TUV Rheinland of North America, Inc.
North American Headquarters

TÜV

CB TEST REPORT

IEC 60950

Globtek Incorporated

Power Supply Adapter

E2071143.01

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TEST REPORT

IEC 60950

Safety of information technology equipment

Report reference No.	E 2071143.01
Compiled by (+ signature)	Jeffrey Burns
Approved by (+ signature)	Daniel Sullivan
Date of issue	July 11, 2000
Testing laboratory	TUV Rheinland of North America, Inc.
Address	12 Commerce Rd, Newtown, CT 06470 USA
Testing location	TUV Rheinland of North America, Inc 12 Commerce Rd, Newtown, CT 06470 USA
Applicant	GlobTek, Inc.
Address	186 Veterans Dr, Northvale, NJ 07647, USA
Standard	IEC 60950:1991+A1:1992 + A2:1993 + A3:1995 + A4:1996 EN 60 950:1992+A1:1993+A2:1993+A3:1995+A4:1997+A11:1997 EMKO-TSE(74-SEC)207/94, MITI Ordinance No. 85 UL 1950, C22.2 No. 950 3rd edition, AS 3260
Test Report Form No.	I950__D/97-06
TRF originator.	FIMKO
Master TRF	reference No. I950 D, dated 97-02
Copyright blank test report	the bodies participating in the Committee of Certification Bodies (CCB) and/or the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator.
Test procedure	CB Scheme
Procedure deviation	Group and national differences for AT, AU, CA, CH, DE, DK, FI, FR, GB, JP, KR, SE, US
Non-standard test method	N.A.

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

Type of test object	Power Supply Adapter
Trademark	GlobTek trade mark
Model/type reference	GT-22011-xxxx (xxxx=6022, 6020, 6019, 6016, 6015, 6012, 5024, 5020, 5019, 5018, 4524, 4520, 4519, 4518, 4516, 4515, 4514, 4513, 4512, 4508, 4212, 4020, 4018, 4012, 3018, 3013, 3012)
Manufacturer	Same as applicant
Factory	186 Veterans Dr, Northvale, NJ 07647, USA
Rating	i/p: AC 100-240V, 47-63Hz, 1.2A o/p: see page 3 for details

Test item particulars:

Equipment mobility ..... : movable equipment

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

Operating condition	continuous
Tested for IT power systems.....	No
IT testing, phase-phase voltage (V).....	N.A.
Class of equipment.....	class II
Mass of equipment (kg).....	<0.5kg
Protection against ingress of water.....	IPX0

Possible test case verdicts:

- test case does not apply to the test object .....: **N**(.A.)
- test object does meet the requirement .....: **P**(ass)
- test object does not meet the requirement.....: **F**(ail)

General remarks:

"(see remark #)" refers to a remark 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 testing laboratory.

This report demonstrates compliance to the national standards of AT, AU, BE, CA, CH, CN, CZ, DE, DK, ES, FI, FR, GB, GR, HU, IE, IL, IN, IT, JP, KR, NL, PL, RU, SE, SL, SK, US, ZA.

Comments:

Brief description of the test sample:

The equipment model GT-22011-xxxx are series of switching power supply adapter (desk top type with appliance inlet) for DC supply of information technology equipment (scanner, notebook PC, ..., etc.). In model name, "xxxx" could be 6022, 6020, 6019, 6016, 6015, 6012, 5024, 5020, 5019, 5018, 4524, 4520, 4519, 4518, 4516, 4515, 4514, 4513, 4512, 4508, 4212, 4020, 4018, 4012, 3018, 3013 or 3012 to represent the output voltage (3rd and 4th x) and power (1st and 2nd x).

All models are identical except for model name, output ratings, main transformer (5 types are used), line filter LF2 and minor difference in SELV. The adapter's top enclosure is secured to bottom enclosure by ultra-sound welding.

The adapter models GT-22011-6022, 5024, 4524, 6020, 6019, 5020, 5019, 5018, 4520, 4519, 4518, 4020, 4018, 3018, 6016, 6015, 4516, 4515, 4514, 4513, 4512, 4212, 4012, 3013, 3012 are further tested as limited power source. Results see sub-clause 2.11.

Unless otherwise specified, all tests were performed on model GT-22011-6024 to represent the other similar models. The test samples are pre-production without serial numbers.

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

Model	DC Output Voltage	Output Current	Max. Output Power	Transformer type	Tested as Limited Power Source
GT-22011-6022	+22.5V	2.67A	60W	04-B120	yes
GT-22011-5024	+24V	2.08A	50W	04-B120	yes
GT-22011-4524	+24V	1.88A	45W	04-B120	yes
GT-22011-6020	+20V	3.0A	60W	04-B119	yes
GT-22011-6019	+19V	3.15A	60W	04-B119	yes
GT-22011-5020	+20V	2.5A	50W	04-B119	yes
GT-22011-5019	+19V	2.63A	50W	04-B119	yes
GT-22011-5018	+17.5V	2.85A	50W	04-B119	yes
GT-22011-4520	+20V	2.25A	45W	04-B119	yes
GT-22011-4519	+19V	2.37A	45W	04-B119	yes
GT-22011-4518	+18V	2.5A	45W	04-B119	yes
GT-22011-4020	+20V	2.0A	40W	04-B119	yes
GT-22011-4018	+18V	2.22A	40W	04-B119	yes
GT-22011-3018	+18V	1.67A	30W	04-B119	yes
GT-22011-6016	+16V	3.75A	60W	04-B134	yes
GT-22011-6015	+15V	4.0A	60W	04-B134	yes
GT-22011-4516	+16V	2.81A	45W	04-B134	yes
GT-22011-4515	+15V	3.0A	45W	04-B134	yes
GT-22011-6012	+12V	5.0A	60W	04-B121	no
GT-22011-4514	+14V	3.21A	45W	04-B121	yes
GT-22011-4513	+13.8V	3.26A	45W	04-B121	yes
GT-22011-4512	+12V	3.75A	45W	04-B121	yes
GT-22011-4212	+12V	3.5A	42W	04-B121	yes
GT-22011-4012	+12V	3.33A	40W	04-B121	yes
GT-22011-3013	+13.8V	2.17A	30W	04-B121	yes
GT-22011-3012	+12V	2.5A	30W	04-B121	yes
GT-22011-4508	+7.5V	6.0A	45W	04-B138	no

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	Comply with IEC 60950 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended tables)	P
1.5.2	Evaluation and testing components	Components which are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
	Dimensions (mm) of mains plug for direct plug-in .....:	The equipment is not plug-in type	N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N
1.5.3	Transformers	Transformer used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex C.	P
1.5.4	High voltage components (component; manufacturer; flammability) .....:	No high voltage components used.	N
1.5.5	Interconnecting cables	Interconnection o/p cable to other device is carrying only SELV voltages on an energy level below 240VA. → Except the insulation material, there are no further requirements to the o/p interconnection cable.	P
1.5.6	Mains Capacitors	X2 capacitor according to IEC 60384-14:1981 with 2.5kV pulse test (by SEV certificate or IEC 60384-14:1993 with 21 days damp heat test.	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
1.6	Power interface		P
1.6.1	Steady state input current	Highest load according to 1.2.2.1 for this equipment is the operation with the max. specified DC-load. results see appended table	P
	Current deviation during normal operating cycle	< +10%	P
1.6.2	Voltage limit of hand-held equipment	This appliance is not a hand-held equipment.	N
1.6.3	Neutral conductor insulated from earth and body	Class II equipment. Phase conductors separated to body by reinforced insulation.	P
1.6.4	Components in equipment intended for IT power system	Equipment was not applied for the IT power system.	N
1.6.5	Mains supply tolerance (V) .....:	-10%, +6% Documentation specifies a rating of AC 100-240V at 47-63Hz. Relevant tests were done with the range of 90-264V at 47-63Hz.	P
1.7	Marking and instructions		P
1.7.1	Rated voltage (V) .....:	100-240Vac	P
	Symbol of nature of supply for d.c. .....:	Mains from AC source.	N
	Rated frequency (Hz) .....:	47-63Hz	P
	Rated current (A) .....:	1.2A MAX	P
	Manufacturer .....:	GlobTek, Inc.	P
	Trademark .....:	GlobTek trade mark	P
	Type/model .....:	GT-22011-xxxx (xxxx=6022, 6020, 6019, 6016, 6015, 6012, 5024, 5020, 5019, 5018, 4524, 4520, 4519, 4518, 4516, 4515, 4514, 4513, 4512, 4508, 4212, 4020, 4018, 4012, 3018, 3013, 3012)	P
	Symbol of Class II .....:	Double square symbol provided.	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
	Certification marks .....:	TÜV Rheinland GS mark, UL, CSA	N
1.7.2	Safety instructions	The users manual provided.	P
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting ..:	Full voltage range.	N
1.7.5	Marking at power outlets .....:	No outlet.	N
1.7.6	Marking at fuseholders .....:	Reference marking as F1 T 1.6A/250Vac	P
1.7.7.1	Protective earthing terminals	Class II equipment.	N
1.7.7.2	Terminal for external primary power supply conductors	Appliance inlet used, no terminal for external power supply conductor.	N
1.7.8.1	Identification and location of switches and controls .....:	No switch or control used.	N
1.7.8.2	Colours of controls and indicators .....:	Green LED use.	P
1.7.8.3	Symbols according to IEC 60417 .....:		N
1.7.8.4	Figures used for marking .....:		N
1.7.8.5	Location of markings and indications for switches and controls .....:		N
1.7.9	Isolation of multiple power sources .....:	Only one supply from the mains.	N
1.7.10	Instructions for installation to IT power system	Equipment was not applied for IT power system.	N
1.7.11	Instructions when protection relies on building installation	Pluggable equipment type A	N
1.7.12	Marking when leakage current exceeds 3,5 mA	Class II equipment.	N
1.7.13	Indication at thermostats and regulating devices	No adjustable thermostats.	N
1.7.14	Language of safety markings/instructions	Equipment markings in English and safety warnings in German and English. Versions in other languages will be provided when national approval.	P
	Language .....:	English and German	

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Clause	Requirement – Test	Result - Remark	Verdict
1.7.15	Durability and legibility	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. and then again for 15 sec. with the cloth soaked with HEXANE. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	P
1.7.16	Removable parts	No required markings placed on removable parts.	P
1.7.17	Warning text for replaceable lithium batteries	No lithium battery	N
	Language .....:		—
1.7.18	Operator access with a tool .....:	No operator access area with tool.	N
1.7.19	Equipment for restricted access locations .....:	No restricted access location.	N

2	FUNDAMENTAL DESIGN REQUIREMENTS	P

2.1	Protection against electric shock and energy hazards		P
2.1.1	Access to energized parts	See below	P
2.1.2	Protection in operator access areas	No access with test finger to any parts with only basic insulation to ELV or hazardous voltage. The test pin can not touch hazardous voltage through any seams within the appliance.	P
	Test by inspection .....:	dto	P
	Test with test finger .....:	dto	P
	Test with test pin .....:	dto	P
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No ELV wiring in operator accessible area.	N
	Working voltage (V); distance (mm) through insulation .....:		N

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Clause	Requirement – Test	Result - Remark	Verdict
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	No hazardous voltage wiring in operator accessible area.	N
2.1.4.1	Protection in service access areas	No maintenance work in operation mode necessary.	N
2.1.4.2	Protection in restricted access locations	The unit is not intended to be used in restricted locations	N
2.1.5	Energy hazard in operator access area	Energy does not exceed 240VA between any two points in accessible parts (o/p) connector of secondary circuit. Results see appended table.	P
2.1.6	Clearances behind conductive enclosures	No conductive enclosure.	N
2.1.7	Shafts of manual controls	None at ELV or hazardous voltage.	N
2.1.8	Isolation of manual controls	No shafts or knobs etc. in the adapter.	N
2.1.9	Conductive casings of capacitors	Casings of capacitors are considered as if directly connected to the respective circuitry. None at hazardous voltage accessible.	P
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	No risk of electric shock, see below.	P
	Time-constant (s); measured voltage (V) .....:	<1s (see appended table)	—
2.2	Insulation		P
2.2.1	Methods of insulation	The insulation materials provided in the equipment with adequate thickness and adequate creepage distance over their surface and clearance distance through air.	P
2.2.2	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used	P
2.2.3	Humidity treatment	Total time elapsed: 48 hours	P
	Humidity (%) .....:	93% R.H.	—
	Temperature (°C) .....:	25°C	—
2.2.4	Requirements for insulation	Please refer to 5.3, 2.9 and	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
		5.1.	
2.2.5	Insulation parameters	Both parameters were considered.	P
2.2.6	Categories of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.2.7	Determination of Working voltage	The rms and the peak voltage were measured on the switching power supply at its rated load. The unit was connected to a 240V TN power system and secondary ground was connected to neutral during test. Results see appended table.	P
2.2.7.1	General rules for working voltages	Considered	P
2.2.7.2	Clearances in primary circuits	Considered	P
2.2.7.3	Clearances in secondary circuits	Considered	P
2.2.7.4	Creepage distances	Considered	P
2.2.7.5	Electric strength tests	Considered	P
2.2.8	Double or reinforced insulation bridged by components	Primary and secondary bridged by one capacitor (CY3).	P
2.2.8.1	Bridging capacitors	CY3 used were certified as Y1 capacitor according to IEC 60384-14 2nd, 1993.	P
2.2.8.2	Bridging resistors	No bridging resistor used.	N
2.2.8.3	Accessible parts	The adapter's output connector is designed as limited current circuit.	P

2.3	Safety extra-low voltage (SELV) circuits		P
2.3.1	Voltage (V) of SELV circuits under normal operating conditions and after a single fault ....:	42.4V peak or 60VDC are not exceeded in SELV circuit under normal operation or single fault condition	

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Clause	Requirement – Test	Result - Remark	Verdict
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 .....:	Between any SELV circuits 42.4V peak or 60VDC are not exceeded	P
2.3.3	Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component .....:	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V DC were not exceed and SELV limits not for longer than 0.2 seconds, see abnormal results 5.4.6.	—
	Method used for separation .....:	Method 1	P
2.3.4	Additional constructional requirements	IEC 60083 and IEC 60320 connectors are not used in SELV.	P
2.3.5	Connection of SELV circuits to other circuits	See 2.3.2 and 2.3.3. No direct connection between SELV and any primary circuits.	N

2.4	Limited current circuits *The output connector is accessible to the user and connected to the primary circuit by one bridging capacitor (CY3). Therefore, the circuit must be designed as limited current circuit.*		P
2.4.2	Frequency (Hz) .....:	See below.	—
	Measured current (mA) .....:	The peak drop voltage was measured with a scope at a 2kΩ resistor. The maximum measured voltages are listed below: Neutral to output (+): measured as 0.96V at 63Hz ⇒ 0.48mA (limit = 0.7mA) Neutral to output (-): measured as 0.94V at 63Hz ⇒ 0.47mA (limit = 0.7mA)	P
2.4.3	Measured voltage (V) .....:	180Vpeak	—
	Measured capacitance (μF) .....:	<0.1μF	P

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Clause	Requirement – Test	Result - Remark	Verdict
2.4.4	Measured voltage (V) .....:	<450Vpeak	—
	Measured charge (μC) .....:		N
2.4.5	Measured voltage (V) .....:	<450Vpeak	—
	Measured energy (mJ) .....:		N
2.4.6	Limited current circuit supplied from or connected to other circuits .....:		P
2.5	Provisions for earthing		P
2.5.1	Class I equipment	Class II equipment.	N
	Warning label for service personnel		N
2.5.2	Protective earthing in Class II equipment	Secondary functional ground separated to primary by reinforced or double insulation.	P
2.5.3	Switches/fuses in earthing conductors		N
2.5.4	Assured earthing connection for Class I equipment in systems comprising Class I and Class II equipment		N
2.5.5	Green/yellow insulation	No green/yellow wire.	N
2.5.6	Continuity of earth connections		N
2.5.7	Making and breaking of protective earthing connections		N
2.5.8	Disconnection protective earthing connections		N
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords		N
2.5.10	Corrosion resistance		N
2.5.11	Resistance (Ω) of protective earthing conductors ≤ 0,1 Ω		N
	Test current (A) .....:	(see appended table)	—
2.6	Primary power isolation		P
2.6.1	General requirements	The appliance inlet is considered to be the disconnect device.	P
2.6.2	Type of disconnect device .....:	Appliance inlet.	P

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Clause	Requirement – Test	Result - Remark	Verdict
2.6.3	Disconnect device in permanently connected equipment	Pluggable equipment type A.	N
2.6.4	Parts of disconnect device which remain energized	When plug or inlet is disconnected no remaining parts with hazardous voltage in the equipment	P
2.6.5	Switches in flexible cords	No isolation switch provided.	N
2.6.6	Disconnection of both poles simultaneously for single-phase equipment	The appliance inlet disconnects both poles simultaneously.	P
2.6.7	Disconnection of all phase conductors of supply in three-phase equipment	Single phase	N
2.6.8	Marking of switch acting as disconnect device	See 1.7.8	N
2.6.9	Installation instructions if plug on power supply cord acts as disconnect device	See 1.7.2	N
	Language .....:		—
2.6.11	Interconnected equipment	Interconnection to other devices by secondary output cable only.	N
2.6.12	Multiple power sources	Only one supply connection provided.	N

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Equipment relies on 16A rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Overcurrent protection is provided by the built-in fuse.	P
2.7.2	Protection against faults not covered in 5.4	The protection devices are well dimensioned and mounted.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A, the building installation is considered as providing short circuit protection.	P
2.7.4	Number and location of protective devices .....:	Overcurrent protection by one built-in fuse.	P
2.7.5	Protection by several devices	Only one fuse.	N

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Clause	Requirement – Test	Result - Remark	Verdict
2.7.6	Warning to service personnel	No service work necessary.	N
2.8	Safety interlock *No operator accessible areas which presents hazards in the meaning of this standard.*		N
2.8.2	Design		N
2.8.3	Protection against inadvertent reactivation		N
2.8.4	Reliability		N
2.8.5	Overriding an interlock		N
2.8.6.1	Contact gap (m) .....:		N
2.8.6.2	Switch performing 50 cycles		N
2.8.6.3	Electric strength test: test voltage (V) .....:		N
2.8.7	Protection against overstress		N
2.9	Clearances, creepage distances and distances through insulation		P
	Nominal voltage (V) .....:	AC 100-240V	—
	General		P
2.9.2	Clearances	See below	P
2.9.2.1	Clearances in primary circuits	(see appended table 2.9.2 and 2.9.3)	P
2.9.2.2	Clearances in secondary circuits	(see appended table 2.9.2 and 2.9.3)	P
2.9.3	Creepage distances	(see appended table 2.9.2 and 2.9.3)	P
	CTI tests .....:	CTI rating for all materials of min. 100.	—
2.9.4.1	Minimum distances through insulation	(see appended table 2.9.4)	P
2.9.4.2	Thin sheet material	No thin material used.	N
	Number of layers (pcs) .....:		N
	Electrical strength test: test voltage (V) .....:		N
2.9.4.3	Printed boards	Not applied for	N
	Distance through insulation .....:	(see appended table 2.9.4)	N
	Electric strength test at voltage (V) for thin sheet insulating material .....:	(see appended table 5.3)	N

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Clause	Requirement – Test	Result - Remark	Verdict
	Number of layers (pcs) .....:		N
2.9.4.4	Wound components without interleaved insulation	Triple insulated wire used in T1. (see appended table 2.9.4 and Annex U)	P
	Number of layers (pcs) .....:	3 layers	P
	Two wires in contact inside component; angle between 45° and 90°	Prevented by teflon tube and insulation tape.	P
	Routine testing for finished component	Approved wire.	P
2.9.5	Distances (mm) on coated printed boards .....:	No coated printed wiring boards. (see appended table 2.9.4).	N
	Routine testing for electric strength		N
2.9.6	Enclosed and sealed parts	No hermetically sealed components. (see appended table 5.3).	N
	Temperature T1 (°C) .....:		N
	Humidity % .....:		N
2.9.7	Spacings filled by insulating compound	Optocoupler is approved component. Other components not applied for. (see appended table 2.9.4 and 5.3).	P
	Temperature T1 (°C) .....:		N
	Humidity % .....:		N
2.9.8	Component external terminations	(see appended table 2.9.2 and 2.9.3).	P
2.9.9	Insulation with varying dimensions	Insulation kept homogenous. (see appended table 2.9.2, 2.9.3 and 2.9.4).	N

2.10	Interconnection of equipment		P
2.10.1	General requirements	The power supply adapter is not considered for connection to TNV.	N
2.10.2	Type of interconnection circuits .....:	Interconnection circuits of SELV through sec o/p cable. No ELV interconnection circuits.	P
2.10.3	ELV circuits as interconnection circuits	No ELV interconnection.	N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.11	Limited power source		P
	Use of limited power source .....:	Only models SYS2011-6022, 5024, 4524, 6020, 6019, 5020, 5019, 5018, 4520, 4519, 4518, 4020, 4018, 3018, 6016, 6015, 4516, 4515, 4514, 4513, 4512, 4212, 4012, 3013, 3012 further tested as Limited Power Source. See appended table 2.11 for details.	P
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Cross-sectional area of internal wiring/interconnecting cables	The output cable are UL recognized wiring that is PVC insulated. Its gauge is suitable for current intended to be carried. (see appended table 5.1)	P
	Protection of internal wiring and interconnecting cables	No internal wire for primary power distribution.	N
3.1.2	Wireways	Wires do not touch sharp edges and heatsinks which could damage the insulation and cause hazard.	P
3.1.3	Fixing of internal wiring	No internal wire.	N
3.1.4	Fixing of uninsulated conductors	Securely held on PCB. No hazard.	P
3.1.5	Insulation of internal wiring	The insulation of the individual conductors are suitable for the application and the working voltage. For the insulation material see 3.1.1.	P
3.1.6	Wires coloured green/yellow only for protective earth connection	See 2.5.5.	N
3.1.7	Fixing of beads and similar ceramic insulators	Not used.	N
3.1.8	Required electrical contact pressure		N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
3.1.9	Reliable electrical connections	All current carrying connections are metal to metal	P
3.1.10	End of stranded conductor	No risk of stranded conductors coming loose.	P
3.1.11	Use of spaced thread screws/thread-cutting screws	No self tapping screws are used.	P

3.2	Connection to primary power		P
3.2.1	Type of connection .....:	Appliance inlet	P
	Design of product with more than one supply connection .....:	The appliance inlet in equipment only for one mains connection	N
3.2.2	Provision for permanent connection .....:	See clause 3.2.1	N
	Size (mm) of cables and conduits .....:		N
3.2.3	Appliance inlet	The appliance inlet complies with IEC 60320. The power cord can be inserted without difficulties and does not support the unit..	P
3.2.4	Type and cross-sectional area (mm²) of power supply cord .....:	No power cord provided for CB testing.	N
3.2.5	Cord anchorage	*see clause 3.2.1*	N
	Test: 25 times; 1 s; pull (N) .....:		—
	Longitudinal displacement ≤ 2 mm .....:		N
3.2.6	Protection of power supply cord	No parts under this unit likely to damage the power supply cord. No sharp edges	P
3.2.7	Cord guard	*see clause 3.2.1*	N
	D (mm) .....:		—
	Test: mass (g) .....:		—
	Radius of curvature of the cord ≤ 1,5 D		N
3.2.8	Supply wiring space		N

3.3	Wiring terminals for external power supply conductors		N
3.3.1	Terminals		N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
3.3.2	Special non-detachable cord		N
	Type of connection .....:		
	Pull test at 5 N		N
3.3.3	Screws and nuts		N
3.3.4	Fixing of conductors		N
3.3.5	Connection of connectors		N
3.3.6	Size of terminals		N
	Nominal thread diameter (mm) .....:		N
3.3.7	Protection against damage of conductors		N
3.3.8	Terminal location		N
3.3.9	Test with 8 mm stranded wire		N
4	PHYSICAL REQUIREMENTS		P
4.1	Stability and mechanical hazards		P
4.1.1	Stability tests		N
	Angle of 10°	Not applicable for direct plug in type.	N
	Test: force (N) .....:	Not floor standing.	N
4.1.2	Protection against personal injury	No moving parts.	P
4.1.3	Warning and means provided for stopping the moving part .....:	No moving parts.	N
4.1.4	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.1.5	Enclosure of a high pressure lamp	No lamp with cold pressure of 0.2MPa or hot pressure of 0.4MPa.	N
4.2	Mechanical strength and stress relief		P
4.2.1	General	See below.	P
4.2.2	Internal enclosures 30 N ± 3 N; 5 s	No internal enclosure.	N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
4.2.3	External enclosures 250 N ± 10 N; 5 s	250N applied to outer enclosure. No energy or other hazards.	P
4.2.4	Steel ball tests		P
	Fall test	No hazard as result from steel sphere ball fall test.	P
	Swing test	No hazard as result from steel sphere ball swung test.	P
4.2.5	Drop test	Not hand-held.	N
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C) .....:	After 7 hours at 79°C and cooling down to room temperature, no shrinkage , distortion or loosening any enclosure part was noticeable on the adapter. The test was done for all sources of enclosure material.	P
4.2.7	Compliance criteria	Complied.	P
4.2.8	Mechanical strength of cathode ray tubes	Unit does not employ a cathode ray tube	N

4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages	Full range circuit design, no necessary adjustment.	P
4.3.2	Adjustment of accessible control devices	None that would cause hazard.	P
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	Equipment in intended use not considered to be exposed to these.	N
4.3.5	Fixing of knobs, grips, handles, levers		N
	Test: force (N) .....:		N
4.3.6	Driving belts/couplings shall not ensure electrical insulation	Not used for insulation.	N
4.3.7	Retaining of sleeves		N
4.3.9	Protection of loosening parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heatshrunk tubing are used	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
4.3.11	Resistance to oil and grease	Insulation not in contact with oil or grease	N
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, LED, laser or flammable gases (for LED and laser see IEC 60825-1)	No ionizing radiation, laser or flammable liquids presents. LED energy is far below 1mW.	P
4.3.13	Securing of screwed connections	No connection likely to be exposed to mechanical stress are provided in unit.	P
4.3.15	Openings in the top of enclosure	No openings.	P
	Dimensions (mm) .....:	(see appended table)	—
4.3.16	Openings in the sides of enclosure	No openings.	P
	Dimensions (mm) .....:	(see appended table)	—
4.3.17	Interchangeable plugs and sockets	No interchangeable plugs or connectors.	N
4.3.18	Torque test for direct plug-in equipment		N
	Additional torque (Nm) .....:		N
4.3.19	Protection against excessive pressure		N
4.3.20	Protection of heating elements in Class I equipment	No heating elements.	N
4.3.21	Protection of lithium batteries		N
	Construction of protection circuit .....:	No lithium battery.	N
4.3.22	Ageing of barrier/screen secured with adhesive		N
	Day 1: temperature (°C); time (weeks) .....:		N
	Day 8/22/57: a) temperature (°C) for 1 h b) temperature (°C) for 4 h c) temperature (°C) over 8 h .....:		N
	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

4.4	Resistance to fire		P
4.4.1	Methods of achieving resistance to fire	Use of materials with the required flammability classes.	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
4.4.2	Minimizing the risk of ignition	Electrical parts are not likely to ignite nearby materials. Parts not protected against overheating under fault conditions. Temperatures see 5.1.	P
	Printed board: manufacturer; type; flammability :	See 1.5.1 appended table.	P
4.4.3.2	Material and component: manufacturer; type; flammability .....:	Internal components except small parts are V-2, HF-2 or better.	P
4.4.3.3	Exemptions .....:	Considered.	P
4.4.3.4	Wiring harnesses: manufacturer; flammability ..:	Insulating material consists of PVC.	P
4.4.3.5	Cord anchorage bushings: manufacturer; flammability .....:	No cord anchorage bushings.	N
4.4.3.6	Air filter assemblies: manufacturer; flammability :	No air filter assemblies	N
4.4.4	Enclosures and decorative parts: manufacturer; flammability .....:	Protective enclosure with no decorative parts. Enclosure of this unit (movable equipment and <18kg) with flammability class V-1.	P
4.4.5	Conditions for fire enclosures	With having the following components: ■ components with windings ■ semiconductor devices, transistors, diodes, integrated circuits ■ resistors, capacitors, inductors The fire enclosure is required.	P
4.4.5.1	Components which require fire enclosure: manufacturer; flammability .....:	See above.	P
4.4.5.2	Components not requiring fire enclosure .....:	See 4.4.5.1.	N
4.4.6	Fire enclosure construction	Protection against emission of flame, molten metal, flaming or glowing particles or drops by fire enclosure. There is no openings at bottom of enclosure.	P
4.4.7	Doors and covers	No door or cover.	N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
4.4.8	Flammable liquids	No flammable liquids in this unit.	N
5	THERMAL AND ELECTRICAL REQUIREMENTS		P
5.1	Heating		P
	Heating tests	(see appended table)	P
5.2	Earth leakage current		P
5.2.1	General	The leakage current was measured from supply to conductive parts (DC output connector) and to 10cm by 20cm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.2.2	Leakage current	(see attached tables)	P
	Test voltage (V) .....:	(see attached table)	—
	Measured current (mA) .....:	(see attached table)	—
	Max. allowed current (mA) .....:	0.25mA	—
5.2.3	Single-phase equipment	See 5.2.2	P
	Test voltage (V) .....:		—
	Measured current (mA) .....:		—
	Max. allowed current (mA) .....:		—
5.2.4	Three-phase equipment	Single phase equipment	N
	Test voltage (V) .....:		—
	Measured current (mA) .....:		—
	Max. allowed current (mA) .....:		—
5.2.5	Equipment with earth leakage current exceeding 3,5 mA	Class II equipment.	N
	Test voltage (V) .....:		—
	Measured current (mA) .....:		—
	Max. allowed current (mA) .....:		—

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
	Cross-sectional area (mm²) of internal protective earthing conductor .....:		
	Warning label		N

5.3	Electric strength		P
5.3.1	General	All tests voltages were applied for 1minute in the chamber after the humidity test of 2.3.2 and in warm conditions after the heating test of 5.1. No isolation breakdown was observed (results see appended tables).	P
5.3.2	Test procedure	(see appended table)	P

5.4	Abnormal operating and fault conditions		P
5.4.2	Motors	No motor.	N
5.4.3	Transformers	With the shorted o/p of the transformers, the unit damaged with fuse opened or protected. No high temperature of the transformer to be expected or observed. Result of the short tests see 5.4.6 appended table.	P
5.4.4	Compliance of operational insulation		P
	Method used .....:	Short Circuit tests Results see 5.4.6 appended table.	P
5.4.5	Electromechanical components in secondary circuits	No electromechanical components.	N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
5.4.6	Other components and circuits	The power supply is protected by the following means: ■ Overcurrent protection by build-in device fuse F1 ■ OPP by sensing drop voltage at R10 and lead the signal through R9 to pin 5 of U1 Results see appended table.	P
5.4.7	Test in any expected condition and foreseeable misuse	Output overload test: Results see appended table. No other foreseeable misuse likely to happen.	P
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	None of them are used.	N
5.4.9	Compliance	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary → SELV was passed.	P
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	Results see 5.4.10 table.	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS *Equipment is not intended be connected to TNV.*		N
6.1	General		N
6.2	TNV circuits		N
6.2.1.1	Limits of the TNV circuits		N
6.2.1.1 a)	TNV-1 circuits		N
6.2.1.1 b)	TNV-2 and TNV-3 circuits		N
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
	Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure .....:		N
6.2.1.3	Operating voltages generated externally		N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
	Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part .....:		N
6.2.1.4	Separation from hazardous voltages .....:		N
	Insulation between TNV circuit and circuit at hazardous voltage	(see appended table 2.9.2, 2.9.3 and 2.9.4)	N
	Method used .....:		N
6.2.1.5	Connection of TNV circuits to other circuits	(see appended table 5.4)	N
	TNV circuit supplied conductively from a secondary circuit .....:		N
6.2.2.1	Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits		N
	Test with test finger		N
	Test with test probe		N
6.2.2.2	Battery compartments		N
	Marking next to door/on door		N

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

6.4	Protection of the equipment user from voltages on the telecommunication network		N
6.4.1	Separation requirements		N
6.4.2	Test procedure		N
6.4.2.1	Impulse test: separation between TNV-1 circuits/TNV-3 circuits and:		N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
6.4.2.1 a)	unearthed conductive parts/non-conductive parts of the equipment expected to be held or touched during normal use; test at 2,5 kV		N
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
6.4.2.1 c)	circuitry which is provided for connection of other equipment; test at 1,5 kV		N
6.4.2.2	Electric strength test: separation between TNV-1 circuits/TNV-3 circuits and:		N
6.4.2.2 a)	unearthed conductive parts/non-conductive parts of the equipment expected to be held or touched during normal use; test at 1,5 kV		N
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
6.4.2.2 c)	circuitry which is provided for connection of other equipment; test at 1,0 kV		N
6.4.2.3	Compliance criteria		N
6.5	Protection of telecommunication wiring system from overheating		N
	Maximum continuous output current (A) .....:		N
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		P
A.1	Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18 kg, and of stationary equipment		N
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		P
A.3	High current arcing ignition test		N
A.3.6	Number of arcs .....:		N
A.4	Hot wire ignition test		N
A.4.6	Ignition time (s) .....:		N
A.5	Hot flaming oil test		N
A.6	Flammability test for classifying materials V-0, V-1 or V-2		N
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HBF		N
A.8	Flammability test for classifying materials HB		N

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
A.9	Flammability test for classifying materials 5V		N
A	Tested material		N
	Preconditioning: 7 days (168 h); temperature (°C) .....:		—
	Mounting of samples during test .....:		—
	Wall thickness .....:		—
	Sample 1 burning time .....:		N
	Sample 2 burning time .....:		N
	Sample 3 burning time .....:		N
	Material: compliance with the requirements		N
	Manufacturer of tested material .....:		—
	Type of tested material .....:		—
	Additional information .....:		—

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

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Clause	Requirement – Test	Result - Remark	Verdict
B.10	Test for series motors		N
	Test voltage (V) .....:		—

C	ANNEX C, TRANSFORMERS		P
	Position .....:	T1	—
	Manufacturer .....:	SYN	—
	Type .....:	04-B120, 04-B119, 04-B134, 04-B121, 04-B138	—
	Rated values .....:	Class E	—
	Temperatures	(see appended table 5.4)	P
	Thermal cut-out	(see appended table 5.1)	N
C.1	Overload test	(see 5.4.3)	P
	Conventional transformer		N
C.2	Insulation		P
	Precautions .....:	(see transformer construction check next page)	P
	Retaining of end turns of all windings	dto	P
	Earthing test at 25 A	dto	N
C.3	Electric strength test	(see 5.3)	P

C.2	Safety isolation transformer		P
	Construction details:		
Transformer T1			
Mfr.: SYN			
Type : a) 04-B120; b) 04-B119; c) 04-B134; d) 04-B121; e) 04-B138			
All types transformer are identical in construction except for turn ratio and gauge of N1 (secondary)			
Recurring peak voltage		max. 436V 0-p	
Required clearance for reinforced			
insulation (from table 3 and 4)		4.0mm + 0.2mm	
Effective voltage rms		max. 247V	
Required creepage for reinforced			

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

insulation (from table 6)	5mm	
Measured min. creepages		
Location	inside (mm)	outside (mm)
prim-sec	triple wire	>5.0
prim-core	0	0
sec-core	triple wire	>5.0
prim-prim	%	%
Measured min. clearances		
Location	inside (mm)	outside (mm)
prim-sec	triple wire	>5.0
prim-core	0	0
sec-core	triple wire	>5.0
prim-prim	%	%
Construction:		
Concentric windings on RM-10 type bobbin, one layer insulation between primary (enamelled copper wire) and secondary windings (triple insulated wire). Winding ends additionally fixed with tape, outer winding is primary. Teflon tube on all winding exit ends is provided. Details of triple insulated wire used, see appended table 1.5.1.		
Pin numbers		
Primary	1→12, C→D	
Secondary	7→6	
Bobbin		
Material	Fudow, type F5500F	
Thickness	≥0.8mm	
Electric strength test		
With AC 3000V after humidity treatment		
Result	pass	

H	ANNEX H, IONIZING RADIATION	**N**
	Ionizing radiation	**N**

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
	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		P
	See separate test report	VDE, TÜV approved component.	P

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity')
AC Inlet (J1)	Inalways	0720	2.5A, 250V	IEC 60320-1	VDE, S, N, UL
	Jackson	JR-201	2.5A, 250V	IEC 60320-1	VDE, SEV, UL
	Supercom	SC-13	2.5A, 250V	IEC 60320-1	VDE, S, UL
Fuse (F1)	Wickmann-Werke	19372	T1.6A, 250V	IEC 60127-3	VDE, S, UL
	Elu Elektro-Union GmbH	166 000	T1.6A, 250V	IEC 60127-3	VDE, S, UL
X-Capacitor (CX1, CX2)	Rifa	PHE830	max. 0.33µF, 250V	IEC 60384-14/ 1981	VDE, SEV, S, FI, UL
(CX1 = max. 0.33µF)	Pilkor	PCX2 335	max. 0.33µF, 275V	IEC 60384-14/ 1981	VDE, SEV, S, FI, UL
(CX2 = max. 0.1µF)	Teapo	XG-VS	max. 0.33µF, 275V	IEC 60384-14/ 1981	VDE, SEV, S, FI, UL
	Philips	3351 MKP	max. 0.33µF, 250V	IEC 60384-14/ 1981	VDE, SEV, S, FI, UL
	Ernst Roederstein	F 1772-..	max. 0.33µF, 250V	IEC 60384-14/ 1981	VDE, SEV, S, FI, UL
Bridging Capacitor (CY3)	TDK	CD (Y1 type)	max. 2200pF, 250V	IEC 60384-14/ 1993	VDE, S, UL
	Sam Hwa	SD (Y1 type)	max. 2200pF, 250V	IEC 60384-14/ 1993	VDE, S, UL
	Murata	KX (Y1 type)	max. 2200pF, 250V	IEC 60384-14/ 1993	VDE, S, UL
	Samsung	AD (Y1 type)	max. 2200pF, 250V	IEC 60384-14/ 1993	VDE, S, UL
Ripple Capacitor (C22)	--	electrolytic can type	400V, 105°C	--	--
- for 60W models	--	--	120µF	--	--
- for 50W models	--	--	100µF	--	--
- for 40-45W models	--	--	68-100µF	--	--
- for 30W models	--	--	47µF	--	--

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Clause	Requirement – Test	Result - Remark	Verdict

Optical Isolator (U3)	Sharp	PC817	di > 0.4mm	VDE 0884	VDE, UL
	Toshiba	TLP621	di = 0.8mm	VDE 0884	VDE, UL
	Lite-On	LTV-817	di≥0.4mm	VDE 0884	VDE, UL
Switching Transistor (Q1)	--	2SK1507-01M 2SK2761-01MR 2SK2645-01MR FS10KM-12 NK0609TF or equivalent	9A, 600V	--	--
Bleeder Resistor (R1)	--	Carbon type	470kΩ, ¼W	--	--
Line Filter (LF1)	SYN	04-A052	Class 105°C	--	--
Line Filter (LF2) (optional)	Huang Wei	04-C087	Class 105°C		
Plastic enclosure material	Teijin Chemicals	LN-1250#	V-0	UL 94	UL
Mylar Sheet	--	--	V-1 or better thickness ≥ 0.4mm	UL-94	UL
PCB	--	--	V-0 or better	UL 94	UL
Transformer T1 (for output 7.5-10V)	SYN	04-B138	Class E	--	--
Transformer T1 (for output 12-14V)	SYN	04-B121	Class E	--	--
Transformer T1 (for output 15-17V)	SYN	04-B134	Class E	--	--
Transformer T1 (for output 18-20V)	SYN	04-B119	Class E	--	--
Transformer T1 (for output 22-24V)	SYN	04-B120	Class E	--	--
Triple Insulated Wire used in T1	Furukawa	TEX-E	120°C, 105°C (for UL)	IEC 60950 IEC 60065	TÜV, VDE, N, BSI, UL, CSA

[1]) an asterisk indicates a mark which assures the agreed level of surveillance

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	condition/status
Model SYS2011-4508:						
F1	--	90V/47Hz	59	1.08	1.08	at rated load (7.5V/6A)
F1	--	90V/63Hz	59	1.10	1.10	dto
F1	1.2	100V/47Hz	58	0.99	0.99	dto
F1	1.2	100V/63Hz	58	1.01	1.01	dto
F1	1.2	240V/47Hz	56	0.50	0.50	dto
F1	1.2	240V/63Hz	57	0.49	0.49	dto
F1	--	254V/47Hz	57	0.48	0.48	dto
F1	--	254V/63Hz	57	0.47	0.47	dto
Model SYS2011-6012:						
F1	--	90V/47Hz	75	1.36	1.36	at rated load (12V/5A)
F1	--	90V/63Hz	75	1.38	1.38	dto
F1	1.2	100V/47Hz	74	1.24	1.24	dto
F1	1.2	100V/63Hz	74	1.26	1.26	dto
F1	1.2	240V/47Hz	71	0.63	0.63	dto
F1	1.2	240V/63Hz	71	0.61	0.61	dto
F1	--	254V/47Hz	71	0.59	0.59	dto
F1	--	254V/63Hz	72	0.58	0.58	dto
Model SYS2011-6015:						
F1	--	90V/47Hz	76	1.36	1.36	at rated load (15V/4A)
F1	--	90V/63Hz	76	1.38	1.38	dto
F1	1.2	100V/47Hz	75	1.24	1.24	dto
F1	1.2	100V/63Hz	75	1.27	1.27	dto
F1	1.2	240V/47Hz	73	0.62	0.62	dto
F1	1.2	240V/63Hz	73	0.61	0.61	dto
F1	--	254V/47Hz	73	0.60	0.60	dto
F1	--	254V/63Hz	73	0.59	0.59	dto
Model SYS2011-6019:						
F1	--	90V/47Hz	74	1.32	1.32	at rated load (19V/3.15A)
F1	--	90V/63Hz	74	1.36	1.36	dto
F1	1.2	100V/47Hz	74	1.21	1.21	dto

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

F1	1.2	100V/63Hz	74	1.25	1.25	dto
F1	1.2	240V/47Hz	72	0.63	0.63	dto
F1	1.2	240V/63Hz	72	0.62	0.62	dto
F1	--	254V/47Hz	72	0.59	0.59	dto
F1	--	254V/63Hz	72	0.59	0.59	dto
Model SYS2011-6022:						
F1	--	90V/47Hz	74	1.33	1.33	at rated load (22.5V/2.67A)
F1	--	90V/63Hz	74	1.35	1.35	dto
F1	1.2	100V/47Hz	73	1.21	1.21	dto
F1	1.2	100V/63Hz	73	1.24	1.24	dto
F1	1.2	240V/47Hz	70	0.61	0.61	dto
F1	1.2	240V/63Hz	70	0.60	0.60	dto
F1	--	254V/47Hz	71	0.59	0.59	dto
F1	--	254V/63Hz	71	0.57	0.57	dto

2.1.5	TABLE: energy hazard				P
Voltage (Rated) (V)	Current (Rated) (A)	Voltage (Max) (V)	Current (Max.) (A)	VA (Max.) (VA)	
Model SYS2011-4508:					
7.5	6.0	7.8	8.4	52.3	
Model SYS2011-6012:					
12	5.0	12.6	7.3	76.2	

2.1.10	TABLE: discharge test			P
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	comments
system on	0.202	0.32	<1	Vo=368V, 37% of Vo=136V

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

Overall capacity	:	0.43μF (CX1 = 0.33μF, CX2 = 0.1μF)
Discharge resistor	:	470kΩ (R11 = 470kΩ)

2.2.7	Table: working voltage measurement			P
Location		RMS Voltage (V)	Peak Voltage (V)	Comments[1])
Model SYS2011-6019:				
T1, pin 12-7		215	384	
pin 10-7		220	352	
Model SYS2011-4508:				
T1, pin 1-6		240	436	
Model SYS2011-6012:				
T1, pin 1-7		234	412	
pin 1-6		167	424	
Model SYS2011-6015:				
T1, pin 1-6		243	416	
Model SYS2011-6022:				
T1, pin 1-7		247	388	
pin 12-7		216	424	

Input voltage: 240V, 63Hz

[1]) an asterisk indicates the highest measured working voltage.

2.9.2 and 2.9.3	TABLE: clearance and creepage distance measurements					P
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)
primary components (with 10N) → secondary components (with 10N)	<420	<250	4.0	>4.0	5.0	>5.0
pri. → sec. traces	<420	250	4.0	>4.0	5.0	>5.0

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

Note:

1) Operational insulation shorted, see 5.4.4.
2) Q1, Q3 and C10 are further sleeved with tubing.
3) A mylar plate is placed below the metal chassis as a barrier. Please refer to the drawing of the mylar plate for the exact dimensions.

2.9.4.1	TABLE: distance through insulation measurements			P
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
photo coupler (reinforced insulation)	250	3000	0.4	approved comp.
Mylar plate (reinforced insulation)	250	3000	0.4	0.45
For distance through insulation, see appended table 1.5.1 for details.				

2.11	TABLE: limited power source measurement			P
■ The output of the power adapter is isolated from mains with an isolation transformer.				
■ The output is limited to the limits of table 8 under normal and single fault conditions.				
a) U_{oc} = 12.27V (measured under no load conditions for model SYS2011-4512) (T1=04-B121)				
b) U_{oc} = 14.03V (measured under no load conditions for model SYS2011-4514) (T1=04-B121)				
c) U_{oc} = 14.80V (measured under no load conditions for model SYS2011-6015) (T1=04-B134)				
d) U_{oc} = 15.76V (measured under no load conditions for model SYS2011-4516) (T1=04-B134)				
e) U_{oc} = 18.60V (measured under no load conditions for model SYS2011-6019) (T1=04-B119)				
f) U_{oc} = 20.06V (measured under no load conditions for model SYS2011-5020) (T1=04-B119)				
g) U_{oc} = 22.60V (measured under no load conditions for model SYS2011-6022) (T1=04-B120)				
h) U_{oc} = 23.64V (measured under no load conditions for model SYS2011-5024) (T1=04-B120)				
According to Table 8	Limits	Measured		Verdict
with the max. load condition				
current (in A)	≤8A	a) 4.30 b) 3.62 c) 4.36 d) 4.69 e) 3.72 f) 3.85 g) 3.62 h) 3.82		ok

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
	power (in VA)	≤5xUoc, a) 61.35 b) 70.15 c) 74.00 d) 78.80 e) 93.00 ≤100VA, f) 100 g) 100 h) 100	a) 50.44 b) 47.02 c) 56.17 d) 52.26 e) 63.32 f) 56.04 g) 65.30 h) 61.91	ok
	with R10 shorted (OPP device)			
	current (in A)	≤8A	unit shut down and damaged	ok
	power (in VA)	≤5xUoc, a) 61.35 b) 70.15 c) 74.00 d) 78.80 e) 93.00 ≤100VA, f) 100 g) 100 h) 100	unit shut down and damaged	ok

4.3.14/15 & 4.4.6	Table: enclosure openings		P
Location		Size (mm)	Comments
Bottom		None	
Side		None	
Top		None	

5.1	TABLE: temperature rise measurements		P
	test voltage (V) .....:	100V-10%/240V+6%	
	t1 (°C) .....:		
	t2 (°C) .....:		
temperature rise dT of part/at:		dT (K)	required dT (K)
Model SYS2011-6022:			
LF2 coil		29 / 24	80
LF1 coil		41 / 33	80
T1 coil		65 / 65	80
T1 core		63 / 63	80

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict
heat sink of Q1		46 / 34	--
Top enclosure		29 / 21	70
room ambient at		26°C/28°C	--
Model SYS2011-6019:			
LF1 coil		31/54	80
BD1 body		36/55	--
C22 body		35/47	80
HS of Q3		30/37	--
T1 coil		38/44	80
T1 core		34/37	80
Top enclosure		28/37	70
Bottom enclosure		26/36	70
room ambient at		27°C/26°C	--
Model SYS2011-6015:			
LF2 coil		49 / 32	80
LF1 coil		69 / 41	80
T1 coil		73 / 72	80
T1 core		66 / 66	80
heat sink of Q1		56 / 44	--
Top enclosure		39 / 32	70
room ambient at		26°C/28°C	--
Model SYS2011-6012:			
LF2 coil		56 / 37	80
LF1 coil		68 / 44	80
T1 coil		79 / 77	80
T1 core		75 / 74	80
heat sink of Q1		67 / 52	--
Top enclosure		43 / 34	70
room ambient at		26°C/28°C	--
Model SYS2011-4508:			
LF2 coil		41 / 28	80
LF1 coil		52 / 32	80
T1 coil		63 / 60	80
T1 core		59 / 57	80

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

heat sink of Q1	50 / 40	--
Top enclosure	30 / 25	70
room ambient at	26°C/28°C	--

temperature rise dT of winding:	R_1 (Ω)	R_2 (Ω)	dT (K)	required dT (K)	insulation class

Comments:

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.1 at voltages as described in 1.6.5.

With a specified ambient temperature of 25°C, the max. temperature rise is calculated as follows:

Winding components:

- class E → dTmax = 90K - 10K = 80K

Electrolyte capacitor or components with:

- max. absolute temp. of 105°C → dTmax = (105-25)K = 80K

5.2	TABLE: leakage current measurement			P
Condition	current L→accessible part (mA)	current N→accessible part (mA)	comments	
System On	0.015	0.015	at output connector +	
System On	0.015	0.015	at output connector -	
System On	0.007	0.007	at metal foil on enclosure	

Input voltage : 254V

Input frequency : 63Hz

Overall capacity : CY3 = 2200pF

5.3	TABLE: electric strength measurements		P
test voltage applied between:		test voltage (V)	breakdown

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

primary and secondary	DC 4242V	No
primary and foil outside enclosure	AC 3000V	No
T1 primary and secondary (all types)	AC 3000V	No
T1 secondary and core (all types)	AC 3000V	No

5.4	TABLE: fault condition tests		P
	ambient temperature (°C) .....:	27°C	—
	model/type of power supply .....:	see below	—
	manufacturer of power supply .....:	SYN	—
	rated markings of power supply .....:	See labels at pages 4 to 5	—

No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
Model SYS2011-6022:							
01	BD1 (L)-(+)	s-c	240	1 sec	F1	0	Fuse opened, no hazards
02	C22	s-c	240	1 sec	F1	0	Fuse opened, no hazards
03	Q3 pin D-G	s-c	240	1 sec	F1	0.02	Unit ceased to operate, Q3, U1, R10 damaged, T1 = 32°C, no hazards
04	Q3 pin D-S	s-c	240	1 sec	F1	0.02	Unit ceased to operate, Q3, U1, R10, D5, R12, R19 damaged, T1 = 32°C, no hazards
05	T1 pin 6-7	s-c	240	12 min	F1	0.12	Unit damaged, Q3, U1 damaged, no hazards
06	D7	s-c	240	7 min	F1	0.11	Unit damaged, Q3, U1, R10 damaged, T1 = 35°C, no hazards
07	U3 pin 3-4	s-c	240	20 min	F1	0.12	Unit damaged, Q3, U1 damaged, T1 = 37°C, no hazards
08	U3 pin 1-2	s-c	240	1 sec	F1	0.02	Unit shut down, no hazards

IEC 60 950							
Clause	Requirement – Test					Result - Remark	Verdict
09	T1 pin 6-7	over-load	240	3 hrs	F1	--	Max. load at 3.8A, then Q3, R10, R19, U1 damaged, T1 coil = 109°C, core = 105°C, no hazards
10	Output	s-c	240	45 min	F1	--	Unit damaged, Q3, U1, R10 damaged, T1 = 99°C, no hazards
11	Output	over-load	240	2 hrs	F1	--	Output overload as 22.3V/3.6A, Q3, U1, R10, R19 damaged, T1 = 108°C, no hazards
Model SYS2011-6019:							
12	D7	s-c	240	20 min	F1	0	Unit shut down. T1 = 41°C. No hazards.
13	ZD1	s-c	240	15 min	F1	0	Unit shut down. T1 = 31°C. No hazards.
14	D4	s-c	240	15 min	F1	0	Unit shut down. T1 = 31°C. No hazards.
15	U1(9-10)	s-c	240	15 min	F1	0	Unit shut down. T1 = 30°C. No hazards.
16	BD1	s-c	240	1 sec	F1	0.01	Fuse opened and BD1 damaged. No hazards.
17	Q3 (D-S)	s-c	240	1 sec	F1	0.01	Fuse opened and Q3, R10, U1 damaged. No hazards.
18	Q3 (D-G)	s-c	240	1 sec	F1	0.01	Fuse opened and Q3, R10, U1, R12 damaged. No hazards.
19	C22	s-c	240	1 sec	F1	0.01	Fuse opened and BD1 damaged. No hazards.
20	U3 (1-2)	s-c	240	10 min	F1	0	Unit shut down. T1 = 45°C. No hazards.
21	T1 pin 6-7	over-load	240	3 hrs	F1	--	D7 damaged, T1 coil = 105°C, core = 101°C, no hazards
22	Output	s-c	240	20 min	F1	--	Unit damaged, T1 = 64°C, no hazards
23	Output	over-load	240	3 hrs	F1	--	Output overload as 14.6V/5.9A, T1 = 90°C, no hazards
Model SYS2011-6012:							

IEC 60 950			
Clause	Requirement – Test	Result - Remark	Verdict

24	T1 pin 6-7	over-load	240	3.5 hrs	F1	--	Max. load at 6.7A, then Q3, R10, U1 damaged, T1 coil = 113°C, core = 110°C, no hazards
25	Output	s-c	240	30 min	F1	--	Unit damaged, Q3, U1, R10 damaged, T1 = 106°C, no hazards
26	Output	over-load	240	2.5 hrs	F1	--	Output overload as 11.5V/6.5A, Q3, U1, R10 damaged, T1 = 110°C, no hazards
Note: For fuse opened conditions, same result came out for each source of fuse.							
In fault column, where s-c = short-circuited, dis = disconnected							

5.4.10	TABLE: ball pressure test of thermoplastics		P
	required impression diameter (mm) .....:	≤ 2 mm	—

part	test temperature (°C)	impression diameter (mm)
Bobbin material of T1	125	<2
Bobbin material of LF1	125	<2
Bobbin material of LF2	125	<2

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	EN 60950:1992+A1:1993:+A2:1993 + A3:1995 + A4:1997 + A11:1997 TEST REPORT (IEC Publication 60950 2nd edition, 1991+Amd.1,1992+Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996) CENELEC common modification, Special National condition, Nation deviation and other information	**P**

EXPLANATION FOR ABBREVIATIONS

C=CENELEC common modification, S=Special National condition, D=National deviation, F=Other information, AT=Austria, GB=Great Britain, CH=Switzerland, DE=Germany, DK=Denmark, FI=Finland, FR=France, NO=Norway, SE=Sweden.

P=Pass, F=Fail, N=Not applicable. place in the column to the right.

1.2.4.1 S	(DK). Certain types of Class I appliances (see § 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets.	Class II equipment	**N**
1.5.1 D	(SE). Add the following: NOTE: Switches containing mercury such as thermostats, relay and level controllers are not allowed.	No switch.	**N**
1.7.2 S	(NO). If separation between the mains and a communication system/network, other than public telecommunication networks, relies upon connection to safety earth, the equipment shall have a marking stating that is must be connected to an earthed mains socket-outlet. NOTE: For requirements for equipment to be connected to a public telecommunication network: See 6.2.1.4.	Class II equipment.	**N**
1.7.2 S	(SE). If the separation between the mains and a SELV terminal relies upon connection to the safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet when a SELV circuit is connected to network passing both unearthed and earthed electrical environment. The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk".	Class II equipment.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.2 D	(DK). Supply cords of Class I appliances, which are delivered without a plug, must be provided with a visible tag with the following text: "Vigtigt. Lederen med grøn/gul isolation mä Kun tilsluttes en klemme mærket eller". If essential for the safety of the appliance, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning".	Class II equipment.	N
1.7.2 C	Delete note 4.	Deleted	N
1.7.5 S	(DK). Socket-outlets for providing power to other appliances shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a when used on appliances of Class I.	No socket outlet.	N
1.7.5 D	(DK). Class II appliances shall not be fitted with socket-outlets for providing power to other appliances.	No socket outlet.	N
1.7.14 D	(DE). Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labor equipment, also for imported technical labor equipment shall be written in German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Not applicable for power supply adaptor.	N
1.7.17 D	(CH). Annex 4.10 of SR 814.013 (ordinance on environmentally hazardous substances) applies for batteries.	No battery.	N
2.1.3.1 C	Table 0, first column, replace "Over 50" by "Over 350".	Replaced.	P
2.3.3 C	Delete Method 4 and the line in note 1 relating to this method	Deleted.	N
2.3.6 S	(FR). Method 3 is not acceptable.	Method 1 is used.	P
2.3.6 C	Delete the note.	Deleted.	N
2.3.7 C	Replace the text of this sub-clause by: Void.	Replaced.	N
2.3.9 S	(NO). Marking and insulation requirements according to this annex, subclauses 1.7.02 and 6.2.01.4 b) apply.	No marking required.	N
2.5.2 S	(DK, NO) add after the first paragraph: " The above exception is not acceptable in Pluggable equipment type A "		N
2.5.2 C	Delete the note.	Deleted.	N

CENELEC common modification, Special National condition, Nation deviation and other information.

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
2.7.1 C	Replace the text of this sub-clause by: Basic requirements: To protect against excess current, short-circuits and earth faults in primary circuits, protective devices shall be included ether as integral parts of the equipment or as a part of the building installation, subject to all of the following a), b), c) and d): (a) Except as detailed in (b) and (c), protective devices necessary to comply with the requirements of Sub-clause 5.4 shall be included as integral parts of the equipment. (b) For components in series with the mains input to the equipment such as the supply cord, appliance coupler, RFI filter and switch, short circuit and earth fault protection may be provided with protective devices in the installation. (c) It is permitted for equipment with rated current exceeding 16A, which is pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breaker, is fully specified in the installation instruction (d) If reliance is placed on protection in the building installation, the installation instructions shall comply with Sub-clause 1.7.11 except that for pluggable equipment Type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet and 1.7.11 does not apply.	Replaced.	P
2.7.2 C	Replace the text of this sub-clause by: Void.	Replaced.	N
2.8.4 C	Delete the note.	Deleted.	N
2.9.1 S	(NO). Due to the IT power systems used, the mains supply voltage is considered to be equal to the phase-to-phase voltage.	Mains voltage as reference voltage.	P
2.11 C	Delete notes 1,2 and 3.	Deleted.	N

CENELEC common modification, Special National condition, Nation deviation and other information.

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.2.1 S	(DK). Supply cords of single phase appliances having a rated current not exceeding 10 A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-D1. Class I equipment provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a rated current exceeding 10A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations Section 107-1-D1 or EN 60309-2.	Not applied for.	N
3.2.1 S	(CH). Supply cords of equipment having a rated current not exceeding 10A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets SEV 6532-2,1991 Plug type 15 3P+N+PE 250/400V, 10A SEV 6533-2,1991 Plug type 11 L+N 250V, 10A SEV 6534-2,1991 Plug type 12 L+N+PE 250V, 10A EN 60 309 applies for plugs for currents exceeding 10A	No power cord provided.	N
3.2.1 S	(GB). Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS1363 by means of that flexible cable or cord and plug, shall be fitted with a "standard plug" in accordance with Statutory Instrument 1788:1994 - The Plugs and Sockets etc. (safety) Regulations 1994, unless exempted by those regulations.	No power cord provided.	N
3.2.2 C	Delete the note and in table 10, delete the value in parentheses.	Deleted.	N
3.2.4 S	(GB). A power supply cord with conductor of 1.25 mm^2 is allowed for equipment with rated current over 10A and up to and including 13A.	No power cord provided.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.2.4 C	Replace "245 IEC 60053" by "H05 RR-F", "227 IEC 60052" by "H03 VV-F or H03 VVH2-F" and "227 IEC 60053" by "H05 VV-F or H05 VVH2-F". In table 11, replace the first four lines by the following: Up to and including 6 0.75" Over 6 up to and including 10 1.0 (0.75)" Over 10 up to and including 16 1.5 (1.0)" In the conditions applicable to table 11, delete the words "in some countries" in condition 1). In the note delete the second sentence.	Replaced.	N
3.2.5 S	(GB). The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A and up to and including 13 A is: 1.25 mm² to 1.5 mm² nominal cross-sectional area.	No power cord provided.	N
3.3.5 C	In table 13, replace the fourth and the fifth lines by : Over 10 up to and including 16 1.5 to 2.5 1.5 to by 4	Replaced.	N
4.3.12 C	Amend the third compliance paragraph as follows: For equipment using LEDs or lasers, compliance is checked according to EN 60825-1. Add a note: NOTE: If equipment falling within the scope of EN 60950 is inherently a class 1 laser product i.e. it contains no embedded laser or LED of a higher class number, then a laser warning label or other laser warning statement is not required (see 1.1 of EN 60825-1)	See report IEC 60950.	P
4.3.18 S	(GB). This test should be performed using an appropriate socket-outlet with an earthing contact.	Not direct plug in equipment.	N
4.4.4 C	Delete note 2.	Deleted.	N
5.4.9 S	(NO). The electric strength test after the tests of 5.4.4, 5.4.5, 5.4.6, 5.4.7 and 5.4.8 includes testing of basic insulation in Class I equipment.	Class II equipment.	N
6.1 S	(CH).Protective means in the equipment shall not prevent transient surge protection in the telecommunication network from operating properly (d.c. spark-over voltage of the surge suppressor installed in the telecommunication network: approx. 245V.)	No TNV.	N

CENELEC common modification, Special National condition, Nation deviation and other information.

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
6.2.1.2 C 6.2.1.3 C	Add at the end of each sub-clause: This sub-clause only applies to TNV circuits normally operating in excess of the limits of SELV circuits.	No TNV.	**N**
6.2.1.4b S	(NO). Insulation between parts conductively connected to the supply mains and parts connected to a public telecommunication network shall comply with the requirements for double or reinforced insulation.		**N**
6.2.1.4b S	(FI). This method is only permitted for permanently connected equipment or for pluggable equipment type B.		**N**
6.2.1.4 C	Delete notes.		**N**
6.2.1.5 S	(NO). Requirements in 6.2.1.4, Note 2, apply		**N**
6.3.3. S	(NO). 6.3.3 is applicable for pluggable equipment type A and B and for permanently connected equipment		**N**
6.4.1 C	Delete note 2.		**N**
6.4.2.1 C	Delete note 2.		**N**
6.4.2.1 D	(AT). Equipment shall comply with Uc = 2.0KV in cases b) and c).		**N**
Annex H. D	(DE) a) A license is required by those who operate an X-ray emission source. b) A license in accordance with clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV, if 1) the local dose rate at a distance of 0.1m from the surface does not exceed 1MSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.	No CRT.	**N**

CENELEC common modification, Special National condition, Nation deviation and other information.

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
	c) A license in accordance with clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV , if 1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-ray are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local does rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. d) Furthermore, a license in accordance with clause 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV, if 1) the X-rays are generated only intrinsically safety CRTs complying with Enclosure III, No.6, 2) the values stipulated in accordance with Enclosure III, bi, 6.2 are limited by technical		
Annex P C	Replace the text of this annex by: See annex ZA.	Replaced.	**N**
Annex Q C	Add for IEC 60529: Note: Endorsed by EN 60529:1991 (not modified) Add for IEC 60707 Note: Endorsed by HD441:1983 (not modified) Add for IEC 61058-1: Note: Endorsed by EN 61058:1992 (not modified).	Added.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
APPENDIX	EMKO-TSE(74-SEC)207/94 TO EN 60950:1992 + A1:1993+A2:1993 + A3:1995 + A4:1997+A11:1997 TEST REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996) Nordic Explanations, and other information not covered by Appendix EN 60950:1992, + A1:1993 + A2:1993 + A3:1995 + A4:1997+A11:1997.		P
EXPLANATION FOR ABBREVIATIONS NF = Nordic Explanations and other information. DK = Denmark, FI = Finland, NO = Norway, SE = Sweden. P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
1.2.02.01 NF	(DK,FI,NO,SE). The heating test of separate power supplies of personal computers is carried out according to their rated output values marked on the power supplies.	Power supply unit heating test was performed according to the marked rating.	P
1.5.01 NF	(DK,FI,NO,SE). The following capacitors are accepted across the mains: 1) X1 capacitor which complies with Publication IEC 60384-14. 2) X2 capacitor which complies with Publication IEC 60384-14 and which has been subjected to a pulse test according to § 12.11.2, except the value of the voltage is reduced to 2.5 kV. 3) X2 capacitor which complies with Publication IEC 60384-14 in case the endurance test of § 12.11.2 has been modified so that the resistor of 220Ω through which the voltage of 1000 V rms is applied to the capacitor under test, is short circuited. 4) Capacitor which complies with Publication HD 195 S6, § 14.2.	X2 capacitor comply with this clause (see report IEC60950 report).	P
1.5.02 NF	(DK,FI,NO,SE). Transient protection components shall be installed in such a way that insulation for protection against electric shock will not be bridge. This means that transient protection components must not be connected to safety earthed parts in pluggable equipment or to other accessible parts.	Class II equipment.	N
	-3.2.3 (DK,FI,NO,SE). Interconnection couplers in accordance with EN 60 320-2-2 are accepted. Outlets of non-standard types are not accepted.	No AC outlet	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.01 NF	-1st dash (DK). When supplied in Denmark the appliances shall be set to 230 V .	Included in the voltage range	P
	-5th dash (DK). The equipment may instead be provided with a marking indicating name, trade-mark or identify of the responsible vendor.	Refer to CB report page 3.	P
2.1.04 NF	(DK,FI,NO,SE). For monitors, warning label is not required for repairing area, neither the partial shielding against contact although the voltage is> 42.4 V peak or > 60 V d.c.	Equipment is not a monitor.	N
2.5.11 NF	(DK,FI,NO,SE). Due to installation fuses of 16A, the earth resistance shall always be controlled at 25 A.	Class II equipment.	N
2.6.06 NF	(DK,FI,NO,SE). The plug is regarded to be a disconnect device and therefore a single pole mains switch is acceptable (TC 74-WG 8's recommendation).	Appliance inlet as disconnected device.	N
2.6.11 NF	(DK,FI,NO). The warning label on an appliance with two or several supply connections shall be in the official language of the country in question.	Only one supply from the mains.	N
	(DK,FI,NO). UPS-appliances can be fitted with a signal lamp instead of a warning label, under the condition that the function and location of the signal lamp is correct. Audible signal is not acceptable as warning.	Equipment is not a UPS.	N
2.7.03 NF	(DK,FI,NO,SE). A single-pole protective device is acceptable.	Only one fuse on live phase.	P
2.9.01 NF	(DK,FI,NO,SE). Pollution Degree 3 is considered applicable for the following equipment which is within the scope of this standard: Document Shredder Machines.	Equipment is not a shredding machine	N
4.2.07 NF	(DK,FI,NO,SE). If there are visible cracks on the apparatus after the mechanical strength test, the apparatus is not rejected, if it still complies with the other requirements of subclause 4.2.7.	No visible cracks.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
4.4.04 NF	(DK,FI). Fire enclosure is required if the available power exceeds the values of a limited power source. The limited power source shall incorporate an isolating transformer and shall comply with the following: * The open-circuit voltage shall not exceed 42.4 V peak or d.c. and shall not generate voltages above the value and * The current which may be drawn for more than two minutes at any load, including short-circuit, shall not exceed 0.2 A.	Supply from the mains	**N**
	(NO). A fire enclosure is not required in spots of the equipment where the available power does not exceeded 50 VA and the available voltage 42.4 V (peak) or 60 V d.c.	Supply from the mains	**N**
5.4.06 NF	(DK,FI,NO,SE). Faults need not to be carried out in circuits which are supplied by an isolating transformer and which comply with the following: * The open-circuit voltage shall not exceed 42.4 V peak or d.c. and shall not generate voltages above the value and * The current which may be drawn for more than two minutes at any load, including short-circuit, shall not exceed 0.2 A.	Supplied from the mains.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	Japanese Deviations Miti Ordinance No. 85 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
1.2.8.3	Replace the word "60Vd.c." by "45Vd.c."	Replaced	P
1.2.8.4	Replace the word "60Vd.c." by "45Vd.c."	Replaced	P
1.2.8.5	Replace the word "60Vd.c." by "45Vd.c."	Replaced	P
1.4.5	Amend: "230V single phase or 400V" to "100V single phase or 200V three phase".	Amended and considered.	P
1.5.1	Addition: Power supply cords, plugs, socket outlets, fuses and thermal links may be comply with Japanese standards.	Considered.	P
1.5.101	Addition: The plug shall have the dimensions indicated in JIS C 8303 (1988).	No power plug provided.	N
1.5.102	Addition: Components of a deflection yoke, that is, between the yoke winding and between the yoke live parts and chassis, shall be subjected to the arcing test for a total time of 15 minutes by means of a conductive probe shown below under the yoke being settled, set at the most unfavorable voltage by adjusting control. The arcing shall be discontinued whenever a flame is generated by the arc, and the arcing shall be repeated after the flame is extinguished. A flame caused by the arching shall extinguish within 15 seconds after each discontinuation of the arcing. This test is however, regarded as completed when the arcing was stopped by: - a failure of associated components, or - an operation of interrupting device such as thermal release and overcurrent fuses other than replaceable fuses. Shape: Conical tapered Material: Tungsten or brass Dimension: see standard	No deflection yoke.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
1.6.1	Addition: For an equipment which must be marked with the rated input in watts or kilowatts, the input shall comply with the requirements of Clause 10.1 of IEC Publication 335-1 (1976), 2nd Edition, Safety of household and similar electrical appliance (Part 1: General requirements). In this case the wording of IEC 60335-1 "motor-operated appliances" and "motor load" are replaced by "equipment" and "load" respectively.	Input is indicated in current/A	N
1.6.5	Amend: "230V single phase or 400V" to "100V single phase or 200V three phase".	Amended and considered.	P
1.7.1	Replace the wording "-rated current, in milliamperes or amperes" by "- rated input in VA for d.c. power supply and in watts or kilowatts for the other if greater than 25W.	Replaced (see also 1.6.1)	N
1.7.5	Delete: Socket outlets conforming IEC 60083 are examples of standard power supply outlet	No outlet.	N
1.7.8	Addition: The rated operating temperature of thermal links (fuses) which are incorporated in the equipment shall be indelibly marked on proximity to them or on the nameplate of the equipment. This requirement does not apply to non-replaceable thermal links (fuses).	No thermal links.	N
1.7.101	Addition: The equipment shall be marked with the following information in proximity to the following part: -If the equipment contains a part more than 600 Volts, the wording " "or information giving high voltage warning to layman or service personal.	Equipment with voltages < 600V.	N
2.1.4	Replace the word "60Vd.c." by "45Vd.c."	Replaced	P
2.3.2	Replace the word "60Vd.c." by "45Vd.c."	Replaced	P
2.3.8	Addition: SELV circuits shall not use connectors compatible with those specified in JIS C 8303 (1988). The configuration of those specified in JIS C 8303 is similar to Group A of IEC Publication 83, but not identical.	None of that connectors are used in SELV circuits	P
2.8.2	Replace the word "60Vd.c." by "45Vd.c."	Replaced.	N
2.9.2	The values in parentheses and note 3 in Table III do not apply. The values in parentheses and note 2 Table IV do not apply.	Considered (see IEC 60950 report)	P

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
2.9.4	Delete: Printed boards having SUPPLEMENTARY or REINFORCED INSULATION comprising fewer than layers of prepreg other thin sheet insulating material shall be subjected to 100% electric strength test during manufacture and replace: "The insulation shall comprise two or more layers or prepreg or other thin sheet insulating material" by "...the insulation of prepreg or other thin sheet material shall comprise at least two for supplementary insulation, three for reinforced insulation.	No PCB applied for.	N
2.9.5	This sub-clause does not apply.	Considered (see IEC 60950 report)	P
3.2.4	Replace the first three lines by the following in Table VIII: up to and including 6 0.75[1)] Over 6 up to and including 10 1.0 Over 10 up to and including 16 1.5 Delete notes 2) and 3) in Table VIII. Add as note 2 in Table VIII: 1). 0.5mm cord is only allowed if a fuse with the rated current not exceeding 3A and the rated breaking capacity at least 500 A is incorporated inside the attachment plug.	No power cord provided.	N
3.2.7	Addition: Portable or hand-held appliances with non-detachable supply cords and the like, shall comply with the following test. The appliance are fixed to the oscillating member with the inlet opening located in the center of the member and facing down. The cord is loaded so that the force applied is 5N or weight equal to the appliances lighter than 500g. The oscillating member is moved 2000 flexings backwards and forwards through the angle of 120 degrees (60 degrees on either side of the vertical) and at a rate of 40 flexings per minute continuously. A flexing is one movement, either backwards or forwards. During the test, neither short-circuit nor exposure of strands shall occur. After the test, no conductor shall have more than 30% of the strands broken.	Detachable power cord used.	N

Japanese Deviation MITI Ordinance No. 85

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.3.5	In the table 13, replace "Over 10 up to and including 13/1.25 to 1.5/1.5 to 4 Over 13 up to and including 16/1.5 to 2.5/1.5 to 4"	No power cord provided.	**N**
5.1	Replace the articles concerning other thermoplastic insulation by the following, in Table XIII: - Electrical insulating materials and thermal insulating materials shall adequately withstand the temperature of parts contacting or near them and shall be of low hygroscopic capacity. Refer to the JP deviation stipulated in Item 11.8 of IEC 60335-1. Note: Higher temperature limits may be allowed in the light of prospective operating duty duration of appliance.	The temperatures of these parts do not exceed the for the insulation material specified limits.	**P**
5.2.2	Replace Table XIV by the following: Class Type of equipment Maximum leakage current (mA) II All 0.25 I Hand-held 0.75 I Other than hand-held 3.5 Delete the fourth paragraph, commencing "If it is clear .....".	Leakage current below the specified limits, see report IEC 60950	**P**
5.2.5	This Sub-clause does not apply.	Class II equipment.	**N**
5.3.101	Addition; The insulation resistance shall comply with the requirements of Clause 16.3 of IEC Publication 60335-1 (1976), Second Edition.	Insulation resistance from PRI to SEC > 10MΩ	**P**
7	Add the following additional clause: The requirement concerning the limits and measurements for interference effects generated by the equipment shall comply with CISPR 14 or 22.	The EMI report will be provided when the equipment will be applied for the national approval	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
Appendix H	Quantity of X-ray radiation When a test apparatus is subjected to a voltage fluctuated from 0.9 times to 1.1 times rated voltage at a frequency equal to rated frequency under the condition of an intelligible picture and tested as follows, the quantity of X-ray radiation at distances 50mm from the body surface shall be not more than 36pA/kg (0.5mR/h). It is not applied to the cases, in which the screen width of scanning becomes less than 70% of the effective screen width or intelligible picture cannot be sustained during the test operation. (1) Test to make adjustment to give highest X-ray radiation (2) Test under fault condition of electronic circuits Notes: (1) "Intelligible picture" means the image is tuned (2) Tests shall comply with the following: a) Protection devices (fuses, etc.) able to be replaced without the use of tools shall be short-circuited. b) Tests of paragraphs (2) are carried out with regulators and controllers set at all positions available from the outside of the appliance.	The SPS does not employ a cathode ray tube	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
Appendix K	Add the following after the bottom The thermostats, temperature limiters and thermal cut-outs shall have the adequate temperature characteristics. Compliance is checked by the following tests: The thermostats and self-resetting thermal cut-outs, before each test specified in K2 and K5, and after each test specified in K3 and K5 respectively, shall be caused thermally to perform 15 cycles (15 makings and breakings) of operation. The temperature limits and non-self-resetting thermal cut outs, before and after each test specified in K4 and K5, respectively, shall be caused thermally to perform 15 breakings. One breaking is that they are heated at the voltage and current under the condition prevailing in the relevant circuit until they are operated. One making is that they are cooled down until they are operated. In both cases, the testing temperature is raised or lowered at a rate of 1 deg./min. After the treatment the temperatures measured by the thermometer shall comply with the following table. The temperature at first five cycles excepts from evaluation of temperature characteristics.	No thermal switch was used.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	Korean Deviations according to CB Bulletin, No. 89A I December 1996 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
General	As national supply voltage is subject to be increased to 220V, an appliance rated 220V is to be allowed to obtain type approval in Korea. Either an appliance rated 110V or 220/110V is not allowed. When an appliance is supplied in Korea, it shall be set to and marked with 220V.	Rated 100-240V	P
General	Only appliances certified in the 60Hz frequency range is allowed in Korea. When an appliance is supplied in Korea, it shall be set to and marked with 60Hz.	Certified in the 50-60Hz frequency range.	P
General	Instruction manuals and appliance markings related to safety, including nameplate, shall be in Korean or graphical symbols in IEC 60417.	Instruction manual will be in Korean.	P
1.5.101	Add.: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirements (KSC 8305).	No power plug provided.	N
7	Add.: The equipment shall comply with CISPR requirements.	Power supply unit. The CISPR requirements have to be considered for the end product.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	Australian Deviation AS3260-1993 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)	**P**
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.		
1.2.12.2	Add.: "TT power systems are not permitted in Australia".	Added	**N**
1.2.12.3	Add.: "IT power systems are not permitted in Australia". Note: Australia principally uses multiple earthed neutral (MEN) systems but allows TN-C for installations using metal-sheathed cables.	Added	**N**
1.5.1	Add to paragraph 1: "or the other relevant Australian Standard".	Added	**P**
1.5.2	Add to the first and third dashed items after the words "IEC component standards": "or the other relevant Australian Standard".	Added	**P**
1.7.14	Add to paragraph 1: In Australia all safety instructions shall be in English.	Users manual in English	**P**
2	Add after clause 2: For limit of direct current from a.c. appliances, refer to Appendix 3.	See Appendix 3.	**P**
2.3.7	Add to the NOTE 2: Australia	Added	**P**
3.2.2	Substitute for table 10: For sizes of cables and conduits refer to AS 3000.	No power cord provided.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.2.4	Substitute for table 11: For sizes of conductors in power supply cords use following table 11: **Table 11** **Sizes of conductors in power supply cords** Rated current (A) Cross-section area (mm^2) > 0.2 ≤ 3 0.5* > 3 ≤ 7.5 0.75 > 7.5 ≤ 10 1 > 10 ≤ 16 1.5 > 16 ≤ 25 2.5 > 25 ≤ 32 4 > 32 ≤ 40 6 > 40 ≤ 63 10 * This nominal cross-section area is only allowed for class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug, does not exceed 2m (0.5mm^2 three-core supply flexible cords are not permitted; see Note 2 to table 2.17 of AS/NZS 3191).	No power cord provided.	N
4.4.1	For the Australian alternative resistance to fire test, refer to Appendix 2.	Not applied for Appendix 2	N
6.4.2	Replace the first paragraph by: "In Australia, compliance with 6.4.1 is checked by both the test of 6.4.2.1 and 6.4.2.2". Delete the fourth paragraph 'The choice of tests.....manufacturer'.	Equipment is not intended to be connected to TNV	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
6.4.2.1	Replace Clause 6.4.2.1 by: *Impulse test* The electrical separation is subjected to ten impulses of alternating polarity, using the impulse test generator of Annex N. The interval between successive impulses is 60s and the initial voltage U_u is: - in case (a) of 6.4.1, 7kV for hand-held telephones and for handsets; and 2.5kV for other equipment; and - in case (b) and (c) 1.5kV. Notes: 1 The seven kV impulse is to simulate measured lighting surges in typical Australian rural and semi rural network lines. 2 The value of 2.5kV has been chosen primarily to ensure adequacy of the insulation concerned, but not necessarily to simulate likely overvoltages.		**N**
6.4.2.2	Replace Clause 6.4.2.2 by: *Electric strength test* The electrical separation is subjected for 60s to a substantially sinusoidal voltage having a frequency of 50Hz or 60Hz, or to a d.c. voltage equal to the peak value of the prescribed a.c. voltage. The a.c. test voltage is: - in case (a) of 6.4.1 3kV - in case (b) and (c) 1.5kV. The voltage is gradually raised from zero to the prescribed voltage and then held at that value for 60s. NOTE: 1. Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. 2. The 3 kV and 1.5kV values have been determined considering the low frequency induced voltages from the power supply distribution system.		**N**
Annex A	Add. after Annex title: Alternative resistance to fire test-determination if ignitability and combustion propagation	Not applied for this Appendix	**N**
Appendix 2	Add. Appendix	Not applied for this Appendix	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
X2.0	GENERAL This test is an alternative to the testes in Annex A to allow approval of equipment which has inadequate documentation to verify having been tested to Annex A.		N
X2.1	SOLID INSULATION MATERIALS AND NON-METALLIC ENCLOSURES		N
X2.1.1	GENERAL REQUIREMENTS Parts of non metallic material shall be subjected to the glow wire test specified in X2.1.2, X2.1.3 and X2.1.4 and if necessary by the test of X2.2		N
X2.1.2	NON-METALLIC MATERIAL shall be subjected to the glow wire test of AS/NZS 3350.1 at 550°C except FH 3-40 mm/min classified material according to IEC707 Insulating material of winding bobbins and formers are subject to the glow wire test of AS/NZS 3350.1 at 650°C. Base material of printed circuit boards, except FV-0 classified material according to IEC 60707, with any coating shall be subject to the needle-flame test of AS/NZS 3350.1 at 550°C, however the flame shall have extinguished within 15s of removal of the test flame. The flame shall be applied to an edge of the board having the lowest heat sink effect.		N
X2.1.3	ATTENDED EQUIPMENT For equipment which is operated while attended, parts of insulating material supporting, in contact with or in close proximity to current carrying connections, other than those in SELV circuits are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 650°C. However parts of insulating material supporting, in contact with or in close proximity to screw connections which carry a current exceeding 0.5A during normal operation and which are likely to be made or remade during installation, user maintenance or when replacing a supply cord assembled with the appliance by Type X attachment, are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 750°C.		N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
X2.1.4	UNATTENDED EQUIPMENT For equipment which is operated while unattended, parts of insulating material supporting, in contact with or in close proximity to current carrying connections, other than those in SELV circuits are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 750°C. However parts of insulating material supporting, in contact with or in close proximity to screw connections which carry a current exceeding 0.5A during normal operation and which are likely to be made or remade during installation, user maintenance or when replacing a supply cord assembled with the appliance by Type X attachment, are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 850°C. In addition, for parts which withstand the glow-wire test but which flame during the application of the glow-wire, the surrounding parts are subject to the needle-flame test of AS/NZS 3350.1 for the measured duration of the flame after or 30s, whichever is the least if a) They are positioned within a distance equal to the height of the flame; and b) they are likely to be impinged upon by the flame However, surrounding parts shielded by a separate barrier which meets the needle-flame test and material which has been classified FV-0/FV-1 according to IEC707 are not tested.		**N**
X2.2	ADDITIONAL TEST REQUIREMENTS If parts, other than enclosures, do not withstand the test of clauses X2.1.3 or X2.1.4, by failure to extinguish within 30 s after removal of the glow wire tip, the needle-flame test of AS/NZS 3350.1 is made on all parts of non-metallic material which are within a distance of 50mm or which are likely to be impinged upon by flame during the test of clauses X2.1.3 or X2.1.4. Parts shielded by a separate barrier which meets the flame-needle test are not tested. The needle-flame test need not be carried out on parts which are made of classified as FV-0 or FV-1 according to IEC707.		**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
Appendix 3	Add Appendix: D.C. COMPONENTS FROM A.C. EQUIPMENT Equipment shall be designed so that in normal use the value of any direct current in the equipment neutral will not contribute unduly to the failure of the installation earth electrode by corrosion. The permissible direct current in the equipment neutral shall not exceed- (i) for equipment considered as operating continuously ..... 5 mA; or (ii) for other than continuously operated equipment where t is the assessed daily average operating time, in hours .....(5*24)/t mA For equipment which is not continuously operated but includes a component or a device which is continuously energized, e.g. stand-by control or remote switching device, the summation of the product of the direct current from the control device over 24h and the direct. current from the equipment for its assessed daily average operating time in hours shall not exceed 120mAh per day. The maximum value of direct current permitted in the neutral is 1.44A which could be applicable to equipment with an assessed average daily operating time of 5 min. or less. Equipment shall be designed so that in normal use the value of any direct current in the equipment neutral will not contribute unduly to the failure of the installation earth electrode by corrosion.	No D.C. current under normal operation condition	P

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	Canadian Deviation (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		**P**
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
1.1.1	All equipment installations are required to be in accordance with the Canadian Electrical Code (CEC). Part 1, CAN/CSA C22.1.	Complies	**P**
1.7	Equipment for use on supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3 wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extended into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than specified "Normal Operating Condition," unless it is part of a range that extends into the "Normal Operating Conditions."	Single phase.	**N**
2.5.9	Terminals for permanent wiring are required to be suitable for U.S./Canadian wire gauge sizes anf be rated 125 percent of the equipment rating.	Appliance inlet used.	**N**
2.5.11	The capacity of the connection between the earthing terminal and parts required to be earthed is required to comply with CAN/CSA C22.2 No. 0.4.	Class II equipment.	**N**
2.6.2	Motor control devices are required for cord-connected equipment with a motor if the motor (a) has a nominal voltage rating greater than 120V, (b) in rated more than 12 A, or (c) is rated more than 1/3 hp (locked rotor current over 43 A).	Not motor control device.	**N**
2.6.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No vertically-mounted disconnect switch or circuit breaker.	**N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
2.6.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power off circuit.	Power supply unit.	**N**
2.7.1	Suitable NEC/CEC branch circuit protection is required for all standard supply outlets and medium-base or smaller lampholders if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10KVA or more, required transformer overcurrent protection. Panelboards provided as part of information technology equipment are required to have suitable overcurrent protection.	No outlet.	**N**
2.7.6	Fuses provided in the earthed circuit conductor (neutral) are only permitted for equipment rated 125V. 15 A.	No fuse in neutral conductors.	**N**
3.1.12	For lengths exceeding 2 m, external interconnecting flexible cord and cable assemblies are required to be suitable cable type (e.g. DP, CLZ) described in the NEC.	No power cord provided.	**N**
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC and CEC.	Appliance inlet used.	**N**
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power cord provided.	**N**
3.2.2	Permanent connection of equipment to the mains by a power supply cord is not permitted.	Detachable power cord is used.	**N**
3.2.4	Power supply cords are required to be not longer than 4.5 m in length. Flexible power supply cords are required to be compatible with article 400 of the NEC and Table 12 of the CEC.	No power cord provided.	**N**
3.2.8	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	Not permanently connected.	**N**
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CAN/CSA No. 0.	No wire binding screws used	**N**

Canadian Deviation

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.3.3	Wiring binding screws are not permitted to attach conductors larger than 10 AWG (5.3mm²).	No wire binding screws used	N
4.3.12	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C 1370.	No laser.	N
4.4.1	For computer room application, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N
4.4.4	For computer room applications, enclosures with combustible material measuring greater than 0.9 m² or a single dimension greater than 1.8 m, are required to have flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N
4.4.8	The maximum quantity of flammable liquid stored in equipment is required to meet NFPA 30.	No liquid.	N
Other differences			

Canadian Deviation

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
1.5	Components of equipment must be suitable for the application, and must comply with the requirements of the equipment standard and the Canadian or U.S. components standards, as far as they may apply. The acceptance will be based on the following: A) A component certified by a Canadian or U.S. NCB to a Canadian or U.S. component standard will be checked for correct application and use in accordance with its specified rating. Where necessary, it will also be subjected to the applicable tests of the equipment standard. B) A component which has a CB Test Certificate for compliance with a relevant IEC component standard will be checked for correct application and use in accordance with its specified ratings. Where necessary, it will also be subjected to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and U.S. component standard, under the conditions occurring in the equipment. C) A component which has no approval as in A) or B) above or which is used not in accordance its specified ratings, will be subjected to the applicable tests of the equipment standard, and to the applicable tests of the Canadian or U.S. component standard, under the conditions occurring in the equipment. D) Some components may require annual re-testing which may be carried out by the manufacturer, CSA or another laboratory.	Components CSA approved, see component list 1.5.1.	P
3.4	Equipment connected to a centralized d.c. power system is required to meet special earthing wiring and marking requirements.		N
4.1.6	Wall and ceiling mounted equipment is required to comply with special loading tests.	Not wall and ceiling mounted type.	N
4.1.7	Equipment with handles is required to comply with special loading tests.	No handle.	N
4.2.9	Enclosures around C.R.T´s having a diagonal dimension of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N

Canadian Deviation

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
4.3.18	Direct plug-in equipment is required to comply with UL 1310 or CAN/CSA C22.2 No. 223 mechanical assembly requirements.	Not direct plug in equipment.	**N**
6.2.1.1	The maximum acceptable TNV circuit levels for other than ringing signals are: normal condition- (Uac/42.4 + Udc/42.4 ≤1 for Udc ≤21.2 (Uac/32.8 + Udc/60) ≤ 1 for Udc >21.2 abnormal conditions- (Uac/70.7 + Udc/120) ≤1	No TNV.	**N**
6.4.3	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against the ear is required to comply with special acoustic pressure tests.		**N**
6.4.4	Equipment intended to receive telecommunication ringing signals is required to comply with special leakage current measurement tests.		**N**
6.5	Equipment intended to provided power over the telecommunication wiring system is required to limit output current to values which will not damage the telecommunication wiring system.		**N**
6.6	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage.		**N**

Canadian Deviation

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	National deviations US for IEC 60950 (1991) 2nd Addition, Amendment No.1 (1992), Amendment No. 2 (1993), Amendment No. 3 (1995) and Amendment No. 4 (1996) The following US national deviations are based on the requirements of the US National Electrical Code (NEC) ANSI/NFPA 75.	**P**
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.		
1.1.1	All equipment installations are required to be in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Considered **P**
1.7.1	Equipment for use on supply systems with a neutral and more than one phase conductor (e.g. 120/240V, 3-wire) require a special marking format for electrical rating. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions". Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions", unless it is part of a range that extends into the "Normal Operating Conditions".	Single phase. **N**
2.5.9	Terminals for permanent wiring are required to be suitable for U.S./Canadian wire gauge sizes and be rated 125 percent of the equipment rating.	Appliance inlet used. **N**
2.5.11	The capacity of the connection between the earthing terminal and parts required to be earthed is required to comply with CAN/CSA C22.2 No. 0.4.	Class II equipment. **N**
2.6.2	Motor control devices are required for cord-connected equipment with a motor if the motor (a) has a nominal voltage rating greater than 120V, (b) is rated more than 12A, or (c) is rated more than 1/3 hp (locked rotor current over 43A).	Not motor control device. **N**

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
2.6.8	Vertically mounted disconnect switches and circuit breakers are required to have the position indicated by the handle in the up position	Not vertically-mounted disconnect switch or circuit breaker.	N
2.6.11	For computer room applications, equipment with battery systems capable of supplying 750VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No battery.	N
2.7.1	Suitable NEC branch circuit protection is required for all standard supply outlets and medium-base or smaller lampholders within information technology equipment if the supply branch-circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10kVA or more, require transformer overcurrent protection. Panelboards provided as part of information technology equipment are required to have suitable overcurrent protection.		N
2.7.6	Fuses provided in the earthed circuit conductor (neutral) are only permitted for equipment rated 125V, 15A.	No fuse in neutral conductor.	N
3.1.12	For lengths exceeding 2m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) described in the NEC.	No power cord provided.	N
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC and CEC.	Appliance inlet used.	N
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power cord provided.	N
3.2.2	Permanent connection of equipment to the mains by a power supply cord is not permitted.	Not permanently connected.	N
3.2.4	Power supply cords are required to be no longer than 4.5m in length. Flexible power supply cords are required to be of a type per Article 400 of the NEC.	No power cord provided.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
3.2.8	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	Not permanently connected.	N
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Appliance inlet used.	N
3.3.3	Wire binding screws are not permitted to attach supply conductors larger than 10 AWG (5.3mm²).	No wire binding screw.	N
4.3.12	Equipment with lasers is required to meet Code of Federal Regulations 21CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C1370.	No laser.	N
4.4.1	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N
4.4.4	For computer room applications, enclosures with combustible material greater than 0.93mm² or having a single dimension greater than 1.8m are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N
4.4.8	The maximum quantity of flammable liquid stored in equipment is required to meet NFPA 30.	No liquid.	N
The following US national deviations are based on the requirements other than national regulatory requirements:			

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, cathode ray tubes, circuit breakers, communication circuit accessories, cord sets and power supply cords, enclosures (outdoor), flexible cords and cables, fuses, fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, lampholders, limit controls, printed wiring, protectors for communication circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches, thermal cutoffs, thermostats, tubing, wire connectors, and wire and cables.	See component list clause 1.5.1.	P
3.4	Equipment connected to a centralized d.c. power system is required to meet special earthing, wiring and marking requirements.		N
4.1.6	Wall and ceiling mounted equipment is required to comply with special loading tests.	Not wall or ceiling mounted type.	N
4.1.7	Equipment with handles is required to comply with special loading tests.	No handle.	N
4.2.9	Enclosures around CRT's with a face area of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N
4.3.18	Direct plug-in equipment's required to comply with UL 1310 or CAN/CSA C22.2 No. 223 mechanical assembly requirements.	Not direct plug in type.	N
6.2.1.1	The maximum acceptable TNV circuit levels for other than ringing signals are: normal condition- (Uac/42.4 + Udc/42.4 ≤1 for Udc ≤21.2 (Uac/32.8 + Udc/60) ≤ 1 for Udc >21.2 abnormal conditions- (Uac/70.7 + Udc/120) ≤1	No TNV.	N
6.4.3	Equipment connected to a telecommunication network and supplied with an earphone intended to be held against the ear is required to comply with special acoustic pressure tests.		N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
6.4.4	Equipment intended to receive telecommunication ringing signals is required to comply with special leakage current measurement tests.		N
6.5	Equipment intended to provide power over the telecommunication wiring system is required to limit output current to values which will not damage the telecommunication wiring system.		N
6.6	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage.		N