TEST REPORT
IEC 60 950
Safety of information technology equipment

Report Reference No. .....:	SPCLVD10747
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Reviewed by (+ signature) .....:	Frank Hsu
	President ....
Date of issue.....:	August 20, 2001

This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).

Testing laboratory name .....:	Superior Product Consulting, Inc.
Address.....:	3F, No. 10, Alley 6, Lane 235, Pao Chiao Rd., Hsien Tien, Taipei, Taiwan, R.O.C.
Testing location .....:	3F, No. 10, Alley 6, Lane 235, Pao Chiao Rd., Hsien Tien, Taipei, Taiwan, R.O.C.
Client name.....:	Advantech Co., Ltd
Address.....:	4th Fl, No. 108-3, Ming-Chuan Rd, Shing-Tien Ciyt, 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 .....:	Informative Test Report
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 .....:	LCD Type Computer
Trademark .....:	ADVANTECH Industrial Automation with PCs
Model and/or type reference .....:	AWS-8420Tx-y and AWS-8430Tx-y. (x=P or blank; y = T or blank)
Manufacturer .....:	Advantech
Rating(s).....:	115/230 Vac, 60/50 Hz, 9/5 A

Copy of marking plate

115/230 Vac, 60/50 Hz, 9/5 A

115/230 Vac, 60/50 Hz, 9/5 A

Test item particulars:

Equipment mobility..... :	movable
Operating condition ..... :	continuous
Tested for IT power systems..... :	No
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	Class I
Mass of equipment (kg) ..... :	12.1
Protection against ingress of water ..... :	IPXO

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

General remarks:

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

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB in accordance with IECEE 02.

General product information:

Model Difference:

Models AWS-8420Tx-y and AWS-8430Tx-y. (x=P or blank ; y = T or blank)

The x to identified the back-plane board different.

The y = T to identified the unit with touch screen function; y = blank to identified the unit without touch screen function.

IEC 60 950			
Clause	Requirement + Test	Result - Remark	Verdict

1	**GENERAL**	Pass

1.5	**Components**		Pass
1.5.1	Comply with IEC 950 or relevant component standard	(see appended table)	Pass
1.5.2	Evaluation and testing components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.	Pass
	Dimensions (mm) of mains plug for direct plug-in :	Not direct plug-in equipment.	N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N/A
1.5.3	Transformers	Evaluated as part of certified power supply.	Pass
1.5.4	Flammability class of high voltage components (component; manufacturer; flammability) ..... :	No high-voltage components.	N/A
1.5.5	Interconnecting cables	No interconnecting cables provided as part of the equipment.	N/A
1.5.6	Mains capacitors	X capacitors are evaluated as part of the certified power supply.	Pass

IEC 60 950			
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1.6	**Power interface**		Pass
1.6.1	Steady state input current	(see appended table)	Pass
	Current deviation during normal operating cycle	The current deviation during the normal operating cycle did not exceed 10 %.	Pass
1.6.2	Voltage limit of hand-held equipment	The unit is not a hand-held equipment.	N/A
1.6.3	Neutral conductor insulated from earth and body	Neutral insulation is provided in the certified power supply. Neutral is insulated from earth with basic insulation.	Pass
1.6.4	Components in equipment intended for IT power system	Y capacitors are evaluated as part of the certified power supply.	Pass
1.6.5	Mains supply tolerance (V) ..... :	+10% / -10%.	Pass

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1.7	**Marking and instructions**		Pass
1.7.1	Rated voltage (V) ..... :	115 / 230 V.	Pass
	Symbol of nature of supply for d.c. ..... :		N/A
	Rated frequency (Hz) ..... :	60 / 50 Hz.	Pass
	Rated current (A) ..... :	9 / 5 A	Pass
	Manufacturer ..... :	Advantech Co., Ltd.	Pass
	Trademark ..... :	Industrial Automation with PCs ADVANTECH	Pass
	Type/model ..... :	AWS-8420Tx-y and AWS-8430Tx-y. (x=P or blank ; y = T or blank)	Pass
	Symbol of Class II ..... :		N/A
	Certification marks ..... :		N/A
1.7.2	Safety instructions	CLASS 1 LASER PRODUCT. LASER KLASSE 1 PRODUKT NACH EN 60825. Operating/safety instructions made available to the user.	Pass
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N/A
1.7.4	Marking for voltage setting/frequency setting ..... :	Equipment is full ranging.	N/A
1.7.5	Marking at power outlets ..... :	No standard power outlets are provided.	N/A
1.7.6	Marking at fuseholders ..... :	In certified power supply.	Pass
1.7.7.1	Protective earthing terminals	Appliance inlet used.	N/A
1.7.7.2	Terminal for external primary power supply conductors		N/A
1.7.8.1	Identification and location of switches and controls :	The marking and indicantion of the power switch is located that indication of function is clearly.	Pass
1.7.8.2	Colours of controls and indicators ..... :	A green LED is illuminated when the unit is operating. Others functional indicators use color.	Pass

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1.7.8.3	Symbols according to IEC 417 ..... :	The stand-by switch is marked with the symbols.	Pass
1.7.8.4	Figures used for marking ..... :	No color indicators provided which affect safety.	N/A
1.7.8.5	Location of markings and indications for switches and controls ..... :	Markings for switches and other controls located on the switch and control.	Pass
1.7.9	Isolation of multiple power sources ..... :	There is only one connection to hazardous voltages.	N/A
1.7.10	Instructions for installation to IT power system	Not intended for use on IT power systems.	N/A
1.7.11	Instructions when protection relies on building installation	Pluggable Type A.	N/A
1.7.12	Marking when leakage current exceeds 3.5 mA		N/A
1.7.13	Indication at thermostats and regulating devices	No thermostats or similar regulating devices.	N/A
1.7.14	Language of safety markings/instructions	Only English reviewed.	Pass
	Language ..... :	English.	—
1.7.15	Durability and legibility	The marking(s) withstood the required test.	Pass
1.7.16	Removable parts	No marking is located on (a) removable part(s).	Pass
1.7.17	Warning text for replaceable lithium batteries	When unit provided with the lithium battery is user replaceable. The required warning should be in the service manual or placed close to the battery.	Pass
	Language ..... :	English.	—
1.7.18	Operator access with a tool ..... :	A tool is not needed to gain access to an operator access area.	N/A
1.7.19	Equipment for restricted access locations ..... :	Equipment not intended for installation in a RESTRICTED ACCESS LOCATION.	N/A

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2	**PROTECTION FROM HAZARDS**	Pass

2.1	**Protection against electric shock and energy hazards**		Pass
2.1.1	Access to energized parts	No operator access to energized parts.	Pass
2.1.2	Protection against operator contact	No parts of ELV or hazardous voltages are accessible. Only SELV signal voltages are accessible.	Pass
	Test by inspection ..... :		Pass
	Test with test finger ..... :		Pass
	Test with test pin ..... :		Pass
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No internal wiring in an ELV cicuits is accessible to the operator.	N/A
	Working voltage (V); distance (mm) through insulation ..... :		N/A
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	No internal wiring accessible to the user.	N/A
2.1.4.1	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in a service access area.	N/A
2.1.4.2	Protection in restricted access locations		N/A
2.1.5	Energy hazard in operator access area	Energy does not exceed 240VA between any two point in accessible parts connector of secondary circuit. No hazardous energy circuits are accessible.	Pass
2.1.6	Clearances behind conductive enclosures	Clearances behind conductive enclosure complies during the 250N test of Sub-clause 4.2.	Pass
2.1.7	Shafts of manual controls	No shafts or knobs, etc. at ELV or hazardous voltage.	Pass
2.1.8	Isolation of manual controls		N/A

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2.1.9	Conductive casings of capacitors	The equipment does not contain any capacitors with conductive casings which operate at ELV or hazardous voltage levels.	N/A
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	In approval power supply.	N/A
	Time-constant (s); measured voltage (V) ..... :		—

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2.2	**Insulation**		Pass
2.2.1	Methods of insulation	Adequate clearances through air, and creepages over the surface are provided.	Pass
2.2.2	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Pass
2.2.3	Humidity treatment	Total time elapsed: 48 hours	Pass
	Humidity (%) ..... :	93% R.H.	—
	Temperature (°C) ..... :	25°C	—
2.2.4	Requirements for insulation	Please refer to 5.3, 2.9 and 5.1	Pass
2.2.5	Insulation parameters	Both parameters were considered.	Pass
2.2.6	Categories of insulation	Comply with the requirements of this standard.	Pass
2.2.7.1	General rules for working voltages	Considered	Pass
2.2.7.2	Clearances in primary circuits	Considered	Pass
2.2.7.3	Clearances in secondary circuits	Considered	Pass
2.2.7.4	Creepage distances	Considered	Pass
2.2.7.5	Electric strength tests	Considered	Pass
2.2.8.1	Bridging capacitors .....:	No bridging capacitors.	N/A
2.2.8.2	Bridging resistors	No bridging resistors.	N/A
2.2.8.3	Accessible parts	Evaluated as part of the power supply.	N/A

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2.3	**Safety extra-low voltage (SELV) circuits**		Pass
2.3.1	Voltage (V) of SELV circuits under normal operating conditions and after a single fault ..... :	SELV levels are maintained after single fault condition.	—
2.3.2	Voltage (V) between any two conductors of SELV circuit(s) and for Class I equipment between any conductor of SELV circuit and equipment protective earthing terminal under normal operating conditions ..... :	Only SELV circuits are accessible to the user.	Pass
2.3.3	Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component ..... :	<= 42.4 Vpk, 60 V d.c.	—
	Method used for separation ..... :	Method 1.	Pass
2.3.4	Additional constructional requirements	The SELV circuit is adequately constructed in order to prevent reduction of distances, loosening of terminals, breaking of wiring at terminals, accidental shorting to hazardous voltages and the improper use of connectors.	Pass
2.3.5	Connection of SELV circuits to other circuits	See 2.3.2 and 2.3.3	N/A

2.4	**Limited current circuits**		Pass
2.4.2	Frequency (Hz) ..... :	See enclosed test record.	—
	Measured current (mA) ..... :	See enclosed test record.	Pass
2.4.3	Measured voltage (V) ..... :	>450V	—
	Measured capacitance (µF) ..... :		N/A
2.4.4	Measured voltage (V) ..... :	See enclosed test record.	—
	Measured charge (µC) ..... :	<45µC	Pass
2.4.5	Measured voltage (V) ..... :		—
	Measured energy (mJ) ..... :		N/A
2.4.6	Limited current circuit supplied from or connected to other circuits ..... :	Supplied by SELV.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
2.5	**Provisions for earthing**		Pass
2.5.1	Class I equipment	Accessible parts are earthed.	Pass
	Warning label for service personnel		N/A
2.5.2	Protective earthing in Class II equipment	The equipment is not Class II.	N/A
2.5.3	Switches/fuses in earthing conductors	No switch or fuse in earthing conductor.	Pass
2.5.4	Assured earthing connection for Class I equipment in systems comprising Class I and Class II equipment	The equipment is not comprised of Class I and Class II assemblies.	Pass
2.5.5	Green/yellow insulation	Blank wire from appliance to chassis fixed by star-washer and screw, green/yellow wire from chassis to PCB connector fixed by use of star-washer and screw in certified power supply.	Pass
2.5.6	Continuity of earth connections	Accessible non-current carrying metal parts are reliably connected to earth. Disconnection of the protective earth at one assembly does not break the protective earthing connection to other assemblies.	Pass
2.5.7	Making and breaking of protective earthing connections	It is not possible to disconnect earth without disconnecting mains.	Pass
2.5.8	Disconnection protective earthing connections	Connections to protective earthing cannot be removed unless hazardous voltage is removed from the part simultaneously.	Pass
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords		N/A
2.5.10	Corrosion resistance		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
2.5.11	Resistance (Ohm) of protective earthing conductors ≤ 0.1 Ohm	The resistance from the appliance inlet to the chassis is < 0.1 ohms. See enclosed test record.	Pass
	Test current (A) ..... :	25 A	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.6	**Disconnection from primary power**		Pass
2.6.1	General requirements	The appliance inlet is considered to be the disconnect device.	Pass
2.6.2	Type of disconnect device ..... :	Unit employs an appliance inlet.	Pass
2.6.3	Disconnect device in permanently connected equipment	Not permanently connected equipment.	N/A
2.6.4	Parts of disconnect device which remain energized	When plug or inlet is dissconnected no remaining parts with hazardous voltage in the equipment.	Pass
2.6.5	Switches in flexible cords	No isolating switch in the cord set.	Pass
2.6.6	Disconnection of both poles simultaneously for single-phase equipment	Disconnect device disconnects all poles simultaneously.	Pass
2.6.7	Disconnection of all phase conductors of supply in three-phase equipment	The unit is a single-phase equipment.	N/A
2.6.8	Marking of switch acting as disconnect device	The switch is marked with correct symbols in accordance with Sub-clause 1.7.8 ("O" and "I").	Pass
2.6.9	Installation instructions if plug on power supply cord acts as disconnect device	The required warning is provided in accordance with 1.7.2.	Pass
	Language ..... :	Verified in English. May be provided in other languages upon request from the manufacturer.	—
2.6.11	Interconnected equipment	No interconnection of hazardous voltages.	N/A
2.6.12	Multiple power sources	The equipment only receives power from one source.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.7	**Overcurrent and earth fault protection in primary circuits**		N/A
2.7.1	Basic requirements		N/A
2.7.2	Protection against faults not covered in 5.4		N/A
2.7.3	Short-circuit backup protection	Pluggable Type A.	N/A
2.7.4	Number and location of protective devices ..... :		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel		N/A

2.8	**Safety interlock**		N/A
2.8.2	Design		N/A
2.8.3	Protection against inadvertent reactivation		N/A
2.8.4	Reliability		N/A
2.8.5	Override an interlock		N/A
2.8.6.1	Contact gap (mm) ..... :		N/A
2.8.6.2	Switch performing 50 cycles		N/A
2.8.6.3	Electric strength test: test voltage (V) ..... :		N/A
2.8.7	Protection against overstress		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.9	**Clearances, creepage distances and distances through insulation** *Approval S.P.S. provided.*		N/A
	Nominal voltage (V) ..... :		—
	General		N/A
2.9.2	Clearances	(see appended table)	N/A
2.9.2.1	Clearances in primary circuits	(see appended table 2.9.2 and 2.9.3)	N/A
2.9.2.2	Clearances in secondary circuits	See 5.4.4.	N/A
2.9.3	Creepage distances	(see appended table)	N/A
	CTI tests ..... :		—
2.9.4.1	Minimum distances through insulation	(see appended table)	N/A
2.9.4.2	Thin sheet material		N/A
	Number of layers (pcs) ..... :		N/A
	Electrical strength test: test voltage (V) ..... :		N/A
2.9.4.3	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test at voltage (V) for thin sheet insulating material		N/A
	Number of layers (pcs) ..... :		N/A
2.9.4.4	Wound components without interleaved insulation	(see Annex U).	N/A
	Number of layers (pcs) ..... :		N/A
	Two wires in contact inside component; angle between 45° and 90°		N/A
	Routine testing for finished component		N/A
2.9.5	Distances on coated printed boards		N/A
	Routine testing for electric strength		N/A
2.9.6	Enclosed and sealed parts	(see appended table 2.9.2. and 2.9.3)	N/A
	Temperature T1 (°C) .....:		N/A
	Humidity % .....:		N/A
2.9.7	Spacings filled by insulating compound	(see appended table 2.9.4.1)	N/A
	Temperature T1 (°C) .....:		N/A
	Humidity % .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.9.8	Component external terminations	(see appended table 2.9.2 and 2.9.3)	N/A
2.9.9	Insulation with varying dimensions	(see appended table 2.9.2 and 2.9.3 and 2.9.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.10	**Interconnection of equipment**		Pass
2.10.1	General requirements	SELV is only connected to SELV and Safety Earth. There are no TNV-circuits in the equipment.	Pass
2.10.2	Type of interconnection circuits ..... :	SELV to SELV. No ELV interconnections.	Pass
2.10.3	ELV circuits as interconnection circuits	No other equipment.	N/A

2.11	**Limited power source**		N/A
	Use of limited power source ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3	**WIRING, CONNECTIONS AND SUPPLY**	Pass

3.1	**General**		Pass
3.1.1	Cross-sectional area of internal wiring/interconnecting cables	All internal wiring is rated for the application.	Pass
	Protection of internal wiring and interconnecting cables		N/A
3.1.2	Wireways	The wires are well routed away from sharp edges, etc. and are adequately fixed to prevent excessive strain on wire and terminals.	Pass
3.1.3	Fixing of internal wiring	All wiring is reliably routed or seperated and secured. The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	Pass
3.1.4	Fixing of uninsulated conductors	Securely held on PCB. No hazard.	Pass
3.1.5	Insulation of internal wiring	Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltages involved.	Pass
3.1.6	Wires coloured green/yellow only for protective earth connection	See 2.5.5	Pass
3.1.7	Fixing of beads and similar ceramic insulators	The equipment does not have any beads or similar insulators.	N/A
3.1.8	Required electrical contact pressure	The equipment does not have any screw-type connections.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.9	Reliable electrical connections	The equipment does not have any electrical connections that rely on insulating material for adequate contact pressure.	N/A
3.1.10	End of stranded conductor	No risk of stranded conductor becoming unfixed.	Pass
3.1.11	Use of spaced thread screws/thread-cutting screws		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.2	**Connection to primary power**		Pass
3.2.1	Type of connection ..... :	Unit employs an appliance inlet. The unit is provided with an appliance inlet.	Pass
	Design of product with more than one supply connection ..... :	The appliance inlet in equipment only for one mains connection.	N/A
3.2.2	Provision for permanent connection ..... :	The equipment is not permanently connected.	N/A
	Size (mm) of cables and conduits ..... :		N/A
3.2.3	Appliance inlet	The appliance inlet complies with IEC 60320.	Pass
3.2.4	Type and cross-sectional area (mm²) of power supply cord ..... :	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; to be determined by the country's local certification body.	N/A
3.2.5	Cord anchorage		N/A
	Test: 25 times; 1 s; pull (N) ..... :		—
	Longitudinal displacement ≤ 2 mm ..... :		N/A
3.2.6	Protection of power supply cord	No sharp points or cutting edges on the equipment surfaces	Pass
3.2.7	Cord guard		N/A
	D (mm) ..... :		—
	Test: mass (g) ..... :		—
	Radius of curvature of the cord ≤ 1.5 D		N/A
3.2.8	Supply wiring space		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.3	**Wiring terminals for external power supply conductors**		N/A
3.3.1	Terminals	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; to be determined by the country's local certification body.	N/A
3.3.2	Special non-detachable cord		N/A
	Type of connection ..... :		—
	Pull test at 5 N		N/A
3.3.3	Screws and nuts		N/A
3.3.4	Fixing of conductors		N/A
3.3.5	Connection of connectors		N/A
3.3.6	Size of terminals		N/A
	Nominal thread diameter (mm) ..... :		N/A
3.3.7	Protection against damage of conductors		N/A
3.3.8	Terminal location		N/A
3.3.9	Test with 8 mm stranded wire		N/A

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4	**PHYSICAL REQUIREMENTS**	Pass

4.1	**Stability and mechanical hazards**		Pass
4.1.1	Stability tests		Pass
	Angle of 10°	Unit does not overbalance at 10 Angle.	Pass
	Test: force (N) ..... :	Unit not specified for floor-standing use.	N/A
4.1.2	Protection against personal injury	Equipment does not have any hazardous moving parts	N/A
4.1.3	Warning and means provided for stopping the moving part ..... :	The equipment does not have any hazardous moving parts.	N/A
4.1.4	Edges and corners	All edges and corners are rounded and smooth.	Pass
4.1.5	Enclosure of a high pressure lamp	The equipment does not have any high pressure lamps.	N/A

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4.2	**Mechanical strength and stress relief**		Pass
4.2.1	General	See below.	Pass
4.2.2	Internal enclosures 30 N ± 3 N; 5 s	Internal metal enclosure. No hazard as a result of the 30 N test.	Pass
4.2.3	External enclosures 250 N ± 10 N; 5 s	250N applied to outer and internal enclosure. No hazards as a result of the 250 N test.	Pass
4.2.4	Steel ball tests		Pass
	Fall test	All metal enclosure.	Pass
	Swing test	No hazard as a result of the steel sphere fall test.	Pass
4.2.5	Drop test	Product is movable equipment. Unit is not hand-held.	N/A
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C) ..... :	The equipment has metal enclosure, test was waived	N/A
4.2.7	Compliance criteria	Complied.	Pass
4.2.8	Mechanical strength of cathode ray tubes	The equipment does not have any CRT	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3	**Construction details**		Pass
4.3.1	Changing of setting for different power supply voltages	The equipment have an operator accessible voltage selector.	Pass
4.3.2	Adjustment of accessible control devices	The equipment have an operator accessible voltage selector.	Pass
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	The equipment does not produce dust or employ powders, liquids or gases.	N/A
4.3.5	Fixing of knobs, grips, handles, levers		N/A
	Test: force (N) ..... :		N/A
4.3.6	Driving belts/couplings shall not ensure electrical insulation		N/A
4.3.7	Retaining of sleeves	Sleeving is not used as supplementary insulation.	N/A
4.3.9	Protection of loosening parts	No loosening of parts impairing creepage distances or clearances over supplementary or reinforced insulation is likely to occur.	Pass
4.3.11	Resistance to oil and grease		N/A
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (for laser see IEC 825-1)	CLASS 1 Laser under normal operation. Compliance checked according to IEC 60825.	Pass
4.3.13	Securing of screwed connections	Screwed connections are reliably secured.	Pass
4.3.15	Openings in the top of enclosure	There are no openings in the top of the enclosure.	N/A
	Dimensions (mm) ..... :		—
4.3.16	Openings in the sides of enclosure	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage. (No hazardous parts within 5° angle)	Pass
	Dimensions (mm) ..... :		—
4.3.17	Interchangeable plugs and sockets		N/A
4.3.18	Torque test for direct plug-in equipment		N/A
	Additional torque (Nm) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.19	Protection against excessive pressure		N/A
4.3.20	Protection of heating elements in Class I equipment		N/A
4.3.21	Protection of lithium batteries		N/A
	Construction of protection circuit ..... :		N/A
4.3.22	Ageing of barrier/screen secured with adhesive		N/A
	Day 1: temperature (°C); time (weeks) ..... :		N/A
	Day 8/22/57: a) temperature (°C) for 1 h b) temperature (°C) for 4 h c) temperature (°C) over 8 h ..... :		N/A
	Day 9/23/58: a) relative humidity (%) for 72 h b) temperature (°C) for 1 h c) temperature (°C) for 4 h d) temperature (°C) over 8 h ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.4	**Resistance to fire**		Pass
4.4.1	Methods of achieving resistance to fire	Use of materials with the required flammability classes.	Pass
4.4.2	Minimizing the risk of ignition	Components rated at least 94V-2 are mounted on PWB rated at least 94V-1.	Pass
	Printed board: manufacturer; type; flammability ... :	min. 94V-1.	Pass
4.4.3	Flammability of materials and components	The propagation of fire is minimized through the fire enclosure construction.	Pass
4.4.3.2	Material and component: manufacturer; type; flammability ..... :	Internal plastic parts are rated 94V-2 min.	Pass
4.4.3.3	Exemptions ..... :	Integrated circuits, capacitors, etc. mounted on V-1 printed	Pass
4.4.3.4	Wiring harnesses: manufacturer; flammability ..... :	Wiring is PVC, TFE, PTFE, FEP or neoprene.	Pass
4.4.3.5	Cord anchorage bushings: manufacturer; flammability ..... :	The equipment does not have a non-detachable power supply cord.	N/A
4.4.3.6	Air filter assemblies: manufacturer; flammability .. :	The equipment does not have any air filters.	N/A
4.4.4	Enclosures and decorative parts: manufacturer; flammability ..... :	metal enclosure	Pass
4.4.5	Conditions for fire enclosures	All resistors, capacitors and inductors are located in a fire enclosure.	Pass
4.4.5.1	Components which require fire enclosure: manufacturer; flammability ..... :	A fire enclosure covers all parts.	Pass
4.4.5.2	Components not requiring fire enclosure .....:	Fire enclosure covers all parts.	Pass
4.4.6	Fire enclosure construction	No openings in bottom of fire enclosure.	Pass
4.4.7	Doors and covers in fire enclosures	The equipment does not have any doors or covers.	N/A
4.4.8	Flammable liquids	The batteries do not contain flammable liquids.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5	**THERMAL AND ELECTRICAL REQUIREMENTS**		Pass

5.1	**Heating**		Pass
	Heating tests	(see appended table)	Pass

5.2	**Earth leakage current**		Pass
5.2.1	General	In approval power supply.	Pass
5.2.2	Leakage current	See enclosed test record.	Pass
	Test voltage (V) ..... :		—
	Measured current (mA) ..... :		—
	Max. allowed current (mA) ..... :		—
5.2.3	Single-phase equipment	See enclosed test record.	Pass
	Test voltage (V) .....:		—
	Measured current (mA) .....:		—
	Max. allowed current (mA) .....:		—
5.2.4	Three-phase equipment	Not three phase equipment.	N/A
	Test voltage (V) ..... :		—
	Measured current (mA) ..... :		—
	Max. allowed current (mA) ..... :		—
5.2.5	Equipment with earth leakage current exceeding 3.5 mA		N/A
	Test voltage (V) ..... :		—
	Measured current (mA) ..... :		—
	Max. allowed current (mA) ..... :		—
	Cross-sectional area (mm^2) of internal protective earthing conductor ..... :		—
	Warning label		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	**Electric strength**		Pass
5.3.1	General	Based on the electric strength test the use of the insulating materials within the equipment is satisfactory.	Pass
5.3.2	Test procedure	(see appended table)	Pass

5.4	**Abnormal operating and fault conditions**		Pass
5.4.2	Motors	Fan motor evaluated as part of component evaluation. All disk drive motors evaluated as part of component evaluation.	Pass
5.4.3	Transformers	That was investigated. Certified power supply provided.	Pass
5.4.4	Compliance of operational insulation		N/A
	Method used ..... :	Method C.	N/A
5.4.5	Electromechanical components in secondary circuits	That was investigated. Certified power supply provided.	N/A
5.4.6	Other components and circuits	That was investigated. Certified power supply provided.	N/A
5.4.7	Test in any expected condition and foreseeable misuse	(see appended table) Equipment tested with blocked ventilation openings.	Pass
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	The equipment does not have any thermostats, temperature limiters, or thermal cut-outs.	N/A
5.4.9	Compliance	(see appended table)	Pass
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	That was investigated. Certified power supply provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6	**CONNECTION TO TELECOMMUNICATION NETWORKS**	N/A

6.1	**General**		N/A
6.2	TNV circuits		N/A
6.2.1.1	Limits of the TNV circuits		N/A
6.2.1.1 a)	TNV-1 circuits		N/A
6.2.1.1 b)	TNV-2 and TNV-3 circuits		N/A
6.2.1.2	Separation from other circuits and from accessible parts	(see appended table 2.9.2, 2.9.3 and 2.9.4)	N/A
	Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure ..... :		N/A
6.2.1.3	Operating voltages generated externally		N/A
	Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part ..... :		N/A
6.2.1.4	Separation from hazardous voltages ..... :		N/A
	Insulation between TNV circuit and circuit at hazardous voltage		N/A
	Method used ..... :		N/A
6.2.1.5	Connection of TNV circuits to other circuits	(see appended table 5.4)	N/A
	Insulation (mm) between TNV circuit supplied conductively from secondary circuit and hazardous voltage circuit ..... :		N/A
6.2.2.1	Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits		N/A
	Test with test finger		N/A
	Test with test probe		N/A
6.2.2.2	Battery compartments		N/A
	Marking next to door/on door		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6.3	**Protection of telecommunication network service personnel, and users of other equipment connected to the telecommunication network, from hazards in the equipment**		N/A
6.3.1	Protection from hazardous voltages		N/A
6.3.2	Use of protective earthing		N/A
	Language of installation instructions ..... :		N/A
6.3.3.1	Insulation between TNV circuit and parts or circuitry that may be earthed	(see appended table 5.3)	N/A
6.3.3.2	Exclusions ..... :		N/A
6.3.4.1	Limitation of leakage current (mA) to telecommunication network ..... :		N/A
6.3.4.2	Summation of leakage currents from telecommunication network ..... :		N/A

6.4	**Protection of the equipment user from voltages on the telecommunication network**		N/A
6.4.1	Separation requirements		N/A
6.4.2	Test procedure		N/A
6.4.2.1	Impulse test: separation between TNV-1 circuits/TNV-3 circuits and:		N/A
6.4.2.1 a)	unearthed conductive parts/non-conductive parts of the equipment which are held or touched during normal use; test at 2.5 kV		N/A
6.4.2.1 b)	parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1.5 kV		N/A
6.4.2.1 c)	circuitry which is provided for connection of other equipment; test at 1.5 kV		N/A
6.4.2.2	Electric strength test: separation between TNV-1 circuits/TNV-3 circuits and:		N/A
6.4.2.2 a)	unearthed conductive parts/non-conductive parts of the equipment which are held or touched during normal use; test at 1.5 kV		N/A
6.4.2.2 b)	parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1.0 kV		N/A
6.4.2.2 c)	circuitry which is provided for connection of other equipment; test at 1.0 kV		N/A
6.4.2.3	Compliance criteria		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6.5	**Protection of telecommunication wiring system from overheating**		N/A
	Maximum continuous output current (A) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
A.1	Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18 kg, and of stationary equipment		N/A
A.2	Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18 kg, and for materials located within fire enclosures		N/A
A.3	High current arcing ignition test		N/A
A.3.6	Number of arcs .....:		N/A
A.4	Hot wire ignition test		N/A
A.4.6	Ignition time (s) .....:		N/A
A.5	Hot flaming oil test		N/A
A.6	Flammability test for classifying materials V-0, V-1 or V-2		N/A
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HBF		N/A
A.8	Flammability test for classifying materials HB		N/A
A.9	Flammability test for classifying materials 5V		N/A
A	Tested material		N/A
	Preconditioning: 7 days (168 h); temperature (°C) :		—
	Mounting of samples during test ..... :		—
	Wall thickness ..... :		—
	Sample 1 burning time ..... :		N/A
	Sample 2 burning time ..... :		N/A
	Sample 3 burning time ..... :		N/A
	Material: compliance with the requirements		N/A
	Manufacturer of tested material ..... :		—
	Type of tested material ..... :		—
	Additional information ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS** *Approval fans and drives provided.*		N/A
B.1	General requirements		N/A
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated voltage (V) or current (A) ..... :		—
B.2	Test conditions	(see appended table 5.4)	N/A
B.3	Maximum temperatures	(see appended table 5.4)	N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
	Electric strength test: test voltage (V) ..... :		—
B.6	Running overload test for DC motor in secondary circuits		N/A
B.7	Locked-rotor overload test for DC motor in secondary circuits		N/A
B.7.2	Test time (h) ..... :		N/A
B.7.3	Test time (h) ..... :		N/A
B.8	Test for motors with capacitor		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Test voltage (V) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

C	**ANNEX C, TRANSFORMERS** *Approval S.P.S. provided.*		N/A
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
	Temperatures	(see appended table 5.4)	N/A
	Thermal cut-out	(see appended table 5.1)	N/A
C.1	Overload test		N/A
	Conventional transformer		N/A
C.2	Insulation		N/A
	Precautions ..... :		N/A
	Retaining of end turns of all windings		N/A
	Earthing test at 25 A		N/A
C.3	Electric strength test	(see appended table 5.3)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

H	**ANNEX H, IONIZING RADIATION**		N/A
	Ionizing radiation		N/A
	Measured radiation ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
	Certified by ..... :		—
	Standard used ..... :		—

U	**ANNEX U, INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION**		N/A
	See separate test report		N/A

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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 Supply	DELTA ELECTRONICS, INC.	DPS-300GB-1 B	Class I i/p: 100-127V~/200-240V~, 47-63Hz, 9/4.5A. DC o/p: +12V/15A +3.3V/28A +5Vdc/30A -5Vdc/0.3A -12Vdc/0.8A +5VSB/2A Total 300W	IEC 60950 EN 60950 UL 1950	TÜV, UL/cUL, CE, N, CCIB
	DELTA ELECTRONICS, INC.	DPS-200PB-103 D	Class I i/p: 115V~/230V~, 60/50Hz, 9/5A. DC o/p: +12V/8A +3.3V/14A +5Vdc/25A -5Vdc/0.5A -12Vdc/0.8A +5VSB/1A Total 200W	IEC 60950 EN 60950 UL 1950	TÜV, UL/cUL, CE, N, CCIB
System Fans (One provided for models AWS-8420 series. Two provided for models AWS-8430 series.)	ADDA CORP.	AD0912HB-A70GL	12Vdc, 0.25A 49CFM	EN 60950	UL, TÜV
LCD Panel (May be with touch-screen function.)	SANYO	TM121SV-02101	TFT type, 12.1”	--	--
DC to AC Inverter	BRIGHT DEER	IV-12A (1254100290)	I/p: 12-13Vdc, 500-700mA O/p: 1400V max., 7mA max.	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

CPU Card (Optional)	Advantech Co., Ltd.	PCA-6276XX	PIII, 850MHz Rated: 5 V, 5VSB, 3.3V, 12V, -12V dc	UL 60950	UL (E180881)
Drive (CD-ROM) (Optional)	Quanta Or equal	SCR-242	5Vdc, 5A	IEC 60950 IEC 60825-1	TÜV, UL
Floppy Disk Drive (Optional)	TEAC Or equal	FD-235HF	5Vdc/1.2A max.	IEC 60950	TÜV, UL
Hard Disk Drive (Maximum two provided)	Quantun Or equal	EX5100AT	5Vdc/0.9A max. 12Vdc/1.2A max.	IEC 60950	TÜV, UL
All PCB	--	--	94V-1 or better, 105°C min.	UL94	UL
[1]) an asterisk indicates a mark which assures the agreed level of surveillance					

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Clause	Requirement + Test	Result - Remark	Verdict

1.6	**TABLE: electrical data (in normal conditions)**						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
						See enclosed test record.	
supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

2.9.2 and 2.9.3	**TABLE: clearance and creepage distance measurements**					N/A
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:						

2.9.4.1	**TABLE: distance through insulation measurements**			N/A
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

5.1	**TABLE: temperature rise measurements**				Pass
	test voltage (V) ..... :	104 / 253			—
	t1 (°C) ..... :	--			—
	t2 (°C) ..... :	--			—
temperature rise dT of part/at:		dT (K)		required dT (K)	
See enclosed test record.					
temperature rise dT of winding:	R_1 (Ω)	R_2 (Ω)	dT (K)	required dT (K)	insulation class
supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	**TABLE: electric strength measurements**		Pass
test voltage applied between:		test voltage (V)	breakdown
See enclosed test record.			
supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

5.4	**TABLE: fault condition tests**						Pass
	ambient temperature (°C) ..... :					25°C	—
	model/type of power supply ..... :					Intergral part of the unit	—
	manufacturer of power supply ..... :					See table 1.5.1	—
	rated markings of power supply ..... :					See table 1.5.1	—
No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
							See enclosed test record.
supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.10	**TABLE: ball pressure test of thermoplastics**		N/A
	required impression diameter (mm) ..... :	<= 2 mm	—
part		test temperature (°C)	impression diameter (mm)
supplementary information:			

ENCLOSURE No. 1

Photographs

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Model AWS-8420 series

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