

Issued date : 2001/12/24

New date : 2003/05/12

TEST REPORT**IEC60 950****Safety of information technology equipment**

Report Reference No..... :	LD901217L01-1
Compiled by (+ signature)..... :	<i>Lily Huang</i> Engineer
Reviewed by (+ signature)..... :	<i>Charles. Chang</i> Assistant Manager
Date of issue..... :	December 24, 2001
Modify describe..... :	The report modify LD901217L01 to up date some components power adapter model SPU45E-102.
Testing laboratory name..... :	Advantech QA _ Lab
Testing laboratory address..... :	No.1, Alley 20, Lane 26, Rueiguang Road Neihs District, Taipei, Taiwan 14, R.O.C.
Client name..... :	Advantech Co., Ltd
Address..... :	4 th Fl, No. 108-3, Ming-Chuan Rd, Shing-Tien City, Taipei Hsien, Taiwan
Standard..... :	IEC 60 950:1991 + A1:1992 + A2:1993 + A3:1995 + A4:1996 EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997
Test procedure..... :	Server
Procedure deviation..... :	N/A
Non-standard test method..... :	N/A
Test Report Form/blank test report	
Test Report Form No. :	I950__D/97-06
TRF originator.....:	FIMKO
Master TRF..... :	reference No. I950 D, dated 97-02
Copyright reserved to the bodies participating in the Certification Management Committee (CMC) and/or the bodies participating in the CENELEC Certification Agreement (CCA).	
Test item description..... :	Informative test report
Trademark..... :	ADVANTECH®
Model and/or type reference .. :	FWA-2X0, Where the X can be any alphanumeric character or blank.
Manufacturer..... :	Advantech Co., Ltd
Rating(s)..... :	5 Vdc,6A (Not required marked on nameplate marking)

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Clause	Requirement + Test	Result – Remark	Verdict

The construction of the model FWA-2X0 was modified as follows

1. Adds alternative source power adapter.

For the above described modification the following testing was considered to be necessary

Modification	Testing	Comments	Result
1	N/A	IEC 60950 complied inverter and power is greater than before. No tests were considered necessary. See appended table 1.5.1 for alternative source.	P

Remark

History of amendments and modifications:

Ref No. LD901217L01-1, dated May 12, 2003 add power Adapter

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1.5.1	TABLE: list of critical components				Pass
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾
Power adapter	Sinpro Electronics co., Ltd	SPU45E-102	Rated I/P 100-240Vac, 47-63 Hz, 1.35A O/P 5-6Vdc, 8A	IEC 60950 UL-60950	TÜV,UL
Remark 1) an asterisk indicates a mark which assures the agreed level of surveillance.					



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1.6		TABLE: electrical data (in normal conditions)				N/A
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status
						See enclosed No.1 UL test report
Supplementary information:						



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ENCLOSURE No.1

UL test report

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Measuring and Test Instruments

Applied For Safety Inspection

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Company/Test Institute: Superior Product Consulting, Inc.

Address of Test Site: 3F1, No. 10, Alley 6, Lane 233, Pao Chiao Road, Hsin Tien City, Taipei, Taiwan, R.O.C.

Person responsible for:

Maintenance & Calibration: Terry wang/ Team Leader

Division/Department: Test Lab

Date and Signature:

Terry Wang 4/14/03

REV: A					DATE: APR 14, 2003
Item	Kind of Instrument Precision Class SPC Property No.	Manufacturer	Model Serial No.	Range Used & Function	Calibrated until
1	AC Power Meter SPC029	YOKOGAWA	2413 681100319	20A 600V	2.4 J U N 2 0 0 3
2	AC Power Meter SPC009	YOKOGAWA	2413 611100248	20A 600V	2.4 J U N 2 0 0 3
4	LEAKAGE CURRENT METER SPC103	SIMPSON	228 20433	0-100mA	1.3 A P R 2 0 0 4
5	FUSEPULL SCALE SPC004	IMADA	PH-30 207330	30KG	1.4 A P R 2 0 0 3
7	5-40V MP-35M MSV-25	VIL-TO-HOIST	31-001-11 917	5-40V/100A	2.4 J U N 2 0 0 3
8	DC ELECTRONIC LOAD SPC069	PRODIGIT	3301A 80201A013	60V/60A	2.4 J U N 2 0 0 3
9	CALIPER SPC019	MITUTOYO	500-121 7217225	150mm	1.0 F E B 2 0 0 4
10	TEMP. RECORDER SPC014	YOKOGAWA	UR180	-200°C TO 400°C	1.7 O C T 2 0 0 3
11	TEMP. RECORDER SPC012	YOKOGAWA	UR180	-200°C TO 400°C	1.8 O C T 2 0 0 3
12	TEMP. RECORDER SPC031	YOKOGAWA	UR180	-200°C TO 400°C	1.9 N O V 2 0 0 3
13	TEMP. RECORDER SPC099	FLUKE	41Y90028 52	-200°C TO 760°C	2.0 N O V 2 0 0 2
14	DIGITIZING OSCILLOSCOPE SPC047	TEKTRONIX	7106410 8010339	150MHz 100MHz	1.4 A U G 2 0 0 3
15	DUAL DISPLAY MULTIMETER SPC018	FLUKE	45 5130082	750Vac 10A	1.5 A U G 2 0 0 3
16	HIGH VOLTAGE PROBE SPC104	FLUKE	80K-40 72940016	40KVpk	1.1 F E B 2 0 0 3
17	THERMO-HYGROMETER SPC067	ISUZU	3-1122 80660371	-15°C - +40°C 0-100% RH	2.8 M A Y 2 0 0 2
18	DC ELECTRONIC LOAD SPC028	PRODIGIT	3301 205010035	60V/60A 250V/10A	2.9 M A Y 2 0 0 1
19	DC ELECTRONIC LOAD SPC035	PRODIGIT	3301 210010074	60V/60A 250V/10A	2.6 J U N 2 0 0 2
20	AC/DC CURRENT PROBE SPC047	TEKTRONIX	A622 96-14-94	75Arms 100Apk	0.3 M A Y 2 0 0 3
21	DC ELECTRONIC LOAD SPC057	PRODIGIT	3321 607020098	60V/60A	0.4 M A Y 2 0 0 2
22	DC ELECTRONIC LOAD SPC089	PRODIGIT	3321 607020097	60V/60A	0.5 M A Y 2 0 0 3
23	DIGITIZING POWER METER SPC059	PRODIGIT	4011 964011133	600V/20A	0.6 M A Y 2 0 0 2
24	STAMP WATCH SPC068	CASIO	115-20	0.5-10Hz/Hz	2.5 J U N 2 0 0 2
25	DIGITIZING MULTIMETER SPC060	GOOD WILL	GDM-8053 6040234	750Vac 2A 20MHz	2.6 J U N 2 0 0 2
27	POWER ANALYSER SPC063	AVPOWER	PA2100 621-0597	650Vrms 20A	2.4 J U N 2 0 0 3
28	DC ELECTRONIC LOAD SPC066	PRODIGIT	3301A 70401A022	60V/60A 250V/10A	1.1 A P R 2 0 0 3

#note: item 7, 16, 24
not use.

File E 180881

Project 03SC16212

SPC PROJECT NO 304285

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Item	Kind of Instrument / Precision Class SPC Property No.	Manufacturer	Model Serial No.	Range Used & Function	Calibrated until
29	TEST FINGER SPC039	UL	5M471	UL1950	21. MAR. 2004
30	BALL PRESSURE SPC041	UL	8002	FIG. 19	22. MAR. 2002
31	IMPACT BALL ---	UL	51508	UL1950	21. MAR. 2004
32	TEST PIN SPC040	UL	2004	FIG. 21	22. MAR. 2002
33	DC ELECTRONIC LOAD SPC077	PRODIGIT	3001	50mm	21. MAR. 2004
34	DC ELECTRONIC LOAD SPC079	PRODIGIT	80701A081	50kg	22. MAR. 2002
35	DC ELECTRONIC LOAD SPC080	PRODIGIT	3301A	UL1950	21. MAR. 2004
36	DC ELECTRONIC LOAD SPC081	PRODIGIT	80701A082	FIG. 20	22. MAR. 2002
37	DC ELECTRONIC LOAD SPC078	ZENTECH	3302A	60V/60A	16. AUG. 2003
38	TEMP. RECORDER SPC082	YOKOGAWA	808020375	17. AUG. 2002	17. AUG. 2002
39	TEMP. RECORDER SPC083	YOKOGAWA	3302	60V/60A	16. OCT. 2003
40	TEMP. RECORDER SPC090	YOKOGAWA	808020378	17. OCT. 2002	17. OCT. 2002
41	DC ELECTRONIC LOAD SPC091	PRODIGIT	2600R	60V/60A	16. AUG. 2003
42	DC ELECTRONIC LOAD SPC098	PRODIGIT	8090553	300V/10A	17. AUG. 2002
43	TEST FINGER SPC070	UL	UR1800	-200°C TO	11. FEB. 2004
44	DC ELECTRONIC LOAD SPC092	PRODIGIT	43700H038	400	12. FEB. 2003
45	DIGITIZING OSCILLOSCOPE SPC093	TEKTRONIX	UR1800	-200°C TO	07. JAN. 2004
46	DUAL DISPLAY MULTIMETER SPC094	FLUKE	43700H037	400	08. JAN. 2003
47	HI-POT TESTER SPC095	ZENTECH	UR1800	-200°C TO	07. JAN. 2004
48	GROUNDING TESTER SPC096	SIMPSON	43700H046	400	08. JAN. 2003
49	LEAKAGE CURRENT METER SPC097	PRODIGIT	3302A	60V/60A	16. OCT. 2003
50	DIGITIZING POWER METER SPC094	PRODIGIT	811020578	60V/60A	17. OCT. 2002
51	CALIPER SPC084	MITUTOYO	811020580	60V/60A	17. OCT. 2002
52	TEMP. RECORDER SPC072	YOKOGAWA	3301A	60V/60A	13. NOV. 2003
53	AC POWER METER SPC101	YOKOGAWA	80901A045	14. NOV. 2002	21. MAR. 2004
54	TEMP. RECORDER SPC104	YOKOGAWA	FIGURE 19	UL1950	22. MAR. 2002
55	TEMP. RECORDER SPC106	FLUKE	2346	FIG. 19	22. MAR. 2002
56	DIGITIZING POWER METER SPC107	CHYNG HONG	3301A	60V/60A	16. OCT. 2003
57	DIGITIZING POWER METER SPC105	CHYNG HONG	80901A086	60V/60A	17. OCT. 2002
58	TEMP. RECORDER SPC108	YOKOGAWA	T105360	200MHz	26. AUG. 2003
59	TEMP. RECORDER SPC109	YOKOGAWA	1019983	105Hz	27. AUG. 2002
60	Temperature/Humidity Test Chamber SPC005	KAO TIEH	45	750V _{ac}	07. JAN. 2004
			7079032	10A	08. JAN. 2003
			279072A	10mA	28. AUG. 2003
			809549	5KV	29. AUG. 2002
			279570	12V	26. NOV. 2003
			807786	40A	27. NOV. 2002
			228	0-100mA	17. OCT. 2003
			20088	18. OCT. 2002	18. OCT. 2002
			4011	600V/20A	11. FEB. 2004
			984011034	12. FEB. 2003	12. FEB. 2003
			CD-6°C/5	150mm	16. NOV. 2003
			0305366	20. NOV. 2002	20. NOV. 2002
			UR1800	-200°C TO	11. FEB. 2004
			43700C179	400	20. NOV. 2002
			2433	20A	07. JAN. 2004
			68LD0040	600V	08. JAN. 2003
			UR1800	-200°C TO	11. FEB. 2004
			12W732059	400	12. FEB. 2003
			52	-200°C TO	06. MAR. 2004
			73990047	760°C	07. MAR. 2003
			CP-350	300V/50A	09. MAR. 2004
			335952	10. MAR. 2003	10. MAR. 2003
			CP-350	300V/50A	09. MAR. 2004
			335953	10. MAR. 2003	10. MAR. 2003
			KT-7005-A	25°C to 40°C	07. OCT. 2002
			72867	93%RH to 99%RH	08. OCT. 2002

File E 180881
Project 035016312
SPC PROJECT NO 304285

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Clause	Requirement + Test	Result - Remark	Verdict

SUPERIOR PRODUCT CONSULTING, INC.
Data Sheet

File E180881 Project 02SC16212 Page 3 of 8
Advantech Corp. Ltd.

TEST RECORD NO. _____ Vol. _____ Sec. _____ Issues: _____

TEST PROGRAM DETAILS:

The manufacturer submitted

() a sample representing production of _____

☒ representative production samples of Sewer

Model(s) FWA-2XΦ

() employing the alternate _____

☒ The following tests were conducted in accordance with the Standard for Safety of Information Technology Equipment. CSA C22.2, No. 60950/UL60950, Third Edition.

☒ IEC 60950, Third Edition () Including Amendments _____

() Including National Deviations from _____

() VDE 0805/05.90

() AS 3260

() EN 41 003

() TS 001-1990

☒ Only the following tests were deemed necessary.

☒ Tests were conducted by (co. name & location) Superior Product Consulting, Inc., Taipei, Taiwan, R.O.C. and witnessed by a member of the UL staff.

☒ Tests were conducted under WDP/GDP/COMPASS Program/SCP/CAP. Tests noted by the initials "UL" were conducted at UL/witnessed by UL staff member.

() The following tests were conducted by _____ under the Memorandum of Understanding (MOU)/CB Scheme _____; CB Certificate No. _____; Tracking No. _____

Form Issued: 10-02-0
Revised: 00-00-0

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SPC PROJECT NO.: 30425

Issued date 2002/11/14

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Clause	Requirement + Test	Result – Remark	Verdict
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SUPERIOR PRODUCT CONSULTING, INC.
Data sheet

File # E180881 Project 03SC16212 Page 4 of 8

The test methods and results of the following tests have been reviewed and found to be in accordance with the requirements in the Standards noted above. Test results are valid only for the tested equipment.

() The following D3 Deviations from UL 1950, Second Edition, were used for testing: _____

() The card cage contained _____ boards and had _____ empty slots.

() The CPU was Model _____

() The unit was configured as follows: _____

"Maximum normal load" was defined as follows: _____
External Power Adapter, Hard Disk.

() Horizontal scanning frequency: _____ KHz
Vertical scanning frequency: _____ Hz

The unit weighs approximately _____ kg and was considered ~~/transportable/~~
~~building-in/direct plug-in/handheld/movable/fixed/stationary~~ with ~~exposed/unexposed~~
~~SELV/secondary low voltage/TNF~~ circuits.

() The unit was considered rack-mountable.

☒ Temp 50 °C.

☒ Unless otherwise indicated, all tests were conducted on
Model FWA-2K0

() Tests performed on Model _____ were considered to be representative
of Model(s) _____

TR-64 - UL 60950, 3rd Data Sheets
Document: 005.Eng

Form Issued: 10-02-00
Revised: 03-00-00

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SPC PROJECT NO.: 36425

TRF No. I950_D

TRF originator FIMKO

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SUPERIOR PRODUCT CONSULTING, INC.
Data Sheet

File E180881 Project D35C16212 Page 5/8
 Tested by: ZERO LEE Date 5/9/03
 (Printed Name) (Signature)
Allen Huang
 Sample # _____ Instr. Code/Range: _____

4.5.1, 1.4.12, 1.4.13 - HEATING TEST:
METHOD

The sample was connected to a source of supply, as noted below, and operated until temperatures became stable. Temperatures were measured using the thermocouple method. () Rise in temperature of windings of motors and transformers were additionally determined by the change-of-resistance method.

() Before starting the Heating Test, each special non-detachable power supply cord connection was pulled with a force of 5 N (1.12 lbs) for one minute. During the Heating Test, the temperature of its connections were recorded. (Maximum 60°C rise per 3.3.2.)

The sample operated under normal load as follows:

(X) Continuous operation, until steady conditions were established.
 () Rated intermittent operation of _____ on _____ off, until steady conditions were established.
 () Rated short-time operation of _____.

(X) The test conditions were as follows:
Max. normal load

Tmra was 54 °C.

() #Note: Cooling fan CFM (min): _____

TB:bd - UL 60950, 3rd Data Sheets
Document: 010.Eng

Form Issued: 10-02-00
Revised: 00-00-00

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SUPERIOR PRODUCT CONSULTING, INC.
Data Sheet

File ELDRRI Project 03 SC 16 212 Page 6 of 8
 Tested by: Zero Lee Date 5/9/03
 Printed Name Allen Huang Signature [Signature]
 Sample # 1/1 Instr Code/Range: 11.59

RESULTS

Test	Operating Condition	Input Conditions		Duration
		Volts	Hz	
A	Max. normal load	90	63	2 hrs
B				
C				
D				
E				
F				

[illegible]

Note: () Test on model:

Location 1 and Location 2 for Power Supply
Location 3 for Sewer

SPC PROJECT NO.: 30425

TB:bd - UL 60950, 3rd Data Sheets

Document: 540.Eng

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SUPERIOR PRODUCT CONSULTING, INC.
Data Sheet

File No. 5180881 Project No. 034616212 SPC Project No. 30425 Page 7 of 8

HEATING (TEMPERATURE) TEST

Prepared by: Allen Huang

Thermocouple Locations (refer to Heating Test)		dT (K)						Required dT (K)
		Test A V 50 Hz	Test B V Hz	Test C V Hz	Test D V Hz	Test E V Hz	Test F V Hz	
IL Coil	1.	27						27
Enclosure outside	2.	15						15
Enclosure outside	3.	2						2
	4.							
	5.							
	6.							
	7.							
	8.							
	9.							
	10.							
	11.							
	12.							
	13.							
	14.							
	15.							
	16.							
	17.							
	18.							
Room ambient		27 °C	°C	°C	°C	°C	°C	—
Test on model:								
Max. ambient temperature (T _{mba}).....: <u>50</u> °C (Manufacturer's specification)								
Insulating winding component s (Transformer):								
<input checked="" type="checkbox"/> Class A (T) : 75K - 10K - (<u>50</u> - 25)K = <u>45</u> K <input type="checkbox"/> Class F (T) : 115K - 10K - (____ - 25)K = ____ K								
<input type="checkbox"/> Class B (T) : 95K - 10K - (____ - 25)K = ____ K <input type="checkbox"/> Class H (T) : 140K - 10K - (____ - 25)K = ____ K								
*變壓器使用 Triple wire 且用 UL R/C (OBJY2) Insulation System 時, 須確認是否只有 Class 120 °(E)?								
<input type="checkbox"/> Class E (T) : 90K - 10K - (____ - 25)K = ____ K								
Components:								
<input type="checkbox"/> PCB (°C) : (____ - ____)K = ____ K <input type="checkbox"/> Choke (°C) : (____ - ____)K = ____ K								
<input type="checkbox"/> Choke (°C) : (____ - ____)K = ____ K <input type="checkbox"/> Choke (°C) : (____ - 10 - ____)K = ____ K								
* 如 Choke 之溫度等級 (Class) 於 120°C 以上, 必須量測 PCB 之溫度。 (NEMKO, 計算 choke 時減 10, 用 thermocouples.)								
<input type="checkbox"/> Electrolyte cap. (85°C) : (85°C - ____)K = ____ K <input type="checkbox"/> X-Cap (85/100°C) : (____ - ____)K = ____ K								
<input type="checkbox"/> Electrolyte cap. (105°C) : (105°C - ____)K = ____ K <input type="checkbox"/> Y-Cap (85/100°C) : (____ - ____)K = ____ K								
<input type="checkbox"/> Inlet (85 / 70 / 75°C) : (____ - ____)K = ____ K <input type="checkbox"/> Opto-coupler (85/100°C) : (____ - ____)K = ____ K								
User Touchable Surface:								
<input checked="" type="checkbox"/> Plastic : 70K - (<u>50</u> - 25)K = <u>45</u> K <input checked="" type="checkbox"/> Metal : 45K - (<u>30</u> - 25)K = <u>20</u> K								
Notes:								
1. For plastic Enclosure (Stress Relief Test)								
<input type="checkbox"/> The oven temperature is ____ °C (ΔT ____ + 10°C + max ambient ____ °C) or <input type="checkbox"/> 70°C								
2. 如果 Heat Sink 量測得之溫度超過 PCB 之限制值, 則必須量測 PCB 之溫度。								

\\SERVER\實驗室\Lab 常用表格\@Witness Table\Temp_dt (04-24-2003).doc

TRF No. 1950_D

TRF originator FIMKO

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