

CE EMC CERTIFICATION

according to

**European Standard EN 55022:2006 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 : Switching

Model No. : PA1, PA3, PF, PW, PWH, PWWH, PPF, TW, TWP,
TWK, TWL, AXE-0, AXE-1, AXE-2, AXE-4, SL, SL2,
SMMTR, SMFTR, SMATR, SMDF, MRT-B, MMX-D,
MM2D-D, MMCS, MCS, MMP-3, MMP-3VI

Applicant : **Axe Technology Corp.**
No.70, Lane 83, Hwa Chen Road,
Hsing Chuang City, Taipei Hsien, Taiwan

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 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).

The test was carried out on **Sep. 03, 2007** at SPORTON INTERNATIONAL INC. LAB.


Castries Huang
Supervisor

SPORTON INTERNATIONAL INC.
6F, No. 106, Sec. 1, Hsin Tai Wu Rd.,
Hsi Chih, Taipei Hsien, Taiwan, R.O.C.
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ISSUED DATE: Mar. 21, 2011

APPENDIX A. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST

A.1. APPLICANT

Axe Technology Corp.
No.70, Lane 83, Hwa Chen Road,
Hsing Chuang City, Taipei Hsien, Taiwan

A.2. MANUFACTURER

Same as A.1.

A.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment : **Switching**
Model No. : PA1, PA3, PF, PW, PWH, PWWH, PPF, TW, TWP, TWK, TWL, AXE-0, AXE-1,
AXE-2, AXE-4, SL, SL2, SMMTR, SMFTR, SMATR, SMDF, MRT-B, MMX-D,
MM2D-D, MMCS, MCS, MMP-3, MMP-3VI
Trade Name : AXE
Power Supply Type : Switching
DC Power Cable : Non-Shielded, 1.8m, 2pin

A.4. FEATURE OF EQUIPMENT UNDER TEST

- Measuring accuracy : 0.25%F.S.(RMS) ($23 \pm 5^{\circ}\text{C}$)
- Input burden : <0.2VA(voltage)
<0.2VA(current)
- Maximum input over : Current related input:3 x rated continuous
10 x rated 30 sec. ,25 x rated 3sec.
50 x rated 1sec.
Voltage related input:maximum 2x rated continuous
- Response time : <250ms (0~90%)
- Output drive capability : <10mA for voltage mode
<10V for current mode
- Output ripple(p-p) : <0.1% F.S.
- Zero (offset) range : $0 \sim \pm 5\%$ F.S.
- Span (scale) range : $0 \sim \pm 10\%$ F.S.
- Temp. coefficient : 100ppm/ $^{\circ}\text{C}$ (0~50 $^{\circ}\text{C}$)
- Isolation : Input/Output/Power/Case
- Insulation Resistance : >100Mohm with 500V DC
- Dielectric strength : 2KVac/1 min. (input/output/power)
- Impulse test : ANSI C37.90a/1974,DIN-IEC 255-4
impulse voltage 5KV (1.2 x 50us)
- Surge test(ring wave) : 2.5KV-0.25ms/1MHz
- Operating condition : -20~60 $^{\circ}\text{C}$ (20 to 90% RH non-condensed)
- Storage condition : -30~70 $^{\circ}\text{C}$ (20 to 90% RH non-condensed)

APPENDIX B. GENERAL INFORMATION OF TEST

B.1. TEST FACILITY

< EMI >

This test was carried out by SPORTON International Inc.

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, OS01-NH

< EMS >

Test Site Location : 3F, No. 587, Tanmeu St., Neihu District, Taipei, Taiwan, R.O.C.
TEL : 886-2-2794-8886

B.2. TEST VOLTAGE

230V / 50Hz

B.3. 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)

B.4. 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)

B.5. FREQUENCY RANGE INVESTIGATED

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

B.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

APPENDIX C. TEST RESULT

C.1. Test of Conducted Powerline

The CONDUCTED EMISSION test was passed at

Frequency (MHz)	Line or Neutral	Meter Reading		Limits		Margin	
		Q.P. (dBuV)	A.V. (dBuV)	Q.P. (dBuV)	A.V. (dBuV)	Q.P. (dB)	A.V. (dB)
1.027	Line	20.56	16.41	73.00	60.00	-52.44	-43.59

C.2. Test of Radiated Emission

The RADIATED EMISSION test was passed at

Frequency (MHz)	Polarity	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Antenna High	TurnTable Degree
854.400	Vertical	47.00	31.77	-15.23	2.01m	187°

C.3. Current 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.

C.4. Test Result Of Voltage Fluctuation And Flicker Test

Urms = 230.1V Freq = 50.000 Range: 0.25 A
 Irms = 0.010A Ipk = 0.022A cf = 2.141
 P = 1.344W Pap = 2.388VA pf = 0.563

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 : 6.00 % 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	0.000	0.000

C.5. ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required Performance Criteria : B
- Observation : Normal

C.6. RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : A
- Observation : Normal

C.7. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT/BURST)

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : B
- Observation : Normal

C.8. SURGE IMMUNITY TEST

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : B
- Observation : Normal

C.9. CONDUCTED DISTURBANCES INDUCED BY RADIO-FREQUENCY FIELD IMMUNITY TEST (CS)

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : A
- Observation : Normal

C.10. POWER FREQUENCY MAGNETIC FIELD IMMUNITY TESTS

- FINAL TEST RESULT : **PASS**
- Pass Performance Criteria : A
- Required performance criteria : A
- Observation : Normal

C.11. 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
- Observation : After the interruption, the power of EUT reset automatically.

APPENDIX D. TEST INSTRUMENT

D.1. EMI

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100357	9 kHz - 2.75 GHz	Sep. 14, 2006	Conduction (CO01-NH)
LISN	AFJ	NNB-2/16Z	99079	9kHz – 30MHz	Dec. 27, 2006	Conduction (CO01-NH)
LISN	KYORITSU	KNW-407	8-1010-15	9kHz – 30MHz	Dec. 07, 2006	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. 15, 2006	Conduction (CO01-NH)
Open Area Test Site	SPORTON	OATS-10	OS01-NH	30 MHz - 1 GHz 10m, 3m	Nov. 18, 2006	Radiation (OS01-NH)
Amplifier	HP	8447D	2944A06292	0.1 MHz - 1.3 GHz	Apr. 17, 2007	Radiation (OS01-NH)
Spectrum Analyzer	R&S	FSP	100793	9 kHz – 30 GHz	Dec. 15, 2006	Radiation (OS01-NH)
Receiver	R&S	ESCS 30	100358	9 kHz - 2.75 GHz	Oct. 26, 2006	Radiation (OS01-NH)
Bilog Antenna	SCHAFFNER	CBL6111C	2738	30 MHz - 1 GHz	Dec. 20, 2006	Radiation (OS01-NH)
Turn Table	EMCO	1060-1.211	9507-1805	0 - 360 degree	N/A	Radiation (OS01-NH)
Antenna Mast	EMCO	1051-1.2	9503-1876	1 m - 4 m	N/A	Radiation (OS01-NH)
RF Cable-R10m	BELDEN	RG8/U	CB001	30 MHz - 1 GHz	Oct. 11, 2006	Radiation (OS01-NH)

Calibration Interval of instruments listed above is one year.

D.2. EMS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
ESD Simulator	KEYTEK	MZ-15/EC	0302197	Air: 0 KV - 15 KV Contact: 0 KV -8KV	Mar. 12, 2007	ESD
Amplifier	AMPLIFIER& RESEARCH	150W1000	312366	80M~1GHz	Aug. 31, 2006	RS
Amplifier	AMPLIFIER& RESEARCH	30S1G3	312505	80M~3GHz	Aug. 31, 2006	RS
Antenna	AMPLIFIER& RESEARCH	AT1080A	312637	80M~1GHz	Sep. 14, 2006	RS
Antenna	AMPLIFIER& RESEARCH	AT4002A	312601	80M~5GHz	Sep. 14, 2006	RS
INTEGRATED MEASUREMENT SYSTEM	ROHDE& SCHWARZ	IMS	100007	9kHz~3GHz	Aug. 24, 2006	RS
NRP-Z91 POWER SENSOR 6GHZ	ROHDE& SCHWARZ	1168.8004.02	100095	9kHz~3GHz	Aug. 24, 2006	RS
EFT Generator	KEYTEK	EMCPRO	0609221	0 KV - 4.4 KV	Sep. 07, 2006	EFT
SURGE Generator Bi-Wave	KEYTEK	EMCPRO	0609221	0 KV -6 KV/2 0KV-500V/12	Sep. 07, 2006	SURGE
SURGE/CDN	KEYTEK	EMCPRO	0609221	0 KV -4 KV/2 0KV-500V/12	Sep. 07, 2006	SURGE
SURGE Generator Ring-Wave	KEYTEK	EMCPRO	0609221	0 KV -6 KV/2 0KV-500V/12	Sep. 07, 2006	SURGE
CS	FRANKONIA	CIT-10	102C3115	100 kHz - 266 MHz	Sep. 06, 2006	CS
Attenuator	EM TEST	75W-DC-250 MHz 06	0004166A	150 kHz - 230 MHz	May 25, 2007	CS
Koppel- Eutkoppelnetzwerk	FRANKONIA	CDN M2+M3	A3011018	150k~230MHz	May 18, 2007	CS
Magnetic Field Antenna	FCC	F-1000-4-8/9/10-L-1M	9830	0~125A	Apr. 02, 2007	Magnetic
Magnetic Generator	FCC	F-1000-4-8-G-125A	05004	0~125A	Apr. 02, 2007	Magnetic
PQF Generator	KEYTEK	EMCPRO	0609221	230VA/50Hz/60Hz 0%Open/5S 0%Short/5S 40%/0.10S 70%/0.01S	Sep. 07, 2006	DIP
Harmonic/Flicker Test System	EMC PARTNER	Harmonics -1000	088	4000VA 16A PEAK	Sep. 01, 2006	Harmonics, Flicker

Calibration Interval of instruments listed above is one year.