CE EMC TEST REPORT

according to

European Standard EN 55022:1998/A1:2000/A2:2003 Class A, EN 61000-3-2:2000, EN 61000-3-3:1995/A1:2001 and EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A2:2000, IEC 61000-4-3:2002, IEC 61000-4-4:1995/A2:2001, 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 : Cutting Plotter

Model No. : SB-60

Applicant : **The Electro-Optical Automatic Provider**
4F-1, No.236, Fu-Te 2nd Rd., Hsi Chih,
Taipei Hsien 221, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
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- This test report is only applicable to European Community.

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

History of this test report

Original Report Issue Date: Mar. 8, 2006

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : EC642009

CERTIFICATE OF COMPLIANCE

according to

European Standard EN 55022:1998/A1:2000/A2:2003 Class A, EN 61000-3-2:2000, EN 61000-3-3:1995/A1:2001 and EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A2:2000, IEC 61000-4-3:2002, IEC 61000-4-4:1995/A2:2001, 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 : Cutting Plotter

Model No. : SB-60

Applicant : **The Electro-Optical Automatic Provider**
4F-1, No.236, Fu-Te 2nd Rd., Hsi Chih,
Taipei Hsien 221, 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 89/336/EEC.** The equipment was ***passed*** the test performed according to **European Standard EN 55022:1998/A1:2000/A2:2003 Class B, EN 61000-3-2:2000, EN 61000-3-3:1995/A1:2001 and EN 55024:1998/A1:2001/A2:2003 (IEC 61000-4-2:1995/A2:2000, IEC 61000-4-3:2002, IEC 61000-4-4:1995/A2:2001, 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 May 2, 2006 at **SPORTON International Inc.** LAB.

Alex Chen
Manager

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

The Electro-Optical Automatic Provider
4F-1, No.236, Fu-Te 2nd Rd., Hsi Chih,
Taipei Hsien 221, Taiwan, R.O.C.

1.2 Manufacturer

Same 1.1

1.3 Basic Description of Equipment under Test

Equipment	:	Cutting Plotter
Model No.	:	SB-60
Trade Name	:	GCC
USB Cable	:	Shielded, 1.9 m
Com Port Cable	:	Shielded, 3 m
Power Supply Type	:	Switching
AC Power Cord	:	Non-Shielded, 1.8m, 3pin

1.4 Feature of Equipment under Test

Please refer to user 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 hp compaq PC, DELL Monitor, HP PS/2 Keyboard, HP PS/2 Mouse, HP Printer, ACEEX Modem and EUT for EMI test.
c. For EMI test, the following modes were pretested :
   Mode 1. EUT Only
   Mode 2. USB Mode
   Mode 3. COM Mode
   cause “mode 1” generated the worst test result, it was reported as final data.
d. The complete test system included DELL PC, IBM LCD Monitor, DELL USB Keyboard, DELL USB Mouse and EUT for EMS test.
e. For EMS test, the following modes were pretested :
   Mode 1. EUT Only
   Mode 2. USB Mode
f. Frequency range investigated: Conduction 150 KHz to 30 MHz, Radiation 30 MHz to 1000MHz.

2.2 Description of Test System

< EMI >

Support Unit 1. -- Personal Computer (hp compaq)

FCC ID	: N/A
Model No.	: D330uT
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0059
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. -- Monitor (DELL)

FCC ID	: N/A
Model No.	: E770s
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0068
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 3. -- PS/2 Keyboard (HP)

FCC ID	: N/A
Model No.	: KB-0133
Serial No.	: SP0054
Data Cable	: Shielded, 360 degree via metal backshells, 1.9m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 4. -- PS/2 Mouse (HP)

FCC ID	: JNZ211443
Model No.	: M-S69
Serial No.	: SP0045
Data Cable	: Non-Shielded, 1.85m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 5. –Printer (HP)

FCC ID	: B94C2642X
Model No.	: C2642A
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0048
Data Cable	: Shielded, 360 degree via metal backshells, 1.2m

Support Unit 6. -- Modem (ACEEX)

FCC ID	: IFAXDM1414
Model No.	: DM1414
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0015
Data Cable	: Shielded, 1.15m

< EMS >

Support Unit 1. -- Personal Computer (DELL)

FCC ID	: N/A
Model No.	: 470
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0059
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. – LCD Monitor (IBM)

FCC ID	: N/A
Model No.	: 6734-AC1
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0068
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 3. -- USB Keyboard (DELL)

FCC ID	: N/A
Model No.	: SK-8115
Serial No.	: SP0054
Data Cable	: Shielded, 360 degree via metal backshells, 2.0m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 4. -- USB Mouse (DELL)

FCC ID	: N/A
Model No.	: MO56UOA
Serial No.	: SP0045
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

3. Test Software

<EMI>

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 PC reads the test program from the hard disk drive and runs it.
c. The PC sends " H" messages to the monitor, and the monitor displays " H " patterns on the screen.
d. The PC sends " H " messages to the printer, then the printer prints them on the paper.
e. The PC sends " H " messages to the modem.
f. The PC sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
g. Repeat the steps from c to f.

At the same time, "SADEL.EXE" was executed to control the fixed position of plotter.

<EMS>

During the test, "SADEL.EXE" under WINXP was executed to control the fixed position of plotter.

4. General Information of Test

4.1 Test Facility

<EMI>

Test Site Location : No. 3, Lane 238, Kang Lo Street, Nei Hwu District,
Taipei 11424, Taiwan, R.O.C.
TEL : 886-2-2631-4739
FAX : 886-2-2631-9740

Test Site No : CO01-NH, OS02-NH

<EMS>

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

4.2 Test Voltage

230V / 50Hz

4.3 Standard for Methods of Measurement

EMI Test (conduction and radiation) : European Standard EN 55022 Class A
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)

4.4 Test in Compliance with

EMI Test (conduction and radiation) : European Standard EN 55022 Class A
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 Frequency Range Investigated

a. Conducted emission test: from 150 kHz to 30 MHz
b. Radiated emission test: from 30 MHz to 1,000 MHz
c. Radio frequency electromagnetic field immunity test : 80-1000 MHz.

4.6 Test Distance

a. The test distance of radiated emission test from antenna to EUT is 10 M.
b. 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.

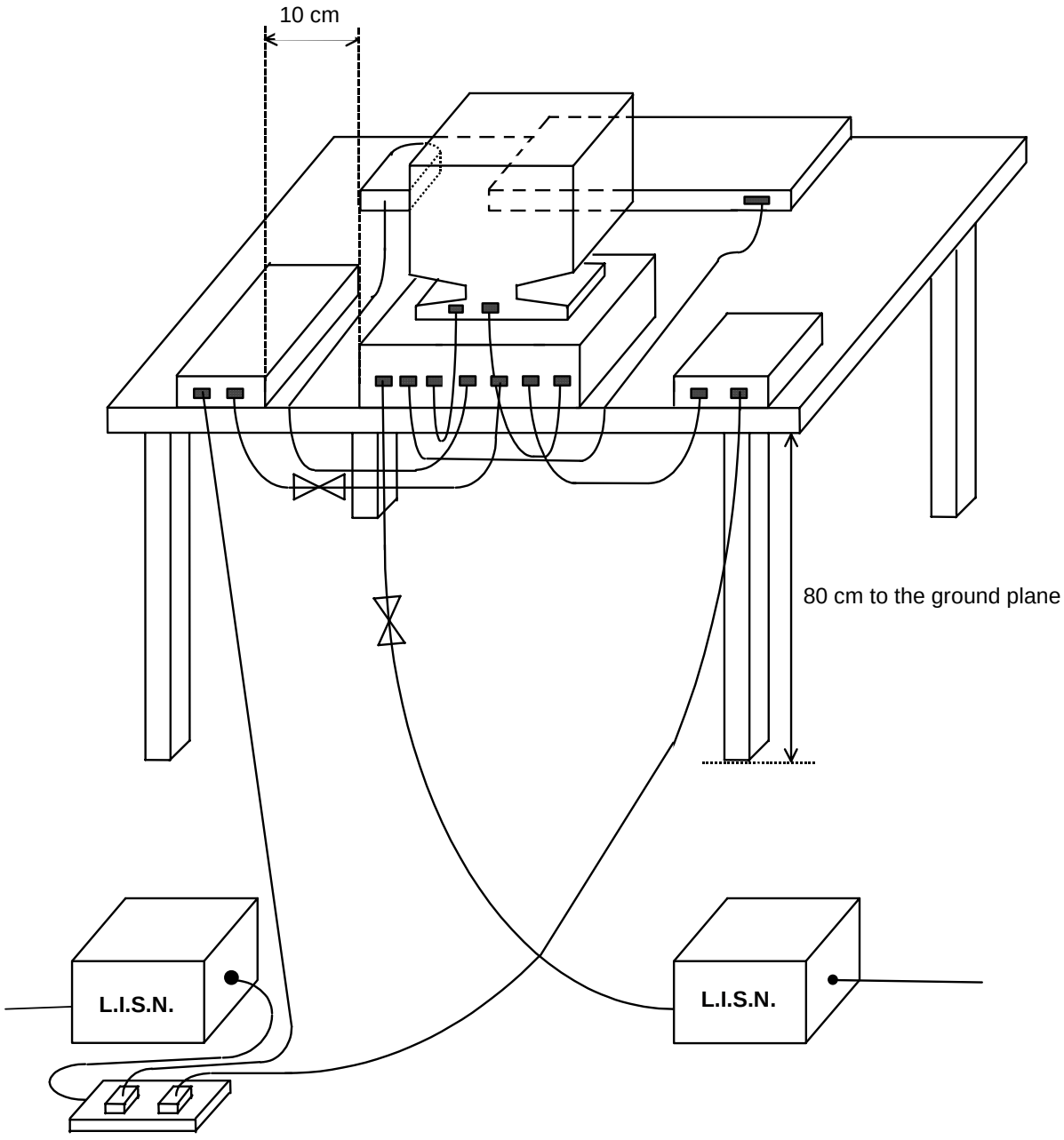
5.1 Description of Major Test Instruments

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

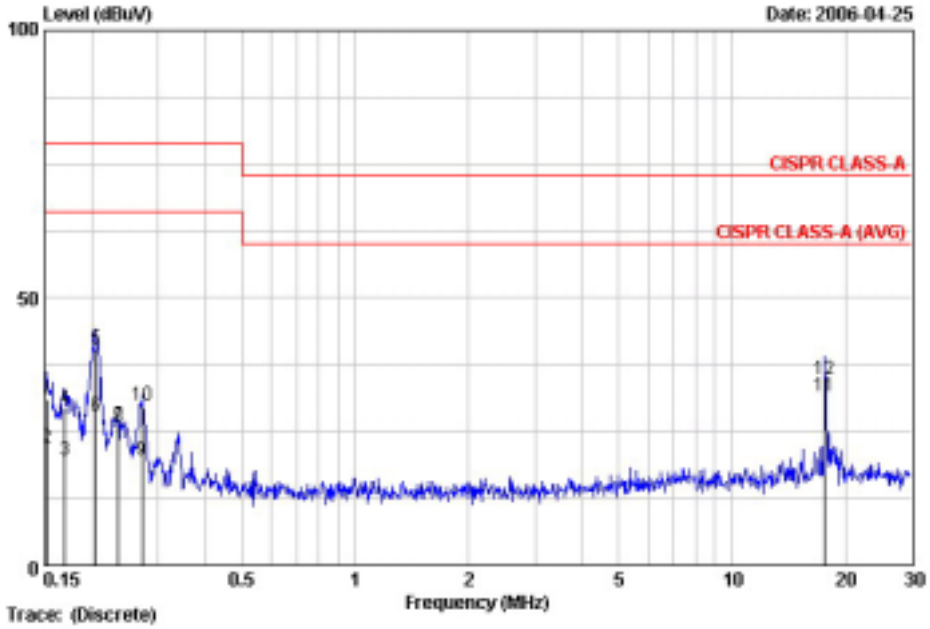
5.3 Typical Test Setup Layout of Conducted Powerline



5.4 Test Result of AC Powerline Conducted Emission

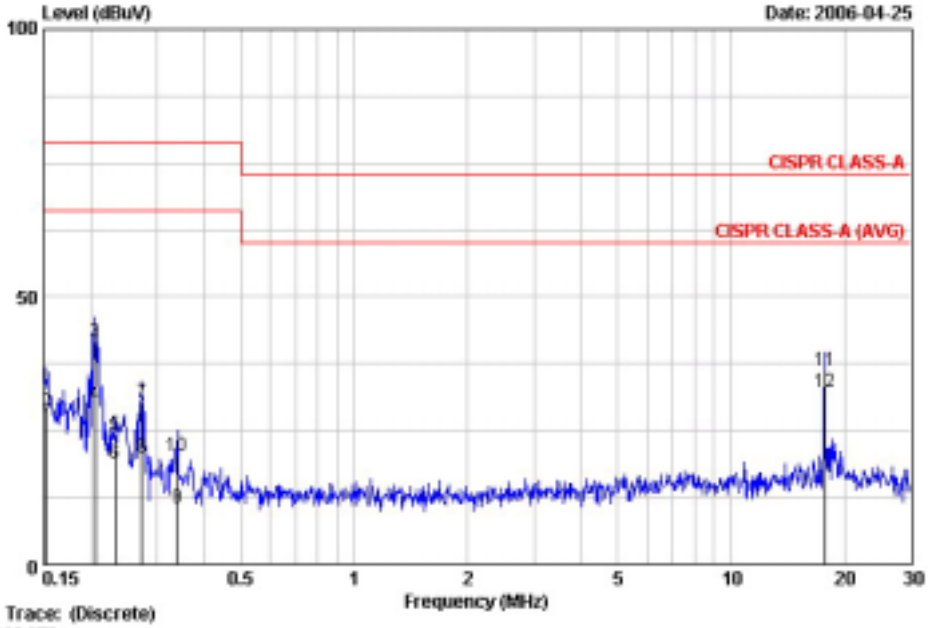
- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 23 ℃
- Relative Humidity: 50 %
- Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Site : CO01-NH
Condition : CISPR CLASS-A 16A-0405-2006 LINE
eut :
power : 230V
memo :
memo :
memo :
memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.152	31.03	-47.97	79.00	30.93	0.10	0.00	QP
2	0.152	21.91	-44.09	66.00	21.81	0.10	0.00	AVERAGE
3	0.169	19.66	-46.34	66.00	19.56	0.10	0.00	AVERAGE
4	0.169	29.26	-49.74	79.00	29.16	0.10	0.00	QP
5	0.205	40.44	-38.56	79.00	40.34	0.10	0.00	QP
6	0.205	28.04	-37.96	66.00	27.94	0.10	0.00	AVERAGE
7	0.236	26.27	-52.73	79.00	26.17	0.10	0.00	QP
8	0.236	25.79	-40.21	66.00	25.69	0.10	0.00	AVERAGE
9	0.272	19.52	-46.48	66.00	19.42	0.10	0.00	AVERAGE
10	0.272	30.00	-49.00	79.00	29.90	0.10	0.00	QP
11 @	17.625	31.71	-28.29	60.00	31.11	0.30	0.30	AVERAGE
12	17.625	34.88	-38.12	73.00	34.28	0.30	0.30	QP



Trace: (Discrete)

Site : CO01-NH
Condition : CISPR CLASS-A 16A-0405-2006 NEUTRAL
eut :
power : 230V
memo :
memo :
memo :
memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.153	25.55	-40.45	66.00	25.45	0.10	0.00	AVERAGE
2	0.153	28.58	-50.42	79.00	28.48	0.10	0.00	QP
3	0.205	41.73	-37.27	79.00	41.63	0.10	0.00	QP
4	0.205	29.96	-36.04	66.00	29.86	0.10	0.00	AVERAGE
5	0.232	24.28	-54.72	79.00	24.18	0.10	0.00	QP
6	0.232	18.94	-47.06	66.00	18.84	0.10	0.00	AVERAGE
7	0.273	30.11	-48.89	79.00	30.01	0.10	0.00	QP
8	0.273	20.03	-45.97	66.00	19.93	0.10	0.00	AVERAGE
9	0.339	10.60	-55.40	66.00	10.50	0.10	0.00	AVERAGE
10	0.339	20.12	-58.88	79.00	20.02	0.10	0.00	QP
11	17.766	36.23	-36.77	73.00	35.69	0.24	0.30	QP
12 @	17.766	32.23	-27.77	60.00	31.69	0.24	0.30	AVERAGE

Test Engineer : Cash

Cash Chu

5.5 Photographs of Conducted Powerline Test Configuration

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

FRONT VIEW

REAR VIEW

6. Test of Radiated Emission

Radiated emissions from 30 MHz to 1000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in European Standard EN 55022, Clause 10. 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.

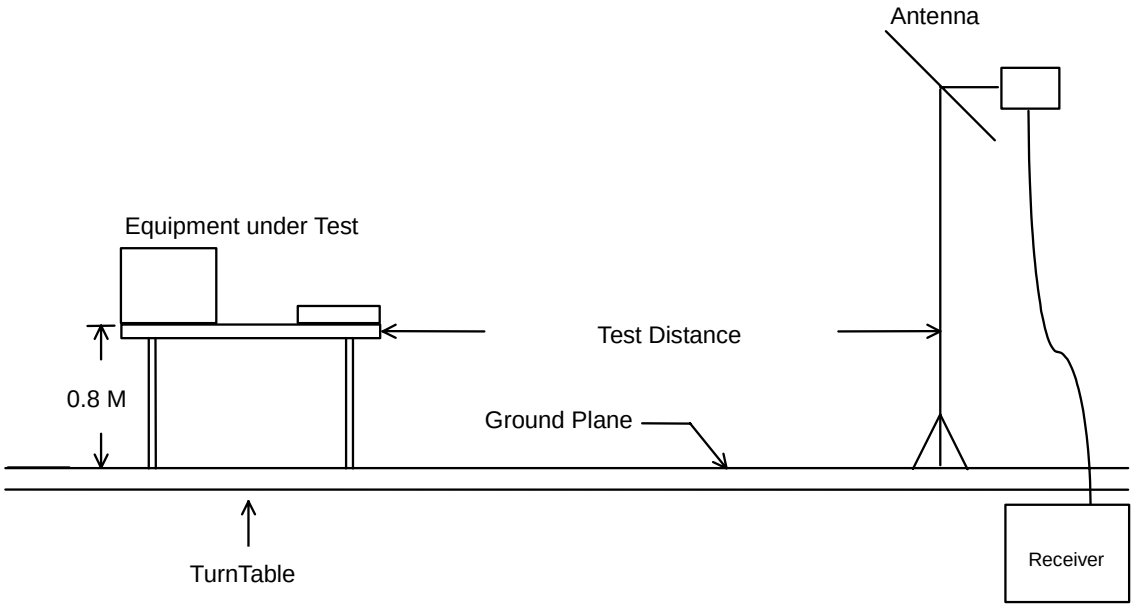
6.1 Description of Major Test Instruments

● Amplifier	(HP 8447D)
RF Gain	25 dB
Signal Input	0.1 MHz - 1.3 GHz
● Spectrum Analyzer	(R&S FSP7)
Attenuation	10 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	120 kHz
Signal Input	9 kHz - 7 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

6.2 Test Procedures

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 half wave dipole 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.

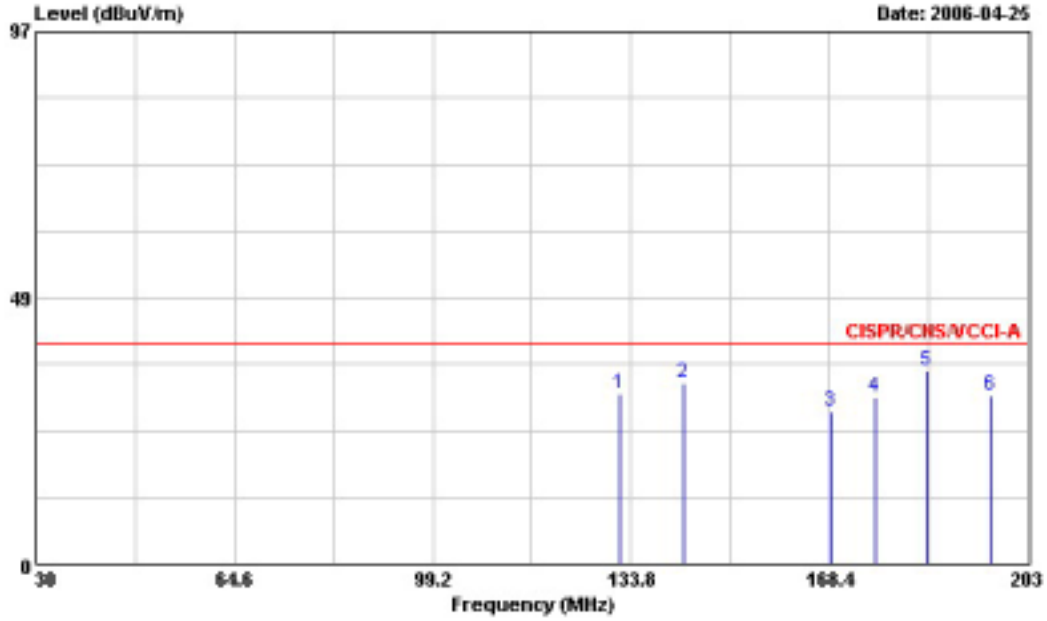
6.3 Typical Test Setup Layout of Radiated Emission



6.4 Test Result of Radiated Emission

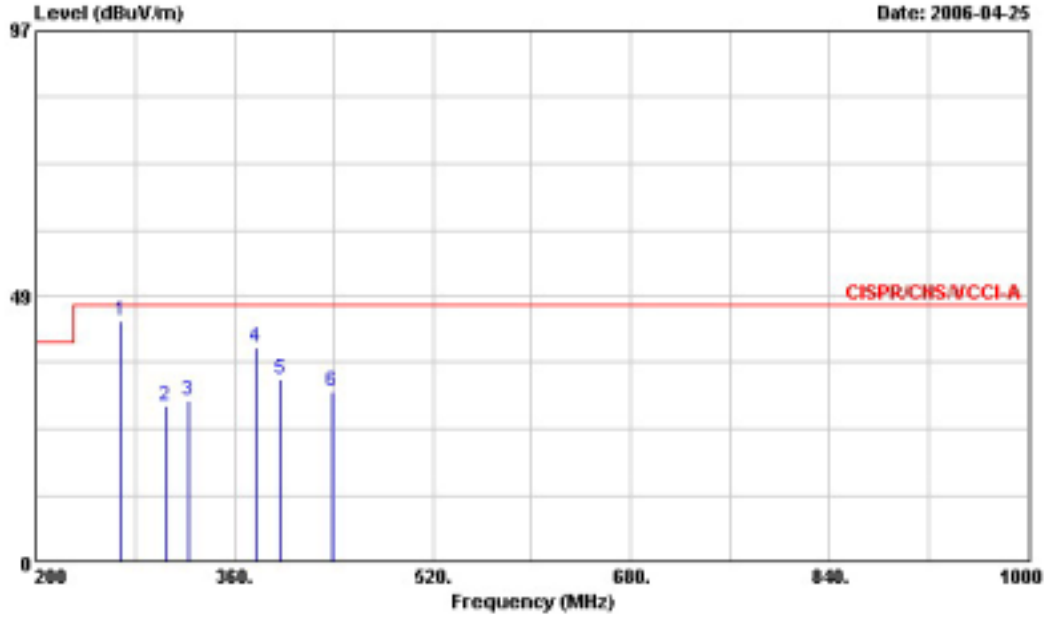
- Frequency Range of Test: from 30 MHz to 1,000 MHz
- Temperature: 23 ℃
- Relative Humidity: 55 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

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



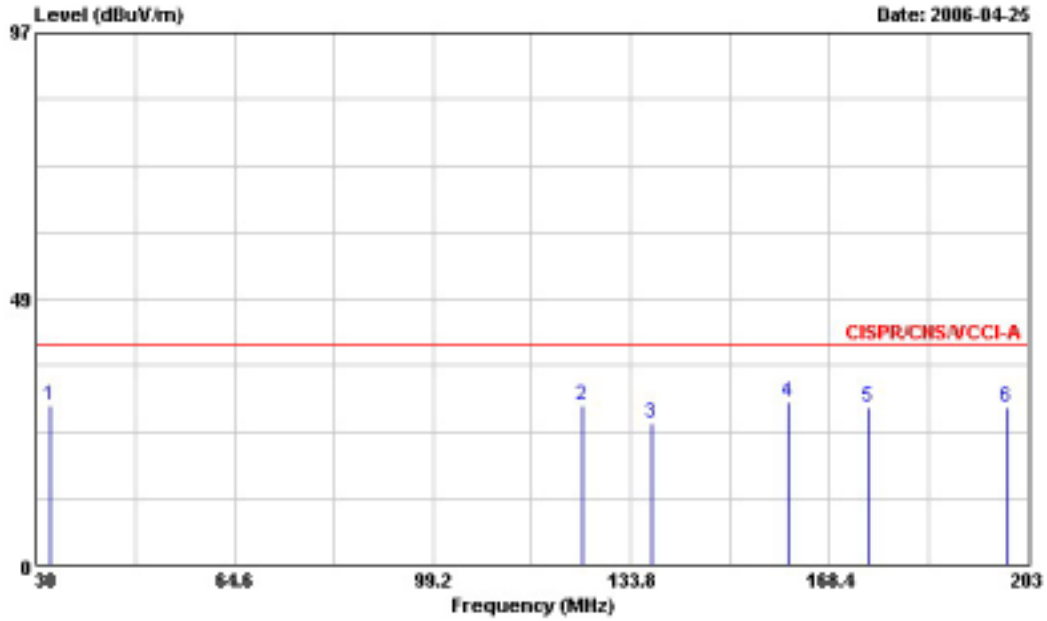
Site : OS02-NH
Condition : CISPR/CNS/VCCI-A 10m OS02-ANT-12-20-2005 VERTICAL
EUT : SB60
POWER : 230VAC
MEMO :

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Rmt Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	131.900	31.20	-8.80	40.00	45.28	11.67	1.54	27.29	Peak	---	---
2	142.970	32.89	-7.11	40.00	47.29	11.25	1.61	27.26	Peak	---	---
3	168.570	27.83	-12.17	40.00	43.48	9.79	1.74	27.18	Peak	---	---
4	176.530	30.52	-9.48	40.00	46.44	9.46	1.78	27.16	Peak	---	---
5 @	185.350	35.19	-4.81	40.00	51.20	9.28	1.85	27.14	Peak	---	---
6	196.430	30.66	-9.34	40.00	46.48	9.38	1.90	27.10	Peak	---	---



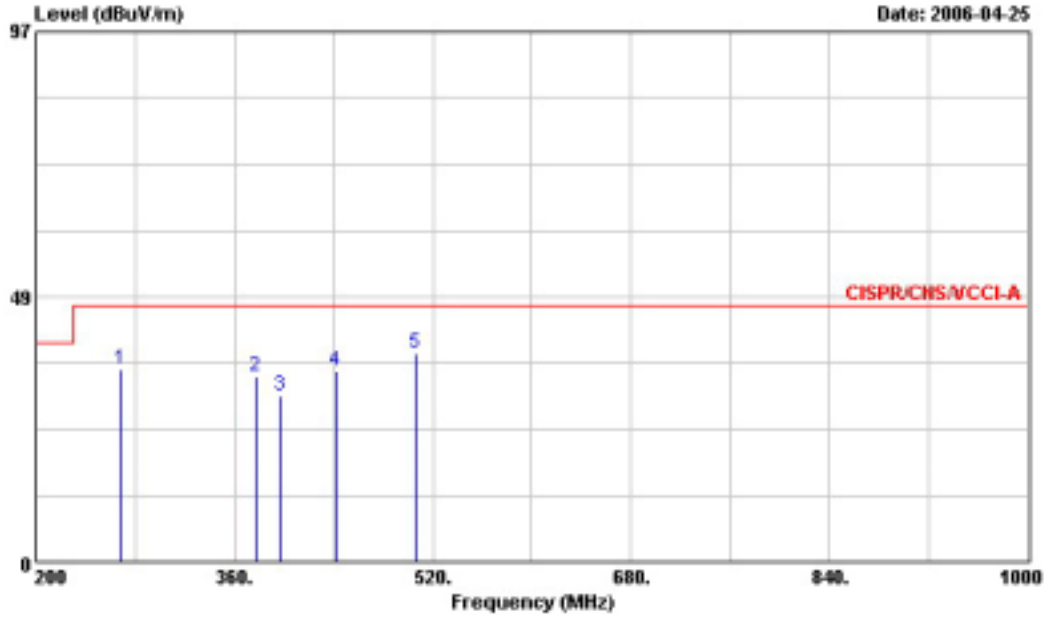
Site : OS02-NH
Condition : CISPR/CNS/VCCI-A 10m OS02-ANT-12-20-2005 VERTICAL
EUT : SB60
POWER : 230VAC
MEMO :

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	268.800	43.94	-3.06	47.00	55.52	13.06	2.23	26.87	QP	100	360
2	304.000	28.47	-18.53	47.00	39.18	13.65	2.43	26.79	Peak	---	---
3	323.200	29.57	-17.43	47.00	39.82	14.12	2.52	26.89	Peak	---	---
4	377.600	39.09	-7.91	47.00	48.13	15.42	2.70	27.16	Peak	---	---
5	396.800	33.30	-13.70	47.00	41.95	15.89	2.72	27.26	Peak	---	---
6	438.400	30.89	-16.11	47.00	38.79	16.68	2.92	27.50	Peak	---	---



Site : OS02-NH
Condition : CISPR/CNS/VCCI-A 10m OS02-ANT-12-20-2005 HORIZONTAL
EUT : SB60
POWER : 230VAC
MEMO :

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Rat Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	32.420	29.02	-10.98	40.00	38.15	17.67	0.84	27.64	Peak	---	---
2	125.320	29.15	-10.85	40.00	43.08	11.86	1.52	27.31	Peak	---	---
3	137.430	25.83	-14.17	40.00	40.03	11.50	1.57	27.27	Peak	---	---
4	161.310	29.62	-10.38	40.00	45.02	10.09	1.72	27.21	Peak	---	---
5	175.150	28.74	-11.26	40.00	44.62	9.51	1.77	27.16	Peak	---	---
6	199.370	28.84	-11.16	40.00	44.65	9.40	1.89	27.10	Peak	---	---



Site : OS02-NH
Condition : CISPR/CNS/VCCI-A 10m OS02-ANT-12-20-2005 HORIZONTAL
EUT : SB60
POWER : 230VAC
MEMO :

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Rmt Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	268.800	35.09	-11.91	47.00	46.67	13.06	2.23	26.87	Peak	---	---
2	377.600	33.92	-13.08	47.00	42.96	15.42	2.70	27.16	Peak	---	---
3	396.800	30.55	-16.45	47.00	39.20	15.89	2.72	27.26	Peak	---	---
4	441.600	34.78	-12.22	47.00	42.63	16.73	2.94	27.52	Peak	---	---
5	506.400	38.19	-8.81	47.00	44.99	17.85	3.23	27.88	Peak	---	---

Test Engineer: _____
Chay Yeh

6.5 Photographs of Radiated Emission Test Configuration

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

FRONT VIEW

REAR VIEW

7. Harmonics Test

As specified on clause 7 and figure Z1 of EN 61000-3-2:2000, 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

8.2 Test Procedure

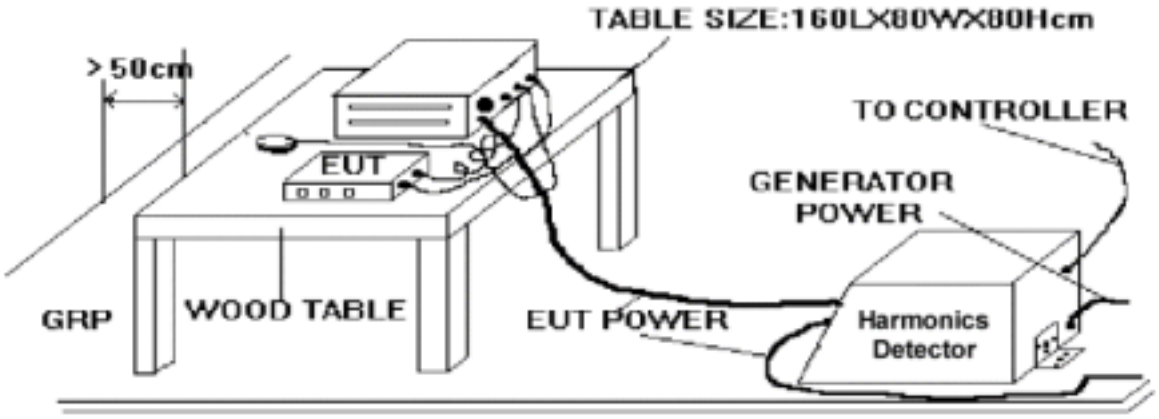
The equipment shall be tested under the conditions of **Clause 5.**

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 : 00:10:00 minutes

8.4 Test Setup



8.5 Test Result of Voltage Fluctuation and Flicker Test

8.5.1 Test Data of Voltage Fluctuation and Flicker

- FINAL TEST RESULT : **PASS**
- Temperature : 20 ℃
- Relative Humidity : 52 %
- Test Date : Apr. 27, 2006

Urms =	228.1V	Freq =	49.987	Range:	1 A
Irms =	0.133A	Ipk =	0.542A	cf =	4.070
P =	13.13W	Pap =	30.41VA	pf =	0.432

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : SLIN 0.24ohm +j0.15ohm N:0.16ohm +j0.10ohm

Limits :	Plt :	0.65	Pst :	1.00
	dmax :	4.00 %	dc :	3.30 %
	dtLim :	3.30 %	dt>Lim:	500ms

Test completed, Result: PASSED

Plt = 0.072

	Pst	P50s	P10s	P3s	P1s	P0.1s	dmax [%]	dc [%]	dt>Lim [ms]
1	0.072	0.010	0.010	0.010	0.010	0.010	0.000	0.030	0.000

Test Engineer : Kero

Kero Kao

8.6 Photographs of Harmonics Test, Voltage Fluctuation and Flicker Test

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

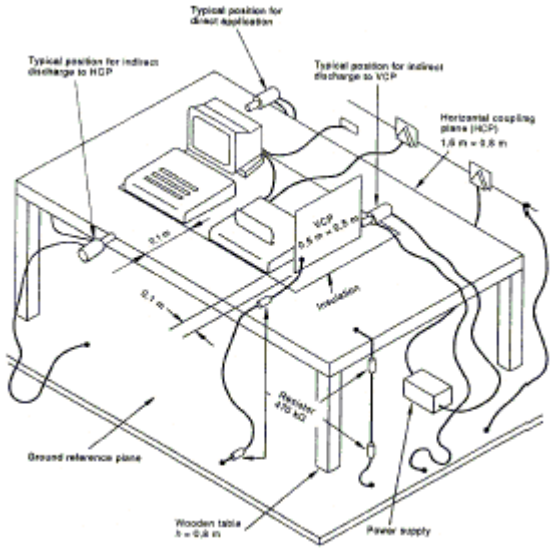
FRONT VIEW

REAR VIEW

9. Electrostatic Discharge Immunity Test (ESD)

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : B
- Basic Standard : IEC 61000-4-2:1995/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 : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal

9.1 Test Setup



The test 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.
COM PORT	±2 / ±4 / ±8 KV	BY 10
USB PORT	±2 / ±4 / ±8 KV	BY 10

9.5.2 Test Result of Contact Discharge

Polarity	Voltage	Tested No.
HCP (At Front)	±2 / ±4 KV	BY 25
HCP (At Left)	±2 / ±4KV	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
CASE	±2 / ±4 KV	BY 25
SCREW	±2 / ±4 KV	BY 25
BRACKET	±2 / ±4 KV	BY 25
CONTROL BUTTON	±2 / ±4 KV	BY 25

Test Engineer: Tony Y

Tony Hsu

9.6 Photographs of Electrostatic Discharge Immunity Test

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

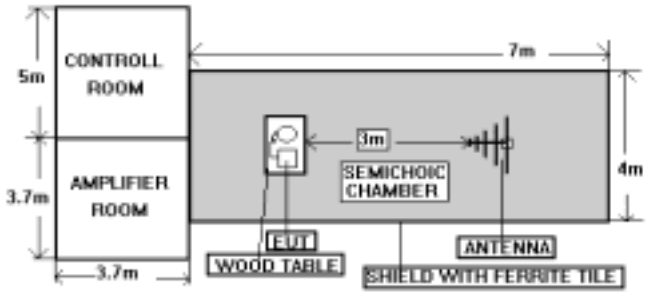
FRONT VIEW

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 61000-4-3:2002
- Product Standard : EN 55024:1998/A1:2001/A2:2003
- Level : 3
- Frequency Range : 80-1000 MHz
- Dwell time : 3 Sec.
- Field Strength : 3 V/m (Modulated 80% AM at 1KHz)
- Temperature : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- 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.

Test Engineer: 

Tony Hsu

10.4 Photographs of Radio Frequency Electromagnetic Field Immunity Test

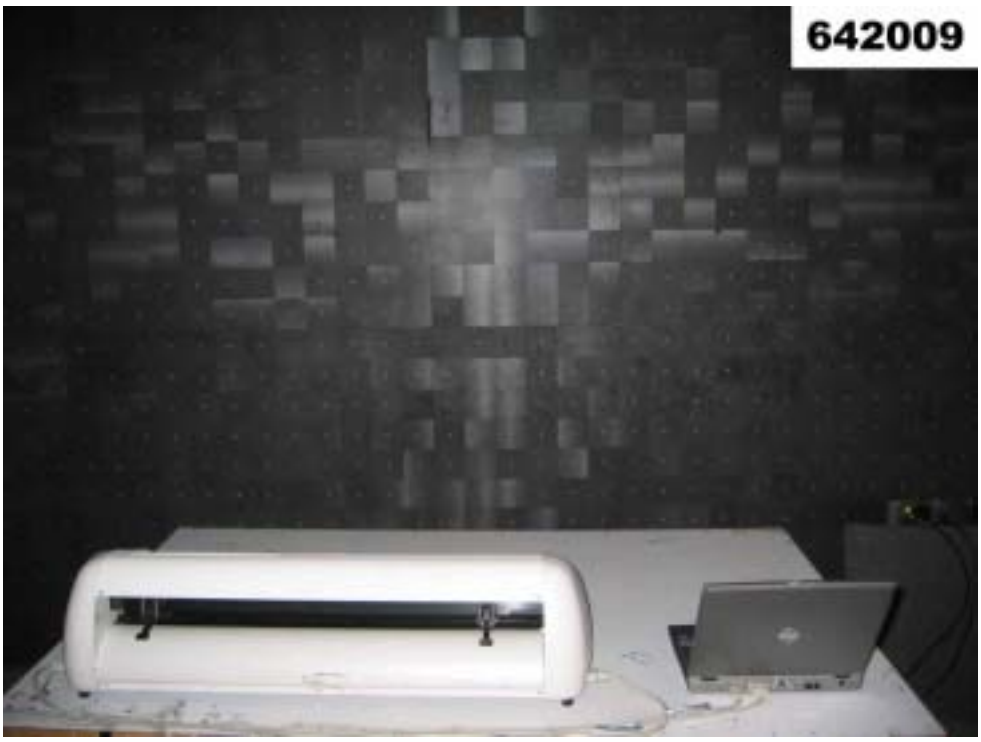
Mode 1

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW

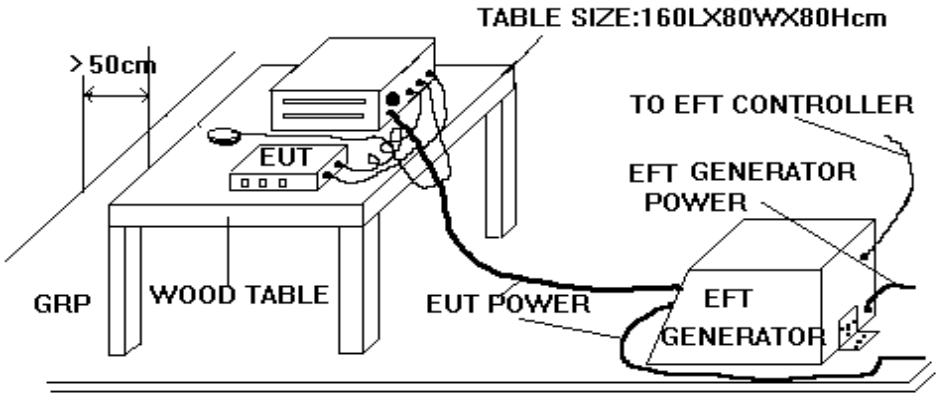


REAR VIEW

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

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : B
- Basic Standard : IEC 61000-4-4:1995/A2:2001
- Product Standard : EN 55024:1998/A1:2001/A2:2003
- Level : on Power Supply -- 2
- Test Voltage : on Power Supply -- ±0.5 / ±1.0 KV
- Temperature : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal.

11.1 Test Setup



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

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.

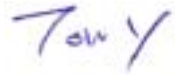
d. The test results may be classified on the basic of the operating conditions and the functional specification of the equipment under test, according to the following performance criteria :
   - Normal performance within the specification limits.
   - Temporary degradation or loss of function or performance 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.

Test Engineer: 

Tony Hsu

11.6 Photographs of Electrical Fast Transient/BURST Immunity Test

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW

REAR VIEW

12. Surge Immunity Test

- FINAL TEST RESULT : **PASS**
- Pass performance Criteria : A
- 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 AC Power Port – 3
- Test Voltage : on Input AC Power Port -- ±0.5/1.0/2.0 kV
- Temperature : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal

12.1 Test Record

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

- *Remark : PE = Earth reference*

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

Test Engineer: Tony Hsu

12.5 Photographs of Surge Immunity Test

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

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 rms (Modulated, 1KHz, 80%, AM)
- Frequency Range : 0.15 MHz to 80 MHz
- Test Port : on AC Power and Telecom Ports
- Dwell time : 2.9 seconds
- Frequency step size : 1 %
- Coupling mode : CDN-M16 SW M3
- Temperature : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal

13.1 Test Level

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

13.2 Operating Condition

Full system

13.3 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 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall no exceed 1% of the start and thereafter 1% of the preceding frequency value.

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

f. 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.

Test Engineer: Tony Hsu

13.4 Photographs of CS Test

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW

REAR VIEW

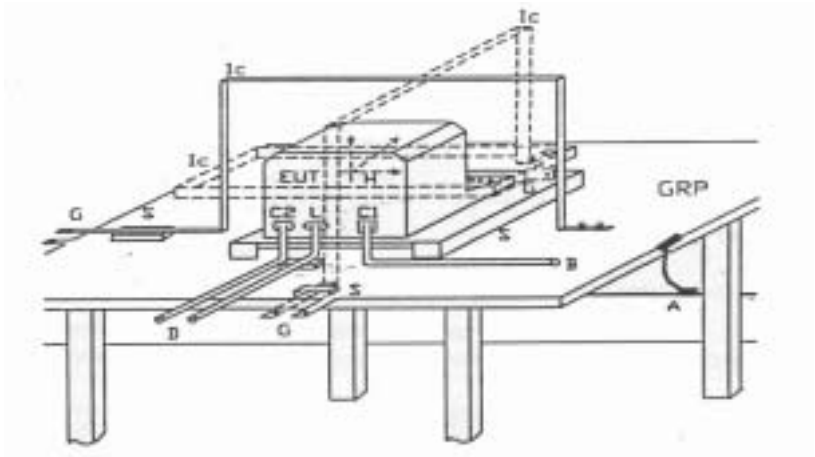
14. Power Frequency Magnetic Field Immunity Tests

- 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 : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal

14.1 Test Record

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

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

Test Engineer: Tony Hsu

14.3 Photographs of Power Frequency Magnetic Field Immunity Tests

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW

REAR VIEW

15. Voltage Dips and Voltage Interruption Immunity Tests

- FINAL TEST RESULT : **PASS**
- Pass performance Criteria : C for voltage interruption, A for voltage dips
- Required performance criteria : C for voltage interruption, B/C for voltage dips
- Basic Standard : IEC 61000-4-11:1994/A1:2000
- Product Standard : EN 55024:1998/A1:2001/A2:2003
- Temperature : 23 ℃
- Relative Humidity : 51 %
- Atmospheric pressure : 103 kPa
- Test Date : Apr. 27, 2006
- Observation : Normal

15.1 Test Record of Voltage Interruption

Voltage	Phase Angle		Reduction	Duration	Observation
(V)	0 °	180 °	%	(Periods)	
230	C	C	>95%	250	After the interruption, the power of EUT reset automatically.

15.2 Test Record of Voltage Dips

Voltage	Phase Angle		Reduction	Duration	Observation
(V)	0 °	180 °	%	(Periods)	
230	A	A	30%	25	Normal
230	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 : 230V / 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.
5. Test severity :

Voltage dip and Interrupt reduction (%)	Test Duration (ms)
30	500
60	100
100	10
100	80
100	5000

15.5 Operating Condition

Full system

Test Engineer: Tony Y

Tony Hsu

15.6 Photographs of Voltage Dips and Voltage Interruption Immunity Tests

Mode 1

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW

REAR VIEW

16. List of Measuring Equipment Used

< EMI >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Test Receiver	R&S	ESCS 30	100357	9kHz – 2750MHz	Jul. 07, 2005	Conduction (CO01-NH)
LISN	MESSTEC	NNB-2/16Z	99079	9kHz – 30MHz	Dec. 19, 2005	Conduction (CO01-NH)
LISN	KYORITSU	KNW-407	8-693-10	9kHz – 30MHz	Nov. 25, 2005	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	N/A	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9kHz – 30MHz	Dec. 19, 2005	Conduction (CO01-NH)
Open Area Test Site	SPORTON	OATS-10	OS02-NH	30 MHz - 1 GHz 10m, 3m	Jan. 07, 2006	Radiation (OS02-NH)
Amplifier	HP	8447D	2944A09073	0.1 MHz - 1.3 GHz	Sep. 26, 2005	Radiation (OS02-NH)
Spectrum Analyzer	R&S	FSP7	100639	9 kHz - 7 GHz	Jan. 25, 2006	Radiation (OS02-NH)
Receiver	R&S	ESCS 30	100357	9 kHz - 2.75 GHz	Sep. 08, 2005	Radiation (OS02-NH)
Bilog Antenna	CHASE	CBL6122B	2884	30 MHz - 2 GHz	Dec. 20, 2005	Radiation (OS02-NH)
Turn Table	EMCO	2080	9508-1805	0 - 360 degree	N/A	Radiation (OS02-NH)
Antenna Mast	ETS	2075-2	2385	1 m - 4 m	N/A	Radiation (OS02-NH)
RF Cable-R10m	MIYAZAKI	5DFB	CB002	30 MHz - 1 GHz	Sep. 20, 2005	Radiation (OS02-NH)

※ 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	9503213	Air: 0 kV - 15 kV Contact: 0 kV - 8 kV	Jun. 14, 2005	ESD
Antenna	FRANKONIA	BTA-L	02002L	26 MHz - 1 GHz	Nov. 01, 2005	RS
Field Strength Monitoring Antennas (Probe)	AR	FP3000A	16077	0.1 MHz - 1 GHz	Aug. 26, 2005	RS
RS immunity Test system	HP	EMS test System	2062	80 MHz - 1 GHz 3V/m	Nov. 23, 2005	RS
Amplifier	AR	100W 1000M3	16060	80 MHz - 1 GHz	Nov. 23, 2005	RS
Power Meter	EMC Automation	438A	3513U04050	100 kHz - 4.2 GHz	Nov. 23, 2005	RS
Signal Generator	HP	8648A	3426A00771	100 kHz - 1 GHz	Nov. 23, 2005	RS
Power Sensor	HP	8481D	3318A13140	100 kHz - 1 GHz	Nov. 23, 2005	RS
Power Sensor	HP	8482A	3318A26464	100 kHz - 1 GHz	Nov. 23, 2005	RS
Attenuator	HP	8491A	53603	100 kHz - 1 GHz	Nov. 23, 2005	RS
EFT Generator	EMC -PARTNER	TRANSIENT -2000	TRA2000-376	0 kV - 4.4 kV	Jul. 04, 2005	EFT
SURGE Generator	KeyTek	EMCPro	030194	0 kV - 6 kV/2Ω 0 kV - 500 kV/12Ω	Mar. 14, 2006	SURGE
RF-SYNTHESIZER/AMP LIFIER	SCHAFFNER	NSG2070-1	1063	100KHz ~ 266MHz	Apr. 04, 2006	CS
Magnetic Generator	EMC -PARTNER	TRANSIENT -1000	TRA1000-299	230VA/50Hz/60Hz	Jun. 28, 2005	PFMF
DIP Generator	EMC -PARTNER	TRANSIENT -2000	TRA2000-376	230VA/50Hz/60Hz 0%Open/5S 0%Short/5S 40%0.10S 70%/0.01S	Jul. 04, 2005	DIP
Harmonic/Flicker Test System	EMC PARTNER	Harmonics -1000	HAR1000-41	4000VA 16A PEAK	Nov. 22, 2005	Harmonics, Flicker

※ Calibration Interval of instruments listed above is one year.

17. Notice for Class A Product

This Notice is for class A product only. If the Equipment under Test is a class B product, this notice should be disregarded.

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

18. Declaration of Conformity and the CE Mark

There are three possible procedures pertaining to the declaration of conformity :

18.1 Conformity Testing and Declaration of Conformity by the Manufacturer or His Authorized Representative Established within the Community or by an Importer.

- Article 10 (1) of the EMC Directive,
- § 3 (1) no. 2a of the EMC Act.

18.2 Declaration of Conformity Issued by the Manufacturer or His Authorized Representative Established within the Community or by an Importer Following Testing of the Product and Issued of an EC certificate of conformity by a competent body.

- Article 10 (2) of the EMC Directive,
- § 3 (1) no. 2b of the EMC Act.

18.3 Declaration of Conformity Issued by the Manufacturer or His Authorized Representative Established within the Community or by an Importer Following Testing and Certification of the Product by a Notified Body.

- Article 10 (5) of the EMC Directive,
- § 3 (1) no. 2b of the EMC Act (radio transmitting installations).

18.4 Specimen For The CE Marking Of Electrical / Electronical Equipment

The components of the CE marking shall have substantially the same vertical dimension, which may not be less than 5 mm.

APPENDIX A. Photographs of EUT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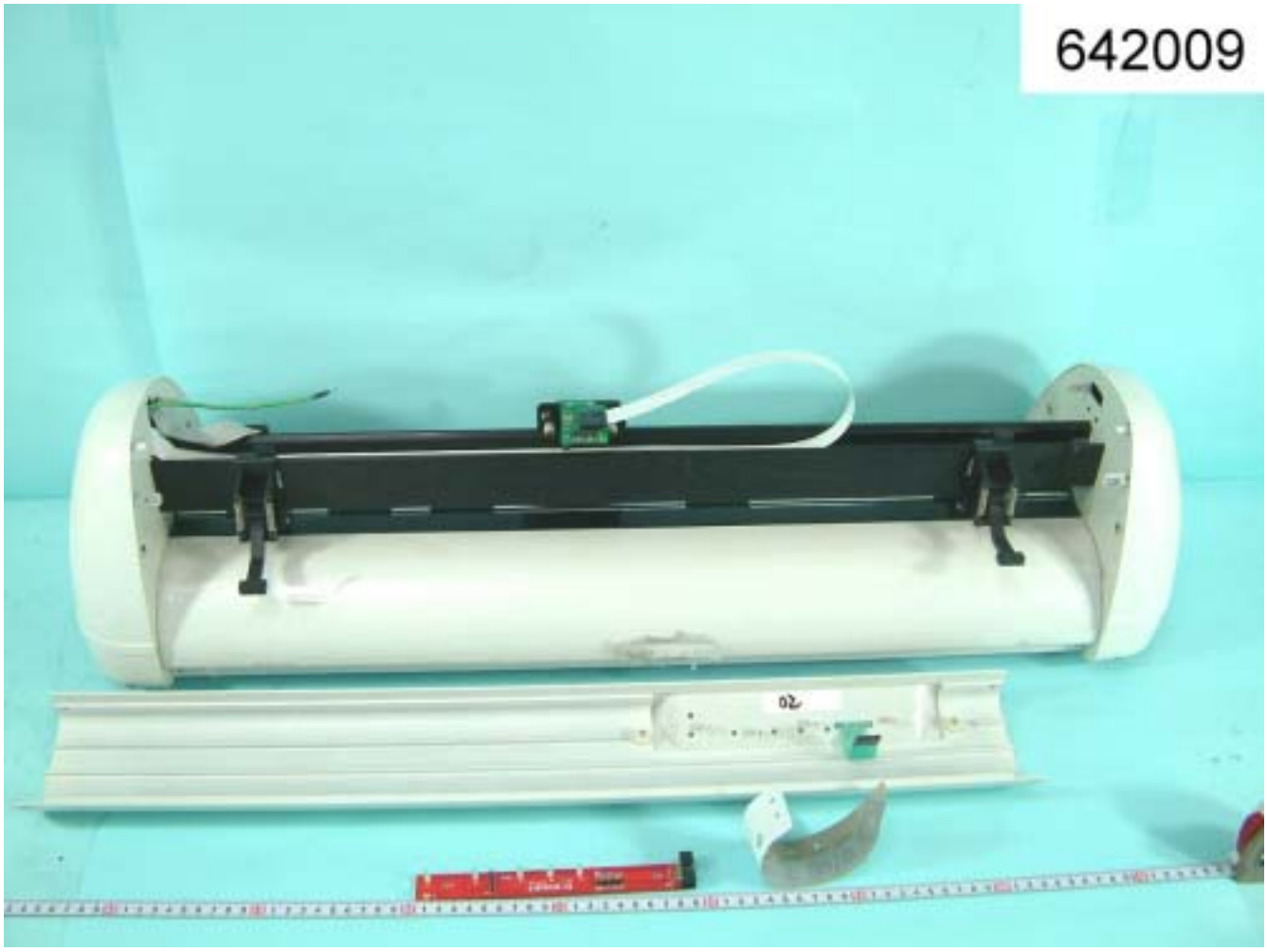
642009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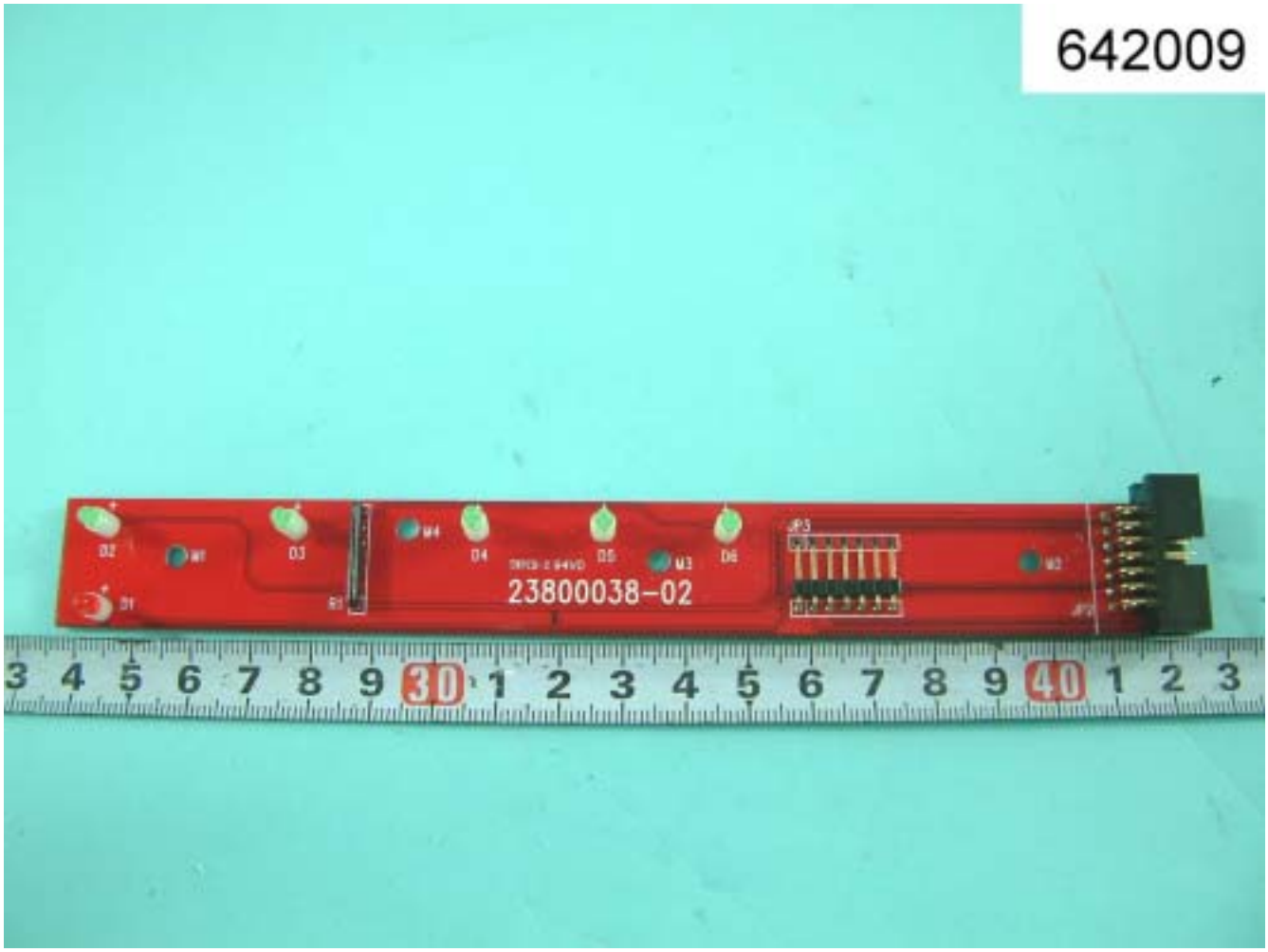
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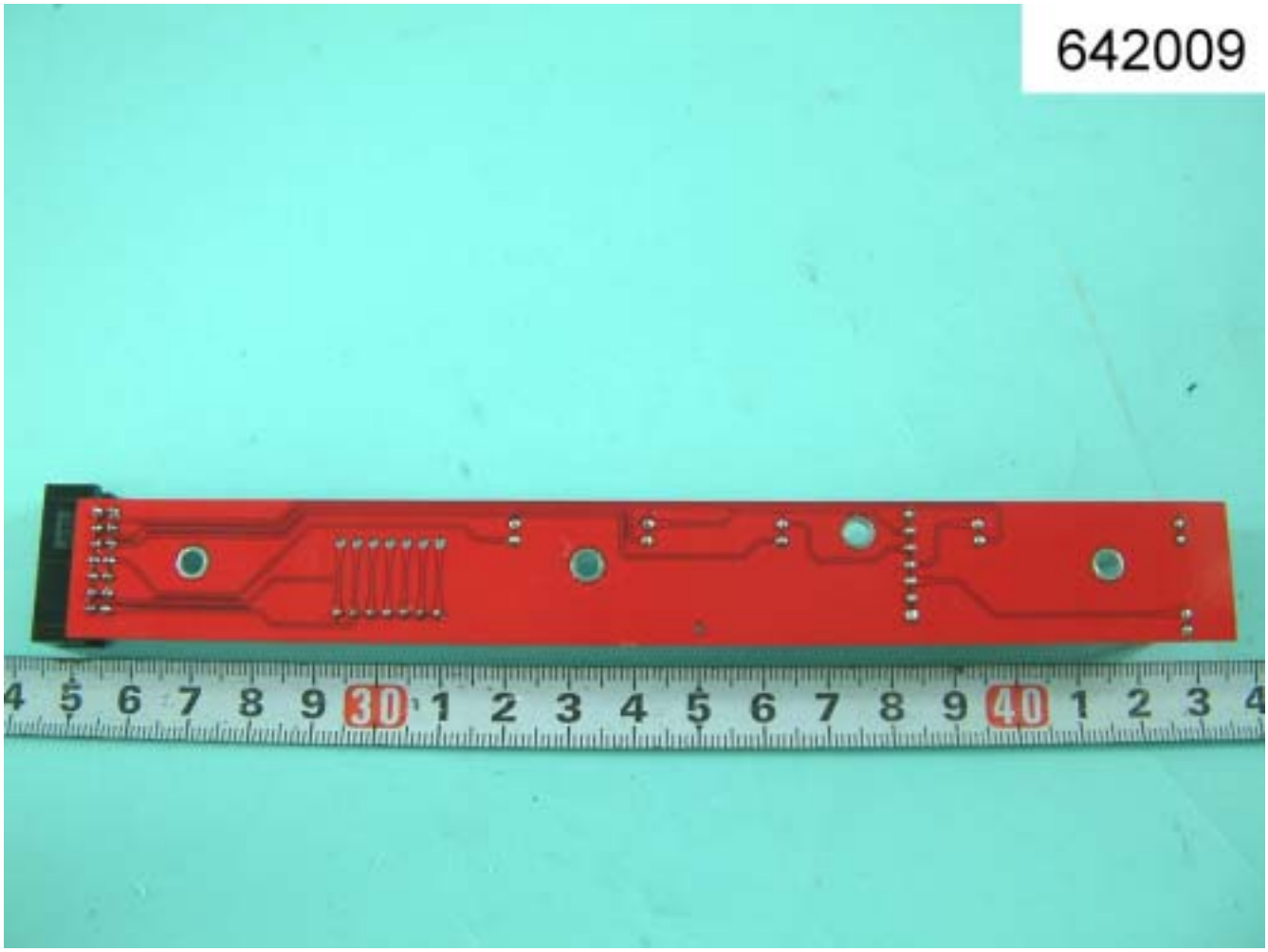

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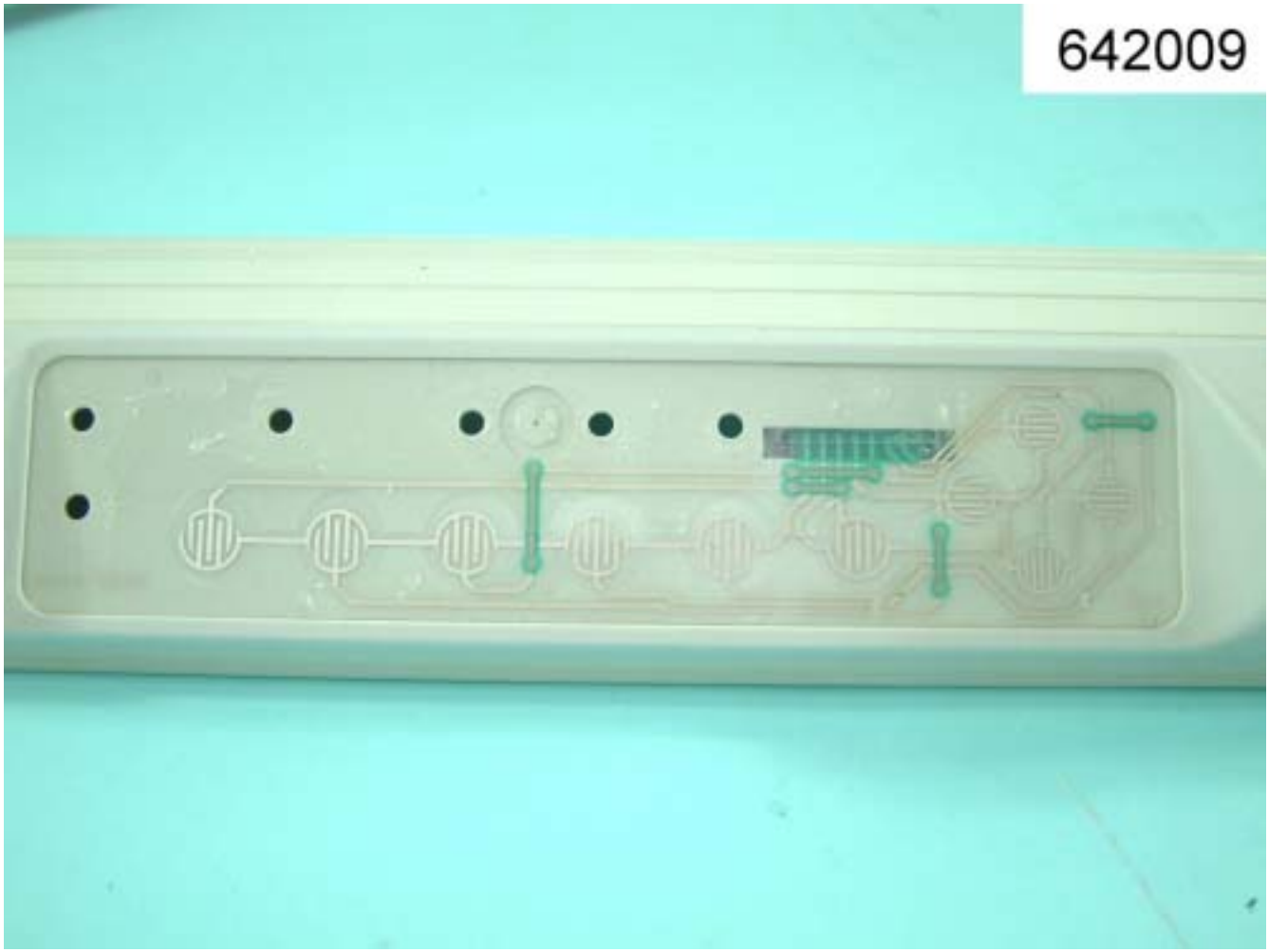
TEL : 886-2-2696-2468
FAX : 886-2-2696-2255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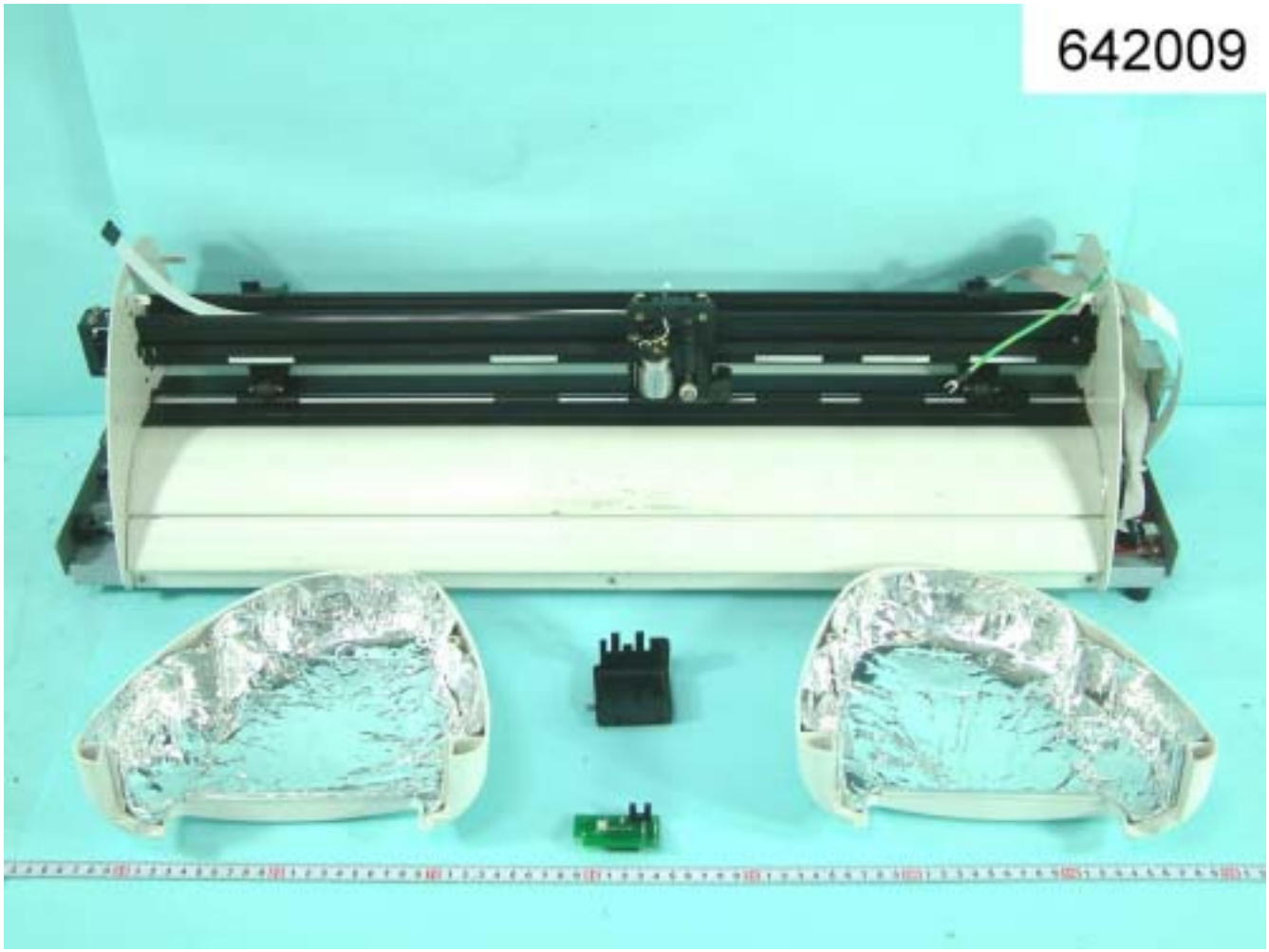
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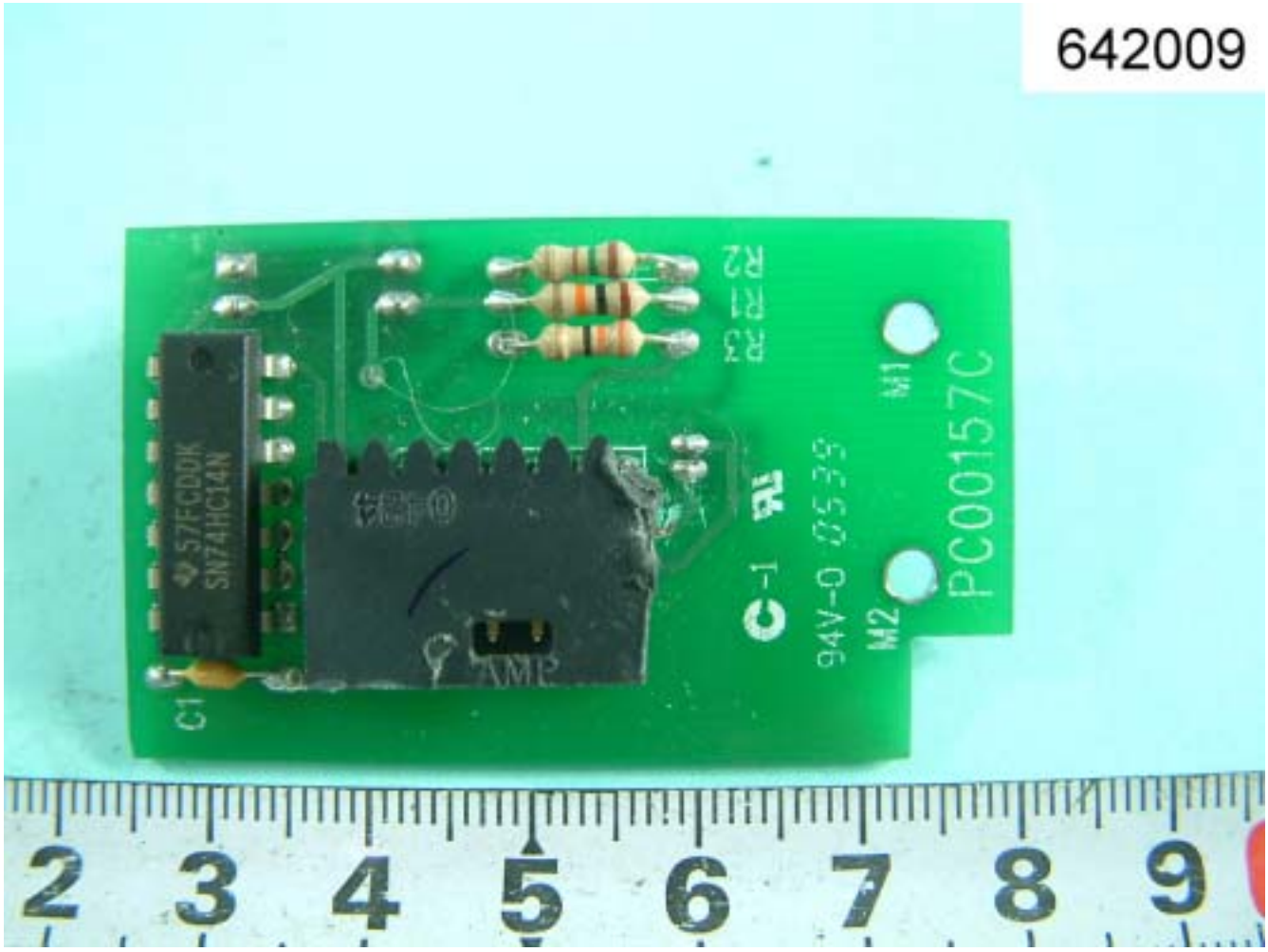
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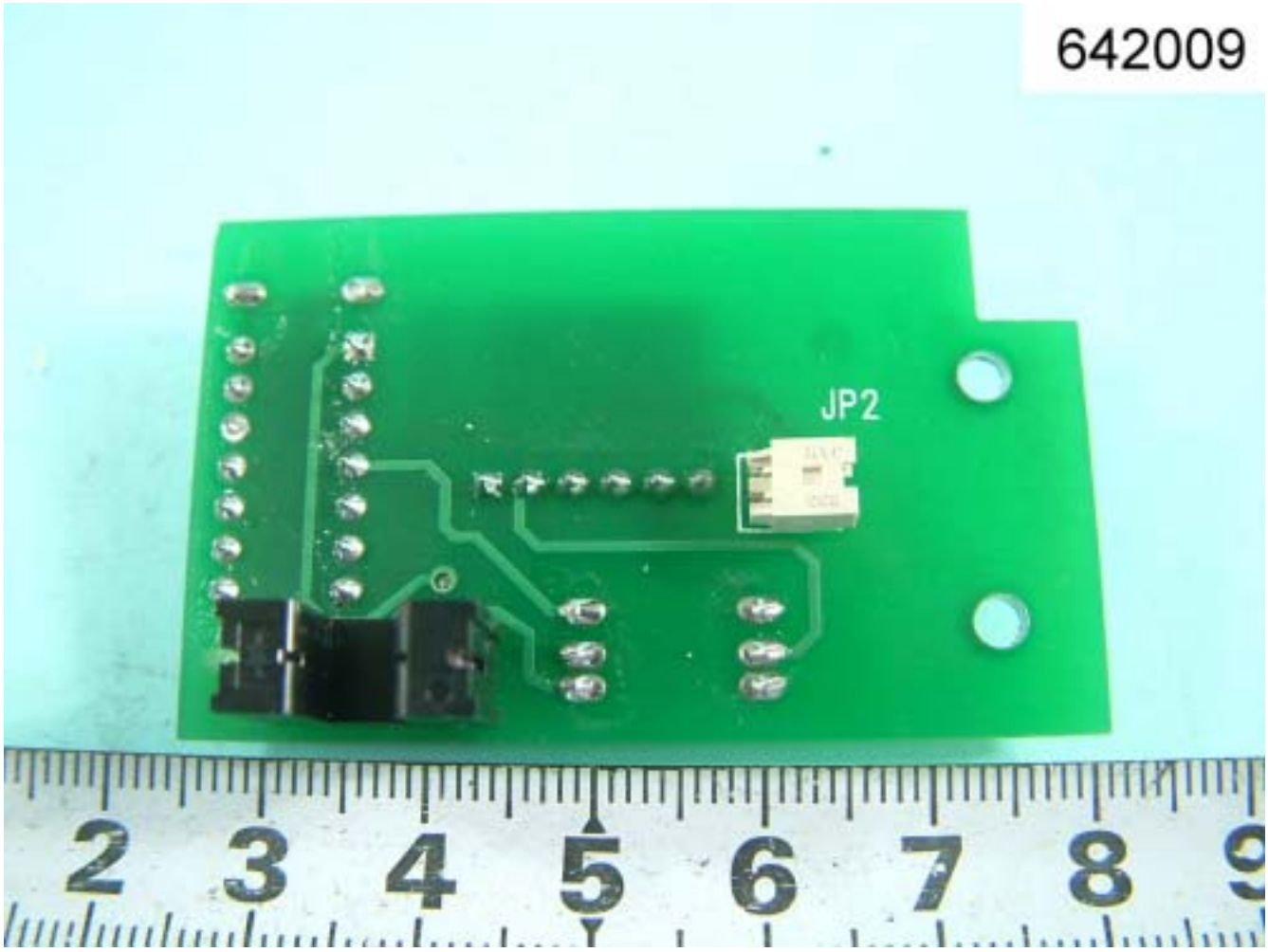
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JP2
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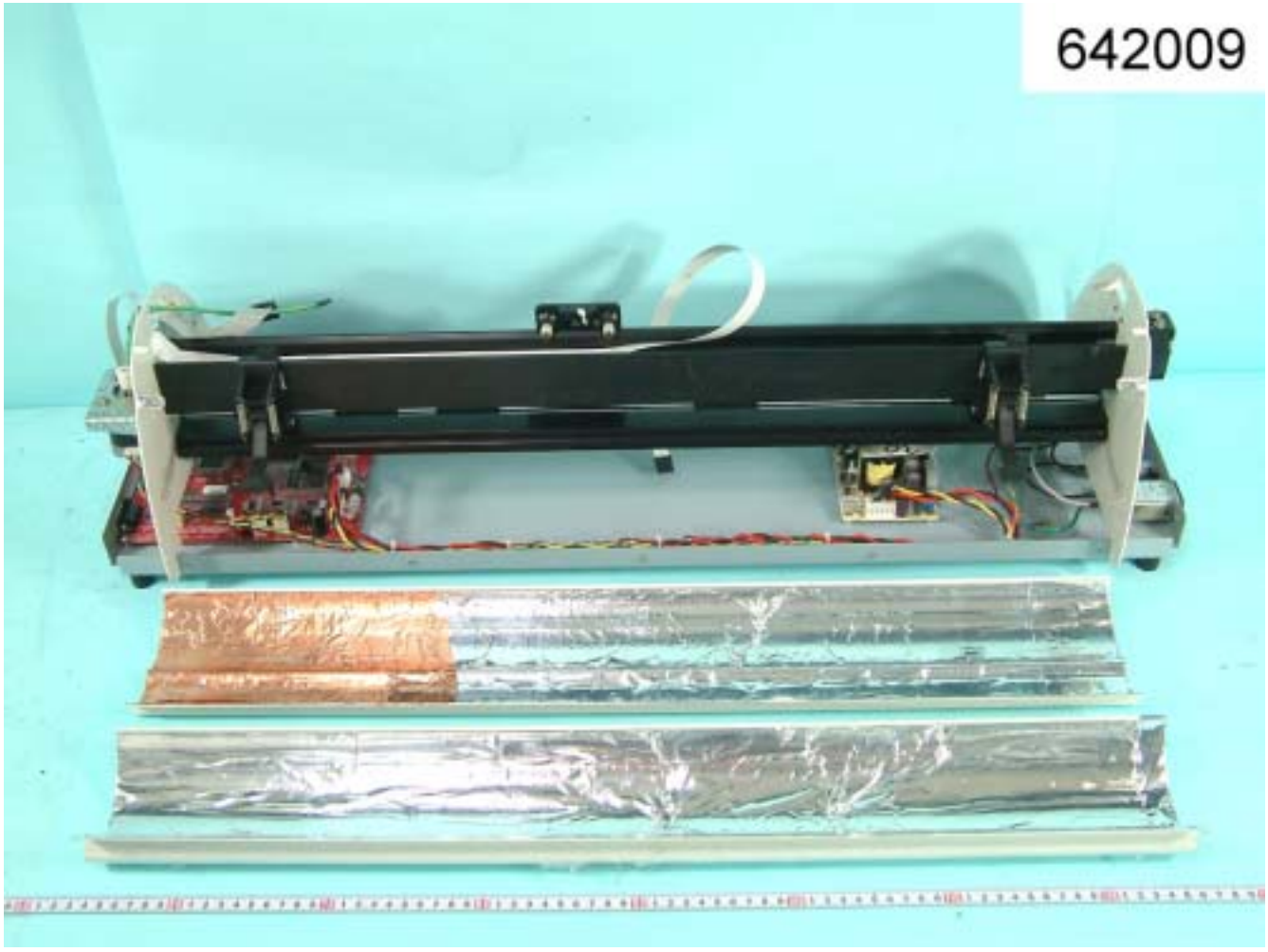
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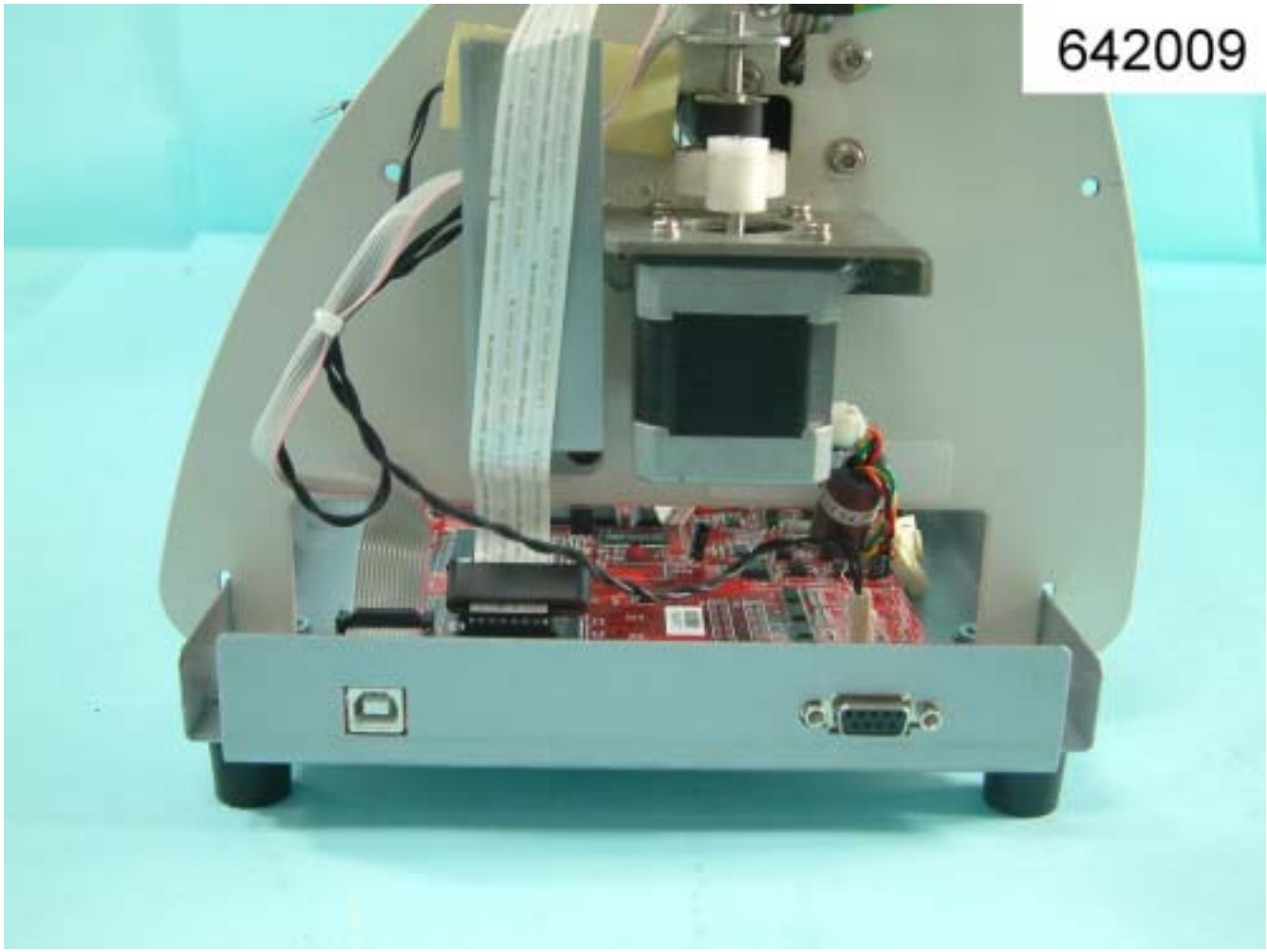
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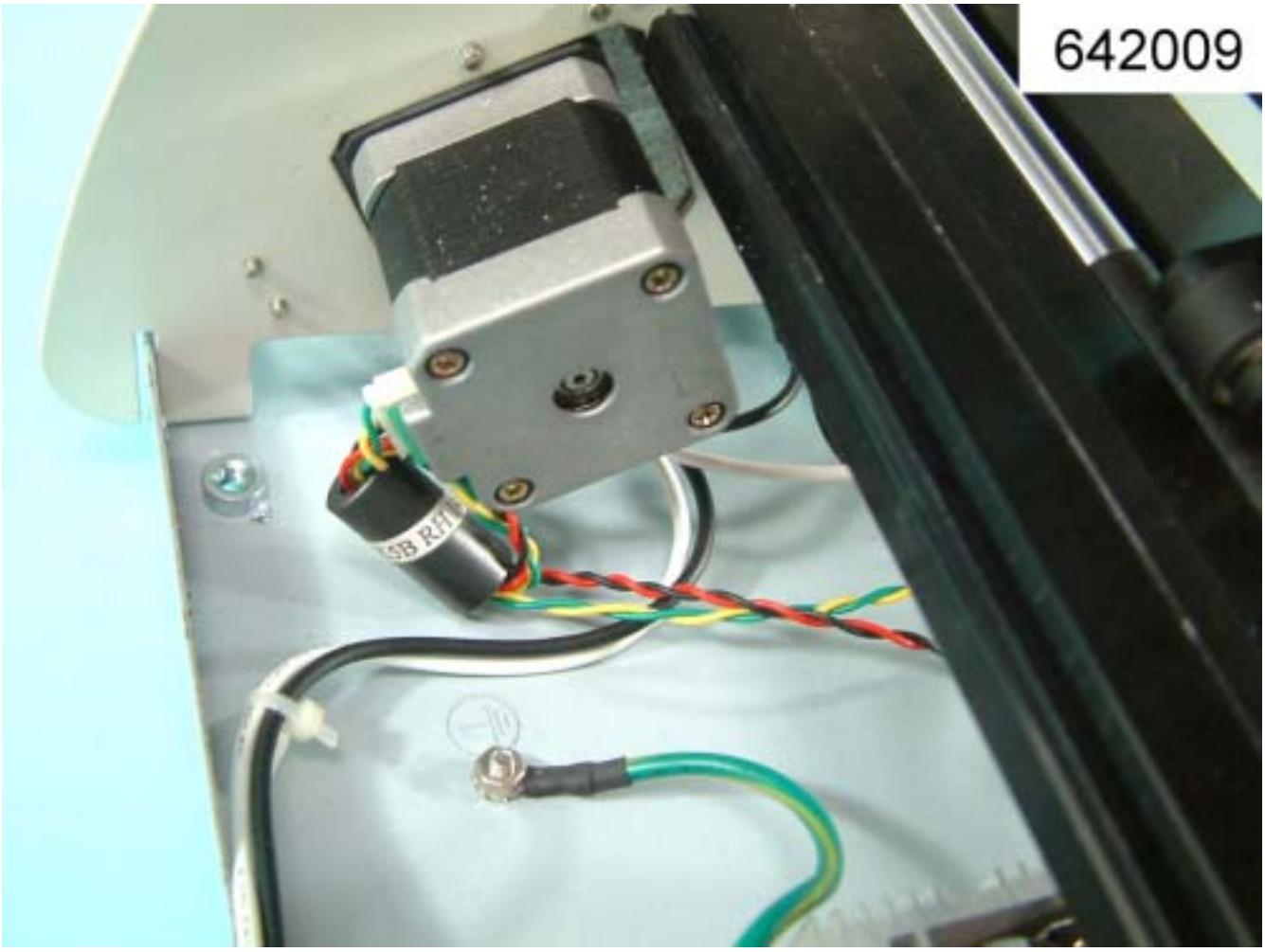
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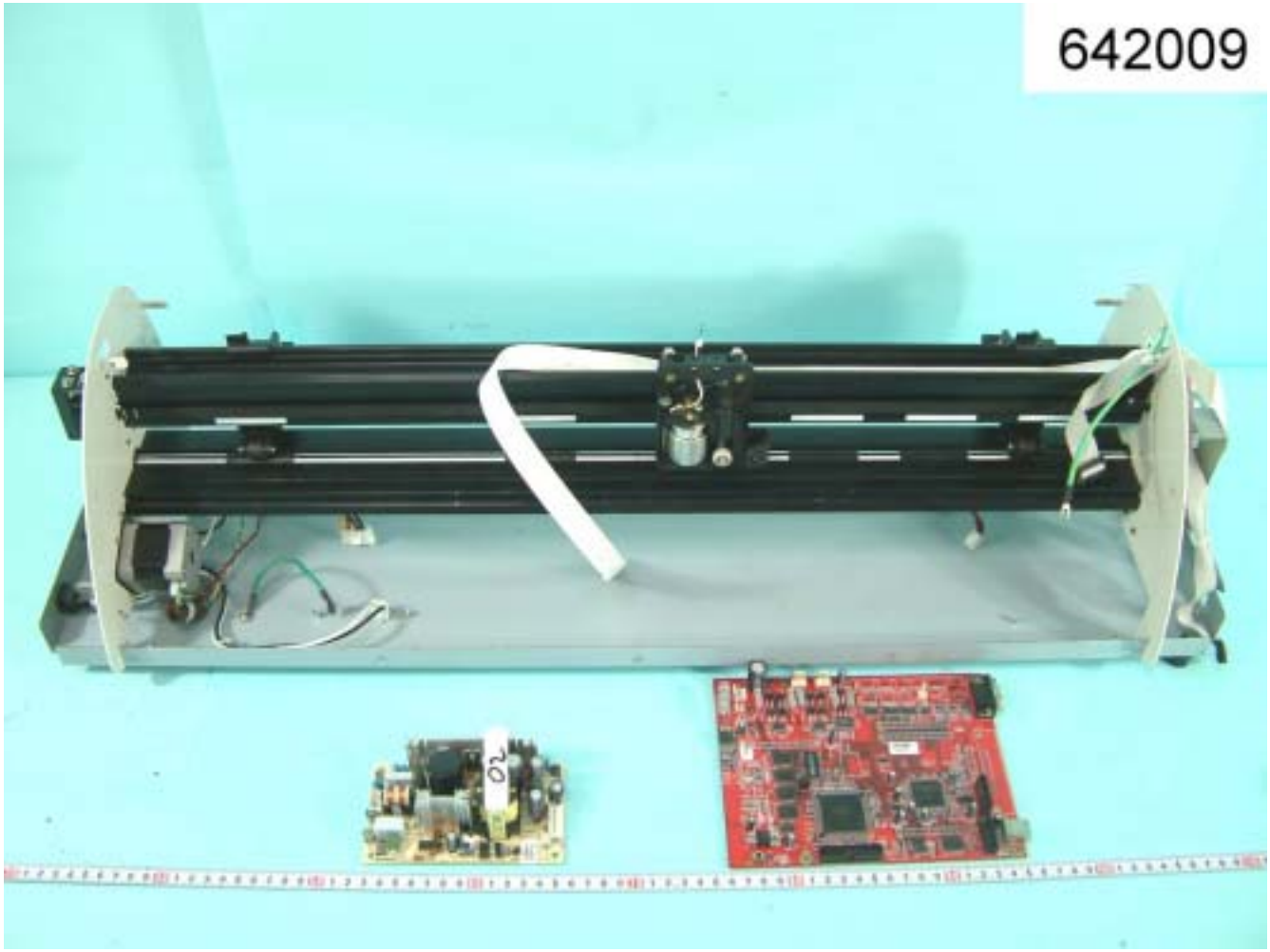
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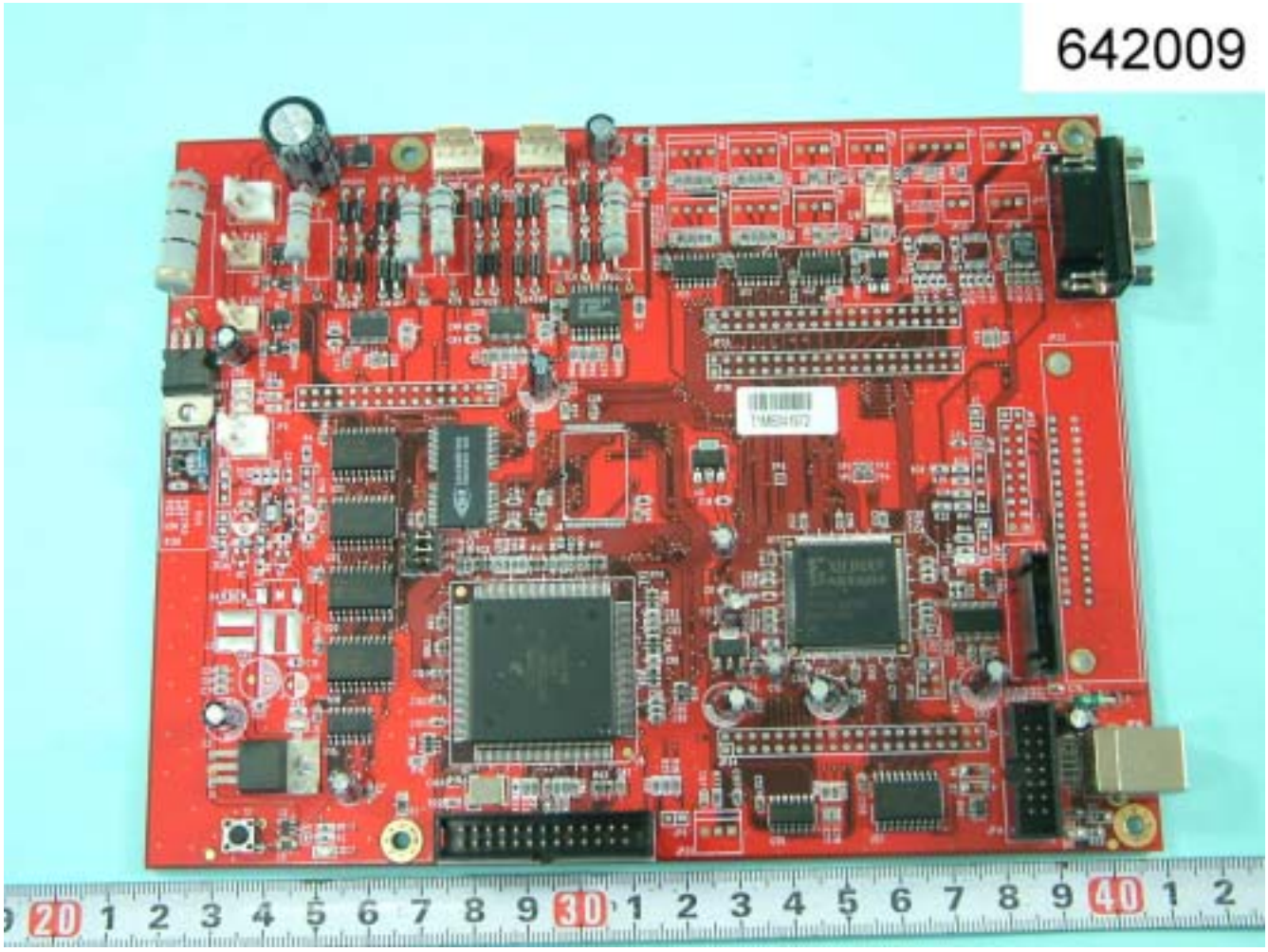
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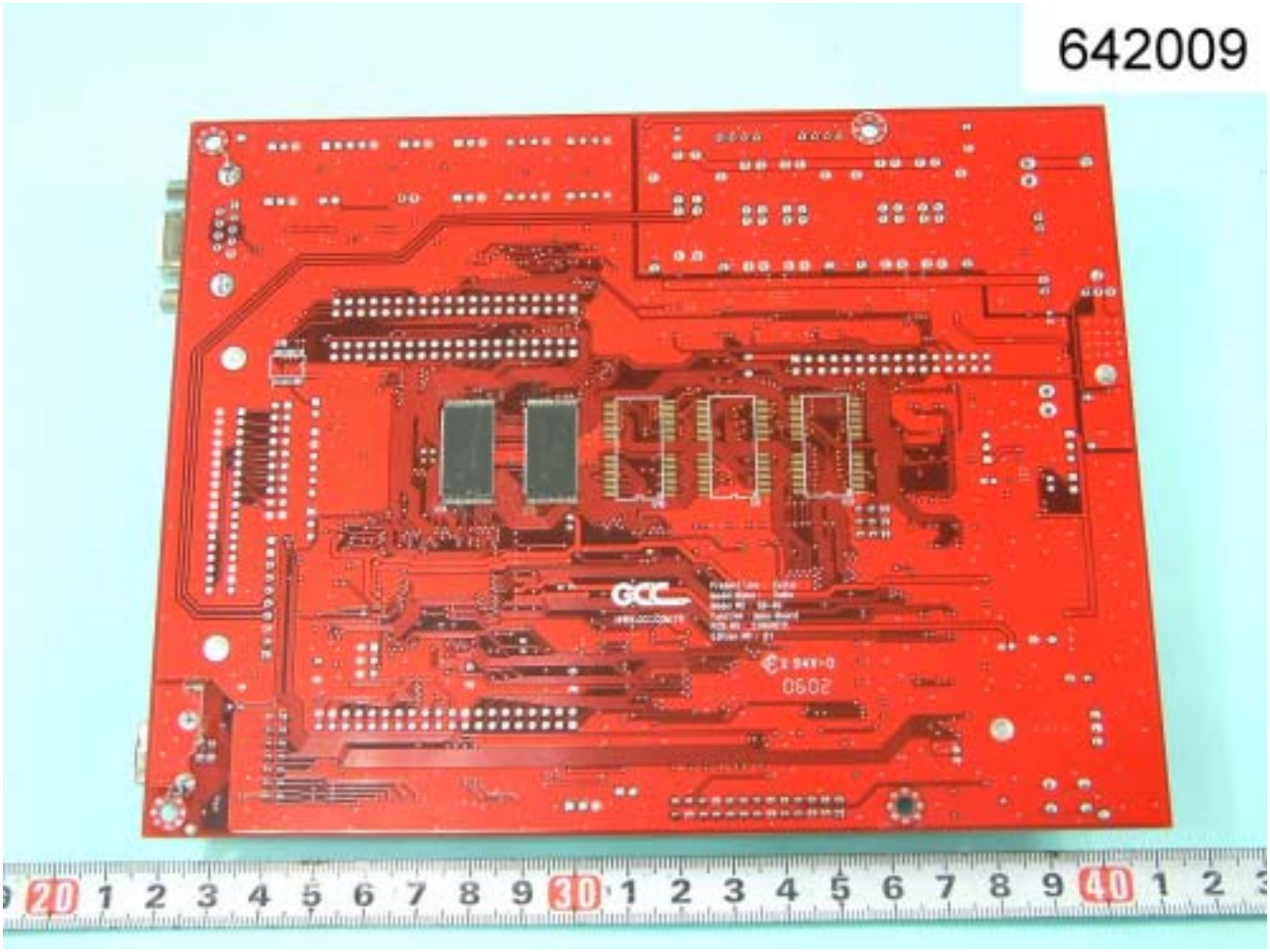
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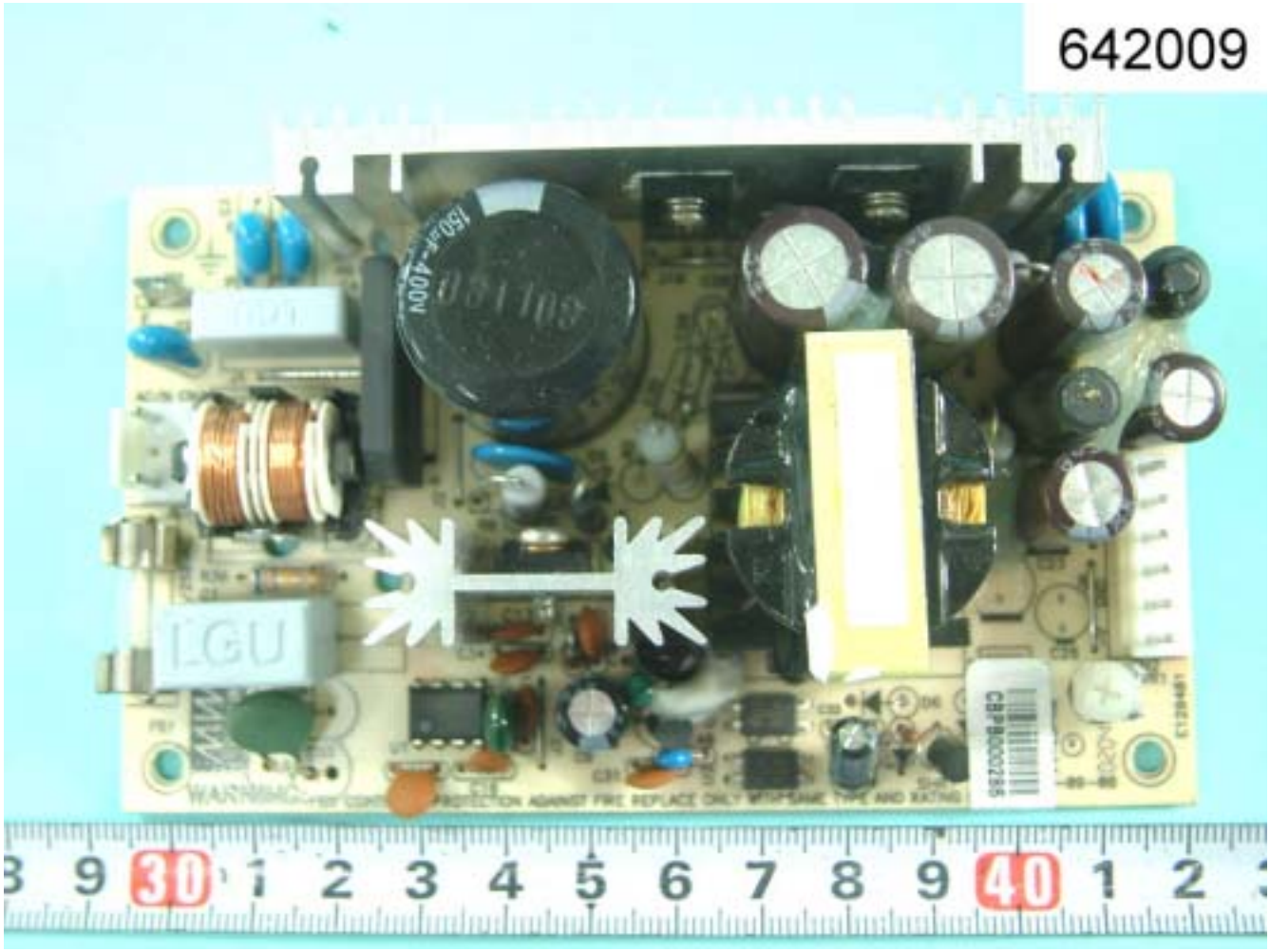

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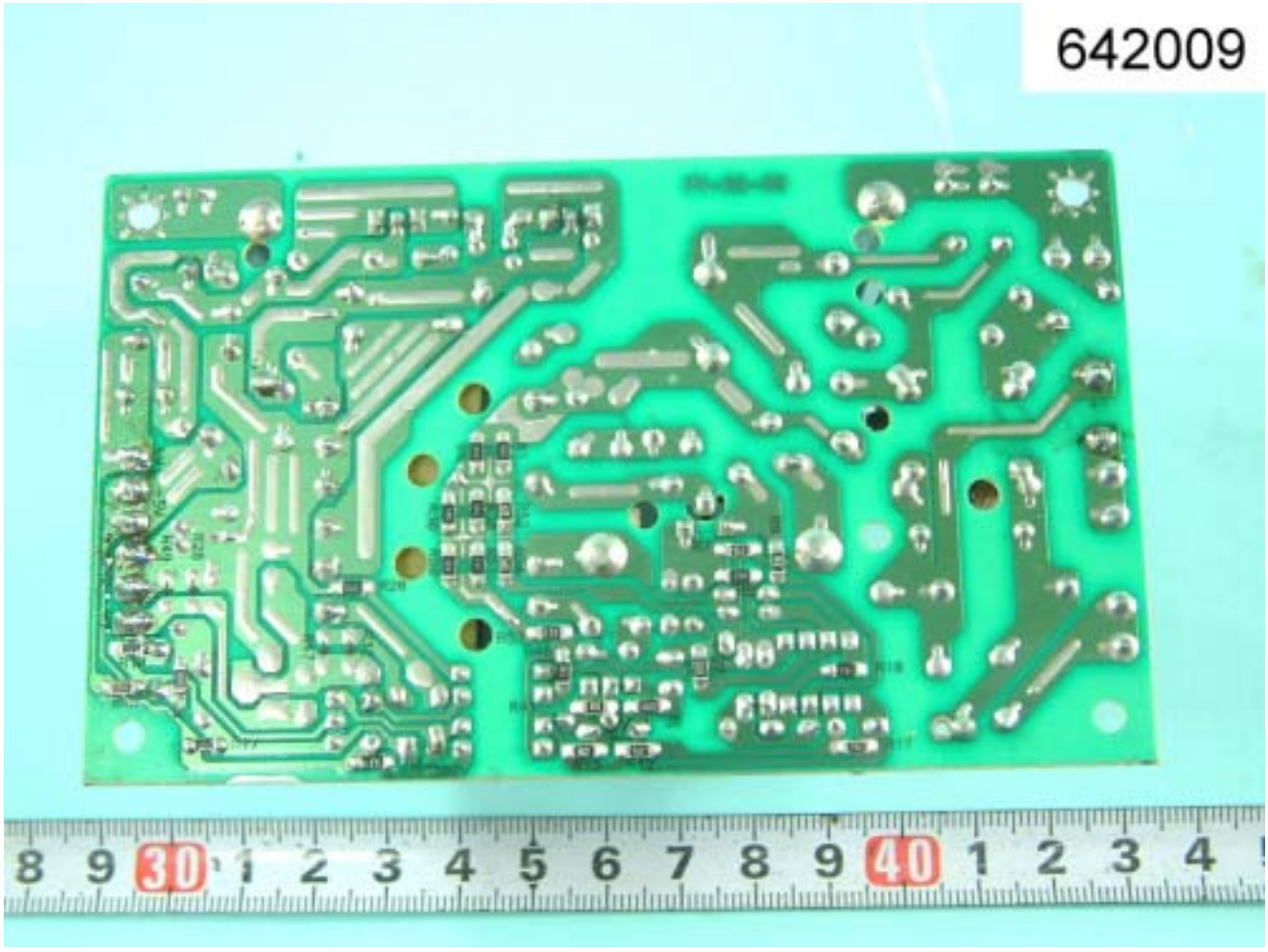
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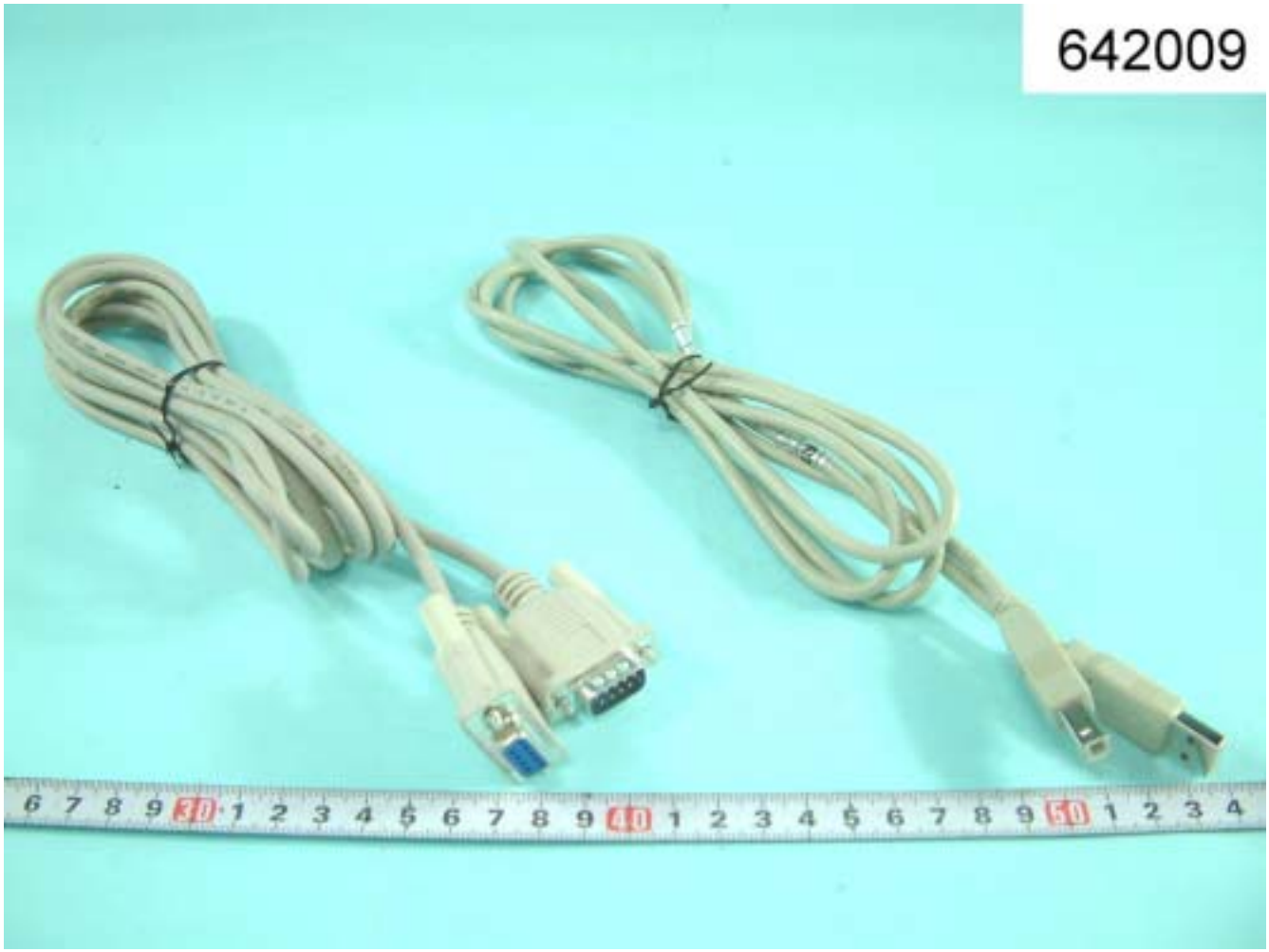
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