




DONGGUAN KAIDENG ENERGY TECHNOLOGY CO., LTD.

CE LVD REPORT

Prepared For :	DONGGUAN KAIDENG ENERGY TECHNOLOGY CO., LTD. 4F, FuYuan Business Center, MaiYuan Rd., Xin'An Community, Chang'An Town, DongGuan City, GuangDong Province, China.
Product Name:	SOLAR MICRO INVERTER
Model :	WVC-1200, WVC-295, WVC-300, WVC-600, GTI300W, GTI500W, GTI600W, GTI1000W, GTI1200W
Prepared By :	Shenzhen BST Technology Co., Ltd. Building No.23-24,Zhiheng Industrial Park,Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Test Date:	Dec. 23, 2016- Jan. 04, 2017
Date of Report :	Jan. 04, 2017
Report No.:	BSTDG1701658600001SR-2



TEST REPORT	
EN60950-1	
Information technology equipment – Safety – Part 1: General requirements	
Testing Laboratory Name	Shenzhen BST Technology Co.,Ltd.
Address	Building No.23-24,Zhiheng Industrial Park,Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Testing location	Shenzhen BST Technology Co.,Ltd.
Applicant's Name	DONGGUAN KAI DENG ENERGY TECHNOLOGY CO., LTD.
Address	4F, FuYuan Business Center, MaiYuan Rd., Xin'An Community, Chang'An Town, DongGuan City, GuangDong Province, China.
Manufacturer	DONGGUAN KAI DENG ENERGY TECHNOLOGY CO., LTD.
Address	4F, FuYuan Business Center, MaiYuan Rd., Xin'An Community, Chang'An Town, DongGuan City, GuangDong Province, China.
Standard	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Test Result	Compliance with
:	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Procedure deviation	N/A
Non-standard test method	N/A
Type of test object	: SOLAR MICRO INVERTER
Trademark	 KD, <i>KaiDeng</i>
Model/type reference	WVC-1200, WVC-295, WVC-300, WVC-600, GTI300W, GTI500W, GTI600W, GTI1000W, GTI1200W
Rating	Input:17-54VDC, 4x300W Output:80-260VAC
Test item particulars :	
Equipment mobility	: Movable equipment
Operation condition	: Continuous
Class of equipment	: Class I
Protection against ingress of water .	: IP20



Possible test case verdicts :

test case does not apply to the test object : N(.A.)

test object does meet the requirement : P(ass)

test object does not meet the requirement : F(ail)

Name and address of the testing laboratory : Shenzhen BST Technology Co.,Ltd.
Building No.23-24,Zhiheng Industrial Park,
Guankouer Road,Nantou,Nanshan District,
Shenzhen,Guangdong,China

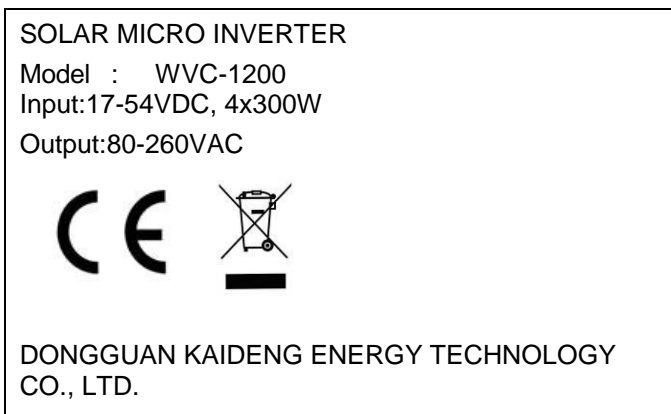
Test by : _____ Jan. 04, 2017
Signature Date
Technician
Title

Review by : _____ Jan. 04, 2017
Signature Date
Project Engineer
Title

Approved by : _____ Jan. 04, 2017
Signature Date
Andy Yan/ Manager
Name and Title



General remarks:	
"(see remark #)" refers to a remark appended to the report.	Attached with: A. photo documentation B. General product information: The series products have the same circuit diagram, PCB layout and functionality. The differences are the model name and appearance, so, we select WVC-1200 to test.
"(see appended table)" refers to a table appended to the report.	
Throughout this report a comma is used as the decimal separator.	
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 testing laboratory.	

Artwork of Marking Label:



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	(See appended table 1.5.1)	P
	Comply with EN 60950 or relevant component standard	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of EN 60950-1 and the relevant component standard.	P
1.5.2	Evaluation and testing of components	Components have been tested under the conditions occurring in the equipment, using applicable parts of EN 60950-1.	P
1.5.3	Thermal controls	No thermal controls device	N/A
1.5.4	Transformers	Transformers used are suitable for the intended application and comply with the relevant requirements of the standard and particularly with those of Annex C.	P
1.5.5	Interconnecting cables	No interconnecting cables.	N/A
1.5.6	Capacitors bridging insulation		P
1.5.7	Resistors bridging insulation		P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
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		N/A
1.6.2	Input current	See Annex table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	This appliance is not hand-held equipment.	N/A
1.6.4	Neutral conductor		N/A
1.7	Marking and instructions		P
1.7.1	Power rating	All relevant markings are provided on a label.	P
	Rated voltage(s) or voltage range(s) (V)	17-54V	—
	Symbol for nature of supply, for d.c. only	IEC 60417-1, symbol No. 5031, is used.	P
	Rated frequency or rated frequency range (Hz) .:	DC input	—
	Rated current (mA or A)	54.4A	—
	Manufacturer's name or trademark or identification mark	See copy of marking label	P
	Type/model or type reference	WVC-1200	P
	Symbol for Class II equipment only	Class I equipment	N/A
	Other symbols	The additional marking does not give rise to misunderstandings.	P
	Certification marks	See copy of marking plates for details.	P
1.7.2	Safety instructions	Safety instructions in English. Other languages will be provided when submitted for national approval.	P
1.7.2.1	General requirement	See the label	P
1.7.3	Short duty cycles	Continue working equipment	N/A
1.7.4	Supply voltage adjustment:	No voltage selector.	N/A
1.7.5	Power outlets on the equipment	No standard power outlet.	N/A
1.7.6	Fuse identification	Marked	P
1.7.7	Wiring terminals	Refer below:	—



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	Refer below:	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	There are no switches in the equipment.	N/A
1.7.8.4	Markings using figures	No controls.	N/A
1.7.9	Isolation of multiple power sources		N/A
1.7.10	IT power distribution systems		N/A
1.7.11	Thermostats and other regulating devices	No such components	N/A
1.7.12	Language	Rating marking in English. User's manual was provided in English language, version in other languages will be provided applied for other national certificates.	P
1.7.13	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s 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 or lifting of the label edge.	P
1.7.14	Removable parts	No removable parts.	N/A
1.7.15	Replaceable batteries	No batteries	N/A
	Language		N/A
1.7.16	Operator access with a tool.....	All areas containing hazards are inaccessible to the operator.	N/A
1.7.17	Equipment for restricted access locations	Equipment not intended for installation in RAL.	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	Refer below:	P



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
2.1.1.1	Access to energized parts	All accessible circuits are SELV circuits	P
	Test by inspection		P
	Test with test finger		P
	Test with test pin		P
	Test with test probe	No TNV circuits provided.	N/A
2.1.1.2	Battery compartments	No batteries	N/A
2.1.1.3	Access to ELV wiring	Not access ELV wiring.	N/A
	Working voltage (V); minimum distance (mm) through insulation		N/A
2.1.1.4	Access to hazardous voltage circuit wiring	No internal wiring at hazardous voltage circuit.	N/A
2.1.1.5	Energy hazards	Output energy<240VA	P
2.1.1.6	Manual controls	No shafts of knobs etc.	N/A
2.1.1.7	Discharge of capacitors in equipment		P
	Time-constant (s); measured voltage (V).....		—
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations	Equipment not intended for installation in RAL.	N/A
2.2	SELV circuits		P
2.2.1	General requirements	Class I equipment.	P
2.2.2	Voltages under normal conditions (V)		P
2.2.3	Voltages under fault conditions (V):		P
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits.	P
2.3	TNV circuits		N/A
2.3.1	Limits	Refer below.	N/A
	Type of TNV circuits	No TNV circuits in the equipment.	N/A
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



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....:		N/A
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....:		N/A
2.3.5	Test for operating voltages generated externally		N/A
2.4	Limited current circuits		N/A
2.4.1	General requirements	See below.	N/A
2.4.2	Limit values	(see appended table 2.4.2)	N/A
	Frequency (Hz)	(see appended table 2.4.2)	--
	Measured current (mA)		--
	Measured voltage (V)		--
	Measured capacitance (μF)		--
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	Limited power sources		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Overcurrent protective device limited output		N/A
	d) Regulating network limited output under normal operating and single fault condition		N/A
	e) Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	See appended table 2.5	N/A
	Current rating of overcurrent protective device (A)		N/A
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing		P
2.6.2	Functional earthing		P
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors		P



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	Rated current (A), cross-sectional area (mm ²), AWG.....:		P
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG.....:		N/A
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A).....:		N/A
2.6.3.5	Colour of insulation.....:		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm).....:		N/A
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		P
2.6.5.3	Disconnection of protective earth		P
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	The equipment relies on fuse or circuit breaker of the wall outlet protection of the building installation in regard to L to N short-circuits. A build-in fusible resistor provided as overcurrent protection device (see 5.3).	P
	Instructions when protection relies on building installation		N/A



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Cl.	Requirement – Test	Result	Verdict
2.7.2	Faults not covered in 5.3		N/A
2.7.3	Short-circuit backup protection		P
2.7.4	Number and location of protective devices	Overcurrent protection by one built-in fuse.	N/A
2.7.5	Protection by several devices	Protection by one fuse only.	P
2.7.6	Warning to service personnel.....:		N/A
2.8	Safety interlocks		N/A
2.8.1	General principles	2.8.1 – 2.8.8 No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material not used.	P
2.9.2	Humidity conditioning	48Hours	P
	Humidity (%)	94%RH	P
	Temperature (°C)	30°C	P
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency	The frequency does not exceed 30kHz.	P



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
2.10.1.2	Pollution degrees	2	P
2.10.1.3	Reduced values for functional insulation	Considered	P
2.10.1.4	Intervening unconnected conductive parts	Considered	P
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances	See below and advantage of annex G is not considered.	P
2.10.3.1	General	Considered.	N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply	2500Vpk	N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies.....		N/A
	d) Battery operation.....		N/A
2.10.3.3	Clearances in primary circuit	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply	1500 Vpk assumed.	P
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply.....		N/A
	For a d.c. mains supply.....		N/A
	b) Transients from a telecommunication network		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	CTI tests	Material group IIIb is assumed to be used.	--
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Minimum distance through insulation		N/A
2.10.5.3	Thin sheet material – General		N/A
2.10.5.4	Separable thin sheet material	Used in transformer	N/A
	Number of layers (pcs)..... :	2 layers for reinforced insulation.	N/A
2.10.5.5	Non-separable thin sheet material		N/A
2.10.5.6	Thin sheet material – standard test procedure		N/A
	Electric strength test		N/A
2.10.5.7	Thin sheet material – alternative test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	N/A
2.10.5.8	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material		N/A
	Number of layers (pcs)..... :	Two layers	N/A
2.10.5.9	Insulation in wound components		N/A
2.10.5.10	Wire in Wound components		N/A
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°	By tube.	N/A
2.10.5.11	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		--
2.10.6	Coated printed boards		N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C)		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		—
2.10.7	Enclosed and sealed parts..... :		N/A
	Temperature $T_1=T_2 = T_{ma} - T_{amb} + 10K (^{\circ}C)$:		N/A
2.10.8	Spacings filled by insulating compound		N/A
	Electric strength test		—
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		P
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure	No such screw.	N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws	No such screw.	N/A
3.1.9	Termination of conductors	No applicable.	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	No sleeving.	N/A
3.2	Connection to an a.c. mains supply or a d.c. mains supply		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	Yes	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 (mm) of cable and conduits		N/A
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type..... :		--



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	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		P
3.2.8	Cord guards		N/A
	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	3.3.1 – 3.3.8	N/A
3.3.2	Connection of non-detachable power supply cords	--	N/A
3.3.3	Screw terminals	--	N/A
3.3.4	Conductor sizes to be connected	--	N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)	-	—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	3.4.1 – 3.4.11	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A
3.5	Interconnection of equipment		P
3.5.1	General requirements	See below.	P
3.5.2	Types of interconnection circuits:		N/A
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	N/A
3.5.4	Data ports for additional equipment	No data ports.	N/A
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°		N/A
	Test: force (N) :		N/A
4.2	Mechanical strength		P
4.2.1	General	.	P
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		P
	Fall test		P
	Swing test		P
4.2.6	Drop test		N/A
4.2.7	Stress relief test		P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified :		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :		N/A
4.3	Design and construction		P
4.3.1	Edges and corners	Smooth	P
4.3.2	Handles and manual controls; force (N) :	No knobs, grips, handles, lever etc.	N/A
4.3.3	Adjustable controls	No hazardous adjustable controls.	N/A
4.3.4	Securing of parts		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Dimensions (mm) of mains plug for direct plug-in :	--	N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)..... :	--	N/A
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	Insulation is not exposed to oil and grease etc.	N/A
4.3.10	Dust, powders, liquids and gases	The equipment does not contain flammable liquids or gases.	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	N/A
4.3.12	Flammable liquids :	The equipment does not contain flammable liquid.	N/A
	Quantity of liquid (l) :		N/A
	Flash point (°C) :		N/A
4.3.13	Radiation; type of radiation :	See below.	N/A
4.3.13.1	General	No ionizing radiation or laser or flammable liquids presents.	N/A
4.3.13.2	Ionizing radiation	No 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	No UV radiation.	N/A
	Part, property, retention after test, flammability classification :		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation :	No UV radiation.	N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class :		N/A



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Cl.	Requirement – Test	Result	Verdict
4.3.13.6	Other types :	Not used.	N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No moving parts.	N/A
4.4.2	Protection in operator access areas	No moving parts.	N/A
4.4.3	Protection in restricted access locations	Not intended for installation in RAL.	N/A
4.4.4	Protection in service access areas	Unintentional contact is not likely in service access areas.	N/A
4.5	Thermal requirements		P
4.5.1	Maximum temperatures	See appended table 4.5.1.	P
	Normal load condition per Annex L :	Rated load with continuous operation.	P
4.5.2	Temperature limits for materials	See table 4.5.2	P
4.5.3	Touch temperature limits		P
4.5.4	Resistance to abnormal heat	No thermoplastic parts carrying hazardous voltages.	P
4.5.5	Abnormal Thermal Test		N/A
4.6	Openings in enclosures		P
4.6.1	Top and side openings		N/A
	Dimensions (mm) :		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom :		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		N/A
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	Refer below:	—



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Cl.	Requirement – Test	Result	Verdict
	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	Not applied for.	N/A
4.7.2	Conditions for a fire enclosure	Refer below:	P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		P
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		P
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General		P
5.1.2	Equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA)		—
5.1.7	Equipment with touch current exceeding 3.5 mA		N/A
5.1.7.1	General		N/A



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Cl.	Requirement – Test	Result	Verdict
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	Not connected to telecommunication networks.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system	No TNV.	N/A
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks.....	Not connected to a telecommunication network.	—
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		P
5.2.1	General		P
5.2.2	Test procedure	(see appended table 5.2)	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	see appended table 5.3	P
5.3.2	Motors	No motors.	N/A
5.3.3	Transformers		P
5.3.4	Functional insulation.....	Complies with c), materials mounted on V-1 or better.	P
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	N/A
5.3.6	Audio amplifiers in ITE		N/A
5.3.7	Simulation of faults	see appended table 5.3	P
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P



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Cl.	Requirement – Test	Result	Verdict
5.3.9.2	After the tests	No reduction of clearance and creepage distances. Electric strength test is made on double / reinforced insulation.	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS <i>No TNV.</i>		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Test voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	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		—
	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		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.....	All materials have suitable flame class, not testing required	—
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame		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 60695-2-2, cl. 4, 8		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



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Cl.	Requirement – Test	Result	Verdict
A.3.3	Compliance criterion		N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
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	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h).....:		N/A
B.7.3	Electric strength test		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	TR1	—
	Manufacturer	See transformer specification for details.	—
	Type	See transformer specification for details.	—
	Rated values	See transformer specification for details.	—



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Cl.	Requirement – Test	Result	Verdict
	Method of protection.....:	Inherently	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation		P
	Protection from displacement of windings.....:	Bobbin and tapes	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		N/A
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		P
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		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 levels (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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Cl.	Requirement – Test	Result	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 used		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		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 4.5.1)		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		N/A
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	Ringling 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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Cl.	Requirement – Test	Result	Verdict
M.3.2.3	Monitoring voltage (V)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	EN 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		N/A
Q	ANNEX Q, BIBLIOGRAPHY		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)		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
			—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction		P
V.2	TN power distribution systems		—
V.3	TT power systems		—
V.4	IT power systems		—
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





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Cl.	Requirement – Test	Result	Verdict
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	See Annex C.1	N/A
X.2	Overload test procedure	Electronic protection mode is used.	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



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Cl.	Requirement – Test	Result	Verdict
CENELEC COMMON MODIFICATIONS [C], SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A] (EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013)			P
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	C: Delete all the "country" notes in the reference document according to the following list: 1.1.5 Note 2 1.5.8 Note 2 1.6.1 Note 1.7.2 Note 4 1.7.12 Note 2 2.6 Note 2.2.3 Note 2.2.4 Note 2.3.2 Note 2, 7, 8 2.3.3 Note 1, 2 2.3.4 Note 2,3 2.7.1 Note 2.10.3.1 Note 4 3.2.1.1 Note 3.2.3 Note 1, 2 3.2.5.1 Note 2 4.3.6 Note 1,2 4.7.2.2 Note 4.7.3.1 Note 2 6.1.2.1 Note 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7 Note 4 7.1 Note G2.1 Note 1, 2 Annex H Note 2	Considered.	P
1.2.4.1	S (DK): Certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.5.1	A (SE, Ordinance 1990:944) and (CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	There are no components containing mercury in the equipment.	P
1.7.2	S (FI, NO, SE): 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:		N/A



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Cl.	Requirement – Test	Result	Verdict
	FI: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	Ditto.	N/A
	NO: "Apparatet må tilkoples jordet stikkontakt"	Ditto.	N/A
	SE: "Apparaten skall anslutas till jordat uttag"	Ditto.	N/A
	<p>A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p>Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."</p>	Ditto.	N/A
1.7.5	S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.12	<p>A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2):</p> <p>Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language.</p> <p>NOTE: Of this requirement, rules for use even only by service personnel are not exempted.</p>	Must be considered before marketed in Germany.	—



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Cl.	Requirement – Test	Result	Verdict
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.	There is no battery containing Cd or Hg in the equipment.	N/A
	<p>A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4):</p> <p>a) A licence is required by those who operate an X-ray emission source.</p> <p>b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if</p> <p>1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated and</p> <p>ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if</p> <p>1) the X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated</p> <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if</p> <p>1) the X-rays are generated only by</p>	This national difference was deleted by A11 of EN 60950-1.	N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	intrinsically safe CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	Not applied for.	N/A
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	Not applied for.	N/A
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	Not applied for.	N/A
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	C: Replace the subclause as follows: <i>Basic requirements</i> To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.	Ditto.	N/A
2.7.2	C: Void.	Void.	N/A
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".	Replaced.	P
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault		N/A
3.2.1.1	<p>S (CH): 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 10A. 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, 16 A</p> <p>SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>	Ditto.	N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	<p>S (DK): 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>	Ditto.	N/A
	<p>S (ES): 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>	Ditto.	N/A
	<p>S (GB): 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 Socket 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>	Ditto.	N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	S (IE): 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.	Ditto.	N/A
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Deleted.	P
3.2.5.1	C: 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		



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	S (IE): 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
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.	No lasers or LED.	N/A
6.1.2.1	S (FI, NO, SE): Add the following text between the first and second paragraph: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTING TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by	No TNV-circuits provided.	N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		
6.1.2.2	S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and 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.	Ditto.	N/A
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No cable distribution system.	N/A
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.		N/A
Annex H	C: Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 μ Sv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete Note 2.	Replaced.	P
Annex P	C: Replace the text of this annex by: See annex ZA.	Replaced.	P



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
Annex Q	<p>C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification".</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified)</p> <p>IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified)</p> <p>IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified)</p> <p>IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified)</p> <p>IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified)</p> <p>ITU-T Recommendation K.31</p> <p>NOTE in Europe, the suggested document is EN 50083-1.</p>		P
Annex ZA	<p>C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS</p> <p>This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).</p> <p>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.</p>		P
	—	IEC 60050-151	
	—	IEC 60050-195	
	EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998	
	EN 60073:1996	IEC 60073:1996	
	HD 566 S1:1990	IEC 60085:1984	
	HD 214 S2:1980	IEC 60112:1979	
	HD 611.4.1.S1:1992	IEC 60216-4-1:1990	
	HD 21 ¹⁾ Series	IEC 60227 (mod) Series	
	HD 22 ²⁾ Series	IEC 60245 (mod) Series	
	EN 60309 Series	IEC 60309 Series	
	EN 60317-43:1997	IEC 60317-43:1997	
	EN 60320 Series	IEC 60320 (mod) Series	
	HD 384.3 S2:1995	IEC 60364-3 (mod):1993	
	HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 ³⁾	
	EN 132400:1994 ⁴⁾ + A2:1998 + A3:1998 + A4:2001	IEC 60384-14:1993	
	EN 60417-1	IEC 60417-1	
	HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992	
	EN 60695-2-2:1994	IEC 60695-2-2:1991	
	EN 60695-2-11:2001	IEC 60695-2-11:2000	



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	—	IEC 60695-2-20:1995	
	—	IEC 60695-10-2:1995	
	—	IEC 60695-11-3:2000	
	—	IEC 60695-11-4:2000	
	EN 60695-11-10:1999	IEC 60695-11-10:1999	
	EN 60695-11-20:1999	IEC 60695-11-20:1999	
	EN 60730-1:2000	IEC 60730-1:1999 (mod)	
	EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993	
	EN 60825-2:2000	IEC 60825-2:2000	
	—	IEC 60825-9:1999	
	EN 60851-3:1996	IEC 60851-3:1996	
	EN 60851-5:1996	IEC 60825-5:1996	
	EN 60851-6:1996	IEC 60851-6:1996	
	—	IEC 60885-1:1987	
	EN 60990:1999	IEC 60990:1999	
	—	IEC 61058-1:2000	
	EN 61965:2001	IEC 61965:2000	
	EN ISO 178:1996	ISO 178:1993	
	EN ISO 179 Series	ISO 179 Series	
	EN ISO 180:2000	ISO 180:1993	
	—	ISO 261:1998	
	—	ISO 262:1998	
	EN ISO 527 Series	ISO 527 Series	
	—	ISO 386:1984	
	EN ISO 4892 Series	ISO 4892 Series	
	—	ISO 7000:1989	
	EN ISO 8256:1996	ISO 8256:1990	
	—	ISO 9772:1994	
	EN ISO 9773:1998	ISO 9773:1998	
	—	ITU-T:1988 Recommendation K.17	
	—	ITU-T:2000 Recommendation K.21	



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
ZB	SPECIAL NATIONAL CONDITIONS		N/A
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	In Finland, Norway and Sweden , CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"		N/A
1.7.5	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A



EN 60950-1																											
Cl.	Requirement – Test	Result	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> <table> <tr> <td>SEV 6532-2.1991</td><td>Plug Type 15</td><td>3P+N+PE</td><td>250/400 V, 10 A</td></tr> <tr> <td>SEV 6533-2.1991</td><td>Plug Type 11</td><td>L+N</td><td>250 V, 10 A</td></tr> <tr> <td>SEV 6534-2.1991</td><td>Plug Type 12</td><td>L+N+PE</td><td>250 V, 10 A</td></tr> </table> <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> <table> <tr> <td>SEV 5932-2.1998</td><td>Plug Type 25</td><td>3L+N+PE</td><td>230/400 V, 16 A</td></tr> <tr> <td>SEV 5933-2.1998</td><td>Plug Type 21</td><td>L+N</td><td>250 V, 16 A</td></tr> <tr> <td>SEV 5934-2.1998</td><td>Plug Type 23</td><td>L+N+PE</td><td>250 V, 16 A</td></tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N/A
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																								
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A																								
SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A																								
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SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A																								
SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																								
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/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>		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>		N/A																								
3.2.1.1	<p>In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N/A																								
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A																								





EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
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.		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: <ul style="list-style-type: none">• 1,25 mm² to 1,5 mm² nominal cross-sectional area.		N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: <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.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
6.1.2.1	<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>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</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. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, 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 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		N/A
6.1.2.2	<p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3	<p>In Norway and Sweden, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.</p>		N/A
7.3	<p>In Norway, for installation conditions see EN 60728-11:2005.</p>		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
ZC	A-DEVIATIONS (informative)		P
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		N/A
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2.1	<p>Denmark (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p style="text-align: center;"> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:</p> <p>“For tilslutning af de øvrige ledere, se medfølgende installationsvejledning.”</p>		N/A
1.7.2.1	Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.		N/A
1.7.5	Denmark (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.13	Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.		N/A
5.1.7.1	Denmark (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
1	Plug portion		--
	CEE 7 Standard Sheet		N/A
	EN 50075		N/A
2	Dimensions		--
	Checking dimensions by measuring and by gauges according to Standard sheet		N/A
	The edges of the metal-pins, Chamfered or rounded off?	Rounded-off	N/A
3	Protection against electric shock		--
a	Test finger (75N, 1 min in 35°C) or Applicable appliance standard		N/A
b	Single pole insertion. Checked with gauge:Fig 4 or C19A or C19B (CEE 7)		N/A
c	Compression test 150 N, 5 min.		N/A
d	External parts made of insulating material		N/A
4	Construction		--
a	Test on pins which are not solid		N/A
b	Pins shall be locked against rotation 0.4 Nm 1 min.		N/A
c	Pins shall be adequately fixed in the body 1 min. Temperature 70°C 40 N for plugs ≤ 2.5 A 50 N for plugs > 2.5 A	40N	N/A
d	Pins of copper or copper alloy min 58% copper or equivalent	58% copper	N/A
e	Plug shall not impose undue strain on fixed socket-outlets, 0.25 Nm		N/A
f	Abrasion test on the insulating sleeves 20 000 movements		N/A
5	Resistance of insulating material to abnormal heat, to fire and to tracking		--
a	Compression test 1 h in 80°C		N/A
b	Glow-wire test 750°C		N/A
c	Resistance to tracking 175V (other than ordinary)		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
12.1	Dimensions (Checked according to figure 4)		N/A
12.2	Outline of plug shall not exceed the dimension shown in Figure 4a) for a distance of not less than 6.35mm from the engagement surface		N/A
	Pin disposition, length and body outline shall be checked by use of the gauge shown in Figure 5		N/A
12.3	L/N pin was more than 9.5mm from the periphery of the plug measured along the engagement surface		N/A
12.4	A fuse link complying with BS 1362:1973		N/A
12.5	For non-rewireable plugs, the fuse link is retained by means of a fuse carrier, this device shall be either: <ul style="list-style-type: none">- non-detachable during normal replacement of the fuse-link;- readily identifiable in relation to its plug by means of marking.		N/A
12.6	The base and cover of non-rewireable plugs shall be permanently attached to each other, such that the flexible cord cannot be separated without making the plug permanently useless.		N/A
12.7	After the test in clause 16. Use test probe 11 of BS 3042:1992 is applied a force 30N. During and after the test, it was not possible to touch the live parts.		N/A
12.8	Appliance was complied with clause 15.2.		N/A
12.9	Plug pins shall be constructed of brass.		N/A
	Plug pins and ISODs complied with 12.9.1.		N/A
	For non-solid plug shall comply with 12.9.2.		N/A
	All seams and joints of non-solid plug pins shall be closed over their entire length.		N/A
	For solid pins: Apply a force of 1100N at a rate not exceeding 10mm/min. After this test the plug was fit the gauge to fig.5.		N/A
	For ISODs: Apply a force of 400 + 10/0N at a rate 10+/- 2mm/min. Deflection not exceeds 1.5mm. After this test the plug was fit the gauge to fig.5.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
	Plug pins and ISODs shall have adequate mechanical strength to ensure that they cannot be distorted by twisting. Apply a torque $1\text{ Nm} \pm 10\%$ for 60s. After each pin has been separately twisted, the plug was fit the gauge in fig. 5. Repeated with opposite direction.		N/A
12.10	Terminals of earthing and neutral plug pin shall be formed as one piece with or shall be permanently connected to the pin in such a way that efficient electrical connection is made that cannot work loose in use. This connection shall not be made by means of a screw.		N/A
12.11	Plug shall be so designed that when fully assembled the pins are adequately retained in position such that there is no likelihood of them becoming detached from the plug during normal use.		N/A
	Each pin is subjected for 60s to a pull of 100N without jerks in the direction of the major axis. The plug is mounted using the steel plate shown in fig.7. The apparatus is placed within an oven and the pull is applied at least 1 h after the plug body has attained the test temperature of $70^{\circ}\text{C} \pm 5^{\circ}\text{C}$ while maintained at this temperature. After the test, the plug pin shall fit into the gauge and comply with 12.2.1.		N/A
12.12	The degree of flexibility of mounting of the plug pins or the angular movement of the pins in the base shall be not greater than $3^{\circ}30'$. See fig.8.		N/A
	Test procedure refers to standard. During each test, the declination from the horizontal measured on the scale was not exceed $3^{\circ}30'$ and comply with 12.2.1.		N/A
12.13	Suitable means shall be provided for withdrawing the plug without subjecting the flexible cord to stress.		N/A
12.14	Non-rewirable plugs shall be fitted with flexible cords in accordance with 19.4.		N/A
12.15	Conductive component parts of plugs shall be so located and separated that, in normal use, they cannot be displaced so as to affect adversely the safety or proper operation of the plug.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict
12.16	Live and neutral plug pins shall be fitted with insulating sleeves. See fig.4. Sleeves shall not be fitted to any earthing plug pin.		N/A
12.17	Plug pin sleeves shall have adequate electric strength, resistance to abrasion and resistance to deformation due to overheating of pins.		N/A
	During the test of sub-clause 12.17.2, no breakdown or flashover occurred.		N/A
	12.17.3 (abrasion test – 10 000 times in each direction), 20 000 movements at a rate of 25 movements to 30 movements per min. (fig.9). After the test, the sleeve shall show no damage and also shall not have been penetrated or creased.		N/A
	12.17.4 (pressure test at high temperature) (fig.10) Pin on the apparatus with a force of 2.5N on the specimen, then placed in a heating cabinet at 200°C for a period of 120 minutes. The thickness of the insulation remaining at the point of impression is measured and shall not have been reduced by more than 50%.		N/A



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict

1.5.1	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
Transformer	Various	Various	Class B	--	Test with appliance	
PCB	Various	Various	V-1 min., 130°C min.	--	UL	
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance 1) Breaking time of all fuses when load with a current equal to 210% of the specified current rating are <120s.						

2.1.1.5	TABLE: energy hazard test					N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (V) (max)	Current (A) (max.)	VA (VA)	(max.)	
--	--	--	--	--	--	

2.2.3	TABLE: SELV voltage measurement		N/A
Location		Voltage (V)	Comments
Between two SELV conductor		19VDC	Max. allowed 42.4Vac, 60VDC
SELV conductor and Earthing terminal		19VDC	Max. allowed 42.4Vac, 60VDC

2.5	TABLE: limited power source measurement			N/A
		Limits	Measured	Verdict
According to Table 2B (normal condition)				
current (in A)				N/A
apparent power (in VA)				N/A
According to Table 2B (Abnormal condition)				
current (in A)				N/A
apparent power (in VA)				N/A
Note(s):				



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict

2.6.3.3	TABLE : ground continue test		P
Location		Resistance measured (mΩ)	Allowed Max.(Ω)
grounded parts to Protective earthing terminal		50mΩ	0.1Ω
Class I equipment			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
clearance cl and creepage distance dcr at/of:	Up (V)	U _{r.m.s} (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
L to N	339	240	2.3	>2.5	2.5	>2.5
Note:						

2.10.5	TABLE: distance through insulation measurements					P
distance through insulation di at/of:	U peak (V)	U rms (V)	test volt- age (V)	requir ed DTI (mm)	DTI (mm)	
L&N to Enclosure	332	235	1500Vac	0.4	2.1	
Bobbin of transformer T1	331	234	3000Vac	0.4	0.8	
Note:						

4.5.1	TABLE: temperature rise measurements			P
rise T of part/at:	T (°C)	T (°C)	allowed T (°C)	
supply voltage (V)	48.6V	59.4V	--	
ambient Tmin (°C)	See below	See below	--	
ambient Tmax (°C)	See below	See below	--	
Maximum measured temperature T of part/at:	T (°C)	T (°C)	allowed T _{max} (°C)	
X capacitor	52.3	46.8	100	
Y capacitor	55.6	42.2	85	
T1 coil	83.6	77.7	110	
T1 core	84.3	72.5	110	
PCB near BD1	82.3	66.5	130	
Enclosure	37.7	35.2	90	
Note:				



EN 60950-1			
Cl.	Requirement – Test	Result	Verdict

4.5.2	TABLE: ball pressure test of thermoplastic parts		N/A
	allowed impression diameter (mm)	≤ 2 mm	—
Part	test temperature (°C)	impression diameter (mm)	
Enclosure	--	--	
--	--	--	

4.5.5	TABLE: thermoplastic material ball pressure		P
	Allowed impression diameter (mm)	≤ 2mm	
Part	Test temperature (°C)	Impression diameter (mm)	
PCB	650	0.83	

Note(s): Phenolic bobbin material used in T1, which is acceptable without test

4.6.1, 4.6.2	Table: enclosure openings		P
Location	Size (mm)	Comments	
Opening on the enclosure	2.3mm	Max. Allowed 5mm	
--	--	--	

Note(s): No openings

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
PCB	--	FR4	Min 1.6mm	V-1	Without flames

Note(s): other parts see table 1.5.1

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			P
test voltage applied between:		test voltage (V) a.c. / d.c.	breakdown Yes / No	
L/N to Output		1500V	No	
L/N to not grounding terminal		3000V	No	
L/N to enclosure		1500V	No	
supplementary information				
Note:				



EN 60950-1						
Cl.	Requirement – Test				Result	Verdict
5.3	TABLE: fault condition tests					P
	ambient temperature (°C)				25.0°C	—
	model/type of power supply				See the first page	—
	manufacturer of power supply				See the first page	—
	rated markings of power supply				See the first page	—
com-ponent No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
BD1, + to -	s-c	240	1s	F1	--	F1 opened, no hazards.
supplementary information						
1) s-c = short circuit; o-c = open circuit; o-l = overload.						



ANNEX A


IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Differences according to: IEC 60950-1:2013			
Clauses	Requirements + Test	Result-Remark	Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international Publications with their corresponding European Publications Annex ZB (normative) Special national conditions		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 2.6.3.3 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 documents (IEC 60850-1:2005/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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clauses	Requirements + Test	Result-Remark	Verdict
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.		N/A
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		N/A
1.7.2.1 (A1:2010)	In addition , for a portable sound system , the instructions shall include a warning that excessive sound pressure from earphone and headphone can cause hearing loss.		N/A
1.7.2.	In EN 60950-1:2006/A12:2011		N/A



1 (A12:2 011)	Delete Note Z1 and the addition for portable sound System. Add the following clause and annex to the existing Standard and amendments. ZX Protection against excessive sound pressure from personal music player		
	ZX.1 General A personal music player is portable equipment for personal use , that: -is designed to allow the user to listen to recorded or broadcast sound or video; and -primarily uses headphones or earphones that can be worn in or on or around while in use. A personal music player and earphone or headphones intended to be used with personal music player shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only.		N/A
	For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N/A
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: -equipment provided as a package (personal music player with its listening device),where the acoustic output LAeq,T is ≤ 85 dBA measured while playing the fixed programme simulate noise as described in En 50332-1; and -a personal music player provided with an analogue electrical output socket for listening device, where the electrical output is ≤ 27 mV measured as		N/A



IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Claus e	Requirements + Test	Result-Remark	Verdict
	<p>Described in EN 50332-1. All other equipment shall:</p> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>b) have a standard acoustic output level not exceeding those mentioned above, and</p> <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 acknowledged does not need to be repeated more than once every 20h of cumulative listening time.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p>		N/A
	<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> <p>... the symbol of Figure 1 with a minimum height of 5 mm; and</p> <p>... the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."</p> <p></p> <p>Figure 1 - Warning label (IEC 60417-6044)</p>	The warning was showed in user manual with words former.	N/A



IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirements + Test	Result-Remark	Verdict
	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.		
	Zx.4 Requirements for listening devices (headphones and earphones)	No earphone with the equipment.	N/A
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).		N/A
	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 LAeq,T of the listening device shall be ≤ 100 dBA.		N/A
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA.		NA
	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.	The test result is 56.8	N/A



ANNEX A:

Photo-documentation

Photo 1 General appearance of EUT



Photo 2 General appearance of EUT



Photo 3 General appearance of EUT



Photo 4 General appearance of EUT



Photo 5 General appearance of EUT



Photo 6 General appearance of EUT(Additional Model)

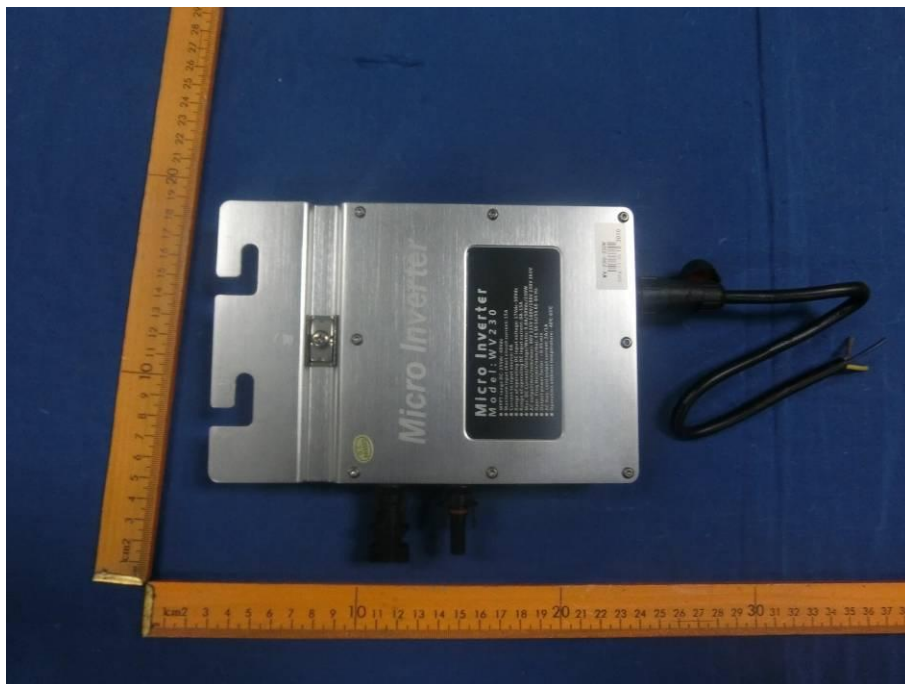


Photo 7 General appearance of EUT(Additional Model)



Photo 8 General appearance of EUT(Additional Model)

