IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-036612

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Power Supply / Charger
Name and address of the applicant Nom et adresse du demandeur	Powersolve Electronics Ltd. Unit 8A Arnhem Road, Newbury Berkshire, RG14 5RU, United Kingdom
Name and address of the manufacturer Nom et adresse du fabricant	Powersolve Electronics Ltd. Unit 8A Arnhem Road, Newbury Berkshire, RG14 5RU, United Kingdom
Name and address of the factory Nom et adresse de l'usine	Gain South Electronics (Hui Zhou) Ltd. Lao Wu Village, Gan Po Management Area, Zhen Long Town, HuYang District, Hui Zhou City, Guangdong Province, P.R. China
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : AC 100-240V; 50-60Hz; 0.75A Max; Class II Output: 1) DC 8.3V, 1A Max; 2) DC 9V, 1.4A Max Combined current 2A max
Trade mark (if any) Marque de fabrique (si elle existe)	EMERSON
Model/type Ref. Ref. de type	PSS40-1212
Additional information (if necessary) Information complémentaire (si nécessaire)	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1:2005 National differences see test report
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	11023227 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

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Global Technology Assessment Center
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Yokohama 224-0021 Japan
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Date: 21.12.2010

Signature: W. Hsu

Dipl.-Ing. W. Hsu

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT

IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006
Information technology equipment – Safety –
Part 1: General requirements

Report Reference No. ..... :	11023227 001
Date of issue ..... :	December 09, 2010
Total number of pages	87
CB/CCA Testing Laboratory ..... :	TÜV Rheinland Taiwan Ltd., Taichung Laboratory
Address ..... :	No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya Township, Taichung County 428, Taiwan
Applicant's name ..... :	Powersolve Electronics Ltd
Address ..... :	Unit 8A Arnhem Road, Newbury Berkshire, RG14 5RU, United Kingdom
Manufacturer's name ..... :	Same as applicant
Address ..... :	Same as applicant
Factory's name ..... :	See page 7
Address ..... :	See page 7
Test specification:	
Standard ..... :	☒ IEC 60950-1:2005 (2nd Edition) and/or ☒ EN 60950-1:2006 + A11:2009
Test procedure ..... :	CB
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IECEN60950_1C
Test Report Form(s) Originator ..... :	SGS Fimko Ltd
Master TRF ..... :	Dated 2007-06

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

If this Test Report Form is used by non-CCA members, the CIG logo and the reference to the CCA Procedure shall be removed.
This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA

Test item description ..... :	Power Supply / Charger
Trade Mark ..... :	EMERSON.
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	PSS40-1212

Ratings.....:	Input: 100-240Vac, 50-60Hz, 0.75A Max. Output 1: 8.3Vdc / 1A Max Output 2: 9Vdc / 1.4A Max (Combined current 2A max.)

Testing procedure and testing location:	
☒ **CB/CCA Testing Laboratory:**	Refer to cover page
Testing location/ address..... :	Refer to cover page
☐ **Associated CB Laboratory:**	
Testing location/ address..... :	
Tested by (name + signature)..... :	
Approved by (+ signature)..... :	
☐ Testing procedure: TMP	
Tested by (name + signature)..... :	
Approved by (+ signature)..... :	
Testing location/ address..... :	
☐ Testing procedure: WMT	
Tested by (name + signature)..... :	
Witnessed by (+ signature) ..... :	
Approved by (+ signature)..... :	
Testing location/ address..... :	
☐ Testing procedure: SMT	
Tested by (name + signature)..... :	
Approved by (+ signature)..... :	
Supervised by (+ signature)..... :	
Testing location/ address..... :	
☐ Testing procedure: RMT	
Tested by (name + signature)..... :	
Approved by (+ signature)..... :	
Supervised by (+ signature)..... :	
Testing location/ address..... :	

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT

IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006
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Part 1: General requirements

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Applicant's name.....:	Powersolve Electronics Ltd
Address .....:	Unit 8A Arnhem Road, Newbury Berkshire, RG14 5RU, United Kingdom
Manufacturer's name .....:	Same as applicant
Address .....:	Same as applicant
Factory's name .....:	See page 7
Address .....:	See page 7
Test specification:	
Standard.....:	☒ IEC 60950-1:2005 (2nd Edition) and/or ☒ EN 60950-1:2006 + A11:2009
Test procedure .....:	CB
Non-standard test method……..:	N/A
Test Report Form No.....:	IECEN60950_1C
Test Report Form(s) Originator .....:	SGS Fimko Ltd
Master TRF .....:	Dated 2007-06

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Test item description .....:	Power Supply / Charger
Trade Mark .....:	EMERSON.
Manufacturer .....:	Same as applicant
Model/Type reference .....:	PSS40-1212

Ratings ..... :	Input: 100-240Vac, 50-60Hz, 0.75A Max. Output 1: 8.3Vdc / 1A Max Output 2: 9Vdc / 1.4A Max (Combined current 2A max.)

Testing procedure and testing location:	
☒ **CB/CCA Testing Laboratory:**	Refer to cover page
Testing location/ address .....:	Refer to cover page
☐ **Associated CB Laboratory:**	
Testing location/ address .....:	
Tested by (name + signature).....:	....
Approved by (+ signature) .....:	....
☐ Testing procedure: TMP	
Tested by (name + signature).....:	
Approved by (+ signature) .....:	
Testing location/ address .....:	
☐ Testing procedure: WMT	
Tested by (name + signature).....:	
Witnessed by (+ signature).....:	
Approved by (+ signature) .....:	
Testing location/ address .....:	
☐ Testing procedure: SMT	
Tested by (name + signature).....:	
Approved by (+ signature) .....:	
Supervised by (+ signature).....:	
Testing location/ address .....:	
☐ Testing procedure: RMT	
Tested by (name + signature).....:	
Approved by (+ signature) .....:	
Supervised by (+ signature).....:	
Testing location/ address .....:	

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
All applicable tests as described in Test Case and Measurement Sections were performed. • The manufacturer specified ambient temperature is +40°C. • Maximum normal load: Condition A: +8.3V/1A; 9V/1A. Condition B: +8.3V/0.6A; 9V/1.4A. • Test samples without serial numbers. • The output of the ac power adaptor is in compliance with the requirements of sub-clause 2.5 (limited power source).	All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 3.

Summary of compliance with National Differences:

Summary of compliance with National Differences to IEC 60950-1:2005 (2nd Edition) and EN 60950-1:2006 + A11:2009 for explanation of codes see below):
EU Group Differences, EU Special National Conditions, EU A-Deviations, CA, CH, DE, DK, ES, FI, GB, IE, KR, NO, SE, US.

Summary of compliance with National Differences to IEC 60950-1:2001 (1st Edition) and EN 60950-1:2001 + A11:2004 (for explanation of codes see below):
EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CA, CH, CN, CZ, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, NO, PL, SE, SG, SI, SK, US.

(All CB members countries listed in CB Bulletin No. 112A, dated December 2006)

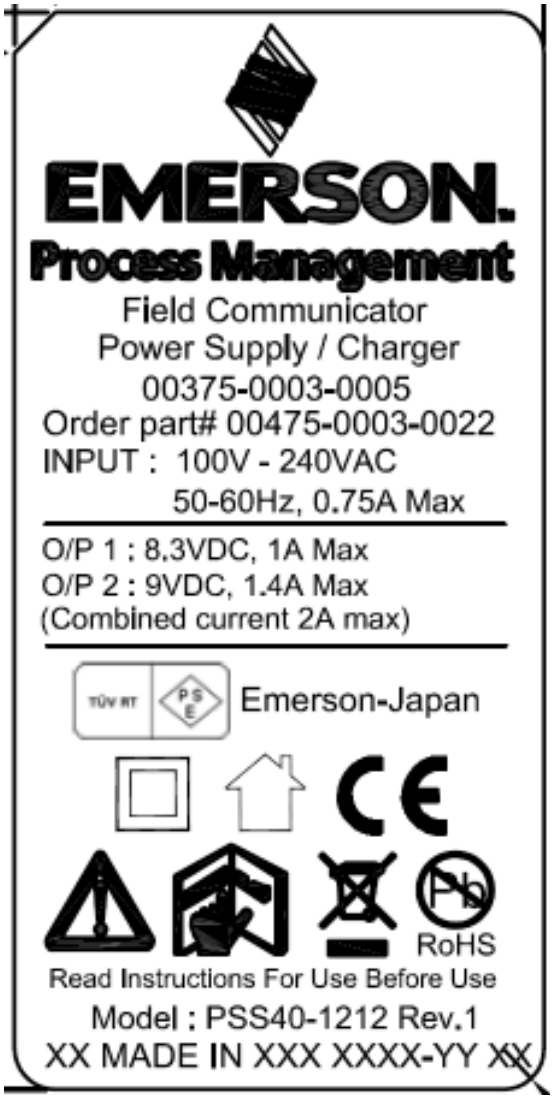
Explanation of used codes: AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IE=Ireland, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

All country differences listed in the CB Bulletin are covered by common Modifications, Special National Conditions, National Deviations and National Requirements noted follows except for the following countries which are documented in Country Differences.

Additionally, the National Differences for Argentina, Austria, Australia, Belgium, Switzerland, China, Czech Republic, Germany, Denmark, Finland, France, United Kingdom, Greece, Hungary, Israel, India, Italy, Kenya, Korea, Malaysia, The Netherlands, Norway, Poland, Sweden, Singapore, Slovenia and Slovakia have been evaluated according to IEC 60950-1:2001 by the customer's request.

For National Differences see corresponding Attachment.

Copy of marking plate:



The above label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

Test item particulars ..... :	
Equipment mobility ..... :	[X] movable [] hand-held [X] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains ..... :	[X] pluggable equipment [] permanent connection [X] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition ..... :	[X] continuous [] rated operating / resting time:
Access location ..... :	[X] operator accessible [] restricted access location
Over voltage category (OVC) ..... :	[] OVC I [X] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values ..... :	± 10
Tested for IT power systems ..... :	[X] Yes [] No
IT testing, phase-phase voltage (V) ..... :	230V for Norway
Class of equipment ..... :	[] Class I [X] Class II [] Class III [] Not classified
Considered current rating (A) ..... :	16 (20A for North America countries)
Pollution degree (PD) ..... :	[] PD 1 [X] PD 2 [] PD 3
IP protection class ..... :	IPX0
Altitude during operation (m) ..... :	Not over 2000m
Altitude of test laboratory (m) ..... :	Not over 2000m
Mass of equipment (kg) ..... :	0.24
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	November, 2010
Date(s) of performance of tests ..... :	November-December, 2010

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.

Throughout this report a point is used as the decimal separator.

General product information:

The equipment model PSS40-1212 is a switching power adapter for supply of information technology

equipment.

The switching power adapter's top enclosure is secured to bottom enclosure by ultrasonic.

Other comments:

Factory:

Gain South Electronics (Hui Zhou) Ltd.
Lao Wu Village, Gan Po Management Area, Zhen Long Town, HuYang District, Hui Zhou City, Guangdong Province, P.R. China.

Attachments to this Test Report:

- Photo Documentation
- National Differences
- Measurement Section

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	See below.	P
	Comply with IEC 60950 or relevant component standard	See appended table 1.5.1	P
1.5.2	Evaluation and testing of components	Components certified to IEC standards and/or their harmonized standards, are used within their ratings and are checked for correct application. Non-certified components are checked for correct application, used within their ratings, tested as part of the equipment and subjected to applicable tests of the component standard. Components, which no relevant IEC-Standard exists, are used within their ratings and are tested under the conditions occurring in the equipment.	P
1.5.3	Thermal controls		N/A
1.5.4	Transformers	Transformers complied with the relevant requirements.	P
1.5.5	Interconnecting cables	Interconnection o/p cable to other device is carrying only SELV on an energy level below 240VA. Except for the insulation material, there are no further requirements for the o/p interconnection cable.	P
1.5.6	Capacitors bridging insulation	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14 with at least 21 days damp heat test.	P
1.5.7	Resistors bridging insulation	See below.	P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Bleeder resistors bridging located after fuse and functional insulation only.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Phase to secondary designed in according to phase-to-phase working voltage. The Y1 type capacitor used between phase-to-secondary.	P
1.5.9	Surge suppressors	See below.	P
1.5.9.1	General	Approved Varistor comply with Annex Q used in primary circuit.	P
1.5.9.2	Protection of VDRs	A fuse is connected in series with the VDR.	P
1.5.9.3	Bridging of functional insulation by a VDR	A varistor provided and located after fuse which bridging functional insulation.	P
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		P
1.6.1	AC power distribution systems	TN power system. IT power system for Norway.	P
1.6.2	Input current	See appended table 1.6.2.	P
1.6.3	Voltage limit of hand-held equipment	This appliance is not hand-held equipment.	N/A
1.6.4	Neutral conductor	The neutral is not identified in the equipment. Reinforced insulation for rated voltage between secondary parts and primary phases.	P

1.7	Marking and instructions		P
1.7.1	Power rating	The power rating marking is provided and is readily visible in operator access area.	P
	Rated voltage(s) or voltage range(s) (V) .....:	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only .....:		N/A
	Rated frequency or rated frequency range (Hz) ....:	See copy of marking plate.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (mA or A) .....:	See copy of marking plate.	P
	Manufacturer's name or trade-mark or identification mark .....:	See copy of marking plate.	P
	Model identification or type reference .....:	See copy of marking plate.	P
	Symbol for Class II equipment only .....:	Double square symbol provided.	P
	Other markings and symbols .....:	Other markings and symbols do not give rise to misunderstanding.	P
1.7.2	Safety instructions and marking	See below:	P
1.7.2.1	General	User's manual provided.	P
1.7.2.2	Disconnect devices	Appliance inlet.	P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	For Norway compliance has to be evaluated during the national approval.	N/A
1.7.2.5	Operator access with a tool		N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment .....:		N/A
	Methods and means of adjustment; reference to installation instructions .....:		N/A
1.7.5	Power outlets on the equipment .....:		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Marking adjacent to fuse on PCB as: F1 T2A/250V	P
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals .....:	Appliance inlet used.	P
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No safety involved controls or indicators used.	N/A
1.7.8.1	Identification, location and marking .....:	See below.	P
1.7.8.2	Colours .....:	Three LEDs provided, but not safety relevant.	N/A
1.7.8.3	Symbols according to IEC 60417 .....:		N/A
1.7.8.4	Markings using figures .....:		N/A
1.7.9	Isolation of multiple power sources .....:		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.10	Thermostats and other regulating devices .....:		N/A
1.7.11	Durability	The marking plate has no curling and is not able to be removed easily.	P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries .....:	No such component used.	N/A
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations.....:		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	See below.	P
2.1.1.1	Access to energized parts	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage. Any hazardous parts accessible are unlikely.	P
	Test by inspection .....:	Complied.	P
	Test with test finger (Figure 2A) .....:	Complied.	P
	Test with test pin (Figure 2B) .....:	Complied.	P
	Test with test probe (Figure 2C) .....:	No TNV circuit.	N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards .....:	Energy dose not exceed 240VA between any two points in o/p connector of secondary circuit. Results see appended table 2.1.1.5.	P
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment	No risk of electric shock, see below.	P
	Measured voltage (V); time-constant (s) .....:	See appended table 2.1.1.7.	—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Internal battery connected to the d.c. mains supply .....:		N/A
2.1.1.9	Audio amplifiers .....:		N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A
2.2	SELV circuits		P
2.2.1	General requirements	See below.	P
2.2.2	Voltages under normal conditions (V) .....:	See appended table 2.2.2.	P
2.2.3	Voltages under fault conditions (V) .....:	See appended table 2.2.3.	P
2.2.4	Connection of SELV circuits to other circuits .....:	See sub-clauses 1.5.6, 2.2.2, 2.2.3 and 2.4.	P
2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits .....:		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions .....:		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....:		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....:		—
2.3.5	Test for operating voltages generated externally		N/A
2.4	Limited current circuits		P
2.4.1	General requirements	See below.	P
2.4.2	Limit values	See appended table 2.4.2.	P
	Frequency (Hz).....:	See appended table 2.4.2.	—
	Measured current (mA).....:	See appended table 2.4.2.	—
	Measured voltage (V) .....:	See appended table 2.4.2.	—
	Measured circuit capacitance (nF or µF).....:	2200pF max.	—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.4.3	Connection of limited current circuits to other circuits	Complied.	P
2.5	Limited power sources		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition	The output of adaptor was complied with LPS. See appended table 2.5.	P
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:	See appended table 2.5.	—
	Current rating of overcurrent protective device (A)		—
2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
	Protective current rating (A), cross-sectional area (mm^2), AWG .....:		
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min) .....:		N/A
2.6.3.5	Colour of insulation.....:		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm) .....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Equipment relies on 16A (20A for North America countries) rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short-circuit. Over current protection is provided by the built-in fuse.	P
	Instructions when protection relies on building installation	Neither pluggable equipment type B nor permanently connected equipment.	N/A
2.7.2	Faults not simulated in 5.3.7	Considered.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A, the building installation is considered as providing short-circuit backup protection.	P
2.7.4	Number and location of protective devices .....:	Over current protection by one built-in fuse.	P
2.7.5	Protection by several devices	Only one fuse provided.	N/A
2.7.6	Warning to service personnel .....:	No service work necessary.	N/A
2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) .....:		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	P
2.9.2	Humidity conditioning	Tested for 48 hrs.	P
	Relative humidity (%), temperature (°C) .....:	93% R.H., 30°C	—
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.9.4	Separation from hazardous voltages	See below.	P
	Method(s) used .....:	Method 1 used.	—
2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below.	P
2.10.1.1	Frequency .....:	Considered.	P
2.10.1.2	Pollution degrees .....:	Pollution degree 2.	P
2.10.1.3	Reduced values for functional insulation	See sub-clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	Complied.	P
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage	See below.	P
2.10.2.1	General	Considered.	P
2.10.2.2	RMS working voltage	See appended table 2.10.2.	P
2.10.2.3	Peak working voltage	See appended table 2.10.2.	P
2.10.3	Clearances	See below.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.1	General	Annex F is considered.	P
2.10.3.2	Mains transient voltages	Normal transient voltage considered.	P
	a) AC mains supply .....:	Overvoltage category II for primary circuit and transient voltage 2500Vpeak.	P
	b) Earthed d.c. mains supplies .....:		N/A
	c) Unearthed d.c. mains supplies .....:		N/A
	d) Battery operation .....:		N/A
2.10.3.3	Clearances in primary circuits	See appended table 2.10.3 and 2.10.4.	P
2.10.3.4	Clearances in secondary circuits	Refer to sub-clause 5.3.4.	N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....:	See sub-clause 2.10.3.2.	P
2.10.3.7	Transients from d.c. mains supply .....:		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....:		N/A
	For a d.c. mains supply .....:		N/A
	b) Transients from a telecommunication network .:		N/A
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	Considered.	P
2.10.4.2	Material group and comparative tracking index	Material group IIIb is assumed to be used.	P
	CTI tests .....:	CTI rating for all materials are min. 100.	—
2.10.4.3	Minimum creepage distances	See appended table 2.10.3 and 2.10.4.	P
2.10.5	Solid insulation	Complied with 2.10.5.2 to 2.10.5.14 and 5.2.	P
2.10.5.1	General	See below.	P
2.10.5.2	Distances through insulation	See appended table 2.10.5.	P
2.10.5.3	Insulating compound as solid insulation	Certified sources of photo couplers used.	P
2.10.5.4	Semiconductor devices	For photo couplers see sub-clause 2.10.5.3.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General	Considered.	P
2.10.5.7	Separable thin sheet material	See attachment measurement section tables C.2 and table 2.10.3 & 2.10.4 for detail applicable.	P
	Number of layers (pcs) .....:	See above.	—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	See below.	P
	Electric strength test	See appended table 5.2.	—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage .....:		N/A
	a) Basic insulation not under stress .....:		N/A
	b) Basic, supplementary, reinforced insulation .....:		N/A
	c) Compliance with Annex U .....:		N/A
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage .....:		N/A
	- Basic insulation not under stress .....:		N/A
	- Supplementary, reinforced insulation .....:		N/A
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	See appended table 2.10.3 and 2.10.4.	P
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Number of insulation layers (pcs) .....:		N/A
2.10.7	Component external terminations	See appended table 2.10.3 and 2.10.4.	P
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	Certified sources of photo couplers used.	P
2.10.10	Test for Pollution Degree 1 environment and insulating compound	Certified sources of photo couplers used.	P
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		P

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognized wiring which is PVC insulated, rated 300V, VW-1, min. 80°C. Internal wiring is PVC insulated, the wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges. Where they touch heatsinks additional tubing is provided so that the heatsink cannot damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	Internal wires are secured by solder with glue or solder with solder pin so that a loosening of the terminal connection is unlikely.	P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see 3.1.1.	P
3.1.5	Beads and ceramic insulators		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.6	Screws for electrical contact pressure	No such screws provided.	N/A
3.1.7	Insulating materials in electrical connections	All connections are metal to metal.	P
3.1.8	Self-tapping and spaced thread screws	No screw used.	N/A
3.1.9	Termination of conductors	All conductors are reliably secured.	P
	10 N pull test	10N pull test performed for all relevant conductors. No hazards caused hereby.	P
3.1.10	Sleeving on wiring	No sleeving on internal wiring used as supplementary insulation.	N/A
3.2	Connection to a mains supply		P
3.2.1	Means of connection	See below.	P
3.2.1.1	Connection to an a.c. mains supply	Appliance coupler provided.	P
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm) .....:		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC/EN 60320-1. The power cord can be inserted without difficulties and is not intended to support the equipment.	P
3.2.5	Power supply cords	No power supply cords provided.	N/A
3.2.5.1	AC power supply cords		N/A
	Type .....:		—
	Rated current (A), cross-sectional area (mm²), AWG .....:		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage	No parts under this unit likely to damage the power supply cord. Enclosure without sharp edges.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm).....:		—
3.2.9	Supply wiring space		N/A
3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm^2).....:		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		P
3.4.1	General requirement	See below.	P
3.4.2	Disconnect devices	Appliance inlet is provided as disconnection device.	P
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized	When power cord is removed from inlet (or wall socket) no remaining parts with hazardous voltage in the equipment.	P
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The appliance inlet disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5	Interconnection of equipment		P
3.5.1	General requirements	The power supply is not considered for connection to TNV.	P
3.5.2	Types of interconnection circuits .....:	Interconnection circuits of SELV through secondary output connectors.	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		P
4.1	Stability *Equipment mass not over 7kg.*		N/A
	Angle of 10°		N/A
	Test force (N) .....:		N/A

4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit complies with the requirements of sub-clauses 2.1.1 and 2.10.	P
4.2.2	Steady force test, 10 N	10N applied to all components other than enclosure.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	Applied to outer enclosure. 250N on top, side, bottom of enclosure and no damaged.	P
4.2.5	Impact test	See below.	P
	Fall test	No hazard as result from steel sphere ball impact test applied for top/side/bottom enclosure.	P
	Swing test		N/A
4.2.6	Drop test; height (mm) .....:	The adapter has been subjected to 3 drops of top/bottom/right side of enclosure from 1 m height on a hard wooden surface.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.2.7	Stress relief test	After the test at temperature of 72.8°C for each enclosure material source and no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment.	P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified .....:		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		N/A
4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N).....:		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts	Mechanical fixings in such a way designed that they will withstand mechanical stress occurring in normal use.	P
4.3.5	Connection by plugs and sockets	Mismatching of connectors neither possible nor result in any hazards.	P
4.3.6	Direct plug-in equipment		N/A
	Torque .....:		—
	Compliance with the relevant mains plug standard .....:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids .....:	No flammable liquids provided.	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Quantity of liquid (l) .....:		N/A
	Flash point (°C) .....:		N/A
4.3.13	Radiation	See below.	P
4.3.13.1	General	Neither ionizing radiation nor laser presents. For LED see below.	P
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification .....:		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:		N/A
4.3.13.5	Laser (including LEDs)	The LED is used as indicator.	P
	Laser class .....:	Below AEL of Class 1.	—
4.3.13.6	Other types .....:		N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas .....:		N/A
4.4.3	Protection in restricted access locations .....:		N/A
4.4.4	Protection in service access areas		N/A
4.5	Thermal requirements		P
4.5.1	General	No exceeding temperature.	P
4.5.2	Temperature tests	See appended table 4.5.	P
	Normal load condition per Annex L .....:	See Annex L.	—
4.5.3	Temperature limits for materials	See appended table 4.5.	P
4.5.4	Touch temperature limits	See appended table 4.5.	P
4.5.5	Resistance to abnormal heat .....:	Phenolic bobbin material used in T1, which is acceptable without test.	P
4.6	Openings in enclosures		P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6.1	Top and side openings	No openings on the top and sides.	P
	Dimensions (mm) .....:		—
4.6.2	Bottoms of fire enclosures	No openings	P
	Construction of the bottom, dimensions (mm) .....:		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	No openings.	P
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....:		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks) .....:		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	See below.	P
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: • Components in primary • Insulated wiring The fire enclosure is required.	P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	See appended table 1.5.1 for details.	P
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1 for details.	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	The material is made of V-2 material.	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	See sub-clauses 5.1.2 to 5.1.7.	P
5.1.2	Configuration of equipment under test (EUT)	See below.	P
5.1.2.1	Single connection to an a.c. mains supply	EUT has only single AC mains connection.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Equipment of figure 5A used.	P
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	P
5.1.5	Test procedure	The touch current was measured from mains to DC output connector and to a 10 cm × 20 cm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.1.6	Test measurements	See below.	P
	Supply voltage (V) .....:	See appended table 5.1.6.	—
	Measured touch current (mA) .....:	See appended table 5.1.6.	—
	Max. allowed touch current (mA) .....:	See appended table 5.1.6.	—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA)....:		—
5.1.7	Equipment with touch current exceeding 3,5 mA	Not exceeded.	N/A
5.1.7.1	General .....:		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports .....:		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		P
5.2.1	General	See appended table 5.2.	P
5.2.2	Test procedure	Table 5B used.	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	See appended table 5.3.	P
5.3.2	Motors		N/A
5.3.3	Transformers	See appended table 5.3 and Annex C.	P
5.3.4	Functional insulation.....:	Method c). See appended table 5.3	P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE .....:		N/A
5.3.7	Simulation of faults	See appended table 5.3.	P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See below.	P
5.3.9.1	During the tests	Neither fire burns the equipment or molten metal.	P
5.3.9.2	After the tests	Electric strength test made.	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Supply voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions .....:		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....:		—
	Current limiting method .....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		P
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples.....:		—
	Wall thickness (mm) .....:		—
A.1.2	Conditioning of samples; temperature (°C) .....:		N/A
A.1.3	Mounting of samples .....:		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		P
A.2.1	Samples, material .....:		—
	Wall thickness (mm) .....:		—
A.2.2	Conditioning of samples; temperature (°C) .....:		N/A
A.2.3	Mounting of samples .....:		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C .....:		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
B.2	Test conditions		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) .....:		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....:		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V) .....:		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position .....:	Refer to appended table 1.5.1.	—
	Manufacturer .....:	Refer to appended table 1.5.1.	—
	Type .....:	Refer to appended table 1.5.1.	—
	Rated values .....:	Refer to appended table 1.5.1.	—
	Method of protection.....:	Over current protection by circuit design.	—
C.1	Overload test	See appended table 5.3.	P
C.2	Insulation	See appended table 5.2.	P
	Protection from displacement of windings.....:	See appended table C.2.	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	Figure D.1 used.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply .....:		N/A
G.2.2	Earthed d.c. mains supplies .....:		N/A
G.2.3	Unearthed d.c. mains supplies .....:		N/A
G.2.4	Battery operation .....:		N/A
G.3	Determination of telecommunication network transient voltage (V) .....:		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks .....:		N/A
G.4.2	Transients from telecommunication networks .....:		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances .....:		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used .....:		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) .....:		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....:		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	Continuous operation at rated output load.	P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA) .....:		—
M.3.2	Tripping device and monitoring voltage .....:		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V) .....:		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	a) Preferred climatic categories .....:	Certified component used. See appended table 1.5.1.	P
	b) Maximum continuous voltage .....:	Certified component used. See appended table 1.5.1.	P
	c) Pulse current .....:	Complied.	P
R	Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	Considered.	P
V.2	TN power distribution systems	Considered.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus .....:		N/A
Y.2	Mounting of test samples .....:		N/A
Y.3	Carbon-arc light-exposure apparatus .....:		N/A
Y.4	Xenon-arc light exposure apparatus .....:		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS		
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations	P
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note 1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6 2.2.3 Note; 2.2.4 Note; 2.3.2 Note 2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3 2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3 3.2.1.1 Note; 3.2.4 Note 3.; 2.5.1 Note 2 4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note 4.7.3.1 Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note 6.; 2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2	P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	N/A
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC	N/A
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for 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 breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, 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.		P
2.7.2	This subclause has been declared ‘void’.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1	Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”. In Table 3B, replace the first four lines by the following: | Up to and including 6 | | 0,75 [a] | | Over 6 up to and including 10 | (0,75) [b] 1,0 | | Over 10 up to and including 16 | (1,0) [c] 1,5 | In the conditions applicable to Table 3B delete the words “in some countries” in condition [a]. In NOTE 1, applicable to Table 3B, delete the second sentence.		N/A
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: | Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A.		N/A
4.3.13.6	Add the following NOTE: NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	N/A
Biblio-graphy	Additional EN standards.	—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—

ZB	SPECIAL NATIONAL CONDITIONS	P
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.5.7.1	In **Finland**, **Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	P
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	N/A
1.7.2.1	In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”	N/A
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment 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 Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	N/A
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.	P
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	N/A
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	N/A
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A 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 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998 Plug Type 25 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A	N/A
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 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 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.	N/A
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. 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 UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N/A
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that - is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and - has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and - is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		N/A
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	In **Norway** and **Sweden**, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N/A

ZC	A-DEVIATIONS (informative)	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	**Sweden** (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.	N/A
1.5.1	**Switzerland** (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.	N/A
1.7.2.1	**Denmark** (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  If essential for the safety of the equipment, 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.”	N/A
1.7.2.1	**Germany** (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.	P
1.7.5	**Denmark** (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	N/A
1.7.13	**Switzerland** (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.	N/A
5.1.7.1	**Denmark** (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.	N/A

IEC/EN 60950-1			
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 [1.]
Enclosure	Sabic Innovative Plastics US L L C	945	V-0, min. 2.0 mm thick, min. 120°C	UL 94	UL
PCB	--	--	V-1 or better, min. 105°C	UL 94	UL
Appliance Inlet	Supercom Electronics Co., Ltd.	SC-12S	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE, UL
Fuse (F1)	Walter Electronic Co. Ltd.	ICP	T2A, 250V	IEC 60127-1 IEC 60127-3 UL 248	VDE, UL
	Conquer Electronics Co., Ltd.	PTU	T2A, 250V	IEC 60127-1 IEC 60127-3 UL 248	VDE, UL
Thermistor (TR1)	--	--	8Ω, 3A at 25°C	--	--
Varistor (MOV1) (Optional)	Joyin Company Ltd.	14N471K 14S471K	300Vac, 385Vdc 40/85/56 6KV/3KA pulse test passed	IEC/EN 61051-1 IEC/EN 61051-2 UL 1449	VDE, UL
	Success Electronics Co., Ltd.	SVR14D471K SVR10D471K	300Vac, 385Vdc 40/085/56 6kV/3kA pulse test passed	IEC/EN 61051-1 IEC/EN 61051-2 UL 1449	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14471 TVR10471-V TVR10471-D	300Vac, 385Vdc 40/85/56 6kV/3kA pulse test passed	IEC/EN 61051-1 IEC/EN 61051-2 UL 1449	VDE, UL
	Ceramate Techn. Co., Ltd.	GNR14D471K	300Vac, 385Vdc 40/85/56 6kV/3kA pulse test passed	IEC/EN 61051-1 IEC/EN 61051-2 UL 1449	VDE, UL
	DongGuan Littelfuse Electronics Co Ltd	SAS-471KD14 MOV-471KD14	300Vac, 385Vdc -40/085/56 6kV/3kA pulse test passed	IEC/EN 61051-1 IEC/EN 61051-2 UL 1449	VDE, UL

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Inductors (L1)	Hong Chan Electronics Co.,Ltd	LF-004	Min. 105ºC	--	--
	Li Tai Electronic Enterprise Co Ltd	LF-004	Min. 105ºC	--	--
Inductors (L3)	Hong Chan Electronics Co.,Ltd	LF-003-1	Min. 105ºC	--	--
	Li Tai Electronic Enterprise Co Ltd	LF-003	Min. 105ºC	--	--
Bleeder Resistors (HR1, HR2)	--	--	510kΩ, min. 1/4W.	--	--
X-Capacitor (C4) (optional)	Arcotronics	1.40	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	ENEC, UL
	Iskra MIS d.d.	KNB 1560	Max. 0.22µF, min. 250V, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Jenn Fu Electronics Corporation	MPX	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	VDE, UL
	Panasonic Corporation	ECQUL ECQ-UG	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	VDE, UL
	Okaya Electric Industries Co. LTD	PA RE-Series	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	VDE, UL
	Evox Rifa Group Oy	PCX2 335M	Max. 0.22µF, min. 250V, 105°C	IEC 60384-14 UL 1414	ENEC, UL
	Cheng Tung Industrial Co., Ltd.	CTX	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	VDE, UL
	Carli Electronics Co., Ltd.	MPX	Max. 0.22µF, min. 250V, 100°C	IEC 60384-14 UL 1414	VDE, UL
Bridge Diode (BD1)	--	--	2A, 600V	--	--
Bulk Capacitor (C3)	--	--	47µF, 400V, min. 105°C	--	--

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Transistors (Q4)	--	--	Min. 9A, min. 600V	--	--
Current resister (R50)	--	--	Min. 0.62Ω, 1W	--	--
Photo Coupler (U19)	Fairchild Semiconductor	H11A817A H11A817B H11A817C H11A817D	Dti=0.4mm, Int. dcr=5.2mm, Ext. dcr=7.8mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Sharp Corporation	PC123	Dti=0.7mm, Int. dcr=5.0mm, Ext. dcr=8.0mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Renesas Electronics Corporation	PS2561-1 PS2561L-1 PS2561A-1 PS2561AL-1 PS2561L1-1 PS2561AL1-1	Dti=0.4mm Ext. dcr=7.0mm, thermal cycle test, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Lite-On Technology Corporation	LTV-817	Dti=0.8mm, Int. dcr=5.2mm, Ext. dcr=7.8mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Everlight Electronics Co., Ltd.	EL817	Dti=0.5mm, Int. dcr=6.0mm, Ext. dcr=7.7mm, 110°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Lite-On Technology Corporation	LTV-357T	Dti=0.45mm, Int. dcr=3.7mm, Ext. dcr=5.0mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	VISHAY Semiconductor GmbH	TCET1108 TCET1109 TCET1108G TCET1109G	Dti=0.6mm, Int. dcr=4.7mm, Ext. dcr=8.4mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	Vishay Semiconductor Gmbh	TCLT1001 TCLT1002 TCLT1003 TCLT1004 TCLT1005 TCLT1006 TCLT1007 TCLT1008 TCLT1009	Dti=0.7mm Ext. dcr=8.3mm, thermal cycle test, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Toshiba Corporation Semicon. Co. Discrete Div.	TLP621 TLP721	Dti=0.8mm, Ext. dcr=8.0mm, thermal cycling test, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
	COSMO Electronics Corporation	K1010	Dti=0.5mm, Int. dcr=5.3mm, Ext. dcr=8.0mm, 100°C	IEC 60950-1 EN 60747-5-2	VDE, UL
Bridge Capacitor (CY1) (Y1 Type) (Optional)	TDK-EPC Corporation	CD	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Murata Mfg. Co., Ltd.	KX	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Success Electronics Co., Ltd.	SE	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Walsin Technology Corp.	AH	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Welson Industrial Co., Ltd.	WD	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-Series	Max. 2200pF, min. 250Vac, 125°C	IEC 60384-14 UL 1414	VDE, UL
Transformer (T1)	Hong Chan Electronics Co.,Ltd	PSS40-1212	Class B	Applicable part according to IEC 60950-1 and IEC 60085.	Accepted by TÜV Rheinland
	Li Tai Electronic Enterprise Co Ltd	PSS40-1212	Class B	Applicable part according to IEC 60950-1 and IEC 60085.	Accepted by TÜV Rheinland
Supplementary information: 1. An asterisk indicates a mark that assures the agreed level of surveillance.					

1.6.2	TABLE: Electrical data (in normal conditions)	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

U (V) / F(Hz)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90/50	0.42	--	22	F1	0.42	Maximum normal load at condition A
90/60	0.44	--	22	F1	0.44	Same as above.
100/50	0.39	0.75	22	F1	0.39	Same as above.
100/60	0.40	0.75	22	F1	0.40	Same as above.
240/50	0.23	0.75	22	F1	0.23	Same as above.
240/60	0.22	0.75	22	F1	0.22	Same as above.
264/50	0.21	--	22	F1	0.21	Same as above.
264/60	0.20	--	22	F1	0.20	Same as above.
90/50	0.43	--	22	F1	0.43	Maximum normal load at condition B
90/60	0.44	--	22	F1	0.44	Same as above.
100/50	0.40	0.75	22	F1	0.40	Same as above.
100/60	0.41	0.75	22	F1	0.41	Same as above.
240/50	0.23	0.75	22	F1	0.23	Same as above.
240/60	0.22	0.75	22	F1	0.22	Same as above.
264/50	0.21	--	22	F1	0.21	Same as above.
264/60	0.21	--	22	F1	0.21	Same as above.
Supplementary information: For load condition, see summary of testing.						

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Functional:						
L/N before fuse (top / bottom layer)	420	250	1.5	10.7/10.4	2.5	10.7/10.4
Trace under fuse (top / bottom layer)	420	250	1.5	2.8/2.7	2.5	2.8/2.7
Reinforced:						
Primary components (with 10N) to secondary components (with 10N)	420	250	4.0	See below	5.0	See below
- D7 to HS2	420	250	4.0	7.5	5.0	7.5

IEC/EN 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict

- C6 to D1	420	250	4.0	5.3	5.0	7.1
- C6 to HS2	420	250	4.0	6.2	5.0	6.2
Primary trace to secondary trace	420	250	4.0	See below	5.0	See below
- Under U19 (top / bottom layer)	420	250	4.0	6.0/5.7	5.0	6.1/6.1
- Under CY1 (top / bottom layer)	420	250	4.0	7.3/6.3	5.0	8.1/7.8
- C6 to D1 (top / bottom layer)	420	250	4.0	7.1/6.9	5.0	7.1/6.9
- Under T1 (top / bottom layer)	438	254	4.2	7.3/6.3	5.2	8.1/7.8
- CY1 primary pin to U19 pin1 (bottom layer)	420	250	4.0	6.3	5.0	6.3
- R56 to CY1 secondary pin (bottom layer)	420	250	4.0	6.1	5.0	6.1

Supplementary information:

1. Functional insulation shorted, see 5.3.4.
2. Output wire is fixed in PCB reliable by soldered with glue.
3. Tubed components (safety relevant): F1.
4. Glued components (safety relevant): output wire, L1, L3, C3, C2, C10, U3, C9, C21, R1, R2, D12.
5. One cut groove (dimension: 4.8mm length, 1.0mm width) under MOV1.
6. One cut groove (dimension: 4.8mm length, 1.0mm width) between Line and L3.
7. One cut groove (dimension: 12.1mm length, 1.0mm width) under U19.
8. For clearance and creepage did not describe above are far larger than limit above.

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:		U peak (V)	U r.m.s. (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Photo Coupler (reinforced insulation)		420	250	AC 3000	0.4	1)
Enclosure (reinforced insulation)		420	250	AC 3000	0.4	1)

Supplementary information:

1. For details refer to table 1.5.1.

4.3.8	TABLE: Batteries		N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available			
Is it possible to install the battery in a reverse polarity position?			
	Non-rechargeable batteries	Rechargeable batteries	

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									

Test results:		Verdict
- Chemical leaks		
- Explosion of the battery		
- Emission of flame or expulsion of molten metal		
- Electric strength tests of equipment after completion of tests		
Supplementary information:		

4.5	TABLE: Thermal requirements					P
	Supply voltage (V) .....:	90V/ 60Hz	264V/ 60Hz	90V/ 60Hz	264V/ 60Hz	—
	Ambient T_{min} (°C) .....:	--	--	--	--	—
	Ambient T_{max} (°C) .....:	See below	See below	See below	See below	—
Maximum measured temperature T of part/at::		T (°C)				Allowed T_{max} (°C)
Label position		upward	downward	upward	downward	--
MOV1 body		58.9	54.3	59.7	55.3	85
PCB near TR1		65.5	59.8	66.3	60.8	105
L1 coil		56.0	55.6	57.2	56.8	105
C4 body		60.2	61.5	61.3	62.5	100
L3 coil		64.1	68.0	64.8	68.8	105
PCB near HS1 of BD1		72.9	82.9	72.9	83.5	105
C3 body		72.1	79.5	72.5	80.7	85
U19 body		69.3	74.5	69.5	73.5	100

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

CY1 body	72.6	77.8	72.9	78.1	125
T1 coil	80.5	86.3	80.2	87.2	110
T1 core	80.6	83.6	80.8	85.1	110
PCB near HS2 between T1 and D1	82.8	84.3	81.2	84.1	105
C8 body	78.2	76.1	77.7	76.7	85
L2 coil	84.6	84.0	83.7	83.5	105
Enclosure inside near T1	62.8	61.7	62.4	61.8	120
Enclosure outside near T1	56.4	56.5	56.7	55.9	95
AC inlet	46.8	46.9	48.4	48.0	70
Tamb	40.0	40.0	40.0	40.0	--
Tma	40.0	40.0	40.0	40.0	--

Supplementary information:

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

Supplementary information:

1. The temperatures were measured under worst normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described above.
2. The maximum ambient temperature permitted by the manufacturer's specification is 40°C.
   Class B Tmax = 120°C - 10°C = 110°C
3. All values for T(°C) are re-calculated from Tamb respectively.

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm) .....:	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)

Supplementary information: Phenolic bobbin material used in T1 is acceptable without test.

4.7	Table: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence

Supplementary information: For the enclosure and PCB, refer to table 1.5.1 for details.

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Basic / supplementary:				
T1: primary/secondary to core		AC	1640	No
Tube used in T1		AC	1640	No
Reinforced:				
Unit: primary to secondary		DC	4242	No
Unit: primary to enclosure wrapped with metal foil		DC	4242	No
T1: primary to secondary		AC	3000	No
One layer of insulation tape in T1		AC	3000	No
Supplementary information:				

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) ..... :	See below	—
	Power source for EUT: Manufacturer, model/type, output rating ..... :	--	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
T1 pin10 to 6	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
T1 pin6 to 7	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
T1 pin1 to 2	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
U19 pin1 to 2	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
U19 pin3 to 4	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
BD1 AC to “+”	short	240	1 s	F1	--	Fuse opened, no damaged, no hazards.
C3	short	240	1 s	F1	--	Fuse opened, no damaged, no hazards.
Q4 G to S	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Q4 S to D	short	240	1 s	F1	--	Fuse opened, R58 damaged, no hazards.
Q4 D to G	short	240	1 s	F1	--	Fuse opened, R50 damaged, no hazards.
U1 pin4 to 5	short	240	1 s	F1	--	Fuse opened, no damaged, no hazards.
T1 pin6 to 7 (after D1) for 8.3V	overload	240	5.5 hr	F1	0.22	Temperature stable at 1.4A, load to 1.5A, unit shut down, no damaged, no hazards. The maximum temperature of T1=91.9°C, ambient=28.5°C.
T1 pin10 to 7 after D8 for 9V	overload	240	5.5 hr	F1	0.22	Temperature stable at 2.1A, load to 2.2A, unit shut down, no damaged, no hazards. The maximum temperature of T1=85.7°C, ambient=27.4°C.
8.3V output	overload	240	5.5 hr	F1	0.20	Temperature stable at 1.25A, load to 1.3A, unit shut down, no damaged, no hazards. The maximum temperature of T1=84.3°C, ambient=27.6°C.
8.3V output	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.
9V output	overload	240	6.5 hr	F1	0.20	Temperature stable at 1.9A, load to 2.0A, unit shut down, no damaged, no hazards. The maximum temperature of T1=80.9°C, ambient=27.2°C.
9V output	short	240	0.5 hr	F1	0.01	Unit shut down immediately, no damaged, no hazards.

Supplementary information:

- For fuse opened condition, same result came out for each source of fuse used.

List of test equipment used:

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date
Supplementary information: No listing of test equipment used necessary for chosen test procedure.				

Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.5	TABLE: Energy hazard measurement				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
+8.3V	1	8.41	1.8	11.39 (7.59V*1.5A)	
+9V	1.4	9.10	8.0	17.62 (8.81V*2.0A)	
Supplementary information: Input: 264V, 60Hz					

2.1.1.7	TABLE: Discharge test				P
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments	
Line to Neutral (Fuse in condition)	0.22	0.25	--	Vo=360V, 37% of Vo=133.2V, after 1 sec. at 8V	
Supplementary information: Supplementary information: Input: 264V, 60Hz Capacitance: 0.22μF (C004=0.22μF) Discharge resistor: 1.02MΩ (HR1=HR2=510kΩ)					

2.2.2	TABLE: SELV measurement (under normal conditions)			P
Transformer	Location	Voltage (max.) (V)		Voltage Limitation Component
		V peak	V d.c.	
T1	Pin 6 to 7	38	--	--
T1	Pin 10 to 7	72	--	--
T1	After D8	--	22	D8
Supplementary information: Input: 240V, 60Hz				

2.2.3	TABLE: SELV measurement (under fault conditions)		P
Location	Voltage (max.) (V)	Comments	
9V output to RTN	3.4 Vdc	D8 short	
8.3V output to RTN	1.1 Vdc	D8 short	
Supplementary information: Input: 264V, 60Hz			

2.4.2	TABLE: Limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq. (Hz)	Limit (mA)	Comments	

Clause	Requirement + Test	Result - Remark	Verdict

CY1 to Earth	0.64	0.32	60	0.7	CY1=2200pF
Supplementary information: Input voltage: 264V, 60Hz and measure with a 2kΩ non-inductive resistor as load.					

2.5	TABLE: Limited power source measurement		P
	Limits	Measured	Verdict
According to Table 2B (normal condition) , Uoc=8.41V			
current (in A)	8	1.7	P
apparent power (in VA)	100	11.44	P
According to Table 2B (U19 pin1 to 2 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (U19 pin4 open single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (D6 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (C13 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (ZD3 short single fault condition), Uoc=8.38V			
current (in A)	8	1.6	P
apparent power (in VA)	100	8.46	P
According to Table 2B (R48 short single fault condition), Uoc=8.38V			
current (in A)	8	1.5	P
apparent power (in VA)	100	8.76	P
According to Table 2B (R50 short single fault condition), Uoc=8.38V			
current (in A)	8	1.5	P
apparent power (in VA)	100	8.81	P
According to Table 2B (normal condition) , Uoc=9.1V			
current (in A)	8	7.0	P
apparent power (in VA)	100	17.92	P

Clause	Requirement + Test	Result - Remark	Verdict
According to Table 2B (U19 pin1 to 2 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (U19 pin4 open single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (D6 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (C13 short single fault condition), unit shut down			
current (in A)	0	0	P
apparent power (in VA)	0	0	P
According to Table 2B (ZD3 short single fault condition), Uoc=9.02V			
current (in A)	8	1.8	P
apparent power (in VA)	100	10.54	P
According to Table 2B (R48 short single fault condition), Uoc=8.38V			
current (in A)	8	1.8	P
apparent power (in VA)	100	10.75	P
According to Table 2B (R50 short single fault condition), Uoc=9.01V			
current (in A)	8	1.8	P
apparent power (in VA)	100	10.53	P
Supplementary information: Input voltage: 264V, 60Hz			

2.6.3.4	TABLE: Resistance of earthing measurement		N/A
Location	Resistance measured (mΩ)	Comments	
Supplementary information:			

2.10.2	Table: Working voltage measurement		P
Location	RMS voltage (V)	Peak voltage (V)	Comments
T1 pin1 to 6	224	384	
T1 pin1 to 7	224	416	

Clause	Requirement + Test	Result - Remark	Verdict

T1 pin1 to 10	223	368	
T1 pin2 to 6	224	360	
T1 pin2 to 7	223	360	
T1 pin2 to 10	224	368	
T1 pin4 to 6	215	376	
T1 pin4 to 7	215	352	
T1 pin4 to 10	216	400	
T1 pin5 to 6	249	422	
T1 pin5 to 7	254	438	**Highest Vpk and Vrms in T1**
T1 pin5 to 10	246	414	
U19 pin3 to 1	227	368	
U19 pin3 to 2	220	360	
U19 pin4 to 1	224	360	
U19 pin4 to 2	226	368	
CY1	220	352	
Supplementary information: Input voltage: 240V, 60Hz			

4.6.1, 4.6.2	Table: Enclosure opening measurements	P
Location	Size (mm)	Comments
Top/side/bottom	--	None.
Supplementary information:		

5.1.6	TABLE: Touch current and protective conductor current measurement			P
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments
Fuse in	0.09	0.09	0.25	To output connector, switch “e” closed.
Fuse in	0.01	0.01	0.25	To enclosure wrapped with metal foil, switch “e” closed.
Supplementary information: Input voltage: 264V Input frequency: 60Hz Overall capacity: CY1=2200pF				

Clause	Requirement + Test	Result - Remark	Verdict

C.2	TABLE: Insulation of transformers		P
	Transformer part name ..... :	T1	—
	Manufacturer ..... :	See appended table 1.5.1.	—
	Type ..... :	See appended table 1.5.1.	—

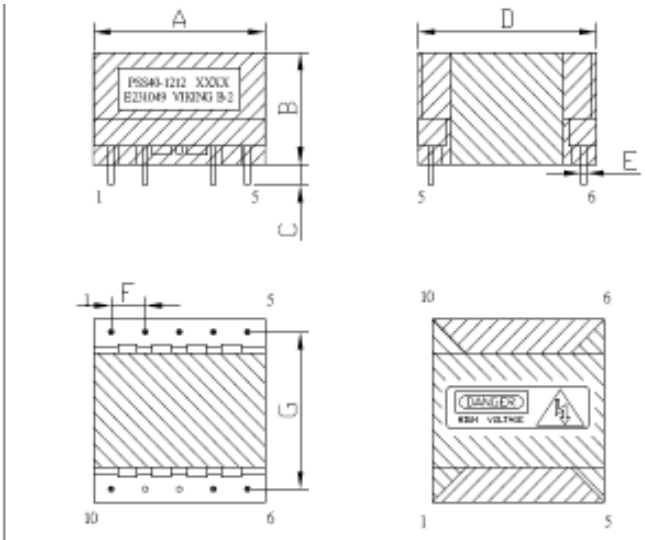
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Primary /input winding and secondary/output winding (internal)	438	254	4.2	6.0	5.2	6.0
Primary/input winding and core (internal)			2.1	3.0	2.6	3.0
Secondary/output winding and core (internal)			2.1	3.0	2.6	3.0
Primary/input part and secondary/output part (external)			4.2	7.6 (primary pin to core to secondary pin)	5.2	7.6 (primary pin to core to secondary pin)
Primary/input part and core (external)			2.1	3.8 (primary pin to core)	2.6	3.8 (primary pin to core)
Primary/input part and secondary/output winding (external)			4.2	6.0 (pin to secondary winding)	5.2	6.0 (pin to secondary winding)
Secondary/output part and core (external)			2.1	3.8 (secondary pin to core)	2.6	3.8 (secondary pin to core)
Secondary/output part and primary/input winding (external)			4.2	5.2 (pin to primary winding)	5.2	5.2 (pin to primary winding)

Description of design:	
(a) Bobbin	
Primary/input pins :	5-3-4, 1-2 Copper foils E1/E2-2
Secondary/output pins ..... :	10-6-7
Material (manufacturer, type, ratings) ..... :	Chang Chun Plastics, Phenolic type T375J, V-0, 150°C
Thickness (mm)..... :	0.7mm
(b) General	

Clause	Requirement + Test	Result - Remark	Verdict

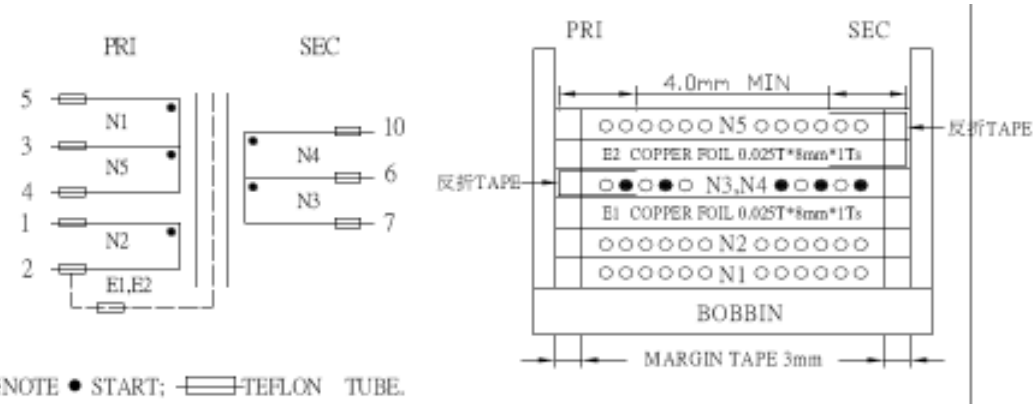
Concentric windings on EFD25 type mechanical package, transformer construction as below.

- Three layers of insulation tape between primary and secondary windings and three layers of insulation tapes wrapped on outer layer.
- Margin tape 3.0mm is provided on top/bottom sides of transformer.
- One layer “U” shape of insulation tape are provided on winding layers N3, N4, N5, E2 of transformer and fold-back 4.0mm.
- Winding ends additionally fixed with tape and tubing is provided for all leads, outer winding is primary.
- Copper foils E1/E2 connected to pin2 of transformer and one layer of insulation tape provided and fold-back 2.0mm on top/bottom side of copper foils.
- Core is considered as floating.
- Two layers of insulation tape are provided around the transformer.



※ PIN8,9 CUT OFF,PIN3 CUT OFF 2/3.
※ 成品後包 28mm (REF)TAPE 2Ts(切齊 BOBBIN 支點),反折在上方,再包與線包同寬 TAPE 1Ts.
※ 變壓器頂部貼高壓標籤.
※ 內銅箔加工圖如右：

NO.	A	B	C	D	E	F	G	K			
SPECIFICATION	29.0	19.5	3.5	28.0	0.8 ϕ	5.0	22.5	2.0			
TOLERANCE	MAX	MAX	±0.5	MAX	±0.1	±0.3	±0.5				



Supplementary information:

Clause	Requirement + Test	Result - Remark	Verdict

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Differences according to.....: EN 60950-1:2006+A11:2009

	CENELEC COMMON MODIFICATIONS (EN)	P
ZA	Normative references to international publications with their corresponding European publications	—

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1	**Replace** the existing SNC by the following: In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.7.2.1	**Add** as new SNC: In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).” NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		
1.7.5	**Add** the following paragraph to the existing SNC for **Denmark**: For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A
7.3	**Delete** the existing SNC for Norway and Sweden (based on NOTE 1 of IEC 60950-1:2005 + corr. 1). **Add** as new SNC (based on future NOTE 3 of IEC 60950-1:200X): In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		P
1.5.1	**Sweden** **Delete** the A-deviation.		N/A
1.7.2.1	**Denmark** **Delete** the A-deviation.		N/A
1.7.5	**Denmark** **Delete** the A-deviation.		N/A
5.1.7.1	**Denmark** **Delete** the A-deviation.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	Canadian National Differences		P
SPECIAL NATIONAL CONDITIONS			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	The equipment was evaluated according to IEC 60950-1. The requirements have to be checked during the national approval.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.	The interconnecting cable is not exceeding 3.05 m.	N/A
1.7.1	Equipment for use on a.c. mains 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 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."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and “Class 2” or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	To be evaluation when submitted for national approval.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.		N/A
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.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Tables 11 and 12 of the CEC and Article 400 of the NEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.11	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.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) 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/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.		N/A
OTHER DIFFERENCES			
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 (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-	Components are approved by UL, see appended table 1.5.1.	P

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.		
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	See appended table 5.3 of IEC 60950-1 test report.	P

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	Korean National Differences		P
	Corresponding National Standard: K 60950-1		P
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	To be evaluated when submitted for national approval.	N/A
8	Addition: EMC The apparatus shall comply with the relevant CISPR standards.	To be evaluated when submitted for national approval.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	US National Differences		P
SPECIAL NATIONAL CONDITIONS BASED ON FEDERAL REGULATIONS			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	The equipment was evaluated according to IEC 60950-1. The requirements have to be checked during the national approval.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	The interconnecting cable is not exceeding 3.05 m.	N/A
1.7.1	Equipment for use on a.c. mains 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.		N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A
2.7.1	Suitable NEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC.		N/A
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.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.5	Power supply cords are required to be no longer than 4.5 m in length and minimum length shall be 1.5 m. Flexible power supply cords are required to be compatible with Article 400 of the NEC.		N/A
3.2.9	Permanently connected equipment must have a suitable wiring compartment and wire bending space.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm2).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, must be suitable for U.S wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	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.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5	Equipment with lasers is required to meet the Code of Federal Regulations 21 CFR 1040.		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) 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/A
Annex H	Equipment that produces ionizing radiation must comply with Federal Regulations, 21 CFR 1020		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

OTHER NATIONAL DIFFERENCES			
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, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	Components are approved by UL, see appended table 1.5.1.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage it to include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the max. acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	See appended table 5.3 of IEC 60950-1 test report.	P
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Australian National Differences according to CB Bulletin No. 112A, December 2006 (AS/NZS 60950.1:2003) (IEC Publication 60950-1:2001)	P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.		
Annex ZZ Variations		
1.2	Between the definitions for "Person, service" and "Range, rated frequency" insert the following: Potential ignition source 1.2.12.201	Inserted. N/A
1.2.12.15	After the definition of 1.2.12.15, add the following: 1.2.12.201 Potential ignition source: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a potential ignition source. NOTE 202: This definition is from AS/NZS 60065:2003.	Added. N/A
1.5.1	Add the following to the end of first paragraph: "or the relevant Australian/New Zealand Standard."	Added. N/A
1.5.2	Add the following to the end of first and third dash items: "or the relevant Australian/New Zealand Standard."	Added. N/A
2.1	Delete the Note.	Deleted. N/A
3.2.3	Delete Note 2.	Deleted. N/A
3.2.5	Modify Table 3B as follows:	Modified. N/A

Rated current of equipment A	Nominal cross-sectional area mm^2	AWG or kcmil (cross-sectional area in mm^2) see note 2
Over 0.2 up to and including 3	0.5[1)]	18 [0.8]
Over 3 up to and including 7.5	0.75	16 [1.3]

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	Over 7.5 up to and including 10	(0.75)[2] 1.00	16 [1.3]		
	Over 10 up to and including 16	(1.0)[3] 1.5	14 [2]		
	Replace footnote 1) with the following: [1] This nominal cross-sectional 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 appliances, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1.				
4.3.6	Replace paragraph three with: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.			Replaced.	N/A
4.3.13.5	Add the following to the end of the first paragraph: ", or AS/NZS 2211.1"			Added.	N/A
4.7	Add the following paragraph: For alternative tests refer to clause 4.7.201.			See below.	N/A
4.7.201	Add the following after clause 4.7.3.6: 4.7.201 Resistance to fire - Alternative tests			Added. However, equipment under test, materials used and components in compliance with requirements of IEC 60950-1. Alternative test methods were not considered.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.201.1	General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NSZ 4695.707 and having openings only for the connecting wires filling the openings completely, and for the ventilation not exceeding 1 mm in width regardless of the length. The following parts which would contribute negligible fuel to a fire: small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; small electrical components, such as capacitors with a volume not exceeding 1750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material flammability category FV-1 or better according to AS/NZS 4695.707 NOTE - In considering how to minimize propagation of fire and what “small parts” are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance is checked by tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base materials of printed boards, compliance is checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material, which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation, as they would be in normal use. These tests are not carried out on internal wiring.	See above.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.201.2	Parts of non-metallic material are subjected to glow wire test of AS/NZS 4695.2.11, which is carried out at 550 °C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of materials classified at least FH-3 according to ISO 9772 provided that the sample was not thicker than the relevant part.	See above.	N/A
4.7.201.3	Testing of insulating materials Parts of insulating materials supporting potential ignition sources shall be subject to the glow-wire test of AN/NZS 4695.2.11, which is carried out at 750 °C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE - Contacts in components such as switch contacts are considered to be connections. For parts, which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications: **5 Severities** Replace with: The duration of application of the test flame shall be 30 s ± 1 s. **8 Test procedure** 8.2 Modification: Replace the first sentence with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. 8.4 Modification: The first paragraph does not apply. Addition: If possible, the flame shall be applied at least 10 mm from a corner. 8.5 Replacement:	See above.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test. **10 Evaluation of test results** Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s. The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.		
4.7.201.4	Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow-wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 is made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not to be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burring or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting in contact with or in close proximity to connections.	See above.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.201.5	Testing of printed boards The base material of printed boards is subjected to needle-flame test to Clause 4.7.201.3. The flame is applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm for a potential ignition source. The test is not carried out if the – Printed board does not carry any potential ignition source; Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0 according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the opening completely, or Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material printed boards supporting spark gaps which provide protection against overvoltages, is of flammability category FV-0 according to AS/NSZ 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires fill the openings completely. Compliance is determined using the smallest thickness of the material. NOTE - Available apparent power is the maximum apparent power, which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.	For PCB material refer to appended table 1.5.1 of IEC 60950-1 test report.	N/A
6.2.2	Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2. Delete the note.	No TNV circuits with the equipment.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
6.2.2.1	Delete Note 2. Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700 μs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc, is: - for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 - The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The 2.5 kV impulse for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	No TNV circuits with the equipment.	N/A
6.2.2.2	Delete the note. Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: - for 6.2.1a): 3 kV; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 – Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 – The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	No TNV circuits with the equipment.	N/A
Annex P	Add the following Normative References to Annex P: IEC 60065, Audio, Video and similar electronic apparatus - Safety requirements AS/NZS 3112, Approval and test specification - Plugs and socket-outlets AS/NZS 3191, Approval and test specification - Electric flexible cords AS/NZS 4695.707, Fire hazard testing of electrotechnical products - Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	Added.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Canadian National Differences according to CB Bulletin No. 112A, December 2006 (CAN/CSA C22.2 No. 60950-1/UL60950-1) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
Special National Conditions			
1.1.1	All equipment is to be designed to allow installations in accordance with the National Electrical Code (NEC), ANSI/NFPA 70,the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	The equipment was evaluated according to IEC 60950-1. The requirements have to be checked during the national approval.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains 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 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.”		N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets, receptacles 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 10 kVA or more, require transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.		N/A
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.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12A, or if the motor has a nominal voltage rating greater than 120V, or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the ”on” position indicated by the handle in the up position.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.11	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.		N/A
4.3.12	The maximum quantify of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	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/A
4.7.3.1	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 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/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Other differences			
1.5.1	Components of equipment must be suitable for the application, and must comply with the requirements of the equipment standard and the applicable national (Canadian and/or U.S.) component or material 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. National Certification Body (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 subject to the applicable tests of the equipment standard.	Components are approved by UL, see appended table 1.5.1.	P

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	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 subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material 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 with its specified ratings, will be subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material 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 International or another laboratory		
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mAd.c. under normal operating conditions.		N/A
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, writing, marking and installation instruction requirements.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.2.1	Enamel coating on winding wire not considered electrical separation unless subjected to special investigation.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Korean National Differences according to CB Bulletin No. 112A, December 2006 (K60950) (IEC Publication 60950-1:2001)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	No power supply cord provided.	N/A
7	Addition: EMC The apparatus shall comply with the relevant CISPR standards.	The requirements of CISPR have to be considered during the national approval.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	US National Differences according to CB Bulletin No. 112A, December 2006 (UL 60950-1) (IEC Publication 60950-1:2001)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
Special National Conditions			
1.1.1	All equipment is to be designed to allow installations in accordance with the National Electrical Code (NEC), ANSI/NFPA 70,the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	The equipment was evaluated according to IEC 60950-1. The requirements have to be checked during the national approval.	P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains 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 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.”		N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No such fuses used.	N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets, receptacles 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 10 kVA or more, require transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.		N/A
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.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12A, or if the motor has a nominal voltage rating greater than 120V, or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the ”on” position indicated by the handle in the up position.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.11	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.		N/A
4.3.12	The maximum quantify of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	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/A
4.7.3.1	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 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/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Other differences			
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, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches	Components are approved by UL, see appended table 1.5.1.	P

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	(including interlock switches), thermal cut-offs, thermostats, multi-layer transformer winding wire, tubing, wire connectors, and wire and cables.		
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, writing, marking and installation instruction requirements.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.2.1	Enamel coating on winding wire not considered electrical separation unless subjected to special investigation.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.		N/A

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A