Issued date 2002/2/5

New date 2004/1/14

TEST REPORT
IEC60 950
Safety of information technology equipment

Report Reference No.....	:	SPCLVD20135-3
Compiled by (+ signature).....	:	*Lily Huang* Engineer .....
Reviewed by (+ signature).....	:	*Charles. Chang* Assistant Manager .....
Date of issue	:	February 5, 2002
Modify describe	:	The report modify SPCLVD20135 to alternate some components and change model no.
Testing laboratory name	:	Advantech QA _ Lab
Testing laboratory address	:	No.1, Alley 20, Lane 26, Rueiguang Road Neihu District, Taipei ,Taiwan 14, R.O.C.
Client name	:	Advantech Co., Ltd
Address.....	:	4th 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	:	LCD Panel Computer
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

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Test item description.....	:	Informative test report
Trademark	:	ADVANTECH
Model and/or type reference ..	:	PPC-S123T PPC-S153T
Manufacturer.....	:	Advantech Co., Ltd
Rating(s).....	:	16~25 V dc, 3.5A max of PPC-S153XXX 19~26 V dc, 3A max of PPC-S123XXX

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

The construction of the model PPC-S153XXX, S123XXX X=0 to 9, alphanumeric character or blank was modified as follows

1. Change model no. to PPC-S123XXX, PPC-S153XXX from PPC-S123T, PPC-S153T
2. Alternate components

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. SPCLVD20135-1, dated February 5, 2002	add panel
Ref No. SPCLVD20135-2, dated January 2, 2003	alternate power adapter
Ref No. SPCLVD20135-3, dated January 14, 2004	PPC-S123T alternate power board, PPC-S153T alternate inverter and Change model no.

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

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 board(for model PPC-S123xxx)	ADVANTECH	PCM-041	--	--	--
Inverter (for model PPC-S153xxx)	Lecerf Technology Co., Ltd.	LV-1201-D	13.2V, 1300mA, max. O/P volt: 710Vrms max. open Volt: 1500Vrms	--	--
-Transformer (T1, T2)	Lecerf Technology Co., Ltd.	X03	105°C	--	--
- Fuse (F1)	Various	Various	2A maximum, 125V	--	UL

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

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:							

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

ENCLOSURE No.1

UL test report

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc.

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File Date

File E 180881 Project 03SC11057 Product PC

Standard 60950 3RD CCNs Models PPC-5153XXX and PPC-5123XXX

SPC PROJECT NO.: 31169

DATA PACKAGE INFORMATION SHEET

Applicant Info	Applicant Name: Advantech Inc.	
	Applicant Address:	

Test Location Info:	☒ CAP ☐ COMPASS ☐ CTDP ☐ TCP ☐ TPTDP ☐ UL ☐ WTDP					
	Test Location Name/Address:	SUPERIOR PRODUCT CONSULTING, INC. 3F, No.10, Alley 6, Lane 235, Pao Chiao Rd., Hsien Tien Taipei, Taiwan				
	Lab Technician:	Sign	Judy Jeng	Lab Supervisor:	Sign	Tony Wang
		Print	Judy Jeng		Print	Terry Wang

Test Data Approved By:	Responsible Engineer:	Sign	Tom Scheuffele	Reviewer:	Sign	Robert E Warren
		Print	Tom Scheuffele		Print	Robert Warren
		Date	1/7/04		Date	1/7/04

Test	Pg #	Test	Pg #
1. Input Test	7		
2. Limited Current Circuit Measurement	8		
3. Heating Test	11		

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Measuring and Test Instruments

Applied For Safety Inspection

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Company/Test Institute: Superior Product Consulting, Inc

Address of Test Site: 3FL,No. 10, Alley 6,Lane 235, 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 **Reviewer**:

REV: A **DATE:DEC,01, 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	2433	20A	22, JUN. 2004
			68LD0039	600V	23, JUN. 2003
2	AC Power Meter SPC009	YOKOGAWA	2433	20A	22, JUN. 2004
			61LD0248	600V	23, JUN. 2003
4	LEAKAGE CURRENT METER SPC103	SIMPSON	228	0-100mA	13, APR. 2004
			20433		14, APR. 2003
5	PUSH/PULL SCALE SPC004	IMADA	FB-30	30KG	23, JUN. 2004
			207330		24, JUN. 2003
8	DC ELECTRONIC LOAD SPC069	PRODIGIT	3301A	60V/60A	04, MAR. 2004
			80201A011		05, MAR. 2003
9	CALIPER SPC019	MITUTOYO	500-321	150mm	10, FEB. 2004
			7217225		11, FEB. 2003
10	TEMP. RECORDER SPC014	YOKOGAWA	UR180	-200℃ TO	08, OCT. 2004
			48YP0718	400℃	09, OCT. 2003
11	TEMP. RECORDER SPC012	YOKOGAWA	UR180	-200℃ TO	11, NOV. 2004
			48YP0719	400℃	12, NOV. 2003
12	TEMP. RECORDER SPC033	YOKOGAWA	UR180	-200℃ TO	13, AUG. 2004
			42YS0028	400℃	14, AUG. 2003
13	TEMP. RECORDER SPC099	FLUKE	52	-200℃ TO	24, JUL. 2004
			4795005	760℃	25, JUL. 2003
14	DIGITIZING OSCILLOSCOPE SPC047	TEKTRONIX	TDS410	150MHz	08, JAN. 2004
			B010359	100MS/s	09, JAN. 2003
15	DUAL DISPLAY MULTIMETER SPC018	FLUKE	45	750Vac	10, FEB. 2004
			5120082	10A	11, FEB. 2003
17	THERMO-HYGROMETER SPC067	ISUZU	3-3122	-15℃ - +40℃	22, JUN. 2004
			80660571	0-100% RH	23, JUN. 2003
18	DC ELECTRONIC LOAD SPC028	PRODIGIT	3301	60V/60A	01, MAY. 2004
			205010035	250V/10A	02, MAY. 2003
19	DC ELECTRONIC LOAD SPC035	PRODIGIT	3301	60V/60A	01, MAY. 2004
			210010074	250V/10A	02, MAY. 2003
20	AC/DC CURRENT PROBE SPC047	TEKTRONIX	A622	70Arms	01, MAY. 2004
			06-14-94	100Apk	02, MAY. 2003
21	DC ELECTRONIC LOAD SPC057	PRODIGIT	3321	60V/60A	25, AUG. 2004
			607020098		26, AUG. 2003
22	DC ELECTRONIC LOAD SPC089	PRODIGIT	3321	60V/60A	23, JUL. 2004
			607020097		24, JUL. 2003
23	DIGITIZING POWER METER SPC059	PRODIGIT	4011	600V/20A	25, JUL. 2004
			964011133		26, JUL. 2003
24	STOP WATCH SPC068	CASIO	HS-3	0 S-10HOURS	16, SEP. 2004
			209Q05		17, SEP. 2003
25	DIGITIZING MUTIMETER SPC060	GOOD WILL	GDM-8055	750Vac	22, JUN. 2004
			6040254	2A 20MΩ	23, JUN. 2003
27	POWER ANALYSER SPC063	AVPOWER	PA2100	650Vrms	10, APR. 2004
			621-0597	20A	11, APR. 2003
28	DC ELECTRONIC LOAD SPC066	PRODIGIT	3301A	60V/60A	25, AUG. 2004
			70601A022	250V/10A	26, AUG. 2003

Note: 儀器送校驗前請先確認「QE-01-Table-02 供應商評估紀錄表」是否有此供應商評估紀錄，並確認符合需求，若無則進行供應商評估動作.

File E 180881 Project 03SC11057 SPC PROJECT NO 31169

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

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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	UL	SM471	UL1950	21, MAR. 2004
	SPC039		S002	FIG. 19	22, MAR. 2002
30	BALL PRESSURE	UL	S1598	UL1950	21, MAR. 2004
	SPC041		S004	FIG. 21	22, MAR. 2002
31	IMPACT BALL	UL	----	50mm	21, MAR. 2004
	----		S003	500g	22, MAR. 2002
32	TEST PIN	UL	S2962	UL1950	21, MAR. 2004
	SPC040		S001	FIG. 20	22, MAR. 2002
33	DC ELECTRONIC LOAD	PRODIGIT	3301A	60V/60A	25, AUG. 2004
	SPC077		80701A043		26, AUG. 2003
34	DC ELECTRONIC LOAD	PRODIGIT	3301A	60V/60A	27, AUG. 2004
	SPC079		80701A042		28, AUG. 2003
35	DC ELECTRONIC LOAD	PRODIGIT	3302A	60V/30A	21, AUG. 2004
	SPC080		808020375		22, AUG. 2003
36	DC ELECTRONIC LOAD	PRODIGIT	3302	60V/30A	21, AUG. 2004
	SPC081		808020378		22, AUG. 2003
37	DC ELECTRONIC LOAD	ZENTECH	2600R	60V/60A	21, AUG. 2004
	SPC078		809055	300V/10A	22, AUG. 2003
38	TEMP. RECORDER	YOKOGAWA	UR1800	-200℃ TO	11, FEB. 2004
	SPC082		4370GE038	400	12, FEB. 2003
39	TEMP. RECORDER	YOKOGAWA	UR1800	-200℃ TO	07, JAN. 2004
	SPC083		4370GE037	400	08, JAN. 2003
40	TEMP. RECORDER	YOKOGAWA	UR1800	-200℃ TO	07, JAN. 2004
	SPC090		4370GE046	400	08, JAN. 2003
41	DC ELECTRONIC LOAD	PRODIGIT	3302A	60V/30A	07, OCT. 2004
	SPC091		811020578		08, OCT. 2003
42	DC ELECTRONIC LOAD	PRODIGIT	3302A	60V/30A	07, OCT. 2004
	SPC088		811020580		08, OCT. 2003
43	DC ELECTRONIC LOAD	PRODIGIT	3301A	60V/60A	11, NOV. 2004
	SPC098		80901A045		12, NOV. 2003
44	TEST FINGER	UL	FIGURE 19	UL1950	21, MAR. 2004
	SPC070		2346	FIG. 19	22, MAR. 2002
45	DC ELECTRONIC LOAD	PRODIGIT	3301A	60V/60A	07, OCT. 2004
	SPC092		80901A046		08, OCT. 2003
46	DIGITIZING OSCILLOSCOPE	TEKTRONIX	TDS360	200MHz	27, AUG. 2004
	SPC093		B019983	1GS/s	28, AUG. 2003
47	DUAL DISPLAY MULTIMETER	FLUKE	45	750Vac	07, JAN. 2004
	SPC094		7079032	10A	08, JAN. 2003
48	HI-POT TESTER	ZENTECH	ZT9072A	10mA	27, AUG. 2004
	SPC095		809549	5KV	28, AUG. 2003
49	GROUNDING TESTER	ZENTECH	ZT9570	12V	27, NOV. 2004
*	SPC096		807786	40A	28, NOV. 2003
50	LEAKAGE CURRENT METER	SIMPSON	228	0-100mA	08, OCT. 2004
	SPC097		20988		09, OCT. 2003
51	DIGITIZING POWER METER	PRODIGIT	4011	600V/20A	11, FEB. 2004
	SPC094		984011034		12, FEB. 2003
52	CALIPER	MITUTOYO	CD-6"CS	150mm	11, NOV. 2004
	SPC084		0305366		12, NOV. 2003
53	TEMP. RECORDER	YOKOGAWA	UR1800	-200℃ TO	11, NOV. 2004
	SPC072		4370GC179	400	12, NOV. 2003
54	AC POWER METER	YOKOGAWA	2433	20A	07, JAN. 2004
	SPC101		68LD0040	600V	08, JAN. 2003
56	TEMP. RECORDER	YOKOGAWA	UR1800	-200℃ TO	11, FEB. 2004
	SPC104		12W732059	400	12, FEB. 2003
57	TEMP. RECORDER	FLUKE	52	-200℃ TO	06, MAR. 2004
	SPC106		73990047	760℃	07, MAR. 2003
58	DIGITIZING POWER METER	CHYNG HONG	CP-350	500V/50A	09, MAR. 2004
	SPC107		355952		10, MAR. 2003
59	DIGITIZING POWER METER	CHYNG HONG	CP-350	500V/50A	09, MAR. 2004
	SPC105		355953		10, MAR. 2003
60	Temperature/Humidity Test Chamber	KAO TIEH	KT-7005-A	25°C to 40°C	26, OCT. 2004
	SPC005		72867	93%R.H. to 95%R.H.	27, OCT. 2003

Note: 儀器送校驗前請先確認「QE-01-Table-02 供應商評估紀錄表」是否有此供應商評估紀錄，並確認符合需求，若無則進行供應商評估動作.

File E 180881 Project 03SC11057 SPC PROJECT NO 31169

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

File Date Underwriters Laboratories Inc. Page 4 of 15

SPC PROJECT NO.: 31169

File E 180881 Project 03SC11057 Product PC

Standard UL 60950 3rd CCNs Models PPC-5153XXX and PPC-5123XXX

TEST SAMPLE IDENTIFICATION

The table below is to provide correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Number	SPC project No.	Date Received	Storage Location	Model No.
1/2	31169	92.11.26	Warehouse	PPC-5153XXX
2/2	〃	〃	〃	PPC-5123XXX

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 5 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/18/03

Sample #: Instrument Code / Range:

END PRODUCT REFERENCE PAGE

Equipment/Model	PC	PPC-5153XXX, PPC-5123XXX
Electrical Ratings	Voltage []Vac [X]Vdc	16-25, 19-26
	Current [X]A []mA	3.5, 3.0
	Frequency, Hz	–
	Power, Watts	–
	Phase	–

Card Cage Capacity	# of Cards	# of Empty Slots
Additional Load(s) for Unused card slots		

CPU	Type	Frequency

Unit Configuration	WITH LIEN ELECTRONIC POWER SUPPLY TYPE LF-9702B-06 AND PERSONAL COMPUTER, MODEL PPC-5153

Maximum Normal Load	Full raster, each USB port load 0.5A, H.D.D., F.D.D. and CD-ROM were seeking

Scanning Frequency	Horizontal (KHz)	Vertical (Hz)

Maximum Operating Temperature Tma (°C) 45	Weight (Kg)

~~EVALUATED TO THE STANDARD~~ TESTS WERE CONDUCTED IN ACCORDANCE WITH THE STANDARD FOR INFORMATION TECHNOLOGY EQUIPMENT CSA 22.2, NO. 60950/UL 60950, THIRD EDITION.

TB:bd – 60950-1, First Ed. Data Sheets Form Issued: 2003-03-31
Document: 005-1.Eng Revised: 0000-00-00

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 6 of 15

File: E180881
Project: 03SC11057
SPC PROJECT NO.: ~~31169~~
Sample #:

Tested by (signature): Judy Jeng
Tested by (print): Judy Jeng
Test date: 12/18/03
Instrument Code / Range:

1.6.2 - INPUT TEST: See Next Page
SINGLE-PHASE

METHOD

The unit was connected to a variable voltage as indicated and then operated normally under the conditions noted below until well warmed. The input current and average power were measured.

RESULTS

1.6.2	TABLE: electrical data (in normal conditions)					
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status

Supplementary information:

The steady state input current [did] [did not] exceed the rated current at the rated voltage by more than 10 percent under maximum normal load.

Comments:
( ) Test on model:

TB:bd - 60950-1, First Ed. Data Sheets
Document: 040-1.Eng

Form Issued: 2003-03-31
Revised: 0000-00-00

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Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 7 of 15

File: E180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #: 1/2

Tested by (signature): Judy Jeng
Tested by (print): Judy Jeng
Test date: 12/8/03
Instrument Code / Range: 47.58.

☒ RESULTS

1.6.2	TABLE: electrical data (in normal conditions)					Power Supply DC Output					
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	V	A	V	A	V	A
F1	—	90V / 50HZ	46	952	952	19	2.08				
"	—	90V / 60HZ	45	(23) 926	926	19	2.02				
"	1.8	100V / 50HZ	44	891	891	19	2.01				
"	1.8	100V / 60HZ	44	847	847	19	2.03				
"	1.8	240V / 50HZ	45	432	432	19	2.10				
"	1.8	240V / 60HZ	45	427	427	19	2.03				
"	—	264V / 50HZ	45	405	405	19	2.12				
"	—	264V / 60HZ	46	393	393	19	2.11				

Supplementary information:
The steady state input current ~~[did]~~ [did not] exceed the rated current at the rated voltage by more than 10 percent under maximum normal load.

The steady state input current ~~[did]~~ [did not] exceed the rated current at the rated voltage by more than 10% under the maximum normal load.

Comments:
(X) Test on model: PPC-5153
(X) Power Adapter: Liten, Type LE-9702B-06

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 8 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #:

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/16/03

Instrument Code / Range:

2.4.1, 2.4.2 - LIMITED CURRENT CIRCUIT MEASUREMENTS:

METHOD PART I

The unit was connected to 264 [V ac, 60 Hz] ~~+ V dc +~~ [X] A 2000 ohms non-inductive resistor [] an IEC leakage current meter described in Annex D of UL 60950 and a switch were connected between the user accessible part of a limited current circuit and either pole of the limited current circuit or earth as noted under RESULTS Part I. A storage oscilloscope was connected across the points under consideration. The switch was closed and the following values were recorded:

[X] Oscilloscope Method:

Vp - Peak Voltage
V dc - dc Voltage
Ap - Peak current = Vp/2000 Ω
dc - dc current = V dc/2000 Ω
kHz - Circuit frequency in kilohertz

[] In addition, a photograph or printout of the waveform was made.

[] MIU - Annex D meter method

Measurements were made under both normal and single fault conditions as noted below.

Y1 Capacitors were not subjected to single fault conditions.

Measuring instrument used for test:

[] Annex D.1 [] Simpson Meter 228
[] _____

[] Annex D.2 [] Simpson Meter 229.2
[] _____

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 9 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: ~~31169~~
Sample #: 1/2

Tested by (signature): Judy Jeng
Tested by (print): Judy Jeng
Test date: 12/16/03
Instrument Code / Range: 46.

RESULTS PART I

☒ Oscilloscope Method:

User Accessible Live Part: T2 Pin6 to Pole 1: T2 Pin8

Fault	Volts Peak	Volts dc	mAp	mA dc	Frequency kHz	Limited mA
Normal	0.68	–	0.34	–	0.060	0.7
U1 (11-14) short	0.60	–	0.30	–	0.063	0.7
U1 (13-14) short	0.60	–	0.30	–	0.060	0.7

User Accessible Live Part: T2 Pin6 to Pole 2: Earth

Fault	Volts Peak	Volts dc	mAp	mA dc	Frequency kHz	Limited mA
Normal	1.12	–	0.56	–	0.057	0.7
U1 (11-14) short	0.64	–	0.32	–	0.063	0.7
U1 (13-14) short	0.60	–	0.30	–	0.058	0.7

User Accessible Live Part: T2 Pin8 to Earth

Fault	Volts Peak	Volts dc	mAp	mA dc	Frequency kHz	Limited mA
Normal	1.12	–	0.56	–	49	34.3
U1 (11-14) short	–	–	–	–	–	–
U1 (13-14) short	–	–	–	–	–	–

The circuit's available current [complied] ~~[did not comply]~~ with the current limits of a Limited Current Circuit.

Comments: T2 Pin6 to Earth: 960 VPK, 46 KHZ
Without 2kΩ: T2 Pin6 to T2 Pin8: 1.02 VPK, 49 KHZ, T2 Pin8 to Earth: 38 VPK, 49 KHZ
Maximum Allowable Limit = 0.7 X (Frequency in Hz) / 1000 Hz mA
Or = 70mA (whichever is less)
(X) Inverter board: King Core, Type HY1004T

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 10 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #: 1/2

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 03/11/03
Instrument Code / Range:

METHOD PART II

For the following accessible live part tested under METHOD PART I, the capacitance, stored charge or energy of that circuit was determined.

If the open circuit voltage was less than 450 V peak or dc, the capacitance in microfarads was recorded.

If the open circuit voltage exceeded 450 V peak or dc, but was less than 15,000 V peak or dc, the stored charge was recorded by using the formula $\mu C = (\mu F)\ V$.

If the open circuit voltage exceeded 15,000 V peak or dc, the energy was recorded by using the formula $J = 5(10)^{-7}(\mu F)V^2$.

RESULTS PART II

Location		Fault	Voltage	µF	µC	mJ
User Part	To					
Tx Pin6	Tx Pin8	Normal	1.02K	—	0.153	—

[X] The circuit complied with the other requirements of limited current circuit.

[] The following exceeded the limit:

[] Capacitance (limit = 0.1 µF)
[] Stored Charge (limit = 45 µC)
[] Available Energy (limit = 350 mJ)

Comments:

TB:bd - 60950-1, First Ed. Data Sheets
Document: 170-1.Eng

Form Issued: 2003-03-31
Revised: 0000-00-00

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Underwriters Laboratories Inc. Page 11 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/17/03

Sample #: _____ Instrument 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 85°C 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

Tma was ~~40~~ 45 (33) °C.

( ) #Note:

Cooling fan CFM (minimum): _____

bd - 60950-1, First Ed. Data Sheets
Document: 590-1.Eng

Form Issued: 2003-03-31
Revised: 0000-00-00

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

SUPERIOR PRODUCT CONSULTING, INC. Page 12 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #: 1/2

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/19/03
Instrument Code / Range: 48, 59, 24.

RESULTS

4.5	TABLE: maximum temperatures							
	test voltage (V) :	90V/60HZ	264V/50HZ					—
	t_{amb1} (°C) :							—
	t_{amb2} (°C) :							—
	Duration	2hrs	1hr					

maximum temperature T of part/at::	T (°C)						allowed T_{max} (°C)
(S) Test Condition	A	B	C	D	E	F	—
1. LF1 coil	75	62					
2. LF2 coil	67	57					
3. LF3 coil	78	61					
4. T1 coil	69	68					
ADAPTER 5. Enclosure (outside)	48	47					
6. ~~Fuse~~ (D.T) (S) L2 coil	67	58					
7. ~~Ambient~~ T2 coil (Inverter)	45	45					
8. Ambient	23	23					

Comments: CH1 To CH6 For Power Adapter Lien, Type LE-9782B-06
Test on model: CH7 For: PPC-5153
(S) Test Condition:

A: Max. Normal load B: Max. Normal load
C: D:
E: F:

TB:bd - 60950-1, First Ed. Data Sheets
Document: 590-1.Eng

Form Issued: 2003-03-31
Revised: 0000-00-00

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IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

SUPERIOR PRODUCT CONSULTING, INC. Page 17 of 15

File: E 180831
Project: 03SC11057
SPC PROJECT NO.: 31169

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/17/03

ATING (TEMPERATURE) TEST

Thermocouple Locations (refer to Heating Test)	T-Tamb+Tma (°C) Test A 90 V 60 Hz	Test B >64 V 50 Hz	Test C V Hz	Test D V Hz	Test E V Hz	Test F V Hz	(°C) allowed Tmax
1.	97	84					105
2.	89	79					105
3.	92	83					105
4.	91	90					110
5.	70	69					90
6.	89	80					105
7.	67	67					105
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
The ambient temperature during test (Tamb)	>3 °C	>3 °C	°C	°C	°C	°C	—
Test on model:	PPC-5153						—

Max. ambient temperature (Tma)..... 45 °C (Manufacturer's specification)

allowed (Tmax) for insulating winding components (Transformer):

☐ Class A (T) .. 100-10= 90 °C
☒ Class B (T) .. 120-10= 110 °C
☐ Class F (T): 140-10= 130 °C
☐ Class H ( ): 165-10= 155 °C

•變壓器使用Triple wire且用UL R/C (OBJY2) Insulation System時, 容許溫度(Tmax)可以Class 120 °C(E)?

☐ Class E (T) .....: 115-10= 105 °C

allowed (Tmax) for Components:

☐ PCB ..... 105 / 130 °C
☒ Choke (UF1, UF2, UF3, UF4, T=105 / ~~120~~ °C
☐ Choke (_____)... 130 °C / _____ °C
☐ Choke (_____)... -10= °C

• 如Choke之溫度等級(Class)於120°C以上, 必須量測PCB之溫度 • (NEMKO, 針對choke時候, 10. 用thermocouples)

☐ Electrolyte cap. (_____).... 85 / 105°C
☐ Electrolyte cap. (_____).... 85 / 105°C
☐ Relay ..... 65 / 70 / 75 °C
☐ X-Cap (_____)... 85 / 100 °C
☐ Y-Cap (_____).. 85 / 100 °C
☐ Opto-coupler (_____).... 85 / 100°C

allowed (Tmax) for User Touchable Surface: ☒ Plastic..... 90 °C ☐ Metal..... 70 °C

Notes:
1. For plastic Enclosure (Stress Relief Test)
☐ The oven temperature is _____°C (T-Tamb+Tma + 10°C) or ☐ 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 -

IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

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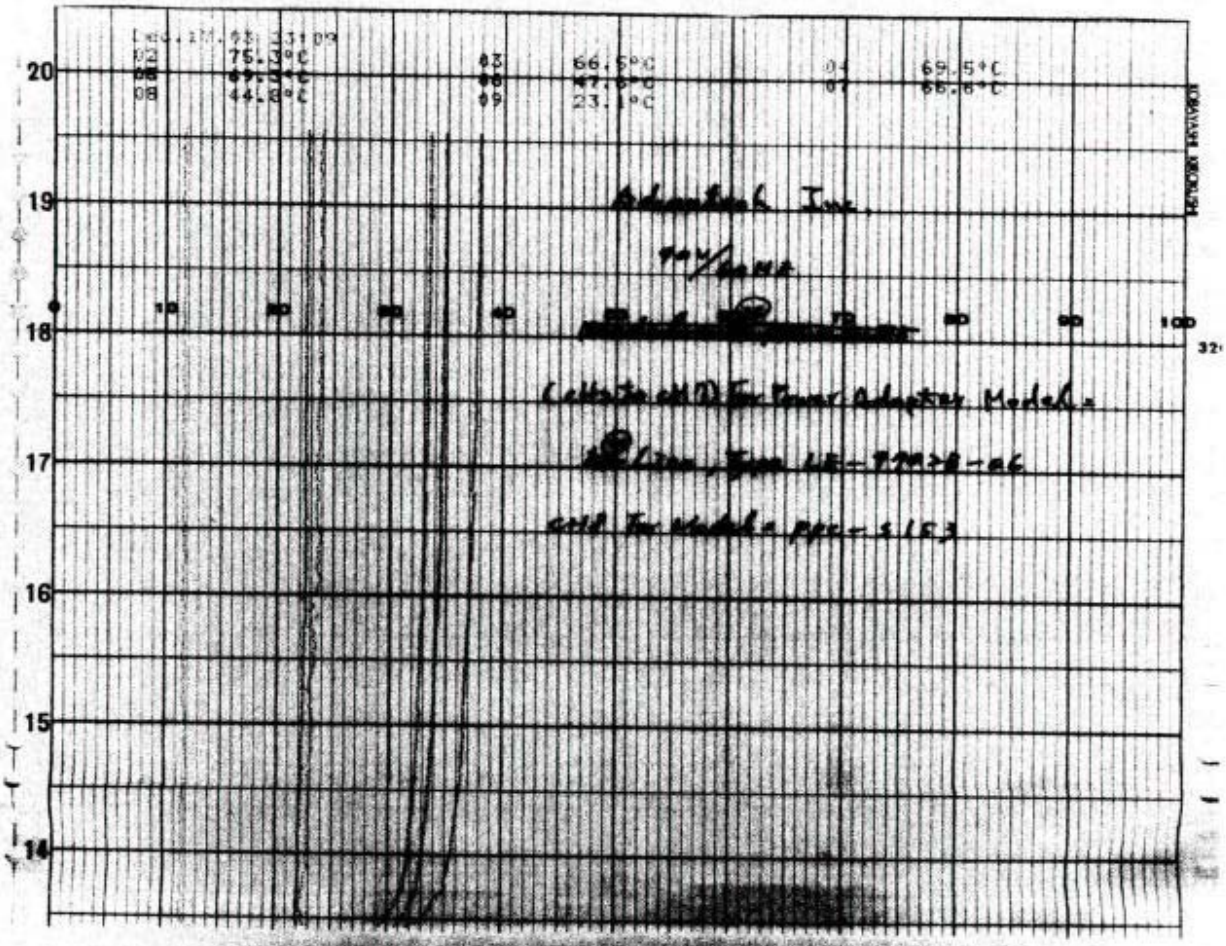
File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #: 1/2

Tested by (signature): Judy Jeng
Tested by (print): Judy Jeng
Test date: 1/19/03
Instrument Code / Range: 48.24.59.

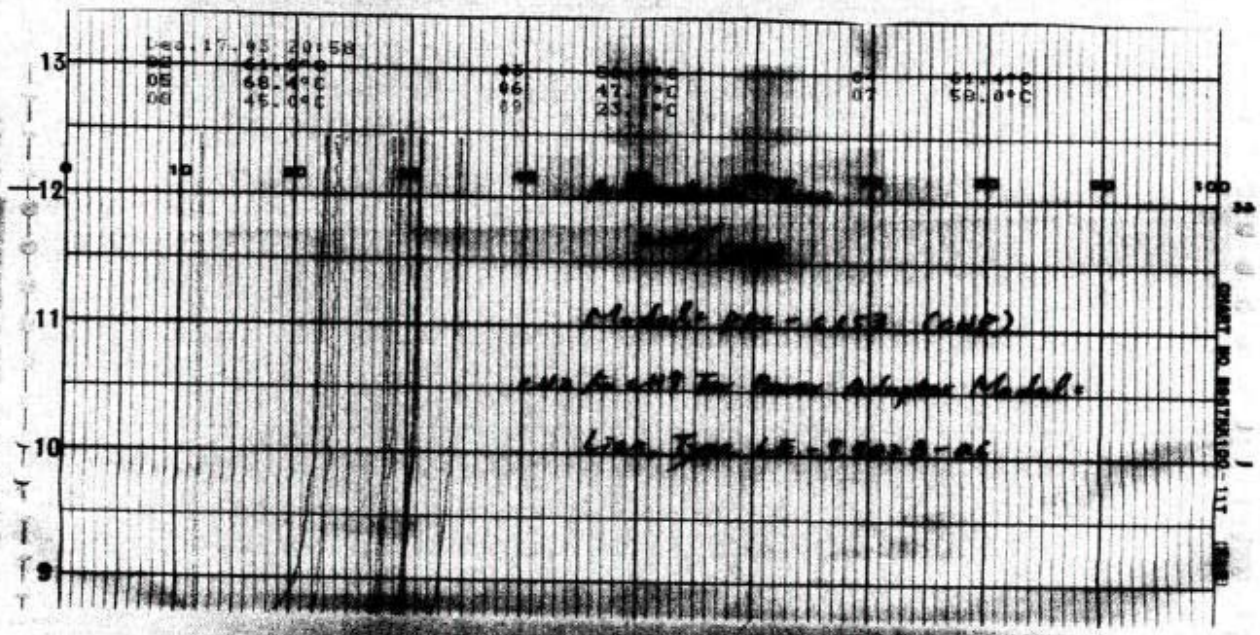


IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

SUPERIOR PRODUCT CONSULTING, INC. Page 15 of 15

File: E 180881
Project: 03SC11057
SPC PROJECT NO.: 31169
Sample #: 1/2

Tested by (signature) Judy Jeng
Tested by (print) Judy Jeng
Test date 12/7/03
Instrument Code / Range: 40.24.59



IEC60 950			
Clause	Requirement + Test	Result – Remark	Verdict

Test Record Summary:

The results of this investigation indicate that the samples evaluated comply with the applicable requirements, and therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Test Record by:

Tom Schwuffele
SPE
CAS

Reviewed by:

Robert Warren
SPE
CAS

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