IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-031294

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	All in one PC
Name and address of the applicant Nom et adresse du demandeur	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the factory Nom et adresse de l'usine	MSI Computer (Shenzhen) Co., Ltd. Longma Information Technology Industrial Park, Tangtou Village, Shiyan Town, Baoan District, Shenzhen, Guangdong 518108, P.R. China
Rating and principal characteristics Valeurs nominales et caractéristiques principales	DC 19V; 9.5A; Class III
Trade mark (if any) Marque de fabrique (si elle existe)	msi
Model/type Ref. Ref. de type	MS-AE1XXXX (X= any alphanumeric character or blank)
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
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	11019890 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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Date: 16.03.2010

Signature: 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.....:	11019890 001
Date of issue .....:	March 11, 2010
Total number of pages	68
CB/CCA Testing Laboratory.....:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory
Address .....:	10F, No. 219, Min Chuan Road, Taichung 403, Taiwan
Applicant's name.....:	Micro-Star Int'l Co., Ltd.
Address .....:	69, Li-De St., Chung Ho City, Taipei Hsien 235 Taiwan
Manufacturer's name .....:	Same as applicant.
Address .....:	Same as applicant.
Factory's name .....:	See the following pages.
Address .....:	See the following pages.
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.

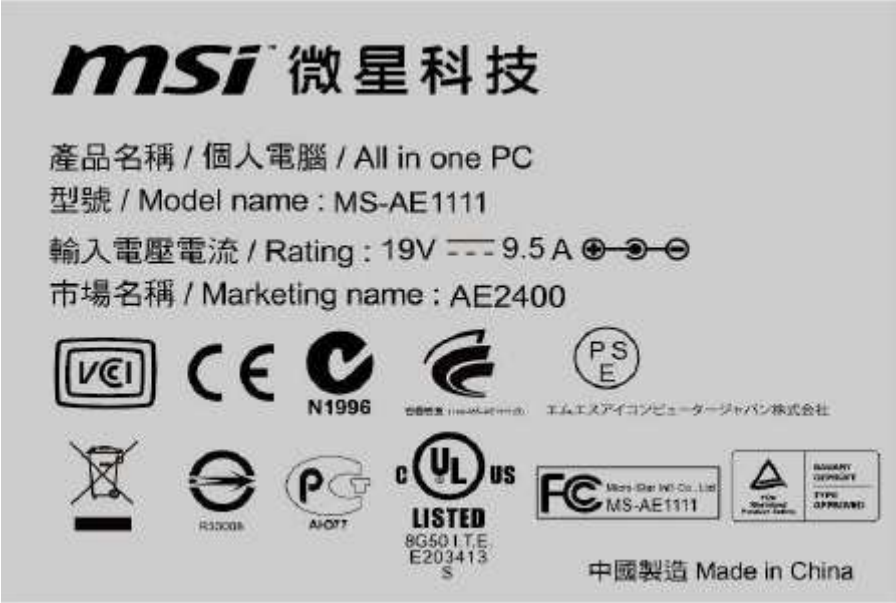
If this Test Report Form is used by non-CCA members, the CIG logo and the reference to the CCA Procedure shall be removed.
This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA

Test item description .....:	All in one PC
Trade Mark .....:	msi
Manufacturer .....:	Same as applicant.
Model/Type reference .....:	MS-AE1XXXX (X= any alphanumeric character or blank)
Ratings .....:	I/P: 19Vdc, 9.5A

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)..... :	Jason Liu
Approved by (+ signature)..... :	Dennis Chen
☐ 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): All applicable tests as described in Test Case and Measurement Sections were performed. • The maximum ambient temperature is specified as 40°C. • The CPU: Intel® Pentium® E5400 2.7GHz and 4.0GB memory are provided during tests. • The user's manual stated as below: "The cable shield shall be earthed in accordance with the building installation of National requirement." • The load conditions used during testing: Maximum brightness and contrast of the LCD backlight circuit, CPU are running 100%, reading and writing between HDD and card reader, optical device playing a disk, the dummy loads of 0.5A in each USB ports. • Pre-production without serial number.	**Testing location:** All tests as described in Test Case were performed at the laboratory described on page 1.
Summary of compliance with National Differences: EU Group Differences, EU Special National Conditions, EU A-Deviations, AT, AU, CA, CH, DE, DK, FI, FR, GB, IT, KR, NL, NO, PL, SE, SI, US. Explanation of used codes: AT=Austria, AU=Australia, CA=Canada, CH=Switzerland, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, IT=Italy, KR=Korea, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SI=Slovenia, US=United States of America. For National Differences see corresponding Attachment.	

Copy of marking plate:



Test item particulars ..... :	
Equipment mobility ..... :	[**X**] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains..... :	[] pluggable equipment [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [**X**] 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 [] OVC II [] OVC III [] OVC IV [**X**] other: No direct mains connection
Mains supply tolerance (%) or absolute mains supply values ..... :	N/A
Tested for IT power systems ..... :	[] Yes [**X**] No
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	[] Class I [] Class II [**X**] Class III [] Not classified
Considered current rating (A) ..... :	Not directly connected to the mains
Pollution degree (PD) ..... :	[] PD 1 [**X**] PD 2 [] PD 3
IP protection class ..... :	IPX0
Altitude during operation (m) ..... :	Up to 2000
Altitude of test laboratory (m) ..... :	Up to 2000
Mass of equipment (kg) ..... :	5.15
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 .....:	February – March, 2010
Date(s) of performance of tests .....:	February – March, 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 under test (EUT) model MS-AE1XXXX is all in one PC for use in the scope of information technology equipment.
- Motherboard type: MS-AE111.

Engineering Considerations

- The product was submitted and tested for use at the **maximum ambient temperature (Tma)** permitted by the manufacturer's specification of: 40°C.
- The following accessible locations are within a **limited current circuit** (see subclause 2.4): Output of DC/AC inverter
- The following circuit locations were investigated as a **limited power source** (see subclause 2.5): Output ports.
- The following terminals to be connected to a **Cable Distribution System** were investigated to Clause 7: TV tuner

Additional Information

- This end product is for use with **field installable optical transceivers** not provided with the product when shipped from the original equipment manufacturer. This end product was evaluated with representative optical transceivers during the type test investigation. The end product with optical transceivers installed is required to comply with IEC 60950-1 and IEC 60825-1 and –2, including any declared national differences. The decision on certification of the end product without the optical transceivers rests with the recognizing NCB.
- This report contains all national deviation as the class III equipment itself is subject of this CB report, but CB countries should investigate this matter for external adapter while the equipment under test is submitted for national approval.
- The Label in Copy of marking plate is a draft of an artwork pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.
- The **power supply unit** used with the product is a certified product which was investigated according to the standard of earlier version. The suitability of use has been evaluated in this report.
- Some components are **pre-certified**, which have been evaluated according to the relevant requirements of IEC 60950-1, are employed in this product. Their suitability of use has been checked according to subclauses 1.5.1 and 1.5.2.

Markings and Instructions

- ⏻ (IEC 60417-5009) for the stand-by condition. (See subclause 1.7.8.3)

Other comments:

Factory(ies):

MSI Computer (Shenzhen) Co., Ltd.

Longma Information Technology Industrial Park, Tangtou Village Shiyan Town, Baoan District, Shenzhen, Guangdong 518108, P.R. China

Definition of variable(s):

Variable:	Range of variable:	Content:
X	any alphanumeric character or blank	For marketing purpose.

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.	P
1.5.3	Thermal controls		N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	Interconnection cable to power adaptor is only carrying SELV on an energy level below 240VA. Except for the insulation material there are no further requirements to the interconnection cable.	P
1.5.6	Capacitors bridging insulation		N/A
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
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		N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1	AC power distribution systems	No direct mains connection	N/A
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		P
1.6.4	Neutral conductor	Equipment is not directly connected to the AC mains supply.	N/A
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) .....:	No direct connection to the mains supply.	N/A
	Symbol for nature of supply, for d.c. only.....:		N/A
	Rated frequency or rated frequency range (Hz) ....:	No direct connection to the mains supply.	N/A
	Rated current (mA or A) .....:	No direct connection to the mains supply.	N/A
	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 .....:		N/A
	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	Instructions are available.	P
1.7.2.2	Disconnect devices		P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:		N/A
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals .....:		N/A
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	See below.	P
1.7.8.1	Identification, location and marking .....:	The function of indicators and controls is clearly identified.	P
1.7.8.2	Colours .....:	Colors are used and safety is not involved.	P
1.7.8.3	Symbols according to IEC 60417 .....:	See General product information - Markings and Instructions	P
1.7.8.4	Markings using figures .....:		N/A
1.7.9	Isolation of multiple power sources .....:		N/A
1.7.10	Thermostats and other regulating devices .....:		N/A
1.7.11	Durability	Marking is legible. The marking plate has no curling and is not able to be removed easily.	P
1.7.12	Removable parts	No removable parts.	N/A
1.7.13	Replaceable batteries .....:	Warning text provided in user's manual.	P
	Language(s) .....:	English.	—
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		P
	Test by inspection .....:	The EUT is supplied from an approved SPS adaptor that provides only SELV.	P
	Test with test finger (Figure 2A) .....:		P
	Test with test pin (Figure 2B) .....:		P
	Test with test probe (Figure 2C) .....:		P
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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 .....:	No energy hazard in operator access area. The connectors of the equipment below 240VA.	P
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s) .....:		—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	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	The equipment supplied by external power adaptor which provides SELV only.	P
2.2.2	Voltages under normal conditions (V) .....:		P
2.2.3	Voltages under fault conditions (V) .....:		P
2.2.4	Connection of SELV circuits to other circuits .....:	See 2.2.2, 2.2.3 and 2.4.3. No direct connection between SELV and any primary circuits.	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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	The peak drop voltage was measured with an oscilloscope at a 2kΩ non-inductive resistor.	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).....:	Less than 0.1µF.	—
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	Approved sources of polyswitch provided. See appended table 1.5.1 for details.	P
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:	Results 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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
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		N/A
2.7.1	Basic requirements		N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices .....:		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel .....:		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
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 material is not used.	P
2.9.2	Humidity conditioning	120 hours	P
	Relative humidity (%), temperature (°C) .....:	95% R.H, 40°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		P
	Method(s) used .....:	1	—
2.10	Clearances, creepage distances and distances through insulation		N/A
2.10.1	General		N/A
2.10.1.1	Frequency .....:		N/A
2.10.1.2	Pollution degrees .....:		N/A
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply .....:		N/A
	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		N/A
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....:		N/A
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		N/A
2.10.4.1	General		N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests .....:		—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs) .....:		—
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		N/A
	Electric strength test		—
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		N/A
2.10.6.1	Uncoated printed boards		N/A
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
	Number of insulation layers (pcs) .....:		N/A
2.10.7	Component external terminations		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A
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 VW-1, minimum 80°C. Internal wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges, which could damage the insulation.	P
3.1.3	Securing of internal wiring	Internal wires are secured by quick connection, 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
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws	No self- tapping or spaced thread screws are used.	N/A
3.1.9	Termination of conductors	All conductors are reliably secured.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	10 N pull test	10N pull test performed for all relevant conductors. No hazards caused hereby.	P
3.1.10	Sleeving on wiring		N/A
3.2	Connection to a mains supply		N/A
3.2.1	Means of connection		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
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		N/A
3.2.5	Power supply cords		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		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
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
3.5	Interconnection of equipment		P
3.5.1	General requirements	Conformance to 2.2 is continued.	P
3.5.2	Types of interconnection circuits .....:	Interconnection circuits of SELV and LCC through secondary output connector.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection circuit.	N/A
3.5.4	Data ports for additional equipment	See appended table 2.5.	P
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	The equipment mass less than 7kg.	N/A
	Test force (N) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit complies with 4.4.1.	P
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test	See below.	P
	Fall test	No hazard as result from steel ball fall test.	P
	Swing test	No hazard as result from steel ball swing test.	P
4.2.6	Drop test; height (mm) .....:	No hazard as result from 1000mm drop test.	P
4.2.7	Stress relief test	Test performed at 71°C for 7 hours. No safety relevant damages of the enclosure.	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) .....:	151.5N applied for downward through the geometric centre. No damage and hazards.	P
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	None that would cause hazard.	N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress.	P
4.3.5	Connection by plugs and sockets	Mismatch of connectors were prevented by incompatible form or location.	P
4.3.6	Direct plug-in equipment	Not direct plug-in type.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Torque .....:		—
	Compliance with the relevant mains plug standard .....:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries	Approved battery used and which was protected by a circuit. - D5 short= 3.0mA - R198 short= 0mA	P
	- 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 .....:		N/A
	Quantity of liquid (l) .....:		N/A
	Flash point (°C) .....:		N/A
4.3.13	Radiation	No radiation is generated inside the equipment. The energy of the indicator LED is far below the limit for Class 1 Laser products. For other component refer to appended table 1.5.1.	P
4.3.13.1	General		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

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5	Laser (including LEDs)	The energy of the indicator LED is far below the limit for Class 1 LED products.	P
	Laser class .....:	See above.	—
4.3.13.6	Other types .....:		N/A
4.4	Protection against hazardous moving parts		P
4.4.1	General	See below.	P
4.4.2	Protection in operator access areas .....:	Motor used in the appliance are certified HDD, ODD. The DC fan is located in the notebook which blocked by heaksink, therefore user can not contact to any moving part and course hazards.	P
4.4.3	Protection in restricted access locations .....:	Not limited for 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 .....:		N/A
4.6	Openings in enclosures		P
4.6.1	Top and side openings		P
	Dimensions (mm) .....:	See appended table 4.6.1 and 4.6.2.	—
4.6.2	Bottoms of fire enclosures		P
	Construction of the bottom, dimensions (mm) .....:	See appended table 4.6.1 and 4.6.2.	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	(see appended table 1.5.1)	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 secondary (not supplied by LPS) • 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	PCB rated accordingly. See appended table 1.5.1 for details.	P
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1.	N/A
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, HF-2 material.	N/A
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N/A
5.1.1	General		N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA)....:		—
5.1.7	Equipment with touch current exceeding 3,5 mA		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) .....:		—
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		P
5.2.2	Test procedure		P

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2	Motors	Motor is used in the appliances that are certified HDD, ODD and DC fan, see appended table 1.5.1.	P
5.3.3	Transformers	No safety isolation transformer.	N/A
5.3.4	Functional insulation.....:	Method c). Results 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	Results 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	No fire occurred. No molten metal was emitted.	P
5.3.9.2	After the tests		N/A
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Max. output current (A) .....:		—
	Current limiting method .....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		P
7.1	General		P
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	The cable distribution systems are assumed as TNV-1.	P
7.3	Protection of equipment users from overvoltages on the cable distribution system	Due to: - The circuit under consideration is TNV-1. - The common of the circuit and accessible is connected to the screen of coaxial cable. - The screen of the coaxial cable is intended to be connected to earth in the building insulation Therefore the separation requirement and tests of 6.2.1 is not applied.	P
7.4	Insulation between primary circuits and cable distribution systems		P
7.4.1	General		P
7.4.2	Voltage surge test	Voltage surge test conducted. See appended table 5.2.	P
7.4.3	Impulse test	Impulse test conducted. See appended table 5.2.	P
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
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 .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
A.1.5	Test procedure		N/A
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)		N/A
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 .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated values .....:		—
B.2	Test conditions		N/A
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)		N/A
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
	Method of protection.....:		—
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
D.1	Measuring instrument		N/A
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)		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used .....:		—
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	See “summary of testing”.	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

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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)		N/A
	a) Preferred climatic categories .....:		N/A
	b) Maximum continuous voltage .....:		N/A
	c) Pulse current .....:		N/A
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)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A

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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		—

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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.	P
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

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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.		N/A
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

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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).	N/A
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

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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.		N/A
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

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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

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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

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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.		N/A
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

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1.5.1	TABLE: List of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity [1.]
PCB	--	--	V-1 or better min. 105°C	UL 94	UL
Enclosure	CHI MEI CORPORATION	PA-757(+)	HB or better, min. 1.9mm thick, 80°C	UL 94	UL
	CHI MEI CORPORATION	PA-765A (+)	V-1 or better, min. 1.9 mm thick. 80°C	UL 94	UL
Metal chassis	--	--	Min. 0.8mm thick	--	--
Metal mesh	--	--	Min. 0.5 mm thick	--	--
VGA Fan	AVC	BATA0716R2H-001	12Vdc, 0.3A, 10.95CFM	EN 60950-1: 2001, UL 507	TÜV, UL
CPU Fan	AVC	BATA0822R2H-001	12Vdc, 0.52A, 21.73CFM	EN 60950-1: 2001, UL 507	TÜV, UL
System Fan	AVC	C3010S12H-505K	12Vdc, 0.10A, 3.31CFM	EN 60950-1: 2001, UL 507	TÜV, UL
LCD Panel	CHI MEI (CMO)	M236H1-L01	TFT type, 23.6”	--	--
ADAPTOR	Delta Electronics Inc.	ADP-180HB B	I/P: 100-240V~, 50-60Hz, 2.25A O/P: +19V/ 9.5A 40°C, Class I	IEC/EN 60950-1: 2001, UL 60950-1	TÜV, UL, CB (issued by TÜV/RH Ref. Certif. No. JPTUV-018297)
	FSP	FSP180-ABAN1	I/P: 100-240V~, 50-60Hz, 2.5A O/P: +19V/ 9.47A 40°C, Class I.	IEC/EN 60950-1: 2001, UL 60950-1	TÜV, UL, CB (issued by TÜV/RH Ref. Certif. No. JPTUV-021834)
RTC Battery (Lithium)	FDK ENERGY CO LTD	CR2032	3V, 220mAh, maximum abnormal charge current= 5mA.	UL 1642	UL

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	Matsushita Electric Industrial Co. Ltd. (Panasonic Corp Of North America)	CR2032	3V, 220mAh, maximum abnormal charge current= 10mA.	UL 1642	UL
	Vic-Dawn Enterprise Co. Ltd.(KTS)	CR2032	3V, 220mAh, maximum abnormal charge current= 10mA.	UL 1642	UL
HDD Drive (Optional)	Seagate or equivalent	ST3 series or 3.5 series or equivalent	+5/+12Vdc, max. 1.5A	IEC/EN 60950-1: 2001, UL 60950-1	TÜV, UL, CB (issued by UL Ref. Certif. No. US/10879/UL)
Speaker (Two Provided)	--	--	8Ω, 5W	--	--
Speaker (One Provided)	--	--	6.4Ω, 10W	--	--
DVD Multi Drive (Optional)	Hitachi-LG Data Storage, Inc. or equivalent	GCC-T2** (* = any alphanumeric character) or equivalent	5Vdc, 1.8A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-50804)
	Hitachi-LG Data Storage, Inc. or equivalent	GSA-T5** (first "*"= any number 0-9; second "*"= any alphanumeric character) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-53474)
	Hitachi-LG Data Storage, Inc. or equivalent	GT10* (* = any alphanumeric character) or equivalent	5Vdc, 1.8A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-54328)
	Hitachi-LG Data Storage, Inc. or equivalent	GT3** (*= any alphanumeric character) or equivalent	5Vdc, 1.8A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. JSE-57485)
	Philips & Lite-On Digital Solutions Corporation or equivalent	DS-xx2Lxxx, DS-xx2Sxxx (x = any alphanumeric or blank) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/ RH Ref. Certif. No. JPTUV-019661)

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Clause	Requirement + Test	Result - Remark	Verdict

	Philips & Lite-On Digital Solutions Corporation or equivalent	DS-xx3Lxxx, DS-xx3Sxxx (x = any alphanumeric or blank) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/ RH Ref. Certif. No. JPTUV-024410)
	Philips & Lite-On Digital Solutions Corporation or equivalent	DS-xx4Lxxx, DS-xx4Sxxx (x = any alphanumeric or blank) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/ RH Ref. Certif. No. JPTUV-027914)
	SONY NEC optiarc Inc or equivalent	AD-X58XSXXX (X= 0-9, A-Z, blank or hyphen) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/ RH Ref. Certif. No. JPTUV-022707)
	SONY NEC optiarc Inc or equivalent	AX-X56XS-XX (X = 0-9, A-Z or blank) or equivalent	5Vdc, 1.5A, Laser Class 1	EN 60950-1: 2001, EN 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL
	Toshiba Samsung Storage Technology Korea Corporation or equivalent	TS-L632, SN-S082, TS-L633, SN-S083 or equivalent	5Vdc, 1.5A or 1.3A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by Nemko Ref. Certif. No. NO42511)
	Toshiba Samsung Storage Technology Korea Corporation or equivalent	TS-T633, SN-T083 or equivalent	5Vdc, 1.3A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by Nemko Ref. Certif. No. NO45550)
	Toshiba Samsung Storage Technology Korea Corporation or equivalent	TS-U633*; SU-S083 (* = any alphanumeric or blank) or equivalent	5Vdc, 1.3A, Laser Class 1	IEC 60950-1: 2005, EN 60950-1: 2006, IEC 60825-1: 2007, UL 60950-1	TÜV, UL, CB (issued by Nemko Ref. Certif. No. NO49136)

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

	Hitachi-LG Data Storage, Inc. or equivalent	GU1**, GSA-U20N-Z (*= any alphanumeric or blank) or equivalent	5Vdc, 1.5A, Laser Class 1	IEC 60950-1: 2005, EN 60950-1: 2006, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-56621)
	Panasonic Communications Co., Ltd.	UJ892	5Vdc, 1.6A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/RH Ref. Certif. No. JPTUV-025231)
BLUE RAY Disc Drive (ODD)	Hitachi-LG Data Storage, Inc. or equivalent	CT1** (* = any alphanumeric character) or equivalent	5Vdc,1.5A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-54876)
	SONY NEC optiarc Inc or equivalent	BC-5500Sxxx (x = blank, "-", A-Z or 0-9) or equivalent	5Vdc,2.0A, Laser Class 1	IEC/EN 60950-1: 2001, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by TÜV/RH Ref. Certif. No. JPTUV-018596)
	Hitachi-LG Data Storage, Inc. or equivalent	CT2** (* = any alphanumeric character) or equivalent	5Vdc,1.5A, Laser Class 1	IEC 60950-1: 2005, EN 60950-1: 2006, IEC 60825-1: 1993+A1+A2, UL 60950-1	TÜV, UL, CB (issued by ETL Ref. Certif. No. SE-56244)
DC/AC Inverter	FSP	INV22-4007	Input: 12Vdc, max. 2.8A Output: 2100V, max. 7.8mA	--	--
- Transformer (T1, T2)	FSP	FSP083-3L01	130°C	--	--
- Fuse (F1)	WICKMANN	392	3.15A, 250V	EN 60127-3	UL, VDE
- PCB	--	--	V-1 or better min. 105°C	UL 94	UL
TV-tuner (optional)	AVerMedia	A336_AF	+3.3Vdc	--	--
	AVerMedia	A320	+3.3Vdc	--	--
	AVerMedia	A369	+3.3Vdc	--	--
	AVerMedia	A336_AE	+3.3Vdc	--	--

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

PolySwitch provide to VGA, USB, Card Reader, Camera, HDMI, Touch pad (FS1, FS2, FS3, FS4, FS8, FS12, FS10, F1, FS5, FS6)	BOURNS	MF-MSMF150/24X-2	24Vdc, 1.5A	EN 60730-1, UL 1434	TÜV, UL
	BOURNS	MF-MSMF260-2	6Vdc, 2.6A	EN 60730-1, UL 1434	TÜV, UL
	BOURNS	MF-USMF110-2	6Vdc, 1.1A	EN 60730-1, UL 1434	TÜV, UL
	LITTELFUSE	1206L050/15YR	15Vdc, 0.5A	EN 60730-1, UL 1434	TÜV, UL
	POLYTRONICS	SMD1206P050TF/15	15Vdc, 0.5A	EN 60730-1, UL 1434	TÜV, UL
	POLYTRONICS	SMD1812P150TF/24	24Vdc, 1.5A	EN 60730-1, UL 1434	TÜV, UL
	Tyco Electronics Corp. (Raychem)	microSMD110F-2	6Vdc, 1.1A	EN 60730-1, UL 1434	TÜV, UL
	Tyco Electronics Corp. (Raychem)	miniSMDC110F	6Vdc or 8Vdc, 1.1A	EN 60730-1, UL 1434	TÜV, UL
	Tyco Electronics Corp. (Raychem)	miniSMDC150F/24-2	24Vdc, 1.5A	EN 60730-1, UL 1434	TÜV, UL

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
U (Vdc)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
19	6.9	9.5	131.1	--	--	Maximum normal load.

Supplementary information:

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements	N/A

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

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)
Supplementary information:						

2.10.5	TABLE: Distance through insulation measurements				N/A
Distance through insulation (DTI) at/of:	U peak (V)	U r.m.s. (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Supplementary information:					

4.3.8	TABLE: Batteries									N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available										N/A
Is it possible to install the battery in a reverse polarity position?										N/A
	Non-rechargeable batteries			Rechargeable batteries						
	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										N/A
- Explosion of the battery										N/A
- Emission of flame or expulsion of molten metal										N/A
- Electric strength tests of equipment after completion of tests										N/A

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

Supplementary information:

4.5	TABLE: Thermal requirements		P
	Supply voltage (V) ..... :	19Vdc	—
	Ambient T_{min} (°C) ..... :	--	—
	Ambient T_{max} (°C) ..... :	See below	—
Maximum measured temperature T of part/at::		T (°C)	Allowed T_{max} (°C)
1. PCB body near CPU		75.4	105
2. Heat sink body CPU		64.9	105
3. Heat sink body U95		63.4	105
4. Heat sink body U18		83.6	105
5. RTC battery body		61.5	--
6. DRAM body		82.8	105
7. HDD body		65.1	--
8. ODD body		55.3	--
9. Interanl metal enclosure near CPU		60.7	--
10. Outside of enclosure near CPU		50.5	95
11. Panel body		46.0	95
12. T2 coil (DC/AC Inverter)		73.3	130
13. U1 body (DC/AC Inverter)		67.7	105
14. Operating ambient		40.0	--
15. Actual ambient		21.5	--

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:

- 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.
- With a maximum ambient temperature of +40°C as declared by the manufacturer.
- All values for T (°C) are re-calculated from actual ambient.

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

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

Part	Test temperature (°C)	Impression diameter (mm)
Supplementary information:		

4.7	Table: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
External enclosure	Chi Mei	PA-757(+)	1.9	HB	--
Mesh	--	metal	0.5	--	--
Internal enclosure	--	metal	0.8	--	--
PCB	--	--	--	V-1	--
Supplementary information:					

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 Insulation Resistance	
After voltage surge test and impulse test				
Primary (External SPS) to SELV (Equipment)	DC	4242	No	
Primary (External SPS) to enclosure with foil (Equipment)	DC	4242	No	
Supplementary information:				

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) .....:	See below	—
	Power source for EUT: Manufacturer, model/type, output rating .....:	See appended table 1.5.1.	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation

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

CPU Fan	Stalled	19Vdc	2 hr	--	6.9	Unit operating normally. No hazardous. CPU= 81.7°C, U95= 49.6°C, U18= 80.1°C, Ambient= 21.7°C
VGA Fan	Stalled	19Vdc	2 hr	--	6.9	Unit operating normally. No hazardous. CPU= 58.3°C, U95= 57.5°C, U18= 66.2°C, Ambient= 22.3°C
System Fan	Stalled	19Vdc	1.5 hr	--	1.0	System shutdown after 10 min. No hazardous. CPU= 60.9°C, U95= 48.8°C, U18= 67.7°C, Ambient= 22.5°C
Ventilation	Blocked	19Vdc	3.5 hr	--	6.9	Unit operating normally. No hazardous. CPU= 77.1°C, U95= 72.8°C, U18= 75.7°C, Ambient= 21.7°C
VGA Port (JVGA1) pin 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13, 14, 15 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
VGA Port (JVGA1) pin 12 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 4.9V, available current= 1mA. No hazardous.
RJ-45 Port (LAN1) pin 1, 2, 3, 4, 5, 6, 7, 8 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
USB Port (USB1) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
USB Port (USB2) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
USB Port (USB3) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.

IEC/EN 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
USB Port (USB4) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
USB Port (JUSB1) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
USB Port (JUSB2) pin 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
ESATA Port (ESATA1) pin 1, 2, 3, 4, 5, 6, 7 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
HDMI Port (HDMI_IN1) pin 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15, 16, 17, 18, 19 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
HDMI Port (HDMI_IN1) pin 11 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 3.16V, available current= 1mA. No hazardous.
HDMI Port (HDMI_IN1) pin 13 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 2.8V, available current= 1mA. No hazardous.
Webcam (JCAMERA1) Pan 2, 3, 4 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
Touch Panel (JTOUCH1) pin 2, 4, 5, 6, 8 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
Touch Panel (JTOUCH1) pin 3 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 3.0V, available current= 1mA. No hazardous.
Touch Pad (JFP1) pin 1 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 4.9V, available current= 7mA. No hazardous.

IEC/EN 60950-1						
Clause	Requirement + Test				Result - Remark	Verdict
Touch Pad (JFP1) pin 3 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 2.5V, available current= 1mA. No hazardous.
Touch Pad (JFP1) pin 6 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 3.2V, available current= 1mA. No hazardous.
Touch Pad (JFP1) pin 8 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
Touch Pad (JFP2) pin 1, 3, 5, 7 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
Touch Pad (JFP2) pin 2 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 3.2V, available current= 1mA. No hazardous.
Touch Pad (JFP2) pin 6 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 2.8V, available current= 1mA. No hazardous.
B-CAS Card Reader Slot (JBCAS1) pin 1, 2, 3, 4, 5, 6, 7, 8 – Return	o-l	19Vdc	1 sec.	--	--	Open circuit voltage= 0V. No hazardous.
Supplementary information: In fault column, where s-c = short-circuited, o-l = overload.						

Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.5	TABLE: Energy hazard measurement				N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Supplementary information:					

2.1.1.7	TABLE: Discharge test				N/A
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments	
Supplementary information:					

2.2.2	TABLE: SELV measurement (under normal conditions)				N/A
Transformer	Location	Voltage (max.) (V)		Voltage Limitation Component	
		V peak	V d.c.		
Supplementary information:					

2.2.3	TABLE: SELV measurement (under fault conditions)		N/A
Location	Voltage (max.) (V)	Comments	
Supplementary information:			

2.4.2	TABLE: Limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
CN2 (1 – 2)	35.2	17.6	47	32.9	Normal	
CN2 (1 – 2)	36	18	47	32.9	C21A short	

Clause	Requirement + Test	Result - Remark	Verdict

CN2 (1 – 2)	--	--	--	--	C22 short, panel shutdown
CN2 (1 – 2)	37.6	18.8	46	32.2	D12 open
CN2 (1 – 2)	31.4	15.7	47	32.9	U2 (5, 6 – 7, 8) short
CN2 (1 – 2)	18	9	47	32.9	T1 (1, 3 – 8) short
CN2 (1 – earth)	38	19	47	32.9	Normal
CN2 (1 – earth)	37.2	18.6	46	32.2	C21A short
CN2 (1 – earth)	--	--	--	--	C22 short, panel shutdown
CN2 (1 – earth)	--	--	--	--	D12 open, panel shutdown
CN2 (1 – earth)	32.8	16.4	47	32.9	U2 (5, 6 – 7, 8) short
CN2 (1 – earth)	14.2	7.1	47	32.9	T1 (1, 3 – 8) short
CN2 (2 – earth)	16.4	8.2	47	32.9	Normal
CN2 (2 – earth)	16	8	48	33.6	C21A short
CN2 (2 – earth)	--	--	--	--	C22 short, panel shutdown
CN2 (2 – earth)	--	--	--	--	D12 open, panel shutdown
CN2 (2 – earth)	5.2	2.6	48	33.6	U2 (5, 6 – 7, 8) short
CN2 (2 – earth)	--	--	--	--	T1 (1, 3 – 8) short, panel shutdown
T1 (8 – 9)	--	--	--	--	Normal, panel shutdown
T1 (8 – 9)	--	--	--	--	C21A short, panel shutdown
T1 (8 – 9)	--	--	--	--	C22 short, panel shutdown
T1 (8 – 9)	--	--	--	--	D12 open, panel shutdown
T1 (8 – 9)	--	--	--	--	U2 (5, 6 – 7, 8) short, panel shutdown
T1 (8 – 9)	--	--	--	--	T1 (1, 3 – 8) short, panel shutdown
T1 (8 – earth)	38	19	47	32.9	Normal
T1 (8 – earth)	37.2	18.6	46	32.2	C21A short
T1 (8 – earth)	--	--	--	--	C22 short, panel shutdown
T1 (8 – earth)	--	--	--	--	D12 open, panel shutdown
T1 (8 – earth)	32.8	16.4	47	32.9	U2 (5, 6 – 7, 8) short
T1 (8 – earth)	14.2	7.1	47	32.9	T1 (1, 3 – 8) short
T1 (9 – earth)	38	19	47	32.9	Normal
T1 (9 – earth)	37.2	18.6	46	32.2	C21A short
T1 (9 – earth)	--	--	--	--	C22 short, panel shutdown
T1 (9 – earth)	--	--	--	--	D12 open, panel shutdown

Clause	Requirement + Test	Result - Remark	Verdict

T1 (9 – earth)	32.8	16.4	47	32.9	U2 (5, 6 – 7, 8) short
T1 (9 – earth)	14.2	7.1	47	32.9	T1 (1, 3 – 8) short
CN2 (1 – 2)	1300	--	--	--	Open circuit
CN2 (1 – earth)	1300	--	--	--	Open circuit
CN2 (2 – earth)	36	--	--	--	Open circuit
T1 (8 – 9)	1340	--	--	--	Open circuit
T1 (8 – earth)	1300	--	--	--	Open circuit
T1 (9 – earth)	1300	--	--	--	Open circuit
Supplementary information:					

2.5	TABLE: Limited power source measurement		P
	Limits	Measured	Verdict
According to Table 2B (normal condition) for USB1, Uoc= 4.98V			
current (in A)	8	4.4	P
apparent power (in VA)	100	11.0	P
According to Table 2B (normal condition) for USB2, Uoc= 4.98V			
current (in A)	8	4.4	P
apparent power (in VA)	100	11.0	P
According to Table 2B (normal condition) for USB3, Uoc= 4.99V			
current (in A)	8	4.5	P
apparent power (in VA)	100	13.5	P
According to Table 2B (normal condition) for USB4, Uoc= 4.99V			
current (in A)	8	4.5	P
apparent power (in VA)	100	13.5	P
According to Table 2B (normal condition) for JUSB1, Uoc= 4.98V			
current (in A)	8	3.5	P
apparent power (in VA)	100	9.5	P
According to Table 2B (normal condition) for JUSB2, Uoc= 4.98V			
current (in A)	8	3.5	P
apparent power (in VA)	100	9.5	P
According to Table 2B (normal condition) for JVGA1 (Pin 9), Uoc= 4.96V			
current (in A)	8	2.7	P
apparent power (in VA)	100	9.4	P

Clause	Requirement + Test	Result - Remark	Verdict
According to Table 2B (normal condition) for (Webcam) JCAMERA1(Pin 1), Uoc= 3.2V			
current (in A)	8	4.8	P
apparent power (in VA)	100	5.4	P
According to Table 2B (normal condition) for (Touch Panel) JTOUCH1 (Pin 1), Uoc= 4.93V			
current (in A)	8	4.6	P
apparent power (in VA)	100	8.6	P
According to Table 2B (normal condition) for (Touch Pad) JFP2 (Pin 4), Uoc= 5.01V			
current (in A)	8	4.5	P
apparent power (in VA)	100	13.1	P
According to Table 2B (normal condition) for (Touch Pad) JFP2 (Pin 8), Uoc= 3.2V			
current (in A)	8	1.1	P
apparent power (in VA)	100	9	P
Supplementary information:			

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			N/A
Location	RMS voltage (V)	Peak voltage (V)	Comments	
Supplementary information:				

4.6.1, 4.6.2	Table: Enclosure opening measurements		P
Location	Size (mm)	Comments	
Top	2.2 x 31.8mm	- Numerous line shape openings which covered an area 70 x 31.8mm. - No component under those openings.	

Clause	Requirement + Test	Result - Remark	Verdict

	2.2 x 31.8mm	- Numerous line shape openings which covered an area 97.4 x 31.8mm. - Those openings were blocked by internal heatsink. - No hazardous voltage and energy hazardous conductive parts were located within 5° projection under those openings.
	2.2 x 31.8mm	- Numerous line shape openings which covered an area 66.0 x 31.8mm. - Those openings were blocked by internal heatsink. - No hazardous voltage and energy hazardous conductive parts were located within 5° projection under those openings.
Rear	2.5 x 22.0mm	- Numerous line shape openings which covered an area 86.6 x 22.0mm. - No components were located within 5° projection under those openings.
	1.2 x 29.5mm	- Numerous line shape openings which covered an area 86.6 x 22.0mm. - Those openings were blocked by internal mesh with diameter 1.5mm width hexagon shape openings. - Those openings were located near memory stick.
	2.0 x 30.0mm	- Numerous line shape openings which covered an area 61.3 x 61.7mm. - Those openings were blocked by internal mesh with diameter 1.5mm width hexagon shape openings. - Those openings were located near DC fan.
	2.1 x 46.11mm	- Numerous line shape openings which covered an area 46.11 x 44.2mm. - Those openings were blocked by internal mesh with diameter 1.5mm width hexagon shape openings. - Those openings were located near DC fan.
Bottom	1.2 x 36.1mm Max.	- Numerous line shape openings which covered an area 462 x 36.1mm. - The internal above the openings and covers most of components, therefore there's no components were located within 5° projection above those openings.
Other than above mentioned	--	No opening.

Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:		

5.1.6	TABLE: Touch current and protective conductor current measurement				N/A
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments	
Supplementary information:					

C.2	TABLE: Insulation of transformers						N/A
	Transformer part name ..... :						—
	Manufacturer ..... :						—
	Type ..... :						—
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)							
Primary/input winding and core (internal)							
Secondary/output winding and core (internal)							
Primary/input part and secondary/output part (external)							
Primary/input part and core (external)							
Primary/input part and secondary/output winding (external)							
Secondary/output part and core (external)							
Secondary/output part and primary/input winding (external)							
Description of design:							

Clause	Requirement + Test	Result - Remark	Verdict

(a) Bobbin	
Primary/input pins :	
Secondary/output pins ..... :	
Material (manufacturer, type, ratings) ..... :	
Thickness (mm)..... :	
(b) General	
Supplementary information:	

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.	Equipment in compliance with IEC 60950-1. Overall acceptance has to be evaluated during the national approval process.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
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.		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.		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.	No power supply cords provided.	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.	No power supply cords provided.	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).	No wire binding screws.	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).	Equipment is not such a device.	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.	No such device incorporated.	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.	Not such an application.	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.	No laser contained.	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.	Not such an application.	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.	Not such an application.	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-	Complied.	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.	No TNV circuits.	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.	No TNV circuits.	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.	Not applicable for this equipment.	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.		N/A

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).	No power supply cords provided.	N/A
8	Addition: EMC The apparatus shall comply with the relevant CISPR standards.	Compliance shall be evaluated during the 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.	Equipment in compliance with IEC 60950-1. Overall acceptance has to be evaluated during the national approval process.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
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.		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.	Complied.	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.		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
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