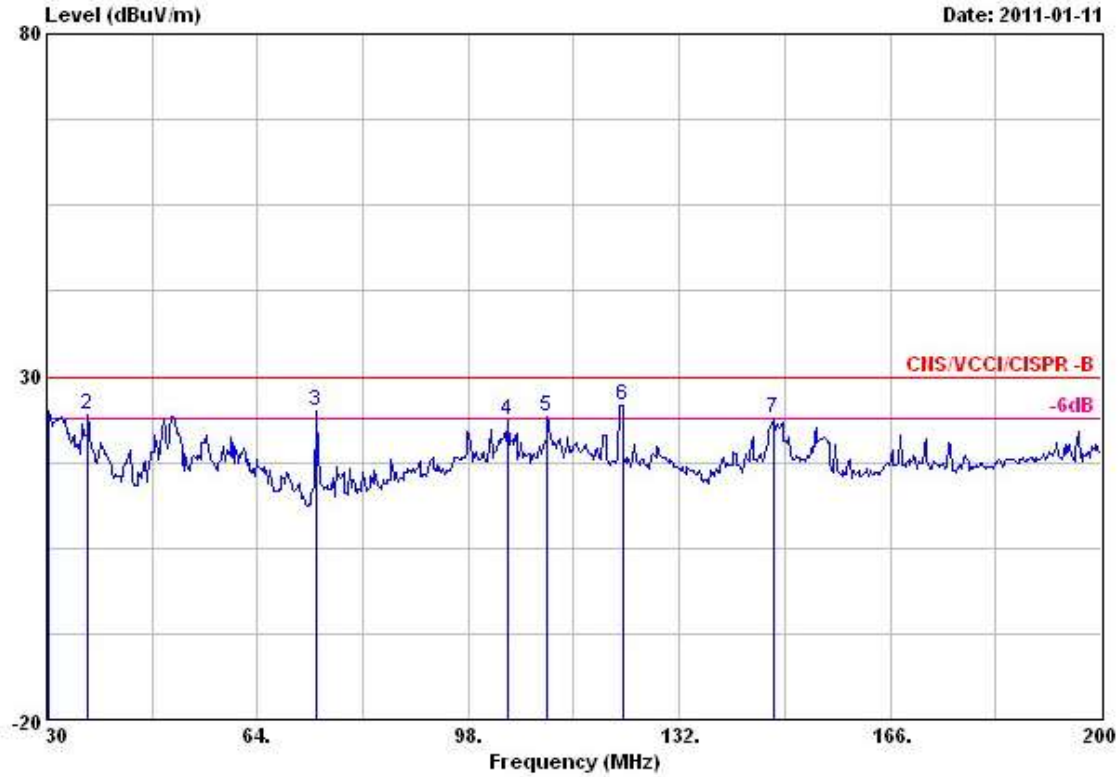
6.4 Test Result of Radiated Emission (Below 1GHz)

Frequency Range of Test	From 30MHz to 1000MHz	Test Distance	10m
Test Mode	Mode 2	Temperature	19℃
Test Engineer	Nickey	Humidity	54%

Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)

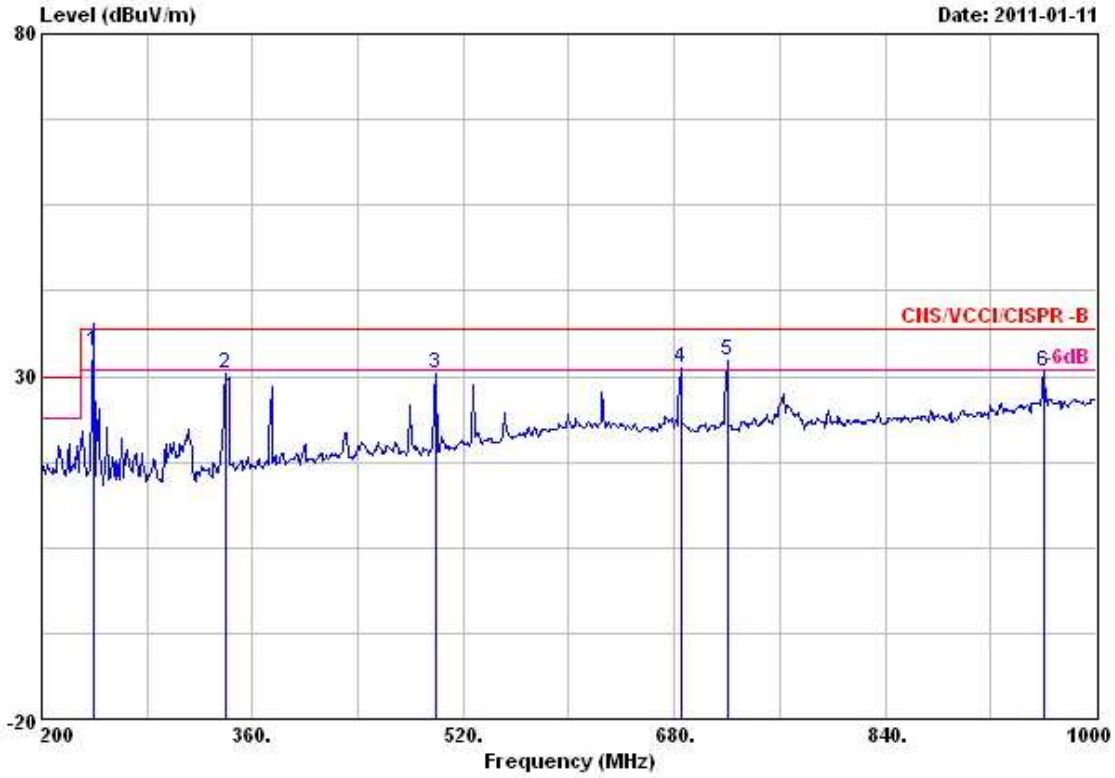
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

■The test was passed at the minimum margin that marked by the frame in the following data



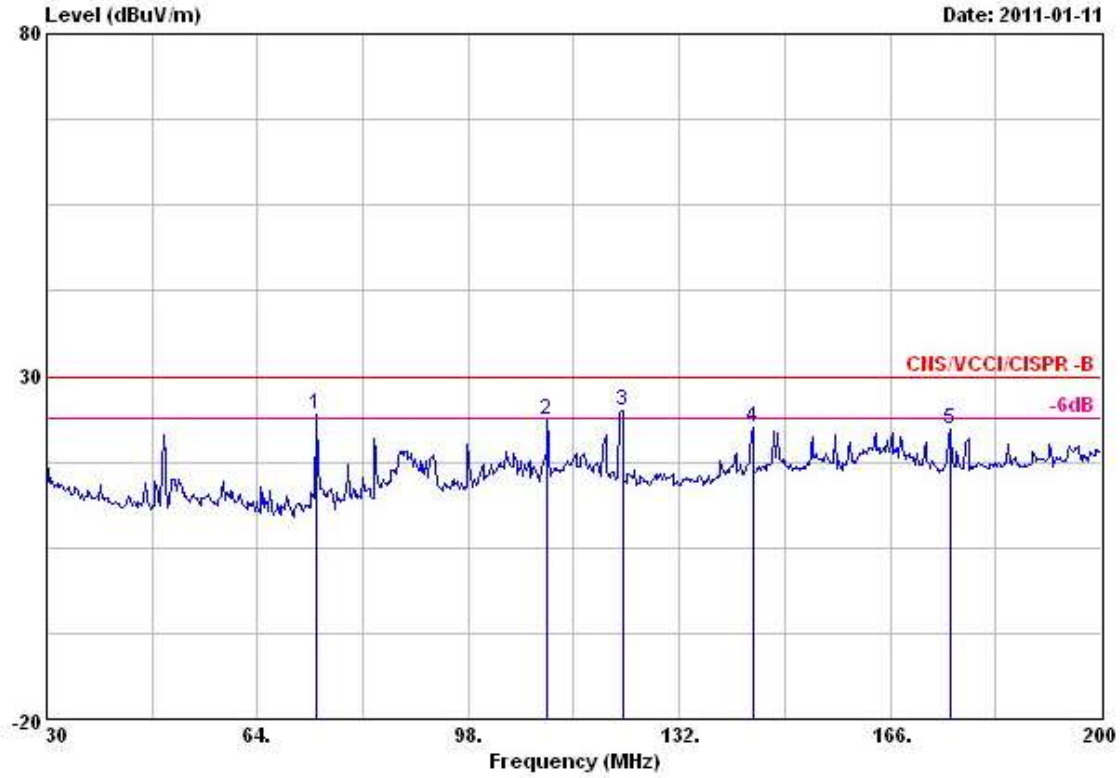
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 10m BICO-VHBB9124 VERTICAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : LCD+D-SUB1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1 !	30.340	24.91	-5.09	30.00	37.85	28.25	1.46	13.85	Peak	---	---
2 !	36.630	24.36	-5.64	30.00	39.05	28.23	1.58	11.96	Peak	---	---
3 !	73.350	24.94	-5.06	30.00	42.64	28.15	2.10	8.35	Peak	---	---
4	104.460	23.59	-6.41	30.00	38.95	28.08	2.46	10.26	Peak	---	---
5 !	110.750	24.07	-5.93	30.00	38.72	28.05	2.54	10.86	Peak	---	---
6 @	122.820	25.86	-4.14	30.00	39.26	27.99	2.69	11.90	Peak	---	---
7	147.300	23.98	-6.02	30.00	36.63	27.87	2.90	12.32	Peak	---	---



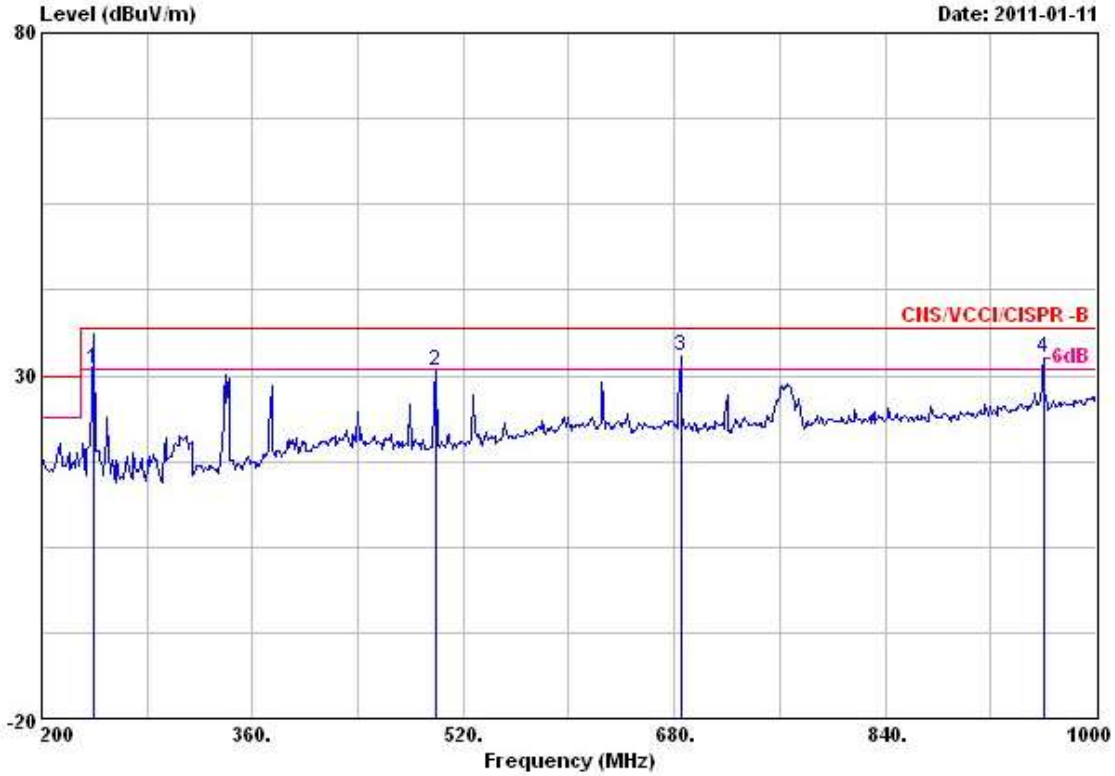
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 10m LOG-9111-207 VERTICAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : LCD+D-SUB1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1 @	240.000	33.68	-3.32	37.00	45.27	27.52	2.74	13.19	QP	100	180
2	339.200	30.42	-6.58	37.00	40.55	27.67	3.34	14.20	Peak	---	---
3	499.200	30.39	-6.61	37.00	37.57	28.59	4.02	17.39	Peak	---	---
4 !	684.800	31.30	-5.70	37.00	34.70	28.33	4.69	20.24	Peak	---	---
5 !	720.000	32.29	-4.71	37.00	35.41	28.24	4.82	20.30	Peak	---	---
6	960.000	30.69	-6.31	37.00	29.87	27.46	5.83	22.45	Peak	---	---



Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 10m BICO-VHBB9124 HORIZONTAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : LCD+D-SUB1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1 !	73.350	24.35	-5.65	30.00	42.05	28.15	2.10	8.35	Peak	---	---
2	110.750	23.67	-6.33	30.00	38.32	28.05	2.54	10.86	Peak	---	---
3 !	122.820	25.07	-4.93	30.00	38.47	27.99	2.69	11.90	Peak	---	---
4	143.900	22.48	-7.52	30.00	35.23	27.88	2.86	12.27	Peak	---	---
5	175.860	22.24	-7.76	30.00	33.41	27.72	3.14	13.41	Peak	---	---



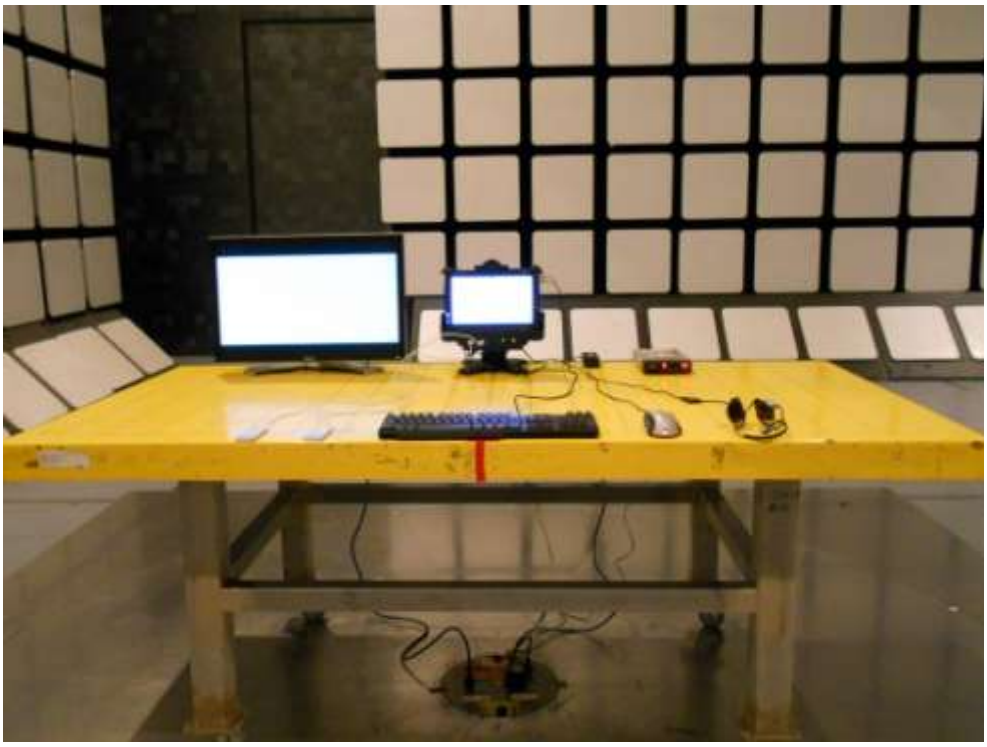
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 10m LOG-9111-207 HORIZONTAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : LCD+D-SUB1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1 !	240.000	31.07	-5.93	37.00	42.66	27.52	2.74	13.19	QP	400	100
2	499.200	30.66	-6.34	37.00	37.84	28.59	4.02	17.39	Peak	---	---
3 @	684.800	32.90	-4.10	37.00	36.30	28.33	4.69	20.24	Peak	---	---
4 !	960.000	32.61	-4.39	37.00	31.79	27.46	5.83	22.45	Peak	---	---

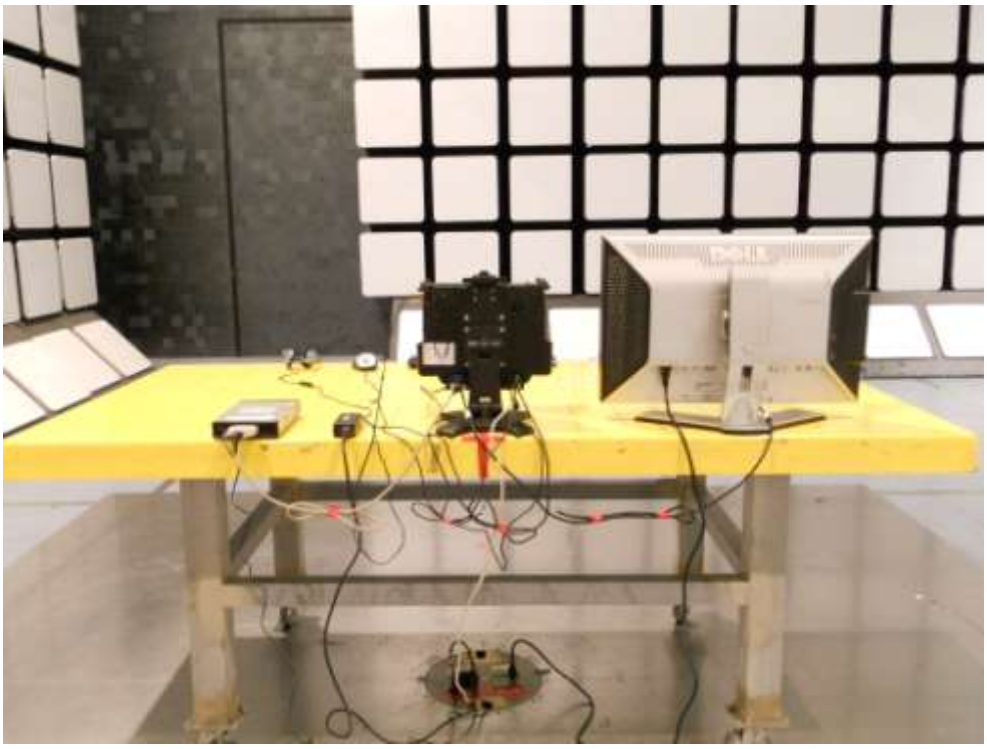
6.5 Photographs of Radiated Emission Test Configuration (Below 1GHz)

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



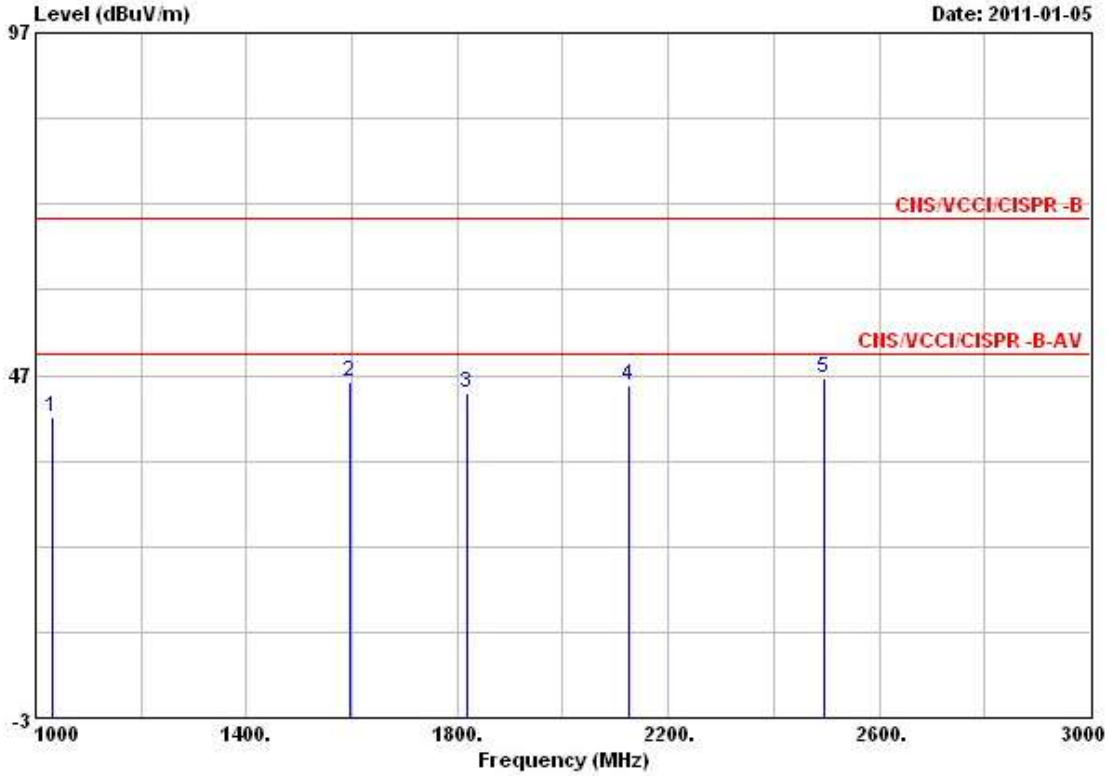
6.6 Test Result of Radiated Emission (From 1GHz to 6GHz)

Frequency Range of Test	From 1000MHz to 6000MHz	Test Distance	3m
Test Mode	Mode 2	Temperature	25℃
Test Engineer	Chun Chi	Humidity	55%

Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)

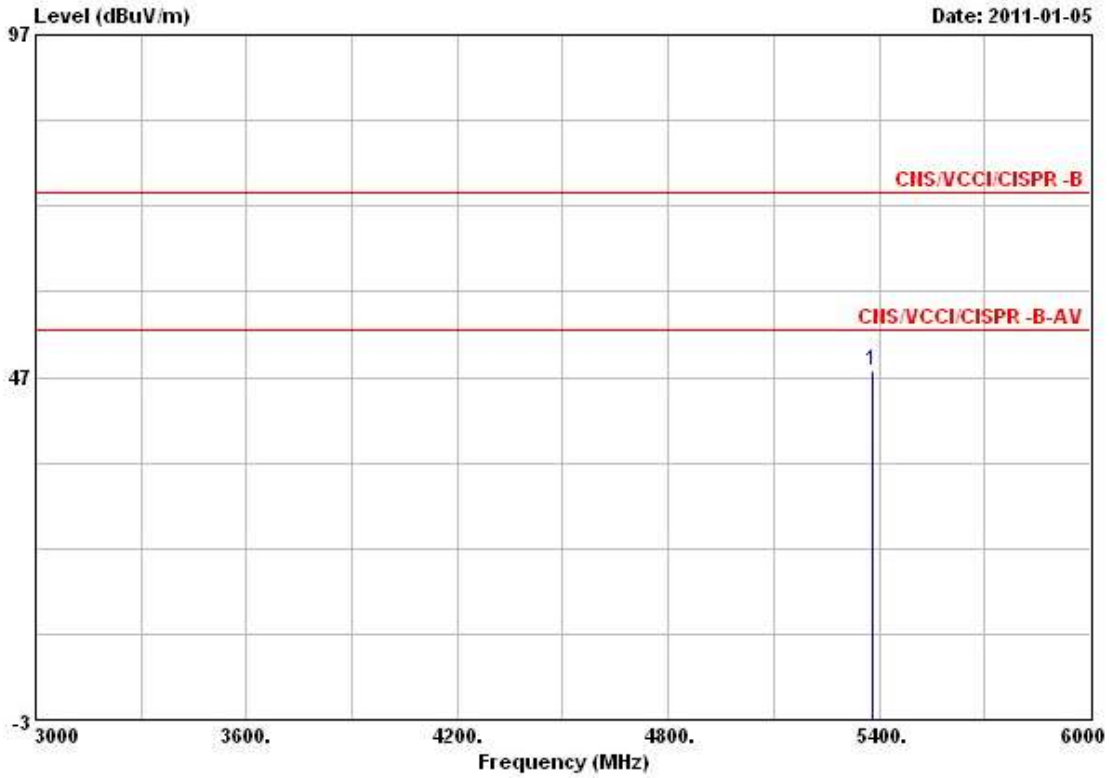
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

■The test was passed at the minimum margin that marked by the frame in the following data



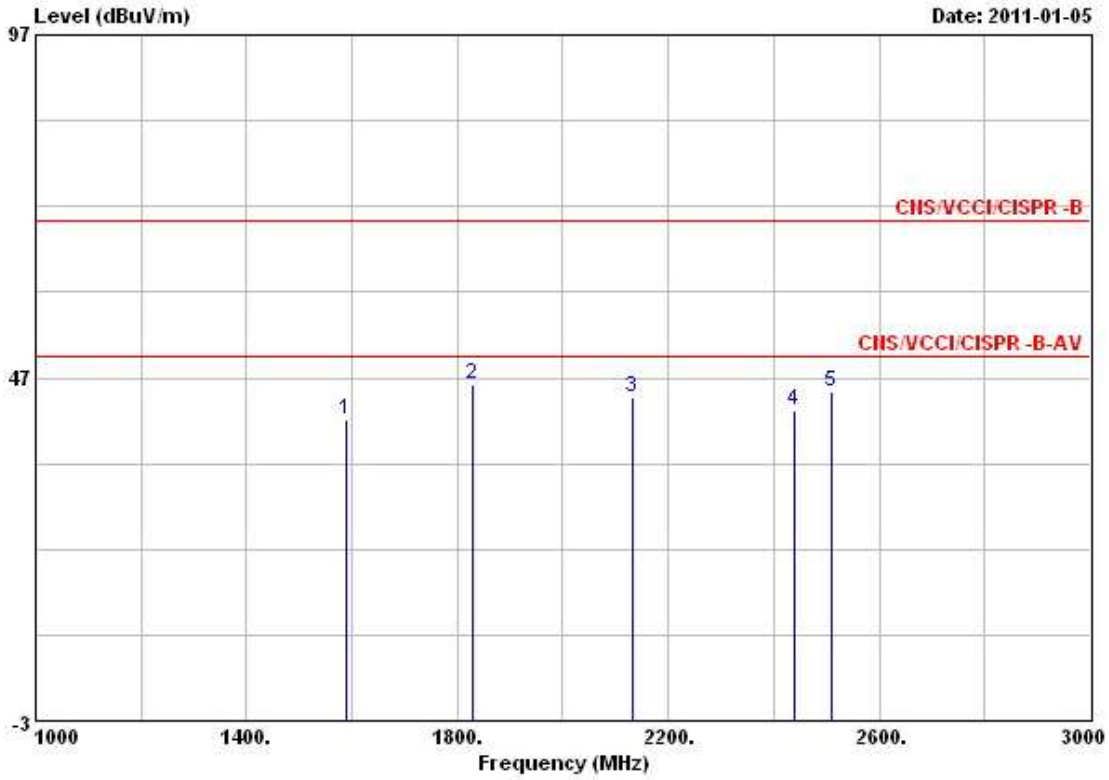
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 3m 6903 HORN 990503 VERTICAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : 1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1	1030.000	40.95	-29.05	70.00	44.35	32.03	4.35	24.28	Peak	---	---
2	1596.000	46.18	-23.82	70.00	45.89	30.94	5.45	25.78	Peak	---	---
3	1820.000	44.44	-25.56	70.00	43.34	31.25	5.75	26.60	Peak	---	---
4	2126.000	45.44	-24.56	70.00	43.08	31.45	6.24	27.57	Peak	---	---
5	2494.000	46.49	-23.51	70.00	42.51	31.30	6.88	28.40	Peak	---	---



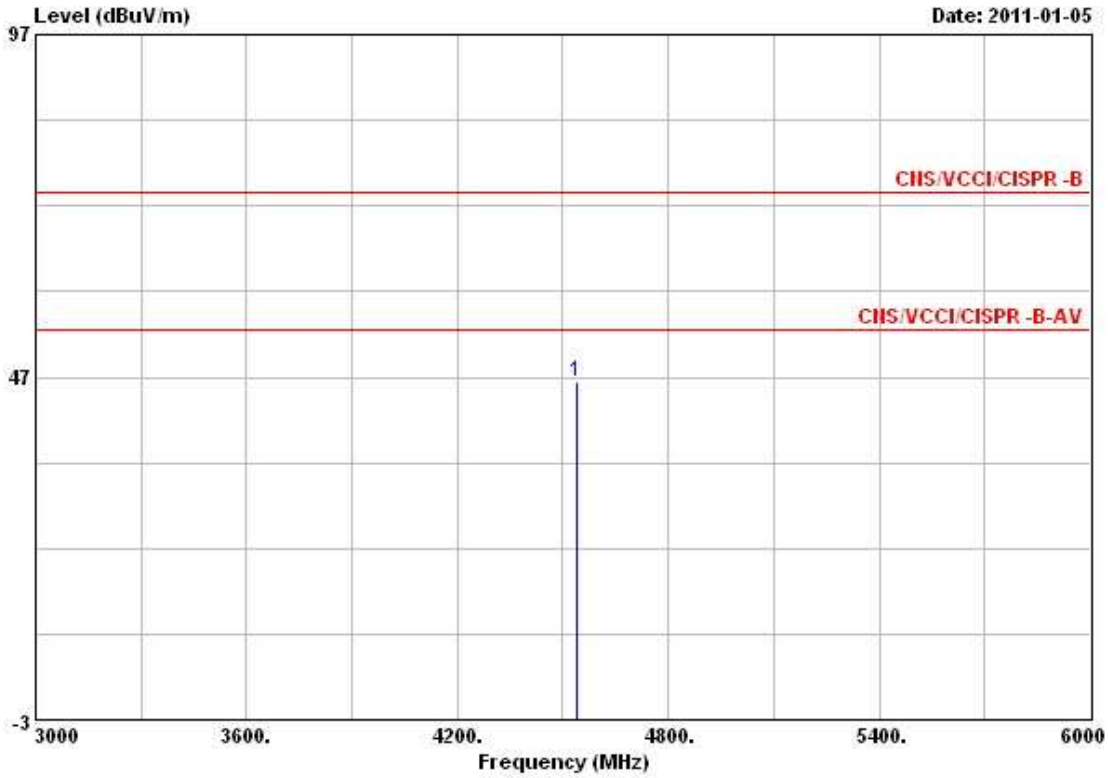
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 3m 6903 HORN 990503 VERTICAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : 1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1	5382.000	48.05	-25.95	74.00	33.41	31.18	11.94	33.88	Peak	---	---



Site :
Condition : CNS/VCCI/CISPR -B 3m 6903 HORN 990503 HORIZONTAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : 1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1	1590.000	40.96	-29.04	70.00	40.69	30.93	5.42	25.78	Peak	---	---
2	1830.000	46.16	-23.84	70.00	44.98	31.27	5.78	26.67	Peak	---	---
3	2132.000	44.09	-25.91	70.00	41.70	31.45	6.24	27.60	Peak	---	---
4	2438.000	42.14	-27.86	70.00	38.39	31.33	6.79	28.29	Peak	---	---
5	2508.000	44.93	-25.07	70.00	40.86	31.29	6.90	28.46	Peak	---	---



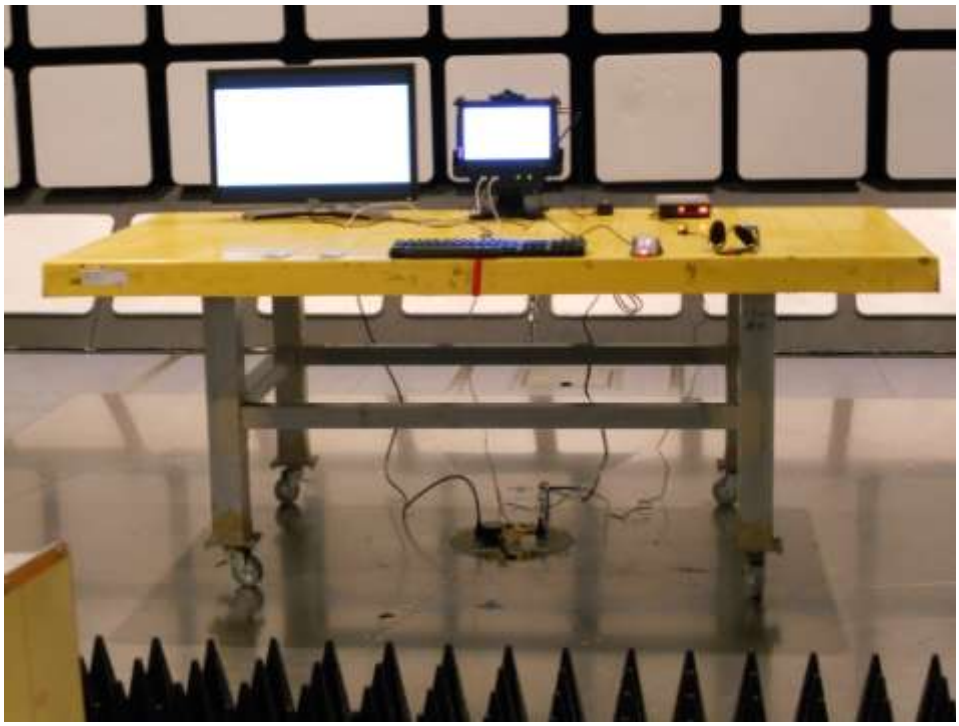
Site : 10CH02-HY
Condition : CNS/VCCI/CISPR -B 3m 6903 HORN 990503 HORIZONTAL
EUT : Rugged Tablet Computer
POWER: 230V/50Hz
MODEL : RTC-1000x
MEMO : LAN:100M
MEMO : 1024*600 60Hz

	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		cm	deg
1	4542.000	46.20	-27.80	74.00	33.16	29.88	10.35	32.57	Peak	---	---

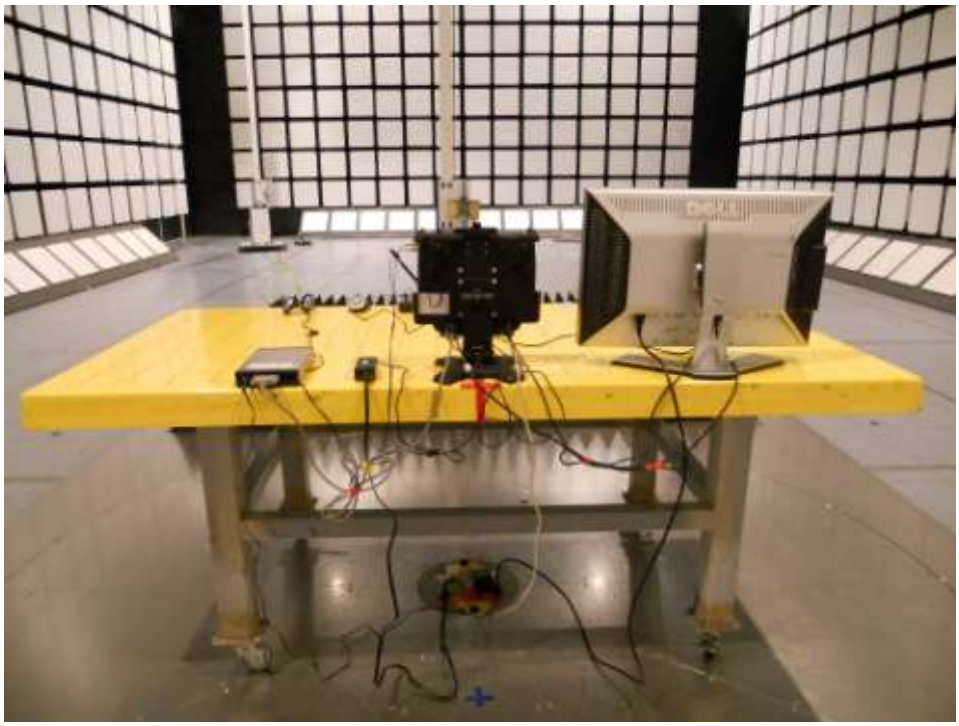
6.7 Photographs of Radiated Emission Test Configuration (From 1GHz to 6GHz)

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



7. Harmonics Test

7.1 Standard

- Standard : EN 61000-3-2:2006

7.2 Test Procedure

The measurement of harmonic currents shall be performed as follows:

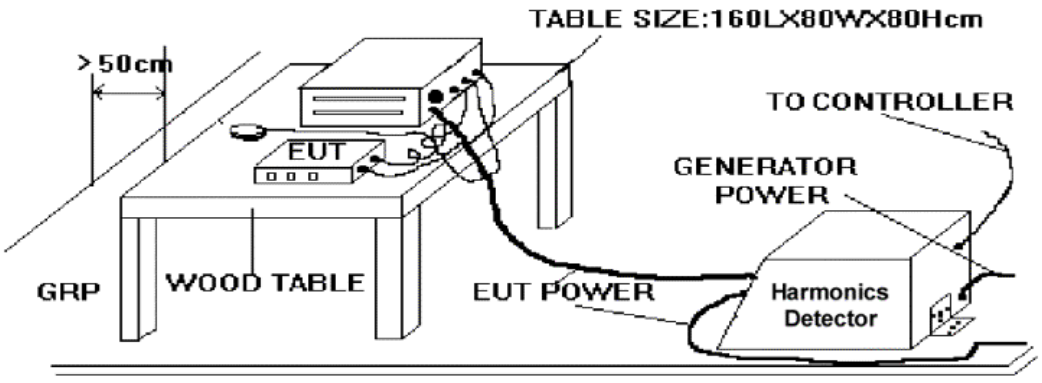
– for each harmonic order, measure the 1.5 s smoothed r.m.s. harmonic current in each DFT time window as defined in EN / IEC 61000-4-7: 2002.

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

7.3 Test Equipment Settings

Line Voltage	230 V
Line Frequency	50 Hz
Device Class	A
Current Measurement Range	High
Measurement Delay	10.0 seconds
Test Duration	10.0 minutes
Class determination Pre-test Duration	10.00 seconds

7.4 Test Setup



7.5 Current Harmonics Test

As specified on clause 7 of EN 61000-3-2:2006, the limits are not specified for equipment with a rated power of 75W or less.

The EUT meets the above condition, so it conforms to EN 61000-3-2.

8. Voltage Fluctuations Test

8.1 Standard

- Standard : EN 61000-3-3:1995/A1:2001/A2:2005

8.2 Test Procedure

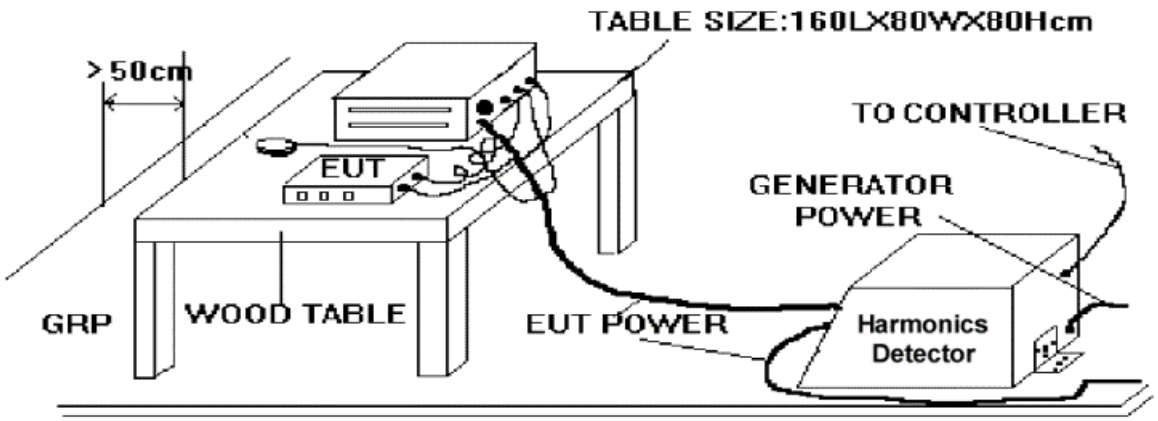
The equipment shall be tested under the conditions of **Clause 5.**

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

8.3 Test Equipment Settings

Line Voltage	230 V
Line Frequency	50 Hz
Measurement Delay	10.0 seconds
Pst Integration Time	10 minutes
Pst Integration Periods	1
Test Duration	10 minutes

8.4 Test Setup



8.5 Test Result Of Voltage Fluctuation And Flicker Test

Final Test Result	***PASS***
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric

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

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.23			
Highest dt (%):	0.72	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.45	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.164	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.072	Test limit:	0.650	Pass

8.6 Photographs Of Voltage Fluctuation And Flicker Test

FRONT VIEW



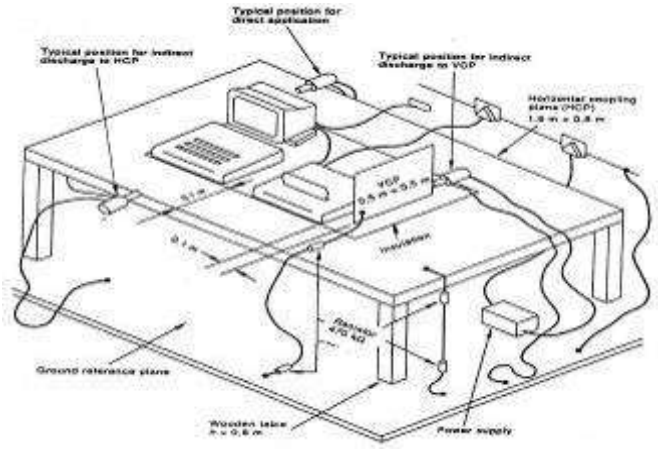
REAR VIEW



9. Electrostatic Discharge Immunity Test (ESD)

Final Test Result	***PASS***
Pass Performance Criteria	B
Required Performance Criteria	B
Basic Standard	IEC 61000-4-2:1995/A1:1998/A2:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Level	3 for air discharge 2 for contact discharge
Test Voltage	±2 / ±4 / ±8 kV for air discharge ±2 / ±4 kV for contact discharge
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	When testing the contact discharge at ±4 kV at the screw the image shown on the screen flickered and ping loss. After the test, the equipment continued to operate as intended without operator intervention.

9.1 Test Setup



setup consists of the test generator, EUT and auxiliary instrumentation necessary to perform DIRECT and INDIRECT application of discharges to the EUT as applicable, in the follow manner :

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

The preferred test method is that of type tests performed in laboratories and the only accepted method of demonstrating conformance with this standard. The EUT was arranged as closely as possible to arrangement in final installed conditions.

9.2 Test Setup for Tests Performed in Laboratory

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

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

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

9.3 ESD Test Procedure

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

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

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

d. The test shall be performed with both air discharge and contact discharge. On preselected points at least 10 single discharges (in the most sensitive polarity) shall be applied on air discharge. On preselected points at least 25 single discharges (in the most sensitive polarity) shall be applied on contact discharge.

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

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

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

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

9.4 Test Severity Levels

9.4.1 Contact Discharge

Level	Test Voltage (Kv) of Contact discharge
1	±2
2	±4
3	±6
4	±8
X	Specified

Remark : “X” is an open level.

9.4.2 Air Discharge

Level	Test Voltage (Kv) of Air Discharge
1	±2
2	±4
3	±8
4	±15
X	Specified

Remark : “X” is an open level.

9.5 Test Points

9.5.1 Test Result of Air Discharge

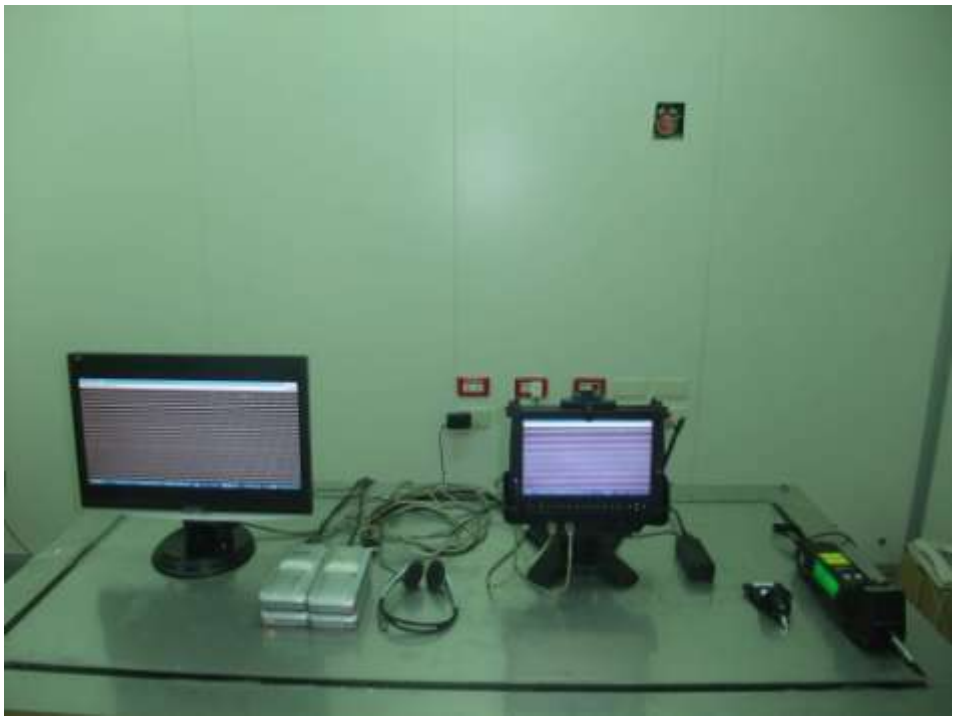
Test Point	Voltage	Tested No.
Case	±2 / ±4 / ±8 Kv	BY 10
LED	±2 / ±4 / ±8 Kv	BY 10
Power switch	±2 / ±4 / ±8 kV	BY 10
DC input jack	±2 / ±4 / ±8 kV	BY 10
USB port	±2 / ±4 / ±8 kV	BY 10
Control button	±2 / ±4 / ±8 kV	BY 10
Panel	±2 / ±4 / ±8 kV	BY 10
Speaker jack	±2 / ±4 / ±8 kV	BY 10
Memort card	±2 / ±4 / ±8 Kv	BY 10
Speaker	±2 / ±4 / ±8 Kv	BY 10

9.5.2 Test Result of Contact Discharge

Test Point	Voltage	Tested No.
D-SUB port	±2 / ±4 KV	BY 25
RS232 port	±2 / ±4 KV	BY 25
LAN port	±2 / ±4 KV	BY 25
Screw	±2 / ±4 KV	BY 25
HCP (At Front)	±2 / ±4 KV	BY 25
HCP (At Left)	±2 / ±4 KV	BY 25
HCP (At Right)	±2 / ±4 KV	BY 25
HCP (At Rear)	±2 / ±4 KV	BY 25
VCP (At Front)	±2 / ±4 KV	BY 25
VCP (At Left)	±2 / ±4 KV	BY 25
VCP (At Right)	±2 / ±4 KV	BY 25
VCP (At Rear)	±2 / ±4 KV	BY 25

9.6 Photographs of Electrostatic Discharge Immunity Test

FRONT VIEW



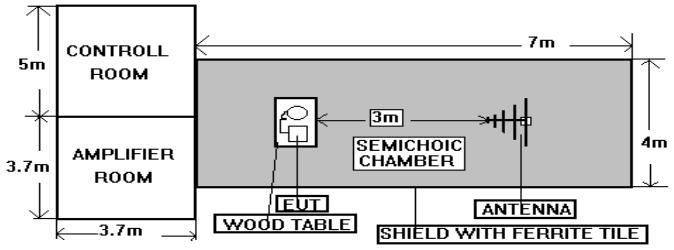
REAR VIEW



10. Radio Frequency Electromagnetic Field Immunity Test (RS)

Final Test Result	***PASS***
Pass Performance Criteria	A
Required Performance Criteria	A
Basic Standard	IEC 61000-4-3:1995/A1:1998/A2:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Level	2
Frequency Range	80-1000 MHz
Field Strength	3 V/m (unmodulated, r.m.s) 80% AM (1 kHz)
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Normal

10.1 Test Setup



NOTE : The SPORTON 7m x 4m x 4m semichoic chamber is compliance with the sixteen points uniform field requirement as stated in IEC 1000-4-3 Section 6.2.

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

10.2 Test Procedure

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

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

c. The test is normally performed with the generating antenna facing each of four sides of the EUT. The polarization of the field generated by the broadband (bilog) antenna necessitates testing each position twice, once with the antenna positioned vertically and again with the antenna positioned horizontally.

d. At each of the above conditions, the frequency range is swept 80-1000 MHz, pausing to adjust the R.F. signal level or to switch oscillators and antenna. The rate of sweep is in the order of $1.5*^{10-3}$ decades/s. The sensitive frequencies or frequencies of dominant interest may be discretely analyzed.

10.3 Test Severity Levels

Frequency Band : 80-1000 MHz

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

Remark : “X” is an open class.

10.4 Photographs of Radio Frequency Electromagnetic Field Immunity Test

FRONT VIEW



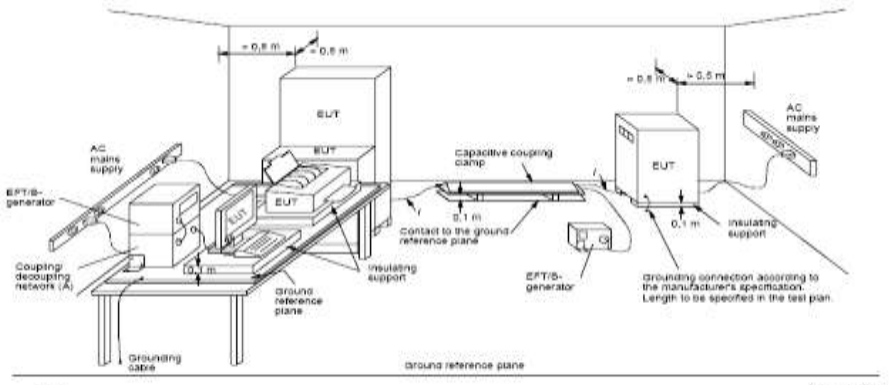
REAR VIEW



11. Electrical Fast Transient/Burst Immunity Test (EFT/BURST)

Final Test Result	***PASS***
Pass Performance Criteria	A
Required Performance Criteria	B
Basic Standard	IEC 61000-4-4:2004
Product Standard	EN 55024:1998/A1:2001/A2:2003
Level	on input power ports -- 2 on I/O signal, data and control line -- 2
Test Voltage	on input power ports -- ± 0.5 / ± 1.0 kV on I/O signal Ports and telecommunication ports -- ± 0.25 / ± 0.5 KV
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Normal

11.1 Test Setup



Key
/ length between clamp and the EUT to be tested (should be 0,5 m ± 0,05 m)
(A) location for supply line coupling
(B) location for signal lines coupling

The EUT was placed on a ground reference plane and was insulated from it by an insulating support about 0.1m thick. If the EUT is table-top equipment, it was located approximately 0.8m above the GRP.. The GRP. was a metallic sheet (copper or aluminum) of 0.25 mm ,minimum thickness; other metallic may be used but they shall have at least 0.65 mm thickness. It shall project beyond the EUT by at least 0.1m on all sides and connected to the protective earth. In the SPORTON EMC LAB. we provided 1 mm thickness aluminum ground reference plane or 1 mm thickness stainless steel ground reference plane. The minimum size of the ground reference plane is 1 m x 1 m, the exact size depending on the dimensions of the EUT. It was connected to the protective grounding system. The EUT was arranged and connected according to its functional requirements. The minimum distance between the EUT and other conductive

structures, except the GRP. beneath the EUT, was more than 0.5 m. Using the coupling clamp, the minimum distance between the coupling plates and all other conductive structures, except the GRP. beneath the EUT, was more than 0.5 m. The length of the signal and power lines between the coupling device and the EUT was 1m or less.

11.2 Test on Power Line

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

11.3 Test on Communication Lines

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

11.4 Test Procedure

a. In order to minimize the effect of environmental parameters on test results, the climatic conditions when test is carrying out shall comply with the following requirements:
   - ambient temperature: 15℃ to 35℃;
   - relative humidity : 45% to 75%;
   - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar)..

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

c. The variety and diversity of equipment and systems to be tested make it difficult to establish general criteria for the evaluation of the effects of fast transients/bursts on equipment and systems.

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

11.5 Test Severity Levels

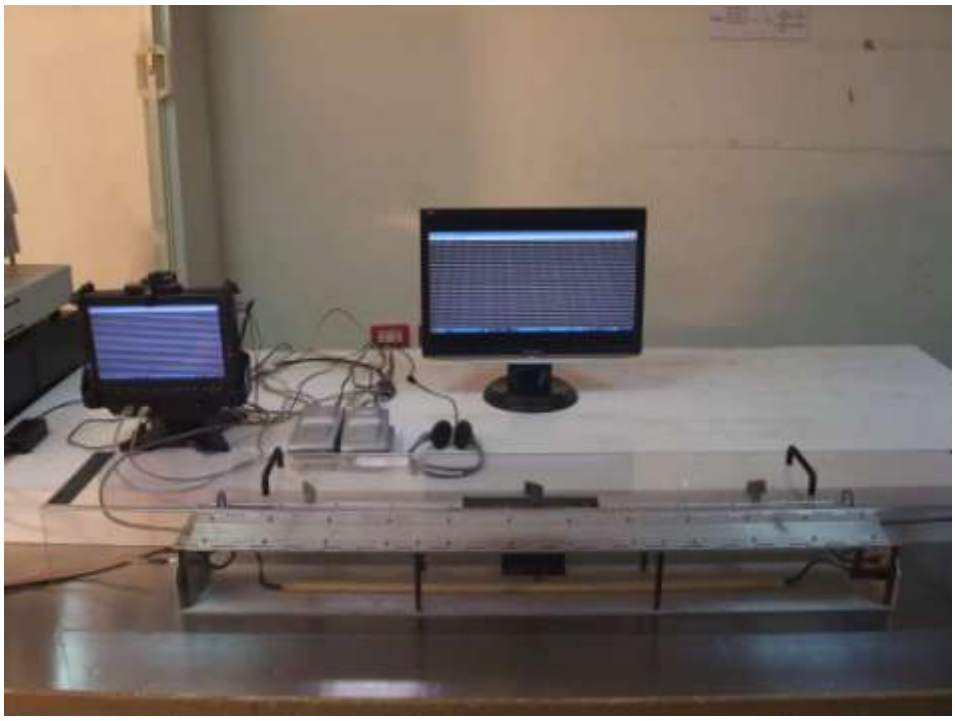
The following test severity levels are recommended for the fast transient/burst test :

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

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

11.6 Photographs of Electrical Fast Transient/Burst Immunity Test

FRONT VIEW



REAR VIEW



12. Surge Immunity Test

Final Test Result	***PASS***
Pass Performance Criteria	**A** for AC Power Port, **B** for RJ45 and RJ11 Port
Required Performance Criteria	B
Basic Standard	IEC 61000-4-5:1995/A1:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Surge wave form (Tr/Th)	1,2/50 (8/20) μs
Level	on input power ports -- 3 on signal ports and telecommunication ports -- 2
Test Voltage	on Input AC Power Port -- ± 1.0 / ± 2.0 kV on RJ45 Port -- ± 1.0 kV
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Please refer to section 12.1

12.1 Test Record

■ Input AC power port:

Voltage (kV)	Test Location	Polarity	Phase Angle				Remark
			0°	90°	180°	270°	
1.0 kV	L - N	+	A	A	A	A	Normal
		−	A	A	A	A	Normal
2.0 kV	L - PE	+	A	A	A	A	Normal
		−	A	A	A	A	Normal
	N - PE	+	A	A	A	A	Normal
		−	A	A	A	A	Normal

■ Ports for RJ45 :

Pulse Voltage (kV)	Test Location	Polarity	No of Pluse	Sec./ 1 Pulse (60 Sec.)	Test Record
1.0 kV	L - GND	+	5	B	Note[1]
		−	5	B	Note[1]
Remark	During the test will be ping loss. After the test, the equipment continued to operate as intended without operator intervention.				

12.2 Test Level

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

12.3 Test Procedure

a. Climatic conditions

The climatic conditions shall comply with the following requirements :

-- ambient temperature : 15 ℃ to 35 ℃

-- relative humidity : 10 % to 75 %

-- atmospheric pressure : 86 kPa to 106 kPa (860 mbar to 1060 mbar)

b. Electromagnetic conditions

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

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

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

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

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

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

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

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

12.4 Operating Condition

Full system

12.5 Photographs of Surge Immunity Test

FRONT VIEW



REAR VIEW



13. Conducted Disturbances Induced by Radio-Frequency Field Immunity Test (CS)

Final Test Result	***PASS***
Pass Performance Criteria	A
Required Performance Criteria	A
Basic Standard	IEC 61000-4-6:1996/A1:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Level	2
Test Voltage	3 V (unmodulated, r.m.s), 80% AM (1 kHz)
Frequency Range	0.15 MHz to 80 MHz
Test Port	on AC Power Port and Signal Port
Dwell time	2.9 seconds
Frequency step size	1 %
Coupling mode	CDN-M16 SW M3 for AC power Port CDN-RJ45 for Signal Port
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Normal

13.1 Test Level

Level	Voltage Level (EMF)
1	1 V rms
2	3 V rms
3	10 V rms
x	Specified
NOTE - x is an open class. This level can be specified in the product specification.	

13.2 Test Procedure

a. The EUT shall be operated within its intended climatic conditions. The temperature and relative humidity should be recorded.

b. This test method test can be performed without using a sell shielded enclosure. This is because the disturbance levels applied and the geometry of the setups are not likely to radiated a high amount of energy, especially at the lower frequencies. If under certain circumstances the radiated energy is too high, a shielded enclosure has to be used.

c. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF-input ports of the coupling devices are terminated by a 50 ohm load resistor.

d. The frequency range is swept from 150 kHz to 80 MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1kHz sinewave, pausing to adjust the RF-signal level or to switch coupling devices as necessary. The rate of sweep shall no exceed 1.5 x $^{10\text{-}3}$ decades/s. Where the frequency is swept incrementally, the step size shall no exceed 1% of the start and thereafter 1% of the preceding frequency value.

e. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies e.g. clock frequency(ies) and harmonics or frequencies of dominant interest shall be analyzed separately.

f. An alternative test procedure may be adopted, wherein the frequency range is swept incrementally, with a step size not exceeding 4% of the start ad thereafter 4% of the preceding frequency value. The test level should be at least twice the value of the specified test level.

g. In cases of dispute, the test procedure using a step size not exceeding 1% of the start and thereafter 1% of preceding frequency value shall take precedence.

h. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

i. The use of special exercising programs is recommended.

j. Testing shall be performed according to a Test Plan, which shall be included in the test report.

k. It may be necessary to carry out some investigatory testing in order to establish some aspects of the test plan.

13.3 Photographs of CS Immunity Test

FRONT VIEW



REAR VIEW



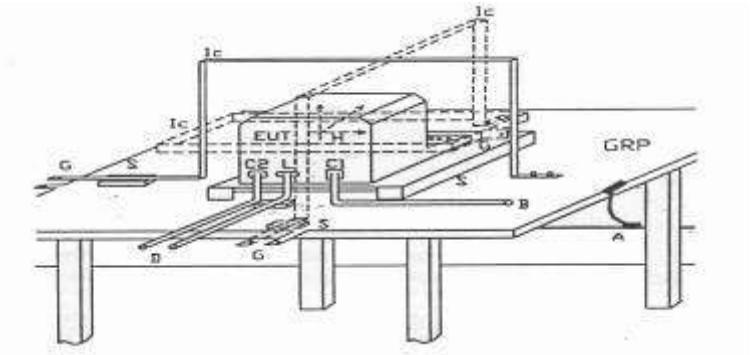
14. Power Frequency Magnetic Field Immunity Tests

Final Test Result	***PASS***
Pass Performance Criteria	A
Required Performance Criteria	A
Basic Standard	IEC 61000-4-8:1993/A1:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Temperature	24℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Please refer to section 14.1

14.1 Test Record

Power Frequency Magnetic Field	Testing duration	Coil Orientation	Results
50Hz, 1A/m	1.0 Min	X-axis	A
50Hz, 1A/m	1.0 Min	Y-axis	A
50Hz, 1A/m	1.0 Min	Z-axis	A

14.2 Test Setup



GRP : Ground plane
A : Safety earth
S : Insulating support
EUT : Equipment under test
Lc : Induction coil
E : Earth terminal
C1 : Power supply circuit
C2 : Signal circuit
L : Communication line
B : To power supply source
D : To signal source, simulator
G : To the test generator

14.3 Photographs of Power Frequency Magnetic Field Immunity Tests

FRONT VIEW



REAR VIEW



15. Voltage Dips and Voltage Interruption Immunity Tests

Final Test Result	***PASS***
Pass Performance Criteria	A
Required Performance Criteria	C for voltage interruption, C/B for voltage dips
Basic Standard	IEC 61000-4-11:1994/A1:2000
Product Standard	EN 55024:1998/A1:2001/A2:2003
Test Voltage Rating	100V / 240V, 50Hz
Test Port	Input power ports
Temperature	24 ℃
Relative Humidity	54 %
Atmospheric Pressure	101 kPa
Test Date	Nov. 24, 2010
Test Mode	Mode 1
Test Engineer	Eric
Observation	Please refer to section 15.1 and 15.2.

15.1 Test Record of Voltage Interruption

Voltage (V)	Phase Angle		% Reduction	Duration (Periods)	Observation
	0 °	180 °			
100, 240	C	C	>95%	250	After the interruption, the power of EUT was off. The power of the EUT must be reset by the operator.

15.2 Test Record of Voltage Dips

Voltage (V)	Phase Angle		% Reduction	Duration (Periods)	Observation
	0 °	180 °			
100, 240	A	A	30%	25	Normal
100, 240	A	A	>95 %	0.5	Normal

15.3 Testing Requirement and Procedure

The test was based on IEC 61000-4-11:1994/A1:2000

15.4 Test Conditions

1. Source voltage and frequency : 100V / 50Hz, 240V / 50Hz, Single phase.
2. Test of interval : 10 sec.
3. Level and duration : Sequency of 3 dips/interrupts.
4. Voltage rise (and fall) time : 1 ~ 5 μs.

15.5 Operating Condition

Full system

15.6 Photographs of Voltage Dips and Voltage Interruption Immunity Tests

FRONT VIEW



REAR VIEW



16. List of Measuring Equipment Used

< EMI >

< Conducted Emission >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Apr. 06, 2010	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99041	9kHz – 30MHz	Mar. 23, 2010	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Apr. 29, 2010	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2010	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Jun. 10, 2010	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)

※ Calibration Interval of instruments listed above is one year.

< Radiated Emission below 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
10m Semi Anechoic Chamber	TDK	SAC-10M	10CH02-HY	30MHz~1GHz 10m,3m	Nov. 28, 2010	Radiation (10CH02-HY)
Amplifier	AGILENT	8447D	2944A10827	100KHz – 1.3GHz	May 14, 2010	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20Hz - 7GHz	Apr. 26, 2010	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP7	100645	9KHz – 7GHz	Aug. 10, 2010	Radiation (10CH02-HY)
Biconical Antenna	Schwarzbeck	VHBB 9124	287	30MHz –200MHz	Dec. 20, 2010	Radiation (10CH02-HY)
Log Antenna	Schwarzbeck	VUSLP 9111	207	200MHz -1GHz	Dec. 20, 2010	Radiation (10CH02-HY)
Turn Table	HD	DS 430	430/360	0 ~ 360 degree	N/A	Radiation (10CH02-HY)
Antenna Mast	HD	MA240	240/664	1 m - 4 m	N/A	Radiation (10CH02-HY)
RF Cable-R10m	Jye Bao	RG142	CB027-INSIDE	30MHz~1GHz	Feb. 12, 2010	Radiation (10CH02-HY)

※ Calibration Interval of instruments listed above is one year.

< Radiated Emission above 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	EMCI	EMC330	980007	1 -8GHz	May 13, 2010	Radiation (10CH02-HY)
Horn antenna	EMCO	3115	6903	1~18GHz	May 03, 2010	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20Hz - 7GHz	Apr. 26, 2010	Radiation (10CH02-HY)
RF Cable 5M	SUHNER	SUCOFLEX 104	SN：304379/4	1GHz~18GHz	Mar. 10, 2010	Radiation (10CH02-HY)
RF Cable 13M	SUHNER	SUCOFLEX 104	SN：16647/4	1GHz~18GHz	Mar. 10, 2010	Radiation (10CH02-HY)
10m Semi Anechoic Chamber	TDK	SAC-10M	10CH02-HY	1G~6G 3m	Mar. 13, 2010	Radiation (10CH02-HY)

※ Calibration Interval of instruments listed above is one year.

< EMS >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
ESD Simulator	KEYTEK	MZ-15/EC	0711355	Air: 0 kV - 15 kV Contact: 0 kV - 8 kV	Mar. 10, 2010	ESD
Probe	ETS-LINDGREN	HI-6005	00052473	0.1 MHz - 5 GHz	Aug. 11, 2010	RS
Amplifier	AR	250W 1000AM1	320482	80 MHz - 1 GHz	Sep. 24, 2010	RS
DUAL DIRECTIONAL COUPLER	AMPLIFIER& RESEARCH	DC7144A	312782	80-1GHz	Sep. 23, 2010	RS
INTEGRATED MEASUREMENT SYSTEM	ROHDE& SCHWARZ	IMS	100007	9kHz~3GHz	Nov. 02, 2010	RS
NRP-Z91 POWER SENSOR 6GHZ	ROHDE& SCHWARZ	NRP-Z91 1168.8004.02	100095	9kHz~3GHz	Nov. 02, 2010	RS
Antenna	FRANKONIA	BTA-L	02002L	26 MHz - 1 GHz	May 03, 2010	RS
Probe	ETS-LINDGREN	HI-6005	00052473	0.1 MHz - 5 GHz	Sep. 03, 2010	RS
EMCPro System	KeyTek	EMCPro	030194	0 kV - 4.4 kV	Jul. 22, 2010	EFT SURGE
EFT/Clamp	KEYTEK	CCL-4/S	--	0 kV - 1 kV	N/A	EFT
SURGE/CDN	EMC -PARTNER	DN-T1+CN-T1	CDNKIT1000T-22	0.5 kV - 2 kV	N/A	SURGE
Conducted Immunity Test System	FRANKONIA	CIT-10/75	1999010443	100 kHz - 266 MHz	Oct. 07, 2010	CS
Conducted Immunity Test System Amplifier	A.R	75A220	16980	15 - 230 MHz FM 1 kHz 80% 75W	May 11, 2010	CS
Coupling and Decoupling Network	SCHAFFNER	CDN M016	16672	150 kHz - 230 MHz	Jun. 01, 2010	CS
Coupling and Decoupling Network	FRANKONIA	CDN RJ45	A3023001	150 kHz - 230 MHz	May 25, 2010	CS
Coupling and Decoupling Network	FRANKONIA	CDN S1/75Ω	A3005008	150 kHz - 230 MHz	May 25, 2010	CS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMCPro System	KeyTek	EMCPro	030194	230VA/50Hz/60Hz 0%Open/5S 0%Short/5S 40%0.10S 70%/0.01S	Jul. 22, 2010	DIP
Magnetic field Immunity Loop	FCC (KEYTEK)	F-1000-4-8-G-125A	03007	30A//CONTINUOUS 100A/2Hrs 230A/30SEC	Sep. 07, 2010	PFMF
Magnetic Generator	FCC (KEYTEK)	F-1000-4-8/9/10-L-1M	03003	30A//CONTINUOUS 100A/2Hrs 230A/30SEC	Sep. 07, 2010	PFMF
Harmonic/Flicker Test System	SCHAFFNER	CNN1000-1	72471	4000VA 16A PEAK	Feb. 02, 2010	Harmonics, Flicker

※ Calibration Interval of instruments listed above is one year.

17. TAF Certificate of Accreditation



Certificate No. : L1190-100529

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2010 to January 09, 2013
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : May 29, 2010

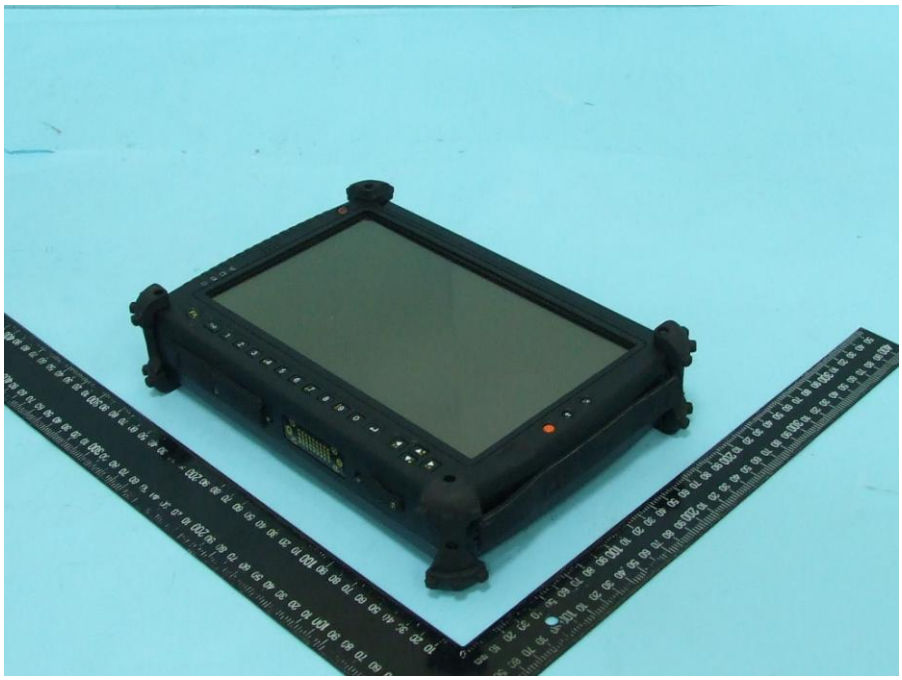
P1, total 23 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

APPENDIX A. Photographs of EUT

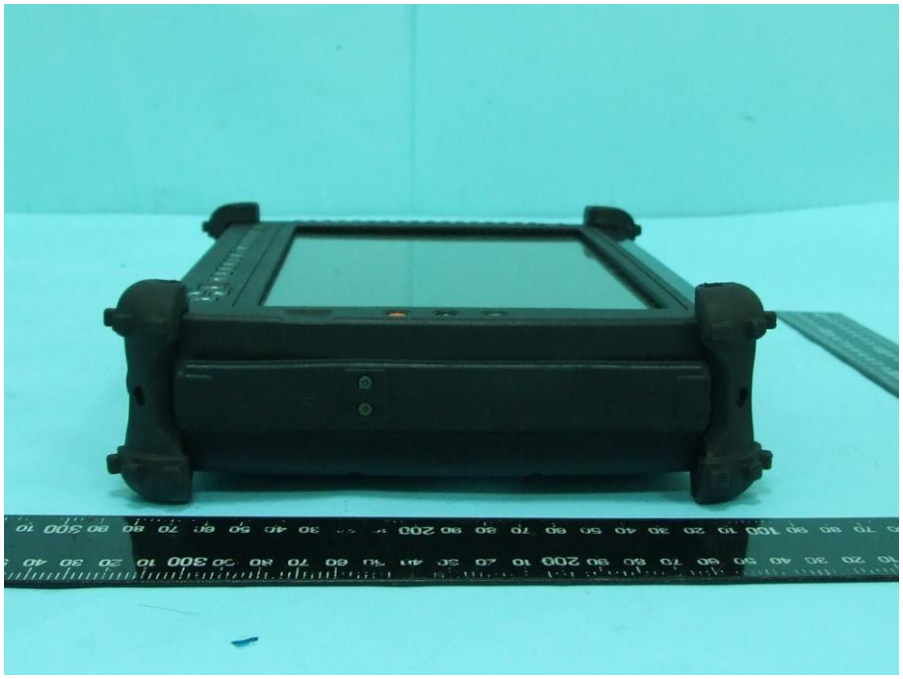




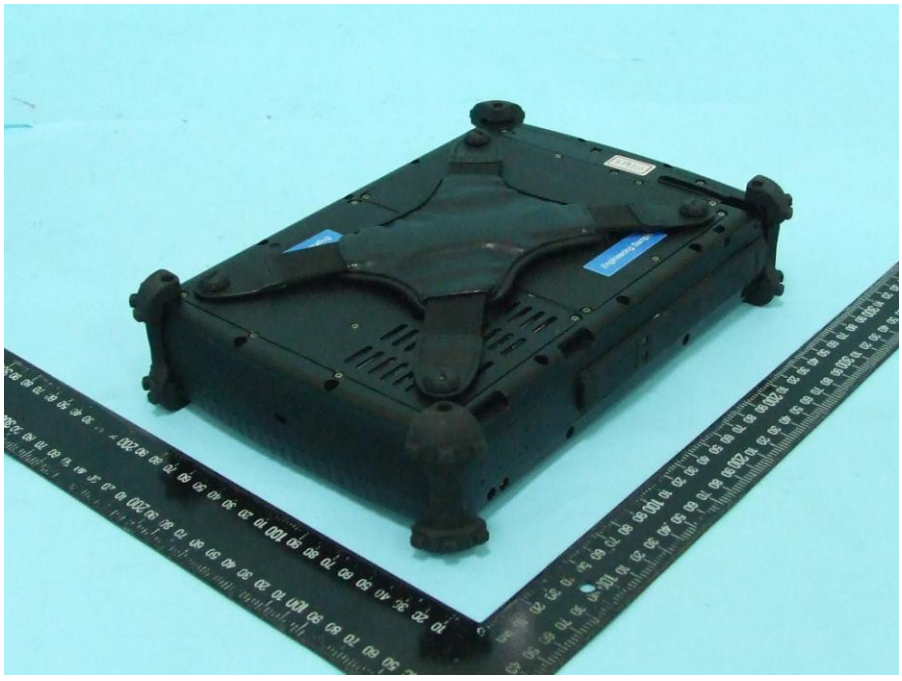




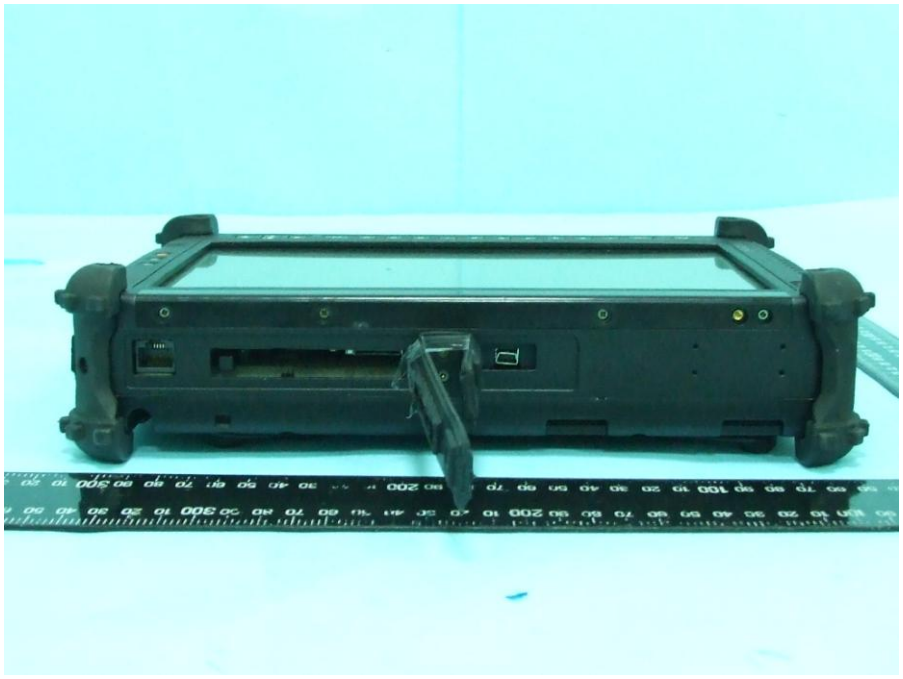






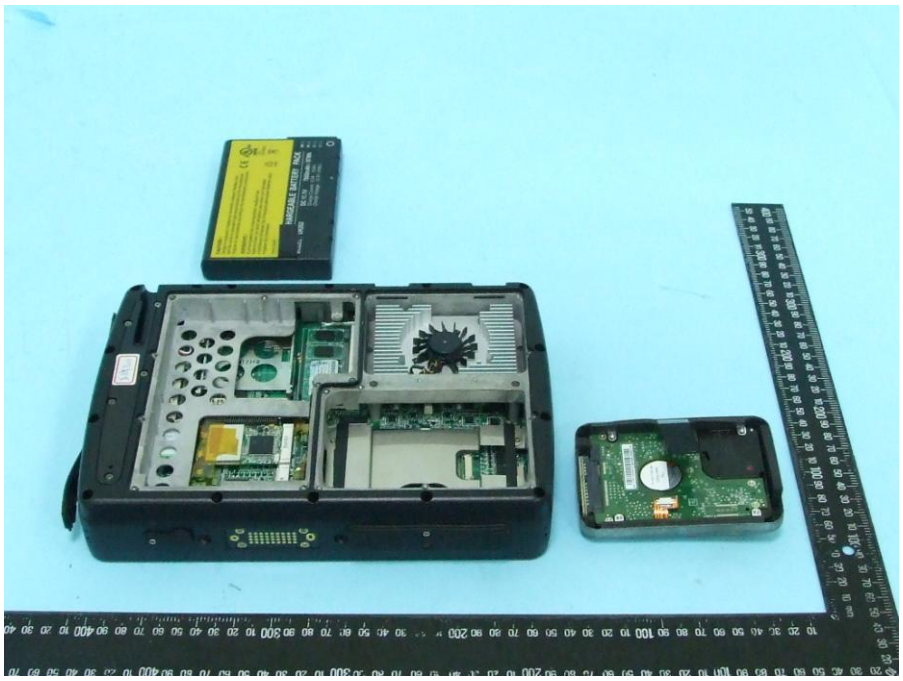


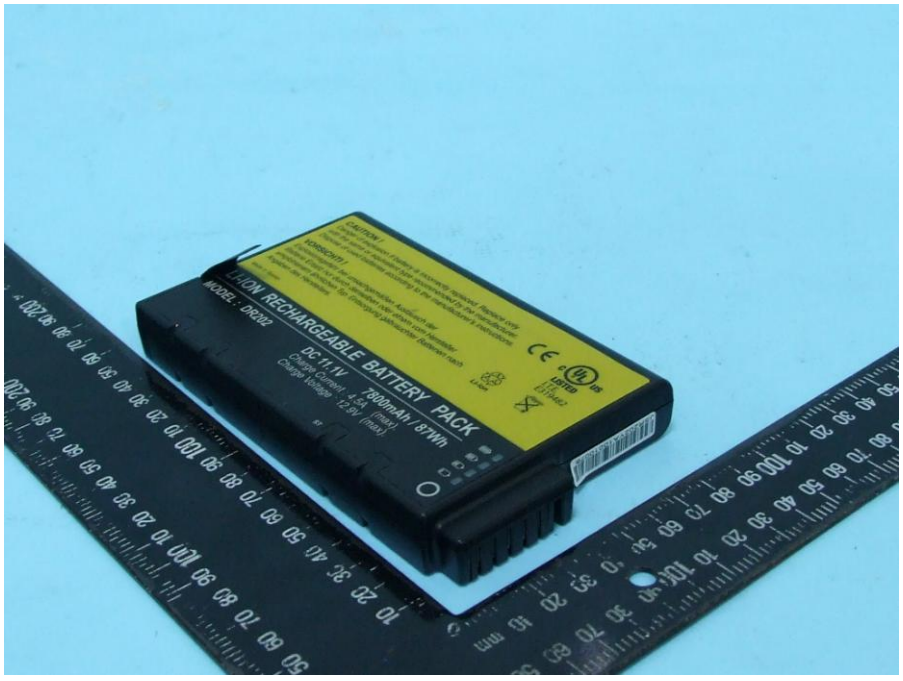


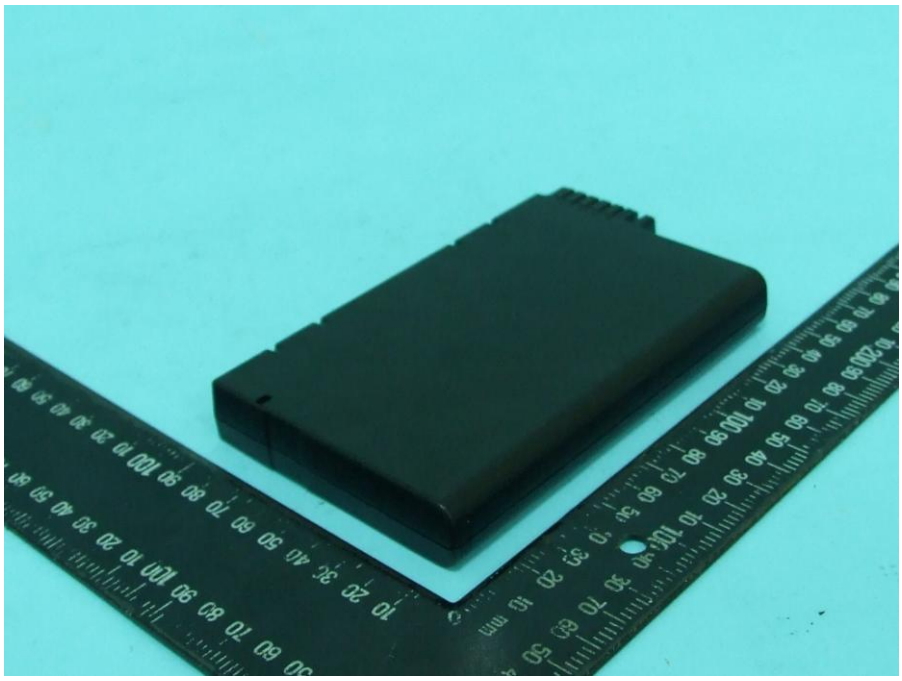



Engineering Sample


RECHARGEABLE BATTERY PACK



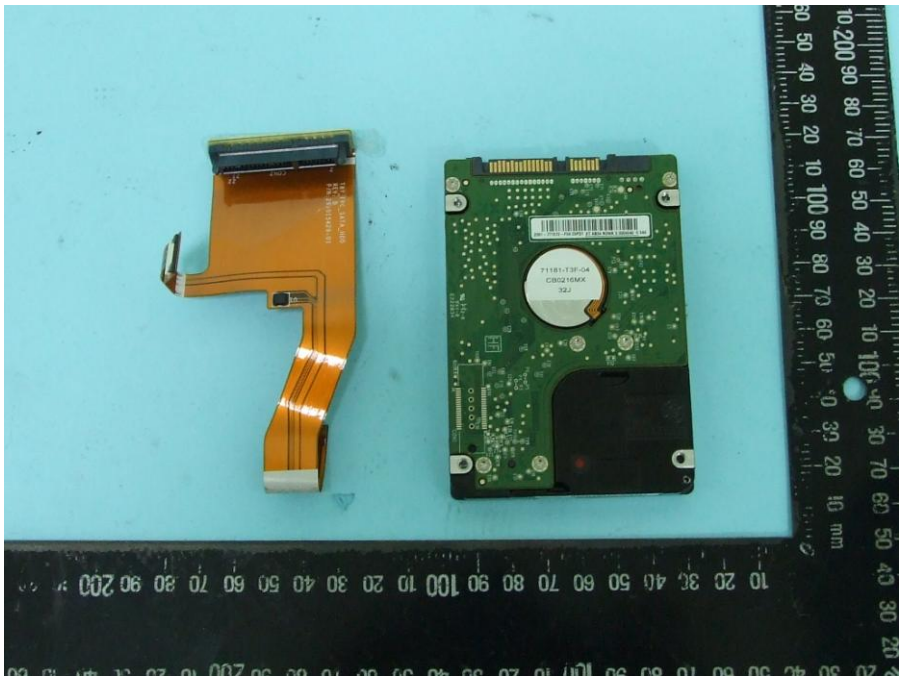

Li-ION RECHARGEABLE BATTERY PACK
DC 11.1V
7800mAh / 87Wh

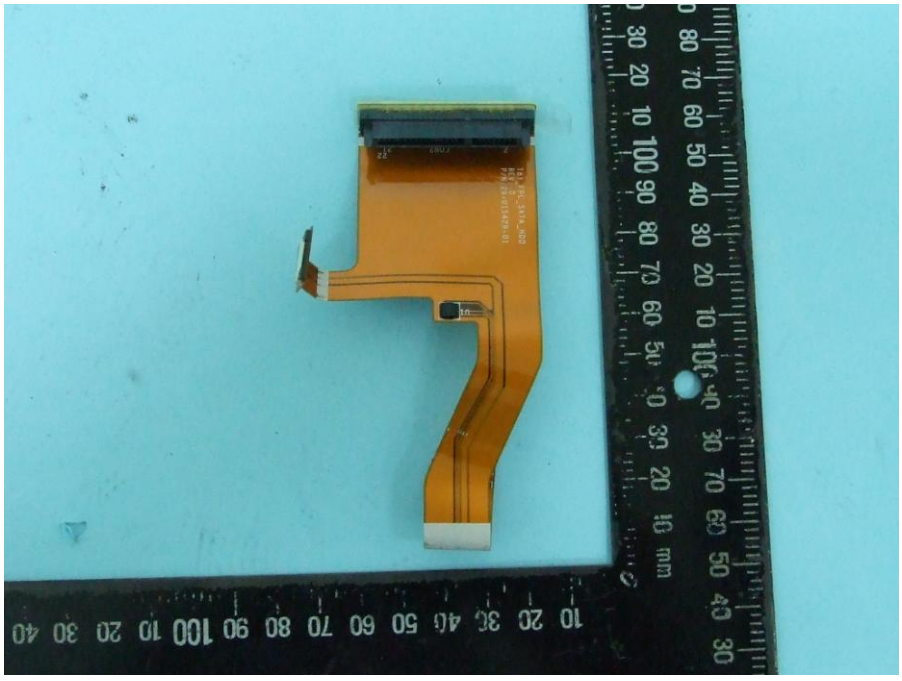


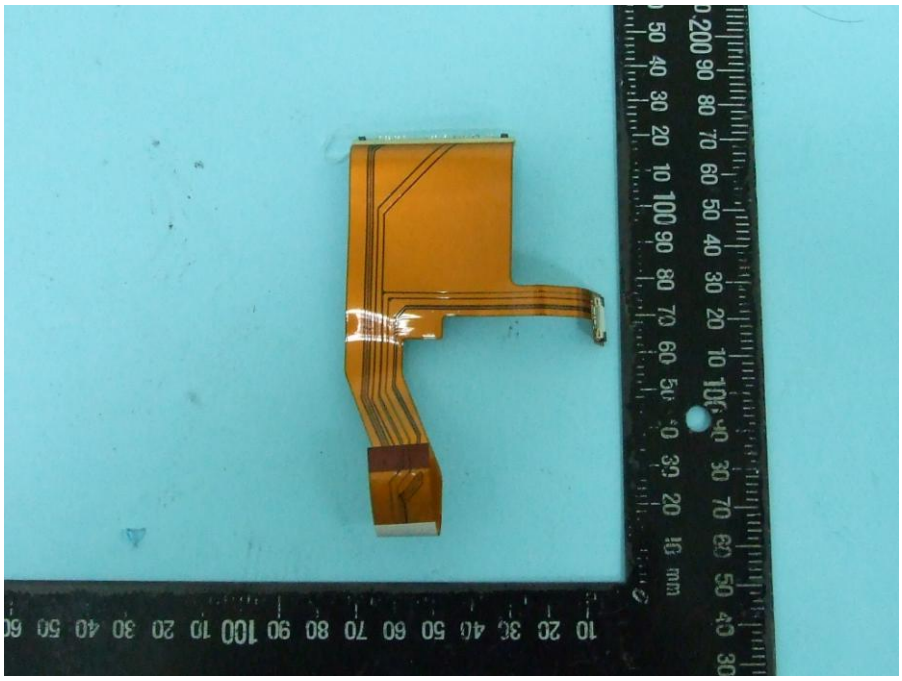

CAUTION !
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
VORSICHTI !
Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder elnem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gabrauchter Batterien nach Angaben des Herstellers.
LISTED
I.T.E.
E319482
Li-ion
Made in Taiwan
LI-ION RECHARGEABLE BATTERY PACK
MODEL : DR202
DC 11.1V 7800mAh / 87Wh
Charge Current : 4.5A (max).
Charge Voltage : 12.9V (max).









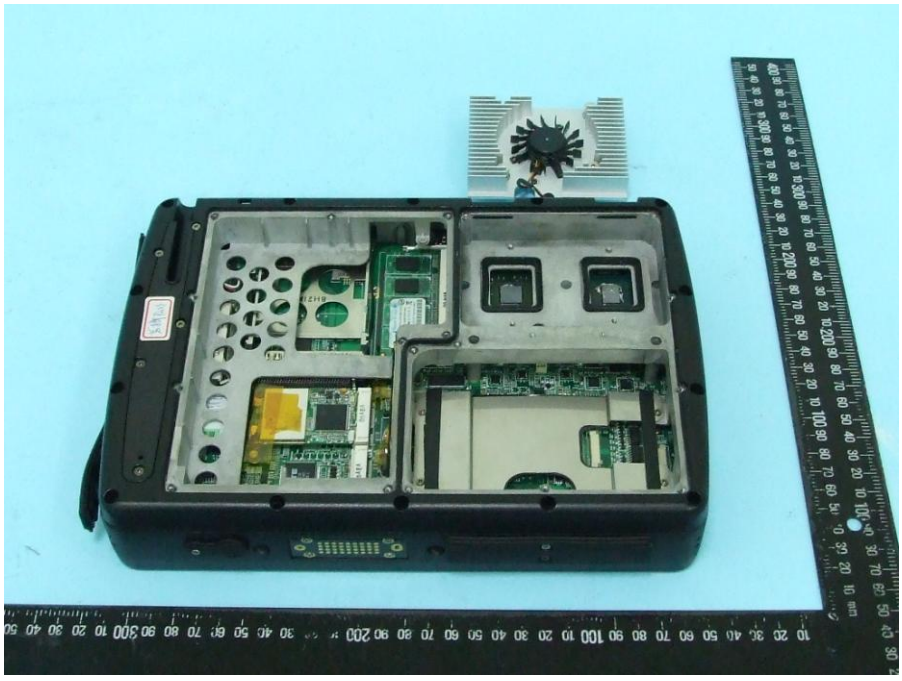


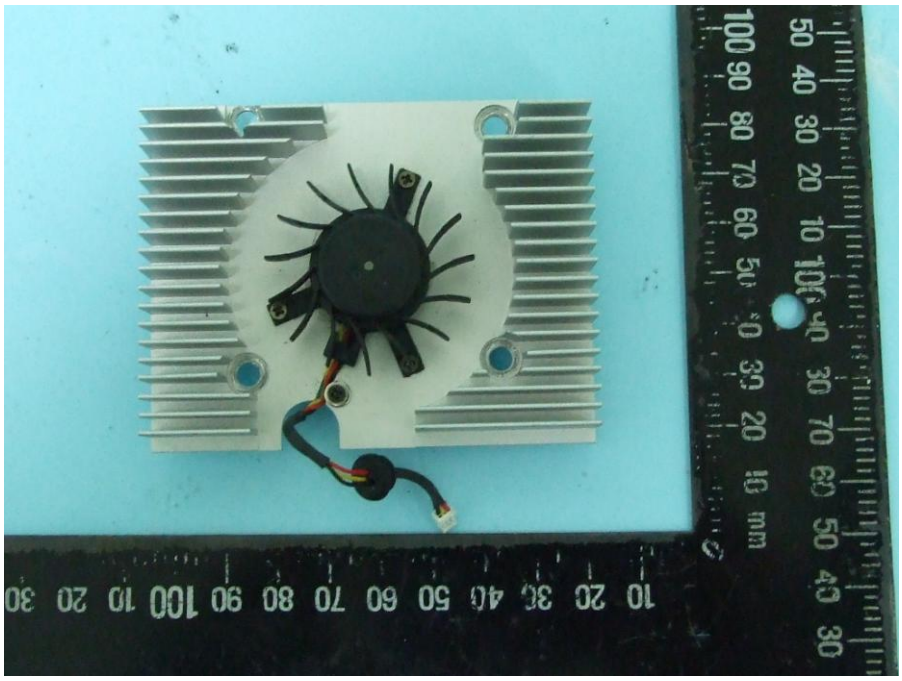

WD
WD800BEVT
80GB
WD Scorpio Blue

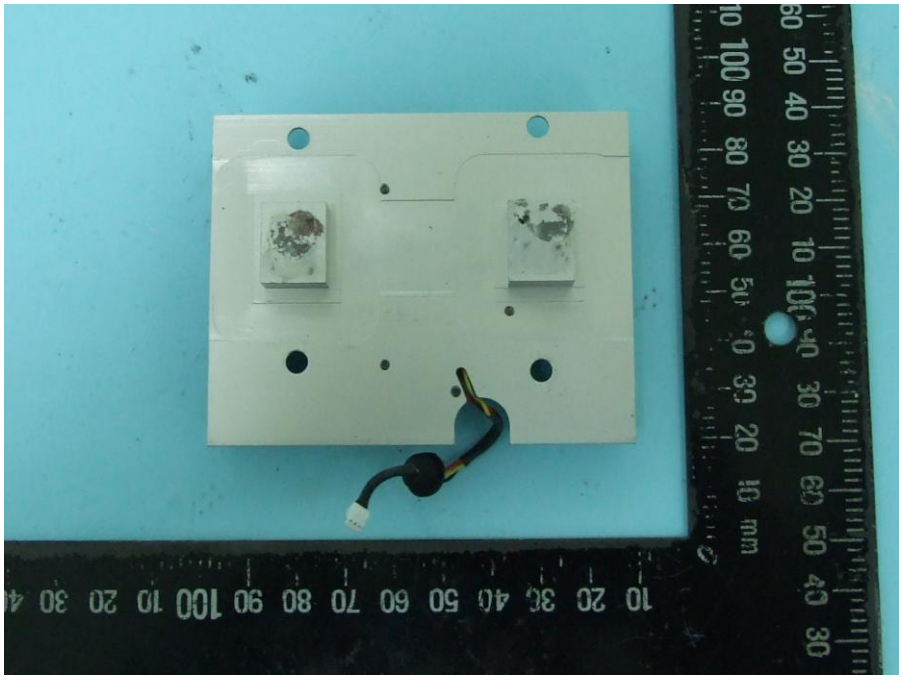


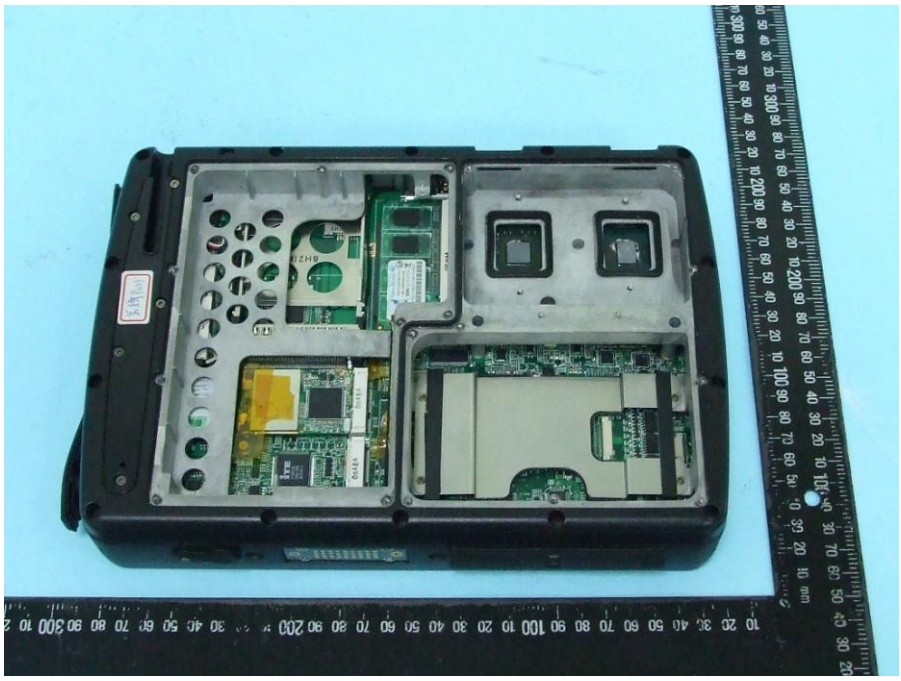

FRAGILE
DO NOT COVER
ANY DRIVE HOLES
WD
www.westerndigital.com
80GB
WD800BEVT
S/N : WX81A2007019
MDL : WD800BEVT – 00A23T0
Product warranty will be void if seal,
label or cover is removed or damaged.
Do not press
on top cover.
WWN:50014EE2AED5E8E0
DATE: 28 FEB 2010
LBA : 156301488
DCM : HHCTJHBB
5VDC : 0.55A
DCX : 0A0122137
R/N : 771672
U.S. Patents: 6178056, 5956196,6289484, 6263459
Product of Thailand
Canada ICES – 003 Class B/
NMB – 003 Classe B
RoHS
SERIAL ATA
D33015
E101559
N3565
WDT – 771672(B)
WD Scorpio® Blue™

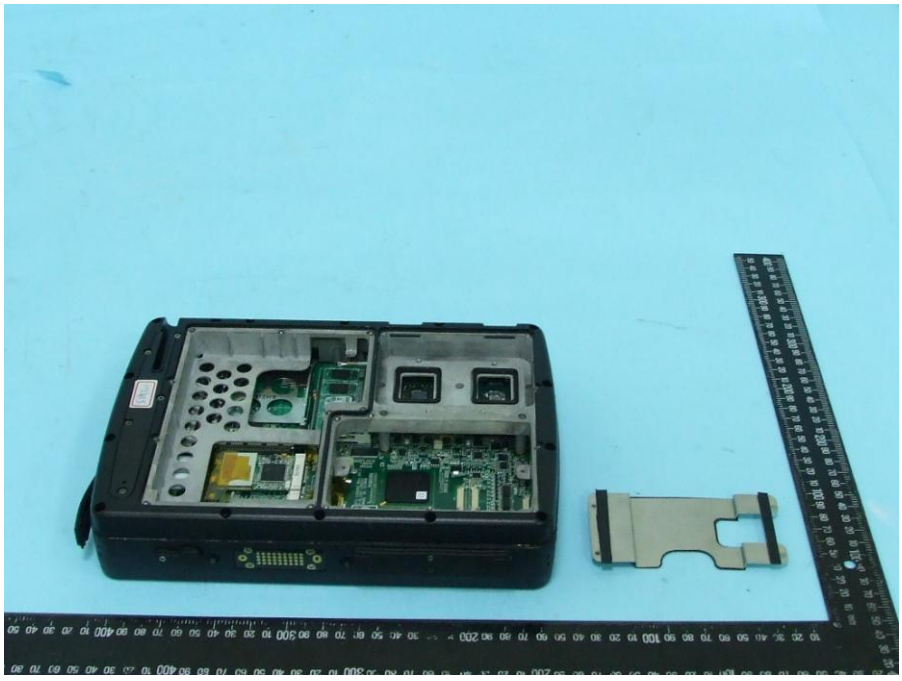




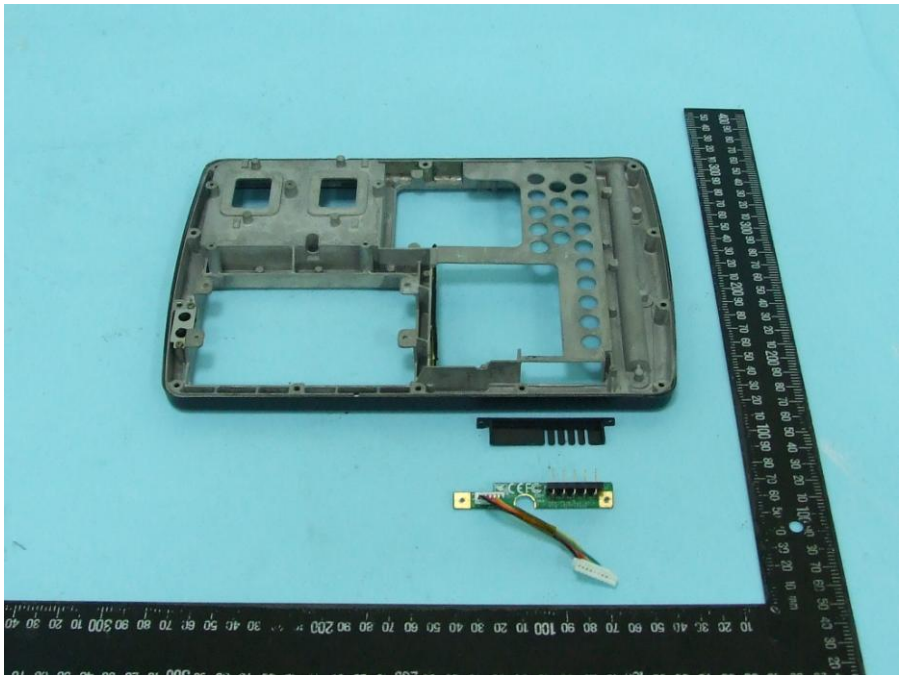






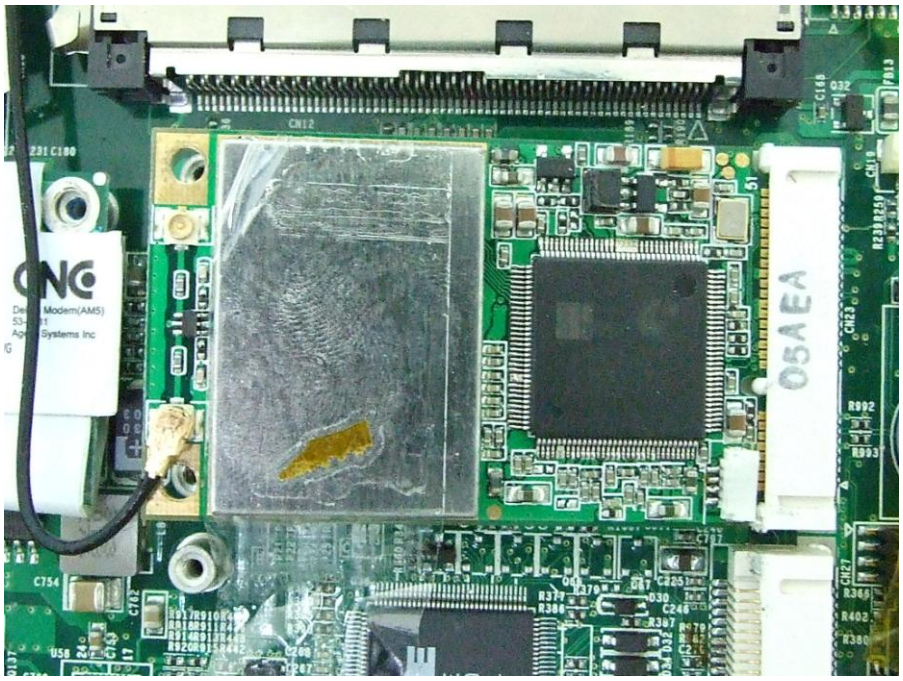


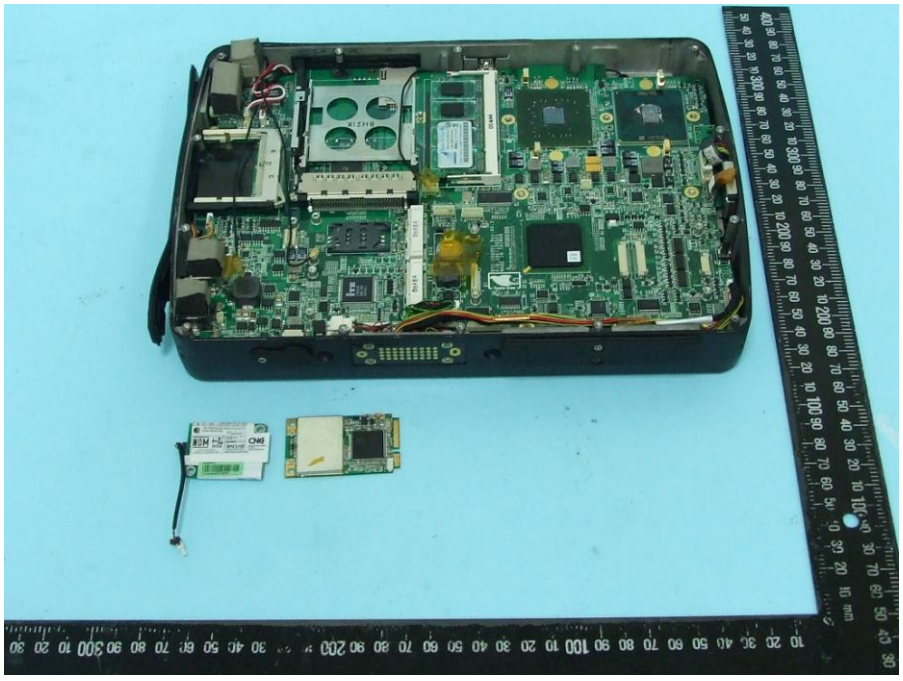


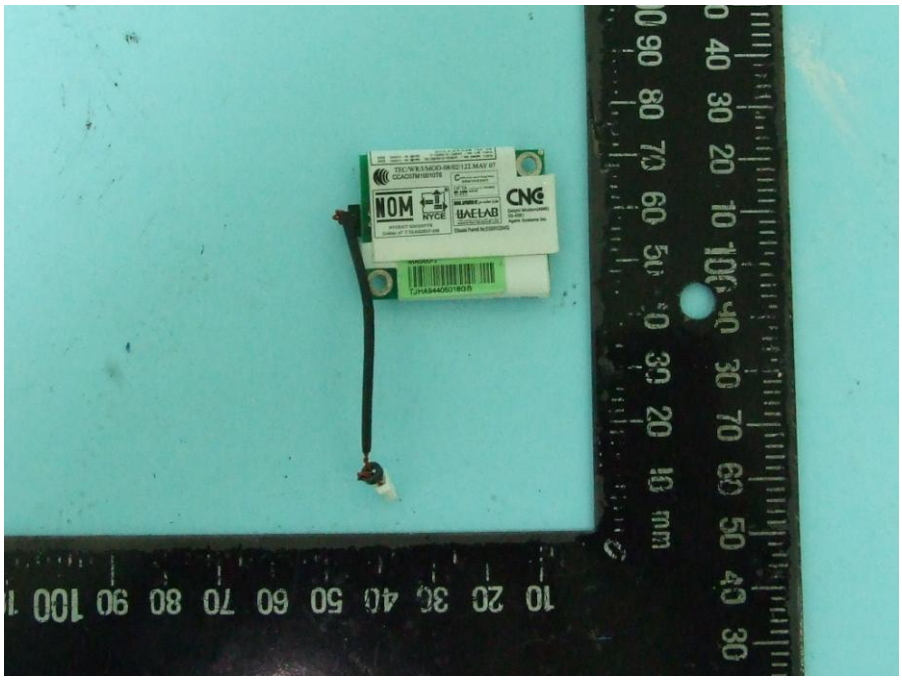


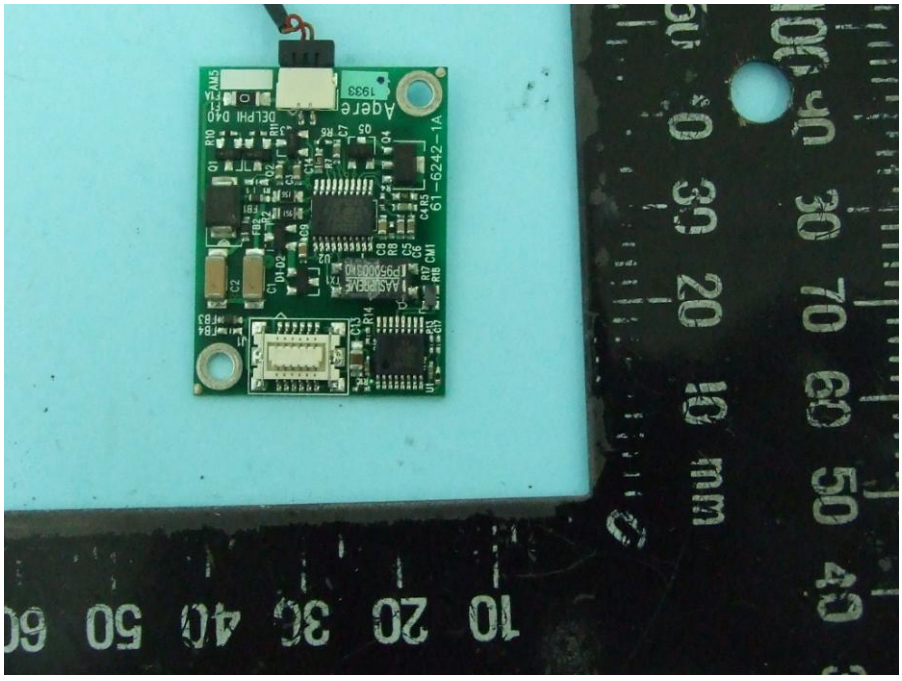


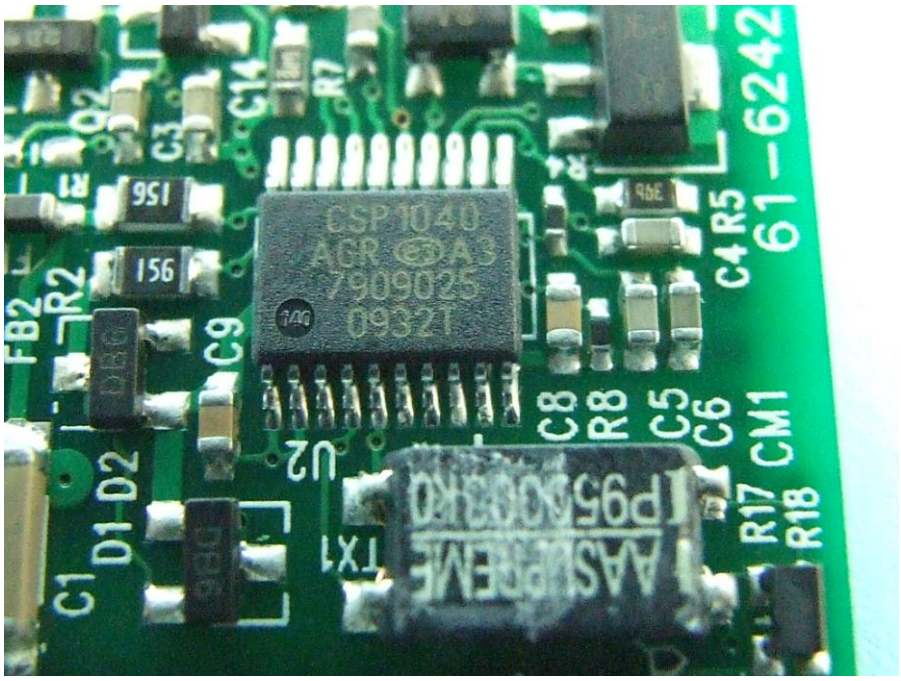


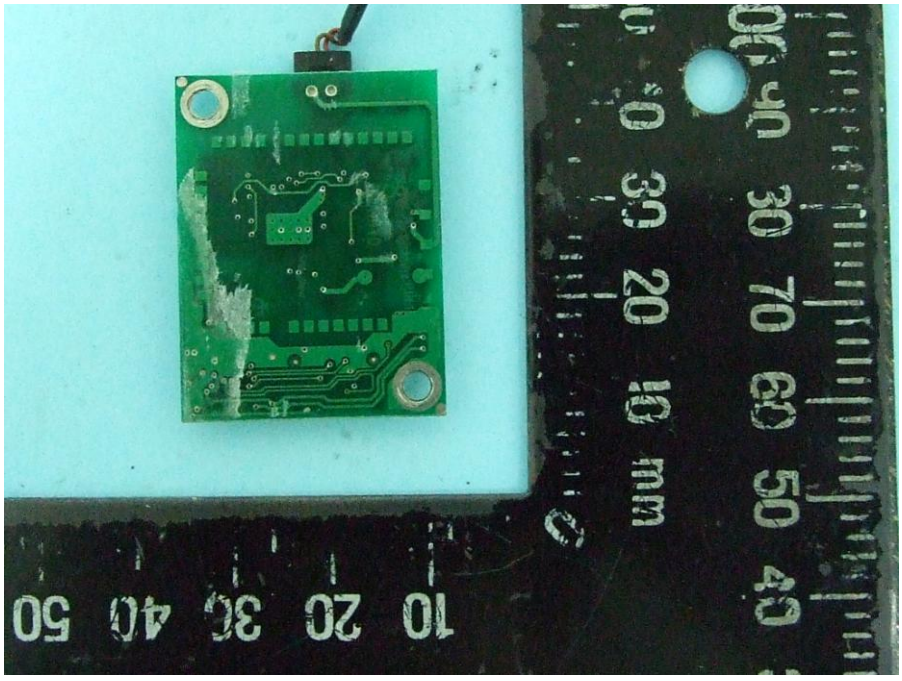


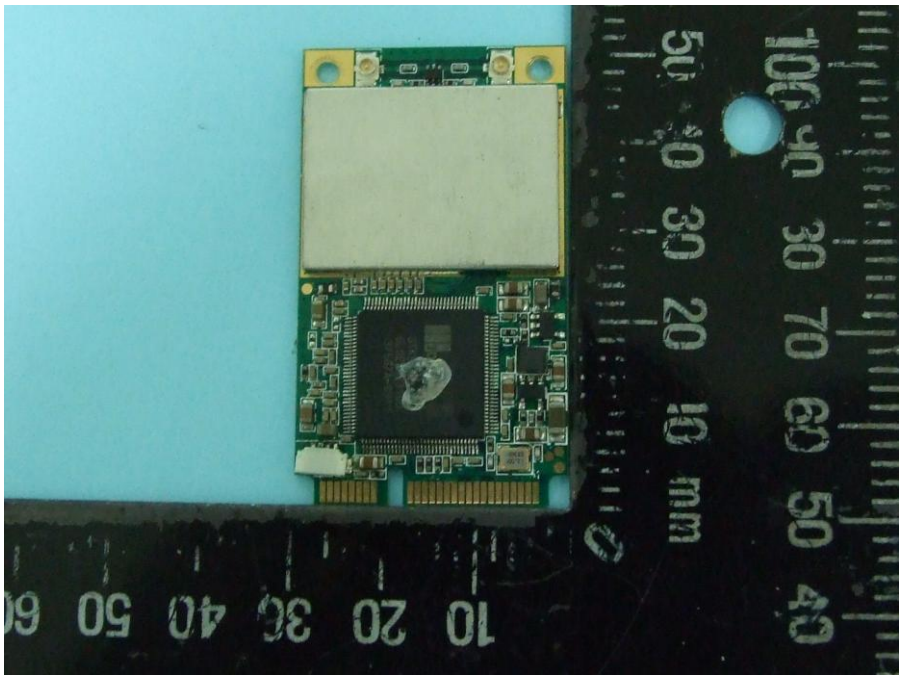


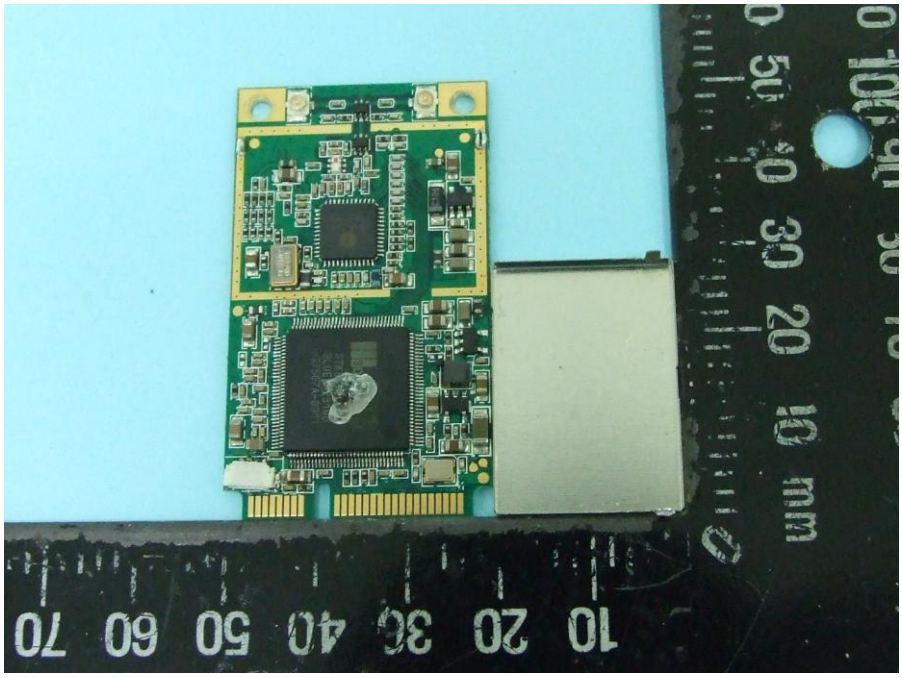


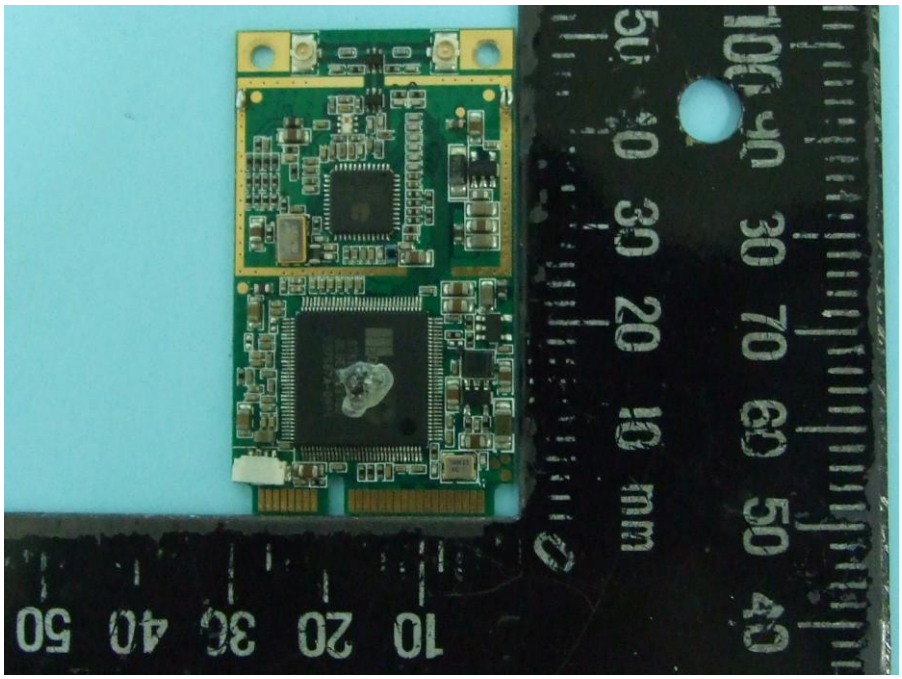


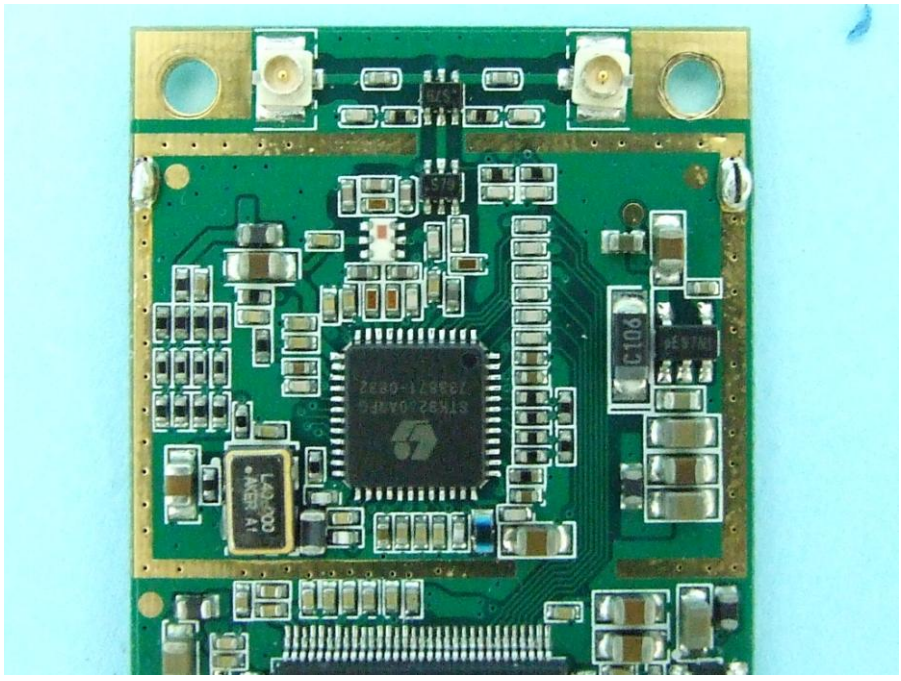

CSP1040
AGR
A3
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09321
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C4 R5
C8
R8
C5
C6
CM1
R17
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C3
D2
R1
156
156

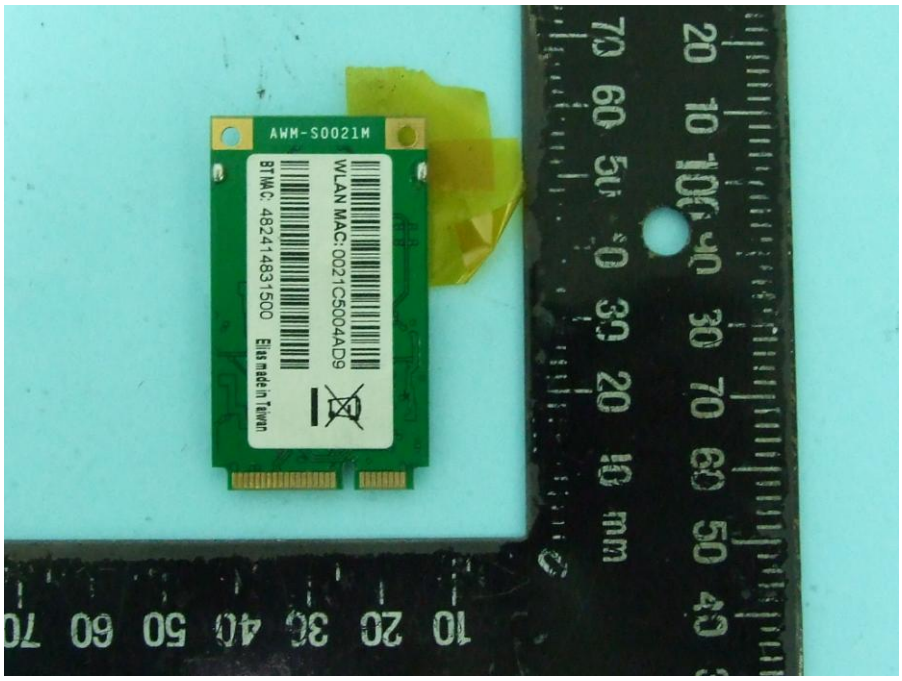

10 20 30 40 50
mm



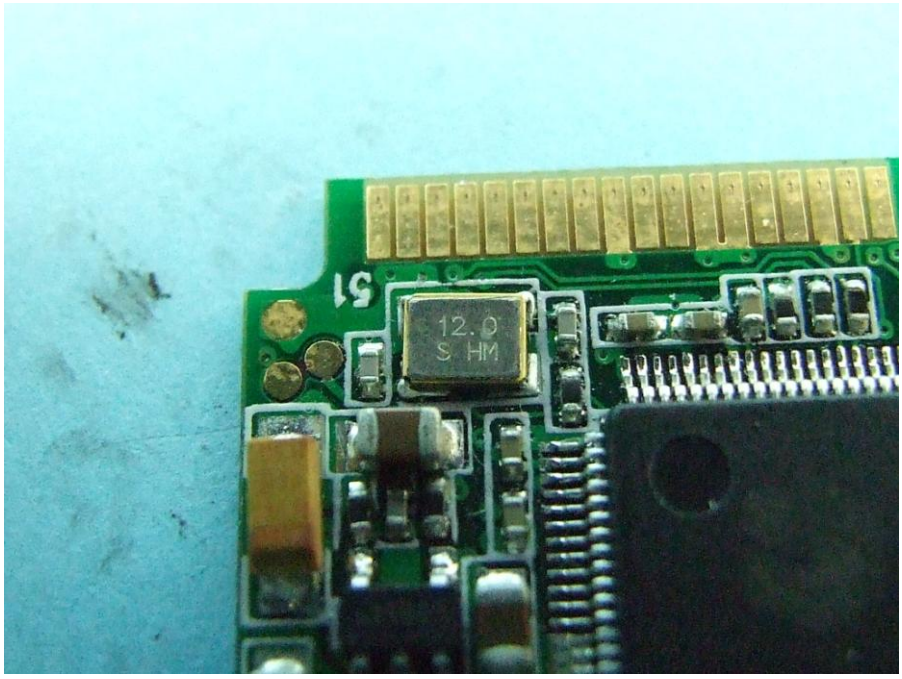




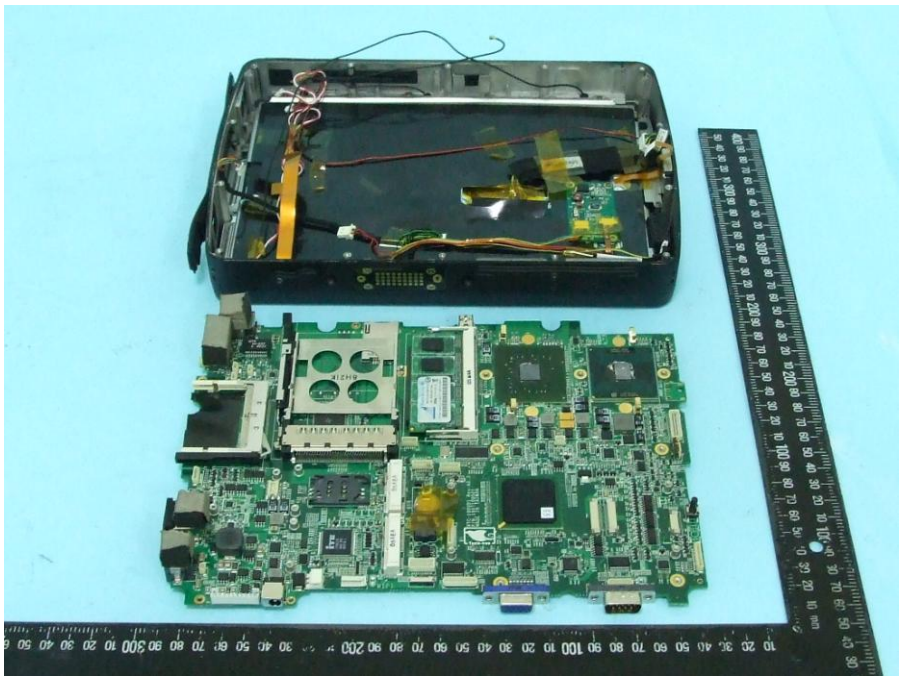


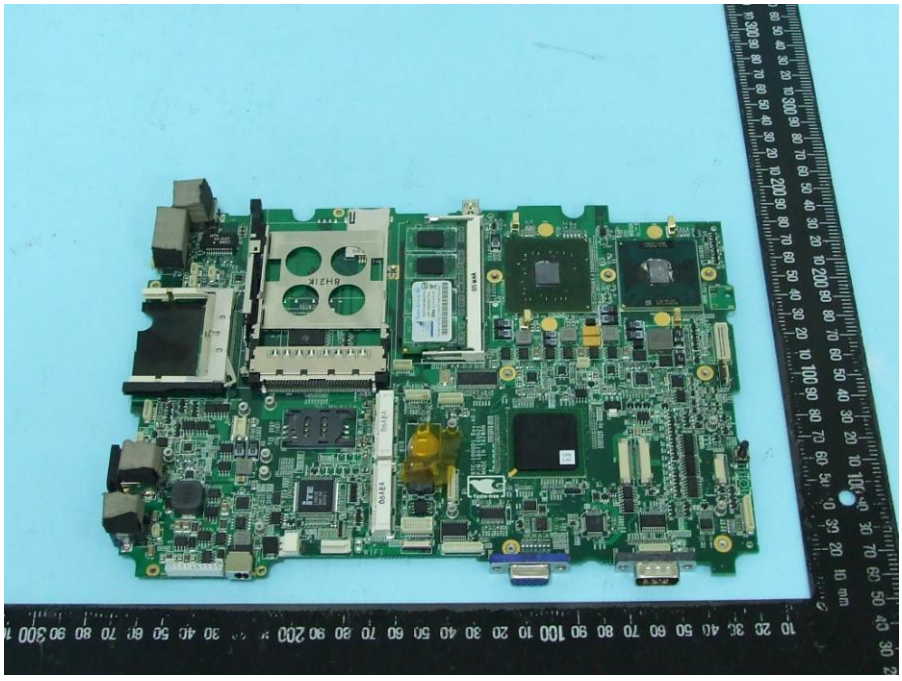

AWM-S0021M
WLAN MAC: 0021C5004AD9
BT MAC: 482414831500
Elite made in Taiwan

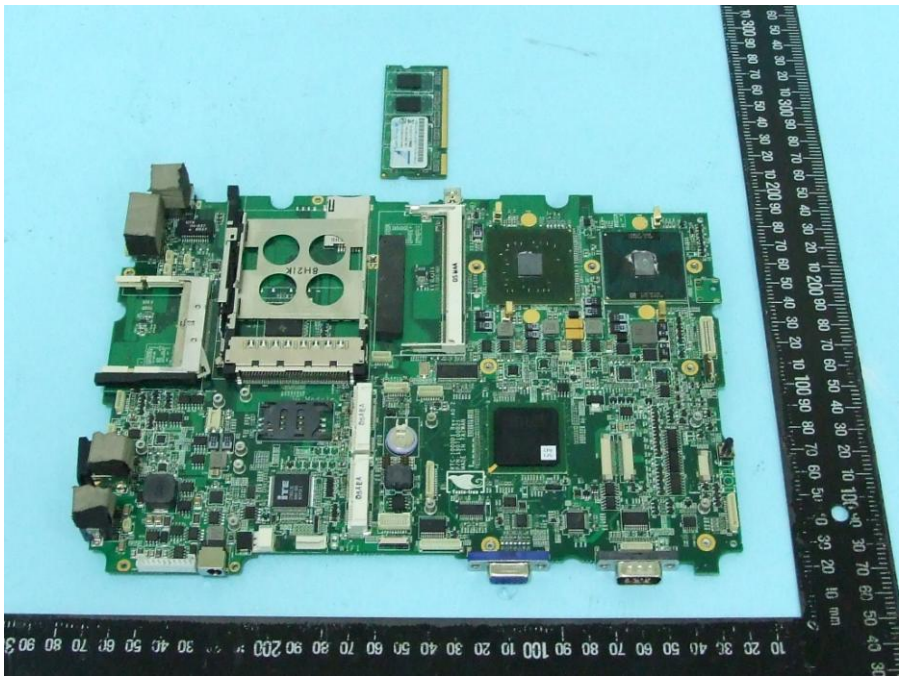

DSP
STK9100CLQG
BLUEW-2310U
H39952A-0917


12.0
S HM



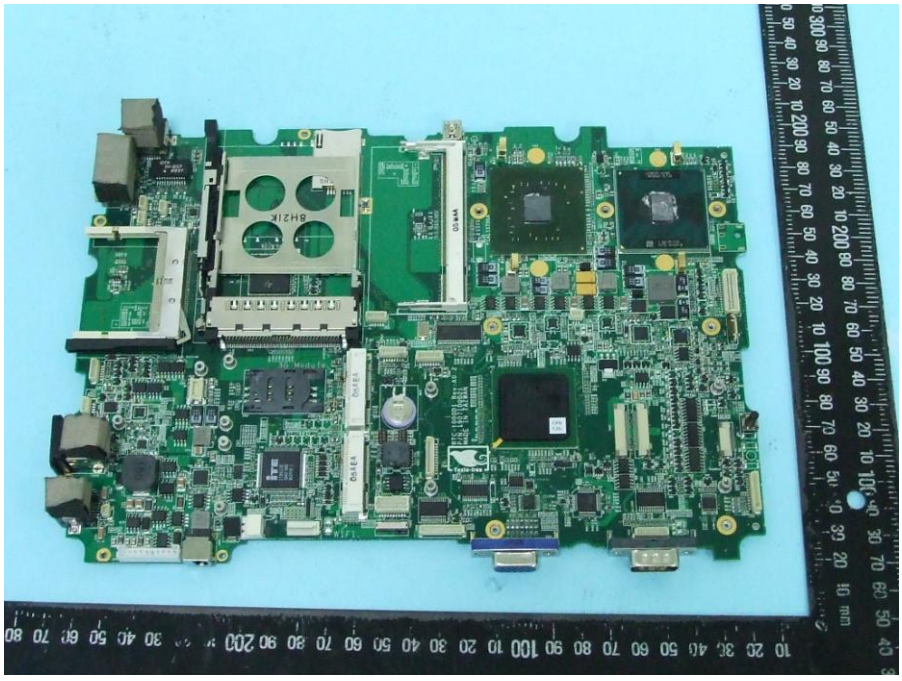







U1
U2
U3
U4
Team Group INC
TSDD1024M667C5-E
1GB DDRII667MHz
Elite CL=5-5-5-15
Warranty void if removed

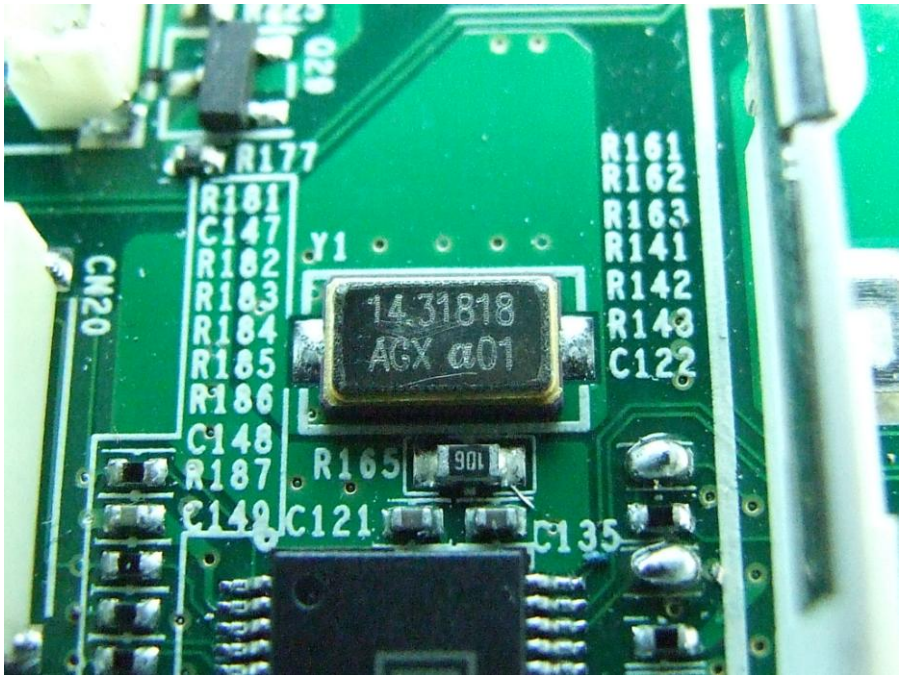

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U7
U8
U9
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0 30 20 10 mm

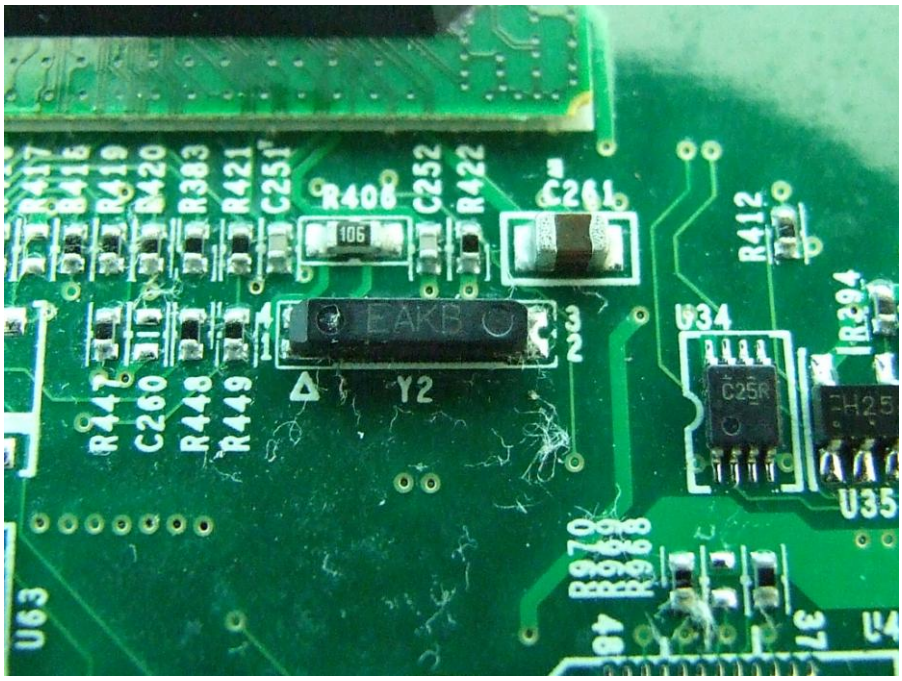


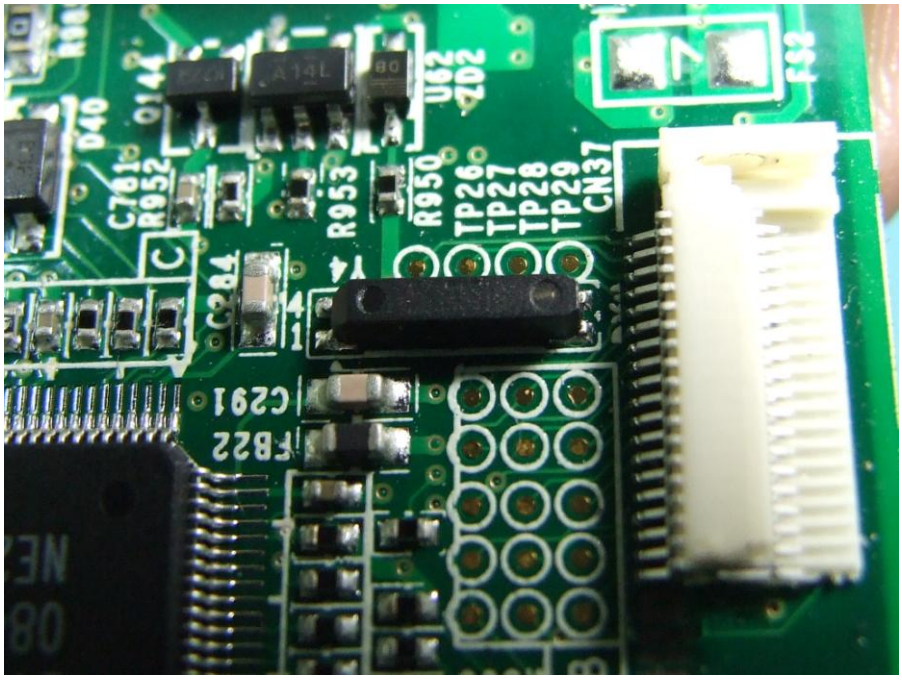

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L841B963 SL9JQ
1.20/2M/533
INTEL ©04
PAD5
PAD7
CN11

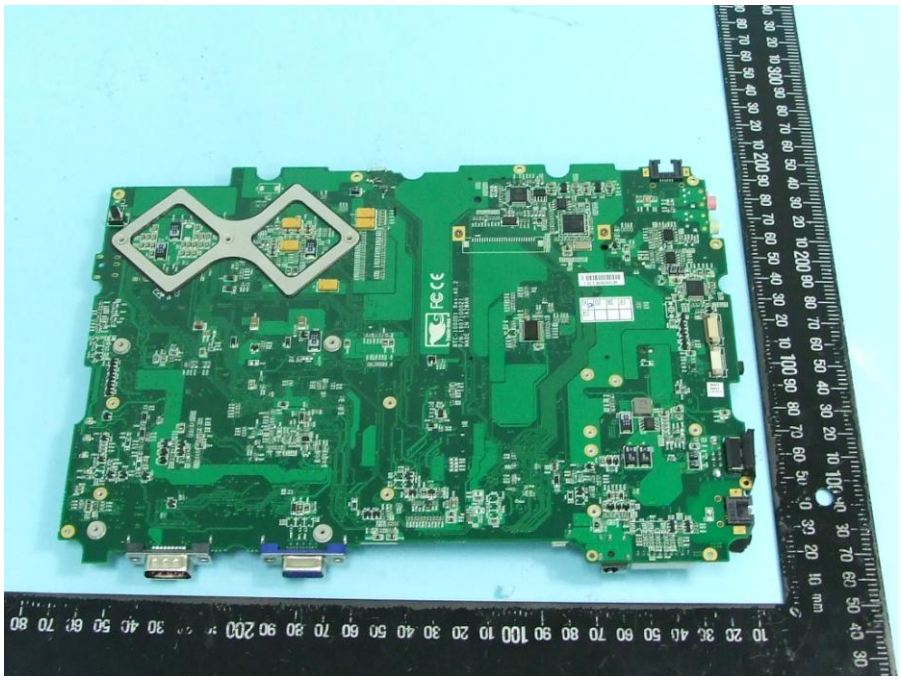

intel
NH82801GBM
L012NA70
SL8YB
©04
TAIWAN
CPU
1.2G

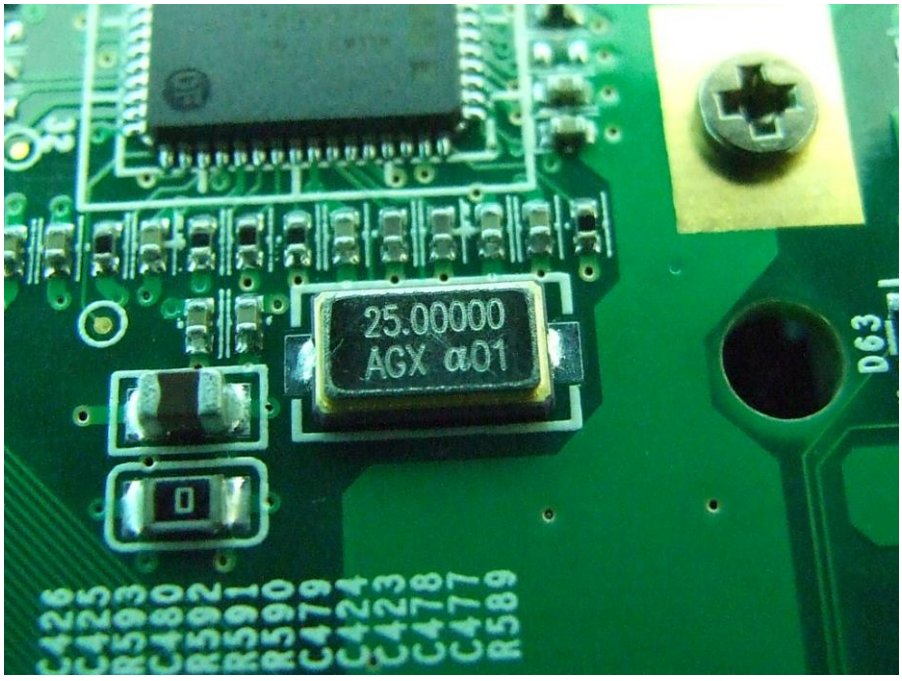

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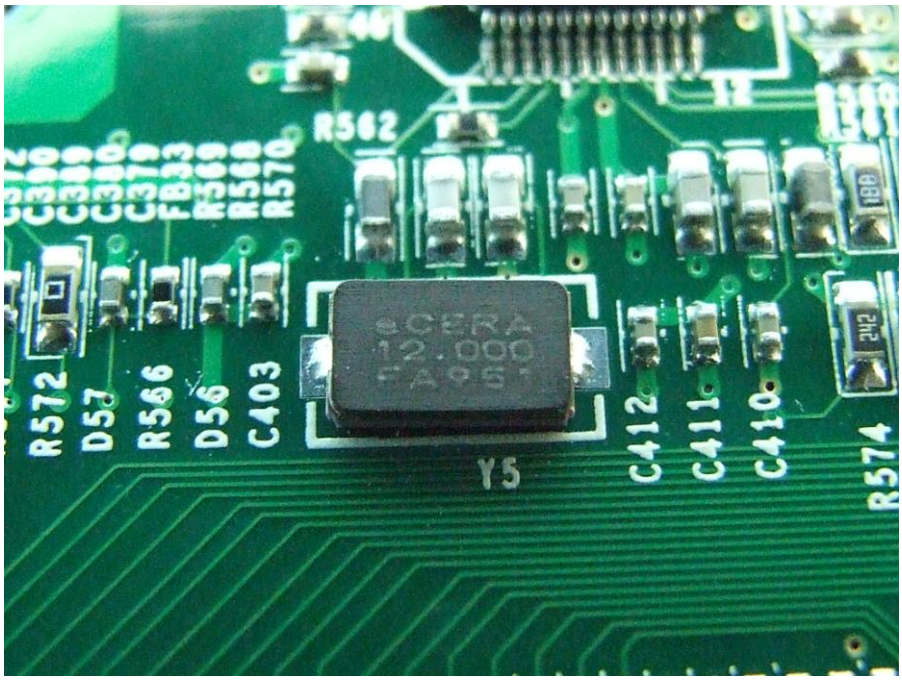

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R417
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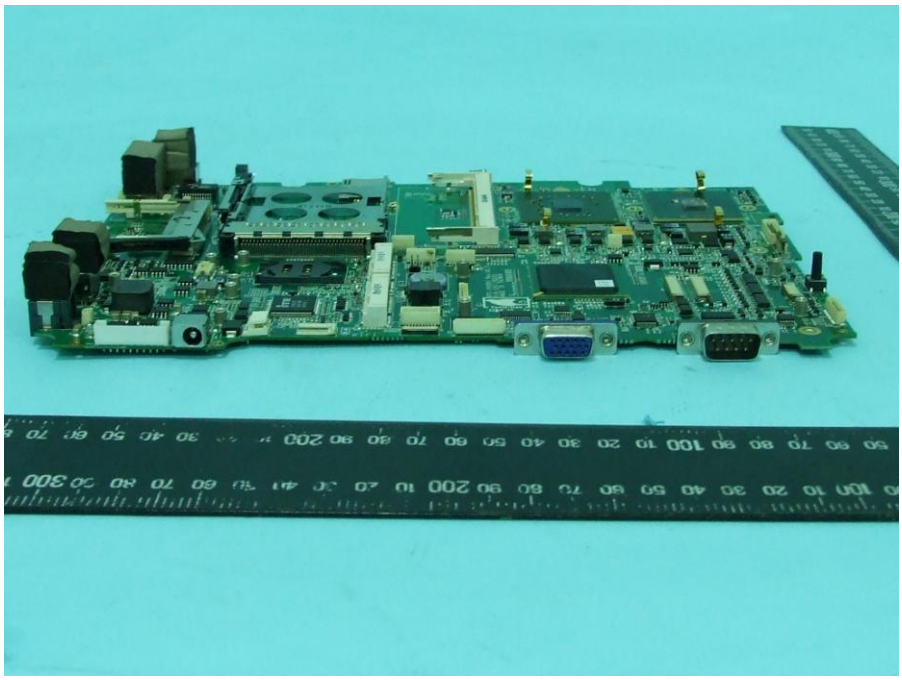

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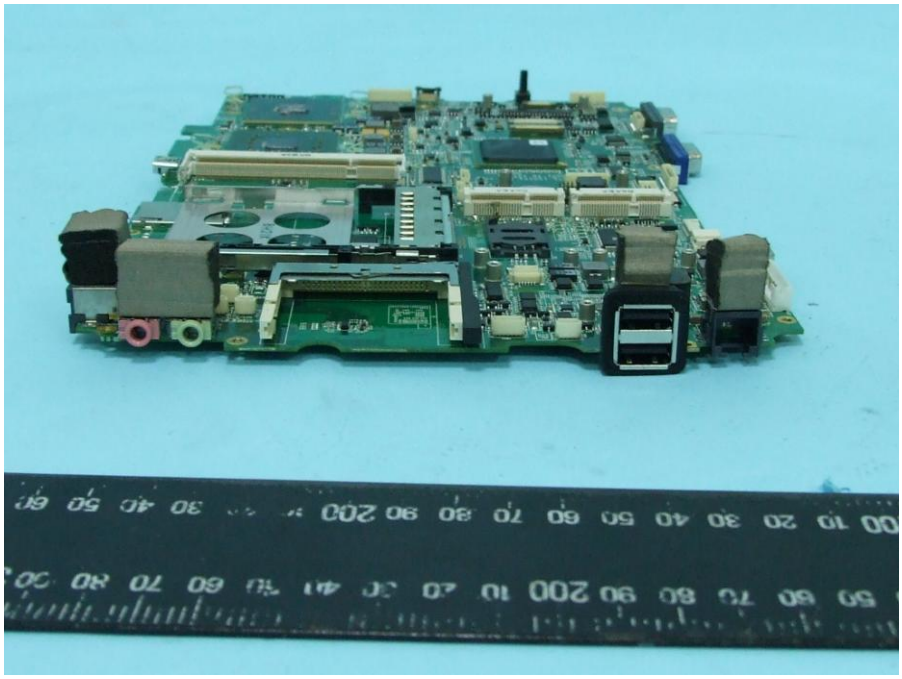


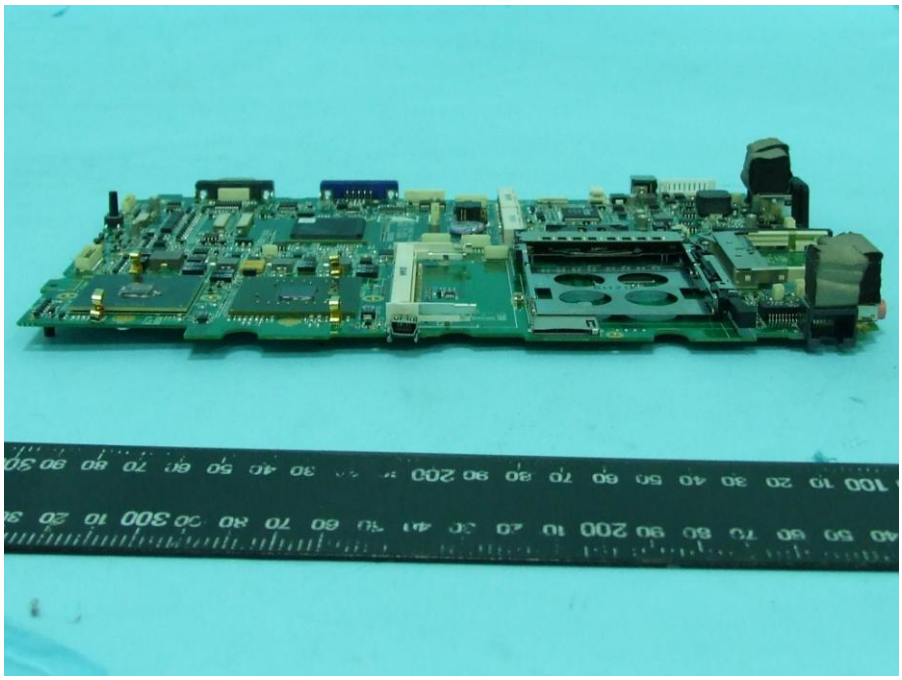

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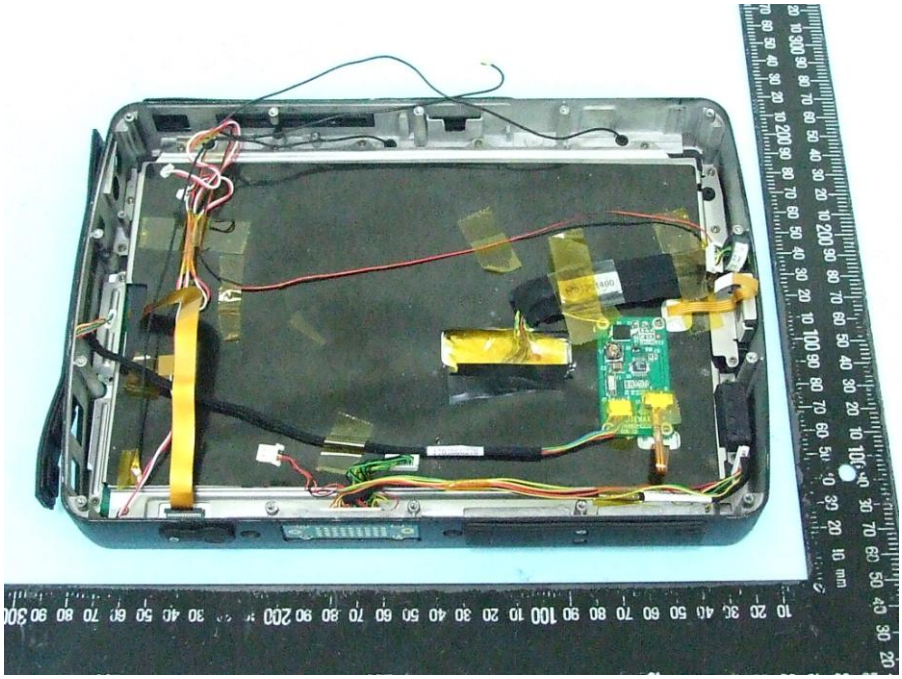

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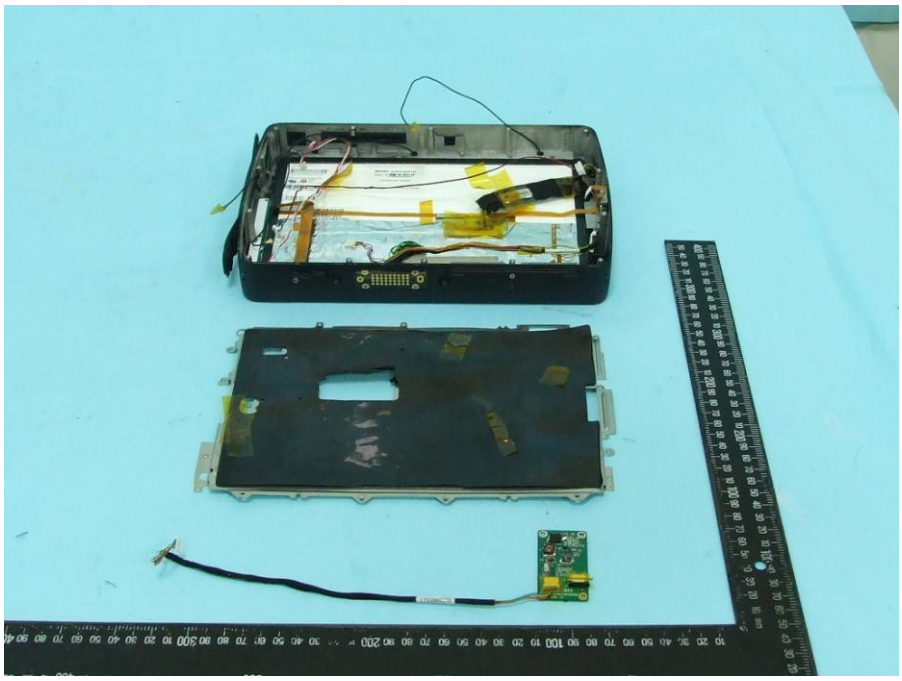

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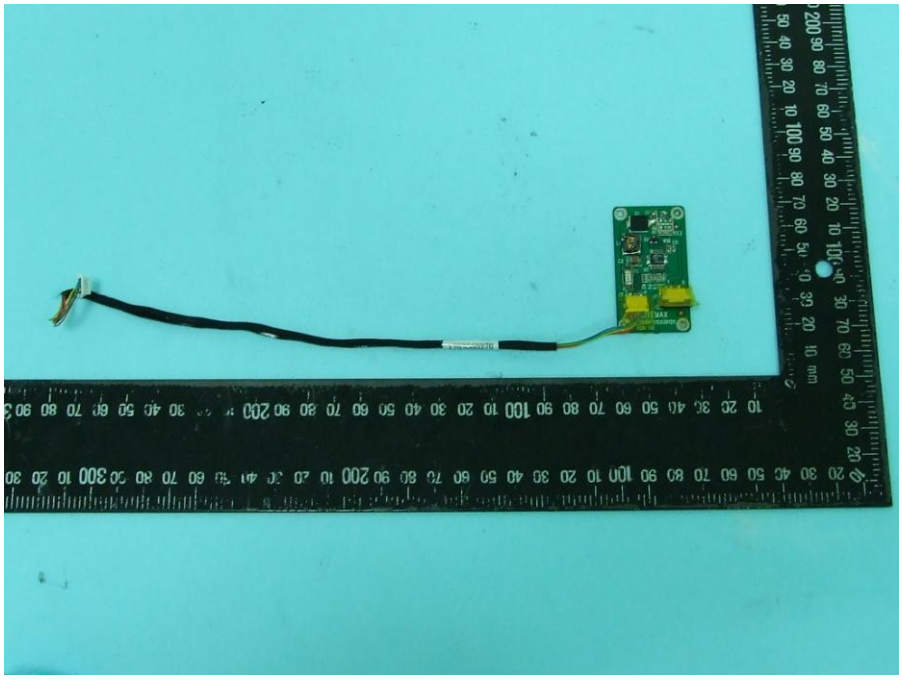


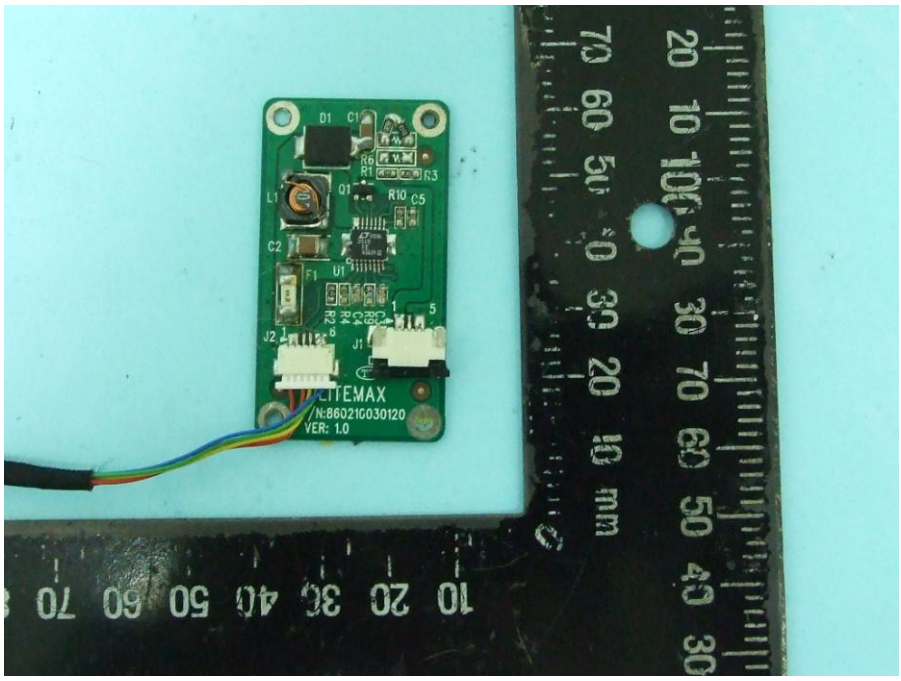


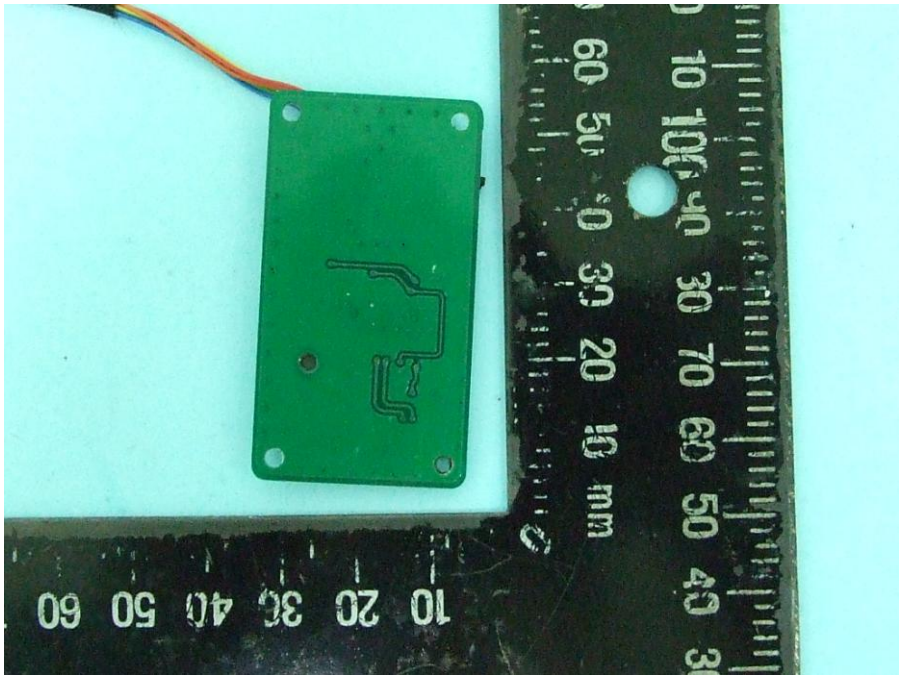




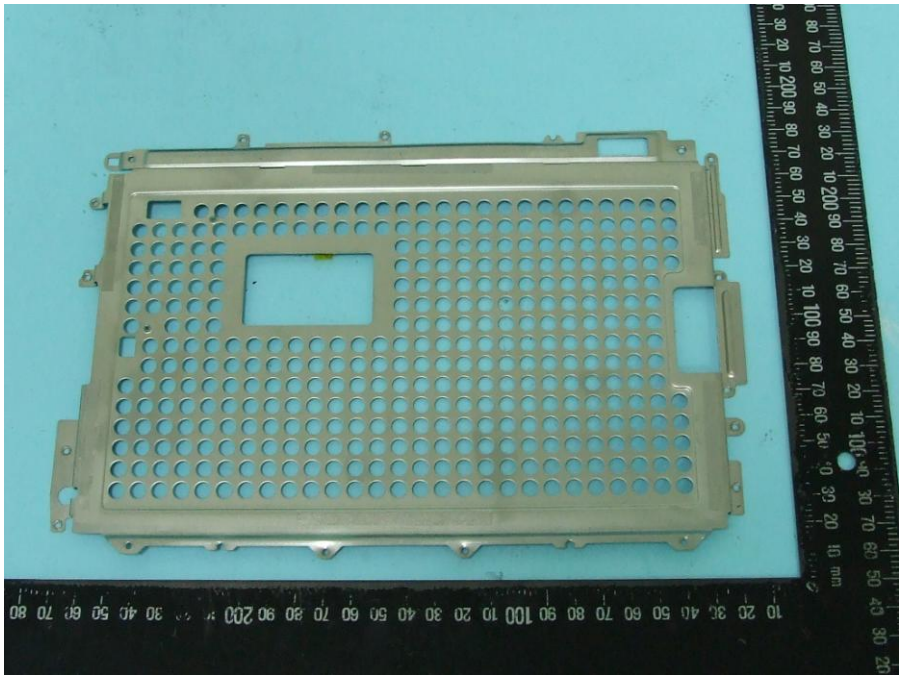


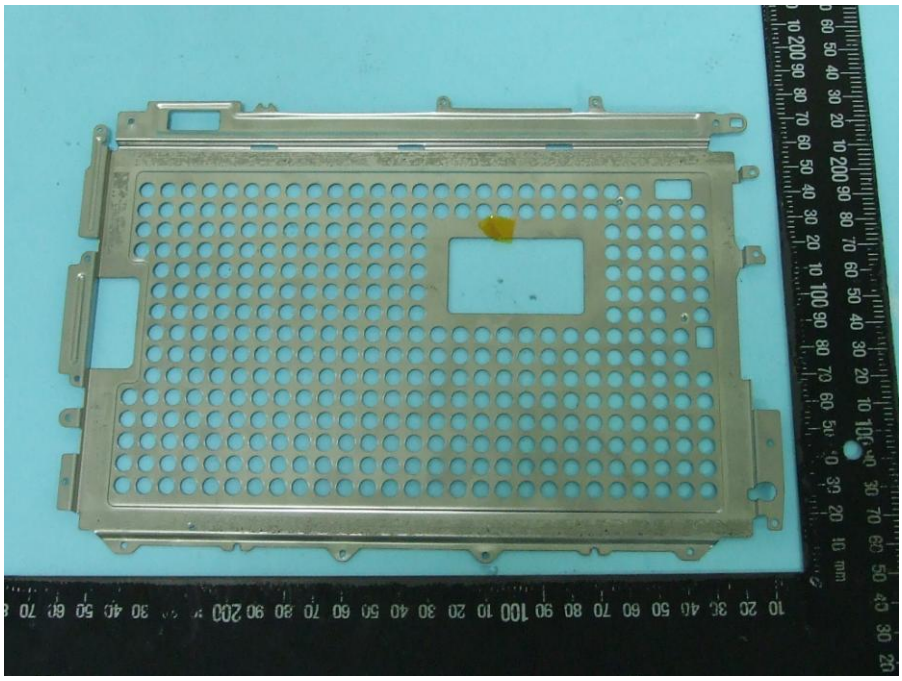


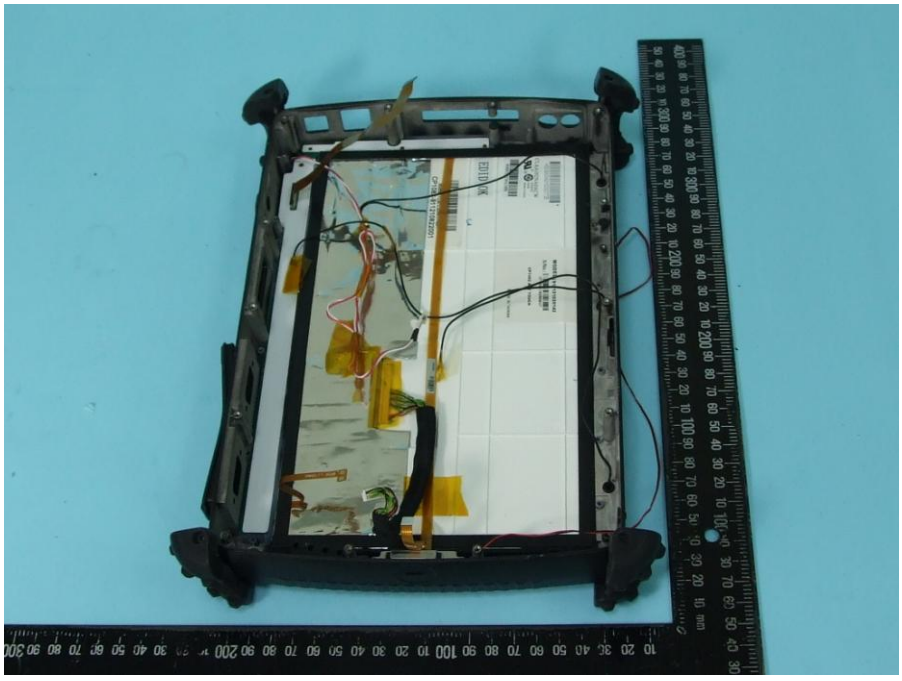

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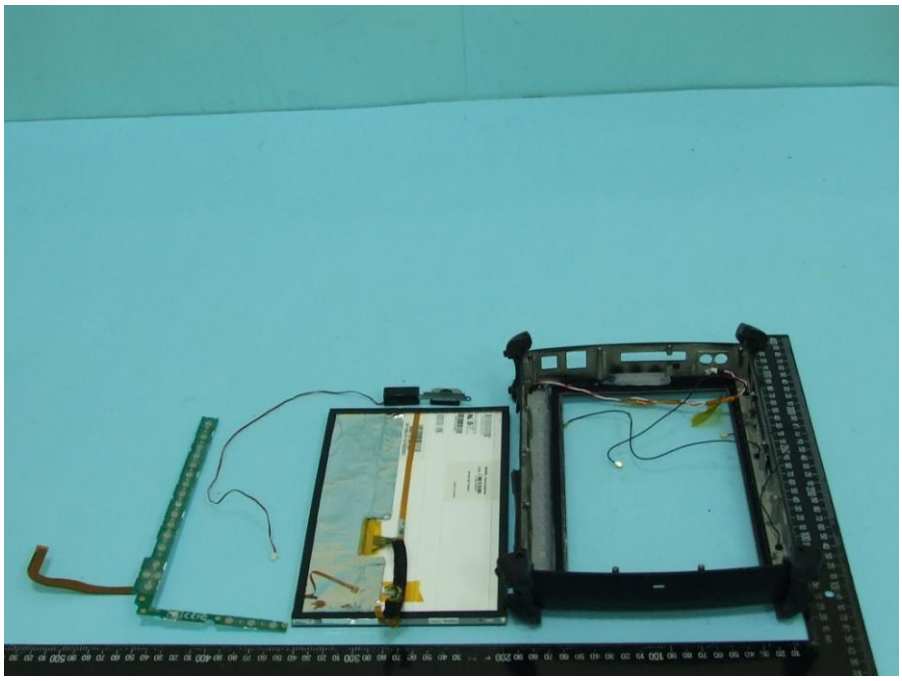


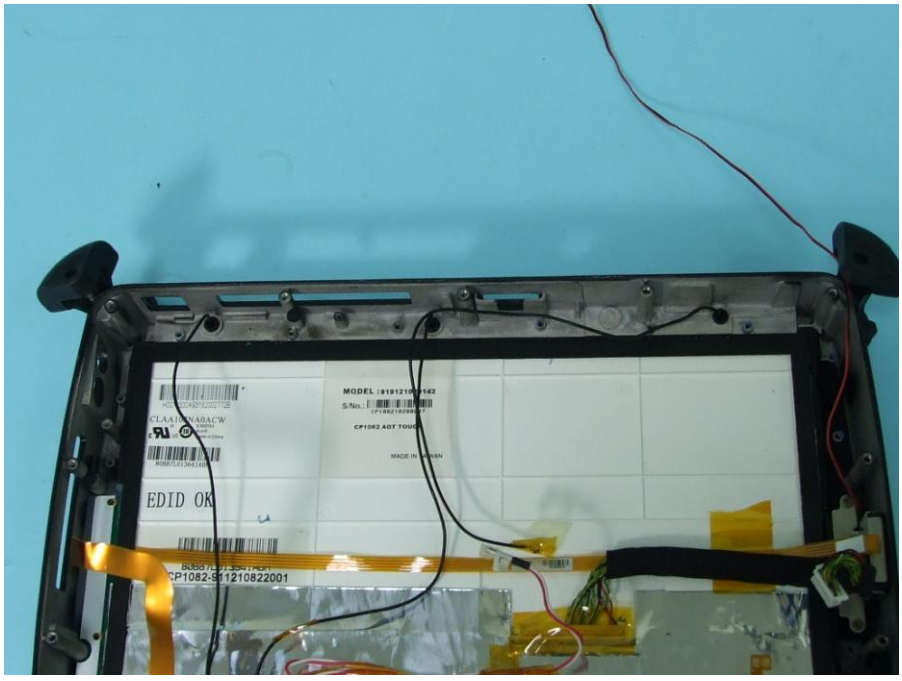


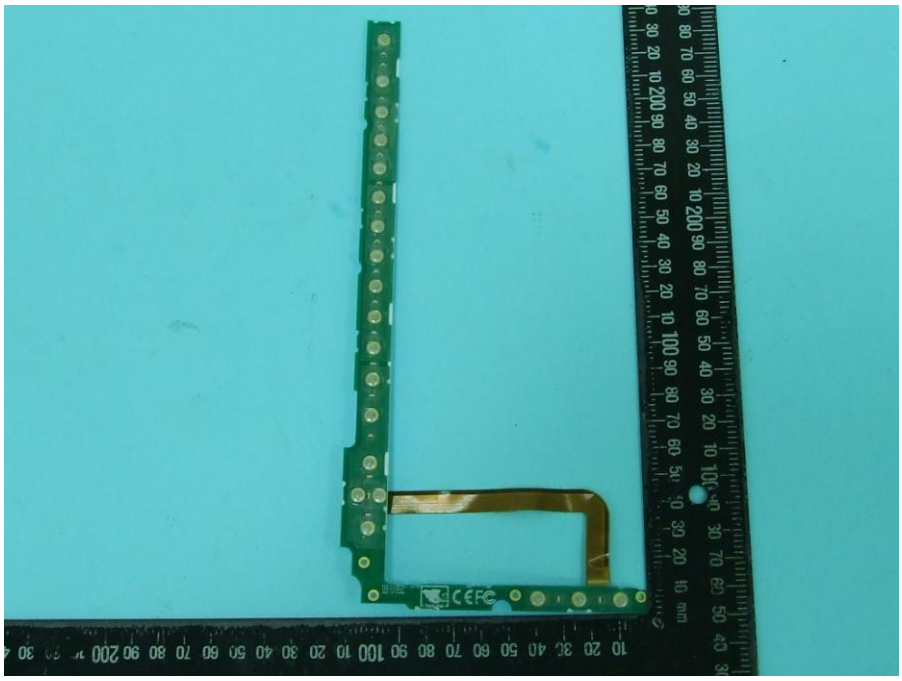


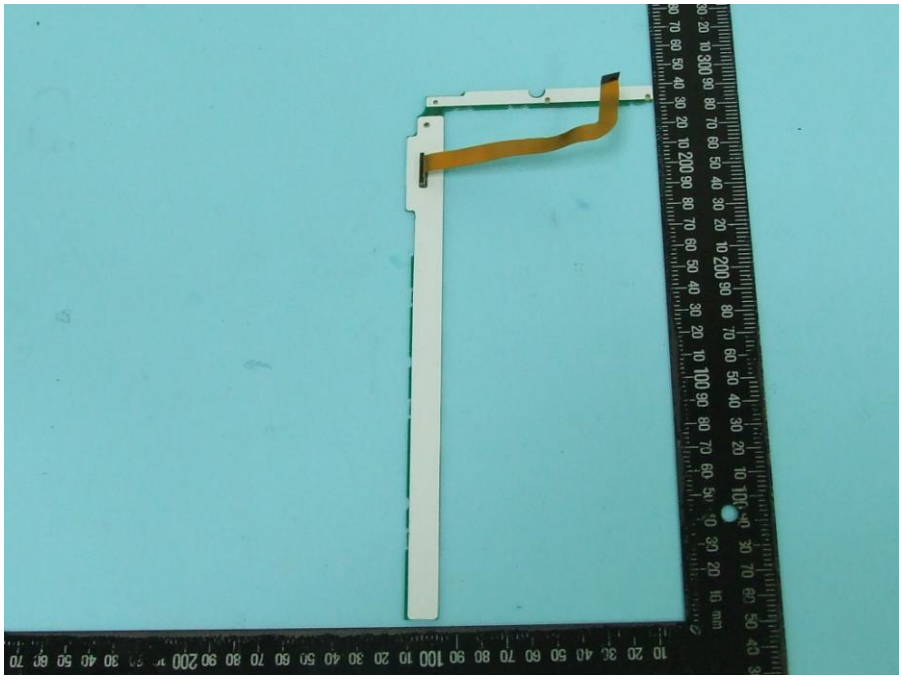




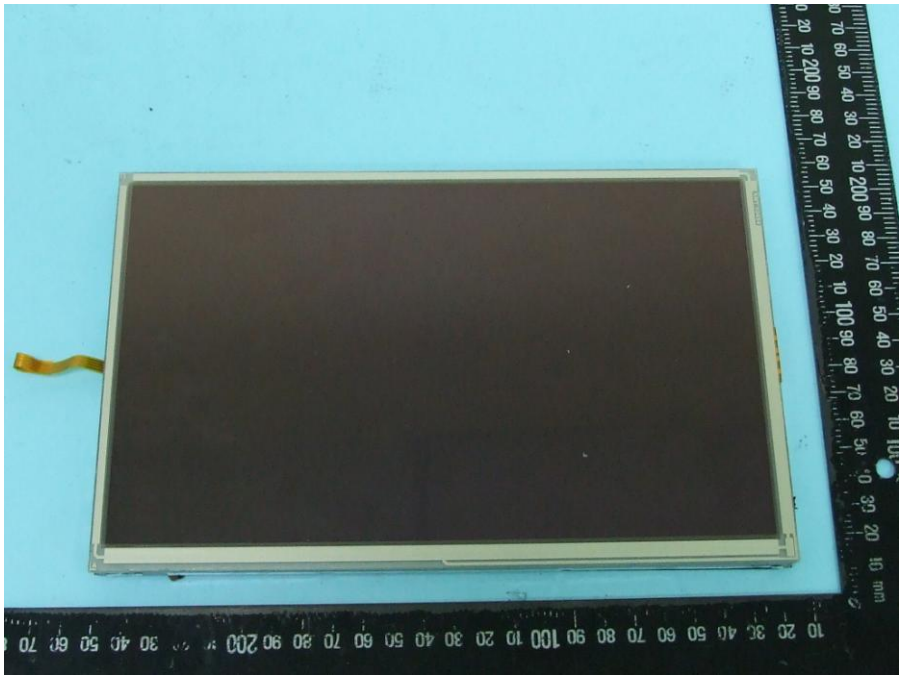


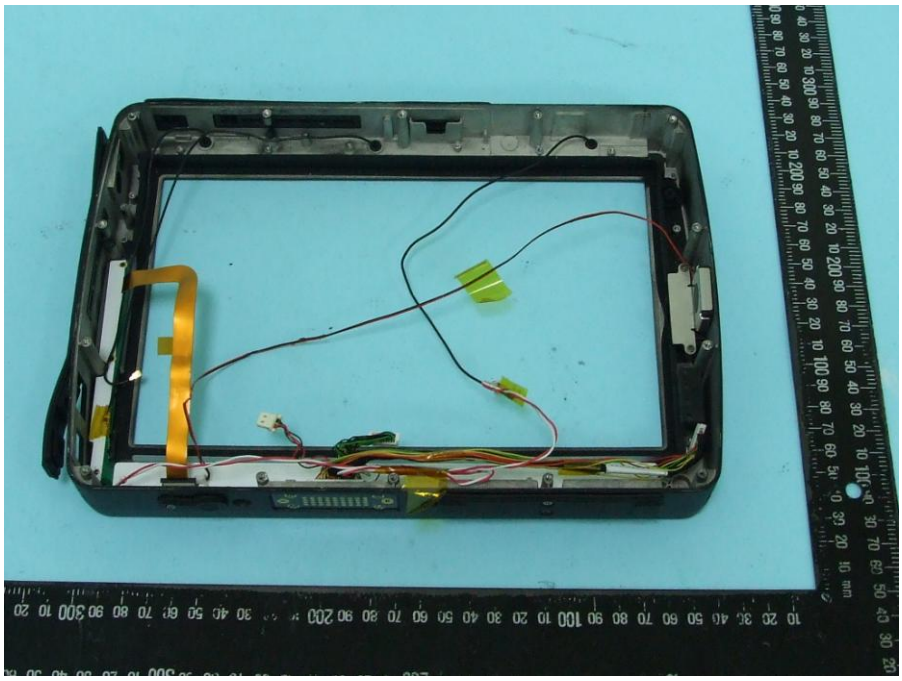

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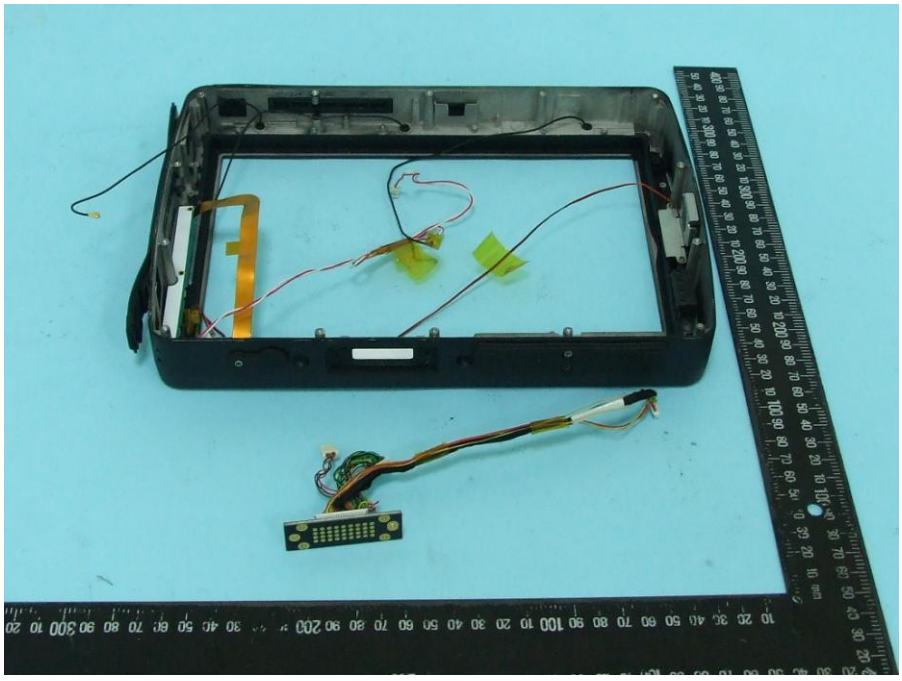


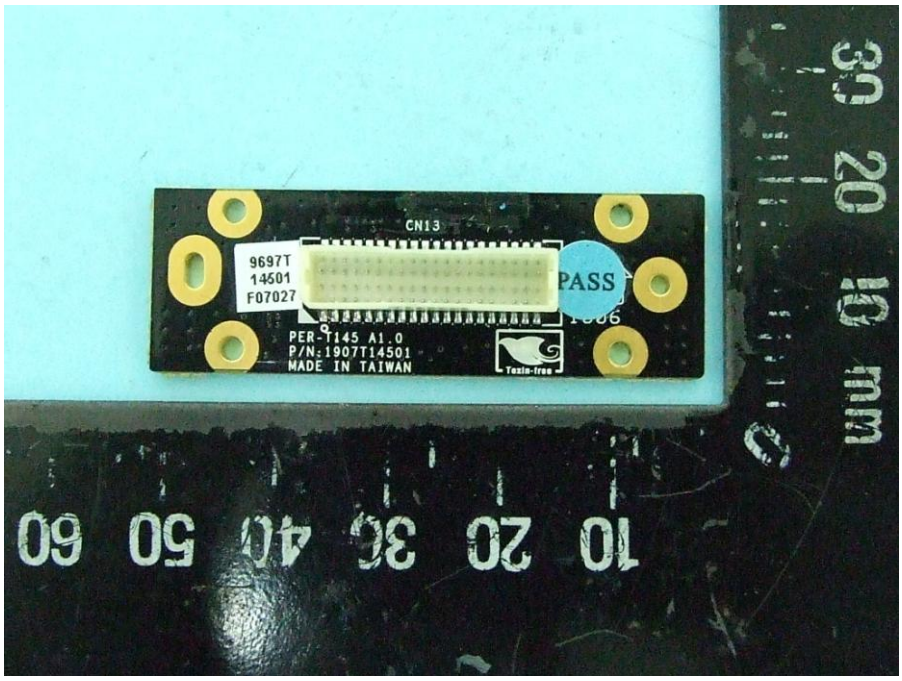


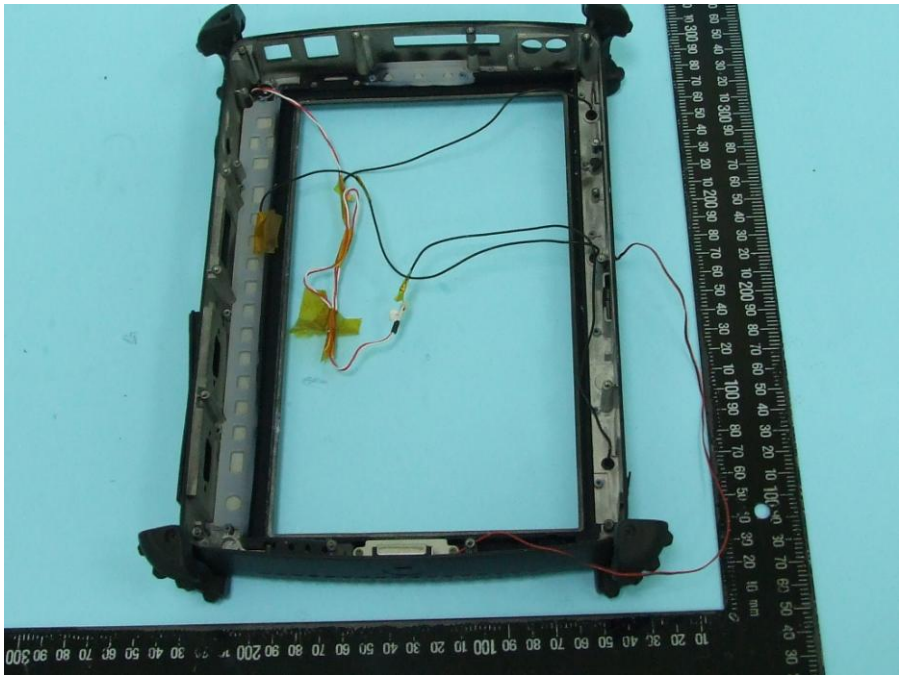

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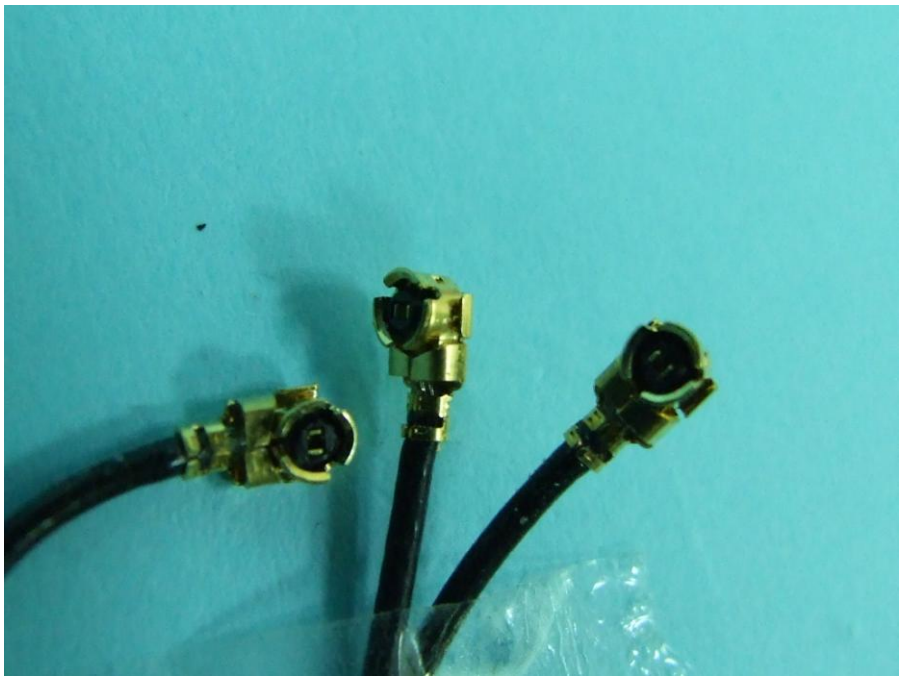


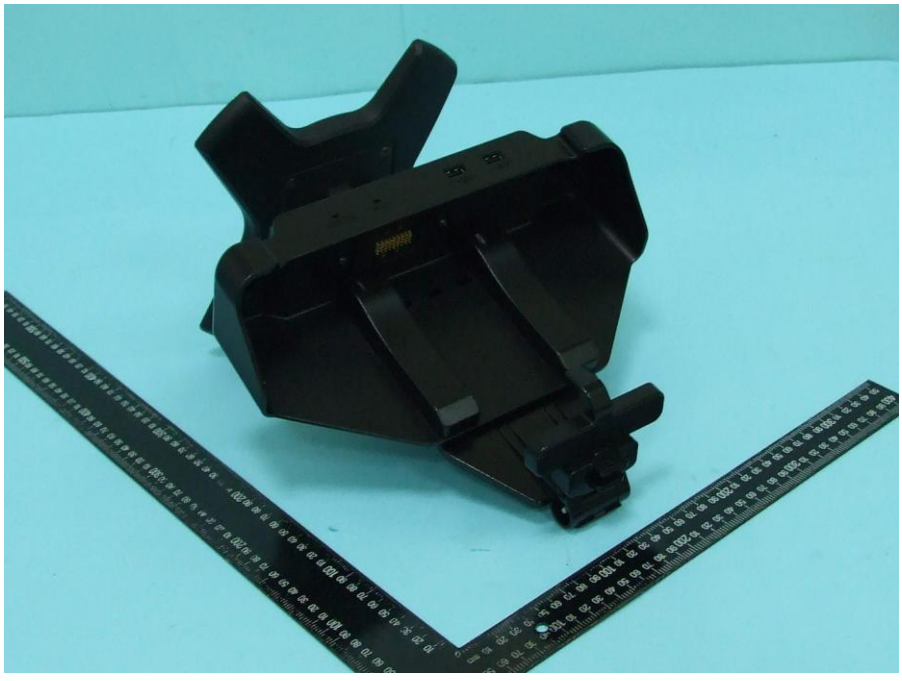





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MADE IN TAIWAN
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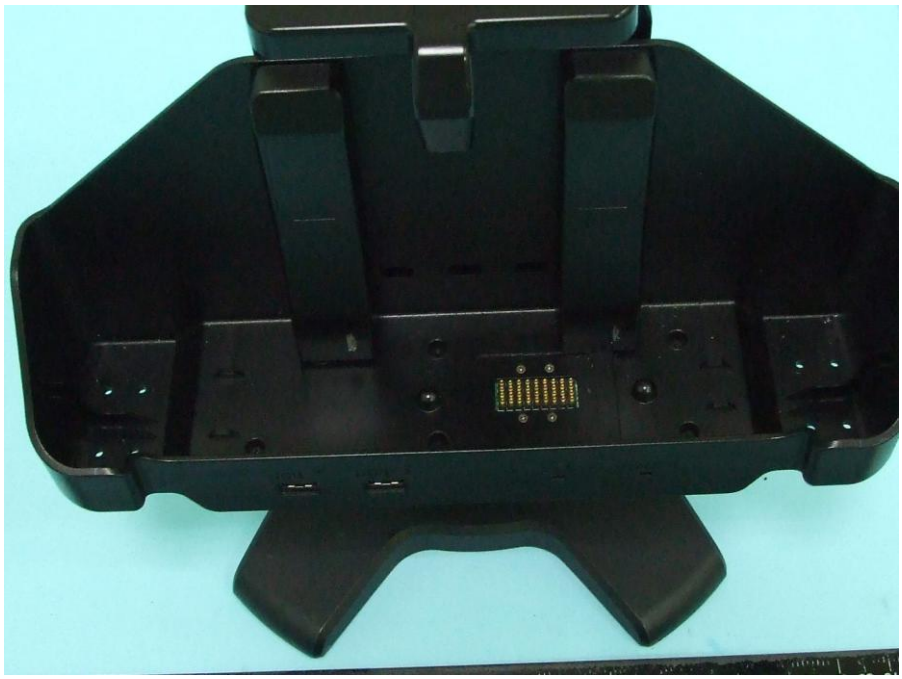


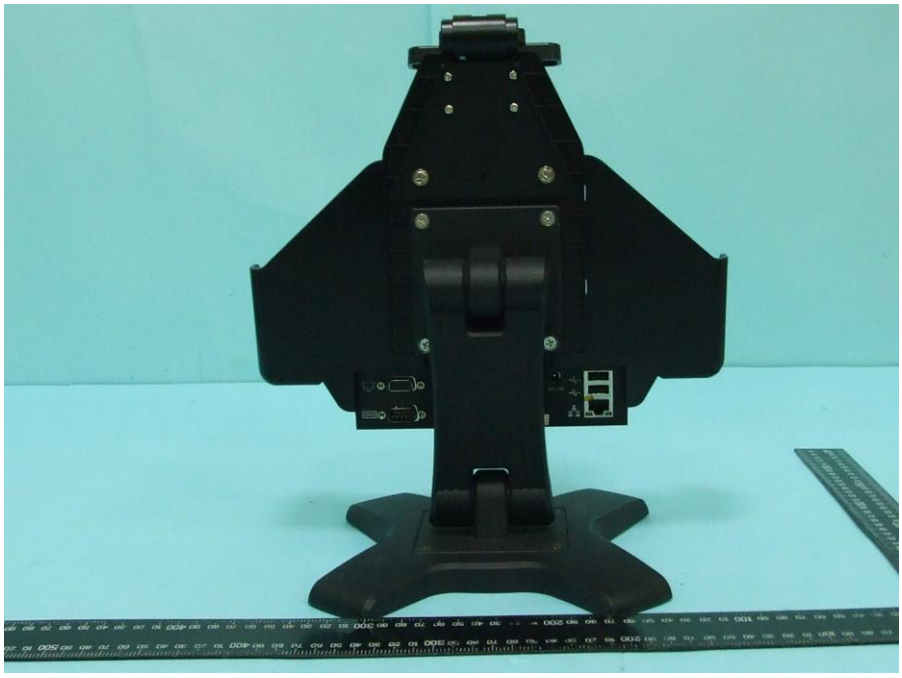




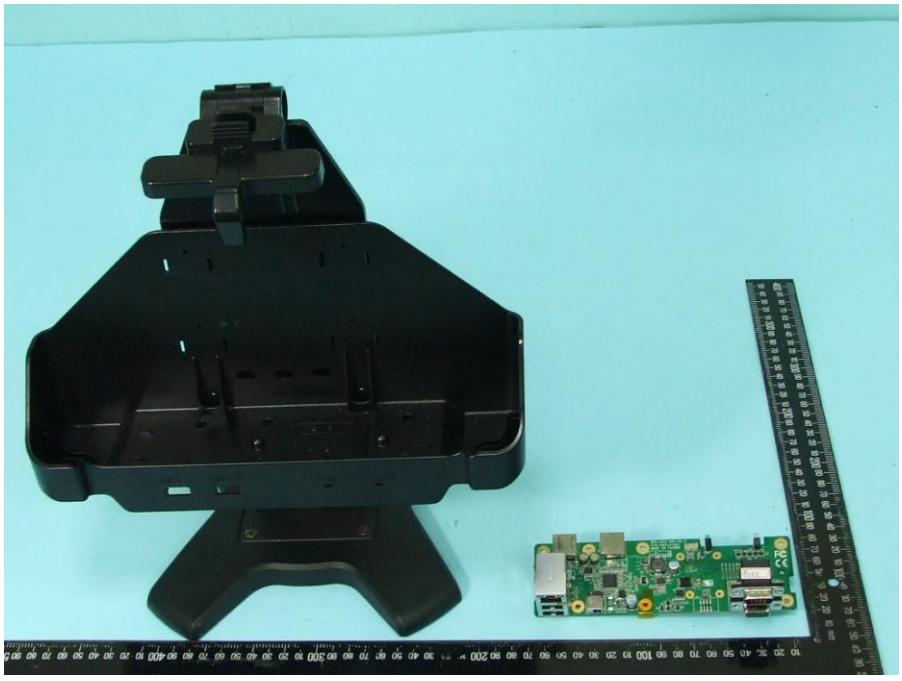


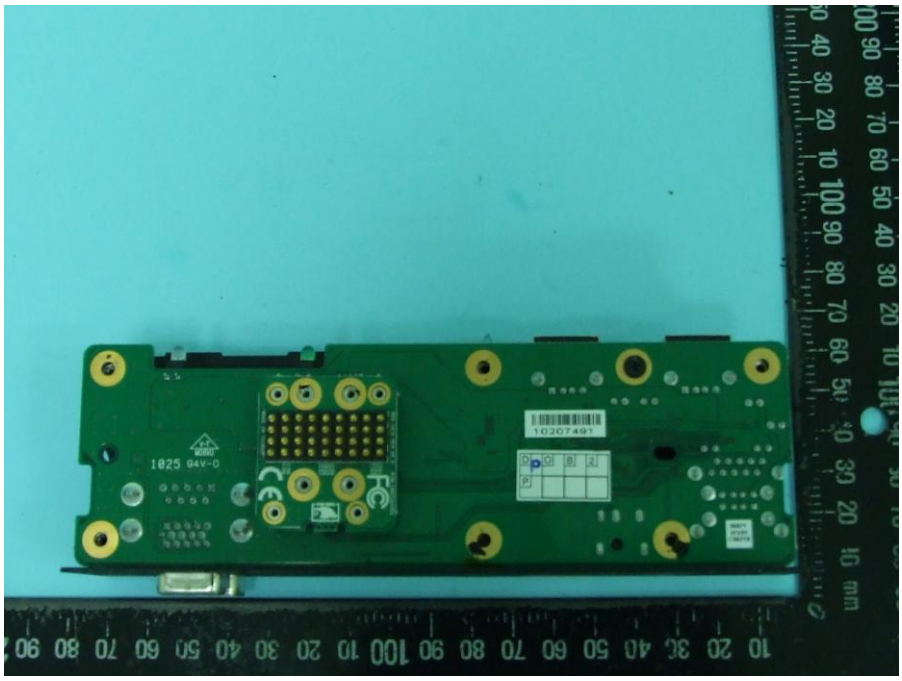


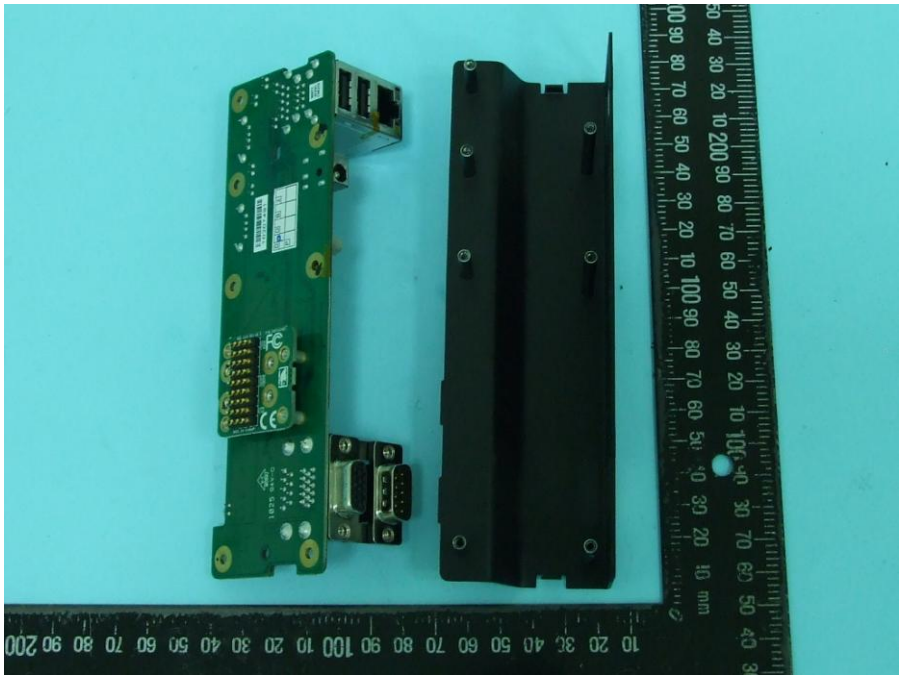


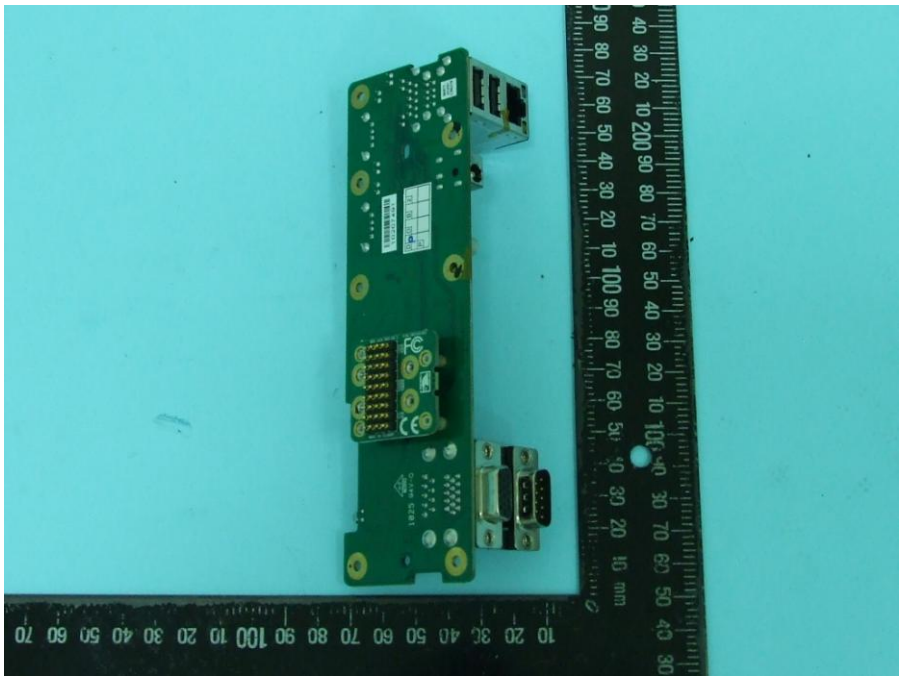


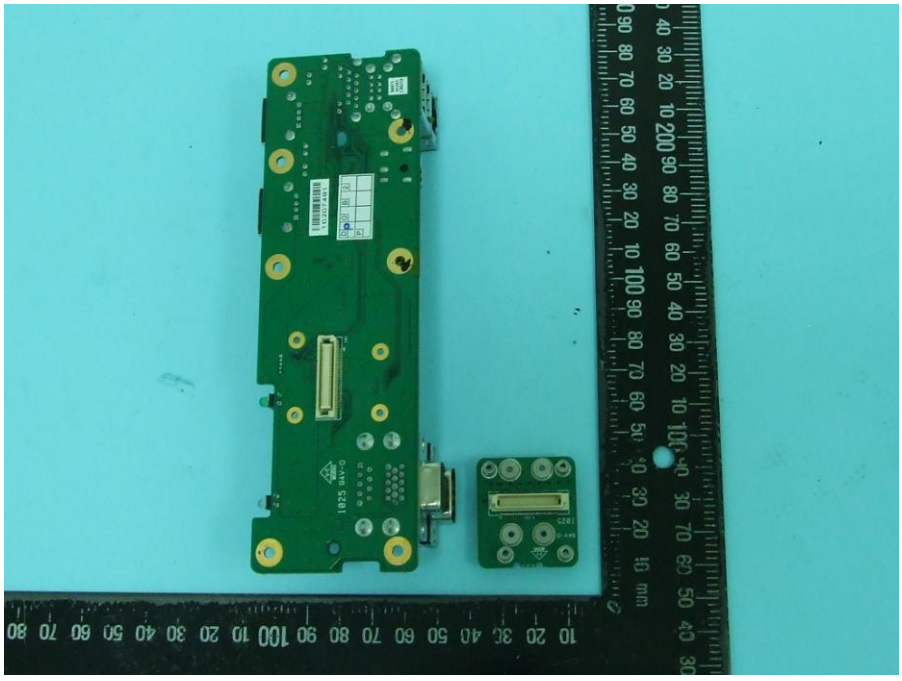

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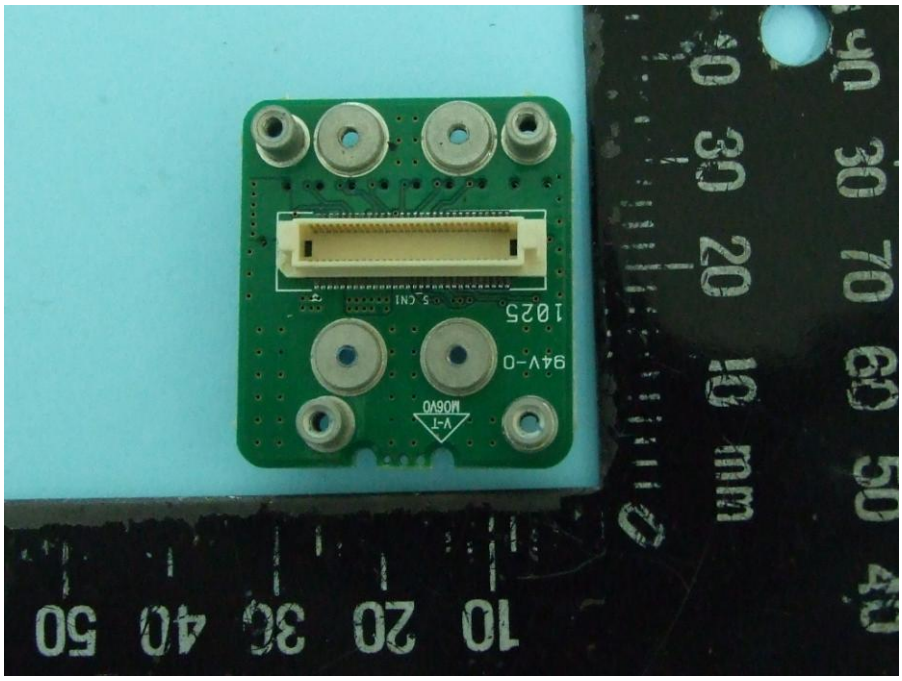


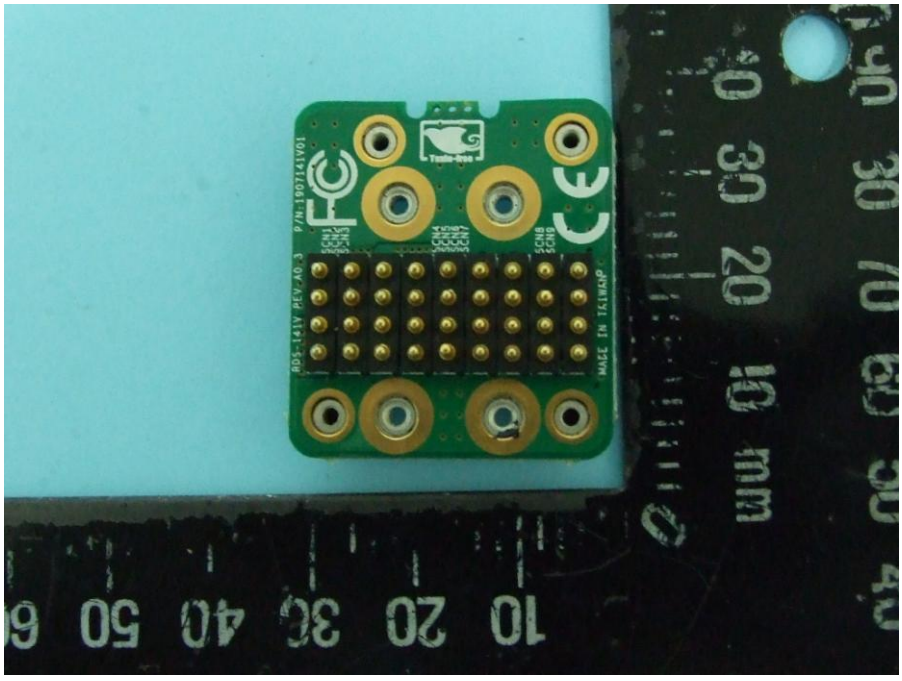


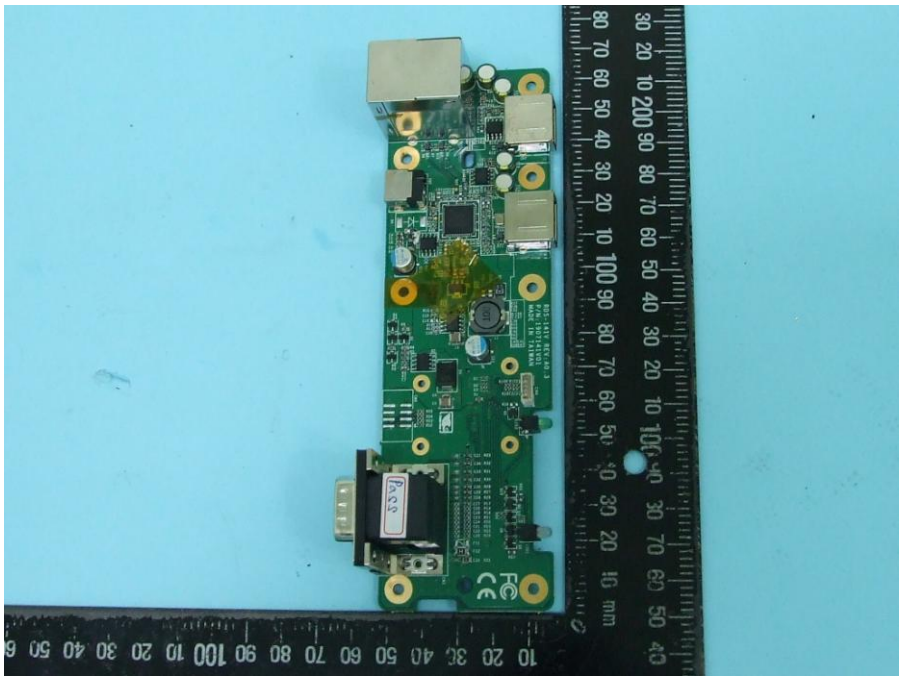


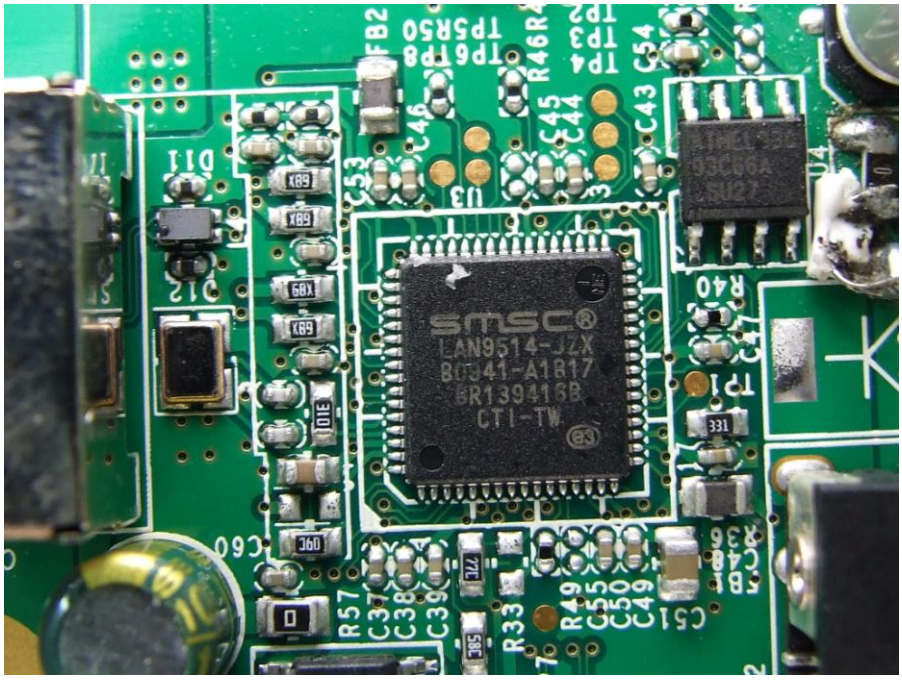


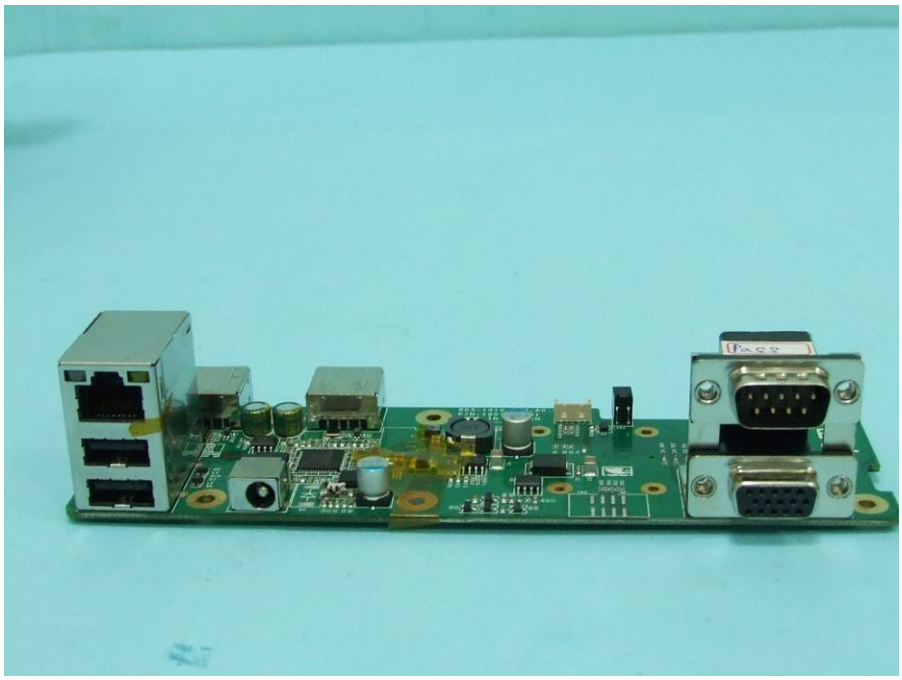


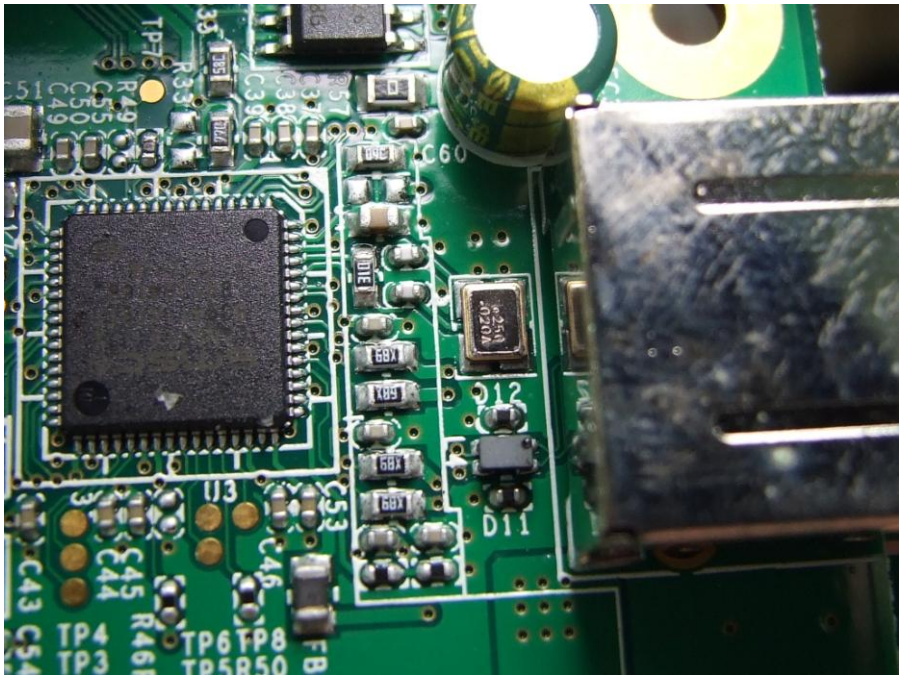

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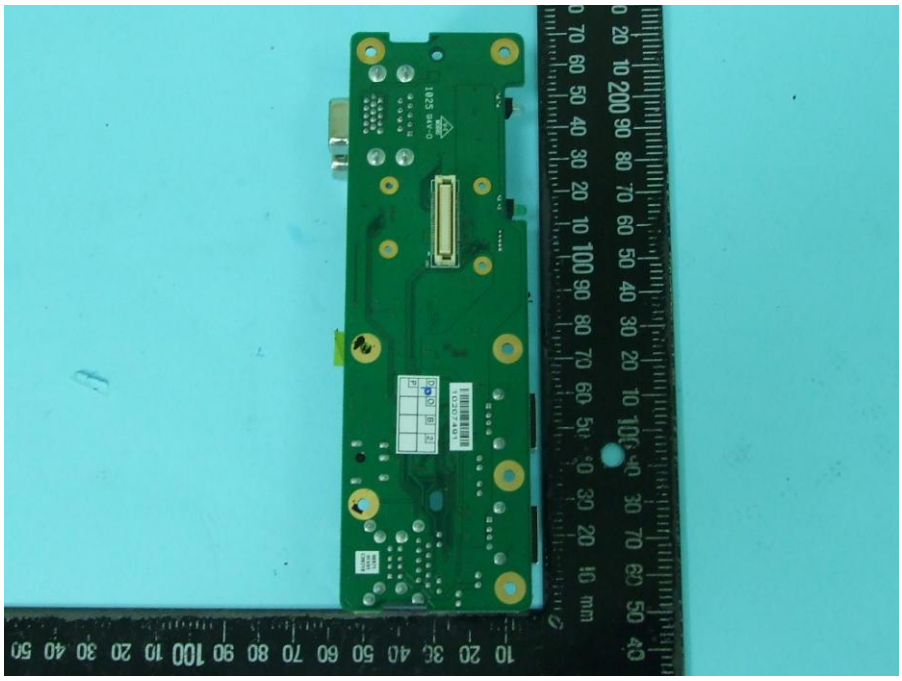

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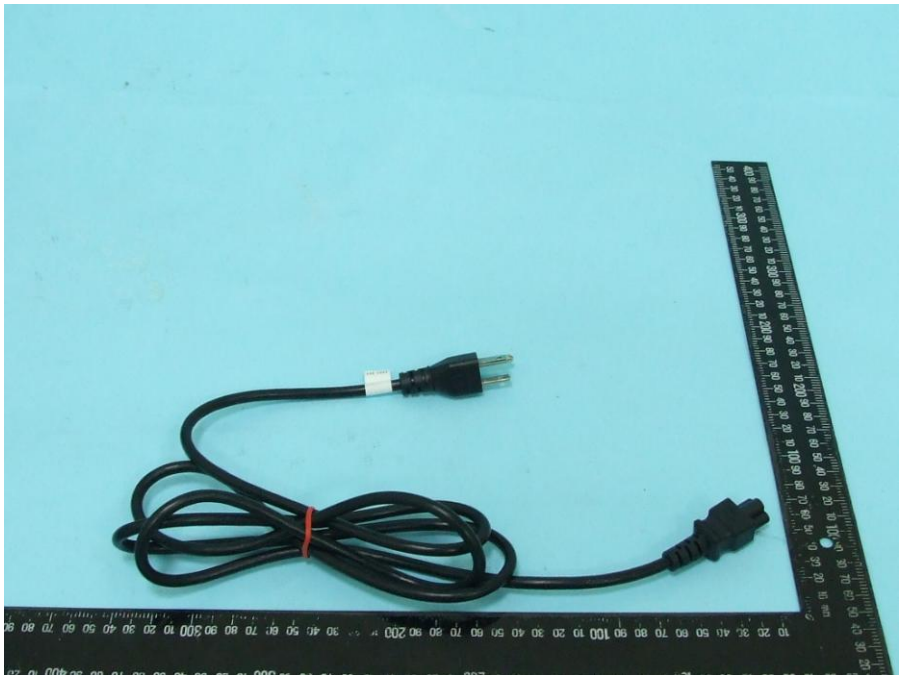



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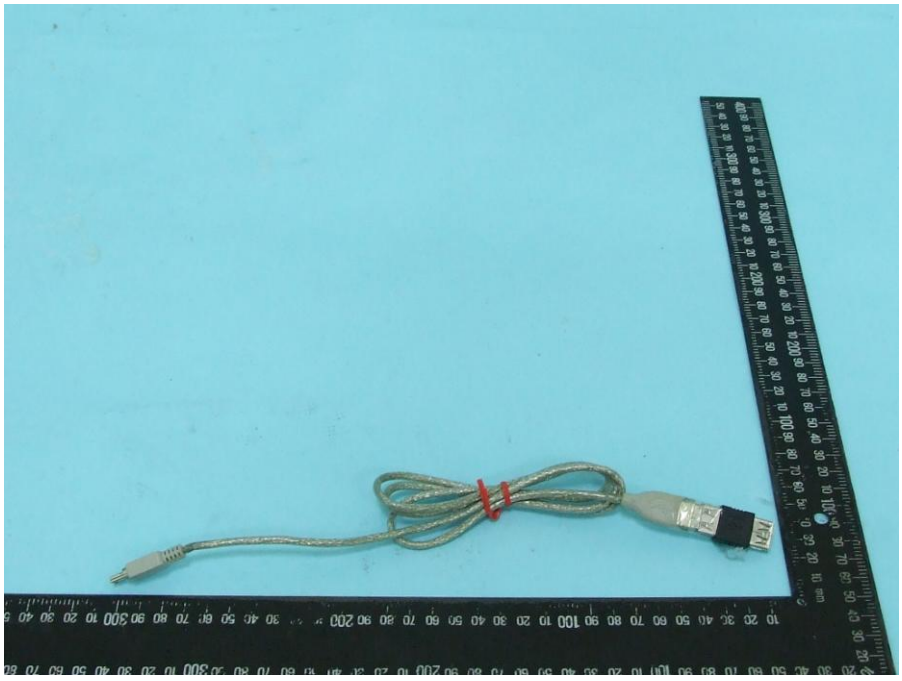



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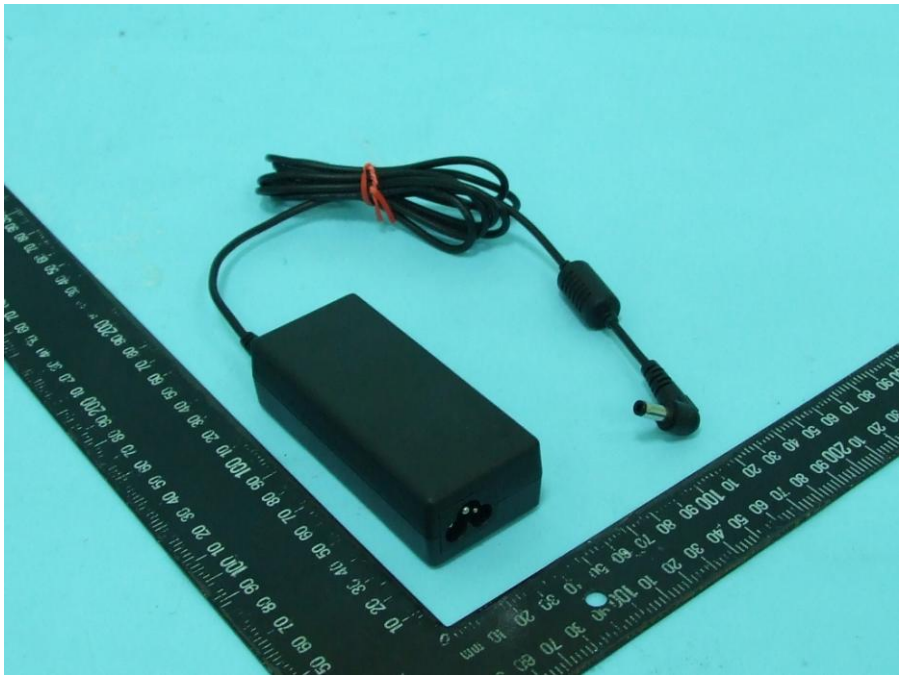


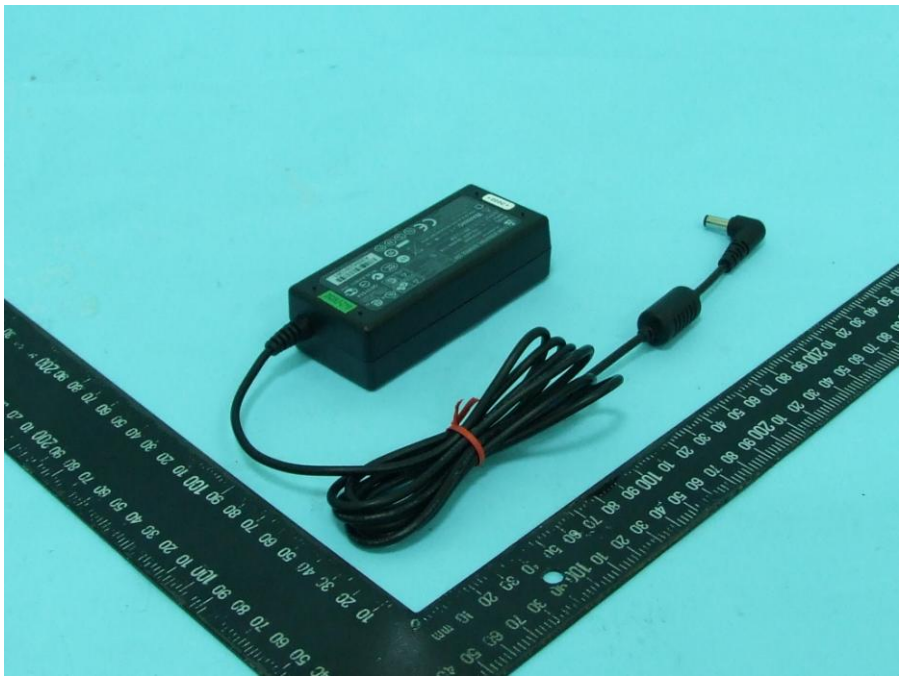













LI SHIN INTERNATIONAL ENTERPRISE CORP.
AC ADAPTER 交流适配器/電源供應器
MODEL : 型号/型號: 0335A2065
INPUT : 输入/輸入: 100-240V~,50-60Hz 1.7A
OUTPUT : 输出/輸出: 20V ⎓ 3.25A
WARNING: 注意:
RISK OF ELECTRIC SHOCK DO NOT OPEN
For Indoor Use Only 仅限资讯设备使用/ 僅限資訊設備使用
"Apparatet må tilkoples jordet stikkontakt"
"Apparaten skall anslutas till jordat uttag"
"Laite on liitettävä suojamaadoitus-
koskettimilla varustettuun pistorasiaan"
For IEC60950-1 products only
LISTED LEVEL3
E193430 LR114321
I.T.E. POWER SUPPLY
Q031514
N136 R43011 BZ02
A30942091061
MADE IN CHINA 中国制造/中國製造 TY03