



STC (Dongguan) Company Limited
EC DECLARATION OF CONFORMITY

Reference Number: LVD-D141398DOC

Intracom Asia Co., Ltd
4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan

declare the product

Description: 24-Port Fast Ethernet Rackmount Switch
Brand Name: Intellinet
Model: 520416

complies with the requirements of the
EC Low Voltage Directive 2006/95/EC

Applicable Standard(s) with amendments:

EN 60950-1:2006+A11:2009+A1:2010+A12: 2011+A2:2013

General Remarks:

This declaration is only valid when used in conjunction with the technical file(s) refers to DE112459.

This declaration applies specifically to the sample(s) investigated in the technical report mentioned above and not to the bulk.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.

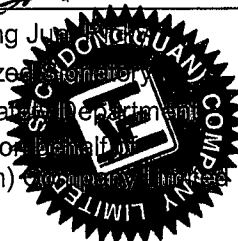
Manufacturer/Importer



Test Laboratory

Signature

Li Chang Jun
Authorized Signatory
Electrical Safety Department
For and on behalf of
STC (Dongguan) Company Limited



www.dgstc.org

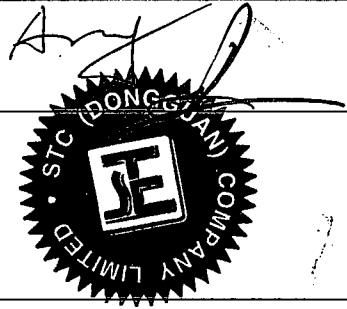
Date of Issue: 2014-11-13












TEST REPORT	
IEC/EN 60950-1	
Information technology equipment – Safety – Part 1: General requirements	
Report Number	DE112459
Date of issue	2014-11-13
Total number of pages.....	Page 1 to 56 for test report Appendix 1 to 5 for product photographs
Testing Laboratory.....	STC (Dongguan) Company Limited
Address	68 Fumin Nan Road, Dalang , Dongguan City, Guangdong Province, P.R. China
Applicant's name.....	Intracom Asia Co., Ltd
Address	4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Test specification:	
Standard.....	<input type="checkbox"/> IEC 60950-1:2005 (2nd Edition); Am 1:2009; Am 2: 2013 <input checked="" type="checkbox"/> EN 60950-1:2006+A11:2009+A1:2010+A12: 2011+A2:2013
Test procedure	N/A
Non-standard test method.....	N/A
Test Report Form No.	IEC60950_1B_M2
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF.....	Dated 2010-04
Modified by	STC
Modified Date.....	2013-12
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Test item description	24-Port Fast Ethernet Rackmount Switch
Trade Mark	Intellinet
Manufacturer	Intracom Asia Co., Ltd
Address	4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Model/Type reference	520416
Ratings	100-240VAC, 50/60Hz, Max.0.5A



Testing procedure and testing location:	
<input checked="" type="checkbox"/> Testing Laboratory:	STC (Dongguan) Company Limited
Testing location/ address	68 Fumin Nan Road, Dalang, Dongguan City, Guangdong Province, P.R. China
<input type="checkbox"/> Associated Laboratory:	
Testing location/ address	
Tested by (name + signature).....:	Amy Lin
Approved by (+ signature)	Ricky Lee
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature).....:	
Approved by (+ signature)	
Testing location/ address	
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature).....:	
Witnessed by (+ signature).....:	
Approved by (+ signature)	
Testing location/ address	
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature).....:	
Approved by (+ signature)	
Supervised by (+ signature).....:	
Testing location/ address	
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature).....:	
Approved by (+ signature)	
Supervised by (+ signature).....:	
Testing location/ address	





List of Attachments (including a total number of pages in each attachment): Page 1 to 56 for test report Appendix 1 to 5 for product photographs												
Summary of testing:												
Tests performed (name of test and test clause): The sample(s) tested complies with the requirements of EN 60950-1:2006+ A11:2009+ A1:2010+A12:2011+A2:2013	Testing location: 68 Fumin Nan Road, Dalang, Dongguan City, Guangdong Province, P.R. China											
Summary of compliance with National Differences List of countries addressed: EU												
<input checked="" type="checkbox"/> The product fulfils the requirements of <u>EN 60950-1:2006+ A11:2009+ A1:2010+A12:2011+A2:2013</u>												
Copy of marking plate:												
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"><table><tr><td>Brand: Intellinet</td><td></td></tr><tr><td>Model: 520416</td><td></td></tr><tr><td>Product Name: 24-Port Fast Ethernet Rackmount Switch</td><td></td></tr><tr><td>Rated Input Voltage: 100-240V AC, 50/60Hz</td><td rowspan="2"></td></tr><tr><td>Rated Input Current: MAX 0.5A</td></tr><tr><td></td><td>Made in China</td></tr></table></div>		Brand: Intellinet		Model: 520416		Product Name: 24-Port Fast Ethernet Rackmount Switch		Rated Input Voltage: 100-240V AC, 50/60Hz	 	Rated Input Current: MAX 0.5A		Made in China
Brand: Intellinet												
Model: 520416												
Product Name: 24-Port Fast Ethernet Rackmount Switch												
Rated Input Voltage: 100-240V AC, 50/60Hz	 											
Rated Input Current: MAX 0.5A												
	Made in China											



Test item particulars	: 24-Port Fast Ethernet Rackmount Switch
Equipment mobility	: <input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	: <input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition	: <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	: <input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	: <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other
Mains supply tolerance (%) or absolute mains supply values	: +10%, -10%
Tested for IT power systems	: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	: N/A
Class of equipment	: <input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	: 16A
Pollution degree (PD)	: <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	: IPX0
Altitude during operation (m)	: 2000
Altitude of test laboratory (m)	: < 2000
Mass of equipment (kg)	: 1.43kg
Possible test case verdicts:	
- test case does not apply to the test object	: N (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	: 2014-08-20; 2014-10-16; 2014-10-22
Date(s) of performance of tests	: 2014-08-20 to 2014-09-09; 2014-10-16; 2014-10-22

**General remarks:**

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, 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.

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

Page 1 to 56 for test report
Appendix 1 to 6 for product photographs

Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60950-1:

When differences exist; they shall be identified in the General product information section.

General product information:

The submitted unit is 24-Port Fast Ethernet Rackmount Switch. It supplied by minas via a detachable power supply cord

The max operated temperature is 50°C which is specified by manufacturer.

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)



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


1	GENERAL		P
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	see appended table	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls	Not used	N
1.5.4	Transformers	See Annex C	P
1.5.5	Interconnecting cables	No hazards	P
1.5.6	Capacitors bridging insulation	Capacitor CX1, CY1, CY2 and CY3 used	P
1.5.7	Resistors bridging insulation	No such resistors	N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power systems	Not for IT power distribution systems	N
1.5.9	Surge suppressors	Varistor VZ1 was approved	P
1.5.9.1	General	See Annex Q	P
1.5.9.2	Protection of VDRs	Fuse F1 used	P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	No such Varistor	N

1.6	Power interface		P
1.6.1	AC power distribution systems	TN	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment	N
1.6.4	Neutral conductor		N

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	See below	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N
	Rated voltage(s) or voltage range(s) (V)	100-240V	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Symbol for nature of supply, for d.c. only	AC input	N
	Rated frequency or rated frequency range (Hz)	50/60Hz	P
	Rated current (mA or A)	Max. 0.5A	P
1.7.1.2	Identification markings	See copy of marking plate	P
	Manufacturer's name or trade-mark or identification mark	Intellinet	P
	Model identification or type reference	520416	P
	Symbol for Class II equipment only	Class I	N
	Other markings and symbols	Additional symbol or marking does not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Mains plug and appliance coupler as disconnect devices	N
1.7.2.3	Overcurrent protective device		N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone	No ozone radiation	N
1.7.3	Short duty cycles	Continuous operation	N
1.7.4	Supply voltage adjustment		N
	Methods and means of adjustment; reference to installation instructions		N
1.7.5	Power outlets on the equipment	No such power outlets	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	F1: T1.0AL250VAC	P
1.7.7	Wiring terminals		P
1.7.7.1	Protective earthing and bonding terminals	 on inlet	P
1.7.7.2	Terminals for a.c. mains supply conductors	No such terminal provided	N
1.7.7.3	Terminals for d.c. mains supply conductors	No d.c. mains	N
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking		N
1.7.8.2	Colours	No colour impairs safety	N
1.7.8.3	Symbols according to IEC 60417		P
1.7.8.4	Markings using figures		P
1.7.9	Isolation of multiple power sources		N
1.7.10	Thermostats and other regulating devices	No such adjustable devices	N
1.7.11	Durability	Legible after test	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.12	Removable parts	No such parts	N
1.7.13	Replaceable batteries	No such battery	N
	Language(s)		—
1.7.14	Equipment for restricted access locations.....	Not for installation in restricted access locations	N

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	Cannot touch live part and basic insulation	P
	Test by inspection	No hazards	P
	Test with test finger (Figure 2A)	No hazards	P
	Test with test pin (Figure 2B)	No hazards	P
	Test with test probe (Figure 2C)	No hazards	P
2.1.1.2	Battery compartments	No compartments	N
2.1.1.3	Access to ELV wiring	No ELV circuit	N
	Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring		N
2.1.1.5	Energy hazards	(see appended tables 2.1.1.5)	P
2.1.1.6	Manual controls	No manual control	N
2.1.1.7	Discharge of capacitors in equipment	X capacitor CX1 used, 0.1 μ F	P
	Measured voltage (V); time-constant (s)	97.6V, 0.044s	—
2.1.1.8	Energy hazards – d.c. mains supply		N
	a) Capacitor connected to the d.c. mains supply ...		N
	b) Internal battery connected to the d.c. mains supply		N
2.1.1.9	Audio amplifiers	No such componet	N
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations		N

2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	(see appended tables 2.2)	P
2.2.3	Voltages under fault conditions (V)	(see appended tables 2.2)	P
2.2.4	Connection of SELV circuits to other circuits	Connect to SELV circuit only	P



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

2.3	TNV circuits		N
2.3.1	Limits	No TNV circuits	N
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed.....		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed.....		—
2.3.5	Test for operating voltages generated externally		N

2.4	Limited current circuits		P
2.4.1	General requirements	Considered.	P
2.4.2	Limit values	75.6mA	P
	Frequency (Hz).....	108KHz	—
	Measured current (mA)	4mA	—
	Measured voltage (V)	8V	—
	Measured circuit capacitance (nF or μF).....	CY1: 2200PF; CY2, CY3: 1000PF	—
2.4.3	Connection of limited current circuits to other circuits	Under normal operating condition and in the event of a single failure	P

2.5	Limited power sources		P
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition	(see appended table 2.5)	P
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	See append tabel	—
	Current rating of overcurrent protective device (A) ..		—
	Use of integrated circuit (IC) current limiters		—



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

2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing		P
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors	Power cord set	P
	Rated current (A), cross-sectional area (mm ²), AWG	0.5A, 0.75mm ²	—
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG	0.5A, 18AWG	—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	0.067 Ω	P
2.6.3.5	Colour of insulation	The color combination green and yellow is used	P
2.6.4	Terminals		P
2.6.4.1	General		P
2.6.4.2	Protective earthing and bonding terminals	Appliance coupler used	P
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		P
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		P
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator	AC plug and appliance coupler	P
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		P
2.6.5.8	Reliance on telecommunication network or cable distribution system		N

2.7	Overcurrent and earth fault protection in primary circuits		P
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IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.7.1	Basic requirements	Fuse F1 used	P
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection	By building installation	P
2.7.4	Number and location of protective devices :	One fuse	P
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel..... :		N

2.8	Safety interlocks		N
2.8.1	General principles	No safety interlocks	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
	Protection against extreme hazard		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) :		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test	(see appended table 5.2)	N
2.8.8	Mechanical actuators		N

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		P
2.9.2	Humidity conditioning	48 hrs	P
	Relative humidity (%), temperature (°C) :	30°C, 93%	—
2.9.3	Grade of insulation	Basic insulation	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used :	Method 1	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency :	<30KHz	P
2.10.1.2	Pollution degrees :	2	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.1.3	Reduced values for functional insulation		P
2.10.1.4	Intervening unconnected conductive parts		P
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage		P
2.10.2.1	General	See appended table 2.10.2	P
2.10.2.2	RMS working voltage		P
2.10.2.3	Peak working voltage		P
2.10.3	Clearances		N
2.10.3.1	General		P
2.10.3.2	Mains transient voltages	2500V	P
	a) AC mains supply	100-240V	P
	b) Earthed d.c. mains supplies		N
	c) Unearthed d.c. mains supplies		N
	d) Battery operation		N
2.10.3.3	Clearances in primary circuits	See appended table 2.10.3 & 2.10.4	P
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply		N
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances	See appended table 2.10.3 & 2.10.4	P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	IIIb	—
2.10.4.3	Minimum creepage distances		P
2.10.5	Solid insulation	See appended table 2.10.5	P
2.10.5.1	General		P
2.10.5.2	Distances through insulation		P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage		N
	a) Basic insulation not under stress		N
	b) Basic, supplementary, reinforced insulation		N
	c) Compliance with Annex U	Approved triple insulation wire used in secondary	P
	Two wires in contact inside wound component; angle between 45° and 90°	Separated by tape and tube	P
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		N
2.10.5.14	Additional insulation in wound components		N
	Working voltage		N
	- Basic insulation not under stress		N
	- Supplementary, reinforced insulation		N
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	See appended table 2.10.3 & 2.10.4	P
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs).....		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	No hazards	P
3.1.2	Protection against mechanical damage	No hazards	P
3.1.3	Securing of internal wiring	No hazards	P
3.1.4	Insulation of conductors	Basic insulation for inside	P
3.1.5	Beads and ceramic insulators	No such parts	N
3.1.6	Screws for electrical contact pressure	No such screw	N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws	No such screw	N
3.1.9	Termination of conductors	Screw and soldering	P
	10 N pull test		P
3.1.10	Sleeving on wiring	Heat-shrinkable tube fixed on terminal	P

3.2	Connection to a mains supply		P
3.2.1	Means of connection	Mains plug and appliance coupler	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment	Not such equipment	N
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	Appliance inlet was approved	P



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Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Power supply cords	Power cord set was approved	P
3.2.5.1	AC power supply cords		P
	Type	H03VV-F	—
	Rated current (A), cross-sectional area (mm ²), AWG	3G0.75mm ²	—
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief	Detached power cord used	N
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals	Appliance coupler used	N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm ²).....		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices	AC plug and appliance coupler	P
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles - single-phase and d.c. equipment		P
3.4.7	Number of poles - three-phase equipment		N



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Clause	Requirement + Test	Result - Remark	Verdict

3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices	Appliance coupler used also	N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits :	SELV circuits to SELV circuits	P
3.5.3	ELV circuits as interconnection circuits		N
3.5.4	Data ports for additional equipment		P

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N
	Angle of 10°		N
	Test force (N) :	< 7kg	N

4.2	Mechanical strength		P
4.2.1	General	Metal enclosure used	P
	Rack-mounted equipment.		P
4.2.2	Steady force test, 10 N		N
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		P
	Fall test	500g, 1.3M	P
	Swing test	500g, 1.3M	P
4.2.6	Drop test; height (mm) :		N
4.2.7	Stress relief test	Metal enclosure used	N
4.2.8	Cathode ray tubes	No CRT.	N
	Picture tube separately certified :		N
4.2.9	High pressure lamps	No high pressure lamps.	N
4.2.10	Wall or ceiling mounted equipment; force (N) :	Not such equipments	N

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners are rounded or smoothed.	P
4.3.2	Handles and manual controls; force (N)..... :	No handles or controls provided	N
4.3.3	Adjustable controls	No adjustable controls.	N



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Clause	Requirement + Test	Result - Remark	Verdict
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		P
4.3.6	Direct plug-in equipment		N
	Torque		—
	Compliance with the relevant mains plug standard		N
4.3.7	Heating elements in earthed equipment	No heating elements.	N
4.3.8	Batteries	No battery used	N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease	No oil or grease.	N
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N
4.3.11	Containers for liquids or gases	No container for liquid or gas.	N
4.3.12	Flammable liquids	No flammable liquid.	N
	Quantity of liquid (l)		N
	Flash point (°C)		N
4.3.13	Radiation		P
4.3.13.1	General		N
4.3.13.2	Ionizing radiation		N
	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
	Part, property, retention after test, flammability classification		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
4.3.13.5	Lasers (including laser diodes) and LEDs		P
4.3.13.5.1	Lasers (including laser laser diodes)		N
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)	LED used for indication only	P
4.3.13.6	Other types		N
4.4	Protection against hazardous moving parts		N



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Clause	Requirement + Test	Result - Remark	Verdict
4.4.1	General	No moving parts	N
4.4.2	Protection in operator access areas		N
	Household and home/office document/media shredders	(see Annex EE)	N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. a).....:		N
	Is considered to cause pain, not injury. b)		N
	Considered to cause injury. c)		N
4.4.5.2	Protection for users		N
	Use of symbol or warning		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning		N

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per 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	(see appended table 4.5.5)	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings	side openings	P
	Dimensions (mm)	Diameter: 2.85mm	—
4.6.2	Bottoms of fire enclosures	Metal enclosure	P
	Construction of the bottom, dimensions (mm) . :		—
4.6.3	Doors or covers in fire enclosures	No doors or covers	N
4.6.4	Openings in transportable equipment	Not such equipment.	N
4.6.4.1	Constructional design measures		N
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes	No barrier of screen fixed by glue inside subwoofer	N
	Conditioning temperature (°C), time (weeks)		—



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Clause	Requirement + Test	Result - Remark	Verdict
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Metal enclosure	P
	Method 1, selection and application of components wiring and materials	See cl 4.7.2.2	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure		N
4.7.2.1	Parts requiring a fire enclosure		N
4.7.2.2	Parts not requiring a fire enclosure		P
4.7.3	Materials		P
4.7.3.1	General	See appended table 1.5.1.	P
4.7.3.2	Materials for fire enclosures		N
4.7.3.3	Materials for components and other parts outside fire enclosures	Not require fire enclosure	N
4.7.3.4	Materials for components and other parts inside fire enclosures		N
4.7.3.5	Materials for air filter assemblies	No air filter assemblies	N
4.7.3.6	Materials used in high-voltage components	No high-voltage component	N

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	Class I equipment	P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit	Figure 5A	P
5.1.4	Application of measuring instrument	Annex D	P
5.1.5	Test procedure	Between Mains and metal enclosure & terminal	P
5.1.6	Test measurements		P
	Supply voltage (V)	264V, 60Hz	—
	Measured touch current (mA)	0.488	—
	Max. allowed touch current (mA)	3.5	—
	Measured protective conductor current (mA)	--	—
	Max. allowed protective conductor current (mA)....	--	—
5.1.7	Equipment with touch current exceeding 3,5 mA		N
5.1.7.1	General		N



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Clause	Requirement + Test	Result - Remark	Verdict

5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuit connection provided	N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	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) EUT with earthed telecommunication ports		N
	b) EUT whose telecommunication ports have no reference to protective earth		N

5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation	Result see appended table 5.3	P
5.3.5	Electromechanical components	No such component	N
5.3.6	Audio amplifiers in ITE	No such component	N
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	No such equipment	N
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire, no molten metal, no enclosure deformation and no temperature exceeding those in table 5D	P
5.3.9.2	After the tests	No any hazards	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N



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Clause	Requirement + Test	Result - Remark	Verdict

6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N

6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N

6.3	Protection of the telecommunication wiring system from overheating		N
	Max. output current (A)	No telecommunication wiring system	—
	Current limiting method		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General	No cable distribution system	N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
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.1.1	Samples		—
	Wall thickness (mm).....		—



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Clause	Requirement + Test	Result - Remark	Verdict
A.1.2	Conditioning of samples; temperature (°C)		N
A.1.3	Mounting of samples		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	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.2.1	Samples, material		—
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples; temperature (°C)		N
A.2.3	Mounting of samples		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	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
	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.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements	(see appended table 1.5.1)	N
	Position		—
	Manufacturer		—



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Clause	Requirement + Test	Result - Remark	Verdict

	Type		—
	Rated values		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		P
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V)		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits	(see appended table 5.3)	P
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V)		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position	FR-SPS5V2A000	—
	Manufacturer	(see appended tabel 1.5.1)	—
	Type	(see appended tabel 1.5.1)	—
	Rated values	(see appended tabel 1.5.1)	—
	Method of protection	Inherent	—
C.1	Overload test	(see appended tabel 5.3)	P
C.2	Insulation		P
	Protection from displacement of windings	Approved triple insutlation wire used in secdary	P



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Clause	Requirement + Test	Result - Remark	Verdict
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply		N
G.2.2	Earthed d.c. mains supplies		N
G.2.3	Unearthed d.c. mains supplies		N
G.2.4	Battery operation		N
G.3	Determination of telecommunication network transient voltage (V)		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks		N
G.4.2	Transients from telecommunication networks		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N



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Clause	Requirement + Test	Result - Remark	Verdict

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

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
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment	See condition in appended table 1.6.2	P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringling signal		N
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
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V)		N



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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
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	- Preferred climatic categories	(see appended tabel 1.5.1) Varistor was apploved	P
	- Maximum continuous voltage		P
	- Combination pulse current		P
	Body of the VDR Test according to IEC60695-11-5		P
	Body of the VDR. Flammability class of material (min V-1)		P
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
		Approved triple insulation wire used in secondary	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N
V.1	Introduction		N



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Clause	Requirement + Test	Result - Remark	Verdict
V.2	TN power distribution systems		N
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus		N
Y.2	Mounting of test samples		N
Y.3	Carbon-arc light-exposure apparatus		N
Y.4	Xenon-arc light exposure apparatus		N
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N
CC.1	General		N
CC.2	Test program 1		N
CC.3	Test program 2		N
CC.4	Test program 3		N
CC.5	Compliance		N
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N



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Clause	Requirement + Test	Result - Remark	Verdict
DD.1	General		N
DD.2	Mechanical strength test, variable N.....:		N
DD.3	Mechanical strength test, 250N, including end stops.....:		N
DD.4	Compliance.....:		N
EE	ANNEX EE, Household and home/office document/media shredders		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols.....:		N
	Information of user instructions, maintenance and/or servicing instructions.....:		N
EE.3	Inadvertent reactivation test.....:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols.....:		N
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A)		N
	Test with wedge probe (Figure EE1 and EE2)		N



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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
AC plug	Shenzhen HongPu Electron Co., Ltd.	XTH-005	16A, 250V~	VDE 0620-1	VDE 40026370	
	Shenzhen Yuxin Wire & Cable Co., Ltd.	YX-201	16A, 250V~	VDE 0620-1	VDE 40001445	
Power cord	Shenzhen Baohing Electric Wire & Cable Manufacture Co., Ltd.	H03VV-F	3G0.75mm ²	HD 21.5 S3+A1+A2	VDE 103727	
	Shenzhen Yuxin Wire & Cable Co., Ltd.	H03VV-F	3G0.75mm ²	HD 21.5 S3+A1+A2	VDE 40012386	
AC connector	Shenzhen HongPu Electron Co., Ltd.	XTH-021	10A, 250V~	EN 60320-1	VDE 40025516	
	Shenzhen Yuxin Wire & Cable Co., Ltd.	YX-210	10A, 250V~	EN 60320-1	VDE 40035945	
Appliance Inlet	Rich Bay Co., Ltd.	R-30190	10A, 250Vac	EN 60320-1	VDE 40030224	
PCB	Various	Various	V-1 or better, Min. 105°C	UL 94, UL 746	UL	
Heat-shrinkable tube	Shenzhen Wolida Trading Co., Ltd.	RSFR-H	600V, 125°C	UL 224	UL E329530	
Earth wire & Output wire	Zhongshan Dongfeng Zhoushishenlong Electronic Wire Co., Ltd.	1015	105°C, 600V, 18AWG, VW-1	UL 758	UL E257280	
Fuse F1	Dongguan Better Electronic Technology Co., Ltd.	332	T1.0AL250VAC	EN 60127-1, EN 60127-3	TÜV Rheinland Cert. No.: J 50158950	
Varistor VZ1	Guangxi New Future Information Industry Co., Ltd.	10D471K	470VAC, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40030322	
X-Capacitor CX1	Tenta Electric Industrial Co Ltd	MEX	Min.275Vac Max. 0.1µF, 100°C	IEC 60384-14	VDE 119119	
Thermal resistor NTC1	Guangdong South Hongming Electronic Science & Technology Co., Ltd.	5D-7	240V, I _{max} : 2A, 5Ω at 25°C	UL 1434	UL E365062	
	Hongzhi Enterprises Ltd.	5D-7	240V, I _{max} : 2A, 5Ω at 25°C	UL 1434	UL E319959	



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Clause	Requirement + Test	Result - Remark	Verdict

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾
Optocoupler IC3	Bright Led Electronics Corp.	BPC-817	Dti \geq 0.4mm, Cr=8.0mm, Cl=7.6mm, 100°C	IEC 60747-5-2	VDE 40007240
Y- Capacitor CY1	TDK-EPC Corporation	CD	2200pF, 250Vac, Y1, 125°C	IEC 60384-14	VDE 40029780
	TDK-EPC Corporation	CS	2200Pf, 250Vac, Y1, 125°C	IEC 60384-14	VDE 40029781
Y- Capacitor CY2, CY3	TDK-EPC Corporation	CD	1000pF, 250Vac, Y1, 125°C	IEC 60384-14	VDE 40029780
	TDK-EPC Corporation	CS	1000pF, 250Vac, Y1, 125°C	IEC 60384-14	VDE 40029781
Inductors LF1	Yishan Electronics Co., Ltd.	YSL1105	Min. 25mH	EN 60950-1	Tested within appliance
Bobbin of LF1	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150°C	UL 746	UL E59481
Winding of LF1	Shenzhen Chengwei Industry Co., Ltd.	2UEW	130°C	UL 1446	UL E227475
Transformer T1	Yishan Electronics Co., Ltd.	FR-SPS5V2 A000	Primary: N1: Φ 0.25mm*1*95TS N3: Φ 0.25mm*1*25TS N4: Φ 0.12mm*1*12TS Secondary: N2: Φ 0.60mm*1*7TS	EN 60950-1	Tested within appliance
Bobbin of T1	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150°C	UL 746	UL E59481
Winding of T1	Shenzhen Chengwei Industry Co., Ltd.	2UEW	130°C	UL 1446	UL E227475
Triple insulation wire of T1	Furukawa Electric Co., Ltd.	TEX-E	130°C	EN 60950-1 Annex U	VDE 006735
Insulation tube of T1	Changyuan Electronics Group Co., Ltd.	CB-TT-T	300V, 200°C	UL 224	UL E180908
Insulation tape of T1	Dongguan Shin Yahua Electronic Material Co., Ltd.	CT* (c)(g), PZ* (b)	130°C	UL 510	UL E178516
Supplementary information: /					



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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)							P
Cond.	U (V)	Hz	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status
01	90.0	50	0.115	--	5.6	F1	0.115	Normal operation
02	100.0	50	0.105	0.5	5.5	F1	0.105	
03	240.0	50	0.055	0.5	4.9	F1	0.055	
04	264.0	50	0.047	--	5.0	F1	0.047	
05	90.0	60	0.117	--	5.6	F1	0.117	
06	100.0	60	0.107	0.5	5.5	F1	0.107	
07	240.0	60	0.053	0.5	4.9	F1	0.053	
08	264.0	60	0.050	--	5.0	F1	0.050	
Supplementary information: --								

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
--	--	5.95	4.4	12.64	
Supplementary information: Output of power supply PCB.					

2.1.1.5 c) 2)	TABLE: stored energy		N
Capacitance C (μF)	Voltage U (V)	Energy E (J)	
--	--	--	
supplementary information:			

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c.		
Output of power supply PCB	--	5.95	--	
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)			
S-C diode D7	Unit shut down, no output U=0			
Remark: Output of power supply PCB				



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Clause	Requirement + Test	Result - Remark	Verdict

2.4.2	TABLE: limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq. (Hz)	Limit (mA)	Comments	
Between Y capacitor CY1	8	4	108K	75.6	CY1: 2200pF	
Remark:						

2.5	TABLE: limited power sources				P
Circuit output tested: Output of power supply PCB					
Measured Uoc (V) with all load circuits disconnected:		5.95V			
		I _{sc} (A)		VA	
		Meas.	Limit	Meas.	Limit
Normal condition		4.4	8.0	12.64	100
S-C diode D7		--	8.0	--	100
supplementary information: Unit shut down after S-C diode D7					

2.10.2	Table: working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Comments	
Transformer T1 pin 6- pin 1	240	404	--	
Transformer T1 pin 6- pin 3	240	408	--	
Transformer T1 pin 6- pin 4	240	404	--	
Transformer T1 pin 6- pin 5	240	388	--	
Transformer T1 pin 9- pin 1	240	380	--	
Transformer T1 pin 9- pin 3	240	416	Max. RMS & Peak of T1	
Transformer T1 pin 9- pin 4	240	376	--	
Transformer T1 pin 9- pin 5	240	416	--	
Optocoupler IC3 pin 1- pin 3	240	380	--	
Optocoupler IC3 pin 1- pin 4	240	376	--	
Optocoupler IC3 pin 2- pin 3	240	406	Max. RMS & Peak of	
Optocoupler IC3 pin 2- pin 4	240	376	--	
Y capacitor CY1 pin 1- pin 2	240	376	Max. RMS & Peak of YC200	
supplementary information:				



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Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
L and N	339	240	1.5	3.9	2.5	4.9	
Two pins of F1	339	240	2.0	2.6	2.5	2.6	
Live part and earth	339	240	2.0	3.0	2.5	3.0	
Two pins of Capacitor CY1	376	240	4.0	5.5	5.0	5.7	
Two pins of Capacitor CY2	339	240	2.0	3.0	2.5	3.0	
Two pins of Capacitor CY3	339	240	2.0	3.0	2.5	3.0	
Optocoupler IC3 (Pri.-Sec.)	406	240	4.0	5.5	5.0	5.5	
Transformer T1 (Pri.-Sec.) on PCB	416	240	4.0	5.5	5.0	5.5	
Transformer T1 (Pri.-Sec.)	416	240	4.0	6.4	5.0	6.4	
T1 Pri. winding and Sec. C5	339	240	4.0	7.8	5.0	>10	
Live part and metal enclosure	339	240	2.0	3.0	2.5	3.0	
Supplementary information: --							

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Transformer bobbin	416	240	3000	0.4	0.5	
Optocoupler IC3	406	240	3000	0.4	≥0.4	
Supplementary information: --						



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Clause	Requirement + Test			Result - Remark				Verdict		
4.3.8	TABLE: Batteries								N	
The tests of 4.3.8 are applicable only when appropriate battery data is not available				No battery				N		
Is it possible to install the battery in a reverse polarity position?								N		
	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		
- Explosion of the battery				--				N		
- Emission of flame or expulsion of molten metal				--				N		
- Electric strength tests of equipment after completion of tests				--				N		
Remark: --										



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Clause	Requirement + Test	Result - Remark	Verdict
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4.3.8	TABLE: Batteries	N
Battery category : -- Manufacturer : -- Type / model..... : -- Voltage : -- Capacity : -- Tested and Certified by (incl. Ref. No.)..... : --		
Circuit protection diagram: 		
MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)		
Location of replaceable battery		--
Language(s)		--
Close to the battery		--
In the servicing instructions		--
In the operating instructions		--



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Clause	Requirement + Test	Result - Remark	Verdict

4.5.1	TABLE: maximum temperatures					P
	Supply voltage (V)	90.0		264.0		—
	Ambient T _{min} (°C)	24.4		24.0		—
	Ambient T _{max} (°C)	26.0		25.1		—
Maximum measured temperature T of part/at:	T (°C)				Allowed T _{max} (°C)	
			No. 05	No. 04		
Inlet surface		33.8		30.8	95+24-50=69	
X-Capacitor CX1		46.0		37.9	100+24-50=74	
Inductors LF1 winding		49.4		39.4	110+24-50=84	
PCB near D3		54.5		42.8	130+24-50=104	
Capacitor C1		42.9		38.0	105+24-50=79	
PCB near IC1		81.6		55.5	130+24-50=104	
Optocoupler IC3		65.1		55.5	100+24-50=74	
Transformer T1 winding		64.3		57.1	110+24-50=84	
Y- Capacitor CY1		50.0		45.5	125+24-50=99	
PCB near D7		56.4		53.4	130+24-50=104	
Capacitor C5		55.8		54.6	105+24-50=79	
Internal wire of Sec.		33.8		35.3	80+24-50=54	
Capacitor CE2		39.1		40.9	105+24-50=79	
PCB near U1		48.2		50.3	130+24-50=104	
Component T1		34.7		36.8	Reference	
PCB near UD1		35.2		57.0	130+24-50=104	
Metal enclosure		31.1		32.6	70+24-50=44	
Power cord		26.1		28.1	75+24-50=49	
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	Allowed T _{max} (°C)	Insulation class
--		--	--	--	--	--

Supplementary information: * The winding permitted temperature rise would be reduced 10K while the temperature rise measured for thermal-coupler method.

Allowed Tmax=Tmax+Tamb-Tma, Tamb=24°C, Tma=50°C.

The max operated temperature is 50°C which is specified by manufacturer



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Clause	Requirement + Test	Result - Remark	Verdict

4.5.5	TABLE: Ball pressure test of thermoplastic parts		P
	Allowed impression diameter (mm)	≤ 2 mm	—
Part	Test temperature (°C)	Impression diameter (mm)	
Bobbin of LF1	125	1.07	
Bobbin of T1	125	1.19	
Supplementary information: --			

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Bobbin of LF1	Chang Chun Plastics Co., Ltd.	T375J	3.0	V-0	UL E59481
Bobbin of T1	Chang Chun Plastics Co., Ltd.	T375J	0.9	V-0	UL E59481
Material of supply PCB	Various	Various	1.6	V-1	UL
Supplementary information: --					

5.1	TABLE: touch current measurement			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
L/N and metal enclosure	0.488	3.5	--	
supplementary information: Input voltage: 264V, 60Hz				



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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Between L-N and metal enclosure & terminal		AC	1500	No
Transformer primary and secondary		AC	3000	No
1 layer insulation of transformer		AC	3000	No
Between L and N without fuse F1		AC	1500	No
Supplementary information: --				

5.3	TABLE: Fault condition tests					P
Ambient temperature (°C)		23.9-25.4			—	
Power source for EUT: Manufacturer, model/type, output rating		--			—	
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
--	Blocked ventilation	264.0V	70mins	F1	0.047	* No hazard occurred and no high temperature occurred. * The max. temperature of LF1 is 39.6°C The max. temperature of T1 is 57.4°C.
Capacitor C5	S-C	264.0V	30mins	F1	0.045↔ 0.035	* No hazard occurred and no high temperature occurred. * Unit shut down.
Diode D7	S-C	264.0V	30mins	F1	0.029	* No hazard occurred and no high temperature occurred. * Unit shut down.
Optocoupler IC3 Sec.	S-C	264.0V	30mins	F1	0.047	* No hazard occurred and no high temperature occurred. * Unit work as normal
Optocoupler IC3 Pri.	S-C	264.0V	30mins	F1	0.011	* No hazard occurred and no high temperature occurred. * Unit shut down.
Capacitor C1	S-C	264.0V	1s	F1	0	* No hazard occurred and no high temperature occurred. * Fuse F1 opened immediately.
Diode D3	S-C	264.0V	1s	F1	0	* No hazard occurred and no high temperature occurred. * Fuse F1 opened immediately.



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Clause	Requirement + Test	Result - Remark	Verdict

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
T1 output	O-L	90V	150 mins	F1	0.264	* No hazard occurred and no high temperature occurred. The max. temperature of LF1 is 62.3°C. The max. temperature of T1 is 96.0°C. * The max. over-load current is 2.2A, over 2.2A, the unit shut down.
T1 output	O-L	264.0V	150 mins	F1	0.184	* No hazard occurred and no high temperature occurred. The max. temperature of LF1 is 60.9°C. The max. temperature of T1 is 119.9°C. * The max. over-load current is 3.0A, over 3.0A, the unit shut down.

Supplementary information: S-C is abbreviation of shorted- circuit. O-L is abbreviation of over-load.
The limit of LF1 and T1 winding: $165+23.9-50=138.9^{\circ}\text{C}$

C.2 TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T1 Pri. to Sec.	Reinforced insulation	416	240	3000Vac	4.0	5.0	*
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1 Pri. to Sec.	Reinforced insulation			3000Vac	6.4	6.4	TEX-E

supplementary information: Triple insulation wire TEX-E used in sec.



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Clause	Requirement + Test	Result - Remark	Verdict
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C.2	TABLE: transformers	P
Transformer		
<p>标签:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">FR-SPS5V2A000</div>		



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Clause	Requirement + Test	Result - Remark	Verdict

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z"		P
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) 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
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		P



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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>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.</p> <p>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>	Not such equipment.	N
(A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete the addition of 1.3.Z1 / EN 60950-1:2006</p> <p>Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010</p>		N
1.5.1 (Added info*)	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *</p>	Added	P
1.7.2.1 (A1:2010)	<p>In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p>		N
1.7.2.1 (A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete NOTE Z1 and the addition for Portable Sound System.</p> <p>Add the following clause and annex to the existing standard and amendments.</p>		N




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

Zx Protection against excessive sound pressure from personal music players		N
	<p>Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that: is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used.</p> <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>	N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1.</p> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p>		N
	All other equipment shall:		N
	a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and		N
	b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and		N
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p>		N
	d) have a warning as specified in Zx.3; and		N
	<p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p>		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		N
	<p>Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N
	<p>Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N
	<p>Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA.</p> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N
	<p>Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N



IEC/EN 60950-1									
Clause	Requirement + Test	Result - Remark	Verdict						
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>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):</p> <p>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;</p> <p>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;</p>	Replaced.	P						
	<p>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.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Not such equipment	N						
2.7.2	This subclause has been declared 'void'.		N						
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N						
3.2.5.1	<p>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".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table style="margin-left: 40px;"> <tr> <td>Up to and including 6 </td> <td>0,75^{a)} </td> </tr> <tr> <td>Over 6 up to and including 10 </td> <td>(0,75)^{b)} 1,0 </td> </tr> <tr> <td>Over 10 up to and including 16 </td> <td>(1,0)^{c)} 1,5 </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	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		N
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								
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N						



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: 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, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).	Added	N
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N
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.	Replaced	N
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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
1.2.13.14 (A11:2009)	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1 (A11:2009)	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



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			

Clause	Requirement + Test	Result - Remark	Verdict
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
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
1.7.2.1	<p>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.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N
1.7.2.1 (A11:2009)	<p>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.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>"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."</p> <p>Translation to Swedish:</p> <p>"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."</p>		N



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1 (A2:2013)	In Denmark , 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 Denmark shall be as follows: In Denmark : "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."		N
1.7.5 1.7.5 (A11:2009)	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. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N
1.7.5 (A2:2013)	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		N
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV	N
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.	No TNV	N
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV	N
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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
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

3.2.1.1	<p>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:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A</p> <p>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</p> <p>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:</p> <p>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>		N
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IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>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.</p> <p>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.</p>		N
3.2.1.1 (A2:2013)	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</p> <p>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.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N
3.2.1.1	<p>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.</p> <p>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.</p> <p>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.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	The plug cord set was approved	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>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.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N
3.2.1.1	<p>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.</p>		N
3.2.4	<p>In Switzerland, for requirements see 3.2.1.1 of this annex.</p>		N
3.2.5.1	<p>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.</p>		N
3.3.4	<p>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:</p> <ul style="list-style-type: none">• 1,25 mm² to 1,5 mm² nominal cross-sectional area.		N
4.3.6	<p>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.</p>		P
4.3.6	<p>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.</p>		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none">• 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
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none">- 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. <p>Alternatively for components, there is no distance through insulation requirements 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</p> <ul style="list-style-type: none">- 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.		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none">- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, 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 60384-14:- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N
6.1.2.2	<p>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.</p>		N
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N
7.3 (A11:2009)	<p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N



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

**Annex ZD
(informative)**

IEC and CENELEC code designations for flexible cords

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60277 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H

**** End of Test Report ****

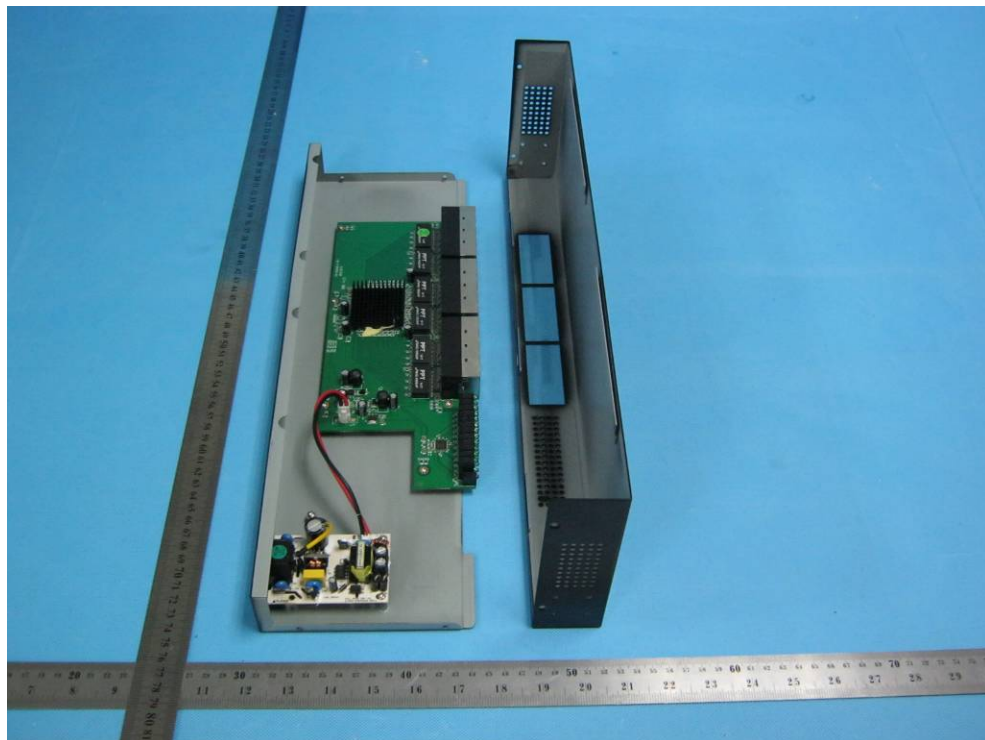


Product Photographs



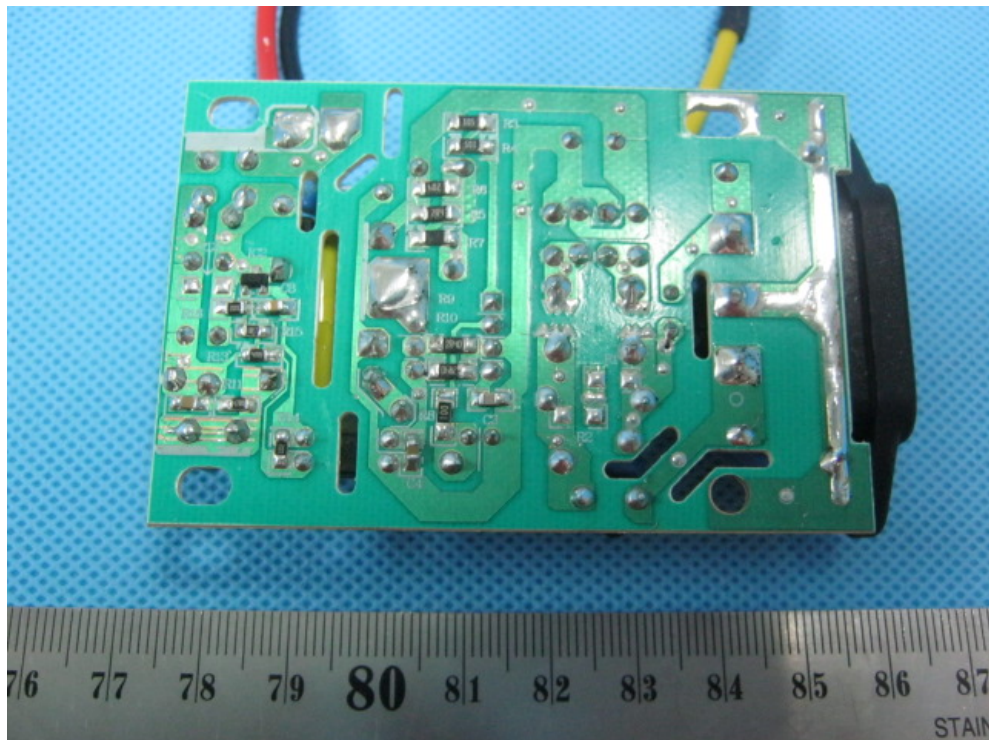
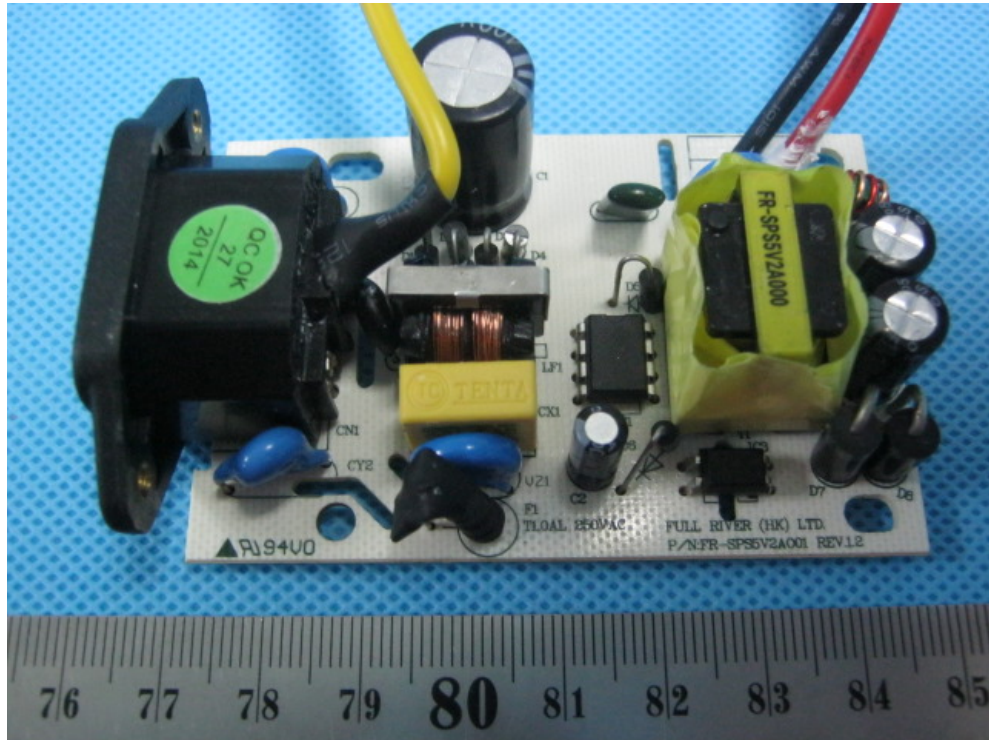


Product Photographs



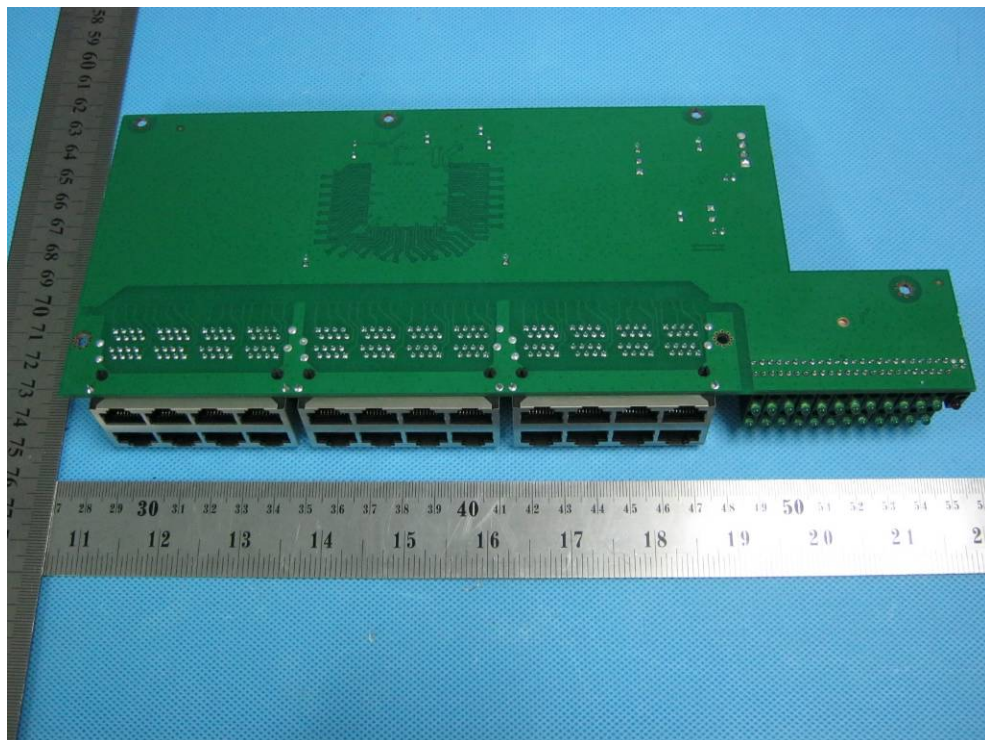
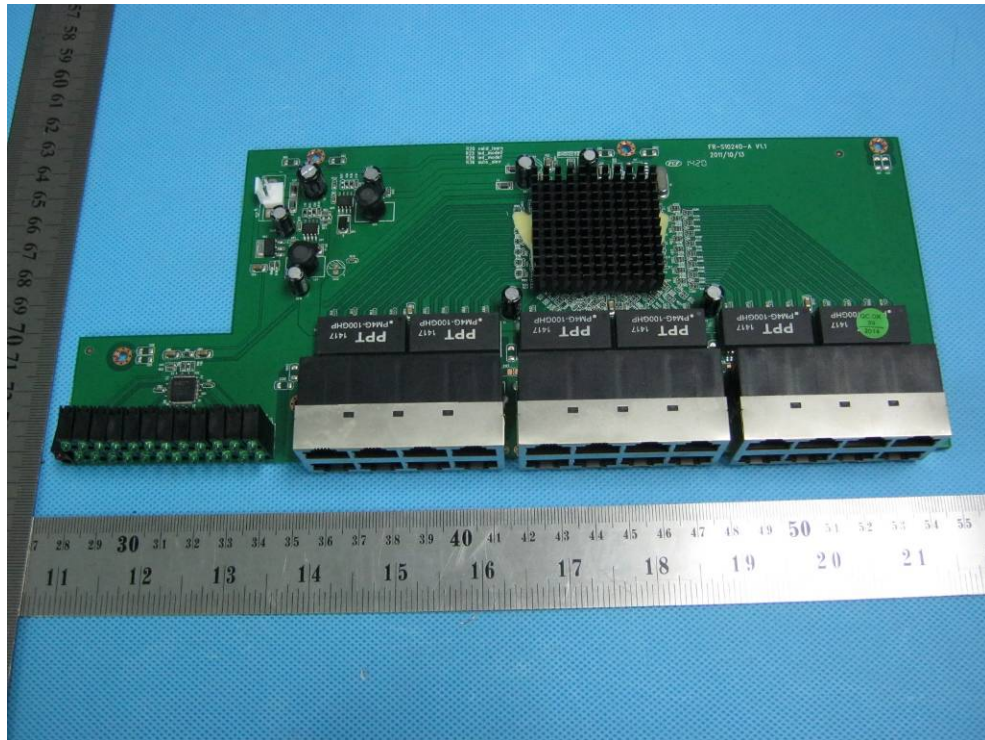


Product Photographs





Product Photographs





Product Photographs

