



SHENZHE YARUI TESTING CO., LTD.

6 Floor Baowen Building, Baole New Village, Xixiang Yantian, Bao'An District, Shenzhen City
Tel : +86-755-27912080 Fax: +86-755-27916936

LVD TEST REPORT

Product name.....: POE power adapter

Trademark.....:



Model no.....: ZCD0241000EU

Adding Model(s)

ZCC0241000EU,ZCC02400500EU,ZCC0181000EU,
ZCC04800300EU,ZCC04800500EU,ZCC0480300US,
ZCC0480500US, WT-GPOE-1A-48V15W,WT-GPOE-1B-
48V15W,ZCC0240500EU,ZCC0240750EU,ZCC0240800EU,ZC
C0360500EU,ZCD0242000EU,ZCD0481000EU,ZCD0241250E
U,ZCD02401600EU,ZCD0240800EU, ZCD0480500EU,WT-
GPOE-1B-24V24W,WT-GPOE-1A-24V15W,
WT-GPOE-1B-24V15W,WT-GPOE-1B-29V15W

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

Applicant.....: ShenZhen ZhangQing Electronic LTD.

Address of applicant.....: No 622 HuaYuan Commercial Center, No 347 XiXiang Road,
XiXiang Town, Bao'An District, ShenZhen City

Date of Receipt.....: June 01, 2017

Date of Test Date.....: June 01, 2017 –June 06, 2017

Data of issue.....: June 06, 2017


Report No.....: YRT201706207S

Test result.....:	Pass *
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* In the configuration tested, the EUT complied with the standards specified above



The CE mark as shown above can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to Low Voltage in Directive 2014/35/EU are considered.

TEST REPORT EN 60950-1 Information Technology Equipment including-Safety Part 1: General equipments	
Report reference No.:	YRT201706207S
Testing laboratory	SHENZHEN YARUI TESTING CO., LTD.
Location.....:	6 Floor Baowen Building, Baole New Village, Xixiang Yantian, Bao'An District, Shenzhen City
Applicant.....:	ShenZhen ZhangQing Electronic LTD.
Address:.....:	No 622 HuaYuan Commercial Center, No 347 XiXiang Road, XiXiang Town, Bao'An District, ShenZhen City
Manufacturer.....:	ShenZhen ZhangQing Electronic LTD.
Address:.....:	No 622 HuaYuan Commercial Center, No 347 XiXiang Road, XiXiang Town, Bao'An District, ShenZhen City
Standards.....:	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Procedure deviation.....:	N/A
Non-standard test method.....:	N/A
Type of test equipment	POE power adapter
Trade mark.....:	
Model/Type designation.....:	ZCC0241000EU,ZCC02400500EU,ZCC0181000EU, ZCC04800300EU,ZCC04800500EU,ZCC0480300US, ZCC0480500US,WT-GPOE-1A-48V15W, WTGPOE1B48V15W,ZCC0240500EU,ZCC0240750EU,ZCC0 240800EU,ZCC0360500EU,ZCD0242000EU,ZCD0481000EU, ZCD0241250EU,ZCD02401600EU,ZCD0240800EU, ZCD0480500EU,WT-GPOE-1B-24V24W, WT-GPOE-1A-24V15W,WT-GPOE-1B-24V15W, WT-GPOE-1B-29V15W
Rating.....:	INPUT: DC24V,50/60Hz
Copyright blank test report:	SHENZHEN YARUI TESTING CO., LTD.
Test item particulars:	--
Operating Condition	Continuous
Class of equipment	Class II equipment
Protection against ingress of water	IP20

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General remarks:	
<p>“(see remark #)” refers to a remark appended to the report.</p> <p>“(see appended table)” refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>Until otherwise specified, all tests are done under normal ambient condition $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$, Max RH: 75% and air pressure of 860 mbar to 1060 mbar.</p>	<p>Attached with:</p> <p>Attachment - A. Photo Documentation</p>
<p>The test samples were pre-production samples without serial numbers. This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>The maximum ambient is 40°C.</p> <p>the equipment’s top enclosure is secured to bottom enclosure by the ultrasonic weld.</p> <p>The test result presented in this report relate only to the object tested. The samples tested comply with the requirements of this standard.</p>	

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

Name and address of the testing laboratory :

SHENZHEN YARUI TESTING CO., LTD.

6 Floor Baowen Building, Baole New Village, Xixiang Yantian, Bao'An District, Shenzhen City

Tested by : _____ June 05, 2017
Signature Date

Engineer
Name/title

Witnessed by: _____ June 05, 2017
Signature Date

Supervisor
Name/title

Approved by : _____ June 06, 2017
Signature Date

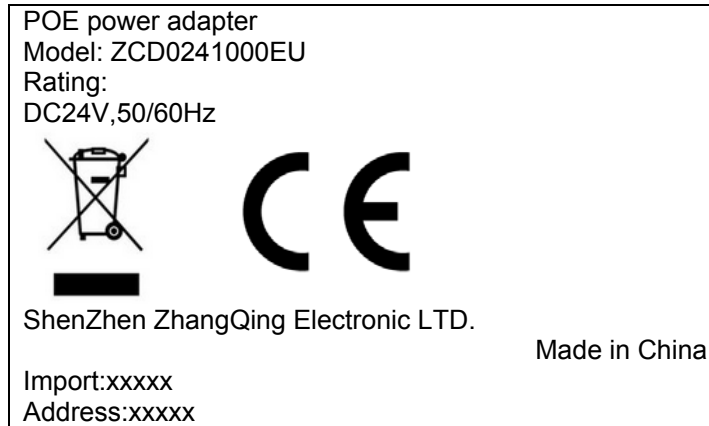
Manager
Name/title

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict

Copy of marking plate



Remark:

- The above copy of marking plates as an example, All the other models will have the same marking plate except the difference of model number, input connection method and output rating only.
- The above markings are the minimum requirements required by the safety standard. For the final productions samples, the additional markings which do not give rise to misunderstanding may be added.
- The dimension for height of CE mark is at least 5mm height and the height of WEEE directive mark is at least 7mm height.

EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict

1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950 or relevant component standard	(See appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls.	N
1.5.4	Transformers	Transformers used are suitable for their intended applications and comply with relevant parts of this standard and particularly Annex C, see Annex C – Transformers.	P
1.5.5	Interconnecting cables		P
1.5.6	Capacitors bridging insulation		N
1.5.7	Resistors bridging insulation		P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		P
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	No resistors bridging double or reinforced insulation.	N
1.5.8	Components in equipment for IT power systems		N
1.5.9	Surge suppressors		P

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
1.5.9.1	General		P
1.5.9.2	Protection of VDRs		P
1.5.9.3	Bridging of functional insulation by a VDR		N
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		N

1.6	Power interface		P
1.6.1	AC power distribution systems	TN and IT for Norway.	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	Considering the neutral conductor was line conductor, the neutral conductor was insulated from the body through the equipment.	P

1.7	Marking and instructions		P
1.7.1	Power rating	The required marking is located on the outside surface of the equipment.	P
	Rated voltage(s) or voltage range(s) (V)	100-240V~	P
	Symbol for nature of supply, for d.c. only	The equipment is for a.c. supply.	N
	Rated frequency or frequency range (Hz)	50/60Hz	P
	Rated current (mA or A)	---	P
	Manufacturer's name or trademark or identification marks	See the page 1	P
	Model identification or type reference	See the page 1	P
	Symbol of Class II equipment only	See marking label	P
	Other markings and symbols	The additional marking does not give rise to misunderstandings.	P
1.7.2	Safety instructions and marking	The user's manual contains max. ambient temperature, ratings and other safety caution.	P
1.7.2.1	General	Considered.	P
1.7.2.2	Disconnect devices	Terminal block	P
1.7.2.3	Overcurrent protective device		N
1.7.2.4	IT power distribution systems		N

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone		N
1.7.3	Short duty cycles		N
1.7.4	Supply voltage adjustment	No such parts	N
	Methods and means of adjustment; reference to installation instructions		N
1.7.5	Power outlets on the equipment	No standard power outlet.	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	F1, T4A/250V	P
1.7.7	Wiring terminals	No such parts	N
1.7.7.1	Protective earthing and bonding terminals		N
1.7.7.2	Terminal for a.c. mains supply conductors		N
1.7.7.3	Terminal for d.c. mains supply conductors		N
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking		P
1.7.8.2	Colours		P
1.7.8.3	Symbols according to IEC 60417		N
1.7.8.4	Markings using figures		N
1.7.9	Isolation of multiple power sources	Only one connection supplying hazardous voltages and energy levels to the equipment.	N
1.7.10	Thermostats and other regulating devices		N
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts.....	No removable parts.	N
1.7.13	Replaceable batteries	No battery in the equipment.	N
	Language		N
1.7.14	Equipment for 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	Refer to below.	P
2.1.1.1	Access to energized parts	Complies with the requirements as an electrical enclosure.	P

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
	Test by inspection	There is adequate protection against operator contact with bare parts at ELV or hazardous voltage or parts separated from these with basic or functional insulation only (except protective earth), also after operator detachable parts are removed and doors and covers are opened. No hazardous voltages exceeding 1000V a.c. or 1500V d.c. Checked by test finger, test probe and test pin.	P
	Test with test finger	Complies.	P
	Test with test pin	Complies.	P
	Test with test probe		N
2.1.1.2	Battery compartments	No battery compartments.	N
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N
	Working voltage (V _{peak} or V _{rms}); minimum distance (mm) through insulation		
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N
2.1.1.5	Energy hazards		N
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s)		
2.1.1.8	Energy hazards – d.c. mains supply	Not connected to DC mains supply.	N
	a) Capacitor connected to the d.c. mains supply	See above	N
	b) Internal battery connected to the d.c. mains supply	See above	N
2.1.1.9	Audio amplifiers	No audio amplifier.	N
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	N

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
2.2	SELV circuits		P
2.2.1	General requirements	The secondary circuits were tested as SELV. See 2.2.1 to 2.2.4	P
2.2.2	Voltages under normal conditions (V)	Not exceed 42.4V peak or 60V dc in SELV circuit under normal operation. See appended table 2.2.2	P
2.2.3	Voltages under fault conditions (V)	Single fault cause did not excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V d.c. were not exceeded within 0.2 sec. and limits 42.4 peak and 60V d.c. were not exceeded for longer than 0.2 sec.	P
2.2.4	Connection of SELV circuits to other units		P
2.3	TNV circuits		N
2.3.1	Limits	No TNV circuits in equipment.	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		N
2.4.1	General requirements		N
2.4.2	Limit values		N
	Frequency (Hz)		
	Measured current (mA).....		
	Measured voltage (V)		

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Cause	Requirement-Test	Result-remark	Verdict
	Measured circuit capacitance (nF or μ F)		
2.4.3	Connection of limited current circuits to other circuits	Only intended to be connected with SELV circuits	N
2.5	Limited power sources		N
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		N
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA)		
	Current rating of overcurrent protective device(A):		
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Class I equipment	P
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG.....		N
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG.....		P
	Protective current rating (A), cross-sectional area (mm ²), AWG		P
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (), voltage drop (V), test current (A), duration (min)		P
2.6.3.5	Colour of insulation.....		N
2.6.4	Terminals		P
2.6.4.1	General		P
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type and nominal thread diameter (mm)		N
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Equipment relies on fuses or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Overcurrent protection is provided by single fuse in primary.	P
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7	Considered.	P
2.7.3	Short-circuit backup protection		P
2.7.4	Number and location of protective devices	In Norway, IT power distribution system is used. Equipment with a single protective device is accepted in Norway. Other countries (e.g. Germany and Belgium) may have additional requirements.	P
2.7.5	Protection by several devices	Only one protective device. See Sub-clause 2.7.4.	N
2.7.6	Warning to service personnel.....:	After operation of the protective device, the equipment is still under voltage if it is connected to an IT-power distribution system. A warning is required for service persons. Norway does not require this warning. See also Sub-clause 2.7.4.	N

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict

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
2.8.5	moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gaps (mm)		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test (V)		N
2.8.8	Mechanical actuators		N

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials is used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning	Humidity treatment performed for 48 hrs.	P
	Humidity (%)	93%	
	Temperature (°C)	25°C	
2.9.3	Grade of insulation	Insulation is considered to be functional, basic, reinforced or double insulation.	P
2.9.4	Separation from hazardous voltages	Refer to below.	P
	Method(s) used	Method 1.	

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	Refer to below.	P
2.10.1.1	Frequency	Considered.	P
2.10.1.2	Pollution degrees	Pollution Degree 2.	P
2.10.1.3	Reduced values for functional insulation	The functional insulation complied with clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	Considered.	P

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
2.10.1.5	Insulation with varying dimensions	No such transformer used.	N
2.10.1.6	Special separation requirements	Special separation is not used.	N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage	(See appended table 2.10.2)	P
2.10.2.1	General	Refer to below.	P
2.10.2.2	RMS working voltage	(See appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(See appended table 2.10.2)	P
2.10.3	Clearances	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.1	General	Refer to below.	P
2.10.3.2	Mains transient voltages	Refer to below.	P
	Peak working voltage	2500V peak	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 and 2.10.4.	P
2.10.3.4	Clearances in secondary circuits	Only the functional insulation in secondary circuits complied with clause 5.3.4.	N
2.10.3.5	Clearances in circuits having starting pulses	No starting pulses voltage	N
2.10.3.6	Transients from a.c. mains supply	Considered	P
2.10.3.7	Transients from d.c. mains supply	Not connected to d.c mains supply.	N
2.10.3.8	Transients from telecommunication networks and cable distribution systems	Not connected to telecommunication networks and cable distribution systems.	N
2.10.3.9	Measurement of transient voltage levels	Measurement not relevant.	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	Refer to below.	P
2.10.4.1	General	Considered.	P
2.10.4.2	Material group and comparative tracking index	Refer to below.	P

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
	CTI tests	Material group IIIb is assumed to be used.	
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation	Refer to below.	P
2.10.5.1	General	Considered.	P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation	No such construction used..	N
2.10.5.4	Semiconductor devices	Not used.	N
2.10.5.5	Cemented joints.....:	Not used.	N
2.10.5.6	Thin sheet material – General	Considered.	P
2.10.5.7	Separable thin sheet material	Insulation tape wrap around Transformer T1. (see appended table 5.2)	P
	Number of layers (pcs)	3 layers	
2.10.5.8	Non-separable thin sheet material	Not used.	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	Refer Annex C and sub-clause 5.2	P
	Electric strength test		
2.10.5.11	Insulation in wound components		N
2.10.5.12	Wire in wound components		P
	Working voltage	(see appended table 2.10.3 and 2.10.4)	P
	a) Basic insulation not under stress		N
	b) Basic, supplementary, reinforced insulation:		P
	c) Compliance with Annex U		P
	Two wires in contact inside wound component; angle between 45 and 90		P
2.10.5.13	Wire with solvent-based enamel in wound components	No wire with solvent-based enamel in wound components.	N
	Electric strength test		
	Routine test		N
2.10.5.14	Additional insulation in wound components		P
	Working voltage	(see appended table 2.10.3 and 2.10.4)	P

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
	- Basic insulation not under stress		N
	- Supplementary, reinforced insulation		P
2.10.6	Construction of printed boards	Refer to below.	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards		N
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
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components	No special coating in order to reduce distance.	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	Degree 2	N
2.10.11	Tests for semiconductor devices and cemented joints	No such device used.	N
2.10.12	Enclosed and sealed parts		N

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		N
3.1.1	Current rating and overcurrent protection		N
3.1.2	Protection against mechanical damage		N
3.1.3	Securing of internal wiring		N
3.1.4	Insulation of conductors		N
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors		N

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
	10 N pull test		N
3.1.10	Sleeving on wiring		N
3.2	Connection to a mains supply		P
3.2.1	Means of connection	Terminal block	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply	The equipment is not for connection to a d.c. mains supply.	N
3.2.2	Multiple supply connections	Only one supply connection.	N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter (mm) of cable and conduits		
3.2.4	Appliance inlets		N
3.2.5	Power supply cords	No power cords	N
3.2.5.1	AC power supply cords		N
	Type.....		
	Rated current (A), cross-sectional area (mm ²), AWG.....		
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)		
	Longitudinal displacement (mm)		
3.2.7	Protection against mechanical damage	No sharp points or cutting edges on the equipment surfaces.	P
3.2.8	Cord guards		N
	D (mm); test mass (g)		
	Radius of curvature of cord (mm).....		
3.2.9	Supply wiring space	The equipment is not permanently connection or with non-detachable power supply cord.	N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N

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Cause	Requirement-Test	Result-remark	Verdict

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 and nominal thread diameter (mm)		
3.3.6	Wiring terminals 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	Refer to below.	P
3.4.2	Disconnect devices	Terminal block	P
3.4.3	Permanently connected equipment	Unit is not permanently connected equipment	N
3.4.4	Parts which remain energized	No parts remain energized.	N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles – single-phase and d.c. equipment	The circuit-breaker disconnects both poles simultaneously.	N
3.4.7	Number of poles – three-phase equipment	Single phase equipment.	N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices	Terminal block as disconnect devices	N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources	Single power source only.	N

3.5	Interconnection of equipment		P
3.5.1	General requirements	SELV voltage connections for the output. Not compatible with connection for the input.	P
3.5.2	Types of interconnection circuits	See 3.5.1	N
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection circuits.	N
3.5.4	Data ports for additional equipment	No data ports	N
4	PHYSICAL REQUIREMENTS		N
4.1	Stability		N
	Angle of 10°		N

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Cause	Requirement-Test	Result-remark	Verdict

	Test: force (N).....:		N
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4.2	Mechanical strength		P
4.2.1	General	Complies with the requirement also after tests described below are applied.	P
4.2.2	Steady force test, 10 N	No hazard, ref. comment in appended table 2.10.3 – 2.10.4.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N
4.2.4	Steady force test, 250 N	No energy or other hazard.	P
4.2.5	Impact test		P
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm)		N
4.2.7	Stress relief test		N
4.2.8	Cathode ray tubes		N
	Picture tube separately certified		N
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment; force (N) ... :		N

4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed. Must be checked in the end product also.	P
4.3.2	Handles and manual controls; force (N)..... :		N
4.3.3	Adjustable controls		N
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P
4.3.5	Connection of plugs and sockets	Special shape of DC output connector, no misconnection to create a hazard likely.	P

4.3.6	Direct plug-in equipment		N
	Torque		
	Compliance with the relevant mains plug		N

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Cause	Requirement-Test	Result-remark	Verdict
	standard		
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N
4.3.8	Batteries	No batteries.	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	Insulation is not exposed to oil, grease etc.	N
4.3.10	Dust, powders, liquids and gases	The equipment does not produce dust or using powder, liquids or gases.	N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids..... :		N
	Quantity of liquid (l)..... :		N
	Flash point (°C)..... :		N
4.3.13	Radiation; type of radiation		P
4.3.13.1	General		P
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	Laser (including LEDs)	LED indicator lamp	P
	Laser class	Class I laser	
4.3.13.6	Other types	No other types of radiation.	N
4.4	Protection against hazardous moving parts		N
4.4.1	General	No moving parts.	N
4.4.2	Protection in operator access areas	No moving parts.	N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas	Unintentional contact is not likely in service access areas.	N

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Cause	Requirement-Test	Result-remark	Verdict

4.5	Thermal requirements		P
4.5.1	General	Refer to below.	P
4.5.2	Temperature tests	(See appended table 4.5)	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)	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings		P
	Dimensions (mm)		
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottom		N
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		P
	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		N
	Conditioning temperature(°C)/time (weeks)		

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		N
	Method 1, selection and application of components wiring and materials		N
	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		N
4.7.3	Materials		P
4.7.3.1	General		N
4.7.3.2	Materials for fire enclosures	See appended table	P
4.7.3.3	Materials for components and other parts outside fire enclosures	Only PVC insulated output cord and connector	P

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Cause	Requirement-Test	Result-remark	Verdict
4.7.3.4	Materials for components and other parts inside fire enclosures	Internal components except small parts are V-2, HF-2 or better.	P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	Test conducted in accordance with 5.1.2 to 5.1.7.	P
5.1.2	Configuration of equipment under test (EUT)	Refer to below.	P
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.3	Test circuit	Tested for connection to IT power distribution system (also relevant for TN or TT power distribution system).	P
5.1.4	Application of measuring instrument	Measuring instrument D1 is used.	P
5.1.5	Test procedure	Considered.	P
5.1.6	Test measurements	Refer to below.	P
	Test voltage (V)	AC unit: 264V~.	
	Measured current (mA)	(see appended table 5.1)	
	Max. allowed current (mA)	(see appended table 5.1)	
	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
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	Not connected to a telecommunication network nor a cable distribution system.	N

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Cause	Requirement-Test	Result-remark	Verdict
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distributions system		N
	Test 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	No motor	N
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation.....:	Functional insulation was shorted (meets requirements c).	P
5.3.5	Electromechanical components		N
5.3.6	Audio amplifiers in ITE		N
5.3.7	Simulation of faults	Refer the enclosed fault condition tests.	P
5.3.8	Unattended equipment		N
5.3.9	Compliance criteria for abnormal operating and fault conditions	Refer to below.	P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.2	After the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS	N/A
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Cause	Requirement-Test	Result-remark	Verdict

6.1	Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	No TNV circuit.	N
	Test 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 telecommunication wiring system from overheating		N
	Max. output current (A).....		N
	Current limiting method		N

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General		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

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Cause	Requirement-Test	Result-remark	Verdict
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).....		
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) (UL approved materials used, see appended table 1.5.1)		N
A.2.1	Samples, material.....		N
	Wall thickness (mm).....		
A.2.2	Conditioning of samples		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 criteria		N

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Cause	Requirement-Test	Result-remark	Verdict

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements		N

	Position		
	Manufacturer		
	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		N
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. motor in secondary circuits		N
B.7.1	Test procedure		N
B.7.2	Alternative test procedure; test time (h).....		N
B.7.3	Electric strength test		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	Primary to Secondary.	
	Manufacturer	Refer to Table 1.5.1.	
	Type	Refer to Table 1.5.1.	
	Rated values	Refer to Table 1.5.1.	
	Method of protection.....	Protected by circuit.	
C.1	Overload test	(see appended table 5.3)	P

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Cause	Requirement-Test	Result-remark	Verdict

C.2	Insulation	(see appended table 5.2)	P
	Protection from displacement of windings.....:	(see appended table C.2)	P

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	The measuring instrument of figure D.1 is from IEC 60990, figure 4.	P
D.2	Alternative measuring instrument	Measuring instrument D1 is used.	N

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		P
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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	Overvoltage category II.	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

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Cause	Requirement-Test	Result-remark	Verdict
	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.:		P

H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal used	Metals which the combination electrochemical potential is less than 0.6 V.	

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	(see appended table 5.3)	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	The equipment is operated according to the most unfavorable way of operation given in the operating instructions.	P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction	No telephone ringing signal.	N

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Cause	Requirement-Test	Result-remark	Verdict
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing 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
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		P
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	a) Preferred climatic categories	Varistor was by VDE approved.	N
	b) Maximum continuous voltage		N
	c) Pulse current		N
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	The impulse testing is not used.	N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N

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Cause	Requirement-Test	Result-remark	Verdict

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction		P
V.2	TN power distribution systems		N/A

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		P
W.1	Touch current from electronic circuits		P
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)		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P

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
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		--
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CENELEC COMMON MODIFICATIONS		
Contents	Add the following annexes:	--

SHENZHEN YARUI TESTING CO., LTD.

EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
	Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		
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 Note2 2.3.4 Note2 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		
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. No power cord provided		N
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 No Mercury switches, relays, etc.		P
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

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Cause	Requirement-Test	Result-remark	Verdict												
2.7.1	<p>Replace the subclause as follows: Basic requirements to protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P												
2.7.2	This subclause has been declared 'void'.														
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.														
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". In Table 3B, replace the first four lines by the following:</p> <table border="0"> <tr> <td> Up to and including 6</td> <td> </td> <td>0,75 a)</td> <td> </td> </tr> <tr> <td> Over 6 up to and including 10</td> <td> (0,75) b)</td> <td>1,0</td> <td> </td> </tr> <tr> <td> Over 10 up to and including 16</td> <td> (1,0) c)</td> <td>1,5</td> <td> </td> </tr> </table> <p>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.</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													
3.3.4	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. No socket-outlets		N												
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. Not Class II equipment														

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Cause	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 μ Sv/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
Bibliography	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
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 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N
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

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Cause	Requirement-Test	Result-remark	Verdict
1.7.2.1	<p>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" 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 POE power 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 also be accepted in Norway): "Utstyr ome r koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplede utstyr – og er tilkoplede 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."</p>		N/A

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Cause	Requirement-Test	Result-remark	Verdict
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. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		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.		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.		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.		N
2.6.6.3	In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.		N
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	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
3.2.1.1	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. 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

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EN60950-1			
Cause	Requirement-Test	Result-remark	Verdict
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
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
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
3.2.4	In Switzerland, for requirements see 3.2.1.1 of this annex.		N
3.5.2.1	In the United Kingdom, a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
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
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
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
	- the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2.5kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in En 132400.		N

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Cause	Requirement-Test	Result-remark	Verdict
6.1.2.2	In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE Band 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
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
7.3	In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3	In Norway, for installation conditions see EN 60728-11:2005.		N

ZC	A-DEVIATIONS (informative)		N
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		N
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
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  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
1.7.2.1	Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräteund 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

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
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
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

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Cause	Requirement-Test	Result-remark	Verdict

Zx.	Protection against excessive sound pressure from personal music players		N
Zx.1	General		N
	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.		N
	A personal music player is a portable equipment for personal use, that:		N
	- is designed to allow the user to listen to recorded or broadcast sound or video; and		N
	- primarily uses headphones or earphones that can be worn in or on or around the ears; and		N
	- allows the user to walk around while in use.		N
	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.		N
	The requirements in this sub-clause are valid for music or video mode only.		N
	The requirements do not apply:		N
	- while the personal music player is connected to an external amplifier; or		N
	- while the headphones or earphones are not used.		N
	The requirements do not apply to:		N
	- hearing aid equipment and professional equipment;		N
	- 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.		N
	For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N
Zx.2	Equipment requirements		N
	No safety provision is required for equipment that complies with the following:		N

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Cause	Requirement-Test	Result-remark	Verdict
	the following wording, or similar: To prevent possible hearing damage, do not listen at high volume levels for long periods.		N
	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.		N
Zx.4	Requirements for listening devices (headphones and earphones)		N
Zx.4.1	Wired listening devices with analogue input		N
	With 94 dBA sound pressure output $L_{a\text{eq},T}$, the input voltage of the fixed “programmer simulation noise” described in EN 50332-2 shall be ≥ 75 mV.		N
	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).		N
Zx.4.2	Wired listening devices with digital input		N
	With any playing device playing the fixed “programmer 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 $L_{a\text{eq},T}$ of the listening device shall be ≤ 100 dBA.		N
	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.).		N
Zx.4.3	Wireless listening devices		N
	with any playing and transmitting device playing the fixed programmer simulation noise described in EN 50332-1; and		N
	respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and		N
	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 above-mentioned programmer simulation noise		N
	the acoustic output $L_{a\text{eq},T}$ of the listening device shall be ≤ 100 dBA.		N
Zx.5	Measurement methods		N
	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.		N

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TABLE 1.5.1 List of critical components and materials					
Component	manufacturers / trademark	Type / model	Value / rating	standard	Approval/ Reference
Enclosure Material	Sabic Lnnovative Plastics US LLC	940(f1)	PC;V-0:120 °C ,1.5mm min. thickness	UL 94	UL
PCB	ShenZhen ZhangQing Electronic LTD.	PCM-FCZCD0241000EU	V-0 130° C	UL 94	UL
Fuse resistor	ShenZhen ZhangQing Electronic LTD.		250V	IEC/EN 60127-1 IEC/EN 60127-3	VDE
Components used in T1:					
Bobbin for transformer(T1)	Chang Chun Plastics Co Ltd	T375J	PMC;V-0; 150° C		UL
Magnet Wire for transformer(T1)	Dong Guan Yida Industrial Co Ltd	*UEW/155 or QA-*/155	155°C		UL
Triple insulated wire for transformer(T1)	Great Leoflon Industrial Co Ltd	TRW(B)Serie(s)	Insulation voltage:1000Vpeak max,;Class B		VDE
Insulation tape inside transformer(T1)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	PF	Polimide film tape;180 °C		UL
Teflon tube inside transformer(T1)	Changyuan Electronics (Shenzhen) Co Ltd	CB-TT-S	PTFE not-heat-shrinkable tubing;600V;200 °C		UL
Varnish for transformer(T1)	Hang Cheung Petrochemical Ltd	8562(a)	HC;155°C		UL
Y1-Capacitor	XIAMEN WANMING	HJ	Max.1000pF, min.250Vac,125 °C		VDE
Alt.	Totoku Electric Co. Ltd.	TIW-2	130°C		VDE
- Insulation tape	TESA SE	50503	130-C		UL E
- Varnish	Hang Cheung Petrochemical Ltd	8562(a)	155°C		UL E200154

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Cause	Requirement-Test	Result-remark	Verdict

1.6.2	TABLE: electrical data test (in normal conditions)					P
fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	condition
F1	--	90V/50Hz	43.78	0.511	0.511	Rated laod: 5Vdc, 2.1A
F1	0.5	100V/50Hz	45.34	0.483	0.483	
F1	0.5	240V/50Hz	45.57	0.221	0.221	
F1	--	264V/50Hz	45.24	0.212	0.212	
F1	--	90V/60Hz	43.82	0.512	0.512	
F1	0.5	100V/60Hz	45.37	0.485	0.485	
F1	0.5	240V/60Hz	45.82	0.223	0.223	
F1	--	264V/60Hz	45.32	0.218	0.218	

1.7.13	TABLE: durability of marking test			P
Location	Checked by	Time	Result	
External enclosure	Water	15s	No any curling and still legibility	
External enclosure	Petroleum spirit	15s	No any curling and still legibility	

2.1.1.5 c1)	TABLE: max. V, A, VA test				N
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
The above measurements are the maximum values (max. V and max. A not obtained at the same time). Vin = 240Vac					

2.1.1.7	TABLE: discharge test				P
Condition	calculated τ	measured τ	T u \rightarrow 0V(ms)	Comments	
L/N		0.49s	1.22s	0.33 uF, Vpeak=384V, 37%Vpeak=142.1V T u \rightarrow 142.1V=0.49s	
Remark:					

2.2.2	TABLE: SELV voltage measurement		P
Location	Voltage measurement (V)	Comments	
Between T1 second winding	15.2V	--	

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2.4.2	TABLE: limited current circuit measurement				N
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments
--	--	--	--	--	--
Remark:					

2.5	TABLE: limited power source measurement			N
Condition	Output voltage (Uoc) (V)	Apparent power (S)(VA)	Output current (Isc) (A)	
--	--	--	--	

2.6.3.4	TABLE: ground continue test		P
Location	Resistance measured(mΩ)	Comments	
The PE terminal to enclosure	20	<0.1Ω	
Remark: Test current: 32A, Test time: 2min			

2.9.2	TABLE: humidity test			P
Test condition:	Temperature	Relative Humidity	Duration	Breakdown (Y/N)
	25°C	93%	48 hours	N
Remark: After humidity test, electric strength test specified in clause 5.2.2 should be applied.				

2.10.2	TABLE: working voltage measurement			P
Location	Peak Voltage (V)	RMS Voltage (V)	Comments1)	
T2 Pin 1 – T1 Pin A	360	215	--	
T2 Pin 2 – T1 Pin A	360	211	--	
T2 Pin 3 – T1 Pin A	540	243	--	
T2 Pin 4 – T1 Pin A	392	216	--	
T2 Pin 1 – T1 Pin B	372	214	--	
T2 Pin 2 – T1 Pin B	364	211	--	
T2 Pin 3 – T1 Pin B	548	247	Max. Vpeak Max. Vr.m.s	
T2 Pin 4 – T1 Pin B	420	243	--	
T2 Pin 1 – T1 Pin C	370	211	--	
T2 Pin 2 – T1 Pin C	361	208	--	
T2 Pin 3 – T1 Pin C	522	234	--	
T2 Pin 4 – T1 Pin C	408	223	--	
T1 Pin 1 – T1 Pin A	320	207	--	
T1 Pin 2 – T1 Pin A	312	202	--	
T1 Pin 3 – T1 Pin A	315	203	--	

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Cause	Requirement-Test	Result-remark	Verdict
T1 Pin 4 – T1 Pin A	502	224	--
T1 Pin 5 – T1 Pin A	312	202	--
T1 Pin 1 – T1 Pin B	320	208	--
T1 Pin 2 – T1 Pin B	322	214	--
T1 Pin 3 – T1 Pin B	320	208	--
T1 Pin 4 – T1 Pin B	495	228	--
T1 Pin 5 – T1 Pin B	315	203	--
T1 Pin 1 – T1 Pin C	318	206	--
T1 Pin 2 – T1 Pin C	320	208	--
T1 Pin 3 – T1 Pin C	324	210	--
T1 Pin 4 – T1 Pin C	498	229	--
T1 Pin 5 – T1 Pin C	316	204	--
Remark: Input: 240V, 50Hz			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
Between L and N before fuse	420	240	2.0	3.0	2.5	3.0
Fuse	420	240	2.0	4.0	2.5	4.0
Between primary components and accessible enclosure	420	240	2.0	3.6	2.5	3.6
Pri. Winding to Sec. Winding of T2	548	247	4.4	5.2	5.0	5.2
Pri. Winding to Sec. Winding of T1	502	224	4.4	5.0	4.8	5.0

2.10.5	TABLE: distance through insulation measurements				P
distance through insulation di at/of:	U r.m.s (V)	test voltage (V)	required di (mm)	di (mm)	
Bobbin of transformer (T1)	240	3000	0.4	> 0.4	
Bobbin of transformer (T2)	240	3000	0.4	> 0.4	
PCB	240	3000	0.4	> 0.4	
Insulation tape (T1)	240	3000	At least 2 layer	2 layer	
Insulation tape (T2)	240	3000	At least 2 layer	2 layer	
Insulation Sheet	240	3000	0.4	> 0.4	

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3.2.6	TABLE: strain relief test			N
Pull force	Duration	Times	Displaced ($\leq 2\text{mm}$)	
--	--	--	--	

4.1	TABLE: stability test			N
Titled angle		Result		
--		--		

4.2.4	TABLE: enclosure push test				P
Test part	Pull force	Duration	Result	Breakdown (Y/N)	
Enclosure (outer side)	250N \pm 10N	5s	No any damage, no any hazardous parts accessible	N	
Remark: After this test, conducted electric strength test according to clause 5.2.2, and no any breakdown.					

4.2.5	TABLE: impact test			P
Height	External surface	Result		
1.3m	Enclosure	No any damage		

4.2.6	TABLE: drop test			N
Height	Horizontal surface		Result	
--	--		--	

4.2.7	TABLE: stress relief test			N
Temperature ($^{\circ}\text{C}$)	Duration	Result		
--	--	--		

4.3.6	TABLE: Torque test (direct-plug in)			N
Test Torque	Require Torque			Pass or Fail
--	--			--

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4.5.1	TABLE: maximum temperatures			P
	Test voltage (V)	90V/60Hz	264V/50Hz	--
	tamb1 (°C)	24.8	24.8	--
	tamb2 (°C).....	24.9	25.0	--
Maximum temperature T of part/at:	T (°C)		Allowed Tmax (°C)	
C23	90.6	83.7	ZCD0241000EU	
Varistor	80.4	73.6	85	
L1 winding	92.7	85.4	130	
CX1	90.3	84.1	100	
PCB near BD1	95.4	90.7	130	
L2 winding	94.8	88.6	130	
PCB near D10	96.4	89.8	130	
T2 winding	101.7	95.5	110	
T2 bobbin	96.2	91.3	110	
PCB near T2	92.7	89.4	130	
T1 winding	98.2	92.9	110	
T1 bobbin	95.4	90.4	110	
PCB near T1	92.3	87.6	130	
C10	93.7	87.8	ZCD0241000EU	
C11	92.9	86.5	ZCD0241000EU	
PCB near Q5	88.2	84.6	130	
Enclosure surface above T2	52.5	48.6	70	
Enclosure surface under T2	55.6	50.2	70	

Remark: 1).T shall not exceed (Tmax + Tamb – Tma), see clause 1.4.12. T: is the temperature of the given part measured under the prescribed test conditions; Tmax: is the maximum temperature specified for compliance with the test; Tamb: is the ambient temperature during test; Tma: is the maximum ambient temperature during permitted by the manufacturer's specification, see below 2). 2).The ambient temperature is +25°C Measured by thermocouple, transformer T1 is Class B material, see table 1.5.1 for details.

4.5.2	TABLE: ball pressure test of thermoplastics			P
	required impression diameter (mm)	£ 2 mm		
part	test temperature (°C)	impression diameter (mm)		
PCB	125	0.3		
Transformers(T1) Bobbin	125	0.4		
Transformers(T2) Bobbin	125	0.5		

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5.1.6	TABLE: touch current measurement				P
Condition	L → terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments	
L/N to enclosure with foil metal	0.25	0.25	3.5	--	
L/N to output	0.75	0.75	3.5	--	
Input: 264V, 50Hz					

5.2	TABLE: electric strength tests and impulse tests			P
test voltage applied between:		test voltage (Vac)	breakdown	
L/N to output		3000	No	
Line/ Neutral and accessible enclosure surface		1500	No	
Transformer (T1) primary winding to secondary winding		3000	No	
Transformer (T2) primary winding to secondary winding		3000	No	
Transformer (T1) secondary winding to core		3000	No	
Transformer (T2) secondary winding to core		3000	No	
Between any 2 layers of insulation tape (T1)		3000	No	
Between any 2 layers of insulation tape (T2)		3000	No	
Remark: tested after humidity treatment, heating test, each fault condition tests, impact test and so on.				

5.3	TABLE: fault condition tests						P
	ambient temperature (°C)		25.1				—
	model/type of power supply		--				—
	rated markings of power supply		--				—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result	
BD1	S-C	240	1s	F1	0	Fuse opened. No hazard.	
C10	S-C	240	1s	F1	0	Fuse opened. No hazard.	
Q4(D-S)	S-C	240	1s	F1	0	Fuse opened. No hazard.	
Q4(G-D)	S-C	240	1s	F1	0	Fuse opened. No hazard.	
Q4(G-S)	S-C	240	10mins	F1	0.012	Unit shut down immediately. Recoverable. No hazard.	
T2 (pin 1-2)	S-C	240	10mins	F1	0.013	Unit shut down immediately. Recoverable. No hazard.	
T2 (pin 3-4)	S-C	240	10mins	F1	0.015	Unit shut down immediately. Recoverable. No hazard.	

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Cause	Requirement-Test					Result-remark	Verdict
T2 (pin A-B)	S-C	240	10mins	F1	0.014	Unit shut down immediately. Recoverable. No hazard.	
T1 (pin 1-2)	S-C	240	10mins	F1	0.012	Unit shut down immediately. Recoverable. No hazard.	
T1 (pin 3-4)	S-C	240	10mins	F1	0.013	Unit shut down immediately. Recoverable. No hazard.	
T1 (pin A-B)	S-C	240	10mins	F1	0.013	Unit shut down immediately. Recoverable. No hazard.	
Output	S-C	240	10mins	F1	0.012	Unit shut down immediately. Recoverable. No hazard.	
Output	O-L	240	7h40mins	F1	1.205-1.420-1.584-0.011	Output current overload to 22.25A; Max temperature on T1 winding: ZCD0241000EU.6°C, T1 core: 101.8°C; T2 winding: 109.6°C, T2 core: 102.8°C; Ambient: 25.1°C, No hazard.	
Opening	Blocked	240	3h20mins	F1	1.205-1.468	Input power increase to 304.6W. No hazard. Max. temperature: T1 winding: 103.5°C, T1 core: 98.4°C; T2 winding: 106.8°C, T2 core: 100.9°C; Ambient: 25.1°C, No hazard.	
<p>Supplementary information: The unit passed 3000V hi-pot test between primary and accessible output connector after single fault test above. In fault column, s-c=short-circuited, o-c=open-circuited, o-l=overloaded. Each fault where fuse F1 opened was tested with each source of fuse and same result occurred. Temp. limit of transformer (class B) according to table C.1 is 175°C-10=165°C.</p>							

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Attachment –A

Photo Documentation

Photo 1



Photo 2



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Photo 3



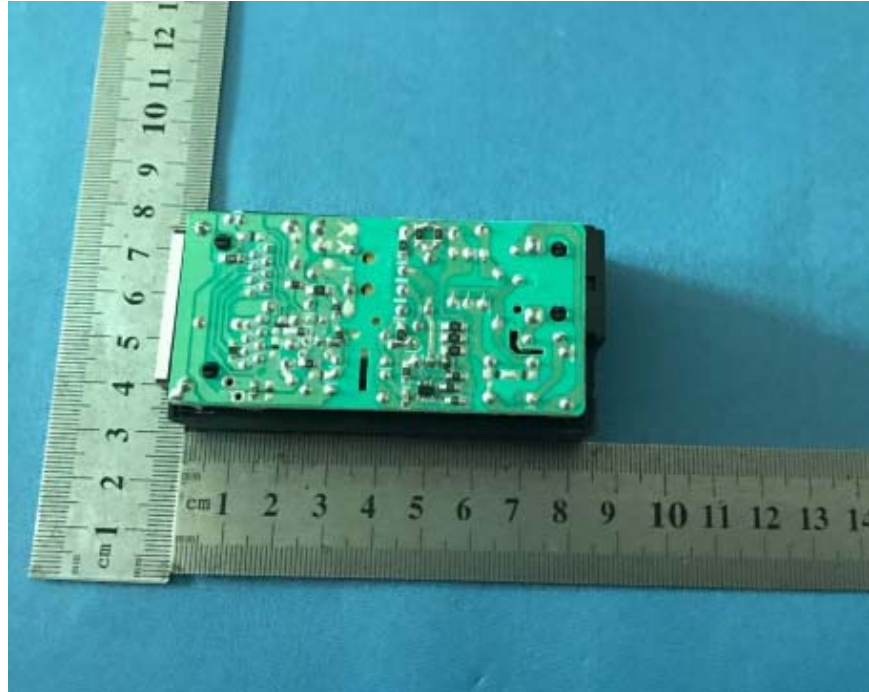
Photo 4



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Cause	Requirement-Test	Result-remark	Verdict

Photo 5



---The End---