




TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.....	BTL-LVD-1-S1710C164
Tested by (+ signature).....	Owen Yan 
Approved by (+ signature)	Ben Liu 
Date of issue.....	2017-11-17
Total number of pages.....	47
Testing Laboratory	BTL Inc.
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Applicant's name	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address.....	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Test specification:	
Standard	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013, IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	Service of CE Marking in LVD
Non-standard test method.....	N/A
Test Report Form No.	IEC60950_1F (LVD)
Master TRF	Dated 2014-02
Test item description	1) AC1200 Dual Band WiFi Repeater 2) AC750 Dual Band WiFi Repeater
Trade Mark	
Manufacturer.....	Same as the applicant
Model/Type reference.....	1). A18 2). A15
Ratings.....	AC100-240V, 50/60Hz, 0.3A

List of Attachments (including a total number of pages in each attachment):

- European Group difference and nation differences (19 pages)
- Photos documentation (6 pages)

Copy of marking plate



Remark:

These is representative label, the others are identical to them except for the model name.

Test item particulars	
Equipment mobility.....	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" 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 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: not directly connected to the mains
Mains supply tolerance (%) or absolute mains supply values	+ 10% / - 10%
Tested for IT power systems	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	230Vac for Norway
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)	Up to 2000 m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.19kg,
Possible test case verdicts:	
- test case does not apply to the test object.....: N/A (or N)	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement.....: F (Fail)	
Testing	
Date of receipt of test item	2017-10-26
Date(s) of performance of tests	2017-10-26 to 2017-11-03
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Name and address of factory (ies): N/A	

General product information:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

- The equipment is an AC1200 Dual Band WiFi Repeater and AC750 Dual Band WiFi Repeater (direct plug-in type) for use in information technology equipment.
- The equipment consists of power supply and SELV circuitry of main board, housed in a plastic fire enclosure.
- The plastic enclosure is secured with screw.
- The equipment provided with both of EU plug and UK plug.

Model Differences

- Model A15 is identical to model A18, except for model name.
- Unless otherwise specified, all tests were performed on representative model A18.

Technical Considerations

1. The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40 °C
2. The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): RJ-45 port

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)

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	See below.	P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls provided.	N/A
1.5.4	Transformers	Transformer used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex C.	P
1.5.5	Interconnecting cables	Interconnection o/p cable to other device is carrying only SELV on an energy level below 240 VA. → Except for the insulation material, there are no further requirements for the o/p interconnection cable.	P
1.5.6	Capacitors bridging insulation	Between the primary and secondary circuits capacitors subclass Y1 according to IEC 60384-14 with 21 days damp heat test.	P
1.5.7	Resistors bridging insulation	No such resistors.	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Certified capacitors connected between line and earth, ref. List of Critical Components and 1.5.6.	P
1.5.9	Surge suppressors	No VDRs provided.	N/A

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		P
1.6.1	AC power distribution systems	Considered.	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/A
1.6.4	Neutral conductor	Class II equipment. Neutral insulation is provided in the power supply. Double or reinforced insulation for rated voltage between accessible parts and primary phases.	P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking	See below.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	100-240Vac	P
	Symbol for nature of supply, for d.c. only.....:	Mains from AC source.	N/A
	Rated frequency or rated frequency range (Hz)	50/60Hz	P
	Rated current (mA or A)	0.3A	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	Trade-mark: 	P
	Model identification or type reference	1). A18 2). A15	P
	Symbol for Class II equipment only	Symbol for Class II equipment provided.	P
	Other markings and symbols	Additional symbol or marking does not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols	All symbols in accordance with IEC 60417 or ISO 3864-2 or ISO 7000	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.2	Safety instructions and marking	The user's manual contains information for operation, installation, servicing, transport, storage and technical data.	P
1.7.2.1	General	Considered.	P
1.7.2.2	Disconnect devices	The plug is regarded as disconnected device and it is incorporated with adaptor during normal use.	N/A
1.7.2.3	Overcurrent protective device	Not such equipment.	N/A
1.7.2.4	IT power distribution systems	Only for Norway.	P
1.7.2.5	Operator access with a tool	No operator accessible area that needs to be accessed by the use of a tool.	N/A
1.7.2.6	Ozone	Not such equipment.	N/A
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage selector.	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	Marking adjacent to fuse on power board PCB as: RF1: 10Ω,2W.	P
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminals for a.c. mains supply conductors	Direct plug-in equipment.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No d.c. mains supply.	N/A
1.7.8	Controls and indicators	No safety related switches or indicators.	N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N/A
1.7.10	Thermostats and other regulating devices	No such componentes provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge.	P
1.7.12	Removable parts	No removable part.	N/A
1.7.13	Replaceable batteries	No battery provided.	N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations	Not limited for use in restricted access locations.	N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage.	P
2.1.1.1	Access to energized parts	See above.	P
	Test by inspection	See above.	P
	Test with test finger (Figure 2A)	See above.	P
	Test with test pin (Figure 2B)	See above.	P
	Test with test probe (Figure 2C)	No TNV.	N/A
2.1.1.2	Battery compartments	No battery compartment.	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N/A
2.1.1.5	Energy hazards	No energy hazardous parts in operator access area.	P
2.1.1.6	Manual controls	No manual controls.	N/A
2.1.1.7	Discharge of capacitors in equipment	No X capacitor provided.	N/A
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply	Connected to a.c. mains.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Capacitor connected to the d.c. mains supply :		N/A
	b) Internal battery connected to the d.c. mains supply :		N/A
2.1.1.9	Audio amplifiers :	Not such equipment.	N/A
2.1.2	Protection in service access areas	No maintenance works in operation mode necessary.	N/A
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	N/A

2.2	SELV circuits		P
2.2.1	General requirements	The circuit inside equipment where SELV circuits only see clauses 2.2.2 to 2.2.4	P
2.2.2	Voltages under normal conditions (V) :	See appended table 2.2	P
2.2.3	Voltages under fault conditions (V) :	See above.	P
2.2.4	Connection of SELV circuits to other circuits :	See 2.2.2 and 2.2.3. No direct connection between SELV and any primary circuits.	P

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

2.4	Limited current circuits		P
2.4.1	General requirements		P
2.4.2	Limit values	(see appended table 2.4.2)	P
	Frequency (Hz) :	(see appended table 2.4.2)	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Measured current (mA)..... :	(see appended table 2.4.2)	—
	Measured voltage (V) :	(see appended table 2.4.2)	—
	Measured circuit capacitance (nF or μ F) :	CY1=1000 pF,	—
2.4.3	Connection of limited current circuits to other circuits	Output circuit as limited current circuit connected to primary via two bridging capacitors.	P

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

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	Class II equipment.	N/A
2.6.2	Functional earthing		N/A
	Use of symbol for functional earthing :		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG :		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG :		—
	Protective current rating (A), cross-sectional area (mm ²), AWG :		N/A
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)..... :		N/A
2.6.3.5	Colour of insulation :		N/A
2.6.4	Terminals		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm) :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Equipment relies on 16A rated fuse or circuit breaker of the wall outlet protection of the building installation in regard to L and N short-circuit. Over current protection is provided by the built-in current fuse.	P
	Instructions when protection relies on building installation	Not applicable for pluggable equipment type A.	N/A
2.7.2	Faults not simulated in 5.3.7	The protection device is well dimensioned and mounted.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A. Building installation is considered as providing short-circuit backup protection.	P
2.7.4	Number and location of protective devices :	Over current protection by one built-in current fuse.	P
2.7.5	Protection by several devices	Only one fuse (RF1) used as protective devices.	P
2.7.6	Warning to service personnel :	No service work necessary.	N/A
2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlocks.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material are not used.	P
2.9.2	Humidity conditioning	120 h	P
	Relative humidity (%), temperature (°C)	95%RH, 40°C	—
2.9.3	Grade of insulation	Insulation complies with sub-clauses 2.10, 4.5.1 and 5.2.	P
2.9.4	Separation from hazardous voltages	The secondary circuit is separated from hazardous voltages by reinforced insulation.	P
	Method(s) used	Method 1 used.	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below.	P
2.10.1.1	Frequency	Considered.	P
2.10.1.2	Pollution degrees	2	P
2.10.1.3	Reduced values for functional insulation	The functional insulation complies with 5.3.4 a) and c)	P
2.10.1.4	Intervening unconnected conductive parts	No such conductive parts.	N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.2.1	General	The rms and the peak voltage of the appliance is mains voltage 240V. The unit was connected to a 240V TN power system.	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	See below.	P
2.10.3.2	Mains transient voltages	See below.	P
	a) AC mains supply	Overvoltage category II for primary circuit and transient voltage 2500Vpeak.	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(See appended table 2.10.3 and 2.10.4).	P
2.10.3.4	Clearances in secondary circuits	Only the functional insulation in secondary circuits complied with clause 5.3.4.	P
2.10.3.5	Clearances in circuits having starting pulses	The circuit will not generating starting pulse.	N/A
2.10.3.6	Transients from a.c. mains supply	See 2.10.3.2.	P
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems	No TNV circuit.	N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	(see appended table 2.10.3 and 2.10.4)	P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	Only material group IIIb is assumed.	—
2.10.4.3	Minimum creepage distances	(See appended table 2.10.3 and 2.10.4)	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5	Solid insulation	See below.	P
2.10.5.1	General	Considered.	P
2.10.5.2	Distances through insulation	Not such equipment.	N/A
2.10.5.3	Insulating compound as solid insulation	Not such equipment.	N/A
2.10.5.4	Semiconductor devices		P
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General	The thin sheet materials of polyester tape used in and around transformer T1	P
2.10.5.7	Separable thin sheet material	Transformer primary and secondaryseparable between by two layers polyester tape. (See appended table 5.2)	P
	Number of layers (pcs)	2 layers.	—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	See appended table 5.2	—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage		P
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		P
	Two wires in contact inside wound component; angle between 45° and 90°	By tubing or insulation tape.	P
2.10.5.13	Wire with solvent-based enamel in wound components	No wire with solvent-based enamel in wound components.	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	(See appended table 2.10.3 and 2.10.4).	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)..... :		N/A
2.10.7	Component external terminations	(See appended table 2.10.3 and 2.10.4).	P
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognize rated 80°C insulated, and having gauge suitable for current intended to be carried. Internal wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges and heatsinks which could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	The wires are secured by soldering and glue (on PCB) so that a loosening of the terminal connection is unlikely.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see 3.1.1.	P
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure	No such screws provided.	N/A
3.1.7	Insulating materials in electrical connections	All current carrying connections are metal to metal.	N/A
3.1.8	Self-tapping and spaced thread screws	Not used.	N/A
3.1.9	Termination of conductors	All conductors are reliable secured.	P
	10 N pull test	Force of 10 N applied to the termination points of the conductors.	P
3.1.10	Sleeving on wiring	No sleeving used to provide supplementary insulation.	N/A

3.2	Connection to a mains supply		P
3.2.1	Means of connection	See below.	P
3.2.1.1	Connection to an a.c. mains supply	A mains plug, that is part of direct plug-in equipment.	P
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	Direct plug-in equipment.	N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	Direct plug-in equipment.	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm2)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		P
3.4.1	General requirement	Disconnect device provided.	P
3.4.2	Disconnect devices	Plug of this direct plug-in equipment was used as disconnected device.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	There is no parts remained with hazardous voltage or energy in the equipment when SPS is separated from AC mains.	P
3.4.5	Switches in flexible cords	No flexible cords.	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The mains plug disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment	Single phase equipment.	N/A
3.4.8	Switches as disconnect devices	See sub-clause 3.4.2.	N/A
3.4.9	Plugs as disconnect devices	See sub-clause 3.4.2.	N/A
3.4.10	Interconnected equipment	No interconnections using hazardous voltages.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.4.11	Multiple power sources	Only one supply connection provided.	N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements	See below.	P
3.5.2	Types of interconnection circuits	Interconnection circuits of SELV through secondary output connector.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	Direct plug-in equipment.	N/A
	Test force (N)		N/A

4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit comply with 2.1.1, 2.10.	P
	Rack-mounted equipment.	No such equipment.	N/A
4.2.2	Steady force test, 10 N	10N applied to components other than parts serving as an enclosure.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test	Direct plug-in equipment.	N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm)	1m, three impacts. No hazard as result from drop test.	P
4.2.7	Stress relief test	After 7 hours at temperature of 77°C and cooling down to room temperature, no shrinkage, distortion or loosening any enclosure part was noticeable on the equipment.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.8	Cathode ray tubes	No CRT provided.	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No high pressure lamps provided.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	Direct plug-in equipment.	N/A

4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard.	P
4.3.2	Handles and manual controls; force (N)	No handle or manual control.	N/A
4.3.3	Adjustable controls	No control device.	N/A
4.3.4	Securing of parts	No connection likely to be exposed to mechanical stress is provided in unit.	P
4.3.5	Connection by plugs and sockets	No mismatching of connectors, plugs or sockets possible.	P
4.3.6	Direct plug-in equipment	The prevention of imposing to undue strain on the socket-outlet was done by construction of the plug of equipment.	P
	Torque	0.092 Nm for EU plug; 0.088 Nm for UK plug.	—
	Compliance with the relevant mains plug standard :	The dimension of the injection part is in accordance with the requirement, however, for other tests, shall be evaluated when submitted for National approval.	P
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N/A
4.3.8	Batteries	No batteries provided.	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No heating elements provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N/A
4.3.11	Containers for liquids or gases	No container for liquid or gas.	N/A
4.3.12	Flammable liquids	No such flammable liquid.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation	See below.	P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs	See below.	P
4.3.13.5.1	Lasers (including laser laser diodes)	No such compoent.	N/A
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)	The AEL of indication LED used is far below the limit for LED Class 1 equipment.	P
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No hazardous moving parts.	N/A
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....		N/A
	Is considered to cause pain, not injury. b)		N/A
	Considered to cause injury. c)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.5.2	Protection for users		N/A
	Use of symbol or warning		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning		N/A

4.5	Thermal requirements		P
4.5.1	General	See below.	P
4.5.2	Temperature tests	(See appended table 4.5)	P
	Normal load condition per Annex L	(See Annex L)	—
4.5.3	Temperature limits for materials	(See appended table 4.5)	P
4.5.4	Touch temperature limits	(See appended table 4.5)	P
4.5.5	Resistance to abnormal heat	(see appended table 4.5.5)	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings	See below.	N/A
	Dimensions (mm)	(see appended table)	—
4.6.2	Bottoms of fire enclosures	Considered.	P
	Construction of the bottom, dimensions (mm)	(see appended table 4.6)	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	(see appended table 4.6)	P
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks).....		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	See below.	P
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: <ul style="list-style-type: none"> ▪ Components in primary ▪ Components in secondary ▪ Components having unenclosed arcing parts at hazardous voltage or energy level ▪ Insulated wiring The fire enclosure is required.	P
4.7.2.2	Parts not requiring a fire enclosure	See 4.7.2.1.	N/A
4.7.3	Materials	See below.	P
4.7.3.1	General	PCB rated V-1 or better.	P
4.7.3.2	Materials for fire enclosures	The fire enclosure is V-0 material.	P
4.7.3.3	Materials for components and other parts outside fire enclosures	No part outside fire enclosure.	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Internal components except small parts are V-2 or better.	P
4.7.3.5	Materials for air filter assemblies	No air filters provided.	N/A
4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	P
5.1.2	Configuration of equipment under test (EUT)	EUT has only one mains connection.	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/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Equipment of figure 5A used.	P
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.5	Test procedure	The touch current was measured from mains to output connector and to a 100 mm × 200 mm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.1.6	Test measurements	See below.	P
	Supply voltage (V)	(See appended table 5.1)	—
	Measured touch current (mA)	(See appended table 5.1)	—
	Max. allowed touch 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	Neither stationary permanently connected equipment nor stationary pluggable equipment type B.	N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength		P
5.2.1	General	(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
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Clause	Requirement + Test	Result - Remark	Verdict
5.3.1	Protection against overload and abnormal operation	Output overload test, the most unfavorable load test. (see appended table 5.3)	P
5.3.2	Motors	No motors.	N/A
5.3.3	Transformers	With the shorted o/p of the transformer, no high temperature of the transformer was recorded. Results of the short-circuit tests see appended table 5.3 and Annex C.	P
5.3.4	Functional insulation	Method c). Test results see appended table 5.3.	P
5.3.5	Electromechanical components	No electromechanical component provided.	N/A
5.3.6	Audio amplifiers in ITE	No such component.	N/A
5.3.7	Simulation of faults	Results see appended table.	P
5.3.8	Unattended equipment	None of the listed components was provided.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary to SELV was passed.	P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	No TNV.	N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		N/A
	Current limiting method		N/A
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General	Not connected to cable distribution system.	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A	Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples		N/A
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material		N/A
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

B	Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position	T1	—
	Manufacturer	See appended table 1.5.1	—
	Type	See appended table 1.5.1	—
	Rated values	Class B	—
	Method of protection	By protection circuit design.	—

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Clause	Requirement + Test	Result - Remark	Verdict
C.1	Overload test	See appended table 5.3.	P
C.2	Insulation	See appended table.	P
	Protection from displacement of windings :	By insulation tape.	P
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/A
E	Annex E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
G	Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply :		N/A
G.2.2	Earthed d.c. mains supplies :		N/A
G.2.3	Unearthed d.c. mains supplies :		N/A
G.2.4	Battery operation :		N/A
G.3	Determination of telecommunication network transient voltage (V) :		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks :		N/A
G.4.2	Transients from telecommunication networks :		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H	Annex H, IONIZING RADIATION (see 4.3.13)		N/A
J	Annex J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used		—
K	Annex K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
L	Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	Maximum normal load.	P
M	Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.3.2.3	Monitoring voltage (V)		N/A
N	Annex N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	Annex P, NORMATIVE REFERENCES		—
Q	Annex Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	- Preferred climatic categories		N/A
	- Maximum continuous voltage		N/A
	- Combination pulse current		N/A
	Body of the VDR Test according to IEC60695-11-5.....		N/A
	Body of the VDR. Flammability class of material (min V-1).....		N/A
R	Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	Annex S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
		Approved TIW used in T1 secondary.	—
V	Annex V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P

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

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....:		N/A
DD.3	Mechanical strength test, 250N, including end stops.....:		N/A
DD.4	Compliance.....:		N/A

EE	Annex EE, Household and home/office document/media shredders		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A)		N/A
	Test with wedge probe (Figure EE1 and EE2)		N/A

IEC60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
1. Plastic Enclosure	SABIC INNOVATIVE PLASTICS B V	940(f1)	Polycarbonate, V-0, Min. 2.0mm thickness, 120°C	UL 94	UL
2. PCB	Interchangeable	Interchangeable	V-1 or better,130°C	UL 796	UL
3. Plug Holder	SABIC INNOVATIVE PLASTICS B V	940(f1)	Polycarbonate, V-0, Min. 2.0mm thickness, 120°C	UL 94	UL
4. Inner plastic	SABIC INNOVATIVE PLASTICS B V	940(f1)	Polycarbonate, V-0, Min. 2.0mm thickness, 120°C	UL 94	UL
5. Fuse (RF1)	Shenzhen Xianyang Huaxing Machinery-Electronic Co., Ltd	KNP/RX21-2WS	10R, 2W;	EN60065: 2011-10 Clause 14.1b	VDE
(Alternative)	Anhui Changsheng Electronics Co., Ltd	RXF21-2W	10R, 2W;	EN60065: 2011-10 Clause 14.1b	VDE
(Alternative)	Shenzhen Kayocota Electronics Co., Ltd	FRKNP-2WS	10R, 2W;	EN60065: 2011-10 Clause 14.1b	VDE
6. Choke (LF1)	Interchangeable	Interchangeable	Min. 105°C	--	--
7. Bridging Diode (BD1)	--	--	Min. 1A, Min. 1000V	--	--
8. Electrolytic Capacitor (EC1, EC2)	--	--	Max. 6.8 μF, Min. 400V, 105°C	--	--
9. PWM IC (U1)	--	--	Min. 670 mA . Max. 725V	--	--
10. Transformer (T1)	DONGGUAN SUN HUNG KIN ELECTRICAL CO LTD (HUNG KAY INDUSTRIAL CO LTD)	BN028-T1	Class B	--	--
--Bobbin	CHANG CHUN PLASTIC S CO.,LTD	T375J	V-0, 130°C	UL 94	UL

IEC60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
- Triple Wire used for T1 (secondary)	FURUKAWA ELECTRIC CO LTD	TEX-E	130°C	IEC/EN 60950-1	VDE
- Insulating tapes	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT	130°C	UL 510	UL
10a). Transformer (T1)	Suizhou Ruishuo Electronic co., ltd	BN028-T1	Class B	--	--
-Bobbin	CHANG CHUN PLASTIC S CO.,LTD	T375J	V-0, 130°C	UL 94	UL
- Triple Wire used for T1 (secondary)	Guangzhou Wanbao Electronic Material Co., Ltd.	DTM	130°C	IEC/EN 60950-1	VDE
- Insulating tapes	XINYU SHENGDAFENG ELECTRIC MATERIAL CO LTD	SDF-312	130°C	UL 510	UL
11.Bridge-Capacitors (CY1)	Hongzhi Enterprises Ltd.	X1Y1 Series	1000pF, 400Vac,125 °C	IEC/EN 60384-14	VDE
(Alternative)	Hsuan Tai Electronic co., Ltd.	CY	1000pF, 400Vac,125 °C	IEC/EN 60384-14	VDE
(Alternative)	Jyh Chung Electronic Co., Ltd.	JD	1000pF, 400Vac,125 °C	IEC/EN 60384-14	VDE
(Alternative)	SHENZHEN HAOTIAN ELECTRONIC CO LTD	HT	1000pF, 400Vac,125 °C	IEC/EN 60384-14	VDE
(Alternative)	Shantou High-New Technology Dev. ZoneSongtian Enterprise Co., Ltd.,	CD-Series	1000pF, 400Vac,125 °C	IEC/EN 60384-14	VDE
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JD	1000pF,400Vac, 125 °C	IEC/EN 60384-14	VDE

IEC60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
(Alternative)	Dongguan City Dafu Electronics Co. Ltd.	CT7 Y1 Series	1000pF, 400Vac,125 °C	IEC/EN 60384- 14,	VDE
Supplementary information:					

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	TABLE: Opto Electronic Devices		N/A
Manufacturer: --			
Type: --			
Separately tested: --			
Bridging insulation: --			
External creepage distance: --			
Internal creepage distance.....: --			
Distance through insulation.....: --			
Tested under the following conditions: --			
Input: --			
Output: --			
supplementary information			

IEC60950-1						
Clause	Requirement + Test				Result - Remark	Verdict
1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V) / F (Hz)	I (A)	I rated (A)	P (W)	Fuse #	I fuse (A)	Condition/status
90/50	0.083	--	4.5	RF1	0.083	Maximum normal load.
90/60	0.080	--	4.5	RF1	0.080	Maximum normal load.
100/50	0.074	0.3	4.5	RF1	0.074	Maximum normal load.
100/60	0.075	0.3	4.5	RF1	0.075	Maximum normal load.
240/50	0.040	0.3	4.6	RF1	0.040	Maximum normal load.
240/60	0.040	0.3	4.6	RF1	0.040	Maximum normal load.
264/50	0.038	--	4.8	RF1	0.038	Maximum normal load.
264/60	0.037	--	4.8	RF1	0.037	Maximum normal load.
Supplementary information:						
The unit was connected and transmitted signal to others PC thru 1 Wifi.						

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)	
9V(power board output)	--	8.63	1.02	8.976	
supplementary information:					

2.1.1.5 c) 2)	TABLE: stored energy			N/A
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.	
T1 pin6 to pin7		48.0	--	--
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)		
--		--		

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

supplementary information:

2.4.2	TABLE: limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq. (Hz)	Limit (mA)	Comments	
CY1 Secondary pin to secondary	0.3	0.15	60	0.7	CY1=1000pF	
Note: Test Voltage: 264V, 60Hz						

2.5	TABLE: Limited power sources					P
Circuit output tested: see below						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (single fault)	Uoc (V)	I _{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
+9V output	Normal	8.63	1.02	8	8.98	100
+9V output	R5 S-C	8.45	1.05	8	4.99	100
+9V output	U1 pin6-12 S-C	0	0	8	0	100
+9V output	U1 pin6-1 S-C	0	0	8	0	100
+9V output	U1 pin1-12 S-C	0	0	8	0	100
RJ45 all pin	Normal	0	0	8	0	100
supplementary information:						
S-C = short circuit, O-C = open circuit						

2.6.3.3	TABLE: ground continue test			N/A
Location	Resistant measured (mΩ)	Comments		
--	--	--		

2.10.2	Table: working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Comments	
T1 Pin2 to Pin6	220	388	Max. V _{peak}	
T1 Pin2 to Pin7	221	352	Max. RMS	
T1 Pin4 to Pin6	220	350	--	
T1 Pin4 to Pin7	220	350	--	

IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
T1 Pin5 to Pin6	219	352	--
T1 Pin5 to Pin7	220	388	--
CY1 Primary to Secondary	220	352	--
Supplementary information:			

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)
Line to Neutral	420	250	1.5	11.3	2.5	11.3
PCB trace between two pins of RF1	420	250	1.5	15.3	2.5	15.3
Primary components (Plug Holder Pin) to accessible enclosure	420	250	4.0	6.1	5.0	6.1
Primary trace to secondary trace of PCB under CY1	420	250	4.0	7.4	5.0	7.4
Primary components to main board	420	250	4.0	<10	5.0	<10
Primary trace to secondary trace of PCB under T1	388	221	4.2	8.0	5.0	8.0
CY1 secondary pin to T1 core	388	221	4.2	5.1	5.0	5.1
Supplementary information:						
1. The transformer core is considered as primary circuit.						
2. The transformer construction refer to appended table C.2.						
3. Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.						

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)
Plastic Enclosure		420	250	3000	0.4	1)
Inner Plastic		420	250	3000	0.4	1)
Supplementary information: 1) Refer to table 1.5.1 for details.						

4.3.8	TABLE: Batteries		N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available			--

IEC60950-1									
Clause	Requirement + Test				Result - Remark				Verdict
Is it possible to install the battery in a reverse polarity position?									--
	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					--				--
- Explosion of the battery					--				--
- Emission of flame or expulsion of molten metal					--				--
- Electric strength tests of equipment after completion of tests					--				--
Supplementary information: Fault condition: P- to B- short.									

4.3.8	TABLE: Batteries	N/A
Battery category: (Lithium, NiMh, NiCad, Lithium Ion ...)		
Manufacturer		
Type / model.....		
Voltage.....		
Capacity.....		
Tested and Certified by (incl. Ref. No.)		
Circuit protection diagram:		

4.5	TABLE: Thermal requirements					P
	Supply voltage (V)	A: 90 V/60 HzVertical B: 90 V/60 HzHorizontal C: 264 V/60 HzVertical D: 264 V/60 HzHorizontal				—
	Ambient Tmin (°C)	See below	Shift to 40°C	See below	Shift to 40°C	—
	Ambient Tmax (°C)	--	--	--	--	—

IEC60950-1						
Clause	Requirement + Test		Result - Remark		Verdict	
Maximum measured temperature T of part/at::		T (°C)			Allowed Tmax (°C)	
--		A		B	--	
01.T1 core(Power board)		66.1	82.0	67.6	83.4	110
02.T1 coil(Power board)		66.5	82.4	68.1	83.9	110
03.Plug holder(Power board)		38.2	54.1	36.2	52.0	105
04.Mylar sheet(Power board)		53.7	69.6	54.4	70.2	85
05.EC1 body(Power board)		60.1	76.0	59.9	75.7	85
06.LF1 body(Power board)		61.6	77.5	60.2	76.0	105
07.EC2 body(Power board)		62.4	78.3	62.9	78.7	85
08.CY1 body(Power board)		60.8	76.7	62.0	77.8	85
09.EC4 body(Power board)		61.5	77.4	63.3	79.1	85
10.PWB near D2(Power board)		51.9	67.8	55.3	71.1	105
11.PWB near BD1(Power board)		58.0	73.9	57.9	73.7	105
12.PWB near U1(Power board)		59.2	75.1	59.7	75.5	105
13.PWB near cooling fin (Main board)		70.4	86.3	70.7	86.5	105
14. Inner plastic near PSU		70.3	86.2	71.3	87.1	--
15.Plastic enclosure inside near PSU		50.7	66.6	49.8	65.6	--
16.Plastic enclosure outside near PSU		53.3	69.2	52.8	68.6	95
17.Internal wire		62.6	78.5	62.5	78.3	80
18.Ambient		24.1	40.0	24.2	40.0	--
		C		D		
01.T1 core(Power board)		67.8	83.9	69.7	83.8	110
02.T1 coil(Power board)		68.8	84.9	70.8	84.9	110
03.Plug holder(Power board)		34.8	50.9	37.9	52.0	105
04.Mylar sheet(Power board)		55.5	71.6	58.2	72.3	85
05.EC1 body(Power board)		59.0	75.1	59.0	73.1	85
06.LF1 body(Power board)		58.1	74.2	57.1	71.2	105
07.EC2 body(Power board)		63.9	80.0	64.9	79.0	85
08.CY1 body(Power board)		60.9	77.0	62.4	76.5	85
09.EC4 body(Power board)		61.2	77.3	63.3	77.4	85
10.PWB near D2(Power board)		52.0	68.1	57.0	71.1	105
11.PWB near BD1(Power board)		57.2	73.3	57.4	71.5	105

IEC60950-1								
Clause	Requirement + Test				Result - Remark			Verdict
12.PWB near U1(Power board)				62.1	78.2	64.0	78.1	105
13.PWB near cooling fin (Main board)				67.4	83.5	67.8	81.9	105
14. Inner plastic near PSU				68.4	84.5	69.9	84.0	--
15.Plastic enclosure inside near PSU				50.9	67.0	49.8	63.9	--
16.Plastic enclosure outside near PSU				53.4	69.5	55.1	69.2	95
17.Internal wire				62.8	78.9	63.8	77.9	80
18.Ambient				23.9	40.0	25.9	40.0	--
Temperature T of winding:		t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
--		--	--	--	--	--	--	--
Supplementary information:								
1. The temperatures were measured under the worst case of normal mode defined in sub-clause 1.2.2.1 and as described in sub-clause 1.6.2 at voltages as described above.								
2. With a specified ambient temperature of + 40 °C. Therefore the maximum temperatures measured are recalculated as follows: $T + (40 - T_{amb})$, where T is the maximum temperature measured during test and Tamb is the ambient temperature during the test.								
3. The maximum temperatures are calculated as follows:								
<u>Winding components (with safety isolation):</u>								
- Class $BT_{max} = 120\text{ °C} - 10\text{ °C} = 110\text{ °C}$								

4.5.5	TABLE: Ball pressure test of thermoplastic parts			P
	Allowed impression diameter (mm)	≤ 2 mm		—
Part		Test temperature (°C)	Impression diameter (mm)	
Plug holder material:SABIC INNOVATIVE PLASTICS B V / 940(f1)		125	1.1	
Supplementary information:				

4.6.1, 4.6.2	TABLE: Enclosure openings		P
Location	Size (mm)	Comments	
Bottom/Left/Right/RightSide	ϕ 1.25 max.	1)	
Front Sides	--	No opening	
Rear Sides	--	No opening	
supplementary information:			
1. The PSU complied with LPS.			

4.7	TABLE: Resistance to fire			N/A
-----	---------------------------	--	--	-----

IEC60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
--	--	--	--	--	--
Supplementary information:					

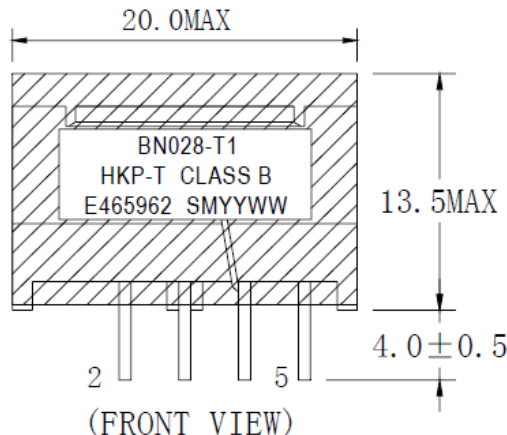
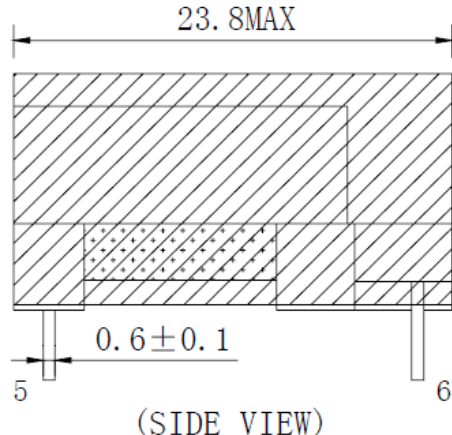
5.1	TABLE: touch current measurement			P
Measured between:		Measured (mA)	Limit (mA)	Comments/conditions
Primary and Secondary (Normal/Reverse)		0.011/0.011	0.25	Terminal A to enclosure - with switch “e” CLOSE
supplementary information:				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests				P
Test voltage applied between:			Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Unit: Line & neutral and Enclosure (plastic) for unit			DC	4242	No
Transformer T1: primary and secondary (for all sources)			AC	3000	No
Transformer T1: core and secondary (for all sources)			AC	3000	No
One layer insulation type of T1 (for all source)			AC	3000	No
Supplementary information:					

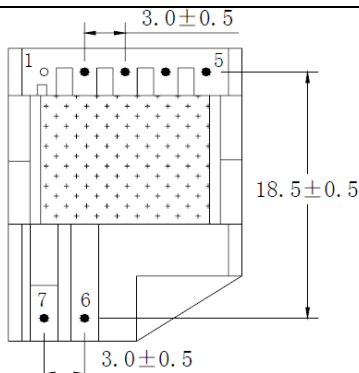
5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)			See below		—
	Power source for EUT: Manufacturer, model/type, output rating			--		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
01. T1 Pin6 to Pin7(After D2)	o-l	240	10 hours	RF1	0.040A to 0.045A to 0.048A to 0.046A	Unit T1 pin6 to pin7 (After D2) when overload to 0.67A shutdown. T1 coil=91.0°C, T1 core=87.4°C, Ambient=27.4°C. No damaged, no hazards, NB,NC,NT
02. Openings	Blocked	240	7.5hours	RF1	0.04	Unit operated normally. T1 coil=74.0°C, T1 core=73.0°C, Ambient=26.6°C. No damaged, no hazards, NB,NC,NT

IEC60950-1						
Clause	Requirement + Test					Result - Remark
Verdict						
03. +9V output	s-c	240	10min	RF1	0.01	Unit shutdown immediately. No damaged, no hazards. NB, NC, NT.
04. D2	s-c	240	10min	RF1	0.01	Unit shutdown immediately. No damaged, no hazards. NB, NC, NT.
05. T1 Pin6 to Pin7	s-c	240	10min	RF1	0.01	Unit shutdown immediately. No damaged, no hazards. NB, NC, NT.
06. T1 Pin3 to Pin4	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
07. T1 Pin2 to Pin5	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
08. U1 Pin6 to Pin12	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
09. U1 Pin6 to Pin4	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
10. U1 Pin6 to Pin1	s-c	240	10min	RF1	0.01	Unit shutdown immediately. No damaged, no hazards. NB, NC, NT.
11. EC1	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
12. BD1 Pin2 to Pin3	s-c	240	1s	RF1	0	Fuse (RF1) open immediately. No damaged, no hazards. NB, NC, NT.
<p>Supplementary information:</p> <p>1). In fault column, where s-c = short-circuited, o-c = open-circuited, o-l=overloaded.</p> <p>2).The following Electric Strength (ES) potentials were applied after fault condition were indicated for one minute, the test voltage see table 5.2 for detail</p> <p>Results Key:</p> <p>NB = No indication of dielectric breakdown</p> <p>NC = Cheesecloth remained intact</p> <p>NT = Tissue paper remained intact</p> <p>B = Circuit measures 0 Volts</p> <p>C = Other. Please explain.</p>						

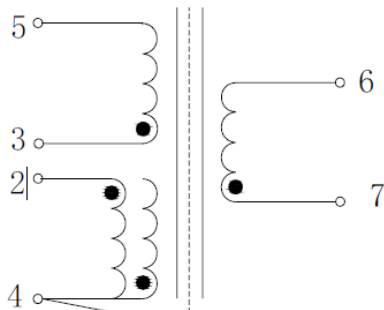
IEC60950-1							
Clause	Requirement + Test			Result - Remark			Verdict
C.2	TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
Primary winding to secondary winding	RI	388	221	3000 Vac	4.2	5.0	0.4
Core to secondary winding	RI	388	221	3000 Vac	4.2	5.0	0.4
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measure d distance thr. insul. / mm; number of layers
Primary winding to secondary winding	RI	--	--	3000 Vac	6.0	6.0	TRW wire used
Core to secondary winding	RI	--	--	3000 Vac	5.5	5.5	TRW wire used
supplementary information:							
Transformer description:							

C.2	TABLE: transformers		P
BN028-T1 (DONGGUAN SUN HUNG KIN ELECTRICAL CO LTD(HUNG KAY INDUSTRIAL CO LTD))			
 <p>(FRONT VIEW)</p>		 <p>(SIDE VIEW)</p>	

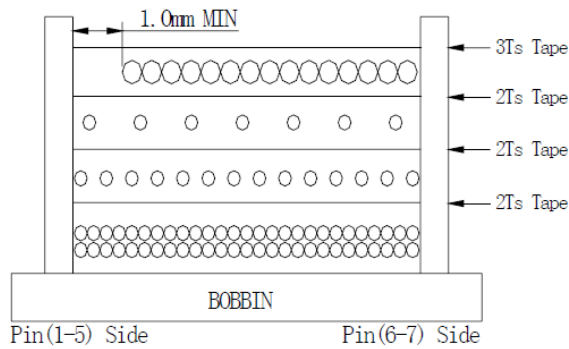
IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict



(BOTTOM VIEW)

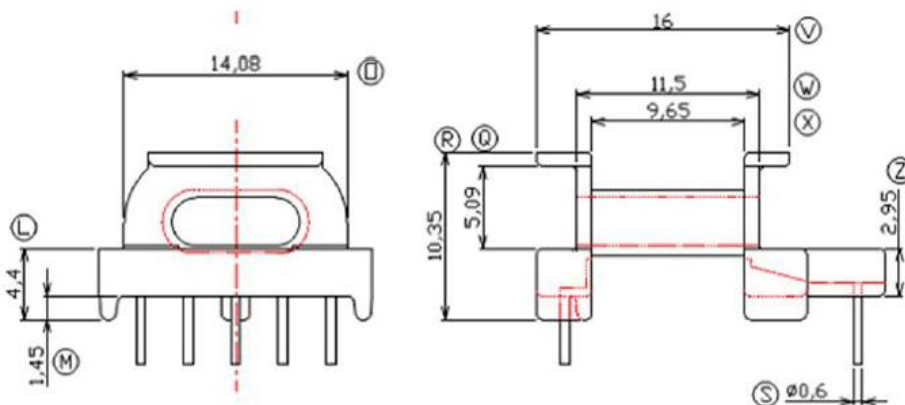


"●" 为同名端.



Winding	Terminal	Wire size	Turns	Winding way	Margin Tape		Tube		TAPE
					P1-5	P6-7	S	F	
N1	3 - 5	\varnothing 0.20mm×1P 2UEW	78Ts	密绕两层	/	/	/	/	9.8mm / 2Ts
N2	4 - NC	\varnothing 0.20mm×2P 2UEW	14Ts	均匀散绕	/	/	/	/	9.8mm / 2Ts
N3	2 - 4	\varnothing 0.20mm×1P 2UEW	10Ts	均匀散绕	/	/	/	/	9.8mm / 2Ts
N4	7 - 6	\varnothing 0.55mm×1P TEX-E	10Ts	靠次级密绕	/	/	✓	✓	9.8mm / 3Ts

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IEC60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

绕组 NO.	起始 Start	结束 Finish	线型/规格 Wire Size	圈数 Turns (TS)	套管 Tube		挡墙 Margin		胶带 Tape	备注 REMARK
					S	F	P (1-5) Side	P (6-10) Side		
N1	3	5	2UEW Ø0.2mm*1P	78TS	/	/	/	/	2TS	密绕
N2	4	NC	2UEW Ø0.2mm*2P	14TS	/	/	/	/	2TS	均匀散绕
N3	2	4	2UEW Ø0.2mm*1P	10TS	/	/	/	/	2TS	均匀散绕
N4	7	6	DTM-B Ø0.6mm*1P	10TS	/	/	/	/	3TS	密绕

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<p align="center">ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – PART 1: GENERAL REQUIREMENTS</p>			
Differences according to : EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013			
Attachment Form No. : EU_GD_IEC60950_1F			
Attachment Originator : SGS Fimko Ltd			
Master Attachment : Dated 2014-02			
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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

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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 3The 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
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.	Not a portable sound system.	N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010	Delete.	N/A
1.5.1 (Added info*)	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. New Directive 2011/65/11 *	Added.	P
1.7.2.1 (A1:2010)	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.	Not a portable sound system.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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>	Delete.	N/A
	Zx Protection against excessive sound pressure from personal music players		N/A
	<p>Zx.1 General</p> <p>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:</p> <ul style="list-style-type: none"> – 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. <p>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:</p> <ul style="list-style-type: none"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <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:</p> <ul style="list-style-type: none"> – hearing aid equipment and professional equipment; <p>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.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– 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.</p> <p>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>		
	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> – equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,TIS} \leq 85$ 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>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,TIS}$ meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ol style="list-style-type: none"> protect the user from unintentional acoustic outputs exceeding those mentioned above; and 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/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<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.</p> <p>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> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <ol style="list-style-type: none"> 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 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>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>		

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<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:</p> <ul style="list-style-type: none"> – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div data-bbox="486 801 750 1064" data-label="Image">  </div> <p>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/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<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/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<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/A
	<p>Zx.4.3 Wireless listening devices In wireless mode:</p> <ul style="list-style-type: none"> – 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>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<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/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;	Replaced.	N/A
	c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N/A
2.7.2	This subclause has been declared 'void'.	Declared.	N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Delete.	N/A
3.2.5.1	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 0,75 ^{a)} Over 6 up to and including 10 (0,75) ^{b)} 1,0 Over 10 up to and including 16 (1,0) ^{c)} 1,5 In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)} . In NOTE 1, applicable to Table 3B, delete the second sentence.	Replaced.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		
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	Delete.	N/A
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).	Replaced.	N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
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/A
Bibliography	Additional EN standards.	Added.	—

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.	No power supply cord provided.	N/A
1.2.13.14 (A11:2009)	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	The equipment is not connected to the cable distribution systems.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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.	No such resistors.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Considered.	P
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	No TNV circuit within the equipment.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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. The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordat stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	Shall be evaluated during the national approval.	N/A
1.7.2.1 (A11:2009)	<p>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.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>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:</p> <p>"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)."</p>		

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<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>“Utstyrsomerkoplettilbeskyttelsesjord via nettpluggog/eller via annetjordtilkoplet utstyr – ogertilkoplet et kabel-TV nett, kanforårsakebrannfare. For å unngådetteskaldetvedtilkoplingavutstyrettilkabel-TV nettetinstalleres en galvanisk isolator mellomutstyretogkabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustningsomärkopplad till skyddsjord via jordatvägguttagoch/eller via annan utrustningochsamtidigtärkopplad till kabel-TV nätkan i vissa fall medföra risk för brand. Förattundvikadettaskall vid anslutningavutrustningen till kabel-TV nät galvanisk isolator finnas mellanutrustningen ochkabel-TV nätet.”</p>		
1.7.2.1 (A2:2013)	<p>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.</p> <p>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.”</p>		N/A
1.7.5 1.7.5 (A11:2009)	<p>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.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No socket-outlets provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>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.</p> <p>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.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits within the equipment.	N/A
2.3.2	In Finland , Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits within the equipment.	N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits within the equipment.	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.	Considered. However, test was performed with 16 A for representative.	P
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
2.10.5.13	In Finland , Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits within the equipment.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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>	No power supply cord provided.	N/A
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>	No power supply cord provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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/A
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>	No power supply cord provided.	N/A
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>	No power supply cord provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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.	No power supply cord provided.	N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.	Shall be evaluated during the national approval.	N/A
3.2.5.1	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.	No power supply cord provided.	N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.	No power supply cord provided.	N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
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 <ul style="list-style-type: none"> 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. 	The equipment is not such equipment.	N/A
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. 	No TNV circuits within the equipment.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
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. 		
6.1.2.2	In Finland, Norway and Sweden , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV circuits within the equipment.	N/A
7.2	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	The equipment is not connected to the distribution systems.	N/A
7.3 (A11:2009)	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A

IEC60950_1F - ATTACHMENT			
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

PHOTOS

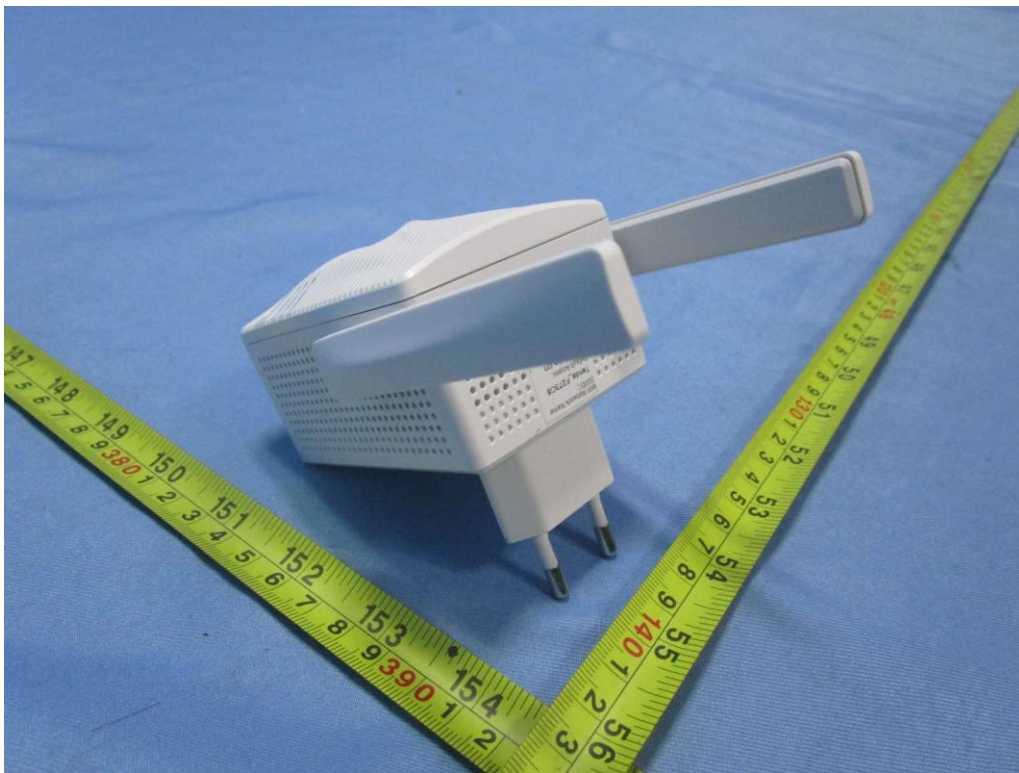


External view - 1

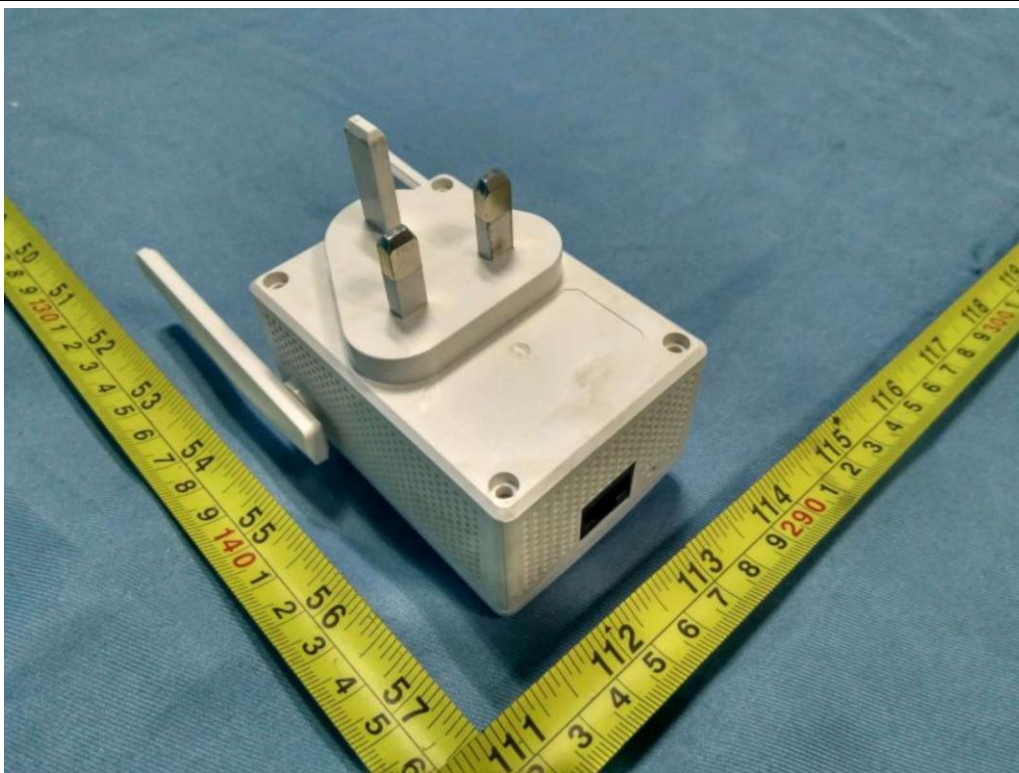


External view - 2 (with EU plug)

PHOTOS

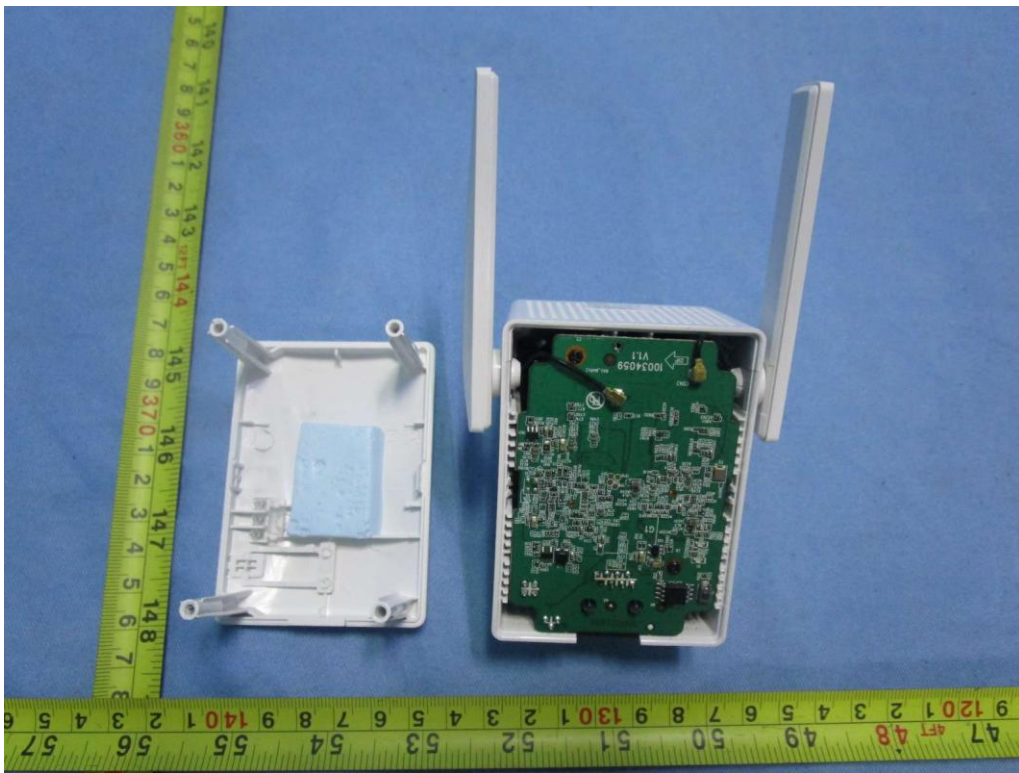


External view - 3 (with EU plug)

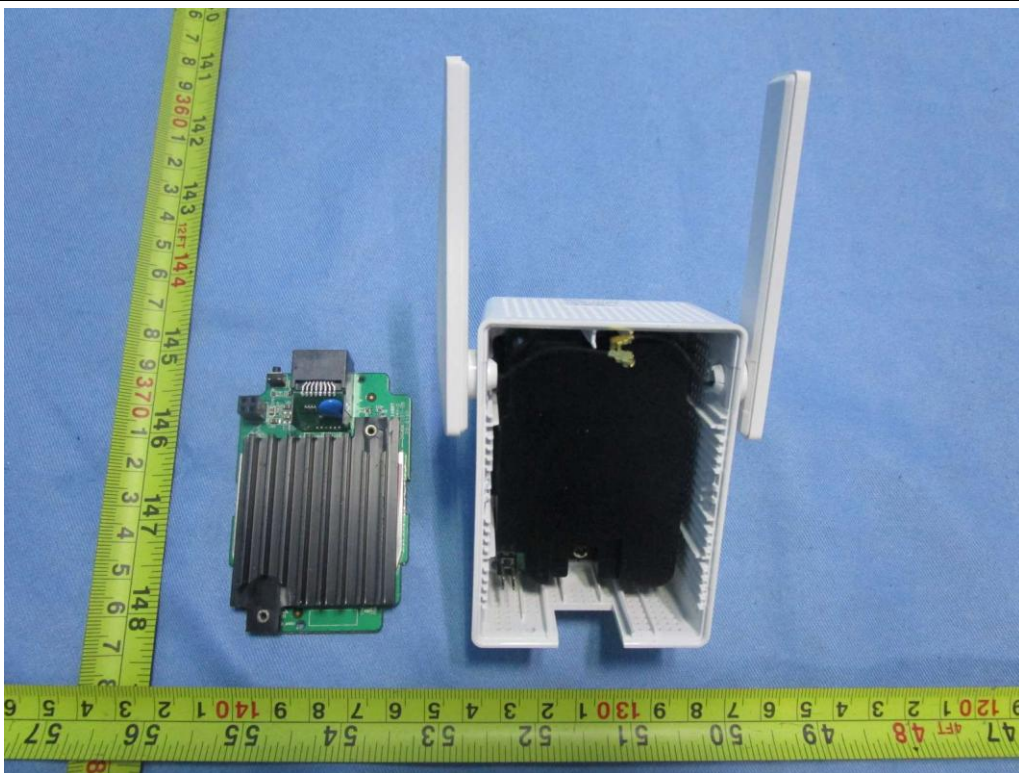


External view - 4 (with UK plug)

PHOTOS

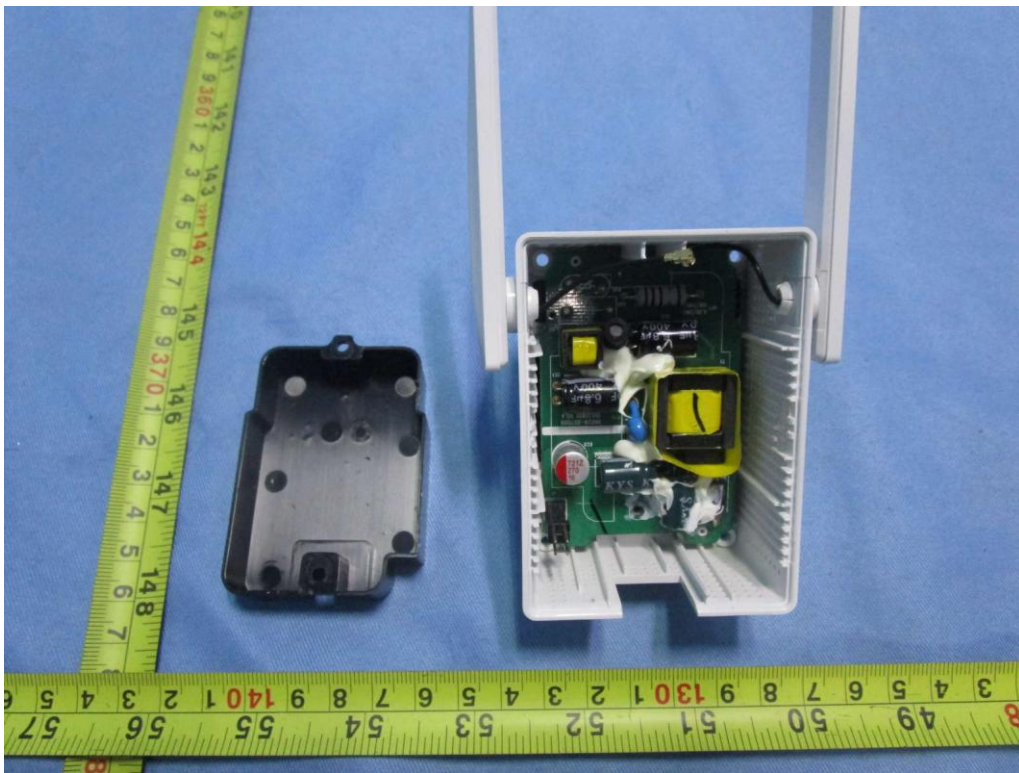


Internal view-1

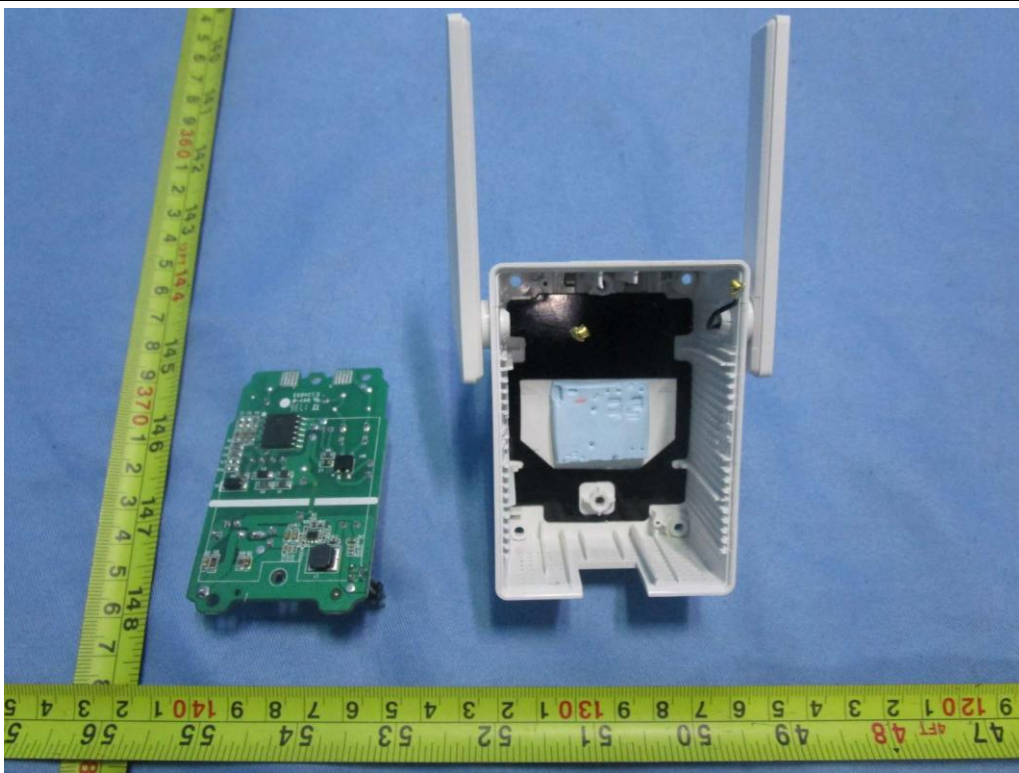


Internal view-2

PHOTOS

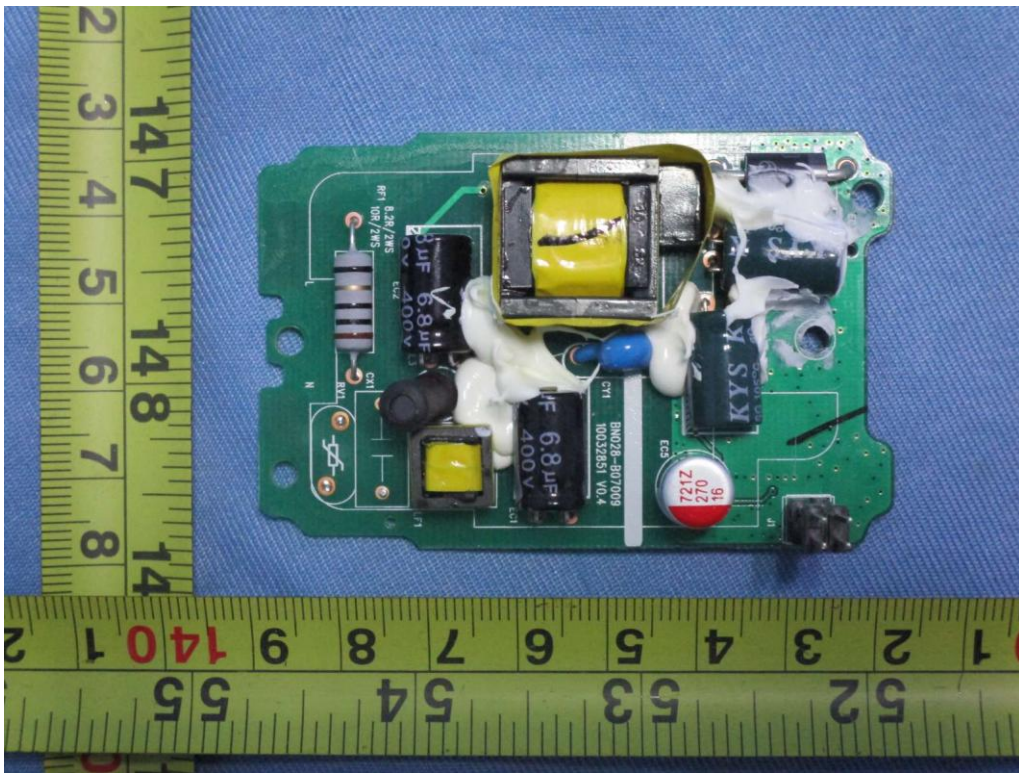


Internal view -3

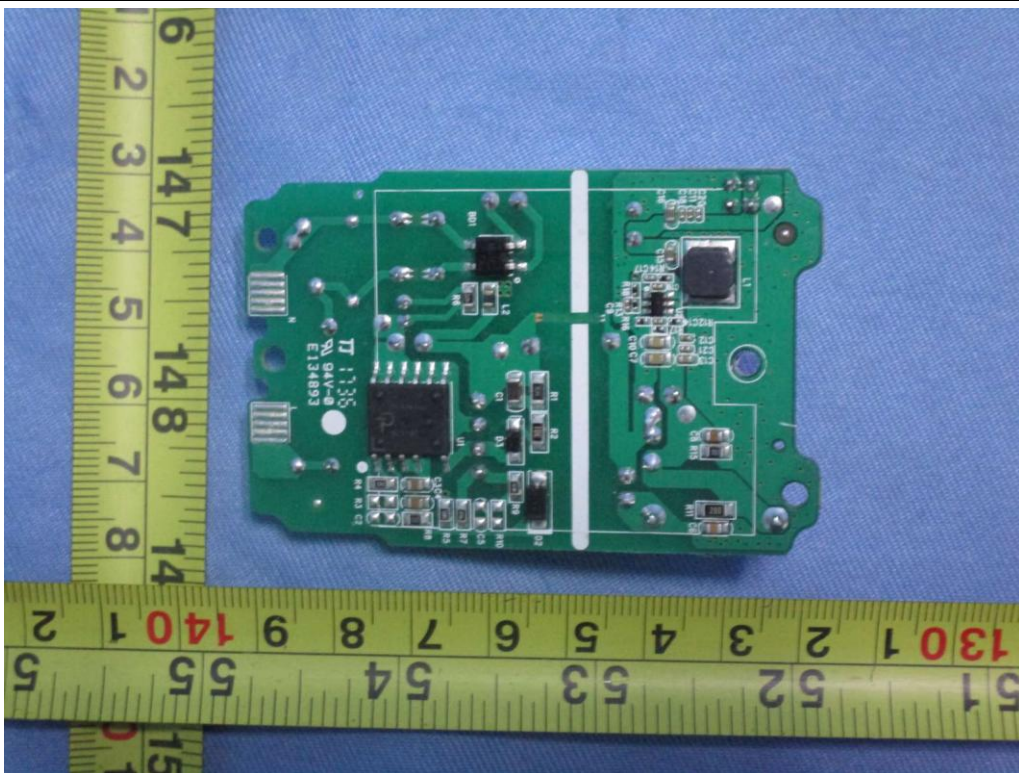


Internal view - 4

PHOTOS

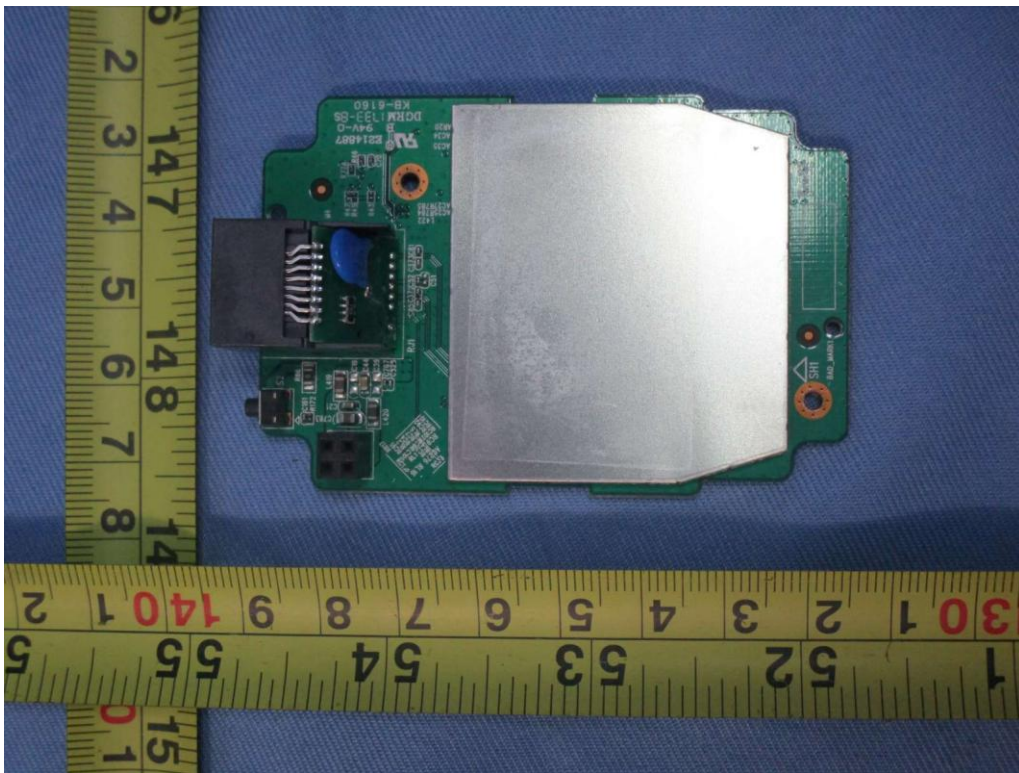


Component side of power board

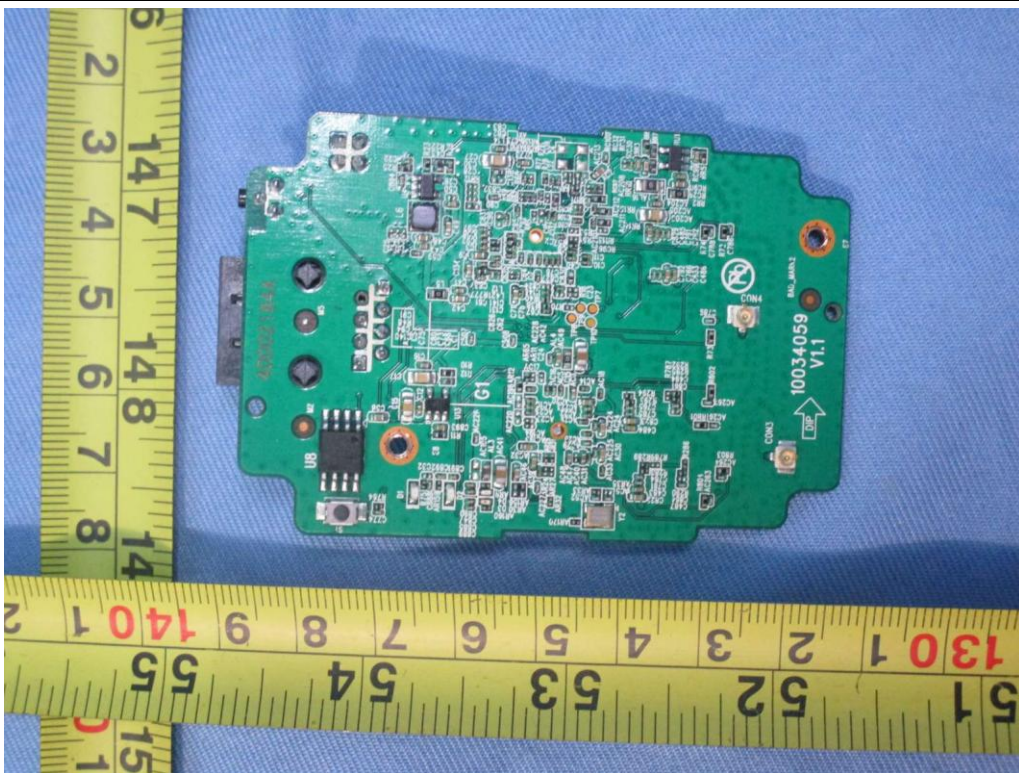


Solder side of power board

PHOTOS



Component side of Main board



Component side of Main board