

Issue Date: 2003-06-30
Amendment 2 2005-06-13

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Report Reference #

E180881-A17-UL-1

COVER PAGE FOR TEST REPORT

Product Category:	Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	NWQQ, NWQQ7
Test Procedure:	Listing
Product:	Industrial Computer
Model/Type Reference:	IPC-623XXX-XXXXX, where X may be any alphanumeric character or blank.
Rating(s):	I/P : 115/230Vac, 50/60 Hz, 10/5A
Standards:	UL60950, Third Edition (2000) CAN/CSA-C22.2 No. 60950-00, Third Edition (2000)

Applicant Name and Address:	ADVANTECH CO LTD 1 ALLEY 20 LANE 26 RUEIGUANG RD NEIHU DISTRICT TAIPEI 114 TAIWAN
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This Report includes the following parts, in addition to this cover page:

1. Specific Technical Criteria
2. Clause Verdicts
3. Critical Components
4. Test Results
5. National Differences
6. Enclosures

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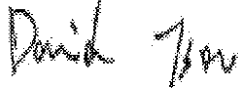
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This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.

Test Report By:



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Reviewed By:



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Report Reference #

E180881-A17-UL-1

SPECIFIC TECHNICAL CRITERIA

UL 60950 Safety of information technology equipment	
Report Reference No.....	E180881-A17-UL-1
Compiled by	David Tsou
Reviewed by	Derek Chen
Date of issue	2003-06-30
Standards	UL60950, Third Edition (2000) CAN/CSA-C22.2 No. 60950-00, Third Edition (2000)
Test procedure	Listing
Non-standard test method	N/A
Test item description	Industrial Computer
Trademark	ADVANTECH 
Model and/or type reference	IPC-623XXX-XXXXX, where X may be any alphanumeric character or blank.
Rating(s)	I/P : 115/230Vac, 50/60 Hz, 10/5A

Particulars: test item vs. test requirements

Equipment mobility: stationary
Operating condition: continuous
Mains supply tolerance (%): +10%, -10%
Test for IT power systems: No
IT testing, phase-phase voltage (V): N/A
Class of equipment: Class I (earthed).
Mass of equipment (kg): 23.0Kg, 21.7kg for project 05CA13739, 27.2 Kg for project 05CA19551
Protection against ingress of water: IP 20

Possible test case verdicts:

- test case does not apply to the test object: N / A
- test object does meet the requirement: Pass
- test object does not meet the requirement: Fail (acceptable only if a corresponding, less stringent national requirement is "Pass")

General remarks:

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

General Product Information:		
CA1.0	Report Summary	
CA1.1	N/A	
CB1.0	Product Description	
CB1.1	Power Supply, motherboard and optional provided HDD with CPU housed in metal enclosures. (For alternate redundant power supply) Supply by redundant power supply that all power share the maximum normal load, motherboard and optional provided HDD with CPU housed in metal enclosure.	
CC1.0	Model Differences	
CC1.1	N/A	
CD1.0	Additional Information	
CD1.1	N/A	
CE1.0	Technical Considerations	
CE1.2	The product was submitted and tested for use at the manufacturer's recommended ambient temperature (Tmra) of:	50 °C
CE1.3	The power supply means are:	Pluggable A or B, Detachable power cord
CE1.4	The product is intended for use on the following systems:	TN
CE1.5	The equipment disconnect device is considered to be:	Appliance inlet
CE1.9	The following circuit locations (with circuit/schematic designation) were investigated as a limited power source:	PS/2 port.

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	Comply with IEC 950 or relevant component standard	(see appended table 1.5.1)	Pass
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of IEC 60950.	Pass
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD.(see appended table 1.6.2)	Pass
2.6.3.3	Resistance (Ohm) of earthing conductors and their terminations, test current (A)	Test current = 40 A. 0.053 ohm. (For alternate power supply, Zippy Technology Corp, HP2-6500P) Test current = 40 A, Voltage drop = 1.83 V (For alternate power supply, Zippy Technology Corp, HP2-6400P) Test current = 40 A Voltage drop = 1.87 V (Alternate Redundant Power Supply: Zippy, MPN3-6570F) Test current = 40 A Voltage drop = 2.13 V (Alternate Redundant Power Supply: Zippy, MPN4-6810F) Test current = 40 A Voltage drop = 2.13 V	Pass
2.9.1	Properties of insulating materials	Critical insulation investigation is investigated as an element	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
		of power supply certification. (Alternate power supply, Zippy Technology Corp, HG2-6400P and HG2-6500P) Electric strength test was conducted after the humidity treatment. (Alternate Redundant Power Supply: Zippy, MPN3-6570F and MPN4-6810F) Electric strength test was conducted after the humidity treatment.	
2.9.2	Humidity conditioning	(Alternate power supply, Zippy Technology Corp, HG2-6400P and HG2-6500P) 40 degree C, 95% R.H. for 120 hrs. (Alternate Redundant Power Supply: Zippy, MPN3-6570F and MPN4-6810F) 40 degree C, 95% R.H. for 120 hrs.	Pass
2.9.5	Categories of insulation	Functional (Alternate power supply, Zippy Technology Corp, HG2-6400P and HG2-6500P) Electric Strength test conducted after the humidity treatment. No flash over or breakdown of insulation. (See sub-clause 2.10, 4.5.1, and 5.2) (Alternate Redundant Power Supply: Zippy, MPN3-6570F and MPN4-6810F) Electric Strength test conducted after the humidity treatment. No flash over or breakdown of insulation. (See sub-clause 2.10, 4.5.1, and 5.2)	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Rated current (A), cross-sectional area (mm ²),AWG	10 A maximum, min. 1.0 mm square/16 AWG required.	-
4.2.1	General	See below.	Pass
4.2.4	Steady force test, 250 N	250N applied to all outer enclosure. No energy or other hazards.	Pass
4.2.5	Impact test	No hazard as result from impact test.	Pass
4.5.1	Temperature rises	(see appended table4.5.1)	Pass
4.6.2	Bottoms of fire enclosures	No bottom opening provided.	N/A
5.1.6	Measured current (mA)	Max. 3.2mA (For alternate power supply, Zippy Technology Corp, HP2-6500P) Max 0.6 mA (For alternate power supply, Zippy Technology Corp, HP2-6400P) Max 0.89 mA (Alternate Redundant Power Supply: Zippy, MPN3-6570F) Max 2.45 mA (Alternate Redundant Power Supply: Zippy, MPN4-6810F) Max 3.3 mA	-
5.3.1	Protection against overload and abnormal operation	(See appended table 5.3)	Pass

IEC 60950		
Clause	Requirement + Test	Result - Remark
		Verdict

TABLE: list of critical components						
1.5.1	Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity
	Power Supply	Power Research Technology Co., Ltd. (PRT)	PRM400	I/P: 100-240Vac, 50/60Hz, 8/5A O/P: +5V/50A, -5V/1.0A, +12V/27A, -12V/3.0A, 3.3V/30A, +5Vsb/1.0A	QQGQ2	UL
	Power Supply, alternate	Zippy Technology Corp.	HP2-6500P	I/P: 115-240 Vac, 47-63 Hz, 8-4A O/P: +5V/40A, -5V/0.8A, +12V/27A, -12V/1.0A, +3.3V/30A, +5VSB/2.0A	QQGQ2	UL
	Power supply, alternate	Zippy Technology Corp.	HG2-6400P	I/P: 100-240 Vac, 63-47 Hz, 8-4A O/P: +5V/35A, -5V/0.5A, +12V/30A, -12V/0.8A, +3.3V/28A, +5VSB/2.0A	QQGQ2	UL
	Redundant Power Supply, Alternate (Provide three power)	Zippy Technology Corp.	MPN3-6570F	I/P: 115/230 Vac, 60/50 Hz, 12-6A O/P: +5V/50A, - 5V/1.0A, +12V/34A, -12V/1.0A, +3.3V/40A, +5Vsb/1.2A, Total output max: 570 W	QQGQ2	UL
	Redundant Power Supply, Alternate (Provide four power)	Zippy Technology Corp.	MPN4-6810F	I/P: 115/230 Vac, 60-50 Hz, 15- 7.5 A O/P: +5V/75A, - 5V/1.0A, +12V/34A, -12V/1.0A, +3.3V/40A, +5Vsb/1.2A, Total output max: 810 W	QQGQ2	UL
	Hard Drive (Optional)	Various	--	+5/+12Vdc, 1.5/1.8A maximum.	NWQG2	UL
	Floppy Drive (Optional) (two provided)	Various	--	+5/+12Vdc, 1.5/1.8A maximum.	NWQG2	UL
	CD-ROM Drive (Optional)	Various	--	+5/+12Vdc, 1.5/1.8A maximum.	NWQG2	UL
	RTC Battery	Rayovac Corp.	BR2335, BR2032, BF2325	3.0Vdc, 300mAh	BBCV2	UL

TRF No.: 1950__F

Underwriters Laboratories Inc.

TRF originator: FIMKO

Pass

Supplement ID

3-03

3-07

3-08

3-03

3-03

3-03

3-05

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

Power supply cord (Optional)	--	--	temperature not specified. Type SVT or SPT-2, min 125 V, 10 A, with NEMA 5-15P or 250 V, 10 A, with NEMA 6-15P. Other end (connected to unit) (with cord-connected body, grounding type, suitable for cord size, rating not less than that of attachment plug)	ZJCZ and RTRT and AXUT	UL	
Wiring, internal primary	--	--	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1: min 300 V, 80°C.	AVLV2	UL	
Part of non-detachable Power supply cord	--	--	Type SVT or SPT-2, connected to unit. Other end min 125 V, 10 A, with NEMA 5-15R or 250 V, 10 A, with NEMA 6-15R, grounding type, suitable for cord size 18AWG.	ZJCZ and RTRT and AXUT	UL	

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: electrical data (in normal conditions)						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
-	-	90v/50Hz	142	1580	-	Maximum normal load	
-	-	90v/60Hz	142	1580	-	Maximum normal load	
-	10	115v/50Hz	141	1410	-	Maximum normal load	
-	10	115v/60Hz	141	1410	-	Maximum normal load	
-	5	240v/50Hz	134	600	-	Maximum normal load	
-	5	240/60Hz	133	610	-	Maximum normal load	
-	-	253v/50Hz	132	590	-	Maximum normal load	
-	-	253v/60Hz	133	590	-	Maximum normal load	
--	--	--	--	--	--	For alternate power supply, Zippy Technology Corp, HP2-6500P	
--	--	103V/50 Hz	164.3	1612	1612	Maximum Normal Load	
--	--	103V/60 Hz	164.3	1619	1619	Maximum Normal Load	
--	10.0	115V/50 Hz	163.3	1441	1441	Maximum Normal Load	
--	10.0	115V/60 Hz	163.4	1444	1444	Maximum Normal Load	
--	--	122V/50 Hz	163.0	1371	1371	Maximum Normal Load	
--	--	122V/60 Hz	163.4	1364	1364	Maximum Normal Load	
--	--	207V/50 Hz	159.0	810	810	Maximum Normal Load	
--	--	207V /60 Hz	158.6	820	820	Maximum Normal Load	
--	5.0	230V/50 Hz	158.5	738	738	Maximum Normal Load	
--	5.0	230V/60 Hz	158.2	751	751	Maximum Normal Load	
--	--	253V/50 Hz	158.1	690	690	Maximum Normal Load	
--	--	253V/60 Hz	158.6	705	705	Maximum Normal Load	
--	--	--	--	--	--	Alternate power supply, Zippy Technology Corp, HG2-6400P	
--	--	103V/50 Hz	192.6	1890	1890	Maximum Normal Load	
--	--	103V/60 Hz	193.0	1885	1885	Maximum Normal Load	
--	10.0	115V/50 Hz	192.2	1686	1686	Maximum Normal Load	
--	10.0	115V/60 Hz	191.8	1687	1687	Maximum Normal Load	
--	--	122V/50 Hz	191.6	1587	1587	Maximum Normal Load	
--	--	122V/60 Hz	191.1	1587	1587	Maximum Normal Load	
--	--	207V/50 Hz	187.5	924	924	Maximum Normal Load	
--	--	207V/60 Hz	187.6	926	926	Maximum Normal Load	
--	5.0	230V/50 Hz	186.4	833	833	Maximum Normal Load	
--	5.0	230V/60 Hz	186.3	836	836	Maximum Normal Load	
--	--	253V/50 Hz	185.9	760	760	Maximum Normal Load	
--	--	253V/60Hz	185.9	767	767	Maximum Normal Load	
--	--	--	--	--	--	Alternate Redundant Power Supply: Zippy, MPN3-6570F	
--	--	103V/50 Hz	400	3925	3925	Maximum Normal Load	
--	--	103V/60 Hz	398	3919	3919	Maximum Normal Load	
--	10.0	115V/50 Hz	395	3487	3487	Maximum Normal Load	
--	10.0	115V/60 Hz	396	3485	3485	Maximum Normal Load	
--	--	122V/50 Hz	395	3280	3280	Maximum Normal Load	

IEC 60950						
Clause	Requirement + Test			Result - Remark		Verdict
--	--	122V/60 Hz	394	3293	3293	Maximum Normal Load
--	--	127V/50 Hz	393	3146	3146	Maximum Normal Load
--	--	127V/60 Hz	394	3159	3159	Maximum Normal Load
--	--	207V/50 Hz	384	1962	1962	Maximum Normal Load
--	--	207V/60 Hz	386	1999	1999	Maximum Normal Load
--	5.0	230V/50 Hz	383	1805	1805	Maximum Normal Load
--	5.0	230V/60 Hz	385	1850	1850	Maximum Normal Load
--	--	253V/50 Hz	383	1690	1690	Maximum Normal Load
--	--	253V/60Hz	383	1750	1750	Maximum Normal Load
--	--	--	--	--	--	Alternate Redundant Power Supply: Zippy, MPN4-6810F
--	--	103V/50 Hz	412	4060	4060	Maximum Normal Load
--	--	103V/60 Hz	412	4065	4065	Maximum Normal Load
--	10.0	115V/50 Hz	409	3618	3618	Maximum Normal Load
--	10.0	115V/60 Hz	410	3631	3631	Maximum Normal Load
--	--	122V/50 Hz	408	3412	3412	Maximum Normal Load
--	--	122V/60 Hz	408	3433	3433	Maximum Normal Load
--	--	127V/50 Hz	407	3277	3277	Maximum Normal Load
--	--	127V/60 Hz	407	3290	3290	Maximum Normal Load
--	--	207V/50 Hz	396	2075	2075	Maximum Normal Load
--	--	207V/60 Hz	398	2130	2130	Maximum Normal Load
--	5.0	230V/50 Hz	396	1933	1933	Maximum Normal Load
--	5.0	230V/60 Hz	396	2010	2010	Maximum Normal Load
--	--	253V/50 Hz	396	1832	2832	Maximum Normal Load
--	--	253V/60Hz	396	1925	1925	Maximum Normal Load
supplementary information:						

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements						Pass
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
supplementary information:							
All critical clearance and creepage distances in primary circuit are considered in separate power supply evaluation. Only functional insulation is required.							

4.5	TABLE: temperature rise measurements					Pass
	test voltage (V)	:	See below.			---
	t1 (°C)	:	---			---
	t2 (°C)	:	---			---

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

temperature rise dT of part/at:	dT (K)	required dT (K)
--	103.5V/253V	--
Ambient	24.9°/25.4°	--
PWB near Q8	18.6/16.6	60
RTC Battery body	13.1/11.8	--
U19 body	15.3/13.9	--
CPU body	14.3/13.0	--
L16 coil	21.2/19.8	60
L6 coil	8.9/7.8	60
C51 body	12.6/11.2	40
PWB Q25 body	11.9/10.5	60
HDD body	4.6/3.6	--
CDROM body	6.8/5.2	--
FDD body	8.1/6.3	--
Power 1	--	--
L1 coil	9.8/7.7	60
L1 coil for 540060-A board	6.7/3.9	60
PWB near the BD1 on 540060-A board	10.7/6.2	60
T1 coil	8.1/6.4	45
T1 core	13.5/11.7	45
T2 coil	12.2/10.6	45
T2 core	11.3/9.7	45
C1 body	5.6/3.8	40
Power 2	--	--
L1 coil	11.2/9.2	60
L1 coil for 540060-A board	12.5/7.2	60
PWB near the BD1 on 540060-A board	12.6/7.7	60
T1 coil	11.8/10.1	45
T1 core	13.0/11.2	45
T2 coil	14.4/12.7	45
T2 core	13.3/11.5	45
C1 body	7.0/5.1	40
Enclosure inside near the power	3.7/2.3	--
Enclosure outside near the power	3.4/2.0	25
--	230v ventilation openings blocked/230v stall system fan/230v stall power fan/230v Removed one power supply kid	--
Ambient	26°/25.5°/26.3°/26.2°	--
PWB near Q8	30.9/20.4/15.9/14.8	--
RTC Battery body	26.1/10.6/10.1/9.7	--
U19 body	28.4/19.5/13.0/12.2	--
CPU body	28.9/27.3/11.7/11.3	--

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
L16 coil		34.7/24.8/19.3/18.4	--
L6 coil		25.4/7.4/6.7/6.2	--
C51 body		25.9/13.3/10.9.76/	--
PWB Q25 body		25.4/11.2/10.3/9.1	--
HDD body		18.5/2.5/2.3/1.9	--
CDROM body		17.6/3.3/2.8/2.4	--
FDD body		18.2/5.0/3.3/2.6	--
Power 1		--	--
L1 coil		21.1/6.4/4.1/8.0	--
L1 coil for 540060-A board		16.8/2.7/13.0/3.7	--
PWB near the BD1 on 540060-A board		18.7/4.7/7.4/5.4	--
T1 coil		19.7/5.1/17.6/6.2	105
T1 core		25.0/10.4/21.5/11.7/	105
T2 coil		24.3/9.5/17.9/12.4	105
T2 core		23.3/8.6/19.1/9.0	105
C1 body		16.1/2.5/12.6/3.0	--
Power 2		--	--
L1 coil		22.9/8.0/2.5/2.9	--
L1 coil for 540060-A board		21.6/6.4/12.5/2.3	--
PWB near the BD1 on 540060-A board		21.4/6.4/5.5/2.4	--
T1 coil		23.7/8.8/16.8/2.8	105
T1 core		24.6/10.0/19.9/3.0	105
T2 coil		26.1/11.3/15.9/3.1	105
T2 core		25.1/10.3/17.6/3.2	105
C1 body		18.8/3.8/11.3/2.6	--
Enclosure inside near the power		11.6/0.9/7.6/1.8	--
Enclosure outside near the power		8.1/0.9/1.5/0.6	--
--		--	For alternate power supply, Zippy Technology Corp, HP2-6500P
Maximum Normal Load at 103 V, 60 Hz, Duration 1.33 hrs.		--	--
Ambient		25.1°C	--
Power Supply AC inlet body		1.5	--
Power Supply C42 body		1.8	35
Power Supply T1 coil		8.1	40
Power Supply T1 core		8.3	40
Power Supply choke body		10.2	55
Power Supply PWB under D8		9.6	55
Mainboard RTC battery		9.1	--
Mainboard PWB under CPU		16.3	55
Mainboard L8 coil		4.0	55
Mainboard CM4 body		18.2	35
Mainboard U6 body		12.7	--
HDD body near motor		1.0	--
CD-ROM body near motor		2.7	--
Enclosure outside near Top		0.5	20

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
Maximum Normal Load at 253 V, 60 Hz, Duration 1.5 hrs.			
Ambient	23.7°C	--	
Power Supply AC inlet body	2.4	--	
Power Supply C42 body	2.7	35	
Power Supply T1 coil	9.1	40	
Power Supply T1 core	9.4	40	
Power Supply choke body	12.3	55	
Power Supply PWB under D8	11.0	55	
Mainboard RTC battery	10.2	--	
Mainboard PWB under CPU	17.7	55	
Mainboard L8 coil	5.3	55	
Mainboard CM4 body	19.4	35	
Mainboard U6 body	13.4	--	
HDD body near motor	2.5	--	
CD-ROM body near motor	4.0	--	
Enclosure outside near Top	1.3	20	
--	--	Alternate power supply, Zippy Technology Corp, HG2-6400P	
Maximum Normal Load at 103 V, 60 Hz, Duration 1.15 hrs.			
Ambient	24.6°C	--	
Power Supply AC inlet body	4.8	--	
Power Supply C42 body	2.7	35	
Power Supply T1 coil	15.8	40	
Power Supply T1 core	10.2	40	
Power Supply choke body	5.0	55	
Power Supply PWB under D8	18.3	55	
Mainboard RTC battery	14.0	--	
Mainboard PWB under CPU	18.2	55	
Mainboard L8 coil	6.5	55	
Mainboard CM4 body	20.3	35	
Mainboard U6 body	15.7	--	
HDD body near motor	2.7	--	
CD-ROM body near motor	4.1	--	
Enclosure outside near Top	2.0	20	
Maximum Normal Load at 253V, 60Hz, Duration 1.0 hrs.			
Ambient	24.9°C	--	
Power Supply AC inlet body	3.1	--	
Power Supply C42 body	1.9	35	
Power Supply T1 coil	14.7	40	
Power Supply T1 core	9.0	40	
Power Supply choke body	3.5	55	
Power Supply PWB under D8	17.2	55	
Mainboard RTC battery	13.6	--	
Mainboard PWB under CPU	17.8	55	
Mainboard L8 coil	6.0	55	

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Mainboard CM4 body	19.7	35
	Mainboard U6 body	15.4	--
	HDD body near motor	2.4	--
	CD-ROM body near motor	3.7	--
	Enclosure outside near Top	1.5	20
	--	--	Alternate Redundant Power Supply: Zippy, MPN3-6570F
	Maximum Normal Load at 103 V, 60 Hz, Duration 1.6 hrs	--	--
	Ambient	24.3 degree C	--
	Power Supply2 L3 coil	11.3	55
	Power Supply2 LF1 coil	10.4	55
	Power Supply2 T2 coil	21.2	55
	Power Supply2 C42 body	16.4	35
	Power Supply2 PWB under Q3	22.3	55
	Power Supply2 U9 body	23.0	--
	Power Supply2 T3 coil	17.5	40
	Power Supply2 T3 core	18.1	40
	Power Supply2 T4 coil	15.9	40
	Power Supply2 T4 core	15.3	40
	Power Supply2 L4 coil	18.4	55
	Power Supply3 L3 coil	10.3	55
	Power Supply3 LF1 coil	9.6	55
	Power Supply3 T2 coil	16.9	55
	Power Supply3 C42 body	15.5	35
	Power Supply3 PWB under Q3	19.5	55
	Power Supply3 U9 body	19.2	--
	Power Supply3 T3 coil	17.7	40
	Power Supply3 T3 core	16.5	40
	Power Supply3 T4 coil	14.6	40
	Power Supply3 T4 core	14.7	40
	Power Supply3 L4 coil	16.4	55
	Power Supply4 L3 coil	8.0	55
	Power Supply4 LF1 coil	7.7	55
	Power Supply4 T2 coil	17.8	55
	Power Supply4 C42 body	14.9	35
	Power Supply4 PWB under Q3	17.8	55
	Power Supply4 U9 body	15.2	--
	Power Supply4 T3 coil	18.3	40
	Power Supply4 T3 core	15.5	40
	Power Supply4 T4 coil	10.4	40
	Power Supply4 T4 core	10.9	40
	Power Supply4 L4 coil	12.8	55
	Mainboard PWB under CPU	22.8	55
	Mainboard PWB under U6	14.7	55
	Mainboard PWB under U7	16.4	55
	Mainboard PWB under U8	20.4	55

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Mainboard RTC battery	8.9	--
	HDD body	7.2	--
	CD-ROM body	4.9	--
	Enclosure outside near T3	8.9	20
	Enclosure outside near Power Supply	4.2	20
	Maximum Normal Load at 253 V, 60 Hz, Duration 2.7 hrs.	--	--
	Ambient	24.3 degree C	--
	Power Supply2 L3 coil	11.5	55
	Power Supply2 LF1 coil	10.4	55
	Power Supply2 T2 coil	16.1	55
	Power Supply2 C42 body	13.4	35
	Power Supply2 PWB under Q3	21.7	55
	Power Supply2 U9 body	22.4	--
	Power Supply2 T3 coil	17.1	40
	Power Supply2 T3 core	17.8	40
	Power Supply2 T4 coil	15.5	40
	Power Supply2 T4 core	14.8	40
	Power Supply2 L4 coil	17.9	55
	Power Supply3 L3 coil	9.6	55
	Power Supply3 LF1 coil	9.0	55
	Power Supply3 T2 coil	12.8	55
	Power Supply3 C42 body	12.7	35
	Power Supply3 PWB under Q3	19.1	55
	Power Supply3 U9 body	18.8	--
	Power Supply3 T3 coil	17.2	40
	Power Supply3 T3 core	16.0	40
	Power Supply3 T4 coil	14.2	40
	Power Supply3 T4 core	14.2	40
	Power Supply3 L4 coil	16.0	55
	Power Supply4 L3 coil	7.8	55
	Power Supply4 LF1 coil	7.4	55
	Power Supply4 T2 coil	12.8	55
	Power Supply4 C42 body	12.1	35
	Power Supply4 PWB under Q3	17.5	55
	Power Supply4 U9 body	15.0	--
	Power Supply4 T3 coil	17.9	40
	Power Supply4 T3 core	14.9	40
	Power Supply4 T4 coil	10.2	40
	Power Supply4 T4 core	10.6	40
	Power Supply4 L4 coil	12.4	55
	Mainboard PWB under CPU	23.6	55
	Mainboard PWB under U6	16.1	55
	Mainboard PWB under U7	17.6	55
	Mainboard PWB under U8	21.3	55
	Mainboard RTC battery	10.5	--
	HDD body	6.7	--
	CD-ROM body	4.5	--

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Enclosure outside near T3	8.1	20
	Enclosure outside near Power Supply	3.8	20
--		--	Alternate Redundant Power Supply: Zippy, MPN4-6810F
	Maximum Normal Load at 103 V, 60 Hz, Duration 3.0 hrs.	--	--
	Ambient	24.3 degree C	--
	Power Supply1 L3 coil	8.0	55
	Power Supply1 LF1 coil	7.6	55
	Power Supply1 T2 coil	14.5	55
	Power Supply1 C42 body	13.5	35
	Power Supply1 PWB under Q3	18.0	55
	Power Supply1 U9 body	16.3	--
	Power Supply1 T3 coil	18.5	40
	Power Supply1 T3 core	16.4	40
	Power Supply1 T4 coil	12.9	40
	Power Supply1 T4 core	11.6	40
	Power Supply1 L4 coil	14.4	55
	Power Supply2 L3 coil	8.4	55
	Power Supply2 LF1 coil	8.4	55
	Power Supply2 T2 coil	21.1	55
	Power Supply2 C42 body	15.4	35
	Power Supply2 PWB under Q3	21.8	55
	Power Supply2 U9 body	22.2	--
	Power Supply2 T3 coil	18.4	40
	Power Supply2 T3 core	18.6	40
	Power Supply2 T4 coil	17.3	40
	Power Supply2 T4 core	16.1	40
	Power Supply2 L4 coil	18.3	55
	Power Supply3 L3 coil	8.6	55
	Power Supply3 LF1 coil	8.3	55
	Power Supply3 T2 coil	16.6	55
	Power Supply3 C42 body	14.5	35
	Power Supply3 PWB under Q3	19.3	55
	Power Supply3 U9 body	19.4	--
	Power Supply3 T3 coil	17.2	40
	Power Supply3 T3 core	16.2	40
	Power Supply3 T4 coil	14.1	40
	Power Supply3 T4 core	14.5	40
	Power Supply3 L4 coil	15.6	55
	Power Supply4 L3 coil	6.3	55
	Power Supply4 LF1 coil	6.2	55
	Power Supply4 T2 coil	16.9	55
	Power Supply4 C42 body	13.3	35
	Power Supply4 PWB under Q3	16.7	55
	Power Supply4 U9 body	14.5	--
	Power Supply4 T3 coil	17.4	40

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Clause	Requirement + Test	Result - Remark	Verdict
Power Supply4 T3 core		14.8	40
Power Supply4 T4 coil		9.7	40
Power Supply4 T4 core		10.1	40
Power Supply4 L4 coil		11.5	55
Mainboard PWB under CPU		22.2	55
Mainboard PWB under U6		15.4	55
Mainboard PWB under U7		19.2	55
Mainboard PWB under U8		20.8	55
Mainboard RTC battery		9.8	--
HDD body		7.2	--
CD-ROM body		4.7	--
Enclosure outside near T3		8.8	20
Enclosure outside near Power Supply		8.1	20
Maximum Normal Load at 253 V, 60 Hz, Duration 1.9 hrs.		--	--
Ambient		24.7 dgree C	--
Power Supply1 L3 coil		7.8	55
Power Supply1 LF1 coil		7.6	55
Power Supply1 T2 coil		10.3	55
Power Supply1 C42 body		11.5	35
Power Supply1 PWB under Q3		17.6	55
Power Supply1 U9 body		15.9	--
Power Supply1 T3 coil		18.2	40
Power Supply1 T3 core		16.1	40
Power Supply1 T4 coil		12.6	40
Power Supply1 T4 core		11.3	40
Power Supply1 L4 coil		14.2	55
Power Supply2 L3 coil		8.0	55
Power Supply2 LF1 coil		7.7	55
Power Supply2 T2 coil		14.9	55
Power Supply2 C42 body		12.4	35
Power Supply2 PWB under Q3		21.0	55
Power Supply2 U9 body		21.4	--
Power Supply2 T3 coil		17.8	40
Power Supply2 T3 core		17.8	40
Power Supply2 T4 coil		16.7	40
Power Supply2 T4 core		15.5	40
Power Supply2 L4 coil		17.8	55
Power Supply3 L3 coil		8.2	55
Power Supply3 LF1 coil		7.9	55
Power Supply3 T2 coil		12.5	55
Power Supply3 C42 body		12.3	35
Power Supply3 PWB under Q3		18.6	55
Power Supply3 U9 body		18.7	--
Power Supply3 T3 coil		16.5	40
Power Supply3 T3 core		15.6	40
Power Supply3 T4 coil		13.6	40
Power Supply3 T4 core		13.9	40

IEC 60950					
Clause	Requirement + Test			Result - Remark	Verdict
Power Supply3 L4 coil				15.1	55
Power Supply4 L3 coil				6.3	55
Power Supply4 LF1 coil				6.1	55
Power Supply4 T2 coil				12.0	55
Power Supply4 C42 body				11.2	35
Power Supply4 PWB under Q3				16.3	55
Power Supply4 U9 body				14.1	--
Power Supply4 T3 coil				16.9	40
Power Supply4 T3 core				14.3	40
Power Supply4 T4 coil				9.2	40
Power Supply4 T4 core				9.7	40
Power Supply4 L4 coil				11.2	55
Mainboard PWB under CPU				21.8	55
Mainboard PWB under U6				15.2	55
Mainboard PWB under U7				17.2	55
Mainboard PWB under U8				20.5	55
Mainboard RTC battery				9.7	--
HDD body				6.8	--
CD-ROM body				4.5	--
Enclosure outside near T3				8.0	20
Enclosure outside near Power Supply				7.7	20
temperature rise dT of winding:	R ₁ (Ω)	R ₂ (Ω)	dT (K)	required dT (K)	insulation class
supplementary information:					
(Test Record No.1) The temperatures were measured under worst case normal mode defined in 1.2.2.1 and described in 1.6.2 at voltages as described in 1.4.5 Without specified ambient temperature in users manual, therefore the ambient temperature assumed as 45°C, the max. temperature rise is calculated as follows: Winding components: - Transformer, Class A: dT_{max} = 75K - 10K-(45-25)K = 45 K Components with: - max. absolute temp. of 85°C (Electrolyte capacitor): dT_{max} = (85-45)K = 40 K - max. absolute temp. of 105°C (Cap., Line choke, PWB): dT_{max} = (105-45)K = 60 K User Accessible Area: - material is metal (45K) dT_{mx} = 45K-(45-25)K = 25K (Test Record No.2 and 3) The temperatures were measured under worst case normal mode defined in 1.2.2.1 and described in 1.6.2 at voltages as described in 1.4.5 Without specified ambient temperature in users manual, therefore the ambient temperature assumed as 50°C, the max. temperature rise is calculated as follows: Winding components: - Transformer, Class A: dT_{max} = 75K - 10K-(50-25)K = 40 K Components with: - max. absolute temp. of 85°C (Electrolyte capacitor): dT_{max} = (85-50)K = 35 K - max. absolute temp. of 105°C (Cap., Line choke, PWB): dT_{max} = (105-50)K = 55 K					

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Clause	Requirement + Test	Result - Remark	Verdict

User Accessible Area:

- material is metal (45K) dTmx = 45K-(50-25)K = 20K

5.2	TABLE: electric strength tests and impulse tests		Pass
test voltage applied between:		test voltage (V)	breakdown Yes / No
Primary to SELV		DC 4242	No
Primary to Earth		DC 3000	No
Power Supply: Zippy, HP2-6500P		--	--
Primary to SELV		4242	No
Primary to Earth		2913	No
Power Supply: Zippy, HG2-6400P		--	--
Primary to SELV		4242	No
Primary to Earth		3100	No
Redundant Power Supply: Zippy, MPN3-6570F		--	--
Primary to SELV		4242	No
Primary to Earth		3000	No
Redundant Power Supply: Zippy, MPN4-6810F		--	--
Primary to SELV		4242	No
Primary to Earth		3000	No
supplementary information:			

5.3	TABLE: fault condition tests						Pass
	ambient temperature (°C) :					25	—
	model/type of power supply :					--	—
	manufacturer of power supply :					--	—
	rated markings of power supply :					--	—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result	
Ventilation openings	Blocked	230 / 60Hz	3.0 hrs	--	--	NB, NC, NT, (see 4.5.1 Heating Test for details)	
System fan	Stalled	230 / 60Hz	2.5 hrs	--	--	NB, NC, NT, (see 4.5.1 Heating Test for details)	
One power supply kid	Removed	230 / 60Hz	3.0 hrs	--	--	NB, NC, NT, (see 4.5.1 Heating Test for details)	
Power fan	Stalled	230 / 60Hz	2.5 hrs	--	--	NB, NC, NT, (see 4.5.1 Heating Test for details)	
PS/2 pin 1, 5, 6	Overload	240 / 60Hz	--	--	--	Circuit measures 0 volts.	
PS/2 pin 2	Overload	240 / 60Hz	1 hr	--	--	NB, NC, NT, open circuit	

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Clause	Requirement + Test		Result - Remark			Verdict
						5.04V, Max. available current 2100 mA
PS/2 pin 3, 4	Overload	240 / 60Hz	--	--	--	Circuit measures less than 12.5mA
VGA pin 1, 6~8, 10, 11	Overload	240 / 60Hz	--	--	--	Circuit measures 0 volts.
VGA pin 12~15	Overload	240 / 60Hz	--	--	--	Circuit measures less than 12.5mA
VGA pin 9	Overload	240 / 60Hz	1 hr	--	--	NB, NC, NT, open circuit 5.04V, Max. available current 2000 mA
RJ-45 pin 1~8	Overload	240 / 60Hz	--	--	--	Circuit measures 0 volts.
COM1 pin 1~9	Overload	240 / 60Hz	--	--	--	Circuit measures 0 volts.
Power Supply: Zippy, HP2-6500P	--	--	--	--	--	--
--	--	--	--	--	--	5.3.1 Abnormal operation
Ventilation openings	Blocked	230 / 60Hz	2.4 hrs	-	0.750	NB, NC, NT, CT, Ambient: 23.8°C; PWB under D8: 73.4°C
Power fan	Stalled	230 / 60Hz	4.0 hrs	-	0.810	NB, NC, NT, CT, Ambient: 25.2°C; PWB under D8: 47.1°C
All system fan	Stalled	230 / 60Hz	4.5 hrs	-	0.671	NB, NC, NT, CT, Ambient: 25.3°C; PWB under CPU: 79.8°C
CPU fan	Stalled	230 / 60Hz	2.16 hrs	-	0.802	NB, NC, NT, CT, Ambient: 25.6°C; PWB under CPU: 47.5°C
--	--	--	--	--	--	5.3.6 Overload Of Operator Accessible Connector Test
RS232 All pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
RJ 45 All Pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 1, 6-8, 10-15	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 2	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.98 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 3	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.72 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than

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Clause	Requirement + Test			Result - Remark		Verdict
						12.5mA
VGA pin 5	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.98 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 9	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.08 V, 1950 mA.
PS/2 Pin 1, 2, 6	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
PS/2 Pin 3, 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than 12.5mA.
PS/2 Pin 5	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.07 V, 1950 mA.
Power Supply: Zippy, HP2-6400P	--	--	--	--	--	--
--	--	--	--	--	--	5.3.1 Abnormal operation
Ventilation openings	Blocked	230 / 60Hz	3.5 hrs	-	0.832	NB, NC, NT, CT, Ambient: 24.1°C; PWB under CPU: 68.5°C
Power fan	Stalled	230 / 60Hz	3.0 hrs	-	0.794	NB, NC, NT, CT, Ambient: 23.8°C; PWB under D8: 50.9°C
All system fan	Stalled	230 / 60Hz	4.8 hrs	-	0.668	NB, NC, NT, CT, Ambient: 22.1°C; PWB under CPU: 79.4°C
CPU fan	Stalled	230 / 60Hz	2.0 hrs	-	0.786	NB, NC, NT, CT, Ambient: 24.1°C; PWB under CPU: 47.4°C
--	--	--	--	--	--	5.3.6 Overload Of Operator Accessible Connector Test
RS232 All pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
RJ 45 All Pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 1, 6-8, 10-15	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 2	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.98 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 3	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.72 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 5	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 4.98 V, 10 mA.

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Clause	Requirement + Test				Result - Remark	Verdict
						Circuit measures less than 12.5mA
VGA pin 9	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.08 V, 1950 mA.
PS/2 Pin 1, 2, 6	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
PS/2 Pin 3, 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than 12.5mA.
PS/2 Pin 5	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.07 V, 1950 mA.
Alternate Redundant Power Supply: Zippy, MPN3-6570F	--	--	--	--	--	--
--	--	--	--	--	--	5.3.1 Abnormal operation
Ventilation openings	Blocked	230 / 60Hz	2.9 hrs	--	1.87	NB, NC, NT, CT, Ambient: 26.0 °C; Power4 T3 coil: 61.0°C; T3 core: 57.5°C
System fan	Stalled	230 / 60Hz	4.6 hrs	--	1.85	NB, NC, NT, CT, Ambient: 24.5°C; Power4 T3 coil: 54.5°C; T3 core: 51.6°C
Power fan (Left-Top side)	Stalled	230 / 60Hz	3.0 hrs	--	1.90	NB, NC, NT, CT, Ambient: 25.0°C; Power3 T3 coil: 58.9°C; T3 core: 57.8°C
Power fan (Left-bottom side)	Stalled	230 / 60Hz	4.1 hrs	--	1.85	NB, NC, NT, CT, Ambient: 24.7°C; Power3 T3 coil: 54.7°C; T3 core: 54.5°C
Power fan (Right side)	Stalled	230 / 60Hz	2.1 hrs	--	1.86	NB, NC, NT, CT, Ambient: 24.0°C; Power4 T3 coil: 55.4°C; T3 core: 55.8°C
CPU fan	Stalled	230 / 60Hz	5.0 hrs	--	1.90	NB, NC, NT, CT, Ambient: 23.6°C; Power4 T3 coil: 40.2°C; T3 core: 37.5°C
One Power	Removed	230 / 60Hz	3.2 hrs	--	1.85	NB, NC, NT, CT, Ambient: 23.2°C; Power4 T3 coil: 47.4°C; T3 core: 47.4°C
--	--	--	--	--	--	5.3.6 Overload Of Operator Accessible Connector Test
RS232 All pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
RJ 45 All Pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 1-	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0

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Clause	Requirement + Test			Result - Remark		Verdict
8, 10, 11, 15						volts.
VGA pin 12	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 14	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 18 mA. Circuit measures less than 12.5mA
VGA pin 9	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.06 V, 2100 mA.
PS/2 Pin 1, 2, 6	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
PS/2 Pin 3	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 5 mA. Circuit measures less than 12.5mA.
PS/2 Pin 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 4 mA. Circuit measures less than 12.5mA.
PS/2 Pin 5	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.06 V, 2050 mA.
Alternate Redundant Power Supply: Zippy, MPN4-6810F	--	--	--	--	--	--
--	--	--	--	--	--	5.3.1 Abnormal operation
Ventilation openings	Blocked	230 / 60Hz	2.9 hrs	--	2.01	NB, NC, NT, CT, Ambient: 26.2 °C; Power2 T3 coil: 62.5°C; T3 core: 62.9°C
System fan	Stalled	230 / 60Hz	4.8 hrs	--	2.02	NB, NC, NT, CT, Ambient: 23.8°C; Power4 T3 coil: 50.2°C; T3 core: 47.8°C
Power fan (Left-Top side)	Stalled	230 / 60Hz	4.0 hrs	--	2.01	NB, NC, NT, CT, Ambient: 23.5°C; Power2 T3 coil: 56.5°C; T3 core: 50.9°C
Power fan (Right-Top side)	Stalled	230 / 60Hz	5.1 hrs	--	2.03	NB, NC, NT, CT, Ambient: 22.9°C; Power3 T3 coil: 53.9°C; T3 core: 52.7°C
Power fan (Left-Bottom side)	Stalled	230 / 60Hz	2.1 hrs	--	2.02	NB, NC, NT, CT, Ambient: 24.9°C; Power2 T3 coil: 53.7°C; T3 core: 50.2°C
Power fan (Right-Bottom side)	Stalled	230 / 60Hz	1.6 hrs	--	2.01	NB, NC, NT, CT, Ambient: 24.2°C; Power3 T3 coil: 55.1°C; T3 core: 55.0°C

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Clause	Requirement + Test				Result - Remark	Verdict
CPU fan	Stalled	230 / 60Hz	3.3 hrs	--	2.03	NB, NC, NT, CT, Ambient: 22.9°C; Power2 T3 coil: 39.5°C; T3 core: 40.1°C
One Power	Removed	230 / 60Hz	2.7 hrs	--	2.02	NB, NC, NT, CT, Ambient: 22.2°C; Power4 T3 coil: 43.2°C; T3 core: 44.5°C
RS232 All pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
RJ 45 All Pin	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 1-8, 10, 11, 15	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
VGA pin 12	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.03 V, 10 mA. Circuit measures less than 12.5mA
VGA pin 14	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 18 mA. Circuit measures less than 12.5mA
VGA pin 9	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.06 V, 2100 mA.
PS/2 Pin 1, 2, 6	Overload	230 / 60 Hz	--	--	--	C Circuit measures 0 volts.
PS/2 Pin 3	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 5 mA. Circuit measures less than 12.5mA.
PS/2 Pin 4	Overload	230 / 60 Hz	1 sec	--	--	B, Measure 5.04 V, 4 mA. Circuit measures less than 12.5mA.
PS/2 Pin 5	Overload	230 / 60 Hz	1 hr	--	--	NB, NC, NT, Measure 5.06 V, 2100 mA.
supplementary information:						

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Enclosure
National Differences

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IEC 60950			
SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC60950, Third Edition (1999)			
4.3.13	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370)	Evaluated in separate component evaluation.	N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator	(See appended table 5.3)	Pass

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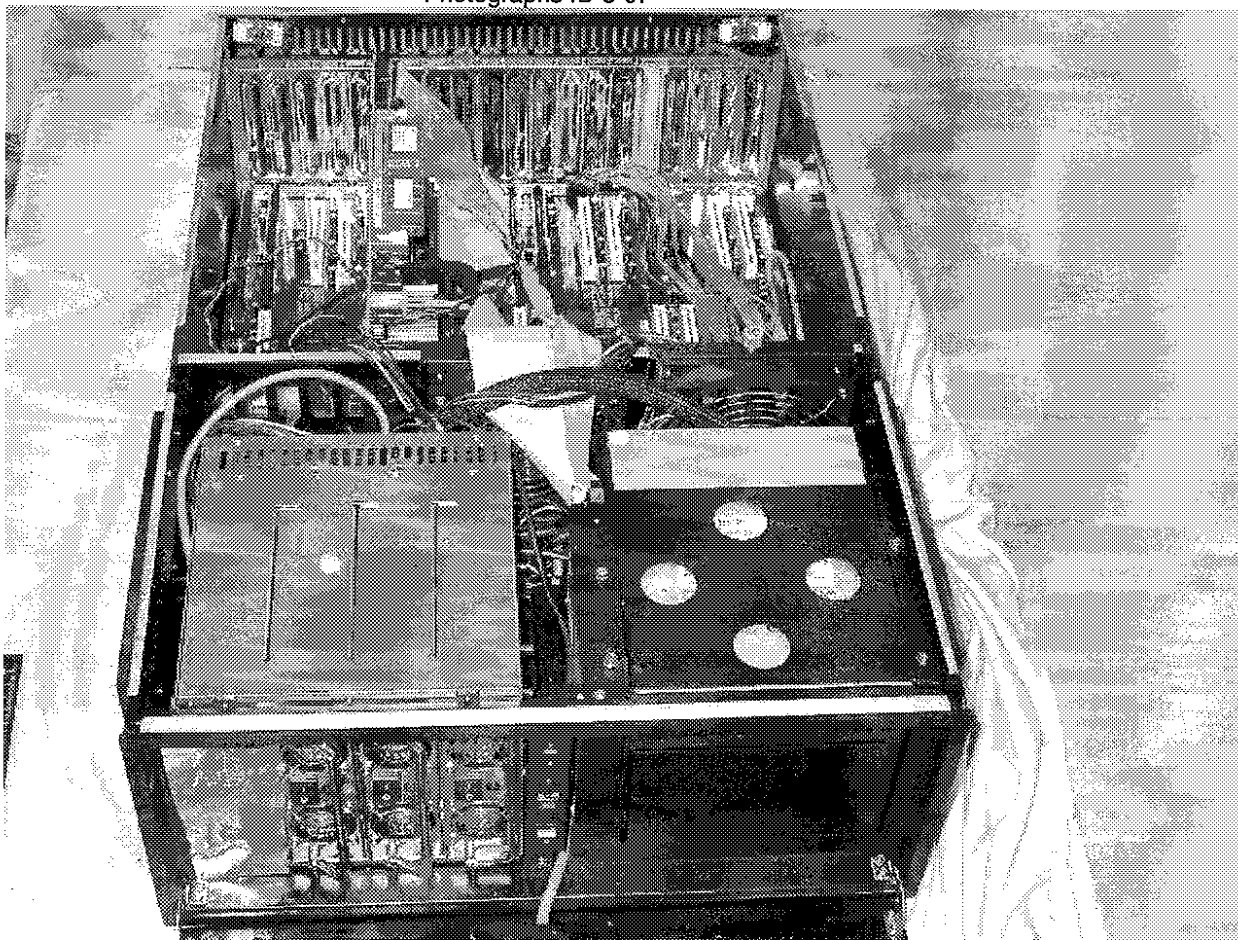
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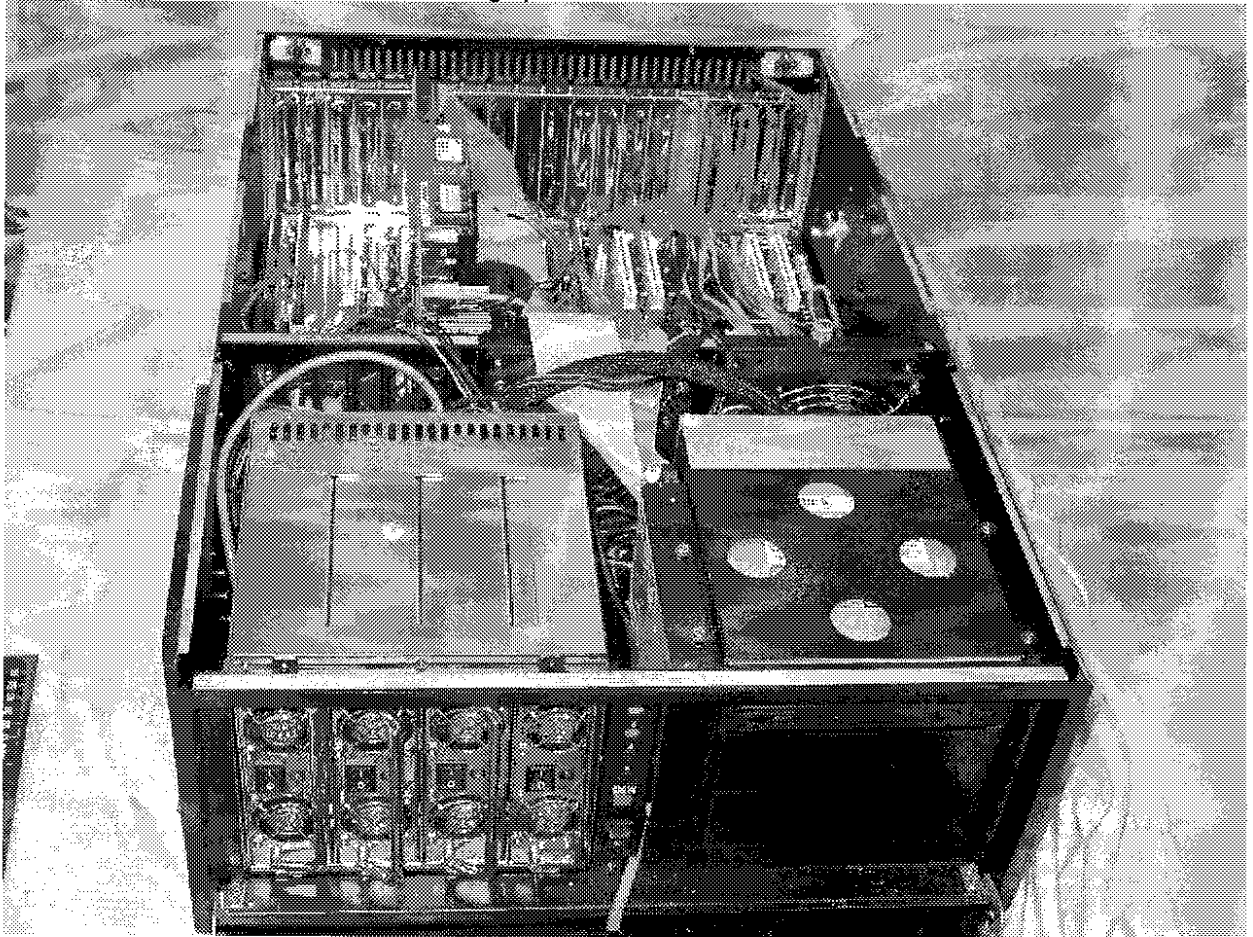
Enclosure
Photographs

Supplement Id	Description
3-01	Front View
3-02	Rear View
3-03	Interior View
3-05	Interior mainboard-1
3-06	Interior mainboard-2
3-07	internal view
3-08	internal view

Photographs ID 3-07



Photographs ID 3-08



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Enclosure
Test Record

Description
Test Record 1
Test Record 2
CRD
Datasheet
Test Record 3
CRD
Datasheet

Test Record No. 3

The following tests were conducted:

Test	Comments
End Product Reference	
General Guidelines	
Input Test - Single-Phase (1.6.2)	
Earthing Test II (2.6.3.3, 2.6.1)	"UL"
Humidity Test (2.9.1, 2.9.2, 5.2.2)	
Enclosure Push Test (4.2.3, 4.2.4, 4.2.1)	
Impact Test (4.2.5, 4.2.1)	
Heating (Temperature) Test (4.5.1, 1.4.12, 1.4.13, 3.3.2)	
Touch Current Test (Single-Phase / Polyphase; TN/TT System) (5.1, D)	
Electric Strength Test (5.2.2)	"UL"
Abnormal Operation Tests (5.3.1-5.3.8.2)	"UL"
Overload of Operator Accessible Connector Test (5.3.6)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard.

--The manufacturer submitted representative production sample of Industrial Computer, model IPC-623XXX-XXXXX

--Unless otherwise noted in the above list of tests, all tests were conducted by ADT, in Taoyuan, under the CAP program.

--Tests noted by the initials "UL" were witnessed by UL staff member.

--Only limited tests were performed on model IPC-623XXX-XXXXX employing the alternate two Redundant power supply due to testing previously performed on the subject unit.